

# HILTI

## DD 500-CA

**Operating instructions**

**en**

**Mode d'emploi**

**fr**

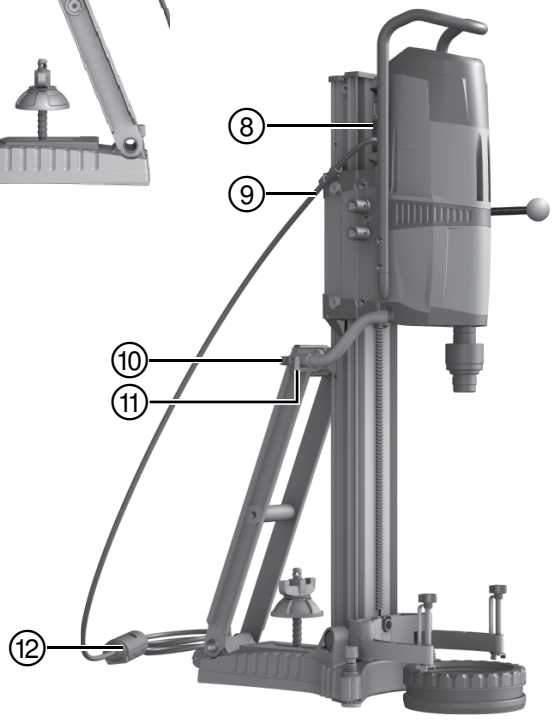
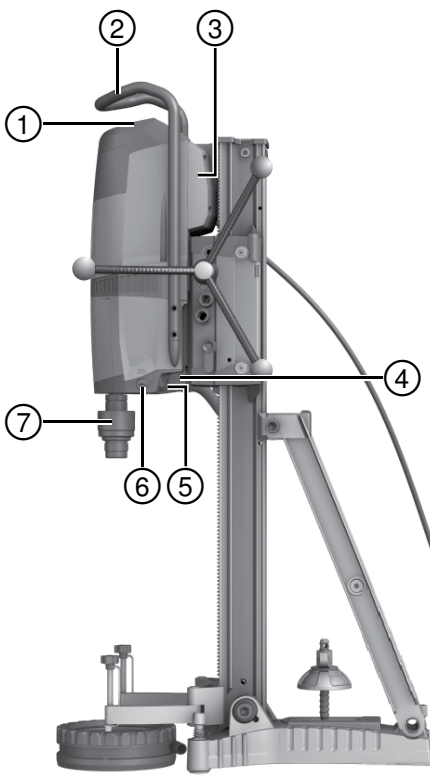
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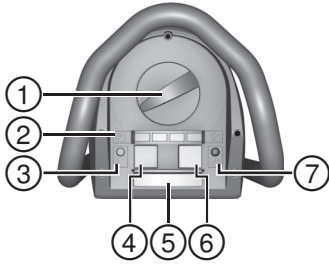




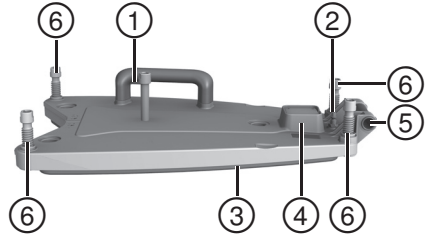
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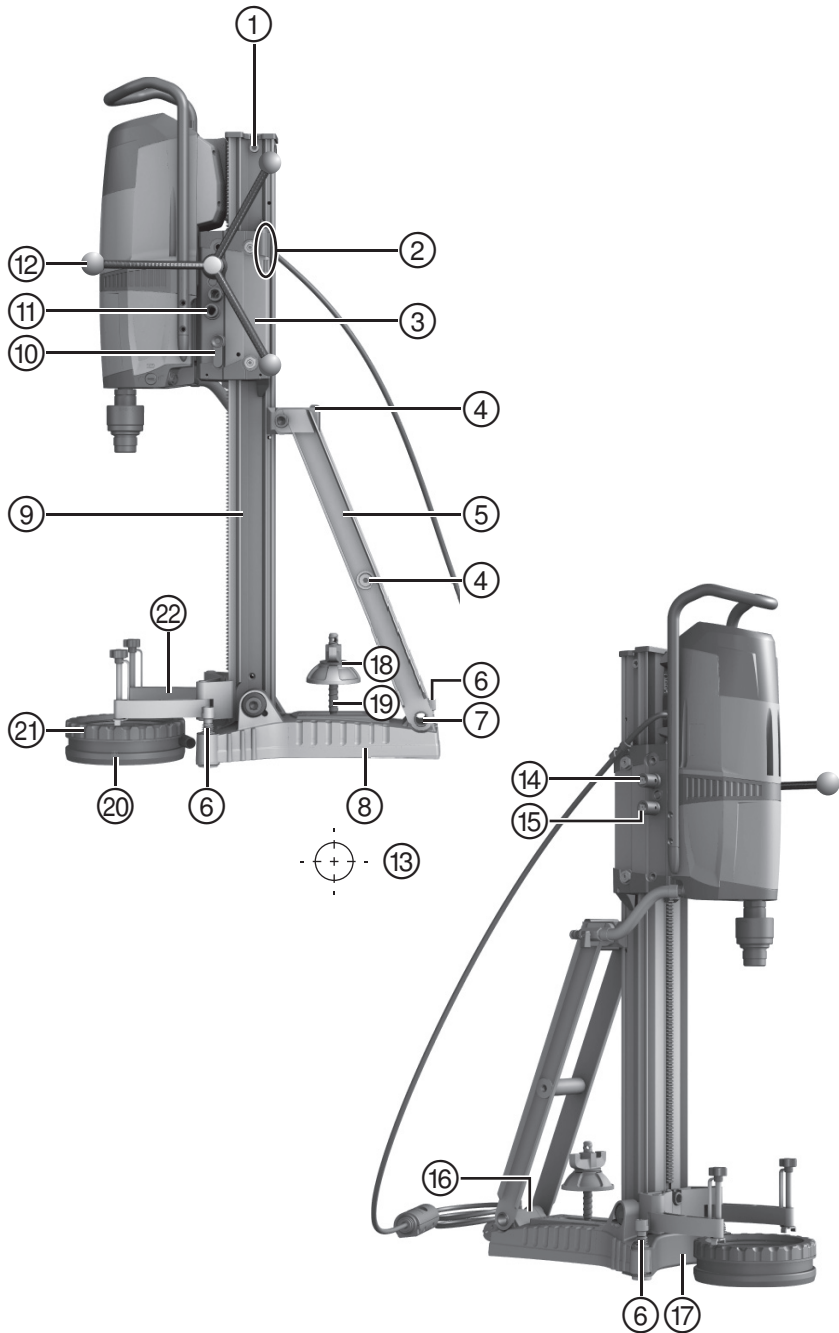


