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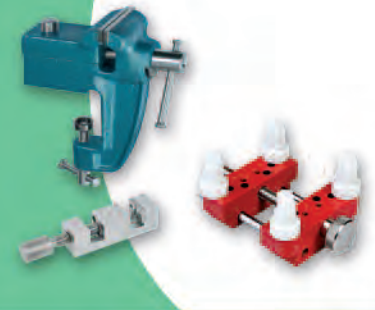
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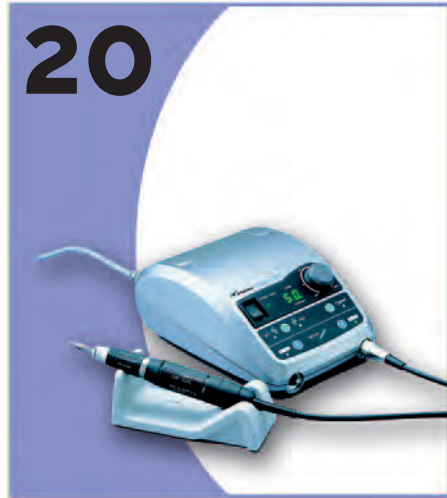
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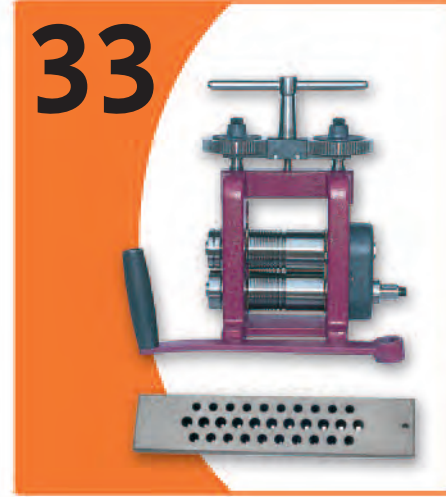
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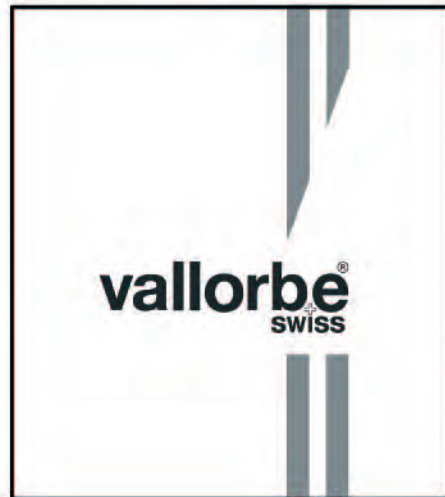
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00



EYEGASSES 00 2

- wooden
- standard
- double eye
- clip-on spectacle
- binocular
- triplets
- manual or on stand
- control mirror
- safety spectacles



MICROSCOPES 00 17

- binocular or trinocular
- cameras and software
- light sources
- ring illuminators
- objectives and adapters



LAMPS 00 29

- universal
- with magnifiers

» **Wooden eyeglasses.**



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.017-1 | 1 | 10.0x | 0.015 | 00.017-3 | 3 | 3.5x | 0.015 |
| 00.017-1.5 | 1.5 | 6.5x | " | 00.017-3.5 | 3.5 | 3.0x | " |
| 00.017-2 | 2 | 5.0x | " | 00.017-4 | 4 | 2.5x | " |
| 00.017-2.5 | 2.5 | 4.0x | " | | | | |

Pear wood eyeglass with screwed bezel.
Removable lens ø 22 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.018-1 | 1 | 10.0x | 0.015 | 00.018-3 | 3 | 3.5x | 0.015 |
| 00.018-1.5 | 1.5 | 6.5x | " | 00.018-3.5 | 3.5 | 3.0x | " |
| 00.018-2 | 2 | 5.0x | " | 00.018-4 | 4 | 2.5x | " |
| 00.018-2.5 | 2.5 | 4.0x | " | | | | |

Cherry wood eyeglass with screwed bezel.
Removable lens ø 22 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.019-1 | 1 | 10.0x | 0.015 | 00.019-3 | 3 | 3.5x | 0.015 |
| 00.019-1.5 | 1.5 | 6.5x | " | 00.019-3.5 | 3.5 | 3.0x | " |
| 00.019-2 | 2 | 5.0x | " | 00.019-4 | 4 | 2.5x | " |
| 00.019-2.5 | 2.5 | 4.0x | " | | | | |

Box wood eyeglass with screwed bezel.
Removable lens ø 22 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.020-1 | 1 | 10.0x | 0.015 | 00.020-3 | 3 | 3.5x | 0.015 |
| 00.020-1.5 | 1.5 | 6.5x | " | 00.020-3.5 | 3.5 | 3.0x | " |
| 00.020-2 | 2 | 5.0x | " | 00.020-4 | 4 | 2.5x | " |
| 00.020-2.5 | 2.5 | 4.0x | " | | | | |

Plane tree wood eyeglass with screwed bezel.
Removable lens ø 22 mm.

» **Standard Eyeglasses.**



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.015-1 | 1 | 10.0x | 0.027 | 00.015-3 | 3 | 3.5x | 0.027 |
| 00.015-1.5 | 1.5 | 6.5x | " | 00.015-3.5 | 3.5 | 3.0x | " |
| 00.015-2 | 2 | 5.0x | " | 00.015-4 | 4 | 2.5x | " |
| 00.015-2.5 | 2.5 | 4.0x | " | | | | |

Standard aluminium eyeglass with classic shape and screwed aluminium bezel. Perfect finish, lightweight and sturdy. Red surface coating.
Removable lens ø 22 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.016-1 | 1 | 10.0x | 0.025 | 00.016-3 | 3 | 3.5x | 0.025 |
| 00.016-1.5 | 1.5 | 6.5x | " | 00.016-3.5 | 3.5 | 3.0x | " |
| 00.016-2 | 2 | 5.0x | " | 00.016-4 | 4 | 2.5x | " |
| 00.016-2.5 | 2.5 | 4.0x | " | | | | |

Standard black plastic eyeglass with screwed aluminium bezel. Nice finish, unbreakable, very light and sturdy.
Removable lens ø 22 mm.

» On request and from 50 pieces (assorted magnifications), the eyeglasses MSA 00.015-xx and 00.016-xx are available with different colours, personalized and lens ø 25 mm (instead of ø 22 mm).



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.001-1 | 1 | 10.0x | 0.012 | 00.001-3 | 3 | 3.5x | 0.012 |
| 00.001-1.5 | 1.5 | 6.5x | " | 00.001-3.5 | 3.5 | 3.0x | " |
| 00.001-2 | 2 | 5.0x | " | 00.001-4 | 4 | 2.5x | " |
| 00.001-2.5 | 2.5 | 4.0x | " | | | | |

Standard black plastic ASCO eyeglass with screwed aluminium bezel. Nice finish, polished black exterior and matt interior. Blued removable lens ø 25 mm.



| MSA | Magnif. | Kg | MSA | Magnif. | Kg |
|------------|---------|-------|------------|---------|-------|
| 00.005-12X | 12x | 0.010 | 00.005-17X | 17x | 0.010 |
| 00.005-15X | 15x | " | 00.005-20X | 20x | " |

Black plastic double lens **control** loupe with double rings. Nice finish, lightweight. Removable lenses ø 13 and 22.5 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.002-1 | 1 | 10.50x | 0.009 | 00.002-3 | 3 | 4.25x | 0.009 |
| 00.002-1.5 | 1.5 | 7.75x | " | 00.002-3.5 | 3.5 | 3.75x | " |
| 00.002-2 | 2 | 5.75x | " | 00.002-4 | 4 | 3.50x | " |
| 00.002-2.5 | 2.5 | 5.00x | " | | | | |

Standard black plastic eyeglass with classic shape and screwed bezel. Nice finish, lightweight. Removable lens ø 22.5 mm.



| MSA | Agr. | Lens ø mm | Kg | MSA | Agr. | Lens ø mm | Kg |
|------------|------|--------------|-------|------------|------|--------------|-------|
| 00.006-10X | 10x | 14 | 0.015 | 00.006-20X | 20x | 14 | 0.015 |
| 00.006-12X | 12x | " | " | 00.006-25X | 25x | 12 | " |
| 00.006-16X | 16x | " | " | | | | |

Black plastic achromatic ASCO triple lens control loupe with 3 blued highly luminous lenses. Provides wide range of vision complete with screwed aluminium bezel. Nice finish, polished black exterior and matt interior.



| MSA | Magnification | Kg |
|------------|---------------|-------|
| 00.003-10X | 10x | 0.015 |
| 00.003-14X | 14x | " |

Black plastic **aplanatic** double control eyeglass ASCO "extra large" with two convex lenses and screwed aluminium ring. Nice finish, polished black exterior and matt interior. Removable lens ø 25 mm.



| MSA | Magnif. | Lens. ø mm | Kg |
|------------|---------|------------|-------|
| 00.023-08x | 8x | 22 | 0.117 |

Oblique eyeglass for measuring F+C, ø 22mm, achromatic, triple lenses corrected. Scale 15mm divided in 0.1 mm.



| MSA | Magnif. | Kg | MSA | Magnif. | Kg |
|------------|---------|-------|------------|---------|-------|
| 00.004-10X | 10x | 0.013 | 00.004-16X | 16x | 0.013 |
| 00.004-12X | 12x | " | 00.004-20X | 20x | " |

Black plastic **aplanatic** double control eyeglass ASCO with two 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. Removable lens ø 14 mm.



| MSA | ø mm | Kg |
|--------|------|-------|
| 00.007 | 30 | 0.008 |
| 00.014 | 23 | 0,005 |

Stainless steel wire eyeglass holder. Gives to watchmaker both hands free. Adaptable to any type of eyeglass.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|----|
| 00.008-1 | 1 | 10.0x | 0.015 | 00.008-2 | 2 | 5.0x | " |
| 00.008-1.5 | 1.5 | 7.0x | " | 00.008-2.5 | 2.5 | 4.0x | " |

Unbreakable **standard** hand eyeglass in black plastic, large vision field, with side hole.
Lens ø 30 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.009-1.5 | 1.5 | 7.7x | 0.012 | 00.009-3 | 3 | 4.4x | 0.012 |
| 00.009-2 | 2 | 6.0x | " | 00.009-3.5 | 3.5 | 3.8x | " |
| 00.009-2.5 | 2.5 | 5.0x | " | 00.009-4 | 4 | 3.5x | " |

Standard eyeglass. Black plastic with classic shape and nice finish.
Lens ø 23.5 mm.



| MSA | Magnification | Kg |
|-----------|---------------|-------|
| 00.010-12 | 12x | 0.017 |

Black plastic double lens **control** eyeglass "extra large" with two lenses and a screwed bezel. Nice finish, lightweight.
Removable lenses ø 16 and 23.5 mm.



| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|------------|-----|---------|-------|------------|-----|---------|-------|
| 00.011-1 | 1 | 10.0x | 0.010 | 00.011-2.5 | 2.5 | 7.0x | 0.010 |
| 00.011-1.5 | 1.5 | 9.1x | " | 00.011-3 | 3 | 5.6x | " |
| 00.011-2 | 2 | 7.7x | " | 00.011-4 | 4 | 3.5x | " |

Black plastic **aplanatic** eyeglass, classic shape with screwed bezel. Nice finish, lightweight.
Removable lens ø 22 mm.

ECOLINE



| MSA | Magnification | Lens ø mm | Kg |
|--------|---------------|-----------|-------|
| 00.021 | 10x | 25 | 0.017 |

Standard eyeglass in black plastic with **LED light**.

» **Spectacle loupes.**



ARY spring clip eyeglass for **small** spectacles. Lightweight, removable and pivots upwards when not needed. Four rubber covered clamps and easy to bend to fit any spectacle frame. The spring clip is removable and can be delivered separately.
Lens ø 23 mm.
Weight in Kg : eyeglass 0.025 and spring clip 0.004.



ARY spring clip eyeglass for **standard** for **maxi sized** spectacles. Lightweight, removable and pivots upwards when not needed. Four rubber covered clamps and easy to bend to fit any spectacle frame. The spring clip is removable and can be delivered separately.
Lens ø 23 mm.
Weight in Kg: eyeglass 0.027 and spring clip 0.005.



Eyeglasses for right eye with mini spring clip :

| MSA | N° | Magnif. | Kg | MSA | N° | Magnif. | Kg |
|-------------|-----|---------|-------|-------------|-----|---------|-------|
| 00.099D-1 | 1 | 10.0x | 0.025 | 00.099D-3 | 3 | 3.5x | 0.025 |
| 00.099D-1.5 | 1.5 | 6.5x | " | 00.099D-3.5 | 3.5 | 3.0x | " |
| 00.099D-2 | 2 | 5.0x | " | 00.099D-4 | 4 | 2.5x | " |
| 00.099D-2.5 | 2.5 | 4.0x | " | | | | |

Replacement spring clip :

| MSA | Item |
|------------|-------------------------------------|
| 00.099D-A1 | Single MINI spring clip, right side |

Eyeglasses for left eye with mini spring clip :

| MSA | N° | Magnif. | Kg | MSA | N° | Magnif. | Kg |
|-------------|-----|---------|-------|-------------|-----|---------|-------|
| 00.099G-1 | 1 | 10.0x | 0.025 | 00.099G-3 | 3 | 3.5x | 0.025 |
| 00.099G-1.5 | 1.5 | 6.5x | " | 00.099G-3.5 | 3.5 | 3.0x | " |
| 00.099G-2 | 2 | 5.0x | " | 00.099G-4 | 4 | 2.5x | " |
| 00.099G-2.5 | 2.5 | 4.0x | " | | | | |

Replacement spring clip :

| MSA | Item |
|------------|------------------------------------|
| 00.099G-A1 | Single MINI spring clip, left side |

Eyeglasses for right eye with standard spring clip :

| MSA | N° | Agr. | Kg | MSA | N° | Agr. | Kg |
|-------------|-----|-------|-------|-------------|-----|------|-------|
| 00.100D-1 | 1 | 10.0x | 0.027 | 00.100D-3 | 3 | 3.5x | 0.027 |
| 00.100D-1.5 | 1.5 | 6.5x | " | 00.100D-3.5 | 3.5 | 3.0x | " |
| 00.100D-2 | 2 | 5.0x | " | 00.100D-4 | 4 | 2.5x | " |
| 00.100D-2.5 | 2.5 | 4.0x | " | | | | |

Replacement spring clips :

| MSA | Item |
|------------|---|
| 00.100D-A | Single standard spring clip, right side |
| 00.100D-A1 | Single MAXI spring clip, right side |

Eyeglasses for left eye with standard spring clip :

| MSA | N° | Magnif. | Kg | MSA | N° | Magnif. | Kg |
|-------------|-----|---------|-------|-------------|-----|---------|-------|
| 00.100G-1 | 1 | 10.0x | 0.027 | 00.100G-3 | 3 | 3.5x | 0.027 |
| 00.100G-1.5 | 1.5 | 6.5x | " | 00.100G-3.5 | 3.5 | 3.0x | " |
| 00.100G-2 | 2 | 5.0x | " | 00.100G-4 | 4 | 2.5x | " |
| 00.100G-2.5 | 2.5 | 4.0x | " | | | | |

Replacement spring clips :

| MSA | Item |
|------------|---------------------------------|
| 00.100G-A | Griffe standard seule, à gauche |
| 00.100G-A1 | Griffe MAXI seule, à gauche |

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

Additional ARY loupe for MSA 00.099 and 00.100 loupes. Increases magnification from 6.5x to 7x. Simply press to fix it.



| MSA | Mgn.* | Lens ø mm | Kg | MSA | Mgn.* | Lens ø mm | Kg |
|------------|-------|--------------|-------|------------|-------|--------------|-------|
| 00.012-1 | 10x | 15 | 0.050 | 00.012-2.5 | 4x | 24 | 0.050 |
| 00.012-1.5 | 7x | 24 | " | 00.012-3.5 | 3x | " | " |
| 00.012-2 | 5x | " | " | | | | |

Lateral eyeglass, simple and lightweight (right and left eye).
Delivered in plastic storage case with a variety of clamps
for spectacle frames from 1.60 to 6.35 mm.
Mgn.* : magnification



| MSA | Magnif. | Kg | MSA | Magnif. | Kg |
|------------|---------|-------|------------|---------|-------|
| 00.255-1.5 | 1.5x | 0.021 | 00.255-2.5 | 2.5x | 0.021 |
| 00.255-2 | 2.0x | " | 00.255-3 | 3.0x | " |

Binocular magnifiers for spectacles on hinge. The 2 supports
are covered with rubber.
Delivered in a synthetic case.



| MSA | Magnification | Lens ø mm | Kg |
|-----------|---------------|-----------|-------|
| 00.013-01 | 5x-10x-15x | 24/15 | 0.050 |
| 00.013-02 | 4x-10x-14x | " | " |
| 00.013-03 | 5x-7x-12x | 24/24 | " |
| 00.013-04 | 4x-7x-11x | " | 0.050 |
| 00.013-05 | 3x-7x-10x | " | " |
| 00.013-06 | 3x-5x-8x | " | " |

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

ECOLINE



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

Binocular magnifiers on metal hinge. Also suitable for
people who wear optical glasses.
Delivered in synthetic case with cleaning cloth.

> See chapter PERF.



| MSA | Magnif. | Kg | MSA | Magnif. | Kg |
|------------|---------|-------|----------|---------|-------|
| 00.256-2 | 2.0x | 0.100 | 00.256-3 | 3.0x | 0.100 |
| 00.256-2.5 | 2.5x | " | | | |

Binocular with plastic frame. Suitable for people wearing
spectacles.
Delivered in a plastic box with 1 cleaning cloth.

**Replacement acrylic resin dioptres for MSA
00.256 :**

| MSA | Magnif. | Kg | MSA | Magnif. | Kg |
|------------|---------|-------|----------|---------|-------|
| 00.257-2 | 2.0x | 0.012 | 00.257-3 | 3.0x | 0.012 |
| 00.257-2.5 | 2.5x | " | | | |

Size : 74 x 28 mm.



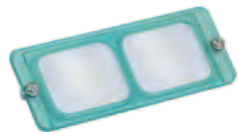
» **Binocular OptiVISOR® with high quality mobile visor and rounded edges, folding visor rise on hinges, adjustable headband using button and comfortable front part furnished. Frontal part furnished with leather doubled of felt. Can be worn over spectacles.**



| MSA | Nr. | Magnif. | Kg |
|-----------|-----|---------|-------|
| 00.250-02 | 2 | 1.50x | 0.240 |
| 00.250-03 | 3 | 1.75x | " |
| 00.250-04 | 4 | 2.00x | " |
| 00.250-05 | 5 | 2.50x | " |
| 00.250-07 | 7 | 2.75x | " |
| 00.250-10 | 10 | 3.50x | " |

Replacement binocular plates for MSA 00.250 (size 103 x 38 mm):

| MSA | Nr. | Magnif. | Kg | MSA | Nr. | Magnif. | Kg |
|-----------|-----|---------|-------|-----------|-----|---------|-------|
| 00.251-02 | 2 | 1.50x | 0.031 | 00.251-05 | 5 | 2.50x | 0.031 |
| 00.251-03 | 3 | 1.75x | " | 00.251-07 | 7 | 2.75x | " |
| 00.251-04 | 4 | 2.00x | " | 00.251-10 | 10 | 3.50x | " |



| MSA | o lens mm |
|--------|-----------|
| 00.252 | 36 |

Auxiliary lens 2.5x for binocular MSA 00.250. Can be mounted on right or left side.

ECOLINE



| MSA | Magnification | Kg |
|--------|-----------------------|-------|
| 00.242 | 1.8, 2.3, 3.7 et 4.8x | 0.185 |

Non-reflecting binocular with multiple magnification and folding internal lens. Headband with easy Velcro attachment.

Magnification : 1.8, 2.3, 3.7 and 4.8x.

» **The binoculars with headband are recommended for all long duration works.**

ECOLINE



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 00.245 | 290 x 215 x 65 | 0.500 |

Binocular with light with adjustable headband and folded lens.

Delivered in box containing the magnifier and a small plastic box of 4 interchangeable acrylic double lenses. 2 AAA batteries included.

Replacement parts :

| MSA | Items |
|------------|-----------------------------------|
| 00.245-B | Box with 4 interchangeable lenses |
| 00.245-1.2 | Double lens only 1.2x |
| 00.245-1.8 | Double lens only 1.8x |
| 00.245-2.5 | Double lens only 2.5x |
| 00.245-3.5 | Double lens only 3.5x |



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 00.246 | 220 x 280 x 65 | 0.604 |

Binocular with removable frontal 3 LED lamp (lasts approximately 50,000 hours), adjustable headband and folding ocular plate. Multiple adjustable positions for frontal lamp: approximately 30° to the left or right and 90° up or down.

Delivered with a plastic box containing 4 ocular interchangeable plates in acrylic resin. Functions with 3 AAA batteries not included.

Replacement parts :

| MSA | Items |
|------------|--------------------------|
| 00.246-A | 3 LED lamp only |
| 00.246-B | Box with 4 ocular plates |
| 00.246-1.5 | Ocular plate 1.5x |
| 00.246-2.0 | Ocular plate 2.0x |
| 00.246-2.5 | Ocular plate 2.5x |
| 00.246-3.5 | Ocular plate 3.5x |



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 00.248 | 220 x 280 x 65 | 0.372 |

Binocular with frontal lamp, adjustable headband and folding ocular plate.

Delivered with a plastic box containing 4 ocular interchangeable plates in acrylic resin. Functions with 2 AA batteries not included.

Replacement parts :

| MSA | Items |
|------------|---------------------------|
| 00.248-A | Lamp only |
| 00.248-B | Case with 4 ocular plates |
| 00.248-1.2 | Ocular plate 1.2x |
| 00.248-1.8 | Ocular plate 1.8x |
| 00.248-2.5 | Ocular plate 2.5x |
| 00.248-3.5 | Ocular plate 3.5x |

» The triplet loupes for diamonds have 3 lenses, linked to obtain an increased, clear and very fine image. Inclusions of diamonds are definitely visible with this type of loupe.



| MSA | Magnif. | Lens ø mm | Kg |
|--------|---------|-----------|-------|
| 00.297 | 10x | 18 | 0.050 |

Triplet loupe provided with 3 special lenses for stones examination. Gilded finish.

Delivered in 1 leather case and 1 cardboard box.



| MSA | Magnif. | Lens ø mm | Kg |
|--------|---------|-----------|-------|
| 00.298 | 10x | 18 | 0.050 |

Triplet loupe provided with 3 special lenses for stones examination. Black satin-like finish, reduced reflects.

Delivered in 1 leather case and 1 cardboard box.



| MSA | Magnif. | Lens ø mm | Kg |
|--------|---------|-----------|-------|
| 00.299 | 10x | 18 | 0.050 |

Triplet loupe provided with 3 special lenses for stones examination. Chromed finish.

Delivered in 1 leather case and 1 cardboard box.



| MSA | Magnif. | Lens ø mm | Kg |
|-----------|---------|-----------|-------|
| 00.300-20 | 20x | 18 | 0.034 |

Triplet loupe for stones examination. Black enamelled metal mounting, nickel-plated brass hull, reduced reflects.

Delivered in 1 leather case and 1 cardboard box.

ECOLINE



| MSA | Magnif. | Lens σ mm | Kg |
|--------|---------|------------------|-------|
| 00.303 | 10x | 18 | 0.046 |

Triplet loupe for stones examination. Chromed finish. Delivered in plastic box.

ECOLINE



| MSA | Magnif. | Lens σ mm | Kg |
|--------|---------|------------------|-------|
| 00.304 | 20x | 20.5 | 0.056 |

Triplet loupe for stones examination. Chromed finish. Black plastic body and chommed brass cover. Delivered in plastic box.

» Hand or on stand loupes.



| MSA | Magnif. | Lens. σ mm | Length mm | Kg |
|--------|---------|-------------------|-----------|-------|
| 00.500 | 3.5x | 50 | 155 | 0.079 |
| 00.501 | 3.5x | 60 | 160 | 0.094 |
| 00.502 | 2.5x | 90 | 208 | 0.198 |

Control loupe with hexagonal plastic handle.



| MSA | Magnif. | Lens. σ mm | Length mm | Kg |
|--------|---------|-------------------|-----------|-------|
| 00.505 | 2x | 100 | 285 | 1.780 |

Control loupe on stand with flexible arm, mounted on a stable cast iron base, for free hands work. Length 285 mm.

ECOLINE



| MSA | Magnif. | Lens. σ mm | Kg |
|--------|---------|-------------------|-------|
| 00.506 | 2.5x-5x | 90/22 | 0.499 |

Loupe on stand with flexible arm and 2 LEDs. Length 360 mm.

ECOLINE



| MSA | Magnif. | Lens. σ mm | Kg |
|--------|----------|-------------------|-------|
| 00.507 | 2.25x-5x | 107/22 | 0.450 |

Loupe on stand with flexible arm and 2 LEDs. Length 360 mm.

ECOLINE



| MSA | Magnif. | Lens. ø mm | Length mm | Kg |
|--------|---------|------------|-----------|-------|
| 00.511 | 40x | 21 | 132 | 0.090 |

Hand loupe with 2 LEDs.
Length 132 mm.

ECOLINE



| MSA | Magnif. | Lens. ø mm | Length mm | Kg |
|--------|---------|------------|-----------|-------|
| 00.512 | 15x | 37 | 132 | 0.060 |

Hand loupe with 2 LEDs.
Length 132 mm.

» Control mirror.



| MSA | Mirror ø mm | Length mm | Kg |
|--------|-------------|-----------|-------|
| 00.280 | 30 | 210 | 0.022 |

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

» Safety spectacles.

» See chapter 26.



» NOVEX® RZ series with illumination. Several accessories, illustrated on pages 00 23 to 00 26, are deliverable in option.



| MSA | Type | Voltage | Kg |
|------------|------------|---------|-------|
| 00.287 | Binocular | 220 V | 7.900 |
| 00.289 | Trinocular | 220 V | 8.950 |
| 00.289-110 | Trinocular | 110 V | 8.950 |

Binocular or trinocular stereoscopic microscope NOVEX® RZ series. The trinocular is equipped with a vertical tube for connection of a video camera/photo and delivered with 1 C mounting for a CCD camera.

Binocular head: oblique at 45° rotating at 360° and adjustable inter-pupillary distance from 52 to 80 mm. Dioptic adjustment on both tubes.

Stand: Chrome plated pillar 260 mm / ø 30 mm mounted on an alloy metal base with stove hardened off-white lacquer.

Illumination: Incident halogen 6 V - 10 W, adjustable intensity with daylight filter with reflector and transmitted daylight fluorescent 5 W - 6400° K, with adjustable light intensity using 1 or 2 translucent glasses. Integrated transformer. Complete with a 2 position switch and 1 network cable.

Wide field eyepieces: WF 10x/20 (with eyeshades).

Objective: zoom from 0.65x to 4.5x, zoom ratio 1:7.

Working distance: 95 mm.

Magnification: from 6.5x to 45x (field of view 31 to 4.4 mm).

Including: black/white stage plate, 2 translucent glasses, 2 clamps, dustcover and polystyrene box.

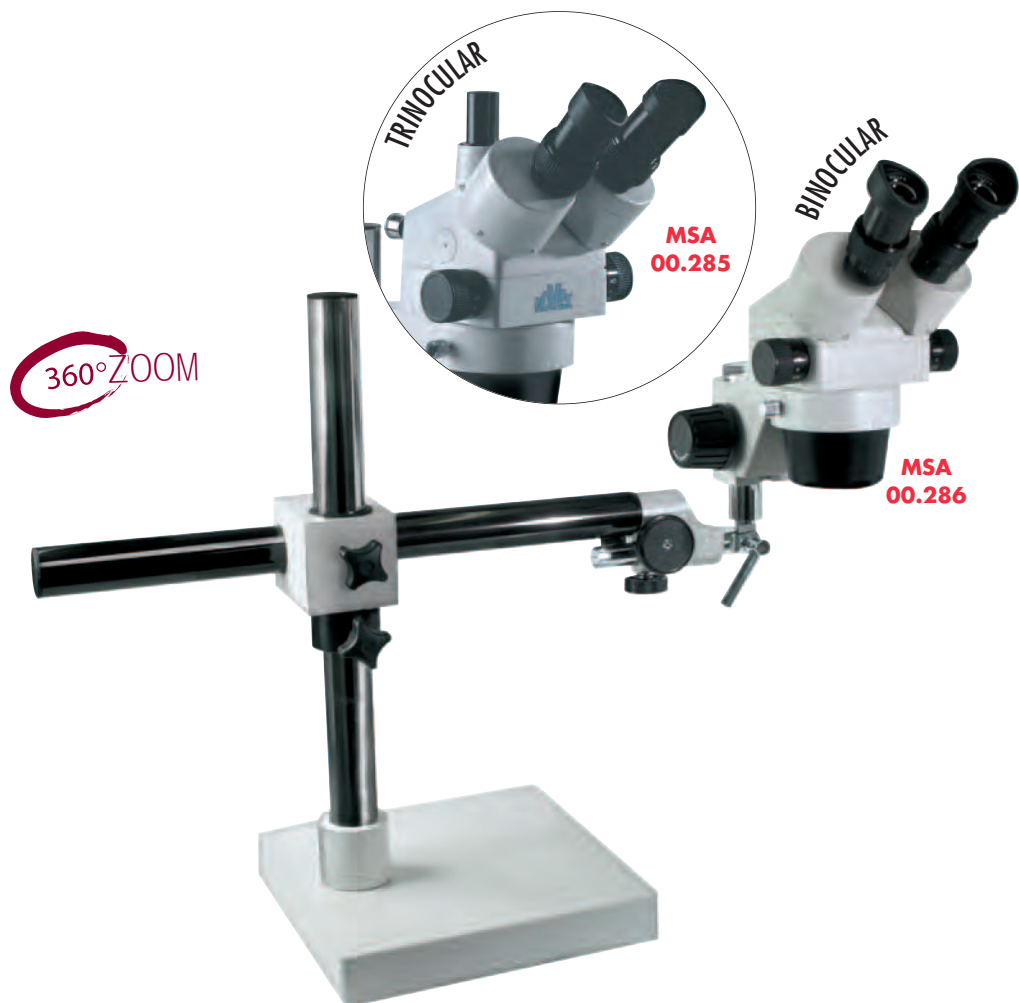
Replacement fluorescent bulb 5 W - 6400° K for transmitted illumination:

| MSA | Kg |
|----------|-------|
| 00.289-A | 0.026 |

Replacement halogen bulb 6 V - 10 W with reflector for incident illumination:

| MSA | Kg |
|----------|-------|
| 00.289-B | 0.020 |

» NOVEX® RZ series without illumination. Several accessories, illustrated on pages 00 23 to 00 26, are deliverable in option.



| MSA | Type | Kg |
|--------|-----------------------|--------|
| 00.286 | Binocular with stand | 24.300 |
| 00.285 | Trinocular with stand | 24.700 |

Binocular or trinocular stereoscopic microscope NOVEX® RZ series. The trinocular is equipped with a vertical tube for connection of a video camera/photo and delivered with 1 C mounting for a CCD camera.

Binocular head : oblique at 45° rotating at 360° and adjustable inter-pupillary distance from 52 to 80 mm. Dioptic adjustment on both tubes.

Stand : Chrome plated pillar 500 mm / ø 38 mm and 1 directional arm mounted on a base of 255 x 255 mm especially weighed. The maximum distance between the pillar and the optical axis is 660 mm.

Illumination : without.

Wide field eyepieces : WF 10x/20 (with eyeshades).

Objective : zoom from 0.65x to 4.5x, ratio zoom 1:7.

Magnification : from 6.5x to 45x (field of view 31 to 4.4 mm).

» NOVEX® RZ series without illumination. Several accessories, illustrated on pages 00 23 to 00 26, are deliverable in option.



| MSA | Type | Kg |
|--------|-------------------|-------|
| 00.284 | Binocular (Pict.) | 6.750 |
| 00.288 | Trinocular | 7.050 |

Binocular or trinocular stereoscopic microscope NOVEX® RZ series. The trinocular is equipped with a vertical tube for connection of a video camera/photo and delivered with 1 C mounting for a CCD camera.

Binocular head : oblique at 45° rotating at 360° and adjustable inter-pupillary distance from 52 to 80 mm. Dioptic adjustment on both tubes.

Stand : Chrome plated pillar 260 mm / ø 30 mm mounted on an alloy metal base with stove hardened off white lacquer.

Illumination : without.

Wide field eyepieces : WF 10x/20 (with eyeshades).

Objective : zoom from 0.65x to 4.5x, ratio zoom 1:7.

Working distance : 95 mm.

Magnification : from 6.5x to 45x (field of view 31 to 4.4 mm).

Including : black/white stage plate, 2 clamps, dustcover and polystyrene box.

» NOVEL® P series.



| MSA | Voltage | Kg |
|------------|---------|-------|
| 00.290 | 220 V | 3.100 |
| 00.290-110 | 110 V | " |

Stereoscopic microscope NOVEL® P series.
Binocular head : oblique at 45° rotating **at 360°** and adjustable inter-pupillary distance from 55 to 75 mm. One tube has a dioptr adjustment facility. Maximum object height is 30 mm.
Illumination : Transmitted and incident halogen illumination 12 V - 10 W which can be used individually or simultaneously. Integrated transformer. Complete with a 3 position switch and 1 network cable.
Wide field eyepieces : WF 10x/20 (with eyeshades).
Objective : 1x and 3x on a rotating revolver.
Magnification : 10x/30x (field of view 20 and 6.7 mm).
Including : black/white and frosted stage plates, 2 clamps, dustcover and polystyrene box.

Replacement halogen bulb 12 V - 10 W for incident and transmitted illumination :

| MSA | Kg |
|----------|-------|
| 00.290-C | 0.020 |



| MSA | Kg |
|----------|-------|
| 00.290-A | 0.170 |

Attachable dark field attachment. Suitable for examination of transparent and colourless objects, as for example precious stones, contact lenses, etc. For all microscopes with transmitted illumination.



| MSA | Kg |
|----------|-------|
| 00.290-B | 0.032 |

Directional tweezers to hold precious stones, for microscope MSA 00.290.



» NOVEL® P series.



| MSA | Voltage | Kg |
|------------|---------|-------|
| 00.283 | 220 V | 3.080 |
| 00.283-110 | 110 V | " |

Stereoscopic microscope NOVEL® P series.
Binocular head : oblique at 45° rotating **at 360°** and adjustable inter-pupillary distance from 55 to 75 mm. One tube has a dioptr adjustment facility. Maximum object height is 30 mm.
Illumination : transmitted or incident halogen illumination 12 V - 10 W (it can be used individually or simultaneously). Integrated transformer. Complete with a 3 position switch and 1 network cable.
Wide field eyepieces : WF 10x/20 (with eyeshades).
Objective : 2x and 4x on a rotating revolver.
Magnification : 20x/40x (field of view 10 and 5 mm).
Including : black/white and frosted stage plates, 2 clamps, dustcover and polystyrene box.

Replacement halogen bulb 12 V - 10 W for incident and transmitted illumination :

| MSA | Kg |
|----------|-------|
| 00.290-C | 0.020 |



» NOVEL® AP series.



| MSA | Voltage | Kg |
|------------|---------|-------|
| 00.282 | 220 V | 2.930 |
| 00.282-110 | 110 V | " |

Stereoscopic microscope NOVEL® AP series.

Binocular head : oblique at 45° rotating with dioptic adjustment and adjustable inter-pupillary distance from 55 to 75 mm.

Illumination : by incidence and by transmitting of 12 V - 10 W (it cannot be used simultaneously). Integrated transformer. Complete with a 2 position switch and 1 network cable.

Wide field eyepieces : WF 10x/20 (with eyeshades).

Objective : 1x and 3x on a rotating revolver.

Magnification : 10x/30x (field of view 20 and 6.7 mm).

Including : black/white and frosted stage plates, 2 clamps, dustcover and polystyrene box.

Replacement bulb 12 V - 10 W for incident or transmitted illumination :

| MSA | Kg |
|----------|-------|
| 00.282-A | 0.002 |

» NOVEL® AP series.



| MSA | Voltage | Kg |
|------------|---------|-------|
| 00.281 | 220 V | 2.615 |
| 00.281-110 | 110 V | " |

Stereoscopic microscope NOVEL® AP series.

Binocular head : oblique at 45° rotating with dioptic adjustment and adjustable inter-pupillary distance from 55 to 75 mm.

Illumination : by incidence and by transmitting of 12 V - 10 W (it cannot be used simultaneously). Integrated transformer. Complete with a 2 position switch and 1 network cable.

Wide field eyepieces : WF 10x/20 (with eyeshades).

Objective : 2x sliding.

Magnification : 20x (field of view 10 mm).

Including : black/white and frosted stage plates, 2 clamps, dustcover and polystyrene box.

Replacement bulb 12 V - 10 W for incident or transmitted illumination :

| MSA | Kg |
|----------|-------|
| 00.282-A | 0.002 |



| MSA | Magnification | Distance mm | Kg |
|----------|---------------|-------------|-------|
| 00.281-A | 1x | 50 | 0.100 |
| 00.281-B | 2x | 75 | " |
| 00.281-C | 3x | 60 | " |
| 00.281-D | 4x | 55 | " |
| 00.281-E | 6x | 35 | " |

Pair of optional objectives, adaptable on the microscope MSA 00.281. The working distance varies according to the magnification.

» NOVEL® AR-ZOOM series.



| MSA | Type | Voltage | Kg |
|------------|-------------------|---------|-------|
| 00.262 | Binocular (Pict.) | 220 V | 5.370 |
| 00.262-110 | Binocular | 110 V | " |
| 00.263 | Trinocular | 220 V | 5.705 |
| 00.263-110 | Trinocular | 110 V | " |

Binocular or trinocular stereoscopic microscope NOVEL® AR-ZOOM series. The trinocular is equipped with a 3rd vertical tube for the installation, thanks to an adapter, of a video camera/photo.

Binocular head : oblique at 45° rotating at 360° and adjustable inter-pupillary distance from 50 to 80 mm. Zoom ratio 1:4 and dioptic adjustment on both tubes.

Illumination : by incidence and by transmitting halogen of 12 V - 10 W provided with 1 daylight filter. Integrated transformer. Complete with a 2 position switch and 1 network cable.

Wide field eyepieces : WF 10x/20 (with eyeshades).

Working distance : 85 mm.

Magnification : from 10x to 40x (field of view 22 to 5.5 mm).

Including : black/white and frosted stage plates, 2 clamps, dustcover and polystyrene box.

Replacement halogen bulb 12 V - 10 W for incident illumination :

| MSA | Kg |
|----------|-------|
| 00.262-A | 0.020 |

Replacement halogen bulb 12 V - 10 W for transmitted illumination :

| MSA | Kg |
|----------|-------|
| 00.290-C | 0.020 |



» Cameras and software.



| MSA | Voltage | Kg |
|----------|---------|-------|
| 00.291-A | 220 V | 2.360 |
| 00.291-C | 110 V | " |

Colour video camera PAL for microscopes.

Pick-up element : CCC 1/2" Sony® with 795 (H) x 596 (V) lines.

Resolution : 470 horizontal lines, mode raised 580 lines, 440.000 pixels.

Minimum illumination : 0.3 Lux at F 1.2-5600° K for daylight and 0.003 Lux at F 0.8-5600° K for obscure or minimal light.

Shutter control : automatic or manual from 1/50 to 1/120.000 seconds. Delivered in a transport box with cables for screen connection and accessories.



| MSA | Kg |
|----------|-------|
| 00.291-F | 0.170 |

Software to capture images on PC via the camera and to create animations of short duration. Converts the audio/video analogical signal into numerical signal via USB port. Compatible composite, analogical entry S-Video and PAL/SECAM/NTSC.

Minimum configuration recommended :

- PC with USB port
- Pentium 233MMX ; RAM 32MB
- Sound card
- Windows 98 /ME/XP/2000.

| MSA | Size | Kg |
|----------|--------------|-------|
| 00.291-G | 50 x 42 x 42 | 0.170 |

Mini video camera PAL for microscopes.

Pick-up element : CCC 1/3 "with 512 (H) x 582 (V) lines.

Resolution : More than 380 horizontal lines, 290.000 pixels.

Minimum illumination : 0.1 Lux.

Shutter control : automatic or manual 1/100.000 second. Delivered in a plastic box with cables for screen connection and accessories.





| MSA | Kg |
|----------|-------|
| 00.291-H | 0.708 |

Digital camera for microscopes.
Pick-up element : CMOS 1/2".
Resolution : 1.3 mega-pixels.
Frame rate : from 1 to 12 images/second.
Interface : USB 2.0. Delivered in box with cables for screen connection and accessories. Images analysis software (install CD-ROM ImageFocus® included) allowing :
 - real time visualization and image capture with the format 1280 X 1024 pixels at 300 dpi
 - picture saving in TIFF*, JPEG*, BMP, GIF, PCX, PNG formats (*required format for measuring function)
 - annotate images with text and labels
 - calibration function of microscopes objectives and camera
 - perform measurements (linear/rectangle/ellipse/angle)
 - enhancement features on saved images
 - zoom function
 - printing saved images.

| MSA | Kg |
|--------|-------|
| 00.350 | 1.500 |

Digital microscope camera for shooting pictures and videos in real time. Delivered with stand. Magnification from 10x until 200x. Manual focus from 10 mm to infinite. Automatic white balance. Used for quality control and After sales Sce.
Resolution : 1.3 mega-pixels.
 Video or picture : 1280 x 1024, 480 x 320, 160 x 120.
Lighting : Equipped with 8 LEDs.
Interface : USB 1.1 or 2.0 (software settlement included).
Computer System requirements :
 - Windows Vista, XP (doesn't work with MAC)
 - Pentium®4, AMD Athlon® or faster (Dualcore)
 - Hard drive 100 MB
 - 16 bit Colour Display Adaptor
 - RAM 512 MB minimum
 - CD-ROM drive.

Accessories :

| MSA | Items |
|----------|-------------|
| 00.350-C | Camera only |
| 00.350-S | Stand only |



» Ring-illuminators.



| MSA | LED | Dist. mm | Voltage | Kg |
|------------|-----|----------|---------|----|
| 00.265 | 56 | 55-120 | 220 V | " |
| 00.265-110 | 56 | 55-120 | 110 V | " |

Ring illuminator with white LED 4300° K, adjustable intensity from 10 to 100% and variable working distance. Assembly without adapter on MSA 00.275 and 00.276. It can be also used with microscopes MSA 00.284, 00.285, 00.286, 00.287, 00.288 and 00.289 :
 - Without additional objective, use adapter MSA 00.293-L
 - With additional objective, use adapter MSA 00.293-K.

110 V VERSION NOT AVAILABLE



| MSA | Voltage | Kg |
|----------|---------|-------|
| 00.284-A | 220 V | 0.765 |

Fluorescent ring illuminator by incidence 7 W - 6400° K with long life non-replaceable lamp (> 5000 hours). Daylight type, not-adjustable intensity. Assembly on MSA 00.284, 00.285, 00.286, 00.287, 00.288 and 00.289 :
 - Without additional objective, no adapter is necessary
 - With additional objective, use adapter MSA 00.293-K.

110 V VERSION NOT AVAILABLE



| MSA | Voltage | Kg |
|----------|---------|-------|
| 00.284-E | 220 V | 1.450 |

Fluorescent ring illuminator by incidence 7 W - 5200°K. Working distance from 30 to 160 mm. Non adjustable intensity. Assembly without adapter on MSA 00.275 and 00.276. It can be also used with microscopes MSA 00.284, 00.285, 00.286, 00.287, 00.288 and 00.289 :
 - Without additional objective, use adapter MSA 00.293-L
 - With additional objective, use adapter MSA 00.293-M.



| MSA | Hours | Kg |
|----------|-------|-------|
| 00.284-M | 50 | 0.034 |
| 00.284-N | 1000 | " |

Halogen bulb 12 V-100 W for the light sources MSA 00.292, 00.293, 00.294 and 00.295.



| MSA | Kg |
|----------|-------|
| 00.284-P | 0.033 |

Fluorescent annular bulb 7 W for ring illuminator MSA 00.284-E.

» Objectives and adapters.



| MSA | Magnification | Distance mm | Kg |
|----------|---------------|-------------|-------|
| 00.284-C | 0.75x | 110 | 0.093 |
| 00.284-G | 0.50x | 160 | " |
| 00.284-D | 0.40x | 225 | " |

Additional objective to change the working distances which vary according to the selected magnification. Assembly on all the microscopes with binocular or trinocular head of RZ series, illustrated on pages 00 14 to 00 17.



| MSA | Magnification | Distance mm | Kg |
|----------|---------------|-------------|-------|
| 00.284-L | 0.75x | 97 | 0.082 |
| 00.284-F | 0.50x | 150 | " |
| 00.284-H | 0.30x | 250 | " |

Additional objective to change the working distances of microscopes EUROMEX® MSA 00.275 and 00.276. The working distance varies according to the selected magnification.



| MSA | Objective | Use | Kg |
|----------|-----------|---|-------|
| 00.293-K | With | For MSA 00.294, 00.264, 00.265 and 00.284-A | 0.023 |
| 00.293-L | Without | For MSA 00.294, 00.264, 00.265 and 00.284-E | " |
| 00.293-M | With | For MSA 00.284-E | " |

Ring-adapter for the mounting of lightings. Its use is dependent on the assembled objectives on the microscopes and the type of annular lighting.

» WALDMANN® universal lamps.



| MSA | Type | Voltage | Ballast | Tube ref. | Size mm | Kg |
|------------|---------|---------|--------------|-----------|----------------|-------|
| 00.619 (1) | SN 118 | 220 V | Conventional | 840 | 308 x 118 x 70 | 3.300 |
| 00.629 | SN 118 | " | " | 954 | " | 3.300 |
| 00.617 (2) | SN 136 | " | Conventional | 860 | 485 x 118 x 70 | 3.700 |
| 00.620 | SNE 118 | " | Electronic | 860 | " | 3.000 |
| 00.618 | SNE 136 | " | Electronic | 954 | " | 3.400 |
| 00.618-110 | SNE 136 | 110 V | " | 860 | 485 x 118 x 70 | 3.400 |
| 00.638 | SNE 136 | " | Conventional | 954 | 430 x 400 x 70 | 3.400 |
| 00.628 | STE 136 | 220 V | " | 840 | 555 x 75 x 50 | 3.000 |

WALDMANN® universal lamps suitable for all types of work benches. Modern energy-saving technology combined with high light output, anti-glare mechanism, diffuser and daylight source; turned on with 1 switch. Comfortable and easy positioning due to an articulated steel lighting grey coloured mast (430 mm) and arm (400 mm). Fixing with universal base (other fixing bases or clamps deliverable in option, see accessories below).

Replacement parts :

| MSA | Items |
|----------|--|
| 00.617-A | Fluorescent tube 860 daylight for MSA 00.617 and 00.618 |
| 00.617-B | Standard bench base for Lamps MSA 00.617, 00.618, 00.619, 00.620, 00.629 |
| 00.617-C | Fluorescent tube 840 daylight for MSA 00.617 and 00.618 |
| 00.617-D | Hiding protection plate for MSA 00.617 and 00.618. |

Replacement parts :

| MSA | Items |
|----------|---|
| 00.619-A | Fluorescent tube 860 daylight for MSA 00.619 and 00.620 |
| 00.619-B | Fluorescent tube 840 daylight for MSA 00.619 and 00.628 |
| 00.621 | Adaptable magnifier 3 dioptries for MSA 00.617, 00.618, 00.619 and 00.620 |
| 00.629-A | Osram Deluxe tube 18W/954 for MSA 00.629 and 00.618. |

» WALDMANN® magnifier lamps.



| MSA | Type | Voltage | Head size mm | Kg |
|--------|---------|---------|----------------|-------|
| 00.622 | SNL 319 | 220 V | 298 x 194 x 64 | 4.500 |

WALDMANN® magnifier lamp with 2 lighting options, with or without shadow. The large field magnifier in polished glass of 3 dioptries ensures an optimal vision. 3 fluorescent tubes TC-S9 W, neutral white light, low energy consumption and low heat release; turned on with 2 switches. Articulated steel lighting grey coloured mast (430 mm) and arm (400 mm). Conventional ballast (electronic ballast available on request). Fixing with universal base (other fixing bases or clamps deliverable in option, see accessories on page 00 28).

Replacement parts :

| MSA | Items |
|----------|------------------------------------|
| 00.622-A | Fluorescent tube neutral white 840 |
| 00.622-B | Fluorescent tube daylight 860 |

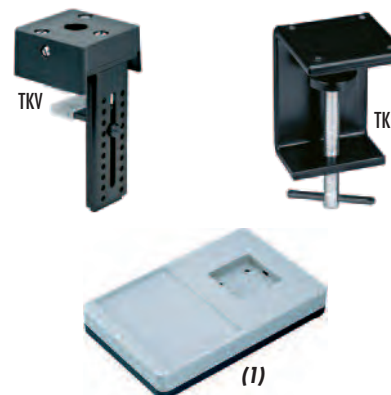
| MSA | Type | Voltage | Dioptries | Kg |
|------------|--------|---------|-----------|-------|
| 00.623-3.5 | LRE122 | 220 V | 3.5 | 2.700 |
| 00.623-4 | LRE122 | " | 4.0 | 2.900 |
| 00.623-6 | LRE122 | " | 6.0 | 2.800 |

WALDMANN® magnifier lamp. Ultramodern technology for this powerful, variable and distortion-free lighting, variable with little distortion. Circular fluorescent tube T-R 16 22 W, neutral white light, provides a light intensity 50% higher than conventional light sources. Different magnifiers adapt quickly according to requirements of each working station, lockable with security clamp; turned on with a switch. Articulated steel lighting grey coloured mast (430 mm) and arm (400 mm). Electronic ballast. Fixing with universal base (other fixing bases or clamps deliverable in option, see accessories on page 00 28).

Lens ø 120 mm, ø head 250 mm.

Replacement parts :

| MSA | Items |
|------------|---|
| 00.623-A | Round fluorescent tube 840 neutral white for MSA 00.623-x |
| 00.624-3.5 | Magnifier 3.5 dioptries for MSA 00.623-3.5 |
| 00.624-4 | Magnifier 4.0 dioptries for MSA 00.623-4 |
| 00.624-6 | Magnifier 6.0 dioptries for MSA 00.623-6 |



Accessories for lamps MSA 00.617... 00.623 :

| MSA | Items |
|----------|--|
| 00.608 | Black bench clamp TKV, opening from 67 to 139 mm |
| 00.608-A | Black bench clamp TK1, opening from 0 to 45 mm |
| 00.608-B | Black bench clamp TK1, opening from 0 to 65 mm |
| 00.608-C | Black bench clamp TK1, opening from 65 to 135 mm |
| 00.608-D | Black bench clamp TK1, opening from 95 to 165 mm |
| 00.627 | Grey bench base 300 x 200 x 70mm (1) |

01



SCREWDRIVERS AND BLADES 01 2



- watchmaker
- classic
- antimagnetic
- with fixed blade
- specials
- with reversible blades
- for optics



TOOLS FOR SHARPENING AND SHAPING BLADES 01 19

» The absolutely best watchmaker **SCREWDRIVERS** ! Knurled **STAINLESS STEEL** handle, hexagonal swivel large diameter head mounted on ball bearings and interchangeable hardened-blue steel blade.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|--------|---|-------|
| 01.205 | 0.50 - 0.60 - 0.70 - 0.80 - 1.00 1.20 - 1.40 - 1.50 - 1.60 - 2.00 2.50 - 3.00 | 0.890 |

Set of 12 **watchmaker** screwdrivers with knurled **stainless steel** handle MSA 01.201-xxx, on aluminium solid stand with colour coded holes for fast ø identification and non-skid base. Delivered with 21 replacement hardened blue steel blades stored in the central compartment of the stand protected by the red cover.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|----------|---|-------|
| 01.201-C | 0.50 - 0.60 - 0.70 - 0.80 - 1.00 1.20 - 1.40 - 1.50 - 1.60 - 2.00 2.50 - 3.00 | 1.006 |

Set of 12 **watchmaker** screwdrivers with knurled **stainless steel** handle MSA 01.201-xxx on aluminium solid stand, turning on non-skid base. Delivered with 21 replacement hardened-blue steel blades stored in the centre compartment of the stand.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|----------|--|-------|
| 01.201-D | 0.60 - 0.80 - 1.00 - 1.20 1.40 - 2.00 | 0.276 |

Set of 6 **watchmaker** screwdrivers with knurled **stainless steel** handle MSA 01.201-xxx on sturdy aluminium stand with 2 steel pillars and 6 colour identified heads for quick selection. Delivered with 6 replacement hardened-bleu steel blades.

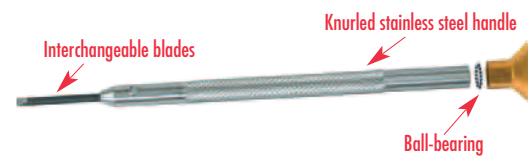


ASSORTMENT



| MSA | Blades ø mm | Kg |
|----------|---|-------|
| 01.201-A | 0.60 - 0.80 - 1.00 - 1.20 1.40 - 1.60 - 2.00 - 2.50 - 3.00 | 0.210 |

Set of 9 **watchmaker** screwdrivers with knurled **stainless steel** handle MSA 01.201-xxx. Delivered in a wooden case with 9 replacement hardened-bleu steel blades and 2 fixing screws.



Watchmaker screwdriver. Knurled **stainless steel** handle, hexagonal swivel large diameter head mounted on ball bearings and interchangeable hardened-blue steel blade. Delivered individually with screwed blade.

| MSA | ø mm | Head | Kg |
|------------|------|---------------|-------|
| 01.201-050 | 0.50 | Orange | 0.020 |
| 01.201-060 | 0.60 | Aluminium | " |
| 01.201-070 | 0.70 | Pastel yellow | " |
| 01.201-080 | 0.80 | Yellow | " |
| 01.201-090 | 0.90 | Pink | " |
| 01.201-100 | 1.00 | Black | " |
| 01.201-110 | 1.10 | Turquoise | " |
| 01.201-120 | 1.20 | Red | " |
| 01.201-130 | 1.30 | Light green | " |
| 01.201-140 | 1.40 | Dark grey | " |
| 01.201-150 | 1.50 | Salmon | " |
| 01.201-160 | 1.60 | Violet | " |
| 01.201-180 | 1.80 | Light grey | " |
| 01.201-200 | 2.00 | Dark green | " |
| 01.201-250 | 2.50 | Blue | " |
| 01.201-300 | 3.00 | Brown | " |
| 01.201-350 | 3.50 | Pastel green | " |

» Other ø available upon request and according to quantities.



Interchangeable hardened-blue steel blade for **watchmaker** screwdriver with knurled **stainless steel** handle MSA 01.201-xxx.

| MSA | ø mm | Kg | MSA | ø mm | Kg |
|------------|------|-------|------------|------|-------|
| 01.202-050 | 0.50 | 0.001 | 01.202-140 | 1.40 | 0.001 |
| 01.202-060 | 0.60 | " | 01.202-150 | 1.50 | " |
| 01.202-070 | 0.70 | " | 01.202-160 | 1.60 | " |
| 01.202-080 | 0.80 | " | 01.202-180 | 1.80 | " |
| 01.202-090 | 0.90 | " | 01.202-200 | 2.00 | " |
| 01.202-100 | 1.00 | " | 01.202-250 | 2.50 | " |
| 01.202-110 | 1.10 | " | 01.202-300 | 3.00 | " |
| 01.202-120 | 1.20 | " | 01.202-350 | 3.50 | " |
| 01.202-130 | 1.30 | " | | | |

» Other ø and shapes available upon request and according to quantities.



| MSA | Modèles | ø mm | Utilisation |
|-------------|---------|------|---|
| 01.201-T430 | Small | 4.30 | For screwdrivers from ø 0.50 to 1.50 mm |
| 01.201-T480 | Medium | 4.80 | For screwdrivers from ø 1.60 to 2.00 mm |
| 01.201-T530 | Large | 5.30 | For screwdrivers from ø 2.50 to 3.50 mm |

Aluminium enlargement ring for **watchmaker** screwdriver with knurled stainless steel handle MSA 01.201-xxx, allowing better grip for screwing and unscrewing.



| MSA | Kg |
|----------|-------|
| 01.201-V | 0.001 |

Screws for **watchmaker** screwdriver with knurled stainless steel handle MSA 01.201-xxx.

» **Watchmaker SCREWDRIVERS with knurled STAINLESS STEEL handle delivered in 1 plastic pouch with 1 tube containing 3 replacement blades.**



| MSA | ø mm | Head | Kg |
|------------|------|---------------|-------|
| 01.203-050 | 0.50 | Orange | 0.020 |
| 01.203-060 | 0.60 | Aluminium | " |
| 01.203-070 | 0.70 | Pastel yellow | " |
| 01.203-080 | 0.80 | Yellow | " |
| 01.203-090 | 0.90 | Pink | " |
| 01.203-100 | 1.00 | Black | " |
| 01.203-110 | 1.10 | Turquoise | " |
| 01.203-120 | 1.20 | Red | " |
| 01.203-130 | 1.30 | Light green | " |
| 01.203-140 | 1.40 | Dark grey | " |
| 01.203-150 | 1.50 | Salmon | " |
| 01.203-160 | 1.60 | Violet | " |
| 01.203-180 | 1.80 | Light grey | " |
| 01.203-200 | 2.00 | Dark green | " |
| 01.203-250 | 2.50 | Blue | " |
| 01.203-300 | 3.00 | Brown | " |
| 01.203-350 | 3.50 | Pastel green | " |

Watchmaker screwdriver with knurled **stainless steel** handle MSA 01.201-xxx.

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

» Other ø available upon request and according to quantities.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|------------|------|-------|------------|------|-------|
| 01.204-050 | 0.50 | 0.002 | 01.204-140 | 1.40 | 0.002 |
| 01.204-060 | 0.60 | " | 01.204-150 | 1.50 | " |
| 01.204-070 | 0.70 | " | 01.204-160 | 1.60 | " |
| 01.204-080 | 0.80 | " | 01.204-180 | 1.80 | " |
| 01.204-090 | 0.90 | " | 01.204-200 | 2.00 | " |
| 01.204-100 | 1.00 | " | 01.204-250 | 2.50 | " |
| 01.204-110 | 1.10 | " | 01.204-300 | 3.00 | " |
| 01.204-120 | 1.20 | " | 01.204-350 | 3.50 | " |
| 01.204-130 | 1.30 | " | | | |

Plastic tube containing 3 hardened-blue steel blades for **watchmaker** screwdriver with knurled stainless steel handle MSA 01.201-xxx.

» Other ø and shapes available upon request and according to quantities.

» Different assortments of watchmaker **SCREWDRIVERS** with knurled **STAINLESS STEEL** handles from MSA 01.201-060 to 01.201-250.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|--------|---------------------------|-------|
| 01.006 | 0.60 - 0.80 - 1.00 - 1.20 | 0.045 |

Assortment of 4 **watchmaker** screwdrivers with knurled **stainless steel** handles MSA 01.201-xxx. Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|--------|--|-------|
| 01.016 | 0.60 - 0.80 - 1.00 - 1.20 1.60 - 2.50 | 0.045 |

Assortment of 6 **watchmaker** screwdrivers with knurled **stainless steel** handles MSA 01.201-xxx. Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|----------|----------------------------------|-------|
| 01.201-B | 0.60 - 0.80 - 1.00 - 1.20 - 1.40 | 0.050 |

Assortment of 5 **watchmaker** screwdrivers with knurled **stainless steel** handles MSA 01.201-xxx. Delivered in 1 plastic pouch.



ASSORTMENT

| MSA | Blades ø mm | Kg |
|----------|----------------------------------|-------|
| 01.201-F | 1.00 - 1.20 - 1.40 - 1.60 - 2.00 | 0.055 |

Assortment of 5 **watchmaker** screwdrivers with knurled **stainless steel** handles MSA 01.201-xxx. Delivered in 1 plastic pouch.



ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|---|-------|
| 01.207 | 0.60 - 0.80 - 1.00 - 1.20 1.40 - 1.60 - 180 - 2.00 - 2.50 - 3.00 | 0.210 |

Set of 10 **watchmaker** screwdrivers with knurled **stainless steel** handle MSA 01.207-xxx, ball-bearing heads, with "T" shape hardened blue steel blades. Delivered in a plastic box with 1 spare blade of each ø (total 10 spare blades).



| MSA | ø mm | Head | Kg |
|------------|------|---------------|-------|
| 01.207-060 | 0.60 | Aluminium | 0.020 |
| 01.207-070 | 0.70 | Pastel yellow | " |
| 01.207-080 | 0.80 | Yellow | " |
| 01.207-100 | 1.00 | Black | " |
| 01.207-120 | 1.20 | Red | " |
| 01.207-140 | 1.40 | Dark grey | " |
| 01.207-150 | 1.50 | Salmon | " |
| 01.207-160 | 1.60 | Violet | " |
| 01.207-180 | 1.80 | Light grey | " |
| 01.207-200 | 2.00 | Dark green | " |
| 01.207-250 | 2.50 | Blue | " |
| 01.207-300 | 3.00 | Brown | " |

Watchmaker screwdrivers with knurled **stainless steel** handle, hexagonal head mounted on ball-bearing and interchangeable "T" shape hardened blue steel blades. Delivered individually under this reference with the blade mounted.

» Other ø available upon request and according to quantities.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|-------------|------|-------|-------------|------|-------|
| 01.202-T060 | 0.60 | 0.001 | 01.202-T150 | 1.50 | " |
| 01.202-T070 | 0.70 | " | 01.202-T160 | 1.60 | 0.001 |
| 01.202-T080 | 0.80 | " | 01.202-T180 | 1.80 | " |
| 01.202-T100 | 1.00 | " | 01.202-T200 | 2.00 | " |
| 01.202-T120 | 1.20 | " | 01.202-T250 | 2.50 | " |
| 01.202-T140 | 1.40 | " | 01.202-T300 | 3.00 | " |

"T" shape **hardened blue steel** blade only for screwdriver MSA 01.207.

» Other ø and shapes available upon request and according to quantities.

» CLASSIC precision screwdrivers. Knurled handle in chromed brass; colour coated head indicating the diameter of the blade.

ASSORTMENT



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

Assortment of 9 **classic** precision screwdrivers MSA 01.101xxx on a chromed black swivel stand. Delivered with 19 replacement hardened-blue steel blades and 2 fixing screws in the centre compartment of the stand.



ASSORTMENT

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

Assortment of 9 **classic** precision screwdrivers MSA 01.101xxx. Delivered in a wooden box with 19 replacement hardened-blue steel blades and 2 fixing screws in a plastic tube.

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

Classic precision screwdriver MSA 01.101-xxx with knurled handle in chromed brass. Delivered individually with screwed blade.



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

Classic precision screwdriver MSA 01.101-xxx with knurled handle in chromed brass. Delivered in 1 plastic pouch with 1 tube containing 3 hardened-blue steel blades.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|------------|------|-------|------------|------|-------|
| 01.202-050 | 0.50 | 0.001 | 01.102-160 | 1.60 | 0.001 |
| 01.102-060 | 0.60 | " | 01.102-180 | 1.80 | " |
| 01.102-080 | 0.80 | " | 01.102-200 | 2.00 | " |
| 01.102-100 | 1.00 | " | 01.102-250 | 2.50 | " |
| 01.102-120 | 1.20 | " | 01.102-300 | 3.00 | " |
| 01.102-140 | 1.40 | " | | | |

Interchangeable hardened-blue steel blade for **classic** precision screwdrivers MSA 01.101-xxx.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|------------|------|-------|------------|------|-------|
| 01.204-050 | 0.50 | 0.002 | 01.103-160 | 1.60 | 0.002 |
| 01.103-060 | 0.60 | " | 01.103-180 | 1.80 | " |
| 01.103-080 | 0.80 | " | 01.103-200 | 2.00 | " |
| 01.103-100 | 1.00 | " | 01.103-250 | 2.50 | " |
| 01.103-120 | 1.20 | " | 01.103-300 | 3.00 | " |
| 01.103-140 | 1.40 | " | | | |

Plastic tube containing 3 hardened-blue steel blades for **classic** precision screwdriver MSA 01.101-xxx.



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

Screws for **classic** precision screwdrivers MSA 01.101-xxx.

» Different assortments of CLASSIC precision screwdrivers from MSA 01.101-060 to 01.101-300.

ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|---------------------------|-------|
| 01.003 | 0.60 - 0.80 - 1.00 - 1.20 | 0.049 |

Assortment of 4 **classic** precision screwdrivers MSA 01.101-xxx.
Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|--|-------|
| 01.013 | 0.60 - 0.80 - 1.00 - 1.20 2.00 - 3.00 | 0.091 |

Assortment of 6 **classic** precision screwdrivers MSA 01.101-xxx
Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Contents | Blades ø mm | Kg |
|--------|-----------------------|-----------------------------------|-------|
| 01.095 | 5 single screwdrivers | 0.60 - 0.80 - 1.00 1.20 - 1.40 | 0.057 |

Assortment of 5 **classic** precision screwdrivers MSA 01.101-xxx.
Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Contents | Blades ø mm | Kg |
|----------|--|-----------------------------------|-------|
| 01.095-Z | 5 screwdrivers and 5 replacement blades | 0.60 - 0.80 - 1.00 1.20 - 1.40 | 0.060 |

Assortment of 5 **classic** precision screwdrivers MSA 01.101-xxx and 5 interchangeable blades.
Delivered in 1 plastic pouch.

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

ANTIMAGNETIC

ASSORTMENT



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

Assortment of 9 precision **antimagnetic** screwdrivers MSA 01.105-xxx on black chromed swivel stand.
Delivered with 19 replaceable blades made of copper-beryllium alloy and 2 fixing screws placed in the centre compartment of the stand.

ANTIMAGNETIC



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

Precision **antimagnetic** screwdrivers. Knurled handle in chromed brass.
Delivered individually with screwed blade made of copper-beryllium alloy.

ANTIMAGNETIC



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

Interchangeable **antimagnetic** blade made of copper-beryllium alloy (CuBe) for precision screwdriver MSA 01.105-xxx.



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

Screws for precision **antimagnetic** screwdriver MSA 01.105-xxx.

» Different assortments of **ANTIMAGNETIC** precision screwdrivers from MSA 01.105-060 to 01.105-300.

ANTIMAGNETIC
ASSORTMENT



| MSA | Blades σ mm | Kg |
|--------|---------------------------|-------|
| 01.004 | 0.60 - 0.80 - 1.00 - 1.20 | 0.051 |

Assortment of 4 **antimagnetic** precision screwdrivers MSA 01.105-xxx.
Delivered in 1 plastic pouch.

ANTIMAGNETIC
ASSORTMENT



| MSA | Blades σ mm | Kg |
|--------|--|-------|
| 01.014 | 0.60 - 0.80 - 1.00 - 1.20 2.00 - 3.00 | 0.090 |

Assortment of 4 **antimagnetic** precision screwdrivers MSA 01.105-xxx
Delivered in 1 plastic pouch with 1 tube containing 6 **antimagnetic** replacement blades.

» Screwdriver with hardened steel **FIXED BLADE**. Grooved handle in white metal and round head. Swiss made.



| MSA | σ mm | Kg | MSA | σ mm | Kg |
|------------|-------------|-------|------------|-------------|-------|
| 01.001-060 | 0.60 | 0.004 | 01.001-120 | 1.20 | 0.005 |
| 01.001-070 | 0.70 | " | 01.001-150 | 1.50 | 0.007 |
| 01.001-080 | 0.80 | " | 01.001-180 | 1.80 | " |
| 01.001-100 | 1.00 | 0.005 | | | |

Screwdriver with **fixed blade**. Grooved handle in white metal and round head.

» Different assortments of screwdrivers with **FIXED BLADE** from MSA 01.001-060 to 01.001-200.

ASSORTMENT



| MSA | Blades σ mm | Kg |
|----------|----------------------------------|-------|
| 01.001-A | 0.60 - 0.80 - 1.00 - 1.20 - 1.50 | 0.034 |

Assortment of 5 screwdrivers with **fixed blade** MSA 01.001-xxx
Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Blades σ mm | Kg |
|----------|---------------------------|-------|
| 01.001-B | 0.60 - 0.80 - 1.00 - 1.20 | 0.028 |

Assortment of 4 screwdrivers with **fixed blade** MSA 01.001-xxx
Delivered in 1 plastic pouch.

» **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 | Interior width mm | Length mm | Ring | Kg |
|----------|-------------------|-----------|--------|-------|
| 01.107-A | 3.00 | 107 | Grey | 0.026 |
| 01.107-B | 3.50 | " | Violet | " |
| 01.107-C | 4.00 | " | Green | " |
| 01.107-D | 4.50 | " | Blue | " |
| 01.107-E | 5.00 | " | Brown | " |

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



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

Assortment of 5 **special** screwdrivers with fixed female key for hexagonal nuts. Delivered in 1 plastic pouch.



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

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



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

Assortment of 4 **special** screwdrivers with fixed male ALLEN type key for hexagonal hollow nuts. Delivered in 1 plastic pouch.



| MSA | ø mm | Ring | Kg |
|------------|------|--------|-------|
| 01.400-1.2 | 1.20 | Grey | 0.025 |
| 01.400-1.5 | 1.50 | Violet | " |
| 01.400-2.0 | 2.00 | Green | " |
| 01.400-2.5 | 2.50 | Blue | " |
| 01.400-3.0 | 3.00 | Brown | " |

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



| MSA | Blades ø mm | Kg |
|----------|---------------------------|-------|
| 01.400-A | 1.50 - 2.00 - 2.50 - 3.00 | 0.093 |

Assortment of 4 **special** screwdrivers with fixed CRUCIFORM PHILLIPS type blade. Delivered in 1 plastic pouch.



| MSA | Blades ø mm | Kg |
|----------|----------------------------------|-------|
| 01.400-B | 1.20 - 1.50 - 2.00 - 2.50 - 3.00 | 0.115 |

Assortment of 5 **special** screwdrivers with fixed CRUCIFORM PHILLIPS type blade. Delivered in 1 plastic pouch.

» Practical screwdriver 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 mm | Head | Kg |
|------------|------|--------|-------|
| 01.221-050 | 0.50 | Violet | 0.012 |
| 01.221-060 | 0.60 | Blue | " |
| 01.221-070 | 0.70 | Grey | " |
| 01.221-080 | 0.80 | Red | " |
| 01.221-100 | 1.00 | Brown | " |
| 01.221-120 | 1.20 | Green | " |
| 01.221-130 | 1.30 | Black | " |
| 01.221-150 | 1.50 | Orange | " |

Screwdriver **with reversible blade**. Grooved handle in chromed brass, coloured head and interchangeable reversible special steel blade cut at both ends. Delivered individually with assembled blade. Length approximately 80 mm.

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

Interchangeable reversible special steel blade cut at both ends for screwdriver **with reversible blade** MSA 01.221-xxx.

» Different assortments of screwdrivers with **REVERSIBLE BLADE** from MSA 01.221-050 to 01.221-150.

ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|---------------------------|-------|
| 01.005 | 0.60 - 0.80 - 1.00 - 1.20 | 0.046 |

Assortment of 4 screwdrivers **with reversible blade** MSA 01.221-xxx. Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|---|-------|
| 01.015 | 0.50 - 0.60 - 0.80 - 1.00 - 1.20 - 1.50 | 0.058 |

Assortment of 6 screwdrivers **with reversible blade** MSA 01.221-xxx. Delivered in 1 plastic pouch.

ASSORTMENT



| MSA | Blades ø mm | Kg |
|--------|----------------------------------|-------|
| 01.225 | 0.60 - 0.80 - 1.00 - 1.20 - 1.50 | 0.050 |

Assortment of 5 screwdrivers **with reversible blade** MSA 01.221-xxx. Delivered in 1 plastic pouch.

» Special screwdriver FOR GLASSES with interchangeable blades and shapes especially adaptable for opticians. Knurled aluminium handle and hardened-blue steel blades.



| MSA | Kg |
|--------|-------|
| 01.401 | 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.

Replacement blades (body ø 2.50 mm) :

| MSA | ø mm |
|------------|------|
| 01.401-160 | 1.60 |
| 01.401-180 | 1.80 |
| 01.401-200 | 2.00 |
| 01.401-250 | 2.50 |

| MSA | Size mm | Kg |
|--------|----------------|-------|
| 01.402 | 135 x 112 x 22 | 0.222 |

Special screwdriver **for glasses**. Knurled aluminium handle, black lightweight head to limit the tool weight and to make it more manageable. Fixing system of the interchangeable blades by metallic clips. Delivered in 1 wooden box with 16 hardened-blue steel blades of different shapes and diameters.

Replacement parts (blade body ø 3.00 mm) :

| MSA | ø mm | Kg | Items |
|----------|------|-------|--------------------------|
| 01.402-A | 1.50 | 0.002 | Cruciform Phillips blade |
| 01.402-B | 1.80 | " | " |
| 01.402-C | 2.00 | " | " |
| 01.402-D | 2.50 | " | " |
| 01.402-E | 1.50 | " | Flat blade |
| 01.402-F | 1.80 | " | " |
| 01.402-G | 2.00 | " | " |
| 01.402-H | 2.50 | " | " |
| 01.402-J | 3.00 | " | Hollow blade |
| 01.402-K | 3.00 | " | Bur for rounding |
| 01.402-L | 1.10 | " | Nut extractor |
| 01.402-M | 2.20 | " | Hexagonal key |
| 01.402-N | 2.50 | " | " |
| 01.402-P | 2.40 | " | Square key |
| 01.402-R | 2.20 | " | Nut-star with 4 arms |
| 01.402-S | 2.50 | " | Nut-star with 6 arms |
| 01.402-T | - | 0.020 | Handle alone (L. 94 mm) |

ASSORTMENT



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

Key-ring screwdriver **for glasses**. Grooved nickel-plated brass body in 2 screwed parts. Blade ø 1.60 mm in hardened steel and nickel-plated steel ring.

» Tool for forming the screwdriver blades in "T" shape. The utilisation of this tool avoids screw scratching by the operator. To obtain the desired shape, adjust the gap between the 2 round stones according to blade diameter. Mainly used by watchmakers who repair high range of watches with blue or gold screws.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 01.502 | 130 X 50 X 45 | 0.370 |

Delivered with 3 stones (1 square and 2 round), 5 screwdriver holders (screwdriver not included) and 1 user manual.

Replacement parts :

| MSA | Items | Kg |
|------------|-------------------------------------|-------|
| 01.502-A | Single round stone | 0.020 |
| 01.502-B | Single square stone | 0.016 |
| 01.502-U | Screwdriver holder ø 0.70 - 2.00 mm | 0.019 |
| 01.502-050 | Screwdriver holder ø 0.50 mm | 0.020 |
| 01.502-060 | Screwdriver holder ø 0.60 mm | " |
| 01.502-250 | Screwdriver holder ø 2.50 mm | 0.017 |
| 01.502-300 | Screwdriver holder ø 3.00 mm | " |
| 01.502-V | Assortment of 5 screws | 0.002 |

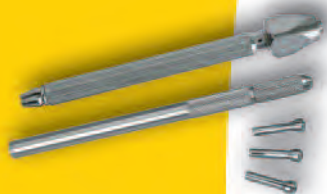


| MSA | Size mm | Kg |
|--------|-----------|-------|
| 01.500 | 40 x ø 14 | 0.024 |

Tool for **sharpening** screwdriver blades. To use preferably with 1 Arkansas stone having a minimum width of 40 mm (see pages 16 2, 16 3 and 16 4 for Arkansas or India stones).

No screwdriver or stones included.

02



PIN VICES 02 2



DRILLS 02 7



CUTTING BROACHES 02 8



SMOOTHING BROACHES 02 11

PIN VICES | DRILLS | CUTTING BROACHES | SMOOTHING BROACHES

» 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.



Pin vice with fluted hollow brass handle and **square head** to prevent rolling on bench. Delivered with 2 steel chucks.

| MSA | Tightening mm | Length mm | Kg |
|-----------|---------------|-----------|-------|
| 02.001-01 | 0 à 1.5 | 70 | 0.022 |
| 02.001-02 | 0 à 1.8 | 80 | 0.025 |
| 02.001-03 | 0 à 2.3 | 90 | 0.030 |
| 02.001-04 | 0 à 2.8 | 100 | 0.040 |
| 02.001-05 | 0 à 3.0 | 110 | 0.050 |
| 02.001-06 | 0 à 3.5 | 120 | 0.060 |
| 02.001-07 | 0 à 4.0 | 130 | 0.080 |
| 02.001-08 | 0 à 5.0 | 140 | 0.094 |

ASSORTMENT



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

Assortment of 4 pin vices MSA 02.001-02,-04,-06 -08. Pin vice with fluted hollow brass handle and **square head** to prevent rolling on bench. Delivered with 2 steel chucks in a plastic pouch.



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

| MSA | Serrage mm | Longueur mm | Kg |
|-----------|------------|-------------|-------|
| 02.002-01 | 0 à 1.5 | 70 | 0.020 |
| 02.002-02 | 0 à 1.8 | 80 | " |
| 02.002-03 | 0 à 2.3 | 90 | 0.030 |
| 02.002-04 | 0 à 2.8 | 100 | 0.040 |
| 02.002-05 | 0 à 3.0 | 110 | 0.045 |
| 02.002-06 | 0 à 3.5 | 120 | 0.060 |
| 02.002-07 | 0 à 4.0 | 130 | 0.070 |
| 02.002-08 | 0 à 5.0 | 140 | 0.093 |



Pin vice with fluted hollow brass thin handle and **round head** ø 5 mm. Delivered with 2 steel chucks.

| MSA | Serrage mm | Longueur mm | Kg |
|-----------|------------|-------------|-------|
| 02.003-01 | 0 à 0.8 | 80 | 0.012 |
| 02.003-02 | " | 90 | 0.015 |
| 02.003-03 | " | 100 | " |
| 02.003-04 | " | 110 | " |
| 02.003-05 | " | 120 | 0.017 |

PIN VICES | DRILLS | CUTTING BROACHES | SMOOTHING BROACHES



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.004 | 0 to 2.8 | 110 | 0.040 |

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



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.005 | 0 to 2.5 | 110 | 0.033 |

Double ended pin vice with fluted nickel-plated handle and 2 **round heads**. Delivered with 2 steel chucks.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.012 | 0 to 2.8 | 110 | 0.038 |

Double ended pin vice with fluted hollow nickel-plated handle and 2 knurled **round heads**. Delivered with 2 steel chucks.



| MSA | Tightening mm | Length mm | Kg |
|-----------|---------------|-----------|-------|
| 02.014-02 | 0.0 à 0.8 | 80 | 0.013 |
| 02.014-04 | 0.0 à 1.0 | 100 | 0.025 |
| 02.014-06 | 1.4 à 2.5 | 120 | " |

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



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

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



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

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



| MSA | Crowns | Model | Length mm | Kg |
|-----------|-------------|--------|-----------|-------|
| 02.008-01 | ø 3 to 5 mm | Small | 75 | 0.031 |
| 02.008-02 | ø 5 to 7 mm | Large | " | " |
| 02.008-03 | ø 4 to 6 mm | Medium | " | " |

Winding crowns pin vice with knurled nickel-plated handle. Specially made for winding watches, crowns from ø 3 to 7 mm, according to the upper table.



| MSA | Serrage mm | Longueur mm | Kg |
|-----------|------------|-------------|-------|
| 02.015-01 | 0 à 1.5 | 70 | 0.022 |
| 02.015-02 | 0 à 1.8 | 80 | " |
| 02.015-03 | 0 à 2.3 | 90 | 0.030 |
| 02.015-04 | 0 à 2.8 | 100 | 0.040 |
| 02.015-05 | 0 à 3.0 | 110 | " |
| 02.015-06 | 0 à 3.5 | 120 | " |
| 02.015-07 | 0 à 4.0 | 130 | 0.080 |
| 02.015-08 | 0 à 5.0 | 140 | 0.094 |

Pin vice with fluted hollow nickel-plated handle and **square head** to prevent rolling on bench. Delivered with 2 steel chucks.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.016 | 0 to 0.7 | 110 | 0.015 |

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



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.017 | 0.8 to 1.5 | 60 | 0.009 |

Pin vice with fluted hollow nickel-plated handle ø 6 mm and **round head**. Delivered with 1 steel chuck.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.018 | 1.8 to 3.0 | 62 | 0.018 |

Pin vices with fluted hollow nickel-plated handle ø 7 mm and **round head**. Delivered with 1 steel chuck.

ASSORTMENT



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

Assortment of 3 pin vices MSA 02.016, 02.020-03 and 04. With fluted hollow nickel-plated handle and **round head**.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.098 | 0 to 1.1 | 60 | 0.013 |

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



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.099 | 0 to 1.0 | 50 | 0.008 |

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



| MSA | Serrage | Longueur mm | Kg |
|-----------|---------|-------------|-------|
| 02.020-01 | 0 à 1.5 | 70 | 0.020 |
| 02.020-02 | 0 à 1.8 | 80 | " |
| 02.020-03 | 0 à 2.3 | 90 | 0.025 |
| 02.020-04 | 0 à 2.8 | 100 | 0.030 |
| 02.020-05 | 0 à 3.0 | 110 | 0.045 |
| 02.020-06 | 0 à 3.5 | 120 | 0.050 |
| 02.020-08 | 0 à 5.0 | 140 | 0.096 |

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

PIN VICES | DRILLS | CUTTING BROACHES | SMOOTHING BROACHES



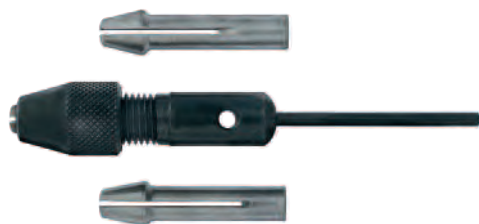
| MSA | Tightening mm | Length mm | σ Stem mm | Kg |
|--------|---------------|-----------|-----------|-------|
| 02.035 | 0 à 1.2 | 55 | 2.35 | 0.005 |

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



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.030 | 0 to 1.5 | 110 | 0.031 |

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



| MSA | Model | Tightening mm | Kg |
|--------|--------|------------------------------------|-------|
| 02.036 | Medium | 0 to 1.0 – 0.9 to 1.6 – 1.5 to 2.4 | 0.028 |
| 02.037 | Large | 0 to 1.3 – 1.1 to 2.3 – 1.7 to 3.0 | " |

Pin vice with black finished adapter and **round head**. For manual use or on lathe or on drilling machine. Delivered with 3 interchangeable steel chucks. Length 80 mm, ø stem 2.35 mm.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.021 | 0 to 0.7 | 110 | 0.015 |

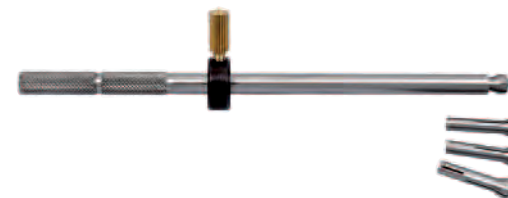
Thin pin vice with conical and fluted brass handle and round head. Delivered with 1 steel chuck.



| MSA | σ mm | Length mm | Kg |
|------------|------|-----------|-------|
| 02.022-080 | 0.8 | 120 | 0.048 |
| 02.022-090 | 0.9 | " | " |
| 02.022-100 | 1.0 | " | " |
| 02.022-120 | 1.2 | " | " |
| 02.022-125 | 1.25 | " | " |
| 02.022-130 | 1.3 | " | " |
| 02.022-140 | 1.4 | " | " |
| 02.022-145 | 1.45 | " | " |
| 02.022-150 | 1.5 | " | " |
| 02.022-160 | 1.0 | " | " |
| 02.022-170 | 1.0 | " | " |
| 02.022-175 | 1.75 | " | " |
| 02.022-180 | 1.8 | " | " |
| 02.022-200 | 2.0 | " | " |
| 02.022-220 | 2.2 | " | " |
| 02.022-250 | 2.5 | " | " |
| 02.022-300 | 3.0 | " | " |
| 02.022-350 | 3.5 | " | " |

Pin vice for Barrel axle with nickel plated hexagonal handle and a sliding locker for easy and quick tightening in one hand.

PIN VICES | DRILLS | CUTTING BROACHES | SMOOTHING BROACHES



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

Knurled steel broach ø **4.70 mm**, for use with staking tools, illustrated on pages 13 5 to 13 8.

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

Replacement chucks :

| MSA | σ mm |
|------------|------|
| 02.019-060 | 0.60 |
| 02.019-080 | 0.80 |
| 02.019-100 | 1.00 |
| 02.019-110 | 1.10 |
| 02.019-120 | 1.20 |
| 02.019-150 | 1.50 |



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

Knurled steel broach ø **6.00 mm**, for manual use or mounted on a lathe.

Delivered with 4 easily interchangeable tightening chucks, ø 0.80, 1.00, 1.20 et 1.50 mm. Precise tightening and steady.

Replacement chucks :

| MSA | σ mm |
|------------|------|
| 02.019-060 | 0.60 |
| 02.019-080 | 0.80 |
| 02.019-100 | 1.00 |
| 02.019-110 | 1.10 |
| 02.019-120 | 1.20 |
| 02.019-150 | 1.50 |

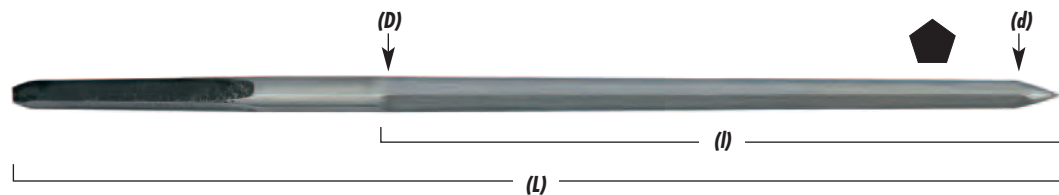
» Drills are piercing tools that work with a nut or a chord.



| MSA | Tightening mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 02.009 | 0 to 0.8 | 100 | 0.020 |

Drill or drill holder for piercing. Tool with helicoidally grooves that works with a nut as it moves up and down. Delivered with 1 steel chuck.

» To enlarge holes, broaches are used. They have a five-sided tapered shaft with sharp cutting edges.



| MSA | N° | Total length mm (L) | Useful length mm (l) | ø mm (D) | ø mm (d) | Kg |
|-----------|----|---------------------|----------------------|----------|----------|-------|
| 02.100-01 | 01 | 162 | 107 | 5.75 | 4.80 | 0.030 |
| 02.100-02 | 02 | 160 | 105 | 5.50 | 4.50 | " |
| 02.100-04 | 04 | 158 | 104 | 5.25 | 4.30 | " |
| 02.100-08 | 08 | 156 | 103 | 5.00 | 4.10 | " |
| 02.100-12 | 12 | 154 | 102 | 4.75 | 3.80 | " |
| 02.100-16 | 16 | 151 | 100 | 4.50 | 3.60 | " |
| 02.100-18 | 18 | 149 | 99 | 4.25 | 3.40 | " |
| 02.100-22 | 22 | 147 | 98 | 4.00 | 3.10 | " |
| 02.100-26 | 26 | 145 | 97 | 3.75 | 2.70 | " |
| 02.100-28 | 28 | 142 | 96 | 3.50 | 2.60 | " |
| 02.100-30 | 30 | 140 | 95 | 3.25 | 2.40 | " |
| 02.100-31 | 31 | 138 | 93 | 3.00 | 2.20 | " |
| 02.100-32 | 32 | 135 | 91 | 2.90 | 2.10 | 0.020 |
| 02.100-35 | 35 | 132 | 89 | 2.80 | 2.05 | " |
| 02.100-36 | 36 | 129 | 87 | 2.70 | 2.00 | " |
| 02.100-38 | 38 | 127 | 85 | 2.60 | 1.90 | " |
| 02.100-40 | 40 | 125 | 82 | 2.50 | 1.80 | " |
| 02.100-41 | 41 | 122 | 80 | 2.40 | 1.75 | " |
| 02.100-42 | 42 | 119 | 78 | 2.30 | 1.70 | " |
| 02.100-44 | 44 | 116 | 76 | 2.20 | 1.60 | " |
| 02.100-45 | 45 | 113 | 74 | 2.10 | 1.50 | " |
| 02.100-46 | 46 | 110 | 72 | 2.00 | 1.40 | " |
| 02.100-48 | 48 | 107 | 70 | 1.90 | 1.30 | " |

| MSA | N° | Total length mm (L) | Useful length mm (l) | ø mm (D) | ø mm (d) | Kg |
|-----------|----|---------------------|----------------------|----------|----------|-------|
| 02.100-49 | 49 | 104 | 68 | 1.80 | 1.20 | 0.010 |
| 02.100-51 | 51 | 101 | 65 | 1.70 | 1.15 | " |
| 02.100-52 | 52 | 98 | 63 | 1.60 | 1.10 | " |
| 02.100-53 | 53 | 95 | 61 | 1.50 | 1.00 | " |
| 02.100-54 | 54 | 92 | 59 | 1.40 | 0.90 | " |
| 02.100-55 | 55 | 89 | 57 | 1.30 | 0.80 | " |
| 02.100-56 | 56 | 86 | 54 | 1.20 | 0.70 | " |
| 02.100-58 | 58 | 83 | 52 | 1.10 | 0.63 | " |
| 02.100-60 | 60 | 80 | 50 | 1.00 | 0.57 | " |
| 02.100-62 | 62 | 77.5 | 48 | 0.95 | 0.54 | " |
| 02.100-64 | 64 | 75 | 47 | 0.90 | 0.50 | " |
| 02.100-65 | 65 | 72.5 | 46 | 0.85 | 0.48 | " |
| 02.100-66 | 66 | 70.5 | 44 | 0.80 | 0.45 | 0.001 |
| 02.100-68 | 68 | 88 | 42 | 0.75 | 0.41 | " |
| 02.100-70 | 70 | 66 | 41 | 0.70 | 0.37 | " |
| 02.100-71 | 71 | 64 | 40 | 0.65 | 0.34 | " |
| 02.100-72 | 72 | 62 | 38 | 0.60 | 0.30 | " |
| 02.100-74 | 74 | 60 | 37 | 0.55 | 0.28 | " |
| 02.100-75 | 75 | 58 | 36 | 0.50 | 0.25 | " |
| 02.100-76 | 76 | 56 | 34 | 0.45 | 0.20 | " |
| 02.100-78 | 78 | 54 | 33 | 0.40 | 0.15 | " |
| 02.100-79 | 79 | 52 | 32 | 0.35 | 0.13 | " |
| 02.100-80 | 80 | 50 | 31 | 0.30 | 0.10 | " |

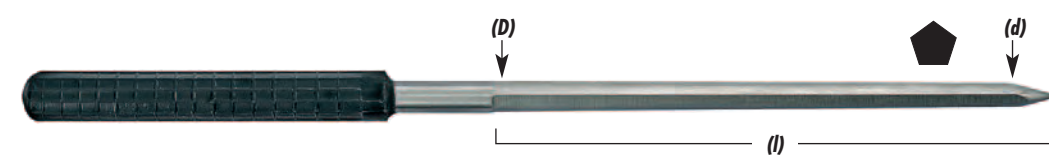
5 side conical cutting broach, **without handle**, made of tool steel. The taper is 1:100.
The numbers correspond to the measurements from the English screw-plate (STUBS) and in mm.
Size (D) is measured slightly below largest portion of cutting edges.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.150 | 60 x 133 | From 0.60 to 2.00 mm | 0.013 |

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



| MSA | N° | Useful length mm (l) | ø mm (D) | ø mm (d) | Kg |
|-----------|----|----------------------|----------|----------|-------|
| 02.170-01 | 01 | 107 | 5.75 | 4.80 | 0.035 |
| 02.170-02 | 02 | 105 | 5.50 | 4.50 | 0.025 |
| 02.170-04 | 04 | 104 | 5.25 | 4.30 | 0.020 |
| 02.170-08 | 08 | 103 | 5.00 | 4.10 | " |
| 02.170-12 | 12 | 102 | 4.75 | 3.80 | " |
| 02.170-16 | 16 | 100 | 4.50 | 3.60 | 0.015 |
| 02.170-18 | 18 | 99 | 4.25 | 3.40 | " |
| 02.170-22 | 22 | 98 | 4.00 | 3.10 | 0.010 |
| 02.170-26 | 26 | 97 | 3.75 | 2.70 | " |
| 02.170-28 | 28 | 96 | 3.50 | 2.60 | " |
| 02.170-30 | 30 | 95 | 3.25 | 2.40 | " |
| 02.170-31 | 31 | 93 | 3.00 | 2.20 | 0.005 |
| 02.170-32 | 32 | 91 | 2.90 | 2.10 | " |
| 02.170-35 | 35 | 89 | 2.80 | 2.05 | " |
| 02.170-36 | 36 | 87 | 2.70 | 2.00 | 0.004 |
| 02.170-38 | 38 | 85 | 2.60 | 1.90 | " |
| 02.170-40 | 40 | 82 | 2.50 | 1.80 | " |
| 02.170-41 | 41 | 80 | 2.40 | 1.75 | 0.003 |
| 02.170-42 | 42 | 78 | 2.30 | 1.70 | " |
| 02.170-44 | 44 | 76 | 2.20 | 1.60 | " |
| 02.170-45 | 45 | 74 | 2.10 | 1.50 | 0.002 |
| 02.170-46 | 46 | 72 | 2.00 | 1.40 | " |

| MSA | N° | Useful length mm (l) | ø mm (D) | ø mm (d) | Kg |
|------------|-----|----------------------|----------|----------|-------|
| 02.170-48 | 48 | 70 | 1.90 | 1.30 | 0.002 |
| 02.170-49 | 49 | 68 | 1.80 | 1.20 | 0.001 |
| 02.170-51 | 51 | 65 | 1.70 | 1.15 | " |
| 02.170-52 | 52 | 63 | 1.60 | 1.10 | " |
| 02.170-53 | 53 | 61 | 1.50 | 1.00 | " |
| 02.170-54 | 54 | 49 | 1.40 | 0.90 | " |
| 02.170-55 | 55 | 57 | 1.30 | 0.80 | " |
| 02.170-56 | 56 | 54 | 1.20 | 0.70 | " |
| 02.170-58 | 58 | 52 | 1.10 | 0.63 | " |
| 02.170-60 | 60 | 50 | 1.00 | 0.57 | " |
| 02.170-64 | 64 | 47 | 0.90 | 0.50 | " |
| 02.170-66 | 66 | 44 | 0.80 | 0.45 | " |
| 02.170-70 | 70 | 41 | 0.70 | 0.37 | " |
| 02.170-72 | 72 | 38 | 0.60 | 0.30 | " |
| 02.170-75 | 75 | 36 | 0.50 | 0.25 | " |
| 02.170-78 | 78 | 33 | 0.40 | 0.15 | " |
| 02.170-80 | 80 | 31 | 0.30 | 0.10 | " |
| 02.170-020 | 020 | 20 | 0.20 | 0.07 | " |
| 02.170-015 | 015 | 18 | 0.15 | 0.05 | " |
| 02.170-010 | 010 | 17 | 0.10 | 0.04 | " |
| 02.170-008 | 008 | 16 | 0.08 | 0.03 | " |
| 02.170-005 | 005 | 15 | 0.05 | 0.02 | " |

5 side 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.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.151 | 60 x 133 | From 0.40 to 1.40 mm | 0.010 |

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



ASSORTMENT

| MSA | Size mm | Mini/Maxi | Kg |
|--------|---------------|----------------------|-------|
| 02.152 | 15 x 15 x 152 | From 0.70 to 3.00 mm | 0.029 |

Assortment of 6 5 side cutting broaches with plastic handle.
Contents : \varnothing 0.70, 1.00, 1.50, 2.00, 2.50 and 3.00 mm.

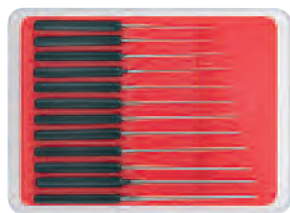


ASSORTMENT

| MSA | Size mm | Mini/Maxi | Kg |
|--------|---------------|----------------------|-------|
| 02.153 | 15 x 15 x 152 | From 1.20 to 3.00 mm | 0.030 |

Assortment of 6 5 side cutting broaches with plastic handle.
Contents : \varnothing 1.20, 1.50, 1.80, 2.20, 2.50 and 3.00 mm.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|---------|----------------------|-------|
| 02.155 | 44 x 60 | From 0.05 to 0.55 mm | 0.010 |

Assortment of 12 extra thin cutting broaches with plastic handle. Contents : \varnothing 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.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.160 | 65 x 205 | From 2.20 to 6.00 mm | 0.110 |

Assortment of 6 5 side cutting broaches with plastic handle.
Contents : large models for alarm-clocks and clocks, \varnothing 2.20, 2.50, 3.00, 4.00, 5.00 and 6.00 mm.

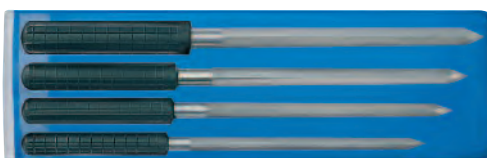
ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.161 | 65 x 205 | From 1.50 to 7.00 mm | 0.112 |

Assortment of 6 5 side cutting broaches with plastic handle.
Contents : large models for watches, alarm-clocks and clocks \varnothing 1.50, 2.20, 3.00, 4.00, 5.50 and 7.00 mm.

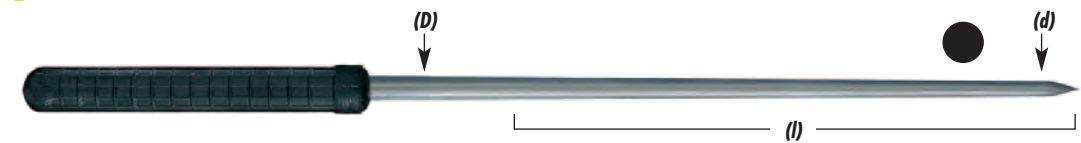
ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|-----------------------|-------|
| 02.162 | 75 x 250 | From 7.00 to 10.50 mm | 0.330 |

Assortment of 4 5 side cutting broaches with plastic handle. Contents: extra large models for alarm-clocks and clocks, \varnothing 7.00, 8.00, 9.25 and 10.50 mm.

» Smoothing broaches are used for polishing the holes.



| MSA | N° | Useful length mm (l) | \varnothing mm (D) | \varnothing mm (d) | Kg |
|-----------|----|----------------------|----------------------|----------------------|-------|
| 02.250-01 | 01 | 107 | 5.75 | 4.80 | 0.035 |
| 02.250-02 | 02 | 105 | 5.50 | 4.50 | " |
| 02.250-04 | 04 | 104 | 5.25 | 4.30 | " |
| 02.250-08 | 08 | 103 | 5.00 | 4.10 | " |
| 02.250-12 | 12 | 102 | 4.75 | 3.80 | " |
| 02.250-16 | 16 | 100 | 4.50 | 3.60 | 0.030 |
| 02.250-18 | 18 | 99 | 4.25 | 3.40 | " |
| 02.250-22 | 22 | 98 | 4.00 | 3.10 | " |
| 02.250-26 | 26 | 97 | 3.75 | 2.70 | " |
| 02.250-28 | 28 | 96 | 3.50 | 2.60 | " |
| 02.250-30 | 30 | 95 | 3.25 | 2.40 | 0.025 |
| 02.250-31 | 31 | 93 | 3.00 | 2.20 | " |
| 02.250-32 | 32 | 91 | 2.90 | 2.10 | " |
| 02.250-35 | 35 | 89 | 2.80 | 2.05 | " |
| 02.250-36 | 36 | 87 | 2.70 | 2.00 | " |
| 02.250-38 | 38 | 85 | 2.60 | 1.90 | 0.020 |
| 02.250-40 | 40 | 82 | 2.50 | 1.80 | " |
| 02.250-41 | 41 | 80 | 2.40 | 1.75 | " |
| 02.250-42 | 42 | 78 | 2.30 | 1.70 | " |
| 02.250-44 | 44 | 76 | 2.20 | 1.60 | " |

| MSA | N° | Useful length mm (l) | \varnothing mm (D) | \varnothing mm (d) | Kg |
|-----------|----|----------------------|----------------------|----------------------|-------|
| 02.250-45 | 45 | 74 | 2.10 | 1.50 | 0.015 |
| 02.250-46 | 46 | 72 | 2.00 | 1.40 | " |
| 02.250-48 | 48 | 70 | 1.90 | 1.30 | " |
| 02.250-49 | 49 | 68 | 1.80 | 1.20 | " |
| 02.250-51 | 51 | 65 | 1.70 | 1.15 | " |
| 02.250-52 | 52 | 63 | 1.60 | 1.10 | 0.010 |
| 02.250-53 | 53 | 61 | 1.50 | 1.00 | " |
| 02.250-54 | 54 | 59 | 1.40 | 0.90 | " |
| 02.250-55 | 55 | 57 | 1.30 | 0.80 | " |
| 02.250-56 | 56 | 54 | 1.20 | 0.70 | " |
| 02.250-58 | 58 | 52 | 1.10 | 0.63 | 0.001 |
| 02.250-60 | 60 | 50 | 1.00 | 0.57 | " |
| 02.250-64 | 64 | 47 | 0.90 | 0.50 | " |
| 02.250-66 | 66 | 44 | 0.80 | 0.45 | " |
| 02.250-70 | 70 | 41 | 0.70 | 0.37 | " |
| 02.250-72 | 72 | 38 | 0.60 | 0.30 | " |
| 02.250-75 | 75 | 36 | 0.50 | 0.25 | " |
| 02.250-78 | 78 | 33 | 0.40 | 0.15 | " |
| 02.250-80 | 80 | 31 | 0.30 | 0.10 | " |

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. The diameter is measured just beneath the largest round section of the broach.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.220 | 60 x 133 | From 0.60 to 2.00 mm | 0.013 |

Assortment of 6 smoothing broaches with plastic handle.
Contents : \varnothing 0.60, 0.80, 1.00, 1.30, 1.60 et 2.00 mm.

ASSORTMENT



| MSA | Size mm | Mini/Maxi | Kg |
|--------|----------|----------------------|-------|
| 02.221 | 60 x 133 | From 0.40 to 1.40 mm | 0.010 |

Assortment of 6 smoothing broaches with plastic handle.
Contents : \varnothing 0.40, 0.60, 0.80, 1.00, 1.20 et 1.40 mm.

03



SPECIALIZED WATCH MAKING TOOLS 03 2

- tools for locking and unlocking oscillation weight bolts
- tool for assembling/disassembling screw-on pushers and tubes
- press for fitting/removing press-in pushers and crown tubes
- tools for lanterning canon pinions.
- tools for removing canon pinions and unfitting rollers
- tools for hairsprings collets.
- truing callipers.
- tools for adjusting balance screws
- tools for riveting oscillating weight axles.
- tools for stud holding and for setting balance screws.
- tools for winding stems.

LATHES 03 12

- lathes
- american chucks
- other chucks

RIVETING STAKES 03 19

» Tools for locking/unlocking oscillating weight bolts.

► Cal. 7750... Cal. 2892...

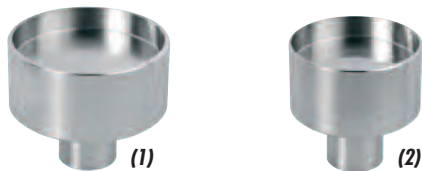


| MSA | For calibres | MVT holder | Kg |
|-------------|---------------------------|------------|-------|
| 03.676-7750 | 7750 - 7751 - 7753 | Without | 0.665 |
| 03.676-2892 | 2892 - 2893 - 2894 - 2895 | Without | 0.665 |
| 03.677-7750 | 7750 - 7751 - 7753 | With | 0.755 |
| 03.677-2892 | 2892 - 2893 - 2894 - 2895 | With | 0.735 |

Press **for locking and unlocking oscillation weight bolts**. The broach is mounted on spring for a fast and precise job. The broach is easy interchangeable in unscrewing the black handle.

Delivered with and without movement holders 7750, 7751, 753, 2892, 2893, 2894, 2895.

This tool is adapted for series.



Movement holders only for MSA 03.676-7750 and 03.676-2892.

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



Broach only for MSA 03.676-7750 and 03.676-2892.

| MSA | For calibres |
|-------------|---------------------------|
| 03.679-7750 | 7750 - 7751 - 7753 |
| 03.679-2892 | 2892 - 2893 - 2894 - 2895 |



| MSA | Kg |
|----------|-------|
| 03.676-P | 0.665 |

Press only for locking and unlocking oscillation weight bolts.

Delivered without any accessory.



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

Tool for **locking/unlocking oscillating weight bolts**.

Delivered with 2 interchangeable snap-on keys (MSA 03.620-2892 and 03.620-7750) and a detailed user's manual.

Replacement parts :

| MSA | Items |
|-------------|--|
| 03.620-2892 | Key for calibres 2892, 2893, 2894 and 2895 |
| 03.620-7750 | Key for calibres 2000-1, 7750, 7751 and 7753 |
| 03.620-A | Hexagonal handle only |

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



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

Tool for assembling/disassembling **screw-on pushers and tubes, oscillating weight bolts and battery covers**. Complete assortment delivered with 17 interchangeable keys.

Detail of replacement parts: see page 03 4.



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

Tool for assembling/disassembling **screw-on pushers and tubes**. Assortment delivered with 12 interchangeable keys.

Detail of replacement parts: see page 03 4.



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

Tool for assembling/disassembling **screw-on pushers and tubes, and oscillating weight bolts.**

Assortment delivered with 14 interchangeable keys.

Replacement keys for screw-on tubes :

| MSA | For tubes | ø mm |
|-----------|------------|------|
| 03.620-01 | MSA 65.001 | 1.50 |
| 03.620-02 | MSA 65.002 | 1.80 |
| 03.620-03 | MSA 65.003 | 2.65 |
| 03.620-04 | MSA 65.004 | 2.75 |
| 03.620-05 | MSA 65.005 | 2.95 |
| 03.620-06 | MSA 65.006 | 3.00 |
| 03.620-07 | MSA 65.007 | 3.00 |

Replacement keys for screw-on pushers :

| MSA | For pushers | ø mm |
|------------|---------------------|------|
| 03.620-203 | MSA 61.203 - 61.703 | 4.35 |
| 03.620-207 | MSA 61.207 - 61.707 | 4.80 |
| 03.620-P3 | Type P3 | 3.00 |
| 03.620-P27 | Type P27 | 3.50 |
| 03.620-P39 | Type P39 | 3.60 |

Replacement keys for oscillating weight bolts :

| MSA | Calibre |
|-------------|---------------------|
| 03.620-2892 | 2892-2893-2894-2895 |
| 03.620-7750 | 7750 - 2001-1 |

Replacement keys for Swatch® battery covers :

| MSA | Grandeur |
|-------------|----------|
| 03.620-GENT | Gent |
| 03.620-LADY | Lady |
| 03.620-MED | Medium |

Replacement hexagonal handle :

| MSA | Kg |
|----------|-------|
| 03.620-A | 0.060 |

Hexagonal replacement handle compatible with all illustrated accessories.



| MSA | ø int. mm | Kg |
|--------|-----------|-------|
| 03.655 | 3.10 | 0.007 |

Steel key, black finishing, for **screw and unscrew the pushers** MSA 61.207 and 61.707 of chronographs.



| MSA | For tubes | ø mm | Kg |
|-----------|------------|------|-------|
| 03.665-01 | MSA 65.001 | 1.50 | 0.006 |
| 03.665-02 | MSA 65.002 | 1.80 | " |
| 03.665-03 | MSA 65.003 | 2.80 | " |
| 03.665-04 | MSA 65.004 | 2.85 | " |
| 03.665-05 | MSA 65.005 | 3.00 | " |
| 03.665-06 | MSA 65.006 | 3.10 | " |

Steel key, black finishing, for **screw and unscrew the tubes of screw-on tubes** to assure waterproof of diving watches.



| MSA | Type | ø mm | Kg |
|------------|------|------|-------|
| 03.653-P27 | P27 | 3.50 | 0.070 |
| 03.653-P3 | P3 | 3.00 | " |
| 03.653-P39 | P39 | 3.60 | " |

Key for screw and unscrew knurled screw-on pushers. Stainless steel dies, aluminium handle.

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



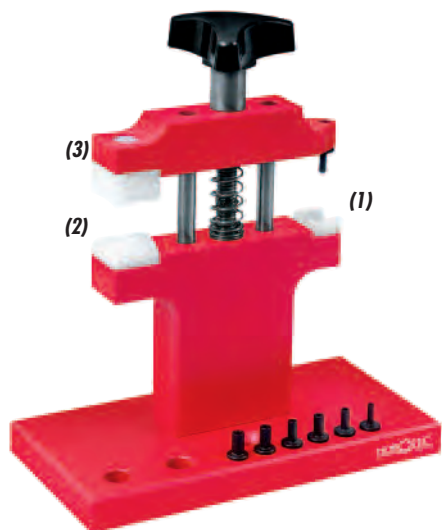
| MSA | Size mm | Kg |
|--------|---------------|-------|
| 03.654 | 45 x 60 x 7.8 | 0.210 |

Press for **removing press-in pushers and crown tubes**.

Delivered with 7 stakes, exterior ø from 1.55 to 2.95 mm.

Replacement parts :

| MSA | Items | Ext.ø mm | Int. ø mm |
|----------|-----------------------|----------|-----------|
| 03.654-A | Stake | 2.95 | 1.55 |
| 03.654-B | Stake | 2.65 | " |
| 03.654-C | Stake | 2.45 | " |
| 03.654-D | Stake | 2.15 | " |
| 03.654-E | Stake | 1.95 | 1.45 |
| 03.654-F | Stake | 1.75 | 1.25 |
| 03.654-G | Stake | 1.55 | 1.05 |
| 03.654-H | Unfitting support (1) | - | - |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 03.656 | 90 x 45 x 105 | 0.268 |

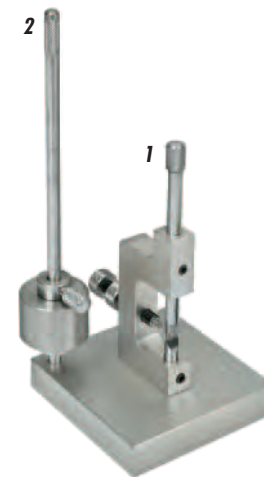
Press for **fitting and removing press-in pushers and crown tubes**.

Delivered with 7 stakes, exterior ø from 1.55 to 2.95 mm.

Replacement parts :

| MSA | Items | Ext.ø mm | Int. ø mm |
|----------|---------------------------|----------|-----------|
| 03.654-A | Stake | 2.95 | 1.55 |
| 03.654-B | Stake | 2.65 | " |
| 03.654-C | Stake | 2.45 | " |
| 03.654-D | Stake | 2.15 | " |
| 03.654-E | Stake | 1.95 | 1.45 |
| 03.654-F | Stake | 1.75 | 1.25 |
| 03.654-G | Stake | 1.55 | 1.05 |
| 03.654-H | Unfitting support (1) | - | - |
| 03.656-A | Lower fitting support (2) | - | - |
| 03.656-B | Upper fitting support (3) | - | - |

» Tools for lanterning canon pinions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 03.005 | 50 x 50 x 120 | 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 1 standard broach for single use
- 2 - with 1 grooved scale broach and 1 screwed sliding ring for height punch adjustment.



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

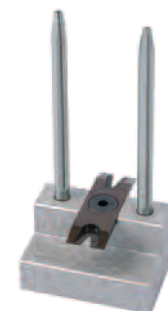
Tool for **lanterning canon pinions**. Fixable on vice.

» Tools for removing canon pinions and unfitting rollers.



| MSA | For | Length mm | Kg |
|----------|------------------|-----------|-------|
| 03.003-A | Bracelet watches | 120 | 0.069 |
| 03.003-B | Pocket watches | " | " |

Pliers for **removing canon pinions**. Deliverable in 2 versions.



| MSA | Height mm | Kg |
|--------|-----------|-------|
| 03.000 | 75 | 0.156 |

Tool on stand for **unfitting rollers**. Hole puncher with cracked hardened blade on both sides, "V" shape to unfit the adjusted plate on balance staff.

» Tools for hairsprings collets.

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



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

| MSA | Exterior ø mm | Hole ø mm | Length mm | Kg |
|-----------|---------------|-----------|-----------|-------|
| 03.102-11 | 1.10 | 0.45 | 95 | 0.010 |
| 03.102-16 | 1.60 | 0.55 | " | " |
| 03.102-21 | 2.10 | 0.75 | " | " |



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

| MSA | Width spatula-shape fork mm | Total length mm | Kg |
|----------|-----------------------------|-----------------|-------|
| 03.103-E | 1.80 | 95 | 0.015 |
| 03.103-C | 2.50 | 115 | 0.022 |
| 03.103-D | 3.00 | 120 | 0.024 |

Paire



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

» Truing calipers.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 03.410 | 80 x 35 | 0.036 |

Brass **truing calliper**, for verifying the balances and wheels truing.



| MSA | Dimensions mm | Kg |
|--------|---------------|-------|
| 03.414 | 75 x 40 | 0.022 |

Lightweight steel **truing calliper**, for verifying the balances and wheels truing.

» Tools for adjusting each pair of opposed screws to keep the balance perfectly equilibrated. Delivered in a transparent plastic box with detailed user's manual.



| MSA | Kg |
|--------|-------|
| 03.670 | 0.070 |

Tool for **setting the balances**, micro-star shape. For calibres RLX 3035, 3055 and similar.



| MSA | Kg |
|--------|-------|
| 03.671 | 0.070 |

Tool for **setting the balances**, square shape. For calibres OM 2500 B and similar.

» Tools for riveting oscillating weight axles.

ASSORTMENT



| MSA | Length mm | Kg |
|--------|---------------|-------|
| 03.666 | 90 x 45 x 105 | 0.110 |

Assortment of 4 punches for **riveting oscillating weight axles**, RLX 1570, 2135, 2235 and 3035/3135.

Replacement punches :

| MSA | Calibre RLX | MSA | Calibre RLX |
|-------------|-------------|-------------|-------------|
| 03.666-1570 | 1570 | 03.666-2235 | 2235 |
| 03.666-2135 | 2135 | 03.666-3035 | 3035/3135 |

» Tools for stud holding and for setting balance screws.



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

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



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

Nickel-plated brass tool with holes for **setting the balances**, with 12 holes of ø 0.5 to 2.5 mm.

» Tools for winding stems.



| MSA | Lacquered base mm | Kg |
|--------|-------------------|-------|
| 03.602 | 60 x 118 | 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 | Items |
|----------|--------|
| 03.602-A | Spring |
| 03.602-B | Blade |

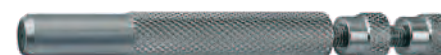


| MSA | Size mm | Kg |
|--------|---------|-------|
| 03.010 | 115 | 0.011 |

Lantern-chuck. Tool to hold the screw by its head used to shorten or round and polish the screw thread end. Delivered with 3 chucks of ø 0.40, 0.60, 0.80.

Spare parts :

| MSA | For ø mm |
|-----------|----------|
| 03.010-40 | 0.40 |
| 03.010-60 | 0.60 |
| 03.010-80 | 0.80 |



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

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



| MSA | Kg |
|--------|-------|
| 03.603 | 0.110 |

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

Replacement cup with felt :

| MSA |
|----------|
| 03.603-A |



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

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

Delivered without American chucks.

Chucks : see page 03 18 (MSA 03.839-xxx).

» Special lathes for polishing pivots.



| MSA | Type | Versions |
|--------|------|---|
| 03.452 | 106 | With 3 broaches MSA 03.467, 03.474 and 03.475 (Pict.) |
| 03.454 | 108 | With 4 broaches MSA 03.467, 03.468, 03.469 and 03.475 |

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 case.

Replacement broaches :

| MSA | Type | Items | Use |
|--------|------|--------------------------------------|--|
| 03.467 | 123 | Broach with conical notched disk | For seconds \varnothing 0.15 – 0.30 mm |
| 03.468 | 124 | Broach with lantern and notched disk | For pivots \varnothing 0.04 – 0.10 mm |
| 03.469 | 125 | Broach with lantern and notched disk | For pivots \varnothing 0.10 – 0.15 mm |
| 03.474 | 126 | Broach with lantern and notched disk | For pivots \varnothing 0.04 – 0.15 mm |
| 03.475 | 127 | Broach with lantern and notched disk | For pivots \varnothing 0.16 – 0.36 mm |

Replacement parts :

| MSA | Type | Items |
|----------|------|---|
| 03.425-A | 131 | Pivot gauge \varnothing 0.05 – 0.40 mm |
| 03.425-B | 131a | Pivot gauge \varnothing 0.40 – 0.80 mm |
| 03.425-C | 131b | Pivot gauge \varnothing 0.80 – 1.20 mm |
| 03.470 | 119 | Supplement for sliding puppet |
| 03.472 | 135 | Pulley with fork |
| 03.473 | 135a | Fork only |
| 03.476 | 118a | Broach with notched disks for pivots \varnothing 0.38 – 0.76 mm |
| 03.477 | 117a | Broach with notched disks for pivots \varnothing 0.38 – 1.00 mm |
| 03.478 | 118 | Broach with notched disks for pivots \varnothing 0.38 – 1.20 mm |
| 03.479 | 122 | Cylinder for broaches MSA 03.468, 03.469 et 03.474 |
| 03.481 | 155a | Bow for hand work |

» High precision lathes available in 6 combinations. Delivered in a wooden box.



| MSA | Type | Kg |
|--------|------|-------|
| 03.800 | 7A | 4.400 |

STAR high precision lathe. Drilling 8 mm.
See contents on page 03 15.



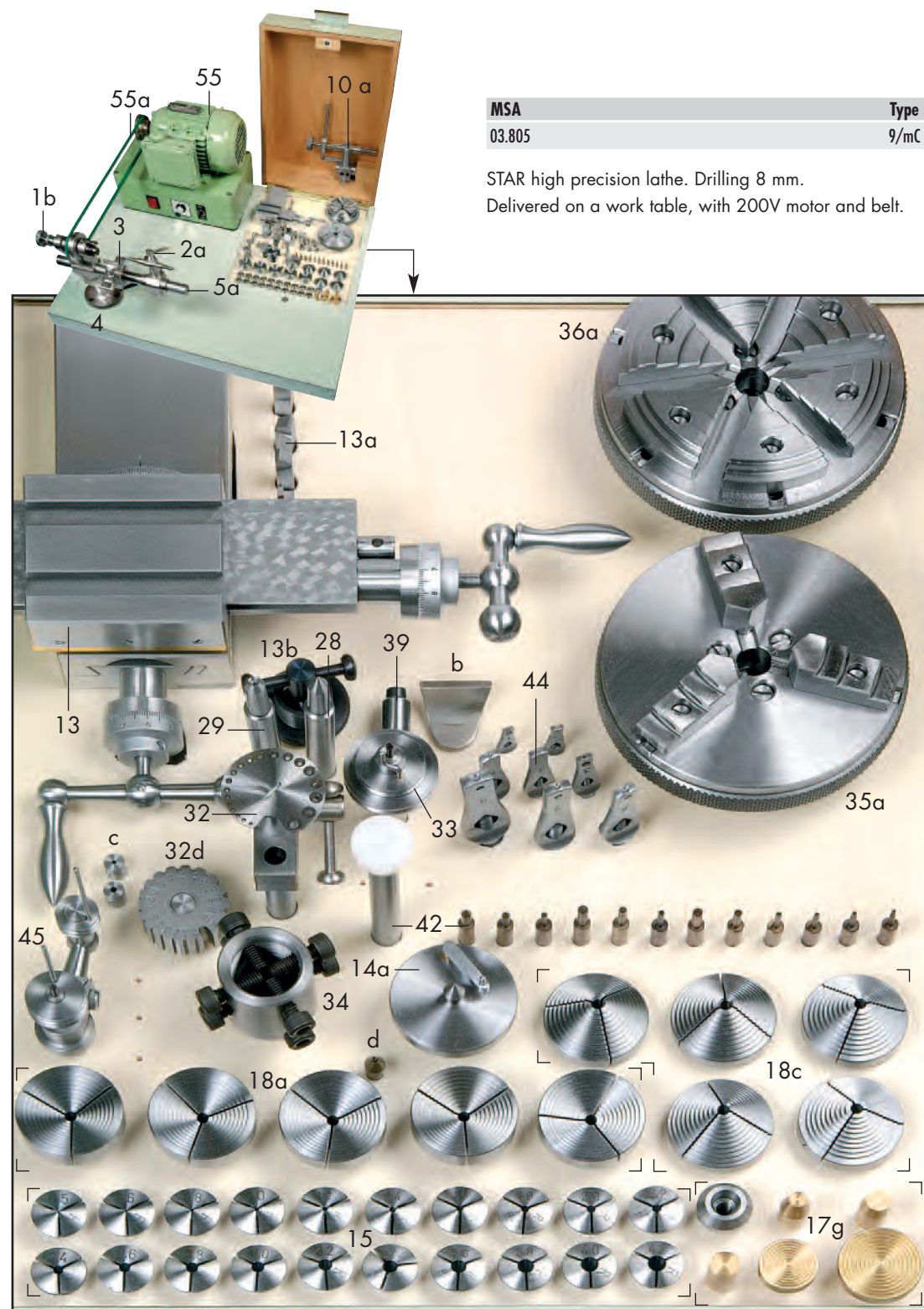
| MSA | Type | Kg |
|--------|------|-------|
| 03.807 | 6A | 4.250 |

STAR high precision lathe. Drilling 8 mm.
See contents on page 03 15.



| MSA | Type | Kg |
|--------|------|--------|
| 03.805 | 9/mC | 15.700 |

STAR high precision lathe. Drilling 8 mm.
Delivered on a work table, with 200V motor and belt.
See contents on pages 03 14 and 03 15.



| MSA | Type |
|--------|------|
| 03.805 | 9/mC |

STAR high precision lathe. Drilling 8 mm.
Delivered on a work table, with 200V motor and belt.

Contents of different available versions and replacement parts. Delivered in a wooden case :

| MSA | Type* | Items | 6a | 7a | 8a | 9a | 9d | 9h | 9k | 9/mC |
|------------|-------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | MSA 03.807 | MSA 03.800 | MSA 03.801 | MSA 03.802 | MSA 03.803 | MSA 03.808 | MSA 03.804 | MSA 03.805 |
| 03.845 | 1b | Headstock | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.810 | 2a | Tailstock | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.811 | 3 | Swing over hand rest with 2 T-rests | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.846 | 4 | Movable foot | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.847 | 5a | Bed length 250 mm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.813 | 10a | Drilling tailstock | | | | | | | | ✓ |
| 03.848 | 11a | Chuck with grinding wheel (not illustrated) | | | | | | | | ✓ |
| 03.815 | 13 | Slide-rest support | | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.815-A | 13a | Set of 6 cutters | | | | | | | | ✓ |
| 03.815-B | 13b | Cutter holder pour MSA 03.815 | | | | | | | | ✓ |
| 03.836 | 14a | Carrier chuck | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.840-xxx | 15/1 | Set of 10 chucks ø 0.40 to 3.00 mm (page 3 16) | ✓ | ✓ | | | | | | |
| 03.840-xxx | 15/2 | Set of 20 chucks ø 0.40 to 4.20 mm (page 3 16) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.849 | 17a | Steel chucks holder | ✓ | | | | | | | |
| 03.850 | 17c | Brass wax chuck | ✓ | | | | | | | |
| 03.851 | 17e | Brass wax chuck | ✓ | | | | | | | |
| 03.852 | 17g | Steel chucks holder with 5 brass chucks | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.842 | 18a | Set of 5 step chucks | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.843 | 18c | Set of 5 ring step chucks | | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.830 | 28 | Broach with 2 pivots holder | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.831 | 29 | Broach with centre point | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 03.819 | 32 | Universal broach | | | | | ✓ | ✓ | ✓ | ✓ |
| 03.853 | 32d | Pivoting plate | | | | | ✓ | ✓ | ✓ | ✓ |
| 03.820 | 33 | Broach with large pulley and 4 assorted points | | | | | | ✓ | ✓ | ✓ |
| 03.816 | 35a | 3-jaw self centring chuck | | | | | | ✓ | | ✓ |
| 03.817 | 36a | Universal self centring chuck with interior and exterior tightening ø 70 mm | | | | | | | | ✓ |
| 03.844 | 39 | Roller rest | | | | | | | | ✓ |
| 03.832 | 42 | Broach with 12 points | | | | | | ✓ | ✓ | ✓ |
| 03.835 | 44 | Set of 8 training hearts | | | | | ✓ | ✓ | ✓ | ✓ |
| 03.854 | 45 | Return broach | | | | | ✓ | ✓ | ✓ | ✓ |
| 03.841 | 55 | 220V motor, 3000 RPM | | | | | | | | ✓ |
| | b | Rest pour MSA 03.811 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | c | Drill holder for MSA 03.819 | | | | | | | | ✓ |
| | d | Female point for MSA 03.836 | | | | | | | | ✓ |
| 03.855 | 55a | Green belt Ø 6 mm, length 900 mm. | | | | | | | | 3 |

* see references on page 03 14.



Motor with frequency converter, 1 on/off switch, 1 runner-inverter button and 1 potentiometer to adjust the rotation speed. 1 on/off pedal or 1 speed variation button is optional.

| MSA | Voltage | Kg |
|------------|---------|-------|
| 03.841 | 220 V | 4.300 |
| 03.841-110 | 110 V | 4.300 |

Speed : variable from 0 to 3000 RPM
Power : 0.18 kW
Voltage : 220 V.

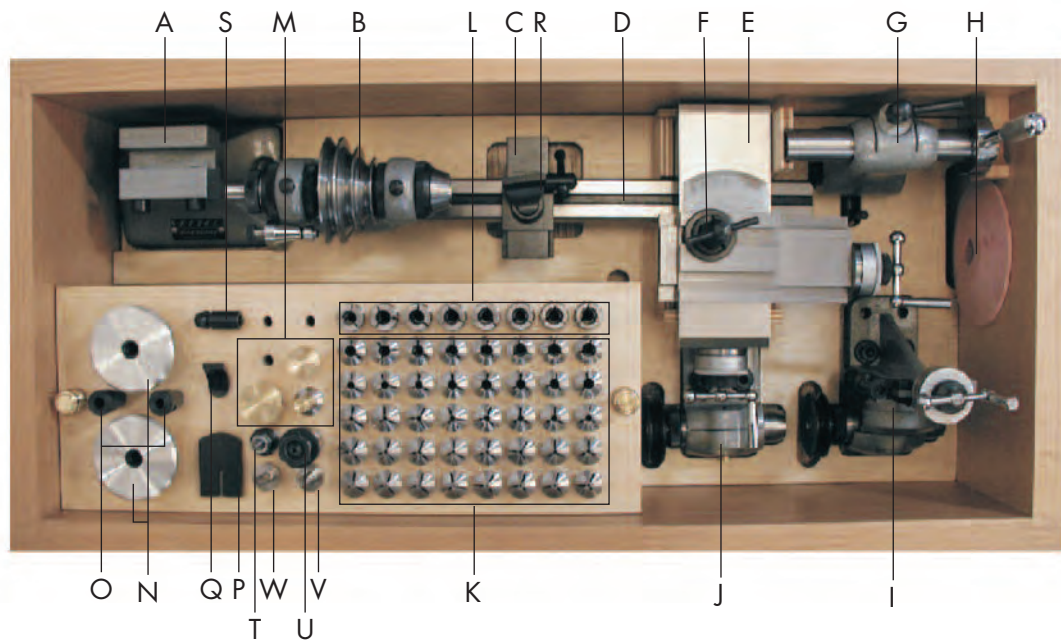
» Precision lathe available in different versions according to needs.
Delivered in wooden box.



| MSA | Type | Kg |
|--------|-----------|--------|
| 03.806 | 110-01-03 | 12.000 |

Precise lathe for watch-making VECTOR®. Drilling 8 mm with complete basic equipment.

Head stock, right hand (B), lathe base (A), bed (D), swing over hand rest set with base, swing over hand rest and wide t-rest (C), compound slide rest (E), drilling tail stock (G), milling attachment including draw-in spindle, to be screwed onto the compound slide rest (I), grinding attachment including draw-in spindle (J), grinding disc borehole \varnothing 13,5 mm outer \varnothing 74 mm (H), set of 48 chucks (0.3 to 8.0 mm) (K), set of 8 crown chucks (L), set of 3 brass wax chucks including (M), wide T-Rest width 20 mm (R), small T-Rest width 10 mm (Q), tool holder for clamping cutters with quadratic cross-section at maxi 6 mm, including mandrill (F), saw table for usage with base of swing over hand rest supporting area \sim 20 x 30 mm (P), roller rest to use with base of swing over hand rest (S), arbour chuck \varnothing 8 mm for clamping grinding disc, milling cutters (\varnothing 8 mm) (U), arbour chuck \varnothing 5 mm for clamping buzz saw blades hole \varnothing 5 mm, milling cutters borehole \varnothing 5 mm (T), male centre chuck (V), female centre chuck (W), 2 draw-in spindles standard length (N), 2 draw-in spindles standard length, for grinding tool (O), driving belt and welding plate. Delivered in wooden box 480 x 230 x 175 mm containing.



