

HOROTEC[®]
SWISS

L'outil Horloger...



2021

TOOLS CATALOG



75TH

1946 ANNIVERSARY 2021

00

Eyeglasses - Lamps



01

Screwdrivers and blades
Tools for shaping and sharpening blades



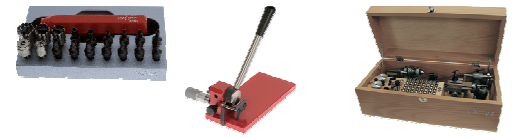
02

Pin vices - Cutting and smoothing broaches



03

Specialized watch making tools - Lathes
Riveting stakes - Drill machines



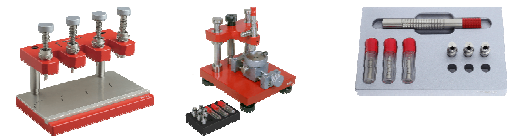
04

Hammers - Anvils - Saw frames
Saw blades - Taps/Draw plates



05

Hands fitting tools/presses
Hands removing presses
Hands removing tools



06/07

Universal presses and dies
Presses/Tools for screw/unscrew case backs
Tools for snap-on case backs - Other tools
Glass machine



08

Case holders - Vices



09

Movement holders - Case cushions



SUMMARY

10

Bracelet presses
Bracelet tools - Spring bars tools



11

Pliers



12

Tweezers



13

Jewelling presses - Riveting and milling presses -
Incabloc®/KIF®



14

Video inspection systems - Microscopes
Lighting - Camera



15

Measuring instruments



16

Arkansas stones - India stones - Degussit stones
Synthetic stones



17

Oilers - Oil cups - Packaging



18

Handles for files, gravers and hammers



19

Apparatus/Machines : Testers / Watch winders / Waterproof Cleaning / Packaging / Vacuum/Compressed air / Adhesives Polymerisation/UV / Magnetism



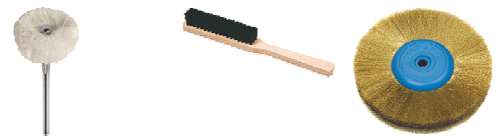
20

Micromotors



21

Small brushes - Polishers - Circular graining sticks
Hand brushes - Circular brushes



22

End mills - Reamers - Diamond burs - Drills



23

Polishing tools - Polishing machines
Sandblasters - Suction



24

Benches - Chairs
Bench accessories



26

Polishing/Abrasives - Protections - Cleaning Solutions - Luminous pigments - Other articles
Glues/Adhesives



28

Oils - Greases - Lubricants - Epilames



29

Soldering - Electro lettering device



32

Beading tools - Beading tools plates - Millgrain tools



38

Reagents - Diamond testers - Wrapping paper



42

Balances



98

Professional kits



Economical items



Files - Diamond products - Ceramic fibres
Gravers - Rifflers - Rasps - Handles



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DOCHOR.TOOLS21-EN

00



EYEGASSES

00 - 2

LAMPS

00 - 13

Horotec eyeglasses.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|--------|-------|
| 00.031-1 | 1 | 10.0x | 25 mm | 0.024 |
| 00.031-1.5 | 1.5 | 6.5x | 25 mm | 0.024 |
| 00.031-2 | 2 | 5.0x | 25 mm | 0.024 |
| 00.031-2.5 | 2.5 | 4.0x | 25 mm | 0.024 |
| 00.031-3 | 3 | 3.5x | 25 mm | 0.024 |
| 00.031-3.5 | 3.5 | 3.0x | 25 mm | 0.024 |
| 00.031-4 | 4 | 2.5x | 25 mm | 0.024 |

Aluminium eyeglass, classic shape with screwed aluminium bezel and removable lens. Nice finish, very light and sturdy. Red anodised.

On request and from 50 pieces (assorted magnifications), these eyeglasses are available with different colours of body and bezel and customized.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|--------|-------|
| 00.032-1 | 1 | 10.0x | 25 mm | 0.020 |
| 00.032-1.5 | 1.5 | 6.5x | 25 mm | 0.020 |
| 00.032-2 | 2 | 5.0x | 25 mm | 0.020 |
| 00.032-2.5 | 2.5 | 4.0x | 25 mm | 0.020 |
| 00.032-3 | 3 | 3.5x | 25 mm | 0.020 |
| 00.032-3.5 | 3.5 | 3.0x | 25 mm | 0.020 |
| 00.032-4 | 4 | 2.5x | 25 mm | 0.020 |

Black plastic eyeglass, classic shape with screwed aluminium bezel and removable lens. Nice finish, very light and sturdy.

On request and from 50 pieces (assorted magnifications), these eyeglasses are available with different colours of bezel and customized.



| MSA | No. | Magnification | Ø | Kg |
|-------------|-----|---------------|-------|-------|
| 00.030-L1 | 1 | 10.0x | 25 mm | 0.005 |
| 00.030-L1.5 | 1.5 | 6.5x | 25 mm | 0.005 |
| 00.030-L2 | 2 | 5.0x | 25 mm | 0.005 |
| 00.030-L2.5 | 2.5 | 4.0x | 25 mm | 0.005 |
| 00.030-L3 | 3 | 3.5x | 25 mm | 0.005 |
| 00.030-L3.5 | 3.5 | 3.0x | 25 mm | 0.005 |
| 00.030-L4 | 4 | 2.5x | 25 mm | 0.005 |

Spare lens for MSA00.031-x and MSA00.032-x.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|----------|-------|
| 00.025-1 | 1 | 10.5x | 22.50 mm | 0.016 |
| 00.025-1.5 | 1.5 | 7.75x | 22.50 mm | 0.016 |
| 00.025-2 | 2 | 5.75x | 22.50 mm | 0.016 |
| 00.025-2.5 | 2.5 | 5.0x | 22.50 mm | 0.016 |
| 00.025-3 | 3 | 4.25x | 22.50 mm | 0.016 |
| 00.025-3.5 | 3.5 | 3.75x | 22.50 mm | 0.016 |
| 00.025-4 | 4 | 3.5x | 22.50 mm | 0.016 |

Black plastic eyeglass, classic shape with screwed red aluminium bezel and removable lens. Nice finish, very light and sturdy.



| MSA | No. | Magnification | Ø | Kg |
|-------------|-----|---------------|----------|-------|
| 00.002-L1 | 1 | 10.50x | 22.50 mm | 0.005 |
| 00.002-L1.5 | 1.5 | 7.75x | 22.50 mm | 0.005 |
| 00.002-L2 | 2 | 5.75x | 22.50 mm | 0.005 |
| 00.002-L2.5 | 2.5 | 5.00x | 22.50 mm | 0.005 |
| 00.002-L3 | 3 | 4.25x | 22.50 mm | 0.005 |
| 00.002-L3.5 | 3.5 | 3.75x | 22.50 mm | 0.005 |
| 00.002-L4 | 4 | 3.50x | 22.50 mm | 0.005 |

Spare lens for MSA00.025-x.

Standard eyeglasses.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|--------|-------|
| 00.001-1 | 1 | 10.0x | 25 mm | 0.012 |
| 00.001-1.5 | 1.5 | 6.5x | 25 mm | 0.012 |
| 00.001-2 | 2 | 5.0x | 25 mm | 0.012 |
| 00.001-2.5 | 2.5 | 4.0x | 25 mm | 0.012 |
| 00.001-3 | 3 | 3.5x | 25 mm | 0.012 |
| 00.001-3.5 | 3.5 | 3.0x | 25 mm | 0.012 |
| 00.001-4 | 4 | 2.5x | 25 mm | 0.012 |

Black plastic eyeglass ASCO, classic shape with screwed aluminium bezel and blued removable lens.

Nice finish, polished black exterior and matt interior.



| MSA | No. | Magnification | Ø | Kg |
|-------------|-----|---------------|-------|-------|
| 00.030-L1 | 1 | 10.0x | 25 mm | 0.005 |
| 00.030-L1.5 | 1.5 | 6.5x | 25 mm | 0.005 |
| 00.030-L2 | 2 | 5.0x | 25 mm | 0.005 |
| 00.030-L2.5 | 2.5 | 4.0x | 25 mm | 0.005 |
| 00.030-L3 | 3 | 3.5x | 25 mm | 0.005 |
| 00.030-L3.5 | 3.5 | 3.0x | 25 mm | 0.005 |
| 00.030-L4 | 4 | 2.5x | 25 mm | 0.005 |

Spare lens for MSA00.001-x.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|----------|-------|
| 00.002-1 | 1 | 10.50x | 22.50 mm | 0.015 |
| 00.002-1.5 | 1.5 | 7.75x | 22.50 mm | 0.015 |
| 00.002-2 | 2 | 5.75x | 22.50 mm | 0.015 |
| 00.002-2.5 | 2.5 | 5.00x | 22.50 mm | 0.015 |
| 00.002-3 | 3 | 4.25x | 22.50 mm | 0.015 |
| 00.002-3.5 | 3.5 | 3.75x | 22.50 mm | 0.015 |
| 00.002-4 | 4 | 3.50x | 22.50 mm | 0.015 |

Black plastic eyeglass, classic shape with screwed bezel and removable lens. Nice finish and lightweight.



| MSA | No. | Magnification | Ø | Kg |
|-------------|-----|---------------|----------|-------|
| 00.002-L1 | 1 | 10.50x | 22.50 mm | 0.005 |
| 00.002-L1.5 | 1.5 | 7.75x | 22.50 mm | 0.005 |
| 00.002-L2 | 2 | 5.75x | 22.50 mm | 0.005 |
| 00.002-L2.5 | 2.5 | 5.00x | 22.50 mm | 0.005 |
| 00.002-L3 | 3 | 4.25x | 22.50 mm | 0.005 |
| 00.002-L3.5 | 3.5 | 3.75x | 22.50 mm | 0.005 |
| 00.002-L4 | 4 | 3.50x | 22.50 mm | 0.005 |

Spare lens for MSA00.002-x.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|----------|-------|
| 00.009-1.5 | 1.5 | 7.7x | 23.50 mm | 0.012 |
| 00.009-2 | 2 | 6.0x | 23.50 mm | 0.012 |
| 00.009-2.5 | 2.5 | 5.0x | 23.50 mm | 0.012 |
| 00.009-3 | 3 | 4.4x | 23.50 mm | 0.012 |
| 00.009-3.5 | 3.5 | 3.8x | 23.50 mm | 0.012 |
| 00.009-4 | 4 | 3.5x | 23.50 mm | 0.012 |

Black plastic eyeglass with classic shape and nice finish.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|--------|-------|
| 00.008-1 | 1 | 10.0x | 30 mm | 0.015 |
| 00.008-1.5 | 1.5 | 7.0x | 30 mm | 0.015 |
| 00.008-2 | 2 | 5.0x | 30 mm | 0.015 |
| 00.008-2.5 | 2.5 | 4.0x | 30 mm | 0.015 |

Sturdy black plastic eyeglass, with side hole. Large vision field.

Control eyeglasses.



| MSA | No. | Magnification | Ø lens | Kg |
|------------|-----|---------------|--------|-------|
| 00.026-2 | (1) | 5x | 40 mm | 0.072 |
| 00.026-2.5 | (2) | 4x | 40 mm | 0.068 |

Aluminium ASCO eyeglass for engraver with screwed aluminium bezel and removable bluish lens. Blue anodised.

- (1) yellow coloured bezel
- (2) copper coloured bezel



| MSA | Magnification | Ø lenses | Kg |
|------------|---------------|----------|-------|
| 00.023-08X | 8x | 22 mm | 0.117 |

Oblique achromatic measuring eyeglass type F+C.
 - 3 corrected lenses
 - 1 scale of 15 mm divided in 0.1 mm.

Spare part :

| MSA | Item | Kg |
|----------|---------|-------|
| 00.023-R | Reticle | 0.005 |



| MSA | Magnification | Ø lenses | Kg |
|------------|---------------|----------|-------|
| 00.003-10X | 10x | 25 mm | 0.015 |
| 00.003-14X | 14x | 25 mm | 0.015 |

Black plastic aplanatic control eyeglass ASCO with 2 removable convex lenses and screwed aluminium ring.
Nice finish, polished black exterior and matt interior.



| MSA | Magnification | Ø lenses | Kg |
|------------|---------------|----------|-------|
| 00.004-10X | 10x | 14 mm | 0.019 |
| 00.004-12X | 12x | 14 mm | 0.019 |
| 00.004-16X | 16x | 14 mm | 0.019 |
| 00.004-20X | 20x | 14 mm | 0.019 |

Black plastic aplanatic control eyeglass ASCO with 2 removable blued convex lenses (best possible optical correction for limited distortion or colour blurring) and screwed aluminium bezel.
Nice finish, polished black exterior and matt interior.



| MSA | Magnification | Ø lenses | Kg |
|------------|---------------|----------|-------|
| 00.006-10X | 10x | 14 mm | 0.015 |
| 00.006-12X | 12x | 14 mm | 0.015 |
| 00.006-16X | 16x | 14 mm | 0.015 |
| 00.006-20X | 20x | 14 mm | 0.015 |
| 00.006-25X | 25x | 12 mm | 0.015 |

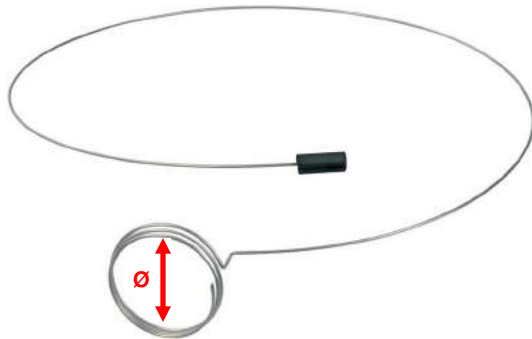
Black plastic achromatic control eyeglass ASCO with 3 removable blued highly luminous lenses providing wide range of vision. Screwed aluminium bezel.
Nice finish, polished black exterior and matt interior.



| MSA | Magnification | Ø lenses | Kg |
|-----------|---------------|------------------|-------|
| 00.010-12 | 12x | 16.00 - 23.50 mm | 0.017 |
| 00.010-15 | 15x | 16.00 - 23.50 mm | 0.017 |

Black plastic control eyeglass extra-large with 2 removable lenses and a screwed bezel.
Nice finish and lightweight.

Eyeglass holders.



| MSA | Ø | Kg |
|--------|-------|-------|
| 00.014 | 23 mm | 0.005 |
| 00.007 | 30 mm | 0.008 |

Stainless steel wire eyeglass holder.
Adaptable to any type of eyeglass.

ARY eyeglasses.

ARY® eyeglass for spectacles. Lightweight, removable and pivots upwards when not needed.
Easy attachment to the eyeglass frame thanks to the system of spring clip covered with rubber.



For SMALL sized spectacles

| MSA | Eye | No. | Magnification | Ø lens | Kg |
|-------------|-------|-----|---------------|--------|-------|
| 00.099G-1 | Left | 1 | 10.0x | 25 mm | 0.025 |
| 00.099G-1.5 | Left | 1.5 | 6.5x | 25 mm | 0.025 |
| 00.099G-2 | Left | 2 | 5.0x | 25 mm | 0.025 |
| 00.099G-2.5 | Left | 2.5 | 4.0x | 25 mm | 0.025 |
| 00.099G-3 | Left | 3 | 3.5x | 25 mm | 0.025 |
| 00.099G-3.5 | Left | 3.5 | 3.0x | 25 mm | 0.025 |
| 00.099G-4 | Left | 4 | 2.5x | 25 mm | 0.025 |
| 00.099D-1 | Right | 1 | 10.0x | 25 mm | 0.025 |
| 00.099D-1.5 | Right | 1.5 | 6.5x | 25 mm | 0.025 |
| 00.099D-2 | Right | 2 | 5.0x | 25 mm | 0.025 |
| 00.099D-2.5 | Right | 2.5 | 4.0x | 25 mm | 0.025 |
| 00.099D-3 | Right | 3 | 3.5x | 25 mm | 0.025 |
| 00.099D-3.5 | Right | 3.5 | 3.0x | 25 mm | 0.025 |
| 00.099D-4 | Right | 4 | 2.5x | 25 mm | 0.025 |

Spare parts :

| MSA | Item | Kg |
|------------|------------------|-------|
| 00.099D-A1 | Small right clip | 0.004 |
| 00.099G-A1 | Small left clip | 0.004 |



| MSA | No. | Magnification | Ø | Kg |
|-------------|-----|---------------|-------|-------|
| 00.030-L1 | 1 | 10.0x | 25 mm | 0.005 |
| 00.030-L1.5 | 1.5 | 6.5x | 25 mm | 0.005 |
| 00.030-L2 | 2 | 5.0x | 25 mm | 0.005 |
| 00.030-L2.5 | 2.5 | 4.0x | 25 mm | 0.005 |
| 00.030-L3 | 3 | 3.5x | 25 mm | 0.005 |
| 00.030-L3.5 | 3.5 | 3.0x | 25 mm | 0.005 |
| 00.030-L4 | 4 | 2.5x | 25 mm | 0.005 |

Spare lens for eyeglasses with lenses Ø 25 mm.

ARY®



For STANDARD sized spectacles



| MSA | Eye | No. | Magnification | Ø lens | Kg |
|-------------|-------|-----|---------------|--------|-------|
| 00.100G-1 | Left | 1 | 10.0x | 25 mm | 0.027 |
| 00.100G-1.5 | Left | 1.5 | 6.5x | 25 mm | 0.027 |
| 00.100G-2 | Left | 2 | 5.0x | 25 mm | 0.027 |
| 00.100G-2.5 | Left | 2.5 | 4.0x | 25 mm | 0.027 |
| 00.100G-3 | Left | 3 | 3.5x | 25 mm | 0.027 |
| 00.100G-3.5 | Left | 3.5 | 3.0x | 25 mm | 0.027 |
| 00.100G-4 | Left | 4 | 2.5x | 25 mm | 0.027 |
| 00.100D-1 | Right | 1 | 10.0x | 25 mm | 0.027 |
| 00.100D-1.5 | Right | 1.5 | 6.5x | 25 mm | 0.027 |
| 00.100D-2 | Right | 2 | 5.0x | 25 mm | 0.027 |
| 00.100D-2.5 | Right | 2.5 | 4.0x | 25 mm | 0.027 |
| 00.100D-3 | Right | 3 | 3.5x | 25 mm | 0.027 |
| 00.100D-3.5 | Right | 3.5 | 3.0x | 25 mm | 0.027 |
| 00.100D-4 | Right | 4 | 2.5x | 25 mm | 0.027 |

Spare parts :

| MSA | Item | Kg |
|-----------|---------------------|-------|
| 00.100D-A | Standard right clip | 0.005 |
| 00.100G-A | Standard left clip | 0.005 |

ARY®



For LARGE sized spectacles



| MSA | Eye | No. | Magnification | Ø lens | Kg |
|-------------|-------|-----|---------------|--------|-------|
| 00.103G-1 | Left | 1 | 10.0x | 25 mm | 0.022 |
| 00.103G-1.5 | Left | 1.5 | 6.5x | 25 mm | 0.022 |
| 00.103G-2 | Left | 2 | 5.0x | 25 mm | 0.022 |
| 00.103G-2.5 | Left | 2.5 | 4.0x | 25 mm | 0.022 |
| 00.103G-3 | Left | 3 | 3.5x | 25 mm | 0.022 |
| 00.103G-3.5 | Left | 3.5 | 3.0x | 25 mm | 0.022 |
| 00.103G-4 | Left | 4 | 2.5x | 25 mm | 0.022 |
| 00.103D-1 | Right | 1 | 10.0x | 25 mm | 0.022 |
| 00.103D-1.5 | Right | 1.5 | 6.5x | 25 mm | 0.022 |
| 00.103D-2 | Right | 2 | 5.0x | 25 mm | 0.022 |
| 00.103D-2.5 | Right | 2.5 | 4.0x | 25 mm | 0.022 |
| 00.103D-3 | Right | 3 | 3.5x | 25 mm | 0.022 |
| 00.103D-3.5 | Right | 3.5 | 3.0x | 25 mm | 0.022 |
| 00.103D-4 | Right | 4 | 2.5x | 25 mm | 0.022 |

Spare parts :

| MSA | Item | Kg |
|------------|------------------|-------|
| 00.100D-A1 | Large right clip | 0.005 |
| 00.100G-A1 | Large left clip | 0.005 |

ARY®



| MSA | Kg |
|--------|-------|
| 00.100 | 0.005 |

Additional eyeglass for ARY® eyeglasses MSA00.099-x, MSA00.100-x and MSA00.103-x. Simply press to fix it.

Additional magnification from 6.5x to 7x.



See chapter PERF.

Clip-on spectacle eyeglasses.



| MSA | Magnification | Ø lens | Kg |
|------------|---------------|--------|-------|
| 00.012-1 | 10x | 15 mm | 0.050 |
| 00.012-1.5 | 7x | 24 mm | 0.050 |
| 00.012-2 | 5x | 24 mm | 0.050 |
| 00.012-2.5 | 4x | 24 mm | 0.050 |
| 00.012-3.5 | 3x | 24 mm | 0.050 |

Lightweight simple lateral eyeglass for spectacles (right and left eye).
 Delivered in plastic case with a variety of fixing clamps for spectacle frames from 1.60 to 6.35 mm.



| MSA | Magnifications | Ø lenses | Kg |
|-----------|----------------|------------|-------|
| 00.013-01 | 5x - 10x - 15x | 24 - 15 mm | 0.050 |
| 00.013-03 | 5x - 7x - 12x | 24 - 25 mm | 0.050 |
| 00.013-02 | 4x - 10x - 14x | 24 - 15 mm | 0.050 |
| 00.013-04 | 4x - 7x - 11x | 24 - 25 mm | 0.050 |
| 00.013-05 | 3x - 7x - 10x | 24 - 25 mm | 0.050 |
| 00.013-06 | 3x - 5x - 8x | 24 - 25 mm | 0.050 |

Lightweight double lateral eyeglass for spectacles (right and left eye). Each model allows 3 different magnifications by combining the lenses.
 Delivered in a plastic case with a variety of fixing clamps for spectacle frames from 1.60 to 6.35 mm.

Safety spectacles.



See chapter 26.

Binocular magnifiers.

| MSA | Magnifications | Kg |
|--------|--------------------|-------|
| 00.259 | 1.5x - 2.5x - 3.5x | 0.085 |

Binocular magnifier with clip, adaptable to all types of spectacles.
Delivered in a cardboard box.



| MSA | Magnification | Kg |
|------------|---------------|-------|
| 00.256-3 | 3.0x | 0.100 |
| 00.256-2.5 | 2.5x | 0.100 |
| 00.256-2 | 2.0x | 0.100 |

Binocular magnifier with plastic frame.
Suitable for people wearing spectacles.
Delivered in a plastic box with a cleaning cloth.

Spare parts :

| MSA | Item | Kg |
|------------|---|-------|
| 00.257-2 | Binocular plate in acrylic resin 2.0x, 74 x 28 mm | 0.012 |
| 00.257-2.5 | Binocular plate in acrylic resin 2.5x, 74 x 28 mm | 0.012 |
| 00.257-3 | Binocular plate in acrylic resin 3.0x, 74 x 28 mm | 0.012 |

ECOLINE

| MSA | Magnifications | Kg |
|--------|--------------------|-------|
| 00.258 | 1.5x - 2.5x - 3.5x | 0.174 |

Binocular magnifier on metal frame.
Suitable for people wearing optical glasses.
Delivered in a synthetic case with a cleaning cloth.

OptiVISOR



| MSA | No. | Magnification | Focal length | Kg |
|-----------|-----|---------------|----------------|-------|
| 00.250-10 | 10 | 3.50x | 10.16 cm / 4" | 0.240 |
| 00.250-07 | 7 | 2.75x | 15.240 cm / 6" | 0.240 |
| 00.250-05 | 5 | 2.50x | 20.32 cm / 8" | 0.240 |
| 00.250-04 | 4 | 2.00x | 25.40 cm / 10" | 0.240 |
| 00.250-03 | 3 | 1.75x | 35.56 cm / 14" | 0.240 |
| 00.250-02 | 2 | 1.50x | 50.80 cm / 20" | 0.240 |

Binocular magnifier with high quality mobile visor. Rounded edges, folding visor mounted on hinges, adjustable headband using button and comfortable front part furnished with leather doubled of felt. Can be worn over spectacles.

Spare parts :

| MSA | Item | Kg |
|-----------|--|-------|
| 00.251-02 | Binocular plate no. 2 (1.50x), 103 x 38 mm | 0.031 |
| 00.251-03 | Binocular plate no. 3 (1.75x), 103 x 38 mm | 0.031 |
| 00.251-04 | Binocular plate no. 4 (2.00x), 103 x 38 mm | 0.031 |
| 00.251-05 | Binocular plate no. 5 (2.50x), 103 x 38 mm | 0.031 |
| 00.251-07 | Binocular plate no. 7 (2.75x), 103 x 38 mm | 0.031 |
| 00.251-10 | Binocular plate no. 10 (3.50), 103 x 38 mm | 0.031 |

Accessory :

| MSA | Item | Kg |
|--------|---|-------|
| 00.252 | Auxiliary lens 2.50x, lentille Ø 36 mm. Can be mounted on both sides | 0.020 |

ECOLINE



| MSA | Magnifications | Size | Kg |
|--------|---------------------------|-------------------|-------|
| 00.245 | 1.2x - 1.8x - 2.5x - 3.5x | 290 x 215 x 65 mm | 0.500 |

Binocular magnifier with frontal lamp 2 LED, adjustable headband and folding ocular plate. Multiple adjustable positions for frontal lamp: about 25° to the left or right and 45° upwards or downwards. It functions with 2 AAA batteries included. *Delivered with a plastic case containing 4 interchangeable ocular plates in acrylic resin.*

Spare part :

| MSA | Item | Kg |
|----------|---------------------------|-------|
| 00.245-B | Case with 4 ocular plates | 0.205 |

Accessory :

| PILE | Item | Kg |
|------|---|-------|
| L92 | Battery ENERGIZER AAA, blister 2 pieces | 0.013 |

ECOLINE



| MSA | Magnifications | Kg |
|--------|---------------------------|-------|
| 00.242 | 1.8x - 2.3x - 3.7x - 4.8x | 0.185 |

Non-reflecting binocular magnifier with multiple magnifications, folding internal lens and auxiliary lens. Headband with easy Velcro® attachment.



Spare part :

| MSA | Item | Kg |
|----------|-----------------------------------|-------|
| 00.242-A | Additional eyeglass 2.5x, Ø 30 mm | 0.004 |

Control mirror.



| MSA | Ø mirror | Length | Kg |
|--------|----------|--------|-------|
| 00.280 | 30 mm | 210 mm | 0.022 |

Control mirror to inspect the difficult places of access, with hexagonal metal handle.

Triplet loupes.

ECOLINE



| MSA | Magnification | Ø lenses | Kg |
|--------|---------------|----------|-------|
| 00.303 | 10x | 18 mm | 0.046 |

Triplet loupe for gem examination with 3 lenses, linked to obtain an increased, clear and very fine image. Inclusions of diamonds are definitely visible with this type of loupe. Chromed finish.

Delivered in a plastic box.

ECOLINE



| MSA | Magnification | Ø lenses | Kg |
|--------|---------------|----------|-------|
| 00.304 | 20x | 20.50 mm | 0.056 |

Triplet loupe for gem examination with 3 lenses, linked to obtain an increased, clear and very fine image. Inclusions of diamonds are definitely visible with this type of loupe.

Black plastic body and nickel-plated brass cover.

Delivered in a plastic box.

Hand and on stand loupes.

ECOLINE



| MSA | Magnification | Ø lens | Length | Kg |
|--------|---------------|--------|--------|-------|
| 00.512 | 15x | 37 mm | 132 mm | 0.060 |

Hand control magnifying-glass with 2 LED lighting.



| MSA | Magnification | Ø lens | Length | Kg |
|--------|---------------|--------|--------|-------|
| 00.505 | 2x | 100 mm | 285 mm | 1.780 |

Control magnifying-glass on stand with flexible arm, mounted on a stable cast iron stand, for free hands work.

ECOLINE



| MSA | Magnifications | Ø lenses | Length | Kg |
|--------|----------------|------------|--------|-------|
| 00.506 | 2x - 6x | 90 - 21 mm | 360 mm | 0.499 |

Magnifying-glass on stand with flexible arm and 2 LED lighting.

ECOLINE



| MSA | Magnifications | Ø lenses | Length | Kg |
|--------|----------------|-------------|--------|-------|
| 00.507 | 2x - 6x | 107 - 24 mm | 360 mm | 0.450 |

Magnifying-glass on stand with flexible arm and 2 LED lighting.

HOROTEC lamps by RMD.

SLIM LINE II Pro Line lamps with variable intensity.

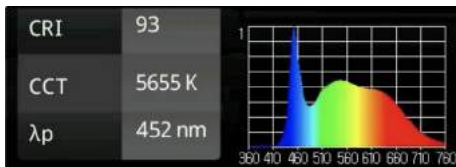


The LED lamp with articulated arm of the Pro Line range is perfectly suitable for watchmakers, goldsmiths, as well as for all professions and hobbies with very high visual requirements.

- Compact and robust luminaire housing with a spring-supported articulated arm
- The 3D joint on the lamp head has a large adjustment range and, in conjunction with a smooth-running friction joint arm made of aluminium profile tube, provides a great deal of flexibility for working.

Technical data :

- Anti-stroboscopic effect
- Opaque white diffuser as standard
- Wide light distribution, direct lighting
- Homogeneous, large-area light by one row of LED-modules. Dimmable as standard
- Control gear electronic LED-driver (no separate power supply)
- Switch multifunctional push-button in articulated arm (ON/OFF/DIMMER)
- LED-lifetime up to 50'000 hours
- Protection class IP20
- Colour temperature : 5700 K
- Very high colour rendering : CRI > 95 (97)
- No IR and UV emission
- No heat emission in direction of the light ; working area remains cool and the lighting head remains lukewarm.



| MSA | LED | Voltage | Power | Head size | Kg |
|--------|--------|----------------------|-------|--------------------|-------|
| 00.675 | 48 LED | 220-240 V / 50-60 Hz | 24 W | 58.6 x 11 x 3.6 cm | 3.500 |
| 00.668 | 24 LED | 220-240 V / 50-60 Hz | 12 W | 35.0 x 11 x 3.6 cm | 3.500 |

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 00.659-B | Opaque white diffuser for MSA00.675 and MSA00.676 | 0.110 |
| 00.659-C | Prismatic diffuser for MSA00.675 and MSA00.676 | 0.065 |
| 00.660-B | Opaque white diffuser for MSA00.668 | 0.064 |
| 00.660-C | Prismatic diffuser for MSA00.668 | 0.044 |

Accessory :

| MSA | Item | Kg |
|----------|--|-------|
| 00.676-L | Additional eyeglass Ø 120 mm, 3.4 dioptries / magnification 1.9x | 0.340 |



Maximum lightning strength at a distance of 50 cm (MSA00.675) :

- With opaque diffuser : CRI > 95 (97) - Temp. 5700 K - Emax = 2002 Lux
- With prismatic diffuser : CRI > 95 (97) - Temp. 5700 K - Emax = 3512 Lux

Maximum lightning strength at a distance of 50 cm (MSA00.668) :

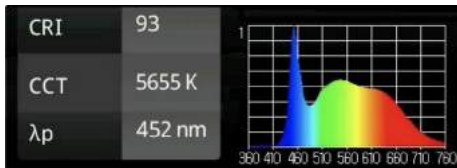
- With opaque diffuser : CRI > 95 (97) - Temp. 5700 K - Emax = 1171 Lux
- With prismatic diffuser : CRI > 95 (97) - Temp. 5700 K - Emax = 2130 Lux

SLIM LINE III Premium Line ergonomic lamp with variable intensity.



This LED lamp with articulated arm of the Premium Line range impresses with its flexible and simple operation. It is therefore one of our most flexible LED articulated lamps.

- Thanks to an innovative gas pressure spring arm, the lamp head can be easily positioned without the use of a locking screw and can be tilted if required
- Excellent light quality is ensured by double-row Mid-Power LED modules, which provide sufficient light for every workplace.



Technical data :

- Anti-stroboscopic effect
- Opaque white diffuser as standard
- Parallelogram-arm with 2 integral gas pressure springs
- Ergonomic arm with gas springs, easy to adjust for an ideal workstation
- Continuously and flicker-free dimmable as standard, with memory function
- Continuous, shadow-free, glare-free light
- LED Modules: 96 daylight white midpower-LEDs (in 2 rows)
- Colour temperature : 5700 K
- Colour rendering : CRI >95 (97)
- Protection class : IP20
- LED-lifetime : 50'000 hours
- No IR and UV emission
- No heat emission in direction of the light, working area remains cool and the lighting head remains lukewarm
- Switch multifunctional push-button in the lamp head (ON/OFF/DIMMER).

| MSA | LED | Voltage | Power | Head size | Kg |
|--------|--------|----------------------|-------|--------------------|-------|
| 00.676 | 96 LED | 220-240 V / 50-60 Hz | 22 W | 58.6 x 11 x 3.6 cm | 4.200 |

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 00.659-B | Opaque white diffuser for MSA00.675 and MSA00.676 | 0.110 |
| 00.659-C | Prismatic diffuser for MSA00.675 and MSA00.676 | 0.065 |

Accessory :

| MSA | Item | Kg |
|----------|--|-------|
| 00.676-L | Additional eyeglass Ø 120 mm, 3.4 diopres / magnification 1.9x | 0.340 |



Maximum lightning strength at a distance of 50 cm :

With opaque diffuser : CRI > 95 (93) - Temp. 5700 K - 2153 Lux
 With prismatic diffuser : CRI > 95 (93) - Temp. 5700 K - 3915 Lux

Ergonomic arm with gas springs



PREMIUM LINE StepDim lamp.



HOROTEC PREMIUM LINE lamp with variable light intensity in steps of 50-60-70-80-90-100 % thanks to new Stepdim technology.

- Thanks to an arm equipped with an innovative gas pressure spring, the lamp head can be easily positioned without using a locking screw (can be tilted if necessary)
- CRI 97 / Daylight colour temperature 5400 K
- Maximum lightning strength at a distance of 50 cm : 12 W lamp (100% = 1235 Lux, 50 % approx. 700 Lux) and 22 W lamp (100% = 2150 Lux, 50 % approx. 1100 Lux).

| MSA | LED | Voltage | Power | Head size | Kg |
|--------|--------|----------------------|----------|-----------|----|
| 00.678 | 48 LED | 220-240 V - 50-60 Hz | 12 W-954 | L 35.0 cm | - |
| 00.679 | 96 LED | 220-240 V - 50-60 Hz | 22 W-954 | L 58.6 cm | - |

Maximum lightning strength at a distance of 50 cm :

- MSA00.678 : CRI = 97 - Temp. 5400 K - Emax = 1235 Lux (100%) ; 700 Lux (50%)
- MSA00.679 : CRI = 97 - Temp. 5400 K - Emax = 2150 Lux (100%) ; 1100 Lux (50%)

POWER LINE StepDim lamp.



HOROTEC POWER LINE lamp with variable light intensity in steps of 50-60-70-80-90-100 % thanks to new Stepdim technology.

- The 3D articulation of the head lamp has a large adjustment range and, combined with a friction arm made of profiled aluminium tube, offers great working flexibility
- CRI 97 / Daylight colour temperature 5400 K
- Maximum lightning strength at a distance of 50 cm : 12 W lamp (100% = 1235 Lux, 50 % approx. 700 Lux) and 22 W lamp (100% = 2150 Lux, 50 % approx. 1100 Lux).

| MSA | LED | Voltage | Power | Head size | Kg |
|--------|--------|----------------------|----------|-----------|----|
| 00.674 | 48 LED | 220-240 V / 50-60 Hz | 12 W-954 | L 35.0 cm | - |
| 00.687 | 96 LED | 220-240 V / 50-60 Hz | 22 W-954 | L 58.6 cm | - |

Maximum lightning strength at a distance of 50 cm :

- MSA00.674 : CRI = 97 - Temp. 5400 K - Emax = 1235 Lux (100%) ; 700 Lux (50%)
- MSA00.687 : CRI = 97 - Temp. 5400 K - Emax = 2150 Lux (100%) ; 1100 Lux (50%)

BASIC LINE lamp with fixed intensity.



LED lamp with articulated arm.

- Equipped with 24 white LED daylight, unvariable intensity
- Low power consumption
- No UV and infrared components in the light spectrum
- No stroboscopic effect
- Lamp colour : silver grey (RAL 9006)
- Opaque white diffuser as standard
- Colour temperature : 5000 K
- Colour rendering : CRI > 80 (84).

| MSA | LED | Voltage | Power | Head size | Arms length | Kg |
|--------|--------|----------------------|-------|-------------------|----------------------|-------|
| 00.677 | 24 LED | 220-240 V / 50-60 Hz | 12 W | 35.5 x 9.8 x 5 cm | Sup. 39 x Inf. 43 cm | 4.365 |

Magnifying lamp.



Magnifying round LED lamp, 3 dioptries.

- Continuous dimming function from approximately 5% to 100% luminance
- 3 different lighting scenes for supporting different visual tasks
 - (1) All segments ON : even and broad light pattern underneath the lens
 - (2) Left + right segment ON for setting off structures, etc.
 - (3) Rear segment only for strong "hi-lighting" effect
- Best colour rendering index : CRI >90
- Colour temperature 5000K supporting visual recognition of contrasts
- LED-lifetime : 50'000 hours
- Total power 12 W.

| MSA | LED | Voltage | Dioptries/ Magnification | Head size | Arms length | Kg |
|--------|--------|----------------------|-----------------------------|-----------|----------------|-------|
| 00.667 | 48 LED | 220-240 V / 50-60 Hz | 3 / 175 % | Ø 31.3 cm | 41.5 x 31.5 cm | 3.500 |

Maximum lightning strength at a distance of 15 cm :

With opaque diffuser : CRI > 90 - Temp. 5300 K - Emax = 6000 Lux

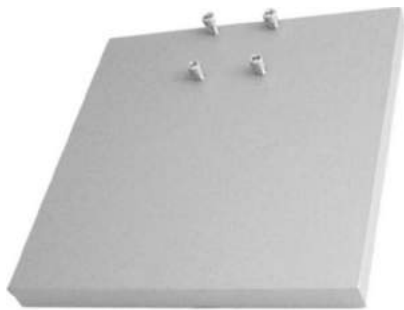
Accessories for HOROTEC lamps.

Accessories for SLIM LINE II + III, PREMIUM LINE, POWER LINE, BASIC LINE and magnifying lamps.



| MSA | Size | Kg |
|---------------|------------------|--------|
| 00.670 | 24 x 26.5 x 2 cm | 10.250 |

Bench base to fix lamps without foot.



| MSA | Size | Kg |
|---------------|--------------------|-------|
| 00.671 | 22.3 x 22.3 x 2 cm | 9.000 |

Bench base to fix lamps with foot and magnifying lamps.



| MSA | Kg |
|---------------|-------|
| 00.672 | 0.133 |

Fitting base.



| MSA | Size | Kg |
|---------------|------------|-------|
| 00.673 | 80 x 85 mm | 0.412 |

Wall angle.



| MSA | Opening | Kg |
|---------------|-------------------|-------|
| 00.657 | 0...44 mm | 0.400 |
| 00.663 | 16...85 mm | 0.600 |

Bench clamp.

WALDMANN lamps.

WALDMANN® universal lamps.



Universal lamp TANE0.

- Maintenance-free dimmable LED technology with 24 diodes
- Service life of up to 50,000 hours and more
- Requirements-oriented output levels for up to 3600 lx. 30 % energy saving
- Glare-free thanks to Conical Prismatic Screen (CDP) or white opal screen
- Flicker-free light with no IR or UV content
- Good contrast sensitivity and very good colour recognition thanks to premium LED
- Uniquely flexible and balanced arm with an enormous radius of action or intelligent connections for space-saving under-cabinet assembly
- Colour temperature neutral white 5000 K
- Touch panel integrated in the luminaire head for On/Off and dimming
- Table power supply and 3 metre connecting cable.

| MSA | IRC > 90 LED | Voltage | Power | Head size | Arms length | Kg |
|--------|--------------|----------------------|-------|----------------------|------------------------------|-------|
| 00.650 | 24 LED | 100-240 V / 50-60 Hz | 24 W | 39.8 x 13.6 x 3.3 cm | Sup. 38.4 cm Inf. 40.0 cm | 4.100 |
| 00.653 | 24 LED | 100-240 V / 50-60 Hz | 24 W | 39.8 x 13.6 x 3.3 cm | Sup. 24.4 cm Inf. 45.0 cm | 4.100 |
| 00.654 | * | 24 LED | 24 W | 39.8 x 13.6 x 3.3 cm | Sup. 24.4 cm Inf. 45.0 cm | 4.100 |

* Protected intensity adjustment

Accessories :

| MSA | Item | Kg |
|----------|--|-------|
| 00.650-L | (1) Additional eyeglass 110 x 60 mm, 4 dioptries | 0.290 |
| 00.650-M | Additional eyeglass Ø 132 mm, 3.5 dioptries | - |



WALDMANN® magnifying lamps.



Magnifier lamp TEVISIO. It supports demanding viewing tasks with ergonomic perfection.

- Equipped with the latest LED technology. The multifunction button adjusts the light intensity and segment switching
- Easily adjustable arm which, if necessary, can be locked precisely if require
- Strength lightning power of 5500 lx at only 14 W
- Colour temperature neutral white 4000 K
- Integrated electronic ballast
- Maintenance-free : LED service life up to 50'000 hours
- Anti-reflective glass or plastic lens Ø 160 mm
- Wide field of view adapted ideally to the inter-ocular distance allowing a distortion-free viewing
- Index protection IP 20, protection class II
- Supplied with a 3.5 metre power cable.

| MSA | Model | Voltage | Power | Dioptries | Arms length | Kg |
|--------|--|----------------------|-------|-----------|------------------------------|-------|
| 00.652 | Glass lens Ø 160 mm 3D articulation (head) | 100-240 V / 50-60 Hz | 14 W | 3.5 | Sup. 38.4 cm Inf. 40.0 cm | 4.200 |
| 00.685 | Anti-reflective glass lens Ø 160 mm 3D articulation (head) | 100-240 V / 50-60 Hz | 14 W | 3.5 | Sup. 38.4 cm Inf. 40.0 cm | 4.200 |
| 00.686 | Plastic lens Ø 160 mm 2D articulation (head) | 100-240 V / 50-60 Hz | 14 W | 3.5 | Sup. 38.4 cm Inf. 40.0 cm | 4.200 |

Accessories for WALDMANN lamps.

WALDMANN® universal lamps.



| MSA | Opening | Kg |
|----------|-------------|-------|
| 00.608-A | 0...45 mm | 0.700 |
| 00.608-B | 0...65 mm | 0.500 |
| 00.608-C | 65...135 mm | 0.500 |
| 00.608-D | 95...165 mm | 0.500 |

Black bench clamp TK1.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 00.627 | 300 x 200 x 70 mm | 7.000 |

Grey bench base.



| MSA | Size | Kg |
|----------|-----------------|-------|
| 00.617-B | 80 x 90 x 40 mm | 0.122 |

Standard fitting base for lamps type SN/SNE.



| MSA | Size | Kg |
|--------|--------------|-------|
| 00.621 | 105 x 160 mm | 1.200 |

Adaptable magnifier 3 diopres for lamps type SN(E) 118/136.



| MSA | Size | Kg |
|--------|-------------|-------|
| 00.655 | 100 x 50 mm | 0.210 |

Magnifying glass with steel supports adapted to the head of the SN/SNE lamps.

ECOLINE lamps.

ECOLINE



Head size : 61 x 11 cm

| MSA | Voltage | Arms length | Kg |
|---------------|---------|-------------|-------|
| 00.646 | 220 V | 45 x 45 cm | 3.400 |

Bench lamp.

- 2 articulated arms
- 3 fluorescent tubes 15 W, daylight
- Parabolic grid
- Electronic ballast
- Fixing clamp.

Spare part :

| MSA | Item | Kg |
|-----------------|---------------------------------|-------|
| 00.646-A | Fluorescent tube 15 W, daylight | 0.055 |

ECOLINE



Head size : 58 x 8 cm

| MSA | Voltage | Power | Arms length | Kg |
|---------------|-------------|-------|-------------|-------|
| 00.649 | 110 - 220 V | 21 W | 47 x 45 cm | 3.200 |

Bench lamp.

- 2 articulated arms in white lacquered steel, mast 47 cm and arm 45 cm
- Lighting with 84 LED, light intensity adjustable by multifunction button
- Luminous flux 1300 lm
- Integrated electronic ballast
- Fixing with a universal clamp.

UV lamps.

PRECITEC
QUALITY



| MSA | Size | Kg |
|--------|---------------|-------|
| 00.682 | Ø 13 x 125 mm | 0.033 |

UV lamp (pen light) for controlling fluorescent oils.
Light colour : blue/violet. 395 Nm.

Works with 2 AAA batteries (not included).

Accessory :

| PILE | Item | Kg |
|------|---|-------|
| L92 | Battery ENERGIZER AAA, blister 2 pieces | 0.013 |

PRECITEC
QUALITY



| MSA | Size | Kg |
|--------|---------------|-------|
| 00.683 | Ø 25 x 140 mm | 0.215 |

UV flashlight for controlling fluorescent oils and detecting dust.
Light colour : white. 365 Nm.

Delivered with 1 rechargeable battery 18650 (2000 mAh - 3.7 V) and 1 charger.

PRECITEC
QUALITY



| MSA | Size | Kg |
|--------|--------------------|-------|
| 00.684 | 220 x 150 x 295 mm | 1.555 |

UV flashlight MSA00.683 mounted on an adjustable stand for controlling fluorescent oils and detecting dust.
Light colour : white. 365 Nm.

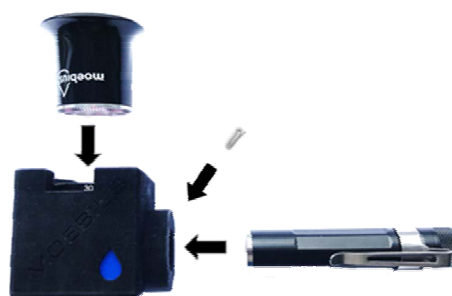


| MSA | Size | Kg |
|--------|------|----|
| 00.690 | - | ? |

The Moebius® LUBETRACKER is an eye-safe visual aid for checking fluorescent lubrication points.

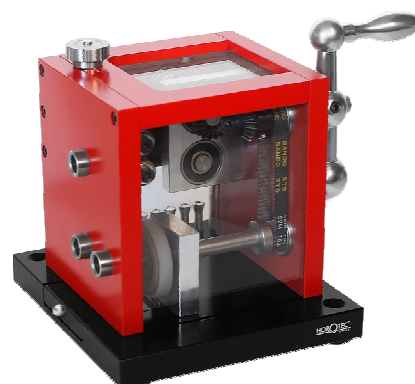
Advantages :

- Easy visualization of Moebius fluorescent lubricants (example: 9010-FL, 9104-FL, 8200-FL, etc.)
- No UV light harmful to the eyes (white light only)
- No need for expensive equipment with UV filter
- Using your own watchmaker's eyeglass
- Compact, easy to carry and to store.



Preparation before use

01



| | |
|--|---------|
| ALUMINIUM HOROTEC® SCREWDRIVERS, STANDARD BLADES | 01 - 2 |
| STAINLESS STEEL HOROTEC® SCREWDRIVERS, STANDARD BLADES | 01 - 4 |
| STAINLESS STEEL HOROTEC® SCREWDRIVERS, "T" SHAPE BLADES | 01 - 8 |
| ST. STEEL HOROTEC® SCREWDRIVERS, PHILLIPS BLADES / LARGE SCREWDRIVER | 01 - 9 |
| CHROMED BRASS CLASSIC SCREWDRIVERS, STANDARD BLADES | 01 - 10 |
| CHROMED BRASS CLASSIC SCREWDRIVERS, ANTIMAGNETIC BLADES | 01 - 13 |
| SPECIAL SCREWDRIVERS | 01 - 15 |
| TOOLS FOR SHAPING AND SHARPENING BLADES | 01 - 19 |

ALUMINIUM HOROTEC® SCREWDRIVERS, STANDARD BLADES

WATCHMAKER screwdrivers. Knurled anodised ALUMINIUM handle, ergonomic head in black POM and interchangeable stainless steel blade.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|---|----|
| 01.020-C | 0.50 - 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 - 3.00 mm | - |

Assortment of 10 watchmaker screwdrivers MSA01.020-xxx :
 - Turning stand
 - Non-skid base
 - Colour coded hole for fast identification.

Delivered with 10 stainless steel spare blades MSA01.215-xxx stored in the central compartment of the stand.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.020-A | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 mm | 0.111 |

Assortment of 5 watchmaker screwdrivers MSA01.020-xxx.
Delivered in a plastic box with foam cut-out.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.020-B | 1.00 - 1.20 - 1.40 - 1.60 - 2.00 mm | 0.116 |

Assortment of 5 watchmaker screwdrivers MSA01.020-xxx.
Delivered in a plastic box with foam cut-out.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.020-D | 0.80 - 1.00 - 1.20 - 1.40 - 1.60 mm | 0.114 |

Assortment of 5 watchmaker screwdrivers MSA01.020-xxx.
Delivered in a plastic box with foam cut-out.

ALUMINIUM HOROTEC® SCREWDRIVERS, STANDARD BLADES



Aluminium handle,
new grip

Ball bearing,
head Ø 12.5 mm

Stainless steel blade

| MSA | | Ø blades | Model | Kg |
|------------|--|----------|-----------|-------|
| 01.020-050 | | 0.50 mm | Orange | 0.007 |
| 01.020-060 | | 0.60 mm | Natural | 0.007 |
| 01.020-080 | | 0.80 mm | Yellow | 0.007 |
| 01.020-100 | | 1.00 mm | Black | 0.020 |
| 01.020-120 | | 1.20 mm | Red | 0.020 |
| 01.020-140 | | 1.40 mm | Dark grey | 0.020 |
| 01.020-160 | | 1.60 mm | Violet | 0.020 |
| 01.020-200 | | 2.00 mm | Green | 0.020 |
| 01.020-250 | | 2.50 mm | Blue | 0.020 |
| 01.020-300 | | 3.00 mm | Brown | 0.020 |

Watchmaker screwdriver.

- Knurled anodised aluminium handle
- Ergonomic head in black POM
- Interchangeable stainless steel blade.

Delivered individually in a pouch with mounted blade.



Antimagnetic blades, see page 01-13.

| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 01.215-050 | 0.50 mm | 0.001 | 01.215-140 | 1.40 mm | 0.003 |
| 01.215-060 | 0.60 mm | 0.003 | 01.215-150 | 1.50 mm | 0.003 |
| 01.215-070 | 0.70 mm | 0.003 | 01.215-160 | 1.60 mm | 0.003 |
| 01.215-080 | 0.80 mm | 0.003 | 01.215-180 | 1.80 mm | 0.003 |
| 01.215-090 | 0.90 mm | 0.003 | 01.215-200 | 2.00 mm | 0.003 |
| 01.215-100 | 1.00 mm | 0.003 | 01.215-250 | 2.50 mm | 0.003 |
| 01.215-110 | 1.10 mm | 0.003 | 01.215-300 | 3.00 mm | 0.003 |
| 01.215-120 | 1.20 mm | 0.003 | 01.215-350 | 3.50 mm | 0.003 |
| 01.215-130 | 1.30 mm | 0.003 | | | |

Stainless steel interchangeable blade for watchmaker screwdrivers MSA01.020-xxx. Hardness 54 ± 2 HRC.



| MSA | Ø blades | Kg |
|----------|--|-------|
| 01.201-M | 2x 0.50 - 0.60 - 0.70 - 0.80 - 1.00 mm | 0.065 |

Plastic tube containing 21 stainless steel blades MSA01.215-xxx for watchmaker screwdrivers MSA01.020-xxx. Hardness 54 ± 2 HRC.



| MSA | Kg |
|----------|-------|
| 01.218-V | 0.001 |

Spare screws for :

- Watchmaker screwdrivers MSA01.020-xxx.

STAINLESS STEEL HOROTEC® SCREWDRIVERS, STANDARD BLADES

The absolutely best WATCHMAKER screwdrivers ! Knurled STAINLESS STEEL handle, hexagonal swivel large diameter head mounted on ball bearings and interchangeable stainless steel blade.



| MSA | Ø blades | Kg |
|----------|---|-------|
| 01.218-E | 0.50 - 0.60 - 0.70 - 0.80 - 1.00 - 1.20 - 1.40 - 1.50 - 1.60 - 2.00 - 2.50 - 3.00 mm | 0.820 |

Assortment of 12 watchmaker screwdrivers MSA01.218-xxx :
 - Turning stand in solid aluminium with ball bearing
 - Non-skid base
 - Colour coded holes for fast identification.

Delivered with 21 stainless steel spare blades MSA01.215-xxx stored in the central compartment of the stand.

Stand size : Ø 90 x height 41 mm.

ASSORTMENT



| MSA | Ø blades | Kg |
|----------|---|-------|
| 01.218-C | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 mm | 0.406 |

Assortment of 8 watchmaker screwdrivers MSA01.218-xxx :
 - Turning stand in solid aluminium
 - Non-skid base.

Delivered with 8 stainless steel spare blades MSA01.215-xxx stored in the central compartment of the stand.

Stand size : Ø 60 x height 39 mm.

ASSORTMENT



| MSA | Ø blades | Kg |
|----------|--|-------|
| 01.218-D | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 2.00 mm | 0.293 |

Assortment of 6 watchmaker screwdrivers MSA01.218-xxx :
 - Sturdy aluminium stand
 - 6 coloured heads for quick identification.

Delivered with 6 stainless steel spare blades MSA01.215-xxx.

Stand size : 110 x 35 x 36 mm.

ASSORTMENT

STAINLESS STEEL HOROTEC® SCREWDRIVERS, STANDARD BLADES



ASSORTMENT

| MSA | Ø blades | Kg |
|----------|--|-------|
| 01.218-A | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 - 3.00 mm | 0.242 |

Assortment of 9 watchmaker screwdrivers MSA01.218-xxx.
Delivered in a wooden case with 9 stainless steel spare blades
MSA01.215-xxx and 2 fixing screws MSA01.218-V.



| MSA | Ø blades | Head colour | Kg |
|------------|----------|---------------|-------|
| 01.218-050 | 0.50 mm | Orange | 0.020 |
| 01.218-060 | 0.60 mm | Light grey | 0.020 |
| 01.218-070 | 0.70 mm | Dark blue | 0.020 |
| 01.218-080 | 0.80 mm | Yellow | 0.020 |
| 01.218-090 | 0.90 mm | Rose | 0.020 |
| 01.218-100 | 1.00 mm | Black | 0.020 |
| 01.218-110 | 1.10 mm | Pastel yellow | 0.020 |
| 01.218-120 | 1.20 mm | Red | 0.020 |
| 01.218-130 | 1.30 mm | Light green | 0.020 |
| 01.218-140 | 1.40 mm | Dark grey | 0.020 |
| 01.218-150 | 1.50 mm | Salmon | 0.020 |
| 01.218-160 | 1.60 mm | Violet | 0.020 |
| 01.218-180 | 1.80 mm | Orange | 0.020 |
| 01.218-200 | 2.00 mm | Green | 0.020 |
| 01.218-250 | 2.50 mm | Blue | 0.020 |
| 01.218-300 | 3.00 mm | Brown | 0.020 |

Watchmaker screwdriver.
- Knurled stainless steel handle
- Hexagonal swivel large diameter anodized aluminium head mounted on ball bearings
- Interchangeable stainless steel blade.
Delivered individually with screwed blade.



Antimagnetic blades, see page 01-13.

| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 01.215-050 | 0.50 mm | 0.001 | 01.215-140 | 1.40 mm | 0.003 |
| 01.215-060 | 0.60 mm | 0.003 | 01.215-150 | 1.50 mm | 0.003 |
| 01.215-070 | 0.70 mm | 0.003 | 01.215-160 | 1.60 mm | 0.003 |
| 01.215-080 | 0.80 mm | 0.003 | 01.215-180 | 1.80 mm | 0.003 |
| 01.215-090 | 0.90 mm | 0.003 | 01.215-200 | 2.00 mm | 0.003 |
| 01.215-100 | 1.00 mm | 0.003 | 01.215-250 | 2.50 mm | 0.003 |
| 01.215-110 | 1.10 mm | 0.003 | 01.215-300 | 3.00 mm | 0.003 |
| 01.215-120 | 1.20 mm | 0.003 | 01.215-350 | 3.50 mm | 0.003 |
| 01.215-130 | 1.30 mm | 0.003 | | | |

Stainless steel interchangeable blade for watchmaker screwdrivers
MSA01.218-xxx. Hardness 54 ± 2 HRC.
See assortment MSA01.201-M with 21 blades on page 01-3.



| MSA | Kg |
|----------|-------|
| 01.218-V | 0.001 |

Spare screws for :
- Watchmaker screwdrivers MSA01.218-xxx
- Enlargement rings MSA01.218-Txxx.

STAINLESS STEEL HOROTEC® SCREWDRIVERS, STANDARD BLADES



| MSA | Model | Ø | Use with | Kg |
|-------------|--------|---------|------------------------------|-------|
| 01.218-T450 | Small | 4.50 mm | Screwdriver Ø 0.50...1.50 mm | 0.002 |
| 01.218-T500 | Medium | 5.00 mm | Screwdriver Ø 1.60...2.00 mm | 0.002 |
| 01.218-T550 | Large | 5.50 mm | Screwdriver Ø 2.50...3.00 mm | 0.002 |

Aluminium enlargement ring for watchmaker screwdrivers, allowing better grip for screwing and unscrewing.

Size : Ø 8 x length 20 mm.



| MSA | | Ø blades | Head colour | Kg |
|------------|--|----------|---------------|-------|
| 01.219-050 | | 0.50 mm | Orange | 0.023 |
| 01.219-060 | | 0.60 mm | Light grey | 0.023 |
| 01.219-070 | | 0.70 mm | Dark blue | 0.023 |
| 01.219-080 | | 0.80 mm | Yellow | 0.023 |
| 01.219-090 | | 0.90 mm | Rose | 0.023 |
| 01.219-100 | | 1.00 mm | Black | 0.023 |
| 01.219-110 | | 1.10 mm | Pastel yellow | 0.023 |
| 01.219-120 | | 1.20 mm | Red | 0.023 |
| 01.219-130 | | 1.30 mm | Light green | 0.023 |
| 01.219-140 | | 1.40 mm | Dark grey | 0.023 |
| 01.219-150 | | 1.50 mm | Salmon | 0.023 |
| 01.219-160 | | 1.60 mm | Violet | 0.023 |
| 01.219-180 | | 1.80 mm | Orange | 0.023 |
| 01.219-200 | | 2.00 mm | Green | 0.023 |
| 01.219-250 | | 2.50 mm | Blue | 0.023 |
| 01.219-300 | | 3.00 mm | Brown | 0.023 |

Watchmaker screwdriver MSA01.218-xxx.

Delivered in 1 plastic pouch with 1 tube containing 3 stainless steel blades.



| MSA | Ø blades | Kg |
|------------|----------|-------|
| 01.216-050 | 0.50 mm | 0.003 |
| 01.216-060 | 0.60 mm | 0.003 |
| 01.216-070 | 0.70 mm | 0.003 |
| 01.216-080 | 0.80 mm | 0.003 |
| 01.216-090 | 0.90 mm | 0.003 |
| 01.216-100 | 1.00 mm | 0.003 |
| 01.216-110 | 1.10 mm | 0.003 |
| 01.216-120 | 1.20 mm | 0.003 |
| 01.216-130 | 1.30 mm | 0.003 |
| 01.216-140 | 1.40 mm | 0.003 |
| 01.216-150 | 1.50 mm | 0.003 |
| 01.216-160 | 1.60 mm | 0.003 |
| 01.216-180 | 1.80 mm | 0.003 |
| 01.216-200 | 2.00 mm | 0.003 |
| 01.216-250 | 2.50 mm | 0.003 |
| 01.216-300 | 3.00 mm | 0.003 |
| 01.216-350 | 3.50 mm | 0.003 |

Plastic tube containing 3 stainless steel blades for watchmaker screwdrivers MSA01.218-xxx.

Other Ø and shapes available upon request and according to quantities.

STAINLESS STEEL HOROTEC® SCREWDRIVERS, STANDARD BLADES



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|------------------------------|-------|
| 01.218-G | 0.60 - 0.80 - 1.00 - 1.20 mm | 0.080 |

Assortment of 4 watchmaker screwdrivers MSA01.218-xxx.
Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.218-B | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 mm | 0.100 |

Assortment of 5 watchmaker screwdrivers MSA01.218-xxx.
Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.218-F | 1.00 - 1.20 - 1.40 - 1.60 - 2.00 mm | 0.100 |

Assortment of 5 watchmaker screwdrivers MSA01.218-xxx.
Livré dans 1 pochette en plastique.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|--|-------|
| 01.218-H | 0.60 - 0.80 - 1.00 - 1.20 - 1.60 - 2.50 mm | 0.120 |

Assortment of 6 watchmaker screwdrivers MSA01.218-xxx.
Delivered in 1 plastic pouch.

STAINLESS STEEL HOROTEC® SCREWDRIVERS, "T" SHAPE BLADES



| MSA | Ø blades | Kg |
|--------|--|-------|
| 01.214 | 0.60 - 0.70 - 0.80 - 1.00 - 1.20 - 1.40 - 1.50 - 1.60 - 1.80 - 2.00 mm | 0.210 |

Assortment of 10 watchmaker screwdrivers MSA01.214-xxx.
Delivered in a plastic box with 10 "T" shaped stainless steel spare blades MSA01.220-xxx and 2 fixing screws MSA01.218-V.

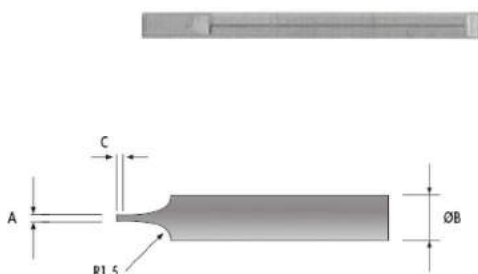


ASSORTMENT



| MSA | Head colour | Ø blades | Kg |
|------------|---------------|----------|-------|
| 01.214-050 | Orange | 0.50 mm | 0.020 |
| 01.214-060 | Light grey | 0.60 mm | 0.020 |
| 01.214-070 | Dark blue | 0.70 mm | 0.020 |
| 01.214-080 | Yellow | 0.80 mm | 0.020 |
| 01.214-090 | Rose | 0.90 mm | 0.020 |
| 01.214-100 | Black | 1.00 mm | 0.020 |
| 01.214-110 | Pastel yellow | 1.10 mm | 0.020 |
| 01.214-120 | Red | 1.20 mm | 0.020 |
| 01.214-130 | Light green | 1.30 mm | 0.020 |
| 01.214-140 | Dark grey | 1.40 mm | 0.020 |
| 01.214-150 | Salmon | 1.50 mm | 0.020 |
| 01.214-160 | Violet | 1.60 mm | 0.020 |
| 01.214-180 | Orange | 1.80 mm | 0.020 |
| 01.214-200 | Dark green | 2.00 mm | 0.020 |

Watchmaker screwdriver.
- Knurled stainless steel handle
- Hexagonal swivel large diameter anodized aluminium head mounted on ball bearings
- Interchangeable "T" shape stainless steel blade.
Delivered individually with screwed blade.



* hardened-blue steel

| MSA | A | Ø B | C | Length | Kg |
|---------------|---------|---------|---------|--------|-------|
| 01.220-050 | 0.10 mm | 0.50 mm | 0.15 mm | 18 mm | 0.003 |
| 01.220-060 | 0.12 mm | 0.60 mm | 0.15 mm | 18 mm | 0.003 |
| 01.220-070 | 0.14 mm | 0.70 mm | 0.18 mm | 18 mm | 0.003 |
| 01.220-080 | 0.14 mm | 0.80 mm | 0.18 mm | 18 mm | 0.003 |
| 01.220-090 | 0.14 mm | 0.90 mm | 0.18 mm | 18 mm | 0.003 |
| 01.220-100 | 0.14 mm | 1.00 mm | 0.18 mm | 21 mm | 0.003 |
| 01.220-110 | 0.14 mm | 1.10 mm | 0.18 mm | 21 mm | 0.003 |
| 01.220-120 | 0.14 mm | 1.20 mm | 0.18 mm | 21 mm | 0.003 |
| 01.220-130 | 0.16 mm | 1.30 mm | 0.20 mm | 21 mm | 0.003 |
| 01.220-140 | 0.16 mm | 1.40 mm | 0.20 mm | 23 mm | 0.003 |
| 01.220-150 | 0.16 mm | 1.50 mm | 0.20 mm | 23 mm | 0.003 |
| 01.220-160 | 0.16 mm | 1.60 mm | 0.20 mm | 23 mm | 0.003 |
| 01.220-180 | 0.20 mm | 1.80 mm | 0.25 mm | 23 mm | 0.003 |
| 01.220-200 | 0.20 mm | 2.00 mm | 0.25 mm | 25 mm | 0.003 |
| 01.202-T250 * | - | 2.50 mm | - | 25 mm | 0.001 |
| 01.202-T300 * | - | 3.00 mm | - | 25 mm | 0.001 |

Stainless steel interchangeable "T" shape blade for watchmaker screwdrivers MSA01.214-xxx. Hardness 54 ± 2 HRC.



| MSA | Head colour | Ø blades | Kg |
|------------|-------------|----------|-------|
| 01.418-120 | Red | 1.20 mm | 0.014 |
| 01.418-150 | Salmon | 1.50 mm | 0.014 |
| 01.418-200 | Green | 2.00 mm | 0.014 |
| 01.418-250 | Blue | 2.50 mm | 0.017 |
| 01.418-300 | Brown | 3.00 mm | 0.017 |

Watchmaker screwdriver with Phillips blade.

- Knurled stainless steel handle
- Hexagonal swivel large diameter anodized aluminium head mounted on ball bearings
- Interchangeable stainless steel Phillips blade.

Delivered individually with screwed blade.



| MSA | Ø | Kg |
|------------|---------|-------|
| 01.403-1.2 | 1.20 mm | 0.001 |
| 01.403-1.5 | 1.50 mm | 0.001 |
| 01.403-2.0 | 2.00 mm | 0.001 |
| 01.403-2.5 | 2.50 mm | 0.002 |
| 01.403-3.0 | 3.00 mm | 0.002 |

Stainless steel interchangeable Phillips blade for watchmaker screwdrivers MSA01.404-x.x. Hardness 54 ± 2 HRC.



| MSA | Ø blades | Kg |
|--------|-------------------------------------|-------|
| 01.418 | 1.20 - 1.50 - 2.00 - 2.50 - 3.00 mm | 0.061 |

Assortment of 5 watchmaker screwdrivers with Phillips blade MSA01.418-xxx.

Delivered in 1 plastic pouch.

ASSORTMENT



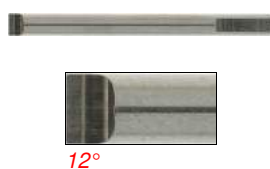
| MSA | Ø blades | Kg |
|------------|----------|-------|
| 01.018-150 | 1.50 mm | 0.066 |
| 01.018-200 | 2.00 mm | 0.066 |
| 01.018-250 | 2.50 mm | 0.066 |
| 01.018-300 | 3.00 mm | 0.066 |

Large watchmaker screwdriver.

- Knurled stainless steel handle Ø 10 mm, length 95 mm
- Swivel large diameter (Ø 19 mm) anodized aluminium red head mounted on ball bearings and interchangeable stainless steel blade.

Delivered individually with screwed blade.

Spare parts :



| MSA | Item | Kg |
|------------|--|-------|
| 01.019-150 | Blade Ø 1.50 mm, length 37 mm, body Ø 3 mm | 0.002 |
| 01.019-200 | Blade Ø 2.00 mm, length 37 mm, body Ø 3 mm | 0.002 |
| 01.019-250 | Blade Ø 2.50 mm, length 37 mm, body Ø 3 mm | 0.002 |
| 01.019-300 | Blade Ø 3.00 mm, length 37 mm, body Ø 3 mm | 0.002 |

CHROMED BRASS CLASSIC SCREWDRIVERS, STANDARD BLADES

Classic precision screwdrivers. Knurled handle in chromed brass ; the head is equipped with a coloured ring indicating the diameter of the blade.



ASSORTMENT

| MSA | Ø blades | Kg |
|--------|--|-------|
| 01.100 | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 - 3.00 mm | 0.342 |

Assortment of 9 classic precision screwdrivers MSA01.101xxx :
- Chromed turning stand
- Non-skid base.

Delivered with 19 hardened-blue steel spare blades MSA01.102-xxx and 2 fixing screws MSA01.101-V stored in the central compartment of the stand.



ASSORTMENT

| MSA | Ø blades | Kg |
|--------|--|-------|
| 01.300 | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 - 3.00 mm | 0.258 |

Assortment of 9 classic precision screwdrivers MSA01.101xxx.

Delivered in a wooden box with 19 hardened-blue steel spare blades MSA01.102-xxx and 2 fixing screws MSA01.101-V in a plastic tube.



| MSA | Ring colour | Ø blades | Kg |
|------------|-------------|----------|-------|
| 01.101-050 | Dark green | 0.50 mm | 0.010 |
| 01.101-060 | Rose | 0.60 mm | 0.010 |
| 01.101-080 | Yellow | 0.80 mm | 0.010 |
| 01.101-100 | Black | 1.00 mm | 0.015 |
| 01.101-120 | Red | 1.20 mm | 0.016 |
| 01.101-140 | Grey | 1.40 mm | 0.016 |
| 01.101-160 | Violet | 1.60 mm | 0.020 |
| 01.101-180 | Orange | 1.80 mm | 0.020 |
| 01.101-200 | Light green | 2.00 mm | 0.023 |
| 01.101-250 | Blue | 2.50 mm | 0.028 |
| 01.101-300 | Brown | 3.00 mm | 0.030 |

Classic precision screwdriver.

- Knurled handle in chromed brass
- Head equipped with a coloured ring indicating the diameter of the blade
- Interchangeable hardened-blue steel blade.

Delivered individually with screwed blade.

CHROMED BRASS CLASSIC SCREWDRIVERS, STANDARD BLADES



| MSA | Ring colour | Ø blades | Kg |
|------------|-------------|----------|-------|
| 01.099-050 | Dark green | 0.50 mm | 0.012 |
| 01.099-060 | Rose | 0.60 mm | 0.012 |
| 01.099-080 | Yellow | 0.80 mm | 0.012 |
| 01.099-100 | Black | 1.00 mm | 0.017 |
| 01.099-120 | Red | 1.20 mm | 0.017 |
| 01.099-140 | Grey | 1.40 mm | 0.017 |
| 01.099-160 | Violet | 1.60 mm | 0.022 |
| 01.099-180 | Orange | 1.80 mm | 0.022 |
| 01.099-200 | Light green | 2.00 mm | 0.022 |
| 01.099-250 | Blue | 2.50 mm | 0.030 |
| 01.099-300 | Brown | 3.00 mm | 0.032 |

Classic precision screwdriver MSA01.101-xxx.

Delivered in 1 plastic pouch with 1 tube containing 3 hardened-blue steel blades.



| MSA | Ø | Kg |
|--------------|---------|-------|
| 01.215-050 * | 0.50 mm | 0.001 |
| 01.102-060 | 0.60 mm | 0.001 |
| 01.102-080 | 0.80 mm | 0.001 |
| 01.102-100 | 1.00 mm | 0.001 |
| 01.102-120 | 1.20 mm | 0.001 |
| 01.102-140 | 1.40 mm | 0.001 |
| 01.102-160 | 1.60 mm | 0.001 |
| 01.102-180 | 1.80 mm | 0.001 |
| 01.102-200 | 2.00 mm | 0.001 |
| 01.102-250 | 2.50 mm | 0.001 |
| 01.102-300 | 3.00 mm | 0.001 |

* **stainless steel**

Interchangeable hardened-blue steel blade for classic precision screwdrivers MSA01.101-xxx.



| MSA | Ø blades | Kg |
|--------------|----------|-------|
| 01.216-050 * | 0.50 mm | 0.003 |
| 01.103-060 | 0.60 mm | 0.003 |
| 01.103-080 | 0.80 mm | 0.003 |
| 01.103-100 | 1.00 mm | 0.003 |
| 01.103-120 | 1.20 mm | 0.003 |
| 01.103-140 | 1.40 mm | 0.003 |
| 01.103-160 | 1.60 mm | 0.003 |
| 01.103-180 | 1.80 mm | 0.003 |
| 01.103-200 | 2.00 mm | 0.003 |
| 01.103-250 | 2.50 mm | 0.003 |
| 01.103-300 | 3.00 mm | 0.003 |

* **stainless steel**

Plastic tube containing 3 hardened-blue steel blades for classic precision screwdrivers MSA01.101-xxx.



| MSA | Kg |
|----------|-------|
| 01.101-V | 0.001 |

Screws for classic precision screwdrivers MSA01.101-xxx.

CHROMED BRASS CLASSIC SCREWDRIVERS, STANDARD BLADES



ASSORTMENT

| MSA | Ø blades | Kg |
|---------------|------------------------------|-------|
| 01.003 | 0.60 - 0.80 - 1.00 - 1.20 mm | 0.049 |

Assortment of 4 classic precision screwdrivers MSA01.101-xxx.
Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|---------------|-------------------------------------|-------|
| 01.095 | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 mm | 0.057 |

Assortment of 5 classic precision screwdrivers MSA01.101-xxx.
Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|-----------------|-------------------------------------|-------|
| 01.095-Z | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 mm | 0.060 |

Assortment of 5 classic precision screwdrivers MSA01.101-xxx and 5 interchangeable blades MSA01.102.xxx.
Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|---------------|--|-------|
| 01.013 | 0.60 - 0.80 - 1.00 - 1.20 - 2.00 - 3.00 mm | 0.091 |

Assortment of 6 classic precision screwdrivers MSA01.101-xxx.
Delivered in 1 plastic pouch.

CHROMED BRASS CLASSIC SCREWDRIVERS, ANTIMAGNETIC BLADES

Precision classic screwdrivers. Knurled handle in chromed brass, anodised aluminium black head equipped with a coloured ring to indicate the blade diameter.
The interchangeable blades made of copper-beryllium alloy (CuBe) are 100% antimagnetic.



ANTIMAGNETIC ASSORTMENT

| MSA | Ø blades | Kg |
|---------------|--|-------|
| 01.104 | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 1.60 - 2.00 - 2.50 - 3.00 mm | 0.340 |

Assortment of 9 precision antimagnetic screwdrivers MSA01.105-xxx :
- Chromed turning stand
- Non-skid base.

Delivered with 19 spare blades MSA01.106-xxx made of copper-beryllium alloy (CuBe) and 2 fixing screws MSA01.101-V stored in the central compartment of the stand.



ANTIMAGNETIC

| MSA | Ring colour | Ø blades | Kg |
|-------------------|-------------|----------------|-------|
| 01.105-050 | Dark green | 0.50 mm | 0.010 |
| 01.105-060 | Rose | 0.60 mm | 0.010 |
| 01.105-080 | Yellow | 0.80 mm | 0.010 |
| 01.105-100 | Black | 1.00 mm | 0.015 |
| 01.105-120 | Red | 1.20 mm | 0.015 |
| 01.105-140 | Grey | 1.40 mm | 0.015 |
| 01.105-160 | Violet | 1.60 mm | 0.020 |
| 01.105-200 | Light green | 2.00 mm | 0.020 |
| 01.105-250 | Blue | 2.50 mm | 0.028 |
| 01.105-300 | Brown | 3.00 mm | 0.030 |

Precision antimagnetic screwdriver.

- Knurled handle in chromed brass
- Head equipped with a coloured ring indicating the diameter of the blade
- Interchangeable blade made of copper-beryllium alloy (CuBe).

Delivered individually with screwed blade.



ANTIMAGNETIC

| MSA | Ø | Kg | MSA | Ø | Kg |
|-------------------|----------------|-------|-------------------|----------------|-------|
| 01.106-050 | 0.50 mm | 0.001 | 01.106-140 | 1.40 mm | 0.001 |
| 01.106-060 | 0.60 mm | 0.001 | 01.106-160 | 1.60 mm | 0.001 |
| 01.106-080 | 0.80 mm | 0.001 | 01.106-200 | 2.00 mm | 0.001 |
| 01.106-100 | 1.00 mm | 0.001 | 01.106-250 | 2.50 mm | 0.001 |
| 01.106-120 | 1.20 mm | 0.001 | 01.106-300 | 3.00 mm | 0.001 |

Interchangeable antimagnetic blade made of copper-beryllium alloy (CuBe).
Fits all types of screwdrivers with interchangeable blades.



| MSA | Kg |
|-----------------|-------|
| 01.101-V | 0.001 |

Screws for precision antimagnetic screwdrivers MSA01.105-xxx.

Bag of 10 pieces.

CHROMED BRASS CLASSIC SCREWDRIVERS, ANTIMAGNETIC BLADES



**ANTIMAGNETIC
ASSORTMENT**

| MSA | Ø blades | Kg |
|---------------|------------------------------|-------|
| 01.004 | 0.60 - 0.80 - 1.00 - 1.20 mm | 0.051 |

Assortment of 4 precision antimagnetic screwdrivers MSA01.105-xxx.
Delivered in 1 plastic pouch.



**ANTIMAGNETIC
ASSORTMENT**

| MSA | Ø blades | Kg |
|---------------|--|-------|
| 01.014 | 0.60 - 0.80 - 1.00 - 1.20 - 2.00 - 3.00 mm | 0.090 |

Assortment of 6 precision antimagnetic screwdrivers MSA01.105-xxx.
Delivered in 1 plastic pouch with 1 tube containing 6 antimagnetic blades.

SPECIAL screwdriver with fixed key of varied shapes. Knurled handle in chromed brass ; coloured identified heads indicating the diameter or the width of the key. The hole in the upper part of the handle allows the tool to be suspended or the insertion of a tightening stem. The fabrication and the heat-treatment of the keys are particularly neat to assure a good resistance.



| MSA | Ring colour | Length | Internal width | Kg |
|----------|-------------|--------|----------------|-------|
| 01.107-A | Grey | 107 mm | 3.00 mm | 0.026 |
| 01.107-B | Violet | 107 mm | 3.50 mm | 0.026 |
| 01.107-C | Green | 107 mm | 4.00 mm | 0.026 |
| 01.107-D | Blue | 107 mm | 4.50 mm | 0.026 |
| 01.107-E | Brown | 107 mm | 5.00 mm | 0.026 |

Special screwdriver with fixed female key for hexagonal nuts.
- Knurled handle in chromed brass.



| MSA | Internal width | Kg |
|-----------|-------------------------------------|-------|
| 01.107-05 | 3.00 - 3.50 - 4.00 - 4.50 - 5.00 mm | 0.125 |

Assortment of 5 special screwdrivers with fixed female key MSA01.107-x.
Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Ring colour | Length | External width | Kg |
|------------|-------------|--------|----------------|-------|
| 01.108-1.5 | Violet | 107 mm | 1.50 mm | 0.025 |
| 01.108-2 | Green | 107 mm | 2.00 mm | 0.025 |
| 01.108-2.5 | Blue | 107 mm | 2.50 mm | 0.025 |
| 01.108-3 | Brown | 107 mm | 3.00 mm | 0.025 |

Special screwdriver with fixed male ALLEN type key for hexagonal hollow nuts.
- Knurled handle in chromed brass.



| MSA | External width | Kg |
|--------|------------------------------|-------|
| 01.008 | 1.50 - 2.00 - 2.50 - 3.00 mm | 0.085 |

Assortment of 4 special screwdrivers with fixed male ALLEN type key MSA01.108-x.
Delivered in 1 plastic pouch.

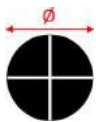
ASSORTMENT

SPECIAL SCREWDRIVERS



| MSA | Ring colour | Ø blades | Kg |
|------------|-------------|----------|-------|
| 01.400-1.2 | Grey | 1.20 mm | 0.026 |
| 01.400-1.5 | Violet | 1.50 mm | 0.027 |
| 01.400-2.0 | Green | 2.00 mm | 0.028 |
| 01.400-2.5 | Blue | 2.50 mm | 0.029 |
| 01.400-3.0 | Brown | 3.00 mm | 0.030 |

Special screwdriver with fixed cruciform PHILLIPS type blade.
- Knurled handle in chromed brass.

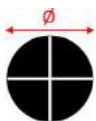


ASSORTMENT

| MSA | Ø blades | Kg |
|----------|------------------------------|-------|
| 01.400-A | 1.50 - 2.00 - 2.50 - 3.00 mm | 0.093 |

Assortment of 4 special screwdrivers with fixed cruciform PHILLIPS type blade MSA01.400-x.

Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Ø blades | Kg |
|----------|-------------------------------------|-------|
| 01.400-B | 1.20 - 1.50 - 2.00 - 2.50 - 3.00 mm | 0.115 |

Assortment of 5 special screwdrivers with fixed cruciform PHILLIPS type blade MSA01.400-x.

Delivered in 1 plastic pouch.

Practical screwdrivers with **REVERSIBLE BLADE**. This system allows the user to easily reverse the blade using a threaded ferrule to replace it. Grooved handle in chromed brass, coloured head and interchangeable special steel blade ground at both ends.



| MSA | Ø blades | Head colour | Length | Kg |
|------------|----------|-------------|--------|-------|
| 01.221-060 | 0.60 mm | Blue | 80 mm | 0.012 |
| 01.221-070 | 0.70 mm | Grey | 80 mm | 0.012 |
| 01.221-080 | 0.80 mm | Red | 80 mm | 0.012 |
| 01.221-100 | 1.00 mm | Brown | 80 mm | 0.012 |
| 01.221-120 | 1.20 mm | Green | 80 mm | 0.012 |
| 01.221-130 | 1.30 mm | Black | 80 mm | 0.012 |
| 01.221-150 | 1.50 mm | Orange | 80 mm | 0.012 |

Screwdriver with reversible blade.
 - Grooved handle in chromed brass
 - Coloured head depending on the blade diameter
 - Interchangeable reversible special steel blade cut at both ends.
Delivered individually with assembled blade.



| MSA | Ø | Kg |
|------------|---------|-------|
| 01.222-050 | 0.50 mm | 0.001 |
| 01.222-060 | 0.60 mm | 0.001 |
| 01.222-070 | 0.70 mm | 0.001 |
| 01.222-080 | 0.80 mm | 0.001 |
| 01.222-100 | 1.00 mm | 0.001 |
| 01.222-120 | 1.20 mm | 0.001 |
| 01.222-130 | 1.30 mm | 0.001 |
| 01.222-150 | 1.50 mm | 0.001 |

Interchangeable reversible special steel blade cut at both ends for screwdrivers with reversible blade MSA01.221-xxx.



ASSORTMENT

| MSA | Ø blades | Kg |
|--------|------------------------------|-------|
| 01.005 | 0.60 - 0.80 - 1.00 - 1.20 mm | 0.046 |

Assortment of 4 screwdrivers with reversible blade MSA01.221-xxx.
Delivered in 1 plastic pouch.

SPECIAL SCREWDRIVERS



ASSORTMENT

| MSA | Ø blades | Kg |
|--------|-------------------------------------|-------|
| 01.225 | 0.60 - 0.80 - 1.00 - 1.20 - 1.50 mm | 0.060 |

Assortment of 5 screwdrivers with reversible blade MSA01.221-xxx.
Delivered in 1 plastic pouch.

Special screwdriver for glasses.



| MSA | Ø blades | Kg |
|--------|------------------------------|-------|
| 01.401 | 1.60 - 1.80 - 2.00 - 2.50 mm | 0.047 |

Special screwdriver for glasses.
- Large knurled hollow aluminium handle
- Threaded ferrule in chromed brass for a quick changing of the interchangeable blades.
Delivered with 4 hardened-blue steel blades of different diameters, body Ø 2.50 mm.

Spare parts :

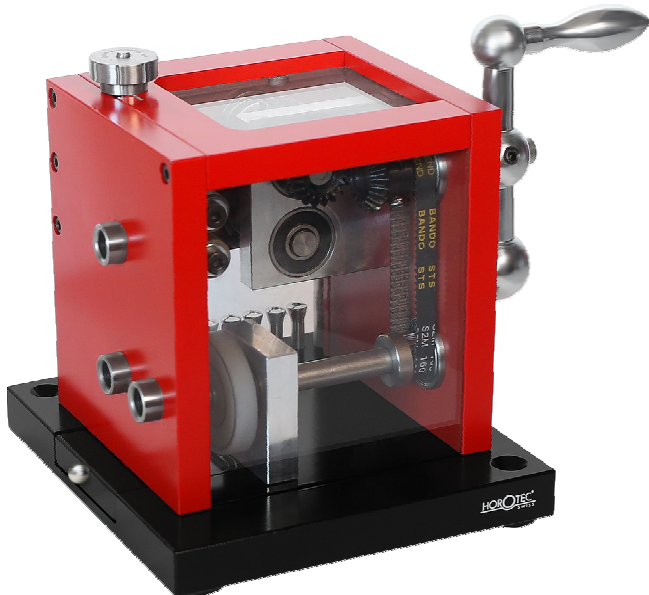
| MSA | Item | Kg |
|------------|-----------------|-------|
| 01.401-160 | Blade Ø 1.60 mm | 0.001 |
| 01.401-180 | Blade Ø 1.80 mm | 0.001 |
| 01.401-200 | Blade Ø 2.00 mm | 0.001 |
| 01.401-250 | Blade Ø 2.50 mm | 0.001 |



| MSA | Length | Kg |
|--------|--------|-------|
| 01.051 | 60 mm | 0.008 |

Key-ring screwdriver for glasses.
- Grooved nickel-plated brass body in 2 screwed parts
- Hardened-blue steel blade Ø 1.60 mm with nickel-plated steel ring.

Device for shaping screwdriver blades.



| MSA | Size | C | Kg |
|------------|------|---------|-------|
| 01.505 | - | | - |
| 03.875-060 | | 0.60 mm | 0.002 |

Device for forming screwdriver blades equipped with two Borazon CBN cylindrical grinding wheels grain B91 medium with adjustable spacing and one Arkansas Stone (wheel shaped).

- This principle makes it possible to obtain a parallel blade with a controlled width
- Handling is facilitated and it prevents damages to the screw slots
- The watchmaker can work optimally by adapting the blade to the geometry of the screw to be processed
- The CBN grinding wheels and the Arkansas stone are reversible and interchangeable.

Delivered with 1 tool holder, 5 tightening chucks P4.5 Ø 0.50-1.00 / 1.10-1.50 / 1.60-2.00 / 2.10-2.50 / 2.60-3.00 mm.

Spare parts :

| MSA | Item | Kg |
|--------|---|-------|
| 16.042 | Arkansas stone wheel shaped, Ø 40 x 5 mm, hole Ø 6 mm | 0.023 |
| 16.801 | Borazon grinding-wheel grain B91 medium, head Ø 12 x 10 mm, bore Ø 6 mm | - |

Accessories :

| MSA | Item | Kg |
|------------|--|-------|
| 03.875-060 | | 0.002 |
| 16.800 | Borazon grinding-wheel grain B126 coarse, head Ø 12 x 10 mm, bore Ø 6 mm | - |
| 16.802 | Borazon grinding-wheel grain B76 fine, head Ø 12 x 10 mm, bore Ø 6 mm | - |

Tool for sharpening screwdriver blades.



| MSA | Size | Kg |
|--------|--------------|-------|
| 01.500 | Ø 14 x 40 mm | 0.024 |

Tool for sharpening screwdriver blades.

To use preferably with 1 Arkansas stone having a minimum width of 40 mm (see chapter 16).

No screwdriver or stones included.



Sharpening stones, see chapter 16.

02



PIN VICES

02 - 2

CUTTING BROACHES

02 - 8

ASSORTMENT OF CUTTING BROACHES

02 - 10

SMOOTHING BROACHES

02 - 11

PIN VICES

Pin vices are used to firmly hold items such as winding stems, cutting and smoothing broaches, drills, taps, wires, screws, etc.

Choosing a square or hexagonal head model will assure you a tighter fit.



| MSA | Tightening | Length | Kg |
|-------------|-------------|--------|-------|
| 02.001-01 | 0...1.50 mm | 70 mm | 0.022 |
| 02.001-02 * | 0...1.80 mm | 80 mm | 0.025 |
| 02.001-03 | 0...2.30 mm | 90 mm | 0.030 |
| 02.001-04 * | 0...2.80 mm | 100 mm | 0.040 |
| 02.001-05 | 0...3.00 mm | 110 mm | 0.050 |
| 02.001-06 * | 0...3.50 mm | 120 mm | 0.060 |
| 02.001-07 | 0...4.00 mm | 130 mm | 0.080 |
| 02.001-08 * | 0...5.00 mm | 140 mm | 0.094 |

Pin vice with fluted hollow brass handle and square head to prevent rolling on bench.

Delivered with 2 steel chucks.

* In assortments MSA02.026 and MSA02.027



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 02.026 | 0.212 |

Assortment of 4 pin vices MSA02.001-02, -04, -06 and -08.

Delivered in 1 plastic pouch.



| MSA | Kg |
|--------|-------|
| 02.027 | 0.422 |

Assortment of 5 brass pin vices, 4 with square head (MSA02.001-02 /-04 /-06 /-08) and 1 with round head (MSA02.021).

Delivered in 1 wooden box.



| MSA | Tightening | Length | Kg |
|-----------|-------------|--------|-------|
| 02.015-01 | 0...1.50 mm | 70 mm | 0.022 |
| 02.015-02 | 0...1.80 mm | 80 mm | 0.022 |
| 02.015-03 | 0...2.30 mm | 90 mm | 0.030 |
| 02.015-04 | 0...2.80 mm | 100 mm | 0.040 |
| 02.015-05 | 0...3.00 mm | 110 mm | 0.040 |
| 02.015-06 | 0...3.50 mm | 120 mm | 0.040 |
| 02.015-07 | 0...4.00 mm | 130 mm | 0.080 |
| 02.015-08 | 0...5.00 mm | 140 mm | 0.094 |

Pin vice with fluted hollow nickel-plated handle and square head to prevent rolling on bench.

Provided with 2 steel chucks.



| MSA | Tightening | Length | Kg |
|-----------|-------------|--------|-------|
| 02.002-01 | 0...1.50 mm | 70 mm | 0.020 |
| 02.002-02 | 0...1.80 mm | 80 mm | 0.020 |
| 02.002-03 | 0...2.30 mm | 90 mm | 0.030 |
| 02.002-04 | 0...2.80 mm | 100 mm | 0.040 |
| 02.002-05 | 0...3.00 mm | 110 mm | 0.045 |
| 02.002-06 | 0...3.50 mm | 120 mm | 0.060 |
| 02.002-07 | 0...4.00 mm | 130 mm | 0.070 |
| 02.002-08 | 0...5.00 mm | 140 mm | 0.093 |

Pin vice with fluted hollow brass handle and round head.
Provided with 2 steel chucks.



| MSA | Tightening | Length | Kg |
|-----------|-------------|--------|-------|
| 02.003-01 | 0...0.80 mm | 80 mm | 0.012 |
| 02.003-02 | 0...0.80 mm | 90 mm | 0.015 |
| 02.003-03 | 0...0.80 mm | 100 mm | 0.015 |
| 02.003-04 | 0...0.80 mm | 110 mm | 0.015 |
| 02.003-05 | 0...0.80 mm | 120 mm | 0.017 |

Pin vice with fluted hollow brass, thin handle Ø 5 mm and round head.
Provided with 1 steel chuck.



| MSA | Tightening | Length | Kg |
|-----------|----------------|--------|-------|
| 02.014-02 | 0.00...0.80 mm | 80 mm | 0.013 |
| 02.014-04 | 0.00...1.00 mm | 100 mm | 0.025 |
| 02.014-06 | 1.40...2.50 mm | 120 mm | 0.025 |

Pin vice with fluted hollow brass handle and round head.
Delivered with 1 steel chuck.



| MSA | Tightening | Length | Kg |
|----------|-------------|--------|-------|
| 02.021 * | 0...0.70 mm | 110 mm | 0.015 |

Thin pin vice with conical and fluted brass handle and round head.
Provided with 1 steel chuck.

* In assortment MSA02.027



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.005 | 0...2.50 mm | 100 mm | 0.033 |

Double-ended pin vice with fluted nickel-plated handle and 2 round heads.
Provided with 2 steel 4-lip chucks.



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.012 | 0...2.80 mm | 110 mm | 0.038 |

Double-ended pin vice with fluted hollow nickel-plated handle and 2 knurled round heads.
Provided with 2 steel 4-lip chucks.

PIN VICES



| MSA | Tightening | Length | Kg |
|----------|-------------|--------|-------|
| 02.016 * | 0...0.70 mm | 110 mm | 0.015 |

Thin pin vice with conical fluted nickel-plated handle and round head.
Provided with 1 steel chuck.

* See assortment MSA02.025



| MSA | Tightening | Length | Kg |
|-------------|-------------|--------|-------|
| 02.020-01 | 0...1.50 mm | 70 mm | 0.020 |
| 02.020-02 | 0...1.80 mm | 80 mm | 0.020 |
| 02.020-03 * | 0...2.30 mm | 90 mm | 0.025 |
| 02.020-04 * | 0...2.80 mm | 100 mm | 0.030 |
| 02.020-05 | 0...3.00 mm | 110 mm | 0.045 |
| 02.020-06 | 0...3.50 mm | 120 mm | 0.050 |
| 02.020-08 | 0...5.00 mm | 140 mm | 0.096 |

Pin vice with fluted hollow nickel-plated handle and round head.
Provided with 2 steel chucks.

* See assortment MSA02.025



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 02.025 | 0.088 |

Assortment of 3 pin vices with fluted hollow nickel-plated handles and round heads.

Contents : MSA02.016, 02.020-03 and 02.020-04.

Delivered in 1 plastic pouch.



Ø 6 mm

| MSA | Tightening | Length | Kg |
|--------|----------------|--------|-------|
| 02.017 | 0.80...1.50 mm | 60 mm | 0.009 |

Pin vice with fluted hollow nickel-plated handle and round head.
Provided with 1 steel chuck.



Ø 7 mm

| MSA | Tightening | Length | Kg |
|--------|----------------|--------|-------|
| 02.018 | 1.80...3.00 mm | 62 mm | 0.018 |

Pin vice with fluted hollow nickel-plated handle and round head.
Provided with 1 steel chuck.



Ø 2.35 mm

| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.035 | 0...1.20 mm | 55 mm | 0.005 |

Pin vice with black finished adapter and round head. For manual use on a lathe or a drilling machine.
Provided with 1 steel chuck.



Ø 2.35 mm

| MSA | Model | Tightening | Length | Kg |
|--------|--------|--|--------|-------|
| 02.036 | Medium | 0.00...1.00 - 0.90...1.60 - 1.50...2.40 mm | 80 mm | 0.028 |
| 02.037 | Large | 0.00...1.30 - 1.10...2.30 - 1.70...3.00 mm | 80 mm | 0.028 |

Pin vice with black finished adapter and round head. For manual use on a lathe or a drilling machine.

Delivered with 3 interchangeable steel chucks.



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.099 | 0...1.00 mm | 50 mm | 0.008 |

Mini cutting broaches holder pin vice with fluted hollow handle made of aluminium.
Provided with 1 steel chuck.



| MSA | Ø crowns | Model | Length | Kg |
|-----------|----------|---------------|--------|-------|
| 02.008-01 | 3...5 mm | Small | 75 mm | 0.031 |
| 02.008-02 | 4...6 mm | Medium | 75 mm | 0.031 |
| 02.008-03 | 5...7 mm | Large | 75 mm | 0.031 |

Winding crowns pin vice with knurled nickel-plated handle. Specially made for winding watches.



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.098 | 0...1.10 mm | 60 mm | 0.013 |

Mini cutting broaches holder pin vice with knurled hollow handle made of black steel and round head.
Provided with 1 steel chuck.



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.004 | 0...2.80 mm | 110 mm | 0.040 |

Double-ended pin vice with fluted hollow nickel-plated handle and 2 hexagonal heads to prevent rolling on bench.
Provided with 2 steel 4-lip chucks.



| MSA | Tightening | Length | Kg |
|--------|----------------|--------|-------|
| 02.050 | 1.40...2.80 mm | 107 mm | 0.039 |

Double-ended pin vice with fluted hollow nickel-plated handle and 2 knurled round heads.
Provided with 2 identical steel chucks with 4 cutters.



| MSA | Length | Kg |
|--------|--------|-------|
| 02.007 | 110 mm | 0.015 |

Forked pin vice with knurled nickel-plated handle.
Provided with a sliding locker for an easy and quick tightening with one hand.



| MSA | Tightening | Length | Kg |
|--------|-------------|--------|-------|
| 02.030 | 0...1.50 mm | 110 mm | 0.031 |

Crown pin vice with knurled hollow nickel-plated handle.
Provided with a sliding locker for an easy and quick tightening with one hand.

PIN VICES



| MSA | Ø | Length | Kg |
|------------|---------|--------|-------|
| 02.022-075 | 0.75 mm | 120 mm | 0.048 |
| 02.022-080 | 0.80 mm | 120 mm | 0.048 |
| 02.022-090 | 0.90 mm | 120 mm | 0.048 |
| 02.022-100 | 1.00 mm | 120 mm | 0.048 |
| 02.022-120 | 1.20 mm | 120 mm | 0.048 |
| 02.022-125 | 1.25 mm | 120 mm | 0.048 |
| 02.022-130 | 1.30 mm | 120 mm | 0.048 |
| 02.022-140 | 1.40 mm | 120 mm | 0.048 |
| 02.022-145 | 1.45 mm | 120 mm | 0.048 |
| 02.022-150 | 1.50 mm | 120 mm | 0.048 |
| 02.022-160 | 1.60 mm | 120 mm | 0.048 |
| 02.022-170 | 1.70 mm | 120 mm | 0.048 |
| 02.022-175 | 1.75 mm | 120 mm | 0.048 |
| 02.022-180 | 1.80 mm | 120 mm | 0.048 |
| 02.022-200 | 2.00 mm | 120 mm | 0.048 |
| 02.022-220 | 2.20 mm | 120 mm | 0.048 |
| 02.022-250 | 2.50 mm | 120 mm | 0.048 |
| 02.022-300 | 3.00 mm | 120 mm | 0.048 |
| 02.022-350 | 3.50 mm | 120 mm | 0.048 |

Pin vice for barrel staff with hollow nickel-plated hexagonal handle. Provided with a sliding locker for an easy and quick tightening with one hand.



| MSA | Ø | Length | Kg |
|------------|---------|--------|-------|
| 02.006-020 | 0.20 mm | 115 mm | 0.017 |
| 02.006-025 | 0.25 mm | 115 mm | 0.017 |
| 02.006-030 | 0.30 mm | 115 mm | 0.017 |
| 02.006-035 | 0.35 mm | 115 mm | 0.017 |
| 02.006-040 | 0.40 mm | 115 mm | 0.017 |
| 02.006-045 | 0.45 mm | 115 mm | 0.017 |
| 02.006-050 | 0.50 mm | 115 mm | 0.017 |
| 02.006-055 | 0.55 mm | 115 mm | 0.017 |
| 02.006-060 | 0.60 mm | 115 mm | 0.017 |
| 02.006-065 | 0.65 mm | 115 mm | 0.017 |
| 02.006-070 | 0.70 mm | 115 mm | 0.017 |
| 02.006-075 | 0.75 mm | 115 mm | 0.017 |
| 02.006-080 | 0.80 mm | 115 mm | 0.017 |
| 02.006-085 | 0.85 mm | 115 mm | 0.017 |
| 02.006-090 | 0.90 mm | 115 mm | 0.017 |
| 02.006-095 | 0.95 mm | 115 mm | 0.017 |
| 02.006-100 | 1.00 mm | 115 mm | 0.017 |
| 02.006-110 | 1.10 mm | 115 mm | 0.017 |
| 02.006-120 | 1.20 mm | 115 mm | 0.017 |

Balance screws hardened steel pin vice, knurled nickel-plated handle. Provided with a sliding locker for an easy and quick tightening with one hand.

The drill is a piercing tool operated by a threaded block.



| MSA | Model | Tightening | Length | Kg |
|----------|----------|-----------------|--------|-------|
| 02.009-R | 2 chucks | 0 + 0...2.30 mm | 110 mm | 0.030 |

Drill or drill holder for piercing. The tool has a series of helicoidally grooves and is turned by moving a threaded block alternately up and down.

Knurled broaches.



| MSA | Ø | Length | Kg |
|--------|------|--------|-------|
| 02.023 | 8 mm | 114 mm | 0.038 |

Knurled steel broach for use with P 4.5 type SCHAUBLIN chucks. Precise tightening and steady.

Delivered without chucks.

Accessories :



| MSA | Item | Kg |
|------------|-----------------------------|-------|
| 03.875-100 | Chuck P 4.5 type, Ø 1.00 mm | 0.002 |
| 03.875-150 | Chuck P 4.5 type, Ø 1.50 mm | 0.002 |
| 03.875-160 | Chuck P 4.5 type, Ø 1.60 mm | 0.002 |
| 03.875-200 | Chuck P 4.5 type, Ø 2.00 mm | 0.002 |
| 03.875-235 | Chuck P 4.5 type, Ø 2.35 mm | 0.002 |
| 03.875-250 | Chuck P 4.5 type, Ø 2.50 mm | 0.002 |
| 03.875-300 | Chuck P 4.5 type, Ø 3.00 mm | 0.002 |
| 03.875-400 | Chuck P 4.5 type, Ø 4.00 mm | 0.002 |



| MSA | Ø | Length | Kg |
|--------|------|--------|-------|
| 02.019 | 6 mm | 105 mm | 0.026 |

Knurled steel broach for manual use or mounted on a lathe. Precise tightening and steady.

Delivered with 4 easily interchangeable tightening chucks Ø 0.80, 1.00, 1.20 and 1.50 mm.

Spare parts :



| MSA | Item | Kg |
|------------|--------------------------------|-------|
| 02.019-080 | (1) Tightening chuck Ø 0.80 mm | 0.001 |
| 02.019-100 | Tightening chuck Ø 1.00 mm | 0.001 |
| 02.019-120 | Tightening chuck Ø 1.20 mm | 0.001 |
| 02.019-150 | Tightening chuck Ø 1.50 mm | 0.001 |
| 02.019-A | (2) Broach | 0.020 |



Accessories :

| MSA | Item | Kg |
|------------|----------------------------|-------|
| 02.019-060 | Tightening chuck Ø 0.60 mm | 0.001 |
| 02.019-200 | Tightening chuck Ø 2.00 mm | 0.001 |



| MSA | Ø | Length | Kg |
|--------|---------|--------|-------|
| 02.029 | 4.70 mm | 105 mm | 0.020 |

Knurled steel broach for use with STAR staking tools.

Delivered with 1 adjustment ring and 4 easily interchangeable tightening chucks Ø 0.80, 1.00, 1.20 and 1.50 mm.

Spare parts :



| MSA | Item | Kg |
|------------|--------------------------------|-------|
| 02.019-080 | (1) Tightening chuck Ø 0.80 mm | 0.001 |
| 02.019-100 | Tightening chuck Ø 1.00 mm | 0.001 |
| 02.019-120 | Tightening chuck Ø 1.20 mm | 0.001 |
| 02.019-150 | Tightening chuck Ø 1.50 mm | 0.001 |
| 02.029-B | (2) Broach | 0.015 |
| 02.029-BG | (3) Adjusting ring | 0.003 |

Accessories :

| MSA | Item | Kg |
|------------|----------------------------|-------|
| 02.019-060 | Tightening chuck Ø 0.60 mm | 0.001 |
| 02.019-200 | Tightening chuck Ø 2.00 mm | 0.001 |

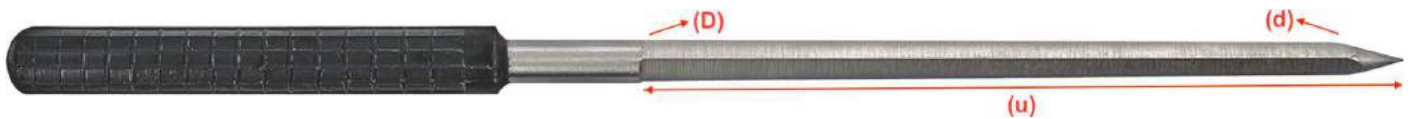
CUTTING BROACHES

The cutting broaches are used for enlarging holes. They have a 5-sided tapered shaft (pentagonal section) with sharp cutting edges.



| MSA | No. | Total length (L) | Useful length (u) | Ø (D) | Ø (d) | Kg |
|-----------|-----|------------------|-------------------|---------|---------|-------|
| 02.100-01 | 01 | 162 mm | 107 mm | 5.75 mm | 4.80 mm | 0.030 |
| 02.100-02 | 02 | 160 mm | 105 mm | 5.50 mm | 4.50 mm | 0.030 |
| 02.100-04 | 04 | 158 mm | 104 mm | 5.25 mm | 4.30 mm | 0.030 |
| 02.100-08 | 08 | 156 mm | 103 mm | 5.00 mm | 4.10 mm | 0.030 |
| 02.100-12 | 12 | 154 mm | 102 mm | 4.75 mm | 3.80 mm | 0.030 |
| 02.100-16 | 16 | 151 mm | 100 mm | 4.50 mm | 3.60 mm | 0.030 |
| 02.100-18 | 18 | 149 mm | 99 mm | 4.25 mm | 3.40 mm | 0.030 |
| 02.100-22 | 22 | 147 mm | 98 mm | 4.00 mm | 3.10 mm | 0.030 |
| 02.100-26 | 26 | 145 mm | 97 mm | 3.75 mm | 2.70 mm | 0.030 |
| 02.100-28 | 28 | 142 mm | 96 mm | 3.50 mm | 2.60 mm | 0.030 |
| 02.100-30 | 30 | 140 mm | 95 mm | 3.25 mm | 2.40 mm | 0.030 |
| 02.100-31 | 31 | 138 mm | 93 mm | 3.00 mm | 2.20 mm | 0.030 |
| 02.100-32 | 32 | 135 mm | 91 mm | 2.90 mm | 2.10 mm | 0.020 |
| 02.100-35 | 35 | 132 mm | 89 mm | 2.80 mm | 2.05 mm | 0.020 |
| 02.100-36 | 36 | 129 mm | 87 mm | 2.70 mm | 2.00 mm | 0.020 |
| 02.100-38 | 38 | 127 mm | 85 mm | 2.60 mm | 1.90 mm | 0.020 |
| 02.100-40 | 40 | 125 mm | 82 mm | 2.50 mm | 1.80 mm | 0.020 |
| 02.100-41 | 41 | 122 mm | 80 mm | 2.40 mm | 1.75 mm | 0.020 |
| 02.100-42 | 42 | 119 mm | 78 mm | 2.30 mm | 1.70 mm | 0.020 |
| 02.100-44 | 44 | 116 mm | 76 mm | 2.20 mm | 1.60 mm | 0.020 |
| 02.100-45 | 45 | 113 mm | 74 mm | 2.10 mm | 1.50 mm | 0.020 |
| 02.100-46 | 46 | 110 mm | 72 mm | 2.00 mm | 1.40 mm | 0.020 |
| 02.100-48 | 48 | 107 mm | 70 mm | 1.90 mm | 1.30 mm | 0.020 |
| 02.100-49 | 49 | 104 mm | 68 mm | 1.80 mm | 1.20 mm | 0.010 |
| 02.100-51 | 51 | 101 mm | 65 mm | 1.70 mm | 1.15 mm | 0.010 |
| 02.100-52 | 52 | 98 mm | 63 mm | 1.60 mm | 1.10 mm | 0.010 |
| 02.100-53 | 53 | 95 mm | 61 mm | 1.50 mm | 1.00 mm | 0.010 |
| 02.100-54 | 54 | 92 mm | 59 mm | 1.40 mm | 0.90 mm | 0.010 |
| 02.100-55 | 55 | 89 mm | 57 mm | 1.30 mm | 0.80 mm | 0.010 |
| 02.100-56 | 56 | 86 mm | 54 mm | 1.20 mm | 0.70 mm | 0.010 |
| 02.100-58 | 58 | 83 mm | 52 mm | 1.10 mm | 0.63 mm | 0.010 |
| 02.100-60 | 60 | 80 mm | 50 mm | 1.00 mm | 0.57 mm | 0.010 |
| 02.100-62 | 62 | 77.5 mm | 48 mm | 0.95 mm | 0.54 mm | 0.010 |
| 02.100-64 | 64 | 75 mm | 47 mm | 0.90 mm | 0.50 mm | 0.010 |
| 02.100-65 | 65 | 72.5 mm | 46 mm | 0.85 mm | 0.48 mm | 0.010 |
| 02.100-66 | 66 | 70.5 mm | 44 mm | 0.80 mm | 0.45 mm | 0.001 |
| 02.100-68 | 68 | 68 mm | 42 mm | 0.75 mm | 0.41 mm | 0.001 |
| 02.100-70 | 70 | 66 mm | 41 mm | 0.70 mm | 0.37 mm | 0.001 |
| 02.100-71 | 71 | 64 mm | 40 mm | 0.65 mm | 0.34 mm | 0.001 |
| 02.100-72 | 72 | 62 mm | 38 mm | 0.60 mm | 0.30 mm | 0.001 |
| 02.100-74 | 74 | 60 mm | 37 mm | 0.55 mm | 0.28 mm | 0.001 |
| 02.100-75 | 75 | 58 mm | 36 mm | 0.50 mm | 0.25 mm | 0.001 |
| 02.100-76 | 76 | 56 mm | 34 mm | 0.45 mm | 0.20 mm | 0.001 |
| 02.100-78 | 78 | 54 mm | 33 mm | 0.40 mm | 0.15 mm | 0.001 |
| 02.100-79 | 79 | 52 mm | 32 mm | 0.35 mm | 0.13 mm | 0.001 |
| 02.100-80 | 80 | 50 mm | 31 mm | 0.30 mm | 0.10 mm | 0.001 |

5-sided conical cutting broach, without handle, made of tool steel. The taper is 1:100. The numbers correspond to the measurements from the English screw-plate (Stubs) and in mm. Size (D) is measured slightly below largest portion of cutting edges.



| MSA | No. | Useful length (u) | Ø (D) | Ø (d) | Kg |
|------------|-----|-------------------|---------|---------|-------|
| 02.170-01 | 01 | 107 mm | 5.75 mm | 4.80 mm | 0.035 |
| 02.170-02 | 02 | 105 mm | 5.50 mm | 4.50 mm | 0.025 |
| 02.170-04 | 04 | 104 mm | 5.25 mm | 4.30 mm | 0.020 |
| 02.170-08 | 08 | 103 mm | 5.00 mm | 4.10 mm | 0.020 |
| 02.170-12 | 12 | 102 mm | 4.75 mm | 3.80 mm | 0.020 |
| 02.170-16 | 16 | 100 mm | 4.50 mm | 3.60 mm | 0.015 |
| 02.170-18 | 18 | 99 mm | 4.25 mm | 3.40 mm | 0.015 |
| 02.170-22 | 22 | 98 mm | 4.00 mm | 3.10 mm | 0.010 |
| 02.170-26 | 26 | 97 mm | 3.75 mm | 2.70 mm | 0.010 |
| 02.170-28 | 28 | 96 mm | 3.50 mm | 2.60 mm | 0.010 |
| 02.170-30 | 30 | 95 mm | 3.25 mm | 2.40 mm | 0.010 |
| 02.170-31 | 31 | 93 mm | 3.00 mm | 2.20 mm | 0.005 |
| 02.170-32 | 32 | 91 mm | 2.90 mm | 2.10 mm | 0.005 |
| 02.170-35 | 35 | 89 mm | 2.80 mm | 2.05 mm | 0.005 |
| 02.170-36 | 36 | 87 mm | 2.70 mm | 2.00 mm | 0.004 |
| 02.170-38 | 38 | 85 mm | 2.60 mm | 1.90 mm | 0.004 |
| 02.170-40 | 40 | 82 mm | 2.50 mm | 1.80 mm | 0.004 |
| 02.170-41 | 41 | 80 mm | 2.40 mm | 1.75 mm | 0.003 |
| 02.170-42 | 42 | 78 mm | 2.30 mm | 1.70 mm | 0.003 |
| 02.170-44 | 44 | 76 mm | 2.20 mm | 1.60 mm | 0.003 |
| 02.170-45 | 45 | 74 mm | 2.10 mm | 1.50 mm | 0.002 |
| 02.170-46 | 46 | 72 mm | 2.00 mm | 1.40 mm | 0.002 |
| 02.170-48 | 48 | 70 mm | 1.90 mm | 1.30 mm | 0.002 |
| 02.170-49 | 49 | 68 mm | 1.80 mm | 1.20 mm | 0.001 |
| 02.170-51 | 51 | 65 mm | 1.70 mm | 1.15 mm | 0.001 |
| 02.170-52 | 52 | 63 mm | 1.60 mm | 1.10 mm | 0.001 |
| 02.170-53 | 53 | 61 mm | 1.50 mm | 1.00 mm | 0.001 |
| 02.170-54 | 54 | 59 mm | 1.40 mm | 0.90 mm | 0.001 |
| 02.170-55 | 55 | 57 mm | 1.30 mm | 0.80 mm | 0.001 |
| 02.170-56 | 56 | 54 mm | 1.20 mm | 0.70 mm | 0.001 |
| 02.170-58 | 58 | 52 mm | 1.10 mm | 0.63 mm | 0.001 |
| 02.170-60 | 60 | 50 mm | 1.00 mm | 0.57 mm | 0.001 |
| 02.170-64 | 64 | 47 mm | 0.90 mm | 0.50 mm | 0.001 |
| 02.170-66 | 55 | 44 mm | 0.80 mm | 0.45 mm | 0.001 |
| 02.170-70 | 70 | 41 mm | 0.70 mm | 0.37 mm | 0.001 |
| 02.170-72 | 72 | 38 mm | 0.60 mm | 0.30 mm | 0.001 |
| 02.170-75 | 75 | 36 mm | 0.50 mm | 0.25 mm | 0.001 |
| 02.170-78 | 78 | 33 mm | 0.40 mm | 0.15 mm | 0.001 |
| 02.170-80 | 80 | 31 mm | 0.30 mm | 0.10 mm | 0.001 |
| 02.170-020 | 020 | 20 mm | 0.20 mm | 0.07 mm | 0.001 |
| 02.170-015 | 015 | 18 mm | 0.15 mm | 0.05 mm | 0.001 |
| 02.170-010 | 010 | 17 mm | 0.10 mm | 0.0 mm | 0.001 |
| 02.170-008 | 008 | 16 mm | 0.08 mm | 0.03 mm | 0.001 |
| 02.170-005 | 005 | 15 mm | 0.05 mm | 0.02 mm | 0.001 |

5-sided conical cutting broach, with plastic handle, made of tool steel. The taper is 1:100. The numbers correspond to the measurements from the English screw-plate (Stubs) and in mm. Size (D) is measured slightly below largest portion of cutting edges.

ASSORTMENT OF CUTTING BROACHES



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.155 | 60 x 44 mm | 0.010 |

Assortment of 12 extra thin cutting broaches with plastic handle.
Contents : Ø 0.05, 0.08, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50 and 0.55 mm.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.151 | 133 x 60 mm | 0.010 |

Assortment of 6 5-sided cutting broaches with plastic handle.
Contents : Ø 0.40, 0.60, 0.80, 1.00, 1.20 and 1.40 mm.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.150 | 133 x 60 mm | 0.013 |

Assortment of 6 5-sided cutting broaches with plastic handle.
Contents : Ø 0.60, 0.80, 1.00, 1.30, 1.60 and 2.00 mm.



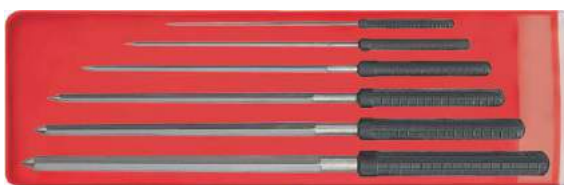
| MSA | Packaging size | Kg |
|---------------|------------------|-------|
| 02.152 | 152 x 15 x 15 mm | 0.029 |

Assortment of 6 5-sided cutting broaches with plastic handle.
Contents : Ø 0.70, 1.00, 1.50, 2.00, 2.50 and 3.00 mm.



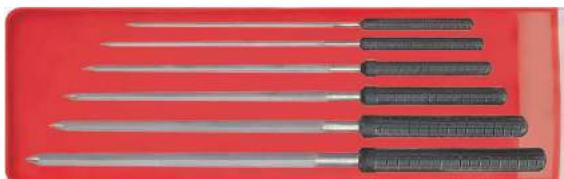
| MSA | Packaging size | Kg |
|---------------|------------------|-------|
| 02.153 | 152 x 15 x 15 mm | 0.030 |

Assortment of 6 5-sided cutting broaches with plastic handle.
Contents : Ø 1.20, 1.50, 1.80, 2.20, 2.50 and 3.00 mm.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.161 | 205 x 65 mm | 0.112 |

Assortment of 6 5-sided cutting broaches with plastic handle. Large models for watches, alarm clocks and clocks.
Contents : Ø 1.50, 2.20, 3.00, 4.00, 5.50 and 7.00 mm.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.160 | 205 x 65 mm | 0.110 |

Assortment of 6 5-sided cutting broaches with plastic handle. Large models for alarm clocks and clocks.
Contents : Ø 2.20, 2.50, 3.00, 4.00, 5.00 and 6.00 mm.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.162 | 250 x 75 mm | 0.330 |

Assortment of 4 5-sided cutting broaches with plastic handle. Large models for alarm clocks and clocks.
Contents : Ø 7.00, 8.00, 9.25 and 10.50 mm.

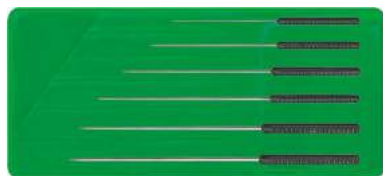
Smoothing broaches are used for polishing the holes.



| MSA | No. | Useful length (u) | Ø (D) | Ø (d) | Kg |
|-----------|-----|-------------------|---------|---------|-------|
| 02.250-01 | 01 | 107 mm | 5.75 mm | 4.80 mm | 0.035 |
| 02.250-02 | 02 | 105 mm | 5.50 mm | 4.50 mm | 0.035 |
| 02.250-04 | 04 | 104 mm | 5.25 mm | 4.30 mm | 0.035 |
| 02.250-08 | 08 | 103 mm | 5.00 mm | 4.10 mm | 0.035 |
| 02.250-12 | 12 | 102 mm | 4.75 mm | 3.80 mm | 0.035 |
| 02.250-16 | 16 | 100 mm | 4.50 mm | 3.60 mm | 0.030 |
| 02.250-18 | 18 | 99 mm | 4.25 mm | 3.40 mm | 0.030 |
| 02.250-22 | 22 | 98 mm | 4.00 mm | 3.10 mm | 0.030 |
| 02.250-26 | 26 | 97 mm | 3.75 mm | 2.70 mm | 0.030 |
| 02.250-28 | 28 | 96 mm | 3.50 mm | 2.60 mm | 0.030 |
| 02.250-30 | 30 | 95 mm | 3.25 mm | 2.40 mm | 0.025 |
| 02.250-31 | 31 | 93 mm | 3.00 mm | 2.20 mm | 0.025 |
| 02.250-32 | 32 | 91 mm | 2.90 mm | 2.10 mm | 0.025 |
| 02.250-35 | 35 | 89 mm | 2.80 mm | 2.05 mm | 0.025 |
| 02.250-36 | 36 | 87 mm | 2.70 mm | 2.00 mm | 0.025 |
| 02.250-38 | 38 | 85 mm | 2.60 mm | 1.90 mm | 0.020 |
| 02.250-40 | 40 | 82 mm | 2.50 mm | 1.80 mm | 0.020 |
| 02.250-41 | 41 | 80 mm | 2.40 mm | 1.75 mm | 0.020 |
| 02.250-42 | 42 | 78 mm | 2.30 mm | 1.70 mm | 0.020 |
| 02.250-44 | 44 | 76 mm | 2.20 mm | 1.60 mm | 0.020 |
| 02.250-45 | 45 | 74 mm | 2.10 mm | 1.50 mm | 0.015 |
| 02.250-46 | 46 | 72 mm | 2.00 mm | 1.40 mm | 0.015 |
| 02.250-48 | 48 | 70 mm | 1.90 mm | 1.30 mm | 0.015 |
| 02.250-49 | 49 | 68 mm | 1.80 mm | 1.20 mm | 0.015 |
| 02.250-51 | 51 | 65 mm | 1.70 mm | 1.15 mm | 0.015 |
| 02.250-52 | 52 | 63 mm | 1.60 mm | 1.10 mm | 0.010 |
| 02.250-53 | 53 | 61 mm | 1.50 mm | 1.00 mm | 0.010 |
| 02.250-54 | 54 | 59 mm | 1.40 mm | 0.90 mm | 0.010 |
| 02.250-55 | 55 | 57 mm | 1.30 mm | 0.80 mm | 0.010 |
| 02.250-56 | 56 | 54 mm | 1.20 mm | 0.70 mm | 0.010 |
| 02.250-58 | 58 | 52 mm | 1.10 mm | 0.63 mm | 0.001 |
| 02.250-60 | 60 | 50 mm | 1.00 mm | 0.57 mm | 0.001 |
| 02.250-64 | 64 | 47 mm | 0.90 mm | 0.50 mm | 0.001 |
| 02.250-66 | 66 | 44 mm | 0.80 mm | 0.45 mm | 0.001 |
| 02.250-70 | 70 | 41 mm | 0.70 mm | 0.37 mm | 0.001 |
| 02.250-72 | 72 | 38 mm | 0.60 mm | 0.30 mm | 0.001 |
| 02.250-75 | 75 | 36 mm | 0.50 mm | 0.25 mm | 0.001 |
| 02.250-78 | 78 | 33 mm | 0.40 mm | 0.15 mm | 0.001 |
| 02.250-80 | 80 | 31 mm | 0.30 mm | 0.10 mm | 0.001 |

Smoothing broach, with plastic handle, made of tool steel. The taper is 1:100. The numbers correspond to the measurements from the English screw-plate (Stubs) and in mm. Size (D) is measured slightly below largest portion of cutting edges.

SMOOTHING BROACHES



ASSORTMENT

| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.221 | 133 x 60 mm | 0.010 |

Assortment of 6 smoothing broaches with plastic handle.
Contents : Ø 0.40, 0.60, 0.80, 1.00, 1.20 and 1.40 mm.



ASSORTMENT

| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 02.220 | 133 x 60 mm | 0.013 |

Assortment of 6 smoothing broaches with plastic handle.
Contents : Ø 0.60, 0.80, 1.00, 1.30, 1.60 and 2.00 mm.

Assortments of smoothing broaches in wooden box.



MSA22.567

See chapter 22.



MSA22.571

See chapter 22.

03



SPECIALIZED WATCH MAKING TOOLS

03 - 2

LATHES

03 - 11

RIVETING STAKES

03 - 15

DRILL MACHINES

03 - 16

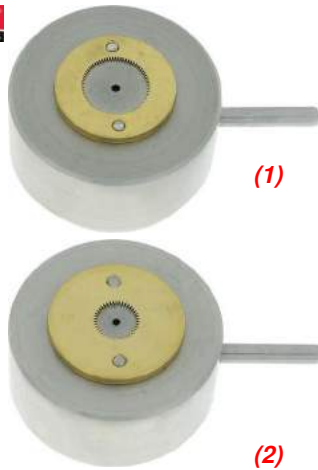
**Tools for locking/unlocking oscillating weight bolts.
Calibres 2892... and 7750...**



| MSA | For calibres | Kg |
|-------------|-------------------------------|-------|
| 03.676-2892 | ETA 2892 - 2893 - 2894 - 2895 | 0.665 |
| 03.676-7750 | ETA 7750 - 7751 - 7753 | 0.665 |

Press for locking/unlocking oscillation weight bolts. The broach is mounted on spring for a fast and precise job. The broach is interchangeable and easily disassembled by unscrewing the head.

Delivered without movement holder MSA03.678-xxx or MSA03.680-xxx.



| MSA | For calibres | Kg |
|-----------------|---|-------|
| 03.680-2892 (1) | ETA 2892 - 2893 - 2894 - 2895 - 2896 - 2897 | 0.078 |
| 03.680-7750 (2) | ETA 7700 - 7750 - A07111 - A07161 - A07271 | 0.079 |

Support for assembling/disassembling the oscillating weight bolts.

Spare part :

| MSA | Item | Kg |
|----------|--------------------|-------|
| 03.676-A | Guide staff Ø 4 mm | 0.001 |



| MSA | For calibres | Kg |
|-----------------|-------------------------------|-------|
| 03.678-2892 (1) | ETA 2892 - 2893 - 2894 - 2895 | 0.070 |
| 03.678-7750 (2) | ETA 7750 - 7751 - 7753 | 0.090 |

Base holder for MSA03.676-2892 and 03.676-7750.



| MSA | For calibres | Kg |
|-------------|-------------------------------|-------|
| 03.679-2892 | ETA 2892 - 2893 - 2894 - 2895 | 0.090 |
| 03.679-7750 | ETA 7750 - 7751 - 7753 | 0.110 |

Broach for MSA03.676-xxxx and 03.677-xxxx.

Tools for assembling/disassembling oscillating weight bolts, screw-on pushers, screw-on tubes and battery covers.



| MSA | Kg |
|--------|-------|
| 03.675 | 0.170 |

Tool for locking/unlocking oscillating weight bolts.
Delivered with 2 interchangeable snap-on keys (MSA03.620-2892 and 03.620-7750) and a detailed user's manual.

Spare parts :

| MSA | Item | Kg |
|-------------|---|-------|
| 03.620-2892 | Key for calibres 2892, 2893, 2894 and 2895 | 0.008 |
| 03.620-7750 | Key for calibres 2000-1, 7750, 7751 and 7753 | 0.008 |
| 03.620-A | Hexagonal handle compatible with all illustrated keys | 0.060 |



| MSA | Size | Kg |
|--------|------------------|-------|
| 03.622 | 120 x 70 x 35 mm | 0.448 |

Tool for assembling/disassembling screw-on pushers and tubes.

Contents :

- 1 plate
- 1 hexagonal handle MSA03.620-A
- 13 interchangeable keys MSA03.620-01, -02, -03, -04, -05, -06, -07, -08, -203, -207, -P3, -P27 and -P39.

See next page for details of spare parts.



| MSA | Size | Kg |
|--------|------------------|-------|
| 03.623 | 120 x 70 x 35 mm | 0.460 |

Tool for locking/unlocking oscillating weight bolts and assembling/disassembling screw-on pushers and tubes.

Contents :

- 1 plate
- 1 hexagonal handle MSA03.620-A
- 15 interchangeable keys MSA03.620-01, -02, -03, -04, -05, -06, -07, -08, -203, -207, -2892, -7750, -P3, -P27 and -P39.

See next page for details of spare parts.



| MSA | Size | Kg |
|--------|------------------|-------|
| 03.621 | 120 x 70 x 35 mm | 0.496 |









Tool for locking/unlocking oscillating weight bolts and assembling/disassembling screw-on pushers, screw-on tubes and battery covers.

Contents :






- 1 plate
- 1 hexagonal handle MSA03.620-A
- 18 interchangeable keys MSA03.620-01, -02, -03, -04, -05, -06, -07, -08, -203, -207, -2892, -7750, -GENT, -LADY, -MED, -P3, -P27 and -P39.

See below the details of spare parts.



Spare parts for screwing tubes :

| MSA | Item | Kg | |
|-----------|------------------------------------|-------|---|
| 03.620-01 | Key for tubes MSA65.001, Ø 1.50 mm | 0.005 |  |
| 03.620-02 | Key for tubes MSA65.002, Ø 1.80 mm | 0.005 |  |
| 03.620-03 | Key for tubes MSA65.003, Ø 2.65 mm | 0.005 |  |
| 03.620-04 | Key for tubes MSA65.004, Ø 2.75 mm | 0.005 |  |
| 03.620-05 | Key for tubes MSA65.005, Ø 2.95 mm | 0.005 |  |
| 03.620-06 | Key for tubes MSA65.006, Ø 3.00 mm | 0.005 |  |
| 03.620-07 | Key for tubes MSA65.007, Ø 3.00 mm | 0.005 |  |
| 03.620-08 | Key for tubes OM SEAM. | 0.005 |  |




Spare parts for screwing pushers :

| MSA | Item | Kg | |
|------------|----------------------------------|-------|---|
| 03.620-203 | Key for pushers MSA61.203 / .703 | 0.005 |  |
| 03.620-207 | Key for pushers MSA61.207 / .707 | 0.005 |  |
| 03.620-P27 | Key for pushers type P27 | 0.006 |  |
| 03.620-P3 | Key for pushers type P3 | 0.006 |  |
| 03.620-P39 | Key for pushers type P39 | 0.006 |  |


Spare parts for oscillating weight bolts :

| MSA | Item | Kg | |
|-------------|--|-------|---|
| 03.620-2892 | Key for calibres 2892, 2893, 2894 and 2895 | 0.008 |  |
| 03.620-7750 | Key for calibres 2000-1, 7750, 7751 and 7753 | 0.008 |  |

Spare parts for Swatch® battery covers :

| MSA | Item | Kg | |
|-------------|------------------------|-------|---|
| 03.620-GENT | Key for Gent watches | 0.015 |  |
| 03.620-LADY | Key for Lady watches | 0.015 |  |
| 03.620-MED | Key for Medium watches | 0.015 |  |

Spare part :

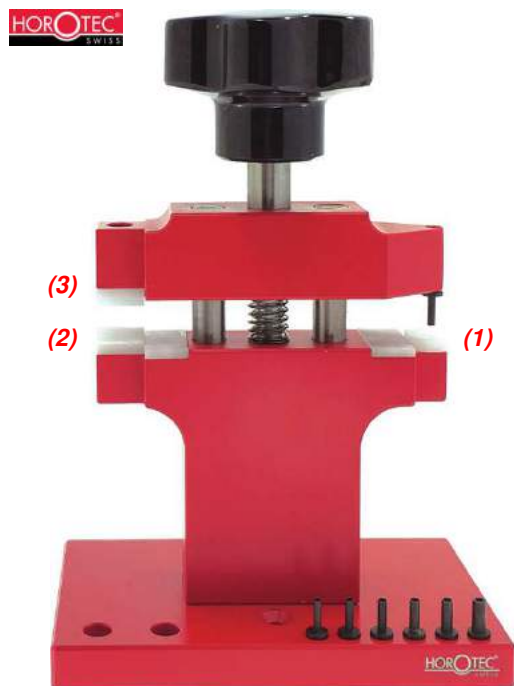
| MSA | Item | Kg | |
|----------|---|-------|---|
| 03.620-A | Hexagonal handle compatible with all illustrated keys | 0.060 |  |



| MSA | Type | Internal Ø | Kg |
|------------|------|------------|-------|
| 03.653-P3 | P3 | 3.00 mm | 0.060 |
| 03.653-P27 | P27 | 3.50 mm | 0.060 |
| 03.653-P39 | P39 | 3.60 mm | 0.060 |

Tool for screw/unscrew fluted pusher tubes.
Aluminium handle.

Press for fitting/removing press-in pushers and crown tubes.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 03.657 | 100 x 60 x 142 mm | 0.480 |

Press for fitting/removing press-in pushers and crown tubes easily and without damage.

Delivered with 7 stakes, external Ø from 1.55 to 2.95 mm.

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 03.654-A | (1) Stake Ø ext. 2.95 - Ø int. 1.55 mm | 0.001 |
| 03.654-B | Stake Ø ext. 2.65 - Ø int. 1.55 mm | 0.001 |
| 03.654-C | Stake Ø ext. 2.45 - Ø int. 1.55 mm | 0.001 |
| 03.654-D | Stake Ø ext. 2.15 - Ø int. 1.55 mm | 0.001 |
| 03.654-E | Stake Ø ext. 1.95 - Ø int. 1.55 mm | 0.001 |
| 03.654-F | Stake Ø ext. 1.75 - Ø int. 1.55 mm | 0.001 |
| 03.654-G | Stake Ø ext. 1.55 - Ø int. 1.55 mm | 0.001 |
| 03.654-H | (2) Removing support | 0.001 |
| 03.656-A | (3) Lower fitting support | 0.001 |
| 03.656-B | (4) Upper fitting support | 0.001 |



Keys for screw/unscrew pushers.



| MSA | Internal Ø | Kg |
|--------|------------|-------|
| 03.655 | 3.10 mm | 0.007 |

Steel key for screw/unscrew the chronograph pushers MSA61.207 and 61.707.

Nice black finish.

Keys for screw/unscrew the tubes of screw-on crowns.



| MSA | For tubes | External Ø | Kg |
|-----------|-----------|------------|-------|
| 03.665-01 | MSA65.001 | 1.60 mm | 0.006 |
| 03.665-02 | MSA65.002 | 1.90 mm | 0.006 |
| 03.665-03 | MSA65.003 | 2.65 mm | 0.006 |
| 03.665-04 | MSA65.004 | 2.70 mm | 0.006 |
| 03.665-05 | MSA65.005 | 2.90 mm | 0.006 |
| 03.665-06 | MSA65.006 | 3.05 mm | 0.006 |

Steel key for screw/unscrew the tubes of screw-on crowns to assure waterproof of diving watches.

Nice black finish.

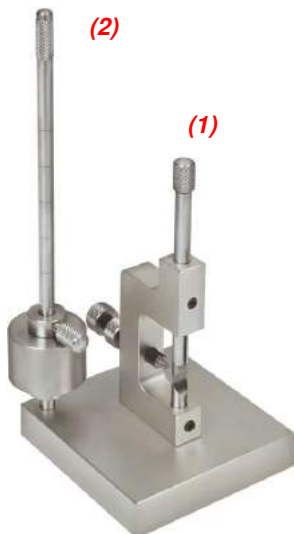
Crowns extractor.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 03.604 | 40 x 15 x 25 mm | 0.023 |

Crowns extractor with adjustment screw.

Tools for lanterning canon pinions.



| MSA | Size | Kg |
|--------|------------------|-------|
| 03.005 | 50 x 50 x 120 mm | 0.317 |

Press for lanterning canon pinions with hard metal beaks and sliding ring mounted on grooved broach.

This press can be used in 2 different ways :

- (1) - With the standard broach for single use.
- (2) - With the grooved scale broach and 1 screwed sliding ring for height punch adjustment.

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 03.005-A | Punch stem with weight | - |
| 03.005-B | Broach with beak, L54 x Ø 4 mm + Lower beak, L16 x Ø 4 mm | 0.008 |



| MSA | Size | Kg |
|--------|----------------|-------|
| 03.004 | 97 x 7 x 45 mm | 0.135 |

Tool for lanterning canon pinions, fixable on a vice.

Tools for hairspring collets.



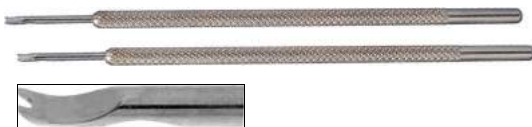
| MSA | Ø | Kg | MSA | Ø | Kg |
|-----------|---------|-------|-----------|---------|-------|
| 03.101-03 | 0.30 mm | 0.006 | 03.101-08 | 0.80 mm | 0.006 |
| 03.101-04 | 0.40 mm | 0.006 | 03.101-09 | 0.90 mm | 0.006 |
| 03.101-05 | 0.50 mm | 0.006 | 03.101-10 | 1.00 mm | 0.006 |
| 03.101-06 | 0.60 mm | 0.006 | 03.101-12 | 1.20 mm | 0.006 |
| 03.101-07 | 0.70 mm | 0.006 | | | |

Broaches for hairspring collets with nickel-plated brass knurled handle.
Length 98 mm.



| MSA | External Ø | Ø hole | Length | Kg |
|-----------|------------|---------|--------|-------|
| 03.102-11 | 1.10 mm | 0.45 mm | 95 mm | 0.010 |
| 03.102-16 | 1.60 mm | 0.55 mm | 95 mm | 0.010 |
| 03.102-21 | 2.10 mm | 0.75 mm | 95 mm | 0.010 |

Tool for turning and setting hairspring collets with nickel-plated brass knurled handle.

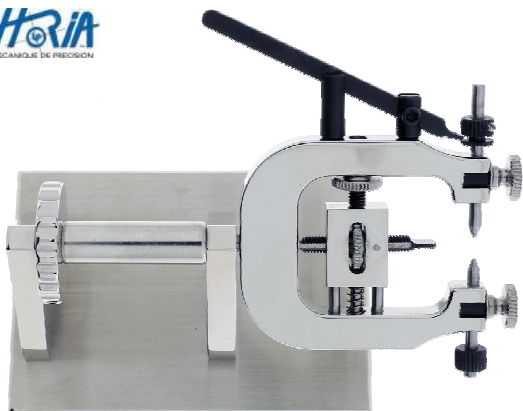


| MSA | Spatulas width | Total length | Kg |
|----------|----------------|--------------|-------|
| 03.103-E | 1.80 mm | 95 mm | 0.015 |
| 03.103-C | 2.50 mm | 115 mm | 0.022 |
| 03.103-D | 3.00 mm | 120 mm | 0.024 |

PAIR

Pair of hairspring collets levers with nickel-plated brass knurled handle.

Truing callipers.



| MSA | Size | Kg |
|--------|------------|-------|
| 03.415 | 85 x 70 mm | 0.260 |

Truing calliper on base.

Poising tool.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 03.419 | 80 x 50 x 45 mm | 0.300 |

Poising tool with spirit level Ø 18 mm and 2 adjustable feet.
Delivered with 2 ruby jaws MSA03.419-A, length 15 mm.

Spare parts :

| MSA | Item | Kg |
|----------|------------|-------|
| 03.419-A | Ruby jaw | 0.001 |
| 03.419-B | Wooden box | 0.175 |



Tools for stud holding and for setting balance screws.



| MSA | Size | Kg |
|--------|-------------|-------|
| 03.200 | Ø 40 x 9 mm | 0.106 |

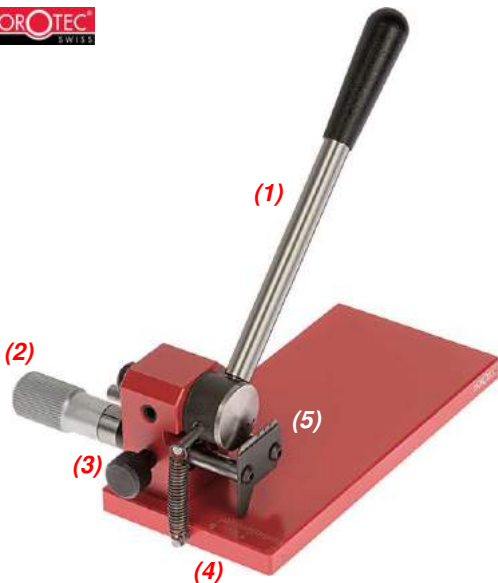
Tool for stud holding, used for fixing the stud on the balance-spring.



| MSA | Size | Kg |
|--------|-------------|-------|
| 03.424 | Ø 40 x 7 mm | 0.030 |

Nickel-plated brass tool with holes for setting the balances, with 12 holes from Ø 0.5 to 2.5 mm.

Tools for winding stems.



| MSA | Base size | Kg |
|--------|-------------|-------|
| 03.602 | 60 x 118 mm | 0.353 |

Tool for shortening winding stems, allowing the length setting of stems in serial production.

Description :

- (1) - Lever with ergonomic handle with 1 return spring
- (2) - Micrometric screw graduated to 1/10 mm for precise setting of cut length
- (3) - Blocking screw to always keep the same length during cutting in serial production
- (4) - Base equipped with a small ruler with divisions from 0 to 15 mm
- (5) - Side pierced with 3 holes suitable for stems Ø 0.90, 1.00 and 1.20 mm.

Spare parts :

| MSA | Item | Kg |
|----------|--------|-------|
| 03.602-A | Spring | 0.001 |
| 03.602-B | Knife | 0.016 |





| MSA | Ø | Kg | MSA | Ø | Kg |
|-----------|---------|-------|-----------|---------|-------|
| 03.600-08 | 0.80 mm | 0.030 | 03.600-13 | 1.30 mm | 0.030 |
| 03.600-09 | 0.90 mm | 0.030 | 03.600-14 | 1.40 mm | 0.030 |
| 03.600-10 | 1.00 mm | 0.030 | 03.600-15 | 1.50 mm | 0.030 |
| 03.600-11 | 1.10 mm | 0.030 | 03.600-16 | 1.60 mm | 0.030 |
| 03.600-12 | 1.20 mm | 0.030 | | | |

Tool for shortening winding stems, with knurled handle. Provided with a stop for regular cutting.
Length 70 mm.



| MSA | Kg |
|--------|----|
| 03.603 | - |

Tool for oiling the winding stems. Allows a perfect, clean and quick greasing for all types of stems.

Spare part :

| MSA | Item | Kg |
|----------|---------------|----|
| 03.603-A | Cup with felt | - |

Other tools.



| MSA | Size | Kg |
|--------|-------------|-------|
| 03.006 | 127 x 80 mm | 1.050 |

Tool used to check the perfect straightness of stems. This tool is usually placed in a vice.

Delivered without American chuck. See MSA03.839-x (page 03-16).



| MSA | Length | Kg |
|--------|--------|-------|
| 03.010 | 115 mm | 0.011 |

Lantern-chuck. Tool to hold the screw by its head used to shorten or round and polish the screw thread end.

Delivered with 3 heads of different diameters.

Spare parts :

| MSA | Item | Kg |
|------------|--------------------|-------|
| 03.010-040 | Head for Ø 0.40 mm | 0.001 |
| 03.010-060 | Head for Ø 0.60 mm | 0.001 |
| 03.010-080 | Head for Ø 0.80 mm | 0.001 |



| MSA | Size | Kg |
|--------|--------------|-------|
| 03.310 | Ø 25 x 19 mm | 0.022 |

Tool for closing barrel covers.

SPECIALIZED WATCH MAKING TOOLS



Ø 1.55 mm



| MSA | Kg |
|--------|-------|
| 03.011 | 0.008 |

Tool for shockproof spring Novodiac.
For calibres ETA 2801 - 2824-2 - 2834-2 - 2836-2 - 6497.



Ø 1.45 mm



| MSA | Kg |
|--------|-------|
| 03.012 | 0.008 |

Tool for shockproof spring Novodiac.
For calibres ETA 2660 - 2671 - 2688.



| MSA | Kg |
|--------|-------|
| 03.015 | 0.008 |

Tool for pressing out the stud from the stud support ETACHRON.



| MSA | Kg |
|--------|-------|
| 03.014 | 0.008 |

Tool for turning the stud and the regulator pins block ETACHRON.



| MSA | Kg |
|--------|-------|
| 03.016 | 0.008 |

Tool for opening the dial bolts (fastener split pin).
Mirror polished tip.



| MSA | Size | Kg |
|--------|----------------|-------|
| 03.018 | Ø 6 x 61.50 mm | 0.017 |

Corrector tool with black POM tip.

Spare part :

| MSA | Item | Kg |
|----------|---------------|-------|
| 03.018-A | Black POM tip | 0.002 |

Special lathes for polishing pivots.



(1)

| MSA | Type | Version |
|--------|------|---|
| 03.452 | (1) | 106 With 3 broaches MSA 03.467, MSA03.474 and MSA03.475 |
| 03.454 | | 108 With 4 broaches MSA03.467, MSA03.468, MSA03.469 and MSA03.475 |

Nickel-plated brass pivoting tool with 3 broaches (24 notches and 48 lanterns) or 4 broaches (36 notches and 72 lanterns).
Delivered in a wooden box.

Spare broaches for MSA03.452 and MSA03.454 :

| MSA | Item |
|--------|--|
| 03.467 | Type 123 : Broach with conical notched disk. For seconds \varnothing 0.15 - 0.30 mm |
| 03.468 | Broach with lantern and notched disk. For pivots \varnothing 0.04 - 0.10 mm |
| 03.469 | Type 125 : Broach with lantern and notched disk. For pivots \varnothing 0.10 - 0.15 mm |
| 03.474 | Type 126 : Broach with lantern and notched disk. For pivots \varnothing 0.04 - 0.15 mm |
| 03.475 | Type 127 : Broach with lantern and notched disk. For pivots \varnothing 0.16 - 0.36 mm |

Spare parts for MSA03.452 and MSA03.454 :

| MSA | Item |
|----------|---|
| 03.425-A | Type 131 : Pivot gauge \varnothing 0.05 - 0.40 mm |
| 03.425-B | Type 131a : Pivot gauge \varnothing 0.40 - 0.80 mm |
| 03.425-C | Type 131b : Pivot gauge \varnothing 0.80 - 1.20 mm |
| 03.470 | Type 119 : Supplement for sliding puppet |
| 03.472 | Type 135 : Pulley with fork |
| 03.473 | Type 135a : Fork |
| 03.476 | Type 118a : Broach with notched disks for pivots \varnothing 0.38 - 0.76 mm |
| 03.477 | Type 117a : Broach with notched disks for pivots \varnothing 0.38 - 1.00 mm |
| 03.478 | Type 118 : Broach with notched disks for pivots \varnothing 0.38 - 1.20 mm |
| 03.479 | Type 122 : Cylinder for broaches MSA03.468, 03.469 and 03.474 |
| 03.481 | Type 155a : Bow for hand work |
| 03.484 | Type 155 : Bow for hand work, spring steel |

???

HORIA
MECANIQUE DE PRECISION



MSA

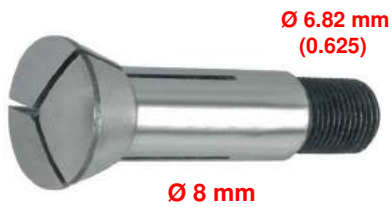
03.483

Lathe for polishing screws.

Contents :

- 1 wooden box
- 1 lathe with chuck and broach : body 8 mm, \varnothing 5 mm
- 4 grinding wheels \varnothing 50 mm : 1 cast iron, 1 bronze, 1 boxwood and 1 tin
- 1 set of 22 chucks : body 5 mm from \varnothing 0.40 to 2.50 mm
- 1 set of 12 lanterns : body 5 mm from \varnothing 0.30 to 2.50 mm.

American chucks.



| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 03.840-0.3 | 0.30 mm | 0.090 | 03.840-2.0 | 2.00 mm | 0.090 |
| 03.840-0.4 | 0.40 mm | 0.090 | 03.840-2.2 | 2.20 mm | 0.090 |
| 03.840-0.5 | 0.50 mm | 0.090 | 03.840-2.3 | 2.30 mm | 0.090 |
| 03.840-0.6 | 0.60 mm | 0.090 | 03.840-2.4 | 2.40 mm | 0.090 |
| 03.840-0.7 | 0.70 mm | 0.090 | 03.840-2.5 | 2.50 mm | 0.090 |
| 03.840-0.8 | 0.80 mm | 0.090 | 03.840-2.6 | 2.60 mm | 0.090 |
| 03.840-0.9 | 0.90 mm | 0.090 | 03.840-2.7 | 2.70 mm | 0.090 |
| 03.840-1.0 | 1.00 mm | 0.090 | 03.840-2.8 | 2.80 mm | 0.090 |
| 03.840-1.1 | 1.10 mm | 0.090 | 03.840-2.9 | 2.90 mm | 0.090 |
| 03.840-1.2 | 1.20 mm | 0.090 | 03.840-3.0 | 3.00 mm | 0.090 |
| 03.840-1.3 | 1.30 mm | 0.090 | 03.840-3.5 | 3.50 mm | 0.090 |
| 03.840-1.4 | 1.40 mm | 0.090 | 03.840-4.0 | 4.00 mm | 0.090 |
| 03.840-1.5 | 1.50 mm | 0.090 | 03.840-4.5 | 4.50 mm | 0.090 |
| 03.840-1.6 | 1.60 mm | 0.090 | 03.840-4.6 | 4.60 mm | 0.090 |
| 03.840-1.7 | 1.70 mm | 0.090 | 03.840-5.0 | 5.00 mm | 0.090 |
| 03.840-1.8 | 1.80 mm | 0.090 | 03.840-6.0 | 6.00 mm | 0.090 |
| 03.840-1.9 | 1.90 mm | 0.090 | 03.840-7.0 | 7.00 mm | 0.090 |

B8 american chuck.



| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 03.839-030 | 0.30 mm | 0.060 | 03.839-200 | 2.00 mm | 0.060 |
| 03.839-050 | 0.50 mm | 0.060 | 03.839-210 | 2.10 mm | 0.060 |
| 03.839-060 | 0.60 mm | 0.060 | 03.839-220 | 2.20 mm | 0.060 |
| 03.839-070 | 0.70 mm | 0.060 | 03.839-230 | 2.30 mm | 0.060 |
| 03.839-080 | 0.80 mm | 0.060 | 03.839-240 | 2.40 mm | 0.060 |
| 03.839-090 | 0.90 mm | 0.060 | 03.839-250 | 2.50 mm | 0.060 |
| 03.839-100 | 1.00 mm | 0.060 | 03.839-260 | 2.60 mm | 0.060 |
| 03.839-110 | 1.10 mm | 0.060 | 03.839-270 | 2.70 mm | 0.060 |
| 03.839-120 | 1.20 mm | 0.060 | 03.839-280 | 2.80 mm | 0.060 |
| 03.839-130 | 1.30 mm | 0.060 | 03.839-290 | 2.90 mm | 0.060 |
| 03.839-140 | 1.40 mm | 0.060 | 03.839-300 | 3.00 mm | 0.060 |
| 03.839-150 | 1.50 mm | 0.060 | 03.839-350 | 3.50 mm | 0.060 |
| 03.839-160 | 1.60 mm | 0.060 | 03.839-400 | 4.00 mm | 0.060 |
| 03.839-170 | 1.70 mm | 0.060 | 03.839-450 | 4.50 mm | 0.060 |
| 03.839-180 | 1.80 mm | 0.060 | 03.839-500 | 5.00 mm | 0.060 |
| 03.839-190 | 1.90 mm | 0.060 | | | |

American chuck B6/128.

Chucks P 4.5 type.



Ø 4.50 mm

| MSA | Ø | Kg |
|------------|---------|-------|
| 03.875-060 | 0.60 mm | 0.002 |
| 03.875-100 | 1.00 mm | 0.002 |
| 03.875-150 | 1.50 mm | 0.002 |
| 03.875-160 | 1.60 mm | 0.002 |
| 03.875-200 | 2.00 mm | 0.002 |
| 03.875-235 | 2.35 mm | 0.002 |
| 03.875-250 | 2.50 mm | 0.002 |
| 03.875-300 | 3.00 mm | 0.002 |
| 03.875-400 | 4.00 mm | 0.002 |

Tightening chuck 4.5 type.

Carriers.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 03.838 | 40 x 16 x 12 mm | 0.060 |

Set of 12 small carriers with block.
Ø 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.65, 0.70, 0.75, 0.85, 0.95 and 1.05 mm.

Belts for the lathes illustrated on previous pages.



| MSA | Ø | Length | Kg |
|-----------|-------|--------|-------|
| 03.890-2 | 2 mm | 1 m | 0.015 |
| 03.890-3 | 3 mm | 1 m | 0.015 |
| 03.890-4 | 4 mm | 1 m | 0.015 |
| 03.890-5 | 5 mm | 1 m | 0.015 |
| 03.890-6 | 6 mm | 1 m | 0.015 |
| 03.890-7 | 7 mm | 1 m | 0.015 |
| 03.890-8 | 8 mm | 1 m | 0.015 |
| 03.890-10 | 10 mm | 1 m | 0.015 |
| 03.890-12 | 12 mm | 1 m | 0.015 |

Belt in polyurethane.



| MSA | Ø | Length | Kg |
|----------|------|--------|-------|
| 03.891-4 | 4 mm | 1 m | 0.018 |
| 03.891-5 | 5 mm | 1 m | 0.018 |
| 03.891-6 | 6 mm | 1 m | 0.018 |

Green POLYCORD belt.

Riveting stakes and hole plates are in tempered stainless steel. Used for riveting, unriveting or holing small pieces. "V" shape slots are suitable to remove pinions or any other watch components.



| MSA | | Size | Number of holes | Ø holes | Kg |
|--------|-----|------------|-----------------|----------------|-------|
| 03.901 | (1) | 53 x 15 mm | 24 | 0.50...2.20 mm | 0.030 |
| 03.902 | (2) | 53 x 15 mm | 36 | 0.50...2.50 mm | 0.026 |

Hardened steel riveting stake with 24 calibrated holes from Ø 0.50 to 2.20 mm or 36 calibrated holes from Ø 0.50 to 2.50 mm.



| MSA | | Size | Number of holes | Ø holes | Kg |
|--------|--|------------|-----------------|----------------|-------|
| 03.903 | | 50 x 15 mm | 36 | 0.50...2.50 mm | 0.025 |

Brass riveting stake with 36 calibrated holes from Ø 0.50 to 2.50 mm.



| MSA | | Size | Number of holes | Ø holes | Kg |
|--------|--|------------|-----------------|----------------|-------|
| 03.904 | | 72 x 15 mm | 20 | 0.50...2.50 mm | 0.030 |

Hardened steel riveting stake, with 20 calibrated holes from Ø 0.50 to 2.50 mm, 2 "V" shape slots and 5 notches of different dimensions.



| MSA | | Size | Number of holes | Ø holes | Kg |
|--------|--|-----------------|-----------------|-----------------|-------|
| 03.905 | | 40 x 40 x 40 mm | 36 | 0.30...10.00 mm | 0.378 |

Hardened steel riveting stake, universal cubic shape, with 36 calibrated holes from Ø 0.30 to 10.00 mm and 16 slots with different shapes and dimensions.
For watches, alarm clocks and wall clocks.



| MSA | | Size | Number of holes | Ø holes | Kg |
|--------|--|-----------------|-----------------|----------------|-------|
| 03.906 | | 46 x 46 x 15 mm | 15 | 0.80...6.50 mm | 0.196 |

Polished hardened steel riveting stake, hexagonal shape, with 15 calibrated holes from Ø 0.80 to 6.50 mm and 4 slots of different dimensions.

Holes : Ø 0.80 - 1.00 - 1.20 - 1.50 - 2.00 - 2.30 - 2.70 - 3.00 - 3.20 - 3.70 - 4.00 - 4.50 - 5.50 - 6.00 - 6.50 mm.
Slots : 0.30 - 0.50 - 0.70 - 0.90 mm.

High-precision sensitive drilling machine **SERVO**.



| MSA | Voltage | Kg |
|--------|---------|-------|
| 03.300 | 220 V | 9.500 |

- The SERVO 7150 is a high-speed benchtop micro drilling machine. Easy-to-use, very precise, it is equipped as standard with a spindle taking the B-8 chucks.
- Continuously adjustable speeds by potentiometer integrated in the frame.
 - With thyristor-controlled variable speed motor
 - Removable protective cover on the belt
 - Built-in switch in the frame
 - Hardened and rectified spindle
 - Drilling lever with adjustable angular position and graduated ring
 - Depth micrometric stop
 - Front dial indicator for measuring the spindle travel
 - Lighting.

| Technical data : | |
|-------------------------------|------------------|
| Drilling capacity in steel | 3 mm |
| Continuous spindle speeds | 200...20'000 rpm |
| Spindle travel | 38 mm |
| Distance spindle - column | 89 mm |
| Distance table - spindle nose | 0...130 mm |
| Table area | 182 x 300 mm |
| Total height | 342 mm |

Optional :

| MSA | Item |
|----------|--|
| 03.300-A | Self-tightening chuck with chuck holder die, tightening 0...3 mm / Ø 24 x L44 mm |

Bench-top drill machine **PROXXON®**.



| MSA | Voltage | Kg |
|--------|--------------------|-------|
| 03.301 | 230 V (50 - 60 Hz) | 3.300 |

- Bench-top drill machine PROXXON® TBM 220. Plane-milled worktable made of cast aluminium (220 x 120mm) with adjustable fence and scale as well as threaded holes for securing the MICRO compound table KT 70.
- Solid steel column (20 x 340mm)
 - Cast aluminium console with guides and spindle-worked adjustments
 - Very high-quality motor, extremely quiet and very durable
 - Belt transmission with 3 speeds. The movement of the belts provides 3 speeds and triple torque at low speeds
 - Feed lever with adjustable depth scale.
- Delivered with 6 tightening chucks Ø 1.00, 1.50, 2.00, 2.40, 3.00 and 3.20 mm.

| Technical data : | |
|--|----------------------------|
| - Power supply | 230 V (50 - 60Hz) |
| - Motor power | 85 W |
| - Spindle speeds | 1'800, 4'700 and 8'500 rpm |
| - Throat depth, column to drill spindle | 140 mm |
| - Spindle travel | 30 mm |
| - 3/8" threading for fixing a toothed tightening chuck | |

Optional :

| MSA | Item |
|----------|--|
| 03.301-T | Micro-coordinate table KT 70, 200 x 70 x 42 mm |

04



HAMMERS

04 - 2

ANVILS

04 - 4

SAW FRAMES

04 - 5

SAW BLADES

04 - 6

TAPS AND DRAW PLATES

04 - 7

Hammers for watchmaker.



| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.007 | 35 mm | 193 mm | 0.020 |
| 04.001 | 50 mm | 195 mm | 0.052 |
| 04.002 | 60 mm | 210 mm | 0.052 |
| 04.006 | 67 mm | 218 mm | 0.050 |
| 04.003 | 70 mm | 230 mm | 0.052 |
| 04.004 | 80 mm | 230 mm | 0.123 |

Hammer with forged polished steel flat head, conic shape on one side and "V" shape for riveting on the other.
 Delivered with a wooden handle, ideal for lightweight precise watch making work.



| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.008 | 70 mm | 230 mm | 0.070 |

Hammer with forged polished steel flat head, conic shape on one side and "V" shape for riveting on the other.
 Delivered with a plastic handle, ideal for lightweight precise watch making work.



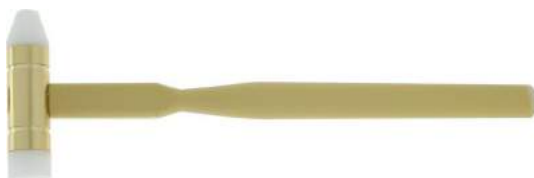
| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.010 | 52 mm | 235 mm | 0.123 |

Hammer with cylindrical head made of polished brass Ø 16 mm, flat shape on one side and dome shape on the other.
 Delivered with a wooden handle.



| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.011 | 52 mm | 235 mm | 0.110 |

Hammer with cylindrical head made of polished brass Ø 16 mm, flat shape on one side and dome shape on the other.
 Delivered with a plastic handle.



| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.012 | 65 mm | 230 mm | 0.090 |

Hammer with cylindrical head made of brass Ø 16 mm and 2 inserts in white Delrin (flat/conical).
 Delivered with a synthetic beige handle.

Spare parts :

| MSA | Item | Kg |
|----------|---------------------------------|-------|
| 04.012-A | Flat insert in white Delrin® | 0.004 |
| 04.012-B | Conical insert in white Delrin® | 0.004 |



| MSA | Head length | Total length | Kg |
|--------|-------------|--------------|-------|
| 04.020 | 75 mm | 230 mm | 0.106 |

Watchmakers hammer for riveting with steel head, flat and round shape (Ø 10 mm) on one side and "V" shape (width 2 mm) on the other.
 Delivered with a wooden handle.

Mallets for watchmaker.



| MSA | Head size | Total length | Kg |
|---------------|--------------|--------------|-------|
| 04.200 | Ø 30 x 70 mm | 220 mm | 0.085 |

Robust boxwood mallet, ideal for flattening metals without scraping.



| MSA | Head size | Total length | Kg |
|---------------|---------------------|--------------|-------|
| 04.210 | Ø 30 x Ø 10 x 73 mm | 225 mm | 0.073 |

Robust boxwood mallet with conic shape head, ideal for flattening metals without scraping.

Hammer handles.



| MSA | Length | Kg |
|---------------|---------------|-------|
| 04.102 | 240 mm | 0.060 |
| 04.103 | 260 mm | 0.060 |

Wooden handle for chase hammers, with straight oval shape.



| MSA | Head | Length | Kg |
|---------------|-------------------|--------|-------|
| 04.104 | 11 x 11 mm | 235 mm | 0.035 |
| 04.105 | 11 x 13 mm | 245 mm | 0.038 |
| 04.106 | 11 x 14 mm | 255 mm | 0.042 |

Wooden handle for watchmakers' hammer.



| MSA | Size | Hardness | Kg |
|--------|------------------|----------|-------|
| 04.061 | 110 x 68 x 75 mm | 55 HRC* | 0.670 |

Anvil with 2 horns, made of hardened and galvanized steel on cast iron base. For forging, riveting or stamping.

* HRC : Hardness Rockwell Scale "C"



| MSA | Size | Hardness | Kg |
|--------|------------------|----------|-------|
| 04.062 | 105 x 30 x 42 mm | 55 HRC* | 0.550 |

Bench-anvil with 2 horns, made of forged and hardened steel. For forging, riveting or stamping.

* HRC : Hardness Rockwell Scale "C"



| MSA | Size | Hardness | Kg |
|--------|-------------------|----------|-------|
| 04.063 | 60 x 60 x 20 mm | 60 HRC* | 0.570 |
| 04.064 | 80 x 80 x 20 mm | 60 HRC* | 1.000 |
| 04.065 | 100 x 100 x 20 mm | 60 HRC* | 1.570 |

Square-shaped anvil, made of hardened rectified steel. For forging, riveting or stamping.

* HRC : Hardness Rockwell Scale "C"

FIXED



| MSA | Depth | Kg |
|------------|-------|-------|
| 04.311-075 | 75 mm | 0.140 |

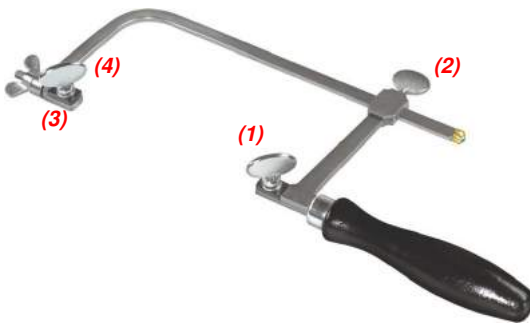
Rigid steel fixed saw frame with plastic handle.

ADJUSTABLE



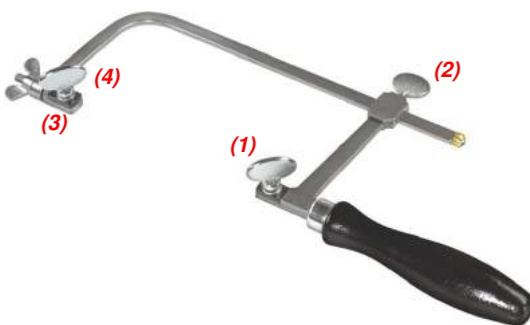
| MSA | Depth | Kg |
|------------|--------|-------|
| 04.316-075 | 75 mm | 0.175 |
| 04.316-100 | 100 mm | 0.185 |

Rigid stainless steel adjustable saw frame with plastic handle.
Steel tension screw to tighten the saw blades.



| MSA | Depth | Kg |
|------------|--------|-------|
| 04.315-060 | 60 mm | 0.150 |
| 04.315-070 | 70 mm | 0.150 |
| 04.315-080 | 80 mm | 0.153 |
| 04.315-100 | 100 mm | 0.170 |
| 04.315-120 | 120 mm | 0.180 |
| 04.315-150 | 150 mm | 0.190 |
| 04.315-200 | 200 mm | 0.210 |

Saw frame made of rigid and resistant steel, with black varnished wooden handle.
Delivered with 1 toothed plate and fixing screws to firmly hold the saw blades in place. Tension screw to tighten the saw blades.



| MSA | Depth | Kg |
|------------|--------|-------|
| 04.310-060 | 60 mm | 0.140 |
| 04.310-070 | 70 mm | 0.145 |
| 04.310-080 | 80 mm | 0.150 |
| 04.310-100 | 100 mm | 0.155 |
| 04.310-120 | 120 mm | 0.165 |
| 04.310-150 | 150 mm | 0.174 |
| 04.310-200 | 200 mm | 0.194 |

Saw frame made of rigid and resistant steel, with black varnished wooden handle.
Delivered with 1 toothed plate and fixing screws to firmly hold the saw blades in place.

Spare parts for MSA04.310-x and MSA04.315-x :

| MSA | Item | Kg |
|----------|---------------------------------|-------|
| 04.310-A | (1) Saw blades screw | 0.007 |
| 04.310-B | (2) Upper screw | 0.005 |
| 04.310-C | (3) Fixing plate for saw blades | 0.002 |
| 04.310-D | (4) Washer for saw blades | 0.001 |

SAW BLADES



| MSA | No. | Length | Kg |
|------------|-----|--------|-------|
| 04.402-2/0 | 2/0 | 130 mm | 0.018 |
| 04.402-0 | 0 | 130 mm | 0.020 |
| 04.402-1 | 1 | 130 mm | 0.022 |
| 04.402-2 | 2 | 130 mm | 0.024 |
| 04.402-3 | 3 | 130 mm | 0.032 |
| 04.402-4 | 4 | 130 mm | 0.036 |
| 04.402-5 | 5 | 130 mm | 0.042 |

| MSA | No. | Length | Kg |
|-----------|-----|--------|-------|
| 04.402-6 | 6 | 130 mm | 0.047 |
| 04.402-7 | 7 | 130 mm | 0.056 |
| 04.402-8 | 8 | 130 mm | 0.062 |
| 04.402-9 | 9 | 130 mm | 0.074 |
| 04.402-10 | 10 | 130 mm | 0.083 |
| 04.402-11 | 11 | 130 mm | 0.090 |
| 04.402-12 | 12 | 130 mm | 0.100 |

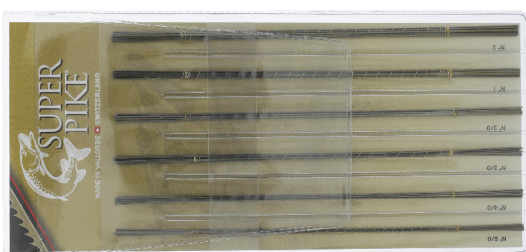
Saw blade NIQUA-FIX® for wood.
Delivered in a bag with 1 gross (144 pieces).
Note : 2/0 (fine)... 12 (coarse).



| MSA | No. | Length | Kg |
|------------|-----|--------|-------|
| 04.420-8/0 | 8/0 | 130 mm | 0.019 |
| 04.420-7/0 | 7/0 | 130 mm | 0.019 |
| 04.420-6/0 | 6/0 | 130 mm | 0.019 |
| 04.420-5/0 | 5/0 | 130 mm | 0.019 |
| 04.420-4/0 | 4/0 | 130 mm | 0.019 |
| 04.420-3/0 | 3/0 | 130 mm | 0.019 |
| 04.420-2/0 | 2/0 | 130 mm | 0.019 |
| 04.420-0 | 0 | 130 mm | 0.019 |

| MSA | No. | Length | Kg |
|----------|-----|--------|-------|
| 04.420-1 | 1 | 130 mm | 0.019 |
| 04.420-2 | 2 | 130 mm | 0.019 |
| 04.420-3 | 3 | 130 mm | 0.019 |
| 04.420-4 | 4 | 130 mm | 0.019 |
| 04.420-5 | 5 | 130 mm | 0.019 |
| 04.420-6 | 6 | 130 mm | 0.019 |
| 04.420-8 | 8 | 130 mm | 0.019 |

Saw blade SUPER PIKE® for metal.
Delivered in a bag with 1 gross (144 pieces).
Note : 8/0 (fine)... 8 (coarse).



