

HILTI

DS TS20-E

Operating instructions

en



ORIGINAL OPERATING INSTRUCTIONS

DS TS20-E 3×200 V / DS TS20-E 3×400 V electric wall saw

Contents

| | |
|--|-----------|
| 1. General information | 4 |
| 2. Description | 5 |
| 3. Accessories | 6 |
| 4. Technical data | 7 |
| 5. Safety precautions | 9 |
| 6. Preparations at the workplace | 13 |
| 7. Setting up the wall saw system | 15 |
| 8. Operation | 24 |
| 9. Care and maintenance | 28 |
| 10. Troubleshooting | 30 |
| 11. Disposal | 33 |
| 12. Manufacturer's warranty – tools | 34 |
| 13. EC declaration of conformity | 34 |

It is essential that the operating instructions are read before the machine is operated for the first time. Always keep these operating instructions together with the machine.

Ensure that the operating instructions are with the machine when it is given to other persons.



- ① Saw head
- ② Power unit
- ③ Remote control unit
- ④ Power cable, control cable and water hose
- ⑤ Transport trolley – saw head



- ⑥ Blade guard - center section
- ⑦ Blade guard – side section
- ⑧ Guide rail with end stop
- ⑨ Accessory box with rail support and toolbox
- ⑩ Transport trolley - accessories

General information

1. General information

1.1 Safety notices and their meaning

-DANGER-

Draws attention to imminent danger that could lead to serious bodily injury or fatality.

-CAUTION-

Draws attention to a potentially dangerous situation that could lead to slight personal injury or damage to the equipment or other property.

-NOTE-

Draws attention to instructions and other useful information.

1.2 Explanation of warning signs and other symbols



General warning



Warning: electricity



Read the operating instructions before use.



Wear eye protection.



Wear a hard hat.



Wear protective gloves.



Wear safety footwear.



Wear respiratory protection.



Wear ear protection.



To avoid damage to the equipment, water pressure must not exceed 6 bar.



To avoid damage when temperatures below freezing are expected, the cooling system must be fully drained by blowing out with the pump provided. Please refer to the instructions provided in the tool box.



Removing cooling water from the saw head and power unit

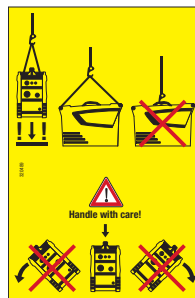
1. Connect the blow-out adapter to the hose on the HIT pump.
2. Turn the bypass valve to the “closed” position and blow out the saw head 7 times with the HIT pump.
3. Turn the bypass valve to the “open” position and blow out the saw head 4 times with the HIT pump.
4. Blow out the power unit at the water outlet 4 times with the HIT pump.



The saw head and accessory transport trolleys may be lifted by crane only at the lifting points provided.

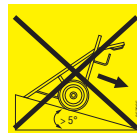
Before transport, all items of equipment must be secured to prevent movement or falling.

Never loiter in the vicinity of loads suspended by cranes. Use only tested and approved lifting gear.



The power unit may be lifted by crane only at the lifting points provided.

Never loiter in the vicinity of loads suspended by cranes. Use only tested and approved lifting gear.



The transport trolley may become unstable or run away if stood on an inclined surface.

1.3 Other information

In these operating instructions, the DS TS20-E electric wall saw is referred to as “**the machine**”.

Location of identifying data on the machine

The type designation, item number, serial number, year of manufacture and technical status can be found on the rating plate on the machine.

Make a note of this data in your operating instructions and always refer to it when making an enquiry to your Hilti representative or service department.

Power unit:

Type: DS EB-TS20

serial no. _____

Saw head:

Type: DS TS20-E

serial no. _____

Remote control unit:

Type: DS RC-TS20

serial no. _____

2. Description

2.1 Use of the equipment as intended

1. The DS TS20-E is an electrically-powered, rail-guided wall saw designed for cutting lightly to heavily-reinforced concrete, stone or masonry structures with diamond saw blades of 600 mm, 800 mm, 900 mm, 1000 mm or 1200 mm in diameter (maximum blade diameter for initial cut: 800 mm).
2. All functions of the machine are controlled by an electric remote control unit. The speed of rotation of the saw blade can be controlled smoothly and steplessly between 0 and maximum speed.
3. The saw blade drive motor provides a constant power output. Saw advance can be controlled manually and/or automatically. Thanks to load-dependent advance control, the saw is very easy to operate. The saw operates virtually fully automatically at the maximum power set on the control unit.
4. Best sawing performance is achieved when the DS TS20-E is used with the specially-matched Hilti DS-B wall saw blades. Use only diamond wall saw blades that comply with the EN 13236 standard and which have been approved for use at a peripheral cutting speed of at least 63 m/s.
5. Use only anchors of adequate size and load capacity to secure the machine to the object to be cut.
6. Do not cut materials that may release hazardous or explosive dust or vapors during the cutting process. Do not cut inflammable materials.
7. Overhead sawing is possible when additional precautionary measures are taken. For this application, the blade guard must be equipped with a means of water drainage. Care must be taken to ensure that no

persons are present beneath the equipment when sawing overhead. Please consult your Hilti representative for further information and advice.

8. Use only genuine Hilti accessories (available as options) for angled or stepped cuts or for flush cutting.
9. Check that the electric supply provided at the construction site, no matter whether mains or generator power, is always equipped with an earth/ground conductor and a ground fault circuit interrupter (PRCD type A, trigger current max. 30 mA) and that these are connected. If suspected that the electric supply is not earthed/grounded, the power unit must be earthed/grounded by way of the earth/ground terminal provided.

2.2 Items supplied as standard

The items supplied on the saw head trolley include:

- Saw head
- Power unit
- Remote control unit
- Power and control cables
- Cooling water hose
- Transport trolley
- Tool set
- Operating instructions

The items supplied on the accessories trolley include:

- DS-BG 80 blade guard for 900 mm dia. saw blade
- Rail supports (4 supports)
- Transport box
- Transport trolley
- Rail connector

Using the accessories listed, the wall saw can be adapted to suit the particular conditions of the application you intend to carry out.

Accessories

3. Accessories

| Item no. | Designation | Use |
|----------|-----------------------|---|
| 284808 | DS-R100-L rail | Saw guidance |
| 284809 | DS-R200-L rail | Saw guidance |
| 284810 | DS-R230-L rail | Saw guidance |
| 371703 | DS-ES-L end stop | Safety stop for saw head |
| 207137 | DS-CP-ML rail clamp | Fastening rails |
| 284814 | DS-RF-L rail support | Fastening rails |
| 284816 | DS-RFP-L rail support | Fastening rails for angled and stepped cuts |
| 232241 | D-CO-ML double taper | Extending rails |
| 232244 | D-EP-ML eccentric pin | Extending rails |

| Item no. | Designation | Use |
|----------|-------------------------|---|
| 238000 | DS-BG65 blade guard | Blade guard for blades up to 650 mm dia. |
| 238002 | DS-BG80 center section | Blade guard for 600 to 900 mm dia. saw blades * |
| 238003 | DS-BG80 side section | Blade guard for 600 to 900 mm dia. saw blades |
| 238004 | DS-BG120 center section | Blade guard for 1000 to 1200 mm dia. saw blades * |
| 238005 | DS-BG120 side section | Blade guard for 1000 to 1200 mm dia. saw blades |

| Item no. | Designation | Use |
|----------|--------------------------|---|
| 238006 | DS-BGF80 center section | Blade guard for 600 to 900 mm dia. saw blades for flush cutting * |
| 238007 | DS-BGF80 side section | Blade guard for 600 to 900 mm dia. saw blades for flush cutting |
| 238008 | DS-BGF120 center section | Blade guard for 1000 to 1200 mm dia. saw blades for flush cutting * |
| 238009 | DS-BGF120 side section | Blade guard for 1000 to 1200 mm dia. saw blades for flush cutting |

* Only to be used with the corresponding side sections!

| Item no. | Designation | Use |
|----------|---------------------------------|---|
| 258436 | DS-FCA-110 flush-cutting flange | Saw blade mounting flange for flush cutting |
| 307188 | DS-FCA-110FF auxiliary flange | Saw blade mounting flange for flush cutting |

| Item no. | Designation | Use |
|----------|----------------|---|
| 284842 | DS TS tool set | Fastening rails, personal protection, maintenance and operation |

| Item no. | Designation | Use |
|----------|-------------------------------|--|
| 206856 | DS TS20-E power cable, 10 m | System cable |
| 206857 | DS TS20-E control cable, 10 m | System cable |
| 400768 | RC extension cable | Extending distance between remote control and power unit 10 ⇒ 20 m |
| 228150 | Water hose, 10 m | System water hose |

4. Technical data

4.1 Technical data for the DS TS20-E power unit*

| | DS EB-TS20 3 × 400 V | DS EB-TS20 3 × 200 V |
|--|-------------------------------|-------------------------------|
| Rated voltage | 380 to 480 V ~ | 200 to 280 V ~ |
| Voltage tolerance | ± 10% | |
| Mains frequency | 50 / 60 Hz | |
| Pin assignment | 3P+N+PE / 3P+PE | 3P+PE |
| Rated current | 16 / 25 / 32 A | 32 / 50 / 63 A |
| Mains fuse rating min. / max. | 16 / 32 A | 32 / 63 A |
| Power input, max. | 19 kW | |
| Generator power rating, min. | 20 kVA @ 16 A / 40 kVA @ 32 A | 20 kVA @ 32 A / 40 kVA @ 63 A |
| Ground fault circuit breaker in supply | 30 mA (type A) | |
| Cooling water temperature at 4l/min. | 4 to 30°C | |
| Cooling water pressure min. / max. | 2 to 6 bar | |
| Protection class **** | IP 65 | |
| Weight | 38 kg | |
| Power outlet | 230 V / 10 A | none |
| Dimensions l × w × h | 73 × 35 × 59 cm | |
| Operating / storage temperature | −15°C to +50°C *** | |
| Operating / ambient temperature | −15°C to +45°C *** | |
| Leakage current | ≤ 10 mA | |
| Insulation resistance | at least 300 k Ω | |

4.2 Technical data for the DS TS20-E saw head*

| | DS TS20-E |
|---------------------------------|------------------------|
| Motor power S1 ** | 15 kW |
| Drive spindle speed | 100 to 940 r.p.m. |
| Protection class **** | IP 65 |
| Saw blade diameter | 600 mm to 1200 mm dia. |
| Max. cutting depth | 53 cm |
| Weight | 37 kg |
| Dimensions l × w × h | 37.5 × 44 × 32 cm |
| Operating / storage temperature | −15°C to +50°C *** |
| Operating / ambient temperature | −15°C to +45°C *** |

Technical data

4.3 Technical data for the DS TS20-E remote control unit

DS RC-TS20 remote control unit

| | |
|-----------------------|-------------------|
| Cable length | 10 m |
| Voltage | 24 V DC |
| Protection class **** | IP 65 |
| Weight | 2,2 kg |
| Dimensions l × w × h | 39 × 19 × 12,5 cm |

* Rated values guaranteed at max. 18°C and heights of up to 2,000 m above sea level.

** Continuous operation 100%

*** At temperatures below zero, allow the machine to warm up slowly before subjecting to load and drain (blow out) the water from the cooling circuit after use (a pump is supplied for this purpose).

