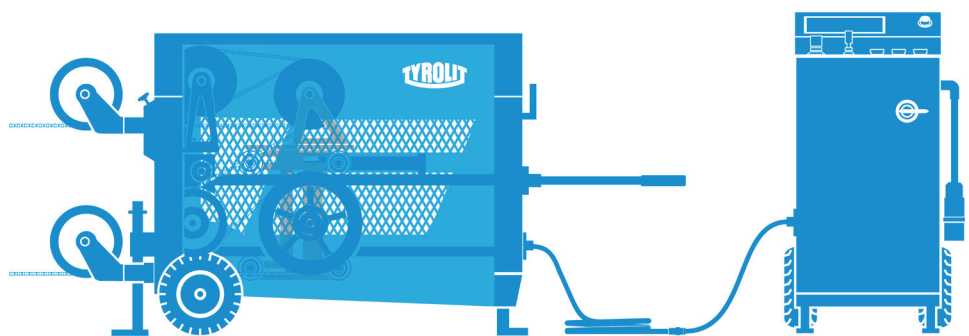




# OPERATING INSTRUCTIONS

WCE18

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 Safety



These instructions are just one part of the documentation supplied together with the wire saw.

These instructions and the “Safety Manual for Wire Saws” form a complete set of documentation.

These instructions and the “Safety Manual for Wire Saws” are a part of the equipment. 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 equipment.
- 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 equipment.
- Update instructions with all supplements received from the manufacturer.

## 1.1 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, the installation or device must be isolated from the power (voltage) and secured to prevent it being powered up again.



### **INFORMATION**

Information for optimum use of equipment. Any failure to observe this information may mean that the performance information shown in the technical data cannot be guaranteed.



### **RECYCLING**

Take waste for recycling.



### **DISPOSAL**

Observe national and regional rules and guidelines regarding disposal.



### INFORMATION

Do not allow unauthorized personnel to operate wire saw systems. Information about authorized personnel is available in the “Safety Manual for Wire Saws”.

## 1.2 Generally safety instructions



### DANGER

Any failure to comply with the safety instructions in the “Safety Manual / System Handbook” may result in serious injury or death.

- ▶ Please ensure that the “Safety Manual / System Description for Wire Saws” has been read and understood in full.



### DANGER

#### Risk of cut injury from diamond wire!

- ▶ Always wear protective gloves when working on the wire saw, particularly when working on the diamond wire.
- ▶ Only operate the wire saw with a guard.



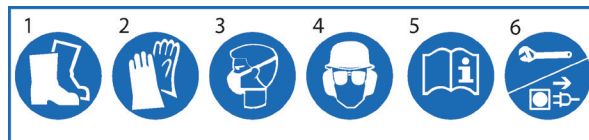
### DANGER

#### Risk of serious injury or material damage as a result of uncontrolled movements of the wire saw!

- ▶ Never connect or disconnect hoses or cables while the wire saw is running.

### 1.2.1 Signs on the machine

#### Safety sign



- |                     |   |  |
|---------------------|---|--|
| 1 Wear safety shoes | 3 Wear a breathing mask                         | 5 Read the instructions                                |
| 2 Wear gloves       | 4 Wear a helmet, goggles and hearing protection | 6 Before working on the unit<br>Unplug mains connector |

#### Name plate



### 1.2.2 Personal Protective Equipment

It is mandatory for anyone working with or on core drilling systems to wear personal protective equipment.

## 2 Description

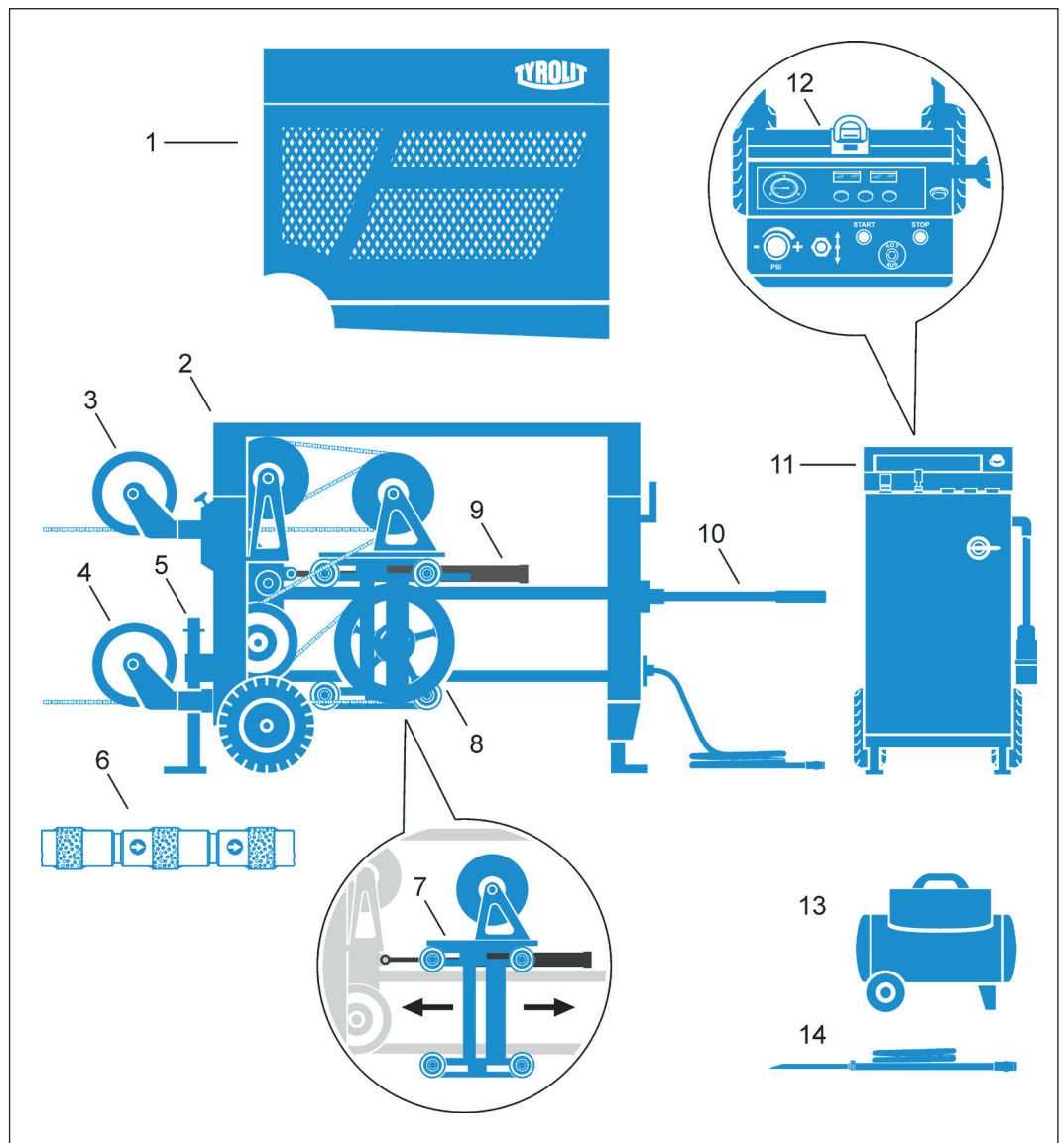
### 2.1 Wire saw system

The functions of the wire saw systems are described in the “Safety Manual / System Description for Wire Saws”.

