

# HILTI

## DD 120

Operating instructions

en

Mode d'emploi

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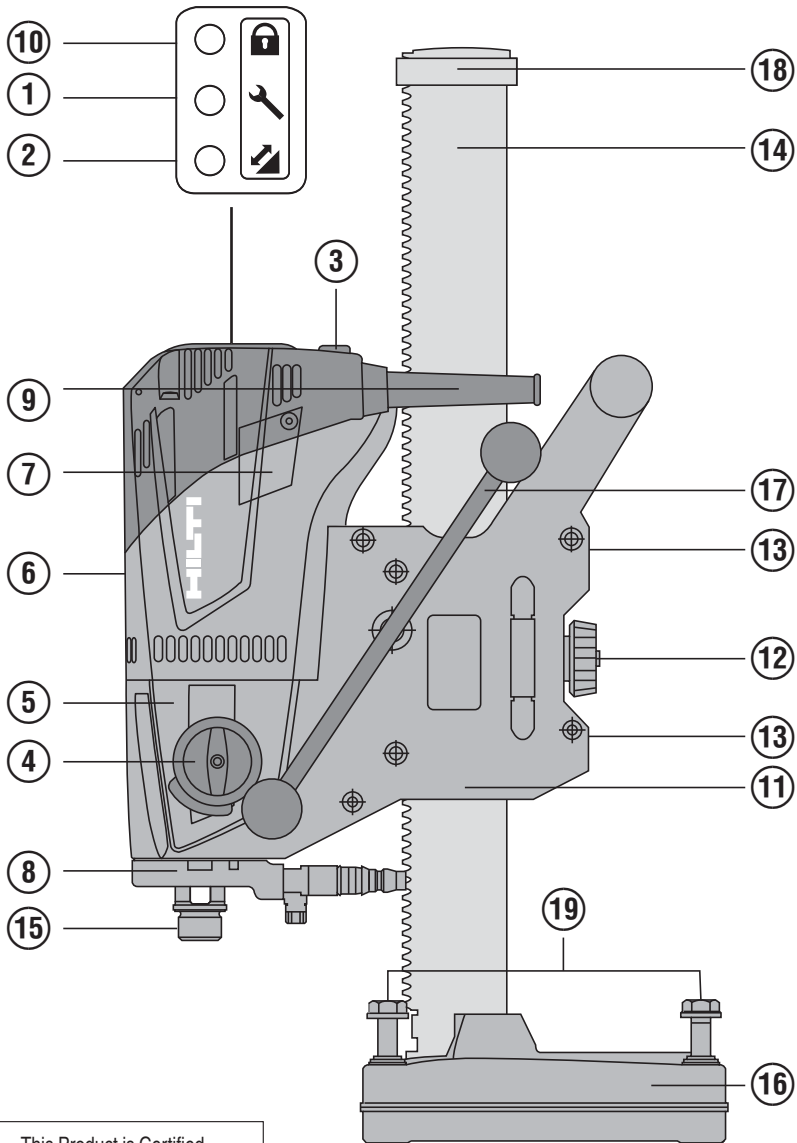
Manual de instrucciones

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Manual de instruções

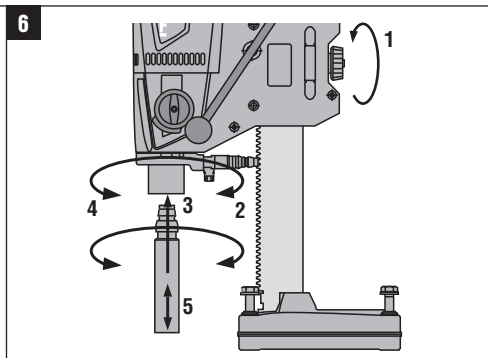
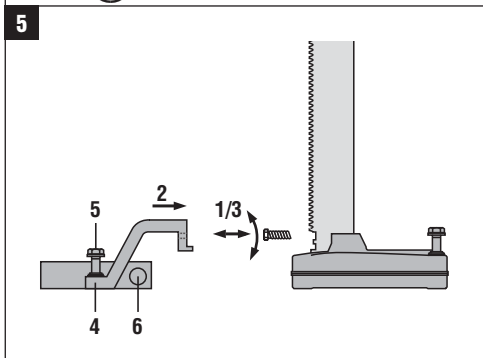
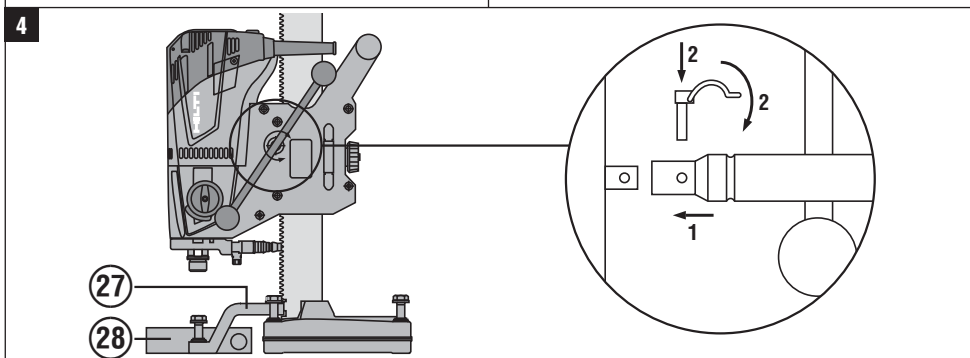
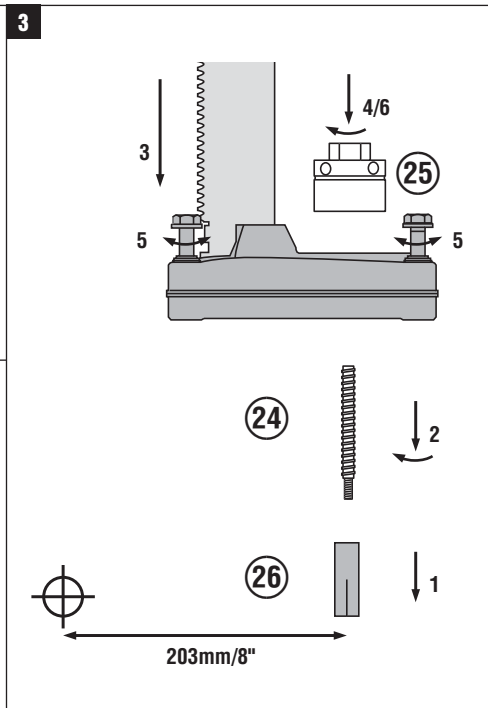
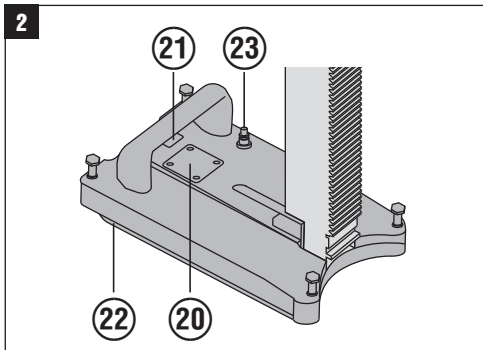
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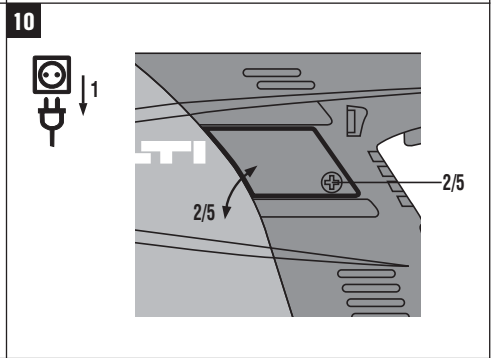
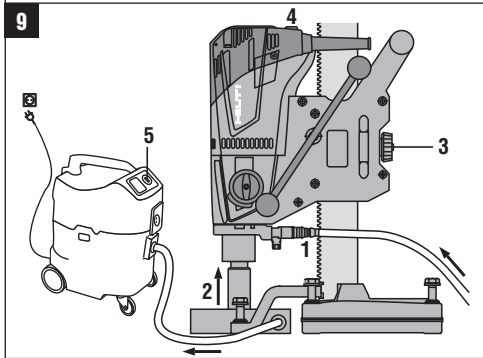
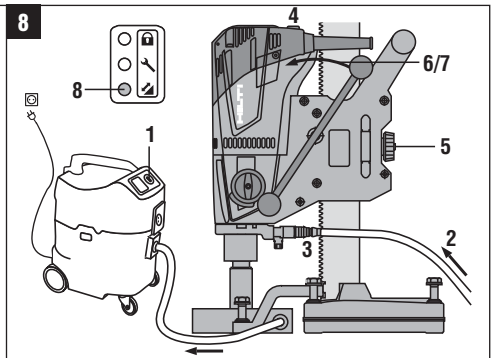
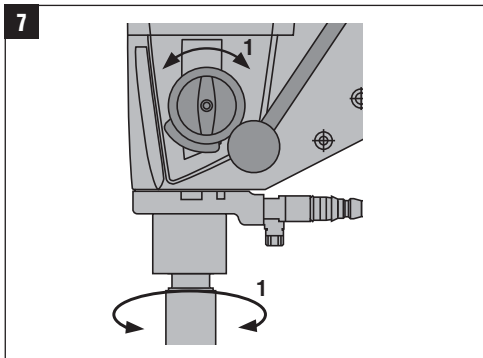




