

# HILTI

## DD 110-W

Operating instructions

en

Mode d'emploi

fr

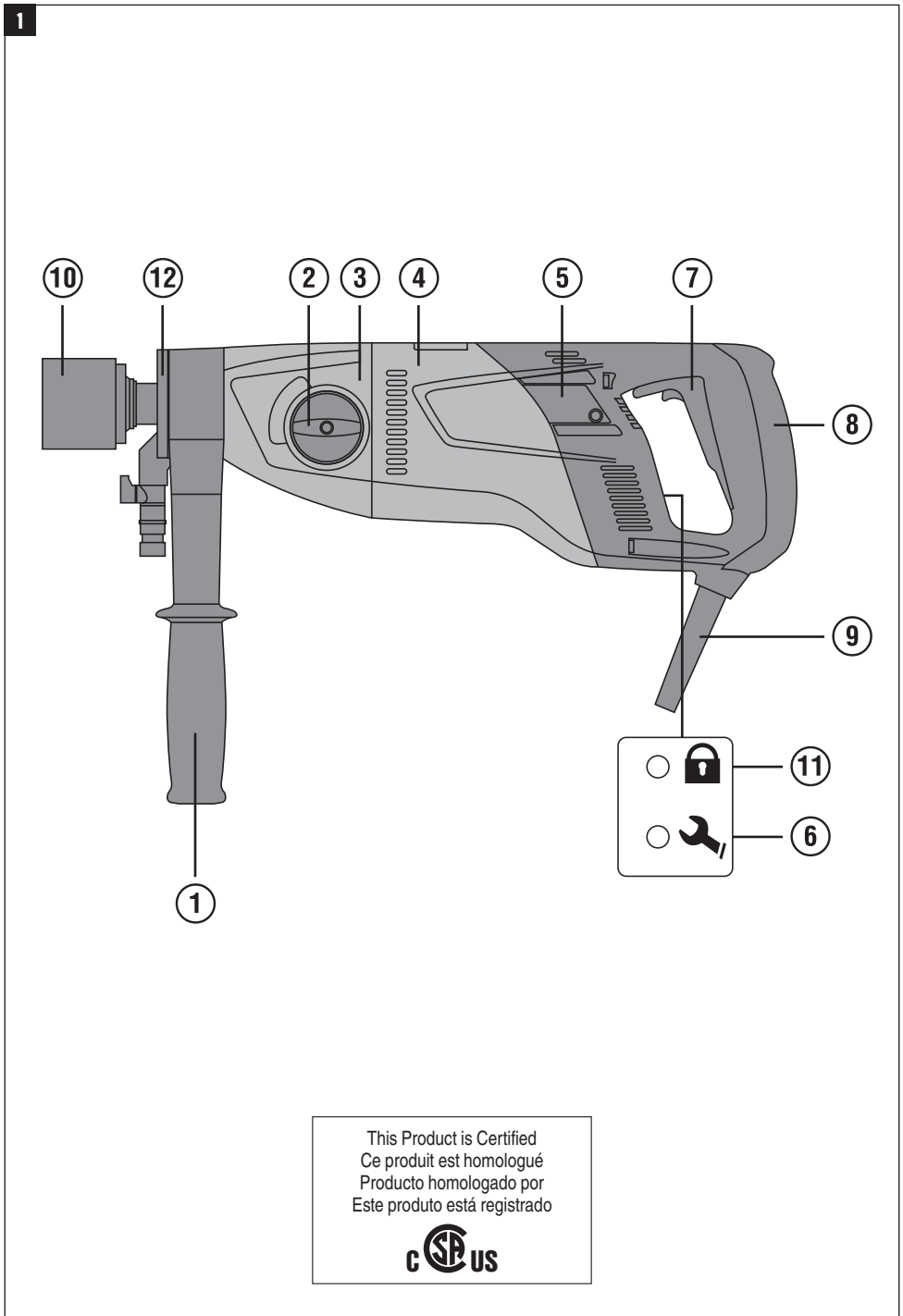
Manual de instrucciones

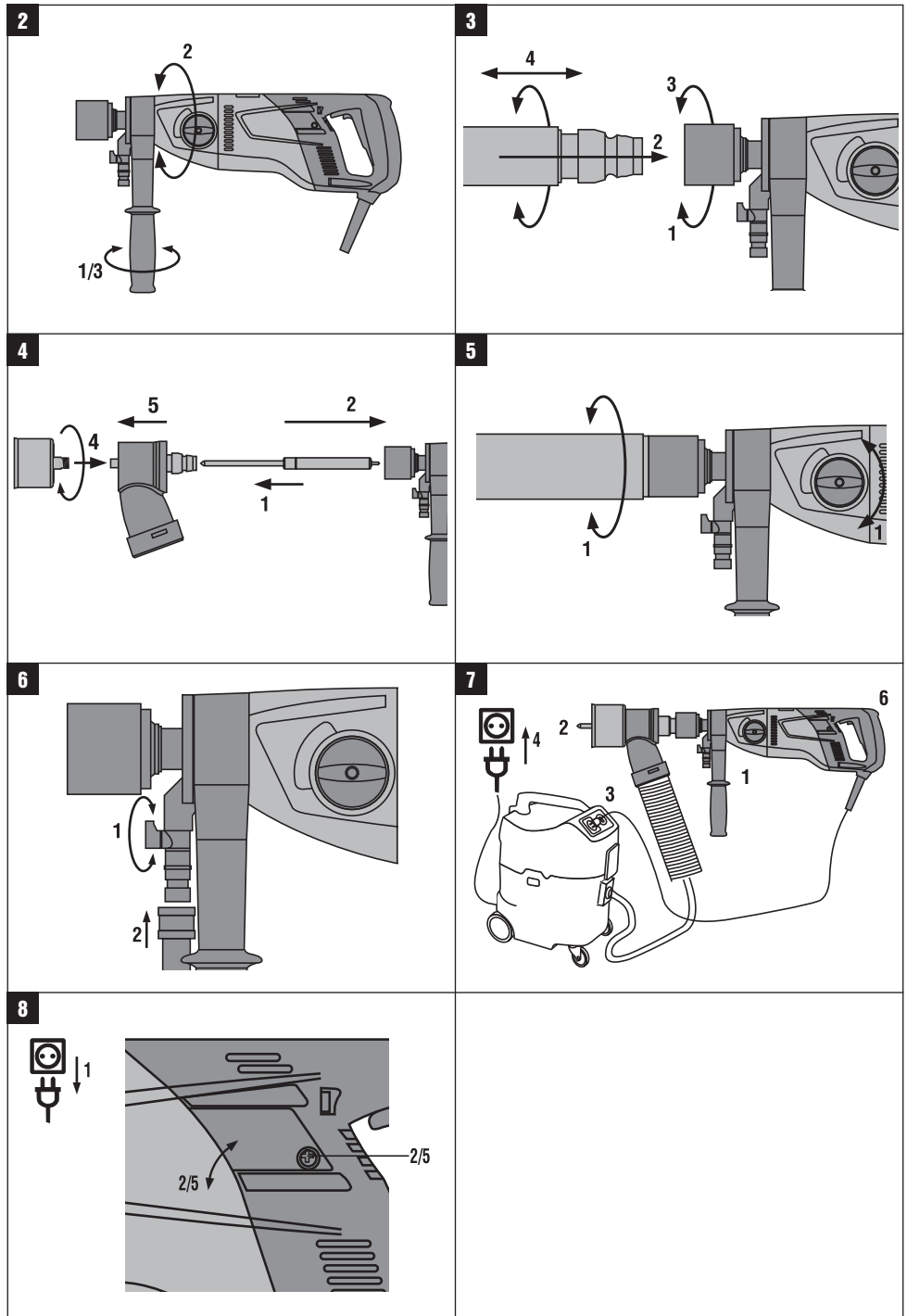
es

Manual de instruções

pt







## ORIGINAL OPERATING INSTRUCTIONS

# DD 110-W 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.**

Contents	Page
1 General information	1
2 Description	2
3 Accessories	4
4 Technical data	4
5 Safety instructions	5
6 Before use	7
7 Operation	10
8 Care and maintenance	13
9 Troubleshooting	13
10 Disposal	15
11 Manufacturer's warranty	15

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 110-W diamond core drilling machine.

