

User manual – version 1.0.4 EN

 **EUROBOOR**
FOR PROFESSIONALS BY PROFESSIONALS

Sharpening machine

ERM.100/3

Serial no.: _____

Date of purchase: _____

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1. Product description

1.1 Intended use

The Euroboor sharpening machine ERM.100/3 is exclusively intended for grinding annular cutters. The machine is not intended for any type of use other than the one specified here, and any such use will be seen as improper. Safe operation of the machine cannot be guaranteed if the sharpening machine is not used properly. In such cases, the customer will be responsible for all damages to material or person. Please read this operating instructions document carefully, particularly the safety instructions.

1.2 Function description

The sharpening machine can be used to sharpen the annular cutters in the simplest possible manner. Its robust and precise construction, low power requirement and ergonomic design enable instant operation. The machine was designed in such a way that anyone can familiarize himself with the machine's operation in a short period of time, and annular cutters can be sharpened with maximum precision. Adjustment and grinding are undertaken manually.

1.3 Technical data

Dimensions L x B x H	480 mm x 300 mm x 320 mm
Weight	28 kg
Motor power	130 W
Noise emission	< 70 dBa
Grinding discs	Ø 125 mm, hole Ø 10 mm Standard: ERM3.0001 CBN grinding disc (flutes) Optional: ERM3.0002 SDC grinding disc (teeth) ERM3.0011 CBN grinding disc (flutes)
Cutter holder	19,05 mm (¾") (Weldon shaft) standard
Speed (no load)	2800 rpm
Voltage	110 – 120 Volt / 60 Hz 220 – 240 Volt / 50 - 60 Hz
Speed (no load)	2800 rpm
Travel path Motor carriage	75mm
Guidance carriage	215mm
For cutter sizes	Max. Ø 44 mm Max. DoC 55 mm

Technical specifications subject to change without prior notice.

2. Safety instructions

2.1 Care obligation of customer

The sharpening machine ERM.100/3 was designed and produced after giving due consideration to danger analysis and after careful analysis of appropriate harmonized standards, as well as the further technical specifications. It conforms to the status of the latest technology and guarantees maximum possible safety.





However, the specified safety level can only be achieved if the necessary measures are taken during operation. The care obligation of the customer includes planning these measures and controlling their execution.

The customer must especially ensure that:





- The machine is used properly according to the specification (please refer chapter 1. Production description);
- The machine should only be operated in faultless and functionally sound condition. In particular the safety devices are to be checked for proper functioning regularly;
- These original instructions need to be available in full and legible condition at the location where the machine is operated;
- Personnel handling the machine need to be provided with adequate instructions on work safety and environment protection on a regular basis. The operator needs to have read and understood the operating instructions document and the safety measures defined in them in particular;
- All the safety and warning signboards near the machine are not to be removed and are maintained in readable condition.

2.2 Explanation of the used safety signs

The following safety signs have been used in the present operating instructions document: These signs are supposed to attract the attention of the reader to the text of the adjacent safety instruction. These signs indicate that there is danger to the life and health of persons.

 <p>Use eye protection Protection to eyes against flying particles during the grinding process</p>	 <p>Please pull the power plug out before replacing the disk or changing the location of the machine</p>
 <p>General danger</p>	 <p>Danger of laser rays</p>

2.3 Basic safety measures

 <p>Use eye protection Wear protective glasses without exception while performing grinding jobs with the ERM.100/3. Dust from the grinding operation can damage your eyes seriously.</p>  <p>Remove the grinding disk protection only while replacing the grinding disk. Otherwise, the protection should always be there on the machine. The ERM.100/3 has a laser beam generating device. Eyes should never be exposed to the laser rays, as they may be damaged seriously. Avoid exposing the optical system directly to sunrays to avoid the danger of fire.</p>	 <p>Please pull the power plug out of the mains socket before replacing the grinding disk or changing the location of the machine.</p>  <p>Laser protection clauses: the laser source corresponds to the Laser Protection Class II according to DIN EN60825-1/94. No additional protection measures are therefore necessary.</p>
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2.4 Operating staff requirements

The machine should be operated only by staff who have read this operating instructions manual, and who observe them in practice.

