EUROBOOR

FOR PROFESSIONALS BY PROFESSIONALS

Resharpening machine

ERM.100/3

CE ISO 9001 CERTIFIED

Congratulations on the purchase of your EUROBOOR ERM.100/3 Resharpening Machine. At EUROBOOR we strive to exceed our customers' expectations by developing and providing premium and innovative portable drilling, cutting and grinding solutions. We believe that a professional like you must be able to rely on a professional supplier. Which has led us to become a major player in the industrial world, with our own factory and several offices worldwide. All because we have always listened to our customers and to the demands from the market.

Our vision is focused on developing innovative portable tools that add value for our customers and facilitate them in their daily work. We never lose sight of sustainability, time savings and cost savings.

Enjoy your new machine!

Before operating your Resharpening Machine, please read all instructions first. These include the Operators Manual and warning label on the unit itself. With proper use, car and maintenance your model will provide you with years of effective metal cutting performance.

TO REDUCE THE RISK OF INJURY USER MUST READ AND UNDERSTAND ALL INSTRUCTIONS

To view all our offices and their contact information please visit: www.euroboor.com

The original manual has been produced in the English language. If any discrepancies should occur in translations, reference must be made to the original version for clarification..

Table of contents

1. Safety

1.1 General safety information

WARNING: *When using the Resharpening Machine, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury.*

READ AND UNDERSTAND ALL SAFETY INFORMATION AND INSTRUCTIONS. *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE.

This Operator's Manual including the "General Safety Instructions" should be kept for later use and enclosed with the power tool, should it be passed on or sold.

The term "power tool" in the warnings refers to your mains-operated corded power tool.

Please also observe the relevant national industrial safety regulations. Non-observance of the safety instructions in the said documentation can lead to an electric shock, burns and/or severe injuries.

WORK AREA SAFETY

1. Keep your work area clean and well lit. Cluttered benches and dark areas increase the chance of accidents;
2. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
3. Keep bystanders, children, and visitors away while operating a power tool. Distractions can cause you to lose control.

ELECTRICAL SAFETY

DANGER

1. Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs. Unmodified plugs and matching outlets will reduced risk of electric shock.
2. Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
3. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
4. Do not abuse the cord. Never use the cord to carry the power tool or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.
5. When operating a power tool outdoors, use an extension cord (GROUNDED) suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
6. If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. Use of an RCD reduces the risk of electric shock.

PERSONAL SAFETY

WARNING: *Wear ear and eye protection when using this power tool.*

1. Stay alert, watch what you are doing and use common sense when using a power tool. Do not use machine while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
2. Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
3. Prevent unintentional starting. Ensure switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying tool. Carrying power tools with your hand on the switch or energising power tools while pressing the switch, invites accidents.
4. Remove any adjusting key or wrench before turning the power tool on. A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
5. Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
6. Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewellery, or long hair can be caught in moving parts.
7. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.
8. Never place hands, fingers, gloves or clothing near rotating machine parts.

POWER TOOL USE AND CARE

1. Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
2. Do not use the power tool if the switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.

3. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
4. Store power tools out of the reach of children and do not allow person unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
5. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the power tool's operation. If damaged, have the tool serviced before use. Many accidents are caused by poorly maintained tools.
6. Keep sharpening wheel sharp and clean.
7. Use the power tool, accessories and tool bits, etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.
8. Use only accessories that are recommended by EUROBOOR for your power tool. Accessories that may be suitable for one machine, may become hazardous when used on another power tool.

SERVICE

1. Power tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in risk of injury.
2. When servicing a power tool, use only identical replacement parts. Follow instructions in the maintenance section of this manual. Use of unauthorised parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

RESIDUAL RISKS

In spite of the application of the relevant safety regulations and the implementation of safety devices, certain residual risks cannot be avoided.

- Impairment of hearing
- Risk of personal injury from flying particles
- Risk of burns due to accessories becoming hot during operation
- Risk of personal injury due to prolonged use.

Always try to reduce these risks as much as possible.