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 Ce produit est homologué  
 Producto homologado por  
 Este producto está registrado







# ORIGINAL OPERATING INSTRUCTIONS

## DD 120 diamond coring system

**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.**

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**1** These numbers refer to the corresponding illustrations. The illustrations can be found on the fold-out cover pages. Keep these pages open while studying the operating instructions.

In these operating instructions, the designation “the machine” always refers to the DD 120 diamond core drilling system.

**Operating controls, parts and indicators (drive unit and drill stand) 1**

### DD 120 diamond core drilling system

- ① Service indicator

- ② Drilling performance indicator
- ③ On/off switch
- ④ Gear selector
- ⑤ Gearing section
- ⑥ Motor
- ⑦ Carbon brush cover
- ⑧ Water swivel
- ⑨ Supply cord with GFCI
- ⑩ Theft protection indicator (option)
- ⑪ Carriage
- ⑫ Carriage brake
- ⑬ Carriage play adjustment screws
- ⑭ Rail
- ⑮ Chuck
- ⑯ Anchor base plate
- ⑰ Handwheel
- ⑱ End stop
- ⑲ Leveling screws

**Alternative: Combination base plate (anchor or vacuum) 2**

- ⑳ Pressure gauge
- ㉑ Vacuum release valve
- ㉒ Vacuum seal
- ㉓ Vacuum hose connector

**Accessories 3**

**Fastening accessories**

- ㉔ Clamping spindle
- ㉕ Clamping spindle nut
- ㉖ Anchor

**Water collection system 4**

- ㉗ Water collector bracket
- ㉘ Water collector

## 1 General information

### 1.1 Safety notices and their meaning

#### DANGER

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

#### WARNING

Draws attention to a potentially dangerous situation that could lead to serious personal 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 an instruction or other useful information.

## 1.2 Explanation of the pictograms and other information

### Prohibition signs



Transport by crane is not permissible.

### Warning signs



General warning



Warning: electricity



Warning: hot surface

### Obligation signs



Wear eye protection.



Wear a hard hat.



Wear ear protection.



Wear protective gloves.



Wear safety shoes.

### Symbols



Read the operating instructions before use.

RPM /min

Revolutions per minute

Revolutions per minute



Lock symbol

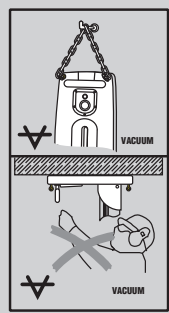


Equipped with theft protection system



Return waste material for recycling.

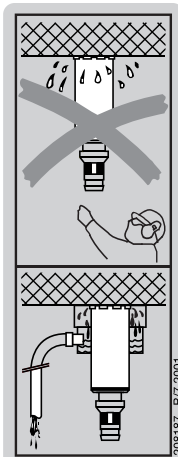
## On the combination base plate



Upper: An additional means of securing the drill stand must be employed when the machine is used for horizontal drilling with the vacuum securing method.

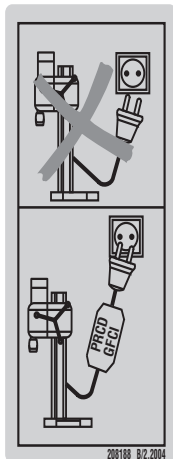
Lower: Use of the vacuum securing method for overhead drilling with the drill stand is not permissible.

