



READ SAFETY REGULATIONS BEFORE OPERATING THIS TOOL



Manual Instruction

MFM MANUAL FLANG MILL

| READ THIS MANUAL CAREFULLY. KEEP FOR FUTURE USE. |

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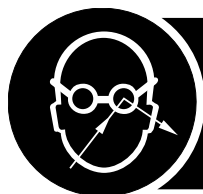
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SAFETY RECOMMENDATIONS

For your safety and the safety of others, read and understand the safety recommendations and operating instructions before operating this tool.

ALWAYS WEAR PROTECTIVE EQUIPMENT:



CAUTION

Impact resistance protection must be worn while operating or working near this tool.

For additional information on eye and face protection, refer Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection, and the American National Standards Institute, ANSI A87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.



CAUTION

Personal hearing protection is recommended when operating or working near this tool.

Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to, and increase the noise level in an area. For additional information on hearing protection, refer to Federal OSHA Regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure, and American National Standards Institute, ANSI S12.6 Hearing Protectors.

Our tools are designed to operate on 90 psig (6.2 bar) maximum air pressure. If the tool is

properly sized and applied, higher air pressure is unnecessary. Excessive air pressure increases the load and stresses on the tool parts, which may result in cage, mandrel or roll breakage. Installation of a filterregulator - lubricator in the air supply line ahead of the tool is recommended.

Before the tool is connected to the air supply, check the throttle for proper operation (i.e., throttle moves freely and returns to the closed position). Clear the air hose of accumulated dust and moisture. Be careful not to endanger adjacent personnel. Before removing a tool from service or changing sockets, make sure the air line is shut off and drained of air. This will prevent the tool from operating if the throttle is accidentally engaged.

It is essential for the safe operation that the operator of the machine use good balance, sure footing, and proper posture in anticipation of the torque reaction. Insure that the operator's hand will not be wedged or pinched between the work and the tool when operating.

When using right angle tool, be sure the throttle is positioned relative to the angle head so that the throttle will not become wedged against an adjacent object in the „ON” position due to torque reaction. The angle head may be repositioned with respect to the lever to accommodate proper location for the task. If tool is to be reversed, locate throttle lever in a neutral position that will prevent entrapment. Refer to operating instructions for additional information.



CAUTION

Tools with clutches can stall rather than shut-off

if adjusted over the maximum power output of the tool, or if there is a drop in air pressure. Operator must then resist the stall torque until the throttle is released.

CAUTION

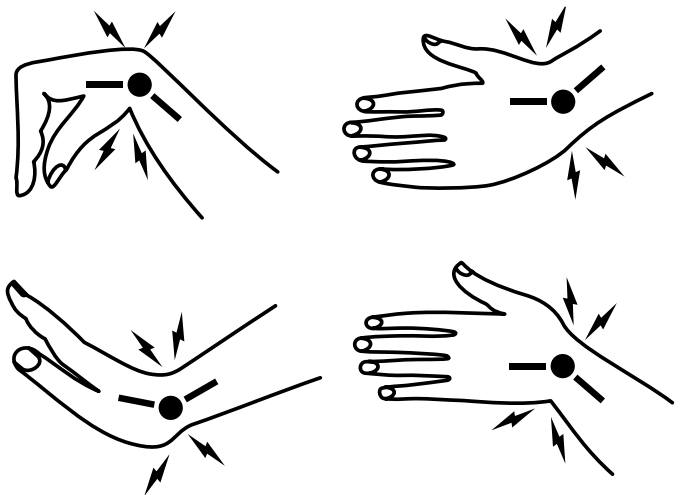
Higher torque right angle tools are supplied with a splined torque reaction mounting plate and reaction bar complete. ALWAYS USE WITH REACTION BAR DEVICE SUPPLIED WITH THE MACHINE! These bars can be braced against the work or other suitable points to absorb and relieve the operator of the torque reaction transmitted by the tool. Tool balance arms are also available to absorb the torque reaction of the tool while balancing the weight of the tool for improved ergonomic applications.

Some individuals are susceptible to disorders of the hands and arms when exposed to tasks which involve highly repetitive motions and/or vibration. Those individuals predisposed to vasculatory or circulatory problems may be particularly susceptible. Cumulative trauma disorders such as carpal tunnel syndrome

and tendonitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms. These disorders develop gradually over periods of weeks, months and years.

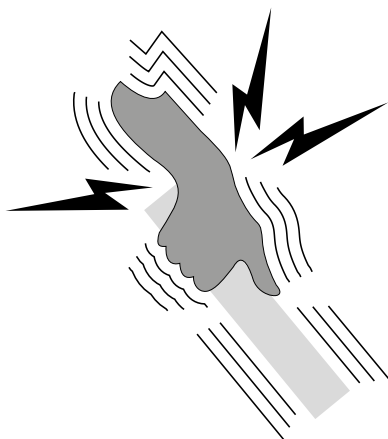
■ Tasks should be performed in such manner that the wrists are maintained in a neutral position, which is not flexed, hyperextended, or turned side to side.

■ Stressful postures should be avoided and can be controlled through tool selection and work location.



Any user suffering from prolonged symptoms of tingling, numbness, blanching of fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult with a physician. If it is determined that the symptoms are job related or aggravated by movements and postures indicated by the job design it may be necessary for the employer to take steps to prevent further occurrences. These steps might included, but are not limited to, repositioning the work piece or redesigning the workstation, reassigning workers to the jobs, rotating jobs, altering work pace, and/or changing the type of tool used so as to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/ tool/task relationship.

WARNING



Repetitive work motions and/or vibrations can injure hands and arms. Use minimum hand grip force consistent with proper control and safe operation. Keep body and hands warm and dry. Avoid anything that inhibits blood circulation. Avoid continuous vibration exposure. Keep wrists straight. Avoid repeated bending of wrists and hands.

The following recommendations will help reduce or moderate the effects of repetitive work motions and/or extended vibration exposure:

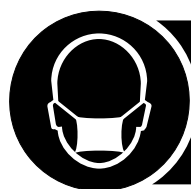
- Use a minimum hand grip force consistent with proper control and safe operation.
- Keep wrists as straight as possible.
- Keep body and hands warm and dry.
- Avoid anything that inhibits blood circulation.
- Smoking Tobacco
- Cold Temperatures
- Certain Drugs
- Avoid highly repetitive movements of hands and wrists, and continuous vibration exposure.

ADDITIONAL SAFETY RECOMMENDATIONS FOR USE OF RIGHT ANGLE

Follow good machine shop practices. Rotating shafts and components can entangle and enwrap, and can result in serious injuries. Never wear long hair, loose-fitting clothes, gloves, ties, or jewelry when working with or near a drill or any machine with exposed rotating shaft.