Other versions available :

| MSA | Content | Kg |
|------------|--|--------|
| 03.880 | MSA 03.806 + 03.868 + 03.869 + 03.870 + 03.860 | 25.100 |
| 03.881 (1) | MSA 03.806 + 03.868 + 03.869 + 03.870 + 03.861 | 26.300 |



Accessories :

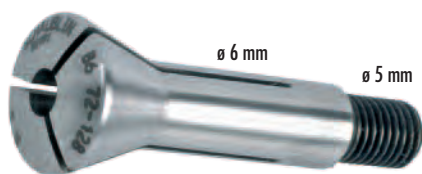
| MSA | Items | Kg |
|------------------|--|----|
| 03.868 | Countershaft including two brass bearings and driving belt | |
| 03.869 | dividing disk | |
| 03.870 | wooden base | |
| 03.860 | motor 0/2500 r.p.m. 230 volts | |
| 03.861 | motor MSA 03.860 including foot pedal | |
| 03.806- σ | American chuck only (σ to be mentioned) | |

» American chucks only compatible with MSA 03.807, 03.800, 03.801, 03.802, 03.803, 03.808, 03.804, 03.805.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|-------------|------|-------|--------------|------|-------|
| 03.840-0.3 | 0.30 | 0.090 | 03.840-2.3 | 2.30 | 0.090 |
| 03.840-0.4 | 0.40 | " | 03.840-2.4** | 2.40 | " |
| 03.840-0.47 | 0.47 | " | 03.840-2.5 | 2.50 | " |
| 03.840-0.5* | 0.50 | " | 03.840-2.6** | 2.60 | " |
| 03.840-0.6* | 0.60 | " | 03.840-2.8** | 2.80 | " |
| 03.840-0.7 | 0.70 | " | 03.840-3.0** | 3.00 | " |
| 03.840-0.8* | 0.80 | " | 03.840-3.2** | 3.20 | " |
| 03.840-0.9 | 0.90 | " | 03.840-3.3 | 3.30 | " |
| 03.840-1.0* | 1.00 | " | 03.840-3.4** | 3.40 | " |
| 03.840-1.1 | 1.10 | " | 03.840-3.5 | 3.50 | " |
| 03.840-1.2* | 1.20 | " | 03.840-3.6** | 3.60 | " |
| 03.840-1.3 | 1.30 | " | 03.840-3.8** | 3.80 | " |
| 03.840-1.4* | 1.40 | " | 03.840-4.0** | 4.00 | " |
| 03.840-1.5 | 1.50 | " | 03.840-4.2** | 4.20 | " |
| 03.840-1.6* | 1.60 | " | 03.840-4.5 | 4.50 | " |
| 03.840-1.7 | 1.70 | " | 03.840-4.6 | 4.60 | " |
| 03.840-1.8* | 1.80 | " | 03.840-4.7 | 4.70 | " |
| 03.840-1.9 | 1.90 | " | 03.840-5.0 | 5.00 | " |
| 03.840-2.0* | 2.00 | " | 03.840-6.0 | 6.00 | " |
| 03.840-2.2* | 2.20 | " | 03.840-7.0 | 7.00 | " |

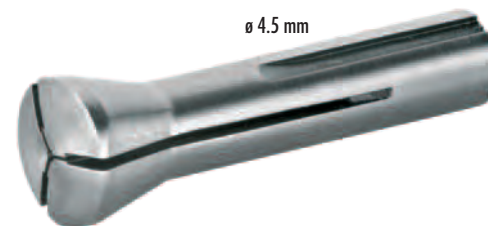
B8 american chuck for STAR high precision lathes.
 * Information : 10 chucks delivered with lathes MSA 03.800 and 03.807.
 * + ** Information : 20 chucks delivered with lathes MSA 03.801, 03.802, 03.803, 03.804, 03.805 and 03.808.



| MSA | ø mm | Kg | MSA | ø mm | Kg |
|------------|------|-------|------------|------|-------|
| 03.839-030 | 0.30 | 0.060 | 03.839-200 | 2.00 | 0.060 |
| 03.839-040 | 0.40 | " | 03.839-210 | 2.10 | " |
| 03.839-050 | 0.50 | " | 03.839-220 | 2.20 | " |
| 03.839-060 | 0.60 | " | 03.839-230 | 2.30 | " |
| 03.839-070 | 0.70 | " | 03.839-240 | 2.40 | " |
| 03.839-080 | 0.80 | " | 03.839-250 | 2.50 | " |
| 03.839-090 | 0.90 | " | 03.839-260 | 2.60 | " |
| 03.839-100 | 1.00 | " | 03.839-270 | 2.70 | " |
| 03.839-110 | 1.10 | " | 03.839-280 | 2.80 | " |
| 03.839-120 | 1.20 | " | 03.839-290 | 2.90 | " |
| 03.839-130 | 1.30 | " | 03.839-300 | 3.00 | " |
| 03.839-140 | 1.40 | " | 03.839-350 | 3.50 | " |
| 03.839-150 | 1.50 | " | 03.839-400 | 4.00 | " |
| 03.839-160 | 1.60 | " | 03.839-450 | 4.50 | " |
| 03.839-170 | 1.70 | " | 03.839-500 | 5.00 | " |
| 03.839-180 | 1.80 | " | 03.839-550 | 5.50 | " |
| 03.839-190 | 1.90 | " | 03.839-600 | 6.00 | " |

American chuck B6/128.

» Other american chucks.



| MSA | ø mm | Kg |
|------------|------|-------|
| 03.856-050 | 0.50 | 0.002 |
| 03.856-150 | 1.50 | " |
| 03.856-200 | 2.00 | " |
| 03.856-300 | 3.00 | " |
| 03.856-400 | 4.00 | " |

Chuck P4.5 type. Inside thread.

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



| MSA | Size mm | Nr. of holes | Holes ø mm | Kg |
|--------|---------|--------------|-------------|-------|
| 03.901 | 53 x 15 | 24 (1) | 0.50 à 2.20 | 0.030 |
| 03.902 | " | 36 (2) | 0.50 à 2.50 | 0.026 |

Hardened steel riveting stake.



| MSA | Size mm | Nr. of holes | Holes ø mm | Kg |
|--------|---------|--------------|-------------|-------|
| 03.903 | 50 x 15 | 36 | 0.50 à 2.50 | 0.025 |

Brass riveting stake.



| MSA | Size mm | Nr. of holes | Holes ø mm | Kg |
|--------|---------|--------------|-------------|-------|
| 03.904 | 72 x 15 | 20 | 0.50 à 2.50 | 0.030 |

Hardened steel riveting stake, with 2 V shape slots and 5 notches of different dimensions.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 03.905 | 40 x 40 x 40 | 0.378 |

Hardened steel riveting stake, universal cubic shape, with 36 calibrated holes from \varnothing 0.3 to 10.0 mm and 16 slots with different shapes and dimensions. For watches, alarm clocks and wall clocks.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 03.906 | 46 x 46 x 15 | 0.196 |

Polished hardened steel riveting stake, hexagonal shape, with 15 calibrated holes from \varnothing 0.8 to 6.3 mm and 4 slots of different dimensions.

04



HAMMERS 04 2



SAW FRAMES 04 4



SAW BLADES 04 5



TAPPING/THREADING 04 7

- thread Chuck Die and Screw Tap
- tap wide thread
- tap for machines HSS
- tap for screw pushers HSS

» Watchmakers use small lightweight hammers and boxwood mallets to strike with precision.



| MSA | Head length mm | Total length mm | Kg |
|--------|----------------|-----------------|-------|
| 04.001 | 50 | 195 | 0.052 |
| 04.002 | 60 | 210 | " |
| 04.003 | 70 | 230 | " |
| 04.004 | 80 | 230 | 0.123 |
| 04.005 | 90 | 230 | " |
| 04.006 | 67 | 218 | 0.050 |
| 04.007 | 35 | 193 | 0.020 |

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

Hammer with round head made of **polished brass** ø 16 mm, flat shape on one side and dome shape on the other, delivered with a wooden handle.



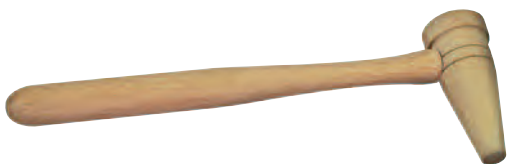
| MSA | Head length mm | Total length mm | Kg |
|--------|----------------|-----------------|-------|
| 04.020 | 75 | 230 | 0.106 |

Watch makers 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.



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

Robust **boxwood** mallet, ideal for flattening metals without scraping.



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

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

» Hammer handles.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 04.100 | 240 | 0.058 |
| 04.101 | 260 | " |

Wooden handle for chase hammers, with curved oval shape.



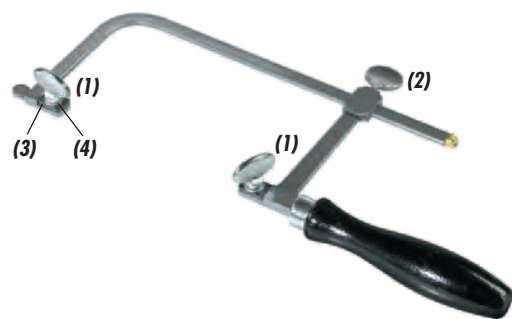
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 04.102 | 240 | 0.060 |
| 04.103 | 260 | " |

Wooden handle for chase hammers, with straight oval shape.



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

Wooden handle for watchmakers hammer.

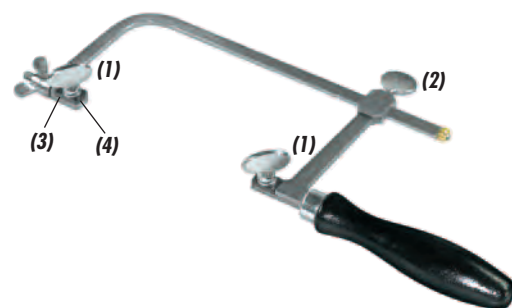


| MSA | Depth mm | Kg |
|------------|----------|-------|
| 04.310-060 | 60 | 0.140 |
| 04.310-070 | 70 | 0.145 |
| 04.310-080 | 80 | 0.150 |
| 04.310-100 | 100 | 0.155 |
| 04.310-120 | 120 | 0.165 |
| 04.310-150 | 150 | 0.174 |
| 04.310-200 | 200 | 0.194 |

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.

Replacement parts for MSA 04.310-xxx and MSA 04.315-xxx :

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



| MSA | Depth mm | Kg |
|------------|----------|-------|
| 04.315-060 | 60 | 0.150 |
| 04.315-070 | 70 | 0.150 |
| 04.315-080 | 80 | 0.153 |
| 04.315-100 | 100 | 0.170 |
| 04.315-120 | 120 | 0.180 |
| 04.315-150 | 150 | 0.190 |
| 04.315-200 | 200 | 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 screws are practical for tightening the saw blades.



144 pces



| MSA | Number | Length mm | Kg |
|------------|--------|-----------|-------|
| 04.450-6/0 | 6/0 | 130 | 0.007 |
| 04.450-5/0 | 5/0 | " | 0.008 |
| 04.450-4/0 | 4/0 | " | 0.012 |
| 04.450-3/0 | 3/0 | " | 0.014 |
| 04.450-2/0 | 2/0 | " | 0.018 |
| 04.450-0 | 0 | " | 0.029 |
| 04.450-1 | 1 | " | 0.033 |
| 04.450-2 | 2 | " | 0.037 |
| 04.450-3 | 3 | " | 0.042 |
| 04.450-4 | 4 | " | 0.045 |
| 04.450-5 | 5 | " | 0.049 |
| 04.450-6 | 6 | " | 0.055 |
| 04.450-8 | 8 | " | 0.063 |

Remark : 6/0 (fine)...8 (coarse).

Saw blades HOROTEC® for **metal**.
Delivered in a bag with 1 gross (144 pieces).

144 pces



| MSA | Number | Length mm | Kg |
|------------|--------|-----------|-------|
| 04.410-8/0 | 8/0 | 130 | 0.004 |
| 04.410-7/0 | 7/0 | " | 0.006 |
| 04.410-6/0 | 6/0 | " | 0.008 |
| 04.410-5/0 | 5/0 | " | 0.011 |
| 04.410-4/0 | 4/0 | " | 0.013 |
| 04.410-3/0 | 3/0 | " | 0.015 |
| 04.410-2/0 | 2/0 | " | 0.017 |
| 04.410-0 | 0 | " | 0.019 |
| 04.410-1 | 1 | " | 0.023 |
| 04.410-2 | 2 | " | 0.028 |
| 04.410-3 | 3 | " | 0.031 |
| 04.410-4 | 4 | " | 0.035 |
| 04.410-5 | 5 | " | 0.039 |
| 04.410-6 | 6 | " | 0.042 |
| 04.410-8 | 8 | " | 0.045 |

Remark : 8/0 (fine)...8 (coarse).

Saw blades GLARDON® for **metal**.
Delivered in a bag with 1 gross (144 pieces).

144 pces



| MSA | Number | Length mm | Kg |
|----------|--------|-----------|-------|
| 04.401-A | 6/0 | 130 | 0.008 |
| 04.401-B | 5/0 | " | 0.009 |
| 04.401-C | 4/0 | " | 0.012 |
| 04.401-D | 3/0 | " | 0.015 |
| 04.401-E | 2/0 | " | 0.018 |
| 04.401-F | 0 | " | 0.020 |
| 04.401-G | 1 | " | 0.024 |
| 04.401-H | 2 | " | 0.029 |
| 04.401-J | 3 | " | 0.033 |
| 04.401-K | 4 | " | 0.037 |
| 04.401-L | 5 | " | 0.041 |
| 04.401-M | 6 | " | 0.045 |
| 04.401-N | 8 | " | 0.050 |

Remark : 6/0 (fine)...8 (coarse).

Saw blades IDEAL® for metal.
Delivered in a bag with 1 gross (144 pieces).

144 pces



| MSA | Number | Length mm | Kg |
|------------|--------|-----------|-------|
| 04.402-2/0 | 2/0 | 130 | 0.018 |
| 04.402-0 | 0 | " | 0.020 |
| 04.402-1 | 1 | " | 0.022 |
| 04.402-2 | 2 | " | 0.028 |
| 04.402-3 | 3 | " | 0.032 |
| 04.402-4 | 4 | " | 0.036 |
| 04.402-5 | 5 | " | 0.042 |
| 04.402-6 | 6 | " | 0.047 |
| 04.402-7 | 7 | " | 0.056 |
| 04.402-8 | 8 | " | 0.062 |
| 04.402-9 | 9 | " | 0.074 |
| 04.402-10 | 10 | " | 0.083 |
| 04.402-11 | 11 | " | 0.090 |
| 04.402-12 | 12 | " | 0.100 |

Remark : 2/0 (fine)...12 (coarse).

Saw blades NIQUA-FIX® for wood.
Delivered in a bag with 1 gross (144 pieces).

» Threading taps and dies.

144 pces



| MSA | Number | Length mm | Kg |
|----------|--------|-----------|-------|
| 04.400-A | 8/0 | 130 | 0.006 |
| 04.400-B | 7/0 | " | " |
| 04.400-C | 6/0 | " | 0.008 |
| 04.400-D | 5/0 | " | 0.010 |
| 04.400-E | 4/0 | " | 0.012 |
| 04.400-F | 3/0 | " | 0.014 |
| 04.400-G | 2/0 | " | 0.016 |
| 04.400-H | 0 | " | " |
| 04.400-J | 1 | " | 0.022 |
| 04.400-K | 2 | " | 0.028 |
| 04.400-L | 3 | " | 0.032 |
| 04.400-M | 4 | " | 0.036 |
| 04.400-N | 5 | " | 0.038 |
| 04.400-P | 6 | " | 0.047 |

Remark : 8/0 (fine)...6 (coarse).

Saw blades ANTILOPE® for metal.
Delivered in a bag with 1 gross (144 pieces).

| MSA | Dimensions mm | Kg |
|--------|----------------|-------|
| 04.518 | 136 x 136 x 26 | 0.125 |

High quality set of metric thread dies and Taps for watch making.

Contents : 12 sets of 3 taps HSS ø 0.40-1.40 mm, 12 dies HSS ø 0.40-1.40 mm, 1 dies holder ø 8 mm.
Delivered in wooden box.

Spares :

| MSA | Items |
|--------------|--------------------|
| 04.536 | Dies holder ø 8 mm |
| 04.537-M0.4 | Die ø 8 mm M 0.4 |
| 04.537-M0.5 | Die ø 8 mm M 0.5 |
| 04.537-M0.6 | Die ø 8 mm M 0.6 |
| 04.537-M0.65 | Die ø 8 mm M 0.65 |
| 04.537-M0.7 | Die ø 8 mm M 0.7 |
| 04.537-M0.8 | Die ø 8 mm M 0.8 |
| 04.537-M0.9 | Die ø 8 mm M 0.9 |
| 04.537-M1.0 | Die ø 8 mm M 1.0 |
| 04.537-M1.1 | Die ø 8 mm M 1.1 |
| 04.537-M1.2 | Die ø 8 mm M 1.2 |
| 04.537-M1.3 | Die ø 8 mm M 1.3 |
| 04.537-M1.4 | Die ø 8 mm M 1.4 |



» Spare Finishing taps MSA 04.520-xxx, see page 04 9.

| MSA | Size mm | Kg |
|--------|----------------|-------|
| 04.517 | 175 x 195 x 25 | 0.340 |

High quality set of metric thread dies and Taps for Clock making.

Contents : 8 sets of 3 taps HSS \varnothing 1.00-3.00mm, 8 dies HSS \varnothing 1.00-3.00mm, 1 dies holder \varnothing 16 mm, 1 adjustable hand wrench

Delivered in wooden box.

Spares :

| MSA | Items |
|-------------|------------------------------|
| 04.534 | Adjustable hand wrench |
| 04.536 | Dies holder |
| 04.535-M1 | Die \varnothing 16 mm M1 |
| 04.535-M1.2 | Die \varnothing 16 mm M1.2 |
| 04.535-M1.4 | Die \varnothing 16 mm M1.4 |
| 04.535-M1.7 | Die \varnothing 16 mm M1.7 |
| 04.535-M2 | Die \varnothing 16 mm M2 |
| 04.535-M2.3 | Die \varnothing 16 mm M2.3 |
| 04.535-M2.6 | Die \varnothing 16 mm M2.6 |
| 04.535-M3 | Die \varnothing 16 mm M3 |

| MSA | Items | \varnothing mm |
|-------------|-------|------------------|
| 04.526-1A | Tap | 1.0 |
| 04.526-1B | " | " |
| 04.526-1C | " | " |
| 04.527-1.2A | " | 1.2 |
| 04.527-1.2B | " | " |
| 04.527-1.2C | " | " |
| 04.528-1.4A | " | 1.4 |
| 04.528-1.4B | " | " |
| 04.528-1.4C | " | " |
| 04.529-1.7A | " | 1.7 |
| 04.529-1.7B | " | " |
| 04.529-1.7C | " | " |
| 04.530-2A | " | 2.0 |
| 04.530-2B | " | " |
| 04.530-2C | " | " |
| 04.531-2.3A | " | 2.3 |
| 04.531-2.3B | " | " |
| 04.531-2.3C | " | " |
| 04.532-2.6A | " | 2.6 |
| 04.532-2.6B | " | " |
| 04.532-2.6C | " | " |
| 04.533-3A | " | 3.0 |
| 04.533-3B | " | " |
| 04.533-3C | " | " |

- > - A : Starting Tap
- B : Roughing Tap
- C : Finishing Tap.



| MSA | \varnothing mm | Kg |
|--------------|------------------|-------|
| 04.520-040** | 0.40 | 0.003 |
| 04.520-045 | 0.45 | " |
| 04.520-050** | 0.50 | " |
| 04.520-055 | 0.55 | " |
| 04.520-060** | 0.60 | " |
| 04.520-065** | 0.65 | " |
| 04.520-070** | 0.70 | " |
| 04.520-080** | 0.80 | 0.004 |
| 04.520-090** | 0.90 | " |
| 04.520-095 | 0.95 | " |
| 04.520-100** | 1.00 | " |
| 04.520-110** | 1.10 | " |
| 04.520-120** | 1.20 | " |
| 04.520-130** | 1.30 | " |
| 04.520-140** | 1.40 | 0.005 |
| 04.520-150 | 1.50 | " |
| 04.520-160 | 1.60 | " |
| 04.520-170 | 1.70 | " |
| 04.520-180 | 1.80 | " |
| 04.520-190 | 1.90 | " |
| 04.520-200 | 2.00 | " |

Finishing Taps only, HSS, **metric thread** for watch making.
 **, sizes delivered in the MSA 04.518 page 04 7.

>> **Wide threading taps.**



| MSA | \varnothing mm | Kg |
|------------|------------------|-------|
| 04.522-070 | 0.70 | 0.003 |
| 04.522-080 | 0.80 | " |
| 04.522-090 | 0.90 | " |
| 04.522-100 | 1.00 | " |
| 04.522-110 | 1.10 | " |
| 04.522-120 | 1.20 | 0.004 |
| 04.522-130 | 1.30 | " |
| 04.522-140 | 1.40 | " |
| 04.522-150 | 1.50 | " |
| 04.522-160 | 1.60 | 0.005 |
| 04.522-170 | 1.70 | " |
| 04.522-180 | 1.80 | " |
| 04.522-190 | 1.90 | " |
| 04.522-200 | 2.00 | " |

Taps 3 grooves HSS, EE wide thread for jewellery making.

» *Tapping machine Taps HSS.*



| MSA | ø mm | Kg |
|------------|------|-------|
| 04.524-030 | 0.30 | 0.001 |
| 04.524-035 | 0.35 | " |
| 04.524-040 | 0.40 | " |
| 04.524-045 | 0.45 | " |
| 04.524-050 | 0.50 | " |
| 04.524-060 | 0.60 | " |
| 04.524-070 | 0.70 | " |
| 04.524-080 | 0,80 | " |
| 04.524-090 | 0.90 | " |
| 04.524-095 | 0.95 | " |
| 04.524-100 | 1.00 | " |
| 04.524-110 | 1.10 | " |
| 04.524-120 | 1.20 | " |
| 04.524-130 | 1.30 | " |
| 04.524-140 | 1,40 | " |
| 04.524-150 | 1,50 | " |
| 04.524-160 | 1.60 | " |
| 04.524-170 | 1.70 | " |
| 04.524-180 | 1.80 | " |
| 04.524-190 | 1.90 | " |
| 04.524-200 | 2.00 | " |
| 04.524-220 | 2.20 | " |
| 04.524-230 | 2.30 | " |
| 04.524-240 | 2.40 | " |
| 04.524-250 | 2.50 | " |
| 04.524-260 | 2.60 | " |
| 04.524-300 | 3.00 | " |
| 04.524-350 | 3.50 | " |
| 04.524-400 | 4.00 | " |
| 04.524-450 | 4.50 | " |
| 04.524-500 | 5.00 | " |
| 04.524-600 | 6.00 | " |

Taps for Brass material suitable for through and blind holes. For tapping machine.

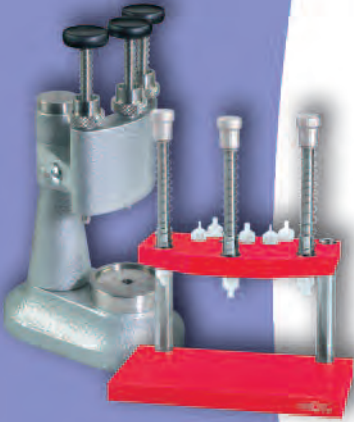
» *Taps HSS for screw pushers.*



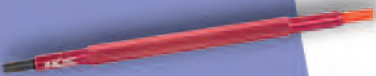
| MSA | Size mm | Kg |
|-----------|-------------|-------|
| 04.525-01 | 2.50 x 0.20 | 0.002 |
| 04.525-02 | 2.50 x 0.25 | " |
| 04.525-03 | 2.80 x 0.20 | " |

Taps for through holes.

05



HANDS PRESSES 05 2
05 4
05 6



HANDS FITTING TOOLS 05 3



HANDS REMOVING TOOLS 05 7

» 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 mm | Kg |
|--------|---------------|-------|
| 05.015 | 60 x 50 x 105 | 0.205 |

Hand 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. Delivered with **8 Delrin® stakes** stored on the press.

Replacement parts :

| MSA | Items | o mm | Kg |
|-----------|-------------|---------|-------|
| 05.015-A | Stake | 0.50 | 0.002 |
| 05.015-B | " | 0.70 | " |
| 05.015-C | " | 0.90 | " |
| 05.015-D | " | 1.20 | " |
| 05.015-E | " | 1.50 | " |
| 05.015-F | " | 1.70 | " |
| 05.015-G | " | flat | " |
| 05.015-H | " | conical | " |
| 05.015-01 | Broach only | - | 0.009 |
| 05.015-02 | Spring only | - | 0.002 |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 05.017 | 94 x 50 x 115 | 0.315 |

Press with 3 broaches for fitting hands on wrist and pocket watches without any broach replacement. Delivered with **8 Delrin® screwed stakes** stored on the press.

Replacement parts :

| MSA | Items | o mm | Kg |
|-----------|-------------|---------|-------|
| 05.017-A | Stake | 0.50 | 0.002 |
| 05.017-B | " | 0.70 | " |
| 05.017-C | " | 0.90 | " |
| 05.017-D | " | 1.20 | " |
| 05.017-E | " | 1.50 | " |
| 05.017-F | " | 1.70 | " |
| 05.017-G | " | flat | " |
| 05.017-H | " | conical | " |
| 05.017-01 | Broach only | - | 0.009 |
| 05.017-02 | Spring only | - | 0.002 |



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

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

Replacement stakes :

| MSA | o hole mm | Colour | Kg |
|----------|-----------|----------|-------|
| 05.010-A | 0.50 | ● Orange | 0.001 |
| 05.010-B | 1.00 | ○ White | " |



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

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

Replacement stakes :

| MSA | o hole mm | Colour | Kg |
|----------|--------------|----------|-------|
| 05.011-A | Without hole | ● Blue | 0.001 |
| 05.011-B | 0.80 | ● Yellow | " |



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

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

Replacement stakes :

| MSA | o hole mm | Colour | Kg |
|----------|-----------|---------|-------|
| 05.012-A | 1.50 | ● Black | 0.001 |
| 05.012-B | 2.00 | ● Red | " |



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

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

Replacement stakes :

| MSA | o hole mm | Colour | Kg |
|----------|-----------|---------|-------|
| 05.019-A | 0.65 | ● Blue | 0.001 |
| 05.019-B | 1.10 | ● Black | " |

» High precision hands fitting press with revolving head to avoid changing broaches, ideal for production series. Each broach is equipped with a knurled nut for fine height adjustment. Suitable for movement holder MSA 09.010-xx (ø 31 mm) on pages 09 2 and 09 3.



MSA
05.109



MSA
05.110



MSA
05.111



MSA
05.112

| MSA | Version | Use | Kg |
|--------|------------|-----------------------------------|-------|
| 05.109 | 2 broaches | For hour and minute hands | 1.350 |
| 05.110 | 3 broaches | For hour, minute and second hands | 1.475 |

| MSA | Version | Use | Kg |
|--------|------------|---|-------|
| 05.111 | 3 broaches | For hour, minute and decentred second hands | 1.455 |
| 05.112 | 4 broaches | For hour, minute, decentred second and date hands | 1.585 |

High precision hand fitting press with hardened steel broaches.

See also movement holder MSA 09.010-xx.



Accessories :

| MSA | Item | Kg |
|----------|--|-------|
| 05.015-P | Movements holder eccentric adaptor suitable for MSA 05.109, 05.110, 05.111, 05.112 | 0.010 |



Replacement stakes for hands fitting press MSA 05.109, 05.110, 05.111 and 05.112 :

| MSA | Hands | ø hole mm | Kg |
|-----------|--------------|---------------|-------|
| 05.110-06 | Date (Pict.) | 2.10 | 0.002 |
| 05.110-05 | Hour | 1.35 | " |
| 05.110-04 | Minute | 0.95 | " |
| 05.110-03 | Second | 0.30 | " |
| 05.110-02 | Second | flat | " |
| 05.110-01 | Decentred | 7.50 (length) | 0.004 |

Other diameters available upon request.



Replacement stakes with Delrin® tip for hands fitting press MSA 05.109, 05.110, 05.111 and 05.112 :

| MSA | Hands | ø hole mm | Kg |
|-----------|----------------|-----------|-------|
| 05.111-09 | Date | 1.10 | 0.002 |
| 05.111-08 | Date | 1.50 | " |
| 05.111-07 | Date | 1.70 | " |
| 05.111-06 | Date | 2.10 | 0.002 |
| 05.111-05 | Hour | 1.35 | " |
| 05.111-04 | Minute | 0.95 | " |
| 05.111-03 | Second | 0.30 | " |
| 05.111-02 | Second (Pict.) | flat | " |

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 MSA 09.010-xx (ø 31 mm) on pages 09 2 and 09 3.



| 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 movement holder MSA 09.010-xx.



| 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 movement holder MSA 09.010-xx.

Replacement broaches for MSA 05.100 et 05.101 :

| MSA | ø mm | Description | Kg |
|----------|------------------|---|-------|
| 05.101-A | 1.00 | For minute hands, adjustable white head | 0.019 |
| 05.101-B | 1.20 | For hour hands, adjustable black head | " |
| 05.101-C | Flat not pierced | For second hands, simple red head | " |



Accessories :

| MSA | Size mm | Description |
|----------|---------|---|
| 05.100-T | 51 x 80 | Table for presses MSA 05.100 and 05.101 |



Paire

| MSA | Width tips mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 05.013 | 3 | 115 | 0.015 |

Pair of hand levers with varnished aluminium handles and polished work surface, **for alarm clocks and wall clocks**. Delivered with 2 dial protectors MSA 70.004.



Paire

| MSA | Width tips mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 05.014 | 10 | 115 | 0.020 |

Pair of hand levers with varnished aluminium handles and polished work surface, **for wall clocks**. Delivered with 2 dial protectors MSA 70.004.



Paire

| MSA | Width tips mm | Length mm | Kg |
|--------|---------------|-----------|-------|
| 05.007 | 2.5 | 105 | 0.022 |

Pair of hand levers with varnished aluminium handles, **for wrist watches**. Delivered with 2 dial protectors MSA 70.004.



Paire

| MSA | Largeur embouts mm | Longueur mm | Kg |
|--------|--------------------|-------------|-------|
| 05.008 | 4.0 | 105 | 0.042 |

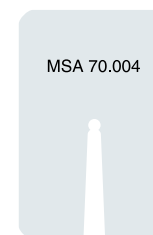
Pair of hand levers with varnished aluminium handles, **for pocket watches**. Delivered with 2 dial protectors MSA 70.004.



Paire

| MSA | Largeur embouts mm | Longueur mm | Kg |
|--------|--------------------|-------------|-------|
| 05.009 | 1.0 | 105 | 0.016 |

Pair of hand levers with varnished aluminium handles, **for sweep second hands and small counter hands of chronometers**. Delivered with 2 dial protectors MSA 70.004.



MSA 70.004

| MSA | Size mm | Kg |
|--------|---------|-------|
| 70.004 | 26 x 38 | 0.001 |

Dial protector. Avoids scratching the dial with the hand levers illustrated on pages 05 6 and 05 7.

HANDS FITTING TOOLS | HANDS REMOVING TOOLS



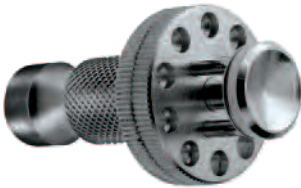
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 05.005 | 98 | 0.020 |

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



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 05.006 | 97 | 0.018 |

Hands remover for wrist watches, equipped with a plastic pillar-die-set to avoid scratching the dial. Simply press on the 2 lateral springs so that the jaws retract immediately ; at the same time the central piston maintains the hand firmly.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 05.001 | 43 | 0.029 |

Hands holder for broaching holes equipped with a knurled handle and 10 holes. Perfect for holding onto hands or other small parts. Holes diameters : \varnothing 3.10, 2.70, 2.50, 2.20, 2.00, 1.50, 1.20, 0.85, 0.70 and 0.55 mm.

06/07

STANDARD PRESSES

FOR SCREW AND/OR SLIDE DIES 07 2

for glass fitting, tension ring glass fitting

for bezel and snap-on case back

compatible sets of dies 07 12

PRESSES FOR SCREW CASE BACK 07 20

press accessories 07 28

compatible sets of dies 07 34

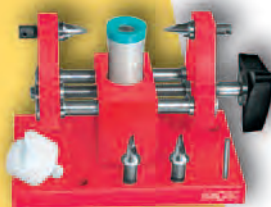
TOOLS FOR SCREW CASE BACK 07 32

compatible sets of dies 07 34

OTHER TOOLS FOR SNAP-ON CASE BACK 07 39

OTHERS 07 44

GLASS CUTTING MACHINE 07 46



» Professional rack-press.



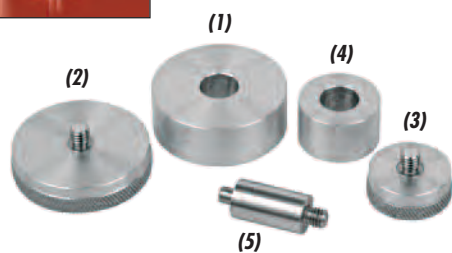
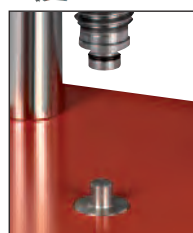
SUITABLE FOR
SCREW AND
SLIDE DIES

| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 07.160 | 150 x 105 x 240 | 2.600 |

Rack-press with declutchable handle, suitable for screw and slide dies. The underneath front base is recessed and has a « V » shape allowing to fit glass or bezel without removing the metal band from the watch. The press is equipped with a locking system on the column and an inner screw for delicate jobs on fine or gold watches. Lower the right handle until the upper die is in contact with the watch and then slowly turn the top for final fitting. Delivered with the accessories (1) to (5).
Dies not included. See assortments pages 07 12 to 07 19.

Accessories :

| MSA | Items | Kg |
|----------|-------------------------------------|-------|
| 07.160-1 | Support on base ø 40 x 15 mm (1) | 0.052 |
| 07.160-2 | Adaptor ø 40 x 10 mm (2) | 0.040 |
| 07.160-3 | Adaptor ø 25 x 10 mm (3) | 0.015 |
| 07.160-4 | Support on base ø 25 x 15 mm (4) | 0.016 |
| 07.160-5 | Reversible adaptor ø 12 x 33 mm (5) | 0.021 |



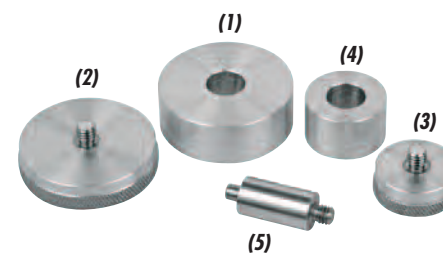
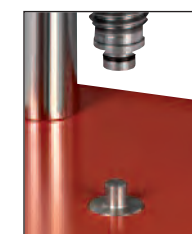
SUITABLE FOR
SCREW AND
SLIDE DIES

| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 07.161 | 150 x 105 x 240 | 2.800 |

Rack-press with declutchable handle, suitable for screw and slide dies. The underneath front base is recessed and has a « V » shape allowing to fit glass or bezel without removing the metal band from the watch. The press is equipped with a locking system on the column and an inner screw for delicate jobs on fine or gold watches. Lower the right handle until the upper die is in contact with the watch and then slowly turn the top for final fitting. Delivered with the accessories (1) to (5).
Dies not included. See assortments pages 07 12 to 07 19.

Accessories :

| MSA | Items | Kg |
|----------|-------------------------------------|-------|
| 07.160-1 | Support on base ø 40 x 15 mm (1) | 0.052 |
| 07.160-2 | Adaptor ø 40 x 10 mm (2) | 0.040 |
| 07.160-3 | Adaptor ø 25 x 10 mm (3) | 0.015 |
| 07.160-4 | Support on base ø 25 x 15 mm (4) | 0.016 |
| 07.160-5 | Reversible adaptor ø 12 x 33 mm (5) | 0.021 |



» See MSA 07.369 page 07 21.





| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 07.170 | 150 x 160 x 180 | 7.000 |

Rack-press for right or left hand users for heavy duty jobs in production or After Sales Sce. The broach the holed inside and equipped with Air connector \varnothing 6 mm. On the top to eventually handle the components by vacuum. Delivered with 2 adaptors (lower and upper) for screw dies thread 6 mm.

Dies not included. See assortments pages 07 12 to 07 19.

Adaptor only :

| MSA | Item |
|----------|---|
| 07.170-A | Lower and upper adaptor only for screw dies (1) |



Left hand version.



Right hand version.



| MSA | Broach | Size mm | Kg |
|--------|--------|----------------|-------|
| 06.135 | Simple | 80 x 225 x 180 | 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 extensible 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 (\varnothing 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.

5 assortments of **screw-on dies** are deliverable **separately** : MSA 06.520, 06.521, 06.522, 07.106 and 07.107.

Dies not included. See assortments pages 07 12 to 07 19.



ASSORTMENT



| MSA | Broach | Kg |
|--------|--------|-------|
| 06.136 | Simple | 2.605 |

Complete Horotec assortment including :

- 1 precision press MSA 06.135
- 4 assortments of delrin **screw-on** dies MSA 06.520, 06.521, 06.522 and 07.106 (43 pieces).

Dies not included. See assortments pages 07 12 to 07 19.



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

5 assortments of **screw-on dies** are deliverable **separately** : MSA 06.520, 06.521, 06.522, 07.106 and 07.107.

Dies not included. See assortments pages 07 12 to 07 17.

FOR SCREW-ON DIES



ASSORTMENT



| MSA | Broach | Kg |
|--------|--------|-------|
| 06.151 | Double | 2.695 |

Complete Horotec assortment including :

- 1 precision **rack-press** MSA 06.150
- 4 assortments of delrin **screw-on dies** MSA 06.520, 06.521, 06.522 and 07.106 (43 pieces).

Other dies available. See pages 07 12 to 07 17.

FOR SCREW-ON DIES



ASSORTMENT

FOR SCREW-ON DIES



(1)

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

Complete HOROTEC® LUXURY assortment including :

- 1 precision **rack-press** MSA 06.150 in a wooden box (240 x 200 x 88 mm). (1)
- 43 delrin **screw-on dies** MSA 06.520, 06.521, 06.522 and 07.106, in a wooden box (240 x 200 x 135 mm). (2)

Other dies available. See pages 07 12 to 07 17.

Accessories for MSA 06.150, 06.151, 06.135, 06.136, 06.125 and 06.130 :

| MSA | Items |
|--------------|---|
| 06.129-A (1) | Wooden box only for press 240 x 200 x 88 mm |
| 06.129-B (2) | Wooden box only for dies 240 x 200 x 135 mm |



(2)

» HOROTEC® press provided with SCREW-ON dies for closing snap-on case backs.
 Advantage: a wide variety of dies is available; they are screwed on top or on bottom, on a standard thread \varnothing 6 mm.



ASSORTMENT



FOR SCREW-ON DIES

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

Small HOROTEC® press equipped with a simple threaded broach.

Delivered with an assortment of 9 screw-on reversible dies MSA 07.106, used to close snap-on case backs.

Other dies available. See Assortment pages 07 12 to 07 17.

Replacement parts :

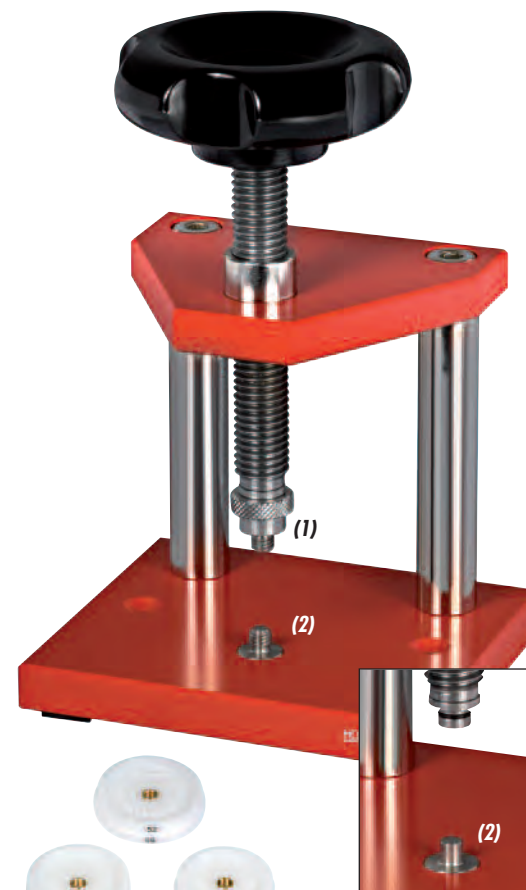
| MSA | Items |
|----------|-----------------------------|
| 07.105-A | Upper dies holder |
| 07.105-V | Screw for upper dies holder |



» HOROTEC® press suitable for both screw dies thread 6 and slide dies : \varnothing 8 mm for upper dies and \varnothing 6 mm for lower dies.



SUITABLE FOR SCREW AND SLIDE DIES



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 07.131 | 110 x 95 x 210 | 1.210 |

Press for closing snap-on case back suitable for large dies \varnothing delivered with a set of 12 large Delrin® screw dies detailed here below. Also suitable for slide dies in removing the upper adaptor 07.130-A and reversing the lower adaptor 07.130-B.

Other dies available at pages from 07 12 to 07 19.

Accessories :

| MSA | Items |
|----------|----------------------------------|
| 07.130-A | Upper adaptor for screw dies (1) |
| 07.130-B | Reversible lower adaptor (2) |

| MSA | Items | \varnothing mm |
|-------------|---------------------------------|------------------|
| 07.106-17 | Screw die for snap-on case back | 17 |
| 07.106-1921 | " " " " " | 19-21 |
| 07.106-2225 | " " " " " | 22-25 |
| 07.106-2629 | " " " " " | 26-29 |
| 07.106-3033 | " " " " " | 30-33 |
| 07.106-3437 | " " " " " | 34-37 |
| 07.106-3841 | " " " " " | 38-41 |
| 07.106-4245 | " " " " " | 42-45 |
| 07.106-4648 | " " " " " | 46-48 |
| 07.106-4950 | " " " " " | 49-50 |
| 07.106-5255 | " " " " " | 52-55 |
| 07.106-U | Lower die universal 45 | |

Press only :

| MSA | Size mm | Kg |
|--------|----------------|-------|
| 07.130 | 110 x 95 x 210 | 1.000 |

» HOROTEC® double Action Press to close snap-on watch case back. The here bellow presses have an external wide thread broach to quickly lower the top die onto the watch case back and an internal fine thread broach which start its action when it is in contact with the case back to gently close the case back in the watch case.
Suitable to slide dies shown pages 07 18 and 07 19



ASSORTMENT



FOR SNAP-ON DIES

| MSA | Broach | Press size mm | Kg |
|--------|--------|---------------|-------|
| 07.151 | Double | 95 x 75 x 170 | 0.910 |

Small HOROTEC® press with double threaded broach for fitting flat mineral glasses and closing snap-on case backs.

Contents :

- 1 press MSA 07.150
- 1 assortment of 6 dies MSA 07.111
- 1 die MSA 06.510-A01 ø 35-40 mm for fitting flat mineral glasses
- 1 universal inferior die MSA 06.500-B hollowed ø 40 mm.

Detail of suitable dies, see pages 07 18 and 07 19.



ASSORTMENT



FOR SNAP-ON DIES

| MSA | Broach | Press size mm | Kg |
|--------|--------|---------------|-------|
| 07.152 | Double | 95 x 75 x 170 | 1.050 |

Small HOROTEC® press for fitting mineral glasses.

Delivered with 1 assortment of 10 dies MSA 06.510.

Detail of suitable dies, see pages 07 18 and 07 19.



| MSA | Broach | Press size mm | Kg |
|--------|--------|---------------|-------|
| 07.150 | Double | 95 x 75 x 170 | 0.815 |

HOROTEC® press without dies.

Detail of suitable dies, see pages 07 18 and 07 19.



ASSORTMENT



FOR SNAP-ON DIES

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

HOROTEC® press for closing snap-on case backs,

equipped with a simple threaded broach. Delivered with an assortment of 6 delrin snap-on dies MSA 07.111.

Detail of suitable dies, see pages 07 18 and 07 19.

Replacement part :

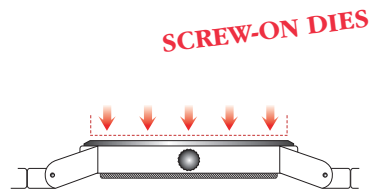
| MSA | Item |
|----------|-------------|
| 07.110-A | Die support |

The die support is also suitable for presses MSA 06.125, 06.130, 07.110, 07.150, 07.151 et 07.152.

Other replacement part for MSA 07.110 only :

| MSA | Item |
|----------|--------------------|
| 07.110-P | Broach with handle |

- » 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 47 different models to cover all your needs
 - adaptable on all presses on the market with a threaded axle ø 6 mm.



SCREW-ON DIES

ASSORTMENT



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.520 | 245 x 100 | 0.144 |

Assortment of 8 screw-on reversible Delrin® dies, for fitting flat mineral glasses.

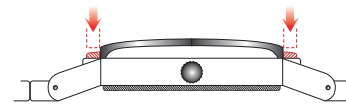


Detail of assortment MSA 06.520 (brass core thread 6 mm):

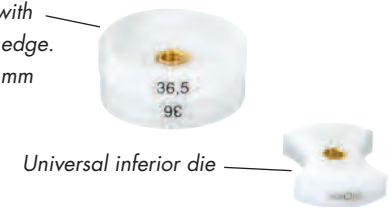
| MSA | Size mm | Kg | |
|-------------|----------------------------|-------|-------|
| 06.520-16 | 16 | 0.004 | |
| 06.520-2217 | 22-17 | 0.005 | |
| 06.520-2823 | 28-23 | 0.008 | |
| 06.520-3429 | 34-29 | 0.013 | |
| 06.520-4035 | 40-35 | 0.019 | |
| 06.520-4641 | 46-41 | 0.025 | |
| 06.520-A | Die for glasses with loupe | 35 | 0.012 |
| 07.106-U | Universal inferior die | 45 | 0.014 |



SCREW-ON DIES



Hollow die with thin straight edge. Depth 4.50 mm



ASSORTMENT



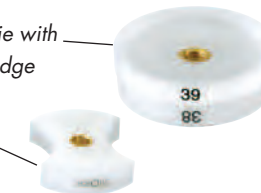
| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.521 | 245 x 100 | 0.164 |

Assortment of 11 screw-on reversible Delrin® dies, for fitting watch glasses.



Hollow die with oblique edge

Universal inferior die



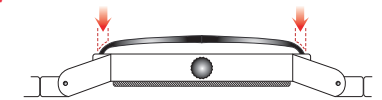
ASSORTMENT



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.522 | 245 x 100 | 0.163 |

Assortment of 15 screw-on reversible Delrin® dies, for fitting glasses with tension ring.

SCREW-ON DIES

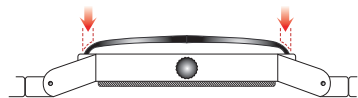


Detail of assortment MSA 06.522 (brass core thread 6 mm):

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



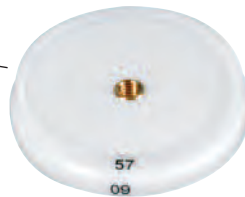
SCREW DIES
SPECIAL LARGE Ø



ASSORTMENT



Curved dies
with thin edge.



Detail of assortment MSA 06.523
(brass core thread 6 mm) :

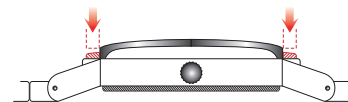
| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.523 | 245 x 100 | 0.156 |

Set of 5 screw Delrin® reversible dies for fitting large tension ring glasses.

| MSA | Ø mm | Kg |
|-------------|-------|-------|
| 06.522-4245 | 42-45 | 0.015 |
| 06.522-4750 | 47-50 | 0.020 |
| 06.522-5255 | 52-55 | 0.023 |
| 06.522-5760 | 57-60 | 0.027 |
| 06.522-6265 | 62-65 | 0.032 |



SCREW DIES
SPECIAL LARGE Ø



ASSORTMENT



Delrin
reversible
dies.



Detail of assortment MSA 06.525
(brass core thread 6 mm) :

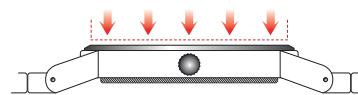
| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.525 | 245 x 100 | 0.163 |

Set of 4 screw Delrin® reversible dies for fitting large case bezels.

| MSA | Ø mm | Kg |
|-------------|-------|-------|
| 06.521-4045 | 40-45 | 0.016 |
| 06.521-4650 | 47-60 | 0.020 |
| 06.521-5255 | 52-55 | 0.025 |
| 06.521-5760 | 57-60 | 0.029 |
| 06.521-6265 | 62-65 | 0.033 |



SCREW DIES
SPECIAL LARGE Ø



ASSORTMENT



Flat die.



Detail of assortment MSA 06.524
(brass core thread 6 mm) :

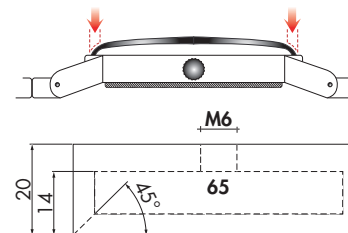
| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.524 | 245 x 100 | 0.208 |

Set of 4 screw Delrin® reversible dies for fitting large flat mineral glasses.

| MSA | Ø mm | Kg |
|-------------|-------|-------|
| 06.520-4750 | 47-50 | 0.031 |
| 06.520-5255 | 52-55 | 0.039 |
| 06.520-5760 | 57-60 | 0.046 |
| 06.520-6265 | 62-65 | 0.054 |



SCREW DIES
SPECIAL LARGE AND DEEP Ø



14 mm deep, 45°.



Detail of assortment MSA 06.526
(brass core thread 6 mm) :

ASSORTMENT



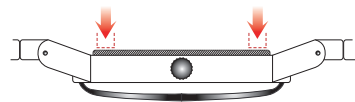
| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.526 | 245 x 100 | 0.320 |

Set of 12 screw Delrin® reversible dies for fitting very domed glasses.

| MSA | Ø mm | Kg |
|-----------|------|-------|
| 06.526-18 | 18 | 0.005 |
| 06.526-20 | 20 | 0.005 |
| 06.526-24 | 24 | 0.010 |
| 06.526-28 | 28 | 0.011 |
| 06.526-30 | 30 | 0.012 |
| 06.526-35 | 35 | 0.017 |
| 06.526-40 | 40 | 0.021 |
| 06.526-45 | 45 | 0.025 |
| 06.526-50 | 50 | 0.030 |
| 06.526-55 | 55 | 0.034 |
| 06.526-60 | 60 | 0.040 |
| 06.526-65 | 65 | 0.045 |



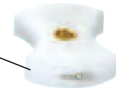
SCREW-ON DIES



Curved dies with straight and thick edge.



Universal inferior die.



ASSORTMENT



Detail of assortment MSA 07.106 (brass core thread 6 mm) :

| MSA | Size mm | Kg | |
|-------------|------------------------|-------|-------|
| 07.106-17 | 17 | 0.004 | |
| 07.106-1921 | 19-21 | 0.005 | |
| 07.106-2225 | 22-25 | 0.006 | |
| 07.106-2629 | 26-29 | 0.008 | |
| 07.106-3033 | 30-33 | 0.010 | |
| 07.106-3437 | 34-37 | 0.012 | |
| 07.106-3841 | 38-41 | 0.015 | |
| 07.106-4245 | 42-45 | 0.017 | |
| 07.106-U | Universal inferior die | 45 | 0.014 |

| MSA | Size mm | Kg |
|--------|-----------|-------|
| 07.106 | 245 x 100 | 0.136 |

Set of 9 screw Delrin® reversible dies for fitting snap-on case back.

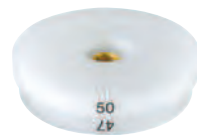
Large ø dies available from ø 46-48 to 60-65. See pages 07 17 to 07 19.



ASSORTMENT



SCREW-ON DIES



Detail of assortment MSA 07.107 (brass core thread 6 mm) :

| MSA | Size mm | Kg |
|-------------|---------|-------|
| 06.521-4045 | 40-45 | 0.016 |
| 06.521-4650 | 46-50 | " |
| 06.520-4750 | 47-50 | 0.031 |
| 07.106-4648 | 46-48 | 0.020 |
| 07.106-4950 | 49-50 | 0.021 |

| MSA | Size mm | Kg |
|--------|-----------|-------|
| 07.107 | 245 x 100 | 0.154 |

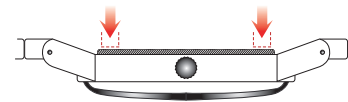
Set of 5 screw Delrin® reversible dies special large ø for big watches.

Content :

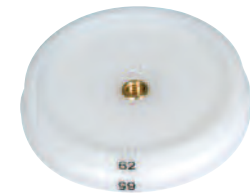
- 2 dies ø 40-45 et 46-50 mm for fitting bezels
- 1 die ø 47-50 mm for fitting mineral glasses
- 2 dies ø 46-48 et 49-50 mm for fitting snap-on case back.



SCREW DIES SPECIAL LARGE Ø



ASSORTMENT



Detail of assortment MSA 07.108 (brass core thread 6 mm) :

| MSA | Size mm | Kg |
|-------------|---------|-------|
| 07.106-4648 | 46-48 | 0.020 |
| 07.106-4950 | 49-50 | 0.022 |
| 07.106-5255 | 52-55 | 0.025 |
| 07.106-5760 | 57-60 | 0.029 |
| 07.106-6265 | 62-65 | 0.034 |

| MSA | Size mm | Kg |
|--------|-----------|-------|
| 07.108 | 245 x 100 | 0.170 |

Set of 5 screw Delrin® reversible dies for fitting snap-on case back.

ASSORTMENT



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 06.530 | 155 x 135 x 35 | 0.160 |

Set of 6 screw Delrin® rectangular dies for fitting snap-on case back brass or glasses core thread 6 mm.

SCREW-ON DIES



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

Screw Delrin® rectangular dies for for watched with pyramidal glasses. The die is placed on the base of the press and the watch comes above upside down to close snap-on case back. Compatible with all here above presses as well as the presses MSA 07.367, 07.368, 07.369.

» Assortments of SNAP-ON delrin dies. Compatible with presses MSA 06.125, 06.130, 07.110, 07.150, 07.151 and 07.152.

Threading of snap-on dies is as follows :

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



ASSORTMENT



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 06.505 | 245 x 105 | 0.155 |

Assortment of 12 snap-on dies for fitting bezels.

Detail of assortment MSA 06.505 :

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



ASSORTMENT



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

Assortment of snap-on dies for fitting flat mineral glasses.

Detail of assortments MSA 06.510 and 07.112 :

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



ASSORTMENT



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

Assortment of 6 snap-on dies for closing snap-on case backs.

Detail of assortment MSA 07.111, 07.113 and 07.116 :

| MSA | Items | ø mm | Kg |
|------------|-------------------|-------|-------|
| 07.111-A01 | Superior die*/*** | 32-35 | 0.010 |
| 07.111-A02 | Superior die*/*** | 26-29 | 0.007 |
| 07.111-A03 | Superior die*/*** | 20-23 | 0.004 |
| 07.111-A04 | Superior die*** | 48-50 | 0.020 |
| 07.111-A05 | Superior die*** | 45-47 | 0.018 |
| 07.111-A06 | Superior die*** | 42-44 | 0.016 |
| 07.111-A07 | Superior die*** | 39-41 | 0.014 |
| 07.111-A08 | Superior die*** | 36-38 | 0.012 |
| 07.111-A09 | Superior die** | 52-55 | 0.024 |
| 07.111-A10 | Superior die** | 57-60 | 0.029 |
| 07.111-A11 | Superior die** | 62-65 | 0.033 |
| 07.111-B01 | Inferior die | 39 | 0.013 |
| 07.111-B02 | Inferior die*/*** | 35 | 0.012 |
| 07.111-B03 | Inferior die*/*** | 29 | 0.009 |
| 07.111-B04 | Inferior die*** | 50 | 0.022 |
| 07.111-B05 | Inferior die*** | 45 | 0.018 |
| 07.111-B06 | Inferior die*/*** | 40 | 0.014 |
| 07.111-B07 | Inferior die** | 55 | 0.026 |
| 07.111-B08 | Inferior die** | 60 | 0.030 |
| 07.111-B09 | Inferior die** | 65 | 0.035 |



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

Adaptors for presses MSA 07.367, 07.368, 07.369 used with screw dies thread 6 mm. As illustrated above and before.

- » 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 pushers nor the crowns 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,...) ; 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 grease or dust on the glass, the case and the case back before proceeding. 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 backs.



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

Rack-press, version delivered with suction dies.

Contents :

| MSA | Items | Kg |
|----------|------------------------------|-------|
| 07.367-P | Press only | 4.000 |
| 07.333 | Assortment of 7 suction dies | 0.140 |
| 07.367-A | Suction case holder | 0.130 |

- » Professional rack-press, complete version.



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

Rack-press delivered as a complete version, for traditional work or only with the suction dies. Equipped with 2 adapters allowing use of all the dies with thread \varnothing 6 mm from the following assortments: MSA 06.520, 06.521, 06.522, 07.106 and 07.107.

Contenu :

| MSA | Items | Kg |
|----------|--|-------|
| 07.367-P | Press only | 4.000 |
| 07.344 | Adjustable jaws holder, maxi opening 65 mm | 0.225 |
| 07.323-A | 2 x Round jaws | 0.003 |
| 07.323-B | 2 x Flat jaws | " |

| MSA | Items | Kg |
|----------|---|-------|
| 07.323-C | 2 x Square jaws | 0.003 |
| 07.323-D | 2 x Knurled jaws | " |
| 07.323-E | 2 x Elongated jaws, reinforced square | 0.004 |
| 07.323-F | 2 x Elongated jaws, reinforced square | " |
| 07.371 | Lower tray | 0.270 |
| 07.372 | 2 x Upper tray | 0.325 |
| 07.373-A | Upper adapter \varnothing 16 mm | 0.016 |
| 07.373-B | Lower adapter \varnothing 40 mm | 0.089 |
| 07.374 | Case holder with 4 stacked jaws, height 29 mm | 0.160 |
| 07.333 | Assortment of 7 red suction dies | 0.140 |
| 07.367-A | Suction case holder | 0.130 |
| 07.326 | Assortment of 7 dies type RX | 0.430 |
| 07.327 | Assortment of 3 dies type BMe | 0.220 |
| 07.336 | Assortment of 4 dies type OM | 0.582 |

» *Professionnal rack-press, light version.*



MSA 07.367

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

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

Numerous of accessories available in option. See page 07 28.

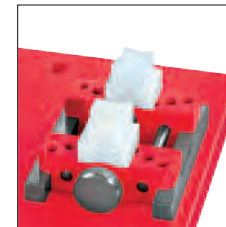
Contents :

| MSA | Items | Kg |
|----------|--|-------|
| 07.367-P | Press only | 4.000 |
| 07.344 | Adjustable jaws holder, maxi opening 65 mm | 0.225 |
| 07.323-A | 2 x Round jaws | 0.003 |
| 07.323-B | 2 x Flat jaws | " |
| 07.323-C | 2 x Square jaws | " |
| 07.323-D | 2 x Knurled jaws | " |
| 07.323-E | 2 x Elongated jaws, reinforced square | 0.004 |
| 07.323-F | 2 x Elongated jaws, reinforced square | " |
| 07.374 | Case holder with 4 staged jaws, height 29 mm | 0.110 |

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



Dies can be used upside down.



Case lugs jaws can be used. (See page 07 31)



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 07.363 | 160 x 220 x 260 | 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.

Contents :

| MSA | Items | Kg |
|----------|--|-------|
| 07.344 | Adjustable jaws holder, maxi opening 65 mm | 0.225 |
| 07.323-A | 2 x Round jaws | 0.003 |
| 07.323-B | 2 x Flat jaws | " |
| 07.323-C | 2 x Square jaws | " |
| 07.323-D | 2 x Knurled jaws | " |
| 07.370 | Removable dies tray | 0.345 |
| 07.360-A | Watch holder with 4 concave dies, height 24 mm | 0.110 |
| 07.325 | Assortment of 7 green suction dies | 0.320 |
| 07.326 | Assortment of 7 dies type RX | 0.340 |
| 07.327 | Assortment of 3 dies type BMe | 0.220 |

- » The professional precision HOROTEC® press is deliverable in 5 different versions.
- » The references of the 4 pairs of jaws MSA 07.323-x delivered with the illustrated presses here below are the following : MSA 07.323-A, -B, -C and -D.
- » The jaws MSA 07.323-E and -F are also compatible and available separately. See page 07 8.



| MSA | Kg |
|--------|-------|
| 07.360 | 3.825 |

Press delivered with adjustable watch holder MSA 07.360-A, 1 adjustable jaws holder MSA 07.344 and 4 pairs of jaws MSA 07.323-x.



| MSA | Kg |
|--------|-------|
| 07.361 | 4.145 |

Press delivered with adjustable watch holder MSA 07.360-A, 1 adjustable jaws holder MSA 07.344, 4 pairs of jaws MSA 07.323-x and 7 suction dies MSA 07.325-xxx.



| MSA | Kg |
|--------|-------|
| 07.362 | 4.480 |

Press delivered with adjustable watch holder MSA 07.360-A, 1 adjustable jaws holder MSA 07.344, 4 pairs of jaws MSA 07.323-x, 1 dies tray MSA 07.370, 7 suction dies MSA 07.325-xxx and 7 steel dies type RX MSA 07.326-xxx.



| MSA | Kg |
|--------|-------|
| 07.364 | 4.155 |

Press delivered with adjustable watch holder MSA 07.360-A, 1 adjustable jaws holder MSA 07.344, 4 pairs of jaws MSA 07.323-x and 7 steel dies type RX MSA 07.326-xxx.



| MSA | Kg |
|--------|-------|
| 07.365 | 4.030 |

Press delivered with adjustable watch holder MSA 07.360-A, 1 adjustable jaws holder MSA 07.344, 4 pairs of jaws MSA 07.323-x and 3 steel dies type BMe MSA 07.327-xxx.



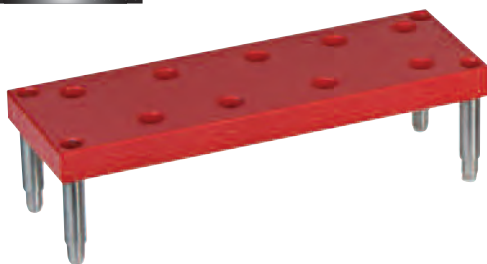
| MSA | Kg |
|--------|-------|
| 07.370 | 0.345 |

Dies rack adaptable to presses MSA 07.360, 07.361, 07.362, 07.364, 07.365.



| MSA | Dimensions mm | Kg |
|--------|---------------|-------|
| 07.371 | 160 x 55 x 10 | 0.221 |

Lower dies tray, accessory for HOROTEC® presses MSA 07.367, 07.368 and 07.369. Used as base support for various upper trays MSA 07.372.



| MSA | Dimensions mm | Kg |
|--------|---------------|-------|
| 07.372 | 160 x 55 x 46 | 0.345 |

Upper dies tray, accessory for HOROTEC® presses MSA 07.367, 07.368 and 07.369. Can be stacked on lower trays MSA 07.371.

» **Mini HOROTEC® 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 then unscrew the case back with the adjustable jaws holder. Excellent frontal, lateral or plunging view. Top wheel ø 75 cm.**



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 07.320 | 110 x 95 x 200 | 1.540 |

Contents :

| MSA | Items | Kg |
|----------|--|-------|
| 07.344 | Adjustable jaws holder, maxi opening 65 mm | 0.225 |
| 07.323-A | 2 x Round jaws | 0.003 |
| 07.323-B | 2 x Flat jaws | " |
| 07.323-C | 2 x Square jaws | " |
| 07.323-D | 2 x nurlled jaws | " |
| 07.360-A | Watch holder with 4 concave Delrin dies height 18 mm, maximum opening 70 mm. | 0.105 |

» Assortment of suction dies with increased adherence for opening/closing screw-on case backs, in red synthetic material 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 MSA 07.36x, 07.170 and 07.320.



ASSORTMENT

| MSA | Contents | Diameters mm | Kg |
|--------|----------|-----------------|-------|
| 07.343 | 10 dies | ø from 16 to 55 | 0.180 |

Set of 10 suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | ø mm | Kg |
|------------|------|-------|
| 07.333-016 | 16 | 0.011 |
| 07.333-020 | 20 | 0.013 |

| MSA | ø mm | Kg |
|------------|------|-------|
| 07.333-023 | 23 | 0.016 |
| 07.333-026 | 26 | 0.018 |
| 07.333-030 | 30 | 0.022 |
| 07.333-034 | 34 | 0.026 |
| 07.333-040 | 40 | 0.032 |
| 07.333-045 | 45 | 0.040 |
| 07.333-050 | 50 | 0.045 |
| 07.333-055 | 55 | 0.050 |



ASSORTMENT



Set of 7 suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | ø mm | Kg |
|------------|------|-------|
| 07.333-016 | 16 | 0.011 |
| 07.333-020 | 20 | 0.013 |
| 07.333-023 | 23 | 0.016 |
| 07.333-026 | 26 | 0.018 |
| 07.333-030 | 30 | 0.022 |
| 07.333-034 | 34 | 0.026 |
| 07.333-040 | 40 | 0.032 |



ASSORTMENT



Set of 3 suction dies.
Delivered in a cardboard box.

Detail of dies :

| MSA | ø mm | Kg |
|------------|------|-------|
| 07.333-045 | 45 | 0.040 |
| 07.333-050 | 50 | 0.045 |
| 07.333-055 | 55 | 0.050 |

| MSA | Contents | Diameters mm | Kg |
|--------|----------|-----------------|-------|
| 07.339 | 3 dies | ø from 45 to 55 | 0.178 |



ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.325 | 0.320 |

Assortment of 7 suction dies for opening/closing screw-on case back. Made of indeformable green synthetic material, drowned in aluminium for a perfect adherence and durable use. Adaptable on presses MSA 07.320, 07.170 et 07.36x and their different versions. Delivered in a cardboard box.

Detail of dies :

| MSA | ø mm | Kg |
|------------|------|-------|
| 07.325-016 | 16 | 0.012 |
| 07.325-020 | 20 | 0.014 |
| 07.325-023 | 23 | 0.016 |
| 07.325-026 | 26 | 0.019 |
| 07.325-030 | 30 | 0.023 |
| 07.325-034 | 34 | 0.027 |
| 07.325-040 | 40 | 0.034 |



| MSA | Maximum opening mm | Kg |
|--------|--------------------|-------|
| 07.344 | 65 | 0.220 |

Adjustable jaws holder for professional precision presses Horotec MSA 07.320, 07.360, 07.361, 07.362, 07.363, 07.364, 07.365, 07.367, 07.368 and 07.369. Compatible with jaws MSA 07.323-x.



ø 5 mm

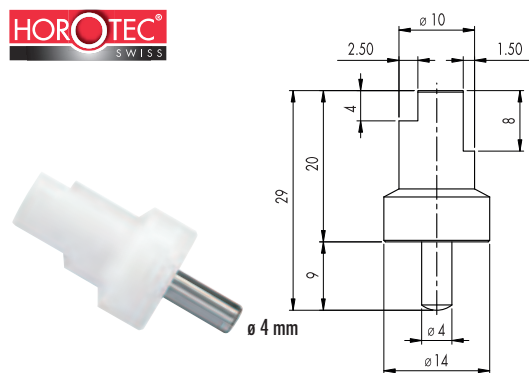
| MSA | Jaws shape | Kg | MSA | Jaws shape | Kg |
|----------|------------|-------|----------|------------------|-------|
| 07.323-A | Round | 0.003 | 07.323-D | Knurled | 0.003 |
| 07.323-B | Flat | " | 07.323-E | Elongated square | 0.004 |
| 07.323-C | Square | " | 07.323-F | Elongated round | " |

Jaws for screw-on case backs, accessories for jaws holder MSA 07.324 of presses MSA 07.320 and 07.36x.



| MSA | Opening maximum mm | Kg |
|--------|--------------------|-------|
| 07.374 | 70 | 0.160 |

Adjustable watch holder, for presses MSA 07.367 to 07.369. The staged delrin dies are fitted in a **reinforced pierced holes secured by a steel cylinder**.



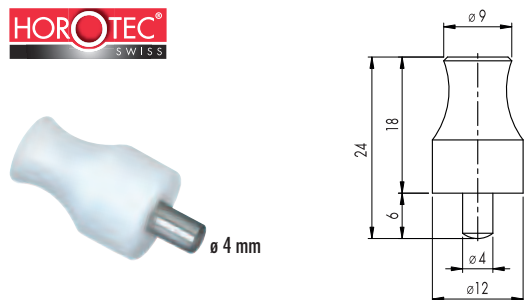
| MSA | Kg |
|----------|-------|
| 07.374-A | 0.005 |

Staged Delrin® die. Accessory compatible only with adjustable watch holder MSA 07.374. Robust steel stem, length 9 mm.



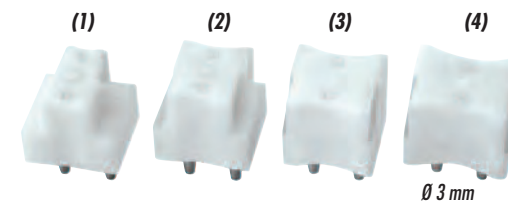
| MSA | Opening maximum mm | Kg |
|----------|--------------------|-------|
| 07.360-A | 70 | 0.110 |

Adjustable watch holder, accessory for HOROTEC® presses MSA 07.360, 07.361, 07.362, 07.363, 07.364 and 07.365.



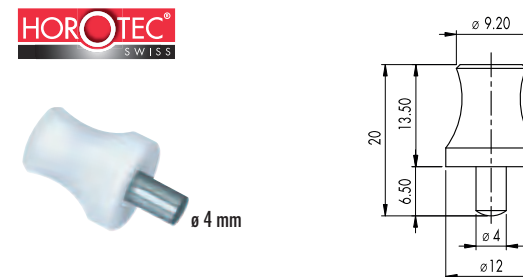
| MSA | Kg |
|----------|-------|
| 07.360-B | 0.015 |

Concave Delrin® die, accessory for adjustable watch holder MSA 07.360-A. Also compatible with watch holders MSA 07.321 and 07.374.



| MSA | mm | Kg |
|--------------|-------|-------|
| 07.360-C (1) | 09-11 | 0.008 |
| 07.360-D (2) | 13-15 | " |
| 07.360-E (3) | 17-19 | " |
| 07.360-F (4) | 20-22 | " |

Case lugs Delrin® dies, accessory for HOROTEC® watch holders MSA 07.321, 07.360-A and 07.364.

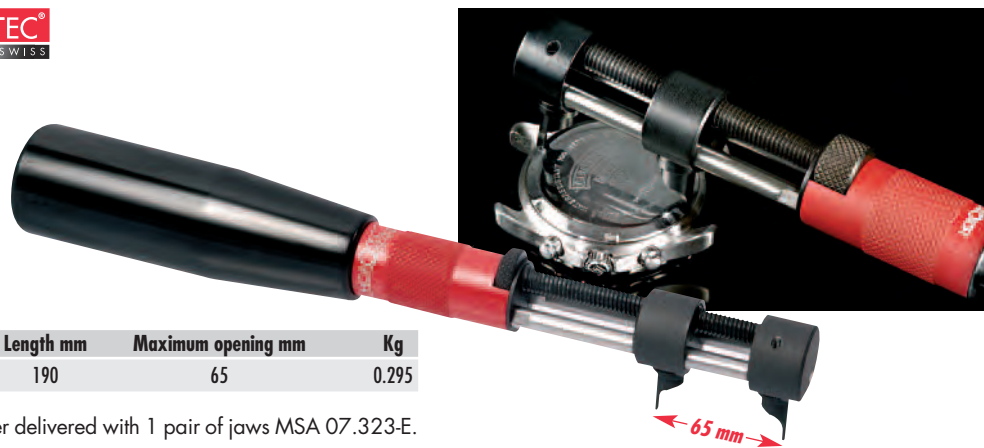


| MSA | Kg |
|--------|-------|
| 07.322 | 0.002 |

Concave Delrin® die, accessory for adjustable watch holder MSA 07.321. Also compatible with watch holders MSA 07.360-A and 07.374.

TOOLS FOR SCREW CASE BACK | OTHER TOOLS FOR SNAP-ON...

» 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.



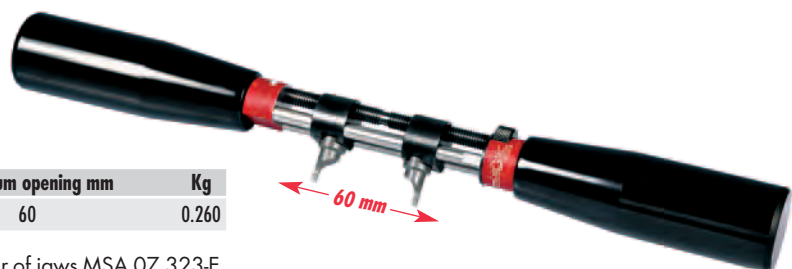
| MSA | Length mm | Maximum opening mm | Kg |
|--------|-----------|--------------------|-------|
| 07.013 | 190 | 65 | 0.295 |

Case opener delivered with 1 pair of jaws MSA 07.323-E. Also suitable for any pair of jaws MSA 07.323-x as shown page 07 29.



| MSA | Length mm | Maximum opening mm | Kg |
|--------|-----------|--------------------|-------|
| 07.014 | 155 | 57 | 0.340 |

Case opener delivered with 1 pair of jaws MSA 07.323-E. Also suitable for any pair of jaws MSA 07.323-x as shown page 07 29.



| MSA | Length mm | Maximum opening mm | Kg |
|--------|-----------|--------------------|-------|
| 07.023 | 270 | 60 | 0.260 |

Case opener delivered with 1 pair of jaws MSA 07.323-E. Use with jaws MSA 07.323-x on page 07 29.

TOOLS FOR SCREW CASE BACK | OTHER TOOLS FOR SNAP-ON...

» Heavy duty HOROTEC® dies handle giving more power during screwing/unscrewing watch case back. To avoid any watch case damage during operation, we recommend you to use the watch holder wises shown pages 07 30 and 08 3.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.316 | 270 | 0.720 |

Case opener MSA 07.021 with 7 steel dies MSA 07.326 for opening/closing screw-on case backs type RX. Handle also suitable for all dies illustrated on pages 07 34 a 07 36.

Replacement dies :

| MSA | σ mm | Kg | MSA | σ mm | Kg |
|------------|------|-------|------------|------|-------|
| 07.326-185 | 18.5 | 0.037 | 07.326-265 | 26.5 | 0.056 |
| 07.326-202 | 20.2 | 0.043 | 07.326-283 | 28.3 | 0.058 |
| 07.326-225 | 22.5 | 0.047 | 07.326-295 | 29.5 | 0.064 |
| | | | 07.326-365 | 36.5 | 0.090 |

ASSORTMENT



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.338 | 270 | 0.962 |

Case opener MSA 07.021 with 4 steel dies MSA 07.336 for opening/closing screw-on case backs type SEAM. Handle also suitable for all dies illustrated on pages 07 34 a 07 36.

Replacement dies :

| MSA | σ mm | Kg | MSA | σ mm | Kg |
|------------|------|-------|------------|------|-------|
| 07.330-020 | 20 | 0.095 | 07.330-033 | 33 | 0.140 |
| 07.330-030 | 30 | 0.095 | 07.330-042 | 42 | 0.141 |

ASSORTMENT



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.317 | 270 | 0.590 |

Case opener MSA 07.021 with 3 steel dies MSA 07.327 for opening/closing screw-on case backs type BMe. Handle also suitable for all dies illustrated on pages 07 34 a 07 36.

Replacement dies :

| MSA | σ mm | Kg | MSA | σ mm | Kg |
|------------|------|-------|------------|------|-------|
| 07.327-025 | 25 | 0.047 | 07.327-033 | 33 | 0.067 |
| 07.327-030 | 30 | 0.059 | | | |

ASSORTMENT



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.021 | 270 | 0.380 |

Case opener suitable for all dies as shown on pages 07 34 to 07 36.

» These dies are adaptable on all HOROTEC® presses for screw-on case backs.



| MSA | Kg |
|--------|-------|
| 07.306 | 0.566 |

Set of 7 steel dies MSA 07.326 with key for opening /closing screw-on case backs type RX.

Replacement parts :

| MSA | Items | Kg |
|----------|------------------------------|-------|
| 07.305 | Key only | 0.270 |
| 07.305-A | Replacement screw for key | 0.008 |
| 07.326 | Assortment of 7 dies type RX | 0.340 |

ASSORTMENT



Set of 7 steel dies for opening/closing screw-on case backs type RX.

Replacement parts :

| MSA | Items | 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 |
| 07.326-365 | Die ø 36.5 mm | 0.090 |

ASSORTMENT

| MSA | Kg |
|--------|-------|
| 07.326 | 0.337 |



| MSA | Kg |
|--------|-------|
| 07.307 | 0.442 |

Set of 3 steel dies MSA 07.327 with key for opening /closing screw-on case backs type BMe.

Replacement parts :

| MSA | Items | Kg |
|----------|-------------------------------|-------|
| 07.305 | Key only | 0.270 |
| 07.305-A | Replacement screw for key | 0.008 |
| 07.327 | Assortment of 3 dies type BMe | 0.211 |

ASSORTMENT



Set of 3 steel dies for opening/closing screw-on case backs type BMe.

Replacement parts :

| MSA | Items | Kg |
|------------|-------------|-------|
| 07.327-025 | Die ø 25 mm | 0.047 |
| 07.327-030 | Die ø 30 mm | 0.059 |
| 07.327-033 | Die ø 33 mm | 0.067 |

ASSORTMENT

| MSA | Kg |
|--------|-------|
| 07.327 | 0.211 |

» These dies are adaptable on all HOROTEC® presses for screw-on case backs.



ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.308 | 0.740 |

Set of 7 steel dies MSA 07.326 and 3 steel dies MSA 07.327 with key for opening/closing screw-on case backs type RX and BMe.

Replacement parts :

| MSA | Items | Kg |
|----------|-------------------------------|-------|
| 07.305 | Key only | 0.270 |
| 07.305-A | Replacement screw for key | 0.008 |
| 07.326 | Assortment of 7 dies type RX | 0.340 |
| 07.327 | Assortment of 3 dies type BMe | 0.211 |



ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.337 | 0.826 |

Set of 4 steel dies MSA 07.336 with key MSA 07.305 for opening/closing screw-on case backs type SEAM.

Replacement parts :

| MSA | Items | Kg |
|----------|---------------------------|-------|
| 07.305 | Key only | 0.270 |
| 07.305-A | Replacement screw for key | 0.008 |
| 07.336 | Assortiment de 4 tasseaux | 0.582 |



ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.336 | 0.582 |

Set of 4 steel dies for opening/closing screw-on case backs type SEAM.

Replacement parts :

| MSA | Items | Kg |
|------------|---------------------|-------|
| 07.330-020 | Die type Seam. Lady | 0.095 |
| 07.330-030 | Die type Seam. Gent | 0.095 |
| 07.330-033 | Die type Seam. | 0.140 |
| 07.330-042 | Die type Seam. | 0.141 |



ASSORTMENT



| MSA | Kg |
|--------|-------|
| 07.334 | 0.532 |

Set of 4 steel dies for opening/closing screw-on case backs type PAN.

Replacement parts :

| MSA | Items | Kg |
|------------|---------------|-------|
| 07.334-030 | Die type Pan. | 0.089 |
| 07.334-035 | Die type Pan. | 0.107 |
| 07.334-039 | Die type Pan. | 0.104 |
| 07.334-042 | Die type Pan. | 0.125 |



| MSA | ø mm | For cases | Kg |
|--------|------|---------------|-------|
| 07.331 | 35 | Type Aqualand | 0.070 |

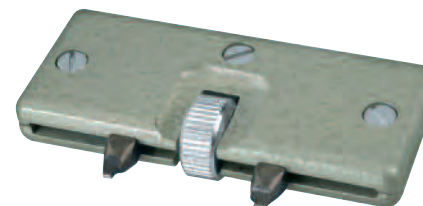
Steel dies for opening/closing screw-on case backs type CT AQUALAND.



| MSA | ø mm | For cases | Kg |
|--------------|------|----------------------|-------|
| 07.335-034 | 36.2 | BR type 15 sides (1) | 0.037 |
| 07.335-035 | 36.5 | BR type 15 sides (2) | 0.038 |
| 07.335-036 | 38 | BR type 15 sides (3) | 0.041 |
| 07.335-036-A | 39 | BR type 12 sides (4) | 0.042 |
| 07.335-037 | 40 | BR type 15 sides (5) | 0.041 |
| 07.335-038 | 40 | BR type 15 sides (6) | 0.042 |

Steel dies for opening/closing screw-on case backs type BR. Dies sold individually.

» Other openers for screw watch cases.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.210 | 70 x 37 | 0.080 |

Case opener with 2 hardened steel jaws for opening/closing waterproof watches.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.211 | 60 x 42 | 0.061 |

Case opener with 2 jaws.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.207 | 70 x 37 | 0.080 |

Case opener with 2 hardened steel jaws for opening/closing waterproof watches type RX.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.208 | 70 x 37 | 0.080 |

Case opener with 2 flat hardened steel jaws for opening/closing waterproof watches.



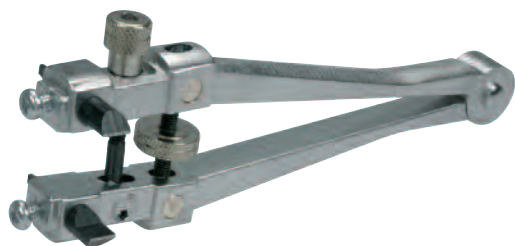
| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.209 | 70 x 37 | 0.080 |

Case opener with 2 pointed hardened steel jaws for opening/closing waterproof watches.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.022 | ø ± 65 | 0.042 |

Friction ball, high adherence for opening/closing screw-on case backs.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 07.213 | 150 x 50 x 30 | 0.250 |

Case opener with handle with 2 flat jaws and fine adjustment screw.

Replacement jaws :

| MSA | Item |
|----------|----------|
| 07.213-A | Jaw only |



| MSA | Length mm | Type | Kg |
|--------|-----------|-----------------|-------|
| 07.026 | 137 | Right hand user | 0.106 |
| 07.027 | 137 | Left hand user | 0.106 |

Case opener with Aluminium handle with Stainless steel interchangeable blade.
Delivered with an Allen key for blades remove.

Spare blade only :

| MSA | Items |
|----------|-----------------|
| 07.026-B | Right hand user |
| 07.027-B | Left hand user |



| MSA | Length mm | Colour | Kg |
|-----------|-----------|---------|-------|
| 07.001-01 | 115 | ● Red | 0.027 |
| 07.001-02 | " | ● Black | " |
| 07.001-03 | " | ● Blue | " |
| 07.001-04 | " | ● Green | " |

Stainless steel case opener with fixed blade and aluminium handle.



| MSA | Length when closed mm | Kg |
|--------|-----------------------|-------|
| 07.006 | 83 | 0.036 |

Robust stainless steel knife case opener with 2 retractable blades and thick plastic handle. Also equipped with a tooth pick.



| MSA | Length when closed mm | Colour | Kg |
|-----------|-----------------------|---------|-------|
| 07.002-01 | 85 | ● Red | 0.024 |
| 07.002-02 | " | ● Black | " |
| 07.002-03 | " | ● Blue | " |
| 07.002-04 | " | ● Green | " |

Stainless steel knife case opener with aluminium handle and 2 retractable blades.



| MSA | Length when closed mm | Kg |
|--------|-----------------------|------|
| 07.029 | 83 | 0.08 |

Stainless steel knife case opener with white aluminium handle and 2 retractable blades.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.008 | 125 | 0.025 |

Stainless steel case opener with 1 fixed blade.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.007 | 135 | 0.034 |

Case opener with robust handle for a better grip.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.016 | 113 | 0.018 |

Case opener with fixed blade without rivets.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 07.018 | ● 82 | 0.024 |
| 07.019 | ● 86 | 0.022 |
| 07.020 | ● 85 | 0.021 |

Seiko® genuine, robust and small snap-on case back openers.

ASSORTMENT



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 07.024 | 155 x 145 x 37 | 0.230 |

Assortment of 4 small snap-on case back openers. Wooden handles and stainless steel blades.

Replacement parts :

| MSA | Type | Length mm | Blade width mm | Blade shape | Kg |
|----------|------|-----------|----------------|-------------|-------|
| 07.024-A | A | 87 | 10 | | 0.026 |
| 07.024-B | B | " | 4 | | 0.024 |
| 07.024-C | C | " | 10 | | 0.026 |
| 07.024-D | D | " | 4 | | 0.024 |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 07.114 | 90 x 120 x 70 | 0.405 |

Tool for opening all types of snap-on case backs with lever and springs.

Replacement blade :

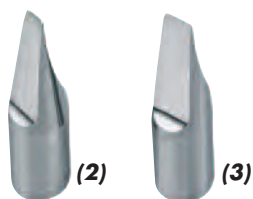
| MSA |
|----------|
| 07.114-A |



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 07.009 | 100 x 160 x 100 | 0.470 |

Adjustable Seiko case opener for all types of snap-on case backs, easy to use. Delivered with users manual and replacement blade.

» Automatic case opener for snap-on case backs, delivered with 3 shaped tips. 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.



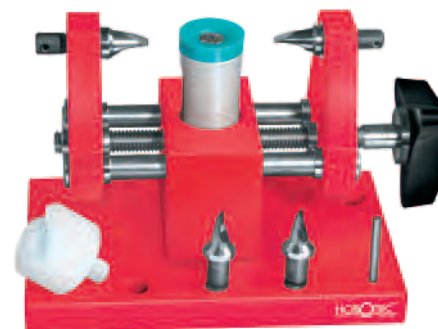
| MSA | Size mm | Kg |
|--------|---------|-------|
| 07.004 | 122 | 0.165 |

Replacement parts :

| MSA | Items |
|-----------|---------------------------------|
| 07.004-01 | Set of 3 blades |
| 07.004-A | Straight blade width 5 mm (1) |
| 07.004-B | Bended blade width 3.5 mm (2) |
| 07.004-C | Bended blade width 4.5 mm (3) |
| 07.004-D | O'ring gasket for blade holding |
| 07.004-E | Spring only |
| 07.004-G | Blade holder |



» HOROTEC® tool for opening snap-on watch case backs and extracting snap-on bezels. Allows a precise adjustment due to an anti-skid case holder mounted on a spring. Delivered with 2 pairs of hardened steel polished blades, 1 bored case-supporting delrin die to avoid damaging crowns and pushers. The tool is equipped with precision sliding carriage for delicately extracting of glasses or recalcitrant case backs.

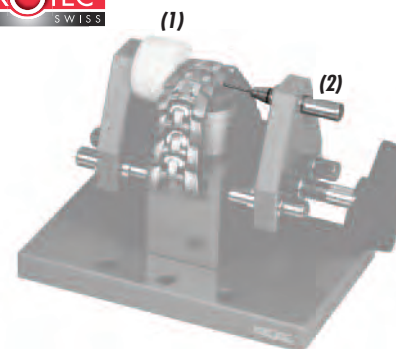


| MSA | Size mm | Kg |
|--------|---------------|-------|
| 07.115 | 120 x 75 x 85 | 0.960 |

Replacement parts :

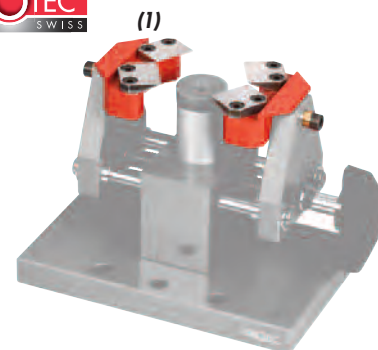
| MSA | Items | Kg |
|----------|-----------------------------------|-------|
| 07.115-A | Hardened steel blade 2 mm | 0.009 |
| 07.115-B | Hardened steel blade 4 mm | " |
| 07.115-C | Case-supporting die, hole Ø 10 mm | " |
| 07.115-D | Hardened steel stem | " |

» Accessories for HOROTEC® tool MSA 07.115.



| MSA | Items | Kg |
|----------|------------------------------------|-------|
| 07.115-C | Bracelet-rest die, hole ø 3 mm (1) | 0.009 |
| 07.115-E | Pins holder (2) | " |

Set of 2 accessories adaptable to MSA 07.115 for bracelet pins remove. Pins delivered separately. See page 10 03.



| MSA | Item | Kg |
|----------|---------------------------------------|-------|
| 07.115-F | 2 paire of mirror polished blades (1) | 0.085 |

Set of 2 pairs of mirror polished blades adaptable to MSA 07.115 for bezels or snap-on case back remove opening until 40 mm.

Replacement part :

| MSA | Item |
|----------|--------------------|
| 07.117-A | 1 spare blade only |



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 07.120 | 70 x 260 x 215 | 1.655 |

Press for closing snap-on case backs.
Delivered with 5 Delrin® snap-on dies, ø 18, 22, 27, 32 and 36



| MSA | Kg |
|--------|-------|
| 07.100 | 0.190 |

Pliers for closing snap-on case backs. Delivered with 3 dies ø 35 mm.

» Other opener.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 07.117 | 150 x 60 x 65 | 0.880 |

Bezels remover with 4 tempered stainless steel polished blades opening until 60 mm.

Replacement part :

| MSA 07.117-A | Item |
|--------------|--------------------|
| | 1 spare blade only |

» Tools for battery covers type Swatch®.



| MSA | Length mm | For watch type | Kg |
|--------|-----------|----------------|-------|
| 07.010 | 120 | Gent | 0.072 |
| 07.011 | " | Lady | 0.071 |
| 07.012 | " | Medium | 0.072 |



| MSA | Sizes |
|-------------|--------|
| 03.620-GENT | Gent |
| 03.620-LADY | Lady |
| 03.620-MED | Medium |

Interchangeable keys to fit in the handle MSA 03.620-A.



| MSA | Kg |
|----------|-------|
| 03.620-A | 0.060 |

Hexagonal handle on which all types of here above keys and these illustrated on page 03 5 can be fitted.

» See chapter PERF.



OTHERS | GLASS CUTTING MACHINE



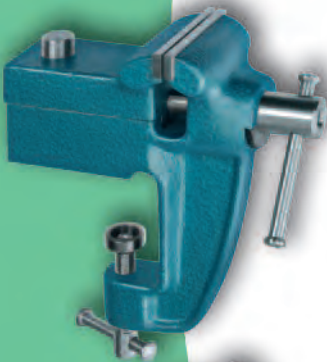
| MSA | Kg |
|--------|--------|
| 06.210 | 17.500 |

Semi-automatic glass cutting machine for flat and domed glasses : tempered mineral, synthetic and unbreakable sapphire.

Accessories for MSA 06.210 :

| MSA | Items | Kg |
|----------|-------------------------------|-------|
| 06.210-A | Complete bloc "A" | 1.600 |
| 06.301-A | Resin cast 200 Gr | 0.220 |
| 06.301-B | Resin cast 1000 Gr | 1.020 |
| 06.302-A | Hardening liquid 250 Gr | 0.270 |
| 06.302-B | Hardening liquid 500 Gr | 0.510 |
| 06.303-A | Emulsified oil 250 Gr | 0.200 |
| 06.303-B | Emulsified oil 1000 Gr | 0.920 |
| 06.305 | Corindon stone K5 | 0.018 |
| 06.306 | Lubricant oil in spray 100 ml | 0.120 |
| 06.310 | Support for domed glass | 0.150 |
| 06.311-A | Outside green belt | 0.007 |
| 06.311-B | Inside red belt | 0.010 |
| 06.312 | Rough grinding wheel | 0.095 |
| 06.313-A | Inside bevelling wheel | 0.065 |
| 06.313-B | Outside bevelling wheel | 0.065 |
| 06.314 | Outside bevel polishing wheel | 0.065 |
| 06.315 | Set of 4 above wheels | 0.290 |

08



VICES 08 2

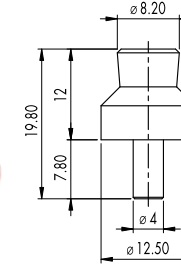


CASE HOLDERS..... 08 3



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 08.100 | 195 x 150 | 2.450 |

Cast bench vice. Jaws width 60 mm. Maximal opening 63 mm.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 08.001 | 65 x 45 | 0.073 |

Plastic and metal case holder with 4 nylon dies MSA 08.001-A.

Replacement die :

| MSA | Item |
|----------|----------|
| 08.001-A | Die only |

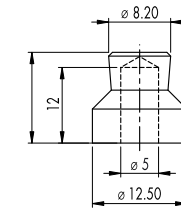


| MSA | Size mm | Kg |
|--------|----------|-------|
| 08.104 | 120 x 65 | 1.032 |

Removable Vice with fixing plate. The brass plate is fixed on the bench and the vice can be easily settled or removed thanks to the side lever. Jaws width 46 mm. Maximum opening 63 mm

Spare Part :

| MSA | Item |
|----------|------------------|
| 08.104-A | Brass plate only |



| MSA | Size mm | Kg |
|--------|---------|-------|
| 08.002 | 83 x 65 | 0.192 |

Metal case holder with 4 nylon dies MSA 08.002-A driven on a 5 mm axe.

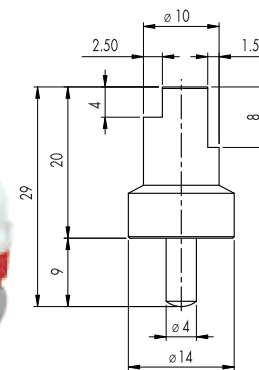
Replacement die :

| MSA | Item |
|----------|----------|
| 08.002-A | Die only |



| MSA | Size mm | Kg |
|--------|----------|-------|
| 08.500 | 120 x 75 | 0.435 |

Hand vice. Jaws width 40 mm. Maximal opening 30 mm.



| MSA | Maximal opening mm | Kg |
|--------|--------------------|-------|
| 07.374 | 70 | 0.160 |

Adjustable case holder for presses MSA 07.367 to 07.369. The delrin stacked dies are fitted in **reinforced pierced holes with a steel cylinder**. Delivered with 4 chucks MSA 07.374-A.

Replacement die :

| MSA | Item |
|----------|----------|
| 07.374-A | Die only |

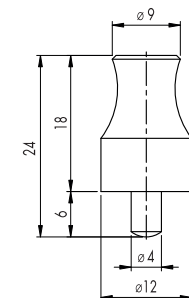


| MSA | Size mm | Kg |
|--------|--------------|-------|
| 08.502 | 14 x 14 x 67 | 0.070 |

Mini hand vice. Hardened steel jaws, width 14 mm. One of the jaws is equipped with maintaining grooves. Maximal opening 15 mm.

Accessory :

| MSA | Item |
|--------|----------------|
| 08.503 | Revolving base |



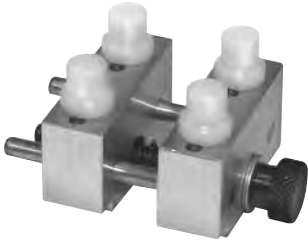
| MSA | Maximal opening mm | Kg |
|----------|--------------------|-------|
| 07.360-A | 70 | 0.110 |

Adjustable case holder, accessory for HOROTEC® presses MSA 07.360, 07.361, 07.362, 07.363, 07.364 and 07.365. Delivered with 4 dies MSA 07.360-B.

Replacement die :

| MSA | Item |
|----------|----------|
| 07.360-B | Die only |

➤ See chapter PERF.



09



MOVEMENT HOLDERS 09 2

steel (base \varnothing 31 mm)
reversible and antimagnetic
with push button

CASE CUSHIONS 09 11

» Movement holder, nickel-plated brass, base ø 31 mm. Equipped with adjustable screws to support pivots and endstone. Compatible with presses MSA 05.100, 05.101, 05.109, 05.110, 05.111 and 05.112.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-01 | 3 3/4" | 0.033 |
| 09.010-02 | 4 1/4" | 0.029 |
| 09.010-03 | 4 1/2" | " |
| 09.010-48 | 4 3/4" | 0.030 |
| 09.010-50 | 4 1/2" | 0.077 |
| 09.010-05 | 5 1/2" | 0.033 |
| 09.010-06 | 6 3/4" | 0.038 |
| 09.010-08 | 7 3/4" | 0.042 |
| 09.010-09 | 8" | " |
| 09.010-10 | 8 1/4" | 0.043 |

| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-11 | 8 3/4" | 0.046 |
| 09.010-12 | 9" | 0.047 |
| 09.010-13 | 9 1/4" | 0.049 |
| 09.010-14 | 9 3/4" | 0.051 |
| 09.010-15 | 10 1/2" | 0.055 |
| 09.010-22 | 11" | 0.058 |
| 09.010-16 | 11 1/2" | 0.061 |
| 09.010-17 | 11 3/4" | 0.063 |
| 09.010-28 | 12" | 0.065 |
| 09.010-32 | 12 1/4" | 0.069 |
| 09.010-23 | 12 1/2" | 0.068 |
| 09.010-18 | 13" | 0.071 |
| 09.010-19 | 13 1/4" | 0.073 |
| 09.010-46 | 13 1/2" | 0.077 |
| 09.010-36 | 13 3/4" | 0.077 |
| 09.010-42 | 16" | 0.100 |
| 09.010-45 | 16 1/2" | 0.100 |

Round movement holder.

» Specific Movement Holders, nickel-plated ø 31 mm, equipped with adjustable screw to support pivot and endstone with and without pushers for control. Suitable for presses MSA 05.100, 05.101, 05.109, 05.110, 05.111, 05.112.



| MSA | Calibre | Kg |
|-----------|----------|-------|
| 09.010-20 | VAL 7750 | 0.087 |

Round movement holder with 2 pushers.

Replacement parts :

| MSA | Item |
|-------------|---------------------------------|
| 09.010-20-V | Central screw for MSA 09.010-20 |



| MSA | Calibre | Kg |
|-----------|-------------|-------|
| 09.010-21 | ETA 251.262 | 0.090 |

Round movement holder with 4 pushers.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-29 | 251.471 | 0.070 |
| 09.010-33 | 2094 | " |
| 09.010-34 | 5030R | " |

Round movement holder with 2 pushers.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-30 | 2894 | 0.093 |

Round movement holder with 2 pushers.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-35 | 2892 | 0.088 |

Round movement holder with 4 pushers.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-37 | OM 1045 | 0.004 |

Round movement holder with 2 movement pushers locations.



| MSA | Calibres | Kg |
|-----------|------------------|-------|
| 09.010-38 | UNITAS 6497/6498 | 0.102 |

Round movement holder.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-39 | DD 2025 | 0.089 |

Round movement holder with 2 pushers.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-40 | 2894-2 | 0.070 |

Round movement holder with 2 pushers.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-41 | 7001 | 0.062 |

Round movement holder.



| MSA | Calibre | Kg |
|-----------|------------|-------|
| 09.010-44 | G10211/711 | 0.095 |

Round movement holder with 2 pushers.



| MSA | Calibres | Kg |
|-----------|--|-------|
| 09.010-47 | R 4002-B, R 4003-B, R 4120-B, R 4210-B, R 4220-B, R 5010-B, R 5020-B, R 5022-D, R 5030-D, R 5040-B, R 5040-D, R 5050-B, R 5050-C, R 5051-C, R 5130-B, R 5130-D. | 0.170 |

Round movement holder with 2 pushers.



| MSA | Calibres | Kg |
|-----------|---------------|-------|
| 09.010-51 | ISA 8171/8172 | 0.008 |

Round movement holder with 2 pushers.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-52 | R 5040-F | 0.160 |

Round movement holder with 5 pushers.



| MSA | Calibre | Kg |
|--------|-------------|-------|
| 09.011 | VAL 7750-53 | 0.125 |

Round movement holder with 6 pushers.



| MSA | Calibres | Kg |
|--------|---------------------------|-------|
| 09.012 | ZE 400-410-420 RX 4030 | 0.130 |

Round movement holder with 6 pushers.



| MSA | Calibre | Kg |
|-----------|---------|-------|
| 09.010-24 | 2135 | 0.073 |
| 09.010-25 | 3035 | 0.023 |
| 09.010-26 | 1570 | 0.035 |

Aluminium round movement holders equipped with adjustable screw to support the endstones.



| MSA | Calibres | Kg |
|-----------|----------|-------|
| 09.010-31 | OM 861 | 0.022 |

Round anodized aluminium movement holder.

» Movement holder, nickel-plated brass, base ø 31 mm. Equipped with adjustable screws to support pivots and end-pieces. Compatible with presses MSA 05.100, 05.101, 05.109, 05.110, 05.111 and 05.112.



| MSA | Calibre | Kg |
|-----------|---------------------|-------|
| 09.010-00 | 3 3/4 x 6 3/4" x 8" | 0.034 |

Special shape movement holder.



| MSA | Calibre | Kg |
|-----------|----------------|-------|
| 09.010-04 | 5 1/2 x 6 3/4" | 0.037 |

Special shape movement holder.



| MSA | Calibre | Kg |
|-----------|------------|-------|
| 09.010-07 | 6 3/4 x 8" | 0.040 |

Special shape movement holder.



| MSA | Calibre | Kg |
|-----------|------------|-------|
| 09.010-27 | 3 3/4 x 6" | 0.034 |

Special shape movement holder.



| MSA | Calibres | Kg |
|-----------|----------------|-------|
| 09.010-43 | PUW 111-282001 | 0.045 |

Special shape movement holder.

» Antimagnetic and reversible movement holders in aluminium.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.001 | 45 x 35 | 0.047 |

Antimagnetic movement holder, ø 5 to 22 mm.



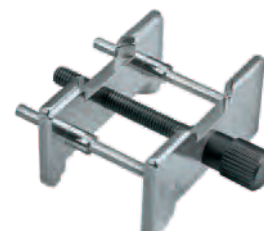
| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.002 | 60 x 25 | 0.025 |

Reversible movement holder with springs, 3 3/4 to 12 1/2".



| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.003 | 40 x 25 | 0.032 |

Reversible and adjustable movement holder, 3 3/4 to 11".



| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.004 | 50 x 37 | 0.042 |

Reversible and adjustable movement holder, 8 3/4 to 19".



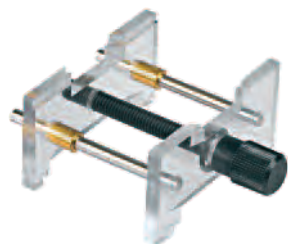
| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.005 | 75 x 50 | 0.138 |

Reversible movement holder for pocket watches.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.013 | 39 x 26 | 0.023 |

Reversible plexiglas movement holder for calibres from 3 3/4 to 11".



| MSA | Size mm | Kg |
|--------|---------|-------|
| 09.014 | 38 x 49 | 0.026 |

Reversible plexiglas movement holder for Calibres from 8 3/4 to 19 mm.

» Movement holders with buttons, reversible...



| MSA | Calibre | Kg |
|-----------|--------------|-------|
| 09.020-00 | 3 3/4 x 6 mm | 0.016 |

Steel reversible movement holder with button, special shape.



| MSA | Calibres | Kg |
|-----------|-----------|-------|
| 09.020-05 | 5 1/2 mm | 0.007 |
| 09.020-09 | 7 1/2 mm | 0.014 |
| 09.020-08 | 7 3/4 mm | 0.010 |
| 09.020-11 | 8 3/4 mm | 0.010 |
| 09.020-13 | 9 1/4 mm | 0.015 |
| 09.020-15 | 10 1/2 mm | 0.015 |
| 09.020-25 | 11 1/4 mm | 0.035 |
| 09.020-16 | 11 1/2 mm | 0.023 |
| 09.020-19 | 12 mm | 0.022 |
| 09.020-17 | 12 1/4 mm | 0.020 |
| 09.020-20 | 12 1/2 mm | 0.020 |
| 09.020-22 | 13 1/4 mm | 0.022 |
| 09.020-26 | 13 1/2 mm | 0.025 |
| 09.020-23 | 13 3/4 mm | 0.026 |
| 09.020-27 | 15 mm | 0.030 |
| 09.020-24 | 16 1/2 mm | 0.037 |

Reversible round movement holder with button.



| MSA | Calibre | Kg |
|-----------|------------------|-------|
| 09.020-06 | 5 1/2 x 6 3/4 mm | 0.012 |

Steel reversible movement holder with button, special shape.



| MSA | Calibre | Kg |
|-----------|--------------|-------|
| 09.020-07 | 6 3/4 x 8 mm | 0.013 |

Steel reversible movement holder with button, special shape.



| MSA | Size exterior/interior mm | Kg |
|--------|---------------------------|-------|
| 09.015 | 30/24 | 0.012 |

Plexiglas reversible round movement holder with button.



| MSA | Calibre | Kg |
|-----------|----------|-------|
| 09.020-21 | VAL 7750 | 0.041 |

Steel reversible round movement holder with button and 4 pushers.



| MSA | Calibre | Kg |
|--------|--------------|-------|
| 09.021 | 3 3/4 x 8 mm | 0.022 |

Steel reversible movement holder with button, special shape.



| MSA | Calibres | Kg |
|-----------|--|-------|
| 09.016-47 | R 4002-B, R 4003-B, R 4120-B, R 4210-B, R 4220-B, R 5010-B, R 5020-B, R 5022-D, R 5030-D, R 5040-B, R 5040-F, R 5040-D, R 5050-B, R 5050-C, R 5051-C, R 5130-D. | 0.060 |

Movement holder for stem remove.



| MSA | Calibre | Kg |
|-----------|-------------|-------|
| 09.050-01 | VAL 7750... | 0.080 |

Plastic movement holder 13 ¼ for VALJOUX 7750.
Other calibres upon request.

> See chapter PERF.



» Case cushions for multi-use, made of a felt disc covered with synthetic material and reinforced with a metal or plastic ring.



| MSA | ø mm | Kg |
|--------|------|-------|
| 09.305 | 90 | 0.130 |

HOROTEC® reversible case cushion in anti scratch synthetic material. One flat side with a room for small components storage, screws, battery clamp, crown. Other side is concave to accept domed glass watch case. Delivered with anti-dust lid.



| MSA | ø mm | Kg |
|--------|------|-------|
| 09.300 | 50 | 0.026 |

Case cushion with chromed metallic ring.



| MSA | ø mm | Kg |
|--------|------|-------|
| 09.301 | 53 | 0.025 |

Case cushion with chromed metallic ring.



| MSA | ø mm | Kg |
|--------|------|-------|
| 09.302 | 55 | 0.011 |

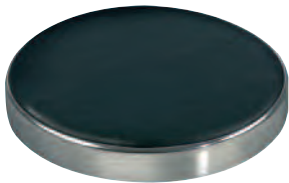
Case cushion with red plastic ring.

MOVEMENT HOLDERS | CASE CUSHIONS



| MSA | ø mm | Kg |
|--------|------|-------|
| 09.303 | 55 | 0.020 |

Case cushion with black plastic ring.

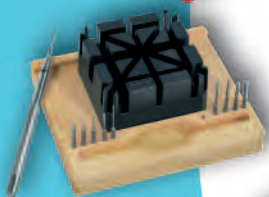
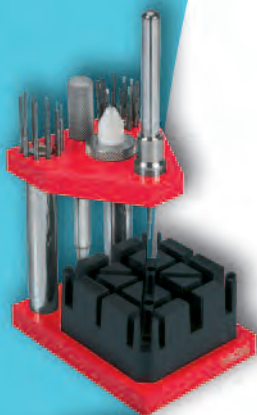


| MSA | ø mm | Kg |
|--------|------|-------|
| 09.304 | 75 | 0.047 |

Case cushion with chromed metallic ring.

➤ All case cushions shown pages 09 11 and 09 12 can be personalized upon request.

10

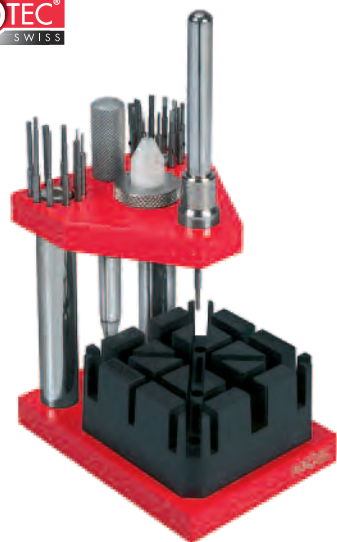


PIN BRACELET TOOLS 10 2



SPRING BARS TOOLS 10 9

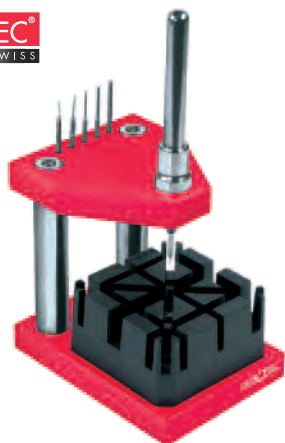
spring bars bending tool
spring bars tools



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 10.500 | 60 x 80 x 110 | 0.465 |

Press for rapidly assembling and disassembling **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, 1 broach MSA 10.500-A, 1 handle MSA 10.504, 1 bracelet holder MSA 10.501, 12 blades MSA 10.502-xxx (2 of each), 11 push/extract pins MSA 10.503-xxx, 1 support for bracelet holder MSA 10.500-C, 1 counter screw blade holder MSA 10.505 and 1 conical bracelet protection MSA 10.500-E.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 10.499 | 60 x 80 x 110 | 0.415 |

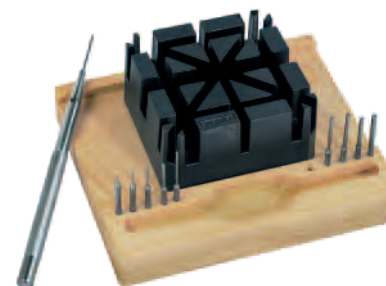
Pin bracelet adjusting tool. Simple version of press MSA 10.500.

Contents :

- 1 press
- 1 pin holder MSA 10.500-A
- 1 black slotted bracelet holder MSA 10.501
- 6 push/extract pins MSA 10.503-xxx (ø 0.40, 0.60, 0.80, 1.00, 1.50 and 2.00 mm) stored on top plate
- 1 support MSA 10.500-C.

Replacement parts for MSA 10.499 and 10.500 :

| MSA | Items | |
|----------|--|--|
| 10.500-A | Pin holder, bore ø 2 mm, length 80 mm For MSA 10.499 and 10.500 | |
| 10.500-B | O'ring gasket for pins holder MSA 10.500-A and blade holder MSA 10.504 | |
| 10.500-C | Support for bracelet holder For MSA 10.499 and 10.500 | |
| 10.500-D | Ball for pins holder MSA 10.500-A and blade holder MSA 10.504 | |
| 10.500-E | Slotted delrin conical bracelet protection, to fit on MSA 10.505. For MSA 10.500 | |
| 10.504 | Knurled blade handle, length 84 mm For MSA 10.500 | |
| 10.505 | Counter screw blade holder for MSA 10.500, used for bracelet screws | |



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.510 | 95 x 80 x 36 | 0.295 |

Bracelet pins remover set, includes 1 universal bracelet holder on a wooden base.

Contents : 1 pin holder MSA 10.510-A, 1 bracelet holder MSA 10.501, 10 pins MSA 10.503-xxx (ø 0.40, 0.60, 0.70, 0.80, 1.00, 1.10, 1.20, 1.40, 1.50, 2.00 mm) and 1 wooden base.



| MSA | Kg |
|--------|-------|
| 10.511 | 0.040 |

Bracelet pins remover set, includes 1 universal bracelet holder.

Contents : 1 pin holder MSA 10.510-A, 1 bracelet holder MSA 10.501 and 4 pins MSA 10.503-xxx (ø 0.40, 0.60, 0.80, 1.00 mm).



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.501 | 52 x 52 x 25 | 0.022 |

Universal black plastic bracelet holder, with 9 holes and 8 slots of 2.8 to 6.3 mm.

Accessory for MSA 10.499, 10.500, 10.510 and 10.511.



| MSA | Length mm | Bore ø mm | Kg |
|----------|-----------|-----------|-------|
| 10.510-A | 80 | 2.00 | 0.029 |

Metal knurled pins holder. Accessory for MSA 10.510 and 10.511.

Replacement blades for MSA 10.500 (shank ø 2 mm) :

| MSA | ø mm | MSA | ø mm |
|------------|------|------------|------|
| 10.502-080 | 0.80 | 10.502-140 | 1.40 |
| 10.502-100 | 1.00 | 10.502-160 | 1.60 |
| 10.502-120 | 1.20 | 10.502-250 | 2.50 |

Replacement pins for MSA 10.499, 10.500, 10.510 and 10.511 (shank ø 2 mm) :

| MSA | ø mm | MSA | ø mm |
|------------|------|------------|------|
| 10.503-040 | 0.40 | 10.503-110 | 1.10 |
| 10.503-060 | 0.60 | 10.503-120 | 1.20 |
| 10.503-070 | 0.70 | 10.503-140 | 1.40 |
| 10.503-080 | 0.80 | 10.503-150 | 1.50 |
| 10.503-090 | 0.90 | 10.503-200 | 2.00 |
| 10.503-100 | 1.00 | | |



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.519 | 50 x 45 x 40 | 0.105 |

Bracelet holder vice. Maximum bracelet thickness 10 mm. The Bracelet bedding is 49 mm length and 24 mm high. Suitable for presses MSA 10.499 and 10.500 illustrated on page 10 2.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.513 | 55 x 35 x 22 | 0.050 |

Bracelet holder vice. Maximum bracelet thickness 9.50 mm. The Bracelet bedding is 35 mm length and 12 mm high. Suitable for presses MSA 10.499 and 10.500 illustrated on page 10 2.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.507 | 55 x 55 x 40 | 0.030 |

Black plastic bracelet holder, 22 slots, 3.5 to 9.0 mm.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 10.007 | 105 x 60 x 60 | 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 able to accept domed glass cases.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.520 | 25 x 25 x 27 | 0.037 |

Small tool for bracelet screws, with 3 blades ø 1.00, 1.40 and 3.00 mm. Metal anti-skid base.

ASSORTMENT



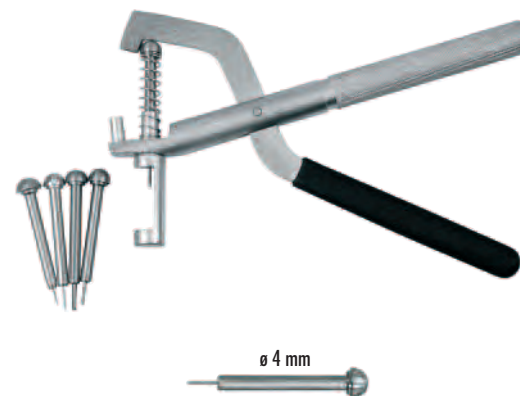
| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.530 | 50 x 45 x 25 | 0.073 |

Bracelet pins remover set with 1 Delrin® bracelet holder. Contents :
 - 1 pin remover MSA 10.510-A
 - 1 nylon bracelet holder
 - 6 pins MSA 10.503-xxx (ø 0.40, 0.60, 0.80, 1.00, 1.50 and 2.00 mm).



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.400 | 95 x 90 x 35 | 0.170 |

Bracelet holder for pushing and extracting pins from bracelets, mounted on a rubber anti-skid base. Delivered with 1 knurled handle (bore \varnothing 2.50 mm), 6 pins (\varnothing 0.45, 0.60, 0.80), 3 blades for screwing/unscrewing bracelet screws (\varnothing 1.20, 2 x 2.50 mm) and 1 spring bars remover fork (width 2.50 mm).



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.006 | 150 | 0.295 |

Combination pliers for pushing/extracting bracelet pins. Delivered with 5 replacement pins (\varnothing 0.60, 0.80, 1.00, 1.20 and 1.50 mm) in a cardboard box.

Replacement pin extractors :

| MSA | Length mm | \varnothing mm | MSA | Length mm | \varnothing mm |
|------------|-----------|------------------|------------|-----------|------------------|
| 10.004-060 | 47.00 | 0.60 | 10.004-120 | 48.50 | 1.20 |
| 10.004-080 | " | 0.80 | 10.004-150 | 49.00 | 1.50 |
| 10.004-100 | 47.50 | 1.00 | | | |



| MSA | Size mm | Kg |
|--------|------------------------|-------|
| 10.001 | \varnothing 40 x 105 | 0.050 |

Tool for removing bracelet pins.

Replacement pin extractor :

| MSA | \varnothing mm |
|----------|------------------|
| 10.001-A | 0.80 |

"Swiss Made"



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.005 | 60 x 20 x 25 | 0.015 |

Small black plastic tool for extracting bracelet pins. Delivered with 2 pins \varnothing 0.80 mm.

Replacement pin :

| MSA | Length mm | Body \varnothing mm | \varnothing mm |
|----------|-----------|-----------------------|------------------|
| 10.005-A | 31.40 | 2.50 | 0.80 |

"Swiss Made"



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.003 | 145 | 0.089 |

Combination pliers for pushing/extracting bracelet pins. Delivered with 5 replacement pins \varnothing 0.80 mm.

Replacement pin extractor :

| MSA | Length mm | Body \varnothing mm | \varnothing mm |
|----------|-----------|-----------------------|------------------|
| 10.003-A | 13.50 | 1.50 | 0.80 |



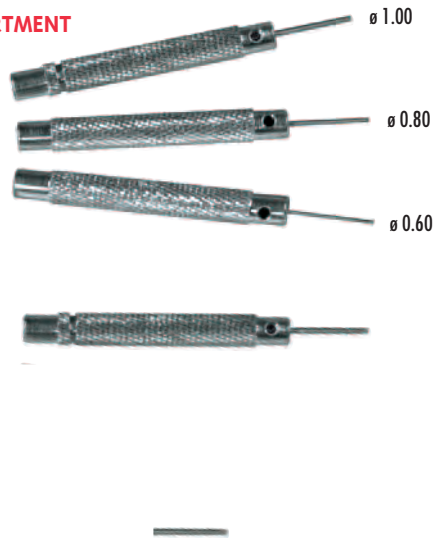
| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.532 | 55 x 22 x 25 | 0.016 |

Small black plastic tool for extracting bracelet pins. Delivered with 3 pins \varnothing 0.80 mm (2 x length 17 mm and 1 x length 20 mm).

Replacement pins :

| MSA | Length mm | Body \varnothing mm | \varnothing mm |
|----------|-----------|-----------------------|------------------|
| 10.532-A | 17 | 2.50 | 0.80 |
| 10.532-B | 20 | " | " |

ASSORTMENT



| MSA | Kg |
|--------|-------|
| 10.508 | 0.029 |

Assortment of 3 holders with mounted pins (ø 0.60, 0.80 and 1.00 mm).

Replacement holders with mounted pin :

| MSA | Handle ø mm | Length mm | Pins ø mm |
|------------|-------------|-----------|-----------|
| 10.508-060 | 5.20 | 52.60 | 0.60 |
| 10.508-080 | " | 52.20 | 0.80 |
| 10.508-100 | 5.00 | 52.60 | 1.00 |

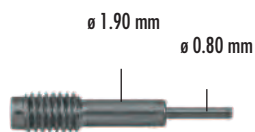
Replacement pins :

| MSA | ø mm |
|------------|------|
| 10.509-060 | 0.60 |
| 10.509-080 | 0.80 |
| 10.509-100 | 1.00 |



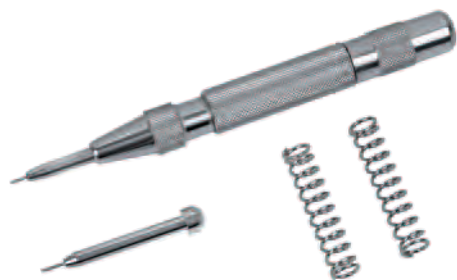
| MSA | Size mm | Kg |
|--------|---------------|-------|
| 10.531 | 110 x 50 x 25 | 0.066 |

Tool for removing pins.



Replacement pin :

| MSA | ø mm |
|----------|------|
| 10.531-A | 0.80 |



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 10.008 | 130 x ø 11.5 | 0.100 |

Shock tool for bracelet pins remove.

Delivered on plastic pouch with :

- 1 pin MSA 10.008-A
- 2 springs MSA 10.008-B.

Replacement parts :

| MSA | Items | Size |
|----------|--------|-------------------|
| 10.008-A | Pin | ø 0.80 mm |
| 10.008-B | Spring | ø 8.00 x 38.00 mm |

HOROTEC® spring bars bending tool.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 10.311 | 130 x 30 x 80 | 0.120 |

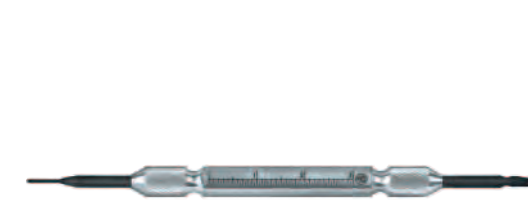
HOROTEC® tool with lever of 110 mm allowing to easily bend some of the most thickest steel spring bars. Equipped with 2 spring bar rooms to give wished bending according to length, without damaging the spring bar.

Spring bars tools.



| MSA | Material | Length mm | Kg |
|--------|--|-----------|-------|
| 10.306 | Stainless steel, sand-blasted body, mirror polished tips (1) | 120 | 0.022 |
| 10.307 | Standard stainless steel | " | " |

Tool for fitting and removing bracelet spring bars. Specially made to shorten both ends of the spring bars at the same time, to insert the well adjusted metal bracelet between watch case legs. Suitable for any spring bars length.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.301 | 105 | 0.007 |

Tool for fitting and removing spring bars. Knurled aluminium handle ø 6 mm (includes graduated scale in millimetres) and interchangeable steel tips.

Replacement tips :

| MSA | Elements |
|----------|--------------------|
| 10.301-A | Tip ø 0.70 mm |
| 10.301-B | Fork width 2.00 mm |

PIN BRACELET TOOLS | SPRING BARS TOOLS

“Swiss Made”

| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.302 | 135 | 0.034 |

Tool for fitting and removing spring bars. Knurled steel handle \varnothing 7 mm and steel tips easily interchangeable due to maintaining chucks.

Replacement tips :

| MSA | Elements | |
|----------|--|--|
| 10.302-A | Reversible tip \varnothing 0.80 mm and width 1.20 mm | |
| 10.302-B | Fork width 4.00 mm | |



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.303 | 145 | 0.028 |

Tool for fitting and removing spring bars. Knurled steel handle and interchangeable hardened steel tips.

Replacement tips :

| MSA | Elements | |
|----------|---------------------------|--|
| 10.304-A | Tip \varnothing 0.80 mm | |
| 10.304-B | Fork width 3.00 mm | |
| 10.304-C | Fine fork width 1.20 mm | |



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 10.304 | 147 | 0.025 |

Tool for fitting and removing spring bars. Aluminium hexagonal handle \varnothing 10 mm (includes 2 graduated scales in millimetres and inches) and interchangeable hardened steel tips.

Replacement tips :

| MSA | Elements | |
|----------|---------------------------|--|
| 10.304-A | Tip \varnothing 0.80 mm | |
| 10.304-B | Fork width 3.00 mm | |
| 10.304-C | Fine fork width 1.20 mm | |



PRECITEC[®] PLIERS || 2



PRECISION PLIERS..... || 15



LINDSTROM[®] PLIERS || 20



SHEARS..... || 24



RING CUTTING PLIERS || 25

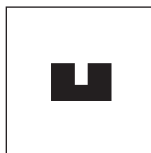
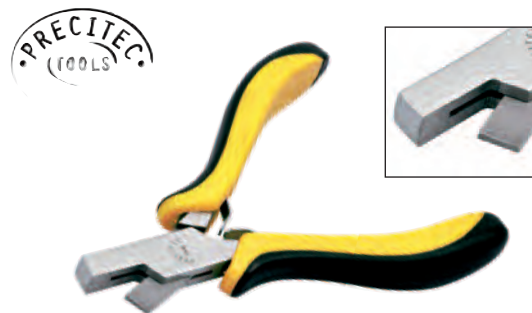


SPECIAL PLIERS || 26



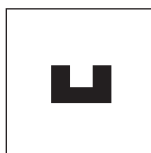
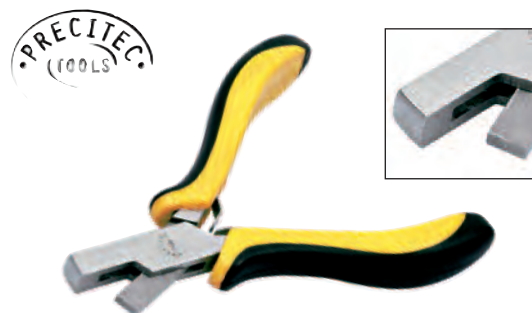
HAIRSPRINGS PLIERS || 27

» Precitec® pliers made of hardened steel ideal for all current work.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.105 | 130 | 0.107 |

Leather watch strap notching cutters, with 2 return springs. Box joint construction. Width cut 1.7 mm.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.106 | 130 | 0.115 |

Leather watch strap notching cutters, with 2 return springs. Box joint construction. Width cut 3.0 mm.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.800-A | 115 | 0.080 |

Flat nose pliers, with 2 return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.800-B | 130 | 0.100 |

Flat nose pliers, without return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.801-A | 115 | 0.073 |

Round nose pliers, with 2 return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.801-B | 130 | 0.090 |

Round nose pliers, without return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.802-A | 115 | 0.073 |

Half-round nose pliers, with 2 return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.802-B | 130 | 0.095 |

Half-round nose pliers, without return springs. Box joint construction.



ASSORTIMENT

| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.803 | 115 | 0.345 |

Set of 3 pliers, with 2 return springs. Box joint construction. Delivered on a wooden stand.

Contents :

| MSA | Noses | Length mm |
|----------|-------------------|-----------|
| 11.801-A | ●● Round (1) | 115 |
| 11.802-A | ◐◑ Half-round (2) | 115 |
| 11.800-A | Flat (3) | 115 |



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.806 | 130 | 0.096 |

Round/concave nose pliers, without return springs. Box joint construction.



ASSORTIMENT

| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.804 | 130 | 0.440 |

Set of 3 pliers, without return springs. Box joint construction. Delivered on a wooden stand.

Contents :

| MSA | Noses | Length mm |
|----------|-------------------|-----------|
| 11.802-B | ◐◑ Half-round (1) | 130 |
| 11.801-B | ●● Round (2) | 130 |
| 11.800-B | Flat (3) | 130 |



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.807 | 130 | 0.096 |

Round/flat nose pliers, without return springs. Box joint construction.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.808 | 135 | 0.128 |

Pliers with interchangeable jaws in nylon, width 10 mm, without return springs. Box joint construction.

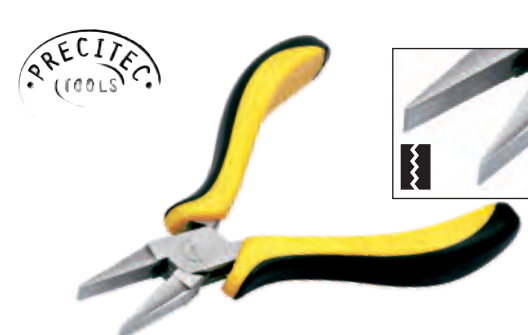
Replacement parts :

| MSA | Items |
|----------|-----------|
| 11.808-1 | Nylon jaw |
| 11.808-2 | Jaw screw |



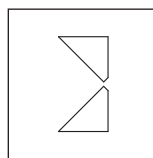
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.805 | 130 | 0.096 |

Flat/convex nose precision pliers, without return springs. Box joint construction.



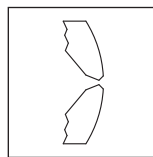
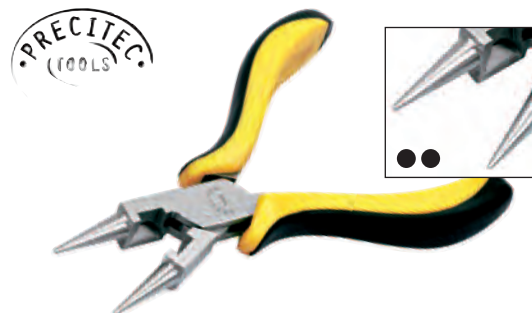
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.809 | 130 | 0.097 |

Flat nose pliers, serrated anti-skid interior, without return springs. Box joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.810 | 130 | Bevelled | 0.140 |

Side cutters, with 2 return springs. Box joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.811 | 140 | Bevelled | 0.117 |

Combined round nose and side cutters rosary pliers, without return springs. Box joint construction.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.812 | 135 | 0.095 |

Pliers for removing bracelet links, without return springs. Box joint construction.



| MSA | Kg |
|--------|-------|
| 11.813 | 0.415 |

Set of 3 pliers, without return springs. Box joint construction. Delivered on a wooden stand.

| Contents : | | |
|------------|------------------------------|-----------|
| MSA | Noses/Function | Length mm |
| 11.802-B | ☪ Half-round (1) | 130 |
| 11.812 | ☪ Bracelet links remover (2) | 135 |
| 11.800-B | Flat (3) | 130 |



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.816 | 145 | 0.150 |

Leather straps hole punching pliers, with 2 return springs. Box joint construction. Hole ø 2 mm.



| MSA | Kg |
|--------|-------|
| 11.817 | 0.445 |

Set of 3 pliers. Box joint construction. Delivered on a wooden stand.

