

# HILTI

## TE MD20 MSHA

Operating instructions

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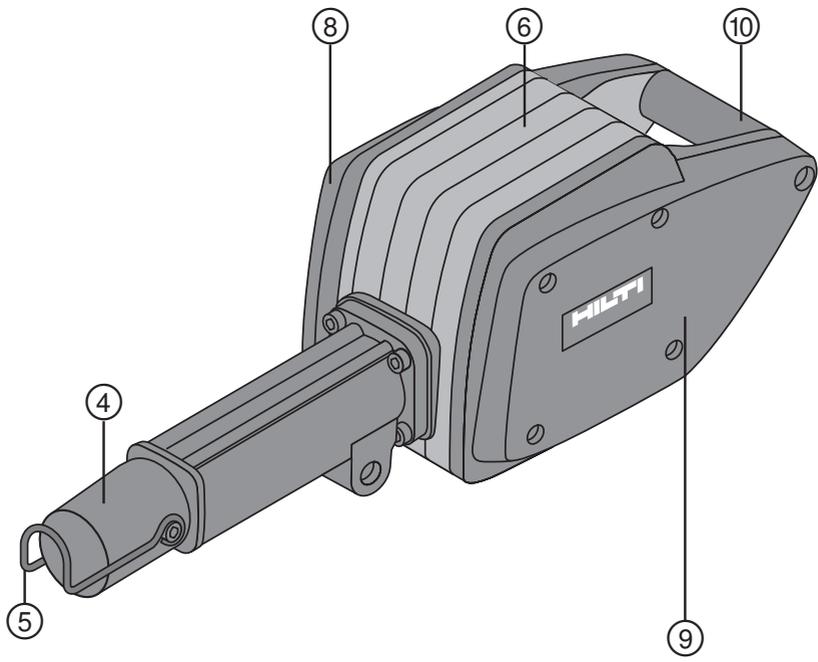
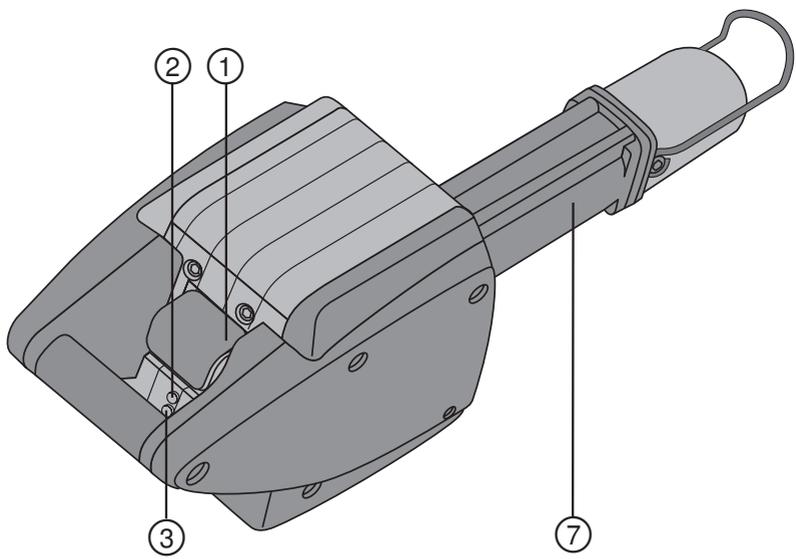
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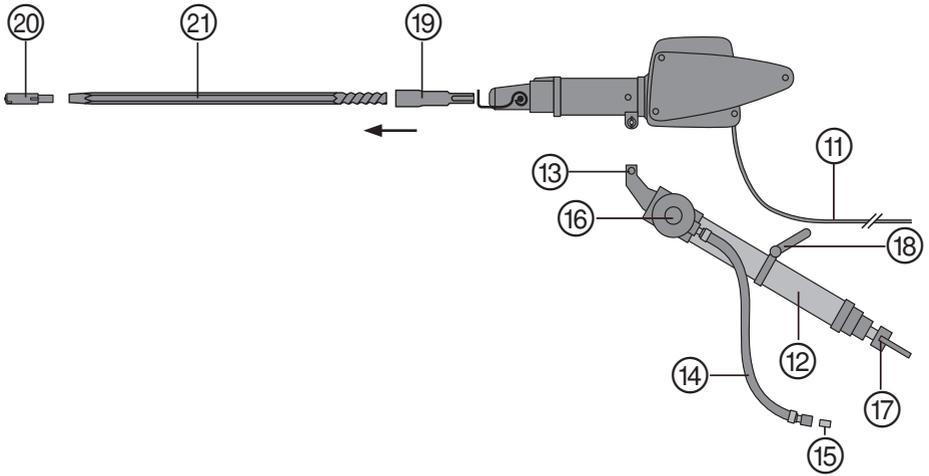
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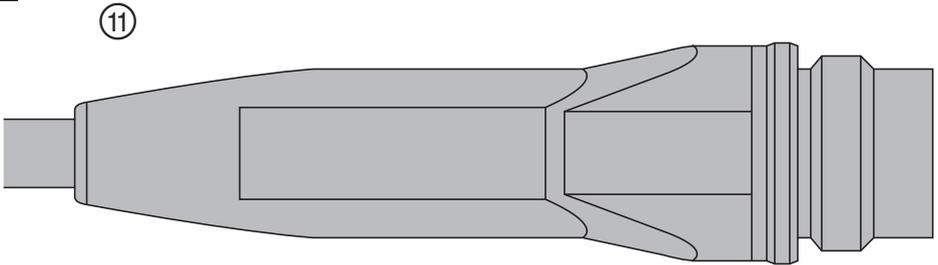
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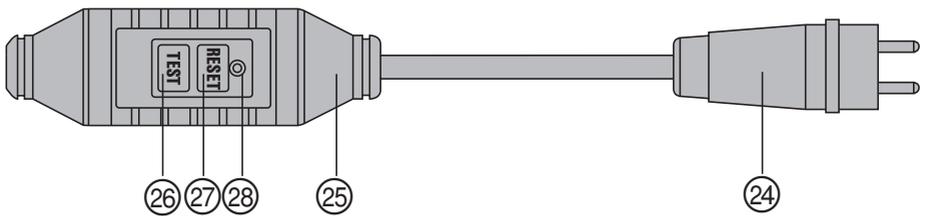
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# ORIGINAL OPERATING INSTRUCTIONS