**** Protection class IP65 in accordance with EN 60529, 6 = protection against entry of dust, 5 = protection against water jets (hose proof)

4.4 Technical data for the transport trolleys

Saw head trolley

Accessory trolley

| | | |
|-------------------------------|-------------------|--------------------|
| Dimensions loaded, L × W × H | 106 × 75 × 108 cm | 106 × 75 × 140 cm* |
| Weight loaded ** | 121.5 kg | 91 kg |
| Max. permissible total weight | 150 kg | 150 kg |

* With 1 m rail. Height with 2.3 m rail = 245 cm.

** Contents in accordance with list of items supplied, see section 2.2

4.5 Noise information (measured in accordance with EN 61029)

| | |
|---|--------------|
| Typical A-weighted noise (power) level: | 117.8 dB (A) |
|---|--------------|

| | |
|--|--------------|
| Typical A-weighted noise (pressure) level: | 100.3 dB (A) |
|--|--------------|

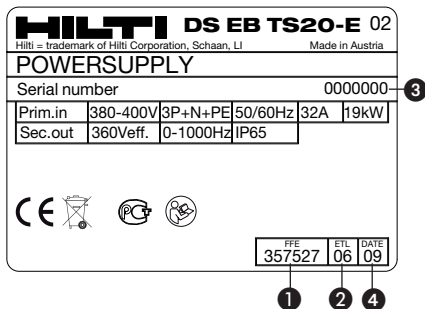
Wear ear protectors!

Note: The noise pressure level can be reduced by approx. 10 dB(A) when noise-reducing (silent) saw blades are used.

4.6 Type plates

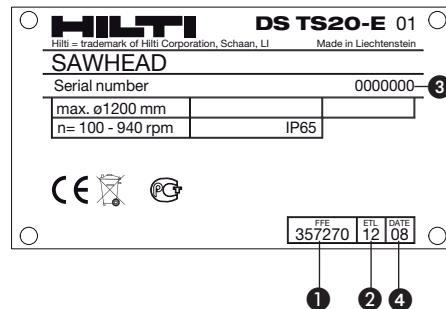
Power unit type plate

On the rear of the power unit



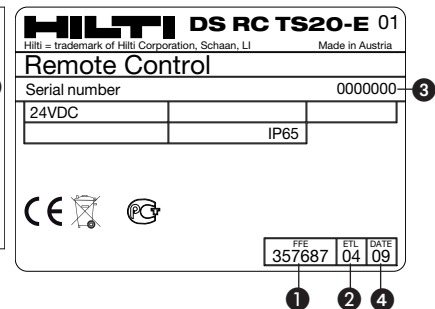
Saw head type plate

On the underside of the saw head



Remote control unit type plate

On the side of the remote control unit



- ① = Engineering number
- ② = Spare parts list index
- ③ = Serial number
- ④ = Year of manufacture

5. Safety precautions



WARNING

Failure to observe the instructions listed below may lead to potentially fatal injury and serious damage to property or equipment.

5.1 Proper organization of the work area

a) Approval must be obtained from the site engineer or architect prior to beginning drilling or sawing work. Drilling or sawing work on buildings and other structures may influence the statics of the structure, especially when steel reinforcing bars or load-bearing components are cut through.

b) Ensure that the workplace is well lit.

c) Ensure that the workplace is well ventilated. Exposure to dust at a poorly ventilated workplace may result in damage to the health.

d) Keep the workplace tidy. Objects which could cause injury should be removed from the working area. Untidiness at the workplace can lead to accidents.

e) In order to avoid injury and to prevent the diamond blade becoming trapped or jammed, steel wedges and/or supports must be used to prevent uncontrolled movement of parts of the structure being cut.

f) Ensure that adequately-sized supports are correctly installed so that the remaining structure maintains its stability after completion of the cutting work and removal of the part cut away.

g) Never loiter in the vicinity of loads suspended by cranes.

h) The area of the cut or the opening created by the cutting process must be safely and visibly cordoned off in order to avoid the possibility of persons falling.

i) Wear personal protective equipment. Wear safety shoes or boots, protective gloves, a hard hat, ear protection and eye protection.

j) Wear respiratory protection if the work causes dust.

k) Dress properly for the work. Do not wear loose clothing or jewelry as it could be caught in moving parts. Contain long hair.

l) Keep children away. Keep other persons away from the working area.

m) Do not allow other persons to touch the machine or the extension cord.

n) Avoid unfavorable body positions. Make sure you work from a safe stance and stay in balance at all times.

o) To avoid presenting a tripping hazard, always ensure that cables and hoses leading to the machine are laid flat on the floor.

p) Keep cables and hoses away from rotating parts.

q) In cooperation with the site engineer or architect, ensure that no gas, water, electricity or other supply lines are located in the cutting area. Any supply pipes or cables located close to the cutting area present a serious hazard if damaged while the work is in progress. External metal parts of the machine could become live if, for example, an electric supply cable is damaged.

r) Ensure that the cooling water used is drained or extracted in a suitably controlled manner. Water that is allowed to drain away or spray around in an uncontrolled manner can lead to damage or accidents. The fact that water could drain away into internal, hidden cavities, e.g. in brickwork or masonry, must also be taken into account.

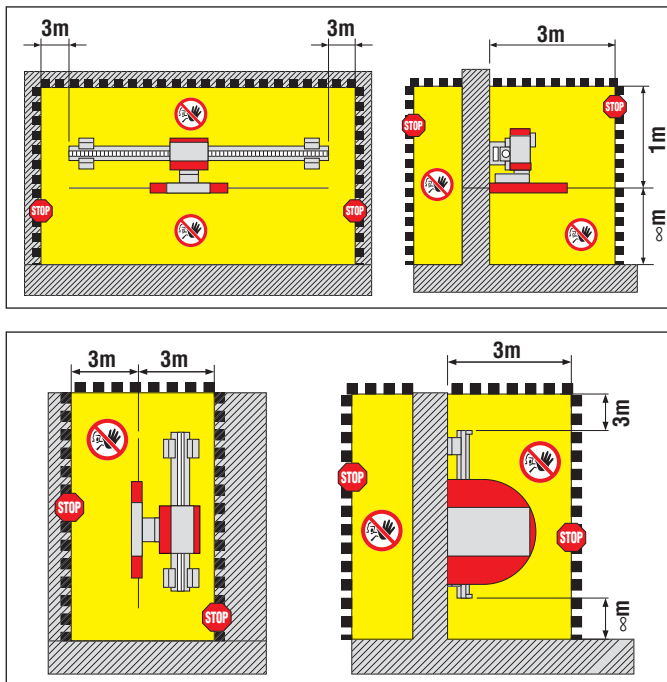
s) Do not work from a ladder.

5.2 Safety measures at the danger areas

Safety measures must be implemented in the area where sawing is taking place to ensure that operators and bystanders cannot be injured or property damaged by debris that may fly off or fall down (broken-off diamond segments, small stones, sawing slurry, etc.) while sawing is in progress. Safety measures must also be implemented in the area not directly visible to the operator, i.e. behind where sawing is taking place.

Persons must NEVER enter the danger area (3 meters in all directions from the line of the cut to be made) while the blade drive is switched on.

Safety precautions



-CAUTION-

Secure the working area. Ensure that no persons can be injured or property / equipment damaged by falling objects or debris that may fly off during the sawing operation.

1. Approval must be obtained from the site engineer or site management before beginning the sawing work.
2. Find out whether overcutting at corners is permitted. If not, the corresponding corner holes must be planned and drilled first.
3. Check that the area is cordoned off, that supports are in place and warnings to third parties are displayed.

When setting up and operating the saw system and when removing parts that have been cut away, always ensure that no persons are below the area in which you are working. Falling objects could cause serious injury.

5.3 General safety instructions

- a) Use the machine only when you have read the operating instructions and you are familiar with the points described, and when you have received appropriate training from a Hilti specialist on safe operating procedures. All warnings and instructions must be observed.
- b) Use the right machine for the job. Do not use the machine for purposes for which it was not intended. Use it only as directed and when in faultless condition.
- c) Use the machine, accessories and saw blades etc., in accordance with these instructions and in the man-

ner intended for the particular type of machine, taking into account the working conditions and the work to be performed. Use of this machine for operations other than those intended could result in hazardous situations.

- d) Use only the genuine Hilti accessories or ancillary equipment listed in the operating instructions. Use of accessories or ancillary equipment not listed in the operating instructions may present a risk of personal injury.

- e) Take the influences of the surrounding area into account. Do not use the machine where there is a risk of fire or explosion. Electric tools and machines generate sparks which may ignite dust or gas.

- f) Keep the grips dry, clean and free from oil and grease.

- g) Do not overload the machine. It will work more efficiently and more safely within its intended performance range.

- h) Never leave the machine unattended.

- i) Store machines in a secure place when not in use. When not in use, machines must be stored in a dry, high place or locked away out of reach of children.

- j) Always disconnect the machine from the electric supply when it is not in use (e.g. during breaks between working), before making adjustments, before carrying out care and maintenance and before changing saw blades. This safety precaution prevents the machine starting unintentionally.

- k) Remove any adjusting key or wrench before switching the machine on. A wrench or a key left attached to a rotating part of the machine may cause personal injury.

- l) Before use, the machine, the saw blade and accessories must be checked carefully to ensure that all items function faultlessly and as intended. Check that moving parts function correctly without sticking and that no parts are damaged. All parts must be fitted correctly and fulfill all conditions necessary for correct operation of the machine. Damaged parts must be repaired or replaced properly by an authorized service center.

- m) Avoid skin contact with drilling slurry.

- n) Wear a protective mask during work that generates dust, e.g. dry cutting. Connect a dust removal system. Cutting materials hazardous to the health (e.g. asbestos) is not permissible.

o) Follow the instructions concerning care and maintenance.

5.4 Electrical safety

a) Take steps to avoid the risk of electric shock. Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.

b) Check the machine's supply cord at regular intervals and have it replaced by a qualified specialist if found to be damaged. Check extension cords at regular intervals and replace them if found to be damaged.

c) Check the condition of the machine and its accessories. Do not operate the machine and its accessories if damage is found, if the machine is incomplete or if its controls cannot be operated faultlessly.

d) Do not touch an electric cable that has been damaged while working. Switch off at the main switch and unplug the cable at the power outlet.

e) Damaged or faulty switches must be replaced at a Hilti service center. Do not use the machine if it cannot be switched on and off correctly.

f) Have the machine repaired only by a trained electrical specialist (Hilti service center) using genuine Hilti spare parts. Failure to observe this point may result in risk of accident to the user.

g) Do not use the supply cord for purposes for which it is not intended. Never carry the machine by the supply cord. Never pull the plug out of the power outlet by pulling the supply cord.

h) Do not expose supply cords to heat, oil or sharp edges.

i) Connect the machine and its ancillary equipment only to a power source equipped with an earth/ground conductor and ground fault circuit breaker (PRCD). Check that these items are in perfect working order before operating the equipment. Install an earth/ground rod if a generator is used or if no earth/ground conductor is present in the on-site electric supply. Operation of the machine without an earth/ground connection is not permissible under any circumstances. With no earth/ground connection, faulty insulation on a part of the machine or inadvertently sawing into a live cable presents a risk of fatal accident.

j) Make sure that the mains voltage corresponds to the specification given on the type plate.

k) Electric cables and their plug connectors must be kept dry. When not in use, close power outlets with the cover provided.

l) Use only extension cables which have an adequate conductor cross-section and are approved for the intended field of use. Do not work with extension cables when they are rolled up. This can result in a drop in output at the equipment and may cause the cable to overheat.

m) Disconnect the power cable before beginning cleaning and maintenance work or in the event of a lengthy interruption between periods of operation.

n) Please note that certain components of the power converter retain an extremely dangerous (potentially fatal) high voltage for up to 10 minutes after disconnection from the electric supply.