ASSORTMENT

| MSA | Kg |
|----------|-------|
| 04.420-A | 0.022 |

Assortment of saw blades SUPER PIKE® for metal.
Delivered in a plastic pouch with the numbers 6/0, 4/0, 3/0, 2/0, 1 and 3 (12 pieces per number).



| MSA | Ø nominal | Pitch mm | Ø shank mm | Total length mm | Useful length mm | External Ø mm | Ø drilling steel mm | Ø drilling brass mm | Kg |
|------------|-----------|----------|------------|-----------------|------------------|---------------|---------------------|---------------------|-------|
| 04.524-030 | S 0.30 | 0.080 | 1.00 | 22 | 2.0 | 0.32 | 0.24 | 0.24 | 0.001 |
| 04.524-035 | S 0.35 | 0.090 | 1.00 | 22 | 2.0 | 0.37 | 0.28 | 0.28 | 0.001 |
| 04.524-040 | S 0.40 | 0.100 | 1.00 | 22 | 2.5 | 0.42 | 0.33 | 0.32 | 0.001 |
| 04.524-050 | S 0.50 | 0.125 | 1.00 | 22 | 3.0 | 0.52 | 0.43 | 0.40 | 0.001 |
| 04.524-060 | S 0.60 | 0.150 | 1.00 | 22 | 3.5 | 0.63 | 0.51 | 0.49 | 0.001 |
| 04.524-070 | S 0.70 | 0.175 | 1.50 | 25 | 4.5 | 0.73 | 0.59 | 0.57 | 0.001 |
| 04.524-080 | S 0.80 | 0.200 | 1.50 | 25 | 5.0 | 0.83 | 0.67 | 0.65 | 0.001 |
| 04.524-090 | S 0.90 | 0.225 | 1.50 | 25 | 5.5 | 0.93 | 0.75 | 0.73 | 0.001 |
| 04.524-100 | S 1.00 | 0.250 | 1.50 | 25 | 6.0 | 1.04 | 0.83 | 0.81 | 0.001 |
| 04.524-110 | S 1.10 | 0.250 | 1.50 | 25 | 7.0 | 1.14 | 0.93 | 0.91 | 0.001 |
| 04.524-120 | S 1.20 | 0.250 | 1.50 | 25 | 7.0 | 1.24 | 1.03 | 1.01 | 0.002 |
| 04.524-130 | S 1.30 | 0.300 | 1.50 | 25 | 8.0 | 1.34 | 1.09 | 1.07 | 0.002 |
| 04.524-140 | S 1.40 | 0.300 | 2.00 | 30 | 8.5 | 1.44 | 1.19 | 1.17 | 0.002 |
| 04.524-150 | S 1.50 | 0.300 | 2.00 | 30 | 10 | 1.54 | 1.29 | 1.27 | 0.002 |
| 04.524-160 | M 1.60 | 0.350 | 2.00 | 30 | 10 | 1.64 | 1.32 | 1.30 | 0.002 |
| 04.524-170 | M 1.70 | 0.350 | 2.00 | 30 | 10 | 1.74 | 1.42 | 1.40 | 0.002 |
| 04.524-180 | M 1.80 | 0.350 | 2.00 | 30 | 10 | 1.84 | 1.52 | 1.50 | 0.002 |
| 04.524-200 | M 2.00 | 0.400 | 3.00 | 35 | 13 | 2.07 | 1.68 | 1.65 | 0.002 |
| 04.524-220 | M 2.20 | 0.450 | 3.00 | 35 | 13 | 2.27 | 1.84 | 1.80 | 0.002 |
| 04.524-230 | M 2.30 | 0.400 | 3.00 | 35 | 13 | 2.37 | 1.98 | 1.95 | 0.002 |
| 04.524-240 | M 2.40 | 0.450 | 3.00 | 40 | 15 | 2.47 | 2.04 | 2.00 | 0.002 |
| 04.524-250 | M 2.50 | 0.450 | 3.00 | 40 | 15 | 2.57 | 2.14 | 2.10 | 0.002 |
| 04.524-260 | M 2.60 | 0.450 | 3.00 | 40 | 15 | 2.67 | 2.24 | 2.20 | 0.002 |
| 04.524-300 | M 3.00 | 0.500 | 4.00 | 40 | 16 | 3.09 | 2.60 | 2.50 | 0.002 |
| 04.524-350 | M 3.50 | 0.600 | 4.00 | 40 | 17 | 3.59 | 3.01 | 2.90 | 0.002 |
| 04.524-400 | M 4.00 | 0.700 | 5.00 | 50 | 20 | 4.10 | 3.42 | 3.30 | 0.002 |
| 04.524-450 | M 4.50 | 0.750 | 5.00 | 50 | 20 | 4.60 | 3.87 | 3.75 | 0.002 |
| 04.524-500 | M 5.00 | 0.800 | 6.00 | 55 | 25 | 5.10 | 4.35 | 4.20 | 0.002 |
| 04.524-600 | M 6.00 | 1.000 | 6.00 | 55 | 25 | 6.12 | 5.15 | 5.00 | 0.002 |

Machine tap HSS 50/3G NIHS for steel and brass material suitable for through and blind holes. Good break resistance. For lathe and tapping machines.



| MSA | Ø nominal | Pitch mm | Ø | Kg |
|-----------|-----------|----------|-----------------|-------|
| 04.526-02 | M2.5 | 0.25 mm | 10 mm (L 70 mm) | 0.040 |
| 04.526-04 | M3.0 | 0.35 mm | 10 mm (L 70 mm) | 0.040 |

Tap HSS on support key.

TAPS AND DRAW PLATES



| MSA | Ø nominal | Pitch mm | Kg |
|-----------|-----------|----------|-------|
| 04.525-01 | M 2.50 | 0.20 mm | 0.002 |
| 04.525-02 | M 2.50 | 0.25 mm | 0.002 |
| 04.525-03 | M 2.80 | 0.20 mm | 0.002 |
| 04.525-04 | M 3.00 | 0.35 mm | 0.002 |

Tap HSS for through holes. Good break resistance.



| MSA | Number | Ø nominal | Kg |
|--------------|--------|-----------|-------|
| 04.550-S0.60 | 40/3G | S 0.60 | 0.002 |
| 04.550-S0.70 | 40/3G | S 0.70 | 0.002 |
| 04.550-S0.90 | 40/3G | S 0.90 | 0.002 |
| 04.550-S1.00 | 40/3G | S 1.00 | 0.002 |
| 04.550-S1.10 | 40/3G | S 1.10 | 0.002 |
| 04.550-S1.50 | 40/3G | S 1.50 | 0.002 |

Machine tap HSS for brass.



| MSA | Ø nominal | Kg |
|------------|-----------|-------|
| 04.542-030 | S 0.30 | 0.002 |
| 04.542-035 | S 0.35 | 0.002 |
| 04.542-040 | S 0.40 | 0.002 |
| 04.542-050 | S 0.50 | 0.002 |
| 04.542-060 | S 0.60 | 0.002 |
| 04.542-070 | S 0.70 | 0.002 |
| 04.542-080 | S 0.80 | 0.002 |
| 04.542-090 | S 0.90 | 0.002 |
| 04.542-100 | S 1.00 | 0.002 |
| 04.542-110 | S 1.10 | 0.002 |
| 04.542-120 | S 1.20 | 0.002 |

Tap for blind holes.



| MSA | External Ø x thickness mm | Ø nominal | Pitch mm | Kg |
|--------------|---------------------------|-----------|----------|-------|
| 04.541-M1.20 | 16 x 5 | M 1.20 | 0.25 | 0.006 |

ASCO drawplate HSS.

05



HANDS FITTING TOOLS

05 - 2

HANDS FITTING PRESSES

05 - 4

HANDS REMOVING PRESSES

05 - 9

HANDS REMOVING TOOLS

05 - 11

HANDS FITTING TOOLS



ASSORTMENT

| MSA | Size | Kg |
|--------|------------------|-------|
| 05.023 | 132 x 63 x 30 mm | 0.107 |

Assortment of hands fitting tools equipped with Delrin® driven stakes. Knurled handle in anodised aluminium. Delivered in a wooden box.

Contents :

- 1x MSA05.010 Hands fitting tool, Ø 0.50 - 1.00 mm
- 1x MSA05.019 Hands fitting tool, Ø 0.65 - 1.10 mm
- 1x MSA05.011 Hands fitting tool, Ø 0.80 mm - flat
- 1x MSA05.012 Hands fitting tool, Ø 1.50 - 2.00 mm



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 05.020 | 0.035 |

Assortment of hands fitting tools, equipped with Delrin® driven stakes. Knurled handle in anodised aluminium. Delivered in 1 plastic pouch.

Contents :

- 1x MSA05.012 Hands fitting tool, Ø 1.50 - 2.00 mm
- 1x MSA05.011 Hands fitting tool, Ø 0.80 mm - flat
- 1x MSA05.019 Hands fitting tool, Ø 0.65 - 1.10 mm
- 1x MSA05.010 Hands fitting tool, Ø 0.50 - 1.00 mm



Ø 0.80 mm

| MSA | Length | Kg |
|--------|--------|-------|
| 05.011 | 112 mm | 0.010 |

Hands fitting tool with Delrin® driven stakes. Knurled handle in anodised aluminium.

Spare parts :

| MSA | Item | Kg |
|----------|----------------------|-------|
| 05.011-A | Flat stake | 0.001 |
| 05.011-B | Stake Ø hole 0.80 mm | 0.001 |



Ø 0.50 mm

Ø 1.00 mm

| MSA | Length | Kg |
|--------|--------|-------|
| 05.010 | 112 mm | 0.010 |

Hands fitting tool with Delrin® driven stakes. Knurled handle in anodised aluminium.

Spare parts :

| MSA | Item | Kg |
|----------|----------------------|-------|
| 05.010-A | Stake Ø hole 0.50 mm | 0.001 |
| 05.010-B | Stake Ø hole 1.00 mm | 0.001 |



Ø 0.65 mm

Ø 1.10 mm

| MSA | Length | Kg |
|--------|--------|-------|
| 05.019 | 112 mm | 0.010 |

Hands fitting tool with Delrin® driven stakes.
Knurled handle in anodised aluminium.

Spare parts :

| MSA | Item | Kg |
|----------|----------------------|-------|
| 05.019-A | Stake Ø hole 0.65 mm | 0.001 |
| 05.019-B | Stake Ø hole 1.10 mm | 0.001 |



Ø 2.00 mm

Ø 1.50 mm

| MSA | Length | Kg |
|--------|--------|-------|
| 05.012 | 112 mm | 0.010 |

Hands fitting tool with Delrin® driven stakes.
Knurled handle in anodised aluminium.

Spare parts :

| MSA | Item | Kg |
|----------|----------------------|-------|
| 05.012-A | Stake Ø hole 1.50 mm | 0.001 |
| 05.012-B | Stake Ø hole 2.00 mm | 0.001 |



| MSA | Kg |
|--------|-------|
| 05.031 | 0.155 |

Hands fitting tool on a rotating base.
Delivered with 8 PEEK tips and 1 protective cap.

PEEK (polyetheretherketone phenylene) is a polymer with different properties and high performance used, among others, in the aerospace industry.

- Very good resistance to solvents
- Stability over time
- Doesn't mark the parts.

Spare parts :

| MSA | Item | Kg |
|-------------|--------------------------------------|-------|
| 05.031-0 | PEEK flat tip, Ø ext. 2.00 mm | 0.001 |
| 05.031-0.30 | PEEK tip Ø int. 0.30, Ø ext. 2.50 mm | 0.001 |
| 05.031-0.80 | PEEK tip Ø int. 0.80, Ø ext. 2.60 mm | 0.001 |
| 05.031-0.95 | PEEK tip Ø int. 0.95, Ø ext. 2.80 mm | 0.001 |
| 05.031-1.10 | PEEK tip Ø int. 1.10, Ø ext. 2.90 mm | 0.001 |
| 05.031-1.35 | PEEK tip Ø int. 1.35, Ø ext. 3.00 mm | 0.001 |
| 05.031-1.50 | PEEK tip Ø int. 1.50, Ø ext. 3.20 mm | 0.001 |
| 05.031-2.10 | PEEK tip Ø int. 2.10, Ø ext. 3.50 mm | 0.001 |
| 05.031-E | PEEK protective cap | 0.001 |
| 05.031-M | (1) Handle | 0.024 |
| 05.031-S | Rotating base | 0.098 |



Fitting watch hands, without damaging the dial and the hands are delicate operations that guarantee the aesthetics of the watch.

An ideal hands press for any after-sales service jobs.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 05.021 | 70 x 70 x 65 mm | 0.400 |

Hands fitting press for wrist and pocket watches, for a quick and efficient job. It allows a precise control by holding the die vertically while pressing on the hand. Nice finish in steel and aluminium.

Delivered with 8 Delrin® screw-on stakes.

Spare parts :

| MSA | Item | Kg |
|-----------|-----------------|-------|
| 05.017-01 | (1) Broach | 0.009 |
| 05.017-02 | Spring | 0.002 |
| 05.017-A | Stake Ø 0.50 mm | 0.002 |
| 05.017-B | Stake Ø 0.70 mm | 0.002 |
| 05.017-C | Stake Ø 0.90 mm | 0.002 |
| 05.017-D | Stake Ø 1.20 mm | 0.002 |
| 05.017-E | Stake Ø 1.50 mm | 0.002 |
| 05.017-F | Stake Ø 1.70 mm | 0.002 |
| 05.017-G | Flat stake | 0.002 |
| 05.017-H | Conical stake | 0.002 |



| MSA | Size | Kg |
|--------|------------------|-------|
| 05.022 | 105 x 70 x 72 mm | 0.520 |

Hands fitting press with 3 broaches for wrist and pocket watches without any broach replacement.

Delivered with 8 Delrin® screw-on stakes.

Spare parts :

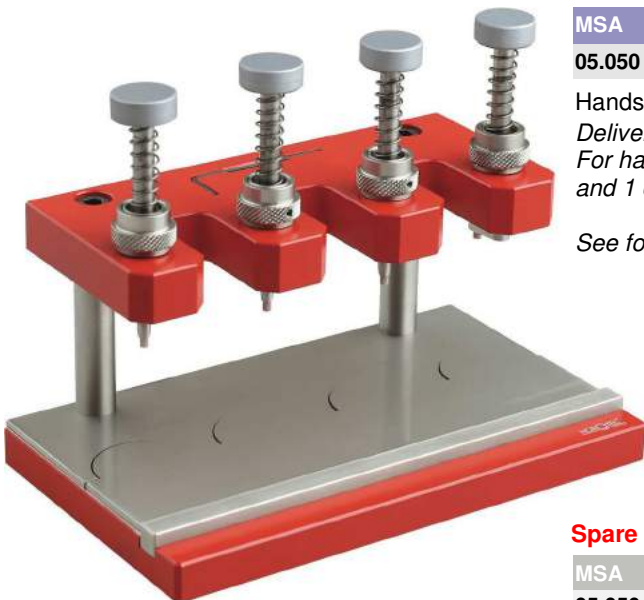
| MSA | Item | Kg |
|-----------|-----------------|-------|
| 05.017-01 | (1) Broach | 0.009 |
| 05.017-02 | Spring | 0.002 |
| 05.017-A | Stake Ø 0.50 mm | 0.002 |
| 05.017-B | Stake Ø 0.70 mm | 0.002 |
| 05.017-C | Stake Ø 0.90 mm | 0.002 |
| 05.017-D | Stake Ø 1.20 mm | 0.002 |
| 05.017-E | Stake Ø 1.50 mm | 0.002 |
| 05.017-F | Stake Ø 1.70 mm | 0.002 |
| 05.017-G | Flat stake | 0.002 |
| 05.017-H | Conical stake | 0.002 |



ASSORTMENT

| MSA | Kg |
|------------------|-------|
| 05.017-03 | 0.026 |

Assortment with 1 broach and 8 Delrin® screw-on stakes for presses MSA05.021 and MSA05.022.



| MSA | Size | Kg |
|---------------|--------------------|-------|
| 05.050 | 160 x 100 x 130 mm | 1.440 |

Hands fitting press, 4 broaches.
 Delivered with stakes equipped with PEEK tips (doesn't mark the hands).
 For hands : hours (Ø 1.35 mm), minutes (Ø 0.95 mm), seconds (Ø 0.30 mm)
 and 1 decentred stake.

See following pages for other compatible stakes.

Spare parts :

| MSA | Item | Kg |
|------------------|------------------------|-------|
| 05.050-BA | Adjustable stop ringDE | 0.010 |
| 05.050-BR | Broach with head | 0.018 |
| 05.050-RE | Spring for broach | 0.002 |

Accessory :

| MSA | Item | Kg |
|-----------------|--|-------|
| 05.050-P | Decentred adaptor for movement holder. Base Ø 31 mm | 0.105 |



HANDS FITTING PRESSES

High precision hands fitting press with revolving head to avoid changing broaches, ideal for production series. Each broach is equipped with a knurled ring for fine height adjustment. Suitable for movement holder MSA09.010-xx Ø 31 mm (see chapter 09).



| MSA | Tips | Use | Kg |
|--------|-------|---------------|-------|
| 05.109 | Steel | For H/M hands | 1.350 |
| 05.114 | PEEK | For H/M hands | 1.350 |

High precision hand fitting press, with 2 hardened steel broaches and 2 stakes Ø 1.35 - 0.95 mm.



| MSA | Tips | Use | Kg |
|--------|-------|-----------------|-------|
| 05.110 | Steel | For H/M/S hands | 1.475 |
| 05.115 | PEEK | For H/M/S hands | 1.475 |

High precision hand fitting press, with 3 hardened steel broaches and 3 stakes Ø 1.35 - 0.95 - 0.30 mm.



| MSA | Tips | Use | Kg |
|--------|-------|-----------------------------|-------|
| 05.111 | Steel | For H/M/decentred Sec hands | 1.455 |
| 05.116 | PEEK | For H/M/decentred Sec hands | 1.455 |

High precision hand fitting press, with 3 hardened steel broaches and 3 stakes Ø 1.35 - 0.95 mm - decentred.



| MSA | Tips | Use | Kg |
|--------|-------|----------------------|-------|
| 05.112 | Steel | For H/M/S/Date hands | 1.585 |
| 05.117 | PEEK | For H/M/S/Date hands | 1.585 |

High precision hand fitting press, with 4 hardened steel broaches and 4 stakes Ø 1.35 - 0.95 - 0.30 - 2.10 mm.

Accessories for use with the presses illustrated above.



| MSA | Kg |
|----------|-------|
| 05.015-R | 0.010 |

Table to set counter.

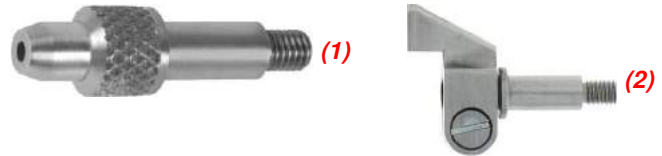


| MSA | Kg |
|----------|-------|
| 05.015-P | 0.010 |

Decentred adaptor for movement holder.

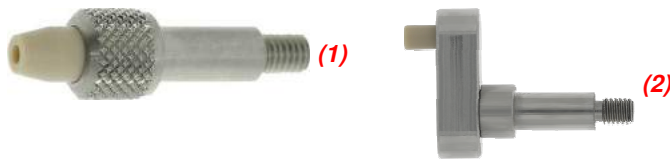
Other accessories :

| MSA | Item | Kg |
|----------|-------------------------------|-------|
| 05.110-A | Stop ring, height 18 mm | 0.008 |
| 05.110-B | Stop ring, height 12 mm | 0.007 |
| 05.110-S | Spring for broach | 0.002 |
| 05.118 | Broach with spring | 0.015 |
| 05.119 | Broach with groove and spring | 0.015 |
| 05.119-A | Simple broach | 0.013 |



| MSA | Tips | Ø hole | Kg |
|---------------|-------|------------------|-------|
| 05.110-03 | Steel | 0.30 mm | 0.002 |
| 05.110-04 | Steel | 0.95 mm | 0.002 |
| 05.110-09 | Steel | 1.10 mm | 0.002 |
| 05.110-05 (1) | Steel | 1.35 mm | 0.002 |
| 05.110-08 | Steel | 1.50 mm | 0.002 |
| 05.110-07 | Steel | 1.70 mm | 0.002 |
| 05.110-06 | Steel | 2.10 mm | 0.002 |
| 05.110-01 (2) | Steel | 7.50 mm (Length) | 0.004 |
| 05.110-02 | Steel | Flat | 0.002 |

Spare stainless steel stakes for presses MSA05.050, MSA05.109, MSA05.110, MSA05.111 and MSA05.112. Other diameters available upon request.



| MSA | Tips | Ø hole | Kg |
|---------------|------|------------------|-------|
| 05.114-03 | PEEK | 0.30 mm | 0.002 |
| 05.114-14 | PEEK | 0.40 mm | 0.002 |
| 05.114-15 | PEEK | 0.50 mm | 0.002 |
| 05.114-16 | PEEK | 0.55 mm | 0.002 |
| 05.114-17 | PEEK | 0.75 mm | 0.002 |
| 05.114-18 | PEEK | 0.85 mm | 0.002 |
| 05.114-04 | PEEK | 0.95 mm | 0.002 |
| 05.114-19 | PEEK | 1.05 mm | 0.002 |
| 05.114-09 | PEEK | 1.10 mm | 0.002 |
| 05.114-20 | PEEK | 1.15 mm | 0.002 |
| 05.114-21 | PEEK | 1.25 mm | 0.002 |
| 05.114-05 (1) | PEEK | 1.35 mm | 0.002 |
| 05.114-08 | PEEK | 1.50 mm | 0.002 |
| 05.114-22 | PEEK | 1.55 mm | 0.002 |
| 05.114-23 | PEEK | 1.65 mm | 0.002 |
| 05.114-07 | PEEK | 1.70 mm | 0.002 |
| 05.114-24 | PEEK | 1.80 mm | 0.002 |
| 05.114-25 | PEEK | 1.95 mm | 0.002 |
| 05.114-06 | PEEK | 2.10 mm | 0.002 |
| 05.114-01 (2) | PEEK | 7.50 mm (Length) | 0.004 |
| 05.114-02 | PEEK | Flat | 0.002 |

Spare stakes with PEEK tip for presses MSA05.050, MSA05.114, MSA05.115, MSA05.116 and MSA05.117. Other diameters available upon request.



| MSA | Tips | Ø hole | Kg |
|-----------|---------|------------------|-------|
| 05.111-03 | Delrin® | 0.30 mm | 0.002 |
| 05.111-12 | Delrin® | 0.60 mm | 0.002 |
| 05.111-04 | Delrin® | 0.95 mm | 0.002 |
| 05.111-09 | Delrin® | 1.10 mm | 0.002 |
| 05.111-11 | Delrin® | 1.20 mm | 0.002 |
| 05.111-05 | Delrin® | 1.35 mm | 0.002 |
| 05.111-08 | Delrin® | 1.50 mm | 0.002 |
| 05.111-10 | Delrin® | 1.60 mm | 0.002 |
| 05.111-07 | Delrin® | 1.70 mm | 0.002 |
| 05.111-06 | Delrin® | 2.10 mm | 0.002 |
| 05.111-13 | Delrin® | 3.00 mm | 0.002 |
| 05.111-01 | Delrin® | 7.50 mm (Length) | 0.004 |
| 05.111-02 | Delrin® | Flat | 0.002 |

Spare stakes with Delrin® tip for presses MSA05.050, MSA05.109, MSA05.110, MSA05.111 and MSA05.112. Other diameters available upon request.

High precision hands fitting press equipped with 2 adjustable and interchangeable broaches, ideal for production series. Suitable for movement holder MSA09.010-xx (see chapter 09).



| MSA | Use | Kg |
|--------|---------------------------|-------|
| 05.100 | For hour and minute hands | 0.780 |

High precision hands fitting press with 2 adjustable and interchangeable broaches.

Base Ø 31 mm.

See also movement holders MSA 09.010-xx (chapter 09).

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 05.101-A | Adjustable broach with white head for minute hands, Ø hole 1.00 mm | 0.019 |
| 05.101-B | Adjustable broach with black head for hour hands, Ø hole 1.20 mm | 0.019 |



| MSA | Use | Kg |
|--------|---------------------------|-------|
| 05.101 | For hour and minute hands | 1.260 |

High precision hands fitting press with 2 adjustable and interchangeable broaches. Revolving head to avoid broach changing.

Base Ø 31 mm.

See also movement holders MSA 09.010-xx (chapter 09).

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 05.101-A | Adjustable broach with white head for minute hands, Ø hole 1.00 mm | 0.019 |
| 05.101-B | Adjustable broach with black head for hour hands, Ø hole 1.20 mm | 0.019 |

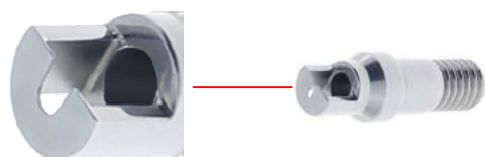
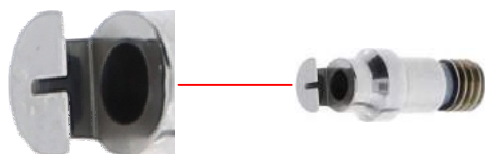
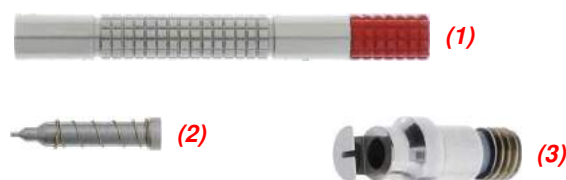
Accessories for presses MSA05.100 and MSA05.101.



| MSA | Kg |
|----------|-------|
| 05.101-C | 0.019 |

Simple broach with red head for second hands, flat not pierced.

Hands removing press, without contact with the dial.



| MSA | Size | Kg |
|----------|-----------------|-------|
| 05.129 | 80 x 80 x 85 mm | 0.700 |
| 05.129-E | | - |

Hands removing press, without contact with the dial.
This press allows removing safely the hands fitted on dial, guaranteeing their extraction without damaging the dial.

Contents :

- 1 press MSA05.129-01
- 1 hand tool MSA05.128-02
- 1 base MSA05.129-02 for extractors and pins
- 1 removable plate
- 3 extractors MSA05.129-060, MSA05.129-150 and MSA05.129-250
- 3 pins MSA05.128-015, MSA05.128-060 and MSA05.128-100.

Spare parts :

| MSA | Item | Kg |
|------------|------------------------------------|-------|
| 05.128-015 | Pin with spring Ø 0.15 mm | 0.002 |
| 05.128-02 | (1) Hand tool | 0.020 |
| 05.128-060 | (2) Pin with spring Ø 0.60 mm | 0.002 |
| 05.128-100 | Pin with spring Ø 1.00 mm | 0.002 |
| 05.129-01 | Press only | 0.660 |
| 05.129-02 | Base only | 0.090 |
| 05.129-060 | (3) Hands extractor, notch 0.60 mm | 0.003 |
| 05.129-150 | Hands extractor, notch 1.50 mm | 0.003 |
| 05.129-250 | Hands extractor, notch 2.50 mm | 0.003 |

Optional extractors :

| MSA | Item | Kg |
|-------------|--|-------|
| 05.129-060C | Counter hands extractor, notch 0.60 mm | 0.003 |
| 05.129-100 | Hands extractor, notch 1.00 mm | 0.003 |
| 05.129-200 | Hands extractor, notch 2.00 mm | 0.003 |

Optional extractors with columns :

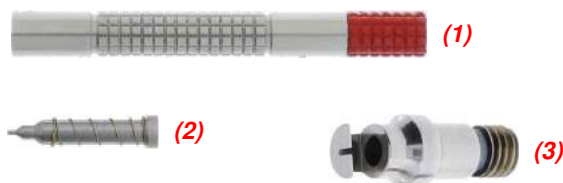
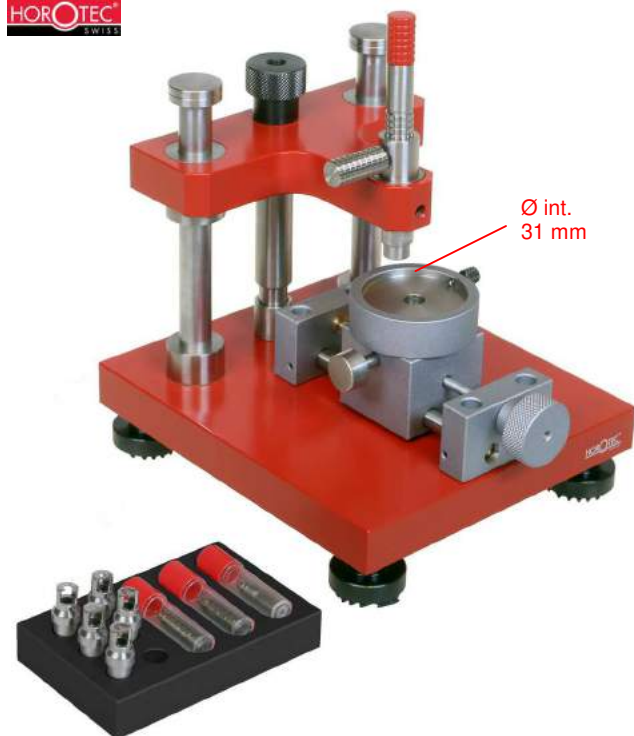
| MSA | Item | Kg |
|----------|--|-------|
| 05.128-B | Hands extractor with columns, 0.60 x 3.80 mm | 0.003 |
| 05.128-C | Hands extractor with columns, 1.45 x 3.80 mm | 0.003 |
| 05.128-D | Hands extractor with columns, 2.10 x 4.70 mm | 0.003 |

Other sizes of extractors upon request.

Accessory :

| MSA | Item | Kg |
|----------|---|----|
| 05.129-E | Blind hands and counter hands extractor | - |

Hands removing press with fine adjustment, without contact with the dial.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 05.131 | 110 x 125 x 125 mm | 1.875 |

Hands removing press with fine adjustment, without contact with the dial.

This press allows removing safely the hands fitted on dial, guaranteeing their extraction without damaging the dial.

Contents :

- 1 press MSA05.131-P
- 1 hand tool MSA05.128-02
- 1 base MSA05.129-02 for extractors and pins
- 5 extractors MSA05.129-060, MSA05.129-060C, MSA05.129-150, MSA05.129-200 and MSA05.129-250
- 3 pins MSA05.128-015, MSA05.128-060 and MSA05.128-100.

Spare parts :

| MSA | Item | Kg |
|-------------|--|-------|
| 05.128-015 | Pin with spring Ø 0.15 mm | 0.002 |
| 05.128-02 | (1) Hand tool | 0.020 |
| 05.128-060 | (2) Pin with spring Ø 0.60 mm | 0.002 |
| 05.128-100 | Pin with spring Ø 1.00 mm | 0.002 |
| 05.129-02 | Base only | 0.090 |
| 05.129-060 | (3) Hands extractor, notch 0.60 mm | 0.003 |
| 05.129-060C | Counter hands extractor, notch 0.60 mm | 0.003 |
| 05.129-150 | Hands extractor, notch 1.50 mm | 0.003 |
| 05.129-200 | Hands extractor, notch 2.00 mm | 0.003 |
| 05.129-250 | Hands extractor, notch 2.50 mm | 0.003 |
| 05.131-P | Press only | 1.720 |

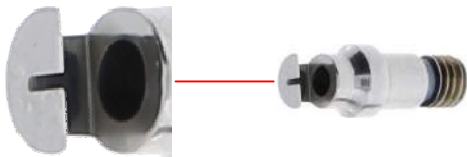
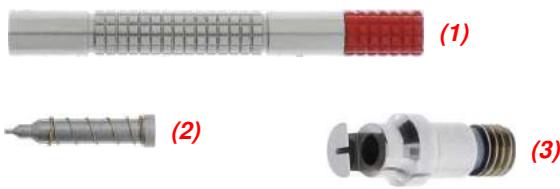
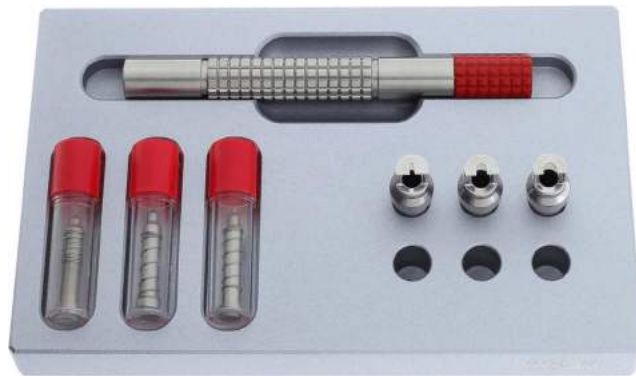
Optional extractors :

| MSA | Item | Kg |
|------------|--------------------------------|-------|
| 05.129-100 | Hands extractor, notch 1.00 mm | 0.003 |

Optional extractors with columns :

| MSA | Item | Kg |
|----------|--|-------|
| 05.128-B | Hands extractor with columns, 0.60 x 3.80 mm | 0.003 |
| 05.128-C | Hands extractor with columns, 1.45 x 3.80 mm | 0.003 |
| 05.128-D | Hands extractor with columns, 2.10 x 4.70 mm | 0.003 |

Other sizes of extractors upon request.



| MSA | Size | Kg |
|--------|------------------|-------|
| 05.128 | 109 x 69 x 15 mm | 0.400 |

Hands removing tool, without contact with the dial.

Contents :

- 1 hand tool MSA05.128-02
- 1 base MSA05.128-01 for extractors and pins
- 3 extractors MSA05.129-060, MSA05.129-150 and MSA05.129-250
- 3 pins MSA05.128-015, MSA05.128-060 and MSA05.128-100.

Spare parts :

| MSA | Item | Kg |
|------------|------------------------------------|-------|
| 05.128-01 | Base only | 0.225 |
| 05.128-015 | Pin with spring Ø 0.15 mm | 0.002 |
| 05.128-02 | (1) Hand tool | 0.020 |
| 05.128-060 | (2) Pin with spring Ø 0.60 mm | 0.002 |
| 05.128-100 | Pin with spring Ø 1.00 mm | 0.002 |
| 05.129-060 | (3) Hands extractor, notch 0.60 mm | 0.003 |
| 05.129-150 | Hands extractor, notch 1.50 mm | 0.003 |
| 05.129-250 | Hands extractor, notch 2.50 mm | 0.003 |

Optional extractors :

| MSA | Item | Kg |
|-------------|--|-------|
| 05.129-060C | Counter hands extractor, notch 0.60 mm | 0.003 |
| 05.129-100 | Hands extractor, notch 1.00 mm | 0.003 |
| 05.129-200 | Hands extractor, notch 2.00 mm | 0.003 |

Optional extractors with columns :

| MSA | Item | Kg |
|----------|--|-------|
| 05.128-B | Hands extractor with columns, 0.60 x 3.80 mm | 0.003 |
| 05.128-C | Hands extractor with columns, 1.45 x 3.80 mm | 0.003 |
| 05.128-D | Hands extractor with columns, 2.10 x 4.70 mm | 0.003 |

Other sizes of extractors upon request.

HANDS REMOVING TOOLS



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.009 | 2.50 mm | 105 mm | 0.020 |

Pair of hand levers with varnished aluminium handles, for sweep second hands and small counter hands of chronometers.
Delivered with 2 dial protectors MSA70.004.



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.007 | 2.50 mm | 105 mm | 0.022 |

Pair of hand levers with varnished aluminium handles, for wrist watches.
Delivered with 2 dial protectors MSA70.004.



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.013 | 3 mm | 115 mm | 0.015 |

Pair of hand levers with varnished aluminium handles and polished work surface.
Delivered with 2 dial protectors MSA70.004.



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.008 | 4 mm | 105 mm | 0.042 |

Pair of hand levers with varnished aluminium handles, for pocket watches.
Delivered with 2 dial protectors MSA70.004.



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.014 | 10 mm | 115 mm | 0.020 |

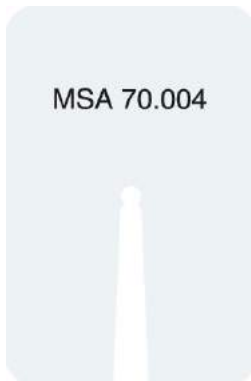
Pair of hand levers with varnished aluminium handles and polished work surface, for alarm and wall clocks.
Delivered with 2 dial protectors MSA70.004.



PAIR

| MSA | Tips width | Length | Kg |
|---------------|------------|--------|-------|
| 05.107 | 2.50 mm | 105 mm | 0.020 |

Pair of hand levers with anodised grey aluminium knurled handles.
Delivered with 2 dial protectors MSA70.004 in 1 plastic pouch.



MSA 70.004

| MSA | Size | Kg |
|---------------|----------------|-------|
| 70.004 | 25 x 38 x 0.20 | 0.001 |

Plastic dial protector to be used during hands extraction.
Avoids scratching the dial with the hand levers illustrated above.



| ZBG | Length | Kg |
|----------------|--------|-------|
| 30636-1 | 98 mm | 0.020 |

PRESTO hands remover for wrist watches, equipped with buffer to avoid damaging the dial.

06/07



UNIVERSAL PRESSES FOR SCREW-ON / SNAP-ON DIES

07 - 2

ASSORTMENTS OF SCREW-ON DIES

07 - 9

ASSORTMENTS OF SNAP-ON DIES

07 - 15

PRESSES FOR SCREW / UNSCREW CASE BACKS

07 - 17

TOOLS FOR SCREW / UNSCREW CASE BACKS

07 - 29

TOOLS FOR SNAP-ON CASE BACKS

07 - 34

OTHER TOOLS

07 - 39

Rack-press.



| MSA | Size | Kg |
|---------------|--------------------|-------|
| 07.060 | 200 x 200 x 380 mm | 8.140 |

The strongest rack-press in its class, ideally suited for all work requiring high force or for production work, series (adjustable stop ensuring repeatability of the press in).

Its extreme robustness as well as its long travel make it a perfect versatile press. Its one-piece design guarantees an optimal alignment.

- Reaming table/broach : Ø 10 mm
- Travel 110 mm.

*Delivered with 2 adaptors (lower and upper) compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.*

Spare parts :

| MSA | Item | Kg |
|-----------------|---|-------|
| 07.060-A | Adjustment screw | 0.010 |
| 07.060-B | Ring on adjustment screw | 0.003 |
| 07.060-C | Maintaining screw of the broach die support | 0.012 |
| 07.060-D | Tightening knob of the lower die support | 0.020 |
| 07.170-A | Lower and upper adaptor for screw-on dies | 0.011 |

Accessory :

| MSA | Item | Kg |
|---------------|-----------------------------------|-------|
| 10.523 | Pin punch support, Ø 10 x L 40 mm | 0.019 |



| MSA | Size | Kg |
|---------------|--------------------|-------|
| 07.170 | 160 x 150 x 220 mm | 7.000 |

Rack-press for right or left handed users (the lever is removable and can be placed on the right or on the left according to the user).

For heavy-duty jobs in production or after sales service.

The broach is pierced and equipped with an air connector Ø 6 mm on the top to eventually handle the components by vacuum.

- Travel 110 mm.

*Delivered with 2 adaptors (lower and upper) compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.*

Spare part :

| MSA | Item | Kg |
|-----------------|---|-------|
| 07.170-A | Lower and upper adaptor for screw-on dies | 0.011 |

Accessory :

| MSA | Item | Kg |
|---------------|-----------------------------------|-------|
| 10.523 | Pin punch support, Ø 10 x L 40 mm | 0.019 |



Left-handed version.

Right-handed version.



| MSA | Broach | Size | Kg |
|--------|--------|-------------------|-------|
| 06.135 | Simple | 80 x 225 x 180 mm | 1.980 |

Stable precision press, equipped with a head and a massive aluminium base mounted on 2 robust steel columns. The frontal part V shaped, allows the glass fitting without removing the bracelets. The steel axle slides freely in a self-lubricated sleeve for maximum precision: this is essential for fitting back cases, glasses or bezels without scratching. The end of the threaded axle (Ø 6 mm) is specially made for screwing all dies in a perfect horizontal position. Changing dies becomes easier. The lever covered with an anti-skid rubber and equipped with a return spring, which allows a fine control of fitting pressure.

Compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.

FOR SCREW-ON DIES



| MSA | Broach | Kg |
|--------|--------|-------|
| 06.136 | Simple | 2.800 |

Precision press MSA06.135 (see above), delivered with 4 assortments of Delrin® screw-on dies MSA06.520, MSA06.521, MSA06.522 and MSA07.106 (43 pieces).

Compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.

FOR SCREW-ON DIES





FOR SCREW-ON DIES

| MSA | Broach | Size | Kg |
|--------|--------|-------------------|-------|
| 06.150 | Double | 80 x 215 x 185 mm | 2.685 |

This precision rack-press is provided with a small slide that allows to block or to free the toothed rack. The watchmaker thus has an exceptional tool for fitting glasses and bezels, closing watch cases and maintain the glass on the watch case during joining time. After screwing the die on the die holder, one can determine the best way to proceed :

- free toothed rack (slide ahead) :
For usual work on steel watch cases, thick or sturdy ; apply pressure on the lever provided with an anti-skid rubber. The return spring and the fixed handle allow for careful adjustment of pressure upon use.
- blocked toothed rack (slide behind) :
For delicate work on gold cases, thin or delicate; pull the slide to lock the toothed rack in the desired position, then use the spanner, to fit the glass or the case back; with each rotation the die goes down about 1.5 mm. The fitting precision can be perfectly controlled.

*Compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.*



FOR SCREW-ON DIES

| MSA | Broach | Kg |
|--------|--------|-------|
| 06.151 | Double | 3.120 |

Precision rack-press MSA06.150 (see above), delivered with 4 assortments of Delrin® screw-on dies MSA06.520, MSA06.521, MSA06.522 and MSA07.106 (43 pieces).

*Compatible with all Horotec® screw-on dies (thread Ø 6 mm).
See pages 07-9...07-14.*

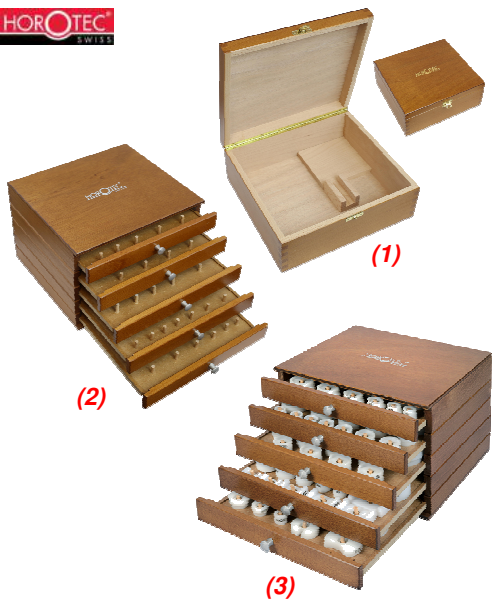




| MSA | Broach | Kg |
|--------|--------|-------|
| 06.152 | Double | 6.640 |

Precision rack-press MSA06.150 (see previous page), delivered in a wooden box. (1)
 - 4 assortments of Delrin® screw-on dies (43 pieces) : MSA06.520, MSA06.521, MSA06.522 and MSA07.106. Delivered in a wooden box. (2)
 Compatible with all Horotec® screw-on dies (thread Ø 6 mm).
 See pages 07-9...07-14.

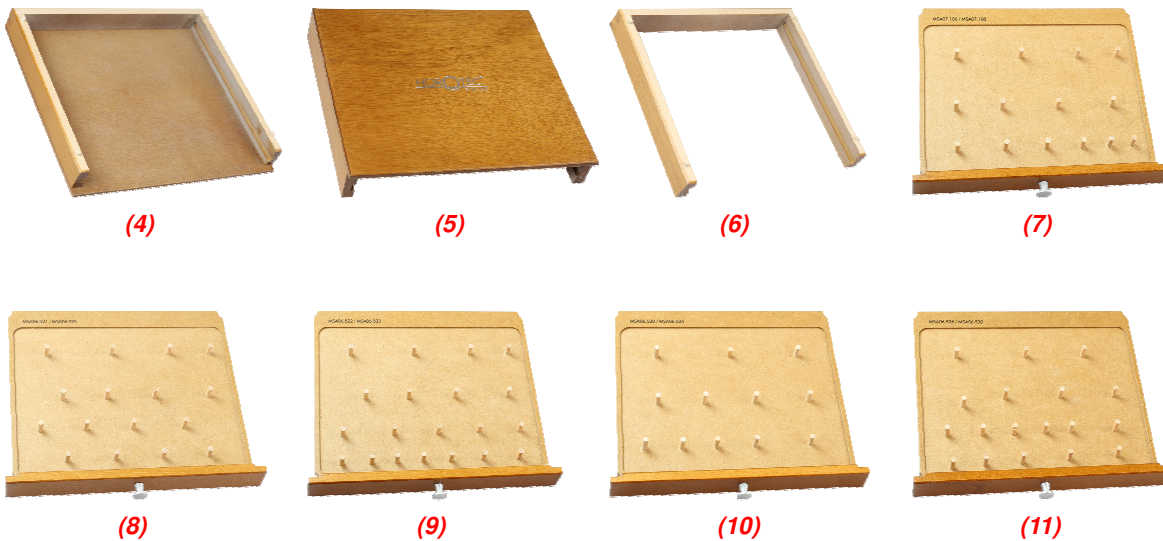
FOR SCREW-ON DIES



Items of the wooden box MSA06.052 (delivered without dies) :

| MSA | Item | Kg |
|-----------|--|-------|
| 06.050 | (1) Empty wooden box for press, 240x220x90 mm | 0.860 |
| 06.052 | (2) Empty wooden box for dies, 240x220x160 mm | 2.220 |
| 06.051 | (3) Wooden box with 80 dies, 240x220x160 mm | 3.540 |
| - | - | - |
| 06.051-01 | (4) Lower base | 0.235 |
| 06.051-02 | (5) Upper base | 0.297 |
| 06.051-03 | (6) Spacer | 0.124 |
| 06.051-04 | (7) Tray for dies assortments MSA07.106 and MSA07.108 | 0.264 |
| 06.051-05 | (8) Tray for dies assortments MSA06.521 and MSA06.525 | 0.264 |
| 06.051-06 | (9) Tray for dies assortments MSA06.522 and MSA06.523 | 0.260 |
| 06.051-07 | (10) Tray for dies assortments MSA06.520 and MSA06.524 | 0.263 |
| 06.051-08 | (11) Tray for dies assortments MSA06.526 and MSA06.530 | 0.262 |

Details of the dies assortments, see pages 07-9...07-14.



HOROTEC® press provided with SNAP-ON dies.



FOR SNAP-ON DIES

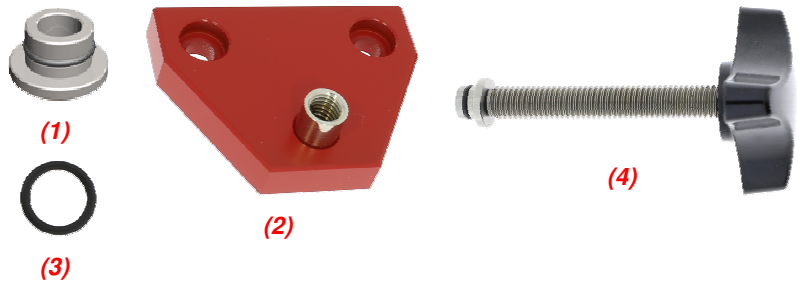
| MSA | Broach | Size | Kg |
|--------|--------|------------------|-------|
| 07.110 | Simple | 80 x 60 x 130 mm | 0.580 |

Small press for closing snap-on case backs, equipped with a simple threaded broach.
Compatible with all Horotec® snap-on reversible dies (see pages 07-15...07-16).

Delivered with an assortment of 6 Delrin® snap-on dies MSA07.111.

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 07.110-A | (1) Upper die support | 0.002 |
| 07.110-B | (2) Upper plate | 0.062 |
| 07.110-J | (3) O'Ring gasket for upper die support | 0.001 |
| 07.110-P | (4) Broach with handle | 0.040 |



HOROTEC® press provided with SCREW-ON dies.

Advantage : a wide variety of dies is available with a standard thread of 6 mm.



FOR SCREW-ON DIES

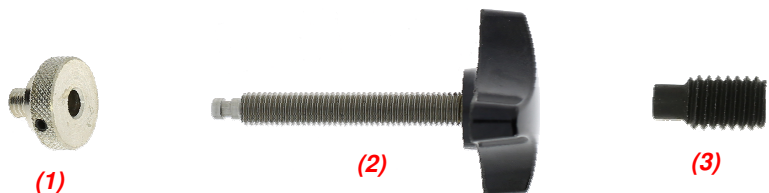
| MSA | Broach | Size | Kg |
|--------|--------|------------------|-------|
| 07.105 | Simple | 80 x 60 x 135 mm | 0.630 |

Small press for closing snap-on case backs, equipped with a simple threaded broach.
Compatible with all Horotec® screw-on dies (thread Ø 6 mm). See pages 07-9...07-14.

Delivered with an assortment of 9 Delrin® screw-on dies MSA07.106.

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 07.105-A | (1) Upper dies holder | 0.008 |
| 07.105-P | (2) Broach with handle | 0.034 |
| 07.105-V | (3) Fixing screw for upper dies holder | 0.001 |



HOROTEC® presses for both SCREW-ON and SNAP-ON dies.

Advantage : a wide variety of screw-on dies is available with a standard thread of 6 mm and snap-on dies Ø 8 mm (upper dies) and Ø 5 mm (lower dies). See pages 07-9...07-16.



For screw-on dies



FOR SCREW-ON AND SNAP-ON DIES

| MSA | Size | Kg |
|---------------|-------------------|-------|
| 07.131 | 110 x 95 x 210 mm | 1.575 |

Small sized press, suitable for screw-on and snap-on dies, even large diameters. Compatible with all Horotec® dies. See pages 07-9...07-16.

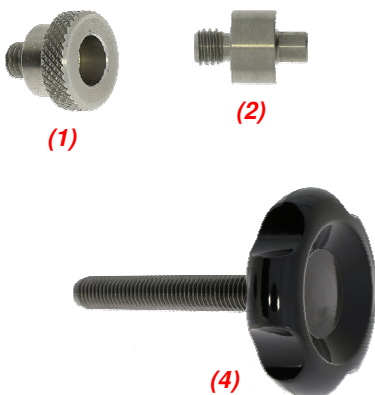
Delivered with an assortment of 12 Delrin® screw-on dies for fitting snap-on case backs.

Press MSA07.131 contents :

| MSA | Item | Kg |
|-----------------|--|-------|
| 07.104 | assortment of 12 screw-on dies | 0.180 |
| 07.130 | Press | 1.000 |
| 07.130-A | (1) Upper adaptor for screw-on dies | 0.012 |
| 07.130-B | (2) Reversible lower adaptor for screw-on and snap-on dies | 0.008 |
| 07.130-C | (4) Broach with wheel | 0.185 |

Assortment MSA07.104 contents :

| MSA | Item | Kg |
|--------------------|--|-------|
| 07.106-17 | Screw-on die, Ø 17 mm | 0.004 |
| 07.106-1921 | Screw-on die, Ø 19-21 mm | 0.005 |
| 07.106-2225 | Screw-on die, Ø 22-25 mm | 0.006 |
| 07.106-2629 | Screw-on die, Ø 26-29 mm | 0.008 |
| 07.106-3033 | Screw-on die, Ø 30-33 mm | 0.010 |
| 07.106-3437 | Screw-on die, Ø 34-37 mm | 0.012 |
| 07.106-3841 | Screw-on die, Ø 38-41 mm | 0.015 |
| 07.106-4245 | Screw-on die, Ø 42-45 mm | 0.017 |
| 07.106-4648 | Screw-on die, Ø 46-48 mm | 0.020 |
| 07.106-4950 | Screw-on die, Ø 49-50 mm | 0.022 |
| 07.106-5255 | Screw-on die, Ø 52-55 mm | 0.025 |
| 07.106-U | Universal screw-on inferior die, Ø 45 mm | 0.014 |





For screw-on dies



FOR SCREW-ON AND SNAP-ON DIES

| MSA | Size | Kg |
|--------|-------------------|-------|
| 07.132 | 110 x 95 x 210 mm | 1.460 |

Small sized press, suitable for screw-on and snap-on dies, even large diameters. Compatible with all Horotec® dies. See pages 07-9...07-16.

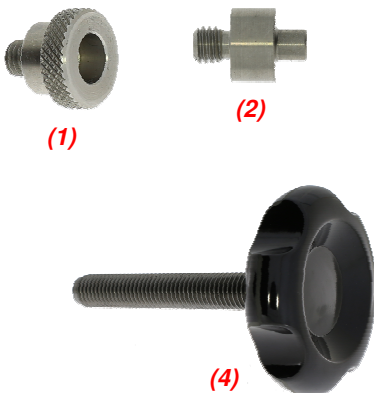
Delivered with an assortment of 12 Delrin® screw-on dies for fitting snap-on case backs and 1 support for closed bracelet MSA07.160-A.

Press MSA07.132 contents :

| MSA | Item | Kg |
|----------|--|-------|
| 07.104 | assortment of 12 screw-on dies | 0.180 |
| 07.130 | Press | 1.000 |
| 07.130-A | (1) Upper adaptor for screw-on dies | 0.012 |
| 07.130-B | (2) Reversible lower adaptor for screw-on and snap-on dies | 0.008 |
| 07.130-C | (4) Broach with wheel | 0.185 |
| 07.160-A | (3) Support for closed band | 0.125 |

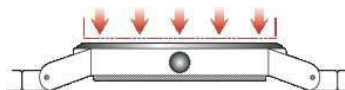
Assortment contents MSA07.104 :

| MSA | Item | Kg |
|-------------|--|-------|
| 07.106-17 | Screw-on die, Ø 17 mm | 0.004 |
| 07.106-1921 | Screw-on die, Ø 19-21 mm | 0.005 |
| 07.106-2225 | Screw-on die, Ø 22-25 mm | 0.006 |
| 07.106-2629 | Screw-on die, Ø 26-29 mm | 0.008 |
| 07.106-3033 | Screw-on die, Ø 30-33 mm | 0.010 |
| 07.106-3437 | Screw-on die, Ø 34-37 mm | 0.012 |
| 07.106-3841 | Screw-on die, Ø 38-41 mm | 0.015 |
| 07.106-4245 | Screw-on die, Ø 42-45 mm | 0.017 |
| 07.106-4648 | Screw-on die, Ø 46-48 mm | 0.020 |
| 07.106-4950 | Screw-on die, Ø 49-50 mm | 0.022 |
| 07.106-5255 | Screw-on die, Ø 52-55 mm | 0.025 |
| 07.106-U | Universal screw-on inferior die, Ø 45 mm | 0.014 |



We recommend using only HOROTEC® original screw-on dies with our presses :

- They are made of Delrin (non-marring nylon)
- They are provided with a reinforced metal core, for extreme pressures
- There are many different models to cover all your needs
- They are adaptable on all presses on the market with a threaded axle Ø 6 mm.



| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.520 | 245 x 100 mm | 0.144 |

Assortment of 8 Delrin® screw-on reversible dies FOR FITTING FLAT MINERAL CRYSTALS.



Universal inferior die

Die for crystals with loupe

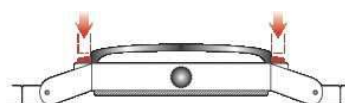


Flat die

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|---|-------|
| 06.520-16 | Screw-on die, Ø 16 mm | 0.004 |
| 06.520-2217 | Screw-on die, Ø 17-22 mm | 0.005 |
| 06.520-2823 | Screw-on die, Ø 23-28 mm | 0.008 |
| 06.520-3429 | Screw-on die, Ø 29-34 mm | 0.013 |
| 06.520-4035 | Screw-on die, Ø 35-40 mm | 0.019 |
| 06.520-4641 | (3) Screw-on die, Ø 41-46 mm | 0.025 |
| 06.520-A | (2) Screw-on die for crystals with loupe, Ø 35 mm | 0.012 |
| 07.106-U | (1) Universal screw-on inferior die, Ø 45 mm | 0.014 |

ASSORTMENT : SCREW-ON DIES



| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.521 | 245 x 100 mm | 0.164 |

Assortment of 11 Delrin® screw-on reversible dies FOR FITTING WATCH CRYSTALS.



Universal inferior die

Hollow die with thin straight edge. Depth 4.50 mm

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|--|-------|
| 06.521-2526 | Screw-on die, Ø 25-26 mm | 0.007 |
| 06.521-2728 | Screw-on die, Ø 27-28 mm | 0.008 |
| 06.521-2930 | Screw-on die, Ø 29-30 mm | 0.009 |
| 06.521-3132 | Screw-on die, Ø 31-32 mm | 0.010 |
| 06.521-3333 | Screw-on die, Ø 33-33.50 mm | 0.011 |
| 06.521-3434 | Screw-on die, Ø 34-34.50 mm | 0.011 |
| 06.521-3535 | Screw-on die, Ø 35-35.50 mm | 0.012 |
| 06.521-3636 | Screw-on die, Ø 36-36.50 mm | 0.013 |
| 06.521-3737 | Screw-on die, Ø 37-37.50 mm | 0.013 |
| 06.521-3838 | (2) Screw-on die, Ø 38-38.50 mm | 0.014 |
| 07.106-U | (1) Universal screw-on inferior die, Ø 45 mm | 0.014 |

ASSORTMENT : SCREW-ON DIES

ASSORTMENTS OF SCREW-ON DIES



Universal inferior die



Hollow die with oblique edge

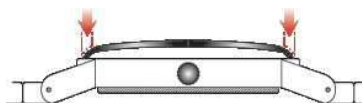
ASSORTMENT SCREW-ON DIES

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.522 | 245 x 100 mm | 0.163 |

Assortment of 15 Delrin® screw-on reversible dies FOR FITTING CRYSTALS WITH TENSION RING.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|--|-------|
| 06.522-15 | Screw-on die, Ø 15 mm | 0.003 |
| 06.522-1617 | Screw-on die, Ø 16-17 mm | 0.003 |
| 06.522-1819 | Screw-on die, Ø 18-19 mm | 0.004 |
| 06.522-2021 | Screw-on die, Ø 20-21 mm | 0.005 |
| 06.522-2223 | Screw-on die, Ø 22-23 mm | 0.005 |
| 06.522-2425 | Screw-on die, Ø 24-25 mm | 0.006 |
| 06.522-2627 | Screw-on die, Ø 26-27 mm | 0.007 |
| 06.522-2829 | Screw-on die, Ø 28-29 mm | 0.008 |
| 06.522-3031 | Screw-on die, Ø 30-31 mm | 0.009 |
| 06.522-3233 | Screw-on die, Ø 32-33 mm | 0.009 |
| 06.522-3435 | Screw-on die, Ø 34-35 mm | 0.010 |
| 06.522-3637 | Screw-on die, Ø 36-37 mm | 0.012 |
| 06.522-3839 | Screw-on die, Ø 38-39 mm | 0.013 |
| 06.522-4041 | (2) Screw-on die, Ø 40-41 mm | 0.014 |
| 07.106-U | (1) Universal screw-on inferior die, Ø 45 mm | 0.014 |



Curved die with thin edge

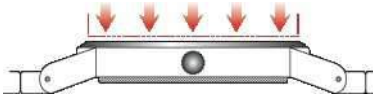
ASSORTMENT SCREW-ON DIES SPECIAL LARGE DIAMETER

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.523 | 245 x 100 mm | 0.156 |

Assortment of 5 Delrin® screw-on reversible dies FOR FITTING LARGE TENSION RING GLASSES.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|------------------------------|-------|
| 06.522-4245 | Screw-on die, Ø 42-45 mm | 0.015 |
| 06.522-4750 | Screw-on die, Ø 47-50 mm | 0.020 |
| 06.522-5255 | Screw-on die, Ø 52-55 mm | 0.023 |
| 06.522-5760 | Screw-on die, Ø 57-60 mm | 0.027 |
| 06.522-6265 | (1) Screw-on die, Ø 62-65 mm | 0.032 |



Flat die

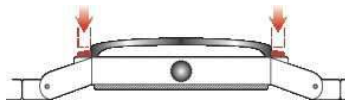
| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.524 | 245 x 100 mm | 0.208 |

Assortment of 4 Delrin® screw-on reversible dies FOR FITTING LARGE FLAT MINERAL GLASSES.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|------------------------------|-------|
| 06.520-4750 | Screw-on die, Ø 47-50 mm | 0.031 |
| 06.520-5255 | Screw-on die, Ø 52-55 mm | 0.039 |
| 06.520-5760 | Screw-on die, Ø 57-60 mm | 0.046 |
| 06.520-6265 | (1) Screw-on die, Ø 62-65 mm | 0.054 |

**ASSORTMENT
SCREW-ON DIES SPECIAL LARGE DIAMETER**



Reversible die

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.525 | 245 x 100 mm | 0.163 |

Assortment of 5 Delrin® screw-on reversible dies FOR FITTING LARGE CASE BEZELS.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|------------------------------|-------|
| 06.521-4045 | Screw-on die, Ø 40-45 mm | 0.016 |
| 06.521-4650 | Screw-on die, Ø 46-50 mm | 0.020 |
| 06.521-5255 | Screw-on die, Ø 52-55 mm | 0.025 |
| 06.521-5760 | Screw-on die, Ø 57-60 mm | 0.029 |
| 06.521-6265 | (1) Screw-on die, Ø 62-65 mm | 0.033 |

**ASSORTMENT
SCREW-ON DIES SPECIAL LARGE DIAMETER**

ASSORTMENTS OF SCREW-ON DIES



Depth 14 mm,
angle of attack 45°

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.526 | 245 x 100 mm | 0.320 |

Assortment of 12 Delrin® screw-on reversible dies FOR FITTING VERY DOMED CRYSTALS.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-----------|---------------------------|-------|
| 06.526-18 | Screw-on die, Ø 18 mm | 0.005 |
| 06.526-20 | Screw-on die, Ø 20 mm | 0.005 |
| 06.526-24 | Screw-on die, Ø 24 mm | 0.010 |
| 06.526-28 | Screw-on die, Ø 28 mm | 0.011 |
| 06.526-30 | Screw-on die, Ø 30 mm | 0.012 |
| 06.526-35 | Screw-on die, Ø 35 mm | 0.017 |
| 06.526-40 | Screw-on die, Ø 40 mm | 0.021 |
| 06.526-45 | Screw-on die, Ø 45 mm | 0.025 |
| 06.526-50 | Screw-on die, Ø 50 mm | 0.030 |
| 06.526-55 | Screw-on die, Ø 55 mm | 0.034 |
| 06.526-60 | Screw-on die, Ø 60 mm | 0.040 |
| 06.526-65 | (1) Screw-on die, Ø 65 mm | 0.045 |

ASSORTMENT SCREW-ON DIES SPECIAL LARGE DEPTH



Universal inferior die



Curved die with
straight and thick edge

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 07.106 | 245 x 100 mm | 0.136 |

Assortment of 9 Delrin® screw-on reversible dies FOR FITTING SNAP-ON CASE BACKS.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-------------|--|-------|
| 07.106-17 | Screw-on die, Ø 17 mm | 0.004 |
| 07.106-1921 | Screw-on die, Ø 19-21 mm | 0.005 |
| 07.106-2225 | Screw-on die, Ø 22-25 mm | 0.006 |
| 07.106-2629 | Screw-on die, Ø 26-29 mm | 0.008 |
| 07.106-3033 | Screw-on die, Ø 30-33 mm | 0.010 |
| 07.106-3437 | Screw-on die, Ø 34-37 mm | 0.012 |
| 07.106-3841 | Screw-on die, Ø 38-41 mm | 0.015 |
| 07.106-4245 | (2) Screw-on die, Ø 42-45 mm | 0.017 |
| 07.106-U | (1) Universal screw-on inferior die, Ø 45 mm | 0.014 |

ASSORTMENT SCREW-ON DIES



**ASSORTMENT
SCREW-ON DIES**

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 07.107 | 245 x 100 mm | 0.154 |

Assortment of 5 Delrin® screw-on reversible dies "Special Large Diameter". This assortment contains several types of dies for large watches.

Contents :

- 2 dies Ø 40-45 and 46-50 mm for fitting bezels
- 1 die Ø 47-50 mm for fitting flat mineral crystals
- 2 dies Ø 46-48 et 49-50 mm for fitting snap-on case backs.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-----------------|--------------------------|-------|
| 07.106-4648 | Screw-on die, Ø 46-48 mm | 0.020 |
| 06.520-4750 (1) | Screw-on die, Ø 47-50 mm | 0.031 |
| 06.521-4045 | Screw-on die, Ø 40-45 mm | 0.016 |
| 06.521-4650 | Screw-on die, Ø 46-50 mm | 0.020 |
| 07.106-4950 | Screw-on die, Ø 49-50 mm | 0.022 |



**ASSORTMENT
SCREW-ON DIES SPECIAL LARGE DIAMETER**

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 07.108 | 245 x 100 mm | 0.170 |

Assortment of 5 Delrin® screw-on reversible dies FOR FITTING SNAP-ON CASE BACKS.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-----------------|--------------------------|-------|
| 07.106-4648 (1) | Screw-on die, Ø 46-48 mm | 0.020 |
| 07.106-4950 | Screw-on die, Ø 49-50 mm | 0.022 |
| 07.106-5255 | Screw-on die, Ø 52-55 mm | 0.025 |
| 07.106-5760 | Screw-on die, Ø 57-60 mm | 0.029 |
| 07.106-6265 | Screw-on die, Ø 62-65 mm | 0.034 |

ASSORTMENTS OF SCREW-ON DIES



ASSORTMENT

| MSA | Packaging size | Kg |
|--------|-------------------|-------|
| 06.530 | 155 x 135 x 35 mm | 0.160 |

Assortment of 6 Delrin® screw-on rectangular dies for fitting snap-on case backs brass or rectangular crystals.
Brass centre thread Ø 6 mm.

Assortment contents (brass centre thread Ø 6 mm) :

| MSA | Item | Kg |
|-----------|---|-------|
| 06.530-24 | (1) Die, length ext. x int. 24 x 13 mm, width 13 mm, height 13 mm | 0.005 |
| 06.530-29 | Die, length ext. x int. 29 x 18 mm, width 16 mm, height 13 mm | 0.006 |
| 06.530-34 | Die, length ext. x int. 34 x 23 mm, width 19 mm, height 13 mm | 0.008 |
| 06.530-39 | Die, length ext. x int. 39 x 28 mm, width 22 mm, height 13 mm | 0.010 |
| 06.530-44 | Die, length ext. x int. 44 x 33 mm, width 25 mm, height 13 mm | 0.012 |
| 06.530-49 | Die, length ext. x int. 49 x 38 mm, width 28 mm, height 13 mm | 0.015 |



(1)

(2)

SCREW-ON DIES

| MSA | For watches | Size | Depth | Kg |
|----------|-------------------|------------|-------|-------|
| 06.511-A | (1) Gent / Medium | 45 x 37 mm | 11 mm | 0.024 |
| 06.511-B | (2) Lady | 37 x 30 mm | 9 mm | 0.018 |

Screw-on Delrin® inferior die for watches with pyramidal crystal CHRONO. The die is placed on the base of the press and the watch comes above upside down to close snap-on case back without damaging the pyramidal crystal.

Compatible with all previous illustrated presses as well as the presses MSA07.367, MSA07.368 and MSA07.369.

Brass centre thread Ø 6 mm.



(1)

(2)

| MSA | Items | Kg |
|----------|---------------------------|-------|
| 07.373-A | (1) Upper adaptor Ø 16 mm | 0.016 |
| 07.373-B | (2) Lower adaptor Ø 40 mm | 0.089 |

Adaptor for presses MSA07.367, MSA07.368 and MSA07.369.

Use with all screw-on dies (thread 6 mm) of illustrated assortments above and on previous pages.

Assortments of Delrin® SNAP-ON dies. Compatible with presses MSA06.125, MSA06.130, MSA07.110, MSA07.150, MSA07.151 and MSA07.152.

Threading of snap-on dies is as follows :

- Ø 8 mm for superior dies
- Ø 5 mm for inferior dies.



ASSORTMENT

| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 06.505 | 245 x 105 mm | 0.155 |

Assortment of 12 Delrin® snap-on reversible dies FOR FITTING BEZELS.

Assortment contents :

| MSA | Item | Kg |
|------------|--------------------------------|-------|
| 06.505-A12 | Superior die, Ø 22.5 - 23.0 mm | 0.004 |
| 06.505-A11 | Superior die, Ø 24.0 - 25.0 mm | 0.005 |
| 06.505-A10 | Superior die, Ø 26.0 - 27.0 mm | 0.006 |
| 06.505-A09 | Superior die, Ø 28.0 - 29.0 mm | 0.007 |
| 06.505-A08 | Superior die, Ø 30.0 - 31.0 mm | 0.007 |
| 06.505-A07 | Superior die, Ø 32.0 - 32.5 mm | 0.008 |
| 06.505-A06 | Superior die, Ø 33.0 - 33.5 mm | 0.009 |
| 06.505-A05 | Superior die, Ø 34.0 - 34.5 mm | 0.009 |
| 06.505-A04 | Superior die, Ø 35.0 - 35.5 mm | 0.011 |
| 06.505-A03 | Superior die, Ø 36.0 - 36.5 mm | 0.011 |
| 06.505-A02 | Superior die, Ø 37.0 - 37.5 mm | 0.011 |
| 06.505-A01 | Superior die, Ø 38.0 - 38.5 mm | 0.011 |



ASSORTMENT

| MSA | Packaging size | Contents | Kg |
|--------|----------------|----------|-------|
| 07.112 | 120 x 106 mm | 6 dies * | 0.085 |
| 06.510 | 195 x 102 mm | 10 dies | 0.135 |

Assortment of Delrin® snap-on reversible dies FOR FITTING FLAT MINERAL CRYSTALS.

Assortments contents :

| MSA | Item | Kg |
|------------|----------------------------------|-------|
| 06.510-A05 | * Superior die, Ø 15.0 - 20.0 mm | 0.003 |
| 06.510-A04 | Superior die, Ø 17.5 - 22.5 mm | 0.004 |
| 06.510-A03 | * Superior die, Ø 25.0 - 30.0 mm | 0.009 |
| 06.510-A02 | Superior die, Ø 27.5 - 32.5 mm | 0.011 |
| 06.510-A01 | * Superior die, Ø 35.0 - 40.0 mm | 0.017 |
| - | | - |
| 06.510-B05 | * Inferior die, Ø 15.0 - 20.0 mm | 0.003 |
| 06.510-B04 | Inferior die, Ø 17.5 - 22.5 mm | 0.005 |
| 06.510-B03 | * Inferior die, Ø 25.0 - 30.0 mm | 0.009 |
| 06.510-B02 | Inferior die, Ø 27.5 - 32.5 mm | 0.011 |
| 06.510-B01 | * Inferior die, Ø 35.0 - 40.0 mm | 0.018 |

ASSORTMENTS OF SNAP-ON DIES



ASSORTMENT

| MSA | Packaging size | Contents | Kg |
|--------|----------------|-------------|-------|
| 07.111 | 195 x 102 mm | 6 dies * | 0.100 |
| 07.113 | 120 x 106 mm | 6 dies ** | 0.085 |
| 07.116 | 195 x 102 mm | 13 dies *** | 0.155 |

Assortment of Delrin® reversible snap-on dies FOR FITTING SNAP-ON CASE BACKS.

Assortments contents :

| MSA | Item | Kg |
|------------|---------------------------------|-------|
| 07.111-A03 | */** Superior die, Ø 20 - 23 mm | 0.004 |
| 07.111-A02 | */** Superior die, Ø 26 - 29 mm | 0.007 |
| 07.111-A01 | */** Superior die, Ø 32 - 35 mm | 0.010 |
| 07.111-A08 | *** Superior die, Ø 36 - 38 mm | 0.012 |
| 07.111-A07 | *** Superior die, Ø 39 - 41 mm | 0.014 |
| 07.111-A06 | *** Superior die, Ø 42 - 44 mm | 0.016 |
| 07.111-A05 | *** Superior die, Ø 45 - 47 mm | 0.018 |
| 07.111-A04 | *** Superior die, Ø 48 - 50 mm | 0.020 |
| 07.111-A09 | ** Superior die, Ø 52 - 55 mm | 0.024 |
| 07.111-A10 | ** Superior die, Ø 57 - 60 mm | 0.029 |
| 07.111-A11 | ** Superior die, Ø 62 - 65 mm | 0.033 |
| - | - | - |
| 07.111-B03 | */** Inferior die, Ø 29 mm | 0.009 |
| 07.111-B02 | */** Inferior die, Ø 35 mm | 0.012 |
| 07.111-B06 | */** Inferior die, Ø 40 mm | 0.014 |
| 07.111-B05 | *** Inferior die, Ø 45 mm | 0.018 |
| 07.111-B04 | *** Inferior die, Ø 50 mm | 0.022 |
| 07.111-B07 | ** Inferior die, Ø 55 mm | 0.026 |
| 07.111-B08 | ** Inferior die, Ø 60 mm | 0.030 |
| 07.111-B09 | ** Inferior die, Ø 65 mm | 0.035 |

Wheel press.



| MSA | Size | Kg |
|---------------|--------------------|-------|
| 07.050 | 200 x 200 x 425 mm | 7.680 |

The strongest wheel press arm in its class.
 Ideal for opening and closing the most recalcitrant screw-on backs.
 Its extreme robustness and long stroke make it a perfect adaptable tool.
 The monobloc design of this press guarantees optimal alignment.
 The ergonomic wheel provides great working strength and is suitable for both right- and left-handed users.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

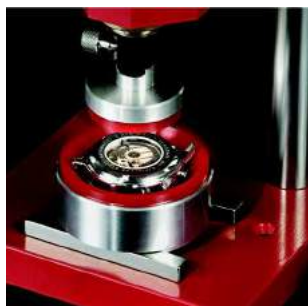
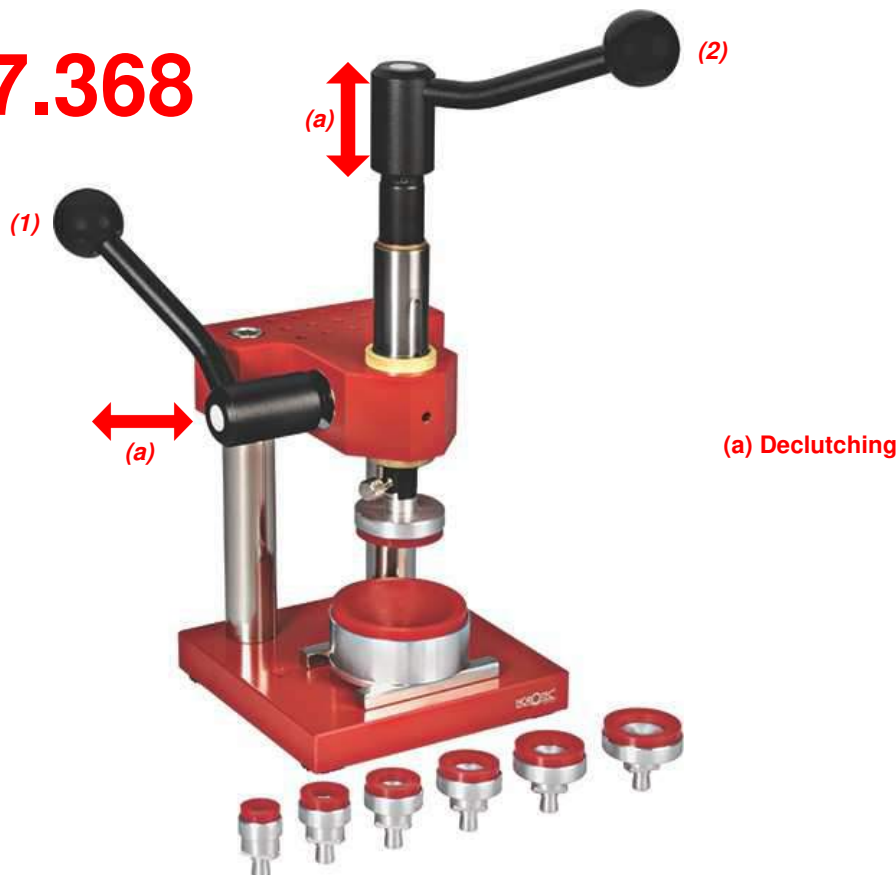
Professional rack-press equipped with 1 case holder and suction dies, for opening and closing watches with screw-on back cases. Thanks to this combined system, there is no contact between the metallic parts and the watch, thus eliminating any risk of scratching.

The case holder is made of a high adherence red synthetic deformable material ; inverted cone shape allows firmly holding in place all types of watches ; neither the crowns nor the pushers don't undergo any pressure.

Holding watches with domes glass is not a problem anymore. The suction dies, delivered in different diameters and made of the same red synthetic deformable material, allow to operate on all different types of case backs even the most delicately worked (satin-like, transparent, etc.). The highly adherence material is easily distorted and adapts easily to the case back shape. In order to maintain good adherence of the suction dies, they must be cleaned regularly ; eliminate previous traces of arease or dust on the glass, the case and the case back before proceeding.



MSA07.368



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.368 | 180 x 130 x 350 mm | 4.400 |

Professional rack-press, version with red suction dies.

The press is equipped with two handles that can be declutched to facilitate their positioning according to the desired angle :

(1) Lateral handle allows to lower or to lift the toothed rack in order to have a better control of the pressure applied to the case back during unscrewing/screwing ;

(2) Upper handle (mobile) is used to unscrew/screw the case back.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Contents :

| MSA | Item | Kg |
|----------|----------------------------------|-------|
| 07.333 | Assortment of 7 red suction dies | 0.140 |
| 07.367-A | Red suction case holder | 0.130 |
| 07.367-P | Rack-press | 4.000 |

Spare part :

| MSA | Item | Kg |
|----------|--|-------|
| 07.367-R | Lateral spring for press, Ø 18 x H 13 mm | 0.005 |

Professional rack-press, full version.



MSA07.369



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.369 | 180 x 130 x 350 mm | 6.750 |

Rack-press delivered as a full version, for traditional work or only with the suction dies. Equipped with 2 adapters allowing use of all the dies with thread Ø 6 mm from the following assortments: MSA06.520, MSA06.521, MSA06.522, MSA07.106 and MSA07.107.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 07.367-P | Rack-press | 4.000 |
| 07.367-A | (1) Red suction case holder | 0.130 |
| 07.344 | (2) Adjustable jaws holder, maximum opening 65 mm | 0.225 |
| 07.323-A | (3) 2x round jaws | 0.003 |
| 07.323-B | (3) 2x flat jaws | 0.003 |
| 07.323-C | (3) 2x square jaws | 0.003 |
| 07.323-D | (3) 2x knurled jaws | 0.003 |
| 07.323-E | (3) 2x elongated jaws, reinforced square | 0.004 |
| 07.323-F | (3) 2x elongated jaws, reinforced round | 0.004 |
| 07.371 | (4) Lower tray | 0.220 |
| 07.372 | (5) 2x upper tray | 0.325 |
| 07.373-A | (6) Upper adaptor Ø 16 mm (see page 07-14) | 0.016 |
| 07.373-B | (7) Lower adaptor Ø 40 mm (see page 07-14) | 0.089 |
| 07.374 | (8) Case holder with 4 stacked jaws, height 29 mm | 0.160 |
| 07.333 | (9) Assortment of 7 red suction dies | 0.140 |
| 07.311 | (10) Assortment of 8 steel dies | 0.510 |
| 07.327 | (11) Assortment of 3 steel dies BM type | 0.220 |
| 07.336 | (12) Assortment of 4 steel dies SEAM. type | 0.582 |
| 10.524 | Pin punch support, Ø 8 x L35 mm | 0.012 |

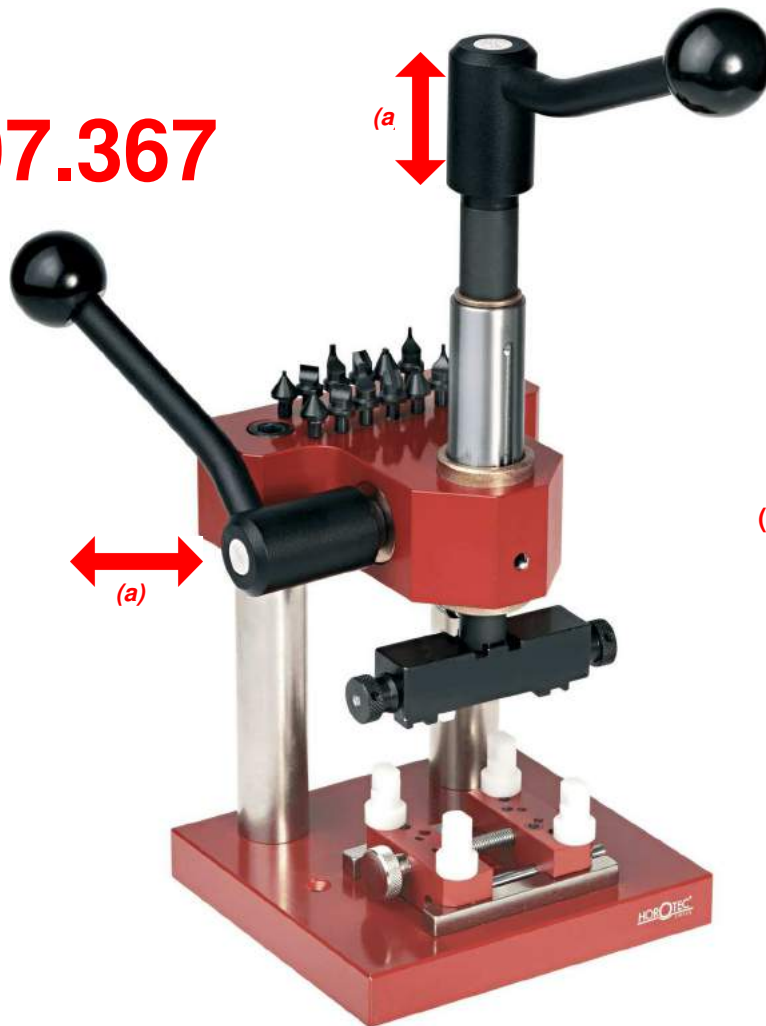
Spare part :

| MSA | Item | Kg |
|----------|--|-------|
| 07.367-R | Lateral spring for press, Ø 18 x H 13 mm | 0.005 |

Professional rack-press, light version.



MSA07.367



(a) Declutching

| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.367 | 180 x 130 x 350 mm | 4.500 |

Rack-press delivered in the light version, to work in a traditional way.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 07.323-E | 2x elongated jaws, reinforced square | 0.004 |
| 07.323-F | 2x elongated jaws, reinforced round | 0.004 |
| 07.374 | Case holder with 4 stacked jaws, height 29 mm | 0.160 |
| 07.323-A | 2x round jaws | 0.003 |
| 07.323-B | 2x flat jaws | 0.003 |
| 07.323-C | 2x square jaws | 0.003 |
| 07.323-D | 2x knurled jaws | 0.003 |
| 07.344 | Adjustable jaws holder, maximum opening 65 mm | 0.225 |
| 07.367-P | Rack-press | 4.000 |

Spare part :

| MSA | Item | Kg |
|----------|--|-------|
| 07.367-R | Lateral spring for press, Ø 18 x H 13 mm | 0.005 |

Complete version of the professional precision HOROTEC® press, heavy and robust for opening/closing screw-on case backs of all types of watches.

- The professional precision HOROTEC® press is deliverable in 4 different versions
- The references of the 4 pairs of jaws MSA07.323-x delivered with the illustrated presses here below are the following : MSA07.323-A, -B, -C and -D
- The jaws MSA07.323-E and -F are also compatible and available separately.



Dies can be used upside down.



Case lugs jaws can be used. (See page 07-28)

| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.363 | 160 x 220 x 280 mm | 5.035 |

Features :

- Large ergonomic top wheel Ø 160 mm for screwing/unscrewing with no effort
- Centre threaded broach with precise blocking ring
- Solid steel supporting pillars covered with anti-skid and ergonomic synthetic material, for right and left handed
- Base has a removable die tray for easy selection and storage
- Removable watch holder with 12 holes for concave Delrin® dies and 4 holes for case lugs dies
- Base equipped with 4 anti-skid feet.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 07.311 | Assortment of 8 steel dies | 0.510 |
| 07.323-A | 2x round jaws | 0.003 |
| 07.323-B | 2x flat jaws | 0.003 |
| 07.323-C | 2x square jaws | 0.003 |
| 07.323-D | 2x knurled jaws | 0.003 |
| 07.325 | Assortment of 7 blue suction dies | 0.320 |
| 07.327 | Assortment of 3 steel dies BM type | 0.220 |
| 07.344 | Adjustable jaws holder, maximum opening 65 mm | 0.225 |
| 07.360-A | Adjustable case holder with 4 Delrin® dies | 0.110 |
| 07.375 | Removable dies holder tray | 0.385 |

Other variants of the complete version MSA07.363.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.360 | 160 x 220 x 280 mm | 4.700 |

Press delivered with :

- 1 adjustable case holder MSA07.360-A
- 1 adjustable jaws holder MSA07.344
- 4 pairs of jaws MSA07.323-x.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.361 | 160 x 220 x 280 mm | 4.145 |

Press delivered with :

- 1 adjustable case holder MSA07.360-A
- 1 adjustable jaws holder MSA07.344
- 4 pairs of jaws MSA07.323-x
- 7 suction dies MSA07.325-x.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.364 | 160 x 220 x 280 mm | 4.155 |

Press delivered with :

- 1 adjustable case holder MSA07.360-A
- 1 adjustable jaws holder MSA07.344
- 4 pairs of jaws MSA07.323-x
- 1 assortment of 8 steel dies MSA07.311.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.365 | 160 x 220 x 280 mm | 4.030 |

Press delivered with :

- 1 adjustable case holder MSA07.360-A
- 1 adjustable jaws holder MSA07.344
- 4 pairs of jaws MSA07.323-x
- 1 assortment of 3 steel dies BM type MSA07.327.

Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Accessories.



| MSA | Size | Kg |
|---------------|------------------|-------|
| 07.370 | 160 x 55 x 53 mm | 0.345 |

Removable dies holder tray for presses MSA07.360, MSA07.361, MSA07.363, MSA07.364 and MSA07.365.



| MSA | Size | Kg |
|---------------|------------------|-------|
| 07.375 | 160 x 72 x 53 mm | 0.385 |

Removable dies holder tray for presses MSA07.360, MSA07.361, MSA07.363, MSA07.364 and MSA07.365.



| MSA | Size | Kg |
|---------------|------------------|-------|
| 07.372 | 160 x 55 x 46 mm | 0.325 |

Upper dies holder tray, accessory for presses MSA07.367, MSA07.368 and MSA07.369.
Can be stacked on lower tray MSA07.371.



| MSA | Size | Kg |
|---------------|------------------|-------|
| 07.371 | 160 x 55 x 10 mm | 0.220 |

Lower dies holder tray, accessory for presses MSA07.367, MSA07.368 and MSA07.369.
Used as base support for various upper trays MSA07.372.



| MSA | Kg |
|-----------------|-------|
| 07.360-H | 0.125 |

Adapter for OM broach. Fits on presses MSA07.360, MSA07.361, MSA07.363, MSA07.364 and MSA07.365.

Mini HOROTEC® professional precision press.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 07.320 | 110 x 95 x 200 mm | 1.900 |

Mini professional precision press. Small and robust, built in steel and aluminium. Equipped with removable and adjustable watch holder with 4 Delrin® dies to hold the watch cases surely and horizontally. First fit the case in the watch holder and then unscrew the case back with the adjustable jaws holder. Excellent frontal, lateral or plunging view. Top wheel Ø 75 mm.

Several accessories are available as an option. Compatible with all HOROTEC® dies and case holders, see pages 07-25...07-28 and 07-30...07-32.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 07.320-A | Gasket for broach | 0.001 |
| 07.323-A | 2x round jaws | 0.003 |
| 07.323-B | 2x flat jaws | 0.003 |
| 07.323-C | 2x square jaws | 0.003 |
| 07.323-D | 2x knurled jaws | 0.003 |
| 07.344 | Adjustable jaws holder, maximum opening 65 mm | 0.225 |
| 07.360-A | Adjustable case holder with 4 Delrin® dies | 0.110 |

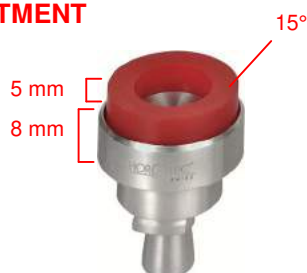
Assortment of suction dies with increased adherence for opening/closing screw-on case backs, in red synthetic material (more flexible than the blue suction dies MSA07.325) drowned in aluminium.

Slightly deformable material that adapts to the case back shape. For optimal adherence, remove all traces of grease or dust on the synthetic material and the case back, using a cloth soaked with alcohol or benzene.

Compatible with all presses MSA07.050, MSA07.170, MSA07.320 and MSA 07.36x.



ASSORTMENT



| MSA | Contents | Ø | Kg |
|--------|----------|------------|-------|
| 07.343 | 10 dies | 16...55 mm | 0.180 |

Assortment of 10 red suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | Item | Kg |
|------------|---------------------|-------|
| 07.333-016 | Suction die Ø 16 mm | 0.011 |
| 07.333-020 | Suction die Ø 20 mm | 0.013 |
| 07.333-023 | Suction die Ø 23 mm | 0.016 |
| 07.333-026 | Suction die Ø 26 mm | 0.018 |
| 07.333-030 | Suction die Ø 30 mm | 0.022 |
| 07.333-034 | Suction die Ø 34 mm | 0.026 |
| 07.333-040 | Suction die Ø 40 mm | 0.032 |
| 07.333-045 | Suction die Ø 45 mm | 0.040 |
| 07.333-050 | Suction die Ø 50 mm | 0.045 |
| 07.333-055 | Suction die Ø 55 mm | 0.050 |



ASSORTMENT

| MSA | Contents | Ø | Kg |
|--------|----------|------------|-------|
| 07.333 | 7 dies | 16...40 mm | 0.140 |

Assortment of 7 red suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | Item | Kg |
|------------|---------------------|-------|
| 07.333-016 | Suction die Ø 16 mm | 0.011 |
| 07.333-020 | Suction die Ø 20 mm | 0.013 |
| 07.333-023 | Suction die Ø 23 mm | 0.016 |
| 07.333-026 | Suction die Ø 26 mm | 0.018 |
| 07.333-030 | Suction die Ø 30 mm | 0.022 |
| 07.333-034 | Suction die Ø 34 mm | 0.026 |
| 07.333-040 | Suction die Ø 40 mm | 0.032 |



ASSORTMENT

| MSA | Contents | Ø | Kg |
|--------|----------|------------|-------|
| 07.339 | 3 dies | 45...55 mm | 0.178 |

Assortment of 3 red suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | Item | Kg |
|------------|---------------------|-------|
| 07.333-045 | Suction die Ø 45 mm | 0.040 |
| 07.333-050 | Suction die Ø 50 mm | 0.045 |
| 07.333-055 | Suction die Ø 55 mm | 0.050 |

PRESSES FOR SCREW / UNSCREW CASE BACKS



ASSORTMENT



| MSA | Contents | Ø | Kg |
|--------|----------|------------|-------|
| 07.325 | 7 dies * | 16...40 mm | 0.178 |

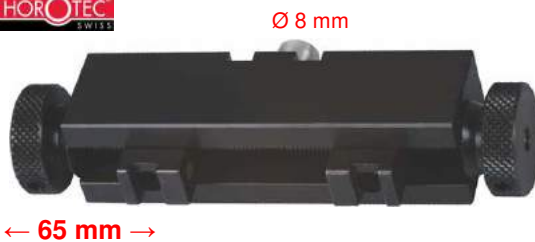
Assortment of 7 suction dies for opening/closing screw-on case backs. Made of non-deformable blue synthetic material, drowned in aluminium for a perfect adherence and durable use. Adaptable on presses MSA07.050, MSA07.170, MSA07.320 and MSA07.36x.

Delivered in a cardboard box.

Detail of dies :

| MSA | Item | Kg |
|------------|-----------------------|-------|
| 07.325-016 | * Suction die Ø 16 mm | 0.012 |
| 07.325-020 | * Suction die Ø 20 mm | 0.014 |
| 07.325-023 | * Suction die Ø 23 mm | 0.016 |
| 07.325-026 | * Suction die Ø 26 mm | 0.019 |
| 07.325-030 | * Suction die Ø 30 mm | 0.023 |
| 07.325-034 | * Suction die Ø 34 mm | 0.027 |
| 07.325-040 | * Suction die Ø 40 mm | 0.034 |
| 07.325-045 | Suction die Ø 45 mm | 0.040 |

Jaws holder and jaws.



| MSA | Maximun opening | Kg |
|--------|-----------------|-------|
| 07.344 | 65 mm | 0.225 |

Adjustable jaws holder for professional precision presses MSA07.050, MSA07.320 and MSA07.36x. Compatible with all jaws MSA07.323-x.



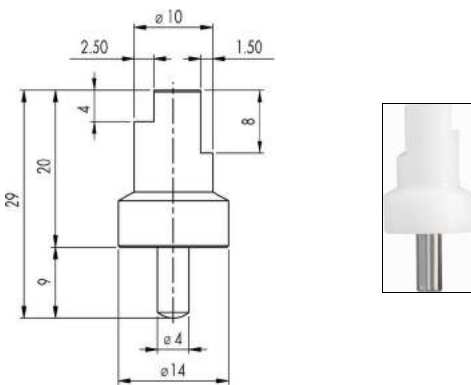
| MSA | Jaws shape | Kg |
|----------|-------------------|-------|
| 07.323-A | Round | 0.003 |
| 07.323-B | Flat | 0.003 |
| 07.323-C | Square | 0.003 |
| 07.323-D | Knurled | 0.003 |
| 07.323-E | Square, elongated | 0.004 |
| 07.323-F | Round, elongated | 0.004 |

Jaws for screw-on case backs, accessories for jaws holder MSA07.344 of presses MSA07.050, MSA07.320 and MSA07.36x.

Case holders.



← 70 mm →



| MSA | Maximun opening | Kg |
|--------|-----------------|-------|
| 07.374 | 70 mm | 0.160 |

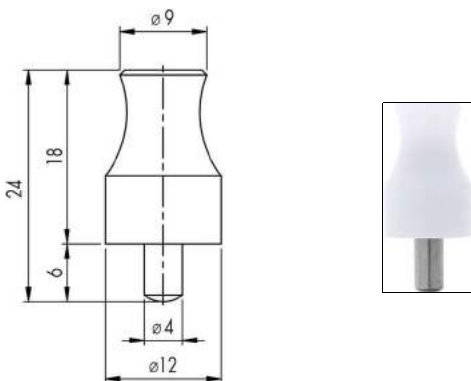
Adjustable aluminium case holder for all HOROTEC® presses. The stacked dies are fitted in reinforced pierced holes with a steel cylinder. They are particularly recommended for heavy-duty work. Delivered with 4 Delrin® dies MSA07.374-A.

Spare part :

| MSA | Item | Kg |
|----------|---------------------|-------|
| 07.374-A | Stacked Delrin® die | 0.005 |



← 70 mm →



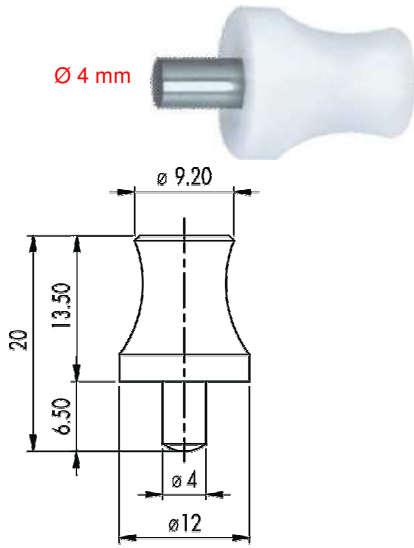
| MSA | Maximun opening | Kg |
|----------|-----------------|-------|
| 07.360-A | 70 mm | 0.110 |

Adjustable aluminium case holder for all HOROTEC® presses. Delivered with 4 Delrin® dies MSA07.360-B.

Spare part :

| MSA | Item | Kg |
|----------|-------------|-------|
| 07.360-B | Delrin® die | 0.015 |

PRESSES FOR SCREW / UNSCREW CASE BACKS



Ø 4 mm

| MSA | Kg |
|--------|-------|
| 07.322 | 0.002 |

Concave Delrin® die, accessory for case holders MSA07.360-A and MSA07.374.



Ø 3 mm

| ZBG | For lugs | Kg |
|------------|------------|-------|
| 5700-B (1) | 09 - 11 mm | 0.008 |
| 5700-C (2) | 13 - 15 mm | 0.008 |
| 5700-D (3) | 17 - 19 mm | 0.008 |
| 5700-E (4) | 20 - 22 mm | 0.008 |

Case lugs Delrin® die, accessory for case holders MSA07.360-A and MSA07.374.



← 70 mm →

| MSA | Kg |
|----------|-------|
| 07.367-A | 0.130 |

Case holder with red suction cup.
 - Ø external aluminium : 66 mm
 - External Ø of the suction cup : 64 mm
 - Suction cup depth : 25 mm.

For presses MSA07.050, MSA07.060, MSA07.170, MSA07.360, MSA07.361, MSA07.363, MSA07.364, MSA07.365, MSA07.367, MSA07.368 and MSA07.369.

HOROTEC® case openers. Simple and very efficient for opening watch screw-on case backs with integrated bracelets (also for ladies watches where work space is very narrow). For watches with large dimensions due to the opening up to 65 mm.



← 65 mm →



| MSA | Length | Maximun opening | Kg |
|--------|--------|-----------------|-------|
| 07.013 | 190 mm | 65 mm | 0.295 |

Case opener delivered with 1 pair of jaws MSA07.323-E.
Use with jaws MSA07.323-x as shown on page 07-26.



← 57 mm →



| MSA | Length | Maximun opening | Kg |
|--------|--------|-----------------|-------|
| 07.014 | 155 mm | 57 mm | 0.340 |

Case opener delivered with 1 pair of jaws MSA07.323-E.
Use with jaws MSA07.323-x as shown on page 07-26.

These dies are adaptable on all HOROTEC® presses for screw-on case backs.



| MSA | Kg |
|--------|-------|
| 07.312 | 0.645 |

Assortment of 8 steel dies MSA07.311 with handle for opening /closing screw-on case backs.

Spare parts :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 07.305 | Handle | 0.270 |
| 07.305-A | Screw for handle | 0.008 |
| 07.311 | Assortment of 8 steel dies | 0.510 |

ASSORTMENT



| MSA | Ø | Kg |
|--------|----------------|-------|
| 07.311 | 18.5...36.5 mm | 0.510 |

Assortment of 8 steel dies for opening/closing screw-on case backs.

Spare parts :

| MSA | Item | Kg |
|------------|---------------|-------|
| 07.326-185 | Die Ø 18.5 mm | 0.037 |
| 07.326-202 | Die Ø 20.2 mm | 0.043 |
| 07.326-225 | Die Ø 22.5 mm | 0.047 |
| 07.326-265 | Die Ø 26.5 mm | 0.056 |
| 07.326-283 | Die Ø 28.3 mm | 0.058 |
| 07.326-295 | Die Ø 29.5 mm | 0.064 |
| 07.326-340 | Die Ø 34.0 mm | 0.080 |
| 07.326-365 | Die Ø 36.5 mm | 0.090 |

ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.307 | 0.442 |

Assortment of 3 steel dies MSA07.327 with handle for opening /closing screw-on case backs BM type.

Spare parts :

| MSA | Item | Kg |
|----------|------------------------------------|-------|
| 07.305 | Handle | 0.270 |
| 07.305-A | Screw for handle | 0.008 |
| 07.327 | Assortment of 3 steel dies BM type | 0.220 |

ASSORTMENT



-033

-030

-025

ASSORTMENT

| MSA | Ø | Kg |
|--------|------------|-------|
| 07.327 | 25...33 mm | 0.220 |

Assortment of 3 steel dies for opening/closing screw-on case backs BM type.

Spare parts :

| MSA | Item | Kg |
|------------|------------------|-------|
| 07.327-025 | Die Ø ext. 25 mm | 0.047 |
| 07.327-030 | Die Ø ext. 30 mm | 0.059 |
| 07.327-033 | Die Ø ext. 33 mm | 0.067 |



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 07.308 | 0.820 |

Assortment of 8 steel dies MSA07.311 and 3 steel dies MSA07.327 with handle for opening/closing screw-on case backs BM type.

Spare parts :

| MSA | Item | Kg |
|----------|------------------------------------|-------|
| 07.305 | Handle | 0.270 |
| 07.305-A | Screw for handle | 0.008 |
| 07.311 | Assortment of 8 steel dies | 0.510 |
| 07.327 | Assortment of 3 steel dies BM type | 0.220 |



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 07.337 | 0.826 |

Assortment of 4 steel dies MSA07.336 with handle MSA07.305 for opening/closing screw-on case backs SEAM. type.

Spare parts :

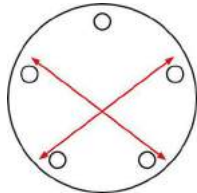
| MSA | Item | Kg |
|----------|---------------------------------|-------|
| 07.305 | Handle | 0.270 |
| 07.305-A | Screw for handle | 0.008 |
| 07.336 | Assortment of 4 dies SEAM. type | 0.582 |

TOOLS FOR SCREW / UNSCREW CASE BACKS



-042 -033 -030 -020

ASSORTMENT



| MSA | Ø | Kg |
|--------|------------|-------|
| 07.336 | 20...42 mm | 0.582 |

Assortment of 4 steel dies for opening/closing screw-on case backs SEAM type.

Spare parts :

| MSA | Item | Kg |
|------------|------------------------------|-------|
| 07.330-020 | Die SEAM. type, lady Ø 20 mm | 0.095 |
| 07.330-030 | Die SEAM. type, gent Ø 30 mm | 0.095 |
| 07.330-033 | Die SEAM. type, Ø 33 mm | 0.140 |
| 07.330-042 | Die SEAM. type, Ø 42 mm | 0.141 |

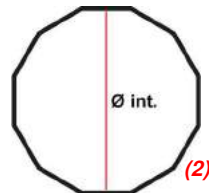
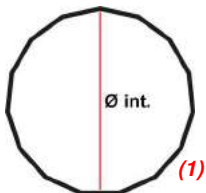


-034 -035 -036A



-036 -037 -038

ASSORTMENT



| MSA | Ø | Kg |
|--------|------------|-------|
| 07.335 | 34...38 mm | 0.260 |

Assortment of 6 steel dies for opening/closing screw-on case backs BR type.

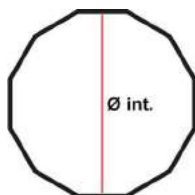
Spare parts :

| MSA | Items | Ø | Kg |
|-------------|-------------------------------|----------|-------|
| 07.335-034 | (1) Die BR type with 15 sides | 34.00 mm | 0.037 |
| 07.335-035 | (1) Die BR type with 15 sides | 35.00 mm | 0.038 |
| 07.335-036A | (2) Die BR type with 12 sides | 36.00 mm | 0.042 |
| 07.335-036 | (1) Die BR type with 15 sides | 36.00 mm | 0.041 |
| 07.335-037 | (1) Die BR type with 15 sides | 37.00 mm | 0.041 |
| 07.335-038 | (1) Die BR type with 15 sides | 38.00 mm | 0.042 |



-030 -035 -039 -042

ASSORTMENT



| MSA | Ø | Kg |
|--------|------------------|-------|
| 07.334 | 30.60...42.50 mm | 0.532 |

Assortment of 4 steel dies for opening/closing screw-on case backs PAN type.

Spare parts :

| MSA | Items | Ø | Kg |
|------------|----------------------------|----------|-------|
| 07.334-030 | Die PAN type with 12 sides | 30.60 mm | 0.089 |
| 07.334-035 | Die PAN type with 12 sides | 35.55 mm | 0.107 |
| 07.334-039 | Die PAN type with 12 sides | 39.00 mm | 0.104 |
| 07.334-042 | Die PAN type with 12 sides | 42.50 mm | 0.125 |



| MSA | Ø | Kg |
|--------|-------|-------|
| 07.331 | 35 mm | 0.070 |

Steel die for opening/closing screw-on case backs CT Aqualand type.

Other openers for screw-on case backs.



| MSA | Size | Kg |
|---------------|------------|-------|
| 07.210 | 70 x 37 mm | 0.080 |

Case opener with 2 hardened steel jaws for opening/closing cases with screwed-on backs.



| MSA | Size | Kg |
|---------------|------------|-------|
| 07.208 | 70 x 37 mm | 0.080 |

Case opener with 2 flat hardened steel jaws for opening/closing cases with screwed-on backs.



| MSA | Size | Kg |
|---------------|------------|-------|
| 07.209 | 70 x 37 mm | 0.080 |

Case opener with 2 pointed hardened steel jaws for opening/closing cases with screwed-on backs.



| MSA | Ø | Kg |
|---------------|---------|-------|
| 07.022 | ± 65 mm | 0.042 |

Friction ball with high adherence for opening/closing cases with screwed-on backs.

Case openers for snap-on case backs.



| MSA | Length | Kg |
|--------|--------|-------|
| 07.004 | 122 mm | 0.165 |

Automatic case opener for snap-on case backs. Handle inside equipped with a spring and firing pin, when turned on opens the case backs in one micro-choc. The strength of the choc is adjustable by screwing (+ power) or unscrewing (- power) the handle. *Delivered with 3 shaped blades.*

Spare parts :

| MSA | Item | Kg | |
|-----------|----------------------------|-------|--|
| 07.004-01 | Assortment of 3 blades | 0.012 | |
| 07.004-A | Straight blade, width 5 mm | 0.004 | |
| 07.004-B | Bended blade, width 3.5 mm | 0.004 | |
| 07.004-C | Bended blade, width 4.5 mm | 0.004 | |
| 07.004-D | O'Ring gasket | 0.001 | |
| 07.004-E | Spring small model | 0.002 | |
| 07.004-G | Blades holder | 0.008 | |
| 07.004-H | Spring large model | 0.003 | |
| 07.004-J | Hammer | - | |



| MSA | Type | Length | Kg |
|--------|-------------------|--------|-------|
| 07.026 | Right-handed user | 137 mm | 0.106 |

Case opener with knurled aluminium handle allowing an excellent grip for opening cases with snapped-on backs. Interchangeable stainless steel blade. *Delivered with an Allen key for blade changing.*

Spare parts :

| MSA | Item | Kg | |
|----------|-------|-------|--|
| 07.026-B | Blade | 0.004 | |
| 07.026-V | Screw | 0.001 | |



| MSA | Length | Kg |
|--------|--------|-------|
| 07.001 | 115 mm | 0.028 |

Case opener with aluminium handle and one stainless steel fixed blade for opening cases with snapped-on backs.



| MSA | Length | Kg |
|--------|--------|-------|
| 07.016 | 113 mm | 0.018 |

Case opener with plastic handle and one stainless steel fixed blade without rivets for opening cases with snapped-on backs.



| MSA | Length | Kg |
|--------|--------|-------|
| 07.007 | 135 mm | 0.034 |

Lever case opener with robust handle for a better grip for opening cases with snapped-on backs.

SEIKO



| MSA | | Length | Kg |
|--------|--|--------|-------|
| 07.018 | | 82 mm | 0.024 |
| 07.019 | | 86 mm | 0.022 |
| 07.020 | | 85 mm | 0.021 |

Robust case opener with plastic handle and one stainless steel fixed blade for opening cases with snapped-on backs.



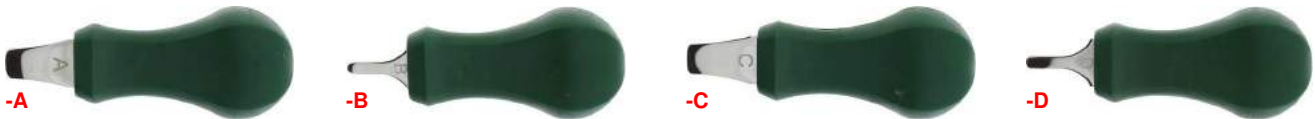
| MSA | Packaging size | Kg |
|--------|-------------------|-------|
| 07.024 | 155 x 145 x 37 mm | 0.230 |

Assortment of 4 case openers with plastic handle and one stainless steel blade for opening cases with snapped-on backs.

Spare parts :

| MSA | Item | Kg | |
|----------|--|-------|--|
| 07.024-A | Case opener, length 87 mm, blade width 10 mm | 0.026 | |
| 07.024-B | Case opener, length 87 mm, blade width 4 mm | 0.024 | |
| 07.024-C | Case opener, length 87 mm, blade width 10 mm | 0.026 | |
| 07.024-D | Case opener, length 87 mm, blade width 4 mm | 0.024 | |

ASSORTMENT



PRECITEC QUALITY



| MSA | Length closed | Kg |
|--------|---------------|-------|
| 07.025 | 83 mm | 0.041 |

Robust case opener with white aluminium handle and 2 retract-able stainless steel blades for opening cases with snapped-on backs.



| MSA | Colour | Length closed | Kg |
|-----------|--------|---------------|-------|
| 07.006-01 | Red | 83 mm | 0.036 |
| 07.006-02 | Black | 83 mm | 0.036 |
| 07.006-03 | Blue | 83 mm | 0.036 |
| 07.006-04 | Green | 83 mm | 0.036 |

Robust case opener with 2 retract-able stainless steel blades, thick plastic handle and 1 tooth pick for opening cases with snapped-on backs.

TOOLS FOR SNAP-ON CASE BACKS



| MSA | Size | Kg |
|--------|------------------|-------|
| 07.114 | 90 x 120 x 70 mm | 0.405 |

Tool with lever and springs for opening all types of cases with snapped-on backs.

Spare part :

| MSA | Item | Kg |
|----------|-------|-------|
| 07.114-A | Blade | 0.004 |

SEIKO



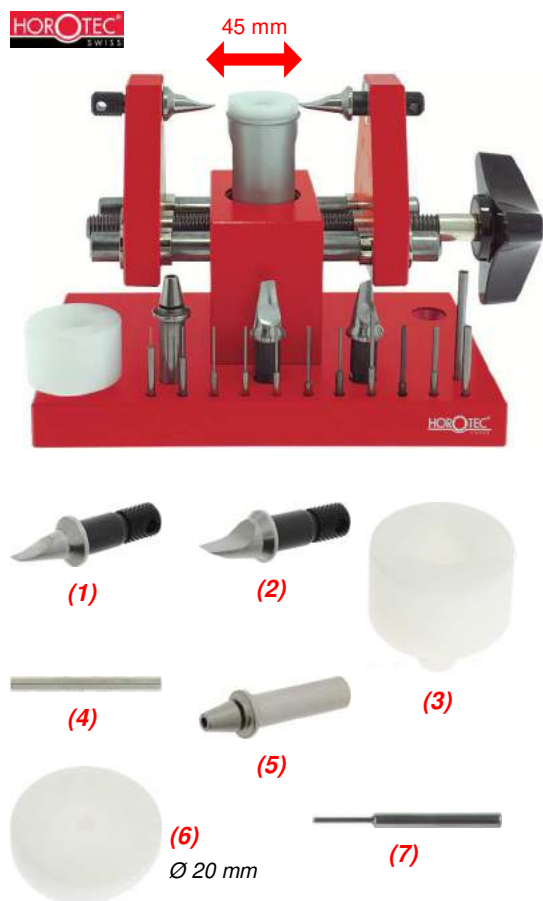
| MSA | Size | Kg |
|--------|--------------------|-------|
| 07.009 | 100 x 160 x 100 mm | 0.470 |

Adjustable case opener for all types of cases with snapped-on backs.
Delivered with users manual and spare blade.

Spare parts :

| MSA | Item | Kg |
|-----------|-------------------------------------|-------|
| 07.009-01 | (1) Pair of blades | 0.004 |
| 07.009-02 | (2) Pair of pins without protection | 0.004 |
| 07.009-03 | (3) Pair of pins with protection | 0.004 |

Tools for opening snap-on case backs and extracting snap-on bezels.



| MSA | Size | Maximun opening | Kg |
|--------|------------------|-----------------|-------|
| 07.115 | 120 x 75 x 85 mm | 45 mm | 0.960 |

Tool for opening snap-on watch case backs and removing snap-on bezels. Allows a precise adjustment due to an anti-skid case holder mounted on a spring. The tool is equipped with precision sliding carriage for delicately extracting of glasses or recalcitrant case backs. *Delivered with 2 pairs of hardened steel polished blades, 1 bored case-supporting Delrin® die to avoid damaging crowns and pushers.*

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 07.115-A | (1) Hardened steel blade, width 2 mm Hardness 54-56 HRC | 0.009 |
| 07.115-B | (2) Hardened steel blade, width 4 mm Hardness 54-56 HRC | 0.009 |
| 07.115-C | (3) Case-supporting die, hole Ø 10 mm | 0.009 |
| 07.115-D | (4) Hardened steel stem, Ø 2.5 x length 40 mm | 0.010 |
| 07.115-E | (5) Pin punch holder, length 36 mm | 0.010 |
| 07.115-G | (6) Delrin® pad for central column, Ø 20 mm | 0.002 |
| 10.503-A | (7) Assortment of 11 pin punches : MSA10.503-040, -060, -070, -080, -090, -100, -110, -120, -140, -150 and -200 (Ø 0.40...2.00 mm) | 0.060 |



| MSA | Size | Maximun opening | Kg |
|--------|--------------------|-----------------|-------|
| 07.119 | 155 x 100 x 110 mm | 60 mm | 1.500 |

Same functions as the tool MSA07.115 tool but with a maximum opening of 60 mm instead of 45 mm for the MSA07.115. Equipped with a screw for stabilizing the table at the desired height.

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 07.115-A | (1) Hardened steel blade, width 2 mm Hardness 54-56 HRC | 0.009 |
| 07.115-B | (2) Hardened steel blade, width 4 mm Hardness 54-56 HRC | 0.009 |
| 07.115-D | (4) Hardened steel stem, Ø 2.5 x length 40 mm | 0.010 |
| 07.115-E | (5) Pin punch holder, length 36 mm | 0.010 |
| 07.119-C | (3) Case-supporting die, hole Ø 10 mm | 0.009 |
| 07.119-G | (6) Delrin® pad for central column, Ø 28 mm | 0.002 |
| 10.503-A | (7) Assortment of 11 pin punches : MSA10.503-040, -060, -070, -080, -090, -100, -110, -120, -140, -150 and -200 (Ø 0.40...2.00 mm) | 0.060 |

TOOLS FOR SNAP-ON CASE BACKS



← 40 mm →

PAIR

| MSA | Maximun opening | Kg |
|----------|-----------------|-------|
| 07.115-F | 40 mm | 0.085 |

Pair of adaptors with 2 mirror polished blades adaptable to MSA07.115 and MSA07.119, allowing the extraction of bezels or opening recalcitrant case backs delicately.

Spare part :

| MSA | Item | Kg |
|----------|--------------------------------|-------|
| 07.117-A | Blade (delivered individually) | 0.006 |



Tools for removing bezels.



| MSA | Size | Kg |
|--------|------------------|-------|
| 07.117 | 150 x 60 x 65 mm | 0.885 |

Tool for removing bezels up to Ø 60 mm. Provided with 4 interchangeable hardened mirror polished steel blades.

Spare part :

| MSA | Item | Kg |
|----------|--------------------------------|-------|
| 07.117-A | Blade (delivered individually) | 0.006 |



| MSA | Kg |
|--------|-------|
| 07.031 | 0.030 |

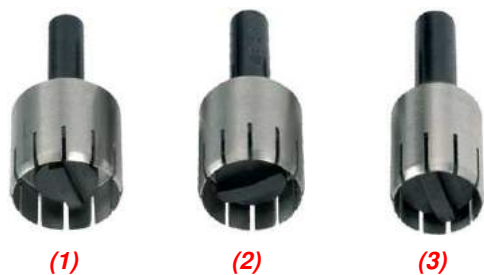
Rubber tool for extracting rotating bezels from Ø 38 to 45 mm.

Tools for Swatch® battery covers.



| MSA | Length | For watch | Kg |
|--------|--------|-----------|-------|
| 07.010 | 120 mm | Gent | 0.072 |
| 07.012 | 120 mm | Medium | 0.072 |
| 07.011 | 120 mm | Lady | 0.071 |

Tool for Swatch® battery covers.



| MSA | For watch | Kg |
|-----------------|-----------|-------|
| 03.620-GENT (1) | Gent | 0.015 |
| 03.620-MED (2) | Medium | 0.015 |
| 03.620-LADY (3) | Lady | 0.015 |

Interchangeable key to fit in the handle MSA03.620-A.



| MSA | Kg |
|----------|-------|
| 03.620-A | 0.060 |

Hexagonal handle on which all types of here above keys and those illustrated on chapter 03 can be fitted.



See chapter PERF.

NOTES



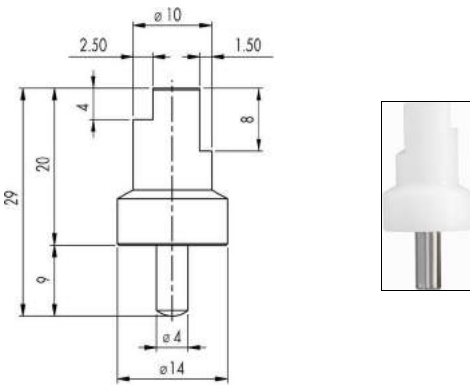
08



Case holders.



← 70 mm →

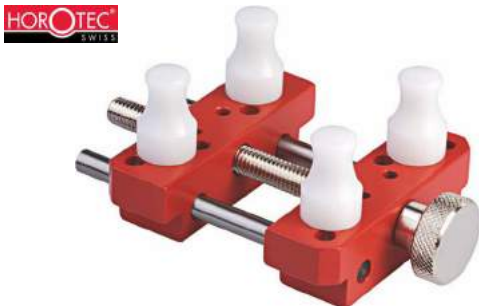


| MSA | Maximal opening | Kg |
|--------|-----------------|-------|
| 07.374 | 70 mm | 0.160 |

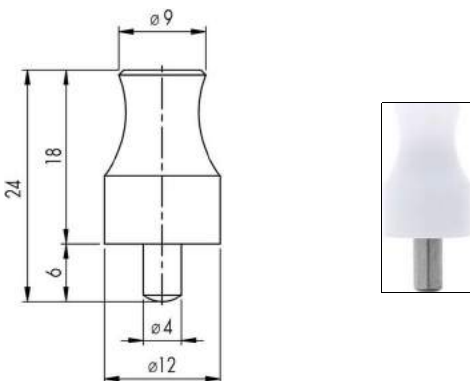
Adjustable aluminium case holder for all HOROTEC® presses. The stacked dies are fitted in reinforced pierced holes with a steel cylinder. They are particularly recommended for heavy-duty work. Delivered with 4 Delrin® dies MSA07.374-A.

Spare part :

| MSA | Item | Kg |
|----------|---------------------|-------|
| 07.374-A | Stacked Delrin® die | 0.005 |



← 70 mm →

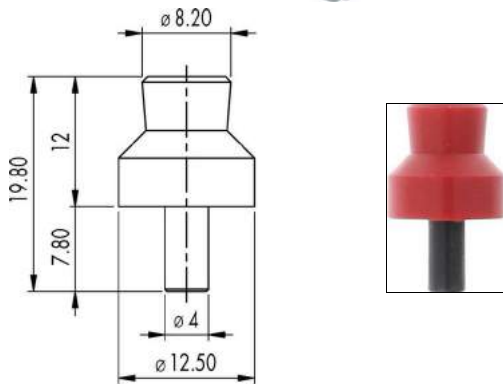


| MSA | Maximal opening | Kg |
|----------|-----------------|-------|
| 07.360-A | 70 mm | 0.110 |

Adjustable aluminium case holder for all HOROTEC® presses. Delivered with 4 Delrin® dies MSA07.360-B.

Spare part :

| MSA | Item | Kg |
|----------|-------------|-------|
| 07.360-B | Delrin® die | 0.015 |



| MSA | Size | Kg |
|--------|------------|-------|
| 08.001 | 65 x 45 mm | 0.073 |

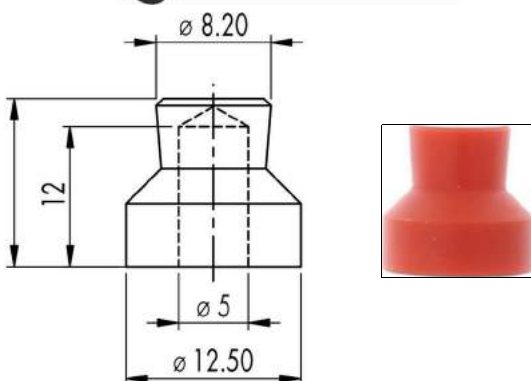
Universal synthetic material and metal case holder, with 4 Nylon® dies MSA08.001-A.

Spare part :

| MSA | Item | Kg |
|----------|------------|-------|
| 08.001-A | Nylon® die | 0.003 |



See chapter PERF.



| MSA | Size | Kg |
|--------|------------|-------|
| 08.002 | 83 x 65 mm | 0.192 |

Metal case holder, with 4 Nylon® dies MSA08.002-A, driven on a 5 mm axle.

Spare part :

| MSA | Item | Kg |
|----------|------------|-------|
| 08.002-A | Nylon® die | 0.001 |



← 20...60 mm →

| MSA | Size | Maximal opening | Kg |
|--------|---------------|-----------------|-------|
| 08.010 | Ø 115 x 65 mm | 20...60 mm | 0.396 |

Universal synthetic material case holder, with 4 Delrin® dies and 1 washer MSA08.010-A.

Spare part :

| MSA | Item | Kg |
|----------|------------------------|-------|
| 08.010-A | Delrin® die + 1 washer | 0.012 |

Vices.



← 20 mm →

| MSA | Size | Maximal opening | Kg |
|--------|-------------|-----------------|-------|
| 08.104 | 120 x 65 mm | 20 mm | 1.032 |

Vice with fixing brass plate. The plate remains fixed on the bench allowing the vice to be easily settled or removed thanks to the side lever. Jaws width 46 mm.

Spare part :

| MSA | Item | Kg |
|----------|--------------------|-------|
| 08.104-A | Fixing brass plate | 0.090 |



| MSA | Size | Maximal opening | Kg |
|--------|-------------|-----------------|-------|
| 24.109 | 50 x 120 mm | 50 mm | 0.547 |

Black bench clamp for vice fixing. Compatible with vice MSA08.104. Delivered without fixing brass plate.



| MSA | Size | Maximal opening | Kg |
|--------|------------|-----------------|-------|
| 24.113 | 70 x 95 mm | 60 mm | 0.565 |

Grey bench clamp for vice fixing. Compatible with vice MSA08.104. Delivered without fixing brass plate.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 24.405 | 60 x 60 x 50 mm | 0.150 |

Wooden vice base.
Easy mounting on a bench thanks to a screw fitted with a detachable handle.
Compatible with vice MSA08.104.
Delivered without fixing brass plate.

Accessory :

| MSA | Item | Kg |
|-----------|--|-------|
| 24.405-01 | Fixing kit composed of 1 metal insert and 1 screw M6 | 0.008 |

(1)



← 0...15 mm →

| MSA | Size | Maximal opening | Kg |
|--------|---------------------|-----------------|-------|
| 08.502 | (1) 14 x 14 x 67 mm | 0...15 mm | 0.075 |

Mini hand vice. Hardened rectified steel jaws (1 of the jaws is equipped with maintaining grooves).
Jaws width 14 mm.

Accessory :

| MSA | Item | Kg |
|--------|---------------------------------|-------|
| 08.503 | (2) Revolving base Ø 50 x 37 mm | 0.149 |

(2)



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.519 | 50 x 45 x 40 mm | 0.105 |

Bracelet holder vice with screw.
- Maximum bracelet thickness : 10 mm
- Useful dimensions : length 49 mm and height 24 mm
- Suitable for presses MSA10.499 and 10.500 illustrated on page 10-2.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.513 | 55 x 35 x 22 mm | 0.050 |

Bracelet holder vice with screw.
- Maximum bracelet thickness : 9.50 mm
- Useful dimensions : length 35 mm and height 12 mm
- Suitable for presses MSA10.499 and 10.500 illustrated on page 10-2.

NOTES

09



MOVEMENT HOLDERS

09 - 2

CASE CUSHIONS

09 - 12

MOVEMENT HOLDERS

Movement holder, nickel-plated brass, base Ø 31 mm. Equipped with adjustable screws to support pivots and endstones, with and without pushers for control.

Compatible with presses MSA05.050, MSA05.100, MSA05.101, MSA05.109, MSA05.110, MSA05.111, MSA05.112, MSA05.114, MSA05.115, MSA05.116, MSA05.117, MSA05.129 and MSA05.131.



| MSA | Calibres "" | Screws | Kg |
|-----------|-------------|--------|-------|
| 09.010-02 | 4 1/4"" | 1 | 0.029 |
| 09.010-03 | 4 1/2"" | 1 | 0.029 |
| 09.010-48 | 4 3/4"" | 1 | 0.030 |
| 09.010-50 | 4 7/8"" | 1 | 0.077 |
| 09.010-05 | 5 1/2"" | 1 | 0.033 |
| 09.010-06 | 6 3/4"" | 1 | 0.038 |
| 09.010-08 | 7 3/4"" | 1 | 0.042 |
| 09.010-09 | 8"" | 1 | 0.042 |
| 09.010-10 | 8 1/4"" | 1 | 0.043 |
| 09.010-11 | 8 3/4"" | 1 | 0.046 |
| 09.010-12 | 9"" | 1 | 0.047 |
| 09.010-13 | 9 1/4"" | 1 | 0.049 |
| 09.010-14 | 9 3/4"" | 1 | 0.051 |
| 09.010-15 | 10 1/2"" | 1 | 0.055 |
| 09.010-22 | 11"" | 1 | 0.058 |
| 09.010-16 | 11 1/2"" | 1 | 0.061 |
| 09.010-17 | 11 3/4"" | 1 | 0.063 |
| 09.010-28 | 12"" | 1 | 0.065 |
| 09.010-32 | 12 1/4"" | 1 | 0.069 |
| 09.010-23 | 12 1/2"" | 1 | 0.068 |
| 09.010-67 | 12 3/4"" | 1 | 0.078 |
| 09.010-18 | 13"" | 1 | 0.071 |
| 09.010-19 | 13 1/4"" | 1 | 0.081 |
| 09.010-46 | 13 1/2"" | 1 | 0.083 |
| 09.010-36 | 13 3/4"" | 1 | 0.077 |
| 09.010-42 | 16"" | 1 | 0.100 |
| 09.010-45 | 16 1/2"" | 1 | 0.100 |

Round movement holder.



| MSA | Calibres "" | Screws | Kg |
|-----------|-------------------------|--------|-------|
| 09.010-27 | 3 3/4"" x 6"" | 1 | 0.034 |
| 09.010-00 | 3 3/4"" x 6 3/4"" x 8"" | 1 | 0.034 |
| 09.010-04 | 5 1/2"" x 6 3/4"" | 1 | 0.037 |
| 09.010-07 | 6 3/4"" x 8"" | 1 | 0.040 |

Special shape movement holder.



(1)

(2)



| MSA | Calibres | Screws | Kg |
|-----------|---------------|--------|-------|
| 09.010-60 | (1) 762 - 763 | 1 | 0.050 |
| 09.010-61 | (2) 762 - 763 | - | 0.050 |

Special shape movement holder.

(1) With 1 adjustable screw for hands fitting.

(2) Without adjustable screw for removing stems.



| MSA | Calibres | Screws | Kg |
|-----------|-------------|--------|-------|
| 09.010-55 | 1002 - 1009 | 2 | 0.095 |

Round movement holder with 2 adjustable screws.



| MSA | Calibres | Screws | Kg |
|--------|-----------------|--------|-------|
| 09.017 | 3520.D - 3540.D | - | 0.060 |

Round movement holder without adjustable screw.
For removing stems.



| MSA | Calibres | Screws | Pushers | Kg |
|--------|-----------------|--------|---------|-------|
| 09.018 | 3520.D - 3540.D | 4 | 2 | 0.129 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibres | Screws | Kg |
|-----------|-----------------|--------|-------|
| 09.016-47 | 4002-B - 4003-B | - | 0.060 |
| | 4120-B - 4210-B | | |
| | 4220-B - 5010-B | | |
| | 5020-B - 5022-D | | |
| | 5030-D - 5040-B | | |
| | 5040-F - 5040-D | | |
| | 5050-B - 5050-C | | |
| | 5051-C - 5130-D | | |

Round movement holder without adjustable screw.
For removing stems.



| MSA | Calibres | Screws | Pushers | Kg |
|-----------|-----------------|--------|---------|-------|
| 09.010-47 | 4002-B - 4003-B | 4 | 2 | 0.170 |
| | 4120-B - 4210-B | | | |
| | 4220-B - 5010-B | | | |
| | 5020-B - 5022-D | | | |
| | 5030-D - 5040-B | | | |
| | 5040-D - 5050-B | | | |
| | 5050-C - 5051-C | | | |
| | 5130-B - 5130-D | | | |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-52 | 5040-F | 4 | 5 | 0.160 |

Round movement holder with 5 pushers and 4 adjustable screws.

MOVEMENT HOLDERS



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-62 | 8040.B | 4 | 2 | 0.130 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Kg |
|-----------|---------|--------|-------|
| 09.010-53 | 057 | 1 | 0.042 |

Special shape movement holder with 1 adjustable screw.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|------------|--------|---------|-------|
| 09.010-64 | Valjoux 72 | 4 | 2 | 0.090 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibres | Screws | Pushers | Kg |
|--------|--------------------|--------|---------|-------|
| 09.012 | ZE 400 - 410 - 420 | 2 | 6 | 0.130 |

Round movement holder with 6 pushers and 2 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-58 | FP 1180 | 4 | 3 | 0.079 |

Round movement holder with 3 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-39 | DD 2025 | 1 | 2 | 0.089 |

Round movement holder with 2 pushers and 1 adjustable screw.



| MSA | Calibres | Screws | Pushers | Kg |
|-----------|----------|--------|---------|-------|
| 09.010-33 | 2094 | 1 | 2 | 0.070 |
| 09.010-29 | 251471 | 1 | 2 | 0.070 |
| 09.010-30 | 2894 | 1 | 2 | 0.093 |
| 09.010-34 | 5030R | 1 | 2 | 0.070 |

Round movement holder with 2 pushers and 1 adjustable screw.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-35 | 2892-A2 | 4 | 4 | 0.088 |

Round movement holder with 4 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-40 | 2894-2 | 4 | 2 | 0.070 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibres | Screws | Kg |
|-----------|--------------------|--------|-------|
| 09.010-38 | UNITAS 6497 - 6498 | 2 | 0.102 |

Round movement holder with 2 adjustable screws.



| MSA | Calibre | Screws | Kg |
|-----------|---------|--------|-------|
| 09.010-41 | 7001 | 2 | 0.062 |

Round movement holder with 2 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|--------------|--------|---------|-------|
| 09.010-20 | Valjoux 7750 | 2 | 2 | 0.087 |

Round movement holder with 2 pushers and 2 adjustable screws.

Spare part :

| MSA | Item | Kg |
|-------------|------------------|-------|
| 09.010-20-V | Adjustable screw | 0.001 |

MOVEMENT HOLDERS



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|--------------|--------|---------|-------|
| 09.010-59 | Valjoux 7750 | 4 | 2 | 0.092 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibres | Screws | Pushers | Kg |
|--------|--------------------|--------|---------|-------|
| 09.006 | 7750 - 7751 - 7753 | 5 | 3 | 0.114 |

Round movement holder with 3 pushers and 5 adjustable screws.



| MSA | Calibres | Screws | Pushers | Kg |
|--------|---------------------|--------|---------|-------|
| 09.011 | Valjoux 7750 - 7753 | 4 | 6 | 0.125 |

Round movement holder with 6 pushers and 4 adjustable screws.

Spare parts :

| MSA | Item | Kg |
|----------|--------------------------|-------|
| 09.011-P | Pusher | 0.001 |
| 09.011-V | Central adjustable screw | 0.001 |



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-21 | 251262 | 4 | 4 | 0.090 |

Round movement holder with 4 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-68 | 251471 | 4 | 2 | 0.090 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibres | Screws | Kg |
|-----------|------------------|--------|-------|
| 09.010-43 | PUW 111 - 282001 | 1 | 0.045 |

Special shape movement holder with 1 adjustable screw.



| MSA | Calibre | Screws | Kg |
|-----------|---------|--------|-------|
| 09.010-54 | 980163 | 1 | 0.064 |

Special shape movement holder with 1 adjustable screw.



| MSA | Calibre | Screws | Pushers | Kg |
|--------|---------|--------|---------|-------|
| 09.007 | ETA A07 | 5 | 4 | 0.130 |

Round movement holder with 4 pushers and 5 adjustable screws.



| MSA | Calibres | Screws | Pushers | Kg |
|-----------|-----------------|--------|---------|-------|
| 09.010-44 | G10211 - G10711 | 4 | 2 | 0.095 |

Round movement holder with 2 pushers and 4 adjustable screws.



| MSA | Calibre | Screws | Pushers | Kg |
|-----------|---------|--------|---------|-------|
| 09.010-63 | G15211 | 4 | 2 | 0.101 |

Round movement holder with 2 pushers and 4 adjustable screws.

MOVEMENT HOLDERS

Aluminium movement holders.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-31 | OM 861 | 0.022 |

Round anodized aluminium movement holder.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-37 | OM 1045 | 0.004 |

Round anodized aluminium movement holder with space for 2 pushers.

Plastic movement holders.



| MSA | Calibres | Kg |
|-----------|--------------|-------|
| 09.050-02 | 2824 11 1/2" | 0.014 |
| 09.050-01 | 7750 13 1/4" | 0.015 |

Green plastic movement holder.
Other calibres upon request.

Reversible movement holders with button.



| MSA | Calibres "" | Kg |
|-----------|-----------------|-------|
| 09.020-00 | 3 3/4" x 6" | 0.016 |
| 09.021 | 3 3/4" x 8" | 0.022 |
| 09.020-06 | 5 1/2" x 6 3/4" | 0.012 |
| 09.020-07 | 6 3/4" x 8" | 0.013 |

Nickel-plated brass reversible movement holder with button, special shape.



| MSA | Calibres "" | Kg |
|-----------|-------------|-------|
| 09.020-05 | 5 1/2" | 0.007 |
| 09.020-09 | 7 1/2" | 0.014 |
| 09.020-08 | 7 3/4" | 0.010 |
| 09.020-11 | 8 3/4" | 0.010 |
| 09.020-12 | 9" | 0.015 |
| 09.020-13 | 9 1/4" | 0.015 |
| 09.020-10 | 9 1/2" | 0.015 |
| 09.020-15 | 10 1/2" | 0.015 |
| 09.020-25 | 11 1/4" | 0.035 |
| 09.020-16 | 11 1/2" | 0.023 |
| 09.020-19 | 12" | 0.028 |
| 09.020-17 | 12 1/4" | 0.020 |
| 09.020-20 | 12 1/2" | 0.020 |
| 09.020-18 | 13" | 0.025 |
| 09.020-22 | 13 1/4" | 0.022 |
| 09.020-26 | 13 1/2" | 0.025 |
| 09.020-23 | 13 3/4" | 0.026 |
| 09.020-30 | 14 1/2" | 0.026 |
| 09.020-27 | 15" | 0.030 |
| 09.020-29 | 16" | 0.035 |
| 09.020-24 | 16 1/2" | 0.047 |

Nickel-plated brass reversible round movement holder with button.



| MSA | Calibres "" | Kg |
|-----------|-------------|-------|
| 09.015-08 | 7 3/4" | 0.015 |
| 09.015-11 | 8 3/4" | 0.015 |
| 09.015-15 | 10 1/2" | 0.016 |
| 09.015-16 | 11 1/2" | 0.016 |
| 09.015-20 | 12 1/2" | 0.018 |
| 09.015-22 | 13 1/4" | 0.020 |
| 09.015-24 | 16 1/2" | 0.024 |

Plexiglas reversible round movement holder with button.



| MSA | Calibre | Pushers | Kg |
|-----------|--------------|---------|-------|
| 09.020-21 | Valjoux 7750 | 4 | 0.041 |

Nickel-plated brass reversible round movement holder with button and 4 pushers.

Extensible and reversible movement holders.



| MSA | Calibres "" | Size | Kg |
|--------|--------------------|------------|-------|
| 09.002 | 3 3/4" ... 12 1/2" | 60 x 25 mm | 0.025 |

Nickel-plated brass extensible and reversible movement holder with springs.



| MSA | Calibres "" | Size | Kg |
|--------|----------------|------------|-------|
| 09.003 | 3 3/4" ... 11" | 40 x 25 mm | 0.032 |

Extensible and reversible steel movement holder with screw, 3 3/4" ... 11".



| MSA | Calibres "" | Size | Kg |
|--------|----------------|------------|-------|
| 09.004 | 8 3/4" ... 19" | 50 x 37 mm | 0.042 |

Extensible and reversible steel movement holder with screw.



| MSA | Size | Kg |
|--------|------------|-------|
| 09.005 | 75 x 50 mm | 0.138 |

Extensible and reversible steel movement holder with screw for pocket watches.



| MSA | Calibres "" | Size | Kg |
|--------|----------------|------------|-------|
| 09.103 | 3 3/4" ... 11" | 55 x 25 mm | 0.027 |

Extensible and reversible synthetic movement holder with screw.
Tightening on external Ø 12...30 mm.



| MSA | Calibres "" | Size | Kg |
|--------|----------------|------------|-------|
| 09.104 | 8 3/4" ... 19" | 55 x 38 mm | 0.028 |

Extensible and reversible synthetic movement holder with screw.
Tightening on external Ø 30...48 mm.

Assortment of plastic movement holders.



See chapter *PERF.*

CASE CUSHIONS

Case cushions for multi-use, made of a felt or rubber disc covered with synthetic material and reinforced with a metal or plastic ring.



| MSA | Ø | Height | Kg |
|--------|-------|--------|-------|
| 09.305 | 90 mm | 15 mm | 0.130 |

Reversible case cushion in anti scratch synthetic material. One flat side with a room for small components storage like screws, battery clamps, crowns, etc. The other side is concave to accept domed glasses of watch cases.

Delivered with anti-dust lid.



| MSA | Ø | Height | Kg |
|--------|-------|--------|-------|
| 09.300 | 50 mm | 13 mm | 0.026 |

Case cushion with chromed metallic ring.



| MSA | Ø | Height | Kg |
|--------|-------|--------|-------|
| 09.301 | 53 mm | 13 mm | 0.025 |

Case cushion with chromed metallic ring.



| MSA | Ø | Height | Kg |
|--------|-------|--------|-------|
| 09.302 | 55 mm | 11 mm | 0.011 |

Case cushion with red plastic ring.



| MSA | Ø | Height | Kg |
|--------|-------|--------|-------|
| 09.303 | 55 mm | 12 mm | 0.020 |

Case cushion with black plastic ring.



| MSA | Ø | Height | Kg |
|---------------|-------|--------|-------|
| 09.304 | 75 mm | 13 mm | 0.047 |

Case cushion with chromed metallic ring.

All case cushions illustrated above, can be personalized upon request.

Synthetic case cushion.



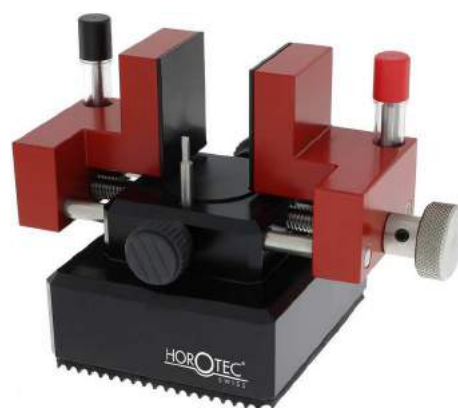
| MSA | Ø | Height | Kg |
|---------------|-------|--------|-------|
| 09.306 | 45 mm | 21 mm | 0.070 |

Casing cushion in synthetic red rubber with 1 flat face and 1 curved face.
 Ø centre hole : 12 mm.

NOTES

Lined area for notes, consisting of 18 horizontal lines.

10



BRACELET PRESSES

10 - 2

BRACELET TOOLS

10 - 3

SPRING BARS TOOLS

10 - 9

BRACELET PRESSES



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.500 | 60 x 80 x 110 mm | 0.465 |

Press for rapidly fitting and removing the bracelet pins and screws. Stand accessories easily accessible. The vertical guide allows a perfect alignment with bracelet screws and pins. It is equipped with a device that holds the pins holder, leaving the operator hands free.

Contents :

- 1 press and 1 broach MSA10.500-A
- 1 handle MSA10.504
- 1 bracelet holder MSA10.501
- 12 blades MSA10.502-xxx (2 of each diameter)
- 11 pin punches MSA10.503-xxx : Ø 0.40, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10, 1.20, 1.40, 1.50 and 2.00 mm
- 1 support MSA10.500-C
- 1 lower support MSA10.505
- 1 bracelet protector MSA10.500-E.



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.499 | 60 x 80 x 110 mm | 0.415 |

Press for fitting and removing the bracelet pins.
Simple version of press MSA10.500.

Contents :

- 1 press and 1 broach MSA10.500-A
- 1 bracelet holder MSA10.501
- 6 pin punches MSA10.503-xxx : Ø 0.40, 0.60, 0.80, 1.00, 1.50 and 2.00 mm
- 1 support MSA10.500-C.



MSA10.499-03



MSA10.500-B



MSA10.500-C



MSA10.500-E



MSA10.505



MSA10.500-D



MSA10.500-F



MSA10.500-A



MSA10.504

Spare parts for MSA10.499 and MSA10.500 :

| MSA | Item | Kg |
|-----------|--|-------|
| 10.499-03 | Centering pin for base MSA10.499, Ø 4 x 17 mm | 0.001 |
| 10.500-A | Broach for pin punch ; bore Ø 2 mm, length 80 mm | 0.021 |
| 10.500-B | O-Ring gasket for broach MSA10.500-A (old version) and handle MSA10.504 ; Ø 3 mm, T 1.00 | 0.001 |
| 10.500-C | Support for the bracelet holder MSA10.501 | 0.003 |
| 10.500-D | Steel ball for broach MSA10.500-A and handle MSA10.504 | 0.001 |
| 10.500-E | Delrin® bracelet protector in slotted tulip shape | 0.001 |
| 10.500-F | Maintaining ring (POM) of ball MSA10.500-D on broach MSA10.500-A | 0.001 |
| 10.504 | Knurled handle for blades MSA10.502-x ; length 84 mm | 0.022 |
| 10.505 | Lower support for blades MSA10.502-x and bracelet protector MSA10.500-E | 0.013 |



| MSA | Ø | Kg |
|------------|---------|-------|
| 10.502-080 | 0.80 mm | 0.004 |
| 10.502-100 | 1.00 mm | 0.004 |
| 10.502-120 | 1.20 mm | 0.004 |
| 10.502-140 | 1.40 mm | 0.004 |
| 10.502-160 | 1.60 mm | 0.004 |
| 10.502-250 | 2.50 mm | 0.006 |

Blade for press MSA10.500 (shank Ø 2 mm).

| MSA | Quantity | Kg |
|----------|-------------|-------|
| 10.502-A | 2x 6 blades | 0.006 |

Assortment of 12 blades for press MSA10.500.



| MSA | Ø | Kg |
|------------|---------|-------|
| 10.503-040 | 0.40 mm | 0.005 |
| 10.503-060 | 0.60 mm | 0.005 |
| 10.503-070 | 0.70 mm | 0.005 |
| 10.503-080 | 0.80 mm | 0.005 |
| 10.503-090 | 0.90 mm | 0.005 |
| 10.503-100 | 1.00 mm | 0.005 |
| 10.503-110 | 1.10 mm | 0.005 |
| 10.503-120 | 1.20 mm | 0.005 |
| 10.503-140 | 1.40 mm | 0.005 |
| 10.503-150 | 1.50 mm | 0.005 |
| 10.503-200 | 2.00 mm | 0.005 |

MSA10.503-A : **MSA10.503-B :** **MSA10.503-C :**

| | | |
|---------------|---------------|---------------|
| MSA10.503-040 | MSA10.503-040 | MSA10.503-040 |
| MSA10.503-060 | MSA10.503-060 | MSA10.503-060 |
| MSA10.503-070 | MSA10.503-070 | MSA10.503-080 |
| MSA10.503-080 | MSA10.503-080 | MSA10.503-100 |
| MSA10.503-090 | MSA10.503-090 | MSA10.503-150 |
| MSA10.503-100 | MSA10.503-100 | MSA10.503-200 |
| MSA10.503-110 | MSA10.503-120 | |
| MSA10.503-120 | MSA10.503-140 | |
| MSA10.503-140 | MSA10.503-150 | |
| MSA10.503-150 | MSA10.503-200 | |
| MSA10.503-200 | | |

Pin punches for presses MSA10.499 et MSA10.500 + tools MSA10.510 and MSA10.511 (shank Ø 2 mm).

| MSA | Quantity | Kg |
|----------|----------------|-------|
| 10.503-A | 11 pun punches | 0.060 |
| 10.503-B | 10 pun punches | 0.050 |
| 10.503-C | 6 pun punches | 0.004 |

Assortment of pin punches for presses MSA10.499 et MSA10.500 + tools MSA10.510 and MSA10.511 (shank Ø 2 mm).



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.510 | 95 x 80 x 36 mm | 0.295 |

Pin punch tool with 1 universal bracelet holder on a wooden base.

Contents :

- 1 pin punch tool MSA10.510-A.
- 1 bracelet holder MSA10.501.
- 10 pin punches MSA10.503-xxx : Ø 0.40, 0.60, 0.70, 0.80, 1.00, 1.10, 1.20, 1.40, 1.50 and 2.00 mm
- 1 wooden base MSA10.510-B.



| MSA | Kg |
|--------|-------|
| 10.511 | 0.040 |

Pin punch tool with 1 universal bracelet holder.

Contents :

- 1 pin punch tool MSA10.510-A
- 1 bracelet holder MSA10.501
- 4 pin punches MSA10.503-xxx : Ø 0.40, 0.60, 0.80 and 1.00 mm.



| MSA | Length | Ø reaming | Kg |
|----------|--------|-----------|-------|
| 10.510-A | 80 mm | 2.00 mm | 0.029 |

Metal knurled pin punch tool.

Accessory for MSA10.510 and MSA10.511.



| MSA | Packaging size | Kg |
|--------|-----------------|-------|
| 10.533 | 85 x 55 x 15 mm | 0.040 |

Pin punch tool with anodised brass handle and stainless steel anvil.

Contents :

- 1 handle MSA10.527 compatible with all pin punches MSA10.503-x
- 11 pin punches MSA10.503-x : Ø 0.40, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10, 1.20, 1.40, 1.50 and 2.00 mm.

Spare parts :

| MSA | Item | Kg |
|------------|--------------------------------|-------|
| 10.503-040 | Pin punch Ø 0.40 mm | 0.005 |
| 10.503-060 | Pin punch Ø 0.60 mm | 0.005 |
| 10.503-070 | Pin punch Ø 0.70 mm | 0.005 |
| 10.503-080 | (2) Pin punch Ø 0.80 mm | 0.005 |
| 10.503-090 | Pin punch Ø 0.90 mm | 0.005 |
| 10.503-100 | Pin punch Ø 1.00 mm | 0.005 |
| 10.503-110 | Pin punch Ø 1.10 mm | 0.005 |
| 10.503-120 | Pin punch Ø 1.20 mm | 0.005 |
| 10.503-140 | Pin punch Ø 1.40 mm | 0.005 |
| 10.503-150 | Pin punch Ø 1.50 mm | 0.005 |
| 10.503-200 | Pin punch Ø 2.00 mm | 0.005 |
| 10.527 | (2) Handle, Ø 6 x length 54 mm | 0.011 |



(1)



(2)



| MSA | Packaging size | Kg |
|--------|-----------------|-------|
| 10.528 | 85 x 55 x 15 mm | 0.037 |

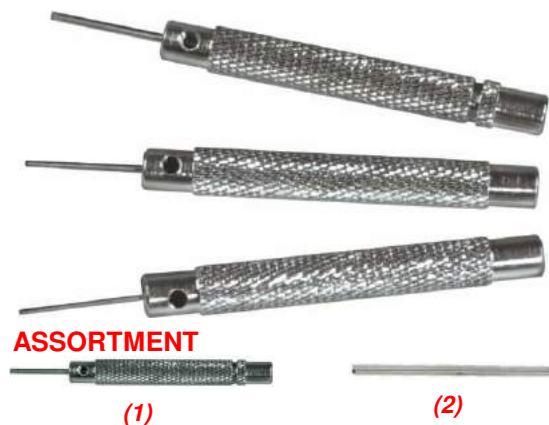
Assortment of pin punch tools for removing the bracelet pins.

Contents :

- 1 pin punch tool MSA10.528-070 with nickel plated brass handle Ø 5 mm, Ø 0.70 mm
- 1 pin punch tool MSA10.528-080 with nickel plated brass handle Ø 5 mm, Ø 0.80 mm
- 1 pin punch tool MSA10.528-100 with nickel plated brass handle Ø 5 mm, Ø 1.00 mm.

Spare parts :

| MSA | Item | Kg |
|------------|---|-------|
| 10.528-070 | Pin punch tool with handle Ø 5 mm, Ø 0.70 mm | 0.006 |
| 10.528-080 | Pin punch tool with handle Ø 5 mm, Ø 0.80 mm | 0.006 |
| 10.528-100 | (1) Pin punch tool with handle Ø 5 mm, Ø 1.00 mm | 0.006 |
| 10.529-070 | Pin punch Ø 0.70 mm, total/usable length 22/15 mm | 0.001 |
| 10.529-080 | Pin punch Ø 0.80 mm, total/usable length 22/15 mm | 0.001 |
| 10.529-100 | (2) Pin punch Ø 1.00 mm, total/usable length 22/15 mm | 0.001 |
| 10.529-V | (3) Screw for pin punch tools | 0.001 |



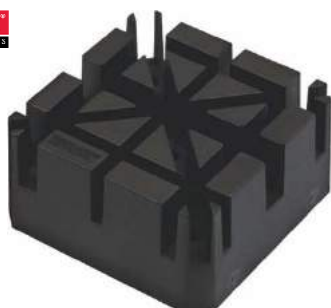
ASSORTMENT

| MSA | Kg |
|--------|-------|
| 10.508 | 0.029 |

Assortment of 3 pin punches tools (Ø 0.60, 0.80 and 1.00 mm) for removing the bracelet pins.

Spare parts :

| MSA | Item | Kg |
|------------|--|-------|
| 10.508-060 | (1) Tool with handle Ø 5.20, L52.60, pin Ø 0.60 mm | 0.006 |
| 10.508-080 | Tool with handle Ø 5.20, L52.60, pin Ø 0.80 mm | 0.006 |
| 10.508-100 | Tool with handle Ø 5.20, L52.60, pin Ø 1.00 mm | 0.006 |
| 10.509-060 | (2) Pin punches Ø 0.60 mm | 0.001 |
| 10.509-080 | Pin punches Ø 0.80 mm | 0.001 |
| 10.509-100 | Pin punches Ø 1.00 mm | 0.001 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.501 | 52 x 52 x 25 mm | 0.022 |

Universal black plastic bracelet holder, with 9 holes and 8 slots of 2.8 to 6.3 mm.

Accessory for MSA10.499, 10.500, 10.510 and 10.511.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.507 | 55 x 55 x 40 mm | 0.030 |

Black plastic bracelet holder, 22 slots of 3.5 to 9.0 mm.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.519 | 50 x 45 x 40 mm | 0.105 |

Bracelet holder vice with screw.
 - Maximum bracelet thickness : 10 mm
 - Useful dimensions : length 49 mm and height 24 mm
 - Suitable for presses MSA10.499 and 10.500 illustrated on page 10-2.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.513 | 55 x 35 x 22 mm | 0.050 |

Bracelet holder vice with screw.
 - Maximum bracelet thickness : 9.50 mm
 - Useful dimensions : length 35 mm and height 12 mm
 - Suitable for presses MSA10.499 and 10.500 illustrated on page 10-2.



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.010 | 110 x 70 x 75 mm | 1.100 |

Multifunctional 3rd hand vice, case holder and bracelet holder.
 Composition :
 - 1 base with table equipped with a POM protection Ø 25 mm
 - 1 removable and sliding vice for tightening cases and bracelets ; maximum opening 30 mm
 - 4 stainless steel blades (hardening 57 HRC) Ø 1.00, 1.40, 1.80 and 3.00 mm. Shank Ø 3 mm.

Spare parts :

| MSA | Item | Kg |
|------------|-------------------|-------|
| 10.010-100 | Blade Ø 1.00 mm | 0.005 |
| 10.010-140 | Blade Ø 1.40 mm | 0.005 |
| 10.010-180 | Blade Ø 1.80 mm | 0.005 |
| 10.010-300 | Blade Ø 3.00 mm | 0.005 |
| 10.010-A | Maintaining screw | 0.010 |
| 10.010-B | Blade spring | 0.001 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.520 | 25 x 25 x 27 mm | 0.037 |

Small tool for bracelet screws.
 - 3 blades Ø 1.00, 1.40 and 3.00 mm
 - Metal anti-skid base.



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.007 | 105 x 60 x 60 mm | 0.355 |

Tool to keep plastic band watches opened.
 Give free hands to users for easy works in the watch.
 Non-skid aluminium base and curved Delrin® die Ø 39 mm (also for domed crystals).



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.531 | 110 x 50 x 25 mm | 0.066 |

Tool for removing bracelet pins.

Spare part :

| MSA | Item | Kg |
|----------|---|-------|
| 10.531-A | (1) Pin punch Ø 0.80 mm, shank Ø 1.90mm | 0.003 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.005 | 60 x 20 x 25 mm | 0.015 |

Small black plastic tool for removing the bracelet pins.
 Delivered with 2 pin punches Ø 0.80 mm.

Spare part :

| MSA | Item | Kg |
|----------|--|-------|
| 10.005-A | (1) Pin punches Ø 0.80, body Ø 2.50, length 31.40 mm | 0.001 |



BRACELET TOOLS



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.532 | 55 x 22 x 25 mm | 0.016 |

Small black plastic tool for removing the bracelet pins.
Delivered with 3 pin punches Ø 0.80 mm (2x length 17 mm and 1x length 20 mm).

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 10.532-A | (1) Pin punches Ø 0.80, body Ø 2.50, length 17 mm | 0.004 |
| 10.532-B | (2) Pin punches Ø 0.80, body Ø 2.50, length 20 mm | 0.004 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.003 | 145 mm | 0.089 |

Combination pliers for fitting and removing the bracelet pins.
Delivered with 1 pin punch holder + 1 mounted pin punch and 5 pin punches Ø 0.80 mm.

Spare parts :

| MSA | Item | Kg |
|----------|--|-------|
| 10.003-A | (1) Pin punch holder + 1 pin punch, length 36 mm, shank Ø 4 mm | 0.001 |
| 10.003-B | (2) Pin punch Ø 0.80 mm, length 13.50 mm, shank Ø 1.50 mm | 0.001 |

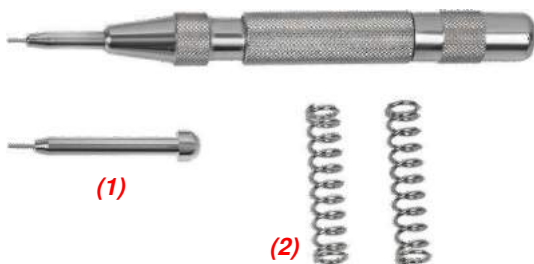


| MSA | Length | Kg |
|--------|--------|-------|
| 10.006 | 150 mm | 0.295 |

Combination pliers for fitting and removing the bracelet pins.
Delivered with 5 pin punches Ø 0.60, 0.80, 1.00, 1.20 and 1.50 mm.

Spare parts :

| MSA | Item | Kg |
|------------|---|-------|
| 10.004-060 | Pin punches Ø 1.50, length 49.00 mm | 0.001 |
| 10.004-080 | Pin punches Ø 1.20, length 48.50 mm | 0.001 |
| 10.004-100 | (1) Pin punches Ø 1.00, length 47.50 mm | 0.001 |
| 10.004-120 | Pin punches Ø 0.80, length 47.00 mm | 0.001 |
| 10.004-150 | Pin punches Ø 0.60, length 47.00 mm | 0.001 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 10.008 | Ø 11.5 x 130 mm | 0.072 |

Shock tool for removing the bracelet pins.
Delivered in a plastic pouch with :
 - 1 pin MSA10.008-A
 - 2 springs MSA10.008-B.

Spare parts :

| MSA | Item | Kg |
|----------|------------------------------|-------|
| 10.008-A | (1) Pin Ø 0.80 mm | 0.004 |
| 10.008-B | (2) Spring Ø 8.00 x 38.00 mm | 0.004 |

Spring bars bending tool.



| MSA | Size | Kg |
|--------|------------------|-------|
| 10.311 | 130 x 30 x 80 mm | 0.120 |

Tool with lever of 110 mm allowing to easily bend some of the most thickest steel spring bars.

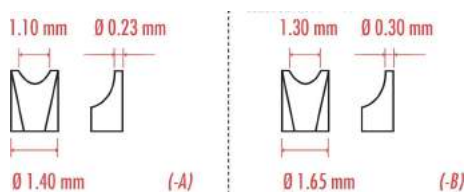
Equipped with 2 spring bar rooms to give wished bending according to length, without damaging the spring bar.

Spare part :

| MSA | Item | Kg |
|-----------|------------------|-------|
| 10.311-08 | (1) Lever spring | 0.001 |



Spring bars tools.



| MSA | Length | Kg |
|--------|--------|-------|
| 10.009 | 130 mm | 0.077 |

Black tool for spring bars with 2 hardened stainless steel forks MSA10.009-B (HRC 54 ±2).

Spare parts :

| MSA | Item | Kg |
|----------|--------------------------------------|-------|
| 10.009-A | Fork, width 1.30 x thickness 0.30 mm | 0.002 |
| 10.009-B | Fork, width 1.10 x thickness 0.23 mm | 0.002 |



| MSA | Material | Length | Kg |
|--------|---|--------|-------|
| 10.306 | Stainless steel, sand-blasted body and mirror polished tips | 120 mm | 0.022 |
| 10.307 | Stainless steel | 120 mm | 0.022 |

Tool for fitting and removing spring bars.

Specially made to shorten both ends of the spring bars at the same time and insert the well-adjusted metal bracelet between watch case legs.

The opening of the tips is sufficient to allow the tool to be used with any spring bars lengths.

Tips thickness : 0.50 mm.

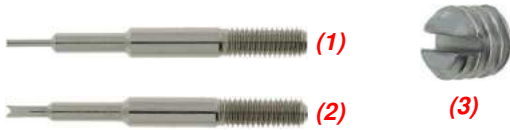
SPRING BARS TOOLS



| MSA | Length | Kg |
|--------|--------|-------|
| 10.309 | 140 mm | 0.021 |

Tool for fitting and removing spring bars.
 - Aluminium anodised red handle Ø 8 mm
 - Stainless steel tip and fork.

The fixing of the tips and forks on the handle is secured by 2 stainless steel M2 screws.



Spare parts :

| MSA | Item | Kg |
|----------|--------------------------------------|-------|
| 10.309-A | (1) Tip Ø 0.80 mm, threading M3 | 0.006 |
| 10.309-B | (2) Fork width 1.20 mm, threading M3 | 0.006 |
| 10.309-V | (3) Screw, threading M2 | 0.001 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.313 | 135 mm | 0.034 |

Tool for fitting and removing spring bars.
 - Aluminium anodised black handle Ø 8 mm
 - Stainless steel reversible tip and fork easily interchangeable due to maintaining chucks.

Spare parts :



| MSA | Item | Kg |
|----------|---|-------|
| 10.302-A | (1) Reversible tip Ø 0.80 and width 1.20 mm | 0.006 |
| 10.302-B | (2) Fork width 4.00 mm | 0.006 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.302 | 135 mm | 0.034 |

Tool for fitting and removing spring bars.
 - Knurled steel handle Ø 7 mm
 - Steel tips easily interchangeable due to maintaining chucks.

Spare parts :



| MSA | Item | Kg |
|----------|--|-------|
| 10.302-A | (1) Reversible tip Ø 0.80 mm and width 1.20 mm | 0.004 |
| 10.302-B | (2) Fork width 4.00 mm | 0.004 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.304 | 147 mm | 0.025 |

Tool for fitting and removing spring bars.
 - Aluminium hexagonal handle Ø 10 mm with 2 graduated scales in millimetres and inches
 - Interchangeable hardened steel tips.

** Delivered with tip MSA10.304-A and fork MSA10.304-B*

Spare parts :



| MSA | Item | Kg |
|------------|------------------------|-------|
| 10.304-A * | (1) Tip Ø 0.80 mm | 0.001 |
| 10.304-B * | (2) Fork width 3.00 mm | 0.001 |
| 10.304-C | Fork width 1.20 mm | 0.001 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.301 | 105 mm | 0.007 |

Tool for fitting and removing spring bars.
 - Knurled aluminium handle Ø 6 mm with graduated scale in mm
 - Interchangeable steel tips.

Spare parts :

| MSA | Item | Kg |
|----------|------------------------|-------|
| 10.301-A | (1) Tip Ø 0.70 mm | 0.006 |
| 10.301-B | (2) Fork width 2.00 mm | 0.006 |



| MSA | Length | Kg |
|--------|--------|-------|
| 10.303 | 145 mm | 0.028 |

Tool for fitting and removing spring bars.
 - Knurled steel handle
 - Interchangeable hardened steel tips.

* Delivered with tip MSA10.304-A and fork MSA10.304-B

Spare parts :

| MSA | Item | Kg |
|------------|------------------------|-------|
| 10.304-A * | (1) Tip Ø 0.80 mm | 0.001 |
| 10.304-B * | (2) Fork width 3.00 mm | 0.001 |
| 10.304-C | Fork width 1.20 mm | 0.001 |

11



PRECITEC® PLIERS

11 - 2

GERMAN PRECISION PLIERS

11 - 13

EREM® PLIERS

11 - 18

LINDSTROM® PLIERS

11 - 20

SPECIAL PLIERS

11 - 23

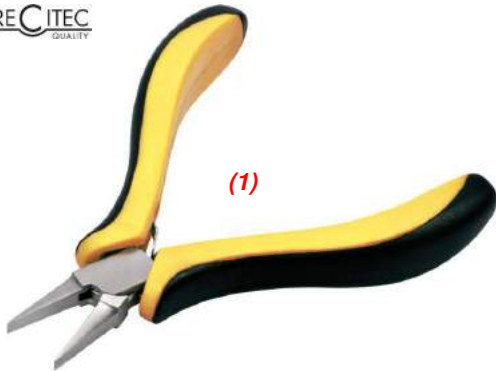
PLIERS ASSORTMENTS

11 - 26

PRECITEC® PLIERS

PRECITEC® pliers made of hardened steel ideal for all current work.

PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------------|--------|----------------|-------|
| 11.800-A (1) | 115 mm | 2 | 0.080 |
| 11.800-B | 130 mm | - | 0.100 |

Flat nose pliers.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.809 | 130 mm | - | 0.097 |

Flat nose pliers, serrated anti-skid interior, without return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.807 | 130 mm | - | 0.096 |

Round and flat nose pliers, without return springs.
Box joint construction.



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QUALITY

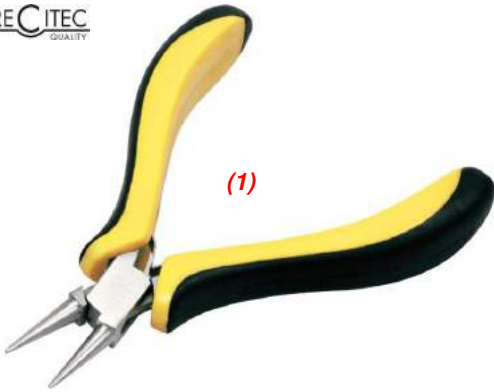


| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.805 | 130 mm | - | 0.096 |

Flat and convex nose precision pliers, without return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------------|--------|----------------|-------|
| 11.801-A (1) | 115 mm | 2 | 0.073 |
| 11.801-B | 130 mm | - | 0.090 |

Round nose pliers.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.806 | 130 mm | - | 0.096 |

Round and concave nose pliers, without return springs.
Box joint construction.

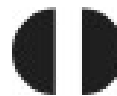


PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------------|--------|----------------|-------|
| 11.802-A (1) | 115 mm | 2 | 0.073 |
| 11.802-B | 130 mm | - | 0.095 |

Half-round nose pliers.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.810 | 135 mm | 2 | 0.140 |

Side cutting pliers, with 2 return springs.
Box joint construction.



PRECITEC® PLIERS

PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|----------|----------------|-------|
| 11.820 | 130 mm | Bevelled | 2 | 0.146 |

End cutting pliers, with 2 return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|----------|----------------|-------|
| 11.827 | 130 mm | Bevelled | 2 | 0.102 |

End cutting pliers made of tungsten carbide, with 2 return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|----------|----------------|-------|
| 11.828 | 130 mm | Bevelled | 2 | 0.110 |

Side cutting pliers made of tungsten carbide, with 2 return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|---------|----------------|-------|
| 11.829 | 110 mm | Plain | 2 | 0.090 |

Side cutting pliers made of tungsten carbide, with rounded head and 2 return springs.
Screw lap joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|---------|----------------|-------|
| 11.830 | 120 mm | Plain | 2 | 0.095 |

Side cutting pliers made of tungsten carbide, with three-square head and 2 return springs.
Screw lap joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting width | Return springs | Kg |
|--------|--------|---------------|----------------|-------|
| 11.105 | 130 mm | 1.70 mm | 2 | 0.107 |
| 11.106 | 130 mm | 3.00 mm | 2 | 0.115 |

Leather watch strap notching cutters, with 2 return springs.
Box joint construction.

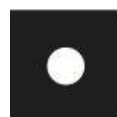


PRECITEC
QUALITY



| MSA | Length | Ø perforation | Return springs | Kg |
|--------|--------|---------------|----------------|-------|
| 11.816 | 145 mm | 2.00 mm | 2 | 0.150 |

Leather straps hole punching pliers, with 2 return springs.
Box joint construction.



PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.812 | 135 mm | - | 0.095 |

Pliers for removing bracelet links, without return springs.
Box joint construction.



PRECITEC® PLIERS

PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.808 | 135 mm | - | 0.128 |

Pliers with interchangeable jaws in Nylon®, width 10 mm, without return springs.
Box joint construction.