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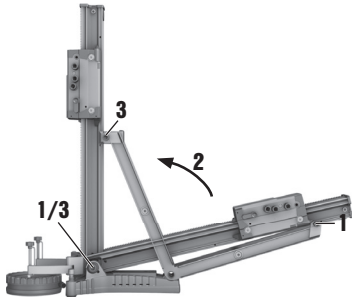


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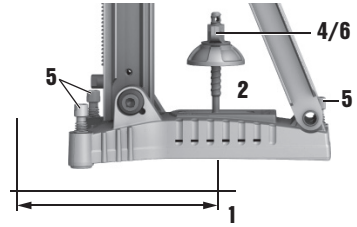




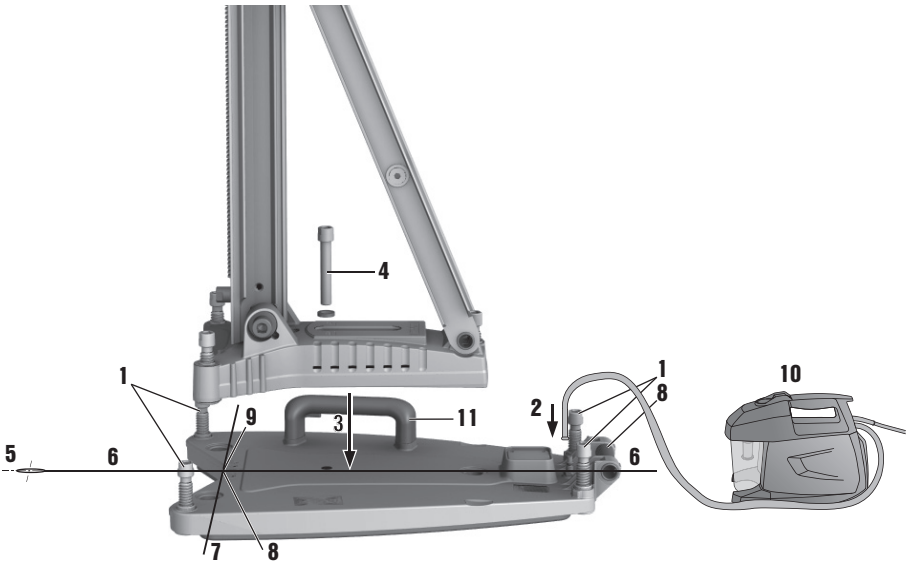
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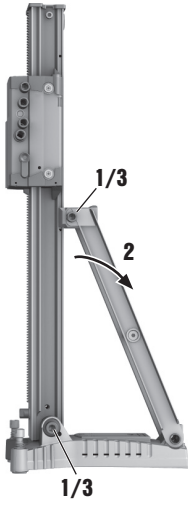
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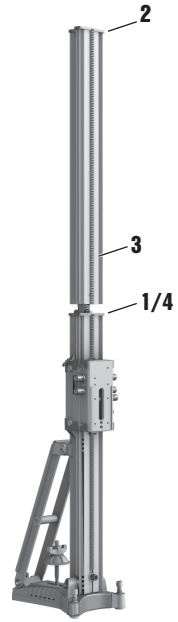
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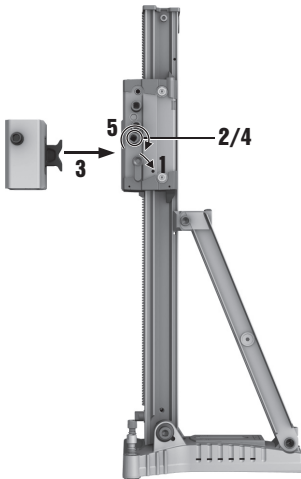
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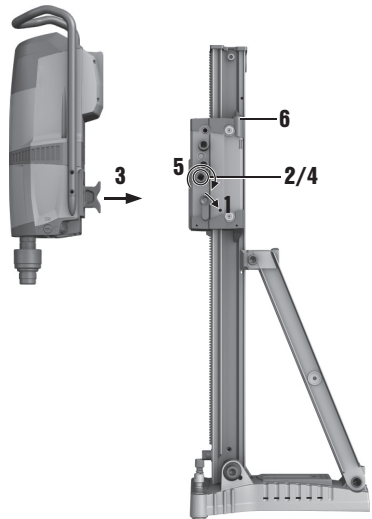
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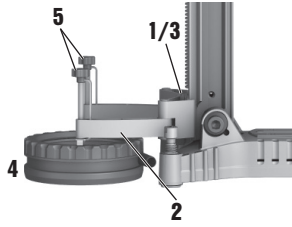
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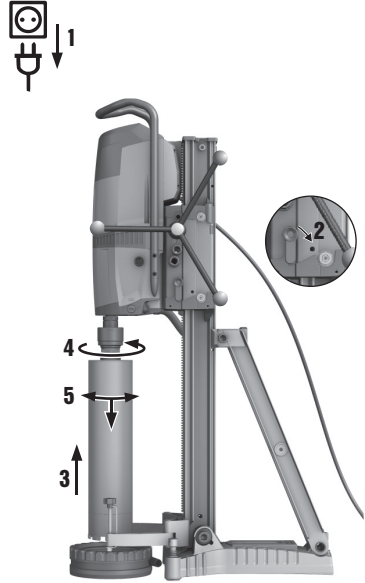
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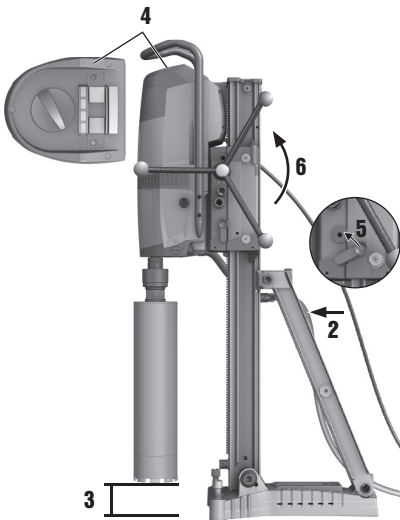
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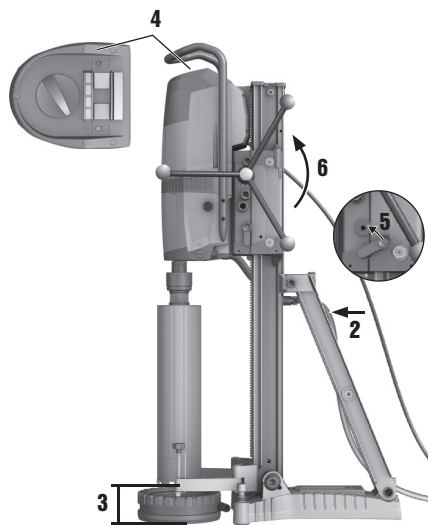
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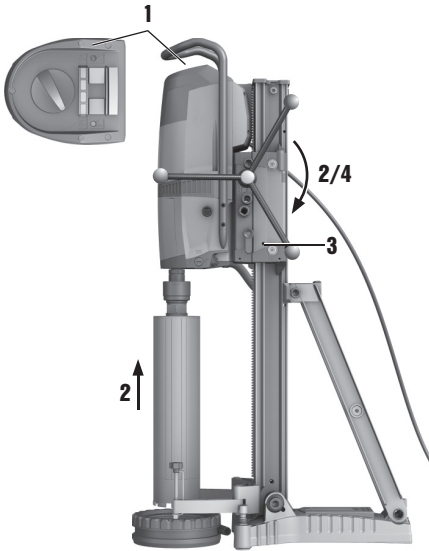
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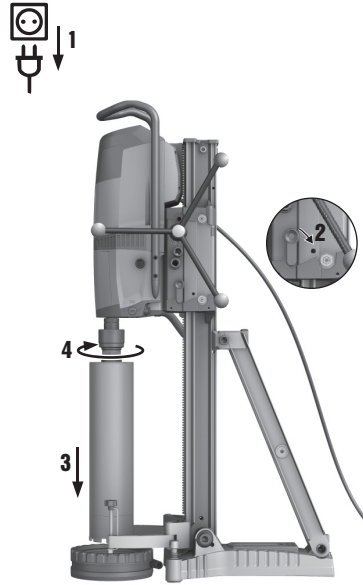
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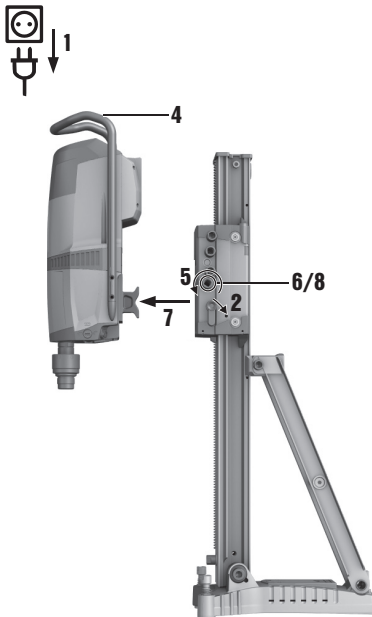
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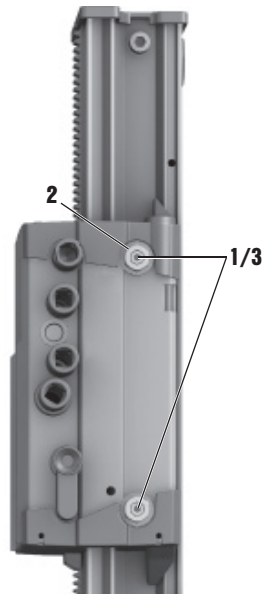
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## DD 500 - CA core drilling machine