## On the machine



Use of the water collection system in conjunction with a wet-type industrial vacuum cleaner is a mandatory requirement for working on ceilings.

**On the machine**



Operate the equipment only with a properly functioning GFCI.

**Location of identification data on the machine**

The type designation and serial number can be found on the type identification 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.

Type:

---

Serial no.:

---

**2 Description**

**2.1 Use of the product as directed**

The DD 120 is an electrically-powered, rig-type diamond core drilling machine for drilling through-holes and blind holes in (reinforced) mineral materials using diamond core bits and the wet drilling technique (hand-held use is not permissible).

The machine must be adequately secured to the working surface with an anchor or vacuum base plate before use.

To avoid injury, use only genuine Hilti core bits and DD 120 accessories.

Observe the safety rules and operating instructions for the accessories used.

Observe the information printed in the operating instructions concerning operation, care and maintenance.

Nationally applicable industrial safety regulations must be observed.

The machine, accessories and cutting tools may present hazards when handled incorrectly by untrained personnel or when used not as directed.

Use of the water collection system in conjunction with a wet-type industrial vacuum cleaner is a mandatory requirement for working overhead.

An additional means of securing the drill stand must be employed when the machine is secured with the vacuum base plate (accessory) for horizontal drilling.

Do not strike the base plate with a hammer or other heavy object when making adjustments to it.

Tampering with or modification of the machine, drill stand and accessories is not permissible.

**WARNING**

The machine may be operated only when connected to an adequately-rated electric supply equipped with an earth (ground) conductor.

**WARNING**

Drilling into materials hazardous to the health (e.g. asbestos) is not permissible.

en

**DANGER**

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.

**2.2 Use of the system with various items of equipment**


Equipment	Core bit diameters	Drilling direction
With water collection system and wet-type industrial vacuum cleaner	16...132 mm ( $\frac{5}{8}$ " - 5 $\frac{1}{4}$ " )	All directions
Without water collection system and wet-type industrial vacuum cleaner	16...132 mm ( $\frac{5}{8}$ " - 5 $\frac{1}{4}$ " )	Not upwards
With water collection system	16...132 mm ( $\frac{5}{8}$ " - 5 $\frac{1}{4}$ " )	Not upwards

**2.3 Gears and corresponding core bit diameters**

Gear	Core bit diameters (mm)	Core bit diameters (inches)	No-load speed (r.p.m.)
1	57...132	2 $\frac{1}{4}$ ...5 $\frac{1}{4}$	650
2	16...52	$\frac{5}{8}$ ...2	1,380

**NOTE**

Second gear may be used to achieve faster progress when drilling holes up to 82 mm (3 $\frac{1}{2}$ " ) in diameter in lightly reinforced concrete.

**2.4 Status indicator **

LED indicators	State	Description / information
Theft protection indicator (10)	Blinking yellow light	The machine's theft protection system is active and must be unlocked with the TPS key.
Service indicator (1)	Red light and the machine starts	The carbon brushes are badly worn. After the lamp lights for the first time, the machine may continue to be used for several hours before the automatic cut-out is activated. Have the carbon brushes changed in good time so that the machine is always ready for use.
	Red light and the machine doesn't start	The carbon brushes must be changed.
	Blinking red light	Motor speed error, see section "Troubleshooting".
Drilling performance display (2)	Orange light	Contact pressure too low
	Green light	Optimum contact pressure
	Red light	Contact pressure too high
	Blinking red light	The machine has temporarily overheated, see section "Troubleshooting".



## 2.5 TPS theft protection system (optional)

The machine may be optionally equipped with the TPS theft protection system. If equipped with this feature, the machine can be unlocked and made ready for operation only through use of the corresponding TPS key.

## 2.6 The items supplied as standard include:

- 1 Machine including hand wheel
- 1 Operating instructions
- 1 Hilti toolbox or cardboard box

## 2.7 Using extension cords

Use only extension cords of a type approved for the application and with conductors of adequate gauge.

**Recommended minimum conductor cross section and max. cable lengths**

Conductor cross section	14 AWG	12 AWG
Mains voltage 110-120 V	50 ft	150 ft

Do not use extension cords with 16 AWG conductor cross section. Use only extension cords equipped with an earth conductor.

## 2.8 Using a generator or transformer

This machine may be powered by a generator or transformer when the following conditions are fulfilled: The unit must provide a power output in watts of at least twice the value printed on the type identification plate on the machine. The operating voltage must remain within +5% and -15% of the rated voltage at all times, frequency must be in the 50 - 60 Hz range and never above 65 Hz, and the unit must be equipped with automatic voltage regulation and starting boost.

### NOTE

Switching other machines or appliances on and off can cause undervoltage and/or overvoltage peaks which could damage the machine. Never operate other machines from the generator/transformer at the same time.

## 3 Accessories

Designation	Item number, description
TPS theft protection system with company card, company remote and TPS-K key	Option
Water collector bracket	331622
Flow indicator (BI+)	305939
Handwheel (lever)	332023
Handwheel (star handle)	332033
Clamping nut	333477
Clamping spindle	333629
Set of seals for combination base plate	333846
Leveling screw	351954
Core bit extension (BI+)	220929
Drill stand (anchor base plate, 600 mm rail, only as replacement part)	334206
Drill stand (anchor base plate, 720 mm rail)	352164
Drill stand (anchor base plate, 830 mm rail, only as replacement part)	277337
Drill stand (anchor base plate, 720 mm rail with tilt mechanism)	335883

Designation	Item number, description
Drill stand (combination base plate, 830 mm rail with tilt mechanism)	335896
Vacuum base plate	232991

## 4 Technical data

Right of technical changes reserved.