1.2 Specific safety information

WARNING: *This tool is intended to function as Resharpening Machine for annular cutters. Read all safety warnings, instructions, illustrations and specifications provided with this tool. Failure to follow all instructions listed below may result in electrical shock, fire and serious injury.*

Startup safety checks:

- 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;

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.

Read all safety warnings and instructions before you start using the machine!

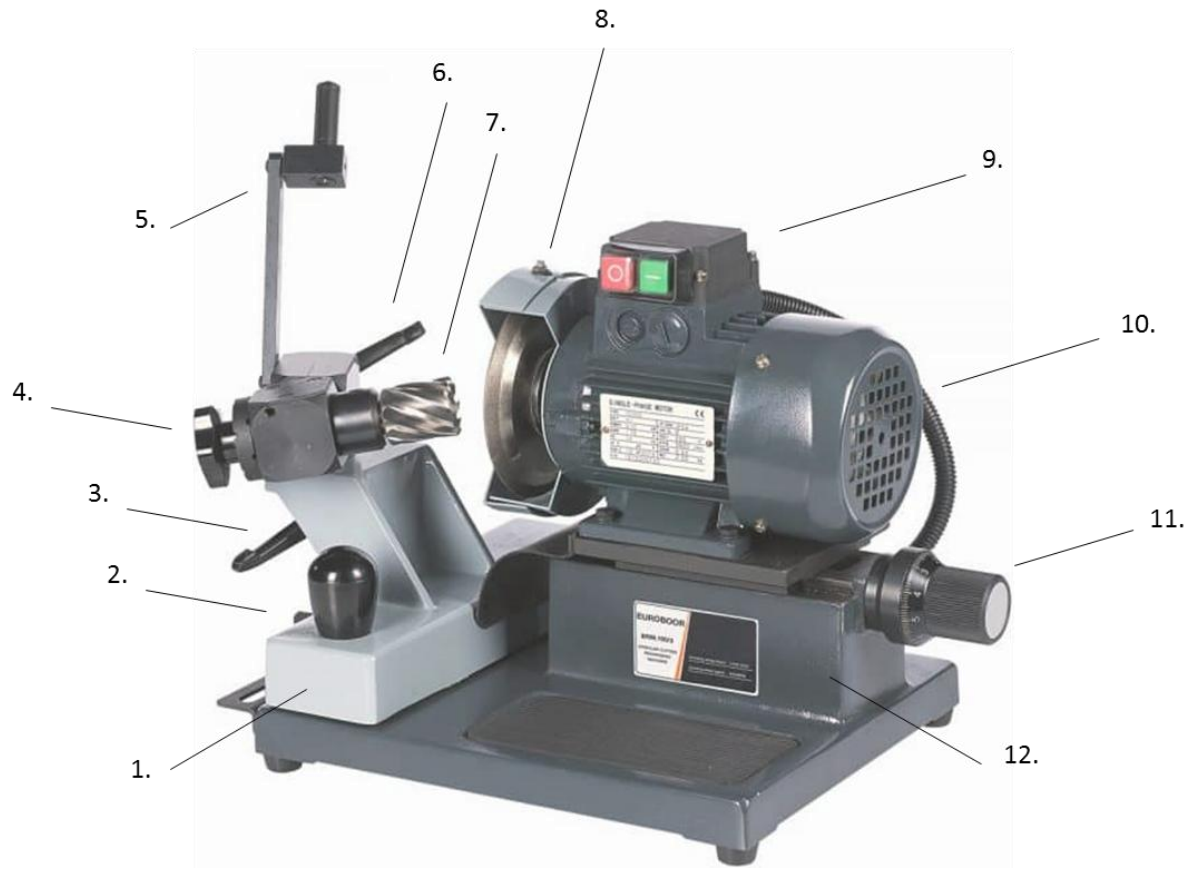
2. Description

2.1 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.

WARNING: *The machine should not be converted or modified, e.g. for any other form of use, other than as specified in these operating instructions. Warranty will be voided and the user shall be liable for damages and accidents due to incorrect use.*

2.2 Description and features



Refer to the image above for the following features of the machine ERM.100/3.