5.5 Requirements to be met by users

a) The machine may be operated only by specialists trained in concrete cutting techniques, referred to in the following as "operators". These persons must be familiar with the content of these operating instructions and must have been trained in their safe application by a Hilti specialist.

b) Stay alert, watch what you are doing and use common sense when working. Do not use the equipment when you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating the equipment could result in serious injury.

c) The user and any other persons in the vicinity must wear suitable eye protection, a hard hat, ear protection, protective gloves and safety footwear while the equipment is in use.

5.6 Safety during operation

Check that the wall saw and its components, the saw blade and all accessories are in good condition and in perfect working order before use. Any damage or malfunctions must be rectified in a PROFESSIONAL manner before operation commences.

Position the electric power unit outside the danger area.

Safety precautions

Sawing may begin only once the wall saw system (rail supports) have been fastened securely to a solid surface and the other parts of the system have been assembled or installed correctly (all bolts tightened, the saw head positioned securely on the rail, locking levers closed, end stops fitted). A falling object could result in serious personal injury or damage to property or equipment.

NEVER stand in the direction of radial flight of a running saw blade. Always use the appropriate blade guard (DS-BG for normal cutting, DS-BGF for flush cutting).

Always operate the machine from the closed side of the blade guard, i.e. the protected side, when corner cuts are made with the blade guard in the partly open position. The operator must take additional precautions (fit a cover, plank of wood, boards etc.) where necessary.

Never enter the danger area (e.g. to change the saw blade, remove the blade guard side section, hammer in wedges, etc.) before the blade drive is switched off and the blade has come to a standstill. Press the EMERGENCY STOP button before entering the danger area.

Do not touch rotating parts.

Observe the permissible drive unit parameters, blade rotation speed and advance speed while sawing.

Use only saw blades that comply with the requirements of EN 13236. Fit the blades the right way round (observe correct direction of rotation).

Use of blades with laser-welded segments can reduce the risk of segments breaking and flying off.

Check the blade mounting flange and blade for damage (e.g. cracks in the steel disc) and degrease the blade mount each time before operating the wall saw.

Always put on gloves before touching the saw blade as it can get hot.

Use only fastening materials of adequate size (anchors, bolts, etc.) to fasten the rail supports.

Use only the accessories recommended in these operating instructions. Use of other accessories may result in personal injury or damage.

If equipment such as scaffolding, platforms or ladders is used, check that this equipment complies with regu-

lations, that it is undamaged and set up in accordance with regulations.

The operator must take measures to ensure that no persons enter or loiter in the danger area at any time while the saw is in operation. This also applies to the area not immediately visible to the operator, i.e. the area behind or below the object in which the cut is being made. If necessary, a large area must be cordoned off or security personnel posted.

Stay alert at all times. Monitor the progress of the sawing operation and keep an eye on the cooling water system and the area surrounding the workplace. Do not operate the machine if your full attention is not on the job.

No modifications may be made to the saw system. Modification of the factory-set drive parameters is strictly prohibited.

5.7 Safety instructions for transporting the equipment

Avoid lifting and carrying heavy objects. Use suitable lifting equipment and means of transport and share heavy loads between several people.

Use the handles provided for transportation. Always keep the handles clean and free of grease.

Bear in mind that the machine could fall over. Stand it only on a solid, level surface.

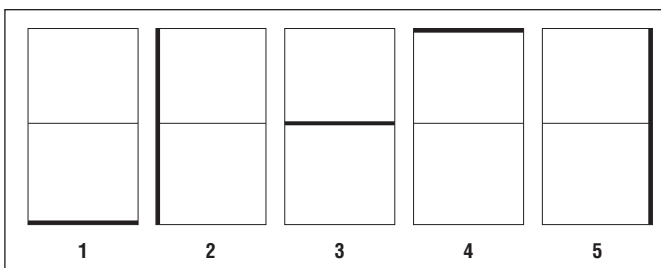
Make sure that the saw system and its components cannot move about or fall over during transportation.

The machine may be lifted by crane only at the lifting points provided using tested and approved lifting gear. Before lifting, check that all removable items of equipment are securely attached to the two transport trolleys or locked in position. Never loiter under loads suspended by crane.

6. Preparations at the workplace

6.1 Planning the cutting sequence, marking the cutting line and fastening points

1. The parts to be cut out are usually marked by the client. A rational cutting sequence can be followed when the rail supports are cleverly positioned.
2. If necessary, adjust the size and weight of the concrete blocks to the prevailing conditions by making dividing cuts (i.e. depending on the work order, the means of handling the blocks, the crane or the maximum floor loading capacity and size of doors).
3. Use steel wedges and supports, as necessary, to secure the sections of concrete while sawing.



6.2 Clarifying the situation and securing the workplace

Have you made sure there are no hazardous pipes or cables (gas, water, electricity etc.) in the cutting area?

Have the effects of the cutting work on the stability of the structure been clarified and are the supports in place capable of taking up the resulting loads?

Can the possibility of hazards or damage as a result of the cooling water used be ruled out?

Have safety measures been implemented to ensure that no persons can be injured or property and equipment damaged by falling objects or debris that may fly off during the sawing operation?

Can the parts of the structure that are to be sawn out be removed safely in a controlled operation and subsequently disposed of?

Does the electric supply and water supply available for use meet the specified requirements?

Is the required equipment in the correct specification available for use?

Has the work to be carried out been approved in full by the site engineer or architect?

6.3 Electric power supply / fuse rating

-CAUTION-

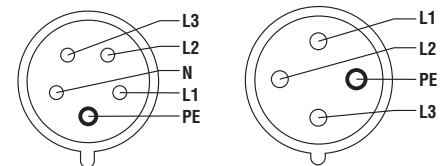
Irrespective of whether using mains power or generator power, always check that an earth/ground conductor and ground fault circuit breaker are present in the electric supply and that these are connected. If suspected that the electric supply is not earthed/grounded, the power unit must be earthed/grounded by way of the earth/ground terminal provided.

| Voltage version | 3 × 400 V | 3 × 200 V |
|-----------------------------------|--------------|-----------|
| Minimum fuse rating | 16 A | 32 A |
| Maximum fuse rating | 32 A | 63 A |
| Ground fault circuit breaker (FI) | Type A 30 mA | |

6.4 Electric power connection / power cable plugs

| Voltage version | 3 × 380–480 V | 3 × 200–280 V |
|-----------------|---------------|----------------|
| Pin assignment | 3P + N* + PE | 3P + PE 63A 9h |

Pin-assignment



L1 = phase 1, L2 = phase 2, L3 = phase 3, N = neutral conductor, PE = earth / ground

* The 230 V outlet on the power unit functions only when the neutral conductor (N) is connected.

The CEE connector supplied, if required, should be fitted to your power cable by an authorized electrician.

The remote control unit indicates the voltage and shows an error in the event of any one of the phases (L1, L2, L3) providing no power.

6.5 Extension cables / conductor cross section

- Use only extension cables which are approved for the intended field of use and with conductors of adequate cross section.
- In accordance with EN 61029-1, conductors must have at least the following cross sections: 1.5 mm² for 16 A, 4 mm² for 32 A and 10 mm² for 63 A (conductor cross section = cross-sectional area of individual conductors).
- Inadequate conductor cross sections and long cables result in a drop in voltage and may cause the cable to overheat.

Preparations at the workplace

- Extension cables must be fully unrolled before the wall saw is put into operation.

6.6 Cooling water supply

1. When the cooling water has a temperature of 18°C, a flow rate of approx. 4 l/min is required for cooling the power unit and saw head.
2. Use only clean cooling water.
3. For dry sawing applications (e.g. masonry), the excess water can be drained away by using the bypass function at the saw head.
4. The machine's automatic cut-out will be activated in the event of inadequate cooling.
5. Where pressure in the water supply line is low, a non-return valve should be fitted in order to prevent dirty water finding its way into the water supply.

-NOTE-

In order to prevent damage to the seals, a small quantity of water is allowed to reach the saw blade by way of the drive spindle even when the bypass valve is fully closed.

7. Setting up the wall saw system

7.1 Connecting the power unit

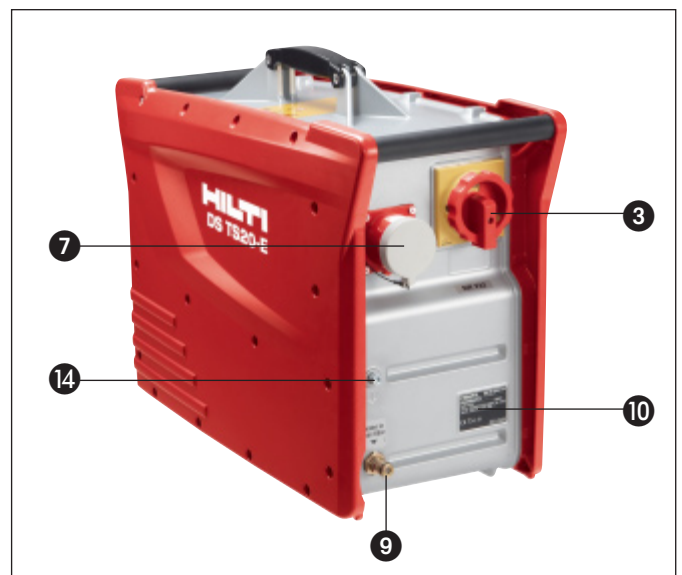
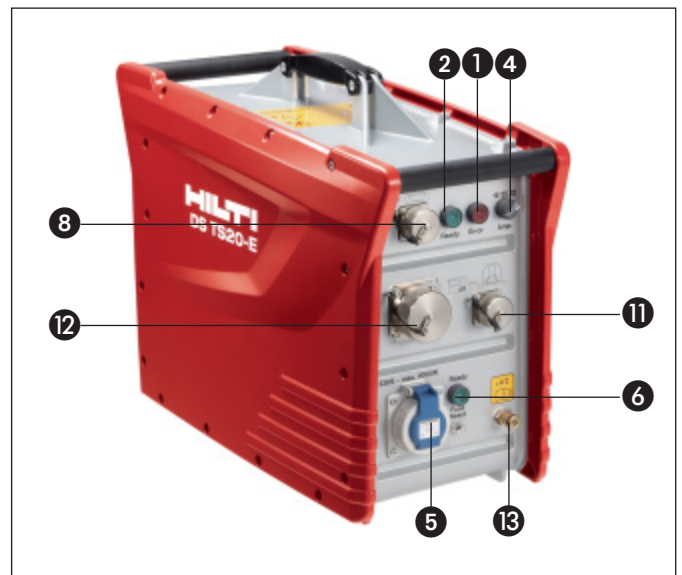
-NOTE-

Operating the main switch several times in quick succession will cause the electric supply to be temporarily interrupted. Wait for a few seconds before switching on again.

