

The Merax logo features the word "MERAX" in a bold, black, sans-serif font. Above the letters "E" and "R" is a stylized graphic of a curved line with horizontal hatching, suggesting a blade or a mechanical component. The logo is set against a white circular background which is partially overlaid by an orange shape.

MERAX



Operation Manual
Inner Swell Beveling Machine

Make more With Merax!

Introduction:

Merax's Inner Swell Beveling Machines can be used to bevel and/or square 16-mm-to-610-mm-inner-diameter pipe walls of several thicknesses (see table below).

Table:

Model	Capacity (mm)	Wall thickness (mm)	Rotation (rpm)
ISY/TCM 28T	Ø 16 - 28	≤ 15	58
ISY/TCM 80T	Ø 28 - 76	≤ 15	55
ISY/TCM 150	Ø 65 - 159	≤ 20	34
ISY/TCM 250	Ø 80 - 245	≤ 20	16
ISY/TCM 351	Ø 150 - 340	≤ 20	14
ISY/TCM 630	Ø 300 - 610	≤ 15	10

Customized models can be manufactured for the beveling of other pipe diameters and wall thickness. Contact us for more information.

Safety Rules

- 1- Read this User Guide carefully: follow the instructions correctly to save time, prevent accidents, and preserve the equipment.
- 2- Check the machine and the accessories: see if machine is in adequate conditions and if all accessories are included.
- 3- Always read labels and warnings. All warnings, labels and signs must be readable and in good conditions, otherwise they must be replaced.
- 4- Always use impact-resistant goggles during operation or when working near these tools.
- 5- Gloves are not considered forms of protection in this case and must not be used while operating the machine.

IMPORTANT!!! (Preparing the pipe and lubricating)

The pipe must have been well cut. If it is out of square, use bits of 0° to make pipe square. Remove burrs and chips with abrasive tools.

The operator must always be aware of the conditions of the beveling tool (bits), and, if necessary, request sharpening by a specialized professional. Bits will require sharpening or replacement when metal chips released are not continuous or spiral (carbon steel), or when cutting edge of bits is damaged.

To extend the life of bits and bits sharpening, good lubrication and cooling is required simultaneously to beveling, which can be done using a hand spray bottle filled with Merax Oil Threader.

Merax beveling machines perform a bevel in 5% of the time used by a conventional grinder. Constant and uniform progress must be kept without forcing the bits, otherwise severe damage can be provoked to the beveling machine reducers.

When operating a TCM beveling machine with pneumatic drive, always check the quality of the compressed air used during operations. It should be dirt-free and lubricated. Compressed air with impurities and lack of lubrication leads to premature breakdown of the equipment and will make warranty void.



Lubricator and Filter



Pneumatic Motor

Do not try to expand the jaws of the beveling machine beyond necessary. Doing so will deregulate jaws. (**Fig. 1 and 2**)



Fig. 1 Feed key

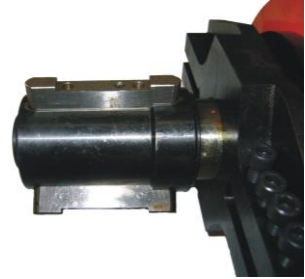


Fig. 2 Fixation jaws

Always keep equipment clean and lubricate shafts and jaws. Take special care with model ISY/TCM 150 (**Fig. 1 and 2**), constantly verifying of screws and jaws are tightly fixed.

Model and Materials of bits to be used:

Product
BITS FOR BEVELING MACHINE - ISY/TCM 28 ~ 80 T 0° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 150 ~ 351 0° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 630 0° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 250-II ~ 630-II 0° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 28 ~ 80 T 15° INNER HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 150 ~ 351 15° INNER HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 630 15° INNER HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 28 ~ 80 T 30° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 150 ~ 351 30° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 630 30° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 28 ~ 80 T 37° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 150 ~ 351 37° HSS / CO / TI
BITS FOR BEVELING MACHINE - ISY/TCM 630 37° HSS / CO / TI

CO – HSS with 10% Cobalt

TI – HSS covered with sintered Titanium.

