

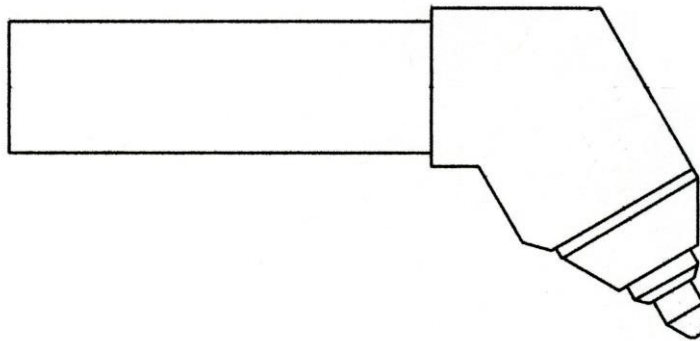
DREX[®]-TOOLS

AND GROUP ITALIA SRL

DIAMOND BURNISHING TOOL MS2300-60

INSTRUCTIONS MANUAL

MID121008-ING



DIAMOND BURNISHING TOOL MS2300-60**Main Features**

The roller burnishing tool MS2300-60 is suitable for an ultra smooth finish of surfaces in carbon steel, alloy steel, stainless steel, cast steel and other materials with a maximum hardness of 40 HRC, also providing the following advantages: eliminates grinding and polishing, produces a very smooth finish, increases surface hardness, improves resistance corrosion, guarantees a greater hold.

Thanks to its configuration it can be used for the roll burnishing of internal diameters, external diameters, tapered, flat and circular surfaces.

The tool incorporates a diamond stem for a diamond with a radius of 1.5 mm; the diamond presses on the surface to be roll burnished and consequently the internal spring adjusts to the correct compression.

Any type of coolant can be used for the tool.

Do not use the tool without coolant.

Preparation of the workpiece

The preparation of the workpiece is important to get a good roll burnish finish.

Lathed or grinded surfaces with a maximum roughness of 2-2.5 μm , with a regular distance between peaks and valleys are ideal for pre-rolling; scratches or tears caused by previous operations are extremely difficult to roll burnish. Another important factor is the stability of the machine, the work piece must not fluctuate more than 0.05 mm.

Adjustments and use**Adjusting the tool**

Loosen the screw part no. 3 about a $\frac{1}{2}$ turn. Hold the tool holder part no.4 turn the adjustment nut part no.7, the spring load part no. 5 increases clockwise and decreases by turning it counterclockwise. After adjusting the compression of the spring tighten the screw part.3.

For an initial adjustment of the spring, see the data in Table 1.

With a complete turn of the adjusting nut the spring is compressed of approximately 1 mm = 49 N.

WARNING: max. compression limit is 5 mm = 250 N.

TABLE 1

Material	Speed m/min	Advancement mm/turns	Spring Compression mm	Load N	Roughness before burnishing Ra	Roughness after burnishing Ra
Carbon steel and alloys	100-200	0,08	4	200	2,5	0,2
Stainless Steel	100-200	0,10	4	200	2,5	0,2
Cast Iron	100-200	0,10	3	150	2 - 3	0,6
Alluminium and other alloys	100-200	0,10	0,5	25	2	0,04

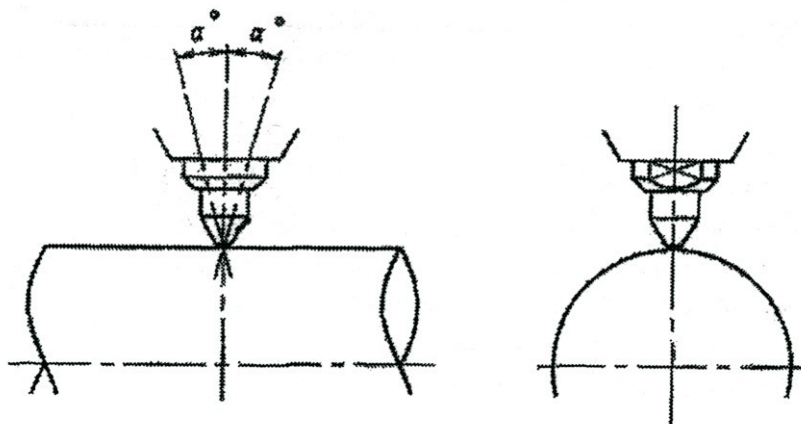
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DIAMOND BURNISHING TOOL MS2300-60

Installation on the machine

Position the tool on the turret so that the diamond is placed at the center of the work- piece respecting a tolerance of $+ 0.02 / 0$ mm.

