



MAXIMA®

ONLY FOR REAL PROFESSIONALS



Caromax 1800 ASP - Use and maintenance manual

SERIAL NUMBER M

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Important information



Before commencing any type of work with the machine, and in the vicinity of the machinery, all the contents of this instruction manual and the related safety and danger warnings must be carefully read and observed. This instruction manual must always be kept close to the machine.

Pictograms

Explanation of the pictograms affixed to the diamond core drill



The CE symbol applied to a product means that the product complies with all applicable European standards, and that it has gone through the processes required for conformity assessment.



Old equipment must be disposed of in an environmentally sound way. Old equipment contains valuable recyclable materials, which can be subjected to a recycling process. Batteries, lubricants and similar substances must not pollute the environment. It is therefore recommended to dispose of old equipment using appropriate collection systems.



Wear hearing protection!

The typical sound pressure level of this electrical equipment is classified in Class A, and during the course of the work it is more than 85 dB (A): it is mandatory to wear hearing protection!

Explanation of pictograms used in the text



Danger!

This symbol signifies an imminent situation of general danger to people's life and health. Failure to comply with these warnings results in serious damage to health, up to injuries involving danger of death.

► *This arrow refers to the corresponding precautionary measure aimed at preventing this danger.*



Danger from electric current!

This symbol means an imminent situation of danger, caused by electric current, to the life and health of people. Failure to comply with these warnings results in serious damage to health, up to injuries involving danger of death.

► *This arrow refers to the corresponding precautionary measure aimed at preventing this danger.*



Attention

This symbol indicates a possible dangerous situation. Failure to comply with these warnings may result in minor injury or property damage.

► *This arrow refers to the corresponding precautionary measure aimed at preventing this danger.*



Caution!

This warning gives the user operational recommendations and useful tips.

Safety

General safety and power tool warnings



WARNING

All safety warnings and instructions must be read.

Failure to comply with safety warnings and instructions may result in electric shock, fire and/or serious injury.

All safety warnings and instructions must be kept for future reference.

The term used in safety warnings "power tool" refers to power tools operating with mains connection (with power supply cable) and power tools operating with batteries (without power supply cable).

1) Safety in the workplace

- a) **The work environment must be kept clean and well lit.**
Clutter and unlit workspaces can lead to injuries.
- b) **With the power tool you have to work in an environment where there is no danger of explosion, and where there are no liquid, gaseous or powdered flammable substances.**
Power tools cause sparks that could ignite dust or vapours.
- c) **When using the power tool it is necessary to keep children and other people at a distance.**
Distraction can cause you to lose control of the equipment.

2) Electrical safety

- a) **The connection plug of the power tool must be able to enter the power socket. No changes must be made to the plug under any circumstances. No adapter plug should be used in conjunction with power tools that are grounded.**
Unmodified plugs and suitable power outlets reduce the risk of electric shock.
- b) **You must prevent your body from coming into contact with grounded surfaces, such as pipes, heaters, stoves and refrigerators.**
There is a high risk of electric shock if the body of the operator is grounded.
- c) **Power tools should be kept away from rain and moisture.** *The penetration of water into a power tool increases the risk of an electric shock.*
- d) **The cable must not be used for purposes unrelated to its function, such as dragging the power tool, hanging it or pulling it out of the socket. The cable must be kept away from heat sources, oils, sharp edges or moving parts of the equipment.**
Damaged or twisted cables increase the risk of electric shock.
- e) **If you are working with an electric tool in the open air, you should only use extension cables that are also suitable for outdoor use.** *The use of an extension cable suitable for outdoor use reduces the risk of electric shock.*
- f) **If the use of the power tool in a humid environment is unavoidable, then it is necessary to use a safety circuit breaker for fault currents.** *The use of a safety circuit breaker for fault currents (FI RCD switch with maximum opening current of 10 mA) reduces the risk of electric shock.*

Safety

3) Personal safety

- a) **It is recommended to be cautious and to pay close attention to what you are doing, and it is recommended to proceed rationally when you are working with a power tool. You should not use any electrical tools when you feel tired, or when you are under the influence of drugs, alcohol or medicines.**
Any drop in attention during the use of the power tool can have very serious consequences.
- b) **Personal protective equipment and goggles must be worn at all times.**
The risk of injury is reduced by wearing personal protective equipment, such as dust mask, non-slip safety shoes, protective helmet and hearing protection, depending on the type of power tool and its use.
- c) **Unintentional commissioning must be avoided. It is necessary to ensure that the power tool is switched off, before connecting it to the power supply and/or before connecting the battery, and also before picking it up or transporting it. If you have your finger on the switch during the transportation of the power tool, or if the equipment is already powered when it is connected to the mains power, then this can result in accidents.**
- d) **Adjusting tools or nut wrench must be removed before turning on the power tool.**
A tool or wrench that is in a rotating component of the equipment can cause injury.
- e) **You should avoid working in an unnatural position of the body. You must always work in a safe position, always maintaining a balanced position. In this way you can better control the power tool in unexpected situations.**
- f) **Suitable clothing must be worn. Loose clothing or jewellery should not be worn. Hair, clothing and gloves should be kept away from moving parts.**
Loose clothing, jewellery or long hair can get caught in moving parts.
- g) **If dust extraction and dust collection devices can be fitted, then it is necessary to ensure that they are connected and used correctly.**
The use of a dust extraction system can reduce the dangers caused by dust.

4) Use and treatment of the power tool

- a) **The machine must not be overloaded. Specially suitable power tools must be used to carry out the work.**
By using the right power tools, you can work better and more safely in the corresponding operating space.
- b) **No power tool should be used if the on/off switch fails. A power tool that can no longer be switched on or off is dangerous, and must be repaired.**
- c) **The plug must be removed from the socket and/or the battery removed before adjusting the equipment, before replacing accessory components, or before putting the equipment away.**
This precautionary measure prevents unintentionally starting up the power tool.