WARNING

Do not wear loose fitting clothes, long hair, gloves, ties or jewelry.



CAUTION

Wear respirator where necessary.

Drilling or other use of this tool may produce hazardous fumes, particles, and/or dust. To avoid adverse health effects utilize adequate ventilation and/or a respirator. Read the material safety data sheet of any cutting fluids or materials involved in the drilling process.



CAUTION

- Attach the shaft and the cutter securely to the PM to prevent the machine from jumping off work.
- High reaction torque may be experienced by the operator when reversing tool to remove the expander.
- Machine or accessories not centered properly in the chuck can cause excessive wobble or vibration.



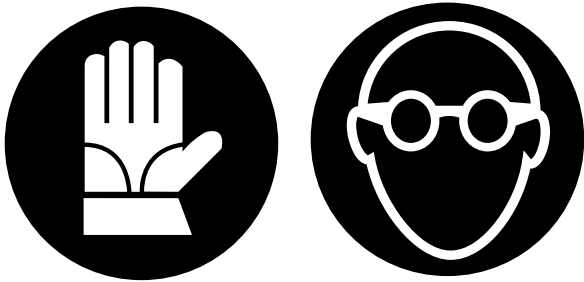
WORKING CONDITIONS

The MFM shall only be used in the following conditions:

- Make sure the operator / user of MFM has read and understood the User Manual
- All Safety precautions are fulfilled .
- There is no damage to the MFM
- No other condition to disturb normal working of the Minifacer applies.
- Maintenance and cleaning shall be taken care off and respected before all use.

GENERAL SAFETY REGULATIONS

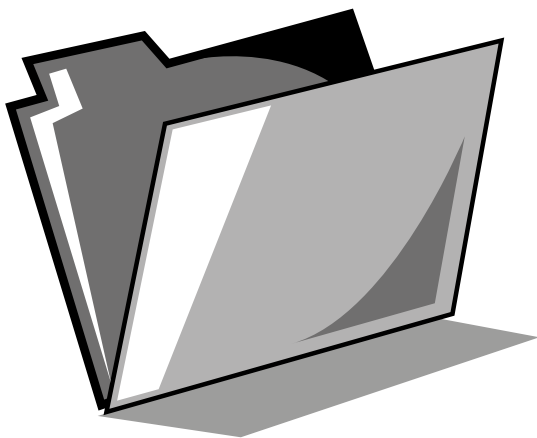
KRAIS machines conform to EEC Work Safety Directives 89/392 (and further updating).
Make sure that the operator acts in compliance with the following indications:



Always work with: gloves and goggles.



NEVER set the machine when the power is on.



The Operating Manual and the machine drawings will always provide quick and specific explanations.

The applicable standards and regulations are set out in the CE declaration of conformity.

The authorized operator must in all cases abide by basic safety rules, for example:

- use gauntlets and goggles (PPE – personal protective equipment provided by the company in charge of the workplace),
- make sure that there is sufficient space around the work area (at least 1,5 metres around the operator),
- make sure that there is sufficient lighting around the work area,
- do not carry out movements that are not specified by the manual,
- grasp the machine firmly with both hands - do not replace the motor control or blocking system,
- do not allow other persons into the operating area,
- do not replace parts with non-original spare parts,
- do not direct jets of water at the machine,
- do not allow the machine to come into contact with water or other liquids,
- do not allow salt water to corrode the machine; put it back in its box at the end of the work session,
- remove chippings (swarf) with the appropriate instruments,
- do not place hands anywhere near sharp edges.

KRAIS emphasises that for all the operations that are not specified.

DO NOT TRY TO INTERPRET INSTRUCTIONS AND DRAWINGS! KRAIS technical service is at your complete disposal for any further clarification

KRAIS also emphasises that it is FORBIDDEN to remove or replace the CE declaration of conformity plate. The customer is requested to inform the manufacturer if the plate is tampered with.

KRAIS also declares that the machine has been subjected to testing of the basic parameters at its own assistance service. The test included noise measurements conducted by qualified personnel that yielded satisfactory results. Owing to its weight, lifting machinery is not required to move the machine. However, in order to facilitate the use of the machine in certain conditions (e.g. with piping/heat exchangers, tube bundles, etc) KRAIS supplies the lifting device illustrated alongside. The machine is used to execute the welding preparatory operations of pipes included in the machine nominal range. The beveling machine is inserted and locked into position inside the pipe.

For bevelling, a tool is used whose components and shape vary according to the type of material that needs to be bevelled.

MACHINE RANGE

The internal clamping diameter range of the MFM is

From +/- 1" to 6" => 24mm to 160mm (with the std supplied gripper clamps)

The facing diameter range of the MFM is

From 1" - to 14" => 24mm to 355mm

TRANSPORT RECOMMENDATIONS

The MFM is supplied in a sturdy hard plastic compact carry case. This case is suitable for the transport of the MFM.

Do assure that the latches at the front of the carry case are firmly closed before lifting, moving, manipulating or carrying the case.

To protect the outside shell of the carry case, it is recommended to cover the case in a bubble film or full covering box when shipping.



During transporting the MFM case shall be fixed as load . Never put any heavy stuff on the MFM thus to avoid damage of the tool and the carry case.

Check after every transport that the case is intact and no damage has occurred. In case of any damage ,replace the carry case for safety reasons and to avoid loss of tooling.

All periferical tooling is also in this carry case. All tooling has a proper place in the box (cutout spaces foreseen) and is there-with clearly visible for the user.

Weight of the Machine	
Shipping Dimensions	
Shipping Weight	

Under 25 Kgs no lifting machines are required.

STORAGE

Always store the MFM in a dry and clean place.

After every use dry and clean the MFM with a clean cloth. Make sure that there is no swarf or metal particles in or at the MFM because they can disturb the clamping aswell as the movement for normal operation. Remove the clamping spindle out of the hollow center shaft center, clean, inspect and lubricate slightly with a smooth film of spindle oil and put back into position.

Then inspect to tool for eventual damage or loose parts (e.g. bolts) etc (If any loose parts repair or send to your agent for repair)

After cleaning and inspection, lubricate the slides and spindle with a film of spindle oil, never use WD-40 or similar.

If stored for long term, then spray the MFM with a protective spray layer such as Molykote 321D. Never use WD-40 or similar.

INTRODUCTION

This Manual Instruction is a guide for using the Manual Flang Mill bevelling machine.

TO REDUCE THE RISK IF INJURY AND EQUIPMENT DAMAGE USER MUST READ AND UNDERSTAND OPERATING MANUAL.