The tool has a diamond with a radius of 1.5 mm, consider the angle α° and the surface that won't be roll burnished, see Table 2.



Bring the diamond in contact with the work piece, point "0", advance with the turret of 0.1-0.2 mm in order to give pressure to the tool, insert the advancement and roll burnish the surface portion required, when finished stop the advancement and move the tool away from the workpiece.

These operations must be performed with the piece in rotation to avoid damage to the diamond.

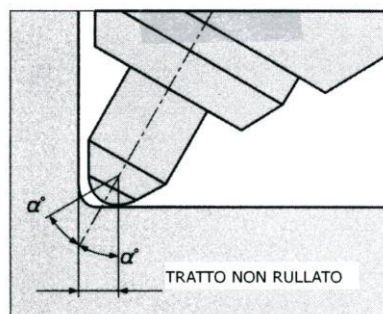
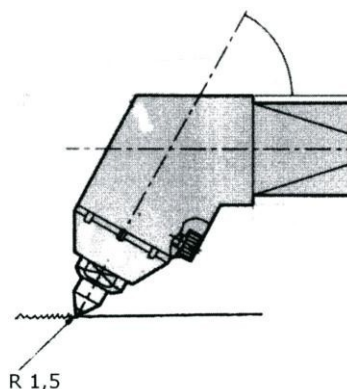


TABELLA 2

Radius of diamond	unburnished piece	Angle of contact α°
R 1,5	2 mm	$\pm 30^\circ$

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DIAMOND BURNISHING TOOL MS2300-60**Smontaggio e rimontaggio**

To disassemble the tool, proceed as follows:

Loosen the screw part no. 3, turn counterclockwise the adjusting gear part no. 7 in order to separate the bush part no. 8, take out the diamond part no. 2, the spring part no. 5, the spring guide part no. 6, unscrew the threaded screw part no. 9, remove the bush part no. 8.

To reassemble the tool perform the same procedure in the opposite way.

Problems, causes and remedies

Control the roughness before and after roll burnishing.

If after roll burnishing spiral marks with a constant pace appear this means that the load is too low. While, if the surface shows signs of cleavage this means the load is too high.