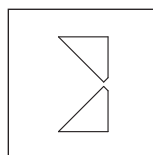
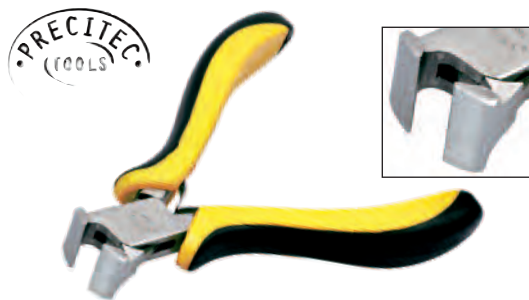
| Contents : | | |
|------------|------------------------------------|-----------|
| MSA | Noses/Function | Length mm |
| 11.812 | ☪ Bracelet links remover (1) | 135 |
| 11.809 | ☪ Serrated flat interior (2) | 130 |
| 11.816 | ☪ Leather straps hole punching (3) | 145 |



| MSA | Kg |
|--------|-------|
| 11.818 | 0.450 |

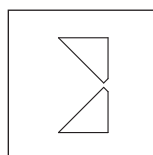
Set of 3 pliers. Box joint construction. Delivered on a wooden stand.

| Contents : | | |
|------------|------------------------------|-----------|
| MSA | Noses | Length mm |
| 11.827 | ☪ Cutting (1) | 130 |
| 11.801-B | ☪ Round (2) | 130 |
| 11.809 | ☪ Serrated flat interior (3) | 130 |



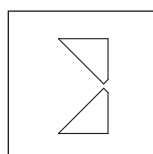
| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.820 | 130 | Bevelled | 0.146 |

End cutting pliers, with 2 return springs. Box joint construction.



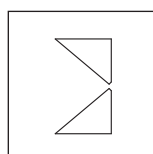
| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.827 | 130 | Bevelled | 0.102 |

End cutting pliers made of tungsten carbide, with 2 return springs. Box joint construction.



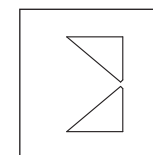
| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.828 | 130 | Bevelled | 0.110 |

Side cutting pliers made of tungsten carbide, with 2 return springs. Box joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|---------|-------|
| 11.829 | 110 | Plain | 0.090 |

Side cutting pliers made of tungsten carbide, with rounded head and 2 return springs. Screw lap joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|---------|-------|
| 11.830 | 120 | Plain | 0.095 |

Side cutting pliers made of tungsten carbide, with three square head and 2 return springs. Screw lap joint construction.



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 11.831 | 0.408 |

Set of 3 pliers, with 2 return springs. Delivered on a wooden stand.

Contents :

| MSA | Noses/Cutting | Length mm |
|--------|---------------------------|-----------|
| 11.829 | Side cutting/Plain (1) | 110 |
| 11.828 | Side cutting/Bevelled (2) | 130 |
| 11.827 | End cutting/Bevelled (3) | 130 |



ASSORTMENT

| MSA | Kg |
|--------|-------|
| 11.832 | 0.606 |

Set of 5 pliers, with 2 return springs. Delivered on a wooden stand.

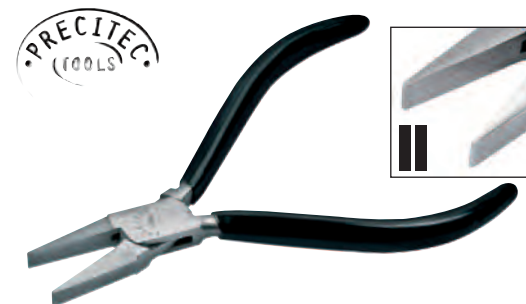
Contents :

| MSA | Noses/Cutting | Length mm |
|----------|---------------------------|-----------|
| 11.820 | End cutting/Bevelled (1) | 130 |
| 11.810 | Side cutting/Bevelled (2) | 130 |
| 11.802-A | Half-round/- (3) | 115 |
| 11.801-A | Round/- (4) | 115 |
| 11.800-A | Flat/- (5) | 115 |



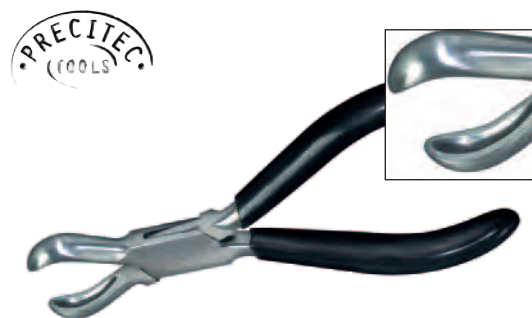
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.815 | 130 | 0.094 |

Concave and convex nose pliers, without return springs. Box joint construction.



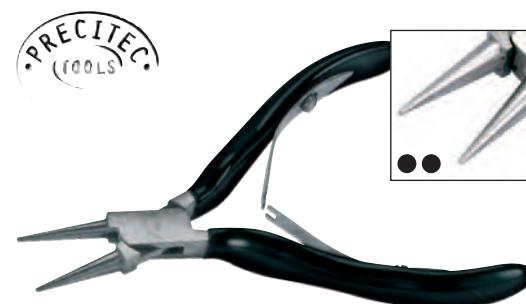
| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.833-B | 130 | 0.092 |

Flat nose pliers, without return springs. Box joint construction.



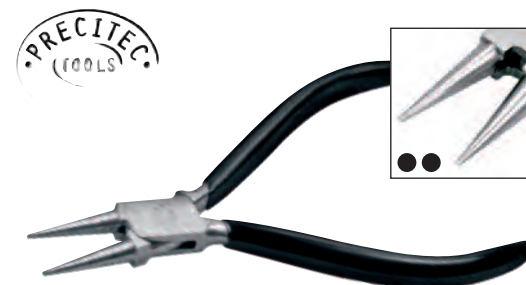
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.814 | 130 | 0.105 |

Concave nose pliers for holding rings. Box joint construction.



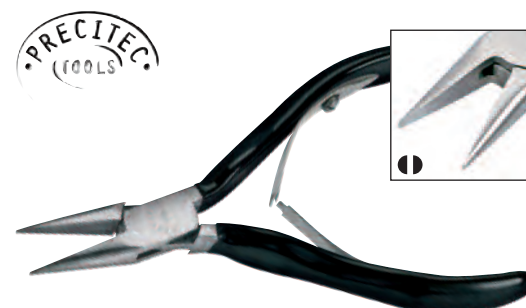
| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.834-A | 115 | 0.078 |

Round nose pliers, with return springs. Box joint construction.



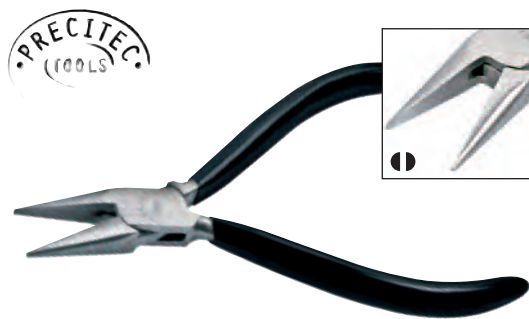
| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.834-B | 130 | 0.097 |

Round nose pliers, without return springs. Box joint construction.



| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.835-A | 115 | 0.075 |

Half-round nose pliers, with return springs. Box joint construction.



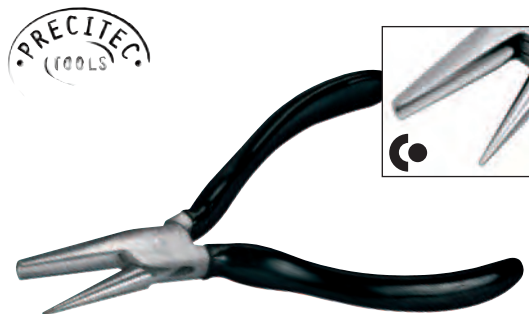
| MSA | Length mm | Kg |
|----------|-----------|-------|
| 11.835-B | 130 | 0.097 |

Half-round nose pliers, without return springs. Box joint construction.



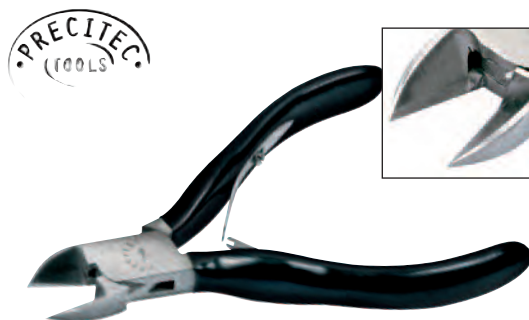
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.836 | 130 | 0.090 |

Flat and convex nose pliers, without return springs. Box joint construction.



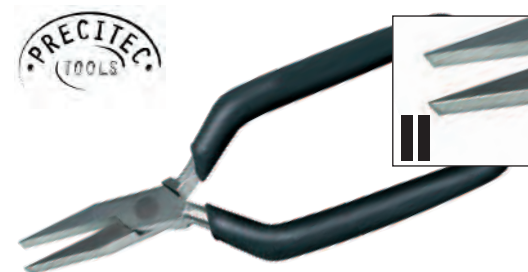
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.839 | 130 | 0.086 |

Flat and concave nose pliers, without return springs. Box joint construction.



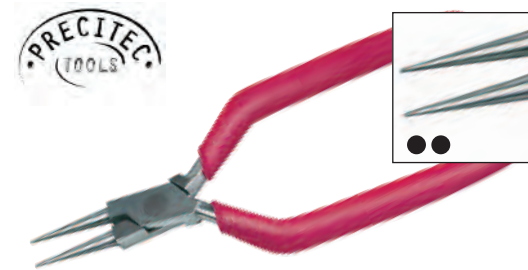
| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.837 | 130 | Bevelled | 0.092 |

Side cutting pliers, with return springs. Box joint construction.



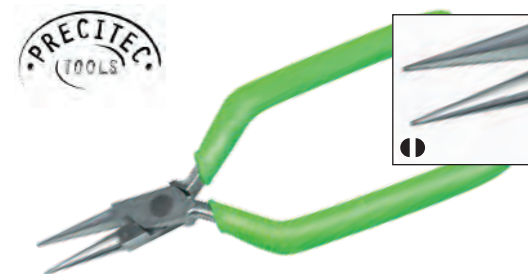
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.851 | 140 | 0.087 |

Flat nose pliers, with black anti-skid handles. Lap joint construction.



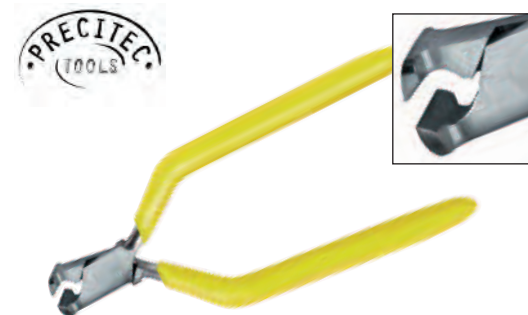
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.852 | 140 | 0.090 |

Round nose pliers, with red anti-skid handles. Lap joint construction.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.853 | 140 | 0.085 |

Half-round nose pliers, with green anti-skid handles. Lap joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.854 | 140 | Bevelled | 0.108 |

End cutting pliers, with yellow anti-skid handles. Lap joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.855 | 140 | Bevelled | 0.094 |

Side cutting pliers, with blue anti-skid handles. Lap joint construction.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.856 | 140 | 0.645 |

Set of 5 pliers with anti-skid handles. Delivered on a wooden stand.

Contents :

| MSA | Noses | Length mm |
|--------|----------------|-----------|
| 11.852 | ●● Round | 140 |
| 11.853 | ◐◑ Half-round | 140 |
| 11.851 | ▬▬ Flat | 140 |
| 11.854 | ● End cutting | 140 |
| 11.855 | ● Side cutting | 140 |

ASSORTMENT



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.857 | 140 | 0.406 |

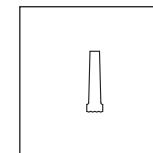
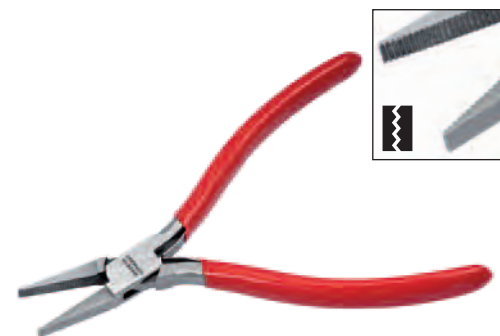
Set of 3 pliers with anti-skid handles. Delivered on a wooden stand.

Contents :

| MSA | Noses | Length mm |
|--------|---------------|-----------|
| 11.852 | ●● Round | 140 |
| 11.853 | ◐◑ Half-round | 140 |
| 11.851 | ▬▬ Flat | 140 |

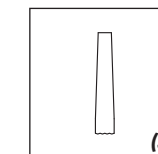
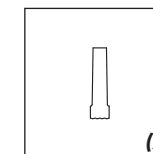
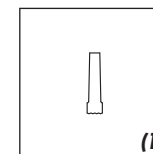
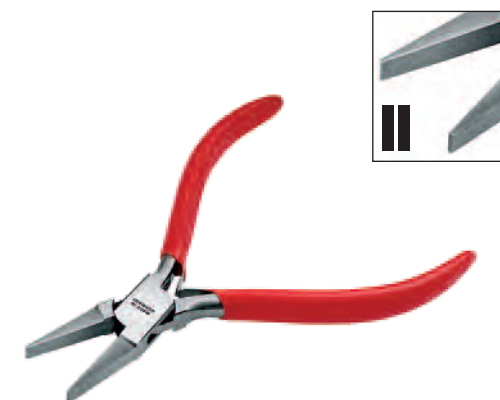
ASSORTMENT

» Excellent quality, robust and reliable precision pliers ; box joint construction with 2 return springs and delivered in several variants for precision work.



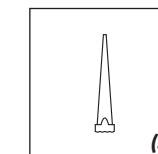
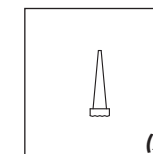
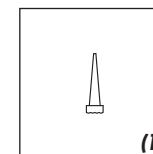
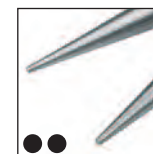
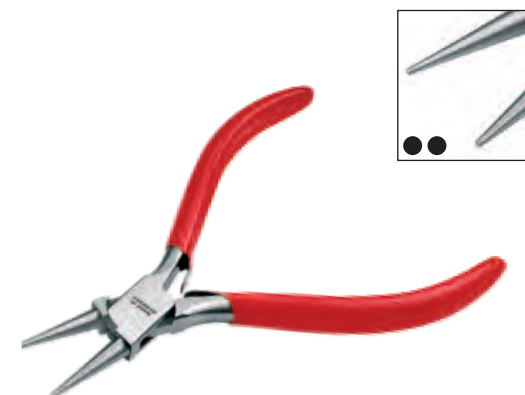
| MSA | Noses length mm | Total length mm | Kg |
|--------|-----------------|-----------------|-------|
| 11.199 | 21 | 115 | 0.062 |

Serrated flat nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



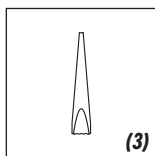
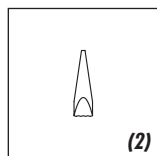
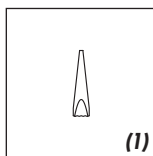
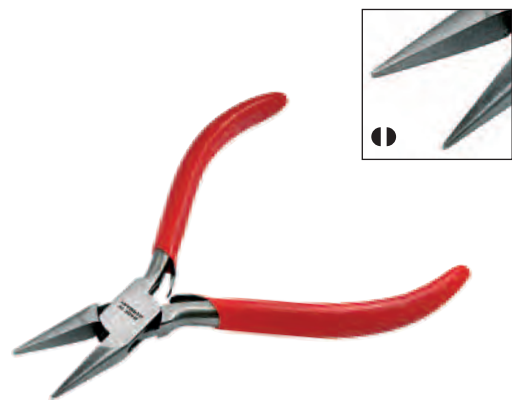
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.200-A | 22 (1) | 115 | 0.060 |
| 11.200-B | 25 (2) | 130 | 0.075 |
| 11.200-C | 40 (3) | 145 | 0.090 |

Flat nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



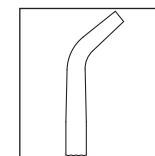
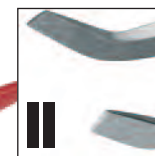
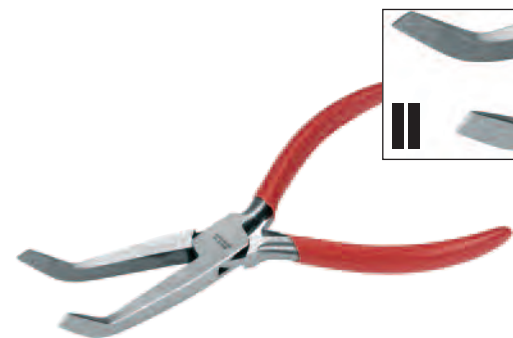
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.201-A | 22 (1) | 115 | 0.058 |
| 11.201-B | 25 (2) | 130 | 0.073 |
| 11.201-C | 40 (3) | 145 | 0.087 |

Round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



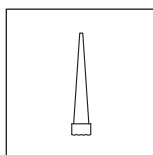
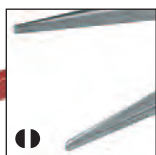
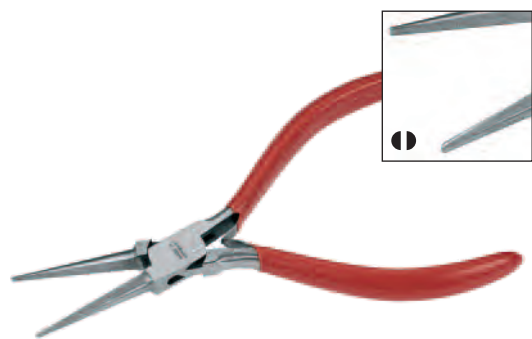
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.202-A | 22 (1) | 115 | 0.062 |
| 11.202-B | 25 (2) | 130 | 0.074 |
| 11.202-C | 40 (3) | 145 | 0.090 |

Half-round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



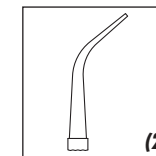
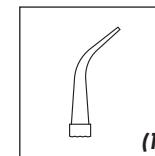
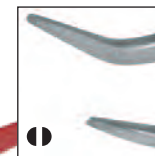
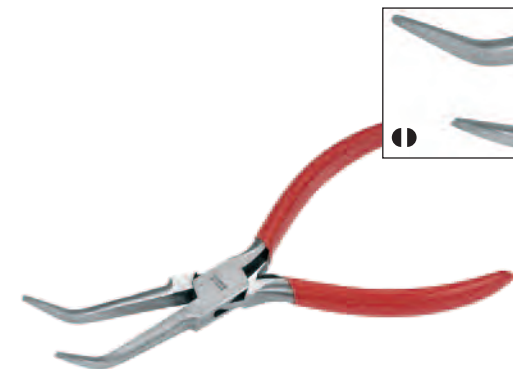
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.204-D | 55 | 160 | 0.129 |

Long bent flat nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



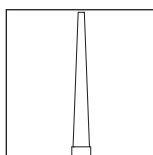
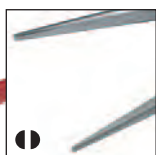
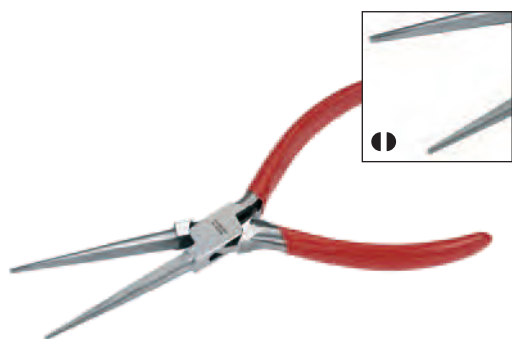
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.203-C | 40 | 145 | 0.088 |

Long half-round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



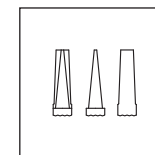
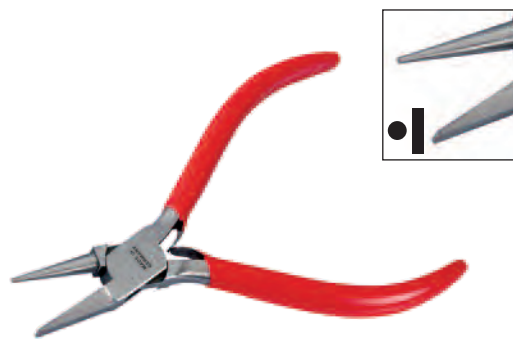
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.205-C | 40 (1) | 145 | 0.088 |
| 11.205-D | 54 (2) | 160 | 0.116 |

Long thin bent half-round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



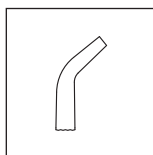
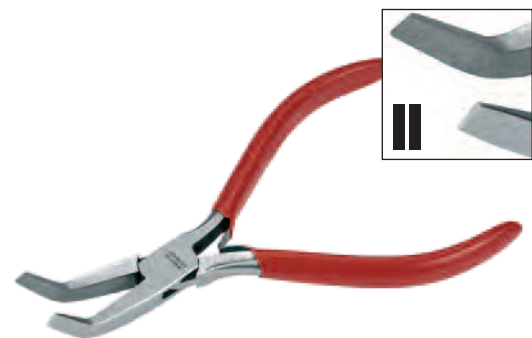
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.203-D | 63 | 170 | 0.112 |

Extra-long half-round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



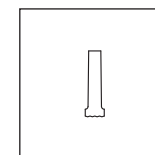
| MSA | Noses length mm | Total length mm | Kg |
|--------|-----------------|-----------------|-------|
| 11.214 | 25 | 130 | 0.087 |

Flat and round nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



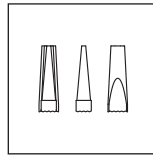
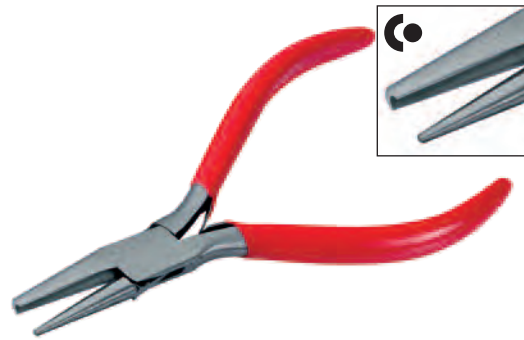
| MSA | Noses length mm | Total length mm | Kg |
|----------|-----------------|-----------------|-------|
| 11.204-C | 32 | 140 | 0.088 |

Bent flat nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



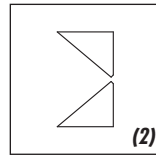
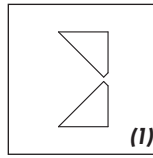
| MSA | Noses length mm | Total length mm | Kg |
|--------|-----------------|-----------------|-------|
| 11.215 | 25 | 130 | 0.083 |

Flat and convex nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



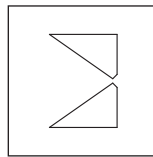
| MSA | Noses length mm | Total length mm | Kg |
|--------|-----------------|-----------------|-------|
| 11.216 | 25 | 130 | 0.090 |

Round and concave nose precision pliers. PVC protected handles and 2 return springs. Box joint construction.



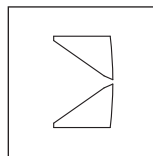
| MSA | Length mm | Cutting | Kg |
|----------|-----------|----------|-------|
| 11.206-A | 115 (1) | Bevelled | 0.075 |
| 11.206-B | 130 (1) | Bevelled | 0.110 |
| 11.210 | 115 (2) | Plain | 0.075 |

Robust side cutting precision pliers with rounded jaws. PVC protected handles and 2 return springs. Box joint construction.



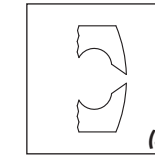
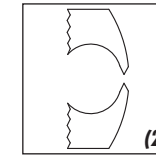
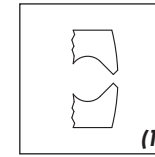
| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.207 | 115 | Bevelled | 0.073 |

Side cutting precision pliers with pointed jaws. PVC protected handles and 2 return springs. Box joint construction.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|---------|-------|
| 11.211 | 115 | Plain | 0.078 |

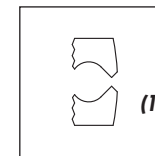
Side cutting precision pliers with pointed jaws. PVC protected handles and 2 return springs. Box joint construction.



| MSA | Length mm | Cutting | Kg |
|----------|-----------|----------|-------|
| 11.208-A | 115 (1) | Bevelled | 0.080 |
| 11.208-B | 130 (2)* | Bevelled | 0.125 |
| 11.212 | 115 (3) | Plain | 0.080 |

End cutting precision pliers with straight head. PVC protected handles and 2 return springs.

*Without return springs.



| MSA | Length mm | Cutting | Kg |
|--------|-----------|----------|-------|
| 11.209 | 120 (1) | Bevelled | 0.080 |
| 11.213 | 120 (2) | Plain | " |

End cutting precision pliers with inclined head. PVC protected handles and 2 return springs.

ASSORTMENT



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.850 | 115 | 0.291 |

Set of 3 precision pliers with 2 return springs. Delivered on a wooden stand.

Contents :

| MSA | Noses | Length mm |
|----------|------------------|-----------|
| 11.200-A | ▬ Flat (1) | 115 |
| 11.201-A | ●● Round (2) | 115 |
| 11.202-A | ◐ Half-round (3) | 115 |

» 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 cutting Ultra-flush® cutting Micro-bevel® cutting



| MSA | Model | Copper wire cutting capacity mm | Cutting | Kg |
|--------|-------|---------------------------------|--------------|-------|
| 11.900 | 7291 | 0.35 - 1.25 | Flush | 0.048 |
| 11.901 | 7293 | 0.35 - 1.00 | Flush | " |
| 11.902 | 7290 | 0.35 - 1.25 | Micro-bevel® | " |

Precision LINDSTROM® 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 | Model | Copper wire cutting capacity mm | Cutting | Kg |
|--------|-------|---------------------------------|---------|-------|
| 11.903 | 7191 | 0.10 - 1.25 | Flush | 0.044 |

Precision LINDSTROM® 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 | Model | Copper wire cutting capacity mm | Cutting | Kg |
|--------|-------|---------------------------------|--------------|-------|
| 11.904 | 8162 | 0.30 - 1.60 | Ultra-flush | 0.088 |
| 11.905 | 8140 | 0.20 - 1.25 | Micro-bevel® | 0.048 |

Precision LINDSTROM® 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 | Model | kg |
|--------|-------|-------|
| 11.906 | 7490 | 0.048 |

Precision LINDSTROM® 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 | Copper wire cutting capacity mm | Cutting | Kg |
|--------|-------|---------------------------------|---------|-------|
| 11.907 | 7292 | 0.35 - 0.80 | Flush | 0.056 |

Precision LINDSTROM® pliers, bent nose towards the interior. With 2 return springs. Box joint construction. Head 15 x 9 mm. Total length 115 mm.



| MSA | Model | Copper wire cutting capacity mm | Kg |
|--------|-------|---------------------------------|-------|
| 11.908 | 8146 | 0.2 - 1.0 | 0.046 |

LINDSTROM® 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.



| MSA | Model | Kg |
|--------|-------|-------|
| 11.909 | 7890 | 0.060 |

LINDSTROM® precision half round extra long nose with polished interior side 2 return springs. Box joint construction. Head 32 x 19 mm. Total length 132 mm.



| MSA | Modèle | Kg |
|--------|--------|-------|
| 11.910 | 7893 | 0.056 |

LINDSTROM® precision half round nose. 2 return springs. Box joint construction. Head 20 x 9 mm. Total length 120 mm.



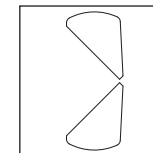
MICRO-BEVEL®



| MSA | Modèle | Capacité coupe pour cuivre mm | Kg |
|--------|--------|-------------------------------|-------|
| 11.911 | 8160 | 0.4 – 2.0 | 0.088 |

LINDSTROM® precision side cutter with oxidized black and round nose. 2 return springs. Lap joint construction. Head 16 x 16 mm. Total length 125 mm.

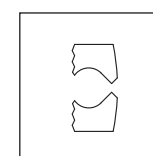
» Cutting Bahco® pliers.



| MSA | Cutting capacity mm | Cutting | Kg |
|--------|---|----------|-------|
| 11.228 | ø 1.80 mm : piano-wire ø 0.50 mm : copper wire | Bevelled | 0.134 |

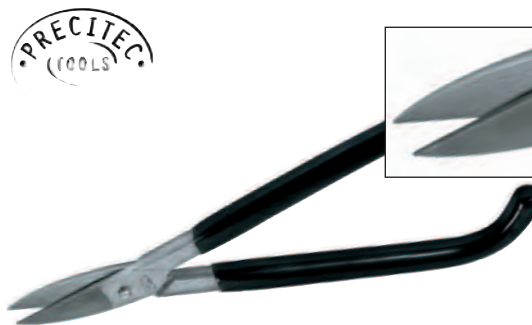
Steel side cutting BAHCO® precision pliers, with large ant-skid handles and 1 return spring. Lap joint construction. Total length 155 mm.

» Knipex® Cutter.



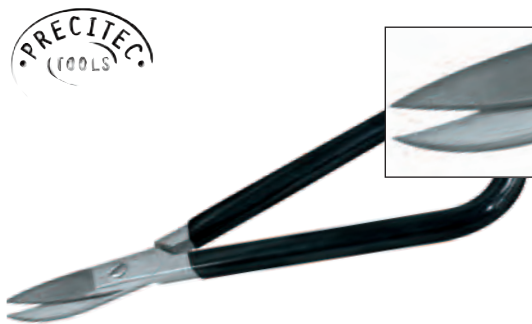
| MSA | Cutting capacity mm | Cutting | Kg |
|--------|--|---------------|-------|
| 11.229 | ø 1.50 mm : piano wide ø 4.00 mm : copper | bewelled " | 0.134 |

Heavy duty end cutter KNIPEX® with strang torque. Tempered and polished head PVC protected handles. Lap joint construction. Total length 140 mm.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.550 | 175 | 0.130 |

Polished steel robust and narrow shears, straight shape.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.551 | 185 | 0.136 |

Polished steel robust and narrow shears, curve shape.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.500 | 175 | 0.144 |

Polished steel robust and large goldsmith shears, straight shape. Elegant finishing.



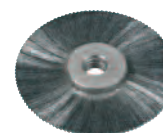
| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.501 | 175 | 0.150 |

Polished steel robust and large goldsmith shears, curve shape. Elegant finishing.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.198 | 178 | 0.145 |

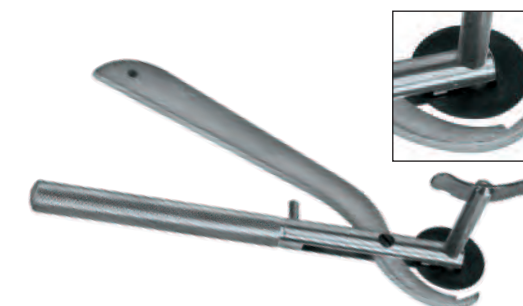
Stainless steel ring cutter with PVC protected handles. Delivered with mounted thin teeth circular saw and key for saw change.



Replacement part:

| MSA | ø mm |
|----------|------|
| 11.198-A | 30 |

Tempered stainless steel thin teeth circular saw only.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.226 | 120 | 0.095 |

Ring cutting pliers with hardened steel circular saw. Delivered with 1 mounted circular saw and 1 key.



Replacement part:

| MSA | ø mm |
|----------|------|
| 11.226-A | 20 |

Steel circular saw for MSA 11.230, with thin teeth.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.230 | 160 | 0.107 |

Large ring cutting pliers with chromed grooved handle. Delivered with 1 mounted circular saw.

Replacement part :

| MSA | ø mm |
|----------|------|
| 11.230-A | 21 |

Steel circular saw for MSA 11.230, with thin teeth.

» **Special pliers.**



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.217 | 130 | 0.087 |

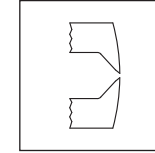
Pliers equipped with a sliding ring for a rapid tightening and an easy one handed use, with flat and narrow jaws and 1 return spring.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 11.300 | 200 | 0.280 |

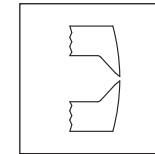
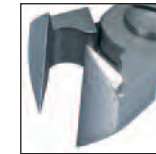
Revolving pliers for leather holing with 6 punchers. Diameters : 2.0 - 2.5 - 3.0 - 3.5 - 4.0 - 4.5 mm.

» **Carbon steel pliers specially made for cutting hairsprings. Plain and impeccable cutting.**



| MSA | N° | Length mm | Kg |
|--------|----|-----------|-------|
| 11.705 | 17 | 125 | 0.076 |

Carbon steel pliers for cutting hairsprings. Inclined head, anti-skid handles with 2 return springs. Screw lap joint construction.



| MSA | N° | Length mm | Kg |
|--------|----|-----------|-------|
| 11.706 | 20 | 110 | 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.

» **See chapter PERF.**



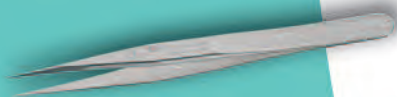
12



HOROTEC® TWEEZERS FOR WATCH MAKING 12 2



HOROTEC® ALUMINIUM TWEEZERS 12 16



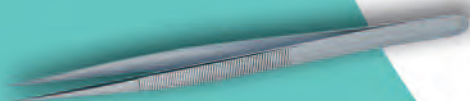
HOROSWISS® TWEEZERS 12 20



PRECITEC® TWEEZERS 12 22



HOROTEC® TWEEZERS FOR JEWELLERS 12 25



VARIOUS TWEEZERS 12 26

» 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 chosen to assure top quality.



ASSORTMENT



| MSA | Tweezers | Material | Size mm | Kg |
|---------|---------------|--------------------------|---------------|-------|
| 12.380 | 1 - 3 - 5 - 7 | Carbon steel | 90 x 165 x 27 | 0.150 |
| (Pict.) | | | | |
| 12.381 | " | Stainless steel | " | " |
| 12.382 | " | 100% antimagnetic steel. | " | " |

Assortment of HOROTEC® tweezers. Delivered in a wooden box.



ASSORTMENT



| MSA | Tweezers | Material | Size mm | Kg |
|--------|-----------------|--|---------------|-------|
| 12.383 | 2 - 2A - 5 - 51 | 100% antimagnetic steel., sand blasted body and mirror polished tips | 90 x 165 x 27 | 0.150 |

Assortment of HOROTEC® tweezers. Delivered in a wooden box.



ASSORTMENT



| MSA | Tweezers | Material | Size mm | Kg |
|--------|----------------|--|---------------|-------|
| 12.384 | 3 - 5 - 7 - 27 | 100% antimagnetic steel., sand blasted body and mirror polished tips | 90 x 165 x 27 | 0.150 |

Assortment of HOROTEC® tweezers. Delivered in a wooden box.



ASSORTMENT



| MSA | Tweezers | Material | Size mm | Kg |
|--------|----------|--|---------------|-------|
| 12.385 | 2 - 3 | Stainless steel | 90 x 165 x 27 | 0.150 |
| | 2 - 3 | 100% antimagnetic steel., sand blasted body and mirror polished tips | | |

Assortment of HOROTEC® tweezers. Delivered in a wooden box.



ASSORTMENT



| MSA | Tweezers | Material | Size mm | Kg |
|--------|---------------|--------------------------|---------------|-------|
| 12.386 | 1 - 3 - 4 - 5 | 100% antimagnetic steel. | 90 x 165 x 27 | 0.150 |

Assortment of HOROTEC® tweezers. Delivered in a wooden box.

Other assortments of HOROTEC® tweezers not illustrated, but available, delivered in a wooden box :

| MSA | Tweezers | Material | Size mm | Kg |
|--------|---------------|--|---------------|-------|
| 12.387 | 1 - 2 - 3 - 5 | Stainless steel | 90 x 165 x 27 | 0.150 |
| 12.388 | 1 - 2 - 3 - 5 | 100% antimagnetic steel. | " | " |
| 12.389 | 00 | Carbon steel | " | " |
| | 1 - 3 - F1 | 100% antimagnetic steel., sand blasted body and mirror polished tips | | |
| 12.390 | 2 - 3 - 4 - 5 | 100% antimagnetic steel., sand blasted body and mirror polished tips | " | " |

- » **12.300** Hard carbon steel
- 12.301** Stainless steel
- 12.302** 100% antimagnetic steel
- 12.303** Brass
- 12.304** 100% antimagnetic nickel
- 12.305** Beryllium copper
- 12.306** Bronze

Standard polished bodies and tips!



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-0 | Carbon steel | 120 | 0.018 |
| 12.301-0 | Stainless steel | " | " |
| 12.302-0 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers fine, Geneva shape.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.302-0C | 100% antimagnetic steel. | 110 | 0.015 |

HOROTEC® tweezers fine for hair springs.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-00 | Carbon steel | 120 | 0.022 |
| 12.301-00 | Stainless steel | " | " |
| 12.302-00 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers thick with flat tips, Geneva shape.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-1 | Carbon steel | 120 | 0.016 |
| 12.301-1 | Stainless steel | " | " |
| 12.302-1 | 100% antimagnetic steel. | " | " |
| 12.305-1 | Beryllium copper | " | " |

HOROTEC® tweezers strong and high quality type.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-2 | Carbon steel | 120 | 0.018 |
| 12.301-2 | Stainless steel | " | " |
| 12.302-2 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers strong with fine and flat tips.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.302-2A | 100% antimagnetic steel. | 120 | 0.014 |

HOROTEC® tweezers, large and round tips, for straightening hands.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-3 | Carbon steel | 120 | 0.014 |
| 12.301-3 | Stainless steel | " | " |
| 12.302-3 | 100% antimagnetic steel. | " | " |
| 12.305-3 | Beryllium copper | " | " |

HOROTEC® tweezers fine and high quality type for hairsprings.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-3C | Carbon steel | 110 | 0.013 |
| 12.301-3C | Stainless steel | " | " |
| 12.302-3C | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers fine, short and high quality type for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-4 | Carbon steel | 110 | 0.014 |
| 12.301-4 | Stainless steel | " | " |
| 12.302-4 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers with long and fine tips, for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-5 | Carbon steel | 110 | 0.013 |
| 12.301-5 | Stainless steel | " | " |
| 12.302-5 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers short and extra-fine for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-6 | Carbon steel | 115 | 0.018 |
| 12.301-6 | Stainless steel | " | " |
| 12.302-6 | 100% antimagnetic steel. | " | " |
| 12.303-6 | Brass | " | " |

HOROTEC® tweezers hook shape and fine tips.

Standard polished bodies and tips!



7

| | |
|----------|--------------------------|
| » 12.300 | Hard carbon steel |
| 12.301 | Stainless steel |
| 12.302 | 100% antimagnetic steel |
| 12.303 | Brass |
| 12.304 | 100% antimagnetic nickel |
| 12.305 | Beryllium copper |
| 12.306 | Bronze |

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-7 | Carbon steel | 115 | 0.015 |
| 12.301-7 | Stainless steel | " | " |
| 12.302-7 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers curved and extra-fine for hairsprings.



11

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.304-11 | 100% antimagnetic nickel | 120 | 0.019 |

HOROTEC® tweezers, strong tips.



12

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.304-12 | 100% antimagnetic nickel | 120 | 0.019 |

HOROTEC® tweezers, fine tips.



14

| MSA | Material | Length mm | Kg |
|-----------|--------------|-----------|-------|
| 12.300-14 | Carbon steel | 110 | 0.030 |

HOROTEC® tweezers simple for removing and holding hands.



14A

| MSA | Material | Length mm | Kg |
|------------|--------------|-----------|-------|
| 12.300-14A | Carbon steel | 115 | 0.021 |

HOROTEC® tweezers with sliding locker for removing and holding hands.



15

| MSA | Material | Length mm | Kg |
|-----------|--------------|-----------|-------|
| 12.300-15 | Carbon steel | 105 | 0.014 |

HOROTEC® tweezers for marking hairsprings.



15A

| MSA | Material | Length mm | Kg |
|------------|--------------|-----------|-------|
| 12.300-15A | Carbon steel | 115 | 0.035 |

HOROTEC® tweezers strong for cutting hairsprings.



27

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.301-27 | Stainless steel | 135 | 0.017 |
| 12.302-27 | 100% antimagnetic steel. | 135 | 0.017 |

HOROTEC® tweezers strong and pointed for jewellers.



AA

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-AA | Carbon steel | 125 | 0.020 |
| 12.301-AA | Stainless steel | " | " |
| 12.302-AA | 100% antimagnetic steel. | " | " |
| 12.303-AA | Brass | " | " |

HOROTEC® tweezers strong and elegant for ordinary use.



AM

| MSA | Material | Length mm | Kg |
|-----------|--------------------|-----------|-------|
| 12.303-AM | Antimagnetic brass | 130 | 0.022 |

HOROTEC® tweezers for hairsprings, Parisian shape.



B5

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-B5 | Carbon steel | 125 | 0.019 |
| 12.301-B5 | Stainless steel | " | " |
| 12.303-B5 | Brass | " | " |
| 12.304-B5 | 100% antimagnetic nickel | " | " |
| 12.306-B5 | Bronze | " | " |
| 12.307-B5 | Gilt brass | 130 | 0.022 |

HOROTEC® tweezers strong and robust tips.

Standard polished bodies and tips!

| | |
|--------|--------------------------|
| 12.300 | Hard carbon steel |
| 12.301 | Stainless steel |
| 12.302 | 100% antimagnetic steel |
| 12.303 | Brass |
| 12.304 | 100% antimagnetic nickel |
| 12.305 | Beryllium copper |
| 12.306 | Bronze |



| MSA | Material | Length mm | Kg |
|----------|--------------|-----------|-------|
| 12.300-D | Carbon steel | 95 | 0.026 |

HOROTEC® tweezers for cutting and removing rollers, pivots and pinions.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-F | Carbon steel | 115 | 0.016 |
| 12.301-F | Stainless steel | " | " |
| 12.302-F | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers with flat tips, for straightening hands.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-MM | Carbon steel | 125 | 0.019 |
| 12.301-MM | Stainless steel | " | " |
| 12.302-MM | 100% antimagnetic steel. | " | " |
| 12.303-MM | Brass | " | " |

HOROTEC® tweezers for hairsprings, Parisian shape.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-P | Carbon steel | 120 | 0.014 |
| 12.301-P | Stainless steel | " | " |
| 12.302-P | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers simple, strong tips.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.300-S | Carbon steel | 120 | 0.015 |
| 12.301-S | Stainless steel | " | " |
| 12.302-S | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers simple, fine tips.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.303-S5 | Brass | 130 | 0.022 |
| 12.304-S5 | 100% antimagnetic nickel | " | " |

HOROTEC® tweezers simple, fine tips.



| MSA | Material | Length mm | Kg |
|------------|----------|-----------|-------|
| 12.303-S5C | Brass | 135 | 0.021 |

HOROTEC® tweezers bent, fine tips.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.300-SS | Carbon steel | 140 | 0.015 |
| 12.301-SS | Stainless steel | " | " |
| 12.302-SS | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers long and narrow with fine tips.



*High quality finishing.
Sand blasted body
and mirror
polished tips!*



1

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-1 | 100% antimagnetic steel. | 120 | 0.013 |

HOROTEC® tweezers strong and high quality type, sand blasted body and mirror polished tips.



2

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-2 | 100% antimagnetic steel. | 120 | 0.014 |

HOROTEC® tweezers strong type with fine and flat tips, sand blasted body and mirror polished tips.



2A

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.312-2A | 100% antimagnetic steel. | 120 | 0.014 |

HOROTEC® tweezers large with round tips, for straightening hands, sand blasted body and mirror polished tips.



3

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-3 | 100% antimagnetic steel. | 120 | 0.013 |

HOROTEC® tweezers fine and high quality type for hairsprings, sand blasted body and mirror polished tips.



4

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-4 | 100% antimagnetic steel. | 110 | 0.013 |

HOROTEC® tweezers with long and fine tips for hairsprings, sand blasted body and mirror polished tips.



5

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-5 | 100% antimagnetic steel. | 110 | 0.012 |

HOROTEC® tweezers extra-fine for hairsprings, sand blasted body and mirror polished tips.



7

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-7 | 100% antimagnetic steel. | 115 | 0.013 |

HOROTEC® tweezers curved and extra-fine for hairsprings, sand blasted body and mirror polished tips.



27

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.312-27 | 100% antimagnetic steel. | 135 | 0.016 |

HOROTEC® tweezers strong and pointed for stones ; sand blasted body and mirror polished tips.



51

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.312-51 | 100% antimagnetic steel. | 115 | 0.012 |

HOROTEC® tweezers bent and extra-fine for hairsprings, sand blasted body and mirror polished tips.



F

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.312-F | 100% antimagnetic steel. | 120 | 0.015 |

HOROTEC® tweezers with flat tips for straightening hands, sand blasted body and mirror polished tips.



F1

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.312-F1 | 100% antimagnetic steel. | 120 | 0.014 |

HOROTEC® tweezers with round tips for straightening hands, sand blasted body and mirror polished tips.



Standard polished body and mirror polished tips!



1

| MSA | Material | Length mm | Kg |
|------------|--------------------------|-----------|-------|
| 12.302-1/1 | 100% antimagnetic steel. | 120 | 0.016 |

HOROTEC® tweezers strong with mirror polished tips.



2

| MSA | Material | Length mm | Kg |
|------------|--------------------------|-----------|-------|
| 12.302-2/1 | 100% antimagnetic steel. | 120 | 0.015 |

HOROTEC® tweezers strong with thin and flat mirror polished tips.



2A

| MSA | Material | Length mm | Kg |
|-------------|--------------------------|-----------|-------|
| 12.302-2A/1 | 100% antimagnetic steel. | 120 | 0.016 |

HOROTEC® tweezers with large and round mirror polished tips for straightening hands.



3

| MSA | Material | Length mm | Kg |
|------------|--------------------------|-----------|-------|
| 12.302-3/1 | 100% antimagnetic steel. | 120 | 0.014 |

HOROTEC® tweezers fine and high quality type for hairsprings, mirror polished tips.



5

| MSA | Material | Length mm | Kg |
|------------|--------------------------|-----------|-------|
| 12.302-5/1 | 100% antimagnetic steel. | 110 | 0.013 |

HOROTEC® tweezers short and extra-fine for hairsprings, mirror polished tips.



7

| MSA | Material | Length mm | Kg |
|------------|--------------------------|-----------|-------|
| 12.302-7/1 | 100% antimagnetic steel. | 115 | 0.013 |

HOROTEC® tweezers with curved extra fine mirror polished tips.



27

| MSA | Material | Length mm | Kg |
|-------------|--------------------------|-----------|-------|
| 12.302-27/1 | 100% antimagnetic steel. | 135 | 0.017 |

HOROTEC® tweezers strong and pointed for jewellers, mirror polished tips.



51

| MSA | Material | Length mm | Kg |
|-------------|--------------------------|-----------|-------|
| 12.302-51/1 | 100% antimagnetic steel. | 115 | 0.012 |

HOROTEC® tweezers with curved extra fine mirror polished tips for hairsprings.



F1

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.301-F1 | Stainless steel | 115 | 0.017 |
| 12.302-F1 | 100% antimagnetic steel. | " | " |

HOROTEC® tweezers, round mirror polished tips for straightening hands.

» **HOROTEC® tweezers for bending hairsprings.**



10-0

| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-0 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-00

| MSA | Material | Length mm | Kg |
|--------------|--------------|-----------|-------|
| 12.300-10-00 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-1



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-1 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-2



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-2 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-3



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-3 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-4



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-4 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-5



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-5 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10-6



| MSA | Material | Length mm | Kg |
|-------------|--------------|-----------|-------|
| 12.300-10-6 | Carbon steel | 110 | 0.015 |

HOROTEC® tweezers for bending hairsprings.



10B



| MSA | Material | Length mm | Kg |
|------------|--------------|-----------|-------|
| 12.300-10B | Carbon steel | 115 | 0.015 |

HOROTEC® tweezers for bending hairsprings.

» HOROTEC® special tweezers with red vulcanized fibre tips.



| MSA | Material | Length mm | Kg |
|--------|---------------------|-----------|-------|
| 12.150 | Antimagnetic nickel | 125 | 0.020 |

Antimagnetic nickel HOROTEC® special tweezers with extra fine red vulcanized fibre tips 0.5 mm.



| MSA | Material | Length mm | Kg |
|--------|---------------------|-----------|-------|
| 12.727 | Antimagnetic nickel | 125 | 0.020 |

Antimagnetic nickel HOROTEC® special tweezers with fine red vulcanized fibre tips.



| MSA | Material | Length mm | Kg |
|--------|---------------------|-----------|-------|
| 12.710 | Antimagnetic nickel | 125 | 0.020 |

Antimagnetic nickel HOROTEC® special tweezers with medium red vulcanized fibre tips.



| MSA | Material | Length mm | Kg |
|--------|---------------------|-----------|-------|
| 12.726 | Antimagnetic nickel | 125 | 0.020 |

Antimagnetic nickel HOROTEC® special tweezers with large red vulcanized fibre tips.



| MSA | Material | Length mm | Kg |
|--------|---------------------|-----------|-------|
| 12.729 | Antimagnetic nickel | 125 | 0.020 |

Antimagnetic nickel HOROTEC® special tweezers with large red vulcanized fibre and felt tips for oiling main-springs.

» 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.



Easy used tips replacement thanks to patented rivet and clip system.

Antimagnetic and ultra light, 10 g!!!

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.711 | Aluminium | 123 | 0.010 |

HOROTEC® tweezers with large and square black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.711-A | 12.711 and 12.731 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.712 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with large and round black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.712-A | 12.712 and 12.732 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.713 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.713-A | 12.713 and 12.733 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.714 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with very fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.714-A | 12.714 and 12.734 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.715 | Aluminium | 120 | 0.010 |

HOROTEC® tweezers with curved and fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.715-A | 12.715 and 12.735 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.750 | Aluminium | 120 | 0.010 |

HOROTEC® tweezers with black large and round serrated carbon fibre tips for battery change.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|---------|-------|
| 12.750-A | 12.750 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.721 | Aluminium | 123 | 0.010 |

HOROTEC® tweezers with large and square white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.721-A | 12.721 and 12.741 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.722 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with large and round white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.722-A | 12.722 and 12.742 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.723 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.723-A | 12.723 and 12.743 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.724 | Aluminium | 130 | 0.010 |

HOROTEC® tweezers with very fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.724-A | 12.724 and 12.744 | 0.002 |

| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.725 | Aluminium | 120 | 0.010 |

HOROTEC® tweezers with curved and fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.725-A | 12.725 and 12.745 | 0.002 |

Antimagnetic and ultra light, 10 g!!!



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.731 | Aluminium | 120 | 0.010 |

HOROTEC® negative tweezers with large and square black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.711-A | 12.731 and 12.711 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.732 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with large and round black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.712-A | 12.732 and 12.712 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.733 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.713-A | 12.733 and 12.713 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.734 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with very fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.714-A | 12.734 and 12.714 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.735 | Aluminium | 117 | 0.010 |

HOROTEC® negative tweezers with curved and fine black carbon fibre **hard tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.715-A | 12.735 and 12.715 | 0.002 |



| MSA |
|--------|
| 12.728 |

Pairs of clips for replacement tweezers tips.

➤ A patented clip system allows a fast and easy replacement of tweezers tips.



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.741 | Aluminium | 120 | 0.010 |

HOROTEC® negative tweezers with large and square white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.721-A | 12.741 and 12.721 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.742 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with large and round white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.722-A | 12.742 and 12.722 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.743 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.723-A | 12.743 and 12.723 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.744 | Aluminium | 126 | 0.010 |

HOROTEC® negative tweezers with very fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.724-A | 12.744 and 12.724 | 0.002 |



| MSA | Material | Length mm | Kg |
|--------|-----------|-----------|-------|
| 12.745 | Aluminium | 117 | 0.010 |

HOROTEC® negative tweezers with curved and fine white Delrin® **soft tips**.

Replacement tips (pair) :

| MSA | For MSA | Kg |
|----------|-------------------|-------|
| 12.725-A | 12.745 and 12.725 | 0.002 |

» Watch making HOROSWISS® Tweezers are specially made in Standard polish and at competitive prices. They are made in good material to provide good quality items for precized jobs.

| | |
|----------|-------------------------|
| » 12.811 | Stainless steel |
| 12.812 | 100% antimagnetic steel |
| 12.813 | Brass |



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-0 | Steel | 120 | 0.015 |
| 12.812-0 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers fine tips, Geneve shape.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.811-00 | Steel | 120 | 0.022 |
| 12.812-00 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers thick and flat tips, Geneve shape.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-1 | Steel | 120 | 0.015 |
| 12.812-1 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers strong.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-2 | Steel | 120 | 0.016 |
| 12.812-2 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers strong, flat and fine tips.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-3 | Steel | 120 | 0.015 |
| 12.812-3 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers fine tips, for hairsprings.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.811-3C | Steel | 110 | 0.013 |
| 12.812-3C | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers fine tips, for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-4 | Steel | 110 | 0.013 |
| 12.812-4 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers long and fine tips, for hair-springs.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.811-5 | Steel | 110 | 0.014 |
| 12.812-5 | 100% antimagnetic steel. | " | " |

HOROSWISS® Tweezers extra short and fine tips, for hair-springs.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.811-AA | Steel | 125 | 0.017 |
| 12.812-AA | 100% antimagnetic steel. | " | " |
| 12.813-AA | Brass | " | 0.021 |

HOROSWISS® Tweezers strong for ordinary purposes.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.812-B5 | 100% antimagnetic steel. | 128 | 0.019 |

HOROSWISS® Tweezers very strong tips.



| MSA | Material | Length mm | Kg |
|-----------|---------------------|-----------|-------|
| 12.813-MM | Brass 100% antimag. | 120 | 0.023 |

HOROSWISS® Tweezers for hairsprings.

» For ordinary work requiring tweezers at a very competitive price.

- » **12.901** Stainless steel
- 12.902** 100% antimagnetic steel
- 12.903** Brass
- 12.904** 100% antimagnetic nickel



| MSA | Material | Length mm | Kg |
|----------|-----------------|-----------|-------|
| 12.901-0 | Stainless steel | 115 | 0.018 |

PRECITEC® tweezers fine, Geneva shape.



| MSA | Material | Length mm | Kg |
|-----------|-----------------|-----------|-------|
| 12.901-00 | Stainless steel | 115 | 0.021 |

PRECITEC® tweezers thick with flat tips, Geneva shape.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.902-0C | 100% antimagnetic steel. | 100 | 0.015 |

PRECITEC® tweezers medium, Geneva shape.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-1 | Stainless steel | 120 | 0.019 |
| 12.902-1 | 100% antimagnetic steel. | " | 0.022 |

PRECITEC® tweezers strong.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-2 | Stainless steel | 120 | 0.020 |
| 12.902-2 | 100% antimagnetic steel. | " | " |

PRECITEC® tweezers strong with fine and flat tips.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-3 | Stainless steel | 120 | 0.020 |
| 12.902-3 | 100% antimagnetic steel. | " | 0.022 |

PRECITEC® tweezers fine for hairsprings.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.901-3C | Stainless steel | 110 | 0.014 |
| 12.902-3C | 100% antimagnetic steel. | " | 0.016 |

PRECITEC® tweezers fine for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-4 | Stainless steel | 110 | 0.018 |
| 12.902-4 | 100% antimagnetic steel. | " | 0.020 |

PRECITEC® tweezers with long and fine tips for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-5 | Stainless steel | 110 | 0.016 |
| 12.902-5 | 100% antimagnetic steel. | " | 0.020 |

PRECITEC® tweezers extra-fine for hairsprings.



| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-6 | Stainless steel | 115 | 0.023 |
| 12.902-6 | 100% antimagnetic steel. | " | 0.022 |

PRECITEC® tweezers hook shape and fine tips.



| MSA | Material | Length mm | Kg |
|----------|-----------------|-----------|-------|
| 12.901-7 | Stainless steel | 120 | 0.020 |

PRECITEC® tweezers curved and extra-fine for hairsprings.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.904-11 | 100% antimagnetic nickel | 120 | 0.016 |

PRECITEC® tweezers, strong tips.



| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.904-12 | 100% antimagnetic nickel | 120 | 0.017 |

PRECITEC® tweezers, fine tips.



AA

| | |
|----------|--------------------------|
| » 12.901 | Stainless steel |
| 12.902 | 100% antimagnetic steel |
| 12.903 | Brass |
| 12.904 | 100% antimagnetic nickel |

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.901-AA | Stainless steel | 125 | 0.022 |
| 12.902-AA | 100% antimagnetic steel. | " | 0.024 |
| 12.903-AA | Brass | " | 0.022 |

PRECITEC® tweezers strong and elegant, for ordinary use.



F

| MSA | Material | Length mm | Kg |
|----------|-----------------|-----------|-------|
| 12.901-F | Stainless steel | 115 | 0.017 |

PRECITEC® tweezers with flat tips, for straightening hands.



MM

| MSA | Material | Length mm | Kg |
|-----------|--------------------------|-----------|-------|
| 12.901-MM | Stainless steel | 125 | 0.019 |
| 12.902-MM | 100% antimagnetic steel. | " | " |
| 12.903-MM | Brass | " | 0.023 |

PRECITEC® tweezers for assembling.



P

| MSA | Material | Length mm | Kg |
|----------|--------------------------|-----------|-------|
| 12.901-P | Stainless steel | 120 | 0.018 |
| 12.902-P | 100% antimagnetic steel. | " | 0.019 |

PRECITEC® tweezers strong, simple shape.



SS

| MSA | Material | Length mm | Kg |
|-----------|-----------------|-----------|-------|
| 12.901-SS | Stainless steel | 135 | 0.019 |

PRECITEC® tweezers, simple shape, fine, narrow and long.

» HOROTEC® tweezers for jewellery. Serrated inside for handling diamonds and jewels with care.



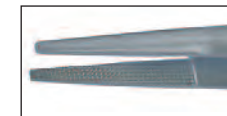
| MSA | Material | Tips | Length mm | Kg |
|--------|------------------------|--------|-----------|-------|
| 12.506 | Blackened carbon steel | Large | 140 | 0.020 |
| 12.507 | " " " | Medium | " | " |
| 12.508 | " " " | Fine | " | " |

HOROTEC® tweezers.



| MSA | Material | Tips | Length mm | Kg |
|--------|------------------------|--------|-----------|-------|
| 12.509 | Blackened carbon steel | Large | 160 | 0.023 |
| 12.510 | " " " | Medium | " | " |
| 12.511 | " " " | Fine | " | " |

HOROTEC® tweezers.



| MSA | Material | Tips | Length mm | Kg |
|--------|--------------------------|--------|-----------|-------|
| 12.512 | Polished stainless steel | Large | 140 | 0.020 |
| 12.513 | " " " | Medium | " | " |
| 12.514 | " " " | Fine | " | " |

HOROTEC® tweezers.



| MSA | Material | Tips | Length mm | Kg |
|--------|--------------------------|--------|-----------|-------|
| 12.515 | Polished stainless steel | Large | 160 | 0.023 |
| 12.516 | " " " | Medium | " | " |
| 12.517 | " " " | Fine | " | " |

HOROTEC® tweezers.



| MSA | Pointes | Length mm | Kg |
|----------|---------|-----------|-------|
| 12.606-F | Fine | 160 | 0.023 |
| 12.606-M | Medium | " | " |

Stones tweezers long tips with slide locker.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 12.603 | 155 | 0.028 |

Tweezers for holding rings, with slide lock.



| MSA | Tips | Length mm | Kg |
|--------|--------|-----------|-------|
| 12.604 | Fine | 155 | 0.025 |
| 12.605 | Medium | " | " |

Tweezers long, for jewellers.



| MSA | Models | Length mm | Kg |
|----------|---------|-----------|-------|
| 12.650-A | 3 claws | 60 | 0.010 |

Pocket stone tweezers nickel-plated, for jewellers, with return spring.



| MSA | Models | Length mm | Kg |
|----------|--------------------|-----------|-------|
| 12.651-A | 3 claws | 125 | 0.016 |
| 12.651-B | 4 claws | " | " |
| 12.651-C | 3 claws (economic) | " | " |

Tweezers nickel-plated, for jewellers, with return spring.



| MSA | Models | Length mm | Kg |
|----------|---------|-----------|-------|
| 12.652-A | 3 claws | 125 | 0.017 |
| 12.652-B | 4 claws | " | " |

Tweezers nickel-plated with clip, for jewellers, with return spring.



| MSA | Models | Length mm | Kg |
|--------|--------|-----------|-------|
| 12.662 | P35 | 120 | 0.005 |

Tweezers SIPEL® in synthetic material, tips width 3.20 mm.



| MSA | Model | Length mm | Kg |
|--------|-----------------|-----------|-------|
| 12.910 | Stainless steel | 208 | 0.049 |

Stainless steel ELMA® tweezers with sheathed tips for handling items under steam jet of ELMASTEAM.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 12.649 | 150 x 12.5 | 0.040 |

Kit Vacuum PEN-VAC Original ESD SAFE with 6 silicone probes + cups, high temperature resistant (230°). Aluminium body pen with clip. Ideal for picking up flat and very fragile Parts up to 200 Grams (dials, main plate...).

Contents :

| MSA | Items | Cups mm |
|----------|-------------------|---------|
| 12.649-A | Pen-Vac body only | |
| 12.649-B | 45° Bent Probe | 9.53 |
| 12.649-C | Straight Probe | 9.53 |
| 12.649-D | 45° Bent Probe | 6.35 |
| 12.649-E | Straight Probe | 6.35 |
| 12.649-F | 45° Bent Probe | 3.56 |
| 12.649-G | Straight Probe | 3.56 |
| 12.649-H | Cup only | 9.53 |
| 12.649-J | Cup only | 6.35 |
| 12.649-K | Cup only | 3.56 |

> See chapter PERF.



13



JEWELLING PRESSES 13 2



RIVETING PRESSES 13 8



MISCELLANEOUS 13 13

INCABLOC® assortment

KIF® spring tools





| MSA | Reaming broach ø mm | Reaming base ø mm | Kg |
|----------|------------------------|----------------------|-------|
| 13.100 | 3 | 4 | 0.600 |
| 13.100-4 | 4 | 4 | " |

Jewelling press with micrometric screw for rectifying endshakes, graduation 0.02 mm.

Capacity : 25 mm
Total height : 120 mm
Stand : 80 x 45 mm
Base : reaming ø 4 mm



| MSA | Reaming broach ø mm | Reaming base ø mm | Kg |
|----------|------------------------|----------------------|-------|
| 13.101 | 3 | 4 | 1.130 |
| 13.101-4 | 4 | 4 | " |

Jewelling press with micrometric screw (graduation 0.02 mm) and lever for rectifying endshakes.

Capacity : 30 mm
Total height : 125 mm
Stand : 90 x 50 mm
Base : reaming ø 4 mm

Replacement parts for MSA 13.101 and 13.101-4 :

| MSA | Items |
|----------|-------------|
| 13.101-A | Broach only |
| 13.101-B | Lever only |

ASSORTMENT



| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.110 | With broach ø 3 mm | 0.039 |
| 13.110-4 | With broach ø 4 mm | " |

Assortment N° 1 including 8 pump pushers and 3 stakes.

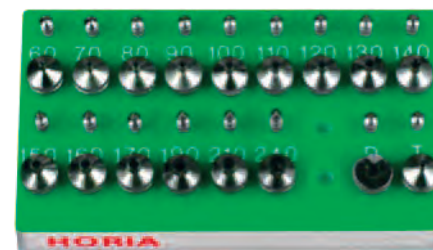
ASSORTMENT



| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.111 | With broach ø 3 mm | 0.086 |
| 13.111-4 | With broach ø 4 mm | " |

Assortment N° 3 including 12 pump pushers and 6 stakes.

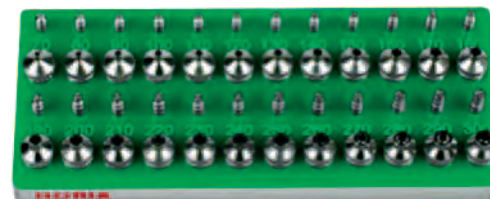
ASSORTMENT



| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.113 | With broach ø 3 mm | 0.124 |
| 13.113-4 | With broach ø 4 mm | " |

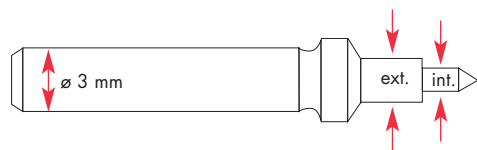
Assortment N° 2 including 15 pump pushers, 15 stakes, 1 set for the pallet-staff and 1 for pushing darts.

ASSORTMENT



| MSA | Use | Kg |
|----------|--------------------|-------|
| 13.112 | With broach ø 3 mm | 0.188 |
| 13.112-4 | With broach ø 4 mm | " |

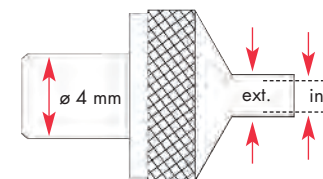
Assortment N° 4 including 24 pump pushers and 24 stakes.



Pump pushers for \varnothing 3 mm broaches of stone presses MSA 13.100 or 13.101.

| MSA | Pump pusher n° | \varnothing interior mm | \varnothing exterior mm |
|-------------|----------------|---------------------------|---------------------------|
| 13.120-3040 | 40 | 0.2 | 0.35 |
| 13.120-3050 | 50 | 0.2 | 0.45 |
| 13.120-3060 | 60 | 0.4 | 0.55 |
| 13.120-3070 | 70 | 0.4 | 0.65 |
| 13.120-3080 | 80 | 0.4 | 0.75 |
| 13.120-3090 | 90 | 0.5 | 0.85 |
| 13.120-3100 | 100 | 0.5 | 0.95 |
| 13.120-3110 | 110 | 0.5 | 1.05 |
| 13.120-3120 | 120 | 0.5 | 1.15 |
| 13.120-3130 | 130 | 0.7 | 1.25 |
| 13.120-3140 | 140 | 0.7 | 1.35 |
| 13.120-3150 | 150 | 0.7 | 1.45 |
| 13.120-3160 | 160 | 0.7 | 1.55 |
| 13.120-3170 | 170 | 0.7 | 1.65 |

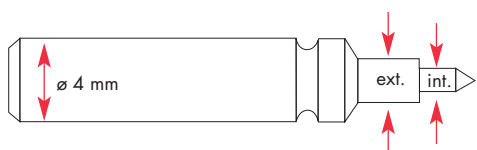
| MSA | Pump pusher n° | \varnothing interior mm | \varnothing exterior mm |
|-------------|----------------|---------------------------|---------------------------|
| 13.120-3180 | 180 | 0.7 | 1.75 |
| 13.120-3190 | 190 | 0.8 | 1.85 |
| 13.120-3200 | 200 | 0.8 | 1.95 |
| 13.120-3210 | 210 | 0.8 | 2.05 |
| 13.120-3220 | 220 | 0.8 | 2.15 |
| 13.120-3230 | 230 | 0.8 | 2.25 |
| 13.120-3240 | 240 | 0.8 | 2.35 |
| 13.120-3250 | 250 | 0.8 | 2.45 |
| 13.120-3260 | 260 | 0.8 | 2.55 |
| 13.120-3270 | 270 | 0.8 | 2.65 |
| 13.120-3280 | 280 | 0.8 | 2.75 |
| 13.120-3290 | 290 | 0.8 | 2.85 |
| 13.120-3300 | 300 | 0.8 | 2.95 |



Stakes for \varnothing 4 mm broaches for jewellery presses MSA 13.100, 13.100-4, 13.101 and 13.101-4.

| MSA | Stake n° | \varnothing interior mm | \varnothing exterior mm |
|------------|----------|---------------------------|---------------------------|
| 13.121-050 | 50 | 0.5 | 1.5 |
| 13.121-060 | 60 | 0.7 | 1.4 |
| 13.121-070 | 70 | 0.8 | 1.5 |
| 13.121-080 | 80 | 0.9 | 1.6 |
| 13.121-090 | 90 | 1.0 | 1.8 |
| 13.121-100 | 100 | 1.1 | 1.9 |
| 13.121-110 | 110 | 1.2 | 2.0 |
| 13.121-120 | 120 | 1.3 | 2.1 |
| 13.121-130 | 130 | 1.4 | 2.2 |
| 13.121-140 | 140 | 1.5 | 2.4 |
| 13.121-150 | 150 | 1.6 | 2.5 |
| 13.121-160 | 160 | 1.7 | 2.7 |
| 13.121-170 | 170 | 1.8 | 2.9 |

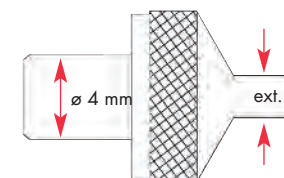
| MSA | Stake n° | \varnothing interior mm | \varnothing exterior mm |
|------------|----------|---------------------------|---------------------------|
| 13.121-180 | 180 | 1.9 | 3.0 |
| 13.121-190 | 190 | 2.0 | 3.2 |
| 13.121-200 | 200 | 2.1 | 3.3 |
| 13.121-210 | 210 | 2.2 | 3.4 |
| 13.121-220 | 220 | 2.3 | 3.5 |
| 13.121-230 | 230 | 2.4 | 3.6 |
| 13.121-240 | 240 | 2.5 | 3.8 |
| 13.121-250 | 250 | 2.6 | 4.0 |
| 13.121-260 | 260 | 2.7 | 4.1 |
| 13.121-270 | 270 | 2.8 | 4.2 |
| 13.121-280 | 280 | 2.9 | 4.3 |
| 13.121-290 | 290 | 3.0 | 4.4 |
| 13.121-300 | 300 | 3.1 | 4.5 |



Pump pushers for \varnothing 4 mm broaches for stone presses MSA 13.100-4 or 13.101-4.

| MSA | Pump pusher n° | \varnothing interior mm | \varnothing exterior mm |
|-------------|----------------|---------------------------|---------------------------|
| 13.120-4040 | 40 | 0.2 | 0.40 |
| 13.120-4050 | 50 | 0.2 | 0.45 |
| 13.120-4060 | 60 | 0.4 | 0.55 |
| 13.120-4070 | 70 | 0.4 | 0.65 |
| 13.120-4080 | 80 | 0.4 | 0.75 |
| 13.120-4090 | 90 | 0.5 | 0.85 |
| 13.120-4100 | 100 | 0.5 | 0.95 |
| 13.120-4110 | 110 | 0.5 | 1.05 |
| 13.120-4120 | 120 | 0.5 | 1.15 |
| 13.120-4130 | 130 | 0.7 | 1.25 |
| 13.120-4140 | 140 | 0.7 | 1.35 |
| 13.120-4150 | 150 | 0.7 | 1.45 |
| 13.120-4160 | 160 | 0.7 | 1.55 |
| 13.120-4170 | 170 | 0.7 | 1.65 |

| MSA | Pump pusher n° | \varnothing interior mm | \varnothing exterior mm |
|-------------|----------------|---------------------------|---------------------------|
| 13.120-4180 | 180 | 0.7 | 1.75 |
| 13.120-4190 | 190 | 0.8 | 1.85 |
| 13.120-4200 | 200 | 0.8 | 1.95 |
| 13.120-4210 | 210 | 0.8 | 2.05 |
| 13.120-4220 | 220 | 0.8 | 2.15 |
| 13.120-4230 | 230 | 0.8 | 2.25 |
| 13.120-4240 | 240 | 0.8 | 2.35 |
| 13.120-4250 | 250 | 0.8 | 2.45 |
| 13.120-4260 | 260 | 0.8 | 2.55 |
| 13.120-4270 | 270 | 0.8 | 2.65 |
| 13.120-4280 | 280 | 0.8 | 2.75 |
| 13.120-4290 | 290 | 0.8 | 2.85 |
| 13.120-4300 | 300 | 0.8 | 2.95 |



| MSA | Stake n° | \varnothing exterior mm |
|------------|----------|---------------------------|
| 13.121-700 | 700 | 7 |
| 13.121-800 | 800 | 8 |

Special flat stakes. Other \varnothing available upon request.

Replacement part :

| MSA | Item |
|----------|-----------------------------|
| 13.120-R | Spring only for 13.120-xxxx |

ASSORTMENT



| MSA | Use | Kg |
|----------|--|-------|
| 13.122 | With MSA 13.100/13.101 (broach \varnothing 3 mm) | 0.002 |
| 13.122-4 | With MSA 13.100-4/13.101-4 (broach \varnothing 4 mm) | " |

Assortment of 1 pump pusher and 1 stake for **pallet-staff**.

Replacement parts :

| MSA | Items | \varnothing int. | \varnothing ext. |
|-----------|---|--------------------|--------------------|
| 13.122-P | Pump pusher for broach \varnothing 3 mm | 0.2 | 0.8 |
| 13.122-P4 | Pump pusher for broach \varnothing 4 mm | " | " |
| 13.122-T4 | Stake \varnothing 4 mm for pallet-staff | 0.5 | 0.8 |

ASSORTMENT



| MSA | Use | Kg |
|----------|--|-------|
| 13.123 | With MSA 13.100/13.101 (broach ø 3 mm) | 0.002 |
| 13.123-4 | With MSA 13.100-4/13.101-4 (broach ø 4 mm) | " |

Assortment of 1 pump pusher and 1 stake for **pushing darts**.

Replacement parts :

| MSA | Items |
|-----------|--------------------------------|
| 13.123-P | Pump pusher for broach ø 3 mm |
| 13.123-P4 | Pump pusher for broach ø 4 mm |
| 13.123-T4 | Stake ø 4 mm for pushing darts |



Normal Pushers for broaches **ø 3 mm**.

| MSA | Pump pusher n° | ø mm |
|-------------|----------------|------|
| 13.124-3010 | 10 | 0.10 |
| 13.124-3015 | 15 | 0.15 |
| 13.124-3020 | 20 | 0.20 |
| 13.124-3025 | 25 | 0.25 |
| 13.124-3030 | 30 | 0.30 |
| 13.124-3035 | 35 | 0.35 |
| 13.124-3040 | 40 | 0.40 |
| 13.124-3045 | 45 | 0.45 |
| 13.124-3050 | 50 | 0.50 |
| 13.124-3055 | 55 | 0.55 |
| 13.124-3060 | 60 | 0.60 |
| 13.124-3065 | 65 | 0.65 |
| 13.124-3070 | 70 | 0.70 |
| 13.124-3075 | 75 | 0.75 |
| 13.124-3080 | 80 | 0.80 |
| 13.124-3085 | 85 | 0.85 |
| 13.124-3090 | 90 | 0.90 |
| 13.124-3095 | 95 | 0.95 |
| 13.124-3100 | 100 | 1.00 |
| 13.124-3105 | 105 | 1.05 |
| 13.124-3110 | 110 | 1.10 |
| 13.124-3115 | 115 | 1.15 |
| 13.124-3120 | 120 | 1.20 |
| 13.124-3125 | 125 | 1.25 |
| 13.124-3130 | 130 | 1.30 |
| 13.124-3135 | 135 | 1.35 |
| 13.124-3140 | 140 | 1.40 |
| 13.124-3145 | 145 | 1.45 |
| 13.124-3150 | 150 | 1.50 |
| 13.124-3155 | 155 | 1.55 |

| MSA | Pump pusher n° | ø mm |
|-------------|----------------|------|
| 13.124-3160 | 160 | 1.60 |
| 13.124-3165 | 165 | 1.65 |
| 13.124-3170 | 170 | 1.70 |
| 13.124-3175 | 175 | 1.75 |
| 13.124-3180 | 180 | 1.80 |
| 13.124-3185 | 185 | 1.85 |
| 13.124-3190 | 190 | 1.90 |
| 13.124-3195 | 195 | 1.95 |
| 13.124-3200 | 200 | 2.00 |
| 13.124-3205 | 205 | 2.05 |
| 13.124-3210 | 210 | 2.10 |
| 13.124-3215 | 215 | 2.15 |
| 13.124-3220 | 220 | 2.20 |
| 13.124-3225 | 225 | 2.25 |
| 13.124-3230 | 230 | 2.30 |
| 13.124-3235 | 235 | 2.35 |
| 13.124-3240 | 240 | 2.40 |
| 13.124-3245 | 245 | 2.45 |
| 13.124-3250 | 250 | 2.50 |
| 13.124-3255 | 255 | 2.55 |
| 13.124-3260 | 260 | 2.60 |
| 13.124-3265 | 265 | 2.65 |
| 13.124-3270 | 270 | 2.70 |
| 13.124-3275 | 275 | 2.75 |
| 13.124-3280 | 280 | 2.80 |
| 13.124-3285 | 285 | 2.85 |
| 13.124-3290 | 290 | 2.90 |
| 13.124-3295 | 295 | 2.95 |
| 13.124-3300 | 300 | 3.00 |



Normal Pushers for broaches **ø 4 mm**.

| MSA | Pump pusher n° | ø mm |
|-------------|----------------|------|
| 13.124-4010 | 10 | 0.10 |
| 13.124-4015 | 15 | 0.15 |
| 13.124-4020 | 20 | 0.20 |
| 13.124-4025 | 25 | 0.25 |
| 13.124-4030 | 30 | 0.30 |
| 13.124-4035 | 35 | 0.35 |
| 13.124-4040 | 40 | 0.40 |
| 13.124-4045 | 45 | 0.45 |
| 13.124-4050 | 50 | 0.50 |
| 13.124-4055 | 55 | 0.55 |
| 13.124-4060 | 60 | 0.60 |
| 13.124-4065 | 65 | 0.65 |
| 13.124-4070 | 70 | 0.70 |
| 13.124-4075 | 75 | 0.75 |
| 13.124-4080 | 80 | 0.80 |
| 13.124-4085 | 85 | 0.85 |
| 13.124-4090 | 90 | 0.90 |
| 13.124-4095 | 95 | 0.95 |
| 13.124-4100 | 100 | 1.00 |
| 13.124-4105 | 105 | 1.05 |
| 13.124-4110 | 110 | 1.10 |
| 13.124-4115 | 115 | 1.15 |
| 13.124-4120 | 120 | 1.20 |
| 13.124-4125 | 125 | 1.25 |
| 13.124-4130 | 130 | 1.30 |
| 13.124-4135 | 135 | 1.35 |
| 13.124-4140 | 140 | 1.40 |
| 13.124-4145 | 145 | 1.45 |
| 13.124-4150 | 150 | 1.50 |
| 13.124-4155 | 155 | 1.55 |
| 13.124-4160 | 160 | 1.60 |
| 13.124-4165 | 165 | 1.65 |
| 13.124-4170 | 170 | 1.70 |
| 13.124-4175 | 175 | 1.75 |
| 13.124-4180 | 180 | 1.80 |
| 13.124-4185 | 185 | 1.85 |
| 13.124-4190 | 190 | 1.90 |
| 13.124-4195 | 195 | 1.95 |
| 13.124-4200 | 200 | 2.00 |
| 13.124-4205 | 205 | 2.05 |

| MSA | Pump pusher n° | ø mm |
|-------------|----------------|------|
| 13.124-4210 | 210 | 2.10 |
| 13.124-4215 | 215 | 2.15 |
| 13.124-4220 | 220 | 2.20 |
| 13.124-4225 | 225 | 2.25 |
| 13.124-4230 | 230 | 2.30 |
| 13.124-4235 | 235 | 2.35 |
| 13.124-4240 | 240 | 2.40 |
| 13.124-4245 | 245 | 2.45 |
| 13.124-4250 | 250 | 2.50 |
| 13.124-4255 | 255 | 2.55 |
| 13.124-4260 | 260 | 2.60 |
| 13.124-4265 | 265 | 2.65 |
| 13.124-4270 | 270 | 2.70 |
| 13.124-4275 | 275 | 2.75 |
| 13.124-4280 | 280 | 2.80 |
| 13.124-4285 | 285 | 2.85 |
| 13.124-4290 | 290 | 2.90 |
| 13.124-4295 | 295 | 2.95 |
| 13.124-4300 | 300 | 3.00 |
| 13.124-4305 | 305 | 3.05 |
| 13.124-4310 | 310 | 3.10 |
| 13.124-4315 | 315 | 3.15 |
| 13.124-4320 | 320 | 3.20 |
| 13.124-4325 | 325 | 3.25 |
| 13.124-4330 | 330 | 3.30 |
| 13.124-4335 | 335 | 3.35 |
| 13.124-4340 | 340 | 3.40 |
| 13.124-4345 | 345 | 3.45 |
| 13.124-4350 | 350 | 3.50 |
| 13.124-4355 | 355 | 3.55 |
| 13.124-4360 | 360 | 3.60 |
| 13.124-4365 | 365 | 3.65 |
| 13.124-4370 | 370 | 3.70 |
| 13.124-4375 | 375 | 3.75 |
| 13.124-4380 | 380 | 3.80 |
| 13.124-4385 | 385 | 3.85 |
| 13.124-4390 | 390 | 3.90 |
| 13.124-4395 | 395 | 3.95 |
| 13.124-4400 | 400 | 4.00 |

» Original STAR precision presses for riveting pinions and pushing stones ; all accessories can be delivered separately. See details on pages 13 9, 13 10 and 13 11.



| MSA | Version | Dimensions mm | Kg |
|--------|--|-----------------|-------|
| 13.201 | Avec 105 poinçons, 25 stakes, 12 single pushers, 15 reamers, 2 burs, 6 pump pushers | 235 x 260 x 140 | 5.960 |
| 13.202 | With 87 punchers 25 stakes 12 single pushers 15 reamers, 2 burs 12 pivot burs 6 wheel burs 6 pump pushers. | 235 x 260 x 140 | 5.900 |

Original STAR precision press. **Varnished** press for riveting pinions and pushing stones. Delivered with a **micrometric adjusting lever** ; it also allows you to work in the middle of the plate. Dual use of the stand : with stakes or with punchers allowing height adjustment. Delivered in a wooden box with **1 adjustable micrometric base**, punchers, stakes, pushers, reamers, hardened steel burs.

» Original STAR precision presses for riveting pinions ; all accessories delivered separately. See details on pages 13 9, 13 10 and 13 11.



| MSA | Version | Size mm | Kg |
|----------------|--|-----------------|-------|
| 13.306 | With 105 punchers and 20 stakes | 240 x 220 x 140 | 5.050 |
| 13.304 | With 120 punchers and 24 stakes | " | 5.090 |
| 13.305 (Pict.) | With 102 punchers, 24 stakes and 18 burs | " | 5.100 |

Original STAR precision nickel-plated press for riveting the pinions. Dual use of the stand : with stakes or with punchers allowing height adjustment. Delivered in a wooden box with **1 adjustable micrometric base**, punchers, stakes and hardened steel burs.

» Original STAR precision presses for riveting pinions ; all accessories can be delivered separately. See details on pages 13 9, 13 10 and 13 11.



| MSA | Version | Size mm | Kg |
|--------|---|-----------------|-------|
| 13.300 | With 24 punchers and 4 stakes | 200 x 145 x 130 | 1.955 |
| 13.301 | With 50 punchers and 14 stakes | " | 2.400 |
| 13.302 | With 105 punchers and 20 stakes (Pict.) | " | 2.565 |

Original STAR precision nickel-plated press for riveting the pinions. Delivered in a wooden box with punchers and tempered steel stakes.



Replacement tempered steel punchers (body ø 4.70 mm), for original STAR riveting presses :

| MSA | Nr. | Type | ø mm | ø hole |
|------------|-----|---------------------------------|------|--------|
| 13.310-001 | 001 | Centre point | | |
| 13.310-016 | 016 | Enlarging arms of balance stuff | | |
| 13.310-019 | 019 | Chisel | | |
| 13.310-023 | 023 | Flat | 4.50 | |
| 13.310-024 | 024 | " | 4.00 | |
| 13.310-025 | 025 | " | 3.70 | |
| 13.310-026 | 026 | " | 3.30 | |
| 13.310-027 | 027 | " | 3.00 | |
| 13.310-028 | 028 | " | 2.70 | |
| 13.310-029 | 029 | " | 2.30 | |
| 13.310-030 | 030 | " | 2.00 | |
| 13.310-031 | 031 | " | 1.70 | |
| 13.310-032 | 032 | " | 1.50 | |
| 13.310-033 | 033 | " | 1.20 | |
| 13.310-034 | 034 | " | 1.00 | |

| MSA | Nr. | Type | ø mm | ø hole |
|------------|-----|--------------------------------|------|--------|
| 13.310-035 | 035 | Round | 4.50 | |
| 13.310-036 | 036 | " | 4.00 | |
| 13.310-037 | 037 | " | 3.70 | |
| 13.310-038 | 038 | " | 3.30 | |
| 13.310-039 | 039 | " | 3.00 | |
| 13.310-040 | 040 | " | 2.70 | |
| 13.310-041 | 041 | " | 2.30 | |
| 13.310-042 | 042 | " | 2.00 | |
| 13.310-043 | 043 | " | 1.70 | |
| 13.310-044 | 044 | " | 1.50 | |
| 13.310-045 | 045 | " | 1.20 | |
| 13.310-046 | 046 | " | 1.00 | |
| 13.310-047 | 047 | Crossed hole pierced | 2.80 | 1.20 |
| 13.310-048 | 048 | " " | 2.50 | 1.00 |
| 13.310-049 | 049 | " " | 2.20 | 0.80 |
| 13.310-050 | 050 | " " | 1.80 | 0.60 |
| 13.310-051 | 051 | " " | 1.50 | 1.00 |
| 13.310-052 | 052 | " " | 1.20 | 0.40 |
| 13.310-053 | 053 | Hole angled at 45° (2 to 3/10) | 2.80 | 1.20 |
| 13.310-054 | 054 | " " | 2.50 | 1.00 |
| 13.310-055 | 055 | " " | 2.20 | 0.80 |
| 13.310-056 | 056 | " " | 1.80 | 0.60 |
| 13.310-057 | 057 | " " | 1.50 | 0.50 |
| 13.310-058 | 058 | " " | 1.20 | 0.40 |

| MSA | Nr. | Type | σ mm | σ hole |
|-------------|------|------------------|------|--------|
| 13.310-065 | 065 | Flat, pierced | 4.50 | 2.20 |
| 13.310-066 | 066 | " " | 4.00 | 2.00 |
| 13.310-067 | 067 | " " | 3.70 | 1.70 |
| 13.310-068 | 068 | " " | 3.30 | 1.50 |
| 13.310-068A | 068A | " " | 3.10 | 1.30 |
| 13.310-069 | 069 | " " | 3.00 | 1.20 |
| 13.310-069A | 069A | " " | 2.85 | 1.10 |
| 13.310-070 | 070 | " " | 2.70 | 1.00 |
| 13.310-070A | 070A | " " | 2.50 | 0.90 |
| 13.310-071 | 071 | " " | 2.30 | 0.80 |
| 13.310-072 | 072 | " " | 2.00 | 0.70 |
| 13.310-073 | 073 | " " | 1.70 | 0.60 |
| 13.310-074 | 074 | " " | 1.50 | 0.50 |
| 13.310-075 | 075 | " " | 1.20 | 0.40 |
| 13.310-076 | 076 | " " | 1.00 | 0.30 |
| 13.310-077 | 077 | Cylinder pierced | 4.50 | 1.50 |
| 13.310-079 | 079 | " " | 4.50 | 1.20 |
| 13.310-081 | 081 | " " | 4.50 | 1.00 |
| 13.310-083 | 083 | " " | 4.50 | 0.80 |
| 13.310-084 | 084 | " " | 4.50 | 0.70 |
| 13.310-085 | 085 | " " | 4.50 | 0.60 |
| 13.310-086 | 086 | Concave, pierced | 3.50 | 1.20 |
| 13.310-087 | 087 | " " | 3.20 | 1.10 |
| 13.310-088 | 088 | " " | 3.00 | 1.00 |
| 13.310-089 | 089 | " " | 2.80 | 0.90 |
| 13.310-090 | 090 | " " | 2.40 | 0.80 |
| 13.310-091 | 091 | " " | 2.20 | 0.70 |
| 13.310-092 | 092 | " " | 1.80 | 0.60 |
| 13.310-093 | 093 | " " | 1.60 | 0.50 |
| 13.310-094 | 094 | " " | 1.40 | 0.40 |
| 13.310-095 | 095 | Ellipse, pierced | 4.00 | 1.50 |
| 13.310-097 | 097 | " " | 2.50 | 1.10 |
| 13.310-099 | 099 | Domed, pierced | 4.50 | 2.20 |
| 13.310-100 | 100 | " " | 4.00 | 2.00 |
| 13.310-101 | 101 | " " | 3.70 | 1.70 |
| 13.310-102 | 102 | " " | 3.30 | 1.50 |
| 13.310-102A | 102A | " " | 3.10 | 1.30 |
| 13.310-103 | 103 | " " | 3.00 | 1.20 |
| 13.310-103A | 103A | " " | 2.85 | 1.10 |
| 13.310-104 | 104 | " " | 2.70 | 1.00 |
| 13.310-104A | 104A | " " | 2.50 | 0.90 |
| 13.310-105 | 105 | " " | 2.30 | 0.80 |
| 13.310-106 | 106 | " " | 2.00 | 0.70 |
| 13.310-107 | 107 | " " | 1.70 | 0.60 |
| 13.310-108 | 108 | " " | 1.50 | 0.50 |
| 13.310-109 | 109 | " " | 1.20 | 0.40 |
| 13.310-110 | 110 | " " | 1.00 | 0.30 |

| MSA | Nr. | Type | σ mm | σ hole |
|-------------|------|------------------|------|--------|
| 13.310-111 | 111 | Screw remover | 1.50 | |
| 13.310-112 | 112 | " " | 1.20 | |
| 13.310-113 | 113 | " " | 1.00 | |
| 13.310-114 | 114 | " " | 0.90 | |
| 13.310-115 | 115 | " " | 0.80 | |
| 13.310-116 | 116 | " " | 0.70 | |
| 13.310-117 | 117 | " " | 0.60 | |
| 13.310-118 | 118 | " " | 0.50 | |
| 13.310-118A | 118A | " " | 0.45 | |
| 13.310-119 | 119 | Hollow, drilled | 3.50 | 1.20 |
| 13.310-120 | 120 | " " | 3.20 | 1.10 |
| 13.310-121 | 121 | " " | 3.00 | 1.00 |
| 13.310-123 | 123 | " " | 2.40 | 0.80 |
| 13.310-125 | 125 | " " | 1.80 | 0.60 |
| 13.310-126 | 126 | " " | 1.40 | 0.40 |
| 13.310-127 | 127 | Pointed | 2.30 | 1.90 |
| 13.310-128 | 128 | " " | 2.10 | 1.70 |
| 13.310-129 | 129 | " " | 1.90 | 1.50 |
| 13.310-130 | 130 | " " | 1.60 | 1.20 |
| 13.310-130A | 130A | " " | 1.50 | 1.10 |
| 13.310-131 | 131 | " " | 1.40 | 1.00 |
| 13.310-131A | 131A | " " | 1.30 | 0.90 |
| 13.310-132 | 132 | " " | 1.20 | 0.80 |
| 13.310-132A | 132A | " " | 1.10 | 0.70 |
| 13.310-133 | 133 | Triangular | 3.20 | |
| 13.310-134 | 134 | " " | 2.20 | |
| 13.310-135 | 135 | " " | 1.20 | |
| 13.310-136 | 136 | X shape open-end | 3.00 | 1.20 |

Replacement brass punchers (body ø 4.70 mm), for original STAR riveting presses:

| MSA | Nr. | Type | σ mm | σ hole |
|------------|-----|---------------|------|--------|
| 13.310-139 | 139 | Flat | 4.00 | |
| 13.310-140 | 140 | " " | 3.00 | |
| 13.310-141 | 141 | " " | 1.70 | |
| 13.310-142 | 142 | Flat, pierced | 3.00 | 1.20 |
| 13.310-143 | 143 | " " | 2.00 | 0.70 |
| 13.310-144 | 144 | " " | 1.20 | 0.40 |

Replacement tempered steel wheel countersinks, for original STAR riveting presses :

| MSA | Type | Countersinks σ mm |
|------------|-------|-------------------|
| 13.313-185 | Wheel | 1.85 |
| 13.313-210 | " | 2.10 |
| 13.313-235 | " | 2.35 |
| 13.313-300 | " | 3.00 |
| 13.313-380 | " | 3.80 |
| 13.313-410 | " | 4.10 |

Replacement tempered steel pivot countersinks, for original STAR riveting presses :

| MSA | Nr. | Type | Countersinks σ mm | Pivot σ mm |
|-----------|-----|------------|-------------------|------------|
| 13.312-01 | 01 | For pivots | 3.50 | 1.50 |
| 13.312-02 | 02 | " | 3.50 | 1.30 |
| 13.312-03 | 03 | " | 3.20 | 1.20 |
| 13.312-04 | 04 | " | 3.00 | 1.00 |
| 13.312-05 | 05 | " | 2.70 | 0.90 |
| 13.312-06 | 06 | " | 2.70 | 0.80 |
| 13.312-07 | 07 | " | 2.00 | 0.80 |
| 13.312-08 | 08 | " | 2.00 | 0.70 |
| 13.312-09 | 09 | " | 1.70 | 0.60 |
| 13.312-10 | 10 | " | 1.40 | 0.50 |
| 13.312-11 | 11 | " | 1.20 | 0.40 |
| 13.312-12 | 12 | " | 1.00 | 0.30 |

Replacement tempered steel stakes (axle ø 4 mm), for original STAR riveting presses :

| MSA | Nr. | Type | σ ext. mm | σ hole mm |
|-----------|-----|--------------|-----------|-----------|
| 13.311-01 | 01 | Flat | 9.00 | |
| 13.311-02 | 02 | " " | 4.50 | |
| 13.311-03 | 03 | " " | 3.50 | |
| 13.311-04 | 04 | " " | 2.50 | |
| 13.311-05 | 05 | " " | 1.00 | |
| 13.311-06 | 06 | Flat/pierced | 6.00 | 2.00 |
| 13.311-07 | 07 | " " | 4.70 | 1.50 |
| 13.311-08 | 08 | " " | 3.50 | 1.00 |
| 13.311-09 | 09 | " " | 2.50 | 0.70 |
| 13.311-10 | 10 | " " | 2.00 | 0.40 |
| 13.311-11 | 11 | Flat/drilled | 4.70 | 1.30 |
| 13.311-12 | 12 | " " | 3.50 | 1.00 |
| 13.311-13 | 13 | Domed | 4.50 | |
| 13.311-14 | 14 | " " | 3.50 | |
| 13.311-15 | 15 | " " | 2.50 | |
| 13.311-16 | 16 | " " | 1.50 | |
| 13.311-17 | 17 | Hollow | 9.00 | 2.00 |
| 13.311-18 | 18 | " " | 6.00 | 2.00 |
| 13.311-19 | 19 | " " | 4.70 | 1.50 |
| 13.311-20 | 20 | " " | 4.00 | |
| 13.311-21 | 21 | " " | 3.00 | |
| 13.311-22 | 22 | " " | 2.50 | |
| 13.311-23 | 23 | " " | 2.00 | |

Replacement brass stakes (axle ø 4 mm), for original STAR riveting presses :

| MSA | Nr. | Type | σ ext. mm |
|-----------|-----|------|-----------|
| 13.311-24 | 24 | Flat | 9.00 |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 13.307 | 85 x 58 x 132 | 0.926 |

STAR nickel-plated stacking tool without base. Centre bore \varnothing 4.70 mm.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 13.308 | 88 x 70 x 57 | 1.220 |

STAR base only with micrometer.

> Other accessories with all original STAR riveting presses are illustrated on pages 22 2, 22 3 and 22 5.

>> **Assortment INCABLOC®.**

ASSORTMENT



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 13.153 | 70 x 34 x 20 | 0.031 |

Assortment INCABLOC® of 7 stakes and 6 pushers with an **axle \varnothing 4 mm** suitable with the presses illustrated on pages 13 2 to 13 6.

Delivered on a plastic base with transparent lid.

Contents :

| Stakes : | | Stakes : | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| \varnothing ext. mm | \varnothing hole mm | \varnothing ext. mm | \varnothing hole mm |
| 1.60 | 1.20 | 1.60 | 1.20 |
| 2.00 | 1.60 | 1.90 | 1.40 |
| 2.30 | 1.90 | 2.00 | 1.60 |
| 2.50 | 2.00 | 2.50 | 1.90 |
| 3.00 | 2.50 | 3.00 | 2.40 |
| 3.50 | 3.00 | 3.50 | 2.80 |
| 4.00 | 3.50 | | |

>> **KIF® spring tools.**



| MSA | \varnothing mm | Size mm | Kg |
|--------|------------------|----------------------|-------|
| 13.150 | 1.60 (1) | \varnothing 2 x 25 | 0.001 |
| 13.151 | 1.90 (2) | " | " |
| 13.152 | 2.10 (3) | " | " |

Spring tool for assembling/disassembling KIF® Trior.

14



DIVIDERS 14 2

DIVIDERS



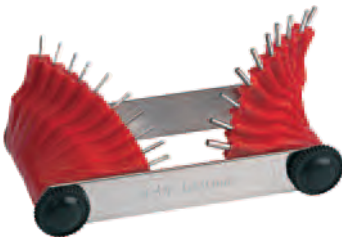
| MSA | Length mm | Maximum opening mm | Kg |
|--------|-----------|--------------------|-------|
| 14.203 | 120 | 75 | 0.066 |

Stainless steel divider with spring, quick setting nut and screw. Straight tips.



| MSA | Length mm | Maximum opening mm | Kg |
|--------|-----------|--------------------|-------|
| 14.204 | 170 | 120 | 0.120 |

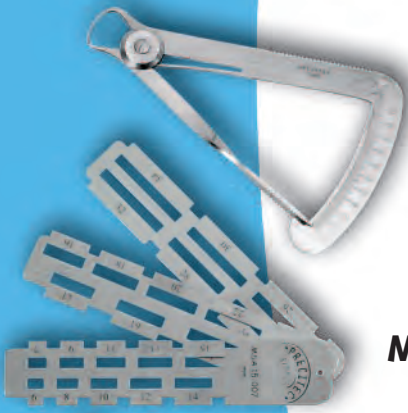
Stainless steel divider with spring, quick setting nut and screw. Straight tips.



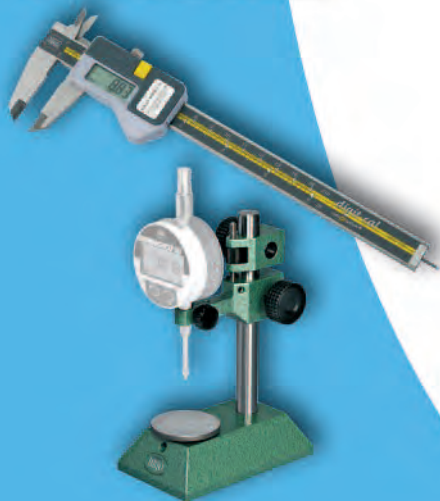
| MSA | Measurement capacity mm | Number of gauges | Kg |
|--------|-------------------------|------------------|-------|
| 14.120 | 0.45-1.50 | 20 | 0.031 |
| 14.121 | 1.50-3.00 | 16 | 0.035 |

Cylindrical plug-gauges for small ø.

15



MEASURING TOOLS..... 15 2



MEASURING INSTRUMENTS 15 4



| MSA | Length mm | Graduations mm | Kg |
|--------|-----------|----------------|-------|
| 15.001 | 150 | 1 | 0.009 |
| 15.002 | 200 | 0.5 and 1 | 0.011 |

Stainless steel flexible rule.



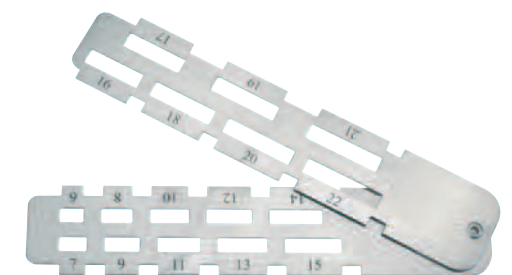
| MSA | Length mm | Graduations mm | Kg |
|------------|-----------|----------------|-------|
| 15.008-150 | 150 | 0.5 and 1 | 0.009 |
| 15.008-200 | 200 | 0.5 and 1 | 0.011 |

Stainless steel flexible rule. Double sided graduations.



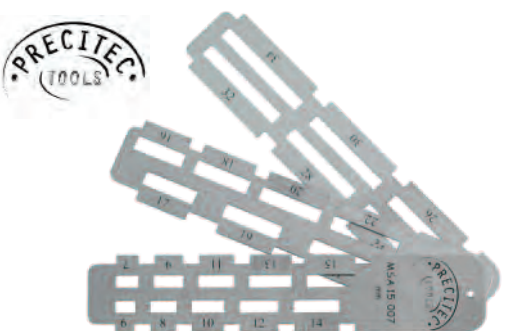
| MSA | Length mm | Graduations mm | Kg |
|--------|-----------|----------------|-------|
| 15.003 | 120 | 8 to 22 | 0.003 |

Tool for measuring distance between horns in watch cases. Made of aluminium.



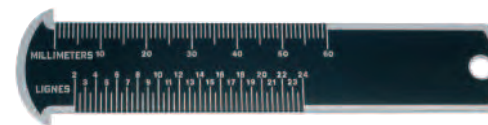
| MSA | Length mm | Graduations mm | Kg |
|--------|-----------|----------------|-------|
| 15.004 | 125 | 6 to 22 | 0.034 |

Tool with 2 arms for measuring the width of bracelets and distance between watch case horns.



| MSA | Length mm | Graduations mm | Kg |
|--------|-----------|----------------|-------|
| 15.007 | 125 | 6 to 34 | 0.048 |

Tool with 3 arms for measuring the width of bracelets and distance between watch case horns.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 15.005 | 110 | 0.006 |

Gauge for measuring the diameter (0 to 60 mm) or the number of lines in a movement (2 to 24'').



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 15.006 | 75 x 27 x 10 | 0.006 |

Rule made of filaments with insulating handle. Delivered in a synthetic pouch. Straightening difference 2 µm.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 15.150 | ∅ 75 x 18 | 0.022 |

Bracelet gauge. Metric graduations from 15 to 23 cm.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 15.250 | 100 x 63 x 2 | 0.046 |

Tenth gauge, capacity 0-10 mm. Accurate to 0,1 mm. Made of stainless steel. **Round measuring tip.**



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 15.251 | 100 x 63 x 2 | 0.037 |

Tenth gauge, capacity 0-10 mm. Accurate to 0,1 mm. Made of stainless steel. **Shaped measuring tip.**



| MSA | Capacity | Precision | Kg |
|--------|----------------|---------------|-------|
| 15.140 | 80 mm / 3 1/4" | 1 mm / 0.050" | 0.043 |

Mini caliper made of brass.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.104 | 150 mm | 0.02 mm | 0.350 |

Tempered steel dial caliper TESA® CCMA-M (1 mm per hand revolution)
Delivered in synthetic pouch.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.290 | 10 mm | 0.01 mm | 0.055 |

Hand micrometer made of brass. With steel drum and spindle \varnothing 3 mm. Opening 0-10 mm. Length 52 mm.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.115 | 150 mm | 0.02 mm | 0.340 |

Tempered steel dial caliper (2 mm per hand revolution).
Delivered in synthetic pouch.

» Calipers.



| MSA | Kg |
|--------|-------|
| 15.419 | 0.800 |

TESA® Dual-Set 2 composed of :
- 1 caliper TESA® CCMA-M, capacity 150 mm, accuracy 0.02 mm
- depth foot.
- micrometer TESAMASTER, capacity 25 mm, accuracy 0.001 mm
Delivered in synthetic material box.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.116 | 100 mm | 0.02 mm | 0.160 |

Tempered steel dial caliper (2 mm per hand revolution).
Delivered in synthetic pouch.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.100 | 150 mm | 0.02 mm | 0.275 |

Tempered steel sliding vernier caliper.
Delivered in imitation leather pouch.



| MSA | Capacity | Precision | Kg |
|--------|----------|-----------|-------|
| 15.110 | 150 mm | 0.02 mm | 0.370 |

Dial caliper TESA® ETALON® (1 mm per hand rotation).
Rotating dial \varnothing 32 mm with screw lock.
Delivered in a synthetic box.

» **Electronic calipers.**



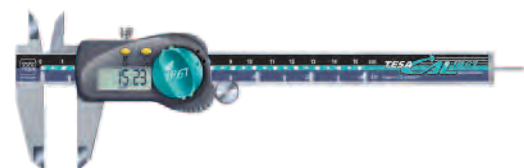
| MSA | Kg |
|--------|-------|
| 15.418 | 1.250 |

TESA® Dual-Set 15 composed of :
 - 1 caliper TESA® Cal IP67, RS, capacity 150 mm, accuracy 0.01 mm
 - depth foot
 - micrometer MICROMASTER IP54, RS, capacity 30 mm, accuracy 0.001 mm.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.423 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.320 |

Tempered steel electronic caliper TESA® CAL IP67. Totally immune to liquids penetration and metal particles. High accuracy and precision thanks to magnetic measuring system.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.105 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.330 |

Tempered steel electronic caliper TESA® CAL IP67 RS with thumb wheel and lock screw. Totally immune to liquids penetration and metal particles. High accuracy and precision thanks to magnetic measuring system.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.415 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.140 |

Tempered steel electronic caliper TESA® SHOP-CAL®. High accuracy with screen 7 mm.
 Data hold 10 minutes and automatic off after 2 hours.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.510 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.095 |

Synthetic electronic caliper.
 Delivered with battery in plastic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.511 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.325 |

Tempered steel electronic caliper.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.512 | 100 mm / 4" | 0.01 mm / 0.0005" | 0.185 |

Small tempered steel electronic caliper.
 Delivered with battery in synthetic box.



| MSA | Capacity | Precision | Kg |
|--------|-------------|-------------------|-------|
| 15.513 | 150 mm / 6" | 0.01 mm / 0.0005" | 0.292 |

Tempered steel electronic caliper. Big LCD display 15 mm.
 Delivered with battery in synthetic box.



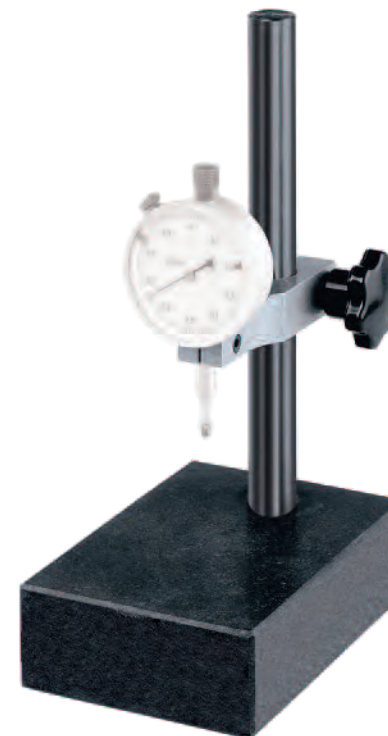
| MSA | Kg |
|--------|-------|
| 15.408 | 0.018 |

CalAdapt HOROSWISS® kit for measuring hard-to-reach places. Can be settled to any type of caliper.
 Delivered with 2 clamps, 1 ball tip and 5 interchangeable spindles ø 0.90, 1.40, 1.90, 2.40, 2.90 mm (delivered without caliper).



| MSA | Graduations mm | Size mm | Kg |
|--------|----------------|---------------|-------|
| 15.434 | 12.5/0.001 | 176 x 57 x 33 | 0.197 |

Electronic gauge TESA® DIGICO® 205, Main functions : mm/inch switch, counting sense reversal, zero reset at any position, full reset, auto OFF.
Other versions and accessories available upon request.



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 15.424 | 100 x 115 x 240 | 3.400 |

Granite INTERAPID TESA® measuring stand.
Measurement capacity : 50 mm
Gauge adjustment : ø 8 mm.
Delivered without gauge.

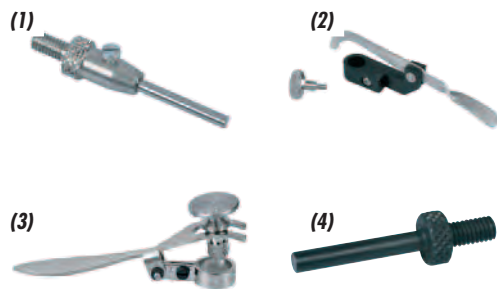


| MSA | Graduations mm | Size mm | Kg |
|--------|----------------|---------------|-------|
| 15.442 | 25/0.001 | 135 x 57 x 27 | 0.162 |

Electronic gauge TESA® DIGICO® 510. Main functions : zero reset at any position, display rotation through 270°, hold mode of the displayed value, mm/inch switch, counting sense reversal, full reset, auto OFF.
Other versions and accessories available upon request.

Accessories :

| MSA | Elements | Dim. mm |
|----------|--|----------|
| 15.407-A | Flat measuring Stainless steel insert with interchangeable pins ø 1,5 mm (1) | 25 x 5 |
| 15.407-B | Top lever (2) | - |
| 15.409 | Top mounted retraction devices (3) | 57 x 5 |
| 15.416 | Stainless Steel insert with a flat measuring face ø 2 mm (4) | 15 x ø 2 |
| 15.417 | Stainless Steel insert insert with a flat measuring face ø 2 mm | 10 x ø 2 |





| MSA | ø Table mm | Size mm | Kg |
|--------|------------|----------------|-------|
| 15.360 | 50 | 80 x 130 x 255 | 2.500 |
| 15.361 | 80 | 80 x 130 x 255 | 2.530 |

Vertical stand for dial indicator, with platform ø 50 mm or 80 mm.

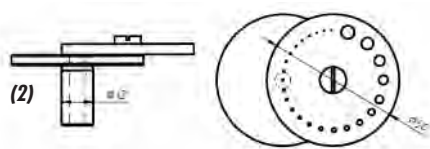
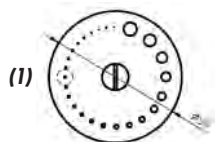
Measurement capacity : 75 mm.

Adjustment : ø 8 mm

Delivered without the dial indicator.

Accessories :

| MSA | Items |
|--------|--|
| 15.370 | Platform only ø 50 mm with 25 holes from 0.2 to 5.0 mm (1) |
| 15.369 | Complete table (2) |



| MSA | Graduations | Size mm | Kg |
|--------|-------------|---------------|-------|
| 15.311 | 0 to 25 mm | 160 x 40 x 65 | 0.940 |

Horizontal micrometer on heavy base with adjustable table ø 18 mm and a pair of spindles ø 2 mm. Accuracy 0.01 mm.

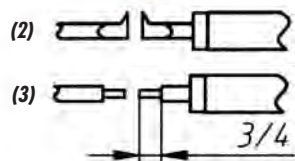
Accessoire for MSA 15.311 :

| MSA | Item | ø mm |
|--------|-----------|------|
| 15.371 | Table (1) | 17 |



Optional pair of spindles for MSA 15.311 :

| MSA | Items |
|--------|---------------------------------------|
| 15.362 | Knife edged, width 3.50 mm (2) |
| 15.363 | S-C05 type ø 0.50 mm, length 3 mm (3) |



| MSA | Graduations | Kg |
|--------|-------------|-------|
| 15.425 | 0-25 | 0.700 |

Set of a Micrometer TESA® Electron Basic, accuracy 0.01 mm including 7 pairs of interchangeable spindles 0-25 mm composed of :

- 1 micrometer
 - set of 7 pairs of spindles with faces : flat, small-flat, spherical, large-flat, narrow-flat, cone shape, knife edged.
- Delivered in synthetic box.



| MSA | Graduations mm | Kg |
|--------|----------------|-------|
| 15.426 | 0-30 | 0.280 |

Electronic micrometer TESA® Micromaster IP540, accuracy 0.001 mm. Measuring span of 30 mm, tips ø 6.5 mm. Large easy-to-read digital display. Delivered in synthetic box.

MEASURING TOOLS | MEASURING INSTRUMENTS



(1)



(2)



| MSA | Type | Ø mm | Progression µm |
|------------|------|-------------|----------------|
| 15.020-xxx | TLH | 0.050-0.080 | Odd |
| 15.021-xxx | TLH | 0.050-0.080 | Even |
| 15.022-xxx | TLH | 0.081-0.309 | Odd |
| 15.023-xxx | TLH | 0.081-0.309 | Even |
| 15.024-xxx | TXH | 0.300-1.509 | Odd |
| 15.025-xxx | TXH | 0.300-1.509 | Plain Nb. |
| 15.026-xxx | TXH | 0.300-1.509 | Even |
| 15.027-xxx | TXH | 1.510-3.509 | Odd |
| 15.028-xxx | TXH | 1.510-3.509 | Plain |
| 15.029-xxx | TXH | 1.510-3.509 | Even |
| 15.030-xxx | TXH | 3.510-10.00 | Even/Odd |
| 15.031-xxx | TXH | 3.510-10.00 | Plain Nb. |

Plug gauges : precision instruments for inspecting small diameter bores. Available in 2 standard versions with measurement tolerance 0.4 µm :

- **TLH** type **(1)** with a 30 mm long aluminium handle from Ø 0.050 up to 0.300 mm by step of 2 µm or 1 µm.
- **TXH** type **(2)** with aluminium handle from Ø 0.300 up to 10.000 mm by step of 10 µm, 2µm or 1 µm.

➤ Please precise the exact Ø when ordering.

Accessories :

| MSA | Item |
|--------|--|
| 15.070 | Wooden box only for 50 Plug gauges type TXH (Ø 1.51 to 3.509). |

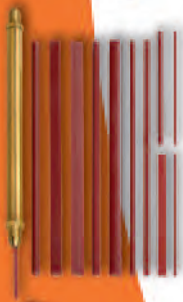
16



ARKANSAS STONES 16 2



INDIA STONES 16 3



DEGUSSIT STONES 16 5



SYNTHETIC STONES 16 8

» 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 mm | Kg | MSA | Size mm | Kg |
|--------|----------|-------|--------|----------|-------|
| 16.001 | 100 x 6 | 0.013 | 16.007 | 100 x 13 | 0.050 |
| 16.002 | 100 x 8 | 0.022 | 16.005 | 100 x 14 | 0.057 |
| 16.003 | 100 x 10 | 0.027 | 16.006 | 150 x 16 | 0.110 |
| 16.004 | 100 x 12 | 0.043 | | | |

Square Arkansas stone.

| MSA | Size mm | Kg | MSA | Size mm | Kg |
|--------|---------|-------|--------|----------|-------|
| 16.010 | 100 x 4 | 0.007 | 16.013 | 100 x 10 | 0.017 |
| 16.011 | 100 x 6 | 0.008 | 16.014 | 120 x 12 | 0.025 |
| 16.012 | 100 x 8 | 0.013 | 16.015 | 150 x 16 | 0.058 |

Triangular Arkansas stone.

| MSA | Size mm | Kg | MSA | Size mm | Kg |
|--------|---------|-------|--------|----------|-------|
| 16.020 | 100 x 6 | 0.010 | 16.022 | 100 x 10 | 0.024 |
| 16.021 | 100 x 8 | 0.018 | 16.023 | 100 x 12 | 0.030 |

Round Arkansas stone.

| MSA | Size mm | Kg | MSA | Size mm | Kg |
|--------|---------------|-------|--------|---------------|-------|
| 16.008 | 100 x 25 x 6 | 0.060 | 16.031 | 130 x 40 x 20 | 0.293 |
| 16.029 | 70 x 50 x 25 | 0.220 | 16.032 | 150 x 50 x 25 | 0.451 |
| 16.030 | 120 x 50 x 25 | 0.388 | 16.033 | 200 x 50 x 26 | 0.600 |

Rectangular Arkansas stone.

| MSA | ø mm | Size mm | Kg |
|--------|------|---------|-------|
| 16.040 | 6 | 75-100 | 0.013 |

Conical Arkansas stone.

| MSA | Size mm | Kg |
|--------|-------------------|-------|
| 16.041 | 100 x 25 x 4/1.40 | 0.032 |

Knife shaped Arkansas stone.

| MSA | Size mm | ø hole mm | Kg |
|--------|-----------|-----------|-------|
| 16.042 | ø 40 x 5 | 6 | 0.023 |
| 16.043 | ø 80 x 10 | " | 0.150 |

Wheel shape Arkansas stone.

| MSA | Size mm | Kg | MSA | Size mm | Kg |
|--------|---------------|-------|--------|---------------|-------|
| 16.050 | 90 x 25 x 15 | 0.111 | 16.052 | 125 x 50 x 10 | 0.250 |
| 16.049 | 100 x 25 x 13 | 0.128 | 16.053 | 150 x 50 x 10 | 0.320 |
| 16.051 | 100 x 40 x 13 | 0.198 | | | |

Rectangular Arkansas stone 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.

| Coarse MSA | Medium MSA | Fine MSA | Size mm | Kg |
|------------|------------|----------|----------|-------|
| 16.100-A | 16.100-B | 16.100-C | 100 x 6 | 0.015 |
| 16.101-A | 16.101-B | 16.101-C | 100 x 8 | 0.025 |
| 16.102-A | 16.102-B | 16.102-C | 100 x 10 | 0.030 |
| 16.103-A | 16.103-B | 16.103-C | 100 x 13 | 0.050 |
| 16.105-A | 16.105-B | 16.105-C | 150 x 13 | 0.080 |
| 16.104-A | 16.104-B | 16.104-C | 150 x 16 | 0.100 |

Square India stone. Coarse, medium or fine grains.

| Coarse MSA | Medium MSA | Fine MSA | Size mm | Kg |
|------------|------------|----------|----------|-------|
| 16.110-A | 16.110-B | 16.110-C | 100 x 6 | 0.010 |
| - | 16.111-B | - | 100 x 8 | 0.012 |
| 16.112-A | 16.112-B | 16.112-C | 100 x 10 | 0.015 |
| 16.113-A | 16.113-B | 16.113-C | 100 x 13 | 0.025 |
| 16.114-A | 16.114-B | 16.114-C | 100 x 16 | 0.050 |

Triangular India stone. Coarse, medium or fine grains.

| Coarse MSA | Medium MSA | Fine MSA | Size mm | Kg |
|------------|------------|----------|------------|-------|
| 16.120-A | 16.120-B | 16.120-C | 100 x ø 6 | 0.013 |
| - | 16.121-B | - | 100 x ø 8 | 0.018 |
| 16.122-A | 16.122-B | 16.122-C | 100 x ø 10 | 0.022 |
| 16.123-A | 16.123-B | 16.123-C | 100 x ø 13 | 0.040 |

Round India stone. Coarse, medium or fine grains.

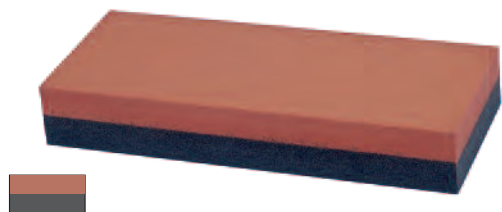
| Coarse MSA | Medium MSA | Fine MSA | Size mm | Kg |
|------------|------------|----------|---------------|-------|
| - | 16.130-B | 16.130-C | 100 x 25 x 6 | 0.045 |
| - | 16.131-B | 16.131-C | 125 x 50 x 16 | 0.285 |
| 16.132-A | 16.132-B | 16.132-C | 150 x 50 x 25 | 0.495 |

Rectangular India stone. Coarse, medium or fine grains.



| Medium MSA | Fine MSA | Size mm | Kg |
|------------|----------|----------------|-------|
| 16.140-B | 16.140-C | 150 x 25 x 8/2 | 0.060 |

Knife shaped India stone. Medium or fine grains.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 16.150 | 100 x 45 x 16 | 0.180 |
| 16.151 | 125 x 50 x 20 | 0.360 |
| 16.152 | 150 x 50 x 25 | 0.495 |

Rectangular India stone with 2 grains, coarse and fine.

ASSORTMENT



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 16.201 | 220 x 63 x 44 | 0.800 |

Set of 2 rectangular stones in wooden box.

Contenu :

| MSA | Type | Grains | Size mm | Kg |
|----------|---------------------|-------------|---------------|-------|
| 16.029 | Arkansas (1) | - | 70 x 50 x 25 | 0.225 |
| 16.151 | India (2) | Coarse/fine | 125 x 50 x 20 | 0.310 |
| 16.201-A | Wooden box only (3) | | 220 x 63 x 44 | 0.265 |

» 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.



| Coarse MSA | Medium MSA | Fine MSA | Size mm | Shape |
|------------|------------|----------|----------------|-------------------------|
| 16.500-A | 16.500-B | 16.500-C | 100 x 25 x 10 | Rectangle |
| 16.501-A | 16.501-B | 16.501-C | 150 x 25 x 15 | " |
| - | 16.502-B | 16.502-C | 200 x 50 x 12 | " |
| 16.520-A | 16.520-B | 16.520-C | 100 x 25 x 10 | Rectangle w. wooden box |
| - | 16.521-B | 16.521-C | 120 x 50 x 10 | " |
| - | 16.522-B | 16.522-C | 200 x 50 x 12 | " |
| - | 16.510-B | - | 100 x 30 x 7/2 | Knife |

Degussit stone. Coarse, medium or fine grains.

| Coarse MSA | Medium MSA | Fine MSA | Size mm | Shape |
|------------|------------|----------|------------------|------------|
| - | 16.530-B | 16.530-C | 100 x 4 | Triangle |
| 16.531-A | 16.531-B | 16.531-C | 100 x 6 | " |
| 16.532-A | 16.532-B | 16.532-C | 100 x 8 | " |
| 16.533-A | 16.533-B | 16.533-C | 100 x 10 | " |
| 16.534-A | 16.534-B | 16.534-C | 120 x 13 | " |
| - | 16.540-B | 16.540-C | 100 x 4 | Square |
| 16.541-A | 16.541-B | 16.541-C | 100 x 6 | " |
| 16.542-A | 16.542-B | 16.542-C | 100 x 8 | " |
| 16.543-A | 16.543-B | 16.543-C | 100 x 10 | " |
| 16.544-A | 16.544-B | 16.544-C | 120 x 13 | " |
| - | 16.550-B | 16.550-C | 100 x 6 x 3 | Rectangle |
| 16.551-A | 16.551-B | 16.551-C | 100 x 8 x 6 | " |
| 16.560-A | 16.560-B | - | 100 x 10 | Half-round |
| 16.570-A | - | - | 100 x 13 x 5 | Lozenge |
| 16.580-A | - | 16.580-C | 100 x 5 x 2 | Conical |
| - | - | 16.590-C | 100 x 5 | Pencil |
| - | 16.600-B | 16.600-C | 100 x 4 | Round |
| 16.601-A | 16.601-B | 16.601-C | 100 x 6 | " |
| 16.602-A | 16.602-B | 16.602-C | 100 x 8 | " |
| 16.603-A | 16.603-B | 16.603-C | 100 x 10 | " |
| - | 16.610-B | 16.610-C | 100 x 15 x 3/0.5 | Knife |

Degussit file stone. Coarse, medium or fine grains.

ASSORTMENT

Grains :

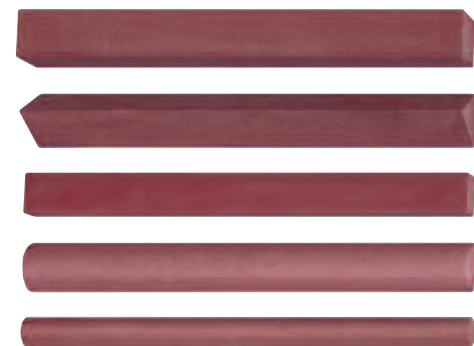
Medium

Medium

Fine

Coarse

Medium



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 16.620 | 130 x 110 x 30 | 0.152 |

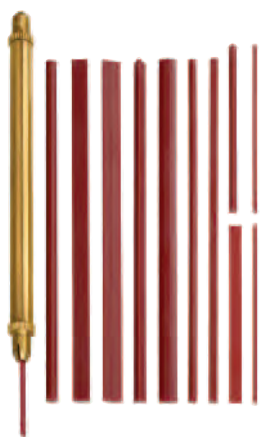
Assortment of 5 Degussit stones, length 100 mm. Delivered in a cardboard box.

» Degussit stones.

| MSA | Size mm | Shape | Kg |
|----------|---------------|--------------|-------|
| 16.630-C | 50 x 1 | Square | 0.001 |
| 16.631-C | 100 x 2 | " | 0.003 |
| 16.632-C | 50 x 2 | Triangle | 0.001 |
| 16.633-C | 100 x 3 | " | 0.003 |
| 16.634-C | 50 x ø 1 | Round | 0.095 |
| 16.635-C | 100 x ø 2 | " | 0.001 |
| 16.636-C | 100 x ø 3 | " | 0.003 |
| 16.636-M | 100 x ø 2.3 | " | 0.002 |
| 16.637-C | 50 x 3 x 0.3 | Rectangle | 0.001 |
| 16.638-C | 100 x 4 | Half-round | 0.003 |
| 16.639-C | 100 x 5 x 1.5 | Barrette | 0.002 |
| 16.640-C | 100 x 4 x 1.5 | Gauge shaped | 0.003 |

Degussit stone, file type. Fine grain.

ASSORTMENT



| MSA | Box size mm | Kg |
|--------|---------------|-------|
| 16.641 | 125 x 18 x 15 | 0.039 |

Assortment of 11 Degussit file stones, length 50 to 100 mm. Delivered in a plastic box with stone holder.



| Medium MSA | Fine MSA | Head size mm | Angle | Shank ø mm | Kg |
|------------|----------|--------------|-------|------------|-------|
| - | 16.650-C | ø 2 x 4 | - | 3 | 0.002 |
| - | 16.651-C | ø 3 x 6 | - | 3 | 0.002 |
| 16.652-B | 16.652-C | ø 4 x 8 | - | 3 | 0.002 |
| 16.653-B | 16.653-C | ø 5 x 10 | - | 3 | 0.003 |
| 16.654-B | 16.654-C | ø 6 x 12 | - | 6 | 0.009 |
| 16.655-B | 16.655-C | ø 8 x 10 | - | 6 | 0.010 |
| 16.656-B | 16.656-C | ø 8 x 16 | - | 6 | 0.011 |
| 16.657-B | 16.657-C | ø 10 x 12 | - | 6 | 0.012 |
| 16.660-B | 16.660-C | ø 4 x 8 | 60° | 3 | 0.002 |
| 16.661-B | 16.661-C | ø 5 x 10 | 60° | 3 | 0.003 |
| 16.662-B | 16.662-C | ø 6 x 12 | 60° | 6 | 0.008 |
| 16.663-B | 16.663-C | ø 8 x 16 | 60° | 6 | 0.010 |
| 16.664-B | 16.664-C | ø 10 x 20 | 60° | 6 | 0.013 |
| 16.665-B | - | ø 12 x 25 | 60° | 6 | 0.015 |

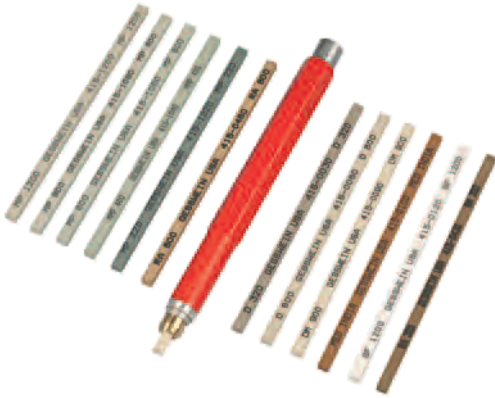
Degussit stone, wheel type. Medium or fine grains. Total length 40 mm.



| Medium MSA | Fine MSA | Length mm | Head size mm | Kg |
|------------|----------|-----------|--------------|-------|
| 16.670-B | 16.670-C | 150 | 35 x 14 x 5 | 0.047 |

Sharpener for Degussit stones, mounted on handle. Medium or fine grains.

» Synthetic stones are used for finishing and precise retouching on metal pieces.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 16.155 | 165 x 35 x 35 | 0.080 |

Set of 13 synthetic abrasive stones size 100 x 4 x 4 mm and stone holder.