2.5 Special types of dangers

You must perform the following activities before each start up:

- Check the machine for visual damages and repair any identified defects immediately;
- The machine should only be operated in faultless condition.

Check electrical fittings regularly:

- Reattach or tighten loose connections;
- Ask an electrician to replace damaged wires or cables without any delay;
- Never clean electrical fittings with water or similar liquids.

Modifications to the machine:

- For security reasons, do not make any modifications in the machine on your own;
- Use only original spare parts consumables and accessories as they are designed specifically for the machine.

3. Installation

3.1 Environmental preconditions for installing the machine

- Use the sharpening machine only in dry rooms;
- Ambient temperature should be between 5°C and 50°C (4°F - 122°F);
- Humidity should be lower 90%, no condensation allowed;
- The sharpening machine is a table top machine;
- Please ensure that the machine stands stable on a workbench;
- The place must guarantee a vibration-free operation of the machine.

3.2 Remove the transportation locking screws

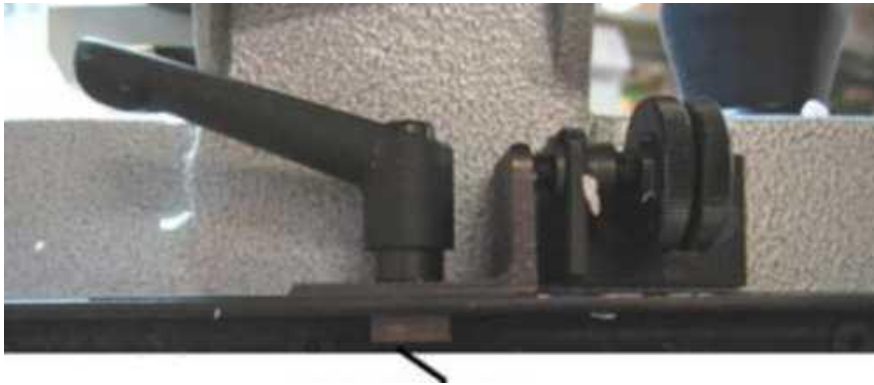


Photo 1

Transportation lock

After removing the packaging and installing the machine at the workplace, please remove the transportation locking screws (refer to above image).

3.3 Instructions on disposal of packaging material



The carton packaging material can be recycled. The remaining packaging material must be disposed of as garbage.

4. Start up

The following points must be observed and followed fully during start up, to avoid damage to the machine and potentially fatal physical injuries to the human body:

- Before undertaking the first start up, please check that all auxiliary tools and external parts have been removed from the machine;
- Check the direction of rotation of the motor before the start up;
- Direction of rotation of grinding disk should always be downwards;
- Please also read the chapter 2 (Safety Instructions);
- Wear protective glasses.

4.1 Controls before the first start up:

- Check electrical elements for damages;
- Check that the guides run smoothly;
- Check the fixed parts.