### Parts, operating controls and indicators 1

#### DD 110-W diamond coring machine

- ① Side handle
- ② Gear selector
- ③ Gearing section
- ④ Motor
- ⑤ Carbon brush cover
- ⑥ Service indicator
- ⑦ On / off switch
- ⑧ Grip
- ⑨ Supply cord with GFCI
- ⑩ Chuck
- ⑪ Theft protection indicator (option)
- ⑫ Water swivel

## 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

#### 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 breathing protection.



Wear safety shoes.



Read the operating instructions before use.

**Symbols**



Lock symbol



Equipped with theft protection system



Service indicator

**RPM**

Revolutions per minute

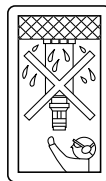
**/min**

Revolutions per minute



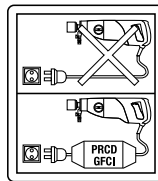
Returning materials for recycling

**On the machine**



Overhead drilling using water cooling is not permissible

**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 110-W is an electrically-powered diamond coring machine designed for hand-held drilling in masonry using dry-cutting diamond core bits and for hand-held drilling in concrete and other mineral materials using wet-cutting diamond core bits.

Drilling in an upward direction in wet drilling mode is strictly prohibited.

Drilling into materials that produce conductive dust (e.g. magnesium) is not permissible.

Use a suitable vacuum cleaner of a type recommended by Hilti whenever possible.

To avoid injury, use only genuine Hilti core bits and DD 110-W 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.

The machine is designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. This personnel must be informed of any special hazards that may be encountered. The machine and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

The working environment may be as follows: construction site, workshop, renovation, conversion or new construction.

The machine may be operated only when connected to a power supply providing a voltage and frequency in compliance with the information given on its type identification plate.

Working on materials hazardous to the health (e.g. asbestos) is not permissible.

Modification of the machine or tampering with its parts is not permissible.

To avoid the risk of injury, use only genuine Hilti accessories and cutting tools.

The machine and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

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

Type of drilling work with the DD 110-W	Core bit diameters	Drilling direction	Material
Wet drilling	25...132 mm (1" ...5¼")	Not upwards	Concrete
Dry drilling	16...162 mm (⅝" ...6½")	All directions	Masonry (e.g. sand-lime block, brick)

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**2.3 Gears and corresponding core bit diameters**

Gear	PCM core bits, dry	HDM core bits, dry	HWC core bits, wet	Speed under no load
1	42...162 mm (1⅝" ... 6½")	102...162 mm (4" ... 6½")	122...132 mm (4¾" ...5¼")	650/min
2		16...87 mm (⅝" ... 3½")	25...112 mm (1" ...4½")	1,380/min

**2.4 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.

**2.5 The items supplied as standard include:**

- 1 Power tool with side handle and chuck
- 1 Operating instructions
- 1 Hilti toolbox or cardboard box

**2.6 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.

**2.7 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
Dust removal system	315773
M16 chuck	315774
BI+ chuck	315791
BR chuck	315792
BT chuck	315793
Flow rate indicator	305939
Key chuck	315794
Keyless chuck	315795
M27 connection end for core bits	315805
BI+ connection end for socket cutters	315806
M27 connection end for core bits	315807
BI+ connection end for core bits	315824
Side handle	315825
Dust removal attachment with BI+ connection end for core bits	315826
Dust removal attachment with M27 connection end for core bits	315827
Dust removal attachment with BI+ connection end for socket cutters	315828
Dust removal attachment with M27 connection end for socket cutters	331621
Socket cutter hole-starting aid	281318
BI+ socket cutter hole-starting aid	209661

### 4 Technical data


Right of technical changes reserved.

#### Other information about the machine

Dimensions (L x W x H)	457 mm (17.99") x 120 mm (4.72") x 170 mm (6.69")
Rated voltage	120 V
Rated current input	14.1 A
Mains frequency	60 Hz
Rated speed under no load, 1st gear	650/min
Rated speed under no load, 2nd gear	1,380/min
Weight	5.7 kg (12.57 lb)
Protection class	I

## 5 Safety instructions

### 5.1 General Power Tool Safety Warnings

- a)  **WARNING**  
**Read all safety warnings and instructions.** Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. **Save all warnings and instructions for future reference.** The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

#### 5.1.1 Work area safety

- a) **Keep work area clean and well lit.** Cluttered or 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 children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

#### 5.1.2 Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not 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 for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f) **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces 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 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.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing

protection used for appropriate conditions will reduce personal injuries.