1. Set the current input limiter ④ to the corresponding fuse rating. Connect the earth/ground terminal ⑭ to an earth/ground rod if the unit is powered by a generator.
2. Connect the power cable ⑦ (observe the information on the type plate ⑩).
3. Remove the protective cap and connect and secure the remote control unit ⑧.
4. Close the protective caps ③ by fitting them together.
5. Move the main switch ③ to the "I" position. The "Ready" indicator ② then lights.
6. Connect the external cooling water hose ⑨. Water pressure must not exceed 6 bar.

Parts

| No. | Designation |
|-----|---|
| ① | Error indicator (red) |
| ② | "Ready" indicator (green) |
| ③ | Main switch |
| ④ | Current input limiter |
| ⑤ | 230 V power outlet (only with 3 × 400 V version) |
| ⑥ | Automatic fuse / circuit breaker and ready indicator for 230 V outlet |
| ⑦ | Power cable connector |
| ⑧ | Socket for remote control unit |
| ⑨ | Cooling water connection (feed) |
| ⑩ | Type plate |
| ⑪ | Plug for saw head control cable |
| ⑫ | Plug for saw head power cable |
| ⑬ | Cooling water connection (exit) |
| ⑭ | Earth/ground terminal |



Setting up the wall saw system

7.2 Fastening the rail supports

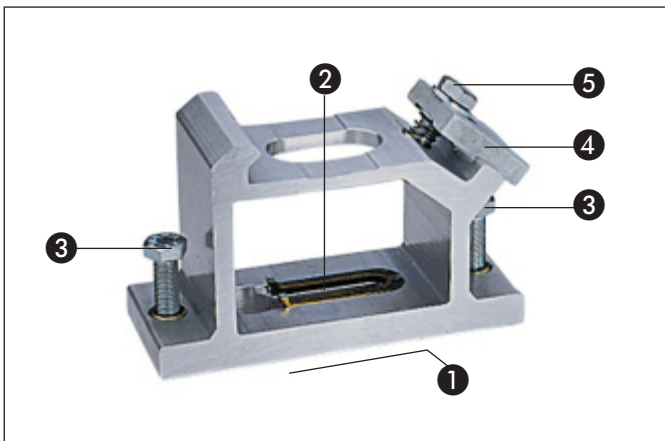
-CAUTION-

- Failure to observe the spacing shown may cause the saw to wander off course and, in extreme situations, may result in failure of the anchor fastenings.
- Adequately dimensioned and correctly installed fastenings are essential in order to ensure efficient and safe operation of the equipment.
- For fastening to uncracked concrete, we specify Hilti HKD-D M12 flush anchors or anchors of a type with at least equal loading capacity (observe the manufacturer's anchor-setting instructions).

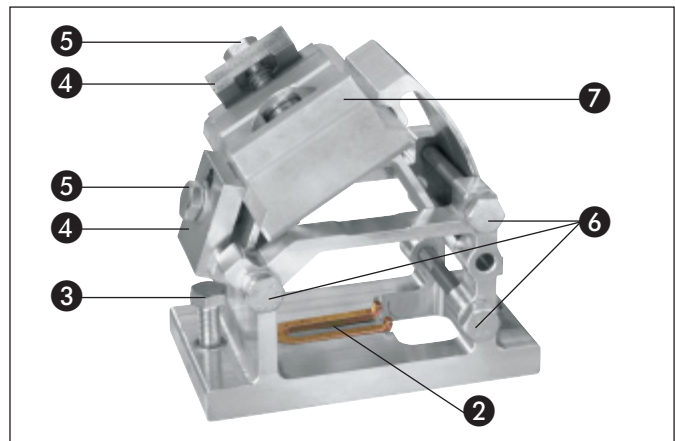
- The construction materials and conditions encountered at the location where sawing is to be carried out vary from site to site. Should you be unsure of the strength of the supporting material and have doubts about the solidity of the fastening obtained, please contact Hilti Customer Service for technical advice.

-NOTE-

- During installation, the leveling screws should not project beyond the contact surface of the rail supports.
- Use the DS-RFP rail support for angled and stepped cuts.



Rail support for regular cutting



Rail support for angled and stepped cutting

Parts

No. Designation

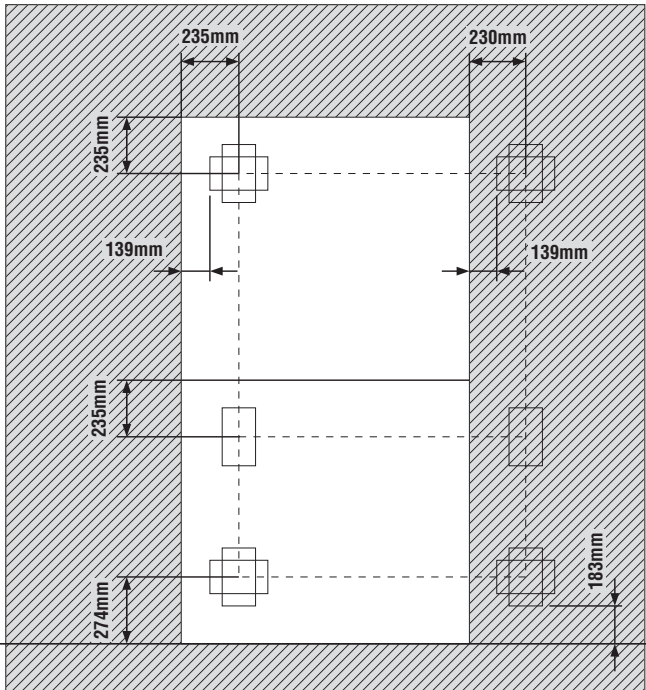
| | |
|---|--------------------------------------|
| ① | Contact surface |
| ② | Anchor slot for fitting rail support |
| ③ | Leveling screws |
| ④ | Rail clamping plate |

| | |
|---|-------------------------------------|
| ⑤ | Rail clamping screw |
| ⑥ | Clamping screw for angle adjustment |
| ⑦ | Clamping plate for stepped cuts |

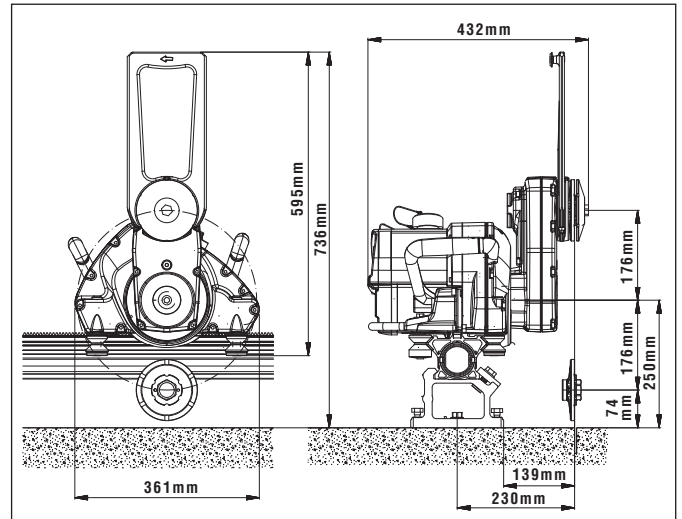


Setting up the wall saw system

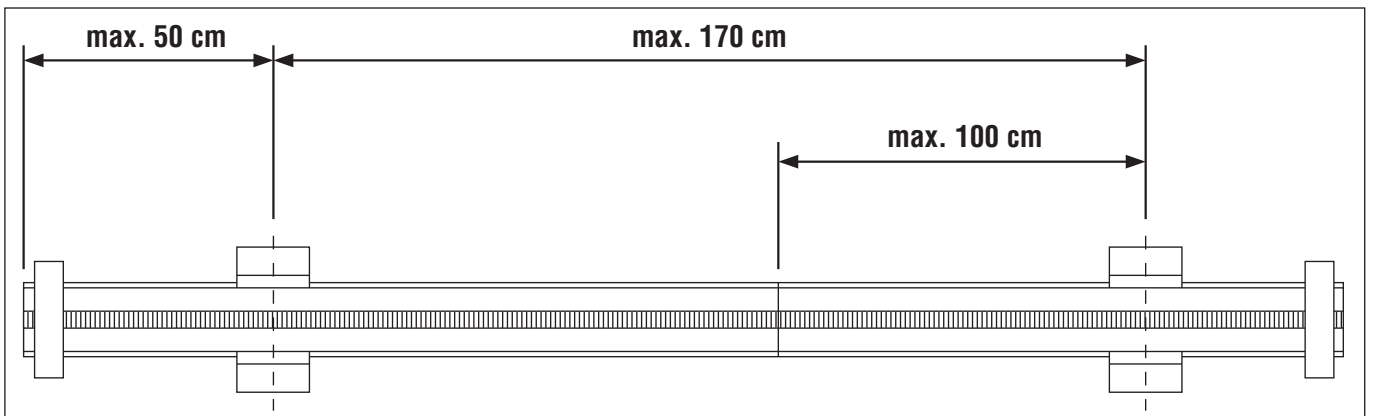
1. Mark the positions of the anchor holes for the rail supports.
2. Drill the anchor holes (depth and diameter in accordance with the manufacturer's instructions).
3. Clean the holes (remove the drilling dust).
4. Insert and expand the anchors (e.g. Hilti HKD-D M12) using the setting tool.
5. Screw in the fastening screws (8.8 grade with collar nut, supplied in the accessory box) to their full depth by hand.
6. Position and align the rail supports and then tighten the collar nuts slightly.



Anchor hole distance



Main dimensions of the DS TS20-E (in mm)



Maximal permissible rail support distance

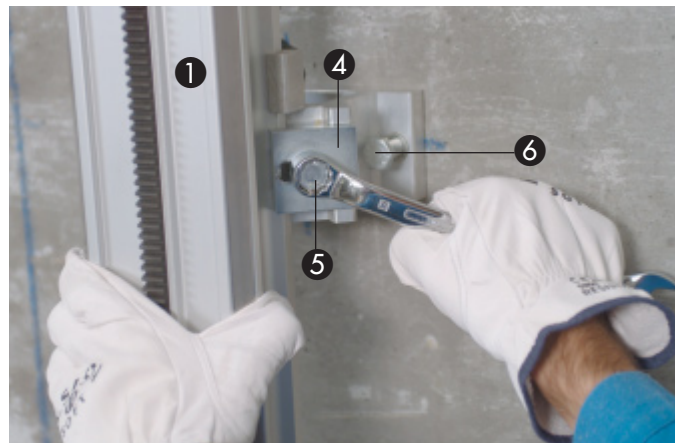
7.3 Fitting the rail

1. Fit the rail clamp to the rail.
2. Position the rail with fitted rail clamp on the rail support and close the clamping plate.
3. Turn the rail support until at right angles to the rail and then tighten the clamping plate securely.
4. Compensate for any difference in level by adjusting the leveling screws.
5. Align the rail at the correct distance from the cutting line and then tighten the fastening screws.
6. Fit end stops at both ends of the rail.