Replacement parts :

| MSA | Items | Grain | Kg |
|-------------|----------------|-----------|-------|
| 16.155-A | Stone holder | | 0.016 |
| 16.155-0030 | Abrasive stone | D320 | 0.005 |
| 16.155-0060 | Abrasive stone | DM600 | " |
| 16.155-0090 | Abrasive stone | DM900 | " |
| 16.155-4080 | Abrasive stone | DM1 200 | " |
| 16.155-1020 | Abrasive stone | MMP220 | " |
| 16.155-1040 | Abrasive stone | MP400 | " |
| 16.155-1060 | Abrasive stone | MMP600 | " |
| 16.155-1080 | Abrasive stone | MMP800 | " |
| 16.155-0430 | Abrasive stone | RA320 | " |
| 16.155-0460 | Abrasive stone | RA600 | " |
| 16.155-0120 | Abrasive stone | SF1200 | " |
| 16.155-0100 | Abrasive stone | MED INDIA | " |
| 16.155-1200 | Abrasive stone | MMP1200 | " |

17



OILERS 17 2

simple oilers
automatic oilers



OIL CUPS 17 5



PACKAGING 17 6

plastic box
movement plastic box
glassine paper and plastic bags
displays and watch box



CLEANING 17 24

benzine cup
other containers

» Simple oilers : the flat metallic needle of the oiler allows precise oiling of all parts of the movement.

ASSORTMENT



| MSA | Length mm | Kg |
|-----------|-----------|-------|
| 17.000-04 | 70 | 0.016 |

Assortment of 4 simple oilers. **Aluminium hexagonal handle ø 6 mm**, colour coded for easy sizes identification. Delivered with an anti-dust cap.

ASSORTMENT



| MSA | Length mm | Kg |
|-----------|-----------|-------|
| 17.001-04 | 70 | 0.006 |

Assortment of 4 simple oilers. **Plastic hexagonal handle ø 6 mm**, colour coded for easy sizes identification. Delivered with an anti-dust cap.

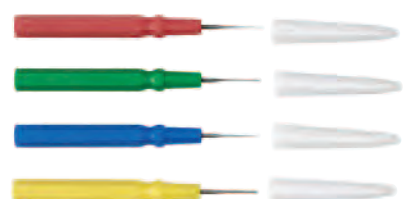
ASSORTMENT



| MSA | Length mm | Kg |
|-----------|-----------|-------|
| 17.002-04 | 72 | 0.008 |

Assortment of 4 simple oilers with interchangeable needles. **Plastic hexagonal handle ø 6 mm**, colour coded for easy sizes identification, with 2 replacement needles inside each handle. Delivered with an anti-dust cap.

ASSORTMENT



| MSA | Length mm | Kg |
|-----------|-----------|-------|
| 17.102-04 | 70 | 0.006 |

Assortment of 4 simple oilers. **Plastic hexagonal handle ø 5 mm**, colour coded for easy sizes identification. Delivered with an anti-dust cap.

INDIVIDUAL

| | MSA | Colour | Needle | Kg |
|--|----------|--------|-----------|-------|
| | 17.000-A | Red | Large | 0.004 |
| | 17.000-C | Green | Medium | " |
| | 17.000-D | Blue | Fine | " |
| | 17.000-E | Black | Very fine | " |

Simple oiler with **aluminium hexagonal handle ø 6 mm**. Length 70 mm.

INDIVIDUAL

| | MSA | Colour | Needle | Kg |
|--|----------|--------|-----------|-------|
| | 17.001-A | Red | Large | 0.001 |
| | 17.001-C | Green | Medium | " |
| | 17.001-D | Blue | Fine | " |
| | 17.001-E | Black | Very fine | " |

Simple oiler with **plastic hexagonal handle ø 6 mm**. Length 70 mm.

INDIVIDUAL

| | MSA | Colour | Needle | Kg | Replacement needles : | |
|--|----------|--------|-----------|-------|-----------------------|-------|
| | 17.002-A | Red | Large | 0.002 | 17.002P-A | 0.001 |
| | 17.002-C | Green | Medium | " | 17.002P-C | " |
| | 17.002-D | Blue | Fine | " | 17.002P-D | " |
| | 17.002-E | Black | Very fine | " | 17.002P-E | " |

Simple oiler with **plastic hexagonal handle ø 6 mm** and 2 replacement needles inside. Length 72 mm.

INDIVIDUAL

| | MSA | Colour | Needle | Kg | Replacement needles : | |
|--|----------|--------|------------|-------|-----------------------|-------|
| | 17.102-D | Yellow | Very large | 0.001 | 17.102P-D | 0.001 |
| | 17.102-C | Green | Large | " | 17.102P-C | " |
| | 17.102-B | Blue | Medium | " | 17.102P-B | " |
| | 17.102-A | Red | Very fine | " | 17.102P-A | " |

Simple oiler with **plastic hexagonal handle ø 5 mm**. Length 70 mm.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 17.003 | 70 | 0.004 |

Precision Incabloc oiler. With **aluminium gilt hexagonal handle ø 6 mm** and 3 replacement needles inside.



Accessories :

| For MSA | Needle MSA | Tube MSA | Reservoir MSA | Tube & Res. MSA |
|-----------|------------|----------|---------------|-----------------|
| 17.010-1A | 17.010-P | 17.010-D | 17.010-R | 17.010-DR |
| 17.020-2A | 17.020-P | 17.020-D | 17.010-R | 17.020-DR |
| 17.011-5 | 17.011-P | 17.010-D | 17.010-R | 17.010-DR |

| MSA | Colour | Length mm | Type | ø drop mm | Contents mm3 | Kg | Use |
|-------------|--------|-----------|----------------|-----------|--------------|-------|--|
| 17.010-1A | Black | 100 | | | 100 | 0.057 | For shock protection devices in watches and balance bearings of all kinds without removing cap jewel. |
| 17.020-2A * | Red | " | Drop deposit | 0.3 - 1.0 | 100 | 0.056 | For pallets, mechanical parts, oiling spots difficult to reach. |
| 17.011-5 * | Green | " | Drop injection | 0.3 - 1.0 | 100 | 0.060 | For train wheel pivots, cup bearings, everywhere the oiler has to be positioned before depositing oil. |

*Also recommended for the use of fluid grease.

Automatic oiler allows dropping oil with meticulousness and precision. Oil in the oiler is protected against dust. All elements are interchangeable. There are 5 available versions (1A, 2A, 5, 12 and 15) with 3 different dropping types. Delivered with plastic stand and instructions.



| MSA | Colour | Needles curvature | Calibre | Kg |
|--------|-----------------|-------------------|---------------|-------|
| 17.060 | ● Matt red | 10° | 3 ¼" - 7 ¼" | 0.040 |
| 17.061 | ● Black (Pict.) | 15° | 8 ¼" - 10 ½" | " |
| 17.062 | ● Light blue | 20° | 11 ½" et plus | " |
| 17.063 | ● Violet | 30° | 13" et plus | " |

JISMAA oilers for gear train and cap jewels.

Delivered with 1 stand.

Use with JISMAA oils recommended (see page 28 16).

Replacement parts :

| MSA | Items |
|----------|------------------------------|
| 17.050-R | Oil container for MSA 17.050 |
| 17.051-R | Oil container for MSA 17.051 |
| 17.052-R | Oil container for MSA 17.052 |
| 17.060-R | Oil container for MSA 17.060 |
| 17.061-R | Oil container for MSA 17.061 |
| 17.062-R | Oil container for MSA 17.062 |
| 17.063-R | Oil container for MSA 17.063 |

| MSA | Colour | Needles curvature | Calibre | Kg |
|--------|-------------|-------------------|--------------|-------|
| 17.050 | ○ Pink | 12° | 3 ¼" - 7 ¼" | 0.040 |
| 17.051 | ○ Cream | 15° | 8 ¼" - 11" | " |
| 17.052 | ● Dark blue | 17° | 11" and more | " |

JISMAA oilers for escapement and pallet forks.

Delivered with 1 stand.



| MSA | ø exterior mm | ø interior mm | Kg |
|--------|---------------|---------------|-------|
| 17.100 | 40 | 25 | 0.055 |

Fluted glass oil cup.



| MSA | Colour | Size mm | Well mm | Kg |
|--------|---------|-----------|----------|-------|
| 17.110 | ● Red | ø 46 x 18 | ø 9 x 2 | 0.033 |
| 17.111 | ● Blue | " | ø 16 x 3 | 0.034 |
| 17.112 | ● Green | " | ø 20 x 4 | 0.032 |
| 17.113 | ● Jaune | " | ø 26 x 5 | 0.031 |

Incalite oil cup (made of phenol-melamine) resistant to all solvents, with semi-spherical shape recess.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 17.200 | 210 x 75 x 20 | 0.280 |

Assortment of 4 Incalite oil cups and 4 oilers. Delivered on a stand as illustrated.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 17.201 | 83 x 40 x 26 | 0.100 |

Four-oil cup chrome-plated stand allowing the deposit of oils and grease containing :

- 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.

» Stackable boxes and lids for watch after sales service.



| MSA | Elements | Size mm | Kg |
|----------|--|----------------|-------|
| 17.527-B | ● Blue container only | 245 x 115 x 20 | 0.095 |
| 17.527-J | ● Yellow container only | " | " |
| 17.527-R | ● Red container only | " | " |
| 17.527-V | ● Green container only | " | " |
| 17.527-W | ○ White container only | " | " |
| 17.528 | Transparent lid only with stacking cam | " | 0.090 |

Plastic container with **6 compartments** (5 cavities 49 x 45 x 16 mm and 1 cavity 234 x 42 x 16 mm).

ATTENTION : lid sold separately.



| MSA | Elements | Size mm | Kg |
|----------|--|----------------|-------|
| 17.530-B | ● Blue container only | 245 x 115 x 20 | 0.104 |
| 17.530-J | ● Yellow container only | " | " |
| 17.530-R | ● Red container only | " | " |
| 17.530-V | ● Green container only | " | " |
| 17.528 | Transparent lid only with stacking cam | " | 0.090 |

Plastic container with **10 compartments** (cavities 49 x 45 x 16 mm).

ATTENTION : lid sold separately.



| MSA | Color | Use with | Kg |
|----------|----------|----------------------|-------|
| 17.531-1 | ● Black | 1 lid + 1 container | 0.001 |
| 17.531-2 | ● Yellow | 1 lid + 2 containers | " |
| 17.531-3 | ● Red | 1 lid + 3 containers | " |
| 17.531-4 | ● Green | 1 lid + 4 containers | " |
| 17.531-5 | ● Blue | 1 lid + 5 containers | " |

Plastic key (5 colours) allowing to firmly link one or several containers MSA 17.527-x and 17.530-x.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 17.532 | 49 x 45 x 16 | 0.003 |

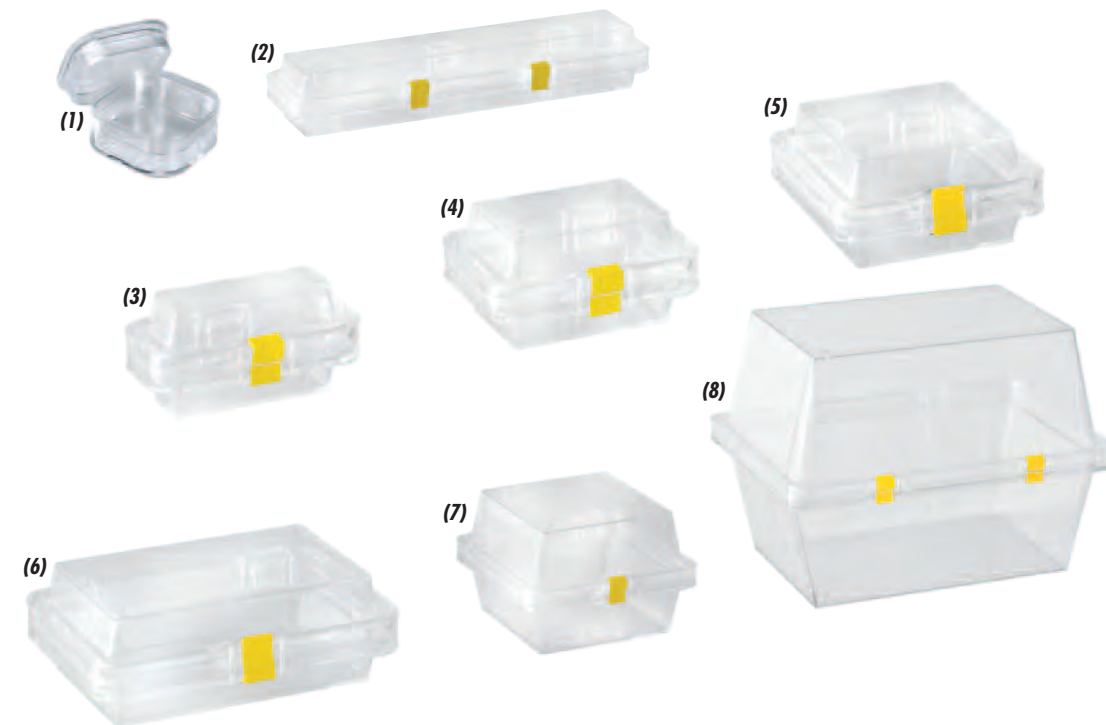
Foam insert for plastic containers MSA 17.527-x and 17.530-x.



| MSA | Size mm | Kg |
|----------|---------------|-------|
| 17.532-A | 234 x 42 x 16 | 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 mm | Kg |
|--------|---------------------|-------|
| 17.650 | 39 x 39 x 18 (1) | 0.008 |
| 17.651 | 300 x 75 x 25 (2) | 0.143 |
| 17.653 | 100 x 50 x 50 (3) | 0.044 |
| 17.654 | 100 x 75 x 50 (4) | 0.063 |
| 17.655 | 100 x 100 x 50 (5) | 0.076 |
| 17.656 | 150 x 100 x 50 (6) | 0.103 |
| 17.657 | 150 x 150 x 100 (7) | 0.177 |
| 17.658 | 200 x 100 x 75 | 0.141 |
| 17.659 | 200 x 200 x 50 | 0.238 |
| 17.660 | 250 x 200 x 100 | 0.375 |
| 17.661 | 275 x 200 x 200 (8) | 0.550 |
| 17.668 | 300 x 75 x 50 | 0.162 |
| 17.669 | 300 x 100 x 50 | 0.195 |
| 17.670 | 100 x 75 x 25 | 0.054 |
| 17.671 | 100 x 100 x 25 | 0.075 |

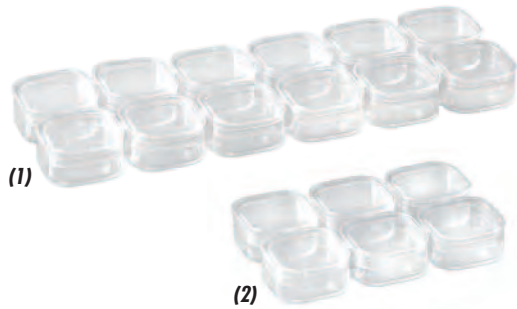
| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.672 | 150 x 100 x 25 | 0.093 |
| 17.673 | 150 x 150 x 50 | 0.148 |
| 17.674 | 200 x 100 x 50 | 0.133 |
| 17.675 | 250 x 200 x 50 | 0.343 |
| 17.676 | 125 x 125 x 50 | 0.106 |
| 17.679 | 250 x 200 x 25 | 0.343 |

Complete membrane plastic boxes delivered with lower and upper half box and hinge and lockers.

Replacement parts :

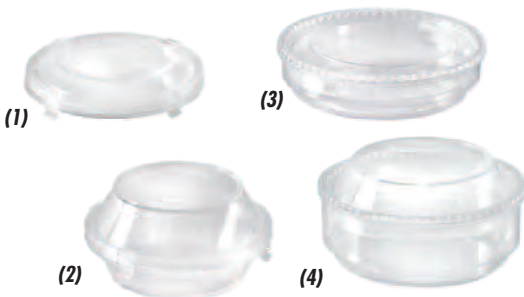
| MSA | Item |
|--------|--|
| 17.699 | Transparent hinge for membrane box. Delivered in bag of 100 pcs. |

100
pcs



| MSA | Size mm | Kg |
|--------|-------------------|-------|
| 17.662 | 240 x 79 x 18 (1) | 0.091 |
| 17.663 | 120 x 79 x 18 (2) | 0.046 |

Set of 6 or 12 complete membrane plastic boxes delivered with lid.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.664 | ø 82 x 17 (1) | 0.020 |
| 17.665 | ø 82 x 40 (2) | 0.030 |
| 17.666 | ø 165 x 42 (3) | 0.160 |
| 17.667 | ø 165 x 84 (4) | 0.215 |

Complete membrane plastic round boxes delivered with lid.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.505 | 260 x 105 x 24 | 0.260 |

Plastic box containing 23 cases (21x ø 24 mm and 2 x ø 40 mm). Black structured bottom and transparent lid with hinges and stacking notches.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.506 | 260 x 105 x 24 | 0.266 |

Plastic box containing 10 cases (16 x ø 24 mm), 7 rectangular boxes (44 x 24 x 19 mm) and 2 square boxes (47 x 47 x 19 mm). Black bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.507 | 49 x 48 x 18 | 260 x 105 x 25 | 0.170 |

Plastic box with 10 compartments. Black structured bottom with transparent lid with hinges and stacking notches. The following plastic boxes can be inserted: MSA 17.503, 17.504 and 17.508.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.504 | 48 x 48 x 20 | 42 x 42 x 15 | 0.013 |

Square plastic box. Transparent bottom and lid. Can be used as an insert in the plastic box MSA 17.507.



| MSA | Exterior size mm | Interior size mm | Kg |
|-----------|------------------|------------------|-------|
| 17.503 | 44 x 24 x 19 | 40 x 20 x 17 | 0.006 |
| 17.503-17 | 44 x 24 x 17 | 40 x 20 x 15 | 0.005 |

Rectangular plastic box. Transparent bottom and lid. Can be used as an insert in the plastic box MSA 17.507.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.508 | 23 x 23 x 19 | 20 x 20 x 17 | 0.004 |

Square plastic box. Transparent bottom and lid. Can be used as an insert in the plastic box MSA 17.507.



| MSA | Cases mm | Size mm | Kg |
|--------|---------------|----------------|-------|
| 17.565 | 123 x 97 x 20 | 130 x 105 x 25 | 0.075 |

Plastic box 1 room. Black bottom and transparent lid with hinges and stacking notches.



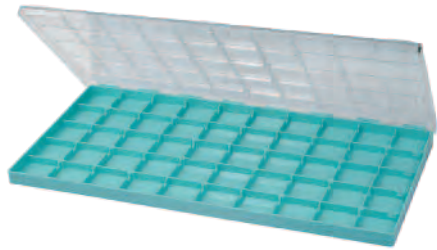
| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.567 | 47 x 23 x 18 | 130 x 105 x 25 | 0.080 |

Plastic box 10 rooms. Black bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.515 | 55 x 60 x 22 | 296 x 135 x 32 | 0.300 |

Plastic box with 10 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|---------------|----------------|-------|
| 17.519 | 32 x 32 x 9.5 | 350 x 180 x 16 | 0.330 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|---------------|---------------|-------|
| 17.533 | 13 x 11 x 4.5 | 152 x 70 x 11 | 0.060 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



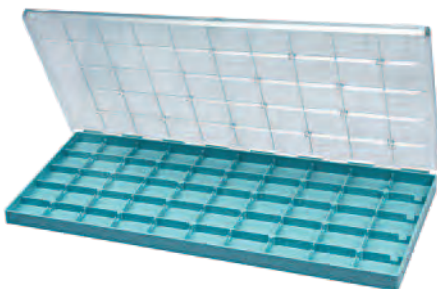
| MSA | Cases mm | Size mm | Kg |
|--------|-----------------|----------------|-------|
| 17.534 | 20 x 17.5 x 4.5 | 220 x 105 x 11 | 0.130 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|-------------------|----------------|-------|
| 17.535 | 31.5 x 17.5 x 4.5 | 340 x 100 x 11 | 0.175 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|---------------|-------|
| 17.541 | 10 x 8 x 4.5 | 121 x 55 x 11 | 0.040 |

Plastic box with 50 compartments. Light blue bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|-------------|---------------|-------|
| 17.510 | 30 x 21 x 8 | 120 x 70 x 15 | 0.050 |

Plastic box with 10 compartments. Light blue bottom and transparent sliding lid with stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|----------------|---------------|-------|
| 17.512 | 36 x 11 x 18.5 | 120 x 70 x 25 | 0.075 |

Plastic box with 15 compartments. Light blue bottom and transparent sliding lid with stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.500 | 50 x 32 x 18 | 207 x 112 x 23 | 0.140 |

Plastic box with 12 compartments. Light grey bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.566 | 50 x 39 x 18 | 207 x 112 x 23 | 0.120 |

Plastic box 10 rooms. Grey bottom and transparent lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.501 | 15 x 33 x 18 | 207 x 112 x 23 | 0.140 |

Plastic box with 36 compartments. Transparent bottom and lid with hinges and stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.502 | 30 x 28 x 17 | 200 x 100 x 23 | 0.096 |

Plastic box with 18 compartments. Transparent bottom and lid with hinges.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|---------------|-------|
| 17.520 | 10 x 29 x 10 | 108 x 64 x 13 | 0.035 |

Plastic box with 18 compartments, non stackable. Transparent bottom and lid.



| MSA | Cases mm | Size mm | Kg |
|--------|---------------------------------|----------------|-------|
| 17.511 | 62 x 87 x 17 ou 62 x 42 x 17 | 200 x 100 x 23 | 0.088 |

Plastic box containing 3 to 6 compartments with mobile separations, non stackable. Transparent bottom and lid with hinges.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.522 | 36 x 26 x 6 | 31 x 21 x 4 | 0.003 |

Rectangular plastic box, non stackable. Transparent bottom and lid.



| MSA | Cases mm | Size mm | Kg |
|--------|------------|--------------|-------|
| 17.509 | 46 x 6 x 6 | 84 x 54 x 16 | 0.028 |

Stackable plastic box with 10 compartments. Transparent bottom and lid.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|--------------|-------|
| 17.523 | 29 x 13 x 14 | 90 x 64 x 17 | 0.037 |

Stackable plastic box with 12 compartments. Yellow bottom and transparent lid with stacking notches.



| MSA | Cases mm | Size mm | Kg |
|--------|-------------|--------------|-------|
| 17.516 | 22 x 11 x 7 | 84 x 54 x 16 | 0.025 |

Stackable plastic box with 12 compartments. Transparent bottom and lid.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.524 | 90 x 68 x 21 | 85 x 61 x 16 | 0.027 |

Rectangular plastic box. Transparent bottom and lid.



| MSA | Cases mm | Size mm | Kg |
|--------|-------------|--------------|-------|
| 17.539 | 75 x 12 x 7 | 84 x 54 x 16 | 0.025 |

Stackable plastic box with 5 compartments. Transparent bottom and lid.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.538 | 88 x 47 x 15 | 84 x 44 x 11 | 0.020 |

Rectangular plastic box. Dark grey and transparent lid.



| MSA | Cases mm | Size mm | Kg |
|--------|--------------|----------------|-------|
| 17.544 | 55 x 62 x 18 | 291 x 135 x 26 | 0.188 |

Non stackable plastic box with 10 compartments. Grey bottom and transparent lid.



| MSA | Cases mm | Size mm | Kg |
|--------|---------------|----------------|-------|
| 17.545 | 20 x 17.5 x 5 | 220 x 105 x 11 | 0.155 |

Non stackable plastic box with 50 compartments. Light blue bottom and transparent lid.



| MSA | Shape | Size mm | Kg |
|-----------|-------|-----------|-------|
| 17.801-09 | Round | ø 52 x 36 | 0.014 |

Round aluminium box.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.525 | ø 40 x 12 | ø 35 x 9 | 0.005 |

Round plastic box. Transparent bottom and lid attached.

1000 pces



| MSA | Size mm | Kg |
|--------|----------|-------|
| 17.529 | ø 7 x 24 | 0.100 |

Transparent packaging capsule.
Packaging : 1000 pieces.

100 pces



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.536 | 9 x 9 x 23 | 6 x 6 x 19 | 0.720 |

Square plastic tube. Transparent bottom and red lid.
Packaging : 100 pieces.

100 pces



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.537 | 9 x 9 x 39 | 6 x 6 x 35 | 1.240 |

Square plastic tube. Transparent bottom and red lid.
Packaging : 100 pieces.



| MSA | Exterior size mm | Interior size mm | Kg |
|--------|------------------|------------------|-------|
| 17.542 | ø 7.5 x 33 | ø 6 x 29 | 3.000 |

Round transparent plastic bottle without cap.
Delivered by 1000 pcs.
Caps in different colours to be ordered separately.



| MSA | Exterior size mm | Color | Kg |
|------------|------------------|---------------|-------|
| 17.542-001 | ø 10 x 8 | ● Red | 1.000 |
| 17.542-002 | ø 10 x 8 | ● Light green | 1.000 |
| 17.542-003 | ø 10 x 8 | ● Yellow | 1.000 |
| 17.542-004 | ø 10 x 8 | ● Blue | 1.000 |
| 17.542-005 | ø 10 x 8 | ● Grey | 1.000 |
| 17.542-006 | ø 10 x 8 | ○ White | 1.000 |
| 17.542-007 | ø 10 x 8 | ● Dark green | 1.000 |
| 17.542-008 | ø 10 x 8 | ● Dark pink | 1.000 |
| 17.542-009 | ø 10 x 8 | ● Violet | 1.000 |
| 17.542-010 | ø 10 x 8 | ● Brown | 1.000 |
| 17.542-011 | ø 10 x 8 | ● Black | 1.000 |
| 17.542-012 | ø 10 x 8 | ● Light pink | 1.000 |

Plastic caps only in different colours for bottle MSA 17.542.
Delivered by 1000 pcs.



50 pcs

| MSA | Calibre | Hole(s) for stem(s) | Kg |
|-----------|-------------|---------------------|-------|
| 17.800-01 | 4 1/4" | 1 | 0.218 |
| 17.800-02 | 11 3/4" | 4 | 0.187 |
| 17.800-04 | 5 1/2" | 1 | 0.149 |
| 17.800-06 | 6 3/4" x 8" | 1 | 0.105 |
| 17.800-08 | 7 3/4" | 1 | 0.120 |
| 17.800-10 | 8 3/4" | 1 | 0.137 |
| 17.800-12 | 10 1/2" | 1 | 0.161 |
| 17.800-13 | 11 1/2" | 1 | 0.215 |
| 17.800-14 | 12 1/2" | 1 | 0.265 |
| 17.800-15 | 13 1/2" | 1 | 0.345 |
| 17.800-16 | 13" | 2 | 0.360 |
| 17.800-17 | 7750 | 4 | 0.286 |
| 17.800-18 | 13 1/4" | 1 | 0.158 |

Plastic cases with bottom and lid, to protect movements.
Packaging: 50 complete cases.

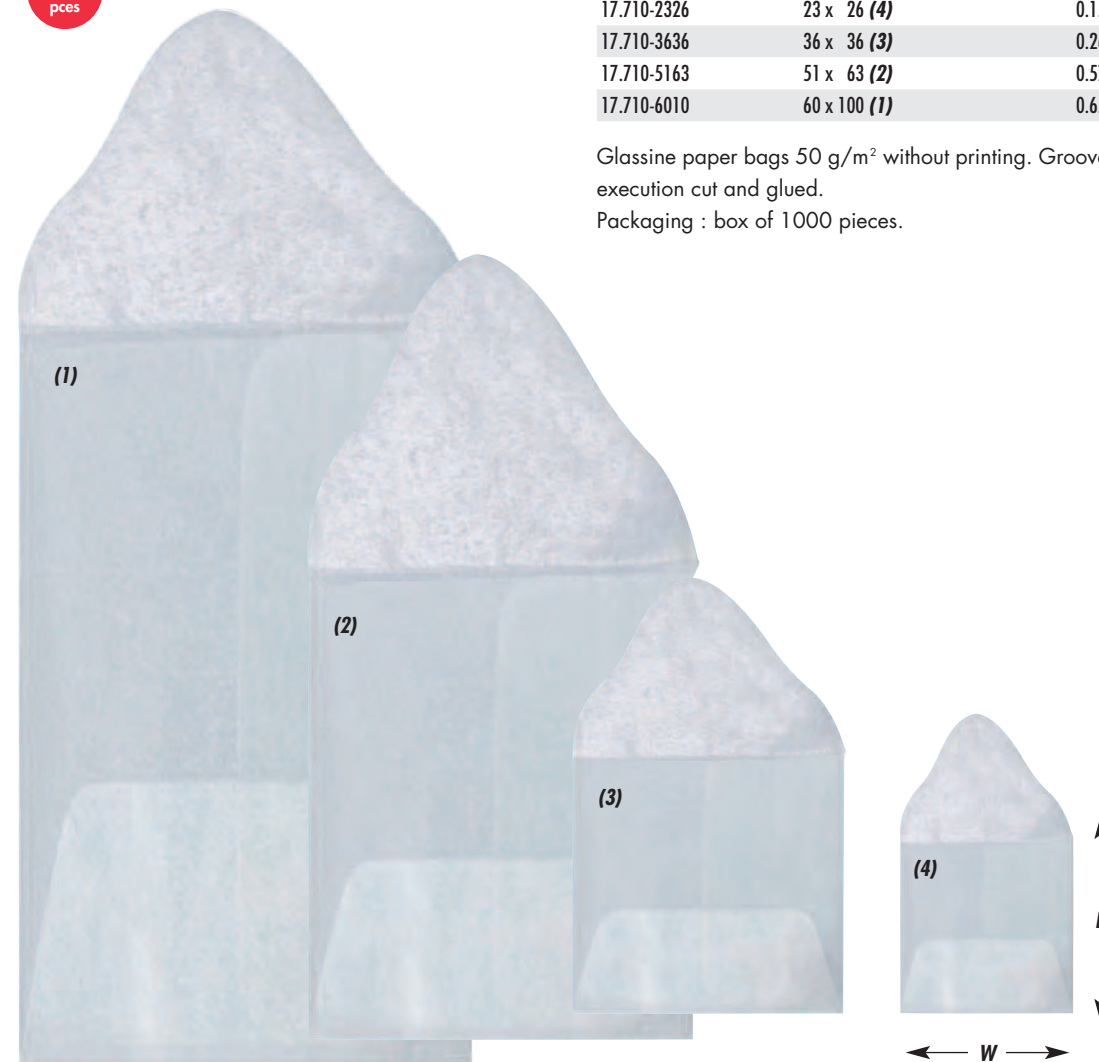


| MSA | Color | Shape | Size mm | Kg |
|--------|------------|--------|-------------|-------|
| 17.513 | ● Blue (1) | Square | 50 x 50 x 9 | 0.010 |
| 17.563 | ○ White | Square | 50 x 50 x 9 | 0.010 |
| 17.518 | ● Blue (2) | Round | ø 30 x 9 | 0.005 |
| 17.558 | ● Green | Round | ø 30 x 11 | 0.007 |
| 17.559 | ● Green | Round | ø 30 x 13 | 0.010 |
| 17.562 | ● Blue | Round | ø 70 x 13 | 0.020 |

Stackable tray for spare parts in synthetic material.

>> Glassine paper bags.

1000 pcs



| MSA | Size L x H mm | Kg |
|-------------|---------------|-------|
| 17.710-2326 | 23 x 26 (4) | 0.155 |
| 17.710-3636 | 36 x 36 (3) | 0.267 |
| 17.710-5163 | 51 x 63 (2) | 0.578 |
| 17.710-6010 | 60 x 100 (1) | 0.650 |

Glassine paper bags 50 g/m² without printing. Grooved execution cut and glued.
Packaging : box of 1000 pieces.

» Minigrip® plastic bags.



50 pces

Packaging : 50 pieces.

| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.700-150 | 150 x 180 | 0.504 |
| 17.700-160 | 160 x 220 | 0.466 |
| 17.700-195 | 195 x 280 | 0.682 |
| 17.700-200 | 200 x 250 | 0.696 |
| 17.700-220 | 220 x 305 | 0.830 |

100 pces

Packaging : 100 pieces.

| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.700-040 | 40 x 60 (3) | 0.046 |
| 17.700-050 | 50 x 75 | 0.070 |
| 17.700-075 | 75 x 90 (2) | 0.104 |
| 17.700-090 | 90 x 110 (1) | 0.158 |
| 17.700-100 | 100 x 125 | 0.185 |
| 17.700-115 | 115 x 155 | 0.256 |

Minigrip® plastic bags. 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.



50 pces

Packaging : 50 pieces.

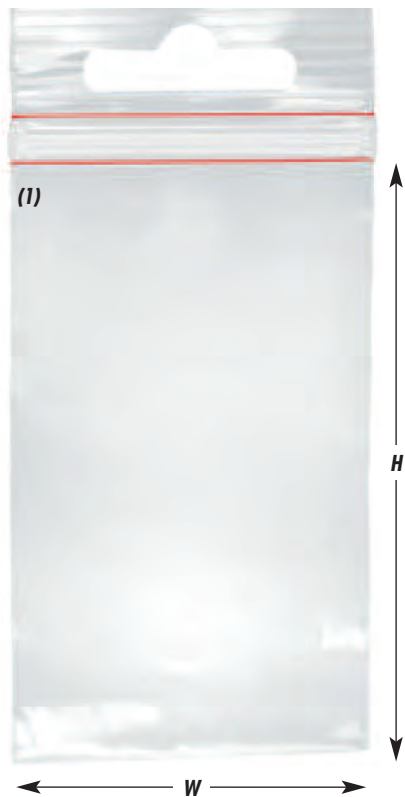
| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.701-090 | 90 x 110 (1) | 0.158 |
| 17.701-160 | 160 x 220 | 0.466 |
| 17.701-195 | 195 x 280 | 0.682 |
| 17.701-200 | 200 x 250 | 0.696 |
| 17.701.220 | 220 x 305 | 0.700 |

100 pces

Packaging : 100 pieces.

| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.701-040 | 40 x 60 (3) | 0.046 |
| 17.701-050 | 50 x 75 | 0.070 |
| 17.701-075 | 75 x 90 (2) | 0.104 |
| 17.701-100 | 100 x 125 | 0.185 |
| 17.701-115 | 115 x 155 | 0.256 |
| 17.701-150 | 150 x 180 | 0.450 |

Minigrip® plastic bags. Standard size, 0.05 mm thickness, **with 3 white bands for annotations**. Zip to easy open and close the bag. Its ingenious conception prevents from yielding under the weight of the contents.



50
pieces

Delivered by 50 pcs.

| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.702-050 | 50 x 80 (1) | 0.035 |
| 17.702-090 | 90 x 170 | 0.110 |

Minigrip® plastic bags, 0.05 mm thickness. Zip to easy open and close the bag. Top hole for hooking the bag on display.

>> Plastic bags.



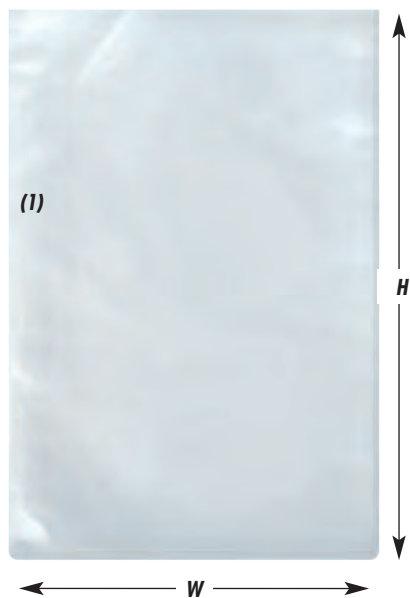
100
pieces



| MSA | Size L x H mm | Kg |
|------------|---------------|-------|
| 17.703-050 | 50 x 80 (2) | 0.035 |
| 17.703-080 | 80 x 150 (1) | 0.116 |

Standard plastic bags, 0.05 mm thickness, without closing zip.

Delivered by 100 pieces.



1000
pieces

Delivered by 1000 pieces.

| MSA | Items | Size mm |
|------------|---------------------|--------------|
| 17.706-100 | Bag PA/PE 20/70 (1) | 100 x 150 mm |
| 17.706-130 | Bag PA/PE 20/70 | 130 x 380 mm |
| 17.706-140 | Bag PA/PE 20/70 | 140 x 210 mm |
| 17.706-200 | Bag PA/PE 20/70 | 200 x 300 mm |
| 17.706-225 | Bag PA/PE 20/70 | 225 x 300 mm |

Special plastic bag for packaging vacuum machine VC999 MSA 19.755 and 19.756 (see page 19 37). These plastic bags are delivered upon request according to products, dimensions of the items to pack and can also be personalized.

» *Display cases.*



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.552 | 365 x 185 x 90 | 1,330 |

Display case with key closing and 12 compartments for wrist watches. Interior made of black velvet with cushions and exterior leatherette.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.556 | 295 x 195 x 85 | 1,416 |

Display case with closing key and 12 compartments for wrist watches. Interior made of grey velvet with cushions and exterior croco style leatherette.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 17.557 | 295 x 110 x 85 | 0.840 |

Display case with closing key and 6 compartments for wrist watches. Interior made of grey velvet with cushions and exterior croco style leatherette.



| MSA | Base ø mm | Cover size mm | Kg |
|--------|-----------|---------------|-------|
| 17.600 | 90 | ø 70 x 120 | 0.133 |

Anti-dust dome with hook for jewellery or pocket watches. With plastic base and lid.

» Benzine cups.



| MSA | ø mm | Kg |
|--------|------|-------|
| 17.300 | 60 | 0.230 |
| 17.301 | 80 | 0.400 |
| 17.302 | 100 | 0.540 |
| 17.303 | 150 | 1.030 |

Glass benzine cup for daily use of benzine, alcohol or other solutions. The lid **with button** prevents the entry of dust and the premature evaporation of solutions.



| MSA | ø mm | Kg |
|--------|------|-------|
| 17.310 | 60 | 0.205 |
| 17.311 | 80 | 0.325 |
| 17.312 | 100 | 0.505 |
| 17.313 | 150 | 1.000 |

Glass benzine cup for daily use of benzine, alcohol or other solutions. The lid **without button** prevents the entry of dust and the premature evaporation of solutions.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 17.315 | 50 x 50 x 80 | 0.070 |

Benzine dispenser made of white polyethylene with stainless steel solution pumping device and lid for more safety. It dispenses just the necessary quantity of solution for immediate use and decreases evaporation. The pump with single direction retains the solution in the hollow of the lid and prevents the contamination of the clean solution remained in the dispenser.

Delivered with an assortment of stickers to identify the liquid stored inside.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 17.316 | ø 61.70 x 117 | 0.110 |

Glass bottle for Epilam with basket (207 holes of ø 0.40 mm) to be used with Moebius-Fixodrop N° 8940, 8941, 8950, 8951.

Replacement parts :

| MSA | Items |
|----------|-------------------|
| 17.316-A | Glass bottle only |
| 17.316-B | Basket only |

» See chapter PERF.



18



FILE AND GRAVER HANDLES..... 18 2

FILE AND GRAVER HANDLES



| MSA | Color | Length mm | Kg |
|--------|---------|-----------|-------|
| 18.050 | ● Blue | 90 | 0.025 |
| 18.051 | ● Red | 100 | 0.033 |
| 18.052 | ● Black | 110 | 0.043 |
| 18.053 | ● Green | 120 | 0.055 |

File plastic handle.



| MSA | Length mm | Kg |
|--------|-----------|-------|
| 18.100 | 80 | 0.017 |
| 18.101 | 90 | 0.022 |
| 18.102 | 100 | 0.027 |
| 18.103 | 110 | 0.036 |

File round shape wooden handle.



| MSA | Handle ø mm | Length mm | Kg |
|--------|-------------|-----------|-------|
| 18.110 | 10 | 110 | 0.007 |
| 18.111 | 12 | " | 0.009 |
| 18.112 | 14 | " | 0.013 |
| 18.113 | 16 | " | 0.015 |
| 18.114 | 18 | " | 0.021 |
| 18.115 | 20 | " | 0.027 |
| 18.116 | 25 | " | 0.038 |

File straight shape wooden handle.



| MSA | Handle ø mm | Length mm | Kg |
|--------|-------------|-----------|-------|
| 18.120 | 25 | 65 | 0.014 |
| 18.121 | " | 80 | 0.019 |

Graver wooden handle.



| MSA | Head ø mm | Length mm | Kg |
|--------|-----------|-----------|-------|
| 18.130 | 34 | 40 | 0.012 |

Graver wooden handle.

FILE AND GRAVER HANDLES



| MSA | Head ø mm | Length mm | Kg |
|----------|-----------|-----------|-------|
| 18.130-S | 36 | 50 | 0.014 |

Wooden handle for beading tools. With a brass die ø 2.60 mm to quickly fit the beading tool.



| MSA | Head ø mm | Length mm | Kg |
|--------|-----------|-----------|-------|
| 18.131 | 34 | 40 | 0.014 |
| 18.132 | 34 | 50 | " |

Graver wooden handle.



| MSA | Head ø mm | Length mm | Kg |
|--------|-----------|-----------|-------|
| 18.140 | 32 | 40 | 0.013 |
| 18.141 | 32 | 50 | 0.014 |

Graver wooden handle.



| MSA | Head ø mm | Length mm | Kg |
|--------|-----------|-----------|-------|
| 18.150 | 34 | 40 | 0.015 |

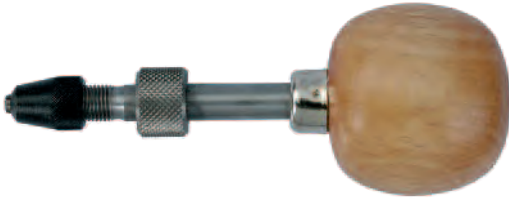
Graver wooden handle.



| MSA | Head ø mm | Length mm | Kg |
|--------|-----------|-----------|-------|
| 18.200 | 34 | 70 | 0.033 |

Graver wooden handle with 2 tightening chucks (1: ø 0 to 1.60 mm / 2: ø 1.60 to 3.00 mm).

FILE AND GRAVER HANDLES



| MSA | Head σ mm | Length mm | Kg |
|--------|------------------|-----------|-------|
| 18.201 | 34 | 95 | 0.048 |

Graver wooden handle with 1 tightening chuck σ 0 to 1.80 mm.



| MSA | Head σ mm | Length mm | Kg |
|--------|------------------|-----------|-------|
| 18.202 | 34 | 90 | 0.025 |

Graver wooden handle with 1 chuck σ 0 to 2.80 mm.



| MSA | Head σ mm | Length mm | Kg |
|--------|------------------|-----------|-------|
| 18.203 | 34 | 75 | 0.025 |

Graver wooden graver handle with 2 tightening chucks (1: σ 0 to 1.60 mm / 2: σ 1.60 to 3.00 mm).



| MSA | Head σ mm | Length mm | Kg |
|--------|------------------|-----------|-------|
| 18.204 | 30 | 75 | 0.030 |

Graver wooden handle with 1 tightening chuck σ 1.80 to 3.00 mm. Square headed chuck for use with pliers.



| MSA | Head σ mm | Length mm | Kg |
|--------|------------------|-----------|-------|
| 18.205 | 25 | 90 | 0.031 |

Graver wooden handle with 1 tightening chuck σ 2.20 to 3.00 mm. Can be used on a lathe.

**> See chapter 04,
hammer handles page 04 3.**



19



| | |
|--|-------|
| TESTERS | 19 2 |
| HOROTEC®, GREINER®, WITSCHI® and others | |
| WATCH WINDERS | 19 17 |
| for automatic watches for Seiko® Kinetic | |
| WATERPROOF TESTERS | 19 25 |
| WITSCHI®, GREINER®, ELMA®, ROXER® and SIGMA® compressors and warm air drier | |
| ULTRASONIC CLEANERS | 19 33 |
| SONOSWISS®, ELMA® and GREINER® | |
| PACKAGING MACHINE | 19 41 |
| VC999® | |
| VACUUM/COMPRESSED AIR MACHINES | 19 42 |
| HOROTEC® | |
| ADHESIVE DISPENSERS | 19 47 |
| POLYMERIZATION/UV MACHINES | 19 50 |
| LOCTITE®, ... | |
| DEMAGNETIZERS | 19 52 |
| HOROTEC®, GREINER® and WITSCHI® magnetism detector | |



| MSA | Voltage | Size mm | Kg |
|--------|------------------|----------------|-------|
| 19.108 | Dual 110 V/220 V | 155 x 172 x 55 | 1.235 |

HOROTEC® FLASHTEST, multifunction tester for analogue quartz watches and movements. Possible to update the software and calibration thanks to the set MSA 19.108-S (sold separately).

Functions :

- battery tension
- battery tension under load
- coil impulse (sound signal)
- power supply for movements 1,5 and 3 V
- coil resistance
- circuit consumption
- fast gear train rotation
- watch accuracy (forward/delay s/m).

Display : LCD light screen 29 x 23 mm, numerals height 1.5 mm.

Measurement capacity : 0-19.999 V, μ A or k Ω .

Precision : 1/100 of V, μ A or k Ω .

Delivered with 2 probes , adaptor 110/220 V, 9 V battery, multi-lingual manual instructions with chart for electric controls (movements consumption under load et coils continuity).

Accessorie :

| MSA | Item |
|----------|--|
| 19.108-S | Calibration kit (1) and USB Flashtest update (2) |

Replacement parts :

| MSA | Items |
|----------|----------------|
| 19.108-A | Pair of probes |



| MSA | Voltage | Size mm | Kg |
|--------|------------------|---------------|-------|
| 19.110 | Dual 110 V/220 V | 90 x 150 x 30 | 0.785 |

Apparatus for releasing train wheels and testing electronic function of quartz watches.

Delivered with 110/220 V adapter (works also with 9V battery, not included) and instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.106 | 60 x 105 x 28 | 0.225 |

HOROTEC® PULSE tester for testing the electronic functions (coils and circuits) of the analogue quartz watches. Delivered with 9 V battery and use instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.107 | 60 x 105 x 28 | 0.235 |

HOROTEC® TURBO, tester for releasing gear train of analogue quartz watches.

Delivered with 9 V battery and use instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.000 | 100 x 70 x 40 | 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...)

Delivered with use instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.100 | 80 x 160 x 40 | 0.475 |

Multifonction watch tester. It measures battery voltage, resistances and current consumption.

Delivered with batteries and instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.105 | 85 x 150 x 55 | 0.250 |

Battery, coil and electronic function tester for analogical quartz watches.

Delivered with 9V battery and instructions.

| MSA | Version | Voltage |
|--------|-------------|------------------|
| 19.128 | COMPACT 900 | Dual 110 V/220 V |

The GREINER® COMPACT 900 is an universal watch timing instrument for testing all types of mechanical and quartz watches. The device is equipped with :

- automatic detection for the beat number (A / h)
- 1 colour LCD screen 320 x 240 pixels, 256 colours
- 2 test probes
- 2 checking lights
- 1 interface for printer and computer
- 1 integrated speaker for beat noise control
- adjustable feet.

The following values are measured and indicated :

For mechanical watches : beat number (automatic), beat error, time deviation, amplitude, escapement noise (graphic). Special program for the quick check of pendulum clocks and special program for special escapements.

For Quartz watches : Time deviation (with/without Inhibition), no load consumption, average consumption, impulse consumption, resistance of motor coil, battery voltage (High Drain/Low Drain), lower working-voltage limit and EOL.

Additional functions : Calibration of the device with a calibration signal. Device for calibration with GPS available. Standby mode while the machine is not used. Software for long-time-measurement available.



| MSA | Size mm | Kg |
|-----------|----------------|-------|
| 19.125-MP | 110 x 120 x 85 | 0.840 |

GREINER® MP86M microphone for VIBROGRAF B800, directional in all positions (**mechanical watches only**).



| MSA | Size mm | Kg |
|-----------|----------------|-------|
| 19.125-QM | 105 x 80 x 100 | 0.530 |

GREINER® QM06 microphone for VIBROGRAF B800 (**mechanical and quartz watches**). Works in horizontal position.



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 19.129 | 220 V | 260 x 170 x 110 | 1.000 |

Thermal printer GREINER® MARTEL 7810 for all GREINER® testers.

Replacement thermo paper :

| MSA | Width mm | o mm |
|----------|----------|------|
| 19.167-B | 57 | 60 |



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 19.126 | 220 V | 170 x 120 x 100 | 0.720 |

GREINER® THERMOPRINT II for all GREINER® apparatus.

Replacement thermo paper :

| MSA | Width mm | o mm |
|----------|----------|------|
| 19.126-P | 60 | 63 |

| MSA | Versions | Voltage | Kg |
|-------------|--|---------|-------|
| 19.138-A | VIBROGRAF B600 (Pict.) without microphone | 220 V | 4.500 |
| 19.138-A110 | VIBROGRAF B600 without microphone | 110 V | " |
| 19.138 | VIBROGRAF B600 with microphone MSA 19.138-M | 220 V | 5.400 |
| 19.138-110 | VIBROGRAF B600 with microphone MSA 19.138-M | 110 V | " |
| 19.139 | VIBROGRAF B600 with microphone MSA 19.139-MQ | 220 V | 5.500 |
| 19.139-110 | VIBROGRAF B600 with microphone MSA 19.139-MQ | 110 V | " |



GREINER® VIBROGRAF B600 timing apparatus for **mechanical, quartz and tuning fork watches**. Automatic selection of standard beats. It displays time deviation, amplitude and beat errors. Possible printer connection.

Case dimension : 430 x 330 x 210 mm.



| MSA | Size mm | Kg |
|----------|----------------|-------|
| 19.138-M | 110 x 120 x 85 | 0.840 |

GREINER® MP86M microphone for VIBROGRAF B600, directional in all positions (**mechanical watches only**).



| MSA | Size mm | Kg |
|-----------|----------------|-------|
| 19.139-MQ | 190 x 90 x 130 | 1.100 |

GREINER® QM4 microphone for VIBROGRAF B600 (**mechanical, quartz and tuning fork watches**).



| MSA | Voltage | Size mm | Kg |
|----------|---------|----------------|-------|
| 19.125-P | 220 V | 180 x 105 x 85 | 1.230 |

Printer CBM910 with plain paper for all GREINER® apparatus.

Replacement parts

| MSA | Items |
|-----------|------------------------------------|
| 19.125-PC | Connection cable 1.8 m |
| 19.125-PP | Roll of paper width 57 mm, ø 65 mm |
| 19.125-PR | Ink ribbon |



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 19.127 | 220 V | 170 x 110 x 100 | 1.400 |

CITIZEN CT-S280 thermo printer for all GREINER® apparatus.

Replacement thermo paper :

| MSA | Width mm | ø mm |
|----------|----------|------|
| 19.127-P | 57 | 63 |

Spare parts for GREINER® testers :

| MSA | Items |
|----------|-------------------------------------|
| 19.140-B | Paper roll ø 30 mm for B200 |
| 19.140-C | Paper roll ø 36 mm for B200/300/500 |
| 19.140-D | Ribbon carbon for B200 |
| 19.140-E | Paper ZACMONO 36 mm |



| MSA | Voltage | Size mm | Kg |
|------------|---------|----------------|-------|
| 19.180 | 220 V | 135 x 60 x 140 | 0.460 |
| 19.180-110 | 110 V | " | " |

WITSCHI® CYCLONIC tester for analogue quartz watches. This apparatus generates a rotating magnetic field with adjustable intensity and rotational speed in the vicinity of the watch support. When an analogue quartz watch movement is placed within this rotating field, the stepping motor rotor is also excited into rotation. This enables the gear train to be driven at high speed without having to physically intervene in the watch mechanism itself. By fast gear train rotation, the old solid and dirty oils move out from the wheels.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.158 | 220V | 260 x 130 x 150 | 1.500 |
| 19.158-110 | 110V | " | " |

WITSCHI® NEW TECH HANDY II tester for **quartz watches**. Measurement possibilities : Rate accuracy, consumption, coil resistance, isolation and battery voltage. For repair service, the watchmaker needs a test instrument with a simple way to perform all electrical measurements and tests on quartz watches. The instrument provides all measuring and test facilities required in a professional search for defects in quartz watches. Operation is very easy, due to largely automated measurement functions, the functional layout of operating elements and the highly readable results and parameters on an illuminated display. Optional printer : see page 19 13.

Replacement parts :

| MSA | Items |
|----------|--------------------------------------|
| 19.158-A | Measuring cables (X 2) with 2 probes |
| 19.160-B | Mobile probes (X 2) |

Available accessories, see chart page 19 13.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.152 | 220V | 290 x 170 x 180 | 2.800 |
| 19.152-110 | 110V | " | " |

WITSCHI® ANALYZER Q1 tester for **quartz watches**. This apparatus is the perfect test instrument to be used quickly and efficiently in the repair service, but also for analysis in the sales department and the watch-testing laboratory. New technologies provide extended test and measurement facilities, allowing a professional troubleshooting of quartz watches. Measuring cycles are largely automated. The combined rotating/push button provides a simple and quick parameter setting. The ergonomic and functional layout of the operating elements and the large LCD display are user-friendly. Optional printer : see page 19 9.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.153 | 220V | 290 x 170 x 180 | 3.800 |
| 19.153-110 | 110V | " | " |

Fast and efficient tester WITSCHI® ANALYZER TWIN for **quartz and mechanical watches**. Large measurement possibilities (new : generator and impulse analysis) and controls allowing fast and professional troubleshooting of quartz and mechanical watches. The measurement process is widely made automatically for a fast and efficient operation. Additional measurement modes provide a way to measure watches with special escapements. The instrument, based on the "all-in-one" concept, only requires a very small work area. Colour display TFT 1/4. Large VGA.

Available accessories, see chart page 19 13.

WITSCHI® testers for quartz and mechanical watches :

| Comments | CYCLONIC | NEW TECH HANDY II | ANALYZER Q1 | ANALYZER TWIN |
|--|-------------------|-------------------|-------------------|-------------------|
| | MSA 19.180 | MSA 19.158 | MSA 19.152 | MSA 19.153 |
| Mechanical watches tests | | | | ✓ |
| Rate measurement | | ✓ | ✓ | ✓ |
| Measurement of current consumption | | ✓ | ✓ | ✓ |
| Module supply with variable voltage | | ✓ | ✓ | ✓ |
| Motor coil and isolation test | | ✓ | ✓ | ✓ |
| Watch battery test | ✓ | ✓ | ✓ | ✓ |
| Display of the chopping rate of motor pulses | | | ✓ | ✓ |
| Display of the motor pulse by LED | ✓ | ✓ | ✓ | ✓ |
| Inductive (magnetic) signal sensor | | ✓ | ✓ | ✓ |
| Acoustic signal sensor | | ✓ | ✓ | ✓ |
| Capacitive signal sensor | | ✓ | ✓ | ✓ |
| Digital LCD display | | ✓ | | ✓ |
| Graphic LCD display | | | ✓ | ✓ |
| Release of blocked gear trains by fast rotation | ✓ | | | |
| Demagnetization of mechanical watches and tools | | | | |
| GPS Interface for check/adjustment or synchronisation of the time base | | | ✓ | ✓ |
| RS 232 interfaces | | ✓ | ✓ | ✓ |
| Long time analysis | | | ✓ | ✓ |
| Result printout | | ✓ | ✓ | ✓ |
| Saving of the measuring results | | Optional software | Optional software | |
| Accessories | MSA 19.180 | MSA 19.158 | MSA 19.152 | MSA 19.153 |
| Thermo printer MSA 19.169 (see page 19 13) | | ✓ | ✓ | ✓ |



| MSA | Versions | Voltage | Casing size mm | Kg |
|------------|--------------------|---------|----------------|-------|
| 19.155 | With micro (Pict.) | 220 V | 225 x 200 x 87 | 3.400 |
| 19.156 | Without micro | " | " | 2.800 |
| 19.155-110 | With micro (Pict.) | 110 V | " | 3.400 |
| 19.156-110 | Without micro | " | " | 2.800 |

WITSCHI® CHRONOSCOPE S1 tester for mechanical, quartz and tuning fork watches. This apparatus is the instrument of choice for effective and professional testing of mechanical watches by the repair service, by specialized shops and in industrial field. A refined design and the functional layout of operating elements, including the large LCD display provide a comfortable handling of the instrument.

Measuring possibilities :

- Rate deviation, beat error and amplitude of mechanical watches. Diagram of the beat noises.
- Rate deviation of quartz and tuning fork watches with the Expert Q signal sensor, available as an accessory.

Beat number : automatic selection of all common beat numbers. Manual selection of any beat number between 3'600 to 36'000 b/h. Determination of an unknown beat number. The automated microphone offers 7 different measurement cycles. Measurement results, average values and largest deviations are available. The new "VARIO" display mode provides a fast overview of the quality and stability of the rate accuracy. Optional printer : see page 19 9.

Delivered with manual microphone, AC adapter, casing protection cover and instructions.

Accessories :

| MSA | Items |
|----------|-------------------|
| 19.150-A | Complete barrel |
| 19.150-B | Foot microphone |
| 19.155-B | Micromat S |
| 19.150-H | Hub 4x USB output |

Available accessories, see chart page 19 13.

| MSA | Voltage | Casing size mm | Kg |
|------------|---------|-----------------|-------|
| 19.157 | 220 V | 250 x 101 x 135 | 2.100 |
| 19.157-110 | 110 V | " | " |

WITSCHI® WATCH EXPERT III tester, an economic measuring instrument ideally suited for testing mechanical watches. The diagram is displayed noiselessly on the new, illuminated LCD graphic display. Measured values for rate deviation, amplitude and beat error are automatically calculated and displayed numerically. As with all other instruments, the beat number of all common watches can be automatically recognised. Different measuring modes can be selected for watches with special escapements. Mobile in all testing positions, the microphone is used with movements and watches, with or without bracelets. Available accessories, see chart page 19 13.

Replacement microphone for MSA 19.157 :

| MSA | Kg |
|----------|-------|
| 19.157-M | 1.300 |



| MSA | Versions | Voltage | Casing size mm | Kg |
|--------|-------------------------|---------|-----------------|-------|
| 19.188 | With Micromat C (Pict.) | 220 V | 264 x 275 x 158 | 2.500 |

Tester WITSCHI® CHRONOSCOPE X1 for mechanical watches suitable for Manufacturing, After Sales Service and Watch-test lab. Thanks to microphone Micromat C, test cycles can be made in 6 different measuring positions. It provides 4 different display modes as well as a graphical display of beat noises.

Measurement Possibilities :

Rate deviation, amplitude and beat error of mechanical watches. Diagram of the beat noises.

Beat Number :

Automatic selection of all common beat numbers and manual selection for the non common beat numbers. Adjustment for all beat number range between 3'600 to 72'000 b/h. Different measuring modes: standard, for watches with Swiss escapement, for watches with coaxial escapement, for watches with AP escapement, with specific amplitude filter for the measurement of watches with the Swiss escapement and for Chronograph "Foudroyante"

Delivered with 1 automatic microphone Micromat C, 1 universal main adapter, 1 protection cover and use instructions.

Available accessories, see chart page 19 13.

WITSCHI® testers for mechanical watches :

| | WATCH EXPERT III MSA 19.157 | CHRONOSCOPE S1 MSA 19.155 et MSA 19.156 | CHRONOSCOPE X1 MSA 19.188 |
|--|--------------------------------|---|------------------------------|
| Performances | | | |
| Diagram tracing | ✓ | ✓ | ✓ |
| VARIO display mode | ✓ | ✓ | ✓ |
| Visualization of the beat noises (Scope) | | ✓ | ✓ |
| Calculation of the gravity point of balance wheels with software | | | |
| Acoustic measurement | ✓ | ✓ | ✓ |
| Number of measuring channels | 1 | 1 | |
| Automatic microphone | | Optional | ✓ |
| Built in LCD display | ✓ | ✓ | ✓ |
| PC software | | Optional | ✓ |
| GPS interface (check/adjustment of the time base) | ✓ | ✓ | ✓ |
| RS 232 interface | ✓ | ✓ | Universal, USB + COM1 |
| Number of measuring programs and parameter sets | | 20 | 99 |
| Graphic long time analysis | | | |
| Result printout | ✓ | ✓ | ✓ |
| WiCoTrace (SQL data base) | | Optional software | Optional software |
| Saving of the measuring results | Optional software | Optional software | Optional software |
| Fourier analysis (spectral analysis) | | Optional software | Optional software |
| Accessories | MSA 19.157 | MSA 19.155 | MSA 19.188 |
| Thermo printer MSA 19.169 | ✓ | ✓ | ✓ |

| MSA | Voltage | Size mm | Kg |
|----------|---------|-----------------|-------|
| 19.155-C | 220 V | 115 x 125 x 220 | 1.700 |

Automatic microphone Micromat C able to combine 10 channels and 11 positions. Ideal for adjustment and control of small production series As well as after sales service.

Measurement possibilities :

- Standard measurement rate accuracy, amplitude and beat error of mechanical watches. Endless measurement continuous diagram recording or graphic display of the beat noises. Interval measurement execution of the measurements in a definable interval during a certain period. Graphically display of the measurement results over the complete period. Measurement of the gravity localisation of the balance wheel's unbalanced error. Long Term Measurement (Reserve) this mode allows tests of watches with a power reserve of several days (max 12.5 days).

| MSA | Voltage | Size mm | Kg |
|-------------|---------|-----------------|-------|
| 19.155-B | 220 V | 115 x 125 x 220 | 1.650 |
| 19.155-B110 | 110 V | " | " |

MICROMAT S automatic microphone for WITSCHI® CHRONOSCOPE S1 control device. Automatic rate measurement in 6 positions.



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 19.134 | 220 V | 120 x 170 x 100 | 0.960 |

Thermo printer JB01-740RS232 for WITSCHI® testers.

Replacement thermo paper :

| MSA | Width mm | o mm |
|----------|----------|------|
| 19.134-P | 60 | 51 |



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.169 | 220 V | 260 x 170 x 110 | 1.000 |
| 19.169-110 | 110 V | " | " |

Standard thermo printer JB01-MCP7810 for WITSCHI® testers.

Replacement thermo paper :

| MSA | Width mm | o mm |
|----------|----------|------|
| 19.167-A | 54 | 57 |
| 19.167-B | 57 | 60 |

Accessories suitable for WITSCHI® testers :

| | MSA 19.152 | MSA 19.153 | MSA 19.155 | MSA 19.156 | MSA 19.157 | MSA 19.158 | MSA 19.180 | MSA 19.188 |
|----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| MSA 19.134 Printer 740RS232 | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ |
| MSA 19.143-B Micro protection | | | ✓ | ✓ | | | | |
| MSA 19.146-A Movement HOLDER | ✓ | | | | | ✓ | | |
| MSA 19.150-B Foot microphone | | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| MSA 19.155-B Micromat S | | | ✓ | ✓ | | | | |
| MSA 19.157-A Universal adapter | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MSA 19.158-A Test probes | ✓ | | | | | | ✓ | |
| MSA 19.160-B Mobile probes | ✓ | | | | | | ✓ | |
| MSA 19.169 Printer 7810 | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ |
| MSA 19.170 Auto print software | ✓ | | ✓ | ✓ | ✓ | ✓ | | |
| MSA 19.178 Switchbox 4 Auto | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ |
| MSA 19.184 Optoelectronic captor | | | ✓ | ✓ | ✓ | | | ✓ |
| MSA 19.185 Clamp microphone | | | ✓ | ✓ | ✓ | | | ✓ |
| MSA 19.188-P Touchscreen pen | | | | | | | | ✓ |



> Non available on the Swiss market.

| MSA | Voltage | Casing size mm | Kg |
|--------|---------|-----------------|-------|
| 19.159 | 220 V | 240 x 160 x 100 | 2.160 |

MTG 3000 tester **for mechanical watches**. Semi professional for fast and simple multifunction use.

Functions :

- measuring of beat rate (s/d)
 - measuring of beat error (ms)
 - automatic beat number detection (can also be set manually)
 - measurable beat numbers: 18.000, 19.800, 21.600, 25.200, 28.800 and 36.000 a/h
 - acoustic watch beat simulation (can be switched off)
 - measuring of amplitude (°)
 - programmed 6-position test mode with test report
 - stores 2048 beats
 - "PAUSE" and "SHIFT" function to stop measuring and view the previous 2048 beats
 - thermo printer connection (THERMOPRINT available optionally)
 - connection for automatic microphone (AUTOMIC-1 available optionally).
- Delivered with a 6 positions microphone ROTOMIC-1, 1 universal adapter, 1 protection cover and use instructions.

| MSA | Voltage | Casing size mm | Kg |
|--------|---------|-----------------|-------|
| 19.162 | 220 V | 190 x 115 x 100 | 1.500 |
| 19.176 | " | " | 1.550 |

MTG 500 tester **for mechanical watches**. Simple version ideal for fast test in the shop after sales service.

Functions :

- measuring of beat rate (s/d)
 - measuring of beat error (ms)
 - automatic beat number detection
 - measurable beat numbers : 18.000, 19.800, 21.600, 25.200, 28.800 and 36.000 a/h
 - acoustic watch beat simulation (can be switched off)
- Monochrome LCD screen 101 x 36 mm.
Delivered with a microphone SMIC-1 for MSA 19.162 and a microphone ROTOMIC-1 for MSA 19.176, 1 universal adapter, 1 protection cover and use instructions.



> Non available on the Swiss market.



> Non available on the Swiss market.

| MSA | Voltage | Casing size mm | Kg |
|--------|---------|-----------------|-------|
| 19.171 | 220 V | 200 x 135 x 100 | 1.970 |

MTG 1000 tester **for mechanical watches**. Compact model for fast and simple use.

Functions :

- measuring of beat rate (s/d)
 - measuring of beat error (ms)
 - automatic beat number detection (can also be set manually)
 - measurable beat numbers: 18.000, 19.800, 21.600, 25.200, 28.800 and 36.000 a/h
 - acoustic watch beat simulation (can be switched off)
 - measuring of amplitude (°)
- Delivered with a 6 positions microphone ROTOMIC-1, 1 universal adapter, 1 protection cover and use instructions.

| MSA | Versions | Voltage | Size mm | Kg |
|--------|---------------|---------|-----------------|-------|
| 19.172 | 1 microphone | 220 V | 260 x 170 x 115 | 3.255 |
| 19.173 | 2 microphones | " | " | " |
| 19.174 | 3 microphones | " | " | " |

MTG 4000 tester **for mechanical watches**. Complete multifunction version for professional use.

Functions :

- measuring of beat rate (s/d)
 - measuring of beat error (ms)
 - automatic beat number detection (can also be set manually)
 - measurable beat numbers: 18.000, 19.800, 21.600, 25.200, 28.800 and 36.000 a/h
 - acoustic watch beat simulation (can be switched off)
 - measuring of amplitude (°)
 - programmed 6-position test mode with test report
 - stores 720 beats
 - "PAUSE" and "SHIFT" function to stop measuring and inspect the previous stored beats
 - TYAPS signal processing unit which automatically controls the signal level and filters side noise
 - highly stable TCXO time base (only PRO version)
 - german/english menu (only PRO version)
 - thermal printer connection (THERMOPRINT available optionally)
 - connection for automatic microphone (AUTOMIC-1 available optionally)
- Delivered with a 6 positions microphone ROTOMIC-1, 1 universal adapter, 1 protection cover and use instructions.



> Non available on the Swiss market.



Functions :

- measuring of beat rate (s/d)
- measuring of beat error (ms)
- automatic beat number detection (can also be set manually)
- measurable beat numbers: 18.000, 19.800, 21.600, 25.200, 28.800 and 36.000 a/h
- acoustic watch beat simulation (can be switched off)
- measuring of amplitude (°)
- programmed 6-position test mode with test report
- long-term monitoring mode for rate and amplitude
- own test programs can be created for long term monitoring mode
- horizontally divisible screen
- selectable graphic or numeric resolution 0,2 s/d or 1 s/d
- TYAPS signal processing unit which automatically controls the signal level and filters side noise
- highly stable TCXO time base
- thermal printer connection (THERMOPRINT available optionally)
- connection for automatic microphone (AUTOMIC-1 available optionally)

Delivered with a 6 positions microphone ROTOMIC-1, 1 universal adapter, 1 protection cover and use instructions. Delivered without microphone under reference MSA 19.175-A

> Non available on the Swiss market.

| MSA | Voltage | Casing size mm | Kg |
|--------|---------|-----------------|-------|
| 19.175 | 220 V | 240 x 195 x 135 | 2.320 |

MTG 5000 tester **for mechanical watches**. Complete multifunction version for professional use, ideal for efficient and fast tests during production, after sales service and watch-test lab.



| MSA | Item |
|----------|----------------------|
| 19.175-B | Microphone AUTOMIC-1 |

> Non available on the Swiss market.



| MSA | Voltage | Size mm | Kg |
|--------|---------|----------------|-------|
| 19.177 | 220 V | 155 x 165 x 65 | 1.030 |

Thermo printer THERMOPRINT for MTG testers MSA 19.159, 19.172, 19.173, 19.174, 19.175 et 19.176.

Replacement thermo paper :

| MSA | Width mm | o mm |
|----------|----------|------|
| 19.177-A | 57 | 30 |

> Non available on the Swiss market.



| MSA | Nb of watches | Dim. mm | Kg |
|--------|---------------|-----------------|-------|
| 19.362 | 1 | 128 x 140 x 156 | 0.600 |

Single watch winder. Noiseless and reliable with modern design with large transparent lid.

Functions :

1. Wind clockwise and anticlockwise by switch operating.
2. Count down : auto rotate during 1 hour and rest during 3 hours.

Works with adaptor 110/220 V delivered with the winder.



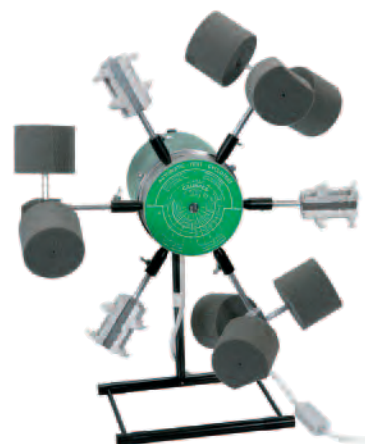
| MSA | Nb of watches | Dim. mm | Kg |
|--------|---------------|-----------------|-------|
| 19.363 | 2 | 167 x 138 x 243 | 1.175 |

Watch winder for 2 watches. Noiseless and reliable and modern design with large transparent lid.

Winding Functions :

1. Wind clockwise, auto (bi-directional) and anticlockwise by switch operating
2. Timer Functions :
 - Mode a : Auto rotate during 33 seconds, rest during 12 minutes
 - Mode b : Auto rotate during 10 minutes, rest during 90 minutes
 - Mode c : Auto rotate during 30 minutes, rest during 3 hours
 - Mode d : Auto rotate 1 hour, rest during 3 hours

Works with adaptor 110/220 V delivered with the winder.



| MSA | Apparatus | Rotation | Voltage | Kg |
|------------|----------------------------------|----------|---------|-------|
| 19.205 | REGLOMAT Final-Test | 1 RPM | 220 V | 2.780 |
| 19.205-110 | " | " | 110 V | " |
| 19.305 | CYCLOTEST (Pict.) Automatic-Test | 4 RPM | 220 V | 2.905 |
| 19.305-110 | " | " | 110 V | " |

Rotation apparatus for 18 watches including :

- 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 | Rotation | Voltage | Kg |
|------------|-----------------------------|----------|---------|-------|
| 19.206 | REGLOMAT (Pict.) Final-Test | 1 RPM | 220 V | 2.780 |
| 19.206-110 | " | " | 110 V | " |
| 19.306 | CYCLOTEST Automatic-Test | 4 RPM | 220 V | 2.905 |
| 19.306-110 | " | " | 110 V | " |

Rotation apparatus for 20 watches including :

- 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.

Replacement parts for MSA 19.205, 19.206, 19.305 and 19.306 :

| MSA | Items |
|----------|--|
| 19.201-A | Arm with springs for 1 watch with bracelet |
| 19.201-B | Arm with clips for 2 watches without bracelets |
| 19.205-A | Arm with clips for 3 watches without bracelets |
| 19.205-B | Arm with foams for 3 watches with bracelets |
| 19.205-C | Arm with springs for 4 watches with bracelet |
| 19.205-E | Foam only without arm |



| MSA | Apparatus | Rotation | Voltage | Kg |
|--------|-------------|------------|-----------|--------|
| 19.451 | CYCLOMOTION | 1 and 4 TM | 110/220 V | 11.000 |

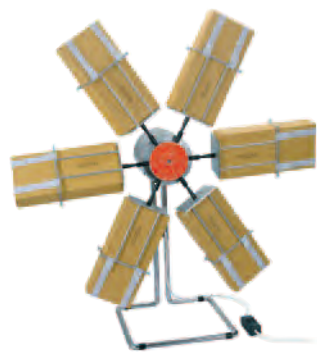
Watch winder CYCLOMOTION for automatic watch winding and for work testing. Noiseless motor equipped with a clutch system suitable for heavy and big watches. It is controlled by soft touch keys on the front plate.

Capacity : 24 watches (6 arms for 4 wrist watches each).
Rotation speed : 1 or 4 r.p.m.

Replacement Parts :

| MSA | Items |
|----------|------------------------------------|
| 19.450-A | Arm for 2 watches with bracelet |
| 19.450-B | Arm for 4 watches with bracelet |
| 19.450-C | Arm for 2 watches with bracelet |
| 19.450-D | Arm for 4 watches with bracelet |
| 19.450-E | Arm for 4 watches without bracelet |
| 19.450-F | Fixing kit on wall. |



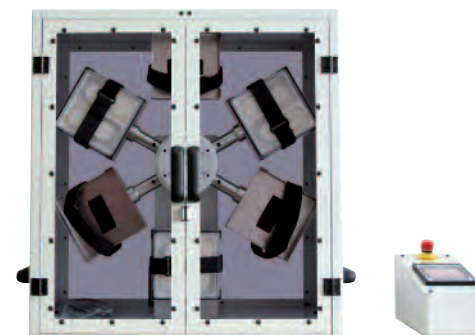


| MSA | Apparatus | Rotation | Voltage | Kg |
|--------|---------------------------|----------|---------|-------|
| 19.320 | CYCLOTTEST Automatic-Test | 4 RPM | 220 V | 8.000 |

Rotation apparatus for 60 watches including :
 - 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.

Replacement parts :

| MSA | Items |
|-----------|--|
| 19.320-B | Button only for closing the rubber MSA 19.320-E |
| 19.320-C | Box for 10 watches or movements |
| 19.320-E | Rubber only for holding the box MSA 19.320-C |
| 19.320-EB | Rubber with 2 buttons for holding the box MSA 19.320-C |



| MSA | Voltage | Size mm | Kg |
|--------|-----------|-----------------|--------|
| 19.370 | 110/220 V | 560 x 600 x 330 | 37.000 |

Watch winder DUOTEST 48 for automatic watch winding and for work testing. Gives real acceleration undergone by the wearer wrist. Noiseless and sturdy, it is suitable for work shop and sales points and can be installed in safe box. Week mode programme with time switch or full time mode.

Capacity : 48 watches with or without bracelets (storage box and lid available 130 x 130 mm at 4 compartments, non included).

Speed : 1 or 4 r.p.m.
 Opening the door automatically stops the machine.



| MSA | Apparatus | Rotation | Voltage | Kg |
|------------|-------------|----------|---------|-------|
| 19.321 | CYCLOMAT 12 | 4 RPM | 220 V | 2.800 |
| 19.321-110 | " | " | 110 V | " |

Watch winder CYCLOMAT 12 for 12 watches of with 12 arms and clips for 1 watch with bracelet of each. The CYCLOMAT 12 tests the following : winding acceleration, winding speed and power reserve.

Replacement Parts :

| MSA | Items |
|----------|-----------------------------|
| 19.321-A | Arm only with axle and clip |
| 19.321-B | Clip only without axle |



| MSA | Voltage | Size mm | Kg |
|--------|---------|-------------------|---------|
| 19.375 | 220 V | 1100 x 1100 x 500 | 128.000 |

DUOTEST apparatus for winding automatic watches and for working tests. Reproduces accurately the undergone accelerations by the watches when worn on the wrist. Programmable in weekly, timer, stop watch or continual mode. Sturdy and silent.

Capacity : 300 watches without bracelet or 90 watches with bracelet.

Rotation frequency : 1 or 4 RPM.
 It stops with the opening of the door. Provided with key locking.



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|--------|
| 19.372 | 220 V | 550 x 400 x 450 | 13.000 |

Watch winder CLINAX for automatic watch winding in small series. Ideal for small production, after sales service and for shops for keeping watches wound. Week mode programme with time switch or full time mode.
Capacity : until 60 watches without bracelets or movements and 16 watches with bracelets.
Speed : 18 r.p.m.



| MSA | Voltage | Size mm | Kg |
|--------|---------|------------------|--------|
| 19.371 | 220 V | 1100 x 480 x 490 | 63.000 |

STANDARD III apparatus for the industrial winding and shock tests of watches. It works on an optimized balance mode to reduce winding time. Programmable in weekly, timer or continual mode.

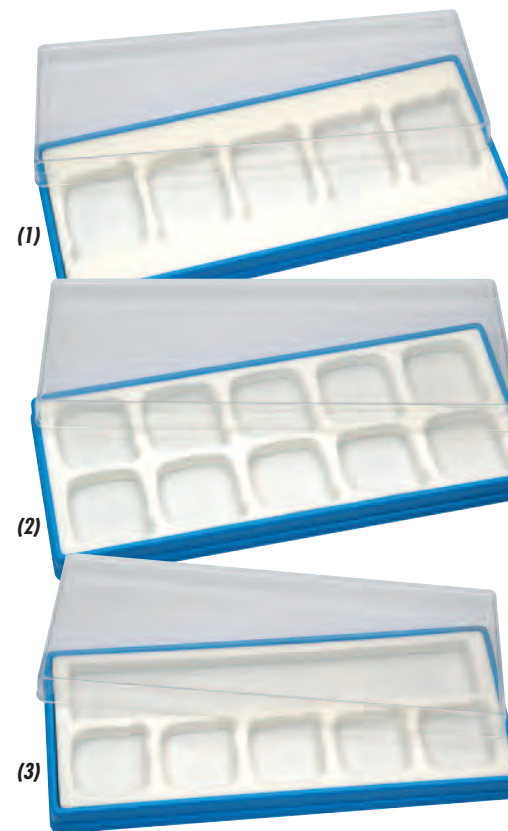
Capacity : up to 250 watches
Rotation frequency : 15 to 36 cycles/minute.
 It stops by opening the hood.
 Torque limiter with release in case of overload.



| MSA | Voltage | Size mm | Kg |
|--------|---------|------------------|--------|
| 19.376 | 220 V | 1380 x 480 x 490 | 98.000 |

SUPER E apparatus for the industrial winding and shock tests of automatic watches. It works on an optimized balance mode to reduce winding time. Programmable in weekly, timer or continual mode.

Capacity : 500 to 860 watches or movements
Rotation frequency : 15 to 36 cycles/minute.
 It stops with the opening of the door.
 Torque limiter with release in case of overload.



| MSA | Items | Size mm |
|----------|-----------------------|----------------|
| 19.373-F | Synthetic blue bottom | 312 x 128 x 23 |
| 19.374-F | Transparent cover | 312 x 128 x 18 |

Available cut foams :

| MSA | Shape | Divisions | Size mm | Notches |
|----------|-----------------|-----------|-----------|---------|
| 19.373-A | Rectangular | 8 | 70 x 50 | Without |
| 19.373-B | Television (1) | 5 | 66 x 53 | 2 |
| 19.373-C | Television (2) | 10 | 51 x 50.5 | 1 |
| 19.373-D | Television | 10 | 62 x 55 | 2 |
| 19.373-E | TV+Bracelet (3) | 5+1 | 51 x 50.5 | 1 |
| 19.374-A | Round | 10 | 50 | 1 |
| 19.374-B | Round | 10 | 40 | 1 |
| 19.374-C | Round | 10 | 45 | 1 |
| 19.374-D | Round | 10 | 48 | 1 |
| 19.374-E | Watch+bracelet | 2 | - | Without |

Synthetic blue tray with cut foams in different shapes and PET transparent cover. To be used with apparatus MSA 19.371, 19.372, 19.375 and 19.376 ; for watches with or without bracelets and movements.



| MSA | Item | Size mm |
|--------|---------------------------------------|----------------|
| 19.373 | Tray for 10 watches without bracelets | 240 x 110 x 20 |

Green tray 10 compartments and transparent lid with protection foams. Suitable for the winders MSA 19.371, 19.372, 19.375, 19.376 (according to tray holder).



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 19.380 | 110 x 190 x 160 | 1.200 |

ELMA® CYCLOMATIC DUE winding apparatus specially made for collectors of top range automatic watches with lunar phases and continuous calendar. Works with 4 supplied batteries or with adaptor (not included) ; suitable for 2 watches. Cycle : rotates during 2 minutes in every 30 minutes. It is possible to have a continuous rotation by using the adapter (not included). Supplied without watches.

Replacement part :

| MSA | Item | Kg |
|----------|---------------|-------|
| 19.381-A | 220 V adapter | 0.350 |



| MSA | Size mm | Kg |
|-----------|----------------|-------|
| 19.109 | 140 x 160 x 70 | 0.470 |
| 19.109-US | " | " |

SEIKO Kinetic® capacitors recharger. Delivered with an adaptor 110/220V (19.109-US, with USA plug).



| MSA | Model | Size mm | Kg |
|--------|----------|-----------------|-------|
| 19.406 | Standard | 200 x 170 x 270 | 3.500 |

CALYPSO waterproof tester up to 10 bars used with **water**. The pressure is generated by a **manual pump**. Cylinder ø 80 mm suitable for 2 watches.

| MSA | Model | Size mm | Kg |
|--------|-------|-----------------|-------|
| 19.424 | Plus | 200 x 170 x 270 | 3.500 |

CALYPSO waterproof tester up to 10 bars used with **water**. Suitable for both air admission by a **manual pump or compressor** (not delivered). On Compressor mode, the pressure adjustment inside the cylinder ø 80 mm (for 2 watches) is made with an air-gate located in front of the tester.



| MSA | Model | Size mm | Kg |
|--------|-------|-----------------|-------|
| 19.425 | Minus | 200 x 170 x 270 | 3.500 |

CALYPSO waterproof tester up to 10 bars used with **water**. Cylinder ø 80 mm for 2 watches. To be used with 1 **compressor** (not included). The pressure adjustment is made with an air-gate located in front of the tester.

Replacement Parts for MSA 19.406, 19.424 and 19.425 :

| MSA | Items |
|----------|--|
| 19.406-A | O'ring gasket ø 70 mm between cylinder and cover |
| 19.406-B | Cover screw |
| 19.406-C | Plexiglas cylinder ø 80 mm |
| 19.406-D | Plexiglas cylinder ø 70 mm |
| 19.406-E | O'ring gasket ø 80 mm between cylinder and cover |

- 0.2 à - 0.8 bar
0.2 à 10 bar



| MSA | Voltage | Dim. mm | Kg |
|------------|---------|-----------------|-------|
| 19.187 | 220 V | 245 x 240 x 240 | 6.700 |
| 19.187-110 | 110 V | " | " |

WITSCHI® PROOFMASTER M waterproof tester, suitable for Manufacturing, After Sales Service and Watch-test lab. Analyzes watch deformation **under pressure and/or vacuum**. Automatic cycle of complete test, intuitive operation with colour touch screen (TFT colour 320 x 240 pixels) 9 pre-defined and 45 free programmable tests such as pressure, tolerance, measuring time and test sequences with up to 3 different pressures, from -0.8 up to +10 bars. The Leak Finder allows the localization of the watch leakage in water. Connections : mains adapter, PC (USB) and RS 232 for thermo printer MSA 19.169 (see page 19 13).

Compressor delivered separately (see page 19 32).

- 0.2 à - 0.8 bar
0.2 à 10 bar



| MSA | Voltage | Dim. mm | Kg |
|------------|---------|-----------------|-------|
| 19.183 | 220 V | 245 x 240 x 240 | 6.100 |
| 19.183-110 | 110 V | " | " |

WITSCHI® PROOFMASTER S waterproof tester, suitable for Manufacturing, After Sales Service and Watch-test lab. Analyzes watch deformation **under pressure and/or vacuum**. 7 pre-defined universal programs and 10 individual freely programmable tests such as pressure, tolerance, measuring time and test sequences with 1 or 2 pressures. RS 232 interface to connect the optional printer MSA 19.169 (see page 19 13).

Compressor delivered separately (see page 19 32).

- 0.7 bar
10 bar



| MSA | Voltage | Size mm | Kg |
|--------|------------------|-----------------|-------|
| 19.407 | Dual 110 V/220 V | 320 x 250 x 280 | 7.500 |

GREINER® 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 bars. Serial interface for printout of certificate on optional printers, see pages 19 5 and 19 6.

Compressor delivered separately (see page 19 32).

- 0.7 bar



| MSA | Voltage | Size mm | Kg |
|--------|-----------|-----------------|-------|
| 19.403 | 220/110 V | 340 x 260 x 340 | 7.000 |

GREINER® 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 timepieces, ceramics. Results displayed on a colour 5" TFT capacity touch-screen (800 x 480 pixels) or on thermo printer (see here below).

Accessorie :

| MSA | Voltage | Size mm |
|--------|---------|-----------------|
| 19.129 | 220 V | 260 x 170 x 110 |

GREINER® thermo printer MARTEL 7810 suitable for all GREINER® testers.

Replacement thermo paper :

| MSA | Width mm | ø mm |
|----------|----------|------|
| 19.167-B | 57 | 60 |

- 0.8 bar

Air



| MSA | Voltage | Size mm | Kg |
|------------|---------|-------------|-------|
| 19.402 | 220 V | ø 155 x 315 | 3.500 |
| 19.402-110 | 110 V | " | " |

The ELMA® 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 1/100 mm 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.

40 bar

Water



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 19.416 | 250 x 270 x 250 | 7.000 |

ROXER® NATATOR 40 waterproof tester up to 40 bars. 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 (max 0.2 L), the lid with window is locked. The control is made by using the lateral handle which will be screwed until the desired pressure indicated on the manometer.

No Compressor required.

- 0.5 bar

Air



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.405 | 220 V | 180 x 250 x 270 | 5.000 |
| 19.405-110 | 110 V | " | " |

GREINER® LEAK-CHECKER 2000 apparatus, easily used for testing watches by dry waterproofing; a must for the after sales service department and watchmakers workshop. Measuring system by depression of -0.5 bar using a powerful vacuum integrated in the apparatus. The automatic indication of test results is digitally displayed and acoustically announced by the simple handling of the buttons.

Accessorie :

| MSA | Item |
|----------|-------------------|
| 19.405-A | Transparent cover |

125 bar

Water



| MSA | Size mm | Kg |
|--------|-----------------|--------|
| 19.429 | 310 x 330 x 300 | 12.000 |

ROXER® NATATOR 125 waterproof tester up to 125 bars. 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 (max 0.33 L), the lid is locked. The control is made by using the lateral handle which will be screwed until the desired pressure indicated on the manometer.

No Compressor required.

- 0.7 bar
10, 20, 30 et 50 bar



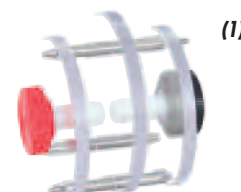
| MSA | Versions | Voltage | Size mm | Kg |
|--------|---------------|---------|-----------------|-------|
| 19.442 | 0.7 to 10 bar | 220 V | 210 x 310 x 220 | 6.750 |
| 19.443 | 0.7 to 20 bar | " | " | 7.200 |
| 19.444 | 0.7 to 30 bar | " | " | 9.850 |

SIGMA® SM-8850 high performance waterproof tester. Measuring chamber specially built to reduce the air filling time during high pressure tests, while increasing the available space for large-sided watches. The measuring head positions automatically the watch for the test. A LCD display indicates the test results. Compressor delivered separately. With RS232 interface for optional BIXOLON printer, see here below.



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 19.418 | 440 x 290 x 310 | 5.700 |

GREINER® WPL 310 waterproof tester working with water for visualization of the leak origin for watches up to ø 60 mm. The test is done between 0.5 and 10 bars. The automatic lifting as well as the overpressure in the watch case make impossible any water infiltration coming inside it. The plexiglas movement holder prevents disassembling of the watch glass. Suitable for testing 2 watches at the same time. Watch holders and compressor delivered separately.



(1)



(2)

Accessories :

| MSA | Items |
|--------------|------------------|
| 19.418-A (1) | 2 watches holder |
| 19.418-B (2) | 1 watch holder |



| MSA | Versions | Use for tester | Kg |
|----------|-------------------|----------------|-------|
| 19.433 | 3.5x 11 to 20 bar | 19.443 | 4.280 |
| 19.434 | 2.0x 11 to 20 bar | 19.443 | " |
| 19.440-1 | 3.5x 9 to 30 bar | 19.444 | " |

Pressure booster SIGMA® able to produce 20 or 30 bars from a **compressor producing at least 9 bars.**

| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 19.170 | 220 V | 144 x 233 x 121 | 2.300 |

BIXOLON printer suitable for all SIGMA® waterproof testers. Use plain paper.

Accessories :

| MSA | Item |
|----------|---------------------------|
| 19.170-A | Printer cable for SM-8810 |
| 19.170-B | Printer cable for SM-2000 |
| 19.170-C | Printer cable for SM-8850 |
| 19.170-D | Paper roll ø 80 x 76 mm |



» **Compressors. The models with tank release the air under pressure immediately ; waterproof tests proceed quicker.**

11 bar



| MSA | Voltage | Capacity | Kg |
|------------|---------|------------------|--------|
| 19.409 | 220 V | 10 litres/minute | 32.000 |
| 19.409-110 | 110 V | 10 litres/minute | " |

JUNAIR compressor 11 bars, safety valve, water separator and 10 litre stainless steel tank. Delivered in cardboard box 50 x 50 cm, height 58 cm.

Accessories :

| MSA | Items |
|----------|---------------------|
| 19.409-H | Compressor oil - 1L |
| 19.409-T | Air pipe connector |

10 bar



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 19.435 | 220 V | 312 x 144 x 213 | 10.700 |
| 19.435-110 | 110 V | 312 x 144 x 213 | 10.700 |

GAST compressor 10 bars (50 Hz/ 0.12 kW), compact, reliable and practically do not require any maintenance. Generates clean air, without dust and oil. Pressure up to 10 bars in 25 seconds, directly driven by the waterproof tester.

20 bar



| MSA | Voltage | Capacity | Size mm | Kg |
|--------|---------|------------------|-----------------|--------|
| 19.439 | 220 V | 75 litres/minute | 410 x 330 x 400 | 22.000 |

BAMBI high pressure compressor 20 bars (50 Hz), equipped with a tank. Very quiet, practically doesn't generate any vibration. Pressure up to 15 bars in 25 seconds, directly driven by the waterproof tester. This type of compressor can also produce a depression allowing watches to be tested in vacuum condition.

» **Hot air drier.**



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.750 | 220 V | 190 x 175 x 120 | 2.810 |
| 19.750-110 | 110 V | " | " |

T8 drier with hot air ventilator for drying watches, jewellery, etc. Power 600 W.

» **Steam Cleaners.**










Professional ELMA® steam cleaners are recommended for cleaning any component or item of watch and jewellery like polishing dusts, oil... Easy works without chemical products thanks to a steam jet at max 8 bars. Works with tap or distilled water. Constant steam availability, no pressure losses and constant pressure level. These Steam cleaners are delivered according to different executions en capacities (see chart here bellow).

» Options should be precised at the order as no one apparatus modification can be made afterwards.

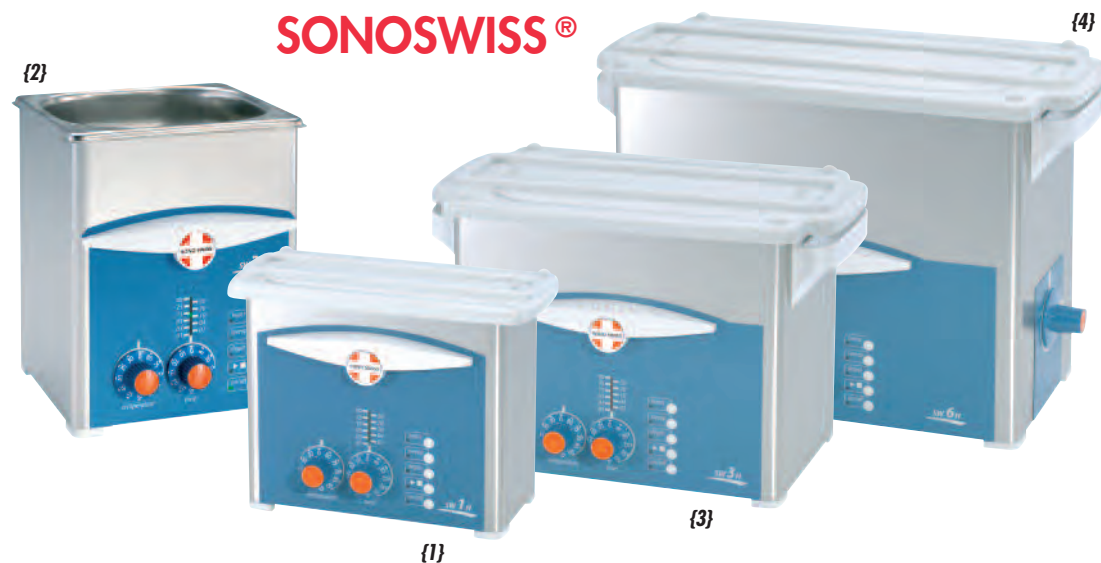
Accessories :

| MSA | Items |
|--------|---------------------------------|
| 19.845 | Air pipe |
| 19.673 | ElmaSteam 3000 Pump |
| 19.674 | ElmaSteam 5000 Pump |
| 19.672 | Air pipe connector |
| 19.675 | Flexible handpiece (right side) |

| MSA | Items |
|----------|---|
| 19.676 | Ball valve for tank |
| 19.679-G | Large basket |
| 19.679-P | Small basket |
| 12.910 | Tweezers for handling items under steam jet |

| MSA | Designation | Capacity litres | Dim. mm | Kg |
|--|---|-----------------|-----------------|--------|
|  19.651 19.651-110 | ElmaSteam 3000 with fixed nozzle and foot pedal | 3 | 385 x 445 x 330 | 16.000 |
|  19.649 19.649-110 | ElmaSteam 3000 with flexible handpiece (1.7 m) | 3 | 385 x 445 x 330 | 16.000 |
|  19.653 19.653-110 | ElmaSteam 3000 with flexible handpiece (3.0 m) | 3 | 385 x 445 x 330 | 16.000 |
|  19.657 | ElmaSteam 5000 with fixed nozzle and foot pedal | 5 | 385 x 415 x 435 | 21.500 |
|  19.656 | ElmaSteam 5000 with flexible handpiece (1.7 m) | 5 | 385 x 415 x 435 | 21.500 |
|  19.658 | ElmaSteam 5000 with flexible handpiece (3.0 m) | 5 | 385 x 415 x 435 | 21.500 |
|  19.648 19.648-110 | ElmaSteam 5000 with flexible handpiece (1.7 m), fixed nozzle and foot pedal | 5 | 385 x 415 x 435 | 21.500 |

>> Ultrasonic Cleaning machines.



Models 220 V

| MSA | Type | Volume (L) | Internal size (tank) | Power | Heating | Handles | Drain | Cover | MSA |
|--------|-----------|------------|----------------------|--------|---------|---------|---------|---------|------------|
| 19.660 | SW 1 | 0.80 | 190 x 85 x 60 | 35 W | Without | Without | Without | Without | 19.660-110 |
| 19.661 | SW 1H (1) | " | " | 95 W | With | Without | Without | " | 19.661-110 |
| 19.662 | SW 3 | 2.75 | 240 x 137 x 100 | 85 W | Without | With | Without | " | 19.662-110 |
| 19.663 | SW 3H (3) | " | " | 285 W | With | With | Without | " | 19.663-110 |
| 19.671 | SW 3H | " | " | 285 W | With | With | With | " | 19.671-110 |
| 19.664 | SW 6H (4) | 5.75 | 300 x 150 x 150 | 600 W | With | With | With | " | 19.664-110 |
| 19.665 | SW 12H | 12.75 | 300 x 240 x 200 | 1100 W | With | With | With | " | 19.665-110 |
| 19.666 | SW 30H | 28.00 | 500 x 300 x 200 | 1600 W | With | With | With | " | 19.666-110 |
| 19.667 | SW 45H | 45.00 | 500 x 300 x 300 | 2100 W | With | With | With | " | 19.667-110 |
| 19.668 | SW 90H | 90.00 | 600 x 500 x 300 | 3000 W | With | With | With | " | 19.668-110 |

Models 110 V

New SONOSWISS® ultrasonic units for fine cleaning of jewellery and watches (worn or repaired, in shop stock or workshop).

The modern ultrasonic cleaning technology of these devices meets the high demands of today and exceeds all conventional ultrasonic cleaning methods. It is suitable for the cleaning process itself and for further rinsing baths.

Features and advantages :

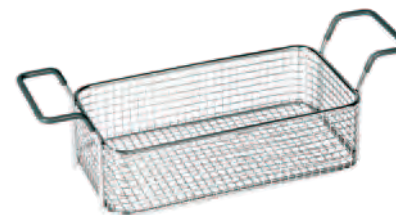
- useful and practical accessories. The cover can also serve as drop-off collecting basin for the wet basket.
- connection for drain duct at the back, therefore the workplace can be chosen with or without a wash basin. Comfortable operating switch on the unit side.
- the tanks, all made of stainless steel, allows hygienic cleaning and disinfection (if required) of the unit surfaces.
- waterproof operating panel. The operating elements themselves are protected against splash water (in addition any spilled water is guided along the sides).

>> Accessories for SONOSWISS® ultrasonic cleaning machines.



| MSA | Items |
|----------|---|
| 19.660-A | Plastic cover for MSA 19.660 and 19.661 |
| 19.662-A | Plastic cover for MSA 19.662, 19.663 and 19.671 |
| 19.664-A | Plastic cover for MSA 19.664 |
| 19.665-A | Plastic cover for MSA 19.665 |
| 19.666-A | Plastic cover for MSA 19.666 |
| 19.667-A | Stainless steel cover for MSA 19.667 |
| 19.668-A | Stainless steel cover for MSA 19.668 |
| 19.669-A | Plastic cover for MSA 19.669 and 19.670 |

The cover, **delivered without basket**, can also be used as a tray for the wet basket.



| MSA | Items |
|----------|--|
| 19.660-B | Stainless steel basket for MSA 19.660 and 19.661 |
| 19.662-B | Stainless steel basket for MSA 19.662, 19.663 and 19.671 |
| 19.664-B | Stainless steel basket for MSA 19.664 |
| 19.665-B | Stainless steel basket for MSA 19.665 |
| 19.666-B | Stainless steel basket for MSA 19.666 |
| 19.667-B | Stainless steel basket for MSA 19.667 |
| 19.668-B | Stainless steel basket for MSA 19.668 |
| 19.669-B | Stainless steel basket for MSA 19.669 and 19.670 |



| MSA | Items |
|--------|---|
| 19.655 | Stainless steel immersion basket ø 59 x 60 mm |
| 19.680 | Stainless steel immersion basket ø 78 x 60 mm |



| MSA | Items |
|--------|--|
| 19.612 | Stainless steel tray for 2 beakers for MSA 19.660 and 19.661 |
| 19.652 | Stainless steel tray for 2 beakers for MSA 19.662 and 19.663 |
| 19.681 | Stainless steel tray for 2 beakers for MSA 19.664, 19.665 and 19.666 |



| MSA | Item |
|----------|---|
| 19.633-C | Jewellery plastic rack with 10 double hooks |



| MSA | Items |
|----------|--|
| 19.614 | Glass beaker ø 80 mm with cover and rubber ring |
| 19.640-F | Glass beaker ø 95 mm with cover and rubber ring |
| 19.682 | Set of 2 glass beakers 600 ml for MSA 19.660 et 19.661 with lids and tray. |
| 19.683 | Lid only for MSA 19.640-F |

EQUIPPED WITH BASKETS Ø 80 MM



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 19.540 | 220 V | 420 x 420 x 560 | 29.000 |
| 19.540-110 | 110 V | " | " |

GREINER® VIBRASONIC ACS-900 ultrasonic cleaning machine with 4 baths (2x pre-rinsing, rinsing et drying). Fully automatic and electronically activated alternative rotation. Suitable for baskets Ø 80 mm.

Replacement parts for ACS 900 :

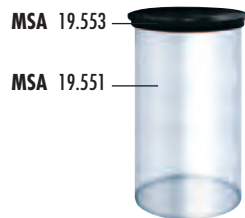
| MSA | Item |
|-------------|--------------------------|
| 19.550-C110 | Ultrasonic circuit 110 V |
| 19.550-C220 | Ultrasonic circuit 220 V |
| 19.550-U | Ultrasonic tank |

The ultrasonic machine MSA 19.540 is delivered with the following accessories in Ø 80 mm :

| MSA | Items | |
|----------|--|-------|
| 19.550-U | Ultrasonic beaker | |
| 19.551 | Glass beakers (3x) | |
| 19.553 | Lid for glass beakers (4x) | |
| 19.563 | Wave-breaker for baskets (3x) Ø 64 and 80 mm | |
| 19.565 | Superior basket holder (1x) | |
| 19.569 | Basket 1 compartment (1x) | 0.018 |
| 19.570 | Basket 4 compartments (3x) | 0.024 |
| 19.571 | Basket cover (1x) | 0.030 |
| 19.572 | Inferior basket holder (1x) | 0.037 |

Optional accessories available for MSA 19.540 in Ø 80 mm :

| MSA | Items | Kg |
|--------|---|-------|
| 19.561 | Upper basket holder with clamp (suitable for both Ø 64 and 80 mm) | 0.027 |
| 19.566 | Upper special basket holder | 0.118 |
| 19.567 | Basket 11 compartments | 0.033 |
| 19.568 | Basket 8 compartments | 0.029 |



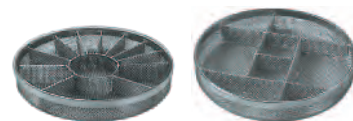
MSA 19.563 MSA 19.565 MSA 19.569



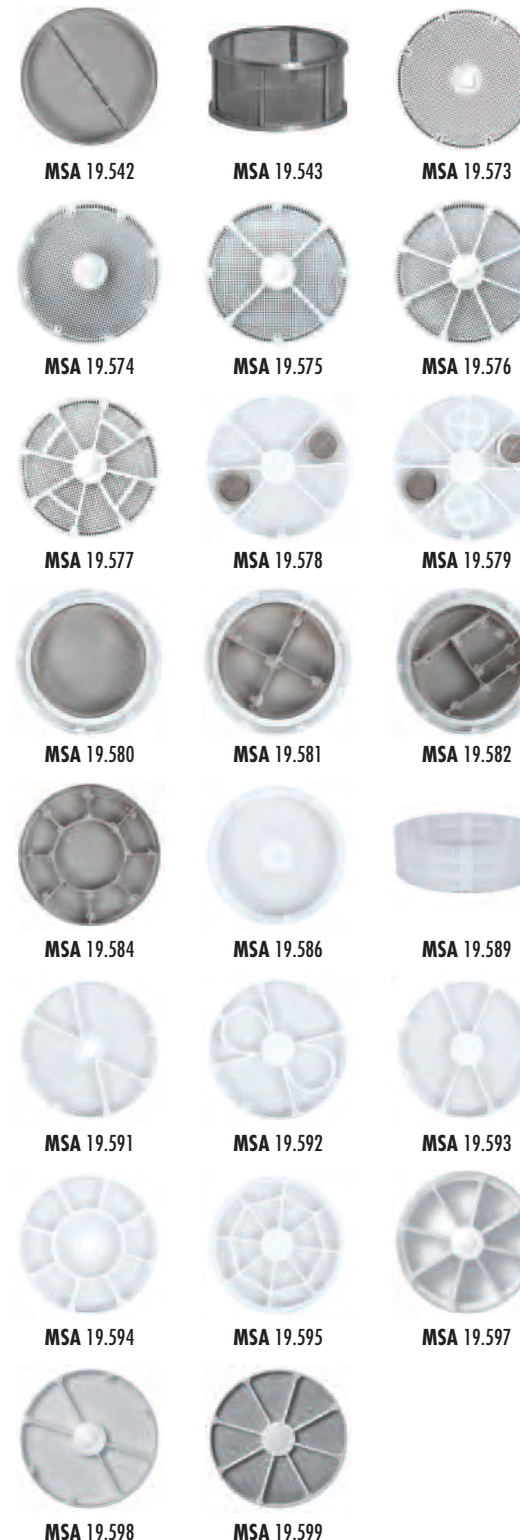
MSA 19.570 MSA 19.571 MSA 19.572



MSA 19.561 MSA 19.566



MSA 19.567 MSA 19.568



Optional accessories available for MSA 19.540 in Ø 80 mm :

| MSA | Items |
|----------|---|
| 19.542 | Metal basket 2 compartments Ø 80 mm, Ht 10 mm |
| 19.543 | Metal basket 1 compartment Ø 80 mm, Ht 40 mm |
| 19.573 | Metal basket cover |
| 19.574 | Metal basket 1 compartment |
| 19.574-D | Metal basket 1 compartment, double mesh |
| 19.575 | Metal basket 4 compartments |
| 19.576 | Metal basket 8 compartments |
| 19.577 | Metal basket 12 compartments |
| 19.577-D | Metal basket 12 compartments, double mesh |
| 19.578 | Basket 6 compartments and 2 mini baskets MSA 19.564 |
| 19.579 | Basket 6 compartments with 2 mini baskets MSA 19.564 and 2 capsules MSA 19.552 |
| 19.580 | Basket 1 compartment with 1 basket MSA 19.557 |
| 19.581 | Basket 1 compartment with 1 basket MSA 19.556 |
| 19.582 | Basket 1 compartment with 1 basket MSA 19.562 |
| 19.583 | Basket 8 compartments with outer double mesh |
| 19.584 | Metal basket 9 compartments + central compartment Ø 40 mm, Ht 10 mm |
| 19.585 | Set of 7 cleaning metal baskets |
| 19.586 | Delrin® basket 1 compartment, Ht 16 mm |
| 19.587 | Delrin® basket 4 compartments, Ht 8 mm double mesh |
| 19.588 | Delrin® basket 1 compartment, Ht 8 mm double mesh |
| 19.589 | Delrin® basket 1 compartment, Ht 24 mm double mesh |
| 19.590 | Plastic basket divider for MSA 19.575 et 19.576 |
| 19.591 | Delrin® basket 4 compartments, Ht 8 mm for 2 Main plates Ø 38 mm |
| 19.591-D | Delrin® basket 4 compartments, Ht 8 mm for 2 Main plates Ø 38 mm, double mesh |
| 19.592 | Delrin® basket 4 compartments, Ht 8 mm for 2 Main plates Ø 25 mm |
| 19.593 | Delrin® basket 4 compartments, Ht 8 mm for Main plate Ø 31 mm |
| 19.594 | Delrin® basket 8 compartments + central compartment Ø 39 mm, Ht 8 mm |
| 19.594-D | Delrin® basket 8 compartments + central compartment Ø 39 mm, Ht 8 mm, double mesh |
| 19.595 | Delrin® basket 16 compartments, Ht 8 mm |
| 19.595-D | Delrin® basket 16 compartments, Ht 8 mm, double mesh |
| 19.596 | Delrin® basket 4 compartments, Ht 16 mm |
| 19.597 | Delrin® basket 8 compartments, Ht 32 mm |
| 19.598 | Delrin® basket 4 compartments, Ht 8 mm |
| 19.599 | Delrin® basket 8 compartments, Ht 8 mm, tight mesh |

EQUIPPED WITH BASKETS Ø 64 MM

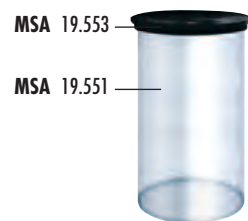


| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 19.550 | 220 V | 420 x 420 x 560 | 29.000 |
| 19.550-110 | 110 V | " | " |

GREINER® VIBRASONIC ACS-900 ultrasonic cleaning machine with 4 baths (2x pre-rinsing, rinsing et drying). Fully automatic and electronically activated alternative rotation. Suitable for baskets Ø 64 mm.

Replacement parts for ACS 900 :

| MSA | Items |
|-------------|--------------------------|
| 19.550-C110 | Ultrasonic circuit 110 V |
| 19.550-C220 | Ultrasonic circuit 220 V |
| 19.550-U | Ultrasonic tank |



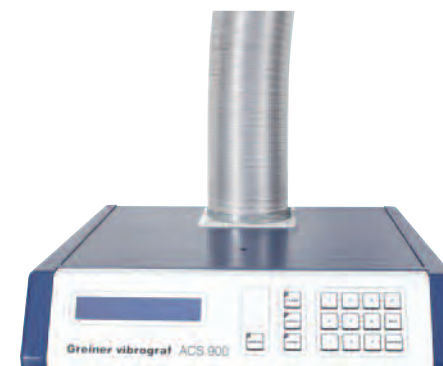
The ultrasonic machine MSA 19.550 is delivered with the following accessories in Ø 64 mm :

| MSA | Items |
|----------|--|
| 19.550-U | Ultrasonic beaker |
| 19.551 | Glass beaker (3x) |
| 19.552 | Mini plastic basket (3x) Ø 22 x 6 mm |
| 19.553 | Cover for glass beaker (4x) |
| 19.554 | Upper basket holder |
| 19.555 | Lower basket holder |
| 19.556 | Basket 4 compartments (2x) |
| 19.557 | Basket 1 compartment |
| 19.558 | Basket cover |
| 19.559 | Support for 5 movements holders |
| 19.560 | Movements holder for 3 movements (5x) |
| 19.563 | Wave-breaker for baskets (3x) Ø 64 and 80 mm |



Special optional accessories available for MSA 19.550 in Ø 64 mm :

| MSA | Items |
|--------|----------------------------------|
| 19.541 | Movements holder for 6 movements |
| 19.561 | Upper basket holder with clamp |
| 19.562 | Basket 5 compartments |
| 19.564 | Mini basket with lid Ø 20 mm |



Special optional accessories available for MSA 19.540 and MSA 19.550 :

| MSA | Items |
|----------|---|
| 19.540-A | Flexible exhauster pipe, min 20 cm / max 100 cm |
| 19.540-B | Flexible exhauster pipe, min 50 cm / max 250 cm |
| 19.540-P | Pipe connector |
| 19.540-R | Connector with screw |



HOROTEC® special optional accessories available for MSA 19.540 in Ø 80 mm :

| MSA | Items |
|--------------|--|
| 19.547 (1) | Basket for 8 large dimensions Main plates, from 2.50 to 3.60 mm thickness |
| 19.547-A (2) | Set of Main plates support for MSA 19.547 |
| 19.548 | Basket for 11 large dimensions Main plates, from 1.60 to 2.50 mm thickness |
| 19.548-A | Set of Main plates supports for MSA 19.548 |
| 19.549 | Basket for 14 large dimensions Main plates, from 0.90 to 1.60 mm thickness |
| 19.549-A | Set of Main plates supports for MSA 19.549 |



HOROTEC® special baskets for cleaning large dimensions Main plates, (8, 11 or 14 items). Simple, fast and secured Main plates fixing.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-------------|--------|
| 19.520 | 220 V | ø 330 x 500 | 10.500 |
| 19.520-110 | 110 V | " | " |

ELMA® SUPER ELITE washing machine. Economical alternative to clean movements of disassembled watches. The parts are manually placed in the 3 baths. The heater in the metallic cylinder allows the drying of the parts without smearing them.

Included accessories :

- 1 cleaning basket MSA 19.530-B
- 3 complete cleaning glass beakers MSA 19.521.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 19.530 | 220 V | 350 x 350 x 640 | 27.600 |
| 19.530-110 | 110 V | " | " |

ELMA® RM 90 washing machine fully automatic to clean movements of assembled or disassembled watches. Two cleaning systems tested and linked in only one machine :

- the cleaning of assembled movements using the movements holder
- the cleaning of disassembled parts in a sieve basket.

Delivered with the accessories :

- 1 movement holder for 6 Movements MSA 19.530-N
- 3 cleaning glass beakers MSA 19.521-C.

Replacement parts for MSA 19.520 and 19.530 ø 64 mm :

| MSA | Éléments |
|----------|--|
| 19.521 | Glass jar, with lid and cork gasket |
| 19.521-A | Lid with cork gasket |
| 19.521-B | Cork gasket only, for lid |
| 19.521-D | CPL heating plate for MSA 19.520 |
| 19.521-E | Heater/Motor switch for MSA 19.520 |
| 19.530-A | Set including support for basket holder MSA 19.530-K, basket holder MSA 19.530-L, basket MSA 19.530-M, 2 baskets MSA 19.530-J, small basket MSA 19.530-G, lid MSA 19.530-F, lid MSA 19.530-H |
| 19.530-B | Set including basket holder MSA 19.530-L, basket MSA 19.530-M, 2 baskets MSA 19.530-J, small basket MSA 19.530-G, lid MSA 19.530-F, lid MSA 19.530-H |

| MSA | Éléments |
|----------|---|
| 19.530-C | Basket ø 64 mm, height 15 mm, with 4 compartments |
| 19.530-D | Basket ø 64 mm, height 15 mm, with 9 compartments |
| 19.530-E | Basket ø 64 mm, height 45 mm, undivided |
| 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-I | Beaker cork-oak ring gasket 95 x 22 x 3 mm |
| 19.530-J | Basket ø 64 mm, height 15 mm, with 5 compartments |
| 19.530-K | Support for basket holder |
| 19.530-L | Basket holder |
| 19.530-M | Basket ø 64 mm, height 15 mm, undivided |
| 19.530-N | Movement holder, for 6 movements |
| 19.530-P | Mesh Capsule with lid for MSA 19.520/530 |



| MSA | Versions | Voltage | Size mm | Kg |
|---------|--------------------------------------|---------|------------------|--------|
| 19.755 | Without device of gas reinjection K2 | 220 V | 375 x 350 x 560 | 58.000 |
| 19.756* | With device of gas reinjection K2N | " | " | " |
| 19.757 | Without device of gas reinjection K3 | 220 V | 520 x 372 x 590 | 74.000 |
| 19.758* | With device of gas reinjection K3N | " | " | " |
| 19.752 | Without device of gas reinjection K4 | 220 V | 520 x 1036 x 765 | 74.000 |
| 19.753* | With device of gas reinjection K4N | " | " | " |

Professional vacuum packaging machine VC999®. This compact model has perfectly its place in a laboratory, store or for shipping department. This machine is economic, small, easy to handle and always ready to use. Microprocessor control to simplify the choice of programs and users guide. Lid with window to supervise the process. Double welded line with a length of 325 mm and output 10 m3/h (MSA 19.755-19.756) or 470 mm and output 20 m3/h (MSA 19.757-19.758) or 470 mm and output 40 m3/h (MSA 19.752-19.753). Automatic separation of extra film. Liquids packaging is also possible.

*Attention : the manometer MSA 19.756-A is compulsory for the machines equipped of the gas re-injection system : MSA 19.756, 19.758, 19.753.

➤ Plastic bags are deliverable on request according to the nature and size of the parts to be packed.

Accessories :

| MSA | Items |
|------------|--|
| 19.756-A | Manometer for gaz re-injection system* |
| 17.706-100 | Bag PA/PE 20/70, 100 x 150 mm (1'000 pieces) |
| 17.706-130 | Bag PA/PE 20/70, 130 x 380 mm (1'000 pieces) |
| 17.706-140 | Bag PA/PE 20/70, 140 x 210 mm (1'000 pieces) |
| 17.706-200 | Bag PA/PE 20/70, 200 x 300 mm (1'000 pieces) |
| 17.706-225 | Bag PA/PE 20/70, 225 x 300 mm (1'000 pieces) |

* Please mention the gas nature you use when ordering the manometer.

| MSA | Capacity | Voltage | Size mm | Kg |
|--------|------------------|---------|-----------------|-----|
| 19.850 | up to 12 benches | 220 V | 500 x 700 x 800 | 100 |

AIRcenter is a new 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.

Delivered with air drier.

Technical information :

Air pressure max. : 8 bars.

Vacuum : 800 mbar.

Air tank volume : 16 L.

Vacuum tank volume : 40 L.

Noise level : 50 Db.

Connections : 2 x AC and 1 x vacuum.

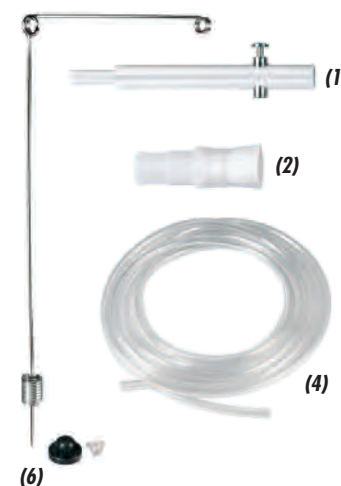
Accessories :

| MSA | Items |
|-----------|--|
| 19.850-01 | Jar ½ |
| 19.850-02 | Air drier FX1 |
| 19.850-03 | Pre-filter DD9-¾ |
| 19.850-04 | Pre-filter PD9-¾ |
| 19.850-05 | Filter Standard filter ¼ |
| 19.850-06 | Filter Standard filter ½ |
| 19.850-07 | Pressure reducer ¼ with manometer |
| 19.850-08 | Pressure reducer ½ with manometer |
| 19.850-09 | Filter for reducer ¼ |
| 19.850-10 | Filter for reducer ½ |
| 19.850-11 | Automatic drain |
| 19.833 | HOROTEC® air proof vacuum pencil |
| 19.834 | Vacuum pipe 14 mm (unit in meter) |
| 19.812 | Vacuum pipe 10 mm (unit in meter) |
| 19.826 | Air pressure pipe 6 mm (unit in meter) |
| 19.817 | HOROTEC® air nozzle |
| 24.521 | Single neck swan |
| 24.520 | Double neck swan |
| 19.816 | Vacuum pencil and air nozzle Support on spring |

➤ Other accessories available : brushes, Téflon® nozzle, connectors... see chart page 19 45.



➤ Machine for the Swiss Market only.



New system with **vacuum**. Oil free engine, very noiseless (48 decibels only) and compatible for use in a white room.

Technical information :

- flow 2300 litres/hour

- absolute empty value : 80 mbar

- pressure 1 bar uninterrupted (maximum 2.8 bar).

Illustrated :

| MSA | Versions | Voltage | Size mm | Kg |
|----------------|-----------------|---------|-----------------|-------|
| 19.808 (Pict.) | 2 work stations | 220 V | 295 x 200 x 220 | 8.300 |
| 19.808-110 | 2 work stations | 110 V | " | " |

Delivered with :

- 2 vacuum pencils MSA 19.811 (1)
- 2 soft brushes MSA 19.813 (2)
- 2 PVC pipes ø 10 mm (2 x 3 metres) MSA 19.812 (4)
- 2 screw-on supports MSA 19.816, with base and fixing screw, height 37 cm (6).

Not illustrated :

| MSA | Versions | Voltage | Size mm | Kg |
|------------|----------------|---------|-----------------|-------|
| 19.807 | 1 work station | 220 V | 295 x 200 x 220 | 8.300 |
| 19.807-110 | 1 work station | 110 V | " | " |

Delivered with :

- 1 vacuum pencil MSA 19.811 (1)
- 1 soft brush MSA 19.813 (2)
- 1 PVC pipe ø 10 mm (3 metre) MSA 19.812 (4)
- 1 screw-on support MSA 19.816, with base and fixing screw, height 37 cm (6).



AIR PRESSURE AND VACUUM



| MSA | Versions | Voltage | Size mm | Kg |
|------------|----------------|---------|-----------------|-------|
| 19.820 | 1 work station | 220 V | 295 x 200 x 220 | 9.400 |
| 19.820-110 | 1 work station | 110 V | " | " |

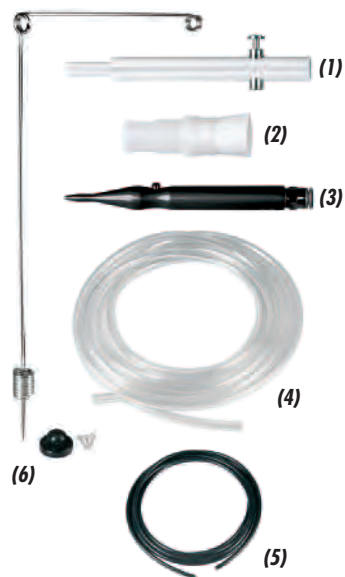
New system with **double functions air pressure and vacuum**. Oil free engine, very noiseless (48 decibels only) and compatible for use in a white room. 1 work station with 2 foot switches and 1 recovery bowl.

Delivered with :

- 1 vacuum pencil MSA 19.811 (1)
- 1 soft brush MSA 19.813 (2)
- 1 bellow MSA 19.817 (3)
- 1 PVC pipe ø 10 mm (3 metre) MSA 19.812 (4)
- 1 black pipe ø 6 mm (3 metre) MSA 19.826 (5)
- 2 screw-on supports MSA 19.816, with base and fixing screw, height 37 cm (6).

Technical information :

- flow 2300 litres/hour
- absolute empty value : 80 mbar
- pressure 1 bar uninterrupted (maximum 2.8 bar).



Accessories for MSA 19.807, 19.808, 19.820 and 19.850 :

Regulation, filtration :

| MSA | Items |
|-----------|-------------------------------|
| 19.822 | Pump filter |
| 19.831 | Filter ø 225 mm/750 PE806 |
| 19.831-G¼ | Quick acting coupler G¼ |
| 19.836 | Transair regulator female |
| 19.837 | Transair manometer male 1/8 |
| 19.838 | Quick connection mini tap 2/2 |



MSA 19.822



MSA 19.831-G¼



MSA 19.838



MSA 19.811

MSA 19.817

MSA 19.833

MSA 19.843

MSA 19.813

MSA 19.814

MSA 19.819

MSA 19.823

MSA 19.825

MSA 19.832

MSA 19.824

MSA 19.824-A

MSA 19.821

MSA 19.829

MSA 19.829-A

MSA 19.816

MSA 19.815

MSA 19.828-A

MSA 19.827-A

MSA 19.827-B

MSA 19.830

MSA 19.830-B

MSA 19.830-G¼

MSA 19.812

MSA 19.826

Accessories for MSA 19.807, 19.808, 19.820 and 19.850 :

Pencils and endpieces :

| MSA | Items |
|----------|---|
| 19.811 | Vacuum pencil |
| 19.817 | Nozzle |
| 19.833 | Air proof vacuum pencil for MSA 19.850 only |
| 19.843 | Vacuum end piece ø 10 mm for vacuum pencil |
| 19.813 | Soft brush |
| 19.814 | Hard brush |
| 19.819 | Marten-hair brush |
| 19.823 | White nylon brush ø 15 mm |
| 19.825 | Badger-hair brush |
| 19.832 | Marten-hair brush ø 15 mm |
| 19.824 | Long fine tip 25 mm, ø 2.3 mm |
| 19.824-A | Short fine tip 15 mm, ø 2.3 mm |
| 19.821 | Tip 45° with nylon filter |
| 19.829 | Beak 15 mm, ø 4 mm |
| 19.829-A | Beak 15 mm, ø 6 mm |

| MSA | Items |
|-----------|---|
| 19.816 | Base and fixing screw support |
| 19.815 | "Y" link ø 6 mm |
| 19.828-A | Straight connector for pipe ø 6 mm |
| 19.828-B | Straight connector for pipe ø 10 mm |
| 19.827-A | Small "T" connector ø 6 x 6 x 6 mm |
| 19.827-B | Large "T" connector ø 10 x 10 x 10 mm |
| 19.827-C | Large "T" connector ø 14 x 14 x 14 mm |
| 19.827-D | Large "T" connector ø 12 x 6 x 12 mm |
| 19.830 | Straight connector D6 male M5 for nozzle |
| 19.830-B | 90° connector for pipe 10 mm |
| 19.830-G¼ | Connector G¼ for pipe ø 6 mm |
| 19.830-D | 90° connector for pipe Ø14 mm |
| 19.839-A | Reducer 10-6 mm |
| 19.839-B | Reducer 14-10 mm |
| 19.839-C | Reducer 12-6 mm |
| 19.812 | PVC pipe ø 10 mm |
| 19.826 | Black pipe ø 6 mm |
| 19.834 | Transparent pipe 14/12 mm (unit in meter) |
| 19.840 | PVC soft pipe 10/7 mm (unit in meter) |
| 19.841 | Polyamide white semi-rigid pipe (25 m) |
| 19.842 | PVC soft pipe 4/2.5 mm (unit in meter) |
| 19.835-A | Plug for pipe ø 6 mm |
| 19.835-B | Plug for pipe ø 10 mm |
| 19.835-C | Plug for pipe ø 14 mm |
| 19.835-D | Plug for pipe ø 12 mm |

| MSA | Versions | Voltage | Size mm | Kg |
|------------|----------------|---------|-----------------|-------|
| 19.800 | 1 work station | 220 V | 190 x 220 x 120 | 5.800 |
| 19.800-110 | 1 work station | 110 V | " | " |

VACCUUM GREINER® system for dusts and tiny glass dusts of watch cases. Oil free motor, noiseless (55/57 decibels) and suitable for use in white room.

Delivered with :

- 1 vacuum pencil
- 1 soft brush
- 1 PVC pipe ø 10 mm (unit in meter)
- 1 screw-on support MSA 19.816, with base and fixing screw support height 37 cm.

Technical information :

- max. output volume 3.2-4.0 m³/hour
- final vacuum : 150 mbar
- vacuum continuity work : 250 mbar absolute.



| MSA | Voltage | Size mm | Kg |
|--------|------------------|-----------------|-------|
| 19.770 | Dual 110 V/220 V | 150 x 165 x 178 | 1.200 |

Automatic dispenser TS250 which accurately and consistently dispenses low, medium and high viscosity fluids and adhesives thanks to syringes of 10 and 30 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 information :

DUAL power source 110/220 V, air source max. 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 air hose and fittings kit, 1 cable holder and set of dispensing tips for syringes 10 and 30 ml, and use instructions.

| MSA | Voltage | Size mm | Kg |
|--------|------------------|-----------------|-------|
| 19.771 | Dual 110 V/220 V | 152 x 165 x 178 | 1.200 |

Automatic dispenser TS350 which accurately and consistently dispenses low, medium and high viscosity fluids and adhesives thanks to syringes of 10 and 30 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.

Double dispensers for 2 different fluids successively. Electronic setup and large display.

Technical information :

DUAL power source 110/220 V, air source max. 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 air hose and fittings kit, 1 cable holder and set of dispensing tips for syringes 10 and 30 ml, and use instructions.



Dispensing tips for MSA 19.770 and MSA19.771 :

| MSA | Points | Colour | ø mm |
|-------------|-----------------|-------------|------|
| 19.770-A015 | Metal 90° | Lavender | 0.15 |
| 19.770-A020 | " | Transparent | 0.20 |
| 19.770-A025 | " | Red | 0.25 |
| 19.770-A033 | " | Orange | 0.33 |
| 19.770-A041 | " | Blue | 0.41 |
| 19.770-A051 | " | Purple | 0.51 |
| 19.770-A061 | " | Pink | 0.61 |
| 19.770-A084 | " | Green | 0.84 |
| 19.770-A137 | " | Amber | 1.37 |
| 19.770-A160 | " | Olive | 1.60 |
| 19.770-B015 | Metal 45° | Lavender | 0.15 |
| 19.770-B020 | " | Transparent | 0.20 |
| 19.770-B025 | " | Red | 0.25 |
| 19.770-B033 | " | Orange | 0.33 |
| 19.770-B041 | " | Blue | 0.41 |
| 19.770-B051 | " | Purple | 0.51 |
| 19.770-B061 | " | Pink | 0.61 |
| 19.770-B084 | " | Green | 0.84 |
| 19.770-B137 | " | Amber | 1.37 |
| 19.770-B160 | " | Olive | 1.60 |
| 19.770-C020 | Conical plastic | Transparent | 0.20 |
| 19.770-C025 | " | Red | 0.25 |
| 19.770-C033 | " | Orange | 0.33 |
| 19.770-C041 | " | Blue | 0.41 |
| 19.770-C051 | " | Purple | 0.51 |
| 19.770-C061 | " | Pink | 0.61 |
| 19.770-C119 | " | Grey | 1.19 |
| 19.770-C084 | " | Green | 0.84 |
| 19.770-C137 | " | Amber | 1.37 |
| 19.770-C160 | " | Olive | 1.60 |
| 19.770-M010 | Straight metal | Yellow | 0.10 |
| 19.770-M015 | " | Lavender | 0.15 |
| 19.770-M020 | " | Transparent | 0.20 |
| 19.770-M025 | " | Red | 0.25 |
| 19.770-M033 | " | Orange | 0.33 |
| 19.770-M041 | " | Blue | 0.41 |
| 19.770-M051 | " | Purple | 0.51 |
| 19.770-M061 | " | Pink | 0.61 |
| 19.770-M084 | " | Green | 0.84 |
| 19.770-M137 | " | Amber | 1.37 |
| 19.770-M160 | " | Olive | 1.60 |



Accessorie :

| MSA | Item |
|------------|--------------------|
| 19.770-KIT | Dispensing Tip Kit |

Adapters and syringes for MSA 19.770 and 19.771 :

| MSA | Items |
|-------------|--|
| 19.760-0 | Cap only for MSA 19.760-Q |
| 19.760-P | Syringe adaptor 10 ml |
| 19.760-Q | Transparent syringe 10 ml |
| 19.760-R | Black syringe 10 ml |
| 19.760-S | End cap only for MSA 19.760-Q-R, 773-03, 775-S |
| 19.772 | Syringe holder |
| 19.773-03 | Transparent syringe 3 ml |
| 19.773-03-B | Cap only for MSA 19.773-03 |
| 19.774-03 | Syringe adaptor 3 ml |
| 19.774-04 | O'ring gasket for adapter 3 ml |
| 19.775-05 | O'ring gasket for adapter 5 ml |
| 19.775-10 | O'ring gasket for adapter 10 ml |
| 119.775-S | Transparent syringe 5 ml |



| MSA | Voltage | Size mm | Kg |
|--------|------------------|----------------|-------|
| 19.761 | Dual 110 V/220 V | 192 x 210 x 90 | 3.000 |

LOCTITE® volumetric dosing machine. The timing and the dosing rate are freely programmable. It is possible to take the product directly from a bottle or other recipient.