- c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

#### 5.1.4 Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **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.

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### 5.1.5 Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

### 5.2 Drill safety warnings

- a) **Wear ear protectors when impact drilling.** Exposure to noise can cause hearing loss.
- b) **Use auxiliary handle(s), if supplied with the tool.** Loss of control can cause personal injury.
- c) **Hold power tool by insulated gripping surfaces, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.

### 5.3 Additional safety rules

#### 5.3.1 Personal safety



- a) **Keep the grips dry, clean and free from oil and grease.**
- b) **During hand-held use, always hold the machine securely with both hands on the grips provided. Keep the grips dry, clean and free from oil and grease.**
- c) **Respiratory protection must be worn if the machine is used without a dust extraction system for work that creates dust.**
- d) **Improve the blood circulation in your fingers by relaxing your hands and exercising your fingers during breaks between working.**
- e) **Avoid touching rotating parts. Switch the power tool on only after bringing it into position at the workpiece.** Touching rotating parts, especially rotating drill bits, discs or blades, etc. may lead to injury.
- f) **When working, always lead the supply cord, the extension cord and the vacuum cleaner hose (if applicable) away from the machine to the rear.** This will reduce the risk of tripping and falling over the cord or hose while working.
- g) **Avoid skin contact with drilling slurry.**
- h) **Wear protective gloves when changing core bits.** The core bit may become hot during use.
- 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) **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.

#### 5.3.2 Power tool use and care

- a) **Secure the workpiece. Use clamps or a vice to secure the workpiece.** The workpiece is thus held more securely than by hand and both hands remain free to operate the machine.
- b) **Check that the core bits used are compatible with the chuck system and that they are secured in the chuck correctly.**
- c) **Switch the machine off and unplug the supply cord in the event of a power failure or interruption in the electric supply.** This will prevent accidental restarting when the electric power returns.

#### 5.3.3 Electrical safety



- a) **Before beginning work, check the working area (e.g. using a metal detector) to ensure that no concealed electric cables or gas and water pipes are present.** External metal parts of the machine may become live, for example, when an electric cable is damaged accidentally. This presents a serious risk of electric shock.
- b) **Never operate the machine without the GFCI supplied with it. Test the GFCI each time before use.**
- c) **Check the machine's supply cord at regular intervals and have it replaced by a qualified specialist if found to be damaged. If the machine's supply cord is damaged it must be replaced with a special approved, ready-made supply cord available from Hilti Customer Service. Check extension cords at regular intervals and replace them if found to be damaged. Do not touch the supply cord or extension cord if damaged while working. Unplug the supply cord from the power outlet. Damaged supply cords or extension cords present a risk of electric shock.**
- d) **Protect yourself from electric shock. Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.**

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

### 5.3.4 Work area



- a) Ensure that the workplace is well ventilated. Exposure to dust at a poorly ventilated workplace may result in damage to the health.
- b) Connect a dust removal system if the work creates dust. Drilling in materials hazardous to the health (e.g. asbestos) is not permissible.
- c) 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.

- d) It is recommended that rubber gloves and non-skid shoes are worn when working outdoors.
- e) 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.

### 5.3.5 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.

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## 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.

### CAUTION

Do not transport the machine while it is connected to the electric supply. Disconnect the supply cord plug from the power outlet.

### CAUTION

To avoid injury, use only genuine Hilti core bits and DD 110-W accessories. If using a machine with a BI+ chuck, only genuine Hilti core bits may be used with it.

### CAUTION

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

### 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.**

### WARNING

Make sure that the supply cord and hoses do not come into contact with rotating parts.

### CAUTION

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

### 6.1 Preparations for dry drilling

#### 6.1.1 Positioning the side handle 2

### CAUTION

Disconnect the supply cord plug from the power outlet.

1. Release the side handle clamping band by turning the handle counterclockwise.
2. Pivot the side handle into the desired position.
3. Secure the side handle by turning the grip clockwise.

#### 6.1.2 Fitting the diamond core bit 3



### 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  $\frac{1}{16}$ ".

**CAUTION**

Disconnect the supply cord plug from the power outlet.

**CAUTION**

Check that the hole-starting aid is securely positioned in the core bit.

**CAUTION**

When using the hole-starting aid, allow the machine to run only when the hole-starting aid is in contact with the working surface.