# TE MD20 MSHA rotary hammer drill

It is essential that the operating instructions are read and understood before the tool is operated for the first time.

Always keep these operating instructions together with the tool. Ensure that the operating instructions are with the tool when it is given to other persons.

## Operating controls 1 2

- ① On / off switch
- ② Fault indicator (red LED)
- ③ Ready and service indicator (green LED)
- ④ Chuck
- ⑤ Drill bit lock

## Component parts 1 2

- ⑥ Rotary hammer drill
- ⑦ Hammering mechanism
- ⑧ Electronics
- ⑨ Gearing section
- ⑩ Grip
- ⑪ Cord and explosion-proof plug
- ⑫ Water leg
- ⑬ Connecting pin
- ⑭ Water hose
- ⑮ Water hose protective sleeve
- ⑯ Regulating valve
- ⑰ Support base
- ⑱ Carrying handle
- ⑲ Connection end
- ⑳ Drill bit
- ㉑ Drill steel

**Plug with approval for use in environments where there is a risk of explosion as per 3.2 3**

Tool versions: TE MD20 MSHA

**Plug and GFCI (no explosion protection!) 4**

Tool versions: TE MD20 GFCI

- ㉒ Plug
- ㉓ PRCD ground fault circuit interrupter
- ㉔ TEST button
- ㉕ RESET button
- ㉖ Indicator lamp

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## 1. General information

### 1.1 Indication of danger

#### -CAUTION-

This word is used to draw attention to a potentially dangerous situation which could lead to minor personal injury or damage to the equipment or other property.

### 1.2 Pictograms

#### Warning signs



General warning



Warning: electricity



Warning: hot surface



Warning: avoid hand injuries

#### Obligation signs



Wear eye protection



Wear a safety helmet



Wear ear protection



Wear protective gloves



Wear safety footwear

V volts  
~ alternating current

Hz hertz  
A amperes

**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 tool" always refers to the TE MD20 MSHA rotary hammer drill.

If the tool is used in areas where there is risk of explosion, the information printed on a grey background in these operating instructions must be observed. No changes or modifications may be made to the tool without consent from the approval authority.