### 2.2 Intended use

Transportable wire 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.

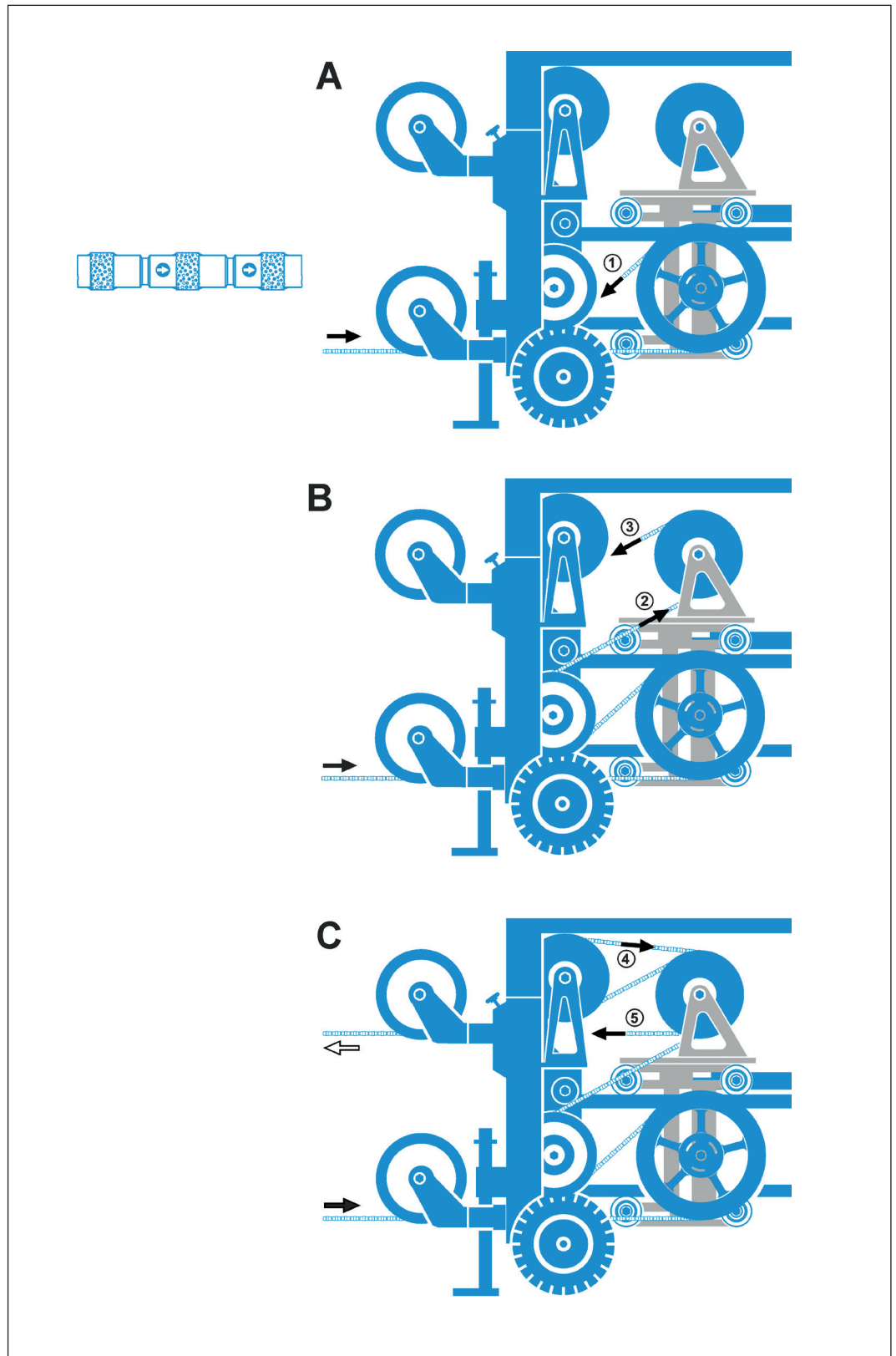
### 2.3 Wire saw



- |                                     |  |
|-------------------------------------|--|
| 1 Diamond wire guard                | 8 Drive roll                                 |
| 2 Base frame                        | 9 Feed cylinder                              |
| 3 Wire exit roller (slack side)     | 10 Transport handle                          |
| 4 Wire feed roller (tensioned side) | 11 Electric controls with frequency inverter |
| 5 Support rod                       | 12 Control unit                              |
| 6 Diamond wire                      | 13 Compressor (accessory)                    |
| 7 Wire store carriage               | 14 Water lances (accessory)                  |