**NOTE**

The BR, BT, M16 and M27 chucks require use of a suitable open-end wrench.

The chuck, the adapter and the cutting tool must be clean and free of dirt and dust.

1. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
2. Push the diamond core bit into the chuck (BI+) from the front, turning the core bit until the teeth in the chuck engage with the core bit.
3. Close the chuck (BI+) by turning it in the direction of the closed brackets symbol.
4. 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.

**6.1.3 Fitting the dust removal attachment (optional)****6.1.3.1 Socket cutter 4**

1. Push the hole-starting aid, point first, as far as it will go, into the connection end for socket cutters with dust removal.
2. Fit the connection end into the chuck in accordance with the instructions for fitting a diamond core bit.
3. Push the locking ring and the dust removal attachment back toward the power tool.
4. Fit the socket cutter onto the connection end.
5. Push the dust removal attachment forward until it is in contact with the socket cutter and then secure it in this position by sliding the locking ring toward the socket cutter.
6. Check that the dust removal unit is free to rotate relative to the power tool.

**6.1.3.2 Core bit**

1. Fit the connection end for core bits with dust removal into the chuck in accordance with the instructions for fitting a diamond core bit.
2. Fit the core bit onto the connection end.

**6.1.4 Selecting the speed 5****CAUTION**

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

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.

**6.1.5 Removing the diamond core bit****CAUTION**

The core bit may get 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 BR, BT, M27 or M16 chuck, prevent rotation of the chuck and use a suitable open-end wrench to remove the core bit.

1. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
2. Pull the sleeve on the chuck in the direction of the arrow towards the machine. This releases the core bit.
3. Remove the core bit.

**6.2 Preparations for wet drilling****6.2.1 Positioning the side handle 2****CAUTION**

Disconnect the supply cord plug from the power outlet.

1. Release the side handle clamping band by turning the handle counterclockwise.
2. Pivot the side handle into the desired position.
3. Secure the side handle by turning the grip clockwise.

**6.2.2 Fitting the water connection 6****DANGER**

Drilling in an upwards direction in wet drilling mode is strictly prohibited.

**CAUTION**

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

**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

**6.2.3 Fitting the diamond core bit 3****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 significantly. This generally is the case when the segments reach a height of less than  $\frac{1}{16}$ ".

**CAUTION**

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

**CAUTION**

**Check that the hole-starting aid is securely positioned in the core bit.**

**CAUTION**

**When using the hole-starting aid, allow the machine to run only when the hole-starting aid is in contact with the working surface.**

**NOTE**

The BR, BT, M16 and M27 chucks require use of a suitable open-end wrench.

The chuck, the adapter and the cutting tool must be clean and free of dirt and dust.

1. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
2. Push the diamond core bit into the chuck (BI+) from the front, turning the core bit until the teeth in the chuck engage with the core bit.
3. Close the chuck (BI+) by turning it in the direction of the closed brackets symbol.
4. 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.

**6.2.4 Selecting the speed 5****CAUTION**

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

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.

**6.2.5 Removing the diamond core bit****CAUTION**

The core bit may get 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 BR, BT, M27 or M16 chuck, prevent rotation of the chuck and use a suitable open-end wrench to remove the core bit.

1. Open the chuck (BI+) by turning it in the direction of the open brackets symbol.
2. Pull the sleeve on the chuck in the direction of the arrow towards the machine. This releases the core bit.
3. Remove the core bit.

## 7 Operation



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### WARNING

Make sure that the supply cord and hoses do not come into contact with rotating parts.

### DANGER

When working with slotted core bits, take care to keep your fingers out of the slots.

### 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.

### WARNING

In accordance with the applications for which it is designed, the machine produces a high torque. Always use the side handle and hold the machine with both hands. The user must be prepared for sudden sticking and stalling of the cutting tool.

### DANGER

The operator must be prepared for sudden sticking and stalling of the cutting tool and must therefore have an absolutely secure stance with both feet.

#### 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. Check that the machine is connected to the electric supply. 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.

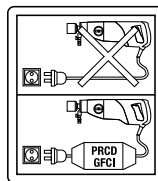
**NOTE** If, for example, the electric supply is briefly interrupted due to a power failure or disconnected when moving to a different workplace, the machine remains ready for operation for approx. 20 minutes. In the event of a longer interruption, the TPS key must be used again to unlock the machine.