Safety

- d) **When not in use, power tools should be stored in a place that is not accessible to children. This equipment should not be used by persons who are not familiar with its operation, or who have not read these instructions.**
Electrical equipment is dangerous if it is used by inexperienced people.
- e) **Maintenance and care of the power tool must be carried out meticulously. It is necessary to check that the moving parts work flawlessly and do not jam. It is also necessary to check for broken or damaged parts that could affect the correct functioning of the power tool. Damaged parts must be repaired before the equipment is used.**
The cause of many accidents is due to poor maintenance of electrically operated tools.
- f) **Cutting tools must be kept sharp and clean.**
If cutting tools with sharp edges are subjected to careful care and maintenance, then they jam more rarely and are more easily handled.
- g) **The power tool, accessories, spare tools used, etc. must be used in accordance with these instructions. In this respect, account must be taken of the working conditions and the activity to be carried out. The use of power tools for applications other than those intended may cause dangerous situations.**

5) Service

- a) **The power tool must be repaired only by qualified personnel, and only with original spare parts.**
This ensures that the safety of the power tool is maintained.

Machine-specific safety warnings

➤ Service personnel requirements

- **People under the age of 16 cannot use this machine.**

➤ Safety in the workplace

- **The work space must be protected, even behind perforated walls.**
Unprotected workspaces can pose hazards to the operator and other people.
- **It is necessary to pay attention to the uncovered and hidden pipelines of electricity, water and gas. You must use research equipment suitable for locating hidden power lines, or you must contact the corresponding local supply company.**
Contact with electrical cables can cause fire and electric shock. Damage to a gas pipeline can cause an explosion. Drilling into a water pipe causes material damage, or can cause electric shock.
- **The workpiece must be protected.**
It is best to clamp the workpiece with fasteners, or with a screw vice, rather than with your own hand.
- **The formation of dust in the workplace must be avoided.**
Powders are highly flammable.
- **Sufficient air flow and ventilation must be provided indoors.**
Danger resulting from the formation of dust and reduced visibility.

Safety

- **Powders from certain materials such as paints containing lead, certain types of wood, minerals and metals can be harmful to health and can cause allergic reactions, respiratory diseases and/or cancer.**
Materials containing asbestos must be processed exclusively by qualified personnel.
 - *Every effort must be made to use a dust extraction system suitable for the material in question (e.g. the special dust catcher by MAXIMA).*
 - *Good ventilation of the workplace must be ensured.*
 - *It is recommended to wear a respiratory mask with filter class P2 and/or P3 (according to DIN EN 149:2001).**The regulations in force in your country must be respected with reference to the materials to be processed.*
- **Power tools must not be used in the vicinity of combustible materials.**
Sparks could ignite these materials.
- **You should avoid the presence of points where people could trip over cables.**
Falling caused by the presence of cables can cause serious injuries.

➤ Electrical safety

- **This power tool can only be operated, for water coring, with a flawlessly functioning PRCD circuit breaker for the protection of people (see page 17).**
- **Before commissioning the power tool, it is essential to ensure that there is a protective conductor (PE) that works flawlessly.**
- **Before using the machine, it is necessary to check for damage to the power tool, connection line and plug each time.**
If equipment is damaged, then it is dangerous and is no longer safe for operation.
- **The mains voltage must be observed! The mains voltage of the current source shall match the information on the rating plate on the model of the power tool.**
- **If the power tool is put into operation with mobile power generators, then power losses or unusual behaviour may occur at the time of start-up.**
- **The power tool should not be used when the cable is damaged. You should not touch the damaged cable and if the cable is damaged during the course of the work, then you should pull out the electric current plug.**
Damaged cables increase the risk of electric shock.
- **Only extension cables suitable for the power of the machine, and with a minimum gauge of 1.5 mm² must be used. If a cable drum is used, then the cable must always be unwound completely.**
The wound cable can overheat a lot and start burning.
- **The ventilation air slot should be kept periodically clean by blowing when the power tool is dry. Under no circumstances should screwdrivers or other objects be inserted into the ventilation air slot. The ventilation air slot should not be covered.**
The motor-driven fan extracts dust into the housing, and considerable buildup of metal dust can cause electrical hazards.

Safety

- The power tool can automatically switch off in the event of external electromagnetic malfunctions (e.g. mains voltage fluctuations, electromagnetic discharges).
In this case the power tool must be switched off and on again.
- Before using the machine, it is necessary to check all the water supply components – even those of the accessories – every time to ensure that they are in impeccable and airtight conditions.
Water leakage increases the risk of electric shocks.

➤ Personal safety

- Personal protective equipment should always be worn, and depending on the situation the following should be used:



Full face protection mask, eye protection or goggles, protective helmet and special protective apron.

It is necessary to protect yourself from any flying objects by wearing a protective helmet, goggles or protective mask, and if necessary also wearing an apron.



Hearing protection

During the course of the work, the typical sound pressure level classified in class A of this electrical equipment is above 85 dB (A).

When you are exposed to loud noise, there is a risk of hearing damage and/or hearing loss.



Dust mask, mouth and nose filter mask or respiratory protection mask

Breathing in very fine mineral powders can pose health hazards. It is recommended to wear a respiratory mask with filter class P2 and/or P3 (according to DIN EN 149:2001).

Water drilling: *Drilling with the diamond core drill tube is a grinding process during which very fine powders are generated, which are captured by the supply water. If the water used with the captured powder is not collected, then the powders are released again after drying. Drilling quartz materials the risk of silicosis is very high, and therefore in principle the machine can only be used together with the MAXIMA water adapter, the centring plate and a suitable water suction device (e.g. the special dust catcher by MAXIMA).*

Dry drilling: *Drilling with the diamond core drill tube is a grinding process during which very fine powders are generated. Drilling quartz materials poses a very high danger of silicosis, and therefore in principle the machine can only be used together with the suction hose and a suitable dust extraction device installed (e.g. a special dust catcher by MAXIMA).*



Vibration protection gloves

With a reaction value A (8) for hand-arm vibrations greater than 2.5 m/s² it is recommended to wear vibration protection gloves.