Rated voltage [V]	120
Rated current [A]	14.1
Mains frequency [Hz]	60
Rated speed under no load, 1st gear [/min]	650
Rated speed under no load, 2nd gear [/min]	1,380

### Other information about the machine

Max. permissible water supply pressure	6 bar (87.02 psi)
Dimensions of drill stand with short rail (L x W x H)	330 mm (12.99") x 147 mm (5.79") x 600 mm (23.62")
Dimensions of drill stand with medium rail (L x W x H)	330 mm (12.99") x 147 mm (5.79") x 720 mm (28.35")
Dimensions of drill stand with long rail (L x W x H)	330 mm (12.99") x 147 mm (5.79") x 830 mm (32.68")
Weight (600 mm rail)	9.8 kg (21.61 lb)
Protection class	Protection class I (earthed)

## 5 Safety instructions

### 5.1 General safety rules

- a) **Warning! Read and understand all instructions.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury. **SAVE THESE INSTRUCTIONS.**

#### 5.1.1 Work area

- a) **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c) **Keep bystanders, children and visitors away while operating a power tool.** Distractions can cause you to lose control.

#### 5.1.2 Electrical safety

- a) **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding

provides a low resistance path to carry electricity away from the user.

- b) **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- c) **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
- e) **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

#### 5.1.3 Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.

- b) **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- c) **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
- d) **Remove adjusting keys or switches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- f) **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat or hearing protection must be used for appropriate conditions.

#### 5.1.4 Tool use and care

- a) **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- b) **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
- c) **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- d) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
- e) **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- f) **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
- h) **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

#### 5.1.5 Service

- a) **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
- b) **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

## 5.2 Additional safety instructions

Read all instructions before using this electric tool or machine and keep the safety instructions in a safe place.

### 5.2.1 Proper organization of the work area



- a) **Approval must be obtained from the site engineer or architect prior to beginning drilling work.** Drilling 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 ventilated.** Exposure to dust at a poorly ventilated workplace may result in damage to the health.
- c) **Keep the workplace tidy. Objects which could cause injury should be removed from the working area.** Untidiness at the workplace can lead to accidents.
- d) **When drilling through walls, cover the area behind the wall, as material or the core may fall out on the other side of the wall. When drilling through ceilings, secure (cover) the area below as drilled material or the core may drop out and fall down.**
- e) **Wear respiratory protection if the work causes dust.**
- f) **It is recommended that rubber gloves and non-skid shoes are worn when working outdoors.**
- g) **Do not allow other persons to touch the machine or the extension cord.**
- h) **Always lead the supply cord, extension cord and water hose away from the tool or machine to the rear to prevent a tripping hazard while working.**
- i) **Keep the supply cord, extension cord, suction hose and vacuum hose away from rotating parts.**
- j) **CAUTION: Before beginning drilling, check that there are no live electric cables located in the base material.**
- k) **Concealed electric cables or gas and water pipes present a serious hazard if damaged while you are working. Accordingly, check the area in which you are working beforehand (e.g. using a metal detector).** External metal parts of the machine may become live, for example, when an electric cable is damaged accidentally.
- l) **Do not work from a ladder.**
- m) **WARNING: Some dust created by grinding, sanding, cutting and drilling contains chemicals known to cause cancer, birth defects, infertility or other reproductive harm; or serious and permanent respiratory or other injury.** Some examples of these chemicals are: lead from lead-based paints, crystalline silica from bricks, concrete and other masonry products and natural stone, arsenic and chromium from chemically-treated lumber. Your risk from these exposures varies, depending on how often you do

this type of work. To reduce exposure to these chemicals, the operator and bystanders should work in a well-ventilated area, work with approved safety equipment, such as respiratory protection appropriate for the type of dust generated, and designed to filter out microscopic particles and direct dust away from the face and body. Avoid prolonged contact with dust. Wear protective clothing and wash exposed areas with soap and water. Allowing dust to get into your mouth, nose, eyes, or to remain on your skin may promote absorption of harmful chemicals.

### 5.2.2 General safety rules



- a) Use the right tool or machine for the job. Do not use the tool or machine for purposes for which it was not intended. Use it only as directed and when in faultless condition.
- b) Use the power tool, accessories and tool bits etc. in accordance with these instructions taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.
- c) 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.
- d) Keep the grips dry, clean and free from oil and grease.
- e) Never leave the machine unattended.
- f) 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.
- g) Always disconnect the supply cord from the electric supply when the machine is not in use (e.g. during breaks between working), before making adjustments, before carrying out care and maintenance and before changing core bits. This safety precaution prevents the machine starting unintentionally.
- h) Keep children away. Keep other persons away from the working area.
- i) Children must be instructed not to play with the machine.
- j) The machine is not intended for use by children, by debilitated persons or those who have received no instruction or training.
- k) Never operate the machine without the GFCI supplied with it. Test the GFCI each time before use.
- l) Check the machine and its accessories for any damage. Guards, safety devices and any slightly damaged parts must be checked carefully to ensure that they function faultlessly and as intended. Check that moving parts function correctly with-

out 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 guards, safety devices and other parts must be repaired or replaced properly at an authorized service center unless otherwise indicated in the operating instructions.

- m) Avoid skin contact with drilling slurry.
- n) Wear a protective mask during work that generates dust, e.g. dry drilling. Connect a dust removal system. Drilling in materials hazardous to the health (e.g. asbestos) is not permissible.

### 5.2.3 Mechanical



- a) Follow the instructions concerning care and maintenance.
- b) Follow the instructions concerning lubrication and changing core bits.
- c) Check that the core bits used are compatible with the chuck system and that they are secured in the chuck correctly.
- d) Make sure that the machine is correctly and securely mounted on the drill stand.
- e) Do not touch rotating parts.
- f) Check that all the clamping screws are correctly tightened.
- g) Make sure that the cover with built-in end stop is always fitted to the drill stand. The safety-relevant end-stop function becomes inoperative if this component is not fitted.

### 5.2.4 Electrical



- a) 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.
- b) Do not touch the supply cord or extension cord if it is damaged while working. Disconnect the supply cord plug from the power outlet.
- c) 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.
- d) 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.
- e) 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.

- f) When working outdoors, use only extension cords that are approved and correspondingly marked for this application.
- g) In case of an interruption in the electric supply: Switch the machine off and unplug the supply cord.
- h) Avoid using extension cords with multiple power outlets and the simultaneous use of several electric tools or machines connected to one extension cord.
- i) Never operate the machine when it is dirty or wet. Dust (especially dust from conductive materials) or dampness adhering to the surface of the machine may, under unfavorable conditions, lead to electric shock. Dirty or dusty machines should thus be checked at a Hilti service center at regular intervals, especially if used frequently for working on conductive materials.

### 5.2.5 Thermal



Wear protective gloves when changing core bits. The core bit may become hot during use.

