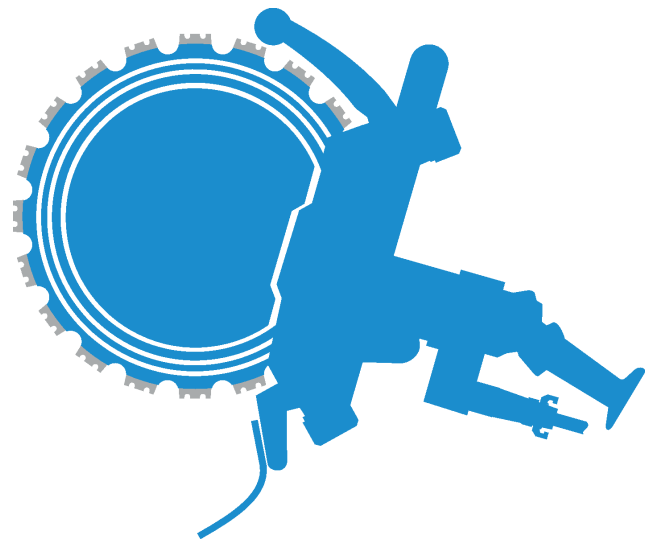




OPERATING INSTRUCTIONS

Ring saw HRE410

Index 000



Congratulations!

You have decided to purchase a tried-and-tested TYROLIT Hydrostress unit, a highly sophisticated and reliable state-of-the-art device. Only genuine TYROLIT Hydrostress spare parts can guarantee quality and interchangeability. If maintenance work is neglected or carried out improperly, we will be unable to honour our warranty obligations. All repairs must be carried out by trained personnel only.

Our after-sales service is available to help make sure your TYROLIT Hydrostress units remain in perfect working order.

We hope that working with your TYROLIT unit will be a satisfying and fault-free experience.

TYROLIT Hydrostress

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1. Concerning these instructions

These instructions are a part of the electrical tool. They describe how to use the equipment safely and properly in all phases of operation.

- ▶ Read the instructions carefully before use, particularly the safety instructions.
- ▶ Keep the instructions for the entire service life of the electrical tool.
- ▶ Ensure that the instructions are available to the operator and the service engineers at all times.
- ▶ Pass the instructions on to all subsequent owners or users of the electrical tool.
- ▶ Update instructions with all supplements received from the manufacturer.

1.1 Danger symbols in these instructions



DANGER

Warns of danger, where failure to comply could lead to death or serious injuries.



WARNING

Warns of danger where failure to comply could lead to injuries or damage to property.



WARNING

Warns of dangerous electrical voltage.

Before working in an area identified in this way, ensure the installation or electrical tool is fully isolated from the power (voltage) and secured to prevent it being accidentally powered up again.



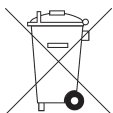
INFORMATION

Information for optimum use of electrical tool. Failure to take note of this information may mean it is not possible to guarantee the performance stated in the technical data.



RECYCLING

Take waste for recycling.



DISPOSAL

Observe national and regional laws and regulations regarding disposal.

2 Safety



Electrical tools must be operated by authorised personnel only. Information regarding authorised personnel is available in “Chapter 2.4”.

2.1 General safety information



WARNING

Read all safety information and instructions. Any failure to observe the safety information and instructions can result in electric shock, fire and/or serious injuries. Retain all safety information and instructions for future reference.



The term electrical tool used in the safety instructions pertains to the mains-operated electrical tool (with a mains cable) and battery-operated electrical tool (without a mains cable).

2.1.1 Workplace safety

Keep your place of work clean and well illuminated. Untidy or non-illuminated work areas can lead to accidents.

- Do not use the electrical tool in potentially explosive areas in which flammable liquids, gases or dust are present. Electrical tools create sparks that can ignite dust or vapours.
- Ensure children and other persons are kept at a safe distance when using the electrical tool. If you are distracted, you may lose control of the tool.

2.1.2 Electrical safety

- The electric plug of the electrical tool must fit into the socket outlet. Do not modify the plug in any way. Do not use adapter plugs together with earthed electrical tools. Unmodified plugs and matching socket outlets reduce the risk of electric shock.
- Avoid body contact with earthed surfaces such as pipes, heaters, ovens and refrigerators. There is an increased risk of electric shock if your body is earthed.
- Protect your electrical tool from rain and moisture. Water ingressing an electrical tool increases the risk of electric shock.
- Do not use the cable to carry or hang up the electrical tool or to pull the plug out of the socket outlet. Keep the cable away from heat, oil, sharp edges and moving tool parts. Damaged or tangled cables increase the risk of electric shock.
- When using an electrical tool outdoors, use an extension cable that is suitable for use in outdoor areas. Using an extension lead suitable for use in outdoor areas reduces the risk of electric shock.
- If it is not possible to avoid operating the electrical tool in a damp environment, ensure a residual current protective device is installed. Using a residual current protective device reduces the risk of electric shock.

2.1.3 Safety of persons

- Remain alert, be aware of what you are doing and use common sense when working with the electrical tool. Do not use the electrical tool when you are tired or under the influence of drugs, alcohol or medication. A fleeting moment of carelessness when using the electrical tool can lead to serious injuries.
- Wear personal protective equipment and always wear safety goggles. Wearing appropriate personal protective equipment according to the prevailing conditions, such as a dust mask, non-slip safety shoes, hard hat and/or hearing protection will reduce the risk of injuries.
- Avoid starting the electrical tool unintentionally. Ensure the electrical tool is switched off before you pick up, carry or connect the electrical tool to the power supply and/or connect the rechargeable battery. Carrying the electrical tool with your finger on the switch or the tool is switched on when you connect it to the power supply can lead to accidents.
- Remove adjusting tools and spanners before switching on the electrical tool. Never work from a ladder. A tool or key attached to the rotating tool may cause injuries.
- Avoid abnormal postures. Ensure that you have firm footing, and keep your balance at all times. That will ensure you are able to better control the electrical tool in unexpected situations.
- Wear suitable clothing. Do not wear loose-fitting clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. Loose-fitting clothing, jewellery and long hair can get caught up in moving parts.
- If there is an option to fit dust extraction and collection devices, ensure they are correctly connected and used properly. Using a dust extraction device can reduce risks associated with dust.

2.1.4 Using and caring for the electrical tool

- Do not overload the tool. Use the correct electrical tool for your work. Using the correct electrical tool will enable you to carry out your work better and more safely in the specified power range.
- Do not use any electrical tool if the switch is faulty. Any electrical tool that can no longer be switched on and off is dangerous and must be repaired.
- Remove the plug from the socket outlet and/or remove the rechargeable battery before adjusting the tool, changing accessories or putting the tool away. These cautionary measures prevent the electrical tool starting up unintentionally.
- When not in use, store the electrical tool out of reach of children. Do not allow anybody to use the tool who is not familiar with the tool or has not read these instructions. Electrical tools are dangerous in the hands of untrained users.
- Care for electrical tools appropriately. Check moving parts function flawlessly and do not jam; check if any parts are broken or damaged and impair the proper function of the electrical tool. Ensure damaged parts are repaired before using the tool. Poorly maintained electrical tools are the cause of many accidents. Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp edges jam less often and are easier to use.
- Observe these instructions when using the electrical tool, accessories and tool bits. Be aware of the working conditions and the task at hand. Using electrical tools for any application other than that for which they were designed can lead to hazardous situations.

2.1.5 Service

- Allow only qualified and skilled personnel to repair your tool using only original spare parts. That guarantees the safety of the electrical tool is maintained.

2.1.6 Safety information for hand saws

- Wear hearing protection when using hand saws. The effect of noise can lead to a loss of hearing.
- Use the handles fitted to the tool. Losing control of the machine can lead to injuries.
- Hold the tool using the insulated gripping surfaces when carrying out work that risks the tool being used coming into contact with concealed power cables or its own mains cable. Contact with a live conductor can cause metal parts to become live and result in an electric shock.

2.2 Pay attention to the safety instructions

Do not work with the electrical tool unless you have read and understood the safety instructions.

The electrical tool has been inspected before being shipped and is delivered in perfect condition. TYROLIT Hydrostress does not accept liability for damage caused by failing to follow these instructions. This applies in particular to the following damage:

- Damage caused by improper use and operator error
- Damage caused by failure to observe the safety-related information in these instructions or the warning signs on the electrical tool
- Damage caused by substandard maintenance work

2.3 Intended use

Transportable ring saw for use on construction sites, for cutting (reinforced) concrete, stone and masonry. Designed for industrial applications only; not suitable for use in potentially explosive atmospheres; to be used only by trained personnel

Incorrect use:

- Working without protective equipment or inadequate protective equipment
- Cutting other materials
- Removing protective devices
- Cutting in potentially explosive areas
- Cutting loose parts
- Cutting at a hazardous working height
- Cutting on an unstable surface (e.g. on a ladder)
- Incorrect or absence of waste water disposal (sawing sludge)

2.4 Target groups and responsibility

2.4.1 Authorised personnel

Work on or with machines or systems from TYROLIT Hydrostress must be carried out by authorised personnel only. Personnel are considered to be authorised if they meet the necessary training and know-how requirements and have been assigned a precisely defined task.

2.4.2 Manufacturer

Manufacturers of products supplied by TYROLIT Hydrostress are:

- TYROLIT Hydrostress
- A company explicitly named by TYROLIT Hydrostress

Within the context of an integrated quality assurance and safety control system, the manufacturer is entitled to request from the operating company information about the products.

2.4.3 Operating company

The operating company named by TYROLIT Hydrostress is the primary, legal entity responsible for the correct use of the product and for the training and assignment of authorised personnel. The operating company sets out the skills and level of training of authorised personnel.

Personnel qualifications

- A person with technical qualifications in a management position
- Relevant experience in personnel management and risk assessment
- Has read and understood the safety instructions

2.4.4 Operator (user)

User is the term employed by TYROLIT Hydrostress to designate a person who performs the following work without direct supervision:

- Setting up the machines and systems from TYROLIT Hydrostress within the scope of their intended use
- Performs and monitors work without direct supervision
- Localises faults and organises troubleshooting and fault correction without direct supervision
- Maintenance
- Verifies safety devices are functioning correctly

Personnel qualifications

- Completed vocational training as a concrete cutting specialist or relevant professional experience
- Familiarization (basic training) with the operation of the electrical tool under the tuition of a service engineer

2.4.5 Service engineer

A service engineer is the term applied by TYROLIT Hydrostress to a person who performs the following work without direct supervision:

- Installs TYROLIT Hydrostress machines and systems
- Makes adjustments to machines and systems for which certain access rights are required
- Complex service and repair work

Personnel qualifications

- Specialist vocational training (mechanical/electrical engineering)
- Product-specific training at TYROLIT Hydrostress

2.5 Organisational measures

2.5.1 Product monitoring obligation

Operate the electrical tool only when it is in a perfect and undamaged condition. Operating personnel must immediately notify a responsible person or the manufacturer of changes in the operational behaviour or to safety-related components of the tool. The maintenance intervals must be adhered to. Faults that affect safety must be remedied immediately.

2.5.2 Location of these instructions

Keep a copy of these instructions available to personnel at the place of use of the electrical tool at all times.

2.5.3 Workplace

- Provide sufficient space to carry out work safely.
- Ensure that the workplace is sufficiently illuminated.

2.5.4 Spatial limitations:

- Use in rooms or outdoors
- Cuts in vertical surfaces at a maximum (no overhanging surfaces)
- Not on slippery or uneven surfaces
- Cordon off the danger area in a highly visible manner so nobody can enter the danger area (5 m radius) during sawing.

2.6 Protective devices and signs on the electrical tool

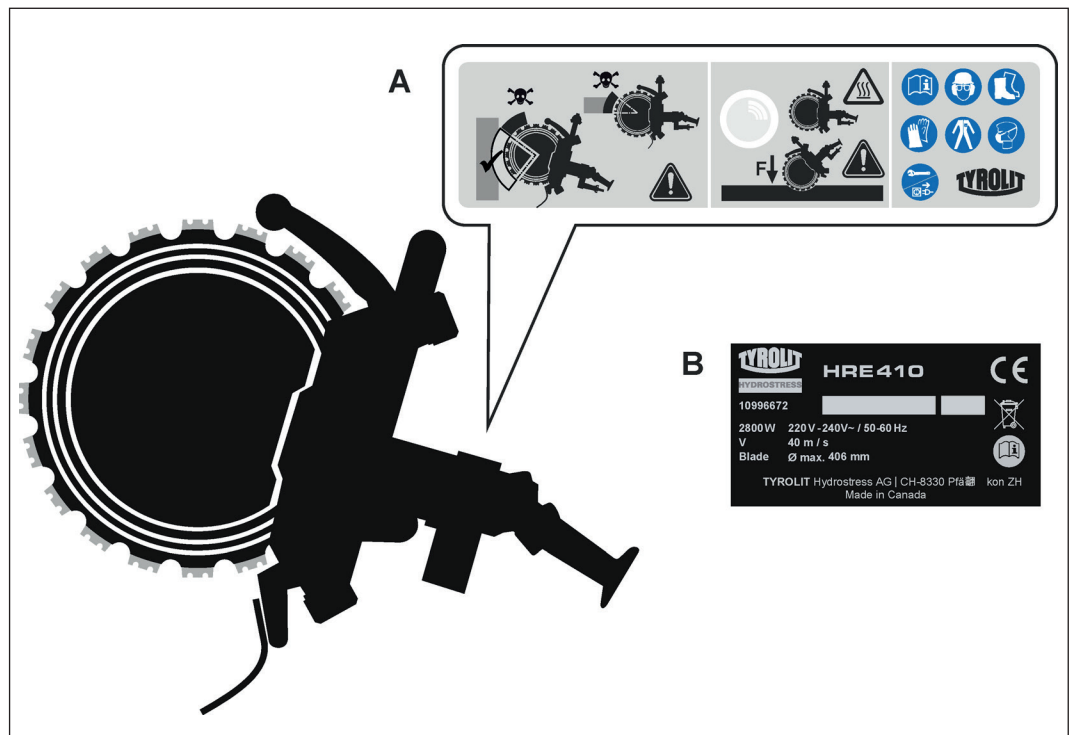
2.6.1 Protective devices

Protective devices may only be removed if the electrical tool has been switched off and is at a standstill. Safety components in particular should only be removed and refitted by authorised personnel.