**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 illustrations. You can find the illustrations at the beginning of the operating instructions.

In these operating instructions, the designation "the machine" always refers to the DD 500-CA diamond core drilling machine.

### Core drilling machine **1**

- ① Control panel and display
- ② Carrying bar
- ③ Type identification plate
- ④ Grip protrusion
- ⑤ Water drainage plug
- ⑥ 3-way valve
- ⑦ Chuck
- ⑧ Connector
- ⑨ Supply cord guide
- ⑩ Water connection
- ⑪ Water flow regulator
- ⑫ Supply cord

### Control panel and display **2**

- ① Gear selector
- ② Drilling performance indicator
- ③ Temperature monitor / ground fault indicator
- ④ "On" switch
- ⑤ "Off" switch
- ⑥ Rebar button (Iron Boost)
- ⑦ Service indicator

### Vacuum base plate (accessory) **3**

- ① Vacuum release valve
- ② Vacuum hose connector
- ③ Vacuum seal
- ④ Pressure gauge
- ⑤ Wheel assembly mounting point
- ⑥ Leveling screws (4×)

### DD-HD 30 drill stand (accessory) **4**

- ① End stop with rail end cap
- ② Leveling indicator (2×)
- ③ Carriage
- ④ Carrying grip (2×)
- ⑤ Brace
- ⑥ Leveling screw (3×)
- ⑦ Wheel assembly mounting point
- ⑧ Base plate
- ⑨ Rail
- ⑩ Carriage lock
- ⑪ Eccentric pin (for securing the machine)
- ⑫ Hand wheel
- ⑬ Anchor position
- ⑭ Reduction gearing (1:3)
- ⑮ Direct drive (1:1)
- ⑯ Type identification plate
- ⑰ Hole center indicator

### Drill stand fastening set (accessory) **4**

- ⑱ Clamping nut
- ⑲ Anchor spindle

### Water collection system (accessory) **4**

- ⑳ Seal
- ㉑ Water collector
- ㉒ Water collector bracket

# 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

### Obligation signs



Read the operating instructions before use.

## Symbols



Service indicator



Return materials for recycling



Alternating current

$n_0$

Nominal speed under no load

RPM

Revolutions per minute



Diameter



Drilling performance indicator

### 3-way valve on the core drilling machine



Wet drilling position

### 3-way valve on the core drilling machine



Core bit draining position

### 3-way valve on the core drilling machine



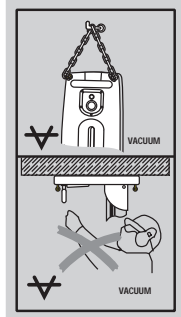
Dry drilling position

### On the core drilling machine



At temperatures below  $4^{\circ}\text{C}$  the cooling circuit must be drained as described before pauses of an hour or longer between use.

### On the vacuum 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.

### 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: \_\_\_\_\_

Generation: 01 \_\_\_\_\_

Serial no.: \_\_\_\_\_

## 2 Description

### 2.1 Use of the product as directed

The core drilling machine together with the DD-HD 30 drill stand and additional accessories recommended by Hilti (e.g. the DD AF-CA drilling feed unit) forms an automatic stand-mounted drilling rig suitable for wet core drilling in reinforced mineral materials. The core drilling machine is electrically powered and is designed for drilling through holes and blind holes using diamond core bits (it is not suitable for hand-held operation).