Technical information :

DUAL power source 110V/220V (different cable for 110V mains) and consumption of 10W.

Delivered with dosing box, several types of pipes and the corresponding adapters and a user's manual.





rack levels to accommodate a slide-in tray that allows for easy positioning of parts of various heights at the level of optimum exposure. A perforated aluminium plate allows positioning of customized part holders. The lamp is shielded by a timed control shutter that eliminates UV exposure to operators during loading or unloading of parts. A safety door switch prevents opening while exposure is in progress. The cure time is controlled by the built-in timer and can be operated in a continuous or timed mode. The exposure cycle is triggered by footswitch, panelmount start button, or PLC interface.

Technical information : power supply 220 V, consumption 1200 W and emission spectrum from 200 to 400 nm. Delivered with controller, UV cure chamber, connection cord of the lamp housing, mains cable, foot switch and user's manual.

Replacement parts :

| MSA | Items |
|----------|--|
| 19.762-A | UVA bulb (iron doped) |
| 19.762-B | UVC standard bulb (pure mercury vapour) |
| 19.762-C | Ampoule UV / lumière visible (gallium doped) |

| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|--|
| 19.762 | 220 V | 305 x 525 x 575 | 17.000 (controller) 12.000 (controller) |

The LOCTITE® UVALOC 1000 UV Cure Chamber is a high-performance modular curing system consisting of a cure chamber, lamp housing, and controller. The key feature of this unit is the lamp intensity is continually monitored and a low-level output condition can be established to ensure optimal curing performance. The chamber has four



requirements of UV-curable Loctite® adhesives. The UVALOC 400 System is a modular system. It includes a power unit with integrated power switch, hour counter and ballast as well as a stand, a lamp house with the bulb, the reflector and the ignition capacitor/starter unit. The system includes no timer, so the curing time has to be controlled with an external timer to ensure precise repeatability of curing results. The work surface is covered by a special silicone rubber mat which resists UV deterioration and chemical attack. The average working life of the lamp is 1000 hours.

Technical information : power supply 220 V AC / 50 Hz, consumption 450 W, warm-up time of UV lamp 3 minutes, intensity 60 mW/cm² et emission spectrum from 350 to 400 nm.

Delivered with mains cable, pair of gloves, safety spectacles, shoe with silicone, protection curtain with assembly components and user's manual.

Replacement parts :

| MSA | Items |
|----------|-------------------|
| 19.763-A | UVA bulb of 400 W |
| 19.763-B | Anti-UV goggles |
| 19.763-C | Anti-UV box |

| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|--------|
| 19.763 | 220 V | 220 x 300 x 472 | 11.500 |

The LOCTITE® UVALOC 400 System is suitable for the UVA and visible light curing of Loctite® UV products. It can be used at workstations such as in shops and laboratories. It is used for manual loading or inline integration. The lamp's emission spectrum (UVA + visible light) and radiant power capacity have been designed specifically to meet the



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.751 | 220 V | 255 x 155 x 485 | 5.800 |
| 19.751-110 | 110 V | 255 x 155 x 485 | " |

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 information : power source 110 or 220 V (upon request) Consumption 75 W and emission spectrum from 350 to 400 nm.



| MSA | Voltage | Size mm | Kg |
|--------|---------|---------------|-------|
| 19.764 | 220 V | 210 x 50 x 40 | 0.170 |

Manual UV lamp used for rapid UV glue drying specially made for manual use and mobile applications.

Technical information : Power supply 230V, consumption 9 W and emission spectrum from 350 to 400 nm.

Delivered with mains cable, integrated ballast, lamp rest and user's manual.

Replacement part :

| MSA | Item |
|----------|-----------------|
| 19.764-A | 9W UV tube only |



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.765 | 220 V | 215 x 240 x 100 | 1.800 |
| 19.765-110 | 110 V | " | " |

UV lamp tunnel for fast drying Watch glass UV glue. Power 36W.

Delivered with 4 tubes of 9 W each (should work simultaneously).

3 timing modes :

- Position (I) : 90 seconds
- Position (II) : 120 seconds
- Position (o) : Permanent

Replacement part :

| MSA | Item |
|----------|-----------------|
| 19.765-A | 9W UV Tube only |

» The magnetic field of an object consists of several non-aligned fields. Each pressure on the start button generates a complete cycle of magnetization/demagnetization, which lasts about 1 to 2 seconds. The cycle begins with a strong magnetizing signal then slowly regresses to obtain a zero value.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 19.900 | 60 x 105 x 28 | 0.357 |

Electronic demagnetizer for small watch parts, screwdrivers blades, tweezers tips, ...
Delivered with 9V battery and instructions.



| MSA | Voltage | Size mm | Kg |
|--------|-------------|---------------|-------|
| 19.903 | 110 V/220 V | 90 x 150 x 30 | 0.905 |

Professional electronic demagnetizer for watchmaker tools, tweezers, ...
Delivered with 110V/220V dual adapter and instructions.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.901 | 220 V | 230 x 180 x 120 | 1.170 |
| 19.901-110 | 110 V | " | " |

GREINER® ANTIMAG 2 apparatus for demagnetizing watches and small watch parts.
Delivered with instructions.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.902 | 220 V | 130 x 195 x 140 | 2.500 |
| 19.902-110 | 110 V | " | " |

GREINER® MAGNOMATIC powerful apparatus for demagnetizing watches, small watch parts and tools. The mentioned objects are demagnetized efficiently without mechanically affecting the delicate parts such as hairsprings. Simple, reliable and fast handling.
Delivered with user's manual.

| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|-------|
| 19.186 | 220 V | 135 x 62 x 1377 | 0.400 |
| 19.186-110 | 110 V | " | " |



The WITSCHI® TESLASCOPE is an "all-in-one" instrument with three test cycles. The first cycle determines the initial magnetisation state. The second cycle is carried out if it is necessary to demagnetise the watch. The new, demagnetised state of the watch is checked again during the next and last cycle. The Teslascope includes a convenient, freestanding support for the sensor, allowing watches with or without bands as well as steel movements and watch parts to be easily tested. The result is a yes/no verdict displayed to the user by two LED.
Delivered with use instructions.

» Magnetism detector apparatus.



| MSA | Voltage | Kg |
|--------|---------|-------|
| 19.182 | 220 V | 0.220 |

GREINER® MAGNOTEST II high sensibility apparatus for detection of magnetism in watches and other small watch parts.
Delivered with user's manual.

20



MICROMOTORS..... 20 2

| MSA | Voltage | Power | Size | Kg |
|------------|---------|-------|----------------|-------|
| 20.362 | 220 V | 73 W | 254 x 130 x 97 | 2.300 |
| 20.362-110 | 110 V | " | " | " |

Table micromotor NAKANISHI Emax EVOLution improved with the last technologies. Digital display on the centre roller, variator with speed memory possibility (1.000-40.000 r.p.m.) Maximum torque 4.3 cN-m. Start switch can be made on the tower or directly on the micromotor. Clockwise and anticlockwise rotation. A second motor can be connected at the tower with a A and B selector. Motors A and B cannot be used simultaneously.

Delivered with :

- 1 motor MSA 20.362-M1 (here bellow illustrated)
- 1 handpiece MSA 20.360-P2 (here bellow illustrated)
- 1 chuck \varnothing 2.35mm MSA 20.360-C235
- 1 chuck \varnothing 3.0 mm MSA 20.360-C300
- 1 micromotor table stand MSA 20.360-S
- 1 set of keys for chucks locking and unlocking.
- 1 power supply cord.

Optional accessories/replaceable items :

| MSA | Voltage | Size mm | Kg |
|--------|-----------|----------------|-------|
| 20.364 | 110/230 V | 254 x 130 x 97 | 2.300 |

Tower only Emax EVOLution for MSA 20.362 delivered in 110 or 220 V 50/60Hz.

| MSA | Kg |
|----------|-------|
| 20.362-F | 0.543 |

ON/OFF foot and speed control pedal for Emax EVOLution MSA 20.362.

| MSA | Power | Size mm | Kg |
|-----------|-------|-------------------------|-------|
| 20.362-M1 | 73 W | \varnothing 24.5 x 97 | 0.090 |

Motor only for MSA 20.362. Speed 1.000~40.000 r.p.m. Maximum Torque 4.3 cN-m.

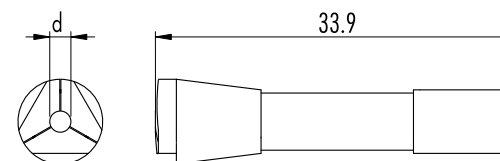
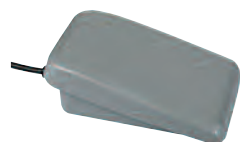
Delivered with a 1.5 m power supply cord and tightening key.

| MSA | Size mm | Kg |
|-----------|-----------------------|-------|
| 20.360-P1 | \varnothing 14 x 60 | 0.062 |

Handpiece with a side lever for fast chuck tightening for Micromotor MSA 20.362. Maximum speed 40'000 r.p.m. Chucks \varnothing 2.35 and 3.00 mm included.

Delivered with tightening keys.

SPEED
1.000~40.000 RPM



| MSA | Size mm | Kg |
|-----------|-----------------------|-------|
| 20.360-P2 | \varnothing 13 x 64 | 0.147 |

Handpiece with a side lever for fast chuck tightening for Micromotor MSA 20.362. Maximum speed 40'000 r.p.m. Chucks \varnothing 2.35 and 3.00 mm included.

Delivered with tightening keys.

Optional adaptable chucks :

| MSA | Length mm | \varnothing mm |
|-------------|-----------|------------------|
| 20.360-C100 | 33.9 | 1.00 |
| 20.360-C150 | " | 1.50 |
| 20.360-C160 | " | 1.60 |
| 20.360-C200 | " | 2.00 |
| 20.360-C235 | " | 2.35 |
| 20.360-C300 | " | 3.00 |

Chuck for micromotors MSA 20.360-P1 and P2.

Other diameters available upon request.



| MSA | Size mm | Kg |
|-----------|-------------------------------------|-------|
| 20.360-P4 | \varnothing 12.8 x 57.3 x 20.2(h) | 0.045 |

90° angle handpiece for Micromotor MSA 20.362. Maximum speed 35'000 r.p.m. Chuck \varnothing 3.00 mm included. Delivered with tightening keys and a set of standard accessories (3 rubber micro-disks and 3 abrasive disks in different \varnothing).

Optional adaptable chucks :

| MSA | Length mm | \varnothing mm |
|-------------|-----------|------------------|
| 20.360-C160 | 33.9 | 1.60 |
| 20.360-C235 | " | 2.35 |

Chucks for handpiece MSA 20.360-P4.



| MSA | Size mm | Kg |
|--------|-----------------------|-------|
| 20.367 | \varnothing 14 x 93 | 0.095 |

Riveting hammer handpiece for micromotor MSA 20.362. Maximum speed 20'000 r.p.m. in usage intermittent mode (16'000 r.p.m. in continuous mode).

SPEED
1.000~50.000 RPM



| MSA | Voltage | Power | Size mm | Kg |
|--------|---------|-------|----------------|-------|
| 20.361 | 220 V | 200 W | 230 x 175 x 98 | 2.600 |

The NSK Espert 500 micromotor is perfectly adapted for jobs requiring an extra effort. Speed regulation on potentiometer or with pedal MSA 20.360-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). Maximum speed 50.000 r.p.m.

Delivered with :

- 1 motor MSA 20.361-M1
- 1 hand piece MSA 20.361-P1
- 1 chuck \varnothing 2.35 mm MSA 20.360-C235
- 1 chuck \varnothing 3.00 mm MSA 20.360-C300
- 1 micromotor holder.

Optional accessories/replaceable items :

| MSA | Power | Size mm | Kg |
|-----------|-------|----------------------------|-------|
| 20.361-M1 | 200 W | \varnothing 28.3 x 121.4 | 0.160 |

Motor for MSA 20.361. Speed 1.000~50.000 r.p.m. Maximum torque 8.7 cN-m. Delivered with 1.5 m spiral cord. Maximum speed : 50.000 r.p.m. in intermittent mode or 40.000 r.p.m. in continual mode.



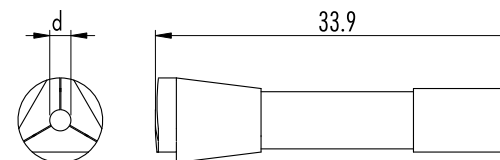
| MSA | Size mm | Kg |
|-----------|---------------------------|-------|
| 20.361-P1 | \varnothing 22.4 x 59.4 | 0.094 |

Handpiece with rapid tightening ring to be fitted on micromotor MSA 20.361. Chucks \varnothing 2.35 and 3.00 mm included. Delivered with tightening keys.



| MSA | Size mm | Kg |
|-----------|---------------------------|-------|
| 20.361-P2 | \varnothing 22.4 x 58.9 | 0.070 |

Handpiece with rapid tightening ring to be fitted on micromotor MSA 20.361. Chucks \varnothing 2.35 and 3.00 mm included. Delivered with tightening keys.



Optional adaptable chucks :

| MSA | Length mm | \varnothing mm |
|-------------|-----------|------------------|
| 20.360-C100 | 33.9 | 1.00 |
| 20.360-C150 | " | 1.50 |
| 20.360-C160 | " | 1.60 |
| 20.360-C200 | " | 2.00 |
| 20.360-C235 | " | 2.35 |
| 20.360-C300 | " | 3.00 |

Chuck for micromotor for MSA 20.360-P1 and P2. Other diameters available upon request.

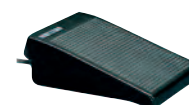
| MSA | Size mm | Kg |
|-----------|-------------------------|-------|
| 20.361-P3 | \varnothing 15 x 84.5 | 0.130 |

Thin pen shape handpiece with rapid tightening ring for special jobs, for micromotor MSA 20.361. Delivered with tightening keys and a set of standard accessories (3 rubber micro-disks and 3 abrasive disks in different \varnothing).



| MSA | Kg |
|----------|-------|
| 20.360-F | 0.600 |

Rheostat pedal (Pedal-Vario) for MSA 20.361.





| MSA | Voltage | Power | Size mm | Kg |
|----------|-----------|-------|-----------------|-------|
| 20.005 | 110/220 V | 120 W | 250 X 190 X 130 | 3.200 |
| 20.005-A | " | " | " | " |

Complete micromotor NM3000 delivered with :

- 1 electronic motor NM3000
- 1 handpiece MSA 20.005-02 for MSA 20.005 or 1 handpiece MSA 20.005-04 for MSA 20.005-A
- 1 foot pedal rheostat MSA 20.005-03
- 1 grey handpiece stand micromotor.

Speed : 1'000 – 35'000 r.p.m.

Replacement part :

| MSA | Item |
|-----------|------------------------------|
| 20.015-01 | Pair of motor coals contacts |



| MSA | Type | Size mm | Kg |
|-----------|------|-------------|-------|
| 20.005-02 | N°35 | ø 17.5 x 83 | 0.170 |

Handpiece for micromotor with chuck ø 2.35 mm, speed 40'000 r.p.m.

Chucks for assortment MSA 20.005-01 suitable with MSA 20.005-02 :

| MSA | Items |
|-------------|-----------------|
| 20.005-P055 | Chuck ø 0.55 mm |
| 20.005-P080 | Chuck ø 0.80 mm |
| 20.005-P105 | Chuck ø 1.05 mm |
| 20.005-P155 | Chuck ø 1.55 mm |
| 20.005-P205 | Chuck ø 2.05 mm |
| 20.005-P235 | Chuck ø 2.35 mm |
| 20.005-P255 | Chuck ø 2.55 mm |
| 20.005-P300 | Chuck ø 3.00 mm |
| 20.005-P320 | Chuck ø 3.20 mm |

Replacement part :

| MSA | Item |
|-----------|---------------|
| 20.015-07 | Handpiece pin |



| MSA | Type | Size mm | Kg |
|-----------|------|-------------|-------|
| 20.005-04 | N°34 | ø 17.5 x 83 | 0.170 |

Handpiece for micromotor with chuck ø 2.35 mm, speed 40'000 r.p.m.

Suitable chucks for MSA 20.005-04 :

| MSA | Items |
|-------------|------------------|
| 20.005-M160 | Chuck ø 1.60 mm |
| 20.005-M235 | Chuck ø 2.35 mm |
| 20.005-M300 | Chuck ø 3.00 mm |
| 20.005-M317 | Chuck ø 3.175 mm |

Replacement part :

| MSA | Item |
|-----------|---------------|
| 20.015-07 | Handpiece pin |



| MSA | Size mm | Kg |
|-----------|--------------|-------|
| 20.005-01 | 88 x 47 x 10 | 0.050 |

Set of 9 chucks for handpiece MSA 20.005-02.

MICROMOTORS



| MSA | Type | Size mm | Kg |
|-----------|------|-----------|-------|
| 20.005-05 | N°36 | ø 14 x 90 | 0.200 |

Hammer vice for micromotors MSA 20.205 and 20.205-A. Speed 40'000 r.p.m.

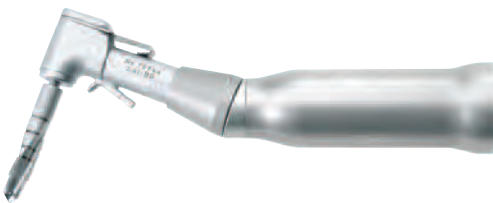
Replaceable points for MSA 20.005-05 :

| MSA | Items |
|-------------|------------------------------|
| 20.005-R050 | Round point ø 0.50 mm |
| 20.005-R100 | Round point ø 1.00 mm (1) |
| 20.005-R210 | Round point ø 2.10 mm |
| 20.005-C070 | Round point 0.7 x 0.7 mm |
| 20.005-C100 | Round point 1.0 x 1.0 mm (2) |
| 20.005-C160 | Round point 1.6 x 1.6 mm |
| 20.005-T100 | Round point 1.0 x 0.5 mm (3) |
| 20.005-T150 | Round point 1.5 x 0.8 mm |
| 20.005-T250 | Round point 2.5 x 1.2 mm |



| MSA | Size mm | Kg |
|-----------|--------------|-------|
| 20.005-10 | 46 x 87 x 10 | 0.035 |

Set of 9 chucks and points for hammer vice MSA 20.005-05.

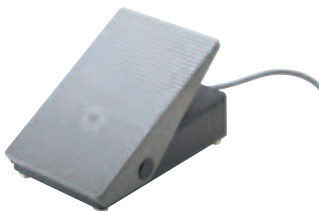


| MSA | Type | Size mm | Kg |
|--------|------|-------------|-------|
| 20.015 | N°37 | ø 17.5 x 87 | 0.150 |

90° angle handpiece, 1 : 1 for micromotors MSA 20.205 and 20.205-A. Speed 40'000 r.p.m.

Replaceable Parts :

| MSA | Items |
|-----------|------------------------------------|
| 20.015-07 | Handpiece pin |
| 20.015-02 | End screw for 90° angle handpiece |
| 20.015-03 | 90° angle handpiece gear |
| 20.015-04 | Fixing key for 90° angle handpiece |



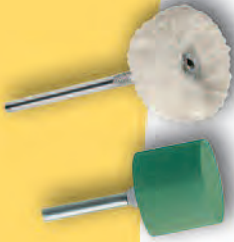
| MSA | Size mm | Kg |
|-----------|-----------------|-------|
| 20.005-03 | 180 x 110 x 105 | 0.580 |

Foot rheostat (Pedal-Vario) for MSA 20.005 and 20.005-A.

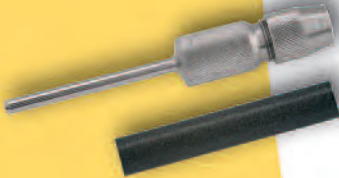
Replaceable Parts :

| MSA | Items |
|-----------|--------------------|
| 20.015-05 | Small pedal spring |
| 20.015-06 | Big pedal spring |

21



SSMALL BRUSHES/POLISHERS 21 2



PPOLISHING PINS 21 12



BBRUSHES 21 13

hand
circular

SMALL BRUSHES/POLISHERS | POLISHING PINS | BRUSHES

» High quality polishing brushes, shank ø 2.35 mm.
Maximum speed 15'000 RPM.



| MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA |
|--------|--------|--------|--------|--------|--------|--------|--------|-----------|----------|--------|--------|
| 21.001 | 21.002 | 21.003 | 21.004 | 21.005 | 21.006 | 21.007 | 21.008 | 21.008-17 | 21.008-A | 21.009 | 21.010 |

| MSA | Type | Material | ø mm | Kg | MSA | Type | Material | ø mm | Kg |
|--------|--------|-----------------|------|-------|-----------|--------|--------------------|------|-------|
| 21.001 | HP-112 | White goat hair | 21 | 0.003 | 21.007 | HP-100 | Chamois | " | 0.003 |
| 21.002 | HP-113 | Grey goat hair | " | " | 21.008 | HP-103 | Cotton yarn | " | 0.003 |
| 21.003 | HP-110 | White bristle | " | " | 21.008-17 | HP-103 | Cotton yarn | 17 | 0.003 |
| 21.004 | HP-111 | Black bristle | " | " | 21.008-A | HP-103 | Double cotton yarn | 23 | 0.003 |
| 21.005 | HP-115 | Brass wire | " | 0.005 | 21.009 | HP-101 | Felt | " | " |
| 21.006 | HP-116 | Steel wire | " | 0.004 | 21.010 | HP-102 | Flannel | " | " |



| MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA | MSA |
|--------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| 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 mm | Kg | MSA | Type | Material | ø mm | Kg |
|-----------|----------|--------------------------|------|-------|----------|----------|---------------|------|-------|
| 21.011 | HP-102n | Calico mops | 21 | 0.003 | 21.022 | HP-105 | White bristle | 21 | 0.003 |
| 21.011-17 | HP-102n | Calico | 17 | " | 21.023 | HP-106 | Black bristle | " | " |
| 21.012 | HP-102n | White stitched mops | 21 | " | 21.023-B | HP-106-B | Black bristle | " | " |
| 21.013 | HP-102n | Unbleached stitched mops | " | 0.004 | 21.026 | HP-106 | Pony bristle | " | " |
| 21.014 | HP-110ny | White nylon | 23 | 0.003 | 21.027 | HP-114 | Grey bristle | " | " |
| 21.020 | HP-107 | White goat hair | 21 | " | 21.027-A | HP-114 | Grey bristle | 23 | " |
| 21.021 | HP-108 | Grey goat hair | " | " | | | | | |



| MSA | MSA | MSA | MSA | MSA | MSA |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 21.051-17 | 21.051-19 | 21.051-21 | 21.051-23 | 21.060-21 | 21.061-21 |

| MSA | Type | Material | ø mm | Kg | MSA | Type | Material | ø mm | Kg |
|-----------|-----------|------------|------|-------|-----------|-----------|-------------------|------|-------|
| 21.051-17 | MBH-12100 | White goat | 17 | 0.003 | 21.051-23 | MBH-12400 | White goat | 23 | 0.003 |
| 21.051-19 | MBH-12200 | White goat | 19 | " | 21.060-21 | MBH-20301 | Flannel | 21 | " |
| 21.051-21 | MBH-12300 | White goat | 21 | " | 21.061-21 | MBH-22301 | Unbleached cotton | 21 | " |

SMALL BRUSHES/POLISHERS | POLISHING PINS | BRUSHES



| MSA | Type | Shape | Material | Kg |
|--------|---------|-------|------------|-------|
| 21.024 | HP-105m | Cup | Brass wire | 0.004 |
| 21.025 | HP-105s | " | Steel wire | " |

Top quality polishing small brush, cup shaped, shank ø 2.35 mm. Wires length 7 mm.
Maximum speed 11,000 RPM.



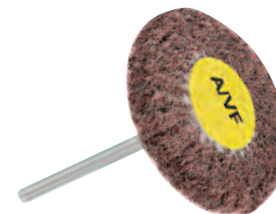
| MSA | Type | ø mm | Grit | Kg |
|--------|----------|------|--------|-------|
| 21.035 | 103-SBF | 25 | Fine | 0.003 |
| 21.036 | 103-SBM | " | Medium | " |
| 21.037 | 103-SBGG | " | Coarse | " |

Scotch Brite polishing small brush, shank ø 2.35 mm.
Maximum speed 15,000 RPM.



| MSA | Type | Shape | Material | Kg |
|--------|---------|--------|-----------------|-------|
| 21.030 | HP-104c | Pencil | White goat hair | 0.002 |
| 21.031 | HP-104a | " | White bristle | " |
| 21.032 | HP-104b | " | Black bristle | " |
| 21.033 | HP-104m | " | Brass wire | 0.003 |
| 21.034 | HP-104s | " | Steel wire | " |

Top quality polishing small brush, pencil shaped, shank ø 2.35 mm. Wires length 10 mm.
Maximum speed 11,000 RPM.



| MSA | Type | Shape | Material | Kg |
|--------|------|-------|-----------|-------|
| 21.416 | CFFB | 30 | Fine | 0.003 |
| 21.417 | CFFB | 30 | Very fine | " |

Oxyde aluminium satin finish brush, shank ø 2.35 mm.
Maximum speed 15'000 RPM.

» High quality felt polishing brushes, shank \varnothing 2.35 mm.
Maximum speed 5'000 RPM.



MSA 21.040 MSA 21.041 MSA 21.041-C MSA 21.042 MSA 21.043 MSA 21.043-L MSA 21.045 MSA 21.046 MSA 21.046-17

| MSA | Type | Shape | \varnothing mm | Kg |
|----------|-------|-------------|------------------|-------|
| 21.040 | HP-55 | Flame | 10.30 | 0.002 |
| 21.041 | HP-56 | Round | " | 0.001 |
| 21.041-C | RA-56 | Round | " | 0.001 |
| 21.042 | HP-57 | Large point | 8.00 | 0.002 |
| 21.043 | HP-58 | Fine point | 6.50 | " |

| MSA | Type | Shape | \varnothing mm | Kg |
|-----------|--------|-----------------|------------------|-------|
| 21.043-L | HP-58L | Long fine point | 6.50 | 0.002 |
| 21.045 | HP-60 | Knife edged | 21 | " |
| 21.046 | HP-61 | Plate | " | " |
| 21.046-17 | HP-61 | Plate | 17 | 0.003 |



MSA 21.047-D MSA 21.047-T MSA 21.048-D MSA 21.048-T

| MSA | Type | Shape | Dureté | \varnothing mm | Kg |
|----------|-------|-------------|--------|------------------|-------|
| 21.047-D | HP-59 | Thin wheel | Hard | 21 | 0.003 |
| 21.047-T | HP-59 | Thin wheel | Soft | " | " |
| 21.048-D | HP-59 | Thick wheel | Hard | " | " |
| 21.048-T | HP-59 | Thick wheel | Soft | " | " |

ASSORTMENT



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 21.100 | 145 x 93 x 80 | 0.287 |

Assortment of 24 polishing small brushes, shank \varnothing 2.35 mm.
Delivered on plastic stand with transparent lid.

Contents :

| MSA | Type | MSA | Type |
|--------|---------|-----------|----------|
| 21.001 | HP-112 | 21.023-B | HP-106b |
| 21.003 | HP-110 | 21.026 | HP-109 |
| 21.004 | HP-111 | 21.027 | HP-114 |
| 21.005 | HP-115 | 21.030 | HP-104c |
| 21.006 | HP-116 | 21.031 | HP-104a |
| 21.008 | HP-103 | 21.032 | HP-104b |
| 21.009 | HP-101 | 21.040 | HP-55 |
| 21.010 | HP-102 | 21.041 | HP-56 |
| 21.011 | HP-102n | 21.042 | HP-57 |
| 21.020 | HP-107 | 21.043 | HP-58 |
| 21.022 | HP-105 | 21.045 | HP-60 |
| 21.023 | HP-106 | 21.046-17 | HP-61/17 |

Replacement part :

| MSA | Item |
|----------|--|
| 21.100-A | Plastic box only for set of 24 brushes |



| MSA | Type | Shape | Height mm | σ mm | Kg |
|--------|------|-------|-----------|------|-------|
| 21.490 | 50 | Cone | 20 | 10 | 0.001 |
| 21.491 | " | " | 25 | 15 | 0.002 |
| 21.492 | " | " | 30 | 15 | " |
| 21.493 | " | " | 35 | 15 | 0.003 |
| 21.494 | " | " | 35 | 20 | 0.005 |
| 21.495 | " | " | 40 | 20 | 0.004 |
| 21.496 | " | " | 50 | 20 | 0.007 |
| 21.497 | " | " | 45 | 25 | 0.009 |
| 21.498 | " | " | 50 | 25 | 0.012 |
| 21.499 | " | " | 60 | 30 | " |

Top quality polishing felt.



| MSA | Type | Shape | σ mm | Height mm | Kg |
|--------|------|----------------------|------|-----------|-------|
| 21.500 | 52 | Wheel knife edged | 30 | 10 | 0.003 |
| 21.501 | " | " | 40 | 10 | 0.004 |
| 21.502 | " | " | 50 | 10 | 0.006 |
| 21.503 | " | " | 60 | 10 | 0.011 |

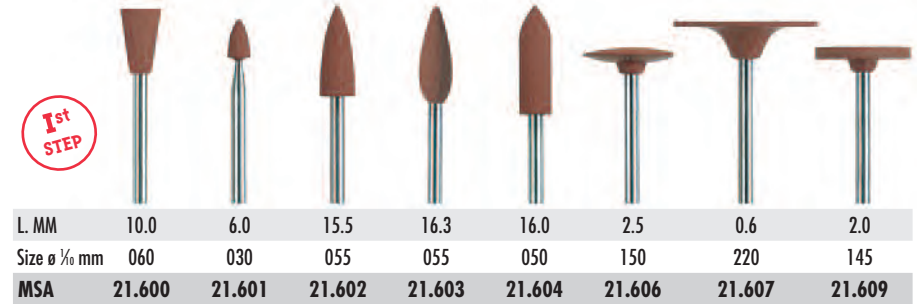
Top quality polishing felt.



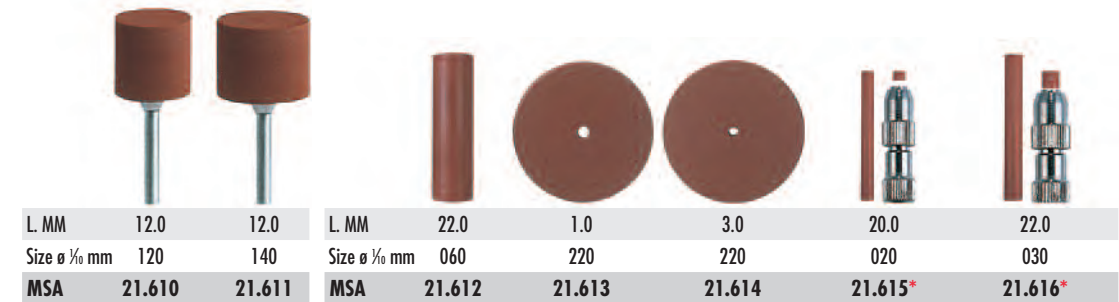
| MSA | Type | Shape | σ mm | Height mm | Kg |
|--------|------|-------|------|-----------|-------|
| 21.510 | 51 | Roue | 25 | 4 | 0.001 |
| 21.511 | " | " | 30 | 10 | 0.003 |
| 21.512 | " | " | 40 | 10 | 0.007 |
| 21.513 | " | " | 50 | 10 | 0.012 |
| 21.514 | " | " | 60 | 10 | 0.017 |

Top quality polishing felt.

» Rubber polishers for pre-polishing of gold, precious and semi-precious alloys.
Shank ø 2.35 mm. Maximum speed 20,000 RPM.



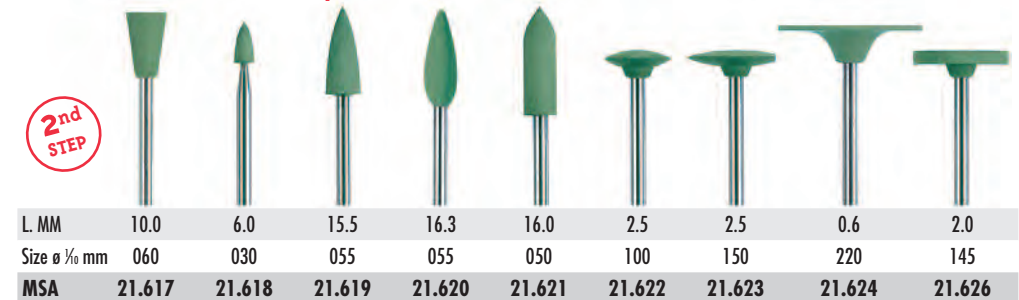
| L. MM | 10.0 | 6.0 | 15.5 | 16.3 | 16.0 | 2.5 | 0.6 | 2.0 |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size ø 1/10 mm | 060 | 030 | 055 | 055 | 050 | 150 | 220 | 145 |
| MSA | 21.600 | 21.601 | 21.602 | 21.603 | 21.604 | 21.606 | 21.607 | 21.609 |



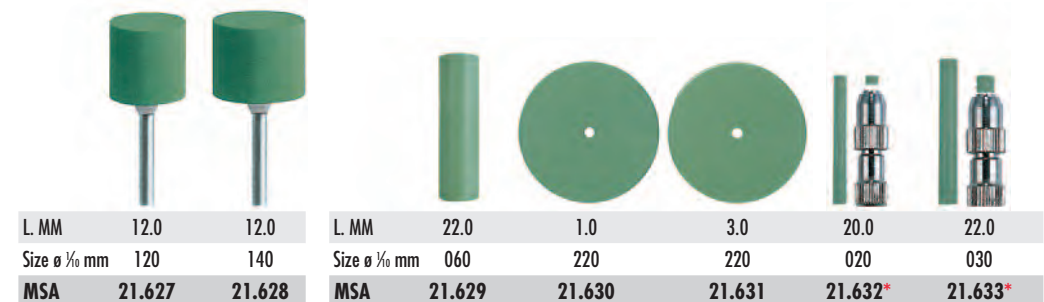
| L. MM | 12.0 | 12.0 | L. MM | 22.0 | 1.0 | 3.0 | 20.0 | 22.0 |
|----------------|--------|--------|----------------|--------|--------|--------|---------|---------|
| Size ø 1/10 mm | 120 | 140 | Size ø 1/10 mm | 060 | 220 | 220 | 020 | 030 |
| MSA | 21.610 | 21.611 | MSA | 21.612 | 21.613 | 21.614 | 21.615* | 21.616* |

*References delivered without mandrel (voir mandrels page 21 11).

» Rubber polishers for high-gloss polishing of gold, precious and semi-precious alloys.
Shank ø 2.35 mm. Maximum speed 10,000 RPM.



| L. MM | 10.0 | 6.0 | 15.5 | 16.3 | 16.0 | 2.5 | 2.5 | 0.6 | 2.0 |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size ø 1/10 mm | 060 | 030 | 055 | 055 | 050 | 100 | 150 | 220 | 145 |
| MSA | 21.617 | 21.618 | 21.619 | 21.620 | 21.621 | 21.622 | 21.623 | 21.624 | 21.626 |




| L. MM | 12.0 | 12.0 | L. MM | 22.0 | 1.0 | 3.0 | 20.0 | 22.0 |
|----------------|--------|--------|----------------|--------|--------|--------|---------|---------|
| Size ø 1/10 mm | 120 | 140 | Size ø 1/10 mm | 060 | 220 | 220 | 020 | 030 |
| MSA | 21.627 | 21.628 | MSA | 21.629 | 21.630 | 21.631 | 21.632* | 21.633* |

*References delivered without mandrel (voir mandrels page 21 11).

» Rubber polishers for ultra high-shine polishing of gold, precious and semi-precious alloys. Shank ø 2.35 mm. Maximum speed 10,000 RPM.


3rd STEP



| | | | |
|----------------|--------|--------|--------|
| L. MM | 16.0 | 2.5 | 2.0 |
| Size ø 1/10 mm | 050 | 150 | 145 |
| MSA | 21.634 | 21.635 | 21.636 |


» Silicon black universal polishers, suitable for precious metals and all alloys, chrome-cobalt and titanium. Maximum speed 20,000 RPM (1st step, coarse grain) and 10,000 RPM (2nd step, fine grain).

1st STEP




| | | | | | |
|----------------|--------|--------|--------|--------|--------|
| L. MM | 21.0 | 23.0 | 3.0 | 3.0 | 3.0 |
| Size ø 1/10 mm | 070 | 060 | 220 | 170 | 220 |
| MSA | 21.637 | 21.638 | 21.639 | 21.640 | 21.641 |

2nd STEP



| | | | | |
|----------------|--------|--------|--------|--------|
| L. MM | 16.3 | 2.5 | 3.0 | 3.0 |
| Size ø 1/10 mm | 055 | 150 | 170 | 220 |
| MSA | 21.642 | 21.644 | 21.645 | 21.646 |


» Silicon polishing wheel suitable for precious metals, chrome-cobalt and titanium. Maximum speed 20'000 RPM.



| | |
|----------------|--------|
| L. MM | 3.0 |
| Size ø 1/10 mm | 220 |
| MSA | 21.599 |

» Diamond polishing wheel suitable for titanium and platinum. Maximum speed 5'000 RPM.

1st STEP



| | | | |
|----------------|--------|----------------|--------|
| L. MM | 2.0 | L. MM | 2.0 |
| Size ø 1/10 mm | 250 | Size ø 1/10 mm | 250 |
| MSA | 21.802 | MSA | 21.801 |

» Flexible polishers for removing scratches and smoothing the chrome-cobalt surfaces. Maximum speed 20,000 RPM.




| | | | | | |
|----------------|---------|---------|--------|--------|--------|
| L. MM | 20.0 | 22.0 | 22.0 | 1.0 | 3.0 |
| Size ø 1/10 mm | 020 | 030 | 060 | 220 | 220 |
| MSA | 21.647* | 21.648* | 21.649 | 21.650 | 21.651 |

*References delivered without mandrel (voir mandrels page 21 11).

» Flexible polishers suitable for glazing precious stones and platinum. Shank ø 2.35 mm. Maximum speed 10'000 RPM.

2nd STEP



| | | |
|----------------|--------|--------|
| L. MM | 16.0 | 3.0 |
| Size ø 1/10 mm | 050 | 220 |
| MSA | 21.670 | 21.750 |

» Flexible polishers for gem stones and platinum ; provides a lustre high-gloss finishing.
Shank ø 2.35 mm. Maximum speed 5,000 RPM.



| | | | | | | |
|----------------|----------------------------|--------|--------|--------|--------|--------|
| | 3rd STEP | | | | | |
| L. MM | 15.5 | 16.0 | 2.5 | 3.0 | 3.0 | 2.0 |
| Size ø 1/10 mm | 055 | 050 | 150 | 220 | 220 | 145 |
| MSA | 21.652 | 21.653 | 21.654 | 21.655 | 21.656 | 21.657 |

» Separating discs of synthetic resin with extra fine grain.
Speed 15,000-20,000 RPM.



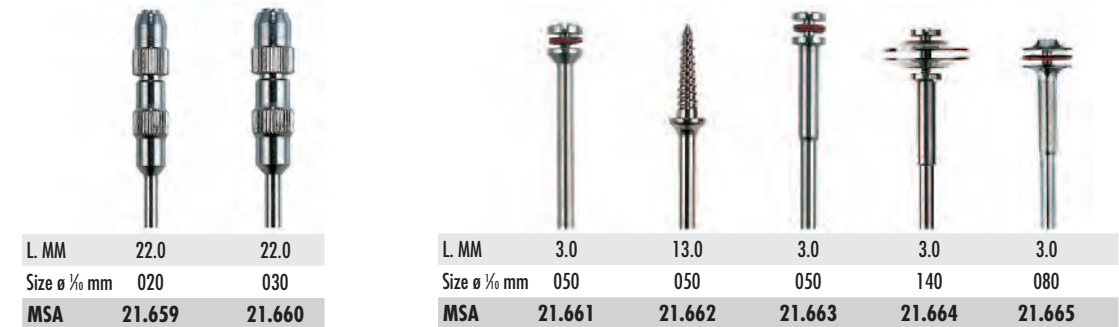
| | | | | |
|----------------|--------|--------|--------|--------|
| L. MM | 0.20 | 0.25 | 0.30 | 0.60 |
| Size ø 1/10 mm | 220 | 220 | 220 | 250 |
| MSA | 21.667 | 21.668 | 21.669 | 21.671 |

» Abrasive diamond polishing wheel suitable for precise machining of precious materials.
Maximum speed 15,000 - 20'000 RPM.



| | |
|----------------|--------|
| L. MM | 1.5 |
| Size ø 1/10 mm | 220 |
| MSA | 21.800 |

» Stainless steel mandrels for polishers and discs.



| | | |
|----------------|--------|--------|
| L. MM | 22.0 | 22.0 |
| Size ø 1/10 mm | 020 | 030 |
| MSA | 21.659 | 21.660 |

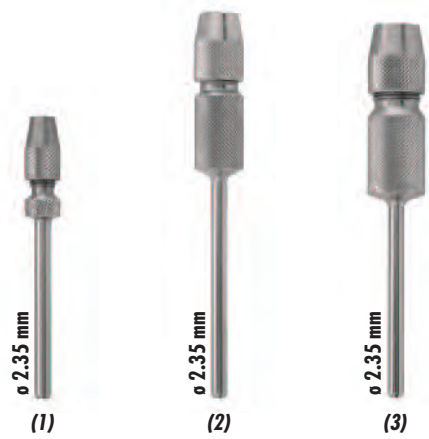
| | | | | | |
|----------------|--------|--------|--------|--------|--------|
| L. MM | 3.0 | 13.0 | 3.0 | 3.0 | 3.0 |
| Size ø 1/10 mm | 050 | 050 | 050 | 140 | 080 |
| MSA | 21.661 | 21.662 | 21.663 | 21.664 | 21.665 |



| | | | |
|-----|--------|-----------|-----|
| MSA | 21.666 | Length mm | 116 |
|-----|--------|-----------|-----|

Diamond grinding stone for dressing, shaping and restoring of deformed silicon and stones polishers ; all sides coated.

Polishing pins.



| MSA | Use |
|--------|------------------------------------|
| 21.700 | For sticks ø 1.5 MSA 21.700-1x (1) |
| 21.701 | For sticks ø 2.0 MSA 21.701-2x |
| 21.702 | For sticks ø 2.5 MSA 21.702-2.5x |
| 21.703 | For sticks ø 3.0 MSA 21.703-3x |
| 21.704 | For sticks ø 4.0 MSA 21.704-4x (2) |
| 21.705 | For sticks ø 5.0 MSA 21.705-5x (3) |
| 21.706 | For sticks ø 6.0 MSA 21.706-6x |

ø 1.5 mm
L. 15 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.700-1A | 21.700-1B | 21.700-1C | 21.700-1D | 21.700-1E |

ø 2.0 mm
L. 20 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.701-2A | 21.701-2B | 21.701-2C | 21.701-2D | 21.701-2E |

ø 2.5 mm
L. 20 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|------------|------------|------------|------------|------------|
| MSA | 21.702-25A | 21.702-25B | 21.702-25C | 21.702-25D | 21.702-25E |

ø 3.0 mm
L. 23 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.703-3A | 21.703-3B | 21.703-3C | 21.703-3D | 21.703-3E |

ø 4.0 mm
L. 26 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.704-4A | 21.704-4B | 21.704-4C | 21.704-4D | 21.704-4E |

ø 5.0 mm
L. 28 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.705-5A | 21.705-5B | 21.705-5C | 21.705-5D | 21.705-5E |

ø 6.0 mm
L. 22 mm

| Grit | X-Coarse | Coarse | Medium | Fine | X-Fine |
|------|-----------|-----------|-----------|-----------|-----------|
| MSA | 21.706-6A | 21.706-6B | 21.706-6C | 21.706-6D | 21.706-6E |

Polishing hand brushes.



| MSA | Material | Hardness | Rows | Size mm | Kg |
|--------|---------------|----------|------|---------------|-------|
| 21.200 | Black bristle | Medium | 3 | 225 x 16 x 10 | 0.027 |
| 21.201 | " | Hard | 4 | 260 x 16 x 8 | 0.035 |

Polishing hand brush with wooden handle.



| MSA | Material | Hardness | Rows | Size mm | Kg |
|--------|---------------|-----------------|------|--------------|-------|
| 21.210 | White bristle | N° 0 very hard | 4 | 260 x 16 x 8 | 0.033 |
| 21.211 | " | N° 1 hard | " | " | 0.032 |
| 21.215 | " | N° 2 medium | " | " | 0.034 |
| 21.212 | " | N° 3 fine | " | " | 0.036 |
| 21.213 | " | N° 4 extra fine | " | " | 0.035 |

Polishing hand brush with wooden handle.



| MSA | Material | Rows | Size mm | Kg |
|--------|----------------------|------|--------------|-------|
| 21.216 | Nylon wire ø 0.20 mm | 4 | 260 x 16 x 8 | 0.034 |

Polishing hand brush with wooden handle.



| MSA | Material | Hardness | Rows | Size mm | Kg |
|--------|------------|----------|------|--------------|-------|
| 21.217 | Chung-King | Soft | 4 | 190 x 18 x 8 | 0.032 |
| 21.218 | Perlon | Hard | " | " | 0.031 |

ø 0.40 mm

Polishing hand brush with Plexiglas handle.



| MSA | Material | Rows | Size mm | Kg |
|--------|----------------------|------|--------------|-------|
| 21.251 | Brass wire ø 0.10 mm | 4 | 220 x 18 x 9 | 0.038 |

Polishing hand brush with wooden handle.



| MSA | Material | Size mm | Kg |
|--------|------------|---------------|-------|
| 21.260 | Steel wire | 240 x 28 x 20 | 0.054 |

Special brush for files cleaning. Wooden handle.

» Circular polishing brushes.



(1) (2) (3) (4) (5)

| MSA | Type | Material | ø exterior mm | Kg |
|--------|--------|-----------------|---------------|-------|
| 21.310 | 32P/90 | Goat hair (1) | 90 | 0.040 |
| 21.340 | 2/70P | Cotton (2) | 70 | 0.043 |
| 21.341 | 3/80P | " | 80 | 0.068 |
| 21.342 | 4/90P | " | 90 | 0.070 |
| 21.343 | 5/100P | " | 100 | 0.090 |
| 21.350 | 20/80 | Cotton yarn (3) | 80 | 0.038 |
| 21.351 | 20/90 | " | 90 | 0.035 |

| MSA | Type | Material | ø exterior mm | Kg |
|--------|--------|---------------------|---------------|-------|
| 21.355 | 20W/80 | Wool (4) | 80 | 0.032 |
| 21.356 | 20W/90 | " | 90 | 0.033 |
| 21.360 | 21/80 | Chamois leather (5) | 80 | 0.032 |
| 21.361 | 21/90 | " | 90 | 0.034 |
| 21.362 | 21/100 | " | 100 | 0.038 |

Top quality polishing brush, with plastic hub.



| MSA | Type | Material | ø exterior mm | Kg |
|--------|-------|-----------|---------------|-------|
| 21.306 | 32/90 | Goat hair | 90 | 0.040 |

Top quality polishing brush, with wooden hub.



(1) (2)

| MSA | Type | Material | ø exterior mm | Rows | Kg |
|--------|---------|-------------------|---------------|------|-------|
| 21.323 | 3/40/80 | Black bristle (1) | 80 | 3 | 0.035 |
| 21.324 | 4/40/80 | " | 80 | 4 | 0.040 |
| 21.325 | 5/45/90 | " | 90 | 5 | 0.055 |
| 21.330 | 3/40/80 | White bristle (2) | 80 | 3 | 0.030 |
| 21.331 | 4/40/80 | " | 80 | 4 | 0.034 |
| 21.332 | 5/45/90 | " | 90 | 5 | 0.048 |

PRIMA top quality polishing brush, stiff. Wooden hub and converging rows.



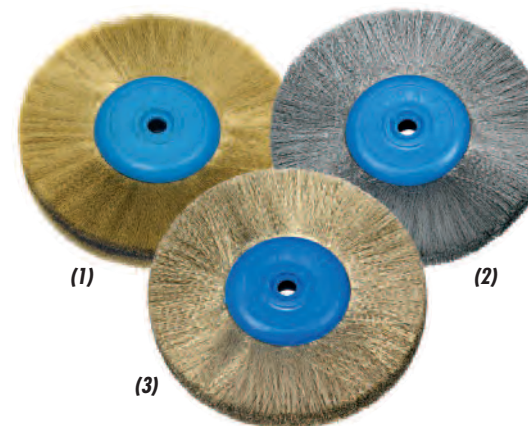
| MSA | Type | Material | ø exterior mm | Rows | Kg |
|--------|---------|---------------|---------------|------|-------|
| 21.320 | 3/40/80 | Black bristle | 80 | 3 | 0.032 |
| 21.321 | 4/40/80 | " | 80 | 4 | 0.037 |
| 21.322 | 5/45/90 | " | 90 | 5 | 0.036 |

SUPREMA top quality polishing brush, extra hard. Wooden hub and converging rows.



| MSA | Type | Material | ø exterior mm | Rows | Kg |
|--------|---------|---------------|---------------|------|-------|
| 21.326 | 3/40/80 | Black bristle | 80 | 3 | 0.030 |
| 21.327 | 4/40/80 | " | 80 | 4 | 0.036 |
| 21.328 | 5/40/80 | " | 80 | 5 | 0.034 |

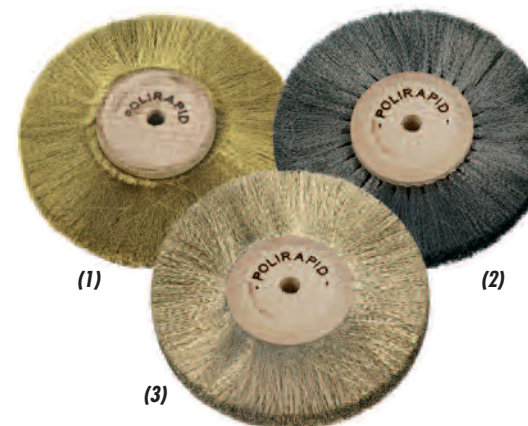
LABOR top quality polishing brush, hard. Wooden hub and converging rows.



(1) (2) (3)

| MSA | Type | Material | ø ext. mm | ø wire mm | Kg |
|--------|------------|------------------------|-----------|-----------|-------|
| 21.370 | 22P/08/090 | Brass wire (1) | 90 | 0.08 | 0.136 |
| 21.371 | 22P/08/100 | " | 100 | " | 0.124 |
| 21.372 | 22P/10/090 | " | 90 | 0.10 | 0.110 |
| 21.373 | 22P/10/100 | " | 100 | " | 0.134 |
| 21.380 | 25P/08/090 | Steel wire (2) | 90 | 0.08 | 0.090 |
| 21.381 | 25P/10/090 | " | 90 | 0.10 | 0.103 |
| 21.382 | 25P/10/100 | " | 100 | " | 0.100 |
| 21.390 | 23P/08/090 | German (3) silver wire | 90 | 0.08 | 0.143 |
| 21.391 | 23P/08/100 | " | 100 | " | " |
| 21.392 | 23P/10/100 | " | 100 | 0.10 | " |

Top quality polishing brush. Plastic hub.



(1) (2) (3)

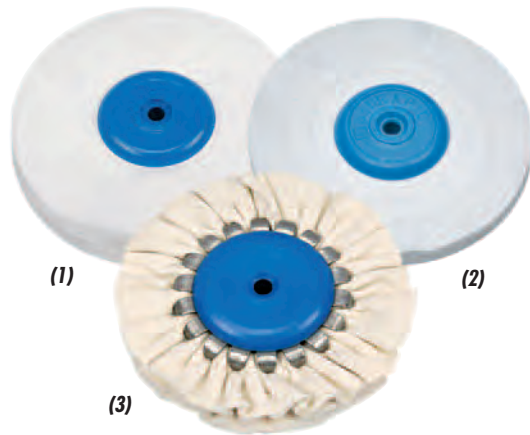
| MSA | Type | Material | ø ext. mm | ø wire mm | Kg |
|----------|-----------|------------------------|-----------|-----------|-------|
| 21.370-B | 22/08/090 | Brass wire (1) | 90 | 0.08 | 0.104 |
| 21.371-B | 22/08/100 | " | 100 | " | 0.125 |
| 21.372-B | 22/10/090 | " | 90 | 0.10 | 0.110 |
| 21.373-B | 22/10/100 | " | 100 | " | 0.134 |
| 21.380-B | 25/08/090 | Steel wire (2) | 90 | 0.08 | 0.090 |
| 21.381-B | 25/10/090 | " | 90 | 0.10 | 0.100 |
| 21.382-B | 25/10/100 | " | 100 | " | 0.090 |
| 21.390-B | 23/08/090 | German (3) silver wire | 90 | 0.08 | 0.143 |
| 21.391-B | 23/08/100 | " | 100 | " | 0.145 |
| 21.392-B | 23/10/100 | " | 100 | 0.10 | 0.143 |

Top quality polishing brush. Wooden hub.



| MSA | Type | Material | ø ext. mm | ø wire mm | Kg |
|--------|------------|---------------|-----------|-----------|-------|
| 21.319 | Chung-King | Black bristle | 80 | 4 | 0.040 |

Top quality polishing brush, hard. Wooden hub and converging rows.



| MSA | Type | Material | Size mm | Kg |
|--------|------------|---------------------|------------|-------|
| 21.420 | 29P/100/9 | Calico (1) | ø 100 x 9 | 0.052 |
| 21.421 | 29P/100/12 | " | ø 100 x 12 | 0.064 |
| 21.430 | 29c/100/6 | Stitched calico (2) | ø 100 x 6 | 0.040 |
| 21.431 | 29c/100/9 | " | ø 100 x 9 | 0.042 |
| 21.440 | 29e/80/6 | Folded calico (3) | ø 80 x 6 | 0.045 |
| 21.441 | 29e/100/6 | " | ø 100 x 6 | 0.042 |

Top quality polishing disc, plastic hub.



| MSA | Type | Material | Dim. mm | Kg |
|--------|-----------|-------------|------------|-------|
| 21.422 | 29/100/18 | Calico (1) | ø 100 x 18 | 0.092 |
| 21.423 | 29/100/24 | " | ø 100 x 24 | 0.133 |
| 21.424 | 29/125/30 | " | ø 125 x 30 | 0.230 |
| 21.425 | 29/125/24 | " | ø 125 x 24 | 0.190 |
| 21.450 | 30/100/6 | Flannel (2) | ø 100 x 6 | 0.025 |
| 21.451 | 30/100/9 | " | ø 100 x 9 | 0.030 |
| 21.452 | 30/100/12 | " | ø 100 x 12 | 0.035 |
| 21.460 | 30c/100/6 | " | ø 100 x 6 | " |
| 21.461 | 30c/100/9 | " | ø 100 x 9 | 0.028 |

Top quality polishing disc, leather hub.



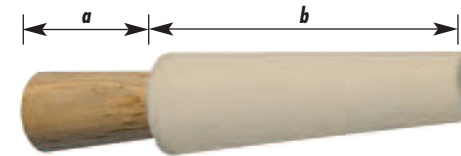
| MSA | Type | Material | ø ext. mm | Ply | Kg |
|--------|----------|---------------------|-----------|-----|-------|
| 21.470 | 21a/85 | Chamois leather (1) | 85 | - | 0.018 |
| 21.471 | 21a/90 | " | 90 | - | 0.016 |
| 21.480 | 27/4/90 | Felt (2) | 90 | 4 | 0.026 |
| 21.481 | 27/4/100 | " | 100 | 4 | 0.027 |
| 21.482 | 27/6/90 | " | 90 | 6 | 0.036 |
| 21.483 | 27/6/100 | " | 100 | 6 | 0.040 |

Top quality polishing disc. Plastic hub.



| MSA | Type | Material | ø ext. mm | Rows | Kg |
|--------|----------|-----------------|-----------|------|-------|
| 21.301 | 4/40/80L | Bristle /calico | 80 | 4 | 0.044 |

Top quality polishing mixed brush. Plastic hub and converging rows.



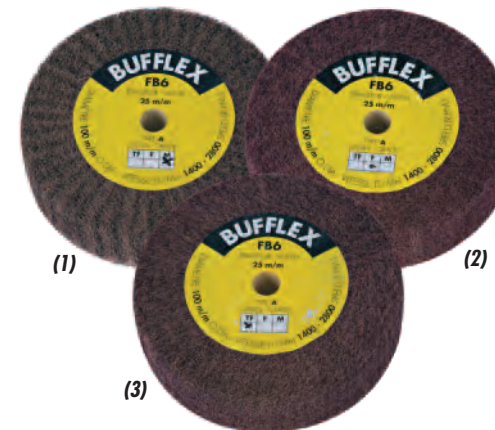
| MSA | Type | Material | Length mm | Kg |
|--------|------|--------------|------------------------|-------|
| 21.410 | 53 | Cotton yarn | 160 (a : 50 ; b : 110) | 0.030 |
| 21.411 | 53f | Felt (pict.) | 120 (a : 40 ; b : 80) | 0.020 |
| 21.412 | 53m | Brass wire | 165 (a : 55 ; b : 110) | 0.039 |

Top quality ring buff, conical shape. Wooden handle.



| MSA | Type | Grit | Size mm | Kg |
|------------|-----------|------|-----------|-------|
| 21.052-120 | 0839.9170 | 120 | ø 80 x 30 | 0.122 |
| 21.052-180 | 0028.9170 | 180 | ø 80 x 30 | 0.119 |

SIAMOP leaves wheel on shank ø 6 mm.



| MSA | Type | Grit | Dim. mm | Kg |
|--------|---------|----------------|------------|-------|
| 21.413 | 2170001 | Medium (1) | ø 100 x 25 | 0.102 |
| 21.414 | 2170002 | Fine (2) | ø 100 x 25 | 0.104 |
| 21.415 | 2170003 | Extra fine (3) | ø 100 x 25 | 0.098 |

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.

SMALL BRUSHES/POLISHERS | POLISHING PINS | BRUSHES

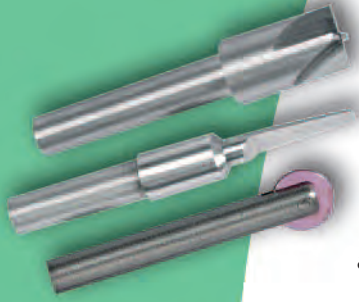


| MSA | Type | Grit | Size mm | Kg | Use |
|--------|----------|------------|------------|-------|---|
| 21.070 | SC46MP | Coarse | ø 100 x 20 | 0.185 | Satin finish. Produces a pronounced surface effect. |
| 21.071 | SC46WP | Medium | " | 0.120 | Finer satin finish than MSA 21.070. |
| 21.072 | SC80MWP | Fine | " | " | Fine satin finish, erase scratches on cases and bands. |
| 21.073 | SC150WP | Very fine | " | 0.173 | Very fine satin finish, erase light scratches. Possible to polish and buff after a felt polish. |
| 21.074 | SC250MWP | Extra fine | " | 0.170 | Extra fine satin finish. Possibility to directly polish just after this operation. |
| 21.075 | SC80VAP | Fine | " | 0.169 | Silky satin finish. |
| 21.076 | SC150VAP | Very fine | " | 0.167 | Very Silky satin finish (more than MSA 21.075). |

ARTIFEX soft Silicon Carbide wheel to polish or satin all sorts of metal.

Delivered with a removable hole diameter reducer ø 6 mm.

22



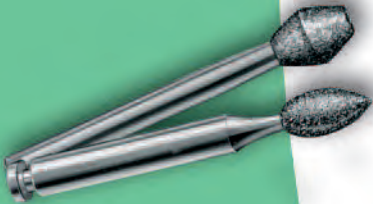
HOROTEC® END MILLS/REAMERS 22 2

- assortment of tungsten carbide end mills
- assortment of tungsten carbide reamers
- assortment of wheel countersinks
- assortment of screw shoulder end mills



BURS 22 6

- tool steel burs
- wax burs
- tungsten carbide burs



DIAMOND BURS 22 18



MICRO-DRILLS 22 30

- HSS-E micro-drills
- tungsten carbide micro-drills



DRILLS 22 31

- tool steel drills, shank \varnothing 2.35 mm
- tungsten carbide drills, shank \varnothing 2.35 mm
- diamond drills, shank \varnothing 2.35 mm

» Tungsten carbide end mills.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 22.566 | 125 x 81 x 50 | 0.260 |

Assortment of 12 tungsten carbide 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 (see pages 13 5 and 13 6).
Delivered in a wooden box with 1 tool holder MSA 22.568.

Replacement tungsten carbide end mills :

| MSA | Length mm | ø mm | Kg |
|--------------|-----------|------|-------|
| 22.566-F100 | 20 | 1.00 | 0.001 |
| 22.566-F120* | " | 1.20 | " |
| 22.566-F150* | " | 1.50 | " |
| 22.566-F175* | " | 1.75 | " |
| 22.566-F180 | " | 1.80 | " |
| 22.566-F200* | " | 2.00 | " |
| 22.566-F225* | " | 2.25 | " |
| 22.566-F250* | " | 2.50 | " |
| 22.566-F275* | " | 2.75 | " |
| 22.566-F300* | " | 3.00 | " |
| 22.566-F325* | " | 3.25 | 0.002 |
| 22.566-F350* | " | 3.50 | " |
| 22.566-F375* | " | 3.75 | " |
| 22.566-F400* | " | 4.00 | " |

* Delivered in the assortment MSA 22.566.

Replacement steel pivots :

| MSA | Length mm | ø mm (α) | Kg |
|--------------|-----------|----------|-------|
| 22.566-P040 | 24.5 | 0.40 | 0.001 |
| 22.566-P050* | " | 0.50 | " |
| 22.566-P060* | " | 0.60 | " |
| 22.566-P070* | " | 0.70 | " |
| 22.566-P080* | " | 0.80 | " |
| 22.566-P090* | " | 0.90 | " |
| 22.566-P100* | " | 1.00 | " |
| 22.566-P110* | " | 1.10 | " |
| 22.566-P120* | " | 1.20 | " |
| 22.566-P130* | " | 1.30 | " |
| 22.566-P140* | " | 1.40 | " |
| 22.566-P150* | " | 1.50 | " |

* Delivered in the assortment MSA 22.566.

Replacement tool holder :

| MSA | Length mm | ø mm | Kg |
|--------|-----------|------|-------|
| 22.568 | 90 | 4.70 | 0.011 |



» Cone shape tungsten carbide reamers.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 22.567 | 125 x 81 x 50 | 0.250 |

Assortment of 12 cone shaped tungsten carbide reamers for holes finishing. Suggested use with a press (see pages 13 8 and 13 9).
Delivered in a wooden box with 1 tool holder MSA 22.568.

Replacement tungsten carbide reamers :

| MSA | N° | Length mm | ø mm | Kg |
|-------------|-----|-----------|------|-------|
| 22.567-053 | 53 | 25 | 0.53 | 0.001 |
| 22.567-054 | 54 | " | 0.54 | " |
| 22.567-055 | 55 | " | 0.55 | " |
| 22.567-069* | 69 | " | 0.69 | " |
| 22.567-079* | 79 | " | 0.79 | " |
| 22.567-089* | 89 | " | 0.89 | " |
| 22.567-099* | 99 | " | 0.99 | " |
| 22.567-109* | 109 | " | 1.09 | " |
| 22.567-119* | 119 | " | 1.19 | " |
| 22.567-129* | 129 | " | 1.29 | " |
| 22.567-139* | 139 | " | 1.39 | " |
| 22.567-149* | 149 | " | 1.49 | " |
| 22.567-159* | 159 | " | 1.59 | " |
| 22.567-169* | 169 | " | 1.69 | " |
| 22.567-179* | 179 | " | 1.79 | " |

* Delivered in the assortment MSA 22.567.

Replacement tool holder :

| MSA | Length mm | ø mm | Kg |
|--------|-----------|------|-------|
| 22.568 | 90 | 4.70 | 0.011 |



» Tungsten carbide screw shoulder end mills with 5 cutters.



ASSORTMENT



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 22.590 | 80 x 35 x 10 | 0.060 |

Assortment of 16 tungsten carbide 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. A protection lid is sold separately (not shown on picture).

Replacement parts :

| MSA | Items | ø mm | Kg |
|-------------|----------|------|-------|
| 22.590-040 | End mill | 0.40 | 0.002 |
| 22.590-045 | " | 0.45 | " |
| 22.590-050* | " | 0.50 | " |
| 22.590-055* | " | 0.55 | " |
| 22.590-060* | " | 0.60 | " |
| 22.590-065* | " | 0.65 | " |
| 22.590-070* | " | 0.70 | " |
| 22.590-075* | " | 0.75 | " |
| 22.590-080* | " | 0.80 | " |
| 22.590-085* | " | 0.85 | " |
| 22.590-090* | " | 0.90 | " |
| 22.590-095* | " | 0.95 | " |

| MSA | Items | ø mm | Kg |
|-------------|-----------|------|-------|
| 22.590-100* | " | 1.00 | " |
| 22.590-105 | " | 1.05 | " |
| 22.590-110* | " | 1.10 | " |
| 22.590-115 | " | 1.15 | " |
| 22.590-120* | " | 1.20 | " |
| 22.590-125 | " | 1.25 | " |
| 22.590-130* | " | 1.30 | " |
| 22.590-140* | " | 1.40 | " |
| 22.590-150* | " | 1.50 | " |
| 22.590-160 | " | 1.60 | " |
| 22.590-170 | " | 1.70 | " |
| 22.590-180 | " | 1.80 | " |
| 22.590-190 | " | 1.90 | " |
| 22.590-200 | " | 2.00 | " |
| 22.590-A* | Base only | - | 0.036 |

*Inclus dans MSA 22.590.

Accessories :

| MSA | Items | Kg |
|----------|----------------------------|-------|
| 22.590-B | Protection lid (not shown) | 0.035 |
| 22.590-C | Side screw | 0.001 |

» Double ended wheel countersinks.

ASSORTMENT



| MSA | Size mm | Kg |
|--------|----------|-------|
| 22.561 | 75 x 125 | 0.044 |

Assortment of 6 polished hardened steel double ended wheel countersinks.

Delivered in a plastic pouch.

Diameters :

5.00/5.80 - 4.10/4.70 - 3.40/3.80 - 2.75/3.00 - 2.10/2.35 - 1.75/1.85 mm.

» Wheel countersinks.



ASSORTMENT



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 22.565 | 125 x 81 x 50 | 0.290 |

Assortment of 14 wheel countersinks containing :

- 7 tungsten carbide wheel countersinks, specially conceived to release the mouldings (collets, screw openings...), 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 MSA 22.564-030 and MSA 22.564-047 (for use by hand or on a press ; see pages 13 8 and 13 9).

Replacement tool holders :

| MSA | Use | Length mm | ø mm | Kg |
|------------|-------------------|-----------|------|-------|
| 22.564-030 | For hand use (1) | 100 | 3.00 | 0.008 |
| 22.564-047 | For press use (2) | 90 | 4.70 | 0.012 |

Replacement tungsten carbide wheel countersinks :

| MSA | Shank length mm | ø mm | Kg |
|------------|-----------------|------|-------|
| 22.562-150 | 25 | 1.50 | 0.001 |
| 22.562-200 | " | 2.00 | " |
| 22.562-250 | " | 2.50 | " |
| 22.562-300 | " | 3.00 | " |
| 22.562-350 | " | 3.50 | " |
| 22.562-400 | " | 4.00 | " |
| 22.562-450 | " | 4.50 | " |

Replacement ruby wheel countersinks :

| MSA | Shank length mm | ø mm | Kg |
|------------|-----------------|------|-------|
| 22.563-150 | 25 | 1.50 | 0.001 |
| 22.563-200 | " | 2.00 | " |
| 22.563-250 | " | 2.50 | " |
| 22.563-300 | " | 3.00 | " |
| 22.563-350 | " | 3.50 | " |
| 22.563-400 | " | 4.00 | " |
| 22.563-450 | " | 4.50 | " |



| MSA | Size mm | Kg |
|----------|---------|-------|
| 22.850-A | 4 x 106 | 0.015 |

Double-ended cutter to trim screw ends \varnothing 2.5/4 mm.
Delivered in a plastic pouch.



| MSA | Size mm | Kg |
|----------|-----------|-------|
| 22.850-B | 2.5 x 106 | 0.010 |

Double-ended cutter to trim screw ends \varnothing 0.9/1.3 mm.
Delivered in a plastic pouch.



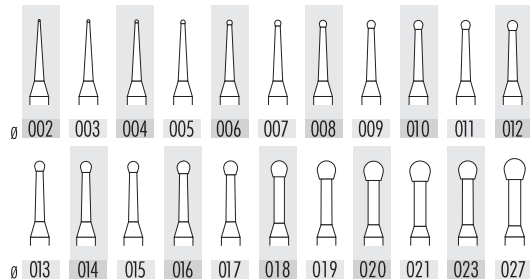
| MSA | Size mm | Kg |
|----------|---------|-------|
| 22.850-C | 4 x 106 | 0.016 |

Double-ended cutter to trim screw ends \varnothing 3/4 mm.
Delivered in a plastic pouch.

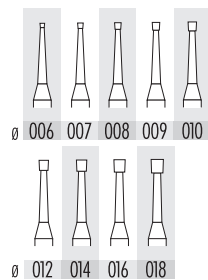
» Tungsten carbide burs, shank \varnothing 2.35 mm.

Order example: MSA 22.400-xxx
Extensions
(3 digits)
=
 \varnothing head mm

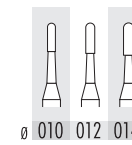
Example: MSA 22.400-008 = \varnothing 0.80 mm
MSA 22.400-023 = \varnothing 2.30 mm



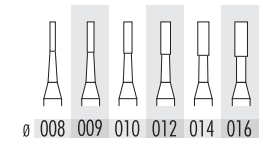
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.400-xxx | 123 | Round | 0.001 |



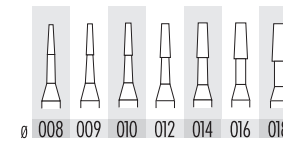
| MSA | Type | Shape | Kg |
|------------|------|---------------|-------|
| 22.401-xxx | 124 | Inverted cone | 0.001 |



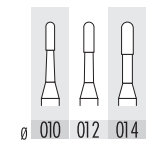
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.403-xxx | 128 | Cylinder | 0.001 |



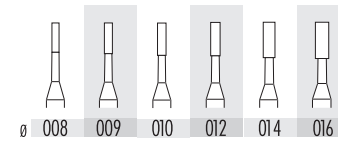
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.404-xxx | 129 | Cylinder | 0.001 |



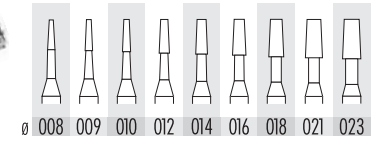
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.405-xxx | 130 | Cone | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.406-xxx | 136 | Cylinder | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.407-xxx | 137 | Cylinder | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.408-xxx | 138 | Cone | 0.001 |



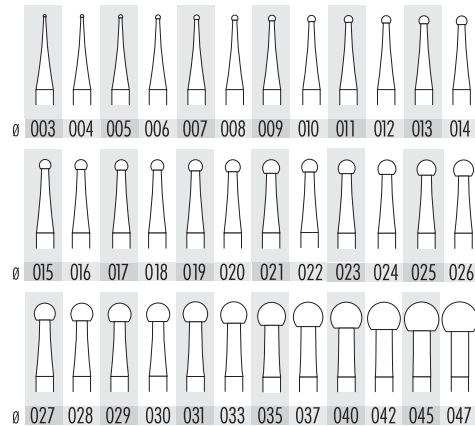
| MSA | Type | Length mm | σ mm | Kg |
|----------|----------|-----------|-------------|-------|
| 22.450 | Standard | 12.2 | 060 | 0.002 |
| 22.450-F | Fine | 12.2 | 060 | 0.002 |

Tungsten carbide bur.

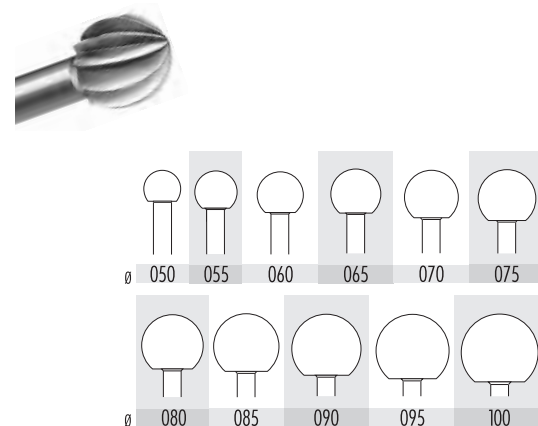
» Tool steel burs, shank \varnothing 2.35 mm.

Order example : MSA 22.300-xxx
 Extensions
 (3 digits)
 =
 \varnothing head mm

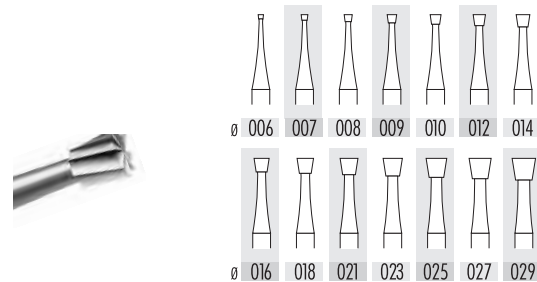
Example : MSA 22.300-008 = \varnothing 0.80 mm
 MSA 22.300-025 = \varnothing 2.50 mm
 MSA 22.300-100 = \varnothing 10.00 mm



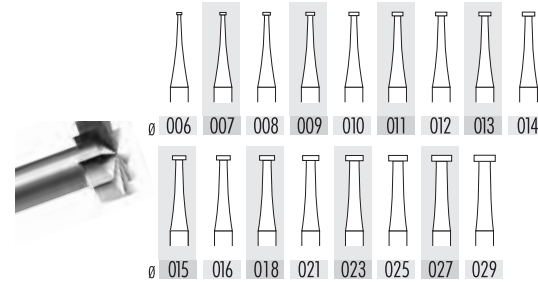
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.300-xxx | 23 | Round | 0.001 |



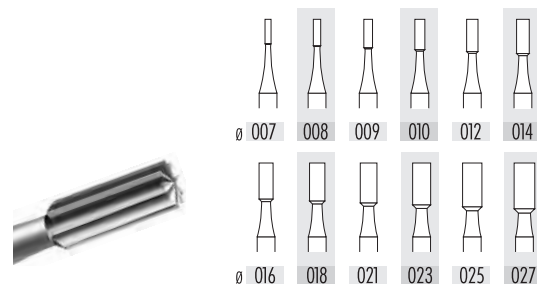
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.300-xxx | 23 | Round | 0.001 |



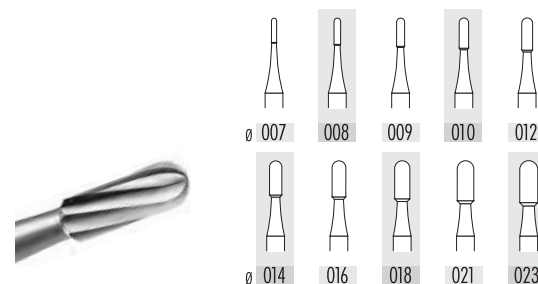
| MSA | Type | Shape | Kg |
|------------|------|---------------|-------|
| 22.301-xxx | 24 | Inverted cone | 0.001 |



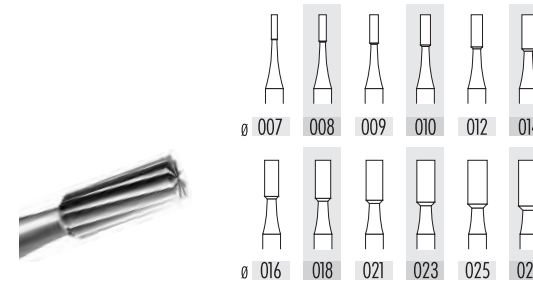
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.302-xxx | 25 | Wheel | 0.001 |



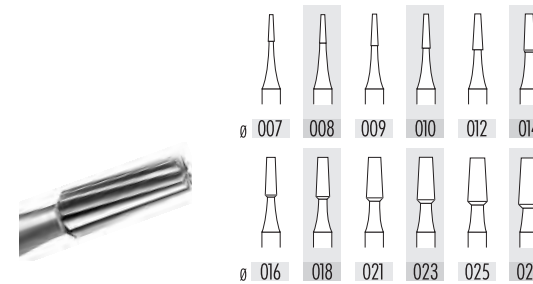
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.303-xxx | 26 | Cylinder | 0.001 |



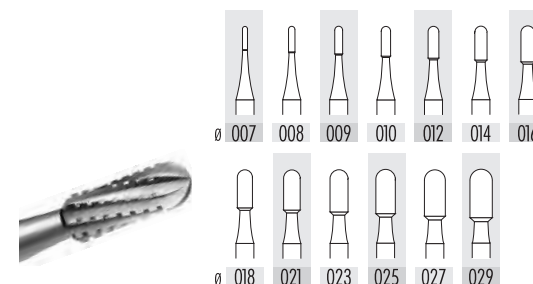
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.304-xxx | 28 | Cylinder | 0.001 |



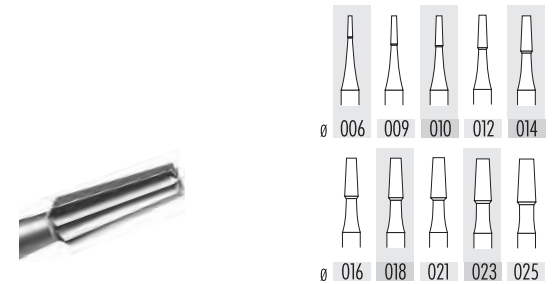
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.312-xxx | 29 | Cylinder | 0.001 |



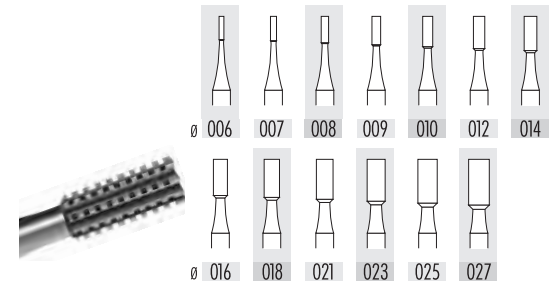
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.313-xxx | 31 | Cone | 0.001 |



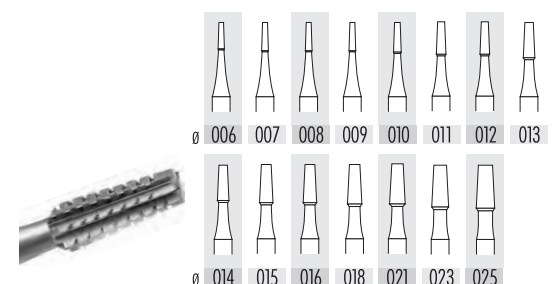
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.308-xxx | 36 | Cylinder | 0.001 |



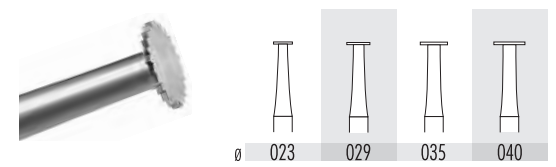
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.305-xxx | 30 | Cone | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.306-xxx | 34 | Cylinder | 0.001 |

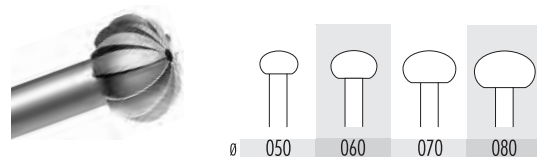


| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.309-xxx | 38 | Cone | 0.001 |

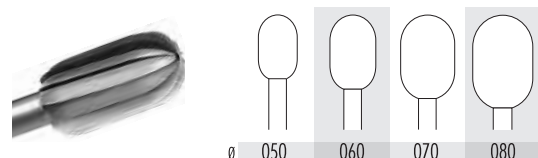


| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.311-xxx | 45 | Wheel | 0.001 |

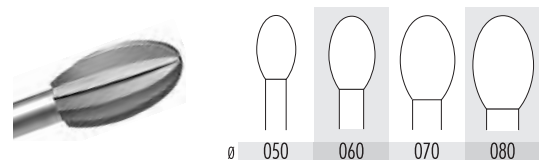
» Tool steel burs, shank \varnothing 2.35 mm.



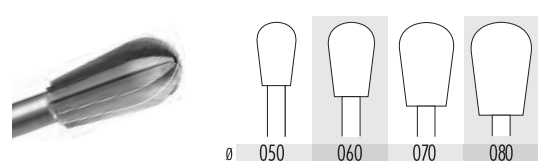
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.201-xxx | 77 | Oval | 0.001 |



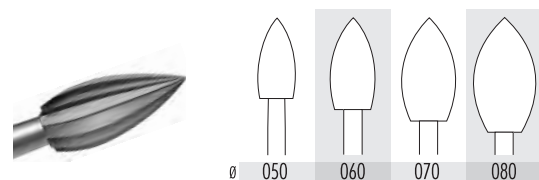
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.202-xxx | 78 | Cylinder | 0.001 |



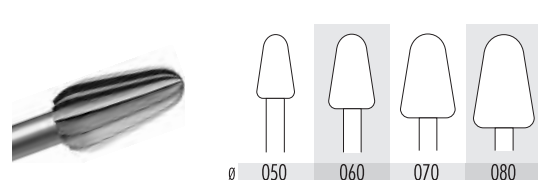
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.208-xxx | 79 | Egg | 0.001 |



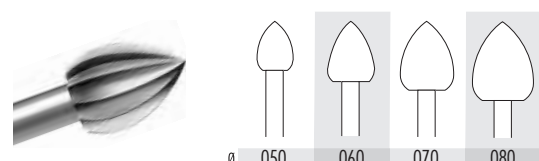
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.206-xxx | 80 | Pear | 0.001 |



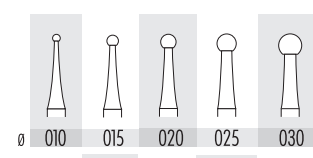
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.210-xxx | 81 | Flame | 0.001 |



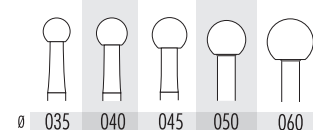
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.207-xxx | 82 | Long bud | 0.001 |



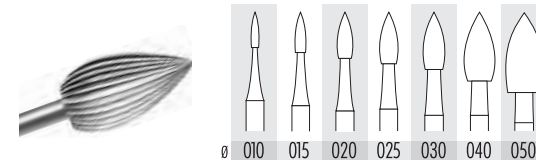
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.211-xxx | 83 | Bud | 0.001 |



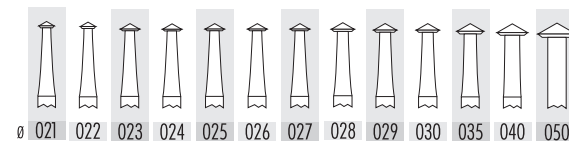
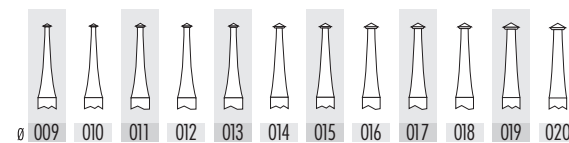
| MSA | Type | Shape | Kg |
|------------|------|--------|-------|
| 22.124-xxx | FK | Krause | 0.001 |



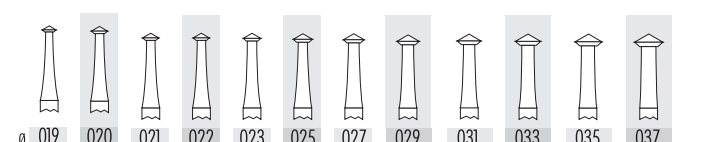
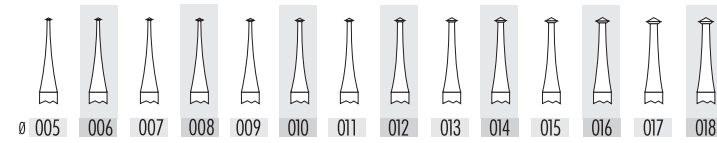
| MSA | Type | Shape | Kg |
|------------|------|-------------|-------|
| 22.100-xxx | A | Round, fine | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|-------------|-------|
| 22.102-xxx | G | Flame, fine | 0.001 |


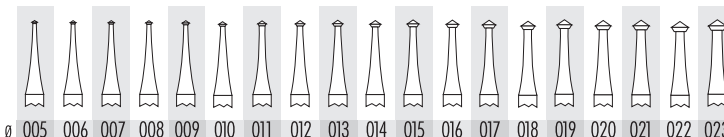
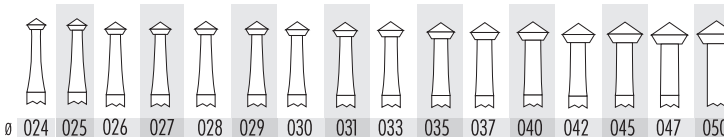


| MSA | Type | Shape | Kg |
|------------|------|---------------------|-------|
| 22.103-xxx | H | Bearing cutter 120° | 0.001 |


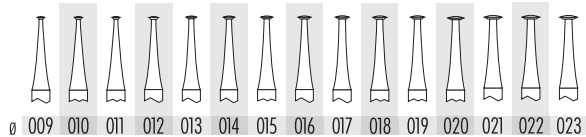
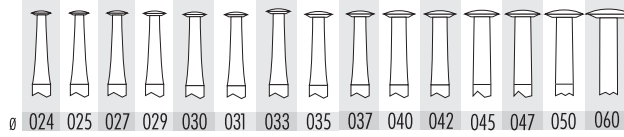
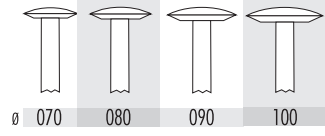


| MSA | Type | Shape | Kg |
|------------|------|--------------------|-------|
| 22.121-xxx | HB | Bearing cutter 70° | 0.001 |


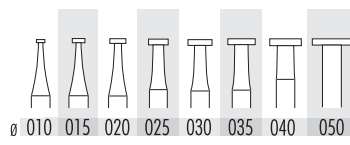
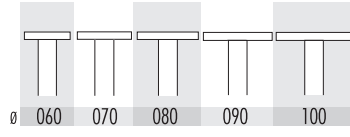
» Tool steel burs, shank \varnothing 2.35 mm.


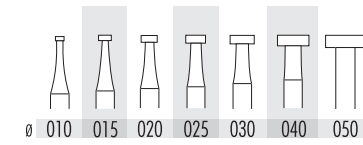
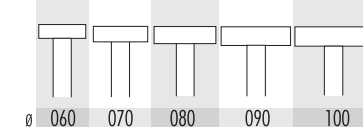
| MSA | Type | Shape | Kg |
|------------|------|--------------------|-------|
| 22.104-xxx | HD | Bearing Cutter 90° | 0.001 |

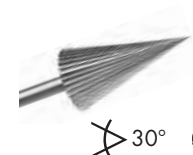
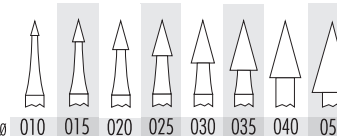
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.105-xxx | HH | Lens | 0.001 |

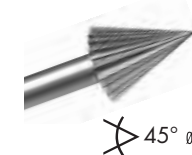
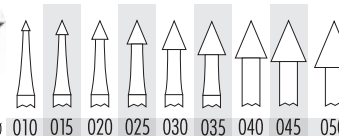
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.107-xxx | K | Wheel | 0.001 |

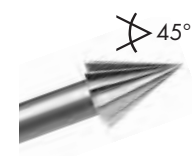
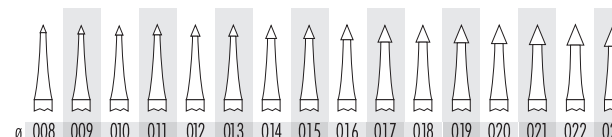
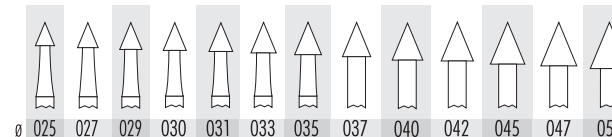
| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.110-xxx | KK | Wheel | 0.001 |

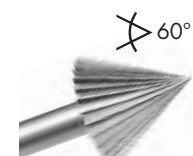
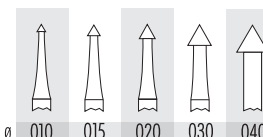
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.112-xxx | N | Cone 30° | 0.001 |

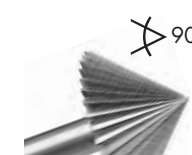
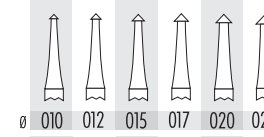
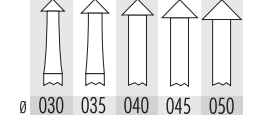
| MSA | Type | Shape | Kg |
|------------|-----------|----------|-------|
| 22.113-xxx | NN (fine) | Cone 45° | 0.001 |


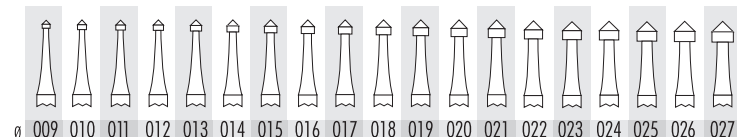
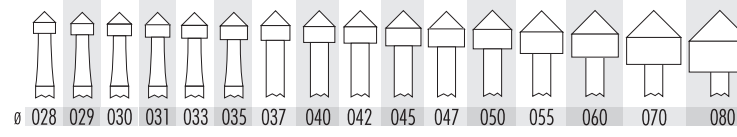
| MSA | Type | Shape | Kg |
|------------|------------|----------|-------|
| 22.123-xxx | NN (rough) | Cone 45° | 0.001 |

| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.114-xxx | O | Cone 60° | 0.001 |

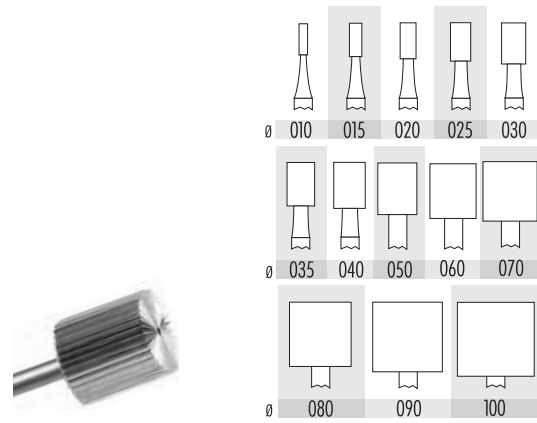




| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.115-xxx | P | Cone 90° | 0.001 |

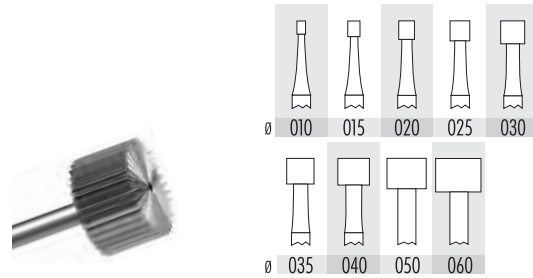




| MSA | Type | Shape | Kg |
|------------|------|---------------|-------|
| 22.116-xxx | Q | Stone setting | 0.001 |

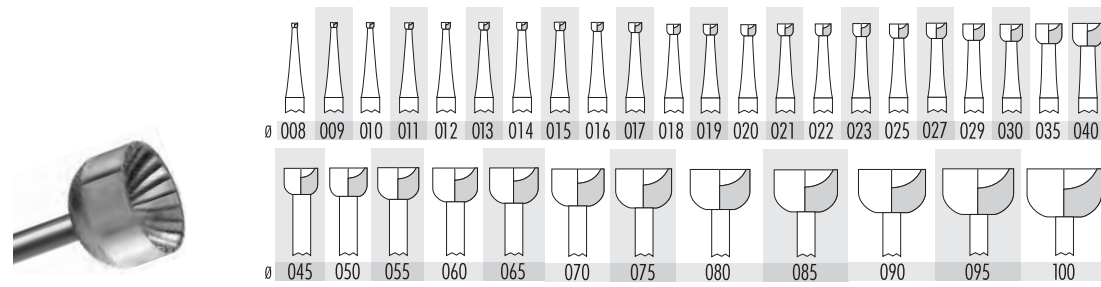
» Tool steel burs, shank ø 2.35 mm.



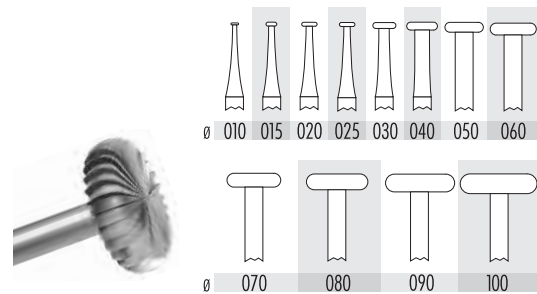
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.117-xxx | R | Cylinder | 0.001 |



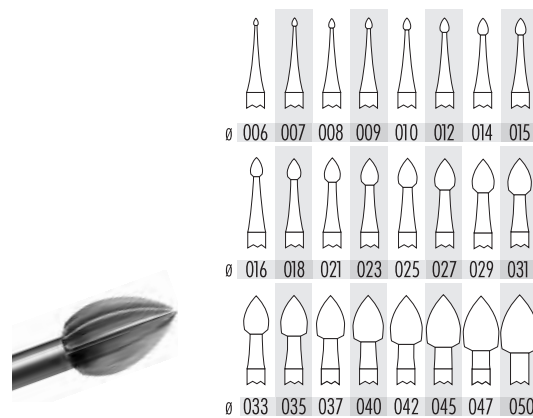
| MSA | Type | Shape | Kg |
|------------|------|----------|-------|
| 22.122-xxx | RR | Cylinder | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.119-xxx | S | Cup | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|---------------|-------|
| 22.118-xxx | Y | Beveled wheel | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.120-xxx | Z | Bud | 0.001 |

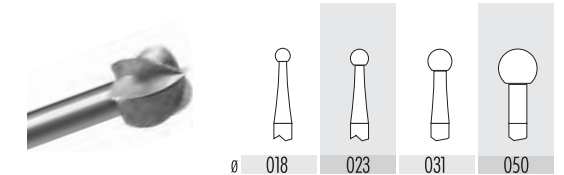
» Wax-carving steel burs, shank ø 2.35 mm.

Order example : MSA 22.360-xxx
 Extensions
 (3 digits)
 =
 ø head mm

Example : MSA 22.360-023 = ø 2.30 mm
 MSA 22.361-050 = ø 5.00 mm

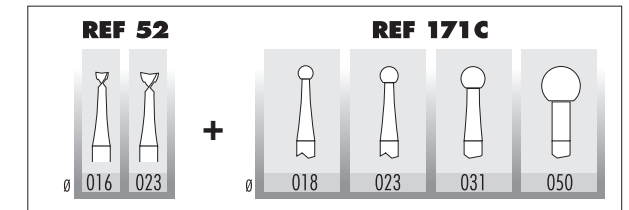


| MSA | Type | Shape | Kg |
|------------|------|---------------|-------|
| 22.360-xxx | 52 | Inverted cone | 0.001 |



| MSA | Type | Shape | Kg |
|------------|------|-------|-------|
| 22.361-xxx | 171C | Round | 0.001 |

ASSORTMENT



| MSA | Type | Contents | Kg |
|--------|------|----------|-------|
| 22.365 | 1445 | 52+171C | 0.006 |

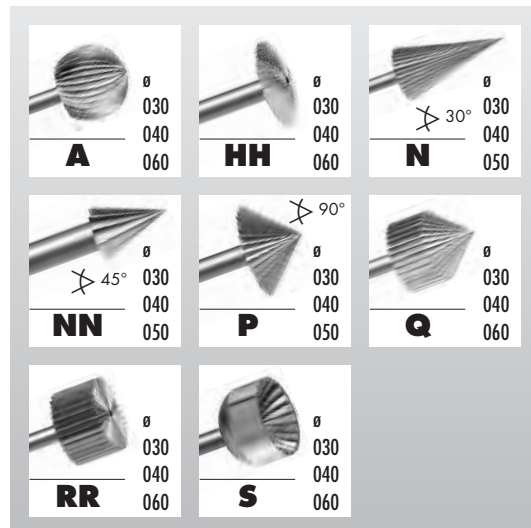
» Tool steel burs, shank ø 2.35 mm.

ASSORTMENT of 24 burs



| MSA | Type | Shank ø mm | Kg |
|--------|------|------------|-------|
| 22.500 | 1235 | 2.35 | 0.090 |

Delivered on a plastic round base with plastic lid.

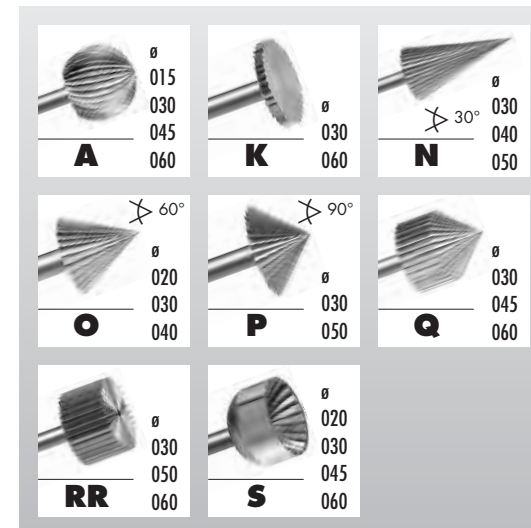


ASSORTMENT of 24 burs



| MSA | Type | Shank ø mm | Kg |
|--------|------|------------|-------|
| 22.515 | 4235 | 2.35 | 0.090 |

Delivered on a plastic round base with plastic lid.

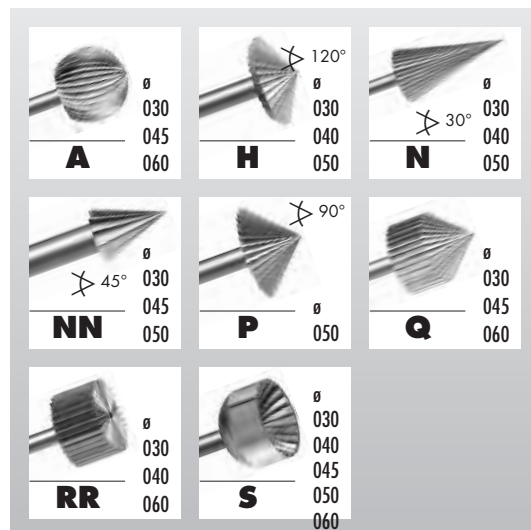


ASSORTMENT of 24 burs



| MSA | Type | Shank ø mm | Kg |
|--------|------|------------|-------|
| 22.510 | 3235 | 2.35 | 0.090 |

Delivered on a plastic round base with plastic lid.

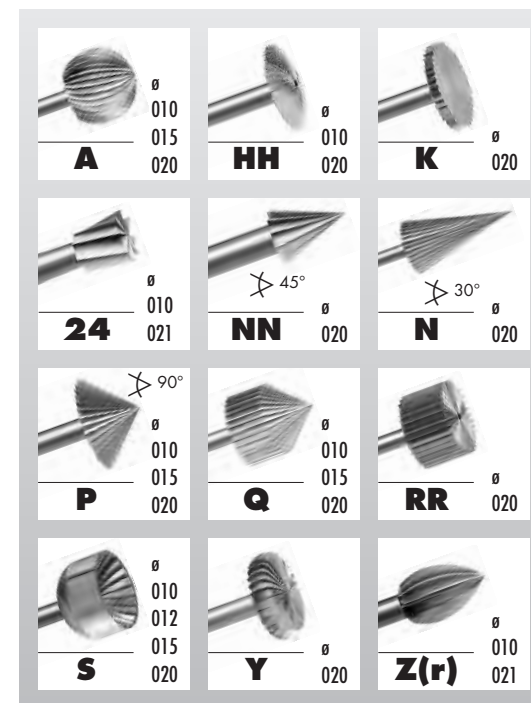


ASSORTMENT of 24 burs



| MSA | Type | Shank ø mm | Kg |
|--------|------|------------|-------|
| 22.520 | 8235 | 2.35 | 0.090 |

Delivered on a plastic round base with plastic lid.



Order example :

MSA 22.701-xxxx

Extensions
(3 digits + 1 letter)

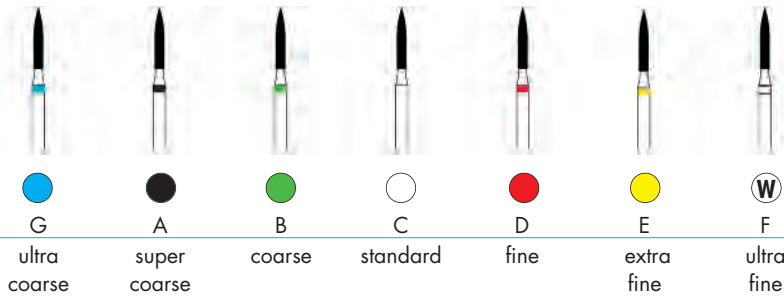
∅ head mm

grain

∅ 1,6

←19-24 mm→

Echelle : 1/1



| MSA | Type | | | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 22.701-xxxx | 801 | | | | | | | | | | | |
| ● | - | - | - | - | - | -016G | -018G | - | -023G | - | - | - |
| ● | - | - | -010A | -012A | -014A | -016A | -018A | -021A | -023A | -027A | -029A | -035A |
| ● | -008B | -009B | -010B | -012B | -014B | -016B | -018B | -021B | -023B | -027B | -029B | -035B |
| ○ | -008C | -009C | -010C | -012C | -014C | -016C | -018C | -021C | -023C | -027C | -029C | -035C |
| ● | -008D | - | -010D | -012D | -014D | -016D | -018D | -021D | -023D | -027D | -029D | -035D |
| ● | -008E | - | - | -012E | -014E | - | -018E | -021E | -023E | -027E | -029E | -035E |
| ⊗ | -008F | - | - | - | -014F | - | -018F | - | -023F | - | -029F | -035F |
| ∅ head | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | 2.3 | 2.7 | 2.9 | 3.5 |

| MSA | Type | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 22.702-xxxx | 802 | | | | | | | | |
| ● | - | - | - | - | - | -018A | - | - | |
| ● | -009B | -010B | -012B | -014B | -016B | -018B | - | -023B | |
| ○ | -009C | -010C | -012C | -014C | -016C | -018C | -021C | -023C | |
| ● | - | - | - | -014D | - | - | - | - | |
| ● | - | - | - | - | - | -018E | - | - | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | 2.3 | |
| L head | 2 | 2 | 3 | 3 | 3 | 3.5 | 4 | 4.5 | |

| MSA | Type | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 22.703-xxxx | 805 | | | | | | | | | |
| ● | - | - | - | - | -016A | -018A | - | - | - | |
| ● | -009B | -010B | -012B | -014B | -016B | -018B | -023B | - | - | |
| ○ | -009C | -010C | -012C | -014C | -016C | -018C | -023C | -040C | -050C | |
| ● | - | -010D | -012D | -014D | -016D | - | - | - | - | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.3 | 4.0 | 5.0 | |
| L head | 1 | 1 | 1.5 | 1.5 | 1.5 | 1.5 | 2 | 1.5 | 2 | |

| MSA | Type | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|--|
| 22.704-xxxx | 806 | | | | | | | |
| ● | - | - | - | -014A | - | - | - | |
| ● | - | -010B | -012B | -014B | -016B | -018B | - | |
| ○ | -009C | -010C | -012C | -014C | -016C | -018C | -023C | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.3 | |
| L head | 2 | 2 | 3 | 3 | 3 | 3 | 3.5 | |

| MSA | Type | | | | |
|-------------|-------|-------|-------|-------|--|
| 22.705-xxxx | 807 | | | | |
| ● | - | -012A | - | - | |
| ● | -010B | -012B | -016B | -018B | |
| ○ | -010C | -012C | -016C | -018C | |
| ∅ head | 1.0 | 1.2 | 1.6 | 1.8 | |
| L head | 3 | 3.5 | 4 | 5 | |

| MSA | Type | |
|-------------|-------|--|
| 22.733-xxxx | 822 | |
| ● | -008B | |
| ○ | -008C | |
| ● | -008D | |
| ● | -008E | |
| ∅ head | 0.8 | |
| L head | 2 | |

| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.706-xxxx | 830 | | | | | |
| ● | - | - | -012G | -014G | - | |
| ● | - | - | -012A | -014A | -016A | |
| ● | - | -010B | -012B | -014B | -016B | |
| ○ | -009C | -010C | -012C | -014C | -016C | |
| ● | - | -010D | -012D | -014D | -016D | |
| ● | - | -010E | -012E | -014E | -016E | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | |
| L head | 3 | 3 | 3 | 3 | 3 | |

| MSA | Type | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|--|
| 22.707-xxxx | 830L | | | | | | |
| ● | - | -012G | -014G | - | - | -025G | |
| ● | - | -012A | -014A | -016A | -018A | - | |
| ● | - | -012B | -014B | -016B | -018B | -025B | |
| ○ | -010C | -012C | -014C | -016C | -018C | -025C | |
| ● | - | -012D | -014D | -016D | -018D | -025D | |
| ● | - | -012E | -014E | -016E | - | - | |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.5 | |
| L head | 4 | 4 | 5 | 5 | 5 | 7 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.708-xxxx | 808 | | |
| ○ | -018C | -023C | |
| ∅ head | 1.8 | 2.3 | |
| L head | 0.7 | 0.8 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.709-xxxx | 809 | | |
| ○ | -018C | -023C | |
| ∅ head | 1.8 | 2.3 | |
| L head | 2.0 | 2.5 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.710-xxxx | 810 | | |
| ○ | -040C | -050C | |
| ∅ head | 4.0 | 5.0 | |
| L head | 0.2 | 0.2 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.711-xxxx | 812 | | |
| ○ | -040C | -050C | |
| ∅ head | 4.0 | 5.0 | |
| L head | 1.5 | 2 | |

Order example :

MSA 22.712-xxxx

Extensions
(3 digits + 1 letter)

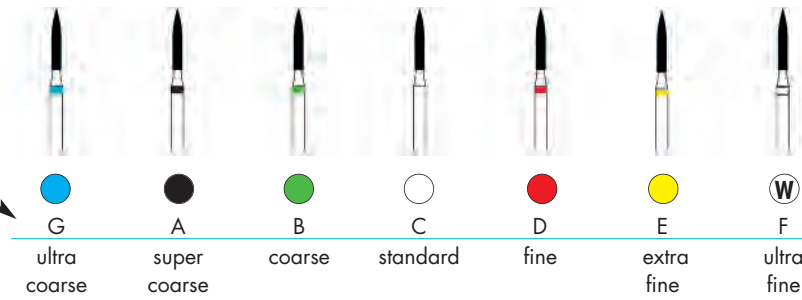
∅ head mm

grain

∅ 1,6

←19-24 mm→

Echelle : 1/1



| MSA | Type | | | |
|-------------|-------|-------|-------|-----|
| 22.712-xxxx | 813 | | | |
| ● | - | -014A | -016A | |
| ● | - | -014B | -016B | |
| ○ | -010C | -014C | -016C | |
| ● | - | -014D | -016D | |
| ∅ head | | 1.0 | 1.4 | 1.6 |
| L head | | 1.5 | 1.6 | 1.9 |

| MSA | Type | | |
|-------------|------|-------|-------|
| 22.713-xxxx | 813L | | |
| ● | - | -014A | -016A |
| ● | - | -014B | -016B |
| ○ | - | -014C | -016C |
| ● | - | -014D | -016D |
| ∅ head | | 1.4 | 1.6 |
| L head | | 3.0 | 3.0 |

| MSA | Type | | |
|-------------|------|-------|-------|
| 22.714-xxxx | 811 | | |
| ● | - | -031A | - |
| ● | - | -031B | -040B |
| ○ | - | -031C | -040C |
| ∅ head | | 3.1 | 4.0 |
| L head | | 4.0 | 6.0 |

| MSA | Type | |
|-------------|------|-------|
| 22.734-xxxx | A369 | |
| ● | - | -023A |
| ● | - | -023B |
| ○ | - | -023C |
| ● | - | -023D |
| ● | - | -023E |
| ∅ head | | 2.3 |
| L head | | 5.7 |

| MSA | Type | |
|-------------|------|-------|
| 22.735-xxxx | 392 | |
| ○ | - | -016C |
| ● | - | -016D |
| ● | - | -016E |
| ∅ head | | 1.6 |
| L head | | 5.0 |

| MSA | Type | |
|-------------|------|-------|
| 22.736-xxxx | 832 | |
| ○ | - | -027C |
| ● | - | -027D |
| ● | - | -027E |
| ∅ head | | 2.7 |
| L head | | 2.7 |

| MSA | Type | | | | |
|-------------|------|-------|-------|-------|-------|
| 22.715-xxxx | 815 | | | | |
| ● | - | -012B | -016B | - | - |
| ○ | - | -012C | -016C | -018C | -023C |
| ∅ head | | 1.2 | 1.6 | 1.8 | 2.3 |
| L head | | 0.5 | 0.7 | 0.7 | 0.8 |

| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.716-xxxx | 816 | | | |
| ○ | - | -012C | -016C | -018C |
| ∅ head | | 1.2 | 1.6 | 1.8 |
| L head | | 1.5 | 1.8 | 2 |

| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.737-xxxx | 817 | | | |
| ● | - | -033B | -040B | -050B |
| ○ | - | -033C | -040C | -050C |
| ∅ head | | 3.3 | 4.0 | 5.0 |
| L head | | 0.7 | 0.7 | 0.7 |

| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.717-xxxx | 818 | | | |
| ● | - | - | -040B | -050B |
| ○ | - | -033C | -040C | -050C |
| ∅ head | | 3.3 | 4.0 | 5.0 |
| L head | | 1.0 | 1.0 | 1.0 |

| MSA | Type | |
|-------------|------|-------|
| 22.738-xxxx | 819 | |
| ○ | - | -040C |
| ∅ head | | 4.0 |
| L head | | 1.3 |

| MSA | Type | | |
|-------------|------|-------|-------|
| 22.718-xxxx | 820 | | |
| ○ | - | -040C | -050C |
| ∅ head | | 4.0 | 5.0 |
| L head | | 2 | 2 |

| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.719-xxxx | 909 | | | |
| ● | - | -040A | - | - |
| ● | - | -033B | -040B | - |
| ○ | - | -033C | -040C | -050C |
| ∅ head | | 3.3 | 4.0 | 5.0 |
| L head | | 1 | 1.7 | 2.2 |

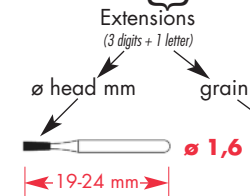
| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.720-xxxx | 825 | | | |
| ● | - | - | - | -040B |
| ○ | - | -018C | -025C | -040C |
| ∅ head | | 1.8 | 2.5 | 4.0 |
| L head | | 0.8 | 0.9 | 1.1 |

| MSA | Type | |
|-------------|------|-------|
| 22.721-xxxx | 826 | |
| ○ | - | -018C |
| ∅ head | | 1.8 |
| L head | | 3 |

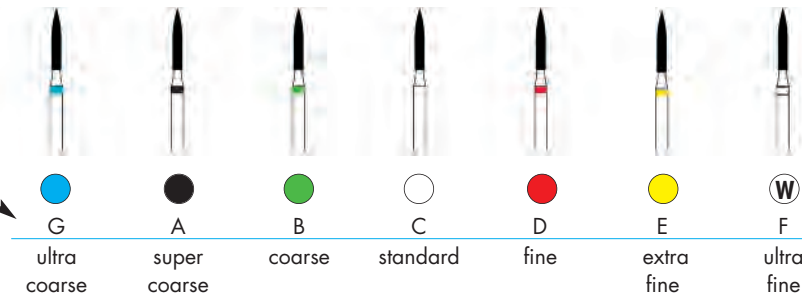
| MSA | Type | | | |
|-------------|------|-------|-------|-------|
| 22.722-xxxx | 379 | | | |
| ● | - | - | - | -023G |
| ● | - | -014A | -018A | -023A |
| ● | - | -014B | -018B | -023B |
| ○ | - | -014C | -018C | -023C |
| ● | - | -014D | -018D | -023D |
| ● | - | -014E | -018E | -023E |
| Ⓜ | - | -014F | -018F | -023F |
| ∅ head | | 1.4 | 1.8 | 2.3 |
| L head | | 3 | 3.5 | 4.5 |

Order example :

MSA 22.723-xxxx



Echelle : 1/1



| MSA | Type | | | |
|-------------|-------|-------|-------|--|
| 22.723-xxxx | 368 | | | |
| ● | - | - | -023G | |
| ● | -016A | -021A | -023A | |
| ● | -016B | -021B | -023B | |
| ○ | -016C | -021C | -023C | |
| ● | -016D | -021D | -023D | |
| ● | -016E | -021E | -023E | |
| ⊗ | -016F | -021F | -023F | |
| ø head | 1.6 | 2.1 | 2.3 | |
| L head | 3.5 | 5 | 5 | |

| MSA | Type | | |
|-------------|-------|--|--|
| 22.739-xxxx | A368 | | |
| ● | -023B | | |
| ○ | -023C | | |
| ● | -023D | | |
| ● | -023E | | |
| ø head | 2.3 | | |
| L head | 5 | | |

| MSA | Type | | |
|-------------|-------|--|--|
| 22.724-xxxx | 890 | | |
| ● | -016B | | |
| ○ | -016C | | |
| ● | -016D | | |
| ● | -016E | | |
| ⊗ | -016F | | |
| ø head | 1.6 | | |
| L head | 4 | | |

| MSA | Type | | |
|-------------|-------|--|--|
| 22.740-xxxx | 853 | | |
| ○ | -008C | | |
| ● | -008D | | |
| ● | -008E | | |
| ⊗ | -008F | | |
| ø head | 0.8 | | |
| L head | 3 | | |

| MSA | Type | | |
|-------------|-------|--|--|
| 22.726-xxxx | 883 | | |
| ● | -010B | | |
| ○ | -010C | | |
| ● | -010D | | |
| ø head | 1.0 | | |
| L head | 3 | | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.727-xxxx | 889 | | |
| ● | -009B | -010B | |
| ○ | -009C | -010C | |
| ● | -009D | -010D | |
| ● | -009E | -010E | |
| ⊗ | -009F | -010F | |
| ø head | 0.9 | 1.0 | |
| L head | 3.5 | 4.5 | |

| MSA | Type | | | | |
|-------------|-------|-------|-------|-------|--|
| 22.728-xxxx | 860 | | | | |
| ● | -010A | -012A | -014A | -025A | |
| ● | -010B | -012B | -014B | -025B | |
| ○ | -010C | -012C | -014C | -025C | |
| ● | -010D | -012D | -014D | -025D | |
| ● | -010E | -012E | -014E | -025E | |
| ⊗ | -010F | - | - | -025F | |
| ø head | 1.0 | 1.2 | 1.4 | 2.5 | |
| L head | 4 | 5 | 5 | 6 | |

| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.729-xxxx | 862 | | | | | |
| ● | - | - | -012G | -014G | - | |
| ● | - | -010A | -012A | -014A | -016A | |
| ● | - | -010B | -012B | -014B | -016B | |
| ○ | -009C | -010C | -012C | -014C | -016C | |
| ● | -009D | -010D | -012D | -014D | -016D | |
| ● | - | -010E | -012E | -014E | - | |
| ⊗ | - | -010F | -012F | -014F | - | |
| ø head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | |
| L head | 8 | 8 | 8 | 8 | 8 | |

| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.730-xxxx | 863 | | | | | |
| ● | - | - | -014G | -016G | - | |
| ● | - | -012A | -014A | -016A | - | |
| ● | - | -012B | -014B | -016B | -018B | |
| ○ | -010C | -012C | -014C | -016C | -018C | |
| ● | - | -012D | -014D | -016D | -018D | |
| ● | - | -012E | -014E | -016E | -018E | |
| ⊗ | - | -012F | - | -016F | -018F | |
| ø head | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | |
| L head | 10 | 10 | 10 | 10 | 10 | |

| MSA | Type | | |
|-------------|-------|--|--|
| 22.731-xxxx | 888 | | |
| ● | -012A | | |
| ● | -012B | | |
| ○ | -012C | | |
| ● | -012D | | |
| ● | -012E | | |
| ø head | 1.2 | | |
| L head | 8 | | |

| MSA | Type | | | |
|-------------|-------|-------|-------|--|
| 22.725-xxxx | 899 | | | |
| ● | -021A | -027A | -031A | |
| ● | -021B | -027B | -031B | |
| ○ | -021C | -027C | -031C | |
| ● | -021D | -027D | -031D | |
| ø head | 2.1 | 2.7 | 3.1 | |
| L head | 6.5 | 7 | 7 | |

| MSA | Type | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|--|
| 22.741-xxxx | 835 | | | | | | | |
| ● | - | -009A | -010A | -012A | -014A | -016A | - | |
| ● | -008B | -009B | -010B | -012B | -014B | -016B | - | |
| ○ | -008C | -009C | -010C | -012C | -014C | -016C | -027C | |
| ● | - | - | -010D | -012D | -014D | -016D | - | |
| ● | - | - | -010E | - | - | - | - | |
| ø head | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 2.7 | |
| L head | 3 | 3 | 4 | 4 | 4 | 4 | 5 | |

Order example :

MSA 22.742-xxxx

Extensions
(3 digits + 1 letter)

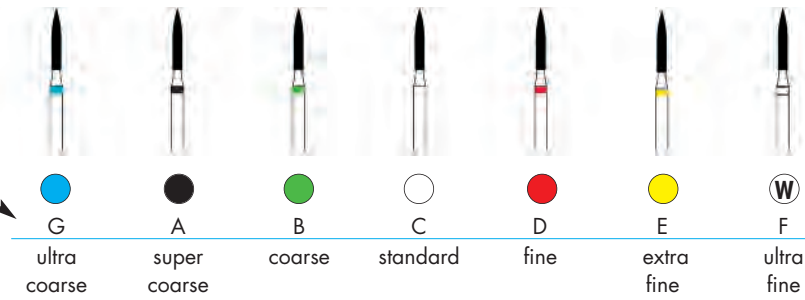
∅ head mm

grain

∅ 1,6

← 19-24 mm →

Echelle : 1/1



MSA Type
22.742-xxxx 836

| | | | | | | | |
|--------|-------|-------|-------|-------|-------|--|--|
| | | | | | | | |
| | - | -012G | -014G | - | -027G | | |
| | -010A | -012A | -014A | - | - | | |
| | -010B | -012B | -014B | -018B | - | | |
| | -010C | -012C | -014C | -018C | -027C | | |
| | -010D | -012D | -014D | -018D | -027D | | |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.8 | 2.7 | | |
| L head | 6 | 6 | 6 | 6 | 7 | | |

MSA Type
22.743-xxxx 837

| | | | | | | | |
|--------|-------|-------|-------|-------|-------|--|--|
| | | | | | | | |
| | - | - | -014G | -016G | - | | |
| | -010A | -012A | -014A | -016A | - | | |
| | -010B | -012B | -014B | -016B | -018B | | |
| | -010C | -012C | -014C | -016C | -018C | | |
| | -010D | -012D | -014D | -016D | -018D | | |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | | |
| L head | 7 | 8 | 8 | 8 | 8 | | |

MSA Type
22.744-xxxx 842

| | | | | | | | |
|--------|-------|-------|-------|-------|--|--|--|
| | | | | | | | |
| | - | -014G | -016G | -018G | | | |
| | -012B | -014B | -016B | -018B | | | |
| | -012C | -014C | -016C | -018C | | | |
| | -012D | -014D | -016D | - | | | |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | | | |
| L head | 10 | 10 | 10 | 10 | | | |

MSA Type
22.745-xxxx 838

| | | | | | | | |
|--------|-------|-------|-------|-------|--|--|--|
| | | | | | | | |
| | - | - | - | -012G | | | |
| | - | - | -010A | -012A | | | |
| | - | - | -010B | -012B | | | |
| | -008C | -009C | -010C | -012C | | | |
| | - | - | -010D | -012D | | | |
| ∅ head | 0.8 | 0.9 | 1.0 | 1.2 | | | |
| L head | 3 | 3 | 4 | 4 | | | |

MSA Type
22.746-xxxx 880

| | | | | | | | |
|--------|-------|-------|-------|-------|--|--|--|
| | | | | | | | |
| | -012G | - | - | - | | | |
| | -012A | -014A | -016A | -018A | | | |
| | -012B | -014B | -016B | -018B | | | |
| | -012C | -014C | -016C | -018C | | | |
| | -012D | -014D | -016D | - | | | |
| | - | -014E | - | - | | | |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | | | |
| L head | 6 | 6 | 6 | 6 | | | |

MSA Type
22.747-xxxx 881

| | | | | | | | |
|--------|-------|-------|-------|-------|-------|--|--|
| | | | | | | | |
| | - | - | -014G | - | -018G | | |
| | -010A | -012A | -014A | -016A | -018A | | |
| | -010B | -012B | -014B | -016B | -018B | | |
| | -010C | -012C | -014C | -016C | -018C | | |
| | -010D | -012D | -014D | -016D | -018D | | |
| | - | -012E | -014E | -016E | -018E | | |
| | - | -012F | - | - | - | | |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | | |
| L head | 8 | 8 | 8 | 8 | 8 | | |

MSA Type
22.748-xxxx 882

| | | | | | |
|--------|-------|-------|--|--|--|
| | | | | | |
| | -012A | -014A | | | |
| | -012B | -014B | | | |
| | -012C | -014C | | | |
| | -012D | -014D | | | |
| | -012E | -014E | | | |
| ∅ head | 1.2 | 1.4 | | | |
| L head | 10 | 10 | | | |

MSA Type
22.749-xxxx 884

| | | | | | |
|--------|-------|--|--|--|--|
| | | | | | |
| | -012A | | | | |
| | -012B | | | | |
| | -012C | | | | |
| | -012D | | | | |
| | -012E | | | | |
| ∅ head | 1.2 | | | | |
| L head | 6 | | | | |

MSA Type
22.750-xxxx 885

| | | | | | |
|--------|-------|-------|-------|--|--|
| | | | | | |
| | - | -012A | -014A | | |
| | - | -012B | -014B | | |
| | -010C | -012C | -014C | | |
| | - | -012D | -014D | | |
| | - | -012E | -014E | | |
| ∅ head | 1.0 | 1.2 | 1.4 | | |
| L head | 8 | 8 | 8 | | |

MSA Type
22.751-xxxx 886

MSA Type
22.751-xxxx 886

| | | | | | |
|--------|-------|-------|-------|--|--|
| | | | | | |
| | -012A | -014A | - | | |
| | -012B | -014B | -016B | | |
| | -012C | -014C | -016C | | |
| | -012D | -014D | -016D | | |
| | -012E | -014E | - | | |
| ∅ head | 1.2 | 1.4 | 1.6 | | |
| L head | 10 | 10 | 10 | | |

MSA Type
22.752-xxxx 876

| | | | | |
|--------|-------|-------|-------|-------|
| | | | | |
| | -010B | -010C | -010D | -010E |
| ∅ head | 1.0 | | | |
| L head | 5 | | | |

MSA Type
22.753-xxxx 877

| | | | | | |
|--------|-------|-------|-------|--|--|
| | | | | | |
| | - | -010A | -012A | | |
| | - | -010B | -012B | | |
| | -009C | -010C | -012C | | |
| | - | -010D | -012D | | |
| | - | -010E | - | | |
| ∅ head | 0.9 | 1.0 | 1.2 | | |
| L head | 6 | 6 | 6 | | |

Order example :

MSA 22.754-xxxx

Extensions
(3 digits + 1 letter)

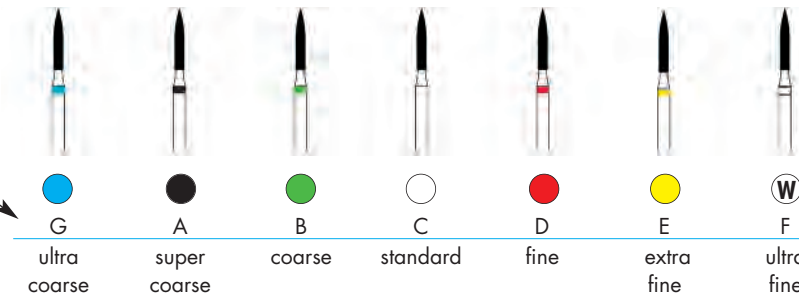
∅ head mm

grain

∅ 1,6

←19-24 mm→

Echelle : 1/1



| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.754-xxxx | 878 | | | | | |
| ● | - | -010G | -012G | -014G | - | |
| ● | - | -010A | -012A | -014A | -016A | |
| ● | - | -010B | -012B | -014B | -016B | |
| ○ | -009C | -010C | -012C | -014C | -016C | |
| ● | - | -010D | -012D | -014D | -016D | |
| ● | -009E | -010E | -012E | -014E | - | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | |
| L head | 8 | 8 | 8 | 8 | 8 | |

| MSA | Type | | | | |
|-------------|-------|-------|-------|-------|--|
| 22.755-xxxx | 879 | | | | |
| ● | - | -012G | - | - | |
| ● | -010A | -012A | -014A | -016A | |
| ● | -010B | -012B | -014B | -016B | |
| ○ | -010C | -012C | -014C | -016C | |
| ● | -010D | -012D | -014D | -016D | |
| ● | -010E | -012E | -014E | - | |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.6 | |
| L head | 10 | 10 | 10 | 10 | |

| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.758-xxxx | 847 | | | | | |
| ● | -012G | - | -016G | -018G | - | |
| ● | -012A | -014A | -016A | -018A | -021A | |
| ● | -012B | -014B | -016B | -018B | -021B | |
| ○ | -012C | -014C | -016C | -018C | -021C | |
| ● | -012D | -014D | -016D | -018D | -021D | |
| ● | - | - | -016E | - | - | |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | |
| L head | 8 | 8 | 8 | 8 | 8 | |

| MSA | Type | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|--|
| 22.759-xxxx | 848 | | | | | | |
| ● | -012G | - | -016G | -018G | - | - | |
| ● | -012A | -014A | -016A | -018A | - | - | |
| ● | -012B | -014B | -016B | -018B | -023B | -025B | |
| ○ | -012C | -014C | -016C | -018C | -023C | -025C | |
| ● | -012D | -014D | -016D | -018D | -023D | -025D | |
| ● | - | - | -016E | - | -023E | - | |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | 2.3 | 2.5 | |
| L head | 10 | 10 | 10 | 10 | 10 | 10 | |

| MSA | Type | | | |
|-------------|-------|-------|-------|--|
| 22.760-xxxx | 849 | | | |
| ● | - | - | -012G | |
| ● | - | - | -012A | |
| ● | - | -010B | -012B | |
| ○ | -009C | -010C | -012C | |
| ● | -009D | - | -012D | |
| ● | - | -010E | - | |
| ∅ head | 0.9 | 1.0 | 1.2 | |
| L head | 4 | 4 | 4 | |

| MSA | Type | |
|-------------|-------|--|
| 22.761-xxxx | A855 | |
| ● | -012B | |
| ○ | -012C | |
| ● | -012D | |
| ∅ head | 1.2 | |
| L head | 6 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.762-xxxx | 855 | | |
| ● | - | -014G | |
| ● | -012A | -014A | |
| ● | -012B | -014B | |
| ○ | -012C | -014C | |
| ● | -012D | -014D | |
| ∅ head | 1.2 | 1.4 | |
| L head | 7 | 7 | |

| MSA | Type | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|--|
| 22.756-xxxx | 845 | | | | | | | |
| ● | - | - | -012A | -014A | - | - | - | |
| ● | - | -010B | -012B | -014B | -016B | - | - | |
| ○ | -009C | -010C | -012C | -014C | -016C | -018C | -021C | |
| ● | - | - | -012D | - | - | - | - | |
| ∅ head | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | |
| L head | 3 | 4 | 4 | 4 | 4 | 4 | 4 | |

| MSA | Type | | | | |
|-------------|-------|-------|-------|-------|--|
| 22.757-xxxx | 846 | | | | |
| ● | -012A | -016A | -018A | - | |
| ● | -012B | -016B | -018B | -025B | |
| ○ | -012C | -016C | -018C | -025C | |
| ● | -012D | -016D | -018D | -025D | |
| ● | - | - | -018E | - | |
| Ⓜ | - | - | -018F | - | |
| ∅ head | 1.2 | 1.6 | 1.8 | 2.5 | |
| L head | 6 | 6 | 6 | 7 | |

| MSA | Type | | | | | |
|-------------|-------|-------|-------|-------|-------|--|
| 22.700-xxxx | 856 | | | | | |
| ● | -012G | -014G | -016G | -018G | -023G | |
| ● | -012A | -014A | -016A | -018A | -023A | |
| ● | -012B | -014B | -016B | -018B | -023B | |
| ○ | -012C | -014C | -016C | -018C | -023C | |
| ● | -012D | -014D | -016D | -018D | -023D | |
| ● | - | -014E | -016E | - | -023E | |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | 2.3 | |
| L head | 8 | 8 | 8 | 8 | 7 | |

| MSA | Type | |
|-------------|-------|--|
| 22.763-xxxx | 856L | |
| ● | -023G | |
| ● | -023A | |
| ● | -023B | |
| ○ | -023C | |
| ● | -023D | |
| ∅ head | 2.3 | |
| L head | 8 | |

| MSA | Type | | |
|-------------|-------|-------|--|
| 22.764-xxxx | A856 | | |
| ● | -021G | -023G | |
| ● | -021A | -023A | |
| ● | -021B | -023B | |
| ○ | -021C | -023C | |
| ● | -021D | -023D | |
| ● | -021E | -023E | |
| ∅ head | 2.1 | 2.3 | |
| L head | 8 | 8 | |

Order example :

MSA 22.765-xxxx

Extensions
(3 digits + 1 letter)

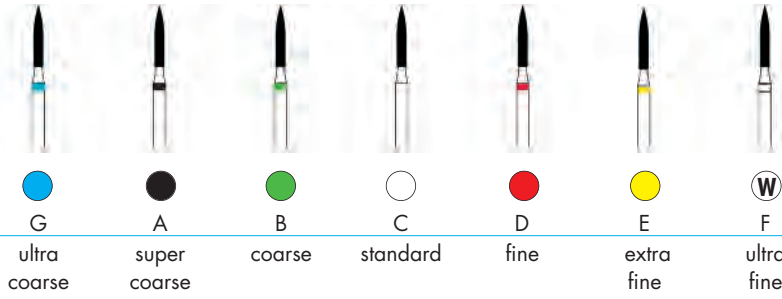
∅ head mm

grain

∅ 1,6

←19-24 mm→

Echelle : 1/1



| MSA | Type |
|-------------|------|
| 22.765-xxxx | 850 |

| Grain | -012G | -014G | -016G | -018G | -023G |
|--------|-------|-------|-------|-------|-------|
| ● | -012A | -014A | -016A | -018A | -023A |
| ● | -012B | -014B | -016B | -018B | -023B |
| ○ | -012C | -014C | -016C | -018C | -023C |
| ● | -012D | -014D | -016D | -018D | -023D |
| ● | -012E | - | -016E | - | -023E |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 | 2.3 |
| L head | 10 | 10 | 10 | 10 | 10 |

| MSA | Type |
|-------------|------|
| 22.766-xxxx | 852 |

| Grain | - | -012A |
|--------|-------|-------|
| ● | - | -012B |
| ○ | -010C | -012C |
| ● | -010D | -012D |
| ● | -010E | -012E |
| Ⓜ | -010F | -012F |
| ∅ head | 1.0 | 1.2 |
| L head | 4 | 6 |

| MSA | Type |
|-------------|------|
| 22.769-xxxx | 859L |

| Grain | -012C |
|--------|-------|
| ○ | -012C |
| ∅ head | 1.2 |
| L head | 11 |

| MSA | Type |
|-------------|------|
| 22.767-xxxx | 858 |

| Grain | - | -014A | - | - |
|--------|-------|-------|-------|-------|
| ● | -012B | -014B | -016B | -018B |
| ○ | -012C | -014C | -016C | -018C |
| ● | -012D | -014D | -016D | - |
| ● | -012E | -014E | -016E | - |
| Ⓜ | - | -014F | - | - |
| ∅ head | 1.2 | 1.4 | 1.6 | 1.8 |
| L head | 8 | 8 | 8 | 8 |

| MSA | Type |
|-------------|------|
| 22.768-xxxx | 859 |

| Grain | -010A | -012A | -014A | -016A | -018A |
|--------|-------|-------|-------|-------|-------|
| ● | -010B | -012B | -014B | -016B | -018B |
| ○ | -010C | -012C | -014C | -016C | -018C |
| ● | -010D | -012D | -014D | -016D | -018D |
| ● | -010E | -012E | -014E | -016E | -018E |
| Ⓜ | - | -012F | - | -016F | -018F |
| ∅ head | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 |
| L head | 10 | 10 | 10 | 10 | 10 |

Order example :

MSA 22.800-xxxx

Extensions
(3 digits + 1 letter)

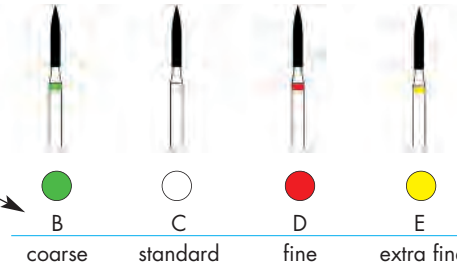
∅ head mm

grain

∅ 2,35

←44.5-53 mm→

Echelle : 1/1



| MSA | Type |
|-------------|------|
| 22.800-xxxx | 858 |

| Grain | -012C | -016C |
|--------|-------|-------|
| ○ | -012D | -016D |
| ∅ head | 1.2 | 1.6 |
| L head | 8 | 8 |

| MSA | Type |
|-------------|------|
| 22.801-xxxx | 859 |

| Grain | -014C |
|--------|-------|
| ○ | -014C |
| ∅ head | 1.4 |
| L head | 10 |

| MSA | Type |
|-------------|------|
| 22.802-xxxx | 909 |

| Grain | - | -040A | - |
|--------|-------|-------|-------|
| ● | -033B | -040B | - |
| ○ | -033C | -040C | -050C |
| ∅ head | 3.3 | 4.0 | 5.0 |
| L head | 1 | 1.7 | 2.2 |

| MSA | Type |
|-------------|------|
| 22.803-xxxx | 825 |

| Grain | - | - | -040B |
|--------|-------|-------|-------|
| ○ | -018C | -025C | -040C |
| ∅ head | 1.8 | 2.5 | 4.0 |
| L head | 0.8 | 0.9 | 1.1 |

» Diamond burs, shank ∅ 2.35 mm.