### 5.2.6 Requirements to be met by users

- a) The machine is intended for professional use.
- b) The machine may be operated, serviced and repaired only by authorized, trained personnel. This personnel must be informed of any special hazards that may be encountered.
- c) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- d) Improve the blood circulation in your fingers by relaxing your hands and exercising your fingers during breaks between working.

### 5.2.7 Personal protective equipment



The user and any other persons in the vicinity must wear ANSI Z87.1-approved eye protection, a hard hat, ear protection, protective gloves and breathing protection while the machine is in use.

## 6 Before use



### CAUTION

The mains voltage must comply with the specification given on the type identification plate. Ensure that the power tool is disconnected from the electric supply.

### DANGER

When drilling through walls, cover the area behind the wall, as material or the core may fall out on the other side of the wall. When drilling through ceilings, secure (cover) the area below as drilled material or the core may drop out and fall down.

### DANGER

Check that the drill stand is securely fastened to the base material.

### CAUTION

Do not break the connection to earth by using an adaptor plug.

### 6.1 Preparing for use

#### CAUTION

The machine and the diamond core bit are heavy. There is a risk of pinching parts of the body. **Wear a hard hat, protective gloves and safety boots.**

#### 6.1.1 Fitting the handwheel **4**

##### NOTE

The handwheel may be fitted on the left-hand or right-hand side of the carriage.

1. Fit the handwheel onto the shaft on the left-hand or right-hand side of the carriage.
2. Secure the handwheel with the retaining pin.

#### 6.1.2 Fastening the drilling system with an anchor **8**

##### WARNING

Use an anchor suitable for the material on which you are working and observe the anchor manufacturer's instructions.

**NOTE**

Hilti M12 metal expansion anchors are usually suitable for fastening diamond core drilling equipment to uncracked concrete. Under certain conditions it may be necessary to use an alternative fastening method. Please contact Hilti Technical Service if you have any questions about secure fastening.

1. Set the anchor that is suitable for the material on which you are working at the (ideal) distance of 203 mm (8") from the center of the hole to be drilled.
2. Screw the clamping spindle (accessory) into the anchor.
3. Place the drill stand base plate over the spindle and align it.
4. Screw the clamping nut (accessory) onto the spindle but do not tighten it.
5. Level the base plate by turning the four leveling screws. Take care to ensure that the leveling screws make firm contact with the underlying surface.
6. Use a 19 mm AF open-end wrench to tighten the clamping nut on the clamping spindle.
7. Make sure that the drilling system is secured reliably.

### 6.1.3 Fastening the drill stand with the vacuum base plate

**DANGER**

A coated, laminated, rough or uneven surface may significantly reduce the effectiveness of the vacuum system. **Check whether the surface is suitable for use of the vacuum method to fasten the drill stand.**

**DANGER**

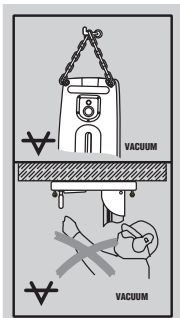
**Overhead drilling with the machine secured only by the vacuum base plate is not permissible.**

**CAUTION**

**Make yourself familiar with information contained in the operating instructions for the vacuum pump and follow these instructions before using it.**

**WARNING**

**Before beginning drilling and during operation it must be ensured that the pressure gauge indicator remains within the green area.**

**NOTE**

When using the vacuum base plate: Screw the anchor base plate onto the vacuum base plate.

1. Turn (retract) the 4 leveling screws until they project approx. 5 mm beneath the combination base plate or, respectively, the vacuum base plate.
2. Connect the vacuum connector of the combination base plate to the vacuum pump.
3. Locate the center point of the hole to be drilled.
4. Draw a line approximately 800 mm in length from the center of the hole to be drilled towards where the drill stand is to be positioned.
5. Make a mark on the line at a distance of 203 mm (8") from the center of the hole to be drilled.
6. Switch on the vacuum pump and press the vacuum release valve.
7. Bring the mark on the combination base plate or vacuum base plate into alignment with the line.
8. Once the drill stand has been positioned correctly, release the vacuum release valve and press the base plate against the base material.
9. Level and steady the combination base plate or vacuum base plate by turning the 4 leveling screws.
10. An additional means of securing the drilling system must be provided when drilling horizontally. (e.g. a chain attached to an anchor, etc.)
11. Make sure that the drilling system is secured reliably.

### 6.1.4 Adjusting the drilling angle (optional for rails with tilt mechanism)

**CAUTION**

There is a risk of crushing the fingers in the pivot mechanism. **Wear protective gloves.**

1. Release the screw on the rail tilt mechanism.
2. Adjust the rail to the desired angle.
3. Retighten the screw securely.

### 6.1.5 Fitting the water connection

**CAUTION**

**Regularly check the hoses for damage and make sure that the maximum permissible water supply pressure of 6 bar is not exceeded.**

**CAUTION**

**Make sure that the hose doesn't come into contact with rotating parts.**

**CAUTION**

**Make sure that the hose is not pinched and damaged as the carriage advances.**

## CAUTION

**Do not change gear while the machine is running. Wait for the spindle to come to a halt.**

## NOTE

To avoid damage to the components, use only fresh water containing no dirt particles.

## NOTE

A flow meter (accessory) may be fitted between the machine's water supply connector and the water supply hose.

1. Connect the water regulator to the machine.
2. Connect the water supply (hose coupling).

### 6.1.6 Fitting the water collection system (accessory) 5

## WARNING

**Use of the water collection system in conjunction with a wet-type industrial vacuum cleaner is a mandatory requirement for work on ceilings. The machine must be positioned at an angle of 90° to the ceiling. The seal used must be of the correct size for the diamond core bit diameter.**

## NOTE

Use of the water collection system allows water to be led away in controlled fashion, thus avoiding a mess or damage to the surrounding area. Best results are achieved with a wet-type industrial vacuum cleaner.

1. Release the hexagon-head screw at the front of the rail.
2. Push the water collector holder into position.
3. Fit the hexagon-head screw and tighten it.
4. Fit the water collector between the two moveable arms of the water collector holder.
5. Press the water collector against the base material by turning the two screws on the water collector holder.
6. Connect a wet-type industrial vacuum cleaner to the water collector or fit a length of hose through which the water can drain away.