The core drilling machine must be mounted on the drill stand and care must be taken to ensure that the drill stand is securely fastened to the base material using an anchor or vacuum base plate.

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 core drilling machine, drill stand, accessories and core bits may present hazards when by used by untrained personnel, when handled incorrectly or when used not as directed.

Observe the national health and safety requirements.

Use of a water collection system connected to a wet/dry industrial vacuum cleaner is recommended for drilling in an upward direction.

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 use a hammer or other heavy object when making adjustments to the base plate.

### NOTE

In addition to these operating instructions, the information given in the operating instructions for the other components of the core drilling system, especially the operating instructions for the optional drilling feed unit, must always be observed.

### WARNING

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

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 diameter	Drilling direction	Standard working length
With water collection system	82...250 mm (3.23... 9.84")	All directions	500 mm (19.69")
System without water collection system	82...600 mm (3.23... 23.62")	All directions	500 mm (19.69")

The core drilling machine complies with IP55 requirements and thus features protection against sprayed water. This allows drilling to be carried out in all directions without use of a wet-type vacuum cleaner.

The machine may be operated only when an adequate supply of cooling water is ensured (at least 0.5 l/min at a water temperature of max. 30°C).

When the drilling column (rail) is extended to a length of 2 m or more, an additional support or brace must be fitted, e.g. a bracing spindle.

**2.3 Indicators on the control panel for service, cooling/voltage and drilling power**

Service indicator	Lights	Bring the core drilling machine to a Hilti Service Center
	Blinks for a short time	Faults or errors in the machine (see Troubleshooting section)
	Blinks continuously	Bring the machine to a Hilti Service Center immediately (failure to follow this instruction may affect entitlement to benefits under the optional 2-year full service agreement!)
Indicators for cooling and voltage error	Lights	Check the water flow rate
	Blinks	Check the electric supply (see Troubleshooting section)
Drilling performance indicator	Orange light	Low contact pressure, e.g. when starting drilling
	Green light	Optimum contact pressure (after the hole has been started)
	Red light	Contact pressure too high

**2.4 Gears and the corresponding core bit diameters**

Gear	Core bit diameter (mm)	Core bit diameter (inches)	Speed under no load 380-415 V (/min)
1	82...92	3¼...3½	571
2	102...112	4...4½	571
3	122...132	4¾...5¼	571
4	142...172	5½...6¾	571
5	182...202	7...8	510
6	225...250	9...10	429
7	300	12	367
8	350	14	327
9	400	16	286
10	450...600	18...24	265

## 2.5 Items supplied

- 1 Core drilling machine
- 1 Operating instructions

### NOTE

Accessories not supplied with the machine are available from your Hilti Center or can be ordered online at [www.hilti.com](http://www.hilti.com).

## 2.6 Using a generator or transformer

The core drilling machine may be powered by a generator or by way of site transformer when the following conditions are fulfilled:

AC voltage, power output at least 10.000 VA

The operating voltage must, at all times, be no more than 5% above or 10% below the rated voltage.

Frequency: 50 to 60 Hz, max. 65 Hz

Automatic voltage regulator with starting boost

### NOTE

Switching other power tools, machines or appliances on and off may cause undervoltage and / or overvoltage peaks, resulting in damage to the core drilling machine. Never operate other power tools, machines or appliances from the generator or transformer at the same time.

## 3 Technical data

Right of technical changes reserved.

### Other information about the machine

The core drilling machine is available in various voltage ratings. Please refer to the core drilling machine's type identification plate for details of its rated voltage and rated input power.

Rated voltage	480 V
Rated current input	8 A
Rated frequency	50...60 Hz
Rated speed under no load	270...580/min
Output voltage	480 V
Output frequency	50...60 Hz
Output current	0.25 A
Chuck	BL (interchangeable, see <a href="http://www.hilti.com">www.hilti.com</a> )
Max. permissible water supply pressure <sup>1</sup>	6 bar (87.02 psi)
Minimum water flow rate per minute	Min. 0.5 l (Min. 0.13 gal) (water temperature: Max. +30°C (Max. +86 °F))
Dimensions (L x W x H)	608 mm (23.94") x 192 mm (7.56") x 216 mm (8.5")
Weight in accordance with EPTA procedure 01/2003	16.6 kg (36.6 lb)
Weight of DD-HD 30 drill stand	20.5 kg (45.19 lb)
Max. operating weight	85 kg (187.39 lb) (core drilling machine, drill stand, 600 mm core bit)
Drilling depth	Max. 500 mm (Max. 19.69") without extension
Protection class	I (grounded)
Protected against dust and water	In accordance with IP 55

<sup>1</sup> If the pressure is higher, use a pressure reduction valve!

## 4 Safety instructions

### 4.1 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.

#### 4.1.1 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.

#### 4.1.2 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.

#### 4.1.3 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.

#### 4.1.4 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.

#### 4.1.5 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.

#### 4.2 Proper organization of the work area

- a) **The machine may be operated only with a functional ground fault circuit interrupter (RCD residual current device).** Check each time before use that your electric supply is equipped with a ground fault circuit interrupter. Make sure that the ground fault circuit interrupter is functioning.
- b) **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.
- c) **When drilling through walls, secure (cordon off) 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 (cordon off) the area below as drilled material or the core may drop out and fall down.**
- d) **In order to avoid accidents in which persons fall and injure themselves, the opening that is created must be securely and visibly cordoned off.**
- e) **Place the mounting device on a solid, flat and level surface.** If the mounting device can slip or wobble, the machine cannot be guided smoothly and safely.
- f) **Check the nature of the surface.** Rough surfaces may reduce the holding power of the drill stand. Coatings or composite materials may pull away from the surface while you are working, so that the drill stand with the core drilling machine are no longer held securely.
- g) **Do not overload the mounting device and do not use it as a substitute for a ladder or platform.** Overloading the mounting device or standing on it may shift its center of gravity to a higher position, causing it to tip over.
- h) **Wear respiratory protection if the work causes dust.**
- i) **Ensure that the workplace is well ventilated.**
- j) **It is recommended that rubber gloves and non-skid shoes are worn when working outdoors.**
- k) **Keep the supply cord, extension cord, suction hose and vacuum hose away from rotating parts.**
- l) **Don't work from a ladder.**
- m) **Keep the workplace tidy. Objects which could cause injury should be removed from the working area.** Untidiness at the workplace can lead to accidents.
- n) **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.
- o) **Always lead the supply cord and extension cord away from the power tool to the rear while work-**

ing. This helps to avoid tripping over the cord while working.