#### Location of identification data on the tool

The type designation and serial number can be found on the type plate on the tool. 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. General safety rules

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

### 2.1 Work area

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

### 2.2 Electrical safety

- a) **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low-resistance path to carry electricity away from the user.
- b) **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- c) **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
- e) **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

### 2.3 Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- b) **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- c) **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your fin-

ger on the switch or plugging in tools that have the switch on invites accidents.

- d) **Remove adjusting keys or wrenches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
- f) **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat or hearing protection must be used for appropriate conditions.

### 2.4 Power tool use and care

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

### 2.5 Service

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

## 2.6 Additional Specific Safety Rules

- a) **Hold tools by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a “live” wire will make exposed metal parts of the tool “live” and shock the operator.
- b) **Wear ear protectors when using the tool for extended periods.** Prolonged exposure to high intensity noise can cause hearing loss.

**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, eyes, or to remain on your skin may promote absorption of harmful chemicals.

## 3. Specific safety rules and symbols

### 3.1 Basic safety information

In addition to the safety rules listed in the individual sections of these operating instructions, the following points must be strictly observed at all times.

### 3.2 Use for intended purpose

The tool is designed for drilling in rock (not in reinforced concrete) with drill bits of 32–42 mm diameter to depths of up to 2.4 m.

Use in environments where there is a risk of explosion is permissible. The tool complies with the provisions and requirements of 94/9/EC (ATEX) for:

**Group I** category M2 → Mining and explosive atmospheres (firedamp)

**Group II** category 2G → Other areas where there is a risk of explosion, where gasses and vapours of the group IIA (at the customer’s request, also for gasses and vapours of the group IIB) with ignition temperature above 135°C may be encountered.

### 3.3 Incorrect use (misuse)



- Changes or modifications to the tool are not permissible.
- To avoid the risk of injury, use only genuine Hilti accessories and ancillary equipment.
- Observe the information printed in the operating instructions concerning operation, care and maintenance.

### 3.4 State of the art

- The tool is designed and manufactured according to the state of the art.
- The tool and its ancillary equipment may present hazards when used incorrectly by untrained personnel or not as directed.

### 3.5 Proper arrangement and organisation of the workplace

- Wear non-slip footwear and always work from a secure stance.
- It is recommended that rubber gloves are worn when working.
- Do not wear loose clothing, loose long hair and jewellery which could become caught up in moving parts.
- Avoid unfavourable body positions.
- Ensure that the workplace is well lit.
- Ensure that the workplace is well ventilated.
- Objects which could cause injury should be removed from the working area.
- Keep other persons outside the area affected while you are working.
- To avoid tripping while working, always lead the supply cord, extension cord and water hose away to the rear of the tool.
- The tool may be used only in conjunction with the TE-MW, TE-MWT water leg or a drilling aid designed for this purpose.
- Take care of the drill bits. You will work more efficiently and more safely if the drill bits are kept clean and sharp. Observe the maintenance regulations and instructions on changing drill bits.

### 3.6 General hazards presented by the tool



- Operate the tool only as directed and only when it is in faultless condition.
- Keep the grips dry, clean and free from oil and grease.
- Never leave the tool unsupervised.
- Avoid unintentional starting. Ensure that the ON / OFF switch is in the OFF position during transport.
- Use only the original accessories or items of additional equipment listed in the operating instructions. The use of other drill bits or accessories may present a risk of injury.
- Do not overload the tool. The tool operates more efficiently and more safely within its given performance range.
- Unplug the supply cord when the tool is not in use (e.g. during pauses between work), before cleaning or maintenance and when changing drill bits.
- When not in use, the tool must be stored in a dry place, locked up or where out of reach of unauthorised persons.

### 3.6.1 Mechanical hazards



- Follow the instructions concerning care and maintenance and change drill bits in good time.

The drill steel connection end and chuck are coordinated components that form an integral part of the explosion protection system. Ensure that genuine Hilti insert tools are used and that they are correctly fitted and secured in the chuck.

