Congratulations!

You have decided to purchase a tried-and-tested TYROLIT Hydrostress unit and have thus acquired a highly sophisticated and reliable state-of-the-art device. Only genuine TYROLIT Hydrostress replacement parts can guarantee quality and interchangeability. If maintenance work is neglected or carried out inexpertly, 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 ensure that 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

Copyright © TYROLIT Hydrostress

TYROLIT Hydrostress AG
Witzbergstrasse 18
CH-8330 Pfäffikon
Switzerland
Tel. 0041 (0) 44 952 18 18
Fax 0041 (0) 44 952 18 00
# Table of contents

1. **Safety** ........................................................................................................... 4  
   1.1 Generally applicable safety instructions ........................................... 4  
   1.2 Signs on the equipment ........................................................................ 4  

2. **Description** .................................................................................................. 5  
   2.1 Wire sawing system ........................................................................... 5  
   2.2 Intended use ........................................................................................ 5  
   2.3 Wire saw ............................................................................................. 5  
   2.4 Versions .............................................................................................. 6  

3. **Mounting / removal** .................................................................................... 8  
   3.1 Assembly overview ........................................................................... 8  
   3.2 Mounting the swivel roll insert, slack side ....................................... 9  
   3.3 Mounting the swivel roll insert, tensioned side ................................... 9  
   3.4 Mounting the drive roll unit ................................................................ 10  
   3.5 Mounting the column ......................................................................... 11  
   3.6 Mounting the diverter roll package ................................................... 11  
   3.7 Mounting the diamond wire ................................................................ 12  
   3.8 Diamond wire storage unit .................................................................. 13  
   3.9 Mounting the diamond wire guard ................................................... 16  
   3.10 Connecting the water and power supplies ........................................ 17  

4. **Operation** ...................................................................................................... 21  
   4.1 Positioning and securing the wire saw .............................................. 21  
   4.2 Correct cutting direction ..................................................................... 22  
   4.3 Finishing the cut .................................................................................. 22  
   4.4. Damping element ............................................................................. 23  

5. **Servicing and maintenance** ....................................................................... 24  
   5.1 Cleaning the toothed rack .................................................................. 25  
   5.2 Checking bandages for wear .............................................................. 25  
   5.3 Troubleshooting .................................................................................. 26  

6. **Technical data** ............................................................................................. 27  
   6.1 Dimensions ......................................................................................... 27  
   6.2 Dowel dimensions ............................................................................. 27  
   6.3 Weights ............................................................................................... 28  
   6.4 Water connection ................................................................................ 28  
   6.5 Diamond wire lengths ....................................................................... 29  
   6.6 Noise data according to ISO 3744 ..................................................... 29  
   6.7 Hydraulic drive motor and feed motor ............................................. 30  
   6.8 Electric drive motor and feed motor ............................................... 31  

7. **EC Declaration of Conformity** ................................................................. 32
1 Safety

1.1 Generally safety instructions

These instructions are just one part of the documentation supplied together with the wire saw. These instructions and the "Safety Manual / System Description for Wire Saws" form a complete set of documentation.

DANGER
Failure to comply with the safety instructions in the "Safety Manual / System Handbook" may result in serious injury or even death.
► Please ensure that the "Safety Manual / System Description for Wire Saws" has been read and understood in full.

DANGER
Risk of cutting 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 Signs on the machine

Name plate
2 Description

2.1 Wire sawing system

The functions of the wire sawing 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
2. Swivel roll insert, tensioned side
3. Base frame
4. Swivel roll insert, slack side
5. Drive roller unit
6. Column with diverter rolls and damping element
7. Diverter rolls
8. Diamond wire
2.4 Versions

INFORMATION
The WCU17 wire saw can be operated via electrical and hydraulic power supplies. Mounting kits are available for the various drive units.