#### 4.2.1 General safety rules

- a) **Fit the protective cover cap only when the drilling feed unit is unplugged. Operate the core drilling machine only when the connecting socket is covered, i.e. when the protective cover cap is fitted. If the protective cover cap is missing, contact Hilti Service and obtain a replacement. Unplug the core drilling machine from the electric supply immediately if water enters the connecting socket. Check to ensure that the connecting socket is dry before making further use of the core drilling machine.** The connecting socket may fill with water if it is not covered by the protective cap or if the connecting plug is not in place, resulting in a risk of electric shock if the parts are touched.
- b) **Keep the grips dry, clean and free from oil and grease.**
- c) **Never leave the machine unattended.**
- d) **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.**
- e) **Keep other persons away. Do not allow other persons who are not involved in the work, especially children, to touch neither the machine nor the extension cable. Keep these persons away from the working area.**
- f) **Children must be instructed not to play with the machine.**
- g) **The machine is not intended for use by children, by debilitated persons or those who have received no instruction or training.**
- h) **Never operate the machine without the RCD. If the machine has no RCD: never operate the machine without an isolating transformer. Test the RCD each time before use.**
- i) **Tampering with or modification of the machine, drill stand and accessories is strictly prohibited.**
- j) **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 without sticking and that no parts are damaged. All parts must be fitted correctly and fulfill all conditions necessary for correct operation of the machine. Damaged guards, safety devices and other parts must be repaired or replaced properly at an authorized service center unless otherwise indicated in the operating instructions.**
- k) **Regularly check the hoses for damage and make sure that the maximum permissible water supply pressure of 6 bar is not exceeded.**
- l) **Avoid skin contact with drilling slurry.**
- m) **Wear a protective mask during work that generates dust, e.g. dry drilling. Connect a dust re-**

**removal system. Drilling in materials hazardous to the health (e.g. asbestos) is not permissible.**

- n) Dust from material such as paint containing lead, some wood species, minerals and metal may be harmful. Contact with or inhalation of the dust may cause allergic reactions and/or respiratory diseases to the operator or bystanders. Certain kinds of dust are classified as carcinogenic such as oak and beech dust especially in conjunction with additives for wood conditioning (chromate, wood preservative). Material containing asbestos must only be treated by specialists. **Where the use of a dust extraction device is possible it shall be used. To achieve a high level of dust collection, use a suitable vacuum cleaner of the type recommended by Hilti for wood dust and/or mineral dust together with this tool. Ensure that the workplace is well ventilated. The use of a dust mask of filter class P2 is recommended. Follow national requirements for the materials you want to work with.**
- o) **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.**
- p) **Check that all core bits are in good condition before use. Do not use deformed or damaged core bits.**
- q) **When drilling, always maintain a safe distance from the core bit and do not touch any rotating parts. Always unplug the supply cord before touching or making any adjustments to the core bit.**

#### 4.2.2 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) **As the end stop has a safety-relevant function, always check to ensure that the end stop screw is securely in place on the drill stand.**

#### 4.2.3 Electrical

- a) **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.**
- 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) **In case of an interruption in the electric supply: Switch the machine off and unplug the supply cord.**
- d) **Avoid using extension cords with multiple power outlets and the simultaneous use of several electric tools or machines connected to one extension cord.**
- e) **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.**
- f) **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.**
- g) **Before beginning drilling, check that there are no live electric cables present in the area where drilling is to take place.**

#### 4.2.4 Thermal

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

#### 4.2.5 Requirements to be met by users

- a) **Improve the blood circulation in your fingers by relaxing your hands and exercising your fingers during breaks between working.**
- b) **Stay alert. Pay attention to what you are doing. Approach the work with common sense. Do not use the machine if you are not concentrating.**



## 5 Preparation for core drilling

### WARNING

While setting up the equipment, the core drilling machine must be disconnected from the electric supply.

### DANGER

Check that the drill stand is securely fastened to the work surface.

### 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.

### NOTE

When carrying the drilling machine, use the carrying handle and the grip protrusion provided.

### 5.1 Setting up the drill stand 5

These steps are necessary only if the parts of the drill stand have been folded together.

1. Loosen the bolt at the top end of the brace and at the pivoting joint at the bottom end of the rail.
2. Bring the rail into the vertical position.
3. Tighten the bolt at the top end of the brace and at the pivoting joint at the bottom end of the rail.
4. **CAUTION The protective end cap with built-in end stop must be fitted at the top end of the guide rail.**

If the protective end cap with built-in end stop is not already fitted, fit it now.

### 5.2 Fitting the hand wheel

The hand wheel can be fitted on the left-hand side or the right-hand side of the carriage on two different shafts. On both sides of the carriage, the upper shaft provides a direct drive while the lower shaft drives the carriage through reduction gearing.

1. Fit the hand wheel onto one of the two shafts on the left-hand or right-hand side of the carriage.
2. Secure the hand wheel with the screw.

### 5.3 Fastening the drill stand with an anchor 6

### WARNING

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

### NOTE

Hilti M16 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. If you are working without a spacer, the anchor for the base plate should be set, as far as possible, at a distance of 330 mm (13 ") from the center of the hole to be drilled.

**NOTE** The optimum distance is 330 mm (13 "). If a spacer is used, this distance increases.

2. Screw the anchor spindle into the anchor.
3. Place the drill stand over the anchor spindle and then use the hole center indicator to position it correctly.

**NOTE** If a spacer is fitted, the hole center indicator cannot be used to position the drill stand.

4. Screw the clamping nut onto the anchor spindle, leaving it loose enough to allow movement of the base plate.
5. Level the base plate by turning the 3 leveling screws. Use the 2 leveling indicators on the carriage as an aid. Take care to ensure that the leveling screws make firm contact with the underlying surface.
6. Use a 27 mm AF open-end wrench to tighten the clamping nut on the anchor spindle.

**NOTE** Do not use a hammer or other heavy object when tightening the nut as this can damage the base plate. The brace can be released and folded out of the way to allow better access. Before operating the machine, however, the brace must be refitted and securely attached to the rail.

7. Make sure that the drill stand is fastened securely.

### 5.4 Fastening the drill stand with the vacuum base plate 7

### 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.**

### CAUTION

**Suitable for use only with core bits ≤ 300 mm (12") in diameter and without use of a spacer.**

### DANGER

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

### NOTE

A vacuum valve, which can be used to release the vacuum, is fitted to the hand grip on the vacuum base plate. Check the condition of the seal on the vacuum base plate at regular intervals and replace it if it is worn or damaged.

The vacuum base plate is available as an accessory.