### 6.1.7 Fitting the diamond core bit 6



## DANGER

**Do not use damaged core bits. Check the core bits for chipping, cracks, or heavy wear each time before use. Do not use damaged tools.** Fragments of the workpiece or a broken core bit may be ejected and cause injury beyond the immediate area of operation.

## NOTE

Diamond core bits must be replaced when the cutting performance and/or rate of drilling progress drops sig-

nificantly. This generally is the case when the segments reach a height of less than 2 mm.

## DANGER

**To avoid injury, use only genuine Hilti core bits and DD 120 accessories. If using a machine with a BI+ chuck, only genuine Hilti core bits may be used with it.**

## CAUTION

The core bit may become hot during use or during sharpening. There is a risk of burning your hands. **Wear protective gloves when changing the core bit.**

## DANGER

Fitting and positioning the core bit incorrectly can lead to hazardous situations as this may cause parts to break and fly off. **Check that the core bit is seated correctly.**

## CAUTION

**Disconnect the supply cord plug from the power outlet.**

## NOTE

C-Rod, A-Rod, M27, and BR chucks are operated with a 27 mm AF open-end wrench.

1. Use the carriage brake to lock the carriage in position on the rail and check that the system components are securely mounted.
2. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
3. Push the diamond core bit into the chuck (BI+) from below, turning the core bit until the teeth in the chuck engage with the core bit.
4. Close the chuck (BI+) by turning it in the direction of the closed brackets symbol.
5. Check that the diamond core bit is securely mounted in the chuck by pulling on the core bit and attempting to move it from side to side.

### 6.1.8 Selecting the speed 7

## CAUTION

**Do not change gear while the machine is running. Wait for the spindle to come to a halt.**

1. Set the selector switch according to the core bit diameter used. Turn the selector switch to the recommended setting (see section "Description") while rotating the core bit by hand.

### 6.1.9 Removing the diamond core bit



## CAUTION

The core bit may become hot during use or during sharpening. There is a risk of burning your hands. **Wear protective gloves when changing the core bit.**

**CAUTION**

Disconnect the supply cord plug from the power outlet.

**NOTE**

If using a C-Rod, A-Rod, M27 or BR chuck, lock the drive shaft with an M27 open-end wrench and use a suitable open-end wrench to release the core bit.

1. Turn the carriage brake lever to lock the carriage on the rail. Check that it is mounted securely.
2. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
3. Pull the sleeve on the chuck in the direction of the arrow towards the machine. This releases the core bit.
4. Remove the core bit.

## 7 Operation

**WARNING**

Make sure that the supply cord does not come into contact with rotating parts.

**WARNING**

Make sure that the supply cord is not pinched and damaged as the carriage advances.

**CAUTION**

The machine and the drilling operation generate noise. **Wear ear protectors.** Excessive noise may damage the hearing.

**CAUTION**

Drilling may cause hazardous flying fragments. Flying fragments present a risk of injury to the eyes and body. **Wear eye protection and a hard hat.**

### 7.1 TPS theft protection system (optional)

**NOTE**

The machine may be equipped with the optional theft protection system. If the machine is equipped with this feature, it can be unlocked and made ready for operation only with the corresponding TPS key.

#### 7.1.1 Unlocking the machine

1. Connect the supply cord to the electric supply and press the "I" or "Reset" button on the ground fault circuit interrupter. The yellow theft protection indicator LED blinks. The machine is now ready to receive the signal from the TPS key.
2. Hold the TPS key or the TPS watch strap buckle against the lock symbol. The machine is unlocked as soon as the yellow theft protection indicator LED no longer lights.

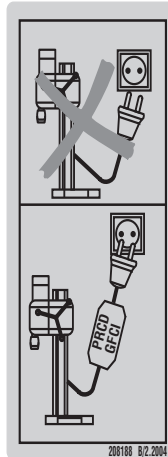
**NOTE** If, for example, the electric supply is briefly interrupted due to a power failure or disconnected when moving to a different workplace, the machine remains ready for operation for approx. 20 minutes. In the event of a longer interruption, the TPS key must be used again to unlock the machine.

### 7.1.2 Activation of the theft protection system for the machine

**NOTE**

Further detailed information on activation and use of the theft protection system can be found in the operating instructions for the theft protection system.

### 7.2 Switching on and checking the ground fault circuit interrupter (GFCI)



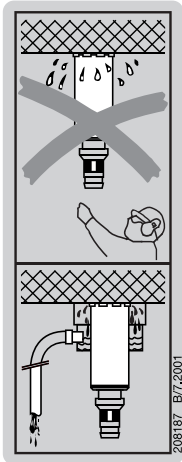
(Note: An isolating transformer is used with the GB version.)

1. Plug the machine's supply cord into an earthed/grounded power outlet.
2. Press the "I" or "Reset" button on the ground fault circuit interrupter (GFCI).  
The drilling performance indicator lights orange.
3. Press the "0" or "Test" button on the ground fault circuit interrupter (GFCI).  
The indicator must go out.



4. **WARNING** If the indicator continues to light, further operation of the machine is not permissible. Have the machine repaired by trained personnel using genuine Hilti spare parts. Press the "I" or "Reset" button on the ground fault circuit interrupter (GFCI). The indicator must light.

### 7.3 Drilling without use of the water collection system and industrial vacuum cleaner



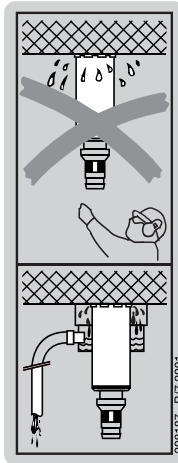
**WARNING**  
Water must not be allowed to run over the motor and cover.

**WARNING**  
Water drainage is uncontrolled. **Overhead drilling is not permissible.**

1. Slowly open the water flow regulator until the desired volume of water is flowing.
2. Press the on/off switch on the machine (position "I"). The drilling performance indicator lights orange.
3. Release the carriage brake.
4. Turn the handwheel until the diamond core bit is in contact with the base material.
5. Apply only light pressure until the diamond core bit has centered itself and then increase the pressure.
6. Regulate the contact pressure while observing the drilling performance indicator.

**NOTE** The drilling performance indicator lights orange after switching on. Optimum drilling performance is achieved when the drilling performance indicator shows a green light. If the drilling performance indicator shows a red light, reduce the pressure applied to the core bit.