Before switching the electrical tool back on again, check that the safety elements are operating correctly.

2.6.2 Signs on the electrical tool

Safety label “Kick-Back”



A Safety instructions

B Type plate

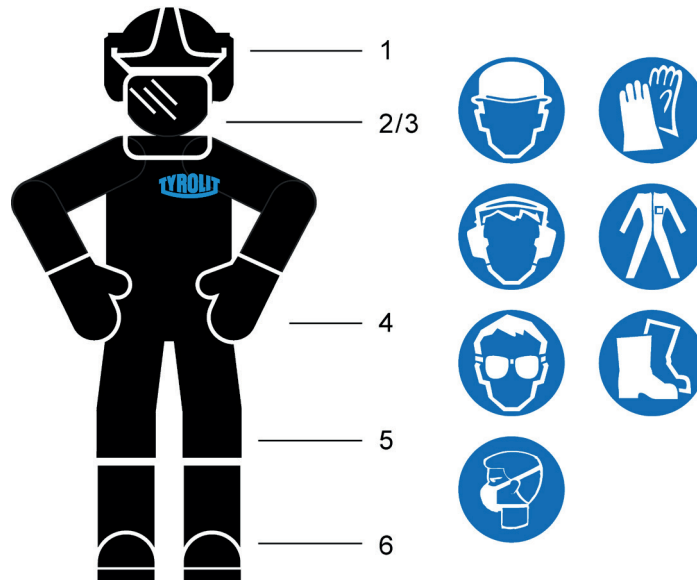
2.7 Spare parts and modifications

Only original spare parts from TYROLIT Hydrostress must be used. Otherwise damage may be caused to the electrical tool or to other property and personal injuries may occur.

Do not install any attachments or make any modifications to the electrical tool without prior written permission from TYROLIT Hydrostress.

2.8 Personal protective clothing

It is mandatory for anyone working with and on the electrical tool to wear personal protective equipment.



- 1 Helmet with hearing protection
- 2 Visor or safety goggles
- 3 Respiratory mask
- 4 Safety gloves

- 5 Tight-fitting, robust and comfortable clothing
- 6 Work shoes with steel toe caps and anti-slip soles

2.9 Residual risks

There is a risk of serious injuries from residual risks described in the chapters that follow.

2.9.1 Sharp edges

Risk of serious lacerations if contact is made with the cutting tool.

- Do not touch the tool during operation.
- Always wear gloves when handling the stationary tool.

2.9.2 Diamond segments flying off

- Before use, always ensure that the ring guard is correctly fitted and undamaged.
- Do not start sawing if any other persons are in the danger zone.
- Ensure a safe distance of 5 m to the electrical tool is maintained.
- Replace the disk grinding ring if diamond segments start to break off.

2.9.3 Kick-back

Incorrectly positioning the disk grinding ring or cutting the wrong materials can cause the electrical tool to kick back and seriously injure the operator.

- Cut only approved materials for which the tool was designed and intended.
- Do not apply disk grinding ring above the centre to a corner of a workpiece.

2.9.4 Unintentional start-up

- Before starting up, ensure that:
 - The control handle with lockout is working correctly.
 - Nobody else is in the danger zone.

2.9.5 Vibration

Vibration can cause circulation problems and/or nerve damage. Consult a doctor in the event any symptoms become evident.

2.9.6 Uncontrolled movements and vibration

- When switched on, always hold the electrical tool with both hands using the handles. Thumbs and fingers must be closed around the handles.
- Keep the handles clean.
- Never saw above shoulder height.
- Never stand on ladder when sawing.
- Guide the electrical tool in a manner that ensures no part of your body is in the direct line of the disk grinding ring of the electrical tool.

A loose disk grinding ring can cause the electrical tool to vibrate uncontrollably.

- Ensure the drive roller and the clamping rollers are correctly mounted.

2.9.7 Being caught up and drawn in

Items of clothing or long hair can be caught by the rotating disk grinding ring.

- Always work with the protective covers fitted.
- Do not wear loose items of clothing at work.
- Wear a hair net if you have long hair.

2.9.8 Particles flying off

Flying particles can cause eye injuries.

- Wear safety goggles or a visor.
- Ensure that danger area is properly cordoned off.

2.9.9 Allergic reactions if skin comes into contact with gear oil

- Persons who are allergic to gear oil must wear safety gloves and safety goggles when carrying out work that risks them coming into contact with gear oil. Rinse any areas of the skin affected immediately with copious amounts of water.

2.9.10 Falling parts

Falling parts can cause serious head and foot injuries.

- Wear a helmet and safety shoes with steel toecaps.
- Secure lumps of concrete that have been cut loose to prevent them falling.
- Safeguard front, underneath and rear of sawing area from falling parts and sawing sludge: It is imperative to ensure people cannot be injured or equipment damaged.

2.9.11 Noise

Noise can cause hearing damage.

- Wear hearing protection.

2.9.12 Harmful vapours and aerosols

Inhaling harmful vapours and/or aerosols can cause breathing problems.

Breathing in the emerging water mist is a health hazard.

- Wear a respiratory mask.
- Ensure confined spaces are adequately ventilated.

2.9.13 Risk of fire

- When operating the tool, sparks can cause a fire.
- When operating the tool, sparks can cause burns.

2.9.14 Risk of slipping

The sludge resulting from cutting is very slippery.

- Do not work on uneven surfaces.
- Wear safety shoes with non-slip soles.
- Continually remove sludge or ensure that people cannot slip.

2.9.15 Risk when ring saw continues to run after an accident has occurred

Ensure the ring saw can be stopped quickly.

2.9.16 Poor physical condition

- Do not work when under the influence of alcohol, drugs or medication.
- Do not work when you are overtired.
- Do not allow children or adolescents below the age of 18 to operate the electrical tool. Adolescents aged 16 and over are excepted from this ban if they are under the supervision of an expert for training purposes.

2.9.17 Reduced cutting ring quality

- Do not use damaged disk grinding rings.
- Check disk grinding ring for damage before fitting.
- Do not fit new diamond segments to a disk grinding ring.

2.9.18 Transport

- Never transport the electrical tool when it is running!
- Always carry the electrical tool using the bow-type handle.

2.10 Protection against electric shock

2.10.1 Power supply



INFORMATION

The power supply must correspond with the information on the type plate.

- Protect the connecting cables from heat, oil and sharp edges.
- Do not use connecting cables for purposes for which they are not intended.
- Never carry the electrical tool using the connecting cable.
- Do not use the connecting cable to pull the plug out of the socket.
- In the event of power failure: switch off the electrical tool, pull out the plug.
- Ensure the power supply is earthed and fitted with an AC/DC sensitive residual current circuit breaker (FI type B) with a maximum residual current of 30 mA.

2.10.2 Extension cable



INFORMATION

- Use only approved and appropriately marked extension cables outdoors.
- Do not use extension cables with multiple sockets and operate several devices simultaneously.

Always use an extension cable with a sufficient cross-section that is approved for the field of application. Before use, check that all cables are intact.

Do not use an extension cable with a conductor cross-section of 1.25 mm² and 16 AWG.

Recommended minimum cross-sections and maximum cable lengths

Cross-section mm ²	1.5	2.5	4.0
400 V 3~	35 m	60 m	100 m

2.11 Risk of material damage

2.11.1 Cutting with the side of the disk grinding ring

Cutting with the sides of the ring can damage the disk grinding ring.

- Do not cut using the sides of the disk grinding ring.

2.11.2 Defective water cooling

The disk grinding ring can be damaged if the water cooling is faulty.

- Do not operate the electrical tool without water cooling.

2.11.3 Frost damage

- When work is completed or before longer work breaks, drain and blow out the water system.

2.11.4 Storage

- Store the electrical tool securely in a dry room. Do not store the electrical tool outdoors. Ensure children are unable to gain access to the electrical tool.