-NOTE-

The rail clamps cannot be used with the rail supports for angular cutting.

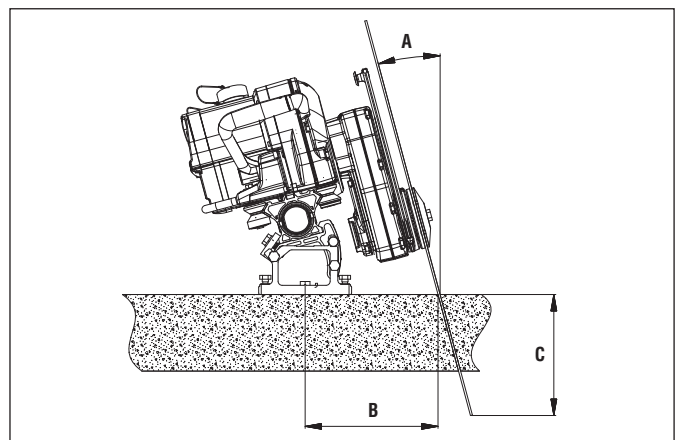
Setting up the wall saw system



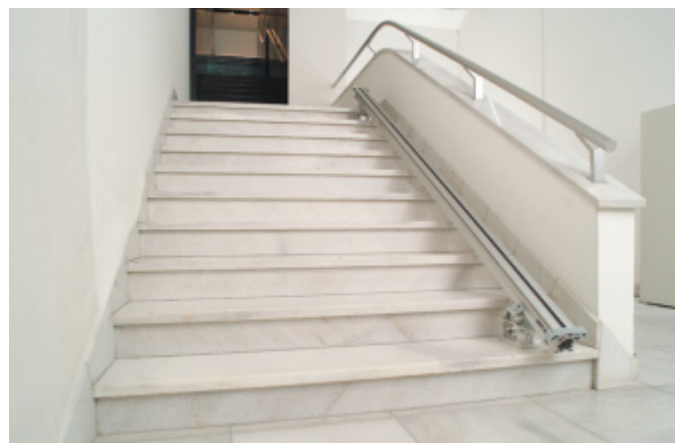
Parts

No. Designation

| | |
|---|---------------------------------|
| ① | Rail |
| ② | Rail clamp |
| ③ | Rail support |
| ④ | Rail clamping plate |
| ⑤ | Rail clamping screw |
| ⑥ | Leveling screws |
| ⑦ | Clamping plate for stepped cuts |



| A [°] | B [cm] | C [cm] | | | | |
|-------|--------|----------|----------|----------|-----------|-----------|
| | | ∅ 700 mm | ∅ 800 mm | ∅ 900 mm | ∅ 1000 mm | ∅ 1200 mm |
| 0° | 23 | 28 | 33 | 38 | 43 | 53 |
| 5° | 23.8 | 24.9 | 29.9 | 34.9 | 39.8 | 49.8 |
| 10° | 24.8 | 22.0 | 26.9 | 31.8 | 36.8 | 46.6 |
| 15° | 26.0 | 18.8 | 23.7 | 28.5 | 33.3 | 43.0 |
| 20° | 27.6 | 15.5 | 20.2 | 24.9 | 29.6 | 39.0 |
| 25° | 29.5 | 12.0 | 16.5 | 21.1 | 25.6 | 34.6 |
| 30° | 31.8 | 8.3 | 12.7 | 17.0 | 21.3 | 30.0 |
| 35° | 34.6 | | 8.6 | 12.7 | 16.8 | 25.0 |
| 40° | 38.1 | | | 8.3 | 12.2 | 19.8 |
| 45° | 42.5 | | | | 7.3 | 14.4 |



Setting up the wall saw system

7.4 Extending the rail

-NOTE-

■ When long cuts are to be made, tapered connectors and eccentric pins can be used to join individual rails together to form a rigid unit.

1. Clean the tapered connector and connector sleeves.
2. Insert the tapered connector and secure it with an eccentric pin.
3. Slide the rail onto the tapered connector and also secure it with an eccentric pin.
4. To release the connection, turn the eccentric pins in the opposite direction and push out the tapered connector.



Parts

| No. | Designation |
|-----|-------------------|
| 1 | Rail |
| 2 | Tapered connector |
| 3 | Eccentric pins |

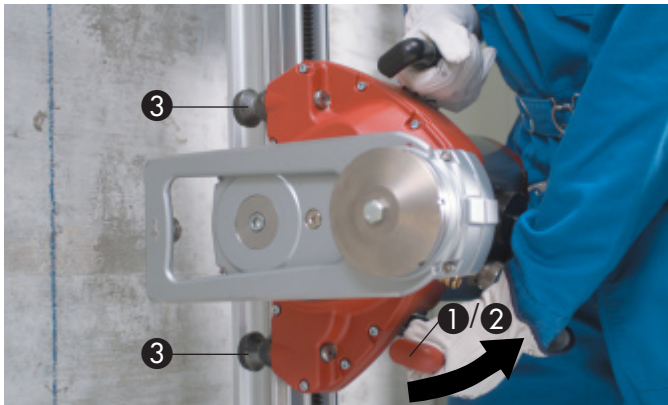
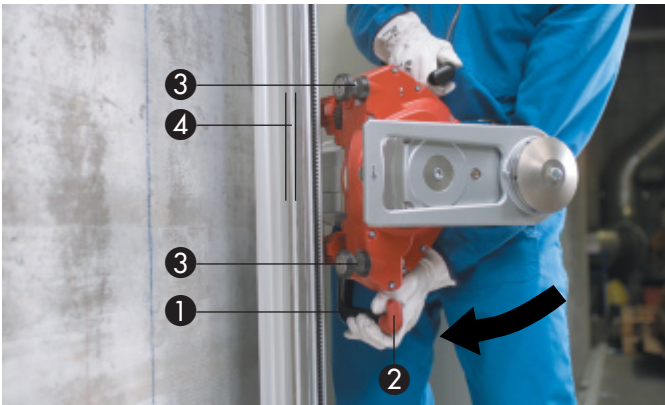
| No. | Designation |
|-----|--------------------------|
| 4 | 1/2" square drive wrench |
| 5 | Tapered sleeve |

7.5 Mounting the saw head

-NOTE-

■ The DS-FCA-110 flush-cutting flange should be mounted on the saw head for flush-cutting applications.

1. Press the release button (2) on the locking lever (1) and push the locking lever downwards.
2. Position the saw head on the previously fastened rail.
3. Check that the guide rollers (3) are correctly aligned. The center of the guiding surface (4) should be in line with the middle of the guide roller.
4. Press the release button (2) and pull the locking lever (1) upwards.
5. Check the position of the guide rollers (3) (move the levers several times) and check that the clamping lever engages correctly before letting go of the saw head.



Setting up the wall saw system

Parts

| No. | Designation |
|-----|-----------------|
| ① | Clamping lever |
| ② | Release button |
| ③ | Guide roller |
| ④ | Guiding surface |

7.6 Adjusting the blade guard

1. Release the clamping screw ② on the saw arm.
2. Pivot the blade guard holder ① into the desired position.
3. Tighten the clamping screw ②.



Parts

| No. | Designation |
|-----|-----------------------------|
| ① | Blade guard holder |
| ② | Clamping screw |
| ③ | Hex. socket wrench, 8 mm AF |

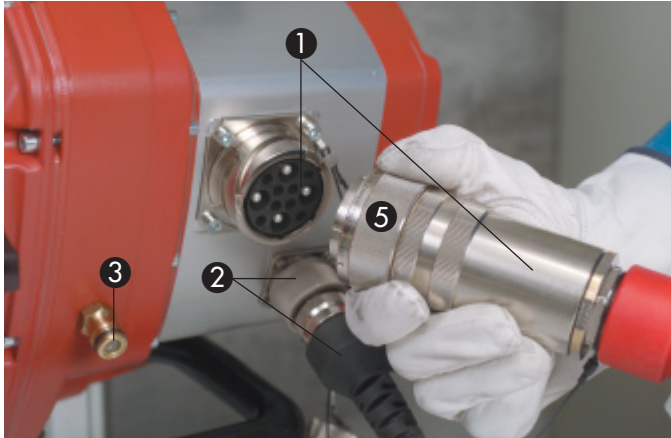
7.7 Connecting the power cable, remote control unit and cooling water hose to the power unit and saw head

-CAUTION-

- To avoid damage to the parts, check that the plug and socket are clean and in good condition before connecting. Clean the parts or remedy any damage before connecting them.
- When unplugging, always grip the plug and not the cable. Fit the protective cap immediately.
- Do not use the plug as a grip or carrying handle.
- Do not allow the cables to become tangled and place them carefully so that the plug connectors are not lying in water. The cables must be long enough to allow the saw head to move freely.

1. Remove the protective caps.
2. Align the plug carefully with the socket and push it in all the way without using excessive force.
3. Close the securing sleeve and check that it engages.
4. Close the protective caps together.
5. Connect the cooling water hose.

Setting up the wall saw system



Parts

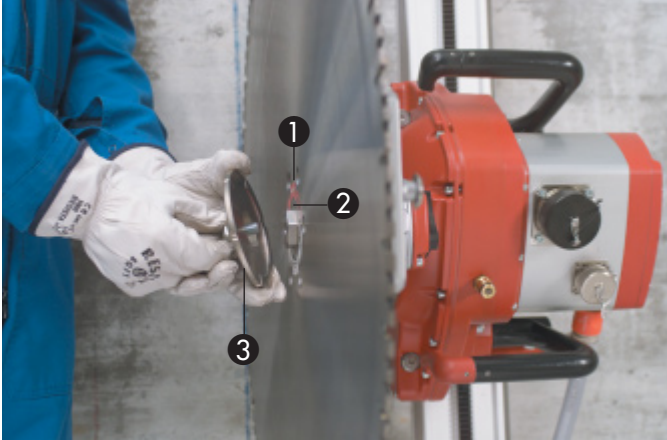
| No. | Designation |
|-----|-------------------------------|
| ① | Power cable plug / socket |
| ② | Control cable plug / socket |
| ③ | Cooling water hose connectors |

| No. | Designation |
|-----|-----------------|
| ④ | Protective cap |
| ⑤ | Securing sleeve |

7.8 Fitting the saw blade

-NOTE-

- Use the DS FCA flush-cutting flange and flush-cutting blade guard (available as accessories) for flush-cutting applications.
 - Use only the original Hilti screw (10.9 grade steel) as the central blade mounting screw.
 - Before operating the wall saw each time, always check the mounting flange and saw blade for damage, cracks or discoloration caused by overheating and clean the saw blade if it has been oiled or greased.
1. Position the saw blade ① on the saw arm, taking care to observe the correct direction of rotation.
 2. Fit the blade flange ③ and mounting screw. Tighten the screw ④ only slightly.
 3. Align the saw blade ① so that the mounting holes for flush cutting ⑤ lie between the water grooves.
 4. Tighten the mounting screw ④ securely with the 19 mm AF ring wrench (110 Nm).