### 3 Assembly

#### 3.1 Diamond wire storage unit

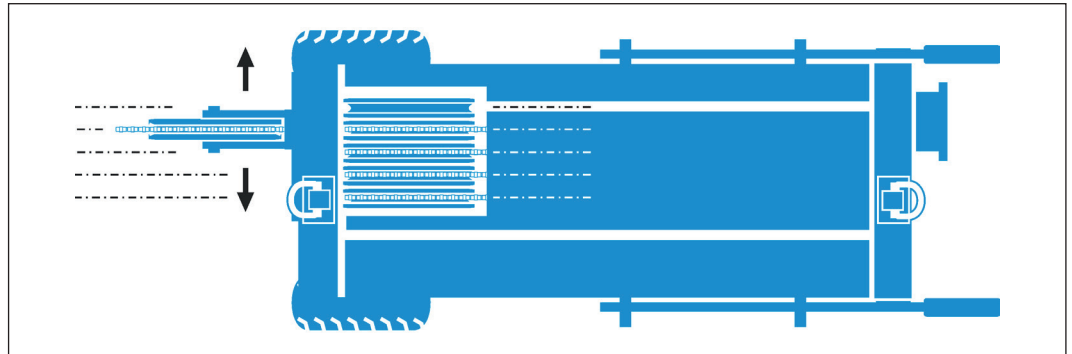


## 3.2 Restoring

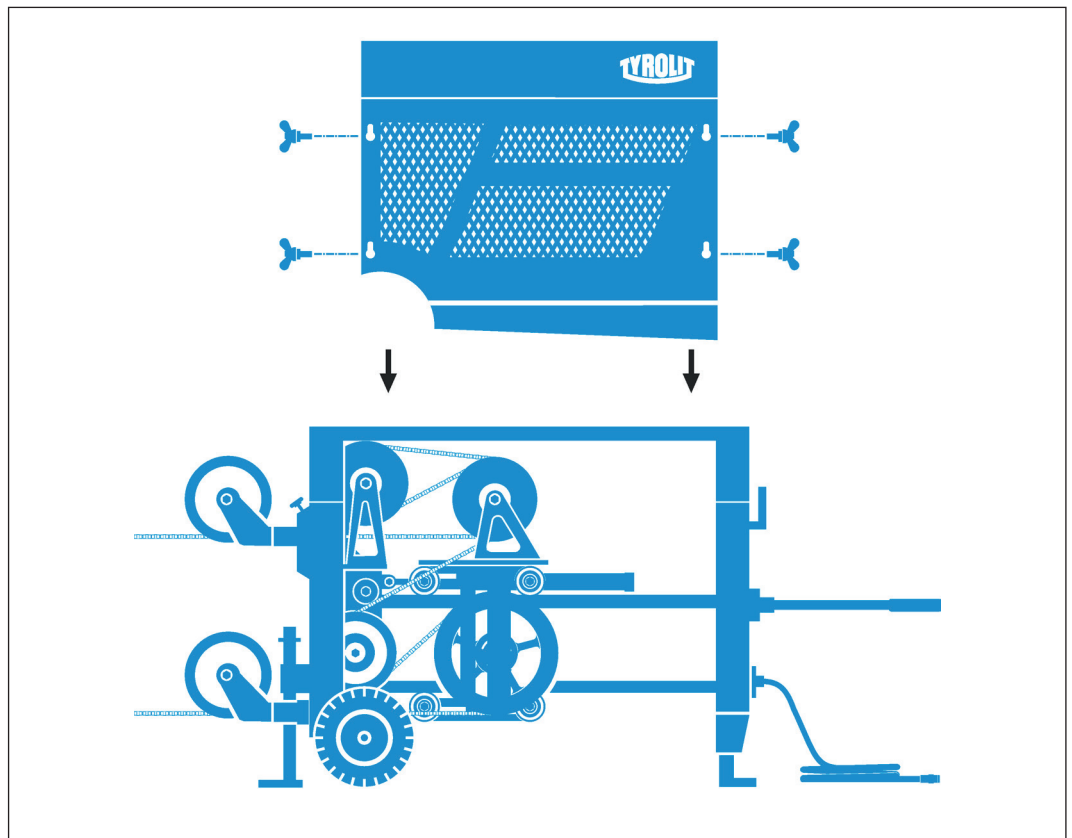


### INFORMATION

Ensure when fitting a new wire store that the wire from the last storage roller to the exit roller is properly aligned.



## 3.3 Mounting the diamond wire guard



### DANGER

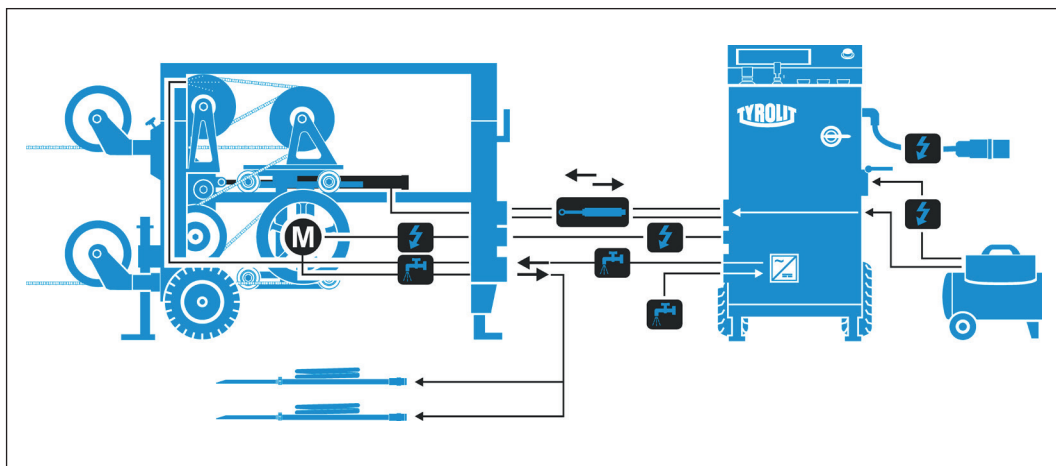
Risk of death or serious injury due to a whipping action of the wire or diamond elements flying off the wire.

- ▶ Always work with the diamond wire guard fitted.
- ▶ Always maintain the defined safety distances and working areas.



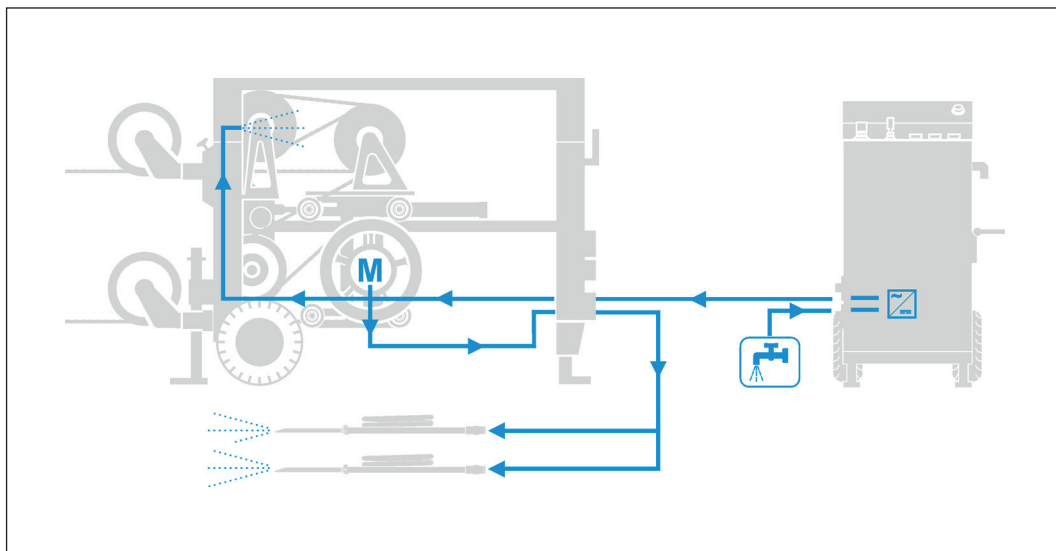
## 3.4 Connecting the water and power supplies

### 3.4.1 Connecting the power supply



#### Water supply

The cooling water of the saw system flows from the frequency inverter of the unit to the water distributor at the wire saw. The water is fed to cool the motor of the drive roller on the one hand, and as spray water to the diverter rollers and to supply the water lances on the other.



#### Water connection

Pressure	Min. 1.5 bar to max. 6 bar
Quantity	Min. 4 l/min
Temperature	Max. 2-25 °C

## 4 Operation

### 4.1 Positioning and securing the wire saw



#### **DANGER**

Due to wire saw rolling away.