3 Product description

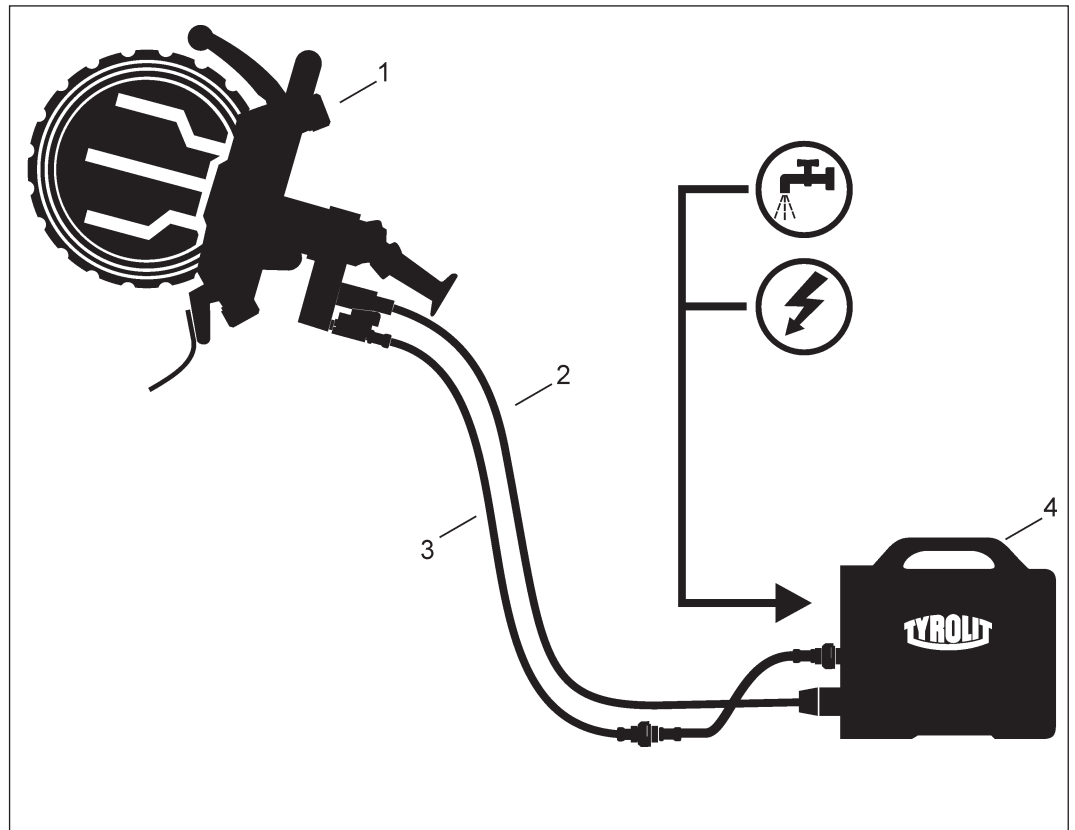
3.1 System overview

3.1.1 Ring saw system components



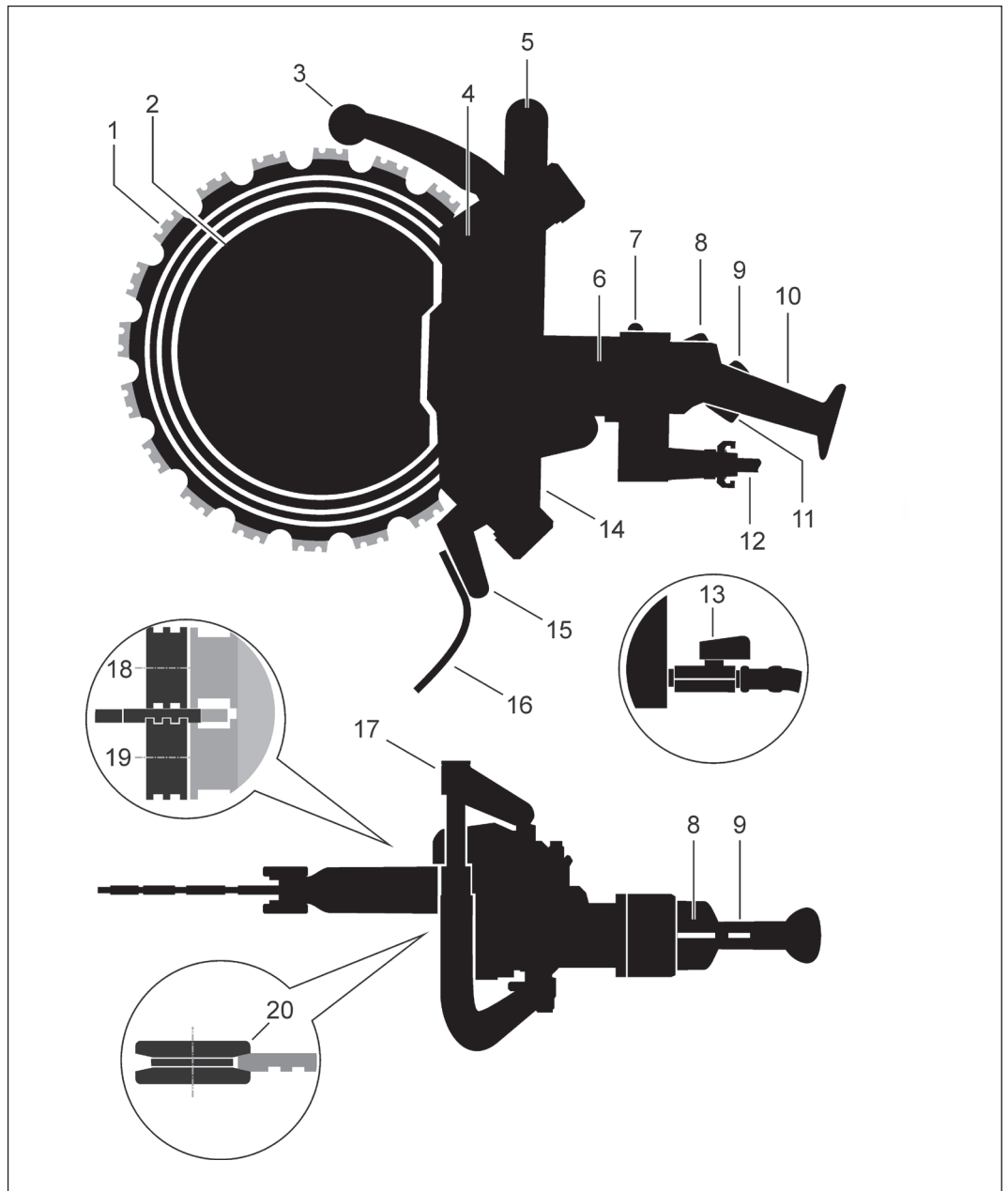
INFORMATION

The HRE410 ring saw is combined with the WSE1621 control unit, for example, to form the sawing system.



- 1 Ring saw HRE410
- 2 Power supply line
- 3 Water line
- 4 Control unit

3.2 Ring saw



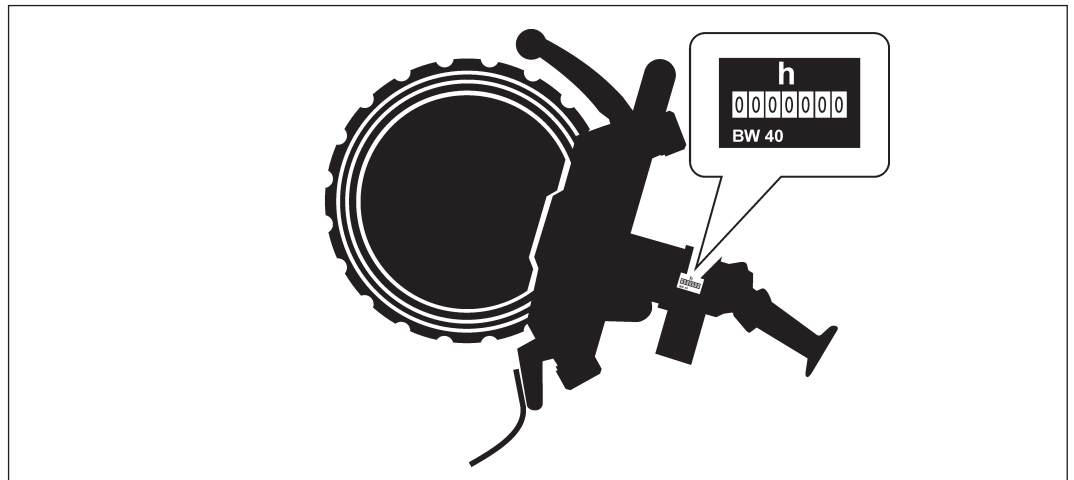
- | | | |
|---------------------------|------------------------------------|---------------------|
| 1 Disk grinding ring | 8 Rotary lock, 90° rotating handle | 15 Foot |
| 2 Guide plate | 9 Unlocking button | 16 Spray guard |
| 3 Spray guard, complete | 10 Rear handle | 17 Removable handle |
| 4 Cover, complete | 11 Start button | 18 Clamping rollers |
| 5 Front handle | 12 Electric cable | 19 Guide rollers |
| 6 Electric motor | 13 Water connection / ball valve | 20 Drive wheel |
| 7 Power and error display | 14 Ring saw head | |

3.3 Hour counter

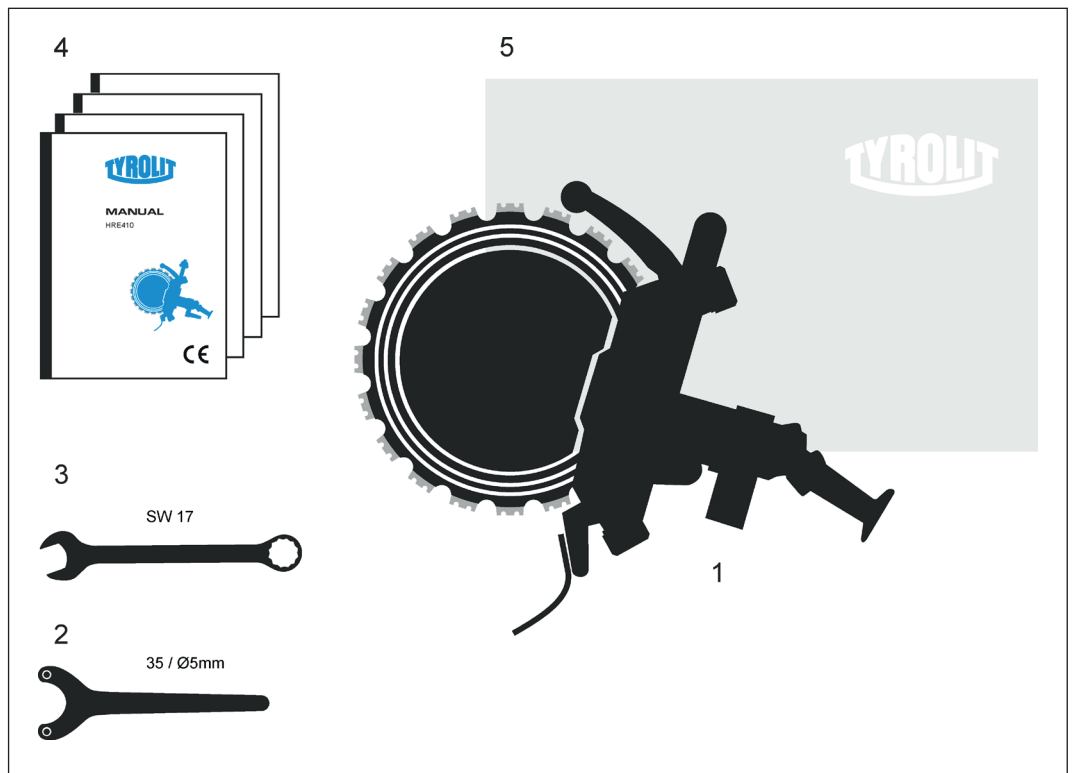


INFORMATION

The HRE410 ring saw is equipped with an hour counter.



3.4 Scope of supply



- | | | |
|---|-------------------------------|----------------------|
| 1 | 1x ring saw HRE410 | |
| 2 | 1x face-pin wrench 35 / Ø5 mm | TYROLIT no. 11001604 |
| 3 | 1x 17 mm combination spanner | TYROLIT No. 980338 |
| 4 | 1x operating Instructions | |
| 5 | 1x packaging | |

4 Assembly/disassembly



DANGER

Serious injury can be caused when the ring saw suddenly starts up

- ▶ Before starting assembly and disassembly work, switch off the ring saw and disconnect it from the mains power supply.

4.1 Installing the guide plate



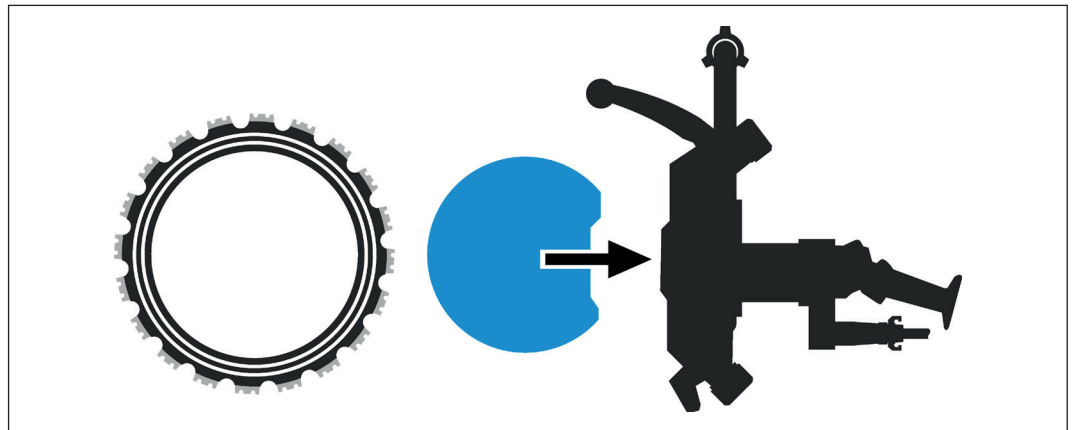
INFORMATION

The guide plate stabilizes the saw blade during the sawing process and distributes the water.



INFORMATION

The guide plate must be installed so that the rubber grommet on the gear housing is aligned with the bore for the water supply in the guide plate. If the guide plate is not installed correctly, the supply of water to saw blade may be insufficient. If the saw blade is not cooled, this may result in personal injuries and material damage.



Proceed as follows:

- ▶ Install the guide plate in the corresponding bores in the gear housing using the hexagon socket-head cap screws supplied.

4.2 Installing the drive wheel

Push the drive wheel onto the drive shaft of the ring saw. When doing so, ensure that the inner contour of the recess in the drive wheel is aligned with the outer contour of the spindle.

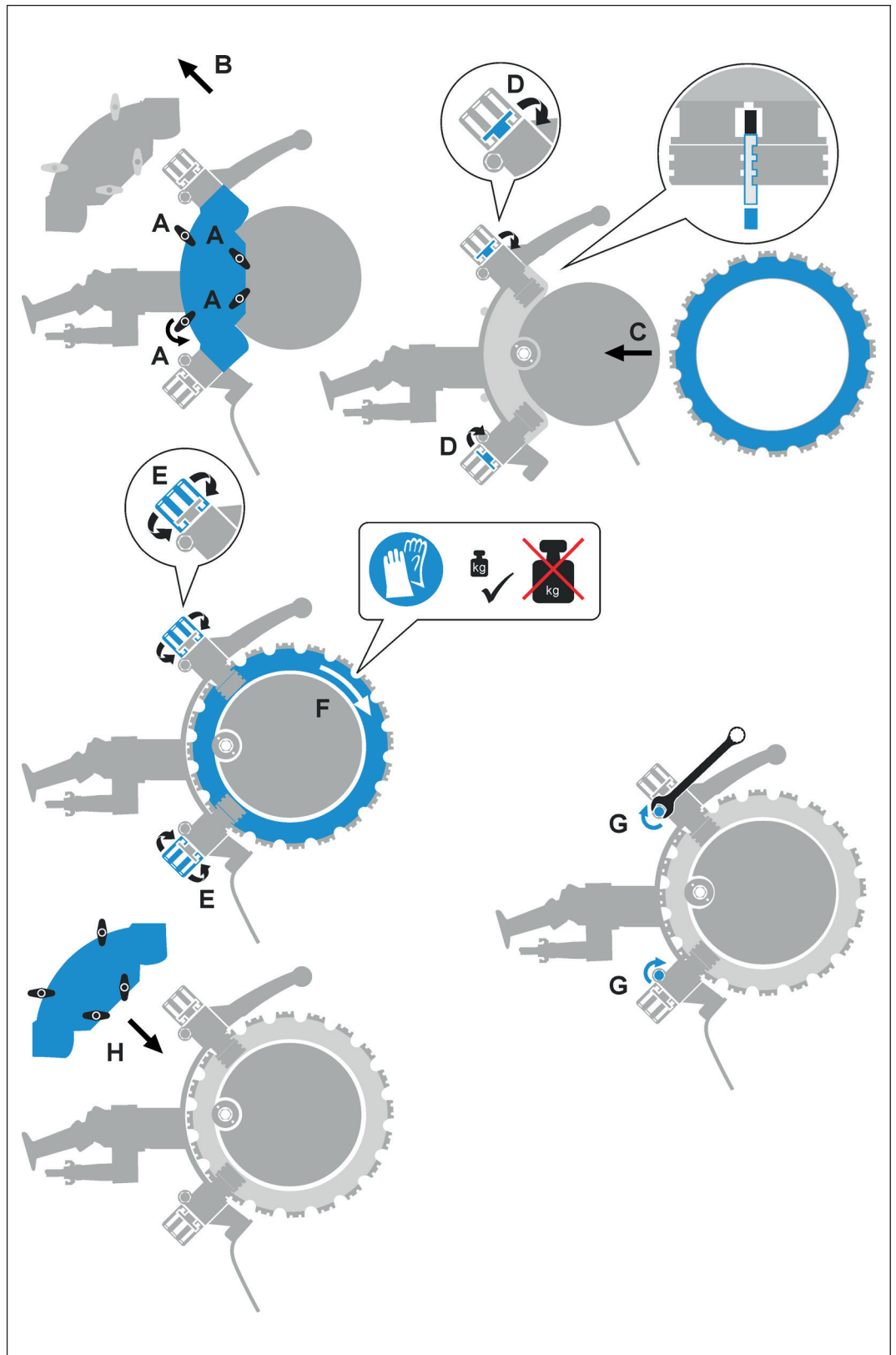
Secure the drive wheel by screwing in the hexagon head cap screw anticlockwise. Tighten the hexagon head cap screw using the combination spanner and the face-pin wrench to hold the counterpart (see scope of delivery).



