

Operating Instructions

Feed Unit SB-E

Index 000



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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

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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" and the operating instructions may result in serious injury or even death.

Please ensure that the "Safety Manual/System Description for Wire Saws" and the operating instructions have been read and understood in full.



DANGER

Serious injury or material damage as a result of uncontrolled movements!

Never connect or disconnect cables or hoses when the wire saw is running.



DANGER

Death or serious injury can be caused by sudden start-up of the machine!

- Before switching on the system, ensure that no other persons are present in the danger areas.
- When leaving the system unattended: switch off and lock off the system to prevent it being switched on again.



DANGER

Death or serious injury as a result of the sawing machine continuing to run after an accident.
Ensure that the EMERGENCY STOP button can be reached quickly.



DANGER

Electric shock from live cables and connectors!

- Switch off the feed unit before connecting or disconnecting cables.
- Ensure the power supply is earthed and fitted with a residual current circuit breaker (FI type B) with a maximum residual current of 30mA.



WARNING

It is obligatory to wear hearing protection when using the feed unit. If this instruction is not followed irreparable hearing damage may result.

WARNING

Danger of allergic reactions if skin comes into contact with hydraulic oil. Persons allergic to hydraulic oil must wear protective gloves and goggles when carrying out work that risks them coming into contact with hydraulic oil.



Rinse any areas of the skin affected immediately with copious amounts of water. Failure to observe this regulation may result in allergic reactions or injury to the eyes.

1.2 What to do in an emergency

▶ Press the EMERGENCY STOP button on the remote controller.



The LED pilot lamp flashes quickly when the EMERGENCY STOP function is activated on the radio remote controller.



EMERGENCY STOP

1.3 Signs and stickers on the unit

1.3.1 Sticker – danger sign



1.3.2 Sticker – mandatory signs



3

4

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

1.3.3 Sticker - information signs





Crane hook



Hydraulic oil

1.3.4 Name plate



Name plate

2 Description

2.1 Wire saw system



The design and function of the wire saw systems are described in the "Safety Manual/System Description for Wire Saws".

2.2 Intended use of the wire saw system

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 system components



Wire saw system

- 1 Feed unit
- 2 Radio remote controller WSE2226P
- 3 Control unit WSE2226P
- 4 Wire saw SB
- 5 Drive motor WSE2226P

2.4 Delimitation of the system



These Operating Instructions describe how to use the feed unit. Descriptions of the Wire Saw SB, the drive motor and the control unit WSE2226P are provided in their respective operating instructions.

2.4.1 Software – control unit WSE2226P

The software version V3.46 must be installed on the control unit WSE2226P to be able to operate the feed unit.

2.5 Remote controller / control unit WSE2226 * * *



Using the remote controller it is possible to control all of the functions of the feed unit. The diamond wire speed is adjusted using the selector switch on the remote controller. The remote controller can be used as a radio remote controller with a rechargeable battery or an ordinary battery. The remote controller can also be operated using a cable.

2.5.1 Main components of remote controller



Main components of remote controller

- 1 Feed potentiometer
- 2 On/Off, main motor
- 3 Main motor potentiometer
- 4 Water On/Off
- 5 Diameter selector switch
- 6 Feed joystick
- 7 Start switch

- 8 Pulse switch control unit
- 9 EMERGENCY STOP
- 10 Indicator lights
- 11 Warning light (radio & battery)
- 12 Position lock switch (traverse feed)
- 13 Casing

2.6 Feed Unit SB-E

2.6.1 Intended Purpose



The Wire Saw SB can be operated electrically in conjunction with the feed unit, the drive motor and the control unit WSE2226P.

2.6.2 Safety measures

Any use other than for the intended purpose constitutes abuse or misuse.



Danger – use of incorrect system components!

The feed unit must only be operated using original system components from TYROLIT Hydrostress AG. Failure to adhere to this regulation may result in physical injury and material damage.

