



DREX[®]-TOOLS

UTENSILI DI PRECISIONE PER L'INDUSTRIA MECCANICA - AERONAUTICA - AEROSPAZIALE
PRECISION TOOLS FOR THE MECHANICAL AVIATION - AEROSPACE MANUFACTURING



SUPER DIAMOND **EXTRUSION BURNISHING TOOLS**



AND GROUP ITALIA SRL
s. op. Via Polonia, 15 - 20157 Milano

vendite@andgroupitalia.com
sales@andgroupitalia.com
www.andgroupitalia.com



SUPER DIAMOND EXTRUSION BURNISHING TOOLS

DREX®TOOLS diamond burnishing tool can be used to roll the outer circle, inner hole (greater than a certain diameter), end face, etc. on the lathe. It is not limited by the diameter except the inner hole, and has wide applicability.

TOOL CHARACTERISTICS:

- 1) The turning diamond burnishing tool is designed exquisitely and can be used by left and right hands.
- 2) The head of the steerable diamond burnishing tool can rotate and the positive and negative 90° can be adjusted to meet most of the rolling angle processing.
- 3) The surface roughness of workpiece after rolling can be less than Ra0.08 (related to the previous process)
- 4) Long service life, it can be extruded at multiple points through rotating diamond.
- 5) Diamond burnishing tools can extrude materials with hardness up to HRC60.

ROLLING PRINCIPLE:

Under the microscope, during the cutting process of the workpiece, the tool tip will leave a step like cutting trace on the surface. The diamond will overcome the yield point of the material during the sliding process on the workpiece surface under the effect of the spring force, causing plastic deformation on the material surface, forcing the highest point of the cutting trace to flow into the lowest point, so as to obtain a smooth and flat mirror. In the process of rolling, the material will be hardened due to plastic deformation, thus improving the fatigue strength of the workpiece surface.

To achieve the best squeezing effect, the surface finish of the last cutting process of the workpiece should be within RZ 15 µm.

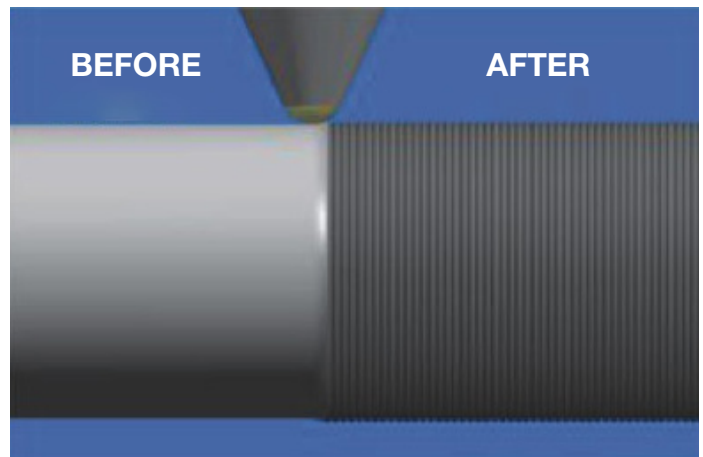
Refer to the right figure



Workpiece surface profile after turning



Surface profile of workpiece after reaming and grinding



DIAMOND ROLLER BURNISHING TOOLS MS2300-00 AND MS2300-CS

- Eliminate lapping and grinding
- It is possible to obtain surfaces with high quality finishing rate
- Reduced dimensions for the use in very small working spaces
- Replaceable diamond stem holder
- Of a simple using
- Suitable for all workshops



IT IS POSSIBLE TO OBTAIN VERY SMOOTHED SURFACES: the diamond DREX®-TOOLS roller burnishing tools completed. with a selected diamond stem are suitable for carrying out the burnishing of turning or grinding surfaces on a lot of metals for obtaining a high level in finishing, from 0,05 to 0,20 μm . It is possible to burnish cast iron obtaining a surface finishing rate of 0,22-0,42 μm .