INFORMATION

The hexagon head cap screw has a left-hand thread!

4.3 Mounting the disk grinding ring



Proceed as follows:

- ▶ Undo screw the cover mounting screws (A).
- ▶ Remove the cover (B).
- ▶ Insert the disk grinding ring so the notch and grooves match (C).
- ▶ Swing the eccentric shaft using the rotating handle (D) until the clamping rollers are contacting.
- ▶ Fully tighten the locking grips (E) (O-ring seals).

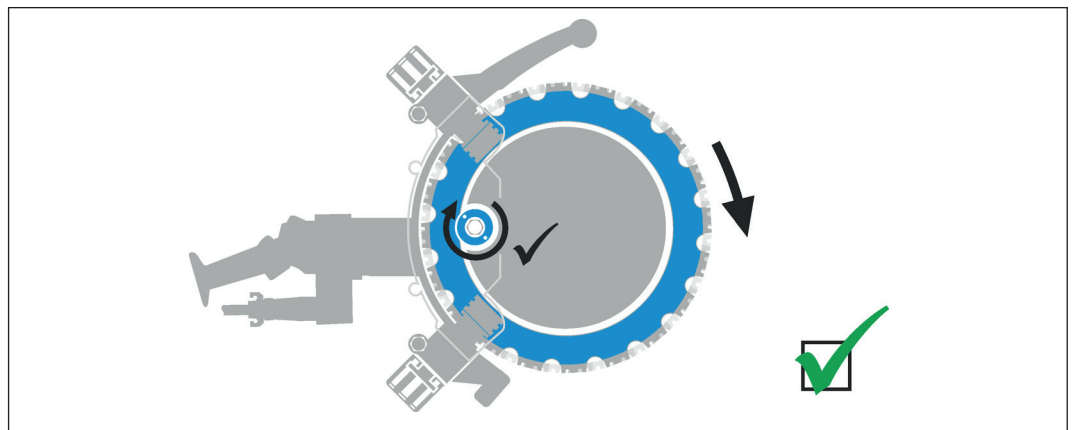
**INFORMATION**

If the locking grips are not fully tightened, water can enter the guide roller and cause damage.

- ▶ Readjust the eccentric shaft using the rotating handle so the clamping rollers have only slight contact.
- ▶ Lock the adjustment using the combination spanner (G).
- ▶ Turn the disk grinding ring through at least three complete rotations by hand.

**INFORMATION**

The correct pretension has been set if all four clamping rollers as well as the drive roller also rotate when turning the disk grinding ring by hand. In addition, if a clamping roller is blocked with two fingers, it must still be possible to rotate the disk grinding ring.



- ▶ If the pretension is no longer correct, correct the adjustment using the rotating handle of the eccentric shaft.
- ▶ Install the guard (H).

**WARNING**

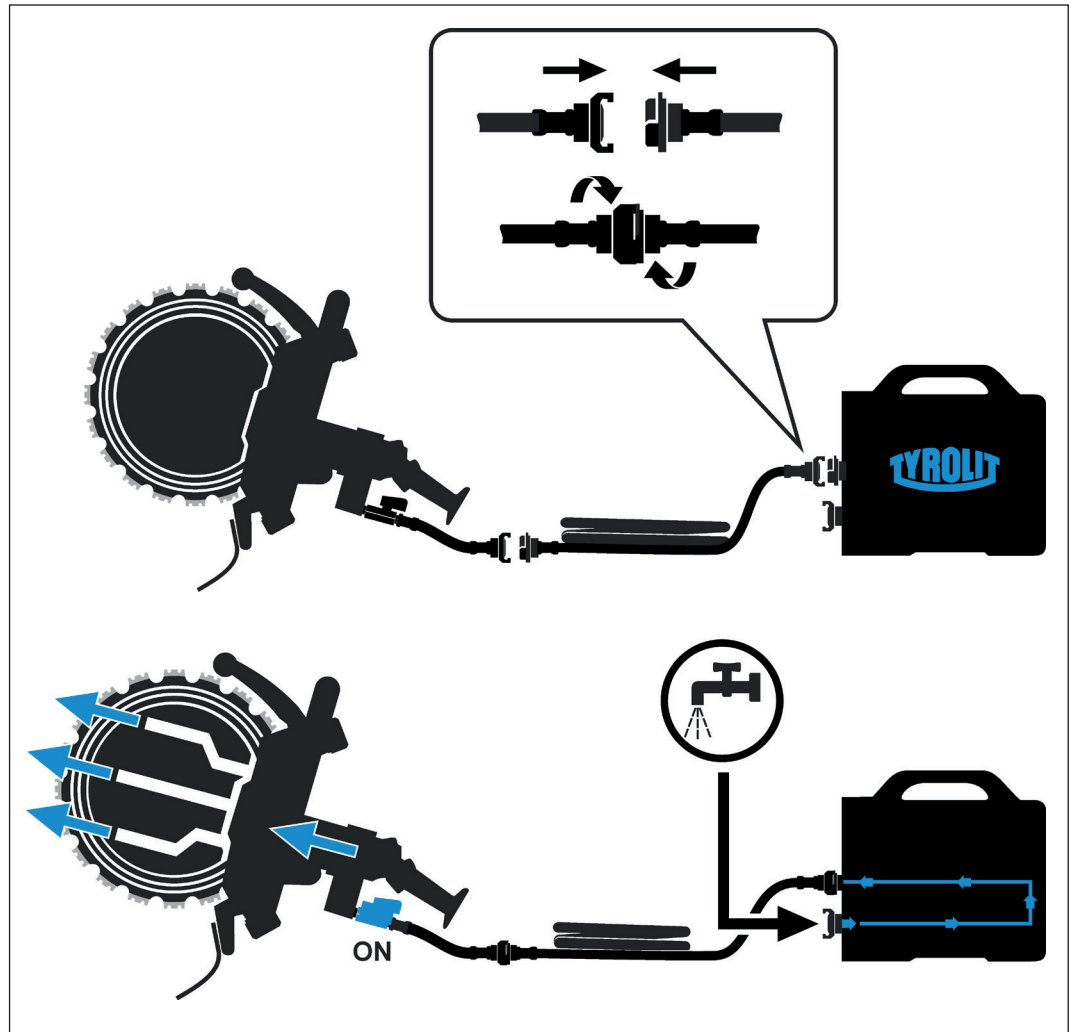
Incorrectly installed guide or eccentric rollers can result in vibrations and the loss of control over the machine.

Incorrect installation can result in damage to the disk grinding ring.

4.4 Water connection

- ▶ Ensure the coupling, ring saw and supply line are clean.
- ▶ Check hose and coupling for damage.

4.4.1 Connecting the water hose



WARNING

Risk of damage to the saw blade, the motor or the drive wheel due to lack of water cooling.

The ring saw must not be operated without water cooling.



WARNING

Risk of damage due to excessively high water pressure.

Never operate the machines at a pressure greater than that specified.

4.5 Power supply connection

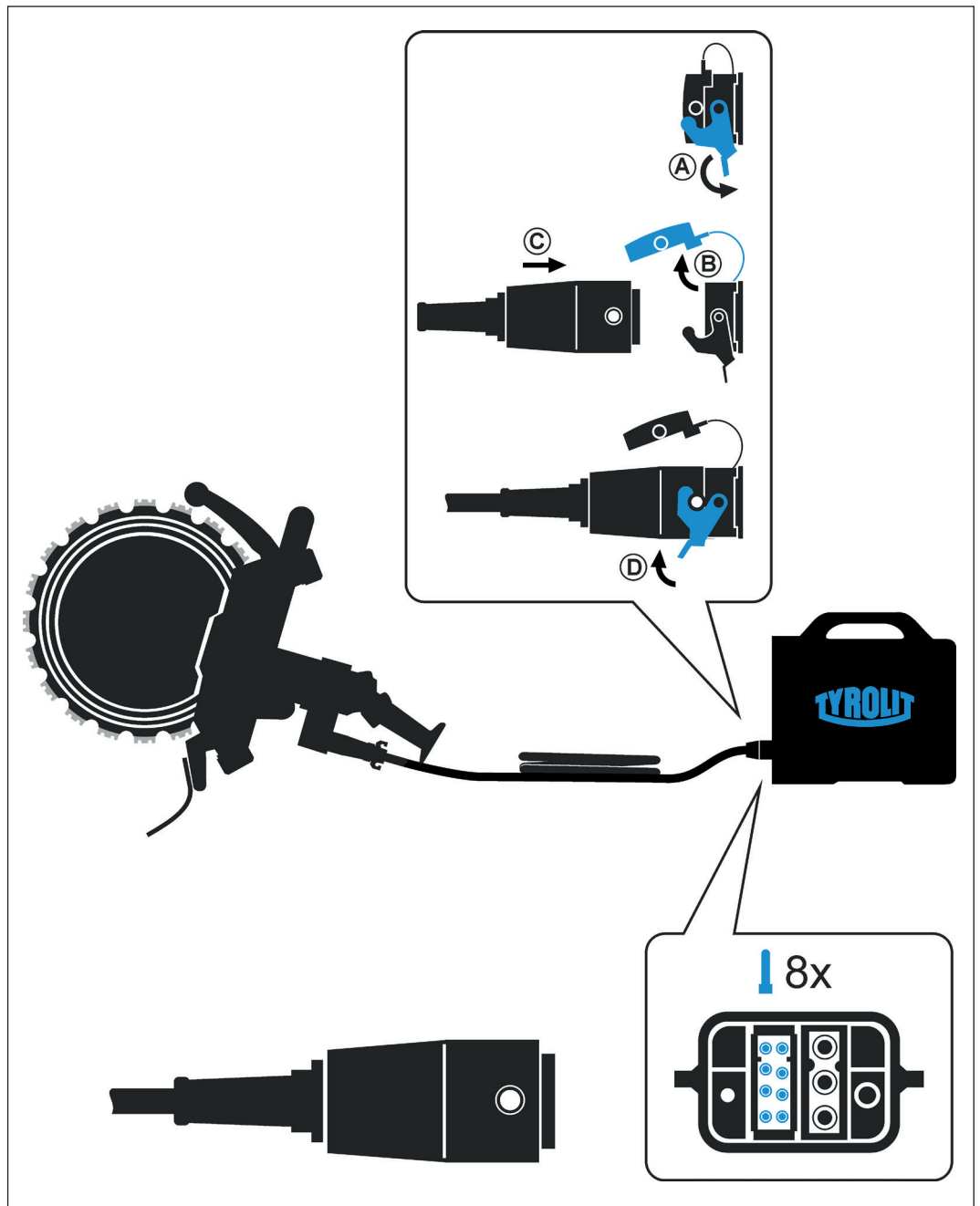
- ▶ Ensure the coupling, ring saw and supply line are clean.
- ▶ Check the plug connection for damage.



INFORMATION

Check whether the connector on the control unit has eight pins. If the connector does not have eight pins, the control unit must be retrofitted with a conversion kit.