2.6.3 Feed unit components



Feed unit components

- 1 Crane hook
- 2 Mains cable
- 3 Handle bar
- 4 Oil tank
- 5 Handle
- 6 Connector CEE63 (input)
- 7 Connector CEE63 (output)
- 8 Foot
- 9 Name plate

- 10 Hydraulic coupling
- 11 Drive motor
- 12 Air tyre Ø180mm
- 13 Chassis
- 14 Electrical enclosure

2.6.4 Display elements





Pressure gauge

2.6.5 Function

Hydraulic circuit diagram



Hydraulic circuit diagram

2.7 Scope of supply

1x Feed unit	TYROLIT No. 10996500
1x 2-piece Feed cable/hose assembly	TYROLIT No. 975672
1x Motor attachment kit WSE2226 SB	TYROLIT No. 10996200
1x Operating Instructions / Spare parts list	TYROLIT No. 10996786

3 Connecting the feed unit

3.1 Connecting the drive motor

- ✓ Connectors are clean
- ✓ Cables are not damaged



Connecting the drive motor

3.2 Connecting the power and feed cables to the control unit

- ✓ Connectors are clean
- ✓ Cables are not damaged



Connecting the power and feed cables to the control unit

3.3 Connecting the hydraulic and feed hoses

- ✓ Hoses and couplings are clean
- ✓ Hoses and couplings are not damaged
- $\checkmark~$ Hoses and couplings are not leaking oil



Connecting the hydraulic and feed hoses

Proceed as follows:

- Push the hose coupling on to its counterpart until you hear it "click".
- Twist the locking ring of the coupling.



If hoses cannot be connected or this cannot be done easily, they are under pressure. Depressurise the hoses by means of the pressure relief device. **Never use force to connect couplings!**

3.4 Connecting the mains cable



Once all of the cables and hoses have been connected, connect the system to the mains power supply.

- ✓ Connectors are clean
- ✓ Cables are not damaged
- ✓ The power supply is earthed and fitted with a residual current circuit breaker (FI type B; max. residual current 30mA)
- ✓ Sufficient cable cross-sections: up to 25 m long 4 x 2.5 mm², more than 25 m long 4 x 4 mm²



Connecting the power and feed cables to the control unit

4 **Operation**



4.1 Overview of operating elements of control unit WSE2226 * * *

Operating element

- 1 Position lock switch (feed)
- 2 Water On/Off
- 3 EMERGENCY STOP
- 4 Pulse switch control unit
- 5 Start switch
- 6 Feed potentiometer
- 7 On/Off, main motor
- 8 Main motor potentiometer
- 9 Diameter selector switch
- 10 Feed joystick
- 11 Main switch control unit
- 12 Reset button
- 13 Mains power supply selection switch

4.2 Starting the wire saw

- ✓ The wire saw is firmly secured to the floor.
- ✓ The protective devices are properly mounted.
- ✓ The diamond wire is correctly installed.
- ✓ The wire saw system and feed unit are correctly connected.
- ✓ The wire saw system is connected to the mains power supply and the water supply.
- ✓ The protective cap at the remote controller cable and connector is securely closed.
- ✓ The EMERGENCY STOP on the remote controller is deactivated.



Starting the control unit

Move the operating elements listed below on the remote controller to their 0 position.

Feed potentiometer (6) Start switch (5) Feed joy stick (10) Main motor On/Off (7)

- Switch on the control unit WSE2226 \star \star \star using the main switch (11).
- Switch on the radio remote controller using the start switch (5).
 - Warning lights (radio and battery) initially light up red
 - An audible signal sounds simultaneously
 - Indicators flash coloured
 - Second audible signal sounds
 - Indicators light up coloured
 - Warning light flashes green
- Press the pulse switch (4) briefly on the radio remote controller to the ON position. All indicator lights except the warning light and the group alarm on the radio remote controller go off.
- Press the reset button (12) on the control unit.
- Briefly press the remote control pulse switch (4) in the ON-position. The 'ready' indicator light on the remote controller lights up green.
- Open the water valve on the system supply line.
- Press the Water On/Off switch (2) on the remote controller to I.
 Water emerges at the cutting tool.
- Press the main motor On/Off switch (7) on the remote controller to position I.
 The electric motor starts when the main motor potentiometer is in the max. position.
- The control unit WSE2226 $\star \star \star$ has started up and is ready for operation.

4.3 Tool soft start

The control unit WSE2226 $\star \star \star$ offers a tool soft start option. The softstart is perfect for wire sawing operations. When set to the 32A position the control unit WSE2226 $\star \star \star$ (pushbutton 13) provides the option to operate at reduced power.

Proceed as follows:

- ► Start the control unit WSE2226 ★ ★ ★, see 4.2.
- ▶ Turn the main motor potentiometer (8) to the 0 position.
- Press the main motor switch (7) to I.
- Select the desired output level, see 4.4.
- Slowly turn the main motor potentiometer (8) to 100% power.