### 3.6.2 Electrical hazards



- Ensure that the tool is earthed and that the earth connection has been checked for correct functionality. Operation of the tool without an earth connection presents a risk of fatal accident.
- Operate the tool only when connected to an electric supply equipped with a pulse-controlled ground fault circuit breaker (type A or B as per IEC 61008) or suitable PRCD with a sensitivity of max. 30 mA.
- Check the condition of the supply cord, extension cord and plug connectors at regular intervals and replace these items if damage is found.
- Check the condition of the tool and its accessories. Do not operate the tool if it is incomplete or damaged or if its operating controls do not function faultlessly.
- Do not use the supply cord or extension cord for purposes for which they were not intended. Never carry the tool by the supply cord.
- Grip the plug and not the cable when pulling it out of the socket.
- Do not expose the supply cord to heat, oil or sharp edges.
- Do not touch the supply cord in the event of it becoming damaged while working. Disconnect the supply cord plug from the socket.

### 3.6.3 Thermal hazards



- Operate the tool only when water is flowing in order to prevent overheating of the tool and drill bit.

### 3.7 Requirements to be met by users

- The tool is intended for professional use.

The tool may be operated, serviced and repaired only by authorised, trained personnel. This personnel must be informed of any special hazards that may be encountered.

- Always concentrate on the job you are doing. Proceed carefully and do not use the tool if your full attention is not on the job.

### 3.8 Personal protective equipment

The user and persons in the immediate vicinity must wear suitable eye protection, a safety helmet, ear protection, protective gloves and safety footwear when the tool is in use.



### 3.9 CAUTION STATEMENT

To retain "permissibility" of this equipment the following conditions shall be satisfied:

- General Safety. Frequent inspection shall be made. All electrical parts, including the portable cable and wiring, shall be kept in a safe condition. Special efforts shall be made to maintain cable routing paths free from mud, rock and other debris that could eventually cause cable damage. Cables shall be closely examined on a regular basis and damaged cables or protective hose conduits shall be replaced and the cause of the damage identified and corrected before the equipment is placed back into service. There shall be no openings into the casings of the electrical parts. A permissible distribution box shall be used for connection to the power circuit unless connection is made in fresh intake air. To maintain the overload protection of direct-current machines, the ungrounded conductor of the portable cable shall be connected to the proper terminal. The machine frame shall be effectively grounded. The power wires shall not be used for grounding except in conjunction with diode(s) or equivalent. The operating voltage shall match the voltage rating of the motor(s).
- Servicing. Explosion-proof enclosures shall be restored to the state of original safety with respect to all flame arresting paths, lead entrances, etc. following disassembly for repair or rebuilding, whether by the owner or an independent shop.
- Fastenings. All bolts, nuts, screws and other means of fastening, and also threaded covers, shall be in place, properly tightened and secured.
- Renewals and Repairs. Inspections, repairs or renewals of electrical parts shall not be made unless the portable cable is disconnected from the circuit furnishing power, locked, and tagged out. The cable shall not be connected again until all parts are properly reassembled. Special care shall be taken in making renewals or repairs. Leave no parts off. Use replacement parts exactly like those furnished by the manufacturer. When any lead entrance is disturbed, the original leads or exact duplicates thereof shall be used and stuffing boxes shall be repacked in the approved manner. When machine cables are replaced or otherwise disturbed from their normal position, they shall be routed in the same manner as they were when the machine was shipped from the manufacturer. In addition, any clamps, conduit or guards that were in place to prevent cable damage shall be replaced.

- Cable Requirements. A flame resistant portable cable bearing a MSHA assigned identification number, adequately protected by an automatic circuit-interrupting device shall be used. Special care shall be taken in handling the cable to guard against mechanical injury and wear. Splices in portable cables shall be made in a work man like manner, mechanically strong, and well insulated. Only one temporary splice may be made in any trailing cable. Such trailing cable may only be used for the next 24-hour period. No temporary splice shall be made in a trailing cable within 25 feet of the machine, except cable reel equipment. Connections and wiring to the out by end of the cable shall be in accordance with recognized standards of safety.

**DO NOT CHANGE WITHOUT APPROVAL OF MSHA**

JKL Company Date: November 21, 2007 Drawing No. 1894

## 4. Functional description

### 4.1 Description

The tool is a water-cooled, electrically-powered rotary hammer drill with pneumatic hammering mechanism. Handheld use is not allowed.

The tool is available in various versions:

TE MD20 GFCI (FFE: 408885)

TE MD20 MSHA (FFE: 424714)

The TE MD20 MSHA are suitable for use in areas where there is a risk of explosion and in mining environments.