4.5.1 Connecting the power supply



5 Operation

5.1 Preparatory operations

The work is prepared as follows:

1. Determine conditions:
 - Location of supply lines in walls, floors and ceilings
 - Cooling water drainage (risk of electric shock and water damage)
2. Secure the site.
3. Secure cut-outs in walls, ceilings and floors (e.g. crane or supports). Take weight of concrete into consideration (1 m³ corresponds to 2400 to 2700 kg). Define position and sequence of cuts.
4. Perform a visual inspection of the ring saw.

5.2 Position and sequence of cuts

5.2.1 Define position

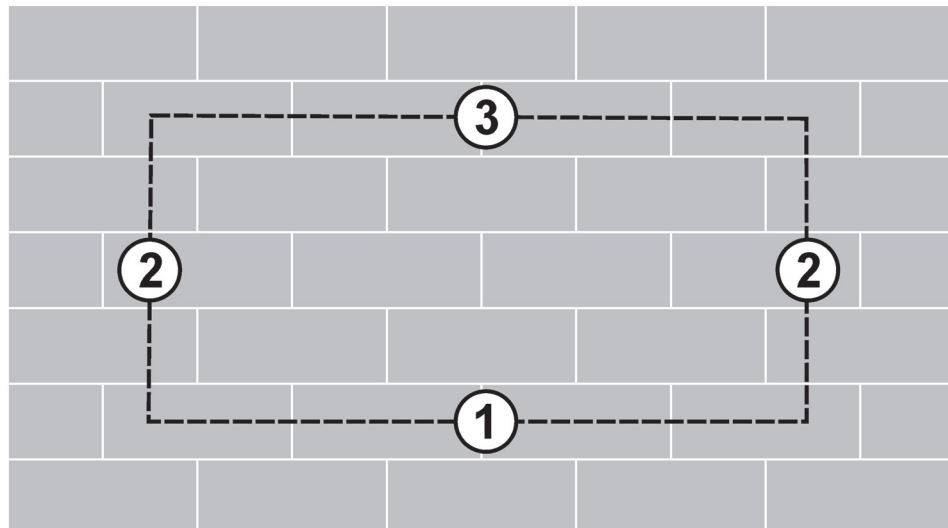
- Obtain information about the concrete or masonry to be sawn:
 - Where does the reinforcement run?
 - Is it heavily or slightly reinforced?
- Cut across the concrete if possible

5.2.2 Define the sequence of cuts



INFORMATION

Using the wrong cutting sequence can cause the disk grinding ring to jam.



Define the cutting sequence (for example, for a window cutout carry out the bottom cut first, then the side cuts and finally the top cut).

5.3 Working



Danger

It is obligatory to wear protective clothing with hearing protection when using the saw. If this instruction is not followed, irreparable hearing damage may result.



5.3.1 Start the electrical tool

- ✓ The disk grinding ring has been checked and is correctly fitted.
- ✓ The water supply is secured.
- ✓ The electrical tool is correctly attached to the power supply.
- ✓ The power supply is earthed and equipped with a residual current circuit breaker.
- ✓ Before starting the machine, check the function of the control handle with lockout.

- ▶ Open the water supply and check that water emerges at the ring saw.
- ▶ Ensure you are standing firmly, then grip the front and rear handles firmly with your hands.
- ▶ Press the safety unlocking device and the start button.



WARNING

There is a delay of approx. 2 seconds before the saw starts after pressing the start button.

When the start button is released, the saw blade continues to rotate for a few seconds before it stops completely.

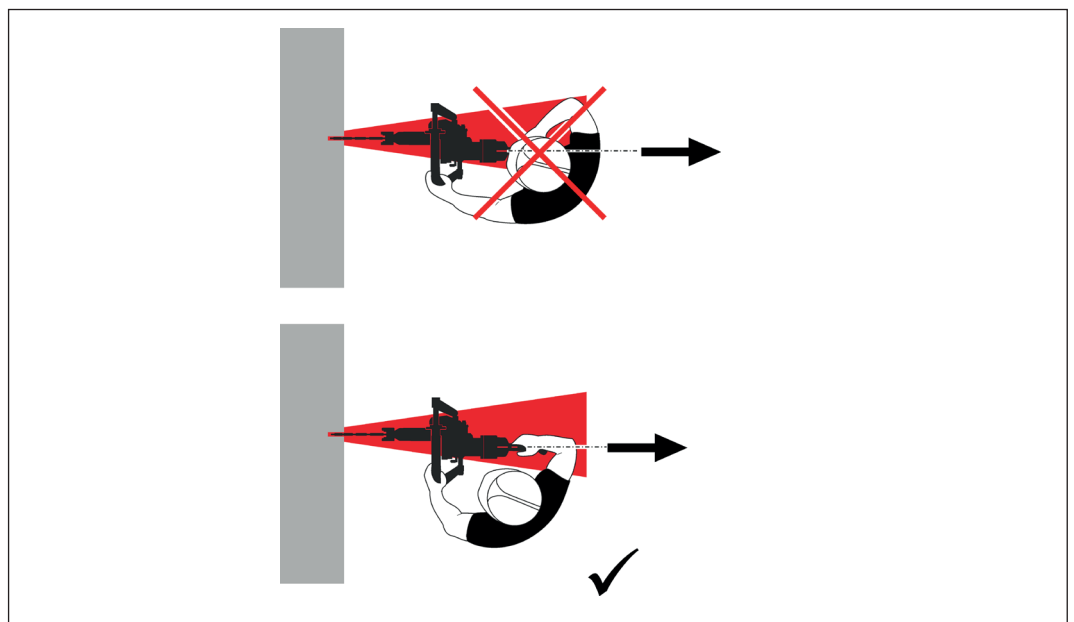
5.3.2 Cutting technique



Danger

Danger from segments or concrete chips flying off from the cutting tool.

- Never work with the disk grinding ring when the protective devices and guards have been removed.
- Never work in the line of the disk grinding ring.



WARNING

The disk grinding ring is designed to cut in straight lines only. Turning, holding at an angle or overloading the disk grinding ring will cause damage.

5.3.3 Cutting area



INFORMATION

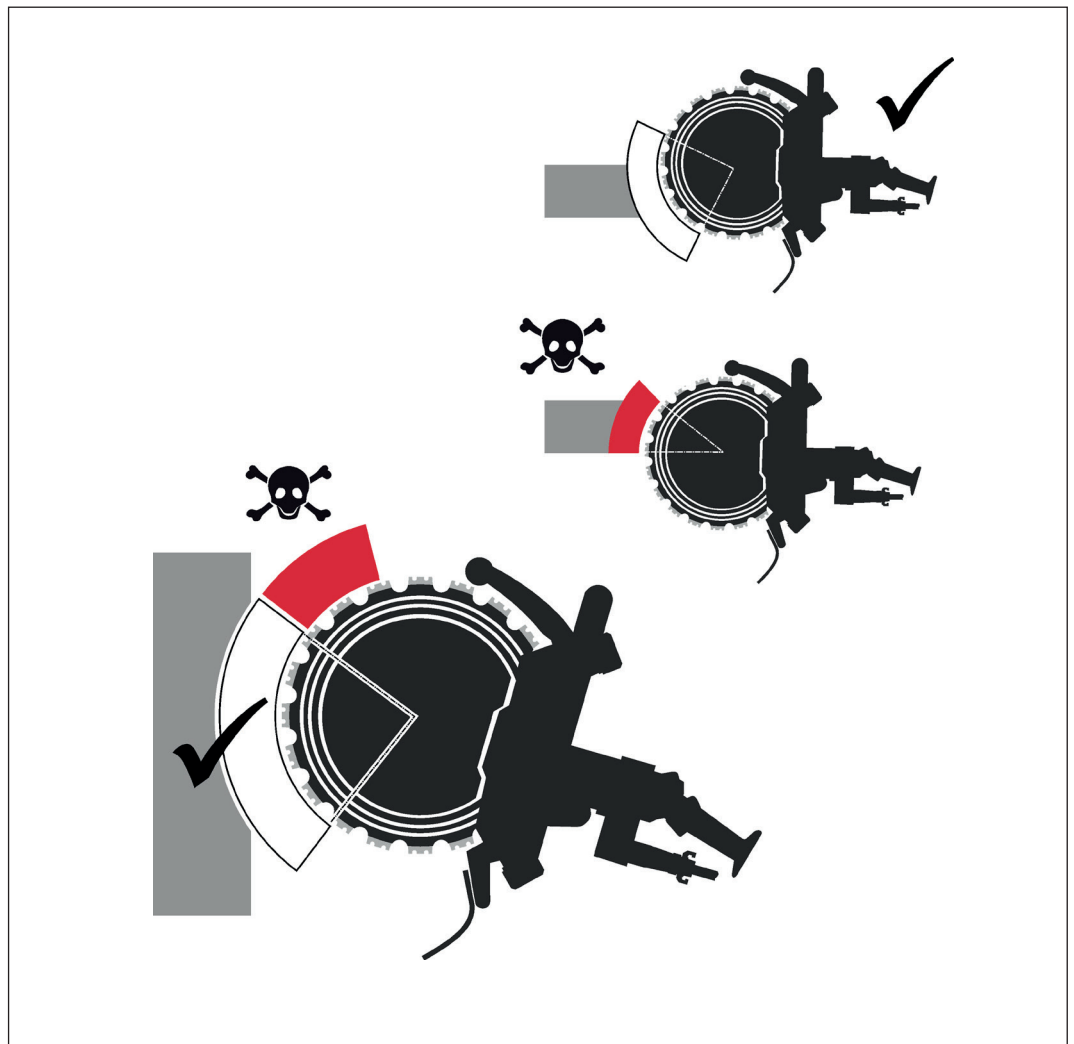
Position disk grinding ring below the centre. Always start cutting with the disk grinding ring rotating.



Danger

Risk of injury from the electrical tool suddenly kicking back.

- Do not apply disk grinding ring above the centre to a corner of a workpiece.
- Never work with the disk grinding ring when the protective devices and guards have been removed.
- Never work in the line of the disk grinding ring.



5.3.4 Disk grinding ring



WARNING

- Use only disk grinding rings from TYROLIT with the correct speeds for this machine.
- It is prohibited to equip the disk grinding ring with new diamond segments.
- Avoid cutting with the ring sides, as this can cause the disk grinding ring to fracture.
- A damaged disk grinding ring must not be used.

5.3.5 Gripping and holding options



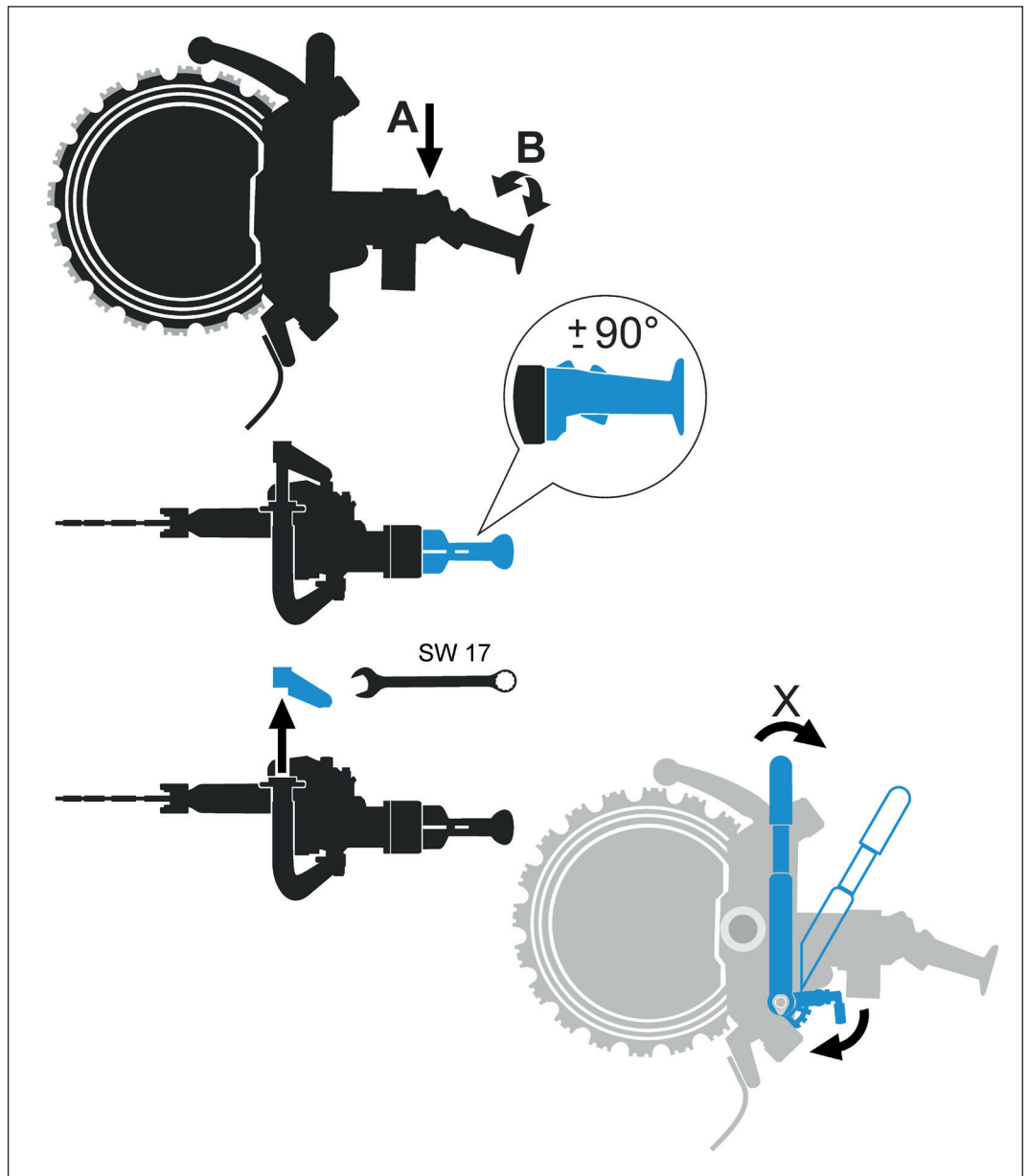
INFORMATION

When using the ring saw, always hold it firmly using both hands. The grips must be kept clean. The HRE410 ring saw offers many adjustable (X) holding options including a rotating handle to guarantee optimum handling.