We recommend you to keep the Manual Instruction always at hand while operating. The content of this Manual Instruction may be partially different from the details of the product actually purchased due to the result of our constant research and improvement on the design of the tool. Contents of the manual are subject to change without notice due to improvement of the tool's design.

CAUTION

Please do not start the bevelling work until you read and adequately understand all safety instructions within this manual.

The Operational Instructions safety shown in this Instruction Manual are applicable only to the cases where the MFM is used for its intended purpose. If you operate the MFM by method not described in this Manual the operator does so at their own risk.

The safety instructions are emphasized in this Instruction Manual by indicating "Warning" and "Caution" according to the following definition to prevent the injuries to human body and damage of property; so please understand them adequately before using this machine.

WARNING

The cases where the possibility of death or serious injury is assumed if there is an error in handling.

CAUTION

The cases where the possibility of human damage or only the damage of property is assumed.

INTENDED USE OF THE MACHINE

The MFM is per definition not a machine but a manual driven tool to obtain flat facing of different type and diameters of flanges.

The MFM is designed to do refacing of flat face flanges of various materials.

The tool provides in a grammophone finish thus to create optimum gasket contact and gasket seating conditions.

Due to the integrated feed spindle, which is taking care of the cutting tool feed, whilst turning the machine and keeping the feed knob, the required surface finish is obtained.

The MFM is supplied with 2 feed spindles. Standard the ASME B 16.5 spindle is mounted. And the other spindle is in the case. Both spindles are engraved on the feed nut.

Mounted spindle:

ASME B 16.5 is for "stock finish = 6.3 to 12.5 μm " according to ASME specification

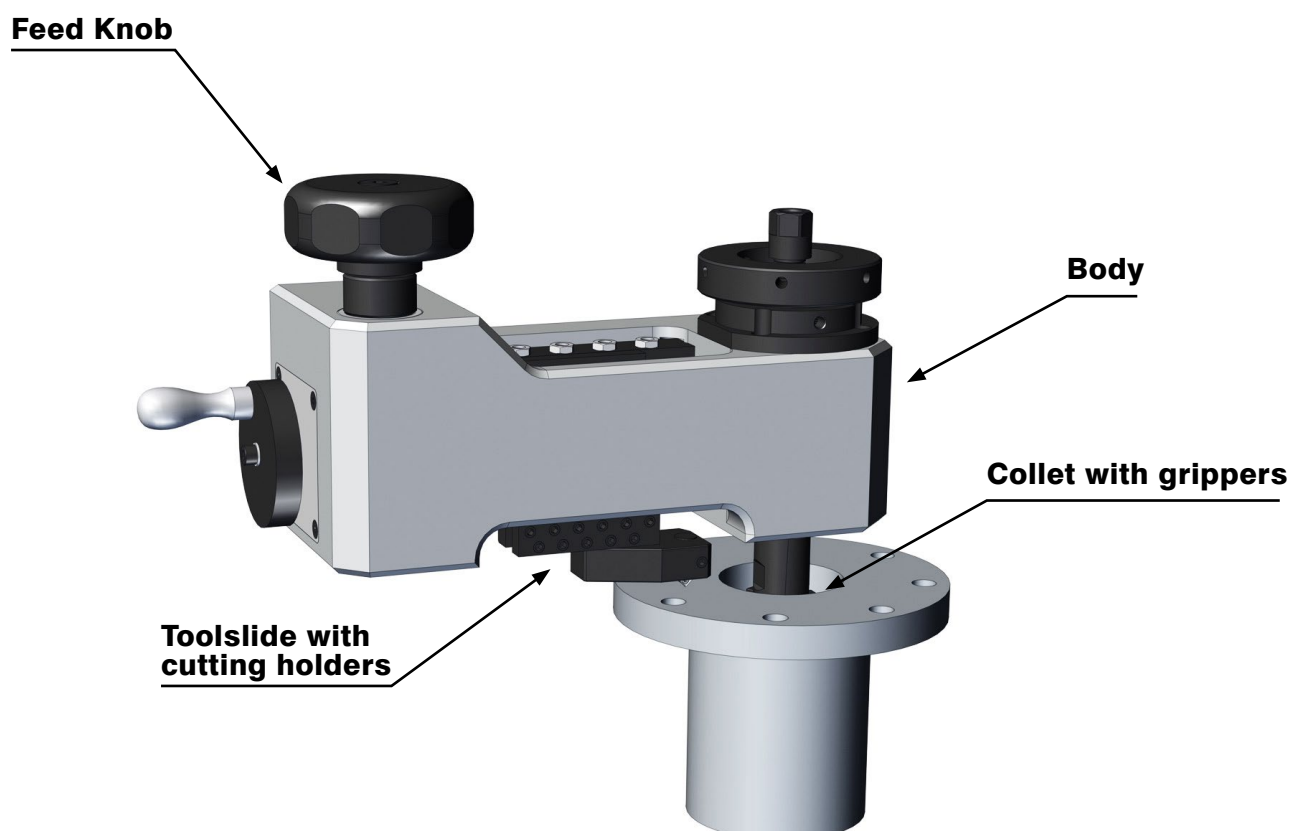
In the case

Nr 1 is for "Smooth finish = 3.2 to 6.3 μm " this finish is used for other types of flanges and gaskets

These surface conditions are commonly used in flange face finish.



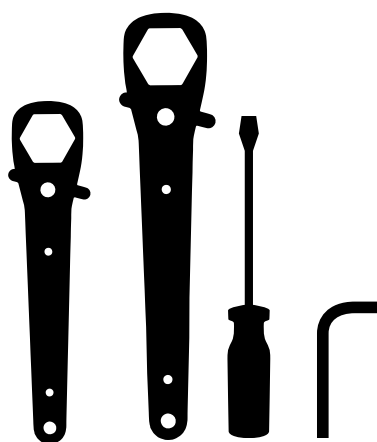
**For special surface finish requirements we can supply specific tooling.
Please contact your dealer for info and or availability.**



MACHINE STANDARD EQUIPMENT

The machine is supplied with:

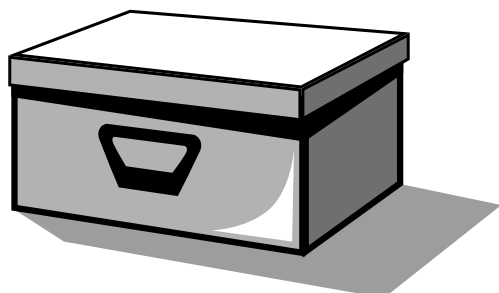
- Service Tools
- Case
- Instruction Manual and exploded drawings