Vibration can pose health hazards.

Safety



Non-slip safety shoes

- **In case of the presence of other people, care must be taken that they keep a safe distance from the operator's work area. Anyone entering the work area must wear their own personal protective equipment.**
Fragments of the part or broken spare tools can be thrown and cause injuries even outside the work area.
- **The equipment should only be held in the hand by the insulated surfaces of the handle, if work is carried out in the course of which the spare tools used could come into contact with hidden power cables or with your own power supply cable.**
Contact with a live line can also power metal components of the equipment and can cause an electric shock.
- **The power supply cord must be kept away from the spare tools that are in operation.**
Loss of control of the equipment may result in breakage of the power cord, or the cord may become entangled, resulting in the operator's hand or arm coming into contact with the spare tool used that is rotating.
- **The power tool should never be put down before the spare tool has stopped completely.**
The spare tool that is rotating could come into contact with the support surface, resulting in loss of control over the electrical equipment.
- **The power tool must not be placed in operation while it is being transported.**
The operator's clothes can become entangled in the spare tool that is rotating, due to random contact, and thereby possibly piercing the operator's body.
- **Spare tools that are used with the machine running must never be turned towards parts of one's own body or towards parts of someone else's body, and must not even be grazed or touched.**
- **The On/Off power switch must be switched to the Off position, if the power supply is cut off, for example due to a power failure, or as a result of the plug being removed from the socket.**
This prevents it from starting back up again in an uncontrolled manner.

➤ Hazards related to the operation and use of the power tool

- **If the machine is used for freehand drilling, then during start-up and during the course of work, the machine must always be held in place with both handles. (The extra handle must be screwed on firmly to the machine!) During start-up and during the course of work, moments of reaction of the machine must be taken into account (e.g. following sudden jamming or breakage of the spare tool).**
- **If freehand drilling is performed, then the On/Off switch should not be locked.**

Safety

- **No accessories shall be used that the manufacturer has not explicitly prescribed and recommended for this power tool.**
The mere fact that the accessory can be attached to your power tool is in no way a guarantee of safe use.
- **The permissible speed of the spare tool used must be at least as high as the maximum speed indicated on the power tool.**
Accessories that spin faster than allowed can shatter and get thrown.
- **The spare tool that is used must be replaced with the utmost care, and can only be carried out with suitable and defect-free mounting tools. Before replacing the spare tool that is being used, it is necessary to pull out the electric current plug. By using the specially provided mounting tools, damage to the power tool and the spare tool being used can be avoided.**
- **No damaged spare tools should be used. Before each use, it is necessary to check for chips and cracks on the spare tools that are used. If the power tool or spare tool falls, then you should check whether it has been damaged, or you must use another undamaged spare tool. After checking and inserting the spare tool, the operator and any persons in the vicinity must remain out of the range of operation of the rotating spare tool, and the power tool must run for approximately one minute at maximum rpm.**
In most cases damaged spare tools break down during this test phase.
- **Power tools should not be exposed to excessively high or excessively low temperatures.**
In the case of excessively high or excessively low temperatures, mechanical damage and electrical damage could occur.
- **After use, spare tools, tool holders and other components must be allowed to cool in the immediate vicinity of the working area. After use, the equipment can be red-hot, and the components must not be grazed or touched: there is a risk of injury.**
- **Additional plates or specific non-original MAXIMA parts must not be screwed or nailed to the motor housing, handle, gears or even to the protective housing.**
This can result in damage to the power tool, and malfunctions may occur.
- **The operator should never bring his/her hand in the vicinity of the spare tools that are rotating.**
In case of recoil, the spare tool used can move in the hand of the operator using it.
- **Unnecessary noise must be avoided.**
- **It is necessary to pay attention to the safety warnings and work instructions of the accessories that are used.**

Safety

➤ Assistance service / Maintenance / Repairs

- **It is necessary to have the power tool inspected after a fall, or in the presence of moisture.**
A damaged power tool is dangerous and is no longer safe for operation. Before continuing its use, the power tool must be inspected by our customer service or by a qualified workshop authorized by Maxima S.p.A.
- **Repair and maintenance work must be carried out only by a qualified workshop authorized by Maxima S.p.A.**
Otherwise, all liability of and warranty claims against Maxima S.p.A. will cease.
- **If necessary, it is important to ensure that only original MAXIMA spare parts and original MAXIMA accessories are used.**
Original parts can be purchased from qualified and authorized dealers. In the case of the use of non-original parts, possible damage to the machine and a high risk of accidents cannot be excluded.
- **It is mandatory to have the machine undergo periodic maintenance by Maxima S.p.A., or by a company that has been authorized by us to perform such maintenance and repair work.**
The cause of many accidents is due to poor maintenance of electrically operated tools.

Technical features

Technical data

Diamond core drill	CAROMAX 1800 ASP
Operating voltage (V/Hz)	~230 / 50/60
Power input (Watt)	1800
Safety class	one / I
Rpm (min ⁻¹)	1650
Strokes per minute (Spm)	33000
Diameter of the core drill tube min. / max. (mm)	50 / 140
Tool holder (inches)	1¼ UNC and G½
Weight (kg) *	5.2
Electronic RPM system	Yes
L _{pA} (sound pressure) dB (A) **	92
L _{WA} (acoustic power) dB (A)**	99
Vibration measurement (m/s ²)**	5.5

* Weight according to EPTA procedure 01/2003.

** Sound values and vibration values according to EN 60745.

Machine features

The diamond core drill is equipped with a special electronic system with soft start. It monitors the number of revolutions, and with the red / green indicator lights it helps to achieve the most favourable performance of the work, resulting in work conditions that help reduce tool wear.

Optical display

Green: optimal rpm for drilling performance.

Green / red: rpm within the tolerance margin.