INFORMATION

To adjust the front handle, the indexing plunger under the motor must be released. If the cut has to be made very close to a side wall, the side handles can be removed using the 17 mm combination spanner. The screws should be greased before the handles are refitted.

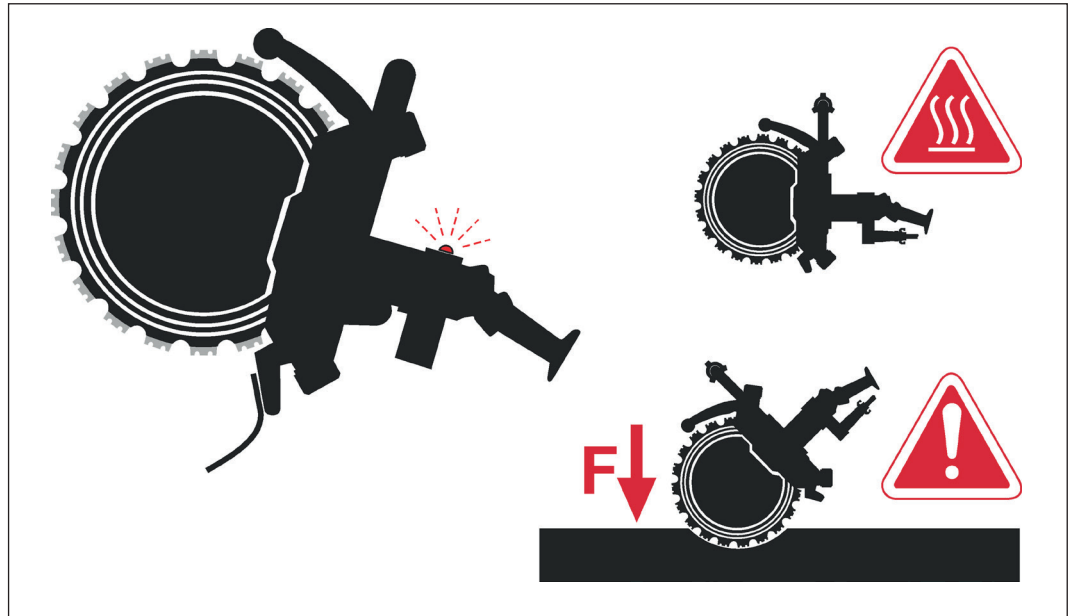


5.3.6 Temperature and contact pressure display



INFORMATION

Never work with excessive contact pressure. If the contact pressure is too high, the cutting tool can heat up. Pay attention to the display element next to the handle.



Contact pressure:

The ring saw is equipped with an overload protection device. When working with a high contact pressure, the machine reacts in the following sequence:

- The display lights up red continuously
- The speed is reduced
- The machine switches off

Overtemperature:

The motor is equipped with a temperature sensor. If work is performed without or with too little water, the ring saw warns the operator.

- Level 1 (with control unit WSE1621 only):
The indicator light starts to flash red.
Increase the water supply immediately
- Level 2:
The indicator light lights up red continuously and does not go out when the start button is released.
Wait 20 minutes until the device has cooled down and increase the water supply before you start to work again.

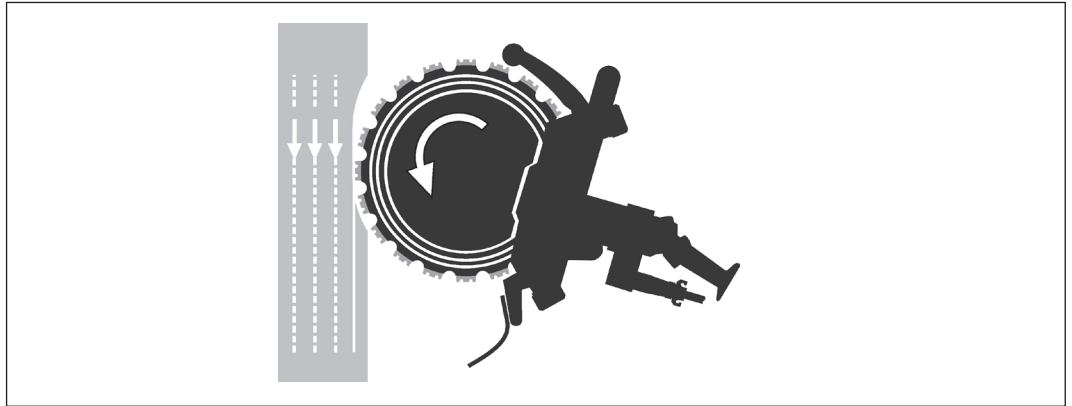
5.3.7 Cutting depth



INFORMATION

It is more economical to divide the entire cutting depth into several cuts.

- For optimum guidance, first make a 50 mm to 70 mm deep cut.
- Divide the entire cut depth into several cuts.



5.3.8 Jamming of the cutting tool



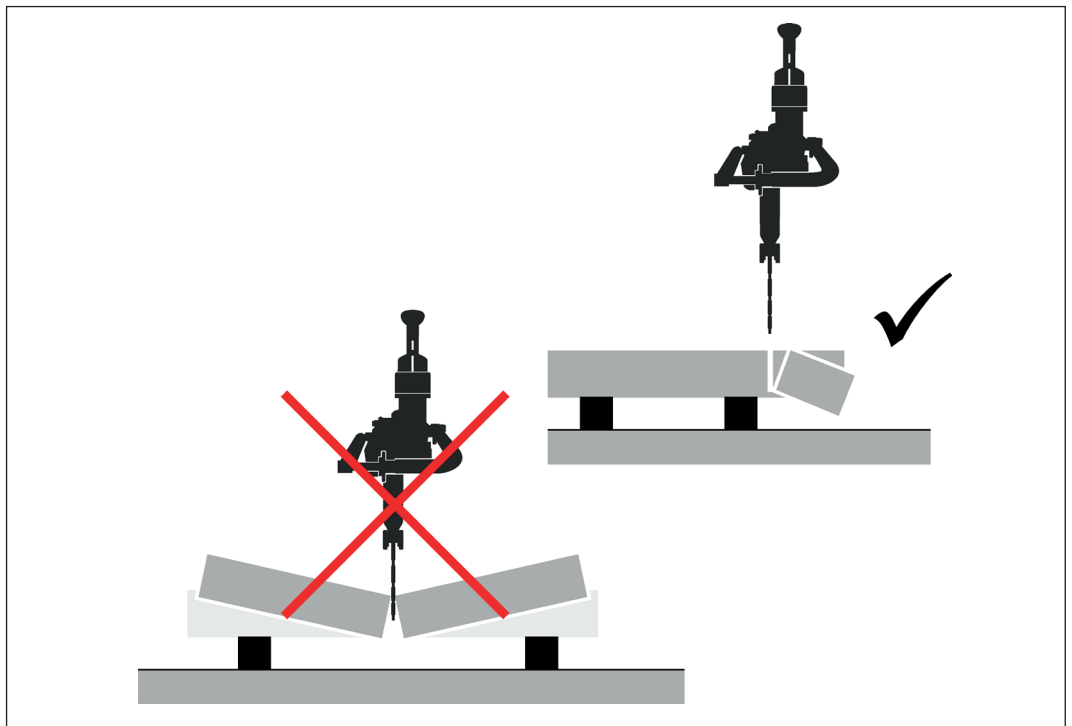
Kick-back

A jammed disk grinding ring can cause the electrical tool to kick back suddenly and seriously injure the operator.



INFORMATION

In most cases, the workpiece being worked on will be heavy. Ensure the disk grinding ring cannot become jammed. Cordon off the danger area so that nobody can be injured and nothing can be damaged if the workpiece falls down.



5.4 Finishing work

Proceed as follows:

- ▶ With the motor still running, withdraw the disk grinding ring from the cut.
- ▶ Shut down the electrical tool.



WARNING

The disk grinding ring continues to rotate for a short period of time.

Disconnect the electrical tool from the power supply.

- ▶ Turn off and disconnect the water supply.
- ▶ Blow out water from all lines.
- ▶ Clean the electrical tool with water.

6 Maintenance



INFORMATION

Before performing cleaning, maintenance or assembly work, the saw must be disconnected from the control unit.

Maintenance and servicing table

		Before starting up	After finishing work	Weekly	Annually	If faults occur	If damage occurs
Motor	<ul style="list-style-type: none"> Check motor (damage, cleanliness). 	•	•			•	•
Water supply	<ul style="list-style-type: none"> Check water line (damage, leaks, cleanliness). 	•	•			•	•
	<ul style="list-style-type: none"> Blow out water (risk of frost). 		•				
Drive roller	<ul style="list-style-type: none"> Check the drive roller for wear (V groove). 	•	•			•	
Clamping rollers	<ul style="list-style-type: none"> Check the clamping rollers for wear (protrusions). Check self-locking nuts for tight fit. 	•	•			•	
Guide rollers	<ul style="list-style-type: none"> Check guide rollers for wear. Check self-locking nuts for tight fit. 	•	•			•	
Guide sleeves	<ul style="list-style-type: none"> Lubricate guide sleeves (6.3) 			•			
Mains cable	<ul style="list-style-type: none"> Check mains cable (damage, cleanliness). 	•	•			•	•
Guard	<ul style="list-style-type: none"> Check guard (damage, cleanliness). 	•	•				
Disk grinding ring	<ul style="list-style-type: none"> Check disk grinding ring (damage, wear). 	•	•			•	
Guide plate	<ul style="list-style-type: none"> Check alignment of guide plate. 	•					
Unlocking button and start button	<ul style="list-style-type: none"> Check the unlocking and start buttons (unlocking function, cleanliness). 	•	•				•
Major service	<ul style="list-style-type: none"> To be performed by TYROLIT Hydrostress AG or an authorised workshop. 	Service interval 100 / 200 / 300 ... hours					



INFORMATION

The gear oil must be replaced during every major service.
 Gear oil container: TYROLIT no.11001949

6.1 Cleaning the drive wheel and rollers



INFORMATION

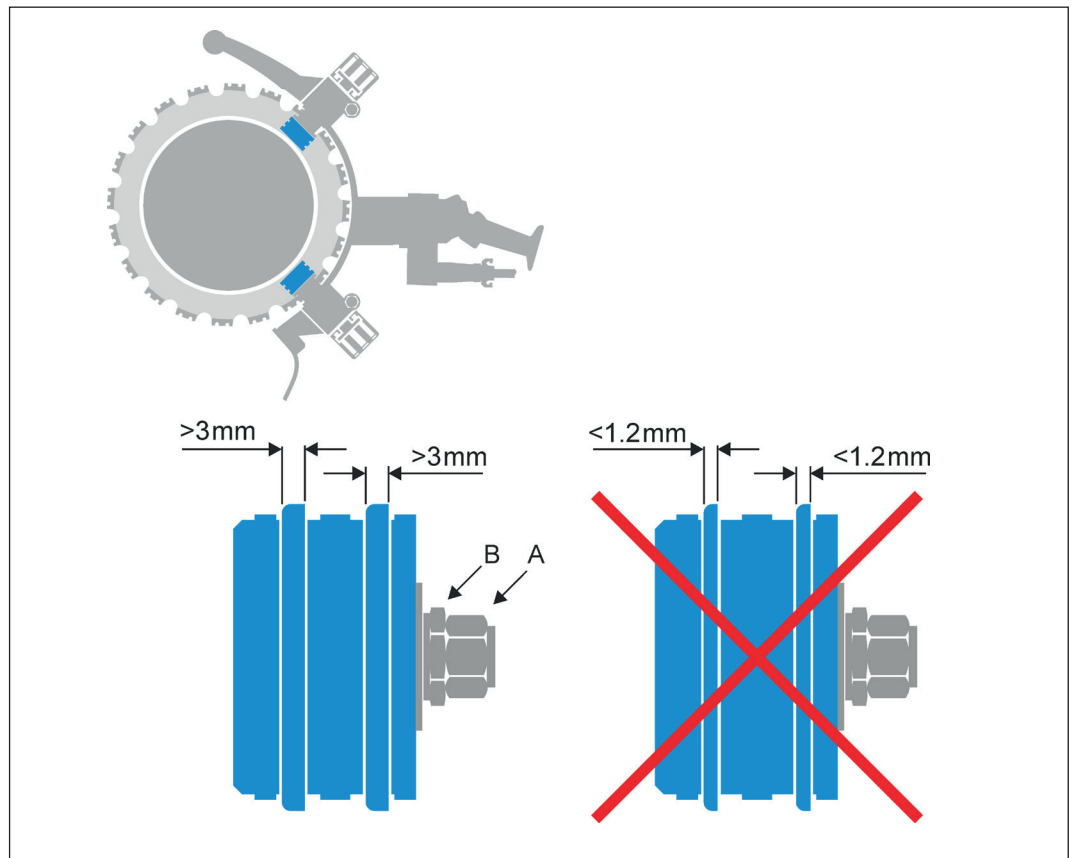
To clean the ring saw's rollers and drive wheel after completing the work, the diamond ring saw must be operated for at least 10 to 20 seconds at idle speed with the maximum water flow rate.