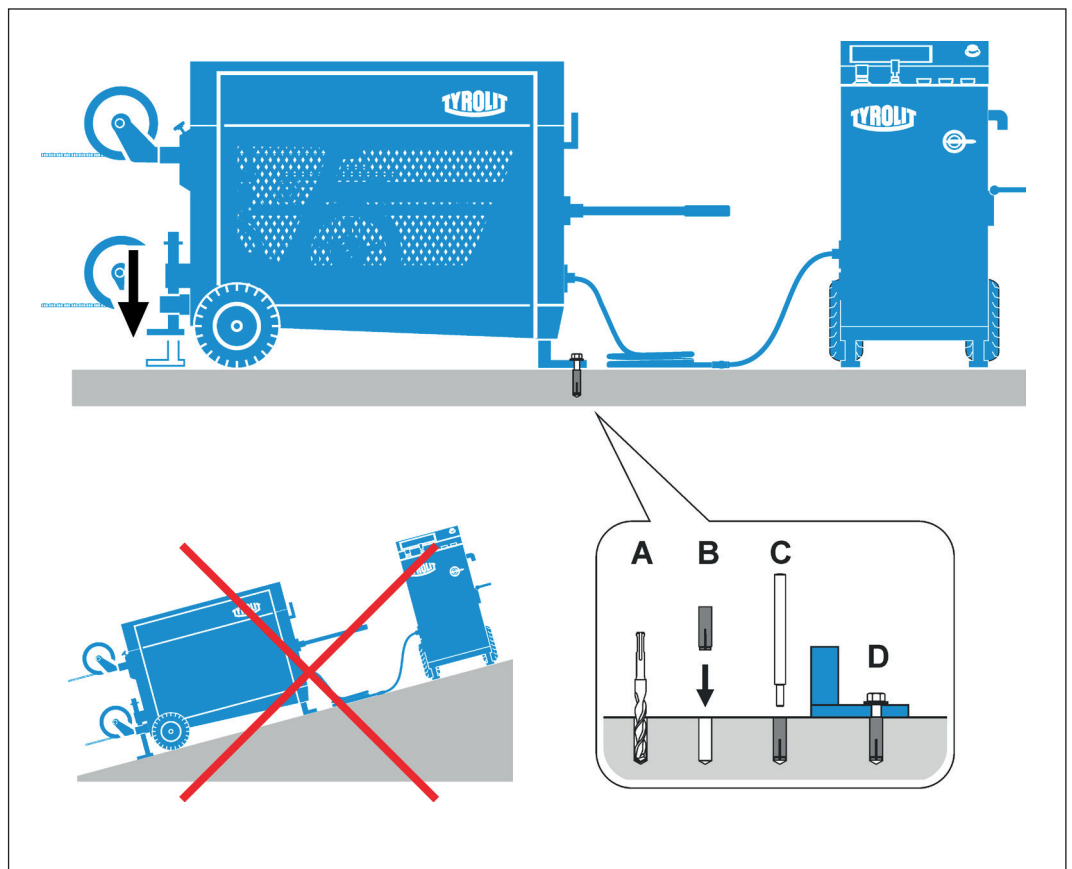
Switch on the wire saw only when it is level and upright. If it is on an inclined surface, secure the wire saw to prevent it rolling away.

The wire saw must be firmly secured to the floor by means of dowels and anchor bolts.



#### **Auxiliary item support**

To ensure the wire saw is secured in position, it is possible to extend a support mounted on the side of the unit and fastened appropriately.