Spare parts :

| MSA | Item | Kg |
|----------|------------|-------|
| 11.808-1 | Nylon® jaw | 0.002 |
| 11.808-2 | Jaw screw | 0.001 |



PRECITEC
QUALITY

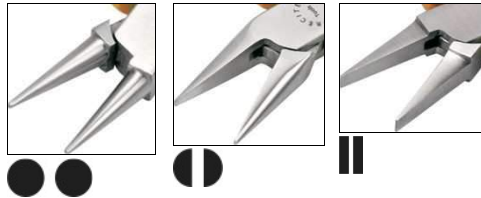


| MSA | Kg |
|--------|-------|
| 11.803 | 0.345 |

Assortment of 3 pliers, with 2 return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.801-A | (1) Round nose pliers | 0.073 |
| 11.802-A | (2) Half-round nose pliers | 0.073 |
| 11.800-A | (3) Flat nose pliers | 0.080 |



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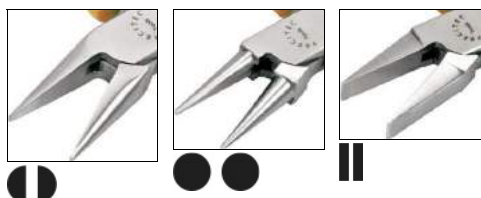


| MSA | Kg |
|--------|-------|
| 11.804 | 0.440 |

Assortment of 3 pliers, without return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.802-B | (1) Half-round nose pliers | 0.095 |
| 11.801-B | (2) Round nose pliers | 0.090 |
| 11.800-B | (3) Flat nose pliers | 0.100 |





| MSA | Kg |
|--------|-------|
| 11.813 | 0.415 |

Assortment of 3 pliers, without return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|--|-------|
| 11.800-B | (1) Flat nose pliers | 0.100 |
| 11.812 | (2) Pliers for removing bracelet links | 0.095 |
| 11.802-B | (3) Half-round nose pliers | 0.095 |



| MSA | Kg |
|--------|-------|
| 11.817 | 0.445 |

Assortment of 3 pliers.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|---|-------|
| 11.812 | (1) Pliers for removing bracelet links | 0.095 |
| 11.809 | (2) Flat nose pliers, serrated anti-skid interior | 0.097 |
| 11.816 | (3) Leather straps hole punching pliers | 0.150 |

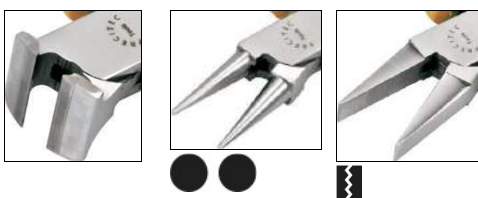


| MSA | Kg |
|--------|-------|
| 11.818 | 0.450 |

Assortment of 3 pliers.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 11.827 | (1) End cutting pliers, bevelled cutting | 0.102 |
| 11.801-B | (2) Round nose pliers | 0.090 |
| 11.809 | (3) Flat nose pliers, serrated anti-skid interior | 0.097 |



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| MSA | Kg |
|--------|-------|
| 11.831 | 0.408 |

Assortment of 3 pliers, with 2 return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|---|-------|
| 11.829 | (1) Side cutting pliers, plain cutting | 0.090 |
| 11.828 | (2) Side cutting pliers, bevelled cutting | 0.110 |
| 11.827 | (3) End cutting pliers, bevelled cutting | 0.102 |



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| MSA | Kg |
|--------|-------|
| 11.832 | 0.606 |

Assortment of 5 pliers, with 2 return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 11.820 | (1) End cutting pliers, bevelled cutting | 0.146 |
| 11.810 | (2) Side cutting pliers, bevelled cutting | 0.140 |
| 11.802-A | (3) Half-round nose pliers | 0.073 |
| 11.801-A | (4) Round nose pliers | 0.073 |
| 11.800-A | (5) Flat nose pliers | 0.080 |



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| MSA | Length | Return springs | Kg |
|----------|--------|----------------|-------|
| 11.833-B | 130 mm | - | 0.092 |

Flat nose pliers, without return springs.
Box joint construction.



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QUALITY

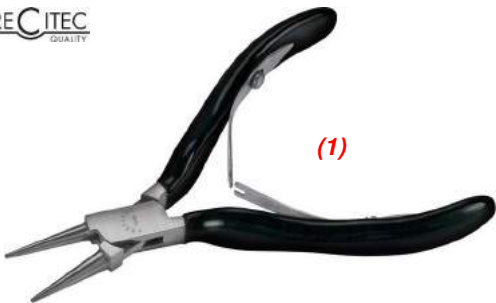


| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.836 | 130 mm | - | 0.090 |

Flat and convex nose pliers, without return springs.
Box joint construction.



PRECITEC
QUALITY

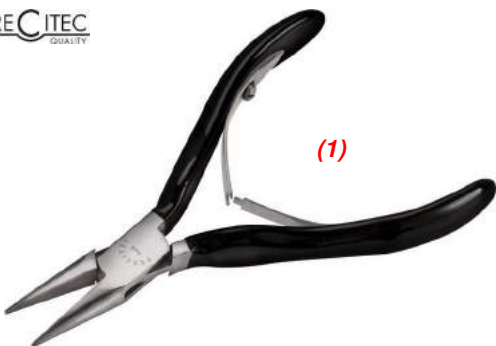


| MSA | Length | Return springs | Kg |
|--------------|--------|----------------|-------|
| 11.834-A (1) | 115 mm | 2 | 0.078 |
| 11.834-B | 130 mm | - | 0.097 |

Round nose pliers.
Box joint construction.

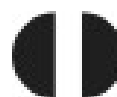


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QUALITY



| MSA | Length | Return springs | Kg |
|--------------|--------|----------------|-------|
| 11.835-A (1) | 115 mm | 2 | 0.075 |
| 11.835-B | 130 mm | - | 0.097 |

Half-round nose pliers.
Box joint construction.



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| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|---------|----------------|-------|
| 11.837 | 130 mm | 000 | 2 | 0.092 |

Side cutting pliers, with 2 return springs.
Box joint construction.



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| MSA | Kg |
|--------|-------|
| 11.840 | 0.395 |

Assortment of 3 pliers, without return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.833-B | (1) Flat nose pliers | 0.092 |
| 11.834-B | (2) Round nose pliers | 0.097 |
| 11.835-B | (3) Half-round nose pliers | 0.097 |



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| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.851 | 140 mm | - | 0.087 |

Flat nose pliers with black anti-skid handles.
Lap joint construction.



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QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.852 | 140 mm | - | 0.090 |

Round nose pliers with red anti-skid handles.
Lap joint construction.

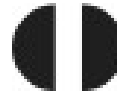


PRECITEC
QUALITY



| MSA | Length | Return springs | Kg |
|--------|--------|----------------|-------|
| 11.853 | 140 mm | - | 0.085 |

Half-round nose pliers with green anti-skid handles.
Lap joint construction.



PRECITEC
QUALITY

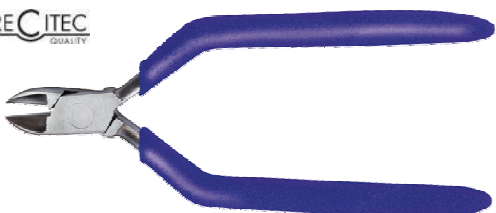


| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|---------|----------------|-------|
| 11.854 | 140 mm | 000 | - | 0.108 |

End cutting pliers with yellow anti-skid handles.
Lap joint construction.



PRECITEC
QUALITY



| MSA | Length | Cutting | Return springs | Kg |
|--------|--------|---------|----------------|-------|
| 11.855 | 140 mm | 000 | - | 0.094 |

Side cutting pliers with blue anti-skid handles.
Lap joint construction.



PRECITEC
QUALITY

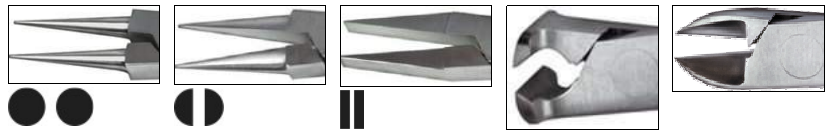


| MSA | Kg |
|--------|-------|
| 11.856 | 0.645 |

Assortment of 5 pliers with anti-skid handles.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|----------------------------|-------|
| 11.852 | (1) Round nose pliers | 0.090 |
| 11.853 | (2) Half-round nose pliers | 0.085 |
| 11.851 | (3) Flat nose pliers | 0.087 |
| 11.854 | (4) End cutting pliers | 0.108 |
| 11.855 | (5) Side cutting pliers | 0.094 |



PRECITEC
QUALITY

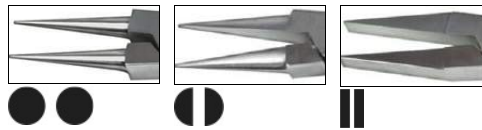


| MSA | Kg |
|--------|-------|
| 11.857 | 0.406 |

Assortment of 3 pliers with anti-skid handles.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|----------------------------|-------|
| 11.852 | (1) Round nose pliers | 0.090 |
| 11.853 | (2) Half-round nose pliers | 0.085 |
| 11.851 | (3) Flat nose pliers | 0.087 |

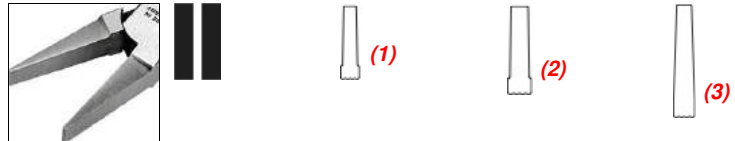


Excellent quality, robust and reliable german precision pliers with box joint construction ; with 2 return springs and available in several variants for precision work.



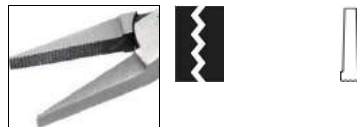
| MSA | | Noses length | Total length | Kg |
|----------|-----|--------------|--------------|-------|
| 11.200-A | (1) | 22 mm | 115 mm | 0.060 |
| 11.200-B | (2) | 25 mm | 130 mm | 0.075 |
| 11.200-C | (3) | 40 mm | 145 mm | 0.090 |

Flat nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



| MSA | | Noses length | Total length | Kg |
|--------|--|--------------|--------------|-------|
| 11.199 | | 21 mm | 115 mm | 0.062 |

Serrated flat nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



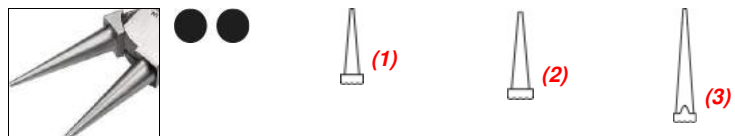
| MSA | | Noses length | Total length | Kg |
|--------|--|--------------|--------------|-------|
| 11.215 | | 25 mm | 130 mm | 0.083 |

Flat and convex nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



| MSA | | Noses length | Total length | Kg |
|----------|-----|--------------|--------------|-------|
| 11.201-A | (1) | 22 mm | 115 mm | 0.058 |
| 11.201-B | (2) | 25 mm | 130 mm | 0.073 |
| 11.201-C | (3) | 40 mm | 145 mm | 0.087 |

Round nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



GERMAN PRECISION PLIERS



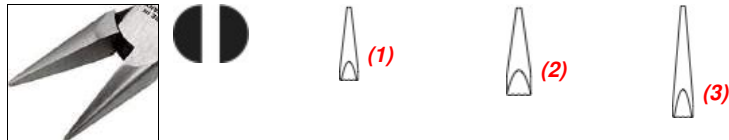
| MSA | Noses length | Total length | Kg |
|--------|--------------|--------------|-------|
| 11.216 | 25 mm | 130 mm | 0.090 |

Round and concave nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



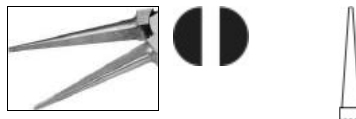
| MSA | Noses length | Total length | Kg |
|----------|--------------|--------------|-------|
| 11.202-A | (1) 22 mm | 115 mm | 0.062 |
| 11.202-B | (2) 25 mm | 130 mm | 0.074 |
| 11.202-C | (3) 40 mm | 145 mm | 0.090 |

Half-round nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



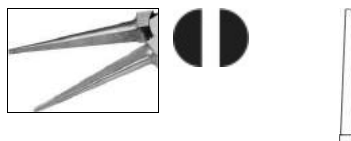
| MSA | Noses length | Total length | Kg |
|----------|--------------|--------------|-------|
| 11.203-C | 40 mm | 145 mm | 0.088 |

Long half-round nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.



| MSA | Noses length | Total length | Kg |
|----------|--------------|--------------|-------|
| 11.203-D | 63 mm | 170 mm | 0.112 |

Extra-long half-round nose precision pliers.
PVC protected handles and 2 return springs.
Box joint construction.





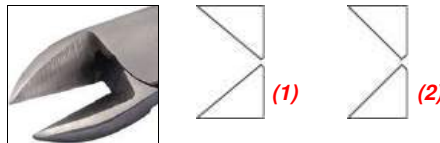
| MSA | Noses length | Total length | Kg |
|----------|--------------|--------------|-------|
| 11.205-C | 40 mm | 145 mm | 0.088 |

Long thin bent half-round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



| MSA | | Length | Cutting | Kg |
|----------|-----|--------|---------|-------|
| 11.210 | (1) | 115 mm | 000 | 0.075 |
| 11.206-B | (2) | 130 mm | 000 | 0.110 |

Robust side cutting precision pliers with rounded jaws. PVC protected handles and 2 return springs. Box joint construction.



| MSA | Length | Cutting | Kg |
|--------|--------|---------|-------|
| 11.207 | 115 mm | 000 | 0.073 |

Side cutting precision pliers with pointed jaws. PVC protected handles and 2 return springs. Box joint construction.



| MSA | Length | Cutting | Kg |
|--------|--------|---------|-------|
| 11.211 | 115 mm | 000 | 0.078 |

Side cutting precision pliers with pointed jaws. PVC protected handles and 2 return springs. Box joint construction.



GERMAN PRECISION PLIERS



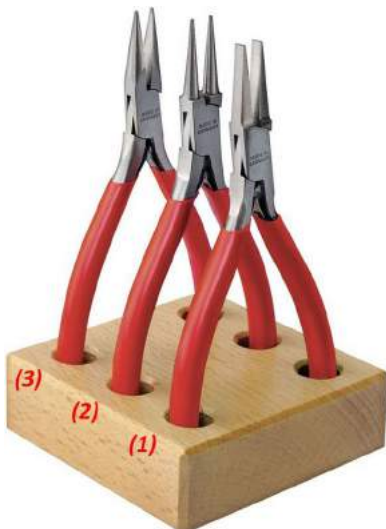
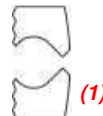
| MSA | | Length | Cutting | Kg |
|----------|-----|--------|---------|-------|
| 11.208-A | (1) | 115 mm | 000 | 0.080 |
| 11.212 | (2) | 115 mm | 000 | 0.080 |

End cutting precision pliers with straight head. PVC protected handles and 2 return springs. Box joint construction.



| MSA | | Length | Cutting | Kg |
|--------|-----|--------|---------|-------|
| 11.209 | (1) | 120 mm | 000 | 0.080 |
| 11.213 | (2) | 120 mm | 000 | 0.080 |

End cutting precision pliers with inclined head. PVC protected handles and 2 return springs. Box joint construction.



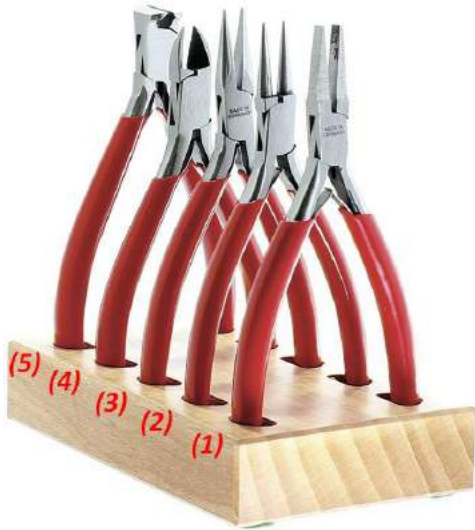
| MSA | | Kg |
|--------|--|-------|
| 11.850 | | 0.291 |

Assortment of 3 precision pliers with 2 return springs. Box joint construction. Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.200-A | (1) Flat nose pliers | 0.060 |
| 11.201-A | (2) Round nose pliers | 0.058 |
| 11.202-A | (3) Half-round nose pliers | 0.062 |



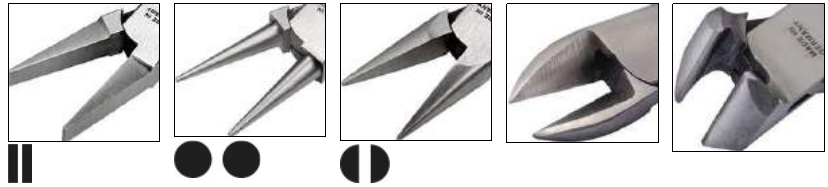


| MSA | Kg |
|--------|-------|
| 11.859 | 0.540 |

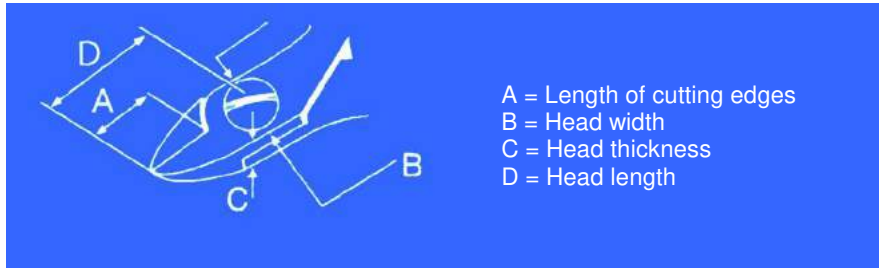
Assortment of 5 precision pliers with 2 return springs.
 Box joint construction.
 Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|--|-------|
| 11.200-A | (1) Flat nose pliers | 0.060 |
| 11.201-A | (2) Round nose pliers | 0.058 |
| 11.202-A | (3) Half-round nose pliers | 0.062 |
| 11.210 | (4) Side cutting pliers, plain cutting | 0.075 |
| 11.212 | (5) End cutting pliers, plain cutting | 0.080 |



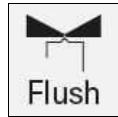
Manufactured with uncompromising Swiss quality, Erem® cutters are designed to be strong, durable, sharp and have the highest precision available.



| MSA | Length | A | B | C | D | Kg |
|--------|--------|------|---------|------|-------|-------|
| 11.928 | 110 mm | 9 mm | 9.80 mm | 6 mm | 16 mm | 0.048 |

Tip cutters with pointed relieved head.

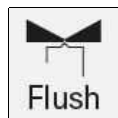
Maximum cutting capability in mm : medium wire Ø 0.60 / copper wire Ø 0.80.



| MSA | Length | A | B | C | D | Kg |
|--------|------------|------|-------|------|-------|-------|
| 11.920 | (1) 110 mm | 9 mm | 11 mm | 6 mm | 19 mm | 0.067 |
| 11.921 | (2) 110 mm | 9 mm | 11 mm | 6 mm | 19 mm | 0.067 |

Tip cutters with angled wide, robust head.

Maximum cutting capability in mm : medium wire Ø 1.00 / copper wire Ø 1.60.
 Maximum cutting capability in mm : medium wire Ø 0.80 / copper wire Ø 1.30.

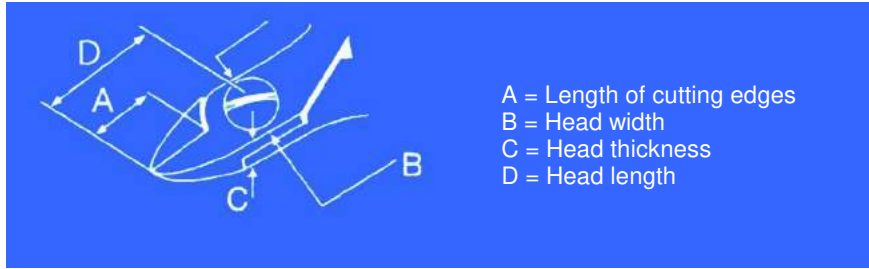


| MSA | Length | A | B | C | D | Kg |
|--------|--------|------|------|------|-------|-------|
| 11.925 | 110 mm | 9 mm | 9 mm | 6 mm | 15 mm | 0.048 |

Side cutters with oval head.

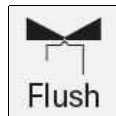
Maximum cutting capability in mm : hard wire Ø 0.50 / medium wire Ø 0.80 / copper wire Ø 1.30.





| MSA | Length | A | B | C | D | Kg |
|--------|--------|-------|----------|---------|-------|-------|
| 11.924 | 120 mm | 15 mm | 13.50 mm | 7.20 mm | 21 mm | 0.067 |

Side cutters with oval head.
 Maximum cutting capability in mm : medium wire Ø 1.20 / copper wire Ø 1.80.

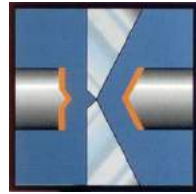


| MSA | Length | A | B | C | D | Kg |
|--------|--------|------|------|------|-------|-------|
| 11.934 | 110 mm | 9 mm | 9 mm | 6 mm | 15 mm | 0.048 |

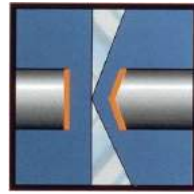
Side cutters with oval head.
 Maximum cutting capability in mm : medium wire Ø 0.70 / copper wire Ø 1.30.



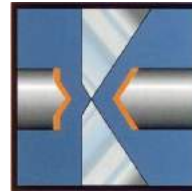
The LINDSTROM® pliers are considered to be the best in the world. Made with special steel and forged components specially studied. They offer an unequalled cutting capacity and a precision equivalent for all types of wire. Equipped with plastic handles and 2 return springs.



Flush



Ultra-Flush®



Micro-Bevel®



| MSA | Model | Kg |
|--------|-------|-------|
| 11.906 | 7490 | 0.048 |

Precision pliers. Flat and smooth noses made of high performance steel. Specially made box joint with extra long contact surfaces, made possible by a unique manufacturing process. With 2 return springs.

Box joint construction.

Head 20 x 9 mm. Total length 120 mm.



| MSA | Model | Kg |
|--------|-------|-------|
| 11.909 | 7890 | 0.060 |

Precision half-round extra-long nose with polished interior side and 2 return springs.

Box joint construction.

Head 32 x 9 mm. Total length 132 mm.



| MSA | Model | Kg |
|--------|-------|-------|
| 11.910 | 7893 | 0.056 |

Precision half-round nose with 2 return springs.

Box joint construction.

Head 20 x 9 mm. Total length 120 mm.





| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|---------|-------|------------------------------|-------|
| 11.903 | Flush | 7191 | 0.10...1.25 mm | 0.044 |

Precision pliers, side cutting with pointed and three-square head and 2 return springs.
Screw lap joint construction.
Head 9 x 9 mm. Total length 109 mm.



| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|--------------|-------|------------------------------|-------|
| 11.901 | Flush | 7293 | 0.35...1.00 mm | 0.048 |
| 11.900 | Flush | 7291 | 0.35...1.25 mm | 0.048 |
| 11.902 | Micro-bevel® | 7290 | 0.35...1.25 mm | 0.048 |

Precision pliers, oblique cutting at 11° with inclined head and 2 return springs.
Box joint construction.
Head 8 x 10.5 mm. Total length 108 mm.



| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|--------------|-------|------------------------------|-------|
| 11.904 | 000 | 8162 | 0.30...1.60 mm | 0.088 |
| 11.905 | Micro-bevel® | 8140 | 0.20...1.25 mm | 0.048 |

Precision pliers. Diagonal cutting with oval head made of high performance oxidized black steel and 2 return springs. Cutting edges hardened by induction.
Screw lap joint construction.
Head 16 x 16 mm. Total length 125 and 110 mm.



| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|--------------|-------|------------------------------|-------|
| 11.908 | Micro-bevel® | 8146 | 0.20...1.00 mm | 0.046 |

Precision side cutter with oxidized black and sharp-pointed nose. 2 return springs.
Lap joint construction.
Head 10 x 10 mm. Total length 110 mm.



LINDSTROM® PLIERS

LINDSTROM
PRECISION TOOLS



| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|--------------|-------|------------------------------|-------|
| 11.911 | Micro-Bevel® | 8160 | 0.40...2.00 mm | 0.088 |

Precision side cutter with oxidized black and round nose, with 2 return springs.

Lap joint construction.

Head 16 x 16 mm. Total length 125 mm.



LINDSTROM
PRECISION TOOLS



| MSA | Cutting | Model | Copper wire cutting capacity | Kg |
|--------|---------|-------|------------------------------|-------|
| 11.907 | Flush | 7292 | 0.35...0.80 mm | 0.056 |

Precision pliers, bent nose towards the interior. With 2 return springs.

Box joint construction.

Head 15 x 9 mm. Total length 115 mm.



Carbon steel pliers specially made for cutting hairsprings.
Plain and impeccable cutting.



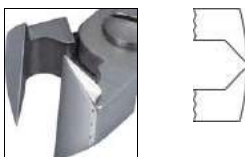
| MSA | No. | Length | Kg |
|--------|-----|--------|-------|
| 11.705 | 17 | 125 mm | 0.076 |

Carbon steel pliers for cutting hairsprings. Inclined head, anti-skid handles with 2 return springs. Screw lap joint construction.



| MSA | No. | Length | Kg |
|--------|-----|--------|-------|
| 11.706 | 20 | 110 mm | 0.081 |

Carbon steel pliers for cutting hairsprings. Straight and pointed head at both ends, anti-skid handles with 2 return springs. Screw lap joint construction.



BAHCO® and KNIPEX® cutting pliers.



| MSA | Cutting | Cutting capacity | Kg |
|--------|----------|---|-------|
| 11.228 | Bevelled | Ø 1.80 mm : piano-wire Ø 5.00 mm : copper wire | 0.134 |

Steel side cutting BAHCO® precision pliers, with large anti-skid handles and 1 return spring. Lap joint construction. Total length 155 mm.



| MSA | Cutting | Cutting capacity | Kg |
|--------|----------|---|-------|
| 11.229 | Bevelled | Ø 1.50 mm : piano-wire Ø 4.00 mm : copper wire | 0.134 |

Heavy duty KNIPEX® end cutter with strong torque. Tempered and polished head and PVC protected handles. Lap joint construction. Total length 140 mm.

Ring cutters.

PRECITEC
QUALITY



| MSA | Length | Kg |
|--------|--------|-------|
| 11.230 | 160 mm | 0.107 |

Large ring cutting pliers with chromed grooved handle.
Delivered with 1 mounted thin teeth steel circular saw.

Spare part :

| MSA | Item | Kg |
|----------|-----------------------|-------|
| 11.230-A | Circular saw, Ø 21 mm | 0.002 |



PRECITEC
QUALITY



| MSA | Length | Kg |
|--------|--------|-------|
| 11.198 | 178 mm | 0.145 |

Steel ring cutter with PVC protected handles.
Delivered with 1 mounted thin teeth hardened steel circular saw and 1 key for saw change.

Spare part :

| MSA | Item | Kg |
|----------|-----------------------|-------|
| 11.198-A | Circular saw, Ø 30 mm | 0.005 |



| MSA | Length | Kg |
|--------|--------|-------|
| 11.226 | 120 mm | 0.095 |

Ring cutter with knurled steel handle.
Delivered with 1 mounted thin teeth hardened steel circular saw and 1 key for saw change.

Spare part :

| MSA | Item | Kg |
|----------|-----------------------|-------|
| 11.226-A | Circular saw, Ø 20 mm | 0.001 |



Revolving pliers for leather holing.



| MSA | Length | Kg |
|--------|--------|-------|
| 11.300 | 200 mm | 0.280 |

Revolving pliers for leather holing with 6 punchers.

Holing Ø : 2.0 - 2.5 - 3.0 - 3.5 - 4.0 - 4.5 mm.



| MSA | Version | Length | Kg |
|--------|---------------|--------|-------|
| 11.310 | Complete case | x mm | x.xxx |
| 11.311 | Light case | x mm | x.xxx |

Multiplied pliers for piercing leather straps, delivered in a case.

Composition MSA11.310, complete case :

- MSA11.310-P : 1 multiplied pliers
- MSA11.310-0x : 4 brass supports, centre-to-centre 5, 6, 7 and 8 mm
- MSA11.310-Pxxx : 6 round punches, Ø 1.00, 1.20, 1.40, 1.60, 1.80 and 2.00 mm
- MSA11.310-Gxxx : 18 round guides (3x per diameter) Ø 1.00, 1.20, 1.40, 1.60, 1.80 and 2.00 mm
- MSA11.310-CL : 1 Allen key.

Composition MSA11.311, light case :

- MSA11.310-P : 1 multiplied pliers
- MSA11.310-07 : 1 brass support, centre-to-centre 7 mm
- MSA11.310-P180 : 1 round punch, Ø 1.80 mm
- MSA11.310-Gxxx : 3 round guides Ø 1.80 mm
- MSA11.310-CL : 1 Allen key.

Holing Ø : 1.00, 1.20, 1.40, 1.60, 1.80 and 2.00 mm.



Spare parts :

| MSA | Item |
|-------------|--|
| 11.310-05 | Brass support, centre-to-centre 5 mm |
| 11.310-06 | (1) Brass support, centre-to-centre 6 mm |
| 11.310-07 | Brass support, centre-to-centre 7 mm |
| 11.310-08 | Brass support, centre-to-centre 8 mm |
| 11.310-G100 | (2) Round guide, Ø 1.00 mm |
| 11.310-G120 | Round guide, Ø 1.20 mm |
| 11.310-G140 | Round guide, Ø 1.40 mm |
| 11.310-G160 | Round guide, Ø 1.60 mm |
| 11.310-G180 | Round guide, Ø 1.80 mm |
| 11.310-G200 | Round guide, Ø 2.00 mm |
| 11.310-P | Pliers alone |
| 11.310-P100 | (3) Round punch, Ø 1.00 mm |
| 11.310-P120 | Round punch, Ø 1.20 mm |
| 11.310-P140 | Round punch, Ø 1.40 mm |
| 11.310-P160 | Round punch, Ø 1.60 mm |
| 11.310-P180 | Round punch, Ø 1.80 mm |
| 11.310-P200 | Round punch, Ø 2.00 mm |

Summary of pliers assortments.

PRECITEC
QUALITY

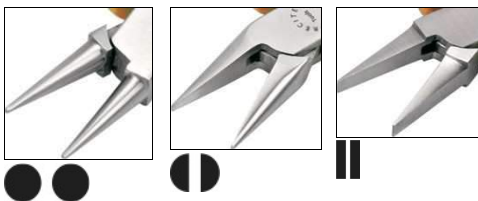


| MSA | Kg |
|--------|-------|
| 11.803 | 0.345 |

Assortment of 3 pliers, with 2 return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.801-A | (1) Round nose pliers | 0.073 |
| 11.802-A | (2) Half-round nose pliers | 0.073 |
| 11.800-A | (3) Flat nose pliers | 0.080 |



PRECITEC
QUALITY

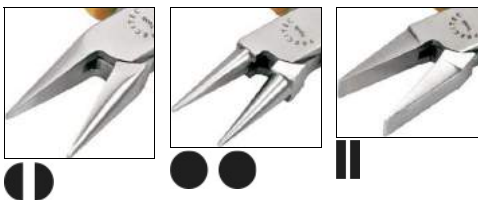


| MSA | Kg |
|--------|-------|
| 11.804 | 0.440 |

Assortment of 3 pliers, without return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.802-B | (1) Half-round nose pliers | 0.095 |
| 11.801-B | (2) Round nose pliers | 0.090 |
| 11.800-B | (3) Flat nose pliers | 0.100 |



PRECITEC
QUALITY



| MSA | Kg |
|--------|-------|
| 11.813 | 0.415 |

Assortment of 3 pliers, without return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|--|-------|
| 11.800-B | (1) Flat nose pliers | 0.100 |
| 11.812 | (2) Pliers for removing bracelet links | 0.095 |
| 11.802-B | (3) Half-round nose pliers | 0.095 |



PRECITEC
QUALITY



| MSA | Kg |
|--------|-------|
| 11.817 | 0.445 |

Assortment of 3 pliers.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|---|-------|
| 11.812 | (1) Pliers for removing bracelet links | 0.095 |
| 11.809 | (2) Flat nose pliers, serrated anti-skid interior | 0.097 |
| 11.816 | (3) Leather straps hole punching pliers | 0.150 |



PRECITEC
QUALITY

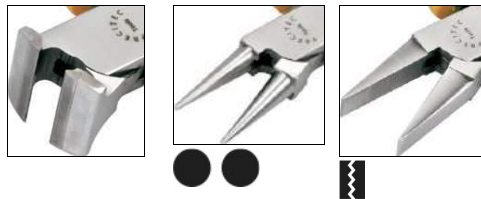


| MSA | Kg |
|--------|-------|
| 11.818 | 0.450 |

Assortment of 3 pliers.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 11.827 | (1) End cutting pliers, bevelled cutting | 0.102 |
| 11.801-B | (2) Round nose pliers | 0.090 |
| 11.809 | (3) Flat nose pliers, serrated anti-skid interior | 0.097 |



PRECITEC
QUALITY



| MSA | Kg |
|--------|-------|
| 11.831 | 0.408 |

Assortment of 3 pliers, with 2 return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|---|-------|
| 11.829 | (1) Side cutting pliers, plain cutting | 0.090 |
| 11.828 | (2) Side cutting pliers, bevelled cutting | 0.110 |
| 11.827 | (3) End cutting pliers, bevelled cutting | 0.102 |



PLIERS ASSORTMENTS

PRECITEC
QUALITY

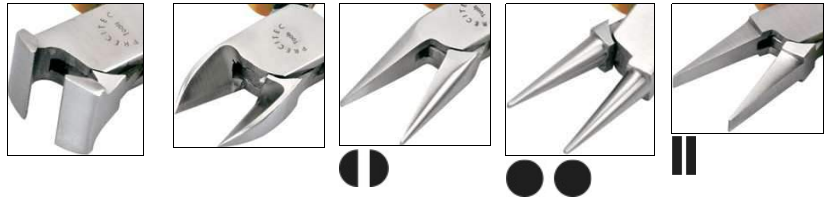


| MSA | Kg |
|--------|-------|
| 11.832 | 0.606 |

Assortment of 5 pliers, with 2 return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|---|-------|
| 11.820 | (1) End cutting pliers, bevelled cutting | 0.146 |
| 11.810 | (2) Side cutting pliers, bevelled cutting | 0.140 |
| 11.802-A | (3) Half-round nose pliers | 0.073 |
| 11.801-A | (4) Round nose pliers | 0.073 |
| 11.800-A | (5) Flat nose pliers | 0.080 |



PRECITEC
QUALITY

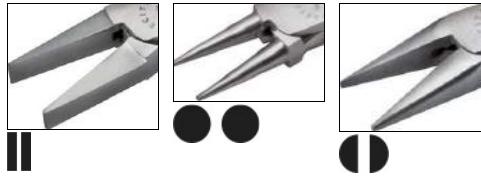


| MSA | Kg |
|--------|-------|
| 11.840 | 0.395 |

Assortment of 3 pliers, without return springs.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.833-B | (1) Flat nose pliers | 0.092 |
| 11.834-B | (2) Round nose pliers | 0.097 |
| 11.835-B | (3) Half-round nose pliers | 0.097 |



PRECITEC
QUALITY



| MSA | Kg |
|--------|-------|
| 11.856 | 0.645 |

Assortment of 5 pliers with anti-skid handles.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|----------------------------|-------|
| 11.852 | (1) Round nose pliers | 0.090 |
| 11.853 | (2) Half-round nose pliers | 0.085 |
| 11.851 | (3) Flat nose pliers | 0.087 |
| 11.854 | (4) End cutting pliers | 0.108 |
| 11.855 | (5) Side cutting pliers | 0.094 |



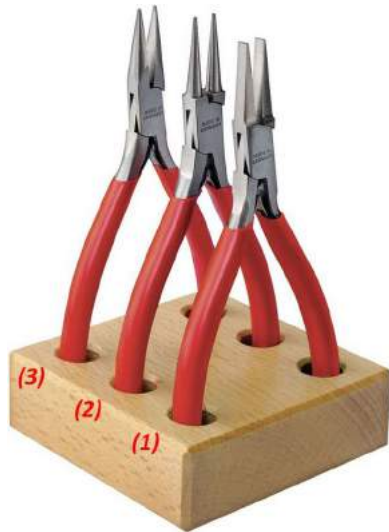
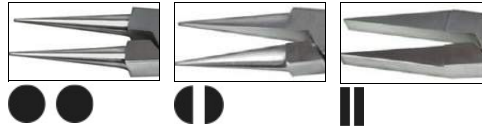


| MSA | Kg |
|--------|-------|
| 11.857 | 0.406 |

Assortment of 3 pliers with anti-skid handles.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|--------|----------------------------|-------|
| 11.852 | (1) Round nose pliers | 0.090 |
| 11.853 | (2) Half-round nose pliers | 0.085 |
| 11.851 | (3) Flat nose pliers | 0.087 |

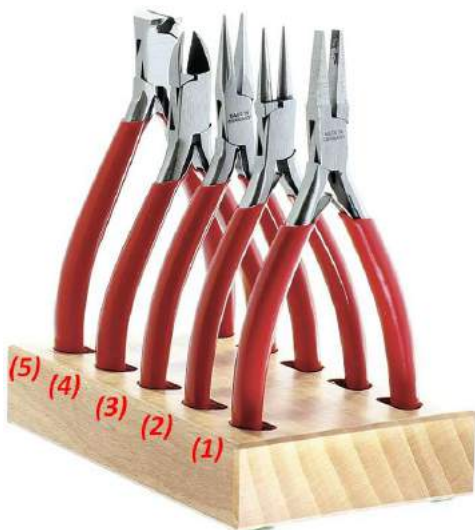
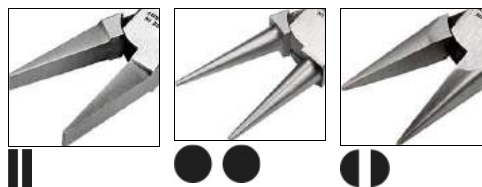


| MSA | Kg |
|--------|-------|
| 11.850 | 0.291 |

Assortment of 3 precision pliers with 2 return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 11.200-A | (1) Flat nose pliers | 0.060 |
| 11.201-A | (2) Round nose pliers | 0.058 |
| 11.202-A | (3) Half-round nose pliers | 0.062 |

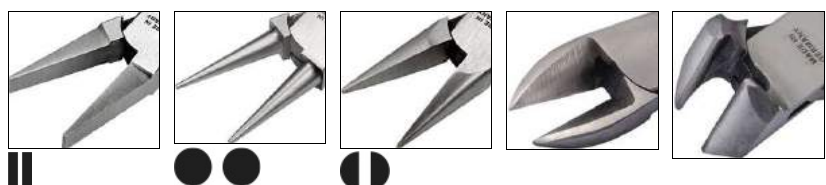


| MSA | Kg |
|--------|-------|
| 11.859 | 0.540 |

Assortment of 5 precisions pliers with 2 return springs.
Box joint construction.
Delivered on a wooden stand.

Contents :

| MSA | Item | Kg |
|----------|--|-------|
| 11.200-A | (1) Flat nose pliers | 0.060 |
| 11.201-A | (2) Round nose pliers | 0.058 |
| 11.202-A | (3) Half-round nose pliers | 0.062 |
| 11.210 | (4) Side cutting pliers, plain cutting | 0.075 |
| 11.212 | (5) End cutting pliers, plain cutting | 0.080 |



12



HOROTEC® TWEEZERS FOR WATCHMAKING

12 - 2

HOROTEC® ALUMINIUM TWEEZERS

12 - 13

HOROSWISS® TWEEZERS

12 - 15

PRECITEC® TWEEZERS

12 - 17

VARIOUS TWEEZERS

12 - 19

HOROTEC® tweezers are made for the most demanding watchmakers. The tips are perfectly aligned and the inside is hand polished to assure the best possible finishing. The steels and other alloys are carefully selected to assure top quality.



MSA12.380



MSA12.385



MSA12.386

| MSA | Tweezers | Material | Packaging size | Kg |
|--------|-----------------|---|------------------|-------|
| 12.381 | 1 - 3 - 5 - 7 | Stainless steel | 90 x 165 x 27 mm | 0.148 |
| 12.382 | 1 - 3 - 5 - 7 | Antimagnetic steel 904L | 90 x 165 x 27 mm | 0.148 |
| 12.383 | 2 - 2A - 5 - 51 | Antimagnetic steel 904L, sand blasted body and mirror polished tips | 90 x 165 x 27 mm | 0.142 |
| 12.384 | 3 - 5 - 7 - 27 | Antimagnetic steel 904L, sand blasted body and mirror polished tips | 90 x 165 x 27 mm | 0.144 |
| 12.385 | 2 - 3 | Stainless steel | 90 x 165 x 27 mm | 0.149 |
| | 2 - 3 | Antimagnetic steel 904L, sand blasted body and mirror polished tips | | |
| 12.386 | 1 - 3 - 4 - 5 | Antimagnetic steel 904L | 90 x 165 x 27 mm | 0.147 |
| 12.387 | 1 - 2 - 3 - 5 | Stainless steel | 90 x 165 x 27 mm | 0.151 |
| 12.388 | 1 - 2 - 3 - 5 | Antimagnetic steel 904L | 90 x 165 x 27 mm | 0.151 |
| 12.389 | 00 | Carbon steel | 90 x 165 x 27 mm | 0.152 |
| | 1 - 3 - F1 | Antimagnetic steel 904L, sand blasted body and mirror polished tips | | |
| 12.390 | 2 - 3 - 4 - 5 | Antimagnetic steel 904L, sand blasted body and mirror polished tips | 90 x 165 x 27 mm | 0.142 |
| 12.380 | 1 - 3 - 5 - 7 | Carbon steel | 90 x 165 x 27 mm | 0.148 |

Assortment of tweezers.
Delivered in a wooden box.



MSA12.300-x Hard carbon steel
 MSA12.301-x Stainless steel
 MSA12.302-x Antimagnetic steel 904L
 MSA12.303-x Brass
 MSA12.304-x 100% antimagnetic nickel
 MSA12.305-x Beryllium copper
 MSA12.306-x Bronze

STANDARD POLISHED BODY AND TIPS !



00

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.300-00 | Carbon steel | 120 mm | 0.022 |
| 12.301-00 | Stainless steel | 120 mm | 0.022 |
| 12.302-00 | Antimagnetic steel 904L | 120 mm | 0.022 |

Thick tweezers with flat tips, Geneva shape.



0

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-0 | Carbon steel | 120 mm | 0.018 |
| 12.301-0 | Stainless steel | 120 mm | 0.018 |
| 12.302-0 | Antimagnetic steel 904L | 120 mm | 0.018 |

Fine tweezers, Geneva shape.



0C

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.302-0C | Antimagnetic steel 904L | 90 mm | 0.008 |

Fine and short tweezers for hairsprings.



1

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-1 | Carbon steel | 120 mm | 0.016 |
| 12.301-1 | Stainless steel | 120 mm | 0.016 |
| 12.302-1 | Antimagnetic steel 904L | 120 mm | 0.016 |
| 12.305-1 | Beryllium copper | 120 mm | 0.016 |

Strong tweezers.



2

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-2 | Carbon steel | 120 mm | 0.018 |
| 12.301-2 | Stainless steel | 120 mm | 0.018 |
| 12.302-2 | Antimagnetic steel 904L | 120 mm | 0.018 |

Strong tweezers with fine and flat tips.



2A

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.302-2A | Antimagnetic steel 904L | 120 mm | 0.014 |

Tweezers with large and round tips for straightening hands.

HOROTEC® TWEEZERS FOR WATCHMAKING



3

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-3 | Carbon steel | 120 mm | 0.014 |
| 12.301-3 | Stainless steel | 120 mm | 0.014 |
| 12.302-3 | Antimagnetic steel 904L | 120 mm | 0.014 |
| 12.305-3 | Beryllium copper | 120 mm | 0.014 |

Fine tweezers for hairsprings.



3C

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.300-3C | Carbon steel | 110 mm | 0.013 |
| 12.301-3C | Stainless steel | 110 mm | 0.013 |
| 12.302-3C | Antimagnetic steel 904L | 110 mm | 0.013 |

Fine and short tweezers for hairsprings.



4

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-4 | Carbon steel | 110 mm | 0.014 |
| 12.301-4 | Stainless steel | 110 mm | 0.014 |
| 12.302-4 | Antimagnetic steel 904L | 110 mm | 0.014 |
| 12.303-4 | Brass | 110 mm | 0.014 |

Tweezers with long and fine tips for hairsprings.



5

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-5 | Carbon steel | 110 mm | 0.013 |
| 12.301-5 | Stainless steel | 110 mm | 0.013 |
| 12.302-5 | Antimagnetic steel 904L | 110 mm | 0.013 |

Short and extra-fine tweezers for hairsprings.



5-SP

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-5SP | Antimagnetic steel 904L | 105 mm | 0.008 |

Short and extra-fine tweezers for hairsprings.



6

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-6 | Carbon steel | 115 mm | 0.018 |
| 12.301-6 | Stainless steel | 115 mm | 0.018 |
| 12.302-6 | Antimagnetic steel 904L | 115 mm | 0.018 |

Tweezers hook shape and fine tips.



7

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.301-7 | Stainless steel | 115 mm | 0.015 |
| 12.302-7 | Antimagnetic steel 904L | 115 mm | 0.015 |

Curved and extra-fine tweezers for hairsprings.



11

| MSA | Material | Length | Kg |
|-----------|--------------------------|--------|-------|
| 12.304-11 | 100% antimagnetic nickel | 120 mm | 0.019 |

Tweezers with strong tips.



12

| MSA | Material | Length | Kg |
|-----------|--------------------------|--------|-------|
| 12.304-12 | 100% antimagnetic nickel | 120 mm | 0.019 |

Tweezers with fine tips.



14

| MSA | Material | Length | Kg |
|-----------|--------------|--------|-------|
| 12.300-14 | Carbon steel | 110 mm | 0.030 |

Simple tweezers for removing and holding hands.



14A

| MSA | Material | Length | Kg |
|------------|--------------|--------|-------|
| 12.300-14A | Carbon steel | 115 mm | 0.021 |

Tweezers with sliding locker for removing and holding hands.



15

| MSA | Material | Length | Kg |
|-----------|--------------|--------|-------|
| 12.300-15 | Carbon steel | 105 mm | 0.014 |

Tweezers for marking hairsprings.



15A

| MSA | Material | Length | Kg |
|------------|--------------|--------|-------|
| 12.300-15A | Carbon steel | 115 mm | 0.035 |

Strong tweezers for cutting hairsprings.



27

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.301-27 | Stainless steel | 135 mm | 0.017 |
| 12.302-27 | Antimagnetic steel 904L | 135 mm | 0.017 |

Strong and pointed tweezers for stones.

HOROTEC® TWEEZERS FOR WATCHMAKING



AA

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.300-AA | Carbon steel | 125 mm | 0.020 |
| 12.301-AA | Stainless steel | 125 mm | 0.020 |
| 12.302-AA | Antimagnetic steel 904L | 125 mm | 0.020 |
| 12.303-AA | Brass | 125 mm | 0.020 |

Strong and elegant tweezers for ordinary use.



AM

| MSA | Material | Length | Kg |
|-----------|--------------------|--------|-------|
| 12.303-AM | Antimagnetic brass | 130 mm | 0.022 |

Tweezers for hairsprings, Parisian shape.



B1

| MSA | Material | Length | Kg |
|-----------|----------|--------|-------|
| 12.303-B1 | Brass | 130 mm | 0.019 |

Simple tweezers with fine tips.



B5

| MSA | Material | Length | Kg |
|-----------|--------------------------|--------|-------|
| 12.300-B5 | Carbon steel | 125 mm | 0.019 |
| 12.301-B5 | Stainless steel | 125 mm | 0.019 |
| 12.303-B5 | Brass | 125 mm | 0.019 |
| 12.304-B5 | 100% antimagnetic nickel | 125 mm | 0.019 |
| 12.306-B5 | Bronze | 125 mm | 0.019 |
| 12.307-B5 | Gilt brass | 125 mm | 0.022 |

Strong and pointed tweezers.



D

| MSA | Material | Length | Kg |
|----------|--------------|--------|-------|
| 12.300-D | Carbon steel | 95 mm | 0.026 |

Tweezers for cutting and removing rollers, pivots and pinions.



F

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-F | Carbon steel | 115 mm | 0.016 |
| 12.301-F | Stainless steel | 115 mm | 0.016 |
| 12.302-F | Antimagnetic steel 904L | 115 mm | 0.016 |

Tweezers with flat tips for straightening hands.



MM

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.300-MM | Carbon steel | 125 mm | 0.019 |
| 12.302-MM | Antimagnetic steel 904L | 125 mm | 0.019 |
| 12.303-MM | Brass | 125 mm | 0.019 |

Tweezers for hairsprings, Parisian shape.



P

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-P | Carbon steel | 120 mm | 0.014 |
| 12.301-P | Stainless steel | 120 mm | 0.014 |
| 12.302-P | Antimagnetic steel 904L | 120 mm | 0.014 |

Simple tweezers with strong tips.



S

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.300-S | Carbon steel | 120 mm | 0.015 |
| 12.301-S | Stainless steel | 120 mm | 0.015 |
| 12.302-S | Antimagnetic steel 904L | 120 mm | 0.015 |

Simple tweezers with fine tips.



S5

| MSA | Material | Length | Kg |
|-----------|--------------------------|--------|-------|
| 12.303-S5 | Brass | 130 mm | 0.022 |
| 12.304-S5 | 100% antimagnetic nickel | 130 mm | 0.022 |
| 12.306-S5 | Bronze | 130 mm | 0.019 |

Simple tweezers with fine tips.



S5C

| MSA | Material | Length | Kg |
|------------|----------|--------|-------|
| 12.303-S5C | Brass | 135 mm | 0.021 |

Bent tweezers with fine tips.



SS

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.300-SS | Carbon steel | 140 mm | 0.015 |
| 12.302-SS | Antimagnetic steel 904L | 140 mm | 0.015 |

Long and narrow tweezers with fine tips.



**HIGH QUALITY FINISHING.
SAND BLASTED BODY AND MIRROR POLISHED TIPS !**



1

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-1 | Antimagnetic steel 904L | 120 mm | 0.013 |

Strong tweezers, sand blasted body and mirror polished tips.



2

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-2 | Antimagnetic steel 904L | 120 mm | 0.014 |

Strong tweezers with fine and flat tips, sand blasted body and mirror polished tips.



2A

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.312-2A | Antimagnetic steel 904L | 120 mm | 0.014 |

Large tweezers with round tips for straightening hands, sand blasted body and mirror polished tips.



3

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-3 | Antimagnetic steel 904L | 120 mm | 0.013 |

Fine tweezers for hairsprings, sand blasted body and mirror polished tips.



4

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-4 | Antimagnetic steel 904L | 110 mm | 0.013 |

Tweezers with long and fine tips for hairsprings, sand blasted body and mirror polished tips.



5

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-5 | Antimagnetic steel 904L | 110 mm | 0.012 |

Extra-fine tweezers for hairsprings, sand blasted body and mirror polished tips.



7

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-7 | Antimagnetic steel 904L | 115 mm | 0.013 |

Curved and extra-fine tweezers for hairsprings, sand blasted body and mirror polished tips.



27

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.312-27 | Antimagnetic steel 904L | 135 mm | 0.016 |

Strong and pointed tweezers for stones, sand blasted body and mirror polished tips.



51

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.312-51 | Antimagnetic steel 904L | 115 mm | 0.012 |

Bent and extra-fine tweezers for hairsprings, sand blasted body and mirror polished tips.



F

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.312-F | Antimagnetic steel 904L | 120 mm | 0.015 |

Tweezers with standard flat tips for straightening hands, sand blasted body and mirror polished tips.



F1

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.312-F1 | Antimagnetic steel 904L | 120 mm | 0.016 |

Tweezers with fine round tips for straightening hands, sand blasted body and mirror polished tips.



STANDARD POLISHED BODY AND MIRROR POLISHED TIPS !



1

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-1/1 | Antimagnetic steel 904L | 120 mm | 0.016 |

Strong tweezers with mirror polished tips.



2

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-2/1 | Antimagnetic steel 904L | 120 mm | 0.015 |

Strong tweezers with fine and flat mirror polished tips.



2A

| MSA | Material | Length | Kg |
|-------------|-------------------------|--------|-------|
| 12.302-2A/1 | Antimagnetic steel 904L | 120 mm | 0.016 |

Large tweezers with round mirror polished tips, for straightening hands.



3

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-3/1 | Antimagnetic steel 904L | 120 mm | 0.014 |

Fine tweezers for hairsprings, mirror polished tips.



5

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-5/1 | Antimagnetic steel 904L | 110 mm | 0.013 |

Short and extra-fine tweezers for hairsprings, mirror polished tips.



7

| MSA | Material | Length | Kg |
|------------|-------------------------|--------|-------|
| 12.302-7/1 | Antimagnetic steel 904L | 115 mm | 0.013 |

Curved and extra-fine tweezers with mirror polished tips.



51

| MSA | Material | Length | Kg |
|-------------|-------------------------|--------|-------|
| 12.302-51/1 | Antimagnetic steel 904L | 115 mm | 0.012 |

Tweezers for hairsprings with bent and extra-fine mirror polished tips.



F1

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.301-F1 | Stainless steel | 115 mm | 0.017 |
| 12.302-F1 | Antimagnetic steel 904L | 115 mm | 0.017 |

Tweezers with round mirror polished tips, for straightening hands.

HOROTEC® tweezers for special works.



2A-H

| MSA | Material | Length | Kg |
|--------------------|-------------------------|--------|-------|
| 12.312-2A-H | Antimagnetic steel 904L | 118 mm | 0.016 |

Stacked tweezers for hands fitting, mirror finishing.



LG

| MSA | Material | Ø tightening | Kg |
|-------------------|-----------------|--------------|-------|
| 12.301-LG1 | Stainless steel | 2.00 mm | 0.016 |

Tweezers with round tips for tubes and pins.



LP

| MSA | Material | Ø tightening | Kg |
|-------------------|-----------------|--------------|-------|
| 12.301-LP2 | Stainless steel | 0.80 mm | 0.016 |
| 12.301-LP3 | Stainless steel | 0.90 mm | 0.016 |
| 12.301-LP1 | Stainless steel | 1.60 mm | 0.016 |

Tweezers with round tips for tubes and pins.



27

| MSA | Material | Ø tightening | Kg |
|----------------------|-----------------------------------|--------------|-------|
| 12.302-27/080 | Stainless steel 100% antimagnetic | 0.80 mm | 0.016 |

Tweezers with round tips for pins.



2

| MSA | Material | Kg |
|--------------------|-----------------|-------|
| 12.301-33/2 | Stainless steel | 0.014 |

Tweezers for correcting darts.

HOROTEC® tweezers for curving hairsprings.



10B

| MSA | Material | Length | Kg |
|-------------------|--------------|--------|-------|
| 12.300-10B | Carbon steel | 115 mm | 0.015 |

Tweezers for curving hairsprings.

HOROTEC® TWEEZERS FOR WATCHMAKING

100% antimagnetic nickel HOROTEC® special tweezers with red vulcanized fibre tips.



| MSA | Material | Length | Kg |
|--------|--------------------------|--------|-------|
| 12.150 | 100% antimagnetic nickel | 125 mm | 0.020 |

Tweezers with red vulcanized fibre tips, extra-fine tips 0.50 mm.



| MSA | Material | Length | Kg |
|--------|--------------------------|--------|-------|
| 12.727 | 100% antimagnetic nickel | 125 mm | 0.020 |

Tweezers with red vulcanized fibre tips, fine tips.



| MSA | Material | Length | Kg |
|--------|--------------------------|--------|-------|
| 12.710 | 100% antimagnetic nickel | 125 mm | 0.020 |

Tweezers with red vulcanized fibre tips, medium tips.



| MSA | Material | Length | Kg |
|--------|--------------------------|--------|-------|
| 12.726 | 100% antimagnetic nickel | 125 mm | 0.020 |

Tweezers with red vulcanized fibre tips, large tips.



| MSA | Material | Length | Kg |
|--------|--------------------------|--------|-------|
| 12.729 | 100% antimagnetic nickel | 125 mm | 0.020 |

Tweezers with red vulcanized fibre and felt tips for oiling mainsprings, large tips.

HOROTEC® tweezers with ceramic tips.



| MSA | Material | Length | Kg |
|--------|---------------------|--------|-------|
| 12.151 | Nickel non magnetic | 130 mm | 0.026 |

Tweezers with ceramic tips 1.30 x 0.50 mm.

These tweezers are resistant to acids and high temperatures without transmitting heat.

HOROTEC® aluminium tweezers with interchangeable hard tips made of black carbonic-fibre or white Delrin®. Used for handling delicate pieces without marking them. They are so light that they allow you to prolong the work without any tiredness.

ANTIMAGNETIC AND ULTRA LIGHT, 10 g !



| MSA | Kg |
|--------|-------|
| 12.728 | 0.001 |

Pair of clips for replacement tips. A patented clip system allows a fast and accurate change of the used tips.



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.711 | Aluminium | 123 mm | 0.010 |

Tweezers with large and square black carbon fibre hard tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.711-A | Pair of tips for MSA12.711 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.712 | Aluminium | 130 mm | 0.010 |

Tweezers with large and round black carbon fibre hard tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.712-A | Pair of tips for MSA12.712 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.713 | Aluminium | 130 mm | 0.010 |

Tweezers with fine black carbon fibre hard tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.713-A | Pair of tips for MSA12.713 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.714 | Aluminium | 130 mm | 0.010 |

Tweezers with very fine black carbon fibre hard tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.714-A | Pair of tips for MSA12.714 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.715 | Aluminium | 120 mm | 0.010 |

Tweezers with curved and fine black carbon fibre hard tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.715-A | Pair of tips for MSA12.715 | 0.002 |

HOROTEC® ALUMINIUM TWEEZERS



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.750 | Aluminium | 120 mm | 0.090 |

Tweezers with black large and round serrated carbon fibre hard tips for battery change.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.750-A | Pair of tips for MSA12.750 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.721 | Aluminium | 123 mm | 0.010 |

Tweezers with large and square white Delrin® soft tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.721-A | Pair of tips for MSA12.721 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.722 | Aluminium | 130 mm | 0.010 |

Tweezers with large and round white Delrin® soft tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.722-A | Pair of tips for MSA12.722 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.723 | Aluminium | 130 mm | 0.010 |

Tweezers with fine white Delrin® soft tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.723-A | Pair of tips for MSA12.723 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.724 | Aluminium | 130 mm | 0.010 |

Tweezers with very fine white Delrin® soft tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.724-A | Pair of tips for MSA12.724 | 0.002 |



| MSA | Material | Length | Kg |
|--------|-----------|--------|-------|
| 12.725 | Aluminium | 120 mm | 0.010 |

Tweezers with curved and fine white Delrin® soft tips.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 12.725-A | Pair of tips for MSA12.725 | 0.002 |

Watch making HOROSWISS® tweezers are specially made in standard polish and at competitive prices. The tips are perfectly aligned with a neat finish. Steels and other alloys are carefully selected to ensure a very good Swiss Made quality. For daily jobs requiring precise and fine tweezers.



MSA12.811-x Stainless steel
 MSA12.812-x Antimagnetic steel 316L
 MSA12.813-x Brass



00

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.811-00 | Stainless steel | 120 mm | 0.022 |
| 12.812-00 | Antimagnetic steel 316L | 120 mm | 0.022 |

Thick tweezers with flat tips, Geneva shape.



0

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.811-0 | Stainless steel | 120 mm | 0.015 |
| 12.812-0 | Antimagnetic steel 316L | 120 mm | 0.015 |

Fine tweezers, Geneva shape.



1

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.811-1 | Stainless steel | 120 mm | 0.015 |
| 12.812-1 | Antimagnetic steel 316L | 120 mm | 0.015 |

Strong tweezers.



2

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.811-2 | Stainless steel | 120 mm | 0.016 |
| 12.812-2 | Antimagnetic steel 316L | 120 mm | 0.014 |

Strong tweezers with fine and flat tips.



3

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.812-3 | Antimagnetic steel 316L | 120 mm | 0.015 |

Fine tweezers for hairsprings.

HOROSWISS® TWEEZERS

HoroSwiss
SWISS MADE



3C

| MSA | Material | Length | Kg |
|------------------|-------------------------|--------|-------|
| 12.812-3C | Antimagnetic steel 316L | 110 mm | 0.013 |

Fine tweezers for hairsprings.

HoroSwiss
SWISS MADE



4

| MSA | Material | Length | Kg |
|-----------------|-------------------------|--------|-------|
| 12.811-4 | Stainless steel | 110 mm | 0.013 |
| 12.812-4 | Antimagnetic steel 316L | 110 mm | 0.013 |

Tweezers with long and fine tips for hairsprings.

HoroSwiss
SWISS MADE



5

| MSA | Material | Length | Kg |
|-----------------|-------------------------|--------|-------|
| 12.812-5 | Antimagnetic steel 316L | 110 mm | 0.014 |

Short and extra-fine tweezers for hairsprings.

HoroSwiss
SWISS MADE



AA

| MSA | Material | Length | Kg |
|------------------|-------------------------|--------|-------|
| 12.811-AA | Stainless steel | 125 mm | 0.017 |
| 12.812-AA | Antimagnetic steel 316L | 125 mm | 0.017 |
| 12.813-AA | Brass | 125 mm | 0.021 |

Strong and elegant tweezers for ordinary use.

HoroSwiss
SWISS MADE



B5

| MSA | Material | Length | Kg |
|------------------|-------------------------|--------|-------|
| 12.812-B5 | Antimagnetic steel 316L | 128 mm | 0.019 |

Strong tweezers with very hard tips.

HoroSwiss
SWISS MADE



MM

| MSA | Material | Length | Kg |
|------------------|----------|--------|-------|
| 12.813-MM | Brass | 120 mm | 0.023 |

Tweezers for hairsprings.

PRECITEC® tweezers. For occasional work requiring tweezers at a very competitive price.



MSA12.901-x Stainless steel
 MSA12.902-x 100% antimagnetic steel
 MSA12.903-x Brass



00

| MSA | Material | Length | Kg |
|-----------|-----------------|--------|-------|
| 12.901-00 | Stainless steel | 115 mm | 0.021 |

Thick tweezers with flat tips, Geneva shape.



0

| MSA | Material | Length | Kg |
|----------|-----------------|--------|-------|
| 12.901-0 | Stainless steel | 115 mm | 0.018 |

Fine tweezers, Geneva shape.



1

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-1 | Stainless steel | 120 mm | 0.019 |
| 12.902-1 | 100% antimagnetic steel | 120 mm | 0.019 |

Strong tweezers.



2

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-2 | Stainless steel | 120 mm | 0.020 |
| 12.902-2 | 100% antimagnetic steel | 120 mm | 0.020 |

Strong tweezers with fine and flat tips.



3

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-3 | Stainless steel | 120 mm | 0.020 |
| 12.902-3 | 100% antimagnetic steel | 120 mm | 0.022 |

Fine tweezers for hairsprings.



3C

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.901-3C | Stainless steel | 110 mm | 0.014 |
| 12.902-3C | 100% antimagnetic steel | 110 mm | 0.016 |

Fine tweezers for hairsprings.



4

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-4 | Stainless steel | 110 mm | 0.018 |
| 12.902-4 | 100% antimagnetic steel | 110 mm | 0.020 |

Tweezers with long and fine tips for hairsprings.



5

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-5 | Stainless steel | 110 mm | 0.016 |
| 12.902-5 | 100% antimagnetic steel | 110 mm | 0.020 |

Extra-fine tweezers for hairsprings.

PRECITEC® TWEEZERS

PRECITEC
QUALITY



6

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-6 | Stainless steel | 115 mm | 0.023 |
| 12.902-6 | 100% antimagnetic steel | 115 mm | 0.022 |

Tweezers hook shape and fine tips.

PRECITEC
QUALITY



7

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-7 | Stainless steel | 120 mm | 0.020 |
| 12.902-7 | 100% antimagnetic steel | 120 mm | 0.022 |

Curved and extra-fine tweezers for hairsplains.

PRECITEC
QUALITY



AA

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.901-AA | Stainless steel | 125 mm | 0.022 |
| 12.902-AA | 100% antimagnetic steel | 125 mm | 0.024 |
| 12.903-AA | Brass | 125 mm | 0.022 |

Strong and elegant tweezers, for ordinary use.

PRECITEC
QUALITY



F

| MSA | Material | Length | Kg |
|----------|-------------------------|--------|-------|
| 12.901-F | Stainless steel | 115 mm | 0.017 |
| 12.902-F | 100% antimagnetic steel | 115 mm | 0.019 |

Tweezers with flat tips for straightening hands.

PRECITEC
QUALITY



MM

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.902-MM | 100% antimagnetic steel | 125 mm | 0.019 |
| 12.903-MM | Brass | 125 mm | 0.023 |

Tweezers for assembling.

PRECITEC
QUALITY



SS

| MSA | Material | Length | Kg |
|-----------|-------------------------|--------|-------|
| 12.901-SS | Stainless steel | 135 mm | 0.019 |
| 12.902-SS | 100% antimagnetic steel | 135 mm | 0.019 |

Simple tweezers.

Storage support.

HOROTEC
SWISS



| MSA | Size | Kg |
|--------|--------------------|-------|
| 12.398 | 145 x 150 x 120 mm | 0.278 |

Storage support in solid beech for 12 tweezers.
Useful for storing the tweezers in the best conditions.



| MSA | Model | Length | Kg |
|----------|--------------------|--------|-------|
| 12.651-A | 3 claws | 125 mm | 0.016 |
| 12.651-C | 3 claws (economic) | 125 mm | 0.016 |
| 12.651-B | 4 claws | 125 mm | 0.016 |

Nickel-plated tweezers for stones, with return spring.



| MSA | Model | Length | Kg |
|--------|-------|--------|-------|
| 12.662 | P35 | 120 mm | 0.005 |

SIPEL® tweezers in synthetic material, tips width 3.20 mm.



| MSA | Material | Length | Kg |
|--------|-----------------|--------|-------|
| 12.910 | Stainless steel | 208 mm | 0.049 |

Stainless steel tweezers with sheathed tips for handling parts under steam jet of ELMASTEAM.



See chapter PERF.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 12.649 | Ø 12.5 x 150 mm | 0.040 |

Kit Vacuum PEN-VAC Original ESD SAFE with 6 silicone probes + cups, high temperature resistant (230° C). Aluminium body pen with clip. Ideal for picking up flat and very fragile parts up to 200 grams (dials, main plate, etc.).

Contents :

| MSA | Item | Kg |
|--------------|---------------------------|-------|
| 12.649-A | Pen-Vac body | 0.030 |
| 12.649-B (1) | Bent probe, Ø 9.53 mm | 0.001 |
| 12.649-C (2) | Straight probe, Ø 9.53 mm | 0.001 |
| 12.649-D (1) | Bent probe, Ø 6.35 mm | 0.001 |
| 12.649-E (2) | Straight probe, Ø 6.35 mm | 0.001 |
| 12.649-F (1) | Bent probe, Ø 3.18 mm | 0.001 |
| 12.649-G (2) | Straight probe, Ø 3.18 mm | 0.001 |
| 12.649-H (3) | Cup, Ø 9.53 mm | 0.001 |
| 12.649-J (3) | Cup, Ø 6.35 mm | 0.001 |
| 12.649-K (3) | Cup, Ø 3.18 mm | 0.001 |



13



UNIVERSAL CORRECTING PRESS

13 - 2

JEWELLING PRESSES

13 - 3

PRESSES FOR RIVETING AND MILLING

13 - 11

STAKING TOOL FOR MILL

13 - 16

INCABLOC® / KIF®

13 - 17



UNIVERSAL CORRECTING PRESS

Universal correcting press.

HOROTEC



| MSA | Kg |
|---------------|----|
| 13.010 | - |

Universal correcting press, facilitates the work of milling, drilling, tapping, deburring, chamfering, reaming, etc.
Wide range of tightening chucks P 4.5 type to be mounted on the broach, fine adjustment of the working height.
Large stainless steel work plate and dies adapter.
Compatible with all HOROTEC® screw-on dies.

Contents :

- 1 press
- 1 tip 1° angle MSA13.010-01
- 1 tip 2° angle MSA13.010-02
- 1 tightening chuck P 4.5 type Ø 3 mm MSA03.875-300
- 1 dies adapter MSA13.010-AD
- 1 ring with knurled knob MSA13.010-BA
- 1 broach for tightening chucks P 4.5 type MSA13.010-BR
- 1 Allen key MSA13.010-CL
- 1 stainless steel table Ø 60 mm MSA13.010-TA.

Spare parts :

| MSA | Item | Kg |
|-------------------|---|-------|
| 03.875-300 | Chuck P 4.5 type, Ø 3.00 mm | 0.002 |
| 13.010-01 | Tip 1° angle | - |
| 13.010-02 | Tip 2° angle | - |
| 13.010-AD | Dies adapter | - |
| 13.010-BA | Ring with knurled knob | - |
| 13.010-BR | Broach for tightening chucks P 4.5 type | - |
| 13.010-CL | Allen key | - |
| 13.010-TA | Stainless steel table Ø 60 mm | - |

Optional tightening :

| MSA | Item | Kg |
|-------------------|-----------------------------|-------|
| 03.875-100 | Chuck P 4.5 type, Ø 1.00 mm | 0.002 |
| 03.875-150 | Chuck P 4.5 type, Ø 1.50 mm | 0.002 |
| 03.875-160 | Chuck P 4.5 type, Ø 1.60 mm | 0.002 |
| 03.875-200 | Chuck P 4.5 type, Ø 2.00 mm | 0.002 |
| 03.875-235 | Chuck P 4.5 type, Ø 2.35 mm | 0.002 |
| 03.875-250 | Chuck P 4.5 type, Ø 2.50 mm | 0.002 |
| 03.875-300 | Chuck P 4.5 type, Ø 3.00 mm | 0.002 |
| 03.875-400 | Chuck P 4.5 type, Ø 4.00 mm | 0.002 |



| MSA | Kg |
|-------------------|-------|
| 13.010-KIT | 0.096 |

Kit for dial feet.

Contents :

- 1x MSA22.558-270 : hard metal end mill , L25 mm, shank Ø 3.00, cutting Ø 2.70 mm
- 1x MSA17.102-B : simple oiler Ø 5 mm, blue, medium needle, L70 mm
- 1x MSA26.587-020 : instant adhesive LOCTITE 435, 20 g
- 1x MSA99.153 : assortment of adhesive dial feet, L3 mm, 60 pieces.

Jewelling presses.



| MSA | Ø broach reaming | Ø base reaming | Kg |
|----------|------------------|----------------|-------|
| 13.100 | 3 mm | 4 mm | 0.600 |
| 13.100-4 | 4 mm | 4 mm | 0.600 |

Jewelling press with micrometric screw for rectifying endshakes.

- Opening : 25 mm
- Total height : 120 mm
- Base : 80 x 45 mm
- Table : Ø 20 mm
- Micrometric screw pitch = 1.00 mm / 50 divisions (1 division = 0.02 mm).

Spare part :

| MSA | Item |
|----------|---------------|
| 13.101-T | Table Ø 40 mm |



| MSA | Ø broach reaming | Ø base reaming | Kg |
|----------|------------------|----------------|-------|
| 13.102-3 | 3 mm | 4 mm | 0.600 |
| 13.102-4 | 4 mm | 4 mm | 0.600 |

Special jewelling press with micrometric screw (FINE PITCH) for rectifying endshakes.

- Opening : 25 mm
- Total height : 120 mm
- Base : 80 x 45 mm
- Table : Ø 20 mm
- Micrometric screw pitch = 0.50 mm / 50 divisions (1 division = 0.01 mm).

Spare part :

| MSA | Item |
|----------|---------------|
| 13.101-T | Table Ø 40 mm |



| MSA | Ø broach reaming | Ø base reaming | Kg |
|----------|------------------|----------------|-------|
| 13.101 | 3 mm | 4 mm | 1.130 |
| 13.101-4 | 4 mm | 4 mm | 1.130 |

Jewelling press with lever and micrometric screw for rectifying endshakes, graduation 0.02 mm.

- Opening : 30 mm
- Total height : 125 mm
- Base : 90 x 50 mm
- Table : Ø 23 mm.

Spare parts :

| MSA | Item |
|----------|-----------------------------|
| 13.101-C | Broach Ø 3 mm, length 73 mm |
| 13.101-A | Broach Ø 4 mm, length 73 mm |
| 13.101-B | Lever |
| 13.101-T | Table Ø 40 mm |



| MSA | Ø broach reaming | Ø base reaming | Kg |
|-----------|------------------|----------------|-------|
| 13.104 | 6 mm | 14 mm | 3.260 |
| 13.104-12 | 6 mm | 12 mm | 3.260 |

Large model jewelling press with lever and micrometric screw for rectifying endshakes, graduation 0.02 mm.

- Maximum distance between the table and the broach : 50 mm
- Opening : 35 mm
- Total height : 200 mm
- Base length : 140 mm
- Table : Ø 35 mm.

Pushers and stakes for jewellery presses.



ASSORTMENT

| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.110 | With broach Ø 3 mm | 0.039 |
| 13.110-4 | With broach Ø 4 mm | 0.039 |

Assortment no. 1 including 8 pump pushers and 3 stakes.



ASSORTMENT

| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.111 | With broach Ø 3 mm | 0.086 |
| 13.111-4 | With broach Ø 4 mm | 0.086 |

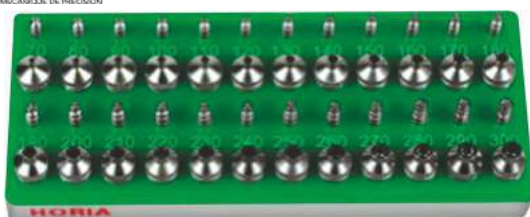
Assortment no. 3 including 12 pump pushers and 6 stakes.



ASSORTMENT

| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.113 | With broach Ø 3 mm | 0.124 |
| 13.113-4 | With broach Ø 4 mm | 0.124 |

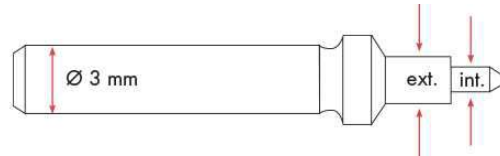
Assortment no. 2 including 15 pump pushers, 15 stakes, 1 set for the pallet-staff and 1 for pushing darts.



ASSORTMENT

| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.112 | With broach Ø 3 mm | 0.188 |
| 13.112-4 | With broach Ø 4 mm | 0.188 |

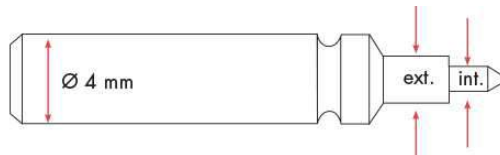
Assortment no. 4 including 24 pump pushers and 24 stakes.



| MSA | No. pusher | Internal Ø | External Ø | Kg |
|-------------|------------|------------|------------|-------|
| 13.120-3040 | 40 | 0.20 mm | 0.40 mm | 0.001 |
| 13.120-3050 | 50 | 0.20 mm | 0.50 mm | 0.001 |
| 13.120-3060 | 60 | 0.40 mm | 0.55 mm | 0.001 |
| 13.120-3070 | 70 | 0.40 mm | 0.65 mm | 0.001 |
| 13.120-3080 | 80 | 0.40 mm | 0.75 mm | 0.001 |
| 13.120-3090 | 90 | 0.50 mm | 0.85 mm | 0.001 |
| 13.120-3100 | 100 | 0.50 mm | 0.95 mm | 0.001 |
| 13.120-3110 | 110 | 0.50 mm | 1.05 mm | 0.001 |
| 13.120-3120 | 120 | 0.50 mm | 1.15 mm | 0.001 |
| 13.120-3130 | 130 | 0.70 mm | 1.25 mm | 0.001 |
| 13.120-3140 | 140 | 0.70 mm | 1.35 mm | 0.001 |
| 13.120-3150 | 150 | 0.70 mm | 1.45 mm | 0.001 |
| 13.120-3160 | 160 | 0.70 mm | 1.55 mm | 0.001 |
| 13.120-3170 | 170 | 0.70 mm | 1.65 mm | 0.001 |

| MSA | No. pusher | Internal Ø | External Ø | Kg |
|-------------|------------|------------|------------|-------|
| 13.120-3180 | 180 | 0.70 mm | 1.75 mm | 0.001 |
| 13.120-3190 | 190 | 0.80 mm | 1.85 mm | 0.001 |
| 13.120-3200 | 200 | 0.80 mm | 1.95 mm | 0.001 |
| 13.120-3210 | 210 | 0.80 mm | 2.05 mm | 0.001 |
| 13.120-3220 | 220 | 0.80 mm | 2.15 mm | 0.001 |
| 13.120-3230 | 230 | 0.80 mm | 2.25 mm | 0.001 |
| 13.120-3240 | 240 | 0.80 mm | 2.35 mm | 0.001 |
| 13.120-3250 | 250 | 0.80 mm | 2.45 mm | 0.001 |
| 13.120-3260 | 260 | 0.80 mm | 2.55 mm | 0.001 |
| 13.120-3270 | 270 | 0.80 mm | 2.65 mm | 0.001 |
| 13.120-3280 | 280 | 0.80 mm | 2.75 mm | 0.001 |
| 13.120-3290 | 290 | 0.80 mm | 2.85 mm | 0.001 |
| 13.120-3300 | 300 | 0.80 mm | 2.95 mm | 0.001 |

Pump pushers for Ø 3 mm broaches of presses MSA13.100, MSA13.101 and MSA13.102-3.



| MSA | No. pusher | Internal Ø | External Ø | Kg |
|-------------|------------|------------|------------|-------|
| 13.120-4040 | 40 | 0.20 mm | 0.40 mm | 0.001 |
| 13.120-4050 | 50 | 0.20 mm | 0.50 mm | 0.001 |
| 13.120-4060 | 60 | 0.40 mm | 0.55 mm | 0.001 |
| 13.120-4070 | 70 | 0.40 mm | 0.65 mm | 0.001 |
| 13.120-4080 | 80 | 0.40 mm | 0.75 mm | 0.001 |
| 13.120-4090 | 90 | 0.50 mm | 0.85 mm | 0.001 |
| 13.120-4100 | 100 | 0.50 mm | 0.95 mm | 0.001 |
| 13.120-4110 | 110 | 0.50 mm | 1.05 mm | 0.001 |
| 13.120-4120 | 120 | 0.50 mm | 1.15 mm | 0.001 |
| 13.120-4130 | 130 | 0.70 mm | 1.25 mm | 0.001 |
| 13.120-4140 | 140 | 0.70 mm | 1.35 mm | 0.001 |
| 13.120-4150 | 150 | 0.70 mm | 1.45 mm | 0.001 |
| 13.120-4160 | 160 | 0.70 mm | 1.55 mm | 0.001 |
| 13.120-4170 | 170 | 0.70 mm | 1.65 mm | 0.001 |

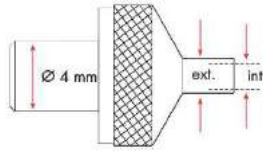
| MSA | No. pusher | Internal Ø | External Ø | Kg |
|-------------|------------|------------|------------|-------|
| 13.120-4180 | 180 | 0.70 mm | 1.75 mm | 0.001 |
| 13.120-4190 | 190 | 0.80 mm | 1.85 mm | 0.001 |
| 13.120-4200 | 200 | 0.80 mm | 1.95 mm | 0.001 |
| 13.120-4210 | 210 | 0.80 mm | 2.05 mm | 0.001 |
| 13.120-4220 | 220 | 0.80 mm | 2.15 mm | 0.001 |
| 13.120-4230 | 230 | 0.80 mm | 2.25 mm | 0.001 |
| 13.120-4240 | 240 | 0.80 mm | 2.35 mm | 0.001 |
| 13.120-4250 | 250 | 0.80 mm | 2.45 mm | 0.001 |
| 13.120-4260 | 260 | 0.80 mm | 2.55 mm | 0.001 |
| 13.120-4270 | 270 | 0.80 mm | 2.65 mm | 0.001 |
| 13.120-4280 | 280 | 0.80 mm | 2.75 mm | 0.001 |
| 13.120-4290 | 290 | 0.80 mm | 2.85 mm | 0.001 |
| 13.120-4300 | 300 | 0.80 mm | 2.95 mm | 0.001 |

Pump pushers for Ø 4 mm broaches of presses MSA13.100-4, MSA13.101-4 and MSA13.102-4.



Spare part :

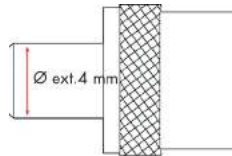
| MSA | Item | Kg |
|----------|--|-------|
| 13.120-R | Spring for pump pushers MSA13.120-xxxx | 0.001 |



| MSA | No. stake | Internal Ø | External Ø | Kg |
|------------|-----------|------------|------------|-------|
| 13.121-040 | 40 | 0.40 mm | 1.50 mm | 0.002 |
| 13.121-050 | 50 | 0.60 mm | 1.00 mm | 0.002 |
| 13.121-060 | 60 | 0.70 mm | 1.40 mm | 0.002 |
| 13.121-070 | 70 | 0.80 mm | 1.50 mm | 0.002 |
| 13.121-080 | 80 | 0.90 mm | 1.60 mm | 0.002 |
| 13.121-090 | 90 | 1.00 mm | 1.80 mm | 0.002 |
| 13.121-100 | 100 | 1.10 mm | 1.90 mm | 0.002 |
| 13.121-110 | 110 | 1.20 mm | 2.00 mm | 0.002 |
| 13.121-120 | 120 | 1.30 mm | 2.10 mm | 0.002 |
| 13.121-130 | 130 | 1.40 mm | 2.20 mm | 0.002 |
| 13.121-140 | 140 | 1.50 mm | 2.40 mm | 0.002 |
| 13.121-150 | 150 | 1.60 mm | 2.50 mm | 0.002 |
| 13.121-160 | 160 | 1.70 mm | 2.70 mm | 0.002 |
| 13.121-170 | 170 | 1.80 mm | 2.90 mm | 0.002 |

| MSA | No. stake | Internal Ø | External Ø | Kg |
|------------|-----------|------------|------------|-------|
| 13.121-180 | 180 | 1.90 mm | 3.00 mm | 0.002 |
| 13.121-190 | 190 | 2.00 mm | 3.20 mm | 0.002 |
| 13.121-200 | 200 | 2.10 mm | 3.30 mm | 0.002 |
| 13.121-210 | 210 | 2.20 mm | 3.40 mm | 0.002 |
| 13.121-220 | 220 | 2.30 mm | 3.50 mm | 0.002 |
| 13.121-230 | 230 | 2.40 mm | 3.60 mm | 0.002 |
| 13.121-240 | 240 | 2.50 mm | 3.80 mm | 0.002 |
| 13.121-250 | 250 | 2.60 mm | 4.00 mm | 0.002 |
| 13.121-260 | 260 | 2.70 mm | 4.10 mm | 0.002 |
| 13.121-270 | 270 | 2.80 mm | 4.20 mm | 0.002 |
| 13.121-280 | 280 | 2.90 mm | 4.30 mm | 0.002 |
| 13.121-290 | 290 | 3.00 mm | 4.40 mm | 0.002 |
| 13.121-300 | 300 | 3.10 mm | 4.50 mm | 0.002 |

Stakes Ø 4 mm for presses MSA13.100, MSA13.100-4, MSA13.101, MSA13.101-4, MSA13.102-3 and MSA13.102-4.

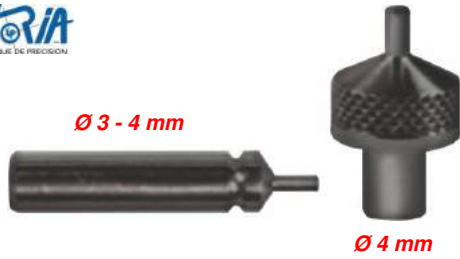


| MSA | No. stake | External Ø | Kg |
|------------|-----------|------------|-------|
| 13.130-070 | 070 | 0.70 mm | 0.003 |
| 13.130-080 | 080 | 0.80 mm | 0.003 |
| 13.130-090 | 090 | 0.90 mm | 0.003 |
| 13.130-100 | 100 | 1.00 mm | 0.003 |
| 13.130-130 | 130 | 1.30 mm | 0.003 |
| 13.130-150 | 150 | 1.50 mm | 0.003 |
| 13.130-190 | 190 | 1.90 mm | 0.003 |
| 13.130-200 | 200 | 2.00 mm | 0.003 |

| MSA | No. stake | External Ø | Kg |
|------------|-----------|------------|-------|
| 13.130-250 | 250 | 2.50 mm | 0.003 |
| 13.130-300 | 300 | 3.00 mm | 0.003 |
| 13.130-400 | ** | 4.00 mm | 0.003 |
| 13.130-500 | 500 | 5.00 mm | 0.003 |
| 13.130-600 | ** | 6.00 mm | 0.003 |
| 13.130-700 | 700 | 7.00 mm | 0.003 |
| 13.130-800 | ** | 8.00 mm | 0.003 |

Special flat stakes.

Other diameters available upon request.



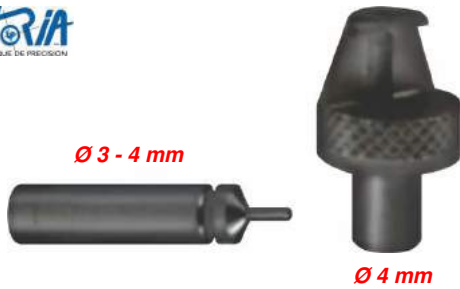
ASSORTMENT

| MSA | Use | Kg |
|----------|---|-------|
| 13.122 | With MSA13.100 + MSA13.101 + MSA13.102-3 (broach Ø 3 mm) | 0.002 |
| 13.122-4 | With MSA13.100-4 + MSA13.101-4 + MSA13.102-4 (broach Ø 4 mm) | 0.002 |

Assortment of 1 pump pusher and 1 stake for pallet-staff.

Spare parts :

| MSA | Item | Kg | |
|-----------|---|-------|--|
| 13.122-P | Pump pusher for broach Ø 3 mm, Ø int.0.2 - Ø ext. 0.8 mm | 0.001 | |
| 13.122-P4 | Pump pusher for broach Ø 4 mm, Ø int.0.2 - Ø ext. 0.8 mm | 0.001 | |
| 13.122-T4 | Stake Ø 4 mm for pallet-staff, Ø int.0.5 - Ø ext. 0.8 mm | 0.002 | |



ASSORTMENT

| MSA | Use | Kg |
|----------|---|-------|
| 13.123 | With MSA13.100 + MSA13.101 + MSA13.102-3 (broach Ø 3 mm) | 0.002 |
| 13.123-4 | With MSA13.100-4 + MSA13.101-4 + MSA13.102-4 (broach Ø 4 mm) | 0.002 |

Assortment of 1 pump pusher and 1 stake for pushing darts.

Spare parts :

| MSA | Item | Kg | |
|-----------|--------------------------------|-------|--|
| 13.123-P | Pump pusher for broach Ø 3 mm | 0.001 | |
| 13.123-P4 | Pump pusher for broach Ø 4 mm | 0.001 | |
| 13.123-T4 | Stake Ø 4 mm for pushing darts | 0.002 | |



Full pusher for broaches Ø 3 mm.

| MSA | No. | Ø | Kg | MSA | No. | Ø | Kg | MSA | No. | Ø | Kg |
|-------------|-----|---------|-------|-------------|-----|---------|-------|-------------|-----|---------|-------|
| 13.124-3015 | 15 | 0.15 mm | 0.001 | 13.124-3115 | 115 | 1.15 mm | 0.001 | 13.124-3210 | 210 | 2.10 mm | 0.001 |
| 13.124-3020 | 20 | 0.20 mm | 0.001 | 13.124-3120 | 120 | 1.20 mm | 0.001 | 13.124-3215 | 215 | 2.15 mm | 0.001 |
| 13.124-3025 | 25 | 0.25 mm | 0.001 | 13.124-3125 | 125 | 1.25 mm | 0.001 | 13.124-3220 | 220 | 2.20 mm | 0.001 |
| 13.124-3030 | 30 | 0.30 mm | 0.001 | 13.124-3130 | 130 | 1.30 mm | 0.001 | 13.124-3225 | 225 | 2.25 mm | 0.001 |
| 13.124-3035 | 35 | 0.35 mm | 0.001 | 13.124-3135 | 135 | 1.35 mm | 0.001 | 13.124-3230 | 230 | 2.30 mm | 0.001 |
| 13.124-3040 | 40 | 0.40 mm | 0.001 | 13.124-3140 | 140 | 1.40 mm | 0.001 | 13.124-3235 | 235 | 2.35 mm | 0.001 |
| 13.124-3045 | 45 | 0.45 mm | 0.001 | 13.124-3145 | 145 | 1.45 mm | 0.001 | 13.124-3240 | 240 | 2.40 mm | 0.001 |
| 13.124-3050 | 50 | 0.50 mm | 0.001 | 13.124-3150 | 150 | 1.50 mm | 0.001 | 13.124-3245 | 245 | 2.45 mm | 0.001 |
| 13.124-3055 | 55 | 0.55 mm | 0.001 | 13.124-3155 | 155 | 1.55 mm | 0.001 | 13.124-3250 | 250 | 2.50 mm | 0.001 |
| 13.124-3060 | 60 | 0.60 mm | 0.001 | 13.124-3160 | 160 | 1.60 mm | 0.001 | 13.124-3255 | 255 | 2.55 mm | 0.001 |
| 13.124-3065 | 65 | 0.65 mm | 0.001 | 13.124-3165 | 165 | 1.65 mm | 0.001 | 13.124-3260 | 260 | 2.60 mm | 0.001 |
| 13.124-3070 | 70 | 0.70 mm | 0.001 | 13.124-3170 | 170 | 1.70 mm | 0.001 | 13.124-3265 | 265 | 2.65 mm | 0.001 |
| 13.124-3075 | 75 | 0.75 mm | 0.001 | 13.124-3175 | 175 | 1.75 mm | 0.001 | 13.124-3270 | 270 | 2.70 mm | 0.001 |
| 13.124-3080 | 80 | 0.80 mm | 0.001 | 13.124-3180 | 180 | 1.80 mm | 0.001 | 13.124-3275 | 275 | 2.75 mm | 0.001 |
| 13.124-3085 | 85 | 0.85 mm | 0.001 | 13.124-3185 | 185 | 1.85 mm | 0.001 | 13.124-3280 | 280 | 2.80 mm | 0.001 |
| 13.124-3090 | 90 | 0.90 mm | 0.001 | 13.124-3190 | 190 | 1.90 mm | 0.001 | 13.124-3285 | 285 | 2.85 mm | 0.001 |
| 13.124-3095 | 95 | 0.95 mm | 0.001 | 13.124-3195 | 195 | 1.95 mm | 0.001 | 13.124-3290 | 290 | 2.90 mm | 0.001 |
| 13.124-3100 | 100 | 1.00 mm | 0.001 | 13.124-3200 | 200 | 2.00 mm | 0.001 | 13.124-3295 | 295 | 2.95 mm | 0.001 |
| 13.124-3105 | 105 | 1.05 mm | 0.001 | 13.124-3205 | 205 | 2.05 mm | 0.001 | 13.124-3300 | 300 | 3.00 mm | 0.001 |
| 13.124-3110 | 110 | 1.10 mm | 0.001 | | | | | | | | |



Full pusher for broaches Ø 4 mm.

| MSA | No. | Ø | Kg | MSA | No. | Ø | Kg | MSA | No. | Ø | Kg |
|-------------|-----|---------|-------|-------------|-----|---------|-------|-------------|-----|---------|-------|
| 13.124-4015 | 15 | 0.15 mm | 0.001 | 13.124-4145 | 145 | 1.45 mm | 0.001 | 13.124-4275 | 275 | 2.75 mm | 0.001 |
| 13.124-4020 | 20 | 0.20 mm | 0.001 | 13.124-4150 | 150 | 1.50 mm | 0.001 | 13.124-4280 | 280 | 2.80 mm | 0.001 |
| 13.124-4025 | 25 | 0.25 mm | 0.001 | 13.124-4155 | 155 | 1.55 mm | 0.001 | 13.124-4285 | 285 | 2.85 mm | 0.001 |
| 13.124-4030 | 30 | 0.30 mm | 0.001 | 13.124-4160 | 160 | 1.60 mm | 0.001 | 13.124-4290 | 290 | 2.90 mm | 0.001 |
| 13.124-4035 | 35 | 0.35 mm | 0.001 | 13.124-4165 | 165 | 1.65 mm | 0.001 | 13.124-4295 | 295 | 2.95 mm | 0.001 |
| 13.124-4040 | 40 | 0.40 mm | 0.001 | 13.124-4170 | 170 | 1.70 mm | 0.001 | 13.124-4300 | 300 | 3.00 mm | 0.001 |
| 13.124-4045 | 45 | 0.45 mm | 0.001 | 13.124-4175 | 175 | 1.75 mm | 0.001 | 13.124-4305 | 305 | 3.05 mm | 0.001 |
| 13.124-4050 | 50 | 0.50 mm | 0.001 | 13.124-4180 | 180 | 1.80 mm | 0.001 | 13.124-4310 | 310 | 3.10 mm | 0.001 |
| 13.124-4055 | 55 | 0.55 mm | 0.001 | 13.124-4185 | 185 | 1.85 mm | 0.001 | 13.124-4315 | 315 | 3.15 mm | 0.001 |
| 13.124-4060 | 60 | 0.60 mm | 0.001 | 13.124-4190 | 190 | 1.90 mm | 0.001 | 13.124-4320 | 320 | 3.20 mm | 0.001 |
| 13.124-4065 | 65 | 0.65 mm | 0.001 | 13.124-4195 | 195 | 1.95 mm | 0.001 | 13.124-4325 | 325 | 3.25 mm | 0.001 |
| 13.124-4070 | 70 | 0.70 mm | 0.001 | 13.124-4200 | 200 | 2.00 mm | 0.001 | 13.124-4330 | 330 | 3.30 mm | 0.001 |
| 13.124-4075 | 75 | 0.75 mm | 0.001 | 13.124-4205 | 205 | 2.05 mm | 0.001 | 13.124-4335 | 335 | 3.35 mm | 0.001 |
| 13.124-4080 | 80 | 0.80 mm | 0.001 | 13.124-4210 | 210 | 2.10 mm | 0.001 | 13.124-4340 | 340 | 3.40 mm | 0.001 |
| 13.124-4085 | 85 | 0.85 mm | 0.001 | 13.124-4215 | 215 | 2.15 mm | 0.001 | 13.124-4345 | 345 | 3.45 mm | 0.001 |
| 13.124-4090 | 90 | 0.90 mm | 0.001 | 13.124-4220 | 220 | 2.20 mm | 0.001 | 13.124-4350 | 350 | 3.50 mm | 0.001 |
| 13.124-4095 | 95 | 0.95 mm | 0.001 | 13.124-4225 | 225 | 2.25 mm | 0.001 | 13.124-4355 | 355 | 3.55 mm | 0.001 |
| 13.124-4100 | 100 | 1.00 mm | 0.001 | 13.124-4230 | 230 | 2.30 mm | 0.001 | 13.124-4360 | 360 | 3.60 mm | 0.001 |
| 13.124-4105 | 105 | 1.05 mm | 0.001 | 13.124-4235 | 235 | 2.35 mm | 0.001 | 13.124-4365 | 365 | 3.65 mm | 0.001 |
| 13.124-4110 | 110 | 1.10 mm | 0.001 | 13.124-4240 | 240 | 2.40 mm | 0.001 | 13.124-4370 | 370 | 3.70 mm | 0.001 |
| 13.124-4115 | 115 | 1.15 mm | 0.001 | 13.124-4245 | 245 | 2.45 mm | 0.001 | 13.124-4375 | 375 | 3.75 mm | 0.001 |
| 13.124-4120 | 120 | 1.20 mm | 0.001 | 13.124-4250 | 250 | 2.50 mm | 0.001 | 13.124-4380 | 380 | 3.80 mm | 0.001 |
| 13.124-4125 | 125 | 1.25 mm | 0.001 | 13.124-4255 | 255 | 2.55 mm | 0.001 | 13.124-4385 | 385 | 3.85 mm | 0.001 |
| 13.124-4130 | 130 | 1.30 mm | 0.001 | 13.124-4260 | 260 | 2.60 mm | 0.001 | 13.124-4390 | 390 | 3.90 mm | 0.001 |
| 13.124-4135 | 135 | 1.35 mm | 0.001 | 13.124-4265 | 265 | 2.65 mm | 0.001 | 13.124-4395 | 395 | 3.95 mm | 0.001 |
| 13.124-4140 | 140 | 1.40 mm | 0.001 | 13.124-4270 | 270 | 2.70 mm | 0.001 | 13.124-4400 | 400 | 4.00 mm | 0.001 |

Pushers for fitting pins.

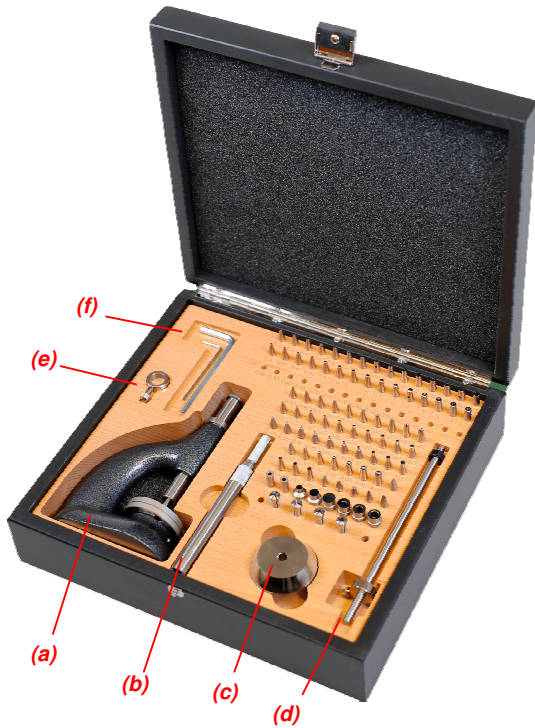


| MSA | No. pusher | Internal Ø | External Ø | Kg |
|------------|------------|------------|------------|-------|
| 13.128-021 | 021 | 0.21 mm | 0.80 mm | 0.001 |
| 13.128-031 | 031 | 0.31 mm | 0.80 mm | 0.001 |
| 13.128-041 | 041 | 0.41 mm | 0.90 mm | 0.001 |
| 13.128-051 | 051 | 0.51 mm | 1.00 mm | 0.001 |
| 13.128-061 | 061 | 0.61 mm | 1.10 mm | 0.001 |
| 13.128-071 | 071 | 0.71 mm | 1.20 mm | 0.001 |
| 13.128-081 | 081 | 0.81 mm | 1.30 mm | 0.001 |
| 13.128-091 | 091 | 0.91 mm | 1.40 mm | 0.001 |
| 13.128-101 | 101 | 1.01 mm | 1.50 mm | 0.001 |

Special pusher for fitting pins Ø 3 mm.
Adjustable inner stop to ensure that pins are always fitting at the same height

Maximum fitting length : 3.00 mm.
External length of the pusher tip : 2.70 mm.

Presses for riveting and milling.



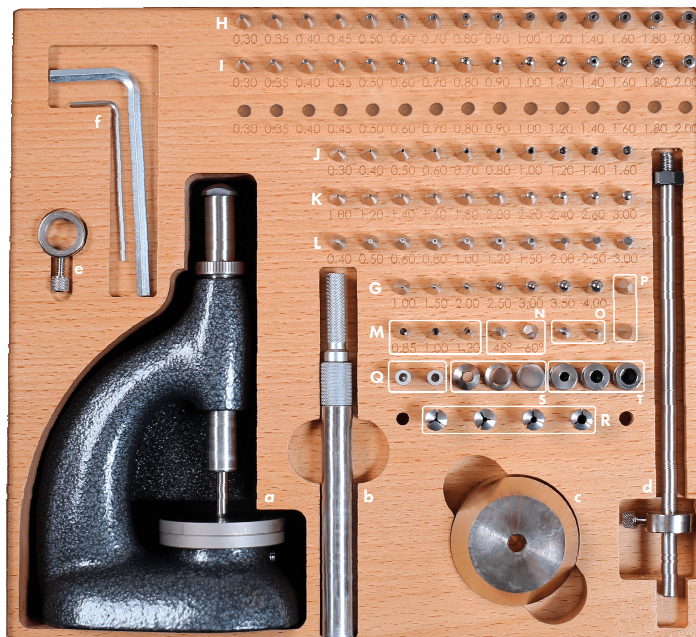
** See details of these components on the following pages

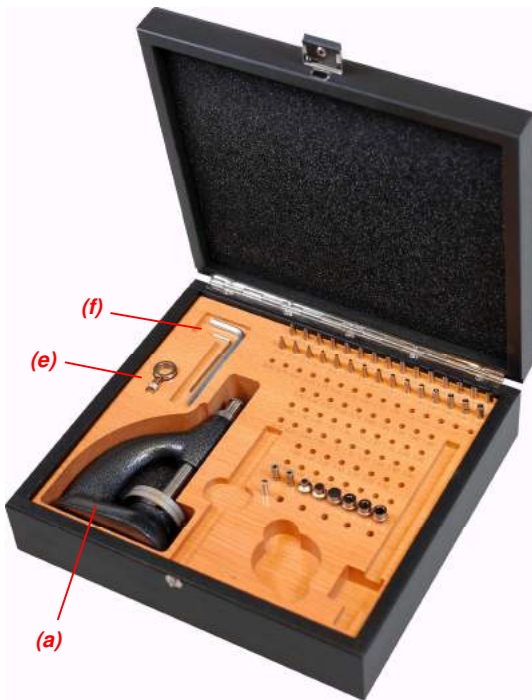
| MSA | Box size | Kg |
|--------|-------------------|-------|
| 13.210 | 240 x 220 x 70 mm | 2.750 |

Press for riveting and milling, full version.
Broach and table reaming Ø 4 mm.
Delivered in a wooden box.

Contents :

| MSA | Item |
|-------------|--|
| 03.856-x ** | (R) ** 4x tightening chuck P4.5 type, Ø 1.0 + 1.5 + 2.0 + 3.0 mm |
| 13.129-x | (T) ** 3x flat pierced stake, Ø 8 / hole Ø 3 + 4 + 5 mm |
| 13.130-x | (S) ** 3x flat stake, Ø 4 / Ø ext. 4 + 6 + 8 mm |
| 13.210-A | Empty box |
| 13.210-B | (a) Press with table + broach + screw, anthracite |
| 13.210-C | (b) Milling broach, for chucks P4.5, Ø ext. 10 x L113.50 mm |
| 13.210-D | (c) Weight for rod, Ø 40 x 25 mm |
| 13.210-E | (d) Rod for use with MSA13.210-C spindle and MSA13.210-D weight |
| 13.210-F | Locknut for shank, Ø 15 / Ø 5 x 5 mm |
| 13.210-G | (e) Locknut for broach, Ø 15 / Ø 10 x 5 mm |
| 13.210-H15 | (f) L Allen wrench, 1.50 mm |
| 13.210-H40 | (f) L Allen wrench, 4.00 mm |
| 13.220-x | (G) ** 7x riveting punch, ball / Ø 1.00 ... 4.00 mm |
| 13.221-x | (H) ** 15x riveting punch, domed pierced / hole Ø 0.30 ... 2.00 mm |
| 13.222-x | (I) ** 15x riveting punch, flat pierced / hole Ø 0.30 ... 2.00 mm |
| 13.223-x | (J) ** 10x riveting punch, concave, pierced / hole Ø 0.30 ... 1.60 mm |
| 13.224-x | (K) ** 10x riveting punch, cylindrical domed / Ø 1.00 ... 3.00 mm |
| 13.225-x | (L) ** 10x riveting punch, cylindrical flat / Ø 0.40 ... 3.00 mm |
| 13.226-x | (M) ** 3x riveting punch, flat pierced ellipse / hole Ø 0.85 ... 1.20 mm |
| 13.227-x | (N) ** 2x riveting punch, conical 45° + 60° / Ø 1.80 + 2.00 mm |
| 13.228-x | (O) ** 2x conical milling point 40° + 60° |
| 13.229-021 | (P) ** Pair of lanturning punches 30°, No. 21 |
| 13.230-04 | ** Cylindrical pin, Ø 4 x L24 mm |
| 13.230-H1 | (Q) ** Reamer holder, No. H1 / Ø 5 x L16 mm / 2° |
| 13.230-H2 | (Q) ** Wheel countersink holder, No. H2 / Ø 5 x L16 mm / 1° |





| MSA | Box size | Kg |
|--------|-------------------|-------|
| 13.211 | 240 x 220 x 70 mm | 2.315 |

Riveting press, light version.
Broach and table reaming Ø 4 mm.

Delivered in a wooden box.

Contents :

| MSA | Item |
|------------|--|
| 13.129-x | (T) ** 3x flat pierced stake, Ø 8 / hole Ø 3 + 4 + 5 mm |
| 13.130-x | (S) ** 3x flat stake, Ø 4 / Ø ext. 4 + 6 + 8 mm |
| 13.210-A | Empty box |
| 13.210-B | (a) Press with table + broach + screw, anthracite |
| 13.210-G | (e) Locknut for broach, Ø 15 / Ø 10 x 5 mm |
| 13.210-H15 | (f) L Allen wrench, 1.50 mm |
| 13.210-H40 | (f) L Allen wrench, 4.00 mm |
| 13.221-x | (H) ** 15x riveting punch, domed pierced / hole Ø 0.30 ... 2.00 mm |
| 13.222-x | (I) ** 15x riveting punch, flat pierced / hole Ø 0.30 ... 2.00 mm |
| 13.230-04 | ** Cylindrical pin, Ø 4 x L24 mm |
| 13.230-H1 | (Q) ** Reamer holder, No. H1 / Ø 5 x L16 mm / 2° |
| 13.230-H2 | (Q) ** Wheel countersink holder, No. H2 / Ø 5 x L16 mm / 1° |

** See details of these components on the following pages

Riveting punches, with ball (delivered with the full version MSA13.210).



| MSA | No. | Ø |
|------------|-----|---------|
| 13.220-100 | 100 | 1.00 mm |
| 13.220-150 | 150 | 1.50 mm |
| 13.220-200 | 200 | 2.00 mm |
| 13.220-250 | 250 | 2.50 mm |

| MSA | No. | Ø |
|------------|-----|---------|
| 13.220-300 | 300 | 3.00 mm |
| 13.220-350 | 350 | 3.50 mm |
| 13.220-400 | 400 | 4.00 mm |

Riveting punches, domed pierced (delivered with the full version MSA13.210 and light version MSA13.211).



| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.221-030 | 30 | 1.50 mm | 0.30 mm |
| 13.221-035 | 35 | 1.60 mm | 0.35 mm |
| 13.221-040 | 40 | 1.70 mm | 0.40 mm |
| 13.221-045 | 45 | 1.80 mm | 0.45 mm |
| 13.221-050 | 50 | 1.90 mm | 0.50 mm |
| 13.221-060 | 60 | 2.10 mm | 0.60 mm |
| 13.221-070 | 70 | 2.30 mm | 0.70 mm |
| 13.221-080 | 80 | 2.50 mm | 0.80 mm |

| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.221-090 | 90 | 2.70 mm | 0.90 mm |
| 13.221-100 | 100 | 3.00 mm | 1.00 mm |
| 13.221-120 | 120 | 3.30 mm | 1.20 mm |
| 13.221-140 | 140 | 3.50 mm | 1.40 mm |
| 13.221-160 | 160 | 3.70 mm | 1.60 mm |
| 13.221-180 | 180 | 3.90 mm | 1.80 mm |
| 13.221-200 | 200 | 4.10 mm | 2.00 mm |

Riveting punches, flat pierced (delivered with the full version MSA13.210 and light version MSA13.211).



| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.222-030 | 30 | 1.50 mm | 0.30 mm |
| 13.222-035 | 35 | 1.60 mm | 0.35 mm |
| 13.222-040 | 40 | 1.70 mm | 0.40 mm |
| 13.222-045 | 45 | 1.80 mm | 0.45 mm |
| 13.222-050 | 50 | 1.90 mm | 0.50 mm |
| 13.222-060 | 60 | 2.10 mm | 0.60 mm |
| 13.222-070 | 70 | 2.30 mm | 0.70 mm |
| 13.222-080 | 80 | 2.50 mm | 0.80 mm |

| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.222-090 | 90 | 2.70 mm | 0.90 mm |
| 13.222-100 | 100 | 3.00 mm | 1.00 mm |
| 13.222-120 | 120 | 3.30 mm | 1.20 mm |
| 13.222-140 | 140 | 3.50 mm | 1.40 mm |
| 13.222-160 | 160 | 3.70 mm | 1.60 mm |
| 13.222-180 | 180 | 3.90 mm | 1.80 mm |
| 13.222-200 | 200 | 4.10 mm | 2.00 mm |

Riveting punches, concave pierced (delivered with the full version MSA13.210).



| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.223-030 | 30 | 0.70 mm | 0.30 mm |
| 13.223-040 | 40 | 0.90 mm | 0.40 mm |
| 13.223-050 | 50 | 1.30 mm | 0.50 mm |
| 13.223-060 | 60 | 1.60 mm | 0.60 mm |
| 13.223-070 | 70 | 2.00 mm | 0.70 mm |

| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.223-080 | 80 | 2.10 mm | 0.80 mm |
| 13.223-100 | 100 | 2.50 mm | 1.00 mm |
| 13.223-120 | 120 | 2.70 mm | 1.20 mm |
| 13.223-140 | 140 | 3.00 mm | 1.40 mm |
| 13.223-160 | 160 | 3.10 mm | 1.60 mm |

Riveting punches, cylindrical domed (delivered with the full version MSA13.210).



| MSA | No. | Ø |
|------------|-----|---------|
| 13.224-100 | 100 | 1.00 mm |
| 13.224-120 | 120 | 1.20 mm |
| 13.224-140 | 140 | 1.40 mm |
| 13.224-160 | 160 | 1.60 mm |
| 13.224-180 | 180 | 1.80 mm |

| MSA | No. | Ø |
|------------|-----|---------|
| 13.224-200 | 200 | 2.00 mm |
| 13.224-220 | 220 | 2.20 mm |
| 13.224-240 | 240 | 2.40 mm |
| 13.224-260 | 260 | 2.60 mm |
| 13.224-300 | 300 | 3.00 mm |

Riveting punches, cylindrical flat (delivered with the full version MSA13.210).



| MSA | No. | Ø |
|------------|-----|---------|
| 13.225-040 | 40 | 0.40 mm |
| 13.225-050 | 50 | 0.50 mm |
| 13.225-060 | 60 | 0.60 mm |
| 13.225-080 | 80 | 0.80 mm |
| 13.225-100 | 100 | 1.00 mm |

| MSA | No. | Ø |
|------------|-----|---------|
| 13.225-120 | 120 | 1.20 mm |
| 13.225-150 | 150 | 1.50 mm |
| 13.225-200 | 200 | 2.00 mm |
| 13.225-250 | 250 | 2.50 mm |
| 13.225-300 | 300 | 3.00 mm |

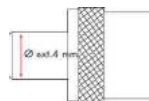
Riveting punches, flat pierced and ellipse (delivered with the full version MSA13.210).



| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.226-085 | 85 | 2.20 mm | 0.85 mm |
| 13.226-100 | 100 | 2.30 mm | 1.00 mm |

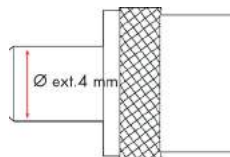
| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.226-120 | 120 | 2.50 mm | 1.20 mm |

Flat pierced stakes (delivered with the full version MSA13.210 and light version MSA13.211).



| MSA | No. | Ø | Ø hole |
|------------|-----|---------|---------|
| 13.129-300 | 300 | 8.00 mm | 3.00 mm |
| 13.129-400 | 400 | 8.00 mm | 4.00 mm |
| 13.129-500 | 500 | 8.00 mm | 5.00 mm |

Flat stakes (** delivered with the full version MSA13.210 and light version MSA13.211).



| MSA | No. stake | External Ø | Kg |
|------------|-----------|------------|-------|
| 13.130-070 | 070 | 0.70 mm | 0.003 |
| 13.130-080 | 080 | 0.80 mm | 0.003 |
| 13.130-090 | 090 | 0.90 mm | 0.003 |
| 13.130-100 | 100 | 1.00 mm | 0.003 |
| 13.130-130 | 130 | 1.30 mm | 0.003 |
| 13.130-150 | 150 | 1.50 mm | 0.003 |
| 13.130-190 | 190 | 1.90 mm | 0.003 |
| 13.130-200 | 200 | 2.00 mm | 0.003 |

| MSA | No. stake | External Ø | Kg |
|------------|-----------|------------|-------|
| 13.130-250 | 250 | 2.50 mm | 0.003 |
| 13.130-300 | 300 | 3.00 mm | 0.003 |
| 13.130-400 | ** | 4.00 mm | 0.003 |
| 13.130-500 | 500 | 5.00 mm | 0.003 |
| 13.130-600 | ** | 6.00 mm | 0.003 |
| 13.130-700 | 700 | 7.00 mm | 0.003 |
| 13.130-800 | ** | 8.00 mm | 0.003 |

Special flat stakes.
Other diameters available upon request.

SCHAUBLIN chucks P4.5 type (delivered with the full version MSA13.210).



Ø 4.50 mm

| MSA | Ø | Kg |
|------------|---------|-------|
| 03.856-100 | 1.00 mm | 0.002 |
| 03.856-150 | 1.50 mm | 0.002 |
| 03.856-200 | 2.00 mm | 0.002 |
| 03.856-300 | 3.00 mm | 0.002 |

HOROTEC chucks P4.5 type.



Ø 4.50 mm

| MSA | Ø | Kg |
|------------|---------|-------|
| 03.856-100 | 1.00 mm | 0.002 |
| 03.856-150 | 1.50 mm | 0.002 |
| 03.856-200 | 2.00 mm | 0.002 |
| 03.856-300 | 3.00 mm | 0.002 |

Other accessories for riveting and milling presses MSA13.210 and MSA13.211 :



| MSA | Item |
|--------------|---|
| 13.227-045 * | (1) Riveting punch with conical point, No. 45 / Ø 1.80 mm / 45° |
| 13.227-060 * | Riveting punch with conical point, No. 60 / Ø 2.00 mm / 60° |
| 13.228-045 * | Conical milling point, No. 45 / 40° |
| 13.228-060 * | (2) Conical milling point, No. 60 / 60° |
| 13.229-021 * | (3) Pair of lanterning punches, No. 21 / 30° |
| 13.230-04 ** | Cylindrical pin, Ø 4 x L24 mm |
| 13.230-H1 ** | (4) Reamer holder, No. H1 / Ø 5 x L16 mm / 2° |
| 13.230-H2 ** | Wheel countersink holder, No. H2 / Ø 5 x L16 mm / 1° |

* Delivered with press MSA13.210 (full version)

** Delivered with presses MSA13.210 (full version) and MSA13.211 (light version)

STAKING TOOL FOR MILL



| MSA | Ø base reaming | Kg |
|---------------|----------------|-------|
| 13.105 | 4 mm | 3.260 |

Staking tool for mill with 1 table and 1 broach for chuck P4.5 (chuck not included).

- *Maximum distance between table and broach : 35 mm*
- *Opening : 28 mm*
- *Total height without broach : 110 mm*
- *Base length : 85 mm*
- *Table size : 80 x 50 mm*
- *Broach : Ø 8 mm.*



Accessories for MSA13.105 (other Ø on request) :

| MSA | Item | Kg |
|-------------------|-----------------------------|-------|
| 03.875-100 | Chuck P 4.5 type, Ø 1.00 mm | 0.002 |
| 03.875-150 | Chuck P 4.5 type, Ø 1.50 mm | 0.002 |
| 03.875-160 | Chuck P 4.5 type, Ø 1.60 mm | 0.002 |
| 03.875-200 | Chuck P 4.5 type, Ø 2.00 mm | 0.002 |
| 03.875-235 | Chuck P 4.5 type, Ø 2.35 mm | 0.002 |
| 03.875-250 | Chuck P 4.5 type, Ø 2.50 mm | 0.002 |
| 03.875-300 | Chuck P 4.5 type, Ø 3.00 mm | 0.002 |
| 03.875-400 | Chuck P 4.5 type, Ø 4.00 mm | 0.002 |

INCABLOC® assortments.



ASSORTMENT

| MSA | Packaging size | Kg |
|---------------|-----------------|-------|
| 13.153 | 70 x 34 x 20 mm | 0.031 |

Assortment INCABLOC®. The 6 pushers and the 7 stakes have a Ø 4 mm axle and are compatible with the presses MSA13.100-4, MSA13.101-4 and MSA13.102-4 illustrated on pages 13-3 and 13-4.

| Contents (pushers) : | Contents (stakes) : |
|----------------------------------|----------------------------------|
| - Ø ext. 1.60 mm, Ø hole 1.20 mm | - Ø ext. 1.60 mm, Ø hole 1.20 mm |
| - Ø ext. 1.90 mm, Ø hole 1.40 mm | - Ø ext. 2.00 mm, Ø hole 1.60 mm |
| - Ø ext. 2.00 mm, Ø hole 1.60 mm | - Ø ext. 2.30 mm, Ø hole 1.90 mm |
| - Ø ext. 2.50 mm, Ø hole 1.90 mm | - Ø ext. 2.50 mm, Ø hole 2.00 mm |
| - Ø ext. 3.00 mm, Ø hole 2.40 mm | - Ø ext. 3.00 mm, Ø hole 2.50 mm |
| - Ø ext. 3.50 mm, Ø hole 2.80 mm | - Ø ext. 3.50 mm, Ø hole 3.00 mm |
| | - Ø ext. 4.00 mm, Ø trou 3.50 mm |



ASSORTMENT

| MSA | Packaging size | Kg |
|---------------|-----------------|-------|
| 13.154 | 90 x 65 x 25 mm | 0.110 |

Assortment INCABLOC®. The 6 pushers and 7 stakes have a Ø 3 mm axle and are compatible with the presses MSA13.100, MSA13.101 and MSA13.102-3 illustrated on pages 13-3 and 13-4.

| Contents (pushers) : | Contents (stakes) : |
|-----------------------------------|-----------------------------------|
| - Ø ext. 1.57 mm, Ø hole 0.80 mm | - Ø ext. 1.65 mm, Ø hole 1.35 mm |
| - Ø ext. 1.87 mm, Ø hole 1.50 mm | - Ø ext. 2.00 mm, Ø hole 1.60 mm |
| - Ø ext. 2.07 mm, Ø hole 1.70 mm | - Ø ext. 2.30 mm, Ø hole 1.90 mm |
| - Ø ext. 2.47 mm, Ø hole 2.00 mm | - Ø ext. 2.50 mm, Ø hole 2.10 mm |
| - Ø ext. 2.97 mm, Ø hole 2.50 mm | - Ø ext. 3.00 mm, Ø hole 2.50 mm |
| - Ø ext. 3.47 mm, Ø hole 3.00 mm. | - Ø ext. 3.50 mm, Ø hole 3.00 mm |
| | - Ø ext. 4.00 mm, Ø trou 3.50 mm. |

KIF® spring-twister tools.



| MSA | Packaging size | Kg |
|---------------|----------------|-------|
| 13.155 | 50 x 30 x 6 mm | 0.004 |

KIF® shock absorber with non-attached spring. The non-attached spring of KIF 1 (Trior) is locked by rotation. In order to simplify operations for the watch repair during assembly or dismounting, KIF-PARECHOC® have designed a small tool known as "spring-twister".
Delivered in a small plastic box containing 3 spring-twister for fitting diameters 1.60, 1.90 and 2.10 mm.

Spare parts :

| MSA | Item | Kg |
|---------------|---|-------|
| 13.150 | Spring-twister Ø 1.60 mm, size Ø 2 x length 25 mm | 0.001 |
| 13.151 | Spring-twister Ø 1.90 mm, size Ø 2 x length 25 mm | 0.001 |
| 13.152 | Spring-twister Ø 2.10 mm, size Ø 2 x length 25 mm | 0.001 |

14



VIDEO INSPECTION SYSTEMS

14 - 2

MICROSCOPES SWISSMETROLOGIE® "PREMIUM"

14 - 10

MICROSCOPES SWISSMETROLOGIE® "SILVER"

14 - 14

ERGO AND DISCUSSION SWISSMETROLOGIE® MICROSCOPES

14 - 16

LIGHTING

14 - 17

CAMERA

14 - 21

HANDHELD DIGITAL MICROSCOPE

14 - 22

Video inspection system HD SMV-1.

SWISS METROLOGIE



(1)



(2)

| MSA | Stand and screen |
|--------|--|
| 14.160 | (1) Stand with geared column MSA14.471 Screen 10" |
| 14.161 | (2) Stand with detached arm MSA14.472 Screen 10" |
| 14.162 | Stand with extension arm MSA14.399 Screen 10" |

The SMV-1 HD video inspection system combines the latest high-definition video technology with the best macro lens providing an exceptionally fluid image quality.

- The integrated 10" flat screen improves image quality and operator comfort
- The dome lighting technique by reverberation enables an optimised surface inspection even on polished and glazed parts
- The macro zoom 10x (13-130 mm) ensures intuitive and fast ease of use.

Key features :

- HD Camera 720P with an integrated 10" flat screen
- Image is captured directly onto the SD memory card
- Remote screen control with a pointing sight
- Indirect LED lighting dimmer by reverberation
- Optical zoom Computar 10x (13-130 mm) providing excellent quality and a working distance from 152 mm to 450 mm
- Zoom magnification from 3x up to 55x, with a wide field of view.

Technical characteristics :

- Digital sensor CMOS 1/2.5"
- Resolution 1280 x 800 @ 60 fps (24 bits), 16.10 aspect ratio
- 2 megapixels
- Individual adjustment of the screen colours : Red, Green and Blue
- Automatic or manual white balance
- Automatic or manual image contrast.

Items included in the delivery, in addition to the following compositions :

- MSA14.150-E : Dome lighting with LED + lighting intensity dimmer
- MSA14.151-P : Protection cover in semi-transparent PVC-Foil
- MSA14.150-SD : - SD memory card 8 GB.

| SMV-1 | Stand | Camera (with screen) | Optical zoom |
|-----------------|-------------|----------------------|--------------------------|
| MSA14.160 (1) = | MSA14.471 + | MSA14.150-C (10") + | MSA14.151-Z : 3x ... 55x |
| MSA14.161 (2) = | MSA14.472 + | MSA14.150-C (10") + | MSA14.151-Z : 3x ... 55x |
| MSA14.162 = | MSA14.399 + | MSA14.150-C (10") + | MSA14.151-Z : 3x ... 55x |

Video inspection system FULL HD SMV-2.

SWISS METROLOGIE



(1)



(2)

| MSA | Stand and screen |
|--------|--|
| 14.163 | (1) Stand with geared column MSA14.471 Screen 13.3" |
| 14.164 | (2) Stand with detached arm MSA14.472 Screen 13.3" |
| 14.165 | Stand with extension arm MSA14.399 Screen 13.3" |
| 14.168 | Stand with geared column MSA14.471 Free-standing screen 23.8" |

The SMV-2 FULL HD video inspection system is an intuitive inspection device, capable of filming with an exceptional image quality and fluidity on any HDMI-linked screen.

- New Full HD 13.3" flat screen for unrivalled image quality and operator comfort
- Recording of films and pictures to SD card or USB stick.

Key features :

- Full HD camera 1080P-HDMI controlled by a wireless mouse
- LED incident lighting with an intensity dimmer
- Optical zoom Computar 10x (13-130 mm) provides excellent quality and a working distance from 152 mm to 450 mm
- Zoom magnification from 3x up to 55x, with a wide field of view.

Technical characteristics :

- Digital sensor CMOS 1/3" colour
- Full HD resolution 1920 x 1080 @ 30 fps (12 bit), 16.10 aspect ratio
- 2 megapixels
- Individual adjustment of the screen colours : Red, Green and Blue
- Automatic or manual white balance
- Automatic or manual image contrast
- HDMI connection.

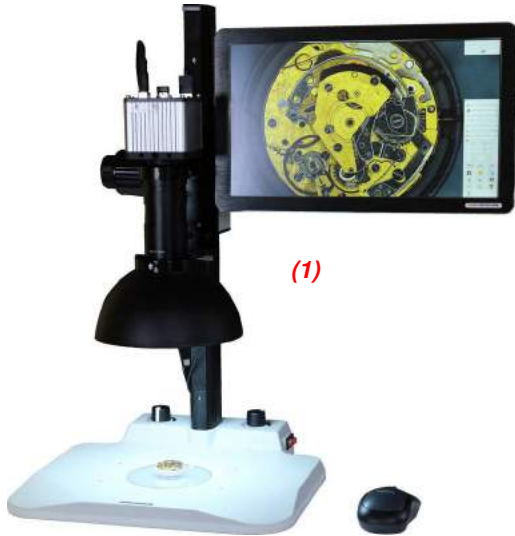
Items included in the delivery, in addition to the following compositions :

- MSA14.150-E : Dome lighting with LED + lighting intensity dimmer
- MSA14.151-P : Protection cover in semi-transparent PVC-Foil
- DOCPUB.USBKEY : USB key 4 Gb with lanyard 80 cm
- MSA14.150-S : Wireless mouse.

| SMV-2 | Stand | Screen | Camera | Optical zoom |
|-----------------|-------------|-----------------------|---------------|--------------------------|
| MSA14.163 (1) = | MSA14.471 + | MSA14.151-M (13.3") + | MSA14.151-C + | MSA14.151-Z : 3x ... 55x |
| MSA14.164 (2) = | MSA14.472 + | MSA14.151-M (13.3") + | MSA14.151-C + | MSA14.151-Z : 3x ... 55x |
| MSA14.165 = | MSA14.399 + | MSA14.151-M (13.3") + | MSA14.151-C + | MSA14.151-Z : 3x ... 55x |
| MSA14.168 = | MSA14.471 + | MSA14.153-M (23.8") + | MSA14.151-C + | MSA14.151-Z : 3x ... 55x |

Video inspection system HD SMV-3 "Focus Stacking".

SWISS METROLOGIE



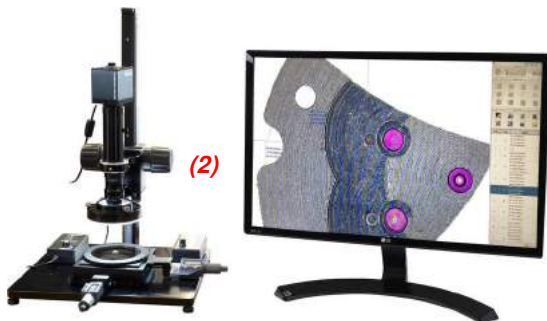
(1)



With "Focus Stacking" function



Without "Focus Stacking" function



(2)

| MSA | Stand and screen |
|-----------|---|
| 14.170 | (1) Stand with geared column MSA14.473 Screen 13.3" |
| 14.171 | Stand with geared column MSA14.473 Screen 23.8" |
| 14.180 ** | (2) Stand with geared column MSA14.400 (black base) Screen 23.8" |

The SMV-3 video inspection system "Focus Stacking" is the latest intuitive solution from HOROTEC SA.

The "Focus Stacking" is a process in which several photos with different focus are merged to obtain an image with a large depth of field.

Main features :

- "Focus Stacking" function operational without a PC
- Full HD-5 MP camera, 60 fps
- Full HD 13.5" flat screen
- Image storage on Ethernet network or USB stick
- New ergonomic stand with integrated wiring
- Transmitted and incident lighting as standard equipment
- Connection type : HDMI
- Zoom magnification from 3x up to 55x, with a wide field of view (from 30x up to 200x for MSA14.180).

** Graphic measurement software, PC-free, with automatic edge detection function

MSA14.170 : Without measuring functions / Without measuring table

MSA14.171 : With measuring functions / Without measuring table

MSA14.180 : With measuring functions / With measuring table

Main measurement functions of the camera MSA14.153-C :

- Calibration according to the type of measurement : linear or diameter.
- Measurement types :
 - Distance between 2 points, 1 line/1 point and 2 lines
 - Angular between 2 lines - Circle, arc of circle
 - Distance between 1 point/1 circle, 1 line/1 circle and 2 circle centers
 - Concentricity - Rectangle, polygon.
- Capture point :
 - Automatic or manual edge detection function.

Items included in the delivery, in addition to the following compositions :

** - MSA15.614 : Measuring table "X-Y" with rotating circular plate in glass (delivered without stops)

- MSA14.150-E : Dome lighting with LED + lighting intensity dimmer
- MSA14.151-P : Protection cover in semi-transparent PVC-Foil
- DOCPUB.USBKEY : USB key 4 Gb with lanyard 80 cm
- MSA14.150-S : Wireless mouse.

| | Camera | Optical zoom |
|-----------------|--|--------------------------------|
| MSA14.170 (1) = | MSA14.473 + MSA14.151-M (13.3") + MSA14.153-CSM + | MSA14.151-Z : 3x ... 55x |
| MSA14.171 = | MSA14.473 + MSA14.153-M (23.8") + MSA14.153-C + | MSA14.151-Z : 3x ... 55x |
| MSA14.180 (2) = | MSA14.471 + MSA14.153-M (23.8") + MSA14.153-C + | MSA14.153-Z : 30x ... 200x (*) |
| Optical zoom : | (*) 6-position indexable 6000 optical zoom with zoom position memory in software | |

Video inspection system FULL HD SMV-B.

SWISS METROLOGIE



MSA

14.154

The video inspection system SMV-B FULL HD is an intuitive and compact inspection device, capable of filming a meticulous operation live, thanks to a large field depth and an exceptional image fluidity on any screen with an HDMI connection.

- Live viewing in FULL HD quality on any screen with an HDMI connection ; video projector, TV, PC monitor, etc.
- Possibility of streaming via an optional PC converter
- Recording of films and photos on SD card or USB key
- Viewing captured photos directly on the screen.

Key features :

- Full HD 1080P-HDMI camera controlled by wireless mouse
- Optical Zoom Macro 10x (13-130mm) providing an excellent quality and a working distance from 160 mm to 500 mm.

Technical characteristics :

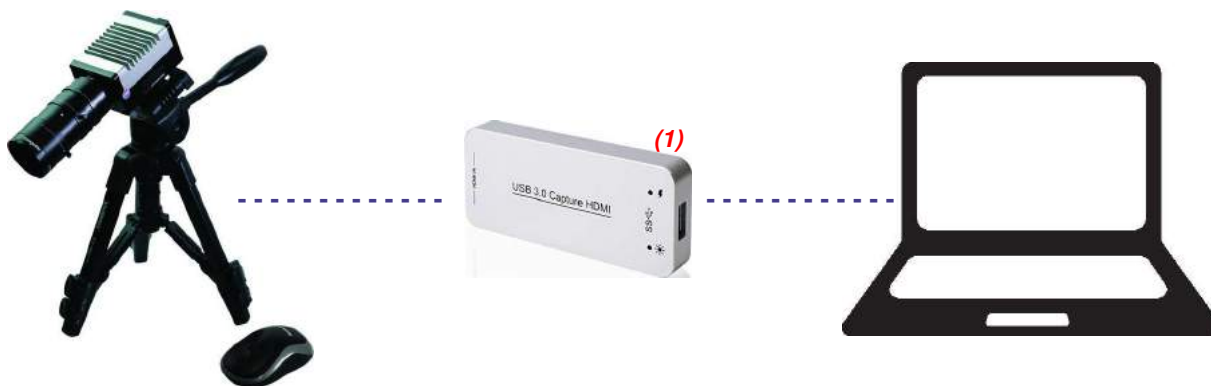
- Digital sensor CMOS 1/3" colour
- Full HD resolution 1920 x 1080 @ 30 fps (12bits), 16.10 aspect ratio
- 2 Megapixels
- Adjustment of the screen colours : Blue - Red - Green
- Automatic or manual white balance
- Automatic or manual image contrast
- Backup : 8 GB SD card or USB stick (not included)
- Connection type : HDMI.

Items included in the delivery :

- 1 FULL HD camera
- 1 HDMI cable 70 cm
- 1 wireless mouse
- 1 Optical zoom Macro 10x (13-130 mm)
- 1 SD memory card
- 1 Z-tripod 200 mm.

Optional :

| MSA | Item |
|----------|---|
| 14.151-U | (1) HDMI-USB signal converter for PC connection |



Connect your HOROTEC inspection system (SMV-B / SMV-2 / SMV-3) with the HDMI/USB 3.0 signal converter (MSA14.151-U) and share your video inspection system camera live using the following video conferencing applications :



Stands.

SWISSMETROLOGIE



| MSA | Kg |
|--------|-------|
| 14.471 | 5.300 |

Stand with 520 mm geared column in "Z" with fine adjustment.

Optional :

- MSA14.150-A, arm to detach the screen
- MSA14.471-A, optical head support.

SWISSMETROLOGIE



| MSA | Kg |
|--------|-------|
| 14.473 | 5.300 |

Stand with 520 mm geared column, transmitted lighting with integrated LED (without zoom support).

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| MSA | Kg |
|--------|--------|
| 14.472 | 18.430 |

Stand with a horizontal movement and a 370 mm column in "Z" and an arm to detach up to 422 mm.

Optional :

- MSA14.150-A, arm to detach the screen
- MSA14.471-A, optical head support.

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MSA

14.399

Stand with extension arm up to a 920 mm radius with 6 axes of rotation. This enables multi-directional positioning for the most relevant observation such as alignment and hands parallelism.

Accessories.

HOROTEC SWISS



MSA

Size

Kg

| | | | |
|--------|-----|--------------------|-------|
| 14.156 | (1) | 123 x 115 x 150 mm | 0.630 |
| 14.157 | (2) | 123 x 115 x 250 mm | 0.770 |

Transparent protective cover for video inspection and measuring systems.



MSA

Length

Kg

| | | |
|----------|--------|-------|
| 14.150-A | 500 mm | 0.560 |
|----------|--------|-------|

Articulated arm for detaching the screen of the camera from the SMV-1 MSA14.150.

Delivered without screen.



MSA

Kg

| | |
|----------|-------|
| 14.471-A | 0.330 |
|----------|-------|

Optical head support for stands MSA14.471 and 14.472.



| MSA | Length | Kg |
|----------|--------|-------|
| 14.150-Y | 300 mm | 0.035 |

Connection "X" HDMI cable to connect a second external screen for a synchronized picture.
1x male and 2x female.



| MSA | Type |
|---------------|------------------|
| 14.151-Y2 | 1 input-2 output |
| 14.151-Y4 (1) | 1 input-4 output |
| 14.151-Y8 | 1 input-8 output |

HDMI splitter with amplifier, Full HD signal.



| MSA | Type |
|-----------|------------------|
| 14.151-W3 | 2 input-1 output |

HDMI switch for distribution of Full HD signal.



| MSA | Type |
|-------------|---------------------------------|
| 14.151-H1.5 | HDMI, length 1.50 m |
| 14.151-H2 | HDMI, length 2 m |
| 14.151-I | HDMI 4K High Speed, length 5 m |
| 14.151-H | HDMI 4K High Speed, length 10 m |
| 14.151-H20 | HDMI 4K High Speed, length 20 m |

HDMI shielded cable.



| MSA |
|----------|
| 14.150-L |

SD Memory card reader.



| MSA | Magnification | Kg |
|-----------------|---------------|-------|
| 14.150-1.5X (1) | 1.5x | 0.055 |
| 14.150-2.0X | 2.0x | 0.055 |
| 14.150-3.0X | 3.0x | 0.030 |
| 14.150-5.0X | 5.0x | 0.036 |

Magnifying lens with C-mounting male/female.



| MSA |
|--------|
| 15.614 |

Measuring table "X-Y" with rotating circular plate in glass for alignment of the parts.

- Travel 50 x 50 mm
- Clamping device for micrometres Ø 18 mm
- For stand MSA14.400.

Delivered without stops (optional).



| MSA | Size | Kg |
|----------|------------------------------|-------|
| 14.150-T | 115 x 115 x 15 mm Ø 95 mm | 0.440 |

Black aluminium table support for transmitted lighting MSA14.150-G.
Delivered without lighting.



| MSA | Size | Kg |
|--------|-----------------------------------|-------|
| 14.447 | Base Ø 95 mm Top plate Ø 75 mm | 0.265 |

Adjustable aluminium table on swivel to observe movements or components under a binocular, a trinocular or an inspection system.

- The base is compatible with the stands of the SwissMetrologie® range
- The top plate is covered with an anti-skid coating MSA14.447-A (replaceable when worn).

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 14.447-A | Anti-skid coating, Ø 70 mm | 0.005 |

2 series of stereoscopic binocular and trinocular microscopes associated to the latest Full HD cameras.



SWISSMETROLOGIE
Premium



SWISSMETROLOGIE
Silver



"PREMIUM" range optical features :

| | 0.5x | 0.75x | 1.0x | 1.5x | 2.0x |
|---------------------|----------------|----------------|-----------------|------------------|------------------|
| Auxiliary objective | 0.5x | 0.75x | 1.0x | 1.5x | 2.0x |
| Working distance | 200 mm | 120 mm | 100 mm | 47 mm | 26 mm |
| - | | | | | |
| Magnification 10x | 3.4x ... 22.5x | 4.7x ... 31.5x | 6.7x ... 45.0x | 10.1x ... 67.5x | 13.4x ... 90.0x |
| Field of view (mm) | 65.7 ... 9.8 | 46.9 ... 7.0 | 32.8 ... 4.9 | 21.9 ... 3.3 | 16.4 ... 2.4 |
| - | | | | | |
| Magnification 15x | 5.0x ... 33.8x | 7.0x ... 47.3x | 10.1x ... 67.5x | 15.1x ... 101.3x | 20.1x ... 135.0x |
| Field of view (mm) | 47.8 ... 7.1 | 34.1 ... 5.1 | 23.9 ... 3.6 | 15.9 ... 2.4 | 11.9 ... 1.8 |
| - | | | | | |
| Magnification 20x | 6.7x ... 45.0x | 9.4x ... 63.0x | 13.4x ... 90.0x | 20.1x ... 135.0x | 26.8x ... 180.0x |
| Field of view (mm) | 35.8 ... 5.3 | 25.6 ... 3.8 | 17.9 ... 2.7 | 11.9 ... 1.8 | 9.0 ... 1.3 |

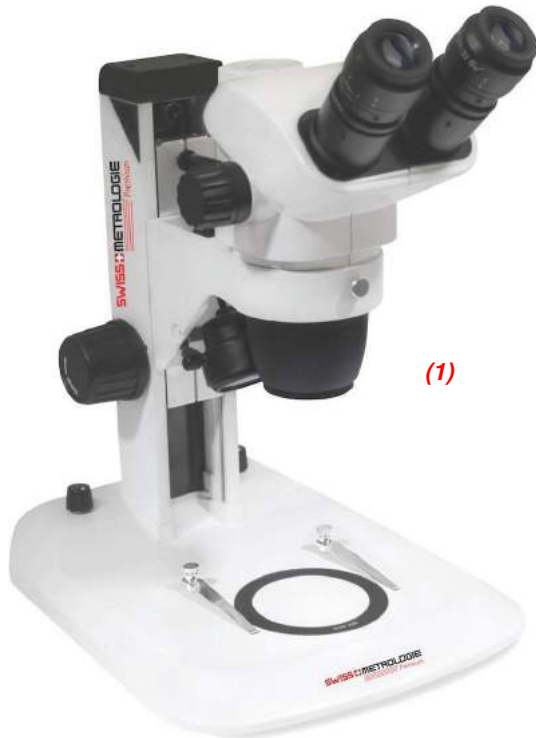
"PREMIUM" series. Stereoscopic binocular and trinocular microscopes.

A new design more ergonomic - Compact and lightweight - Cleaner image in the periphery - Large coverage of magnification - Long working distance.

Main features :

- Powerful and advanced optical system for a better rendering of stereoscopic image
- Working distance of 104 mm, can be extended from 26 mm to 200 mm with optional lenses
- Magnification domain from 2x to 180x using optional objectives and eyepieces.

SWISSMETROLOGIE
Premium



(1)

| MSA | Type | Stand | Voltage | Kg |
|--------|---------------|-----------------|-------------|--------|
| 14.430 | (1) Binocular | Rack and pinion | 110 / 220 V | 5.800 |
| 14.431 | (2) Binocular | Detached | - | 20.400 |

Stereo binocular microscope with zoom magnification variable from 0.67x to 4.5x.

Eyepieces : Pair of eyepieces WF10x/22 mm in 45° inclined tubes with dioptre adjustment.

Objective : Standard total magnifications from 6.67 to 45x. Fields of view from 33 to 4.9 mm.

Working distance 110 mm.

Stand : Rack and pinion in metal, transmitted lighting with dimmer switch (1) or detached with 2 arms (2).

MSA14.430 only : delivered with 1 stage plate and 2 object clamps.

Lighting : see pages 14-17...14-20.



(2)



| MSA | Type | Stand | Voltage | Kg |
|--------|------|-----------------|-------------|--------|
| 14.432 | (1) | Rack and pinion | 110 / 220 V | 7.180 |
| 14.433 | (2) | Detached | - | 24.600 |

Stereo binocular microscope with zoom magnification variable from 0.67x to 4.5x.

Eyepieces : Pair of eyepieces WF10x/22 mm in 45° inclined tubes with dioptre adjustment.

Objective : Standard total magnifications from 6.67 to 45x. Fields of view from 33 to 4.9 mm.
Working distance 110 mm.

Stand : Rack and pinion in metal, transmitted lighting with dimmer switch (1) or detached with 2 arms (2).

MSA14.432 only : delivered with 1 stage plate and 2 object clamps.

Lighting : see pages 14-17...14-20.



Accessories for "PREMIUM" stereoscopic microscopes.



| MSA | Type | Kg |
|---------------|-----------------|-------|
| 14.440-10 | HWF 10x / 22 mm | 0.145 |
| 14.440-15 | HWF 15x / 16 mm | 0.145 |
| 14.440-20 (1) | HWF 20x / 12 mm | 0.224 |

Pair of eyepieces.



| MSA | Type |
|--------|-----------------|
| 14.441 | HWF 10x / 22 mm |

Micrometric eyepiece.



| MSA | Kg |
|--------|-------|
| 14.442 | 0.006 |

Pair of retractable eyeshades.



| MSA | Magnification | Working distance | Kg |
|---------------|---------------|------------------|-------|
| 14.443-05 | 0.50x | 185 mm | 0.094 |
| 14.443-07 (1) | 0.75x | 125 mm | 0.109 |
| 14.443-15 | 1.50x | 50 mm | 0.120 |
| 14.443-20 | 2.00x | 33 mm | 0.130 |

Additional lens.



| MSA |
|--------|
| 14.444 |

Pair of object clamps.



| MSA | Type | Ø |
|--------------|---------------|-------|
| 14.445-A (1) | Transparent | 60 mm |
| 14.445-B (2) | Black / White | 60 mm |

Spare stage plate.



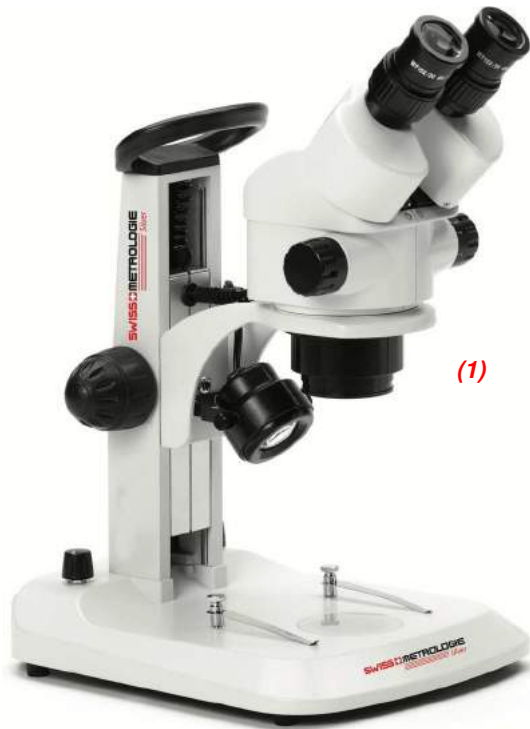
| MSA |
|--------|
| 14.446 |

F250 V1 amp glass fuse for stereoscopic microscopes SWISSMETROLOGIE® "PREMIUM" and "SILVER".
Set of 10 pieces.

"SILVER" series. Stereoscopic binocular microscopes for demanding professionals.
Modern design, more ergonomic - Compact and complete - Variable magnifications Zoom - 360° optical head - LED transmitted lighting.

Main features :

- **Powerful stereoscopic optical system for demanding industrial applications**
- **Working distance of 100 mm, can be extended up to 170 mm with the optional lenses and the stand with detached arm**
- **Magnification domain variable by zoom from 6.7x to 45x zoom and expandable up to 135x using optional lenses and eyepieces.**



| MSA | | Type | Stand | Voltage | Kg |
|--------|-----|-----------|-----------------|-------------|--------|
| 14.434 | (1) | Binocular | Rack and pinion | 110 / 220 V | 4.540 |
| 14.435 | (2) | Binocular | Detached | - | 15.400 |

Stereomicroscope with 45° binocular head and zoom objective with variable magnifications from 0.7x to 4.5x.

Eyepieces : Pair of eyepieces wide field WF10x / 20 mm, secure and delivered with eyeshades.

Head : Binocular with 45° inclined tubes, rotating at 360°. Two dioptre adjustments. Inter-pupillary distance from 55 to 75 mm.

Objective : A continuous Zoom objective with variable magnification from 0.7x to 4.5x for magnifications from 7x and 45x with fields of view from 28 to 4.4 mm.

Working distance 100 mm.

Other magnifications and working distances are possible using eyepieces WF 5x/18, WF 15x/15 or WF 20x/10 and additional lenses of 0.75x or 1.5x.

Stand : Rack and pinion in metal, large and ergonomic (1) or detached with 1 arm (2).

MSA14.434 only : delivered with transparent and black/white stage plates. Coarse adjustment with tension setting.

Lighting : see pages 14-17...14-20.



Accessories for "SILVER" stereoscopic microscopes.



| MSA | Type |
|-----------|-----------------|
| 14.450-10 | HWF 10x / 22 mm |
| 14.450-15 | HWF 15x / 16 mm |
| 14.450-20 | HWF 20x / 12 mm |

Pair of eyepieces.



| MSA | Type |
|--------|-----------------|
| 14.451 | HWF 10x / 22 mm |

Micrometric eyepiece.



| MSA | Kg |
|--------|-------|
| 14.452 | 0.012 |

Pair of ergonomic eyeshades.



| MSA | Magnification | Working distance | Kg |
|---------------|---------------|------------------|-------|
| 14.453-05 | 0.50x | 170 mm | 0.109 |
| 14.453-07 (1) | 0.75x | 114 mm | 0.109 |

Additional lens.



| MSA |
|--------|
| 14.454 |

Pair of object clamps.



| MSA | Type | Ø |
|--------------|---------------|-------|
| 14.445-A (1) | Transparent | 60 mm |
| 14.445-B (2) | Black / White | 60 mm |

Spare stage plate.



| MSA |
|--------|
| 14.446 |

F250 V1 amp glass fuse for stereoscopic microscopes SWISSMETROLOGIE® "PREMIUM" and "SILVER".
Set of 10 pieces.

Stereoscopic binocular microscopes ERGO range, ideal for combating musculoskeletal disorders (MSD).

SWISSMETROLOGIE



| MSA | Magnification | Kg |
|--------|---------------|-------|
| 14.241 | 5...50x | 6.000 |
| 14.242 | 8...80x | 6.000 |

Stereoscopic binocular microscope.

- Compact and lightweight
- Rack and pinion stand with fine adjustment
- Eyepieces 10x with 2 positions (high and low) for maximum comfort
- Ergonomic optical head, tilting from 0 to 35°
- The working distance of 80 mm can be extended to 160 mm with optional lenses
- Diascopic and incident LED lighting with intensity dimmer.

ERGONOMICS

Lighting : see pages 14-17...14-20.

Accessory for ERGO stereoscopic microscopes.

SWISSMETROLOGIE



| MSA | Kg |
|--------|-------|
| 14.243 | 0.250 |

Camera tube.

Stereoscopic binocular discussion microscope.

SWISSMETROLOGIE



| MSA | Model | Lighting | Kg |
|--------|---------|----------|--------|
| 14.412 | DVN-700 | Without | 30.000 |

Dual viewing stereoscopic binocular microscopes, without lighting.

- Equipped with a 5-step quick magnification changer : 6.4x, 10x, 16x, 25x and 40x (with eyepieces Motic WF10)
- Two binocular heads with individual adjustment of the interpupillary distance from 54 to 76 mm
- Adjustment of dioptres : +/-5.0.

Items included in the standard equipment :

- Cast iron large base (344 x 505 mm), rectified column length 450 mm and fine focusing drive
- Modular design discussion tube
- Optic handle with 5 magnification objectives from 6.4x to 40x
- Two binocular heads with individual adjustment of the interpupillary distance and dioptre correction
- Two pairs of eyepieces WF 10x with eyeshades
- Illuminated indicator, adjustable individually for easy orientation.

Lighting : see pages 14-17...14-20.

Lighting for binocular and trinocular microscopes.



| MSA | Kg |
|----------|-------|
| 14.150-G | 0.325 |

LED transmitted lighting with dimmer.
External Ø 98 mm.



| MSA | Size | Kg |
|----------|------------------------------|-------|
| 14.150-T | 115 x 115 x 15 mm Ø 95 mm | 0.440 |

Black aluminium table support for transmitted lighting MSA14.150-G.
Delivered without lighting.



| MSA | Voltage | Kg |
|------------|---------|-------|
| 14.313 | 220 V | 0.700 |
| 14.313-110 | 110 V | 0.700 |

Neon incident lighting fluorescent ring.
- 85 kHz
- Power 8 W
- Colour temperature 6000 K.



| MSA | LED | Voltage | Kg |
|--------|-----|------------|-------|
| 14.312 | 60 | 90 - 260 V | 0.360 |

Incident illumination ring of white LED.
- Dimmable from 0 to 100%
- Working distance 80...130 mm
- Colour temperature 6000 K
- Brightness 1400 lux at 100 mm
- LED lifetime up to 20'000 hours.
Maximum internal Ø 44.50 mm. External Ø 85 mm.



| MSA | LED | Voltage | Kg |
|--------|-----|------------|-------|
| 14.311 | 144 | 90 - 250 V | 0.445 |

Incident illumination LED ring divided in 4 segments.
 - Dimmable from 0 to 100 %
 - Colour temperature 6500 K
 - Emits 20000 lux at 100 mm
 - Usable for working distances from 50 to 200 mm
 - LED lifetime up to 10'000 hours.
Maximum internal Ø 61 mm. External Ø 98 mm.



ANTIREFLECTING

| MSA | LED | Voltage | Kg |
|--------|-----|------------|-------|
| 14.317 | 164 | 90 - 240 V | 0.463 |

Incident illumination LED ring divided in 3 segments.
 - Dimmable from 0 to 100 %
 - Emits 33'500 lux at 50 mm
 - Double diffuser.
Maximum internal Ø 63 mm. External Ø 105 mm.



| MSA | LED | Voltage | Kg |
|--------|-----|------------|-------|
| 14.315 | 8 | 95 - 265 V | 0.850 |

Polarizing incident illumination ring of white LED with high brightness.
 - 1 W per LED
 - Dimmable from 0 to 100%
 - Colour temperature 6000 to 7000 K
 - Brightness 1800 lux.
Maximum internal Ø 62 mm. External Ø 90 mm.



| MSA | Voltage | Kg |
|--------|-------------|-------|
| 14.349 | 110 / 240 V | 2.300 |

Multifunctional dual LED light source equipped with :
 - 2 flexible Gooseneck arms with a 1 W LED mounted at each end
 - 1 condenser lens
 - 1 dimmer switch.
 Each LED color temperature is 6500 K and emits 6500 lux at 100 mm.
 Network auto switching 110/240 V.
*Size : 120 x 160 x 75 mm.
 Length of Gooseneck arms : 440 mm (LED included).*



| MSA | Voltage | Kg |
|--------|------------|-------|
| 14.354 | 90 - 240 V | 1.500 |

Multifunctional dual LED light source equipped with :
 - 2 flexible Gooseneck arms with a 3 W LED mounted at each end
 - 1 dimmer switch.
 Each LED colour temperature is 6500 K and emits 12'000 lux at 100 mm.



| MSA | LED | Voltage | Kg |
|----------|-----|-------------|-------|
| 14.150-E | 120 | 110 - 240 V | 1.205 |

Dome lighting with LED.
 - Dimmable from 0 to 100 %
 - Colour temperature 6500 K
 - Brightness 2000 lux.
Maximum internal Ø 66 mm. External Ø 160 mm. Height 86 mm.



| MSA | Voltage |
|--------|---------|
| 14.423 | 220 V |

System of incident illumination ring LED over three rings.
 - Diffuser and intensity dimmer of 120'000 lux at 40 mm without heat release
 - Mobile and adjustable thanks to its support, fits the stands MSA14.400, MSA14.471 and MSA14.473 of the inspection systems SMV.
*Maximum internal Ø 143 mm. External Ø 165 mm.
 (Illumination available without mobile support).*

ANTIREFLECTING

LESS



| MSA | Voltage |
|--------|---------|
| 14.319 | 220 V |

Fibre optic lighting kit, incident BF and grazing DF. 2 lighting systems in 1 (bright field and dark field). Easy to set up and assemble, this lighting system fits all our types of microscopes of the PREMIUM and SILVER ranges, as well as all our video inspection systems SMV-1, SMV-2, SMV-3, etc.

The "ShadowLESS" concept combines high uniformity and high directional light in a unique way. These properties allow an unprecedented inspection comfort with high contrast images, a negligible presence of stray light reflections, therefore a lower eye fatigue and no heat dissipation.

The colour temperature is 5400 K. It remains constant throughout the system longevity, independently of the number of hours the product is used. This consistency enables the users to maintain a stable quality standard over time.

Working distance : BF = 50...150 mm / DF = 0...15 mm.
Lifetime : 20'000 hours.



BF
Incident lighting



DF
Grazing lighting



BF + DF
Incident and grazing lighting

FULL HD camera with HDMI connection for trinocular microscopes (use without PC).

| MSA | Kg |
|----------|-------|
| 14.151-C | 0.675 |

FULL HD camera for trinocular microscopes.
Connection to any HDMI screen, video projector, TV, PC monitor (not supplied).

Technical characteristics :

Digital sensor CMOS 1/3" Colour
 FULL HD resolution 1920 x 1080 @ 30 fps (12 bits), 16.10 aspect ratio
 Number of pixels 2 megapixels
 Colour screen Individual colour adjustment : Blue - Red - Green
 White balance Automatic or manual
 Image contrast Automatic or manual
 Backup Video + picture on SD memory card or USB flash drive *
 Connection type HDMI
 Control Wireless mouse

* (not supplied)

Spare part :

| MSA | Item | Kg |
|----------|---------------------------------------|-------|
| 14.297-E | PREMIUM trinocular adjustable adapter | 0.074 |

HANDHELD DIGITAL MICROSCOPE

Handheld digital microscope. The best solution for a broad range of digital applications like watchmaking, micro technology, medical and electronic.

- Easy to use with or without PC
- Ergonomic design
- Wide field of applications
- Magnification from 10x to 200x
- USB or Wi-Fi connection with viewing application for Smartphones and tablets
- Polarized lighting.



| MSA | Size | Kg |
|--------|---------------|-------|
| 14.352 | Ø 34 x 140 mm | 0.400 |

Q-scope® handheld digital microscope.

Technical data :

| | |
|--------------------|---|
| Connection | USB 2.0 |
| Magnification | 10x - 40x - 200x |
| Zoom | Yes, distance controlled |
| Working distance | Standard |
| Lens type | High grade optical glass with multi-layer anti-reflection coating |
| Focus range | Manual focus from 10 to 200 mm |
| Sensor | CMOS, 2.0 megapixels |
| Resolution | 3488 x 2616 - 2560 x 1920 - 2048 x 1536 - 800 x 600 |
| Maximum frame rate | 15 fps |
| Lighting | 8 LED |
| Software | Analysis software with measurement and annotation functions |



| MSA | Size | Kg |
|----------|--------------------|-------|
| 14.352-S | 130 x 140 x 160 mm | 0.562 |

This metal basic stand offers a steady positioning of the handheld digital microscope and with the 3D-positioning holder the microscope can be effortlessly positioned in literally each three-dimensional position using only one hand.

Maximum working distance : 100 mm.

15



MEASURING INSTRUMENTS WITH FIXED DIMENSIONS

15 - 2

MEASURING INSTRUMENTS WITH VARIABLE DIMENSIONS

15 - 8

Rules and gauges.



| MSA | Length | Graduations | Kg |
|--------|--------|-------------|-------|
| 15.001 | 150 mm | 1 mm | 0.009 |

Stainless steel flexible rule.



| MSA | Length | Graduations | Kg |
|----------------|--------|-------------|-------|
| 15.008-150 (1) | 150 mm | 0.5 / 1 mm | 0.009 |
| 15.008-200 (2) | 200 mm | 0.5 / 1 mm | 0.011 |

Stainless steel flexible rule.

MSA15.008-150 : double sided graduations.



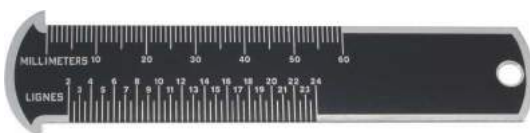
| MSA | Length | Graduations | Kg |
|--------|--------|-------------|-------|
| 15.003 | 120 mm | 8...22 mm | 0.003 |

Aluminium tool for measuring the distance between the lugs.



| MSA | Length | Graduations | Kg |
|--------|--------|-------------|-------|
| 15.004 | 125 mm | 6...22 mm | 0.034 |

Tool with 2 arms for measuring the width of bracelets and the distance between the lugs.



| MSA | Length | Kg |
|--------|--------|-------|
| 15.005 | 110 mm | 0.006 |

Gauge for measuring the diameter (0...60 mm) or the number of lines of movements (2...24'').



(1)

| MSA | | Number of blades | Kg |
|-----------|-----|------------------|-------|
| 15.014-13 | (1) | 13 | 0.066 |
| 15.014-20 | (2) | 20 | 0.100 |

Stainless steel thickness gauge.

MSA15.014-13 = 13 blades from 0.05 to 1.00 mm : 0.05 - 0.10 - 0.15 - 0.20 - 0.25 - 0.30 - 0.40 - 0.50 - 0.60 - 0.70 - 0.80 - 0.90 - 1.00 mm.

MSA15.014-20 = 20 blades from 0.05 to 1.00 mm : 0.05 - 0.10 - 0.15 - 0.20 - 0.25 - 0.30 - 0.35 - 0.40 - 0.45 - 0.50 - 0.55 - 0.60 - 0.65 - 0.70 - 0.75 - 0.80 - 0.85 - 0.90 - 0.95 - 1.00 mm.



(2)

Bevelled straight edges.



| MSA | Length | Straightness error | Kg |
|--------|--------|--------------------|-------|
| 15.006 | 75 mm | 2 µm | 0.060 |
| 15.016 | 100 mm | 2 µm | 0.110 |

Hardened steel bevelled straight edge.

Model with 1 bevelled edge, with insulating grip to limit the transfer of thermal heat during manual handling for optimal precision.

Delivered in 1 synthetic pouch.

Divider.



← 165 mm →

| MSA | Length | Kg |
|--------|--------|-------|
| 15.205 | 200 mm | 0.133 |

Stainless steel adjustable divider, straight tips.

Maximum opening : 165 mm.

Squares.



| MSA | Size | Kg |
|--------|------------|-------|
| 15.085 | 50 x 40 mm | 0.060 |
| 15.084 | 75 x 50 mm | 0.072 |

Bevelled edge 90° square in hardened stainless steel.
Measuring faces fine scraped and lapped.
Accuracy according to DIN 875/00.



| MSA | Size | Kg |
|--------|-------------|-------|
| 15.086 | 100 x 70 mm | 0.210 |

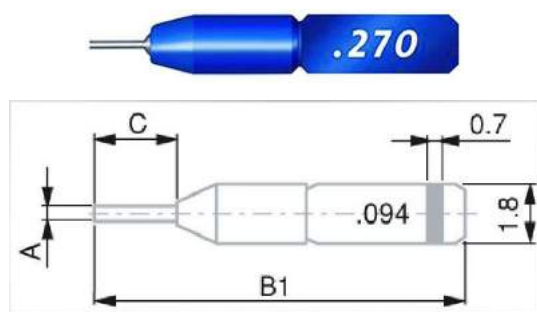
Flat and try 90° square in hardened stainless steel.
Lapped measuring faces.
Accuracy according to DIN 875.
Section 20 x 5 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 15.087 | 150 x 100 mm | 0.282 |

Simple 90° square in hardened stainless steel.
Lapped measuring faces.
Accuracy according to DIN 875.
Section 25 x 7 mm.

CARY® steel plug gauges TDH type.



| Ø A mm | B1 mm | C mm |
|---------------|-------|------|
| 0.050...0.109 | 10.3 | 0.8 |
| 0.110...0.159 | 10.5 | 1.0 |
| 0.060...0.209 | 10.7 | 1.4 |
| 0.210...0.309 | 11.1 | 1.6 |

| MSA | Ø | Progression | Kg |
|----------------|------------------|-------------------------|-------|
| 15.032-x.xxx * | 0.050...0.080 mm | 0.002 mm (even sizes) | 0.013 |
| 15.033-x.xxx * | 0.051...0.079 mm | 0.002 mm (uneven sizes) | 0.013 |
| 15.034-x.xxx * | 0.081...0.309 mm | 0.002 mm (uneven sizes) | 0.013 |
| 15.035-x.xxx * | 0.082...0.308 mm | 0.002 mm (even sizes) | 0.013 |

CARY® steel plug gauge TDH type.
The most convenient and fastest method to check the small diameter holes. Because of their small size, it is necessary to use tweezers for their handling. Standard accuracy : ± 0.4 µm.

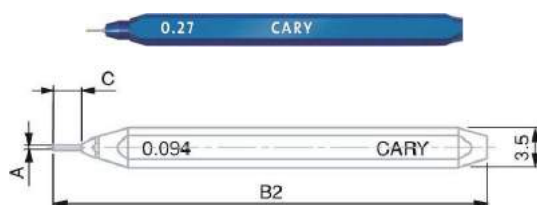
* Specify the exact diameter when ordering



| MSA | Size | Kg |
|--------|-----------------|-------|
| 15.072 | 48 x 30 x 22 mm | 0.022 |

Metal box for 10 CARY® plug gauges TDH type from Ø 0.050 to 0.309 mm.

CARY® steel plug gauges TLH type.



| Ø A mm | B2 mm | C mm |
|---------------|-------|------|
| 0.050...0.109 | 31.8 | 0.8 |
| 0.110...0.159 | 32.0 | 1.0 |
| 0.060...0.209 | 32.2 | 1.4 |
| 0.210...0.309 | 32.6 | 1.6 |

| MSA | Ø | Progression | Kg |
|----------------|------------------|-------------------------|-------|
| 15.021-x.xxx * | 0.050...0.080 mm | 0.002 mm (even sizes) | 0.003 |
| 15.020-x.xxx * | 0.051...0.079 mm | 0.002 mm (uneven sizes) | 0.003 |
| 15.022-x.xxx * | 0.081...0.309 mm | 0.002 mm (uneven sizes) | 0.003 |
| 15.023-x.xxx * | 0.082...0.308 mm | 0.002 mm (even sizes) | 0.003 |

CARY® steel plug gauge TLH type.
The TLH type is identical to the TDH type, but with a 30 mm-long handle. Standard accuracy : ± 0.4 µm.

* Specify the exact diameter when ordering

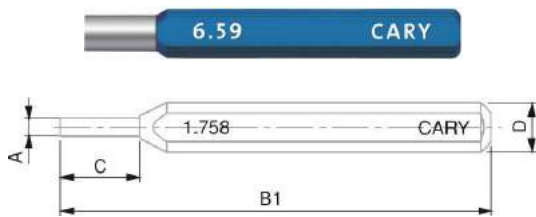


| MSA | Size | Kg |
|--------|-----------------|-------|
| 15.068 | 80 x 82 x 47 mm | 0.145 |

Wooden box for 25 CARY@ plug gauges TLH type from Ø 0.050 to 0.309 mm.

Delivered without gauges.

CARY@ steel simple plugs gauge TXH type.



| Ø A mm | B1 mm | C mm | D mm |
|----------------|-------|------|------|
| 0.300...0.509 | 38 | 3 | 3.5 |
| 0.510...1.009 | 39 | 4 | 3.5 |
| 1.010...1.509 | 40 | 5 | 3.5 |
| 1.510...2.009 | 46 | 6 | 5 |
| 2.010...2.509 | 47 | 7 | 5 |
| 2.510...3.009 | 48 | 8 | 5 |
| 3.010...3.509 | 49 | 9 | 5 |
| 3.510...4.009 | 60 | 10 | 8 |
| 4.010...5.009 | 61 | 11 | 8 |
| 5.010...10.010 | 62 | 12 | 8 |

| MSA | Ø | Progression | Kg |
|----------------|-------------------|-------------------------|-------|
| 15.026-x.xxx * | 0.300...1.508 mm | 0.002 mm (even sizes) | 0.003 |
| 15.024-x.xxx * | 0.301...1.509 mm | 0.002 mm (uneven sizes) | 0.003 |
| 15.029-x.xxx * | 1.510...3.508 mm | 0.002 mm (even sizes) | 0.004 |
| 15.027-x.xxx * | 1.511...3.509 mm | 0.002 mm (uneven sizes) | 0.004 |
| 15.031-x.xxx * | 3.510...10.000 mm | 0.002 mm (even sizes) | 0.007 |
| 15.030-x.xxx * | 3.511...9.999 mm | 0.002 mm (uneven sizes) | 0.007 |

CARY@ steel simple plug gauge TXH type.

Standard accuracy from Ø 0.300 to 3.000 mm : ± 0.4 µm.

Standard accuracy from Ø 3.000 to 10.000 mm : ± 0.5 µm.

* Specify the exact diameter when ordering



| MSA | | Size | Kg |
|--------|-----|------------------|-------|
| 15.069 | (1) | 135 x 85 x 60 mm | 0.240 |
| 15.070 | (2) | 135 x 85 x 60 mm | 0.545 |

Wooden box for 50 CARY@ plug gauges TLH type.

(1) from Ø 0.300 to 1.509 mm

(2) from Ø 1.510 to 3.509 mm

(1)

Sets of metric gauge steel blocks MITUTOYO®.
Delivered in a wooden box with a certificate of inspection.

How to choose the accuracy grade :

- Grade 1 : gauge blocks of this class are mainly used as working standards to set and calibrate plug gauges and measuring instruments in measuring rooms or inspection areas within the production.
- Grade 2 : these gauge blocks are commonly used as working standards in inspection rooms within the production to set and calibrate measuring instruments and other equipment as well as to inspect tools, fixtures and machines.

Mitutoyo



| MSA | Number of blocks | Accuracy grade | Kg |
|--------|------------------|----------------|----|
| 15.630 | 32 | 1 | - |
| 15.631 | 32 | 2 | - |

Set of metric gauge steel blocks MITUTOYO®.

Composition :

| | |
|----------------------------|--------------------|
| <i>Quantity and size :</i> | <i>Increment :</i> |
| 1x 1.005 mm | - |
| 9x 1.01...1.09 mm | 0.01 mm |
| 9x 1.10...1.90 mm | 0.10 mm |
| 9x 1.00...9.00 mm | 1.00 mm |
| 3x 10...30 mm | 10 mm |
| 1x 60 mm | - |

Mitutoyo



| MSA | Number of blocks | Accuracy grade | Kg |
|--------|------------------|----------------|----|
| 15.632 | 47 | 1 | - |
| 15.633 | 47 | 2 | - |

Set of metric gauge steel blocks MITUTOYO®.

Composition :

| | |
|----------------------------|--------------------|
| <i>Quantity and size :</i> | <i>Increment :</i> |
| 1x 1.005 mm | - |
| 19x 1.01...1.19 mm | 0.01 mm |
| 8x 1.20...1.90 mm | 0.10 mm |
| 9x 1.00...9.00 mm | 1.00 mm |
| 10x 10...100 mm | 10 mm |

Mitutoyo



| MSA | Number of blocks | Accuracy grade | Kg |
|--------|------------------|----------------|----|
| 15.634 | 87 | 1 | - |
| 15.635 | 87 | 2 | - |

Set of metric gauge steel blocks MITUTOYO®.