6.2 Replacing the guide rollers



INFORMATION

The guide rollers must be replaced when both protrusions on the guide roller display a thickness of ≤ 1.2 mm.



Proceed as follows:

- ▶ Undo the self-locking nut (A) with a 13 mm open-ended spanner while holding the hexagonal nut (B) with a 19 mm open-ended spanner.
- ▶ Remove the guide roller.
- ▶ Clean the area around the shaft seal and grease it with water-resistant grease. (Recommendation: Panolin EP grease 2, TYROLIT no. 975057).
- ▶ Install the new guide roller.
- ▶ Securely tighten the nut, max. 20Nm.



WARNING

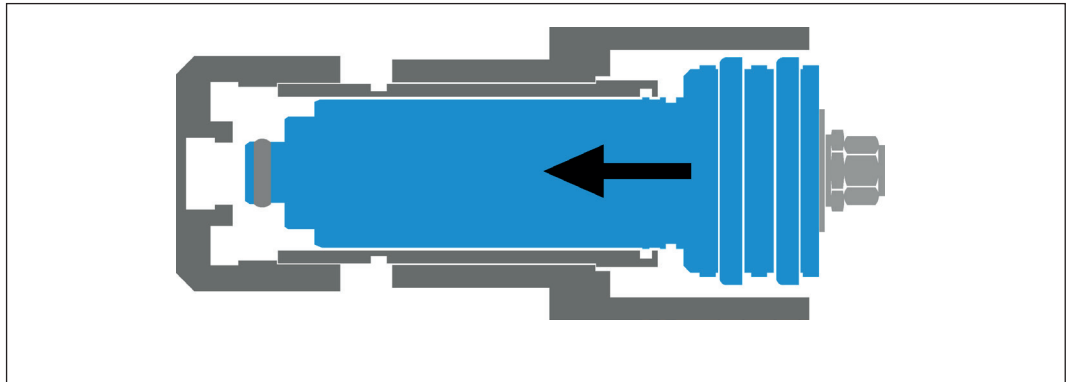
Always replace the self-locking nut when replacing guide rollers – do not reuse them. If the nut is reused, the roller can come loose and cause personal injuries and material damage.

6.3 Lubricating the guide sleeve



INFORMATION

The guide sleeves on which the guide rollers are mounted must be lubricated in order to allow them to move inwards and outwards freely. If the guide sleeves are stiff, the saw blade may not be pressed against the drive wheel with sufficient force.



Proceed as follows:

- ▶ Remove the saw blade and the guide plate.
- ▶ Completely loosen the locking grips.



INFORMATION

The guide sleeve is engaged in the locking grips and follows them when loosened. Completely opening the locking grips frees these from the guide sleeve.

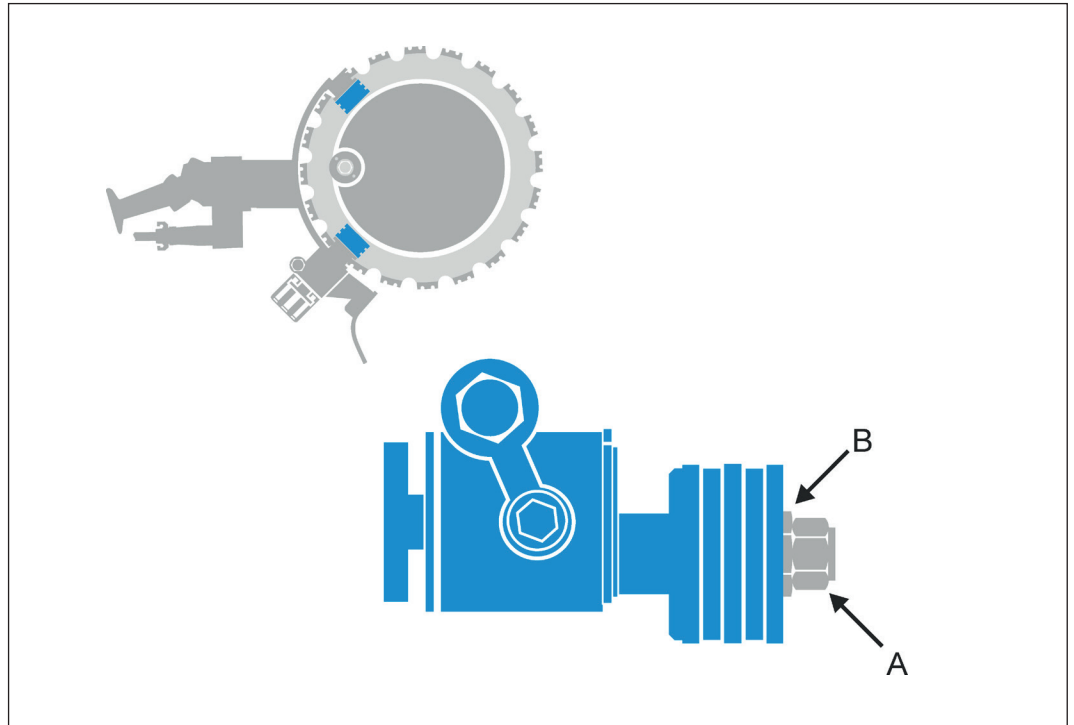
- ▶ Completely remove the guide sleeve from the front.
- ▶ Clean the guide sleeves and seat in the gear housing and apply water-resistant grease.
- ▶ Screw on the locking grips and insert the guide sleeves into the seat in the gear housing. Press the guide sleeve into the locking grips by hand until it audibly engages.
- ▶ Correct engagement can be checked by slightly unscrewing the locking grip. If the guide sleeve is correctly engaged, it will move with the adjusting knob.

6.4 Replacing the clamping rollers



INFORMATION

The clamping rollers must be replaced when the roller surface is flat, i.e. when the grooves in the roller surface are no longer present.



Proceed as follows:

- ▶ Unscrew the self-locking nut (A) with a 13 mm open-ended spanner while holding the hexagonal nut (B) with a 19 mm ring spanner.
- ▶ Remove the support roller.
- ▶ Clean the area around the shaft seal and grease it with water-resistant grease. (Recommendation: Panolin EP grease 2, TYROLIT no. 975057).
- ▶ Install a new clamping roller.
- ▶ Securely tighten the nut, max. 20Nm.



WARNING

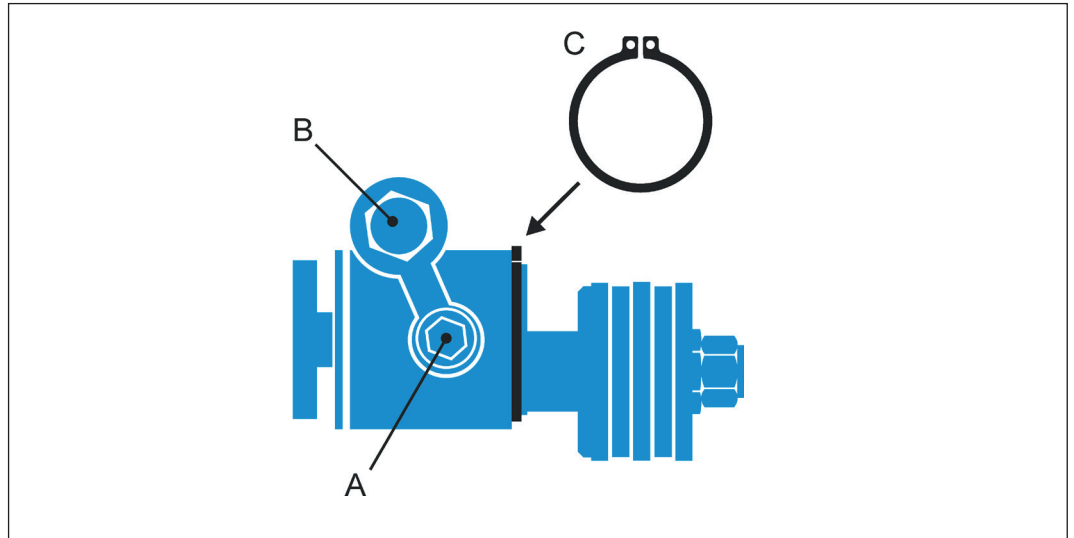
Always replace the self-locking nut when replacing guide rollers – do not reuse them. If the nut is reused, the roller can come loose and cause personal injuries and material damage.

6.5 Lubricating the clamping rollers



INFORMATION

Note that the eccentric sleeve can only be placed against the saw blade in the clockwise direction (when looking at the support roller from the front).



Proceed as follows:

- ▶ Remove the saw blade and the guide plate.
- ▶ Remove the support roller.
- ▶ Undo set screw (A) and remove retaining ring (C) with circlip pliers.
- ▶ Pull off the shim. Remove hexagon head cap screw (B).
- ▶ Clean the eccentric sleeve and its seat in the gear housing and apply water-resistant grease.
- ▶ Insert the eccentric sleeve into the gear housing so that the set screw engages in the groove in the eccentric sleeve.



INFORMATION

Note that the eccentric sleeve can only be placed against the saw blade in the clockwise direction (when looking at the support roller).

- ▶ Apply threadlocking adhesive to the set screw (e.g. medium-strength Loctite).
- ▶ Screw in the set screw fully and then loosen it by a quarter turn so that the eccentric sleeve can rotate freely.
- ▶ Install the shim and retaining ring.
- ▶ Install the support roller.



WARNING

Always replace the self-locking nut when replacing guide rollers – do not reuse them. If the nut is reused, the roller can come loose and cause personal injuries and material damage.

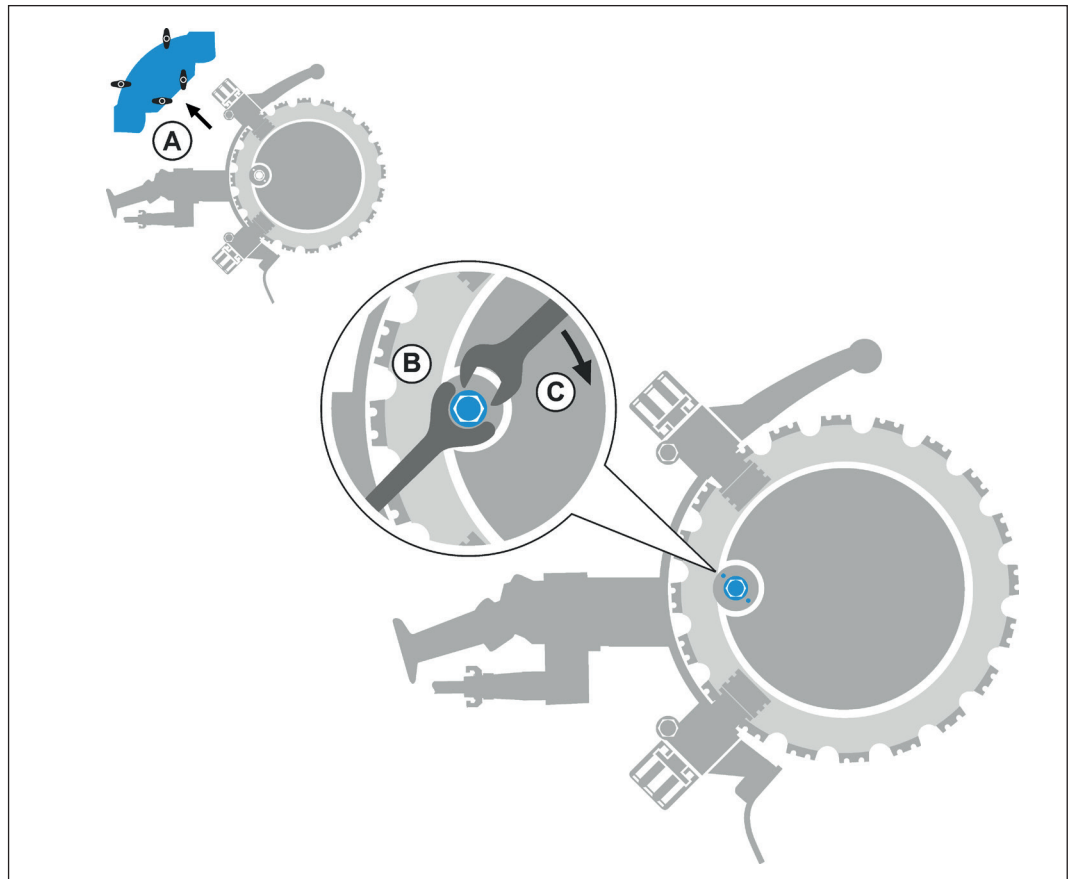
6.6 Replacing the drive wheel



INFORMATION

Due to the design of the drive, the drive wheel is subject to wear. The V-shaped edge of the internal diameter of the saw blade is pressed into the V-shaped groove of the drive wheel by the guide rollers.