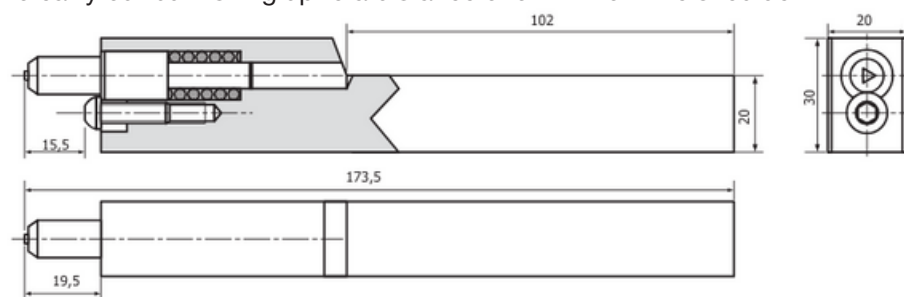
REDUCED DIMENSIONS FOR VERY SMALL WORKING SPACES: the diamond DREX®-TOOLS roller burnishing tools have been studied with reduced dimensions with a shank having a section of 20 mm. Thanks to this matter they are the ideal tools to be used on small lathes too.

SIMPLE TO BE USED: the diamond roller burnishing tools have being used both on traditional and CNC lathes. After having installed the roller burnishing tool on the tool-holder, the tool places so that the diamond gets in touch with the middle of the part, obtaining an angle of 90° respect to the surface to be burnished. The tools must be used for the burnishing of linear surfaces. The tool gets in touch with the surface to be burnish, the spring is put under pressure; the feed begins with a speed of 0,07-0,1 mm per turn, with a number of revolutions of the part similar to that used for the turning.

CHEAP! Suitable for all the workshops: the tools have a precision diamond stem mounted on the top. It is possible to burnish materials with hardness up to 40 HRc, obtaining a finishing of 0,07-0,1 μm .

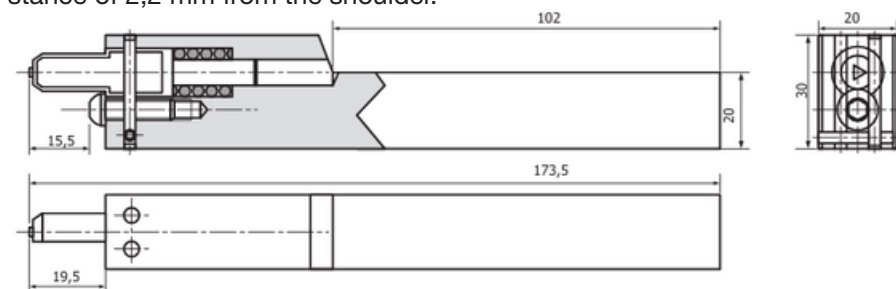
Two versions: the DREX-TOOLS® diamond roller burnishing tools have being realized in two versions:

MS2300-00 suitable for burnishing linear surfaces. With this tool is possible to carry out burnishing up to a distance of 5 mm from the shoulder.

