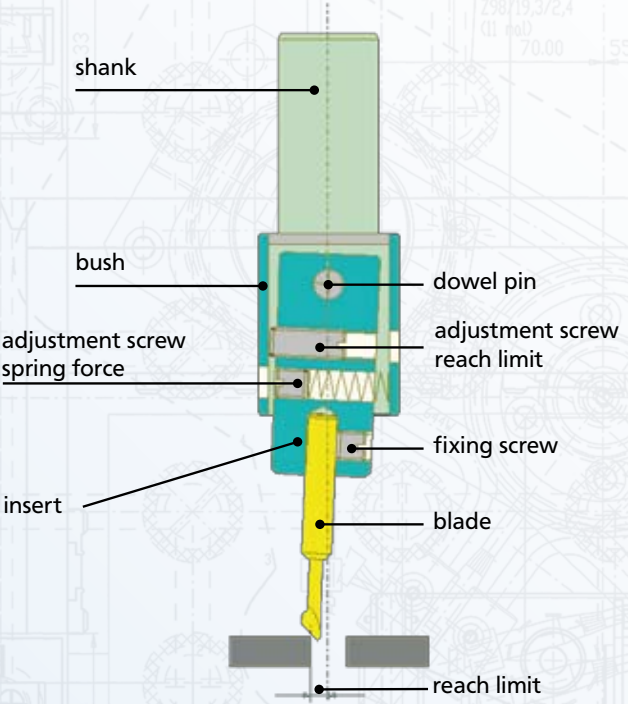
DEBURRING TOOL

– MANUAL –

GMO

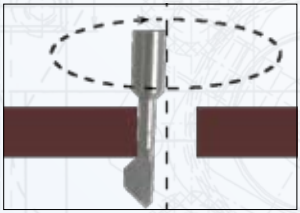
Content

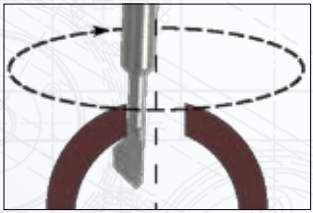

shank
bush
dowel pin
adjustment screw
spring force
adjustment screw
reach limit
fixing screw
insert
blade
reach limit

Security

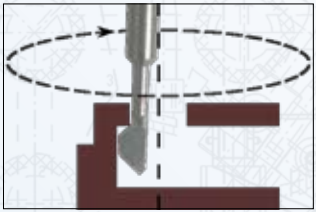
- Do not use the tool outside a stationary metal handling machine.
- Use safety goggles, if the tool works outside of a separated and closed area.
- Take the tool out of the machine, when you change the blade, or when you adjust it.
- Only use original replacement parts.
- Keep the tool and its accessories away from children.

With the tool, you are able to deburr drilled holes, no matter which side.
The holes can be in plane or in vaulted workpiece areas.





Because you can adjust the reach limit, it is possible to deburr holes, which are very close to a side.

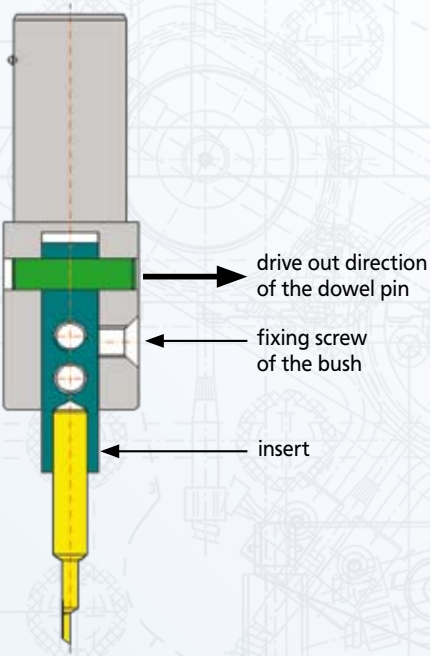


Inserts

The insert takes up the blade and is used to setup the tool to the respective bore diameter.
It is connected with the tool body by a dowel pin.
The inserts have a bore to take up the blade.
The greater the hole diameter, the greater must be the eccentricity of this bore.
There are six different inserts with an eccentricity from 0 up to 2,5 mm.