If the saw blade contacts the bottom of the V-shaped groove in the drive wheel, the saw blade slips. In this case, the drive wheel must be renewed. Replace the sealing (v-ring) always along with the drive wheel.



Proceed as follows:

- ▶ Remove the spray guard (A).
- ▶ Undo the hexagon head cap screw clockwise using the combination spanner and the face-pin wrench to hold the counterpart (see scope of delivery).
- ▶ Remove the drive wheel and the sealing (v-ring).
Important: Mount the new sealing with the sealing lip looking outwards.
- ▶ Push the new drive wheel onto the drive shaft of the ring saw. When doing so, ensure that the inner contour of the recess in the drive wheel is aligned with the outer contour of the spindle.
- ▶ Secure the drive wheel by screwing in the hexagon head cap screw anticlockwise.
Tighten the hexagon head cap screw using the combination spanner and the face-pin wrench to hold the counterpart.

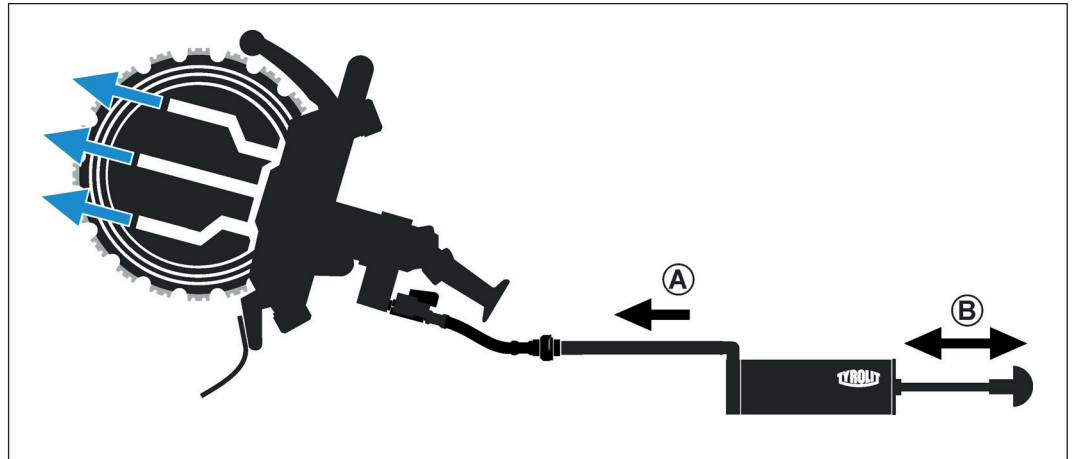


INFORMATION

The hexagon head cap screw has a left-hand thread!

6.7 Blowing out water

- ✓ The main switch is set to **OFF**
- ▶ Disconnect the mains plug.
- ▶ Disconnect all water lines.
- ▶ Connect the purge pump to the water nipple.
- ▶ Blow out water until all of the cooling water has been removed.
- ▶ Remove the pump.



INFORMATION

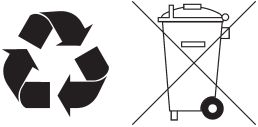
Use the TYROLIT purge pump, no.10982667.

7 Faults

Faults		
Fault	Possible cause	Solution
The electrical tool cannot be started	Faulty mains cable	▶ Contact TYROLIT Hydrostress AG after-sales service
	Faulty power supply	▶ Check power supply
	Electric motor or electronics faulty	▶ Contact TYROLIT Hydrostress AG after-sales service
Electrical tool starts up and then switches off again	Fuse in the power supply on the building site trips	▶ Fuse too weak, replace power supply
Drive wheel rotates, but the disk grinding ring does not	Drive roller is slipping (insufficient contact between disk grinding ring and drive roller)	▶ Check roller pretension (eccentric shaft and guide sleeve) ▶ Grease drive roller and disk grinding ring with a corresponding medium
	Drive roller worn	▶ Replace drive roller
	Inner edge of the disk grinding ring worn	▶ Replace disk grinding ring and drive roller
	Guide groove on the disk grinding ring worn	▶ Replace disk grinding ring
	Guide lug on the guide rollers worn	▶ Replacing the guide rollers
Motor running, but drive wheel not rotating	Defective gears	▶ Contact TYROLIT after-sales service
Disk grinding ring jumping out	Roller clearance too great	▶ Check roller pretension (eccentric shaft and guide sleeve)
	Guide groove on the disk grinding ring worn	▶ Replace disk grinding ring
	Guide lug on the guide rollers worn	▶ Replacing the guide rollers
Disk grinding ring warped	Disk grinding ring not sufficiently cooled	▶ Ensure that water cooling is present ▶ Replace disk grinding ring
Diamond segments breaking off	Cut not straight	▶ Make a straight cut beforehand as a guide
	Disk grinding ring warped	▶ Replace disk grinding ring
	Hard resistance on the work-piece	▶ Replace disk grinding ring
	Segments not properly soldered or welded	▶ Replace disk grinding ring

Faults		
Fault	Possible cause	Solution
No water emerging at the disk grinding ring	Water line blocked	▶ Clean the water line
	Water valve in supply line closed	▶ Open water valve
	Insufficient water pressure	▶ Ensure minimum water pressure of 2 bar
Sparks coming out of side of disk grinding ring	Insufficient water supply	▶ Check water supply and increase

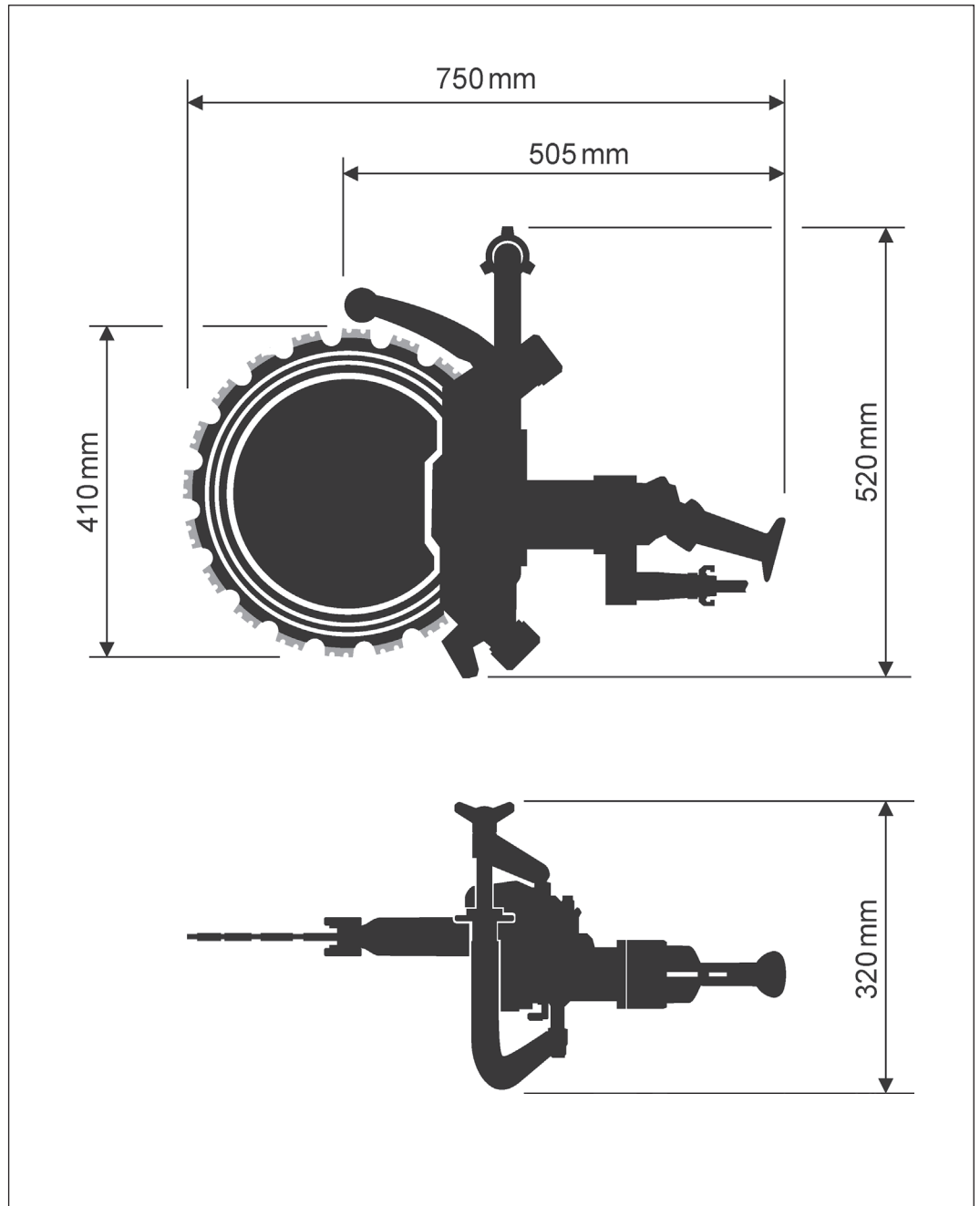
7.1 Recycling waste



TYROLIT Hydrostress power tools are manufactured using a high proportion of recyclable materials. A prerequisite for recycling is proper material separation. In many countries, TYROLIT is already prepared for taking back your used equipment for recycling. Contact TYROLIT customer service or your sales adviser.

8 Technical data

8.1 Dimensions



Measurements in mm

8.2 Ring saw

Basic data	
Parameter	Value
Transport weight (with disk grinding ring)	16.7 kg
Work weight	14.5 kg
Width	320 mm
Height	520 mm
Length (without disk grinding ring)	750 mm
Protection class	IP 65
Disk ring speed	Max. 1938 rpm
Peripheral speed	Max. 42 m/s

8.2.1 Electric motor

Electrical data	
Parameter	Value
Motor	High-frequency, water-cooled
Nominal voltage	300 V
Nominal power	6500 W
Motor speed	22500 rpm

8.2.2 Disk grinding ring and cutting depth

Disk grinding ring	
Parameter	Value
Diameter	Max. 410 mm
Cooling	Water cooling
Cutting depth	300 mm

8.2.3 Vibration

Vibration (EN ISO 5349)		
Parameter	Handle front	Handle rear
Total vibration value a_{hv}	4.6 m/s ²	9 m/s ²
Uncertainty K	1.5 m/s ²	

Valuet for max. cutting pressure in light armoured concrete.

8.2.4 Noise

Sound emission (EN ISO 3744)	
Parameter	Value
Sound pressure level L_{pA}	102 dB (A)*
Maximum sound pressure level L_{pCpeak}	127 dB
Sound power level L_{wA}	113 dB (A)*
Uncertainty of measurement	3 dB

* Conditions for the measurement:
Disk grinding ring \varnothing 400 mm (16") not in cutting operation under full load

8.2.5 Water supply

Water supply	
Parameter	Value
Working pressure	Max. 6 bar / min. 2 bar
Flow rate	Min. 1 l/min
Temperature	Max. 25 °C

8.2.6 Ambient temperature recommendation

Ambient temperature	
Parameter	Value
Storage	-20 °C to 50 °C
Operation	-15°C to 50 °C

8.2.7 Lubricants and fluids

Lubricants and fluids		
Parameter	Value	
Gear oil (motor)	Klüber GEM 4-150N (TYROLIT no. 1099581 / 30ml)	
Lubricating grease TYROLIT no. 975057	Penetration	265 to 295
	NLGI	2
Universal spray 250 ml TYROLIT no. 975061		

9 EC Declaration of Conformity

Description	Ring saw, electric
Type designation	Ring saw HRE410

We declare under our sole responsibility that this product complies with the following directives and standards:

Directive applied

2006/42/EC	from 17 May 2006
2011/65/EU	from 08 June 2011
2012/19/EU	from 04 July 2012
2014/30/EU	from 26 February 2014

Applied standards

EN ISO 12100:2010
EN 60204 -1:2018
EN 61000 -3-2:2014
EN 61000 -3-3:2013

Pfäffikon, 20/01/2020



Roland Kägi
Operations + R&D Machines



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