Mounting kits:

<table>
<thead>
<tr>
<th>Hydraulic version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive kit TYROLIT No.</td>
</tr>
<tr>
<td>MODEL</td>
</tr>
<tr>
<td>10997100</td>
</tr>
<tr>
<td>WCU17 hydraulic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electric version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive kit TYROLIT No.</td>
</tr>
<tr>
<td>MODEL</td>
</tr>
<tr>
<td>10997500</td>
</tr>
<tr>
<td>WSE1621</td>
</tr>
<tr>
<td>10997000</td>
</tr>
<tr>
<td>WSE1217</td>
</tr>
</tbody>
</table>

2.4.1 Hydraulic version

Information regarding correct connection and operation can be found in the operating instructions supplied with the drive kit.

Drive kit TYROLIT No. 10997100
2.4.2 Electric version example drive unit WSE1621

Information regarding correct connection and operation can be found in the operating instructions supplied with the drive kit.

Drive kit TYROLIT No. 10997500

2.4.3 Electric version example drive unit WSE1217

Information regarding correct connection and operation can be found in the operating instructions supplied with the drive kit.

Drive kit TYROLIT No. 10997000
3 Mounting / removal

3.1 Assembly overview

A Mounting of the swivel roll insert, tensioned side
B Mounting of the swivel roll insert, slack side
C Mounting of the drive roll unit
D Mounting of the column
E Mounting of the diverter roll unit
F Mounting of the diamond wire
G Mounting of the diamond wire guard
3.2 Mounting the swivel roll insert, tensioned side

Fork wrench

Size 19
TYROLIT No. 973784

3.3 Mounting the swivel roll insert, slack side

Fork wrench

Size 19
TYROLIT No. 973784
3.4 Mounting the drive roll unit

- Take dimension (x) from the existing drive roll
- Mount the drive roll unit (A)
- Adjust dimension (x) and tighten the Allen screws
- Tighten the drive roll unit with the fork wrench

Use the centering tool (B) to check the drive roll unit has been mounted correctly.
Accessories; TYROLIT No. 10999627.
3.5 Mounting the column

- Fork wrench
  - Size 19
  - TYROLIT No. 973784

3.6 Mounting the diverter roll package
3.7 Mounting the diamond wire

The TYROLIT diamond wire can be inserted into the wire saw open or closed. Details of the storage capacity can be found in the technical information.

3.7.1 Diamond wire inserted in a closed state

The closed diamond wire can be drawn in over the swivel rolls.

Fork wrench

Size 19
TYROLIT No. 973784
3.8 Diamond wire storage unit

3.8.1 Single diamond wire storage
3.8.2 Extended diamond wire storage
3.8.3 Restoring
3.9 Mounting the diamond wire guard

**DANGER**

Risk of death or serious injury from the whipping action of the wire or diamond wire elements flying off.

- Always work with the diamond wire guard fitted.
- The defined safety distances and working areas must always be maintained.

Fork wrench

Size 19
TYROLIT No. 973784
3.10 Connecting the water and power supplies

3.10.1 Electric version

Connecting the power supply
Information regarding correct connection and operation can be found in the operating instructions supplied with the electric mounting kits.

A Water connection
B Electrical connection for diamond wire drive motor
C Electrical connection for feed motor
Water connection
The cooling water of the saw system flows from the control unit via the drive motor to the water distributor on the wire saw.

<table>
<thead>
<tr>
<th>Water connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pressure</strong></td>
</tr>
<tr>
<td><strong>Quantity</strong></td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
</tr>
</tbody>
</table>
3.10.2 Hydraulic version

Connecting the power supply
Information regarding correct connection and operation can be found in the operating instructions supplied with the hydraulic mounting kit.

A Water connection
B Hydraulic connection for diamond wire drive motor
C Hydraulic connection for feed motor
Water connection
The cooling water of the saw system flows from the drive unit directly to the water distributor on the wire saw.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pressure</strong></td>
<td>1 bar (min.) to 6 bar (max.)</td>
</tr>
<tr>
<td><strong>Quantity</strong></td>
<td>min. 4 l/min</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>max. 25 °C</td>
</tr>
</tbody>
</table>
4 Operation

4.1 Positioning and securing the wire saw

Auxiliary item: Cutting gauge (TYROLIT No. 10999257)

The cutting gauge is a simple aid for aligning and positioning the wire saw.