5. Operation

5.1. Description of the operating elements

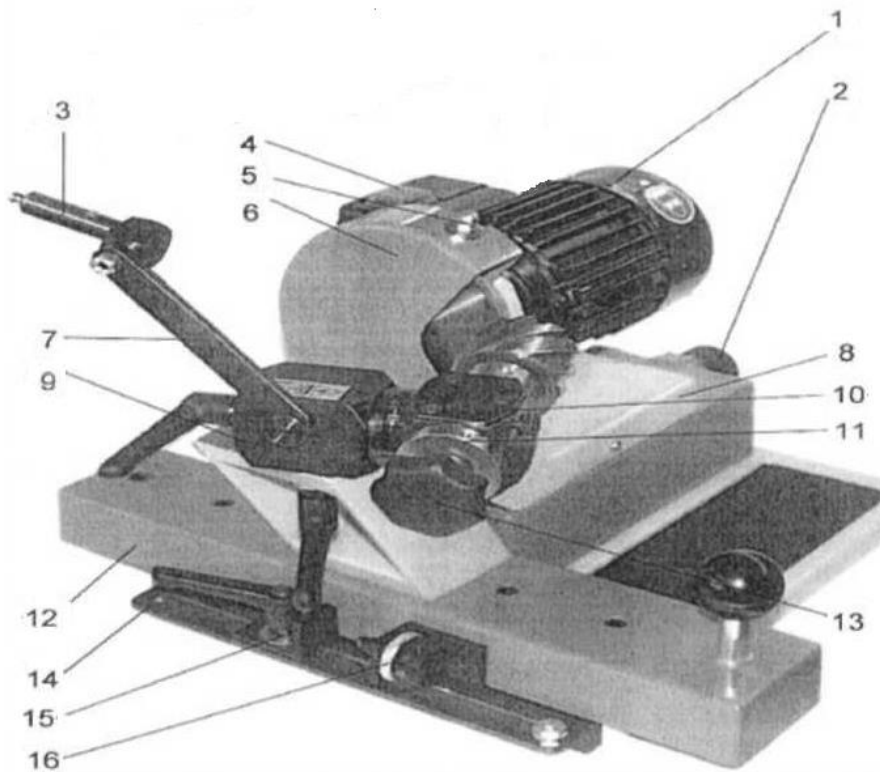


Photo 2

- | | |
|---------------------------------------|---------------------------|
| 1. Motor | 9. Grinding head support |
| 2. Motor feed | 10. Annular cutter holder |
| 3. Laser source | 11. Section disk |
| 4. Switch on/off | 12. Guidance carriage |
| 5. Grinding disk protection fastening | 13. Philips-head screw |
| 6. Grinding disk protection | 14. Stop rail |
| 7. Laser guidance rod | 15. Quick adjusting angle |
| 8. Motor angle | 16. Fine tuner |

5.2 Adjusting and installing the machine

5.2.1 Preparing the index plate

Turn the knob of the Hex socket loose, (photo 3) and remove the index plate (photo 5). To replace the index plate turn the knob clockwise until the wheel screw in index plate is facing upwards. The index plate needs to have the same number of grooves as the number of teeth of the Euroboor HSS annular cutter (photo 4).



Photo 3

5.2.2 Inserting the index plate

Place the index plate on the axel (photo 5). Make sure that one of the grooves on the side you want to use is placed against the spring-loaded selector. Tighten the index plate with the Hex socket (Allen key 2.5) (photo 3). The sharpening machine have three index plates with five different grooves (number of teeth 6, 7, 8, 9 and 10). This machine is suitable for Euroboor HSS annular cutters with a maximum depth of 55 mm and a diameter of 44 mm.

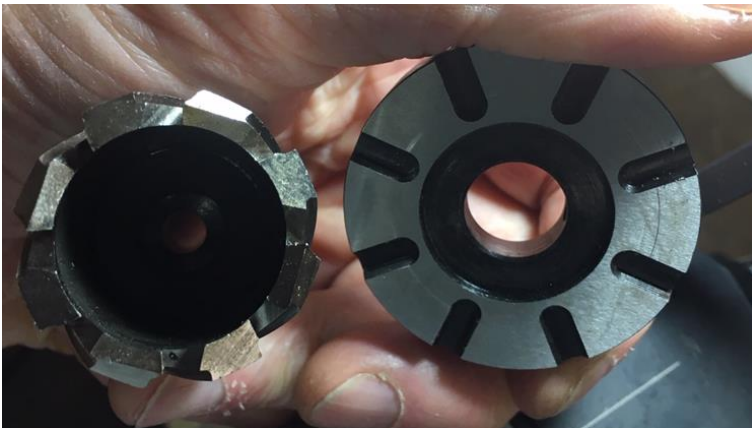


Photo 4

5.2.3 Replacing the index plate

To replace the index plate turn the knob clockwise direction until the wheel screw in the index plate is facing upwards.



