MERAX

Operation Manual
Out-mounted Beveling Machines

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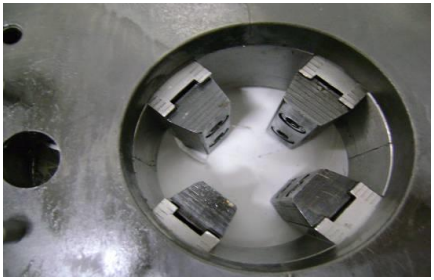
ISD/ ISF/ SKD/ HYD Out-mounted Beveling Machines Operator's Manual

Before any maintenance or operation, keep equipment disconnected from power supply, remove the bits from machine and measure the pipe to be beveled or cut. Place shims if necessary.

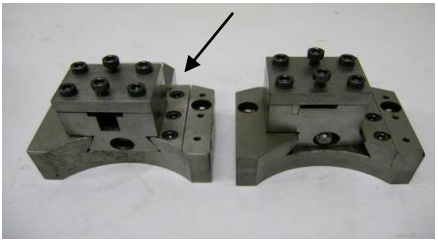
Shims



Installed shims

SPLITING THE PARTS:

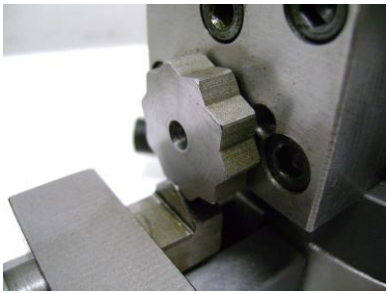
If installing the beveling machine in two parts is necessary, first remove the toolboxes, loosening the hex screws, as showed by the arrow.

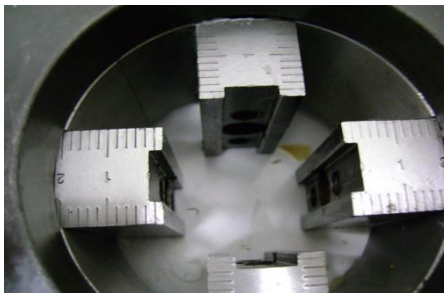


Toolboxes

Beveling machine separated in two halves

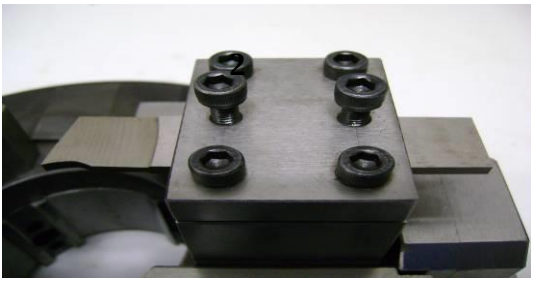
Then, lock the set (turning part and fixed part), using the lock pins that must be inserted in 02 holes located on the side of the ring, under the toolboxes. This is necessary to keep both halves leveled and prevent parts from moving during the separation and assembly of the beveling machine on the pipe, avoiding damages and accidents.
Then, split the ring into two parts, realizing all six (06) hex screws which keep the halves together. They are located outside the ring - three (03) on each side.
The halves will now be placed around the pipe to be cut or beveled. The half where the pinion is located, must be placed on the top of the pipe and, the other half, under the pipe. Use the hex screws to put the parts together.
After the beveling machine is securely installed onto the pipe, remove the lock pins.
Place bits toolboxes back in place. Use the hex. screws to hold them.
The toolboxes can be placed in 03 (three) different positions, according to the proximity of the pipe (observe perforations next to the guide pin). Place them as desired, adjusting the advance pin as well.


Advance pin installed on advance wheel


Expansion blocks and shims holder.

To begin cutting or beveling operation, the pipe must be centered in the inner diameter of the beveling machine. Regulate the shims for a first adjustment and observe the scale of the expansion block. Use one of the shims as reference and regulate it. Then, regulate the opposite shim to keep the same distance between the pipe and the inner wall of the beveling machine. Repeat the same procedure with the two remaining shims.

Use a square to check if the angle between the beveling machine and the pipe is 90o.
Install the cutting tool and use it to complete the adjust operation.