Parts

| No. | Designation |
|-----|-------------------------------|
| ① | Saw blade |
| ② | Centering and mounting flange |
| ③ | Saw blade flange |

| No. | Designation |
|-----|----------------------------------|
| ④ | Mounting screw |
| ⑤ | Mounting holes for flush cutting |

Setting up the wall saw system

7.9 Fitting the blade guard

-NOTE-

- Should it prove impossible to use the blade guard due to specific circumstances at the working area, special measures must be taken, such as construction of a temporary enclosure (e.g. using forming boards), to protect the surrounding area from flying fragments etc. while sawing.
- Use the DS-FCA flush-cutting flange and flush-cutting blade guard (available as accessories) for flush-cutting applications.
- Keep the holes for the side section guide pins clean in order to prevent sticking of the side sections.
- Keep the blade guard clean. Clean it regularly each time after use to ensure that it remains in good working order.

-CAUTION-

Remove the side section only immediately before beginning a corner cut.

1. Push the center section of the blade guard ①, or the complete blade guard, onto the blade guard holder ④.
2. Fit the blade guard side section by engaging the metal hooks ③ with the center section ① and then close the clamp ⑥. Secure the blade guard to the blade guard holder by pulling the rubber strap over the tensioning lug.
3. To remove the side section ②, open the clamp ⑥ and lift the side section away from the center section.



Parts

No. Designation

| | |
|---|----------------------------|
| ① | Blade guard center section |
| ② | Blade guard side section |
| ③ | Guide pin |
| ④ | Blade guard holder |
| ⑤ | Guide rollers |
| ⑥ | Clamp |
| ⑦ | Tensioning lug |
| ⑧ | Rubber tensioning strap |

7.10 Adjusting the blade cooling water flow rate

Set the water regulating valve to the desired flow rate.

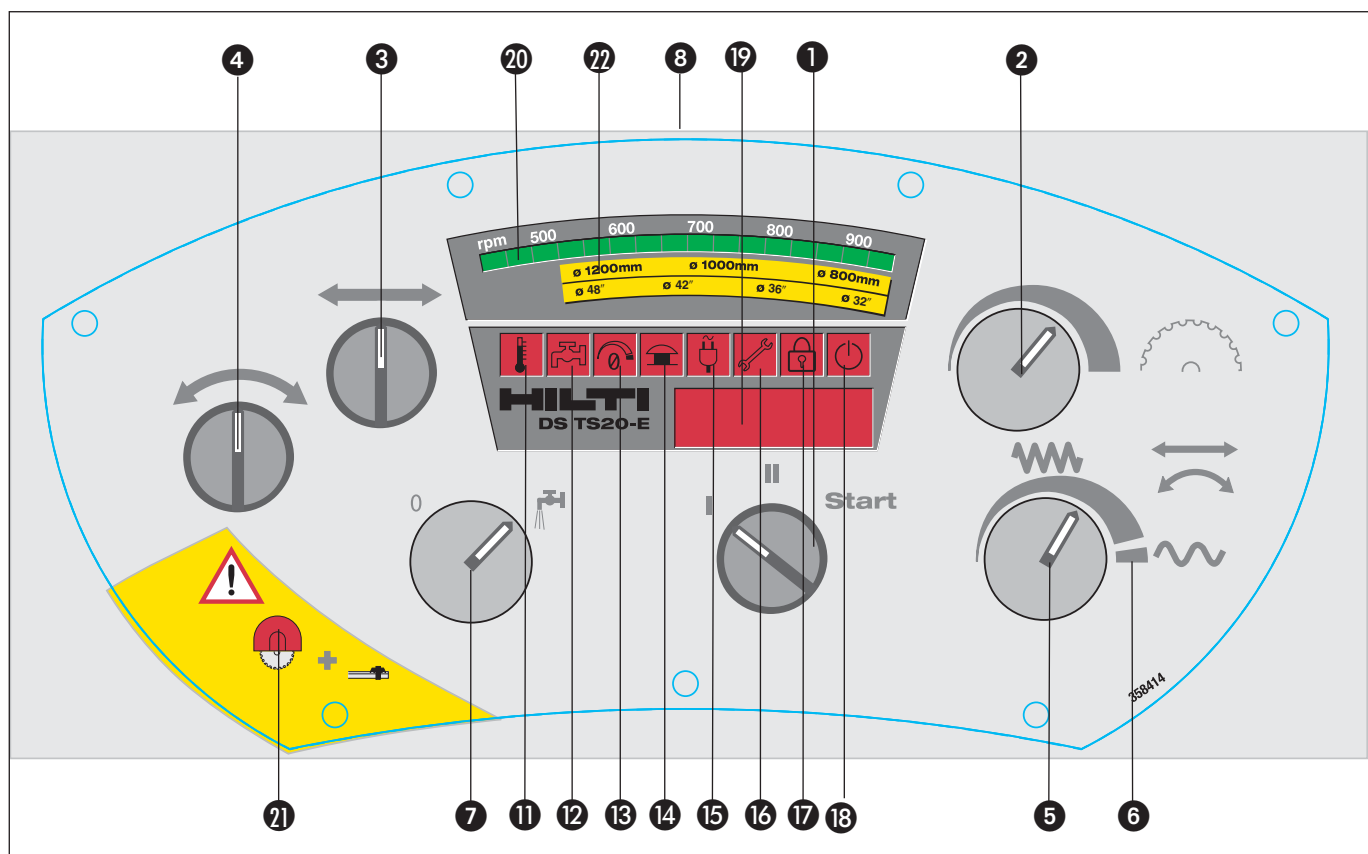


8. Operation

8.1 Checks before beginning sawing

1. On-site preparations must be completed (supports, water collection, etc.).
2. The power unit must be positioned outside the danger zones. The areas in front of and behind the object where sawing is to take place are danger zones and must be secured and cordoned off. No persons may remain in a danger zone.
3. The power cable and water supply must be connected to the power unit. The power supply must be earthed / grounded and equipped with a ground fault circuit breaker. The water supply must be within the permitted pressure range.
4. The rail supports and rails must be aligned and fastened correctly, with all screws and nuts tightened securely.
5. The saw head must be mounted correctly and the locking levers engaged. Move the locking levers back and forward slightly to check that they are engaged correctly.
6. The power and control cables and water hoses must be laid out, connected correctly and the locking sleeves engaged.
7. The saw blade must be mounted in the correct direction of rotation and the mounting screw at the saw blade flange (or six countersunk screws for flush cutting) tightened securely.
8. The blade guard and end stop must be fitted securely.
9. The remote control unit and control cable must be connected.
10. The emergency stop button on the remote control unit must be disengaged and reset.
11. All control knobs on the remote control unit must be in the "Off" or "Neutral" position.
12. The operator should be wearing the remote control unit (using the shoulder strap).
13. The "Ready" indicators on the power unit and remote control unit must light.
14. The safety precautions must be observed.

8.2 Description of the remote control unit





| No. | Description | Function |
|-----|---------------------------------------|--|
| ① | Saw blade drive motor on / off | Starting blade drive: Turn to START (switch returns to position II when released) Position II = saw blade drive running Position I = saw blade drive "Off" |
| ② | Saw blade speed | Infinite (stepless) speed regulation – display position ⑳. |
| ③ | Direction of advance | Selects direction of advance of the saw on the rail. |
| ④ | Direction of plunge movement | Selects direction of saw blade plunge movement. |
| ⑤ | Speed regulation for controls 3 and 4 | Manual and / or automatic advance or plunge movement-display position ⑲. |
| ⑥ | Rapid movement for control 5 | For rapid advance and plunge movement when saw blade drive is switched off. |
| ⑦ | Cooling water on / off | Controls cooling water supply to saw blade. Water flows when not under power. |
| ⑧ | Emergency stop switch | Press in an emergency! Leave pressed in when setting up or changing blades etc. Turn knob in direction of arrow to release – display position ⑭. |
| ⑨ | Reset switch for emergency stop | Reset must be pressed after releasing the emergency stop button ⑧ – display position ⑬. |
| ⑪ | Overheating cut-out | Lights when the machine has switched itself off due to overheating. |
| ⑫ | Temperature warning | Lights when cooling is inadequate. |
| ⑬ | Zero position error | Lights when one or more knobs are not in the zero or neutral position when switching on. |
| ⑭ | Emergency stop indicator | Lights when the emergency stop button is pressed or when not reset. |
| ⑮ | Fault in electric supply | Lights when a phase is missing, voltage is too low or too high or out of synchronization. |
| ⑯ | Service indicator | Lights when servicing is due (end of service interval). Servicing should be carried out by Hilti. |
| ⑰ | Theft protection | Not active. |
| ⑱ | Emergency of indicator | Lights when the emergency stop has not been reset – switch ⑨. |

Operation

| | | |
|----|-------------------------|---|
| 19 | Operating hours counter | After switching on, the following information is displayed: power unit firmware version (Exx), saw head firmware version, operating hours and total saw head operating hours. |
| | Power indicator | The actual power input is displayed during operation of the saw (in %). |
| | Supply voltage | During operation, turn starting switch 1 to "Start" (voltage is displayed). |
| | Fault indicator | The code displayed can help to localize a possible fault (e.g. Er01). |
| 20 | Speed indicator | Can be adjusted by the knob at position 2. |
| 21 | Warning | Operation of the saw without blade guard and end stops fitted is not permissible! |
| 22 | Recommended speed range | |

-NOTE-

To read the mains input voltage while the saw is in operation (only 3x400V version), proceed as follows:

1. Turn the starting switch 1 to the "Start" position and hold it there.
2. The voltage reading is shown in the display 19 in volts.

To read the mains input voltage while the saw is stationary (only 3x400V version), proceed as follows:

1. Turn the starting switch 1 to the "I" position.
2. Set the saw blade speed control knob 2 to the maximum speed position.
3. Turn the starting switch 1 to the "Start" position and hold it there.
4. The voltage reading is shown in the display 19 in volts.

The procedure described below can be used to reverse the positions of the switch controlling direction of advance:

1. Turn the starting switch 1 to the "I" position.
2. Set the advance speed control knob 5 to the zero position.
3. Set the saw blade speed control knob 2 to the maximum speed position.
4. Operate the direction of movement control switch 3 or 4.
5. Turn the starting switch 1 to the "Start" position and hold it there.
6. When reversal of control direction has been successful, "L__R" is shown in the display 19.