Photo 5

5.2.4 Aligning an annular cutter



While performing the adjustments, please note that the annular cutters are very sharp and you can suffer physical injuries easily.

- 1) Set the cutter holder at **90 degrees**;



Photo 6

- 2) Place the Euroboor HSS annular cutter in the cutter holder. Don't tight the Hex screw yet. It is important to hang the Hex screw on the round side of the cutter shank (photo 6);

- 3) Switch on the laser beam with the red button on top of the laser beam housing
- 4) Turn the annular cutter with the hand and place the flat teeth in one line with the 90 degrees line of the cutter holder. It is easy to do this precise with the laser (photo 7);
- 5) If the flat teeth is in one line, tight the annular cutter with the Hex screw;

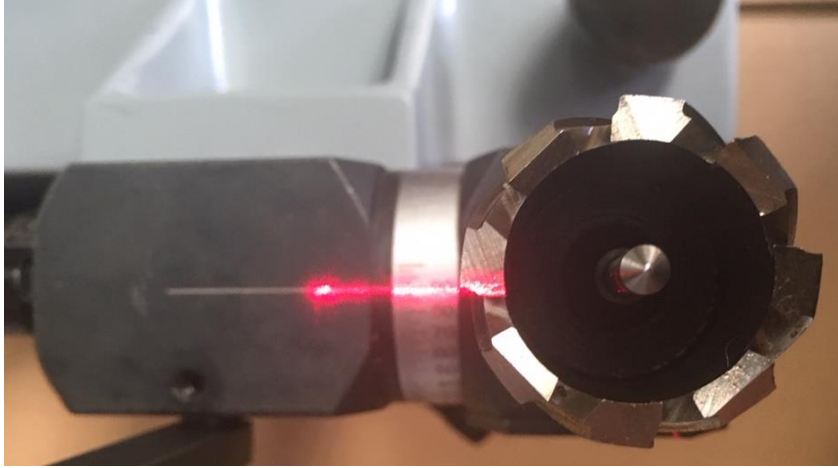


Photo 7

- 6) Direct the laser beam with the help of the laser guidance rod to align it above one of the flat teeth.
- 7) Rotate the core drill in the holder until the laser beam only just touches the tip of the selected tooth.
- 8) Mark the first aligned tooth

SPECIAL NOTE:

While adjusting the annular cutter in the holder, please ensure that the wheel screw is not in contact with a flat position of the Weldon shank of the cutter. To prevent the slightest of unintended movement of the cutter the wheel screw must lie on the rounding of the cutter shank.

5.3 Operating the machine



Use eye protection

Always wear protective glasses while working with the Euroboor sharpening machine

Annular cutters come in different variations. The variations with matching grinding order are:

- 1) Only V-shaped teeth
 - a. Inner surface
 - b. Outer surface
- 2) Alternating flat & V-shaped teeth
 - a. Inner surface V-shaped teeth
 - b. Outer surface V-shaped teeth
 - c. Flat teeth