Red: rpm too low, powering off.

If this alarm signal is not observed, i.e. if advancement is not reduced, then the electronic system triggers the disconnection due to overload. After stopping it is possible to extract the core drill tube from the drilled hole. The machine can be restarted immediately.

These machine models are also equipped with a soft percussion device that can be activated. It reduces the wear of core drill tube segments, allows the operator to work more quickly and transports drilling powder away from the core drill tube segments, resulting in a longer-lasting use of core drill tubes.

The diamond core drill is equipped with a protective circuit breaker (PRCD).

Volume of the supply

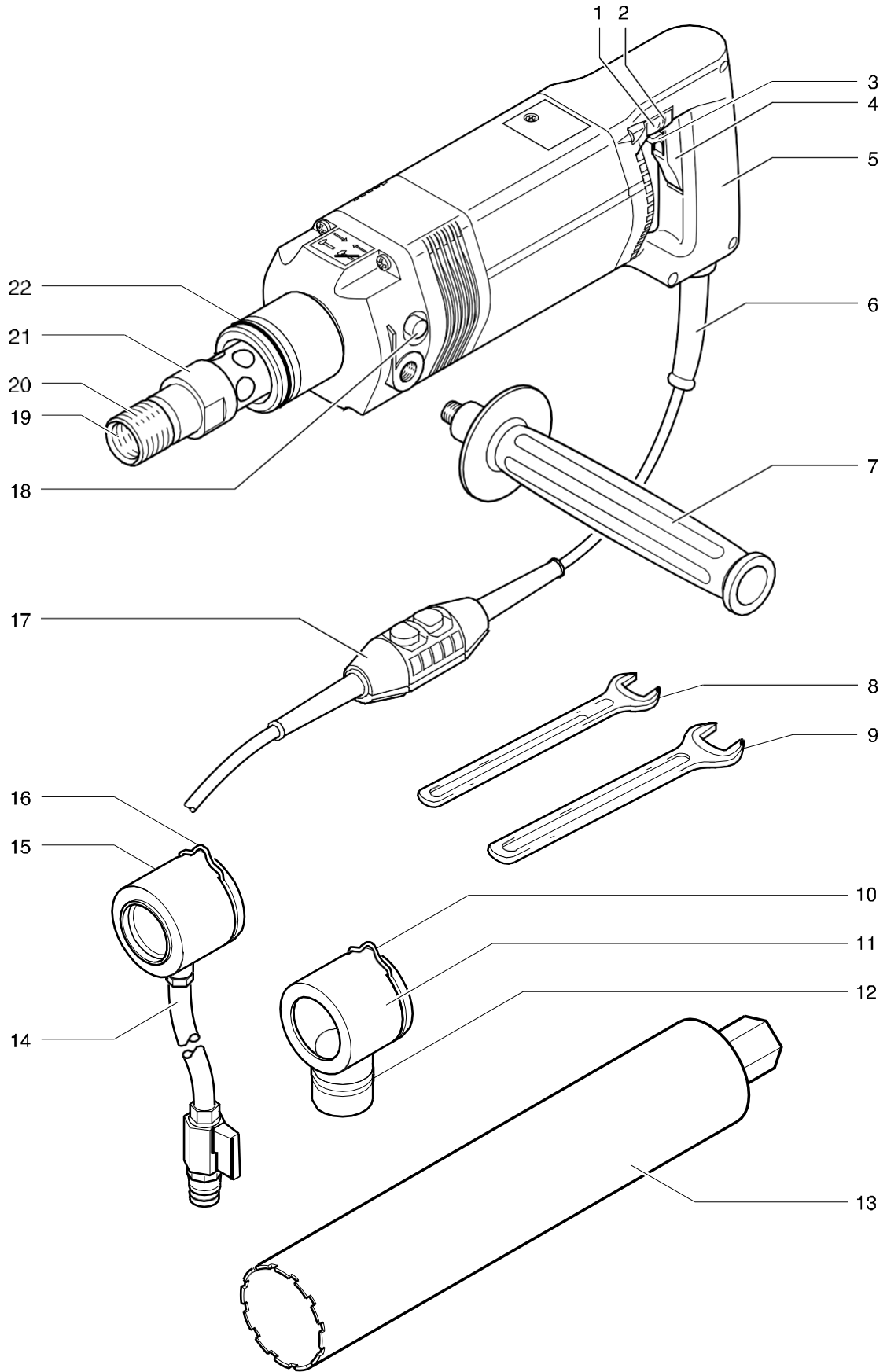
The volume of the supply, customized to the specific order according to the customer's needs, is shown in the enclosed delivery note.

The volume of the supply for the basic models is shown in the table below. Please contact your dealer if any components are missing or damaged.

Diamond core drill	Progr. nr.	Diamond core drill	Carry case with tools & suction hose
Caromax1800asp		x	x

x = included in the volume of supply.