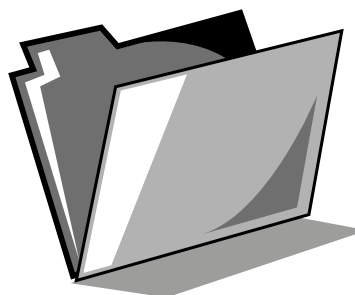
Service Tools



MFM
Manual Flang Mill



Case

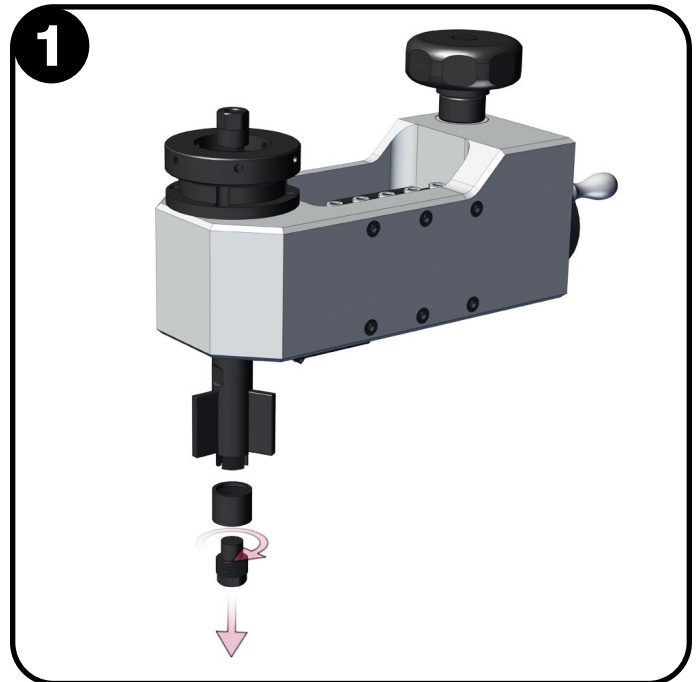


Operating and instruction
manual and drawings

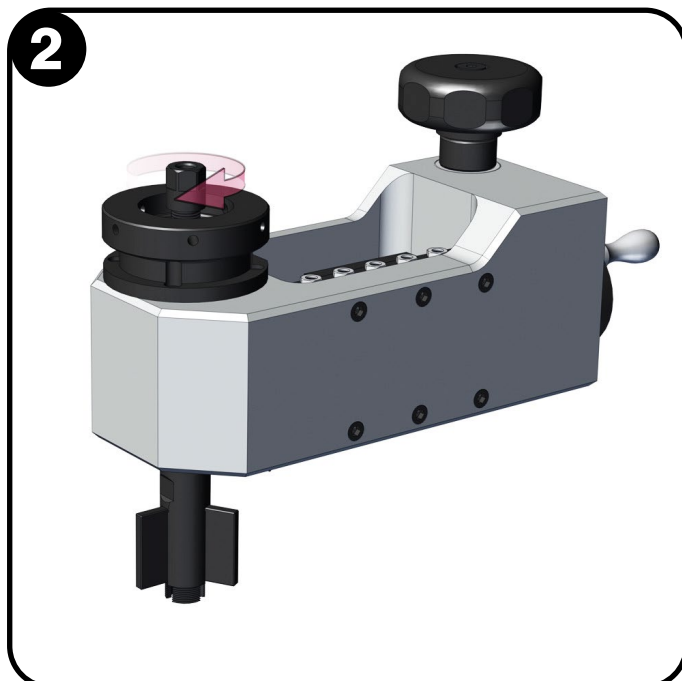
MACHINE SETUP FOR BEVELING



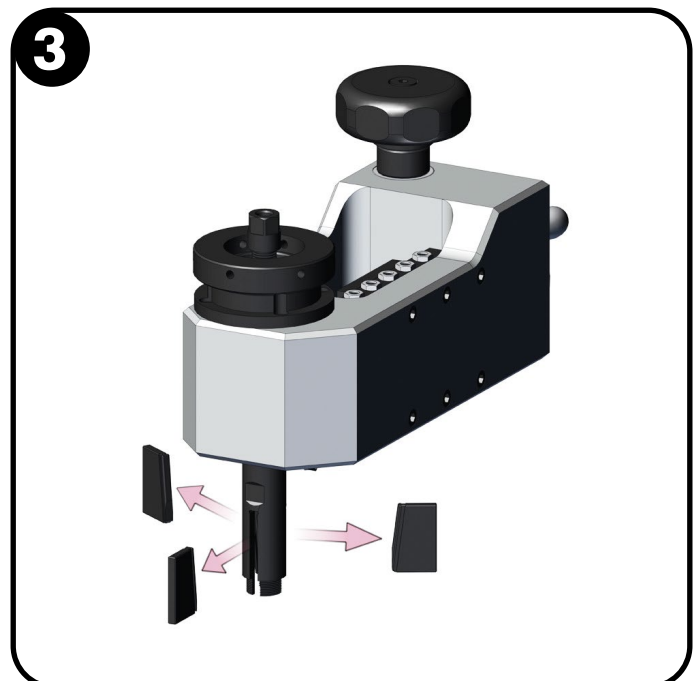
Before proceeding with the machine setting, verify the measure of the pipe you are going to bevel and select the most suitable locking segments.