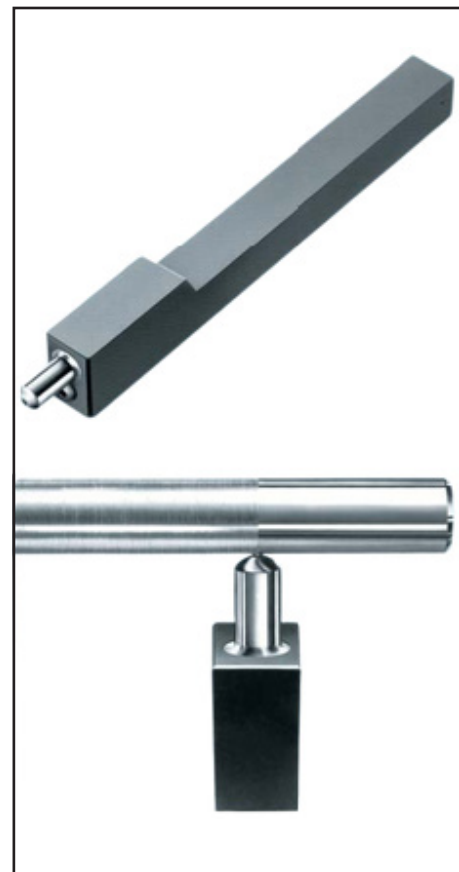


ISpare Parts: Diamond Insert: D375-01 / Kit springs: D2300-SP

MS2300-CS similar to MS-2300-OO from which it differs for the discharged diamond stem which is suitable for carrying out roller burnishing upto a distance of 2,2 mm from the shoulder.



ISpare Parts: Diamond Insert: D375-CS / Kit springs: D2300-SP

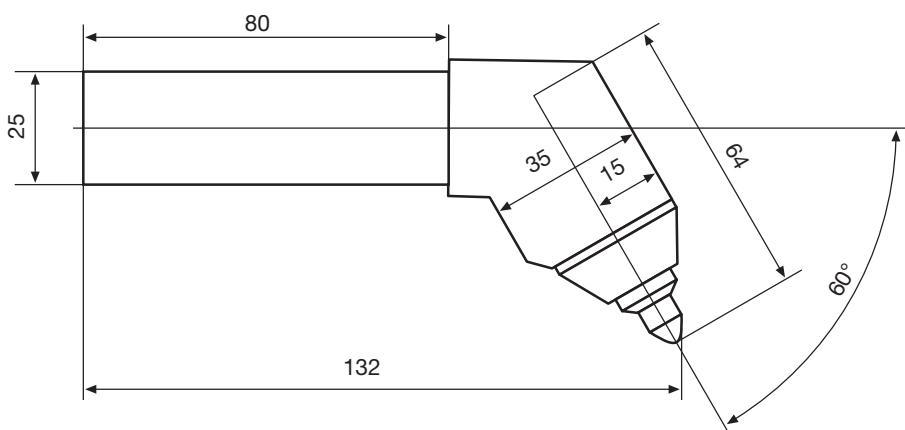


DIAMOND ROLLER BURNISHING TOOLS MS2300-60

- Thanks to its configuration it can be used for burnishing inside and outside diameters, stepped, flat and spherical surfaces. It is possible to burnish materials with a hardness up to 40 HRc.
- Holder diamond head with an inclination of 60°.
- Equipped with a diamond with radius 1,5 mm: it can carry out burnishing on turned pieces with a maximum roughness of 2,5 μm , obtaining a finishing surface with a roughness between 0,6 - 0,04 Ra.
- Available with shank of 25 mm for the application on most types of lathes.



SIZE



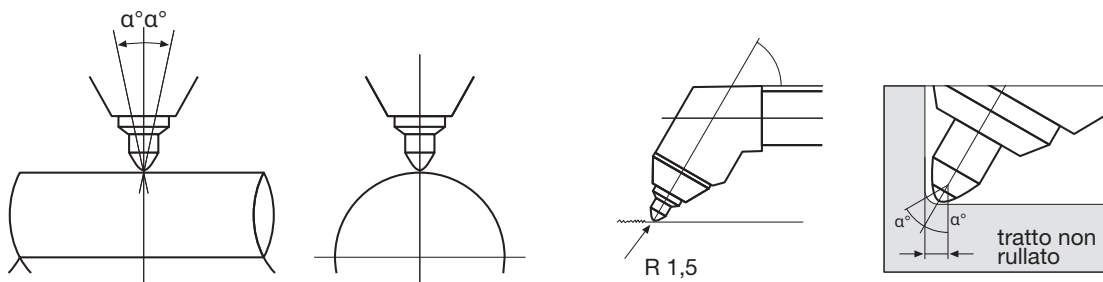
Spare Parts:
Diamond Insert: MS2302-15
Kit springs: MS2305-00

INSTALLATION AND USE OF THE TOOL

Mount the tool on the turret so that the diamond will be positioned in the middle part of the piece to be burnished. The tool is supplied with a diamond with radius 1,5 mm; you have to consider the angle 0° and the length of 2 mm of the unsmoothed surface.