» ASSORTMENT of 20 burs



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 22.530 | 100 x 60 x 15 | 0.055 |

Assortment of 20 diamond burs. A variety of shapes are available for multiple uses.

» SPIREC HSS-E micro-drills, high speed steel.

Total length 25 mm :

| MSA | Shank ϕ mm | ϕ mm | Progression mm |
|------------|-----------------|---------------------------------|----------------|
| 22.630-xxx | 1.0 | from ϕ 0.05 to ϕ 0.79 | 0.01 |
| 22.630-xxx | 1.5 | from ϕ 0.80 to ϕ 1.45 | 0.01 |

Total length 38 mm :

| MSA | Shank ϕ mm | ϕ mm | Progression mm |
|------------|-----------------|---------------------------------|----------------|
| 22.630-xxx | 2.0 | from ϕ 1.50 to ϕ 1.98 | 0.05* |

*For MSA 22.630-1.58, the shank ϕ is 1.587 mm and for MSA 22.630-1.98, the shank ϕ is 1.984mm.

Total length 43 mm :

| MSA | Shank ϕ mm | ϕ mm | Progression mm |
|------------|-----------------|---------------------------------|----------------|
| 22.630-xxx | 2.5 | from ϕ 2.00 to ϕ 2.45 | 0.05* |

*For MSA 22.630-2.38, the shank ϕ is 2.384 mm.

Total length 46 mm :

| MSA | Shank ϕ mm | ϕ mm | Progression mm |
|------------|-----------------|---------------------------------|----------------|
| 22.630-xxx | 3.0 | from ϕ 2.50 to ϕ 3.17 | 0.05* |

*For MSA 22.630-2.77, the shank ϕ is 2.778 mm and for MSA 22.630-3.17, the shank ϕ is 3.175 mm.

» See other tempered tool steel drills, with shanks ϕ 2.35 mm page 22 31.



» MSA 22.630-xxx, please precise the ϕ when you place your.

» TITEX HSS micro-drills, standard for universal use.



» MSA 22.660-xxx, please precise the ϕ when you place your.

| MSA | ϕ mm | Progression mm |
|------------|-----------------------------------|----------------|
| 22.660-xxx | from ϕ 0.020 to ϕ 0.199 | 0.01 |
| 22.660-xxx | from ϕ 0.200 to ϕ 16.5 | 0.05 |

» YAMAMOTO HSS micro-drills.



» MSA 22.670-xxx, please precise the ϕ when you place your.

| MSA | ϕ mm | Progression mm |
|------------|----------------------------------|----------------|
| 22.670-xxx | from ϕ 0.010 to ϕ 1.50 | 0.01 |

» SPIREC micro-drills in hardened steel.



» MSA 22.640-xxx, please precise the ϕ when you place your.

Total length 25 mm :

| MSA | Shank ϕ mm | ϕ mm | Progression mm |
|------------|-----------------|---------------------------------|----------------|
| 22.640-xxx | 1.0 | from ϕ 0.10 to ϕ 0.79 | 0.01 |
| 22.640-xxx | 1.5 | from ϕ 0.80 to ϕ 1.00 | 0.01 |
| 22.640-xxx | 1.5 | from ϕ 1.05 to ϕ 1.55 | 0.05 |

» Tempered tool steel drills, shank ϕ 2.35 mm.



» MSA 22.610-xxx, please precise the ϕ when you place your.

| MSA | Type | ϕ mm | Progression mm |
|------------|------|--------------------------------|----------------|
| 22.610-xxx | 58PM | from ϕ 0.05 to ϕ 2.3 | 0.01 |

» Tungsten carbide drills, shank ϕ 2.35 mm.



» MSA 22.412-xxx, please precise the ϕ when you place your.

| MSA | Type | ϕ mm | Progression mm |
|------------|------|--------------------------------|----------------|
| 22.412-xxx | 58MD | from ϕ 0.05 to ϕ 2.3 | 0.01 |

» Diamond drills, shank ϕ 2.35 mm.



» MSA 22.650-xxx, please precise the ϕ when you place your.

| MSA | ϕ mm | Progression mm |
|------------|-------------------------------|----------------|
| 22.650-xxx | from ϕ 0.7 to ϕ 1.5 | 0.1 |

23



POLISHING TOOLS..... 23 2



POLISHING MACHINES..... 23 5

» 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 | Right turning Bobino MSA 23.501-A (clockwise), ø 14 to 34 mm. | 0.780 |
| 23.504 | Right turning Bobino MSA 23.504-A (anti-clockwise), ø 25 to 50 mm. | 0.780 |

| MSA | Model | Kg |
|--------|---|-------|
| 23.502 | Left turning Bobino MSA 23.501-E (clockwise), Ø 14 to 34 mm. | 0.780 |
| 23.505 | Left turning Bobino MSA 23.504-E (anti-clockwise), Ø 25 to 50 mm. | 0.780 |

The claws adjustment is made screwing and unscrewing the central screw of the claws thanks to an Allen key. The back screw is the Bobino turning adjustment. It allows to completely stop the Bobino (if necessary) or, at the opposite, to have a free rotation. The underneath lever is for releasing the claws (used for series).



There is no more contact between the fingers and the item to polish.



In case of voluntary blocking, just hold the base of the red vice.



| MSA | Model | Kg |
|----------|---|-------|
| 23.501-C | Right-sided ball bearing handle only (thread ø 16 mm) | 0.700 |

Delivered with 1 hexagonal key.



| MSA | Model | Kg |
|----------|--|-------|
| 23.501-B | Left-sided ball bearing handle only (thread ø 16 mm) | 0.700 |

Delivered with 1 hexagonal key.



| MSA | Model | Kg |
|----------|--|-------|
| 23.501-A | Right-sided vice only (thread ø 16 mm) | 0.080 |
| 23.501-E | Left-sided vice only (thread ø 16 mm) | " |

Vice only (ø 14 to 34 mm) delivered with an Allen key for claws width adjustment and for fixing the vice on the Bobino.

Replacement parts for MSA 23.501 and 23.502 :

| MSA | Items | Kg |
|----------|---------------------------------|-------|
| 23.500-A | Assortment of 4 brass claws (1) | 0.010 |
| 23.501-G | Spring only (2) | 0.001 |



| MSA | Model | Kg |
|----------|--|-------|
| 23.504-A | Right-sided vice only (thread ø 16 mm) | 0.080 |
| 23.504-E | Left-sided vice only (thread ø 16 mm) | " |

Vice only (ø 25 to 50 mm) delivered with an Allen key for claws width adjustment and for fixing the vice on the Bobino.

Replacement parts for MSA 23.504 and 23.505 :

| MSA | Items | Kg |
|----------|---------------------------------|-------|
| 23.503-A | Assortment of 4 brass claws (1) | 0.010 |
| 23.504-G | Spring only (2) | 0.001 |



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 \varnothing 14 mm, to fix the vice on the motor arbour. Optional reduction die is deliverable to fit the vice on \varnothing 9 mm motor axle.

Replacement parts :

| MSA | Items | Kg |
|-----------|----------------------------------|-------|
| 23.500-09 | Reduction die \varnothing 9 mm | 0.016 |
| 23.500-A | Assortment of 4 claws (1) | 0.010 |

| MSA | Reaming mm | Size mm | Kg |
|--------|------------------|-----------------------|-------|
| 23.500 | \varnothing 14 | 80 x \varnothing 35 | 0.250 |

Polishing vice with 4 brass claws, tightening from \varnothing 14 to 34 mm.



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 \varnothing 14 mm, to fix the vice on the motor arbour. Optional reduction die is deliverable to fit the vice on \varnothing 9 mm motor axle.

Replacement parts :

| MSA | Items | Kg |
|-----------|----------------------------------|-------|
| 23.503-09 | Reduction die \varnothing 9 mm | 0.016 |
| 23.503-A | Assortment of 4 claws (1) | 0.010 |

| MSA | Reaming mm | Size mm | Kg |
|--------|------------------|-----------------------|-------|
| 23.503 | \varnothing 14 | 80 x \varnothing 39 | 0.180 |

Polishing vice with 4 brass claws, tightening from \varnothing 25 to 50 mm.



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 23.160 | 220 V | 440 x 350 x 450 | 26.000 |
| 23.160-110 | 110 V | " | " |

UNISPEED professional polishing machine with one work station containing :

- 1 dust drawer
- 1 lamp
- 1 removable and detachable hood for polishing big pieces
- 2 speeds : 1.400 and 2.800 RPM
- motor power : 0.220 kW.

Replacement parts :

| MSA | Items |
|----------|--------------------|
| 23.008-B | Filter |
| 23.008-D | Tapered spindle |
| 23.008-N | Neon light |
| 23.008-P | Millstone holder |
| 23.160-A | Replacement filter |



| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 23.009 | 220 V | 410 x 290 x 375 | 12.000 |
| 23.009-110 | 110 V | " | " |

POLINI polishing machine for after sales service with 1 work station containing :

- 1 dust drawer
- 1 lamp
- 1 transparent hood (possible withdrawal for polishing big pieces)
- 1 speed : 2.800 RPM
- motor power : 0.140 kW.

Replacement parts :

| MSA | Items |
|----------|--------------------|
| 23.009-D | Tapered spindle |
| 23.008-N | Neon light |
| 23.009-A | Replacement filter |



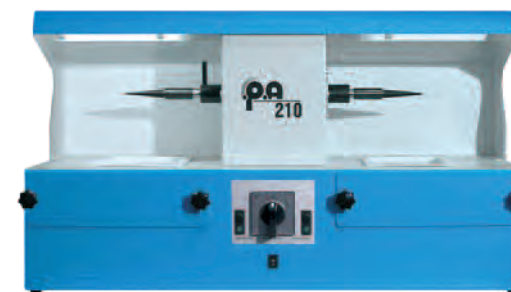
| MSA | Voltage | Size mm | Kg |
|------------|---------|-----------------|--------|
| 23.008 | 220 V | 720 x 350 x 450 | 38.000 |
| 23.008-110 | 110 V | " | " |

MULTISPEED polishing machine with 2 work stations containing :

- 2 polishing tapered spindles
- 2 separated motors for polishing and air extraction
- 2 dust drawers
- 2 removable and detachable hoods for polishing big pieces
- 2 lamps
- 2 speeds : 1.400 and 2.800 RPM
- motor power : 0.220 kW.

Replacement parts :

| MSA | Items |
|----------|-----------------------------|
| 23.008-B | Filter |
| 23.008-D | Right-sided tapered spindle |
| 23.008-G | Left-sided tapered spindle |
| 23.008-N | Neon light |
| 23.008-P | Millstone holder |
| 23.160-A | Replacement filter |



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|--------|
| 23.011 | 220 V | 750 x 335 x 430 | 36.000 |

PA210 polishing machine with air extraction capacity of 2 x 500 m³/hour containing :

- 2 tapered spindles for polishing wheels ø 160 mm maximum
- 2 dust drawers
- 2 11 W lamps
- 2 speeds: 1.400 and 2.800 RPM
- motor power : 0.2/0.3 kW.

Replacement parts :

| MSA | Items | Kg |
|----------|-----------------------------|-------|
| 23.011-D | Right-sided tapered spindle | 0.070 |
| 23.011-G | Left-sided tapered spindle | 0.070 |
| 23.011-F | Replacement filter | 0.008 |



| MSA | Voltage | Dimensions mm | Kg |
|--------|---------|-----------------|--------|
| 23.010 | 220 V | 455 x 335 x 430 | 26.000 |

PA012 polishing machine with air extraction capacity of 500 m³/hour containing :

- 1 right-sided conical axle for polishing wheel ø 160 mm maximum
- 1 dust drawer
- 1 11 W lamp
- 2 speeds : 1.400 and 2.800 RPM
- motor power : 0.2/0.3 kW.

Replacement parts :

| MSA | Items | Kg |
|----------|--------------------|-------|
| 23.011-D | Tapered spindle | 0.070 |
| 23.011-F | Replacement filter | 0.008 |



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|------|
| 23.150 | 220 V | 550 x 230 x 330 | 25.5 |

SENIOR polishing machine with 1 work station containing :

- 1 dust drawer
- 1 vacuum hood with 1 6 W neon light
- 1 speed: 2.800 RPM
- air extraction capacity : 800 m³/hour
- motor power : 0.4 kW.

Replacement part :

| MSA | Item |
|----------|--------------------|
| 23.150-A | Replacement filter |

24



BENCHES 24 2



CHAIRS 24 7



BENCH ACCESSORIES 24 9

» *Top quality wooden table benches, very stable and well adapted to watchmakers. Different versions available : adjustable or fixed arm-rests, without or with 1 or 2 Cabinets, central drawer. Each cabinet has 1 tray and 4 drawers (3 of them with adaptable separations) Different keys for locking each cabinet. Adjustable working height by screws and nuts, crank or electric. Stability adjustment made by screws underneath each foot.*

► **Deluxe Version**



► Height adjustment : mini. 950 mm, maxi. 1150 mm.



Electric height adjustment :

| MSA | Table size mm | Version |
|------------|---------------|---------|
| 24.514-140 | 1450 x 740 | A |
| 24.515-140 | " | B |
| 24.516-140 | " | C |

Version A :

- 1 table with adjustable arm-rests
- 1 hydraulic pump
- 1 electronic panel for height adjustment.

Version B :

Vesion A + 1 right cabinet of 4 drawers and 1 tray.

Version C :

Vesion A + 1 right + 1 left cabinets of 4 drawers and 1 tray each.



Crank height adjustment :

| MSA | Table size mm | Version |
|----------------|---------------|---------|
| 24.512-140 | 1450 x 740 | A |
| 24.513-140 (1) | " | B |

Version A :

- 1 table with adjustable arm-rests
- 1 hydraulic pump
- 1 retractable crank.

Version B :

Vesion A + 1 right cabinet of 4 drawers and 1 tray.

► **Standard Version**



► Height adjustment : mini. 950 mm, maxi. 1150 mm.



Electric height adjustment :

| MSA | Table size mm | Version |
|----------------|---------------|---------|
| 24.506-140 | 1400 x 700 | A |
| 24.507-140 | " | B |
| 24.508-140 (1) | " | C |

Version A :

- 1 table with fixed arm-rests and central drawers
- 1 hydraulic pump
- 1 electronic panel for height adjustment.

Version B :

Vesion A + 1 right cabinet of 4 drawers and 1 tray.

Version C :

Vesion A + 1 right + 1 left cabinets of 4 drawers and 1 tray each.



Crank height adjustment :

| MSA | Table size mm | Version |
|------------|---------------|---------|
| 24.504-140 | 1400 x 700 | A |
| 24.505-140 | " | B |

Version A :

- 1 table with fixed arm-rests and central drawers
- 1 hydraulic pump
- 1 retractable crank.

Version B :

Vesion A + 1 right cabinet of 4 drawers and 1 tray.

MSA 24.503-140*



| MSA | Size L x W x H mm (wheels included) | Kg |
|--------|--|--------|
| 24.460 | 600 x 305 x 630 | 33.200 |

Mobile cabinet of 4 drawers and 1 tray, mounted on 4 pivoting wheels (1 wheel brake). Top covered with a black rubber groove mat.

Screws and nuts height adjustment :

| MSA | Table size mm | Version | |
|-------------|---------------|---------|---------|
| 24.501-140 | 1400 x 700 | A | 150.000 |
| 24.502-140 | " | B | 185.000 |
| 24.503-140* | " | C | 220.000 |

Version A :

- 1 table with fixed arm-rests
- 1 rear panel
- 1 central drawer, inside dimensions 330 x 240 x 40 mm
- height adjustment by screws and nuts.

Version B :

Vesion A + 1 right cabinet of 4 drawers and 1 tray.

Vesion C : Vesion A + 1 right + 1 left cabinets of 4 drawers and 1 tray each.

*Weight includes the shipping wooden box.

Accessories for watchmakers benches MSA 24.501-140, 24.502-140 and 24.503-140 :

| MSA | Description | Kg |
|------------|---|--------|
| 24.450-140 | Table with arm rests 1400 x 700 mm | 41.000 |
| 24.451 | Adjustable square metal frame, black thermo lacquered | 16.500 |
| 24.452-D | Cabinet with 4 drawers and 1 top tray (key on right side) (2) | 33.500 |
| 24.452-G | Cabinet with 4 drawers and 1 top tray (key on left side) (1) | 33.500 |
| 24.453 | Central drawer | 6.500 |
| 24.454 | Rear panel (3) | 9.100 |
| 24.457-D | Right arm rest (5) | 1.460 |
| 24.457-G | Left arm rest (4) | 1.460 |
| 24.458 | Complete set of screws and nuts | |

➤ For export, the bench is delivered unassembled in a wooden transport box (150 x 95 x 65 cm) included in the price with detailed assembly instructions.



Cabinet drawers inside dimensions compatible with all benches shown pages 24 2, 24 3, 24 4 and MSA 24.460 :

- 1 tray 530 x 238 mm
- 2 drawers 530 x 218 x 60 mm (21 separations 70 x 70 x 60 mm)
- 1 drawer 530 x 218 x 100 mm (21 separations 70 x 70 x 60 mm)
- 1 drawer 530 x 218 x 130 mm.

➤ Separations are removable.



| MSA | Size L x W x H mm | Kg |
|--------|-------------------|-------|
| 24.040 | 700 x 300 x 250 | 8.260 |

Cabinet made of spruce with 22 drawers.



| MSA | Pipe ø mm | Kg |
|----------------|-----------|-------|
| 24.520 (Pict.) | 6/10 | 0.920 |

Complete double swan-neck.
Delivered with neck, base and 2 weights.

Replacement parts :

| MSA | Description | Kg |
|----------|-----------------------------------|-------|
| 24.520-A | Double swan-neck only (1) | 0.425 |
| 24.520-B | Base standard Ø for swan-neck (2) | 0.065 |
| 24.520-C | Weight 180 gr for swan-neck (3) | 0.180 |
| 24.520-D | Weight 250 gr for swan-neck (4) | 0.250 |

| MSA | Pipe ø mm | Kg |
|--------|-----------|-------|
| 24.521 | 6 | 0.460 |
| 24.522 | 10 | 0.530 |

Single swan-neck, ø 6 or 10 mm.
Delivered with neck, base and 1 weight.

Replacement parts for MSA 24.521 and 24.522 :

| MSA | Description | Kg |
|----------|---|-------|
| 24.521-A | Single swan-neck only for black pipe ø 6 mm | 0.215 |
| 24.520-B | Base standard ø for swan-neck (2) | 0.065 |
| 24.520-C | Weight 180 gr for swan-neck (3) | 0.180 |
| 24.520-D | Weight 250 gr for swan-neck (4) | 0.250 |



| MSA | Sitting height mm | Base | Kg |
|--------|-------------------|---------|--------|
| 24.024 | From 420 to 530 | Wheels | 12.200 |
| 24.026 | From 450 to 650 | Wheels | " |
| 24.028 | From 550 to 800 | Buffers | " |

TECLINE watchmakers chair made of light beech. 5 arm base with braked wheels or buffers for hard ground and adjustable circular feet rest. Gas filled lift cylinder with fingertip adjustment for seat height. Back height and depth are fully adjustable.

Accessories :

| MSA | Items |
|----------|---------------------------------------|
| 24.039-A | Seat cushion in black King cloth |
| 24.039-B | Seat back cushion in black King cloth |



| MSA | Sitting height mm | Base | Kg |
|--------|-------------------|---------|--------|
| 24.025 | From 420 to 530 | Wheels | 12.200 |
| 24.027 | From 450 to 650 | Wheels | " |
| 24.029 | From 550 to 800 | Buffers | " |

TECLINE watchmakers chair made of polyurethane foam. 5 arm base with braked wheels or buffers for hard ground and adjustable circular feet rest. Gas filled lift cylinder with fingertip adjustment for seat height. Back height and depth are fully adjustable.



| MSA | Sitting height mm | Base | Kg |
|--------|-------------------|---------|--------|
| 24.030 | From 420 to 530 | Wheels | 10.200 |
| 24.032 | From 450 to 650 | Wheels | " |
| 24.036 | From 550 to 800 | Buffers | " |

TECLINE watchmakers chair made of light beech. 5 arm base with braked wheels or buffers for hard ground. Gas filled lift cylinder with fingertip adjustment for seat height. Back height and depth are fully adjustable.

Accessories :

| MSA | Items |
|----------|---------------------------------------|
| 24.039-A | Seat cushion in black King cloth |
| 24.039-B | Seat back cushion in black King cloth |



| MSA | Sitting height mm | Base | Kg |
|--------|-------------------|---------|--------|
| 24.031 | From 420 to 530 | Wheels | 10.200 |
| 24.033 | From 450 to 650 | Wheels | " |
| 24.037 | From 550 to 800 | Buffers | " |

TECLINE watchmakers chair made of polyurethane foam. 5 arm base with braked wheels or buffers for hard ground. Gas filled lift cylinder with fingertip adjustment for seat height. Back height and depth are fully adjustable.

Accessories for all wheel chairs described above and page before :

| MSA | Item |
|----------|--------------------------------|
| 24.032-R | Set of 5 wheels for hard floor |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 24.200 | 350 x 250 x 2 | 0.164 |

Self-adhesive green bench mat.



| MSA | Size mm | Kg |
|----------|---------------|-------|
| 24.200-A | 700 x 500 x 2 | 0.330 |

Non adhesive green bench mat.

5 pces



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 24.202 | 320 x 240 x 0.6 | 0.350 |

Wrapper of 5 self-adhesive green bench mats.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 24.203 | 350 x 240 x 2 | 0.140 |

Anti-skid green bench mat, no self-adhesive but soft enough to be very adherent.



| MSA | Size mm | Kg |
|--------|--------------------|-------|
| 24.205 | 1000 x 1350 x 0.25 | 0.385 |

PVC silvered blanket for bench cover to protect tools and parts from dust.

BENCHES | CHAIRS | BENCH ACCESSORIES

| MSA | Size mm | Kg |
|--------|----------|-------|
| 24.210 | 200 x 35 | 0.010 |
| 24.211 | 300 x 35 | 0.015 |
| 24.212 | 400 x 35 | 0.020 |

Self-adhesive PVC band to stick on bench, for winding watches.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 24.220 | 150 x 100 | 0.046 |
| 24.221 | 300 x 180 | 0.160 |

Self-adhesive rubber tray to be stuck on bench to avoid tools rolling.

26



POLISHING/ABRASIVES 26 2

polishing compounds

diamantine

scratch brushes

buffs

abrasive sheets

PROTECTIONS 26 16

gloves/finger cots

coats

ear plugs

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paint brushes

peg wood and plastic sticks

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cleaning

rinsing

scouring

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GLUES/ADHESIVES 26 36

OTHERS 26 45

ASSORTMENT

LUXOR®



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 26.014 | 295 x 100 x 38 | 0.950 |

Assortment of 8 LUXOR® polishing compounds allowing to obtain clean pieces, to decrease working time and the consumption. Delivered in a cardboard box with a transparent lid. Size of each polishing compound : ø 30 x 80 mm.

Each LUXOR® polishing compound is delivered separately :

| MSA | Colour | Grain | Material | Operation | Support | Kg |
|--------|--------|-------|--|---|---|-------|
| 26.015 | Pink | 6.5 µ | All metals | Preparation (large defects) | Polishing cotton felt/disc and wheel with cotton plates | 0.107 |
| 26.016 | Green | 3.0 µ | All metals | Preparation (middle defects) | Polishing cotton disc and wheel with cotton plates | 0.111 |
| 26.017 | Grey | 1.0 µ | Platinum | Preparation | Polishing cotton disc and wheel with cotton plates | 0.131 |
| 26.018 | Blue | 1.0 µ | Non ferrous (brass type) | Finishing | Buffing cotton disc | 0.118 |
| 26.021 | White | 0.3 µ | Platinum grey/white gold stainless steel | Silver finishing + polishing of diamond gold pieces | Buffing cotton disc and wheel with cotton plates | 0.100 |
| 26.020 | Yellow | 0.5 µ | Yellow and pink gold | Finishing | Buffing cotton disc and wheel with cotton plates | 0.103 |
| 26.019 | Orange | 0.1 µ | Fragile precious metals | Optimal shinning (allows to replace the American red) | Buffing cotton disc and wheel with cotton plates | 0.110 |
| 26.022 | Red | - | Yellow gold | Finishing | Finishing flanel disc | 0.108 |



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.560 | 100 x 33 x 30 | 0.114 |

DIALUX BLUE polishing compound for use with brushes or cotton, felt or flannel discs. Super finishing for all metals.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.561 | 100 x 33 x 30 | 0.115 |

DIALUX WHITE polishing compound for use with brushes or cotton, felt or flannel discs. Shining and fine buffing of all metals.



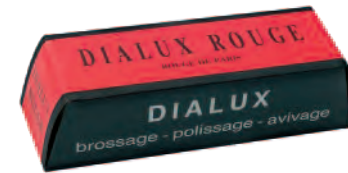
| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.562 | 100 x 33 x 30 | 0.120 |

DIALUX GREY polishing compound for use with brushes or cotton, felt or flannel discs. Stainless steel buffing.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.563 | 100 x 33 x 30 | 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.



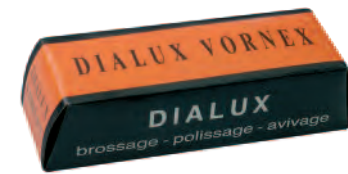
| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.564 | 100 x 33 x 30 | 0.149 |

DIALUX RED polishing compound for use with brushes or cotton, felt or flannel discs. Fine buffing for gold and silver.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.565 | 100 x 33 x 30 | 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 mm | Kg |
|--------|---------------|-------|
| 26.566 | 100 x 33 x 30 | 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.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.567 | 100 x 33 x 30 | 0.095 |

DIALUX BLACK polishing compound for use with brushes or cotton, felt or flannel discs. Super finishing of silver.



| MSA | Contents | Size mm | Kg |
|--------|----------|---------------|-------|
| 26.568 | 25 g | 42 x 36 x 135 | 0.047 |

SILVEX polishing paste for gold and silver. Ideal solution for eliminating scratches and scrapes on precious metals. SILVEX gives a new shine to all jewellery and guarantees their sparkle. Do not use on plated metals. Nontoxic and soluble in water.

Delivered with 1 tube, a polishing cloth and a microfiber cloth (also delivered in display box by 15 units).

Use :

1st step : clean the surface and apply a small spot of the paste. Polish the surface with the white cloth first for about 1 minute applying pressure. For deep scratches repeat the application as many times as necessary.

2nd step : remove the excess paste with the other cloth or rinse with water.



| MSA | Contents | Size mm | Kg |
|----------|----------|---------|-------|
| 26.552-2 | 5 g | 80 x 20 | 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 | Type | Size mm | Kg |
|--------|-----------|-------------|-------|
| 26.575 | 10 carats | 61.5 x ø 17 | 0.005 |

Diamond powder, calibre quality PM (standard 0-2). Natural diamond (mono-crystalline) used in certain applications that require a very brilliant finish.



| MSA | Contents | Type | Size mm | Kg |
|--------|----------|-------|------------|-------|
| 26.576 | 10 g | 1.103 | 190 x ø 35 | 0.085 |
| 26.577 | " | 1.105 | " | " |
| 26.578 | " | 3.103 | " | " |
| 26.579 | " | 3.105 | " | " |

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.

Types :

- 1.103 : granulous = 1 µ ; concentration : strong
- 1.105 : " = 1 µ ; " : extra-strong
- 3.103 : " = 3 µ ; " : strong
- 3.105 : " = 3 µ ; " : extra-strong.



| MSA | Type | Packaging | Kg |
|--------|--------|-----------|-------|
| 26.570 | Fine | Bag 1 kg | 1.000 |
| 26.573 | Fine | Box 30 cc | 0.060 |
| 26.571 | Medium | Bag 1 kg | 1.000 |
| 26.572 | Medium | Box 30 cc | 0.060 |

Diamantine. Top quality polishing powder, ideal to get finer surfaces.



| MSA | Items | Size mm | Kg |
|----------|---------------|-------------|-------|
| 26.581 | Complete set | ø 65 x H 35 | 0.077 |
| 26.581-B | Base only (1) | ø 65 x H 20 | 0.048 |
| 26.581-C | Lid only (2) | ø 65 x H 20 | 0.029 |

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.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.150 | 120 x 12 | 0.012 |

Scratch brush, pen shaped with glass fibre \varnothing 4 mm bristles.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 26.151 | 65 x 50 x 12 | 0.034 |

Refills \varnothing 4 x 40 mm for scratch brush MSA 26.150. Delivered in 1 box of 24 pieces.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.152 | 135 x 8 | 0.011 |

Scratch brush, pen shape with glass fibre \varnothing 2 mm bristles.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 26.153 | 135 x 30 x 6 | 0.009 |

Refills \varnothing 2 x 110 mm for scratch brush MSA 26.152. Delivered in a pouch of 12 pieces.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.156 | 105 x 14 | 0.026 |

Scratch brush, square shape with glass fibres \varnothing 8 mm bristles.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.157 | | 0.010 |

Refills \varnothing 8 x 105 mm for scratch brush MSA 26.156.



| MSA | Length mm | \varnothing mm | Kg |
|--------|-----------|------------------|-------|
| 26.165 | 180 | 08 | 0.030 |
| 26.166 | " | 15 | 0.060 |
| 26.167 | " | 20 | 0.100 |
| 26.168 | " | 25 | 0.150 |
| 26.169 | " | 30 | 0.225 |

Glass fibre brush wrapped in cotton rope.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.154 | 120 x 12 | 0.013 |

Scratch brush, pen shaped with brass fibre bristles \varnothing 4 mm.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 26.155 | 60 x 40 x 15 | 0.036 |

Refills \varnothing 4 x 40 mm for scratch brush MSA 26.154. Delivered in a box of 24 pieces.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.160 | 27 x 60 | 0.012 |

Large brass wire scratch brush.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.161 | 14 x 60 | 0.005 |

Brass wire scratch brush.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.170 | 90 x 10 | 0.025 |

Reversible scraper, 3 sides of 5 mm x length 80 mm, with scraper handle. The scraper can be completely removed inside the handle.

Replacement parts :

| MSA | Items | Kg |
|----------|-------------------------------|-------|
| 26.170-A | Triangular scraper blade only | 0.004 |
| 26.170-B | Scraper handle only | 0.021 |



| MSA | Grit | Size mm | Kg |
|------------|----------------|--------------|-------|
| 26.297-240 | 240 Fine | 80 x 50 x 20 | 0.096 |
| 26.297-120 | 120 Medium | " | 0.103 |
| 26.297-60 | 60 Coarse | " | " |
| 26.297-30 | 30 Very coarse | " | 0.105 |

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.

» Emery buff sticks used to polish.
Delivered in different grits from coarse (150) to fine (2000).



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|------------|----------|-------|
| 26.403-150 | 150 | Triangular | 290 x 10 | 0.010 |
| 26.403-180 | 180 | " | " | " |
| 26.403-240 | 240 | " | " | " |
| 26.403-500 | 500 | " | " | " |
| 26.403-1200 | 1200 | " | " | " |
| 26.403-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|------------|---------|-------|
| 26.404-150 | 150 | Triangular | 290 x 8 | 0.006 |
| 26.404-180 | 180 | " | " | " |
| 26.404-240 | 240 | " | " | " |
| 26.404-500 | 500 | " | " | " |
| 26.404-1200 | 1200 | " | " | " |
| 26.404-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|------------|---------|-------|
| 26.405-150 | 150 | Triangular | 290 x 6 | 0.004 |
| 26.405-180 | 180 | " | " | " |
| 26.405-240 | 240 | " | " | " |
| 26.405-500 | 500 | " | " | " |
| 26.405-1200 | 1200 | " | " | " |
| 26.405-2000 | 2000 | " | " | " |

» Emery buff sticks used to polish.
Delivered in different grits from coarse (150) to fine (2000).



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|-------|--------------|-------|
| 26.400-150 | 150 | Flat | 290 x 20 x 6 | 0.017 |
| 26.400-180 | 180 | " | " | " |
| 26.400-240 | 240 | " | " | " |
| 26.400-500 | 500 | " | " | " |
| 26.400-1200 | 1200 | " | " | " |
| 26.400-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|-------|-------------|-------|
| 26.401-150 | 150 | Flat | 290 x 8 x 4 | 0.007 |
| 26.401-180 | 180 | " | " | " |
| 26.401-240 | 240 | " | " | " |
| 26.401-500 | 500 | " | " | " |
| 26.401-1200 | 1200 | " | " | " |
| 26.401-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|-----------|-------------|-------|
| 26.406-180 | 180 | Sage leaf | 290 x 9 x 4 | 0.006 |
| 26.406-500 | 500 | " | " | " |
| 26.406-1200 | 1200 | " | " | " |
| 26.406-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|------------|--------------|-------|
| 26.408-180 | 180 | Half round | 290 x 10 x 5 | 0.007 |
| 26.408-240 | 240 | " | " | " |
| 26.408-500 | 500 | " | " | " |
| 26.408-1200 | 1200 | " | " | " |
| 26.408-2000 | 2000 | " | " | " |



| MSA | Grit | Shape | Size mm | Kg |
|-------------|------|------------|---------------|-------|
| 26.409-150 | 150 | Half round | 290 x 5 x 2.5 | 0.002 |
| 26.409-180 | 180 | " | " | " |
| 26.409-240 | 240 | " | " | " |
| 26.409-500 | 500 | " | " | " |
| 26.409-1200 | 1200 | " | " | " |
| 26.409-2000 | 2000 | " | " | " |

» Abrasive buff sticks used to polish.



| MSA | Grit μ | Colour text | Shape | Size mm | Kg |
|------------|--------|--------------------|-------|--------------|-------|
| 26.426-009 | 9 | Light blue (Pict). | Flat | 300 x 20 x 6 | 0.021 |
| 26.426-015 | 15 | Orange | " | " | " |
| 26.426-020 | 20 | Red | " | " | " |
| 26.426-030 | 30 | Green | " | " | " |
| 26.426-040 | 40 | Blue | " | " | " |
| 26.426-050 | 50 | Purple | " | " | " |
| 26.426-060 | 60 | Black | " | " | " |

Wooden stick covered with IMFF abrasive oriented grit paper, used for cleaning or polishing.



| MSA | Grit μ | Colour text | Shape | Size mm | Kg |
|------------|--------|--------------------|------------|---------|-------|
| 26.427-009 | 9 | Light blue (Pict). | Triangular | 300 x 6 | 0.004 |
| 26.427-015 | 15 | Orange | " | " | " |
| 26.427-020 | 20 | Red | " | " | " |
| 26.427-030 | 30 | Green | " | " | " |
| 26.427-040 | 40 | Blue | " | " | " |
| 26.427-050 | 50 | Purple | " | " | " |
| 26.427-060 | 60 | Black | " | " | " |

Wooden stick covered with IMFF abrasive oriented grit paper, used for cleaning or polishing.



| MSA | Grit μ | Colour | Shape | Size mm | Kg |
|------------|--------|--------------------|-------|--------------|-------|
| 26.428-001 | 1 | Light green | Flat | 300 x 20 x 6 | 0.014 |
| 26.428-003 | 3 | Pink | " | " | " |
| 26.428-005 | 5 | Brown | " | " | " |
| 26.428-009 | 9 | Light blue (Pict). | " | " | " |
| 26.428-012 | 12 | Yellow | " | " | " |
| 26.428-030 | 30 | Green | " | " | " |
| 26.428-040 | 40 | Dark blue | " | " | " |

Wooden stick covered with ILF abrasive paper, used for cleaning or polishing.



| MSA | Grit μ | Colour | Shape | Size mm | Kg |
|------------|--------|--------------------|------------|---------|-------|
| 26.429-001 | 1 | Light green | Triangular | 300 x 6 | 0.003 |
| 26.429-003 | 3 | Pink | " | " | " |
| 26.429-005 | 5 | Brown | " | " | " |
| 26.429-009 | 9 | Light blue (Pict). | " | " | " |
| 26.429-012 | 12 | Yellow | " | " | " |
| 26.429-030 | 30 | Green | " | " | " |

Wooden stick covered with ILF abrasive paper, used for cleaning or polishing.

» Wooden sticks only to be covered with different kinds of abrasive sheets (IMFF, ILF,... see page 26 12). Used for cleaning and for polishing.



| MSA | Shape | Size mm | Kg |
|-------------------|------------|----------|-------|
| 26.440-06 | Triangular | 290 x 6 | 0.004 |
| 26.440-08 (Pict). | " | 290 x 8 | 0.005 |
| 26.440-10 | " | 290 x 10 | 0.006 |

Triangle wooden sticks only.



| MSA | Shape | Size mm | Kg |
|---------------------|-------------|--------------|-------|
| 26.441-0804 | Rectangular | 290 x 8 x 4 | 0.010 |
| 26.441-2006 (Pict). | " | 290 x 20 x 6 | 0.014 |

Rectangular wooden sticks only.



| MSA | Shape | Size mm | Kg |
|-------------|-------|-------------|-------|
| 26.442-0904 | Oval | 290 x 9 x 4 | 0.003 |

Oval wooden sticks only.

» Abrasive paper made of aluminium oxide or emery paper.



| MSA | Grit μ | Size mm | Colour | Kg |
|-------------|--------|-----------|-------------|-------|
| 26.299-0003 | 0.3 | 210 x 297 | White | 0.017 |
| 26.299-001 | 1 | " | Light green | " |
| 26.299-003 | 3 | " | Pink | " |
| 26.299-009 | 9 | " | Light blue | " |
| 26.299-012 | 12 | " | Yellow | " |
| 26.299-030 | 30 | " | Green | " |
| 26.299-040 | 40 | " | Blue | " |

Self-adhesive aluminium oxide abrasive sheets, A4 size. Type ILF266X. Sheet sold individually.



| MSA | Grit μ | Size mm | Kg |
|------------|------------|-----------|-------|
| 26.296-009 | 9 | 210 x 297 | 0.020 |
| 26.296-015 | 15 | " | " |
| 26.296-020 | 20 | " | " |
| 26.296-030 | 30 | " | " |
| 26.296-040 | 40 | " | " |
| 26.296-060 | 60 | " | " |
| 26.296-080 | 80 | " | " |
| 26.296-100 | 100 | " | " |

Self-adhesive aluminium oxide abrasive **oriented grit** sheets, A4 size. Type IMF268L. Sheet sold individually.

» Abrasive corundum paper.



| MSA | Grit μ | Size mm | Kg |
|--------|------------|-----------|-------|
| 26.320 | 400 | 280 x 230 | 0.025 |
| 26.321 | 320 | " | " |
| 26.322 | 280 | " | 0.300 |
| 26.323 | 240 | " | " |
| 26.324 | 220 | " | " |
| 26.325 | 180 | " | 0.350 |
| 26.326 | 150 | " | " |
| 26.327 | 120 | " | 0.400 |
| 26.328 | 100 | " | " |
| 26.329 | 080 | " | 0.450 |
| 26.330 | 060 | " | " |
| 26.331 | 040 | " | " |

Sheet of corundum cloth. Sheet sold individually.



| MSA | Grit μ | Size mm | Kg |
|-------------|------------|-----------|-------|
| 26.300-0150 | P0150 | 280 x 230 | 0.015 |
| 26.300-0500 | P0500 | " | " |
| 26.300-1200 | P1200 | " | " |
| 26.300-2000 | P2000 | " | " |

Emery paper abrasive sheets type SIANOR B 1600, used for cleaning or polishing. Available on demand: SIAWAT FC 1727, SIAWAT FC 1913, SIAROL 2915 and SIANOR J 2601. Sheet sold individually.



| MSA | Grit μ | Size mm | Kg |
|-------------|------------|-----------|-------|
| 26.316-0220 | P220 | 280 x 230 | 0.015 |
| 26.316-0400 | P400 | 280 x 230 | " |

Fine abrasive sheet SIAREXX used for cleaning and for polishing.



| MSA | Grit μ | Box size mm | Kg |
|--------|------------|----------------|-------|
| 26.340 | 400 | 180 x 180 x 30 | 0.305 |
| 26.341 | 320 | " | 0.315 |
| 26.342 | 280 | " | 0.330 |
| 26.343 | 240 | " | 0.340 |
| 26.344 | 220 | " | 0.350 |
| 26.345 | 180 | " | 0.380 |
| 26.346 | 150 | " | " |
| 26.347 | 120 | " | 0.395 |
| 26.348 | 100 | " | 0.450 |
| 26.349 | 080 | " | 0.490 |
| 26.350 | 060 | " | 1.170 |
| 26.351 | 040 | " | 1.180 |

Roll of corundum paper, essential for sandpapering and wood turnery, manual sandpapering, trimming metals and hard wood.

Width : 25 mm. Length : 25 metres.



| MSA | Grit μ | Size mm | Kg |
|------------|------------|-----------|-------|
| 26.317-320 | 320 | 280 x 230 | 0.015 |

Abrasives sheet SIAWAT FC 1913 used for high grad pouncing.



| MSA | Grit μ | Size mm | Kg |
|------------|------------|------------|-------|
| 26.352-600 | 600 | 100 x 1000 | 0.043 |

Circular abrasive band.



| MSA | Grit μ | Size mm | Kg |
|-------------|------------|---------|-------|
| 26.360-2000 | 2000 | 240 | 0.007 |
| 26.360-2500 | 2500 | 240 | 0.005 |

Abrasive disk.



| MSA | σ mm | Kg |
|--------|-------------|-------|
| 26.361 | 240 | 0.005 |

Intermediate abrasive disk.



| MSA | Grit μ | Size mm | Kg |
|------------|------------|---------|-------|
| 26.370-003 | 3 | 203 | 0.005 |
| 26.370-009 | 9 | 203 | 0.007 |
| 26.370-012 | 12 | 203 | " |

3M type ILF abrasive disk.

» White leather buff sticks for cleaning or polishing. Also used for closing thin and delicate watch case backs by hand pressure.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.420 | 12 | 215 | 0.008 |

White leather buff stick for cleaning or polishing.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.421 | 12 | 110 | 0.002 |

Plastic protection cover for MSA 26.420. Sold separately.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.422 | 6 | 215 | 0.004 |

White leather buff stick for cleaning or polishing.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.423 | 6 | 110 | 0.001 |

Plastic protection cover for MSA 26.422. Sold separately.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.424 | 22 | 245 | 0.020 |

Leather buff stick for cleaning or polishing.



| MSA | Width mm | Length mm | Kg |
|--------|----------|-----------|-------|
| 26.425 | 22 | 110 | 0.002 |

Plastic protection cover for MSA 26.424. Sold separately.

Paire



| MSA | Size | Kg |
|-----------|---------|-------|
| 26.120-01 | 07 - 08 | 0.021 |
| 26.120-02 | 09 - 10 | 0.025 |
| 26.120-03 | 12 - 13 | 0.026 |

Beige cotton gloves.

Paire



| MSA | Size | Kg |
|-----------|---------|-------|
| 26.121-01 | 07 - 08 | 0.019 |
| 26.121-02 | 09 - 10 | 0.021 |
| 26.121-03 | 12 - 13 | 0.023 |

White cotton gloves.

100 pces



| MSA | Size | Box size mm | Kg |
|--------|--------|----------------|-------|
| 26.122 | Large | 240 x 130 x 70 | 0.845 |
| 26.123 | Medium | " | 0.760 |
| 26.124 | Small | " | 0.690 |

Ambidextrous latex gloves, lightly powdered interior. Not sterile, 0.17 mm thick and roll up sides. 100 pieces box dispenser.

100 pces



| MSA | Size | Box size mm | Kg |
|--------|---------|----------------|-------|
| 26.146 | X-Large | 240 x 130 x 70 | 0.845 |

White natural ambidextrous latex gloves, for one use only lightly powdered interior. Not sterile. 0.10 mm thickness and roll up sides. 100 pieces box dispenser.

100 pces



| MSA | Size | Box size mm | Kg |
|-----------|---------|----------------|-------|
| 26.143-XL | X-Large | 240 x 130 x 70 | 0.762 |
| 26.143-L | Large | " | 0.736 |
| 26.143-M | Medium | " | 0.657 |
| 26.143-S | Small | " | 0.605 |

NITRILE ambidextrous gloves, for one use only, blue colour, not powdered. 0.13 mm thickness and roll up sides. 100 pieces box dispenser.

Paire



| MSA | Size | Kg |
|--------|---------|-------|
| 26.131 | Small | 0.040 |
| 26.132 | Medium | 0.042 |
| 26.133 | Large | 0.044 |
| 26.134 | X-Large | 0.046 |

Antistatic gloves in 100% nylon microfibers. Ideal for handling watches and jewellery.

» Safety tape.



| MSA | Roll width mm | Roll length mm | Kg |
|--------|---------------|----------------|-------|
| 26.240 | 19 | 27.4 | 0.040 |

Self-adhesive green safety tape, sticks to itself (and not to the fingers) and allows the skin to breathe. Ideal for protecting fingers during polishing or for working with sharp objects.

» 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.

1440 pces

| MSA | Size | Quantity | Kg |
|--------|--------|----------|-------|
| 26.200 | Small | 1'440 | 0.540 |
| 26.201 | Large | " | 0.665 |
| 26.202 | Medium | " | 0.600 |

100 pces

| MSA | Size | Quantity | Kg |
|--------|--------|----------|-------|
| 26.210 | Small | 100 | 0.045 |
| 26.211 | Large | " | 0.051 |
| 26.212 | Medium | " | 0.047 |



Finger cots with talc.



1440 pces

| MSA | Size | Quantity | Kg |
|--------|---------|----------|-------|
| 26.217 | Small | 1'440 | 0.560 |
| 26.218 | Medium | " | 0.600 |
| 26.219 | Large | " | 0.700 |
| 26.220 | X-Large | " | 0.840 |

100 pces

| MSA | Size | Quantity | Kg |
|--------|--------|----------|-------|
| 26.227 | Small | 100 | 0.038 |
| 26.228 | Medium | " | 0.040 |
| 26.229 | Large | " | 0.050 |

Finger cots without talc.



100 pces

| MSA | Size | Quantity | Kg |
|-----------|---------|----------|-------|
| 26.231-M | Medium | 100 | 0.047 |
| 26.231-L | Large | " | 0.050 |
| 26.231-XL | X-Large | " | 0.055 |

720 pces

| MSA | Size | Quantity | Kg |
|--------|---------|----------|-------|
| 26.224 | Medium | 720 | 0.343 |
| 26.225 | Large | " | 0.360 |
| 26.226 | X-Large | " | 0.460 |

Pink antistatic finger cots without talc.



1440 pces

| MSA | Size | Quantity | Kg |
|-----------|---------|----------|-------|
| 26.208-S | Small | 1'440 | 0.560 |
| 26.208-M | Medium | " | 0.600 |
| 26.208-L | Large | " | 0.700 |
| 26.208-XL | X-Large | " | 0.840 |

Nitril finger cots, without talc.



1440 pces

| MSA | Size | Quantity | Kg |
|--------|--------|----------|-------|
| 26.209 | Large | 1'440 | 0.680 |
| 26.239 | Medium | " | 0.593 |

Pink Latex finger cots without talc.



720 pces

| MSA | Size | Quantity | Kg |
|-----------|---------|----------|-------|
| 26.244-S | Small | 720 | 0.330 |
| 26.244-M | Medium | " | 0.343 |
| 26.244-L | Large | " | 0.360 |
| 26.244-XL | X-Large | " | 0.460 |

Pink antistatic finger cots without talc.

» **Leather finger protection for polishing.**



| MSA | Finger | Kg |
|--------|--------|-------|
| 26.213 | Index | 0.003 |
| 26.214 | Thumb | " |

Leather finger protection with elastic hold. Very comfortable.



| MSA | Size | Kg |
|-----------|---------------------|-------|
| 26.236-S | Small | 0.001 |
| 26.236-M | Medium | 0.002 |
| 26.236-L | Large (index) | 0.004 |
| 26.236-XL | Extra-large (pouce) | 0.002 |

Leather finger protection with elastic. Very comfortable.



| MSA | Finger | Kg |
|-----------|-------------|-------|
| 26.241-L | Large | 0.002 |
| 26.241-XL | Extra-large | 0.003 |

White leather and short finger cot, very comfortable.



| MSA | Finger | Kg |
|----------|--------|-------|
| 26.242-L | Large | 0.002 |

Black leather and short finger cot, very comfortable.



| MSA | Finger | Kg |
|-----------|-------------|-------|
| 26.243-XL | Extra-large | 0.003 |

White leather and long finger cot, very comfortable.

» Worker coats.



| MSA | Size |
|-------------|-------------|
| 26.237-XS | Extra-Small |
| 26.237-S | Small |
| 26.237-M | Medium |
| 26.237-L | Large |
| 26.237-XL | Extra-large |
| 26.237-XXL | Très large |
| 26.237-XXXL | Super-large |

White worker coat with press buttons and revers neck :
 - 1 left chest pocket with pens location
 - 2 oblique opening side pockets
 - 65% polyester/35% cotton.

» Ear plugs.

50 pces



| MSA | Quantity | Kg |
|--------|----------|-------|
| 26.144 | 50 pairs | 0.550 |

E-A-R Synthetic ear plugs, washable, hard handle and joining string.
 Individual packing in 50 pieces box dispenser.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 26.140 | 150 x 50 x 60 | 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 | Size mm | Kg |
|--------|---------------|-------|
| 26.145 | 146 x 50 x 53 | 0.040 |

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 | Size mm | Kg |
|--------|----------|-------|
| 26.000 | 57 x 130 | 0.080 |

Rubber dust blower. Oval shape with valve and metal nozzle.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 26.001 | 60 x 93 | 0.067 |

Rubber dust blower with flat bottom. Pear shaped with valve and metal nozzle.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.004 | 56 x 120 | 0.072 |

Blue rubber dust blower. Oval shape with valve and protected metal nozzle.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.005 | 58 x 130 | 0.076 |

Blue rubber dust blower. Oval shape with valve and protected metal nozzle.



| MSA | Packaging | Size mm | Kg |
|--------|-----------|----------------|-------|
| 26.051 | 1 stick | 90 x 30 x 20 | 0.044 |
| 26.053 | 30 sticks | 140 x 90 x 105 | 1.165 |

RODICO green compound for cleaning balance pivots, train wheel pivots, for removing prints and finger stains on main plates, dials, hands, jewellery, etc...



| MSA | Packaging | Size mm | Kg |
|-----------|-----------|----------------|-------|
| 26.054-01 | Stick | 90 x 35 x 10 | 0.039 |
| 26.054 | Plate | 300 x 250 x 10 | 1.210 |

Blue compound for cleaning watch parts, mechanical parts and diverse tools such as tweezers, screwdrivers, levers, blades...



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.158 | 120 x 14 | 0.005 |

Benzine brush with aluminium handle.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 26.159 | 215 x 40 | 0.026 |

Flat brush with wooden handle.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 26.162 | 100 x ø 10 | 0.005 |

Extra soft double bristle brush, ideal for cleaning dials.



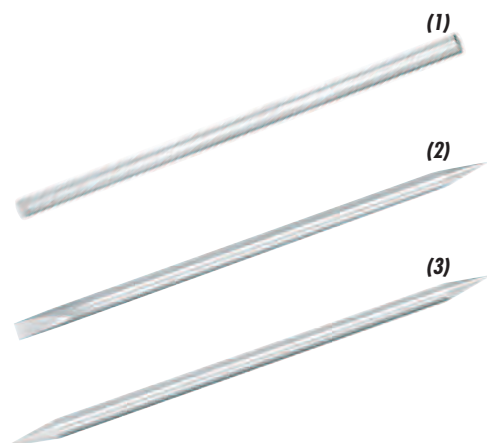
| MSA | ø mm | Kg |
|--------|---------|-------|
| 26.250 | 11 à 15 | 0.004 |

Pith wood sticks delivered in bundle of 10 pieces, used by watchmakers for cleaning parts.



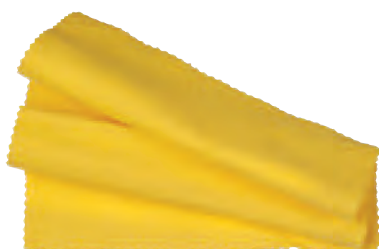
| MSA | Length mm | σ mm | Quantity | Kg |
|--------|-----------|------|----------|-------|
| 26.260 | 150 | 2.0 | 24 | 0.008 |
| 26.261 | " | 2.5 | 24 | 0.009 |
| 26.262 | " | 3.0 | 24 | 0.015 |
| 26.263 | " | 4.0 | 24 | 0.029 |
| 26.264 | " | 5.0 | 18 | 0.031 |
| 26.265 | " | 6.0 | 18 | 0.049 |

Pegwood sticks for cleaning holes, pinions, etc...
Delivered in bundles of 18 or 24 pieces according to diameter. (See table).



| MSA | Length mm | σ mm |
|----------|--------------------------------|------|
| 26.280 | 150 (1) | 2 |
| 26.281 | " | 4 |
| 26.282 | " | 5 |
| 26.283 | " | 6 |
| 26.284 | " | 8 |
| 26.285 | 140 pointed/chamfered ends (2) | 5 |
| 26.286 | 135 pointed/ pointed ends (3) | 5 |
| 26.280-M | 1000 | 2 |
| 26.281-M | " | 4 |
| 26.282-M | " | 5 |
| 26.283-M | " | 6 |
| 26.284-M | " | 8 |

Transparent plastic sticks.



| MSA | Format | Size mm | Kg |
|--------|----------|-----------|-------|
| 26.101 | Reduced | 200 x 150 | 0.008 |
| 26.102 | Mini | 300 x 200 | 0.022 |
| 26.103 | Small | 380 x 300 | 0.034 |
| 26.104 | Standard | 380 x 340 | 0.035 |
| 26.105 | Large | 450 x 380 | 0.041 |

100% cotton SILVER-BRILL polishing cloth, specially impregnated for cleaning and polishing gold, silver, steel and other metals. Simply rub with dry cloth to obtain a brilliant shine without effort while protecting from a new oxidation. This product is neither toxic nor allergic. Not washable.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.115 | 400 x 300 | 0.030 |

Real chamois skin cloth for cleaning.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.108 | 550 x 370 | 0.059 |
| 26.109 | 150 x 150 | 0.011 |
| 26.119 | 370 x 240 | 0.036 |

Real chamois skin cloth for cleaning.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.125 | 500 x 350 | 0.050 |

Real buckskin cloth for cleaning.



| MSA | Size mm | Kg |
|----------|-----------|-------|
| 26.110-A | 250 x 250 | 0.016 |
| 26.110-B | 350 x 350 | 0.031 |
| 26.110-C | 430 x 350 | 0.040 |

SELVYT polishing cloth type PR in velvet cotton which gives a perfect finish. Keep its efficiency after washing.



| MSA | Size mm | Kg |
|----------|-----------|-------|
| 26.112-A | 250 x 250 | 0.016 |
| 26.112-B | 350 x 350 | 0.031 |
| 26.112-C | 430 x 350 | 0.040 |

SELVYT polishing cloth type SR in velvet cotton which gives a perfect finish. Keep its efficiency after washing.



| MSA | Colour | Size mm | Kg |
|--------|-------------|-----------|-------|
| 26.116 | White ○ | 300 x 350 | 0.025 |
| 26.117 | Navy blue ● | " | " |
| 26.142 | Black ● | " | " |

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 40°. Delivered in white, navy blue or black colours without printing. Printing available upon request.



| MSA | Cutting | Colour | Size mm | Kg |
|--------|---------|--------|-----------|-------|
| 26.136 | Sewn | Grey ○ | 300 x 350 | 0.025 |
| 26.137 | Zigzag | Grey ○ | 150 x 150 | 0.005 |
| 26.138 | Zigzag | Red ● | " | " |

Microfibers polishing cloth in 80% polyester and 20% polyamide with HOROTEC® logo diapered. Available in red and grey colours.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.114 | 300 x 300 | 0.025 |

CALI microfiber cleaning cloth. It cleans and brings a shine to pearls, jewellery and precious stones.

» Jewellery cleaning solutions.



| MSA | Solution | Contents | Kg |
|--------|-------------|----------|-------|
| 26.800 | SUPER-CLEAN | 1 litre | 1.100 |
| 26.801 | SUPER-CLEAN | 5 litres | 5.500 |

ELMA SUPER-CLEAN® cleaning solution for gold or silver jewellery with setting soft stones. Contain a little bit of Ammoniac.



| MSA | Solution | Contents | Kg |
|--------|----------|----------|-------|
| 26.820 | CLEAN 75 | 1 litre | 1.100 |
| 26.821 | CLEAN 75 | 5 litres | 5.300 |

ELMA CLEAN 75® jewellery cleaning solution with ammoniac. Fast and high efficiency cleaning with lighting effect on gold, silver and coloured metals alloys. No suitable for soft stones.



| MSA | Solution | Contents | Kg |
|--------|-------------|----------|-------|
| 26.822 | ULTRA-CLEAN | 1 litre | 1.200 |

ELMA ULTRA-CLEAN® universal concentrated cleaning solution for setting soft stones precious jewelleries with lighting effect on gold. Do not contain ammoniac.



| MSA | Solution | Contents | Kg |
|--------|-------------|-----------|--------|
| 26.810 | NOBLE-CLEAN | 1 litre | 1.200 |
| 26.811 | NOBLE-CLEAN | 10 litres | 10.800 |

ELMA NOBLE-CLEAN® bath for precious metals. Very fast brightness and high cleaning effect on gold, silver and any other precious alloys. Anti-rust. Do not contain ammoniac.

» Deoxidizing solution.



| MSA | Solution | Contents | Kg |
|--------|-----------------|-----------|-------|
| 26.832 | OXYKILL (Pict). | 1/2 litre | 0.635 |
| 26.833 | OXYKILL | 1 litre | 1.150 |

OXYKILL deoxidizing solution for gold, silver, copper and alloys.

» Cleaning and rinsing solutions for watch movements.



| MSA | Solution | 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 | Solution | Contents | Kg |
|--------|----------|-----------|--------|
| 26.729 | REGULA S | 5 litres | 3.700 |
| 26.731 | REGULA S | 25 litres | 19.000 |

REGULA S[®] rinsing solution for watches, to be used as second bath after REGULA R[®].



| MSA | Solution | 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 | Solution | 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 | Solution | 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 |
| 26.715 | PF80 LUBE S | 5 litres | 4.200 |

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. The PF80 LUBE S[®] is a rinsing solution with lubricant.

» Cleaning and rinsing solutions for watch movements.



| MSA | Solution | Contents | Kg |
|--------|----------|-----------|--------|
| 26.732 | RG-1 | 5 litres | 5.150 |
| 26.700 | RG-1 | 10 litres | 10.500 |
| 26.702 | RG-1 | 25 litres | 26.400 |

RG-1[®] cleaning solution for watch cleaning machines.



| MSA | Solution | Contents | Kg |
|--------|----------|-----------|--------|
| 26.733 | RG-3 | 5 litres | 3.750 |
| 26.701 | RG-3 | 10 litres | 7.700 |
| 26.703 | RG-3 | 25 litres | 19.400 |

RG-3[®] rinsing solution for watch cleaning machines.



| MSA | Solution | Contents | Kg |
|--------|----------|------------|-------|
| 26.803 | WF | 2.5 litres | 2.200 |
| 26.819 | WF | 10 litres | 8.950 |

ELMA WF[®] cleaning solution without water.



| MSA | Solution | Contents | Kg |
|--------|----------|----------|-------|
| 26.734 | WF4 | 5 litres | 4.075 |

GREINER WF 4[®] cleaning solution.



| MSA | Solution | Contents | Kg |
|--------|----------|----------|-------|
| 26.735 | S-3 | 5 litres | 3.810 |

GREINER S-3[®] rinsing solution.



| MSA | Solution | Contents | Kg |
|--------|----------|------------|-------|
| 26.736 | 111 | 3,8 litres | 3.275 |

L&R 111 cleaning solution, with ammoniac for complete cleaning.



| MSA | Solution | 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 nor benzol. No grease remaining after use.



| MSA | Solution | Contents | Kg |
|--------|----------------|------------|-------|
| 26.804 | SUPROL-SPECIAL | 2.5 litres | 2.000 |
| 26.818 | SUPROL-SPECIAL | 10 litres | 8.150 |

ELMA SUPROL-SPECIAL® rinsing solution.



| MSA | Solution | Contents | Kg |
|--------|---------------|-----------|-------|
| 26.828 | CONCENTRÉ 1:9 | 0.5 litre | 0.525 |
| 26.830 | CONCENTRÉ 1:9 | 1 litre | 1.200 |
| 26.829 | CONCENTRÉ 1:9 | 5 litres | 5.300 |

ELMA CONCENTRÉ 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 | Solution | Contents | Kg |
|--------|-----------------|----------|-------|
| 26.824 | CLEAN 225 SONIC | 1 litre | 1.200 |
| 26.823 | CLEAN 225 SONIC | 5 litres | 5.220 |

ELMA CLEAN 225 SONIC® cleaning solution.



| MSA | Solution | Contents |
|-----------|--------------------------|-----------|
| 26.704-01 | Fractional benzine 60/95 | 1 litre |
| 26.704-05 | Fractional benzine 60/95 | 5 litres |
| 26.704-10 | Fractional benzine 60/95 | 10 litres |
| 26.704-25 | Fractional benzine 60/95 | 25 litres |
| 26.704-60 | Fractional benzine 60/95 | 60 litres |

Light fractional benzine 60/95 for cleaning.

➤ **Attention :** this product cannot be exported and is for the Swiss market only.



| MSA | Solution | Contents |
|-----------|-----------------------|-----------|
| 26.705-01 | Pure chemical acetone | 1 litre |
| 26.705-05 | Pure chemical acetone | 5 litres |
| 26.705-10 | Pure chemical acetone | 10 litres |
| 26.705-25 | Pure chemical acetone | 25 litres |
| 26.705-60 | Pure chemical acetone | 60 litres |

Pure chemical acetone for cleaning.

➤ **Attention :** this product cannot be exported and is for the Swiss market only.



| MSA | Solution | Contents |
|-----------|-------------------|-----------|
| 26.706-01 | Isopropyl alcohol | 1 litre |
| 26.706-05 | Isopropyl alcohol | 5 litres |
| 26.706-10 | Isopropyl alcohol | 10 litres |
| 26.706-25 | Isopropyl alcohol | 25 litres |
| 26.706-60 | Isopropyl alcohol | 60 litres |

Isopropyl alcohol for cleaning.

➤ **Attention :** this product cannot be exported and is for the Swiss market only.

➤➤ **Hairsprings cleaning solution.**



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.831 | 1 litre | 1.000 |

ELMA SPIROL® hairsprings cleaning solution.



| MSA | Contents | Size mm | Kg |
|--------|----------|---------------|-------|
| 26.650 | 60 g | 60 x 50 x 110 | 0.175 |

ONE-DIP® cleaning solution for hairsprings, balances, levers and stones encrusted with hardened oil, etc...

» Protection varnish and solvents. For adhesive protection, see pages 70 2 to 70 5.



| MSA | Solution | Contents | Kg |
|--------|--------------------|----------|-------|
| 26.908 | Special dissolvent | 1 litre | 0.940 |

Dissolvent for removing red varnish MASK'HOR (MSA 26.905, 26.906 and 26.907).



| MSA | Solution | Contents | Kg |
|--------|-------------------------|----------|-------|
| 26.900 | Blue protecting varnish | 30 ml | 0.050 |
| 26.901 | " | 500 ml | 0.550 |
| 26.902 | " | 1 litre | 1.100 |

Blue varnish PROTECT'HOR. It protects metallic parts such as watch cases, bracelets or any spare parts, during stocking or transport. Apply in uniform layers with a small paint brush. It dries rapidly and assures optimal protection against scratches and scrapes of all types. To remove the varnish stick adhesive tape on one part of the object and all the varnish lifts.



| MSA | Solution | Contents | Kg |
|--------|--------------------|----------|-------|
| 26.905 | Red saving varnish | 30 ml | 0.045 |
| 26.906 | " | 500 ml | 0.485 |
| 26.907 | " | 1 litre | 0.745 |

Red saving varnish MASK'HOR use to hide certain parts of a piece during polishing, engraving, thinning, etc... It is very resistant and guarantees an ideal protection. Apply in uniform layers with a small paint brush and remove with dissolvent MSA 26.908.

» Solutions for scouring and removing broken screws.



| MSA | Contents | Size mm | Kg |
|--------|----------|-------------|-------|
| 26.585 | 500 g | ø 100 x 142 | 0.610 |

Borax powder.



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.590 | 1 litre | 1.130 |

Lycobore, 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 litre of hot water with 1 kg of powder. Soak the objects to be cleaned and let it react. Class 3 toxicity.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 26.645 | ø 100 x 40 | 0.085 |

Ceramic bowl for use with tripod MSA 26.646.



| MSA | Contents | Size mm | Kg |
|------------|----------|---------------|-------|
| 26.640-050 | 50 ml | 35 x 35 x 70 | 0.070 |
| 26.640-500 | 500 ml | 80 x 55 x 150 | 0.600 |
| 26.640 | 1000 ml | 95 x 70 x 205 | 1.215 |

VISSIN solution for removing broken screws. Easy and simple use with the tripod MSA 26.646 and the ceramic bowl MSA 26.645 (both items are flame resistant).



| MSA | Size mm | Kg |
|--------|------------|-------|
| 26.646 | ø 96 x 140 | 0.070 |

Tripod for use with bowl MSA 26.645. Steel legs and aluminium top ring.

» Water proofing fluid for watch cases.



| MSA | Contents | Size mm | Kg |
|--------|----------|-----------|-------|
| 26.655 | 20 ml | ø 28 x 62 | 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 | Contents | Size mm | Kg |
|--------|----------|-----------|-------|
| 26.812 | 25 ml | ø 30 x 90 | 0.100 |

ELMA VACU-PROOF® for water proofing watches, cases, crowns, glasses, etc... The bottle is equipped with a dripping pipe for an easy liquid application.

» Lubricant for cutting tools.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.660 | ø 38 x 68 | 0.055 |

Lubricating paste BOELUBE® conceived to improve quality and longevity of cutting tools. To apply on saws, twist drills, abrasives, milling cutters and grinding wheels...before use.

» Luminous compound for dials and hands.

ASSORTMENT



| MSA | Colour | Size mm | Kg |
|--------|-----------|--------------------|-------|
| 26.493 | Green C5 | 87.5 x 59.7 x 23.4 | 0.039 |
| 26.494 | Yellow C3 | " | " |
| 26.495 | White C1 | " | " |

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 |
|------------|-----------|----------|-------|
| 26.484-001 | Green C5 | 1 g | 0.012 |
| 26.484-010 | " | 10 g | 0.026 |
| 26.485-001 | Yellow C3 | 1 g | 0.012 |
| 26.485-010 | " | 10 g | 0.026 |
| 26.486-001 | White C1 | 1 g | 0.012 |
| 26.486-010 | " | 10 g | 0.026 |

Luminous powder, non radioactive.



| MSA | Colour | Contents | Kg |
|------------|-----------|----------|-------|
| 26.484-E01 | Green C5 | 1 g | 0.005 |
| 26.485-E01 | Yellow C3 | 1 g | 0.005 |
| 26.486-E01 | White C1 | 1 g | 0.005 |
| 26.486-E50 | " | 50 g | 0.026 |

Luminous powder NEWLITE 2002, non radioactive.



| MSA | Colour | Contents | Kg |
|-------------|--------|----------|-------|
| 26.486-050 | White | 50 g | 0.026 |
| 26.486-050F | " | 50 g | 0.026 |

White luminous powder SUPER LUMINOVA, non radioactive. Also available with an extra fine granulation under ref 26.486-050F.



| MSA | Contents | Kg |
|------------|----------|-------|
| 26.487-001 | 1 g | 0.005 |
| 26.487-050 | 50 g | 0.020 |
| 26.487-100 | 100 g | 0.040 |

Glue for luminous material MSA 26.484-x, 26.485-x and 26.486-x.



| MSA | Contents | Kg |
|------------|----------|-------|
| 26.488-001 | 1 g | 0.005 |
| 26.488-050 | 50 g | 0.066 |
| 26.488-100 | 100 g | 0.130 |

Diluter for luminous material MSA 26.484-x, 26.485-x and 26.486-x.



| MSA | Contents | Size mm | Kg |
|--------|---------------|----------------|-------|
| 26.500 | 2 tubes 15 ml | 180 x 115 x 15 | 0.052 |

ARALDIT® glue **standard 90 minutes**. It dries slowly but efficiently. Recommended for ceramic, wood, glass, metal and marble.
See also page 26 40.



| MSA | Contents | Size mm | Kg |
|--------|---------------|----------------|-------|
| 26.501 | 2 tubes 15 ml | 180 x 115 x 15 | 0.056 |

ARALDIT® glue **rapid 5 minutes**. It dries quickly, for multiple uses.
See also page 26 40.



| MSA | Contents | Size mm | Kg |
|-------------|----------|----------------|-------|
| 26.582-0005 | 0.5 g | 165 x 100 x 10 | 0.005 |

LOCTITE® 319 glue for watch mineral glasses.
Fast drying in 1 mn.



| MSA | Contents | Size mm | Kg |
|--------|----------|----------|-------|
| 26.512 | 25 ml | 120 x 40 | 0.050 |

LOCTITE® 3491 glue for watch mineral and sapphire glasses. High transparency, low yellowing. Application by automatic system MSA 19.770 or 19.771 as shown page 19 47.
Fast drying with UV drier shown pages 19 33 and 19 34.



| MSA | Contents | Size mm | Kg |
|--------|----------|---------------|-------|
| 26.502 | 10 g | 35 x 35 x 105 | 0.026 |

UV SEIKO® S-314 glue for **mineral and sapphire** glasses. It dries rapidly with a UV drier apparatus (See pages 19 33 and 19 34).
Careful : Do not apply this glue on acrylic resin glasses or plastic watch cases.



| MSA | Contents | Size mm | Kg |
|--------|----------|---------------|-------|
| 26.516 | 9 ml | 110 x 25 x 25 | 0.015 |

Glue for **plastic** watch glasses. Equipped with a fine needle for easy application. Air dries.

Threadlocking

- Single-component
- Clean and easy to apply
- Resists vibration
- Locks and seals all threads
- Reduces inventory costs

Handy Hints:

- Degrease, clean and dry surfaces prior to applying the adhesive – use Loctite® 7063
- If the adhesive is applied below 5 °C, pre-treatment with Loctite® 7240
- Surface Preparation on page 26 30
- For plastic part(s) please refer to Instant Bonding on pages 26 30 and 26 31

Solution

Are the metal parts already assembled?



| MSA | ml | MSA | ml | MSA | ml |
|------------|-----|------------|-----|------------|-----|
| 26.526 | 10 | 26.520 | 10 | 26.522 | 10 |
| 26.527 | 50 | 26.521 | 50 | 26.523 | 50 |
| 26.527-250 | 250 | 26.521-250 | 250 | 26.523-250 | 250 |

| Size of thread | Up to M 6 | Up to M 36 | Up to M 36 |
|--|-------------------|-------------------|-------------------|
| Functional strength after ¹ | 3 hrs | 6 hrs | 2 hrs |
| Breakaway torque M10 bolts | 10 Nm | 6 Nm | 20 Nm |
| Operating temperature | -55 °C to +150 °C | -55 °C to +150 °C | -55 °C to +150 °C |

¹ Typical value at 22 °C.

Loctite® 290 Porétanche®

- Ideal for locking preassembled fasteners, e.g. instrumentation screws, electrical connectors and set screws.

Loctite® 222 Freinfilet® weak

- Recommended for weak gluing resistance for adjustable screws and screws without head.
- Good on low strength metals which could break during disassembly, e.g. aluminium or brass.

P1 NSF Reg. No. : 123002

Loctite® 243 Freinfilet® normal

- Effective on all types of metal threaded fasteners.
- Prevents loosening on vibrating parts, e.g. pumps, motor mounting bolts, gear boxes or presses.
- Permits disassembly with handtools for servicing.
- Good on oil-contaminated parts.

P1 NSF Reg. No. : 123000

LOCTITE



No

What strength do you require?



| MSA | g | MSA | ml | MSA | ml | MSA | g |
|------------|-----|------------|-----|------------|-----|-----------|----|
| 26.632-050 | 50 | 26.554-010 | 10 | 26.633-050 | 50 | 26.555-19 | 19 |
| 26.632-250 | 250 | 26.554-050 | 50 | 26.633-250 | 250 | | |
| | | 26.554-250 | 250 | | | | |

| Up to M 50 | Up to M 20 | Up to M 36 | Up to M 50 |
|-------------------|-------------------|-------------------|-----------------------------|
| 6 hrs | 6 hrs | 3 hrs | 24 hrs |
| 18 Nm | 38 Nm | 30 Nm | 25 Nm (pre-charge of 5 N.m) |
| -55 °C to +150 °C | -55 °C to +150 °C | -55 °C to +250 °C | -55 °C to +150 °C |

Loctite® 2400

- Number 1 for health and security.
- No "danger" symbol, no use caution nor security advice.
- "White" security form with non indication on sections 2, 3, 15 and 16 of the norm MSDS (EC) N°1907/2006 -ISO 11014-1.
- Excellent chemical and thermo resistance once polymerised.
- Used when the disassembling with manual tools if often necessary for maintenance.

Approval WRAS (BS 6920) : 1104507

Loctite® 2701 (improved Loctite® 270)

- Suitable for all metal fasteners, including stainless steel as well as coated ones, e.g. zinc-coated.
- Ideal for permanently locking studs on engine blocks and pump housings.
- To be used if regular removal when maintenance is not required.

Loctite® 2701: DVGW approval (EN 751-1) : NG-5146AR0617

Loctite® 2700

- Number 1 for health and security.
- No "danger" symbol, no use caution nor security advice.
- "White" security form with non indication on sections 2, 3, 15 and 16 of the norm MSDS (EC) N°1907/2006 -ISO 11014-1.
- Excellent chemical and thermo resistance once polymerised.
- To be used when disassembling is not required.

Approval WRAS (BS 6920) : 1104507

Loctite® 268

- Convenient to use.
- Non-dripping, no migrations.
- Great for difficult access areas - overhead, underneath or on fixed part.
- Good for all types of metal threaded fasteners.
- To be used if regular removal for maintenance is not required, e.g. suspension bolts, mounts, cap bolts and studs.

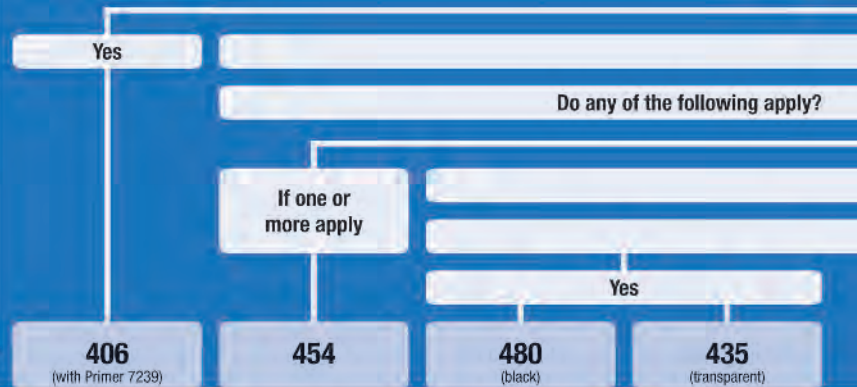
Instant Bonding

- Fixtures in seconds
- Clear bond line – good cosmetic appearance
- Versatile – dissimilar materials can be bonded
- High strength – often giving a bond stronger than the materials being bonded
- Small parts bonding

Handy Hints:

- In combination with Loctite® Instant Adhesives:
 - a) to improve adhesion of difficult to bond materials use Primer Loctite® 7239, 770, 7452, 7457
 - b) to increase cure speed use Activator Loctite® 7458, 7452 or 7457
- For difficult to bond plastics (PE and PP) see also Loctite® 3030

Are you bonding “difficult to bond” rubber or plastic?
e.g. PE, PP, PTFE, TVP



Solution

| MSA | g | MSA | g | MSA | g | MSA | g |
|------------|-----|------------|-----|------------|-----|------------|-----|
| 26.536 | 20 | 26.558-010 | 10 | 26.519 | 20 | 26.587-020 | 20 |
| 26.536-500 | 500 | 26.558-020 | 20 | 26.519-500 | 500 | 26.587-500 | 500 |
| | | 26.558-200 | 200 | | | | |

| | | | | |
|-----------------------|------------------|-------------------|-------------------|-------------------|
| Fixture time | 2-10 sec. | 5-10 sec. | 20-50 sec. | 10-20 sec. |
| Viscosity | 20 mPa-s | Gel | 150 mPa-s | 200 mPa-s |
| Operating temperature | -40 °C to +80 °C | -40 °C to +100 °C | -40 °C to +100 °C | -40 °C to +100 °C |

Loctite® 406

- Rapid bonding of rubbers, including EPDM, plastics and elastomers.
- Loctite® 7239 Polyolefin Primer improves bonding.

Loctite® 454

- General purpose gel.
- Bonding metals, composite materials, wood, cork, foam, leather, card, paper, unglazed ceramics.
- Ideal for use on vertical or overhead surfaces.

PI NSF Reg. No. :
123009

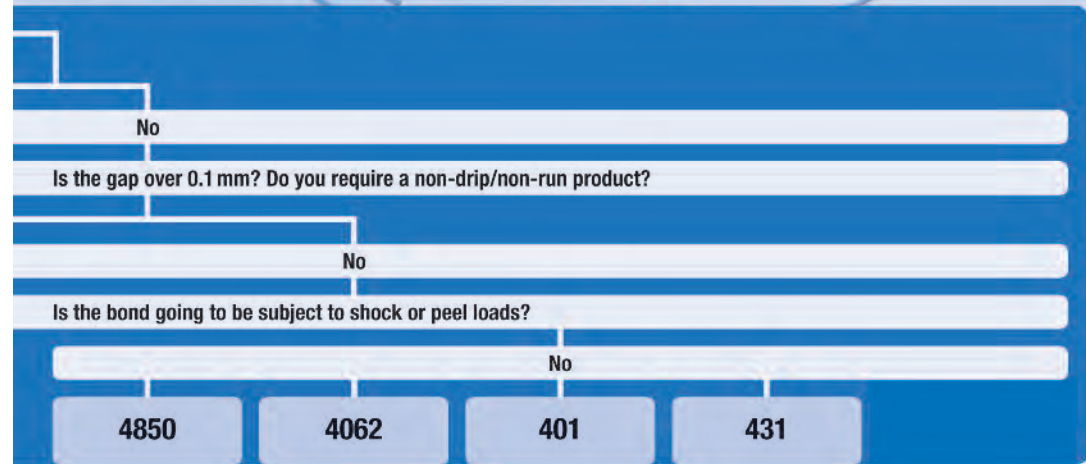
Loctite® 480

- Ideal for bonding metal to metal, to rubber or magnets.
- For applications where high peel strength is required and/or shock loads are present.
- Good resistance in humid and/or chemical environments.

Loctite® 435

- Bonding of plastics, rubber, metals, porous and absorbent substrates and acidic surfaces.
- High resistance to impact and shock loads, high peel strength.
- Good resistance in humid and/or chemical environments.

LOCTITE



| MSA | g | MSA | g | MSA | g | MSA | g |
|------------|----|------------|----|------------|-----|------------|-----|
| 26.559-020 | 20 | 26.548-020 | 20 | 26.533 | 20 | 26.518-020 | 20 |
| | | | | 26.533-100 | 100 | 26.518-500 | 500 |
| | | | | 26.533-500 | 500 | | |

| | | | |
|------------------|------------------|------------------|------------------|
| 3-10 s | 2-5 s | 3-10 s | 5-10 s |
| 400 mPa-s | 2 mPa-s | 90 mPa-s | 1 000 mPa-s |
| -40 °C to +70 °C | -40 °C to +80 °C | -40 °C to +80 °C | -40 °C to +80 °C |

Loctite® 4850

- For bonding flexible materials and components.
- Also for porous and absorbent substrates and acidic surfaces.

Loctite® 4062

- Extremely fast fixture speed.
- Ideal for very fast bonding of plastics and rubbers.
- Also for difficult to bond materials : PE, PP, PTFE, thermoplastic or silicone rubbers.
- Combine with a Loctite® Polyolefin Primer.

Loctite® 401

- General purpose.
- Also for porous substrates such as wood, paper, leather, cork and fabric.
- For acidic surfaces such as chromated or galvanized surfaces.

PI NSF Reg. No. :
123011

Loctite® 431

- General purpose.
- Also for porous substrates such as wood, paper, leather, cork and fabric.
- For acidic surfaces such as chromated or galvanized surfaces.

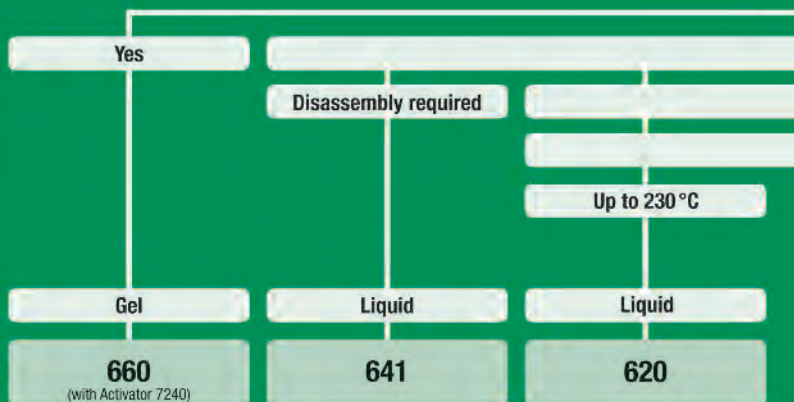
Retaining

- Single-component
- Fills all voids – 100% contact
- Prevents corrosion
- Even stress distribution across the joint
- Suitable for high loads
- Eliminates fretting

Handy Hints:

- Degrease, clean and dry surfaces prior to applying the adhesive – use Loctite® 7063
- If the adhesive is applied below 5 °C, pre-treatment with Loctite® 7240 or Loctite® 7649 is advised
- Use in conjunction with existing designs to increase their strength

Is the assembly very loose or badly worn?



Solution

| MSA | ml | MSA | ml | MSA | ml |
|------------|----|------------|-----|------------|-----|
| 26.556-050 | 50 | 26.539 | 10 | 26.589-050 | 50 |
| | | 26.540 | 50 | 26.589-250 | 250 |
| | | 26.540-250 | 250 | | |

| | Up to 0,5 mm | Up to 0,1 mm | Up to 0,2 mm |
|--------------------------------------|-------------------|-------------------|-------------------|
| Diametrical clearance | | | |
| Strength required | High | Medium | High |
| Handling strength after ¹ | 20 min. | 30 min. | 30 min. |
| Operating temperature | -55 °C to +150 °C | -55 °C to +150 °C | -55 °C to +230 °C |

¹ At room temperature on steel joints.

* After heat cure 180 °C for 30 min.

Loctite® 660 (use with Activator Loctite® 7240)

- Ideal for repairing worn coaxial parts without remachining.
- Enables re-use of worn bearing seats, keys, splines or tapers.
- Suitable for retaining shims.

P1 NSF Reg. No. : 123704

Loctite® 641

- Ideal for parts that need subsequent dismantling, i.e. retention of bearings onto shafts and into housings.

Loctite® 620

- High temperature resistance.
- Ideal for retaining pins in radiator assemblies, sleeves into pump housings and bearings in auto transmissions.

DVGW approval (EN 751-1) : NG-5146AR0622



No

No disassembly required

What operating temperature is required?



| MSA | ml | MSA | ml | MSA | ml | MSA | ml |
|------------|-----|------------|-----|------------|-----|------------|-----|
| 26.532-010 | 10 | 26.634-050 | 50 | 26.530 | 10 | 26.528 | 10 |
| 26.532 | 50 | 26.634-250 | 250 | 26.531 | 50 | 26.529 | 50 |
| 26.532-250 | 250 | | | 26.531-250 | 250 | 26.529-250 | 250 |

| | Up to 0,15 mm | Up to 0,15 mm | Up to 0,25 mm | Up to 0,1 mm |
|--------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Diametrical clearance | | | | |
| Strength required | High | High | High | High |
| Handling strength after ¹ | 5 min. | 10 min. | 8 min. | 8 min. |
| Operating temperature | -55 °C to +175 °C | -55 °C to +175 °C | -55 °C to +150 °C | -55 °C to +150 °C |

Loctite® 648

- Increased temperature resistance.
- Ideal for retaining of parts with a clearance or interference fit, i.e. retaining bushes, bearings, seals, fans, and liners.

WRC Approval (BS 6920) : 0311505

Loctite® 6300

- Number 1 for health and security.
- No "danger" symbol, no use caution nor security advice.
- "White" security form with non indication on sections 2, 3, 15 and 16 of the norm MSDS.
- Good thermo resistance.

Loctite® 638

- Best resistance to dynamic, axial and radial loads.
- Ideal for shafts, gears, pulleys and similar cylindrical parts.

P1 NSF Reg. No. : 123010
DVGW Approval (EN 751-1) : NG-5146AR0619
WRC Approval (BS 6920) : 0511518
KTW Approval for drinking Water

Loctite® 603 (improved Loctite® 601)

- Ideal for retaining close fitting cylindrical parts.
- For use on cylindrical fitting parts where thorough degreasing is not possible.
- Approved for use on bearings.

P1 NSF Reg. No. : 123003
WRC Approval (BS 6920) : 0412505

» ARALDITE® epoxy resin adhesives.



| MSA | N° | Volume |
|-------------|------|--------|
| 26.2011-050 | 2011 | 50 ml |

Adhesive **standard 90 minutes**, for multiple uses at long duration. To be used with gun applicator MSA 26.4472101 delivered separately.



| MSA | N° | Volume |
|-------------|------|--------|
| 26.2012-050 | 2012 | 50 ml |

Adhesive **rapid 5 minutes**, for multiple uses. To be used with gun applicator MSA 26.4472101 delivered separately.



| MSA |
|------------|
| 26.4472101 |

Gun applicator for use with adhesive MSA 26.2011-050 and 26.2012-050.

10 pces



| MSA | Capacity |
|------------|----------|
| 26.4472012 | 1.36 ml |

Mixer with point for ARALDITE® and ERGO® adhesives MSA 26.721x-xxx and 26.201x-050. Supplied in bag of 10 pieces.

10 pces



| MSA | Capacity |
|------------|----------|
| 26.4472010 | 3.57 ml |

Original mixer for ARALDITE® adhesives MSA 26.2011-050 and 26.2012-050. Supplied in bag of 10 pieces.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 26.099 | 210 x 297 | 0.009 |

Anti-rust, to be also used for medical purposes, A4 size.



| MSA | Colour | Size mm | Kg |
|--------|--------|----------|-------|
| 26.080 | Red | 115 x 11 | 0.015 |
| 26.081 | Black | 115 x 11 | 0.015 |

LISTO greasy pen for marking on any support.

Replacement parts :

| MSA | Items | Kg |
|----------|----------------------|-------|
| 26.080-A | Set of 6 red leads | 0.006 |
| 26.081-A | Set of 6 black leads | 0.006 |



| MSA | Contents | Kg |
|--------|----------|-------|
| 26.615 | 14 ml | 0.065 |

"CIRCUIT MAKER" for fast circuits repair.

28



MCEBIUS® OILS 28 2

classic
synthetic
microgliss



MCEBIUS® GREASES 28 9

classic
silicon
synthetic



MCEBIUS® EPILAMES 28 13

fixodrop

MCEBIUS® SUMMARY TABLE 28 14

OTHERS 28 15

greases
lubricants
waterproofing
other oils
loosening materials



» Classic oils for watchmaking and micromechanics.



| Moebius 8000 | | Viscosity cSt | | | | |
|--------------|-------------------|---------------|-----|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | kg |
| 28.8000-004 | 4 bottles of 1 ml | -15 to +80 | 280 | 95 | 29 | 0.019 |
| 28.8000-008 | 8 | " | " | " | " | 0.022 |
| 28.8000-250 | 250 | " | " | " | " | 0.620 |

Classic oil for general purposes. Suitable for **wrist-watches and pocket watches**, except springs and winding mechanisms. Yellow and limpid aspect.



| Moebius 8040/8043 | | Viscosity cSt | | | | |
|-------------------|------|---------------|-----|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.8040-020 | 20 | -27 to +80 | 570 | 145 | 34 | 0.055 |
| 28.8040-250 | 250 | " | " | " | " | 0.600 |
| 28.8040-1L | 1000 | " | " | " | " | 1.550 |
| 28.8043-020 | 20 | -27 to +80 | 780 | 170 | 40 | 0.054 |
| 28.8043-250 | 250 | " | " | " | " | 0.620 |
| 28.8043-1L | 1000 | " | " | " | " | 1.780 |

Classic oil for **cuckoo-clocks** as well as from **small until tower clocks**, and any other kind of **precise mechanisms**. Light yellow and limpid aspect. The **8043** contains additional stabilised micro fine disulfide molybdenum which doesn't deposit traces and gives it a black aspect. This oil can be used in case of insufficient pressure resistance of oil **8040**.



| Moebius 8030/8034 | | Viscosity cSt | | | | |
|-------------------|------|---------------|-----|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.8030-020 | 20 | -18 to +80 | 440 | 115 | 31 | 0.055 |
| 28.8030-250 | 250 | " | " | " | " | 0.620 |
| 28.8030-1L | 1000 | " | " | " | " | 1.600 |

Classic oil for clocks, **music box movements and any other kind of precise mechanisms**. Light yellow and limpid aspect. See **8031** for lower temperatures.



| Moebius 8141 | | Viscosity cSt | | | | |
|--------------|------|---------------|------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.8141-020 | 20 | -4 to +100 | 7000 | 1250 | 177 | 0.057 |
| 28.8141-250 | 250 | " | " | " | " | 0.610 |
| 28.8141-1L | 1000 | " | " | " | " | 1.580 |

Classic 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**. Limpid and yellow aspect.



| Moebius 8031/8050 | | Viscosity cSt | | | | |
|-------------------|------|---------------|-----|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.8031-020 | 20 | -25 to +80 | 390 | 110 | 30 | 0.054 |
| 28.8031-250 | 250 | " | " | " | " | 0.620 |
| 28.8031-1L | 1000 | " | " | " | " | 1.780 |

Classic oil for clocks, **music box movements and any other kind of precise mechanisms**. Yellow and limpid aspect.

» Synthetic oils for watchmaking and micromechanics.



| Moebius Syntescap 941 | | | Viscosity cSt | | | |
|-----------------------|----|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.941-002 | 2 | -15 to +70 | 340 | 103 | 26 | 0.011 |
| 28.941-005 | 5 | " | " | " | " | 0.022 |
| 28.941-010 | 10 | " | " | " | " | 0.034 |
| 28.941-050 | 50 | " | " | " | " | 0.207 |

Special synthetic oil for **pallets** lubrication. Suitable for any watch and clock calibres. Yellow aspect.



| Moebius Quartz Oil 9000 | | | Viscosity cSt | |
|-------------------------|----|------------|---------------|-------|
| MSA | ml | Temp. °C | 20°C | Kg |
| 28.9000-002 | 2 | -36 to +80 | 100 | 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.



| Moebius Synt-A-Lube 9010/9014 | | | Viscosity cSt | | | |
|-------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9010-002 | 2 | -29 to +70 | 625 | 150 | 31 | 0.015 |
| 28.9010-005 | 5 | " | " | " | " | 0.026 |
| 28.9010-010 | 10 | " | " | " | " | 0.037 |
| 28.9010-01F** | 10 | " | " | " | " | 0.037 |
| 28.9010-050 | 50 | " | " | " | " | 0.206 |
| 28.9010-1L | 1000 | " | " | " | " | 0.907 |
| 28.9014-002 | 2 | -35 to +70 | 390 | 98 | 24 | 0.011 |
| 28.9014-005 | 5 | " | " | " | " | 0.022 |
| 28.9014-010 | 10 | " | " | " | " | 0.033 |
| 28.9014-050 | 50 | " | " | " | " | 0.206 |
| 28.9014-1L | 1000 | " | " | " | " | 0.905 |

Synthetic oil for the adjustable parts and stones on small and medium calibres and any other kind of precise mechanisms. Limpid and yellow aspect. The **9014** is a mix of 70% of the **9010** and 30% of the **9030**. Its intermediate viscosity increases its cold resistance.

**MSA 28.9010-01F is the FLUO version of the MSA 28.9010-010.



| Moebius Synt-A-Lube 9015 | | | Viscosity cSt | | | |
|--------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9015-002 | 2 | -32 to +70 | 625 | 150 | 31 | 0.011 |
| 28.9015-005 | 5 | " | " | " | " | 0.022 |
| 28.9015-010 | 10 | " | " | " | " | 0.034 |
| 28.9015-050 | 50 | " | " | " | " | 0.206 |
| 28.9015-1L | 1000 | " | " | " | " | 0.905 |

| Moebius Synt-Visco-Lube 9024 | | | Viscosity cSt | | | |
|------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9024-002 | 2 | -18 to +80 | 1450 | 266 | 45 | 0.013 |
| 28.9024-005 | 5 | " | " | " | " | 0.022 |
| 28.9024-010 | 10 | " | " | " | " | 0.037 |
| 28.9024-050 | 50 | " | " | " | " | 0.207 |
| 28.9024-1L | 1000 | " | " | " | " | 0.907 |

| Moebius Synt-Visco-Lube 9026 | | | Viscosity cSt | | | |
|------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9026-002 | 2 | -18 to +90 | 1450 | 266 | 45 | 0.013 |
| 28.9026-005 | 5 | " | " | " | " | 0.022 |
| 28.9026-010 | 10 | " | " | " | " | 0.030 |
| 28.9026-050 | 50 | " | " | " | " | 0.208 |
| 28.9026-1L | 1000 | " | " | " | " | 0.932 |

| Moebius Synt-Visco-Lube 9027 | | | Viscosity cSt | | | |
|------------------------------|------|-----------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9027-002 | 2 | -4 to +80 | 7600 | 1040 | 130 | 0.013 |
| 28.9027-005 | 5 | " | " | " | " | 0.022 |
| 28.9027-010 | 10 | " | " | " | " | 0.029 |
| 28.9027-050 | 50 | " | " | " | " | 0.208 |
| 28.9027-1L | 1000 | " | " | " | " | 0.935 |

| Moebius Synt-Frigo-Lube 9034 | | | Viscosity cSt | | | |
|------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9034-002 | 2 | -41 to +60 | 180 | 58 | 16 | 0.010 |
| 28.9034-005 | 5 | " | " | " | " | 0.020 |
| 28.9034-010 | 10 | " | " | " | " | 0.032 |
| 28.9034-050 | 50 | " | " | " | " | 0.205 |
| 28.9034-1L | 1000 | " | " | " | " | 0.880 |

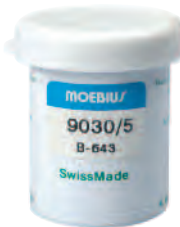
Synthetic oil to reduce combination metal/plastic friction in bearings, plastic/plastic sliding friction or in case of insufficient natural friction reduction of plastics or to improve this property. Light yellowish aspect. For high temperatures and pressures, use **9026** with additional disulfide molybdenum. The resistance of oil on plastics is dependent of its surface layer, therefore the need for an epilame has to be checked each time (particularly indicated for **9034** use).

» Synthetic oils for watchmaking and micromechanics.



| Moebius Synt-Visco-Lube 9020 | | | Viscosity cSt | | | |
|------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9020-002 | 2 | -18 to +80 | 1450 | 266 | 45 | 0.015 |
| 28.9020-005 | 5 | " | " | " | " | 0.022 |
| 28.9020-010 | 10 | " | " | " | " | 0.037 |
| 28.9020-050 | 50 | " | " | " | " | 0.207 |
| 28.9020-1L | 1000 | " | " | " | " | 0.926 |

Synthetic oil 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 yellowish aspect.



| Moebius Synt-Frigo-Lube 9030 | | | Viscosity cSt | | | |
|------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9030-002 | 2 | -41 to +60 | 180 | 60 | 16 | 0.015 |
| 28.9030-005 | 5 | " | " | " | " | 0.027 |
| 28.9030-010 | 10 | " | " | " | " | 0.037 |
| 28.9030-050 | 50 | " | " | " | " | 0.205 |
| 28.9030-1L | 1000 | " | " | " | " | 0.882 |

Synthetic oil used in low temperature conditions of small mechanisms like watches, Meteorological, cars, aircrafts and boats instruments. It is recommended to do an epilame-coating of the movements. Light yellowish aspect.



| Moebius Arctic 9040 | | | Viscosity cSt | | | |
|---------------------|------|-------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9040-002 | 2 | -52 to +120 | 65 | 24 | 9 | 0.015 |
| 28.9040-005 | 5 | " | " | " | " | 0.024 |
| 28.9040-010 | 10 | " | " | " | " | 0.044 |
| 28.9040-050 | 50 | " | " | " | " | 0.207 |
| 28.9040-1L | 1000 | " | " | " | " | 0.919 |

Synthetic oil used for watches and precision instruments on boats, air crafts... 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. Limpid and yellow aspect.



| Moebius Synt-HP 500 (9101) | | | Viscosity cSt | | | |
|--|----|-------------|---------------|------|------|-------|
| Moebius Synt-HP 750 (9102) | | | Viscosity cSt | | | |
| Moebius Synt-HP 1000 (9103) | | | Viscosity cSt | | | |
| Moebius Synt-HP 1300 (9104) | | | Viscosity cSt | | | |
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9101-020 | 20 | -35 to +100 | 2300 | 511 | 33 | 0.070 |
| 28.9101-050 | 50 | " | " | " | " | 0.100 |
| 28.9102-020 | 20 | -35 to +100 | 3300 | 731 | 44 | 0.070 |
| 28.9102-050 | 50 | " | " | " | " | 0.100 |
| 28.9103-020 | 20 | -35 to +100 | 4700 | 1013 | 56 | 0.070 |
| 28.9103-050 | 50 | " | " | " | " | 0.100 |
| 28.9104-002 | 2 | -35 to +100 | 5900 | 1267 | 68 | 0.017 |
| 28.9104-020 | 20 | -35 to +100 | 5900 | 1267 | 68 | 0.070 |
| 28.9104-050 | 50 | " | " | " | " | 0.100 |
| Version sans colorant | | | Viscosity cSt | | | |
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9101-055 | 5 | -35 to +100 | 2300 | 511 | 33 | 0.025 |
| 28.9102-055 | 5 | -35 to +100 | 3300 | 731 | 44 | " |
| 28.9103-055 | 5 | -35 to +100 | 4700 | 1013 | 56 | " |
| 28.9104-055 | 5 | -35 to +100 | 5900 | 1267 | 68 | " |
| 28.9104-20S | 20 | " | " | " | " | 0.070 |
| 28.9104-50S | 50 | " | " | " | " | 0.100 |
| MSA 28.9104 version rouge fluorescente | | | Viscosity cSt | | | |
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.9104-20F | 20 | -35 to +100 | 5900 | 1267 | 68 | 0.070 |
| 28.9104-50F | 50 | " | " | " | " | 0.100 |

Synthetic oil for mechanical watches, train wheels, barrels, steel/steel friction, precision instruments, motors, small ball bearings, etc. the **SYNT-HP** is convenient for high pressure and stability is needed on precise mechanisms.

» "Microgliss" oil made of classic and silicon oils, for watchmaking and precision micromechanics.



| Moebius Microgliss (Groupe D) | | | Viscosity cSt | | | |
|-------------------------------|------|------------|---------------|------|------|-------|
| MSA | ml | Temp. °C | 0°C | 20°C | 50°C | Kg |
| 28.D2-020 | 20 | -30 to +70 | 260 | 73 | 19 | 0.055 |
| 28.D2-050 | 50 | " | " | " | " | 0.110 |
| 28.D2-250 | 250 | " | " | " | " | 0.300 |
| 28.D2-1L | 1000 | " | " | " | " | 0.872 |
| 28.D3-020 | 20 | -22 to +80 | 900 | 193 | 39 | 0.055 |
| 28.D3-050 | 50 | " | " | " | " | 0.112 |
| 28.D3-250 | 250 | " | " | " | " | 0.300 |
| 28.D3-1L | 1000 | " | " | " | " | 0.885 |
| 28.D4-020 | 20 | -15 to +80 | 1900 | 370 | 68 | 0.055 |
| 28.D4-050 | 50 | " | " | " | " | 0.112 |
| 28.D4-250 | 250 | " | " | " | " | 0.300 |
| 28.D4-1L | 1000 | " | " | " | " | 0.887 |
| 28.D5-020 | 20 | -15 to +80 | 7300 | 1200 | 175 | 0.055 |
| 28.D5-050 | 50 | " | " | " | " | 0.113 |
| 28.D5-250 | 250 | " | " | " | " | 0.300 |
| 28.D5-1L | 1000 | " | " | " | " | 0.899 |

The D group is made of 5 oils with identical base properties but different viscosity. Oils D1 and D2 work well at low temperatures but a surface pre-treatment against spreading is needed (with Fixodrop). Oils D3, D4 and D5 are used in bearings exposed to high pressures according to safety margins. The complete range of Microgliss lubricants is composed of 12 groups and was specifically conceived for watchmaking and precision mechanics. Each group contains several products of different viscosities but with the same base.

Other groups available on request :

- **C group** with 9 oils made of minerals, with improved adherence and consistency thanks to a fatty grease (C1 to C9). Viscosity from 34 to 1250 cSt at 20 °C. Available in 20 and 50 ml. Application : micromotors and lubrication problems in watchmaking (cup-bearings and centre wheels) with oils C8 and C9.
- **H group** with 14 silicon oils type dimethyl, rarely used as lubricants (H1 to H14). Viscosity from 37 to 120,000 cSt at 20 °C. Available in 20 and 50 ml. Application : used as bathing solutions or as water resistant agents due to their hydrophobic properties. Oils H9 to H13 are used as water resistant products and anti-vibration agents.
- **I group** with 3 silicon oils (I3, I4 and I31). Viscosity from 370 to 1280 cSt at 20 °C. Available in 250 and 1000 ml. Application : like H group, but of a definitely higher quality with a better consistency and adherence.
- **K group** with 6 anticorrosive oils of good consistency to normal use and preserving their good anti-corrosive properties even in contact with sea water (K1 to K6). Viscosity from 33 to 1750 cSt at 20 °C. Available in 250 and 1000 ml. Application : specially made for soaking.
- **L group** with 5 oils corresponding to those in group D with anti-corrosive and film forming additives for use in soaking (L1 to L5). Viscosity from 39 to 1200 cSt at 20 °C. Available in 250 and 1000 ml. Application : all mechanisms subjected to high loads and exposed to unfavourable climatic conditions.

» Classic greases for watchmaking and micromechanics.



| Moebius 8200 | | Viscosity cSt | | | |
|--------------|------|---------------|------|------|-------|
| MSA | ml | 20°C | 50°C | 80°C | Kg |
| 28.8200-020 | 20 | Solid | 30 | 11 | 0.060 |
| 28.8200-050 | 50 | " | " | " | 0.130 |
| 28.8200-250 | 250 | " | " | " | 0.530 |
| 28.8200-1L | 1000 | " | " | " | 1.410 |

| Moebius 8200 fluorescent | | Viscosity cSt | | | |
|--------------------------|------|---------------|------|------|-------|
| MSA | ml | 20°C | 50°C | 80°C | Kg |
| 28.8200-1FL | 1000 | Solid | 30 | 11 | 1.410 |

Classical grease for ball bearing and any other low moving at large surface lubrication. Yellow aspect and normal consistence at 20°C. The lowest use temperature is between -10°C and -40°C. **The highest use temperature** is +80°C, however, it turns in oil from +40°C and up.



| Moebius 8201 | | Viscosity cSt | | |
|--------------|-----|---------------|-------|-------|
| MSA | ml | 20°C | 50°C | Kg |
| 28.8201-020 | 20 | 20 | Solid | 0.070 |
| 28.8201-050 | 50 | " | " | 0.150 |
| 28.8201-250 | 250 | " | " | 0.600 |

Special classic lubricant with disulfide molybdenum. **Application** : as the 8200 but is generally used at room temperature. In case of overheating, take into account that the MoS2 drops, which needs a frequent mixing. Black aspect. Normal consistency at 20 °C. **Limit temperatures like 8200.**



| Moebius 8207 | | Viscosity cSt | | | |
|--------------|-----|---------------|------|------|-------|
| MSA | ml | 20°C | 50°C | 80°C | Kg |
| 28.8207-020 | 20 | Solid | 19 | 12 | 0.060 |
| 28.8207-050 | 50 | " | " | " | 0.140 |
| 28.8207-250 | 250 | " | " | " | 0.550 |

Graphite special classic lubricant. **Application** : as the 8201 but does not drop due to incorporated graphite. Black aspect. Normal consistency at 20 °C. **Limit temperatures like 8200.**



Moebius Glissalube 8212/8213/8217

| MSA | ml | Type | Kg |
|-------------|----|---------------|-------|
| 28.8212-020 | 20 | Glissalube B | 0.080 |
| 28.8212-050 | 50 | Glissalube B | 0.160 |
| 28.8213-020 | 20 | Glissalube A | 0.080 |
| 28.8217-020 | 20 | Glissalube 20 | 0.080 |

Moebius Glissalube 8212 colour free

| MSA | ml | Type | Kg |
|-------------|----|--------------|-------|
| 28.8212-50S | 50 | Glissalube B | 0.160 |

8212 : classic grease for aluminium barrel drums. Weak breaking.

8213 : classic grease for brass barrel drums. Good breaking.

8217 : classic grease for barrel drums. Normal breaking.

» **Waterproof silicon greases.**



Moebius 8513/8516

| MSA | ml | Temp. °C | Viscosity cSt | |
|-------------|------|-------------|---------------------|-------|
| | | | Consistance at 20°C | Kg |
| 28.8513-010 | 10 | -60 to +150 | Solid | 0.015 |
| 28.8513-050 | 50 | " | " | 0.070 |
| 28.8513-100 | 100 | " | " | 0.145 |
| 28.8513-200 | 200 | " | " | 0.320 |
| 28.8513-1L | 1000 | " | " | 1.450 |
| 28.8516-10 | 10 | -60 to +120 | Soft | 0.015 |
| 28.8516-50 | 50 | " | " | 0.072 |
| 28.8516-200 | 200 | " | " | 0.550 |

Waterproof silicon grease.

» **Classic greases for watchmaking and micromechanics.**



Moebius 8300/8301/8302

| MSA | ml | Viscosity cSt | | | Kg |
|-------------|------|---------------|------|------|-------|
| | | 0°C | 20°C | 50°C | |
| 28.8300-020 | 20 | 12 | 9 | 6 | 0.045 |
| 28.8300-050 | 50 | " | " | " | 0.130 |
| 28.8300-250 | 250 | " | " | " | 0.530 |
| 28.8300-1L | 1000 | " | " | " | 1.410 |
| 28.8301-020 | 20 | 10 | 9 | 6 | 0.045 |
| 28.8302-020 | 20 | 19 | 14 | 9 | 0.051 |
| 28.8302-050 | 50 | " | " | " | 0.140 |
| 28.8302-250 | 250 | " | " | " | 0.580 |

Classic grease for winding mechanisms. **Application** : watch winding systems, alarm clocks and clocks. Also suitable for clock bearing springs and slow mobile parts with large frictional surface. In hot countries it replaces advantageously the **8200**. Yellowish aspect. Normal consistency at 20 °C. **Lowest temperature limit** between -10 °C and -40 °C. The **highest temperature** of use reaches 80 °C but at 50 °C it reacts as oil. The **8301** (black aspect) contains additional graphite and is suitable for sliding clamps. The **8302** (grey-black aspect) contains an additional disulfide molybdenum and is also suitable for sliding clamps.

» **Synthetic greases for watchmaking and micromechanics.**



Moebius 9415

| MSA | ml | Temp. °C | Viscosity cSt | | | Kg |
|-------------|-----|------------|---------------|------|------|-------|
| | | | 0°C | 20°C | 80°C | |
| 28.9415-002 | 2 | -20 to +80 | 410 | 107 | 10 | 0.016 |
| 28.9415-010 | 10 | " | " | " | " | 0.038 |
| 28.9415-100 | 100 | " | " | " | " | 0.370 |

Moebius 9415 fluorescent

| MSA | ml | Temp. °C | Viscosity cSt | | | Kg |
|-------------|----|------------|---------------|------|------|-------|
| | | | 0°C | 20°C | 80°C | |
| 28.9415-01F | 10 | -20 to +80 | 410 | 107 | 10 | 0.016 |

Synthetic grease for different applications. In mechanical watches, it is used as lubricant for the escapement. For micromechanics, it is used in the following areas : miniature ball bearings, step by step motors, high frequencies, synchronies, etc... Yellowish aspect.



| Moebius 9501 | | Viscosity cSt | | | | |
|--------------|----|---------------|-----|-----|-----|-------|
| MSA | ml | Freezing °C | 0° | 20° | 80° | Kg |
| 28.9501-010 | 10 | -38° | 176 | 68 | 12 | 0.021 |
| 28.9501-050 | 50 | " | " | " | " | 0.064 |

| Moebius 9501 fluorescent | | Viscosity cSt | | | | |
|--------------------------|----|---------------|-----|-----|-----|-------|
| MSA | ml | Freezing °C | 0° | 20° | 80° | Kg |
| 28.9501-01F | 10 | -38° | 176 | 68 | 12 | 0.021 |
| 28.9501-05F | 50 | " | " | " | " | 0.064 |

Synthetic soft grease, developed to solve friction problems like time setting, winding and calendar mechanisms and revolving bezels of diving watches.

Packaging available :

Syringe MSA 28.9501-010 + 28.9501-01F
 Bottle MSA 28.9501-050 + 28.9501-05F



| Moebius 9504 | | Viscosity cSt | | | | |
|--------------|----|---------------|------|------|-------|-------|
| MSA | ml | Temp. °C | 20°C | 40°C | 100°C | Kg |
| 28.9504-10 | 10 | -20 to +100 | 305 | 103 | 13.4 | 0.057 |
| 28.9504-50 | 50 | " | " | " | " | 0.125 |

| Moebius 9504 fluorescent (10F) or colour free (50S) | | Viscosity cSt | | | | |
|---|----|---------------|------|------|-------|-------|
| MSA | ml | Temp. °C | 20°C | 40°C | 100°C | Kg |
| 28.9504-10F | 10 | -20 to +100 | 305 | 103 | 13.4 | 0.057 |
| 28.9504-50S | 50 | " | " | " | " | 0.125 |

Synthetic grease, gives very stable friction with high lubricant capacity. It is composed of the basic **9501** grease and a metallic soap to obtain an increased consistence and adhesion. A neutral additive gives an excellent high pressure resistance and a good attrition. The **9504** grease is suitable for any metal/metal friction of medium and high pressures. **Application :** winding, calendar, chronograph and time setting mechanisms.

» Epilame oils for watchmaking and micromechanics.



Epilame is a surface treatment intended to decrease the superficial tension preventing the spreading out of the liquid lubricants. Fixodrop allows to practically eliminate all the not controlled cases of spreading out and is used on following applications : cameras, obturators, objectives, counters and measuring instruments, electric counters, aircrafts and cars instruments, meteorological and medical instruments, relays, security switches, miniature ball-bearings, movements, mechanical watches and quartz movements of all types and sizes. There are 3 versions : FK type BS, FK type K and W (below the principal characteristics) :

Fixodrop FK type BS : specially conceived for the treatment of rubies, steel, brass and other materials. Is diluted with fluorocarbon.

Fixodrop FK type K : specially conceived for the treatment of plastic, plastics fibre-reinforced and Delrin.

Fixodrop W : as FK but is diluted with mineralised water.

Moebius Fixodrop FK/W

| MSA | ml | Type | Bolling °C | Kg | Comments |
|-------------|------|----------|------------|-------|--|
| 28.8940-100 | 100 | FK/BS | 56 | 0.295 | Concentrated solution, non-flammable and non-toxic up to 200 °C |
| 28.8940-1L | 1000 | " | " | 1.680 | " |
| 28.8941-100 | 100 | FK/BS-10 | 56 | 0.295 | Ready for use solution, non-flammable and non-toxic up to 200 °C |
| 28.8941-250 | 250 | " | " | 0.500 | " |
| 28.8941-1L | 1000 | " | " | 1.680 | " |
| 28.8942-1L* | 1000 | FK/BS-20 | " | " | " |
| 28.8951-100 | 100 | FK/K-10 | 56 | 0.295 | Ready for use solution, non-flammable and non-toxic up to 200 °C |
| 28.8951-250 | 250 | " | " | 0.500 | " |
| 28.8951-1L | 1000 | " | " | 1.680 | " |
| 28.8970-1L | 1000 | W | 100 | 1.680 | Concentrated solution, non-flammable and non-toxic up to 180 °C |
| 28.8971-1L | 1000 | W-10 | " | " | Ready for use solution, non-flammable and non-toxic up to 180 °C |
| 28.8972-1L* | 1000 | W-20 | " | " | " |

* Recommended only for production

Moebius solvent for Fixodrop FK

| MSA | ml | Kg | Comments |
|-------------|------|-------|---|
| 28.FLU56-1L | 1000 | 1.620 | Solvent for Fixodrop 8940 dilution . Dilution : concentrated solution : 10% and Fluorcarbure 56 : 90%. |

Summary table of oiling and greasing (Möbius®)

| Application | 5 to 8 3/4''' | 9 3/4 to 12''' | 13 to 18''' | Chronometers | Roskopf watches | Alarm clocks | Pendulum and régulators | Clocks | Quartz Watches |
|--------------------------------|---------------|----------------|-------------|--------------|-----------------|--------------|-------------------------|----------|----------------|
| Pallets stones, pins | 9415 | 9415 | 9415 | 9415 | 9410 | 9020 | 9020 | 9020 | - |
| | 941 | 941 | 941 | 941 | 941 | | | | |
| | 8000 | 8000 | 8000 | 8000 | 8000 | 8030 | 8030 | 8030 | |
| | 9010 | 9010 | 9010 | 9010 | 9010 | 9020 | 9020 | 9020 | |
| Escape wheels | 8000 | 8000 | 8000 | 8000 | 8000 | 8030 | 8030 | 8030 | - |
| | 9010 | 9010 | 9010 | 9010 | 9010 | 9020 | 9020 | 9020 | |
| Balance staff | 8000 | 8000 | 8000 | 8000 | 8000 | 8030 | 8030 | 8030 | - |
| | 9020 | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | |
| Great wheels | 8000 | D-5 | D-5 | D-5 | D/3-D/5 | D-5 | D-5 | D-5 | - |
| | 9010 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | |
| Finishing | 8000 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | - |
| | 9020 | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | SYNT-HP* | |
| Barrel arbours | SYNT-HP* | D-5 | D-5 | D-5 | D/3-D/5 | D-5 | D-5 | D-5 | - |
| | 8000 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | 8141 | |
| Springs and sliding clamps | 8030 | 8200 | 8200 | 8200 | 8200 | 8200 | 8200 | 8200 | - |
| | | | | | 8201 | | | | |
| Barrel wall | 8213 Laiton | 8212 Laiton | 8213 Laiton | - | 8213 Laiton | - | - | - | - |
| | 8212 Alu | 8212 Alu | 8212 Alu | | 8212 Alu | | | | |
| Automatic winding mechanism | 8217 | 8217 | 8217 | | 8217 | | | | |
| | 9010/20 | 9010/20 | 9010/20 | - | - | - | - | - | - |
| Winding and calendar mechanism | SYNT-HP* | SYNT-HP* | SYNT-HP* | | | | | | |
| | D-5 | D-5 | D-5 | | | | | | |
| Friction, time setting | 8030 | 8300 | 8300 | 8200 | 8200 | 8200 | 8200 | 8200 | 8200 |
| | 8200 | SYNT-HP* | SYNT-HP* | | | | | | |
| O-ring | 8300 | D-5 | D-5 | 8300 | 8300 | 8300 | 8300 | 8300 | 8300 |
| | | 9501 | 9501 | 9501 | | | | | |
| Rotor bearing | 9501 | 9504 | 9504 | 9504 | 9501 | - | - | - | 9501 |
| | | | | | | | | | |
| Intermediate wheel | 8513 | 8513 | 8513 | 8513 | - | - | - | - | - |
| | | | | | | | | | |
| Wheel gear | | | | | | | | | 9000 |
| | | | | | | | | | 9024 |
| | | | | | | | | | 9000 |
| | | | | | | | | | 9027 |
| | | | | | | | | | 9000 |
| | | | | | | | | | 9024 |

*The choice of viscosity depends on force reserves.

Blue + black = optimal recommendation of oiling.



| MSA | Colour | Size mm | Kg |
|--------|--------|--------------|-------|
| 28.303 | White | ø 35.5 x 170 | 0.110 |

MOLYKOTE® 111 (100 g) waterproofing paste based on silicone grease. Excellent water resistance, even see water, good resistance to almost all 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 | Size mm | Kg |
|--------|-----------|-------|
| 28.101 | ø 50 x 16 | 0.017 |

SEIKO® S-916 silicon grease box containing 2 foam pads saturated with grease. Place the O-Ring gasket between both pads and twist the lid.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 28.104 | ø 35 x 18 | 0.014 |

SEIKO® TSF-451 silicon grease (4g) box. Excellent lubricant for waterproofing on crowns, case and glass gaskets.



| MSA | Size mm | Kg |
|--------|-----------|-------|
| 28.105 | ø 36 x 18 | 0.016 |

SEIKO® S-6 grease (10g) for automatic winding mechanism (eccentric posts, click levers and bearings).



| MSA | Size mm | Kg |
|--------|-------------|-------|
| 28.102 | ø 22.5 x 31 | 0.008 |

CHRONOGREASE KLÜBER P125® grease. Recommended by ETA SA for greasing mainsprings (calibres 7750, A07111, ...).

| MSA | Colour | Packaging | Size mm | Kg |
|--------|--------|--------------|---------------|-------|
| 28.200 | Blue | Tube of 7 g | 85 x 20 x 15 | 0.009 |
| 28.201 | " | Tube of 18 g | 115 x 30 x 20 | 0.020 |
| 28.205 | Green | Tube of 7 g | 85 x 20 x 15 | 0.009 |
| 28.206 | " | Tube of 18 g | 115 x 30 x 20 | 0.020 |

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** steel/brass (alloys frictions, iron alloy copper Cu/Be/Ni).

Recommended use with JISMAA® oilers illustrated on page 17 4 (MSA 17.050... 17.052 et MSA 17.060... 17.063).



| MSA | Colour | Size mm | Kg |
|--------|--------|----------|-------|
| 28.301 | Amber | 48 x 210 | 0.277 |

Universal lubricant grease. Excellent adhesion and waterproof capacities. Temperatures use range from -20°C up to +150°C.



| MSA | Contents | Size mm | Kg |
|--------|----------|-----------|-------|
| 28.651 | 12 g | ø 34 x 32 | 0.017 |

KT-22® lubricant for multiple uses. For greasing gear trains on watches and various instruments, waterproofing crowns, pushers and case backs gaskets. Delivered in a pot.

| MSA | Colour | Contents | Size mm | Kg |
|-----------------|--------|----------|-------------|-------|
| 28.UT18-020 (1) | White | 20 g | ø 34 x 40.5 | 0.025 |
| 28.UT18-100 (2) | White | 100 g | ø 30 x 145 | 0.115 |

FOMBLIN® UT18 grease (100g). Excellent lubricant for multiple uses compatible with all sorts of material like plastic, metals, glass, etc... It resists to oxidation and other chemical products and is very stable in different temperatures. Used in watchmaking for greasing gaskets.

Temperature use range : from -30 °C to +250 °C.



| MSA | Contents | Size mm | Kg |
|--------|----------|------------|-------|
| 28.653 | 6 g | ø 15 x 155 | 0.013 |

KT-22® lubricant for multiple uses. For greasing gear trains on watches and various instruments, waterproofing crowns, pushers and case backs gaskets. Delivered in a syringe.

| MSA | Colour | Size mm | Kg |
|--------|--------|------------|-------|
| 28.300 | White | ø 35 x 130 | 0.077 |

MOLYKOTE® DX white consistent paste (50g) made of lithium grease. Advantages: very high load capacity, reduces friction and wearing, very good resistance to the washing out, protection against cold temperature soldering and oxidation, and excellent protection against contact corrosion. It holds charges well, reduces incidents of grinding and seizing and avoids contact rusting.

Temperature use range : from -25 °C to +125 °C.



| MSA | Contents | Size mm | Kg |
|--------|----------|-----------|-------|
| 28.652 | 10 g | ø 12 x 56 | 0.012 |

SILCON-7® waterproofing grease for watch cases. It stops gaskets from drying and encrusting in the thread.

» **NOVOSTAR® oils and greases at high lubricant power, long conservation and cold resistant.**



| MSA | ml | Viscosity cSt 20°C | Kg |
|-----------|------------------------|--------------------|-------|
| 28.B.0006 | 6 | 89 | 0.011 |
| 28.B4-2.5 | 4 small bottles of 2.5 | " | 0.039 |

NOVOSTAR® oil **type B** for gear train and escapement in watches.



| MSA | ml | Viscosity cSt 20°C | Kg |
|-----------|------|--------------------|-------|
| 28.H.0030 | 30 | 110 | 0.076 |
| 28.H.0250 | 250 | " | 0.260 |
| 28.H.1000 | 1000 | " | 1.100 |

NOVOSTAR® oil **type H** for gear train of wall clocks.



| MSA | ml | Viscosity cSt 20°C | Kg |
|-----------|----|--------------------|-------|
| 28.L.0005 | 6 | 82 | 0.014 |

NOVOSTAR® oil **type L** for watch palettes.



| MSA | ml | Kg |
|-------------|----|-------|
| 28.LUB.0030 | 30 | 0.079 |

NOVOSTAR® grease for watch barrels.



| MSA | ml | Viscosity cSt 20°C | Kg |
|-----------|----|--------------------|-------|
| 28.M.0010 | 10 | 95 | 0.039 |

NOVOSTAR® oil **type M** for gear train and escapement pivots for pocket watches.



| MSA | ml | Viscosity cSt 20°C | Kg |
|-----------|------|--------------------|-------|
| 28.R.0020 | 20 | 110 | 0.057 |
| 28.R.1000 | 1000 | " | 1.100 |

NOVOSTAR® oil **type R** for gear train of clocks.

» **LA JURASSIENNE® oil.**



| MSA | Size mm | Kg |
|-----------|------------|-------|
| 28.J.0100 | ø 45 x 105 | 0.154 |

LA JURASSIENNE mineral oil (100 ml) 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.