Screw out and remove the SEGMENTS LOCKING PLUG



Screw tight the SEGMENTS EXPANSION NUT



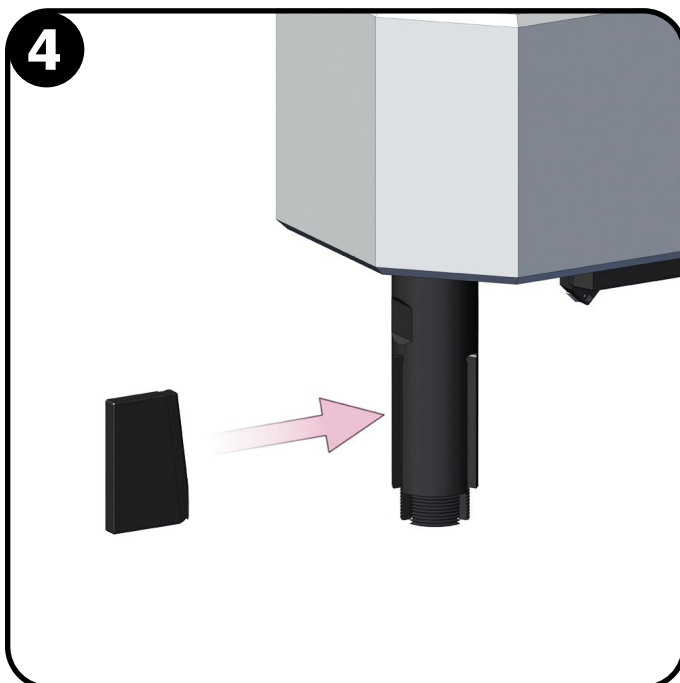
Remove the three SEGMENTS

DO NOT TRY TO INTERPRET INSTRUCTIONS AND DRAWINGS!
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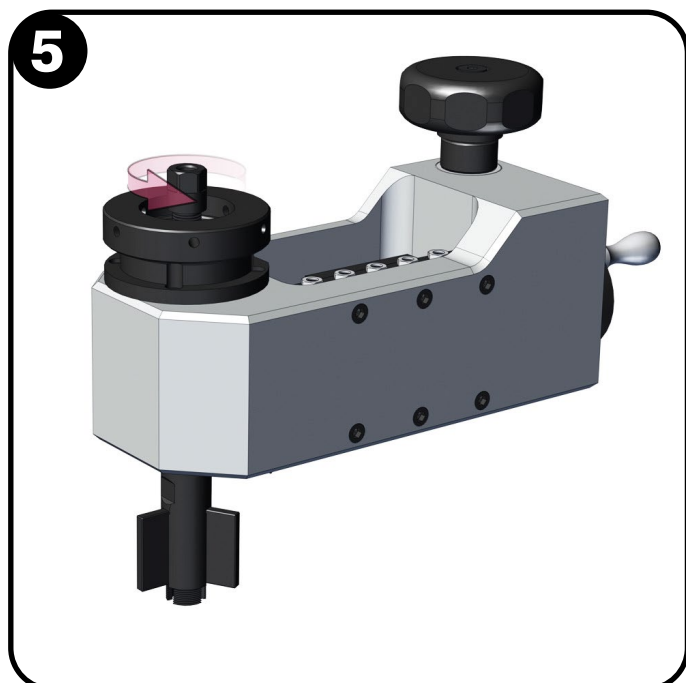
MACHINE SETUP FOR BEVELING



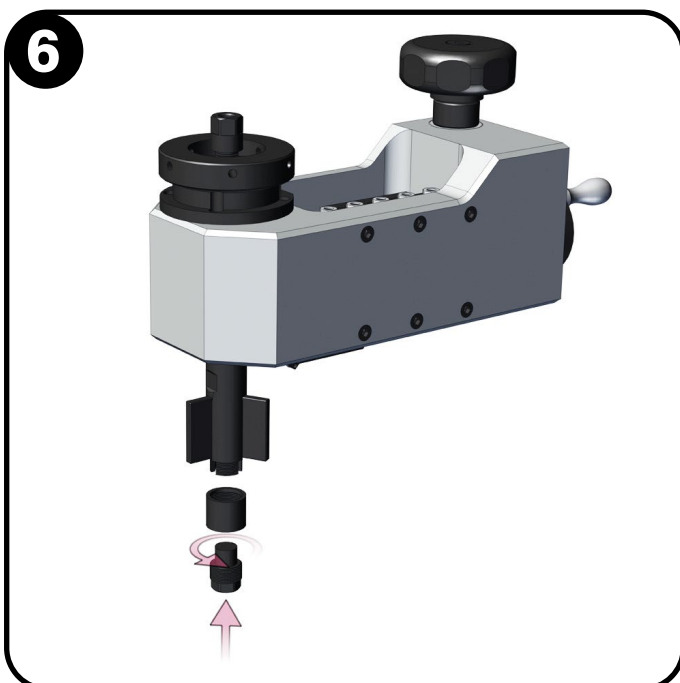
DO NOT REMOVE THE EXPANSION SHAFT!
Move it by using the SEGMENTS EXPANSION
NUT after re-assembling the segments.



Choose the SEGMENTS on the basis of the
inside diameter of the pipe to be bevelled
and assemble them as shown in the figure.

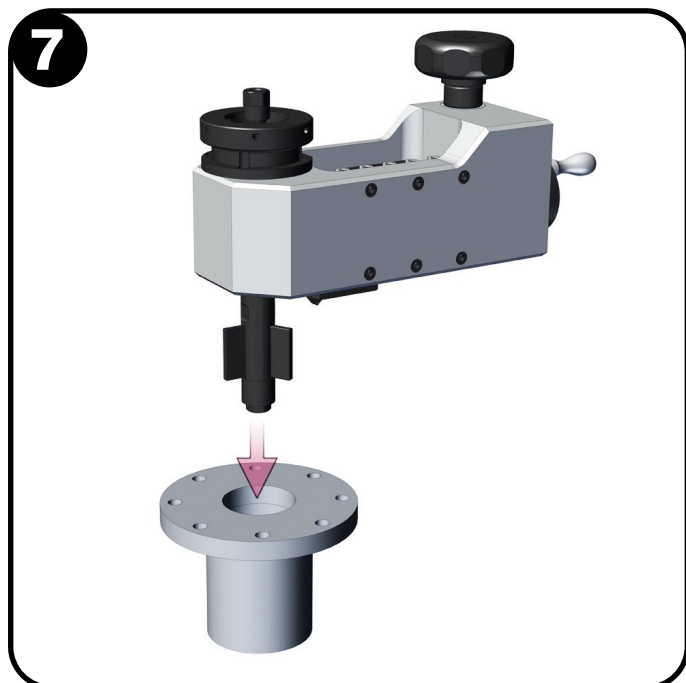


Keep the three SEGMENTS with one hand
and screw out the SEGMENTS EXPANSION
NUT (Part no. 38) to make them recess. If
the assembly has been properly carried
out, the three segments must have a slight
clearance in their seat.

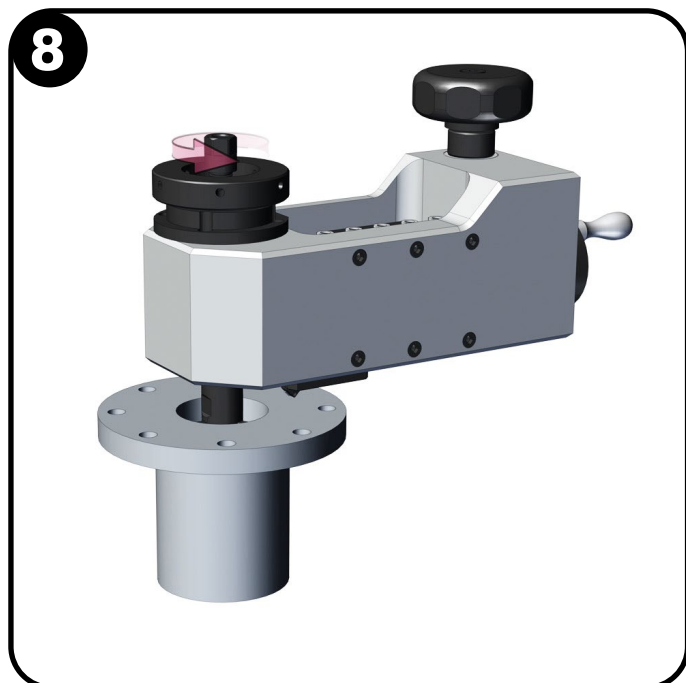


Re-screw tight the SEGMENTS LOCKING
PLUG

MACHINE SETUP FOR BEVELING



Insert the machine SHAFT into the pipe.