Bring the diamond in touch with the work piece, point "O", advance with the turret of 0,1-0,2 mm in order to grant pressure to the tool, insert the feed and burnish the surface's length required, stop the feed and move away the tool from the piece.

These operations must be carried out with the rotation of the piece in order to prevent the damage of the diamond.

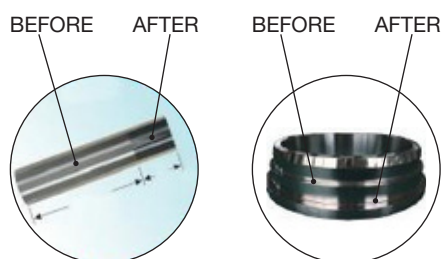


SUPER DIAMOND BURNISHING TOOLS

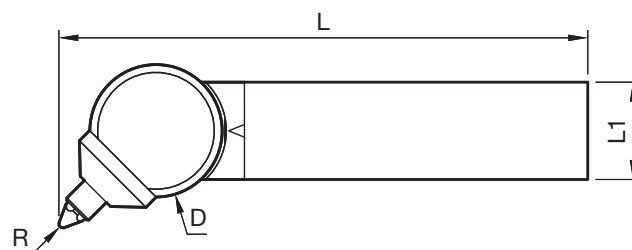
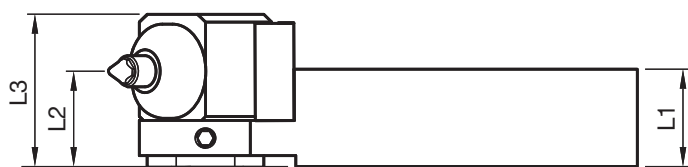
DIAMOND ROLLER WITH ADJUSTABLE HEAD MS2180

This tool uses natural industrial super grade diamond as the cutter head to roll the very hard metal surface of the mirror surface of high hardness metal surface.

1. Adjustable load spring is installed inside
2. The lubricating oil is sufficient and the workpiece must rotate before the diamond can be contacted for processing
3. Minimize run out when clamping workpieces



SIZE (mm)