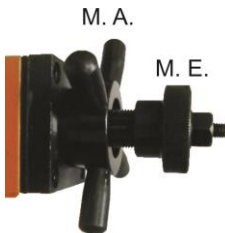
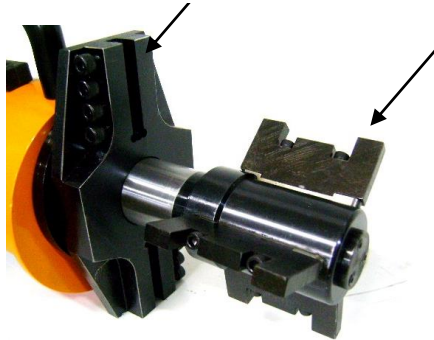
SET-UP AND BEVELING (watch training video for more information)

First, check inner measures (diameter) of pipes and make sure pipe is securely fastened. Then, install expansion shims that are adequate for the diameter of the pipe to be beveled. (Note that you may not need shims).

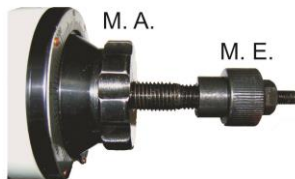
Place beveling machine inside the pipe. If necessary use Feed Handle (F.H.). Then, use Expansion Handle (E.H) to attach the machine to the pipe. Make final adjustment of shims, so that they will not move inside the pipe, fastening the nut of the expansion handle clockwise with a spanner.

The machine shaft must be centered inside pipe.

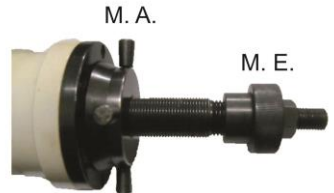
Choose the bit with the desired angle, in accordance with tools graph, and install bit in the anchor plate. Make sure blades do not touch either the main shaft or expansion shims.



Modelos ISY 28-80



Modelos ISY 150-250



Modelos ISY 351-630

With the bits away from the pipe, turn on the machine (which will immediately start to work). Slowly turn feed handle until bits touch the pipe initiating beveling. Proceed until desired beveling is completed. During operation, we recommend the use of Merax Oil Threader for a better preservation of bits. Remember you should not overstress bits or the machine may be damaged. After beveling, before turning off the machine, turn feed handle in the opposite direction to move bits away from pipe.

Other pipes of similar diameter can be beveled with the same adjustment.

Corrective Maintenance: Always use original spare parts.

Electric Motor (220V):

- Electric motor stopped – check carbon brushes, check power supply cord for damages. Replace damaged part if necessary. **(Fig.3)**



Fig. 3 Moto-Reducer and coal brushes

- Noise in motor reducer – check bearing and gear sets. Replace damaged parts. **(Fig. 4)**

- Excessive noise in motor – possible bearing breakdown. Check bearings and other motor parts. Replace damaged parts **(Fig. 5)**.



Fig. 4 Electric Motor Reducer



Fig. 5 Electric Motor Rotor

- Planetary Reducer– electric motor starts, but beveling machine does not work. Shafts or planetary gears may be broken. Replace damaged parts. **(Fig. 6, 7 and 8)**



Fig. 6
1st Planetary Reducer



Fig. 7
2nd Planetary Reducer



Fig. 8
3rd Planetary Reducer

Others:

- Jaws will not expand: check expansion shaft and nut on fixation shaft. Replace if necessary. **(Fig. 9)**

- If jaws are locked, that is, will not expand, possible causes are: damaged jaws or jaw chuck, dirt or metal chips on chuck: clean and/or replace damaged parts.

- Jaws will not retract or retraction is difficult: spring rings have no pressure (except for models ISY/TCM 28 and 150). Check and replace.

- If jaws limits become deregulated, remove spring rings and jaw. Return expansion nut to the lowest limit, simultaneously regulating the jaws until jaws are square with chuck.



Fig. 9 Expansion shaft



Fig. 9 Shaft Set and Blocks chuck

WARRANTY

MERAX Inner Swell Beveling Machines have a 12-month guarantee after the date of issue of invoice or delivery of the product to the final consumer.

This warranty applies to manufacturing, materials, parts and workmanship defects, when adequately proven.

This warranty does not apply to damages provoked by inadequate transportation, accidents of any type, misuse, electrical installation oscillations, use of wrong voltage, bad quality of compressed air, the removal or alteration of the series number of the machine, and the non-compliance with the instructions herein contained. This warranty does not apply to any component that deteriorates under normal use.

Check list of parts and their codes in our website: www.merax.com.br

Problems: Contact our Technical Assistance Service - TAC: 19-2534-9426

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

The logo features a stylized graphic above the word 'MERAX'. The graphic consists of a series of parallel, slanted lines that form a curved, upward-pointing shape, resembling a stylized 'M' or a wave. The lines are colored in a gradient from dark red on the left to bright orange on the right. Below this graphic, the word 'MERAX' is written in a bold, black, sans-serif font.

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