1. Guiding frame
2. Guiding stop
3. Horizontal angle adjustment bolt
4. Index knob & index plate
5. Laser
6. Vertical angle adjustment bolt
7. Annular cutter in the annular cutter holder
8. Sharpening wheel & cover
9. On-/off switch
10. Motor
11. Motor positioning knob
12. Machine base

2.3 Box content

Note: *When unpacking, make sure the parts listed below are included. If missing or broken, please contact distributors as soon as possible.*

1x ERM.100/3 Resharpening Machine

1x Power cable

1x Hex key set:

- Hex key 2 mm
- Hex key 2.5 mm
- Hex key 3 mm
- Hex key 4 mm
- Hex key 5 mm

1x Index plate 9 pins

1x Index plate 6/7 pins

1x Index plate 8/10 pins

1x Annular cutter holder Ø 19.05 mm

2.4 Serial numbers

The serial number for the motor of the machine is mentioned on the panel plate. The serial number of the machine's base is mentioned on the backside of the machine. The serial numbers will help you and your sales point validate and identify the machine.

Maintain labels, nameplates and other machine identification. These carry important information. Obtain replacements when unreadable or missing.

2.5 Technical data

Technical data ERM.100/3	
Dimensions L x B x H	480 mm x 300 mm x 320 mm
Weight	28 kg
Motor power	250 W
Noise emission	< 70 dBa
Grinding discs	Ø 125 mm, hole Ø 10 mm **Accessories:** ERM3.0001 CBN grinding disc (flutes) ERM3.0002 SDC grinding disc (teeth) ERM3.0011 CBN grinding disc (flutes)
Cutter holder	Ø 19,05 mm (3/4") (Weldon shaft) Ø 31,7 mm (Morse Conus)
Speed (no load)	2800 rpm
Voltage	110 – 120 Volt / 60 Hz 220 – 240 Volt / 50 - 60 Hz
Travel path Motor carriage Guidance carriage	75mm 215mm
For cutter sizes	Max. Ø 44 mm Max. DoC 55 mm

2.6 Symbols

Symbol	Term, meaning	Explanation
	Read documentation	Be absolutely sure to read the enclosed documentation such as the Instruction Manual and the General Safety Instructions
	Wear ear protection	Use ear protection during operation
	Wear eye protection	Use eye-protection during operation
	Dangerous electrical voltage	Be sure the machine is safe for use, without any open and/or protruding wires
	Danger/warning/caution	Observe the information in the adjacent text!
	European conformity symbol	Confirms the conformity of the power tool with the directives of the European Community
	ISO9001	Certified in accordance with ISO9001:2015 quality management system.
mm	Millimetre	Unit of measure for the dimensions
"	Inch	Unit of measure for the dimensions
kg	Kilogram	Unit of measure for the mass
lbs	Pound	Unit of measure for the mass
V	Volt	Unit of measure for the electric voltage
A	Ampere	Unit of measure for the electric current intensity
W	Watt	Unit of measure for the output
min	Minutes	Unit of measure for the time
Min^{-1}	Revolutions per minute	Unit of measure for number of revolutions, strokes, impacts or oscillations per minute

2.7 Environmental

Separate collection. This product must not be disposed of with normal household waste.

Separate collection of used products and packaging allows materials to be recycled and used again. Re-use of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.

Local regulations may provide for separate collection of electrical products from the household, at municipal waste sites or by the retailer when you purchase a new product.

3. Preparation & adjustment

3.1 Assembly

The EUROBOOR ERM.100/3 comes pre-assembled. The only adjustments that need to be made before you can start working with this machine is: fitting the corresponding annular cutter holder and fitting the correct indexing plate for your job. Then the machine is ready to fit the annular cutter and start resharpening! The EUROBOOR ERM.100/3 sharpening machine sharpens HSS cutters between ø 12 mm (1/2") and 44 mm (1 3/4") in cutting depths between 25 mm (1") and 55 mm (2 3/16") with great ease. The laser guided cutter alignment ensures correct positioning of the cutting edge to the wheel where the easy angle adjustments makes alignment to the original geometry easy and simple.

3.2 Prior to use

Prior to any use, check the machine and all of its components for damage and check that all moving parts are in perfect working order and do not jam.