4.4 Selecting the tool station (diamond wire speed)

Once the control unit WSE2226 \star \star \star has been started correctly it is possible to select the diamond wire speed.



Selecting the power level

Peripheral speed – diamond wire				
Speed	Gear at drive motor	Setting on the remote controller		
0-10 m/s		Ø 2000 / 2200		
0-11 m/s	Gear 1	Ø 1800		
0-13 m/s	AC	Ø 1600		
0-17 m/s		Ø 1200		
0-20 m/s	Gear 2	Ø 1000		
0-24 m/s	AC	Ø 800		

Proceed as follows:

- Check gear at gearbox of drive motor.
- Set the diameter selector switch to the desired speed and turn the main motor potentiometer from 0 to 100%.



The tool stations must not be changed during operation. It is possible to reduce the speed of the diamond wire via the potentiometer for the main motor. That simultaneously lowers the cutting capacity.

4.5 Power control

The power of the main motor and the feed cylinder is controlled via the potentiometer.



Power control

Feed cylinder potentiometer (6) Main motor potentiometer (8)

4.6 Adjusting the feed

Feed movements are selected with the joystick.



Adjusting the feed

The feed speed is automatically supported during the cutting process by an assisted feed.

Manually adjusting the feed speed

- ✓ Control unit WSE2226★★★ has been started
- Select the required feed speed via the feed potentiometer (6).

4.6.1 Locking the feed

So that the joystick does not have to be held in position during the cutting process, it is possible to save the cylinder feed setting.

Proceed as follows:

- Push the joystick in the desired travel direction and at the same time press the position lock switch (1).
- When the joystick and the position lock switch are released the feed is locked.



In order to release the feed lock, move the joystick slightly in any direction.

4.7 Switching off the control unit WSE2226 $\star \star \star$

Proceed as follows:

- Switch off electric motor (7), On/Off Main motor.
- Turn off cooling water, switch (2) Water On/Off.
- Close water valve on control unit WSE2226 $\star \star \star$.
- Turn the start switch (5) on the remote controller to the 0 position.
- Switch off the control unit WSE2226 $\star \star \star$ at the main switch (11).



Use the EMERGENCY STOP function only in an emergency to stop the control unit WSE2226 $\star \star \star$.

4.8 After finishing the work

Proceed as follows:

- ▶ Turn the main switch on the control unit WSE2226★★★ to the 0 position.
- Unplug the mains connector from the feed unit.
- Disconnect the water hoses from control unit WSE2226 $\star \star \star$.
- Blow out the water from all the lines (blow out pump).
- ▶ Disconnect the electric cable between the feed unit and the control unit WSE2226P★★★.
- ► Using a damp cloth clean the control unit WSE2226★★★, the feed unit, the radio remote controller and cables.



Products containing solvents can damage parts of the control unit WSE2226 \star \star , the radio remote controller and cables.

4.9 Deactivating the EMERGENCY STOP

If the EMERGENCY STOP is activated on the radio remote controller, the radio and battery light (8) flash.



Deactivating the EMERGENCY STOP

The following controls must be moved to the 0 position:

- Feed potentiometer (6)
- Feed joy stick (10)
- Main motor On/Off (7)
- ▶ Turn the EMERGENCY STOP button (3) clockwise
- Press the pulse switch (4) on the control unit to the ON position

5 Servicing and maintenance

Maintenance and	servicing table						
		Before starting up	After finishing work	Weekly	Annually	After faults	After damage
Electrical system	Check the condition and cleanliness of electric cables, plugs/connectors and switches.	x	x			x	х
	Check the condition and cleanliness of couplings.	Х	X			x	х
Hydraulic system	 Inspect hydraulic hoses (condition, leaks / cleanliness) 	Х				x	х
	 Inspect couplings (condition, leaks / cleanliness) 	Х	X			x	Х
	Check oil level	Х	Х			Х	Х
	Change hydraulic oil					Х	
	Replace the gear oil		•	Every	100 h		
Mechanical compo- nents	 Retighten accessible screws and nuts nachziehen 	Х	X			Х	х
Service	To be performed by TYROLIT Hydros- tress AG or an authorised workshop	After 100/300/500/700 hours					

5.1 Cleaning



It is forbidden to use high pressure cleaning equipment to clean the unit. The feed unit can be damaged if cleaned using high pressure cleaning equipment.