Changing the insert

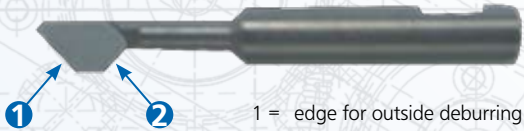
Withdraw the bush, therefore remove its fixing screw. Attention! While withdrawing the bush, hold back the spring with your thumb.
Drive out the dowel pin with a drift in the right direction and take away the insert.
Before you put in the new insert, grease lightly the bearing hole in the insert.
Put the insert in the tool body, and carefully drive in the dowel pin. The insert must stay moveable.
Assemble the pressure spring and the bush.


drive out direction
of the dowel pin
fixing screw
of the bush
insert

Blades

The Blades are the wearing parts of the tool. They are grinded from carbide. There are different forms of blades (see table „blades" page 12). The service live depends on the workpiece material. Approximate experienced values are:

- Alu, Brass ... 20,000 to 100,000 holes
- normal steel 3,000 to 20,000 holes
- stainless steel 500 to 3,000 holes



1 = edge for outside deburring only sharp on type /B
2 = edge for inner deburring always sharp

Angle 45 degrees is the standard type.
The type W25 has an angle of 25 degrees and is for use in very vaulted areas.
If the relation inner tube diameter/hole diameter is less than 2.5, you should use the type W25.

Changing blades

Loosen the fixing screw on the insert and pull the old blade out of it. Push the new blade completely int the bore so that the plane area shows towards the fixing screw and fix it.

Pressure springs

The spring force has the greatest impact to the result of the deburr process.
On the tool is a screw to fine adjust the spring force.
There are four types of springs:

- F40 for soft metal (alu, brass ...)
- F50 for normal hard steel
- F55 for harder steel
- F63 for extreme hard steel

Changing the spring

1. Remove the fixing screw for the bush
2. Push up the bush until the spring comes out.
   Hold back the spring with your thumb
   while pushing the bush up.
3. Change the spring and assemble the bush.

The deburr process

Preparation

1. Assemble the tool according to table „tool configuration“ (page 12).
2. Chuck the tool into the machine
3. Position the tool axis to the middle of the drilled hole
4. Adjust the reach limit, so that the blade meets the hole edge in the middle of its front slope.

Only inner deburring

1. With fast gear and rotating tool go in front of the hole edge.
2. With speed F500 go forward until the cutting slope of the blade is through the hole.
3. With slow speed go back until the cutting edge is free.
4. Return the tool with fast gear to the start position.

Inner and outer deburring

1. With fast gear and rotating tool go in front of the hole edge.
2. With slow speed go forward until the front cutting slope is completely in the hole.
3. Perform steps 2, 3, 4 of „only inner deburring“.

Example for inner deburring

The hole process is performed with rotating tool.

Driving in front of the boring with fastest gear.

Moving in the hole with feed F500 until the sharp slope of the blade is through.

Moving back with feed F100.
Thereby the burrs are removed.

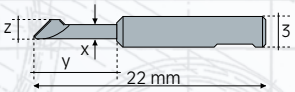
Moving back to the start position with fastest gear.

Workpiece material 11SMn30
Rotation 300 rpm
Duration 3 seconds

Tables

Measurements	
shank diameter	10 mm
shank length	30 mm
outer diameter	14 mm
tool length without blades	54 mm
tool length with blades	70 mm

Standard blades				
Type	**boring**	**X**	**Y**	**Z**
S12	1,2 - 1,5 mm	0,7	5,7	1,1
S15	1,5 - 2,0 mm	1,0	7,1	1,4
S20	2,0 - 2,5 mm	1,4	8,8	1,9
S23	2,5 - 7,5 mm	1,4	8,8	2,2



Tool configuration		
diameter	insert	blade
1,2 - 1,5	E00	S12
1,5 - 2,0	E00	S15
2,0 - 2,5	E00	S20
2,5 - 3,5	E05	S23
3,5 - 4,5	E10	S23
4,5 - 5,5	E15	S23
5,5 - 6,5	E20	S23
6,5 - 7,5	E25	S23

Rotation	
workpiece	rpm
plane	300 - 500
vaulted	150 - 300

Feed	
material	feed [mm/min]
soft	150 - 200
normal	100 - 150
hard	50 - 100

Springs	
material	spring
soft	F40
normal	F50
hard	F55
very hard	F63

Date 2012-11-23
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