All parts must be correctly installed and must fulfil all conditions necessary to ensure perfect operation of the machine.

A damaged and/or incorrectly functioning machine must be repaired or replaced according the original specifications by EUROBOOR or any authorised EUROBOOR dealer or service point.

DO NOT use under wet conditions or in presence of flammable liquids or gases.

DO NOT let children come into contact with the machine. Supervision is required when inexperienced operators use this machine.

ELECTRICAL SAFETY

The machine electronics have been designed for one voltage only. Always check that the power supply corresponds to the voltage on the rating label.

EUROBOOR ERM.100/3 is designed in class I (grounded).

If the power supply cord is damaged, it must be replaced by a specially prepared cord available through the EUROBOOR service organisation.

EXTENSION CABLE

If an extension cable is required, use an approved (GROUNDED) extension cable suitable for the power input of this tool (see technical data). The minimum conductor size is 1.5 mm^2; the maximum length is 30 meter. When using a cable reel, always unwind the cable completely.

3.3 Adjusting the grinding settings

3.3.1 Changing the annular cutter holder

Included with the EUROBOOR ERM.100/3 Resharpening Machine is a Ø 19.05 mm (Weldon) and Ø 31.7 mm (morse conus) annular cutter holder. Before you start working with the machine, be sure the correct annular cutter holder is fitted onto the machine. Changing the annular cutter holder can be done as follows:

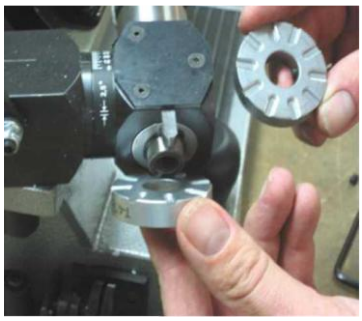
1. Adjust the horizontal angle adjustment to 0°
2. Adjust the vertical angle adjustment to 90°
3. On the right side of the annular cutter holder, you could now see a hole near the index plate.
4. Turn the index knob until the bolt for the index plate is visible on the right side as well.
5. Loosen the index knob by turning it counter-clockwise, while holding the annular cutter holder in place.
6. Loosen the index plate bolt by using the 2.5 mm hex key and remove the index plate from the machine.
7. While looking into the hole *(refer to step 3)* turn the annular cutter holder. When you see a deeper hole, lock it by using one of the hex keys.
8. Now loosen the annular cutter holder by turning it counter clockwise, while holding the hex key in place.
9. Once the annular cutter holder has come off, keep the hex key in position and screw on the other annular cutter holder.
10. Now continue fitting the correct index plate. Refer to paragraph 3.3.2.

3.3.2 Changing the index plate

The index plate must be equal to the amount of teeth of the annular cutter that needs to be resharpened. When the index plate is equal to the teeth of the annular cutter, it will contribute to equal sharpening of all teeth, without having to adjust the angles while working. Follow the steps below to change the indexing plate:

Note: *make sure the index plate used equals the teeth of your annular cutter.*

1. Adjust the horizontal angle adjustment to 0°
2. Adjust the vertical angle adjustment to 0°
3. Turn the index knob until the bolt for the index plate is visible.
4. Loosen the index knob by turning it counter-clockwise, while holding the annular cutter holder in place.
5. Loosen the index plate bolt by using the 2.5 mm hex key.
6. Remove the index plate from the machine.
7. Choose the correct index plate for mounting onto the machine. Index must be equal to the amount of teeth of the annular cutter.
8. Position the index plate onto the machine. Make sure the chosen side of the index plate is against the spring on the machine's arm.



9. Tighten the index plate with the bolt, and return the index knob.

4. Using the machine

4.1 Inserting the Annular cutter

Note: *This machine is suitable for EUROBOOR HSS annular cutters with a maximum depth of 55 mm and a diameter of 44 mm.*

1. Loosen the horizontal and vertical angle adjustment bolts.
2. Adjust the horizontal angle to 0°
3. Adjust the vertical angle up to 90°
4. Loosen the bolt in the annular cutter holder, using the 4 mm hex key.
5. Fit in the annular cutter (Do not tighten yet, see paragraph 4.2).