Composition :

| | |
|----------------------------|--------------------|
| <i>Quantity and size :</i> | <i>Increment :</i> |
| 9x 1.001...1.009 mm | 0.001 mm |
| 49x 1.01...1.49 mm | 0.01 mm |
| 19x 0.50...9.50 mm | 0.50 mm |
| 10x 10...100 mm | 10 mm |

MEASURING INSTRUMENTS WITH VARIABLE DIMENSIONS

Calipers with vernier reading.



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.100 | 150 mm | 0.02 mm | 0.275 |

Hardened steel caliper with vernier reading.
Delivered in 1 imitation leather pouch.



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.436 | 150 mm | 0.02 mm | 0.270 |

Hardened stainless steel standard caliper with vernier reading and locking screw.
Delivered in 1 synthetic case.

Dial calipers.



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.115 | 150 mm | 0.02 mm | 0.340 |

Hardened steel dial caliper. Rotating dial with locking screw.
Delivered in 1 synthetic case.

2 mm/revolution



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.104 | 150 mm | 0.02 mm | 0.350 |

CCMA-M hardened stainless steel dial caliper (steel gear mechanism, hardened and ground).

- Easy-to-read
- Slider with metal dial housing
- Rotating dial Ø 32 mm with locking screw.

Delivered in 1 synthetic case.

2 mm/revolution



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.422 | 150 mm | 0.01 mm | 0.360 |

CCMA-M hardened stainless steel dial caliper (steel gear mechanism, hardened and ground).

- Easy-to-read
- Slider with metal dial housing
- Rotating dial Ø 32 mm with locking screw.

Delivered in 1 synthetic case.

1 mm/revolution



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.110 | 150 mm | 0.02 mm | 0.370 |

ETALON 125 hardened stainless steel dial caliper (steel gear mechanism, hardened and ground).

- Slider with metal dial housing
- Rotating dial Ø 32 mm with locking screw.

Delivered in 1 synthetic case.

1 mm/revolution

Electronic calipers.



| MSA | Measuring range | Precision | Kg |
|---------------|-----------------|-------------------|-------|
| 15.512 | 100 mm / 4" | 0.01 mm / 0.0005" | 0.170 |

Small hardened steel electronic caliper, very practical thanks to its reduced dimensions.

Delivered in 1 synthetic case.



| MSA | Measuring range | Precision | Kg |
|---------------|-----------------|-------------------|-------|
| 15.510 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.100 |

Synthetic electronic caliper.

Delivered in 1 transparent plastic case.



| MSA | Measuring range | Precision | Kg |
|---------------|-----------------|-------------------|-------|
| 15.511 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.325 |

Tempered steel electronic caliper.

Delivered in 1 synthetic case.



| MSA | Measuring range | Precision | Kg |
|---------------|-----------------|------------------|-------|
| 15.513 | 150 mm / 6" | 0.01 mm / 0.005" | 0.292 |

Hardened steel electronic caliper.

Big LCD display 15 mm.

Delivered in 1 synthetic case.



| MSA | Measuring range | Precision | Kg |
|---------------|-----------------|------------------|-------|
| 15.107 | 150 mm / 6" | 0.01 mm / 0.005" | 0.150 |
| 15.457 | 150 mm / 6" | 0.01 mm / 0.005" | 0.150 |
| 15.113 | 150 mm / 6" | 0.01 mm / 0.005" | 0.150 |
| 15.458 | 200 mm / 8" | 0.01 mm / 0.005" | 0.200 |
| 15.459 | 300 mm / 12" | 0.01 mm / 0.005" | 0.280 |

TWIN-CAL electronic caliper with the highest degree of protection ever reached. Resists to any penetration of liquids and particles of materials (metal or other).

- Degree of protection IP67
- Square depth rod : MSA15.107, MSA15.458 and MSA15.459
- Round depth rod : MSA15.457
- Round depth rod with thumb roller : MSA15.113
- The inductive measuring system, a TESA technology, guarantees reliability and high precision even in harsh conditions
- Equipped with TLC (TESA Link Connector), the unique integral data output facility, providing the opportunity to upgrade your caliper at any time
- LCD display, 11 mm
- Lithium battery 3 V, CR 2032.

Delivered in 1 synthetic case.



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-------------------|-------|
| 15.111 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.150 |
| 15.112 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.150 |
| 15.108 | 200 mm / 8" | 0.01 mm / 0.0005" | 0.150 |

TWIN-CAL electronic caliper. High degree of protection against dust.
 - Degree of protection IP40
 - Rectangular depth rod (MSA15.111 and MSA15.108, the latter with thumb roller) or round (MSA15.112 with thumb roller)
 - Equipped with an integrated data output. Simply connect the TWIN-CAL via the TLC (TESA Link Connector) to a PC and all your measurement results will be captured and stored for optimal SPC monitoring
 - LCD display, 11 mm
 - Lithium battery 3 V, CR 2032.
Delivered in 1 synthetic case.

Data transfer.



(1)



(2)

| MSA | | Model | Length | Kg |
|--------|-----|------------|--------|-------|
| 15.114 | (1) | Opto-USB | 2 m | 0.045 |
| 15.117 | (2) | Opto-Sub-D | 2 m | 0.040 |

Duplex connecting cable, bidirectional communication.
 Any connecting cable is defined by each of the connectors fitted at either end of the cable principally to suit the computer, and the measuring instrument being used. To achieve highest compatibility levels, TESA® uses only standardized and proven connectors.

MSA15.114 :
 - Opto RS232 connector (for instrument)
 - USB connector A type (for computer or system).

MSA15.117 :
 - Opto RS232 connector (for instrument)
 - Connector Sub-D 9 p/f Duplex (for computer or system).



| MSA | Length | Kg |
|--------|--------|-------|
| 15.469 | 2 m | 0.055 |

TLC-USB cable for instrument with TLC connector (TESA Link Connector).
 - TLC connector (for instrument)
 - USB connector (for computer or system).



(1)

(2)

| MSA | | Kg |
|--------|-----|-------|
| 15.524 | (1) | 0.100 |
| 15.523 | (2) | 0.150 |

USB accessory.

(1) Multiplexer, 7 USB ports 2.0.

- Robust steel housing
- External powering using a C-type AUX connector, 4 pins
- Delivered with : DC mains adapter (EU) and connecting cable to PC
- Recommended highest number of ports : 49 USB ports connectable on 2 levels.

(2) USB foot switch.

- Direct connection to any USB port
- Takes DataDirect or StatExpress into account when transferring the measured values from all connected measuring tools.

Wireless data transfer.



| MSA | | Kg |
|--------|--|-------|
| 15.624 | | 0.088 |

The Bluetooth® TLC-BLE emitter is adaptable to a very wide range of instruments to transfer data easily.

The Bluetooth® wireless transmitter allows to send the measured values of most TESA instruments to a computer. This wireless data transfer avoids transcription errors and improves the traceability. The emitters are quickly adaptable to all TLC connectors (TESA Link Connector) to upgrade both new and existing models.

Delivered with 1 emitter, 1 USB Dongle receiver and 1 extension cable 1.5 m.



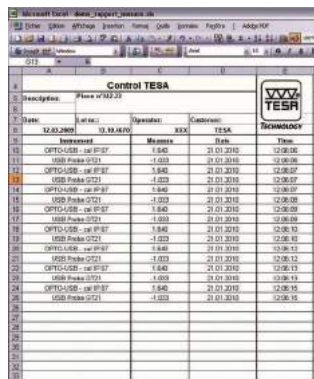
| MSA | |
|--------|--|
| 15.625 | |

Bluetooth® TLC-BLE emitter.



| MSA | |
|--------|--|
| 15.626 | |

Adapter type OPTO-RS232/TLC with Velcro® strap for fixing the emitter.



| MSA | | Kg |
|--------|--|-------|
| 15.522 | | 0.110 |

Software DATA-DIRECT + dongle.

DATA-DIRECT software is an easy way to collect and report results in real time from the majority of the measuring instruments in the TESA range that have an RS232 output.

DATA-DIRECT is supplied not only with serial input/output drivers specially configured for TESA's products, but also for those purchased from other manufacturers. It works effectively to give data transfer for your data sheets, database, statistical modules or any other Windows-based applications.

- TESA® DATA-DIRECT installation CD + USB license key + user instructions (PDF version).

Printer.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 15.479 | 180 x 180 x 84 mm | 0.550 |

PRINTER SPC portable printer.

- Intelligent printer designed for the inspection of finished parts or incoming goods
- Value classification
- Prints out measurement results with graphical representations
- 5 languages : French, German, English, Italian and Spanish
- Can be connected not only to TESA measuring instruments, but also to those provided with a DIGIMATIC output
- The printer is capable of recognising the connected tool and will execute the appropriate configuration automatically
- Adapter 100-240 V AC, 6.6 V DC
- Roll width : 110 mm
- Printing : 40 signs/line.

Spare part :

| MSA | Item | Kg |
|--------|--------------------------|-------|
| 15.480 | Paper roll, width 110 mm | 0.190 |

Boxes of instruments TESA®.



| MSA | Kg |
|--------|-------|
| 15.730 | 0.498 |

TESA® analogue measuring instruments box CS6 for apprentices, composed of :

- Dial caliper, with measuring range 150 mm, precision 0.02 mm
- Analogue micrometre, with measuring range from 0 to 25 mm, precision 0.01 mm
- Steel bevelled edge square, 100 x 70 mm
- Flexible rule 150 mm.

Delivered in 1 synthetic case.



| MSA | Kg |
|--------|-------|
| 15.731 | 0.469 |

TESA® digital measuring instruments box CS13 for apprentices, composed of :

- Electronic caliper (Protection IP67), with measuring range 150 mm, precision 0.01 mm
- Electronic micrometre, with measuring range from 0 to 30 mm, precision 0.001 mm
- Depth measuring foot.

Delivered in 1 synthetic case.

 sylvac



MSA

15.179

SYLVAC® digital measuring instruments box for apprentices, composed of :

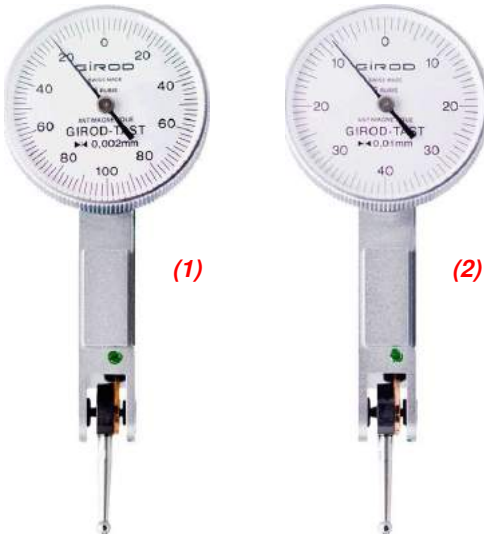
- Electronic caliper 150 mm, precision 0.01 mm (Protection IP67)
- Electronic micrometre 0-30 mm
- Flexible rule 150 mm
- Precision square
- 1 thread gauge + 1 radius gauge
- Scriber 180 mm.

Delivered in 1 synthetic case.

Lever indicators GIROD-TAST.

- High sensitivity, repeatability and accuracy (according to DIN 2270 standards). Unaffected by magnetic fields
- Automatic reversing contact point, with constant clockwise rotation
- Easy and error-free reading by only one revolution of the hand
- Robust one-piece housing ; corrosion resistant with satin chrome finish
- Designed for universal applications. Well-suited for workshop use.
- Interchangeable carbide contact point swivels over 240°.

 GIROD INSTRUMENTS



| MSA | | Measuring range | Precision | Ø dial | Circular scale |
|--------|-----|-----------------|-----------|--------|----------------|
| 15.131 | (1) | 0.20 mm | 0.002 mm | 28 mm | 0 - 100 - 0 mm |
| 15.611 | | 0.20 mm | 0.002 mm | 37 mm | 0 - 100 - 0 mm |
| - | | - | - | - | - |
| 15.132 | (2) | 0.80 mm | 0.01 mm | 28 mm | 0 - 40 - 0 mm |
| 15.125 | | 0.80 mm | 0.01 mm | 37 mm | 0 - 40 - 0 mm |

TESATAST standard lever indicator.

 GIROD INSTRUMENTS



| MSA | Measuring range | Precision | Ø dial | Circular scale |
|--------|-----------------|-----------|--------|----------------|
| 15.133 | 0.80 mm | 0.01 mm | 28 mm | 0 - 40 - 0 mm |

TESATAST standard lever indicator.

Longitudinal lever

Digital dial gauges.



| MSA | Model | Measuring range | Resolution | Degree of protection | Kg |
|--------|-----------------|------------------|----------------------|----------------------|----|
| 15.638 | DIALTRONOC EASY | 12.50 mm 0.5" | 0.01 mm 0.0005" | IP51 | - |
| 15.639 | DIALTRONOC EASY | 12.50 mm 0.5" | 0.001 mm 0.00005" | IP51 | - |

DIALTRONOC EASY digital dial gauge, Ø 60 mm.

- Measuring force (N) : 0.65 - 0.90
- Indication error over measuring range (retractable plunger) MPEE (µm) : MSA15.638 (10 ± 1 digit) / MSA15.639 (4)
- Indication error over partial measuring range (over 1 mm) MPEP (µm) : MSA15.638 (8) / MSA15.639 (3)
- Repeatability of the indication error MPER (µm) : 2.

Standard features :

- Zeroing/Preset
- Data transmission
- Selection mm/inch
- Selection of measuring direction
- Automatic or manual switch-off
- Locking of the measured value.

Travel 12.50 mm / 0.5"



| MSA | Model | Measuring range | Resolution | Degree of protection | Kg |
|--------|------------|------------------|----------------------|----------------------|----|
| 15.640 | DIALTRONOC | 12.50 mm 0.5" | 0.01 mm 0.0005" | IP54 | - |
| 15.641 | DIALTRONOC | 12.50 mm 0.5" | 0.001 mm 0.00005" | IP54 | - |
| 15.642 | DIALTRONOC | 12.50 mm 0.5" | 0.001 mm 0.00005" | IP67 | - |

DIALTRONOC digital dial gauge, Ø 60 mm.

- Measuring force (N) : MSA15.640 + MSA15.641 (0.65 - 0.90) / MSA15.642 (0.70 - 1.40)
- Indication error over measuring range (retractable plunger) MPEE (µm) : MSA15.640 (10 ± 1 digit) / MSA15.641 + MSA15.642 (3)
- Indication error over partial measuring range (over 1 mm) MPEP (µm) : MSA15.640 (8) / MSA15.641 + MSA15.642 (2.6)
- Repeatability of the indication error MPER (µm) : 2.

Standard features :

- Zeroing/Preset
- Data transmission
- Selection mm/inch
- Selection of measuring direction
- Automatic or manual switch-off
- Locking of the measured value.

Advanced features :

- Definition of upper and lower tolerances
- Dynamic Min / Max / Max-Min measurement
- Selection of Ref 1 or Ref 2 (Preset and stored tolerance)
- Multiplication factor
- Locking of the keyboard
- Choice of resolution : 0.01 or 0.001 mm / 0.0005" or 0.00005".

Travel 12.50 mm / 0.5"



Travel 25 mm / 1"

| MSA | Model | Measuring range | Resolution | Degree of protection | Kg |
|--------|------------|-----------------|----------------------|----------------------|----|
| 15.643 | DIALTRONOC | 25.00 mm 1" | 0.01 mm 0.0005" | IP54 | - |
| 15.644 | DIALTRONOC | 25.00 mm 1" | 0.001 mm 0.00005" | IP54 | - |
| 15.645 | DIALTRONOC | 25.00 mm 1" | 0.001 mm 0.00005" | IP67 | - |

DIALTRONOC digital dial gauge, Ø 60 mm.

- Measuring force (N) : MSA15.643 + MSA15.644 (0.65 - 0.90) / MSA15.645 (0.70 - 1.40)

- Indication error over measuring range (retractable plunger) MPEE (µm) : MSA15.643 (10 ± 1 digit) / MSA15.642 + MSA15.643 (4)

- Indication error over partial measuring range (over 1 mm) MPEP (µm) : 2.6

- Repeatability of the indication error MPER (µm) : 2.

Standard features :

- Zeroing/Preset
- Data transmission
- Selection mm/inch
- Selection of measuring direction
- Automatic or manual switch-off
- Locking of the measured value.

Advanced features :

- Definition of upper and lower tolerances
- Dynamic Min / Max / Max-Min measurement
- Selection of Ref 1 or Ref 2 (Preset and stored tolerance)
- Multiplication factor
- Locking of the keyboard
- Choice of resolution : 0.01 or 0.001 mm / 0.0005" or 0.00005".



Travel 50 mm / 2"
Travel 100 mm / 4"
Travel 150 mm / 6"

| MSA | Model | Measuring range | Resolution | Degree of protection | Kg |
|--------|------------|-----------------|----------------------|----------------------|----|
| 15.646 | DIALTRONOC | 50.00 mm 2" | 0.001 mm 0.00005" | IP54 | - |
| 15.647 | DIALTRONOC | 100.00 mm 4" | 0.001 mm 0.00005" | IP54 | - |
| 15.648 | DIALTRONOC | 150.00 mm 6" | 0.001 mm 0.00005" | IP54 | - |

DIALTRONOC digital dial gauge, Ø 60 mm.

- Measuring force (N) : 0.65 - 0.90

- Indication error over measuring range (retractable plunger) MPEE (µm) : MSA15.646 (5) / MSA15.647 (6) / MSA15.648 (10)

- Indication error over partial measuring range (over 1 mm) MPEP (µm) : 3.2

- Repeatability of the indication error MPER (µm) : 2

- Brake valve included to limit the speed of the plunger's descent stroke.

Standard features :

- Zeroing/Preset
- Data transmission
- Selection mm/inch
- Selection of measuring direction
- Automatic or manual switch-off
- Locking of the measured value.

Advanced features :

- Definition of upper and lower tolerances
- Dynamic Min / Max / Max-Min measurement
- Selection of Ref 1 or Ref 2 (Preset and stored tolerance)
- Multiplication factor
- Locking of the keyboard
- Choice of resolution : 0.01 or 0.001 mm / 0.0005" or 0.00005".

SWISSMETROLOGIE



| MSA | Measuring range | Resolution | Kg |
|-----------|-----------------|---------------------|-------|
| 15.454-25 | 25.00 mm / 1" | 0.001 mm / 0.00005" | 0.390 |
| 15.454-50 | 50.00 mm / 2" | 0.001 mm / 0.00005" | 0.490 |

SWISSMETROLOGIE® electronic indicator.

- Maximum permissible errors/Limit deviations :
 - MSA15.454-10 = 0.004 mm
 - MSA15.454-25 = 0.005 mm
 - MSA15.454-50 = 0.006 mm
- Mounting rod Ø 8 mm
- LCD display 10.5 mm
- PRESET and ON/OFF functions
- Measuring modes ABS/DIFF
- Lithium battery 3 V, CR 2032.

Delivered in 1 synthetic case with operating instructions.

Travel 10, 25 or 50 mm / 0.4, 1 or 2"



| MSA | Measuring range | Resolution | Kg |
|--------|-----------------|---------------------|-------|
| 15.128 | 12.50 mm / 0.5" | 0.001 mm / 0.00005" | 0.247 |

STANDARD GAGE® electronic indicator.

- Maximum permissible error : 0.004 mm
- Repeatability : 0.002 mm
- Mounting rod Ø 8 mm
- LCD display 10.5 mm
- ABS/PRESET, metric/inch, TOL/SETTOL, MAX/MIN and ZERO/ON buttons
- Lithium battery 3 V, CR 2032.

Delivered in 1 synthetic case with operating instructions.

Travel 12.50 mm / 0.5"



| MSA | Measuring range | Resolution | Total length |
|--------|-----------------|------------------------|------------------|
| 15.160 | 25.00 mm 1" | 0.0001 mm 0.000004" | Avec With Mit Co |
| 15.161 | 25.00 mm 1" | 0.0001 mm 0.000004" | Sans Without Ohr |
| - | - | - | - |
| 15.162 | 50.00 mm 2" | 0.0001 mm 0.000004" | Avec With Mit Co |
| 15.163 | 50.00 mm 2" | 0.0001 mm 0.000004" | Sans Without Ohr |

SYLVAC® S-DIAL PRO SMART electronic indicator.

- Maximum error : 1 µm
- Repeatability : 0.2 µm
- Mounting rod Ø 8 mm
- Large display with tolerance status indication by colour LED
- Output data : USB - RS232 - Bluetooth
- Three buttons, including the central button with selectable favourite function
- Wide range of functions, including MIN/MAX/DELTA
- Protection class IP51.

Travel 25 or 50 mm / 1 or 2"

Analogic dial gauges.



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.399 | 10 mm | 0.01 mm | 0.170 |

JFK FEINTASTER dial gauge on horizontal support with "Z" adjustable table.

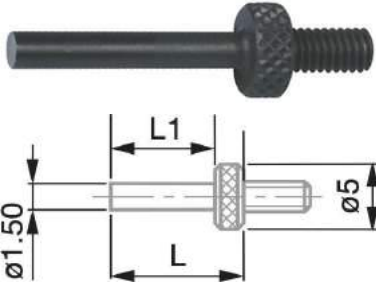


| MSA | Measuring range | Precision | Ø dial | Kg |
|--------|-----------------|-----------|--------|-------|
| 15.126 | 10 mm | 0.01 mm | 57 mm | 0.170 |

Analogical dial gauge MITUTOYO®.

- Circular scale : 0 - 100
- 1 dial revolution : 1 mm
- Fixing Ø 8 mm
- Carbide insert.

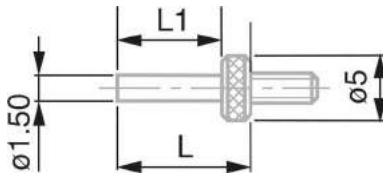
Cylindrical measuring inserts for indicators.



Steel

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.477 | 2.00 mm | 5.00 mm | 0.001 |
| 15.417 | 2.00 mm | 10.00 mm | 0.001 |
| 15.416 | 2.00 mm | 15.00 mm | 0.001 |

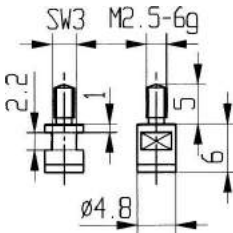
Steel cylindrical measuring insert with flat measuring face, M2.5.



Steel

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.650 | 1.50 mm | 15.00 mm | 0.004 |
| 15.651 | 1.50 mm | 20.00 mm | 0.004 |
| 15.652 | 1.50 mm | 25.00 mm | 0.004 |
| 15.653 | 1.50 mm | 30.00 mm | 0.004 |

Steel cylindrical measuring insert with flat measuring face, M2.5.

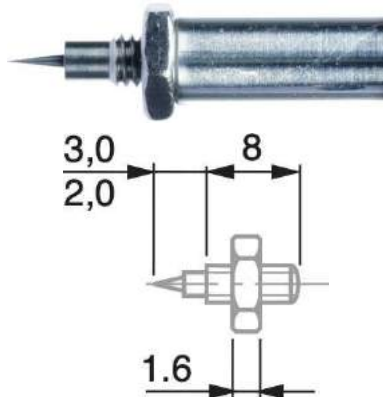


Carbide

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.654 | 4.80 mm | 6.00 mm | 0.004 |

Carbide cylindrical measuring insert with flat measuring face, M2.5.

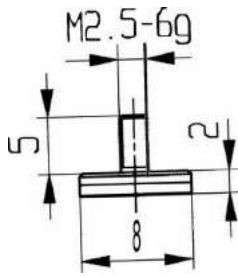
Special measuring inserts for indicators.



Steel

| MSA |
|--------|
| 15.448 |

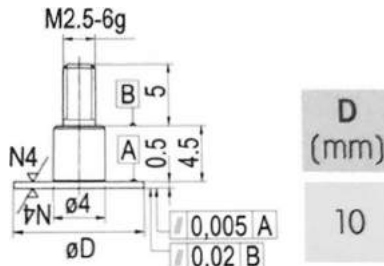
Steel measuring insert with needle contact point, M2.5.



Steel

| MSA | Ø | Thickness | Useful length | Kg |
|-----------|----------|-----------|---------------|-------|
| 15.657-08 | 8.00 mm | 2.00 mm | 7.00 mm | 0.010 |
| 15.657-10 | 10.00 mm | 2.00 mm | 7.00 mm | 0.010 |
| 15.657-12 | 12.00 mm | 2.00 mm | 7.00 mm | 0.010 |
| 15.657-15 | 15.00 mm | 2.00 mm | 7.00 mm | 0.010 |
| 15.657-20 | 20.00 mm | 2.00 mm | 7.00 mm | 0.010 |
| 15.657-25 | 25.00 mm | 2.00 mm | 7.00 mm | 0.010 |

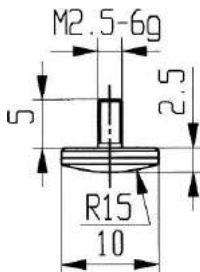
Steel measuring insert plate-shaped, M2.5.



Steel

| MSA | Ø | Thickness | Kg |
|--------|----------|-----------|-------|
| 15.668 | 10.00 mm | 0.50 mm | 0.002 |

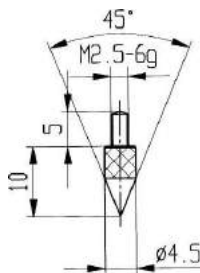
Steel measuring insert plate-shaped, M2.5.



Carbide

| MSA | Ø | Thickness | Useful length | Kg |
|--------|----------|-----------|---------------|-------|
| 15.658 | 10.00 mm | 2.50 mm | 7.50 mm | 0.002 |

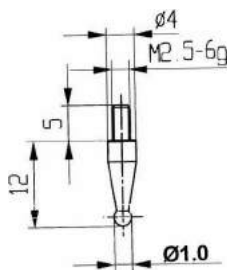
Carbide domed measuring insert, M2.5.



Carbide

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.659 | 4.50 mm | 10.00 mm | 0.002 |

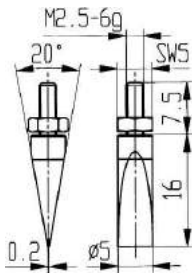
Carbide conical 45° measuring insert, M2.5.



Carbide

| MSA | Ø | Useful length | Kg |
|-------------|---------|---------------|-------|
| 15.660-1.00 | 1.00 mm | 12.00 mm | 0.004 |
| 15.660-2.00 | 2.00 mm | 12.00 mm | 0.004 |
| 15.660-3.00 | 3.00 mm | 12.00 mm | 0.004 |

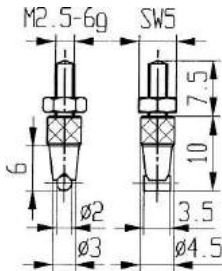
Carbide ball tip measuring insert, M2.5.



Carbide

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.661 | 5.00 mm | 16.00 mm | 0.005 |

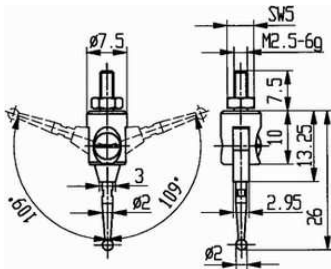
Carbide knife-shaped 20° measuring insert, M2.5.



Carbide

| MSA | Ø | Useful length | Width | Kg |
|--------|---------|---------------|---------|-------|
| 15.662 | 2.00 mm | 10.00 mm | 3.50 mm | 0.005 |

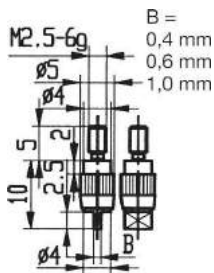
Carbide over wire measuring insert, M2.5.



Carbide

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.663 | 2.00 mm | 26 mm | 0.005 |

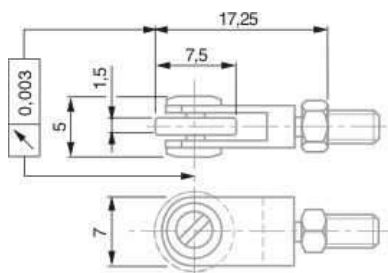
Carbide ball tip measuring insert on articulated pivot, M2.5.



Carbide

| MSA | Thickness | Useful length | Width | Kg |
|--------|-----------|---------------|---------|-------|
| 15.664 | 0.40 mm | 2.50 mm | 2.00 mm | 0.005 |
| 15.665 | 0.60 mm | 2.50 mm | 2.00 mm | 0.005 |
| 15.666 | 1.00 mm | 2.50 mm | 4.00 mm | 0.005 |

Carbide knife-shaped measuring insert, M2.5.



Steel

| MSA | Ø | Useful length | Kg |
|--------|---------|---------------|-------|
| 15.667 | 7.00 mm | 17.25 mm | 0.005 |

Steel measuring insert with ball-bearing rollers.

Adapter for vertical dial indicators.

SWISSMETROLOGIE



| MSA | Size | Kg |
|--------|-------------|-------|
| 15.380 | Ø 8 x 35 mm | 0.010 |

Adapter for mounting on a vertical dial indicator. To be used with a plug gauge.

Adapter for interchangeable cylindrical measuring inserts for indicators.

SWISSMETROLOGIE



| MSA | Kg |
|--------|-------|
| 15.373 | 0.002 |

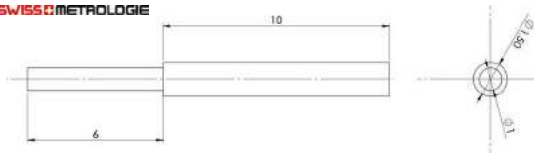
Adapter for steel interchangeable cylindrical measuring inserts, clamping shank Ø 1.50 mm with tightening screw.

Spare part :

| MSA | Item | Kg |
|----------|------------------|-------|
| 15.373-V | Tightening screw | 0.001 |

Interchangeable measuring inserts for indicators.

SWISSMETROLOGIE

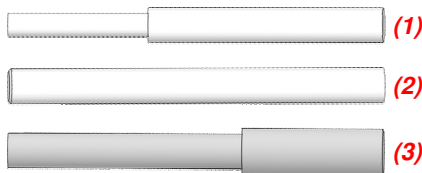


Carbide

| MSA | Ø | Useful length | Total length | Kg |
|-------------|---------|---------------|--------------|-------|
| 15.358-0.20 | 0.20 mm | 4 mm | 16 mm | 0.001 |
| 15.358-0.30 | 0.30 mm | 4 mm | 16 mm | 0.001 |
| 15.358-0.40 | 0.40 mm | 4 mm | 16 mm | 0.001 |
| 15.358-0.50 | 0.50 mm | 4 mm | 16 mm | 0.001 |
| 15.358-0.80 | 0.80 mm | 6 mm | 16 mm | 0.001 |
| 15.358-1.00 | 1.00 mm | 6 mm | 16 mm | 0.001 |
| 15.358-1.20 | 1.20 mm | 6 mm | 16 mm | 0.001 |
| 15.358-1.50 | 1.50 mm | 16 mm | 16 mm | 0.001 |
| 15.358-2.00 | 2.00 mm | 10 mm | 16 mm | 0.001 |

Carbide interchangeable cylindrical measuring insert with flat measuring face.

SWISSMETROLOGIE

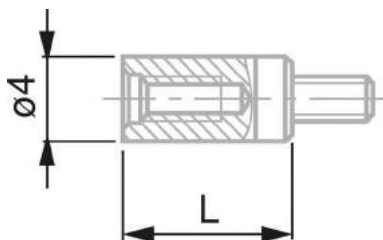


PEEK

| MSA | Ø | Useful length | Total length | Kg |
|-----------------|---------|---------------|--------------|-------|
| 15.357-1.00 (1) | 1.00 mm | 10 mm | 16 mm | 0.001 |
| 15.357-1.50 (2) | 1.50 mm | 16 mm | 16 mm | 0.001 |
| 15.357-2.00 (3) | 2.00 mm | 6 mm | 16 mm | 0.001 |

PEEK interchangeable cylindrical measuring insert with flat measuring face.

Extensions for measuring inserts.



| MSA | Ø | Length | Kg |
|-----------|---------|--------|-------|
| 15.359-07 | 4.00 mm | 7 mm | 0.001 |
| 15.359-10 | 4.00 mm | 10 mm | 0.002 |
| 15.359-15 | 4.00 mm | 15 mm | 0.002 |
| 15.359-20 | 4.00 mm | 20 mm | 0.003 |
| 15.359-25 | 4.00 mm | 25 mm | 0.004 |
| 15.359-30 | 4.00 mm | 30 mm | 0.004 |
| 15.359-40 | 4.00 mm | 40 mm | 0.005 |
| 15.359-50 | 4.00 mm | 50 mm | 0.006 |

Extension for measuring inserts, M2.5.

Retraction devices.



| MSA | Ø | Kg |
|--------|-------|-------|
| 15.409 | 58 mm | 0.008 |

Device for plunger retraction for mounting on the top stem.



| MSA |
|--------|
| 15.446 |

Device for plunger retraction for mounting on the bottom stem.
Delivered with a lift lever and a washer.



| MSA |
|--------|
| 15.478 |

Bottom mounted lift lever.
Contains only the retraction lever.



| MSA | Kg |
|----------|-------|
| 15.407-B | 0.010 |

Top lever for plunger retraction.

Vertical measuring supports.



| MSA | Ø table | Size | Kg |
|--------|---------|-------------------|-------|
| 15.360 | 50 mm | 80 x 130 x 255 mm | 2.500 |
| 15.361 | 80 mm | 80 x 130 x 255 mm | 2.530 |

Vertical support V 01 type with steel base.
Measuring capacity 75 mm.
Delivered with measuring instrument.



| MSA | Kg |
|--------|-------|
| 15.424 | 2.600 |

INTERAPID table measuring stand with granite base, grade 00.
- Measuring range 0 - 170 mm
- Chrome-plated column Ø 20 mm, tightening Ø 8 mm
- Measuring table 100 x 150 x 40 mm.
Delivered without measuring instrument.

Other sizes on request.



| MSA | Kg |
|----------|-------|
| 15.424-B | 5.200 |

Vertical table measuring stand with granite base.
- Measuring range 0 - 250 mm
- Chrome-plated column Ø 25 mm, tightening Ø 8 mm
- Measuring table 150 x 210 x 40 mm.

Other sizes on request.

MEASURING INSTRUMENTS WITH VARIABLE DIMENSIONS

SWISSMETROLOGIE



Ceramic

| MSA | Size | Kg |
|--------|-------------------|-------|
| 15.548 | 200 x 150 x 40 mm | 3.000 |

Measuring stand with ceramic base.

- Column height 250 mm
- Arm length 65 mm.

SWISSMETROLOGIE



| MSA | Kg |
|--------|-------|
| 15.558 | 0.200 |

Arm with fine setting for measuring stands MSA15.548 and MSA15.549.

- Centre distance arm 79 mm.

Measuring probes.

HEIDENHAIN



| MSA | Model | Measuring travel | Kg |
|--------|---------|------------------|-------|
| 15.547 | MT 1281 | 12 mm | 0.550 |
| 15.585 | MT 2581 | 25 mm | 0.700 |

METRO high-precision incremental probe.

Suitable for measuring stations and control equipments where the precision is important.

The guided ball-bearing measuring stem allows the absorbing of high transverse loads.

- Measuring range up to 25 mm
- Division 4 μ m
- Sinusoidal alternation of amplitude 1 Vcc, signal 2 μ m
- System accuracy $\pm 0,2 \mu$ m
- Tightening stem $\varnothing 8$ mm
- Interchangeable measuring insert M2.5
- Cable length 1.5 m
- Plug connector Sub-D with 15 poles.

Travel 12 or 25 mm



Travel 30 mm

| MSA | Model | Measuring travel | Kg |
|--------|---------|------------------|-------|
| 15.586 | ST 3088 | 30 mm | 0.500 |

SPECTO high-precision incremental probe. Suitable essentially for multi-measurements working stations and control equipments, thanks to its particularly compact design.

- Measuring range up to 30 mm
- Division 20 µm
- Sinusoidal alternation of amplitude 1 Vcc, signal 20 µm
- System accuracy ± 1 µm
- Tightening stem Ø 8 mm
- interchangeable measuring insert M2.5
- Axial cable length 1.5 m
- Plug connector Sub-D with 15 poles.

Display unit.



| MSA | Model | Kg |
|--------|-------|-------|
| 15.546 | M3 | 0.750 |

Digital display unit for probe with 2 sensor inputs.

Last generation tool to perform dimensional controls from 1 or 2 probes.

- Equipped with a 4.3" colour touch screen, which allows an easy configuration thanks to the drop down menus, the icons and the functions buttons
- Has different means of communication (USB or RS 232) to transmit measurements to a PC or control the display remotely.

Key features :

- 2 configurations of measurement (2 sides)
- Absolute or relative measurements
- Compatible with inductive and incremental probes
- ASCII communication on Modbus RTU
- Keyboard USB function when the display unit is connected to a PC
- Automatic change of configuration of measurement by probe movement
- Safe and easy to use.

Additional features :

- Different display modes with 1 or 2 sides per screen, with or without tolerances
- Static and dynamic measurement (Min, Max, Max-Min, Average, Median)
- Control limits
- Sorted by grades (up to 16 grades)
- Connection of an optional box with 8 opto-coupled inputs/outputs (MB-IO).

Analogical vertical external micrometres.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 15.302 | 85 x 100 x 160 mm | 2.800 |

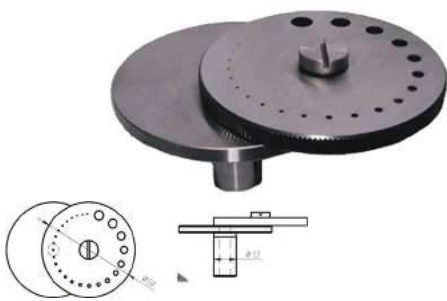
Vertical micrometre 0-25 mm with table Ø 50 mm.
 Micrometric touch adjuster with non-revolving spindle.
 - Measuring range 0 - 25 mm
 - Precision 0.01 mm.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 15.303 | 80 x 130 x 220 mm | 2.800 |

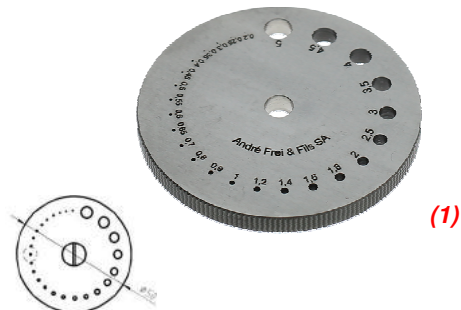
Vertical support V 012 type with perforated table.
 - Measuring capacity 65 mm
 - Micrometric touch adjuster measuring capacity 0 - 25 mm
 - Precision 0.01 mm.

Accessories for analogical vertical external micrometres.



| MSA | Ø |
|--------|-------|
| 15.369 | 50 mm |

Complete table with 25 holes Ø 0.20 - 5.00 mm.



| MSA | Size | Kg |
|------------|---------|-------|
| 15.370 (1) | Ø 50 mm | 0.060 |
| 15.370-A | Ø 50 mm | 0.060 |

Support with 25 holes Ø 0.20 - 5.00 mm.

- Ø 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.80, 0.90, 1.00, 1.20, 1.40, 1.60, 1.80, 2.00, 2.50, 3.00, 3.50, 4.00, 4.50 and 5.00 mm.

MSA15.370 : with engraving.
 MSA15.370-A : without engraving.

Analogical horizontal external micrometre.

Mitutoyo



| MSA | Measuring range | Precision | Kg |
|--------|-----------------|-----------|-------|
| 15.129 | 0 - 25 mm | 0.001 mm | 0.224 |

Analogical horizontal external counter micrometre MITUTOYO®.
 - Measuring force 5 - 15 N
 - Maximum permissible errors : ± 2 µm
 - Measuring face : Ø 6.50 mm.

Electronic horizontal external micrometres.



| MSA | Measuring range | Degree of protection | Kg |
|--------|--------------------------|----------------------|-------|
| 15.431 | 0 - 30 mm / 0 - 1.2" | IP 40 | 0.440 |
| 15.426 | (1) 0 - 30 mm / 0 - 1.2" | IP 54 | 0.440 |

MICROMASTER electronic external micrometre.
 - Precision 0.001 mm or 0.00005"
 - Maximum measuring force 10 N
 - Measuring face Ø 6.50 mm
 - Large easy-to-read LCD display, digit height 7 mm
 - Lithium battery 3 V, CR 2032 - RS 232 interface, opto-coupled.
 Delivered in 1 synthetic case.



| MSA | Measuring range | Degree of protection | Kg |
|--------|----------------------|----------------------|-------|
| 15.484 | 0 - 30 mm / 0 - 1.2" | IP 54 | 0.440 |

MICROMASTER electronic external micrometre with small measuring faces. For measuring grooves, feather grooves, splines and other difficult-to-reach locations. Small measuring faces specially made to check small precision workpieces.
 - Precision 0.001 mm or 0.00005"
 - Maximum measuring force 10 N
 - Measuring face Ø 2 mm, length 5 mm
 - Large easy-to-read LCD display, digit height 7 mm
 - Lithium battery 3 V, CR 2032 - RS 232 interface, opto-coupled.
 Delivered in 1 synthetic case.

Micrometre support.



| MSA |
|--------|
| 15.452 |

Stand for external micrometres up to 300 mm as well as many other hand-held tools.
 -Tilt can be locked using a single bolt
 - Lacquered cast iron base
 - Clamp opening : 16 mm.

Analogue horizontal table micrometre.



| MSA | Insert | Table | Size | Kg |
|--------|----------------|-------|------------------|-------|
| 15.310 | A Ø 2 mm | - | 160 x 40 x 65 mm | 1.000 |
| 15.311 | (1) S-A Ø 2 mm | Yes | 160 x 40 x 65 mm | 0.940 |

Horizontal micrometre 0 - 25 mm.

Other cylindrical inserts on request.

Accessories for horizontal table micrometres.



| MSA | Ø | Kg |
|--------|-------|-------|
| 15.371 | 17 mm | 0.080 |

Universal table for horizontal micrometres.

Measuring "C" benches.

SWISS METROLOGIE



| MSA | Kg |
|--------|-------|
| 15.567 | 1.800 |

Reclining measuring "C" bench (use with inserts M2.5).

- Measuring capacity 30 mm
- Travel 12 mm
- Measuring force from 0.3 to 1 N
- Lift lever.

Delivered without measuring inserts.

SWISS METROLOGIE



| MSA | Insert thickness | Insert useful length | Kg |
|--------|------------------|----------------------|-------|
| 15.560 | 1 mm | > 10 mm | 1.800 |
| 15.561 | 1.5 mm | > 10 mm | 1.800 |
| 15.562 | 2 mm | > 10 mm | 1.800 |
| 15.563 | 3 mm | > 10 mm | 1.800 |
| 15.564 | 4 mm | > 10 mm | 1.800 |
| 15.565 | 5 mm | > 10 mm | 1.800 |
| 15.566 | 6 mm | > 10 mm | 1.800 |

Reclining measuring "C" bench with hard metal cylindrical fixed measuring inserts.

- Measuring capacity 30 mm
- Travel 12 mm
- Flatness inserts 0.3 µm maximum
- Parallelism inserts < 1 µm maximum
- Measuring force from 0.3 to 1 N
- Lift lever.

SWISS METROLOGIE



| MSA | Insert thickness | Insert useful length | Kg |
|--------|------------------|----------------------|-------|
| 15.532 | 0.2 mm | < 5 mm | 1.920 |
| 15.533 | 0.3 mm | < 5 mm | 1.920 |
| 15.534 | 0.4 mm | < 5 mm | 1.920 |
| 15.531 | 0.5 mm | < 5 mm | 1.920 |

Reclining measuring "C" bench with hard metal fixed knife-shaped measuring inserts.

- Measuring capacity 30 mm
- Travel 12 mm
- Flatness inserts 0.3 µm maximum
- Parallelism inserts < 1 µm maximum
- Measuring force from 0.3 to 1 N
- Lift lever.

Horizontal measuring bench for external measurements, can be used with interchangeable measuring inserts CARY® type.

SWISSMETROLOGIE



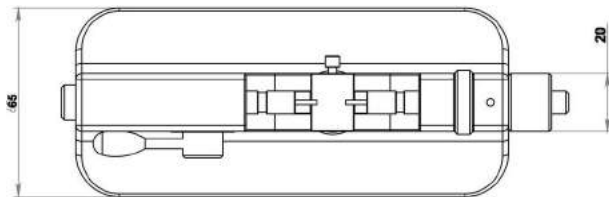
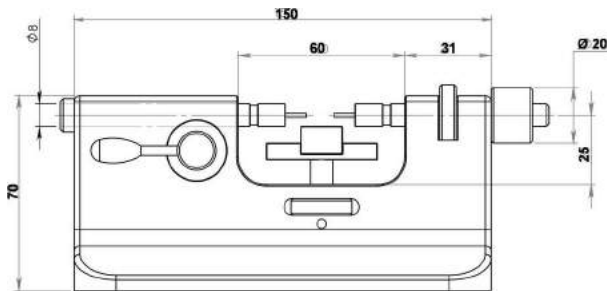
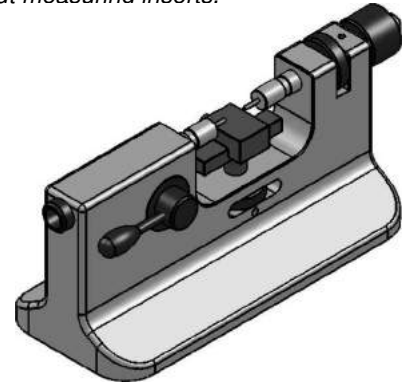
MONO-BLOCK STRUCTURE

| MSA | Kg |
|--------|-------|
| 15.559 | 2.100 |

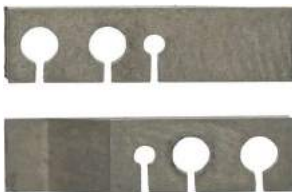
SWISSMETROLOGIE® horizontal measuring bench.

- Measuring capacity 30 mm
- Travel 12 mm
- Flatness inserts 0.3 µm maximum
- Parallelism inserts < 1 µm maximum
- Measuring force from 0.3 to 1 N
- Lift lever.

Delivered without measuring inserts.

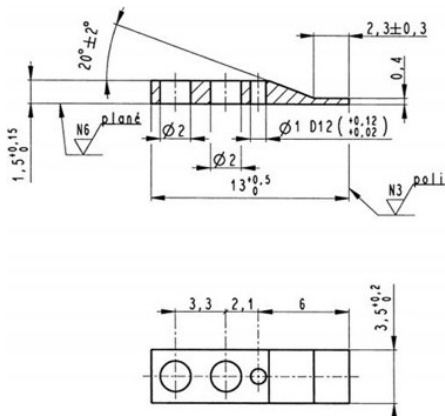


Interchangeable measuring inserts CARY® type.



| MSA | Thickness | Useful length | Width | Kg |
|--------|-----------|---------------|---------|-------|
| 15.550 | 0.2 mm | < 5 mm | 3.50 mm | 0.002 |
| 15.551 | 0.3 mm | < 5 mm | 3.50 mm | 0.002 |
| 15.552 | 0.4 mm | < 5 mm | 3.50 mm | 0.002 |
| 15.553 | 0.5 mm | < 5 mm | 3.50 mm | 0.002 |

Pair of carbide knife-shaped measuring inserts, for MSA15.494 and MSA15.559.



Horizontal measuring bench for EXTERNAL measurements, can be used with interchangeable measuring inserts SYLVAC® and CARY® types.

 sylvac



| MSA | Measuring range | Resolution | Kg |
|--------|-----------------|------------|-------|
| 15.170 | 0 - 25 mm | 0.0001 mm | 3.600 |

- SYLVAC® PS16 V2 horizontal measuring bench for external measurements.
- Robust cast iron construction
 - With integrated Bluetooth system
 - Large display with tolerance status indication by colour LED
 - Three buttons, including the central button with selectable favourite function
 - Adjustable measuring force 0.1 - 0.6 N
 - Protection class IP67.

Delivered with 2 hard metal measuring inserts Ø 1.5 mm.

Accessories : carbide measuring inserts SYLVAC® type, half-knife shaped + table

| MSA | Item |
|------------|--|
| 15.171-010 | Pair of inserts thickness 0.10, usable length 2.20, width 4 mm |
| 15.171-012 | Pair of inserts thickness 0.12, usable length 2.20, width 4 mm |
| 15.171-015 | Pair of inserts thickness 0.15, usable length 2.20, width 4 mm |
| 15.171-020 | Pair of inserts thickness 0.20, usable length 2.20, width 4 mm |
| 15.171-030 | Pair of inserts thickness 0.30, usable length 2.20, width 4 mm |
| 15.171-040 | Pair of inserts thickness 0.40, usable length 2.20, width 4 mm |
| 15.171-070 | Pair of inserts thickness 0.70, usable length 2.20, width 4 mm |
| 15.172 | Table "H" shaped with XZ adjustment |

Horizontal measuring bench for INTERNAL measurements, can be used with interchangeable measuring inserts SYLVAC® and CARY® types.

 sylvac



| MSA | Measuring range | Resolution | Kg |
|--------|-----------------|------------|-------|
| 15.175 | 12 - 62 mm | 0.0001 mm | 5.100 |

- SYLVAC® PS16 V2 LV horizontal measuring bench for internal measurements similar to the MSA15.170, but equipped with a table and anvils assembly allowing to measure internal diameters from Ø 12 to 62 mm.
- Originally designed for measuring watch cases, it is also suitable for measuring rings and thin parts.
 - 2-point measurement with positioning of the workpiece in the measuring axis by 2 movable centring pins
 - Table height adjustable by up to 20 mm.

Delivered with two 0.4 mm thick measuring inserts.

Horizontal measuring bench for internal measurements.



| MSA | Size |
|--------|--------------------|
| 15.574 | 235 x 110 x 100 mm |

Internal or external measuring bench H 04 type.
 - Height of the adjustable table from 0 to 20 mm
 - Internal measuring capacity from 5.50 to 65.00 mm
 - External measuring capacity from 1.50 to 60.00 mm
 - Travel 10 mm.

Delivered without indicator.



| MSA |
|--------|
| 15.575 |

Pair of groove measuring inserts for measuring bench MSA15.574.
 - Internal measuring capacity from 15.50 to 73 mm
 - Thickness 0.25 mm.

Height gauges.



| MSA | Measuring range | Degree of protection | Kg |
|--------|---------------------|----------------------|--------|
| 15.491 | 0 - 100 mm / 0 - 4" | IP50 | 20.000 |

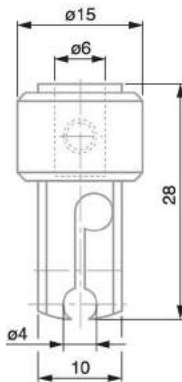
μHITE 160 height gauge.

Compact design with measuring stand included. The perfect combination for small parts and when a low measuring force is required. The whole system provides the best solution for measuring straightness, flatness and parallelism or inspecting axial and radial runouts, depending on the chosen tool configuration.

Granite measuring table 200 x 300 x 50 mm (W x D x H) ; dull-chrome plated steel column Ø 50 x 300 mm, hardened and ground ; fixing for measuring inserts Ø 6 mm x length 10 mm.

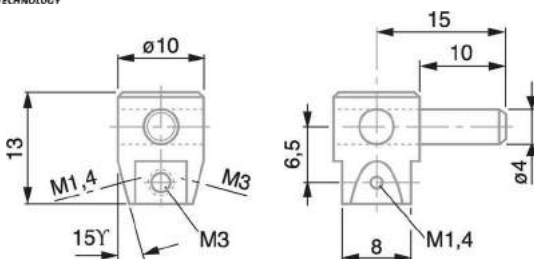
Features :

- Ideal for work piece inspection close to the production area
- Application range from 0 to 160 mm or 0 to 6.3"
- Digital display : 0.001 mm and 0.0001 mm or 0.0001 in and 0.00001"
- Maximum permissible error as low as 2 µm (or 1 µm when checking coaxiality) thanks to the automatic correction of systematic errors by CAA (Computer Aided Accuracy)
- Integrated temperature sensor so that the coefficient of linear expansion of each gauge unit matches that of steel (11,5 x 10-6 K-1)
- Motorised measuring head for fast probing at each point
- Automatic value capture, controlled over the stability of the measuring force, but also all measured values
- Constant measuring force through the motor-driven actuator. Switchable
- No manual calculation needed
- RS232 data output with direct connection to TESA PRINTER SPC
- Memory capacity for 99 single values.



| MSA |
|--------|
| 15.519 |

Radial probe holder with mounting bore Ø 4 mm.



| MSA |
|--------|
| 15.460 |

Universal probe insert holder with clamping shank Ø 4 mm (to be used with radial probe holder MSA15.519).

M1.4 and M3 threads (2x2) for measuring inserts.



MSA

15.470

Foot switch for triggering data transfer or letting a measuring function be repeated.

Jack plug connector, 1.8 m (TESA SPC PRINTER printer - TESATRONIC TT display units).



MSA

Length

15.488

2 m

Standard Sub-D connection cable between TESA PRINTER SPC and measuring instruments TESA- μ HITE, TESA-HITE and TESA MICRO-HITE. Sub-D 9p/m connector.



MSA

15.498

IG-13 probe set for perpendicularity measurement.

Composed of :

- 1 IG-13 electronic probe
- 1 fixing device for IG-13 probe.



(1)

| MSA | Model | Measuring range |
|--------|---------|----------------------|
| 15.495 | 350 | 0 - 520 mm / 0 - 20" |
| 15.497 | (1) 600 | 0 - 770 mm / 0 - 30" |

MICRO-HITE 350 / 600 new height gauge.

This manual 2D height gauge is mainly used in workshops and offers comfortable and accurate positioning, which is very useful during the measurement of small elements.

Thanks to its robustness, this instrument is very reliable and guarantees excellent repeatability and precision under any circumstances, but especially when used with extensions and small probes.

The interchangeable battery makes it possible to easily handle the instrument in places without access to power supply.

Features :

- Rugged nickel plated base with bottom face including 3 resting points finely lapped
- Application range 0 - 520 mm or 0 - 20" (MSA15.495) ; 0 - 825 mm or 0 - 30" (MSA15.497)
- State-of-the-art concept associated with a high-quality design is the fruit of years of experience in the manufacture of electronic height gauges
- Ideal for dimensional inspection close to the manufacturing cell
- Fast, simple and reliable probing of the workpiece or holes, especially
- 2 main gauges available with either a 520 or 770 mm measuring span
- Numerical display to 0.0001, 0.001, 0.01 and 0.1 mm, or equivalent inch units
- Extremely accurate measuring of deviations from length, straightness and perpendicularity due to the automatic correction of the bias errors through CAA (Computer Aided Accuracy)
- Degree of protection IP20
- Maximum permissible errors $2+2L/1000$
- Maximum permissible perpendicularity error : frontal $7 \mu\text{m}$, lateral $7 \mu\text{m}$
- Measuring force $1.6 \pm 0.25 \text{ N}$ (to the triggering point of the seizure)
- Coefficient of linear expansion identical to steel ($11,5 \times 10^{-6} \text{ K}^{-1}$).

2D panel :

- Colour and touch screen
- Simplified measurement in 2D
- Facilitated creation of the control ranges
- Choice of the data management :
 - On USB key (file *.txt)
 - Direct printing on printer
 - Connection to 1 PC for the statistical data management
 - Information results in real time.
- Every height gauge comes with a SCS calibration certificate.

Marbles and steel supports.



| MSA | Granite plates size | Kg |
|--------|----------------------|---------|
| 15.374 | 800 x 500 x 100 mm | 120.000 |
| 15.372 | 900 x 600 x 100 mm | 210.000 |
| 15.375 | 1000 x 630 x 100 mm | 260.000 |
| 15.376 | 1200 x 800 x 120 mm | 350.000 |
| 15.377 | 1500 x 1000 x 150 mm | 680.000 |

Black granite plate.
Precision grade DIN 876/0.
Delivered with control report.



| MSA | Granite plates size |
|----------|----------------------|
| 15.374-S | 800 x 500 x 100 mm |
| 15.372-S | 900 x 600 x 100 mm |
| 15.375-S | 1000 x 630 x 100 mm |
| 15.376-S | 1200 x 800 x 120 mm |
| 15.377-S | 1500 x 1000 x 150 mm |

Steel support for black granite plates MSA15.37x, respecting the Bessel points.
Working height 900 mm.
Delivered without black granite plate.



| MSA | Granite plates size |
|--------|---------------------|
| 15.378 | 800 x 500 x 100 mm |

Support cabinet with 3 metal drawers for black granite plates MSA15.37x.
Built based on Bessel points, with anti-slip protection.
Working height 900 mm.
Delivered without black granite plate.

Roughness gauges.



| MSA | Size | Kg |
|--------|------------------|-------|
| 15.490 | 122 x 60 x 62 mm | 0.650 |

RUGOSURF 20.

Portable roughness gauge, robust and versatile. Designed for production environments or inspection of goods.

- Measuring range in the Z-axis of 400 µm (0.0157 in), 16 mm (0.63 in) in the X-axis
- Probe with diamond point 2 µm
- Sturdy metallic base
- Membrane keyboard, degree of protection IP67
- 15 roughness parameters. Each parameter can be activated individually or not. Tolerancing of each parameter value possible
- 2" LCD display, roughness settings and profile after each measurement
- Very simple to use
- Direct display:
 - of all measured values, with tolerance levels
 - of R roughness profile
 - the Bearing Area Curve (BAC)
 - the Amplitude Distribution Curve (ADC)
- Flexible autonomy through mains adapter or battery pack
- Storage of the measured parameters
- Multilingual menu options
- USB cable connection (optional)
- Direct printing to a dot matrix printer (optional)
- Measurement transfer, database creation and reporting available using TESA RUGOSOFT software tool (optional)
- Access to narrow and hard to reach locations possible through 100 mm probe extension (optional).



| MSA | Size | Kg |
|--------|-------------------|-------|
| 15.492 | 270 x 140 x 90 mm | 3.000 |

RUGOSURF 90G.

Small-size, versatile roughness gauge with tactile colour screen providing maximum ease of use. Ideally suited for high-precision measurements on the shop floor or in the inspection laboratory

- Measuring range in the Z-axis of 1000 µm (0.0394 in), 50 mm (0.1.968 in) in the X-axis
- W ripple profiles, P primary profile and R roughness profile measuring
- Tactile TFT 3.5" colour screen
- 3-position horizontal measurement at -90 °, 0 °, 90 °
- 49 roughness parameters
- Delivered with a 2-in-1 special probe with removable pad : one single probe can be used to measure roughness or undulation
- Vertical adjusting screw for probe positioning up to a height of 90 mm without the need of an accessory
- Tolerance of all parameters possible
- USB digital output for transfer of measured values to a PC with TESA MEASUREMENT STUDIO software (optional).

NOTES



16



ARKANSAS STONES

16 - 2

INDIA STONES

16 - 3

ASSORTMENT OF ARKANSAS AND INDIA STONES

16 - 4

DEGUSSIT STONES

16 - 5

SYNTHETIC STONES

16 - 7



ARKANSAS STONES

The Arkansas natural stones are very hard and finer than all other synthetic stones on the market. Colour can be from white to black.



| MSA | Size | Kg |
|--------|-------------|-------|
| 16.001 | 100 x 6 mm | 0.013 |
| 16.002 | 100 x 8 mm | 0.022 |
| 16.003 | 100 x 10 mm | 0.027 |
| 16.004 | 100 x 12 mm | 0.043 |
| 16.007 | 100 x 13 mm | 0.050 |
| 16.006 | 150 x 16 mm | 0.110 |

Square Arkansas stone.



| MSA | Size | Kg |
|--------|-------------|-------|
| 16.010 | 100 x 4 mm | 0.007 |
| 16.011 | 100 x 6 mm | 0.008 |
| 16.012 | 100 x 8 mm | 0.013 |
| 16.013 | 100 x 10 mm | 0.017 |

Triangular Arkansas stone.



| MSA | Size | Kg |
|--------|-------------|-------|
| 16.020 | 100 x 6 mm | 0.010 |
| 16.021 | 100 x 8 mm | 0.018 |
| 16.022 | 100 x 10 mm | 0.024 |
| 16.023 | 100 x 12 mm | 0.030 |

Round Arkansas stone.



| MSA | Size | Kg |
|--------|------------------|-------|
| 16.029 | 70 x 50 x 25 mm | 0.220 |
| 16.008 | 100 x 25 x 6 mm | 0.060 |
| 16.030 | 120 x 50 x 25 mm | 0.388 |

Rectangular Arkansas stone.



| MSA | Ø | Size | Kg |
|--------|------|-----------|-------|
| 16.040 | 6 mm | 75-100 mm | 0.013 |

Conical Arkansas stone.



| MSA | Size | Kg |
|--------|----------------------|-------|
| 16.041 | 100 x 25 x 4/1.40 mm | 0.032 |

Knife shaped Arkansas stone.



| MSA | Size | Ø hole | Kg |
|--------|--------------|--------|-------|
| 16.042 | Ø 40 x 5 mm | 6 mm | 0.023 |
| 16.043 | Ø 80 x 10 mm | 6 mm | 0.150 |

Wheel shape Arkansas stone.



| MSA | Size | Kg |
|--------|------------------|-------|
| 16.050 | 90 x 25 x 15 mm | 0.111 |
| 16.049 | 100 x 25 x 13 mm | 0.128 |
| 16.051 | 100 x 40 x 13 mm | 0.198 |
| 16.052 | 125 x 50 x 10 mm | 0.250 |
| 16.053 | 150 x 50 x 10 mm | 0.320 |

Rectangular Arkansas stone.
Delivered in 1 wooden box.

The authentic India oil stones are artificial stones made of abrasives that are chemically altered in an electric oven at high temperatures.

Main advantages : rapid biting, highly resistant, homogeneity and permanent shape.

Anywhere a grinding stone or truing stone is needed the India stone can be used.



| MSA | Grain | Size | Kg |
|----------|--------|-------------|-------|
| 16.100-A | Coarse | 100 x 6 mm | 0.015 |
| 16.101-A | Coarse | 100 x 8 mm | 0.025 |
| 16.102-A | Coarse | 100 x 10 mm | 0.030 |
| 16.103-A | Coarse | 100 x 13 mm | 0.050 |
| 16.105-A | Coarse | 150 x 13 mm | 0.080 |
| 16.104-A | Coarse | 150 x 16 mm | 0.100 |
| 16.100-B | Medium | 100 x 6 mm | 0.015 |
| 16.101-B | Medium | 100 x 8 mm | 0.025 |
| 16.102-B | Medium | 100 x 10 mm | 0.030 |
| 16.103-B | Medium | 100 x 13 mm | 0.050 |
| 16.105-B | Medium | 150 x 13 mm | 0.080 |
| 16.104-B | Medium | 150 x 16 mm | 0.100 |
| 16.100-C | Fine | 100 x 6 mm | 0.015 |
| 16.102-C | Fine | 100 x 10 mm | 0.030 |
| 16.103-C | Fine | 100 x 13 mm | 0.050 |
| 16.105-C | Fine | 150 x 13 mm | 0.080 |
| 16.104-C | Fine | 150 x 16 mm | 0.100 |

Square India stone. Coarse, medium or fine grains.



| MSA | Grain | Size | Kg |
|----------|--------|-------------|-------|
| 16.110-A | Coarse | 100 x 6 mm | 0.010 |
| 16.112-A | Coarse | 100 x 10 mm | 0.015 |
| 16.110-B | Medium | 100 x 6 mm | 0.010 |
| 16.111-B | Medium | 100 x 8 mm | 0.012 |
| 16.112-B | Medium | 100 x 10 mm | 0.015 |
| 16.110-C | Fine | 100 x 6 mm | 0.010 |
| 16.112-C | Fine | 100 x 10 mm | 0.015 |
| 16.113-C | Fine | 100 x 13 mm | 0.025 |

Triangular India stone. Coarse, medium or fine grains.



| MSA | Grain | Size | Kg |
|----------|--------|-------------------|-------|
| 16.140-B | Medium | 150 x 25 x 8/2 mm | 0.060 |

Knife shaped India stone. Medium or fine grains.



| MSA | Grain | Size | Kg |
|----------|--------|---------------|-------|
| 16.120-A | Coarse | 100 x Ø 6 mm | 0.013 |
| 16.122-A | Coarse | 100 x Ø 10 mm | 0.022 |
| 16.123-A | Coarse | 100 x Ø 13 mm | 0.040 |
| 16.120-B | Medium | 100 x Ø 6 mm | 0.013 |
| 16.121-B | Medium | 100 x Ø 8 mm | 0.018 |
| 16.122-B | Medium | 100 x Ø 10 mm | 0.022 |
| 16.123-B | Medium | 100 x Ø 13 mm | 0.040 |
| 16.120-C | Fine | 100 x Ø 6 mm | 0.013 |
| 16.122-C | Fine | 100 x Ø 10 mm | 0.022 |
| 16.123-C | Fine | 100 x Ø 13 mm | 0.040 |

Round India stone. Coarse, medium or fine grains.



| MSA | Grain | Size | Kg |
|----------|--------|------------------|-------|
| 16.132-A | Coarse | 150 x 50 x 25 mm | 0.495 |
| 16.130-B | Medium | 100 x 25 x 6 mm | 0.045 |
| 16.132-B | Medium | 150 x 50 x 25 mm | 0.526 |
| 16.130-C | Fine | 100 x 25 x 6 mm | 0.045 |
| 16.131-C | Fine | 125 x 50 x 16 mm | 0.285 |
| 16.132-C | Fine | 150 x 50 x 25 mm | 0.495 |

Rectangular India stone. Coarse, medium or fine grains.



| MSA | Size | Kg |
|--------|------------------|-------|
| 16.150 | 100 x 45 x 16 mm | 0.180 |
| 16.151 | 125 x 50 x 20 mm | 0.360 |
| 16.152 | 150 x 50 x 25 mm | 0.495 |

Rectangular India stone with 2 grains, coarse and fine.

ASSORTMENT OF ARKANSAS AND INDIA STONES

Assortments of stones ARKANSAS and INDIA.



ASSORTMENT

| MSA | Size | Kg |
|--------|------------------|-------|
| 16.201 | 220 x 63 x 44 mm | 0.800 |

Assortment of 2 rectangular stones.
Delivered in 1 ash wood box.

Contents :
 - 1x MSA16.029 ARKANSAS stone 70 x 50 x 25 mm
 - 1x MSA16.151 INDIA stone 125 x 50 x 20 mm, coarse/fine grain
 - 1x MSA16.201-A Ash wood box



| MSA | Size | Kg |
|--------|------------------|-------|
| 16.203 | 200 x 55 x 30 mm | 0.296 |

Wooden base with 1 ARKANSAS stone for sharpening screwdrivers.
For use with tool MSA01.500.

Contents :
 - 1x MSA16.006 Square ARKANSAS stone 150 x 16 mm
 - 1x MSA16.202 Wooden base



| MSA | Size | Kg |
|--------|------------------|-------|
| 16.204 | 200 x 55 x 30 mm | 0.272 |

Wooden base with 1 INDIA stone for sharpening screwdrivers.
For use with tool MSA01.500.

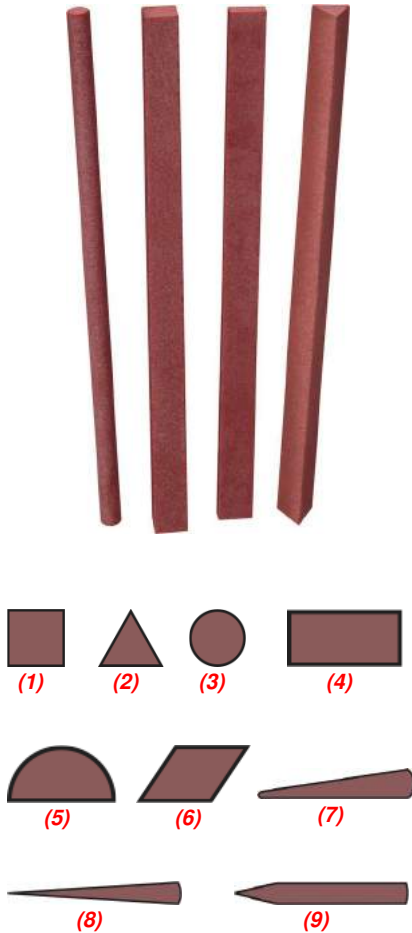
Contents :
 - MSA16.104-B Square INDIA stone 150 x 16 mm, medium grain
 - MSA16.202 Wooden base

See chapter 01.



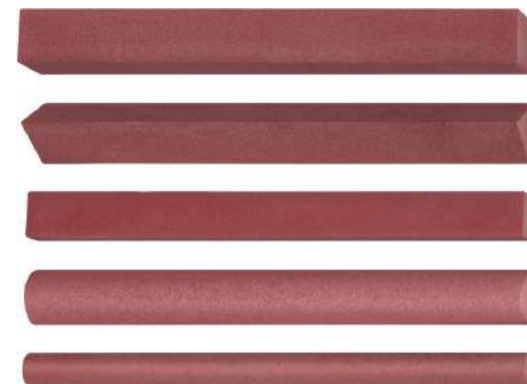
The Degussit tools are made of ceramic oxide into polycrystalline exceptionally hard. The addition of chromic oxide gives to the tools a characteristic red coloured and a crystalline structure of rubies.

Main advantages : extremely high hardness, highly resistant, excellent stability of shapes and forms, excellent surface quality and economic tooling of hard materials.



| MSA | Grain | Size mm | Shape | MSA | Grain | Size mm | Shape |
|--------------|--------|-----------|------------|--------------|--------|-------------|------------|
| 16.541-A (1) | Coarse | 100x6 | Square | 16.500-B (4) | Medium | 100x25x10 | Rectang. |
| 16.542-A (1) | Coarse | 100x8 | Square | 16.520-B (4) | Medium | 100x25x10 | Rectang. |
| 16.543-A (1) | Coarse | 100x10 | Square | 16.521-B (4) | Medium | 120x50x10 | Rectang. |
| 16.544-A (1) | Coarse | 120x13 | Square | 16.501-B (4) | Medium | 150x25x15 | Rectang. |
| 16.531-A (2) | Coarse | 100x6 | Triang. | 16.502-B (4) | Medium | 200x50x12 | Rectang. |
| 16.532-A (2) | Coarse | 100x8 | Triang. | 16.522-B (4) | Medium | 200x50x12 | Rectang. |
| 16.533-A (2) | Coarse | 100x10 | Triang. | 16.560-B (5) | Medium | 100x10 | Half-Round |
| 16.534-A (2) | Coarse | 120x13 | Triang. | 16.610-B (7) | Medium | 100x15x3/0. | Knife |
| 16.601-A (3) | Coarse | 100xØ6 | Round | 16.510-B (7) | Medium | 100x30x7/2 | Knife |
| 16.602-A (3) | Coarse | 100xØ8 | Round | 16.540-C (1) | Fine | 100x4 | Square |
| 16.603-A (3) | Coarse | 100xØ10 | Round | 16.541-C (1) | Fine | 100x6 | Square |
| 16.551-A (4) | Coarse | 100x8x6 | Rectang. | 16.542-C (1) | Fine | 100x8 | Square |
| 16.500-A (4) | Coarse | 100x25x10 | Rectang. | 16.543-C (1) | Fine | 100x10 | Square |
| 16.520-A (4) | Coarse | 100x25x10 | Rectang. | 16.544-C (1) | Fine | 120x13 | Square |
| 16.501-A (4) | Coarse | 150x25x15 | Rectang. | 16.530-C (2) | Fine | 100x4 | Triang. |
| 16.560-A (5) | Coarse | 100x10 | Half-Round | 16.531-C (2) | Fine | 100x6 | Triang. |
| 16.570-A (6) | Coarse | 100x13x5 | Lozenge | 16.532-C (2) | Fine | 100x8 | Triang. |
| 16.580-A (8) | Coarse | 100x5x2 | Conical | 16.533-C (2) | Fine | 100x10 | Triang. |
| 16.540-B (1) | Medium | 100x4 | Square | 16.534-C (2) | Fine | 120x13 | Triang. |
| 16.541-B (1) | Medium | 100x6 | Square | 16.600-C (3) | Fine | 100xØ4 | Round |
| 16.542-B (1) | Medium | 100x8 | Square | 16.601-C (3) | Fine | 100xØ6 | Round |
| 16.543-B (1) | Medium | 100x10 | Square | 16.602-C (3) | Fine | 100xØ8 | Round |
| 16.544-B (1) | Medium | 120x13 | Square | 16.603-C (3) | Fine | 100xØ10 | Round |
| 16.530-B (2) | Medium | 100x4 | Triang. | 16.550-C (4) | Fine | 100x6x3 | Rectang. |
| 16.531-B (2) | Medium | 100x6 | Triang. | 16.551-C (4) | Fine | 100x8x6 | Rectang. |
| 16.532-B (2) | Medium | 100x8 | Triang. | 16.500-C (4) | Fine | 100x25x10 | Rectang. |
| 16.533-B (2) | Medium | 100x10 | Triang. | 16.520-C (4) | Fine | 100x25x10 | Rectang. |
| 16.534-B (2) | Medium | 120x13 | Triang. | 16.521-C (4) | Fine | 120x50x10 | Rectang. |
| 16.600-B (3) | Medium | 100xØ4 | Round | 16.501-C (4) | Fine | 150x25x15 | Rectang. |
| 16.601-B (3) | Medium | 100xØ6 | Round | 16.502-C (4) | Fine | 200x50x12 | Rectang. |
| 16.602-B (3) | Medium | 100xØ8 | Round | 16.522-C (4) | Fine | 200x50x12 | Rectang. |
| 16.603-B (3) | Medium | 100xØ10 | Round | 16.610-C (7) | Fine | 100x15x3/0. | Knife |
| 16.550-B (4) | Medium | 100x6x3 | Rectang. | 16.580-C (8) | Fine | 100x5x2 | Conical |
| 16.551-B (4) | Medium | 100x8x6 | Rectang. | 16.590-C (9) | Fine | 100xØ5 | Pencil |

Degussit stone. Coarse, medium or fine grains.

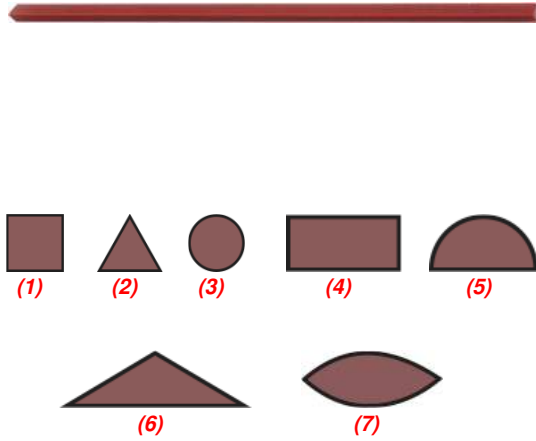


ASSORTMENT

| MSA | Packaging size | Kg |
|--------|-------------------|-------|
| 16.620 | 130 x 110 x 30 mm | 0.152 |

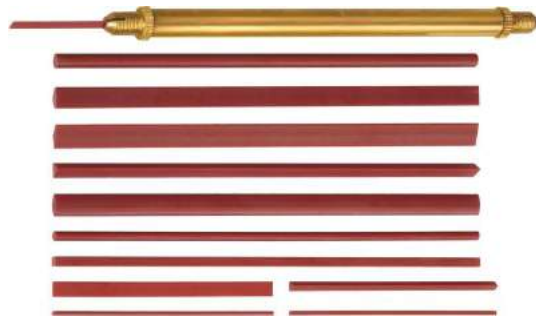
Assortment of 5 Degussit stones, length 100 mm.
Grains : fine (rectangular), medium (square, triangular and round) and coarse (half-round).
Delivered in a cardboard box.

DEGUSSIT STONES



| MSA | | Size | Shape | Kg |
|----------|-----|------------------|-------------|-------|
| 16.630-C | (1) | 50 x 1 mm | Square | 0.001 |
| 16.631-C | (1) | 100 x 2 mm | Square | 0.003 |
| 16.632-C | (2) | 50 x 2 mm | Triangular | 0.001 |
| 16.633-C | (2) | 100 x 3 mm | Triangular | 0.003 |
| 16.634-C | (3) | 50 x Ø 1 mm | Round | 0.001 |
| 16.635-C | (3) | 100 x Ø 2 mm | Round | 0.001 |
| 16.636-C | (3) | 100 x Ø 3 mm | Round | 0.003 |
| 16.636-M | (3) | 100 x Ø 2.3 mm | Round | 0.003 |
| 16.637-C | (4) | 50 x 3 x 0.3 mm | Rectangular | 0.001 |
| 16.638-C | (5) | 100 x 4 mm | Half-Round | 0.003 |
| 16.639-C | (6) | 100 x 5 x 1.5 mm | Barrette | 0.002 |
| 16.640-C | (7) | 100 x 4 x 1.5 mm | Sage Leaf | 0.003 |

Degussit stone small file type, Fine grain.



| MSA | | Packaging size | Kg |
|--------|--|------------------|-------|
| 16.641 | | 125 x 18 x 15 mm | 0.039 |

Assortment of 12 Degussit stones small file type, length 50 and 100 mm.
Delivered with 1 stone holder tool in a plastic box.

Spare part :

| MSA | Item | Kg |
|--------|-------------------|-------|
| 16.642 | Stone holder tool | 0.020 |



| MSA | Length | Head size | Kg |
|----------|--------|----------------|-------|
| 16.670-C | 150 mm | 35 x 14 x 5 mm | 0.047 |

Degussit stone sharpener, mounted on handle. Fine grain.

Synthetic stones are used for finishing and precise retouching on metal pieces.



ASSORTMENT

| MSA | Stones size | Packaging size | Kg |
|--------|----------------|------------------|-------|
| 16.155 | 100 x 4 x 4 mm | 165 x 35 x 35 mm | 0.080 |

Assortment of 13 synthetic abrasive stones.

Delivered with 1 stone holder tool.

Spare parts :

| MSA | Item | Kg |
|-------------|--------------------------|-------|
| 16.155-0030 | Abrasive stone D320 | 0.005 |
| 16.155-0060 | Abrasive stone D600 | 0.005 |
| 16.155-0090 | Abrasive stone D900 | 0.005 |
| 16.155-0100 | Abrasive stone MED INDIA | 0.005 |
| 16.155-0120 | Abrasive stone SF1200 | 0.005 |
| 16.155-0430 | Abrasive stone RA320 | 0.005 |
| 16.155-0460 | Abrasive stone RA600 | 0.004 |
| 16.155-1020 | Abrasive stone MP220 | 0.005 |
| 16.155-1040 | Abrasive stone MP400 | 0.005 |
| 16.155-1060 | Abrasive stone MP600 | 0.005 |
| 16.155-1080 | Abrasive stone MP800 | 0.005 |
| 16.155-1200 | Abrasive stone MP1200 | 0.005 |
| 16.155-4080 | Abrasive stone D1200 | 0.005 |
| 16.155-A | Stone holder tool | 0.016 |

17



OILERS

17 - 2

OIL CUPS

17 - 6

PACKAGING

17 - 8

Simple oilers : the flat metallic needle of the oiler allows precise oiling of all parts of the movement.



ASSORTMENT

| MSA | Kg |
|-----------|-------|
| 17.000-04 | 0.016 |

Assortment of 4 simple oilers with protective caps. Aluminium handle Ø 6 mm, colour coded for easy identification of the spatula width.

Contents : MSA17.000-A, -C, -D and -E.



INDIVIDUAL

| MSA | Colour | Length | Needle | Kg |
|----------|--------|--------|-----------|-------|
| 17.000-A | Red | 70 mm | Large | 0.004 |
| 17.000-C | Green | 70 mm | Medium | 0.004 |
| 17.000-D | Blue | 70 mm | Fine | 0.004 |
| 17.000-E | Black | 70 mm | Very fine | 0.004 |

Simple oiler with aluminium handle Ø 6 mm. See assortment MSA17.000-04.

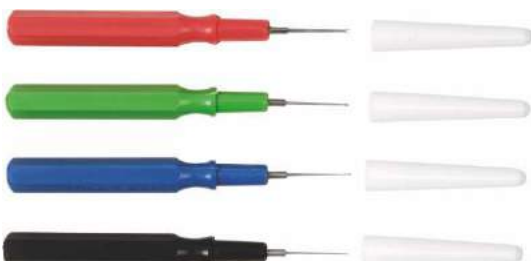


ASSORTMENT

| MSA | Kg |
|-----------|-------|
| 17.001-04 | 0.006 |

Assortment of 4 simple oilers with protective caps. Plastic handle Ø 6 mm, colour coded for easy identification of the spatula width.

Contents : MSA17.001-A, -C, -D and -E.



INDIVIDUAL

| MSA | Colour | Length | Needle | Kg |
|----------|--------|--------|-----------|-------|
| 17.001-A | Red | 70 mm | Large | 0.001 |
| 17.001-C | Green | 70 mm | Medium | 0.001 |
| 17.001-D | Blue | 70 mm | Fine | 0.001 |
| 17.001-E | Black | 70 mm | Very fine | 0.001 |

Simple oiler with plastic handle Ø 6 mm. See assortment MSA17.001-04.



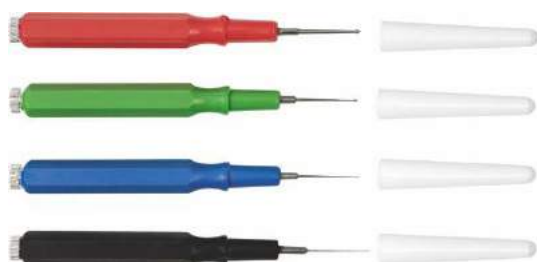


ASSORTMENT

| MSA | Kg |
|-----------|-------|
| 17.002-04 | 0.008 |

Assortment of 4 oilers with interchangeable needles and protective caps. Plastic handle Ø 6 mm, colour coded for easy identification of the spatula width, with 2 replacement needles inside each handle.

Contents : MSA17.002-A, -C, -D and -E.

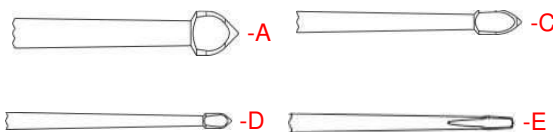


INDIVIDUAL

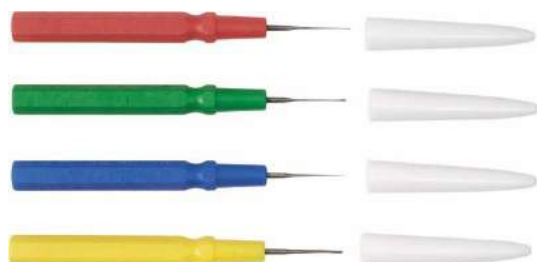
| MSA | Colour | Length | Needle | Kg |
|----------|--------|--------|-----------|-------|
| 17.002-A | Red | 72 mm | Large | 0.002 |
| 17.002-C | Green | 72 mm | Medium | 0.002 |
| 17.002-D | Blue | 72 mm | Fine | 0.002 |
| 17.002-E | Black | 72 mm | Very fine | 0.002 |

Oiler with plastic handle Ø 6 mm with 2 replacement needles inside. See assortment MSA17.002-04.

Spare parts :



| MSA | Item | Kg |
|-----------|------------------------|-------|
| 17.002P-A | Needle for MSA17.002-A | 0.001 |
| 17.002P-C | Needle for MSA17.002-C | 0.001 |
| 17.002P-D | Needle for MSA17.002-D | 0.001 |
| 17.002P-E | Needle for MSA17.002-E | 0.001 |



ASSORTMENT

| MSA | Kg |
|-----------|-------|
| 17.102-04 | 0.006 |

Assortment of 4 simple oilers with protective caps. Plastic handle Ø 5 mm, colour coded for easy identification of the spatula width.

Contents : MSA17.102-D, -C, -B and -A.

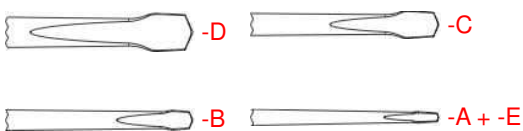


INDIVIDUAL

| MSA | Colour | Length | Needle | Kg |
|----------|--------|--------|------------|-------|
| 17.102-D | Yellow | 70 mm | Very large | 0.001 |
| 17.102-C | Green | 70 mm | Large | 0.001 |
| 17.102-B | Blue | 70 mm | Medium | 0.001 |
| 17.102-A | Red | 70 mm | Fine | 0.001 |
| 17.102-E | Black | 70 mm | Fine | 0.001 |

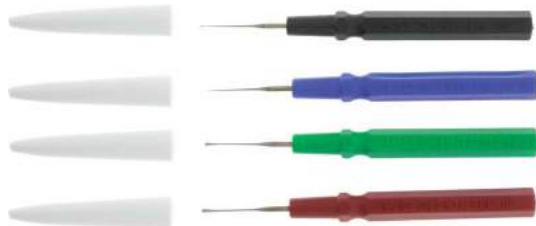
Simple oiler with plastic handle Ø 5 mm. See assortment MSA17.102-04.

Spare parts :



| MSA | Item | Kg |
|-----------|--|-------|
| 17.102P-D | Needle for MSA17.102-D | 0.001 |
| 17.102P-C | Needle for MSA17.102-C | 0.001 |
| 17.102P-B | Needle for MSA17.102-B | 0.001 |
| 17.102P-A | Needle for MSA17.102-A and MSA17.102-E | 0.001 |

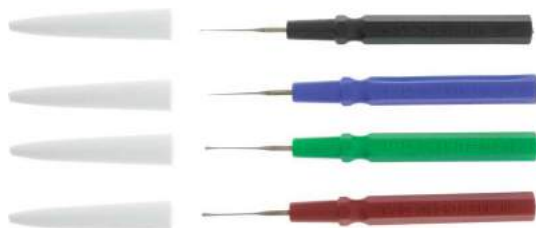
OILERS



ASSORTMENT

| MSA | Kg |
|-----------|-------|
| 17.101-04 | 0.006 |

Assortment of 4 simple oilers with protective caps.
Plastic handle Ø 5 mm, colour coded for easy identification of the spatula width.
Contents : MSA17.101-A, -B, -C and -D.



INDIVIDUAL



| MSA | Colour | Length | Needle | Kg |
|----------|---------|--------|------------|-------|
| 17.101-A | ● Black | 70 mm | Fine | 0.001 |
| 17.101-B | ● Blue | 70 mm | Medium | 0.001 |
| 17.101-C | ● Green | 70 mm | Large | 0.001 |
| 17.101-D | ● Red | 70 mm | Very large | 0.001 |

Simple oiler with antistatic plastic handle Ø 5 mm.



| MSA | Length | Kg |
|--------|--------|-------|
| 17.003 | 70 mm | 0.004 |

Precision Incabloc oiler, with aluminium gilt handle Ø 6 mm and 3 replacement needles inside.

Spare part :

| MSA | Item | Kg |
|-----------|--------|-------|
| 17.003-01 | Needle | 0.001 |



Oilers.



| MSA | Colour | Needle internal Ø | Needle external Ø | Kg |
|--------|-----------|-------------------|-------------------|-------|
| 17.050 | Pink | 0.12 mm | 0.30 mm | 0.040 |
| 17.051 | Cream | 0.15 mm | 0.35 mm | 0.040 |
| 17.052 | Dark blue | 0.17 mm | 0.42 mm | 0.040 |

JISMAA oiler for escapement and pallet forks.

Delivered with 1 stand.

Use with JISMAA oils recommended (see chapter 28).

Spare parts :

| MSA | Item | Kg |
|----------|-----------------------------|-------|
| 17.050-R | Oil container for MSA17.050 | 0.001 |
| 17.051-R | Oil container for MSA17.051 | 0.001 |
| 17.052-R | Oil container for MSA17.052 | 0.001 |



| MSA | Colour | Needle internal Ø | Needle external Ø | Kg |
|--------|------------|-------------------|-------------------|-------|
| 17.060 | Matt red | 0.10 mm | 0.30 mm | 0.040 |
| 17.061 | Black | 0.15 mm | 0.38 mm | 0.040 |
| 17.062 | Light blue | 0.20 mm | 0.45 mm | 0.040 |
| 17.063 | Purple | 0.30 mm | 0.55 mm | 0.040 |

JISMAA oiler for gear train and cap jewels.

Delivered with 1 stand.

Use with JISMAA oils recommended (see chapter 28).

Spare parts :

| MSA | Item | Kg |
|----------|-----------------------------|-------|
| 17.060-R | Oil container for MSA17.060 | 0.001 |
| 17.061-R | Oil container for MSA17.061 | 0.001 |
| 17.062-R | Oil container for MSA17.062 | 0.001 |
| 17.063-R | Oil container for MSA17.063 | 0.001 |



| MSA | Volume | Size | Kg |
|--------|--------|---------------|-------|
| 17.210 | 6 cc | Ø 13 x 155 mm | 0.028 |

Lubristyl® precision oil pen, pen shape.

Drop by drop lubricant dispenses thanks to the needle pump. Possibility to easily re-absorb the extra oil by briefly and rapidly pushing the needle.

Delivered with 6 cc oil.

Spare part :

| MSA | Item | Kg |
|------------|--------------------|-------|
| 17.210-100 | Oil refill, 100 ml | 0.113 |



OIL CUPS



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.103 | 95 x 60 x 65 mm | 0.275 |

Complete aluminium oil cup.

Contents :

- Shot blasted aluminium base, grey anodized
 - 4 white ceramic cups
 - 4 oilers with aluminium handle Ø 6 mm in different colours.
- The cups can be replaced individually.

Spare parts :

| MSA | Item | Kg |
|-----------|---|-------|
| 17.000-A | Red oiler with large needle, length 70 mm | 0.004 |
| 17.000-C | Green oiler with medium needle, length 70 mm | 0.004 |
| 17.000-D | Blue oiler with fine needle, length 70 mm | 0.004 |
| 17.000-E | Black oiler with very fine needle, length 70 mm | 0.004 |
| 17.103-01 | Cup Ø ext. 14.50 x height 3 mm, well Ø 6 mm | 0.003 |
| 17.103-02 | Cup Ø ext. 14.50 x height 3 mm, well Ø 8 mm | 0.003 |
| 17.103-03 | Cup Ø ext. 14.50 x height 3 mm, well Ø 9 mm | 0.003 |
| 17.103-04 | Cup Ø ext. 14.50 x height 3 mm, well Ø 10 mm | 0.003 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.104 | 95 x 60 x 65 mm | 0.275 |

Complete aluminium oil cup.

Contents :

- Shot blasted aluminium base, grey anodized
 - 4 synthetic ruby cups
 - 4 oilers with aluminium handle Ø 6 mm in different colours.
- The cups can be replaced individually.

Spare parts :

| MSA | Item | Kg |
|-----------|---|-------|
| 17.000-A | Red oiler with large needle, length 70 mm | 0.004 |
| 17.000-C | Green oiler with medium needle, length 70 mm | 0.004 |
| 17.000-D | Blue oiler with fine needle, length 70 mm | 0.004 |
| 17.000-E | Black oiler with very fine needle, length 70 mm | 0.004 |
| 17.104-01 | Cup Ø ext. 14.50 x height 3 mm, well Ø 6 mm | 0.003 |
| 17.104-02 | Cup Ø ext. 14.50 x height 3 mm, well Ø 8 mm | 0.003 |
| 17.104-03 | Cup Ø ext. 14.50 x height 3 mm, well Ø 9 mm | 0.003 |
| 17.104-04 | Cup Ø ext. 14.50 x height 3 mm, well Ø 10 mm | 0.003 |



ASSORTMENT

| MSA | Size | Kg |
|--------|------------------|-------|
| 17.200 | 210 x 75 x 20 mm | 0.280 |

Assortment of 4 Incalite oil cups and 4 oilers.

Spare parts :

| MSA | Item | Kg |
|----------|---|-------|
| 17.001-A | Red oiler with large needle, length 70 mm | 0.001 |
| 17.001-C | Green oiler with medium needle, length 70 mm | 0.001 |
| 17.001-D | Blue oiler with fine needle, length 70 mm | 0.001 |
| 17.001-E | Black oiler with very fine needle, length 70 mm | 0.001 |
| 17.110 | Red Incalite oil cup, Ø 46 x 18 mm | 0.033 |
| 17.111 | Blue Incalite oil cup, Ø 46 x 18 mm | 0.034 |
| 17.112 | Green Incalite oil cup, Ø 46 x 18 mm | 0.032 |
| 17.113 | Yellow Incalite oil cup, Ø 46 x 18 mm | 0.031 |



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.201 | 83 x 40 x 26 mm | 0.100 |

Four-oil cup chrome-plated stand allowing the deposit of oils and grease.

The complete set is chromes and includes :

- 4 cups in anti-hygrometric glass
 - 1 mobile black plastic lid to protect oil from dust
 - 3 holes filled with pith wood for cleaning the oilers
 - 1 groove for oiler storage
 - 1 anti-skid rubber sole to ensure a good stability.
- Delivered without oilers.*



| MSA | Colour | Size | Well | Kg |
|--------|--------|--------------|-------------|-------|
| 17.110 | Red | Ø 46 x 18 mm | Ø 9 x 2 mm | 0.033 |
| 17.111 | Blue | Ø 46 x 18 mm | Ø 16 x 3 mm | 0.034 |
| 17.112 | Green | Ø 46 x 18 mm | Ø 20 x 4 mm | 0.032 |
| 17.113 | Yellow | Ø 46 x 18 mm | Ø 26 x 5 mm | 0.031 |

Incalite oil cup (made of phenol-melamine) resistant to all solvents, with semi-spherical shape recess.



| MSA | External Ø | Internal Ø | Kg |
|--------|------------|------------|-------|
| 17.100 | 40 mm | 25 mm | 0.055 |

Fluted glass oil cup.

Stackable boxes and lids for watch after sales service.



| MSA | Colour | Size | Kg |
|----------|--------|-------------------|-------|
| 17.527-B | Blue | 236 x 105 x 17 mm | 0.095 |
| 17.527-J | Yellow | 236 x 105 x 17 mm | 0.095 |
| 17.527-R | Red | 236 x 105 x 17 mm | 0.095 |
| 17.527-V | Green | 236 x 105 x 17 mm | 0.095 |
| 17.527-W | White | 236 x 105 x 17 mm | 0.095 |

Plastic container with 6 compartments.
 - 5 compartments 49 x 44 x 15 mm
 - 1 compartment 49 x 44 x 15 mm.
 ATTENTION : lid sold separately.



| MSA | Colour | Size | Kg |
|----------|--------|-------------------|-------|
| 17.530-B | Blue | 236 x 105 x 17 mm | 0.104 |
| 17.530-J | Yellow | 236 x 105 x 17 mm | 0.104 |
| 17.530-R | Red | 236 x 105 x 17 mm | 0.104 |
| 17.530-V | Green | 236 x 105 x 17 mm | 0.104 |

Plastic container with 10 compartments.
 - Compartments 49 x 44 x 15 mm.
 ATTENTION : lid sold separately.



| MSA | Size | Kg |
|------------|-------------------|-------|
| 17.528 (1) | 246 x 112 x 20 mm | 0.090 |
| 17.572 (2) | 246 x 112 x 20 mm | 0.102 |

Transparent lid with stacking cam for plastic containers MSA17.527-x and MSA17.530-x.

(1) With locking holes
 (2) Without locking holes



| MSA | Colour | Use with | Kg |
|----------|--------|----------------------|-------|
| 17.531-1 | Black | 1 lid + 1 container | 0.001 |
| 17.531-2 | Yellow | 1 lid + 2 containers | 0.001 |
| 17.531-3 | Red | 1 lid + 3 containers | 0.001 |
| 17.531-4 | Green | 1 lid + 4 containers | 0.001 |
| 17.531-5 | Blue | 1 lid + 5 containers | 0.001 |

Plastic key (5 colours) allowing to firmly link one or several containers MSA17.527-x and MSA17.530-x.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.532 | 49 x 41 x 16 mm | 0.003 |

Foam insert for plastic containers MSA 17.527-x and MSA17.530-x.



| MSA | Size | Kg |
|----------|------------------|-------|
| 17.532-A | 232 x 48 x 15 mm | 0.023 |

Foam insert for plastic containers MSA 17.527-x.

Plastic boxes with elastic membrane box, ideal to protect delicate, round, pointed or deformed objects of different sizes without risk of oxidation.

The transparency of the packaging allows a visual control.

The bottoms and the lids of the boxes are interchangeable and equipped with a thin polyurethane membrane.

The objects stay still and suspended inside the box.



| MSA | | Size | | Kg |
|--------|--|-----------------|--|-------|
| 17.650 | | 39 x 39 x 18 mm | | 0.008 |
| 17.683 | | 50 x 50 x 22 mm | | 0.015 |

Complete membrane plastic box.
Composed of a lower and upper half box.



| MSA | | Size | Quantity | Kg |
|--------|-----|---------------------|----------|-------|
| 17.663 | (1) | 120 x 79 x 17.80 mm | 6 | 0.046 |
| 17.662 | (2) | 240 x 79 x 17.80 mm | 12 | 0.091 |

Set of 6 or 12 membrane plastic boxes.
Delivered with 1 bottom and 1 lid.
Exterior size of one box : 39 x 39 x 17.8 mm.



| MSA | | Size | | Kg |
|--------|-----|-----------------|--|-------|
| 17.677 | (1) | 34 x 34 x 25 mm | | 0.014 |
| 17.678 | (2) | 50 x 50 x 25 mm | | 0.032 |

Complete membrane plastic box.
Composed of a lower and upper half box, hinge and lockers.



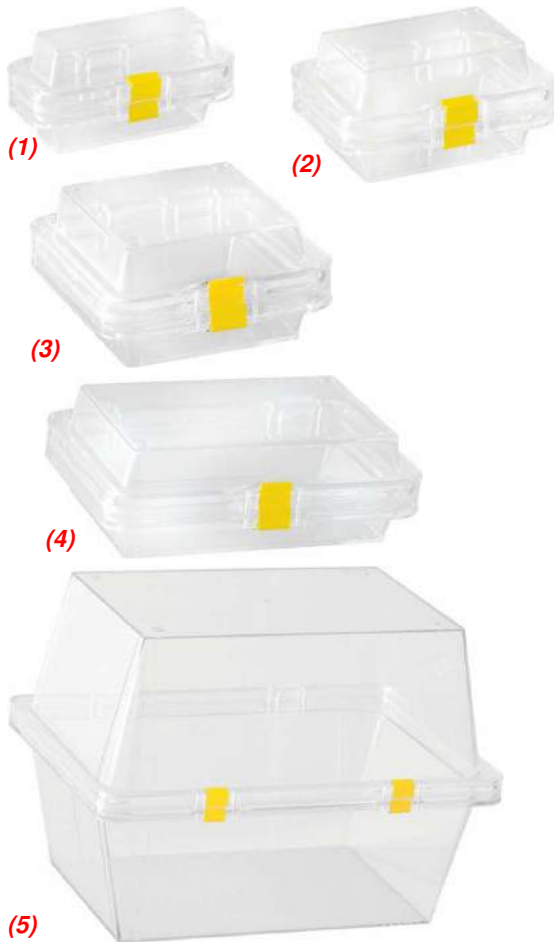
| MSA | | Size | | Kg |
|--------|--|-------------------|--|-------|
| 17.682 | | 100 x 100 x 40 mm | | 0.085 |

Complete membrane plastic box.
Composed of a lower and upper half box, hinge and lockers.



| MSA | | Size | | Kg |
|--------|-----|---------------|--|-------|
| 17.664 | (1) | Ø 82 x 17 mm | | 0.020 |
| 17.665 | (2) | Ø 82 x 40 mm | | 0.030 |
| 17.667 | (3) | Ø 165 x 84 mm | | 0.215 |

Round membrane plastic boxes.
Delivered with 1 bottom and 1 lid.



| MSA | | Size | Kg |
|--------|-----|--------------------|-------|
| 17.653 | (1) | 100 x 50 x 50 mm | 0.044 |
| 17.670 | | 100 x 75 x 25 mm | 0.054 |
| 17.654 | (2) | 100 x 75 x 50 mm | 0.063 |
| 17.671 | | 100 x 100 x 25 mm | 0.075 |
| 17.655 | (3) | 100 x 100 x 50 mm | 0.076 |
| 17.676 | | 125 x 125 x 50 mm | 0.106 |
| 17.672 | | 150 x 100 x 25 mm | 0.093 |
| 17.656 | (4) | 150 x 100 x 50 mm | 0.103 |
| 17.673 | | 150 x 150 x 50 mm | 0.148 |
| 17.657 | | 150 x 150 x 100 mm | 0.177 |
| 17.674 | | 200 x 100 x 50 mm | 0.133 |
| 17.658 | | 200 x 100 x 75 mm | 0.141 |
| 17.659 | | 200 x 200 x 50 mm | 0.238 |
| 17.679 | | 250 x 200 x 25 mm | 0.343 |
| 17.675 | | 250 x 200 x 50 mm | 0.343 |
| 17.660 | | 250 x 200 x 100 mm | 0.375 |
| 17.661 | (5) | 275 x 200 x 200 mm | 0.550 |
| 17.651 | | 300 x 75 x 25 mm | 0.143 |
| 17.668 | | 300 x 75 x 50 mm | 0.162 |
| 17.669 | | 300 x 100 x 50 mm | 0.195 |

Complete membrane plastic box.
Composed of a lower and upper half box, hinge and lockers.

Spare part :

| MSA | Item |
|--------|---|
| 17.699 | Transparent hinge for membrane box. Delivered in bag of 100 pieces |

Boxes for spare parts.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 17.505 | 260 x 105 x 24 mm | 0.260 |

Plastic box. Black structured bottom and transparent lid with hinges and stacking notches.

Contents :
- 21 cases Ø 24 mm
- 2 cases Ø 40 mm.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 17.506 | 260 x 105 x 24 mm | 0.266 |

Plastic box. Black structured bottom and transparent lid with hinges and stacking notches.

Contents :
- 10 cases Ø 24 x 16 mm
- 7 rectangular boxes 44 x 24 x 19 mm
- 2 square boxes 48 x 48 x 20 mm.



| MSA | Compartments | Size | Kg |
|--------|------------------|-------------------|-------|
| 17.564 | 253 x 97 x 20 mm | 260 x 105 x 25 mm | 0.148 |

Plastic box with 1 compartment. Black structured bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-------------------|-------|
| 17.507 | 49 x 48 x 18 mm | 260 x 105 x 25 mm | 0.170 |

Plastic box with 10 compartments. Black structured bottom and transparent lid with hinges and stacking notches.

The following plastic boxes can be inserted : MSA17.503, 17.504 and 17.508.



| MSA | External size | Internal size | Kg |
|--------|-----------------|-----------------|-------|
| 17.504 | 48 x 48 x 20 mm | 42 x 42 x 15 mm | 0.013 |

Square plastic box. Transparent bottom and lid.
Can be used as an insert in the plastic box MSA17.507.



| MSA | External size | Internal size | Kg |
|-----------|-----------------|-----------------|-------|
| 17.503-17 | 44 x 24 x 17 mm | 40 x 20 x 15 mm | 0.005 |
| 17.503 | 44 x 24 x 19 mm | 40 x 20 x 17 mm | 0.006 |

Rectangular plastic box. Transparent bottom and lid.
Can be used as an insert in the plastic box MSA17.507.



| MSA | External size | Internal size | Kg |
|--------|-----------------|-----------------|-------|
| 17.508 | 23 x 23 x 19 mm | 20 x 20 x 17 mm | 0.004 |

Square plastic box. Transparent bottom and lid.
Can be used as an insert in the plastic box MSA17.507.



| MSA | Compartments | Size | Kg |
|--------|------------------|-------------------|-------|
| 17.565 | 123 x 97 x 20 mm | 130 x 105 x 25 mm | 0.075 |

Plastic box 1 compartment. Black bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-------------------|-------|
| 17.567 | 47 x 23 x 18 mm | 130 x 105 x 25 mm | 0.080 |

Plastic box 10 compartments. Black bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-------------------|-------|
| 17.515 | 55 x 60 x 22 mm | 296 x 135 x 32 mm | 0.300 |

Plastic box with 10 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-------------------|-------------------|-------|
| 17.519 | 32 x 32 x 9.50 mm | 350 x 180 x 16 mm | 0.330 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-------------------|------------------|-------|
| 17.533 | 13 x 11 x 4.50 mm | 152 x 70 x 11 mm | 0.060 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|----------------------|-------------------|-------|
| 17.534 | 20 x 17.50 x 4.50 mm | 220 x 105 x 11 mm | 0.130 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-------------------------|-------------------|-------|
| 17.535 | 31.50 x 17.50 x 4.50 mm | 340 x 100 x 11 mm | 0.175 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|------------------|------------------|-------|
| 17.541 | 10 x 8 x 4.50 mm | 121 x 55 x 11 mm | 0.040 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|----------------|------------------|-------|
| 17.510 | 30 x 21 x 8 mm | 120 x 70 x 15 mm | 0.050 |

Plastic box with 10 compartments. Light blue bottom and transparent sliding lid with stacking notches.



| MSA | Compartments | Size | Kg |
|--------|--------------------|------------------|-------|
| 17.512 | 36 x 11 x 18.50 mm | 120 x 70 x 25 mm | 0.075 |

Plastic box with 15 compartments. Light blue bottom and transparent sliding lid with stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-------------------|-------|
| 17.500 | 50 x 32 x 18 mm | 207 x 112 x 23 mm | 0.140 |

Plastic box with 12 compartments. Light grey bottom and transparent lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-------------------|-------|
| 17.566 | 50 x 39 x 18 mm | 207 x 112 x 23 mm | 0.120 |

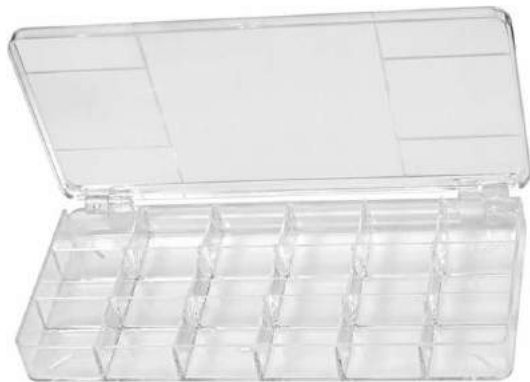
Plastic box 10 compartments. Light grey bottom and transparent lid with hinges and stacking notches.

PACKAGING



| MSA | Compartments | Size | Kg |
|---------------|-----------------|-------------------|-------|
| 17.501 | 15 x 33 x 18 mm | 207 x 112 x 23 mm | 0.140 |

Plastic box with 36 compartments. Transparent bottom and lid with hinges and stacking notches.



| MSA | Compartments | Size | Kg |
|---------------|-----------------|-------------------|-------|
| 17.579 | 33 x 33 x 32 mm | 210 x 112 x 35 mm | 0.174 |

Non-stackable plastic box with 18 compartments. Transparent bottom and lid with hinges.



| MSA | Compartments | Size | Kg |
|---------------|---------------|-----------------|-------|
| 17.509 | 46 x 6 x 6 mm | 84 x 54 x 16 mm | 0.028 |

Stackable plastic box with 10 compartments. Transparent bottom and lid.



| MSA | Compartments | Size | Kg |
|---------------|----------------|-----------------|-------|
| 17.516 | 22 x 11 x 7 mm | 84 x 54 x 16 mm | 0.025 |

Stackable plastic box with 12 compartments. Transparent bottom and lid.



| MSA | Compartments | Size | Kg |
|---------------|----------------|-----------------|-------|
| 17.539 | 75 x 12 x 7 mm | 84 x 54 x 16 mm | 0.025 |

Stackable plastic box with 5 compartments. Transparent bottom and lid.



| MSA | Compartments | Size | Kg |
|---------------|-----------------|------------------|-------|
| 17.520 | 10 x 29 x 10 mm | 108 x 64 x 13 mm | 0.035 |

Non-stackable plastic box with 18 compartments. Transparent bottom and lid.



| MSA | External size | Internal size | Kg |
|--------|----------------|----------------|-------|
| 17.522 | 36 x 26 x 6 mm | 31 x 21 x 4 mm | 0.003 |

Non-stackable rectangular plastic box. Transparent bottom and lid.



| MSA | Compartments | Size | Kg |
|--------|-----------------|-----------------|-------|
| 17.523 | 29 x 13 x 14 mm | 90 x 64 x 17 mm | 0.037 |

Stackable plastic box with 12 compartments. Yellow bottom and transparent lid with stacking notches.



| MSA | External size | Internal size | Kg |
|--------|-----------------|-----------------|-------|
| 17.524 | 90 x 68 x 21 mm | 85 x 61 x 16 mm | 0.027 |

Rectangular plastic box. Transparent bottom and lid.



| MSA | External size | Internal size | Kg |
|--------|-----------------|---------------|-------|
| 17.589 | 81 x 56 x 19 mm | 75x49x16 mm | 0.020 |

Rectangular plastic box. Transparent bottom and lid.



| MSA | External size | Internal size | Kg |
|--------|-----------------|-----------------|-------|
| 17.538 | 88 x 47 x 15 mm | 84 x 44 x 11 mm | 0.020 |

Rectangular plastic box. Grey bottom and transparent lid.



| MSA | Compartments | Size |
|--------|-------------------|-------------------|
| 17.545 | 20 x 17,50 x 5 mm | 220 x 105 x 11 mm |

Non-stackable plastic box with 50 compartments. Light blue bottom and transparent lid, for balances.



| MSA | Compartments | Size | Kg |
|--------|---|-----------------|-------|
| 17.571 | 1x 19 x 19 x 13 mm 6x 20 x 9 x 13 mm | 44 x 44 x 16 mm | 0.010 |

Square plastic box with 7 compartments and lid.

PACKAGING



| MSA | External size | Internal size | Kg |
|--------|---------------|---------------|-------|
| 17.525 | Ø 40 x 12 mm | Ø 35 x 9 mm | 0.005 |

Round plastic box. Transparent bottom and lid attached.



1000 pieces

| MSA | Size | Quantity | Kg |
|--------|-------------|----------|-------|
| 17.529 | Ø 7 x 24 mm | 1000 | 0.100 |

Transparent packaging capsule.



100 pieces

| MSA | External size | Internal size | Kg |
|--------|---------------|---------------|-------|
| 17.536 | 9 x 9 x 23 mm | 6 x 6 x 19 mm | 0.072 |

Square plastic tube. Transparent bottom and red lid.



100 pieces

| MSA | External size | Internal size | Kg |
|--------|---------------|---------------|-------|
| 17.537 | 9 x 9 x 39 mm | 6 x 6 x 35 mm | 0.124 |

Square plastic tube. Transparent bottom and red lid.



1000 pieces

| MSA | External size | Internal size | Quantity | Kg |
|--------|---------------|---------------|----------|-------|
| 17.542 | Ø 7.5 x 33 mm | Ø 6 x 29 mm | 1000 | 3.000 |

Round transparent plastic tube.

Caps in different colours to be ordered separately. See list below.

1000 pieces



| MSA | Colour | Size | Quantity | Kg |
|------------|-------------|-------------|----------|-------|
| 17.542-001 | Red | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-002 | Light green | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-003 | Yellow | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-004 | Blue | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-005 | Grey | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-006 | White | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-007 | Dark green | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-008 | Dark pink | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-009 | Purple | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-010 | Brown | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-011 | Black | Ø 10 x 8 mm | 1000 | 1.000 |
| 17.542-012 | Light pink | Ø 10 x 8 mm | 1000 | 1.000 |

Plastic cap for tube MSA17.542.



| MSA | Size | Kg |
|--------|-------------|-------|
| 17.577 | Ø 16 x 9 mm | 0.001 |

Round plastic box, transparent bottom and lid.



1000 pieces

| MSA | Size | Quantity |
|----------|--------------|----------|
| 17.540-A | Ø 17 x 8 mm | 1000 |
| 17.540-B | Ø 17 x 12 mm | 1000 |
| 17.540-C | Ø 22 x 13 mm | 1000 |

Round plastic box, transparent bottom and lid.



100 pieces

| MSA | Size | Quantity | Kg |
|--------|--------------|----------|-------|
| 17.807 | Ø 24 x 16 mm | 100 | 0.150 |
| 17.812 | Ø 33 x 16 mm | 100 | - |
| 17.813 | Ø 40 x 16 mm | 100 | 0.580 |

Round plastic box, transparent bottom and lid.



| MSA | Size | Kg |
|----------|--------------|-------|
| 17.805 | Ø 24 x 16 mm | 0.004 |
| 17.810 | Ø 33 x 16 mm | 0.006 |
| 17.811 | Ø 40 x 16 mm | 0.009 |
| 17.808 * | Ø 52 x 26 mm | 0.015 |

Round aluminium box, plexiglas lid.

* Transparent plastic lid



| MSA | Size | Kg |
|-----------|--------------|-------|
| 17.801-09 | Ø 50 x 35 mm | 0.008 |

Round aluminium box, 50 ml.

PACKAGING



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.809 | 44 x 44 x 17 mm | 0.020 |

Square aluminium box, transparent plastic lid.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.804 | 44 x 22 x 17 mm | 0.006 |

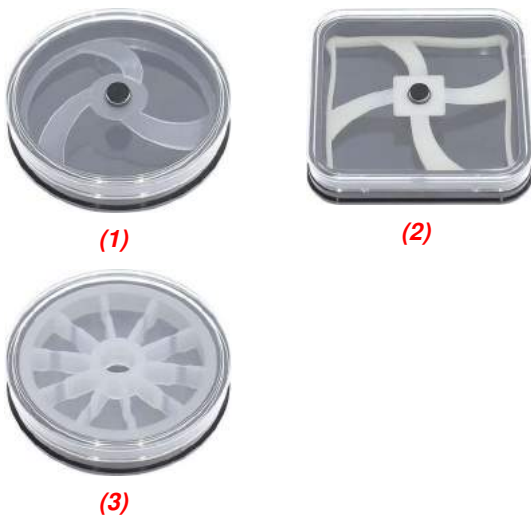
Rectangular aluminium box, transparent plastic lid.



| MSA | Calibre | Hole(s) for stem(s) | Quantity | Kg |
|-----------|-----------------|---------------------|----------|-------|
| 17.800-01 | 4" | 1 | 50 | 0.218 |
| 17.800-04 | (1) 5 1/2" | 1 | 50 | 0.149 |
| 17.800-06 | (2) 6 3/4" x 8" | 1 | 50 | 0.105 |
| 17.800-08 | (3) 7 3/4" | 1 | 50 | 0.120 |
| 17.800-10 | 8 3/4" | 1 | 50 | 0.137 |
| 17.800-12 | 10 1/2" | 1 | 50 | 0.161 |
| 17.800-13 | 11 1/2" | 1 | 50 | 0.215 |
| 17.800-02 | 11 3/4" | 4 | 50 | 0.187 |
| 17.800-14 | 12 1/2" | 1 | 50 | 0.265 |
| 17.800-18 | 13 1/4" | 1 | 50 | 0.158 |
| 17.800-15 | 13 1/2" | 1 | 50 | 0.345 |

Plastic case with bottom and lid to protect movements.

Packaging: 50 complete cases (except MSA17.800-17, 1 piece)



| MSA | Shape | Internal size | Kg |
|-----------|------------|---------------|-------|
| 17.583-35 | (1) Round | Ø 35 mm | 0.007 |
| 17.583-45 | (1) Round | Ø 45 mm | 0.010 |
| 17.584-40 | (2) Square | 40 x 40 mm | 0.011 |
| 17.585-35 | (3) Round | Ø 35 mm | 0.010 |

Plastic case for dial and spare parts packing.

(1+2) : For dials (1 base / 1 lid / 1 flexible support / 1 flexible point).

(3) : For spare parts (1 base / 1 lid / 1 insert).



| MSA | Size | Kg |
|--------|--------------------|-------|
| 17.196 | 480 x 230 x 230 mm | 1.530 |

Tool box 19".
 - Inside tray with handle
 - Lid "organiser" with 7 cases.
 Delivered without tools.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 17.197 | 25 x 13 x 41 mm | 0.059 |

Padlock for tool box MSA17.196.
 - Hardened steel shackle
 - Solid brass body.
 Delivered with 2 keys.



| MSA | Size | Kg |
|--------|--------------|-------|
| 17.198 | 650 x 325 mm | 0.290 |

Roll-up tool kit in leather imitation with 15 compartments, 1 flap and 1 strap.

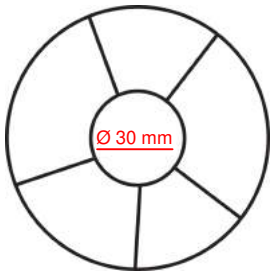


| MSA | Colour | Shape | Size | Kg |
|----------|--------|----------|-------------|-------|
| 17.568-B | Blue | Square | 30x30x9 mm | 0.005 |
| 17.568-G | Green | Square | 30x30x9 mm | 0.005 |
| 17.568-R | Red | Square | 30x30x9 mm | 0.005 |
| 17.568-Y | Yellow | Square | 30x30x9 mm | 0.005 |
| 17.513 | Blue | Square | 50x50x9 mm | 0.010 |
| 17.513-G | Green | Square | 50x50x9 mm | 0.010 |
| 17.513-R | Red | Square | 50x50x9 mm | 0.010 |
| 17.578 | Yellow | Square | 50x50x9 mm | 0.010 |
| 17.570 | Blue | Square | 70x70x13 mm | 0.025 |
| 17.570-G | Green | Square | 70x70x13 mm | 0.025 |
| 17.570-R | Red | Square | 70x70x13 mm | 0.025 |
| 17.570-Y | Yellow | Square | 70x70x13 mm | 0.025 |
| 17.569-G | Green | Rectang. | 80x55x29 mm | 0.035 |
| 17.569 | Red | Rectang. | 80x55x29 mm | 0.035 |
| 17.518 | Blue | Round | Ø 30x9 mm | 0.005 |
| 17.518-G | Green | Round | Ø 30x9 mm | 0.005 |
| 17.518-R | Red | Round | Ø 30x9 mm | 0.005 |
| 17.518-Y | Yellow | Round | Ø 30x9 mm | 0.005 |
| 17.562 | Blue | Round | Ø 70x13 mm | 0.040 |
| 17.559 | Green | Round | Ø 70x13 mm | 0.040 |
| 17.559-R | Red | Round | Ø 70x13 mm | 0.040 |
| 17.559-Y | Yellow | Round | Ø 70x13 mm | 0.040 |

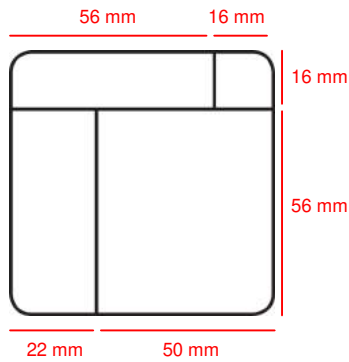
Stackable tray for spare parts in synthetic material.



(1)



(2)



| MSA | Shape | Compartments | Size | Kg |
|--------|------------|--------------|-----------------|-------|
| 17.580 | (1) Round | 6 | Ø 89 x 94 mm | 0.141 |
| 17.582 | (2) Square | 4 | 80 x 80 x 94 mm | 0.144 |

Stackable trays for spare parts with 1 transparent lid, set of 5 pieces (5 colours).
Material : ABS plastic (Acrylonitrile Butadiene Styrene).

Internal height 15 mm ; divisions height 4 mm.
Tray interior size :
(1) Ø 81 mm
(2) 120 x 53 mm
(3) 74 x 74 mm

Spare parts :

| MSA | Item | Kg |
|----------|-----------------------------------|-------|
| 17.580-A | (3) Transparent lid for MSA17.580 | 0.007 |
| 17.582-A | (4) Transparent lid for MSA17.582 | 0.007 |

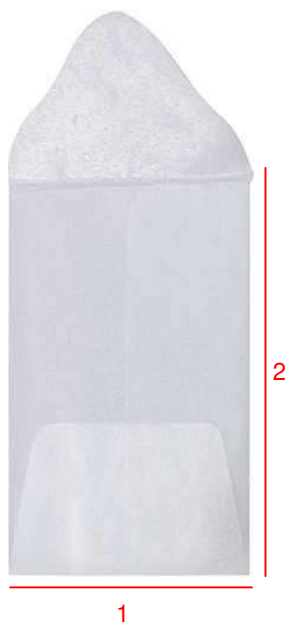


(3)



(4)

Glassine paper bags, ideal for very delicate items.



1000 pieces

| MSA | Size 1 x 2 | Quantity | Kg |
|-------------|-------------|----------|-------|
| 17.710-3030 | 30 x 30 mm | 1000 | 0.210 |
| 17.710-3636 | 36 x 36 mm | 1000 | 0.267 |
| 17.710-4040 | 40 x 40 mm | 1000 | 0.300 |
| 17.710-4545 | 45 x 45 mm | 1000 | 0.355 |
| 17.710-5263 | 52 x 63 mm | 1000 | 0.578 |
| 17.710-6010 | 60 x 100 mm | 1000 | 0.650 |

Glassine paper bag 50 g/m2 without printing.
Grooved execution cut and glued.

Plastic bags, seamless edges, ideal for small components.



100 pieces

| MSA | Size 1 x 2 | Quantity | Kg |
|----------------|--------------|----------|-------|
| 17.703-40X65 | 40 x 65 mm | 100 | - |
| 17.703-45X65 | 45 x 65 mm | 100 | - |
| 17.703-45X250 | 45 x 250 mm | 100 | - |
| 17.703-50X80 | 50 x 80 mm | 100 | 0.035 |
| 17.703-50X150 | 50 x 150 mm | 100 | - |
| 17.703-50X250 | 50 x 250 mm | 100 | - |
| 17.703-55X250 | 55 x 250 mm | 100 | - |
| 17.703-60X100 | 60 x 100 mm | 100 | - |
| 17.703-80X150 | 80 x 150 mm | 100 | 0.116 |
| 17.703-90X120 | 90 x 120 mm | 100 | - |
| 17.703-100X150 | 100 x 150 mm | 100 | - |
| 17.703-120X180 | 120 x 180 mm | 100 | - |

Standard plastic bag, 0.05 mm thickness, without closing zip.

pressure seal bags.



2

1

100 pieces

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|----------------------|----------|-------|
| 17.713-050 | 50 x 70 mm (50 μ) | 100 | 0.065 |
| 17.713-080 | 80 x 100 mm (100 μ) | 100 | 0.225 |
| 17.713-100 | 100 x 150 mm (100 μ) | 100 | 0.360 |
| 17.713-150 | 150 x 200 mm (100 μ) | 100 | 0.720 |

Anti-corrosion green pressure seal bag.

Features :

- Material : polyethylene, transparent green
- Thickness 50 or 100 μ
- Corrosion protection, ideal for long term storage and overseas shipping
- Sealing pressure for easy opening and closing of the bag.



2

1

100 pieces

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|---------------------|----------|-------|
| 17.714-075 | 75 x 90 mm (75 μ) | 100 | 0.150 |
| 17.714-090 | 90 x 100 mm (75 μ) | 100 | 0.175 |
| 17.714-115 | 115 x 155 mm (75 μ) | 100 | 0.500 |
| 17.714-160 | 160 x 220 mm (75 μ) | 100 | 0.580 |
| 17.714-250 | 250 x 300 mm (75 μ) | 100 | 1.250 |

Antistatic/ESD pink pressure seal bag.

Features :

- Material : polyethylene, transparent pink
- Thickness 75 μ
- Good electrostatic/ESD protection
- Ideal for storage and shipping of electronic components
- Sealing pressure for easy opening and closing of the bag.



2

1

100 pieces

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|---------------------|----------|-------|
| 17.715-075 | 75 x 90 mm (75 μ) | 100 | 0.205 |
| 17.715-090 | 90 x 110 mm (75 μ) | 100 | 0.132 |
| 17.715-115 | 115 x 155 mm (75 μ) | 100 | 0.330 |

Black, opaque and UV-resistant pressure seal bag.

Features :

- Material : polyethylene, black opaque
- Thickness 75 μ
- UV-resistant
- Protection of age-sensitive goods
- Prevents yellowing of light-sensitive materials or embrittlement of rubber parts and plastic components due to exposure to light
- Sealing pressure for easy opening and closing of the bag.

Minigrip® plastic bags.



100 or 50 pieces

1

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|--------------|----------|-------|
| 17.700-040 | 40 x 60 mm | 100 | 0.046 |
| 17.700-050 | 50 x 75 mm | 100 | 0.070 |
| 17.700-075 | 75 x 90 mm | 100 | 0.104 |
| 17.700-090 | 90 x 110 mm | 100 | 0.158 |
| 17.700-100 | 100 x 125 mm | 100 | 0.185 |
| 17.700-115 | 115 x 155 mm | 100 | 0.256 |
| - | - | - | - |
| 17.700-150 | 150 x 180 mm | 50 | 0.504 |
| 17.700-160 | 160 x 220 mm | 50 | 0.466 |
| 17.700-195 | 195 x 280 mm | 50 | 0.682 |
| 17.700-200 | 200 x 250 mm | 50 | 0.696 |
| 17.700-220 | 220 x 305 mm | 50 | 0.830 |

Minigrip® plastic bag. Standard size, 0.05 mm thickness.
Zip to easy open and close the bag. Its ingenious conception prevents from yielding under the weight of the contents.

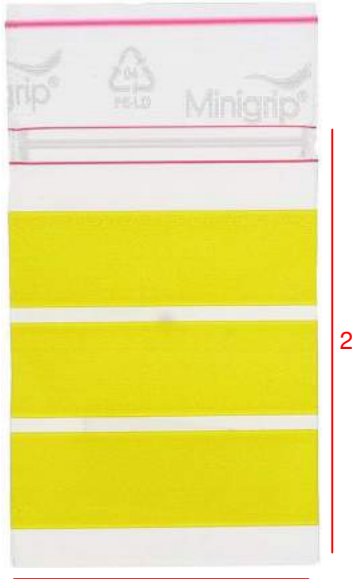


100 or 50 pieces

1

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|--------------|----------|-------|
| 17.701-040 | 40 x 60 mm | 100 | 0.046 |
| 17.701-050 | 50 x 75 mm | 100 | 0.070 |
| 17.701-075 | 75 x 90 mm | 100 | 0.104 |
| 17.701-090 | 90 x 110 mm | 100 | 0.316 |
| 17.701-100 | 100 x 125 mm | 100 | 0.185 |
| 17.701-115 | 115 x 155 mm | 100 | 0.256 |
| 17.701-150 | 150 x 180 mm | 100 | 0.450 |
| - | - | - | - |
| 17.701-160 | 160 x 220 mm | 50 | 0.466 |
| 17.701-200 | 200 x 250 mm | 50 | 0.696 |
| 17.701-220 | 220 x 305 mm | 50 | 0.700 |

Minigrip® plastic bag. Standard size, 0.05 mm thickness, with 3 white write-on sections for annotations.
Zip to easy open and close the bag. Its ingenious conception prevents from yielding under the weight of the contents.

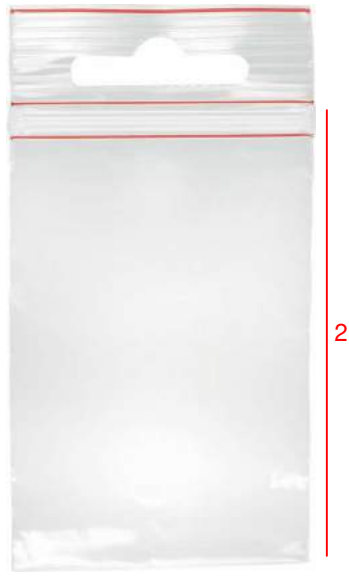


1000 pieces

1

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|------------|----------|-------|
| 17.704-040 | 40 x 60 mm | 1000 | 0.625 |

Minigrip® plastic bag. Standard size, 0.06 mm thickness, with 3 yellow write-on sections for annotations and reinforced side welds. Zip to easy open and close the bag. Its ingenious conception prevents from yielding under the weight of the contents.



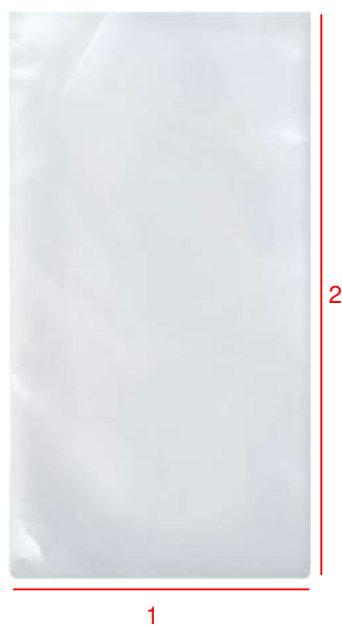
50 pieces

1

| MSA | Size 1 x 2 | Quantity | Kg |
|------------|-------------|----------|-------|
| 17.702-050 | 50 x 80 mm | 50 | 0.035 |
| 17.702-090 | 90 x 170 mm | 50 | 0.110 |

Minigrip® plastic bag, 0.05 mm thickness. Zip to easy open and close the bag. Top hole for hooking the bag on display.

Special plastic bag for chamber machines.



In a 500-piece bag :

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-250X500 | 500 | 250 x 500 mm |
| 17.706-250X600 | 500 | 250 x 600 mm |
| 17.706-260X450 | 500 | 260 x 450 mm |
| 17.706-300X500 | 500 | 300 x 500 mm |
| 17.706-300X600 | 500 | 300 x 600 mm |
| 17.706-300X700 | 500 | 300 x 700 mm |

Special plastic bag (PA/PE 20/70).

In a 1000-piece bag :

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-100X250 | 1000 | 100 x 250 mm |
| 17.706-100X300 | 1000 | 100 x 300 mm |
| 17.706-120X120 | 1000 | 120 x 120 mm |
| 17.706-120X160 | 1000 | 120 x 160 mm |
| 17.706-120X200 | 1000 | 120 x 200 mm |
| 17.706-120X270 | 1000 | 120 x 270 mm |
| 17.706-120X300 | 1000 | 120 x 300 mm |
| 17.706-120X400 | 1000 | 120 x 400 mm |
| 17.706-130X180 | 1000 | 130 x 180 mm |
| 17.706-130X200 | 1000 | 130 x 200 mm |
| 17.706-130X280 | 1000 | 130 x 280 mm |
| 17.706-130X300 | 1000 | 130 x 300 mm |
| 17.706-130X380 | 1000 | 130 x 380 mm |
| 17.706-140X200 | 1000 | 140 x 200 mm |
| 17.706-140X210 | 1000 | 140 x 210 mm |
| 17.706-140X270 | 1000 | 140 x 270 mm |
| 17.706-150X180 | 1000 | 150 x 180 mm |
| 17.706-150X200 | 1000 | 150 x 200 mm |
| 17.706-150X230 | 1000 | 150 x 230 mm |
| 17.706-150X260 | 1000 | 150 x 260 mm |
| 17.706-160X200 | 1000 | 160 x 200 mm |
| 17.706-160X300 | 1000 | 160 x 300 mm |
| 17.706-165X210 | 1000 | 165 x 210 mm |
| 17.706-165X250 | 1000 | 165 x 250 mm |
| 17.706-170X250 | 1000 | 170 x 250 mm |
| 17.706-170X400 | 1000 | 170 x 400 mm |

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-180X230 | 1000 | 180 x 230 mm |
| 17.706-180X240 | 1000 | 180 x 240 mm |
| 17.706-180X250 | 1000 | 180 x 250 mm |
| 17.706-180X260 | 1000 | 180 x 260 mm |
| 17.706-180X280 | 1000 | 180 x 280 mm |
| 17.706-180X350 | 1000 | 180 x 350 mm |
| 17.706-200X220 | 1000 | 200 x 220 mm |
| 17.706-200X250 | 1000 | 200 x 250 mm |
| 17.706-200X300 | 1000 | 200 x 300 mm |
| 17.706-200X350 | 1000 | 200 x 350 mm |
| 17.706-200X400 | 1000 | 200 x 400 mm |
| 17.706-200X500 | 1000 | 200 x 500 mm |
| 17.706-200X600 | 1000 | 200 x 600 mm |
| 17.706-220X300 | 1000 | 220 x 300 mm |
| 17.706-225X350 | 1000 | 225 x 350 mm |
| 17.706-230X380 | 1000 | 230 x 380 mm |
| 17.706-250X280 | 1000 | 250 x 280 mm |
| 17.706-250X300 | 1000 | 250 x 300 mm |
| 17.706-250X350 | 1000 | 250 x 350 mm |
| 17.706-250X400 | 1000 | 250 x 400 mm |
| 17.706-260X350 | 1000 | 260 x 350 mm |
| 17.706-270X300 | 1000 | 270 x 300 mm |
| 17.706-300X300 | 1000 | 300 x 300 mm |
| 17.706-300X350 | 1000 | 300 x 350 mm |
| 17.706-300X400 | 1000 | 300 x 400 mm |
| 17.706-320X320 | 1000 | 320 x 320 mm |

Special plastic bag (PA/PE 20/70).

Anti-dust dome.



| MSA | Ø base | Dome size | Kg |
|--------|--------|---------------|-------|
| 17.600 | 90 mm | Ø 70 x 120 mm | 0.133 |

Anti-dust dome with hook for watches and jewellery, with plastic base and transparent plastic dome.

Protection covers.



(1)

| MSA | | Size | Kg |
|--------|-----|-------------------|-------|
| 17.015 | (1) | 310 x 120 x 50 mm | 0.685 |
| 17.016 | | 310 x 230 x 50 mm | 0.870 |

Plexiglas anti-dust protection cover.

Dustproof cover.



| PERF | Well | Kg |
|------|--------|-------|
| 106 | 100 mm | 0.070 |

Protection kit composed of one dustproof cover and one base with 6 divisions for small parts.

Benzine cups and containers.



| MSA | Volume | Size | Kg |
|--------|--------|--------------|-------|
| 17.305 | 150 ml | Ø 98 x 81 mm | 0.820 |

Stainless steel benzine container with safety lid for cleaning, removing grease and rust with with flammable or toxic liquids. In case of inflammation of the fluid, the copper fuse melts, the lid closes automatically and smothers the fire. The closed lid remains under pressure, prevents the spread of toxic fumes and protects the health of the staff. A special anchoring allows fixing the benzine container at the workplace, which prevents liquids from spilling.

Delivered with a cooper fuse and a gasket for the lid.

Delivered without basket.

Base size : 100 x 140 x 5 mm.

Spare part :

| MSA | Item |
|----------|-------------|
| 17.305-F | Copper fuse |

Accessory :

| MSA | Item | Kg |
|----------|--------------------------------------|-------|
| 17.305-P | Stainless steel basket, Ø 85 x 30 mm | 0.075 |



| MSA | Volume | Ø base | Size | Kg |
|--------|--------|--------|--------------|-------|
| 17.306 | 40 ml | 228.25 | Ø 75 x 46 mm | 0.293 |

Stainless steel benzine container with safety lid for cleaning, removing grease and rust with with flammable or toxic liquids.

In case of inflammation of the fluid, the copper fuse melts, the lid closes automatically and smothers the fire. The closed lid remains under pressure, prevents the spread of toxic fumes and protects the health of the staff.

Delivered with a cooper fuse and an orange gasket for the lid.

Spare parts :

| MSA | Item |
|----------|---------------|
| 17.305-F | Copper fuse |
| 17.306-J | Orange gasket |



| MSA | Volume | Size | Kg |
|--------|--------|--------------|-------|
| 17.317 | 50 ml | Ø 46 x 94 ml | 0.115 |

Glass bottle for Epilames with pierced steel basket. For use with Episurf-Neo, EpiDrop and Moebius Fixodrop.

Inner size of the basket : Ø 16 x height 8 mm.



(1)



(2)

| MSA | | Volume | Size | Kg |
|--------|-----|--------|------------------|-------|
| 17.314 | (1) | 180 ml | 55 x 55 x 110 mm | 0.067 |
| 17.319 | (2) | 120 ml | 55 x 55 x 80 mm | 0.076 |

Antistatic solvent dispenser. Ideal for a wide range of applications in the watchmaking, electronics and medical industries.

The main advantages are :

- Dispenses clean
- Prevents evaporation and contamination
- Suitable for most liquids like solvents, degreasers, oils
- Easy use
- Reduces waste
- Prevents fumes, accident and spillage
- ESD safe (electrostatic discharge)
- Surface resistivity 107 to 109 Ohm
- No charge generation, no fire or explosion ignition risk
- The "anti-splash" function prevents splashing, liquid back-flow and eye protection
- Fluid pumped into the dish does not drip back into the bottle, keeping stored liquids uncontaminated.



| MSA | | Ø | Kg |
|--------|--|--------|-------|
| 17.300 | | 60 mm | 0.230 |
| 17.301 | | 80 mm | 0.400 |
| 17.302 | | 100 mm | 0.540 |
| 17.303 | | 150 mm | 1.030 |

Glass benzene cup for daily use of benzene, alcohol or other solutions. The lid with button prevents the entry of dust and the premature evaporation of solutions.



| MSA | | Size | Kg |
|--------|--|--------------|-------|
| 17.318 | | Ø 36 x 36 mm | 0.029 |

Glass benzene cup for benzene, alcohol or any other solutions. The lid with button prevents the entry of dust and the premature evaporation of solutions.

Inner size : Ø 32 x height 30 mm.
Total height with button : 54 mm.



| MSA | | Ø | Kg |
|--------|--|--------|-------|
| 17.310 | | 60 mm | 0.205 |
| 17.311 | | 80 mm | 0.325 |
| 17.312 | | 100 mm | 0.505 |
| 17.313 | | 150 mm | 1.000 |

Glass benzene cup for daily use of benzene, alcohol or other solutions. The lid without button prevents the entry of dust and the premature evaporation of solutions.



| MSA | Volume | Kg |
|--------|--------|-------|
| 17.335 | 100 ml | 0.017 |

Plastic burette with long tip nose.



| MSA | Volume | Kg |
|--------|--------|-------|
| 17.336 | 50 ml | 0.017 |

Plastic burette with dropper cap.
A burette enables small quantities of lubricant to be applied in the proper place.



(1)



(2)

| MSA | Volume | Size | Kg |
|--------|----------|--------------|----|
| 17.307 | (1) 2 ml | Ø 14 x 26 mm | - |
| 17.308 | (2) 2 ml | Ø 14 x 26 mm | - |

Glass storage bottle with yellow cap.
MSA17.307 : in amber glass.
MSA17.308 : in transparent glass.

Storage cabinet.



| MSA | Kg |
|--------|--------|
| 17.850 | 29.300 |

Storage cabinet with controlled humidity for components.
- Metallic cabinet with 2 doors lockable by key and 3 separation trays
- Humidity level automatically adjustable from 25 to 55% and controllable by indicator on the front panel.

Features :
 External size : 80.0 x 83.5 x 45.5 cm
 Internal size : 76.4 x 74.0 x 40.0 cm
 Hygrometer : Analogic
 Consumption : 12 Watts
 Voltage : 220 V

18



HANDLES

HANDLES

File handles.



| MSA | Colour | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|--------|----------|---------|-------|
| 18.050 | Blue | 90 mm | 16 mm | 23 mm | 4.00 mm | 0.025 |
| 18.051 | Red | 100 mm | 18 mm | 25 mm | 5.50 mm | 0.033 |
| 18.052 | Black | 110 mm | 19 mm | 28 mm | 7.00 mm | 0.043 |
| 18.053 | Green | 120 mm | 21 mm | 31 mm | 9.00 mm | 0.055 |

File round shape plastic handle.



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|--------|-------|
| 18.100 | 80 mm | 14 mm | 21 mm | 3 mm | 0.017 |
| 18.101 | 90 mm | 16 mm | 22 mm | 4 mm | 0.022 |
| 18.102 | 100 mm | 18 mm | 25 mm | 4 mm | 0.027 |
| 18.103 | 110 mm | 18 mm | 26 mm | 5 mm | 0.036 |

File round shape wooden handle.



| MSA | Length | Ø handle | Ø hole | Kg |
|--------|--------|----------|---------|-------|
| 18.110 | 110 mm | 10 mm | 2.00 mm | 0.007 |
| 18.111 | 110 mm | 12 mm | 2.00 mm | 0.009 |
| 18.112 | 110 mm | 14 mm | 2.00 mm | 0.013 |
| 18.113 | 110 mm | 16 mm | 2.50 mm | 0.015 |
| 18.114 | 110 mm | 18 mm | 3.00 mm | 0.021 |
| 18.115 | 110 mm | 20 mm | 3.50 mm | 0.027 |

File cylindrical shape wooden handle.

vallorbe
SWISS



| UAL | □ | ○ | ◐ | ▲ | ▶ | ▭ | L mm | Kg |
|----------|--------|--------|-----|--------|-----|-----|--------|-------|
| 110-BLEU | - | 4" | - | 4" | - | - | 94 mm | 0.039 |
| 210-BLEU | 4-5" | 5-6" | - | 5" | - | - | 94 mm | 0.041 |
| 310-BLEU | 4-6" | - | 4" | 6" | 4" | 4" | 94 mm | 0.042 |
| 410-BLEU | 8" | 8" | 6" | 8" | 6" | 6" | 105 mm | 0.045 |
| 510-BLEU | 8-10" | 10-12" | 8" | 10" | 8" | 8" | 105 mm | 0.052 |
| 610-BLEU | 10-12" | - | 10" | 10-12" | 10" | 10" | 121 mm | 0.082 |
| 710-BLEU | - | - | 12" | - | 12" | 12" | 130 mm | 0.094 |

Antislip plastic handle with hardened threaded insert.

vallorbe
SWISS



| UAL | Ø | L mm | Kg |
|-----|--------|-------|-------|
| 160 | 2-3 mm | 95 mm | 0.028 |
| 260 | 3-4 mm | 95 mm | 0.028 |

Precision handle for needle files.

vallorbe
SWISS



| UAL | L mm | Kg |
|-----|-------|-------|
| 170 | 86 mm | 0.015 |

Handle for needle files.

vallorbe
SWISS



| UAL | □ | ○ | ◐ | ▲ | ■ | L mm | Kg |
|-----|-----|-----|-------|-----|-------|--------|-------|
| 200 | - | - | 4" | - | 4" | 80 mm | 0.020 |
| 400 | 6" | 6" | 5" | 6" | 5" | 100 mm | 0.025 |
| 500 | 8" | 8" | 6" | 8" | 6" | 115 mm | 0.040 |
| 600 | 10" | 10" | 8-10" | 10" | 8-10" | 125 mm | 0.055 |

Wooden files handle.

Handles for ceramic fibre files.

vallorbe
SWISS



| UALF | | For files | Kg |
|------|-----|-------------|-------|
| 105 | (1) | A = 0.5 mm | 0.010 |
| 109 | | A = 0.9 mm | 0.010 |
| 202 | (2) | A = 2.34 mm | 0.010 |
| 203 | (3) | A = 3.0 mm | 0.013 |
| 301 | (4) | A = 1 mm | 0.010 |
| 302 | | A = 2 mm | 0.010 |
| 304 | | A = 4 mm | 0.011 |

Handle for ceramic fibre files.

Graver handles.



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|---------|-------|
| 18.120 | 65 mm | 12 mm | 27 mm | 2.50 mm | 0.014 |

Graver wooden handle.



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|---------|-------|
| 18.130 | 40 mm | 11 mm | 34 mm | 2.00 mm | 0.012 |

Graver wooden handle.



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|---------|-------|
| 18.131 | 40 mm | 10 mm | 34 mm | 2.50 mm | 0.014 |
| 18.132 | 50 mm | 12 mm | 34 mm | 2.50 mm | 0.018 |

Graver wooden handle.



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|---------|-------|
| 18.140 | 40 mm | 10 mm | 32 mm | 2.50 mm | 0.013 |

Graver wooden handle.

HANDLES



| MSA | Length | Ø ring | Ø handle | Ø hole | Kg |
|--------|--------|--------|----------|---------|-------|
| 18.150 | 40 mm | 10 mm | 34 mm | 2.50 mm | 0.015 |

Graver wooden handle.



| MSA | Length | Ø ring | Ø handle | Kg |
|--------|--------|--------|----------|-------|
| 18.200 | 70 mm | 12 mm | 34 mm | 0.033 |

Graver wooden handle with 2 tightening chucks.

- Ø 0...1.60 mm
- Ø 1.60...3.00 mm.



| MSA | Head | Kg |
|----------|-------|-------|
| 18.130-S | 50 mm | 0.014 |

Wooden handle for beading tools with 1 brass die Ø 2.60 mm to quickly fit the beading tool.

Engraver handles.



| MSA | Length | Ø ring | Ø handle | Kg |
|--------|--------|--------|----------|-------|
| 18.203 | 75 mm | 12 mm | 34 mm | 0.025 |

Engraver wooden handle with 2 tightening chucks.

- Ø 0...1.60 mm
- Ø 1.60...3.00 mm.



| MSA | Length | Ø ring | Ø handle | Kg |
|--------|--------|--------|----------|-------|
| 18.204 | 75 mm | 12 mm | 30 mm | 0.030 |

Engraver wooden handle with 1 tightening chuck.

- Ø 1.80...3.00 mm
- Square headed chuck to tighten a tool using pliers.

Hammer handles.



| MSA | Length | Kg |
|--------|--------|-------|
| 04.102 | 240 mm | 0.060 |
| 04.103 | 260 mm | 0.060 |

Wooden handle for chase hammers, with straight oval shape.



| MSA | Length | Head | Kg |
|--------|--------|------------|-------|
| 04.104 | 235 mm | 11 x 11 mm | 0.035 |
| 04.105 | 245 mm | 11 x 13 mm | 0.038 |
| 04.106 | 255 mm | 11 x 14 mm | 0.042 |

Wooden handle for watchmaker hammers.

19



| | |
|-------------------------|---------|
| TESTING | 19 - 2 |
| WATCH WINDERS | 19 - 9 |
| WATERPROOF TESTERS | 19 - 14 |
| CLEANING | 19 - 18 |
| PACKAGING | 19 - 32 |
| VACUUM / COMPRESSED AIR | 19 - 34 |
| ADHESIVES | 19 - 39 |
| POLYMERISATION / UV | 19 - 42 |
| MAGNETISM | 19 - 43 |



| MSA | Voltage | Size | Kg |
|--------|------------------|-------------------|-------|
| 19.115 | Dual 115 - 230 V | 155 x 172 x 55 mm | 0.900 |

Multifunctional portable touchscreen tester HOROTEC® FLASHTEST specifically designed for the control of watches and quartz mechanisms. This precision device is easy to handle and is intended to test analogue quartz watches and movements with both closed and open watchcases.

Measurements and functions :

- Measuring tension of unloaded batteries from 0 to 19.999 V
- Measuring tension of batteries under load from 0 to 19.999 V
- Measuring the movement supply voltage (1.5 V or 3.0 V)
- Measuring the coil resistance
- Unjamming the wheel trains
- Measuring the rate stability or the gain/loss of a watch or a movement
- Checking the correct functioning of the circuit : electrical impulse and consumption of the electric circuit
- Measuring the consumption of a watch during its operation.

Display : colour touchscreen 48 x 36 mm.

Delivered with 2 precision probes , 1 adaptor 12 V (input 115 - 230 V AC / output 12 V DC), 1 9 V battery and 1 operating manual.

Spare part :

| MSA | Item | Kg |
|----------|----------------|-------|
| 19.115-A | Pair of probes | 0.015 |

Accessory :

| MSA | Item | Kg |
|----------|--------------------|-------|
| 19.108-E | Calibration device | 0.043 |



| MSA | Size | Kg |
|--------|------------------|-------|
| 19.106 | 60 x 105 x 28 mm | 0.225 |

HOROTEC® PULSE is an electronic device for testing the electronic parts (coil/circuit) of analogic quartz watch movements.

Delivered with 1 battery 9 V and multi-lingual operating instructions.



| MSA | Size | Kg |
|--------|------------------|-------|
| 19.107 | 60 x 105 x 28 mm | 0.235 |

HOROTEC® TURBO is an electronic device for testing the mechanical parts (wheel train) of analogic quartz watch movements. Do not use it for testing mechanical watches. Delivered with 1 battery 9 V and multi-lingual operating instructions.



| MSA | Size | Kg |
|--------|------------------|-------|
| 19.000 | 100 x 70 x 40 mm | 0.115 |

Universal battery tester suitable for any type of batteries from 1.5 to 22.5 V : 1.5 V type AA, AAA button, lithium 3 V, Photo 6 V, 9 V, etc.). Delivered with operating instructions.



| MSA | Size | Kg |
|--------|------------------|-------|
| 19.105 | 85 x 150 x 55 mm | 0.250 |

Battery, coil and electronic function tester for analogical quartz watches. Delivered with 1 battery 9 V and operating instructions.



| MSA | Apparatus | Voltage | Casing size | Kg |
|--------|-----------|------------|--------------------|-------|
| 19.214 | MTG-1100 | 90 - 240 V | 240 x 190 x 180 mm | 1.100 |

MTG-1100 simple tester for mechanical watches, equipped with a microphone and a 4.3" high-resolution digital coloured LCD screen. There are three keys to operate. The diagram display is horizontal. It also has all the basic test functions. Compact and easy-to-use model.

- Displays daily rate in seconds per day (+/- 300 s/d), accuracy (+/- 1 s/d)
- Amplitude : 90 – 350°, allowable tolerance (+/- 3°)
- Beat error : 0 - 4.0 ms, allowable tolerance (+/- 0.1 ms).



| MSA | Apparatus | Voltage | Casing size | Kg |
|--------|-----------|------------|--------------------|-------|
| 19.213 | MTG-2200 | 90 - 240 V | 360 x 165 x 190 mm | 2.000 |

MTG-2200 economical tester for mechanical watches, equipped with a standard microphone and a 5" high-resolution digital coloured LCD screen. There are three keys to operate. The tester has all the basic test functions. It has three display models of diagram of beat noises. Compact and easy-to-use model.



| MSA | Apparatus | Voltage | Casing size | Kg |
|--------|---------------|-------------|--------------------|-------|
| 19.172 | (1) MTG-4000A | 100 - 240 V | 260 x 170 x 120 mm | 1.900 |
| 19.174 | MTG-4000T | 100 - 240 V | 260 x 170 x 120 mm | 1.900 |

MTG-4000 testing device for mechanical watches. Complete, multifunctional model for professional use.

Functions :

- Measurement of beat rate (sec/day), mechanical watch beat error m/s and watch beat diagram
- Acoustic watch beat simulation (can be switched off)
- Amplitude measurement over a range of 90° to 350°, lift angle selection from 30° to 60° with 0.1° resolution
- 6 programmed positions with test report
- "Pause" and "Shift" functions to stop the current measurement and view previous stored beats
- TYAPS signal processing unit which automatically controls the signal level and filters peripheral noise
- Highly stable TCXO quartz oscillator for time base : +/- 0.1 sec/day
- Results are displayed on a 7" (153 x 86 mm) colour LCD screen.

MSA19.172 (4000A) : 1 microphone

MSA19.174 (4000T) : 3 microphones



(1)



(2)

| MSA | | Apparatus | Voltage |
|----------|-----|-----------|-------------|
| 19.209-A | (1) | MTG-9900A | 100 - 240 V |
| 19.209 | (2) | MTG-9900 | 100 - 240 V |

MTG-9900A and MTG-9900 testers for mechanical watches with touch screen.

Complete multifunction version for professional use, ideal for efficient and fast tests during production, after sales service and watch-test lab.

MSA19.209-A: 1 MTG-9900A device, 1 AUTOMIC-3 automatic microphone and 1 thermo-sensitive printer.

MSA19.209: 1 MTG-9900 device and 1 standard microphone.

Functions :

- Measuring of beat rate (+/- 300 sec/day ; precision +/- 1 sec/day), model MSA19.209-A only
- Amplitude measurement range from 90° to 350°, lift angle selection from 20° to 70°, model MSA19.209-A only
- Number of beats : 12000, 14400, 18000, 19800, 21600, 25200, 28800 and 36000 beats/hour. Can be selected automatically or manually
- 6 control positions.



| MSA | | Kg |
|--------|--|-------|
| 19.177 | | 1.030 |

Thermo printer THERMOPRINT for MTG testers.

Spare part :

| MSA | Item | Kg |
|----------|----------------------------|-------|
| 19.177-A | Thermo paper, Ø 30 x 57 mm | 0.032 |



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|-------|
| 19.158 | 230 V | 260 x 150 x 130 mm | 1.500 |
| 19.158-110 | 120 V | 260 x 150 x 130 mm | 1.500 |

The NEW TECH HANDY II measures the rate accuracy and power consumption of quartz watches and quartz watch movements and facilitates the testing of other components such as coil resistance, insulation and battery voltage.

Spare parts :

| MSA | Item |
|----------|-------------------------------------|
| 19.158-A | Measuring cable with 2 probes, pair |
| 19.160-B | Mobile probe, pair |



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|-------|
| 19.152 | 230 V | 290 x 170 x 180 mm | 2.800 |
| 19.152-110 | 120 V | 290 x 170 x 180 mm | 2.800 |

The ANALYZER Q1 provides excellent measurement and testing facilities for the specialist testing and measurement of quartz watches. The ANALYZER Q1 is a testing device for efficient use in a repair service as well as for analyses during watch production, in watchmaking laboratories and in sales situations.



| MSA | Voltage | Size | Kg |
|--------|-------------|--------------------|-------|
| 19.202 | 100 - 240 V | 197 x 164 x 130 mm | 1.700 |

The WATCH EXPERT G4 is the ideal, cost-effective measuring device for testing and measuring the rate accuracy, amplitude and beat error of mechanical watches during watch production and servicing.

Spare part :

| MSA | Item | Kg |
|----------|------------|-------|
| 19.157-M | Microphone | 1.300 |



| MSA | Version | Voltage | Size | Kg |
|--------|---------------------------------------|---------|--------------------|-------|
| 19.221 | (1) Standard version | 230 V | 130 x 110 x 110 mm | 0.800 |
| 19.222 | (1) PRO version with software | 230 V | 130 x 110 x 110 mm | 0.800 |
| 19.226 | AIR (Bluetooth) version with software | 230 V | 130 x 110 x 110 mm | 0.610 |

CHRONOMASTER control instrument for mechanical watches easily connectable to a PC or tablet. The compact microphone has integrated measurement electronics. The measurement results are displayed on the PC or tablet screen.



| MSA | Microphone | Voltage | Casing size | Kg |
|--------|------------|------------------------|-------------------|-------|
| 19.130 | (1) With | 100 - 240 V / 50-60 Hz | 225 x 85 x 191 mm | 3.100 |
| 19.131 | Without | 100 - 240 V / 50-60 Hz | 225 x 85 x 191 mm | 2.900 |

The CHRONOSCOPE S1 (G2) is a highly professionally measuring device for the efficient testing and measurement of mechanical watches in a repair service, quality control and the industrial sector of the clock and watchmaking industry.

Spare part :

| MSA | Item |
|----------|------------|
| 19.150-B | Microphone |

Accessories :

| MSA | Item |
|-------------|--|
| 19.155-B | Automatic microphone Micromat S, 220 V |
| 19.155-B110 | Automatic microphone Micromat S, 110 V |



| MSA | Microphone | Voltage | Casing size | Kg |
|--------|------------|-------------|-------------------|-------|
| 19.188 | With | 100 - 240 V | 266 x 213 x 43 mm | 2.100 |

The CHRONOSCOPE X1 (G3) is the high-end watch testing device for mechanical watches and has at its disposal the latest technologies for testing and measuring mechanical watch movements during production, in a repair service or laboratory.

Delivered with 1 automatic microphone Micromat C, 1 network adapter, 1 protection cover and 1 operating instructions.



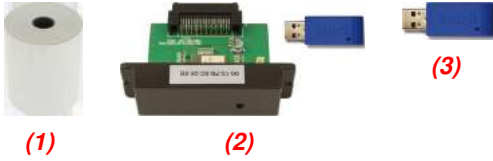
| MSA | Voltage | Size | Kg |
|----------|---------|--------------------|-------|
| 19.155-C | 230 V | 115 x 125 x 215 mm | 1.700 |

The modular, space-saving MICROMAT C system is a highly professional measuring station for the testing and regulation of production runs in the laboratory, during watch production and in a repair service. The measurement results of the mechanical watch test are displayed on a PC with the MICROMAT C system. You can connect up to a maximum of 10 independent test channels (microphones) to the same PC.



| MSA | Voltage | Size |
|--------|-------------|----------------------|
| 19.203 | 100 - 240 V | 112.5 x 200 x 125 mm |

Thermo printer JB01-SLK-TE25-Sfor WITSCHI® testers.



Spare parts :

| MSA | Item |
|----------|---|
| 19.134-P | (1) Thermo paper, Ø 51 x 60 mm |
| 19.203-A | (2) Bluetooth dongle and plug-in module |
| 19.203-B | (3) Dongle for Witschi® device |



| MSA | Kg |
|--------|-------|
| 19.198 | 0.043 |

Protection kit of movement on a microphone.
 Composed of a support and an anti-dust cover for a microphone WITSCHI®.
Delivered without microphone or movement.



| MSA | Voltage | Size | Kg |
|--------|-------------------------|--------------------|-------|
| 19.349 | 100 - 240 V 50-60 Hz | 135 x 289 x 225 mm | 8.340 |

Watch winder for 2 watches.
Noiseless, reliable and modern design with large transparent windows.
Winding function : clockwise and anti-clockwise, automatic (bi-directional).

4 timer modes (TPD=Turns Per Day) :

A : 650 TPD, 13 cycles, 50 turns per cycle, then rest.

Each cycle takes 110 minutes.

B : 900 TPD, 18 cycles, 50 turns per cycle, then rest.

Each cycle takes 80 minutes.

C : 1200 TPD, 24 cycles, 50 turns per cycle, then rest.

Each cycle takes 60 minutes.

D : 1500 TPD, 30 cycles, 50 turns per cycle, then rest.

Each cycle takes 48 minutes.

Operates via a 100 - 240 V network adapter, delivered with the device.



| MSA | Voltage | Size | Kg |
|--------|-------------------------|--------------------|-------|
| 19.363 | 100 - 240 V 50-60 Hz | 141 x 192 x 243 mm | 1.175 |

Watch winder for 2 watches.
Noiseless, reliable and modern design with large transparent windows.
Winding function : clockwise and anti-clockwise, automatic (bi-directional).

4 timer modes :

A : 650 TPD, rotates 7 min. (50 rotations), rest 104 min., then new cycle.

B : 900 TPD, rotates 7 min. (50 rotations), rest 73 min., then new cycle.

C : 1200 TPD, rotates 7 min. (50 rotations), rest 53 min., then new cycle.

D : 1500 TPD, rotates 7 min. (50 rotations), rest 41 min., then new cycle cycle.

Operates via a 100 - 240 V network adapter, delivered with the device.



| MSA | Voltage | Size | Kg |
|--------|-------------------------|--------------------|-------|
| 19.360 | 100 - 240 V 50-60 Hz | 151 x 151 x 171 mm | 0.450 |

Watch winder for 1 watch.
Noiseless, reliable and modern design with a large transparent window and lighting spread by LED.
Winding function : clockwise and anti-clockwise, automatic (bi-directional).

4 timer modes (TPD=Turns Per Day) :

A : 650 TPD, rotates 5 min., rest 79 min., then new cycle.

B : 900 TPD, rotates 5 min., rest 56 min., then new cycle.

C : 1200 TPD, rotates 5 min., rest 41 min., then new cycle.

D : 1500 TPD, rotates 5 min., rest 32 min., then new cycle.

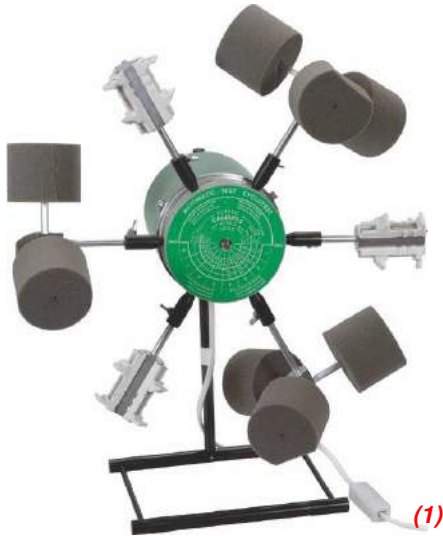
3 buttons on the back of the device :

- TPD (selection of the number of turns per day)

- LED (device lighting)

- Switching on and selecting the direction of rotation.

Operates via a 100 - 240 V network adapter, delivered with the device.



| MSA | Apparatus | Voltage | Kg |
|------------|------------------------------|---------|-------|
| 19.205 | REGLOMAT Final-Test | 220 V | 2.780 |
| 19.205-110 | REGLOMAT Final-Test | 110 V | 2.780 |
| 19.305 | (1) CYCLOTEST Automatic-Test | 220 V | 2.905 |
| 19.305-110 | CYCLOTEST Automatic-Test | 110 V | 2.905 |

Watch winder for 18 watches with :
 - 3 arms with clips for 9 watches without bracelets
 - 3 arms with foam for 9 watches with bracelets.

The REGLOMAT apparatus (1 rpm) tests the following : slow winding, power on wrist, shock tests, calendar and detects hidden defects.

The CYCLOTEST apparatus (4 rpm) tests the following : accelerated winding, wheel (and pinion) speed, and power reserve.



| MSA | Apparatus | Voltage | Kg |
|------------|--------------------------|---------|-------|
| 19.206 | (1) REGLOMAT Final-Test | 220 V | 2.780 |
| 19.206-110 | REGLOMAT Final-Test | 110 V | 2.780 |
| 19.306 | CYCLOTEST Automatic-Test | 220 V | 2.905 |
| 19.306-110 | CYCLOTEST Automatic-Test | 110 V | 2.905 |

Watch Winder for 20 watches with :
 - 2 arms with clips for 6 watches without bracelets
 - 2 arms with foams for 6 watches with bracelets
 - 2 arms with springs for 8 watches with bracelets.

The REGLOMAT apparatus (1 rpm) tests the following : slow winding, power on wrist, shock tests, calendar and detects hidden defects.

The CYCLOTEST apparatus (4 rpm) tests the following : accelerated winding, winding speed and power reserve.

Spare parts for MSA19.205, MSA19.206, MSA19.305 and MSA19.306 :

| MSA | Item | Kg |
|----------|--|-------|
| 19.201-A | Arm with spring for 1 watch with bracelet | 0.015 |
| 19.201-B | Arm with clips for 2 watches without bracelets | 0.052 |
| 19.205-A | Arm with clips for 3 watches without bracelets | 0.056 |
| 19.205-B | Arm with foams for 3 watches with bracelets | 0.064 |
| 19.205-C | Arm with springs for 4 watches with bracelet | 0.100 |
| 19.205-E | Foam without arm | 0.001 |



(1)



(2)



(3)



(4)



(5)



(6)



(1)

| MSA | Version | Voltage | Size | Kg |
|--------|----------------------------|-------------|--------------------|--------|
| 19.450 | (1) Without arms | 100 - 240 V | 465 x 325 x 520 mm | 10.500 |
| 19.451 | With 6 arms MSA19.450-B | 100 - 240 V | 635 x 325 x 585 mm | 11.000 |

CYCLOMOTION watch winder for automatic watch winding and for work testing.

Noiseless motor equipped with a clutch system suitable for heavy and big watches. It is controlled by soft touch keys on the front plate.

Maximum capacity : 24 watches (6 arms for 4 wrist watches each).
Rotation speeds : 1 or 4 rpm.

Spare parts :

| MSA | Item |
|----------|--|
| 19.450-A | (1) Arm for 2 watches with bracelet |
| 19.450-B | (2) Arm for 4 watches with bracelet |
| 19.450-C | (4) Arm for 4 watches with bracelet |
| 19.450-D | (5) Arm for 4 watches without bracelet |
| 19.450-E | (3) Arm for 2 watches with bracelet |
| 19.450-F | (6) Wall mounting kit |
| 19.453 | (7) Box for 4 watches without bracelet |



(1)



(2)



(3)



(4)



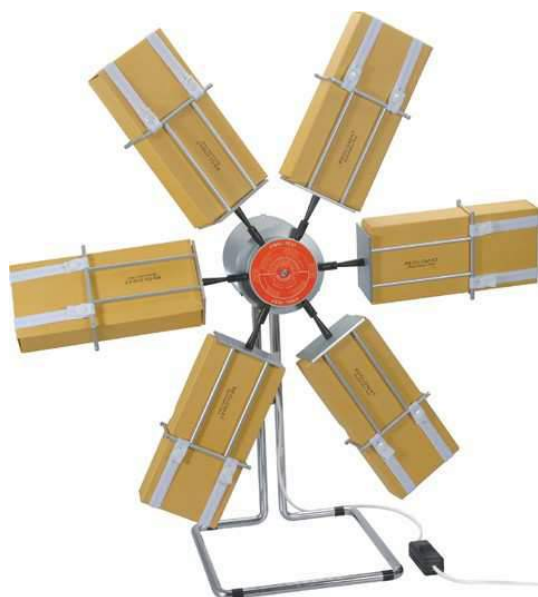
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(6)



(7)



| MSA | Voltage | Kg |
|--------|---------|-------|
| 19.320 | 220 V | 8.000 |

Watch winder for 60 watches with :

- 6 arms with 6 boxes for 10 watches without bracelets or 10 movements.
The CYCLOTTEST tests the following : winding acceleration, winding speed and power reserve.

Rotation speed : 4 rpm.

Spare parts :

| MSA | Item |
|-----------|---|
| 19.320-B | Button for closing the rubber MSA19.320-E |
| 19.320-C | Box for 10 watches or movements |
| 19.320-E | Rubber for holding the box MSA19.320-C |
| 19.320-EB | Rubber with 2 buttons for holding the box MSA19.320-C |



----- (a)

(a) Delivered without support for watches with bracelet

| MSA | Voltage | Size | Kg |
|--------|---------|-----------------|--------|
| 19.372 | 230 V | 55 x 40 x 45 cm | 13.000 |

CLINAX, small capacity 45° pendulum rotary movement machine. For winding automatic watches in small series.

Capacity : up to 60 watch heads (or movements) and/or 16 watches with bracelets (depending on the type of assembly).

Accessory :

| MSA | Item |
|----------|---------------------------------------|
| 19.372-A | (a) Support for watches with bracelet |



| MSA | Voltage | Size | Kg |
|--------|---------|------------------|--------|
| 19.371 | 230 V | 110 x 48 x 49 cm | 63.000 |

STANDARD III, medium capacity 45° pendulum rotary movement machine. It is used for industrial winding of automatic watches, as well as for shock tests on watch heads.

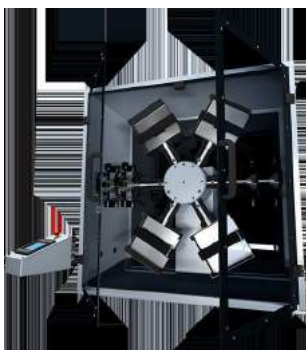
Capacity : up to 250 watch heads (or movements).



| MSA | Voltage | Size | Kg |
|--------|---------|------------------|--------|
| 19.376 | 230 V | 150 x 53 x 50 cm | 98.000 |

SUPER E, high capacity 45° pendulum rotary movement machine. It is used for industrial winding of automatic watches, as well as for shock tests on watch heads.

Capacity : up to 500 watch heads (or movements).



| MSA | Voltage | Size | Kg |
|------------|---------|-----------------|--------|
| 19.370 | 230 V | 56 x 60 x 33 cm | 37.000 |
| 19.370-110 | 110 V | 56 x 60 x 33 cm | 37.000 |

DUOTEST 48, medium capacity rotary combination machine. This machine is specially designed for small quantities and is very suitable for after-sales service and shops.

It is used for winding automatic watches and for rate tests.