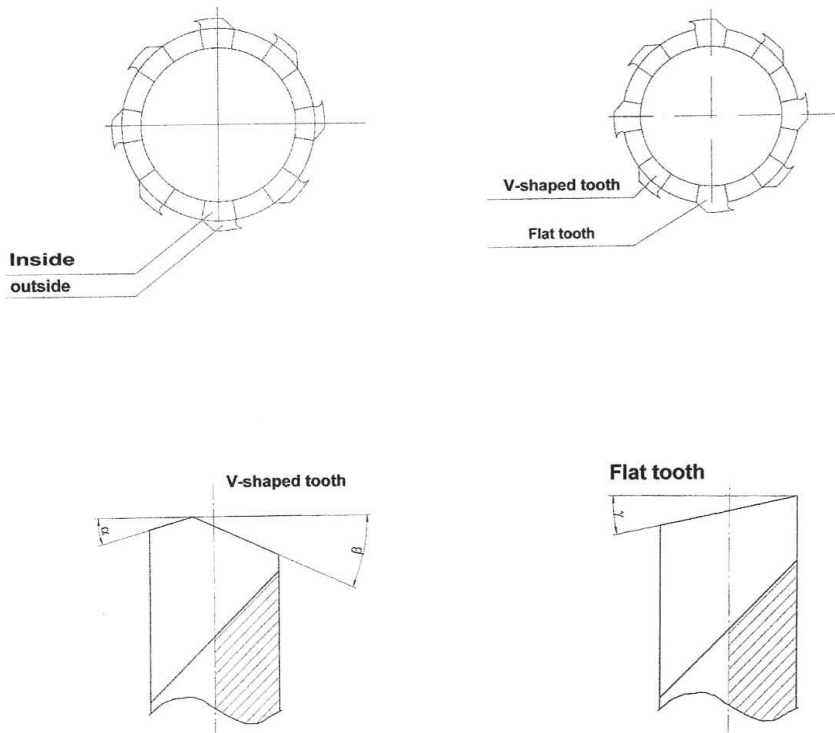


Photo 8

5.3.1 Grinding the annular cutting teeth

Different manufacturers produce different variations of annular cutters with different diameters. If you have the manufacturer provided grinding instructions of your annular cutter, use the data specified in the document. If you do not have grinding instructions provided by the manufacturer of your annular cutter, we recommend the following general base settings:

STANDARD ANNULAR CUTTERS*

Shape of teeth	Column Holder	Cutter Scale	Column Holder	Cutter Scale
V-Shaped teeth	Out teeth	In teeth	Out teeth	In teeth
All dividing disks	7.5°	20°	20°	5°
Flat teeth	Column Scale	Cutter Scale		
All dividing disks	5°	14°		

*** Following instructions are specified as base guideline for standard Euroboor HSS annular cutters. Check always the measurements and angles, and fine-tune when necessary. For alternative cutters, use manufacturer provided specifications or revert to the settings provided on this page.**

5.3.2 Grinding stretched surfaces

First is the grinding surface of the flat teeth. Not the market one, two teeth further. Set the column scale (photo 9) to 5° . Set the cutter holder scale (photo 10) to 14° . Every time make two clicks further, for the next tooth to grind.



Photo 9



Photo 10

After the flat tooth, grind the outer side of the V-shape tooth. Set the column scale to 7.5° . Set the cutter holder scale to 20° . Every time make two clicks further, for the next tooth to grind.

After de reshaping the Outer V-Shape next tooth to grind V-Shape inner side. Set the column scale to 20° . Set the cutter holder scale to 5° .

SPECIAL NOTE

The value of this setting is not the same for all annular cutters.

- 1) Move the annular cutter along the grinding disk in stationary condition, and if necessary, correct the angular setting (the angular setting can be in the 15 to 30 degree range).
- 2) After making the angular adjustments, bring the annular cutter with the guide carriage and motor feed near the grinding disk. Grind the stretched surface with the radial diamond disk provided for the purpose. Do not grind the tooth that was aligned (marked tooth). Instead, grind the next stretched surface below it.

- 3) Move the annular cutter along the grinding disk in stationary condition until the stretched surface touches the diamond disk. Set the lateral stop and the fine tuner in such a way that the stretched surface can be ground.
- 4) Now grind the stretched surface set by you. Feed through the fine tuner should be low, and it should be uniform for all the stretched surfaces. After grinding the first stretched surface, pull the guidance carriage back and turn the knob in the clockwise direction (direction of arrow) right up to the next section. You can position the next stretched surface in this manner. Do not alter the motor feed and the fine tuner position. Repeat the grinding process till all the stretched surfaces have been ground.

5.4 Replacing the grinding disk



Always pull the plug out of the mains socket before replacing the grinding disk. No core drill should be in the holder while replacing the grinding disk.