### 4.2 Technical data

	TE MD20 MSHA	TE MD20 GFCI
Rated voltage	220–240 V single phase	220–240 V single phase
Rated current	15 A	15 A
Power input	2200 W	2200 W
Mains frequency	50–60 Hz	50–60 Hz
Torque	100 Nm	100 Nm
Revolutions (counter-clockwise)	205 r.p.m.	205 r.p.m.
Impact energy	28 J	28 J
Dimensions	770×210×230	770×210×230
Drill bit head diameter	28–51 mm	28–51 mm
Drill steel length	up to 2,4 m	up to 2,4 m
Protection class I	Protection class I	Protection class I
Storage temperature without cooling water	–20°C to +55°C	–20°C to +55°C
Uncertainty (K)	1,5 m/s <sup>2</sup>	1,5 m/s <sup>2</sup>
Weight (tool without supply cord)	23,5 kg	23,5 kg
Protection against entry of water or foreign objects	Plug: IP 66, IP 67 Tool: IP 66	GFCI: rain proof Tool: IP 66
Explosion protection	Permissible Electric Power Tool Approval No. 18-A11009-0, Model No TE MD20	No explosion protection

Right of technical changes reserved.

## 5. Assembly

It is essential that safety rules printed in these operating instructions are read and observed.

**-CAUTION-**

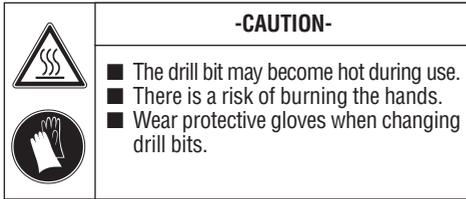
The tool must be disconnected from the mains supply while being set up and made ready for use.

### 5.1 Fitting the drill bit

Parts used: TE-MDR and TE-MDH

1. Push the drill bit head onto the front end of the drill steel and tap it lightly until it holds securely.

<b>-CAUTION-</b>	
   	<ul style="list-style-type: none"> <li>■ The tool, drill bit and drill support are heavy.</li> <li>■ There is a risk of pinching parts of the body.</li> <li>■ Wear a safety helmet, protective gloves and safety footwear.</li> </ul>



## 5.2 Fitting the drill steel

Use only TE-MDR drill steels with the appropriate TE-MCE connection end.

1. Clean away any dirt adhering to the connection end and apply a little grease to it.
2. Screw the drill steel fully into the connection end.
3. Guide the connection end into the chuck. Rotate the drill rod until the splines and grooves are in alignment and then push it into the chuck as far as it will go.
4. Close the chuck locking mechanism and check that the connection end is held securely.

## 5.3 Fitting the water leg

Use only the TE-MW and TE-MW T water leg intended for use with this tool, thus ensuring correct functionality of the water supply to the machine.

1. Clean the connecting pin on the water leg, removing any dirt adhering to it.
2. Position the guide on the underside of the front housing of the tool on the water leg and insert the connecting pin in the hole provided.
3. Secure the connection by inserting the retaining pin in the hole in the connecting pin.

## 5.4 Water connection

The tool and drill bit are water-cooled and the water has a flushing function during drilling.

- Water pressure: min. 3 bar, max. 5 bar
- Water temperature: approx. 10–20°C
- Cooling water flow rate: approx. 10 l/min
- Permissible degree of water pollution: <40 µm.

The cooling water is supplied to the tool through a stud on the water leg saddle which is connected to the water supply.

When the Hilti TE-MW or TE-MW T water leg is used, water connection is by way of a 1" conus connector. Check the flow of water. Water must spray out of the bores in the drill bit.

## 5.5 Electrical connection

The tool must be powered by an alternating current supply that complies with the information given on the type plate.

The tool must be connected to an adequately dimensioned earth conductor by way of the mains plug. The earth connection must be checked at regular intervals to ensure correct functionality.

The electric supply must be equipped with a pulse-controlled / DC-sensitive ground fault circuit breaker (type A or B as per IEC 61008) with a sensitivity of max. 30

mA. This device must be checked at regular intervals in accordance with the manufacturer's instructions.

## If operated in atmospheres where there is a risk of explosion

Only approved plug/socket systems (EEx d I/IIA, IP66) in accordance with 94/9/EC may be used, e.g. Hilti TE-MPH with 24 V pilot contact, monitored earth/ground, 220–240 V phase, neutral conductor. Disconnection from the power supply must be by way of an isolating switch.