8.3 Operating the saw

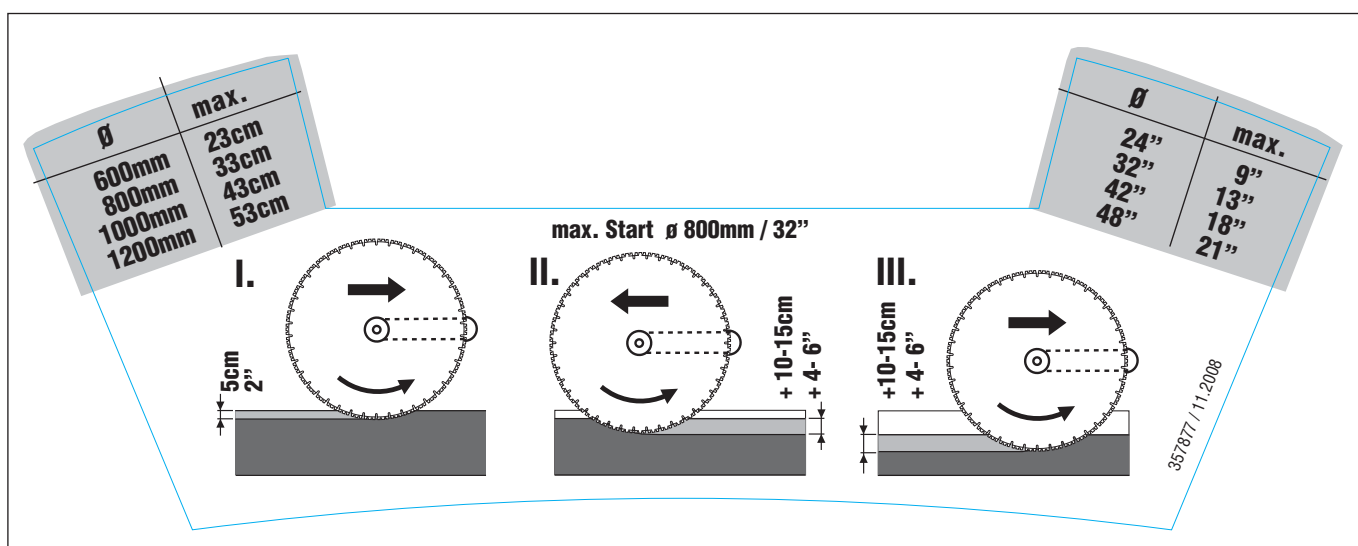
1. Use the plunge 4 and advance 3 controls and the speed regulation knob 5 to move the saw head along the rail to where the cut is to be started and then return all switches / knobs to the "Neutral" or "Zero" position. For rapid movement, turn the speed regulation knob 5 to the right, beyond the pressure point 6, as far as it will go.
2. Switch on the cooling water 7.
3. Switch on the saw blade drive 1 and then use the speed control 2 to set the desired speed (please observe recommended speeds). Wait until the blade runs up to speed.
4. Select the direction of plunge movement 4 and advance speed 5 and then bring the blade slowly to the desired cutting depth (cut into the concrete). Set the plunge movement 4 and speed regulator 5 back to the "Neutral" or "Zero" position when the desired depth has been reached.
5. Select the direction of longitudinal advance 3 and the desired speed 5, e.g. 100%. Make the initial cut at reduced power (60%).
6. At the end of the cut, turn the speed control 5 to the "Zero" position and switch off the longitudinal advance 3.
7. Repeat steps 4 to 6 until the desired depth is reached.

8. Once the cut has been completed or the maximum depth reached, use the plunge movement direction control **4** to lift the saw blade out of the kerf while the blade is still rotating, bringing the saw and saw arm to the 90° position.
9. Subsequently turn all switches / knobs (advance direction, advance speed, blade speed, water supply and starting switch) back the “Neutral” or “Zero” position and then press the emergency stop button.
10. If necessary, fit a larger diameter saw blade (max. 1200 mm dia.) and repeat the procedure.

8.4 Guidelines and guide values

1. The initial or guide cut

The initial cut is also known as the guide cut. This cut should always be made with the saw arm in the trailing position. Depending on the material being cut (hard, soft or masonry) the guide cut should be made to a depth of between 4 and 5 cm. The guide cut should always be made at reduced power (e.g. 60%). This prevents the blade wandering off course and ensures a straight cut.

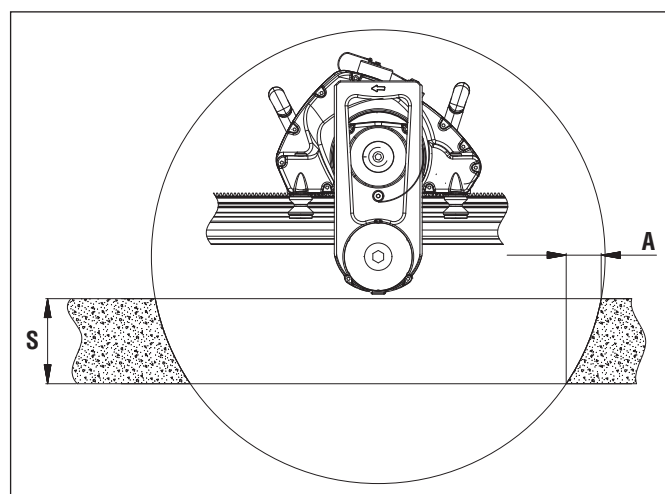


2. Subsequent cuts

After the guide cut has been made, sawing can continue with the saw arm in either the trailing position (pulling the blade) or leading position (pushing the blade). The depth of subsequent cuts again depends greatly on the material, but may be between 10 and 15 cm. These cuts can be made at full (100%) power.

8.5 Remaining cutting distances with the DS TS20-E saw head

| S [cm] | A [cm] | | | | |
|--------|-------------|-------------|-------------|--------------|--------------|
| | ∅ 700 mm | ∅ 800 mm | ∅ 900 mm | ∅ 1000 mm | ∅ 1200 mm |
| 20 | 12.4 | 10.2 | 8.7 | 7.6 | 6.2 |
| 25 | 21.0 | 15.9 | 13.2 | 11.4 | 9.0 |
| 30 | | 25.1 | 19.4 | 16.3 | 12.6 |
| 35 | | | 29.3 | 22.9 | 17.1 |
| 40 | | | | 33.5 | 22.8 |
| 45 | | | | | 30.3 |
| 50 | | | | | 42.1 |



Operation / Care and maintenance

8.6 Dismantling the saw system

1. Pivot the saw arm to the 90° position. Switch the machine off, disconnect the cables and fit the protective caps to the plugs and sockets.
2. Disconnect the water hose from the saw head and clean the blade guard, saw head and rail system.
3. Remove and clean the blade guard and saw blade.
4. Remove the saw head from the rail and clean these parts.
5. Disconnect the cables and water hose from the power unit and fit the protective caps to the plugs and sockets.
6. Clean the cables and hoses, roll them up and attach them securely to the transport trolley.
7. Stow the saw head, rail system parts, blade guard and accessories securely on the transport trolley.

-CAUTION-

- To avoid the possibility of damage, always switch off at the main switch before disconnecting the power cable.
- To avoid damage when temperatures below freezing are expected, the cooling system must be fully drained by blowing out with the pump provided.

9. Care and maintenance

9.1 Cleaning

1. Disconnect the system from the electric supply.
2. Clean the entire set of equipment after finishing work or before long breaks between periods of use.
3. Do not allow dirt and slurry to dry out and adhere to the parts.
4. When cleaning, pay particular attention to the operating surfaces, threads, connectors, toothed sections, points of contact between moving parts, operating controls and safety or operating information plates.
5. Fit the protective caps to all plugs and connectors.
6. Clean the power unit, remote control unit, and cable with a damp cloth.
7. Use a medium-hard brush and water to clean the saw head, rails, blade guard system and transport trolley.

-CAUTION-

- Do not use high pressure cleaning systems to clean the power unit, saw head, remote control unit or cables. Water finding its way into these parts may cause malfunctions and damage to the equipment.
- If concrete formwork parting agent or oil is used on the equipment (to help prevent concrete adhering to it) take care to ensure that the product used contains no solvents.
- Products containing solvents may attack and damage the seals or other parts of the casing.



To avoid damage when temperatures below freezing are expected, the cooling system must be fully drained by blowing out with the pump provided.

9.2 Maintenance

| Parts | Procedure | Daily | Weekly |
|---------------------|--|-------|--------|
| Rail supports | Check the contact and clamping surfaces, clean if necessary. | ● | |
| | Check the threads for smoothness and ease of operation, clean and grease if necessary. | | ● |
| Rails | Check the contact and running surfaces, clean if necessary. | ● | |
| | Check the toothing for damage and wear, replace the rail if necessary. | | ● |
| | Check the tapered sleeves, clean and lubricate with oil if necessary. | ● | |
| Blade guard | Check and clean working parts and inside/outside surfaces. | ● | |
| | Check that the guide rollers are free to move and clean or replace the parts if necessary. | | ● |
| | Check the condition of the rubber tensioning straps and replace if necessary. | ● | |
| Saw head | Check the locking mechanism for security of engagement, have it repaired if necessary | ● | |
| | Check the guide rollers for ease of operation and excessive play, have them replaced / repaired as necessary. | | ● |
| | Check the plug connectors for cleanliness and damage. Blow out with compressed air or have the parts replaced if necessary. | ● | |
| | Check the saw blade mounting flange and mounting screw, clean or replace if necessary. | ● | |
| | Check the saw head for oil or water leakage and have it repaired if necessary. | | ● |
| | Check the water flow and replace the mesh filter at the water supply connection if necessary. | | ● |
| Power unit | Check the switches and indicator lamps for correct operation and have them replaced if necessary. | ● | |
| | Check the plug connectors for cleanliness and damage. Blow out with compressed air or have the parts replaced if necessary. | ● | |
| | Check the power unit for water leakage and have it repaired if necessary. | | ● |
| | Check the water flow and replace the mesh filter at the water supply connection and descale if necessary. | | ● |
| Remote control unit | Check the switches and indicator lamps for correct operation. Clean the parts or have them replaced if necessary. | ● | |
| | Check the plug connectors for cleanliness and damage. Blow out with compressed air or have the parts replaced if necessary. | ● | |
| Water hose | Check the couplings for cleanliness, ease of operation and leakage. Clean and lubricate the couplings if necessary (lubricant spray). | ● | |
| | Check the hose for leakage. | | ● |
| Cables / plugs | Check the plug connectors for cleanliness, damage and ease of operation. Blow out with compressed air or have the parts replaced if necessary. | ● | |
| | Check the cables for damage and replace them if necessary. | ● | |
| Transport trolley | Check the tyre pressure (2.1 bar or 30 psi). | | ● |
| Tool set | Check for completeness. | | ● |

Care and maintenance / Troubleshooting

9.3 Statutory requirements

The electrical and mechanical safety of the saw system and its accessories such as electric extension cables must be checked at the specified intervals in accordance with national regulations.

In countries of the European Union, following the provisions of EN 60204-1, the checks listed below are recommended:

- Measurement of earth / ground conductor resistance (max. 0.3 ohms).
- Instead of the insulation resistance test in accordance with EN 60204-1, leakage current during operation should be measured, as this provides a very quick indication of the possibility of an insulation fault.
- Measurement of earth /ground conductor current (max. 3.5 mA during operation, with the machine placed on an insulated surface).
- Functional and visual check of the emergency stop switch, operating controls, indicator lamps, seals, cables, blade guard and support system in order to detect faults that could present a hazard.

9.4 Service intervals

We recommend that the system is checked at a Hilti service center after every 200 operating hours. This will ensure that the equipment is ready for use when required and help avoid high subsequent costs.

-NOTE

The service indicator lights when servicing is necessary.





10. Troubleshooting

10.1 The meaning of error codes and the measures to be taken to remedy faults















The electric wall saw is equipped with a fault diagnosis and error display system that allows the operator to localize faults and, as far as possible, to remedy these without assistance.

While doing so, should it be necessary to enter the danger area, all safety instructions, particularly those listed in Section 5, must be observed.