Machine components and control elements



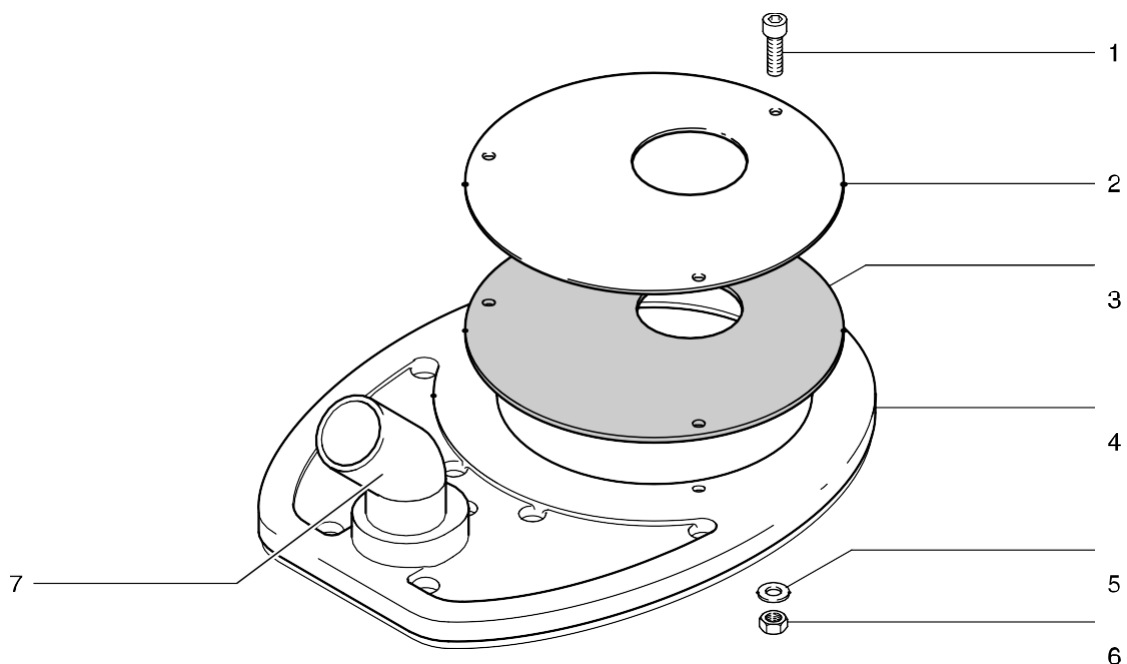
Machine components and control elements

The numbering of the machine components and control elements refers to the illustration of the diamond core drill on page 13.

- 1 Green LED indicator
- 2 Red LED indicator
- 3 Stop by ON/OFF switch
- 4 ON/OFF switch
- 5 Grip
- 6 Connecting line
- 7 Additional grip (mountable for left-handed and right-handed handlers)
- 8 Fork wrench AC36
- 9 Fork wrench AC41
- 10 Suction hose
- 11 Fastener for suction hose
- 12 Fitting for the connection of the dust catcher hose
- 13 Diamond core drill tube for dry core drilling and water core drilling
- 14 Water connection with closing tap and Gardena coupling
- 15 Water adapter
- 16 Fastener for water adapter
- 17 PRCD circuit breaker for personal protection
- 18 Soft percussion switch ON / OFF
- 19 Female screw G $\frac{1}{2}$ "
- 20 External thread 1 $\frac{1}{4}$ " UNC
- 21 Secondary shaft
- 22 Circular gasket

The centring plate is not included in the volume of supply (accessory required for freehand water core drilling, see "Tools and accessories", Page 15).

- 1 Cable hexagon screw M6 (3x)
- 2 Centring disc
- 3 Hermetically sealed rubber disc
- 4 Centring plate
- 5 Washers (3x)
- 6 Hex nut M6 (3x)
- 7 Fitting for the connection of the dust catcher hose



Tools and accessories

- Maxima diamond core bits for dry core and water core drilling, with different drilling diameters and lengths
- Maxima centring piston
- Centring bit SDS Maxima Ø 10 mm
- Maxima metal carry case
- Maxima core bit dressing stone
- Maxima Colonna 160 extractor
- Vacumax vacuum set
- Water collector with Maxima spare parts
- Spare Maxima M12M bushes
- Maxima heavy-duty plug M12
- Maxima rotary head
- Maxima L70 vacuum core bits Water core drilling accessories:
- Maxima Adapter
- Maxima portable water tank
- Vacumax vacuum pump
- Maxima centring plate

Use in accordance with the rules

With this diamond core drill it is possible to perform dry core and also water core drilling.

This diamond core drill has been designed for freehand operation and also for use with a drill stand.



Caution!

*This diamond core drill, with water operation **is not** suitable for overhead drill work. To drill freehand, it is necessary to use the centring plate and a suitable water suction device (e.g. the special Maxima dust catcher).*

This diamond drilling machine has been designed to perform drilling and circular flaring in mineral materials, such as concrete, reinforced concrete, bricks, limestone or cut stones.



Caution!

*The following materials **should not** be drilled: wood, metal, glass, etc.*

Before starting work

In order to ensure safe work with the diamond core drill, before each use it is recommended to pay attention to the following points:

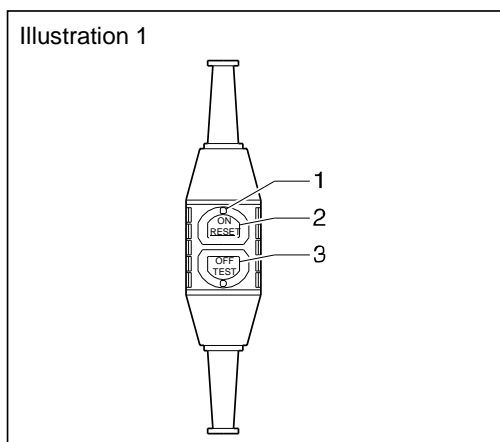
- All safety and hazard warnings in this instruction manual must be read carefully.
- On the model plate it is necessary to check the indicated voltage, and make sure that it is identical to the mains voltage.
- Before each use it is necessary to check the diamond core drill, the connection cable and the plug, and it is necessary to make sure that the core drill tube is correctly in place.
- **Check the personal protection switch (Illustration 1).**



Danger!

Danger of death in case of failure of the PRCD circuit breaker for personal protection.