The plug  features a pilot contact for the purpose of external monitoring of the earth/ground connection (pilot contact switching). In addition, the tool is equipped with a diode (6 A) between the pilot contact and the earth/ground conductor.

The monitoring circuit must be self-testing (intrinsically safe) in accordance with EN/IEC 60079-11.

## 5.6 Use of extension cords

Use only extension cords of a type approved for the applicable application (TE-MEC) and with conductors of adequate cross-section to avoid a drop in the tool's performance and overheating of the supply cord.

The recommended conductor cross-section is 2.5 mm<sup>2</sup> over a length of max. 60 m.

Check that the extension cord and plug are adequately protected by a suitably-rated fuse in the electric supply. To avoid overheating, always unroll the full length of the extension cord from the drum even when only a short length is required.

Connect the tool to the electric supply only once it has been set up ready for use.

## 5.7 Use of a generator or transformer

When the tool is powered by a generator or transformer, the following conditions must be fulfilled:

- AC voltage, output power at least 7000 VA.
- The operating voltage must be within +5% and –10% of the rated voltage at all times.
- Frequency range 50–60 Hz.
- Automatic voltage regulation with starting boost.
- The unit must be correctly earthed.
- A ground fault circuit breaker as described at section 5.5 must be used.

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

## 6. Operation

It is essential that the safety precautions printed in these operating instructions are read and observed.

	<b>-CAUTION-</b>
	<ul style="list-style-type: none"> <li>■ The tool and the drilling operation emit noise.</li> <li>■ Excessive noise may damage the hearing.</li> <li>■ Wear ear protection.</li> </ul>

	<b>-CAUTION-</b>
	<ul style="list-style-type: none"> <li>■ Drilling may cause hazardous splintering of the material.</li> <li>■ Splintering material may injure parts of the body and the eyes.</li> <li>■ Wear eye protection and a safety helmet.</li> </ul>

### 6.1 Drilling

1. Open the water valve on the water leg. Make sure that water flows continuously while drilling.
2. Bring the tool with the water leg into the drilling position.
3. Switch on at the ON / OFF switch.
4. Regulate the contact pressure at the water leg so that the drill bit runs centrally in the hole being drilled. The tool should hammer evenly without kicking back.
5. Move the water leg as necessary, as the drilling operation continues.

#### **-CAUTION-**

When retracting the water leg, take care to ensure that no parts of the body are pinched between the moving part and the fixed part of the water leg. This presents a risk of injury!

### 6.2 Finishing drilling

1. Pull the drill steel and drill bit out of the hole while the tool is still running.
2. Switch off at the ON / OFF switch.
3. Close the water valve on the water leg.

**Removing the drill bit:** Lay the drill steel down flat on a hard surface so that the full length of the drill bit is in contact with this surface. Strike the side of the drill bit with a hammer several times while rotating the drill steel between each hammer blow. The hammer blows should cause the drill bit to be released from the drill steel. Take care to avoid damage to the drill steel.

#### **-CAUTION-**

Take care to ensure that no persons in the vicinity are injured when removing the drill bit.

## 7. Maintenance

Disconnect the supply cord plug from the mains socket.

### 7.1 Care of insert tools

Remove any dirt adhering to the surface of the insert tools and protect them from corrosion by rubbing them with an oily cloth from time to time.

### 7.2 Care of the tool

The outer casing of the tool is manufactured from impact-resistant plastic. The grip section is manufactured from synthetic rubber.

Check all external parts of the tool for damage at regular intervals and check that all controls operate faultlessly. Damaged plastic parts of the housing must be replaced immediately due to their explosion protection function.

Use a slightly damp cloth to clean the outside of the tool at regular intervals. Always keep the grip sections of the tool free from oil and grease. Do not use cleaning agents or polishes, etc., containing silicone. Keep the chuck clean. Check the drill steel for damage and wear at the grooves and ensure that the water passage is not obstructed. Do not operate the tool when parts are damaged or when the controls do not operate faultlessly. If necessary, have the tool repaired at a Hilti service centre. Electrical sections of the tool may be repaired only by trained electrical specialists.