1. Turn the four leveling screws until they project approximately 5 mm beneath the vacuum base plate.
2. Connect the vacuum connector on the vacuum base plate to the vacuum pump.
3. Place the drill stand on the vacuum base plate.
4. Fasten it securely using the screw and washer supplied.
5. Locate the center point of the hole to be drilled.
6. Beginning at the center point of the hole to be drilled, mark out a line with a length of approx. 800 mm in the direction of where the core drilling system is to stand.
7. At a distance of 165 mm (6 1/2") from the center point of the hole to be drilled, make a mark on the 800 mm long line.
8. Bring the indicator marks on the vacuum base plate into alignment with the 800 mm (31 1/2") long line.
9. Align the middle of the front edge of the vacuum base plate with the mark at 165 mm (6 1/2") on the line.
10. **CAUTION Make yourself familiar with information contained in the operating instructions for the vacuum pump and follow these instructions before using it.**  
Switch on the vacuum pump and press the vacuum release valve.
11. Adjust the position of the drill stand while keeping the vacuum release valve pressed in. Release the valve as soon as the drill stand is correctly positioned. Press the drill stand against the working surface.
12. **WARNING Before beginning drilling, during drilling and until the core drilling system is dismantled, it must be ensured that the pressure gauge indicator remains within the green area. WARNING The anchor base plate cannot and should not be leveled on the vacuum base plate.**  
Level the vacuum base plate by turning the four leveling screws.  
**NOTE** The two leveling indicators incorporated in the carriage serve as an adjustment aid.
13. An additional means of securing the drill stand must be used when drilling horizontally. (e.g. a chain attached to an anchor, etc.).
14. Make sure that the drill stand is fastened securely.

### 5.5 Setting the drilling angle on the drill stand 8

The drilling angle can be adjusted to a maximum of 45°.

#### CAUTION

At the hinged joints on the drill stand there is a risk of crushing the fingers. **Wear protective gloves.**

1. Loosen the bolt at the top end of the brace and at the pivoting joint at the bottom end of the rail.
2. Adjust the rail to the desired angle.  
**NOTE** The angle scale at the rear serves as an adjustment aid.
3. Tighten the bolt at the top end of the brace and at the pivoting joint at the bottom end of the rail.

### 5.6 Extending the rail 9

#### CAUTION

**When starting holes use only core bits or extended core bits with a maximum total length of 650 mm.**

1. Remove the protective end cap with built-in end stop from the top end of the rail.
2. Fit the protective end cap with built-in end stop to the end of the extension rail.  
**NOTE** In addition, a depth gauge (accessory) can also be fitted at the lower end of the rail.
3. Fit the cylindrical connector on the extension rail into the end of the rail on the drill stand.
4. Secure the extension rail by turning the eccentric pin.  
**NOTE** After removing the extension rail, the protective cover cap must be refitted to the rail on the drill stand in order to ensure that safety-relevant end stop function is restored.

### 5.7 Fitting the spacer 10

#### NOTE

When core bits with a diameter of 300 mm or greater are used, the distance between the drill stand and the drilling axis must be increased by fitting a spacer. The hole center indicator is no longer functional when spacers are used. A maximum of 2 spacers may be fitted, one behind the other.

At this stage, the core drilling machine should not already be mounted on the drill stand.

1. Lock the carriage in position on the rail and check that it holds securely.  
**NOTE** The carriage is locked when the locking pin is engaged.  
In this position, no movement of the carriage is possible.
2. Pull the eccentric pin out of the core drilling machine mount.
3. Fit the spacer onto the carriage.
4. Push the eccentric pin into the carriage as far as it will go.
5. Use the hand wheel to tighten the eccentric pin moderately in a clockwise direction.  
**NOTE** The locking pin will shear if excessive force is applied.

### 5.8 Mounting the machine on the drill stand 11

1. Lock the carriage in position on the rail and check that it holds securely.  
**NOTE** The carriage is locked when the locking pin is engaged.  
In this position, no movement of the carriage is possible.
2. Pull the eccentric pin out of the core drilling machine mount.
3. Fit the machine onto the carriage or the spacer.

4. Push the eccentric pin into the carriage or the spacer as far as it will go.
5. Use the hand wheel to tighten the eccentric pin moderately in a clockwise direction.  
**NOTE** The locking pin will shear if excessive force is applied.
6. Pass the supply cord through the supply cord guide on the opposite side of the carriage.
7. Check that the machine is mounted securely.

### 5.9 Fitting the water supply connection

#### NOTE

Before starting the core drilling machine, check that the 3-way valve is set to the position for wet drilling or dry drilling.

1. Close the valve in the water supply hose.
2. Connect the water supply hose to the hose connector on the core drilling machine.

**NOTE** A flow meter, which is available as an accessory, may be fitted between the machine's water supply hose connector and the water supply hose.

### 5.10 Fitting the water collection system (accessory)

#### NOTE

Use of the water collection system allows water to be led away in a controlled manner, thus avoiding a mess or damage to the surrounding area. We recommend, as a general rule, that a water collection system is used with core bits of up to 250 mm (10") in diameter. Best results are achieved with a wet-type industrial vacuum cleaner. When drilling overhead on ceilings, the drill stand must be perpendicular to the ceiling (90°) and the sealing ring must correspond to the diameter of the diamond core bit used.

1. Release the screw on the front of the rail at the hinged joint on the drill stand.
2. Slide the water collector holder into position under the screw from below.
3. Tighten the screw securely.
4. Fit the water collector between the two movable arms of the water collector holder.
5. Secure the water collector with the two screws on the 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.

### 5.11 Fitting the diamond core bit (BL chuck)

#### 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.**

#### 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 2 mm.

#### 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.**

1. Disconnect the supply cord plug from the power outlet.
2. Lock the carriage in position on the rail and check that it is securely locked by turning the hand wheel slightly.
3. From below, push the connection end of the diamond core bit into chuck on the core drilling machine, making sure that the teeth engage.
4. Close the chuck by turning it in the direction of the closed brackets symbol.
5. Check that the diamond core bit is securely mounted in the chuck. There should be no movement when it is gripped and pulled.
6. **WARNING** The rotating core bit presents a risk of injury! A rotating core bit that is lowered toward the base material is capable of severing parts of the body. After fitting the core bit, adjust the system in order to reduce the distance between the core bit and the base material to a minimum before switching on the diamond coring machine.  
**Bring the core bit as close as possible to the surface in which the hole is to be drilled.** However, it should not touch the surface.

### 5.12 Setting the depth gauge (accessory)

1. Turn the hand wheel until the diamond core bit is in contact with the surface in which the hole is to be drilled.
2. Set the desired drilling depth by adjusting the distance of the depth gauge from the carriage.
3. Secure the depth gauge by tightening the clamping screw.