### 7.4 Drilling with use of the water collection system (accessory)



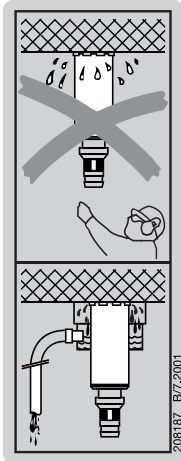
**WARNING**  
Water must not be allowed to run over the motor and cover.

**CAUTION**  
The water is drained through a hose. **Overhead drilling is not permissible.**

1. Slowly open the water flow regulator until the desired volume of water is flowing.
2. Press the on/off switch on the machine (position "I"). The drilling performance indicator lights orange.
3. Release the carriage brake.
4. Turn the handwheel until the diamond core bit is in contact with the base material.
5. Apply only light pressure until the diamond core bit has centered itself and then increase the pressure.
6. Regulate the contact pressure while observing the drilling performance indicator.

**NOTE** The drilling performance indicator lights orange after switching on. Optimum drilling performance is achieved when the drilling performance indicator shows a green light. If the drilling performance indicator shows a red light, reduce the pressure applied to the core bit.

## 7.5 Drilling with use of the water collection system and wet-type industrial vacuum cleaner (accessories) **B**



### WARNING

Water must not be allowed to run over the motor and cover.

### WARNING

The diamond core bit fills with water during overhead drilling. **Drilling upwards at an angle is not permissible (the water collector cannot function correctly).**

### NOTE

The vacuum cleaner must be switched on manually before drilling is started and switched off manually once drilling is completed.

1. Switch the vacuum cleaner on. Do not use the vacuum cleaner in automatic mode.
2. Connect the water supply.
3. Open the water flow regulator.
4. Press the on/off switch on the machine (position "I"). The drilling performance indicator lights orange.
5. Release the carriage brake.
6. Turn the handwheel until the diamond core bit is in contact with the base material.
7. Apply only light pressure until the diamond core bit has centered itself and then increase the pressure.
8. Regulate the contact pressure while observing the drilling performance indicator.

**NOTE** The drilling performance indicator lights orange after switching on. Optimum drilling performance is achieved when the drilling performance indicator shows a green light. If the drilling performance indicator shows a red light, reduce the pressure applied to the core bit.

## 7.6 Switching off **9**

### WARNING

Exercise caution when drilling overhead : The diamond core bit fills with water during overhead drilling. **As a first step, carefully allow the water to drain away after completing overhead drilling. This is done by disconnecting the water supply from the water flow regulator and draining the water by opening the water flow regulator. Do not allow the water to run over the motor and cover.**

1. Close the water flow regulator.
2. Remove the diamond core bit from the hole.
3. Engage the carriage brake.
4. Switch the drilling machine off.
5. Switch off the industrial vacuum cleaner.

## 7.7 Procedure in the event of the core bit sticking

The safety clutch releases in the event of the core bit binding and sticking. Following this, the motor is switched off by the electronic control system. If the user takes no action, the electronic control system switches the motor on twice automatically. If the core bit still can't be freed, the electronic control system switches the motor off for 90 seconds. The core bit can be released by taking the following action:

### 7.7.1 Using an open-end wrench to release the core bit

1. Disconnect the supply cord plug from the power outlet.
2. Grip the core bit with a suitable open-end wrench close to the connection end and release the core bit by rotating it.
3. Plug the machine's supply cord into the power outlet.
4. Resume the drilling operation.

### 7.7.2 Using the spider wheel to release the core bit

1. Disconnect the supply cord plug from the power outlet.
2. Use the spider wheel to rotate the core bit and release it from the base material.
3. Plug the machine's supply cord into the power outlet.
4. Resume the drilling operation.

## 7.8 Dismantling

### CAUTION

**Disconnect the supply cord plug from the power outlet.**

1. For instructions on removing the diamond core bit, please refer to the section "Removing the diamond core bit".
2. Remove the core if necessary.

3. Detach the drill stand from the base material.

### 7.8.1 Removing the system as a unit

#### NOTE

If you wish to remove the drilling system as a complete unit (without first removing the core bit) it is recommended that the drive unit is lowered on the rail (after switching off) until in contact with the base material. This will help to prevent it tipping over.

### 7.9 Disposing of drilling slurry

Please refer to the section "Disposal".

### 7.10 Transport and storage

Open the water flow regulator before putting the power tool into storage.

#### CAUTION

**When temperatures drop below zero, check to ensure that no water remains in the power tool.**

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## 8 Care and maintenance

#### CAUTION

**Disconnect the supply cord plug from the power outlet.**

### 8.1 Care of cutting tools and metal parts

Remove any dirt adhering to the surface of cutting tools, the chuck and drive spindle and protect their surfaces from corrosion by rubbing them with an oily cloth from time to time.

Always keep the connection end clean and lightly greased.

### 8.2 Care of the machine

#### CAUTION

**Keep the machine, especially its grip surfaces, clean and free from oil and grease. Do not use cleaning agents which contain silicone.**

The outer casing of the machine is made from impact-resistant plastic.

Never operate the machine when the ventilation slots are blocked. Clean the ventilation slots carefully using a dry brush. Do not permit foreign objects to enter the interior of the machine. Clean the outside of the machine at regular intervals with a slightly damp cloth. Do not use a spray, steam pressure cleaning equipment or running water for cleaning. This may negatively affect the electrical safety of the machine.

### 8.3 Maintenance

#### WARNING

**Repairs to the electrical section of the machine may be carried out only by trained electrical specialists.**

Check all external parts of the power tool for damage at regular intervals and check that all controls operate faultlessly. Do not operate the power tool if parts are damaged or when the controls do not function faultlessly. If necessary, the power tool should be repaired by Hilti Service.

### 8.4 Replace the carbon brushes. 10



#### NOTE

The indicator lamp with the wrench symbol lights up when the carbon brushes need to be replaced.

#### DANGER

**The machine may be operated, serviced and repaired only by trained, authorized personnel. This personnel must be particularly informed of any possible hazards.**

Failure to observe the following instructions may result in contact with dangerous electric voltage.

1. Disconnect the machine from the electric supply.
2. Open the carbon brush covers on the left-hand and right-hand side of the motor.
3. Take note of how the carbon brushes are fitted and how the conductors are positioned. Remove the worn carbon brushes from the machine.
4. Fit the new carbon brushes just as the old ones were fitted (spare part number: 39577 carbon brushes AO ML 100-120 V: 209487/209488).