6. Go ahead with paragraph 4.2 for setting the correct angle

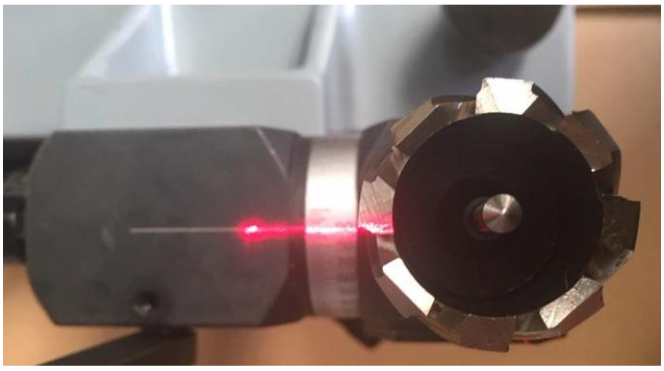
4.2 Setting the correct angle

Setting the correct resharpening angle depends on the size and shape of the annular cutter. However, for setting the correct angle the steps below can be used as guideline.

1. Adjust the horizontal angle to 0°
2. Adjust the vertical angle to 90°
3. Place the annular cutter in the cutter holder (refer to paragraph 4.1).

Note: *Don't tighten the hex screw yet.*

4. Switch on the laser beam with the red button on top of the laser beam housing
5. 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.

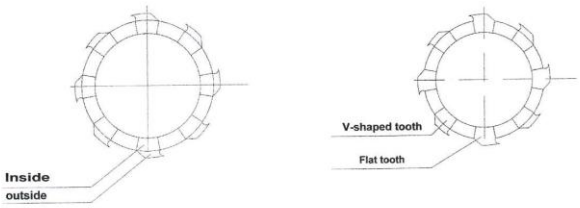


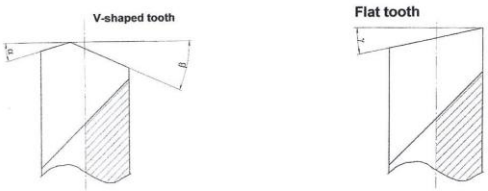
6. If the teeth is in line with the laser, tighten the annular cutter with the bolt, using the 4 mm hex screw and mark the teeth that was aligned on.
7. Now use the horizontal and vertical angle adjustment, the guiding frame and the motor adjustment knob to place the annular cutter teeth against the grinding disc. Refer to paragraph 4.3 for grinding instructions.

4.3 Grinding teeth and surfaces

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





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	Horizontal angle	Vertical angle	Horizontal angle	Vertical angle
V-Shaped teeth	Outer teeth	Outer teeth	Inner teeth	Inner teeth
Machine setting	7.5°	20°	20°	5°
Flat teeth	Horizontal angle	Vertical angle		
Machine setting	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.*

4.3.1 Grinding alternating flat & V-shaped teeth

Please follow the steps below to grind annular cutters with alternating flat and V-shaped surfaces:

1. First is the grinding surface of the flat teeth. Set the Horizontal angle to °5. Set the vertical angle to 14°.
2. After the flat tooth, grind the outer side of the V-shape tooth. Set the horizontal angle to 7.5°. Set the vertical angle to 20°.
3. After de reshaping the Outer V-Shape next tooth to grind V-Shape inner side. Set the Horizontal angle to 20°. Set the vertical angle to 5°.

ATTENTION:

1. 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. Instead, grind the next stretched surface below it.
2. 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.
3. 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.

4.4 Replacing the grinding disc

WARNING: *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.*

1. Remove the annular cutter from the machine, before making any adjustments to the machine. Sharp edges from the annular cutter can result in personal injuries.
2. Pull the machine's power cord from the power source.
3. Open the grinding disc cover by loosening the three bolts on the cover (see red arrow in the image below).
4. Retrieve the cover from the machine.
5. Loosen the two bolts that keep the flanges in position.
6. After loosening the bolts, retrieve the flange from the machine.
7. The grinding disc is loose now. Retrieve it from the machine.
8. Place the new grinding disc and tighten it following the steps above in reverse order.