» **SUPER LUBE® multi-use Syncolon® lubricant. The product is 100% synthetic and biodegradable. Principal characteristics: 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 - 100% hot, cold and salt water resistant - doesn't stain - doesn't evaporate - without odour - dielectric and prevent seizure - doesn't dry. Efficient between -40 °C and +232 °C. Delivered in 4 different packaging.**



| MSA | Packaging | Size mm | Kg |
|----------|-----------|------------|-------|
| 28.SL007 | Pen 7 g | ø 15 x 120 | 0.022 |

SUPER LUBE® lubricant delivered under blister.



| MSA | Packaging | Size mm | Kg |
|----------|-----------|------------|-------|
| 28.SL012 | Tube 12 g | ø 25 x 110 | 0.025 |

SUPER LUBE® lubricant delivered under blister.



| MSA | Packaging | Size mm | Kg |
|----------|-----------|------------|-------|
| 28.SL085 | Tube 85 g | ø 55 x 145 | 0.110 |

SUPER LUBE® lubricant delivered under blister.



| MSA | Packaging | Size mm | Kg |
|----------|----------------|------------|-------|
| 28.SL300 | Aerosol 300 ml | ø 65 x 200 | 0.380 |

SUPER LUBE® lubricant.



| MSA | Packaging | Size mm | Kg |
|--------|------------|------------|-------|
| 28.210 | Stylo 6 cc | ø 13 x 155 | 0.028 |

Lubristyl precision oil pen. 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.

Oil refills Rubin G-8 for MSA 28.210 :

| MSA | Packaging | Size mm | Kg |
|----------|-------------|----------------|-------|
| 28.210-A | Refill 6 cc | ø 30 x 35 x 10 | 0.005 |



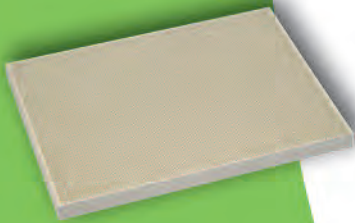
| MSA | Contents | Size mm | Kg |
|--------|----------|------------|-------|
| 28.654 | 6 cc | ø 15 x 155 | 0.015 |

Rust remover liquid delivered in 6cc syringe for loosening rusted screws.

29



SOLDERING STATION 29 2



SOLDERING ACCESSORIES 29 3



SOLDERING PASTES 29 5



| MSA | Voltage | Size mm | Kg |
|--------|---------|-----------------|-------|
| 29.229 | 220 V | 120 x 217 x 199 | 5.250 |

Professional welding station WSF 81D5. Programmable and motorized welding wire supply.

Specifications :

Welding \varnothing : 0.5 to 0.8 mm
 Source : 220 V/50 Hz
 Power : 80 W
 Electronic temperature setting : from 150 to 450°C.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 29.105 | 160 x 20 | 0.058 |

Micro torch. Butane gas reserve for 10-15 minutes. Flame temperature 1300° C.



| MSA | Voltage | Size mm | Kg |
|--------|---------|----------------|-------|
| 29.227 | 220 V | 195 x 100 x 90 | 0.800 |

VTSS5 soldering station, ideal for beginners as well as professionals.

Specifications :

Power supply : 220 V/50 Hz
 Consumption : 50 VA maximum
 Electronic temperature setting : from 175 to 480° C.



| MSA | Volume | Size mm | Kg |
|--------|--------|------------------------|-------|
| 29.110 | 800 ml | \varnothing 65 x 300 | 0.450 |

Butane gas recharge for micro torch MSA 29.105.



| MSA | Wire \varnothing mm | Packaging | Kg |
|--------|-----------------------|--------------|-------|
| 29.615 | 0.70 | Spool | 0.520 |
| 29.616 | " | 1 meter wire | 0.003 |

Soldering wire with incorporated flux. Melting point at 179° C.



| MSA | Size mm | Kg |
|--------|------------------------|-------|
| 29.597 | \varnothing 50 x 150 | 0.169 |

Insulating soldering paste.



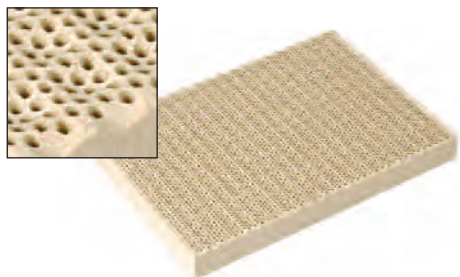
| MSA | Braid \varnothing mm | Kg |
|--------|------------------------|-------|
| 29.631 | 0.8 | 0.005 |

Desoldering braid, delivered in spool of 1.5 meters.



| MSA | Colour | Bag size mm | Kg |
|--------|---------|-------------|-------|
| 29.625 | ● Gold | 168 x 55 | 0.012 |
| 29.626 | ● Metal | " | 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 **gold coloured** rods are used with gold, brass and copper. The **metal coloured** rods are used for stainless steel, cobalt-chrome and silver.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 29.606 | 135 x 95 x 13 | 0.125 |

Insulating soldering plate.



| MSA | Size mm | Kg |
|----------|---------------|-------|
| 29.614-A | 80 x 60 x 30 | 0.035 |
| 29.614-B | 120 x 80 x 30 | 0.025 |

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 mm | Kg |
|--------|----------------|-------|
| 29.501 | 155 x 100 x 75 | 0.705 |

2 revolving nippers mounted on arms and socle for holding items during soldering.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 29.651 | ø 68 x 152 | 0.185 |

Alcohol lamp. Delivered with a wick.

Replacement wick :

| MSA | Length mm |
|----------|-----------|
| 29.651-A | 200 |

> See chapter PERF.



| MSA | Contents | Melting point | Size mm | Kg |
|----------|----------|----------------|------------|-------|
| 29.610-A | 14 g | 618 °C/1145 °F | ø 19 x 160 | 0.028 |

EASY type SILVER soldering paste, delivered in a syringe. It contains cadmium.



| MSA | Contents | Melting point | Size mm | Kg |
|----------|----------|----------------|------------|-------|
| 29.610-D | 28 g | 665 °C/1230 °F | ø 19 x 170 | 0.044 |

SILVER soldering paste, delivered in a syringe. Melting point slightly higher than EASY type, but does not exude any harmful vapour because it does not contain cadmium.



| MSA | Contents | Carats | Melting point | Size mm | Kg |
|------------|----------|--------|----------------|------------|-------|
| 29.612-A14 | 1.55 g | 14 | 715 °C/1320 °F | ø 10 x 115 | 0.005 |

EASY type GOLD lead soldering paste in **white gold**, delivered in a syringe.



| MSA | Contents | Carats | Melting point | Size mm | Kg |
|------------|----------|--------|----------------|------------|-------|
| 29.612-A10 | 1.55 g | 10 | 701 °C/1295 °F | ø 10 x 115 | 0.005 |

EASY type GOLD lead soldering paste in **white gold**, delivered in a syringe.



| MSA | Contents | Carats | Melting point | Size mm | Kg |
|------------|----------|--------|----------------|------------|-------|
| 29.611-A10 | 1.55 g | 10 | 643 °C/1190 °F | ø 10 x 115 | 0.005 |

EASY type GOLD lead soldering paste in **yellow gold**, delivered in a syringe.



| MSA | Contents | Carats | Melting point | Size mm | Kg |
|------------|----------|--------|----------------|------------|-------|
| 29.611-A14 | 1.55 g | 14 | 637 °C/1180 °F | ø 10 x 115 | 0.005 |

EASY type GOLD lead soldering paste in **yellow gold**, delivered in a syringe.



| MSA | Contents | Carats | Melting point | Size mm | Kg |
|------------|----------|--------|----------------|------------|-------|
| 29.611-A18 | 1.55 g | 18 | 790 °C/1455 °F | ø 10 x 115 | 0.005 |

EASY type GOLD lead soldering paste in **yellow gold**, delivered in a syringe.

SOLDERING ACCESSORIES | SOLDERING PASTES



| MSA | Contents | Melting point | Kg |
|--------|----------|----------------|-------|
| 29.613 | 3 cc | 650 °C/1202 °F | 0.008 |

SILVER soldering paste, delivered in a syringe.

31



ANVILS 31 2

ANVILS



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 31.001 | 110 x 68 x 75 | 0.670 |

Anvil with 2 horns made of hardened steel (55 HRC) and galvanized with cast iron base. For forging, riveting or stamping.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 31.003 | 105 x 30 x 42 | 0.550 |

Anvil with 2 horns made of forged and hardened steel (55HRC). For forging, riveting or stamping.



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 31.050 | 50 x 50 x 20 | 0.350 |
| 31.051 | 60 x 60 x 20 | 0.570 |
| 31.052 | 90 x 80 x 20 | 1.000 |
| 31.053 | 100 x 100 x 20 | 1.570 |

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

32



BEADING TOOLS..... 32 2



BEADING TOOLS PLATES, FIONS..... 32 5



MILLGRAIN TOOLS..... 32 6



SETTING CLOSERS..... 32 6

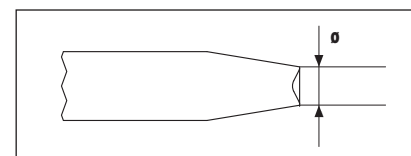
» Beading tools "Swiss Made".

ASSORTMENT



| MSA | Packaging size mm | Kg |
|------------|-------------------|-------|
| 32.001-901 | 56 x 56 x 76 | 0.088 |

Assortment of 12 SWISS type beading tools with wooden handle. Beading tools numbers : 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12.



| MSA | Numbers | ø mm | Size mm | Kg |
|-----------|---------|------|-------------|-------|
| 32.001-00 | 0 | 0.25 | 60 x ø 2.60 | 0.002 |
| 32.001-01 | 1 | 0.30 | " | " |
| 32.001-02 | 2 | 0.35 | " | " |
| 32.001-03 | 3 | 0.40 | " | " |
| 32.001-04 | 4 | 0.45 | " | " |
| 32.001-05 | 5 | 0.50 | " | " |
| 32.001-06 | 6 | 0.55 | " | " |
| 32.001-07 | 7 | 0.60 | " | " |
| 32.001-08 | 8 | 0.65 | " | " |
| 32.001-09 | 9 | 0.70 | " | " |
| 32.001-10 | 10 | 0.75 | " | " |
| 32.001-11 | 11 | 0.80 | " | " |
| 32.001-12 | 12 | 0.85 | " | " |
| 32.001-13 | 13 | 0.90 | " | " |
| 32.001-14 | 14 | 0.95 | " | " |
| 32.001-15 | 15 | 1.00 | " | " |
| 32.001-16 | 16 | 1.05 | " | " |
| 32.001-17 | 17 | 1.10 | " | " |
| 32.001-18 | 18 | 1.15 | " | " |
| 32.001-19 | 19 | 1.20 | " | " |
| 32.001-20 | 20 | 1.25 | " | " |
| 32.001-21 | 21 | 1.30 | " | " |
| 32.001-22 | 22 | 1.35 | " | " |

ASSORTMENT



| MSA | Packaging size mm | Kg |
|------------|-------------------|-------|
| 32.001-902 | 56 x 56 x 76 | 0.116 |

Assortment of 23 SWISS type beading tools with wooden handle. Beading tools numbers : 0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22.

» Beading tools "Europe Made".

ASSORTMENT

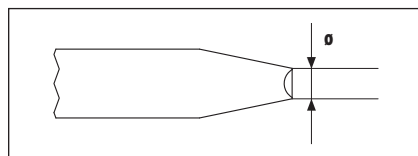


| MSA | Packaging size mm | Kg |
|--------|-------------------|-------|
| 32.000 | 65 x 53 x 70 | 0.072 |

Assortment of 12 EURO type beading tools with wooden handle. Beading tools numbers : 2 – 4 – 6 – 7 – 8 – 9 – 10 – 11 – 12 – 13 – 14 – 16.

Delivered in a cardboard box with transparent top.

| MSA | Numbers | ø mm | Size mm | Kg |
|-----------|---------|------|-------------|-------|
| 32.002-01 | 1 | 0.30 | 60 x ø 2.60 | 0.002 |
| 32.002-02 | 2 | 0.35 | " | " |
| 32.002-03 | 3 | 0.40 | " | " |
| 32.002-04 | 4 | 0.45 | " | " |
| 32.002-05 | 5 | 0.50 | " | " |
| 32.002-06 | 6 | 0.55 | " | " |
| 32.002-07 | 7 | 0.60 | " | " |
| 32.002-08 | 8 | 0.65 | " | " |
| 32.002-09 | 9 | 0.70 | " | " |
| 32.002-10 | 10 | 0.75 | " | " |
| 32.002-11 | 11 | 0.80 | " | " |
| 32.002-12 | 12 | 0.85 | " | " |
| 32.002-13 | 13 | 0.90 | " | " |
| 32.002-14 | 14 | 0.95 | " | " |
| 32.002-15 | 15 | 1.00 | " | " |
| 32.002-16 | 16 | 1.05 | " | " |
| 32.002-17 | 17 | 1.10 | " | " |
| 32.002-18 | 18 | 1.15 | " | " |
| 32.002-19 | 19 | 1.20 | " | " |
| 32.002-20 | 20 | 1.25 | " | " |



| MSA | Ball ø mm | Length mm | Kg |
|----------|-----------|-----------|-------|
| 18.130-S | 36 | 50 | 0.014 |

Wooden handle for beading tools, with rapid tool handling system.

» Tools for polishing the inside of beading tool heads.



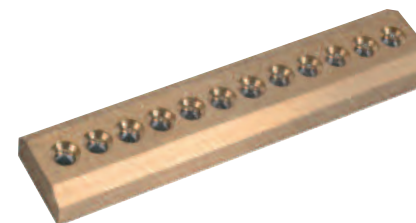
| MSA | Base size mm | Kg |
|--------|--------------|-------|
| 32.020 | ø 30 x 6.90 | 0.042 |

Round brass fion plate for re-burnishing beading tools numbered from 1 to 12, with 12 sunken tempered steel heads.



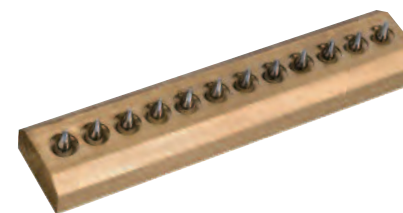
| MSA | Base size mm | Kg |
|--------|--------------|-------|
| 32.021 | ø 30 x 6.90 | 0.040 |

Round brass fion plate for re-burnishing beading tools numbered from 1 to 12, with 12 raised tempered steel heads.



| MSA | Base size mm | Kg |
|--------|----------------------|-------|
| 32.022 | 65.90 x 13.90 x 6.90 | 0.047 |

Rectangular brass fion plate for re-burnishing beading tools numbered from 1 to 12, with 12 sunken tempered steel heads.



| MSA | Base size mm | Kg |
|--------|----------------------|-------|
| 32.023 | 65.90 x 13.90 x 6.90 | 0.048 |

Rectangular brass fion plate for re-burnishing beading tools numbered from 1 to 12, with 12 raised tempered steel heads.



| MSA | Base size mm | Kg |
|--------|--------------|-------|
| 32.030 | 60 x 28 x 15 | 0.192 |

Rectangular steel fion plate for re-burnishing beading tools numbered from 0.60 to 1.75, with 40 sunken tempered steel heads.

MILLGRAIN TOOLS | SETTING CLOSERS

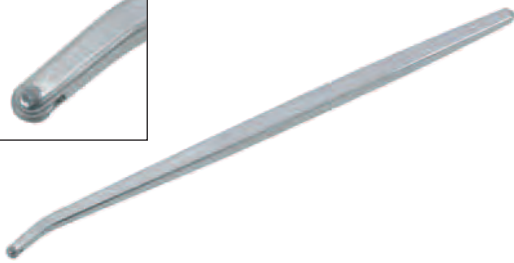
» *The millgrain head is equipped with a small toothed wheel used for jewellery decoration.*

ASSORTMENT



| MSA | Packaging size mm | Kg |
|--------|-------------------|-------|
| 32.100 | 110 x 80 x 50 | 0.175 |

Assortment of 6 millgrains with wooden handle and 1 chuck, on a wooden base. Millgrains numbers : 4 – 6 – 8 – 10 – 12 – 14.



| MSA | Numbers | Size mm | Kg |
|-----------|---------|------------|-------|
| 32.101-01 | 1 | 67.5 x 2.5 | 0.002 |
| 32.101-02 | 2 | " | " |
| 32.101-03 | 3 | " | " |
| 32.101-04 | 4 | " | " |
| 32.101-05 | 5 | " | " |
| 32.101-06 | 6 | " | " |
| 32.101-07 | 7 | " | " |
| 32.101-08 | 8 | " | " |
| 32.101-09 | 9 | " | " |
| 32.101-10 | 10 | " | " |
| 32.101-11 | 11 | " | " |
| 32.101-12 | 12 | " | " |
| 32.101-13 | 13 | " | " |
| 32.101-14 | 14 | " | " |
| 32.101-15 | 15 | " | " |

Individual millgrains.

» *Setting closers for stone settings.*

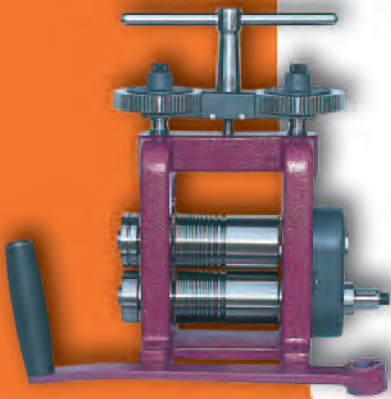
ASSORTMENT



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 32.202 | 130 x 75 x 65 | 0.360 |

Assortment of 24 tempered steel setting closers (Ø 2 to 12 mm) with 1 wooden handle. Delivered in a wooden box.

33

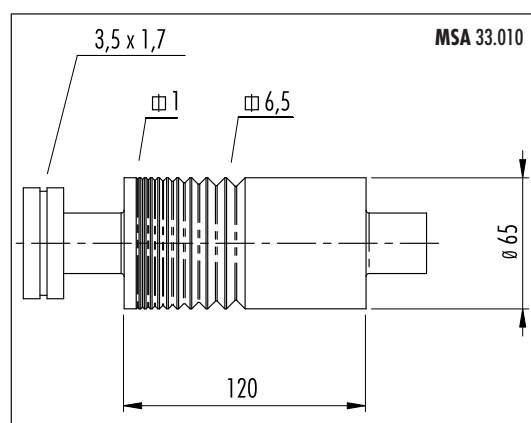
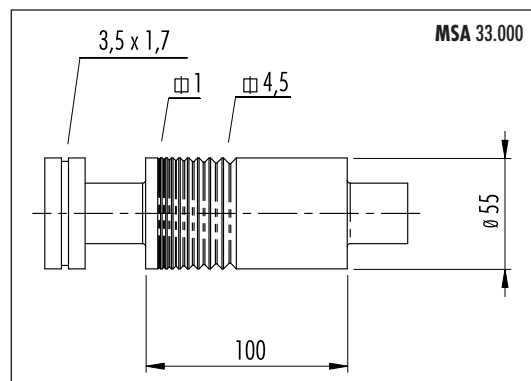
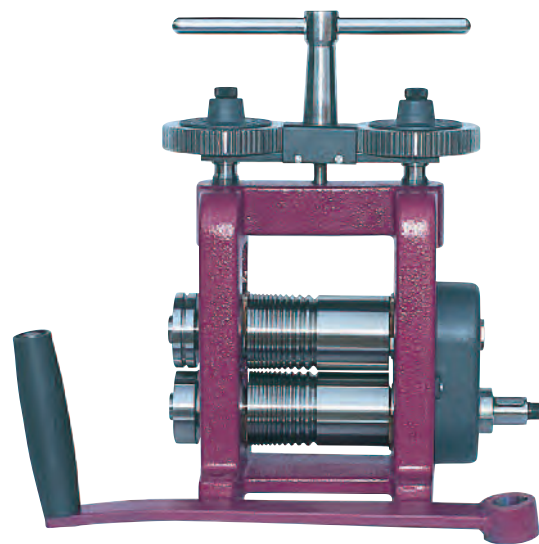


ROLLING MILLS 33 2



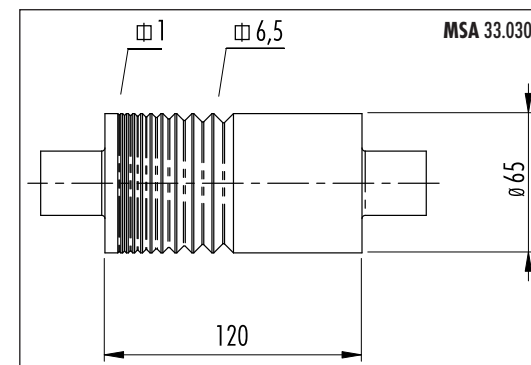
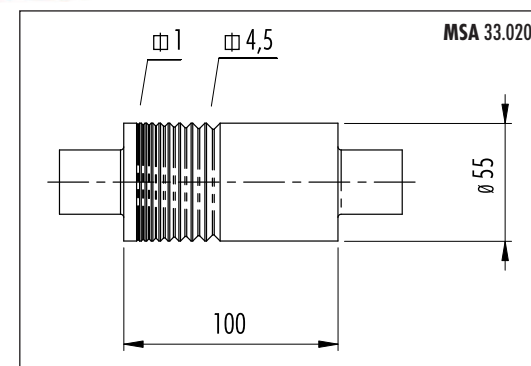
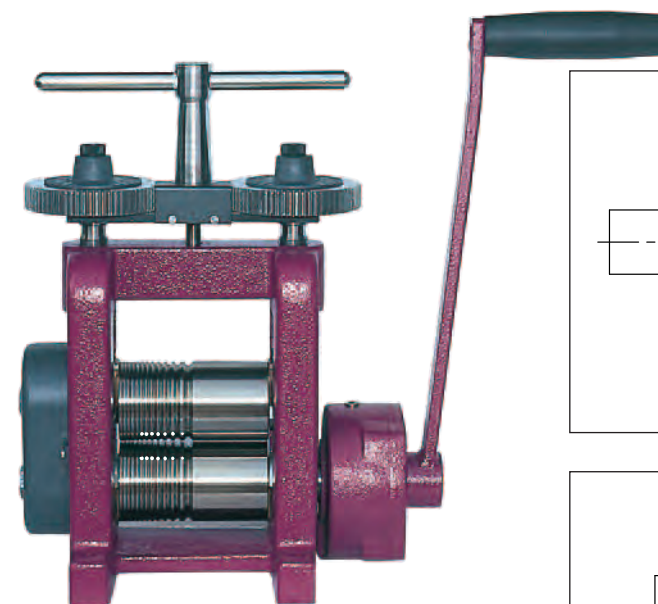
DRAWPLATES 33 4

» Very strong quality rolling mills with hardened steel 63/65 Rockwell, mounted on self lubricated bronze bearings. Available in two dimensions, 100 or 120 mm width cylinders and 2 versions, with or without gear reducer for combined plate and wire.



| MSA | Cylinder width mm | Size mm | Kg |
|--------|-------------------|-----------------|--------|
| 33.000 | 100 | 295 x 215 x 400 | 28.000 |
| 33.010 | 120 | 315 x 215 x 415 | 33.000 |

Manual rolling mill. **Without reduction gear.**



| MSA | Cylinder width mm | Size mm | Kg |
|--------|-------------------|-----------------|--------|
| 33.020 | 100 | 315 x 215 x 400 | 33.000 |
| 33.030 | 120 | 340 x 215 x 415 | 38.000 |

Manual rolling mill. **With reduction gear.**





| MSA | Size mm | Kg |
|--------|-----------------|--------|
| 33.100 | 240 x 240 x 830 | 11.000 |

Stand column for manual rolling mills, with holes in base for floor bolting.

ROLLING MILLS | DRAWPLATES



| MSA | Number of holes | σ holes | Hole shape | Kg |
|----------|-----------------|----------------|---|-------|
| 33.500-A | 20 | 1 à F | Round  | 0.323 |
| 33.500-B | 31 | 3 à 0.5 | " | 0.343 |
| 33.500-C | 31 | 5 à 2 | " | 0.715 |
| 33.502-A | 20 | 3 à 1 | ½ round  | 0.340 |
| 33.502-B | 31 | 6 à 3 | " | 1.320 |

Jewellers steel drawplate. Different hole shapes with decreasing diameters.

37



**WRAPPING PAPER FOR DIAMONDS
AND PRECIOUS STONES** 37 2

WRAPPING PAPER FOR DIAMONDS AND PRECIOUS STONES



| MSA | Size mm | Kg |
|--------|---------|-------|
| 37.010 | 80 x 45 | 0.088 |

Pack of 25 wrapping paper sheets for diamonds and other jewels. Inside furnished with 2 light blue sheets.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 37.011 | 80 x 45 | 0.073 |

Pack of 25 wrapping paper sheets for diamonds and other jewels. Inside furnished with 1 light blue and 1 white sheet.



| MSA | Size mm | Kg |
|--------|---------|-------|
| 37.012 | 80 x 45 | 0.085 |

Pack of 25 wrapping paper sheets for diamonds and other jewels. Inside furnished with 2 white sheets.

38



METAL TESTING REAGENTS 38 2



METAL TESTING REAGENTS

» Precious metal testing reagents.

ASSORTMENT



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 38.000 | 140 X 100 X 160 | 0.790 |

Assortment of precious metal testing reagent in wooden box including :

- 1 bottle of reagent for gold 10-14 carats
- 1 bottle of reagent for gold 18 carats
- 1 bottle of reagent for platinum (Pt)
- 1 bottle of reagent for gold 8-12 carats
- 1 bottle of reagent for silver (Ag)
- 1 synthetic touchstone
- 5 empty glass bottles for refills (15 cc).



POISON

Caustic product not destined for home use. Toxicity class 2. It contains more than 10 % of mineral acid. Avoid contact with skin and eyes.

» See chapter PERF.



METAL TESTING REAGENTS



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.001 | ø 30 x 130 | 0.046 |

Bottle of reagent for **gold 8-12 carats**.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.002 | ø 30 x 130 | 0.051 |

Bottle of reagent for **gold 10-14 carats**.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.003 | ø 30 x 130 | 0.048 |

Bottle of reagent for **gold 18 carats**.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.004 | ø 30 x 130 | 0.046 |

Bottle of reagent for **silver (Ag)**.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.005 | ø 30 x 130 | 0.047 |

Bottle of reagent for **gold 20-24 carats**.



| MSA | Size mm | Kg |
|--------|------------|-------|
| 38.006 | ø 30 x 130 | 0.048 |

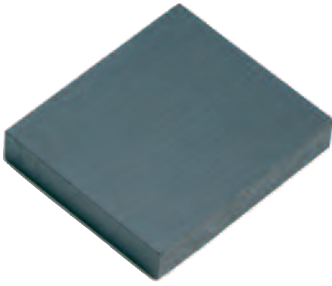
Bottle of reagent for **platinum (Pt)**.



POISON

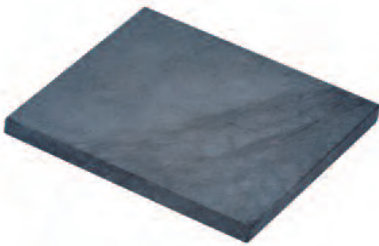
Caustic product not destined for home use. Toxicity class 2. It contains more than 10 % of mineral acid. Avoid contact with skin and eyes.

METAL TESTING REAGENTS



| MSA | Size mm | Kg |
|--------|-------------|-------|
| 38.010 | 46 x 40 x 8 | 0.077 |

Synthetic touchstone.



| MSA | Size mm | Kg |
|----------|--------------|-------|
| 38.016-N | 60 x 100 x 8 | 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.

39



DIAMOND TESTERS 39 2



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 39.122 | 170 x 44 x 24 | 0.800 |

Diamond tester PRO D II TESTER is able to identify real diamonds compared with imitations like cubic Zircons (CZ) and others. Not suitable for testing synthetic moissanite stones. Bright white LED stone illuminator light - Fast warm-up time. Durable and protective spring-loaded retractable ULTRA probe tip with cap. Glowing probe tip cone indicator : DIAMOND = GREEN and METAL WARNING = RED. LED bar graph/beep tone provides audible and visual diamond indication.

Delivered with 3 NiMH rechargeable batteries (Alkaline batteries may be used as well), AC adaptor/charger, rubberized neoprene pouch and English use instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 39.125 | 160 x 40 x 20 | 0.174 |

DIAMOND SELECTOR II tester. The diamond tester measures heat conductivity for separating diamond particles; detects the presence of the following particles: cubic zirconian, synthetic white spinell, rutile, strontium titanite, zirconian, 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 manual.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 39.123 | 170 x 44 x 24 | 0.525 |

Diamond tester ULTRATESTER II able to identify, detect and separates Diamond and moissanite. It is also able to detect cubic Zircons (CZ), synthetic white spinell, rutile, strontium titanite, white sapphire, G.G.G. and Y.A.G. Bright white LED stone illuminator light. Glowing probe tip indicator: DIAMOND = GREEN, MOSSANITE = BLUE and METAL WARNING = RED.

Delivered with 3 NiMH rechargeable batteries (Alkaline batteries may be used as well), AC adaptor/charger, rubberized neoprene pouch and English use instructions.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 39.126 | 85 x 55 x 15 | 0.095 |

Diamond tester DIAMOND SELECTOR III is able to identify real diamonds compared with imitations like cubic Zircons (CZ) and others. Not suitable for testing synthetic moissanite stones. Easy to carry thanks to its small size and its retractable probe tip.

Delivered with 2 AAA batteries, a leatherette pouch and English use instructions.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 39.124 | 185 x 84 x 54 | 0.275 |

Stand for re-charging NiMH batteries of the testers MSA 39.122 and 39.123. Stops automatically when the tester is fully charged. Compatible 110/220 V adaptor.



| MSA | Size mm | Kg |
|--------|---------------|-------|
| 39.127 | 200 x 70 x 30 | 0.165 |

The diamond tester DIAMOND TESTER PRO measures heat conductivity for separating diamond from other particles like cubic zirconium, synthetic white spinell, rutile, strontium titanite, zirconium, white sapphire, G.G.G., and Y.A.G. Totally portable and independent. Delivered with a 9 V battery , a leatherette pouch and English use instructions.

DIAMOND TESTERS

➤ See MSA 00.290, 00.290-A and 00.290-B page 00 20.



40



STONES AND PEARLS GAUGES 40 2



| MSA | Models | Hole sizes (carats) | Size mm | Kg |
|--------|--------|---------------------|---------------|-------|
| 40.003 | 3 arms | 0.01 to 4.00 | 75 x 16 x 3 | 0.026 |
| 40.004 | 4 arms | 0.01 to 6.00 | 75 x 16 x 3.5 | 0.030 |
| 40.005 | 5 arms | 0.01 to 8.00 | 76 x 18 x 4 | 0.038 |
| 40.006 | 6 arms | 0.01 to 12.00 | 87 x 20 x 5 | 0.060 |
| 40.007 | 7 arms | 0.01 to 15.00 | 87 x 20 x 6 | 0.066 |
| 40.008 | 8 arms | 0.01 to 20.00 | 87 x 25 x 6.5 | 0.090 |

Nickel silver gauge for stones.

> See chapter PERF.



| MSA | Number of plates | Plates ø mm | Holes numbers | Kg |
|--------|------------------|-------------|--------------------------------------|-------|
| 40.120 | 23 | 32 | 000, 00, 0, 1, 2, 3, 4 ... 20 | 0.150 |
| 40.121 | 42 | 32 | 000, 00, 0, 1, 1.5, 2, 2.5, 3 ... 20 | 0.450 |
| 40.122 | 23 | 47 | 000, 00, 0, 1, 2, 3, 4 ... 20 | 0.300 |
| 40.123 | 42 | 47 | 000, 00, 0, 1, 1.5, 2, 2.5, 3 ... 20 | 0.475 |
| 40.124 | 23 | 66 | 000, 00, 0, 1, 2, 3, 4 ... 20 | 0.460 |
| 40.125 | 42 | 66 | 000, 00, 0, 1, 1.5, 2, 2.5, 3 ... 20 | 0.850 |
| 40.126 | 23 | 80 | 000, 00, 0, 1, 2, 3, 4 ... 20 | 0.800 |
| 40.127 | 42 | 80 | 000, 00, 0, 1, 1.5, 2, 2.5, 3 ... 20 | 1.400 |
| 40.128 | 42 | 107 | 000, 00, 0, 1, 1.5, 2, 2.5, 3 ... 20 | 3.000 |

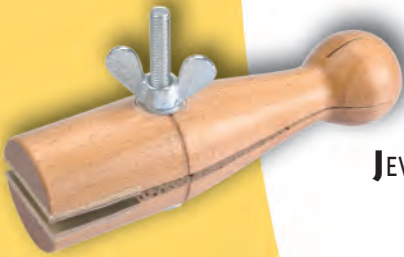
Sieve for stones and pearls in a metal container.



| MSA | Size mm | Kg |
|--------|--------------|-------|
| 40.200 | ø 35.50 x 30 | 0.032 |

Tool for holding pearls during drilling.

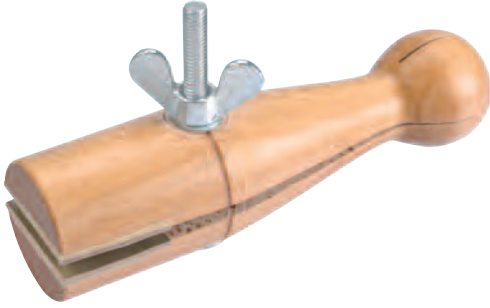
41



JEWELLERS' CLAMPS 41 2

JEWELLERS' CLAMPS

» Jewellers' clamps.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 41.600 | 130 x 70 | 0.080 |

Jewellers' wooden clamp with wing screw.
Jaws opening : 20 mm.



| MSA | Size mm | Kg |
|--------|----------|-------|
| 41.610 | 150 x 35 | 0.088 |

Jewellers' wooden clamp.
Jaws opening : 10 mm.

» See chapter PERF.



42



TANITA® AND TANGENT® POCKET SCALES 42 2



KERN® BALANCES AND SCALES 42 5

- analytical balances
- precision balances
- hanging scales
- bench scales
- platform scales
- thermal printers



CLASSIC SCALES 42 10

» TANITA® and TANGENT® digital pocket scales easy to use with LCD screen for clear reading. The precision and capacity values are displayed in grams (g). Tare function, high precision, calibration possible and display for low battery. All the scales delivered with batteries, user's manual and synthetic pouch.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|-------|----------|-----------|--------|-------|
| 42.104 | 1230 | 20 g | 0.002 g | Black | 0.230 |

TANITA® pocket scale with 4 weighing units : g, ct, ozt and gn.
Size : 84 x 154 x 27 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|-------------|----------|-----------|--------|-------|
| 42.105 | Tangent 102 | 100 g | 0.1 g | Black | 0.202 |

TANGENT® pocket scale.
Size : 67 x 137 x 19 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|----------------|----------|-----------|--------|-------|
| 42.101 | Tangent KP-103 | 120 g | 0.1 g | Black | 0.156 |

TANGENT® pocket scale.
Size : 90 x 113 x 20 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|-------|----------|-----------|--------|-------|
| 42.110 | 1479V | 120 g | 0.1 g | Black | 0.203 |

TANITA® pocket scale.
Size : 155 x 75 x 15 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|----------------|----------|-----------|--------|-------|
| 42.102 | Tangent KP-104 | 200 g | 0.1 g | Black | 0.140 |
| 42.103 | " | 300 g | " | Silver | " |

TANGENT® pocket scale.
Size : 60 x 135 x 16 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|---------|----------|-----------|--------|-------|
| 42.119 | KP-400M | 400 g | 0.1 g | Black | 0.391 |

TANITA® pocket scale with 4 weighing units: g, oz, ozt and dwt.
Size : 130 x 184 x 16 mm.



| MSA | Model | Capacity | Precision | Colour | Kg |
|--------|-------|----------|---|------------|-------|
| 42.125 | 1475T | 1200 g | 1.0 g from 0 to 500 g 2.0 g from 501 to 1200 g | Anthracite | 0.251 |

TANITA® pocket scale.
Size : 165 x 278 x 22.5 mm.

» KERN® balances and scales are worldwide renowned for being precise and reliable. The capacity and precision values are displayed in grams (g). 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 us.



| MSA | Model | Power | Capacity | Precision | Kg |
|--------|-----------|---------------|----------|-----------|-------|
| 42.142 | CM 150-1N | Piles AAA x 2 | 150 g | 0.1 g | 0.170 |

KERN® pocket scale. LCD display with numbers height 12 mm. AUTO-OFF function after 4 mn. Hard case cover to protect the scale against dusts and pressures. Integrated calculator.

Delivered with use manual.

Dimensions : overall : 85 x 130 x 25 mm and weight platform : 70 x 80 mm.



| MSA | Model | Power | Capacity | Precision | Kg |
|--------|-----------|---------------|------------|---------------------|-------|
| 42.148 | CM 50-C2N | Piles AAA x 2 | 10 g/50 ct | 0.002 g/ 0.01 ct | 0.200 |

KERN® pocket scale for carats. LCD display digit height 9 mm. AUTO-OFF function after 4 mn. Hard case cover to protect the scale against dusts and pressures. Integrated calculator. Compatible reading g/ct just in one touch.

Delivered ready to use with a test weight, an air movements protection and a tray.

Dimensions : overall : 85 x 130 x 25 mm and weight platform : 50 x 40 mm.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|------------|---------|----------|-----------|-------|
| 42.133 | EW 220-3NM | 220 V | 220 g | 0.001 g | 1.300 |

KERN® analytical balance. LCD retro-light display digit height 17 mm.

Other measuring units : ct, oz, lb, ozt, dwt, gn, tl, mom and tola.

Standard equipment : external adjusting weight, Counting reference by 10, 30, 50 and 100 pieces, RS 232 Data Interface, GLP protocol and 220V adapter. Delivered with protective cover for key pad and draft shield.

Dimensions without draft shield : 235 x 185 x 165 mm and platform ø 118 mm.

ATTENTION : the approval certificate is possible and should be precised on your purchase order. Ulterior certification will not be possible.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|------------|---------|----------|-----------|-------|
| 42.323 | ABJ 120-4M | 220 V | 120 g | 0.001 g | 7.000 |
| 42.175 | ABJ 220-4M | 220 V | 220 g | 0.001 g | 7.000 |

KERN® analytical balance. LCD display with digit height 13 mm.

Standard equipment : external adjusting weight CAL, counting reference by 10, 30, 50 and 100 pieces, RS 232 Data, Interface, GLP protocol and 220V adapter. Delivered with protective cover for key pad and draft shield.

Dimensions with draft shield : 225 x 315 x 330 mm and platform ø 80 mm.

ATTENTION : the approval certificate is possible and should be precised on your purchase order. Ulterior certification will not be possible.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|------------|---------|----------|-----------|-------|
| 42.174 | PFB 200-3 | 220 V | 200 g | 0.001 g | 2.000 |
| 42.137 | PFB 1200-2 | 220 V | 1200 g | 0.01 g | 2.000 |

KERN® precision balance. LCD retro-light display digit height 15 mm.

Level indicator and foot screws.

Counting reference by 10, 30, 50 and 100 pieces RS 232 Data, percentage determination and 220V adapter.

Dimensions balance : 200 x 257x 87 mm and platform ø 80 mm (42.174) and ø 120 mm (42.137).



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|---------|---------|----------|-----------|-------|
| 42.160 | 440-53N | 220 V | 6 kg | 1 g | 1.000 |

KERN® best-seller precision balance among other laboratory balances. LCD retro-light display digit height up to 15 mm. Other units measured: oz, ozt, lb, dwt, mo, tol, tael HK and tael Taiwan.

Standard equipment : external adjusting weight, counter for 5, 10, 25 and 50 pieces, RS 232 data interface, GLP protocol, separate memory formula, percentage determination and 220V adapter. Delivered with weight control (1 Kg) and protective cover for key pad and balance.

Optional equipment : rechargeable battery that lasts 20 hours (recharging period of 10 hours).

Size : balance 165 x 230x 80 mm and platform 150 x170 mm.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|-------------|---------|----------|-----------|-------|
| 42.324 | PLJ3500-2NM | 220 V | 3500 g | 0.001 g | 4.400 |

KERN® precision balance. PRE-TARE function. LCD retro-light display digit height 17 mm. AUTO-OFF function. Counting reference by 10, 30, 50 and 100 pieces RS 232 Data, percentage determination and 220V adapter.

Delivered with protective cover.

Dimensions balance : 206 x 335 x 85 mm and platform 195 x 195 mm.

ATTENTION : the approval certificate is possible and should be precised on your purchase order. Ulterior certification will not be possible.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|------------|---------|----------|-----------|-------|
| 42.141 | EMB 1000-2 | 9 V x 1 | 1000 g | 0.01 g | 0.500 |
| 42.144 | EMB 1200-1 | 9 V x 1 | 1200 g | 0.1 g | 0.500 |

KERN® precision balance. Manual weight TARE function. LCD retro-light display digit height 15 mm. AUTO-OFF function.

Optional equipment : 220 V adaptor, rechargeable battery life duration 24 hours and 8 hours time of recharge.

Dimensions balance : 170 x 240 x 39 mm and platform ø 150 mm.



| MSA | Model | Voltage | Capacity | Precision | Kg |
|--------|----------|---------|----------|-----------|-------|
| 42.116 | CH 15K20 | 220 V | 15 kg | 20 g | 0.250 |

KERN® hanging scale for suspended loads. Ready to use with 1 9V battery included. Auto-Off function after 3 minutes without modifying load for saving battery consumption. LCD display digit height up to 11 mm, stainless steel hook and pulling measuring band up to 100 cm.

Standard equipment : external adjusting weight, tare function and Data-Hold (hold weight display for about 5 seconds).

Size : scale 90 x 30 x 175 mm (with hook 90 x 30 x 270 mm).

» Test weights for balance KERN®.



| MSA |
|--------|
| 42.194 |

Set of test weights Class M1, 1 mg – 100 g. The test weights are exclusively used for adjusting and testing the electronic balances. An optional DKD calibration certificate can be delivered under reference MSA 42.194-C. Delivered in wooden case.

» KERN® thermal printer.



| MSA | Voltage | Size mm | Kg |
|--------|---------|----------------|-------|
| 42.313 | 220 V | 165 x 140 x 50 | 2.000 |

Standard YKB-01 thermal printer. 0.75 lines/second and maximum 40 characters per line. Paper roll 112 mm width. Factory configuration (interface cable printer length 1.5 m included if balance and printer purchased together (cable not included if printer purchased separately).

Delivered with 220V adapter.

Replacement paper :

| MSA | Element |
|----------|------------|
| 42.313-A | Paper roll |



| MSA | Voltage | Size mm | Kg |
|--------|---------|----------------|-------|
| 42.314 | 220 V | 116 x 215 x 85 | 2.000 |

YKT-01 thermal printer for statistics compatible with BPL protocol for all KERN balances with RS 232 data interface. Silent and rapid, 5 lines/second, maximum 24 characters per line (displays 2 lines). Paper roll 58 mm width. Factory configuration (interface cable printer length 1.5 m included if balance and printer purchased together (cable not included if printer purchased separately).

Delivered with 220 V adapter.

Replacement paper :

| MSA | Element |
|----------|------------|
| 42.314-A | Paper roll |



| MSA | Box size mm | Metric carats | Kg |
|--------|---------------|---------------|-------|
| 42.000 | 108 x 63 x 31 | 10 | 0.100 |
| 42.005 | " | 25 | 0.200 |
| 42.010 | " | 50 | 0.250 |
| 42.015 | " | 100 | 0.350 |

Classic diamond scale.

Delivered in a wooden box with small weights for measurement in metric carats.

98



AFTER SALES SERVICE PROFESSIONAL KITS..... 98 2

AFTER SALES SERVICE PROFESSIONAL KITS

» Different versions of watchmaker tools kits display beech wood box. These kits offer to watchmakers different solutions for after sales service jobs like opening and closing watch case back, setting hands, bracelets adjustment tubes, pushers, bezels, ... These kits are also perfect for distributors to exhibit the HOROTEC tools during fairs or showrooms. For sales representative, it is easy to travel with these display boxes thanks to a handle (each tool is located in an adjusted room).



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 98.006 | 420 x 330 x 95 | 5.070 |

Kit contents :

| MSA | Items |
|----------|--|
| 01.201-D | Assortment of 6 screwdrivers on stand with replacement blades ø 0.60 - 0.80 - 1.00 - 1.20 - 1.40 - 2.00 mm |

| MSA | Items |
|--------|--|
| 07.004 | Automatic case opener for snap-on watch case back, with three different tips |
| 07.110 | Press with 6 dies for closing snap-on watch case back |
| 10.499 | Press for adjusting bracelet pins |
| 19.106 | Pulse tester for quartz watches |
| 19.107 | Wheel train jamming for quartz watches |

AFTER SALES SERVICE PROFESSIONAL KITS



| MSA | Size mm | Kg |
|--------|----------------|-------|
| 98.007 | 420 x 330 x 95 | 6.000 |

Kit contents :

| MSA | Items |
|----------|--|
| 01.201-C | Assortment of 12 screwdrivers on rotating stand with replacement blades ø 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 |
| 03.654 | Press with 7 dies for removing fitted tubes/pushers |
| 05.015 | Press with 1 broach and 8 snap-on dies for setting hands |
| 07.105 | Press with 9 dies for closing snap-on case back |
| 10.500 | Press for pins and screwed bracelets |



| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 98.008 | 420 x 330 x 115 | 6.730 |

Kit contents :

| MSA | Items |
|--------|--|
| 03.621 | Tool with 17 dies for screwing/unscrewing screwed tubes and pushers, oscillating weights and battery caps |
| 03.656 | Press with 7 dies to fit/remove snap-on tubes/pushers |
| 05.017 | Press with 3 broaches and 8 screw-on dies for setting hands |
| 07.115 | Tool for opening snap-on watch case back and removing bezels, with 2 pairs of tips (large/narrow) and watch case protection |
| 07.320 | Press for opening/closing screw-on case back, with adjustable case holder, 4 delrin studs and 4 pairs of jaws in different shapes according to the case back |

| MSA | Size mm | Kg |
|--------|-----------------|-------|
| 98.015 | 370 x 285 x 105 | 1.232 |

Tools kit for battery and bracelet change.
Delivered in heavy duty aluminium suitcase and keys.

Kit contents :

| MSA | Items |
|------------|--|
| 00.007 | Eyeglass holder wire, large model |
| 01.101-060 | Chromed screwdriver, ø 0.60 mm pink |
| 01.101-080 | Chromed screwdriver, ø 0.80 mm yellow |
| 01.101-100 | Chromed screwdriver, ø 1.00 mm black |
| 01.101-120 | Chromed screwdriver, ø 1.20 mm red |
| 01.102-060 | Screwdriver blade, ø 0.60 mm |
| 01.102-080 | Screwdriver blade, ø 0.80 mm |
| 01.102-100 | Screwdriver blade, ø 1.00 mm |
| 01.102-120 | Screwdriver blade, ø 1.20 mm |
| 01.400-2.0 | Phillips screwdriver, ø 2.00 mm green |
| 01.400-2.5 | Phillips screwdriver, ø 2.50 mm blue |
| 01.400-3.0 | Phillips screwdriver, ø 3.00 mm brown |
| 07.006 | Knife case opened 2 blades |
| 07.110 | Horotec® press for closing snap on case back |
| 10.531 | Tool for removing bracelet pins |
| 11.809 | Pliers with serrated flat nose, L. 130 mm |
| 12.812-1 | Horoswiss® Tweezers antimagnetic N° 1 |
| 19.000 | Universal battery tester |
| 26.114 | Polishing cloth, 30 x 30 mm |
| 28.101 | Silicon grease SEIKO S-916, with applicator |
| PERF | Items |
| 111-2.5 | Eyeglass with aluminium ring N° 2.5 |
| 364 | Plastic battery tweezers |
| 380 | Case opened with 2 jaws for waterproof cases |
| 458 | Spring bars tool |



► Upon request, we are able to study and produce tools kit. For furthermore information, please contact us.
Here bellow are some examples :



PERF “INDIA MADE”

Economical tools

| | |
|---|-------|
| E YEGLASSES..... | PE 2 |
| S CREWDRIERS..... | PE 5 |
| P IN VICES AND DRAW PLATES | PE 9 |
| H AMMERS AND SAWFRAMES | PE 11 |
| H ANDS TOOLS..... | PE 12 |
| C ASE TOOLS..... | PE 12 |
| S PRING BARS TOOLS | PE 17 |
| V ICES | PE 18 |
| M OVEMENTS HOLDERS | PE 20 |
| P LIIERS | PE 21 |
| T WEEZERS | PE 22 |
| M EASURING INSTRUMENTS..... | PE 24 |
| C LEANING | PE 25 |
| P ACKAGING | PE 26 |
| R ING STICKS AND RING SIZES..... | PE 27 |
| O THER ARTICLES | PE 29 |



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 111-1 | 10.0x | 0.012 |
| 111-1.5 | 6.5x | " |
| 111-2 | 5.0x | " |
| 111-2.5 | 4.0x | " |
| 111-3 | 3.5x | " |
| 111-3.5 | 3.0x | " |
| 111-4 | 2.5x | " |

Plastic eyeglass with removable ring.
Lens ø 21 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 120-1 | 10.0x | 0.008 |
| 120-1.5 | 6.5x | " |
| 120-2 | 5.0x | " |
| 120-2.5 | 4.0x | " |
| 120-3 | 3.5x | " |
| 120-3.5 | 3.0x | " |
| 120-4 | 2.5x | " |

Simple maplewood eyeglass.
Lens ø 19.5 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 115-1 | 10.0x | 0.015 |
| 115-1.5 | 6.5x | " |
| 115-2 | 5.0x | " |
| 115-2.5 | 4.0x | " |
| 115-3 | 3.5x | " |
| 115-3.5 | 3.0x | " |
| 115-4 | 2.5x | " |

Simple plastic eyeglass with fitting head band.
Lens ø 23 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 121-1 | 10.0x | 0.013 |
| 121-1.5 | 6.5x | " |
| 121-2 | 5.0x | " |
| 121-2.5 | 4.0x | " |
| 121-3 | 3.5x | " |
| 121-3.5 | 3.0x | " |
| 121-4 | 2.5x | " |

Simple plastic eyeglass.
Lens ø 20 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 116-1 | 10.0x | 0.013 |
| 116-1.5 | 6.5x | " |
| 116-2 | 5.0x | " |
| 116-2.5 | 4.0x | " |
| 116-3 | 3.5x | " |
| 116-3.5 | 3.0x | " |
| 116-4 | 2.5x | " |

Simple aluminium eyeglass.
Lens ø 24 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 131-1 | 10.0x | 0.016 |
| 131-1.5 | 6.5x | " |
| 131-2 | 5.0x | " |
| 131-2.5 | 4.0x | " |
| 131-3 | 3.5x | " |
| 131-3.5 | 3.0x | " |
| 131-4 | 2.5x | " |

Plastic eyeglass with clamp for all types of glasses.
Lens ø 23 mm.



| PERF | Magnification | Kg |
|---------|---------------|-------|
| 119-1 | 10.0x | 0.009 |
| 119-1.5 | 6.5x | " |
| 119-2 | 5.0x | " |
| 119-2.5 | 4.0x | " |
| 119-3 | 3.5x | " |
| 119-3.5 | 3.0x | " |
| 119-4 | 2.5x | " |

Simple rosewood eyeglass.
Lens ø 19.5 mm.



| PERF | Magnification | Kg |
|------|---------------|-------|
| 132 | 10x | 0.050 |

Chromed triplet magnifier.
Lenses ø 16 mm.



| PERF | Magnification | Kg |
|------|---------------|-------|
| 133 | 10x | 0.047 |

Chromed triplet hexagonal magnifier.
Lenses ø 16 mm.



| PERF | Magnification | Kg |
|------|---------------|-------|
| 134 | 10x | 0.050 |

Yellow gilt triplet magnifier.
Lenses ø 15 mm.

ASSORTMENT



| PERF | Blades ø mm | Kg |
|------|-------------|-------|
| 020 | 0.50...2.50 | 0.200 |

Assortment of 9 screwdrivers on a stand.

ASSORTMENT



| PERF | Blades ø mm | Kg |
|------|-------------|-------|
| 034 | 0.60...2.50 | 0.250 |

Set of 8 screwdrivers on turning base. Composed of 7 flat blades and 1 phillips blade.

ASSORTMENT



| PERF | Blades ø mm | Kg |
|------|-------------|-------|
| 595 | 0.60...3.00 | 0.450 |

Set of 9 screwdrivers on turning base.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 316 | 85 | 0.018 |

Screwdriver with tightening chuck and 5 blades (3 flat, 1 cruciform and 1 for removing spring bars).



| PERF | Length mm | Kg |
|------|-----------|-------|
| 318 | 90 | 0.035 |

Screwdriver with tightening chuck and 4 blades (2 flat, 1 cruciform and 1 for removing spring bars).



| PERF | Length mm | Kg |
|------|-----------|-------|
| 326 | 125 | 0.027 |

Screwdriver with a screw head holding system. Phillips blade ø 1.90 mm. Red anodized hexagonal turning head.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 327 | 125 | 0.027 |

Screwdriver with a screw head holding system. Flat blade ø 2.20 mm. Blue anodized hexagonal turning head.

ASSORTMENT



| PERF | Blades ø mm | Kg |
|------|-------------|-------|
| 319 | 0.60...1.20 | 0.030 |

Assortment of 5 screwdrivers with tightening chuck. Delivered in a plastic box.

ASSORTMENT



| PERF | Blades ø mm | Size mm | Kg |
|------|-------------|----------|-------|
| 320 | 1.00...2.00 | 75 x 110 | 0.042 |

Assortment of 6 screwdrivers with fixed blades. Delivered in a plastic pouch.

ASSORTMENT



| PERF | Blades ø mm | Size mm | Kg |
|------|-------------|---------|-------|
| 321 | 0.80...2.00 | 90 x 90 | 0.051 |

Assortment of 9 screwdrivers with fixed blades. Delivered in a plastic pouch.

ASSORTMENT



| PERF | Blades ø mm | Size mm | Kg |
|------|-------------|----------|-------|
| 322 | 0.80...2.00 | 85 x 100 | 0.065 |

Assortment of 7 screwdrivers. Delivered in a plastic pouch.

ASSORTMENT



| PERF | Numbers | Size mm | Kg |
|------|-----------|----------|-------|
| 324 | 1-2-3-4-5 | 95 x 115 | 0.030 |

Assortment of 5 cruciform screwdrivers. Delivered in a plastic pouch.

ASSORTMENT



| PERF | Blades ø mm | Size mm | Kg |
|------|--------------|----------------|-------|
| 328 | 0.60... 3.00 | 155 x 122 x 30 | 0.310 |

Assortment of 9 screwdrivers.
Delivered in a wooden case.

Screwdrivers only :

| PERF | Blades ø mm | Kg |
|--------|-------------|-------|
| 328-01 | 3.00 | 0.008 |
| 328-02 | 2.50 | 0.008 |
| 328-03 | 2.00 | 0.008 |
| 328-04 | 1.60 | 0.010 |
| 328-05 | 1.40 | 0.010 |
| 328-06 | 1.20 | 0.010 |
| 328-07 | 1.00 | 0.018 |
| 328-08 | 0.80 | 0.018 |
| 328-09 | 0.60 | 0.018 |

ASSORTMENT



| PERF | Blades ø mm | Size mm | Kg |
|------|--------------|---------------|-------|
| 329 | 1.00... 2.00 | 115 x 72 x 28 | 0.140 |

Assortment of 6 screwdrivers.
Delivered in a wooden case.



| PERF | Kg |
|------|-------|
| 332 | 0.031 |

Sharpener tool for screwdriver blades, use with 1 sharpening flat stone.
Screwdriver not included.



| PERF | Shaft ø mm (a) | Length mm | Kg |
|------|----------------|-----------|-------|
| 010 | 3.0 | 46 | 0.005 |
| 011 | 2.3 | " | " |

Mandrel for small abrasive wheels.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 013 | 92 | 0.049 |

Nickel-plated pin vice with rotating hexagonal head and 1 tightening chuck.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 014 | 105 | 0.027 |

Double nickel-plated pin vice with rounded heads and 2 tightening chucks.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 015 | 105 | 0.023 |

Quick tightening pin vice.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 022 | 95 | 0.011 |

Thin brass pin vice with rounded head and 1 tightening chuck.



| PERF | Length mm | Serrage ø mm | Kg |
|------|-----------|--------------|-------|
| 046 | 115 | 0.00... 8.00 | 0.036 |

Double nickel-plated pin vice with hexagonal heads and 2 tightening chucks.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 330 | 86 | 0.035 |

Double nickel-plated pin vice with round heads and 2 reversible tightening chucks.

ASSORTMENT



| PERF | Size mm | Kg |
|------|----------|-------|
| 045 | 65 x 110 | 0.149 |

Assortment of 4 oxidized black pin vices.
Delivered in a plastic pouch.

Contents :

| PERF | Length mm | Tightening ø mm | Kg |
|------|-----------|-----------------|-------|
| 037 | 85 | 0.00... 0.80 | 0.015 |
| 038 | 90 | 0.80... 1.30 | 0.020 |
| 039 | 95 | 1.30... 3.10 | 0.029 |
| 040 | 110 | 3.10... 4.80 | 0.042 |



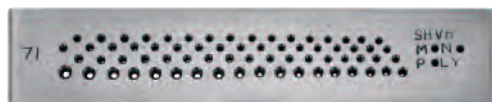
| PERF | Length mm | Kg |
|------|-----------|-------|
| 390 | 85 | 0.030 |

Crown holder ø 4 to 5.50 mm.



| PERF | Size mm | Kg |
|------|--------------|-------|
| 031 | 113 x 26 x 3 | 0.145 |

Steel draw plate, 63 holes.



| PERF | Size mm | Kg |
|------|--------------|-------|
| 032 | 166 x 35 x 3 | 0.150 |

Steel draw plate, 71 holes.

ASSORTMENT



| PERF | Size mm | Holes ø mm | Kg |
|------|---------|-------------|-------|
| 035 | 45 x 17 | 0.60...1.00 | 0.140 |

Assortment with 1 draw plate and 5 taps.



| PERF | Length Head mm | Total length mm | Kg |
|------|----------------|-----------------|-------|
| 007 | 54 | 153 | 0.040 |

Watchmaker's hammer with wooden handle, round head on one side and "V" shaped for riveting on the other.



| PERF | Length Head mm | Total length mm | Kg |
|------|----------------|-----------------|-------|
| 023 | 65 | 240 | 0.095 |

Watchmaker's hammer with wooden handle and 2 flat heads, made of brass on one side and nylon on the other.



| PERF | Size mm | Kg |
|------|-----------|-------|
| 313 | 220 x 120 | 0.190 |

Sawframe with wooden handle. Equipped with wing screws to hold the blade and a tension screw.



| PERF | Size mm | Kg |
|------|----------|-------|
| 314 | 200 x 90 | 0.205 |

Sawframe with wooden handle, screws and fixing plates to hold the blade.



| PERF | Size mm | Kg |
|------|----------|-------|
| 229 | 105 x 25 | 0.040 |

Spring tool for removing hands.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 230 | 100 | 0.020 |

Hands remover.



| PERF | Width spatula mm | Length mm | Kg |
|------|------------------|-----------|-------|
| 231 | 3 | 110 | 0.015 |

Pair of hands levers.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 166 | 180 x 100 x 95 | 1.510 |

Press for glass fitting with 11 aluminium dies.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 167 | 185 x 50 x 118 | 1.170 |

Glass fitting press with 12 nylon dies.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 168 | 180 x 64 x 145 | 1.840 |

Glass fitting press with 28 aluminium dies.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 176 | 200 x 73 x 155 | 2.840 |

Press for glass fitting with 24 nylon dies.

Replacement parts :

| PERF | Item | Kg |
|-------|---------------------|-------|
| 176-A | Set of 24 dies only | 0.267 |



| PERF | Size mm | Kg |
|------|---------|-------|
| 169 | 76 x 40 | 0.210 |

Tool for setting/removing tension ring glasses.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 375 | 105 | 0.035 |

Case opener with fixed blade and plastic handle.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 376 | 75 | 0.035 |

Case back opener with lever.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 377 | 145 | 0.035 |

Case back opener with fixed blade and wooden handle.



| PERF | Size mm | Kg |
|------|----------|-------|
| 378 | 150 x 25 | 0.040 |

Case back opener combination with 1 blade for opening snap-on case backs and 2 tips for opening/closing screw-on case backs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 379 | 115 | 0.025 |

Case back opener with fixed blade and plastic handle.



| PERF | Size mm | Kg |
|------|---------|-------|
| 380 | 67 x 35 | 0.080 |

Case back opener with 2 jaws, for watches with screw-on case backs.



| PERF | Length mm | Kg |
|--------|-----------|-------|
| 384-01 | 80 | 0.030 |

Yellow case back opener.



| PERF | Length mm | Kg |
|--------|-----------|-------|
| 384-02 | 80 | 0.030 |

Blue case back opener.



| PERF | Length mm | Kg |
|--------|-----------|-------|
| 384-03 | 80 | 0.030 |

Red case back opener.



| PERF | Dies ø mm | Size mm | Kg |
|------|--|--------------|-------|
| PP01 | 14 - 15 - 18 - 19 24 - 30 - 31 - 37 | 92 x 65 x 35 | 0.260 |

Press for closing case backs with 8 nylon dies.



| PERF | Packaging | Size mm | Kg |
|------|---------------|---------------|-------|
| 381 | Cardboard box | 175 x 73 x 12 | 0.270 |

Large Jaxa® type case back opener.
Maximum opening 55 mm.



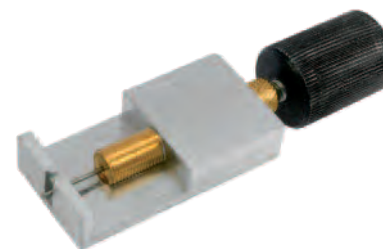
| PERF | Emballage | Size mm | Kg |
|------|-------------|---------------|-------|
| 382 | Plastic box | 170 x 70 x 34 | 0.302 |

Jaxa® type case back opener.
Maximum opening 35 mm.



| PERF | Packaging | Size mm | Kg |
|----------|---------------|---------------|-------|
| 383 (1) | Cardboard box | 180 x 83 x 30 | 0.185 |
| 383A (2) | Wooden box | 180 x 83 x 30 | 0.395 |

Jaxa® type case back opener.
Maximum opening 35 mm.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 180 | 85 | 0.095 |

Tool for removing bracelet pins.



| PERF | Kg |
|-------|-------|
| 383-J | 0.020 |

Assortment of 12 replacement jaws for PERF 381, 382, 383, 383A and 385.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 458 | 135 | 0.025 |

Black plastic spring bar tool.

Replacement tips :

| MSA | Items |
|----------|---|
| 10.304-A | Tip ø 0.80 mm  |
| 10.304-B | Fork width 3.00 mm  |
| 10.304-C | Fine fork width 1.20 mm  |



| PERF | Size mm | Kg |
|------|--------------|-------|
| 385 | 90 x 45 x 15 | 0.120 |

Case back opened with 2 jaws for waterproof cases.
Opens up 75 mm.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 459 | 145 | 0.025 |

Chromed spring bar tool.

Replacement parts :

| PERF | Items | Kg |
|-------|-------|-------|
| 459-A | Fork | 0.005 |
| 459-B | Tip | " |



| PERF | Packaging | Size mm | Kg |
|------|---------------|----------------|-------|
| 480 | Cardboard box | 210 x 100 x 30 | 0.280 |

Case back opened for Oyster type cases. Delivered with 6 dies.



| PERF | Size | Kg |
|------|----------------|-------|
| 265 | 180 x 125 x 30 | 0.260 |

Pliers for bracelet pins remove.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 175 | 130 x 85 x 50 | 0.225 |

Universal steel vice with bench clamp.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 333 | 150 | 0.105 |

Black vice with wooden handle.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 331 | 125 | 0.085 |

Vice with black handle.



| PERF | Width jaws mm | Kg |
|------|---------------|-------|
| 460A | 51 | 1.260 |

Rotating vice with bench clamp.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 202 | 160 x 80 x 50 | 0.175 |

Jewellers steel vice.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 303 | 149 | 0.095 |

Jewellers ring clamp.



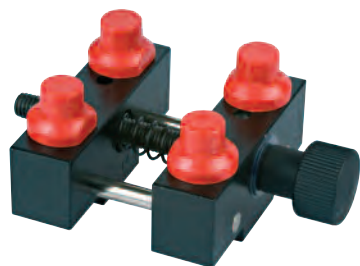
| PERF | Width jaws mm | Kg |
|-------|---------------|-------|
| 460-B | 42 | 1.045 |

Rotating vice.



| PERF | Size mm | Kg |
|------|------------|-------|
| 485 | ø 40 x 150 | 0.120 |

Jewellers wooden vice.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 177 | 105 x 75 x 45 | 0.270 |

Black aluminium case holder with 4 red dies. Can be fixed on a vice.
Maximum opening 60 mm.



| PERF | Size mm | Kg |
|------|--------------|-------|
| 170 | 64 x 46 x 38 | 0.135 |

Universal watch holder with 4 nylon dies, can be fixed on a vice.
Maximum opening 30 mm.

Replacement part :

| PERF | Item | Kg |
|-------|-----------|-------|
| 170-A | Nylon die | 0.002 |

ASSORTMENT



| PERF | Kg |
|------|-------|
| 194 | 0.045 |

Assortment of 12 plastic movement holders.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 214 | 100 x 30 x 17 | 0.040 |

Extensible movement holder, spring loaded.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 250 | 135 | 0.110 |

Pliers for piercing leather bracelets with 2 return springs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 260 | 125 | 0.050 |

Half-round jaws pliers with 2 return springs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 261 | 120 | 0.065 |

Flat jaws pliers with 2 return springs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 262 | 120 | 0.060 |

Round jaws pliers with 2 return springs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 263 | 120 | 0.070 |

Frontal end cutting pliers with 2 return springs.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 264 | 120 | 0.060 |

Side cutting pliers with 2 return springs.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 270 | 142 x 96 x 125 | 0.210 |

Wooden pliers support.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 361 | 165 x 65 | 0.025 |

Iron wire soldering tweezers.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 364 | 125 | 0.005 |

Plastic battery tweezers.



| PERF | Length mm | Notch width mm | Kg |
|------|-----------|----------------|-------|
| PP02 | 135 | 3.50 | 0.110 |

Pliers for notching leather bands.



| PERF | Length mm | Kg | PERF | Length mm | Kg |
|--------|-----------|-------|---------|-----------|-------|
| 437-00 | 120 | 0.015 | 437-5 | 120 | 0.015 |
| 437-1 | " | " | 437-GG | " | 0.020 |
| 437-2 | " | " | 437-MM | " | " |
| 437-3 | " | " | 437-NN | " | " |
| 437-4 | " | " | 437AA-S | " | " |

Antimagnetic steel tweezers.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 355 | 163 | 0.025 |

Tweezers for stones.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 438 | 225 | 0.070 |

Copper tweezers for acid.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 357 | 165 | 0.023 |

Tweezers for stones with locker.



| PERF | Length mm | Kg | PERF | Length mm | Kg |
|--------|-----------|-------|--------|-----------|-------|
| 441-00 | 130 | 0.020 | 441-AA | 130 | 0.020 |
| 441-3 | " | " | 441-MM | " | " |

Brass tweezers.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 358 | 165 | 0.025 |

Black tweezers for stones.



| PERF | Eyeglass ø mm | Length mm | Kg |
|------|---------------|-----------|-------|
| 445 | 23 | 93 | 0.020 |

Combination eyeglass with tweezers.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 359 | 180 | 0.030 |

Tweezers for stones with shovel.



| PERF | Length mm | Kg |
|-------|-----------|-------|
| 360-A | 165 | 0.030 |

Negative straight soldering tweezers.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 366 | 110 | 0.025 |

Tweezers for battery testing.



| PERF | Length mm | Kg |
|-------|-----------|-------|
| 360-B | 165 | 0.030 |

Negative curved soldering tweezers.



| PERF | Size mm | Kg |
|------|----------|-------|
| 019 | 107 x 52 | 0.065 |

MOE gauge.



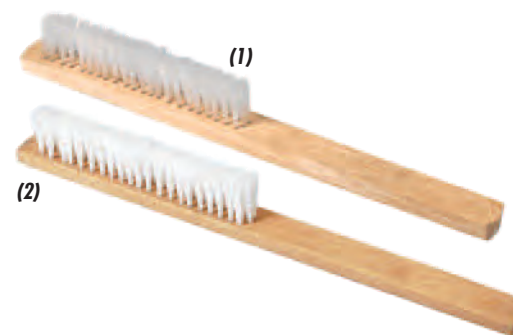
| PERF | Size mm | Kg |
|------|--------------|-------|
| 012 | 72 x 41 x 29 | 0.060 |

White paper for diamonds and precious stones, pack of 25 sheets.



| PERF | Capacity | Precision | Kg |
|------|-------------|--------------|-------|
| 158 | 125 mm / 5" | 1 mm / 0.05" | 0.060 |

Steel sliding calliper.



| PERF | Hardness | Kg |
|----------|----------|-------|
| 008D (1) | Hard | 0.015 |
| 008S (2) | Soft | 0.020 |

Hard brush white bristle (4 rows) and wooden handle.



| PERF | Length mm | Capacity | Kg |
|------|-----------|----------------|-------|
| 171 | 97 | 80 mm / 3 1/4" | 0.040 |

Brass sliding gauge.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 026 | 110 | 0.005 |

Pencil brush with plastic handle.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 810 | 120 | 0.010 |

Pen shaped scratch brush.



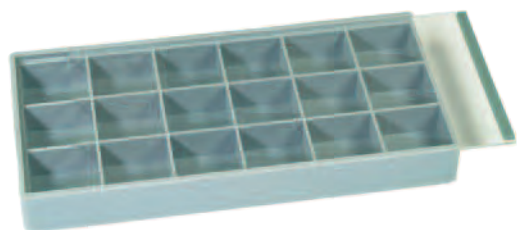
| PERF | Measurement mm | Size mm | Kg |
|------|----------------|---------------|-------|
| 172 | 0.00...15.00 | 127 x 60 x 22 | 0.065 |
| 173 | 0.00...25.00 | " | 0.220 |
| 174 | 0.00...10.00 | " | 0.045 |

Micrometer.
Delivered in a plastic box.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 266 | 118 | 0.085 |

Rubber dust blower.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 018 | 193 x 95 x 21 | 0.175 |

Plastic box for small parts, with 18 divisions and sliding lid.



| PERF | Size mm | Kg |
|------|---------|-------|
| 027 | 80 x 11 | 0.005 |

Plastic triangular tray.



| PERF | Tray ø mm | Kg |
|------|-----------|-------|
| 106 | 100 | 0.070 |

Complete anti dust cover. Base with 6 divisions for small parts.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 490 | 198 x 135 x 22 | 0.253 |

Metal box with 24 aluminium round boxes.



| PERF | Size mm | Kg |
|------|----------------|-------|
| 161 | 302 x 144 x 40 | 0.835 |

Ring gauge and ring sizers, with 4 graduations (gauge) and 2 graduations (fitter).

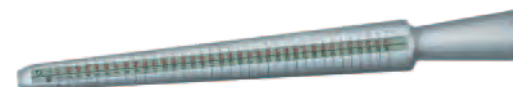
Delivered in a wooden box.

French calibration : from 1 to 36 (ring gauge and ring sizers)

Circumference in mm : from 41 to 76 (ring gauge and ring sizers)

American calibration : 1 to 15 (ring gauge only)

Diameter in mm : from 13 to 24.2 (ring gauge only).



| PERF | Length mm | Kg |
|------|-----------|-------|
| 162 | 250 | 0.200 |

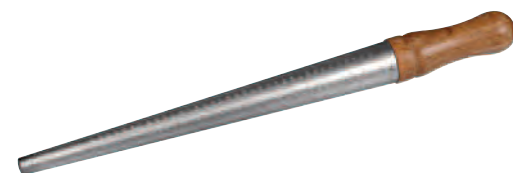
Aluminium ring gauge for measuring rings, with 4 graduations.

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 | Length mm | Kg |
|------|-----------|-------|
| 164 | 310 | 0.165 |

Aluminium ring gauge with wooden handle for measuring rings, with 5 graduations.

French calibration : from 1 to 36.

Circumference in mm : from 41 to 76.

American calibration : from 1 to 15.5

English calibration : from A to 6.5

Diameter in mm : from 12 to 24.2.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 160 | 320 | 0.070 |

Set of a gauge and a ring measurement in plastic.

Both are English calibration : from A to 6.5.



| PERF | Kg |
|-------|-------|
| 162-A | 0.080 |

Aluminium ring sizer 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 |
|-------|-------|
| 163-A | 0.020 |

Ring sizer with one graduation.
 American calibration : 1 to 15.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 006 | 80 | 0.025 |

Engraver handle.
 Delivered with 2 chucks.



| PERF | Size mm | Kg |
|------|-----------|-------|
| 021 | ø 28 x 97 | 0.055 |

Bottle for acid.

ASSORTMENT



| PERF | Size mm | Kg |
|------|---------------|-------|
| 197 | 130 x 80 x 85 | 0.450 |

Reagent kit with 3 empty glass bottles for acids and 1 touchstone.
 Delivered in wooden box.

ASSORTMENT



| PERF | Length mm | Kg |
|------|-----------|-------|
| 025 | 140 | 0.120 |

Assortment of 12 files.
 Delivered in a plastic pouch.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 028 | 90 | 0.025 |

Brass hand drill with return spring.



| PERF | Length mm | Kg |
|------|-----------|-------|
| 090 | 285 | 0.015 |

Brass blow pipe.

ASSORTMENT



| PERF | Drills ø mm | Size mm | Kg |
|------|-------------|---------|-------|
| 030 | 0.30...1.00 | 75 x 50 | 0.005 |

Assortment of 15 drills.
Delivered in a plastic pouch.



| PERF | Size mm | Kg |
|------|-----------|-------|
| 024 | ø 65 x 68 | 0.290 |

Jar for washing stones with inside basket.



| PERF | Size mm | Kg |
|------|-----------|-------|
| 033 | 340 x 250 | 0.385 |

Jewellers bow drill with 2 chucks.



| PERF | Size mm | Kg |
|------|-----------|-------|
| 095 | ø 16 x 16 | 0.005 |

Cleaning basket for small parts.



| PERF | Size mm | Kg |
|------|--------------|-------|
| 193 | 70 x 50 x 40 | 0.210 |

Three-oil cup chrome-plated stand with lid.



| PERF | Size mm | Kg |
|------|--------------|-------|
| 080 | 76 x 41 x 12 | 0.015 |

Diamond shovel with handle.



| PERF | Size mm | Kg |
|------|-------------|-------|
| 195 | ø 53 x 18.5 | 0.030 |

Plastic oiler with 3 recesses. With lid.

RING STICKS AND RING SIZES | OTHER ARTICLES



| PERF | Size mm | Kg |
|------|-----------|-------|
| 196 | ø 68 x 29 | 0.035 |

Silicon grease with applicator for gaskets.



| PERF | Size mm | Kg |
|------|----------|-------|
| 317 | 113 x 66 | 0.200 |

Pearls stringing tray.



| PERF | Size mm | Kg |
|------|---------------|-------|
| 690 | 185 x 50 x 47 | 0.110 |

Alcohol lamp.
Delivered with a wick.

Replacement wick :

| MSA | Length mm |
|----------|-----------|
| 29.651-A | 200 |



| PERF | Length mm | Kg |
|------|-----------|-------|
| 370 | 130 | 0.020 |

Scalpel, delivered without blade.

Replacement parts :

| PERF | Item | Kg |
|-------|------------|-------|
| 370-A | Blade only | 0.005 |



| PERF | Length mm | Kg |
|------|-----------|-------|
| 372 | 130 | 0.105 |

Steel centre-punch.

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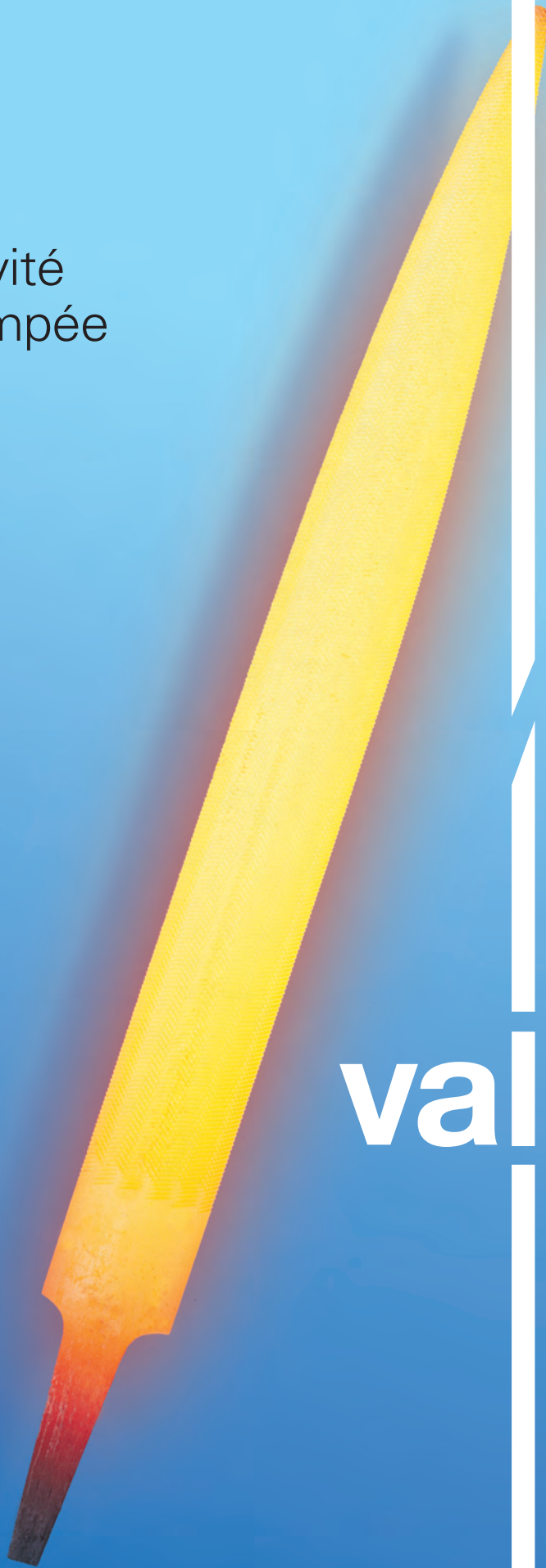
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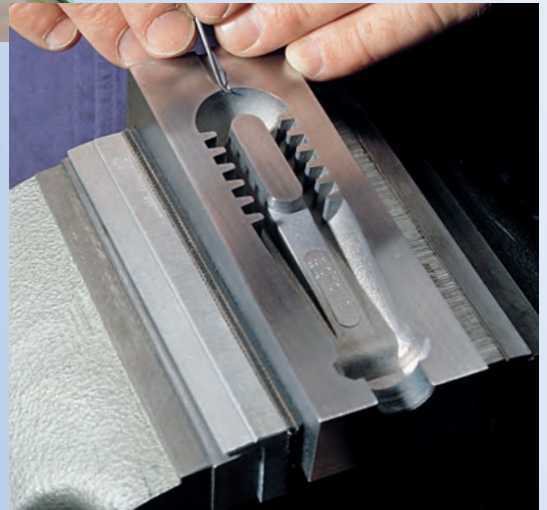
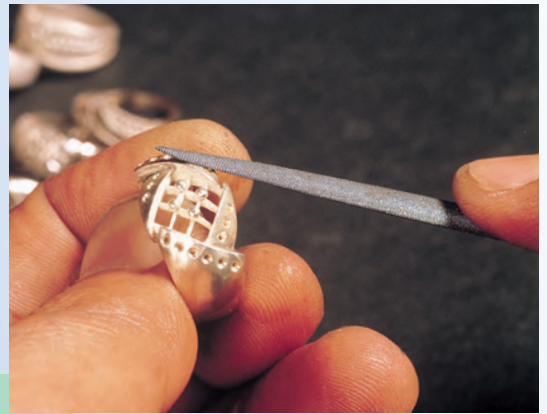
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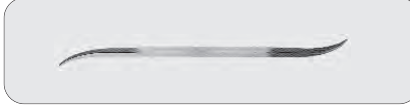

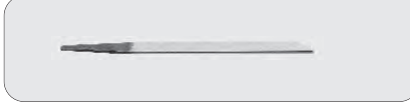


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| 90 | Feilen-Griffe <i>File handles</i> | Manches <i>Mangos</i> |  | AL |
| 92 | Sonderanfertigungen <i>Custom-made files</i> | Limes spéciales <i>Limas especiales</i> |  | S |
| 93 | Verzeichnisse <i>Index</i> | Répertoires <i>Repertorios</i> | | |

1. Repères de gammes

Les diverses gammes de limes contenues dans le présent catalogue sont repérables d'après les onglets ci-dessous, placés dans les marges latérales du sommaire et des pages articles:

| | | | |
|-----------|--|-----------|--|
| LP | Type LP Limes de précision à queue Limes pour tronçonneuse | LO | Outils sans taille Echoppes Burins - Grattoirs Scies bijoutiers - Montures |
| LA | Type LA Limes aiguilles Limes aux échappements Limes «Habilis» | AL | Manches pour limes |
| LR | Type LR Rifloirs | S | Articles spéciaux fabriqués par Vallorbe |
| V | Gamme «Valtitan» Limes de précision à queue Limes aiguilles Rifloirs | | |

2. Principales dimensions

a) Longueur = L

Les points de mesure de la longueur (L) varient d'un type de limes à l'autre. Il est donc nécessaire de se référer au schéma «Principales dimensions» au début de chaque chapitre. La longueur est exprimée soit en pouces soit en mm, soit en pouces et mm. Dans ce cas, les mm sont donnés à titre indicatif.

b) Largeur x épaisseur = A x B

Largeur et épaisseur des limes sont exprimées par:
- **A** = en principe largeur ou diamètre
- **B** = en principe épaisseur.

Les dimensions A et B sont toujours mesurées sur la partie non taillée la plus large. Elles sont exprimées en mm, sauf quelques exceptions dans la gamme LO, «Echoppes» (se référer au schéma «Principales dimensions» au début du chapitre).

3. Tolérances

Pour toutes les limes, il y a lieu de tenir compte des tolérances suivantes:

| Forme ronde | | Pippin - Grain d'orge - Joindresse | | |
|-------------|----------------|------------------------------------|-----|-------|
| Ø | Tol. | A | B | Tol. |
| ≤ 3 | + 0.15 / - 0.1 | ≤ 15 ± 0.5 | ≤ 4 | ± 0.5 |
| > 3...6 | + 0.2 / - 0.1 | > 15 ± 1 | > 4 | ± 1 |
| > 6 | ± 0.2 | | | |

Autres formes

| A | Tol. | B | Tol. |
|----------|---------------|-----------|---------------|
| ≤ 4 | + 0.2 / - 0.3 | ≤ 2.5 | + 0.2 / - 0.3 |
| > 4...15 | + 0.3 / - 0.5 | > 2.5 — 4 | + 0.3 / - 0.5 |
| > 15 | + 0.3 / - 0.7 | > 4 | + 0.3 / - 0.7 |

Exceptions: voir page suivante.

Exceptions

| | |
|---------------------------------|---------------------------------------|
| LP1185 Egalir spécial | Cote B sur taille suivant jauge Stubs |
| LP1265 Entrée spéciale | Cote B sur taille suivant jauge Stubs |
| LP1180 Egalir ordinaire | Cote B sur taille ± 0.1 |
| LP1170 Coulisse bords ronds | Cote B ± 0.1 |
| LP1840 Lime à fendre à queue | Cote B ± 0.1 |
| LP1850 Lime à fendre sans queue | Cote B ± 0.1 |
| Limes rondes à chaîne | Cote B sur taille + 0.2 / - 0.1 |

5. Surépaisseur de taille

Pour mesurer de manière exacte les dimensions A et B sur la partie taillée, il y a lieu de rajouter de 0.01 à 0.4 mm par face taillée.

6. Réserve de modification

Compte tenu de l'évolution technique et technologique permanente, nous nous réservons le droit de modifier les illustrations, cotes, désignations et autres indications sans avis préalable.

7. Nos marques de fabrication



Hiebskala*
Scale of cuts*

Echelle de tailles*
Escala de picado*

Bestimmen der Zähnezahl [Z/cm]

To determinate number of teeth [Z/cm]

Détermination du nombre de dents [Z/cm]

Determinar el número de dientes [Z/cm]

Die Anzahl der Zähne (Z/cm) wird an der Hiebachse gemessen.

Die Zahlen in der nachstehenden Tabelle stimmen mit der Anzahl Zähne pro cm für einen bestimmten Hieb, Länge oder Typ überein.

Beispiel: Feile 6" in Hieb 2 = 31 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.

Le nombre de dents (Z/cm) se compte perpendiculairement à la taille.

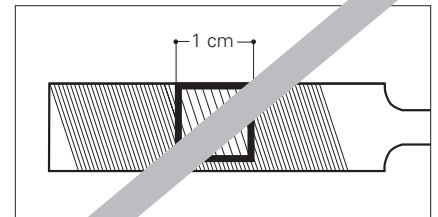
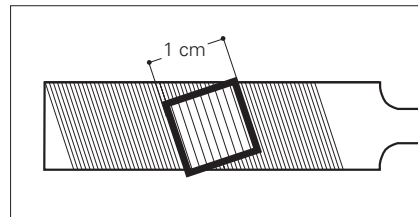
Dans le tableau ci-après les chiffres correspondent au nombre de dents par cm pour une taille donnée, dans une longueur ou un type donné.

Exemple: Lime de 6" en taille 2 = 31 Z/cm.

El número de dientes (Z/cm) se cuenta perpendicularmente al picado.

En la tabla las cifras corresponden al número de dientes por cm de un picado determinado, con un largo y tipo determinados.

Ejemplo: limas de 6" en picado 2 = 31 Z/cm.



| Feilen-Typ - Type of file Type de lime - Tipo de lima | Hieb [Zähne/cm] - Cut [Teeth/cm] Taille [Dents/cm] - Picado [Dientes/cm] | | | | | | | | | | |
|---|---|----|----|----|----|------|----|------|------|-----|-----|
| | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Präzisionsfeilen, Längen 1" bis 3.5" <i>Precision files, lengths 1" to 3.5"</i> Limes de précision, longueurs 1" à 3.5" <i>Limas de precisión, largo 1" hasta 3.5"</i> | | 20 | 25 | 31 | 38 | 46 | 56 | 68 | 84 | 100 | 116 |
| Präzisionsfeilen, Längen 4" bis 8" <i>Precision files, lengths 4" to 8"</i> Limes de précision, longueurs 4" à 8" <i>Limas de precisión, largo 4" hasta 8"</i> | 12 | 16 | 20 | 25 | 31 | 38 | 46 | 56 | 68 | | |
| Präzisionsfeilen, Längen 10" bis 12" <i>Precision files, lengths 10" to 12"</i> Limes de précision, longueurs 10" à 12" <i>Limas de precisión, largo 10" hasta 12"</i> | 9 | 12 | 16 | 20 | 25 | 31 | 38 | (46) | (56) | | |
| Nadelfeilen <i>Needle files</i> Limes aiguilles <i>Limas aguja</i> | | 20 | 25 | 31 | 38 | 46 | 56 | 68 | 84 | | |
| «Habilis»-Feilen <i>«Habilis» files</i> Limes «Habilis» <i>Limas «Habilis»</i> | | 18 | | 25 | | | | | | | |
| Hemmungsfeilen <i>Escapement files</i> Limes aux échappements <i>Limas de escape</i> | | 20 | 25 | 31 | 38 | 46 | 56 | 68 | 84 | 100 | 116 |
| Riffel­feilen ¹ für Graveure <i>Die sinkers rifflers¹</i> Rifloirs ¹ pour graveurs <i>Codillos¹ para grabadores</i> (¹ LR12800 - LR12900) | 16 | 20 | 25 | 31 | 38 | (46) | 56 | (68) | (84) | | |
| Riffel­feilen ² für Goldschmiede und Mechaniker <i>Die makers rifflers²</i> Rifloirs ² pour orfèvres et mécaniciens <i>Codillos² para orfebres y mecánicos</i> (² LR12400 - LR12600 - LR12700) | 9 | 12 | 16 | 20 | 25 | (31) | 38 | (46) | (56) | | |



Päzisionsfeilen: Inhaltsverzeichnis

Precision files: Index

Limes de précision: Table des matières

Limas de precisión: Índice

Seite / Page
Page / Página

| | | |
|----|--|--|
| 2 | Hinweise zum Gebrauch des Katalogs <i>For the good use of this catalog</i> | Pour le bon usage du catalogue <i>Para el uso idoneo del catalogo</i> |
| 4 | Hiebskala <i>Scale of cuts</i> | Echelle de tailles <i>Escala de picados</i> |
| 9 | Präzisionsfeilen: Wichtigste Massangaben <i>Precision files: Main dimensions</i> | Limes de précision: Principales dimensions <i>Limas de precisión: Principales medidas</i> |
| 10 | Artikelbeschreibung: Product description: LP – Präzisionsfeilen mit Angel <i>LP – Precision files with tang</i> | Description des articles: Descripción de los artículos: LP – Limes de précision à queue <i>LP – Limas de precisión con espiga</i> |
| 24 | LP – Raumfeilen <i>LP – Diesinkers</i> | LP – Limes aux poinçons <i>LP – Limas para punzones</i> |
| 26 | LC – Kettensägefeilen <i>LC – Chain saw files</i> | LC – Limes pour scies à chaînes <i>LC – Limas para motosierras</i> |

LP

Haupteigenschaften Main characteristics

Caractéristiques principales Caracteristicas principales

Die Präzisionsfeile «Vallorbe» für spezifische Anwendungen...

...für Ihre Anwendung !

Das vollständigste Angebot der Welt :

- 60 Formen, Längen von 1.5 bis 12 Zoll, Hiebe von 12 bis 84 Zähne/cm
- Die Formen der Feilen wurden so gestaltet, dass auch besondere Arbeitsgänge leicht ausgeführt werden können
- Scharfe Kanten, sehr feine, gehauene Spitzen
- Aus Chromstahl gefertigt
- Härte 66 HRc
- Zertifiziertes Qualitätssystem ISO 9001 / EN 29001

The «Vallorbe» precision file with tang is designed to meet your specific application...

...use it !

The largest range of files in the world :

- 60 shapes
- Lengths from 1.5 to 12 inches
- Cuts from 12 to 84 teeth/cm
- Sharp edges, fine points
- Made from chrome steel
- Hardness 66 HRc
- Certified quality management as to ISO 9001 / EN 29001

La lime de précision «Vallorbe» conçue pour une application spécifique...

...pour votre application !

La gamme la plus complète du monde :

- 60 formes, longueurs de 1.5 à 12 pouces, tailles de 12 à 84 dents/cm
- Les formes de limes sont étudiées pour vous permettre de réaliser toutes vos opérations.
- Angles vifs, pointes taillées très fines
- Fabriquées à partir d'acier au chrome
- Dureté 66 HRc
- Système qualité certifié ISO 9001 / EN 29001

La lima de precisión «Vallorbe» concebida para una aplicación específica...

...para su aplicación !

El surtido más completo del mundo :

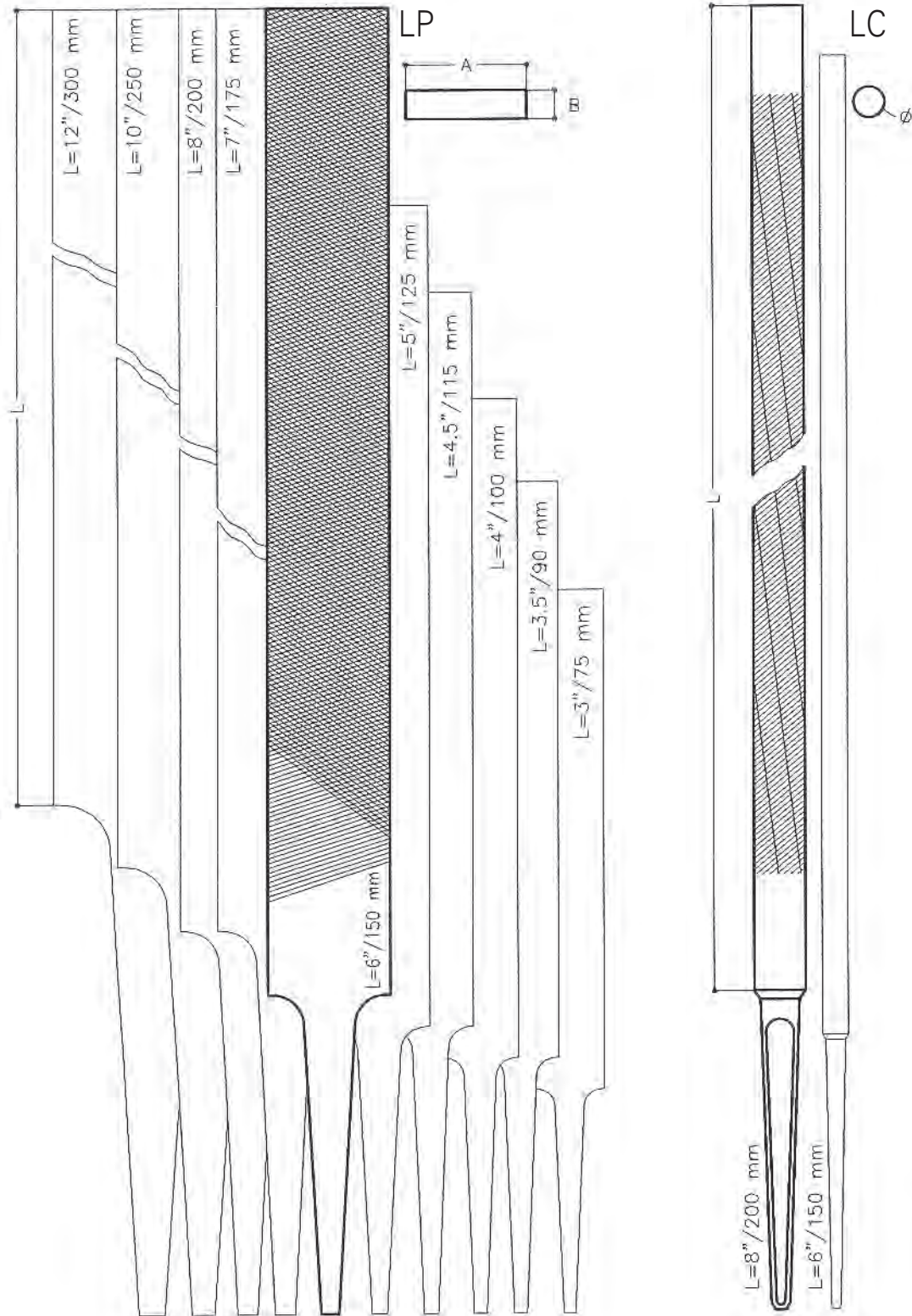
- 60 formas, largos de 1.5 hasta 12 pulgadas, picado de 12 hasta 84 dientes/cm
- Las formas de las limas fueron concebidas especialmente para permitirle realizar todo tipo de operaciones específicas
- Ángulos afilados, puntas muy finas
- Fabricadas de acero al cromo
- Dureza 66 HRc
- Sistema de calidad certificada ISO 9001 / EN 29001

Wichtigste Massangaben

Main dimensions

Principales dimensions

Principales medidas



LP

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|-------------------------------------|----|---|---|---|---|---|---|---|
|----------------------|-------------------------------------|----|---|---|---|---|---|---|---|

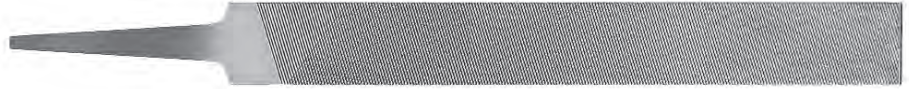
LP1163

Ansatz / Flachstumpf

Hand

Carrelette

Carleta



| | | | | | | | | | |
|-------------------------------|---------------|--------------|-------------|-------------|-------------|-------------|-------------|------------|------------|
| 4" / 100 mm 12.5 x 3 mm | | LP1163-4-00 | LP1163-4-0 | LP1163-4-1 | LP1163-4-2 | LP1163-4-3 | LP1163-4-4 | LP1163-4-5 | LP1163-4-6 |
| 5" / 125 mm 15.5 x 3.5 mm | | LP1163-5-00 | LP1163-5-0 | LP1163-5-1 | LP1163-5-2 | LP1163-5-3 | LP1163-5-4 | LP1163-5-5 | |
| 6" / 150 mm 18.5 x 4 mm | LP1163-6-000 | LP1163-6-00 | LP1163-6-0 | LP1163-6-1 | LP1163-6-2 | LP1163-6-3 | LP1163-6-4 | LP1163-6-5 | LP1163-6-6 |
| 7" / 175 mm 21.3 x 4.8 mm | | LP1163-7-00 | LP1163-7-0 | | LP1163-7-2 | | | | |
| 8" / 200 mm 21.3 x 4.8 mm | LP1163-8-000 | LP1163-8-00 | LP1163-8-0 | LP1163-8-1 | LP1163-8-2 | LP1163-8-3 | LP1163-8-4 | | LP1163-8-6 |
| 10" / 250 mm 25.3 x 6.3 mm | LP1163-10-000 | LP1163-10-00 | LP1163-10-0 | LP1163-10-1 | LP1163-10-2 | LP1163-10-3 | LP1163-10-4 | | |
| 12" / 300 mm 29.3 x 7.8 mm | LP1163-12-000 | LP1163-12-00 | LP1163-12-0 | LP1163-12-1 | LP1163-12-2 | LP1163-12-3 | | | |

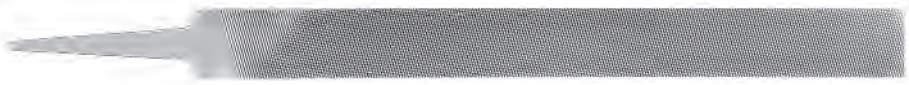
LP1168

Ansatz / Flachstumpf dünn

Thin hand

Carrelette mince

Carleta delgada



| | | | | | | | | | |
|------------------------------|--|-------------|------------|------------|------------|--|------------|--|--|
| 5" / 125 mm 14.5 x 1.7 mm | | | LP1168-5-0 | | LP1168-5-2 | | | | |
| 6" / 150 mm 16.5 x 2 mm | | LP1168-6-00 | LP1168-6-0 | LP1168-6-1 | LP1168-6-2 | | LP1168-6-4 | | |

LP1132

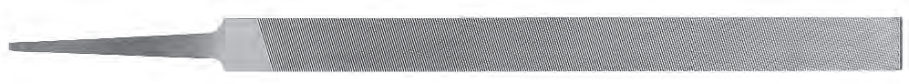
Stiften normal 2 Seiten

Regular pillar 2 sides cut

Pilier ordinaire 2 côtés

Plana paralela normal con picado









sobre 2 lados



| | | | | | | | | | |
|-------------------------------|--|--------------|-------------|-------------|-------------|------------|-------------|--|------------|
| 4" / 100 mm 9.5 x 2.5 mm | | LP1132-4-00 | LP1132-4-0 | LP1132-4-1 | LP1132-4-2 | | LP1132-4-4 | | |
| 5" / 125 mm 10.5 x 3.5 mm | | | LP1132-5-0 | | LP1132-5-2 | | LP1132-5-4 | | |
| 6" / 150 mm 12 x 4 mm | | LP1132-6-00 | LP1132-6-0 | LP1132-6-1 | LP1132-6-2 | LP1132-6-3 | LP1132-6-4 | | LP1132-6-6 |
| 7" / 175 mm 13.5 x 4 mm | | LP1132-7-00 | LP1132-7-0 | LP1132-7-1 | | | | | |
| 8" / 200 mm 14.5 x 4.5 mm | | LP1132-8-00 | LP1132-8-0 | LP1132-8-1 | LP1132-8-2 | LP1132-8-3 | LP1132-8-4 | | LP1132-8-6 |
| 10" / 250 mm 17.5 x 5.3 mm | | LP1132-10-00 | LP1132-10-0 | LP1132-10-1 | LP1132-10-2 | | LP1132-10-4 | | |
| 12" / 300 mm 19.3 x 6.3 mm | | LP1132-12-00 | LP1132-12-0 | | LP1132-12-2 | | | | |

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | | | |
|--|--|-------------|-------------|-------------|------------|------------|------------|
| | 00 | 0 | 1 | 2 | 3 | 4 | 6 |
| LP1166 Kannelier Ansatz <i>Hand chequering</i> Carrelette à canneler Carleta de estriar | | | | | | | |
| |  | | | | | | |
| |  | | | | | | |
| 6" / 150 mm 19 x 5.2 mm | LP1166-6-00 | LP1166-6-0 | LP1166-6-1 | LP1166-6-2 | | | |
| 8" / 200 mm 22 x 5.2 mm | LP1166-8-00 | LP1166-8-0 | LP1166-8-1 | LP1166-8-2 | | | |
| LP1133 Stiften normal 3 Seiten <i>Regular pillar 3 sides cut</i> Piliier ordinaire 3 côtés Plana paralela normal con picado sobre 3 lados | | | | | | | |
| |  | | | | | | |
| |  | | | | | | |
| 4" / 100 mm 9.5 x 2.5 mm | LP1133-4-00 | LP1133-4-0 | LP1133-4-1 | LP1133-4-2 | | | |
| 5" / 125 mm 10.5 x 3.5 mm | LP1133-5-00 | LP1133-5-0 | | LP1133-5-2 | | | |
| 6" / 150 mm 12 x 4 mm | LP1133-6-00 | LP1133-6-0 | LP1133-6-1 | LP1133-6-2 | LP1133-6-3 | LP1133-6-4 | |
| 7" / 175 mm 13.5 x 4 mm | LP1133-7-00 | LP1133-7-0 | LP1133-7-1 | LP1133-7-2 | | | |
| 8" / 200 mm 14.5 x 4.5 mm | LP1133-8-00 | LP1133-8-0 | LP1133-8-1 | LP1133-8-2 | | LP1133-8-4 | |
| 10" / 250 mm 17.5 x 5.3 mm | LP1133-10-00 | LP1133-10-0 | LP1133-10-1 | LP1133-10-2 | | | |
| LP1138 Stiften dünn <i>Pillar thin</i> Piliier mince Plana paralela delgada | | | | | | | |
| |  | | | | | | |
| |  | | | | | | |
| 4" / 100 mm 8.5 x 1.2 mm | LP1138-4-00 | LP1138-4-0 | LP1138-4-1 | LP1138-4-2 | | | |
| 6" / 150 mm 10.5 x 2.4 mm | LP1138-6-00 | LP1138-6-0 | LP1138-6-1 | LP1138-6-2 | | LP1138-6-4 | |
| LP1142 Stiften schmal <i>Pillar slim</i> Piliier étroit Plana paralela estrecha | | | | | | | |
| |  | | | | | | |
| |  | | | | | | |
| 4" / 100 mm 4.6 x 2.2 mm | LP1142-4-00 | LP1142-4-0 | LP1142-4-1 | LP1142-4-2 | | LP1142-4-4 | |
| 5" / 125 mm 5.5 x 2.5 mm | | LP1142-5-0 | | LP1142-5-2 | | | |
| 6" / 150 mm 6.5 x 3 mm | LP1142-6-00 | LP1142-6-0 | LP1142-6-1 | LP1142-6-2 | LP1142-6-3 | LP1142-6-4 | LP1142-6-6 |
| 7" / 175 mm 7.3 x 3.3 mm | | LP1142-7-0 | LP1142-7-1 | LP1142-7-2 | | | |
| 8" / 200 mm 8.3 x 3.8 mm | LP1142-8-00 | LP1142-8-0 | LP1142-8-1 | LP1142-8-2 | LP1142-8-3 | LP1142-8-4 | |
| 10" / 250 mm 9.3 x 4.3 mm | LP1142-10-00 | LP1142-10-0 | | LP1142-10-2 | | | |

LP

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | | | |
|----------------------|------------------------------|---|---|---|---|---|---|
| | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LP1152

Stiften sehr schmal

Pillar extra slim

Pilier très étroit

Plana paralela muy estrecha



| | | | | | | | | |
|------------------------------|--------------|-------------|------------|-------------|------------|------------|------------|--|
| 3" / 75 mm 2.7 x 1.7 mm | | | | | LP1152-3-2 | | | |
| 4" / 100 mm 3.7 x 1.7 mm | LP1152-4-00 | LP1152-4-0 | | | LP1152-4-2 | | LP1152-4-4 | |
| 5" / 125 mm 4 x 2 mm | | LP1152-5-0 | | | LP1152-5-2 | | | |
| 6" / 150 mm 4.5 x 2.5 mm | LP1152-6-00 | LP1152-6-0 | LP1152-6-1 | LP1152-6-2 | LP1152-6-3 | LP1152-6-4 | LP1152-6-6 | |
| 8" / 200 mm 6.3 x 2.8 mm | LP1152-8-00 | LP1152-8-0 | LP1152-8-1 | LP1152-8-2 | | LP1152-8-4 | | |
| 10" / 250 mm 8.3 x 3.8 mm | LP1152-10-00 | LP1152-10-0 | | LP1152-10-2 | | | | |

LP

LP1136

Kannelier Stiften

Pillar chequering

Pilier à canneler

Plana paralela de estriar



| | | | | | | | |
|------------------------------|-------------|------------|------------|------------|--|------------|--|
| 6" / 150 mm 12.4 x 4.5 mm | LP1136-6-00 | LP1136-6-0 | LP1136-6-1 | LP1136-6-2 | | LP1136-6-4 | |
|------------------------------|-------------|------------|------------|------------|--|------------|--|

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | |
|----------------------|------------------------------|---|---|---|---|
| | 00 | 0 | 1 | 2 | 4 |

LP1180

Ausgleich normal

Equalling

Egalir ordinaire

Lima de igualar normal



| | | | | | |
|--|-----------------|----------------|----------------|----------------|----------------|
| 4" / 100 mm 10 x 1.3 ^{±0.1} mm | | LP1180-4-0-1.3 | | LP1180-4-2-1.3 | |
| 4" / 100 mm 10 x 2 ^{±0.1} mm | | LP1180-4-0-2 | | LP1180-4-2-2 | LP1180-4-4-2 |
| 5" / 125 mm 12 x 1.7 ^{±0.1} mm | | LP1180-5-0-1.7 | LP1180-5-1-1.7 | LP1180-5-2-1.7 | LP1180-5-4-1.7 |
| 6" / 150 mm 13 x 2 ^{±0.1} mm | LP1180-6-00-2 | LP1180-6-0-2 | LP1180-6-1-2 | LP1180-6-2-2 | LP1180-6-4-2 |
| 6" / 150 mm 13 x 2.8 ^{±0.1} mm | LP1180-6-00-2.8 | LP1180-6-0-2.8 | | LP1180-6-2-2.8 | LP1180-6-4-2.8 |
| 8" / 200 mm 16 x 3.2 ^{±0.1} mm | LP1180-8-00-3.2 | LP1180-8-0-3.2 | LP1180-8-1-3.2 | LP1180-8-2-3.2 | LP1180-8-4-3.2 |

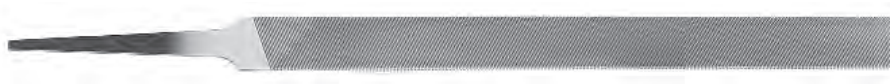
Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | Lehre / Gauge / Jauge / Galga |
|----------------------|------------------------------|---|---|-------------------------------|
| | 0 | 2 | 4 | |

LP1185

Ausgleich spezial
Equalling special thickness
Egalir spécial
Lima de igualar especial



| | | | | |
|---|---------------|---------------|---------------|----|
| 4" / 100 mm 10 x 1.22 ^{+0/-0.08} mm | LP1185-4-0-18 | LP1185-4-2-18 | | 18 |
| 4" / 100 mm 10 x 0.91 ^{+0/-0.08} mm | | LP1185-4-2-20 | LP1185-4-4-20 | 20 |
| 4" / 100 mm 10 x 0.81 ^{+0/-0.08} mm | LP1185-4-0-21 | LP1185-4-2-21 | | 21 |
| 4" / 100 mm 10 x 0.71 ^{+0/-0.08} mm | | LP1185-4-2-22 | LP1185-4-4-22 | 22 |
| 4" / 100 mm 10 x 0.56 ^{+0/-0.07} mm | | LP1185-4-2-24 | LP1185-4-4-24 | 24 |
| 4" / 100 mm 10 x 0.46 ^{+0/-0.07} mm | | LP1185-4-2-26 | LP1185-4-4-26 | 26 |
| 4" / 100 mm 10 x 0.38 ^{+0/-0.08} mm | | LP1185-4-2-28 | LP1185-4-4-28 | 28 |
| 6" / 150 mm 13 x 2.03 ^{+0/-0.08} mm | LP1185-6-0-14 | LP1185-6-2-14 | | 14 |
| 6" / 150 mm 13 x 1.63 ^{+0/-0.08} mm | LP1185-6-0-16 | LP1185-6-2-16 | | 16 |
| 6" / 150 mm 13 x 1.22 ^{+0/-0.08} mm | LP1185-6-0-18 | LP1185-6-2-18 | | 18 |

LP

| L = "/mm B mm | Hieb / Cut / Taille / Picado | | | | | | |
|------------------|------------------------------|---|---|---|---|---|---|
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

LP1170

Scharnierfeile runde Kanten
Round edges joint file
Coulisse bords ronds
Lima de charnela de bordes redondos



| | | | | | | | |
|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
| 4" / 100 mm 10 mm | LP1170-4-2-0.4 | LP1170-4-2-0.5 | LP1170-4-2-0.6 | LP1170-4-2-0.7 | LP1170-4-2-0.8 | LP1170-4-2-0.9 | LP1170-4-2-1 |
| | LP1170-4-2-1.1 | LP1170-4-2-1.2 | LP1170-4-2-1.3 | LP1170-4-2-1.5 | LP1170-4-2-1.8 | LP1170-4-2-2 | |

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | |
|----------------------|------------------------------|---|---|
| | 00 | 0 | 2 |

LP1230

Flachspitz runde Kanten
Crochet
Crochet
Gancho

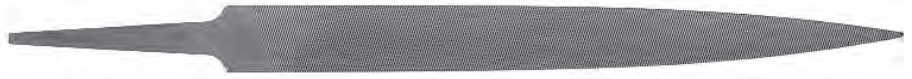


| | | | |
|------------------------------|-------------|--------------|--------------|
| 3.5" / 90 mm 7 x 2.2 mm | | LP1230-3.5-0 | LP1230-3.5-2 |
| 4" / 100 mm 7.5 x 2.2 mm | LP1230-4-00 | LP1230-4-0 | LP1230-4-2 |
| 6" / 150 mm 10 x 3.3 mm | LP1230-6-00 | LP1230-6-0 | LP1230-6-2 |
| 8" / 200 mm 12.5 x 4.2 mm | LP1230-8-00 | LP1230-8-0 | LP1230-8-2 |

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | |
|--|------------------------------|-------------|------------|------------|------------|
| | 000 | 00 | 0 | 2 | 4 |
| LP1263 Flachspitz normal <i>Warding</i> Entrée ordinaire <i>Plana de punta normal</i> | | | | | |
| 4" / 100 mm 12.4 x 2.5 mm | | LP1263-4-00 | LP1263-4-0 | LP1263-4-2 | LP1263-4-4 |
| 6" / 150 mm 15.4 x 3.5 mm | | LP1263-6-00 | LP1263-6-0 | LP1263-6-2 | LP1263-6-4 |
| 8" / 200 mm 21.4 x 5 mm | LP1263-8-000 | LP1263-8-00 | LP1263-8-0 | LP1263-8-2 | |



LP

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | Lehre / Gauge / Jauge / Galga | | |
|---|------------------------------|---------------|-------------------------------|--|--|
| | 0 | 2 | | | |
| LP1265 Flachspitz spezial <i>Warding special thickness</i> Entrée spéciale <i>Plana punta especial</i> | | | | | |
| 3" / 75 mm 9 x 0.61 ^{+0/-0.07} mm | LP1265-3-0-23 | | 23 | | |
| 4" / 100 mm 12.4 x 0.81 ^{+0/-0.08} mm | LP1265-4-0-21 | | 21 | | |
| 6" / 150 mm 15.4 x 1.65 ^{+0/-0.08} mm | LP1265-6-0-16 | | 16 | | |
| 6" / 150 mm 15.4 x 1.25 ^{+0/-0.08} mm | LP1265-6-0-18 | LP1265-6-2-18 | 18 | | |
| 6" / 150 mm 15.4 x 1.02 ^{+0/-0.08} mm | LP1265-6-0-19 | LP1265-6-2-19 | 19 | | |
| 6" / 150 mm 15.4 x 0.81 ^{+0/-0.08} mm | | LP1265-6-2-21 | 21 | | |



| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | |
|---|------------------------------|-------------|------------|------------|------------|
| | 000 | 00 | 0 | 2 | 4 |
| LP1268 Flachspitz dünn <i>Warding thin</i> Entrée mince <i>Plana punta delgada</i> | | | | | |
| 3" / 75 mm 9 x 0.6 mm | | | LP1268-3-0 | LP1268-3-2 | |
| 4" / 100 mm 12.4 x 1 mm | | LP1268-4-00 | LP1268-4-0 | LP1268-4-2 | LP1268-4-4 |
| 5" / 125 mm 14 x 1.3 mm | | | LP1268-5-0 | | |
| 6" / 150 mm 15.4 x 1.7 mm | LP1268-6-000 | LP1268-6-00 | LP1268-6-0 | LP1268-6-2 | LP1268-6-4 |
| 8" / 200 mm 21.4 x 2.6 mm | LP1268-8-000 | LP1268-8-00 | LP1268-8-0 | LP1268-8-2 | |



Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado 000 | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|-------------------------------------|----|---|---|---|---|---|---|---|
|----------------------|-------------------------------------|----|---|---|---|---|---|---|---|

LP1560

Halbrund normal
Halfround
Mironde ordinaire
Mediacaña normal



| | | | | | | | | | |
|-------------------------------|---------------|--------------|-------------|-------------|-------------|------------|------------|------------|------------|
| 3" / 75 mm 8.1 x 2.6 mm | | LP1560-3-00* | LP1560-3-0 | | LP1560-3-2 | | | | |
| 4" / 100 mm 12.7 x 3.5 mm | | LP1560-4-00 | LP1560-4-0 | LP1560-4-1 | LP1560-4-2 | LP1560-4-3 | LP1560-4-4 | LP1560-4-5 | LP1560-4-6 |
| 5" / 125 mm 13.1 x 4.1 mm | | LP1560-5-00 | LP1560-5-0 | LP1560-5-1 | LP1560-5-2 | LP1560-5-3 | LP1560-5-4 | LP1560-5-5 | LP1560-5-6 |
| 6" / 150 mm 15.1 x 4.7 mm | LP1560-6-000 | LP1560-6-00 | LP1560-6-0 | LP1560-6-1 | LP1560-6-2 | LP1560-6-3 | LP1560-6-4 | LP1560-6-5 | LP1560-6-6 |
| 7" / 175 mm 18.4 x 5.2 mm | | | LP1560-7-0 | | LP1560-7-2 | LP1560-7-3 | | | |
| 8" / 200 mm 21.1 x 6.3 mm | LP1560-8-000 | LP1560-8-00 | LP1560-8-0 | LP1560-8-1 | LP1560-8-2 | LP1560-8-3 | LP1560-8-4 | | |
| 10" / 250 mm 25.5 x 7.5 mm | LP1560-10-000 | LP1560-10-00 | LP1560-10-0 | LP1560-10-1 | LP1560-10-2 | | | | |
| 12" / 300 mm 27.4 x 8.5 mm | | LP1560-12-00 | LP1560-12-0 | | | | | | |

LP

LP1566

Halbrund schlank, Ringfeile
Halfround slim or ring file
Mironde effilée pour bagues
Mediacaña delgada para anillos



| | | | | | | | | | |
|-------------------------------|--------------|--------------|-------------|------------|-------------|------------|------------|--|------------|
| 6" / 150 mm 12.7 x 3.5 mm | | LP1566-6-00 | LP1566-6-0 | LP1566-6-1 | LP1566-6-2 | LP1566-6-3 | LP1566-6-4 | | LP1566-6-6 |
| 8" / 200 mm 15.5 x 4.5 mm | LP1566-8-000 | | LP1566-8-0 | LP1566-8-1 | | | | | |
| 10" / 250 mm 15.5 x 4.5 mm | | LP1566-10-00 | LP1566-10-0 | | LP1566-10-2 | | | | |

LP1567

Halbrund sehr schlank
Halfround extra narrow
Mironde très effilée
Mediacaña muy delgada



| | | | | | | | | | |
|-----------------------------|--|--|------------|--|------------|--|------------|--|--|
| 6" / 150 mm 9.8 x 2.8 mm | | | LP1567-6-0 | | LP1567-6-2 | | LP1567-6-4 | | |
|-----------------------------|--|--|------------|--|------------|--|------------|--|--|

LP1545

Halbrund für Juweliere
Halfround for jewellers
Mironde pour bijoutiers
Mediacaña para joyeros



| | | | | | | | | | |
|------------------------------|--|--|--------------|--|--|--|--|--|--|
| 4.5" / 115 mm 12 x 3.3 mm | | | LP1545-4.5-0 | | | | | | |
|------------------------------|--|--|--------------|--|--|--|--|--|--|



Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

L = "/mm
A x B mm

LP1540

Halbrund doppelt
Vul-Crylic file
Mironde double
Mediacaña doble



| | |
|------------------------------|----------|
| 6" / 150 mm 13.5 x 4 mm | LP1540-6 |
| 7" / 175 mm 12.5 x 3.5 mm | LP1540-7 |
| 8" / 200 mm 12.5 x 3.5 mm | LP1540-8 |

LP

L = "/mm
A x B mm

Hieb / Cut / Taille / Picado
00 **0**

1 **2** **3** **4** **5** **6**

LP1960

Vogelzunge
Crossing
Feuille de sauge
Almendra



| | | | | | | | | |
|-------------------------------|--------------|--------------|------------|--------------|-------------|--------------|--------------|--------------|
| 3.5" / 90 mm 10.2 x 2.9 mm | | LP1960-3.5-0 | | LP1960-3.5-2 | | LP1960-3.5-4 | LP1960-3.5-5 | LP1960-3.5-6 |
| 4" / 100 mm 11.9 x 3.6 mm | | LP1960-4-0 | | LP1960-4-2 | | LP1960-4-4 | | |
| 5" / 125 mm 13.5 x 4.1 mm | | LP1960-5-0 | | LP1960-5-2 | LP1960-5-3 | | | |
| 6" / 150 mm 14.8 x 5 mm | LP1960-6-00 | LP1960-6-0 | LP1960-6-1 | LP1960-6-2 | LP1960-6-3 | LP1960-6-4 | | LP1960-6-6 |
| 8" / 200 mm 21.3 x 6.3 mm | LP1960-8-00 | LP1960-8-0 | LP1960-8-1 | LP1960-8-2 | LP1960-8-3 | | | |
| 10" / 250 mm 25.3 x 7.8 mm | LP1960-10-00 | LP1960-10-0 | | LP1960-10-2 | LP1960-10-3 | | | |

LP1730

Spitzkugel
Pippin
Pippin
Oval con borde redondo



| | | | | | | | | |
|------------------------------|--|--------------|--|--------------|--|------------|--|--|
| 3.5" / 90 mm 6.3 x 2.4 mm | | LP1730-3.5-0 | | LP1730-3.5-2 | | | | |
| 4" / 100 mm 7 x 3 mm | | | | LP1730-4-2 | | | | |
| 6" / 150 mm 10 x 4.4 mm | | LP1730-6-0 | | LP1730-6-2 | | LP1730-6-4 | | |
| 8" / 200 mm 11.5 x 4.4 mm | | LP1730-8-0 | | LP1730-8-2 | | | | |

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm Ø mm | Hieb / Cut / Taille / Picado 00 | 0 | 1 | 2 | 3 | 4 | 6 |
|------------------|------------------------------------|---|---|---|---|---|---|
|------------------|------------------------------------|---|---|---|---|---|---|

LP1660

Rund normal spitz
Round pointed
Ronde ordinaire pointue
Redonda normal aguda



| | | | | | | | |
|-------------------------|--|------------|------------|-------------|------------|------------|------------|
| 3" / 75 mm 3 mm | | LP1660-3-0 | LP1660-3-1 | LP1660-3-2 | | | |
| 4" / 100 mm 3.85 mm | | | LP1660-4-1 | LP1660-4-2 | LP1660-4-3 | LP1660-4-4 | |
| 5" / 125 mm 4.85 mm | | | LP1660-5-1 | LP1660-5-2 | LP1660-5-3 | | |
| 6" / 150 mm 5.85 mm | | | LP1660-6-1 | LP1660-6-2 | LP1660-6-3 | LP1660-6-4 | LP1660-6-6 |
| 8" / 200 mm 7.8 mm | | | LP1660-8-1 | LP1660-8-2 | LP1660-8-3 | LP1660-8-4 | |
| 10" / 250 mm 9.45 mm | | | | LP1660-10-2 | | | |

LP

LP1670

Rund normal stumpf
Round blunt
Ronde ordinaire mottue
Redonda normal punta plana



| | | | | | | | |
|-------------------------|--------------|-------------|-------------|--|--|--|--|
| 4" / 100 mm 3.85 mm | LP1670-4-00 | LP1670-4-0 | | | | | |
| 5" / 125 mm 4.75 mm | LP1670-5-00 | LP1670-5-0 | | | | | |
| 6" / 150 mm 5.75 mm | LP1670-6-00 | LP1670-6-0 | | | | | |
| 8" / 200 mm 7.5 mm | LP1670-8-00 | LP1670-8-0 | | | | | |
| 10" / 250 mm 9.4 mm | LP1670-10-00 | LP1670-10-0 | LP1670-10-1 | | | | |
| 12" / 300 mm 11.5 mm | LP1670-12-00 | LP1670-12-0 | | | | | |

LP1666

Rund dünn spitz
Round slim pointed
Ronde effilée pointue
Redonda delgada y aguda



| | | | | | | | |
|------------------------|--|--|------------|------------|--|------------|--|
| 3" / 75 mm 2 mm | | | | LP1666-3-2 | | LP1666-3-4 | |
| 4" / 100 mm 3.1 mm | | | | LP1666-4-2 | | | |
| 6" / 150 mm 4.35 mm | | | LP1666-6-1 | LP1666-6-2 | | | |

LP1676

Rund dünn stumpf
Round slim blunt
Ronde effilée mottue
Redonda delgada con punta plana



| | | | | | | | |
|------------------------|--|------------|--|--|--|--|--|
| 4" / 100 mm 3.1 mm | | LP1676-4-0 | | | | | |
| 6" / 150 mm 4.35 mm | | LP1676-6-0 | | | | | |

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm Ø mm | Hieb / Cut / Taille / Picado | 0 | 1 | 2 | 4 | 5 |
|------------------|------------------------------|---|---|---|---|---|
|------------------|------------------------------|---|---|---|---|---|

LP1667

Rund sehr dünn
Round extra slim
Ronde très effilée
Redonda muy delgada



| | | | | | | |
|-------------|--|------------|------------|------------|------------|--|
| 3" / 75 mm | | | LP1667-3-1 | LP1667-3-2 | | |
| 1.5 mm | | | | | | |
| 4" / 100 mm | | | | LP1667-4-2 | LP1667-4-4 | |
| 2.4 mm | | | | | | |
| 6" / 150 mm | | LP1667-6-0 | | LP1667-6-2 | | |
| 3.9 mm | | | | | | |

LP

LP1669

Rund zylindrisch
Round parallel
Ronde cylindrique
Redonda paralela



| | | | | | | |
|-------------|-----------------|----------------|--|----------------|--|--|
| 4" / 100 mm | | LP1669-4-0-1.6 | | LP1669-4-2-1.6 | | |
| 1.6 mm | | | | | | |
| 4" / 100 mm | | LP1669-4-0-3 | | LP1669-4-2-3 | | |
| 3 mm | | | | | | |
| 6" / 150 mm | LP1669-6-00-2.4 | LP1669-6-0-2.4 | | LP1669-6-2-2.4 | | |
| 2.4 mm | | | | | | |
| 6" / 150 mm | | LP1669-6-0-2.8 | | | | |
| 2.8 mm | | | | | | |
| 6" / 100 mm | | LP1669-6-0-3.2 | | LP1669-6-2-3.2 | | |
| 3.2 mm | | | | | | |
| 6" / 150 mm | LP1669-6-00-4 | LP1669-6-0-4 | | LP1669-6-2-4 | | |
| 4 mm | | | | | | |
| 6" / 150 mm | LP1669-6-00-4.8 | LP1669-6-0-4.8 | | LP1669-6-2-4.8 | | |
| 4.8 mm | | | | | | |

LP1680

Rundfeile für Zapfenlöcher
Round seconds hole
Ronde à étirer
Redonda para taladros de pivotes



| | | | | | | |
|--------------|--|--|--|--------------|--------------|------------|
| 1.5" / 38 mm | | | | LP1680-1.5-2 | LP1680-1.5-4 | |
| 1 mm | | | | | | |
| 2" / 50 mm | | | | LP1680-2-2 | LP1680-2-4 | LP1680-2-5 |
| 1 mm | | | | | | |
| 2.5" / 63 mm | | | | LP1680-2.5-2 | LP1680-2.5-4 | |
| 1.6 mm | | | | | | |

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm | Hieb / Cut / Taille / Picado | | | | | | | |
|----------|------------------------------|----|---|---|---|---|---|---|
| A mm | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LP1360

Dreikant normal
Three square
Triangulaire ordinaire
Triangular normal



| | | | | | | | | |
|-------------------------|---------------|--------------|-------------|-------------|-------------|------------|------------|------------|
| 4" / 100 mm 7.5 mm | | LP1360-4-00 | LP1360-4-0 | LP1360-4-1 | LP1360-4-2 | | LP1360-4-4 | |
| 5" / 125 mm 8.3 mm | | LP1360-5-00 | LP1360-5-0 | LP1360-5-1 | LP1360-5-2 | LP1360-5-3 | LP1360-5-4 | |
| 6" / 150 mm 10.3 mm | LP1360-6-000 | LP1360-6-00 | LP1360-6-0 | LP1360-6-1 | LP1360-6-2 | LP1360-6-3 | LP1360-6-4 | LP1360-6-6 |
| 7" / 175 mm 12.2 mm | | | LP1360-7-0 | | LP1360-7-2 | | LP1360-7-4 | |
| 8" / 200 mm 14.2 mm | LP1360-8-000 | LP1360-8-00 | LP1360-8-0 | LP1360-8-1 | LP1360-8-2 | LP1360-8-3 | LP1360-8-4 | |
| 10" / 250 mm 17.2 mm | LP1360-10-000 | LP1360-10-00 | LP1360-10-0 | LP1360-10-1 | LP1360-10-2 | | | |
| 12" / 300 mm 20.2 mm | | LP1360-12-00 | LP1360-12-0 | | | | | |

LP

LP1366

Dreikant schmal
Three square narrow
Triangulaire effilée
Triangular delgada



| | | | | | | | | |
|------------------------|--------------|------------|------------|------------|------------|--|--|--|
| 4" / 100 mm 5.8 mm | | LP1366-4-0 | | LP1366-4-2 | | | | |
| 5" / 125 mm 6.7 mm | | LP1366-5-0 | | LP1366-5-2 | | | | |
| 6" / 150 mm 8.3 mm | LP1366-6-00 | LP1366-6-0 | LP1366-6-1 | LP1366-6-2 | LP1366-6-3 | | | |
| 8" / 200 mm 10.3 mm | LP1366-8-000 | | LP1366-8-0 | LP1366-8-1 | LP1366-8-2 | | | |

LP1367

Dreikant sehr schmal
Three square extra narrow
Triangulaire très effilée
Triangular muy delgada



| | | | | | | | | |
|-----------------------|--|-------------|------------|------------|------------|--|--|--|
| 4" / 100 mm 4.8 mm | | | LP1367-4-0 | | LP1367-4-2 | | | |
| 6" / 150 mm 7.5 mm | | LP1367-6-00 | LP1367-6-0 | LP1367-6-1 | LP1367-6-2 | | | |

LP1464

Viereck spitz
Square pointed
Carrée pointue
Cuadrada aguda



| | | | | | | | | |
|------------------------|--|--|--------------|------------|--------------|------------|------------|--|
| 3.5" / 90 mm 2.5 mm | | | LP1464-3.5-0 | | LP1464-3.5-2 | | | |
| 4" / 100 mm 3.6 mm | | | | LP1464-4-1 | LP1464-4-2 | | LP1464-4-4 | |
| 5" / 125 mm 4.5 mm | | | | LP1464-5-1 | LP1464-5-2 | LP1464-5-3 | | |
| 6" / 150 mm 5.5 mm | | | | LP1464-6-1 | LP1464-6-2 | LP1464-6-3 | LP1464-6-4 | |
| 8" / 200 mm 7.5 mm | | | | LP1464-8-1 | LP1464-8-2 | | LP1464-8-4 | |



Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L ="/mm A mm | Hieb / Cut / Taille / Picado | | | | | | | |
|-----------------|------------------------------|----|---|---|---|---|---|---|
| | 000 | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LP1474

Vierkant stumpf
Square blunt
Carrée mottue
Cuadrada punta plana



| | | | | | | | | |
|-------------------------|---------------|--------------|-------------|-------------|-------------|--|--|--|
| 4" / 100 mm 3.6 mm | | LP1474-4-00 | LP1474-4-0 | | | | | |
| 5" / 125 mm 4.5 mm | | LP1474-5-00 | LP1474-5-0 | | | | | |
| 6" / 150 mm 5.5 mm | | LP1474-6-00 | LP1474-6-0 | | | | | |
| 8" / 200 mm 7.5 mm | LP1474-8-000 | LP1474-8-00 | LP1474-8-0 | | | | | |
| 10" / 250 mm 9.4 mm | LP1474-10-000 | LP1474-10-00 | LP1474-10-0 | LP1474-10-1 | LP1474-10-2 | | | |
| 12" / 300 mm 11.4 mm | | LP1474-12-00 | LP1474-12-0 | | | | | |

LP

LP1480

Vierkantfeile f. Zapfenlöcher
Square seconds hole
Carrée à étirer
Cuadrada para taladros de pivotes



| | | | | | | | | |
|------------------------|--|--|--|--|--|------------|--------------|------------|
| 2" / 50 mm 1 mm | | | | | | LP1480-2-3 | LP1480-2-4 | LP1480-2-6 |
| 2.5" / 63 mm 1.5 mm | | | | | | | LP1480-2.5-4 | |

LP1060

Barett
Barrette
Barrette
Barrete



| | | | | | | | | |
|------------------------------|--|-------------|------------|------------|------------|------------|------------|--|
| 3" / 75 mm 9 x 2 mm | | | LP1060-3-0 | | LP1060-3-2 | | LP1060-3-4 | |
| 4" / 100 mm 12.4 x 2.6 mm | | LP1060-4-00 | LP1060-4-0 | LP1060-4-1 | LP1060-4-2 | LP1060-4-3 | LP1060-4-4 | |
| 5" / 125 mm 14 x 3 mm | | LP1060-5-00 | LP1060-5-0 | LP1060-5-1 | LP1060-5-2 | LP1060-5-3 | | |
| 6" / 150 mm 15.5 x 3.5 mm | | LP1060-6-00 | LP1060-6-0 | LP1060-6-1 | LP1060-6-2 | LP1060-6-3 | LP1060-6-4 | |
| 8" / 200 mm 21.5 x 5 mm | | LP1060-8-00 | LP1060-8-0 | LP1060-8-1 | LP1060-8-2 | LP1060-8-3 | | |

LP1061


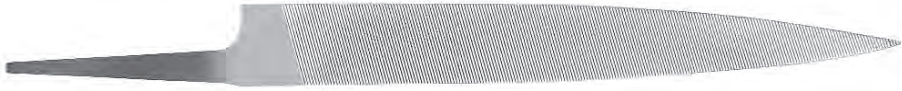
Barett spezial
Barrette special
Barrette spéciale
Barrete especial





| | | | | | | | | |
|-----------------------------|--|--|--------------|------------|--------------|------------|--------------|------------|
| 3" / 75 mm 9 x 1.8 mm | | | | LP1061-3-1 | | LP1061-3-3 | LP1061-3-4 | LP1061-3-6 |
| 3.5" / 90 mm 10.5 x 2 mm | | | LP1061-3.5-0 | | LP1061-3.5-2 | | LP1061-3.5-4 | |



Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | | | | | | | | | |
|---|--|---|---|---|---|---|-------------|------------|------------|------------|------------|------------|
| | 00 | 0 | 1 | 2 | 3 | 4 | | | | | | |
| LP1760 Messer <i>Knife</i> Couteau <i>Cuchillo</i> |   | | | | | | | | | | | |
| 4" / 100 mm 12.4 x 2.8 mm | | | | | | | LP1760-4-00 | LP1760-4-0 | LP1760-4-1 | LP1760-4-2 | LP1760-4-3 | LP1760-4-4 |
| 6" / 150 mm 17.9 x 3.5 mm | | | | | | | LP1760-6-00 | LP1760-6-0 | LP1760-6-1 | LP1760-6-2 | LP1760-6-3 | LP1760-6-4 |
| 8" / 200 mm 22 x 4.2 mm | | | | | | | LP1760-8-00 | LP1760-8-0 | LP1760-8-1 | LP1760-8-2 | | |
| | | | | | | | | | | | | |

| L = "/mm B mm | Hieb / Cut / Taille / Picado | | | | | | | |
|---|--|---|---|---|-----------------|----------------|------------|------------|
| | 00 | 0 | 1 | 2 | | | | |
| LP1040 Bibeaufeile <i>Slotting</i> Joindrese <i>Lima bibeau para armeros</i> |   | | | | | | | |
| 6" / 150 mm B = 5.5 mm | | | | | LP1040-6-00 | LP1040-6-0 | LP1040-6-1 | LP1040-6-2 |
| 8" / 200 mm B = 7.5 mm | | | | | LP1040-8-00 | LP1040-8-0 | | LP1040-8-2 |
| 10" / 250 mm B = 9.5 mm | | | | | LP1040-10-00-10 | LP1040-10-0-10 | | |
| 10" / 250 mm B = 16.5 mm | | | | | LP1040-10-00-16 | LP1040-10-0-16 | | |

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | | |
|--|--|---|------------|------------|
| | 1 | 2 | | |
| LP1240 Gabelfeile <i>Fork</i> Aux fourchettes <i>Plana para ancoras</i> |   | | | |
| 7" / 175 mm 19.6 x 1.7 mm | | | LP1240-7-1 | LP1240-7-2 |
| | | | | |

| A mm | Dicke / Thickness / Epaisseur / Espesor mm | | | | | | | | | | | | | |
|---|--|---------|---------|---------|----------|----------|----------|-------------|------------|------------|------------|------------|-------------|------------|
| | 00 = 1 | 1 = 0.8 | 2 = 0.7 | 3 = 0.6 | 4 = 0.55 | 6 = 0.45 | 8 = 0.35 | | | | | | | |
| LP1840 Einstreichfeile mit Angel <i>Screwhead with tang</i> A fendre à queue <i>Lima de ranurar con espiga</i> |   | | | | | | | | | | | | | |
| 2.5" / 63 mm 8 mm | | | | | | | | | | | | | LP1840-25-6 | |
| 3" / 75 mm 9 mm | | | | | | | | | LP1840-3-1 | LP1840-3-2 | LP1840-3-3 | LP1840-3-4 | LP1840-3-6 | LP1840-3-8 |
| 4" / 100 mm 11 mm | | | | | | | | LP1840-4-00 | LP1840-4-1 | LP1840-4-2 | LP1840-4-3 | LP1840-4-4 | | |
| | | | | | | | | | | | | | | |

Ab Nummer 6 nur Kante gehauen. / As from number 6 edge cut only. / Dès numéro 6, filet seul taillé. / Desde Nr. 6 picado sobre el filo unidamente.