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

##### NOTE

Further 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)



1. Plug the machine's supply cord into an earthed/grounded power outlet.
2. Press the "Reset" button on the GFCI ground fault circuit interrupter. The indicator must light.
3. Press the "Test" button on the GFCI ground fault circuit interrupter. 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 "Reset" button on the GFCI ground fault circuit interrupter. The indicator must light.

#### 7.3 Dry drilling with dust removal

##### CAUTION

When working, always lead the vacuum cleaner hose away to the rear of the machine so that it cannot come into contact with the core bit.

**CAUTION**

**Please read the operating instructions for the vacuum cleaner for information about disposal of the material collected.**

**NOTE**

To avoid electrostatic effects, use an anti-static vacuum cleaner.

**7.3.1 Vacuum cleaner with power outlet for power tools**

**CAUTION**

**Do not use slotted core bits when working with a dust removal system.**

**NOTE**

The optional operations are to be carried out when the two-part hole starting aid is used.

1. Secure the side handle in the desired position.
2. Fit the hole-starting aid (optional operation).
3. Plug the machine's supply cord into the power outlet on the vacuum cleaner.
4. Plug the vacuum cleaner's supply cord into the power outlet and press the "reset" button on the GFCl.
5. Position the machine at the point where the hole is to be drilled (hole center).
6. Press the on / off switch on the machine.

**NOTE** The vacuum cleaner starts with a delay after the machine is switched on. After switching the machine off, the vacuum cleaner continues to run for a short time before switching itself off.

7. When beginning drilling, apply only light pressure until the core bit has centered itself and then increase the pressure. Drill to a depth of 3-5 mm to form a guide kerf (optional operation).
8. Switch the machine off by releasing the on / off switch and then wait until the core bit has stopped rotating (optional operation).
9. Remove the hole-starting aid from the core bit (optional operation).
10. Position the core bit in the guide kerf and then press the on / off switch to continue drilling (optional operation).

**7.3.2 Vacuum cleaner without power outlet for power tools**

**CAUTION**

**Do not use slotted core bits when working with a dust removal system.**

**NOTE**

The optional operations are to be carried out when the two-part hole starting aid is used.

1. Secure the side handle in the desired position.
2. Fit the hole-starting aid (optional operation).
3. Plug the vacuum cleaner's supply cord into the power outlet and switch the vacuum cleaner on.

4. Plug the machine's supply cord into the power outlet and press the "reset" button on the GFCl.
5. Press the on / off switch on the machine.
6. When beginning drilling, apply only light pressure until the core bit has centered itself and then increase the pressure. Drill to a depth of 3-5 mm to form a guide kerf (optional operation).
7. Switch the machine off by releasing the on / off switch and then wait until the core bit has stopped rotating (optional operation).
8. Remove the hole-starting aid from the core bit (optional operation).
9. Position the core bit in the guide kerf and then press the on / off switch to continue drilling (optional operation).
10. Allow the vacuum cleaner to run for a few seconds after switching off the machine in order to ensure that the remaining dust is removed.

**7.4 Dry drilling without dust removal**



**NOTE**

Use slotted core bits when drilling without a dust removal system.

**NOTE**

Remove the dust removal attachment or secure it to prevent rotation.

**NOTE**

The optional operations are to be carried out when the two-part hole starting aid is used.

**CAUTION**

**Unplug the supply cord from the power outlet before removing the core.**

**DANGER**

**Wear respiratory protection.**

**NOTE**

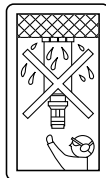
Dust is released in all directions. Drilling without a dust removal system, especially overhead drilling, is very unpleasant and optimum performance is not achieved. Overhead drilling without use of dust removal system is therefore not recommended. For dry coring it is recommended that the dust removal attachment and a suitable vacuum cleaner are always used.

1. Secure the side handle in the desired position.
2. Fit the hole-starting aid (optional operation).
3. Plug the supply cord into the power outlet and press the "reset" button on the GFCl.
4. Position the machine at the point where the hole is to be drilled (hole center).
5. Press the on / off switch on the machine.