Products containing solvents can damage parts of the feed unit and the cables.

5.2 Changing the hydraulic oil



Using unsuitable oil can damage the feed unit!

TYROLIT Hydrostress AG recommends: Hydraulic oil: HLP / ISO VG 46

√ Tool

Allen key

Size 8

Hydraulic oil

5 litres of hydraulic oil: HLP / ISO VG 46



Changing gear oil

- 1 Oil tank screw plug with dipstick
- 2 5 litre oil tank
- 3 Oil drain plug

5.3 Recycling waste



TYROLIT Hydrostress units 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.

6 Malfunctions

Malfunctions				
Malfunction	Possible cause	Solution		
The feed unit does not run	Control unit WSE2226P is switched off.	Switch on the control unit WSE2226P.		
even though the mains ca- ble is connected.	Mains cable is faulty.	Replace the mains cable.		
	No voltage at the power supply (build- ing site).	Check the power supply.		
The feed unit and the con- trol unit WSE2226P start up, then cut out again.	Fuse in the power supply of the building site trips.	 Check and if necessary adapt the fuse protection. If necessary, change the power supply. 		
The feed unit	Overvoltage or undervoltage.	Check the power supply.		
suddenly cuts out.	Cross section of power supply cable to the control unit WSE2226P too small.	Check the power supply.		
Electric motor of feed unit not running.	Switch faulty on the control unit WSE2226P.	Contact TYROLIT Hydrostress AG after-sales service.		
	EMERGENCY STOP activated on the con- trol unit WSE2226P.	Deactivate the EMERGENCY STOP.		
	Incorrect software version installed on the control unit WSE2226P (see 2.4.1).	Contact TYROLIT Hydrostress AG after-sales service.		
Hydraulic cylinder	Pump faulty.	Contact TYROLIT Hydrostress AG after-sales service.		
not functioning.	Hydraulic valve faulty.	Contact TYROLIT Hydrostress AG after-sales service.		
	Hydraulic cylinder faulty.	Contact TYROLIT Hydrostress AG after-sales service.		
	Hoses not coupled properly.	Couple hoses properly.		



If you are unable to remedy a fault, please call our service centre (see manufacturer's address on the reverse of the title page).

To guarantee a rapid and professional response, it is important that you prepare as follows before calling:



Name plate

Proceed as follows:

- ▶ Try to describe the fault as precisely as possible.
- ▶ Note the type and index designation of your unit (name plate).
- ► Have the operating instructions close to hand.

7 Technical data

7.1 Dimensions



Measurements in mm

7.2 Weights

Weight	
Parameter	Value
Hydraulic unit (with hydraulic oil)	22 kg
Feed unit, complete	35 kg

7.3 Design

Lightweight construction to facilitate one-man transport

7.4 Ambient temperature recommendation

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

7.5 Noise nuisance (sound level)

Noise data according to ISO 3744			
Parameter	Value		
Sound pressure level L _{pA}	77 dB(A) *		
Highest value of sound pressure level L $_{pCpeak}$	105 dB		
Sound power level L _{WA}	97 dB(A) *		

Conditions for the measurement:

* Diamond wire not in cutting operation under full load

7.6 Name plate



Name plate

7.7 Hydraulic unit

7.7.1 Hydraulic unit

Hydraulic unit	
Parameter	Value
Electric motor	Output: 0.75kW / 400V 50Hz 0.86kW / 460V 50Hz
	Power consumption: 1,9 A 50Hz / 1.5A 60Hz
	Motor voltage: 3-phase 400V 50Hz 3-phase 460V 60Hz
	Speed: FC controlled Max. speed at 50Hz 1430 rpm Max. speed at 60Hz 1715 rpm
	Insulation class: F
Pressure	120bar advance / 30bar return
Delivery rate	Max. 1.88l/min
Oil tank	Oil tank capacity: 5 litres
Pressure gauge	0-160bar
Hydraulic connections	Quick-connection coupling, non-drip shut-off valves with integrat- ed pressure relief
	Coupling: Art. no. 979703 / nipple: Art. no. 979707

7.7.2 Couplings and hoses

Couplings and hoses				
Plug-in couplings	Type FD and FF, non-drip			
Hoses	Length 8m (filled with hydraulic oil)			

7.7.3 Operating resources – hydraulic oil



Oil quality:

TYROLIT Hydrostress AG recommends: Hydraulic oil: HLP / ISO VG 46

7.7.4 Electrical data

Electrical data				
Parameter	Value			
Frequency converter	Voltage: 3x400 (480)V / 50 (60)Hz			
	Unit rating: 1.4 / 1.6kVA			
	Motor output rating 0.4 / 0.75kW			
	Output frequency: 0-50 Hz (max. 400 Hz)			
	IP20			
	Weight 0.9kg			
Electrical enclosure	Dimensions: 100x175x250mm			
	IP66			
Cable	1x Mains input cable 6mm ² 1m / connector CEE63 5p 6h TYROLIT Art. no. 10996553			
	1x Mains output cable 6mm ² 2m / CEE63 5p 6h coupling TYROLIT Art. no. 10996554			
	1x Feed cable (2.5m / without central cable gland) TYROLIT Art. no. 10995177			
	1x Motor cable TYROLIT Art. no. 10995178			
	1x Sensor cable TYROLIT Art. no. 10996212			

7.8 Connection components

7.8.1 Control unit WSE2226★★★



Control unit WSE2226★★★

Technical data				
Parameter		Value		
Туре	Frequency converter			
Weight	Control unit WSE2226 $\star \star \star$ incl. remote controller	26 kg		
	Remote controller separate	2 kg		
Protection class	IP65			
Connected values	380 to 420 VAC / 50 Hz / 60 Hz			
Туре	Frequency converter			
Max. current consumption	38 A			
Power	With 32 A mains power supply	17 kW		
	With 63 A mains power supply	26 kW		
Internal control voltages	Controller / remote controller	24 VDC / 3.6 VDC		
	Feed drives	48 VDC		
	Main drive unit	400 VAC, 0400 Hz		
Water	Cooling the control unit	Water cooling the power semi- conductors		
	Cooling water flow rate	Min. 4 l/min at max 25 °C		
	Water connection	2 to 6 bar		
Usage temperature	Control unit WSE2226 $\star \star \star$ incl. remote controller	-10 to 40°C		

7.8.2 Diamond wire – geared drive motor



Diamond wire – geared drive motor

Diamond wire – drive motor		
Parameter	Value	
Electric motor	High-frequency, water-cooled	
Voltage	390 V	
Frequency	400 Hz	
Gears	2 (gear I ⇔ i=6 / gear II ⇔ i=3)	
Speed	8000 rpm	
Power	26 kW	
Current	38 A	
Protection class	IP67	
Operating mode	S1	
Number of poles	6	
Insulation class	F	

7.8.3 Hydraulic cylinder



Hydraulic cylinder

Hydraulic cylinder		
Туре	Hydraulic cylinder 2T MP1	
Article number	10981872	
Dimensions	Dm 50 / 25 x 150	
Connections	G 3/8 "	

8 Transport

8.1 Transport

The feed unit is a technically sophisticated unit. Protect it against damage during transport:

- Do not place any parts on or against the feed unit.
- Protect the feed unit against impacts.
- Secure the feed unit to prevent it rolling away during transport.

8.2 Safety instructions

It is essential to observe the following safety instructions, in particular in connection with transporting the feed unit:



Danger - incorrectly transporting by crane

You must use the crane shackles provided to transport the feed unit. Use a conventional construction crane or mobile crane to transport the feed unit by crane. Failure to observe this regulation may lead to serious physical injury, possibly even death, and to property damage.



Danger – when lifting heavy loads

It is not permitted to lift loads weighing more than 30 kg without using suitable lifting equipment.

Use the handles provided when transporting. Always keep handles clean and free of grease. Failure to adhere to this regulation may result in physical injury and material damage.

8.3 Crane shackle and transport handle



Danger – falling parts

Before transporting the feed unit by crane, remove all attachments (hoses, cables and the control unit).

Failure to observe this regulation may lead to serious physical injury, possibly even death, and to property damage.



Crane transport

- 1 Transport handle
- 2 Crane shackle

9 EC Declaration of Conformity

Description	Feed unit
Type designation	SB/WSE2226 $\star \star \star$
Year of construction	2015

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

Directive applied

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

Applied standards

EN ISO12100: 2010 EN 60204-1: 2006 / A1:2009 EN 61000-6-2 / A2: 2005 EN 61000-6-4 / A2: 2007

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Notes:

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