Should it prove impossible to remedy the fault yourself, you can assist Hilti Service by describing the fault as precisely as possible and by stating the error code displayed by the remote control unit.

| Displayed on remote control | Fault | Possible cause | Recommended measures to remedy fault |
|--|--|--|--|
| No display | No display on power unit or remote control unit | Electric supply not connected or faulty | – Check the electric supply – Check the plug connections – Return the remote control and power unit to Hilti Service |
| Symbol 11 lights  | Er50 Er51 Er52 Er53 Machine has switched itself off due to overheating | Cooling water insufficient or too warm | – Allow to cool with cooling water flowing / restart – Return the saw head to Hilti Service |
| Symbol 11 lights  | Er20 Er21 Machine cannot be switched on | Temperature sensor in the saw head is faulty | – Return the saw head to Hilti Service |
| Symbol 11 lights  | Er89 Er90 Machine cannot be switched on | Temperature sensor in the power unit is faulty | – Return the power unit to Hilti Service |
| Symbol 12 lights  | Er54 Er55 Er56 Warning before cut-out due to overheating | Cooling water insufficient or too warm – power unit is overheating | – Improve the cooling – Return the power unit to Hilti Service |

Troubleshooting

| | | | | |
|--|----------------------|---|---|---|
| Symbol 12 blinks slowly  | Sr60 Sr61 | Warning before cut-out due to overheating | Main motor or advance motor is overheating | <ul style="list-style-type: none"> – Improve the cooling – Observe the application guidelines – Return the saw head to Hilti Service |
| Symbol 12 blinks rapidly  | Sr60 Sr61 | Warning of imminent cut-out due to overheating | Main motor or advance motor is overheating | <ul style="list-style-type: none"> – Improve the cooling – Observe the application guidelines – Return the saw head to Hilti Service |
| Symbol 12 blinks slowly  | Sr62 Sr63 Sr64 | Warning before cut-out due to overheating | Cooling water insufficient or too warm Ambient temperature too high (Sr64) | <ul style="list-style-type: none"> – Improve the cooling – Place the power unit in the shade – Return the saw head to Hilti Service |
| Symbol 12 blinks rapidly  | Sr62 Sr63 Sr64 | Warning of imminent cut-out due to overheating | Cooling water insufficient or too warm Ambient temperature too high (Sr64) | <ul style="list-style-type: none"> – Improve the cooling – Place the power unit in the shade – Return the saw head to Hilti Service |
| Symbol 13 lights  | | Saw blade drive cannot be switched on | One or more control knobs or switches not in the "0" or neutral position | <ul style="list-style-type: none"> – Return all knobs and switches to the "0" or neutral position and restart |
| Symbol 13 lights  | | Advance movement doesn't function | Longitudinal and plunge advance operated simultaneously | <ul style="list-style-type: none"> – Operate the advance controls individually |
| Symbol 13 lights  | | Zero position indicator lights as the blade is coming to a standstill | The motor brake has been activated | <ul style="list-style-type: none"> – None required |
| Symbol 14 lights  | | Machine cannot be switched on | The emergency stop switch is in the pressed-in position | <ul style="list-style-type: none"> – Release the emergency stop button / restart – Have the fault repaired by Hilti Service |
| Symbol 14 lights  | Er11 | Machine cannot be switched on | Break in the emergency stop / motor cable circuit | <ul style="list-style-type: none"> – Check the motor cable and plug connections – Return the saw head, motor cable and power unit to Hilti Service |
| Symbol 15 blinks  | Er44 | Machine cannot be switched on or switches itself off | Difference between phases > 10% | <ul style="list-style-type: none"> – Check the electric supply – Return the power unit to Hilti Service |
| Symbol 15 lights  | Er42 Er43 | Machine cannot be switched on or switches itself off | Electric power is inadequate | <ul style="list-style-type: none"> – Check the electric supply – Return the power unit to Hilti Service |
| Symbol 15 blinks slowly  | Sr45 Sr46 | Warning that electric power is inadequate | Electric power is inadequate | <ul style="list-style-type: none"> – Check the electric supply – Return the power unit to Hilti Service |
| Symbol 16 lights  | | No fault | Service interval has been reached | <ul style="list-style-type: none"> – Return the saw head to Hilti for servicing |
| Symbol 18 lights  | | Machine cannot be switched on | Emergency stop reset button hasn't been pressed | <ul style="list-style-type: none"> – Press the reset button / restart |
| Display | Er00 | The machine doesn't function | Remote control unit and saw head not compatible with each other | <ul style="list-style-type: none"> – Check compatibility and replace the remote control unit with one of the correct type – Return remote control and power unit to Hilti Service |

Troubleshooting

| | | | | |
|---------|------------------------------|--|---|---|
| Display | Er01 Er02 | The machine doesn't function correctly | Faulty connection between the remote control and power unit | <ul style="list-style-type: none"> – Check plug connectors and cable – Replace the remote control unit – Return remote control and power unit to Hilti Service |
| Display | Er04 Er05 Er06 Er07 | The machine doesn't function correctly | Fault in the remote control electronics | <ul style="list-style-type: none"> – Replace the remote control – Return the remote control to Hilti Service |
| Display | Er12 | Machine cannot be switched on | Break in the connection between the power unit and the saw head | <ul style="list-style-type: none"> – Check the control cable and plug connections – Return the saw head, control cable and power unit to Hilti Service |
| Display | Er30 | The machine has switched itself off | The slip clutch has been activated as a result of how the saw is being used | <ul style="list-style-type: none"> – Observe the application guidelines – Return the saw head to Hilti Service |
| Display | Er33 | The machine has switched itself off | Saw used incorrectly - overload Saw blade stuck Short circuit | <ul style="list-style-type: none"> – Observe the application guidelines – Return the saw head, cable and power unit to Hilti Service |
| Display | Er35 | The machine has switched itself off | Saw used incorrectly Excessive lateral friction Blade segments polished | <ul style="list-style-type: none"> – Observe the application guidelines – Return the power unit to Hilti Service |
| Display | Er36 | Saw blade cannot rotate | Saw blade stuck | <ul style="list-style-type: none"> – Release the blade / restart – Return the power unit to Hilti Service |
| Display | Er40 | The machine has switched itself off | Electric supply voltage too high | <ul style="list-style-type: none"> – Check the electric supply |
| Display | Er41 | The machine has switched itself off | Electric supply voltage too low | <ul style="list-style-type: none"> – Check the electric supply |
| Display | Er80 | The machine doesn't function correctly | Electronic fault in the power unit | <ul style="list-style-type: none"> – Return the power unit to Hilti Service |
| Display | Er81 Er82 | The machine doesn't function | Electronic fault in the power unit | <ul style="list-style-type: none"> – Return the power unit to Hilti Service |
| Display | Er83 Er84 | The machine doesn't function | Electronic fault in the power unit | <ul style="list-style-type: none"> – Return the power unit to Hilti Service |
| Display | Er85 Er86 Er87 Er88 | Machine cannot be switched on | Contactors K1 or K2 in the power unit is faulty | <ul style="list-style-type: none"> – Return the power unit to Hilti Service |
| Display | Er91 | The machine doesn't function | Safety loop for emergency stop is faulty | <ul style="list-style-type: none"> – Replace the remote control – Return power unit to Hilti Service |

10.2 Causes of faults with no error code and how they can be remedied

| Description of fault | Possible cause | Recommended measures to remedy the fault |
|--------------------------|---|---|
| Blade wanders off course | Inadequate blade tension | Check the tension / replace the blade |
| | Saw blade segments have lost cutting power | Check the specification / replace the blade |
| | No guide cut made or guide cut not straight | Observe instructions and guide values |
| | Play at the guide rollers | Check the play / replace the rollers or rail |
| | Rail not securely fastened | Check and improve the fastenings |
| | Rail distorts (twists) | Install additional rail supports |
| Low sawing performance | Unsuitable saw blade specification | Check the specification / change to other specification if possible |
| | Depth of cut too high | Check depth of cut / reduce if possible |
| | Power setting too low | Check the setting / increase if possible |

| | |
|---|--|
| The machine is not receiving enough current | Check the setting / increase if possible |
| Drop in performance due to wandering off course | See "Blade wanders off course" |
| Drop in performance due to high reinforcement content | Check the reinforcement content / change position of cut if possible |
| Saw blade speed too high or too low | Check the speed / increase or reduce if possible |

10.3 Repairs

-CAUTION-

- The machine may be operated, serviced and repaired only by authorized personnel who have been trained by Hilti. This personnel must be informed of any special hazards that may be encountered.
- Repairs to electrical components may be carried out only by trained electrical specialists.
- NEVER open the covers on the machine while on a construction site.
- The capacitors in the power unit retain a voltage for approx. 2 minutes after disconnection from the electric supply.

11. Disposal

11.1 Disposal of the machine



Return waste material for recycling

- Machine and packaging must be sorted for environment-friendly recycling.
- Plastic components are marked to facilitate categorized recycling.



Only for EU countries

Disposal of electric tools together with other household waste is not permissible!

In observance of European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

11.2 Disposal of drilling and sawing slurry

- With regard to environmental aspects, allowing drilling or sawing slurry to flow directly into rivers, lakes or the sewerage system without suitable pre-treatment is problematical.
- In addition to the following recommended pre-treatment procedures, the applicable national regulations must be observed when disposing of drilling or sawing slurry. Ask the local authorities concerned for further information.

We recommend the following pre-treatment

- Collect the drilling and sawing slurry (e.g. using a suitable industrial vacuum cleaner).
- The fine content of the drilling and sawing slurry should be separated from the water by allowing it to settle (e.g. leave standing for some time or add a coagulation agent).
- Solid material from the drilling and sawing slurry should be deposited at a construction waste
- Water from the drilling and sawing slurry should be neutralized (e.g. by adding a large quantity of water or other neutralization agents) before it is allowed to flow into the sewerage system.

Manufacturer's warranty – tools / EC declaration of conformity

12. Manufacturer's warranty – tools

Please contact your local Hilti representative if you have questions about the warranty conditions.

13. EC declaration of conformity

| | |
|-----------------|-------------------|
| Designation: | Electric wall saw |
| Type: | DS TS20-E |
| Year of design: | 2004 |
| Serial number: | from 1001 to 9999 |

We declare, on our sole responsibility, that this product complies with the following directives and standards:
until 19th April 2016: 2004/108/EC, from 20th April 2016: 2014/30/EU, 2006/42/EC, 2011/65/EU, EN 60204-1, EN 12100.

This appliance complies with the requirements of EN 61000-3-12 on condition that the public electric mains supply has an SSC short-circuit power capacity of 6.8 MW or higher at the point where the appliance is connected. The installer of the machine or the company operating it is responsible for ensuring, if necessary by consulting the electric mains supply operator, that the appliance is connected only to a point in the mains supply with an SSC rating of 6.8 MW or higher.

Hilti Corporation



Paolo Luccini
Head of BA Quality and
Process Management
Business Area Electric
Tools & Accessories
06 / 2015



Johannes Wilfried Huber
Senior Vice President
Business Unit Diamond

06 / 2015





Hilti Corporation
LI-9494 Schaan
Tel.: +423 / 234 21 11
Fax: +423 / 234 29 65
www.hilti.com