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6. When beginning drilling, apply only light pressure until the core bit has centered itself and then increase the pressure. Drill to a depth of 3-5 mm to form a guide kerf (optional operation).
7. Switch the machine off by releasing the on / off switch and then wait until the core bit has stopped rotating (optional operation).
8. Remove the hole-starting aid from the core bit (optional operation).
9. Position the core bit in the guide kerf and then press the on / off switch to continue drilling (optional operation).

### 7.5 Wet drilling



#### WARNING

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

#### WARNING

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

#### NOTE

The optional operations are to be carried out when the two-part hole starting aid is used.

1. Secure the side handle in the desired position.
2. Fit the hole-starting aid (optional operation).
3. Plug the supply cord into the power outlet and press the "reset" button on the GFCI.
4. Position the machine at the point where the hole is to be drilled (hole center).
5. Slowly open the water flow regulator until the desired volume of water is flowing.
6. Press the on/off switch on the machine.
7. When beginning drilling, apply only light pressure until the core bit has centered itself and then increase the pressure. Drill to a depth of 3-5 mm to form a guide kerf (optional operation).
8. Switch the machine off by releasing the on / off switch and then wait until the core bit has stopped rotating (optional operation).

9. Remove the hole-starting aid from the core bit (optional operation).
10. Position the core bit in the guide kerf and then press the on / off switch to continue drilling (optional operation).

### 7.6 Switching off

#### CAUTION

**Wear protective gloves when changing cutting tools as they get hot during use.**

#### CAUTION

The core bit is full of dust or water and slurry. **Work from a secure stance and make sure you are ready to support the additional weight of the drilled-out material.**

1. Remove the diamond core bit from the hole.
2. Switch the drilling machine off.
3. Connect the water flow regulator, if used.

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

In the event of the core bit sticking, the clutch will slip until the user switches the power tool off. 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.

### 7.8 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.

### 7.9 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.**

## 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.

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 Replacing the carbon brushes

### NOTE

The indicator lamp with 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 specially 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. Remove the worn carbon brushes from the machine.
4. Fit the new carbon brushes just as the old ones were fitted (spare part numbers: 100-127 V: 39577).

**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 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.

## 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.
	The on/off switch is defective.	The machine should be repaired by Hilti Service.
	Interruption in the electric supply.	Check the supply cord and vacuum cleaner (if applicable), the extension cord, supply cord plug and GFCI, and have them replaced by a qualified electrician if necessary.
	The electronics are defective.	The machine should be repaired by Hilti Service.

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<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
The machine doesn't start.	Water in the machine.	Dry the machine. The machine should be repaired by Hilti Service.
The machine doesn't start and the service indicator lights.	The carbon brushes are worn.	Replacing the carbon brushes See section: 8.4 Replacing the carbon brushes <b>8</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 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 Replacing the carbon brushes <b>8</b>
The service indicator blinks.	Motor speed error.	Have the appliance repaired by Hilti Service.
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.	The gear selector doesn't engage.	Move the gear selector until felt to engage.
	The gearing is defective.	The machine should be repaired by Hilti Service.
The rate of drilling progress decreases.	The diamond core bit is polished.	Sharpen the core bit by drilling into a sharpening plate.
	The diamond core bit is polished.	The wrong type of core bit has been used. Seek advice from Hilti.
	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 damaged.	Check the diamond core bit for damage and replace it if necessary.
	The slip clutch is disengaging prematurely or slipping.	The machine should be repaired by Hilti Service.
	Drilling progress is prevented by an accumulation of dust.	Use a suitable vacuum cleaner.
	Water pressure / flow rate too high.	Reduce the water flow rate by adjusting the flow regulator.
	The water flow rate is too low.	Adjust (open) the water flow regulator. Check the water supply.
The diamond core bit cannot be fitted into the chuck.	The core bit connection end or chuck is dirty or damaged.	Clean the connection end /chuck or replace if necessary.
Excessive play in the drilling system.	The core bit is not screwed securely into the chuck.	Tighten it securely.
	The core bit connection end is defective.	Check the connection end and replace it if necessary.
Water escapes at the water swivel or gear housing.	The water pressure is too high.	Reduce the water pressure.
	The shaft seal is defective.	The machine should be repaired by Hilti Service.
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.

## 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

From the environmental and health point of view, the disposal of drilling dust can be problematic. Ask the local public authorities for information about current regulations.

### 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

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

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# HILTI

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