- ▶ *The PRCD circuit breaker for personal protection must in principle always be checked before starting up the diamond core drill (see below). If the PRCD circuit breaker for personal protection does not trip when tested, or if it repeatedly disconnects when starting the diamond core drill, then the diamond core drill and the PRCD circuit breaker for personal protection must be checked by qualified electricians.*



- Press the –ON– (RESET) button (2) with the electrical plug powered, and with the diamond core drill unpowered. The red indicator light (1) shall light up.
 - Press the –OFF– button (TEST) (3). The PRCD circuit breaker for *personal protection* must be switched off, i.e. the red control indicator (1) must be switched off.
 - Press the –ON– button again (RESET) (2). At this point it must be possible to start the diamond core drill.
 - If the PRCD circuit breaker for personal protection does not trip when tested, or if it repeatedly disconnects when starting the diamond core drill, then the diamond core drill and the PRCD circuit breaker for personal protection must be checked by qualified electricians.
 - **It is forbidden to operate the diamond core drill with a faulty PRCD circuit breaker for personal protection: risk of death.**
- Only diamond core drills that have been recommended by Maxima S.p.A. should be used.
 - The personnel involved in static surveys, the architect or the management responsible for the works must be informed and consulted on the planned drilling work. Reinforcements shall only be separated with the permission of a static surveyor.
 - In the case of breakthrough drilling, it is absolutely necessary to check for the presence of obstacles in the spaces involved, and the whole area must be isolated. The core must be protected with formwork, to prevent it from falling down.

Before starting work

- The thread measurements for the detection of the diamond core drill tube must be strictly observed. The threading of the diamond core drill tubes must adapt without play to the threading of the diamond core drill (internal thread G½" and external thread 1¼" UNC). No gearbox or adapter should be used for the assembly of diamond core drill tubes.
- Through visual inspection it is necessary to check the condition of the diamond core drill tubes.



Caution!

If they are damaged, diamond core drill tubes cannot be used and must be replaced immediately.

- When freehand drilling is performed, the additional handle must be tightly screwed onto the machine.
- You must wear protective clothing, such as protective helmet, hearing protection, face protection or goggles, protective gloves, mouth and nose filter mask, non-slip shoes and an apron if necessary.
- **Installation and/or replacement of the suction hose and/or water adapter** (Illustrations 2 and 3)

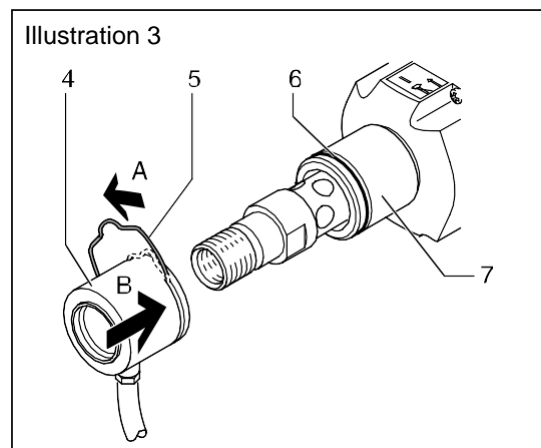
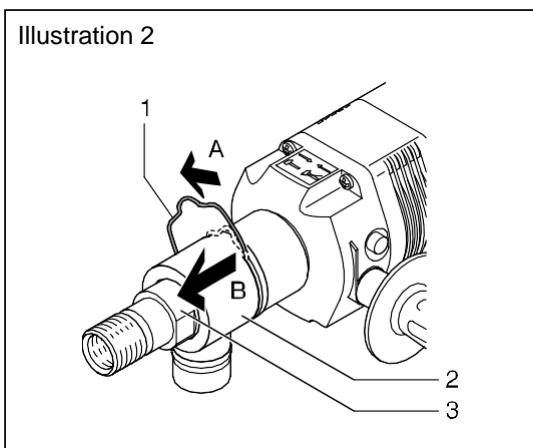
For **dry core drilling** (Illustration 2) it is necessary to mount the suction tube, in order to be able to connect a suitable dust catcher. For **water core drilling** (Illustration 3), the suction tube is replaced with the Maxima water adapter.



Danger!

Risk of death caused by electric shock.

- ▶ *Before performing any work on the diamond core drill it is necessary to pull the plug out of the electric current.*



Dismantling the suction hose (Illustration 2):

- Press the spring fastener (1) in the direction of the arrow (A), until the fastener stems snap out of the gear neck groove.
- Pick up the suction hose (2) at the front (B), by the secondary shaft (3).

Mounting the Maxima water adapter (Illustration 3):



Danger!

Danger of injuries caused by electric shock.

- ▶ *The machine must be protected from splashing water. Check the circular gear neck gasket for damage, and replace it with a new circular gasket if necessary. The machine must not be operated, if a circular gasket is damaged.*

Before starting work

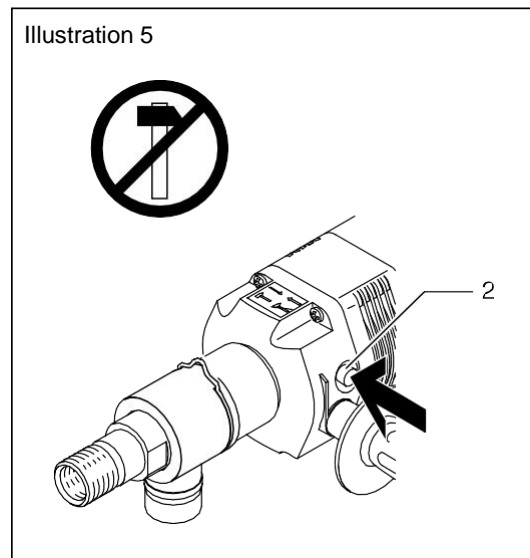
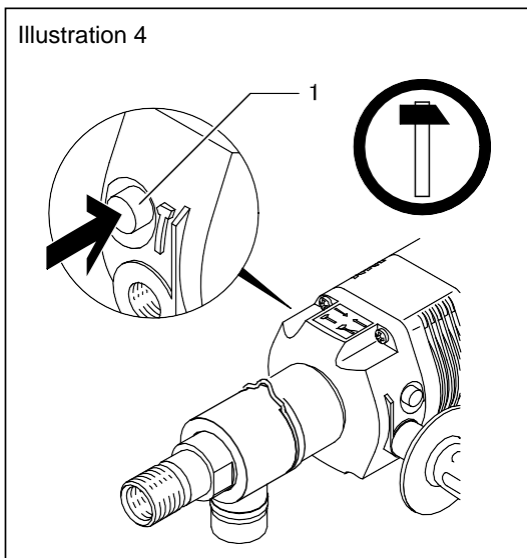
- Check for damage to the circular gasket (6) of the gear neck (7) and replace it if necessary.
- Press the spring fastener (5) of the MAXIMA Water Adapter in the direction of the arrow (A), until the fastener stems snap out of the groove of the MAXIMA Water Adapter (4).
- Push the MAXIMA Water Adapter (4) to the gear neck stop (7) (Illustration 3, Page 18).
- Press the spring fastener (5) in the opposite direction of the arrow (A), until the fastener stems snap into the gear neck groove (7) (Illustration 3, Page 18).
- For water core drilling, a suitable connection for the water supply must be set up (e.g. MAXIMA hydraulic pressure tank, see "Tools and accessories", Page 15).
- To perform water core drilling, a suitable connection of the water suction must be set up (see "Tools and accessories", Page 15).