5. Maintenance

Your EUROBOOR power tool has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning.

CAUTION: *To reduce the risk of injury, turn off and disconnect the machine from the power source before installing and removing accessories, before adjusting or changing set- ups or when making repairs.*

Just as every power tool with moving parts, your EUROBOOR ERM.100/3 also needs regular maintenance.

VISUALLY CHECK THE MACHINE FOR DAMAGE

Machine must be checked before operation for any signs of damage that will affect the operation of the machine. Particular notice must be taken of the mains cable, switches and moving parts. If the machine appears to be damaged it should not be used. Failure to do so may cause injury or death.

CLEANING

- Clean all dirt, dust, metal chips and burrs from the machine regularly. The use of compressed air is advised. Never remove metal chips with bare hands!
- Blow dirt and dust out of the motor housing with compressed air as often as dirt is seen collecting in and around the air vents. Wear approved eye protection and an approved dust mask.

- Never use solvents or other harsh chemicals for cleaning the non-metallic parts of the tool. These chemicals may weaken the materials used in these parts. Use a cloth dampened only with water and mild soap. Never let any liquid get inside the tool; never immerse any part of the tool into a liquid.

OPERATION OF THE MACHINE

The machines operation must be checked to ensure that all components are working correctly. Replace any defective parts immediately. This prevents properly function parts from being damaged.

REPAIR, MODIFICATION AND INSPECTION

Repair, modification and inspection of EUROBOOR ERM.100/3 must be done by EUROBOOR or an EUROBOOR authorised dealer. The spare parts list will be helpful if presented with the machine to the EUROBOOR dealer for service when requesting repair or other maintenance.

EUROBOOR machines are constantly being improved and modified to incorporate the latest technological advancements. Accordingly, some parts (i.e. part numbers and/or design) may be changed without prior notice. Also, due to EUROBOOR's continuing program of research and development, the specifications of machines are subject to change without prior notice.

WARNING: *Since accessories, other than those offered by EUROBOOR, have not been tested with this product, use of such accessories with this tool could be hazardous. To reduce the risk of injury, only EUROBOOR recommended accessories should be used with this product. Consult your dealer for further information on the appropriate accessories.*

6. Troubleshooting

Problem	Possible cause
Motor does not work	- Damaged or defective wiring - Motor internals worn-out or damaged - Defective switch - Defective control unit
Frame under voltage	- Damaged / defective wiring - Machine highly contaminated / dirty
Overheating	- Blocked motor housing vents
Tool does not grind or brush effectively	- Accessory may be damaged, worn or wrong type for the material.

7. Spare parts

EUROBOOR has a selection of spare parts and accessories in stock available for this machine. Please find the list below. If any other spare part is required, we ask you to contact your EUROBOOR distributor.

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 and service

Warranty

EUROBOOR B.V. warrants this machine to be free of material defects and workmanship errors under normal use for a period of 12 months after date of purchase. This 12 month period can be extended to 24 months in total by registering the product on our website: https://www.euroboor.com/support/register/

Serial number:	
Date of purchase:	/ /

Service

To maximise the lifetime of your EUROBOOR machine always use service and parts from an official EUROBOOR distribution channel. Whenever in need of such, always contact original point of sales or if no longer existent the distributor of EUROBOOR products in your country.

9. Certificates

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Zoetermeer, 21 September 2016

Euroboor B.V. hereby declares that the Tool Grinding Machine with the part number ERM.100/3 meets, and is approved according to, the following standards:

- EN ISO 12100:2010
- EN 13218:2002+A1:2008
- EN 61000-6-2:2005+AC:2005
- EN 61000-6-4:2007+A1:2001

Related to CE Directive(s):

- 2006/42/EC (Machinery)
- 2014/35/EU (Low Voltage)
- 2014/30/EU (Electromagnetic Compatibility)

Certification has been applied for and issued to the manufacturer and is valid from 18 April 2016 until 17 April 2021. Without exception, every unit of Euroboor ERM.100/3 is CE approved according to above mentioned standards.

Erwin Bos
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Euroboor B.V.

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