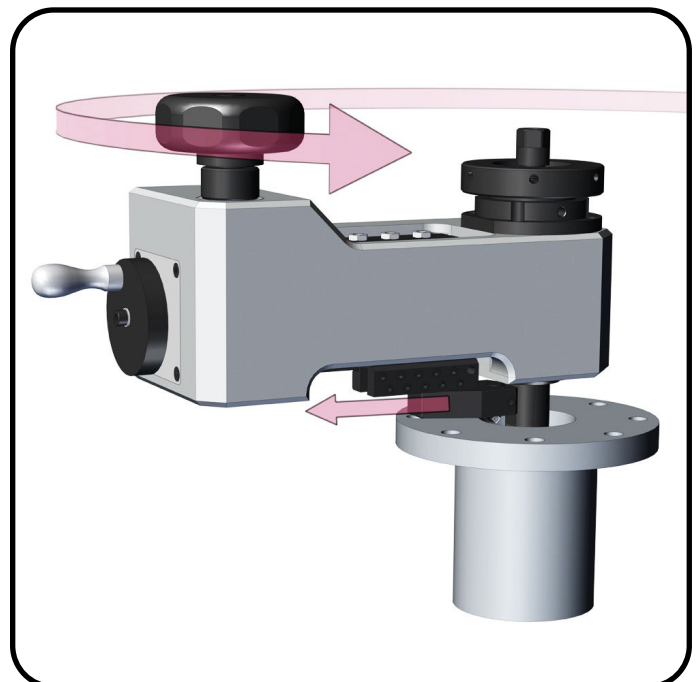


By keeping the machine in line with the pipe, tighten the SEGMENTS EXPANSION NUT. Insert the three SEGMENTS into the pipe by about 15 ÷ 20 mm.

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OPERATING INSTRUCTIONS

1. Fit the correct spindle for the required surface finish in the MFM (stock finish or Smooth finish)
2. Check if the inside diam of the flange to machine is clean and does not show any obstruction or other elements that can disturb correct clamping of the grippers.
3. Measure the "id" of the flange and select the correct segments for the internal diameter of the flange to machine.
6. Turn the knurled knob by hand (counterclockwise) and push it down so that the segments are in its smallest diam position, but avoid that the clamps are not in the groove.
7. The MFM is now ready to be fit into the bore of the flange.
8. Place the center shaft with the segments into the bore of the flange, keep the fingers around the clamping shaft and smoothly slide the clamps down into the bore. Position the segments approx 15-20 mm lower then the face of the flange.
9. Turn the knurled knob clockwise so the clamps go out and start to clamp into the bore. Whilest turning the knob slightly move the MFM so that the centering is optimal. When the MFM is in place, use the 19 mm spanner (on the HEX on top of the knob) to firmly tighten the MFM in place.
10. Place the cutting tool into the toolport . Check the cutting tip and replace if necessary. Assemble the toolport onto the toolslide so that the cutting tip faces towards you.
11. Now lift the turning (Alu knob with finger indentions) to disengage the feed and position the cutting tool with the hand-wheel towards the inside of the flange to face.
12. Position the toolbit in the middel of the gasket area.
13. Now release the fixing bolt on the toolport, and feed down the cutting tool so that it just contacts the metal face. Then tighten the fixing bolt on the toolport again. Position the cutting tool further inwards, until it has gone over the metal to machine (I.e. in a position that it is free)
14. Now engage the feed by bringing the Alu knob down. Grab the Alu know with your hand and turn round counterclock wise . The feed is now bringing the cutting tool automaticaly from inside to outside



OPERATING INSTRUCTIONS



CAUTION

DO NOT STOP TURNING WHEN THE CUTTING TOOL IS MACHINING AND NEVER TURN INTO THE OPOSITE DIRECTION.

Otherwise the surface finish is not even and the cutting tip might break of.

If the whole area is not touched ,lift aluminium knob again, turn the cutting tip to the inside, release the fixing bolt on the toolport, turn the cutting tip down for 1 1/2 revolution (equals +/- 0.1 mm downfeed). And repeat the machining operation.

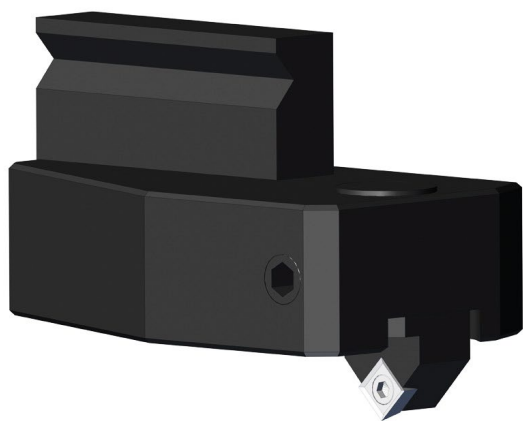
Repeat this until the whole gasket area is done.

15.Turn until the cutting tip is over the metal to machine (outside the gasket face)

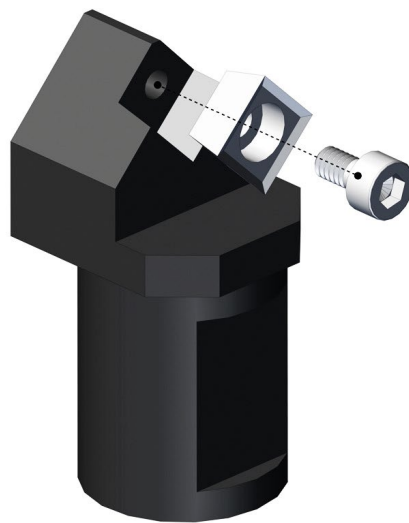
16.When the operation is done and the gasket face is evenly machined, the job is ready

17.To take the MFM out of the flange, remove the toolport (Alan bolt), then release the hex (19 mm) center knurled knob. Then support the MFM with your hand and tap the center shaft with the plastic hammer. then the clamps will come loose and the minifacer can be taken out of the bore.