Präzisionsfeilen
Precision files

Limes de précision
Limas de precisión

| L = "/mm | Dicke / Thickness / Epaisseur / Espesor mm | | | | | |
|----------|--|---------|----------|----------|-----------|-----------|
| A mm | 2 = 0.7 | 3 = 0.6 | 4 = 0.55 | 5* = 0.5 | 6* = 0.45 | 8* = 0.35 |

LP1850

Einstreichfeile ohne Angel
Screwhead without tang
A fendre sans queue



Lima de ranurar sin espiga
3" / 75 mm

| | | | | | |
|------------|------------|------------|------------|------------|------------|
| LP1850-3-2 | LP1850-3-3 | LP1850-3-4 | LP1850-3-5 | LP1850-3-6 | LP1850-3-8 |
|------------|------------|------------|------------|------------|------------|

9 mm

*Ab Nummer 5 nur Kante gehauen. / *As from number 5 edge cut only.* / Dès numéro 5, filet seul taillé. / Desde Nr. 5 picado sobre el filo unicamente.

LP

L mm
A x B mm

LP3211

Zapfenfeile Schräge links
Double ended pivot left
Pivot double pente à gauche
Pivotes inclin. izqui



180 mm
6 x 3 mm

LP3211

LP3212

Zapfenfeilen Schräge rechts
Double ended pivot right
Pivot double pente à droite
Pivotes inclin. derecha



180 mm
6 x 3 mm

LP3212

LP3215

Schräge links für Uhrenmacher
Left angle pivot
Pivot double à gauche
Inclin. izqui para pulseras



180 mm
4.5 x 2 mm

LP3215

LP3216

Schräge rechts für Uhrenmacher
Right angle pivot
Pivot double à droite
Inclin. derecha pulseras



180 mm
4.5 x 2 mm

LP3216

Präzisionsfeilen mit Angel
Precision files with tang

Limes de précision à queue
Limas de precisión con espiga

| L = "/mm | Hieb / Cut / Taille / Picado | |
|----------|------------------------------|---|
| A x B mm | 0 | 2 |

LP1860

Schraubenkopffeile f. Uhrenmacher
Screwhead clock
A fendre pour pendules
De ranurar tornillos de pendulo



6" / 150 mm
15 x 3.3 mm

LP1860-6-0

LP1860-6-2

LP1312

Flachfeile für Aluminium
Flat for aluminium
Plate aluminium
Plana para aluminio



6" / 150 mm
15.5 x 3.5 mm

LP1312-6-0

8" / 200 mm

LP1312-8-0

21.3 x 4.8 mm

LP1312-10-0

10" / 250 mm

25.3 x 6.3 mm

LP1312-12-0

12" / 300 mm

29.3 x 7.8 mm

LP1712

Flachfeile für Bakelit
Hand for plastics
Plate pour bakélite
Plana para bakelita



6" / 150 mm
15.5 x 3.5 mm

LP1712-6-2

LP1352

Halbrundfeile für Aluminium
Halfround for aluminium
Mironde aluminium
Mediacaña para aluminio



6" / 150 mm

LP1352-6-0

17.5 x 5 mm

8" / 200 mm

LP1352-8-0

19.4 x 5.7 mm

10" / 250 mm

LP1352-10-0

24 x 7.5 mm

LP1752

Halbrundfeile für Bakelit
Halfround for plastics
Mironde pour bakélite
Mediacaña para bakelita



6" / 150 mm

LP1752-6-2

17.5 x 5 mm

LP1095

Satz zu 37 Feilen für Mechaniker
Set of 37 files for mechanical engineers
Trousse de 37 limes pour mécaniciens
Estuche de 37 limas para mecánicos



LP

Raumfeilen
Diesinkers

Limes aux poinçons
Limas para punzones







| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | |
|---|------------------------------|--------------|
| | 0 | 2 |
| LP1284 Raumfeilen flach halbspitz <i>Diesinker flat</i> Plate pointue poinçons <i>Limas punzones plana de punta</i> 3.5" / 90 mm 5.3 x 2.2 mm | | |
| | LP1284-3.5-0 | LP1284-3.5-2 |
| LP1292 Raumfeilen flachspitz <i>Diesinker warding</i> Entrée poinçons <i>Limas punzones plana de punta</i> 3.5" / 90 mm 6 x 1.7 mm 6" / 150 mm 10.5 x 2.4 mm | | |
| | LP1292-3.5-0 | LP1292-3.5-2 |
| | LP1292-6-0 | LP1292-6-2 |
| LP1390 Raumfeilen dreikant <i>Diesinker three square</i> Triangulaire poinçons <i>Limas punzones triangular</i> 3.5" / 90 mm 4.8 mm | | |
| | LP1390-3.5-0 | LP1390-3.5-2 |
| LP1590 Raumfeilen halbrund <i>Diesinker halfround</i> Mironde poinçons <i>Limas punzones mediacaña</i> 3.5" / 90 mm 7.2 x 2.4 mm | | |
| | LP1590-3.5-0 | LP1590-3.5-2 |
| LP1690 Raumfeilen rund <i>Diesinker round</i> Ronde poinçons <i>Limas punzones redonda</i> 3.5" / 90 mm 3.05 mm | | |
| | LP1690-3.5-0 | LP1690-3.5-2 |
| LP1790 Raumfeilen Messer <i>Diesinker knife</i> Couteau poinçons <i>Limas punzones cuchillo</i> 3.5" / 90 mm 6 x 2 mm | | |
| | LP1790-3.5-0 | LP1790-3.5-2 |

LP



Raumfeilen
Diesinkers

Limes aux poinçons
Limas para punzones

| L = "/mm A x B mm | Hieb / Cut / Taille / Picado | | |
|--|---|--|--------------|
| | 00 | 0 | 2 |
| LP1890 | | | |
| Raumfeilen Schwert <i>Diesinker lozenge</i> Losange poinçons <i>Limas punzones romboide</i> |  |  | |
| 3.5" / 90 mm | | LP1890-3.5-0 | LP1890-3.5-2 |
| 5.2 x 4.4 mm | | | |
| 6" / 150 mm | | LP1890-6-0 | LP1890-6-2 |
| 8.2 x 6.6 mm | | | |
| LP1880 | | | |
| Raumfeilen Gerstenkorn <i>Diesinker auriform</i> Grain d'orge poinçons <i>Grano de cebada</i> |  |  | |
| 3.5" / 90 mm | | LP1880-3.5-0 | LP1880-3.5-2 |
| 6.2 x 2.8 mm | | | |
| 6" / 150 mm | | | LP1880-6-2 |
| 9.5 x 3.8 mm | | | |
| LP1990 | | | |
| Raumfeilen oval <i>Diesinker oval</i> Ovale poinçons <i>Limas punzones oval</i> |  |  | |
| 3.5" / 90 mm | | LP1990-3,5-0 | LP1990-3,5-2 |
| 6.2 x 2.8 mm | | | |
| 6" / 150 mm | LP1990-6-00 | LP1990-6-0 | LP1990-6-2 |
| 8.6 x 4.4 mm | | | |

LP

Limes pour chaînes de tronçonneuse

Limes rondes pour chaînes de tronçonneuse, doux (DX)

| | Ø = 1/8" Ø = 3.20 mm <i>L = 8" / 200 mm</i> | Ø = 9/64" Ø = 3.60 mm <i>L = 8" / 200 mm</i> | Ø = 5/32" Ø = 4.00 mm <i>L = 8" / 200 mm</i> | Ø = 11/64" Ø = 4.50 mm <i>L = 8" / 200 mm</i> | Ø = 3/16" Ø = 4.80 mm <i>L = 8" / 200 mm</i> | Ø = 13/64" Ø = 5.20 mm <i>L = 8" / 200 mm</i> | Ø = 7/32" Ø = 5.50 mm <i>L = 8" / 200 mm</i> |
|--------------------|---|--|--|---|--|---|--|
| <i>Boîte 12</i> | LC10000-03-18 | LC10000-03-964 | LC10000-03-532 | LC10000-03-45 | LC10000-03-316 | LC10000-03-1364 | LC10000-03-732 |
| <i>Boîte 6</i> | LC10001-03-18 | LC10001-03-964 | LC10001-03-532 | LC10001-03-45 | LC10001-03-316 | LC10001-03-1364 | LC10001-03-732 |
| <i>Boîte 4 x 3</i> | LC10003-03-18 | LC10003-03-964 | LC10003-03-532 | LC10003-03-45 | LC10003-03-316 | LC10003-03-1364 | LC10003-03-732 |
| <i>12 x étui 3</i> | LC10004-03-18 | LC10004-03-964 | LC10004-03-532 | LC10004-03-45 | LC10004-03-316 | LC10004-03-1364 | LC10004-03-732 |
| <i>Display 36</i> | LC10005-03-18 | LC10005-03-964 | LC10005-03-532 | LC10005-03-45 | LC10005-03-316 | LC10005-03-1364 | LC10005-03-732 |
| <i>Display 60</i> | LC10006-03-18 | LC10006-03-964 | LC10006-03-532 | LC10006-03-45 | LC10006-03-316 | LC10006-03-1364 | LC10006-03-732 |



LP

| | Ø = 15/64" Ø = 5.95 mm <i>L = 8" / 200 mm</i> | Ø = 1/4" Ø = 6.35 mm <i>L = 8" / 200 mm</i> | | | | | |
|--------------------|---|---|--|--|--|--|--|
| <i>Boîte 12</i> | LC10000-03-1564 | LC10000-03-14 | | | | | |
| <i>Boîte 6</i> | LC10001-03-1564 | LC10001-03-14 | | | | | |
| <i>Boîte 4 x 3</i> | LC10003-03-1564 | | | | | | |
| <i>12 x étui 3</i> | LC10004-03-1564 | | | | | | |
| <i>Display 36</i> | LC10005-03-1564 | | | | | | |
| <i>Display 60</i> | LC10006-03-1564 | LC10006-03-14 | | | | | |

Limes rondes pour chaînes de tronçonneuse, mi-doux (MDX)

| | Ø = 5/32" Ø = 4.00 mm <i>L = 8" / 200 mm</i> | Ø = 3/16" Ø = 4.80 mm <i>L = 8" / 200 mm</i> | Ø = 13/64" Ø = 5.20 mm <i>L = 8" / 200 mm</i> | Ø = 7/32" Ø = 5.50 mm <i>L = 8" / 200 mm</i> | Ø = 1/4" Ø = 6.35 mm <i>L = 8" / 200 mm</i> | Ø = 9/32" Ø = 7.10 mm <i>L = 8" / 200 mm</i> | Ø = 5/16" Ø = 7.90 mm <i>L = 8" / 200 mm</i> |
|--------------------|--|--|---|--|---|--|--|
| <i>Boîte 12</i> | LC10000-02-532 | LC10000-02-316 | LC10000-02-1364 | LC10000-02-732 | LC10000-02-14 | | |
| <i>Boîte 6</i> | LC10001-02-532 | LC10001-02-316 | LC10001-02-1364 | LC10001-02-732 | LC10001-02-14 | LC10001-02-932 | LC10001-02-516 |
| <i>Boîte 4 x 3</i> | LC10003-02-532 | LC10003-02-316 | LC10003-02-1364 | LC10003-02-732 | | | |
| <i>12 x étui 3</i> | LC10004-02-532 | LC10004-02-316 | LC10004-02-1364 | LC10004-02-732 | | | |
| <i>Display 36</i> | LC10005-02-532 | LC10005-02-316 | LC10005-02-1364 | LC10005-02-732 | | | |
| <i>Display 60</i> | LC10006-02-532 | LC10006-02-316 | LC10006-02-1364 | LC10006-02-732 | LC10006-02-14 | | |



Limes pour chaînes de tronçonneuse

Limes plates pour chaînes de tronçonneuse, mi-doux

Bords non taillés. Pour ajuster les limiteurs de hauteur



| | | | | | | | | | |
|----------|---|---|--|--|--|--|--|--|--|
| | A x B = 14.2 x 2.3 mm <i>L = 6" / 150 mm</i> | A x B = 20.2 x 3.2 mm <i>L = 8" / 200 mm</i> | | | | | | | |
| Boîte 12 | LC10020-2251-6 | LC10020-2251-8 | | | | | | | |



Lime plate pour chaînes de tronçonneuse, mi-doux

2 bords taillés. Pour ajuster les limiteurs de hauteur



| | | | | | | | | | |
|----------|---|--|--|--|--|--|--|--|--|
| | A x B = 14.2 x 2.3 mm <i>L = 6" / 150 mm</i> | | | | | | | | |
| Boîte 12 | LC10020-2260-6 | | | | | | | | |



LP

Lime Chisel bit, forme Vallorbe, mi-doux

Pour l'affûtage de tous les types de gouges



| | | | | | | | | | |
|----------|---|--|--|--|--|--|--|--|--|
| | A x B = 12.0 x 2.3 mm <i>L = 7" / 175 mm</i> | | | | | | | | |
| Boîte 12 | LC10020-2270-7 | | | | | | | | |



Lime Chisel bit double, mi-doux

Pour l'affûtage de tous les types de gouges



| | | | | | | | | | |
|------------------------------------|---|--|--|--|--|--|--|--|--|
| | A x B = 12.5 x 3.2 mm <i>L = 8" / 200 mm</i> | | | | | | | | |
| Box 12 Boîte 12 Schachtel 12 | LC10020-2271-8 | | | | | | | | |



Limes pour chaînes de tronçonneuse

Lime Chisel bit, triangulaire, mi-doux



| | | | | | | | | | |
|----------|----------------------------------|--|--|--|--|--|--|--|--|
| | A = 4.5 mm L = 8" / 200 mm | | | | | | | | |
| Boîte 12 | LC10020-2276-8 | | | | | | | | |



Handy file - LX5530

1 côté bâtarde, 1 côté simple taille. Bords non taillés.



| | | | | | | | | | |
|----|---|--|--|--|--|--|--|--|--|
| LP | A x B = 26.0 x 5.0 mm L = 8" / 200 mm | A x B = 30.6 x 5.6 mm L = 10" / 250 mm | | | | | | | |
| | LX5530-8 | LX5530-10 | | | | | | | |



Emballage: 1 douzaine par boîte

Nadelfeilen: Inhaltsverzeichnis

Needle files: Index

Limes aiguilles: Table des matières

Limas aguja: Indice

Seite / Page
Page / Página

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| 2 | Hinweise zum Gebrauch des Katalogs <i>For the good use of this catalog</i> | Pour le bon usage du catalogue <i>Para el uso idoneo del catalogo</i> |
| 4 | Hiebskala <i>Scale of cuts</i> | Echelle de tailles <i>Escala de picados</i> |
| 31 | Nadelfeilen: Wichtigste Massangaben <i>Needle files: Main dimensions</i> | Limes aiguilles: Principales dimensions <i>Limas aguja: Principales medidas</i> |

| | Artikelbeschreibung: Product description: | Description des articles: Descripción de los artículos: |
|----|--|--|
| 32 | LA – Nadelfeilen mit rundem geriffeltem Stahlheft <i>LA – Needle files with round knurled handle</i> | LA – Limes aiguilles avec manche rond moleté <i>LA – Limas aguja de mango redondo moleteado</i> |
| 39 | RA – Nadelraspeln <i>RA – Needle rasps</i> | RA – Limes aiguilles râpes <i>RA – Limas aguja escofina</i> |
| 41 | LE – Hemmungsfeilen mit viereckigem Stahlheft <i>LE – Escapement files with square handle</i> | LE – Limes aux échappements à manche carré <i>LE – Limas de escape con mango cuadrado</i> |
| 44 | LH – «Habilis»-Feilen und -Raspeln <i>LH – «Habilis» files and rasps</i> | LH – Limes et râpes «Habilis» <i>LH – Limas y limas escofina «Habilis»</i> |

Haupteigenschaften Main characteristics

Caractéristiques principales Caracteristicas principales

Die Nadel- und die Hemmungsfeilen :

Die echten Schweizer Feilen, «Präzision und Qualität».

Das vollständigste Angebot auf dem Markt :

- Nadelfeilen: 17 Formen, 5 Längen, Hiebe von 20 bis 84 Zähne/cm
- Hemmungsfeilen: 20 Formen, 4 Längen, Hiebe von 20 bis 116 Zähne/cm
- Scharfe Kanten, gehauene Spitzen
- Aus Chromstahl gefertigt
- Härte 66 HRC
- Zertifiziertes Qualitätssystem ISO 9001 / EN 29001

The needle files and the escapement files :

The genuine Swiss Files «Precision and Quality».

This is the most complete range of these types of files available on the market :

- Needle Files: 17 shapes, 5 lengths, cuts from 20 to 84 teeth/cm
- Escapement Files: 20 shapes, 4 lengths, cuts from 20 to 116 teeth/cm
- Sharp edges, fine pointes
- Made from chrome steel
- Hardness 66 HRC
- Certified quality management as to ISO 9001 / EN 29001

LA

La lime aiguille et la lime aux échappements:

Les véritables limes suisses, «Précision et Qualité».

La gamme la plus complète du marché :

- Limes aiguilles: 17 formes, 5 longueurs, tailles de 20 à 84 dents/cm
- Limes aux échappements: 20 formes, 4 longueurs, tailles de 20 à 116 dents/cm
- Des angles vifs, des extrémités pointues et taillées
- Fabriquées à partir d'acier au chrome
- Dureté 66 HRC
- Système qualité certifié ISO 9001 / EN 29001

Lima tipo aguja y lima de escape:

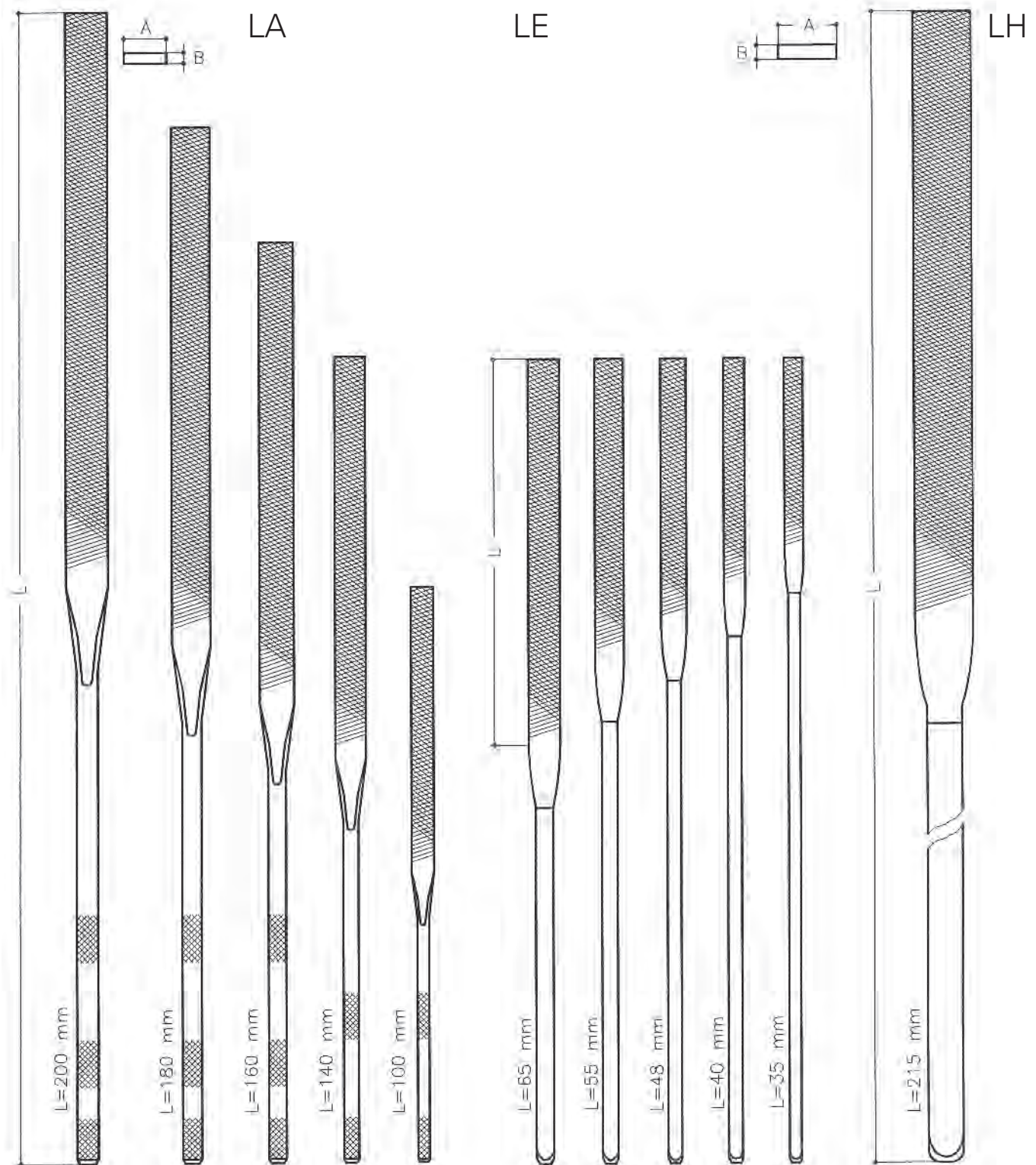
Auténticas limas suizas que reúnen «precisión y calidad».

El surtido más completo en el mercado :

- Limas tipo aguja: 17 formas, 5 largos, picado 20 a 84 dientes/cm
- Limas de escape: 20 formas, 4 largos, grado de corte de 20 a 116 dientes/cm
- Cantos afilados, extremos puntiagudos
- Fabricadas de acero al cromo
- Dureza 66 HRC
- Sistema de calidad certificada ISO 9001 / EN 29001

Wichtigste Massangaben
Main dimensions

Principales dimensions
Principales medidas



LA

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|----------|------------------------------|---|---|---|---|---|---|
| A x B mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2401

Flachstumpf
Pillar
Pilier
Plana



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2401-100-0 | LA2401-100-1 | LA2401-100-2 | LA2401-100-3 | LA2401-100-4 | |
| 3.5 x 0.9 mm | | | | | | | |
| 140 mm | LA2401-140-00 | LA2401-140-0 | LA2401-140-1 | LA2401-140-2 | LA2401-140-3 | LA2401-140-4 | LA2401-140-6 |
| 4.8 X 1.1 mm | | | | | | | |
| 160 mm | LA2401-160-00 | LA2401-160-0 | LA2401-160-1 | LA2401-160-2 | LA2401-160-3 | LA2401-160-4 | LA2401-160-6 |
| 5.4 x 1.2 mm | | | | | | | |
| 180 mm | LA2401-180-00 | LA2401-180-0 | LA2401-180-1 | LA2401-180-2 | LA2401-180-3 | LA2401-180-4 | LA2401-180-6 |
| 6 x 1.3 mm | | | | | | | |
| 200 mm | LA2401-200-00 | LA2401-200-0 | LA2401-200-1 | LA2401-200-2 | LA2401-200-3 | LA2401-200-4 | |
| 6.5 x 1.3 mm | | | | | | | |

LA2402

Halbrund
Halfround
Mironde
Mediacaña



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2402-100-0 | | LA2402-100-2 | LA2402-100-3 | LA2402-100-4 | |
| 3.8 x 1.1 mm | | | | | | | |
| 140 mm | LA2402-140-00 | LA2402-140-0 | LA2402-140-1 | LA2402-140-2 | LA2402-140-3 | LA2402-140-4 | LA2402-140-6 |
| 5.1 x 1.5 mm | | | | | | | |
| 160 mm | LA2402-160-00 | LA2402-160-0 | LA2402-160-1 | LA2402-160-2 | LA2402-160-3 | LA2402-160-4 | LA2402-160-6 |
| 5.6 x 1.7 mm | | | | | | | |
| 180 mm | LA2402-180-00 | LA2402-180-0 | LA2402-180-1 | LA2402-180-2 | LA2402-180-3 | LA2402-180-4 | |
| 5.9 x 2 mm | | | | | | | |
| 200 mm | LA2402-200-00 | LA2402-200-0 | LA2402-200-1 | LA2402-200-2 | LA2402-200-3 | LA2402-200-4 | |
| 6.3 x 2 mm | | | | | | | |

LA2403

Vogelzunge
Crossing
Feuille de sauge
Almendra



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2403-100-0 | | LA2403-100-2 | LA2403-100-3 | LA2403-100-4 | |
| 3.5 x 1.4 mm | | | | | | | |
| 140 mm | LA2403-140-00 | LA2403-140-0 | LA2403-140-1 | LA2403-140-2 | LA2403-140-3 | LA2403-140-4 | |
| 4.4 x 1.8 mm | | | | | | | |
| 160 mm | LA2403-160-00 | LA2403-160-0 | LA2403-160-1 | LA2403-160-2 | LA2403-160-3 | LA2403-160-4 | LA2403-160-6 |
| 5.1 x 2 mm | | | | | | | |
| 180 mm | LA2403-180-00 | LA2403-180-0 | LA2403-180-1 | LA2403-180-2 | LA2403-180-3 | LA2403-180-4 | |
| 5.8 x 2.2 mm | | | | | | | |
| 200 mm | LA2403-200-00 | LA2403-200-0 | LA2403-200-1 | LA2403-200-2 | LA2403-200-3 | LA2403-200-4 | |
| 6 x 2.4 mm | | | | | | | |

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|----------|------------------------------|---|---|---|---|---|---|
| A x B mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2405

Messer
Knife
Couteau
Cuchillo



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2405-100-0 | LA2405-100-1 | LA2405-100-2 | LA2405-100-3 | LA2405-100-4 | |
| 4 x 1.1 mm | | | | | | | |
| 140 mm | LA2405-140-00 | LA2405-140-0 | LA2405-140-1 | LA2405-140-2 | LA2405-140-3 | LA2405-140-4 | LA2405-140-6 |
| 5 x 1.4 mm | | | | | | | |
| 160 mm | LA2405-160-00 | LA2405-160-0 | LA2405-160-1 | LA2405-160-2 | LA2405-160-3 | LA2405-160-4 | LA2405-160-6 |
| 5.4 x 1.5 mm | | | | | | | |
| 180 mm | LA2405-180-00 | LA2405-180-0 | LA2405-180-1 | LA2405-180-2 | LA2405-180-3 | LA2405-180-4 | |
| 6 x 1.7 mm | | | | | | | |
| 200 mm | LA2405-200-00 | LA2405-200-0 | LA2405-200-1 | LA2405-200-2 | LA2405-200-3 | LA2405-200-4 | |
| 6.4 x 1.8 mm | | | | | | | |

LA2406

Flachspitz
Warding
Entrée



Plana de punta

| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2406-100-0 | | LA2406-100-2 | LA2406-100-3 | LA2406-100-4 | |
| 3.4 x 0.9 mm | | | | | | | |
| 140 mm | | LA2406-140-0 | LA2406-140-1 | LA2406-140-2 | LA2406-140-3 | LA2406-140-4 | |
| 4.8 x 1.1 mm | | | | | | | |
| 160 mm | LA2406-160-00 | LA2406-160-0 | LA2406-160-1 | LA2406-160-2 | LA2406-160-3 | LA2406-160-4 | LA2406-160-6 |
| 5.4 x 1.2 mm | | | | | | | |
| 180 mm | LA2406-180-00 | LA2406-180-0 | LA2406-180-1 | LA2406-180-2 | LA2406-180-3 | LA2406-180-4 | |
| 6 x 1.2 mm | | | | | | | |
| 200 mm | | LA2406-200-0 | LA2406-200-1 | LA2406-200-2 | LA2406-200-3 | LA2406-200-4 | |
| 6.5 x 1.4 mm | | | | | | | |

LA2407

Dreikant
Three square
Triangulaire
Triangular



| | | | | | | | |
|--------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2407-100-0 | LA2407-100-1 | LA2407-100-2 | LA2407-100-3 | LA2407-100-4 | |
| 2.8 mm | | | | | | | |
| 140 mm | LA2407-140-00 | LA2407-140-0 | LA2407-140-1 | LA2407-140-2 | LA2407-140-3 | LA2407-140-4 | LA2407-140-6 |
| 3.5 mm | | | | | | | |
| 160 mm | LA2407-160-00 | LA2407-160-0 | LA2407-160-1 | LA2407-160-2 | LA2407-160-3 | LA2407-160-4 | LA2407-160-6 |
| 3.8 mm | | | | | | | |
| 180 mm | LA2407-180-00 | LA2407-180-0 | LA2407-180-1 | LA2407-180-2 | LA2407-180-3 | LA2407-180-4 | |
| 4.2 mm | | | | | | | |
| 200 mm | LA2407-200-00 | LA2407-200-0 | LA2407-200-1 | LA2407-200-2 | LA2407-200-3 | LA2407-200-4 | |
| 4.4 mm | | | | | | | |

LA

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|--------|------------------------------|---|---|---|---|---|---|
| A = mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2408

Vierkant
Square
Carrée
Cuadrada



| | | | | | | | |
|--------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2408-100-0 | LA2408-100-1 | LA2408-100-2 | LA2408-100-3 | LA2408-100-4 | |
| 1.7 mm | | | | | | | |
| 140 mm | LA2408-140-00 | LA2408-140-0 | LA2408-140-1 | LA2408-140-2 | LA2408-140-3 | LA2408-140-4 | |
| 2.2 mm | | | | | | | |
| 160 mm | LA2408-160-00 | LA2408-160-0 | LA2408-160-1 | LA2408-160-2 | LA2408-160-3 | LA2408-160-4 | LA2408-160-6 |
| 2.4 mm | | | | | | | |
| 180 mm | LA2408-180-00 | LA2408-180-0 | LA2408-180-1 | LA2408-180-2 | LA2408-180-3 | LA2408-180-4 | |
| 2.6 mm | | | | | | | |
| 200 mm | LA2408-200-00 | LA2408-200-0 | LA2408-200-1 | LA2408-200-2 | LA2408-200-3 | LA2408-200-4 | |
| 2.8 mm | | | | | | | |

LA

| L = mm | Hieb / Cut / Taille / Picado | | | | |
|----------|------------------------------|---|---|---|---|
| A x B mm | 0 | 1 | 2 | 3 | 4 |

LA2409

Oval
Oval
Ovale
Oval



| | | | | | |
|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | | LA2409-100-2 | | |
| 2.6 x 1.8 mm | | | | | LA2409-140-4 |
| 140 mm | LA2409-140-0 | LA2409-140-1 | LA2409-140-2 | | |
| 3.5 x 2.4 mm | | | | | |
| 160 mm | LA2409-160-0 | LA2409-160-1 | LA2409-160-2 | LA2409-160-3 | LA2409-160-4 |
| 3.9 x 2.5 mm | | | | | |
| 180 mm | LA2409-180-0 | | LA2409-180-2 | | |
| 4.2 x 2.8 mm | | | | | |
| 200 mm | LA2409-200-0 | LA2409-200-1 | LA2409-200-2 | | LA2409-200-4 |
| 4.4 x 2.9 mm | | | | | |

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|--------|------------------------------|---|---|---|---|---|---|
| Ø mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2410

Rund
Round
Ronde
Redonda



| | | | | | | | |
|--------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2410-100-0 | LA2410-100-1 | LA2410-100-2 | LA2410-100-3 | LA2410-100-4 | |
| 2.1 mm | | | | | | | |
| 140 mm | LA2410-140-00 | LA2410-140-0 | LA2410-140-1 | LA2410-140-2 | LA2410-140-3 | LA2410-140-4 | LA2410-140-6 |
| 2.8 mm | | | | | | | |
| 160 mm | LA2410-160-00 | LA2410-160-0 | LA2410-160-1 | LA2410-160-2 | LA2410-160-3 | LA2410-160-4 | LA2410-160-6 |
| 2.9 mm | | | | | | | |
| 180 mm | LA2410-180-00 | LA2410-180-0 | LA2410-180-1 | LA2410-180-2 | LA2410-180-3 | LA2410-180-4 | |
| 3.2 mm | | | | | | | |
| 200 mm | LA2410-200-00 | LA2410-200-0 | LA2410-200-1 | LA2410-200-2 | LA2410-200-3 | LA2410-200-4 | |
| 3.5 mm | | | | | | | |

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|----------|------------------------------|---|---|---|---|---|---|
| A x B mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2411

Barett
Barrette
Barrette
Barrete



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2411-100-0 | | LA2411-100-2 | LA2411-100-3 | LA2411-100-4 | |
| 3.7 x 1.4 mm | | | | | | | |
| 140 mm | LA2411-140-00 | LA2411-140-0 | LA2411-140-1 | LA2411-140-2 | LA2411-140-3 | LA2411-140-4 | LA2411-140-6 |
| 4.7 x 1.7 mm | | | | | | | |
| 160 mm | LA2411-160-00 | LA2411-160-0 | LA2411-160-1 | LA2411-160-2 | LA2411-160-3 | LA2411-160-4 | LA2411-160-6 |
| 5.1 x 1.8 mm | | | | | | | |
| 180 mm | LA2411-180-00 | LA2411-180-0 | LA2411-180-1 | LA2411-180-2 | LA2411-180-3 | LA2411-180-4 | |
| 5.4 x 2 mm | | | | | | | |
| 200 mm | LA2411-200-00 | LA2411-200-0 | LA2411-200-1 | LA2411-200-2 | LA2411-200-3 | LA2411-200-4 | |
| 5.8 x 2.2 mm | | | | | | | |

LA2413

Schwert spitz
Sword
Epée
Espada



| | | | | | | | |
|--------------|--|--|--------------|--|--------------|--|--------------|
| 160 mm | | | LA2413-160-0 | | LA2413-160-2 | | LA2413-160-4 |
| 5.3 x 2.2 mm | | | | | | | |

LA

LA2414

Schwert parallel
Slitting
A fendre
Para ranurar



| | | | | | | | |
|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2414-100-0 | | LA2414-100-2 | LA2414-100-3 | LA2414-100-4 | |
| 4.6 x 1.6 mm | | | | | | | |
| 140 mm | | LA2414-140-0 | LA2414-140-1 | LA2414-140-2 | LA2414-140-3 | LA2414-140-4 | |
| 5.5 x 1.9 mm | | | | | | | |
| 160 mm | | LA2414-160-0 | LA2414-160-1 | LA2414-160-2 | | LA2414-160-4 | LA2414-160-6 |
| 6.1 x 2.1 mm | | | | | | | |

LA2415

Flachspitz runden Kanten
Crochet
Crochet
Gancho



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | LA2415-100-0 | | LA2415-100-2 | | LA2415-100-4 | |
| 3.7 x 1 mm | | | | | | | |
| 140 mm | | LA2415-140-0 | LA2415-140-1 | LA2415-140-2 | LA2415-140-3 | LA2415-140-4 | |
| 4.8 x 1.2 mm | | | | | | | |
| 160 mm | LA2415-160-00 | LA2415-160-0 | LA2415-160-1 | LA2415-160-2 | LA2415-160-3 | LA2415-160-4 | LA2415-160-6 |
| 5.4 x 1.3 mm | | | | | | | |
| 180 mm | LA2415-180-00 | LA2415-180-0 | LA2415-180-1 | LA2415-180-2 | LA2415-180-3 | LA2415-180-4 | |
| 5.9 x 1.4 mm | | | | | | | |
| 200 mm | | LA2415-200-0 | LA2415-200-1 | LA2415-200-2 | | | |
| 6.5 x 1.5 mm | | | | | | | |

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|----------|------------------------------|---|---|---|---|---|---|
| A x B mm | 00 | 0 | 1 | 2 | 3 | 4 | 6 |

LA2416

Flachstumpf runden Kanten
Pillar round edges
Pilier bords ronds
Plana de bordes redondos



| | | | | | | | |
|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--|
| 100 mm | | LA2416-100-0 | | LA2416-100-2 | | LA2416-100-4 | |
| 3.8 x 1 mm | | | | | | | |
| 140 mm | | LA2416-140-0 | LA2416-140-1 | LA2416-140-2 | LA2416-140-3 | LA2416-140-4 | |
| 4.8 x 1.2 mm | | | | | | | |
| 160 mm | LA2416-160-00 | LA2416-160-0 | LA2416-160-1 | LA2416-160-2 | LA2416-160-3 | LA2416-160-4 | |
| 5.4 x 1.3 mm | | | | | | | |
| 180 mm | LA2416-180-00 | LA2416-180-0 | LA2416-180-1 | LA2416-180-2 | LA2416-180-3 | LA2416-180-4 | |
| 6 x 1.4 mm | | | | | | | |
| 200 mm | LA2416-200-00 | LA2416-200-0 | LA2416-200-1 | LA2416-200-2 | | LA2416-200-4 | |
| 6.5 x 1.5 mm | | | | | | | |

LA2417

Scharnierfeile mit runden Kanten
Joint file round edges
Coulisse bords ronds
Plana sol.bordes con picado



| | | | | | | | |
|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | | | | LA2417-100-3 | LA2417-100-4 | |
| 3.8 x 1 mm | | | | | | | |
| 140 mm | | | | LA2417-140-2 | LA2417-140-3 | LA2417-140-4 | |
| 4.8 x 1.2 mm | | | | | | | |
| 160 mm | | LA2417-160-0 | LA2417-160-1 | LA2417-160-2 | | LA2417-160-4 | LA2417-160-6 |
| 5.4 x 1.3 mm | | | | | | | |

LA2418

Halbrund nur Rücken gehauen
Halfround, cut on back only
Mirondes, dos seul taillé
Mediacañia, solo lomo con picado



| | | | | | | | |
|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|
| 100 mm | | | | | LA2418-100-3 | LA2418-100-4 | |
| 3.8 x 1.2 mm | | | | | | | |
| 140 mm | | | | LA2418-140-2 | LA2418-140-3 | LA2418-140-4 | |
| 5.1 x 1.5 mm | | | | | | | |
| 160 mm | | LA2418-160-0 | LA2418-160-1 | LA2418-160-2 | | LA2418-160-4 | LA2418-160-6 |
| 5.6 x 1.8 mm | | | | | | | |

LA2420

Kontaktfeile
Contact point file
Lime pour contact
Lima para platinos



| | | | | | | | |
|------------|--|--------------|--|--------------|--|--|--|
| 130 mm | | LA2420-130-0 | | LA2420-130-2 | | | |
| 8 x 0.9 mm | | | | | | | |

| L = mm | Hieb / Cut / Taille / Picado | | |
|--------|------------------------------|---|---|
| Ø mm | 1 | 2 | 3 |

LA2423

Rund sehr dünn
Round extra slim
Ronde très effilée
Redonda muy aguda



| | | | |
|--------|--------------|--------------|--------------|
| 100 mm | LA2423-100-1 | LA2423-100-2 | LA2423-100-3 |
| 1 mm | | | |

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| | |
|---------------|-------------------------------------|
| L = mm | Hieb / Cut / Taille / Picado |
| | 0 2 |



LA

LA2442 / LA2443 / LA2444 / LA2445

Satz zu 6 Feilen in Tasche

Set of 6 files in pouch

Jeu de 6 limes en étui

Juego de 6 limas en estuche

| | | |
|--------|----------|----------|
| 140 mm | LA2442-0 | LA2442-2 |
| 160 mm | LA2443-0 | LA2443-2 |
| 180 mm | LA2444-0 | LA2444-2 |
| 200 mm | LA2445-0 | LA2445-2 |

Bestehend aus: / *Composed of:* / *Composé de:* / *Compuesto de:* LA2401 LA2402 LA2406 LA2407 LA2408 LA2410



LA2452 / LA2453 / LA2454

Satz zu 6 Feilen in Blister

Set of 6 files Blister pouched

Jeu de 6 limes Blister

Juego de 6 limas embalaje Blister

| | | |
|--------|----------|----------|
| 140 mm | LA2452-0 | LA2452-2 |
| 160 mm | LA2453-0 | LA2453-2 |
| 180 mm | LA2454-0 | LA2454-2 |

Bestehend aus: / *Composed of:* / *Composé de:* / *Compuesto de:* LA2401 LA2402 LA2406 LA2407 LA2408 LA2410

Nadelfeilen mit rundem Stahlheft
Needle files with round handle

Limes aiguilles à manche rond
Limas aguja de mango redondo

| L = mm | Hieb / Cut / Taille / Picado | | | A = Assortierte Hiebe / Assorted cuts / Tailles assorties / Picados surtidos |
|--------|------------------------------|---|---|--|
| | 0 | 2 | 4 | |



LA

LA2482 / LA2483 / LA2484 / LA2485

Satz zu 12 Feilen in Tasche

Set of 12 files in pouch

Jeu de 12 limes en étui

Juego de 12 limas en estuche

| | | | | |
|--------|----------|----------|----------|----------|
| 140 mm | LA2482-0 | LA2482-2 | LA2482-4 | LA2482-A |
| 160 mm | LA2483-0 | LA2483-2 | LA2483-4 | LA2483-A |
| 180 mm | LA2484-0 | LA2484-2 | | LA2484-A |
| 200 mm | LA2485-0 | | | LA2485-A |

Bestehend aus: / *Composed of:* / *Composé de:* / *Compuesto de:*

LA2401 LA2402 LA2403 LA2405 LA2406 LA2407 LA2408 LA2409 LA2410 LA2411 LA2415 LA2416



LA2492 / LA2493

Satz zu 12 Feilen in Plastikbox

Set of 12 files in plastic box

Jeu de 12 limes en boîte plastique

Juego de 12 limas caja de plástico













| | | | | |
|--------|----------|----------|----------|----------|
| 140 mm | LA2492-0 | LA2492-2 | LA2492-4 | LA2492-A |
| 160 mm | LA2493-0 | LA2493-2 | LA2493-4 | LA2493-A |

Bestehend aus: / *Composed of:* / *Composé de:* / *Compuesto de:*

LA2401 LA2402 LA2403 LA2405 LA2406 LA2407 LA2408 LA2409 LA2410 LA2411 LA2415 LA2416

Nadelraspeln
Needle rasps

Limes aiguilles râpes
Limas aguja escofina

| L = mm A x B mm | Hieb / Cut / Taille / Picado 4 |
|---|--|
| RA2501 Flachstumpf <i>Pillar</i> Piliier <i>Plana</i> 140 mm 5 x 2 mm |   RA2501-140-4 |
| RA2502 Halbrund <i>Halfround</i> Mironde <i>Mediacaña</i> 140 mm 6.2 x 2.5 mm |   RA2502-140-4 |
| RA2506 Flachspitz <i>Warding</i> Entrée <i>Plana de punta</i> 140mm 5.5 x 2.2 mm |   RA2506-140-4 |
| RA2507 Dreikant <i>Three square</i> Triangulaire <i>Triangular</i> 140 mm 3.8 mm |   RA2507-140-4 |
| RA2508 Vierkant <i>Square</i> Carrée <i>Cuadrada</i> 140mm 3.3 mm |   RA2508-140-4 |
| RA2510 Rund <i>Round</i> Ronde <i>Redonda</i> 140 mm 3.7 mm |   RA2510-140-4 |

LA



Nadelraspeln
Needle rasps

Limes aiguilles râpes
Limas aguja escofina

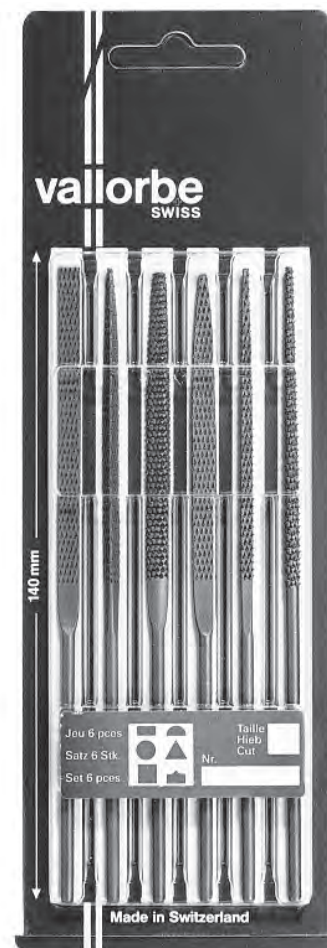
| L = mm | Hieb / Cut / Taille / Picado |
|--------|------------------------------|
| | 4 |

LA

RA2526

Satz zu 6 Raspeln in Blister
Set of 6 rasps Blister pouched
Jeu de 6 râpes Blister
Juego de 6 codillos embalaje Blister
140 mm

RA2526-140-4



Bestehend aus: / Composed of: / Composé de: / Compuesto de: RA2501 RA2502 RA2506 RA2507 RA2508 RA2510

Hemmungsfeilen
Escapement files

Limes aux échappements
Limas de escape

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|---|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 0 | 2 | 3 | 4 | 5 | 6 | 8 |
| LE3001 | | | | | | | |
| Für Spindeln <i>Dovetail</i> Aux verges <i>Para husillos</i> | | | | | | | |
| | | | | | | | |
| 35 mm | | LE3001-35-2 | | LE3001-35-4 | | LE3001-35-6 | |
| LE3004 | | | | | | | |
| Messer spitz <i>Knife pointed</i> Couteau pointu <i>Cuchillo punta</i> | | | | | | | |
| | | | | | | | |
| 55 mm | LE3004-55-0 | LE3004-55-2 | | LE3004-55-4 | LE3004-55-5 | LE3004-55-6 | LE3004-55-8 |
| LE3007 | | | | | | | |
| Barett 3 Seiten gehauen <i>Barrette 3 sides cut</i> Barrette 3 cotés taillés <i>Barrete con 3 lados picado</i> | | | | | | | |
| | | | | | | | |
| 55 mm | | LE3007-55-2 | | LE3007-55-4 | | LE3007-55-6 | |
| LE3008 | | | | | | | |
| Halbrund <i>Halfround</i> Mironde <i>Mediacaña</i> | | | | | | | |
| | | | | | | | |
| 40 mm | LE3008-40-0 | LE3008-40-2 | LE3008-40-3 | LE3008-40-4 | LE3008-40-5 | LE3008-40-6 | LE3008-40-8 |
| 55 mm | LE3008-55-0 | LE3008-55-2 | LE3008-55-3 | LE3008-55-4 | LE3008-55-5 | LE3008-55-6 | LE3008-55-8 |
| LE3009 | | | | | | | |
| Vogelzunge <i>Crossing</i> Feuille de sauge <i>Almendra</i> | | | | | | | |
| | | | | | | | |
| 40 mm | | LE3009-40-2 | | LE3009-40-4 | | LE3009-40-6 | LE3009-40-8 |
| 55 mm | | LE3009-55-2 | | LE3009-55-4 | LE3009-55-5 | LE3009-55-6 | LE3009-55-8 |
| LE3010 | | | | | | | |
| Barett <i>Barrette</i> Barrette <i>Barrete</i> | | | | | | | |
| | | | | | | | |
| 40 mm | LE3010-40-0 | LE3010-40-2 | LE3010-40-3 | LE3010-40-4 | | LE3010-40-6 | LE3010-40-8 |
| 55 mm | LE3010-55-0 | LE3010-55-2 | LE3010-55-3 | LE3010-55-4 | LE3010-55-5 | LE3010-55-6 | LE3010-55-8 |
| LE3011 | | | | | | | |
| Barett parallel <i>Barrette parallel</i> Barrette parallèle <i>Barrete paralela</i> | | | | | | | |
| | | | | | | | |
| 48 mm | | LE3011-48-2 | | LE3011-48-4 | | LE3011-48-6 | |
| LE3012 | | | | | | | |
| Wälzfeile <i>Rounding off</i> Arrondir <i>De redondear</i> | | | | | | | |
| | | | | | | | |
| 40 mm | | LE3012-40-2 | | LE3012-40-4 | | LE3012-40-6 | |

LA

Hemmungsfeilen
Escapement files

Limes aux échappements
Limás de escape

| L = mm | Hieb / Cut / Taille / Picado | | | | | | |
|--|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 0 | 2 | 3 | 4 | 5 | 6 | 8 |
| LE3014 | | | | | | | |
| Dreikant Three square Triangulaire Triangular | | | | | | | |
| | | | | | | | |
| 40 mm | | LE3014-40-2 | | LE3014-40-4 | | LE3014-40-6 | |
| 55 mm | LE3014-55-0 | LE3014-55-2 | LE3014-55-3 | LE3014-55-4 | LE3014-55-5 | LE3014-55-6 | LE3014-55-8 |
| LE3015 | | | | | | | |
| Ankergabelfeile Watch anchor Entrée de fourchette Para horquillas de ancora | | | | | | | |
| | | | | | | | |
| 55 mm | | | | | | LE3015-55-6 | LE3015-55-8 |
| LE3016 | | | | | | | |
| Flachspitz Warding Entrée Plana de punta | | | | | | | |
| | | | | | | | |
| 55 mm | | LE3016-55-2 | | LE3016-55-4 | | LE3016-55-6 | |
| LE3017 | | | | | | | |
| Flachstumpf Pillar Pilier Plana | | | | | | | |
| | | | | | | | |
| 55 mm | | LE3017-55-2 | | LE3017-55-4 | | LE3017-55-6 | LE3017-55-8 |
| 65 mm | LE3017-65-0 | LE3017-65-2 | LE3017-65-3 | LE3017-65-4 | LE3017-65-5 | LE3017-65-6 | LE3017-65-8 |
| LE3019 | | | | | | | |
| Vierkant 3 Seiten gehauen Square 3 sides cut Carrée 3 côtés taillés Cuadrada 3 lados picado | | | | | | | |
| | | | | | | | |
| 65 mm | | LE3019-65-2 | | LE3019-65-4 | | LE3019-65-6 | |
| LE3020 | | | | | | | |
| Vierkant Square Carrée Cuadrada | | | | | | | |
| | | | | | | | |
| 55 mm | LE3020-55-0 | LE3020-55-2 | LE3020-55-3 | LE3020-55-4 | LE3020-55-5 | LE3020-55-6 | LE3020-55-8 |
| 65 mm | LE3020-65-0 | LE3020-65-2 | LE3020-65-3 | LE3020-65-4 | LE3020-65-5 | LE3020-65-6 | LE3020-65-8 |
| LE3021 | | | | | | | |
| Rund Round Ronde Redonda | | | | | | | |
| | | | | | | | |
| 55 mm | LE3021-55-0 | LE3021-55-2 | LE3021-55-3 | LE3021-55-4 | LE3021-55-5 | LE3021-55-6 | LE3021-55-8 |
| 65 mm | LE3021-65-0 | LE3021-65-2 | LE3021-65-3 | LE3021-65-4 | LE3021-65-5 | LE3021-65-6 | LE3021-65-8 |
| LE3026 | | | | | | | |
| Vogelzunge mit scharfem Rücken Balance wheel Feuille de sauge à côtes Almendra con lomo afilado | | | | | | | |
| | | | | | | | |
| 35 mm | | LE3026-35-2 | | LE3026-35-4 | | LE3026-35-6 | |

LA

Hemmungsfeilen
Escapement files

Limes aux échappements
Limas de escape

| | |
|---------------|-------------------------------------|
| L = mm | Hieb / Cut / Taille / Picado |
| | 2 4 6 |

LE3029

Ausstreich
Equalling
Egalir
De igualar
55 mm



| | | | |
|--|----------------|----------------|----------------|
| | LE3029-55-2-DT | LE3029-55-4-DT | LE3029-55-6-ST |
|--|----------------|----------------|----------------|

DT = Doppelhieb / *Double cut* / *Double taille* / *Doble picado*
ST = Einfacher Hieb / *Simple cut* / *Simple taille* / *Simple picado*

| | |
|--|---|
| | Hieb / Cut / Taille / Picado |
| | 4 6 A = Assortierte Hiebe / <i>Assorted cuts</i> / <i>Tailles assorties</i> / <i>Picados surtidos</i> |



LA

LE3092

Satz zu 12 Feilen
Set of 12 files
Jeu de 12 limes
Juego de 12 limas

| | | | |
|--|----------|----------|----------|
| | LE3092-4 | LE3092-6 | LE3092-A |
|--|----------|----------|----------|

Bestehend aus: / *Composed of:* / *Composé de:* / *Compuesto de:*
LE3004 LE3008 LE3009 LE3010 LE3011 LE3014 LE3016 LE3017 LE3020 LE3021 LE3026 LE3029

«Habilis»-Feilen
«Habilis» files

Limes «Habilis»
Limas «Habilis»

| L = mm A x B mm | Hieb / Cut / Taille / Picado 00 | 1 |
|--|------------------------------------|---|
| LH2601 Flachstumpf <i>Pillar</i> Pilier <i>Plana</i> 215 mm 10 x 2.6 mm | | |
| LH2602 Halbrund <i>Halfround</i> Mironde <i>Mediacaña</i> 215 mm 12.2 x 3.4 mm | | |
| LH2607 Dreikant <i>Three square</i> Triangulaire <i>Triangular</i> 215 mm 9.4 mm | | |
| LH2608 Vierkant <i>Square</i> Carrée <i>Cuadrada</i> 215 mm 5.8 mm | | |
| LH2610 Rund Round Ronde Redonda 215 mm 6.5 mm | | |
| LH2901 «Habilis» «Multifile» Flachstumpf «Habilis» pillar «Multifile» Pilier «Habilis» «Multifile» Plana «Habilis» «Multifile» 215 mm 10 x 3.2 mm | | |

LA



«Habilis»-Feilen
«Habilis» files

Limes «Habilis»
Limas «Habilis»

| | |
|--------|------------------------------|
| L = mm | Hieb / Cut / Taille / Picado |
| | 00 1 |



LA

LH2627
Satz zu 5 Feilen «Habilis»
Set of 5 files «Habilis»
Jeu 5 limes «Habilis»
Juego de 5 limas «Habilis»
215 mm

LH2627-00 | LH2627-1

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LH2601 LH2602 LH2607 LH2608 LH2610



«Habilis»-Raspeln
«Habilis» rasps

Râpes «Habilis»
Limas escofina «Habilis»

| L = mm | A x B mm | Hieb / Cut / Taille / Picado 3 |
|--|---------------|-----------------------------------|
| RA2701 | | |
| «Habilis» Flachstumpf «Habilis» pilar Pilier «Habilis» Plana «Habilis» | | |
| 205 mm | 10 x 4 mm | RA2701-3 |
| RA2702 | | |
| «Habilis» Halbrund «Habilis» halfround Mironde «Habilis» Mediacaña «Habilis» | | |
| 205 mm | 13.5 x 4.5 mm | RA2702-3 |
| RA2707 | | |
| «Habilis» Dreikant «Habilis» three square Triangulaire «Habilis» Triangular «Habilis» | | |
| 205 mm | 10 mm | RA2707-3 |
| RA2708 | | |
| «Habilis» Vierkant «Habilis» square Carrée «Habilis» Cuadrada «Habilis» | | |
| 205 mm | 7.5 mm | RA2708-3 |
| RA2710 | | |
| «Habilis» Rund «Habilis» round Ronde «Habilis» Redonda «Habilis» | | |
| 205 mm | 7.8 mm | RA2710-3 |

LA



RA2727
Satz zu 5 Raspeln «Habilis»
Set of 5 files «Habilis»
Jeu 5 râpes «Habilis»
Juego de 5 limas escofina «Habilis»

205 mm RA2727-3

Bestehend aus: / Composed of: / Composé de: / Compuesto de: RA2701 RA2702 RA2707 RA2708 RA2710

Riffelheilen: Inhaltsverzeichnis

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| 4 | Hiebskala <i>Scale of cuts</i> | Echelle de tailles <i>Escala de picados</i> |
| 49 | Riffelheilen: Wichtigste Massangaben <i>Rifflers: Main dimensions</i> | Rifloirs: Principales dimensions <i>Limas codillos: Principales medidas</i> |

Artikelbeschreibung:
Product description:**Description des articles:**
Descripción de los artículos:

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LR

Haupteigenschaften Main characteristics

Caractéristiques principales Caracteristicas principales

Die Riffelfeile von «Vallorbe»...

...die Lösung, um auch an unzugänglichsten Stellen zu feilen.

Mehr als 50 Formen :

- Erhältlich in den folgenden Längen: 150, 170, 180, 200, 300 mm
- Hiebe von 16 bis 56 Zähne/cm
- Die Vielfalt der vorgeschlagenen Formen ermöglicht es in den unzugänglichsten Stellen zu arbeiten
- Aus Chromstahl gefertigt
- Härte 66 HRc
- Zertifiziertes Qualitätssystem ISO 9001 / EN 29001

The «Vallorbe» riffler file selection gives you the possibility to reach areas you never could file before.

Over 50 shapes :

- Available lengths : 150, 170, 180, 200, 300 mm
- Cuts: 16 to 56 teeth/cm
- Made from chrome steel
- Hardness of 66 HRc
- Certified quality management as to ISO 9001 / EN 29001

Le rifloir «Vallorbe»...

...pour limer dans des endroits difficilement accessibles.

Plus de 50 formes :

- Disponibles dans les longueurs de 150, 170, 180, 200, 300 mm
- Tailles de 16 à 56 dents/cm
- La multiplicité des formes proposées vous permet de travailler dans les endroits les plus inaccessibles
- Fabriquées à partir d'acier au chrome
- Dureté 66 HRc
- Système qualité certifié ISO 9001 / EN 29001

El codillo «Vallorbe»...

...la solución ideal para limar en los lugares más difícilmente accesibles.

Más de 50 formas :

- Suministrable en los largos de 150, 170, 180, 200, 300 mm
- Grado de corte de 16 a 56 dientes/cm
- La gran variedad de formas ofrecidas le permite trabajar en los lugares más inaccesibles
- Fabricada de acero al cromo
- Dureza de 66HRc
- Sistema de calidad certificada ISO 9001 / EN 29001

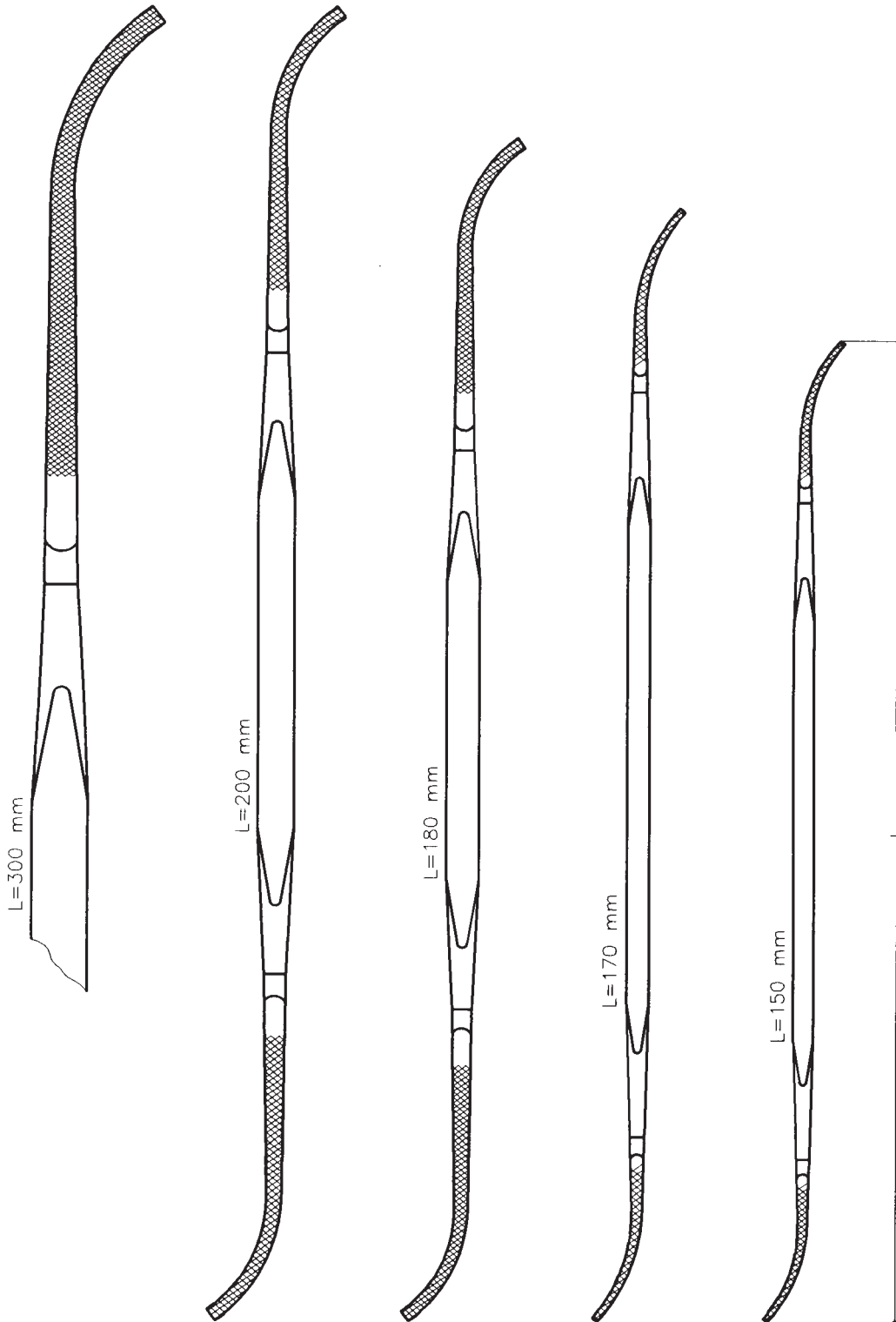
Wichtigste Massangaben

Main dimensions

Principales dimensions

Principales medidas

LR



LR

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12900 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12900-0 | LR12900-2 | LR12900-4* |
| LR12901 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12901-0 | LR12901-2 | LR12901-4* |
| LR12902 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12902-0 | LR12902-2 | LR12902-4* |
| LR12905 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12905-0 | LR12905-2 | LR12905-4 |
| LR12910 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12910-0 | LR12910-2 | LR12910-4* |
| LR12911 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12911-0 | LR12911-2 | LR12911-4 |
| LR12912 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12912-0 | LR12912-2 | LR12912-4* |
| LR12913 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12913-0 | LR12913-2 | LR12913-4* |

LR

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12914 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12914-0 | LR12914-2 | LR12914-4* |
| LR12915 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12915-0 | LR12915-2 | LR12915-4 |
| LR12916 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12916-0 | LR12916-2 | LR12916-4* |
| LR12917 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12917-0 | LR12917-2 | LR12917-4* |
| LR12918 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12918-0 | LR12918-2 | LR12918-4* |
| LR12919 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12919-0 | LR12919-2 | LR12919-4* |
| LR12920 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12920-0 | LR12920-2 | LR12920-4* |
| LR12930 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12930-0 | LR12930-2 | LR12930-4 |

LR

*Solange Vorrat / While stocks last
 Jusqu'à épuisement du stock / Hasta agotamiento del stock

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12931 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12931-0 | LR12931-2 | LR12931-4* |
| LR12940 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12940-0 | LR12940-2 | LR12940-4 |
| LR12941 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12941-0 | LR12941-2 | LR12941-4* |
| LR12942 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12942-0 | LR12942-2 | LR12942-4 |
| LR12943 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12943-0 | LR12943-2 | LR12943-4* |
| LR12950 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12950-0 | LR12950-2 | LR12950-4* |
| LR12951 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12951-0 | LR12951-2 | LR12951-4 |
| LR12952 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12952-0 | LR12952-2 | LR12952-4 |

LR

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12953 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12953-0 | LR12953-2 | LR12953-4* |
| LR12954 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12954-0 | LR12954-2 | LR12954-4* |
| LR12955 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12955-0 | LR12955-2 | LR12955-4* |
| LR12956 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12956-0 | LR12956-2 | LR12956-4 |
| LR12957 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12957-0 | LR12957-2 | LR12957-4* |
| LR12958 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12958-0 | LR12958-2 | LR12958-4* |
| LR12961 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12961-0 | LR12961-2 | LR12961-4* |
| LR12962 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12962-0 | LR12962-2 | LR12962-4* |

LR

*Solange Vorrat / While stocks last
 Jusqu'à épuisement du stock / Hasta agotamiento del stock

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12963 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12963-0 | LR12963-2 | LR12963-4 |
| LR12964 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12964-0 | LR12964-2 | LR12964-4* |
| LR12965 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12965-0 | LR12965-2 | LR12965-4 |
| LR12970 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12970-0 | LR12970-2 | LR12970-4 |
| LR12971 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12971-0 | LR12971-2 | LR12971-4* |
| LR12972 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12972-0 | LR12972-2 | LR12972-4 |
| LR12973 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12973-0 | LR12973-2 | LR12973-4* |
| LR12974 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12974-0 | LR12974-2 | LR12974-4* |

LR

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|-----------|------------|
| | 0 | 2 | 4 |
| LR12975 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12975-0 | LR12975-2 | LR12975-4* |
| LR12980 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12980-0 | LR12980-2 | LR12980-4* |
| LR12981 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12981-0 | LR12981-2 | LR12981-4 |
| LR12982 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12982-0 | LR12982-2 | LR12982-4* |
| LR12983 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12983-0 | LR12983-2 | LR12983-4 |
| LR12984 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12984-0 | LR12984-2 | LR12984-4 |
| LR12985 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12985-0 | LR12985-2 | LR12985-4 |
| LR12986 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12986-0 | LR12986-2 | LR12986-4 |

LR

*Solange Vorrat / While stocks last
 Jusqu'à épuisement du stock / Hasta agotamiento del stock

Riffelheilen 150 mm
Rifflers 150 mm

Rifloirs 150 mm
Codillos 150 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|---|------------------------------|------------|------------|
| | 0 | 2 | 4 |
| LR12987 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12987-0 | LR12987-2 | LR12987-4* |
| LR12988 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12988-0 | LR12988-2 | LR12988-4* |
| LR12990 Riffelheile Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12990-0 | LR12990-2 | LR12990-4* |
| LR12995 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12995-0* | LR12995-2* | LR12995-4* |
| LR12996 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12996-0 | LR12996-2 | LR12996-4 |
| LR12997 Riffelheilen Rifflers Rifloirs Codillos 150 mm | | | |
| | LR12997-0* | LR12997-2* | LR12997-4* |
| LR12156 Satz zu 6 Stück Set of 6 pieces Jeu 6 rifloirs Juego de 6 piezas 150 mm | | | |
| | LR12156-0 | LR12156-2 | LR12156-4 |

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LR12915 LR12930 LR12942 LR12952 LR12963 LR12981

Riffelheilen 170 mm
Rifflers 170 mm

Rifloirs 170 mm
Codillos 170 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|------------|------------|
| | 0 | 2 | 4 |
| LR12813 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12813-0 | LR12813-2 | LR12813-4* |
| LR12816 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12816-0 | LR12816-2 | LR12816-4* |
| LR12818 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12818-0 | LR12818-2 | |
| LR12830 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12830-0 | LR12830-2 | LR12830-4* |
| LR12831 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12831-0* | LR12831-2* | |
| LR12843 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12843-0 | LR12843-2 | LR12843-4* |
| LR12855 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12855-0 | LR12855-2 | LR12855-4* |
| LR12857 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| | LR12857-0 | LR12857-2 | LR12857-4* |

LR

*Solange Vorrat / While stocks last
 Jusqu'à épuisement du stock / Hasta agotamiento del stock

Riffelheilen 170 mm
Rifflers 170 mm

Rifloirs 170 mm
Codillos 170 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|---|---|
| | 0 | 2 | 4 |
| LR12862 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12864 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12865 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12872 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12874 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12881 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12882 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |
| LR12883 Riffelheilen Rifflers Rifloirs Codillos 170 mm | | | |

LR

Riffelheilen 170 mm
Rifflers 170 mm

Rifloirs 170 mm
Codillos 170 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--------|------------------------------|---|---|
| | 0 | 2 | 4 |

LR12884
Riffelheilen
Rifflers
Rifloirs
Codillos
170 mm



| | | |
|-----------|-----------|--|
| LR12884-0 | LR12884-2 | |
|-----------|-----------|--|

LR12885
Riffelheilen
Rifflers
Rifloirs
Codillos
170 mm



| | | |
|-----------|-----------|------------|
| LR12885-0 | LR12885-2 | LR12885-4* |
|-----------|-----------|------------|



LR12176
Satz zu 6 Stück
Set of 6 pieces
Jeu 6 rifloirs
Juego de 6 piezas
170 mm

| | | |
|-----------|-----------|--|
| LR12176-0 | LR12176-2 | |
|-----------|-----------|--|

LR

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LR12813 LR12830 LR12843 LR12857 LR12865 LR12881

Riffelheilen 180 mm
Rifflers 180 mm

Rifloirs 180 mm
Codillos 180 mm

| L = mm | Hieb / Cut / Taille / Picado | |
|--|------------------------------|---|
| | 0 | 2 |
| LR12700 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12701 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12710 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12711 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12712 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12713 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12730 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12731 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |

LR

Riffelheilen 180 mm
Rifflers 180 mm

Rifloirs 180 mm
Codillos 180 mm

| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|---|---|
| | 0 | 2 | 4 |
| LR12732 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12740 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12741 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12750 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12760 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12761 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12762 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |
| LR12763 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | | |

LR

Riffelheilen 180 mm
Rifflers 180 mm

Rifloirs 180 mm
Codillos 180 mm

| L = mm | Hieb / Cut / Taille / Picado | |
|--|------------------------------|---|
| | 0 | 2 |
| LR12764 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12770 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12771 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12780 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12781 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12782 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12783 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LR12790 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |

LR

Riffelheilen 180 mm
Rifflers 180 mm

Rifloirs 180 mm
Codillos 180 mm

| L = mm | Hieb / Cut / Taille / Picado | |
|---|------------------------------|-----------|
| | 0 | 2 |
| LR12795 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| | LR12795-0 | LR12795-2 |
| LR12796 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| | LR12796-0 | LR12796-2 |
| LR12186 Satz zu 6 Stück Set of 6 pieces Jeu 6 rifloirs Juego de 6 piezas 180 mm | | |
| | LR12186-0 | LR12186-2 |

LR

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LR12711 LR12731 LR12741 LR12750 LR12763 LR12781

Riffelheilen 200 mm
Rifflers 200 mm

Rifloirs 200 mm
Codillos 200 mm

| L = mm | Hieb / Cut / Taille / Picado | |
|--|------------------------------|---|
| | 0 | 2 |
| LR12610 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12611 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12612 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12613 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12631 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12632 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12641 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |
| LR12650 Riffelheilen Rifflers Rifloirs Codillos 200 mm | | |

LR

Riffelheilen 200 mm
Rifflers 200 mm

Rifloirs 200 mm
Codillos 200 mm

| L = mm | Hieb / Cut / Taille / Picado | |
|--|---|--|
| | 0 | 2 |
| LR12661 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12661-0* | LR12661-2* |
| LR12663 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12663-0 | LR12663-2* |
| LR12664 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12664-0* | LR12664-2* |
| LR12671 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12671-0* | LR12671-2* |
| LR12681 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12681-0 | LR12681-2* |
| LR12690 Riffelheilen Rifflers Rifloirs Codillos 200 mm |  |  |
| | LR12690-0* | LR12690-2* |

LR

*Solange Vorrat / While stocks last
 Jusqu'à épuisement du stock / Hasta agotamiento del stock

Riffelheilen 300 mm
Rifflers 300 mm

Rifloirs 300 mm
Codillos 300 mm





| L = mm | Hieb / Cut / Taille / Picado | | |
|--|------------------------------|------------|------------|
| | 00 | 0 | 2 |
| LR12410 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12410-00 | LR12410-0 | LR12410-2 |
| LR12411 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12411-00 | LR12411-0 | LR12411-2 |
| LR12412 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12412-00* | LR12412-0* | LR12412-2* |
| LR12430 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12430-00 | LR12430-0 | LR12430-2* |
| LR12440 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12440-00 | LR12440-0 | LR12440-2 |
| LR12450 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12450-00 | LR12450-0 | LR12450-2 |
| LR12460 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12460-00 | LR12460-0 | LR12460-2 |
| LR12461 Riffelheilen Rifflers Rifloirs Codillos 300 mm | | | |
| | LR12461-00* | LR12461-0* | LR12461-2* |

LR



Riffelheilen 300 mm
Rifflers 300 mm

Rifloirs 300 mm
Codillos 300 mm

| L = mm | Hieb / Cut / Taille / Picado | | | |
|--|---|--|------------|--|
| | 00 | 0 | 2 | |
| LR12470 Riffelheilen Rifflers Rifloirs Codillos 300 mm |  |  | | |
| | LR12470-00* | LR12470-0* | LR12470-2* | |
| LR12480 Riffelheilen Rifflers Rifloirs Codillos 300 mm |  |  | | |
| | LR12480-00 | LR12480-0 | LR12480-2 | |

LR

«Habilis»-Riffelheilen
Rifflers «Habilis»

Rifloirs «Habilis»
Codillos «Habilis»

| L = mm | Hieb / Cut / Taille / Picado 2 | |
|---|-----------------------------------|--|
| LH2801 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LH2802 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LH2805 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LH2807 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LH2808 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |
| LH2810 Riffelheilen Rifflers Rifloirs Codillos 180 mm | | |

LR

Riffelraspeln
Riffler rasps

Rifloirs râpes
Codillos escofina

| L = mm | Hieb / Cut / Taille / Picado | | |
|---|------------------------------|--|--|
| | 4 | | |
| RA12511 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12531 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12541 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12550 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12563 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12570 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |
| RA12581 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 180 mm | | | |

LR



Riffelraspeln
Riffler rasps

Rifloirs râpes
Codillos escofina

| L = mm | Hieb / Cut / Taille / Picado |
|--------|------------------------------|
| | 4 |

RA12583
Riffelraspeln
Riffler rasps
Rifloirs râpes
Codillos escofina
180 mm



RA12583

LR

RA12286
Satz zu 6 Riffelraspeln
Set of 6 riffler rasps
Jeu 6 rifloirs râpes
Juego de 6 codillos escofina

180 mm

RA12286



Riffelraspeln
Riffler rasps

Rifloirs râpes
Codillos escofina

| L = mm | Hieb / Cut / Taille / Picado | |
|---|------------------------------|---|
| | 3 | 5 |
| RA2201 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2202 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2203 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2205 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2208 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2212 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2294 Riffelraspeln Riffler rasps Rifloirs râpes Codillos escofina 200 mm | | |
| RA2302 Riffelraspeln (1 Seite Feile, 1 Seite Raspel) Riffler rasps (1 side file, 1 side rasp) Rifloirs râpes (1 côté lime, 1 côté râpe) Codillos escofina (1 lado escofina, 1 lado lima) 200 mm | | |

LR



LR

«Valtitan»-Sortiment: Inhaltsverzeichnis
«Valtitan» range: Index

Gamme «Valtitan»:: Table des matières
Surtido «Valtitan»: Indice

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Haupteigenschaften Main characteristics

Caractéristiques principales Caracteristicas principales

Das «Valtitan»-Sortiment, ein Plus...

...für leistungsfähiges Arbeiten in schwierigen Werkstoffen.

«Valtitan»-Ausführungen gibt es als Standardausführung für Nadel-, Präzisions- und Riffelfeilen. Auf Wunsch können auch andere Artikel dieser Behandlung unterzogen werden.

- Oberflächenhärte von 72 HRC, die härteste Stahlfeile der Welt
- Unerlässlich für schwer zu feilende Materialien
- Sie verstopfen nicht; einfaches Klopfen beseitigt die Späne
- Widerstehen rostbildenden Einflüssen, Rostschutz ist unnötig
- Verbesserte Schnittleistungen und erhöhte Lebensdauer gegenüber herkömmlichen Feilen
- Zertifiziertes Qualitätssystem ISO 9001 / EN 29001

The «Valtitan» range offers you more...

...more performance, more life, more filing power.

The «Valtitan» execution is standard for some of our needle, precision files with tang and rifflers. On request, we can apply this process to other items.

The «Valtitan» execution offers :

- A surface hardness of 72 HRC, the hardest steel file known
- Better performance on hard to file surfaces
- No clogging, a simple knock is enough to remove the chips
- Resistance to corrosion no need to grease them
- Longer file life and performance compared to a standard file
- Certified quality management as to ISO 9001 / EN 29001

La gamme «Valtitan», un plus...

...pour un travail efficace dans les matériaux difficiles.

Elle existe en standard dans la lime aiguille, la lime de précision et les rifloirs. Sur demande d'autres articles peuvent recevoir ce traitement.

- Dureté en surface de 72 HRC, la plus dure des limes en acier au monde
- Indispensable pour les matériaux difficiles à limer
- Ne bourre pas, un simple tapotement élimine les copeaux
- Très résistante en milieu corrosif, sans graissage de protection
- Performances et durée de vie accrues par rapport à une lime «standard»
- Système qualité certifié ISO 9001 / EN 29001

El surtido «Valtitan», herramientas singulares...

...para un trabajo eficaz en materiales difíciles.

Se ofrece como estándar en la lima tipo aguja, la lima de precisión y los codillos. A pedido, otros artículos también pueden ser sometidos a este tratamiento.

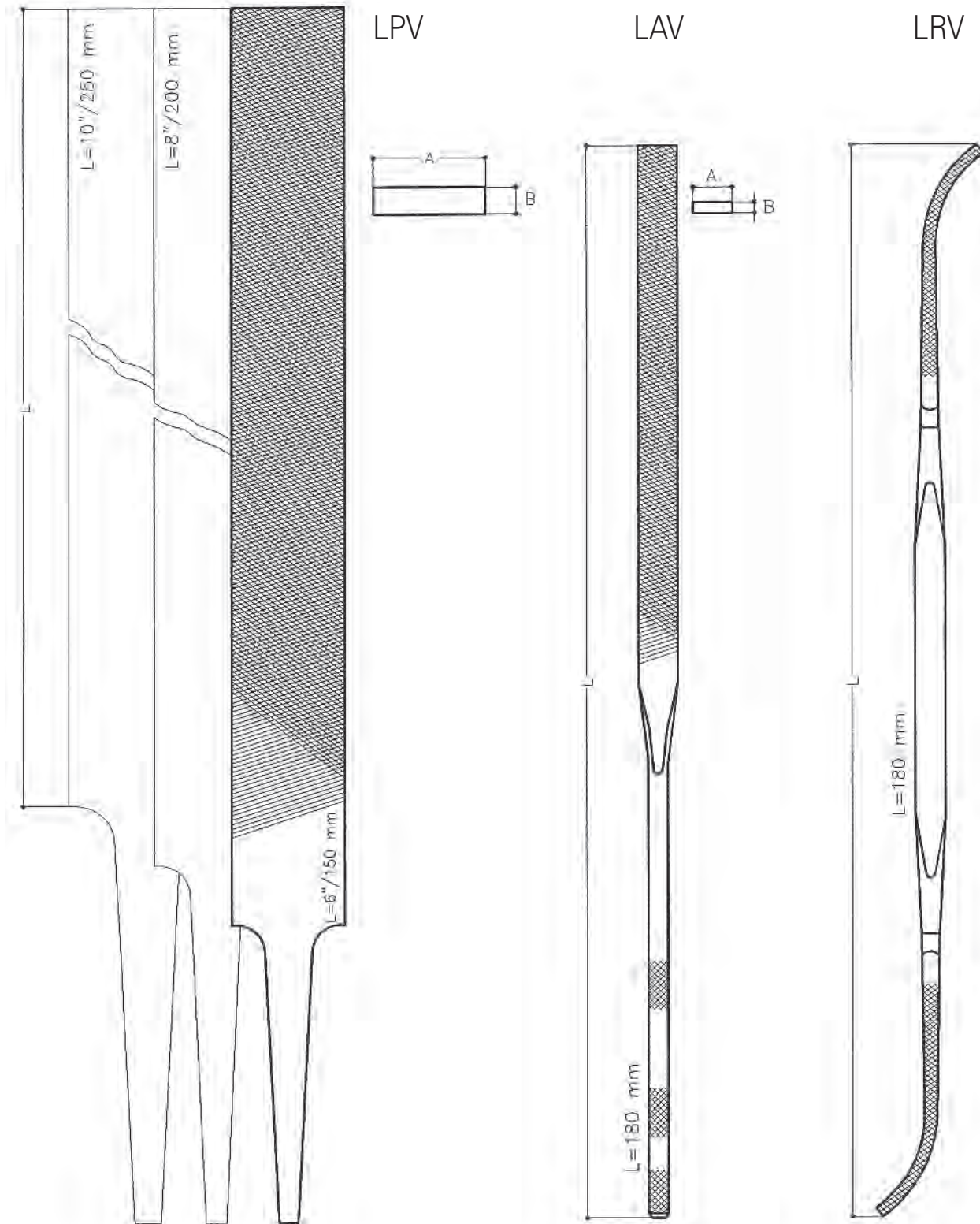
- Dureza en la superficie de 72 HRC, la lima de acero más dura del mundo
- Indispensable para limar materiales difíciles
- No queda agarrotada, bastando con sacudirla ligeramente para quitar las virutas
- Posee una elevada resistencia natural en el medio corrosivo, no requieren un engrase protector
- Rendimientos y duración de vida superior a una lima «normal»
- Sistema de calidad certificada ISO 9001 / EN 29001

Wichtigste Massangaben

Main dimensions

Principales dimensions

Principales medidas





«Valtitan»-Präzisionsfeilen
«Valtitan» Precision files

Limes de précision «Valtitan»
Limas de precisión «Valtitan»

| L = "/mm | Hieb / Cut / Taille / Picado | | | |
|----------|------------------------------|----|---|---|
| A x B mm | 000 | 00 | 0 | 2 |

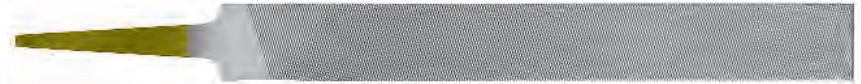
LPV1163

Ansatz / Flachstumpf

Hand

Carrelette

Carleta



| | | | | |
|-------------------------------|----------------|---------------|--------------|--------------|
| 6" / 150 mm 18.5 x 4 mm | | LPV1163-6-00 | LPV1163-6-0 | LPV1163-6-2 |
| 8" / 200 mm 21.4 x 4.8 mm | LPV1163-8-000 | LPV1163-8-00 | LPV1163-8-0 | LPV1163-8-2 |
| 10" / 250 mm 25.3 x 6.3 mm | LPV1163-10-000 | LPV1163-10-00 | LPV1163-10-0 | LPV1163-10-2 |

LPV1132

Stiften

Pillar

Pilier

Plana



| | | | | |
|-------------------------------|--|---------------|--------------|--------------|
| 6" / 150 mm 12 x 4 mm | | LPV1132-6-00 | LPV1132-6-0 | LPV1132-6-2 |
| 8" / 200 mm 14.5 x 4.5 mm | | LPV1132-8-00 | LPV1132-8-0 | LPV1132-8-2 |
| 10" / 250 mm 17.5 x 5.3 mm | | LPV1132-10-00 | LPV1132-10-0 | LPV1132-10-2 |

LPV1560

Halbrund

Halfround

Mironda

Mediacaña



| | | | | |
|-------------------------------|----------------|---------------|--------------|--------------|
| 6" / 150 mm 15.3 x 4.7 mm | | LPV1560-6-00 | LPV1560-6-0 | LPV1560-6-2 |
| 8" / 200 mm 21.4 x 6.3 mm | LPV1560-8-000 | LPV1560-8-00 | LPV1560-8-0 | LPV1560-8-2 |
| 10" / 250 mm 25.5 x 7.5 mm | LPV1560-10-000 | LPV1560-10-00 | LPV1560-10-0 | LPV1560-10-2 |

LPV1660

Rund spitz

Round pointed

Ronde pointue

Redonda aguda



| | | | | |
|-------------------------|--|--|--|--------------|
| 6" / 150 mm 5.85 mm | | | | LPV1660-6-2 |
| 8" / 200 mm 7.8 mm | | | | LPV1660-8-2 |
| 10" / 250 mm 9.45 mm | | | | LPV1660-10-2 |

LPV1670

Rund stumpf

Round blunt

Ronde mottue

Redonda punta plana



| | | | | |
|------------------------|--|--------------|--------------|--|
| 6" / 150 mm 5.75 mm | | LPV1670-6-00 | LPV1670-6-0 | |
| 8" / 200 mm 7.5 mm | | LPV1670-8-00 | LPV1670-8-0 | |
| 10" / 250 mm 9.4 mm | | | LPV1670-10-0 | |



«Valtitan»-Präzisionsfeilen
«Valtitan» Precision files

Limes de précision «Valtitan»
Limas de precisión «Valtitan»

| L = "/mm" | Hieb / Cut / Taille / Picado | | | |
|-----------|------------------------------|----|---|---|
| A x B mm | 000 | 00 | 0 | 2 |

LPV1360

Dreikant
Three square
Triangulaire
Triangular



| | | | | |
|-------------------------|----------------|---------------|--------------|--------------|
| 6" / 150 mm 10.3 mm | | LPV1360-6-00 | LPV1360-6-0 | LPV1360-6-2 |
| 8" / 200 mm 14.2 mm | LPV1360-8-000 | LPV1360-8-00 | LPV1360-8-0 | LPV1360-8-2 |
| 10" / 250 mm 17.2 mm | LPV1360-10-000 | LPV1360-10-00 | LPV1360-10-0 | LPV1360-10-2 |

LPV1464

Vierkant spitz
Square pointed
Carrée pointue
Cuadrada aguda



| | | | | |
|-----------------------|--|--|--|-------------|
| 6" / 150 mm 5.5 mm | | | | LPV1464-6-2 |
| 8" / 200 mm 7.5 mm | | | | LPV1464-8-2 |

LPV1474

Vierkant stumpf
Square blunt
Carrée mottue
Cuadrada punta plana



| | | | | |
|------------------------|--|---------------|--------------|--------------|
| 6" / 150 mm 5.5 mm | | LPV1474-6-00 | LPV1474-6-0 | |
| 8" / 200 mm 7.5 mm | | LPV1474-8-00 | LPV1474-8-0 | |
| 10" / 250 mm 9.4 mm | | LPV1474-10-00 | LPV1474-10-0 | LPV1474-10-2 |



«Valtitan»-Nadelfeilen
«Valtitan» Needle files

Limes aiguilles «Valtitan»
Limas aguja «Valtitan»

| L = mm A x B mm | Hieb / Cut / Taille / Picado | | | |
|--|------------------------------|---------------|---------------|--|
| | 00 | 0 | 2 | |
| LAV2401 Flachstumpf Pillar Pilier Plana | | | | |
| 180 mm 6 x 1.3 mm | LAV2401-180-00 | LAV2401-180-0 | LAV2401-180-2 | |
| LAV2402 Halbrund Halfround Mironde Mediacaña | | | | |
| 180 mm 5.9 x 2 mm | LAV2402-180-00 | LAV2402-180-0 | LAV2402-180-2 | |
| LAV2406 Flachspitz Warding Entrée Plana de punta | | | | |
| 180 mm 6 x 1.2 mm | LAV2406-180-00 | LAV2406-180-0 | LAV2406-180-2 | |
| LAV2407 Dreikant Three square Triangulaire Triangular | | | | |
| 180 mm 4.2 mm | LAV2407-180-00 | LAV2407-180-0 | LAV2407-180-2 | |
| LAV2408 Vierkant Square Carrée Cuadrada | | | | |
| 180 mm 2.6 mm | LAV2408-180-00 | LAV2408-180-0 | LAV2408-180-2 | |
| LAV2410 Rund Round Ronde Redonda | | | | |
| 180 mm 3.2 mm | LAV2410-180-00 | LAV2410-180-0 | LAV2410-180-2 | |



«Valtitan»-Nadelfeilen
«Valtitan» Needle files

Limes aiguilles «Valtitan»
Limas aguja «Valtitan»

| | | | |
|--------|------------------------------|---|---|
| L = mm | Hieb / Cut / Taille / Picado | | |
| | 00 | 0 | 2 |



LAV2495

Satz zu 6 Feilen in Tasche
Set of 6 files in pouch
Jeu de 6 limes en étui
Juego de 6 limas en estuche
180 mm

| | | |
|------------|-----------|-----------|
| LAV2495-00 | LAV2495-0 | LAV2495-2 |
|------------|-----------|-----------|

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LAV2401 LAV2402 LAV2406 LAV2407 LAV2408 LAV2410



LAV2465

Satz zu 6 Feilen in Blister
Set of 6 files Blister pouched
Jeu de 6 limes Blister
Juego de 6 limas Blister
180 mm








| | | |
|------------|-----------|-----------|
| LAV2465-00 | LAV2465-0 | LAV2465-2 |
|------------|-----------|-----------|

Bestehend aus: / Composed of: / Composé de: / Compuesto de: LAV2401 LAV2402 LAV2406 LAV2407 LAV2408 LAV2410



«Valtitan»-Riffelheilen
«Valtitan» Rifflers

Rifloirs «Valtitan»
Codillos «Valtitan»

| L = mm | Hieb / Cut / Taille / Picado | |
|---|---|--|
| | 0 | 2 |
| LRV12711 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12711-0* | LRV12711-2* |
| LRV12731 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12731-0* | LRV12731-2* |
| LRV12741 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12741-0* | LRV12741-2* |
| LRV12750 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12750-0* | LRV12750-2* |
| LRV12763 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12763-0* | LRV12763-2* |
| LRV12781 «Valtitan»-Riffelheilen «Valtitan» Rifflers Rifloirs «Valtitan» Codillos «Valtitan» 180 mm |  |  |
| | LRV12781-0* | LRV12781-2* |

V

Gravierstichel - Laubsägeblätter: Inhaltsverzeichnis
Engravers' gravers - Saw blades: Index

Echoppes - Scies pour bijoutiers:
 Table des matières

Buriles para grabar - Sierras para joyeros : Indice

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Haupteigenschaften Main characteristics

Caractéristiques principales Caracteristicas principales

«Glardon»-Stichel, das ideale Werkzeug für schöpferisches Arbeiten.

«Super Glardon» und «Spiral», die unentbehrlichen Laubsägeblätter für Juweliere und Goldschmiede.

The «Glardon» gravers, the ideal tool for your creative work.

The indispensable «Super Glardon» and «Spiral» jeweller's saw blades no longer hold any surprises for jewellers.

Avec l'échoppe «Glardon» laissez votre créativité s'exprimer.

Les indispensables scies bijoutiers «Super Glardon» et «Spiral» n'ont plus de secret pour les bijoutiers.

Con el buril «Glardon» permita que se exprese su creatividad.

Las indispensables sierras de joyero «Super Glardon» y «Spiral» no encierran secretos para los joyeros.

Die «Glardon»-Stichel:

- 16 Formen, 2 Ausführungen : WS-Werkzeugstahl oder HSS-Schnellarbeitsstahl
- Erhältlich in 3 bis 11 Breiten, je nach Form
- Eine sorgfältige Wärmebehandlung sichert eine ausgezeichnete Arbeitsweise des Stichels

Die «Super Glardon»- und «Spiral»-Laubsägeblätter für Juweliere:

- 13 Zahnungen erhältlich von Nr. 8/0 bis 8
- Optimale Härte und Biegsamkeit
- Die regelmässige Gestaltung der Zähne entspricht höchsten Anforderungen
- Zertifiziertes Qualitätssystem ISO 9001 / EN 29001

The «Glardon» gravers:

- Available in 16 shapes and 2 qualities — Tool steel (WS) or High Speed Steel (HSS)
- Available in 3 to 11 widths, depending on shapes
- Heat treated to insure durability and long lasting quality

The jeweller's saw blades «Super Glardon» and «Spiral»:

- Available from n° 8/0 to 8
- Optimized hardness and flexibility
- Regular teeth manufactured to meet the highest specification
- Certified quality management as to ISO 9001 / EN 29001

Les échoppes «Glardon»:

- 16 formes, 2 qualités d'acier: acier à outils WS ou acier rapide HSS
- de 3 à 11 largeurs disponibles, suivant la forme
- un traitement thermique soigné garanti une bonne qualité d'exécution de l'échoppe

Les scies bijoutier «Super Glardon» et «Spiral»:

- 13 dentures disponibles, No. 8/0 à 8
- Dureté et flexibilité optimales
- Régularité de la denture adaptée aux exigences maximales
- Système qualité certifié ISO 9001 / EN 29001

Buriles «Glardon»:

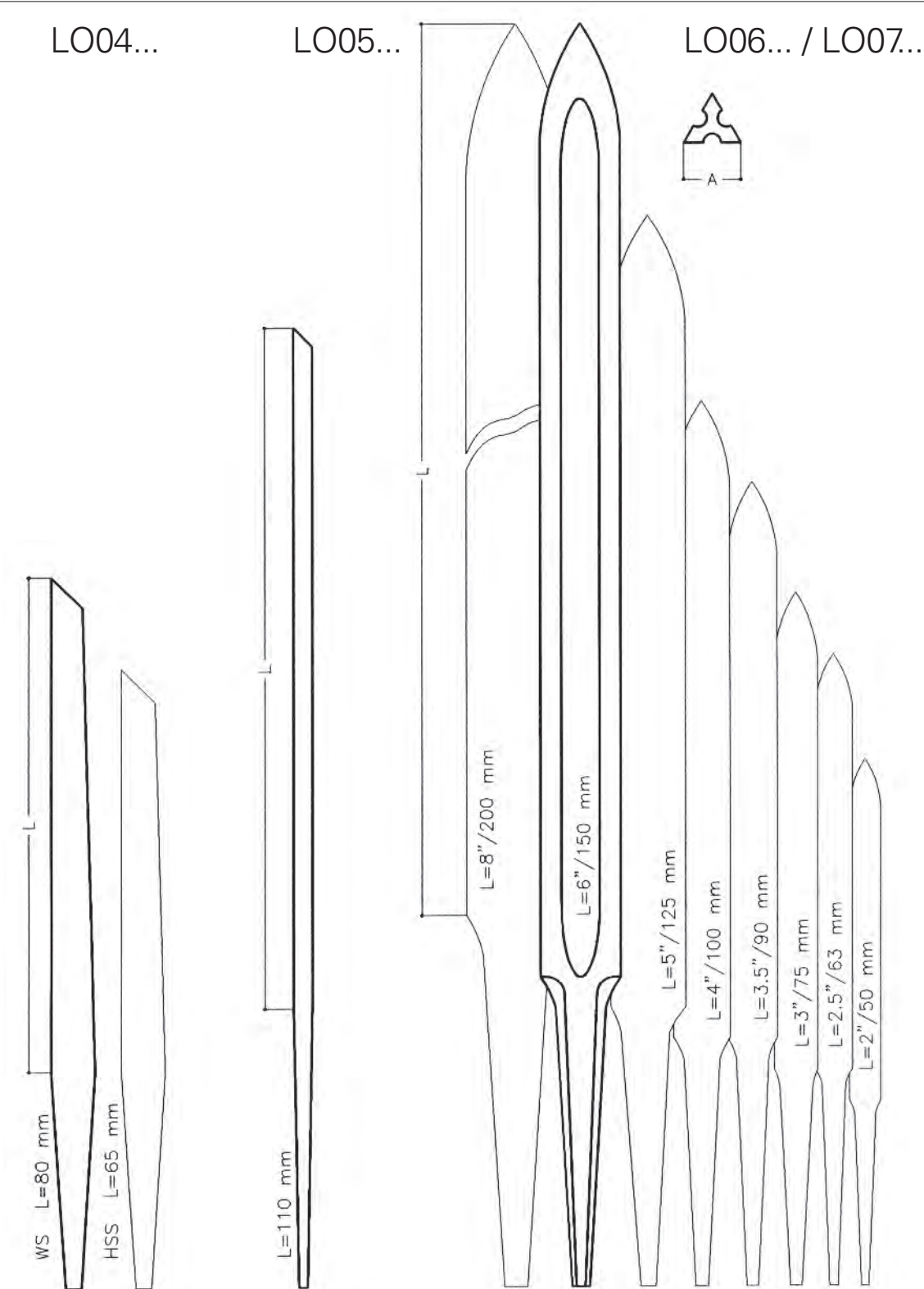
- 16 formas, 2 calidades de acero: acero herramienta WS o acero rápido HSS
- 3 hasta 11 anchos disponibles para cada forma
- Un tratamiento térmico cuidadoso le garantiza un buen acabado del buril

Las sierras de joyero «Super Glardon» y «Spiral»:

- 13 dentados disponibles n° 8/0 a 8
- Dureza y flexibilidad optimales
- Regularidad de los dientes adaptada a exigencias máximas
- Sistema de calidad certificada ISO 9001 / EN 29001

Wichtigste Massangaben
Main dimensions

Principales dimensions
Principales medidas



LO

Gravierstichel
Engravers' gravers

Echoppes
Buriles para grabar

| N° | A = mm | Ref. / Ref. / Réf. / Ref. HSS - L = 65 mm | WS - L = 80 mm |
|----|--------|--|----------------|
|----|--------|--|----------------|

LO0401

Flachstichel
Flat edge
Bord plat
Borde plano



| | | | |
|-------|-----|---------------|--------------|
| N° 2 | 0.2 | LO0401-2-HSS | LO0401-2-WS |
| N° 4 | 0.4 | LO0401-4-HSS | LO0401-4-WS |
| N° 6 | 0.6 | LO0401-6-HSS | LO0401-6-WS |
| N° 8 | 0.8 | LO0401-8-HSS | LO0401-8-WS |
| N° 10 | 1.0 | LO0401-10-HSS | LO0401-10-WS |
| N° 12 | 1.2 | LO0401-12-HSS | LO0401-12-WS |
| N° 14 | 1.4 | LO0401-14-HSS | LO0401-14-WS |
| N° 16 | 1.6 | LO0401-16-HSS | LO0401-16-WS |
| N° 18 | 1.8 | LO0401-18-HSS | LO0401-18-WS |
| N° 20 | 2.0 | LO0401-20-HSS | LO0401-20-WS |
| N° 24 | 2.4 | LO0401-24-HSS | LO0401-24-WS |

LO0402

Bollstichel
Round edge
Bord rond
Borde redondo



| | | | |
|-------|-----|---------------|--------------|
| N° 2 | 0.2 | LO0402-2-HSS | LO0402-2-WS |
| N° 4 | 0.4 | LO0402-4-HSS | LO0402-4-WS |
| N° 6 | 0.6 | LO0402-6-HSS | LO0402-6-WS |
| N° 8 | 0.8 | LO0402-8-HSS | LO0402-8-WS |
| N° 10 | 1.0 | LO0402-10-HSS | LO0402-10-WS |
| N° 12 | 1.2 | LO0402-12-HSS | LO0402-12-WS |
| N° 14 | 1.4 | | LO0402-14-WS |
| N° 16 | 1.6 | LO0402-16-HSS | LO0402-16-WS |
| N° 18 | 1.8 | | LO0402-18-WS |
| N° 20 | 2.0 | LO0402-20-HSS | LO0402-20-WS |
| N° 24 | 2.4 | | LO0402-24-WS |

LO0403

Spitzstichel
Onglette
Onglette
De punta



| | | | |
|--------|------|----------------|---------------|
| N° 5/0 | 1.16 | LO0403-5/0-HSS | LO0403-5/0-WS |
| N° 4/0 | 1.24 | LO0403-4/0-HSS | LO0403-4/0-WS |
| N° 3/0 | 1.35 | LO0403-3/0-HSS | LO0403-3/0-WS |
| N° 2/0 | 1.45 | LO0403-2/0-HSS | LO0403-2/0-WS |
| N° 0 | 1.58 | LO0403-0-HSS | LO0403-0-WS |
| N° 1 | 1.78 | LO0403-1-HSS | LO0403-1-WS |
| N° 2 | 1.94 | LO0403-2-HSS | LO0403-2-WS |
| N° 3 | 2.16 | LO0403-3-HSS | LO0403-3-WS |
| N° 4 | 2.54 | LO0403-4-HSS | LO0403-4-WS |
| N° 5 | 2.74 | LO0403-5-HSS | LO0403-5-WS |
| N° 6 | 2.94 | LO0403-6-HSS | LO0403-6-WS |
| N° 7 | 3.14 | LO0403-7-HSS | LO0403-7-WS |
| N° 8 | 3.36 | LO0403-8-HSS | LO0403-8-WS |

LO

Gravierstichel
Engravers' gravers

Echoppes
Buriles para grabar

| N° | A = mm | Ref. / Ref. / Réf. / Ref. HSS - L = 65 mm | WS - L = 80 mm |
|----|--------|--|----------------|
|----|--------|--|----------------|

LO0404

Ovalstichel
Oval
Ovale
Oval



| | | | |
|-------|-----|--|-----------|
| N° 15 | 1.5 | | LO0404-15 |
| N° 17 | 1.7 | | LO0404-17 |
| N° 19 | 1.9 | | LO0404-19 |
| N° 21 | 2.1 | | LO0404-21 |
| N° 23 | 2.3 | | LO0404-23 |
| N° 25 | 2.5 | | LO0404-25 |

LO0405

Facetten-Stichel
Bevel
A biseau
Chaflan



| | | | |
|-------|-----|--|-----------|
| N° 2 | 0.2 | | LO0405-2 |
| N° 4 | 0.4 | | LO0405-4 |
| N° 6 | 0.6 | | LO0405-6 |
| N° 8 | 0.8 | | LO0405-8 |
| N° 10 | 1.0 | | LO0405-10 |
| N° 12 | 1.2 | | LO0405-12 |
| N° 14 | 1.4 | | LO0405-14 |
| N° 16 | 1.6 | | LO0405-16 |
| N° 18 | 1.8 | | LO0405-18 |
| N° 20 | 2.0 | | LO0405-20 |

LO0406

Messerstichel
Knife
Tranchante
De cuchillo



| | | | |
|-------|-----|---------------|--------------|
| N° 18 | 1.8 | LO0406-18-HSS | LO0406-18-WS |
| N° 20 | 2.0 | LO0406-20-HSS | LO0406-20-WS |
| N° 22 | 2.2 | LO0406-22-HSS | LO0406-22-WS |
| N° 24 | 2.4 | LO0406-24-HSS | LO0406-24-WS |
| N° 26 | 2.6 | LO0406-26-HSS | LO0406-26-WS |
| N° 28 | 2.8 | LO0406-28-HSS | LO0406-28-WS |
| N° 30 | 3.0 | LO0406-30-HSS | LO0406-30-WS |
| N° 32 | 3.2 | LO0406-32-HSS | LO0406-32-WS |

LO

LO0408

Flachstichel zum Ausrunden
Flat narrow back
A revider plate
Plano



| | | | |
|-------|-----|--|-----------|
| N° 16 | 1.6 | | LO0408-16 |
| N° 18 | 1.8 | | LO0408-18 |
| N° 20 | 2.0 | | LO0408-20 |
| N° 22 | 2.2 | | LO0408-22 |
| N° 24 | 2.4 | | LO0408-24 |
| N° 26 | 2.6 | | LO0408-26 |
| N° 28 | 2.8 | | LO0408-28 |



Gravierstichel
Engravers' gravers

Echoppes
Buriles para grabar

| N° | A = mm | Ref. / Ref. / Réf. / Ref. HSS - L = 65 mm | WS - L = 80 mm |
|----|--------|--|----------------|
|----|--------|--|----------------|

LO0409

Bollstichel zum Ausrunden
Round narrow back
A revider ronde
Redondo



| | | | |
|-------|-----|--|-----------|
| N° 16 | 1.6 | | LO0409-16 |
| N° 20 | 2.0 | | LO0409-20 |
| N° 24 | 2.4 | | LO0409-24 |

LO0410

Flachstichel
Chisel
Ciseau
Plano



| | | | |
|-------|-----|--|-----------|
| N° 20 | 2.0 | | LO0410-20 |
| N° 30 | 3.0 | | LO0410-30 |
| N° 40 | 4.0 | | LO0410-40 |
| N° 50 | 5.0 | | LO0410-50 |
| N° 60 | 6.0 | | LO0410-60 |

Gravierstichel / Uhrmacherstichel
Engravers' / Watchmakers' gravers

Echoppes / Burins pour horlogers
Buriles para grabadores y relojeros

| N° | R | 6 | 8 | 10 | 14 | D | P = mm |
|----|---|---|---|----|----|---|--------|
|----|---|---|---|----|----|---|--------|

LO0413

Fadenstichel WS
Shading tool WS
Echoppe rayée WS
Buril rayado WS



| | | | | | | | |
|-------|-------------|-------------|-------------|--------------|--------------|----|-------|
| N° 10 | LO0413-10-4 | LO0413-10-6 | LO0413-10-8 | LO0413-10-10 | LO0413-10-14 | 80 | 0.125 |
| N° 12 | LO0413-12-4 | LO0413-12-6 | LO0413-12-8 | LO0413-12-10 | LO0413-14-14 | 67 | 0.149 |
| N° 14 | LO0413-14-4 | LO0413-14-6 | LO0413-14-8 | LO0413-14-10 | LO0413-16-14 | 57 | 0.175 |
| N° 16 | LO0413-16-4 | LO0413-16-6 | LO0413-16-8 | LO0413-16-10 | LO0413-18-14 | 50 | 0.2 |
| N° 18 | LO0413-18-4 | LO0413-18-6 | LO0413-18-8 | LO0413-18-10 | LO0413-18-14 | 44 | 0.227 |
| N° 20 | LO0413-20-4 | LO0413-20-6 | LO0413-20-8 | LO0413-20-10 | LO0413-20-14 | 40 | 0.25 |

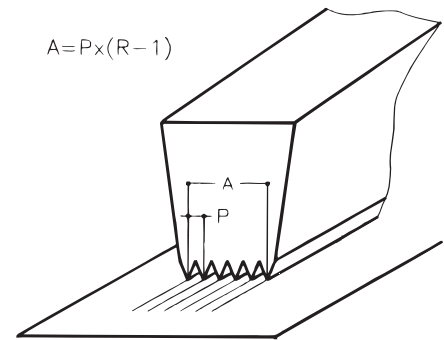
R = Anzahl Fäden
R = Number of rows
R = Nombre de raies
R = Número de rayas

P = Fadenabstand
P = Distance between 2 rows
P = Distance entre 2 raies
P = Distancia entre 2 rayas

D = Anzahl Fäden/cm
D = Number of rows/cm
D = Nb de raies/cm
D = Número de rayas/cm

A = Breite
A = Width
A = Largeur
A = Ancho

$$A = P \times (R - 1)$$



| N° | A = mm | Ref. / Ref. / Réf. / Ref. | HSS - L = 110 mm | WS - L = 110 mm |
|----|--------|---------------------------|------------------|-----------------|
|----|--------|---------------------------|------------------|-----------------|

LO0501

Vierkant
Square
Carré
Cuadrado



| | | | | |
|---------|------|-----------------|--|----------------|
| N° 1.25 | 1.25 | | | LO0501-1,25-WS |
| N° 1.55 | 1.55 | | | LO0501-1,50-WS |
| N° 1.75 | 1.75 | | | LO0501-1,75-WS |
| N° 2.00 | 2.0 | | | LO0501-2-WS |
| N° 2.25 | 2.25 | LO0501-2,25-HSS | | LO0501-2,25-WS |
| N° 2.50 | 2.5 | LO0501-2,5-HSS | | LO0501-2,5-WS |
| N° 2.75 | 2.75 | LO0501-2,75-HSS | | LO0501-2,75-WS |
| N° 3.00 | 3.0 | LO0501-3-HSS | | LO0501-3-WS |
| N° 3.25 | 3.25 | | | LO0501-3,25-WS |
| N° 3.50 | 3.5 | LO0501-3,5-HSS | | LO0501-3,5-WS |
| N° 4.00 | 4.0 | LO0501-4-HSS | | LO0501-4-WS |
| N° 6.00 | 6.0 | LO0501-6-HSS | | |

LO

LO0502

Raute
Lozange
Losange
Romboide



| | | | | |
|---------|------|--|--|-------------|
| N° 1.5 | 1.5 | | | LO0502-1,5 |
| N° 1.75 | 1.75 | | | LO0502-1,75 |
| N° 2.00 | 2.0 | | | LO0502-2 |
| N° 2.25 | 2.25 | | | LO0502-2,25 |
| N° 2.50 | 2.5 | | | LO0502-2,5 |
| N° 3.00 | 3.0 | | | LO0502-3 |

Schaber für Mechaniker
Scrapers for engineers

Grattoirs pour mécaniciens
Rasquetas para mecánicos

| L = "/mm A x B mm | Ref. / Ref. / Réf. / Ref. |
|----------------------|---------------------------|
|----------------------|---------------------------|

LO0653

Schaber für Mechaniker
Scrapers for engineers
Grattoir pour mécaniciens
Rasquetas para mecánicos



| | |
|--------------|------------|
| 2" / 50 mm | LO0653-2 |
| 5 mm | |
| 2.5" / 63 mm | LO0653-2,5 |
| 6 mm | |
| 3" / 75 mm | LO0653-3 |
| 7 mm | |
| 3.5" / 90 mm | LO0653-3,5 |
| 8 mm | |
| 4" / 100 mm | LO0653-4 |
| 9 mm | |
| 5" / 125 mm | LO0653-5 |
| 12 mm | |
| 6" / 150 mm | LO0653-6 |
| 13 mm | |
| 8" / 200 mm | LO0653-8 |
| 16 mm | |

LO0655

Hohl-Schaber
Incurved scraper
Grattoir incurvé
Rasqueta hueca



| | |
|--------------|-------------|
| 2" / 50 mm | LO0655-2 |
| 6 mm | |
| 3" / 75 mm | LO0655-3 |
| 6 mm | |
| 3.5" / 90 mm | LO0655-3,25 |
| 7.2 mm | |
| 4" / 100 mm | LO0655-4 |
| 9 mm | |

LO0788

Polierstahl oval gerade
Oval straight burnisher
Brunissoir ovale droit
Brunidor oval recto



| | |
|--------------|----------|
| 3" / 75 mm | LO0788-3 |
| 6.5 x 3.5 mm | |
| 4" / 100 mm | LO0788-4 |
| 8 x 4.2 mm | |
| 5" / 125 mm | LO0788-5 |
| 8.5 x 4.5 mm | |

LO

Laubsägeblätter, Sägebogen
Jeweller's saw blades, Saw frames

Scies bijoutiers, Montures
Sierras para joyeros, Arcos

| N° | A x B mm | Ref. / Ref. / Réf. / Ref. |
|----|----------|---------------------------|
|----|----------|---------------------------|

SBGLA

«Super Glardon»

Sägeblätter für Goldschmiede

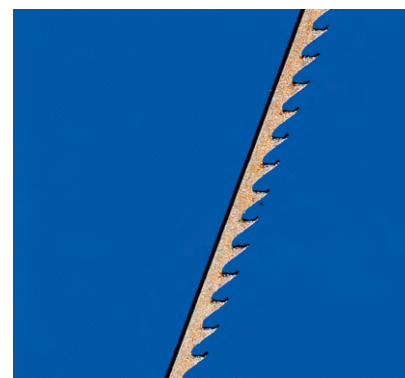
Jewellers' saw blades

Scies bijoutiers

Sierras para joyeros



| | | |
|--------|-------------|-----------|
| N° 8/0 | 0.32 x 0.16 | SBGLA-8/0 |
| N° 6/0 | 0.36 x 0.18 | SBGLA-6/0 |
| N° 5/0 | 0.4 x 0.2 | SBGLA-5/0 |
| N° 4/0 | 0.44 x 0.22 | SBGLA-4/0 |
| N° 3/0 | 0.48 x 0.24 | SBGLA-3/0 |
| N° 2/0 | 0.52 x 0.26 | SBGLA-2/0 |
| N° 0 | 0.58 x 0.28 | SBGLA-0 |
| N° 1 | 0.63 x 0.3 | SBGLA-1 |
| N° 2 | 0.70 x 0.34 | SBGLA-2 |
| N° 3 | 0.74 x 0.36 | SBGLA-3 |
| N° 4 | 0.8 x 0.38 | SBGLA-4 |
| N° 5 | 0.85 x 0.4 | SBGLA-5 |
| N° 6 | 0.94 x 0.44 | SBGLA-6 |
| N° 8 | 1.15 x 0.5 | SBGLA-8 |



SBSPI

«Spiral»

Sägeblätter für Goldschmiede

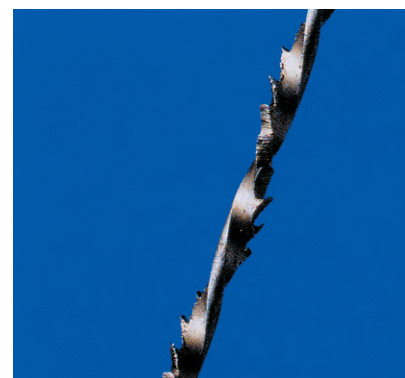
Jewellers' saw blades

Scies bijoutiers

Sierras para joyeros



| | | |
|--------|-------------|-----------|
| N° 2/0 | 0.60 x 0.36 | SBSPI-2/0 |
| N° 0 | 0.64 x 0.40 | SBSPI-0 |
| N° 1 | 0.68 x 0.63 | SBSPI-1 |
| N° 2 | 0.80 x 0.70 | SBSPI-2 |
| N° 3 | 0.88 x 0.74 | SBSPI-3 |
| N° 4 | 0.98 x 0.80 | SBSPI-4 |
| N° 5 | 1.05 x 0.85 | SBSPI-5 |
| N° 6 | 1.20 x 0.94 | SBSPI-6 |
| N° 8 | 1.28 x 1.15 | SBSPI-8 |



LO

ASB300

Sägebogen für Sägeblätter, Fix-Modell, Tiefe 75 mm

Frame for saw blades, fixed model, depth 75 mm

Monture scies bijoutiers, modèle fixe, profondeur 75 mm

Arco para sierras de joyeros, modelo fijo, garganta 75 mm

| | |
|--------|--------|
| N° 300 | ASB300 |
|--------|--------|

ASB400

Sägebogen für Sägeblätter, verstellbares Modell, Tiefe 75 mm

Steel frame for saw blades, adjustable model, depth 75 mm

Monture scies bijoutiers, modèle réglable, profondeur 75 mm

Arco de acero para sierras de joyeros, modelo ajustable, garganta 75 mm

| | |
|--------|--------|
| N° 400 | ASB400 |
|--------|--------|

ASB500

Sägebogen für Sägeblätter, verstellbares Modell, Tiefe 105 mm

Steel frame for saw blades, adjustable model, depth 105 mm

Monture scies bijoutiers, modèle réglable, profondeur 105 mm

Arco de acero para sierras de joyeros, modelo ajustable, garganta 105 mm

| | |
|--------|--------|
| N° 500 | ASB500 |
|--------|--------|

00



Feilengriffe File handles

Manches Mangos

| L = mm | Ref. / Ref. / Réf. / Ref. |
|---|---------------------------|
| Crocodile | |
| AL110 – AL810 | |
| Rutschfester Kunststoffgriff mit gehärtetem Gewindeinsatz | |
| <i>Antislip plastic file handle with hardened threaded insert</i> | |
| Manche plastique avec douille filetée trempée | |
| <i>Mango de plástico con casquillo roscado templado</i> | |
| 94 mm | AL110-BLEU |
| 94 mm | AL210-BLEU |
| 94 mm | AL310-BLEU |
| 105 mm | AL410-BLEU |
| 105 mm | AL510-BLEU |
| 121 mm | AL610-BLEU |
| 131 mm | AL710-BLEU |
| 131 mm | AL810-BLEU |
| Cobra | |
| AL250 / AL350 | |
| Rutschfester Kunststoffgriff | |
| <i>Antislip plastic file handle</i> | |
| Manche plastique antiglissant | |
| <i>Mango de plástico antideslizante</i> | |
| 90 mm | AL250 |
| 110 mm | AL350 |
| Condor | |
| AL160 / AL260 | |
| Nadelfeilengriff mit Spannzange | |
| <i>Precision needle file handle</i> | |
| Manche de précision pour limes aiguilles | |
| <i>Mango de precisión para limas aguja</i> | |
| 95 mm | AL160 |
| 95 mm | AL260 |
| Colibri | |
| AL170 | |
| Schraubkopfheft für Nadelfeilen | |
| <i>Handle for needle files</i> | |
| Manche pour limes aiguilles | |
| <i>Mango para limas aguja</i> | |
| 86 mm | AL170 |
| Timber | |
| AL240 | |
| Griff für Kettensägefeilen | |
| <i>Handle for chain saw files</i> | |
| Manche pour rondes à chaîne | |
| <i>Mango para limas motosierra</i> | |
| 120 mm | AL240 |
| Habilis | |
| AL2830 | |
| Riffelteilengriff | |
| <i>Rifflers handle</i> | |
| Manche pour rifloirs | |
| <i>Mango para codillos</i> | |
| 128 mm | AL2830 |

AL

Feilengriffe / Anwendung
File handles / Choice guide

Manches / Application
Mangos / Aplicación

Typ - Länge / Type - Length / Type - Longueur / Tipo - Largo

Crocodile

AL110 – AL810

Für Präzisionsfeilen

For Precision files

Pour limes de précision

Para limas de precisión

| | | | | | | | | | | | | | | | | | | | |
|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|
| AL110 | ● 4" | ▲ 4" | | | | | | | | | | | | | | | | | |
| AL210 | ■ 4" | ● 5" | ▲ 5" | ■ 5" | ● 6" | | | | | | | | | | | | | | |
| AL310 | ■ 4" | ▲ 4" | ▶ 4" | ◐ 4" | ▲ 6" | ■ 6" | | | | | | | | | | | | | |
| AL410 | ■ 6" | ▲ 6" | ▶ 6" | ◐ 6" | ● 8" | ▲ 8" | ■ 8" | | | | | | | | | | | | |
| AL510 | ■ 8" | ▲ 8" | ▶ 8" | ◐ 8" | ● 10" | ▲ 10" | ■ 10" | ● 12" | | | | | | | | | | | |
| AL610 | ■ 10" | ▲ 10" | ▶ 10" | ◐ 10" | ▲ 10" | ▲ 12" | ■ 12" | | | | | | | | | | | | |
| AL71012 | ■ 12" | ▲ 12" | ◐ 12" | ● 14" | ■ 14" | ▲ 14" | ▲ 14" | ■ 14" | ▲ 14" | ■ 14" | ● 16" | | | | | | | | |
| AL810 | 14" (allgemein / all types / en général / toda clase) | | | | | | | | | | | | | | | | | | |

Cobra



AL250 / AL350

Für Werkstattfeilen

For engineer's files

Pour limes de mécanique

Para limas de taller

| | | |
|-------|---|-----------------------|
| AL250 |  | 4 – 6" (100 – 150 mm) |
| AL350 |  | > 6" (>150 mm) |

Condor



AL160 / AL260

Für Nadelfeilen

For needle files

Pour limes aiguilles

Para limas aguja

| | | |
|-------|---|---|
| AL160 |  | Feilenheft / Handle / Manche / Mango = Ø 2 – 3 mm |
| AL260 |  | Feilenheft / Handle / Manche / Mango = Ø 3 – 4 mm |

Colibri

AL170

Für alle Nadelfeilen

For all kinds of needle files

Pour toutes les limes aiguilles

Para toda clase de limas aguja

| | |
|-------|--|
| AL170 | |
|-------|--|

Timber

AL240

Für alle Kettensägefeilen

For all kinds of chain saw files

Pour toutes les limes rondes à chaîne

Para toda clase de limas motosierra

| | |
|-------|--|
| AL240 | |
|-------|--|

Nota:

Vorstehende Angaben sind Richtwerte. Sie können, je nach Schmiedearart des Angels, leicht variieren.

Above data are indicative and are subject to the type of tang forging, slight deviations are possible.

Les données ci-dessus sont indicatives et dépendent du type de forgeage des queues. Des légères différences sont possibles.

Los datos arriba mencionados dependen del tipo de forjado de las espigas, pequeñas diferencias son posibles.

Sonderanfertigungen *Custom-made files*

Limes spéciales *Limas especiales*

Erfahrung und Know-how

Standard- oder Sonderanfertigungen, die Herstellung unserer Feilen stützt sich auf das Know-how des Branchenleaders. Sie unterliegt den selben Qualitätsanforderungen und basiert auf langjährige Erfahrung.

Auf Anfrage stellen wir Feilen in besonderen Formen und Abmessungen her.

Senden Sie uns ein Muster oder eine Zeichnung; wir unterbreiten Ihnen unser Angebot.

Know-how and experience

Standard or custom-made, we manufacture the files you need with the know-how of the world leader, with the same care for quality and based on a longlasting experience.

On request we manufacture files with special shapes and dimensions.

Just send your sample or drawing, we shall send you our quote.

Savoir-faire et expérience

Exécutions standard ou spéciales – nous les produisons avec le savoir-faire du leader de la branche, avec les mêmes critères de qualité – et l'expérience en plus !

Sur demande, nous fabriquons des limes de formes et dimensions particulières.

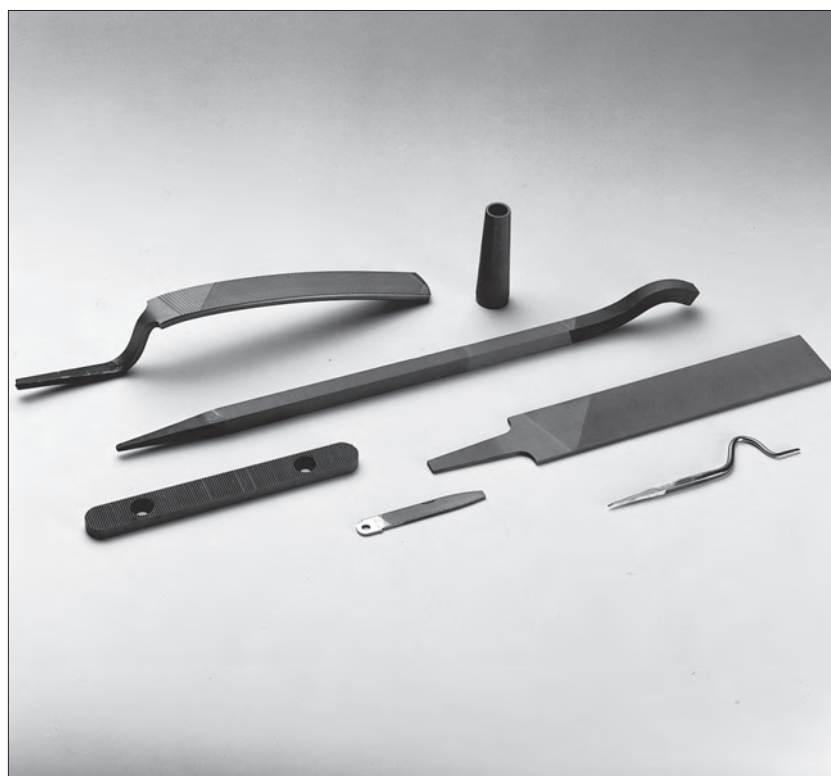
Envoyez-nous un croquis ou modèle, nous vous ferons parvenir notre offre.

Know how y experiencia

¡ Las ejecuciones estándar o especiales las manufacturamos con el know how del lider en el ramo, con los mismos criterios de calidad y encima de eso, la experiencia !

Bajo pedido, manufacturamos limas de formas y dimensiones particulares.

Envienos un esquema o modelo, le haremos la correspondiente oferta.



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Demandez-nous également la documentation sur

- Limes de mécanique
 - Râpes
 - Outils diamantés
 - La gamme complète des fraises à métaux, avec et sans revêtement
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