Capacity : up to 48 watch heads (or movements) or 48 watches with bracelets (depending on the type of assembly).



| MSA | Voltage | Size | Kg |
|------------|-------------------|-------------------|---------|
| 19.399 | 230 V / 50 Hz | 110 x 110 x 50 cm | 128.000 |
| 19.399-110 | (a) 110 V / 50 Hz | 110 x 110 x 50 cm | 128.000 |

DUOTEST 4, high capacity rotary combination machine. It is used for winding automatic watches and for rate tests.

Capacity : up to 300 watch heads (or movements) or 120 watches with bracelets (depending on the type of assembly).

(a) Requires a 110 V transformer



| MSA | Size | Kg |
|----------|-------------------|-------|
| 19.373-F | 312 x 128 x 23 mm | 0.100 |

Blue plastic container.



| MSA | Size | Kg |
|----------|-------------------|-------|
| 19.374-F | 312 x 128 x 18 mm | 0.100 |

Transparent cover for plastic containers.



| MSA | Shape | Cases | Cases Size | Notch | Kg |
|----------|-------------------|-------|--------------|---------|-------|
| 19.373-A | Rectangular | 8 | 70 x 50 mm | Without | 0.010 |
| 19.373-B | (1) Television | 5 | 66 x 53 mm | 2 | 0.100 |
| 19.373-C | (2) Television | 10 | 51 x 50.5 mm | 1 | 0.100 |
| 19.373-E | (3) TV + Bracelet | 5+1 | 51 x 50.5 mm | 1 | 0.100 |
| 19.374-A | (4) Round | 10 | Ø 50 mm | 1 | 0.100 |
| 19.374-B | Round | 10 | Ø 40 mm | 1 | 0.100 |
| 19.374-C | Round | 10 | Ø 45 mm | 1 | 0.100 |
| 19.374-D | Round | 10 | Ø 48 mm | 1 | 0.100 |
| 19.374-E | Watch + Bracelet | 2 | - | Without | 0.100 |

Blue plastic container with cut foams in different shapes.
To be used with apparatus MSA19.370, 19.371, 19.372, 19.376 and 19.399.
For watches with or without bracelets and movements.
Delivered without cover (see MSA19.374-F).



| MSA | Size | Kg |
|----------|-------------------|-------|
| 19.373-D | 330 x 165 x 40 mm | 0.100 |

Blue plastic container with cut foam and transparent cover.
Cases shape : television 62 x 55 mm with 2 notches.

To be used with apparatus MSA19.370, 19.371, 19.372, 19.376 and 19.399 (according to tray holder).



| MSA | Size |
|--------|-------------------|
| 19.373 | 240 x 110 x 20 mm |

Green plastic container (10 compartments) and transparent lid with protection foams.

To be used with apparatus MSA19.370, 19.371, 19.372, 19.376 and 19.399 (according to tray holder).

WATERPROOF TESTERS



| MSA | Voltage | Size | Kg |
|--------|-------------|--------------------|-------|
| 19.449 | 100 - 240 V | 157 x 190 x 240 mm | 2.000 |

Waterproof tester by vacuum VACUPRO.
Bubbles are formed on the watch to indicate the exact location of the leak.
Delivered with 1 network adapter 100-240 V, 1 battery 9 V and 5 most common worldwide adapters.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 19.448 | 280 x 100 x 200 mm | 6.400 |

Waterproof tester DIVER 125.
-Robust anodized aluminium construction
- Chamber diameter : Ø 63 mm (2.5")
- Chamber depth : 50 mm (2").

... 125 bar



| MSA | Version | Size | Kg |
|--------|----------|--------------------|-------|
| 19.406 | Standard | 200 x 170 x 270 mm | 3.500 |
| 19.424 | (1) Plus | 200 x 170 x 270 mm | 3.500 |

CALYPSO waterproof tester used with water.
Cylinder Ø 80 mm for 2 watches.

MSA19.406 (Standard version) :
The pressure is generated by a manual pump.

MSA19.424 (Plus version) :
Suitable for both air admission by a manual pump or compressor (not delivered). On compressor mode, the pressure adjustment inside the cylinder is made with an air-gate located in front of the tester.

... 10 bar



| MSA | Version | Size | Kg |
|--------|---------|--------------------|-------|
| 19.425 | Minus | 200 x 170 x 270 mm | 3.500 |

CALYPSO waterproof tester used with water.
Cylinder Ø 80 mm for 2 watches.

This version is used with a compressor (not delivered). The pressure adjustment inside the cylinder is made with an air-gate located in front of the tester.

... 10 bar



0 ... 40 bar

| MSA | Size | Kg |
|--------|--------------------|-------|
| 19.416 | 250 x 270 x 250 mm | 7.000 |

NATATOR 40 waterproof tester, suitable for after sales service single test. Doesn't require any electric plug in. Stainless steel tank Ø 65 x 650 mm. After the water filling (maximum 0.2 L), the lid with window is locked. The control is made using the lateral handle, which will be screwed until the desired pressure indicated on the manometer.
No compressor required.



0 ... 125 bar

| MSA | Size | Kg |
|--------|--------------------|--------|
| 19.429 | 310 x 330 x 300 mm | 12.000 |

NATATOR 125 waterproof tester, Suitable for after sales service single test. Doesn't require any electric plug in. Stainless steel tank Ø 80 x 65 mm. After the water filling (maximum 0.33 L), the lid is locked. The control is made using the lateral handle, which will be screwed until the desired pressure indicated on the manometer.
No compressor required.



-0.7 ... 10 bar

| MSA | Voltage | Size | Kg |
|--------|------------------|--------------------|-------|
| 19.407 | DUAL 115 - 230 V | 320 x 250 x 280 mm | 7.500 |

POSEIDON LT100 high-tech waterproof tester with the following characteristics :

- Universal use with all types of watches with or without bracelets
- The test starts automatically under vacuum and pressure
- Automatic determination of stabilisation and measuring time for reliable results
- With colour display in 8 languages. Indication of the results in numerical way as well as in analogical colour diagram
- 12 available programs including 7 individually programmable from -0.7 to 10 bar
- RS 232 interface for printout of certificate.
- Printout the results on a thermo printer.

Compressor delivered separately (see page 19-XX).

WATERPROOF TESTERS

Greiner vitrograt



... 0.7 bar

| MSA | Kg |
|--------|-------|
| 19.403 | 3.200 |

LEAK-CHECKER PRIME waterproof tester for testing leaks up 0.7 bar vacuum.

- No additional compressor needed thanks to integrated pump
- Suitable for any type of watches, included very small ceramic timepieces
- Programmable vacuum in steps of 0.1 bar
- Results displayed on a 5" colour touchscreen TFT (800 x 480 pixels)
- Printout the results on a thermo printer.



(1)

| MSA | Voltage | Size | Kg |
|--------|-------------|--------------------|-------|
| 19.129 | 115 - 230 V | 260 x 170 x 110 mm | 1.000 |

Thermo printer MARTEL 7830 suitable for all GREINER® waterproof testers.

Spare part :

| MSA | Item | Kg |
|----------|-------------------------------|-------|
| 19.167-B | (1) Thermo paper, width 57 mm | 0.088 |

Elma



-0.8 bar

| MSA | Voltage | Size | Kg |
|--------|-------------|--------------|-------|
| 19.402 | 100 - 240 V | 155 x 315 mm | 3.500 |

The LEAK CONTROLLER 2000 waterproof tester produces a pressure difference between the interior and the exterior of the watch, thanks to a built-in vacuum.

The 1µ precision dial comparator records each variation on the watch case and indicates its pressure compensation.

The equipment is almost mechanical, which allows even the tests of cheap watches with deformable glasses (no risk of glass breaking).

Do not require any maintenance.

witschi



-0.1 ... -0.7 bar
0.1 ... 10 bar

| MSA | Version | Voltage | Size | Kg |
|--------|---------------------------|---------|--------------------|-------|
| 19.217 | Standard version | 230 V | 149 x 305 x 243 mm | 5.800 |
| 19.216 | PRO version with software | 230 V | 149 x 305 x 243 mm | 5.800 |

The PROOFMASTER tests the water resistance of watches conveniently with a fully automatic closing and test sequence. With its high level of operating convenience, the PROOFMASTER is the ideal tightness testing device for the following areas: watch service centres, watch retailers, watchmaking and watchmaking laboratories.

Compressor with tank releasing pressurised air immediately, allowing waterproof tests to proceed quicker.



16 bar
40 dB

| MSA | Voltage | Capacity | Size | Kg |
|--------|---------|------------------|--------------------|--------|
| 19.455 | 230 V | 50 litres/minute | 500 x 460 x 600 mm | 30.000 |

Compressor ABSOLUTE AIR with automatic draining, high performance (50 Hz/0.34 kW) and very quiet. 25 litre tank.

Drier with warm air.



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|-------|
| 19.750 | 220 V | 190 x 175 x 120 mm | 2.810 |
| 19.750-110 | 110 V | 190 x 175 x 120 mm | 2.810 |

T8 drier with hot air ventilator for drying watches, jewellery, etc. Power 600 W.

Automatic cleaning machine VIBRATO.



VIBRATO



(1)



(2)



(3)



(4)



(5)

| MSA | Voltage | Size | Kg |
|--------|---------|--------------------|--------|
| 19.705 | 230 V | 480 x 480 x 860 mm | 63.000 |

With its modern and secure design, the fully automatic cleaning machine VIBRATO has been developed for cleaning movement components and any other small watch parts.

- Certified ATEX according to the European directive 2014/34 UE (ATEX 2014) in IIB T4 class
- Ensures maximum safety and allows the use of watchmakers solvents such as rectified benzine
- Its conception with 6 baths (including 1 adjustable ultrasonic tank) + forced air heating system offers unrivalled flexibility and efficiency
- THE ONLY MACHINE enabling watchmakers to use it for washing, drying and epilame coating in 1 cycle.

The several possibilities of movements of the basket and the speed adjustment from 1 up to 1200 rpm guarantee maximum care and efficiency. The drying process is optimized to avoid residues of "dry drops". The machine is equipped with a 7" touch-screen display to manage all operations. Its intuitive and ergonomic presentation allows an easy-to-use interface by the operator. The wash programming, baths management and various configurations are made directly on the touch-screen. Ditto for the management of possible failures, which facilitates the after-sales service on-site by the user himself. A USB2 input allows implementing configurations and wash programs remotely. A rear exit is provided to connect the VIBRATO to an external exhaust or an active carbon filter. The machine is compatible with all existing baskets Ø 80 mm.

| | |
|----------------------|---|
| Approval institute | TÜV SÜD Schweiz AG |
| ATEX marking | Ex II 3-G |
| IEC marking | EX h b IIB T4 Gc |
| Number of baths | 6 (including 1 ultrasound) |
| Drying station | 1 forced air station (adjustable up to 65° C) |
| Cleaning baskets | Ø 80 mm, up to 5 baskets height 10 mm |
| Cleaning actions | Rotation, oscillation, vertical agitation, ultrasound |
| Rotation speed | From 0 up to 1200 rpm / Adjustable acceleration |
| Vertical oscillation | Up to 10 mm, adjustable |
| Ultrasound | 50 W adjustable from 10 to 100%, 40 KHz with "Sweep" function |
| Principle | Turntable with 7 positions |
| Interface | 7" touch-screen display |
| Voltage | 230 V or 115 V |

Accessories :

| MSA | Item |
|----------|--|
| 19.708 | (1) Active carbon filter module |
| 19.715 | (2) Active carbon cartridge for MSA19.708 |
| 19.705-A | (3) Vapour collector, for connecting to an external aspiration |
| 19.706 | (4) Portable surveying instrument PPM atex certified, with charger 230 V |
| 19.711 | (5) Glass tank with cover, Ø 114 x height 175 mm |

Active carbon filter module.

The VIBRATO machine must be connected to a valid external extraction system or to our activated carbon filter module to ensure a safe environment in terms of occupational health and fire protection.

At the same time, the working room must be regularly ventilated. In any case, we advise you to analyse the environment room by a local accredited specialist.



| MSA | Voltage | Size | Kg |
|--------|---------------|--------------------|--------|
| 19.708 | 230 V 30 W | 720 x 260 x 260 mm | 15.000 |

The module is fixed to the rear of the VIBRATO machine. It is equipped with an independent fan to ensure permanent operation. It allows the recovery of almost all the solvent vapours coming out of the machine and ensures a long-lasting use in complete safety.

The active carbon cartridge is easily replaceable (bayonet system). Its lifetime depends on the intensity of use of the machine.

Fan capacity : 235 m3/hour.

Spare part :

| MSA | Item | Kg |
|--------|---------------------------------------|-------|
| 19.715 | Active carbon cartridge for MSA19.708 | 3.540 |

VOC sensor (PID).



| MSA | Size | Kg |
|--------|-----------------|-------|
| 19.706 | 61 x 66 x 59 mm | 0.111 |

Compact and accurate PID sensor to monitor and optimise cartridge lifetime by simple reading.

It is estimated that under heavy use, the cartridge has a lifetime of 4-6 months.

| | |
|--------------------|-------------------------|
| <i>Sensitivity</i> | <i>0.001 ppm</i> |
| <i>PID lamp</i> | <i>10.6 eV</i> |
| <i>Range</i> | <i>0.001 - 5000 ppm</i> |
| <i>Alarm</i> | <i>Yes</i> |
| <i>Output</i> | <i>USB 2.0</i> |

Vapour collector, for connecting to an external aspiration.



| MSA |
|----------|
| 19.705-A |

The collector is attached to the rear of the machine and must be connected to an external suction device (Ø 100 mm sleeve).

Baskets for cleaning machine, in polished stainless steel 304.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.572 | Ø 80 x 53 mm | 0.037 |

Lower basket holder.
Useful height 44 mm, total 53 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.544 | Ø 80 x 74 mm | 0.060 |

Lower basket holder.
Useful height 66 mm, total 74 mm.



| MSA | Size | Kg |
|-----------|--------------|-------|
| 19.705-P1 | Ø 80 x 74 mm | 0.110 |

Stainless steel upper basket holder.
Height 74 mm.



| MSA | Size | Kg |
|--------|----------------|-------|
| 19.795 | Ø 80 x 3.20 mm | 0.017 |

Cover for cleaning basket.
Height 3.20 mm ; mesh 0.20 mm.



| MSA | Size | Kg |
|--------|-------------|-------|
| 19.563 | 300 x 60 mm | 0.029 |

Wave-breaker for glass beakers of cleaning machines.



| MSA | Size | Kg |
|--------|----------------|-------|
| 19.794 | Ø 80 x 30.5 mm | 0.022 |

Cleaning basket without division.
Useful height 26 mm, total 30.5 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.790 | Ø 80 x 14 mm | 0.020 |

Cleaning basket without division.
Useful height 10 mm, total 14 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.791 | Ø 80 x 14 mm | 0.026 |

Cleaning basket with 4 divisions.
Useful height 10 mm, total 14 mm, steel sheet separations thickness 0.5 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.792 | Ø 80 x 14 mm | 0.037 |

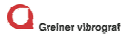
Cleaning basket with 8 divisions.
Useful height 10 mm, total 14 mm, steel sheet separations thickness 0.5 mm.



| MSA | Size | Kg |
|--------|--------------|-------|
| 19.793 | Ø 80 x 14 mm | 0.038 |

Cleaning basket with 12 divisions + centre Ø 40 mm.
Useful height 10 mm, total 14 mm, steel sheet separations thickness 0.5 mm.

VIBRASONIC ACS-900 ultrasonic cleaning machines.



DELIVERED WITHOUT BASKETS

| MSA | Voltage | Size | Kg |
|--------|---------|--------------------|--------|
| 19.545 | 230 V | 430 x 430 x 610 mm | 32.900 |

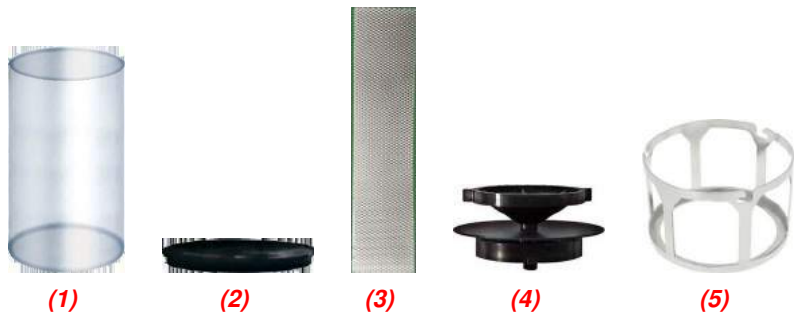
VIBRASONIC ACS-900 automatic cleaning machine with 4 baths (including 1 ultrasonic bath).

Fully automatic and electronically activated alternative rotation.

Suitable with accessories Ø 80 mm.

Contents (Ø 80 mm) :

| MSA | Item |
|----------|--|
| 19.550-U | Ultrasonic tank |
| 19.551 | (1) 3x Glass beaker |
| 19.553 | (2) 4x lid for glass beakers |
| 19.563 | (3) 3x wave-breaker for glass beakers, 300x60 mm |
| 19.565 | (4) Upper basket holder, for baskets Ø 80 mm |
| 19.572 | (5) Lower basket holder, for baskets Ø 80 mm |



Spare parts :

| MSA | Item |
|----------|---------------------------------------|
| 19.540-A | (1) Flexible hose, length 20...100 cm |
| 19.540-B | Flexible hose, length 50...250 cm |
| 19.540-P | Hose clamp |
| 19.540-R | Fitting with screws |



(1)

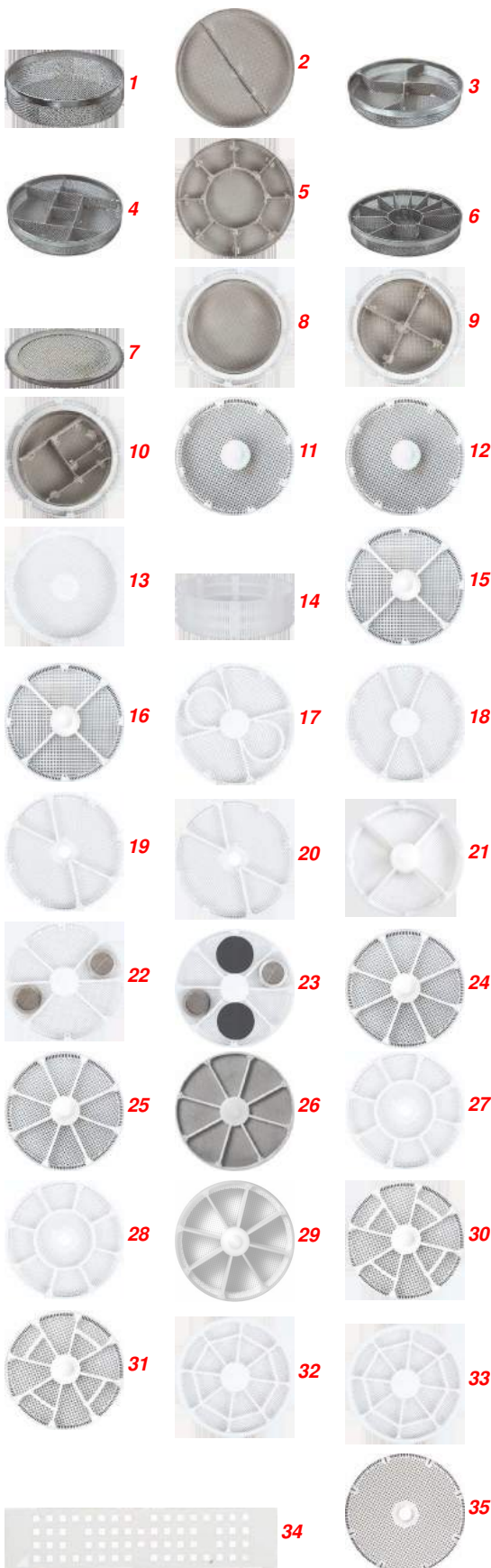


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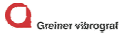
Special optional accessories available for MSA19.545 in Ø 80 mm :

| MSA | Item | Kg |
|----------|--|-------|
| 19.549 | (1) Basket for 14 large dimensions main plates, thickness from 0.90 to 1.60 mm | 0.090 |
| 19.549-A | (2) Set of main plates supports for MSA19.549 | 0.005 |

Optional accessories available for MSA19.545 in Ø 80 mm :



| MSA | Item |
|----------|--|
| 19.569 | 1 Metal basket without divisions, height 10 mm |
| 19.542 | 2 Metal basket with 2 divisions, height 10 mm |
| 19.570 | 3 Metal basket with 4 divisions, height 10 mm |
| 19.568 | 4 Metal basket with 8 divisions, height 10 mm |
| 19.584 | 5 Metal basket with 9 divisions + centre Ø 40 mm, height 10 mm |
| 19.567 | 6 Metal basket with 12 divisions, height 10 mm |
| 19.571 | 7 Metal cover for metal baskets |
| 19.580 | 10 Plastic basket without divisions + 1 metal basket MSA19.557, height 8 (14) mm |
| 19.581 | 11 Plastic basket without divisions + 1 metal basket MSA19.556, height 8 (14) mm |
| 19.582 | 12 Plastic basket without divisions + 1 metal basket MSA19.562, height 8 (14) mm |
| 19.574 | 8 Plastic basket without divisions, height 8 mm |
| 19.574-D | 9 Plastic basket without divisions, height 8 mm, double wall |
| 19.586 | 13 Plastic basket without divisions, height 16 mm |
| 19.589 | 14 Plastic basket without divisions, height 24 mm |
| 19.575 | 15 Plastic basket with 4 divisions, height 8 mm |
| 19.587 | 16 Plastic basket with 4 divisions, height 8 mm, double wall |
| 19.592 | 17 Plastic basket with 4 divisions, height 8 mm for 2 main plates Ø 25 mm |
| 19.593 | 18 Plastic basket with 4 divisions, height 8 mm for 4 main plates Ø 31 mm |
| 19.591 | 19 Plastic basket with 4 divisions, height 8 mm for 2 main plates Ø 38 mm |
| 19.591-D | 20 Plastic basket with 4 divisions, height 8 mm for 2 main plates Ø 38 mm, double wall |
| 19.596 | 21 Plastic basket with 4 divisions, height 16 mm |
| 19.578 | 22 Plastic basket with 6 divisions + 2 baskets MSA19.564, height 8 mm |
| 19.579 | 23 Plastic basket with 6 divisions + 2 baskets MSA19.564 + 2 capsules MSA19.552, height 8 mm |
| 19.576 | 24 Plastic basket with 8 divisions, height 8 mm |
| 19.583 | 25 Plastic basket with 8 divisions, height 8 mm, double wall |
| 19.599 | 26 Plastic basket with 8 divisions, height 8 mm, tight mesh |
| 19.594 | 27 Plastic basket with 8 divisions + centre Ø 39 mm, height 8 mm |
| 19.594-D | 28 Plastic basket with 8 divisions + centre Ø 39 mm, height 8 mm, double wall |
| 19.597 | 29 Plastic basket with 8 divisions, height 32 mm |
| 19.577 | 30 Plastic basket with 12 divisions, height 8 mm |
| 19.577-D | 31 Plastic basket with 12 divisions, height 8 mm, double wall |
| 19.595 | 32 Plastic basket with 16 divisions, height 8 mm |
| 19.595-D | 33 Plastic basket with 16 divisions, height 8 mm, double wall |
| 19.590 | 34 Long plastic division for baskets MSA19.575 /19.576 |
| 19.573 | 35 Plastic cover for basket |



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|--------|
| 19.550 | 230 V | 420 x 420 x 560 mm | 29.000 |
| 19.550-110 | 115 V | 420 x 420 x 560 mm | 29.000 |

VIBRASONIC ACS-900 automatic cleaning machine with 4 baths (including 1 ultrasonic bath).
Fully automatic and electronically activated alternative rotation.

Suitable with accessories Ø 64 mm.

Contents (Ø 64 mm) :

| MSA | Item |
|----------|--|
| 19.550-U | Ultrasonic tank |
| 19.551 | (1) 3x Glass beaker |
| 19.552 | (3) 3x pair of plastic capsules, Ø 22 x 6 mm |
| 19.553 | (2) 4x lid for glass beakers |
| 19.554 | (4) Upper basket holder, for baskets Ø 64 mm |
| 19.555 | (5) Lower basket holder, for baskets Ø 64 mm |
| 19.556 | (6) 2x metal basket with 4 divisions, height 15 mm |
| 19.557 | (7) Metal basket without divisions, height 15 mm |
| 19.558 | (8) Metal cover for baskets MSA19.556 and 19.557 |
| 19.559 | (9) Support with 1 axis for 5 movement holders |
| 19.560 | (10) 5x movement holder for 3 movements |
| 19.563 | (11) 3x wave-breaker for glass beakers, 300x60 mm |

DELIVERED WITH BASKETS Ø 64 mm



Special optional accessories available for MSA19.550 in Ø 64 mm :



| MSA | Item |
|--------|--|
| 19.541 | (1) Movement holder for 6 movements |
| 19.561 | (2) Upper basket holder with clamp (also suitable for Ø 80 mm) |
| 19.562 | (3) Basket with 5 divisions, height 14 mm |
| 19.564 | (4) Basket with lid, Ø 20 x height 13 mm |



Spare parts :

| MSA | Item |
|----------|---------------------------------------|
| 19.540-A | (1) Flexible hose, length 20...100 cm |
| 19.540-B | Flexible hose, length 50...250 cm |
| 19.540-P | Hose clamp |
| 19.540-R | Fitting with screws |



(1)

(2)

(3)

(4)

Other accessories for cleaning machines :

| MSA | Item | Kg |
|--------|--|-------|
| 19.531 | (1) Brass cleaning basket with screw-on cover without division, Ø 14 - height 8.30 mm | 0.005 |
| 19.725 | (2) Brass cleaning basket with screw-on cover without division, Ø 16 - height 12.50 mm | 0.007 |
| 19.726 | (3) Brass cleaning basket with screw-on cover without division, Ø 14 - height 9.50 mm | 0.004 |
| 19.727 | (4) Brass cleaning basket with screw-on cover without division, Ø 23 - height 12.50 mm | 0.010 |

Ultrasonic cleaning machines SONOSWISS®.

SONO SWISS
High Quality Ultrasonic Systems



| MSA | Model | Volume | Voltage | Power | Int. size (tank) | Heating | Drain | Cover | Handles | Kg |
|------------|--------|---------|-----------|--------|------------------|---------|---------|---------|---------|--------|
| 19.880 | SW 1H | 0.80 L | 220-240 V | 90 W | 190x85x60 mm | With | Without | Without | Without | 2.000 |
| 19.880-110 | SW 1H | 0.80 L | 100-120 V | 90 W | 190x85x60 mm | With | Without | Without | Without | 2.000 |
| 19.881 | SW 3H | 2.75 L | 220-240 V | 280 W | 235x134x97 mm | With | Without | Without | With | 2.800 |
| 19.881-110 | SW 3H | 2.75 L | 100-120 V | 280 W | 235x134x97 mm | With | Without | Without | With | 2.800 |
| - | - | - | - | - | - | - | - | - | - | - |
| 19.882 | SW 3H | 2.75 L | 220-240 V | 280 W | 235x134x97 mm | With | With | Without | With | 2.800 |
| 19.882-110 | SW 3H | 2.75 L | 100-120 V | 280 W | 235x134x97 mm | With | With | Without | With | 2.800 |
| 19.883 | SW 6H | 5.75 L | 220-240 V | 550 W | 298x150x150 mm | With | With | Without | With | 4.800 |
| 19.883-110 | SW 6H | 5.75 L | 100-120 V | 550 W | 298x150x150 mm | With | With | Without | With | 4.800 |
| - | - | - | - | - | - | - | - | - | - | - |
| 19.884 | SW 12H | 12.75 L | 220-240 V | 1000 W | 297x238x200 mm | With | With | Without | With | 7.300 |
| 19.884-110 | SW 12H | 12.75 L | 100-120 V | 1000 W | 297x238x200 mm | With | With | Without | With | 7.300 |
| - | - | - | - | - | - | - | - | - | - | - |
| 19.885 | SW 18H | 18 L | 220-240 V | 1000 W | 330x300x200 mm | With | With | Without | With | 8.200 |
| 19.885-110 | SW 18H | 18 L | 100-120 V | 1000 W | 330x300x200 mm | With | With | Without | With | 8.200 |
| - | - | - | - | - | - | - | - | - | - | - |
| 19.886 | SW 30H | 28 L | 220-240 V | 1500 W | 500x298x200 mm | With | With | Without | With | 11.200 |
| 19.886-110 | SW 30H | 28 L | 100-120 V | 1500 W | 500x298x200 mm | With | With | Without | With | 11.200 |

Ultrasonic cleaning apparatus PRESET.

- Programmable ultrasonic generator : possibility to save a wash program
- DEGAS function : the special deformation of the ultrasonic wave accelerates the degassing of the liquid
- BOOST function : this mode is used to temporarily increase the ultrasound power in case of persistent contaminants
- SWEEP function : the frequency scanning is automatically switched for a better distribution of the ultrasonic power
- The heating temperature is adjustable in 5° C increments up to 80° C
- The ultrasound duration from 1-5 minutes in 1-minute increments or 5-30 minutes in 5-minute increments.

Stainless steel tank. Delivered without lid or basket.

Accessories for SONOSWISS® ultrasonic cleaning machines.

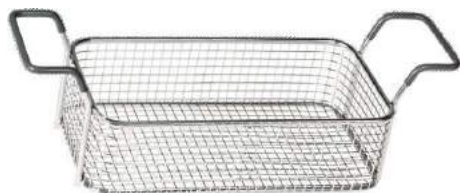
SONO SWISS
High Quality Ultrasonic Systems



| MSA | For |
|----------|-------------------------------|
| 19.660-A | MSA19.880 (SW 1H) |
| 19.662-A | MSA19.881 + MSA19.882 (SW 3H) |
| 19.664-A | MSA19.883 (SW 6H) |
| 19.665-A | MSA19.884 (SW 12H) |
| 19.885-A | MSA19.885 (SW 18H) |
| 19.666-A | MSA19.886 (SW 30H) |

Plastic cover, can also be used as a tray for the wet basket.

SONO SWISS
High Quality Ultrasonic Systems



| MSA | For |
|----------|-------------------------------|
| 19.660-B | MSA19.880 (SW 1H) |
| 19.662-B | MSA19.881 + MSA19.882 (SW 3H) |
| 19.664-B | MSA19.883 (SW 6H) |
| 19.665-B | MSA19.884 (SW 12H) |
| 19.885-B | MSA19.885 (SW 18H) |
| 19.666-B | MSA19.886 (SW 30H) |

Stainless steel basket.



| MSA | Size |
|--------|--------------|
| 19.655 | Ø 59 x 60 mm |
| 19.680 | Ø 78 x 60 mm |

Stainless steel immersion basket.



| MSA | For |
|--------|---|
| 19.612 | (a) MSA19.880 |
| 19.652 | (b) MSA19.881 + MSA19.882 |
| 19.681 | (b) MSA19.883 + MSA19.884 + MSA19.885 + MSA19.886 |

Stainless steel tray for 2 beakers.

- (a) For beakers Ø 80 mm
- (b) For beakers Ø 95 mm.



| MSA |
|----------|
| 19.633-C |

Flexible plastic jewellery rack with 8 adjustable hooks.
Length 305 mm.



| MSA | Size |
|-----|------|
|-----|------|

| | |
|----------|------------------|
| 19.614 | Ø 80 mm (600 ml) |
| 19.640-F | Ø 95 mm (600 ml) |

Glass beaker with cover and ring.

Spare parts :

| MSA | Item |
|-----|------|
|-----|------|

| | |
|--------|-----------------------|
| 19.683 | Cover for MSA19.640-F |
| 19.686 | Cover for MSA19.614 |

SONO SWISS
The Quality Standard System



| MSA |
|-----|
|-----|

| |
|--------|
| 19.682 |
|--------|

Set of 2 glass beakers Ø 80 mm (600 ml) with lids and 1 tray for MSA19.880.

Professional steam cleaner XRVP PRO.



- (1) : using the 5-litre water supply tank provided.**
- (2) : via a direct connection to the public water mains supply.**
- In both cases, the hot filling is possible.**

| MSA | | Voltage | Size | Kg |
|--------|-----|----------------|--------------------|-------|
| 19.712 | (1) | 230 V 50 Hz | 322 x 365 x 330 mm | 9.000 |
| 19.713 | (2) | 230 V 50 Hz | 322 x 365 x 330 mm | 9.000 |

Professional steam cleaner PXRVP PRO.
 Its use is recommended in watchmaking and jewellery for the cleaning of all types of parts. Polishing residues, resin, oil, etc., are easily eliminated and without any toxic products thanks to the adjustable steam jet from 0 to 10 bar. The device has an integrated anti-limestone system and the steam can be generated without any fear by the public water supply. The steam production is constant with a very low-pressure drop even in a continuous service. The device also allows generating wet or dry steam (by selection).

Delivered with 1 flexible handpiece with nozzle (1.3 metres) and 3 pre-drilled nozzles.
 Note: when ordering, remember to define the filling mode of the device. Delivered without pedal.

Option :

| MSA | Item |
|-----------|-------|
| 19.712-01 | Pedal |

Technical data :

| | |
|---------------------------------------|---|
| Colour | Stainless steel |
| Steam production | Continuous flow |
| Boiler stem temperature | 171° C |
| Heating time | 5 minutes |
| Pressure (bar) | Up to 10 bar |
| Boiler power consumption (W) | 3200 |
| Boiler volume (litres) | 2 |
| Steam EV1 (gr/min.) | 36 gr/min. minimum regulation - 76 gr/min. maximum regulation |
| Boiler material | Stainless steel AISI 304 |
| Steam regulation on steam hose | No |
| Total power consumption (W) | 3200 |
| Tank capacity (litres) | 5 |
| Water level alarm | Visual and acoustic |
| Pressure indicator | Visual |
| Hot water injection + steam (gr/min.) | 173 gr/min. minimum regulation - 224 gr/min. maximum regulation |
| Water pump power | 48 W |
| Low tension voltage on handgrip | 9 V |
| Power cable | 7 metres |
| Certification reached | CE |



| MSA | Volume | Kg |
|--------|--------|-------|
| 26.754 | 500 ml | 0.540 |

Anti-limestone product.

Cleaning machines ELMA® ELMASOLVEX.



DELIVERED WITHOUT BASKETS

| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|--------|
| 19.501 | 230 V | 502 x 516 x 650 mm | 19.000 |
| 19.501-110 | 115 V | 502 x 516 x 650 mm | 19.000 |

ELMASOLVEX SE is a manual multiple chamber cleaning machine for watch movements and mechanical precision parts. Water and solvent based cleaning and rinsing media. Equipped with four cleaning chambers and one drying chamber with fine filter hot air technology, this machine achieves perfect cleaning results.

Delivered with basket holders, beakers and wave-breaker.



DELIVERED WITHOUT BASKETS

| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|--------|
| 19.502 | 230 V | 515 x 542 x 650 mm | 28.000 |
| 19.502-110 | 115 V | 515 x 542 x 650 mm | 28.000 |

ELMASOLVEX RM is a completely automatic multiple chamber cleaning machine with integrated explosion protection. For watch movements and other mechanical precision parts. Water and solvent based cleaning and rinsing media. Cleaning and rinsing are performed completely automatically or alternatively with individually adjustable parameters in the rotation or oscillation process in four cleaning chambers. An integrated drying chamber with fine filter hot air technology completes the residue-free cleaning.

Delivered with basket holders, beakers and wave-breaker.

Spare parts for MSA19.501 and MSA19.502 in Ø 64 mm :

| MSA | Item |
|----------|--|
| 19.521-A | Beaker lid with cork gasket |
| 19.521-B | Cork gasket for lid |
| 19.521-D | CPL heating plate |
| 19.521-E | Heater/Motor switch |
| 19.530-B | Set including basket holder MSA19.530-L, basket MSA19.530-M, 2 baskets MSA19.530-J, small basket MSA19.530-G, lid MSA19.530-F, lid MSA19.530-H |
| 19.530-C | Basket Ø 64 mm, height 15 mm, with 4 divisions |
| 19.530-D | Basket Ø 64 mm, height 15 mm, with 9 divisions |
| 19.530-E | Basket Ø 64 mm, height 45 mm, without division |
| 19.530-F | Lid Ø 64 mm for baskets |
| 19.530-G | Small basket Ø 20 mm, without lid |
| 19.530-H | Lid Ø 20 mm for small basket |
| 19.530-J | Basket Ø 64 mm, height 15 mm, with 5 divisions |
| 19.530-L | Lower basket holder |
| 19.530-M | Basket Ø 64 mm, height 15 mm, without division |
| 19.530-N | Movement holder for 6 movements |
| 19.530-P | Small basket Ø 20 mm, with lid |
| 19.530-S | Beaker with lid + gasket + wave-breaker, volume 600 ml |
| 19.530-T | Beaker, volume 600 ml |
| 19.530-U | Lid for beaker MSA19.530-S |
| 19.530-V | Gasket for beaker MSA19.530-S |
| 19.530-W | Wave-breaker for beaker MSA19.530-S |

Drying units ELMA® ELMADRY.



| MSA | Voltage | Working capacity | Heating power | External size mm | Internal size mm | Max. load | Kg |
|-------------------|-------------|------------------|---------------|------------------|------------------|-----------|--------|
| 19.617 | 220 - 240 V | 1.9 L | 480 W | 300 x 186 x 219 | 240 x 137 x 100 | 1 Kg | 3.600 |
| 19.617-110 | 110 V | 1.9 L | 480 W | 300 x 186 x 219 | 240 x 137 x 100 | 1 Kg | 3.600 |
| - | - | - | - | - | - | - | - |
| 19.618 | 220 - 240 V | 9.0 L | 550 W | 362 x 285 x 322 | 300 x 240 x 200 | 7 Kg | 6.100 |
| 19.618-110 | 110 V | 9.0 L | 550 W | 362 x 285 x 322 | 300 x 240 x 200 | 7 Kg | 6.100 |
| - | - | - | - | - | - | - | - |
| 19.619 | 220 - 240 V | 20.6 L | 1100 W | 568 x 347 x 322 | 505 x 300 x 200 | 12 Kg | 10.200 |
| 19.619-110 | 110 V | 20.6 L | 1100 W | 568 x 347 x 322 | 505 x 300 x 200 | 12 Kg | 10.200 |

ELMADRY TD drying unit is available in 3 sizes (30, 120 and 300) and designed for use in production, workshop and service. After ultrasonic cleaning, the parts are first rinsed in the basket with running water and then simply placed in the drying unit. Fitted with cold and hot air blower (70° C), sensitive parts can also be dried gently. In cold air operation, the parts to be dried can also be cooled quickly.

The hot air function is activated while the cover is on. The cover has ventilation slots, ensuring that maximum air turbulence is produced, and the moist air is conducted to the outside. At the same time, the cover reduces energy consumption. The dust filter on the underside is replaceable and prevents re-soiling of the cleaned parts by the dust in the room air.

Optional :

| MSA | Item |
|-----------------|---|
| 19.611-A | Perforated silicone mat for MSA19.617 |
| 19.611-B | Perforated silicone mat for MSA19.618 and MSA19.619 |
| 19.626 | Dust filter for MSA19.617, MSA19.618 et MSA19.619 |

Optional baskets available :

- For MSA19.617 (TD 30): MSA19.660-B (1 litre) and MSA19.662-B (3 litres)
- For MSA19.618 (TD 120): MSA19.664-B (6 litres) and MSA19.665-B (12 litres)
- For MSA19.619 (TD 300): MSA19.666-B (30 litres).

MULTIVAC® professional chamber machine.



| MSA | Type | Voltage | Chamber size |
|--------|----------------------|-------------------|--------------------|
| 19.741 | (a) P200 without gas | 220-240 V / 50 Hz | 305 x 300 x 110 mm |
| 19.742 | (a) P200 with gas | 220-240 V / 50 Hz | 305 x 300 x 110 mm |
| 19.743 | (a) C100 without gas | 220-240 V / 50 Hz | 330 x 310 x 120 mm |
| 19.744 | (a) C100 with gas | 220-240 V / 50 Hz | 330 x 310 x 120 mm |
| 19.745 | (b) C200 without gas | 220-240 V / 50 Hz | 490 x 355 x 150 mm |
| 19.746 | (b) C200 with gas | 220-240 V / 50 Hz | 490 x 355 x 150 mm |
| 19.747 | (c) C250 without gas | 220-240 V / 50 Hz | 490 x 285 x 150 mm |
| 19.748 | (c) C250 with gas | 220-240 V / 50 Hz | 490 x 285 x 150 mm |

Professional chamber machine.

(a) 2 nozzles (b) 4 nozzles (c) 8 nozzles

Type P : time regulated vacuum level
Type C : probe regulated vacuum level in %.

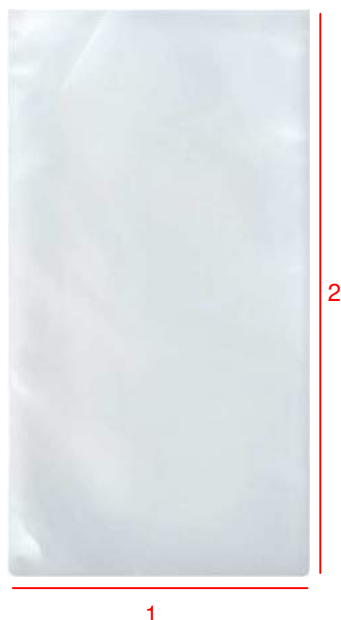
Spare parts :

| MSA | Item |
|--------|---|
| 19.738 | Nitrogen pressure regulator with 2-metre hose |
| 19.739 | Argon pressure regulator with 2-metre hose |

Technical information of the chamber machines MSA19.74x :

| Equipment | MSA19.740 (1) | MSA19.741 (1) | MSA19.742 (1+2) | MSA19.743 (1) | MSA19.744 (1+2) | MSA19.745 (1) | MSA19.746 (1+2) | MSA19.747 (1) | MSA19.748 (1) |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|--|
| Sealing bar | Snap-in 205 mm | Snap-in 305 mm | Snap-in 305 mm | 305 mm | 305 mm | 465 mm | 465 mm | 465 mm (2 parallel bars) | 465 mm (2 parallel bars) |
| Double sealing with underside pre-cutting | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm | 1x 3 mm 1x 1 mm on the 2 bars | 1x 3 mm 1x 1 mm on the 2 bars |
| Vacuum pump | 4 m3/h | 8 m3/h | 8 m3/h | MRP 15 | MRP 15 | MRP 25 | MRP 25 | MRP 25 | MRP 25 |
| Filling plate in resin | ✓ (2x) | ✓ (2x) | ✓ (2x) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Transparent plexiglas cover | ✓ | ✓ | ✓ | | | | | | |
| Window control in the safety glass lid | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Electronic control | MCB 01 | MCB 01 | MCB 01 | MC06-K20 | MC06-K20 | MC06-K20 | MC06-K20 | MC06-K20 | MC06-K20 |
| Automatic progressive atmosphere | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Vacuum quick- stop button | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Accessories :
(1) Mobile stand, 4 wheels (2 swivels), with pouch shelf
(2) Gas flushing system



In a 500-piece bag :

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-250X500 | 500 | 250 x 500 mm |
| 17.706-250X600 | 500 | 250 x 600 mm |
| 17.706-260X450 | 500 | 260 x 450 mm |
| 17.706-300X500 | 500 | 300 x 500 mm |
| 17.706-300X600 | 500 | 300 x 600 mm |
| 17.706-300X700 | 500 | 300 x 700 mm |

Special plastic bag (PA/PE 20/70) for chamber machines.

In a 1000-piece bag :

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-100X250 | 1000 | 100 x 250 mm |
| 17.706-100X300 | 1000 | 100 x 300 mm |
| 17.706-120X120 | 1000 | 120 x 120 mm |
| 17.706-120X160 | 1000 | 120 x 160 mm |
| 17.706-120X200 | 1000 | 120 x 200 mm |
| 17.706-120X270 | 1000 | 120 x 270 mm |
| 17.706-120X300 | 1000 | 120 x 300 mm |
| 17.706-120X400 | 1000 | 120 x 400 mm |
| 17.706-130X180 | 1000 | 130 x 180 mm |
| 17.706-130X200 | 1000 | 130 x 200 mm |
| 17.706-130X280 | 1000 | 130 x 280 mm |
| 17.706-130X300 | 1000 | 130 x 300 mm |
| 17.706-130X380 | 1000 | 130 x 380 mm |
| 17.706-140X200 | 1000 | 140 x 200 mm |
| 17.706-140X210 | 1000 | 140 x 210 mm |
| 17.706-140X270 | 1000 | 140 x 270 mm |
| 17.706-150X180 | 1000 | 150 x 180 mm |
| 17.706-150X200 | 1000 | 150 x 200 mm |
| 17.706-150X230 | 1000 | 150 x 230 mm |
| 17.706-150X260 | 1000 | 150 x 260 mm |
| 17.706-160X200 | 1000 | 160 x 200 mm |
| 17.706-160X300 | 1000 | 160 x 300 mm |
| 17.706-165X210 | 1000 | 165 x 210 mm |
| 17.706-165X250 | 1000 | 165 x 250 mm |
| 17.706-170X250 | 1000 | 170 x 250 mm |
| 17.706-170X400 | 1000 | 170 x 400 mm |

| MSA | Quantity | Size 1 x 2 |
|----------------|----------|--------------|
| 17.706-180X230 | 1000 | 180 x 230 mm |
| 17.706-180X240 | 1000 | 180 x 240 mm |
| 17.706-180X250 | 1000 | 180 x 250 mm |
| 17.706-180X260 | 1000 | 180 x 260 mm |
| 17.706-180X280 | 1000 | 180 x 280 mm |
| 17.706-180X350 | 1000 | 180 x 350 mm |
| 17.706-200X220 | 1000 | 200 x 220 mm |
| 17.706-200X250 | 1000 | 200 x 250 mm |
| 17.706-200X300 | 1000 | 200 x 300 mm |
| 17.706-200X350 | 1000 | 200 x 350 mm |
| 17.706-200X400 | 1000 | 200 x 400 mm |
| 17.706-200X500 | 1000 | 200 x 500 mm |
| 17.706-200X600 | 1000 | 200 x 600 mm |
| 17.706-220X300 | 1000 | 220 x 300 mm |
| 17.706-225X350 | 1000 | 225 x 350 mm |
| 17.706-230X380 | 1000 | 230 x 380 mm |
| 17.706-250X280 | 1000 | 250 x 280 mm |
| 17.706-250X300 | 1000 | 250 x 300 mm |
| 17.706-250X350 | 1000 | 250 x 350 mm |
| 17.706-250X400 | 1000 | 250 x 400 mm |
| 17.706-260X350 | 1000 | 260 x 350 mm |
| 17.706-270X300 | 1000 | 270 x 300 mm |
| 17.706-300X300 | 1000 | 300 x 300 mm |
| 17.706-300X350 | 1000 | 300 x 350 mm |
| 17.706-300X400 | 1000 | 300 x 400 mm |
| 17.706-320X320 | 1000 | 320 x 320 mm |

Special plastic bag (PA/PE 20/70) for chamber machines.



| MSA | Version | Voltage | Size | Kg |
|--------|------------------|---------|--------------------|---------|
| 19.850 | Up to 10 benches | 220 V | 500 x 700 x 800 mm | 100.000 |

AIRcenter is a system which combines air pressure and vacuum in 1 machine adapted to final watch assembling as well as the after sales service using small and medium quantity of air. All-in-one concept, which doesn't require fixed air main masonry and electricity settlement. Flexible and easy to move wherever in the watch shop.

Bench air supply is made with soft pipes and individual pedal for each work place. Oil free motor which gives high air quality. It functions without using any pedals.

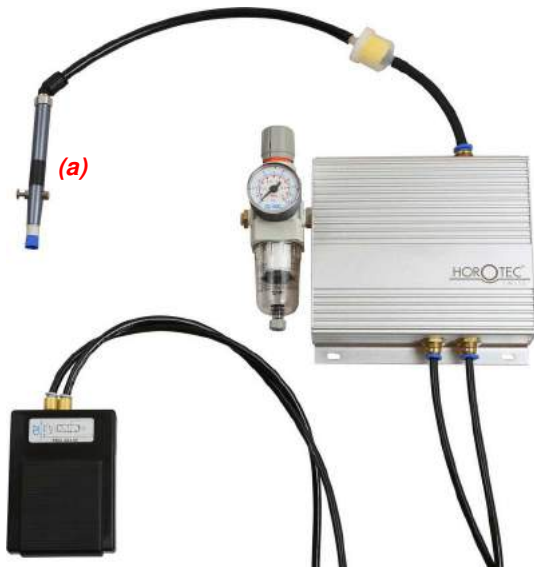
Technical data :

- Air pressure max. : 8 bar
- Vacuum : 800 mbar
- Air tank volume : 16 litres
- Vacuum tank volume : 40 litres
- Noise level : 50 dB
- Connections : 2x AC and 1x vacuum.

Delivered with air drier MSA19.850-02 (8) and recovery bowl MSA19.850-01.

(8) Accessories : see following pages.

This machine is only available on the Swiss market.



| MSA | Version | Size | Kg |
|--------|----------------|-------------------|-------|
| 19.875 | 1 work station | 160 x 220 x 85 mm | 1.700 |

Air flow/vacuum device for 1 work station.

This device requires a compressor to operate.

The integrated Venturi system transforms the forced air in vacuum.

Delivered with :

- 1 pedal MSA19.875-B
- 1 filter MSA19.875-A
- 1 hose Ø 6x4 mm MSA19.826, length 3 metres
- 1 hose Ø 8x5.5 mm MSA19.851, length 3 metres
- 1 transparent hose Ø 10x6 mm MSA19.812, length 3 metres.

Accessories :

| MSA | Item | Kg |
|----------|-----------------------------|-------|
| 19.875-A | Filter | 0.004 |
| 19.875-B | Pedal | 0.200 |
| 19.875-C | Male manometer 1/8 Transair | 0.035 |

See following pages for other accessories.

(a) Vacuum pencil not included in delivery



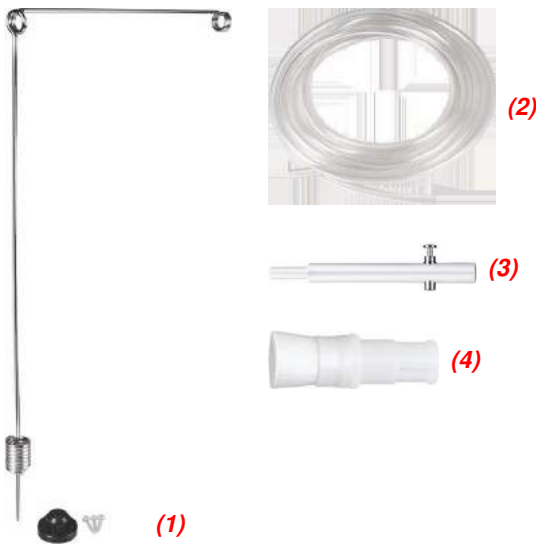
| MSA | Version | Voltage | Size | Kg |
|------------|-----------------|---------|--------------------|-------|
| 19.808 | 2 work stations | 220 V | 295 x 200 x 220 mm | 8.300 |
| 19.808-110 | 2 work stations | 110 V | 295 x 200 x 220 mm | 8.300 |

System with vacuum. Oil free engine, very noise-less and compatible for use in a white room.

Technical data :

- Flow 2300 litres/hour
- Absolute empty value : 80 mbar
- Pressure 1 bar uninterrupted (maximum 2.8 bar)
- Noise level : 48 dB.

VACUUM FUNCTION



Items delivered with MSA19.808 :

| MSA | Item | Kg |
|--------|--|-------|
| 19.811 | (3) Vacuum pencil (2x) | 0.011 |
| 19.812 | (2) Transparent PVC hose, Ø int. 6 x Ø 10 mm (2x 3 metres) | 0.100 |
| 19.813 | (4) Soft brush (2x) | 0.005 |
| 19.816 | (1) Stand with base and fixing screws (2x) | 0.080 |



| MSA | Version | Voltage | Size | Kg |
|------------|----------------|---------|--------------------|-------|
| 19.807 | 1 work station | 220 V | 295 x 200 x 220 mm | 8.300 |
| 19.807-110 | 1 work station | 110 V | 295 x 200 x 220 mm | 8.300 |

System with vacuum. Oil free engine, very noise-less and compatible for use in a white room.

Technical data :

- Flow 2300 litres/hour
- Absolute empty value : 80 mbar
- Pressure 1 bar uninterrupted (maximum 2.8 bar)
- Noise level : 48 dB.

VACUUM FUNCTION

Items delivered with MSA19.807 :

| MSA | Item | Kg |
|--------|--|-------|
| 19.811 | (3) Vacuum pencil (1x) | 0.011 |
| 19.812 | (2) Transparent PVC hose, Ø int. 6 x Ø 10 mm (1x 3 metres) | 0.100 |
| 19.813 | (4) Soft brush (1x) | 0.005 |
| 19.816 | (1) Stand with base and fixing screws (1x) | 0.080 |

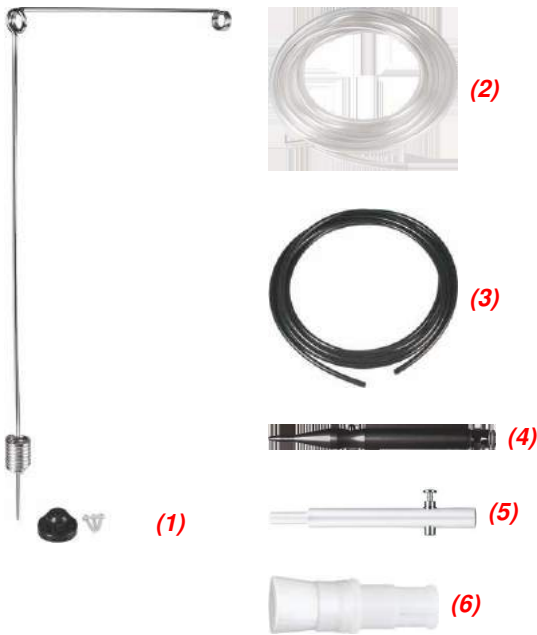


| MSA | Version | Voltage | Size | Kg |
|------------|----------------|---------|--------------------|-------|
| 19.820 | 1 work station | 220 V | 295 x 200 x 220 mm | 9.400 |
| 19.820-110 | 1 work station | 110 V | 295 x 200 x 220 mm | 9.400 |

System with double function air pressure and vacuum.
Oil free engine, very noise-less and compatible for use in a white room.
One work station with 2 foot switches and 1 recovery bowl.

Technical data :
- Flow 2300 litres/hour
- Absolute empty value : 80 mbar
- Pressure 1 bar uninterrupted (maximum 2.8 bar)
- Noise level : 48 dB.

**DOUBLE FUNCTION
AIR PRESSURE AND VACUUM**



Items delivered with MSA19.820 :

| MSA | Item | Kg |
|--------|--|-------|
| 19.811 | (5) Vacuum pencil (1x) | 0.011 |
| 19.812 | (2) Transparent PVC hose, Ø int. 6 x Ø 10 mm (1x 3 metres) | 0.100 |
| 19.813 | (6) Soft brush (1x) | 0.005 |
| 19.816 | (1) Stand with base and fixing screws (2x) | 0.080 |
| 19.817 | (4) Blower (1x) | 0.016 |
| 19.826 | (3) Black hose, Ø 6x4 mm (1x 1 metre) | 0.045 |



(1)



(2)



(4)



(3)

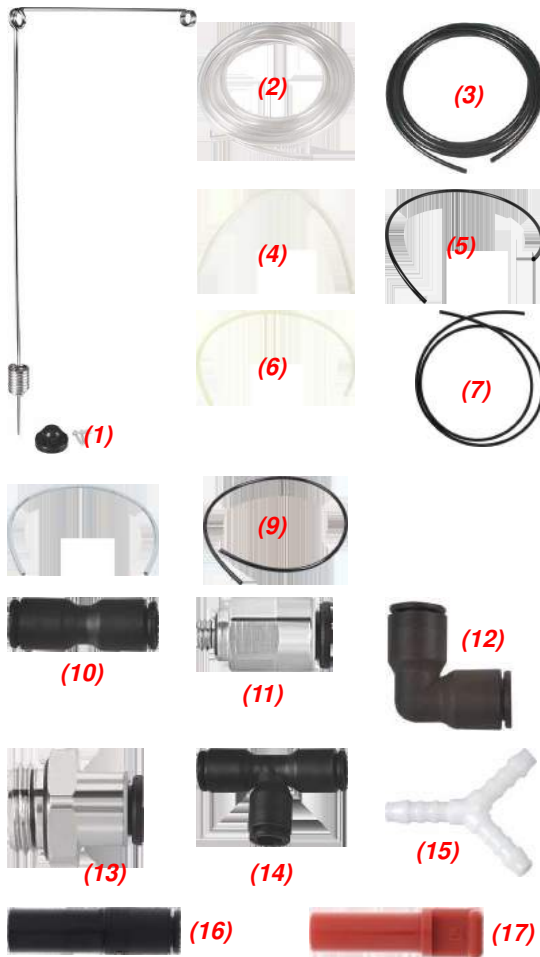
Accessories (regulation and filtration) for MSA19.807, MSA19.808, MSA19.820 and MSA19.850 :

| MSA | Item |
|----------|---|
| 19.808-P | (1) Pedal for MSA19.807 and 19.808 |
| 19.822 | (2) Pump filter |
| 19.838 | (3) Mini-ball valve 2/2 instant in-line, Ø 10 mm |
| 19.859 | (4) Pressure regulateur with manometer and fitting Ø 6 mm |



Accessories for vacuum/compressed air devices :

| MSA | Item | Kg |
|-----------|---|-------|
| 19.811 | (1) Vacuum pencil, Ø 10 x L90 mm | 0.011 |
| 19.833 | (2) Air proof vacuum pencil for MSA19.850 only | 0.015 |
| 19.877 | (3) Vacuum pencil with fitting 45° for hose Ø 8 mm | 0.015 |
| 19.878 | (4) Vacuum pencil with straight fitting for hose Ø 8 mm | 0.015 |
| 19.817 | (5) Blower | 0.016 |
| 19.856 | (6) Blower with fitting 45° | 0.022 |
| 19.846-10 | (7) Suction end piece for vacuum pencil, Ø 10 mm | 0.004 |
| 19.846-15 | (7) Suction end piece for vacuum pencil, Ø 15 mm | 0.004 |
| 19.846-20 | (7) Suction end piece for vacuum pencil, Ø 20 mm | 0.004 |
| 19.846-25 | (7) Suction end piece for vacuum pencil, Ø 25 mm | 0.005 |
| 19.813-A | Soft brush white nylon, Ø 6 mm | 0.005 |
| 19.813 | (8) Soft brush white nylon, Ø 10 mm | 0.005 |
| 19.823 | (8) Soft brush white nylon, Ø 15 mm | 0.005 |
| 19.867 | (8) Soft brush white nylon, Ø 25 mm | 0.005 |
| 19.868 | (8) Soft brush white nylon, Ø 35 mm | 0.005 |
| 19.814 | (9) Hard brush blue nylon, Ø 10 mm | 0.005 |
| 19.814-A | Soft brush blue nylon, Ø 6 mm | 0.005 |
| 19.847 | Very hard brush red nylon, Ø 10 mm | 0.005 |
| 19.825 | (10) Badger-hair brush, Ø 10 mm | 0.005 |
| 19.825-15 | (10) Badger-hair brush, Ø 15 mm | 0.005 |
| 19.819 | (11) Marten-hair brush, Ø 10 mm | 0.005 |
| 19.832 | (11) Marten-hair brush, Ø 15 mm | 0.005 |
| 19.821 | (12) Beak 45° with nylon filter | 0.006 |
| 19.824 | (13) Thin long beak 25 mm, Ø 2.3 mm | 0.004 |
| 19.824-A | (14) Thin short beak, Ø 2.3 mm x L15 mm | 0.003 |
| 19.824-C | (14) Thin long elbow 45° beak, Ø 2.3 mm x L45.20 mm | 0.004 |
| 19.829 | (15) Medium short beak, Ø 4 mm x L15 mm | 0.003 |
| 19.829-A | (16) Medium short beak, Ø 6 mm x L15 mm | 0.003 |



Connections for vacuum/compressed air devices :

| MSA | Item | Kg |
|-------------|---|-------|
| 19.816 | (1) Stand with base and fixing screws | 0.080 |
| 19.812 | (2) Transparent PVC hose, Ø int. 6 x Ø 10 mm x 1 metre | 0.100 |
| 19.826 | (3) Black hose, Ø 6x4 mm x 1 metre | 0.045 |
| 19.834 | (4) Transparent hose, Ø 14x12 mm x 1 metre | 0.030 |
| 19.840 | (5) Soft black PVC hose, Ø 10x7 mm x 1 metre | 0.022 |
| 19.841 | (6) Semi-rigid white polyamide hose, Ø 4x2.7 mm x 25 metres | 0.046 |
| 19.842 | (7) Soft black PVC hose, Ø 4x2.5 mm x 1 metre | 0.013 |
| 19.848 | (8) Soft grey hose, Ø 12x8 mm x 1 metre | 0.090 |
| 19.851 | (9) Black hose, Ø int. 5.5 x Ø 8 mm x 1 metre | 0.040 |
| 19.828-A | (10) Straight fitting, Ø 6 mm | 0.005 |
| 19.828-B | (10) Straight fitting, Ø 10 mm | 0.005 |
| 19.830 | (11) Straight male fitting D6 for blower, M5 | 0.005 |
| 19.830-B | (12) 90° angle fitting, Ø 10 mm | 0.006 |
| 19.830-D | (12) 90° angle fitting, Ø 14 mm | 0.015 |
| 19.830-G1/4 | (13) Quick fitting G 1/4, Ø 6 mm | 0.010 |
| 19.827-A | (14) "T" fitting, Ø 6 - 6 - 6 mm | 0.005 |
| 19.827-B | (14) "T" fitting, Ø 10 - 10 - 10 mm | 0.011 |
| 19.827-C | (14) "T" fitting, Ø 14 - 14 - 14 mm | 0.008 |
| 19.827-D | (14) "T" fitting, Ø 12 - 12 - 12 mm | 0.022 |
| 19.815 | (15) "Y" fitting, Ø 6 mm | 0.005 |
| 19.839-A | (16) Reducer, 10-6 mm | 0.003 |
| 19.839-B | (16) Reducer, 14-10 mm | 0.006 |
| 19.839-C | (16) Reducer, 12-6 mm | 0.006 |
| 19.835-A | (17) Hose plug Ø 6 mm | 0.001 |
| 19.835-B | (17) Hose plug Ø 10 mm | 0.002 |
| 19.835-C | (17) Hose plug Ø 14 mm | 0.006 |
| 19.835-D | (17) Hose plug Ø 12 mm | 0.004 |
| 19.811-F | Intermediate filter for vacuum brush | 0.005 |
| 19.873 | In-line filter for compressed air with straight fittings Ø 6 mm | 0.054 |

Automatic adhesive dispenser system.



| MSA | Voltage | Size | Kg |
|--------|------------------|--------------------|-------|
| 19.770 | DUAL 110 - 220 V | 150 x 165 x 178 mm | 1.200 |

Automatic dispenser TS250, which accurately and consistently dispenses low, medium and high viscosity fluids and adhesives thanks to syringes of 10 ml. This dispensing system includes digital display timer allowing a deposit time precision of 0.001 second.

Works in manual, sequence and automatic modes and is able to dispense in drops, lines and pot filling.

Technical data :

DUAL power source 110/220 V, air source maximum 6.9 bar (100 PSI) and applicable air pressure 0.1-6.9 bar (1-100 PSI).

Delivered with foot switch, 1 syringe barrel stand, 1 connection kit for syringes 10 ml, 1 assortment of syringes, air hose and operation instructions.

Assortment of tips for MSA19.770.



| MSA |
|------------|
| 19.770-KIT |

Assortment of tips in a box for MSA19.770.

Accessories for MSA19.770.



| MSA | Items |
|-------------|---|
| 19.774-03 | Adapter for syringe 3 ml + hose 90 cm |
| 19.775-A | Adapter for syringe 5 ml + hose 90 cm |
| 19.775-B | Adapter for syringe 10 ml + hose 90 cm |
| 19.760-O | Cap for MSA19.760-Q, 30 pieces |
| 19.773-03-B | Cap for MSA19.773-03 |
| 19.775-05-B | (1) Cap for MSA19.775-S |
| 19.760-S | (2) End cap for MSA19.760-Q, MSA19.760-R, MSA19.773-03 and MSA19.775-S, 50 pieces |
| 19.774-04 | O'Ring gasket for adapter 3 ml |
| 19.775-05 | O'Ring gasket for adapter 5 ml |
| 19.775-10 | (3) O'Ring gasket for adapter 10 ml |
| 19.773-03-P | Piston for MSA19.773-03, 50 pieces |
| 19.775-05-P | Piston for MSA19.775-S, 50 pieces |
| 19.773-03 | Transparent syringe 3 ml |
| 19.775-S | Transparent syringe 5 ml |
| 19.760-Q | Transparent syringe 10 ml |
| 19.760-R | (4) Black syringe 10 ml |
| 19.772 | Syringe holder |

Dispensing tips for MSA19.770.



| MSA | Needle | Colour | Ø | Kg |
|-------------|-----------------|-------------|---------|-------|
| 19.770-M007 | Straight metal | Green | 0.07 mm | 0.001 |
| 19.770-M010 | " | Yellow | 0.10 mm | 0.001 |
| 19.770-M015 | " | Lavender | 0.15 mm | 0.001 |
| 19.770-M020 | " | Transparent | 0.20 mm | 0.001 |
| 19.770-M025 | " | Red | 0.25 mm | 0.001 |
| 19.770-M033 | " | Orange | 0.33 mm | 0.001 |
| 19.770-M041 | " | Blue | 0.41 mm | 0.001 |
| 19.770-M051 | " | Purple | 0.51 mm | 0.001 |
| 19.770-M061 | " | Pink | 0.61 mm | 0.001 |
| 19.770-M084 | " | Green | 0.84 mm | 0.001 |
| 19.770-M137 | " | Amber | 1.37 mm | 0.001 |
| 19.770-M160 | " | Olive | 1.60 mm | 0.001 |
| - | - | - | - | - |
| 19.770-C020 | Conical plastic | Transparent | 0.20 mm | 0.001 |
| 19.770-C025 | " | Red | 0.25 mm | 0.001 |
| 19.770-C041 | " | Blue | 0.41 mm | 0.001 |
| 19.770-C061 | " | Pink | 0.61 mm | 0.001 |
| 19.770-C084 | " | Green | 0.84 mm | 0.001 |
| 19.770-C119 | " | Grey | 1.19 mm | 0.001 |
| 19.770-C160 | " | Olive | 1.60 mm | 0.001 |
| - | - | - | - | - |
| 19.770-A015 | Metal 90° | Lavender | 0.15 mm | 0.001 |
| 19.770-A020 | " | Transparent | 0.20 mm | 0.001 |
| 19.770-A025 | " | Red | 0.25 mm | 0.001 |
| 19.770-A033 | " | Orange | 0.33 mm | 0.001 |
| 19.770-A041 | " | Blue | 0.41 mm | 0.001 |
| 19.770-A051 | " | Purple | 0.51 mm | 0.001 |
| 19.770-A061 | " | Pink | 0.61 mm | 0.001 |
| 19.770-A084 | " | Green | 0.84 mm | 0.001 |
| 19.770-A137 | " | Amber | 1.37 mm | 0.001 |
| 19.770-A160 | " | Olive | 1.60 mm | 0.001 |
| - | - | - | - | - |
| 19.770-B015 | Metal 45° | Lavender | 0.15 mm | 0.001 |
| 19.770-B020 | " | Transparent | 0.20 mm | 0.001 |
| 19.770-B025 | " | Red | 0.25 mm | 0.001 |
| 19.770-B033 | " | Orange | 0.33 mm | 0.001 |
| 19.770-B041 | " | Blue | 0.41 mm | 0.001 |
| 19.770-B051 | " | Purple | 0.51 mm | 0.001 |
| 19.770-B061 | " | Pink | 0.61 mm | 0.001 |
| 19.770-B084 | " | Green | 0.84 mm | 0.001 |
| 19.770-B137 | " | Amber | 1.37 mm | 0.001 |
| 19.770-B160 | " | Olive | 1.60 mm | 0.001 |

Volumetric dosing machine.

LOCTITE



| MSA | Voltage | Size | Kg |
|--------|------------------|-------------------|-------|
| 19.761 | DUAL 110 - 220 V | 192 x 210 x 90 mm | 3.000 |

The timing and the dosing rate are freely programmable. It is possible to take the product directly from a bottle or other recipient.

Technical data :

DUAL power source 110 - 220 V (different cable for 110 V network) and consumption of 10 W.

Delivered with dosing box, several types of pipes and the corresponding adapters and a user's manual.



| MSA | Voltage | Size | Kg |
|--------|---------|--------------------|--------|
| 19.762 | 220 V | 305 x 525 x 575 mm | 17.000 |

The UVALOC 1000 is a modular tabletop unit for curing adhesives and sealants.

The system has a parabolic reflector, a pneumatically operated screen, a polycarbonate chamber door (UV filter) with a safety lock.

The control unit has a programmable control with a display. The lamp is changed by a drawer system.

The system is equipped with a 1000 W lamp in accordance with current standards in order to achieve the required 1000 W lamp to achieve deep curing and dry surfaces. The service life of the lamps varies depending on the type chosen, from 700 to 1500 hours.

Technical data : 220 V power supply, power consumption approx. 1200 W and emission spectrum 200 to 400 nm.

Delivered with 1 controller, 1 polymerisation chamber, 1 lamp compartment connection cable, 1 power cord, 1 foot switch and 1 instruction manual.

Spare parts :

| MSA | Item | Kg |
|----------|------|-------|
| 19.762-A | 000 | 0.100 |
| 19.762-B | 000 | 0.100 |
| 19.762-C | 000 | 0.100 |



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|-------|
| 19.751 | 220 V | 255 x 155 x 485 mm | 5.800 |
| 19.751-110 | 110 V | 255 x 155 x 485 mm | 5.800 |

Apparatus for polymerisation of UV-active adhesives and resins. Suitable for optics, jewellery and watch industries as well as Watch Lab, workshop and small series for sealing case glasses.

It is equipped with a safety device, which stops UV radiation in case the drawer is opened.

Technical data : power source 220 or 110 V (upon request), consumption 75 W and emission spec-trum from 350 to 400 nm.



| MSA | Voltage | Size | Kg |
|--------|---------|--------------------|-------|
| 19.765 | 220 V | 215 x 240 x 100 mm | 1.800 |

UV lamp tunnel for fast drying watch glass UV glue. Power 36W.

3 programmable timing modes :

Position (I) : 90 seconds

Position (II) : 120 seconds

Position (0) : stop.

Delivered with 4 tubes of 9 W (should work simul-taneously).

Spare part :

| MSA | Item | Kg |
|----------|-------------|-------|
| 19.765-A | 9 W UV tube | 0.040 |














Demagnetisation, detection of magnetism and control of magnetic remanence.



| MSA | Voltage | Size | Kg |
|--------|------------------|-------------------|-------|
| 19.910 | DUAL 115 - 230 V | 155 x 172 x 55 mm | 1.235 |

Electronic device MAGTEST for the detection of magnetism in μ Tesla, demagnetisation and control of magnetic remanence of watches, movements, tools and watch parts.

Functions :

-  - Magnetism detection
-  - Demagnetization
-  - Automatic mode activated
-  - Activate or deactivate the sound
-  - Connected to the power sector 115 - 230 V
-  - Operates on the battery
-  - 1. Compass mode display.
- 2. Calibration of the north of the compass
-  - Return to the main menu
-  - Parameters/settings
-  - Selection between silent or sound mode
-  - Display of the hardware and software version
-  - Resetting the sensors
-  - Activate or deactivate the automatic mode.



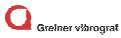
Detection sensors : there are 5 sensors and one of them is located in the centre of the detection surface. The others are located in the corners of a 1.5 cm square. They can measure the magnetism force as well as its position. A dot on the LCD screen shows a sensor with its position and the dot size is proportional to the magnetic force.

Demagnetisation.



| MSA | Voltage | Size | Kg |
|--------|------------------|--------------------|-------|
| 19.908 | DUAL 115 - 230 V | 195 x 130 x 140 mm | 2.500 |

The MAGNOMASTER is powerful enough to demagnetise the movement directly inside the case. Demagnetisation is done simultaneously on both sides. Extremely powerful two-coil device. Objects must be rotated by 90° to completely remove the magnetism by pressing the button again. The light of the lamp indicates demagnetisation.



| MSA | Voltage | Size | Kg |
|------------|---------|--------------------|-------|
| 19.901 | 230 V | 230 x 180 x 120 mm | 1.170 |
| 19.901-110 | 115 V | 230 x 180 x 120 mm | 1.170 |

ANTIMAG AM 2 device for demagnetising watches and small watch parts.

Delivered with operating instructions.

20



MICROMOTORS

20 - 2

Table micromotors NAKANISHI Emax EVOLution



Speed 1'000...40'000 RPM.

| MSA | Voltage | Size | Kg |
|------------|------------------|-------------------|-------|
| 20.362 | 230 V / 50-60 Hz | 130 x 254 x 97 mm | 2.300 |
| 20.362-110 | 120 V / 50-60 Hz | 130 x 254 x 97 mm | 2.300 |

Table micromotor set NAKANISHI Emax EVOLution improved with the last technologies.

- Digital display on the centre roller
- Variator with speed memory possibility
- Maximum torque 4.3 cN-m
- Start switch can be made on the control unit or directly on the micromotor
- Clockwise and anticlockwise rotation
- A second motor can be connected at the control unit with a A/B selector (cannot be used simultaneously).

Delivered with :

- 1 control unit MSA20.364
- 1 motor MSA20.362-M1
- 1 handpiece MSA20.360-P2
- 1 chuck Ø 2.35 mm MSA20.360-C235
- 1 chuck Ø 3.00 mm MSA20.360-C300
- 1 stand MSA20.360-S
- 1 set of flat and pun wrench keys for locking/unlocking chucks
- 1 power supply cord.



Speed 1'000...25'000 RPM.

| MSA | Voltage | Size | Kg |
|--------|------------------|-------------------|-------|
| 20.365 | 230 V / 50-60 Hz | 130 x 254 x 97 mm | 2.300 |

Table torque micromotor set NAKANISHI Emax EVOLution improved with the last technologies.

- Digital display on the centre roller
- Variator with speed memory possibility
- Maximum torque 4.8 cN-m
- Start switch can be made on the control unit or directly on the micromotor
- Clockwise and anticlockwise rotation
- A second motor can be connected at the control unit with a A/B selector (cannot be used simultaneously).

Delivered with :

- 1 control unit
- 1 motor IR-310-ENK-250T
- 1 handpiece MSA20.360-P2
- 1 chuck Ø 2.35 mm MSA20.360-C235
- 1 chuck Ø 3.00 mm MSA20.360-C300
- 1 stand MSA20.360-S
- 1 set of flat and pun wrench keys for locking/unlocking chucks
- 1 power supply cord.



| MSA | Kg |
|----------|-------|
| 20.362-F | 0.543 |

ON/OFF foot and speed control pedal for micromotor MSA20.362 and MSA20.365.



Speed 1'000~40'000 RPM.

| MSA | Power | Size | Kg |
|-----------|-------|-----------------|-------|
| 20.362-M1 | 73 W | Ø 24.50 x 97 mm | 0.090 |

Motor for MSA20.362. Maximum Torque 4.3 cN-m. Excellent combination of high speed, lightweight, small diameter and high torque. This lightweight and compact general-use type is perfect for precision work. *Delivered with a 1.5 m power supply cord.*



Maximum speed 40'000 RPM.

| MSA | Size | Kg |
|-----------|--------------|-------|
| 20.360-P1 | Ø 14 x 60 mm | 0.062 |

Handpiece with a side lever for fast chuck tightening for micromotor MSA20.362. *Delivered with tightening keys.*



Maximum speed 40'000 RPM.

| MSA | Size | Kg |
|-----------|--------------|-------|
| 20.360-P2 | Ø 13 x 64 mm | 0.092 |

Handpiece with a side lever for fast chuck tightening for micromotor MSA20.362. *Delivered with tightening keys.*



Optional adaptable chucks for MSA20.360-P1 and MSA20.360-P2 (other diameters available upon request) :

| MSA | Item | Kg |
|-------------|--|-------|
| 20.360-C100 | Optional adaptable chuck, length 33.90 mm, Ø 1.00 mm | 0.005 |
| 20.360-C150 | Optional adaptable chuck, length 33.90 mm, Ø 1.50 mm | 0.005 |
| 20.360-C160 | Optional adaptable chuck, length 33.90 mm, Ø 1.60 mm | 0.005 |
| 20.360-C200 | Optional adaptable chuck, length 33.90 mm, Ø 2.00 mm | 0.005 |
| 20.360-C235 | Optional adaptable chuck, length 33.90 mm, Ø 2.00 mm | 0.005 |
| 20.360-C300 | Optional adaptable chuck, length 33.90 mm, Ø 3.00 mm | 0.005 |
| 20.360-C300 | Optional adaptable chuck, length 33.90 mm, Ø 3.00 mm | 0.005 |



Maximum speed 16'000 RPM.

| MSA | Size | Kg |
|--------|--------------|-------|
| 20.367 | Ø 14 x 93 mm | 0.095 |

Riveting-setting hammer for micromotor MSA20.362.

MICROMOTORS

NAKANISHI



Maximum speed 35'000 RPM.



| MSA | Size | Kg |
|-----------|--------------------|-------|
| 20.360-P4 | Ø 20.20 x 57.30 mm | 0.045 |

Contra-angle handpiece for micromotor MSA20.362. Chuck Ø 3.00 mm included.

Delivered with tightening keys and a set of standard accessories (3 rubber micro-disks and 3 abrasive disks in different diameters).

Optional adaptable chucks (other diameters available upon request) :

| MSA | Item | Kg |
|------------|--|-------|
| 20.360-160 | Optional adaptable chuck, length 17.20 mm, Ø 1.60 mm | 0.080 |
| 20.360-235 | Optional adaptable chuck, length 17.20 mm, Ø 2.35 mm | 0.080 |

NAKANISHI



Maximum speed 25'000 RPM.

| MSA | Size | Kg |
|-----------|---------------|-------|
| 20.360-P5 | Ø 20 x 105 mm | 0.235 |

Handpiece for micromotor MSA20.362. Reciprocating motion, stroke range 0.8 mm.

Delivered with 1 tightening key, 1 spring holder, 1 ceramic fiber grindstone holder, 1 electroplated diamond file 1.2 x 4 x 50 mm (# 100) and 1 ceramic fiber grindstone 1 x 6 x 50 mm (# 1200).

NAKANISHI



Belt runs approx. 0~705 metres/minute



| MSA | Size | Kg |
|--------|------------------|-------|
| 20.368 | 200 x 35 x 49 mm | 0.576 |

Belt sander for micromotors.

- Very high belt speed, ideal for applications from deburring to finishing
- Belt runs approx. 0~825 m/minute, circumference 300 mm
- Lightweight, compact, minimal vibration and a small diameter grip design keep the hand free from fatigue for long, continuous operation
- The angle of the belt section is fully adjustable
- Exchanging the belt is simply done by lever release.

Belts included in the delivery (2 pieces of each reference) :

| MSA | Item |
|--------------|----------------------|
| 20.368-4/120 | Belt 4 mm, grain 120 |
| 20.368-4/240 | Belt 4 mm, grain 240 |
| 20.368-4/400 | Belt 4 mm, grain 400 |
| 20.368-6/120 | Belt 6 mm, grain 120 |
| 20.368-6/240 | Belt 6 mm, grain 240 |
| 20.368-6/400 | Belt 6 mm, grain 400 |
| 20.368-8/120 | Belt 8 mm, grain 120 |
| 20.368-8/240 | Belt 8 mm, grain 240 |
| 20.368-8/400 | Belt 8 mm, grain 400 |

Accessory belts (other grains are available) :

| MSA | Item |
|--------------|----------------------|
| 20.368-8/600 | Belt 8 mm, grain 600 |
| 20.368-8/800 | Belt 8 mm, grain 800 |

Table micromotors NAKANISHI Espert 500.



Speed 1'000...50'000 RPM.

| MSA | Voltage | Power | Size | Kg |
|--------|------------------|-------|-------------------|-------|
| 20.361 | 230 V / 50-60 Hz | 200 W | 172 x 230 x 94 mm | 2.600 |

The table torque micromotor set NAKANISHI Espert 500 is perfectly adapted for jobs requiring an extra effort.

- Speed regulation on potentiometer or with pedal MSA20.360-F
- Start button on box or directly on the micromotor
- Right/left rotation, tempomat
- A second micromotor can be plugged in with A/B selector (A and B cannot be used simultaneously).

Delivered with :

- 1 control unit MSA20.363
- 1 motor MSA20.361-M1
- 1 handpiece MSA20.361-P1
- 1 chuck Ø 2.35 mm MSA20.360-C235
- 1 chuck Ø 3.00 mm MSA20.360-C300
- 1 stand MSA20.360-S.



| MSA | Kg |
|----------|-------|
| 20.360-F | 0.600 |

Vario pedal for MSA20.361.



Maximum speed : 50'000 RPM.

| MSA | Power | Size | Kg |
|-----------|-------|---------------------|-------|
| 20.361-M1 | 200 W | Ø 28.30 x 121.40 mm | 0.160 |

Torque motor for MSA20.361. Maximum torque 8.7 cN-m.

Delivered with 1.5 m spiral cord.



Maximum speed : 50'000 RPM.

| MSA | Power | Size | Kg |
|-----------|-------|---------------------|-------|
| 20.361-M2 | 140 W | Ø 24.50 x 107.80 mm | 0.115 |

Compact motor for MSA20.361. Maximum torque 6.0 cN-m.

Delivered with 1.5 m spiral cord.



| MSA | Size | Kg |
|-----------|--------------------|-------|
| 20.361-P1 | Ø 22.40 x 59.40 mm | 0.094 |

Handpiece with rotating quick-clamping system to be fitted on micromotor MSA20.361. Chucks Ø 2.35 and 3.00 mm included.

Delivered with tightening key.



| MSA | Size | Kg |
|-----------|--------------------|-------|
| 20.361-P2 | Ø 22.40 x 58.90 mm | 0.070 |

Handpiece with rapid tightening ring to be fitted on micromotor MSA20.361. Chucks Ø 2.35 and 3.00 mm included.
Delivered with tightening key.



Optional adaptable chucks for MSA20.361-P1 and MSA20.361-P2 (other diameters available upon request) :

| MSA | Item | Kg |
|-------------|--|-------|
| 20.360-C100 | Optional adaptable chuck, length 33.90 mm, Ø 1.00 mm | 0.005 |
| 20.360-C150 | Optional adaptable chuck, length 33.90 mm, Ø 1.50 mm | 0.005 |
| 20.360-C160 | Optional adaptable chuck, length 33.90 mm, Ø 1.60 mm | 0.005 |
| 20.360-C200 | Optional adaptable chuck, length 33.90 mm, Ø 2.00 mm | 0.005 |
| 20.360-C235 | Optional adaptable chuck, length 33.90 mm, Ø 2.00 mm | 0.005 |
| 20.360-C300 | Optional adaptable chuck, length 33.90 mm, Ø 3.00 mm | 0.005 |
| 20.360-C300 | Optional adaptable chuck, length 33.90 mm, Ø 3.00 mm | 0.005 |



Maximum speed 25'000 RPM.

| MSA | Size | Kg |
|-----------|-----------------|-------|
| 20.361-P3 | Ø 15 x 84.50 mm | 0.130 |

Thin pen shape handpiece with rapid tightening ring for small polishing operations, for micromotor MSA20.361.
Delivered with an adapter for economical fibre files.



Maximum speed 30'000 RPM.

| MSA | Size | Kg |
|-----------|--------------------|-------|
| 20.361-P5 | Ø 22.40 x 64.30 mm | 0.054 |

Contra-angle handpiece for micromotor MSA20.361.
Delivered with tightening keys and a set of standard accessories (3 rubber micro-disks and 3 abrasive disks in different diameters).

Table micromotor ARGOFILE.

| MSA | Voltage | Size |
|--------|-----------|-------------------|
| 20.381 | 110/220 V | 110 x 148 x 96 mm |

Table micromotor set MAXIMA PHP 40.
 The compact control unit MSA20.381-02 is a continuously variable speed controller (0...40'000 rpm).
 Handpiece with "One-Touch" quick system.



Speed 0...40'000 RPM.

Delivered with :

- 1 control unit MSA20.381-02
- 1 handpiece MSA20.381-01
- 1 Vario pedal MSA20.381-03
- 1 handpiece stand MSA20.381-04
- 1 pair of carbon brushes MSA20.381-05
- 1 chuck Ø 2.35 mm MSA20.381-235.

Spare parts :

| MSA | Item |
|-----------|---|
| 20.381-01 | (1) Handpiece Ø 26 x 145 mm, maximum speed 40'000 RPM |
| 20.381-02 | (2) Control unit 110 x 148 x 86 mm, 110/220 V |
| 20.381-03 | (3) Vario pedal |
| 20.381-04 | (4) Handpiece stand |
| 20.381-05 | (5) Pair of carbon brushes |

Accessories :

| MSA | Item |
|------------|------------------------------------|
| 20.381-235 | (6) Chuck for handpiece, Ø 2.35 mm |
| 20.381-300 | Chuck for handpiece, Ø 3.00 mm |



Working cabinets.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 23.812 | 320 x 300 x 250 mm | 3.000 |

Working cabinet for micromotors.
 A removable drawer makes it easy to collect the residues of the precious alloys used.
 The fitting with hose allows the connection of the portable vacuum cleaners MSA23.810 and MSA23.811.
 Excellent working visibility, sealed Plexiglas cabinet.



| MSA | Size | Kg |
|--------|--------------------|--------|
| 23.813 | 600 x 400 x 400 mm | 15.000 |

Safety cabinet for finishing work with micromotors.
 This device is equipped with several side entrances on the left and right, a neon light, a fast-air connector and a power supply for the portable vacuum cleaners MSA23.810 and MSA23.811.

- Bright and wide working area
- Easy-to-clean heavy-duty grid collector
- Solid and reliable construction.

See Chapter 23 for other suction systems.

21



SMALL BRUSHES

21 - 2

GRINDING-WHEELS

21 - 6

CIRCULAR-GRAINING STICKS / DIAMOND GRINDING STONE

21 - 10

HAND BRUSHES / BRUSHES

21 - 12

CIRCULAR BRUSHES

21 - 14

SMALL BRUSHES

High quality polishing brushes, shank Ø 2.35 mm.
Maximum speed 15'000 rpm.



21.001 21.002 21.003 21.004 21.005 21.006 21.007 21.008 21.008-17 21.008-19 21.008-A 21.009 21.010

| MSA | Type | Material | Ø | Kg |
|--------|--------|-----------------|-------|-------|
| 21.001 | HP 112 | White goat hair | 21 mm | 0.003 |
| 21.002 | HP 113 | Grey goat hair | 21 mm | 0.003 |
| 21.003 | HP 110 | White bristle | 21 mm | 0.003 |
| 21.004 | HP 111 | Black bristle | 21 mm | 0.003 |
| 21.005 | HP 115 | Brass wire | 21 mm | 0.005 |
| 21.006 | HP 116 | Steel wire | 21 mm | 0.004 |
| 21.007 | HP 100 | Chamois | 21 mm | 0.003 |

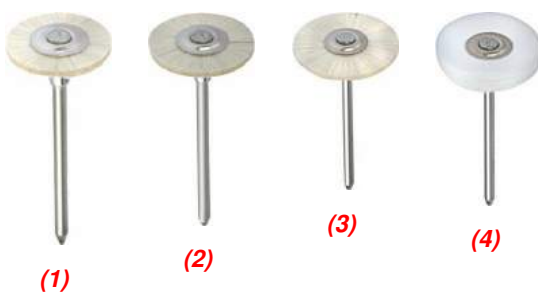
| MSA | Type | Material | Ø | Kg |
|-----------|--------|--------------------|-------|-------|
| 21.008 | HP 103 | Cotton yarn | 21 mm | 0.003 |
| 21.008-17 | HP 103 | Cotton yarn | 17 mm | 0.003 |
| 21.008-19 | HP 103 | Cotton yarn | 19 mm | 0.003 |
| 21.008-A | HP 103 | Double cotton yarn | 23 mm | 0.003 |
| 21.009 | HP 101 | Felt | 21 mm | 0.003 |
| 21.010 | HP 102 | Flannel | 21 mm | 0.003 |



21.011 21.011-17 21.012 21.013 21.014 21.020 21.021 21.022 21.023 21.026 21.027 21.027-A

| MSA | Type | Material | Ø | Kg |
|-----------|----------|----------------------------|-------|-------|
| 21.011 | HP 102n | Canvas | 21 mm | 0.003 |
| 21.011-17 | HP 102n | Canvas | 17 mm | 0.003 |
| 21.012 | HP 102n | White stitched canvas | 21 mm | 0.003 |
| 21.013 | HP 102n | Unbleached stitched canvas | 21 mm | 0.003 |
| 21.014 | HP 110ny | White nylon | 23 mm | 0.003 |
| 21.020 | HP 107 | White goat hair | - | 0.003 |

| MSA | Type | Material | Ø | Kg |
|----------|--------|----------------|-------|-------|
| 21.021 | HP 108 | Grey goat hair | - | 0.003 |
| 21.022 | HP 105 | White bristle | - | 0.003 |
| 21.023 | HP 106 | Black bristle | - | 0.003 |
| 21.026 | HP 109 | Pony bristle | 21 mm | 0.003 |
| 21.027 | HP 114 | Grey bristle | 21 mm | 0.003 |
| 21.027-A | HP 114 | Grey bristle | 23 mm | 0.003 |



| MSA | Type | Material | Size | Kg |
|-----------|---------------|-----------------|---------|-------|
| 21.051-17 | (1) MBH 12100 | White goat hair | Ø 17 mm | 0.003 |
| 21.051-19 | (2) MBH 12200 | White goat hair | Ø 19 mm | 0.003 |
| 21.051-23 | (3) MBH 12400 | White goat hair | Ø 23 mm | 0.003 |
| 21.061-21 | (4) MBH 22301 | Canvas | Ø 21 mm | 0.003 |



ASSORTMENT

| MSA | Size | Kg |
|--------|------------------|-------|
| 21.100 | 145 x 93 x 80 mm | 0.287 |

Assortment of 18 polishing small brushes.
Delivered in 1 plastic box.

Contents :

Rank 1

MSA21.001 (HP 110) : Ø 21 mm
MSA21.003 (HP 111) : Ø 21 mm
MSA21.004 (HP 112) : Ø 21 mm
MSA21.026 (HP 109) : Ø 21 mm
MSA21.010 (HP 102) : Ø 21 mm

Rank 2

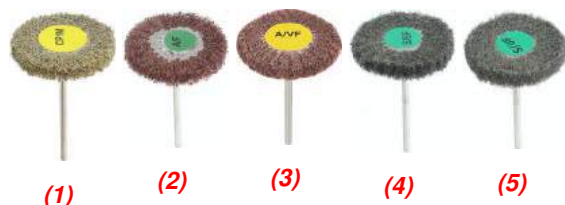
MSA21.008 (HP 103) : Ø 21 mm
MSA21.007 (HP 100) : Ø 21 mm
MSA21.009 (HP 101) : Ø 21 mm
MSA21.005 (HP 115) : Ø 21 mm
MSA21.045 (HP 60) : Ø 21 mm
MSA21.046 (HP 61) : Ø 21 mm

Rank 3

MSA21.022 (HP 105) : -
MSA21.023 (HP 106) : -
MSA21.031 (HP 104a) : -
MSA21.041 (HP 56) : Ø 10.30 mm
MSA21.040 (HP 55) : Ø 10.30 mm
MSA21.042 (HP 57) : Ø 8.00 mm
MSA21.043 (HP 58) : Ø 6.50 mm

Spare part :

| MSA | Item | Kg |
|----------|-------------------|----|
| 21.100-A | Empty plastic box | ? |



| MSA | Type | Grain | Size | Kg |
|------------|------|------------------|-------------|-------|
| 21.418 (1) | A/M | 80 - 120 coarse | Ø 30 x 5 mm | 0.003 |
| 21.416 (2) | A/F | 180 - 240 medium | Ø 30 x 5 mm | 0.003 |
| 21.417 (3) | A/VF | 280 - 400 fine | Ø 30 x 5 mm | 0.003 |
| 21.419 (4) | S/SF | 500 extra-fine | Ø 30 x 5 mm | 0.003 |
| 21.409 (5) | S/VF | 800 ultra fine | Ø 30 x 5 mm | 0.003 |

Oxide aluminium satin finish brush.
For gold, silver, platinum, titanium, acrylic and silicone.



| MSA | Type | Ø | Grain | Kg |
|--------|----------|-------|--------|-------|
| 21.035 | 103 SBF | 25 mm | Fine | 0.003 |
| 21.036 | 103 SBM | 25 mm | Medium | 0.003 |
| 21.037 | 103 SBGG | 25 mm | Coarse | 0.003 |

Scotch Brite polishing small brush.

**High quality polishing brushes, shank Ø 2.35 mm.
Maximum speed 11'000 rpm.**



| MSA | Type | Material | Shape | Kg |
|--------|---------|------------|-------|-------|
| 21.024 | HP 105m | Brass wire | Cup | 0.004 |

Top quality polishing small brush, cup shaped.
Wires length 7 mm.

SMALL BRUSHES



| MSA | Type | Material | Shape | Kg |
|--------|---------|-----------------|--------|-------|
| 21.030 | HP 104c | White goat hair | Pencil | 0.002 |
| 21.031 | HP 104a | White bristle | Pencil | 0.002 |
| 21.032 | HP 104b | Black bristle | Pencil | 0.002 |
| 21.033 | HP 104m | Brass wire | Pencil | 0.003 |
| 21.034 | HP 104s | Steel wire | Pencil | 0.003 |

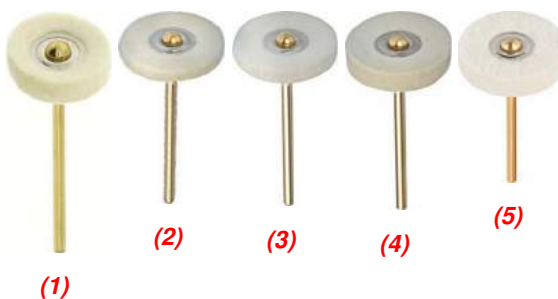
Top quality polishing small brush, pencil shaped.
Wires length 10 mm.

High quality felt polishing brushes, shank Ø 2.35 mm.
Maximum speed 5'000 rpm.



| MSA | Type | Shape | Ø | Kg |
|----------|-------|-------------|----------|-------|
| 21.040 | HP 55 | Flame | 10.30 mm | 0.002 |
| 21.041 | HP 56 | Round | 10.30 mm | 0.001 |
| 21.041-C | HP 56 | Round | 10.30 mm | 0.001 |
| 21.042 | HP 57 | Large point | 8.00 mm | 0.002 |
| 21.043 | HP 58 | Fine point | 6.50 mm | 0.003 |

| MSA | Type | Shape | Ø | Kg |
|-----------|--------|---------------------|---------|-------|
| 21.043-L | HP 58L | Fine and long point | 6.50 mm | 0.002 |
| 21.045 | HP 60 | Lens | 21 mm | 0.003 |
| 21.046 | HP 61 | Plate | 21 mm | 0.003 |
| 21.046-17 | HP 61 | Plate | 17 mm | 0.003 |
| 21.050 | 9790 | Fine point | 4 mm | 0.002 |



| MSA | Type | Shape | Size | Kg |
|--------------|-------|-------------|-------------|-------|
| 21.049-T (1) | HP 59 | Thick wheel | Ø 17 x 5 mm | 0.003 |
| 21.047-D (2) | HP 59 | Thin wheel | Ø 21 x 3 mm | 0.003 |
| 21.047-T (3) | HP 59 | Thin wheel | Ø 21 x 3 mm | 0.003 |
| 21.048-D (4) | HP 59 | Thick wheel | Ø 21 x 5 mm | 0.003 |
| 21.048-T (5) | HP 59 | Thick wheel | Ø 21 x 5 mm | 0.003 |

Hardness : -T = soft ; -D = hard

Polishing felts.



| MSA | Type | Shape | Ø | Height | Kg |
|--------|------|-------|-------|--------|-------|
| 21.490 | 50 | Cone | 10 mm | 20 mm | 0.001 |
| 21.493 | 50 | Cone | 15 mm | 35 mm | 0.003 |
| 21.495 | 50 | Cone | 20 mm | 40 mm | 0.004 |

Top quality polishing felt.



| MSA | Type | Shape | Ø | Height | Kg |
|--------|------|-------|-------|--------|-------|
| 21.500 | 52 | Lens | 30 mm | 10 mm | 0.003 |

Top quality polishing felt.



| MSA | Material | Ø hole | Size | Kg |
|--------|----------|--------|---------------|-------|
| 21.484 | Felt | 30 mm | Ø 200 x 15 mm | 0.235 |

Polishing disc, felt hub.



| MSA | Type | Shape | Ø | Height | Kg |
|--------|------|-------|-------|--------|-------|
| 21.510 | 51 | Wheel | 25 mm | 4 mm | 0.001 |
| 21.514 | 51 | Wheel | 60 mm | 10 mm | 0.017 |

Top quality polishing felt.

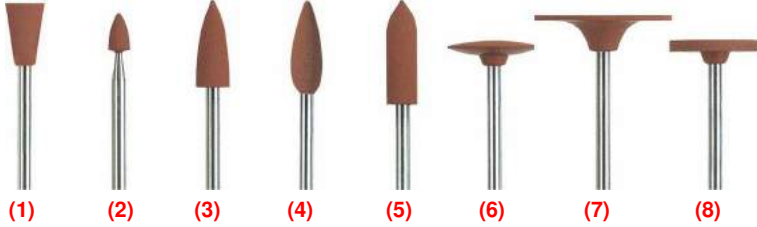


| MSA | Shape | Ø | Height | Kg |
|--------|-------|--------|--------|-------|
| 21.507 | Wheel | 100 mm | 20 mm | 0.052 |

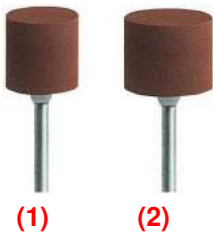
Polishing felt for work on gold, silver, brass, bronze and steel.
Hardness half-hard.
Central hole Ø 6 mm.

GRINDING-WHEELS

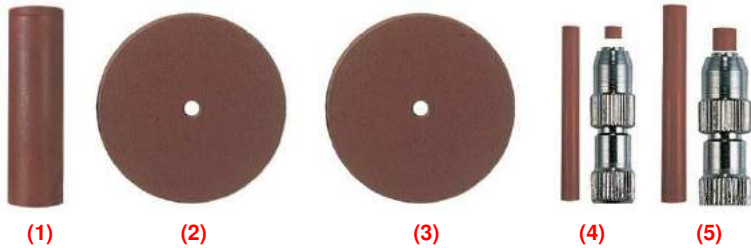
Rubber polishers for pre-polishing of gold, precious and semi-precious alloys.
Shank Ø 2.35 mm. Maximum speed 20'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|---------|-----------|-------|
| 21.600 | (1) | 6.0 mm | 10.0 mm | 0.001 |
| 21.601 | (2) | 3.0 mm | 6.0 mm | 0.001 |
| 21.602 | (3) | 5.5 mm | 15.5 mm | 0.001 |
| 21.603 | (4) | 5.5 mm | 16.3 mm | 0.001 |
| 21.604 | (5) | 5.0 mm | 16.0 mm | 0.001 |
| 21.606 | (6) | 15.0 mm | 2.5 mm | 0.001 |
| 21.607 | (7) | 22.0 mm | 0.6 mm | 0.001 |
| 21.609 | (8) | 14.5 mm | 2.0 mm | 0.001 |



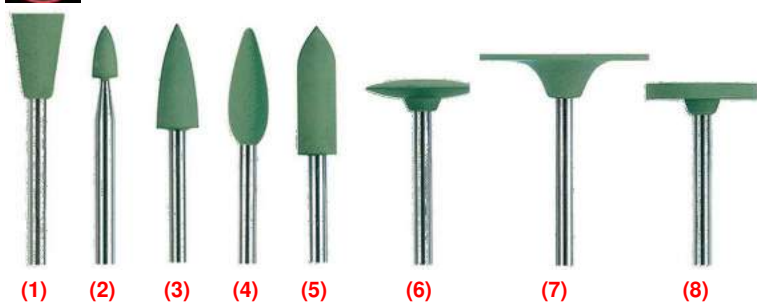
| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.610 | (1) | 12 mm | 12 mm | 0.001 |
| 21.611 | (2) | 14 mm | 12 mm | 0.001 |



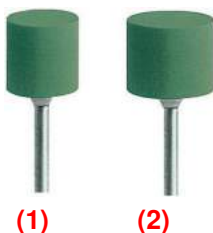
| MSA | | Ø | Thickness | Kg |
|----------|-----|-------|-----------|-------|
| 21.612 | (1) | 6 mm | 22 mm | 0.001 |
| 21.613 | (2) | 22 mm | 1 mm | 0.001 |
| 21.614 | (3) | 22 mm | 3 mm | 0.001 |
| 21.615 * | (4) | 2 mm | 20 mm | 0.001 |
| 21.616 * | (5) | 3 mm | 22 mm | 0.001 |

* Reference delivered without holder

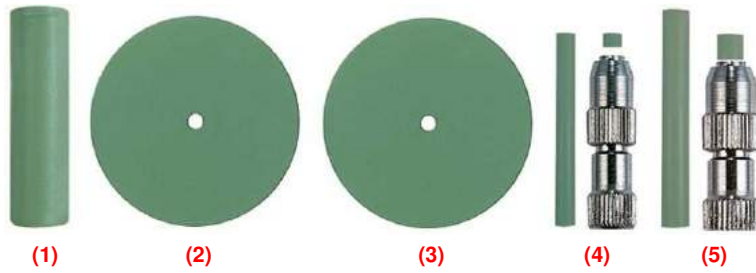
Rubber polishers for high-gloss polishing of gold, precious and semi-precious alloys.
Shank Ø 2.35 mm. Maximum speed 10'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|---------|-----------|-------|
| 21.617 | (1) | 6.0 mm | 10.0 mm | 0.001 |
| 21.618 | (2) | 3.0 mm | 6.0 mm | 0.001 |
| 21.619 | (3) | 5.5 mm | 15.5 mm | 0.001 |
| 21.620 | (4) | 5.5 mm | 16.3 mm | 0.001 |
| 21.621 | (5) | 5.0 mm | 16.0 mm | 0.001 |
| 21.623 | (6) | 15.0 mm | 2.5 mm | 0.001 |
| 21.624 | (7) | 22.0 mm | 0.6 mm | 0.001 |
| 21.626 | (8) | 14.5 mm | 2.0 mm | 0.001 |



| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.627 | (1) | 12 mm | 12 mm | 0.001 |
| 21.628 | (2) | 14 mm | 12 mm | 0.001 |



| MSA | | Ø | Thickness | Kg |
|----------|-----|-------|-----------|-------|
| 21.629 | (1) | 6 mm | 22 mm | 0.001 |
| 21.630 | (2) | 22 mm | 1 mm | 0.001 |
| 21.631 | (3) | 22 mm | 3 mm | 0.001 |
| 21.632 * | (4) | 2 mm | 20 mm | 0.001 |
| 21.633 * | (5) | 3 mm | 22 mm | 0.001 |

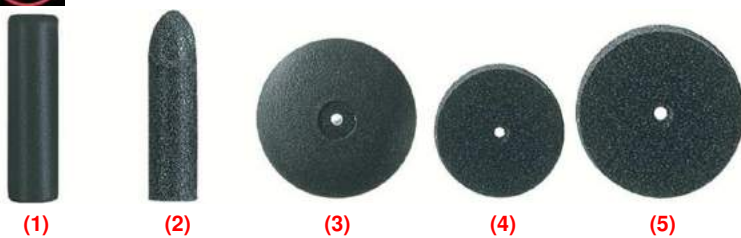
* Reference delivered without holder

Rubber polishers for high-gloss polishing of gold, precious and semi-precious alloys.
Shank Ø 2.35 mm. Maximum speed 10'000 rpm.



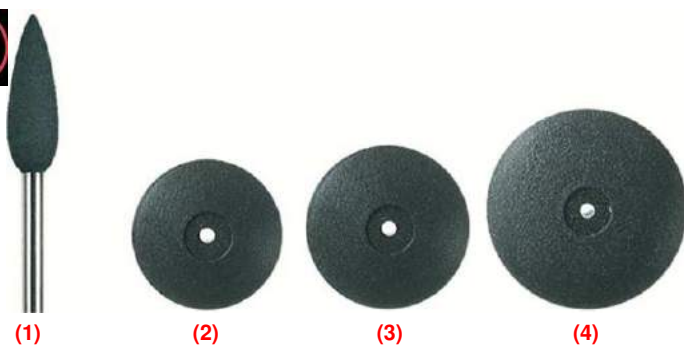
| MSA | | Ø | Thickness | Kg |
|--------|-----|---------|-----------|-------|
| 21.634 | (1) | 5.0 mm | 16.0 mm | 0.001 |
| 21.635 | (2) | 15.0 mm | 2.5 mm | 0.001 |
| 21.636 | (3) | 14.5 mm | 2.0 mm | 0.001 |

Silicon black universal polishers, suitable for precious metals and all alloys, chrome-cobalt and titanium.
Speed 20'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.637 | (1) | 7 mm | 21 mm | 0.001 |
| 21.638 | (2) | 6 mm | 23 mm | 0.001 |
| 21.639 | (3) | 22 mm | 3 mm | 0.001 |
| 21.640 | (4) | 17 mm | 3 mm | 0.001 |
| 21.641 | (5) | 22 mm | 3 mm | 0.001 |

Silicon black universal polishers, suitable for precious metals and all alloys, chrome-cobalt and titanium.
Speed 10'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|---------|-----------|-------|
| 21.642 | (1) | 5.5 mm | 16.3 mm | 0.001 |
| 21.644 | (2) | 15.0 mm | 2.5 mm | 0.001 |
| 21.645 | (3) | 17.0 mm | 3.0 mm | 0.001 |
| 21.646 | (4) | 22.0 mm | 3.0 mm | 0.001 |

Silicon polisher suitable for precious metals, chrome-cobalt and titanium.
Maximum speed 20'000 rpm.



| MSA | Ø | Thickness | Kg |
|--------|-------|-----------|-------|
| 21.599 | 22 mm | 3 mm | 0.001 |

Diamond polishing wheels suitable for titanium and platinum.
Maximum speed 5'000 rpm.



(1)



(2)

| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.801 | (1) | 25 mm | 2 mm | 0.022 |
| 21.802 | (2) | 25 mm | 2 mm | 0.022 |

Flexible polishers for removing scratches and smoothing the chrome-cobalt surfaces.
Maximum speed 20'000 rpm.



(1)



(2)



(3)



(4)



(5)

| MSA | | Ø | Thickness | Kg |
|----------|-----|-------|-----------|-------|
| 21.647 * | (1) | 2 mm | 20 mm | 0.001 |
| 21.648 * | (2) | 3 mm | 22 mm | 0.001 |
| 21.649 | (3) | 6 mm | 22 mm | 0.001 |
| 21.650 | (4) | 22 mm | 1 mm | 0.001 |
| 21.651 | (5) | 22 mm | 3 mm | 0.001 |

* Reference delivered without holder

Flexible polishers suitable for glazing precious stones and platinum.
Shank Ø 2.35 mm. Maximum speed 10'000 rpm.



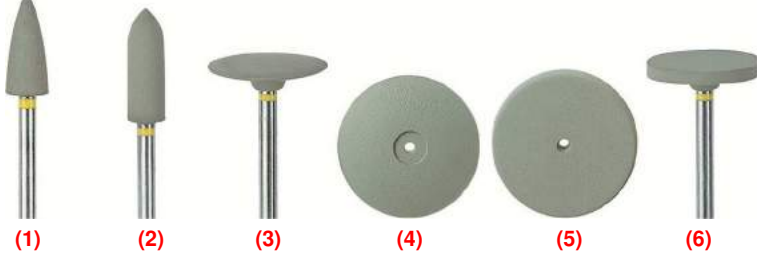
(1)



(2)

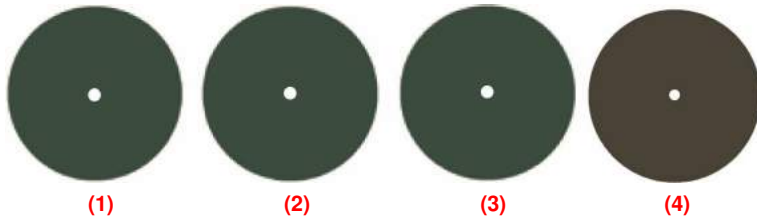
| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.670 | (1) | 5 mm | 16 mm | 0.001 |
| 21.750 | (2) | 22 mm | 3 mm | 0.001 |

Flexible polishers for gem stones and platinum ; provides a lustre high-gloss finishing.
Shank Ø 2.35 mm. Maximum speed 5'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|---------|-----------|-------|
| 21.652 | (1) | 5.5 mm | 15.5 mm | 0.001 |
| 21.653 | (2) | 5.0 mm | 16.0 mm | 0.001 |
| 21.654 | (3) | 15.0 mm | 2.5 mm | 0.001 |
| 21.655 | (4) | 22.0 mm | 3.0 mm | 0.001 |
| 21.656 | (5) | 22.0 mm | 3.0 mm | 0.001 |
| 21.657 | (6) | 14.5 mm | 2.0 mm | 0.001 |

Separating discs of synthetic resin with extra fine grain.
Speed 15'000-20'000 rpm.



| MSA | | Ø | Thickness | Kg |
|--------|-----|-------|-----------|-------|
| 21.667 | (1) | 22 mm | 0.20 mm | 0.001 |
| 21.668 | (2) | 22 mm | 0.25 mm | 0.001 |
| 21.669 | (3) | 22 mm | 0.30 mm | 0.001 |
| 21.671 | (4) | 25 mm | 0.60 mm | 0.001 |

Abrasive diamond polisher suitable for precise machining of precious materials.
Maximum speed 15'000 - 20'000 rpm.

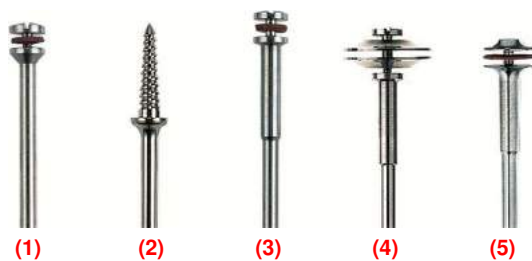


| MSA | | Ø | Thickness | Kg |
|--------|--|-------|-----------|-------|
| 21.800 | | 22 mm | 1.5 mm | 0.022 |

Stainless steel holders for polishers and discs.

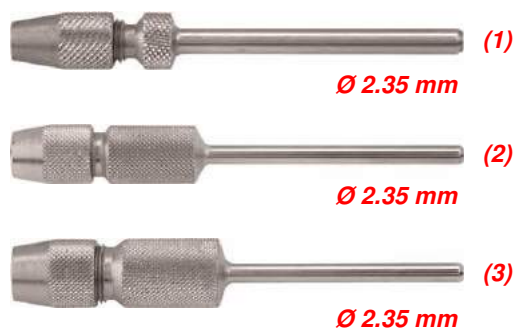


| MSA | | Ø | Length | Kg |
|--------|-----|------|--------|-------|
| 21.659 | (1) | 2 mm | 22 mm | 0.001 |
| 21.660 | (2) | 3 mm | 22 mm | 0.001 |



| MSA | | Ø | Length | Kg |
|--------|-----|-------|--------|-------|
| 21.661 | (1) | 5 mm | 3 mm | 0.001 |
| 21.662 | (2) | 5 mm | 13 mm | 0.001 |
| 21.663 | (3) | 5 mm | 3 mm | 0.001 |
| 21.664 | (4) | 14 mm | 3 mm | 0.001 |
| 21.665 | (5) | 8 mm | 3 mm | 0.001 |

Holders for circular-graining sticks.



| MSA | Use with | Kg |
|--------|---|-------|
| 21.700 | (1) For sticks \varnothing 1.5 MSA21.700-1x | 0.006 |
| 21.701 | For sticks \varnothing 2.0 MSA21.701-2x | 0.006 |
| 21.702 | For sticks \varnothing 2.5 MSA21.702-2.5x | 0.006 |
| 21.703 | (2) For sticks \varnothing 3.0 MSA21.703-3x | 0.006 |
| 21.704 | For sticks \varnothing 4.0 MSA21.704-4x | 0.006 |
| 21.705 | (3) For sticks \varnothing 5.0 MSA21.705-5x | 0.006 |
| 21.706 | For sticks \varnothing 6.0 MSA21.706-6x | 0.006 |

Holder for circular-graining sticks.

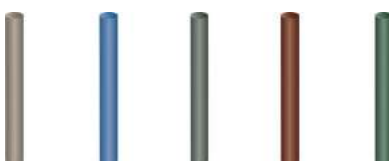
Circular-graining sticks.



| MSA | | \varnothing | Grain | Length | Kg |
|-----------|--|---------------|----------|--------|-------|
| 21.700-1A | | 1.5 mm | X-coarse | 15 mm | 0.001 |
| 21.700-1B | | 1.5 mm | Coarse | 15 mm | 0.001 |
| 21.700-1C | | 1.5 mm | Medium | 15 mm | 0.001 |
| 21.700-1D | | 1.5 mm | Fine | 15 mm | 0.001 |
| 21.700-1E | | 1.5 mm | X-fine | 15 mm | 0.001 |



| MSA | | \varnothing | Grain | Length | Kg |
|-----------|--|---------------|----------|--------|-------|
| 21.701-2A | | 2 mm | X-coarse | 20 mm | 0.001 |
| 21.701-2B | | 2 mm | Coarse | 20 mm | 0.001 |
| 21.701-2C | | 2 mm | Medium | 20 mm | 0.001 |
| 21.701-2D | | 2 mm | Fine | 20 mm | 0.001 |
| 21.701-2E | | 2 mm | X-fine | 20 mm | 0.001 |

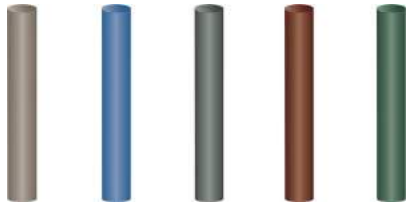


| MSA | | \varnothing | Grain | Length | Kg |
|------------|--|---------------|----------|--------|-------|
| 21.702-25A | | 2.5 mm | X-coarse | 20 mm | 0.001 |
| 21.702-25B | | 2.5 mm | Coarse | 20 mm | 0.001 |
| 21.702-25C | | 2.5 mm | Medium | 20 mm | 0.001 |
| 21.702-25D | | 2.5 mm | Fine | 20 mm | 0.001 |
| 21.702-25E | | 2.5 mm | X-fine | 20 mm | 0.001 |



| MSA | | \varnothing | Grain | Length | Kg |
|-----------|--|---------------|----------|--------|-------|
| 21.703-3A | | 3 mm | X-coarse | 23 mm | 0.001 |
| 21.703-3B | | 3 mm | Coarse | 23 mm | 0.001 |
| 21.703-3C | | 3 mm | Medium | 23 mm | 0.001 |
| 21.703-3D | | 3 mm | Fine | 23 mm | 0.001 |
| 21.703-3E | | 3 mm | X-fine | 23 mm | 0.001 |

CIRCULAR-GRAINING STICKS / DIAMOND GRINDING STONE



| MSA | | Ø | Grain | Length | Kg |
|-----------|--|------|----------|--------|-------|
| 21.704-4A | | 4 mm | X-coarse | 26 mm | 0.001 |
| 21.704-4B | | 4 mm | Coarse | 26 mm | 0.001 |
| 21.704-4C | | 4 mm | Medium | 26 mm | 0.001 |
| 21.704-4D | | 4 mm | Fine | 26 mm | 0.001 |
| 21.704-4E | | 4 mm | X-fine | 26 mm | 0.001 |



| MSA | | Ø | Grain | Length | Kg |
|-----------|--|------|----------|--------|-------|
| 21.705-5A | | 5 mm | X-coarse | 28 mm | 0.001 |
| 21.705-5B | | 5 mm | Coarse | 28 mm | 0.001 |
| 21.705-5C | | 5 mm | Medium | 28 mm | 0.001 |
| 21.705-5D | | 5 mm | Fine | 28 mm | 0.001 |
| 21.705-5E | | 5 mm | X-fine | 28 mm | 0.001 |



| MSA | | Ø | Grain | Length | Kg |
|-----------|--|------|----------|--------|-------|
| 21.706-6A | | 6 mm | X-coarse | 22 mm | 0.001 |
| 21.706-6B | | 6 mm | Coarse | 22 mm | 0.001 |
| 21.706-6C | | 6 mm | Medium | 22 mm | 0.001 |
| 21.706-6D | | 6 mm | Fine | 22 mm | 0.001 |
| 21.706-6E | | 6 mm | X-fine | 22 mm | 0.001 |

Diamond grinding stone.



| MSA | Length | Kg |
|--------|--------|-------|
| 21.666 | 116 mm | 0.053 |

Diamond grinding stone for dressing, shaping and restoring of deformed silicon and stones polishers ; all sides coated.

Polishing hand brushes.



| MSA | Material | Hardness | Rows | Size | Kg |
|--------|-------------------|----------|------|------------------|-------|
| 21.200 | Black bristle | Medium | 3 | 225 x 16 x 10 mm | 0.027 |
| 21.201 | (1) Black bristle | Hard | 4 | 260 x 16 x 8 mm | 0.035 |

Hand brush with wooden handle.



| MSA | Material | Hardness | Rows | Size | Kg |
|--------|-------------------|-----------------|------|-----------------|-------|
| 21.210 | (1) White bristle | N° 0 very hard | 4 | 260 x 16 x 8 mm | 0.033 |
| 21.211 | White bristle | N° 1 hard | 4 | 260 x 16 x 8 mm | 0.032 |
| 21.215 | White bristle | N° 2 medium | 4 | 260 x 16 x 8 mm | 0.034 |
| 21.212 | White bristle | N° 3 soft | 4 | 260 x 16 x 8 mm | 0.036 |
| 21.213 | White bristle | N° 4 extra-soft | 4 | 260 x 16 x 8 mm | 0.035 |

Hand brush with wooden handle.



| MSA | Material | Rows | Size | Kg |
|--------|-----------------------|------|-----------------|-------|
| 21.216 | Nylon® wire Ø 0.20 mm | 4 | 260 x 16 x 8 mm | 0.034 |

Hand brush with wooden handle.



| MSA | Material | Rows | Size | Kg |
|--------|--------------------------|------|-----------------|-------|
| 21.251 | (1) Brass wire Ø 0.10 mm | 4 | 220 x 18 x 9 mm | 0.038 |
| 21.252 | Steel wire Ø 0.10 mm | 4 | 220 x 18 x 9 mm | 0.045 |

Hand brush with wooden handle.



| MSA | Material | Size | Kg |
|--------|------------|------------------|-------|
| 21.260 | Steel wire | 240 x 28 x 20 mm | 0.054 |

Brush for files cleaning with wooden handle.

Brushes.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.158 | Ø 14 x 120 mm | 0.005 |

Benzine brush with aluminium handle. White bristle.



| MSA | Size | Kg |
|--------|-------------|-------|
| 26.190 | 215 x 30 mm | 0.020 |
| 26.159 | 215 x 40 mm | 0.026 |
| 26.191 | 215 x 60 mm | 0.035 |

Flat brush with wooden handle.



| MSA | Size | Kg |
|--------|-------------|-------|
| 26.163 | 100 x 30 mm | 0.015 |

Flat brush with wooden handle. White bristle.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.162 | Ø 10 x 100 mm | 0.005 |

Extra soft double bristle brush, ideal for cleaning dials. Small grey hair.

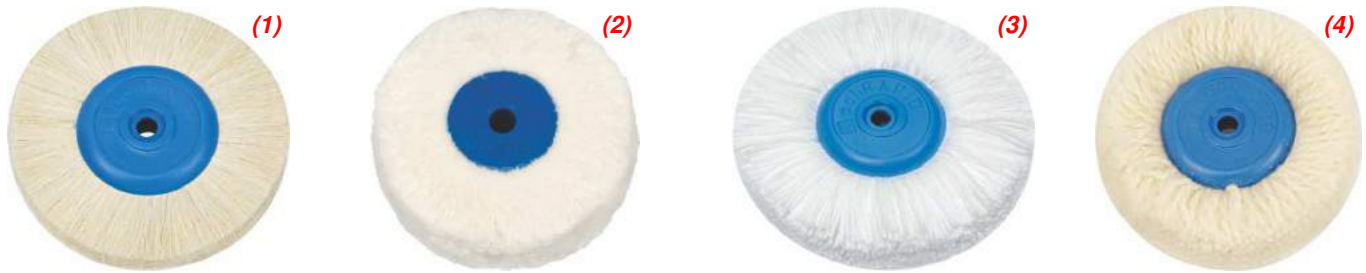


| MSA | Size | Kg |
|--------|--------------|-------|
| 26.164 | Ø 6 x 125 mm | 0.003 |

Stencil brush.

CIRCULAR BRUSHES

Circular polishing brushes.



| MSA | Type | Material | Ø ext. | Kg | |
|--------|------|----------|-----------|--------|-------|
| 21.310 | (1) | 32P/90 | Goat hair | 90 mm | 0.040 |
| 21.340 | (2) | 2/70P | Cotton | 70 mm | 0.043 |
| 21.341 | | 3/80P | Cotton | 80 mm | 0.068 |
| 21.342 | | 4/90P | Cotton | 90 mm | 0.070 |
| 21.343 | | 5/100P | Cotton | 100 mm | 0.090 |

| MSA | Type | Material | Ø ext. | Kg | |
|--------|------|----------|-------------|-------|-------|
| 21.350 | (3) | 20/80 | Cotton yarn | 80 mm | 0.038 |
| 21.351 | | 20/90 | Cotton yarn | 90 mm | 0.035 |
| 21.355 | (4) | 20W/80 | Wool | 80 mm | 0.032 |
| 21.356 | | 20W/90 | Wool | 90 mm | 0.033 |

Top quality circular polishing brush, with plastic hub.



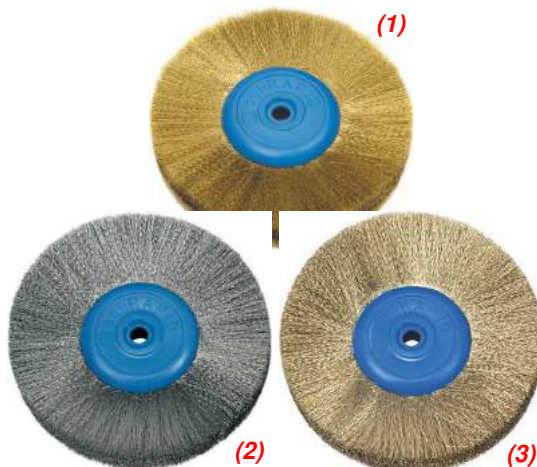
| MSA | Type | Material | Ø ext. | Rows | Kg |
|--------|---------|---------------|--------|------|-------|
| 21.330 | 3/40/80 | White bristle | 80 mm | 3 | 0.030 |
| 21.331 | 4/40/80 | White bristle | 80 mm | 4 | 0.034 |

PRIMA top quality very hard circular polishing brush, wooden hub. Converging rows.



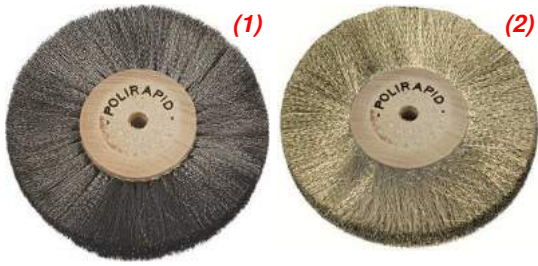
| MSA | Type | Material | Ø ext. | Rows | Kg |
|--------|---------|---------------|--------|------|-------|
| 21.320 | 3/40/80 | Black bristle | 80 mm | 3 | 0.032 |
| 21.322 | 5/45/90 | Black bristle | 90 mm | 5 | 0.036 |

SUPREMA top quality extra-hard circular polishing brush, wooden hub. Converging rows.



| MSA | Type | Material | Ø ext. | Ø wire | Kg | |
|--------|------|------------|--------------------|--------|---------|-------|
| 21.370 | (1) | 22P/08/090 | Brass wire | 90 mm | 0.08 mm | 0.136 |
| 21.380 | (2) | 25P/08/090 | Steel wire | 90 mm | 0.08 mm | 0.090 |
| 21.390 | (3) | 23P/08/090 | German silver wire | 90 mm | 0.08 mm | 0.143 |

Top quality circular polishing brush, plastic hub.



| MSA | Type | Material | Ø ext. | Ø wire | Kg |
|--------------|-----------|--------------------|--------|---------|-------|
| 21.380-B (1) | 25/08/090 | Steel wire | 90 mm | 0.08 mm | 0.090 |
| 21.382-B | 25/10/100 | Steel wire | 100 mm | 0.10 mm | 0.090 |
| 21.390-B (2) | 23/08/090 | German silver wire | 90 mm | 0.08 mm | 0.143 |

Top quality circular polishing brush, wooden hub.



| MSA | Type | Material | Ø ext. | Rows | Kg |
|--------|------------|---------------|--------|------|-------|
| 21.319 | Chung-King | Black bristle | 80 mm | 4 | 0.040 |

Top quality hard circular polishing brush, wooden hub. Converging rows.

Satin finish brushes.



| MSA | Type | Grain | Size | Kg |
|------------|------|------------|---------------|-------|
| 21.413 (1) | FB6 | Medium | Ø 100 x 25 mm | 0.100 |
| 21.414 (2) | FB6 | Fine | Ø 100 x 25 mm | 0.100 |
| 21.415 (3) | FB6 | Extra-fine | Ø 100 x 25 mm | 0.100 |

BUFFLEX® FB6 satin finish brush.

Used without compound.

Fast and easy to clean with water or air pressure. Regular erosion. Central hole Ø 6 mm.

Soft grinding-wheels.



| MSA | Type | Grain | Size | Use with | Kg |
|--------|---------|----------------------|---------------|-------------------|-------|
| 21.070 | SC46MP | Very coarse (medium) | Ø 100 x 20 mm | Pre-satin finish | 0.180 |
| 21.071 | SC46WP | Very coarse (soft) | Ø 100 x 20 mm | Pre-satin finish | 0.180 |
| 21.077 | SC80MP | Coarse (medium) | Ø 100 x 20 mm | Pre-satin finish | 0.180 |
| 21.078 | SC80WP | Coarse (soft) | Ø 100 x 20 mm | Pre-satin finish | 0.180 |
| 21.075 | SC80VAP | Coarse (very soft) | Ø 100 x 20 mm | Pre-satin finish | 0.180 |
| 21.073 | SC150WP | Medium (soft) | Ø 100 x 20 mm | Satin-finish | 0.178 |
| 21.074 | SC250MP | Fine (medium) | Ø 100 x 20 mm | Fine satin-finish | 0.170 |

ARTIFEX soft silicon carbide grinding-wheel to polish or satin all sorts of metal.

Delivered with a removable hole diameter reducer Ø 6 mm.



| MSA | Kg |
|--------|-------|
| 21.080 | 0.002 |

Reducer for ARTIFEX grinding-wheels.

Ø 25 mm to Ø 6 mm.

CIRCULAR BRUSHES



| MSA | Kg |
|--------|-------|
| 21.090 | 0.196 |

True tool for silicon carbide grinding-wheels.

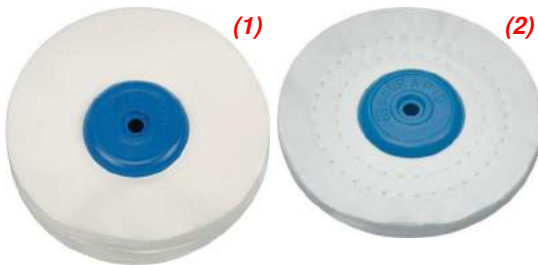
Flap wheels.



| MSA | Type | Grain | Size | Kg |
|------------|-----------|-------|--------------|-------|
| 21.052-120 | 0839.9170 | 120 | Ø 80 x 30 mm | 0.122 |
| 21.052-180 | 0028.9170 | 180 | Ø 80 x 30 mm | 0.119 |

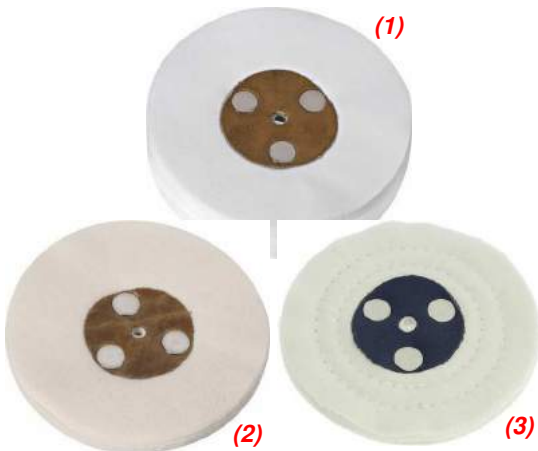
SIAMOP flap wheel on shank Ø 6 mm.

Polishing discs.



| MSA | Type | Material | Size | Kg |
|--------|---------------|-----------------|---------------|-------|
| 21.420 | (1) 29P/100/9 | Canvas | Ø 100 x 9 mm | 0.052 |
| 21.421 | 29P/100/12 | Canvas | Ø 100 x 12 mm | 0.064 |
| 21.430 | (2) 29c/100/6 | Stitched canvas | Ø 100 x 6 mm | 0.040 |

Top quality polishing disc, plastic hub.



| MSA | Type | Material | Size | Kg |
|--------|---------------|------------------|---------------|-------|
| 21.422 | (1) 29/100/18 | Canvas | Ø 100 x 18 mm | 0.092 |
| 21.423 | 29/100/24 | Canvas | Ø 100 x 24 mm | 0.133 |
| 21.424 | 29/125/30 | Canvas | Ø 125 x 30 mm | 0.230 |
| 21.450 | (2) 30/100/6 | Flannel | Ø 100 x 6 mm | 0.025 |
| 21.452 | 30/100/12 | Flannel | Ø 100 x 12 mm | 0.035 |
| 21.460 | (3) 30c/100/6 | Stitched flannel | Ø 100 x 6 mm | 0.035 |

Top quality polishing disc, leather hub.



| MSA | Type | Material | Ø | Ø hole | Kg |
|--------|------|--------------|--------|--------|-------|
| 21.427 | W 30 | Coton canvas | 100 mm | 6 mm | 0.098 |

BUFFLEX polishing disc with 60 agraphed sheets on carton hub.



| MSA | Type | Material | Ø ext. | Ply | Kg |
|--------|----------|----------|--------|-----|-------|
| 21.480 | 27/4/90 | Felt | 90 mm | 4 | 0.026 |
| 21.481 | 27/4/100 | Felt | 100 mm | 4 | 0.027 |
| 21.483 | 27/6/100 | Felt | 100 mm | 6 | 0.040 |

Top quality polishing disc, plastic hub.

Polishing comb.



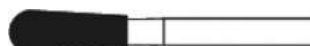
| MSA | Kg |
|--------|-------|
| 21.485 | 0.475 |

Polishing comb.

This comb is indispensable for cleaning and sizing the polishing cloth. It eliminates the hardness resulting from the polishing compound build and gives an extended life to the wheels.

Size without handles : 130 x 90 x 3 mm.

22



HOROTEC® END MILLS

22 - 2

HOROTEC® REAMERS

22 - 7

END MILLS

22 - 9

DIAMOND BURS

22 - 19

DRILLS

22 - 35

Hard metal end mills.



ASSORTMENT



| MSA | Size | Kg |
|--------|------------------|-------|
| 22.566 | 125 x 81 x 50 mm | 0.260 |

Assortment of 12 hard metal end mills and 11 steel pivots. The pivots work as a guide in the hole and the end mills trim the desired part. The pivots are interchangeable with every end mill. It can be used by hand or on a press. *Delivered in a wooden box.*

* Items in the assortment MSA22.566

Spare end mills :

| MSA | Item | Kg |
|---------------|---------------------------|-------|
| 22.566-F100 | End mill, Ø 1.00 x L20 mm | 0.001 |
| 22.566-F120 * | End mill, Ø 1.20 x L20 mm | 0.001 |
| 22.566-F150 * | End mill, Ø 1.50 x L20 mm | 0.001 |
| 22.566-F175 * | End mill, Ø 1.75 x L20 mm | 0.001 |
| 22.566-F180 | End mill, Ø 1.80 x L20 mm | 0.001 |
| 22.566-F200 * | End mill, Ø 2.00 x L20 mm | 0.001 |
| 22.566-F225 * | End mill, Ø 2.25 x L20 mm | 0.001 |
| 22.566-F250 * | End mill, Ø 2.50 x L20 mm | 0.001 |
| 22.566-F275 * | End mill, Ø 2.75 x L20 mm | 0.001 |
| 22.566-F300 * | End mill, Ø 3.00 x L20 mm | 0.001 |
| 22.566-F325 * | End mill, Ø 3.25 x L20 mm | 0.002 |
| 22.566-F350 * | End mill, Ø 3.50 x L20 mm | 0.002 |
| 22.566-F375 * | End mill, Ø 3.75 x L20 mm | 0.002 |
| 22.566-F400 * | End mill, Ø 4.00 x L20 mm | 0.002 |

Spare pivots :

| MSA | Item | Kg |
|---------------|-------------------------------|-------|
| 22.566-P040 | Pivot, Ø 0.40 (a) x L24.50 mm | 0.001 |
| 22.566-P050 * | Pivot, Ø 0.50 (a) x L24.50 mm | 0.001 |
| 22.566-P060 * | Pivot, Ø 0.60 (a) x L24.50 mm | 0.001 |
| 22.566-P070 * | Pivot, Ø 0.70 (a) x L24.50 mm | 0.001 |
| 22.566-P080 * | Pivot, Ø 0.80 (a) x L24.50 mm | 0.001 |
| 22.566-P090 * | Pivot, Ø 0.90 (a) x L24.50 mm | 0.001 |
| 22.566-P100 * | Pivot, Ø 1.00 (a) x L24.50 mm | 0.001 |
| 22.566-P110 * | Pivot, Ø 1.10 (a) x L24.50 mm | 0.001 |
| 22.566-P120 * | Pivot, Ø 1.20 (a) x L24.50 mm | 0.001 |
| 22.566-P130 * | Pivot, Ø 1.30 (a) x L24.50 mm | 0.001 |
| 22.566-P140 * | Pivot, Ø 1.40 (a) x L24.50 mm | 0.001 |
| 22.566-P150 * | Pivot, Ø 1.50 (a) x L24.50 mm | 0.001 |

Spare tool holder :

| MSA | Item | Kg |
|----------|------------------------|-------|
| 22.568 * | Pivot, Ø 4.70 x L90 mm | 0.011 |

Hard metal screw shoulder end mills with 5 cutters.



ASSORTMENT



| MSA | Size | Kg |
|--------|-----------------|-------|
| 22.590 | 80 x 35 x 10 mm | 0.060 |

Assortment of 16 hard metal screw shoulder end mills with 5 cutters, allowing the adjustment of the shoulder height of chronographer screws. Each end mill is easily replaceable thanks to a side screw holding it.

* Items in the assortment MSA22.590

Spare parts :

| MSA | Item | Kg |
|--------------|------------------------|-------|
| 22.590-030 | (1) End mill Ø 0.30 mm | 0.002 |
| 22.590-035 | End mill Ø 0.35 mm | 0.002 |
| 22.590-040 | End mill Ø 0.40 mm | 0.002 |
| 22.590-045 | End mill Ø 0.45 mm | 0.002 |
| 22.590-050 * | End mill Ø 0.50 mm | 0.002 |
| 22.590-055 * | End mill Ø 0.55 mm | 0.002 |
| 22.590-060 * | End mill Ø 0.60 mm | 0.002 |
| 22.590-065 * | End mill Ø 0.65 mm | 0.002 |
| 22.590-070 * | End mill Ø 0.70 mm | 0.002 |
| 22.590-075 * | End mill Ø 0.75 mm | 0.002 |
| 22.590-080 * | End mill Ø 0.80 mm | 0.002 |
| 22.590-085 * | End mill Ø 0.85 mm | 0.002 |
| 22.590-090 * | End mill Ø 0.90 mm | 0.002 |
| 22.590-095 * | End mill Ø 0.95 mm | 0.002 |
| 22.590-100 * | End mill Ø 1.00 mm | 0.002 |
| 22.590-105 | End mill Ø 1.05 mm | 0.002 |
| 22.590-110 * | End mill Ø 1.10 mm | 0.002 |
| 22.590-115 | End mill Ø 1.15 mm | 0.002 |
| 22.590-120 * | End mill Ø 1.20 mm | 0.002 |
| 22.590-125 | End mill Ø 1.25 mm | 0.002 |
| 22.590-130 * | End mill Ø 1.30 mm | 0.002 |
| 22.590-140 * | End mill Ø 1.40 mm | 0.002 |
| 22.590-150 * | End mill Ø 1.50 mm | 0.002 |
| 22.590-160 | End mill Ø 1.60 mm | 0.002 |
| 22.590-170 | End mill Ø 1.70 mm | 0.002 |
| 22.590-180 | End mill Ø 1.80 mm | 0.002 |
| 22.590-190 | End mill Ø 1.90 mm | 0.002 |
| 22.590-A | Plate | 0.036 |
| 22.590-C | (2) Side screw | 0.001 |

Double ended wheel countersinks.



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 22.560 | 0.030 |

Assortment of 4 hardened steel double ended wheel countersinks. Wheels diameter : 1.80-2.10 / 2.50-3.00 / 3.50-4.00 / 4.50-5.00 mm. Delivered in a plastic pouch.

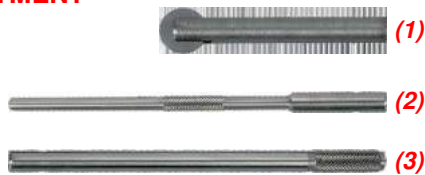
Spare parts :

| MSA | Item | Kg |
|-----------|--|-------|
| 22.560-01 | Double ended wheel countersink, Ø 1.80-2.10 mm | 0.005 |
| 22.560-02 | Double ended wheel countersink, Ø 2.50-3.00 mm | 0.005 |
| 22.560-03 | Double ended wheel countersink, Ø 3.50-4.00 mm | 0.005 |
| 22.560-04 | Double ended wheel countersink, Ø 4.50-5.00 mm | 0.005 |

Wheel countersinks.



ASSORTMENT



| MSA | Size | Kg |
|--------|------------------|-------|
| 22.559 | 125 x 81 x 50 mm | 0.265 |

Assortment of 14 wheel countersinks specially conceived to release the mouldings (collets, screw openings, etc.), mounted on a conical handle.
 Delivered in a wooden box with :
 - 2 tool holders MSA22.564-030 and MSA22.564-047 (for use by hand or on a press)
 - 14 wheel countersinks (2 of each diameter)

Spare parts :

| MSA | Item | Kg |
|------------|---|-------|
| 22.562-150 | (1) HM wheel countersinks Ø 1.50 mm, length 25 mm | 0.001 |
| 22.562-200 | HM wheel countersinks Ø 2.00 mm, length 25 mm | 0.001 |
| 22.562-250 | HM wheel countersinks Ø 2.50 mm, length 25 mm | 0.001 |
| 22.562-300 | HM wheel countersinks Ø 3.00 mm, length 25 mm | 0.001 |
| 22.562-350 | HM wheel countersinks Ø 3.50 mm, length 25 mm | 0.001 |
| 22.562-400 | HM wheel countersinks Ø 4.00 mm, length 25 mm | 0.001 |
| 22.562-450 | HM wheel countersinks Ø 4.50 mm, length 25 mm | 0.001 |
| 22.564-030 | (2) Tools holder Ø 3.00 mm, length 100 mmm Manual use | 0.008 |
| 22.564-047 | (3) Tools holder Ø 4.70 mm, length 90 mmm Use on a press | 0.012 |



ASSORTMENT



| MSA | Size | Kg |
|--------|------------------|-------|
| 22.565 | 125 x 81 x 50 mm | 0.290 |

Assortment of 14 wheel countersinks containing :
 - 7 hard metal wheel countersinks, specially conceived to release the mouldings (collets, screw openings, etc.), mounted on a conical handle
 - 7 ruby wheel countersinks for polishing mouldings, mounted on a conical handle. It can be used with or without lubricants. Using the ruby wheel countersinks guarantees a smothering surface than ever.
 Both countersinks must be used successively (1st : tungsten carbide / 2nd : ruby) to obtain a perfect polish.
Delivered in a wooden box with 2 tool holders MSA22.564-030 and MSA22.564-047 (for use by hand or on a press).

Spare parts :

| MSA | Item | Kg |
|------------|--|-------|
| 22.562-150 | (1) HM wheel countersinks Ø 1.50 mm, length 25 mm | 0.001 |
| 22.562-200 | HM wheel countersinks Ø 2.00 mm, length 25 mm | 0.001 |
| 22.562-250 | HM wheel countersinks Ø 2.50 mm, length 25 mm | 0.001 |
| 22.562-300 | HM wheel countersinks Ø 3.00 mm, length 25 mm | 0.001 |
| 22.562-350 | HM wheel countersinks Ø 3.50 mm, length 25 mm | 0.001 |
| 22.562-400 | HM wheel countersinks Ø 4.00 mm, length 25 mm | 0.001 |
| 22.562-450 | HM wheel countersinks Ø 4.50 mm, length 25 mm | 0.001 |
| 22.563-150 | (2) Ruby wheel countersinks Ø 1.50 mm, length 25 mm | 0.001 |
| 22.563-200 | Ruby wheel countersinks Ø 2.00 mm, length 25 mm | 0.001 |
| 22.563-250 | Ruby wheel countersinks Ø 2.50 mm, length 25 mm | 0.001 |
| 22.563-300 | Ruby wheel countersinks Ø 3.00 mm, length 25 mm | 0.001 |
| 22.563-350 | Ruby wheel countersinks Ø 3.50 mm, length 25 mm | 0.001 |
| 22.563-400 | Ruby wheel countersinks Ø 4.00 mm, length 25 mm | 0.001 |
| 22.563-450 | Ruby wheel countersinks Ø 4.50 mm, length 25 mm | 0.001 |
| 22.564-030 | (3) Tools holder Ø 3.00 mm, length 100 mmm Manual use | 0.008 |
| 22.564-047 | (4) Tools holder Ø 4.70 mm, length 90 mm Use on a press | 0.012 |

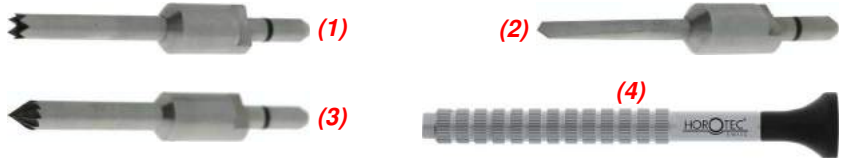
End mills for removing burrs and bevelling.



ASSORTMENT

| MSA | Size | Kg |
|--------|-------------------|-------|
| 22.577 | 130 x 105 x 25 mm | 0.123 |

Assortment of 12 hard metal end mills for removing burrs and bevelling. Delivered with an aluminium handle in a plastic box.



Spare parts :

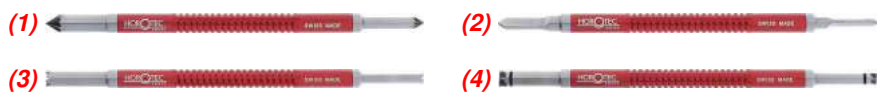
| MSA | Item | Kg |
|-----------|--|-------|
| 22.577-11 | End mill for deburring screws ends, Ø 0.90 mm | 0.002 |
| 22.577-12 | End mill for deburring screws ends, Ø 1.30 mm | 0.002 |
| 22.577-05 | (1) End mill for deburring screws ends, Ø 2.50 mm | 0.002 |
| 22.577-07 | End mill for deburring screws ends (4 teeth), Ø 3 mm | 0.002 |
| 22.577-06 | End mill for deburring screws ends, Ø 4 mm | 0.003 |
| 22.577-08 | End mill for deburring screws ends (4 teeth), Ø 4 mm | 0.003 |
| - | - | - |
| 22.577-09 | End mill for bevelling, Ø 1.00 mm | 0.001 |
| 22.577-10 | (2) End mill for bevelling, Ø 2.00 mm | 0.001 |
| 22.577-03 | End mill for bevelling, Ø 3.00 mm | 0.002 |
| 22.577-04 | End mill for bevelling, Ø 4.00 mm | 0.002 |
| - | - | - |
| 22.577-01 | (3) Conical end mill, Ø 3.00 mm | 0.002 |
| 22.577-02 | Conical end mill, Ø 4.50 mm | 0.003 |
| - | - | - |
| 22.577-A | (4) Handle | 0.011 |



ASSORTMENT

| MSA | Size | Kg |
|--------|------------------|-------|
| 22.578 | 122 x 70 x 30 mm | 0.126 |

Assortment of 6 hard metal double end mills for removing burrs and bevelling (Hardness Rockwell 62-64). Delivered with an aluminium anodised red handle in a wooden box.



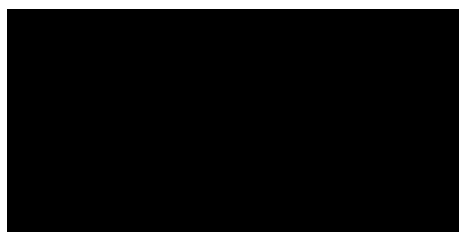
Spare parts :

| MSA | Item | Kg |
|-----------|---|-------|
| 22.578-01 | (1) Conical double end mill, Ø 3.00-4.50 mm | 0.007 |
| 22.578-02 | (2) Double end mill for bevelling, Ø 3.00-4.00 mm | 0.006 |
| 22.578-05 | Double end mill for bevelling, Ø 1.00-2.00 mm | 0.002 |
| 22.578-03 | (3) Double end mill for deburring screws ends, Ø 2.50-4.00 mm | 0.006 |
| 22.578-06 | Double end mill for deburring screws ends, Ø 0.90-1.30 mm | 0.002 |
| 22.578-04 | (4) End mill for deburring with 4 teeth, Ø 3.00-4.00 mm | 0.007 |

Cone shape hard metal reamers.



ASSORTMENT



(MSA22.567-119)



| MSA | Size | Kg |
|--------|------------------|-------|
| 22.567 | 125 x 81 x 50 mm | 0.250 |

Assortment of 12 cone shaped hard metal reamers for the drilling finishing (example : hand hole).
Suggested use with a press.
Delivered in a wooden box.

* Items in the assortment MSA22.567

Spare reamers :

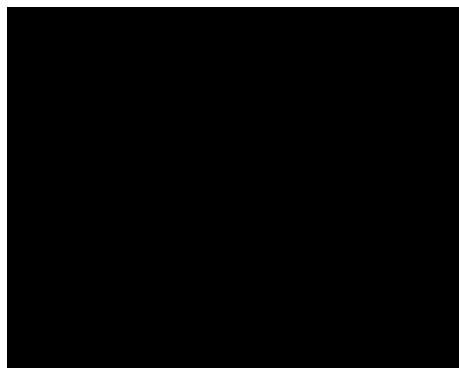
| MSA | Item | Kg |
|--------------|----------------------------------|-------|
| 22.567-053 | Reamer no. 53, Ø 0.53 x L 25 mm | 0.001 |
| 22.567-054 | Reamer no. 54, Ø 0.54 x L 25 mm | 0.001 |
| 22.567-055 | Reamer no. 55, Ø 0.55 x L 25 mm | 0.001 |
| 22.567-069 * | Reamer no. 69, Ø 0.69 x L 25 mm | 0.001 |
| 22.567-079 * | Reamer no. 79, Ø 0.79 x L 25 mm | 0.001 |
| 22.567-089 * | Reamer no. 89, Ø 0.89 x L 25 mm | 0.001 |
| 22.567-099 * | Reamer no. 99, Ø 0.99 x L 25 mm | 0.001 |
| 22.567-109 * | Reamer no. 109, Ø 1.09 x L 25 mm | 0.001 |
| 22.567-119 * | Reamer no. 119, Ø 1.19 x L 25 mm | 0.001 |
| 22.567-129 * | Reamer no. 129, Ø 1.29 x L 25 mm | 0.001 |
| 22.567-139 * | Reamer no. 139, Ø 1.39 x L 25 mm | 0.001 |
| 22.567-149 * | Reamer no. 149, Ø 1.49 x L 25 mm | 0.001 |
| 22.567-159 * | Reamer no. 159, Ø 1.59 x L 25 mm | 0.001 |
| 22.567-169 * | Reamer no. 169, Ø 1.69 x L 25 mm | 0.001 |
| 22.567-179 * | Reamer no. 179, Ø 1.79 x L 25 mm | 0.001 |

Spare tool holder :

| MSA | Item | Kg |
|----------|------------------------|-------|
| 22.568 * | Pivot, Ø 4.70 x L90 mm | 0.011 |



ASSORTMENT



(MSA22.571-096/106)



| MSA | Size | Kg |
|--------|------------------|-------|
| 22.571 | 145 x 75 x 40 mm | 0.250 |

Assortment of 12 cone shaped hard metal reamers for the drilling finishing (example : hand hole).
Suggested use with a press.
Delivered in a wooden box.

* Items in the assortment MSA22.571

Spare reamers :

| MSA | Item | Kg |
|----------------|----------------------------------|-------|
| 22.571-032/042 | Reamer Ø 0.32...0.42 x L19.50 mm | 0.001 |
| 22.571-040/050 | Reamer Ø 0.40...0.50 x L19.50 mm | 0.001 |
| 22.571-048/058 | Reamer Ø 0.48...0.58 x L19.50 mm | 0.001 |
| 22.571-056/066 | Reamer Ø 0.56...0.66 x L19.50 mm | 0.001 |
| 22.571-064/074 | Reamer Ø 0.64...0.74 x L19.50 mm | 0.001 |
| 22.571-072/082 | Reamer Ø 0.72...0.82 x L19.50 mm | 0.001 |
| 22.571-080/090 | Reamer Ø 0.80...0.90 x L19.50 mm | 0.001 |
| 22.571-088/098 | Reamer Ø 0.88...0.98 x L19.50 mm | 0.001 |
| 22.571-096/106 | Reamer Ø 0.96...1.06 x L19.50 mm | 0.001 |
| 22.571-104/114 | Reamer Ø 1.04...1.14 x L19.50 mm | 0.001 |
| 22.571-112/122 | Reamer Ø 1.12...1.22 x L19.50 mm | 0.001 |
| 22.571-120/130 | Reamer Ø 1.20...1.30 x L19.50 mm | 0.001 |

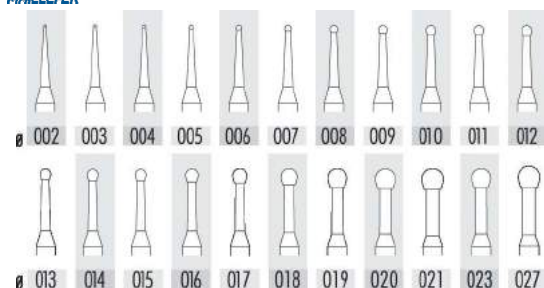
Spare tool holder :

| MSA | Item | Kg |
|--------|------------------------|-------|
| 22.568 | Pivot, Ø 4.70 x L90 mm | 0.011 |

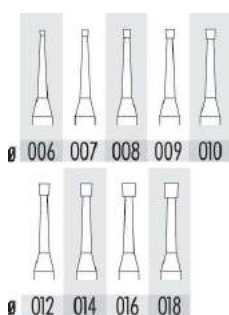
Tungsten carbide burs, shank Ø 2.35 mm.

Order example : MSA22.400-xxxx
(Extensions 3 digits = Ø head mm)

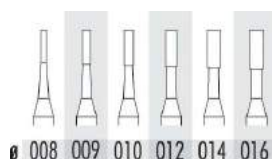
MSA22.400-008 = Ø head 0.80 mm
MSA22.400-027 = Ø head 2.70 mm



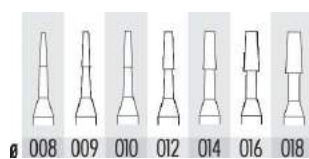
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.400-002 | 123 | Round | 0.20 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.400-027 | 123 | Round | 2.70 mm | 0.001 |



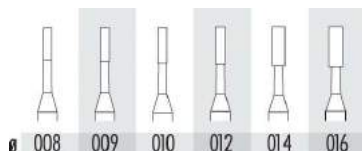
| MSA | Type | Shape | Ø head | Kg |
|------------|------|---------------|---------|-------|
| 22.401-006 | 124 | Inverted cone | 0.60 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.401-018 | 124 | Inverted cone | 1.80 mm | 0.001 |



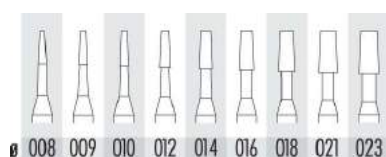
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.404-008 | 129 | Cylindrical | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.404-016 | 129 | Cylindrical | 1.60 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.405-008 | 130 | Cone | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.405-018 | 130 | Cone | 1.80 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.407-008 | 137 | Cylindrical | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.407-016 | 137 | Cylindrical | 1.60 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.408-008 | 138 | Cone | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.408-023 | 138 | Cone | 2.30 mm | 0.001 |



END MILLS

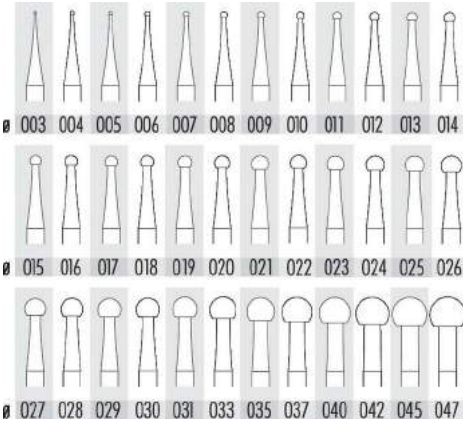


| MSA | Type | Length | Ø head | Kg |
|----------|----------|----------|--------|-------|
| 22.450 | Standard | 12.20 mm | 6 mm | 0.002 |
| 22.450-F | Fine | 12.20 mm | 6 mm | 0.002 |


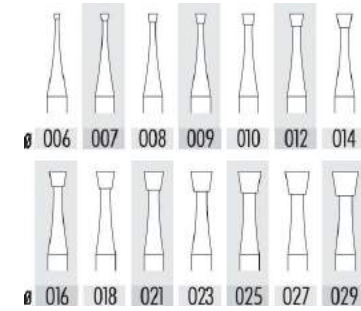
Tool steel burs, shank Ø 2.35 mm.

Order example : MSA22.300-xxxx
(Extensions 3 digits = Ø head mm)


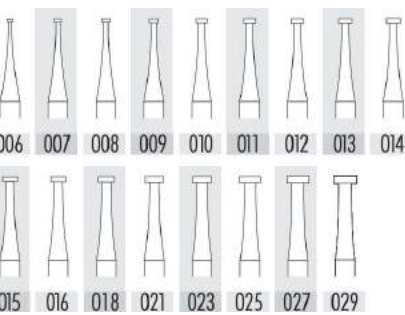
MSA22.300-003 = Ø head 0.30 mm
MSA22.400-047 = Ø head 4.70 mm




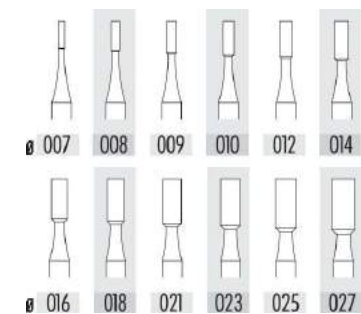
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|----------|-------|
| 22.300-003 | 23 | Round | 0.30 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.300-100 | 23 | Round | 10.00 mm | 0.001 |


| MSA | Type | Shape | Ø head | Kg |
|------------|------|---------------|---------|-------|
| 22.301-006 | 24 | Inverted cone | 0.60 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.301-029 | 24 | Inverted cone | 2.90 mm | 0.001 |

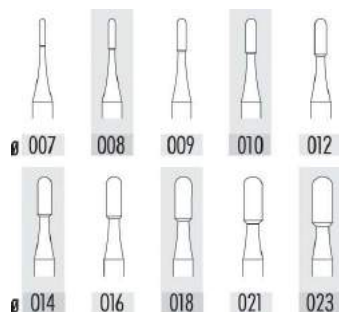



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.302-006 | 25 | Wheel | 0.60 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.302-029 | 25 | Wheel | 2.90 mm | 0.001 |

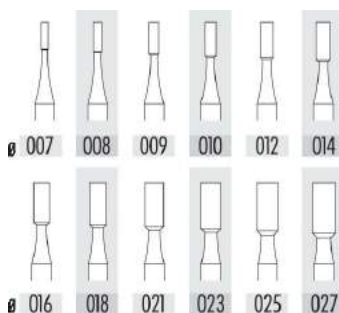



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.303-007 | 26 | Cylindrical | 0.70 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.303-027 | 26 | Cylindrical | 2.70 mm | 0.001 |

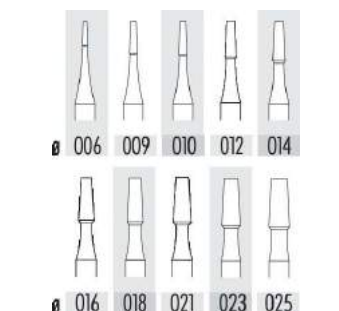




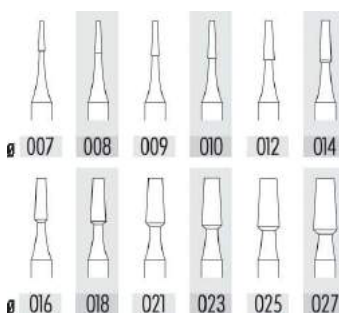
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.304-007 | 28 | Cylindrical | 0.70 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.304-023 | 28 | Cylindrical | 2.30 mm | 0.001 |



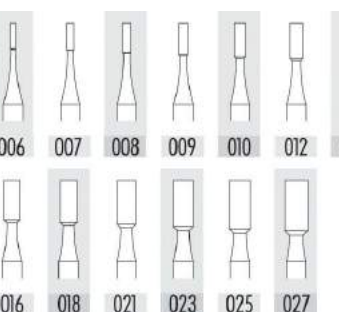
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.312-007 | 29 | Cylindrical | 0.70 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.312-027 | 29 | Cylindrical | 2.70 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.305-009 | 30 | Cone | 0.90 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.305-025 | 30 | Cone | 2.50 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.313-007 | 31 | Cone | 0.70 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.313-027 | 31 | Cone | 2.70 mm | 0.001 |



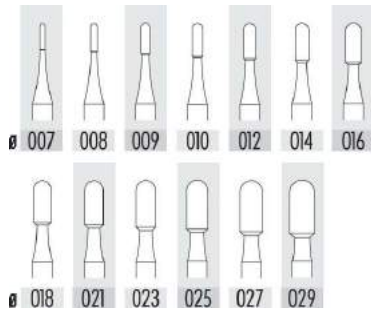
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.306-006 | 34 | Cylindrical | 0.60 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.306-027 | 34 | Cylindrical | 2.70 mm | 0.001 |



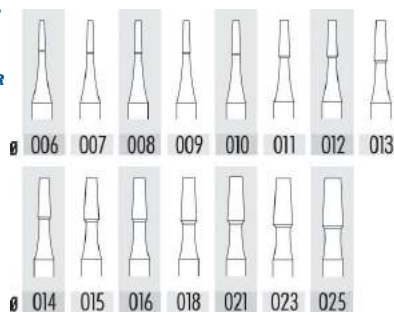
END MILLS

Order example : MSA22.308-xxxx
(Extensions 3 digits = Ø head mm)

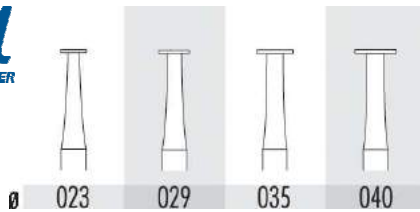
MSA22.308-007 = Ø head 0.70 mm
MSA22.308-029 = Ø head 2.90 mm



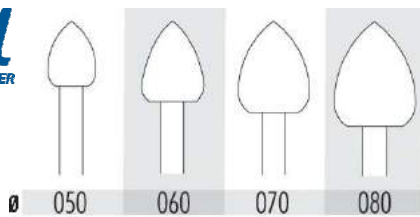
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.308-007 | 36 | Cylindrical | 0.70 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.308-029 | 36 | Cylindrical | 2.90 mm | 0.001 |



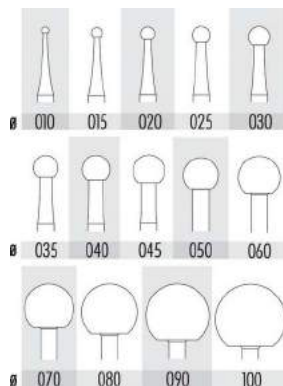
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.309-006 | 38 | Cone | 0.60 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.309-025 | 38 | Cone | 2.50 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.311-023 | 45 | Wheel | 2.30 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.311-040 | 45 | Wheel | 4.00 mm | 0.001 |

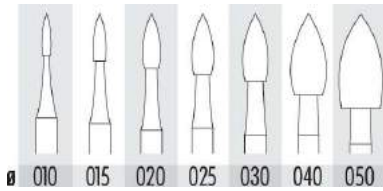


| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|---------|-------|
| 22.211-050 | 83 | Bud | 5.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.211-080 | 83 | Bud | 8.00 mm | 0.001 |

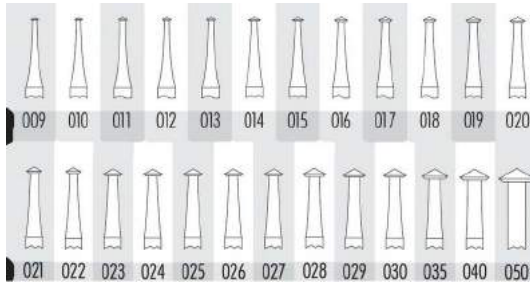


| MSA | Type | Shape | Ø head | Kg |
|------------|------|------------|----------|-------|
| 22.100-010 | A | Fine round | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.100-100 | A | Fine round | 10.00 mm | 0.001 |

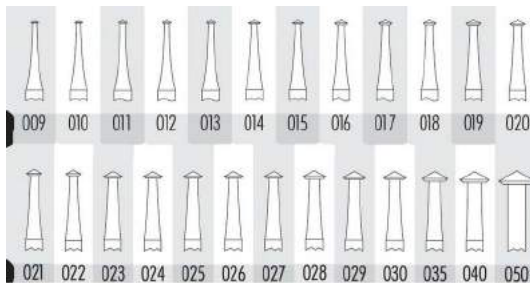




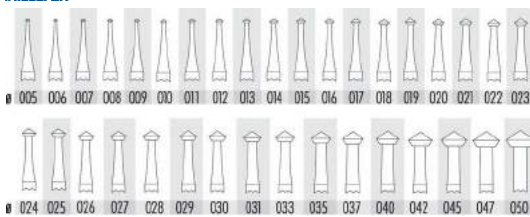
| MSA | Type | Shape | Ø head | Kg |
|------------|------|------------|---------|-------|
| 22.102-010 | G | Fine flame | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.102-050 | G | Fine flame | 5.00 mm | 0.001 |



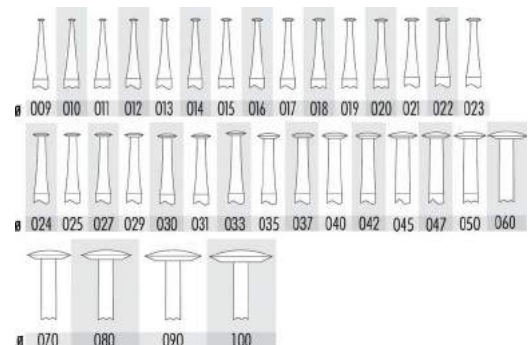
| MSA | Type | Shape | Ø head | Kg |
|------------|------|------------------|---------|-------|
| 22.103-009 | H | Double cone 120° | 0.90 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.103-050 | H | Double cone 120° | 5.00 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-----------------|---------|-------|
| 22.121-005 | HB | Double cone 70° | 0.50 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.121-037 | HB | Double cone 70° | 3.70 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-----------------|---------|-------|
| 22.104-005 | HD | Double cone 90° | 0.50 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.104-050 | HD | Double cone 90° | 5.00 mm | 0.001 |



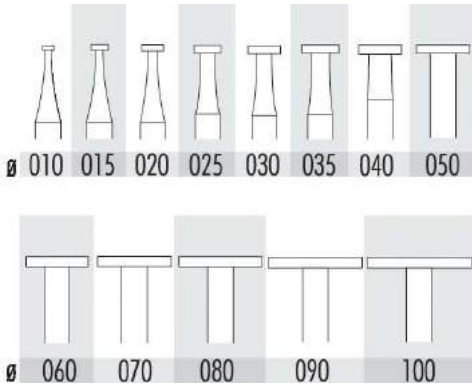
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|----------|-------|
| 22.105-009 | HH | Lens | 0.90 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.105-100 | HH | Lens | 10.00 mm | 0.001 |



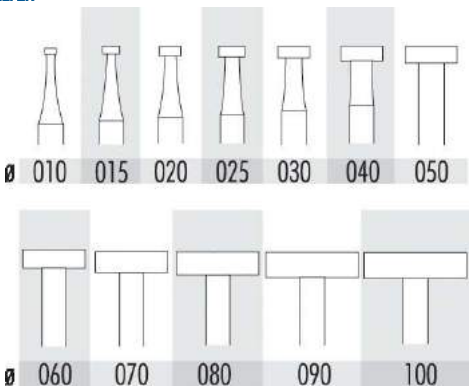
END MILLS

Order example : MSA22.107-xxxx
(Extensions 3 digits = Ø head mm)

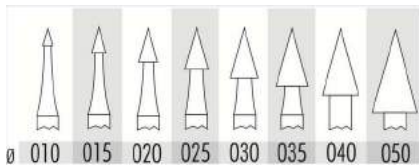
MSA22.107-010 = Ø head 0.10 mm
MSA22.107-100 = Ø head 10.00 mm



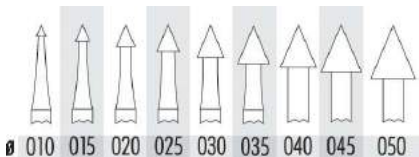
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|----------|-------|
| 22.107-010 | K | Wheel | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.107-100 | K | Wheel | 10.00 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|----------|-------|
| 22.110-010 | KK | Wheel | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.110-100 | KK | Wheel | 10.00 mm | 0.001 |

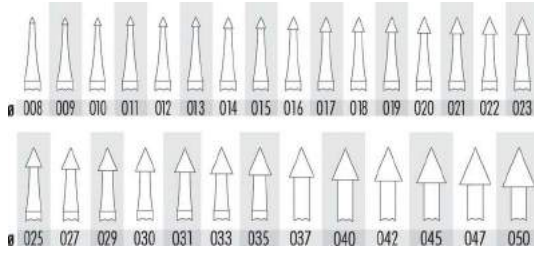


| MSA | Type | Shape | Ø head | Kg |
|------------|------|----------|---------|-------|
| 22.112-010 | N | Cone 30° | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.112-050 | N | Cone 30° | 5.00 mm | 0.001 |



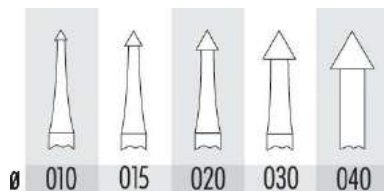
| MSA | Type | Shape | Ø head | Kg |
|------------|-----------|----------|---------|-------|
| 22.113-010 | NN (fine) | Cone 45° | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.113-050 | NN (fine) | Cone 45° | 5.00 mm | 0.001 |





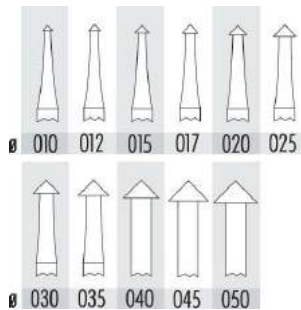
| MSA | Type | Shape | Ø head | Kg |
|------------|-------------|----------|---------|-------|
| 22.123-008 | NN (coarse) | Cone 45° | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.123-050 | NN (coarse) | Cone 45° | 5.00 mm | 0.001 |

✂ 45°



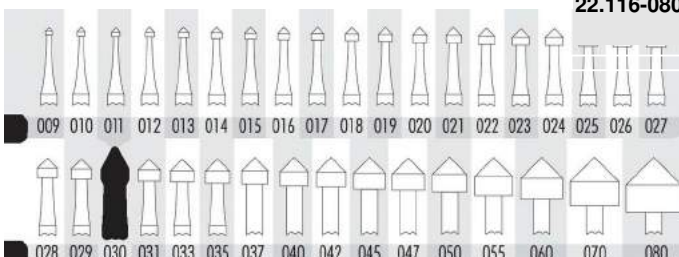
| MSA | Type | Shape | Ø head | Kg |
|------------|------|----------|---------|-------|
| 22.114-010 | O | Cone 60° | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.114-040 | O | Cone 60° | 4.00 mm | 0.001 |

✂ 60°



| MSA | Type | Shape | Ø head | Kg |
|------------|------|----------|---------|-------|
| 22.115-010 | P | Cone 90° | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.115-050 | P | Cone 90° | 5.00 mm | 0.001 |

✂ 90°



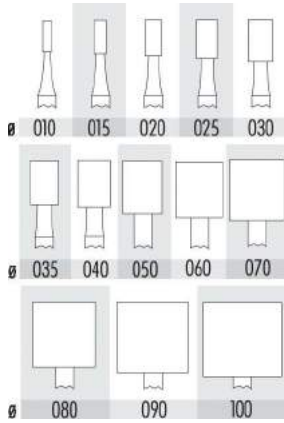
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-----------------------|---------|-------|
| 22.116-009 | Q | Cylindrical sharpened | 0.90 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.116-080 | Q | Cylindrical sharpened | 8.00 mm | 0.001 |



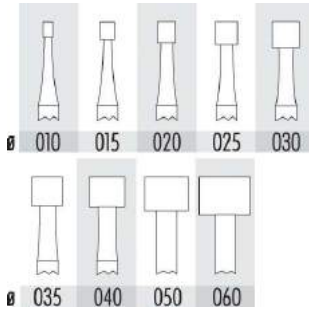
END MILLS

Order example : MSA22.117-xxxx
(Extensions 3 digits = Ø head mm)

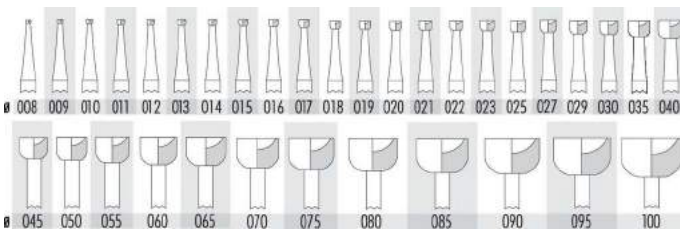
MSA22.117-010 = Ø head 0.10 mm
MSA22.117-100 = Ø head 10.00 mm



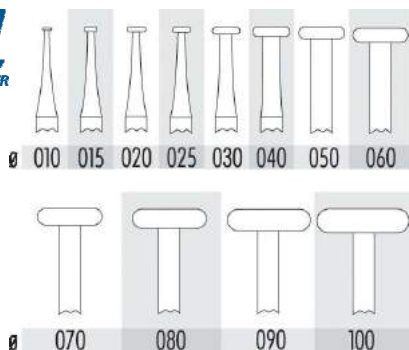
| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|----------|-------|
| 22.117-010 | R | Cylindrical | 1.00 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.117-100 | R | Cylindrical | 10.00 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------------|---------|-------|
| 22.122-010 | RR | Cylindrical | 1.00 mm | 0.001 |
| ... | ... | ... | ... | 0.001 |
| 22.122-060 | RR | Cylindrical | 6.00 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|-------|----------|-------|
| 22.119-008 | S | Cup | 0.80 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.119-100 | S | Cup | 10.00 mm | 0.001 |



| MSA | Type | Shape | Ø head | Kg |
|------------|------|---------------|----------|-------|
| 22.118-010 | Y | Beveled wheel | 1.00 mm | 0.001 |
| ... | ... | ... | ... | 0.001 |
| 22.118-100 | Y | Beveled wheel | 10.00 mm | 0.001 |

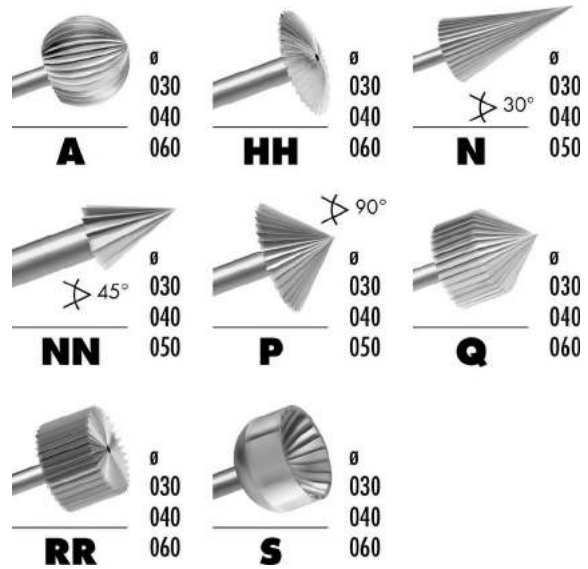


Assortments of 24 tool steel burs, delivered in a plastic box.