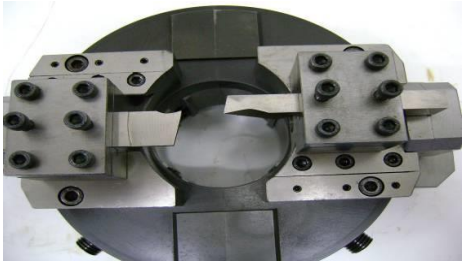
Bits installed on toolboxes

Place them at a convenient distance from the pipe and turn the beveling machine manually or use a T wrench. Otherwise, regulate using the expansion blocks.

T Wrench

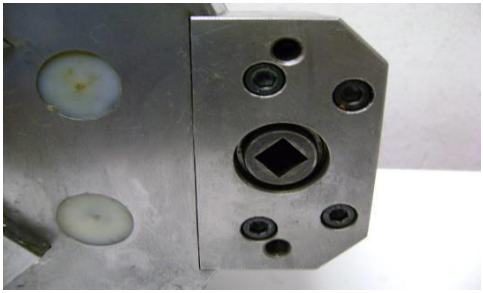
Next, regulate the bits as follows: the cutting blade must be approximately 2 mm from the pipe and the beveling blade, approximately 3 mm. Thus, the cutting blade will penetrate the pipe before the beveling blade, which will not only bevel, but also help releasing the stress of the cutting blade.

Installed lock pin



Installed cutting and beveling bits

Install the motor set, tightening the flange in two holes located in the back of the pinion. Use 02 (two) hex screws to tighten it.



Motor flange fixation location and T wrench

Before cutting/beveling, make machine turn 03 or 04 times in low speed to check if there is any obstruction. Activate feed to check if feed wheels of the toolboxes are working properly.

If everything is working well, set the rotation a slightly under the recommended rate and check the action of the bits on the material to be cut or beveled. Slowly set the rotation speed until it reaches the recommended rotation. The rotation speed can vary due to quality and sharpening of the bits, and quality and type of the material to be cut or beveled.

Use the following table for reference:

Carbon Steel Schedule Pipes

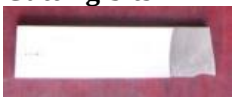
Model	ISF-168 ISD-168	ISF-323 ISD-323	ISF-457 ISD-457	ISF-610 ISD-610	ISF-762 ISD-762	ISF-914 ISD-914	ISF-1066 ISD-1066
Rotation per Minute	16 r/min	13 r/min	10 r/min	8 r/min	7 r/min	6 r/min	5 r/min

CUTTING AND BEVELING TOOLS (BITS)

The cutting and beveling bits or tools must be made of adequate materials for each type of job. The specially depend on the type of material pipe is made of. Merax has a line of bits in HSS, HSS + 10% Co and Titanium-coated.

The models available are:

Cutting bits



Beveling Bits 37.5º

Beveling Bits 30º

Drive Types (Motors)

Electric (220V)

Pneumatic

Servo Motor

Hydraulic motor

Maintenance Plan:

- **Preventive Maintenance:**

- Daily check if screws are tightened.
- Check if advance wheel is working properly.
- Clean and lubricate the complete set every day: fixed and moving parts, feed rings, etc.

- **Corrective maintenance:**

- Corrective maintenance is almost completely unnecessary then preventive maintenance is correctly applied.

- **Production check list:**

- Check if screws are tight.
- Check if tools (bits) are sharpened.
- Check type of material to be cut/beveled.
- Check if bits are adequate for the type of material to be cut/beveled.
- Use Oil Threader and/or cooling lubricant.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Equipment does not turn on.	It is disconnected from power source.	Check power cord, the plug, and the carbon brush.
Equipment moves during cutting operation.	Shims are loose.	Check shim tension and tighten it securely.
Poor finish quality	Blind or damaged bit	Change or sharpen bit
Bit is loose or stuck	Tool cannot slide anymore (cut)	Change bit or tighten it.

MERAX MÁQUINAS E EQUIPAMENTOS
Av. Francisco Luiz Razera, 825 - Água Branca
P.O.Box 13.425-084 - Piracicaba - SP
Technical Assistance: +55 (19) 2534-9426
assistenciatecnica@merax.com.br

www.merax.com.br

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