### 7.3 Maintenance of the tool

Regular maintenance is necessary in order to ensure that the tool remains ready for use when required. After a pre-set number of operating hours, the operating status lamp (green lamp) begins to blink. The tool may continue to be operated for some time in this state. The tool will finally switch itself off after the set service interval is exceeded by more than 20%. The tool must be serviced at an authorized Hilti service center.

**Repairs to the tool and plug / socket system are subject to restrictions concerning approval and explosion protection and therefore may be carried out only by skilled specialists authorized by Hilti.**

### 7.4 Checking the tool after care and maintenance

After care and maintenance work, the specified checks and inspections must be carried out and documented accordingly.

## 8. Accessories

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TE-MW / TE-MW T water leg, in various lengths

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TE-MCE connection end

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TE-MDR drill steel, in various lengths

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TE-MDH drill bit head, in various versions

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TE-MW E water leg extension, in various lengths

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TE-MEC extension cord, in various versions

Please ask your Hilti representative for further information about the accessories available.

## 9. Troubleshooting

### 9.1 Explanation of the operating status / service indicator lamps

The tool is equipped with two lamps which indicate its operating status or faults by lighting in different ways:

Fault indicator (red lamp)	Ready and service indicator (green lamp)	Tool status	Cause / action required
Off	Off	The tool is not ready.	No electric power. See "Troubleshooting"
Off	Lights	The tool is ready for operation.	
Lights	Lights	The tool has overheated.	The tool has switched itself off. The red lamp remains lit until the tool has cooled down. The tool does not restart automatically after cooling down (switch must be operated).
Blinks	Lights	Fault in the tool or electric supply voltage.	The tool has switched itself off. See "Troubleshooting"
Off	Blinks	Servicing is due.	Have the tool serviced at a Hilti service center.

### 9.2 Troubleshooting

Fault	Possible cause	Remedy
The tool doesn't start and the green ready indicator doesn't light.	No voltage from the electric supply.	Plug in another tool (TE MD20 MSHA) and check that it works. Check the electric supply (fuse, circuit breaker). <b>Have repairs carried out by a skilled electrical specialist.</b>
	Fault or poor contact in the extension cord or plug connectors.	Replace the extension cord and check whether the tool works. <b>Return defective parts to Hilti Service.</b>
The tool doesn't start and the fault indicator (red lamp) lights.	The tool has overheated.	Check the water supply. Allow the tool to cool down. The tool is ready for further use when the red lamp no longer lights.
The tool doesn't start and the fault indicator (red lamp) blinks.	The tool is faulty or an internal safety function has been activated.	Switch the tool off and then on again (reset). If the fault persists: <ul style="list-style-type: none"> <li>● Plug in another tool (TE MD20 MSHA) and check that it works.</li> <li>● Have the electric supply voltage checked (overvoltage, undervoltage). <b>Have repairs carried out by a skilled electrical specialist.</b></li> <li>● If the other tool works, return the faulty tool to Hilti for repair.</li> </ul>
The connection end is broken off in the chuck.		<ol style="list-style-type: none"> <li>1. Disconnect the tool from the electric supply.</li> <li>2. Open the locking mechanism.</li> <li>3. Remove the broken piece of the connection end.</li> </ol>

No water flows.

Check the water supply to the water leg.  
Check that the connecting pin and drill steel are seated correctly.  
Check that water can flow through the drill bit head.

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## 10. Disposal



Return waste material for recycling

Most of the materials from which Hilti power tools 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 your old electric tools for recycling. Please ask your Hilti customer service department or Hilti sales representative for further information.

### Disposal of drilling slurry

With regard to environmental aspects, allowing drilling slurry to flow directly into rivers, lakes or the sewerage system without suitable pre-treatment is problematical. Ask the local authorities for information about applicable regulations.

We recommend the following pre-treatment:

- Collect the drilling slurry (e.g. use an industrial vacuum cleaner).
- Allow the slurry to settle and dispose of the solid material at a construction waste disposal site (the addition of a flocculent may accelerate the settling process).
- Water from the drilling slurry should be neutralised by adding a neutralising agent or large quantity of water before it is allowed to flow into the sewerage system.

## 11. Manufacturer's warranty – tools

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

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

**Additional claims are excluded, unless stringent national rules prohibit such exclusion. In particular,**

**Hilti is not obligated for direct, indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of, the use of, or inability to use the tool for any purpose. Implied warranties of merchantability or fitness for a particular purpose are specifically excluded.**

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

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





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