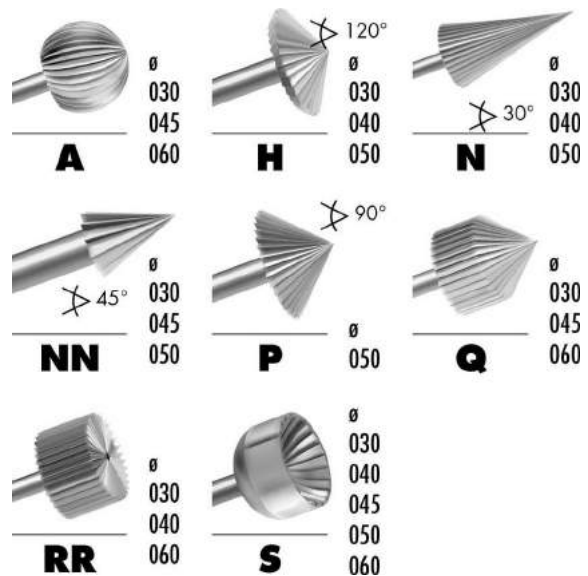
ASSORTMENT

| MSA | Type | Ø shank | Kg |
|--------|------|---------|-------|
| 22.500 | 1235 | 2.35 mm | 0.090 |



ASSORTMENT

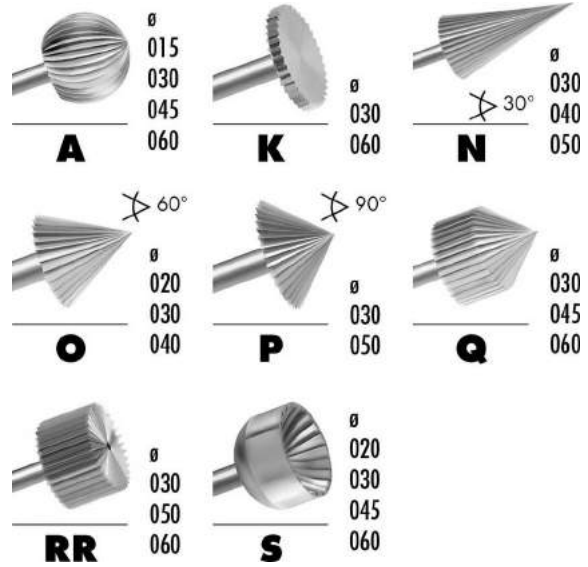
| MSA | Type | Ø shank | Kg |
|--------|------|---------|-------|
| 22.510 | 3235 | 2.35 mm | 0.090 |





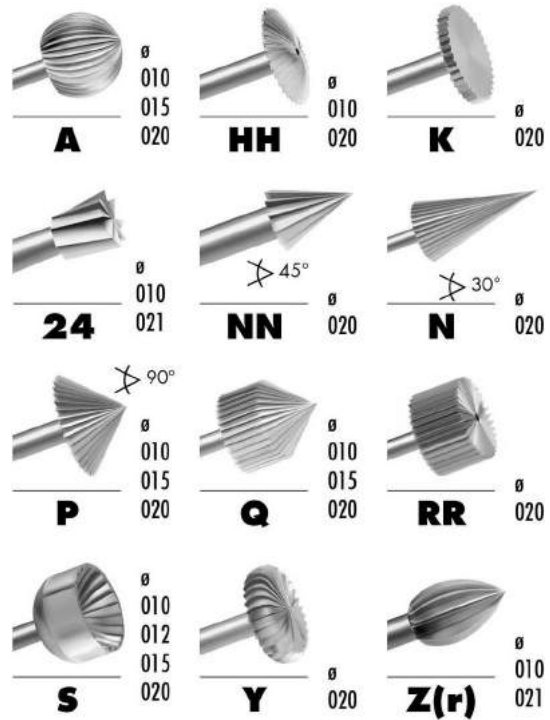
ASSORTMENT

| MSA | Type | Ø shank | Kg |
|--------|------|---------|-------|
| 22.515 | 4235 | 2.35 mm | 0.090 |



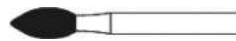
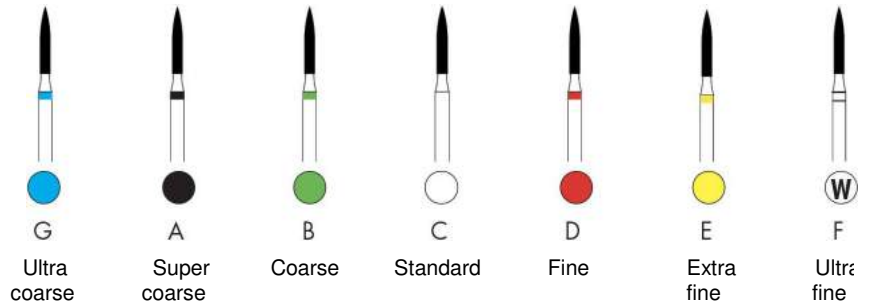
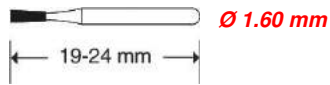
ASSORTMENT

| MSA | Type | Ø shank | Kg |
|--------|------|---------|-------|
| 22.520 | 8235 | 2.35 mm | 0.090 |



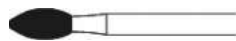
Order example : MSA22.723-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.723-016A = Ø 1.60 mm + grain super coarse
MSA22.723-023G = Ø 2.30 mm + grain ultra coarse



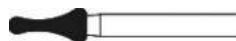
T. 368

| MSA | Ø head 1.6 mm | Ø head 2.1 mm | Ø head 2.3 mm |
|--------|---------------|---------------|---------------|
| 22.723 | - | - | -023G |
| 22.723 | -016A | -021A | -023A |
| 22.723 | -016B | -021B | -023B |
| 22.723 | -016C | -021C | -023C |
| 22.723 | -016D | -021D | -023D |
| 22.723 | -016E | -021E | -023E |
| 22.723 | -016F | -021F | -023F |
| - | - | - | - |
| L mm | 3.50 | 5.00 | 5.00 |



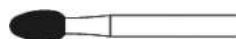
T. A368

| MSA | Ø head 2.3 mm |
|--------|---------------|
| 22.739 | -023B |
| 22.739 | -023C |
| 22.739 | -023D |
| 22.739 | -023E |
| - | - |
| L mm | 5.00 |



T. A369

| MSA | Ø head 2.3 mm |
|--------|---------------|
| 22.734 | -023A |
| 22.734 | -023B |
| 22.734 | -023C |
| 22.734 | -023D |
| 22.734 | -023E |
| - | - |
| L mm | 5.70 |



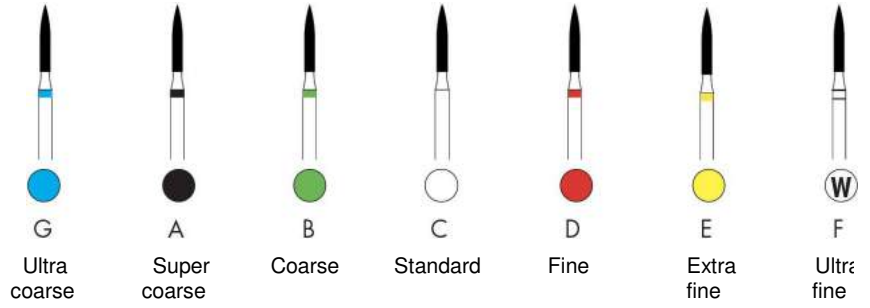
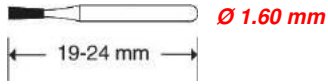
T. 379

| MSA | Ø head 1.4 mm | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|---------------|---------------|---------------|
| 22.722 | - | - | -023G |
| 22.722 | -014A | -018A | -023A |
| 22.722 | -014B | -018B | -023B |
| 22.722 | -014C | -018C | -023C |
| 22.722 | -014D | -018D | -023D |
| 22.722 | -014E | -018E | -023E |
| 22.722 | -014F | -018F | -023F |
| - | - | - | - |
| L mm | 3.00 | 3.50 | 4.50 |

DIAMOND BURS

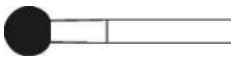
Order example : MSA22.735-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.735-016C = Ø 1.60 mm + grain standard
MSA22.735-016E = Ø 1.60 mm + grain extra fine



T. 392

| MSA | Ø head 1.6 mm |
|--------|------------------|
| 22.735 | -016C |
| 22.735 | -016D |
| 22.735 | -016E |
| - | - |
| L mm | 5.00 |



T. 801

| MSA | Ø head 0.8 mm | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.1 mm | Ø head 2.3 mm | Ø head 2.7 mm | Ø head 2.9 mm | Ø head 3.5 mm |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.701 | - | - | - | - | - | -016G | -018G | - | -023G | - | - | - |
| 22.701 | - | - | -010A | -012A | -014A | -016A | -018A | -021A | -023A | -027A | -029A | -035A |
| 22.701 | -008B | -009B | -010B | -012B | -014B | -016B | -018B | -021B | -023B | -027B | -029B | -035B |
| 22.701 | -008C | -009C | -010C | -012C | -014C | -016C | -018C | -021C | -023C | -027C | -029C | -035C |
| 22.701 | -008D | - | -010D | -012D | -014D | -016D | -018D | -021D | -023D | -027D | -029D | -035D |
| 22.701 | -008E | - | - | -012E | -014E | - | -018E | -021E | -023E | -027E | -029E | -035E |
| 22.701 | -008F | - | - | - | -014F | - | -018F | - | -023F | - | -029F | -035F |



T. A801

| MSA | Ø head 1.6 mm |
|--------|------------------|
| 22.732 | -016B |
| 22.732 | -016C |
| 22.732 | -016D |



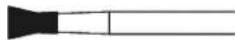
T. 802

| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.1 mm | Ø head 2.3 mm |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.702 | - | - | - | - | - | -018A | - | - |
| 22.702 | -009B | -010B | -012B | -014B | -016B | -018B | - | -023B |
| 22.702 | -009C | -010C | -012C | -014C | -016C | -018C | 021C | -023C |
| 22.702 | - | - | - | -014D | - | - | - | - |
| 22.702 | - | - | - | - | - | -018E | - | - |
| - | - | - | - | - | - | - | - | - |
| L mm | 2.00 | 2.00 | 3.00 | 3.00 | 3.00 | 3.50 | 4.00 | 4.50 |



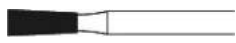
T. 805

| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.703 | - | - | - | - | -016A | -018A | - | - | - |
| 22.703 | -009B | -010B | -012B | -014B | -016B | -018B | -023B | - | - |
| 22.703 | -009C | -010C | -012C | -014C | -016C | -018C | -023C | -040C | -050C |
| 22.703 | - | -010D | -012D | -014D | -016D | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - |
| L mm | 1.00 | 1.00 | 1.50 | 1.50 | 1.50 | 1.50 | 2.00 | 1.50 | 2.00 |



T. 806

| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.704 | - | - | - | -014A | - | - | - |
| 22.704 | - | -010B | -012B | -014B | -016B | -018B | - |
| 22.704 | -009C | -010C | -012C | -014C | -016C | -018C | -023C |
| - | - | - | - | - | - | - | - |
| L mm | 2.00 | 2.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.50 |



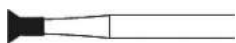
T. 807

| MSA | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|------------------|------------------|------------------|------------------|
| 22.705 | - | -012A | - | - |
| 22.705 | -010B | -012B | -016B | -018B |
| 22.705 | -010C | -012C | -016C | -018C |
| - | - | - | - | - |
| L mm | 3.00 | 3.50 | 4.00 | 5.00 |



T. 808

| MSA | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|------------------|------------------|
| 22.708 | -018C | -023C |
| - | - | - |
| L mm | 0.70 | 0.80 |



T. 809

| MSA | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|------------------|------------------|
| 22.709 | -018C | -023C |
| - | - | - |
| L mm | 2.00 | 2.50 |



T. 810

| MSA | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|------------------|------------------|
| 22.710 | -040C | -050C |
| - | - | - |
| L mm | 0.20 | 0.20 |



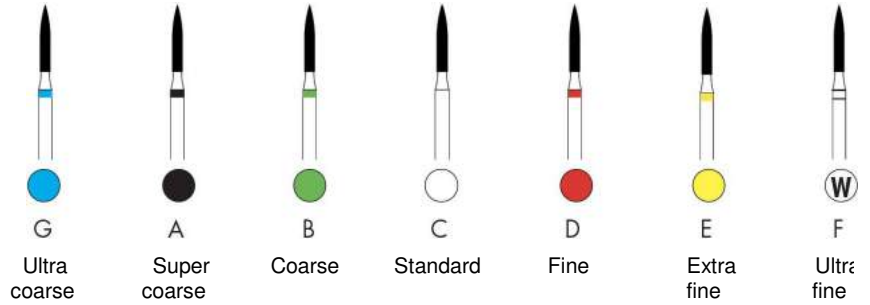
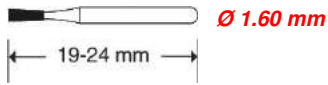
T. 811

| MSA | Ø head 3.1 mm | Ø head 4.0 mm |
|--------|------------------|------------------|
| 22.714 | -031A | - |
| 22.714 | -031B | -040B |
| 22.714 | -031C | -040C |
| - | - | - |
| L mm | 4.00 | 6.00 |

DIAMOND BURS

Order example : MSA22.711-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.711-040C = Ø 4.00 mm + grain standard



T. 812

| MSA | | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|---|------------------|------------------|
| 22.711 | ○ | -040C | -050C |
| - | - | - | - |
| L mm | ■ | 1.50 | 2.00 |



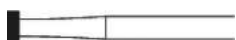
T. 813

| MSA | | Ø head 1.0 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|---|------------------|------------------|------------------|
| 22.712 | ■ | - | -014A | -016A |
| 22.712 | ■ | - | -014B | -016B |
| 22.712 | ○ | -010C | -014C | -016C |
| 22.712 | ■ | - | -014D | -016D |
| - | - | - | - | - |
| L mm | ■ | 1.50 | 1.60 | 1.90 |



T. 813L

| MSA | | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|---|------------------|------------------|
| 22.713 | ■ | -014A | -016A |
| 22.713 | ■ | -014B | -016B |
| 22.713 | ○ | -014C | -016C |
| 22.713 | ■ | -014D | -016D |
| - | - | - | - |
| L mm | ■ | 3.00 | 3.00 |



T. 815

| MSA | | Ø head 1.2 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|---|------------------|------------------|------------------|------------------|
| 22.715 | ■ | -012B | -016B | - | - |
| 22.715 | ○ | -012C | -016C | -018C | -023C |
| - | - | - | - | - | - |
| L mm | ■ | 0.50 | 0.70 | 0.70 | 0.80 |



T. 816

| MSA | | Ø head 1.2 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---|------------------|------------------|------------------|
| 22.716 | ○ | -012C | -016C | -018C |
| - | - | - | - | - |
| L mm | ■ | 1.50 | 1.80 | 2.00 |



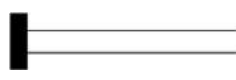
T. 817

| MSA | | Ø head 3.3 mm | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|--|------------------|------------------|------------------|
| 22.737 | | -033B | -040B | -050B |
| 22.737 | | -033C | -040C | -050C |
| - | | - | - | - |
| L mm | | 0.70 | 0.70 | 0.70 |



T. 818

| MSA | | Ø head 3.3 mm | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|--|------------------|------------------|------------------|
| 22.717 | | - | -040B | -050B |
| 22.717 | | -033C | -040C | -050C |
| - | | - | - | - |
| L mm | | 1.00 | 1.00 | 1.00 |



T. 819

| MSA | | Ø head 4.0 mm |
|--------|--|------------------|
| 22.738 | | -040C |
| - | | - |
| L mm | | 1.30 |



T. 820

| MSA | | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|--|------------------|------------------|
| 22.718 | | -040C | -050C |
| - | | - | - |
| L mm | | 2.00 | 2.00 |



T. 822

| MSA | | Ø head 0.8 mm |
|--------|--|------------------|
| 22.733 | | -008B |
| 22.733 | | -008C |
| 22.733 | | -008D |
| 22.733 | | -008E |
| - | | - |
| L mm | | 2.00 |



T. 825

| MSA | | Ø head 1.8 mm | Ø head 2.5 mm | Ø head 4.0 mm |
|--------|--|------------------|------------------|------------------|
| 22.720 | | - | - | -040B |
| 22.720 | | -018C | -025C | -040C |
| - | | - | - | - |
| L mm | | 0.80 | 0.90 | 1.10 |



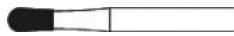
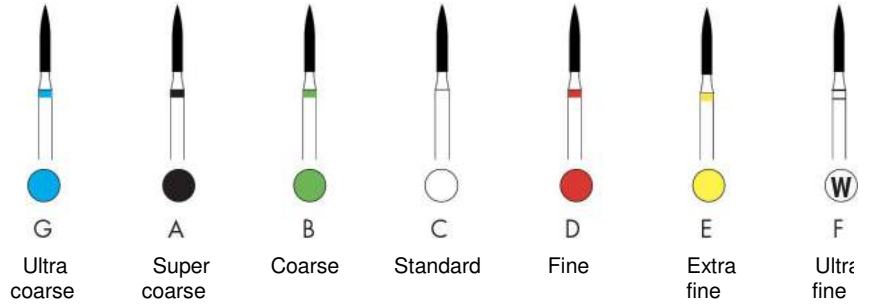
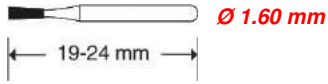
T. 826

| MSA | | Ø head 1.8 mm |
|--------|--|------------------|
| 22.721 | | -018C |
| - | | - |
| L mm | | 3.00 |

DIAMOND BURS

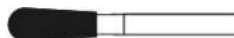
Order example : MSA22.706-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.706-012G = Ø 1.20 mm + grain ultra coarse
MSA22.706-016E = Ø 1.60 mm + grain extra fine



T. 830

| MSA | | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|--|------------------|------------------|------------------|------------------|------------------|
| 22.706 | | - | - | -012G | -014G | - |
| 22.706 | | - | - | -012A | -014A | -016A |
| 22.706 | | - | -010B | -012B | -014B | -016B |
| 22.706 | | -009C | -010C | -012C | -014C | -016C |
| 22.706 | | - | -010D | -012D | -014D | -016D |
| 22.706 | | - | -010E | -012E | -014E | -016E |
| - | | - | - | - | - | - |
| L mm | | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |



T. 830L

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.5 mm |
|--------|--|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.707 | | - | -012G | -014G | - | - | -025G |
| 22.707 | | - | -012A | -014A | -016A | -018A | - |
| 22.707 | | - | -012B | -014B | -016B | -018B | -025B |
| 22.707 | | -010C | -012C | -014C | -016C | -018C | -025C |
| 22.707 | | - | -012D | -014D | -016D | -018D | -025D |
| 22.707 | | - | -012E | -014E | -016E | - | - |
| - | | - | - | - | - | - | - |
| L mm | | 4.00 | 4.00 | 5.00 | 5.00 | 5.00 | 7.00 |



T. 832


| MSA | | Ø head 2.7 mm |
|--------|--|------------------|
| 22.736 | | -027C |
| 22.736 | | -027D |
| 22.736 | | -027E |
| - | | - |
| L mm | | 2.70 |



T. 835


| MSA | | Ø head 0.8 mm | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 2.7 mm |
|--------|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.741 | | - | -009A | -010A | -012A | -014A | -016A | - |
| 22.741 | | -008B | -009B | -010B | -012B | -014B | -016B | - |
| 22.741 | | -008C | -009C | -010C | -012C | -014C | -016C | -027C |
| 22.741 | | - | - | -010D | -012D | -014D | -016D | - |
| 22.741 | | - | - | -010E | - | - | - | - |
| - | | - | - | - | - | - | - | - |
| L mm | | 3.00 | 3.00 | 4.00 | 4.00 | 4.00 | 4.00 | 5.00 |

T. 836



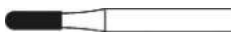
| MSA | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.8 mm | Ø head 2.7 mm |
|--------|------------------|------------------|------------------|------------------|------------------|
| 22.742 | - | -012G | -014G | - | -027G |
| 22.742 | -010A | -012A | -014A | - | - |
| 22.742 | -010B | -012B | -014B | -018B | - |
| 22.742 | -010C | -012C | -014C | -018C | -027C |
| 22.742 | -010D | -012D | -014D | -018D | -027D |
| - | - | - | - | - | - |
| L mm | 6.00 | 6.00 | 6.00 | 6.00 | 7.00 |

T. 837




| MSA | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|------------------|------------------|------------------|------------------|------------------|
| 22.743 | - | - | -014G | -016G | - |
| 22.743 | -010A | -012A | -014A | -016A | - |
| 22.743 | -010B | -012B | -014B | -016B | -018B |
| 22.743 | -010C | -012C | -014C | -016C | -018C |
| 22.743 | -010D | -012D | -014D | -016D | -018D |
| - | - | - | - | - | - |
| L mm | 7.00 | 8.00 | 8.00 | 8.00 | 8.00 |

T. 838




| MSA | Ø head 0.8 mm | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm |
|--------|------------------|------------------|------------------|------------------|
| 22.745 | - | - | - | -012G |
| 22.745 | - | - | -010A | -012A |
| 22.745 | - | - | -010B | -012B |
| 22.745 | -008C | -009C | -010C | -012C |
| 22.745 | - | - | -010D | -012D |
| - | - | - | - | - |
| L mm | 3.00 | 3.00 | 4.00 | 4.00 |

T. 842



| MSA | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|------------------|------------------|------------------|------------------|
| 22.744 | - | -014G | -016G | -018G |
| 22.744 | -012B | -014B | -016B | -018B |
| 22.744 | -012C | -014C | -016C | -018C |
| 22.744 | -012D | -014D | -016D | - |
| - | - | - | - | - |
| L mm | 10.00 | 10.00 | 10.00 | 10.00 |

T. 845

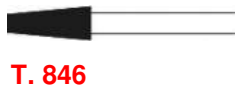
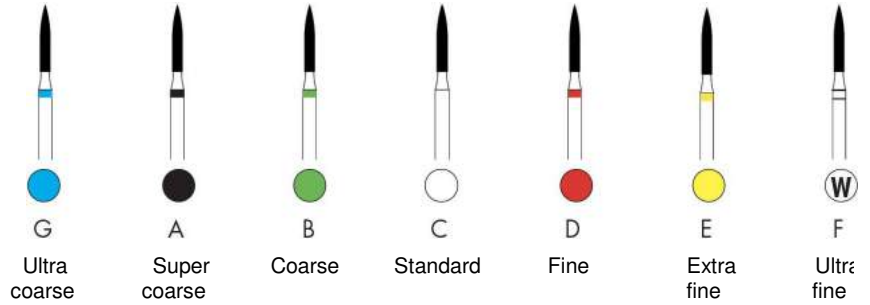
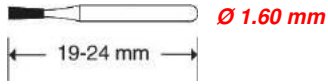


| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.1 mm |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 22.756 | - | - | -012A | -014A | - | - | - |
| 22.756 | - | -010B | -012B | -014B | -016B | - | - |
| 22.756 | -009C | -010C | -012C | -014C | -016C | -018C | -021C |
| 22.756 | - | - | -012D | - | - | - | - |
| - | - | - | - | - | - | - | - |
| L mm | 3.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |

DIAMOND BURS

Order example : MSA22.757-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.757-012A = Ø 1.20 mm + grain super coarse
MSA22.757-018F = Ø 1.80 mm + grain ultra fine



| MSA | | Ø head 1.2 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.5 mm |
|--------|---|---------------|---------------|---------------|---------------|
| 22.757 | | -012A | -016A | -018A | - |
| 22.757 | | -012B | -016B | -018B | -025B |
| 22.757 | | -012C | -016C | -018C | -025C |
| 22.757 | | -012D | -016D | -018D | -025D |
| 22.757 | | - | - | -018E | - |
| 22.757 | | - | - | -018F | - |
| - | - | - | - | - | - |
| L mm | | 6.00 | 6.00 | 6.00 | 7.00 |



| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.1 mm |
|--------|---|---------------|---------------|---------------|---------------|---------------|
| 22.758 | | -012G | - | -016G | -018G | - |
| 22.758 | | -012A | -014A | -016A | -018A | -021A |
| 22.758 | | -012B | -014B | -016B | -018B | -021B |
| 22.758 | | -012C | -014C | -016C | -018C | -021C |
| 22.758 | | -012D | -014D | -016D | -018D | -021D |
| 22.758 | | - | - | -016E | - | - |
| - | - | - | - | - | - | - |
| L mm | | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |



| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm | Ø head 2.5 mm |
|--------|---|---------------|---------------|---------------|---------------|---------------|---------------|
| 22.759 | | -012G | - | -016G | -018G | - | - |
| 22.759 | | -012A | -014A | -016A | -018A | - | - |
| 22.759 | | -012B | -014B | -016B | -018B | -023B | 025B |
| 22.759 | | -012C | -014C | -016C | -018C | -023C | 025C |
| 22.759 | | -012D | -014D | -016D | -018D | -023D | 025D |
| 22.759 | | - | - | -016E | - | -023E | - |
| - | - | - | - | - | - | - | - |
| L mm | | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |



T. 849

| MSA | | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm |
|--------|--|------------------|------------------|------------------|
| 22.760 | | - | - | -012G |
| 22.760 | | - | - | -012A |
| 22.760 | | - | -010B | -012B |
| 22.760 | | -009C | -010C | -012C |
| 22.760 | | -009D | - | -012D |
| 22.760 | | - | -010E | - |
| - | | - | - | - |
| L mm | | 4.00 | 4.00 | 4.00 |



T. 850

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|--|------------------|------------------|------------------|------------------|------------------|
| 22.765 | | -012G | -014G | -016G | -018G | -023G |
| 22.765 | | -012A | -014A | -016A | -018A | -023A |
| 22.765 | | -012B | -014B | -016B | -018B | -023B |
| 22.765 | | -012C | -014C | -016C | -018C | -023C |
| 22.765 | | -012D | -014D | -016D | -018D | -023D |
| 22.765 | | -012E | - | -016E | - | -023E |
| - | | - | - | - | - | - |
| L mm | | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |



T. 852

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm |
|--------|--|------------------|------------------|
| 22.766 | | - | -012A |
| 22.766 | | - | -012B |
| 22.766 | | -010C | -012C |
| 22.766 | | -010D | -012D |
| 22.766 | | -010E | -012E |
| 22.766 | | -010F | -012F |
| - | | - | - |
| L mm | | 4.00 | 6.00 |



T. 853

| MSA | | Ø head 0.8 mm |
|--------|--|------------------|
| 22.740 | | -008C |
| 22.740 | | -008D |
| 22.740 | | -008E |
| 22.740 | | -008F |
| - | | - |
| L mm | | 3.00 |



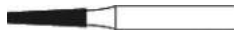
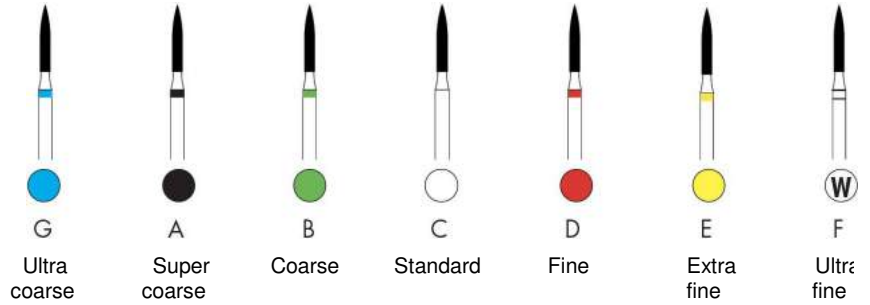
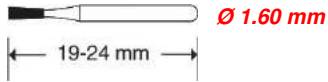
T. 855

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm |
|--------|--|------------------|------------------|
| 22.762 | | - | -014G |
| 22.762 | | -012A | -014A |
| 22.762 | | -012B | -014B |
| 22.762 | | -012C | -014C |
| 22.762 | | -012D | -014D |
| - | | - | - |
| L mm | | 7.00 | 7.00 |

DIAMOND BURS

Order example : MSA22.761-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.761-012B = Ø 1.20 mm + grain coarse
MSA22.761-012D = Ø 1.20 mm + grain fine



T. A855

| MSA | | Ø head 1.2 mm |
|--------|--|------------------|
| 22.761 | | -012B |
| 22.761 | | -012C |
| 22.761 | | -012D |
| - | | - |
| L mm | | 6.00 |



T. 856

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm | Ø head 2.3 mm |
|--------|--|------------------|------------------|------------------|------------------|------------------|
| 22.700 | | -012G | -014G | -016G | -018G | -023G |
| 22.700 | | -012A | -014A | -016A | -018A | -023A |
| 22.700 | | -012B | -014B | -016B | -018B | -023B |
| 22.700 | | -012C | -014C | -016C | -018C | -023C |
| 22.700 | | -012D | -014D | -016D | -018D | -023D |
| 22.700 | | - | -014E | -016E | - | -023E |
| - | | - | - | - | - | - |
| L mm | | 8.00 | 8.00 | 8.00 | 8.00 | 7.00 |



T. A856

| MSA | | Ø head 2.1 mm | Ø head 2.3 mm |
|--------|--|------------------|------------------|
| 22.764 | | -021G | -023G |
| 22.764 | | -021A | -023A |
| 22.764 | | -021B | -023B |
| 22.764 | | -021C | -023C |
| 22.764 | | -021D | -023D |
| 22.764 | | -021E | -023E |
| - | | - | - |
| L mm | | 8.00 | 8.00 |



T. 856L

| MSA | | Ø head 2.3 mm |
|--------|--|------------------|
| 22.763 | | -023G |
| 22.763 | | -023A |
| 22.763 | | -023B |
| 22.763 | | -023C |
| 22.763 | | -023D |
| - | | - |
| L mm | | 8.00 |



T. 858

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---|------------------|------------------|------------------|------------------|
| 22.767 | ■ | - | -014A | - | - |
| 22.767 | ■ | -012B | -014B | -016B | -018B |
| 22.767 | ○ | -012C | -014C | -016C | -018C |
| 22.767 | ■ | -012D | -014D | -016D | - |
| 22.767 | ■ | -012E | -014E | -016E | - |
| 22.767 | Ⓜ | - | -014F | - | - |
| - | - | - | - | - | - |
| L mm | ■ | 8.00 | 8.00 | 8.00 | 8.00 |



T. 859

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---|------------------|------------------|------------------|------------------|------------------|
| 22.768 | ■ | -010A | -012A | -014A | -016A | -018A |
| 22.768 | ■ | -010B | -012B | -014B | -016B | -018B |
| 22.768 | ○ | -010C | -012C | -014C | -016C | -018C |
| 22.768 | ■ | -010D | -012D | -014D | -016D | -018D |
| 22.768 | ■ | -010E | -012E | -014E | -016E | -018E |
| 22.768 | Ⓜ | - | -012F | - | -016F | -018F |
| - | - | - | - | - | - | - |
| L mm | ■ | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |



T. 859L

| MSA | | Ø head 1.2 mm |
|--------|---|------------------|
| 22.769 | ○ | -012C |
| - | - | - |
| L mm | ■ | 11.00 |



T. 860

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 2.5 mm |
|--------|---|------------------|------------------|------------------|------------------|
| 22.728 | ■ | -010A | -012A | -014A | -025A |
| 22.728 | ■ | -010B | -012B | -014B | -025B |
| 22.728 | ○ | -010C | -012C | -014C | -025C |
| 22.728 | ■ | -010D | -012D | -014D | -025D |
| 22.728 | ■ | -010E | -012E | -014E | -025E |
| 22.728 | Ⓜ | -010F | - | - | -025F |
| - | - | - | - | - | - |
| L mm | ■ | 4.00 | 5.00 | 5.00 | 6.00 |



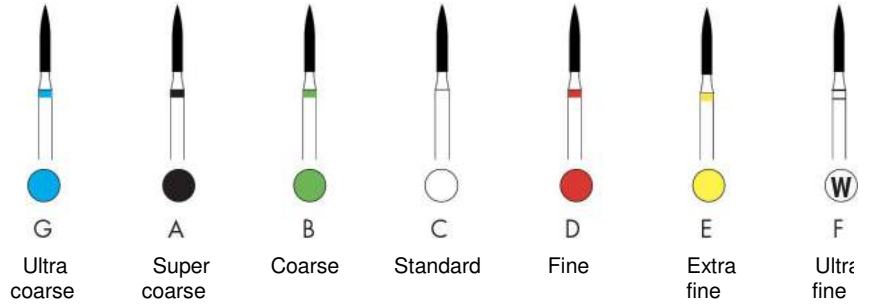
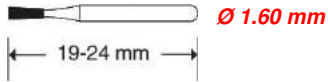
T. 862

| MSA | | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|---|------------------|------------------|------------------|------------------|------------------|
| 22.729 | ■ | - | - | -012G | -014G | - |
| 22.729 | ■ | - | -010A | -012A | -014A | -016A |
| 22.729 | ■ | - | -010B | -012B | -014B | -016B |
| 22.729 | ○ | -009C | -010C | -012C | -014C | -016C |
| 22.729 | ■ | -009D | -010D | -012D | -014D | -016D |
| 22.729 | ■ | - | -010E | -012E | -014E | - |
| 22.729 | Ⓜ | - | -010F | -012F | -014F | - |
| - | - | - | - | - | - | - |
| L mm | ■ | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |

DIAMOND BURS

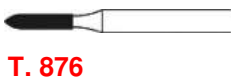
Order example : MSA22.730-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.730-014G = Ø 1.20 mm + grain ultra coarse
MSA22.730-018F = Ø 1.60 mm + grain ultra fine



T. 863

| MSA | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---------------|---------------|---------------|---------------|---------------|
| 22.730 | - | - | -014G | -016G | - |
| 22.730 | - | -012A | -014A | -016A | - |
| 22.730 | - | -012B | -014B | -016B | -018B |
| 22.730 | -010C | -012C | -014C | -016C | -018C |
| 22.730 | - | -012D | -014D | -016D | -018D |
| 22.730 | - | -012E | -014E | -016E | -018E |
| 22.730 | - | -012F | - | -016F | -018F |
| - | - | - | - | - | - |
| L mm | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |



T. 876

| MSA | Ø head 1.0 mm |
|--------|---------------|
| 22.752 | -010B |
| 22.752 | -010C |
| 22.752 | -010D |
| 22.752 | -010E |
| - | - |
| L mm | 5.00 |



T. 877

| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm |
|--------|---------------|---------------|---------------|
| 22.753 | - | -010A | -012A |
| 22.753 | - | -010B | -012B |
| 22.753 | -009C | -010C | -012C |
| 22.753 | - | -010D | -012D |
| 22.753 | - | -010E | - |
| - | - | - | - |
| L mm | 6.00 | 6.00 | 6.00 |



T. 878

| MSA | Ø head 0.9 mm | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|---------------|---------------|---------------|---------------|---------------|
| 22.754 | - | -010G | -012G | -014G | - |
| 22.754 | - | -010A | -012A | -014A | -016A |
| 22.754 | - | -010B | -012B | -014B | -016B |
| 22.754 | -009C | -010C | -012C | -014C | -016C |
| 22.754 | - | -010D | -012D | -014D | -016D |
| 22.754 | -009E | -010E | -012E | -014E | - |
| - | - | - | - | - | - |
| L mm | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |



T. 879

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|---|------------------|------------------|------------------|------------------|
| 22.755 | | - | -012G | - | - |
| 22.755 | | -010A | -012A | -014A | -016A |
| 22.755 | | -010B | -012B | -014B | -016B |
| 22.755 | | -010C | -012C | -014C | -016C |
| 22.755 | | -010D | -012D | -014D | -016D |
| 22.755 | | -010E | -012E | -014E | -- |
| - | - | - | - | - | - |
| L mm | | 10.00 | 10.00 | 10.00 | 10.00 |



T. 880

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---|------------------|------------------|------------------|------------------|
| 22.746 | | -012G | - | - | - |
| 22.746 | | -012A | -014A | -016A | -018A |
| 22.746 | | -012B | -014B | -016B | -018B |
| 22.746 | | -012C | -014C | -016C | -018C |
| 22.746 | | -012D | -014D | -016D | - |
| 22.746 | | - | -014E | - | - |
| - | - | - | - | - | - |
| L mm | | 6.00 | 6.00 | 6.00 | 6.00 |



T. 881

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm | Ø head 1.8 mm |
|--------|---|------------------|------------------|------------------|------------------|------------------|
| 22.747 | | - | - | -014G | - | -018G |
| 22.747 | | -010A | -012A | -014A | -016A | -018A |
| 22.747 | | -010B | -012B | -014B | -016B | -018B |
| 22.747 | | -010C | -012C | -014C | -016C | -018C |
| 22.747 | | -010D | -012D | -014D | -016D | -018D |
| 22.747 | | - | -012E | -014E | -016E | -018E |
| 22.747 | | - | -012F | - | - | - |
| - | - | - | - | - | - | - |
| L mm | | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |



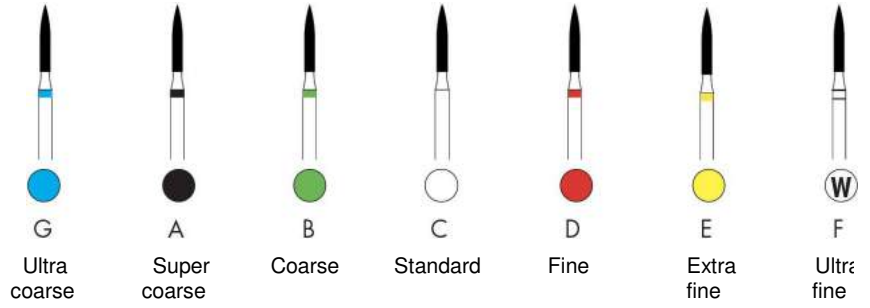
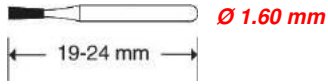
T. 882

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm |
|--------|---|------------------|------------------|
| 22.748 | | -012A | -014A |
| 22.748 | | -012B | -014B |
| 22.748 | | -012C | -014C |
| 22.748 | | -012D | -014D |
| 22.748 | | -012E | -014E |
| - | - | - | - |
| L mm | | 10.00 | 10.00 |

DIAMOND BURS

Order example : MSA22.726-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.726-010B = Ø 1.00 mm + grain coarse
MSA22.726-010D = Ø 1.00 mm + grain fine



T. 883

| MSA | | Ø head 1.0 mm |
|--------|--|------------------|
| 22.726 | | -010B |
| 22.726 | | -010C |
| 22.726 | | -010D |
| - | | - |
| L mm | | 3.00 |



T. 884

| MSA | | Ø head 1.2 mm |
|--------|--|------------------|
| 22.749 | | -012A |
| 22.749 | | -012B |
| 22.749 | | -012C |
| 22.749 | | -012D |
| 22.749 | | -012E |
| - | | - |
| L mm | | 6.00 |



T. 885

| MSA | | Ø head 1.0 mm | Ø head 1.2 mm | Ø head 1.4 mm |
|--------|--|------------------|------------------|------------------|
| 22.750 | | - | -012A | -014A |
| 22.750 | | - | -012B | -014B |
| 22.750 | | -010C | -012C | -014C |
| 22.750 | | - | -012D | -014D |
| 22.750 | | - | -012E | -014E |
| - | | - | - | - |
| L mm | | 8.00 | 8.00 | 8.00 |



T. 886

| MSA | | Ø head 1.2 mm | Ø head 1.4 mm | Ø head 1.6 mm |
|--------|--|------------------|------------------|------------------|
| 22.751 | | -012A | -014A | - |
| 22.751 | | -012B | -014B | -016B |
| 22.751 | | -012C | -014C | -016C |
| 22.751 | | -012D | -014D | -016D |
| 22.751 | | -012E | -014E | - |
| - | | - | - | - |
| L mm | | 10.00 | 10.00 | 10.00 |



T. 888

| MSA | | Ø head 1.2 mm |
|--------|---|------------------|
| 22.731 | ■ | -012A |
| 22.731 | ■ | -012B |
| 22.731 | ○ | -012C |
| 22.731 | ■ | -012D |
| 22.731 | ● | -012E |
| - | | - |
| L mm | ■ | 8.00 |



T. 889

| MSA | | Ø head 0.9 mm | Ø head 1.0 mm |
|--------|---|------------------|------------------|
| 22.727 | ■ | -009B | -010B |
| 22.727 | ○ | -009C | -010C |
| 22.727 | ■ | -009D | -010D |
| 22.727 | ● | -009E | -010E |
| 22.727 | Ⓜ | -009F | -010F |
| - | | - | - |
| L mm | ■ | 3.50 | 4.50 |



T. 890

| MSA | | Ø head 1.6 mm |
|--------|---|------------------|
| 22.724 | ■ | -016B |
| 22.724 | ○ | -016C |
| 22.724 | ■ | -016D |
| 22.724 | ● | -016E |
| 22.724 | Ⓜ | -016F |
| - | | - |
| L mm | ■ | 4.00 |



T. 899

| MSA | | Ø head 2.1 mm | Ø head 2.7 mm | Ø head 3.1 mm |
|--------|---|------------------|------------------|------------------|
| 22.725 | ■ | -021A | -027A | -031A |
| 22.725 | ■ | -021B | -027B | -031B |
| 22.725 | ○ | -021C | -027C | -031C |
| 22.725 | ■ | -021D | -027D | -031D |
| - | | - | - | - |
| L mm | ■ | 6.50 | 7.00 | 7.00 |



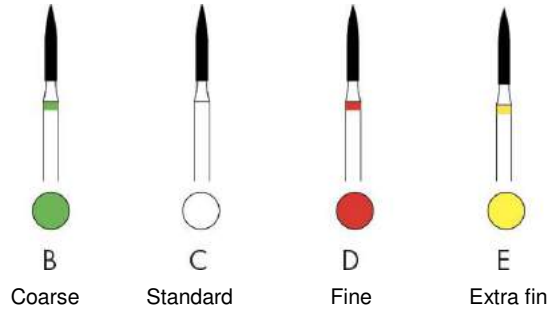
T. 909

| MSA | | Ø head 3.3 mm | Ø head 4.0 mm | Ø head 5.0 mm |
|--------|---|------------------|------------------|------------------|
| 22.719 | ■ | - | -040A | - |
| 22.719 | ■ | -033B | -040B | - |
| 22.719 | ○ | -033C | -040C | -050C |
| - | | - | - | - |
| L mm | ■ | 1.00 | 1.70 | 2.20 |

DIAMOND BURS

Order example : MSA22.803-xxxx
(Extensions 3 digits + 1 letter = Ø head mm + grain)

MSA22.803-018C = Ø 1.80 mm + grain standard
MSA22.803-040B = Ø 4.00 mm + grain coarse



| MSA | Ø head 1.8 mm | Ø head 2.5 mm | Ø head 4.0 mm |
|----------------------|---------------|---------------|---------------|
| T. 825 22.803 | - | - | -040B |
| 22.803 | -018C | -025C | -040C |
| - | - | - | - |
| L mm | 0.80 | 0.90 | 1.10 |

| MSA | Ø head 1.2 mm | Ø head 1.6 mm |
|----------------------|---------------|---------------|
| T. 858 22.800 | -012C | -016C |
| 22.800 | -012D | -016D |
| - | - | - |
| L mm | 8.00 | 8.00 |

| MSA | Ø head 1.4 mm |
|----------------------|---------------|
| T. 859 22.801 | -014C |
| - | - |
| L mm | 10.00 |

| MSA | Ø head 3.3 mm | Ø head 4.0 mm | Ø head 5.0 mm |
|----------------------|---------------|---------------|---------------|
| T. 909 22.802 | - | -040B | - |
| 22.802 | -033C | -040C | -050C |
| - | - | - | - |
| L mm | 1.00 | 1.70 | 2.20 |

| MSA | Ø head 1.4 mm |
|--------------------|---------------|
| 166F 22.805 | -F014 |

| MSA | Ø head 1.2 mm |
|--------------------|---------------|
| 248F 22.806 | -F012 |

| MSA | Ø head 1.6 mm |
|--------------------|---------------|
| 272F 22,807 | -F016 |

SPIREC HSS-E micro-drills, high speed steel.



Precise the Ø when placing your order.

Examples :

MSA22.630-0.05 for Ø 0.05 mm

MSA22.630-1.50 for Ø 1.50 mm

MSA22.630-2.00 for Ø 2.00 mm

| MSA | Length | Ø shank | Ø | Progression | Kg |
|-------------|--------|---------|----------|-------------|-------|
| 22.630-0.05 | 25 mm | 1.00 mm | 0.05 mm | 0.01 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-0.79 | 25 mm | 1.00 mm | 0.79 mm | 0.01 mm | 0.001 |
| 22.630-0.80 | 25 mm | 1.50 mm | 0.80 mm | 0.01 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-1.00 | 25 mm | 1.50 mm | 1.00 mm | 0.01 mm | 0.001 |
| 22.630-1.05 | 25 mm | 1.50 mm | 1.05 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-1.45 | 25 mm | 1.50 mm | 1.45 mm | 0.05 mm | 0.001 |
| ===== | | | | | |
| 22.630-1.50 | 38 mm | 2.00 mm | 1.50 mm | - | 0.001 |
| 22.630-1.55 | 38 mm | 2.00 mm | 1.55 mm | - | 0.001 |
| 22.630-1.58 | 38 mm | 2.00 mm | 1.587 mm | - | 0.001 |
| 22.630-1.60 | 38 mm | 2.00 mm | 1.60 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-1.95 | 38 mm | 2.00 mm | 1.95 mm | 0.05 mm | 0.001 |
| 22.630-1.98 | 38 mm | 2.00 mm | 1.984 mm | - | 0.001 |
| ===== | | | | | |
| 22.630-2.00 | 43 mm | 2.50 mm | 2.00 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-2.35 | 43 mm | 2.50 mm | 2.35 mm | 0.05 mm | 0.001 |
| 22.630-2.38 | 43 mm | 2.50 mm | 2.384 mm | - | 0.001 |
| 22.630-2.40 | 43 mm | 2.50 mm | 2.40 mm | - | 0.001 |
| 22.630-2.45 | 43 mm | 2.50 mm | 2.45 mm | - | 0.001 |
| ===== | | | | | |
| 22.630-2.50 | 46 mm | 3.00 mm | 2.50 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-2.75 | 46 mm | 3.00 mm | 2.75 mm | 0.05 mm | 0.001 |
| 22.630-2.77 | 46 mm | 3.00 mm | 2.778 mm | - | 0.001 |
| 22.630-2.80 | 46 mm | 3.00 mm | 2.80 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.630-3.00 | 46 mm | 3.00 mm | 3.00 mm | 0.05 mm | 0.001 |
| 22.630-3.17 | 46 mm | 3.00 mm | 3.175 mm | - | 0.001 |

TITEX HSS micro-drills, standard for universal use.



Precise the Ø when placing your order.

Examples :

MSA22.660-020 for Ø 0.20 mm

MSA22.660-205 for Ø 2.05 mm

MSA22.660-1000 for Ø 10.00 mm

| MSA | Ø | Progression | Kg |
|-------------|----------|-------------|-------|
| 22.660-020 | 0.20 mm | 0.01 mm | 0.001 |
| ... | ... | ... | ... |
| 22.660-200 | 2.00 mm | 0.01 mm | 0.001 |
| ===== | | | |
| 22.660-205 | 2.05 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... |
| 22.660-995 | 9.95 mm | 0.05 mm | 0.001 |
| ===== | | | |
| 22.660-1000 | 10.00 mm | 0.10 mm | 0.001 |
| ... | ... | ... | ... |
| 22.660-1690 | 16.90 mm | 0.10 mm | 0.001 |

YAMAMOTO HSS micro-drills.



Precise the Ø when placing your order.

Examples :

MSA22.670-010 for Ø 0.10 mm

MSA22.670-076 for Ø 0.76 mm

MSA22.670-135 for Ø 1.35 mm

| MSA | Ø shank | Ø | Progression | Kg |
|------------|---------|---------|-------------|-------|
| 22.670-010 | 1.00 mm | 0.10 mm | 0.01 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.670-075 | 1.00 mm | 0.75 mm | 0.01 mm | 0.001 |
| ===== | ===== | ===== | ===== | ===== |
| 22.670-076 | 1.50 mm | 0.76 mm | 0.01 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.670-125 | 1.50 mm | 1.25 mm | 0.01 mm | 0.001 |
| ===== | ===== | ===== | ===== | ===== |
| 22.670-130 | 1.50 mm | 1.30 mm | - | 0.001 |
| ===== | ===== | ===== | ===== | ===== |
| 22.670-135 | 2.00 mm | 1.35 mm | 0.05 mm | 0.001 |
| ... | ... | ... | ... | ... |
| 22.670-150 | 2.00 mm | 1.50 mm | 0.05 mm | 0.001 |

SPIREC micro-drills in hardened steel.



Precise the Ø when placing your order.

Examples :

MSA22.640-0.05 for Ø 0.05 mm

MSA22.640-0.80 for Ø 0.80 mm

MSA22.640-1.51 for Ø 1.51 mm

| MSA | Ø shank | Ø | Progression | Total length | Kg |
|-------------|---------|---------|-------------|--------------|-------|
| 22.640-0.05 | 1.00 mm | 0.05 mm | 0.01 mm | 25 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.640-0.79 | 1.00 mm | 0.79 mm | 0.01 mm | 25 mm | 0.001 |
| ===== | ===== | ===== | ===== | ===== | ===== |
| 22.640-0.80 | 1.50 mm | 0.80 mm | 0.01 mm | 25 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.640-1.50 | 1.50 mm | 1.50 mm | 0.01 mm | 25 mm | 0.001 |
| ===== | ===== | ===== | ===== | ===== | ===== |
| 22.640-1.51 | 2.00 mm | 1.51 mm | 0.01 mm | 38 mm | 0.001 |
| ... | ... | ... | ... | ... | ... |
| 22.640-2.00 | 2.00 mm | 2.00 mm | 0.01 mm | 38 mm | 0.001 |

Tempered tool steel drills 58PM type, shank Ø 2.35 mm.



| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 22.610-005 | 0.50 mm | 0.001 | 22.610-015 | 1.50 mm | 0.001 |
| 22.610-006 | 0.60 mm | 0.001 | 22.610-016 | 1.60 mm | 0.001 |
| 22.610-007 | 0.70 mm | 0.001 | 22.610-017 | 1.70 mm | 0.001 |
| 22.610-008 | 0.80 mm | 0.001 | 22.610-018 | 1.80 mm | 0.001 |
| 22.610-009 | 0.90 mm | 0.001 | 22.610-019 | 1.90 mm | 0.001 |
| 22.610-010 | 1.00 mm | 0.001 | 22.610-020 | 2.00 mm | 0.001 |
| 22.610-011 | 1.10 mm | 0.001 | 22.610-021 | 2.10 mm | 0.001 |
| 22.610-012 | 1.20 mm | 0.001 | 22.610-022 | 2.20 mm | 0.001 |
| 22.610-013 | 1.30 mm | 0.001 | 22.610-023 | 2.30 mm | 0.001 |
| 22.610-014 | 1.40 mm | 0.001 | | | |

Tungsten carbide drills 58MD type, shank Ø 2.35 mm.



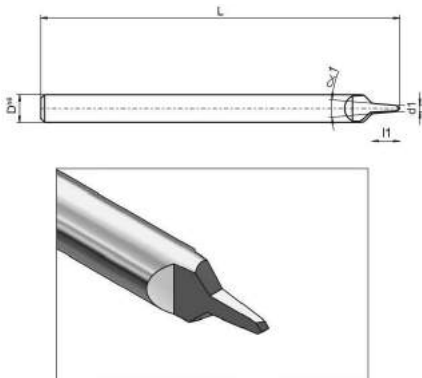
| MSA | Ø | Kg | MSA | Ø | Kg |
|------------|---------|-------|------------|---------|-------|
| 22.412-005 | 0.50 mm | 0.001 | 22.412-015 | 1.50 mm | 0.001 |
| 22.412-006 | 0.60 mm | 0.001 | 22.412-016 | 1.60 mm | 0.001 |
| 22.412-007 | 0.70 mm | 0.001 | 22.412-017 | 1.70 mm | 0.001 |
| 22.412-008 | 0.80 mm | 0.001 | 22.412-018 | 1.80 mm | 0.001 |
| 22.412-009 | 0.90 mm | 0.001 | 22.412-019 | 1.90 mm | 0.001 |
| 22.412-010 | 1.00 mm | 0.001 | 22.412-020 | 2.00 mm | 0.001 |
| 22.412-011 | 1.10 mm | 0.001 | 22.412-021 | 2.10 mm | 0.001 |
| 22.412-012 | 1.20 mm | 0.001 | 22.412-022 | 2.20 mm | 0.001 |
| 22.412-013 | 1.30 mm | 0.001 | 22.412-023 | 2.30 mm | 0.001 |
| 22.412-014 | 1.40 mm | 0.001 | | | |

Diamond drills, shank Ø 2.35 mm.



| MSA | Ø | Kg |
|------------|---------|-------|
| 22.650-080 | 0.80 mm | 0.003 |
| 22.650-090 | 0.90 mm | 0.003 |
| 22.650-100 | 1.00 mm | 0.003 |
| 22.650-110 | 1.10 mm | 0.003 |
| 22.650-130 | 1.30 mm | 0.003 |
| 22.650-140 | 1.40 mm | 0.003 |
| 22.650-150 | 1.50 mm | 0.003 |

Hardened steel drills for poising of watch balances.



| MSA | d1 | Dh6 | Angle | l1 | L | Kg |
|------------|---------|---------|-------|--------|-------|-------|
| 22.572-017 | 0.17 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |
| 22.572-018 | 0.18 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |
| 22.572-019 | 0.19 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |
| 22.572-020 | 0.20 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |
| 22.572-021 | 0.21 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |
| 22.572-022 | 0.22 mm | 1.50 mm | 16° | 0.6 mm | 21 mm | 0.001 |

23



POLISHING TOOLS

23 - 2

POLISHING MACHINES

23 - 5

SANDBLASTERS / SUCTION

23 - 9

POLISHING TOOLS

Hand polishing system developed for the watch industry, particularly for watch cases finish, and modified by HOROTEC® for the after sales service.

These 2 versions tools are composed of a vice with 4 brass claws (inside tightening from Ø 14 to 34 mm and from Ø 25 to 50) mounted on ball bearings, allowing the POLISHING WITHOUT RISKING ANY FLATTENING on the item worked on (watch case, bezel, case back, ring, etc.). As soon as one comes in contact with the brush, the system starts turning at the same speed as the brush.



| MSA | Model | Kg |
|--------|--|-------|
| 23.501 | (1) Bobino with vice MSA23.501-A (clockwise threading), Ø 14...34 mm | 0.780 |
| 23.504 | (2) Bobino with vice MSA23.504-A (clockwise threading), Ø 25...50 mm | 0.780 |

| MSA | Model | Kg |
|--------|---|-------|
| 23.502 | (1) Bobino with vice MSA23.501-E (counter clockwise threading), Ø 14...34 mm | 0.780 |
| 23.505 | (2) Left turning Bobino MSA23.504-E (counter clockwise threading), Ø 25...50 mm | 0.780 |

Delivered with an Allen key to adjust the separation of the 4 claws and to block the vice on the threading of the Bobino. The back screw is used to adjust the rotation of the Bobino. It allows to completely stop it or to have a free rotation. The underneath lever allows to tighten the claws for a quick change of the polishing parts.



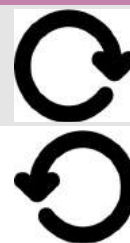
There is no more contact between the fingers and the item to polish.

For voluntary blocking, just hold the base of the red vice.





| MSA | Model | Kg |
|----------|--|-------|
| 23.501-C | Bobino (clockwise threading), thread Ø 16 mm | 0.700 |
| 23.501-B | Bobino (counter clockwise threading), thread Ø 16 mm | 0.700 |



Delivered with 1 Allen key.



| MSA | Size | Kg |
|----------|--------------|-------|
| 23.501-P | Ø 32 x 90 mm | 0.050 |

Handle for polishing tools MSA23.501, MSA23.502, MSA23.504, MSA23.505, MSA23.501-B et MSA23.501-C.

HOROTEC
SWISS



| MSA | Model | Kg |
|----------|--|-------|
| 23.501-A | Vice (clockwise threading), thread Ø 16 mm | 0.080 |
| 23.501-E | Vice (counter clockwise threading), thread Ø 16 mm | 0.080 |

Spare parts :

| MSA | Item | Kg |
|----------|-----------------------|-------|
| 23.500-A | Assortment of 4 claws | 0.010 |
| 23.501-G | Spring | 0.001 |



Delivered with an Allen key to adjust the separation of the 4 claws (Ø 14 to 34 mm) and to block the vice on the threading of the Bobino.

HOROTEC
SWISS



| MSA | Model | Kg |
|----------|--|-------|
| 23.504-A | Vice (clockwise threading), thread Ø 16 mm | 0.080 |
| 23.504-E | Vice (counter clockwise threading), thread Ø 16 mm | 0.080 |

Spare parts :

| MSA | Item | Kg |
|----------|-----------------------|-------|
| 23.503-A | Assortment of 4 claws | 0.010 |
| 23.504-G | Spring | 0.001 |



Delivered with an Allen key to adjust the separation of the 4 claws (Ø 25 to 50 mm) and to block the vice on the threading of the Bobino.

MANUAL USE : the brass claws adjustment is made by clockwise turning the end cylinder ; the item to polish is hold from the inside. Used by handling the hexagonal vice during the polishing.

USE ON POLISHING MOTOR ARBOUR : first fix the piece to be polished on the brass claws, then fix the vice on the polishing motor arbour and tighten it with 2 screws using the provided hexagonal key.

The end cylinder is reamed to about Ø 14 mm, to fix the vice on the motor arbour.

Optional reduction die is deliverable to fit the vice on Ø 9 mm motor axle.



| MSA | Ø reaming | Size | Kg |
|--------|-----------|--------------|-------|
| 23.500 | 14 mm | Ø 35 x 80 mm | 0.250 |

Polishing vice with 4 brass claws, tightening from Ø 14 to 34 mm.

Spare parts :

| MSA | Item | Kg |
|-----------|---------------------------|-------|
| 23.500-09 | Reduction die Ø 9 mm | 0.016 |
| 23.500-A | Assortment of 4 claws | 0.010 |
| 23.500-V | Maintaining screw of axis | 0.001 |
| 23.501-G | Spring | 0.001 |



| MSA | Ø reaming | Size | Kg |
|--------|-----------|--------------|-------|
| 23.503 | 14 mm | Ø 39 x 80 mm | 0.180 |

Polishing vice with 4 brass claws, tightening from Ø 25 to 50 mm.

Spare parts :

| MSA | Item | Kg |
|-----------|---------------------------|-------|
| 23.500-09 | Reduction die Ø 9 mm | 0.016 |
| 23.500-V | Maintaining screw of axis | 0.001 |
| 23.503-A | Assortment of 4 claws | 0.010 |
| 23.504-G | Spring | 0.001 |



PRE CITEC
QUALITY

POLYTEC

This range of polishing machines with its modern and ergonomic design has superior technical characteristics (most powerful motor in its class) and differs from other devices in numerous points.

Six different models are currently available with 1 or 2 workstations.

- Extremely user-friendly
- Folding plexiglas protection cover over the working area
- Provides exceptionally good absorption performance with its revised air transfer
- Polishing with this machine provides fully professional conditions of work and guarantees you performance, reliability and longevity
- Regardless of the pressure applied on the brushes, the torque remains constant (no decrease in rotation speed)
- A complete list of spare parts available like spindles, adaptors, filters and protections.

2 spindles



TOUCH-SENSITIVE



| MSA | Voltage | Speeds | Rotations/minute | Size WxDxH | Kg |
|------------|---------|--------------|------------------|--------------------|--------|
| 23.005 | 230 V | Adjustable * | 300...3'000 | 680 x 370 x 460 mm | 43.200 |
| 23.005-110 | 115 V | Adjustable * | 300...3'000 | 680 x 370 x 460 mm | 43.200 |

Features :

- Vacuum : 750 m3/hour (each side)
- Lighting : 4x 9 LED 1600 Lumen (each side)
- Ø brush : 160 mm maximum
- Motor power : 0.55 kW, constant torque
- Power supply : 230 or 115 V (50 Hz).

* Adjustable speed from 300 to 3000 rotations/minute in steps of 5 rotations/minute.
The selected speed is shown on the display.

POLISHING MACHINES



MSA23.003

2 spindles



MSA23.004

| MSA | Voltage | Speeds | Rotations/minute | Size WxDxH | Kg |
|--------|---------|--------------|------------------|--------------------|--------|
| 23.003 | 230 V | 2 | 1'500 - 3'000 | 680 x 370 x 460 mm | 52.000 |
| 23.004 | 230 V | Adjustable * | 300...3'000 | 680 x 370 x 460 mm | 49.000 |

Features :

- Vacuum : 750 m3/hour (each side)
- Lighting : 4x 9 LED 1600 Lumen (each side)
- Ø brush : 160 mm maximum
- Motor power : 0.55 kW, constant torque
- Power supply : 230 V (50 Hz).

* Adjustable speed from 300 to 3000 rotations/minute with a VARIO button.



MSA23.000



MSA23.001



MSA23.002

| MSA | Voltage | Speeds | Rotations/minute | Size WxDxH | Kg |
|--------|---------|--------------|------------------|--------------------|--------|
| 23.000 | 230 V | 1 | 3'000 | 460 x 370 x 460 mm | 34.000 |
| 23.001 | 230 V | 2 | 1'500 - 3'000 | 460 x 370 x 460 mm | 38.000 |
| 23.002 | 230 V | Adjustable * | 300...3'000 | 460 x 370 x 460 mm | 34.000 |

Features :

- Vacuum : 750 m3/hour (each side)
- Lighting : 4x 9 LED 1600 Lumen (each side)
- Ø brush : 160 mm maximum
- Motor power : 0.55 kW, constant torque
- Power supply : 230 V (50 Hz).

* Adjustable speed from 300 to 3000 rotations/minute with a VARIO button.



| MSA | Speeds | Rotations/minute | Size WxDxH | Kg |
|--------|--------|------------------|--------------------|--------|
| 23.600 | 2 | 1'500 - 3'000 | 310 x 240 x 285 mm | 13.500 |

Polishing motor.

Motor power : 0.50 kW.

Power supply : 220/240 V.



Spare parts :

| MSA | Item | Kg |
|----------|---------------------------------|-------|
| 23.600-A | (1) Right-sided tapered spindle | 0.067 |
| 23.600-B | Left-sided tapered spindle | 0.067 |



| MSA | Size WxDxH | Kg |
|--------|--------------------|-------|
| 23.601 | 250 x 240 x 285 mm | 3.100 |

Dust collector for polishing motor MSA23.600.

POLISHING MACHINES

Spare parts for the polishing machines PRECITEC®.



| MSA | Size | Kg |
|-----------------|--------------|-------|
| 23.000-A | 227 x 216 mm | 0.143 |

Plexiglas protection.



| MSA | Size | Kg |
|-----------------|-------------------|-------|
| 23.000-B | 265 x 190 x 16 mm | 0.026 |

Fibre filtre.



| MSA | Size | Kg |
|-----------------|-------------------|-------|
| 23.000-C | 258 x 178 x 48 mm | 0.106 |

Cartridge filtre.



| MSA | Size | Kg |
|-----------------|---------------|-------|
| 23.000-D | Ø 68 x 140 mm | 0.683 |

Grinding wheel.



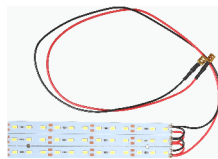
| MSA | Size | Kg |
|-----------------|---------------|-------|
| 23.000-E | Ø 34 x 145 mm | 0.228 |

Right-sided tapered spindle.



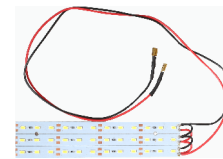
| MSA | Size | Kg |
|-----------------|---------------|-------|
| 23.000-F | Ø 34 x 145 mm | 0.228 |

Left-sided tapered spindle.



| MSA | Size | Kg |
|-----------------|-------------|-------|
| 23.000-G | 165 x 36 mm | 0.041 |

Left LED.



| MSA | Size | Kg |
|-----------------|-------------|-------|
| 23.000-H | 165 x 36 mm | 0.041 |

Right LED.



| MSA | Model | Size | Kg |
|-----------------|------------|--------------------|-------|
| 23.000-I | Left side | 230 x 370 x 230 mm | 1.380 |
| 23.000-J | Right side | 230 x 370 x 230 mm | 1.380 |

Protection cover.



| MSA | Size | Kg |
|-----------------|-----------------|-------|
| 23.000-K | 27 x 40 x 37 mm | 0.015 |

Power switch On/Off.

Microsandblasters.



(1)



(2)

| MSA | Model | Voltage | Size WxDxH | Kg |
|--------|------------------|---------|--------------------|--------|
| 23.800 | (1) 2 containers | 230 V | 400 x 420 x 330 mm | 18.000 |
| 23.801 | (2) 3 containers | 230 V | 400 x 420 x 330 mm | 20.000 |

Ergonomic microsandblaster for the surface treatment of metals, resins and ceramics.

- Anti-humidity system
- Precise sanding
- Pneumatic foot pedals.

Spare parts :

| MSA | Item |
|------------|---|
| 23.800-T08 | Tip, Ø 0.80 cm / For grain 50-100 µ |
| 23.800-T12 | Tip, Ø 1.20 cm / For grain 80-180 µ and glass beads |
| 23.800-T15 | Tip, Ø 1.50 cm / For grain 150-250 µ |
| 23.808-A | Complete air filter with pressure gauge |
| 23.808-B | Neon lamp |
| 23.808-C | Glass protection, pack 5 pieces |
| 23.808-D | Spare glove |
| 23.808-E | Complete air syringe |

Consumables :

| MSA | Item |
|------------|---|
| 23.809-050 | High purity aluminium oxide, silicium free. Grain 50 µ, bottle of 5 Kg |
| 23.809-100 | High purity aluminium oxide, silicium free. Grain 100 µ, bottle of 5 Kg |
| 23.809-150 | High purity aluminium oxide, silicium free. Grain 150 µ, bottle of 5 Kg |
| 23.809-200 | High purity aluminium oxide, silicium free. Grain 200 µ, bottle of 5 Kg |
| 23.809-250 | High purity aluminium oxide, silicium free. Grain 250 µ, bottle of 5 Kg |
| 23.809-GB | Glass beads |

It is recommended to use the microsandblasters with the following suction systems.

Suction systems.



| MSA | Power | Size WxDxH | Kg |
|--------|------------|--------------------|--------|
| 23.810 | 400-1000 W | 330 x 250 x 380 mm | 12.000 |

Portable unit for suction of dust, residues and abrasives.

This professional and silent device has an adjustable suction power and is equipped with 4 fabric filters.

- For use with the microsandblasters MSA23.800 and MSA23.801 and the cabinets MSA23.812 and MSA23.813.

Spare parts :

| MSA | Item |
|----------|------------------------|
| 23.819-A | Spare motor filter |
| 23.819-B | Spare filter, 4 pieces |
| 23.819-C | Air hose, 2 metres |



| MSA | Power | Size WxDxH | Kg |
|--------|------------|--------------------|--------|
| 23.811 | 400-1000 W | 330 x 330 x 380 mm | 15.000 |

Portable double unit for suction of dust, residues and abrasives.
 For diversified simultaneous use.
 This professional and silent device has an adjustable suction power and is equipped with 4 fabric filters.
 - For use with the microsandersblasters MSA23.800 and MSA23.801 and the cabinets MSA23.812 and MSA23.813.

Spare parts :

| MSA | Item |
|----------|------------------------|
| 23.819-A | Spare motor filter |
| 23.819-B | Spare filter, 4 pieces |
| 23.819-C | Air hose, 2 metres |



| MSA | Size | Kg |
|--------|--------------------|-------|
| 23.812 | 320 x 300 x 250 mm | 3.000 |

Working cabinet for micromotors.
 A removable drawer makes it easy to collect the residues of the precious alloys used.
 The fitting with hose allows the connection of the portable vacuum cleaners MSA23.810 and MSA23.811.
 Excellent working visibility, sealed Plexiglas cabinet.



| MSA | Size | Kg |
|--------|--------------------|--------|
| 23.813 | 600 x 400 x 400 mm | 15.000 |

Safety cabinet for finishing work with micromotors.
 This device is equipped with several side entrances on the left and right, a neon light, a fast-air connector and a power supply for the portable vacuum cleaners MSA23.810 and MSA23.811.
 - Bright and wide working area
 - Easy-to-clean heavy-duty grid collector
 - Solid and reliable construction.

24



BENCHES AND CABINETS

24 - 2

CHAIRS AND STOOL

24 - 10

ACCESSORIES FOR BENCHES

24 - 15

Solid oak benches.

HOROTEC® DELUXE solid oak benches, very stable and well adapted to watchmakers.

- Top 140 x 70 cm, adjustable working height by an electrical system from 95 to 115 cm
- Ergonomic and adjustable Alcantara oval armrests in any desired position
- With cabinet (1 or 2) or without. The cabinet contains 1 tray and 4 drawers (3 of them with adaptable separations). Different keys for locking each cabinet
- Technical channel
- Stability adjustment made by screws underneath each polyamide foot.



ADJUSTABLE DELUXE VERSION



30.5 x 41.5 x 62.5 mm

MSA24.446



Electrical adjustment :

| MSA | Versions | Cabinet | Kg |
|--------|----------|---------|---------|
| 24.442 | A | 0 | 80.000 |
| 24.443 | B | 1 | 112.000 |
| 24.446 | C | 2 | 144.000 |

VERSION A :

- 1 top 140 x 70 cm, height adjustable 95...115 cm
- 2 ergonomic and adjustable Alcantara oval armrests
- 1 technical channel
- Without cabinet.

VERSION B :

- Version A + 1 right cabinet.

VERSION C :

- Version A + 2 cabinets.

Inside dimensions of the cabinet :

- 1 tray 24 x 33.6 cm
- 2 drawers 24 x 37.5 x 6 cm (15 cases)
- 1 drawer 24 x 37.5 x 10 cm (15 cases)
- 1 drawer 24 x 37.5 x 10 cm.

Separations are removable.

Laboratory benches.

HOROTEC® white laboratory benches, modern and ergonomic. Its conception has been designed to offer a very comfortable working place.

- Top 140 x 72 cm (adjustable working height by screws and nuts from 85 to 115 cm) and 1 rear panel
- Ergonomic and adjustable Alcantara oval armrests
- With cabinet (1 or 2) or without. The cabinet contains 1 tray and 4 drawers
- Different keys for locking each cabinet
- Stability adjustment made by screws underneath each polyamide foot.



**ADJUSTABLE
LABORATORY
VERSION**



| MSA | Colour | Top | Cabinet | Kg |
|--------|--------|-------------|---------|----|
| 24.601 | White | 140 x 72 cm | 0 | - |
| 24.602 | White | 140 x 72 cm | 1 | - |
| 24.603 | White | 140 x 72 cm | 2 | - |

HOROTEC® white laboratory benches, modern and ergonomic. They meet all requirements and offer optimal comfort.

- Top 140 x 72 cm (adjustable working height by an electrical system from 95 to 123 cm) and 1 rear panel
- Ergonomic and adjustable Alcantara oval armrests
- With cabinet (1 or 2) or without. The cabinet contains 1 tray and 4 drawers
- Different keys for locking each cabinet
- Stability adjustment made by screws underneath each polyamide foot.



**ELECTRIC
ADJUSTMENT
LABORATORY
VERSION**



| MSA | Colour | Top | Cabinet | Kg |
|--------|--------|-------------|---------|----|
| 24.621 | White | 140 x 72 cm | 0 | - |
| 24.622 | White | 140 x 72 cm | 1 | - |
| 24.623 | White | 140 x 72 cm | 2 | - |

Standard benches.

HOROTEC® standard benches, very stable and well adapted to watchmakers.

- Top 140 x 70 cm, adjustable working height by a manual or electrical hydraulic system from 95 to 115 cm
- Fixed armrests and 1 central drawer
- With cabinet (1 or 2) or without. The cabinet contains 1 tray and 4 drawers (3 of them with adaptable separations). Different keys for locking each cabinet
- 1 technical channel
- Stability adjustment made by screws underneath each polyamide foot.



ADJUSTABLE STANDARD VERSION



MSA24.508-140



MSA24.568-140



P. 24-5



MSA24.573-140



Manual hydraulic adjustment :

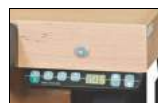
| MSA | Versions | Colour | Kg |
|------------|----------|----------|---------|
| 24.504-140 | A | Standard | 102.000 |
| 24.564-140 | A | Grey | 102.000 |
| 24.569-140 | A | White | 102.000 |
| 24.505-140 | B | Standard | 134.000 |
| 24.565-140 | B | Grey | 134.000 |
| 24.570-140 | B | White | 134.000 |

VERSION A :

- 1 top 140 x 70 cm, height adjustable 95...115 cm
- 2 fixed armrests and 1 central drawer
- 1 technical channel
- Without cabinet.

VERSION B :

- Version A + 1 right cabinet.



Electrical adjustment :

| MSA | Versions | Colour | Kg |
|------------|----------|----------|---------|
| 24.506-140 | C | Standard | 102.000 |
| 24.566-140 | C | Grey | 102.000 |
| 24.571-140 | C | White | 102.000 |
| 24.507-140 | D | Standard | 134.000 |
| 24.567-140 | D | Grey | 134.000 |
| 24.572-140 | D | White | 134.000 |
| 24.508-140 | E | Standard | 166.000 |
| 24.568-140 | E | Grey | 166.000 |
| 24.573-140 | E | White | 166.000 |

VERSION C :

- 1 top 140 x 70 cm, height adjustable 95...115 cm
- 2 fixed armrests and 1 central drawer
- 1 technical channel
- Without cabinet.

VERSION D :

- Version C + 1 right cabinet.

VERSION E :

- Version C + 2 cabinets.

HOROTEC® standard benches, very stable and well adapted to watchmakers.

- Top 140 x 70 cm, adjustable working height by screws and nuts
- Fixed armrests, 1 central drawer and 1 rear panel
- With cabinet (1 or 2) or without. The cabinet contains 1 tray and 4 drawers (3 of them with adaptable separations)
- Different keys for locking each cabinet
- Stability adjustment made by screws underneath each polyamide foot.



ADJUSTABLE STANDARD VERSION



| MSA | Versions | Colour | Top | Cabinet | Kg |
|------------|----------|----------|-------------|---------|---------|
| 24.501-140 | A | Standard | 140 x 70 cm | 0 | 75.000 |
| 24.561-140 | A | Grey | 140 x 70 cm | 0 | 75.000 |
| 24.575-140 | A | White | 140 x 70 cm | 0 | 75.000 |
| 24.502-140 | B | Standard | 140 x 70 cm | 1 | 107.000 |
| 24.562-140 | B | Grey | 140 x 70 cm | 1 | 107.000 |
| 24.576-140 | B | White | 140 x 70 cm | 1 | 107.000 |
| 24.503-140 | C | Standard | 140 x 70 cm | 2 | 140.000 |
| 24.563-140 | C | Grey | 140 x 70 cm | 2 | 140.000 |
| 24.577-140 | C | White | 140 x 70 cm | 2 | 140.000 |

VERSION A :

- 1 top 140 x 70 cm, adjustable working height by screws and nuts
- 2 fixed armrests and 1 central drawer
- 1 rear panel
- Without cabinet.

Optional : technical channel MSA24.528-140V4.

VERSION B :

- Version A + 1 right cabinet.

VERSION C :

- Version A + 2 cabinets.

For export, the bench is delivered unassembled in a cardboard transport box (included in the price) with detailed assembly instructions. Box size : 150 x 95 x 55 cm.

BENCHES AND CABINETS

- HOROTEC® standard and compact bench, specially designed to offer a very comfortable workplace and a reduced footprint.
- Top 122 x 60 cm (adjustable working height by screws and nuts from 85 to 115 cm) and 1 rear panel
 - Fixed armrests
 - With 1 cabinet containing 1 tray and 2 drawers (delivered with 1 key)
 - Stability adjustment made by screws underneath each polyamide foot.



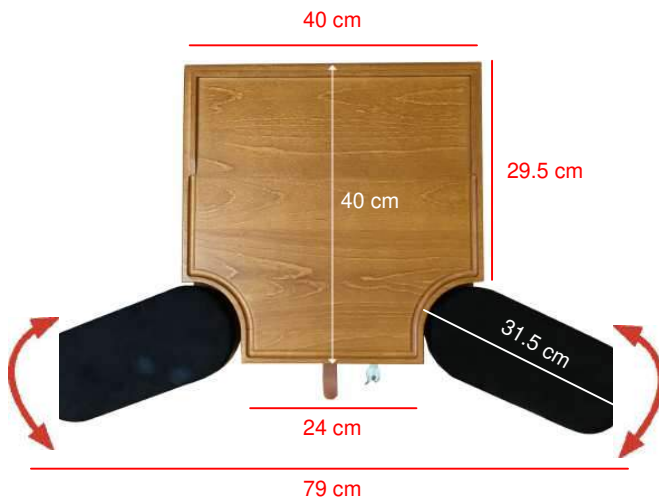
ADJUSTABLE COMPACT VERSION



| MSA | Colour | Top | Cabinet | Kg |
|--------|----------|-------------|---------|----|
| 24.480 | Standard | 122 x 60 cm | 1 | - |

Mini bench.

Mini bench HOROTEC®.



| MSA | Height | Kg |
|--------|---------|-------|
| 24.071 | 13.5 cm | 9.300 |

- Mini bench.
- Solid oak top and adjustable Alcantara armrests
 - Adjustable feet for perfect stability
 - Drawer on front side, delivered with 1 key
 - Possibility to store the armrests inside the bench.

Specially studied and designed to obtain a good working height on a standard furniture (table, desk, etc.).

The height-gain, which allows this mini bench, offers a wide range of applications. It replaces a traditional bench in places with reduced space : stand during an exhibition, a store, a meeting room, homeworking, training, etc.

Armrests.



| MSA | Kg |
|--------|----|
| 24.472 | - |

Pair of ergonomic armrests, with 1 pair of mechanical articulated arms and 2 oval armrests in Alcantara.

Cabinets.

Cabinets for HOROTEC® benches.



| MSA | Size W x D x H | Kg |
|--------|--|--------|
| 24.460 | 30.5 x 59.5 x 63 cm (wheels included) | 32.400 |

Mobile watchmaker cabinet, mounted on 4 pivoting wheels (1-wheel brake). Top covered with a black rubber groove mat, 4 drawers and 1 tray with full opening.



Inside dimensions of the cabinet :
 - 1 tray 23.8 x 53 cm
 - 2 drawers 21.8 x 53 x 6 cm (21 cases 7 x 7 x 6 cm)
 - 1 drawer 21.8 x 53 x 10 cm (21 cases 7 x 7 x 6 cm),
 - 1 drawer 21.8 x 53 x 13 cm.

Separations are removable.

The classic cabinet for the HOROTEC® standard benches.



| MSA | Size | Kg |
|--------|-----------------------|--------|
| 24.434 | 75.0 x 48.7 x 78.7 cm | 46.800 |

Bench mobile cabinet with 4 pivoting wheels (2 wheels brake). Top covered with a black rubber groove mat, 5 drawers with full opening.

Inside dimensions of the cabinet :
 - 3 drawers 39 x 54.9 x 6.5 cm
 - 1 drawer 39 x 54.9 x 7.9 cm
 - 1 drawer 39 x 54.9 x 17.9 cm.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 24.040 | 70 x 30 x 25 cm | 8.260 |

Cabinet made of spruce with 22 drawers.

Chairs.

HOROTEC® chairs.



| MSA | Sitting height | Base | Kg |
|--------|----------------|--------|--------|
| 24.002 | 41...54 cm | Wheels | 12.000 |

Watchmakers chair.

- 5 arm base with casters stopped when loaded for hard floors
- Gas filled lift cylinder with fingertip adjustment for seat height
- Tilt adjustment asynchronous of the seat and the backrest by a single lever
- Ergonomic seat with double curve in multi-ply varnished beech, 40.5 x 39 cm
- Articulated backrest in varnished beech 40 x 22 cm, adjustable in height.

Spare parts :

| MSA | Item | Kg |
|-----------|--|-------|
| 24.002-01 | Low black column, setting 41... 54 cm | 1.280 |
| 24.002-02 | Set of 5 casters stopped when unloaded | 0.535 |
| 24.002-03 | High black column, setting 51... 75 cm | 1.740 |
| 24.002-04 | Set of 5 buffers | 0.188 |
| 24.002-05 | Aluminium monobloc foot-ring | 5.500 |
| 24.002-06 | Set of 5 casters stopped when loaded | - |



| MSA | Sitting height | Base | Kg |
|--------|----------------|--------|--------|
| 24.010 | 46...59 cm | Wheels | 10.000 |

Watchmakers chair.

- 5 arm base with casters stopped when loaded for hard floors
- Gas filled lift cylinder with fingertip adjustment for seat height
- Tilt adjustment asynchronous of the seat and the backrest by a single lever
- Comfortable seat made of black polyurethane soft foam, 40 x 39 cm
- Articulated backrest made of black polyurethane soft foam 40 x 22 cm, adjustable in height.

Spare parts :

| MSA | Item | Kg |
|-----------|--|-------|
| 24.002-01 | Low black column, setting 41... 54 cm | 1.280 |
| 24.002-02 | Set of 5 casters stopped when unloaded | 0.535 |
| 24.002-03 | High black column, setting 51... 75 cm | 1.740 |
| 24.002-04 | Set of 5 buffers | 0.188 |
| 24.002-05 | Aluminium monobloc foot-ring | 5.500 |
| 24.002-06 | Set of 5 casters stopped when loaded | - |



| MSA | Sitting height | Base | Kg |
|--------|----------------|--------|--------|
| 24.061 | 41...54 cm | Wheels | 10.600 |

Watchmakers chair.

- 5 arm base with casters stopped when loaded for hard floors
- Gas filled lift cylinder with fingertip adjustment for seat height
- Tilt adjustment asynchronous of the seat and the backrest by a single lever
- Ergonomic seat with double curve in multi-ply varnished beech, 40.5 x 39 cm
- Articulated backrest in varnished beech 39 x 38 cm, adjustable in height.



| MSA | Sitting height | Base | Kg |
|--------|----------------|---------|--------|
| 24.020 | 51...75 cm | Buffers | 14.000 |

Watchmakers chair made of polyurethane (PUR) with buffers and foot-ring.
 - Seat 40 x 39 cm
 - Backrest 35 x 22 cm.



| MSA | Sitting height | Base | Kg |
|--------|----------------|---------|--------|
| 24.021 | 51...75 cm | Buffers | 11.000 |

Watchmakers chair made of wood with buffers and foot-ring.
 - Seat 40.5 x 39 cm
 - Backrest 40 x 22 cm.

Other chairs.



| MSA | Sitting height | Base | Kg |
|--------|----------------|---------|--------|
| 24.031 | 42...56 cm | Wheels | 10.200 |
| 24.033 | 44...64 cm | Wheels | 10.200 |
| 24.037 | 55...80 cm | Buffers | 10.200 |

TECLINE watchmakers chair made of black polyurethane foam.
 - 5 arm base with braked wheels or buffers for hard floor
 - Gas filled lift cylinder with fingertip adjustment for seat height
 - Adjustable backrest in height and depth.

Spare parts :

| MSA | Item | Kg |
|----------|--------------------------------|-------|
| 24.032-R | Set of 5 wheels for hard floor | 0.535 |
| 24.032-S | Buffer for hard floor | 0.040 |



| MSA | Sitting height | Base | Kg |
|--------|----------------|---------|--------|
| 24.025 | 42...53 cm | Wheels | 12.200 |
| 24.027 | 45...65 cm | Wheels | 12.200 |
| 24.029 | 55...80 cm | Buffers | 12.200 |

TECLINE watchmakers chair made of black polyurethane foam.
 - 5 arm base with braked wheels or buffers for hard floor
 - Adjustable circular foot-ring
 - Gas filled lift cylinder with fingertip adjustment for seat height
 - Adjustable backrest in height and depth.

Spare parts :

| MSA | Item | Kg |
|----------|--------------------------------|-------|
| 24.032-R | Set of 5 wheels for hard floor | 0.535 |
| 24.032-S | Buffer for hard floor | 0.040 |



CHAIRS AND STOOL

Excellent design quality meets superb ergonomics and special comfort.
 Neon represents the new generation of work chairs. No other production work chair has features that can compare.
 Thanks to its innovative 1+1 system, the upholstery can be changed with just one click.
 This means the Neon is flexible, sustainable and optically adaptable for the workplace.



| MSA | | Flex strip | Upholstery | Kg |
|-------------|-----|------------|----------------------|--------|
| 24.065-0110 | (1) | Orange | ● Fabric Duotec | 10.600 |
| 24.065-0111 | (1) | Orange | ● Fabric Duotec | 10.600 |
| 24.065-0112 | (1) | Orange | ● Fabric Duotec | 10.600 |
| 24.065-0113 | (1) | Orange | ● Artificial leather | 10.600 |
| 24.065-0114 | (1) | Orange | ● Artificial leather | 10.600 |
| 24.065-0115 | (1) | Orange | ● Artificial leather | 10.600 |
| 24.065-0116 | (1) | Orange | ● Integral foam | 10.600 |
| 24.065-0117 | (1) | Orange | ● Integral foam | 10.600 |
| 24.065-0118 | (1) | Orange | ● Integral foam | 10.600 |
| 24.065-0119 | (1) | Orange | ● Supertec | 10.600 |
| 24.065-0120 | (1) | Orange | ● Supertec | 10.600 |
| 24.065-0121 | (1) | Orange | ● Supertec | 10.600 |
| 24.065-0210 | (2) | Green | ● Fabric Duotec | 10.600 |
| 24.065-0211 | (2) | Green | ● Fabric Duotec | 10.600 |
| 24.065-0212 | (2) | Green | ● Fabric Duotec | 10.600 |
| 24.065-0213 | (2) | Green | ● Artificial leather | 10.600 |
| 24.065-0214 | (2) | Green | ● Artificial leather | 10.600 |
| 24.065-0215 | (2) | Green | ● Artificial leather | 10.600 |
| 24.065-0216 | (2) | Green | ● Integral foam | 10.600 |
| 24.065-0217 | (2) | Green | ● Integral foam | 10.600 |
| 24.065-0218 | (2) | Green | ● Integral foam | 10.600 |
| 24.065-0219 | (2) | Green | ● Supertec | 10.600 |
| 24.065-0220 | (2) | Green | ● Supertec | 10.600 |
| 24.065-0221 | (2) | Green | ● Supertec | 10.600 |

| MSA | | Flex strip | Upholstery | Kg |
|-------------|-----|------------|----------------------|--------|
| 24.065-0310 | (3) | Blue | ● Fabric Duotec | 10.600 |
| 24.065-0311 | (3) | Blue | ● Fabric Duotec | 10.600 |
| 24.065-0312 | (3) | Blue | ● Fabric Duotec | 10.600 |
| 24.065-0313 | (3) | Blue | ● Artificial leather | 10.600 |
| 24.065-0314 | (3) | Blue | ● Artificial leather | 10.600 |
| 24.065-0315 | (3) | Blue | ● Artificial leather | 10.600 |
| 24.065-0316 | (3) | Blue | ● Integral foam | 10.600 |
| 24.065-0317 | (3) | Blue | ● Integral foam | 10.600 |
| 24.065-0318 | (3) | Blue | ● Integral foam | 10.600 |
| 24.065-0319 | (3) | Blue | ● Supertec | 10.600 |
| 24.065-0320 | (3) | Blue | ● Supertec | 10.600 |
| 24.065-0321 | (3) | Blue | ● Supertec | 10.600 |
| 24.065-0410 | (4) | Grey | ● Fabric Duotec | 10.600 |
| 24.065-0411 | (4) | Grey | ● Fabric Duotec | 10.600 |
| 24.065-0412 | (4) | Grey | ● Fabric Duotec | 10.600 |
| 24.065-0413 | (4) | Grey | ● Artificial leather | 10.600 |
| 24.065-0414 | (4) | Grey | ● Artificial leather | 10.600 |
| 24.065-0415 | (4) | Grey | ● Artificial leather | 10.600 |
| 24.065-0416 | (4) | Grey | ● Integral foam | 10.600 |
| 24.065-0417 | (4) | Grey | ● Integral foam | 10.600 |
| 24.065-0418 | (4) | Grey | ● Integral foam | 10.600 |
| 24.065-0419 | (4) | Grey | ● Supertec | 10.600 |
| 24.065-0420 | (4) | Grey | ● Supertec | 10.600 |
| 24.065-0421 | (4) | Grey | ● Supertec | 10.600 |

- BIMOS work chair type Neon 2 on load-dependant braked double wheels.
- Seat height 45...62 cm
 - Permanent contact backrest (-2...19°). Height 57 cm
 - Ergonomic package with tension settings, seat depth, seat tilt and backrest height
 - Self-supporting and secure pneumatic cylinder with protection cover
 - Black aluminium base with 5 arms with load-dependant braked double wheels.

Stool.**HOROTEC® stool.**

| MSA | Sitting height | Base | Kg |
|--------|----------------|--------|-------|
| 24.060 | 55...79 cm | Wheels | 7.500 |

Wooden stool.

- 5 arm black polyamide base with casters stopped when loaded for hard floors
- Gas filled lift cylinder with fingertip adjustment for seat height
- Shock absorber
- Round seat in multi-ply varnished beech, thickness 19.5 mm.

Spare parts :

| MSA | Item | Kg |
|-----------|---|-------|
| 24.060-01 | Low column, height adjustment 40...53 cm | 1.148 |
| 24.060-02 | High column, height adjustment 55...79 cm | 1.198 |

ACCESSORIES FOR BENCHES

Footrests.



| MSA | Size | Kg |
|--------|--------------|-------|
| 24.038 | 450 x 350 mm | 1.450 |

Adjustable ESD footrest, ground cable 10 mm and eyelet Ø 4 mm.
 - Sturdy metal construction. Colour : black
 - Supports ergonomic seating comfort
 - ECOSTAT® anti-slip coating, rubber Feet
 - Adjustable height and inclination.



| MSA | Size | Kg |
|--------|--------------|----|
| 24.057 | 440 x 340 mm | - |

Footrest with gas spring. Non-slip rubber mat.
 Adjustable tilt range between 8° and 25°.
 Height adjustment from 100 to 340 mm.

Vices and bases.



| MSA | Size | Maximal opening | Kg |
|--------|-------------|-----------------|-------|
| 24.109 | 50 x 120 mm | 50 mm | 0.547 |

Black bench clamp for vice fixing.
 Compatible with vice MSA08.104.
 Delivered without fixing brass plate.

Vices : see chapter 08.



| MSA | Size | Maximal opening | Kg |
|--------|------------|-----------------|-------|
| 24.113 | 70 x 95 mm | 60 mm | 0.565 |

Grey bench clamp for vice fixing.
 Compatible with vice MSA08.104.
 Delivered without fixing brass plate.

Vices : see chapter 08.



| MSA | Size | Kg |
|--------|-----------------|-------|
| 24.405 | 60 x 60 x 50 mm | 0.150 |

Wooden vice base.
Easy mounting on a bench thanks to a screw fitted with a detachable handle.
Compatible with vice MSA08.104.
Delivered without fixing brass plate.

Vices : see chapter 08.

Accessory :

| MSA | Item | Kg |
|-----------|--|-------|
| 24.405-01 | Fixing kit composed of 1 metal insert and 1 screw M6 | 0.008 |



| MSA | Kg |
|--------|-------|
| 24.401 | 1.360 |

Steel support with 1 vice and 1 peg stick.



| MSA | Size | Kg |
|--------|------------------|-------|
| 24.410 | 205 x 55 x 27 mm | 0.150 |

Peg stick.

C-Frames.



| MSA | Kg |
|--------|-------|
| 24.523 | 0.760 |

Complete double swan-neck to be fixed on a bench.

Contents :

- 1 black anodized swan-neck MSA24.524
- 1 vacuum pen in black anodized aluminium MSA19.877
- 1 blower in black anodized aluminium MSA19.856
- 1 Nylon® soft brush Ø 10 mm MSA19.813
- 1 metre black pipe Ø 8 mm MSA19.851
- 1 metre black pipe Ø 6 mm MSA19.826
- 1 safety clip MSA19.862 for pipe Ø 8 mm
- 1 safety clip MSA19.861 for pipe Ø 6 mm
- 1 return spring MSA24.524-03, high tension
- 1 return spring MSA24.524-05, low tension
- 1 straight fitting Ø 6 mm MSA19.828-A
- 1 reduction 10-8 mm MSA19.849-D.



| MSA | Kg |
|--------|-------|
| 24.524 | 0.570 |

Double swan-neck alone to be fixed on a bench.

- (a) Drilling Ø : 60 mm
- (b) Thickness of the workplace : minimum 35 mm / maximum 55 mm.



| MSA | Kg |
|-----------|-------|
| 24.003-01 | 0.187 |

Bench socket for fixing a lamp.

Bench mats.



| MSA | | Colour | Size | Kg |
|--------|-----|--------|------------|-------|
| 24.206 | (1) | Black | 35 x 24 cm | 0.270 |
| 24.207 | (2) | White | 35 x 24 cm | 0.270 |
| 24.208 | (3) | Green | 35 x 24 cm | 0.270 |

Wrapper of 5 adherent and repositionable bench mats.
Thickness 0.5 mm.

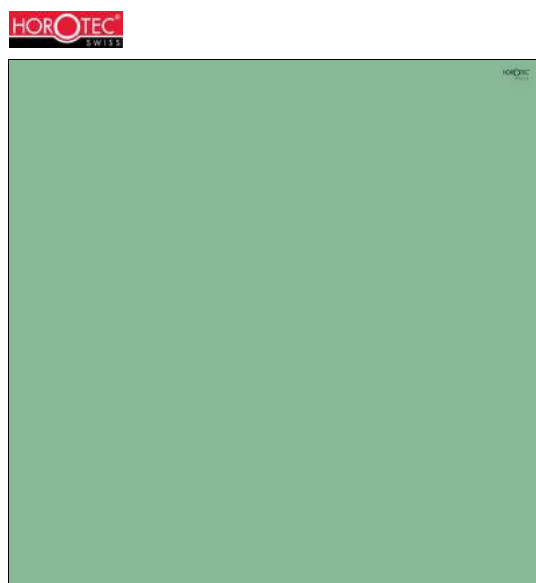
5 pieces



| MSA | | Colour | Type | Size | Kg |
|--------|-----|--------|---------------|------------|-------|
| 24.213 | (1) | Green | Self-adhesive | 32 x 24 cm | 0.190 |
| 24.214 | (2) | Green | Anti-skid | 32 x 24 cm | 0.195 |
| 24.215 | (3) | Black | - | 32 x 24 cm | 0.195 |

Wrapper of 1 soft and flexible bench mat.
Resists to solvents, benzine, alcohol, etc. (except acetone).

(1) Thickness 1.50 mm
(2+3) Thickness 2.00 mm



| MSA | | Colour | Type | Size | Kg |
|--------|--|--------|-----------|--------------|-------|
| 24.216 | | Green | Anti-skid | 100 x 100 cm | 1.400 |

Soft and flexible bench mat.
Resists to solvents, benzine, alcohol, etc. (except acetone).
Thickness 2.00 mm.

Size : 1 meter x 1 meter

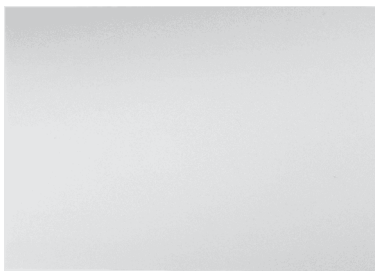
ACCESSORIES FOR BENCHES



| MSA | Size | Kg |
|--------|------------|-------|
| 24.203 | 35 x 24 cm | 0.140 |

Soft anti-skid green bench mat, no self-adhesive but soft enough to be very adherent.

Thickness 2 mm.



| MSA | Hardness | Size | Kg |
|--------|----------|--------------|-------|
| 24.224 | 40 Shore | 29.5 x 21 cm | 0.240 |

Opaque soft silicone sheet.

Thickness 3 mm.



| MSA | Hardness | Size | Kg |
|--------|----------|--------------|-------|
| 24.225 | 70 Shore | 29.5 x 21 cm | 0.250 |

Transparent hard silicone sheet.

Thickness 3 mm.



| MSA | Size | Kg |
|--------|-------------|-------|
| 24.210 | 20 x 3.5 cm | 0.010 |
| 24.211 | 30 x 3.5 cm | 0.015 |

Self-adhesive PVC band to stick on bench, for winding watches.

Ridged trays.



| MSA | Size | Kg |
|--------|------------|-------|
| 24.220 | 15 x 10 cm | 0.046 |
| 24.221 | 30 x 18 cm | 0.160 |

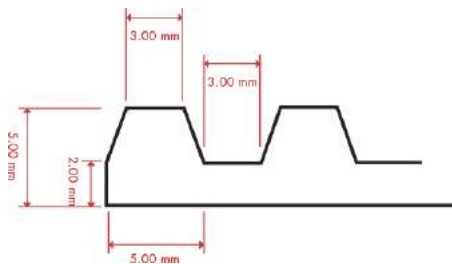
Self-adhesive ridged tray to avoid tools rolling.



| MSA | Size | Kg |
|------------|--------------|-------|
| 24.222 (1) | 15.3 x 10 cm | 0.070 |
| 24.223 | 25.7 x 15 cm | 0.176 |

Black silicone anti-slip tray with grooves.

- (1) with 19 grooves
- (2) with 32 grooves



PVC blanket.



| MSA | Size | Kg |
|--------|--------------|-------|
| 24.205 | 100 x 135 cm | 0.385 |

PVC silvered blanket for bench cover to protect tools and parts from dust.
Sold by metre.
Thickness 0.25 mm.

26



POLISHING / ABRASIVES

26 - 2

PROTECTIONS

26 - 16

CLEANING

26 - 24

SOLUTIONS

26 - 33

LUMINOUS PIGMENTS

26 - 41

OTHER ARTICLES

26 - 42

GLUES / ADHESIVES

26 - 44

Polishind compounds.



ASSORTMENT LUXOR® (1) (2) (3) (4) (5) (6)

| MSA | Kg | Assortment of 7 polishing compounds LUXOR® allowing to obtain clean pieces, to decrease working time and the consumption. |
|--------|-------|---|
| 26.014 | 0.950 | |

| MSA | Grit | Colour | Material | Operation | Support | Size | Kg |
|------------|-------|--------|---|---|---|--------------|-------|
| 26.019 (1) | 0.1 µ | Orange | Fragile precious metals | Optimal shinning (allows to replace the American red) | Buffing cotton disc and wheel with cotton plates | Ø 30 x 80 mm | 0.110 |
| 26.021 (3) | 0.3 µ | White | Platinum Grey/white gold Stainless steel - Silver | Finishing + polishing of diamond gold pieces | Buffing cotton disc and wheel with cotton plates | Ø 30 x 80 mm | 0.100 |
| 26.020 (2) | 0.5 µ | Yellow | Yellow and pink gold | Finishing | Buffing cotton disc and wheel with cotton plates | Ø 30 x 80 mm | 0.103 |
| 26.018 (4) | 1.0 µ | Blue | Non-ferrous (brass type) | Finishing | Buffing cotton disc | Ø 30 x 80 mm | 0.118 |
| 26.017 (5) | 1.0 µ | Grey | Platinum | Preparation | Polishing cotton disc and wheel with cotton plates | Ø 30 x 80 mm | 0.131 |
| 26.016 (6) | 3.0 µ | Green | All metals | Preparation (middle defects) | Polishing cotton disc and wheel with cotton plates | Ø 30 x 80 mm | 0.111 |
| 26.015 (7) | 6.5 µ | Pink | All metals | Preparation (large defects) | Polishing cotton felt/disc and wheel with cotton plates | Ø 30 x 80 mm | 0.107 |

Polishing compound LUXOR®. See assortment MSA26.014.

Polishing compounds for titanium.



| MSA | Type | Operation | Size | Kg |
|------------|---------|---------------------------------|---------------|-------|
| 26.026 (1) | HRA 17 | Preparation (greasy) | Ø 40 x 220 mm | 0.500 |
| 26.027 (2) | HRA 171 | Medium preparation (dry) | Ø 40 x 220 mm | 0.500 |
| 26.028 (3) | HRA 20 | Fine polishing (dry) | Ø 40 x 220 mm | 0.500 |
| 26.029 (4) | HRA 30 | Super-finishing polishing (dry) | Ø 40 x 220 mm | 0.500 |

Polishing compound for preparation and polishing of titanium.

DIALUX polishing compounds.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.560 | 100 x 33 x 30 mm | 0.114 |

DIALUX BLUE polishing compound for use with brushes or cotton, felt or flannel discs.

Super finishing for all metals.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.561 | 100 x 33 x 30 mm | 0.115 |

DIALUX WHITE polishing compound for use with brushes or cotton, felt or flannel discs.

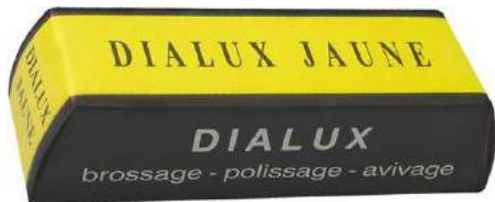
Shining and fine buffing of all metals.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.562 | 100 x 33 x 30 mm | 0.120 |

DIALUX GREY polishing compound for use with brushes or cotton, felt or flannel discs.

Stainless steel buffing.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.563 | 100 x 33 x 30 mm | 0.117 |

DIALUX YELLOW polishing compound for use with brushes or cotton, felt or flannel discs.

Polishing and buffing of tender metals (copper, bronze, zamak, aluminium alloys, etc.) and plastic materials or coatings.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.564 | 100 x 33 x 30 mm | 0.149 |

DIALUX RED polishing compound for use with brushes or cotton, felt or flannel discs.

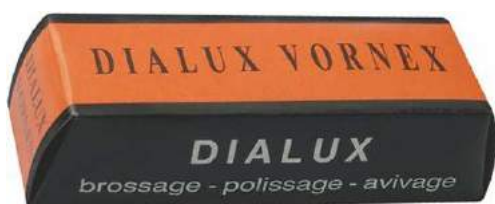
Fine buffing for gold and silver.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.565 | 100 x 33 x 30 mm | 0.140 |

DIALUX GREEN polishing compound for use with brushes or cotton, felt or flannel discs.

Fine buffing of special steels, very hard alloys (chrome, cobalt chrome, titanium, etc.).



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.566 | 100 x 33 x 30 mm | 0.153 |

DIALUX VORNEX polishing compound for use with brushes or cotton, felt or flannel discs. Brushing or pre-polishing erases any scratches or scrapes from current metals. This compound doesn't leave a shiny surface. For finishing use a buffing compound.

Brushing or pre-polishing clears the scratches or stripes of all common metals.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.567 | 100 x 33 x 30 mm | 0.095 |

DIALUX BLACK polishing compound for use with brushes or cotton, felt or flannel discs.
Super finishing of silver.

POLYWATCH®.polishing compounds.



| MSA | Packaging | Size | Kg |
|----------|-------------|--------------|-------|
| 26.552-2 | Tube of 5 g | Ø 20 x 80 mm | 0.007 |

POLYWATCH® polishing paste for scraped plastic watch glasses. Simply apply the paste to the surface and rub away the scratches with a cloth.



| MSA | Contents | Packaging size | Kg |
|--------|----------|------------------|-------|
| 26.499 | 2x 0.5 g | 90 x 12 x 195 mm | 0.036 |

Polishing paste POLYWATCH®.
High-Performance Diamond Polish for watch mineral crystals.
- Removes fine, light and medium deep scratches
- 2-Component-System :

Step 1 - removing the scratches with REPAIR 1
Step 2 - polishing on high gloss with FINISH 2

- Professional results thanks to the "Diamond-Polishing-Technology" (DPT)
- Easy and effective application
- Repair instead of replacing
- For approx. 30 to 40 applications.

Contents :
- 1x REPAIR 1 (0.5 g)
- 1x FINISH 2 (0.5 g)
- 1x polishing rod
- 2x 6 polishing strips.

Polishing compound for scrystals.



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.550 | 130 x 30 x 30 mm | 0.140 |

Polishing compound for scraped plastic watch crystals.

Diamond powders and pastes.



| MSA | Type | Size | Kg |
|------------|------------|----------------|-------|
| 26.575 | 10 carats | Ø 17 x 61.5 mm | 0.005 |
| 26.575-20 | 20 carats | Ø 17 x 61.5 mm | 0.005 |
| 26.575-50 | 50 carats | Ø 17 x 61.5 mm | 0.005 |
| 26.575-100 | 100 carats | Ø 17 x 61.5 mm | 0.005 |

DIADUST® diamond powder, calibre quality PM (standard 0-2). DIADUST® micron diamond powder is produced from natural diamond. DIADUST® is preferred in some applications requiring very free cutting properties, as well as for the production of some electrometallic tools and wheels. PM is also used in some polishing applications, for diamond cutting and the fine polishing of diamond drawing dies.



| MSA | Type | Packaging | Size | Kg |
|--------|-------|-----------------|---------------|-------|
| 26.576 | 1.103 | Syringe of 10 g | Ø 35 x 190 mm | 0.085 |
| 26.577 | 1.105 | Syringe of 10 g | Ø 35 x 190 mm | 0.085 |
| 26.578 | 3.103 | Syringe of 10 g | Ø 35 x 190 mm | 0.085 |
| 26.579 | 3.105 | Syringe of 10 g | Ø 35 x 190 mm | 0.085 |

BIODIAMANT® paste. Abrasive diamond compound only containing pure diamond powder without impurities, soluble in water. Paste recommended for finishing operations and super optic polishing. The end result is a brilliant shine with a polished aspect.

Explanation of types :
 1.103 : granulous = 1 µ ; concentration : strong
 1.105 : granulous = 1 µ ; concentration : extra-strong
 3.103 : granulous = 3 µ ; concentration : strong
 3.105 : granulous = 3 µ ; concentration : extra-strong

Diamantine.



| MSA | Type | Packaging | Kg |
|--------|---------------------|--------------|-------|
| 26.573 | Fine PA 2.50 - 10 µ | Box of 30 cc | 0.060 |
| 26.570 | Fine PA 2.50 - 10 µ | Bag of 1 Kg | 1.000 |
| - | - | - | - |
| 26.572 | Medium XE6 4 - 19 µ | Box of 30 cc | 0.060 |
| 26.571 | Medium XE6 4 - 19 µ | Bag of 1 Kg | 1.000 |

Diamantine. Top quality polishing powder, ideal to get finer surfaces.



| MSA | Size | Kg |
|--------|--------------|-------|
| 26.581 | Ø 65 x 35 mm | 0.077 |

Diamantine box made of water resist birch tree wood. The base has a polished steel plate Ø 45 mm and is stackable in view to keep different sorts of diamantine on each plate that can be used several times.

Spare part :

| MSA | Item | Kg |
|----------|--------------------|-------|
| 26.581-B | Base, Ø 65 x 20 mm | 0.048 |
| 26.581-C | Lid, Ø 65 x 20 mm | 0.029 |



| MSA | Size | Kg |
|--------|------------------|-------|
| 26.180 | 120 x 40 x 20 mm | 0.940 |

Zinc plate.
Delivered in 1 wooden box.

Bees wax.



| MSA | Kg |
|--------|-------|
| 26.183 | 0.050 |

Bees wax in cone shape.

Scraper and scratch brush.



| MSA | Size | Kg |
|--------|------------|-------|
| 26.170 | 90 x 10 mm | 0.025 |

Complete scraper :
- 1 scraper handle with tightening screw
- 1 3-sided tapered and reversible blade.

Spare parts :



| MSA | Item | Kg |
|----------|----------------------|-------|
| 26.170-A | (1) Triangular blade | 0.004 |
| 26.170-B | Scraper handle | 0.021 |



| MSA | Size | Kg |
|--------|--------------|-------|
| 26.152 | Ø 8 x 135 mm | 0.011 |

Scratch brush, pen shape with glass fibre Ø 2 mm bristles.

Spare part :

| MSA | Item | Kg |
|--------|---|-------|
| 26.153 | Refill, Ø 2 x 110 mm Pouch of 12 pieces, 135 x 30 x 6 mm | 0.009 |



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.150 | Ø 12 x 120 mm | 0.012 |

Scratch brush, pen shaped with glass fibre Ø 4 mm bristles.

Spare part :

| MSA | Item | Kg |
|--------|--|-------|
| 26.151 | Refill, Ø 4 x 40 mm Box of 24 pieces, 65 x 50 x 12 mm | 0.034 |



| MSA | Ø | Length | Kg |
|--------|-------|--------|-------|
| 26.165 | 8 mm | 180 mm | 0.030 |
| 26.166 | 15 mm | 180 mm | 0.060 |
| 26.167 | 20 mm | 180 mm | 0.100 |
| 26.168 | 25 mm | 180 mm | 0.150 |
| 26.169 | 30 mm | 180 mm | 0.225 |

Glass fibre brush wrapped in cotton rope.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.154 | Ø 12 x 120 mm | 0.013 |

Scratch brush, pen shaped with brass fibre bristles Ø 4 mm.

Spare part :

| MSA | Item | Kg |
|--------|--|-------|
| 26.155 | Refill, Ø 4 x 40 mm Box of 24 pieces, 60 x 40 x 15 mm | 0.036 |



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.172 | Ø 12 x 120 mm | 0.013 |

Scratch brush, pen shaped with NYLON® fibre Ø 4 mm bristles.

Spare part :

| MSA | Item | Kg |
|--------|--|-------|
| 26.173 | Refill, Ø 4 x 40 mm Box of 24 pieces, 65 x 50 x 12 mm | 0.016 |



| MSA | Size | Kg |
|--------|------------|-------|
| 26.160 | 60 x 27 mm | 0.012 |

Large brass wire scratch brush.

White leather buff sticks for cleaning or polishing.
Also used for closing thin and delicate watch case backs by hand pressure.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.422 | 6 mm | 215 mm | 0.004 |

White leather buff stick.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.423 | 6 mm | 110 mm | 0.001 |

Plastic protection cover for MSA26.422.
Sold separately.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.420 | 12 mm | 215 mm | 0.008 |

White leather buff stick.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.421 | 12 mm | 110 mm | 0.002 |

Plastic protection cover for MSA26.420.
Sold separately.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.424 | 22 mm | 245 mm | 0.020 |

White leather buff stick.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.425 | 22 mm | 110 mm | 0.002 |

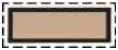
Plastic protection cover for MSA26.424.

Emery buff sticks used for cleaning and polishing.
Delivered in different grits from coarse (150) to fine (2000).



| MSA | Grit | Length | Size | Kg |
|-------------|------|--------|-----------------|-------|
| 26.405-150 | 150 | 290 mm | 6 x 6 x 6 mm | 0.004 |
| 26.405-240 | 240 | 290 mm | 6 x 6 x 6 mm | 0.004 |
| 26.405-500 | 500 | 290 mm | 6 x 6 x 6 mm | 0.004 |
| 26.405-1200 | 1200 | 290 mm | 6 x 6 x 6 mm | 0.004 |
| 26.405-2000 | 2000 | 290 mm | 6 x 6 x 6 mm | 0.004 |
| - | - | - | - | - |
| 26.404-150 | 150 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| 26.404-180 | 180 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| 26.404-240 | 240 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| 26.404-500 | 500 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| 26.404-1200 | 1200 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| 26.404-2000 | 2000 | 290 mm | 8 x 8 x 8 mm | 0.006 |
| - | - | - | - | - |
| 26.403-150 | 150 | 290 mm | 10 x 10 x 10 mm | 0.010 |
| 26.403-240 | 240 | 290 mm | 10 x 10 x 10 mm | 0.010 |
| 26.403-500 | 500 | 290 mm | 10 x 10 x 10 mm | 0.010 |
| 26.403-1200 | 1200 | 290 mm | 10 x 10 x 10 mm | 0.010 |
| 26.403-2000 | 2000 | 290 mm | 10 x 10 x 10 mm | 0.010 |

Emery buff stick used for cleaning and polishing.
Triangular shape.



| MSA | Grit | Length | Size | Kg |
|-------------|------|--------|-----------|-------|
| 26.401-150 | 150 | 290 mm | 8 x 4 mm | 0.007 |
| 26.401-180 | 180 | 290 mm | 8 x 4 mm | 0.007 |
| 26.401-240 | 240 | 290 mm | 8 x 4 mm | 0.007 |
| 26.401-500 | 500 | 290 mm | 8 x 4 mm | 0.007 |
| 26.401-1200 | 1200 | 290 mm | 8 x 4 mm | 0.007 |
| 26.401-2000 | 2000 | 290 mm | 8 x 4 mm | 0.007 |
| - | - | - | - | - |
| 26.400-150 | 150 | 290 mm | 20 x 6 mm | 0.017 |
| 26.400-240 | 240 | 290 mm | 20 x 6 mm | 0.017 |
| 26.400-500 | 500 | 290 mm | 20 x 6 mm | 0.017 |
| 26.400-1200 | 1200 | 290 mm | 20 x 6 mm | 0.017 |
| 26.400-2000 | 2000 | 290 mm | 20 x 6 mm | 0.017 |

Emery buff stick used for cleaning and polishing.
Rectangular shape.



| MSA | Grit | Length | Size | Kg |
|-------------|------|--------|------------|-------|
| 26.409-150 | 150 | 290 mm | 5 x 2.5 mm | 0.002 |
| 26.409-240 | 240 | 290 mm | 5 x 2.5 mm | 0.002 |
| 26.409-500 | 500 | 290 mm | 5 x 2.5 mm | 0.002 |
| 26.409-1200 | 1200 | 290 mm | 5 x 2.5 mm | 0.002 |
| 26.409-2000 | 2000 | 290 mm | 5 x 2.5 mm | 0.002 |
| - | - | - | - | - |
| 26.408-180 | 180 | 290 mm | 10 x 5 mm | 0.007 |
| 26.408-240 | 240 | 290 mm | 10 x 5 mm | 0.007 |
| 26.408-500 | 500 | 290 mm | 10 x 5 mm | 0.007 |
| 26.408-2000 | 2000 | 290 mm | 10 x 5 mm | 0.007 |

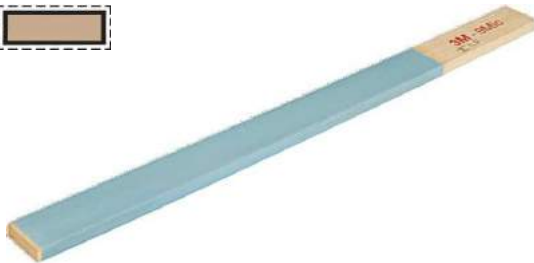
Emery buff stick used for cleaning and polishing.
Half-round shape.



| MSA | Grit | Length | Size | Kg |
|-------------|------|--------|----------|-------|
| 26.406-500 | 500 | 290 mm | 9 x 4 mm | 0.006 |
| 26.406-1200 | 1200 | 290 mm | 9 x 4 mm | 0.006 |
| 26.406-2000 | 2000 | 290 mm | 9 x 4 mm | 0.006 |

Emery buff stick used for cleaning and polishing.
SAge leaf shape.

Abrasive buff sticks 3M ILF, IMFF, 213Q or 401Q used for cleaning and polishing.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|-------------|--------|-----------|-------|
| 26.428-001 | 1 μ | Light green | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-003 | 3 μ | Pink | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-005 | 5 μ | Brown | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-009 | 9 μ | Light blue | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-012 | 12 μ | Yellow | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-030 | 30 μ | Green | 300 mm | 20 x 6 mm | 0.014 |
| 26.428-040 | 40 μ | Dark blue | 300 mm | 20 x 6 mm | 0.014 |

Wooden stick covered with 3M ILF abrasive paper.
Rectangular shape.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|-------------|--------|--------------|-------|
| 26.429-001 | 1 μ | Light green | 300 mm | 6 x 6 x 6 mm | 0.003 |
| 26.429-003 | 3 μ | Pink | 300 mm | 6 x 6 x 6 mm | 0.003 |
| 26.429-005 | 5 μ | Brown | 300 mm | 6 x 6 x 6 mm | 0.003 |
| 26.429-009 | 9 μ | Light blue | 300 mm | 6 x 6 x 6 mm | 0.003 |
| 26.429-012 | 12 μ | Yellow | 300 mm | 6 x 6 x 6 mm | 0.003 |
| 26.429-030 | 30 μ | Green | 300 mm | 6 x 6 x 6 mm | 0.003 |

Wooden stick covered with 3M ILF abrasive paper.
Triangular shape.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|------------|--------|-----------|-------|
| 26.426-009 | 9 μ | Light blue | 300 mm | 20 x 6 mm | 0.021 |
| 26.426-015 | 15 μ | Orange | 300 mm | 20 x 6 mm | 0.021 |
| 26.426-020 | 20 μ | Red | 300 mm | 20 x 6 mm | 0.021 |
| 26.426-030 | 30 μ | Green | 300 mm | 20 x 6 mm | 0.021 |
| 26.426-040 | 40 μ | Blue | 300 mm | 20 x 6 mm | 0.021 |
| 26.426-060 | 60 μ | Black | 300 mm | 20 x 6 mm | 0.021 |

Wooden stick covered with 3M IMFF abrasive oriented grit paper.
Rectangular shape.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|------------|--------|--------------|-------|
| 26.427-009 | 9 μ | Light blue | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.427-015 | 15 μ | Orange | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.427-020 | 20 μ | Red | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.427-030 | 30 μ | Green | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.427-040 | 40 μ | Blue | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.427-060 | 60 μ | Black | 300 mm | 6 x 6 x 6 mm | 0.004 |

Wooden stick covered with 3M IMFF abrasive oriented grit paper.
Triangular shape.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|------------|--------|--------------|-------|
| 26.435-009 | 9 μ | Light blue | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.435-015 | 15 μ | Orange | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.435-020 | 20 μ | Red | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.435-030 | 30 μ | Green | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.435-040 | 40 μ | Blue | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.435-060 | 60 μ | Black | 300 mm | 6 x 6 x 6 mm | 0.004 |

Wooden stick with 1 side covered with 3M IMFF abrasive paper.
Triangular shape.



| MSA | Grit | Colour | Length | Size | Kg |
|------------|------|-------------|--------|--------------|-------|
| 26.436-001 | 1 μ | Light green | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-003 | 3 μ | Pink | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-005 | 5 μ | Brown | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-009 | 9 μ | Light blue | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-012 | 12 μ | Yellow | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-030 | 30 μ | Green | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.436-040 | 40 μ | Dark blue | 300 mm | 6 x 6 x 6 mm | 0.004 |

Wooden stick with 1 side covered with 3M ILF abrasive paper.
Triangular shape.



| MSA | Grit | Length | Size | Kg |
|------------|------|--------|--------------|-------|
| 26.437-150 | P150 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.437-240 | P240 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.437-320 | P320 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.437-400 | P400 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.437-600 | P600 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.437-800 | P800 | 300 mm | 6 x 6 x 6 mm | 0.004 |

Wooden stick with 1 side covered with 3M 213Q abrasive paper.
Triangular shape.



| MSA | Grit | Length | Size | Kg |
|-------------|-------|--------|--------------|-------|
| 26.438-1000 | P1000 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.438-1200 | P1200 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.438-1500 | P1500 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.438-2000 | P2000 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.438-2500 | P2500 | 300 mm | 6 x 6 x 6 mm | 0.004 |

Wooden stick with 1 side covered with 3M 401Q abrasive paper.
Triangular shape.

Wooden sticks only to be covered with different kinds of abrasive sheets.



| MSA | Length | Size | Kg |
|-------------|--------|-----------|-------|
| 26.441-0704 | 300 mm | 7 x 4 mm | 0.010 |
| 26.441-2006 | 300 mm | 20 x 6 mm | 0.014 |

Wooden stick only, rectangular shape.



| MSA | Length | Size | Kg |
|-----------|--------|-----------------|-------|
| 26.440-06 | 300 mm | 6 x 6 x 6 mm | 0.004 |
| 26.440-08 | 300 mm | 8 x 8 x 8 mm | 0.005 |
| 26.440-10 | 300 mm | 10 x 10 x 10 mm | 0.006 |

Wooden stick only, triangular shape.

Glass plates.



| MSA | Size | Kg |
|----------|-------------------|-------|
| 26.185 | 300 x 250 x 10 mm | 1.140 |
| 26.185-A | 250 x 150 x 6 mm | 0.552 |
| 26.185-B | 150 x 50 x 6 mm | 0.108 |
| 26.185-C | 150 x 30 x 6 mm | 0.066 |

Glass plate with bevelled and polished edges to be used as a support for abrasive papers.

Products to be used with cabrons, sheets and abrasive discs.



| MSA | Volume | Kg |
|--------|--------|-------|
| 26.380 | 400 ml | 0.500 |

Oil spray NEOVAL®.
Improves output and cut of any abrasive or polishing belts and prevents generation of heat.



| MSA | Volume | Kg |
|--------|--------|-------|
| 26.382 | 400 ml | 0.500 |

Glue spray 3M® SPRAY MOUNT to stick discs on lapidary.

Abrasive paper made of aluminium oxide or emery paper.



| MSA | Grit | Colour | Size | Kg |
|-------------|-------|-------------|----------------|-------|
| 26.299-0003 | 0.3 μ | White | 215.9 x 279 mm | 0.017 |
| 26.299-001 | 1 μ | Light green | 215.9 x 279 mm | 0.017 |
| 26.299-003 | 3 μ | Pink | 215.9 x 279 mm | 0.017 |
| 26.299-009 | 9 μ | Light blue | 215.9 x 279 mm | 0.017 |
| 26.299-012 | 12 μ | Yellow | 215.9 x 279 mm | 0.017 |
| 26.299-030 | 30 μ | Dark green | 215.9 x 279 mm | 0.017 |
| 26.299-040 | 40 μ | Dark blue | 215.9 x 279 mm | 0.017 |

Self-adhesive aluminium oxide abrasive sheets, A4 size.
Type ILF266X.



| MSA | Grit | Size | Kg |
|------------|-------|--------------|-------|
| 26.296-009 | 9 μ | 230 x 280 mm | 0.020 |
| 26.296-015 | 15 μ | 230 x 280 mm | 0.020 |
| 26.296-020 | 20 μ | 230 x 280 mm | 0.020 |
| 26.296-030 | 30 μ | 230 x 280 mm | 0.020 |
| 26.296-040 | 40 μ | 230 x 280 mm | 0.020 |
| 26.296-060 | 60 μ | 230 x 280 mm | 0.020 |
| 26.296-080 | 80 μ | 230 x 280 mm | 0.020 |
| 26.296-100 | 100 μ | 230 x 280 mm | 0.020 |

Self-adhesive aluminium oxide abrasive oriented grit sheets, A4 size.
Type IMF268L.



| MSA | Grit | Colour | Size | Kg |
|------------|------|------------|----------------|-------|
| 26.291-003 | 3 μ | Pink | 215.9 x 279 mm | 0.010 |
| 26.291-005 | 5 μ | Brown | 215.9 x 279 mm | 0.010 |
| 26.291-009 | 9 μ | Light blue | 215.9 x 279 mm | 0.010 |
| 26.291-012 | 12 μ | Yellow | 215.9 x 279 mm | 0.010 |
| 26.291-030 | 30 μ | Green | 215.9 x 279 mm | 0.010 |

Aluminium oxide abrasive sheets to be used only with wooden buff sticks.
Type ILF261X.



| MSA | Grit | Colour | Size | Kg |
|------------|------|--------|----------------|-------|
| 26.292-001 | 1 μ | Green | 215.9 x 279 mm | 0.007 |

Aluminium oxide abrasive sheets to be used only with wooden buff sticks.
Type ILF262X.



| MSA | Grit | Colour | Size | Kg |
|------------|------|------------|--------------|-------|
| 26.294-009 | 9 μ | Light blue | 230 x 280 mm | 0.014 |
| 26.294-015 | 15 μ | Orange | 230 x 280 mm | 0.014 |
| 26.294-020 | 20 μ | Red | 230 x 280 mm | 0.014 |
| 26.294-030 | 30 μ | Green | 230 x 280 mm | 0.014 |
| 26.294-060 | 60 μ | Black | 230 x 280 mm | 0.014 |

Aluminium oxide abrasive sheets to be used only with wooden buff sticks.
Type IMF262L.



| MSA | Grit | Size | Kg |
|-------------|------|--------------|-------|
| 26.300-0180 | P180 | 230 x 280 mm | 0.015 |

Emery paper abrasive sheets type SIANOR B 1600, used for cleaning or polishing.
Self-adhesive sheets and rolls available on request.



| MSA | Grit | Size | Kg |
|--------|------|--------------|-------|
| 26.331 | 40 | 230 x 280 mm | 0.045 |
| 26.330 | 60 | 230 x 280 mm | 0.045 |
| 26.329 | 80 | 230 x 280 mm | 0.045 |
| 26.328 | 100 | 230 x 280 mm | 0.040 |
| 26.327 | 120 | 230 x 280 mm | 0.040 |
| 26.326 | 150 | 230 x 280 mm | 0.035 |
| 26.325 | 180 | 230 x 280 mm | 0.035 |
| 26.324 | 220 | 230 x 280 mm | 0.030 |
| 26.323 | 240 | 230 x 280 mm | 0.030 |
| 26.322 | 280 | 230 x 280 mm | 0.030 |
| 26.321 | 320 | 230 x 280 mm | 0.025 |
| 26.320 | 400 | 230 x 280 mm | 0.025 |

Abrasive sheet of corundum cloth SIAROL 2915.

Abrasive eraser blocks.



| MSA | Grit | Size | Kg |
|------------|----------------|-----------------|-------|
| 26.297-30 | 30 Very coarse | 80 x 50 x 20 mm | 0.105 |
| 26.297-60 | 60 Coarse | 80 x 50 x 20 mm | 0.103 |
| 26.297-120 | 120 Medium | 80 x 50 x 20 mm | 0.103 |
| 26.297-240 | 240 Fine | 80 x 50 x 20 mm | 0.096 |

SCHLEIFFIX abrasive eraser block to clean, polish and shine various materials such as metal, wood, paper, paint, plastic and rubber. The abrasive grit is throughout the block and not only on the surface.

Abrasive discs.



| MSA | Ø | Kg |
|--------|--------|-------|
| 26.361 | 240 mm | 0.005 |

Intermediate abrasive disc.



| MSA | Grit | Ø | Kg |
|-------------|------|--------|-------|
| 26.363-1000 | 1000 | 240 mm | 0.005 |

Abrasive disc SIAWAT 1913.

Latex roll on finger cots, excellent quality. Indispensable for manipulating delicate pieces that cannot be in direct skin contact and also for protecting the fingers during polishing. Ideal for the watch, electronic, chemical and pharmaceutical industries.



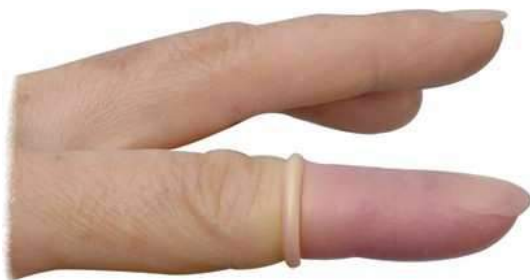
| MSA | Size | Ø | Quantity | Kg |
|-----------|---------|-------|----------|-------|
| 26.224 | Medium | 18 mm | 720 | 0.343 |
| 26.225 | Large | 20 mm | 720 | 0.360 |
| 26.226 | X-Large | 22 mm | 720 | 0.460 |
| - | - | - | - | - |
| 26.231-M | Medium | 18 mm | 100 | 0.047 |
| 26.231-L | Large | 20 mm | 100 | 0.050 |
| 26.231-XL | X-Large | 22 mm | 100 | 0.055 |

Rolled antistatic latex pink finger cots without talc.



| MSA | Size | Quantity | Kg |
|--------|---------|----------|-------|
| 26.217 | Small | 1'440 | 0.560 |
| 26.218 | Medium | 1'440 | 0.600 |
| 26.219 | Large | 1'440 | 0.700 |
| 26.220 | X-Large | 1'440 | 0.840 |
| - | - | - | - |
| 26.227 | Small | 100 | 0.038 |
| 26.228 | Medium | 100 | 0.040 |
| 26.229 | Large | 100 | 0.050 |

Rolled latex finger cots without talc.



| MSA | Size | Quantity | Kg |
|--------|--------|----------|-------|
| 26.200 | Small | 1'440 | 0.540 |
| 26.202 | Medium | 1'440 | 0.600 |
| 26.201 | Large | 1'440 | 0.665 |
| - | - | - | - |
| 26.210 | Small | 100 | 0.045 |
| 26.212 | Medium | 100 | 0.047 |
| 26.211 | Large | 100 | 0.051 |

Rolled latex pink finger cots with talc.



| MSA | Size | Quantity | Kg |
|-----------|---------|----------|-------|
| 26.244-S | Small | 720 | 0.330 |
| 26.244-M | Medium | 720 | 0.343 |
| 26.244-L | Large | 720 | 0.360 |
| 26.244-XL | X-Large | 720 | 0.460 |

Rolled antistatic latex pink finger cots without talc.

Rolled finger cots in black latex.



| MSA | Size | Quantity |
|-----------|---------|----------|
| 26.258-S | Small | 1'000 |
| 26.258-M | Medium | 1'000 |
| 26.258-L | Large | 1'000 |
| 26.258-XL | X-Large | 1'000 |
| - | - | - |
| 26.268-S | Small | 100 |
| 26.268-M | Medium | 100 |
| 26.268-L | Large | 100 |
| 26.268-XL | X-Large | 100 |

Antistatic (ESD) rolled finger cots in 100% natural black latex without powder. The black color of the fingertips makes it easier to visualize the dust. The ends are provided with rough edges to facilitate the gripping of parts. Surface resistivity of 106-108 Ωm/m2.

Rolled nitrile finger cots.



| MSA | Size | Quantity |
|-----------|---------|----------|
| 26.259-S | Small | 1'000 |
| 26.259-M | Medium | 1'000 |
| 26.259-L | Large | 1'000 |
| 26.259-XL | X-Large | 1'000 |
| - | - | - |
| 26.269-S | Small | 100 |
| 26.269-M | Medium | 100 |
| 26.269-L | Large | 100 |
| 26.269-XL | X-Large | 100 |

Rolled white nitrile finger cots without powder. Antistatic, chlorine and sulphur free. Ideal alternative in case of latex allergy.



| MSA | Size | Quantity | Kg |
|-----------|---------|----------|-------|
| 26.208-S | Small | 1'440 | 0.560 |
| 26.208-M | Medium | 1'440 | 0.600 |
| 26.208-L | Large | 1'440 | 0.700 |
| 26.208-XL | X-Large | 1'440 | 0.840 |

Rolled antistatic nitrile finger cots without talc.

Finger cots distributors.



| MSA | Size | Kg |
|--------|--------------------|-------|
| 26.253 | 600 x 174 x 206 mm | 2.780 |

Finger cots distributor with 4 containers. Container : 142 x 130 x 136 mm.

PROTECTIONS



| MSA | Size | Kg |
|--------|--------------------|-------|
| 26.254 | 600 x 209 x 240 mm | 3.600 |

Finger cots distributor with 3 containers.
Container : 190 x 146 x 164 mm.

Leather fingers.



| MSA | Size | Finger | Kg |
|--------|--------|--------|-------|
| 26.213 | Medium | Index | 0.003 |
| 26.214 | Medium | Thumb | 0.003 |

Leather finger protection with elastic hold, very comfortable.



| MSA | Size | Finger | Kg |
|-----------|---------|--------|-------|
| 26.236-S | Small | Index | 0.001 |
| 26.236-M | Medium | Index | 0.002 |
| 26.236-L | Large | Index | 0.004 |
| 26.236-XL | X-Large | Thumb | 0.002 |

White leather finger protection, very comfortable.



| MSA | Kg |
|--------|-------|
| 26.238 | 0.005 |

Leather white finger protection with elastic, standard.



| MSA | Size | Kg |
|-----------|---------|-------|
| 26.241-XS | X-Small | 0.002 |
| 26.241-S | Small | 0.002 |
| 26.241-M | Medium | 0.002 |
| 26.241-L | Large | 0.002 |
| 26.241-XL | X-Large | 0.003 |

White leather and short finger protection, very comfortable.



| MSA | Size | Kg |
|----------|-------|-------|
| 26.242-L | Large | 0.004 |

Black leather and short finger protection, very comfortable.



| MSA | Size | Kg |
|-----------|---------|-------|
| 26.243-XL | X-Large | 0.003 |

White leather and long finger protection, very comfortable.

Protection gloves.



| MSA | Size | Quantity | Packaging size | Kg |
|-----------|----------------|----------|-------------------|-------|
| 26.070-S | Small (6-7) | 100 | 240 x 130 x 70 mm | 0.080 |
| 26.070-M | Medium (7-8) | 100 | 240 x 130 x 70 mm | 0.080 |
| 26.070-L | Large (8-9) | 100 | 240 x 130 x 70 mm | 0.080 |
| 26.070-XL | X-Large (9-10) | 90 | 240 x 130 x 70 mm | 0.080 |

Single-use ambidextrous gloves in white natural latex.
 - Not powdered
 - Non-sterile
 - Thickness 0.12 mm and roll up sides
 - Length 24 cm.



| MSA | Size | Quantity | Packaging size | Kg |
|-----------|----------------|----------|-------------------|-------|
| 26.143-S | Small (6-7) | 100 | 240 x 130 x 70 mm | 0.605 |
| 26.143-M | Medium (7-8) | 100 | 240 x 130 x 70 mm | 0.657 |
| 26.143-L | Large (8-9) | 100 | 240 x 130 x 70 mm | 0.736 |
| 26.143-XL | X-Large (9-10) | 90 | 240 x 130 x 70 mm | 0.762 |

Single-use ambidextrous gloves in blue nitrile.
 - Not powdered
 - Non-sterile
 - Thickness 0.13 mm and roll up sides.



PAIR

| MSA | Size | Kg |
|-----------|-------|-------|
| 26.120-01 | 7-8 | 0.021 |
| 26.120-02 | 9-10 | 0.025 |
| 26.120-03 | 12-13 | 0.026 |

Pair of unbleached cotton gloves.



PAIR

| MSA | Size | Kg |
|-----------|-------|-------|
| 26.121-01 | 7-8 | 0.019 |
| 26.121-02 | 9-10 | 0.021 |
| 26.121-03 | 12-13 | 0.023 |

Pair of white cotton gloves.



PAIR

| MSA | Colour | Size | Kg |
|--------|--------|--------|-------|
| 26.131 | White | Small | 0.040 |
| 26.132 | White | Medium | 0.042 |
| 26.133 | White | Large | 0.044 |

Pair of antistatic gloves in 100% nylon microfibers.
 Ideal for final inspection and handling watches or jewellery.



PAIR

| MSA | Colour | Size | Kg |
|----------|--------|--------|-------|
| 26.139-S | Black | Small | 0.040 |
| 26.139-M | Black | Medium | 0.042 |
| 26.139-L | Black | Large | 0.044 |

Pair of antistatic gloves in 100% nylon microfibers. Ideal for final inspection and handling watches or jewellery.



PAIR

| MSA | Colour | Size | Kg |
|------------|--------|---------------|-------|
| 26.188-S | White | Small (6) | 0.030 |
| 26.188-M | White | Medium (7) | 0.030 |
| 26.188-L | White | Large (8) | 0.030 |
| 26.188-XL | White | X-Large (9) | 0.030 |
| 26.188-XXL | White | XX-Large (10) | 0.030 |

Pair of white NERI® seamless gloves made of 100% nylon / polyurethane.

Features :

- Polyurethane coated palm and ventilated back
- Lightweight, elastic, with excellent tactile sensitivity
- Recommended for delicate and precision operations
- Excellent abrasion and wear resistance, lint-free
- Seamless, reduces the risk of skin irritation and provides better comfort.

Protection glasses.



| MSA | Kg |
|--------|-------|
| 26.140 | 0.039 |

Lightweight panoramic protection glasses in colourless polycarbonate, anti-blur and scratch resistant.

Sides and eyebrows protections. Length adjustable arms. Used for polishing and small welding, etc.



| MSA | Kg |
|--------|-------|
| 26.145 | 0.033 |

Lightweight panoramic protection glasses in colourless polycarbonate, anti-blur and scratch resistant.

Sides and eyebrows protections. Length adjustable and revolving arms. Used for polishing and small welding, etc.



| MSA | Kg |
|--------|-------|
| 26.187 | 0.045 |

UV protection glasses.

Worker coats.



| MSA | Size | Kg |
|--------------|------------------|-------|
| 26.237-XS | X-Small 36-38 | 0.520 |
| 26.237-S | Small 40-42 | 0.520 |
| 26.237-M | Medium 44-46 | 0.520 |
| 26.237-L | Large 48-50 | 0.520 |
| 26.237-XL | X-Large 52-54 | 0.520 |
| 26.237-XXL | XX-Large 56-58 | 0.520 |
| 26.237-XXXL | XXX-Large 60-62 | 0.520 |
| 26.237-XXXXL | XXXX-Large 64-66 | 0.520 |

White worker coat with press buttons and revers collar :
 - 1 left chest pocket with pens location
 - 2 oblique opening side pockets
 - 65% polyester / 35% cotton.



| MSA | Size | Quantity |
|-----------|---------|----------|
| 26.248-S | Small | 50 |
| 26.248-M | Medium | 50 |
| 26.248-L | Large | 50 |
| 26.248-XL | X-Large | 50 |

Antistatic and disposable white work coat, practical with press buttons, elastic cuffs and Mao collar :
 - 40 g/m2.



| MSA | Size | Quantity |
|--------------|----------|----------|
| 26.246-M50 | Medium | 50 |
| 26.246-L50 | Large | 50 |
| 26.246-XL50 | X-Large | 50 |
| 26.246-XXL50 | XX-Large | 50 |

Protective coat made of white breathable polypropylene fleece.
 - Shirt collar
 - Zip
 - Back length 105 cm.



| MSA | A | B | Kg |
|------------|------------|-----------|-------|
| 26.267-XS | 76-84 cm | 56-64 cm | 0.660 |
| 26.267-S | 84-92 cm | 64-72 cm | 0.660 |
| 26.267-M | 92-100 cm | 72-80 cm | 0.660 |
| 26.267-L | 100-108 cm | 80-88 cm | 0.660 |
| 26.267-XL | 108-116 cm | 88-96 cm | 0.660 |
| 26.267-XXL | 116-124 cm | 96-104 cm | 0.660 |

White work coat for woman, antistatic ESD :

- Tailored collar
- Mounted sleeves adjustable with plastic press-buttons, 2 positions
- Central closing with 4 hidden plastic press-buttons
- 1 loop on right chest
- 1 breast pocket
- 1 4-compartment pen pocket inside the breast pocket
- 2 lower pockets
- Length 100 cm
- 99% polyester / 1% antistatic, 180g/m2.



| MSA | A | Kg |
|-------------|------------|-------|
| 26.293-S | 84-92 cm | 0.660 |
| 26.293-M | 92-100 cm | 0.660 |
| 26.293-L | 100-108 cm | 0.660 |
| 26.293-XL | 108-116 cm | 0.660 |
| 26.293-XXL | 116-124 cm | 0.660 |
| 26.293-XXXL | 124-132 cm | 0.660 |

White work coat for men, antistatic ESD :

- Tailored collar
- Mounted sleeves adjustable with plastic press-buttons, 2 positions
- Central closing with 4 hidden plastic press-buttons
- 1 loop on right chest
- 1 breast pocket
- 1 4-compartment pen pocket inside the breast pocket
- 2 lower pockets
- Length 100 cm
- 99% polyester / 1% antistatic, 180g/m2.

Protective masks.



| MSA | Quantity | Kg |
|--------|----------|-------|
| 26.144 | 100 | 0.550 |

3M® E-A-R synthetic ear plugs, washable, hard handle and joining string.
Individual packing in 50 pieces box dispenser.

Protective masks.



| MSA | Kg |
|--------|-------|
| 26.149 | 0.013 |

Single-use 3M® antiparticles mask, FFP1 level special non-woven, nasal padding foam, exhalation valve, nasal clamp nasal and 2 elastic ribbons.
Delivered in 1 carton with 10 pieces.

Safety tape.



| MSA | Width | Length | Kg |
|--------|-------|--------|-------|
| 26.240 | 19 mm | 27.4 m | 0.040 |

Self-adhesive green safety tape. It sticks to itself (and not to the fingers) and allows the skin to breath.
Ideal for protecting fingers during polishing or for working with sharp objects.

Clothes and skins.



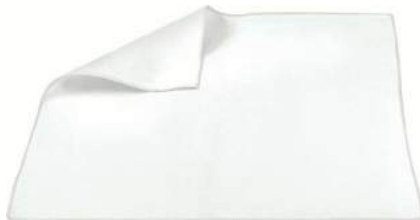
| MSA | Colour | Cutting | Size | Kg |
|--------|--------|---------|------------|-------|
| 26.137 | Grey | Zigzag | 15 x 15 cm | 0.005 |
| 26.136 | Grey | Sewn | 35 x 30 cm | 0.025 |

Microfibers polishing cloth in 80% polyester and 20% polyamide with HOROTEC® logo diapered.
Grammage 200 g/m².



| MSA | Colour | Cutting | Size | Kg |
|--------|-----------|---------|------------|-------|
| 26.116 | White | Sewn | 35 x 30 cm | 0.025 |
| 26.117 | Navy blue | Sewn | 35 x 30 cm | 0.025 |
| 26.142 | Black | Sewn | 35 x 30 cm | 0.025 |

Polishing cloth for cleaning and protecting all types of glasses, precious and semi-precious metals and precious stones.
It can be used with or without cleaning product. 80% polyester and 20% polyamide. Washable at 60° C.
Grammage 200 g/m².



| MSA | Colour | Size | Kg |
|--------|--------|------------|-------|
| 26.113 | White | 30 x 30 cm | 0.065 |

CALI microfiber cleaning cloth. It cleans and brings a shine to pearls, jewellery and precious stones.



| MSA | Colour | Quantity | Size | Kg |
|--------|--------|----------|------------|-------|
| 26.684 | White | 75 | 23 x 23 cm | 0.460 |

Microfiber cleaning cloth.
Delivered in a bag of 75 pieces.

75 pieces



| MSA | Colour | Quantity | Size | Kg |
|--------|--------|----------|------------|-------|
| 26.681 | White | 10 | 23 x 21 cm | 0.118 |

White cloth PMX 09.50/HLD.
Delivered in a packaging with 10 pieces.

10 pieces



| MSA | Size | Kg |
|----------|------------|-------|
| 26.110-A | 25 x 25 cm | 0.016 |
| 26.110-B | 35 x 35 cm | 0.031 |
| 26.110-C | 43 x 35 cm | 0.040 |

SELVYT polishing cloth in woven cotton velvet, which gives a perfect finish. Keep its efficiency after washing.



| MSA | Size | Kg |
|----------|------------|-------|
| 26.112-A | 25 x 25 cm | 0.016 |
| 26.112-B | 35 x 35 cm | 0.031 |
| 26.112-C | 43 x 35 cm | 0.040 |

SELVYT polishing cloth in woven unbleached cotton, which gives a perfect finish. Keep its efficiency after washing.



| MSA | Size | Kg |
|--------|------------|-------|
| 26.109 | 15 x 15 cm | 0.011 |
| 26.119 | 37 x 24 cm | 0.036 |
| 26.108 | 55 x 37 cm | 0.059 |

Real chamois skin cloth for cleaning.



| MSA | Size | Kg |
|--------|------------|-------|
| 26.125 | 50 x 35 cm | 0.050 |

Real buckskin cloth for cleaning.

Watch cleaning kits.



| MSA | Packaging size | Kg |
|--------|----------------|-------|
| 26.126 | 90 x 75 x 7 mm | 0.033 |

The WATCH PROTECTOR from POLYWATCH® protects the watch effectively and durably thanks to its hydrophobic coating.

- Absolutely invisible
- Reduces fingerprints, water and grease marks on treated surfaces
- Facilitates cleaning
- Dirt, dust and oil repellent (oleophobic)
- Prevents light scratches
- Versatile protection also for digital cameras, Smartwatches and Smartphones
- Exceptional durability up to 12 months.

The application of the two-component system is quick, easy and leaves no bubbles.

Step 1 : Clean the surface with the cleaning wipe, then dry with a lint-free cloth.

Step 2 : Apply the product with the pre-impregnated wipe (labelled bag SEALER).

Step 3 : After 10-15 minutes, polish the watch with the provided microfiber cloth.

- Contents :**
- 2 bags of wipes (Cleaner and Sealer)
 - 1 microfiber cloth
 - 1 pair of gloves
 - 1 instruction manual.



| MSA | Packaging size | Kg |
|--------|-------------------|-------|
| 26.176 | 140 x 240 x 55 mm | 0.150 |

Cleaning kit for microscopes and video inspection systems.

- Contents :**
- Lens cleaning fluid
 - Lens cleaning tissue
 - Cleaning cloth
 - Brush
 - Air blower
 - Cotton swabs.

Dust blowers.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.000 | Ø 57 x 130 mm | 0.080 |

Rubber dust blower.
Oval shape with valve and metal nozzle.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.005 | Ø 58 x 130 mm | 0.076 |

Blue rubber dust blower.
Oval shape with valve and protected metal nozzle.



| MSA | Size | Kg |
|--------|--------------|-------|
| 26.001 | Ø 60 x 93 mm | 0.067 |

Rubber dust blower with flat bottom.
Pear shaped with valve and metal nozzle.

Sawdust.



| MSA | Grit | Packaging | Kg |
|--------|------|-----------|--------|
| 26.279 | Fine | Bag 10 Kg | 10.000 |

Poplar sawdust.

Cleaning compounds.



| MSA | Packaging | Size | Kg |
|-----------|------------|-------------------|-------|
| 26.054-01 | 1 stick | 90 x 35 x 10 mm | 0.039 |
| 26.054 | Plate 1 Kg | 300 x 250 x 10 mm | 1.210 |

Blue compound for cleaning watch parts, mechanical parts and diverse tools such as tweezers, screwdrivers, blades, levers, etc.

Brushes.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.158 | Ø 14 x 120 mm | 0.005 |

Benzine brush with aluminium handle. White bristle.



| MSA | Size | Kg |
|--------|-------------|-------|
| 26.190 | 215 x 30 mm | 0.020 |
| 26.159 | 215 x 40 mm | 0.026 |
| 26.191 | 215 x 60 mm | 0.035 |

Flat brush with wooden handle.



| MSA | Size | Kg |
|--------|-------------|-------|
| 26.163 | 100 x 30 mm | 0.015 |

Flat brush with wooden handle. White bristle.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.162 | Ø 10 x 100 mm | 0.005 |

Extra soft double bristle brush, ideal for cleaning dials. Small grey hair.



| MSA | Size | Kg |
|--------|--------------|-------|
| 26.164 | Ø 6 x 125 mm | 0.003 |

Stencil brush.

Cleaning and polishing woods.



| MSA | Size | Quantity | Kg |
|--------|----------------------|----------|-------|
| 26.250 | Ø 11 ... 15 x 100 mm | 10 | 0.004 |

Pith wood sticks delivered in bundle of 10 pieces, used by watchmakers for cleaning parts.



| MSA | Length | Quantity | Kg |
|--------|--------|----------|-------|
| 26.266 | 120 mm | 20 | 0.015 |

Gentian polishing wood, bundle of 20 pieces.
The heart of this natural and seasonal product is used in decoration commonly in the finishing on all material, using conventional products (powders, liquids and solids, etc.).
The gentian wood is denser than the pith wood and more flexible than the boxwood.



| MSA | Size | Quantity | Kg |
|------------|-----------------|----------|-------|
| 26.255-2.0 | Ø 2.00 x 150 mm | 10 | 0.004 |
| 26.255-2.5 | Ø 2.50 x 150 mm | 10 | 0.005 |
| 26.255-3.0 | Ø 3.00 x 150 mm | 10 | 0.007 |
| 26.255-4.0 | Ø 4.00 x 150 mm | 10 | 0.013 |
| 26.255-5.0 | Ø 5.00 x 150 mm | 10 | 0.017 |
| 26.255-6.0 | Ø 6.00 x 150 mm | 10 | 0.023 |

Lime pegwood stick for cleaning, polishing, etc.
Delivered in bag of 10 pieces.

Sticks.



| MSA | Packaging size | Kg |
|--------|------------------|-------|
| 26.008 | 125 x 75 x 30 mm | 0.133 |

Multi-purpose hand tool with aluminium anodised grey handle Ø 8 mm.

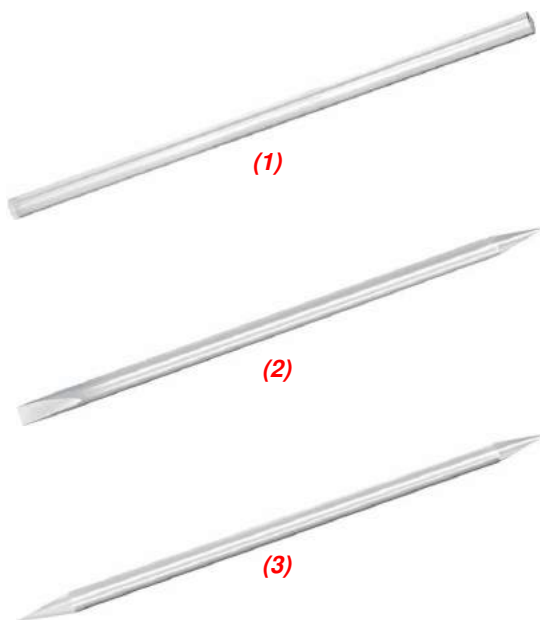
Delivered in a wooden case.

Box contents :

| MSA | Item | Kg |
|-----------|--|-------|
| 26.008-01 | Aluminium anodised grey handle, body Ø 8 mm x L 130 mm | 0.017 |
| 26.008-A | PEEK stick pointed end, Ø 4.50 x L 16 mm, threading M3 | 0.001 |
| 26.008-B | PEEK stick bevelled end, Ø 4.50 x L 16 mm (width 4.50 mm), threading M3 | 0.001 |
| 26.008-C | PEEK stick hard pointed end, Ø 4.50 x L 16 mm, threading M3 | 0.001 |
| 26.008-D | PEEK stick bevelled end, Ø 4.50 x L 16 mm (width 2.00 mm), threading M3 | 0.001 |
| 26.008-E | PEEK stick bevelled end, Ø 2.90 x L 16 mm, threading M3 | 0.001 |
| 26.008-F | Plexi stick pointed end, Ø 4.50 x L 16 mm, threading M3 | 0.001 |
| 26.008-G | Plexi stick bevelled end, Ø 4.50 x L 16 mm (width 4.50 mm), threading M3 | 0.001 |
| 26.008-H | Brass stick pointed end, Ø 4.50 x L 16 mm, threading M3 | 0.001 |
| 26.008-I | Hardened steel scriber HRC 60 +/-1, threading M3 | 0.001 |
| 26.008-02 | Wooden box | 0.120 |

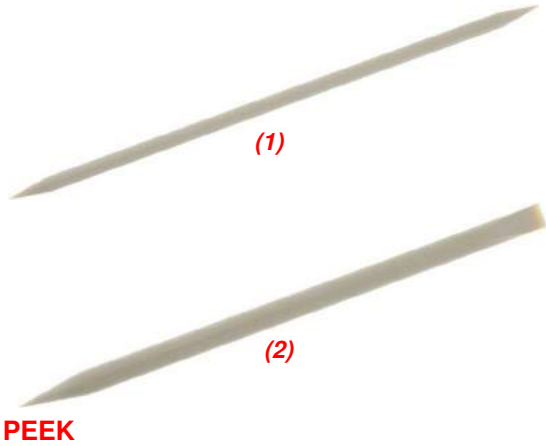
Optional :

| MSA | Item | Kg |
|----------|----------------------------------|-------|
| 26.008-J | Hard metal scriber, threading M3 | 0.001 |



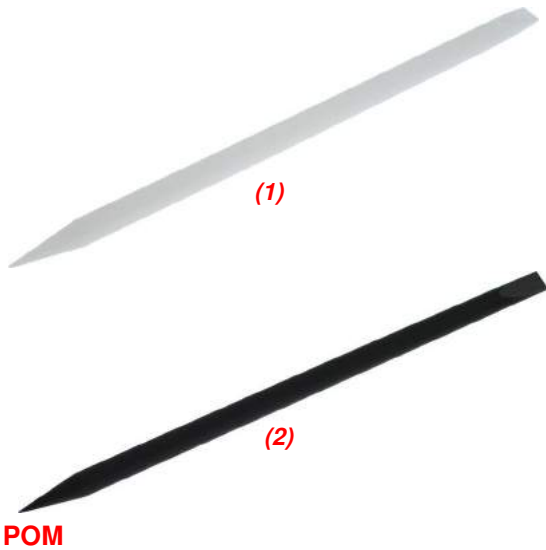
| MSA | | Ø | Shape | Length | Kg |
|----------|-----|------|------------------------|---------|-------|
| 26.280 | (1) | 2 mm | Flat ends | 150 mm | 0.001 |
| 26.287 | (2) | 2 mm | Pointed/chamfered ends | 140 mm | 0.003 |
| 26.281 | (1) | 4 mm | Flat ends | 150 mm | 0.001 |
| 26.288 | (2) | 4 mm | Pointed/chamfered ends | 140 mm | 0.003 |
| 26.286 | (3) | 5 mm | Pointed/pointed ends | 135 mm | 0.003 |
| 26.285 | (2) | 5 mm | Pointed/chamfered ends | 140 mm | 0.003 |
| 26.282 | (1) | 5 mm | Flat ends | 150 mm | 0.003 |
| 26.283 | (1) | 6 mm | Flat ends | 150 mm | 0.005 |
| 26.284 | (1) | 8 mm | Flat ends | 150 mm | 0.009 |
| - | - | - | - | - | - |
| 26.280-M | | 2 mm | Flat ends | 1000 mm | 0.011 |
| 26.281-M | | 4 mm | Flat ends | 1000 mm | 0.011 |
| 26.282-M | | 5 mm | Flat ends | 1000 mm | 0.020 |
| 26.283-M | | 6 mm | Flat ends | 1000 mm | 0.033 |
| 26.284-M | | 8 mm | Flat ends | 1000 mm | 0.060 |

Transparent plastic sticks.



| MSA | | Ø | Shape | Length | Kg |
|-----------|-----|------|------------------------|--------|-------|
| 26.289-04 | (1) | 4 mm | Pointed/pointed ends | 140 mm | 0.003 |
| 26.289-06 | (2) | 6 mm | Pointed/chamfered ends | 140 mm | 0.005 |

PEEK stick.



| MSA | | Colour | Ø | Length | Kg |
|--------|-----|--------|------|--------|-------|
| 26.257 | (1) | White | 6 mm | 140 mm | 0.006 |
| 26.256 | (2) | Black | 6 mm | 140 mm | 0.006 |

Cleaning peg stick, pointed/bevelled ends.
Material : POM plastic (Polyoxymethylene).



| MSA | | Ø | Length | Kg |
|-----------|--|-------|--------|-------|
| 26.252-04 | | 4 mm | 125 mm | 0.002 |
| 26.252-06 | | 6 mm | 125 mm | 0.003 |
| 26.252-10 | | 10 mm | 125 mm | 0.005 |

Paper stick, ideal for cleaning. Absorbent.

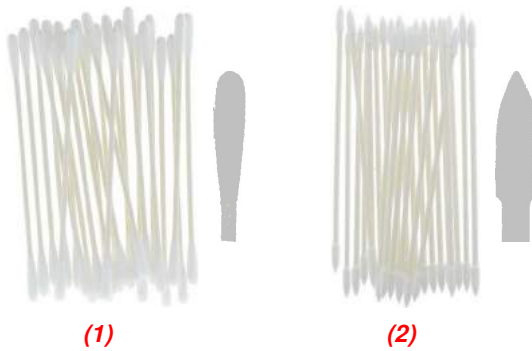
Cleaning swabs.



| MSA | | Ø | Length | Kg |
|-----------|--|------|--------|-------|
| 26.670-05 | | 5 mm | 106 mm | 0.010 |

Cleaning swab Ruby Stick with rubber head.

CLEANING



(1)

(2)

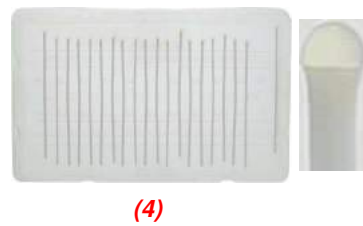
| MSA | | Ø | Quantity | Length | Kg |
|--------|-----|---------|----------|--------|-------|
| 26.671 | (1) | 3.20 mm | 25 | 75 mm | 0.005 |
| 26.672 | (1) | 2.60 mm | 25 | 75 mm | 0.004 |
| 26.673 | (2) | 3.00 mm | 25 | 75 mm | 0.004 |
| 26.676 | (2) | 1.80 mm | 25 | 75 mm | 0.009 |
| 26.675 | (3) | - | 25 | 75 mm | 0.009 |
| 26.674 | (4) | 2.20 mm | 20 | 75 mm | 0.017 |

Cleaning swab.

- (1) With double-end round cotton heads
- (2) With double-end pointed cotton heads
- (3) With single-end flat cotton head, width 3 mm x thickness 0.50 mm
- (4) With single-end adherent head



(3)



(4)

Adherent head

Cleaning pens.



Ø 14 mm

Ø 13 mm

| MSA | Size | Kg |
|--------|---------------|-------|
| 26.177 | Ø 17 x 125 mm | 0.051 |

Pen with 2 different tips for cleaning watch crystals and dials.
1 side with a retractable brush Ø 14 mm and 1 side with a felt tip Ø 13 mm.

Spare part :

| MSA | Item | Kg |
|----------|------------------|-------|
| 26.177-A | Felt tip Ø 13 mm | 0.005 |



Ø 8 mm

| MSA | Size | Kg |
|--------|--------------|-------|
| 26.178 | Ø 11 x 90 mm | 0.025 |

Pen with 2 different tips for cleaning watch crystals and dials.
1 side with a retractable brush Ø 8 mm and 1 side with a felt tip Ø 8 mm.

Benzine, acetone and isopropyl alcohol.



| MSA | Contents | Kg |
|-----------|-----------|--------|
| 26.704-01 | 1 litre | 0.800 |
| 26.704-05 | 5 litres | 3.500 |
| 26.704-10 | 10 litres | 7.000 |
| 26.704-25 | 25 litres | 18.000 |
| 26.704-60 | 60 litres | 43.000 |

Light fractional benzine 60/90 for cleaning.

Attention : this product cannot be exported (only for the Swiss market).



| MSA | Contents | Kg |
|-----------|-----------|--------|
| 26.705-01 | 1 litre | - |
| 26.705-05 | 5 litres | 4.000 |
| 26.705-10 | 10 litres | 8.000 |
| 26.705-25 | 25 litres | 20.500 |
| 26.705-60 | 60 litres | 49.000 |

Pure chemical acetone 99.5% for cleaning.

Attention : this product cannot be exported (only for the Swiss market).



| MSA | Contents | Kg |
|-----------|-----------|--------|
| 26.706-01 | 1 litre | - |
| 26.706-05 | 5 litres | 4.000 |
| 26.706-10 | 10 litres | 8.000 |
| 26.706-25 | 25 litres | 20.500 |
| 26.706-60 | 60 litres | 49.000 |

Isopropyl alcohol 99.9% for cleaning.

Attention : this product cannot be exported (only for the Swiss market).

Cleaning and rising solutions.



| MSA | Product | Contents | Kg |
|--------|----------|-----------|--------|
| 26.728 | REGULA R | 5 litres | 4.200 |
| 26.730 | REGULA R | 25 litres | 22.000 |

REGULA® R cleaning solution for watches.
Use as first bath.



| MSA | Product | Contents | Kg |
|--------|----------|-----------|--------|
| 26.729 | REGULA S | 5 litres | 3.700 |
| 26.731 | REGULA S | 25 litres | 19.000 |

REGULA® S rinsing solution for watches.
Use as second bath after REGULA® R cleaning solution.



| MSA | Product | Contents | Kg |
|--------|---------|-----------|--------|
| 26.708 | RUBISOL | 1 litre | 0.940 |
| 26.709 | RUBISOL | 2 litres | 1.780 |
| 26.710 | RUBISOL | 5 litres | 4.330 |
| 26.720 | RUBISOL | 25 litres | 22.000 |

RUBISOL® cleaning solution without water for watches.
Use as first bath. Inflammable and noncorrosive.
Rapidly dissolves solidified oils.



| MSA | Product | Contents | Kg |
|--------|---------|-----------|--------|
| 26.718 | F45 | 1 litre | 1.070 |
| 26.727 | F45 | 2 litres | 2.000 |
| 26.711 | F45 | 5 litres | 5.000 |
| 26.717 | F45 | 25 litres | 24.000 |

F45® rinsing solution without acid or grease, use pure. Inflammable,
corrosive and dries quickly.
Rapidly dissolves all oils currently used in the watch making industry.



| MSA | Product | Contents | Kg |
|--------|---------|-----------|--------|
| 26.719 | PF80 | 1 litre | 0.900 |
| 26.726 | PF80 | 2 litres | 1.800 |
| 26.714 | PF80 | 5 litres | 4.180 |
| 26.721 | PF80 | 25 litres | 21.000 |

PF80® rinsing solution with a very strong dissolving action.
Use as second or third rinse bath after RUBISOL® cleaning solution.
Without water, acid or grease.



| MSA | Product | Contents | Kg |
|--------|---------|-----------|--------|
| 26.702 | RG-1 | 25 litres | 26.400 |

RG-1® cleaning solution for watch cleaning machines.



| MSA | Product | Contents | Kg |
|--------|---------|-----------|--------|
| 26.703 | RG-3 | 25 litres | 19.400 |

RG-3® rinsing solution for watch cleaning machines.



| MSA | Product | Contents | Kg |
|--------|---------|----------|-------|
| 26.734 | WF 5 | 5 litres | 4.075 |

GREINER® WF 5 cleaning solution.



| MSA | Product | Contents | Kg |
|--------|---------|----------|-------|
| 26.735 | S-3 | 5 litres | 3.810 |

GREINER® S-3 rinsing solution.



| MSA | Product | Contents | Kg |
|--------|---------|------------|-------|
| 26.736 | 111 | 3.8 litres | 3.275 |

L&R® 111 cleaning solution, with ammoniac for complete cleaning.



| MSA | Product | Contents | Kg |
|--------|---------|------------|-------|
| 26.737 | 3 | 3.8 litres | 3.160 |

L&R® 3 rinsing clear solution, fast drying, petrol distillation.
Do not contain chlorinated solvent or benzol. No grease remaining after use.