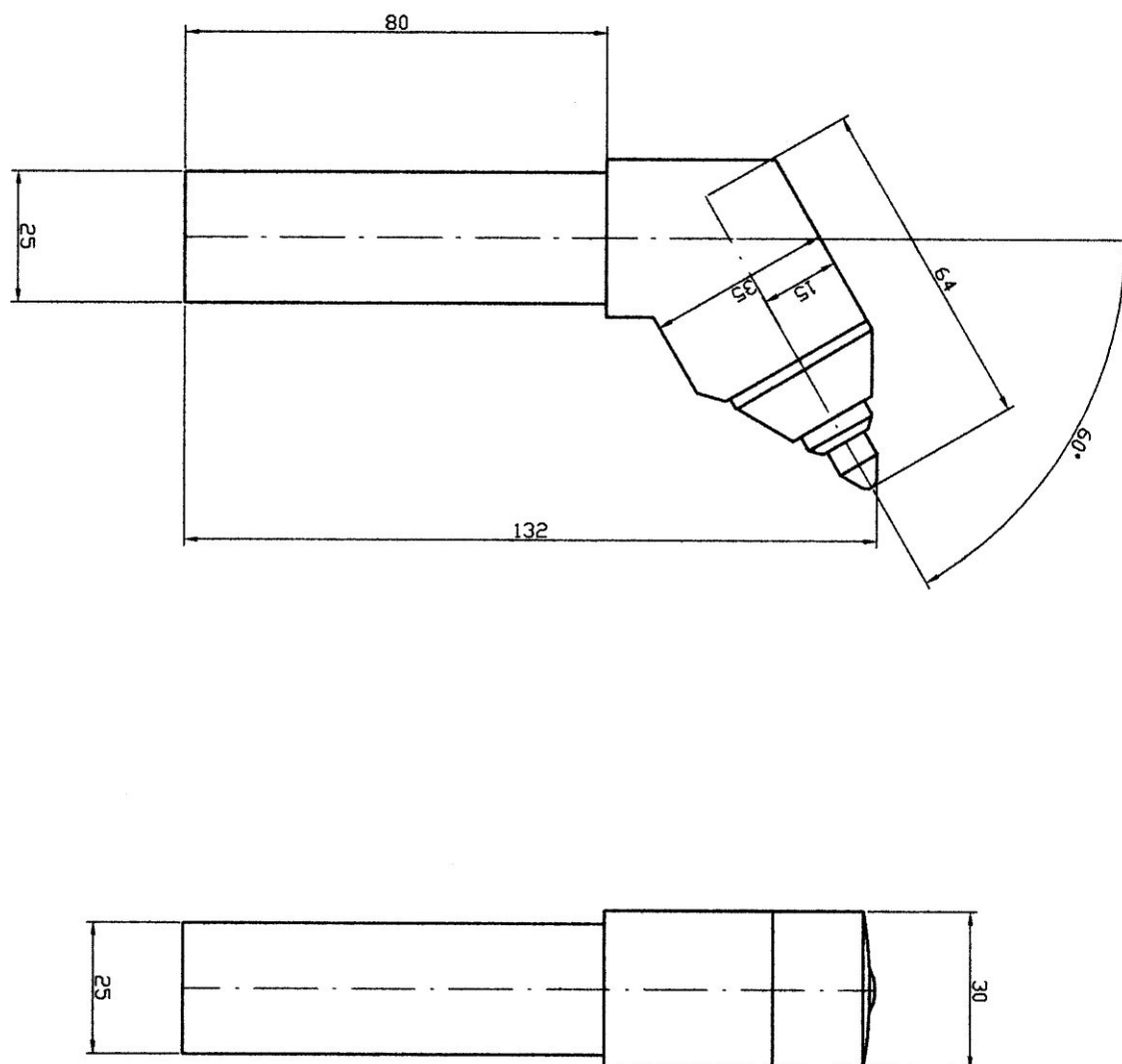
Problem	Cause	Remedy
Poor finish	<ul style="list-style-type: none">- Diamond's worn out- Advancement is too high- Load is too light- Load is too high- uneven surface	<ul style="list-style-type: none">- Change the diamond- Slow the advancement- Increase the load- Diminish the load- Lower the rotation speed
Spiral marks on the surface	<ul style="list-style-type: none">- Diamond's worn out- Diamond's damaged- Presence of particles during roll burnishing- Streaks are present when work piece is being prepared	<ul style="list-style-type: none">- Substitute the diamond- Substitute the diamond- Clean the work piece before roll burnishing- Roll burnish piece with no streaks