Turning the soft percussion device on and off (Illustrations 4 and 5)



Attention!

Operate the soft percussion ON/OFF switch only when the power tool is off.



Switch the soft percussion device of the machine on / off depending on the material being drilled (Illustration 4 and Illustration 5).

Drilling **with** soft percussion device:

concrete and other hard materials.

Drilling **without** soft percussion device: abrasive materials and materials of reduced hardness.

- Connecting the soft percussion device: Pull forward and hold the diamond core drill in place. Press the highlighted **green** side of the soft percussion switch (1) (Illustration 4).
- Disconnecting the soft percussion device: Pull forward and hold the diamond core drill in place. Press the highlighted **black** side of the soft percussion switch (2) (Illustration 5).

Before starting work



• **Danger!**

Fire hazard when using cable drums.

- ▶ If wind-up extensions are used, care should be taken to check the complete unwinding of the cable. The wound cable can overheat a lot and start burning.

Operation and controls

Assembly and/or replacement of the diamond core drill tube (Illustration 6)

The diamond core drill tube (core drill for dry core and/or water core drilling) is selected according to the desired drilling diameter and is screwed onto the G $\frac{1}{2}$ " inner thread and/or the 1 $\frac{1}{4}$ " UNC outer thread of the secondary shaft.



Caution!

If a drill stand is used on the diamond core drill, then the machine must first be fixed in the motor neck detection device, before installing the diamond core drill tube.



Danger!

Risk of death caused by electric shock.

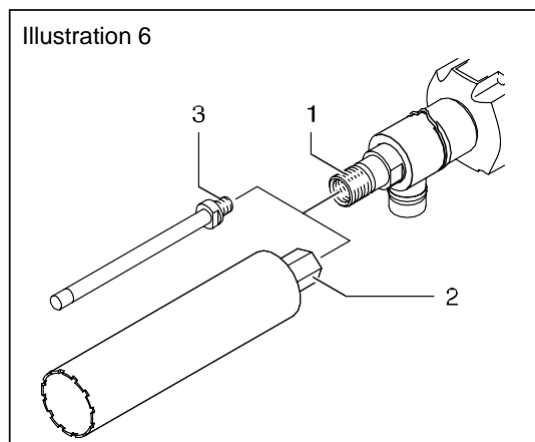
- ▶ Before performing any work on the diamond core drill it is necessary to pull the plug out of the electric current.



Danger!

Danger of injuries caused by hot core drill tubes.

- ▶ The core drill tube can become red-hot when operated for a prolonged time. To replace the core drill tube that has become red-hot it is necessary to wear protective gloves, or you must let the core drill tube cool.



- The diamond core drill tube (2) must be screwed onto an external 1 $\frac{1}{4}$ " UNC thread, or the diamond core drill tube (3) must be screwed all the way into the G $\frac{1}{2}$ " inner thread of the secondary shaft (1).
- Secure the secondary shaft (1) with a fork wrench AC 36.
- Tighten the diamond core drill tube (2) with a fork wrench AC 41.
- Tighten the diamond core drill tube (3) with a fork wrench AC 22 or AC 24.

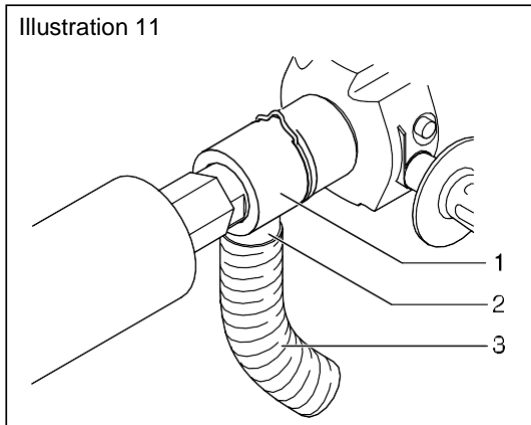


Caution!

It is necessary to ensure that the diamond core drill tube is correctly in place and is in good condition. If it is damaged, the diamond core drill tube cannot be used and must be replaced immediately.

Operation and controls

Connecting the dust suction to the suction hose (Illustration 11)



- Check the operation of the dust catcher and then securely connect the dust catcher hose (3) to the suction hose fitting (2) (1).
The fitting (2) has been suitably designed for the suction hose of all MAXIMA special dust catchers.



Caution!

If you connect the suction hose at low ambient temperatures, you may need to use more force.

Operation and controls

Starting the diamond core drill, and drilling

Before commissioning the diamond core drill, it is necessary to check all the points indicated in the chapter "Before starting work" (see from Page 17 to Page 19).

- Turn on the PRCD circuit breaker for personal protection.