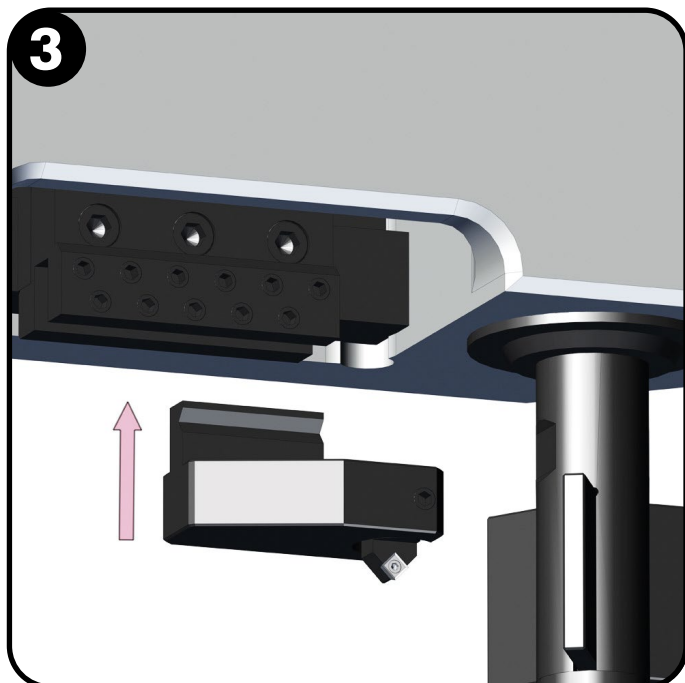
TOOLS SETUP

1

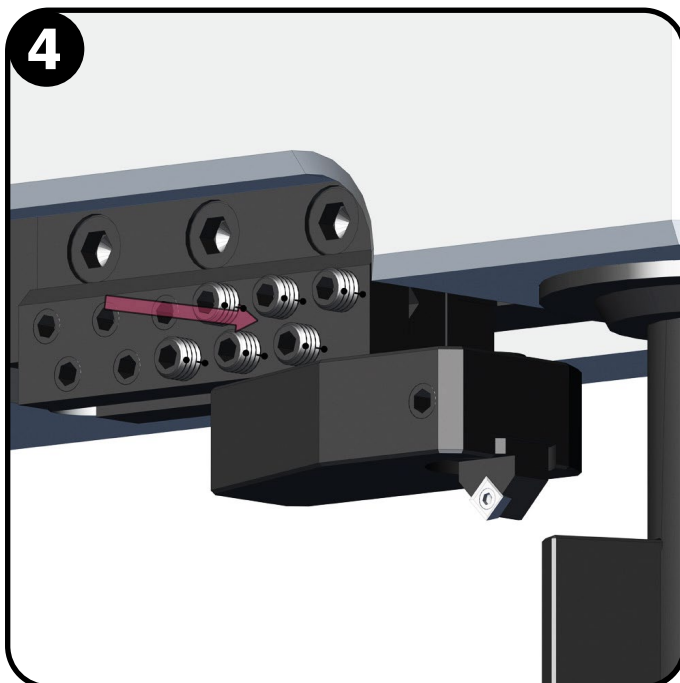
Select the most appropriate wedge locking tool kit in relation to the job required.

2

By using the torx screwdriver supplied with the machine, fix the tip onto the tool holder.

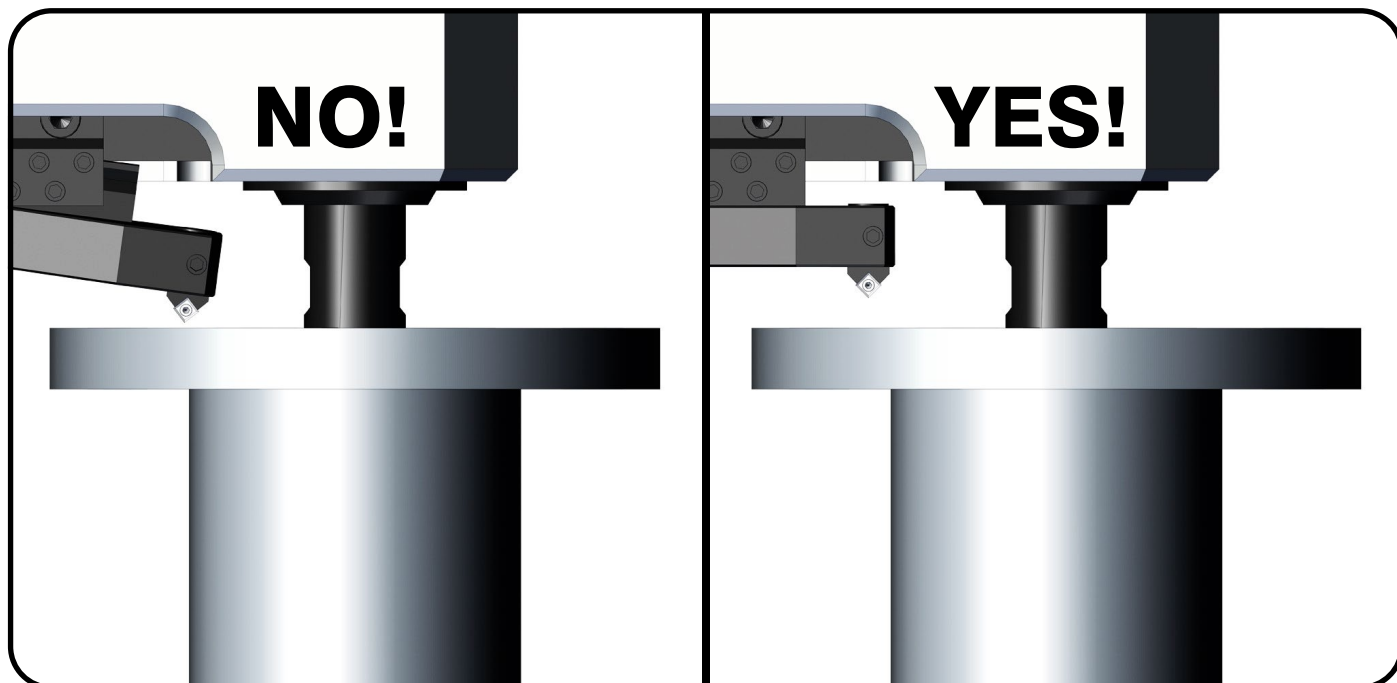
3

Insert the Holder in the appropriate seat as shown in the above picture.