ELMA® solutions.



| MSA | Product | Contents |
|--------|---------|------------|
| 26.845 | WF PRO | 2.5 litres |
| 26.846 | WF PRO | 10 litres |
| 26.847 | WF PRO | 30 litres |

ELMA® WF PRO is a cleaning solution microemulsion-based detergent for use with mechanical precision parts, such as dismantled and assembled watch movements, in cleaning systems with or without ultrasound. It cleans gently with excellent results. It provides good material compatibility and cleans, removes resins and dissolves oxides (brightens) in a single step. This solution helps to ensure a very long service life.



| MSA | Product | Contents |
|--------|------------|------------|
| 26.848 | SUPROL PRO | 2.5 litres |
| 26.849 | SUPROL PRO | 10 litres |
| 26.850 | SUPROL PRO | 30 litres |

ELMA® SUPROL PRO is a non-aqueous detergent for rinsing precision parts, such as dismantled and assembled watch movements, after they were cleaned. Cleaning solutions like ELMA® WF PRO rinse off completely. This product evaporates quickly without residue and ensures that lubricants can be applied evenly. In aqueous cleaning of precision metal parts, it can also be used to displace water before drying.



| MSA | Product | Contents | Kg |
|--------|---------|------------|-------|
| 26.828 | 1:9 | 1/2 litre | 0.525 |
| 26.830 | 1:9 | 1 litre | 1.200 |
| 26.829 | 1:9 | 2.5 litres | 5.300 |

ELMA® 1:9 cleaning solution. Aqueous concentrate for cleaning disassembled watch parts and high precision metal pieces. Hardened oils are carefully and rapidly removed. Gives light effect to alloy gold and brass.



| MSA | Product | Contents | Kg |
|--------|-----------------|-----------|--------|
| 26.824 | CLEAN 225 SONIC | 1 litre | 1.200 |
| 26.823 | CLEAN 225 SONIC | 5 litres | 6.000 |
| 26.825 | CLEAN 225 SONIC | 10 litres | 11.000 |

ELMA® CLEAN 225 SONIC is an alkaline liquid concentrated cleaning solution for metals after a mechanical work.



| MSA | Product | Contents | Kg |
|--------|-------------|----------|-------|
| 26.800 | SUPER CLEAN | 1 litre | 1.100 |

ELMA® SUPER CLEAN is an aqueous, ammonia-based cleaning concentrate for universal cleaning of gold, silver and jewellery that contains hard gemstones.

It brightens tarnished gold, silver or alloys and removes grease, emulsions, dust and sweat residue.

Use diluted between 3 and 10%.



| MSA | Product | Contents | Kg |
|--------|----------|----------|-------|
| 26.820 | CLEAN 75 | 1 litre | 1.100 |

ELMA® CLEAN 75 is a cleaning concentrate solution used in ultrasonic baths to remove dirt particles, grease and oils (plant-, animal- and mineral oil-based fats) as well as residues from grinding, polishing or lapping (Parisian Red and other polishing pastes and waxes).

It cleans every piece of jewellery thoroughly and brightens precious and non-ferrous metal parts. This product is not suitable for jewellery made of zinc, aluminium, light alloys or soft/delicate stones such as pearls, corals, opals, etc.

Use diluted between 5 and 10%.



| MSA | Product | Contents | Kg |
|--------|-------------|----------|-------|
| 26.822 | ULTRA CLEAN | 1 litre | 1.200 |

ELMA® ULTRA CLEAN is a cleaning concentrate solution, cyanide-free and mildly alkaline. It gently cleans gold, platinum or iridium jewellery (also with precious stones) in immersion baths with or without ultrasound.

It reliably removes wax, resin, grease, polishing agents, machining emulsions, sweat and dust, and gives an ultra-bright shine to gold jewellery.

Use diluted between 5 and 20%.



| MSA | Product | Contents | Kg |
|--------|-------------|-----------|--------|
| 26.810 | NOBLE CLEAN | 1 litre | 1.200 |
| 26.811 | NOBLE CLEAN | 10 litres | 10.800 |

ELMA® NOBLE CLEAN cleaning solution. This acidic detergent cleans intensively and brightens jewellery and alloys made from precious metal within seconds. The cleaner is also available in a handy 1-litre round bottle with a wide neck for immersing jewellery and cutlery. After you rinse the precious metal parts with cold water, the temporary anti-tarnish finish will prevent tarnishing for a long time.

Elma Noble Clean is cyanide-free and provides relatively equal results to highly toxic jewellery cleaners containing cyanide.

Ready for use bath.

Solutions for scouring and removing broken screws.



| MSA | Size | Contents | Kg |
|--------|----------------|----------|-------|
| 26.585 | Ø 100 x 142 mm | 800 g | 0.852 |

BORAX powder (sodium tetraborate decahydrate).



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.590 | 1 litre | 1.130 |

LYCOBOHR, liquor of boron. Use as scouring solution before soldering.



| MSA | Contents | Kg |
|--------|----------|--------|
| 26.950 | 1 Kg | 1.100 |
| 26.951 | 10 Kg | 11.000 |

Scouring powder NET'OR for precious and nonferrous metals. In an acid resistant recipient, mix 4 litres of hot water with 1 kg of powder. Soak the objects to be cleaned and let it react. Class 3 toxicity.



| MSA | Size | Contents | Kg |
|------------|------------------|-----------|-------|
| 26.640-050 | 35 x 35 x 70 mm | 50 ml | 0.070 |
| 26.640-500 | 80 x 55 x 150 mm | 1/2 litre | 0.625 |
| 26.640 | 95 x 70 x 205 mm | 1 litre | 1.215 |

VISSIN solution for removing broken screws. Easy and simple use with the tripod MSA26.646 and the ceramic bowl MSA26.645 (both items are flame resistant).



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.645 | Ø 100 x 40 mm | 0.085 |

Ceramic bowl. Use with tripod MSA26.646.



| MSA | Size | Kg |
|--------|---------------|-------|
| 26.646 | Ø 96 x 140 mm | 0.070 |

Tripod for ceramic bowl MSA26.645, with stainless steel legs and aluminium top ring.

Deoxidising solution.



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.762 | 1 litre | 1.245 |

Ready-to-use, slightly acidic DESOXYFINISH solution, for deoxidising brass, copper and its alloys, gold and its alloys, and silver, without attacking them, while preserving their brilliance.
 Temperature : 20 - 50° C.

Anti-limestone product.



| MSA | Volume | Kg |
|--------|--------|-------|
| 26.754 | 500 ml | 0.540 |

Anti-limestone product.

Waterproofing fluids for watch cases.



| MSA | Size | Contents | Kg |
|--------|--------------|----------|-------|
| 26.655 | Ø 28 x 62 mm | 20 ml | 0.032 |

MAGIC GASKET waterproof liquid. The cap is equipped with a brush to apply the liquid at the junction of the case and the case back, or at the junction of the case and the glass. It dries once applied. Just before the liquid is completely dried, it is easy to remove the extra liquid with a cloth or a finger.



| MSA | Size | Contents | Kg |
|--------|--------------|----------|-------|
| 26.812 | Ø 30 x 90 mm | 25 ml | 0.100 |

ELMA® VACU-PROOF for waterproofing watches, cases, crowns, glasses, etc.

The bottle is equipped with a dripping pipe for an easy liquid application.

ONE-DIP® solution.



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.650 | 50 ml | 0.175 |

ONE-DIP® cleaning solution for hairsprings, balances, levers and stones encrusted with hardened oil, etc.

Circuit repair solution.



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.623 | 1.5 ml | 0.065 |

Circuit Maker.
Repairs quartz analog and digital circuitry as well as any other fine wire circuits with a minimum of time and effort.
Eliminates long drying times.
Kit includes 1 bottle with 1.5 ml fluid and an applicator.

Protection varnish.

Refer to the "Protections" chapter of the WATCH PARTS SERVICE catalogue, for protective adhesives and masking.



| MSA | Contents | Kg |
|------------|----------|-------|
| 26.913-100 | 100 ml | 0.128 |
| 26.913-1L | 1 Kg | 1.075 |
| 26.913-5L | 5 Kg | 5.250 |

White saving varnish KIWOMASK W 128, to be used to hide certain parts of a piece during polishing, engraving, thinning, etc.
Apply in uniform layers with a paintbrush and remove dry or with water.

Luminous pigments for dials and hands.



ASSORTMENT

| MSA | Colour | Packaging size | Kg |
|--------|-----------|--------------------------|-------|
| 26.495 | White C1 | 87.50 x 59.70 x 23.40 mm | 0.039 |
| 26.494 | Yellow C3 | 87.50 x 59.70 x 23.40 mm | 0.039 |
| 26.493 | Green C5 | 87.50 x 59.70 x 23.40 mm | 0.039 |

Assortment of 3 small bottles of 1g (luminous powder, glue and dilution), 1 small cup and 1 applicator.

Delivered in a plastic box with use instructions in French, English and German.



| MSA | Colour | Contents | Kg |
|------------|-----------|----------|-------|
| 26.486-001 | White C1 | 1 g | 0.005 |
| 26.486-010 | White C1 | 10 g | 0.026 |
| 26.485-001 | Yellow C3 | 1 g | 0.005 |
| 26.485-010 | Yellow C3 | 10 g | 0.026 |
| 26.484-001 | Green C5 | 1 g | 0.005 |
| 26.484-010 | Green C5 | 10 g | 0.026 |

Luminous powder, non radioactive.



| MSA | Colour | Contents | Kg |
|------------|-----------|----------|-------|
| 26.486-E01 | White C1 | 1 g | 0.005 |
| 26.486-E50 | White C1 | 50 g | 0.026 |
| 26.485-E01 | Yellow C3 | 1 g | 0.005 |
| 26.484-E01 | Green C5 | 1 g | 0.005 |

Extra-fine luminous powder NEWLITE 2002, non radioactive.



| MSA | Colour | Contents | Kg |
|-------------|---------|----------|-------|
| 26.486-050 | White | 50 g | 0.026 |
| 26.486-050F | White * | 50 g | 0.026 |

Luminous powder SUPER LUMINOVA, non radioactive.

* Extra-fine granulometry



| MSA | Contents | Kg |
|------------|----------|-------|
| 26.487-001 | 1 g | 0.005 |
| 26.487-050 | 50 g | 0.115 |
| 26.487-100 | 100 g | 0.130 |

Glue for luminous material MSA26.484-xxx, 26.485-xxx and 26.486-xxx.



| MSA | Contents | Kg |
|------------|----------|-------|
| 26.488-001 | 1 g | 0.005 |
| 26.488-050 | 50 g | 0.112 |
| 26.488-100 | 100 g | 0.130 |

Diluent for luminous material MSA26.484-xxx, 26.485-xxx and 26.486-xxx.

OTHER ARTICLES



| MSA | Size | Kg |
|--------|-------------------|-------|
| 26.099 | (A4) 210 x 297 mm | 0.009 |

Anti-rust paper, to be also used for medical purposes.



| MSA | Colour | Size | Kg |
|--------|--------|---------------|-------|
| 26.080 | Red | Ø 11 x 115 mm | 0.015 |
| 26.081 | Black | Ø 11 x 115 mm | 0.015 |

LISTO greasy pen for marking on any support.

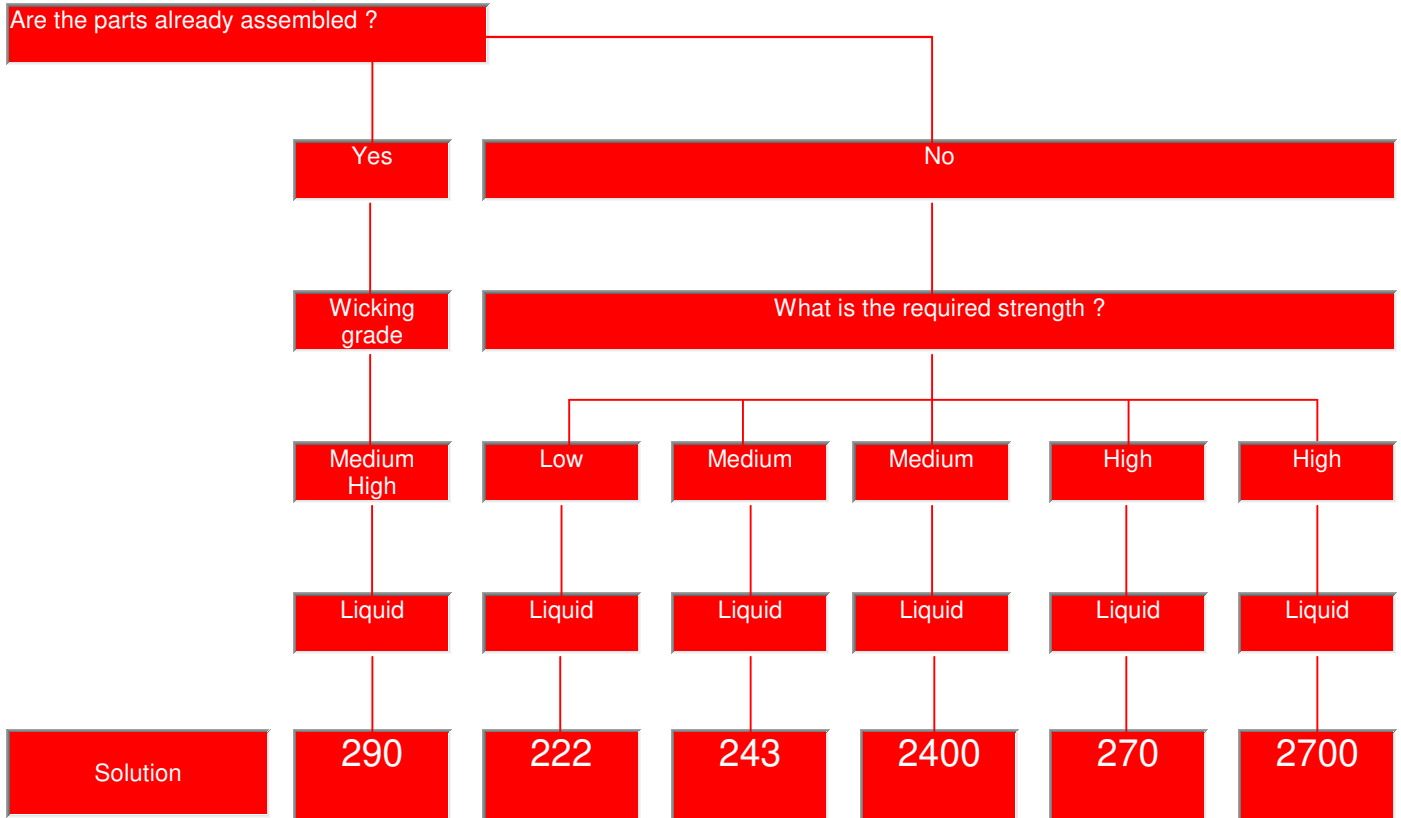
Spare parts :

| MSA | Item | Kg |
|----------|----------------------|-------|
| 26.080-A | Set of 6 red leads | 0.006 |
| 26.081-A | Set of 6 black leads | 0.006 |





THREADLOCKING



(1)



(2)



(3)



(4)



(5)



(6)

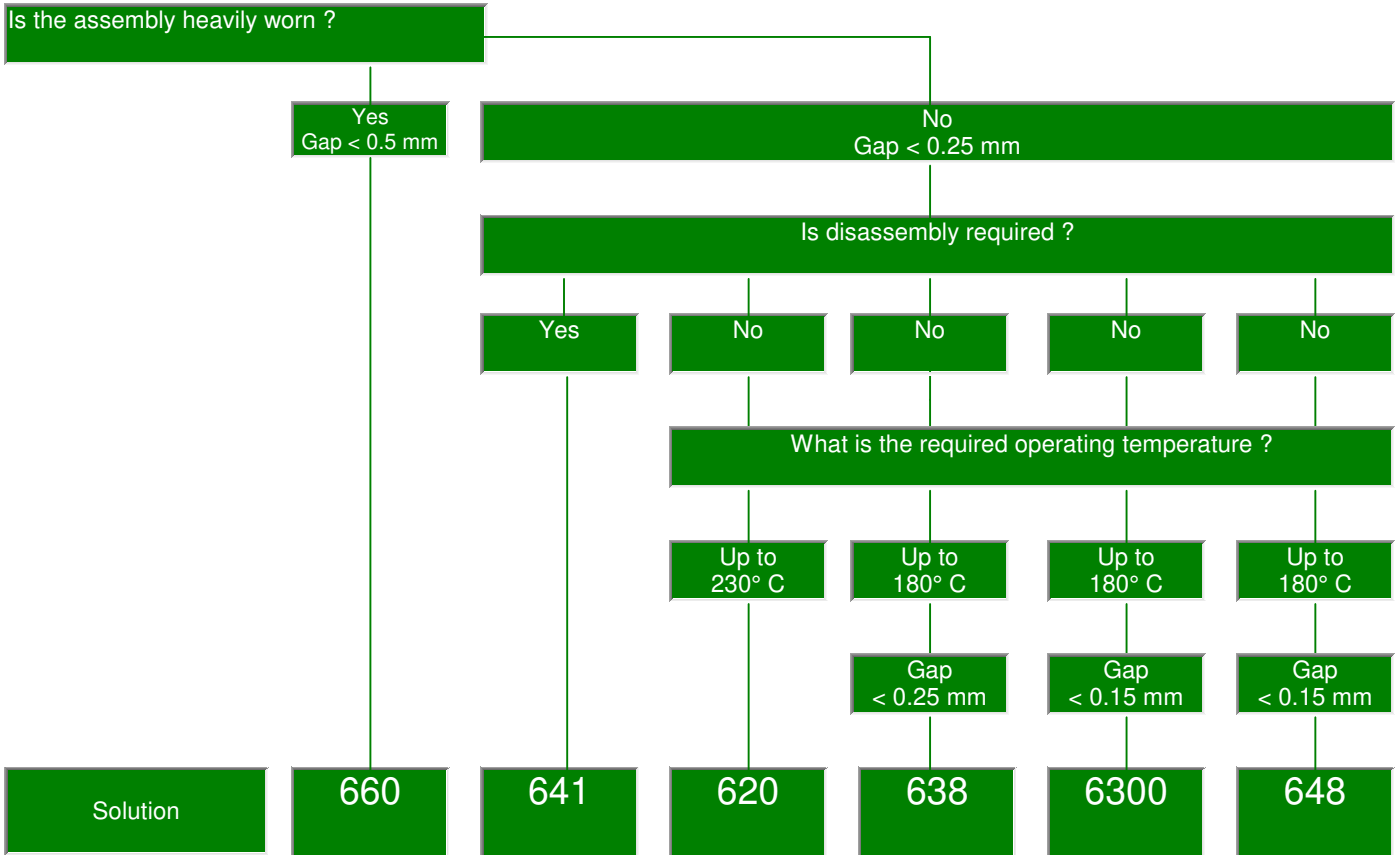
- Prevent unwanted movements, loosening, leakage and corrosion
- Resistant to vibrations
- Single component products, clean and easy application
- Useable on assemblies of all sizes
- Sealing of threads.

LOCTITE**Products list (thread locking) :**

| MSA | No. | Vol. | Colour | Fixture time on steel | Ø max. | Temp. | Strength | Breakaway torque | Viscosity mPa.s |
|------------|----------|------------|------------------|-----------------------|--------|---------------|--------------|------------------|-----------------|
| 26.541 | 221 | 10 ml | Fluo purple | 25 min. | M12 | -55...+150° C | Low | 8.5 N.m | 100-150 |
| 26.542 | 221 | 50 ml | Fluo purple | 25 min. | M12 | -55...+150° C | Low | 8.5 N.m | 100-150 |
| 26.520 | (2) 222 | 10 ml | Fluo purple | 15 min. | M36 | -55...+150° C | Low | 6 N.m | 900-1500 |
| 26.521 | 222 | 50 ml | Fluo purple | 15 min. | M36 | -55...+150° C | Low | 6 N.m | 900-1500 |
| 26.521-250 | 222 | 250 ml | Fluo purple | 15 min. | M36 | -55...+150° C | Low | 6 N.m | 900-1500 |
| 26.601 | 241 | 10 ml | Opaque fluo Blue | 35 min. | M12 | -55...+150° C | Medium | 11.5 N.m | 100-150 |
| 26.548 | 241 | 50 ml | Opaque fluo Blue | 35 min. | M12 | -55...+150° C | Medium | 11.5 N.m | 100-150 |
| 26.537 | 242 | 10 ml | Fluo blue | 5 min. | M36 | -55...+150° C | Medium | 11.5 N.m | 800-1600 |
| 26.538 | 242 | 50 ml | Fluo blue | 5 min. | M36 | -55...+150° C | Medium | 11.5 N.m | 800-1600 |
| 26.522 | (3) 243 | 10 ml | Fluo blue | 10 min. | M36 | -55...+180° C | Medium | 26 N.m | 1300-3000 |
| 26.523 | 243 | 50 ml | Fluo blue | 10 min. | M36 | -55...+180° C | Medium | 26 N.m | 1300-3000 |
| 26.523-250 | 243 | 250 ml | Fluo blue | 10 min. | M36 | -55...+180° C | Medium | 26 N.m | 1300-3000 |
| 26.605 | 262 | 50 ml | Fluo red | 15 min. | M25 | -55...+150° C | Medium /High | 22 N.m | 1200-2400 |
| 26.555-19 | 268 | Stick 19 g | Fluo red | 5 min. | M50 | -55...+150° C | High | 17 N.m | - |
| 26.524 | (5) 270 | 10 ml | Fluo green | 10 min. | M20 | -55...+180° C | High | 33 N.m | 400-600 |
| 26.525 | 270 | 50 ml | Fluo green | 10 min. | M20 | -55...+180° C | High | 33 N.m | 400-600 |
| 26.586-050 | 278 | 50 ml | Green | 20 min. | M36 | -55...+200° C | High | 42 N.m | 2400-3600 |
| 26.526 | (1) 290 | 10 ml | Fluo green | 20 min. | M6 | -55...+150° C | Medium /High | 10 N.m | 20-55 |
| 26.527 | 290 | 50 ml | Fluo green | 20 min. | M6 | -55...+150° C | Medium /High | 10 N.m | 20-55 |
| 26.527-250 | 290 | 250 ml | Fluo green | 20 min. | M6 | -55...+150° C | Medium /High | 10 N.m | 20-55 |
| 26.632-050 | (4) 2400 | 50 ml | Fluo blue | 10 min. | M36 | -55...+150° C | Medium | 20 N.m | 225-475 |
| 26.632-250 | 2400 | 250 ml | Fluo blue | 10 min. | M36 | -55...+150° C | Medium | 20 N.m | 225-475 |
| 26.633-050 | (6) 2700 | 50 ml | Fluo green | 5 min. | M20 | -55...+150° C | High | 20 N.m | 350-550 |
| 26.554-010 | 2701 | 10 ml | Fluo green | 10 min. | M20 | -55...+150° C | High | 38 N.m | 500-900 |
| 26.554-050 | 2701 | 50 ml | Fluo green | 10 min. | M20 | -55...+150° C | High | 38 N.m | 500-900 |
| 26.554-250 | 2701 | 250 ml | Fluo green | 10 min. | M20 | -55...+150° C | High | 38 N.m | 500-900 |



CYLINDRICAL ASSEMBLIES



(1)



(2)



(3)



(4)



(5)



(6)

- High strength products can withstand high loads
- Full filling of gaps to prevent corrosion and fretting
- Uniform stress distribution.

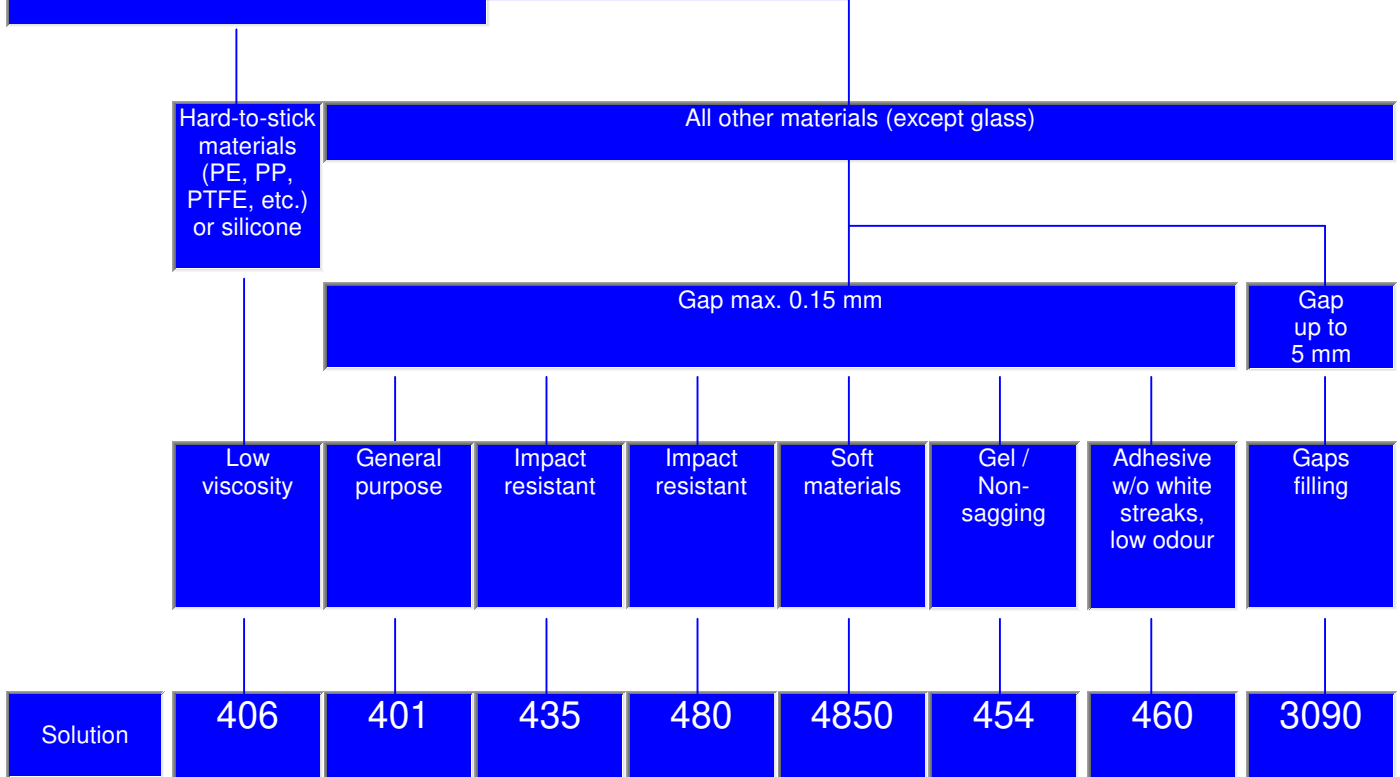
LOCTITE**Products list (cylindrical assemblies) :**

| MSA | No. | Vol. | Colour | Fixture time on steel | Temp. | Viscosity mPa.s |
|----------------|------|--------|------------|-----------------------|---------------|-----------------|
| 26.543 | 601 | 10 ml | Fluo Green | 25 min. | -55...+150° C | 100-150 |
| 26.511 | 601 | 50 ml | Fluo Green | 25 min. | -55...+150° C | 100-150 |
| 26.528 | 603 | 10 ml | Fluo Green | 8 min. | -55...+150° C | 100-150 |
| 26.529 | 603 | 50 ml | Fluo Green | 8 min. | -55...+150° C | 100-150 |
| 26.529-250 | 603 | 250 ml | Fluo Green | 8 min. | -55...+150° C | 100-150 |
| 26.589-050 (3) | 620 | 50 ml | Green | 80 min. | -55...+230° C | 5000-12000 |
| 26.589-250 | 620 | 250 ml | Green | 80 min. | -55...+230° C | 5000-12000 |
| 26.530 (4) | 638 | 10 ml | Fluo Green | 4 min. | -55...+180° C | 2000-3000 |
| 26.531 | 638 | 50 ml | Fluo Green | 4 min. | -55...+180° C | 2000-3000 |
| 26.531-250 | 638 | 250 ml | Fluo Green | 4 min. | -55...+180° C | 2000-3000 |
| 26.539 | 641 | 10 ml | Yellow | 25 min. | -55...+150° C | 400-800 |
| 26.540 (2) | 641 | 50 ml | Yellow | 25 min. | -55...+150° C | 400-800 |
| 26.540-250 | 641 | 250 ml | Yellow | 25 min. | -55...+150° C | 400-800 |
| 26.532-010 | 648 | 10 ml | Fluo Green | 3 min. | -55...+180° C | 400-600 |
| 26.532 (6) | 648 | 50 ml | Fluo Green | 3 min. | -55...+180° C | 400-600 |
| 26.532-250 | 648 | 250 ml | Fluo Green | 3 min. | -55...+180° C | 400-600 |
| 26.556-050 (1) | 660 | 50 ml | Silver | 15 min. | -55...+150° C | 150000-350000 |
| 26.634-050 (5) | 6300 | 50 ml | Fluo Green | 10 min. | -55...+180° C | 250-550 |
| 26.634-250 | 6300 | 250 ml | Fluo Green | 10 min. | -55...+180° C | 250-550 |



INSTANT ADHESIVES

What type of material are you bonding ?



(1)



(2)



(3)



(4)



(5)



(6)



(7)



(8)

LOCTITE

- Clean and easy application.
- Very fast positioning and fixing of parts.
- Bonding of a wide range of materials.
- Excellent adhesion to a wide range of substrates, particularly plastics and rubbers. LOCTITE SF 770 and SF 7239 primers are designed to improve adhesion on hard-to-stick materials such as PP, PE, POM, PTFE or silicone.
- High resistance on very small surfaces. Solvent free.

Products list (instant adhesives) :

| MSA | No. | Vol. | Colour | Fixture time | Temp. | Viscosity mPa.s |
|------------|----------|-------|----------------------------|--------------|---------------|-----------------|
| 26.533-003 | 401 | 3 g | Transparent and colourless | 3 - 10 s | -40...+120° C | 100 |
| 26.533 | (2) 401 | 20 g | Transparent and colourless | 3 - 10 s | -40...+120° C | 100 |
| 26.533-100 | 401 | 100 g | Transparent and colourless | 3 - 10 s | -40...+120° C | 100 |
| 26.533-500 | 401 | 500 g | Transparent and colourless | 3 - 10 s | -40...+120° C | 100 |
| 26.536 | (1) 406 | 20 g | Transparent and colourless | 2 - 10 s | -40...+120° C | 20 |
| 26.536-500 | 406 | 500 g | Transparent and colourless | 2 - 10 s | -40...+120° C | 20 |
| 26.518-020 | 431 | 20 g | Transparent and colourless | 5 - 10 s | -40...+80° C | 1000 |
| 26.518-500 | 431 | 500 g | Transparent and colourless | 5 - 10 s | -40...+80° C | 1000 |
| 26.587-020 | (3) 435 | 20 g | Transparent and colourless | 10 - 20 s | -40...+100° C | 200 |
| 26.587-500 | 435 | 500 g | Transparent and colourless | 10 - 20 s | -40...+100° C | 200 |
| 26.558-010 | 454 | 10 g | Transparent and colourless | 5 - 10 s | -40...+120° C | Gel |
| 26.558-020 | (6) 454 | 20 g | Transparent and colourless | 5 - 10 s | -40...+120° C | Gel |
| 26.558-200 | 454 | 200 g | Transparent and colourless | 5 - 10 s | -40...+120° C | Gel |
| 26.609 | (7) 460 | 20 g | Transparent and colourless | 5 - 20 s | -40...+80° C | 40 |
| 26.519 | (4) 480 | 20 g | Black | 20 - 50 s | -40...+100° C | 200 |
| 26.519-500 | 480 | 500 g | Black | 20 - 50 s | -40...+100° C | 200 |
| 26.534 | 496 | 20 g | Transparent and colourless | 10 - 30 s | -40...+80° C | 125 |
| 26.618 | 4031 | 20 g | Transparent and colourless | 20 - 60 s | -40...+80° C | 1200 |
| 26.548-020 | 4062 | 20 g | Transparent and colourless | 2 - 5 s | -40...+80° C | 2 |
| 26.588-020 | 4204 | 20 g | Transparent and colourless | 10 - 30 s | -40...+120° C | 4000 |
| 26.559-020 | (5) 4850 | 20 g | Transparent and colourless | 3 - 10 s | -40...+80° C | 400 |

Other Loctite® adhesives.

Structural bonding - Acrylics.

LOCTITE



| MSA | Contents | Packaging size | Kg |
|-------------|----------|-------------------|-------|
| 26.582-0005 | 0.5 ml | 165 x 100 x 10 mm | 0.005 |

Glue AA 319. Single-component acrylic adhesive for bonding materials such as glass, metal, ceramics and plastics.
 Colour : light amber.
 Viscosity : 2750 mPa.s.
 Fixing time : 1 minute.
 Maximum temperature : +120° C.

LOCTITE



| MSA | Contents |
|--------|------------|
| 26.614 | 50 / 18 ml |

Multi-Bond® adhesive kit, AA 330 tube and SF 7388 bottle.
 A versatile structural adhesive, ideal for bonding dissimilar substrates such as PVC, phenolic compounds and acrylic polymers.
 Colour : light yellow.
 Viscosity : 67500 mPa.s.
 Setting time : 3 minutes.
 Maximum temperature : +100° C.

Structural bonding - Epoxies.

LOCTITE



| MSA | Contents | Size | Kg |
|--------|--------------|-------------|-------|
| 26.594 | 50 ml / 56 g | 112 x 45 mm | 0.083 |

Glue EPOXY EA 9483. A two-component, flowable, transparent, general purpose epoxy adhesive. It is suitable for bonding and potting applications requiring high optical quality and strength.
 Colour : transparent.
 Viscosity : 7 mPa.s.
 Setting time : 210 minutes.
 Temperature : -55...+150° C.

LOCTITE



| MSA | Quantity | Kg |
|--------|----------|-------|
| 26.629 | 10 | 0.040 |

Mixing tip for 2-component epoxy-polyurethane, 50 ml.
 Bag of 10 pieces.

Light-curing adhesives.

LOCTITE



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.535 | 50 ml | 0.083 |

Glue AA 350. Acrylic based UV adhesive with good chemical and moisture resistance. This medium viscosity product is suitable for bonding glass and metals but can also be used on plastics and ceramics.
 Colour : transparent, light amber.
 Viscosity : 4500 mPa.s.
 Setting time : 15 seconds.
 Temperature : -40...120° C.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.503 | 250 ml |

Glue AA 352. Acrylic adhesive that cures under the action of UV light / activator, with good resistance to chemicals and high humidity. It bonds glass, metals and ceramics.
 Colour : transparent, amber.
 Viscosity : 15000 mPa.s.
 Setting time : 10 seconds.
 Temperature : -40...150° C.

LOCTITE



| MSA | Contents | Size | Kg |
|--------|----------|---------------|-------|
| 26.512 | 25 ml | Ø 40 x 120 mm | 0.050 |

Glue 3491 for watch mineral and sapphire glasses.
 High transparency, low yellowing.
 Application by automatic system MSA19.770 or MSA19.771 (see chapter 19).
 Fast drying with an UV drier (see chapter 19).
 Colour : clear.
 Viscosity : 1100 mPa.s.
 Setting time : 12 seconds.
 Temperature : -40...130° C.

LOCTITE



| MSA | Contents | Size |
|------------|----------|---------------|
| 26.584-025 | 25 ml | Ø 40 x 120 mm |

Glue 3494. Highly transparent UV acrylic adhesive. Low yellowing and very high viscosity.
 Colour : clear.
 Viscosity : 6000 mPa.s.
 Setting time : 8 seconds.
 Temperature : -40...120° C.

Threaded seal.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.544 | 10 ml |

Adhesive 542. Thread sealant, medium strength. For fine pitch threaded connections in hydraulic and pneumatic circuits and small diameter fittings in general. Fast curing.
 Colour : brown.
 Maximum thread diameter : M26/R3/4".
 Viscosity : 400 - 800 mPa.s.
 Temperature : -55...150° C.

Cleaning of parts and hands.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.617 | 150 ml |

Parts cleaner SF 7063.
 General-purpose product for cleaning and degreasing any kind of surface or machinery component before proceeding with a repair or assembly job involving LOCTITE® adhesives.
 It is a solvent-based cleaner and the product leaves no residue. Removes most greases, oils, lubrication fluids and metal cuttings.

Surface preparation.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.628 | 500 ml |

SF 7649 is a solvent-based activator for surface preparation that provides for low temperature curing.
 This product is designed to promote the curing speed of LOCTITE® anaerobic adhesives and sealants without any significant loss of joint strength.
 It is especially recommended for applications with passive metals or inert surfaces and with large bond gaps.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.658 | 150 ml |

SF 734 Activator.
A liquid, acetone-based product used when it is necessary to increase the cure rate of anaerobic structural adhesives and LOCTITE® sealants.

LOCTITE



| MSA | Contents |
|--------|----------|
| 26.659 | 10 g |

The SF 770 is a polyolefin primer for surface preparation and is ideal for use with difficult-to-bond plastics.
This product is a primer used to make polyolefin and other low-energy surfaces suitable for bonding with LOCTITE® instant adhesives.
It is only recommended for difficult-to-bond substrates which include polyethylene, polypropylene, polytetrafluoroethylene (PTFE) and thermoplastic rubber materials.
It is not recommended in assemblies where high peel strength is required.

Other adhesives.



| MSA | Contents | Packaging size | Kg |
|--------|----------|-------------------|-------|
| 26.500 | 2x 15 ml | 180 x 115 x 15 mm | 0.052 |

ARALDIT® glue standard 90 minutes. It dries slowly but efficiently.
Recommended for ceramic, wood, glass, metal and marble.



| MSA | Contents | Packaging size | Kg |
|--------|----------|-------------------|-------|
| 26.501 | 2x 15 ml | 180 x 115 x 15 mm | 0.056 |

ARALDIT® glue rapid 5 minutes.
It dries quickly, for multiple uses.



| MSA | Contents | Size | Kg |
|--------|----------|---------------|-------|
| 26.502 | 10 g | Ø 35 x 105 mm | 0.026 |

SEIKO® S-314 UV glue for mineral and sapphire glasses.
 Fast drying with an UV drier (see chapter 19).
Careful : do not apply this glue on acrylic resin glasses or plastic watch cases.



| MSA | Contents | Size | Kg |
|--------|----------|------------------|-------|
| 26.516 | 9 ml | 110 x 25 x 25 mm | 0.015 |

Glue for plastic watch glasses. Equipped with a fine needle for easy application.
 Air-drying without using an UV apparatus.

28



| | |
|-------------------------|---------|
| MOEBIUS® OILS | 28 - 2 |
| MOEBIUS® GREASES | 28 - 13 |
| MOEBIUS® SPECIALITIES | 28 - 20 |
| OILS AND GREASES LRCB | 28 - 23 |
| SEIKO® OILS AND GREASES | 28 - 25 |
| OTHER OILS AND GREASES | 28 - 26 |
| LUBRIBOX GREASES | 28 - 29 |
| LUBRICANTS | 28 - 30 |
| EPILAMES | 28 - 33 |



TABLE OF OILING

| Functions | Calibres | | |
|--|--|-------------------------------------|---------------------|
| | Sizes 5" - 18" | Large sizes (clock, alarm clock) | Quartz Movements |
| Balance staff, fast wheels with low torque | 9010 8000 9030 (low temperature) 9040 (ultra-low temperature) | 9020 8030 | 9000 9024 |
| Pivoting wheels with moderate to high torque | Synt-HP * D-5 | Synt-HP * D-5 | |
| Pallets, escape wheel tothing | 9415 941, 9010 | 9415 9020 | |
| Barrel mainspring | 8200, 8141, 8201 | | |
| Barrel wall | 8217 8212 (Aluminium), 8213 (Brass) | 8141 8201 | |
| High friction, cannon pinion, time setting, various chrono mechanisms | 9501, 9504 K-6 **, L-5 ** | 9504 K-6 ** | |
| Winding mechanism, calendar | Synt-HP *, D-5 K-6 **, L-5 ** | | |
| Setting lever, pusher, winding, spring pin | 8300, 8301, 8302 | | 8300, 8301, 8302 |
| O-ring, waterproof gasket and casing | 8513, 8516, H-10 | 8513, 8516, H-10 | 8513, H-10 |
| Ball bearing, springs | V106 | | |
| Reversing wheel, clicks | V105 | | |

* : The choice of viscosity depends on the power reserves. Synt-HP oils are preferably used for ruby bearings. For brass bearings we recommend Microgliss D-4 or D-5.

** : Under certain conditions, these products may be preferred to standard products. For optimal efficiency, these products can also be diluted in a benzine-type solvent and applied when dipping before lubrication with the standard product.

Natural oils for watchmaking and micromechanics.



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|------|--------------|---------------|----------------|----------------|-------|
| 28.8000-001 | 1 ml | -15...+80 | 280 | 95 | 41 | 0.004 |
| 28.8000-010 | 10 | -15...+80 | 280 | 95 | 41 | 0.022 |

Natural oil for general purposes.

Suitable for wristwatches and pocket watches, except springs and winding mechanisms.

Light yellow aspect.

Moebius 8000



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|-----|--------------|---------------|----------------|----------------|-------|
| 28.8030-020 | 20 | -18...+80 | 440 | 115 | 47 | 0.055 |
| 28.8030-250 | 250 | -18...+80 | 440 | 115 | 47 | 0.620 |

Natural oil for clocks, music box movements and any other kind of precise mechanisms.

See 8031 for lower temperatures.

Light yellow aspect.

Moebius 8030



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|------|--------------|---------------|----------------|----------------|-------|
| 28.8031-020 | 20 | -25...+80 | 390 | 110 | 45 | 0.054 |
| 28.8031-1L | 1000 | -25...+80 | 390 | 110 | 45 | 1.780 |

Natural oil for clocks, music box movements and any other kind of precise mechanisms.

Limpid yellow aspect.

Moebius 8031



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|-----|--------------|---------------|----------------|----------------|-------|
| 28.8040-020 | 20 | -27...+80 | 570 | 150 | 56 | 0.055 |
| 28.8040-250 | 250 | -27...+80 | 570 | 150 | 56 | 0.600 |

Natural oil for cuckoo-clocks as well as from small until tower clocks, and any other kind of precise mechanisms.

Light yellow aspect.

Moebius 8040



Moebius 8141

| MSA | ml | Temp. °C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|------|-----------|------------|-------------|-------------|-------|
| 28.8141-020 | 20 | -4...+100 | 11000 | 1250 | 310 | 0.057 |
| 28.8141-250 | 250 | -4...+100 | 11000 | 1250 | 310 | 0.610 |
| 28.8141-1L | 1000 | -4...+100 | 11000 | 1250 | 310 | 1.580 |

Natural oil with excellent stability and resistance qualities, used for mechanisms under high pressures.
 Suitable for cup-bearings, centre wheels, barrel arbours, canon-pinions and certain parts of automatic winding mechanisms.
Yellow-brown aspect.

Synthetic oils for watchmaking and micromechanics.



Moebius Synt-A-Lube 9010 - 9014

| MSA | ml | Temp. °C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|------|-----------|------------|-------------|-------------|-------|
| 28.9010-002 | 2 | -30...+70 | 625 | 150 | 52 | 0.015 |
| 28.9010-005 | 5 | -30...+70 | 625 | 150 | 52 | 0.026 |
| 28.9010-010 | 10 | -30...+70 | 625 | 150 | 52 | 0.037 |
| 28.9010-050 | 50 | -30...+70 | 625 | 150 | 52 | 0.206 |
| 28.9010-1L | 1000 | -30...+70 | 625 | 150 | 52 | 1.615 |
| - | - | - | - | - | - | - |
| 28.9014-002 | 2 | -35...+70 | 400 | 100 | 36 | 0.011 |
| 28.9014-005 | 5 | -35...+70 | 400 | 100 | 36 | 0.022 |
| 28.9014-010 | 10 | -35...+70 | 400 | 100 | 36 | 0.033 |
| 28.9014-050 | 50 | -35...+70 | 400 | 100 | 36 | 0.206 |
| 28.9014-1L | 1000 | -35...+70 | 400 | 100 | 36 | 0.905 |

100% synthetic universal fluid thin oil based on ether and aliphatic alcohol with excellent resistance to ageing and good resistance to pressure. Also very effective for use under wet conditions.
 With excellent lubricity and outstanding grip, this oil is ideal for regulating parts and fast mobiles with low torque (pendulum pivots, escapements, certain wheels, etc.).
Aspect light blue-green (9010) and light yellow (9014).

9010-B

--- 9010-B dark blue



| MSA | ml | Temp. °C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|-----------|------------|-------------|-------------|-------|
| 28.9010-B/002 | 2 | -30...+70 | 625 | 150 | 52 | 0.015 |
| 28.9010-B/010 | 10 | -30...+70 | 625 | 150 | 52 | 0.037 |
| 28.9010-B/050 | 50 | -30...+70 | 625 | 150 | 52 | 0.206 |

9010-FL

9010-FL fluorescent ---



| MSA | ml | Temp. °C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|--------------|----|-----------|------------|-------------|-------------|-------|
| 28.9010-002F | 2 | -30...+70 | 625 | 150 | 52 | 0.015 |
| 28.9010-005F | 5 | -30...+70 | 625 | 150 | 52 | 0.026 |
| 28.9010-010F | 10 | -30...+70 | 625 | 150 | 52 | 0.054 |
| 28.9010-050F | 50 | -30...+70 | 625 | 150 | 52 | 0.206 |

9010-FILM

| MSA | ml | Temp. °C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|----------------|----|-----------|------------|-------------|-------------|-------|
| 28.9010-050/FI | 50 | -30...+70 | 625 | 150 | 52 | 0.206 |



Moebius Synt-A-Lube 9015

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9015-005 | 5 | -30...+70 | 625 | 150 | 51 | 0.022 |
| 28.9015-010 | 10 | -30...+70 | 625 | 150 | 51 | 0.034 |
| 28.9015-050 | 50 | -30...+70 | 625 | 150 | 51 | 0.206 |

100% synthetic thin oil based on ether and aliphatic alcohol with excellent resistance to ageing. With very good lubricity and excellent grip, this oil is ideal for lubrication of fast mobiles. Universal product specially recommended for the lubrication of metal-plastic combinations in bearings, plastic-to-plastic or plastic-to-metal linear friction in watches, counters, control instruments or in case of insufficient natural friction reduction of plastics or to improve this property.

Light yellow aspect.



Moebius Synt-Visco-Lube 9020

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|------|--------------|---------------|----------------|----------------|-------|
| 28.9020-002 | 2 | -25...+80 | 1450 | 270 | 78 | 0.015 |
| 28.9020-005 | 5 | -25...+80 | 1450 | 270 | 78 | 0.022 |
| 28.9020-010 | 10 | -25...+80 | 1450 | 270 | 78 | 0.037 |
| 28.9020-050 | 50 | -25...+80 | 1450 | 270 | 78 | 0.207 |
| 28.9020-1L | 1000 | -25...+80 | 1450 | 270 | 78 | 0.926 |

100% synthetic universal fluid thin oil based on ether and aliphatic alcohol with excellent resistance to aging and good resistance to pressure. Also very effective for use under wet conditions. With excellent lubricity and outstanding grip, this oil is mainly used for precision micromechanics. Can also be used for bearing lubrication of small calibres used instead of 9010 if the pressure resistance is not sufficient.

Also particularly used for big calibres with higher pressure resistance, for oscillating weights and any other mobile parts of automatic movements.

Light yellow aspect.



- - - 9020-FL fluorescent

9020-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9020-002FL | 2 | -25...+80 | 1450 | 270 | 78 | 0.015 |
| 28.9020-005FL | 5 | -25...+80 | 1450 | 270 | 78 | 0.022 |
| 28.9020-010FL | 10 | -25...+80 | 1450 | 270 | 78 | 0.055 |
| 28.9020-050FL | 50 | -25...+80 | 1450 | 270 | 78 | 0.207 |

9020-FILM

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|------|--------------|---------------|----------------|----------------|-------|
| 28.9020-1L/FI | 1000 | -25...+80 | 1450 | 270 | 78 | 0.926 |

9020-RED

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|--------------|------|--------------|---------------|----------------|----------------|-------|
| 28.9020-050R | 1000 | -25...+80 | 1450 | 270 | 78 | 0.207 |



Moebius Synta-Visco-Lube 9024.

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9024-002 | 2 | -25...+80 | 1450 | 270 | 80 | 0.013 |
| 28.9024-005 | 5 | -25...+80 | 1450 | 270 | 80 | 0.022 |
| 28.9024-010 | 10 | -25...+80 | 1450 | 270 | 80 | 0.037 |

100% synthetic rather fluid oil based on ether and aliphatic alcohol with excellent resistance to ageing. With excellent lubricity and outstanding grip, this oil is ideal for mobiles exposed to moderate pressure. Universal oil especially recommended for the lubrication of plastics.
Light yellow aspect.



Moebius Synta-Visco-Lube 9026

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9026-005 | 5 | -25...+90 | 1800 | 235 | 72 | 0.022 |
| 28.9026-010 | 10 | -25...+90 | 1800 | 235 | 72 | 0.030 |

Rather fluid 100% synthetic oil based on ether and aliphatic alcohol with excellent resistance to ageing. This oil provides both excellent lubricity and grip.
The addition of molybdenum disulphide (MoS₂) enhances its lubricity and improves its resistance to pressure.
Black aspect.



Moebius Synta-Visco-Lube 9027

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9027-005 | 5 | -7...+80 | 7600 | 1050 | 242 | 0.022 |

Viscous 100% synthetic oil based on ether and aliphatic alcohol with excellent resistance to ageing and excellent grip.
Providing an excellent lubricity at high viscosity this oil is particularly suitable for noise attenuation. It is especially recommended for metal/plastic as well as for plastic/plastic contacts.
Yellow aspect.



Moebius Synt-Frigo-Lube 9030

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9030-002 | 2 | -40...+60 | 180 | 60 | 25 | 0.015 |
| 28.9030-005 | 5 | -40...+60 | 180 | 60 | 25 | 0.027 |
| 28.9030-010 | 10 | -40...+60 | 180 | 60 | 25 | 0.037 |
| 28.9030-050 | 50 | -40...+60 | 180 | 60 | 25 | 0.205 |

100% synthetic fluid thin oil based on ether and aliphatic alcohol, exhibiting an excellent behavior under low temperatures conditions. Also very effective for use under wet conditions. With excellent lubricity and outstanding grip, this oil is ideal for high precision micromechanics.

Recommended for the lubrication of mechanisms exposed to low temperatures such as watches, counters, weather instruments, car, aircraft and boat instruments.

It is advisable to epilame movements that also operate at normal or slightly higher temperatures.

Orange-yellow aspect.

9030-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9030-002FL | 2 | -40...+60 | 180 | 60 | 25 | 0.015 |
| 28.9030-005FL | 5 | -40...+60 | 180 | 60 | 25 | 0.027 |
| 28.9030-010FL | 10 | -40...+60 | 180 | 60 | 25 | 0.037 |
| 28.9030-050FL | 50 | -40...+60 | 180 | 60 | 25 | 0.205 |

9030-GREEN

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|--------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9030-050V | 50 | -40...+60 | 180 | 60 | 25 | 0.205 |



Moebius Synt-Frigo-Lube 9034

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9034-002 | 2 | -40...+60 | 180 | 60 | 24 | 0.010 |
| 28.9034-005 | 5 | -40...+60 | 180 | 60 | 24 | 0.020 |
| 28.9034-010 | 10 | -40...+60 | 180 | 60 | 24 | 0.032 |
| 28.9034-050 | 50 | -40...+60 | 180 | 60 | 24 | 0.205 |

100% synthetic fluid thin oil based on ether and aliphatic alcohol. Exhibiting a very good lubrication and an outstanding grip, this oil is ideal for use under low temperatures conditions.

This universal product is especially recommended for the lubrication of plastics.

The resistance of oil on plastics is dependent of its surface layer, therefore the need for an epilame has to be checked each time.

Light yellow aspect.



Moebius Arctic 9040

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9040-002 | 2 | -52...+120 | 65 | 24 | 12 | 0.015 |
| 28.9040-010 | 10 | -52...+120 | 65 | 24 | 12 | 0.044 |

100% synthetic very fluid and unctuous fine oil based on esters having a very good resistance to aging and having an extremely low degree of volatility.

This oil is specially designed for watches and precision instruments on boats and air crafts, parking meters and meteorological instruments working in low temperature conditions. It is also suitable for higher temperatures.

Due to low viscosity, this oil tends of spreading at normal temperature and it is recommended to do an epilame-coating.

Light yellow aspect.



Moebius Syntescap 941

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|------------|----|-----------|------------|-------------|-------------|-------|
| 28.941-002 | 2 | -15...+70 | 340 | 105 | 42 | 0.011 |
| 28.941-005 | 5 | -15...+70 | 340 | 105 | 42 | 0.022 |
| 28.941-010 | 10 | -15...+70 | 340 | 105 | 42 | 0.034 |
| 28.941-050 | 50 | -15...+70 | 340 | 105 | 42 | 0.207 |

Special synthetic oil for pallets lubrication. Suitable for any watch and clock calibres.

100% synthetic fluid thin oil based on ether and aliphatic alcohol with excellent resistance to ageing. With excellent lubricity and outstanding grip, this oil is ideal for lubrication of pallets.

Suitable for all watch calibres, clocks and timepieces within the limits of the usual alternatives.

Ligth yellow aspect.

941-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|--------------|----|-----------|------------|-------------|-------------|-------|
| 28.941-002FL | 2 | -15...+70 | 340 | 105 | 42 | 0.011 |
| 28.941-050FL | 50 | -15...+70 | 340 | 105 | 42 | 0.207 |



Moebius Synt-HP 500 (9101)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|------------|------------|-------------|-------------|-------|
| 28.9101-002 | 2 | -30...+100 | 2300 | 500 | 156 | 0.017 |
| 28.9101-005 | 5 | -30...+100 | 2300 | 500 | 156 | 0.025 |
| 28.9101-020 | 20 | -30...+100 | 2300 | 500 | 156 | 0.070 |
| 28.9101-050 | 50 | -30...+100 | 2300 | 500 | 156 | 0.100 |

Synthetic oil for mechanical watches (train wheels, barrels, steel/steel friction), on-board instruments, micromotors, miniature ball bearings, etc. The SYNT-HP is convenient for high pressure where stability is needed on precise mechanisms and where high demands are placed on the oil's ageing stability.

Red and fluorescent (-FL) red aspect. Light yellow aspect for colourless items (-SC).

9101-SC

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|------------|------------|-------------|-------------|-------|
| 28.9101-02S | 2 | -30...-100 | 2300 | 500 | 156 | 0.017 |
| 28.9101-20S | 20 | -30...-100 | 2300 | 500 | 156 | 0.070 |
| 28.9101-50S | 50 | -30...-100 | 2300 | 500 | 156 | 0.100 |

9101-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|------------|------------|-------------|-------------|-------|
| 28.9101-002FL | 2 | -30...+100 | 2300 | 500 | 156 | 0.017 |
| 28.9101-020FL | 20 | -30...+100 | 2300 | 500 | 156 | 0.070 |
| 28.9101-050FL | 50 | -30...+100 | 2300 | 500 | 156 | 0.100 |



Moebius Synt-HP 750 (9102)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9102-002 | 2 | -35...+100 | 3300 | 750 | 220 | 0.017 |
| 28.9102-005 | 2 | -35...+100 | 3300 | 750 | 220 | 0.017 |
| 28.9102-020 | 5 | -35...+100 | 3300 | 750 | 220 | 0.025 |
| 28.9102-050 | 50 | -35...+100 | 3300 | 750 | 220 | 0.100 |

Synthetic oil for mechanical watches (train wheels, barrels, steel/steel friction), on-board instruments, micromotors, miniature ball bearings, etc. The SYNT-HP is convenient for high pressure where stability is needed on precise mechanisms and where high demands are placed on the oil's ageing stability.

Red and fluorescent (-FL) red aspect. Light yellow aspect for colourless items (-SC).

9102-SC

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9102-02S | 2 | -35...-100 | 3300 | 750 | 220 | 0.017 |
| 28.9102-20S | 20 | -35...-100 | 3300 | 750 | 220 | 0.070 |
| 28.9102-50S | 50 | -35...-100 | 3300 | 750 | 220 | 0.100 |

9102-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9102-002FL | 2 | -35...+100 | 3300 | 750 | 220 | 0.017 |
| 28.9102-020FL | 20 | -35...+100 | 3300 | 750 | 220 | 0.070 |
| 28.9102-050FL | 50 | -35...+100 | 3300 | 750 | 220 | 0.100 |



Moebius Synt-HP 1000 (9103)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9103-002 | 2 | -30...+100 | 4700 | 1000 | 312 | 0.017 |
| 28.9103-005 | 5 | -30...+100 | 4700 | 1000 | 312 | 0.025 |
| 28.9103-020 | 20 | -30...+100 | 4700 | 1000 | 312 | 0.070 |
| 28.9103-050 | 50 | -30...+100 | 4700 | 1000 | 312 | 0.100 |

Synthetic oil for mechanical watches (train wheels, barrels, steel/steel friction), on-board instruments, micromotors, miniature ball bearings, etc. The SYNT-HP is convenient for high pressure where stability is needed on precise mechanisms and where high demands are placed on the oil's ageing stability.

Red and fluorescent red aspect (-FL). Light yellow aspect for colourless items (-SC).

9103-SC

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9103-02S | 2 | -30...-100 | 4700 | 1000 | 312 | 0.017 |
| 28.9103-20S | 20 | -30...-100 | 4700 | 1000 | 312 | 0.070 |
| 28.9103-50S | 50 | -30...-100 | 4700 | 1000 | 312 | 0.100 |

9103-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|---------------|----|--------------|---------------|----------------|----------------|-------|
| 28.9103-002FL | 2 | -30...+100 | 4700 | 1000 | 312 | 0.017 |
| 28.9103-020FL | 20 | -30...+100 | 4700 | 1000 | 312 | 0.070 |
| 28.9103-050FL | 50 | -30...+100 | 4700 | 1000 | 312 | 0.100 |



Moebius Synt-HP 1300 (9104)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|------------|------------|-------------|-------------|-------|
| 28.9104-002 | 2 | -25...+100 | 5900 | 1250 | 380 | 0.017 |
| 28.9104-005 | 5 | -25...+100 | 5900 | 1250 | 380 | 0.025 |
| 28.9104-020 | 20 | -25...+100 | 5900 | 1250 | 380 | 0.070 |
| 28.9104-050 | 50 | -25...+100 | 5900 | 1250 | 380 | 0.100 |

Synthetic oil for mechanical watches (train wheels, barrels, steel/steel friction), on-board instruments, micromotors, miniature ball bearings, etc. The SYNT-HP is convenient for high pressure where stability is needed on precise mechanisms and where high demands are placed on the oil's ageing stability.

Red and fluorescent (-FL) red aspect. Light yellow aspect for colourless items (-SC).

9104-SC

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|------------|------------|-------------|-------------|-------|
| 28.9104-02S | 2 | -25...-100 | 5900 | 1250 | 380 | 0.017 |
| 28.9104-05S | 5 | -25...-100 | 5900 | 1250 | 380 | 0.025 |
| 28.9104-20S | 20 | -25...-100 | 5900 | 1250 | 380 | 0.070 |
| 28.9104-50S | 50 | -25...-100 | 5900 | 1250 | 380 | 0.100 |

9104-FL

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|------------|------------|-------------|-------------|-------|
| 28.9104-02F | 2 | -25...+100 | 5900 | 1250 | 380 | 0.017 |
| 28.9104-20F | 20 | -25...+100 | 5900 | 1250 | 380 | 0.070 |
| 28.9104-50F | 50 | -25...+100 | 5900 | 1250 | 380 | 0.100 |

"Microgliss" oil made of classic and silicon oils, for watchmaking and precision micromechanics.

The complete range of Microgliss lubricants is composed of 5 groups and was specifically conceived for watchmaking and precision mechanics.

Each group contains several products of different viscosities but with the same base.



Moebius Microgliss (Group C)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|------|------------|------------|-------------|-------------|-------|
| 28.C7-020 | 20 | -15...+100 | 2600 | 350 | 103 | 0.054 |
| 28.C7-050 | 50 | -15...+100 | 2600 | 350 | 103 | 0.120 |
| 28.C7-1L | 1000 | -15...+100 | 2600 | 350 | 103 | 1.625 |

The Microgliss C-7 oil is a mixture of mineral and vegetable oils especially selected for their good lubricity. It presents both very good grip and very good ageing resistance.

Application : micromotors and lubrication problems in watchmaking (cup-bearings and centre wheels).

Yellow-brown aspect.



D-2



D-3



D-4



D-5

Moebius Microgliss (Group D)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|------|-----------|------------|-------------|-------------|-------|
| 28.D2-050 | 50 | -30...+70 | 260 | 75 | 29 | 0.110 |
| - | - | - | - | - | - | - |
| 28.D3-020 | 20 | -22...+80 | 900 | 190 | 64 | 0.055 |
| 28.D3-050 | 50 | -22...+80 | 900 | 190 | 64 | 0.112 |
| - | - | - | - | - | - | - |
| 28.D4-020 | 20 | -15...+80 | 1900 | 330 | 100 | 0.055 |
| 28.D4-050 | 50 | -15...+80 | 1900 | 330 | 100 | 0.112 |
| - | - | - | - | - | - | - |
| 28.D5-020 | 20 | -5...+80 | 7300 | 1200 | 295 | 0.055 |
| 28.D5-050 | 50 | -5...+80 | 7300 | 1200 | 295 | 0.113 |
| 28.D5-1L | 1000 | -5...+80 | 7300 | 1200 | 295 | 0.899 |

The Microgliss D group is declined with several increasing viscosities from D-2 to D-5. These oils are a mixture of mineral and refined vegetable oils with special additives to provide very good stability and good resistance to pressure.

Oil D2 works well at low temperatures but a surface pre-treatment against spreading is needed (with epilame).

Oils D3, D4 and D5 are used in bearings exposed to high pressures according to safety margins.

Blue-green (D2 and D3) and brown-green (D4 and D5) aspects.



Moebius Microgliss (Group H)

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|------------|------|-----------|------------|-------------|-------------|-------|
| 28.H10-020 | 20 | 0...+120 | 17000 | 11000 | 9500 | 0.055 |
| 28.H10-050 | 50 | 0...+120 | 17000 | 11000 | 9500 | 0.110 |
| 28.H10-250 | 250 | 0...+120 | 17000 | 11000 | 9500 | 0.300 |
| 28.H10-1L | 1000 | 0...+120 | 17000 | 11000 | 9500 | 0.858 |

Dimethyl type silicon oil rarely used as lubricant.

Application : used as bathing solutions or as water resistant agents due to their hydrophobic properties.

This oil is used as water resistant product and anti-vibration agent.

Colourless aspect.



Moebius Microgliss I31

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|------|------------|------------|-------------|-------------|-------|
| 28.I31-1L | 1000 | -35...+200 | 1500 | 500 | 210 | 1.920 |

Low viscosity silicone oil, exhibiting a good lubricity with respect to standard silicone oils. This lubricant exhibits exceptional stability and an excellent phase separation with regards to water. It is ideal for high temperature applications requiring sufficient lubricity.



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|-----|--------------|---------------|----------------|----------------|-------|
| 28.I4-250 | 250 | -35...+200 | 3100 | 1000 | 405 | 0.558 |

Rather viscous silicone oil, exhibiting good lubricity with respect to silicone standard oils. This lubricant exhibits exceptional stability and an excellent phase separation with regards to water. It is ideal for high temperature applications requiring sufficient lubricity.

Light green aspect.

Moebius Microgliss I4



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|------------|----|--------------|---------------|----------------|----------------|-------|
| 28.TH7-002 | 2 | -30...+110 | 440 | 290 | 198 | 0.030 |

This product is a mixture of polysiloxanes. With moderate to low lubricity, it is ideally suited for the lubrication of plastics.

This oil has an excellent stability at high and low temperatures as well as to oxidation.

Colourless aspect.

Moebius Microgliss TH7-SC

Natural greases for watchmaking and micromechanics.



Moebius 8200

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 50° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|------|-----------|-------------|-------------|-------------|-------------|-------|
| 28.8200-020 | 20 | -40...+80 | Solid | 30 | 20 | 13 | 0.060 |
| 28.8200-050 | 50 | -40...+80 | Solid | 30 | 20 | 13 | 0.130 |
| 28.8200-250 | 250 | -40...+80 | Solid | 30 | 20 | 13 | 0.530 |
| 28.8200-1L | 1000 | -40...+80 | Solid | 30 | 20 | 13 | 1.410 |

Very soft natural grease with important thixotropic properties. With vegetable oils as additive, it is ideal for the lubrication of springs, friction of large surfaces, slow mobiles and ball bearings. Fusible, it can be used hot for hardening lubrication. *Cloudy yellow aspect.*



--- 8200-FL fluorescent

8200-FL

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 50° C | Visc. 60° C | Visc. 80° C | Kg |
|---------------|------|-----------|-------------|-------------|-------------|-------------|-------|
| 28.8200-020FL | 20 | -40...+80 | Solid | 30 | 20 | 13 | 0.060 |
| 28.8200-050FL | 50 | -40...+80 | Solid | 30 | 20 | 13 | 0.130 |
| 28.8200-250FL | 250 | -40...+80 | Solid | 30 | 20 | 13 | 0.530 |
| 28.8200-1FL | 1000 | -40...+80 | Solid | 30 | 20 | 13 | 1.410 |



Moebius 8201

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|------|-----------|-------------|-------------|-------------|-------|
| 28.8201-020 | 20 | -40...+80 | Solid | 22 | 13 | 0.070 |
| 28.8201-050 | 50 | -40...+80 | Solid | 22 | 13 | 0.150 |
| 28.8201-250 | 250 | -40...+80 | Solid | 22 | 13 | 0.600 |
| 28.8201-1L | 1000 | -40...+80 | Solid | 22 | 13 | - |

Very soft natural grease with remarkable thixotropic properties. Can be used in molten state. Vegetable oils as additive provide it excellent lubricity as well as performance. The addition of molybdenum disulphide (MoS2) further enhances its lubricity and improves its resistance to pressure. *Black aspect.*



Moebius 8203

| MSA | ml | Temp. ° C | Visc. 20° C | Visc. 40° C | Visc. 60° C | Kg |
|-------------|----|-----------|-------------|-------------|-------------|-------|
| 28.8203-020 | 20 | -40...+80 | 210 | - | - | 0.060 |
| 28.8203-050 | 50 | -40...+80 | 210 | - | - | - |

Thixotropic grease with a gelatinous consistency. With vegetable oils as additive, it offers a good lubricating power and a very good grip. It is ideal for bearings and applications submitted to moderate to large pressures. Not to be used hot. *Red aspect.*



Moebius 8207

| MSA | ml | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|-----|----------------|----------------|----------------|-------|
| 28.8207-020 | 20 | Solid | 20 | 13 | 0.060 |
| 28.8207-050 | 50 | Solid | 20 | 13 | 0.140 |
| 28.8207-250 | 250 | Solid | 20 | 13 | 0.505 |

Very flexible and thixotropic classic grease. The vegetable oils used as an additive give it a very good lubricating power. The addition of graphite enhances its lubricity and its resistance to pressure.
Black aspect.



Moebius 8212

| MSA | ml | Temp. ° C | Visc. 20° C | Visc. 40° C | Visc. 60° C | Kg |
|-------------|----|--------------|----------------|----------------|----------------|-------|
| 28.8212-020 | 20 | -40...+80 | 200 | - | - | 0.080 |
| 28.8212-050 | 50 | -40...+80 | 200 | - | - | 0.062 |

Soft grease (Glissalube B). The vegetable oils used as additive give it a good lubricating power. Developed for the lubrication of barrel drums, it provides moderate braking.
Specially recommended for aluminium barrel walls.
Red aspect.

8212-SC



-- 8212-SC colourfree

| MSA | ml | Temp. ° C | Visc. 20° C | Visc. 40° C | Visc. 60° C | Kg |
|-------------|----|--------------|----------------|----------------|----------------|-------|
| 28.8212-20S | 20 | -40...+80 | 200 | - | - | - |
| 28.8212-50S | 50 | -40...+80 | 200 | - | - | 0.160 |



Moebius 8213

| MSA | ml | Temp. ° C | Visc. 20° C | Visc. 40° C | Visc. 60° C | Kg |
|-------------|----|--------------|----------------|----------------|----------------|-------|
| 28.8213-020 | 20 | -40...+80 | 205 | - | - | 0.080 |

Hard grease (Glissalube A). The vegetable oils used as an additive give it a good lubricating power. Developed for the lubrication of barrel drums, it provides effective braking.
Specially recommended for brass barrel walls.
Orange aspect.



Moebius 8217

| MSA | ml | Temp. ° C | Visc. 20° C | Visc. 40° C | Visc. 60° C | Kg |
|-------------|----|--------------|----------------|----------------|----------------|-------|
| 28.8217-020 | 20 | -40...+80 | - - - - | - | - | 0.080 |

Very soft grease (Glissalube 20) which has a good lubricity. Developed for the lubrication of barrel drums, it assures efficient braking.
This grease is recommended for the lubrication of all types of barrels.
Brown aspect.



Moebius 8300

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|------|-----------|-------------|-------------|-------------|-------|
| 28.8300-020 | 20 | -40...+80 | Solid | - | 11 | 0.045 |
| 28.8300-050 | 50 | -40...+80 | Solid | - | 11 | 0.130 |
| 28.8300-250 | 250 | -40...+80 | Solid | - | 11 | 0.530 |
| 28.8300-1L | 1000 | -40...+80 | Solid | - | 11 | 1.410 |

Soft grease with notable thixotropic properties. With vegetable oils as additive, this grease has a very good lubricating power and is specially recommended for springs and winder functions or any other applications subject to heavy friction.

Colourless-yellowish aspect.

8300-FL



--- 8300-FL fluorescent

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|--------------|----|-----------|-------------|-------------|-------------|-------|
| 28.8300-020F | 20 | -40...+80 | Solid | - | 11 | 0.045 |



Moebius 8301

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|------|-----------|-------------|-------------|-------------|-------|
| 28.8301-020 | 20 | -40...+80 | Solid | - | 11 | 0.045 |
| 28.8301-1L | 1000 | -40...+80 | Solid | - | 11 | - |

Hard grease, slightly thixotropic. With vegetable oils as additive, as well as graphite as a solid additive, this grease has a very good lubricating properties and a good resistance to pressure.

With its excellent grip, this grease is recommended for applications subject to heavy friction.

Black aspect.



Moebius 8302

| MSA | ml | Temp. ° C | Visc. 40° C | Visc. 60° C | Visc. 80° C | Kg |
|-------------|-----|-----------|-------------|-------------|-------------|-------|
| 28.8302-020 | 20 | -40...+80 | Solid | - | 14 | 0.051 |
| 28.8302-050 | 50 | -40...+80 | Solid | - | 14 | 0.140 |
| 28.8302-250 | 250 | -40...+80 | Solid | - | 14 | 0.580 |

Hard grease, slightly thixotropic. With vegetable oils as additive, as well as molybdenum disulphide graphite (MoS2) as a solid additive, this grease has a very good lubricating properties and a good resistance to pressure.

With its excellent grip, this grease is recommended for applications subject to heavy pressure.

Grey-black aspect.

Synthetic greases for watchmaking and micromechanics.



Moebius 9415

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|-----|-----------|-------------|-------|
| 28.9415-002 | 2 | -30...+80 | 110 | 0.016 |
| 28.9415-010 | 10 | -30...+80 | 110 | 0.038 |
| 28.9415-100 | 100 | -30...+80 | 110 | 0.370 |

100% synthetic soft thixotropic grease presenting an excellent stability and a very good lubricity allowing effective wear reduction. Specially developed for the lubrication of the escapement, it allows the formation of an efficient lubrication film. For micromechanics, it is used in the following areas : miniature ball bearings, step-by-step motors, high frequencies, synchronies, etc. *Yellow aspect.*

9415-FL



--- 9415-FL fluorescent

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|----|-----------|-------------|-------|
| 28.9415-2F | 2 | -30...+80 | 110 | - |
| 28.9415-01F | 10 | -30...+80 | 110 | 0.054 |



Moebius 9500

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|----|------------|-------------|----|
| 28.9500-010 | 10 | -20...+100 | 1350 | - |

100% synthetic firm braking grease based on a polyol ester, developed for the lubrication of the barrel. With a very good crush-ing stability and with special additives, it presents an excellent grip and allows to protect surfaces against wear. Suitable for appli-cations at high pressure. Grease particularly adapted to the lubrication of barrel drums. *Black aspect.*



Moebius 9501

- * Syringe
- ** Bottle

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|------------------|----|-----------|-------------|-------|
| 28.9501-010-B ** | 10 | -30...+80 | 176 | - |
| 28.9501-010-S * | 10 | -30...+80 | 176 | 0.021 |
| 28.9501-050 ** | 50 | -30...+80 | 176 | 0.064 |

100% synthetic and thixotropic soft grease, developed to resolve friction problems like time setting, winding and calendar mechanisms, rotating bezels of diving watches and other frictions between steels. The base is a mixture of synthetic oils of high stability, acquiring the necessary consistency of a grease by adding an Aerosil. Suitable for medium loads for a wide range of applications.

Blue aspect.

9501-R



9501-R rouge

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|-----------------|----|-----------|-------------|-------|
| 28.9501-R-010 * | 10 | -30...+80 | 176 | 0.021 |

9501-SC

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|---------------|----|-----------|-------------|-------|
| 28.9501-10S * | 10 | -30...+80 | 176 | 0.021 |

9501-FL



9501-FL fluorescen

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|------------------|----|-----------|-------------|-------|
| 28.9501-01F-B ** | 10 | -30...+80 | 176 | 0.021 |
| 28.9501-01F-S * | 10 | -30...+80 | 176 | 0.021 |
| 28.9501-05F ** | 50 | -30...+80 | 176 | 0.064 |



Moebius 9520 fluorescent

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|-------------|----|------------|-------------|----|
| 28.9520-10F | 10 | -20...+100 | 305 | - |

Partially synthetic soft grease with very good lubricity under high to very high pressure conditions. It is formulated with a high performance solid lubricant to significantly reduce wear. Suitable for a wide range of applications (cannon-pinion friction, time setting friction, winding mechanism, calendar, date, chronograph). The addition of a fluorescent tracer makes it possible to visualize the presence of small amounts of grease under UV illumination.

Black aspect.



Moebius 9550

| MSA | ml | Temp. °C | Visc. 20° C | Kg |
|-------------|----|------------|-------------|----|
| 28.9550-010 | 10 | -20...+100 | 1350 | - |

100% synthetic soft grease with a high crush stability presenting a very good lubricity under high pressure conditions allowing to reduce notably the wear. This grease is made with a lithium-based soap. Suitable for a wide range of applications : time setting friction, winding mechanism, calendar and chronograph.

Red aspect.



Moebius 9504
* Syringe

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|----------------|----|--------------|----------------|-------|
| 28.9504-005 | 5 | -20...+100 | 305 | 0.047 |
| 28.9504-10 | 10 | -20...+100 | 305 | 0.057 |
| 28.9504-10-S * | 10 | -20...+100 | 305 | 0.024 |
| 28.9504-50 | 50 | -20...+100 | 305 | 0.125 |

100% synthetic soft grease with a high crush stability presenting a very good lubricity under high pressure conditions allowing to reduce notably the wear. Grease 9501 is the basic component.

The addition of a grease based on a metal soap increases the consistency and improves adhesion. A neutral additive provides excellent high-pressure resistance and guarantees a good reduction in wear.

Suitable for any metal/metal friction of medium and high pressures.

Applications : time setting friction, winding mechanism, calendar and chronograph.

Light blue aspect.

9504-SC



--- 9504-SC colourless

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-----------------|----|--------------|----------------|-------|
| 28.9504-05S | 5 | -20...+100 | 305 | 0.047 |
| 28.9504-10S | 10 | -20...+100 | 305 | 0.057 |
| 28.9504-10S-S * | 10 | -20...+100 | 305 | 0.020 |
| 28.9504-50S | 50 | -20...+100 | 305 | 0.125 |

9504-FL



--- 9504-FL fluorescent

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|----|--------------|----------------|-------|
| 28.9504-05F | 5 | -20...+100 | 305 | 0.047 |
| 28.9504-10F | 10 | -20...+100 | 305 | 0.057 |
| 28.9504-50F | 50 | -20...+100 | 305 | 0.125 |

Waterproof silicon greases.



Moebius 8513

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|------|--------------|----------------|-------|
| 28.8513-010 | 10 | -60...+150 | Solid | 0.015 |
| 28.8513-050 | 50 | -60...+150 | Solid | 0.070 |
| 28.8513-100 | 100 | -60...+150 | Solid | 0.145 |
| 28.8513-200 | 200 | -60...+150 | Solid | 0.320 |
| 28.8513-4L | 4000 | -60...+150 | Solid | - |

Firm sealant grease. Based on its chemical nature, this silicone grease exhibits very high inertia and resistance to external aggressions such as UV light or oxidative stress.

Moreover, this product has very good demixing properties for water. Ideal for repairing and control of waterproof watches.

Transparent white aspect.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.002 | 2 g | 0.030 |

Box with grease Moebius® 8513.



Moebius 8516

| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|-------------|-----|--------------|----------------|-------|
| 28.8516-10 | 10 | -60...+120 | Soft | 0.015 |
| 28.8516-50 | 50 | -60...+120 | Soft | 0.072 |
| 28.8516-200 | 200 | -60...+120 | Soft | 0.550 |

Sealing grease softer than 8513. Based on its chemical nature, this silicone grease exhibits very high inertia and resistance to external aggressions such as UV light or oxidative stress.

Moreover, this product has very good demixing properties for water. Ideal for repairing and control of waterproof watches.

Transparent white aspect.

Moebius® Quartz Oil.



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-------------|----|-----------|------------|-------------|-------------|-------|
| 28.9000-002 | 2 | -35...+65 | 395 | 100 | 35 | 0.010 |

Universal synthetic lubricant for quartz analogue watches. Suitable for plastic like polyacetal (Delrin®), polyamides, polycarbonates. Very adherent and doesn't spread out in normal use conditions. *Red aspect*

Moebius Quartz Oil 9000

Moebius® Microgliss Oils.



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|-----|-----------|------------|-------------|-------------|-------|
| 28.K6-250 | 250 | -5...+120 | 2600 | 450 | 125 | 0.558 |

This Microgliss oil has both a very good lubricity and resistance to pressure. It includes as additive a very powerful anticorrosive agent. This oil is ideal for applications with severe corrosion risks. This product is recommended for dip lubrication.

Moebius Microgliss K6



| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|----------|------|------------|------------|-------------|-------------|-------|
| 28.K7-1L | 1000 | -15...+100 | 630 | 130 | 42 | 1.630 |

This Microgliss oil has a very good lubricating power. Formulated with a wetting agent as well as an anti-corrosive agent, this product spreads perfectly. It is recommended for dip lubrication for applications with significant corrosion risk.

Moebius Microgliss K7



Moebius Microgliss L5

| MSA | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C | Kg |
|-----------|------|-----------|------------|-------------|-------------|-------|
| 28.L5-250 | 250 | -3...+80 | 8300 | 1200 | 310 | 0.468 |
| 28.L5-1L | 1000 | -3...+80 | 8300 | 1200 | 310 | 1.630 |

Lubricant based on refined mineral oils and vegetal oils. With a very good lubricating power and remarkable grip, this product has been specially developed for applications with a significant corrosion risk and requiring good lubricity. Diluted in an alkane solvent, this oil is ideal for dip lubrication.

Moebius® oil and grease kits.



| MSA | Packaging size | Kg |
|------------|------------------|-------|
| 28.QUA2017 | 200 x 75 x 30 mm | 0.350 |

Lubricating kit for quartz watches.

- Contents :*
- 2 ml oil 9014
 - 2 ml oil 9104-SC
 - 5 ml grease 8212-SC
 - 5 ml grease 8302
 - 5 ml grease 9501-SC.



| MSA | Packaging size | Kg |
|------------|------------------|-------|
| 28.MEC2017 | 200 x 75 x 30 mm | 0.350 |

Lubricating kit for mechanical watches.

- Contents :*
- 2 ml oil 9010
 - 5 ml oil 9104
 - 2 ml grease 9415
 - 5 ml grease 9501
 - 5 ml grease 9504.

Lubeta oils.



| MSA | ml | Kg |
|-------------|-----|-------|
| 28.V105-010 | 10 | 0.052 |
| 28.V105-100 | 100 | 0.197 |

Ready-to-use solution Lubeta V105 for dip lubrication. Composed of a solid lubricant type fatty acid, this allows a homogeneous deposition of a thin lubricating film. This product is typically recommended for the lubrication of inversion wheels and paws. Ideal for after-sales services.



| MSA | ml | Kg |
|-------------|-----|-------|
| 28.V106-010 | 10 | 0.052 |
| 28.V106-100 | 100 | 0.180 |

Ready-to-use solution Lubeta V106 for dip lubrication. This allows homogeneous deposition of a thin film of lubricant. This product is typically recommended for lubrication of ball bearings and springs. Ideal for after-sales services.

UV lamps.



| MSA | Visc. 0° C | Kg |
|--------|---------------|-------|
| 00.682 | Ø 13 x 125 mm | 0.033 |

UV lamp (pen light) for controlling fluorescent oils. Light colour : blue/violet. 395 Nm.

Works with 2 AAA batteries (not included).



| MSA | Visc. 0° C | Kg |
|--------|---------------|-------|
| 00.683 | Ø 25 x 140 mm | 0.215 |

UV flashlight for controlling fluorescent oils and detecting dust. Light colour : white. 365 Nm.

Delivered with 1 rechargeable battery 18650 (2000 mAh - 3.7 V) and 1 charger.

LRCB synthetic oils and greases for the watchmaking industry.



| MSA | Packaging size | Kg |
|--------|------------------|-------|
| 28.211 | 200 x 73 x 32 mm | 0.140 |

Kit of 5 synthetic oils and greases (5 small bottles of 5 ml).

Contents :

- Oil MSA28.210-005
 - Oil MSA28.275-005
 - Grease MSA28.515-005
 - Grease MSA28.620-005
 - Grease MSA28.735-005.
- Delivered in 1 plastic box.



| MSA | ml | Temp. ° C | Visc. 20° C | Kg |
|------------|----|--------------|----------------|-------|
| 28.210-005 | 5 | ...-30 | 140 | 0.011 |

Fine oil for bearing of balance staff and pallet fork wheel. Contains a fluorescent additive. Cyan colour.

See kit MSA28.211.



| MSA | ml | Visc. 20° C | Kg |
|------------|----|----------------|-------|
| 28.275-005 | 5 | 1300 | 0.012 |

Thick oil for bearing of train wheel axle and barrel arbor. Red color.

See kit MSA28.211.



| MSA | ml | Kg |
|------------|----|-------|
| 28.515-005 | 5 | 0.012 |

Thixotropic grease for escapement. Contains a fluorescent additive. Yellow colour.

See kit MSA28.211.



| MSA | ml | Kg |
|------------|----|-------|
| 28.620-005 | 5 | 0.012 |

Grease for mechanism and cannon pinion based on microsilica. Contains a fluorescent additive.

For ferrous alloys, not suitable for copper alloys.

Red color.

See kit MSA28.211.



| MSA | ml | Kg |
|------------|----|-------|
| 28.735-005 | 5 | 0.013 |

Thick grease for mechanism based on PTFE. Can be used in some barrels. Suitable for ferrous and copper alloys.

Opaque white colour.

See kit MSA28.211.



| MSA | ml | Visc. 20° C | Kg |
|------------|----|----------------|-------|
| 28.272-005 | 5 | 500 | 0.012 |
| 28.273-005 | 5 | 750 | 0.012 |
| 28.274-005 | 5 | 1000 | 0.012 |

Thick oil for bearing of train wheel axle and barrel arbor.
Red color.

SEIKO® oil.

SEIKO



| MSA | ml | Kg |
|--------|----|-------|
| 28.103 | 2 | 0.010 |

SEIKO® AO-3 oil for train wheels and escapements.

SEIKO® greases.

SEIKO



| MSA | Contents | Size | Kg |
|--------|----------|--------------|-------|
| 28.104 | 4 g | Ø 36 x 18 mm | 0.014 |

SEIKO® TSF-451 silicon grease.

- Mainly used in the repair and control of waterproof watches
- Excellent lubricant with water-displacing property
- For the lubrication of crown gaskets, case backs and bezels.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.004 | 2 g | 0.030 |

Box with grease Seiko® TSF-451.

SEIKO



| MSA | Contents | Size | Kg |
|--------|----------|--------------|-------|
| 28.105 | 10 g | Ø 36 x 18 mm | 0.016 |

SEIKO® S-6 grease.

- For automatic winding mechanism : eccentric posts, click levers and bearings.

SEIKO



| MSA | Contents | Size | Kg |
|--------|----------|--------------|-------|
| 28.106 | 10 g | Ø 36 x 18 mm | 0.025 |

Seiko® S-4 silicone grease for lubricating barrels.

LA JURASSIENNE® oil.



| MSA | ml | Size | Kg |
|------------------|-----|---------------|-------|
| 28.J.0100 | 100 | Ø 45 x 105 mm | 0.154 |

LA JURASSIENNE® mineral oil for wall clocks.
 - Severely refined and compatible with strong oxidants
 - Temperature of auto-inflammation at 200° C
 - Stable product in usual stocking temperatures, manipulation and use.

Lubristyl® precision oil pen.



| MSA | ml | Temp. ° C | Kg |
|---------------|---------------|-----------|-------|
| 17.210 | Ø 13 x 155 mm | 6 cc | 0.028 |

Lubristyl® precision oil pen, pen shape.
 Drop by drop lubricant dispenses thanks to the needle pump. Possibility to easily re-absorb the extra oil by briefly and rapidly pushing the needle.
Delivered with 6 cc oil.

Spare part :

| MSA | Item | Kg |
|-------------------|--------------------|-------|
| 17.210-100 | Oil refill, 100 ml | 0.113 |



FOMBLIN® UT18 grease.



(1)



(2)

| MSA | Colour | Packaging | Size | Kg |
|-------------|-----------|---------------|----------------|-------|
| 28.UT18-020 | (1) White | Pot of 20 g | Ø 34 x 40.5 mm | 0.025 |
| 28.UT18-100 | (2) White | Tube of 100 g | Ø 30 x 145 mm | 0.115 |

FOMBLIN® UT18 grease. Advantages :

- Excellent lubricant for multiple uses
- Compatible with all sorts of material like plastic, metals, glass, etc.
- It resists to oxidation and other chemical products
- Used in watchmaking for greasing gaskets
- Temperatures use range : from -30° C to +250° C.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.001 | 2 g | 0.030 |

Box with grease Fomblin® UT18.

SILCON-7® grease.



| MSA | Packaging | Size | Kg |
|--------|--------------|--------------|-------|
| 28.652 | Tube of 10 g | Ø 12 x 56 mm | 0.012 |

SILCON-7® waterproofing grease.

- For watch cases
- It stops gaskets from drying and encrusting in the thread.



(1)

| MSA | Contents | Kg |
|--------|----------|-------|
| 28.000 | 2 g | 0.030 |

Box with grease Silicon-7®.

BLASOLUBE® grease.



| MSA | Type | Packaging | Kg |
|--------|------|---------------|-------|
| 28.301 | 302 | Tube of 250 g | 0.277 |

BLASOLUBE® 302 universal lubricant grease for a very wide-ranging use.
 - Soft/half-hard consistency
 - Temperatures use range : from -20° C up to +150/200° C.



| MSA | Type | Packaging | Kg |
|--------|------|---------------|-------|
| 28.307 | 301 | Tube of 400 g | 0.460 |

BLASOLUBE® 301 universal lubricant grease for a very wide-ranging use.
 - Soft consistency
 - Temperatures use range : from -30° C up to +120/150° C.

CHRONOGREASE KLÜBER P125® grease.



| MSA | Packaging | Size | Kg |
|--------|------------|----------------|-------|
| 28.102 | Pot of 5 g | Ø 22.5 x 31 mm | 0.008 |

CHRONOGREASE KLÜBER P125® grease.
 Recommended by ETA SA for greasing mainsprings (calibres 7750, A07111, etc.).

LUBRIBOX : box with 2 foam cushions impregnated with silicone grease allowing to lubricate O-Ring gaskets up to Ø 60 mm.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.000 | 2 g | 0.030 |

Box with grease Silicon-7®.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.001 | 2 g | 0.030 |

Box with grease Fomblin® UT18.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.002 | 2 g | 0.030 |

Box with grease Moebius® 8513.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.003 | 2 g | 0.030 |

Box with grease Molykote® 111.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.004 | 2 g | 0.030 |

Box with grease Seiko® TSF-451.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.220 | | 0.028 |

Box without grease.

JISMAA® lubricants.



| MSA | Colour | Packaging | Size | Kg |
|--------|--------|-------------|-----------------|-------|
| 28.200 | Blue | Tube of 7 g | 85 x 20 x 15 mm | 0.009 |
| 28.205 | Green | Tube of 7 g | 85 x 20 x 15 mm | 0.009 |

JISMAA® synthetic lubricant entirely mineral, specially recommended for precision instruments, measuring instruments, counters, quartz movements, optical instruments, etc. Its deterioration, spreading and evaporation are nil. This lubricant can accept extreme temperature variations (-50° C to +100° C), big centrifugal force (30,000 rpm) and strong friction. No oxidation.

Recommended use :
 - BLUE for steel/steel (alloys frictions, iron alloy carbon/Mo/steel/Cr)
 - GREEN for steel/brass (alloys frictions, iron alloy copper Cu/Be/Ni).
 Recommended use with JISMAA® oilers illustrated in chapter 17 (MSA17.050...17.052 and MSA17.060...17.063).

MOLYKOTE® lubricants.



| MSA | Colour | Packaging | Size | Kg |
|--------|--------|---------------|-----------------|-------|
| 28.303 | White | Tube of 100 g | Ø 35.5 x 170 mm | 0.110 |

MOLYKOTE® 111 waterproofing paste based on silicone grease.

Advantages :

- Excellent water resistance, even see water
- Good resistance to most chemical products
- Low volatility
- The purpose is to avoid crowns and tubes gaskets sticking to metal
- Temperatures use range : from -40° C up to +200° C.



| MSA | Contents | Kg |
|--------|----------|-------|
| 28.003 | 2 g | 0.030 |

Box with grease Molykote® 111.



| MSA | Colour | Packaging | Size | Kg |
|--------|--------|--------------|---------------|-------|
| 28.300 | White | Tube of 50 g | Ø 35 x 130 mm | 0.077 |
| 28.308 | White | Box of 250 g | Ø 100 x 50 mm | 0.280 |

MOLYKOTE® DX white consistent paste made of lithium grease.

- Very high load capacity
- Reduces friction and wearing
- Very good resistance to the washing out
- Protection against cold temperature soldering
- Good protection against oxidation and excellent protection against contact corrosion. It reduces incidents of grinding and seizing
- Temperatures use range : from -25° C to +125° C.

KT-22® lubricants.

| MSA | Packaging | Size | Kg |
|--------|-------------|--------------|-------|
| 28.651 | Pot of 12 g | Ø 34 x 32 mm | 0.017 |

KT-22® lubricant for multiple uses.
For greasing gear trains on watches and various instruments, waterproofing crowns, pushers and case backs gaskets.

Loosening lubricant.

| MSA | Packaging | Size | Kg |
|--------|-----------------|---------------|-------|
| 28.654 | Syringe of 6 cc | Ø 15 x 155 mm | 0.015 |

High-powered loosening lubricant for screws.

SUPER LUBE® multi-use Syncolon® lubricant.**Main features :**

- The product is 100% synthetic and biodegradable / No petroleum and no silicon component
- Non-corrosive and non oxidable / Better lubrication thanks to PTFE suspension particles
- Totally neutral on plastic, paints, clothes, rubber or wood / It doesn't stain
- 100% hot, cold and saltwater resistant / It doesn't evaporate / Without odour
- Dielectric and prevent seizure / It doesn't dry / Efficient between -40° C and +232° C.



| MSA | Packaging | Size | Kg |
|----------|----------------------|---------------|-------|
| 28.SL007 | Pen 7 g (in blister) | Ø 15 x 120 mm | 0.022 |



| MSA | Packaging | Size | Kg |
|----------|---------------------------|---------------|-------|
| 28.SL012 | Tube of 12 g (in blister) | Ø 25 x 110 mm | 0.025 |

LUBRICANTS



| MSA | Packaging | Size | Kg |
|----------|---------------------------|---------------|-------|
| 28.SL085 | Tube of 85 g (in blister) | Ø 55 x 145 mm | 0.110 |



| MSA | Packaging | Size | Kg |
|----------|--------------|---------------|-------|
| 28.SL300 | Spray 300 ml | Ø 65 x 200 mm | 0.380 |



| MSA | Packaging | Size | Kg |
|----------|-----------|---------------|-------|
| 28.SL400 | Pot 400 g | Ø 100 x 95 mm | 0.455 |



| MSA | Packaging | Size | Kg |
|----------|------------------------|-------------------|-------|
| 28.SL-1L | 1 litre with vaporizer | 105 x 60 x 225 mm | 0.875 |

Epilamation is an essential surface treatment for lubrication. This treatment is intended to lower the surface tension of a material, thus preventing the spreading of lubricants on the treated surface. It provides the highest possible degree of safety to precision mechanical instruments by guaranteeing effective and long-lasting lubrication.

EPISURF-Neo® Epilames.



| MSA | ml | Point d'ébullition | Kg |
|------------|------|--------------------|-------|
| 28.405-050 | 50 | 76° C | 0.052 |
| 28.405-100 | 100 | 76° C | 0.100 |
| 28.405-1L | 1000 | 76° C | 1.000 |

Episurf-Neo® is a high-performance epilame. Episurf-Neo® is fixed in a self-assembled monolayer of constant thickness on all surfaces used in watchmaking. Its properties make it a reference epilame for watch parts, in production in watch manufacturers or in after-sales service workshops, in Switzerland and all over the world. Episurf-Neo® is an invisible epilame, of nanometric thickness, whose application process is fast and reproducible. The performance of Episurf-Neo® allows an effective, durable and resistant epilame for many wash cycles. Episurf-Neo® is an environmentally friendly product that complies with European and Swiss regulations.

Ready for use solution.

Technical and environmental data :

| | |
|---------------------------------------|---------------------------------------|
| <i>Composition</i> | <i>Perfluoropolyether phosphonate</i> |
| <i>Diluent</i> | <i>Hydro fluoro olefin</i> |
| <i>Density at 25° C</i> | <i>1.58</i> |
| <i>Flash point</i> | <i>110° C</i> |
| <i>Freezing point</i> | <i>< -90° C</i> |
| <i>VOC</i> | <i>0 %</i> |
| <i>Do not deplete the ozone layer</i> | <i>0 (ODP)</i> |
| <i>Global warming potential</i> | <i>2.5</i> |
| <i>Surface tension</i> | <i>15 +/- 2 dyn.cm-1</i> |
| <i>Atmospheric lifetime</i> | <i><10 days</i> |

MOEBIUS® Epilames.

The Fixodrop epilame is successfully used in the following application areas:

- Hydrophobic and oleophobic surface treatment (epilame) for mechanisms, electronic devices and mechanical parts
- Precision micromechanics (watches, timers, measuring devices, tools, etc.)
- On-board instrumentation and counters (automotive, aeronautical, naval, etc.)
- Cameras and optical instruments
- General mechanics (office machines, fans, etc.).



Moebius Fixodrop BS

| MSA | ml | Type | Point d'ébullition | Kg |
|-------------|------|-------|--------------------|-------|
| 28.8980-100 | 100 | BS | 110° C | 0.265 |
| 28.8980-1L | 1000 | BS | 110° C | 1.680 |
| 28.8981-010 | 10 | BS-10 | 110° C | - |
| 28.8981-100 | 100 | BS-10 | 110° C | 0.295 |
| 28.8981-250 | 250 | BS-10 | 110° C | 0.630 |
| 28.8981-1L | 1000 | BS-10 | 110° C | 1.680 |
| 28.8982-1L | 1000 | BS-20 | 110° C | 1.680 |

Fixodrop ES/BS is a modern epilame, developed by MOEBIUS, based on fluorinated synthetic resins, diluted in a solvent which meets current ecological standards.

- 8980 : concentrated solution, may only be dissolved with solvent MSA28.5700-1L
- 8981 : ready-to-use solution
- 8982 : ready-to-use solution recommended only at a production level with excellent working conditions and regular checks.

Technical features :

| | |
|----------------------------------|--------------------------------|
| <i>Nano metric film</i> | <i>Invisible</i> |
| <i>Active material</i> | <i>Fluorinated polyester</i> |
| <i>Diluent</i> | <i>Ecosolv (MSA28.5700-1L)</i> |
| <i>Density at 20° C</i> | <i>1.59 g/ml</i> |
| <i>Boiling point</i> | <i>110° C</i> |
| <i>Flash point</i> | <i>Non-flammable</i> |
| <i>Toxicity</i> | <i>Non toxic</i> |
| <i>Ozone depletion potential</i> | <i>0 (ODP)</i> |
| <i>Atmospheric life time</i> | <i>< 10 days</i> |
| <i>Thickness epilame film</i> | <i>Approx. 3 - 5 nm</i> |
| <i>Superficial tension</i> | <i>Approx. 20 mN/m</i> |
| <i>Stability epilame film</i> | <i>Until 150° C</i> |
| <i>Compatibility</i> | <i>All types of materials</i> |



Moebius Fixodrop W

| MSA | ml | Type | Point d'ébullition | Kg |
|------------|------|------|--------------------|-------|
| 28.8970-1L | 1000 | W | 100° C | 1.680 |
| 28.8971-1L | 1000 | W-10 | 100° C | 1.680 |

Fixodrop W is an aqueous economical epilame. The active substance is a high activity fluorine component. This washable epilame can be removed after a simple wash with an aqueous or alcoholic solution.

- 8970 : concentrated solution. Before dilution, the concentrate must be shaken vigorously, also during partial sampling. Any empty bottle should be rinsed
- 8971 : ready-to-use solution.

Technical features :

| | |
|---------------------------------|--|
| <i>Nano metric film</i> | <i>Invisible</i> |
| <i>Active material</i> | <i>Fluorinated polymer</i> |
| <i>Diluent</i> | <i>Demineralised water</i> |
| <i>Density at 20° C</i> | <i>1.00 g/ml</i> |
| <i>Boiling point</i> | <i>100° C</i> |
| <i>Flash point</i> | <i>Non-flammable</i> |
| <i>Toxicity</i> | <i>Non toxic</i> |
| <i>Atmospheric life time</i> | <i>< 10 days</i> |
| <i>Thickness epilame film</i> | <i>Approx. 3 - 5 nm</i> |
| <i>Superficial tension</i> | <i>Approx. 16 mN/m</i> |
| <i>Stability of the polymer</i> | <i>Until 150° C</i> |
| <i>Compatibility</i> | <i>All types of materials (ruby, steel, brass, etc.)</i> |



Moebius Fixodrop WR-S

| MSA | ml | Type | Point d'ébullition |
|-------------|------|------|--------------------|
| 28.7060-250 | 250 | WR-S | 110° C |
| 28.7061-250 | 250 | WR-S | 110° C |
| 28.7061-1L | 1000 | WR-S | 110° C |
| 28.7062-250 | 250 | WR-S | 110° C |
| 28.7062-1L | 1000 | WR-S | 110° C |

Fixodrop ES/WR-S are the first series of our "Wash Resistance" (WR) epilams that have been specifically developed to improve the washing resistance of standard materials (steel, ruby, copper, etc.). These epilams can be applied to all materials, but they will be the most effective on these standard materials for which they have excellent resistance to washing.

- 7060 : concentrated solution, may only be dissolved with solvent MSA28.5700-1L
- 7061 : ready-to-use solution
- 7062 : ready-to-use solution recommended only at a production level with excellent working conditions and regular checks.

Technical features :

| | |
|----------------------------------|--------------------------------|
| <i>Nano metric film</i> | <i>Invisible</i> |
| <i>Active material</i> | <i>Fluorinated polymer</i> |
| <i>Diluent</i> | <i>Ecosolv (MSA28.5700-1L)</i> |
| <i>Density at 20° C</i> | <i>1.59 g/ml</i> |
| <i>Boiling point</i> | <i>110° C</i> |
| <i>Flash point</i> | <i>Non-flammable</i> |
| <i>Toxicity</i> | <i>Non toxic</i> |
| <i>Ozone depletion potential</i> | <i>0 (ODP)</i> |
| <i>Atmospheric life time</i> | <i>< 10 days</i> |
| <i>Thickness epilame film</i> | <i>Approx. 3 - 5 nm</i> |
| <i>Superficial tension</i> | <i>Approx. 20 mN/m</i> |
| <i>Stability epilame film</i> | <i>Until 150° C</i> |
| <i>Compatibility</i> | <i>All types of materials</i> |



Moebius Fixodrop WR-P

| MSA | ml | Type | Point d'ébullition |
|-------------|------|------|--------------------|
| 28.7070-250 | 250 | WR-P | 110° C |
| 28.7071-250 | 250 | WR-P | 110° C |
| 28.7071-1L | 1000 | WR-P | 110° C |
| 28.7072-250 | 250 | WR-P | 110° C |
| 28.7072-1L | 1000 | WR-P | 110° C |

Fixodrop ES/WR-P are the second series of our "Wash Resistance" (WR) epilams that have been specifically developed to improve the washing resistance of special or precious materials (gold, rhodium-plated, nickel, DLC, etc).

These epilams can be applied to all materials, but they will be the most effective on these standard materials for which they have excellent resistance to washing.

- 7070 : concentrated solution, may only be dissolved with solvent MSA28.5700-1L
- 7071 : ready-to-use solution
- 7072 : ready-to-use solution recommended only at a production level with excellent working conditions and regular checks.

Technical features :

| | |
|----------------------------------|--------------------------------|
| <i>Nano metric film</i> | <i>Invisible</i> |
| <i>Active material</i> | <i>Fluorinated polymer</i> |
| <i>Diluent</i> | <i>Ecosolv (MSA28.5700-1L)</i> |
| <i>Density at 20° C</i> | <i>1.59 g/ml</i> |
| <i>Boiling point</i> | <i>110° C</i> |
| <i>Flash point</i> | <i>Non-flammable</i> |
| <i>Toxicity</i> | <i>Non toxic</i> |
| <i>Ozone depletion potential</i> | <i>0 (ODP)</i> |
| <i>Atmospheric life time</i> | <i>< 10 days</i> |
| <i>Thickness epilame film</i> | <i>Approx. 3 - 5 nm</i> |
| <i>Superficial tension</i> | <i>Approx. 20 mN/m</i> |
| <i>Stability epilame film</i> | <i>Until 150° C</i> |
| <i>Compatibility</i> | <i>All types of materials</i> |



Moebius solvent for Fixodrop

| MSA | ml | Visc. 20° C | Kg |
|------------|------|-------------|-------|
| 28.5700-1L | 1000 | 0.83 | 1.620 |

EcoSolv is suitable for replacing PFCs, PFPEs, HFEs, HFCs and HCFSs in specialized applications. The favorable viscosity and density characteristics of this product allow superior cleaning as well as performances as carrier fluid.

- Solvent for diluting Fixodrop epilames MSA28.7060-250, MSA28.7070-1L et MSA28.8980-x (10% of concentrate solution / 90% of solvent)
- Cleaning agent
- Coating agent (carrier fluid) for fluorinated materials.

Technical features :

| | |
|----------------------------------|--------------------------|
| <i>Solvent class</i> | <i>Hydrofluoroolefin</i> |
| <i>Density at 20° C</i> | <i>1.59 g/ml</i> |
| <i>Boiling point</i> | <i>110° C</i> |
| <i>Freezing point</i> | <i>< -90° C</i> |
| <i>Thermal conductivity</i> | <i>0.065 W/m-K</i> |
| <i>Surface tension</i> | <i>18 dyne/cm</i> |
| <i>Vapour pressure</i> | <i>2.9 kPa</i> |
| <i>Heat of vaporization</i> | <i>115 kJ/kg</i> |
| <i>Flammability point</i> | <i>Non-flammable</i> |
| <i>Toxicity</i> | <i>Non toxic</i> |
| <i>Ozone depletion potential</i> | <i>0 (ODP)</i> |
| <i>Atmospheric life time</i> | <i>< 10 days</i> |

Test oils to control the quality of the epilame.



Moebius test oil

| MSA | No. | ml | Temp. ° C | Visc. 0° C | Visc. 20° C | Visc. 40° C |
|-------------|-----|----|------------|------------|-------------|-------------|
| 28.9701-005 | 1 | 5 | -20...+100 | 150 | 40 | 18 |
| 28.9702-005 | 2 | 5 | -40...+100 | 59 | 55 | 39 |
| 28.9703-005 | 3 | 5 | -40...+100 | 99 | 56 | 35 |
| 28.9704-005 | 4 | 5 | -30...+100 | 145 | 48 | 21 |
| 28.9705-005 | 5 | 5 | -30...+90 | 162 | 44 | 19 |
| 28.9706-005 | 6 | 5 | -20...+80 | 233 | 63 | 21 |

There are 6 test oils to control the quality of the epilame (Fixodrop) deposited on a surface.

No. 1 (colourless) : this fluorinated oil is a positive control to confirm that the surface is epilamated. A spreading of this oil confirms the presence of the epilame.

No. 2 (orange) : without epilame on the surface, this oil spreads extremely easily compared to a classic watch oil. If this oil forms a drop and does not spread entirely on the surface, this confirms the good quality of the epilame.

No. 3 (red) : without epilame on the surface, this oil spreads extremely easily compared to a classic watch oil. If this oil forms a drop and does not spread on the surface, this confirms the good quality of the epilame.

No. 4 (yellow) : without epilame on the surface, this oil spreads easily like a standard watch oil with a moderate grip would do. If this oil forms a drop and does not spread on the surface, this confirms the good quality of the epilame.

No. 5 (blue) : without epilame on the surface, this oil spreads significantly like a watch oil with very good grip would do. If this oil forms a drop and does not spread on the surface, this confirms the good quality of the epilame.

No. 6 (green) : without epilame on the surface, this oil spreads very slightly like a watch oil with an excellent grip would do. If this oil forms a drop and does not spread on the surface, this confirms the good quality of the epilame.

LRCB Epilames.



| MSA | ml | Point d'ébullition | Kg |
|-------------|------|--------------------|-------|
| 28.8983-020 | 20 | 76° C | ? |
| 28.8983-100 | 100 | 76° C | 0.245 |
| 28.8983-1L | 1000 | 76° C | ? |

Epilame ECO-50 is a solution of a fluorinated compound that lowers the surface tension of watch components. The contact angle of the lubricants is increased to ensure their remain-in-place over time.

- Can be used on all metal substrates and on ruby
- Ready to use
- Non-flammable under normal conditions of use, no flash point
- Does not contain any persistent solvents as defined by Swiss and European law
- Contains no ozone-depleting solvents
- Compatible with common plastics.

Characteristics :

| | |
|----------------------------------|--------------------|
| <i>Dry extract : 50 mg/litre</i> | <i>50 mg/litre</i> |
| <i>Flash point : none</i> | <i>none</i> |
| <i>Density : 1.43 g/cm3</i> | <i>1.43 g/cm3</i> |
| <i>Boiling point : 76° C</i> | <i>76° C</i> |

29



Soldering station.



| MSA | Voltage | Size | Kg |
|--------|---------|-------------------|-------|
| 29.227 | 220 V | 195 x 100 x 90 mm | 0.800 |

Soldering station VTSS7, ideal for beginners as well as professionals.

Specifications :

- Supply : 220 V / 50 Hz
- Consumption : 50 VA maximum
- Electronic temperature setting : from 175 to 480° C.

Soldering accessories.



| MSA | | Ø wire | Packaging | Kg |
|--------|-----|---------|----------------|-------|
| 29.615 | (1) | 0.71 mm | Spool of 500 g | 0.520 |
| 29.616 | (2) | 0.71 mm | 1 metre wire | 0.004 |

Soldering wire with incorporated flux. Melting point at 179° C.



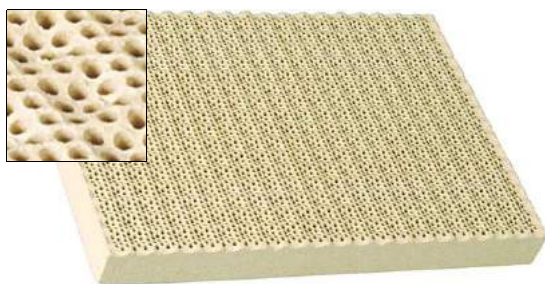
| MSA | Ø braid | Packaging | Kg |
|--------|---------|---------------------|-------|
| 29.631 | 0.80 mm | Spool of 1.5 metres | 0.005 |

Desoldering braid.



| MSA | Colour | Size | Kg |
|--------|--------|-------------|-------|
| 29.626 | Metal | 168 x 55 mm | 0.011 |

Bag of 12 universal soldering rods ready to use with cleaning agent already included, for an optimal job with almost no waste. High resistant soldering on numerous metals whose melting points exceed 600° C. Neither additional scouring solution, solvent or cleaning product is necessary. The rods are used for stainless steel, cobalt-chrome and silver.



| MSA | Size | Kg |
|--------|------------------|-------|
| 29.606 | 135 x 95 x 13 mm | 0.125 |

Insulating soldering plate.



| MSA | Size | Kg |
|----------|------------------|-------|
| 29.614-B | 120 x 80 x 30 mm | 0.112 |

Soft charcoal block chemically prepared for soldering. Under the flame the charcoal block turns in red and reflects the heat for more efficient soldering.



| MSA | Size | Kg |
|--------|-------------------|-------|
| 29.501 | 155 x 100 x 75 mm | 0.705 |

Base with 2 revolving nippers mounted on a mobile arm for holding items during soldering.



| MSA | Size | Kg |
|--------|---------------|-------|
| 29.651 | Ø 68 x 152 mm | 0.185 |

Alcohol lamp.
Delivered with a wick.

Spare part :

| MSA | Item | Kg |
|----------|---------------------|-------|
| 29.651-A | Wick, length 200 mm | 0.009 |

See chapter PERF.



Soldering pastes.



| MSA | Contents | Carats | Melting point | Size | Kg |
|------------|----------|--------|-------------------|---------------|-------|
| 29.611-A14 | 1.55 g | 14 | 637° C 1180° F | Ø 10 x 115 mm | 0.005 |

EASY type soldering paste in yellow gold.
Delivered in a syringe.



| MSA | Contents | Carats | Melting point | Size | Kg |
|------------|----------|--------|-------------------|---------------|-------|
| 29.611-A18 | 1.55 g | 18 | 790° C 1455° F | Ø 10 x 115 mm | 0.005 |

EASY type soldering paste in yellow gold.
Delivered in a syringe.



| MSA | Contents | Melting point | Size | Kg |
|----------|----------|-------------------|---------------|-------|
| 29.610-A | 14 g | 618° C 1145° F | Ø 19 x 160 mm | 0.028 |

EASY type SILVER soldering paste. It contains cadmium.
Delivered in a syringe.



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.623 | 1.5 ml | 0.065 |

Circuit Maker.
Repairs quartz analog and digital circuitry as well as any other fine wire circuits with a minimum of time and effort.
Eliminates long drying times.
Kit includes 1 bottle with 1.5 ml fluid and an applicator.

32



BEADING TOOLS

32 - 2

BEADING TOOLS PLATES / MILLGRAIN TOOLS

32 - 4

MAILLEFER® "Swiss Made" beading tools.



| MSA | Packaging size | Kg |
|------------|-----------------|-------|
| 32.001-901 | 56 x 56 x 76 mm | 0.088 |

Assortment of 12 SWISS beading tools.

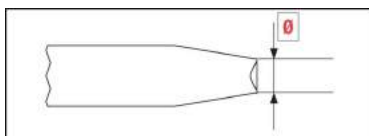
- Contents :
- 1 storage box
 - 1 wooden handle
 - 12 beading tools no. 1...12.



| MSA | Packaging size | Kg |
|------------|-----------------|-------|
| 32.001-902 | 56 x 56 x 76 mm | 0.116 |

Assortment of 23 SWISS beading tools.

- Contents :
- 1 storage box
 - 1 wooden handle
 - 23 beading tools no. 0...22.



| MSA | Numbers | Ø | Length x Ø | Kg |
|-----------|---------|---------|--------------|-------|
| 32.001-00 | 0 | 0.25 mm | 60 x 2.60 mm | 0.002 |
| 32.001-01 | 1 | 0.30 mm | 60 x 2.60 mm | 0.002 |
| 32.001-02 | 2 | 0.35 mm | 60 x 2.60 mm | 0.002 |
| 32.001-03 | 3 | 0.40 mm | 60 x 2.60 mm | 0.002 |
| 32.001-04 | 4 | 0.45 mm | 60 x 2.60 mm | 0.002 |
| 32.001-05 | 5 | 0.50 mm | 60 x 2.60 mm | 0.002 |
| 32.001-06 | 6 | 0.55 mm | 60 x 2.60 mm | 0.002 |
| 32.001-07 | 7 | 0.60 mm | 60 x 2.60 mm | 0.002 |
| 32.001-08 | 8 | 0.65 mm | 60 x 2.60 mm | 0.002 |
| 32.001-09 | 9 | 0.70 mm | 60 x 2.60 mm | 0.002 |
| 32.001-10 | 10 | 0.75 mm | 60 x 2.60 mm | 0.002 |
| 32.001-11 | 11 | 0.80 mm | 60 x 2.60 mm | 0.002 |
| 32.001-12 | 12 | 0.85 mm | 60 x 2.60 mm | 0.002 |
| 32.001-13 | 13 | 0.90 mm | 60 x 2.60 mm | 0.002 |
| 32.001-14 | 14 | 0.95 mm | 60 x 2.60 mm | 0.002 |
| 32.001-15 | 15 | 1.00 mm | 60 x 2.60 mm | 0.002 |
| 32.001-16 | 16 | 1.05 mm | 60 x 2.60 mm | 0.002 |
| 32.001-17 | 17 | 1.10 mm | 60 x 2.60 mm | 0.002 |
| 32.001-18 | 18 | 1.15 mm | 60 x 2.60 mm | 0.002 |
| 32.001-19 | 19 | 1.20 mm | 60 x 2.60 mm | 0.002 |
| 32.001-20 | 20 | 1.25 mm | 60 x 2.60 mm | 0.002 |
| 32.001-21 | 21 | 1.30 mm | 60 x 2.60 mm | 0.002 |
| 32.001-22 | 22 | 1.35 mm | 60 x 2.60 mm | 0.002 |

MAILLEFER® "Swiss Made" beading tool.

GLARDON® VALLORBE "Swiss Made" beading tools. High quality steel, hardness 64-66 HRC.



(1)



| MSA | Packaging size | Kg |
|--------------|------------------|-------|
| 32.003-A | 130 x 75 x 40 mm | 0.145 |
| 32.003-B (1) | 130 x 75 x 40 mm | 0.167 |

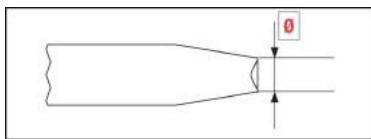
Assortment of VALLORBE beading tools.

| Contents MSA32.003-A : | Contents MSA32.003-B : |
|--|--------------------------------|
| - 1 wooden base | - 1 wooden base |
| - 1 wooden handle | - 1 wooden handle |
| - 12 beading tools no. 2 - 4 - 5...12 - 14 - 16. | - 23 beading tools n° 00...22. |

ASSORTMENT



- Regular and polished cap
- Can be used directly, without any prior preparation.



| MSA | Numbers | Ø | Length x Ø | Kg |
|-----------|---------|---------|--------------|-------|
| 32.003-00 | 0 | 0.25 mm | 60 x 2.60 mm | 0.002 |
| 32.003-01 | 1 | 0.30 mm | 60 x 2.60 mm | 0.002 |
| 32.003-02 | 2 | 0.35 mm | 60 x 2.60 mm | 0.002 |
| 32.003-03 | 3 | 0.40 mm | 60 x 2.60 mm | 0.002 |
| 32.003-04 | 4 | 0.45 mm | 60 x 2.60 mm | 0.002 |
| 32.003-05 | 5 | 0.50 mm | 60 x 2.60 mm | 0.002 |
| 32.003-06 | 6 | 0.55 mm | 60 x 2.60 mm | 0.002 |
| 32.003-07 | 7 | 0.60 mm | 60 x 2.60 mm | 0.002 |
| 32.003-08 | 8 | 0.65 mm | 60 x 2.60 mm | 0.002 |
| 32.003-09 | 9 | 0.70 mm | 60 x 2.60 mm | 0.002 |
| 32.003-10 | 10 | 0.75 mm | 60 x 2.60 mm | 0.002 |
| 32.003-11 | 11 | 0.80 mm | 60 x 2.60 mm | 0.002 |
| 32.003-12 | 12 | 0.85 mm | 60 x 2.60 mm | 0.002 |
| 32.003-13 | 13 | 0.90 mm | 60 x 2.60 mm | 0.002 |
| 32.003-14 | 14 | 0.95 mm | 60 x 2.60 mm | 0.002 |
| 32.003-15 | 15 | 1.00 mm | 60 x 2.60 mm | 0.002 |
| 32.003-16 | 16 | 1.05 mm | 60 x 2.60 mm | 0.002 |
| 32.003-17 | 17 | 1.10 mm | 60 x 2.60 mm | 0.002 |
| 32.003-18 | 18 | 1.15 mm | 60 x 2.60 mm | 0.002 |
| 32.003-19 | 19 | 1.20 mm | 60 x 2.60 mm | 0.002 |
| 32.003-20 | 20 | 1.25 mm | 60 x 2.60 mm | 0.002 |
| 32.003-21 | 21 | 1.30 mm | 60 x 2.60 mm | 0.002 |
| 32.003-22 | 22 | 1.35 mm | 60 x 2.60 mm | 0.002 |

GLARDON® VALLORBE "Swiss Made" beading tool.



| MSA | Length | Ø ring | Ø handle | Kg |
|----------|--------|--------|----------|-------|
| 18.130-S | 50 mm | 10 mm | 36 mm | 0.014 |

Wooden handle for beading tools with 1 brass die Ø 2.60 mm to quickly fit the beading tool.

Tools for polishing the inside of beading tool heads.



| MSA | Base size | Kg |
|--------|----------------|-------|
| 32.020 | Ø 30 x 6.90 mm | 0.042 |

Round brass plate for re-burnishing beading tools, with 12 sunken tempered steel heads numbered from 1 to 12.



| MSA | Base size | Kg |
|--------|----------------|-------|
| 32.021 | Ø 30 x 6.90 mm | 0.040 |

Round brass plate for re-burnishing beading tools, with 12 raised tempered steel heads numbered from 1 to 12.



| MSA | Base size | Kg |
|--------|-----------------|-------|
| 32.030 | 60 x 28 x 15 mm | 0.192 |

Rectangular steel plate for re-burnishing beading tools, with 40 sunken tempered steel balls numbered from 0.60 to 1.75.

The millgrain head is equipped with a small toothed wheel used for jewellery decoration.



| MSA | Packaging size | Kg |
|--------|------------------|-------|
| 32.100 | 110 x 80 x 50 mm | 0.175 |

Assortment of 6 millgrains.

Contents :
 - 1 wooden base
 - 1 vice with wooden handle and 1 tightening chuck
 - Numbers : 4 - 6 - 8 - 10 - 12 - 14.

ASSORTMENT



| MSA | Numbers | Wheel thickness | Length x Ø | Kg |
|-----------|---------|-----------------|---------------|-------|
| 32.101-01 | 1 | 0.35 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-02 | 2 | 0.36 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-03 | 3 | 0.41 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-04 | 4 | 0.42 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-05 | 5 | 0.43 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-06 | 6 | 0.45 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-07 | 7 | 0.47 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-08 | 8 | 0.48 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-09 | 9 | 0.49 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-10 | 10 | 0.50 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-11 | 11 | 0.52 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-12 | 12 | 0.57 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-13 | 13 | 0.61 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-14 | 14 | 0.62 mm | 67.5 x 2.5 mm | 0.002 |
| 32.101-15 | 15 | 0.63 mm | 67.5 x 2.5 mm | 0.002 |

Millgrain.

38



REAGENTS FOR TESTING PRECIOUS METALS

38 - 2

DIAMOND TESTERS

38 - 4

WRAPPING PAPER FOR DIAMONDS AND PRECIOUS STONES

38 - 5

REAGENTS FOR TESTING PRECIOUS METALS



Note for items with this pictogram :

- Caustic product not destined for home use.
- Toxicity class 2.
- It contains more than 10 % of mineral acid.
- Avoid contact with skin and eyes.



| MSA | Packaging size | Kg |
|--------|--------------------|-------|
| 38.000 | 140 x 100 x 160 mm | 0.790 |

Assortment of reagents, delivered in a wooden box including :

- 1 phial of reagent for gold 10-14 carats
- 1 phial of reagent for gold 18 carats
- 1 phial of reagent for platinum
- 1 phial of reagent for gold 8-12 carats
- 1 phial of reagent for silver
- 1 synthetic touchstone
- 5 empty glass bottles of 15 cc.

ASSORTMENT



| MSA | Length x Ø | Kg |
|--------|-------------|-------|
| 38.005 | 130 x 30 mm | 0.047 |

Phial of reagent for gold 20-24 carats.



| MSA | Length x Ø | Kg |
|--------|-------------|-------|
| 38.003 | 130 x 30 mm | 0.048 |

Phial of reagent for gold 18 carats.



| MSA | Length x Ø | Kg |
|--------|-------------|-------|
| 38.002 | 130 x 30 mm | 0.051 |

Phial of reagent for gold 10-14 carats.



| MSA | Length x Ø | Kg |
|--------|-------------|-------|
| 38.006 | 130 x 30 mm | 0.048 |

Phial of reagent for platinum.



| MSA | Length x Ø | Kg |
|--------|-------------|-------|
| 38.004 | 130 x 30 mm | 0.046 |

Phial of reagent for silver.



| MSA | Size | Kg |
|-----------------|-----------------|-------|
| 38.016-N | 60 x 100 x 8 mm | 0.150 |

Natural touchstone.



| MSA | Volume | Kg |
|---------------|--------|-------|
| 38.013 | 15 cc | 0.023 |

Glass bottle for reagent.



| MSA | Volume | Kg |
|---------------|--------|-------|
| 38.014 | 30 cc | 0.050 |

Glass bottle for reagent.

DIAMOND TESTERS

New range of diamond testers.

- Ergonomically shaped for a comfortable held
- Intuitive finger grip pads for increased user-friendliness and ease of use
- Precision retractable probe-tip with enhanced durability
- Very fast warm-up time
- Auto-off function to preserve battery life.

GEMORO
Products



| MSA | Size | Kg |
|--------|------------------|-------|
| 38.127 | 170 x 25 x 50 mm | 0.350 |

ULTRATESTER 3+® diamond tester.
Identifies, detects and separates diamond from zircon and moissanite.
Glowing light bar / probe tip cone for quick stone identification.

- GREEN = diamond
- BLUE = moissanite
- PINK = sapphire
- RED = metal

Delivered with 3 rechargeable NiMH AAA batteries, AC adapter, loose stone holder and compact rubberized portable storage case.

GEMORO
Products



| MSA | Size | Kg |
|--------|------------------|-------|
| 38.129 | 170 x 25 x 50 mm | 0.350 |

PRO-D 3® diamond tester.
Identifies, detects and separates diamond or sapphire from zircon.
Glowing light bar / probe tip cone for quick stone identification.

- GREEN = diamond
- PINK = sapphire
- RED = metal

Delivered with 3 rechargeable NiMH AAA batteries, AC adapter, loose stone holder and compact rubberized portable storage case.

Diamond Selector II.



| MSA | Size | Kg |
|--------|------------------|-------|
| 38.125 | 160 x 40 x 20 mm | 0.174 |

DIAMOND SELECTOR II diamond tester.
- Measures heat conductivity for separating diamond particles
- Detects the presence of the following particles : cubic zirconia, synthetic white spinel, rutile, strontium titanate, zircon, white sapphire, G.G.G. and Y.A.G.
- Totally portable and independent, it works with one 9V battery (not included).

Delivered in a leather imitation pouch with English user's manual.

WRAPPING PAPER FOR DIAMONDS AND PRECIOUS STONES



| MSA | Size | Kg |
|---------------|------------|-------|
| 38.110 | 80 x 45 mm | 0.088 |

Pack of 25 wrapping paper sheets for diamonds and precious stones.
Inside furnished with 2 light blue sheets.



| MSA | Size | Kg |
|---------------|------------|-------|
| 38.111 | 80 x 45 mm | 0.073 |

Pack of 25 wrapping paper sheets for diamonds and precious stones.
Inside furnished with 1 white and 1 light blue sheet.



| MSA | Size | Kg |
|---------------|------------|-------|
| 38.112 | 80 x 45 mm | 0.085 |

Pack of 25 wrapping paper sheets for diamonds and precious stones.
Inside furnished with 2 white sheets.

42



KERN® BALANCES

42 - 2

POCKET SCALES AND ACCESSORIES

42 - 11





Internal adjusting program : quick setting of the balance's accuracy with internal adjusting weight (motor-driven).



External adjusting program : for quick setting of the balance's accuracy. External adjusting weight required.



Data interface RS-232 : to connect the balance to a printer, PC or network.



GLP/ISO log : the balance displays the weight, date and time, regardless of printer connected.



GLP/ISO log : with weight, date and time. Only with KERN printers.



Piece counting : reference quantities selectable. Display can be switched from piece to weight.



Summation level : weight values of similar goods can be aggregated and the sum printed.



Formula : separate memory for the weight of the tare container and the recipe ingredients (net total).



Percentage determination : displays the deviation from the reference weight (100%) in % instead of grams.



Weighing units : can be switched to e.g. nonmetric units at the touch of a key.



Weighing with tolerance range : upper and lower limiting can be programmed individually, e. g. sorting and portioning.



Vibration-free weighing : (animal weighing program) Vibrations are filtered out so that a stable weight is obtained.



Suspended weighing : load support with hook on the underside of the balance.



Battery operation : prepared to function on battery. The battery type is specified for each device.



Rechargeable battery pack : rechargeable set.



Universal network adapter : external, with universal input and optional input adapters.
A) UE, GB ; B) UE, GB, CH, USA
C) UE, GB, CH, USA, AUS



Mains adapter : integrated with the balance, 230 V/50 Hz. On request, also as standard for other countries.



Strain gauge : electrical resistor on an elastic deforming body.



Tuning fork principle : a resonating body (like a tuning fork) is electromagnetically excited, causing it to oscillate.



Electromagnetic force compensation : coil in a permanent magnet. For the most accurate weightings.



Single cell technology : advanced version of the force compensation principle with the highest level of precision.



Verification possible : the time required for verification is specified in the pictogram.



DAkkS calibration : the time required for DAkkS calibration is shown in the pictogram.



Warranty : the warranty period is shown in the pictogram (2 years).

Note : According to EU directive 2014/31/EU, balances must be officially verified if they are used as follows :

- in commercial transactions if the price of goods is determined by weighing
- in the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory
- for official purposes
- in the production of finished packages
- in medicine.

KERN® balances and scales are worldwide renowned for being precise and reliable. Tare function, parts counting, memory, percentage determination and internal or external adjusting are possible. All balances and scales are delivered with user's manual. Numerous of other models are available according to your needs. Please contact our sales department.



42 g / 120 g (0.01 mg / 0.1 mg)



| MSA | Model | Voltage | Size | Kg |
|--------|--------------|----------------------|--------------------|--------|
| 42.189 | ABT 120-5DNM | 220 - 240 V 50 Hz | 215 x 340 x 335 mm | 12.600 |

- Dual-range analytical balance, Premium model with Single-Cell weighing system
- Automatic internal adjustment in the case of a change in temperature > 0.5° C and time-controlled every 4 hours, guarantees high degree of accuracy and makes the balance independent of its location of use
- Dosage aid controlled through the display
- Large glass draught shield with 3 sliding doors for easy access to the items being weighed
- Stainless steel weighing plate Ø 80 mm.

| | |
|---------------------------------|------------------|
| Weighing capacity max. | 42 g / 120 g |
| Readability | 0.01 mg / 0.1 mg |
| Repeatability | 0.02 mg / 0.1 mg |
| Linearity | 0.05 mg / 0.2 mg |
| Recommended adjusting weight | - |
| Other weighing units | ct |
| Screen, digits height | 14 mm |
| Minimum piece weight (counting) | 10 mg |
| Adapters included | CH EURO UK US |
| Option Verification | 965-201 |
| Option DAkkS Certificate | 963-101 |



160 g (0.1 mg)



| MSA | Model | Voltage | Size | Kg |
|--------|-------------|-------------|--------------------|-------|
| 42.184 | ALJ 160-4AM | 110 - 240 V | 210 x 340 x 330 mm | 9.200 |

- Analytical balance with large weighing ranges.
- Automatic internal adjustment in the case of a change in temperature greater than or equal to 1.2° C and time-controlled at defined intervals, guarantees high degree of accuracy and makes the balance independent of its location of use
- Ergonomically optimised keypad for left and righthanded users
- Large glass draught shield with 3 sliding doors for easy access to the items being weighed
- Compact size, practical for small spaces
- Stainless steel weighing plate Ø 80 mm.

| | |
|---------------------------------|--|
| Weighing capacity max. | 160 g |
| Readability | 0.1 mg |
| Repeatability | 0.1 mg |
| Linearity | 0.3 mg |
| Recommended adjusting weight | 150 g (E2) |
| Other weighing units | ct - dwt - gn - lb - mo - oz - ozt - tl (HK) - tl (SG, MY) - tl (TW) |
| Screen, digits height | 17 mm |
| Minimum piece weight (counting) | 10 mg |
| Adapters included | CH EURO UK US |
| Option Verification | 965-201 |
| Option DAkkS Certificate | 963-101 |

KERN



210 g (0.1 mg)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|-----------|-------------------------|--------------------|-------|
| 42.187 | ADB 200-4 | 100 - 265 V 50/60 Hz | 207 x 310 x 315 mm | 6.900 |

The price leader in analytical balances.

- Adjusting program CAL for quick setting of the balance accuracy using an external test weight
- Large glass draught shield with 3 sliding doors for easy access to the items being weighed
- Compact size, practical for small spaces
- Simple and convenient 6-key operation
- Stainless steel weighing plate Ø 90 mm.

| | |
|------------------------------|--------------|
| Weighing capacity max. | 210 g |
| Readability | 0.1 mg |
| Repeatability | 0.2 mg |
| Linearity | 0.4 mg |
| Recommended adjusting weight | 200 g (E2) |
| Other weighing units | ct - lb - oz |

| | |
|---------------------------------|-------|
| Screen, digits height | 16 mm |
| Minimum piece weight (counting) | 10 mg |

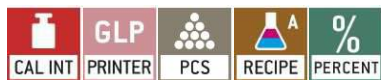
Adapters included CH EURO UK US

| | |
|--------------------------|---------|
| Option Verification | - |
| Option DAkkS Certificate | 963-101 |

KERN



320 g (0.1 mg)



OPTION



FACTORY

| MSA | Model | Voltage | Size | Kg |
|--------|-------------|-------------|--------------------|-------|
| 42.188 | ABJ 320-4NM | 110 - 230 V | 210 x 340 x 325 mm | 8.970 |

The bestseller in analytical balances, with high-quality Single-Cell weighing system.

- Automatic internal adjustment in the case of a change in temperature > 2° C and time-controlled every 4 hours, guarantees high degree of accuracy and makes the balance independent of its location of use
- Dosage aid controlled through the display
- Stainless steel weighing plate Ø 91 mm.

| | |
|------------------------|--------|
| Weighing capacity max. | 320 g |
| Readability | 0.1 mg |
| Repeatability | 0.2 mg |
| Linearity | 0.3 mg |
| Other weighing units | ct |

| | |
|---------------------------------|-------|
| Screen, digits height | 14 mm |
| Minimum piece weight (counting) | 10 mg |

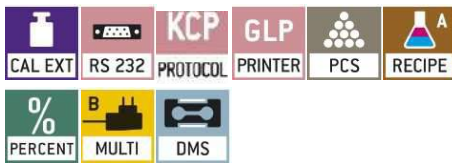
Adapters included CH EURO UK US

| | |
|--------------------------|---------|
| Option Verification | 965-201 |
| Option DAkkS Certificate | 963-101 |

KERN



200 g (1 mg)



OPTION

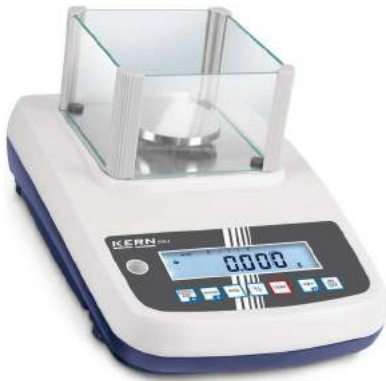
| MSA | Model | Voltage | Size | Kg |
|--------|-----------|-------------------------|-------------------|-------|
| 42.174 | PFB 200-3 | 100 - 240 V 50/60 Hz | 210 x 315 x 90 mm | 2.340 |

Quick-display precision balance with user-friendly concept of operation.

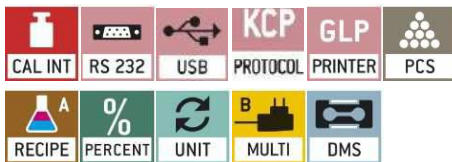
- Easy to use: all primary functions have their own key on the keypad
- Compact size, practical for small spaces
- Capacity display : a bar lights up to show how much of the weighing range is still available
- Standard draught shield
- Stainless steel weighing plate Ø 80 mm.

| | |
|---------------------------------|---|
| Weighing capacity max. | 200 g |
| Readability | 1 mg |
| Repeatability | 2 mg |
| Linearity | 5 mg |
| Recommended adjusting weight | 200 g (F1) |
| Other weighing units | bat - ct - dot - dwt - lb - mo - N - oz - ozt - tl (CN) - tl (HK) - tl (TW) |
| Screen, digits height | 15 mm |
| Minimum piece weight (counting) | 20 mg |
| Adapters included | CH EURO UK US |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



300 g (1 mg)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|-----------|-------------------------|-------------------|-------|
| 42.340 | EWJ 300-3 | 100 - 240 V 50/60 Hz | 220 x 315 x 90 mm | 3.800 |

High-quality precision balance with automatic internal adjustment.

- Easy to use : all primary functions have their own key on the keypad
- Automatic internal adjustment time-controlled every 2 hours. Guarantees high degree of accuracy and makes the balance independent of its location
- Capacity display : a bar lights up to show how much of the weighing range is still available
- Standard draught shield
- Stainless steel weighing plate Ø 80 mm.

| | |
|---------------------------------|---|
| Weighing capacity max. | 300 g |
| Readability | 1 mg |
| Repeatability | 2 mg |
| Linearity | 5 mg |
| Recommended adjusting weight | 300 g (F1) |
| Other weighing units | ct - dwt - lb - mo - oz - ozt - tl (HK) - tl (SG, MY) - tl (TW) |
| Screen, digits height | 16.5 mm |
| Minimum piece weight (counting) | 20 mg |
| Adapters included | CH EURO UK US |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



620 g (1 mg)



| MSA | Model | Voltage | Size | Kg |
|--------|------------|----------------------|--------------------|-------|
| 42.341 | PNJ 600-3M | 220 - 240 V 50 Hz | 196 x 293 x 266 mm | 5.570 |

- Precision balance with robust tuning fork measuring system.
- Automatic internal adjustment, guarantees high degree of accuracy and makes the balance independent of its location of use
 - Capacity display : a bar lights up to show how much of the weighing range is still available
 - Precise counting : the automatic reference weight optimisation of reference weight gradually improves the average piece weight value
 - Compact size, practical for small spaces
 - Large glass draught shield with 3 sliding doors for easy access to the items being weighed
 - Dimensions plateau en acier inoxydable Ø 140 mm.

| | |
|--|---|
| <i>Weighing capacity max.</i> | 620 g |
| <i>Readability</i> | 1 mg |
| <i>Repeatability</i> | 1 mg |
| <i>Linearity</i> | 4 mg |
| <i>Other weighing units</i> | ct - dwt - lb - mo - oz - ozt - tl (HK) - tl (SG, MY) - tl (TW) - tol |
| <i>Screen, digits height</i> | 16.5 mm |
| <i>Minimum piece weight (counting)</i> | 10 mg |
| <i>Adapters included</i> | CH EURO UK US |
| <i>Option Verification</i> | 965-216 |
| <i>Option DAkkS Certificate</i> | 963-127 |

KERN



620 g (1mg)



| MSA | Model | Voltage | Size | Kg |
|--------|------------|----------------------|-------------------|-------|
| 42.332 | EW 620-3NM | 220 - 240 V 50 Hz | 182 x 235 x 75 mm | 2.960 |

- Precision balance with robust tuning fork measuring system.
- Adjusting program CAL for quick setting of the balance accuracy using an external test weight
 - Stable temperature behaviour
 - Short stabilisation time
 - Shock proof construction
 - High corner load performance
 - GLP/ISO record keeping of weight values
 - Totalising of pieces when counting
 - Draught shield standard
 - Stainless steel weighing plate Ø 118 mm.

| | |
|--|---|
| <i>Weighing capacity max.</i> | 620 g |
| <i>Readability</i> | 1 mg |
| <i>Repeatability</i> | 1 mg |
| <i>Linearity</i> | 3 mg |
| <i>Recommended adjusting weight</i> | 500 g (E2) |
| <i>Other weighing units</i> | ct dwt lb mo oz ozt tl (HK) tl (SG, MY) tl (TW) tol |
| <i>Screen, digits height</i> | 17 mm |
| <i>Minimum piece weight (counting)</i> | 10 mg |
| <i>Adapters included</i> | CH EURO |
| <i>Option Verification</i> | - |
| <i>Option DAkkS Certificate</i> | 963-127 |

KERN



500 g (10 mg)



OPTION

| MSA | Model | Size | Kg |
|--------|-----------|-------------------|-------|
| 42.343 | EHA 500-2 | 210 x 165 x 65 mm | 0.720 |

Compact all-round balance with robust stainless steel weighing plate for use in industry and teaching.

- Large, shock proof weighing plate made from stainless steel, hygienic and easy to clean
- Ergonomically optimised keypad
- Simple and convenient 5-key operation
- Adjusting external program CAL for quick setting of the balance accuracy
- Stainless steel weighing plate Ø 105 mm.

| | |
|---------------------------------|--------------------|
| Weighing capacity max. | 500 g |
| Readability | 10 mg |
| Repeatability | 30 mg |
| Linearity | 30 mg |
| Recommended adjusting weight | 500 g (F2) |
| Other weighing units | ct - dwt - gn - oz |
| Screen, digits height | 22 mm |
| Minimum piece weight (counting) | 100 mg |
| Adapters included | CH EURO UK |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



600 g (10 mg)



OPTION



FACTORY

| MSA | Model | Voltage | Size | Kg |
|--------|------------|-------------------------|-------------------|-------|
| 42.342 | EWJ 600-2M | 110 - 240 V 50/60 Hz | 220 x 315 x 90 mm | 3.500 |

High-quality precision balance with automatic internal adjustment.

- Easy to use : all primary functions have their own key on the keypad
- Automatic internal adjustment time-controlled every 2 hours. Guarantees high degree of accuracy and makes the balance independent of its location
- Capacity display : a bar lights up to show how much of the weighing range is still available
- Standard draught shield
- Stainless steel weighing plate Ø 120 mm.

| | |
|---------------------------------|---------------|
| Weighing capacity max. | 600 g |
| Readability | 10 mg |
| Repeatability | 10 mg |
| Linearity | 30 mg |
| Recommended adjusting weight | 600 g (F1) |
| Other weighing units | - |
| Screen, digits height | 16.5 mm |
| Minimum piece weight (counting) | 200 mg |
| Adapters included | CH EURO UK US |
| Option Verification | 965-216 |
| Option DAkkS Certificate | 963-127 |

KERN



1000 g (10 mg)



OPTION

| MSA | Model | Power | Size | Kg |
|--------|------------|---------------|-------------------|-------|
| 42.141 | EMB 1000-2 | 1 battery 9 V | 170 x 244 x 52 mm | 1.300 |

Entry-level laboratory balance with tremendous weighing performance.

- Simple and convenient 2-key operation
- Tare function facilitates formulation work
- Particularly flat design
- Ready for use : batteries included
- Size of the removable plastic weighing plate Ø 150 mm.

Delivered with 1 hook for weighing of suspended loads.

| | |
|------------------------------|----------------|
| Weighing capacity max. | 1000 g |
| Readability | 10 mg |
| Repeatability | 10 mg |
| Linearity | 50 mg |
| Recommended adjusting weight | 1 Kg (E1) |
| Other weighing units | dwt - oz - ozt |
| Screen, digits height | 15 mm |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



1200 g (10 mg)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|------------|-------------------------|-------------------|-------|
| 42.137 | PFB 1200-2 | 100 - 240 V 50/60 Hz | 210 x 315 x 90 mm | 2.370 |

Quick-displaying precision balance with user-friendly operation modes.

- Easy to use : all primary functions have their own key on the keypad
- Compact size, practical for small spaces
- Capacity display : a bar lights up to show how much of the weighing range is still available
- Level indicator and levelling feet for precise levelling of the scale, fitted as standard, to give the most accurate weighing results
- Standard draught shield, weighing space 158 x 143 x 64 mm
- Stainless steel weighing plate Ø 120 mm.

| | |
|---------------------------------|--|
| Weighing capacity max. | 1200 g |
| Readability | 10 mg |
| Repeatability | 10 mg |
| Linearity | 30 mg |
| Recommended adjusting weight | 1 Kg (F1) |
| Other weighing units | bat - ct - dot - dwt - lb - mo - N - oz - ozt - tl (CN) - tl (HK) - tl (TW) |
| Screen, digits height | 15 mm |
| Minimum piece weight (counting) | 200 mg |
| Adapters included | CH EURO UK US |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



1000 g (100 mg)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|------------|-------------|-------------------|-------|
| 42.344 | EHA 1000-1 | 110 - 240 V | 225 x 160 x 50 mm | 0.750 |

Compact all-round balance with robust stainless steel weighing plate for use in industry and teaching.

- Large, shock proof weighing plate made from stainless steel, hygienic and easy to clean
- Ergonomically optimised keypad
- Simple and convenient 5-key operation
- Adjusting external program CAL for quick setting of the balance accuracy
- Stainless steel weighing plate Ø 105 mm.

| | |
|---------------------------------|--------------------|
| Weighing capacity max. | 1000 g |
| Readability | 100 mg |
| Repeatability | 300 mg |
| Linearity | 300 mg |
| Recommended adjusting weight | 1 Kg (M1) |
| Other weighing units | ct - dwt - gn - oz |
| Screen, digits height | 22 mm |
| Minimum piece weight (counting) | 1 g |
| Adapters included | CH EURO UK |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



2500 g (10 mg)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|------------|-------------------------|-------------------|-------|
| 42.185 | PCB 2500-2 | 100 - 240 V 50/60 Hz | 166 x 250 x 80 mm | 1.800 |

Compact laboratory balance.

- PRE-TARE function for manual subtraction of a known container weight, useful for checking fill-levels
- Freely programmable weighing unit, e.g. display direct in special units such as length of thread g/m, paperweight g/m², etc.
- With the recipe function you can weigh the different ingredients of a mixture. As a check, you can also call up the total weight of all the ingredients
- Plus/minus weighing procedures
- Stainless steel weighing plate, size 130 x 130 mm.

| | |
|---------------------------------|--|
| Weighing capacity max. | 2500 g |
| Readability | 10 mg |
| Repeatability | 10 mg |
| Linearity | 50 mg |
| Recommended adjusting weight | 2 Kg (F1) |
| Other weighing units | ct - dwt - ffa - lb - mo - oz - ozt - tl (HK) - tl (SG, MY) - tl (TW) - to |
| Screen, digits height | 21 mm |
| Minimum piece weight (counting) | 200 mg |
| Adapters included | CH EURO UK US |
| Option Verification | - |
| Option DAkkS Certificate | 963-127 |

KERN



6 Kg (1 g)



OPTION

| MSA | Model | Voltage | Size | Kg |
|--------|---------|-------------------------|-------------------|-------|
| 42.160 | 440-53N | 100 - 240 V 50/60 Hz | 165 x 230 x 80 mm | 1.600 |

Compact laboratory scale.

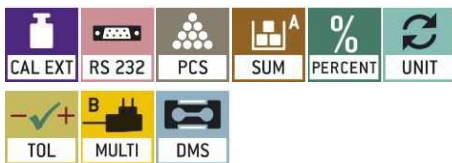
- Compact size, practical for small spaces
- Percentage determination: makes it possible to store a given weight value (100%) and to determine deviations from this target value.
- Stainless steel weighing plate, size 150 x 170 mm.

| | |
|---------------------------------|--|
| Weighing capacity max. | 6 Kg |
| Readability | 1 g |
| Repeatability | 1 g |
| Linearity | 2 g |
| Recommended adjusting weight | 5 Kg (M2) |
| Other weighing units | dwt - lb - mo - oz - ozt - tl (HK) - tl (TW) - tol |
| Screen, digits height | 15 mm |
| Minimum piece weight (counting) | 20 g |
| Adapters included | CH EURO UK US |
| Option Verification | - |
| Option DAkkS Certificate | 963-128 |

KERN



12 Kg (100 mg)



OPTION



| MSA | Model | Voltage | Size | Kg |
|--------|-------------|-------------|--------------------|-------|
| 42.186 | GAB 12K0.1N | 110 - 230 V | 320 x 330 x 125 mm | 4.200 |

Check-weighing and portioning balance.

- Compact size, practical for small spaces
- High mobility : thanks to battery operation (optional)
- Weighing with tolerance range (Check-weighing) : input of an upper/lower limit value. A visual signal assists with portioning, dispensing or grading
- Totalising of pieces when counting
- Stainless steel weighing plate, size 294 x 225 mm.

| | |
|---------------------------------|------------|
| Weighing capacity max. | 12 Kg |
| Readability | 100 mg |
| Repeatability | 100 mg |
| Linearity | 300 mg |
| Recommended adjusting weight | 12 Kg (F2) |
| Other weighing units | - |
| Screen, digits height | 24 mm |
| Minimum piece weight (counting) | 1 g |
| Adapters included | CH EURO UK |
| Option Verification | - |
| Option DAkkS Certificate | 963-128 |

TANITA® and TANGENT® digital pocket scales easy to use with LCD screen for clear reading. Tare function, high precision, calibration possible and display for low battery. All the scales are delivered with batteries, user's manual and synthetic pouch.



| MSA | Model | Colour | Size | Kg |
|--------|--------------------|--------|------------------|-------|
| 42.102 | (1) Tangent KP-104 | Black | 60 x 135 x 16 mm | 0.140 |
| 42.103 | (2) Tangent KP-104 | Silver | 60 x 135 x 16 mm | 0.140 |

TANGENT® pocket scale.

| Weighing unit | Capacity | Graduation |
|--------------------|-----------|------------|
| Gram (g) | (1) 200 | 0.1 |
| | (2) 300 | 0.1 |
| Ounce (oz) | (1) 7.055 | 0.005 |
| | (2) 10.58 | 0.005 |
| Troy Ounce (ozt) | (1) 6.43 | 0.005 |
| | (2) 9.645 | 0.005 |
| Penny weight (dwt) | (1) 126.6 | 0.1 |
| | (2) 192.9 | 0.1 |



| MSA | Model | Colour | Size | Kg |
|--------|-------|--------|------------------|-------|
| 42.110 | 1479V | Black | 155 x 75 x 15 mm | 0.203 |

TANITA® pocket scale.

| Weighing unit | Capacity | Graduation |
|---------------|----------|------------|
| Gram (g) | 120 | 0.1 |

KERN



| MSA | Size | Kg |
|--------|------------------|-------|
| 42.316 | 123 x 72 x 15 mm | 0.016 |

Precious stones plate in aluminium with practical spout.

98



PROFESSIONAL KITS FOR AFTER-SALES SERVICE

98 - 2





| MSA | Size | Kg |
|--------|--------------------|-------|
| 98.015 | 370 x 285 x 105 mm | 1.232 |

Basic tools kit for battery and bracelet change.
Delivered in a sturdy aluminium suitcase (with keys).

Kit contents :

| | |
|---------------|---|
| MSA00.007 | Stainless steel wire eyeglass holder, large model |
| MSA01.101-060 | Chromed brass screwdriver, Ø 0.60 mm pink |
| MSA01.101-080 | Chromed brass screwdriver, Ø 0.80 mm yellow |
| MSA01.101-100 | Chromed brass screwdriver, Ø 1.00 mm black |
| MSA01.101-120 | Chromed brass screwdriver, Ø 1.20 mm red |
| MSA01.102-060 | Screwdriver blade, Ø 0.60 mm |
| MSA01.102-080 | Screwdriver blade, Ø 0.80 mm |
| MSA01.102-100 | Screwdriver blade, Ø 1.00 mm |
| MSA01.102-120 | Screwdriver blade, Ø 1.20 mm |
| MSA01.400-1.5 | Phillips screwdriver, Ø 1.50 mm violet |
| MSA01.400-2.0 | Phillips screwdriver, Ø 2.00 mm green |
| MSA01.400-2.5 | Phillips screwdriver, Ø 2.50 mm blue |
| MSA01.400-3.0 | Phillips screwdriver, Ø 3.00 mm brown |
| MSA07.006-01 | Knife case-opener with 2 retractable blades |
| MSA07.110 | HOROTEC® press for closing snap-on case backs |
| MSA10.531 | Tool for removing bracelet pins |
| MSA11.809 | Flat nose pliers, serrated anti-skid interior |
| MSA12.812-1 | 100% antimagnetic steel HOROSWISS® tweezers, no. 1 |
| MSA19.000 | Universal battery tester |
| MSA26.136 | Microfiber cleaning grey cloth, 35 x 30 cm |
| MSA28.104 | Silicon grease SEIKO® TSF-451, with applicator |
| PERF111-2.5 | Plastic eyeglass with screwed aluminium ring, no. 2.5 |
| PERF364 | Plastic battery tweezers |
| PERF380 | Case-opener with 2 jaws, for watches with screw-on case backs |
| PERF458 | Black plastic tool for removing spring bars |

Upon request, we are able to study and produce customized tooling kits. For further information, please contact our sales department.

Here bellow are some examples :





| | |
|-------------------------------|---------|
| EYEGASSES | PE - 2 |
| SCREWDRIVERS | PE - 3 |
| PIN VICES / HAMMERS | PE - 4 |
| SAW FRAMES / DRAW PLATES | PE - 5 |
| HAND TOOLS / SPRING BAR TOOLS | PE - 6 |
| CRYSTAL PRESSES | PE - 7 |
| CASE TOOLS / CASE HOLDERS | PE - 8 |
| VICES / MOVEMENT HOLDERS | PE - 10 |
| PLIERS | PE - 11 |
| TWEEZERS | PE - 12 |
| PACKAGING / CLEANING | PE - 13 |
| RING STICKS AND RING GAUGES | PE - 14 |
| OTHER ARTICLES | PE - 15 |



EYEGASSES



| PERF | Magnification | Ø lens | Kg |
|---------|---------------|--------|-------|
| 111-1 | 10.0x | 21 mm | 0.012 |
| 111-1.5 | 6.5x | 21 mm | 0.012 |
| 111-2 | 5.0x | 21 mm | 0.012 |
| 111-2.5 | 4.0x | 21 mm | 0.012 |
| 111-3 | 3.5x | 21 mm | 0.012 |
| 111-3.5 | 3.0x | 21 mm | 0.012 |
| 111-4 | 2.5x | 21 mm | 0.012 |

Plastic eyeglass with screwed aluminium ring.



| PERF | Magnification | Ø lens | Kg |
|---------|---------------|--------|-------|
| 121-1 | 10.0x | 20 mm | 0.013 |
| 121-1.5 | 6.5x | 20 mm | 0.013 |
| 121-2 | 5.0x | 20 mm | 0.013 |
| 121-2.5 | 4.0x | 20 mm | 0.013 |
| 121-3 | 3.5x | 20 mm | 0.013 |
| 121-3.5 | 3.0x | 20 mm | 0.013 |
| 121-4 | 2.5x | 20 mm | 0.013 |

Simple plastic eyeglass.



| PERF | Magnification | Ø lens | Kg |
|---------|---------------|--------|-------|
| 115-1 | 10.0x | 23 mm | 0.015 |
| 115-1.5 | 6.5x | 23 mm | 0.015 |
| 115-2 | 5.0x | 23 mm | 0.015 |
| 115-2.5 | 4.0x | 23 mm | 0.015 |
| 115-3 | 3.5x | 23 mm | 0.015 |
| 115-3.5 | 3.0x | 23 mm | 0.015 |
| 115-4 | 2.5x | 23 mm | 0.015 |

Simple plastic eyeglass with riveted head band.



| PERF | Magnification | Ø lens | Kg |
|---------|---------------|--------|-------|
| 131-1 | 10.0x | 23 mm | 0.016 |
| 131-1.5 | 6.5x | 23 mm | 0.016 |
| 131-2 | 5.0x | 23 mm | 0.016 |
| 131-2.5 | 4.0x | 23 mm | 0.016 |
| 131-3 | 3.5x | 23 mm | 0.016 |
| 131-3.5 | 3.0x | 23 mm | 0.016 |
| 131-4 | 2.5x | 23 mm | 0.016 |

Plastic eyeglass with clamp for all types of glasses.



| PERF | Magnification | Ø lenses | Kg |
|------|---------------|----------|-------|
| 132 | 10x | 16 mm | 0.050 |

Chromed triplet magnifier.



| PERF | Magnification | Ø lens | Kg |
|---------|---------------|--------|-------|
| 116-1 | 10.0x | 24 mm | 0.013 |
| 116-1.5 | 6.5x | 24 mm | 0.013 |
| 116-2 | 5.0x | 24 mm | 0.013 |
| 116-2.5 | 4.0x | 24 mm | 0.013 |
| 116-3 | 3.5x | 24 mm | 0.013 |
| 116-3.5 | 3.0x | 24 mm | 0.013 |
| 116-4 | 2.5x | 24 mm | 0.013 |

Simple aluminium eyeglass.



| PERF | Magnification | Ø lenses | Kg |
|------|---------------|----------|-------|
| 133 | 10x | 16 mm | 0.047 |

Chromed triplet hexagonal magnifier.



ASSORTMENT

| PERF | Ø blades | Kg |
|------|----------------|-------|
| 020 | 0.50...2.50 mm | 0.200 |

Assortment of 9 screwdrivers on stand.



ASSORTMENT

| PERF | Ø blades | Packaging size | Kg |
|------|----------------|-------------------|-------|
| 328 | 0.60...3.00 mm | 155 x 122 x 30 mm | 0.310 |

Assortment of 9 screwdrivers.
Delivered in a wooden case.



ASSORTMENT

| PERF | Ø blades | Kg |
|------|----------------|-------|
| 034 | 0.60...2.50 mm | 0.250 |

Assortment of 8 screwdrivers on turning stand.
Composed of 7 flat screwdrivers and 1 Phillips screwdriver Ø 2.50 mm.



ASSORTMENT

| PERF | Ø blades | Packaging size | Kg |
|------|----------------|------------------|-------|
| 329 | 1.00...2.00 mm | 115 x 72 x 28 mm | 0.140 |

Assortment of 6 screwdrivers.
Delivered in a wooden case.



ASSORTMENT

| PERF | Ø blades | Kg |
|------|----------------|-------|
| 595 | 0.60...3.00 mm | 0.450 |

Assortment of 9 screwdrivers on turning stand.



| PERF | Size | Kg |
|------|--------------|-------|
| 332 | 55 x Ø 16 mm | 0.031 |

Sharpener tool for screwdriver blades, to be used with 1 sharpening flat stone.
Screwdriver not included.



ASSORTMENT

| PERF | Ø blades | Packaging size | Kg |
|------|----------------|----------------|-------|
| 322 | 0.80...2.00 mm | 85 x 100 mm | 0.065 |

Assortment of 7 screwdrivers.
Delivered in a plastic pouch.



| PERF | Length | Kg |
|------|--------|-------|
| 318 | 90 mm | 0.035 |

Screwdriver with tightening chuck and 4 blades (2 flat, 1 Phillips and 1 for removing spring bars).

PIN VICES / HAMMERS

Pin vices.



ASSORTMENT

| PERF | Size | Kg |
|------|-------------|-------|
| 045 | 65 x 110 mm | 0.149 |

Assortment of 4 oxidized black pin vices.
Delivered in a plastic pouch.



| PERF | Length | Kg |
|------|--------|-------|
| 330 | 105 mm | 0.035 |

Nickel-plated double pin vice with rounded heads and 2 tightening chucks.



| PERF | Length | Kg |
|------|--------|-------|
| 015 | 105 mm | 0.023 |

Quick tightening pin vice.



| PERF | Length | Kg |
|------|--------|-------|
| 022 | 95 mm | 0.011 |

Thin brass pin vice with rounded head and 1 tightening chuck.



| PERF | Length | Ø tightening | Kg |
|------|--------|----------------|-------|
| 046 | 115 mm | 0.00...8.00 mm | 0.036 |

Double nickel-plated pin vice with hexagonal heads and 2 tightening chucks.



| PERF | Length | Kg |
|------|--------|-------|
| 390 | 85 mm | 0.030 |

Pin vice for crowns from Ø 4 to 5.50 mm.



| PERF | Length | Ø tightening | Kg |
|------|--------|--------------|-------|
| 028 | 90 mm | 0...1 mm | 0.025 |

Brass hand drill with return spring.

Hammers.



| PERF | Head length | Total length | Kg |
|------|-------------|--------------|-------|
| 007 | 54 mm | 153 mm | 0.040 |

Watchmaker's hammer with wooden handle, round and flat head on one side and "V" shaped for riveting on the other.



| PERF | Head length | Total length | Kg |
|------|-------------|--------------|-------|
| 023 | 65 mm | 240 mm | 0.095 |

Watchmaker's hammer with wooden handle and 2 flat heads, made of brass on one side and Nylon® on the other.

Saw frames.



| PERF | Size | Depth | Kg |
|------|--------------|-------|-------|
| 313 | 220 x 120 mm | 80 mm | 0.190 |

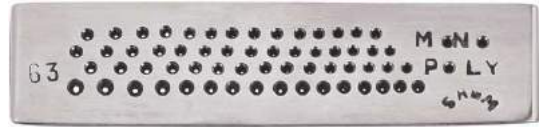
Saw frame with wooden handle, screws and fixing plates to hold the saw blades. Equipped with a wing screw to adjust the tension of the saw blades.



| PERF | Size | Depth | Kg |
|------|-------------|-------|-------|
| 314 | 200 x 90 mm | 70 mm | 0.205 |

Saw frame with wooden handle, screws and fixing plates to hold the saw blades.

Draw plates.



| PERF | Size | Kg |
|------|-----------------|-------|
| 031 | 113 x 26 x 3 mm | 0.145 |

Steel draw plate with 63 holes.



| PERF | Size | Kg |
|------|-----------------|-------|
| 032 | 166 x 35 x 3 mm | 0.150 |

Steel draw plate with 71 holes.



ASSORTMENT

| PERF | Size | Ø holes | Kg |
|------|------------|----------------|-------|
| 035 | 45 x 17 mm | 0.60...1.00 mm | 0.140 |

Assortment of 1 draw plate and 5 taps.

Hand tools.



| PERF | Size | Kg |
|------|-------------|-------|
| 229 | 105 x 25 mm | 0.040 |

Spring tool for removing hands.

Spring bar tools.



| PERF | Length | Kg |
|------|--------|-------|
| 458 | 135 mm | 0.025 |

Black plastic tool for fitting/removing spring bars.

Spare parts :

| MSA | Item | Kg |
|----------|--------------------|-------|
| 10.304-A | Tip Ø 0.80 mm | 0.001 |
| 10.304-B | Fork width 3.00 mm | 0.001 |
| 10.304-C | Fork width 1.20 mm | 0.001 |



| PERF | Length | Kg |
|------|--------|-------|
| 230 | 100 mm | 0.020 |

Tool for removing hands.



| PERF | Length | Kg |
|------|--------|-------|
| 459 | 145 mm | 0.025 |

Chromed tool for fitting/removing spring bars.

Spare parts :

| PERF | Item | Kg |
|------|--------------------------------------|-------|
| 459A | Tip, Ø 0.80 mm / Fork, width 1.20 mm | 0.005 |
| 459B | Fork, width 4.00 mm | 0.005 |



| PERF | Width spatulas | Length | Kg |
|------|----------------|--------|-------|
| 231 | 3 mm | 110 mm | 0.015 |

Pair of hands levers.



| PERF | Size | Kg |
|------|-------------------|-------|
| 176 | 200 x 73 x 155 mm | 2.840 |

Crystal fitting press with 24 Nylon® dies.

Spare part :

| PERF | Item | Kg |
|-------|-----------------------|-------|
| 176-A | Assortment of 24 dies | 0.267 |



| PERF | Size | Kg |
|------|------------|-------|
| 169 | 76 x 40 mm | 0.210 |

Tool for fitting/removing crystals with tension ring.



| PERF | Size | Kg |
|------|-------------------|-------|
| 167 | 185 x 50 x 118 mm | 1.170 |

Crystal fitting press with 12 Nylon® dies.



| PERF | Size | Kg |
|------|-------------------|-------|
| 168 | 180 x 64 x 145 mm | 1.840 |

Crystal fitting press with 28 aluminium dies.

CASE TOOLS / CASE HOLDERS

Case tools.



| PERF | Colour | Length | Kg |
|--------|--------|--------|-------|
| 384-01 | Yellow | 80 mm | 0.030 |
| 384-02 | Blue | 80 mm | 0.030 |
| 384-03 | Red | 80 mm | 0.030 |
| 384-04 | Orange | 80 mm | 0.030 |

Simple case opener with plastic handle.



| PERF | Length | Kg |
|------|--------|-------|
| 376 | 75 mm | 0.035 |

Lever case opener.



| PERF | Length | Kg |
|------|--------|-------|
| 375 | 105 mm | 0.035 |

Case-opener with fixed blade and plastic handle.



| PERF | Length | Kg |
|------|--------|-------|
| 379 | 115 mm | 0.025 |

Case opener with fixed blade and plastic handle.



| PERF | Size | Kg |
|------|------------|-------|
| 380 | 67 x 35 mm | 0.080 |

Case opener with 2 jaws, for watches with screw-on case backs.



← 75 mm →

| PERF | Size | Kg |
|------|-----------------|-------|
| 385 | 90 x 45 x 15 mm | 0.120 |

Case opener with 2 jaws for waterproof cases.



← 55 mm →

| PERF | Packaging | Size | Kg |
|------|---------------|------------------|-------|
| 381 | Cardboard box | 175 x 73 x 12 mm | 0.270 |

Large Jaxa® type case opener.



← 35 mm →

| PERF | Packaging | Size | Kg |
|------|---------------|------------------|-------|
| 383 | Cardboard box | 180 x 83 x 30 mm | 0.185 |

Jaxa® type case opener.



← 35 mm →

| PERF | Packaging | Size | Kg |
|------|------------|------------------|-------|
| 383A | Wooden box | 180 x 83 x 30 mm | 0.395 |

Jaxa® type case opener.



ASSORTMENT

| PERF | Kg |
|------|-------|
| 383J | 0.020 |

Assortment of 12 spare jaws for PERF381, 382, 383 and 383A.



← 30 mm →

| PERF | Size | Kg |
|------|-----------------|-------|
| 170 | 64 x 46 x 38 mm | 0.135 |

Universal aluminium case holder with 4 Nylon® dies. Can be fixed on a vice.

Spare part :

| PERF | Item | Kg |
|-------|------------|-------|
| 170-A | Nylon® die | 0.002 |



← 60 mm →

| PERF | Size | Kg |
|------|------------------|-------|
| 177 | 105 x 75 x 45 mm | 0.270 |

Black aluminium case holder with 4 red Nylon® dies. Can be fixed on a vice.

Spare part :

| PERF | Item | Kg |
|-------|----------------|-------|
| 177-A | Red Nylon® die | 0.006 |



Case holders.



← 50 mm →

| PERF | Size | Kg |
|------|--------------|-------|
| 178 | Ø 80 x 46 mm | 0.630 |

Steel case holder with 4 dies.

VICES / MOVEMENT HOLDERS

Vices.



| PERF | Width jaws | Kg |
|------|------------|-------|
| 460A | 51 mm | 1.260 |

Rotating vice with bench clamp.



| PERF | Width jaws | Kg |
|------|------------|-------|
| 460C | 50 mm | 1.045 |

Rotating vice with base to be fixed.



| PERF | Length | Kg |
|------|--------|-------|
| 331 | 125 mm | 0.085 |

Vice with black handle.



| PERF | Size | Kg |
|------|------------------|-------|
| 202 | 160 x 80 x 50 mm | 0.175 |

Jeweller's steel vice with wooden handle.



| PERF | Length | Kg |
|------|--------|-------|
| 303 | 149 mm | 0.095 |

Jeweller's wooden vice with wing screw.



| PERF | Size | Kg |
|------|---------------|-------|
| 485 | Ø 40 x 150 mm | 0.120 |

Jeweller's wooden vice.

Movement holders.



ASSORTMENT

| PERF | Kg |
|------|-------|
| 194 | 0.045 |

Assortment of 12 plastic movement holders.



| PERF | Size | Kg |
|------|------------------|-------|
| 214 | 100 x 30 x 17 mm | 0.040 |

Extensible movement holder with springs.



| PERF | Length | Kg |
|------|--------|-------|
| 250 | 135 mm | 0.110 |

Pliers for piercing leather straps with return springs. Hole diameter : 1.50 mm.



| PERF | Length | Kg |
|------|--------|-------|
| 263 | 120 mm | 0.070 |

Frontal end cutting pliers with return springs.



| PERF | Length | Kg |
|------|--------|-------|
| 260 | 125 mm | 0.050 |

Half-round jaws pliers with return springs.



| PERF | Length | Kg |
|------|--------|-------|
| 264 | 120 mm | 0.060 |

Side cutting pliers with return springs.



| PERF | Length | Kg |
|------|--------|-------|
| 261 | 120 mm | 0.065 |

Flat jaws pliers with return springs.



| PERF | Length | Kg |
|------|--------|-------|
| 262 | 120 mm | 0.060 |

Round jaws pliers with return springs.



| PERF | Size | Kg |
|------|-------------------|-------|
| 270 | 142 x 96 x 125 mm | 0.210 |

Wooden pliers support.