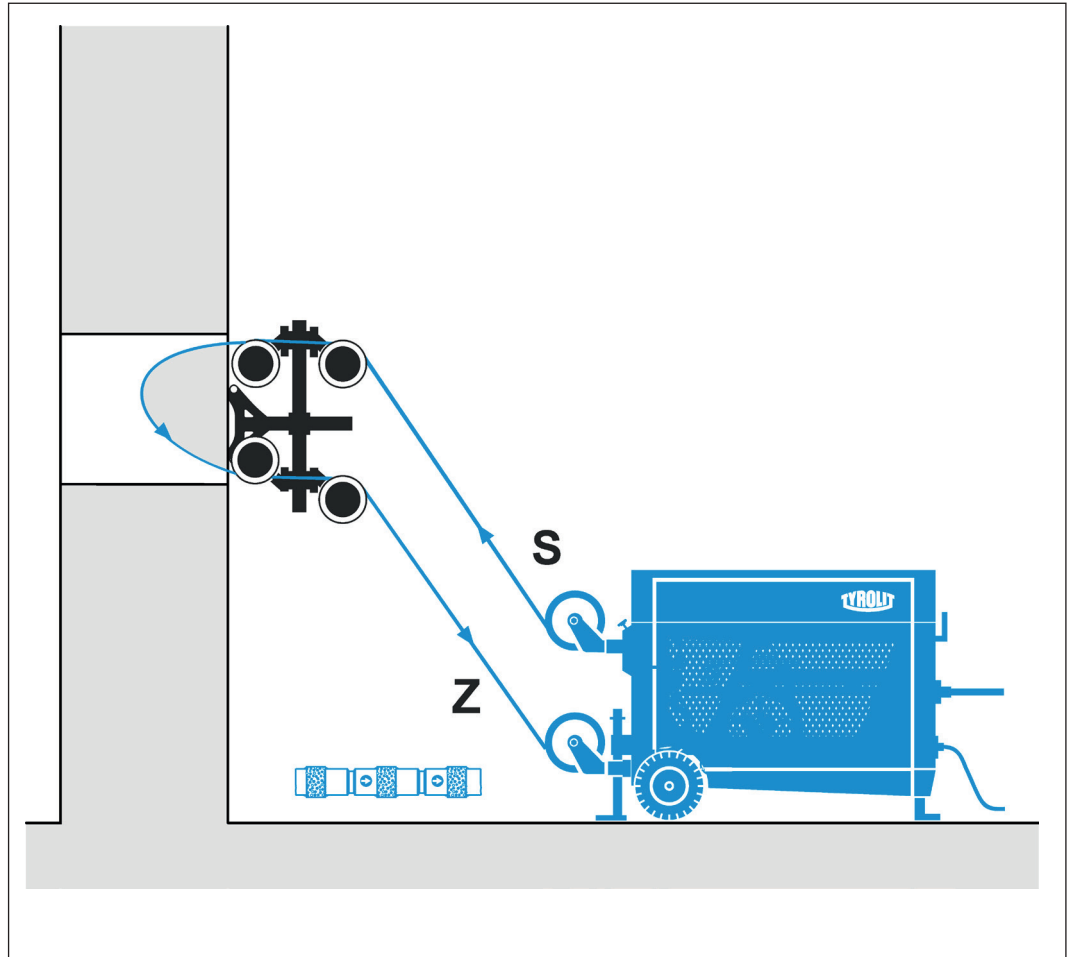


## 4.2 Correct cutting direction

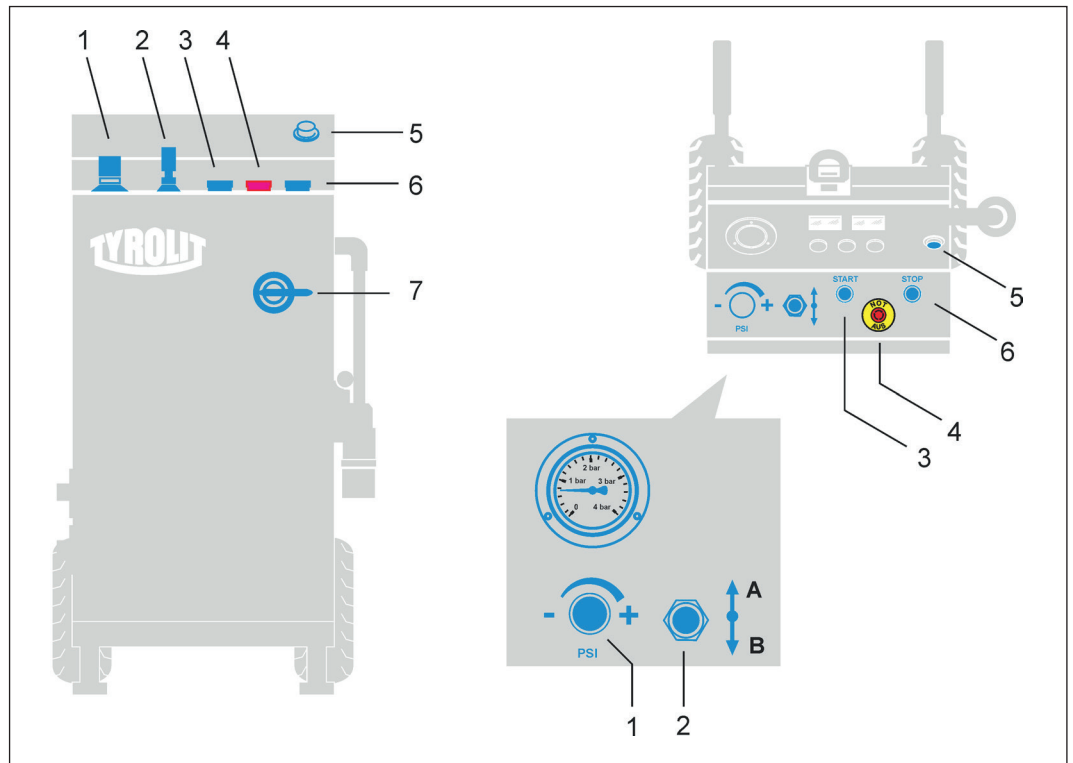


### Tensioned side and slack side

The saw cut should be made with the tensioned side (Z) of the diamond wire, because this provides the best conditions for cutting.

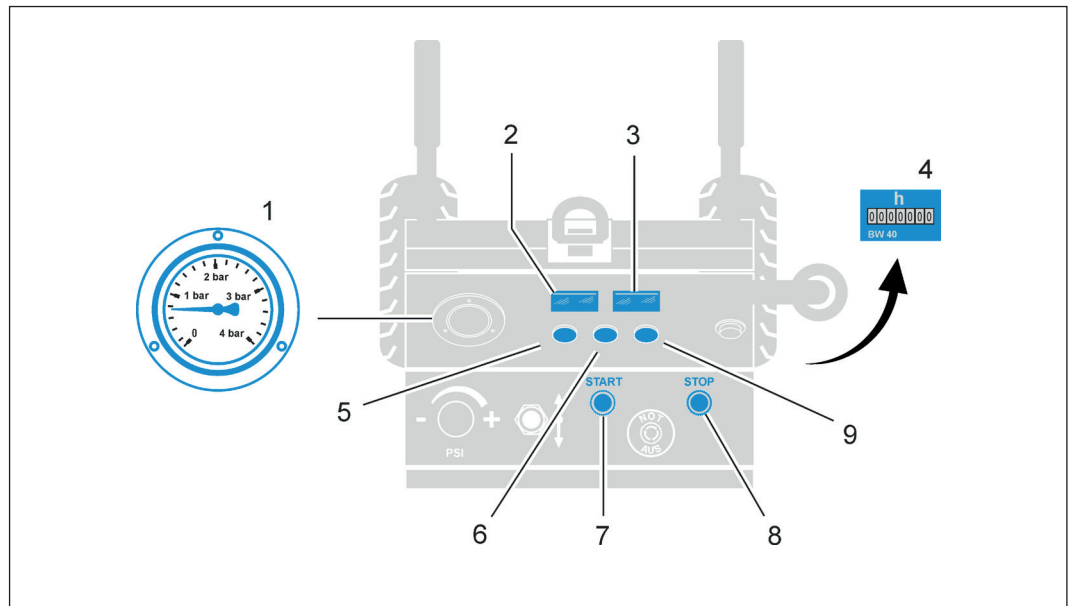


## 4.4 Overview of operating elements



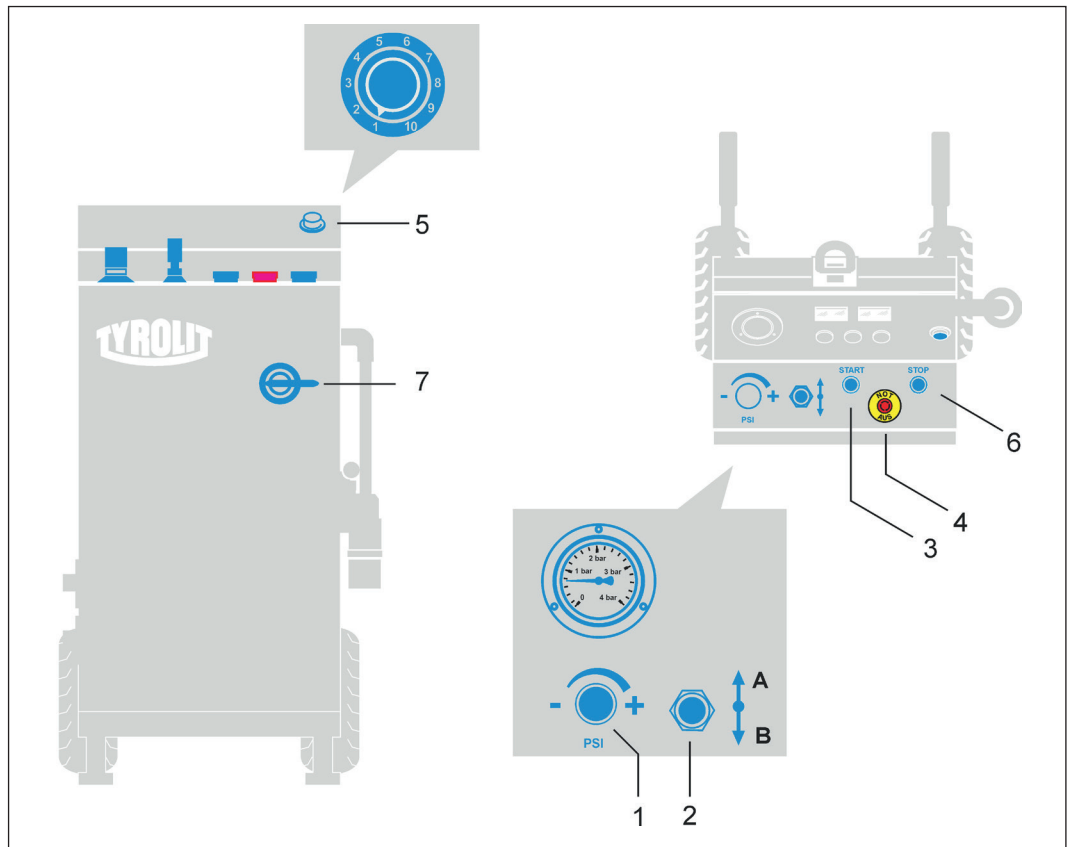
- |  |                            |
|--|----------------------------|
| 1 Rotary valve compressed air (wire tension) | 5 Potentiometer wire speed |
| 2 Lever valve compressed air                 | 6 Off push-button (red)    |
| 3 Start push-button (green)                  | 7 Main switch              |
| 4 EMERGENCY STOP                             |                            |

## 4.5 Overview display elements



- |                             |                                  |
|-----------------------------|----------------------------------|
| 1 Compressed air gauge      | 6 Motor fault lamp               |
| 2 LCD display motor current | 7 Lamp green (start push-button) |
| 3 LCD display wire speed    | 8 Lamp red (off push-button)     |
| 4 Hour counter              | 9 Max. cylinder stroke lamp      |
| 5 Motor temperature         |                                  |