4

Select the tool in relation to the job required and position it in the appropriate seat located on the chuck, locking it with the grub screws using the appropriate wrench supplied with the machine.

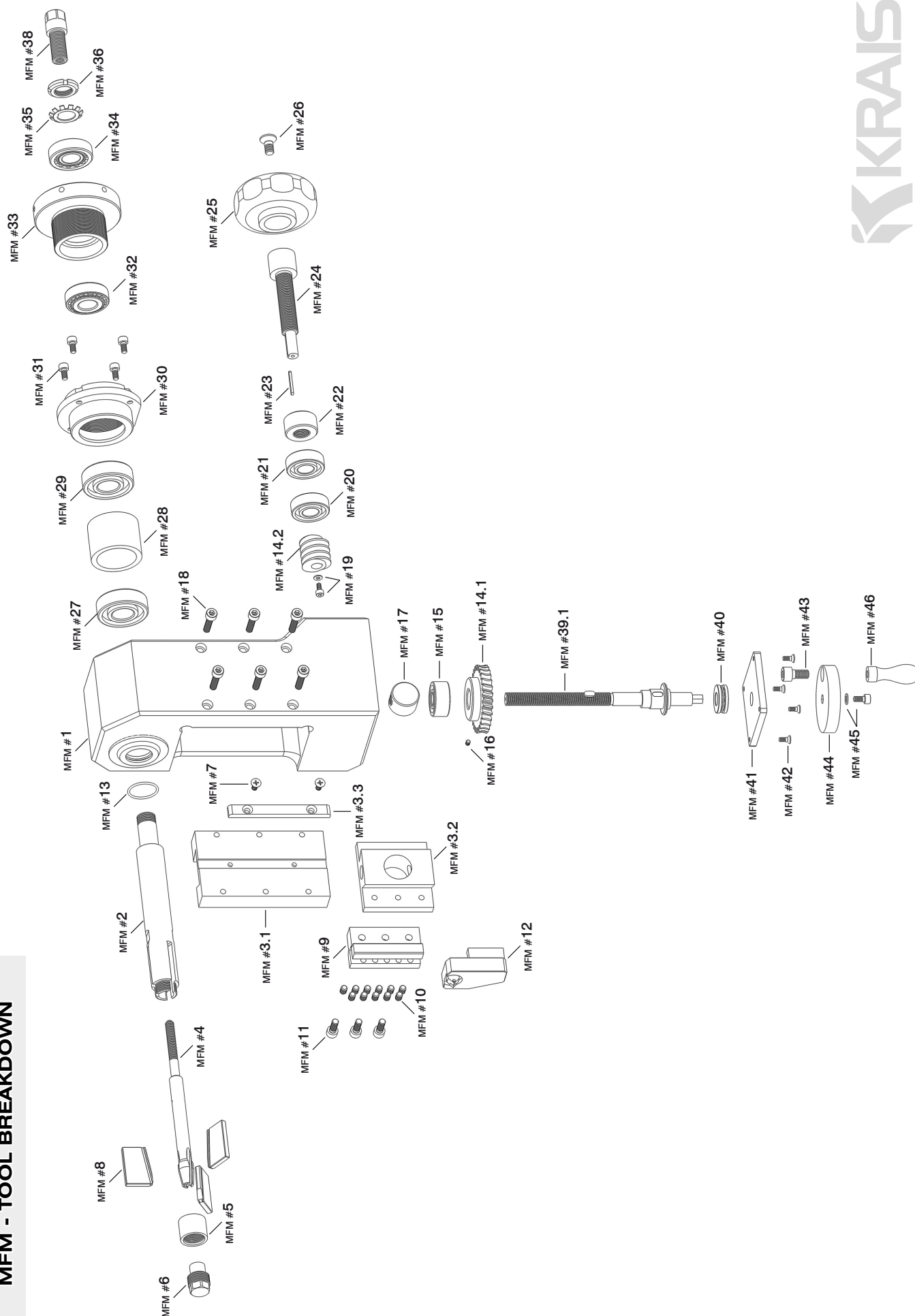
DO NOT TRY TO INTERPRET INSTRUCTIONS AND DRAWINGS!
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TOOLS SETUP

ATTENTION! ASSEMBLE THE TOOLS AS SHOWN IN THE FIGURE!

DO NOT TRY TO INTERPRET INSTRUCTIONS AND DRAWINGS!
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MFM - TOOL BREAKDOWN



Warranty

KRAIS guarantees the efficient operation of its products subject to the following terms and conditions.

The warranty covers any machine production faults for a period of one year from the date of delivery to the user (see delivery note). Parts that are subject to wear and tear are excluded from the warranty at the sole discretion of KRAIS. If operating faults are discovered during the warranty period, KRAIS or the approved Distributor, shall remedy the fault without charging the user for labour costs or spare parts provided that the defect is not directly or indirectly due to incorrect use or tampering.

The machine must in all cases not have been even partially disassembled or tampered with when it is delivered. The warranty is valid only if the certificate has been countersigned by KRAIS. and has been countersigned by an official KRAIS. The delivery of material on which the fault has been found must be made within 8 (eight) days from the date of notification of the fault and/or complaint and/or request for technical assistance. Otherwise, all warranty rights are voided.

KRAIS obligations concern only the repair of the fault and the general maintenance and testing of the material in object. The component replacement is at the sole discretion of KRAIS.

The costs of the forwarding to and from Distributor as well as the costs directly or indirectly due to the product repair are at the user's charge. Any interventions under warranty or any extraordinary maintenance must be executed by KRAIS or by any authorized Distributor; otherwise the warranty rights are voided. Any non-routine maintenance carried out by the customer/user or by technical assistance centres that have not been approved by KRAIS will not be refunded and will immediately void warranty rights.

The warranty is not valid for cases that are not specified by this certificate or for damage caused by incorrect use of materials, incorrect feeding, operators' negligence, unauthorised modifications, atmospheric agents, act of vandalism, damage due to improper handling and/ or transportation, use of spare parts that are not original KRAIS spare parts.

KRAIS reserves the right to modify and improve its products without being under any obligation to modify the equipment and components already supplied. Nobody is authorised to modify the conditions contained in this certificate or to issue any others in the name of KRAIS. The customer has 8 (eight) days from the date of delivery within which to lodge complaints about faults and/or defects in the ordered material and quantities delivered and if he accepts delivery he automatically accepts the above warranty conditions.

WARRANTY CERTIFICATE

Model _____ Pneumatic feeding Power feeding

Serial No. _____

Code _____

Testing date _____ Tech. Dept. Signature _____

Testing ref _____

KRAIS Signature _____

Sales data _____

For foreign distributors only

Distributor _____ Sales Dept. Signature _____



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