- Mount the cutting gauge on the chassis of the wire saw.
- Align the wire saw with the cut and mark the dowel space.

The following information can be obtained from the cutting gauge:

A Dowel space
B Cutting line
C Outer edge of the diamond wire guard


4.2 Correct cutting direction

**Tensioned side and slack side**

The saw cut should be carried out with the tensioned side (Z) of the diamond wire, as this provides the best cutting conditions.

4.3 Finishing the cut

When finishing the cut, the swivel roll on the tensioned side must be swivelled inwards. Towards the end of a cut, a reduced feed force should be used. This measure makes it possible for the swivel rolls to catch the diamond wire perfectly upon the exit of the diamond wire.
4.4 **Damping element**

**Diverter rolls with damping element**

The wire saw can be started without a damping function. The damping element can be deacti-
vated by means of a slider.

**DANGER**

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

> Do not make any adjustments when the wire saw is operational.

---

A Damping element passive

B Damping element active
# 5 Servicing and maintenance

## Maintenance and servicing table

<table>
<thead>
<tr>
<th>Service</th>
<th>Before starting up</th>
<th>After finishing work</th>
<th>Weekly</th>
<th>Annually</th>
<th>After faults</th>
<th>After damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire saw</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Guide support</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Guide rail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Drive and guide rollers</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Drive motor</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Connectors, cables, couplings</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Water economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Diamond wire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>After 100/300/500/700 hours</td>
<td>X</td>
</tr>
</tbody>
</table>

- **Wire saw**
  - Tighten loose screws and nuts

- **Guide support**
  - Check wear and adjustment of the guide elements
  - Lubrication

- **Guide rail**
  - Clean the toothed rack and guide grooves

- **Drive and guide rollers**
  - Check bandages for wear
  - Check bearings
  - Clean

- **Feed motor**
  - Check for cleanliness / damage

- **Drive motor**
  - Check for cleanliness / damage

- **Connectors, cables, couplings**
  - Check for cleanliness / damage

- **Water economy**
  - Check the water line for cleanliness and leak-tightness
  - Blowing out water

- **Diamond wire**
  - Clean with water

- **Service**
  - To be performed by TYROLIT Hydrosstress AG or an authorised workshop

---

TYROLIT Hydrostress AG
5.1 Clean the toothed rack

5.2 Checking bandages for wear

A  New bandage
B  Worn bandage
5.3 Troubleshooting

To guarantee a rapid and professional solution to the problem, it is important that you have prepared as follows before 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 Dowel dimension
### 6.3 Weights

1. Diverter roll unit  
2. Diamond wire guard  
3. Column for the electric version  
   Column for the hydraulic version
4. Base frame  
5. Drive roller unit  
6. Swivel roll unit, slack side  
7. Swivel roll unit, tensioned side

### 6.4 Water connection

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>1 bar (min.) to 6 bar (max.)</td>
</tr>
<tr>
<td>Quantity</td>
<td>min. 4 l/min</td>
</tr>
<tr>
<td>Temperature</td>
<td>max. 25 °C</td>
</tr>
</tbody>
</table>
6.5 Diamond wire lengths

The total diamond wire storage capacity of the WCU wire saw is 17 m.

Diamond wire basic storage

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-roll configuration</td>
<td>L1 Diamond wire basic storage in the machine</td>
<td>4.5 m</td>
</tr>
<tr>
<td></td>
<td>L2 Diamond wire length outside the machine</td>
<td>12.5 m</td>
</tr>
<tr>
<td>Three-roll configuration</td>
<td>L1 Diamond wire basic storage in the machine</td>
<td>6 m</td>
</tr>
<tr>
<td></td>
<td>L2 Diamond wire length outside the machine</td>
<td>11 m</td>
</tr>
<tr>
<td></td>
<td>Total storage length L1 + L2</td>
<td>17 m</td>
</tr>
</tbody>
</table>