## 4.6 Starting the wire saw



### Proceed as follows:

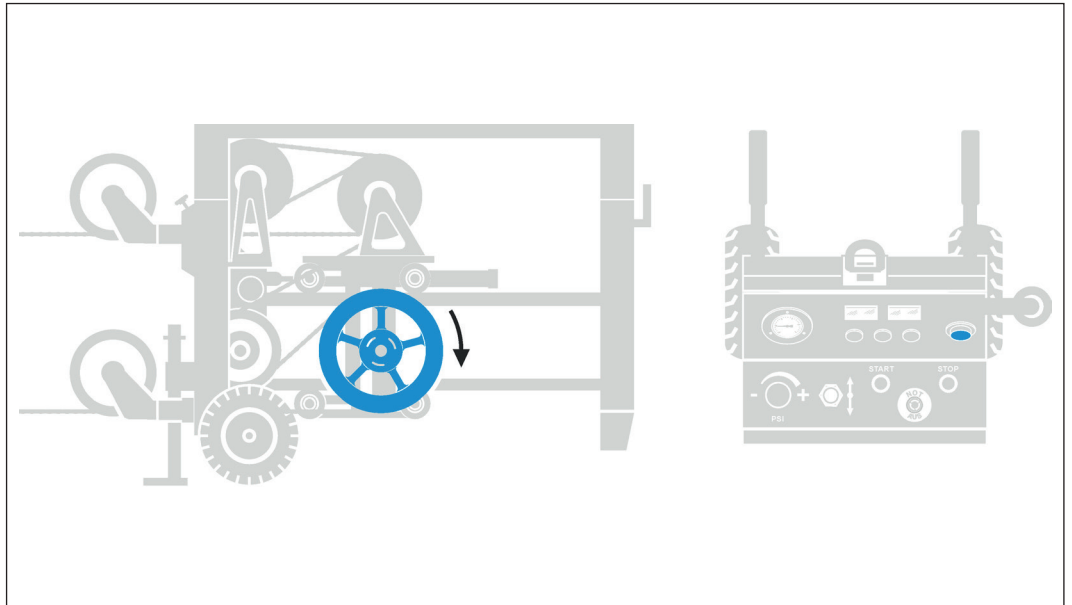
- ✓ Diamond wire is mounted
  - ✓ The control unit is connected to the mains and the water supply.
  - ✓ The wire saw is connected to the control unit.
  - ✓ The compressor is connected to the control unit.
  - ✓ The EMERGENCY OFF control unit is deactivated.
  - ✓ The pneumatic valve is in position B.
  - ✓ The pressure regulator is set to 1 bar.
- ▶ Press the start push-button (lamp lights up green).
  - ▶ Now start the cutting process by slowly turning the potentiometer clockwise (position 1-2).
  - ▶ Check the direction the saw wire is running while at a low wire speed. When the wire is turning in the correct direction, the wire will be drawn over the lower swivel roller.
  - ▶ Once the wire is tensioned, it is possible to increase the wire speed to 20-22 m/s.
  - ▶ Increase the working pressure via the pneumatic valve until the display on the main motor indicates 25-35 A.



### INFORMATION

The machine will cut automatically when the load and wire speed have been set to an optimum. The wire is taken up in the wire store until the stroke is completed and the machine is turned off automatically via the safety switch. This safety function prevents the wire tension dropping, the wire dropping out of the rollers and the machine becoming jammed due to a lack of attention.

## 4.7 Diamond wire drive



### Cutting speed



#### INFORMATION

The cutting speed must be selected according to the nature of the material.

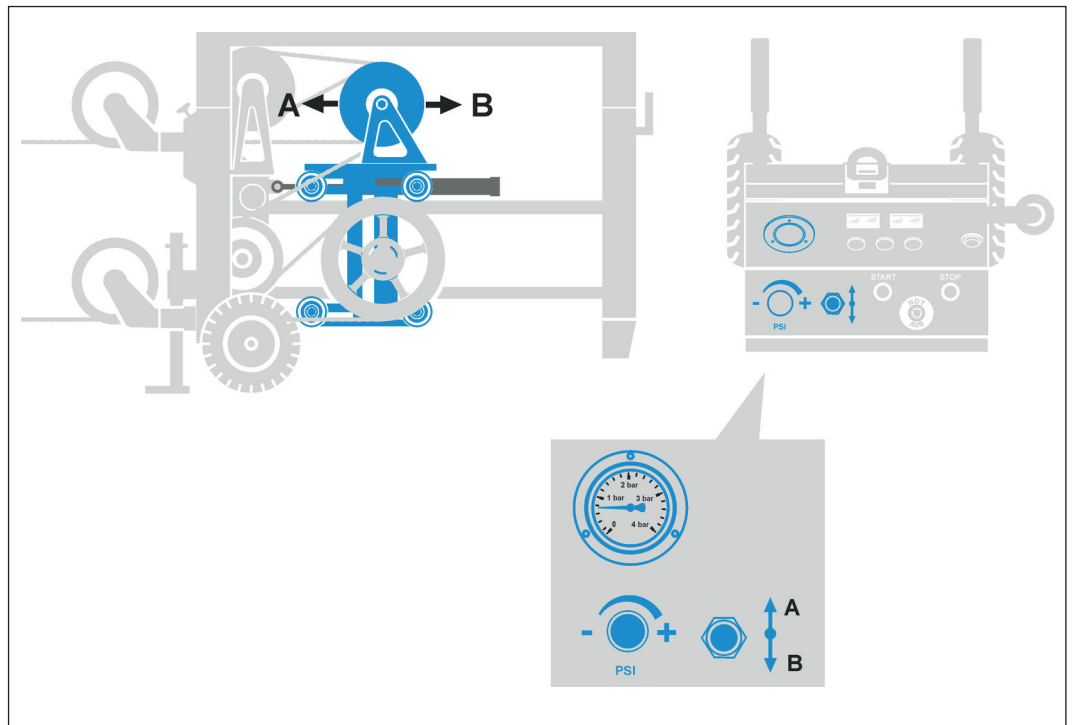
The recommended speeds in m/sec.

Granite, aged concrete with or without reinforcement 20-25 m/s

Abrasive materials, fresh concrete, asphalt, sandstone, etc. 25-30 m/s

Maximum permitted cutting speed for TYROLIT tool 35 m/s

## 4.8 Feed



### Feed control



#### INFORMATION

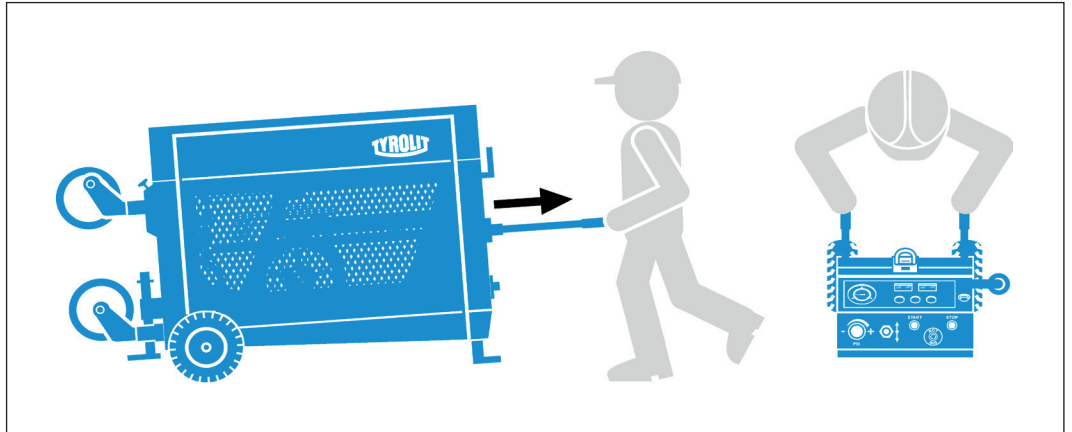
The feed cylinder pressure (wire tension) is regulated by the “rotary switch compressed air”.