TWEEZERS



| PERF | Length | Kg |
|------|--------|-------|
| 355 | 163 mm | 0.025 |

Tweezers for stones.



| PERF | Length | Kg |
|------|--------|-------|
| 357 | 165 mm | 0.023 |

Tweezers with slide locking for stones.



| PERF | Length | Kg |
|------|--------|-------|
| 358 | 165 mm | 0.025 |

Black tweezers for stones.



| PERF | Length | Kg |
|------|--------|-------|
| 359 | 180 mm | 0.030 |

Tweezers with shovel for stones.



| PERF | Length | Kg |
|---------|--------|-------|
| 437-00 | 120 mm | 0.015 |
| 437-1 | 120 mm | 0.015 |
| 437-2 | 120 mm | 0.015 |
| 437-3 | 120 mm | 0.015 |
| 437-4 | 120 mm | 0.015 |
| 437-5 | 120 mm | 0.015 |
| 437-MM | 120 mm | 0.020 |
| 437AA-S | 120 mm | 0.020 |

Antimagnetic steel tweezers.



| PERF | Length | Kg |
|--------|--------|-------|
| 441-00 | 130 mm | 0.020 |
| 441-3 | 130 mm | 0.020 |
| 441-AA | 130 mm | 0.020 |
| 441-MM | 130 mm | 0.020 |

Brass tweezers.



| PERF | Length | Kg |
|------|--------|-------|
| 364 | 125 mm | 0.005 |

Plastic tweezers for batteries.



| PERF | Length | Kg |
|------|--------|-------|
| 360A | 165 mm | 0.030 |

Negative straight soldering tweezers.



| PERF | Length | Kg |
|------|--------|-------|
| 360B | 165 mm | 0.030 |

Negative curved soldering tweezers.



| PERF | Length | Kg |
|------|--------|-------|
| 366 | 110 mm | 0.025 |

Tweezers for battery testing.



| PERF | Ø eyeglass | Length | Kg |
|------|------------|--------|-------|
| 445 | 23 mm | 93 mm | 0.020 |

Tweezers with eyeglass.

Packaging.



| PERF | Size | Kg |
|------|------------------|-------|
| 018 | 193 x 95 x 21 mm | 0.175 |

Packaging plastic box with sliding transparent lid and 18 divisions.



| PERF | Size | Kg |
|------|------------|-------|
| 027 | 80 x 11 mm | 0.005 |

Plastic triangular tray.



| PERF | Ø base | Kg |
|------|--------|-------|
| 106 | 100 mm | 0.070 |

Protection kit composed of one dustproof cover and one base with 6 divisions for small parts.



| PERF | Size | Kg |
|------|-------------|-------|
| 317 | 113 x 66 mm | 0.200 |

Pearls stringing tray.



| PERF | Size | Kg |
|------|-------------------|-------|
| 490 | 198 x 135 x 22 mm | 0.253 |

Packaging box with 24 aluminium round cases.

Cleaning.



| PERF | Size | Kg |
|------|-----------------|-------|
| 012 | 72 x 41 x 29 mm | 0.060 |

White paper for diamonds and precious stones. Delivered in a package of 25 sheets.



| PERF | Length | Kg |
|------|--------|-------|
| 026 | 110 mm | 0.005 |

Pencil brush with plastic handle.



| PERF | Length | Kg |
|------|--------|-------|
| 810 | 120 mm | 0.010 |

Pen shaped scratch brush.

Spare part :

| PERF | Item | Kg |
|-------|--------|-------|
| 810-A | Refill | 0.002 |



| PERF | Length | Kg |
|------|--------|-------|
| 266 | 118 mm | 0.085 |

Rubber dust blower.

RING STICKS AND RING GAUGES



| PERF | Length | Kg |
|------|--------|-------|
| 162 | 250 mm | 0.200 |

Aluminium ring stick with 4 graduations.
 - French calibration : from 1 to 36.
 - Circumference in mm : from 41 to 76.
 - American calibration : 1 to 15.
 - Diameter in mm : from 13 to 24.2.



| PERF | Kg |
|------|-------|
| 162A | 0.080 |

Aluminium ring gauge with 4 graduations (36 rings).
 - French calibration : from 1 to 36.
 - Circumference in mm : from 41 to 76.
 - American calibration : 1 to 15.
 - Diameter in mm : from 13 to 24.2.



| PERF | Size | Kg |
|------|-------------------|-------|
| 161 | 302 x 144 x 40 mm | 0.835 |

Ring stick and rings with 4 graduations (stick) and 2 graduations (rings).
 Delivered in a wooden box.
 - French calibration : from 1 to 36 (stick and rings).
 - Circumference in mm : from 41 to 76 (stick and rings).
 - American calibration : 1 to 15 (stick only).
 - Diameter in mm : from 13 to 24.2 (stick only).



| PERF | Kg |
|------|-------|
| 163A | 0.020 |

Plastic ring gauge with 1 graduation (29 rings).
 - American calibration : 1 to 15.



| PERF | Size | Kg |
|------|--------------|-------|
| 021 | Ø 28 x 97 mm | 0.055 |

Bottle for acids.



| PERF | Size | Kg |
|------|-----------------|-------|
| 080 | 75 x 54 x 12 mm | 0.015 |

Diamond shovel with handle.



| PERF | Size | Kg |
|------|--------------|-------|
| 024 | Ø 65 x 68 mm | 0.290 |

Jar for washing stones with inside basket.



| PERF | Size | Kg |
|------|--------------|-------|
| 095 | Ø 16 x 16 mm | 0.006 |
| 096 | Ø 23 x 19 mm | 0.017 |

Cleaning basket for small parts.



ASSORTMENT

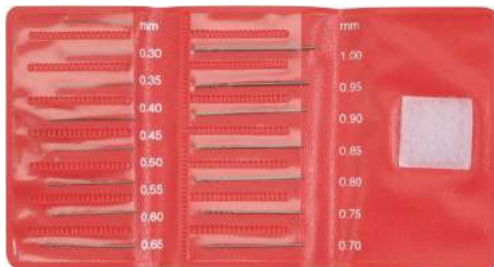
| PERF | Length | Kg |
|------|--------|-------|
| 025 | 140 mm | 0.120 |

Assortment of 12 files.
Delivered in a plastic pouch.



| PERF | Size | Kg |
|------|-----------------|-------|
| 193 | 70 x 50 x 40 mm | 0.210 |

Oil cup stand with 3 containers and folding lid.



ASSORTMENT

| PERF | Ø drills | Packaging size | Kg |
|------|----------------|----------------|-------|
| 030 | 0.30...1.00 mm | 75 x 50 mm | 0.005 |

Assortment of 15 drills.
Delivered in a plastic pouch.



| PERF | Size | Kg |
|------|----------------|-------|
| 195 | Ø 53 x 18.5 mm | 0.030 |

Plastic oiler with 1 lid and 3 recesses.

OTHER ARTICLES



| PERF | Size | Kg |
|------|--------------|-------|
| 196 | Ø 68 x 29 mm | 0.035 |

Silicon grease with applicator for gaskets.



| PERF | Length | Kg |
|------|--------|-------|
| 370 | 130 mm | 0.020 |

Scalpel delivered without blade.

Spare part :

| PERF | Item | Kg |
|-------|-------|-------|
| 370-A | Blade | 0.005 |



| PERF | Length | Kg |
|------|--------|-------|
| 372 | 130 mm | 0.105 |

Automatic steel centre-punch.



| PERF | Size | Kg |
|------|------------------|-------|
| 690 | 185 x 50 x 47 mm | 0.110 |

Spirit lamp with a wick.

Spare part :

| PERF | Item | Kg |
|-------------|---------------------|-------|
| MSA29.651-A | Wick, length 200 mm | 0.009 |



| | |
|--|---------|
| INTRODUCTION | VA - 2 |
| PRECISION FILES - ULP | VA - 3 |
| NEEDLE FILES - ULA | VA - 11 |
| ESCAPEMENT FILES - ULE | VA - 15 |
| BUFF FILES - ULAC / ULEC | VA - 18 |
| DIAMOND FILES - UDA | VA - 21 |
| CERAMIC FIBRE FILES - ULF | VA - 23 |
| GRAVERS / WATCHMAKERS' GRAVERS - ULO | VA - 25 |
| SPECIAL FILES - ULH / ULPV / ULAV / ULR / URA | VA - 28 |
| FRAMES FOR JEWELLER'S SAW BLADES / FILES HANDLES - UASB / UAL / UALF | VA - 42 |

VALLORBE® Swiss Made files.

FOR THE GOOD USE OF THE CATALOG

MAIN DIMENSIONS

Length = L

The measuring points for length (L) vary from one type of file to another. It is therefore necessary to refer to the diagram.

Width x thickness = A x B

Width and thickness are given by :

- A = as a rule length or diameter
- B = mainly thickness.

For the items ULA, ULE, ULP, ULH, ULR and ULO the dimensions are always measured at the widest uncut section.

For the items URA, ULAC, ULEC, UDA, UDR and UDH the dimensions are measured at the widest cut section and these are average values which depend on the number of the cut.

All the dimensions A and B mentioned in this catalogue are given in mm, they have only an indicative value.

SCALE OF CUTS

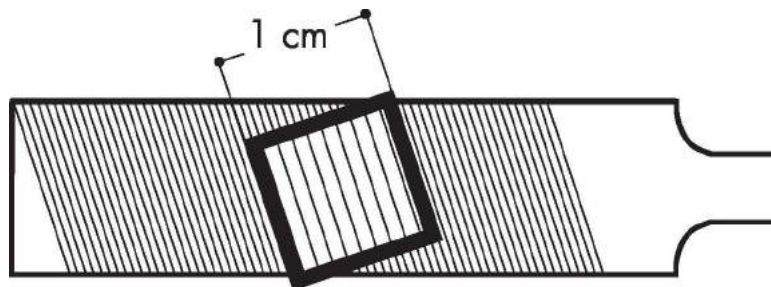
To determinate number of teeth [Z/cm]

The number of teeth (Z/cm) is obtained by counting perpendicularly to the cut.

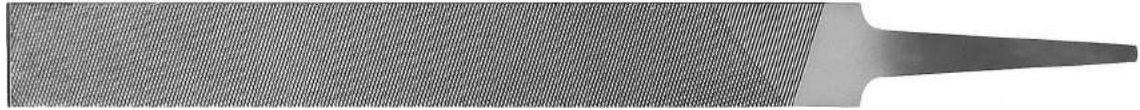
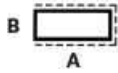
In the following table the figures correspond to the number of teeth per cm, for a given length and type of file.

For example, a file 6" in cut 2, shows 31 Z/cm.

The higher the number of teeth, the finer the file (No. 00 = very coarse / No. 10 = very fine).



| File type | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 |
|-------------------------------------|-----|----|----|----|----|----|----|------|------|-----|-----|-----|
| Precision files, lengths 1" to 3.5" | - | 20 | 25 | 31 | 38 | 46 | 55 | 68 | 84 | 100 | 116 | - |
| Precision files, lengths 4" to 8" | 12 | 16 | 20 | 25 | 31 | 38 | 46 | 56 | 68 | - | - | - |
| Precision files, lengths 4" to 8" | 9 | 12 | 16 | 20 | 25 | 31 | 38 | (46) | (56) | - | - | - |
| Needle files | - | 20 | 25 | 31 | 38 | 46 | 56 | 68 | 84 | - | - | - |
| Escapement files | - | 20 | 25 | 31 | 38 | 46 | 56 | 68 | 84 | 100 | 116 | 156 |
| Rifflers 150 mm | - | - | 25 | - | 38 | - | - | - | - | - | - | - |
| Rifflers 180-300 mm | - | - | 16 | - | 25 | - | - | - | - | - | - | - |
| HABILIS® files | - | 18 | 21 | 25 | 31 | - | - | - | - | - | - | - |



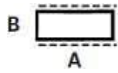
ULP1163 Hand

| ULP | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | L mm | AxB mm |
|---------|-------------|------------|-----------|-----------|-----------|-----------|----------|----------|----------|------|------------|
| 1163-4 | - | 1163-4-00 | 1163-4-0 | 1163-4-1 | 1163-4-2 | 1163-4-3 | 1163-4-4 | - | 1163-4-6 | 100 | 12.5 x 3.0 |
| 1163-6 | 1163-6-000 | 1163-6-00 | 1163-6-0 | 1163-6-1 | 1163-6-2 | 1163-6-3 | 1163-6-4 | 1163-6-5 | 1163-6-6 | 150 | 18.5 x 4.0 |
| 1163-8 | 1163-8-000 | 1163-8-00 | 1163-8-0 | 1163-8-1 | 1163-8-2 | 1163-8-3 | 1163-8-4 | - | - | 200 | 21.3 x 4.8 |
| 1163-10 | 1163-10-000 | 1163-10-00 | 1163-10-0 | 1163-10-1 | 1163-10-2 | 1163-10-3 | - | - | - | 250 | 25.3 x 6.3 |
| 1163-12 | 1163-12-000 | 1163-12-00 | 1163-12-0 | 1163-12-1 | 1163-12-2 | - | - | - | - | 300 | 29.3 x 7.8 |



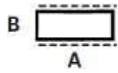
ULP1168 Thin hand

| ULP | 00 | 0 | 1 | 2 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|------|------------|
| 1168-5 | - | 1168-5-0 | - | - | 125 | 14.5 x 1.7 |
| 1168-6 | 1168-6-00 | 1168-6-0 | 1168-6-1 | 1168-6-2 | 150 | 16.5 x 2.0 |



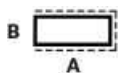
ULP1166 Chequering hand

| ULP | 00 | 0 | 1 | 2 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|------|------------|
| 1166-6 | 1166-6-00 | 1166-6-0 | 1166-6-1 | 1166-6-2 | 150 | 19.0 x 5.2 |
| 1166-8 | - | 1166-8-0 | 1166-8-1 | 1166-8-2 | 200 | 22.0 x 5.2 |



ULP1132 Pillar, 2 sides

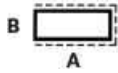
| ULP | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|---------|------------|-----------|-----------|-----------|----------|----------|----------|------|------------|
| 1132-4 | 1132-4-00 | 1132-4-0 | - | 1132-4-2 | - | 1132-4-4 | - | 100 | 9.5 x 2.5 |
| 1132-6 | 1132-6-00 | 1132-6-0 | 1132-6-1 | 1132-6-2 | 1132-6-3 | 1132-6-4 | 1132-6-6 | 150 | 12.0 x 4.0 |
| 1132-8 | 1132-8-00 | 1132-8-0 | 1132-8-1 | 1132-8-2 | 1132-8-3 | 1132-8-4 | - | 200 | 14.5 x 4.5 |
| 1132-10 | 1132-10-00 | 1132-10-0 | 1132-10-1 | 1132-10-2 | - | - | - | 250 | 17.5 x 5.3 |
| 1132-12 | 1132-12-00 | 1132-12-0 | - | - | - | - | - | 300 | 19.3 x 6.3 |



ULP1133 Pillar, 3 sides

| ULP | 00 | 0 | 1 | 2 | 3 | L mm | AxB mm |
|---------|------------|-----------|-----------|-----------|----------|------|------------|
| 1133-4 | 1133-4-00 | - | 1133-4-1 | 1133-4-2 | - | 100 | 9.5 x 2.5 |
| 1133-6 | 1133-6-00 | 1133-6-0 | 1133-6-1 | 1133-6-2 | 1133-6-3 | 150 | 12.0 x 4.0 |
| 1133-8 | 1133-8-00 | 1133-8-0 | 1133-8-1 | 1133-8-2 | - | 200 | 14.5 x 4.5 |
| 1133-10 | 1133-10-00 | 1133-10-0 | 1133-10-1 | 1133-10-2 | - | 250 | 17.5 x 5.3 |

PRECISION FILES - ULP



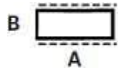
ULP1138 Thin Pillar

| ULP | 00 | 0 | 1 | 2 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|------|------------|
| 1138-6 | 1138-6-00 | 1138-6-0 | 1138-6-1 | 1138-6-2 | 150 | 10.5 x 2.4 |



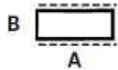
ULP1142 Slim pillar

| ULP | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|---------|-----------|-----------|----------|-----------|----------|----------|----------|------|-----------|
| 1142-4 | - | 1142-4-0 | - | 1142-4-2 | - | 1142-4-4 | - | 100 | 4.6 x 2.2 |
| 1142-6 | 1142-6-00 | 1142-6-0 | 1142-6-1 | 1142-6-2 | 1142-6-3 | 1142-6-4 | 1142-6-6 | 150 | 6.5 x 3.0 |
| 1142-8 | 1142-8-00 | 1142-8-0 | 1142-8-1 | 1142-8-2 | - | 1142-8-4 | - | 200 | 8.3 x 3.5 |
| 1142-10 | - | 1142-10-0 | - | 1142-10-2 | - | - | - | 250 | 9.3 x 4.3 |



ULP1152 Extra-slim pillar

| ULP | 00 | 0 | 1 | 2 | 4 | 6 | L mm | AxB mm |
|---------|------------|-----------|----------|-----------|----------|----------|------|-----------|
| 1152-4 | 1152-4-00 | 1152-4-0 | - | 1152-4-2 | - | - | 100 | 3.7 x 1.7 |
| 1152-6 | 1152-6-00 | 1152-6-0 | 1152-6-1 | 1152-6-2 | 1152-6-4 | 1152-6-6 | 150 | 4.5 x 2.5 |
| 1152-8 | 1152-8-00 | 1152-8-0 | 1152-8-1 | 1152-8-2 | - | - | 200 | 6.3 x 2.8 |
| 1152-10 | 1152-10-00 | 1152-10-0 | - | 1152-10-2 | - | - | 250 | 8.3 x 3.8 |



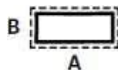
ULP1136 Chequering pillar

| ULP | 00 | 0 | 1 | 2 | 4 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|----------|------|------------|
| 1136-6 | 1136-6-00 | 1136-6-0 | 1136-6-1 | 1136-6-2 | 1136-6-4 | 150 | 12.4 x 4.5 |



ULP1170 Joint file, rounds edges

| ULP | 2 | L mm | A mm |
|--------|--------------|------|------|
| 1170-4 | 1170-4-2-0.4 | 100 | 10 |
| 1170-4 | 1170-4-2-0.5 | 100 | 10 |
| 1170-4 | 1170-4-2-0.6 | 100 | 10 |



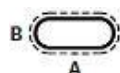
ULP1180 Equalling

| ULP | 00 | 0 | 1 | 2 | 4 | L mm | AxB mm |
|--------|---------------|--------------|--------------|--------------|--------------|------|------------|
| 1180-4 | - | 1180-4-0-2 | - | 1180-4-2-2 | - | 100 | 10.0 x 2.0 |
| 1180-5 | - | - | 1180-5-1-1.7 | - | - | 125 | 12.0 x 1.7 |
| 1180-6 | 1180-6-00-2 | 1180-6-0-2 | - | 1180-6-2-2 | - | 150 | 13.0 x 2.0 |
| 1180-6 | 1180-6-00-2.8 | 1180-6-0-2.8 | - | 1180-6-2-2.8 | 1180-6-4-2.8 | 150 | 13.0 x 2.8 |
| 1180-8 | - | 1180-8-0-3.2 | - | 1180-8-2-3.2 | - | 200 | 16.0 x 3.2 |



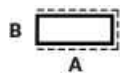
ULP1185 Equalling special

| ULP | 2 | L mm | AxB mm |
|--------|-------------|------|-------------|
| 1185-4 | 1185-4-2-20 | 100 | 10.0 x 0.91 |
| 1185-4 | 1185-4-2-21 | 100 | 10.0 x 0.81 |
| 1185-4 | 1185-4-2-22 | 100 | 10.0 x 0.71 |
| 1185-4 | 1185-4-2-24 | 100 | 10.0 x 0.56 |
| 1185-4 | 1185-4-2-26 | 100 | 10.0 x 0.46 |
| 1185-4 | 1185-4-2-28 | 100 | 10.0 x 0.38 |



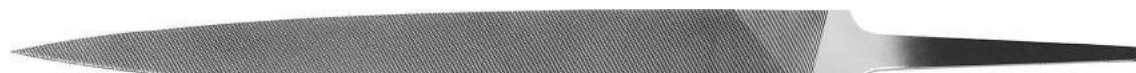
ULP1230 Crochet

| ULP | 0 | 2 | L mm | AxB mm |
|--------|----------|----------|------|------------|
| 1230-4 | 1230-4-0 | 1230-4-2 | 100 | 7.5 x 2.2 |
| 1230-6 | 1230-6-0 | 1230-6-2 | 150 | 10.0 x 3.1 |
| 1230-8 | 1230-8-0 | - | 200 | 12.5 x 4.2 |



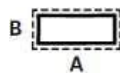
ULP1263 Warding

| ULP | 0 | 2 | 4 | L mm | AxB mm |
|----------|----------|----------|----------|------|------------|
| 1263-6-0 | 1263-6-0 | 1263-6-2 | 1263-6-4 | 150 | 15.4 x 3.5 |



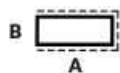
ULP1265 Warding special

| ULP | 0 | L mm | AxB mm |
|--------|-------------|------|-------------|
| 1265-6 | 1265-6-0-16 | 150 | 15.4 x 1.65 |



ULP1268 Warding thin

| ULP | 000 | 00 | 0 | 2 | 4 | L mm | AxB mm |
|--------|------------|-----------|----------|----------|----------|------|------------|
| 1268-4 | - | 1268-4-00 | 1268-4-0 | 1268-4-2 | 1268-4-4 | 100 | 12.4 x 1.0 |
| 1268-6 | 1268-6-000 | 1268-6-00 | 1268-6-0 | 1268-6-2 | 1268-6-4 | 150 | 15.4 x 1.7 |



ULP1312 Flat for aluminium

| ULP | 0 | L mm | AxB mm |
|---------|-----------|------|------------|
| 1312-6 | 1312-6-0 | 150 | 15.5 x 3.5 |
| 1312-8 | 1312-8-0 | 200 | 21.3 x 4.8 |
| 1312-10 | 1312-10-0 | 250 | 25.3 x 6.3 |

PRECISION FILES - ULP



ULP1352 Halfround for aluminium

| ULP | 0 | L mm | AxB mm |
|---------|-----------|------|------------|
| 1352-6 | 1352-6-0 | 150 | 18.4 x 5.2 |
| 1352-10 | 1352-10-0 | 250 | 25.5 x 7.5 |



ULP1540 Double halfround for wax

| ULP | L mm | AxB mm |
|--------|------|------------|
| 1540-6 | 150 | 12.5 x 3.5 |
| 1540-7 | 175 | 12.5 x 3.5 |
| 1540-8 | 200 | 13.5 x 4.0 |



ULP1560 Halfround

| ULP | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | L mm | AxB mm |
|---------|------------|------------|-----------|-----------|----------|----------|----------|----------|----------|------|------------|
| 1560-4 | - | 1560-4-00 | 1560-4-0 | 1560-4-1 | 1560-4-2 | 1560-4-3 | 1560-4-4 | - | - | 100 | 12.7 x 3.5 |
| 1560-5 | - | 1560-5-00 | 1560-5-0 | 1560-5-1 | 1560-5-2 | 1560-5-3 | 1560-5-4 | 1560-5-5 | 1560-5-6 | 125 | 13.1 x 4.1 |
| 1560-6 | 1560-6-000 | 1560-6-00 | 1560-6-0 | 1560-6-1 | 1560-6-2 | 1560-6-3 | 1560-6-4 | 1560-6-5 | 1560-6-6 | 150 | 15.1 x 4.7 |
| 1560-8 | 1560-8-000 | 1560-8-00 | 1560-8-0 | 1560-8-1 | 1560-8-2 | 1560-8-3 | 1560-8-4 | - | - | 200 | 21.1 x 6.3 |
| 1560-10 | - | 1560-10-00 | 1560-10-0 | 1560-10-1 | - | - | - | - | - | 250 | 25.5 x 7.5 |



ULP1566 Halfround slim for rings

| ULP | 000 | 00 | 0 | 1 | 2 | 3 | 4 | L mm | AxB mm |
|---------|------------|------------|-----------|----------|-----------|----------|----------|------|------------|
| 1566-6 | - | 1566-6-00 | 1566-6-0 | 1566-6-1 | 1566-6-2 | 1566-6-3 | 1566-6-4 | 150 | 12.7 x 3.5 |
| 1566-8 | 1566-8-000 | - | 1566-8-0 | 1566-8-1 | - | - | - | 200 | 15.5 x 4.5 |
| 1566-10 | - | 1566-10-00 | 1566-10-0 | - | 1566-10-2 | - | - | 250 | 15.5 x 4.5 |



ULP1567 Halfround extra-slim

| ULP | 0 | 2 | 4 | L mm | AxB mm |
|--------|----------|----------|----------|------|-----------|
| 1567-6 | 1567-6-0 | 1567-6-2 | 1567-6-4 | 150 | 9.8 x 2.8 |



ULP1360 Triangular

| ULP | 000 | 00 | 0 | 1 | 2 | 3 | 4 | L mm | A mm |
|----------------|------------|------------|----------|-----------|----------|----------|----------|------|------|
| 1360-4 | - | - | - | - | 1360-4-2 | - | 1360-4-4 | 100 | 7.5 |
| 1360-6 | 1360-6-000 | 1360-6-00 | 1360-6-0 | 1360-6-1 | 1360-6-2 | 1360-6-3 | 1360-6-4 | 150 | 10.3 |
| 1360-8 | 1360-8-000 | 1360-8-00 | 1360-8-0 | 1360-8-1 | 1360-8-2 | - | 1360-8-4 | 200 | 14.2 |
| 1360-10 | - | 1360-10-00 | - | 1360-10-1 | - | - | - | 250 | 17.2 |



ULP1366 Triangular narrow

| ULP | 0 | 1 | 2 | 3 | L mm | A mm |
|---------------|----------|----------|----------|----------|------|------|
| 1366-4 | - | - | 1366-4-2 | - | 100 | 5.8 |
| 1366-6 | 1366-6-0 | 1366-6-1 | 1366-6-2 | 1366-6-3 | 150 | 8.3 |



ULP1367 Triangular extra narrow

| ULP | 0 | 2 | L mm | A mm | Kg |
|---------------|----------|----------|------|------|-------|
| 1367-6 | 1367-6-0 | 1367-6-2 | 150 | 7.5 | 0.026 |



ULP1660 Round regular pointed

| ULP | 1 | 2 | 3 | 4 | 6 | L mm | A mm |
|---------------|----------|----------|----------|----------|----------|------|------|
| 1660-4 | - | 1660-4-2 | - | 1660-4-4 | - | 100 | 3.9 |
| 1660-6 | 1660-6-1 | 1660-6-2 | 1660-6-3 | 1660-6-4 | 1660-6-6 | 150 | 5.9 |
| 1660-8 | 1660-8-1 | 1660-8-2 | - | 1660-8-4 | - | 200 | 7.8 |



ULP1667 Round extra narrow

| ULP | 0 | 1 | L mm | A mm |
|---------------|----------|----------|------|------|
| 1667-3 | - | 1667-3-1 | 75 | 1.5 |
| 1667-6 | 1667-6-0 | - | 150 | 3.9 |



ULP1669 Round cylindrical

| ULP | 0 | 2 | L mm | A mm |
|---------------|--------------|--------------|------|------|
| 1669-4 | 1669-4-0-1.6 | 1669-4-2-1.6 | 100 | 1.6 |
| 1669-4 | 1669-4-0-3 | 1669-4-2-3 | 100 | 3.0 |
| 1669-6 | - | 1669-6-2-2.4 | 150 | 2.4 |
| 1669-6 | - | 1669-6-2-3.2 | 150 | 3.2 |
| 1669-6 | - | 1669-6-2-4 | 150 | 4.0 |
| 1669-6 | - | 1669-6-2-4.8 | 150 | 4.8 |



ULP1670 Round



| ULP | 00 | 0 | 1 | L mm | A mm |
|---------|-----------|-----------|-----------|------|------|
| 1670-4 | 1670-4-00 | 1670-4-0 | - | 100 | 3.9 |
| 1670-6 | 1670-6-00 | 1670-6-0 | - | 150 | 5.8 |
| 1670-8 | 1670-8-00 | 1670-8-0 | - | 200 | 7.5 |
| 1670-10 | - | 1670-10-0 | 1670-10-1 | 250 | 9.4 |



ULP1680 Round seconds hole



| ULP | 2 | 4 | L mm | A mm |
|----------|------------|----------|------|------|
| 1680-1.5 | 1680-1.5-2 | - | 38 | 1.0 |
| 1680-2 | 1680-2-2 | 1680-2-4 | 50 | 1.0 |
| 1680-2.5 | 1680-2.5-2 | - | 62 | 1.6 |



ULP1464 Square pointed



| ULP | 1 | 2 | 3 | L mm | A mm |
|--------|----------|----------|----------|------|------|
| 1464-6 | 1464-6-1 | 1464-6-2 | 1464-6-3 | 150 | 5.5 |
| 1464-8 | 1464-8-1 | 1464-8-2 | - | 200 | 7.5 |



ULP1474 Square blunt



| ULP | 000 | 00 | 0 | 1 | L mm | A mm |
|---------|-------------|------------|-----------|-----------|------|------|
| 1474-4 | | 1474-4-00 | 1474-4-0 | - | 100 | 3.6 |
| 1474-6 | | 1474-6-00 | 1474-6-0 | - | 150 | 5.5 |
| 1474-8 | 1474-8-000 | 1474-8-00 | 1474-8-0 | - | 200 | 7.5 |
| 1474-10 | 1474-10-000 | 1474-10-00 | 1474-10-0 | 1474-10-1 | 250 | 9.4 |



ULP1480 Square seconds hole



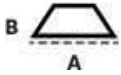
| ULP | 4 | L mm | A mm |
|--------|----------|------|------|
| 1480-2 | 1480-2-4 | 50 | 1.0 |



ULP1040 Slotting



| ULP | 00 | 0 | L mm | A mm |
|---------|--------------|---------------|------|------|
| 1040-10 | 1040-10-0-10 | 1040-10-00-10 | 250 | 9.5 |



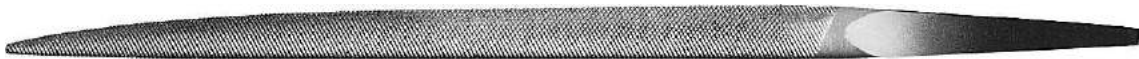
ULP1060 Barrette

| ULP | 00 | 0 | 1 | 2 | 3 | 4 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|----------|----------|------|------------|
| 1060-4 | 1060-4-00 | 1060-4-0 | 1060-4-1 | 1060-4-2 | - | - | 100 | 12.4 x 2.6 |
| 1060-5 | - | - | - | 1060-5-2 | - | - | 125 | 14.0 x 3.0 |
| 1060-6 | 1060-6-00 | 1060-6-0 | 1060-6-1 | 1060-6-2 | 1060-6-3 | 1060-6-4 | 150 | 15.5 x 3.5 |
| 1060-8 | 1060-8-00 | 1060-8-0 | 1060-8-1 | - | - | - | 200 | 21.5 x 5.0 |



ULP1061 Special Barrette

| ULP | 1 | 4 | 6 | L mm | AxB mm |
|--------|----------|----------|----------|------|-----------|
| 1061-3 | 1061-3-1 | 1061-3-4 | 1061-3-6 | 75 | 9.0 x 1.8 |



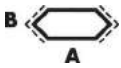
ULP1730 Pippin

| ULP | 2 | 4 | L mm | AxB mm |
|--------|----------|----------|------|------------|
| 1730-6 | 1730-6-2 | 1730-6-4 | 150 | 10.0 x 4.4 |
| 1730-8 | 1730-8-2 | - | 200 | 11.5 x 4.9 |



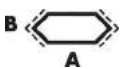
ULP1760 Knife

| ULP | 00 | 0 | 1 | 2 | L mm | AxB mm |
|--------|-----------|----------|----------|----------|------|------------|
| 1760-4 | - | - | - | 1760-4-2 | 100 | 12.4 x 2.8 |
| 1760-6 | 1760-6-00 | 1760-6-0 | - | 1760-6-2 | 150 | 17.9 x 3.5 |
| 1760-8 | 1760-8-00 | 1760-8-0 | 1760-8-1 | 1760-8-2 | 200 | 22.0 x 4.2 |



ULP1840 Screwhead with tang

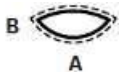
| ULP | 00 | 1 | 2 | 3 | 4 | 6 | L mm | A mm |
|--------|-----------|----------|----------|----------|----------|----------|------|------|
| 1840-3 | - | - | 1840-3-2 | 1840-3-3 | 1840-3-4 | 1840-3-6 | 75 | 9.0 |
| 1840-4 | 1840-4-00 | 1840-4-1 | 1840-4-2 | - | 1840-4-4 | - | 100 | 11.0 |



ULP1850 Screwhead without tang

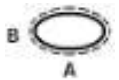
| ULP | 4 | 5 | 8 | L mm | A mm |
|--------|----------|----------|----------|------|------|
| 1850-3 | 1850-3-4 | 1850-3-5 | 1850-3-8 | 75 | 9.0 |

PRECISION FILES - ULP



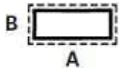
ULP1960 Crossing

| ULP | 00 | 0 | 1 | 2 | 3 | 4 | L mm | AxB mm |
|----------|-----------|----------|----------|------------|----------|------------|------|------------|
| 1960-3.5 | - | - | - | 1960-3.5-2 | - | 1960-3.5-4 | 90 | 10.2 x 2.9 |
| 1960-4 | - | 1960-4-0 | - | 1960-4-2 | - | 1960-4-4 | 100 | 11.9 x 3.6 |
| 1960-6 | 1960-6-00 | 1960-6-0 | 1960-6-1 | 1960-6-2 | 1960-6-3 | 1960-6-4 | 150 | 14.8 x 5.0 |
| 1960-8 | 1960-8-00 | 1960-8-0 | 1960-8-1 | 1960-8-2 | - | - | 200 | 21.3 x 6.3 |



ULP1990 Oval

| ULP | 0 | 2 | L mm | AxB mm |
|--------|----------|----------|------|-----------|
| 1990-6 | 1990-6-0 | 1990-6-2 | 150 | 8.6 x 4.4 |



ULP1292 Warding

| ULP | 0 | 2 | L mm | AxB mm |
|--------|----------|----------|------|------------|
| 1292-6 | 1292-6-0 | 1292-6-2 | 150 | 10.5 x 2.4 |

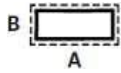


ASSORTMENT

| ULP | Kg |
|------|-------|
| 1095 | 1.550 |

Set of 37 files for mechanics.

ULA2401-180-2, ULA2402-180-0, ULA2403-160-2, ULA2405-160-0, ULA2406-160-00, ULA2409-160-2, ULA2410-180-0, ULA2411-160-1, ULH2601-00, ULH2602-00, ULH2607-00, ULH2608-00, ULH2610-00, ULH9602-0, ULO0653-4, ULP1060-8-1, ULP1133-8-2, ULP1163-8-000, ULP1263-6-2, ULP1360-6-00, ULP1360-8-00, ULP1464-6-2, ULP1474-8-0, ULP1560-6-4, ULP1560-8-4, ULP1670-6-0, ULP1670-8-00, ULP1730-6-2, ULP1960-4-2, ULP1960-8-1, ULR12711-2, ULR12730-2, ULR12741-2, ULR12781-0, ULR12901-2, ULR12918-2 and ULR12985-0.



ULA2401 Pillar

| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2401-100 | - | 2401-100-0 | 2401-100-1 | 2401-100-2 | 2401-100-3 | 2401-100-4 | - | 100 | 3.5 x 0.9 |
| 2401-140 | - | 2401-140-0 | 2401-140-1 | 2401-140-2 | 2401-140-3 | 2401-140-4 | 2401-140-6 | 140 | 4.8 x 1.1 |
| 2401-160 | 2401-160-00 | 2401-160-0 | 2401-160-1 | 2401-160-2 | 2401-160-3 | 2401-160-4 | 2401-160-6 | 160 | 5.4 x 1.2 |
| 2401-180 | 2401-180-00 | 2401-180-0 | 2401-180-1 | 2401-180-2 | 2401-180-3 | 2401-180-4 | 2401-180-6 | 180 | 6.0 x 1.3 |
| 2401-200 | 2401-200-00 | 2401-200-0 | 2401-200-1 | 2401-200-2 | 2401-200-3 | 2401-200-4 | - | 200 | 6.5 x 1.3 |



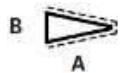
ULA2402 Halfround

| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2402-100 | - | 2402-100-0 | - | 2402-100-2 | 2402-100-3 | 2402-100-4 | - | 100 | 3.8 x 1.1 |
| 2402-140 | - | 2402-140-0 | 2402-140-1 | 2402-140-2 | 2402-140-3 | 2402-140-4 | - | 140 | 5.1 x 1.5 |
| 2402-160 | 2402-160-00 | 2402-160-0 | 2402-160-1 | 2402-160-2 | 2402-160-3 | 2402-160-4 | 2402-160-6 | 160 | 5.6 x 1.7 |
| 2402-180 | 2402-180-00 | 2402-180-0 | 2402-180-1 | 2402-180-2 | 2402-180-3 | 2402-180-4 | - | 180 | 5.9 x 2.0 |
| 2402-200 | 2402-200-00 | 2402-200-0 | 2402-200-1 | 2402-200-2 | 2402-200-3 | 2402-200-4 | - | 200 | 6.3 x 2.0 |



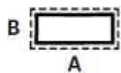
ULA2403 Crossing

| ULA | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2403-100 | - | - | 2403-100-2 | 2403-100-3 | 2403-100-4 | - | 100 | 3.5 x 1.4 |
| 2403-140 | 2403-140-0 | 2403-140-1 | 2403-140-2 | - | 2403-140-4 | - | 140 | 4.4 x 1.8 |
| 2403-160 | 2403-160-0 | 2403-160-1 | 2403-160-2 | - | 2403-160-4 | 2403-160-6 | 160 | 5.1 x 2.0 |
| 2403-180 | 2403-180-0 | 2403-180-1 | 2403-180-2 | - | 2403-180-4 | - | 180 | 5.8 x 2.2 |
| 2403-200 | 2403-200-0 | 2403-200-1 | 2403-200-2 | 2403-200-3 | 2403-200-4 | - | 200 | 6.0 x 2.4 |



ULA2405 Knife

| ULA | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2405-100 | - | 2405-100-1 | 2405-100-2 | 2405-100-3 | 2405-100-4 | - | 100 | 4.0 x 1.1 |
| 2405-140 | 2405-140-0 | 2405-140-1 | 2405-140-2 | - | 2405-140-4 | - | 140 | 5.0 x 1.4 |
| 2405-160 | 2405-160-0 | 2405-160-1 | 2405-160-2 | - | 2405-160-4 | 2405-160-6 | 160 | 5.4 x 1.5 |
| 2405-180 | 2405-180-0 | 2405-180-1 | 2405-180-2 | - | - | - | 180 | 6.0 x 1.7 |
| 2405-200 | 2405-200-0 | 2405-200-1 | 2405-200-2 | 2405-200-3 | 2405-200-4 | - | 200 | 6.4 x 1.8 |



ULA2406 Warding

| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2406-100 | - | - | - | 2406-100-2 | 2406-100-3 | 2406-100-4 | - | 100 | 3.4 x 0.9 |
| 2406-140 | - | 2406-140-0 | 2406-140-1 | 2406-140-2 | 2406-140-3 | 2406-140-4 | - | 140 | 4.8 x 1.1 |
| 2406-160 | 2406-160-00 | 2406-160-0 | 2406-160-1 | 2406-160-2 | 2406-160-3 | 2406-160-4 | 2406-160-6 | 160 | 5.4 x 1.2 |
| 2406-180 | - | 2406-180-0 | 2406-180-1 | 2406-180-2 | - | 2406-180-4 | - | 180 | 6.0 x 1.2 |
| 2406-200 | - | 2406-200-0 | 2406-200-1 | 2406-200-2 | - | 2406-200-4 | - | 200 | 6.5 x 1.4 |

NEEDLE FILES - ULA



ULA2407 Triangular



| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | A mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|------|
| 2407-100 | - | 2407-100-0 | 2407-100-1 | 2407-100-2 | 2407-100-3 | 2407-100-4 | - | 100 | 2.8 |
| 2407-140 | - | 2407-140-0 | 2407-140-1 | 2407-140-2 | 2407-140-3 | 2407-140-4 | 2407-140-6 | 140 | 3.5 |
| 2407-160 | 2407-160-00 | 2407-160-0 | 2407-160-1 | 2407-160-2 | 2407-160-3 | 2407-160-4 | 2407-160-6 | 160 | 3.8 |
| 2407-180 | 2407-180-00 | 2407-180-0 | 2407-180-1 | 2407-180-2 | 2407-180-3 | 2407-180-4 | - | 180 | 4.2 |
| 2407-200 | 2407-200-00 | 2407-200-0 | 2407-200-1 | 2407-200-2 | 2407-200-3 | 2407-200-4 | - | 200 | 4.4 |



ULA2408 Square



| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | A mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|------|
| 2408-100 | - | 2408-100-0 | 2408-100-1 | 2408-100-2 | 2408-100-3 | 2408-100-4 | - | 100 | 1.7 |
| 2408-140 | - | 2408-140-0 | 2408-140-1 | 2408-140-2 | 2408-140-3 | 2408-140-4 | - | 140 | 2.2 |
| 2408-160 | 2408-160-00 | 2408-160-0 | 2408-160-1 | 2408-160-2 | 2408-160-3 | 2408-160-4 | 2408-160-6 | 160 | 2.4 |
| 2408-180 | 2408-180-00 | 2408-180-0 | 2408-180-1 | 2408-180-2 | 2408-180-3 | 2408-180-4 | - | 180 | 2.6 |
| 2408-200 | 2408-200-00 | 2408-200-0 | 2408-200-1 | 2408-200-2 | 2408-200-3 | 2408-200-4 | - | 200 | 2.8 |



ULA2409 Oval



| ULA | 0 | 1 | 2 | 4 | L mm | AxB mm |
|----------|------------|------------|------------|------------|------|-----------|
| 2409-140 | 2409-140-0 | 2409-140-1 | 2409-140-2 | 2409-140-4 | 140 | 3.5 x 2.4 |
| 2409-160 | 2409-160-0 | 2409-160-1 | 2409-160-2 | 2409-160-4 | 160 | 3.9 x 2.5 |
| 2409-180 | 2409-180-0 | - | 2409-180-2 | - | 180 | 4.2 x 2.8 |
| 2409-200 | 2409-200-0 | - | - | - | 200 | 4.4 x 2.9 |



ULA2410 Round



| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | A mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|------|
| 2410-100 | - | 2410-100-0 | 2410-100-1 | 2410-100-2 | 2410-100-3 | 2410-100-4 | - | 100 | 2.1 |
| 2410-140 | 2410-140-00 | 2410-140-0 | 2410-140-1 | 2410-140-2 | 2410-140-3 | 2410-140-4 | 2410-140-6 | 140 | 2.8 |
| 2410-160 | 2410-160-00 | 2410-160-0 | 2410-160-1 | 2410-160-2 | 2410-160-3 | 2410-160-4 | 2410-160-6 | 160 | 2.9 |
| 2410-180 | 2410-180-00 | 2410-180-0 | 2410-180-1 | 2410-180-2 | 2410-180-3 | 2410-180-4 | - | 180 | 3.2 |
| 2410-200 | 2410-200-00 | 2410-200-0 | 2410-200-1 | 2410-200-2 | 2410-200-3 | 2410-200-4 | - | 200 | 3.5 |



ULA2411 Barrette

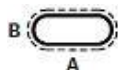


| ULA | 00 | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|-------------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2411-100 | - | 2411-100-0 | - | 2411-100-2 | 2411-100-3 | 2411-100-4 | - | 100 | 3.7 x 1.4 |
| 2411-140 | - | 2411-140-0 | 2411-140-1 | 2411-140-2 | 2411-140-3 | 2411-140-4 | - | 140 | 4.7 x 1.7 |
| 2411-160 | 2411-160-00 | 2411-160-0 | 2411-160-1 | 2411-160-2 | 2411-160-3 | 2411-160-4 | 2411-160-6 | 160 | 5.1 x 1.8 |
| 2411-180 | 2411-180-00 | 2411-180-0 | 2411-180-1 | 2411-180-2 | 2411-180-3 | 2411-180-4 | - | 180 | 5.4 x 2.0 |
| 2411-200 | 2411-200-00 | 2411-200-0 | 2411-200-1 | 2411-200-2 | 2411-200-3 | 2411-200-4 | - | 200 | 5.8 x 2.2 |



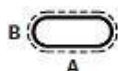
ULA2414 Slitting

| ULA | 0 | 1 | 2 | 3 | 4 | 6 | L mm | AxB mm |
|----------|------------|------------|------------|------------|------------|------------|------|-----------|
| 2414-140 | 2414-140-0 | 2414-140-1 | 2414-140-2 | 2414-140-3 | 2414-140-4 | - | 140 | 5.5 x 1.9 |
| 2414-160 | 2414-160-0 | 2414-160-1 | 2414-160-2 | - | 2414-160-4 | 2414-160-6 | 160 | 6.1 x 2.1 |



ULA2415 Crochet

| ULA | 0 | 1 | 2 | 4 | 6 | L mm | AxB mm |
|----------|------------|------------|------------|------------|------------|------|-----------|
| 2415-140 | 2415-140-0 | 2415-140-1 | 2415-140-2 | 2415-140-4 | - | 140 | 4.8 x 1.2 |
| 2415-160 | 2415-160-0 | 2415-160-1 | 2415-160-2 | 2415-160-4 | 2415-160-6 | 160 | 5.4 x 1.3 |
| 2415-180 | 2415-180-0 | - | 2415-180-2 | - | - | 180 | 5.9 x 1.4 |
| 2415-200 | 2415-200-0 | - | - | - | - | 200 | 6.5 x 1.5 |



ULA2416 Pillar round edges

| ULA | 0 | 1 | 2 | 3 | 4 | L mm | AxB mm |
|----------|------------|------------|------------|---|------------|------|-----------|
| 2416-140 | 2416-140-0 | 2416-140-1 | 2416-140-2 | - | 2416-140-4 | 140 | 4.8 x 1.2 |
| 2416-160 | 2416-160-0 | 2416-160-1 | 2416-160-2 | - | 2416-160-4 | 160 | 5.4 x 1.3 |
| 2416-180 | 2416-180-0 | - | 2416-180-2 | - | - | 180 | 6.0 x 1.4 |
| 2416-200 | 2416-200-0 | 2416-200-1 | - | - | - | 200 | 6.5 x 1.5 |



ULA2417 Joint round edges

| ULA | 0 | 2 | 4 | L mm | AxB mm |
|----------|------------|------------|------------|------|-----------|
| 2417-140 | - | 2417-140-2 | 2417-140-4 | 140 | 4.8 x 1.2 |
| 2417-160 | 2417-160-0 | 2417-160-2 | 2417-160-4 | 160 | 5.4 x 1.3 |



ULA2418 Halfround, cut on back only

| ULA | 0 | 2 | 4 | L mm | AxB mm |
|----------|------------|------------|------------|------|-----------|
| 2418-140 | 2418-140-0 | 2418-140-2 | 2418-140-4 | 140 | 5.1 x 1.5 |
| 2418-160 | 2418-160-0 | 2418-160-2 | 2418-160-4 | 160 | 5.6 x 1.8 |



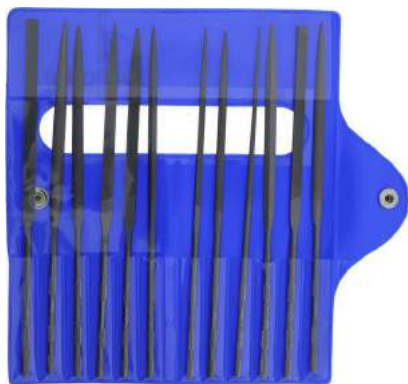
ULA2420 For contact

| ULA | 0 | 2 | L mm | AxB mm |
|----------|------------|------------|------|-----------|
| 2420-130 | 2420-130-0 | 2420-130-2 | 130 | 8.0 x 0.9 |



ULA2423 Round extra slim

| ULA | 0 | 1 | 2 | L mm | A mm |
|----------|---|------------|------------|------|------|
| 2423-100 | - | 2423-100-1 | 2423-100-2 | 100 | 1.0 |

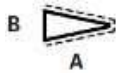


ASSORTMENT

| ULA | L mm | Kg |
|---------------|------|-------|
| 2400-A | 160 | 0.111 |

Assortment of 12 needle files ULA2400-A :

ULA2401-160-4, ULA2402-160-4, ULA2403-160-4, ULA2405-160-4, ULA2406-160-3, ULA2407-160-4, ULA2408-160-4, ULA2409-160-4, ULA2410-160-4, ULA2411-160-4, ULA2416-160-2 and ULA2418-160-2.



ULE3004 Pointed knife



| ULE | 2 | 4 | 6 | 8 | L mm | AxB mm |
|---------|-----------|-----------|-----------|-----------|------|-----------|
| 3004-55 | 3004-55-2 | 3004-55-4 | 3004-55-6 | 3004-55-8 | 55 | 5.0 x 1.3 |



ULE3008 Halfround



| ULE | 2 | 3 | 4 | 5 | 6 | 8 | 10 | L mm | AxB mm |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------|-----------|
| 3008-40 | 3008-40-2 | - | 3008-40-4 | - | 3008-40-6 | 3008-40-8 | - | 40 | 3.8 x 1.4 |
| 3008-55 | 3008-55-2 | 3008-55-3 | 3008-55-4 | 3008-55-5 | 3008-55-6 | 3008-55-8 | 3008-55-10 | 55 | 4.6 x 1.6 |



ULE3009 Crossing



| ULE | 2 | 4 | 6 | 8 | 10 | L mm | AxB mm |
|---------|-----------|-----------|-----------|-----------|------------|------|-----------|
| 3009-40 | 3009-40-2 | 3009-40-4 | 3009-40-6 | 3009-40-8 | - | 40 | 3.7 x 1.4 |
| 3009-55 | 3009-55-2 | 3009-55-4 | 3009-55-6 | 3009-55-8 | 3009-55-10 | 55 | 4.8 x 1.6 |



ULE3010 Barrette



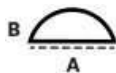
| ULE | 0 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | L mm | AxB mm |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------|-----------|
| 3010-40 | - | 3010-40-2 | | 3010-40-4 | | 3010-40-6 | 3010-40-8 | - | 40 | 3.7 x 1.3 |
| 3010-55 | 3010-55-0 | 3010-55-2 | 3010-55-3 | 3010-55-4 | 3010-55-5 | 3010-55-6 | 3010-55-8 | 3010-55-10 | 55 | 4.5 x 1.3 |



ULE3011 Parallel barrette



| ULE | 2 | 4 | 6 | L mm | AxB mm |
|---------|-----------|-----------|-----------|------|-----------|
| 3011-48 | 3011-48-2 | 3011-48-4 | 3011-48-6 | 48 | 4.1 x 1.2 |



ULE3012 Rounding off



| ULE | 2 | 4 | 6 | L mm | AxB mm |
|---------|-----------|-----------|-----------|------|-----------|
| 3012-40 | 3012-40-2 | 3012-40-4 | 3012-40-6 | 40 | 3.6 x 0.8 |



ULE3014 Triangular



| ULE | 0 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | L mm | A mm |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------|------|
| 3014-40 | - | 3014-40-2 | - | 3014-40-4 | - | 3014-40-6 | | | 40 | 2.8 |
| 3014-55 | 3014-55-0 | 3014-55-2 | 3014-55-3 | 3014-55-4 | 3014-55-5 | 3014-55-6 | 3014-55-8 | 3014-55-10 | 55 | 3.4 |

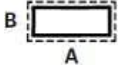
ESCAPEMENT FILES - ULE



ULE3015 Watch anchor



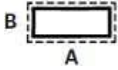
| ULE | 6 | 8 | L mm | AxB mm |
|---------|-----------|-----------|------|-----------|
| 3015-55 | 3015-55-6 | 3015-55-8 | 55 | 4.4 x 0.8 |



ULE3016 Warding



| ULE | 4 | L mm | AxB mm |
|---------|-----------|------|-----------|
| 3016-55 | 3016-55-4 | 55 | 4.6 x 0.9 |



ULE3017 Pillar



| ULE | 2 | 4 | 6 | 8 | 10 | L mm | AxB mm |
|---------|-----------|-----------|-----------|-----------|------------|------|-----------|
| 3017-55 | 3017-55-2 | 3017-55-4 | 3017-55-6 | 3017-55-8 | 3017-55-10 | 55 | 5.0 x 0.9 |



ULE3020 Square



| ULE | 0 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | L mm | A mm |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------|------|
| 3020-55 | 3020-55-0 | 3020-55-2 | 3020-55-3 | 3020-55-4 | 3020-55-5 | 3020-55-6 | 3020-55-8 | 3020-55-10 | 55 | 1.7 |
| 3020-65 | - | 3020-65-2 | - | 3020-65-4 | - | 3020-65-6 | 3020-65-8 | - | 65 | 1.9 |



ULE3021 Round



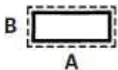
| ULE | 0 | 2 | 3 | 4 | 6 | 8 | 10 | L mm | A mm |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------|------|
| 3021-55 | 3021-55-0 | 3021-55-2 | 3021-55-3 | 3021-55-4 | 3021-55-6 | 3021-55-8 | 3021-55-10 | 55 | 1.5 |
| 3021-65 | - | 3021-65-2 | - | 3021-65-4 | 3021-65-6 | 3021-65-8 | - | 65 | 2.0 |



ULE3026 Balance wheel



| ULE | 4 | 6 | 10 | L mm | AxB mm |
|---------|-----------|-----------|------------|------|-----------|
| 3026-35 | 3026-35-4 | 3026-35-6 | 3026-35-10 | 35 | 2.9 x 1.2 |



ULE3029 Equalling



| ULE | 2 | 4 | 6 | L mm | AxB mm |
|---------|--------------|--------------|--------------|------|-----------|
| 3029-55 | 3029-55-2-DT | 3029-55-4-DT | 3029-55-6-DT | 55 | 4.7 x 0.7 |



ASSORTMENT

| ULE | 10 | L mm | Kg |
|-------------|---------|------|----|
| 3080 | 3080-10 | 55 | ? |

Assortment of 6 escapement files ULE3080 :

ULE3008, ULE3010, ULE3014, ULE3017, ULE3020 et ULE3021.

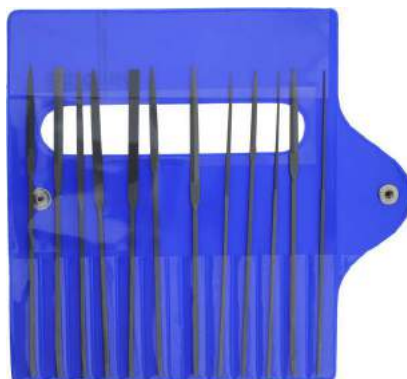


ASSORTMENT

| ULE | 4 | 6 | L mm | Kg |
|-------------|--------|--------|------|-------|
| 3092 | 3092-4 | 3092-6 | 55 | 0.060 |

Assortment of 12 escapement files ULE3092 :

ULE3004, ULE3008, ULE3009, ULE3010, ULE3011, ULE3014, ULE3016, ULE3017, ULE3020, ULE3021, ULE3026 and ULE3029.



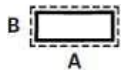
ASSORTMENT

| ULE | L mm | Kg |
|---------------|-------------------|-------|
| 3000-A | 35 - 40 - 48 - 55 | 0.069 |

Assortment of 12 escapement files ULA3000-A :

ULE3008-40-8, ULE3009-40-8, ULE3010-40-6, ULE3010-55-6, ULE3011-48-4, ULE3014-55-6, ULE3016-55-4, ULE3017-55-4, ULE3020-55-6, ULE3021-55-8, ULE3021-55-10 and ULE3026-35-4.

Buff files (needle files).



ULAC2401 Pillar



| ULAC | G10 | L mm | AxB mm |
|----------|--------------|------|-----------|
| 2401-140 | 2401-140-G10 | 140 | 4.8 x 1.0 |



ULAC2402 Halfround



| ULAC | G10 | L mm | AxB mm |
|----------|--------------|------|-----------|
| 2402-140 | 2402-140-G10 | 140 | 5.1 x 1.6 |



ULAC2403 Crossing



| ULAC | G10 | L mm | AxB mm |
|----------|--------------|------|-----------|
| 2403-140 | 2403-140-G10 | 140 | 4.4 x 1.8 |



ULAC2407 Triangular



| ULAC | G10 | L mm | A mm |
|----------|--------------|------|------|
| 2407-140 | 2407-140-G10 | 140 | 3.5 |



ULAC2408 Square



| ULAC | G10 | L mm | A mm |
|----------|--------------|------|------|
| 2408-140 | 2408-140-G10 | 140 | 2.2 |



ULAC2410 Round

| ULAC | G10 | L mm | A mm |
|----------|--------------|------|------|
| 2410-140 | 2410-140-G10 | 140 | 2.8 |



ULAC2411 Barrette

| ULAC | G10 | L mm | AxB mm |
|----------|--------------|------|-----------|
| 2411-140 | 2411-140-G10 | 140 | 4.7 x 1.4 |



| ULAC | G10 | L mm | Kg |
|------|--------------|------|----|
| 2462 | 2462-140-G10 | 140 | ? |

Assortment of 6 buff files ULAC2462 :

ULAC2401, ULAC2402, ULAC2403, ULAC2407, ULAC2410 and ULAC2411.

ASSORTMENT

Buff files (escapement files).



ULEC3008 Halfround

| ULEC | G10 | L mm | AxB mm |
|---------|-------------|------|-----------|
| 3008-55 | 3008-55-G10 | 55 | 4.0 x 1.3 |



ULEC3009 Crossing

| ULEC | G10 | L mm | AxB mm |
|---------|-------------|------|-----------|
| 3009-55 | 3009-55-G10 | 55 | 3.7 x 1.4 |



ULEC3010 Barrette

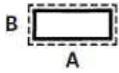
| ULEC | G10 | L mm | AxB mm |
|---------|-------------|------|-----------|
| 3010-55 | 3010-55-G10 | 55 | 3.9 x 1.2 |



ULEC3014 Triangular



| ULEC | G10 | L mm | A mm |
|---------|-------------|------|------|
| 3014-55 | 3014-55-G10 | 55 | 2.8 |



ULEC3017 Pillar



| ULEC | G10 | L mm | AxB mm |
|---------|-------------|------|-----------|
| 3017-55 | 3017-55-G10 | 55 | 3.6 x 0.8 |



ULEC3020 Square



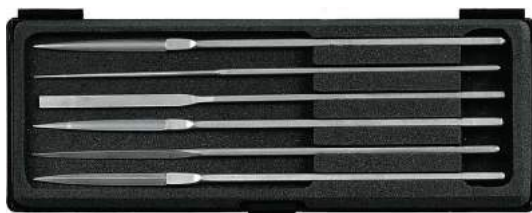
| ULEC | G10 | L mm | A mm |
|---------|-------------|------|------|
| 3020-55 | 3020-55-G10 | 55 | 1.7 |



ULEC3021 Round



| ULEC | G10 | L mm | A mm |
|---------|-------------|------|------|
| 3021-55 | 3021-55-G10 | 55 | 1.5 |

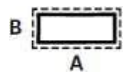


| ULEC | G10 | L mm | Kg |
|------|-------------|------|-------|
| 3062 | 3062-55-G10 | 55 | 0.026 |

Assortment of 6 buff files ULEC3062 :

ULEC3008, ULEC3009, ULEC3010, ULEC3014, ULEC3017 and ULEC3021.

Diamond needle files.



UDA8401 Pillar



| UDA | 91 | 126 | L mm | AxB mm |
|------|---------|----------|------|-----------|
| 8401 | 8401-91 | 8401-126 | 140 | 4.8 x 1.1 |



UDA8402 Halfround



| UDA | 91 | 126 | L mm | AxB mm |
|------|---------|----------|------|-----------|
| 8402 | 8402-91 | 8402-126 | 140 | 5.1 x 1.5 |



UDA8407 Triangular



| UDA | 91 | 126 | L mm | A mm |
|------|---------|----------|------|------|
| 8407 | 8407-91 | 8407-126 | 140 | 3.5 |



UDA8408 Square



| UDA | G10 | 91 | L mm | A mm |
|------|---------|----------|------|------|
| 8408 | 8408-91 | 8408-126 | 140 | 2.2 |



UDA8410 Round



| UDA | 91 | 126 | L mm | A mm |
|------|---------|----------|------|------|
| 8410 | 8410-91 | 8410-126 | 140 | 2.8 |



UDA8411



| UDA | 91 | 126 | L mm | AxB mm |
|------|----|----------|------|-----------|
| 8411 | - | 8411-126 | 140 | 4.7 x 1.7 |



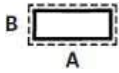
ASSORTMENT

| UDA | 91 | 126 | L mm | Kg |
|------|---------|----------|------|-------|
| 8432 | 8432-91 | 8432-126 | 140 | 0.035 |

Assortment of 5 diamond needle files UDA8432 :

UDA8401, UDA8402, UDA8407, UDA8408 and UDA8410.

DIAMOND FILES - UDA



UDA9401 Pillar



| UDA | 91 | L mm | AxB mm |
|------|---------|------|-----------|
| 9401 | 9401-91 | 140 | 4.8 x 1.1 |



UDA9402 Halfround



| UDA | 91 | L mm | AxB mm |
|------|---------|------|-----------|
| 9402 | 9402-91 | 140 | 5.1 x 1.5 |



UDA9407 Triangular



| UDA | 91 | L mm | A mm |
|------|---------|------|------|
| 9407 | 9407-91 | 140 | 3.5 |



UDA9408 Square



| UDA | 91 | L mm | A mm |
|------|---------|------|------|
| 9408 | 9408-91 | 140 | 2.2 |



UDA9410 Round



| UDA | 91 | L mm | A mm |
|------|---------|------|------|
| 9410 | 9410-91 | 140 | 2.8 |

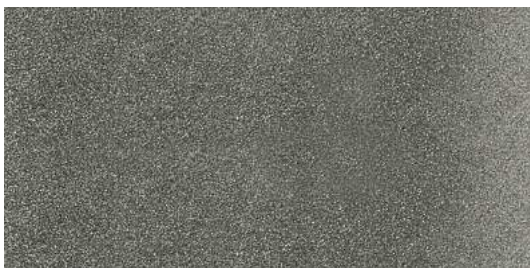


ASSORTMENT

| UDA | 91 | L mm | Kg |
|------|---------|------|-------|
| 9470 | 9470-91 | 140 | 0.035 |

Assortment of 5 diamond needle files UDA9470 :
UDA9401, UDA9402, UDA9407, UDA9408 and UDA9410.

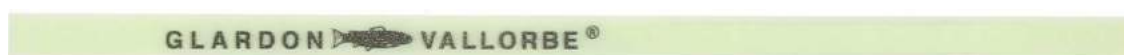
Diamond foils.



| UDD | Grit | Size | Kg |
|-----------|------|-------------|-------|
| 8800-300 | 300 | 100 x 50 mm | 0.001 |
| 8800-600 | 600 | 100 x 50 mm | 0.001 |
| 8800-1000 | 1000 | 100 x 50 mm | 0.001 |

VALDIAMOND diamond foil.
Grains 300 and 600 : universal use
Grain 1000 : for finishing

Ceramic fibre files.



ULF0502 - ULF1002 - ULF0504 - ULF1004 Pillar (grain 120...800)

| ULF | Grit 120 | Grit 220 | Grit 300 | Grit 400 | Grit 600 | Grit 800 | L mm | AxB mm |
|------|------------|------------|------------|------------|------------|------------|------|-----------|
| 0502 | - | - | 0502-M-300 | 0502-M-400 | 0502-M-600 | 0502-M-800 | 100 | 2.0 x 0.5 |
| 1002 | 1002-M-120 | 1002-M-220 | 1002-M-300 | 1002-M-400 | 1002-M-600 | 1002-M-800 | 100 | 2.0 x 1.0 |
| 0504 | - | 0504-M-220 | 0504-M-300 | 0504-M-400 | 0504-M-600 | 0504-M-800 | 100 | 4.0 x 0.5 |
| 1004 | 1004-M-120 | 1004-M-220 | 1004-M-300 | 1004-M-400 | 1004-M-600 | 1004-M-800 | 100 | 4.0 x 1.0 |



ULF0502 - ULF1002 - ULF0504 - ULF1004 Pillar (grain 1000...3000)

| ULF | Grit 1000 | Grit 1200 | Grit 1500 | Grit 2000 | Grit 3000 | L mm | AxB mm |
|------|-------------|-------------|-------------|-------------|-------------|------|-----------|
| 0502 | 0502-M-1000 | 0502-M-1200 | - | - | - | 100 | 2.0 x 0.5 |
| 1002 | 1002-M-1000 | 1002-M-1200 | 1002-M-1500 | 1002-M-2000 | 1002-M-3000 | 100 | 2.0 x 1.0 |
| 0504 | 0504-M-1000 | 0504-M-1200 | - | - | - | 100 | 4.0 x 0.5 |
| 1004 | 1004-M-1000 | 1004-M-1200 | 1004-M-1500 | - | - | 100 | 4.0 x 1.0 |



ULF234 - ULF30 Round (grain 220...800)

| ULF | Grit 120 | Grit 220 | Grit 300 | Grit 400 | Grit 600 | Grit 800 | L mm | A mm |
|-----|----------|-----------|-----------|-----------|-----------|-----------|------|------|
| 234 | - | 234-S-220 | 234-S-300 | 234-S-400 | 234-S-600 | 234-S-800 | 50 | 2.34 |
| 30 | - | 30-S-220 | 30-S-300 | 30-S-400 | 30-S-600 | 30-S-800 | 50 | 3.0 |



ULF234 - ULF30 Round (grain 1000...1200)

| ULF | Grit 1000 | Grit 1200 | Grit 1500 | Grit 2000 | Grit 3000 | L mm | A mm |
|-----|------------|------------|-----------|-----------|-----------|------|------|
| 234 | 234-S-1000 | 234-S-1200 | - | - | - | 50 | 2.34 |
| 30 | 30-S-1000 | 30-S-1200 | - | - | - | 50 | 3.0 |



ULF0505 - ULF0909 - ULF1001 Square (grain 220...800)

| ULF | Grit 120 | Grit 220 | Grit 300 | Grit 400 | Grit 600 | Grit 800 | L mm | A mm |
|------|----------|------------|------------|------------|------------|------------|------|------|
| 0505 | - | - | - | - | - | 0505-S-800 | 50 | 0.5 |
| 0909 | - | - | - | - | - | 0909-S-800 | 50 | 0.9 |
| 1001 | - | 1001-M-220 | 1001-M-300 | 1001-M-400 | 1001-M-600 | 1001-M-800 | 100 | 1.0 |



ULF0505 - ULF0909 - ULF1001 Square (grain 1000...3000)

| ULF | Grit 1000 | Grit 1200 | Grit 1500 | Grit 2000 | Grit 3000 | L mm | A mm |
|------|-------------|-------------|-------------|-------------|-------------|------|------|
| 0505 | - | 0505-S-1200 | - | - | - | 50 | 0.5 |
| 0909 | - | 0909-S-1200 | - | - | - | 50 | 0.9 |
| 1001 | 1001-M-1000 | 1001-M-1200 | 1001-M-1500 | 1001-M-2000 | 1001-M-3000 | 100 | 1.0 |

Gravers.



ULO0401 Flat edge

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|---------|---------------|--------------|------|
| 0401-2 | 0401-2-HSS | 0401-2-WS | 0.2 |
| 0401-4 | 0401-4-HSS | 0401-4-WS | 0.4 |
| 0401-6 | 0401-6-HSS | 0401-6-WS | 0.6 |
| 0401-8 | 0401-8-HSS | 0401-8-WS | 0.8 |
| 0401-10 | 0401-10-HSS | 0401-10-WS | 1.0 |
| 0401-12 | 0401-12-HSS | 0401-12-WS | 1.2 |
| 0401-14 | 0401-14-HSS | 0401-14-WS | 1.4 |
| 0401-16 | 0401-16-HSS | 0401-16-WS | 1.6 |
| 0401-18 | 0401-18-HSS | - | 1.8 |
| 0401-20 | 0401-20-HSS | - | 2.0 |



ULO0402 Round edge

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|---------|---------------|--------------|------|
| 0402-2 | 0402-2-HSS | 0402-2-WS | 0.2 |
| 0402-4 | 0402-4-HSS | 0402-4-WS | 0.4 |
| 0402-6 | 0402-6-HSS | 0402-6-WS | 0.6 |
| 0402-8 | 0402-8-HSS | 0402-8-WS | 0.8 |
| 0402-10 | 0402-10-HSS | 0402-10-WS | 1.0 |
| 0402-12 | 0402-12-HSS | 0402-12-WS | 1.2 |
| 0402-16 | 0402-16-HSS | - | 1.6 |



ULO0403 Onglette

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|----------|---------------|--------------|------|
| 0403-5/0 | 0403-5/0-HSS | - | 1.16 |
| 0403-4/0 | 0403-4/0-HSS | - | 1.24 |
| 0403-3/0 | 0403-3/0-HSS | - | 1.35 |
| 0403-2/0 | 0403-2/0-HSS | 0403-2/0-WS | 1.45 |
| 0403-0 | 0403-0-HSS | 0403-0-WS | 1.58 |
| 0403-1 | 0403-1-HSS | 0403-1-WS | 1.78 |
| 0403-2 | 0403-2-HSS | 0403-2-WS | 1.94 |
| 0403-3 | 0403-3-HSS | 0403-3-WS | 2.16 |
| 0403-4 | 0403-4-HSS | 0403-4-WS | 2.54 |
| 0403-5 | 0403-5-HSS | - | 2.74 |
| 0403-6 | 0403-6-HSS | - | 2.94 |
| 0403-8 | 0403-8-HSS | - | 3.36 |

GRAVERS / WATCHMAKERS' GRAVERS - ULO



ULO0406 Knife

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|---------|---------------|--------------|------|
| 0406-18 | 0406-18-HSS | 0406-18-WS | 1.8 |
| 0406-20 | 0406-20-HSS | 0406-20-WS | 2.0 |
| 0406-22 | 0406-22-HSS | 0406-22-WS | 2.2 |
| 0406-24 | 0406-24-HSS | - | 2.4 |
| 0406-26 | 0406-26-HSS | 0406-26-WS | 2.6 |
| 0406-30 | - | 0406-30-WS | 3.0 |



ULO0404 Oval

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|---------|---------------|--------------|------|
| 0404-21 | - | 0404-21 | 2.1 |



ULO0405 Bevelled

| ULO | HSS L = 65 mm | WS L = 80 mm | A mm |
|---------|---------------|--------------|------|
| 0405-12 | - | 0405-12 | 1.2 |

Watchmakers' gravers.



ULO0501 Square

| ULO | HSS L = 110 mm | WS L = 110 mm | A mm |
|-----------|----------------|---------------|------|
| 0501-1.50 | - | 0501-1.50-WS | 1.5 |
| 0501-2 | - | 0501-2-WS | 2.0 |
| 0501-2.25 | 0501-2.25-HSS | - | 2.25 |
| 0501-2.5 | 0501-2.5-HSS | 0501-2.5-WS | 5.5 |
| 0501-2.75 | 0501-2.75-HSS | - | 2.75 |
| 0501-3 | 0501-3-HSS | 0501-3-WS | 3.0 |
| 0501-3.5 | 0501-3.5-HSS | - | 3.5 |
| 0501-4 | 0501-4-HSS | - | 4.0 |



ULO0502 Lozenge

| ULO | HSS L = 110 mm | WS L = 110 mm | A mm |
|-----------|----------------|---------------|------|
| 0502-1.75 | - | 0502-1.75 | 1.75 |
| 0502-2 | - | 0502-2 | 2.0 |
| 0502-2.5 | - | 0502-2.5 | 2.5 |

Scrapers.



ULO0653 Triangular

| ULO | L mm | A mm |
|--------|------|------|
| 0653-2 | 50 | 5.0 |
| 0653-3 | 75 | 7.0 |



ULO0655 Incurved

| ULO | L mm | A mm |
|--------|------|------|
| 0655-2 | 50 | 6.0 |

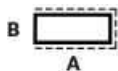
Burnishers.



ULO0788 Oval straight

| ULO | L mm | AxB mm |
|--------|------|-----------|
| 0788-3 | 75 | 6.5 x 3.5 |
| 0788-4 | 100 | 8.0 x 4.2 |

HABILIS® files.



ULH2601 Pillar

| ULH | 00 | 1 | L mm | AxB mm |
|------|---------|--------|------|------------|
| 2601 | 2601-00 | 2601-1 | 215 | 10.0 x 2.6 |



ULH2602 Halfround

| ULH | 00 | 1 | L mm | AxB mm |
|------|---------|--------|------|------------|
| 2602 | 2602-00 | 2602-1 | 215 | 12.2 x 3.4 |



ULH2607 Triangular

| ULH | 00 | 1 | L mm | A mm |
|------|---------|--------|------|------|
| 2607 | 2607-00 | 2607-1 | 215 | 9.5 |



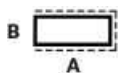
ULH2608 Square

| ULH | 00 | 1 | L mm | A mm |
|------|---------|--------|------|------|
| 2608 | 2608-00 | 2608-1 | 215 | 6 |



ULH2610 Round

| ULH | 00 | 1 | L mm | A mm |
|------|---------|--------|------|------|
| 2610 | 2610-00 | 2610-1 | 215 | 6.5 |



ULH2901 Pillar Multifile

| ULH | 00 | 1 | L mm | AxB mm |
|------|---------|---|------|------------|
| 2901 | 2901-00 | - | 215 | 10.0 x 3.2 |



| ULH | 00 | 1 | L mm | Kg |
|------|---------|--------|------|-------|
| 2627 | 2627-00 | 2627-1 | 215 | 0.233 |

Assortment of 5 HABILIS® files ULH2627 :

ULH2601, ULH2602, ULH2607, ULH2608 and ULH2610.

ASSORTMENT (BLISTER)



ASSORTMENT (POUCH)

| ULH | 00 | 1 | L mm | Kg |
|------|---------|--------|------|-------|
| 2630 | 2630-00 | 2630-1 | 215 | 0.233 |

Assortment of 5 HABILIS® files ULH2630 :
 ULH2601, ULH2602, ULH2607, ULH2608 and ULH2610.

VALTITAN® files.



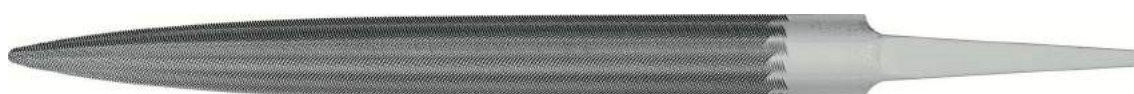
ULPV1163 Hand

| ULPV | 000 | 00 | 0 | 2 | L mm | AxB mm |
|---------|-------------|------------|-----------|----------|------|------------|
| 1163-6 | - | 1163-6-00 | 1163-6-0 | 1163-6-2 | 150 | 18.5 x 4.0 |
| 1163-8 | - | 1163-8-00 | 1163-8-0 | 1163-8-2 | 200 | 21.3 x 4.8 |
| 1163-10 | 1163-10-000 | 1163-10-00 | 1163-10-0 | - | 250 | 25.3 x 6.3 |



ULPV1132 Pillar 2 sides

| ULPV | 0 | 2 | L mm | AxB mm |
|--------|----------|----------|------|------------|
| 1132-6 | 1132-6-0 | 1132-6-2 | 150 | 12.0 x 4.0 |
| 1132-8 | 1132-8-0 | 1132-8-2 | 200 | 14.5 x 4.5 |



ULPV1560 Halfround

| ULPV | 0 | 2 | L mm | AxB mm |
|--------|----------|----------|------|------------|
| 1560-6 | 1560-6-0 | 1560-6-2 | 150 | 15.1 x 4.7 |
| 1560-8 | 1560-8-0 | 1560-8-2 | 200 | 21.1 x 6.3 |



ULPV1360 Triangular

| ULPV | 0 | 2 | L mm | A mm |
|--------|----------|----------|------|------|
| 1360-8 | 1360-8-0 | 1360-8-2 | 200 | 14.2 |



ULPV1660 Pointed round

| ULPV | 2 | L mm | A mm |
|--------|----------|------|------|
| 1660-8 | 1660-8-2 | 200 | 7.8 |

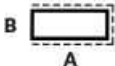
SPECIAL FILES - ULH / ULPV / ULAV / ULR / URA



ULPV1670 Round blunt



| ULPV | 0 | L mm | A mm |
|--------|----------|------|------|
| 1670-8 | 1670-8-0 | 200 | 7.5 |



ULPV1060 Barrette



| ULPV | 0 | L mm | AxB mm |
|--------|----------|------|------------|
| 1060-6 | 1060-6-0 | 150 | 15.5 x 3.5 |

VALTITAN® needle files.



ULAV2407 Triangular



| ULAV | 0 | 2 | L mm | A mm | Kg |
|----------|------------|------------|------|------|----|
| 2407-180 | 2407-180-0 | 2407-180-2 | 180 | 4.2 | ? |



ULAV2410 Round



| ULAV | 0 | 2 | L mm | A mm | Kg |
|----------|------------|------------|------|------|-------|
| 2410-180 | 2410-180-0 | 2410-180-2 | 180 | 3.2 | 0.009 |



ULAV2411 Barrette



| ULAV | 0 | L mm | AxB mm | Kg |
|----------|------------|------|-----------|-------|
| 2411-180 | 2411-180-0 | 180 | 5.4 x 2.0 | 0.011 |



ASSORTMENT (BLISTER)

| ULAV | 2 | L mm | Kg |
|------|--------|------|-------|
| 2465 | 2465-2 | 180 | 0.060 |

Assortment of 6 needle files ULAV2465 :

ULAV2401, ULAV2402, ULAV2407, ULAV2408, ULAV2410 and ULAV2411.



ASSORTMENT (POUCH)

| ULAV | 2 | L mm | Kg |
|------|--------|------|-------|
| 2495 | 2495-2 | 180 | 0.060 |

Assortment of 6 needle files ULAV2465 :

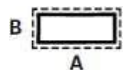
ULAV2401, ULAV2402, ULAV2407, ULAV2408, ULAV2410 and ULAV2411.

Rifflers 150 mm.



ULR12901 Barrette

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12901 | 12901-0 | 12901-2 | 150 | 3.8 x 1.2 |



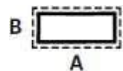
ULR12905 Pointed hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12905 | 12905-0 | 12905-2 | 150 | 2.0 x 1.2 |



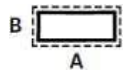
ULR12910 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12910 | 12910-0 | 12910-2 | 150 | 2.0 x 1.2 |



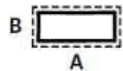
ULR12911 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12911 | 12911-0 | 12911-2 | 150 | 2.0 x 1.2 |



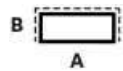
ULR12912 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12912 | 12912-0 | 12912-2 | 150 | 2.6 x 1.5 |



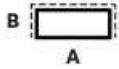
ULR12913 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12913 | 12913-0 | 12913-2 | 150 | 2.6 x 1.5 |



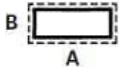
ULR12914 Pointed hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12914 | 12914-0 | 12914-2 | 150 | 3.4 x 1.5 |



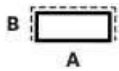
ULR12915 Pointed hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12915 | 12915-0 | 12915-2 | 150 | 3.4 x 1.5 |



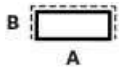
ULR12916 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---|---------|------|-----------|
| 12916 | - | 12916-2 | 150 | 3.0 x 3.0 |



ULR12917 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12917 | 12917-0 | 12917-2 | 150 | 3.0 x 3.0 |



ULR12918 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12918 | 12918-0 | 12918-2 | 150 | 3.8 x 1.6 |



ULR12930 Square

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12930 | 12930-0 | 12930-2 | 150 | 2.5 |



ULR12940 Triangular

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12940 | 12940-0 | 12940-2 | 150 | 2.0 |



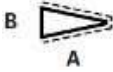
ULR12942 Triangular

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12942 | 12942-0 | 12942-2 | 150 | 3.0 |



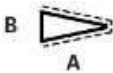
ULR12943 Triangular

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12943 | 12943-0 | 12943-2 | 150 | 3.4 |



ULR12951 Knife

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12951 | 12951-0 | 12951-2 | 150 | 4.4 x 1.2 |



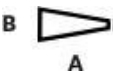
ULR12952 Knife

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12952 | 12952-0 | 12952-2 | 150 | 4.4 x 1.2 |



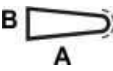
ULR12955 Pippin

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12955 | 12955-0 | 12955-2 | 150 | 4.7 x 1.3 |



ULR12956 Knife flat edge

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12956 | 12956-0 | 12956-2 | 150 | 4.4 x 1.2 |



ULR12957 Knife round edge

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12957 | 12957-0 | 12957-2 | 150 | 4.4 x 1.2 |



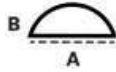
ULR 12961 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12961 | 12961-0 | 12961-2 | 150 | 4.5 x 2.2 |



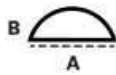
ULR12963 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12963 | 12963-0 | 12963-2 | 150 | 4.6 x 1.5 |



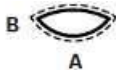
ULR12964 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12964 | 12964-0 | 12964-2 | 150 | 4.6 x 1.4 |



ULR12965 Halfround cut on hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12965 | 12965-0 | 12965-2 | 150 | 5.0 x 1.9 |



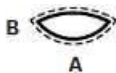
ULR12970 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12970 | 12970-0 | 12970-2 | 150 | 1.7 x 1.2 |



ULR12972 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12972 | 12972-0 | 12972-2 | 150 | 3.8 x 1.8 |



ULR12973 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12973 | 12973-0 | 12973-2 | 150 | 3.8 x 1.8 |



ULR12974 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12974 | 12974-0 | 12974-2 | 150 | 3.8 x 1.8 |



ULR12975 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12975 | 12975-0 | 12975-2 | 150 | 4.0 x 1.9 |



ULR12981 Round

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12981 | 12981-0 | 12981-2 | 150 | 3.1 |



ULR12982 Pompon

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12982 | 12982-0 | 12982-2 | 150 | 3.0 |



ULR12983 Round

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12983 | 12983-0 | 12983-2 | 150 | 3.2 |



ULR12984 Round

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12984 | 12984-0 | 12984-2 | 150 | 3.1 |



ULR12985 Round

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12985 | 12985-0 | 12985-2 | 150 | 3.2 |



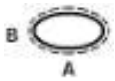
ULR12986 Round

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12986 | 12986-0 | 12986-2 | 150 | 2.6 |



ULR12987 Round

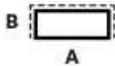
| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12987 | 12987-0 | 12987-2 | 150 | 3.2 |



ULR12996 Oval

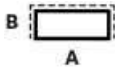
| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12996 | 12996-0 | 12996-2 | 150 | 1.9 x 1.4 |

Rifflers 180 mm.



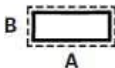
ULR12710 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12710 | 12710-0 | 12710-2 | 180 | 8.3 x 2.4 |



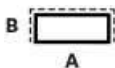
ULR12711 Hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12711 | 12711-0 | 12711-2 | 180 | 8.3 x 2.4 |



ULR12712 Pointed hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12712 | 12712-0 | 12712-2 | 180 | 8.3 x 2.4 |



ULR12713 Warding

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12713 | 12713-0 | 12713-2 | 180 | 8.3 x 2.4 |



ULR12731 Square

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12731 | 12731-0 | 12731-2 | 180 | 4.8 |



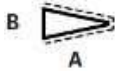
ULR12732 Square

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12732 | 12732-0 | 12732-2 | 180 | 4.6 |



ULR12741 Triangular

| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12741 | 12741-0 | 12741-2 | 180 | 7.4 |



ULR12750 Knife

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|------------|
| 12750 | 12750-0 | 12750-2 | 180 | 10.4 x 2.7 |



ULR12761 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12761 | 12761-0 | 12761-2 | 180 | 9.5 x 3.8 |



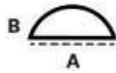
ULR12762 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12762 | 12762-0 | 12762-2 | 180 | 9.0 x 3.7 |



ULR12763 Halfround

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12763 | 12763-0 | 12763-2 | 180 | 9.2 x 3.6 |



ULR12764 Halfround cut on hand

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---------|---------|------|-----------|
| 12764 | 12764-0 | 12764-2 | 180 | 9.2 x 3.6 |



ULR12771 Crossing

| ULR | 0 | 2 | L mm | AxB mm |
|-------|---|---------|------|-----------|
| 12771 | - | 12771-2 | 180 | 7.8 x 4.1 |



ULR12781 Round

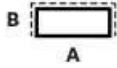
| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|------|
| 12781 | 12781-0 | 12781-2 | 180 | 4.8 |



ULR12790 Pippin

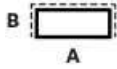
| ULR | 0 | 2 | L mm | A mm |
|-------|---------|---------|------|-----------|
| 12790 | 12790-0 | 12790-2 | 180 | 8.0 x 4.0 |

Rifflers 300 mm.



ULR12410 Hand

| ULR | 00 | 0 | L mm | AxB mm |
|-------|----------|---------|------|------------|
| 12410 | 12410-00 | 12410-0 | 300 | 12.8 x 4.0 |



ULR12411 Hand

| ULR | 00 | 0 | L mm | AxB mm |
|-------|----------|---------|------|------------|
| 12411 | 12411-00 | 12411-0 | 300 | 12.8 x 4.0 |



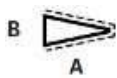
ULR12430 Square

| ULR | 00 | 0 | L mm | A mm |
|-------|----------|---------|------|------|
| 12430 | 12430-00 | 12430-0 | 300 | 7.5 |



ULR12440 Triangular

| ULR | 00 | 0 | L mm | A mm |
|-------|----------|---------|------|------|
| 12440 | 12440-00 | 12440-0 | 300 | 10.5 |



ULR12450 Knife

| ULR | 00 | 0 | L mm | AxB mm |
|-------|----|---------|------|------------|
| 12450 | - | 12450-0 | 300 | 14.5 x 3.8 |



ULR12460 Halfround

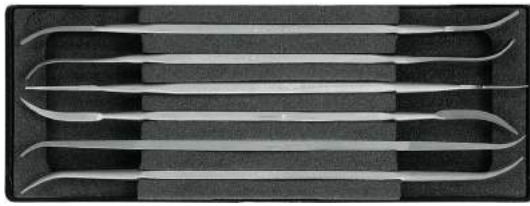
| ULR | 00 | 0 | L mm | AxB mm |
|-------|----------|---------|------|------------|
| 12460 | 12460-00 | 12460-0 | 300 | 15.4 x 5.4 |



ULR12480 Round

| ULR | 00 | 0 | L mm | A mm |
|-------|----------|---------|------|------|
| 12480 | 12480-00 | 12480-0 | 300 | 7.5 |

Assortments of rifflers 150 and 180 mm.



ASSORTMENT

| ULR | 0 | 2 | L mm | Kg |
|-------|---------|---------|------|-------|
| 12156 | 12156-0 | 12156-2 | 150 | 0.093 |

Assortment of 6 rifflers ULR2156 :

ULR12915, ULR12930, ULR12942, ULR12952, ULR12963 and ULR12981.



ASSORTMENT

| ULR | 0 | 2 | L mm | Kg |
|-------|---------|---------|------|-------|
| 12186 | 12186-0 | 12186-2 | 180 | 0.147 |

Assortment of 6 rifflers ULR2186 :

ULR12711, ULR12731, ULR12741, ULR12750, ULR12763 and ULR12781.

Precision rasps.

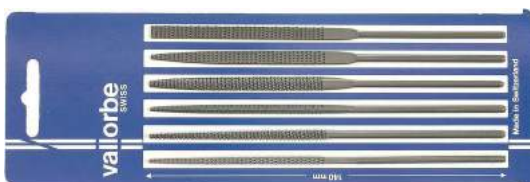


URA5190 Round



| URA | 2 | L mm | A mm |
|---------|-----------|------|------|
| 5190-8 | 5190-8-2 | 200 | 8 |
| 5190-10 | 5190-10-2 | 250 | 10 |

Rasps (needle files).



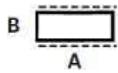
ASSORTMENT (BLISTER)

| URA | 4 | L mm | Kg |
|----------|------------|------|-------|
| 2526-140 | 2526-140-4 | 140 | 0.040 |

Assortment of 6 rasps (needle files) URA2526 :

URA2501, URA2502, URA2506, URA2507, URA2508 and URA2510.

HABILIS® rasps.



URA2701 Pillar

| URA | 3 | L mm | AxB mm |
|------|--------|------|------------|
| 2701 | 2701-3 | 205 | 10.0 x 3.1 |



URA2702 Halfround

| URA | 3 | L mm | AxB mm |
|------|--------|------|------------|
| 2702 | 2702-3 | 205 | 12.2 x 3.6 |



URA2707 Triangular

| URA | 3 | L mm | A mm |
|------|--------|------|------|
| 2707 | 2707-3 | 205 | 10.3 |



URA2708 Square

| URA | 3 | L mm | A mm |
|------|--------|------|------|
| 2708 | 2708-3 | 205 | 7 |



URA 2710 Round

| URA | 3 | L mm | A mm |
|------|--------|------|------|
| 2710 | 2710-3 | 205 | 7 |



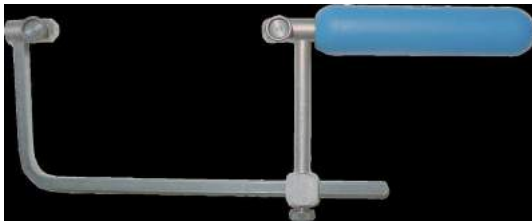
| URA | 3 | L mm | Kg |
|------|--------|------|-------|
| 2727 | 2727-3 | 205 | 0.261 |

Assortment of 6 HABILIS® rasps URA2727 :

URA2701, URA2702, URA2707, URA2708 and URA2710.

ASSORTMENT (BLISTER)

Frames for jeweller's saw blades.



| UASB | Depth | Kg |
|------|-------|-------|
| 400 | 75 mm | 0.170 |

Frame for jeweller's saw blades.

Files handles.



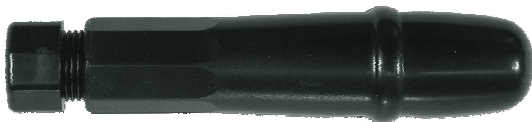
| UAL | □ | ○ | ◐ | ▲ | ◀▶ | ▬ | L mm | Kg |
|----------|--------|--------|-----|--------|-----|-----|--------|-------|
| 110-BLEU | - | 4" | - | 4" | - | - | 94 mm | 0.039 |
| 210-BLEU | 4-5" | 5-6" | - | 5" | - | - | 94 mm | 0.041 |
| 310-BLEU | 4-6" | - | 4" | 6" | 4" | 4" | 94 mm | 0.042 |
| 410-BLEU | 8" | 8" | 6" | 8" | 6" | 6" | 105 mm | 0.045 |
| 510-BLEU | 8-10" | 10-12" | 8" | 10" | 8" | 8" | 105 mm | 0.052 |
| 610-BLEU | 10-12" | - | 10" | 10-12" | 10" | 10" | 121 mm | 0.082 |
| 710-BLEU | - | - | 12" | - | 12" | 12" | 130 mm | 0.094 |

Antislip plastic handle with hardened threaded insert.



| UAL | Ø | L mm | Kg |
|-----|--------|-------|-------|
| 160 | 2-3 mm | 95 mm | 0.028 |
| 260 | 3-4 mm | 95 mm | 0.028 |

Precision handle for needle files.



| UAL | L mm | Kg |
|-----|-------|-------|
| 170 | 86 mm | 0.015 |

Handle for needle files.



| UAL | □ | ○ | ◐ | ▲ | ▬ | L mm | Kg |
|-----|-----|-----|-------|-----|-------|--------|-------|
| 200 | - | - | 4" | - | 4" | 80 mm | 0.020 |
| 400 | 6" | 6" | 5" | 6" | 5" | 100 mm | 0.025 |
| 500 | 8" | 8" | 6" | 8" | 6" | 115 mm | 0.040 |
| 600 | 10" | 10" | 8-10" | 10" | 8-10" | 125 mm | 0.055 |

Wooden files handle.

Handles for ceramic fibre files.



| UALF | | For files | Kg |
|------|-----|-------------|-------|
| 105 | (1) | A = 0.5 mm | 0.010 |
| 109 | | A = 0.9 mm | 0.010 |
| 202 | (2) | A = 2.34 mm | 0.010 |
| 203 | (3) | A = 3.0 mm | 0.013 |
| 301 | (4) | A = 1 mm | 0.010 |
| 302 | | A = 2 mm | 0.010 |
| 304 | | A = 4 mm | 0.011 |

Handle for ceramic fibre files.

NOTES

Lined area for notes, consisting of 20 horizontal lines.

NOTES

Lined area for notes with horizontal lines and a black circle on the left margin.

NUMERICAL INDEX

| | | | | | | | |
|-------------------|--------------|-----------------|-------------|---------------------|-------------------|-----------------------|--------------------|
| MSA00. | P. | MSA01. | P. | MSA02. | P. | MSA04. | P. |
| 00.001-x | 00-2 | 01.014 | 01-12 | 02.099 | 02-5 | 04.420-x | 04-6 |
| 00.002-x | 00-3 | 01.018-x | 01-7 | 02.100-x | 02-8 | 04.450-x | 04-6 |
| 00.002-Lx | 00-3 | 01.019-x | 01-7 | 02.150...02.153 | 02-10 | 04.524-x | 04-7 |
| 00.003-x | 00-4 | 01.051 | 01-16 | 02.155 | 02-10 | 04.525-x | 04-8 |
| 00.004-x | 00-5 | 01.095 | 01-10 | 02.160...02.162 | 02-10 | 04.526-x | 04-7 |
| 00.006-x | 00-5 | 01.095-Z | 01-10 | 02.170-x | 02-9 | 04.540-x...04.542-x | 04-8 |
| 00.007 | 00-5 | 01.099-x | 01-9 | 02.220 | 02-12 | 04.550-x | 04-8 |
| 00.008-x | 00-4 | 01.100 | 01-8 | 02.221 | 02-12 | | |
| 00.009-x | 00-3 | 01.101-x | 01-8 | 02.250-x | 02-11 | | |
| 00.010-x | 00-5 | 01.101-V | 01-9, 01-11 | | | MSA05. | P. |
| 00.012-x | 00-8 | 01.102-x | 01-9 | MSA03. | P. | 05.001 | 05-13 |
| 00.013-x | 00-8 | 01.103-x | 01-9 | 03.004 | 03-6 | 05.007...05.009 | 05-12 |
| 00.014 | 00-5 | 01.104 | 01-11 | 03.005 | 03-6 | 05.010...05.011-B | 05-2 |
| 00.023-x | 00-4 | 01.105-x | 01-11 | 03.005-x | 03-6 | 05.012...05.012-B | 05-3 |
| 00.025-x | 00-3 | 01.106-x | 01-11 | 03.006 | 03-10 | 05.013 + 05.014 | 05-12 |
| 00.026-x | 00-4 | 01.107-x | 01-13 | 03.010 | 03-10 | 05.015-x | 05-6 |
| 00.030-Lx | 00-2, 00-7 | 01.108-x | 01-13 | 03.010-x | 03-10 | 05.017-03 | 05-5 |
| 00.031-x | 00-2 | 01.108-x | 01-6 | 03.011 | 03-11 | 05.017-x | 05-4 |
| 00.032-x | 00-2 | 01.202-Tx | 01-6 | 03.012 | 03-11 | 05.019...05.019-B | 05-3 |
| 00.099D-x | 00-6 | 01.214 | 01-6 | 03.012 | 03-11 | 05.020 | 05-2 |
| 00.099G-x | 00-6 | 01.214-x | 01-6 | 03.014...03.018-x | 03-11 | 05.021 + 05.022 | 05-4 |
| 00.100 | 00-7 | 01.215-050 | 01-3, 01-9 | 03.101-x | 03-7 | 05.023 | 05-2 |
| 00.100D-x | 00-6 | 01.215-x | 01-3 | 03.102-x | 03-7 | 05.031...05.031-x | 05-3 |
| 00.100D-A1 | 00-7 | 01.216-050 | 01-4, 01-9 | 03.103-x | 03-7 | 05.050...05.050-x | 05-5 |
| 00.100G-x | 00-6 | 01.216-x | 01-4, 01-9 | 03.200 | 03-8 | 05.100...05.101-C | 05-8 |
| 00.103D-x | 00-7 | 01.218-x | 01-3 | 03.300 | 03-18 | 05.107 | 05-13 |
| 00.103G-x | 00-7 | 01.218-A | 01-3 | 03.300-A | 03-18 | 05.109 + 05.110 | 05-6 |
| 00.242 | 00-11 | 01.218-B | 01-5 | 03.301 | 03-19 | 05.110-x | 05-7 |
| 00.242-A | 00-11 | 01.218-C | 01-2 | 03.301-T | 03-19 | 05.111 | 05-6 |
| 00.245 | 00-11 | 01.218-D | 01-2 | 03.310 | 03-10 | 05.111-x | 05-7 |
| 00.245-B | 00-11 | 01.218-E | 01-2 | 03.414 | 03-7 | 05.112 | 05-6 |
| 00.246 | 00-10 | 01.218-F | 01-5 | 03.415 | 03-7 | 05.114 | 05-6 |
| 00.246-x | 00-10 | 01.218-G | 01-5 | 03.419 | 03-8 | 05.114-x | 05-7 |
| 00.250-x | 00-10 | 01.218-H | 01-5 | 03.419-x | 03-8 | 05.115...05.117 | 05-6 |
| 00.251-x | 00-10 | 01.218-Tx | 01-4 | 03.424 | 03-8 | 05.118...05.119-A | 05-7 |
| 00.252 | 00-10 | 01.218-V | 01-3 | 03.425-x | 03-12 | 05.128 + 05.128-01 | 05-11 |
| 00.255-x | 00-8 | 01.219-x | 01-4 | 03.452 | 03-12 | 05.128-x | 05-9, 05-10, 05-11 |
| 00.256-x | 00-9 | 01.220-x | 01-6 | 03.454 | 03-12 | 05.129 | 05-9 |
| 00.257-x | 00-9 | 01.221-x | 01-15 | 03.467...03.470 | 03-12 | 05.129-x | 05-9, 05-10, 05-11 |
| 00.258 | 00-9 | 01.222-x | 01-15 | 03.472...03.479 | 03-12 | 05.131...05.131-P | 05-10 |
| 00.259 | 00-9 | 01.225 | 01-16 | 03.481 | 03-12 | | |
| 00.280 | 00-11 | 01.300 | 01-8 | 03.483 | 03-13 | MSA06. | P. |
| 00.303 | 00-11 | 01.400-x | 01-14 | 03.484 | 03-12 | 06.050...06.052 | 07-5 |
| 00.304 | 00-11 | 01.401 | 01-16 | 03.600-x | 03-9 | 06.135 + 06.136 | 07-3 |
| 00.502 | 00-12 | 01.401-x | 01-16 | 03.602 | 03-9 | 06.150 + 06.151 | 07-4 |
| 00.505 | 00-12 | 01.403-x | 01-7 | 03.602-x | 03-9 | 06.152 | 07-5 |
| 00.506 | 00-12 | 01.418 | 01-7 | 03.604 | 03-5 | 06.210...06.210-x | 07-40 |
| 00.507 | 00-12 | 01.418-x | 01-7 | 03.620-x | 03-3, 03-4, 07-39 | 06.301-A...06.303-B | 07-40 |
| 00.512 | 00-12 | 01.500 | 01-17 | 03.621...03.623 | 03-3 | 06.305 + 06.306 | 07-40 |
| 00.608-x | 00-18 | 01.502-x | 01-17 | 03.653-x | 03-4 | 06.310...06.315 | 07-40 |
| 00.617-B | 00-18 | 01.504 | 01-17 | 03.654-x...03.657 | 03-5 | 06.505...06.505-x | 07-15 |
| 00.621 | 00-18 | 01.504-x | 01-17 | 03.665-x | 03-5 | 06.510...06.510-x | 07-15 |
| 00.627 | 00-18 | | | 03.666 | 03-4 | 06.511-A + 06.511-B | 07-14 |
| 00.646 | 00-19 | MSA02. | P. | 03.666-x | 03-4 | 06.520-4750 | 07-11, 07-13 |
| 00.646-A | 00-19 | 02.001-x | 02-2 | 03.670...03.675 | 03-8 | 06.520-5x...06.520-6x | 07-11 |
| 00.649 | 00-19 | 02.002-x | 02-3 | 03.676-x | 03-2 | 06.520-A | 07-9 |
| 00.650 | 00-17 | 02.003-x | 02-3 | 03.678-x...03.680-x | 03-2 | 06.520...06.520-4641 | 07-9 |
| 00.652...00.654 | 00-17 | 02.004 | 02-5 | 03.806 | 03-14 | 06.521-4x | 07-11, 07-13 |
| 00.655 | 00-18 | 02.005 | 02-3 | 03.806-x | 03-15 | 06.521-5x...06.521-6x | 07-11 |
| 00.656...00.656-x | 00-15 | 02.006-x | 02-6 | 03.838 | 03-17 | 06.521...06.521-3838 | 07-9 |
| 00.657 | 00-16 | 02.007 | 02-5 | 03.839-x | 03-16 | 06.522...06.522-6x | 07-10 |
| 00.659-x | 00-13, 00-14 | 02.008-x | 02-5 | 03.840-x | 03-16 | 06.523 | 07-10 |
| 00.660-x | 00-13 | 02.009 | 02-6 | 03.856-x | 02-7, 03-16 | 06.524 + 06.525 | 07-11 |
| 00.663 | 00-16 | 02.009-R | 02-6 | 03.856-x | 13-12, 13-13 | 06.526...06.526-x | 07-12 |
| 00.667 | 00-16 | 02.012 | 02-3 | 03.860 + 03.861 | 03-15 | 06.530...06.530-x | 07-14 |
| 00.668 | 00-13 | 02.014-x | 02-3 | 03.868...03.870 | 03-15 | | |
| 00.670...00.673 | 00-16 | 02.015 | 02-2 | 03.880 + 03.881 | 03-15 | MSA07. | P. |
| 00.675 | 00-13 | 02.016...02.018 | 02-4 | 03.890-x...03.891-x | 03-17 | 07.001 | 07-34 |
| 00.676 | 00-14 | 02.019 | 02-7 | 03.901...03.903 | 03-17 | 07.004...07.004-x | 07-34 |
| 00.677 | 00-15 | 02.019-x | 02-7 | 03.904...03.906 | 03-18 | 07.006-x | 07-35 |
| 00.682 | 00-20, 28-19 | 02.020-x | 02-4 | | | 07.007 | 07-34 |
| 00.683 | 00-20, 28-19 | 02.021 | 02-3 | MSA04. | P. | 07.009...07.009-x | 07-36 |
| 00.684 | 00-20 | 02.022-x | 02-6 | 04.001...04.004 | 04-2 | 07.010...07.012 | 07-39 |
| 00.685 | 00-17 | 02.023 | 02-7 | 04.006...04.008 | 04-2 | 07.013...07.014 | 07-29 |
| 00.686 | 00-17 | 02.025 | 02-4 | 04.010...04.012-B | 04-2 | 07.016 | 07-34 |
| | | 02.026 | 02-2 | 04.020 | 04-2 | 07.018...07.020 | 07-35 |
| | | 02.027 | 02-2 | 04.061...04.065 | 04-4 | 07.022 | 07-33 |
| | | 02.029 | 02-7 | 04.102...04.106 | 04-3, 18-4 | 07.024...07.025 | 07-35 |
| MSA01. | P. | 02.029-x | 02-7 | 04.200 + 04.210 | 04-3 | 07.026...07.026-x | 07-34 |
| 01.003 | 01-10 | 02.030 | 02-5 | 04.310-x | 04-5 | 07.031 | 07-38 |
| 01.004 | 01-12 | 02.035...02.037 | 02-4 | 04.311-075 | 04-5 | 07.050 | 07-17 |
| 01.005 | 01-15 | 02.050 | 02-5 | 04.315-x...04.316-x | 04-5 | 07.060...07.060-x | 07-2 |
| 01.008 | 01-13 | 02.098 | 02-5 | 04.402-x | 04-6 | 07.104 | 07-7, 07-8 |
| 01.013 | 01-10 | | | | | | |

| | | | | | | | |
|---------------------|---------------------|-----------------------|-------------|---------------------|---------------------|--------------------|---------------------|
| MSA07. | P. | MSA08. | P. | MSA10. | P. | MSA11. | P. |
| 07.105...07.105-x | 07-6 | 08.001...08.002-A | 08-3 | 10.510 | 10-3 | 11.851 | 11-11, 11-12 |
| 07.106 | 07-12 | 08.010 + 08.010-A | 08-4 | 10.510-A | 10-4 | 11.851 | 11-27, 11-28 |
| 07.106-1x | 07-7, 07-8, 07-12 | 08.104 + 08.104-A | 08-4 | 10.511 | 10-4 | 11.852 | 11-11, 11-12 |
| 07.106-2x | 07-7, 07-8, 07-12 | 08.502 + 08.503 | 08-5 | 10.513 | 08-5, 10-6 | 11.852 | 11-27, 11-28 |
| 07.106-3x | 07-7, 07-8, 07-12 | | | 10.519 | 08-5, 10-6 | 11.853 | 11-11, 11-12 |
| 07.106-4245 | 07-7, 07-8, 07-12 | | | 10.520 | 10-7 | 11.853 | 11-27, 11-28 |
| 07.106-4648 | 07-7, 07-8, 07-13 | MSA09. | P. | 10.523 | 07-2 | 11.854 + 11.855 | 11-11, 11-12, 11-27 |
| 07.106-4950 | 07-7, 07-8, 07-13 | 09.002...09.005 | 09-10 | 10.524 | 07-18, 07-19, 07-20 | 11.856 | 11-12, 11-27 |
| 07.106-5255 | 07-7, 07-8, 07-13 | 09.006 | 09-6 | 10.527 | 10-4 | 11.857 | 11-12, 11-28 |
| 07.106-5760 | 07-13 | 09.007 | 09-7 | 10.528...10.529-x | 10-5 | 11.859 | 11-17, 11-28 |
| 07.106-6265 | 07-13 | 09.010-00...09.010-19 | 09-2 | 10.531...10.531-A | 10-7 | 11.900...11.905 | 11-21 |
| | | 09.010-20 + | 09-5 | | | | |
| | | 09.010-20-V | | | | | |
| 07.106-U | 07-7, 07-8, 07-9 | 09.010-21 | 09-6 | 10.532...10.532-x | 10-8 | 11.906 | 11-20 |
| 07.106-U | 07-10, 07-12 | 09.010-22...09.010-23 | 09-2 | 10.533 | 10-4 | 11.907 | 11-22 |
| 07.107...07.108 | 07-13 | 09.010-24...09.010-26 | 09-8 | | | 11.908 | 11-21 |
| 07.110...07.110-X | 07-6 | 09.010-27 + 09.010-28 | 09-2 | MSA11. | P. | 11.909 + 11.910 | 11-20 |
| 07.111...07.111-x | 07-16 | 09.010-29 + 09.010-30 | 09-5 | 11.105 + 11.106 | 11-5 | 11.911 | 11-22 |
| 07.112 | 07-15 | 09.010-31 | 09-8 | 11.198 + 11.198-A | 11-24 | 11.920 + 11.921 | 11-18 |
| 07.113 | 07-16 | 09.010-32 | 09-2 | 11.199 | 11-13 | 11.924 | 11-19 |
| 07.114 + 07.114-A | 07-36 | 09.010-33...09.010-35 | 09-5 | 11.200-A | 11-13, 11-16 | 11.925 | 11-18 |
| 07.115-F | 07-38 | 09.010-36 | 09-2 | 11.200-A | 11-17, 11-28 | 11.928 | 11-18 |
| 07.115-G | 07-37 | 09.010-37 | 09-8 | 11.200-B + 11.200-C | 11-13 | 11.934 | 11-19 |
| 07.115...07.115-E | 07-37 | 09.010-38 | 09-5 | 11.201-A | 11-13, 11-16 | | |
| 07.116 | 07-16 | 09.010-39 | 09-4 | 11.201-A | 11-17, 11-28 | | |
| 07.117...07.117-A | 07-38 | 09.010-40 + 09.010-41 | 09-5 | 11.201-B + 13.201-C | 11-13 | MSA12. | P. |
| 07.119 + 07.119-C | 07-37 | 09.010-42 | 09-2 | 11.202-A | 11-14, 11-16 | 12.150 + 12.151 | 12-12 |
| 07.119-C | 07-37 | 09.010-43 | 09-6 | 11.202-A | 11-17, 11-28 | 12.300-x | 12-3, 12-4 |
| 07.130...07.130-C | 07-7, 07-8 | 09.010-44 | 09-7 | 11.202-B + 11.202-C | 11-14 | 12.300-x | 12-3, 12-6 |
| 07.131 | 07-7 | 09.010-45 + 09.010-46 | 09-2 | 11.203-x | 11-14 | 12.301-x | 12-1, 12-4 |
| 07.132 | 07-8 | 09.010-47 | 09-3 | 11.205-C | 11-15 | 12.301-x | 12-5, 12-6 |
| 07.160-A | 07-8 | 09.010-48 | 09-2 | 11.206-B + 11.207 | 11-15 | 12.301-x | 12-7, 12-10 |
| 07.170 + 07.170-A | 07-2 | 09.010-50 | 09-2 | 11.208-A + 11.209 | 11-16 | 12.301-x | 12-11 |
| 07.208...07.210 | 07-33 | 09.010-52 | 09-3 | 11.210 | 11-15, 11-17, 11-28 | 12.302-x | 12-3, 12-4 |
| 07.213...07.213-A | 07-33 | 09.010-53 | 09-4 | 11.211 | 11-15 | 12.302-x | 12-5, 12-6 |
| 07.305 + 07.305-A | 07-30, 07-31 | 09.010-54 | 09-7 | 11.212 | 11-16, 11-17, 11-28 | 12.302-x | 12-7, 12-10 |
| 07.307 | 07-30 | 09.010-55 | 09-3 | 11.213 | 11-16 | 12.302-x | 12-11 |
| 07.308 | 07-31 | 09.010-58 | 09-4 | 11.215 | 11-13 | 12.303-x | 12-4, 12-6, 12-7 |
| 07.311 | 07-19, 07-21 | 09.010-59 | 09-6 | 11.216 | 11-14 | 12.304-x | 12-5, 12-6, 12-7 |
| 07.311 | 07-30, 07-31 | 09.010-60...09.010-61 | 09-2 | 11.226 + 11.226-A | 11-24 | 12.305-x | 12-3 |
| 07.312 | 07-30 | 09.010-62 | 09-4 | 11.228 + 11.229 | 11-23 | 12.306-x | 12-6, 12-7 |
| 07.320 + 07.320-A | 07-24 | 09.010-63 | 09-7 | 11.230 + 11.230-A | 11-24 | 12.307-B5 | 12-6 |
| 07.320-A | 07-24 | 09.010-64 | 09-4 | 11.300 | 11-24 | 12.312-x | 12-8, 12-9, 12-11 |
| 07.322 | 07-28 | 09.010-67 | 09-2 | 11.705 + 11.706 | 11-23 | 12.380...12.390 | 12-2 |
| 07.323-A...07.323-D | 07-19, 07-20, 07-21 | 09.010-68 | 09-6 | 11.800-A | 11-2, 11-6, 11-8 | 12.398 | 12-18 |
| 07.323-A...07.323-D | 07-24, 07-26 | 09.011...09.011-x | 09-6 | 11.800-A | 11-25, 11-27 | 12.649-x | 12-19 |
| 07.323-E...07.323-F | 07-19, 07-20, 07-26 | 09.012 | 09-4 | 11.800-B | 11-2, 11-6 | 12.651-x | 12-18 |
| 07.325 | 07-21, 07-26 | 09.015-x | 09-9 | 11.800-B | 11-7, 11-25 | 12.662 | 12-18 |
| 07.325-x | 07-26 | 09.016-47 | 09-3 | 11.801-A | 11-3, 11-6, 11-8 | 12.710...12.715-A | 12-13 |
| 07.326-x | 07-30 | 09.017 + 09.018 | 09-3 | 11.801-A | 11-25, 11-27 | 12.721 + 12.721-A | 12-13 |
| 07.327 | 07-19, 07-21 | 09.020-x | 09-9 | 11.801-B | 11-3, 11-6, 11-7 | 12.722...12.725-A | 12-14 |
| 07.327 | 07-30, 07-31 | 09.021 | 09-9 | 11.801-B | 11-25, 11-26 | 12.726...12.729 | 12-12 |
| 07.327-x | 07-31 | 09.050-x | 09-8 | 11.802-A | 11-3, 11-6, 11-8 | 12.750 + 12.750-A | 12-13 |
| 07.330-x | 07-31 | 09.103 + 09.104 | 09-11 | 11.802-A | 11-25, 11-27 | 12.811-x | 12-14, 12-15, 12-16 |
| 07.331 | 07-32 | 09.300...09.303 | 09-12 | 11.802-B | 11-3, 11-6 | 12.812-x | 12-14, 12-15, 12-16 |
| 07.333 | 07-18, 07-19, 07-25 | 09.304 | 09-13 | 11.802-B | 11-7, 11-25 | 12.813-x | 12-16 |
| 07.333-x | 07-25 | 09.305 | 03-12 | 11.803 + 11.804 | 11-6, 11-25 | 12.901-x | 12-16, 12-17, 12-18 |
| 07.334...07.335-x | 07-32 | 09.306 | 09-13 | 11.805 | 11-2 | 12.902-x | 12-17, 12-18 |
| 07.336 | 07-19, 07-31 | | | 11.806 | 11-3 | 12.903-x | 12-17, 12-18 |
| 07.337 | 07-31 | MSA10. | P. | 11.807 | 11-2 | 12.910 | 12-18 |
| 07.339 | 07-25 | 10.003...10.004-x | 10-8 | 11.808-x | 11-6 | | |
| 07.343 | 07-25 | 10.005 + 10.005-A | 10-7 | 11.809 | 11-2, 11-7, 11-26 | MSA13. | P. |
| 07.344 | 07-19, 07-20, 07-21 | 10.006 | 10-8 | 11.810 | 11-3, 11-8, 11-27 | 13.100 + 13.104-4 | 13-2 |
| 07.344 | 07-24, 07-26 | 10.007 | 10-7 | 11.812 | 11-5, 11-7 | 13.101 + 13.101-4 | 13-3 |
| 07.360 | 07-22, 08-2 | 10.008...10.008-x | 10-8 | 11.812 | 11-25, 11-26 | 13.101-T | 13-2, 13-3 |
| 07.360-A | 07-21, 07-24, 07-27 | 10.009...10.009-x | 10-9 | 11.813 | 11-7, 11-25 | 13.101-x | 13-3 |
| 07.360-B | 07-27, 08-2 | 10.010...10.010-x | 10-6 | 11.816 | 11-5, 11-7, 11-26 | 13.102-x | 13-2 |
| 07.360-H | 07-23 | 10.301...10.301-x | 10-11 | 11.817 + 11.818 | 11-7, 11-26 | 13.104...13.104+12 | 13-3 |
| 07.361 | 07-22 | 10.302...10.302-x | 10-10 | 11.820 | 11-4, 11-8, 11-27 | 13.105 | 13-3 |
| 07.363 | 07-21 | 10.303 + 10.304 | 10-11 | 11.827 | 11-4, 11-7 | 13.110 + 13.113-4 | 13-4 |
| 07.364 + 07.365 | 07-22 | 10.304-x | 10-11, PE-6 | 11.827 | 11-8, 11-26 | 13.120-x | 13-5 |
| 07.367 | 07-20 | 10.306 + 10.307 | 10-9 | 11.828 + 11.829 | 11-4, 11-8, 11-26 | 13.121-x | 13-6 |
| 07.367-A | 07-18, 07-19, 07-28 | 10.309...10.309-x | 10-10 | 11.830 | 11-5 | 13.121-400 | 13-12 |
| 07.367-P | 07-18, 07-19, 07-20 | 10.311 + 11.311-08 | 10-9 | 11.831 | 11-8, 11-26 | 13.121-600 | 13-12 |
| 07.367-R | 07-18, 07-19, 07-20 | 10.313 | 10-10 | 11.832 | 11-8, 11-27 | 13.121-700 | 13-6 |
| 07.368 | 07-18 | 10.499...10.500-x | 10-2 | 11.833-B | 11-9, 11-10, 11-27 | 13.121-800 | 13-6, 13-12 |
| 07.369 | 07-19 | 10.501 | 10-5 | 11.834-A | 11-9 | 13.122-x | 13-6 |
| 07.370 | 07-23 | 10.502-x | 10-3 | 11.834-B | 11-9, 11-10, 11-27 | 13.123...13.123-T4 | 13-7 |
| 07.371 + 07.372 | 07-19, 07-23 | 10.503-A | 07-37, 10-3 | 11.835-A | 11-9 | 13.124-3x | 13-7 |
| 07.373-A + 07.373-B | 07-14, 07-19 | 10.503-B + 10.503-C | 10-3 | 11.835-B | 11-9, 11-10, 11-27 | 13.124-4x | 13-8 |
| 07.374 | 07-19, 07-20 | 10.503-x | 10-3, 10-4 | 11.836 | 11-9 | 13.128-x | 13-8 |
| 07.374 | 07-27, 08-2 | 10.504 + 10.505 | 10-2 | 11.837 | 11-10 | 13.129-x | 13-12 |
| 07.374-A | 07-27, 08-2 | 10.507 | 10-6 | 11.840 | 11-10, 11-27 | 13.150...13.155 | 13-14 |
| 07.375 | 07-21, 07-23 | 10.508...10.509-x | 10-5 | 11.850 | 11-16, 11-28 | 13.210 | 13-9 |

NUMERICAL INDEX

| | | | | | | | |
|----------------------|--------------------|---------------------|-------------|---------------------|------------|---------------------|--------------|
| MSA13. | P. | MSA15. | P. | MSA16. | P. | MSA17. | P. |
| 13.210-A + 13.210-B | 13-9, 13-10 | 15.129 | 15-27 | 16.040...16.043 | 16-2 | 17.668...17.676 | 17-10 |
| 13.210-C...13.210-F | 13-9 | 15.131...15.133 | 15-13 | 16.049...16.053 | 16-2 | 17.677 + 17.678 | 17-9 |
| 13.210-G...13.210-Hx | 13-9, 13-10 | 15.160...15.163 | 15-17 | 16.150...16.152 | 16-3 | 17.679 | 17-10 |
| 13.211 | 13-10 | 15.170...15.172 | 15-31 | 16.155...16.155-x | 16-7 | 17.682 | 17-9 |
| 13.220-x | 13-10 | 15.175 | 15 - 31 | 16.201 | 16-4 | 17.699 | 17-10 |
| 13.221-x | 13-10 | 15.179 | 15-13 | 16.203 + 16.204 | 16-4 | 17.700...17.701-x | 17-22 |
| 13.222-x...13.225-x | 13-11 | 15.205 | 15-3 | 16.620 | 16-5 | 17.702-x | 17-23 |
| 13.226-x...13.229-x | 13-12 | 15.301 | 15-28 | 16.630-C...16.642 | 16-6 | 17.703-x | 17-21 |
| 13.230-04 | 13-9, 13-10, 13-12 | 15.302 + 15.303 | 15-26 | 16.670-C | 16-6 | 17.704-040 | 17-23 |
| 13.230-Hx | 13-9, 13-10, 13-12 | 15.310 + 13.311 | 15-28 | | | 17.706-x | 17-24, 19-33 |
| | | 15.357-x...15.359-x | 15 - 21 | MSA17. | P. | 17.710-x | 17-21 |
| MSA14. | P. | 15.360 + 15.361 | 15-23 | 17.000-04 | 17-2 | 17.800-x...17.801-x | 17-18 |
| 14.150-A | 14-7 | 15.369...15.370-x | 15-26 | 17.000-x | 17-2, 17-6 | 17.804...17.806 | 17-18 |
| 14.150-E | 14 - 19 | 15.371 | 15-28 | 17.001-04 | 17-2 | 17.807 | 17-17 |
| 14.150-G | 14 - 17 | 15.372 + 15.372-S | 15-36 | 17.001-x | 17-2, 17-6 | 17.808...17.811 | 17-18 |
| 14.150-L | 14-8 | 15.373 | 15-21 | 17.002-04 | 17-3 | 17.850 | 17-28 |
| 14.150-T | 14-9, 14 - 17 | 15.374...15.378 | 15-36 | 17.002-x | 17-3 | | |
| 14.150-x | 14-9 | 15.380 | 15-21 | 17.003 + 17.003-01 | 17-4 | | |
| 14.150-Y | 14-8 | 15.399 | 15-17 | 17.015 + 17.016 | 17-25 | MSA18. | P. |
| 14.151-C | 14 - 21 | 15.407-B | 15-22 | 17.050...17.050-x | 17-5 | 18.050...18.053 | 18-2 |
| 14.151-Hx | 14-8 | 15.409 | 15-22 | 17.060...17.063-x | 17-5 | 18.100...18.103 | 18-2 |
| 14.151-I | 14-8 | 15.416 + 15.417 | 15-18 | 17.100 | 17-7 | 18.110...18.115 | 18-2 |
| 14.151-U | 14-5 | 15.422 | 15-8 | 17.101-x | 17-4 | 18.120 | 18-3 |
| 14.151-W3 | 14-8 | 15.424 + 15.424-B | 15-23 | 17.102-x | 17-3 | 18.130 | 18-3 |
| 14.151-Yx | 14-8 | 15.426 | 15-27 | 17.103...17.104-x | 17-6 | 18.130-S | 18-4, 32-4 |
| 14.154 | 14-5 | 15.431 | 15-27 | 17.110...17.113 | 17-6, 17-7 | 18.131 + 18.132 | 18-3 |
| 14.156 + 14.157 | 14-7 | 15.436 | 15-8 | 17.111...17.113 | 17-19 | 18.140 | 18-3 |
| 14.160...14.162 | 14-2 | 15.437 | 15-15 | 17.196...17.198 | 17-19 | 18.150 | 18-4 |
| 14.163...14.165 | 14-3 | 15.445 | 15-14 | 17.200 | 17-6 | 18.200 | 18-4 |
| 14.168 | 14-3 | 15.446 | 15-22 | 17.201 | 17-7 | 18.203 + 18.204 | 18-4 |
| 14.170 + 14.171 | 14-4 | 15.448 | 15-18 | 17.210 | 17-5 | | |
| 14.180 | 14-4 | 15.449 | 15-14 | 17.300...17.303 | 17-27 | | |
| 14.241...14.243 | 14-16 | 15.450 | 15 - 15 | 17.305...17.306-x | 17-26 | MSA19. | P. |
| 14.297-E | 14 - 21 | 15.452 | 15 - 27 | 17.310...17.314 | 17-27 | 19.000 | 19-3 |
| 14.311 | 14-18 | 15.453 | 15 - 14 | 17.317 | 17-26 | 19.105 | 19-3 |
| 14.312 + 14.313 | 14-17 | 15.454-x | 15 - 16 | 17.318...17.319 | 17-27 | 19.106 | 19-2 |
| 14.315 | 14-18 | 15.457...15.459 | 15-9 | 17.335...17.336 | 17-28 | 19.107 | 19-3 |
| 14.317 | 14-18 | 15.460 | 15-33 | 17.500 | 17-13 | 19.108-E | 19-2 |
| 14.319 | 14-20 | 15.469 | 15-10 | 17.501 + 17.502 | 17-14 | 19.115 + 19.115-A | 19-2 |
| 14.349 | 14-18 | 15.477 | 15-18 | 17.503...17.504 | 17-11 | 19.129 | 19-16 |
| 14.352 + 14.352-S | 14-22 | 15.478 | 15-22 | 17.505 + 17.506 | 17-10 | 19.130 + 19.131 | 19-7 |
| 14.354 | 14-19 | 15.479 + 15.480 | 15-12 | 17.507 + 17.508 | 17-11 | 19.134-P | 19-8 |
| 14.399 | 14-7 | 15.484 | 15-27 | 17.509 | 17-14 | 19.150-B | 19-7 |
| 14.412 | 14-16 | 15.488 | 15-34 | 17.510 | 17-13 | 19.152 | 19 - 6 |
| 14.423 | 14-19 | 15.490 | 15-37 | 17.511 | 17-14 | 19.155-x | 19-7 |
| 14.430 + 14.431 | 14-11 | 15.491 | 15-33 | 17.512 | 17-13 | 19.157-M | 19-6 |
| 14.432 + 14.433 | 14-12 | 15.492 | 15-37 | 17.513 | 17-19 | 19.158...19.158-x | 19-6 |
| 14.434 + 14.435 | 14-14 | 15.495 | 15-35 | 17.515 | 17-12 | 19.160-B | 19-6 |
| 14.440-x...14.444 | 14-13 | 15.497 | 15-35 | 17.516 | 17-14 | 19.167-B | 19-16 |
| 14.445-x...14.446 | 14 - 13, 14-15 | 15.498 | 15-34 | 17.518 | 17-19 | 19.172 | 19-4 |
| 14.447 + 14.447-A | 14-9 | 15.510...15.513 | 15-9 | 17.519 | 17-12 | 19.174 | 19-4 |
| 14.450-x...14.454 | 14-15 | 15.519 | 15-33 | 17.520 | 17-15 | 19.177 + 19.177-A | 19-5 |
| 14.471 | 14-6 | 15.522...15.524 | 15-11 | 17.522...17.524 | 17-15 | 19.177-A | 19-5 |
| 14.471-A | 14-7 | 15.531...15.534 | 15-29 | 17.525 | 17-16 | 19.188 | 19-7 |
| 14.472 + 14.473 | 14-6 | 15.546 | 15-25 | 17.526 | 17-19 | 19.198 | 19-8 |
| | | 15.547...15.549 | 15-24 | 17.527-B...17.528 | 17-8 | 19.201-x | 19-10 |
| MSA15. | P. | 15.550...15.553 | 15-30 | 17.529 | 17-16 | 19.202 | 19-6 |
| 15.001 | 15-2 | 15.558 | 15-24 | 17.530-B...17.532-A | 17-8 | 19.203...19.203-x | 19-8 |
| 15.003...15.006 | 15-2 | 15.559 | 15-30 | 17.533...17.535 | 17-12 | 19.205...19.206-x | 19-10 |
| 15.008-x | 15-2 | 15.560...15.567 | 15-29 | 17.536 | 17-16 | 19.209 + 19.209-A | 19-5 |
| 15.014-x | 15-3 | 15.574...15.575 | 15-32 | 17.537 | 17-17 | 19.213 + 19.214 | 19-4 |
| 15.016 | 15-3 | 15.585 | 15-24 | 17.538 + 17.539 | 17-15 | 19.216 + 19.217 | 19-16 |
| 15.020-x...15.024-x | 15-5 | 15.586 | 15-25 | 17.540-x | 17-17 | 19.221 + 19.222 | 19-6 |
| 15.026-x + 15.027-x | 15-6 | 15.611 | 15-13 | 17.541 | 17-13 | 19.226 | 19-6 |
| 15.029-x...15.031-x | 15-6 | 15.614 | 14-9 | 17.542...17.542-x | 17-17 | 19.305...19.306-x | 19-10 |
| 15.032-x...15.035-x | 15-5 | 15.624...15.626 | 15-11 | 17.544 + 17.545 | 17-16 | 19.320...19.320-x | 19-11 |
| 15.068...15.070 | 15-6 | 15.630...15.635 | 15-7 | 17.547 | 17-19 | 19.349 | 19-9 |
| 15.072 | 15-5 | 15.650...15.654 | 15-18 | 17.559 | 17-19 | 19.360 | 19-9 |
| 15.084...15.087 | 15-4 | 15.657-x...15.660-x | 15 - 19 | 17.562 + 17.563 | 17-19 | 19.363 | 19-9 |
| 15.100 | 15-8 | 15.661...15.667 | 15 - 20 | 17.564 + 17.565 | 17-11 | 19.370...19.372-x | 19-12 |
| 15.104 | 15-8 | 15.668 | 15-19 | 17.566 | 17-13 | 19.373...19.374-x | 19-13 |
| 15.107 | 15-9 | 15.730 + 15.731 | 15-12 | 17.567 | 17-12 | 19.376 | 19-12 |
| 15.108 | 15-10 | | | 17.568...17.570 | 17-19 | 19.399 | 19-12 |
| 15.110 | 15-8 | MSA16. | P. | 17.571 | 17-16 | 19.402 + 19.403 | 19-16 |
| 15.111 + 15.112 | 15-10 | 16.001 | 16-2 | 17.572 | 17-8 | 19.406 | 19-14 |
| 15.113 | 15-9 | 16.002 | 01-17, 16-2 | 17.577 | 17-17 | 19.407 | 19-15 |
| 15.114 | 15-10 | 16.003 + 16.004 | 16-2 | 17.580...17.582-x | 17-20 | 19.416 | 19-15 |
| 15.115 | 15-8 | 16.006...16.008 | 16-2 | 17.589 | 17-15 | 19.424 + 19.425 | 19-14 |
| 15.117 | 15-10 | 16.010...16.013 | 16-2 | 17.600 | 17-25 | 19.429 | 19-15 |
| 15.125 | 15-13 | 16.020...16.023 | 16-2 | 17.650 | 17-9 | 19.448 + 19.449 | 19-14 |
| 15.126 | 15-17 | 16.029 + 16.030 | 16-2 | 17.651 | 17-10 | 19.450...19.451 | 19-11 |
| 15.128 | 15-16 | | | 17.653...17.661 | 17-10 | 19.453 | 19-11 |
| | | | | 17.662...17.667 | 17-9 | 19.455 | 19-17 |

| | | | | | | | |
|---------------------|---------------------|-----------------------|--------------|---------------------|------------|---------------------|------------------|
| MSA19. | P. | MSA19. | P. | MSA21. | P. | MSA22. | P. |
| 19.501...19.502-x | 19-30 | 19.820 | 19-36 | 21.355 + 21.356 | 21-14 | 22.564-x | 22-4, 22-5 |
| 19.521-x | 19-30 | 19.821 | 19-37 | 21.370 | 21-14 | 22.565 | 22-5 |
| 19.530-x | 19-30 | 19.822 | 19-36 | 21.380 | 21-14 | 22.566-x | 22-2 |
| 19.531 | 19-25 | 19.823...19.825-x | 19-37 | 21.380-B | 21-15 | 22.567-x | 22-7 |
| 19.540-x | 19-22, 19-25 | 19.826 | 19-36, 19-38 | 21.382-B | 21-15 | 22.568 | 22-2, 22-7, 22-8 |
| 19.541 | 19-24 | 19.827-A...19.828-B | 19-38 | 21.390 | 21-14 | 22.571-x | 22-8 |
| 19.542 | 19-23 | 19.829...19.829-A | 19-37 | 21.390-B | 21-15 | 22.572-x | 22-37 |
| 19.544 | 19-20 | 19.830-x | 19-38 | 21.409 | 21-3 | 22.577-x...22.578-x | 22-6 |
| 19.545 | 19-22 | 19.832 + 19.833 | 19-37 | 21.413...21.415 | 21-15 | 22.590-x | 22-3 |
| 19.549 + 19.549-A | 19-22 | 19.834...19.835-x | 19-38 | 21.416...21.419 | 21-3 | 22.610-x | 22-36 |
| 19.550 | 19-24 | 19.838 | 19-36 | 21.420...21.424 | 21-16 | 22.630-x | 22-35 |
| 19.550-U | 19-22, 19-24 | 19.839-A...19.842 | 19-38 | 21.427 | 21-16 | 22.640-x | 22-36 |
| 19.551 | 19-22, 19-24 | 19.846-x...19.847 | 19-37 | 21.430 | 21-16 | 22.650-x | 22-37 |
| 19.552 | 19-24 | 19.848 | 19-38 | 21.450 | 21-16 | 22.660-x | 22-35 |
| 19.553 | 19-22, 19-24 | 19.850 | 19-34 | 21.452 | 21-16 | 22.670-x | 22-36 |
| 19.554 | 19-24 | 19.851 | 19-38 | 21.460 | 21-16 | 22.700 | 22-28 |
| 19.555...19.562 | 19-24 | 19.856 | 19-37 | 21.480 + 21.481 | 21-17 | 22.701 + 22.702 | 22-20 |
| 19.563 | 19-20, 19-22, 19-24 | 19.859 | 19-36 | 21.483 | 21-17 | 22.703...22.705 | 22-21 |
| 19.564 | 19-24 | 19.867 + 19.868 | 19-37 | 21.484 | 21-5 | 22.706 + 22.707 | 22-24 |
| 19.565 | 19-22 | 19.873 | 19-38 | 21.485 | 21-17 | 22.708...22.710 | 22-21 |
| 19.567...19.571 | 19-23 | 19.875...19.875-x | 19-34 | 21.490 | 21-5 | 22.711...22.713 | 22-22 |
| 19.572 | 19-20, 19-22 | 19.877...19.878 | 19-37 | 21.493 | 21-5 | 22.714 | 22-21 |
| 19.573...19.584 | 19-23 | 19.880...19.885 | 19-26 | 21.495 | 21-5 | 22.715 + 22.716 | 22-22 |
| 19.586 + 19.587 | 19-23 | 19.885-A + 19.885-B | 19-27 | 21.500 | 21-5 | 22.717 + 22.718 | 22-23 |
| 19.589...19.597 | 19-23 | 19.886 | 19-26 | 21.507 | 21-5 | 22.719 | 22-33 |
| 19.599 | 19-23 | 19.901 | 19-44 | 21.510 | 21-5 | 22.720 + 22.721 | 22-23 |
| 19.611-x | 19-31 | 19.908 | 19-44 | 21.514 | 21-5 | 22.722 + 22.723 | 22-19 |
| 19.612 | 19-27 | 19.910 | 19-43 | 21.599 | 21-8 | 22.724 + 22.725 | 22-33 |
| 19.614 | 19-28 | | | 21.600...21.604 | 21-6 | 22.726 | 22-32 |
| 19.617...19.619-x | 19-31 | MSA20. | P. | 21.606 + 21.607 | 21-6 | 22.727 | 22-33 |
| 19.626 | 19-31 | 20.005 | 20-8 | 21.609...21.621 | 21-6 | 22.728 + 22.729 | 22-29 |
| 19.633-C | 19-27 | 20.361 | 20-5 | 21.623 + 21.624 | 21-6 | 22.730 | 22-30 |
| 19.640-F | 19-28 | 20.362 | 20-2 | 21.626...21.628 | 21-6 | 22.731 | 22-33 |
| 19.652 | 19-27 | 20.365 | 20-2 | 21.629...21.642 | 21-7 | 22.732 | 22-20 |
| 19.655 | 19-27 | 20.367 | 20-3 | 21.644...21.646 | 21-7 | 22.733 | 22-23 |
| 19.660-x | 19-27 | 20.005-01 | 20-9 | 21.647...21.651 | 21-8 | 22.734 | 22-19 |
| 19.662-x | 19-27 | 20.005-x | 20-8 | 21.652...21.657 | 21-9 | 22.735 | 22-20 |
| 19.664-x | 19-27 | 20.015-01 | 20-8 | 21.659...21.665 | 21-9 | 22.736 | 22-24 |
| 19.665-x | 19-27 | 20.360-160 | 20-4 | 21.666 | 21-11 | 22.737 + 22.738 | 22-23 |
| 19.666-x | 19-27 | 20.360-235 | 20-4 | 21.667...21.669 | 21-9 | 22.739 | 22-19 |
| 19.680 + 19.681 | 19-27 | 20.360-Cx | 20-3, 20-6 | 21.670 | 21-8 | 22.740 | 22-27 |
| 19.682 + 19.683 | 19-28 | 20.360-F | 20-5 | 21.671 | 21-9 | 22.741 | 22-24 |
| 19.686 | 19-28 | 20.360-P1 + 20.360-P2 | 20-3 | 21.700...21.704 | 21-10 | 22.742...22.745 | 22-25 |
| 19.705 | 19-18 | 20.360-P4 | 20-4 | 21.704-x | 21-11 | 22.746...22.748 | 22-31 |
| 19.705-A | 19-18, 19-19 | 20.361-Mx | 20-5 | 21.705 | 21-10 | 22.749...22.751 | 22-32 |
| 19.705-P1 | 19-20 | 20.361-P1 | 20-5 | 21.705-x | 21-11 | 22.752...22.754 | 22-30 |
| 19.706 | 19-18, 19-19 | 20.361-Px | 20-6 | 21.706 | 21-10 | 22.755 | 22-31 |
| 19.708 | 19-18, 19-19 | 20.362-F | 20-2 | 21.706-x | 21-11 | 22.756 | 22-25 |
| 19.711 | 19-18 | 20.362-M1 | 20-3 | 21.750 | 21-8 | 22.757...22.759 | 22-26 |
| 19.712...19.713 | 19-29 | 20.368...20.368-x | 20-4 | 21.800 | 21-9 | 22.760 | 22-27 |
| 19.715 | 19-18, 19-19 | 20.381...20.381-x | 20-7 | 21.801 + 21.802 | 21-8 | 22.761 | 22-28 |
| 19.725...19.727 | 19-25 | | | | | 22.762 | 22-27 |
| 19.738 + 19.739 | 19-32 | MSA21. | P. | MSA22. | P. | 22.763 + 22.764 | 22-28 |
| 19.741...19.748 | 19-32 | 21.001...21.014 | 21-2 | 22.100-x | 22-12 | 22.765 + 22.766 | 22-27 |
| 19.750 | 19-17 | 21.020...21.023 | 21-2 | 22.102-x...22.105-x | 22-13 | 22.767...22.769 | 22-29 |
| 19.751 | 19-42 | 21.024 | 21-3 | 22.107-x | 22-14 | 22.800...22.803 | 22-34 |
| 19.760-x | 19-39 | 21.026...21.027-A | 21-2 | 22.110-x | 22-14 | 22.805 + 22.806 | 22-34 |
| 19.761 | 19-41 | 21.030...21.034 | 21-4 | 22.112-x...22.113-x | 22-14 | 22.807 | 22-34 |
| 19.762...19.762-x | 19-42 | 21.035...21.037 | 21-3 | 22.114-x...22.116-x | 22-15 | | |
| 19.765 + 19.765-A | 19-42 | 21.040...21.043 | 21-4 | 22.117-x...22.119-x | 22-16 | | |
| 19.770 | 19-39 | 21.045...21.050 | 21-4 | 22.121-x | 22-13 | MSA23. | P. |
| 19.770-Ax | 19-40 | 21.051-x | 21-2 | 22.122-x | 22-16 | 23.000 | 23-6 |
| 19.770-Bx | 19-40 | 21.052-x | 21 - 16 | 22.123-x | 22-15 | 23.000-x | 23-8 |
| 19.770-Cx | 19-40 | 21.061-21 | 21-2 | 22.211-x | 22-12 | 23.001...23.003 | 23-6 |
| 19.770-KIT | 19-39 | 21.070 + 21.071 | 21 - 15 | 22.300-x...22.303-x | 22-10 | 23.005 | 23-5 |
| 19.770-Mx | 19-40 | 21.073...21.075 | 21 - 15 | 22.304-x...22.306-x | 22-11 | 23.500 | 23-4 |
| 19.772 | 19-39 | 21.077 + 21.078 | 21 - 15 | 22.308-x...22.309-x | 22-12 | 23.500-09 | 23-4 |
| 19.773-x...19.775-x | 19-39 | 21.080 | 21 - 15 | 22.311-x | 22-12 | 23.500-A | 23-3, 23-4 |
| 19.790...19.794 | 19-21 | 21.090 | 21 - 16 | 22.312-x...22.313-x | 22-11 | 23.500-V | 23-4 |
| 19.795 | 19-20 | 21.100 + 22.100-A | 21-3 | 22.400-x...22.401-x | 22-9 | 23.501 | 23-2 |
| 19.807...19.808 | 19-35 | 21.200 + 21.201 | 21-12 | 22.404-x...22.405-x | 22-9 | 23.501-G | 23-3, 23-4 |
| 19.808-P | 19-36 | 21.210...21.213 | 21-12 | 22.407-x...22.408-x | 22-9 | 23.501-P | 23-3 |
| 19.811 | 19-35, 19-36, 19-37 | 21.215 + 21.216 | 21-12 | 22.412-x | 22-37 | 23.501-x | 23-3 |
| 19.811-F | 19-38 | 21.251 + 21.252 | 21-12 | 22.450-x | 22-10 | 23.502 | 23-2 |
| 19.812 | 19-35, 19-36, 19-38 | 21.260 | 21-12 | 22.500 | 22-17 | 23.503 | 23-4 |
| 19.813 | 19-35, 19-36, 19-37 | 21.310 | 21-14 | 22.510 | 22-17 | 23.503-A | 23-3, 23-4 |
| 19.813-A | 19-37 | 21.319 | 21-15 | 22.515 | 22-18 | 23.504 | 23-2 |
| 19.814 + 19.814-A | 19-37 | 21.320 | 21-14 | 22.520 | 22-18 | 23.504-G | 23-3, 23-4 |
| 19.815 | 19-38 | 21.322 | 21-14 | 22.559 | 22-4 | 23.504-x | 23-3 |
| 19.816 | 19-35, 19-36, 19-38 | 21.330 + 21.331 | 21-14 | 22.560-x | 22-3 | 23.505 | 23-2 |
| 19.817 | 19-36, 19-37 | 21.340...21.343 | 21-14 | 22.562-x | 22-4, 22-5 | 23.600...23.601 | 23-7 |
| 19.819 | 19-37 | 21.350 + 21.351 | 21-14 | 22.563-x | 22-5 | 23.800...23.801 | 23-9 |

NUMERICAL INDEX

| | | | | | | | |
|---------------------|-------------|---------------------|--------------|---------------------|--------------|-----------------|--------------|
| MSA23. | P. | MSA26. | P. | MSA26. | P. | MSA28. | P. |
| 23.808-x...23.810 | 23-9 | 26.145 | 26-20 | 26.520...26.527-x | 26-45 | 28.000 | 28-25, 28-27 |
| 23.811 | 23-10 | 26.146 | 26-19 | 26.528...26.532x | 26-47 | 28.001 | 28-25, 28-27 |
| 23.812 + 23.813 | 20-9, 23-10 | 26.149 | 26-23 | 26.533...26.534 | 26-49 | 28.002 | 28-16, 28-27 |
| 23.819-x | 23-9, 23-10 | 26.150...26.153 | 26-6 | 26.535 | 26-51 | 28.003 | 28-27, 28-28 |
| | | 26.154 + 26.155 | 26-7 | 26.536 + 26.536-500 | 26-49 | 28.004 | 28-22, 28-27 |
| MSA24. | P. | 26.158...26.159 | 21-13, 26-28 | 26.537 + 26.538 | 26-45 | 28.102 | 28-26 |
| 24.002-x | 24-9 | 26.160 | 26-7 | 26.539...26.540-x | 26-47 | 28.103...28.105 | 28-22 |
| 24.003-01 | 24-8 | 26.162...26.164 | 21-13, 26-28 | 26.541 + 26.542 | 26-45 | 28.106 | 28-23 |
| 24.010 | 24-9 | 26.165...26.169 | 26-7 | 26.543 | 26-47 | 28.200 | 28-28 |
| 24.014 | 24-10 | 26.170...26.170-B | 26-6 | 26.544 | 26-52 | 28.205 | 28-28 |
| 24.020 | 24-10 | 26.172 + 26.173 | 26-7 | 26.548 | 26-45 | 28.210-005 | 28-20 |
| 24.021 | 24-11 | 26.176 | 26-26 | 26.548-020 | 26-49 | 28.211 | 28-20 |
| 24.025 | 24-11 | 26.177...26.178-A | 26-32 | 26.550 | 26-4 | 28.220 | 28-27 |
| 24.027 | 24-11 | 26.180 | 26-6 | 26.552-2 | 26-4 | 28.272-005 | 28-21 |
| 24.029 | 24-11 | 26.183 | 26-6 | 26.554-x...26.555-x | 26-45 | 28.273-005 | 28-21 |
| 24.031...24.033 | 24-11 | 26.185...26.185-C | 26-12 | 26.556-050 | 26-47 | 28.274-005 | 28-21 |
| 24.037 | 24-11 | 26.187 | 26-20 | 26.558-x...26.559-x | 26-49 | 28.275-005 | 28-20 |
| 24.038 | 24-7 | 26.190 + 26.191 | 21-13, 26-28 | 26.560...26.566 | 26-3 | 28.300 | 28-28 |
| 24.040 | 24-5 | 26.200...26.202 | 26-16 | 26.567 | 26-4 | 28.301 | 28-26 |
| 24.057 | 24-7 | 26.208-XL | 26-17 | 26.570...26.573 | 26-5 | 28.303 | 28-28 |
| 24.060 | 24-10 | 26.209...26.012 | 26-16 | 26.575...26.579 | 26-5 | 28.307 | 28-26 |
| 24.061 | 24-9 | 26.213 + 26.214 | 26-18 | 26.581-x | 26-5 | 28.308 | 28-28 |
| 24.065-x | 24-12 | 26.217...26.220 | 26-16 | 26.582-0005 | 26-50 | 28.405-x | 28-31 |
| 24.071 | 24-6 | 26.224...26.229 | 26-16 | 26.584-025 | 26-51 | 28.515-005 | 28-20 |
| 24.109 | 08-4, 24-7 | 26.231x | 26-16 | 26.585 | 26-38 | 28.5700-1L | 28-34 |
| 24.113 | 08-4, 24-7 | 26.236-x | 26-18 | 26.586-050 | 26-45 | 28.620-005 | 28-20 |
| 24.203 | 24-14 | 26.237-x | 26-21 | 26.587-x...26.588-x | 26-49 | 28.651 | 28-29 |
| 24.205 | 24-15 | 26.238 | 26-18 | 26.589-x | 26-47 | 28.652 | 28-25 |
| 24.206...24.208 | 24-13 | 26.240 | 26-23 | 26.590 | 26-38 | 28.654 | 28-29 |
| 24.210 + 24.211 | 24-15 | 26.241-x | 26-18 | 26.594 | 26-50 | 28.7060-250 | 28-33 |
| 24.213...24.216 | 24-13 | 26.242-L | 26-18 | 26.601 | 26-45 | 28.7061-x | 28-33 |
| 24.220 + 24.221 | 24-14 | 26.243-XL | 26-18 | 26.605 | 26-45 | 28.7062-x | 28-33 |
| 24.222 + 24.223 | 24-15 | 26.244-x | 26-16 | 26.609 | 26-49 | 28.7070-250 | 28-34 |
| 24.224 + 24.225 | 24-14 | 26.246-x | 26-21 | 26.614 | 26-50 | 28.7071-x | 28-34 |
| 24.401 | 24-15 | 26.248-XL | 26-21 | 26.617 | 26-52 | 28.7072-x | 28-34 |
| 24.405-x | 08-5, 24-8 | 26.250 | 26-29 | 26.618 | 26-49 | 28.735-005 | 28-21 |
| 24.410 | 24-15 | 26.252-x | 26-31 | 26.623 | 26-40, 29-4 | 28.8000-x | 28-3 |
| 24.434 | 24-5 | 26.253 | 26-17 | 26.628 | 26-52 | 28.8030-x | 28-3 |
| 24.442 + 24.443 | 24-2 | 26.254 | 26-18 | 26.629 | 26-50 | 28.8031-x | 28-3 |
| 24.446 | 24-2 | 26.255-x | 26-29 | 26.632-x | 26-45 | 28.8040-x | 28-3 |
| 24.460 | 24-5 | 26.256 + 26.257 | 26-31 | 26.633-050 | 26-45 | 28.8141-x | 28-4 |
| 24.501-x...26.503-x | 24-4 | 26.258-x | 26-17 | 26.634-x | 26-47 | 28.8200-x | 28-11 |
| 24.504-x...24.508-x | 24-3 | 26.259-x | 26-17 | 26.640-x | 26-38 | 28.8201-x | 28-11 |
| 24.523 + 26.524 | 24-8 | 26.266 | 26-29 | 26.645 + 26.646 | 26-38 | 28.8203-020 | 28-11 |
| 24.543-140 | 24-4 | 26.267-x | 26-22 | 26.649 | 26-54 | 28.8207-x | 28-12 |
| 24.561-x...24.573-x | 24-3 | 26.268-x | 26-17 | 26.650 | 26-39 | 28.8212-x | 28-12 |
| 24.575-x...24.577-x | 24-4 | 26.269-x | 26-17 | 26.655 | 26-39 | 28.8213-020 | 28-12 |
| | | 26.279 | 26-27 | 26.658 + 26.659 | 26-53 | 28.8217-020 | 28-12 |
| MSA26. | P. | 26.280...26.288 | 26-30 | 26.660 | 26-40 | 28.8300-x | 28-13 |
| 26.000 | 26-26 | 26.289-x | 26-31 | 26.670-05 | 26-31 | 28.8301-020 | 28-13 |
| 26.001 | 26-27 | 26.291-x...26.292-x | 26-14 | 26.671...26.676 | 26-32 | 28.8302-x | 28-13 |
| 26.005 | 26-27 | 26.293-x | 26-22 | 26.680 + 26.681 | 26-24 | 28.8513-x | 28-16 |
| 26.008...26.008-x | 26-30 | 26.294-x | 26-14 | 26.702 | 26-34 | 28.8516-x | 28-16 |
| 26.012 | 26-8 | 26.296-x | 26-13 | 26.703 | 26-35 | 28.8970-1L | 28-33 |
| 26.014...26.021 | 26-2 | 26.297-x | 26-15 | 26.704-x...26.706-x | 26-33 | 28.8971-1L | 28-33 |
| 26.026...26.029 | 26-2 | 26.299-x | 26-13 | 26.708...26.711 | 26-34 | 28.8980-x | 28-32 |
| 26.054 + 26.054-01 | 26-27 | 26.300-x | 26-14 | 26.714 | 26-34 | 28.8981-x | 28-32 |
| 26.070-x | 26-19 | 26.320...26.331 | 26-15 | 26.717...26.721 | 26-34 | 28.8982-1L | 28-32 |
| 26.080 | 26-43 | 26.361 | 26-15 | 26.726 + 26.727 | 26-34 | 28.8983-x | 28-36 |
| 26.080-A | 26-43 | 26.363-1000 | 26-15 | 26.728 | 26-33 | 28.9000-002 | 28-17 |
| 26.081 | 26-43 | 26.380 | 26-13 | 26.729 | 26-34 | 28.9010-x | 28-4 |
| 26.081-A | 26-43 | 26.382 | 26-13 | 26.730 | 26-33 | 28.9014-x | 28-4 |
| 26.098 | 26-43 | 26.400-x...26.405-x | 26-9 | 26.731 | 26-34 | 28.9015-x | 28-5 |
| 26.099 | 26-43 | 26.406-x | 26-10 | 26.734...26.737 | 26-35 | 28.9020-x | 28-5 |
| 26.108 + 26.109 | 26-25 | 26.408-x...26.409-x | 26-10 | 26.754 | 19-29, 26-39 | 28.9024-x | 28-5 |
| 26.110-x | 26-25 | 26.420...26.425 | 26-8 | 26.800 | 26-37 | 28.9026-x | 28-6 |
| 26.112-x | 26-25 | 26.426-x...26.427-x | 26-11 | 26.810 + 26.811 | 26-37 | 28.9027-x | 28-6 |
| 26.113 | 26-24 | 26.428-x...26.429-x | 26-10 | 26.812 | 26-39 | 28.9030-x | 28-6 |
| 26.116 | 26-24 | 26.435-x...26.437-x | 26-11 | 26.820 | 26-37 | 28.9034-x | 28-7 |
| 26.117 | 26-24 | 26.438-x | 26-12 | 26.822 | 26-37 | 28.9040-x | 28-7 |
| 26.119 | 26-24 | 26.440-x...26.442-x | 26-12 | 26.823...26.825 | 26-36 | 28.9101-x | 28-8 |
| 26.120-x | 26-19 | 26.484-x...26.488-x | 26-42 | 26.828...26.830 | 26-36 | 28.9102-x | 28-8 |
| 26.121-x | 26-19 | 26.493...26.495 | 26-42 | 26.831 | 26-37 | 28.9103-x | 28-8 |
| 26.122...26.124 | 26-19 | 26.499 | 26-4 | 26.832 + 26.833 | 26-39 | 28.9104-x | 28-8 |
| 26.125 | 26-25 | 26.500 + 26.501 | 26-53 | 26.845...26.850 | 26-36 | 28.941-x | 28-7 |
| 26.126 | 26-26 | 26.502 | 26-54 | 26.900...26.902 | 26-41 | 28.9415-x | 28-14 |
| 26.131...26.133 | 26-20 | 26.503 | 26-51 | 26.905...26.908-x | 26-41 | 28.9501-x | 28-14 |
| 26.136 + 26.137 | 26-24 | 26.511 | 26-47 | 26.910 | 26-40 | 28.9504-x | 28-15 |
| 26.139-x | 26-20 | 26.512 | 26-51 | 26.913-x | 26-41 | 28.9504-x | 28-15 |
| 26.140 | 26-20 | 26.516 | 26-54 | 26.913-x | 26-41 | 28.9701-005 | 28-35 |
| 26.143-x | 26-19 | 26.518-x | 26-49 | 26.950 + 26.951 | 26-38 | 28.9702-005 | 28-35 |
| 26.144 | 26-23 | 26.519-x | 26-49 | | | 28.9703-005 | 28-35 |

| | | | | | | | |
|-----------------|--------------|---------------|--------------|-----------------|---------------------------|-----------------|-----------|
| MSA28. | P. | MSA42. | P. | PERF | P. | VALLORBE | P. |
| 28.9704-005 | 28-35 | 42.340 | 42-5 | 384-x | PE-8 | ULAV2407-x | VA-30 |
| 28.9705-005 | 28-35 | 42.341 | 42-6 | 385 | PE-8 | ULAV2410-x | VA-30 |
| 28.9706-005 | 28-35 | 42.342 | 42-7 | 390 | PE-4 | ULAV2411-x | VA-30 |
| 28.C7-x | 28-9 | 42.343 | 42-7 | 437-x | PE-12 | ULAV2465 | VA-30 |
| 28.D2-x | 28-9 | 42.344 | 42-9 | 441-x | PE-12 | ULAV2495 | VA-30 |
| 28.D3-x | 28-9 | | | 445 | PE-12 | ULE3000-A | VA-17 |
| 28.D4-x | 28-9 | MSA98. | P. | 458...459B | PE-6 | ULE3004-x | VA-15 |
| 28.D5-x | 28-9 | 98.015 | 98-2 | 460x | PE-10 | ULE3008-x | VA-15 |
| 28.H10-x | 28-9 | | | 480 | PE-9 | ULE3009-x | VA-15 |
| 28.I31-x | 28-10 | PERF | P. | 485 | PE-10 | ULE3010-x | VA-15 |
| 28.I4-x | 28-10 | 007 | PE-4 | 490 | PE-13 | ULE3011-x | VA-15 |
| 28.J.0100 | 28-24 | 012 | PE-13 | 595 | PE-3 | ULE3012-x | VA-15 |
| 28.K6-x | 28-17 | 015 | PE-4 | 690 | PE-16 | ULE3014-x | VA-15 |
| 28.K7-1L | 28-17 | 018 | PE-13 | 810 | PE-13 | ULE3015-x | VA-16 |
| 28.L5-x | 28-18 | 020 | PE-3 | 810-A | PE-13 | ULE3016-x | VA-16 |
| 28.MEC2017 | 28-18 | 021 | PE-15 | | | ULE3017-x | VA-16 |
| 28.QUA2017 | 28-18 | 022 | PE-4 | PILE | P. | ULE3020-x | VA-16 |
| 28.SL007 | 28-29, 28-30 | 023 | PE-4 | L92 | 00 - 10, 00 - 11, 00 - 20 | ULE3021-x | VA-16 |
| 28.TH7-002 | 28-10 | 024 | PE-15 | | | ULE3026-x | VA-16 |
| | | | | | | | |
| 28.UT18-x | 28-25 | 025 | PE-15 | VALLORBE | P. | ULE3029-x | VA-16 |
| 28.V105-x | 28-19 | 026 | PE-13 | UAL110-BLEU | 18-2, VA-42 | ULE3080 | VA-17 |
| 28.V106-x | 28-19 | 027 | PE-13 | UAL160 | 18-2, VA-42 | ULE3092 | VA-17 |
| | | 028 | PE-4 | UAL170 | 18-2, VA-42 | ULEC3008-55 | VA-19 |
| MSA29. | P. | 030 | PE-15 | UAL200 | 18-3, VA-42 | ULEC3009-55 | VA-19 |
| 29.227 | 29-2 | 031 | PE-5 | UAL210-BLEU | 18-2, VA-42 | ULEC3010-55 | VA-19 |
| 29.501 | 29-3 | 032 | PE-5 | UAL260 | 18-2, VA-42 | ULEC3014-55 | VA-20 |
| 29.606 | 29-3 | 034 | PE-3 | UAL310-BLEU | 18-2, VA-42 | ULEC3017-55 | VA-20 |
| 29.610-A | 29-4 | 035 | PE-5 | UAL400 | 18-3, VA-42 | ULEC3020-55 | VA-20 |
| 29.611-A14 | 29-4 | 045 | PE-4 | UAL410-BLEU | 18-2, VA-42 | ULEC3021-55 | VA-20 |
| 29.611-A18 | 29-4 | 046 | PE-4 | UAL500 | 18-3, VA-42 | ULEC3062 | VA-20 |
| 29.614-B | 29-3 | 080 | PE-15 | UAL510-BLEU | 18-2, VA-42 | ULF0502-x | VA-23 |
| 29.615 | 29-2 | 095 | PE-15 | UAL600 | 18-3, VA-42 | ULF0504-x | VA-23 |
| 29.616 | 29-2 | 096 | PE-15 | UAL610-BLEU | 18-2, VA-42 | ULF0505-x | VA-24 |
| 29.626 | 29-2 | 106 | 17-25, PE-13 | UAL710-BLEU | 18-2, VA-42 | ULF0909-x | VA-24 |
| 29.631 | 29-2 | 111-x | PE-2 | UALF105 | 18-3, VA-42 | ULF1001-x | VA-24 |
| 29.651 | 29-3 | 115-x | PE-2 | UALF109 | 18-3, VA-42 | ULF1002-x | VA-23 |
| 29.651-A | 29-3, PE-16 | 116-x | PE-2 | UALF202 | 18-3, VA-42 | ULF1004-x | VA-23 |
| 29.700 | 29-5 | 121-x | PE-2 | UALF203 | 18-3, VA-42 | ULF234-x | VA-23 |
| 29.700-x | 29-5 | 131-x | PE-2 | UALF301 | 18-3, VA-42 | ULF30-x | VA-23 |
| | | 132 | PE-2 | UALF302 | 18-3, VA-42 | ULH2601-x | VA-28 |
| MSA32. | P. | 133 | PE-2 | UALF304 | 18-3, VA-42 | ULH2602-x | VA-28 |
| 32.001-901 | 32-2 | 161...163A | PE-14 | UASB400 | VA-42 | ULH2607-x | VA-28 |
| 32.001-902 | 32-2 | 167...169 | PE-7 | UDA8401-x | VA-21 | ULH2608-x | VA-28 |
| 32.001-x | 32-2 | 170 | PE-9 | UDA8402-x | VA-21 | ULH2610-x | VA-28 |
| 32.003-A | 32-3 | 170-A | PE-9 | UDA8407-x | VA-21 | ULH2627 | VA-28 |
| 32.003-B | 32-3 | 176 | PE-7 | UDA8408-x | VA-21 | ULH2630 | VA-29 |
| 32.003-x | 32-3 | 176-A | PE-7 | UDA8410-x | VA-21 | ULH2901-x | VA-28 |
| 32.020 | 32-4 | 177...178 | PE-9 | UDA8411-x | VA-21 | ULO0401-x | VA-25 |
| 32.021 | 32-4 | 193 | PE-15 | UDA8432 | VA-21 | ULO0402-x | VA-25 |
| 32.030 | 32-4 | 194 | PE-10 | UDA9401 | VA-22 | ULO0403-x | VA-25 |
| 32.100 | 32-4 | 195 | PE-15 | UDA9402 | VA-22 | ULO0404-x | VA-26 |
| 32.101-x | 32-4 | 196 | PE-16 | UDA9407 | VA-22 | ULO0405-x | VA-26 |
| | | 202 | PE-10 | UDA9408 | VA-22 | ULO0406-x | VA-26 |
| MSA38. | P. | 214 | PE-10 | UDA9410 | VA-22 | ULO0501-x | VA-26 |
| 38.000 | 38-2 | 229...231 | PE-6 | UDA9470 | VA-22 | ULO0502-x | VA-26 |
| 38.002...38.006 | 38-2 | 250 | PE-11 | UDD8800-x | VA-22 | ULO0653-x | VA-27 |
| 38.010 | 38-3 | 260 | PE-11 | ULA2400-A | VA-14 | ULO0655-x | VA-27 |
| 38.010-N | 38-3 | 261...264 | PE-11 | ULA2401-x | VA-11 | ULO0788-x | VA-27 |
| 38.013 | 38-3 | 266 | PE-13 | ULA2402-x | VA-11 | ULP1040-x | VA-8 |
| 38.014 | 38-3 | 270 | PE-11 | ULA2403-x | VA-11 | ULP1060-x | VA-9 |
| 38.016-N | 38-3 | 303 | PE-10 | ULA2405-x | VA-11 | ULP1061-x | VA-9 |
| 38.110...38.112 | 38-5 | 313 | PE-5 | ULA2406-x | VA-11 | ULP1095 | VA-10 |
| 38.125 | 38-4 | 314 | PE-5 | ULA2407-x | VA-12 | ULP1132-x | VA-3 |
| 38.128 | 38-4 | 317 | PE-13 | ULA2408-x | VA-12 | ULP1133-x | VA-3 |
| 38.129 | 38-4 | 318 | PE-3 | ULA2409-x | VA-12 | ULP1136-x | VA-4 |
| | | 322 | PE-3 | ULA2410-x | VA-12 | ULP1138-x | VA-4 |
| MSA42. | P. | 328 | PE-3 | ULA2411-x | VA-12 | ULP1142-x | VA-4 |
| 42.102 | 42-11 | 329 | PE-3 | ULA2414-x | VA-13 | ULP1152-x | VA-4 |
| 42.103 | 42-11 | 330 | PE-4 | ULA2415-x | VA-13 | ULP1163-x | VA-3 |
| 42.110 | 42-11 | 331 | PE-10 | ULA2416-x | VA-13 | ULP1166-x | VA-3 |
| 42.137 | 42-8 | 332 | PE-3 | ULA2417-x | VA-13 | ULP1168 | VA-3 |
| 42.141 | 42-8 | 355...360B | PE-12 | ULA2418-x | VA-13 | ULP1170-x | VA-4 |
| 42.160 | 42-10 | 364 | PE-12 | ULA2420-x | VA-13 | ULP1180-x | VA-4 |
| 42.174 | 42-5 | 366 | PE-12 | ULA2423-x | VA-13 | ULP1185-x | VA-5 |
| 42.184 | 42-3 | 370 | PE-16 | ULAC2401-140 | VA-18 | ULP1230-x | VA-5 |
| 42.185 | 42-9 | 370-A | PE-16 | ULAC2402-140 | VA-18 | ULP1263-x | VA-5 |
| 42.186 | 42-10 | 372 | PE-16 | ULAC2403-140 | VA-18 | ULP1265-X | VA-5 |
| 42.187 | 42-4 | 375 | PE-8 | ULAC2407-140 | VA-18 | ULP1268-x | VA-5 |
| 42.188 | 42-4 | 376 | PE-8 | ULAC2408-140 | VA-18 | ULP1292-x | VA-10 |
| 42.189 | 42-3 | 379...381 | PE-8 | ULAC2410-140 | VA-19 | ULP1312-x | VA-5 |
| 42.316 | 42-11 | 383 | PE-8 | ULAC2411-140 | VA-19 | ULP1352-x | VA-6 |
| 42.332 | 42-6 | 383x | PE-9 | ULAC2462 | VA-19 | ULP1360-x | VA-7 |

NUMERICAL INDEX

VALLORBE

ULP1366-x
ULP1367-x
ULP1464-x
ULP1474-x
ULP1480-2
ULP1540-x
ULP1560-x
ULP1566-x
ULP1567-6
ULP1660-x
ULP1667-x
ULP1669-x
ULP1670-x
ULP1680-x
ULP1730-x
ULP1760-x
ULP1840-x
ULP1850-x
ULP1960-x
ULP1990-x
ULPV1060-6
ULPV1132-x
ULPV1163-x
ULPV1360-x
ULPV1560-x
ULPV1660-8
ULPV1670-8
ULR12156
ULR12186
ULR12410-x
ULR12411-x
ULR12430-x
ULR12440-x
ULR12450-x
ULR12460-x
ULR12480-x
ULR12710-x
ULR12711-x
ULR12712-x
ULR12713-x
ULR12731-x
ULR12732-x
ULR12741-x
ULR12750-x
ULR12761-x
ULR12762-x
ULR12763-x
ULR12764-x
ULR12771-x
ULR12781-x
ULR12790-x
ULR12901-x
ULR12905-x
ULR12910-x
ULR12911-x
ULR12912-x
ULR12913-x
ULR12914-x
ULR12915-x
ULR12916-x
ULR12917-x
ULR12918-x
ULR12930-x
ULR12940-x
ULR12942-x
ULR12943-x
ULR12951-x
ULR12952-x
ULR12955-x
ULR12956-x
ULR12957-x
ULR12961-x
ULR12963-x
ULR12964-x
ULR12965-x
ULR12970-x
ULR12972-x
ULR12973-x
ULR12974-x
ULR12975-x
ULR12981-x
ULR12982-x

P.

VA-7
VA-7
VA-8
VA-8
VA-8
VA-6
VA-6
VA-6
VA-6
VA-7
VA-7
VA-7
VA-8
VA-8
VA-9
VA-9
VA-9
VA-9
VA-10
VA-10
VA-30
VA-29
VA-29
VA-29
VA-29
VA-29
VA-29
VA-30
VA-40
VA-40
VA-39
VA-39
VA-39
VA-39
VA-39
VA-39
VA-36
VA-36
VA-36
VA-36
VA-37
VA-37
VA-37
VA-37
VA-37
VA-38
VA-38
VA-38
VA-38
VA-38
VA-38
VA-31
VA-31
VA-31
VA-31
VA-31
VA-31
VA-31
VA-32
VA-32
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VA-32
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VA-32
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VA-33
VA-33
VA-34
VA-34
VA-34
VA-34
VA-34
VA-34
VA-34
VA-34
VA-35
VA-35
VA-35
VA-35

VALLORBE

ULR12983-x
ULR12984-x
ULR12985-x
ULR12986-x
ULR12987-x
ULR12996-x
URA2526-140
URA2701
URA2702
URA2707
URA2708
URA2710
URA2727
URA5190-x

ZBG

5700-x
6033-x
6808-V-10
7718-x...7720-x
30636-1

P.

VA-35
VA-35
VA-35
VA-35
VA-36
VA-36
VA-40
VA-41
VA-41
VA-41
VA-41
VA-41
VA-41
07-28
26-28
24 - 14
17-4
05-13