6.6 Noise data according to ISO 3744

Hearing protection must be worn at all times when working with the WCU17 wire saw.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value WCU17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise level at the ear of the user (Leq)</td>
<td>90 dB</td>
</tr>
<tr>
<td>Workplace sound pressure level (LPA)</td>
<td>84.1 dB</td>
</tr>
<tr>
<td>Sound power level in accordance with ISO 3744 (LwA)</td>
<td>104.1 dB</td>
</tr>
</tbody>
</table>
### 6.7 Hydraulic drive motor and feed motor

#### Drive motor M

**Example:**

<table>
<thead>
<tr>
<th>Hydraulic motor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>1100 to 2813 rpm.</td>
</tr>
<tr>
<td>Size</td>
<td>2</td>
</tr>
<tr>
<td>Absorption volume</td>
<td>12 cm³ to 30 cm³</td>
</tr>
<tr>
<td>Transmission ratio</td>
<td>1:1</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>max. 260 bar</td>
</tr>
<tr>
<td>Type</td>
<td>External geared motor</td>
</tr>
</tbody>
</table>

#### Rotational speeds, hydraulic motors for wall saws

<table>
<thead>
<tr>
<th>l/min</th>
<th>16 cm³</th>
<th>18 cm³</th>
<th>22 cm³</th>
<th>26 cm³</th>
<th>30 cm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>2063</td>
<td>1833</td>
<td>1500</td>
<td>1269</td>
<td>1100</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>16</td>
<td>14</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>20</td>
<td>16</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>40</td>
<td>2500</td>
<td>2222</td>
<td>1818</td>
<td>1538</td>
<td>1333</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>20</td>
<td>16</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>22</td>
<td>19</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>45</td>
<td>2813</td>
<td>2500</td>
<td>2045</td>
<td>1731</td>
<td>1500</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>22</td>
<td>19</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2778</td>
<td>2273</td>
<td>1923</td>
<td>1667</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>25</td>
<td>21</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>2727</td>
<td>2308</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>20</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td>2692</td>
<td>2333</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>24</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

- **Operation possible**
- **Operation not possible**
**Feed motor Mv**

Example:

<table>
<thead>
<tr>
<th>Hydraulic motor Mv</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>187 rpm</td>
</tr>
<tr>
<td>Type</td>
<td>Gerotor</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>max. 120 bar</td>
</tr>
<tr>
<td>Rated torque</td>
<td>50 Nm</td>
</tr>
<tr>
<td>Feed force</td>
<td>6000 N</td>
</tr>
<tr>
<td>Feed</td>
<td>Toothed wheel on rail</td>
</tr>
</tbody>
</table>

### 6.8 Electric drive motor and feed motor

**Drive motor M**

Example:

<table>
<thead>
<tr>
<th>Electric motor (high frequency, water-cooled)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Output at 16 A</td>
<td>8 kW</td>
</tr>
<tr>
<td>Output at 32 A</td>
<td>17 kW</td>
</tr>
<tr>
<td>Weight</td>
<td>22 kg</td>
</tr>
</tbody>
</table>

**Feed motor Mv**

Example:

<table>
<thead>
<tr>
<th>Electric feed motor with gears and brake</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear reduction</td>
<td>1:100</td>
</tr>
<tr>
<td>Voltage</td>
<td>48 V</td>
</tr>
<tr>
<td>Feed</td>
<td>Toothed wheel on rail</td>
</tr>
<tr>
<td>Weight</td>
<td>4.1 kg</td>
</tr>
</tbody>
</table>
7 EC Declaration of Conformity

Description          Wire saw
Type designation     WCU17

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

**Directive applied**

<table>
<thead>
<tr>
<th>Directive</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/42/EG</td>
<td>17.05.2006</td>
</tr>
<tr>
<td>2012/19/EU</td>
<td>04.07.2012</td>
</tr>
</tbody>
</table>

**Applied standards**

- EN ISO 12100:2010

TYROLIT Hydrostress AG
Witzbergstrasse 18
CH-8330 Pfäffikon
Switzerland

Pfäffikon, 08.10.2018

Pascal Schmid
Head of Development