### 4.9 Transport



The wire saw and electric control unit are fitted with wheels, so they can be moved by just one person.



### Crane transport

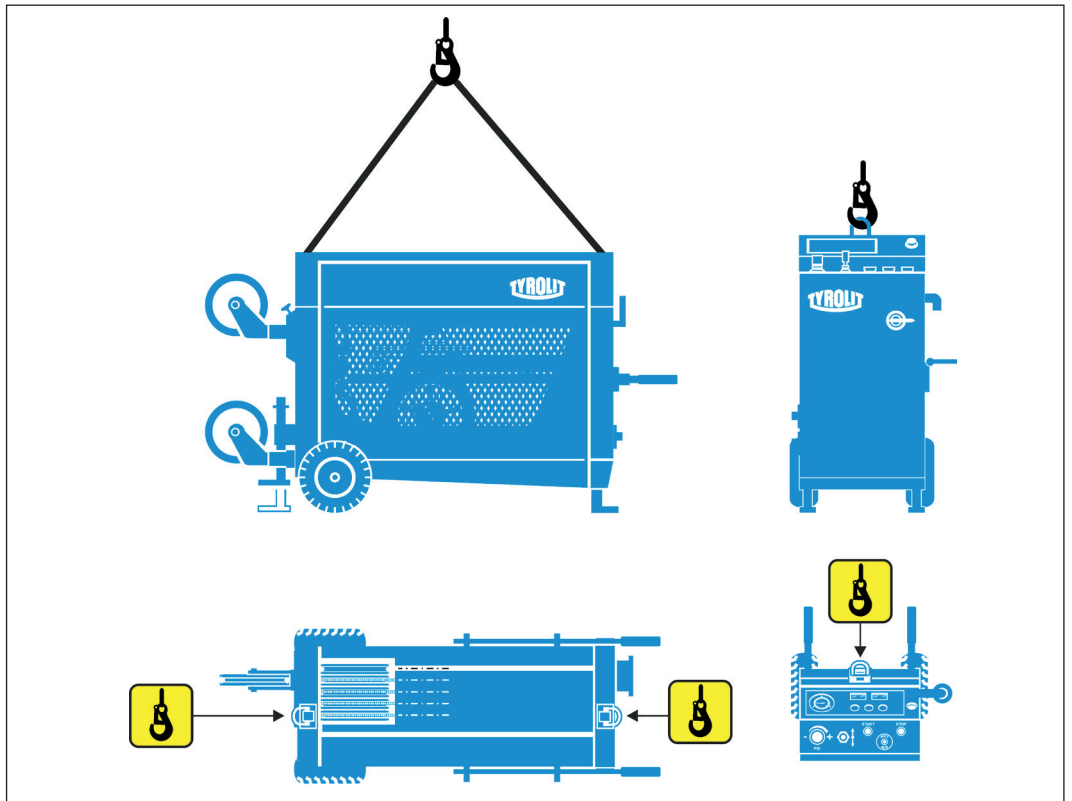


**Danger**

Risk of accidents if incorrectly transported by crane.

You must use the eyebolts provided to transport the feed unit.

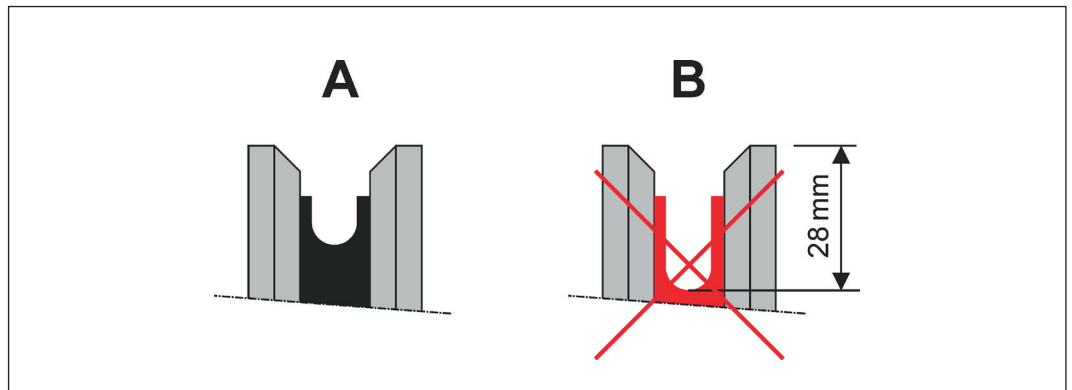
Use a conventional construction crane or mobile crane to transport the unit by crane.



## 5 Servicing and maintenance

Maintenance and servicing table							
		Before starting up	On finishing work	Weekly	Annually	If faults occur	If damage occurs
Wire saw	<ul style="list-style-type: none"> <li>Tighten loose screws and nuts</li> </ul>			X		X	X
Guide rail	<ul style="list-style-type: none"> <li>Clean guide bearing surface</li> </ul>		X			X	X
Drive and guide rollers	<ul style="list-style-type: none"> <li>Check rollers for wear</li> </ul>	X	X			X	X
	<ul style="list-style-type: none"> <li>Check bandages for wear</li> </ul>	X	X			X	X
	<ul style="list-style-type: none"> <li>Check bearings</li> </ul>			X		X	X
	<ul style="list-style-type: none"> <li>Clean</li> </ul>	X	X				X
Feed cylinder	<ul style="list-style-type: none"> <li>Check for cleanliness / damage</li> </ul>	X	X			X	X
Drive motor	<ul style="list-style-type: none"> <li>Check for cleanliness / damage</li> </ul>	X	X			X	X
Connectors, cables, couplings	<ul style="list-style-type: none"> <li>Check for cleanliness / damage</li> </ul>	X	X			X	X
Water economy	<ul style="list-style-type: none"> <li>Check the water pipes/hoses are clean and for leaks</li> </ul>	X				X	X
	<ul style="list-style-type: none"> <li>Blowing out water</li> </ul>		X				
Diamond wire	<ul style="list-style-type: none"> <li>Clean with water</li> </ul>		X				
	<ul style="list-style-type: none"> <li>Check for wear</li> </ul>	X	X			X	X
Service	<ul style="list-style-type: none"> <li>To be performed by TYROLIT Hydrostress AG or an authorized workshop</li> </ul>	After 100/300/500/700 hours					