### 5.13 Selecting the speed

1. Select the switch setting according to the core bit diameter used.

**NOTE** The speed of rotation of the core bit can be changed while drilling is in progress.

## 6 The core drilling operation

### CAUTION

The AC supply voltage must correspond to the voltage rating given on the type identification plate.

### DANGER

Have the earth / ground conductor installation in the mains supply and the earth / ground connection in the machine checked at regular intervals.

### WARNING

Take care to ensure 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.

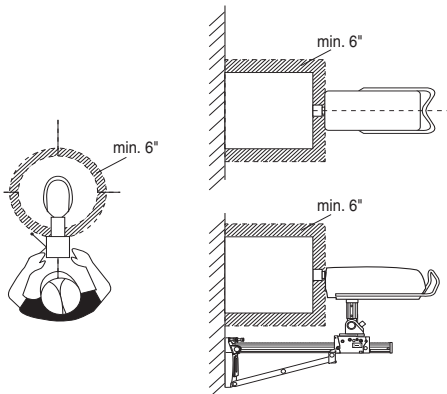
### DANGER

When drilling through walls, secure (cordon off) 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 (cordon off) the area below as drilled material or the core may drop out and fall down.

### CAUTION

Take care to avoid touching rotating parts when regulating the water flow while the machine is running.

### 6.1 Keep everything clear of the danger zone



The shaded area in the illustration indicates the danger zone around the core drilling machine. Stay clear of the core bit when the machine is in operation (keep a distance of at least 15 cm (6")).

### 6.2 Starting a hole using the hole-starting function

#### NOTE

Pay attention to the information in this section in addition to the information about the various core drilling applications.

Strong vibration may occur when starting a hole. Use the hole-starting function if strong vibration is experienced.

- WARNING** The rotating core bit presents a risk of injury! A rotating core bit that is lowered toward the base material is capable of severing parts of the body. After fitting the core bit, adjust the system in order to reduce the distance between the core bit and the base material to a minimum before switching on the diamond coring machine.  
**Bring the core bit as close as possible to the surface in which the hole is to be drilled.** However, it should not touch the surface.
- Press the "On" switch on the core drilling machine.
- Press the "On" switch a second time. The core bit then rotates very slowly (approx. 21/min).
- Press the core bit firmly against the working surface.
- After a short hole-starting phase (approx. 5 s), press the "On" switch again. The core bit will then rotate at normal speed.
- Continue the drilling operation in accordance with the instructions given in the subsequent sections.

### 6.3 Procedure when rebars are contacted

#### NOTE

If the rate of drilling progress becomes slower, this may indicate that a rebar has been contacted. On contact with rebars, the following procedure is recommended:

- Press the rebar ("Iron Boost") button.
- Press the rebar button once more when the rate of drilling progress again increases, indicating that the core bit is again drilling through concrete. The Iron Boost function is then deactivated.

**NOTE** Use the Iron Boost function only when drilling in heavily reinforced concrete. To avoid shortening core bit life unnecessarily, switch the Iron Boost function off again each time after drilling through rebars.

### 6.4 Various applications

In this section, the following types of application are described:

Wet drilling without use of a water collection system

Wet drilling using a water collection system and wet-type vacuum cleaner

Dry drilling

#### 6.4.1 Wet drilling without use of a water collection system

##### 6.4.1.1 Starting the hole

1. Switch on the water supply.
2. Open the water flow regulator slowly until the desired water flow rate out of the core bit is achieved.
3. **WARNING** The rotating core bit presents a risk of injury! A rotating core bit that is lowered toward the base material is capable of severing parts of the body. After fitting the core bit, adjust the system in order to reduce the distance between the core bit and the base material to a minimum before switching on the diamond coring machine.  
**Bring the core bit as close as possible to the surface in which the hole is to be drilled.** However, it should not touch the surface.
4. Press the “On” switch on the core drilling machine. The core bit begins to rotate.
5. Release the carriage locking mechanism while holding the hand wheel securely.
6. Turn the hand wheel until the diamond core bit is in contact with the work surface.
7. When starting the hole, apply only light pressure until the diamond core bit has centered itself.  
**NOTE** When the pressure applied is low, the drilling performance indicator lights orange.
8. Increase the pressure applied to the core bit until the drilling performance indicator lights green.

#### 6.4.2 Wet drilling using a water collection system and wet-type vacuum cleaner

##### NOTE

Wet-type vacuum cleaners are available as accessories.

##### CAUTION

**Make sure that the core bit is centered within the water collector.**

##### NOTE

Use of the water collection system is not possible when drilling at an angle.

##### NOTE

The diamond core bit fills with water when drilling overhead. After overhead drilling, first drain the remaining water from the core bit.

##### NOTE

The vacuum cleaner must be switched on manually before opening the water supply valve and switched off again manually after closing the water supply valve.

##### NOTE

If the optional water flow indicator is not used, the water flow when drilling overhead can be monitored only after the core bit has filled with water.

The wet-type vacuum cleaner must be switched on. Setting it to automatic mode is not permissible.

#### 6.4.2.1 Starting the hole

1. Switch on the water supply.
2. Open the water flow regulator slowly until the desired water flow rate out of the core bit is achieved.
3. **WARNING** The rotating core bit presents a risk of injury! A rotating core bit that is lowered toward the base material is capable of severing parts of the body. After fitting the core bit, adjust the system in order to reduce the distance between the core bit and the base material to a minimum before switching on the diamond coring machine.  
**Bring the core bit as close as possible to the surface in which the hole is to be drilled.** However, it should not touch the surface.
4. Press the “On” switch on the core drilling machine. The core bit begins to rotate.
5. Release the carriage locking mechanism while holding the hand wheel securely.
6. Turn the hand wheel until the diamond core bit is in contact with the work surface.
7. When starting the hole, apply only light pressure until the diamond core bit has centered itself.  
**NOTE** When the pressure applied is low, the drilling performance indicator lights orange.
8. Increase the pressure applied to the core bit until the drilling performance indicator lights green.

#### 6.4.3 Dry drilling

To extract the drilling dust use a suitable dust removal system consisting of a water collector and seal of the correct, corresponding diameter (available as accessories), the appropriate connector and a vacuum cleaner. The dust extraction process must be assisted by a flow of compressed air through the core bit. The air flow rate for this purpose must be at least 30 l/s.

##### NOTE

Wear respiratory protection when working in dusty conditions.

The dust removal system and the compressed air supply must be switched on.

#### 6.4.3.1 Starting a hole using the dry drilling technique

1. Set the 3-way valve on the core drilling machine to “Dry drilling”.
2. Open the water drainage plug so that the cooling water can flow out.
3. Switch on the water supply.
4. Open the water flow regulator slowly until the desired water flow rate out of the water drainage outlet is achieved.