Photo 11

- 1) Unscrew the wing nut at the top;
- 2) Remove the grinding disk cover;
- 3) Loosen the nut bolt retaining the grinding disk with an Allen key and pull off the grinding disk out of the motor shaft;



Photo 12

- 4) Assemble the appropriate grinding disk on the motor shaft. Make sure the grinding wheel can rotate freely without touching any of the machine parts;
- 5) Fasten the retaining bolt;
- 6) Reassemble the grinding disk cover on the machine.

6. Maintenance

6.1 Cleaning and lubrication

- The grinding dust in the sharpening machine must be cleaned at least once a week with a soft brush;
- Remove stubborn impurities with a usual commercial machine cleaner;
- After cleaning, all moveable parts of the machine must be lubricated with a few drops of machine oil;
- To avoid corrosion of the blank parts, some oil should also be applied on these parts and then a soft cloth should be used to wipe the oil off;
- The motor carriages should be lubricated at least once in six months through the lubricating nipples at the sides.

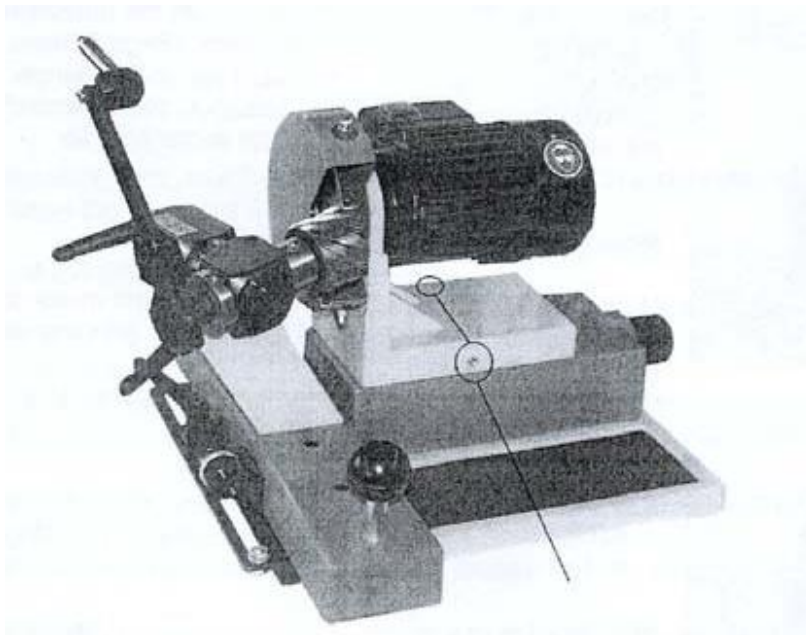


Photo 13

6.2 Repairs

For service and repair on assemblies like the grinding head or the guide carriage seek the help of a specialized Euroboor repair point, to make sure the values and settings are maintained or corrected.

7. Accessories

ERM3.0001	CBN Grinding wheel
ERM3.0002	SDC Grinding wheel
ERM3.0003	Cutter holder 31,75 mm (1 ¼") Weldon
ERM3.0004	Lock wrench M8x15
ERM3.0005	Head support wrench M8x30
ERM3.0006	Laser beam generator
ERM3.0007	Head support wrench M8x75
ERM3.0008	Index plate 6/7
ERM3.0009	Index plate 8/10
ERM3.0010	Index plate 9
ERM3.0011	CBN Grinding wheel (stretched surfaces)

8. Warranty

Euroboor warranty on ERM.100/3 covers material defects and manufacturing mistakes. Wear and tear parts conditioned by operation, lack of maintenance, improper use of the machine and damages caused by the use of force are excluded from warranty. For additional details contact your point of sales.

Always provide the serial number of the machine when submitting for guarantee.

The machine can be returned only after obtaining prior approval from our side. We reserve the right to charge transportation costs in case of unauthorized returns.