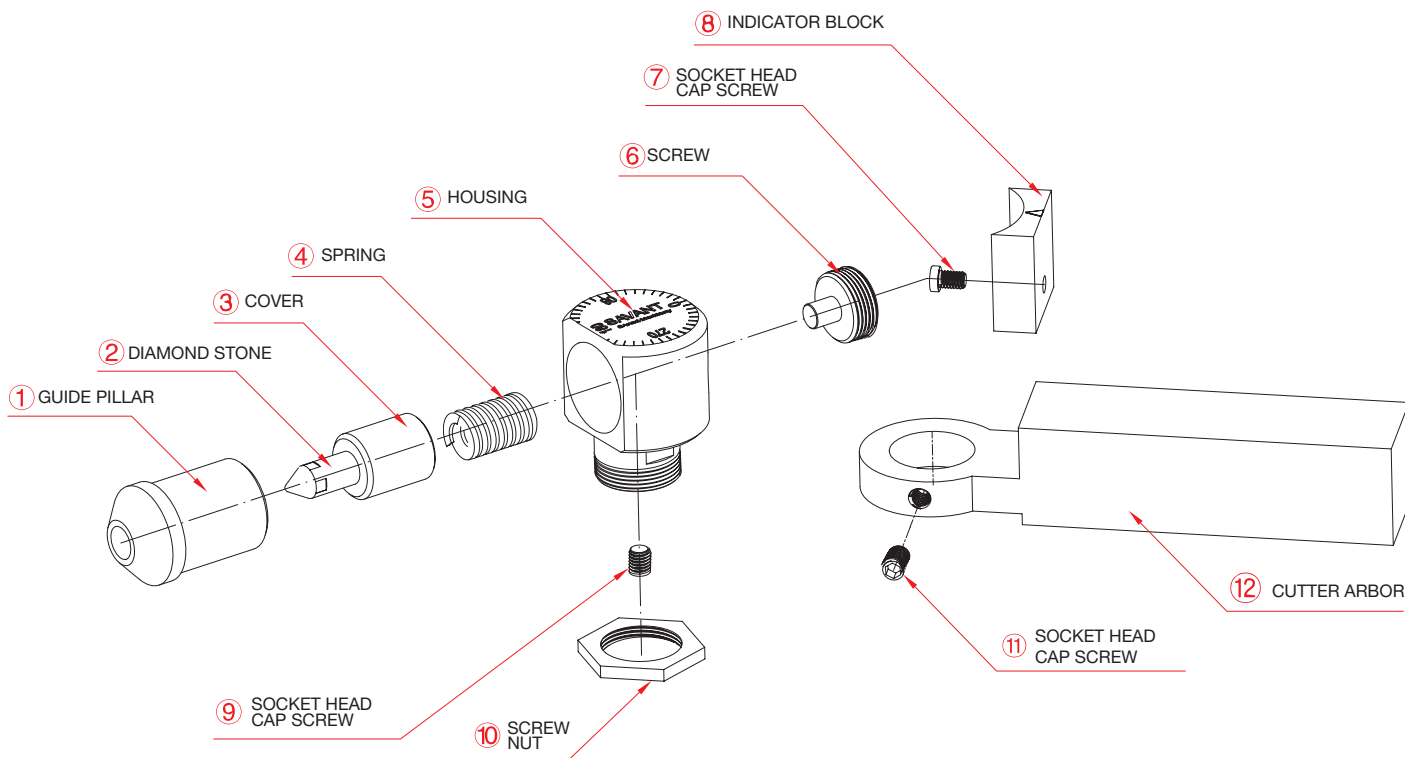


MODEL	L	L1	L2	L3	D
MS2180-1212-R#	148.1	12	12	26.1	34
MS2180-1616-R#	148.1	16	16	30.1	34
MS2180-2020-R#	137.8	20	20	34.1	34
MS2180-2525-R#	137.8	25	25	39.1	34

For complete models, please fill in the radius value of diamond after "R".
 The Diamond burnishing tools roller head standards include R0.75, R1.0, R1.5, R2.0.

MATERIAL	CUTTING SPEED m/min	AVANZAMENTO mm/giro	RUGOSITÀ DI PREPARAZIONE Ra	RUGOSITÀ DOPO LA RULLATURA Ra
CARBON STEEL AND ALLOYS	100-200	0,08	2,5	0,2
STAINLESS STEEL	100-200	0,10	2,5	0,2
CAST IRON	100-200	0,10	2 - 3	0,6
ALUMINUM AND OTHER ALLOYS	100-200	0,10	2	0,04