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5. **WARNING** The rotating core bit presents a risk of injury! A rotating core bit that is lowered toward the base material is capable of severing parts of the body. After fitting the core bit, adjust the system in order to reduce the distance between the core bit and the base material to a minimum before switching on the diamond coring machine.

**Bring the core bit as close as possible to the surface in which the hole is to be drilled.** However, it should not touch the surface.

6. Press the "On" switch on the core drilling machine. The core bit begins to rotate.
7. Release the carriage locking mechanism while holding the hand wheel securely.
8. Turn the hand wheel until the diamond core bit is in contact with the work surface.
9. When starting the hole, apply only light pressure until the diamond core bit has centered itself.
- NOTE** When the pressure applied is low, the drilling performance indicator lights orange.
10. Increase the pressure applied to the core bit until the drilling performance indicator lights green.

### 6.5 Completing the drilling operation

#### CAUTION

Heavy cores present a risk of injury. Take great care when handling heavy cores. Be careful to avoid getting your fingers trapped and crushed. Use a lifting aid or obtain help.

- Press the "Off" switch on the core drilling machine.
- Turn the hand wheel to lift the diamond core bit out of the hole.
- Lock the carriage in position.

**NOTE** The carriage is locked when the locking pin is engaged.

In this position, no movement of the carriage is possible.

- Check that the carriage is locked by trying to turn the hand wheel slightly.
- Close the water flow regulator.
- Switch off the vacuum cleaner (if used).
- When ending an overhead drilling operation, first drain the water out of the core bit. To do this, remove the water drainage plug, connect a water drainage hose (accessory) to the water outlet and then turn the 3-way valve to the middle position.
- Disconnect the supply cord plug from the power outlet.
- Remove the core.

### 6.6 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. The core bit can be released by taking the following action:

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

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

#### 6.6.2 Releasing the core bit with the hand wheel

- Disconnect the supply cord plug from the power outlet.
- Lift the core bit out of the hole by turning the hand wheel.
- Plug the core drilling machine's supply cord into the power outlet.
- Resume the drilling operation.

### 6.7 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.**

- Disconnect the supply cord plug from the power outlet.
- Lock the carriage on the rail.
- Check that the carriage is locked by trying to turn the hand wheel slightly.
- Turn the chuck in the direction of the open brackets symbol.
- Remove the core bit.

### 6.8 Removing the core drilling machine from the drill stand

- Disconnect the supply cord plug from the power outlet.
- Lock the carriage on the rail.
- NOTE** The carriage is locked when the locking pin is engaged in the locked position. In this position, no movement of the carriage is possible.
- Check that the carriage is locked by trying to turn the hand wheel slightly.
- Hold the core drilling machine securely with one hand on the carrying grip. The machine may otherwise fall to the floor.
- Release the eccentric pin in the core drilling machine mount.
- Pull the eccentric pin out of the core drilling machine mount.
- Remove the core drilling machine from the carriage.

- Push the eccentric pin into the carriage as far as it will go.

### 6.9 Storage of the equipment and breaks between work at temperatures below freezing

#### DANGER

At temperatures below 4°C (39°F) the water in the cooling circuit must be blown out with compressed air when drilling is interrupted for more than an hour or before the equipment is stowed away.

- Switch off the water supply.
- Disconnect the water supply hose from the core drilling machine.
- Open the water flow regulator.
- Set the 3-way valve to "Wet drilling".
- Use compressed air (max. 3 bar) to blow the water out of the water circuit.

### 6.10 Disposal of drilling slurry

Please refer to the "Disposal" section.

### 6.11 Transport and storage

Open the water flow regulator before putting the core drilling machine into storage.

#### CAUTION

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

#### WARNING

Do not lift the core drilling machine and/or the drill stand by crane.

#### DANGER

Transport the drilling feed unit, core drilling machine, drill stand and core bit as separate units.

Use the wheel assembly (accessory) as an aid when transporting the equipment.

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## 7 Care and maintenance

### 7.1 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.

Clean the outside of the machine at regular intervals with a slightly damp cleaning cloth. Do not use spray systems, steam pressure cleaning systems or high-pressure water jet systems when cleaning. This may negatively affect the electrical safety of the machine.

### 7.2 Adjusting the play between rail and carriage 19

#### NOTE

Play between the rail and the carriage can be adjusted by way of the two eccentric pins on each opposite side of the carriage.

- Use a 5 mm hex key to loosen the four central locking screws (do not remove the locking screws).
- Use a 19 mm open-end wrench to turn and adjust the four eccentric pins so that the rollers are pressed lightly against the rail.
- Tighten the locking screws securely.

When no core drilling machine is mounted, the carriage should remain stationary on the rail if the rollers have been adjusted optimally. When a core drilling machine is mounted, it should run down the rail under its own weight.

### 7.3 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.

## 8 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 cord and extension cord, RCD and electric supply.
	The supply cord or plug is defective.	Have it checked by a trained electrician and replaced if necessary.
The machine doesn't start and the temperature or over/undervoltage indicator lights.	The machine has overheated.	Switch the machine off and then on again. Check the water supply. After cooling down the machine is again ready for use.

Fault	Possible cause	Remedy
The machine doesn't start and the temperature or over/undervoltage indicator blinks.	Fault in the electric supply.	Switch the machine off and then on again. Check the electric supply (especially when a generator or transformer is used).
The rate of drilling progress decreases.	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.
	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 water flow rate is too low.	Adjust (open) the water flow regulator. Check the water supply.
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.
The diamond core bit cannot be fitted into the chuck.	The connection end / chuck is dirty or damaged.	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 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 anchor spindle are not tightened.	Tighten the leveling screws or the anchor spindle.
	Excessive play at the carriage.	See section: 7.2 Adjusting the play between rail and carriage <b>19</b>
	The core bit connection end is defective.	Check the connection end and replace it if necessary.
	The bolt at the top end of the brace and/or at the pivoting joint at the bottom end of the rail is loose.	Tighten the bolts.
	The machine's mounting mechanism is loose.	Tighten the machine's mounting mechanism.
	Excessive play at the chuck.	Check that the chuck runs true (no wobble) and replace if necessary.
	The chuck is fitted incorrectly.	Push the chuck in as far as it will go and then tighten the hex. socket screw to a torque of 35 Nm.
	Poor fastening to the working surface.	Check the fastening and adjustment of the leveling screws.
	The motor cuts out.	The electronics are defective.
The core is stuck in the core bit.		Remove the core.
Interruption in the electric supply.		Check the supply cord, extension cord, supply cord plug and RCD and have them replaced by a qualified electrician if necessary.



## 9 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 before 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.

## 10 Manufacturer's warranty

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



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