Maintenance and care

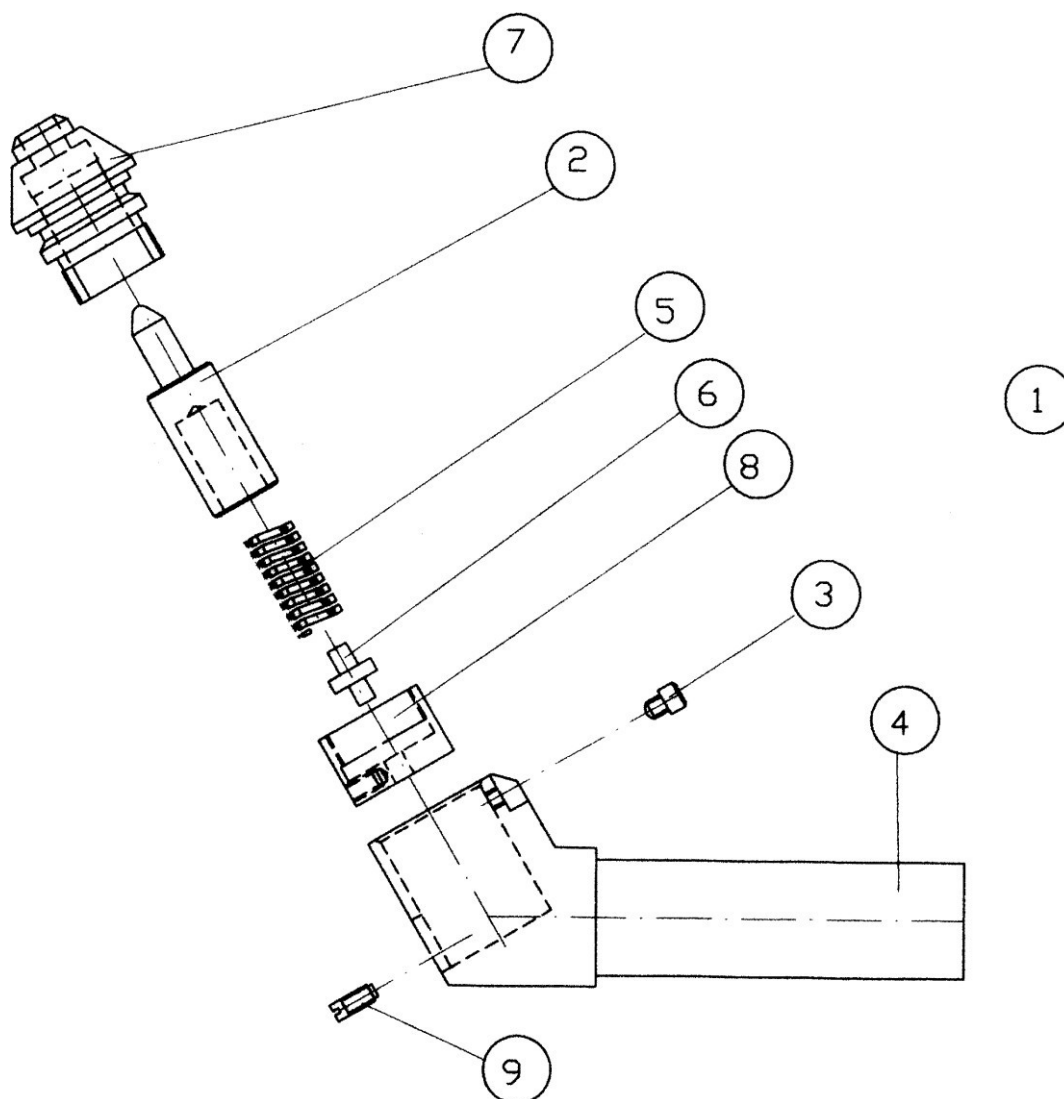
Follow the steps listed below for a longer tool life:

- Handle the diamond with care it could be damaged if left compressed against the work piece not in rotation
- Always use the tool with coolant (ideal emulsion at 10%)
- The diamond is subject to wear and should be replaced when you no longer obtain a good finish
- Replace the spring when reaching 1 million usages.

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DIAMOND BURNISHING TOOL MS2300-60**Dimensions:**

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DIAMOND BURNISHING TOOL MS2300-60**List of Parts**

Part. N°	Spare Part Name	Code	No Pcs
1	Assembled Tool		
2	Diamond Stem	MS-2302-15	1
3	Screw M4x5	MS-2303-00	1
4	Holder	MS-2304-60	1
5	Spring	MS-2305-00	1
6	Spring Guide	MS-2306-00	1
7	Adjustment Gear	MS-2307-00	1
8	Bush	MS-2308-00	1
9	Screw	MS-2309-00	1

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