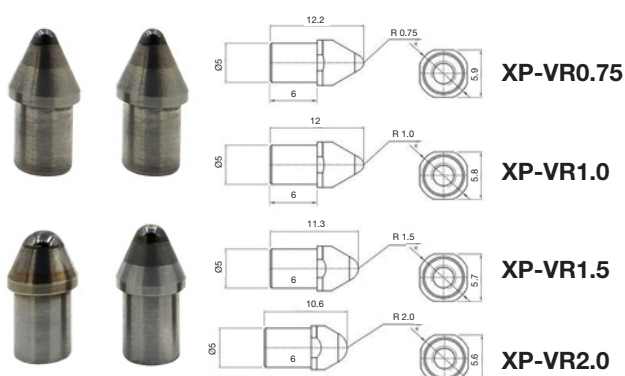
STRUCTURE



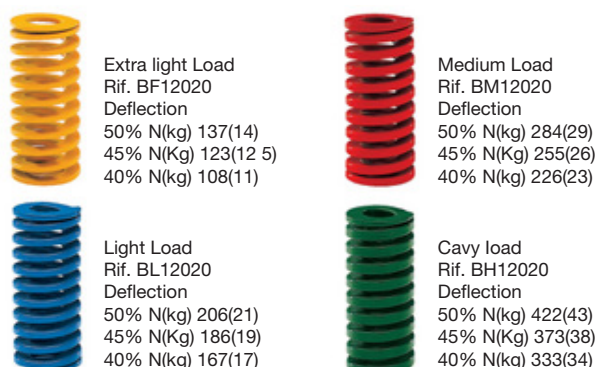
- The burnishing tools are designed to be equipped with three kinds of springs with different pressures. The compression amount depends on the spring specification, and the pressure can be adjusted by screws (it will be adjusted before leaving the factory).
- The tool can be directly clamped on the tool holder of the lathe or other fixture, the workpiece rotates, and the tool is fed for processing.
- When machining the single rolling indenter, the coolant must be used.
- When anyone of the accessories needs to be replaced, please disassemble it according to the sequence of the above figure.

SPARE PARTS

DIAMOND ROLLER



SPRINGS

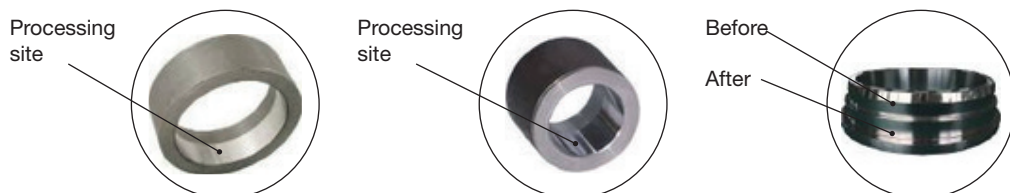


SUPER DIAMOND BURNISHING TOOLS STEERING DIAMOND WITH ADJUSTABLE HEAD MS2250

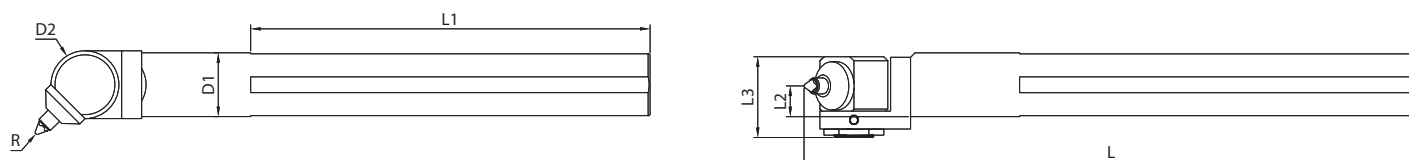


This tool uses natural industrial super grade diamond as the cutter head to roll the surface of the very hard mirror.

1. An adjustable load spring is installed inside
2. The lubricating oil is sufficient, and the workpiece must rotate before the diamond can be contacted for processing
3. Minimize run out when clamping workpieces
4. By adjusting the angle of the cutter head, it is possible to extrude the inclined plane, R face, end face, outer circle face, inner circle face, etc.



SPECIFICATION TABLE (mm)