## 5.1 Check bandages for wear

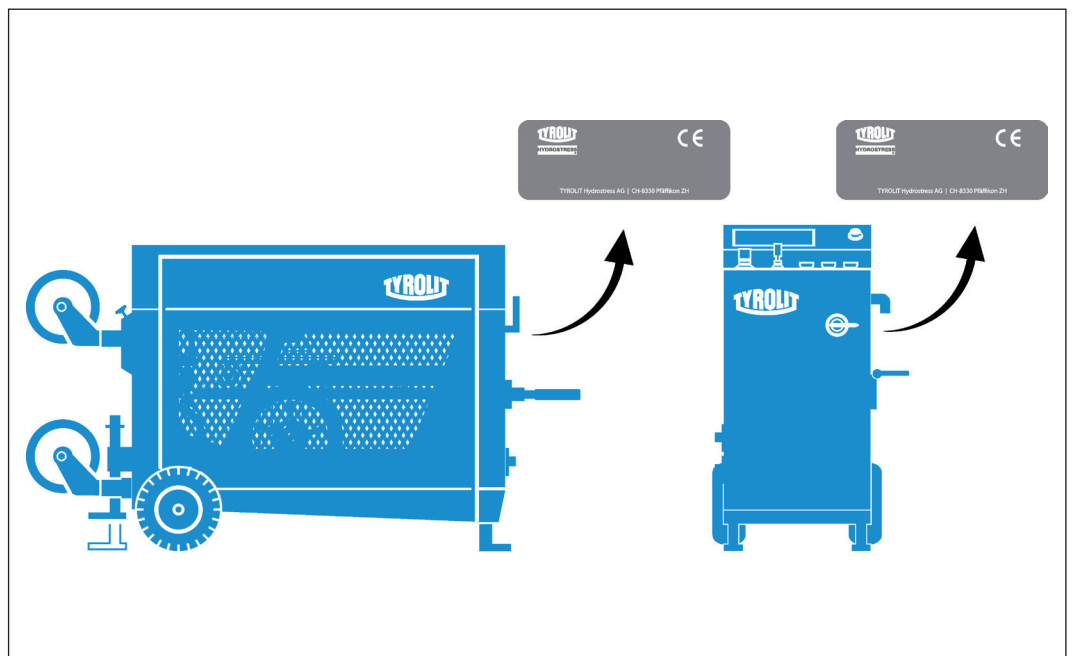


- A New bandage
- B Worn bandage

## 5.2 Troubleshooting

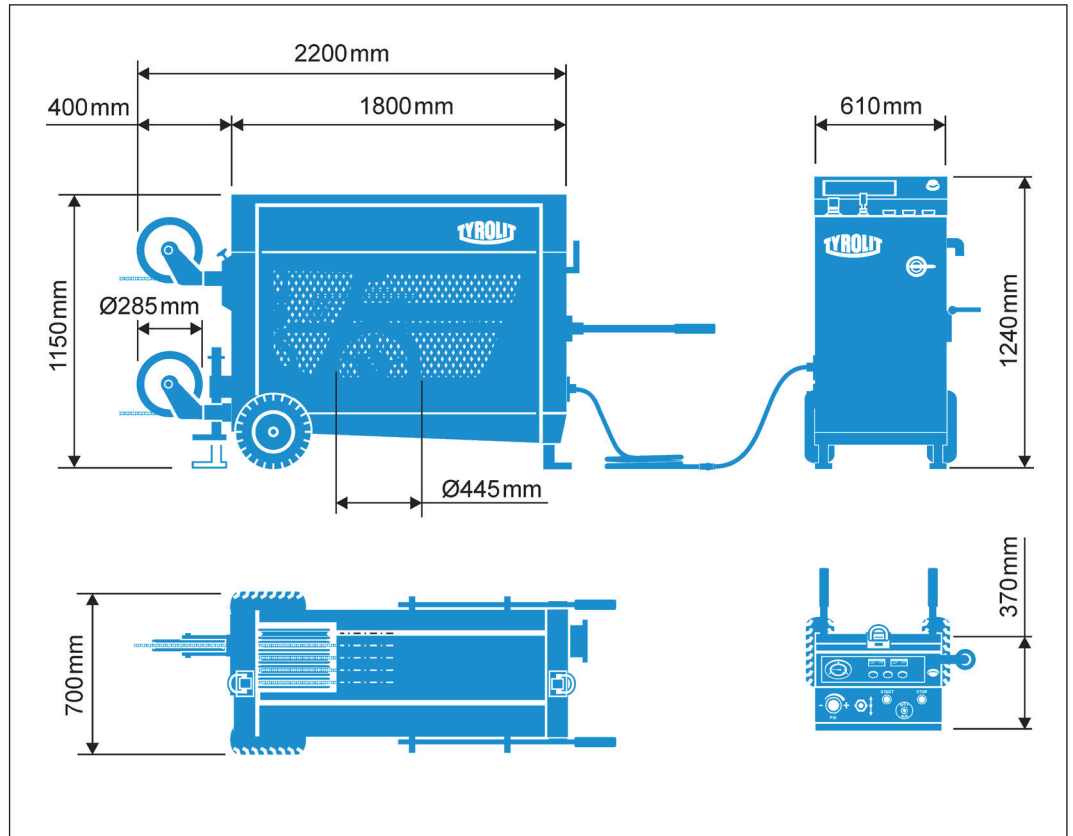
To guarantee fast and professional solution to the problem, it is important that you have the following information available when calling:

- Try to describe the fault as precisely as possible
- Make a note of the type and index description (refer to the name plate)
- Have the Operating Instructions close to hand



## 6 Technical data

### 6.1 Dimensions



### 6.2 Weights

Electric controls	113kg
Wire saw	354kg

### 6.3 Water connection

Pressure	Min. 1.5 bar to max. 6 bar
Quantity	Min. 4 l/min
Temperature	Max. 2-25 °C

## 6.4 Electric controls

Electric controls	
Voltage	480V / 50-60 Hz
Power rating	25 kW
Power consumption	36A
Nominal speed	20000 rpm
Speed downstream of gear train	1200 rpm
Cooling	Water
Length of motor cable	12 m

Recommended minimum cross-sections and maximum cable lengths			
Cross section mm <sup>2</sup>	≤ 4	6.0	10.0
220-240 V	Not permitted	50 m	105 m

## 6.5 Pneumatics

Feed cylinder	
Pressure	1.5-8 bar
Piston Ø	101.6 mm
Stroke	762 mm
<b>Compressor</b> (not included in scope of supply)	
Pressure	8 bar
Tank	Min. 5 litre

## 6.6 Diamond wire lengths



The total diamond wire storage capacity of the WCE18 wire saw is 21 m.

Min. wire length	6 m
Working wire length	15 m
<b>Total storage length L1 + L2</b>	<b>21 m</b>

## 6.7 Noise level data to ISO 3744



Hearing protection must be worn at all times when working with the WCE18 wire saw.



Parameter	Value WCE18
Workplace sound pressure level (LPA)	85 dB
Sound power level to ISO 3744 (LwA)	105 dB

## 7 EC Declaration of Conformity

Description                      Wire saw  
Type designation                WCE18

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

### Applied directive

2006/42/EU                      17.05.2006  
2012/19/EU                      04/07/2012

### Applied standards

EN ISO 12100:2010  
EN 15027:2007+A1:2009

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Pfäffikon, 18/12/2019



Roland Kägi  
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