**NOTE** Take care to avoid damaging the insulation on the indicator lead as you insert the brushes.

5. Close the carbon brush covers on the left-hand and right-hand side of the motor and tighten the retaining screws.

**NOTE** The indicator lamp goes out after the carbon brushes have been replaced.

### 8.5 Adjusting the play between rail and carriage

#### NOTE

Play between the rail and the carriage can be adjusted by turning the carriage play adjustment screws.

Use an Allen key to tighten the carriage adjustment screws to a torque of 5 Nm (finger-tight) and then turn the screws back 1/4 of a turn.

The carriage is correctly adjusted if it remains in position when no core bit is fitted but moves down under its own weight when a core bit is fitted.

## 8.6 Checking the power tool after care and maintenance

After carrying out care and maintenance, check that all protective and safety devices are fitted and that they function faultlessly.

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## 9 Troubleshooting

Fault	Possible cause	Remedy
The machine doesn't start.	Interruption in the electric supply.	Plug in another electric appliance and check whether it works. Check the plug connections, supply cords and extension cords, GFCI and electric supply.
	On/off switch defective.	If necessary, the power tool should be repaired by Hilti Service.
	Interruption in the electric supply.	Check the supply cord, extension cord, supply cord plug, GFCI and have them replaced by a qualified electrician if necessary.
	The electronics are defective.	The machine should be repaired by Hilti Service.
	Water in the machine.	Dry the machine. The machine should be repaired by Hilti Service.
The service indicator lights.	The carbon brushes are worn; the machine will continue to run for a few hours.	The carbon brushes should be changed. See section: 8.4 Replace the carbon brushes. <b>10</b>
The machine doesn't start and the service indicator lights.	The carbon brushes are worn.	Replace the carbon brushes. See section: 8.4 Replace the carbon brushes. <b>10</b>
The machine doesn't start, carbon brushes have been changed, service indicator lights.	A fault has occurred in the power tool.	If necessary, the power tool should be repaired by Hilti Service.
The service indicator blinks.	Motor speed error.	Have the machine repaired by Hilti Service.
The machine doesn't start, drilling performance indicator blinks red.	The machine has overheated.	Wait 90 seconds until the light goes out. Switch the machine off and on again.
	The machine was overloaded for a short time.	Switch the machine off and on again.
The machine doesn't start, theft protection indicator blinks yellow.	The power tool has not been unlocked (tools with optional theft protection system).	Use the TPS key to unlock the power tool.
The motor runs. The diamond core bit doesn't rotate.	Gear selector doesn't engage.	Move the gear selector until felt to engage.
	The gearing is defective.	If necessary, the machine should be repaired by Hilti Service.
Drilling speed drops.	The diamond core bit is polished.	Sharpen the diamond core bit on a sharpening plate with water flowing.
	The diamond core bit is polished.	The wrong type of core bit has been used. Seek advice from Hilti.
	Water pressure / flow rate too high.	Reduce the water flow rate by adjusting the flow regulator.

Fault	Possible cause	Remedy
Drilling speed drops.	The core is stuck in the core bit.	Remove the core.
	Maximum drilling depth is reached.	Remove the core and use a core bit extension.
	The diamond core bit is defective.	Check the diamond core bit for damage and replace it if necessary.
	The slip clutch is disengaging prematurely or slipping.	If necessary, the machine should be repaired by Hilti Service.
	The brake is engaged.	Release the brake.
The handwheel turns but doesn't engage.	The retaining pin is broken.	Fit a new retaining pin.
	The water pressure is too high.	Reduce the water pressure.
Water escapes at the water swivel or gear housing.	The shaft seal is defective.	The machine should be repaired by Hilti Service.
	The diamond core bit cannot be fitted into the chuck.	Clean the connection end /chuck or replace if necessary.
Water escapes from the chuck during operation.	The core bit is not screwed securely into the chuck.	Tighten it securely.
	The core bit connection end / chuck is dirty.	Clean the connection end / chuck.
	The chuck or connection end seal is defective.	Check the seal and replace it if necessary.
Excessive play in the drilling system.	The core bit is not screwed securely into the chuck.	Tighten it securely.
	The leveling screws or clamping spindle are not tightened.	Tighten the leveling screws or clamping spindle.
	Excessive play at the carriage.	Adjust the play between rail and carriage. See section: 8.5 Adjusting the play between rail and carriage
	The core bit connection end is defective.	Check the connection end and replace it if necessary.

## 10 Disposal



Most of the materials from which Hilti machines or appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, Hilti has already made arrangements for taking back old machines and appliances for recycling. Ask Hilti customer service or your Hilti representative for further information.

### Recommended pretreatment for disposal of drilling slurry

#### NOTE

The disposal of drilling slurry directly into rivers, lakes or the sewerage system without suitable pretreatment presents environmental problems. Ask the local public authorities for information about current regulations.

1. Collect the drilling slurry (e.g. using a wet-type industrial vacuum cleaner)
2. Allow the drilling slurry to settle and dispose of the solid material at a construction waste disposal site (the addition of a flocculent may accelerate the separation process).
3. The remaining water (alkaline, pH value > 7) must be neutralized by the addition of an acidic neutralizing agent or diluted with a large volume of water before it is allowed to flow into the sewerage system.

## 11 Manufacturer's warranty

Hilti warrants that the tool supplied is free of defects in material and workmanship. This warranty is valid so long as the tool is operated and handled correctly, cleaned and serviced properly and in accordance with the Hilti Operating Instructions, and the technical system is maintained. This means that only original Hilti consumables, components and spare parts may be used in the tool.

This warranty provides the free-of-charge repair or replacement of defective parts only over the entire lifespan of the tool. Parts requiring repair or replacement as a result of normal wear and tear are not covered by this warranty.

**Additional claims are excluded, unless stringent national rules prohibit such exclusion. In particular, Hilti is not obligated for direct, indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of, the use of, or inability to use the tool for any purpose. Implied warranties of merchantability or fitness for a particular purpose are specifically excluded.**

For repair or replacement, send the tool or related parts immediately upon discovery of the defect to the address of the local Hilti marketing organization provided.

This constitutes Hilti's entire obligation with regard to warranty and supersedes all prior or contemporaneous comments and oral or written agreements concerning warranties.

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[www.hilti.com](http://www.hilti.com)

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