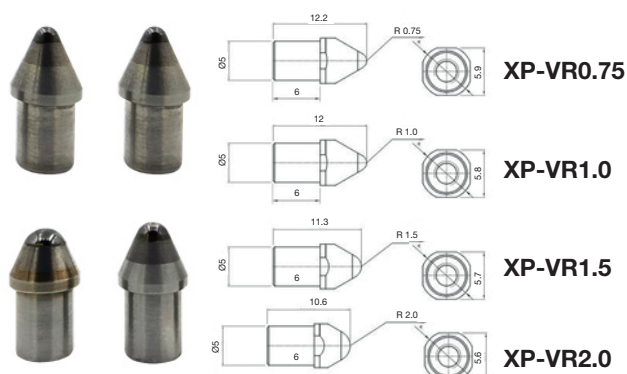


MODEL	L	L1	L2	L3	D1	D2
MS2250-32-R#	308	200	16	40.5	32	34

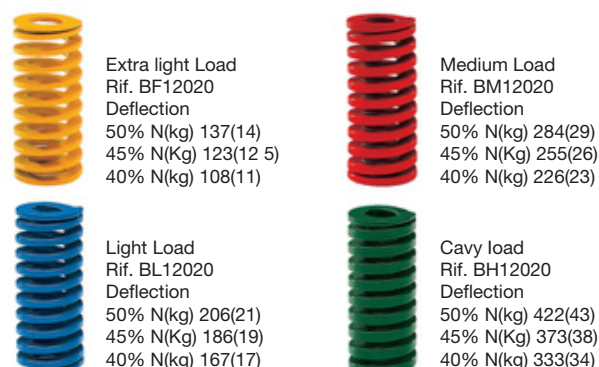
To complete models, please fill in the radius value of diamond after "R".
The Diamond burnishing tools roller head standards include R0.75, R1.0, R1.5, R2.0.

SPARE PARTS

DIAMOND ROLLER



SPRINGS



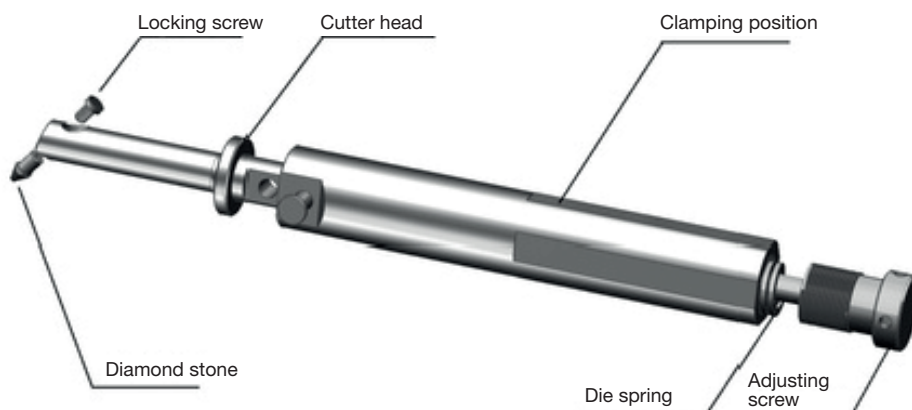
DIAMOND BURNISHING TOOLS FOR HOLES OF SMALL DIAMETER SUPER DIAMOND MS2050



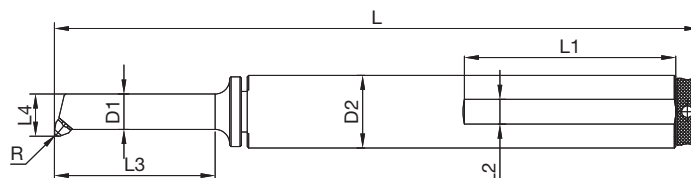
Processing site



Processing site



SIZE (mm)

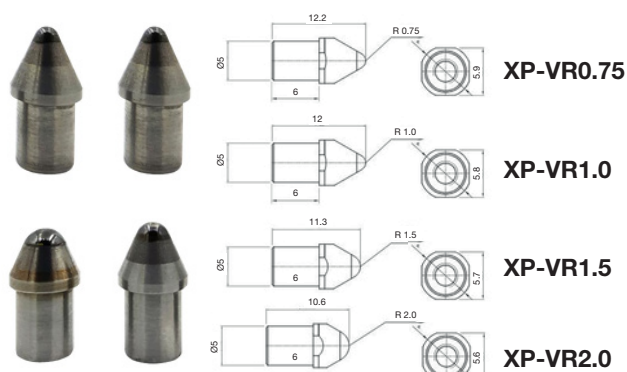


MODEL	L	L1	L2	L3	L4	D1
MS2050-25-R#	225	73	8.5	55.5	14.5	12.2
MS2050-25-R#-S#	200	73	8.5	27	15.5	12.2

To complete models, please fill in the radius value of diamond after "R".
The Diamond burnishing tools roller head standards include R0.75, R1.0, R1.5, R2.0.

SPARE PARTS

DIAMOND ROLLER HEAD



SPRINGS