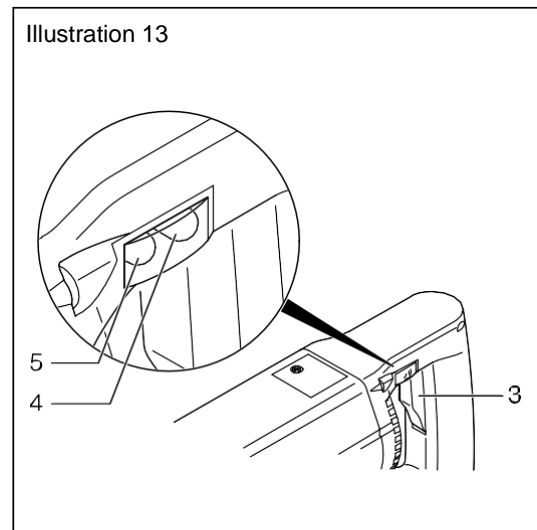
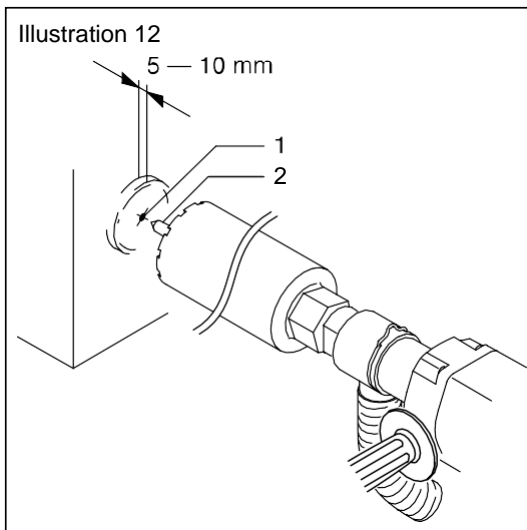
Centring hole drilling (Illustration 12)



- **Attention!**

The diamond core drill tube can be destroyed as a result of overheating, or if it gets stuck in the hole of the core.

- ▶ *A suitable dust catcher must be connected to the diamond core drill (e.g. the special MAXIMA dust catcher).*



- Mark the centre of the hole.
- Insert the dust catcher connected to the suction hose.
- The diamond core drill must always be held in place with both hands on both handles.
- Apply the centring pin (2) by applying gentle pressure on the marked centre point of the hole (1). **The diamond core drill tube must not touch the stone!**
- Start the diamond core drill by pressing the ON/OFF switch (3), (Illustration 13).



- **Caution!**

*When freehand drilling is performed, the ON/OFF **switch must not** be locked.*

- Drill until the diamond core drill tube is centred at a depth of about 5 – 10 mm in the wall (Illustration 12).
- Turn off the machine, and after the diamond core drill tube has stopped, take the drilling element of the centring hole from the core drill tube.

Operation and controls

Conclusion of hole drilling



- **Attention!**

Diamond core drill tube blades can easily be destroyed as a result of overheating, or due to an angle in the core hole.

► *Advancement can be as fast as the diamond core drill tube's capacity to grind the material. Consequently, excessive pressure should not be exerted on the core drill tube, and angles should be avoided.*

- Leave the dust catcher connected to the suction hose inserted.
- Introduce the diamond core drill tube into the pre-centred hole.
- Insert the diamond core drill.
- Continue to drill with a slight and uniform forward pressure.



- **Caution!**

Reaching greater drilling depths, the diamond core drill tube is increasingly sucked into the hole by the connected dust catcher. This effect is caused by the vacuum compactness that increases with the drilling depth (vacuum). This vacuum force intensifies the forward force of the machine, and can increase with greater drilling depths, until the machine's rpm continues to drop to the point that the electronic system switches off. In this case, using the handles, the machine must no longer be pressed against the wall, but it must be held by exerting a slight force away from the vacuum pressure.

- The diamond core drill tube must be pulled back slightly at intervals, so that drilling powder can be extracted.
- Each time a drilling depth of 10 cm is reached, the core drill tube must be taken out of the drilled hole and the drilling dust that has attached must be removed by gently hitting the diamond core drill tube with a piece of soft wood or a piece of plastic, in order to release the drilling dust that has stuck.
- If it advances too fast, then the red LED light (4) comes on. In this case, advancement should be reduced immediately until the green LED light (5) comes back on (Illustration 13, Page 23).

If this alarm signal is not observed, i.e. if advancement is not reduced, the electronic system trips and disconnects due to overload of the diamond core drill.

The drilling process can then be resumed and can continue as described above.



- **Danger!**

Falling cores can cause very serious injuries!

► *In the case of breakthrough drilling, the spaces below and/or behind must absolutely be checked, and the entire danger area must be isolated. The core must be protected with formwork, to prevent it from falling down.*

Conclusion of the drilling process (Illustration 13, Page 23)



- **Attention!**

The blades of the diamond core drill tube can be partially damaged as a result of the fact that they remain stationary in the hole of the core.

► *The diamond core drill should be disconnected only after the diamond core drill tube that is rotating has been completely removed from the wall.*

The diamond core drill switches off immediately after letting go of the ON/OFF switch (3).

Operation and controls

Core removal (Illustration 14)

Through hole:



Attention!

Danger of deformation or breakage!

► *Do not hit the diamond core drill tube with hard objects!*

If the core is fixed in the diamond core drill tube, then it is necessary to unlock the core by gently hitting the diamond core drill tube with soft wood or with a piece of plastic material.

No through hole (cage hole):



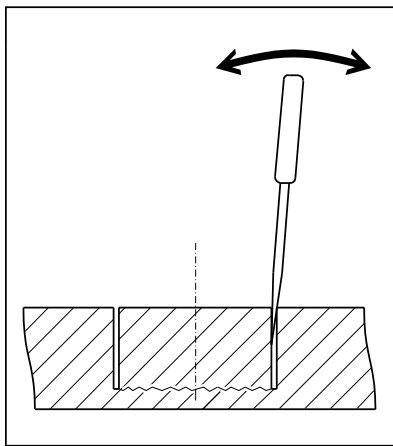
Attention!

Danger of breaking the cutting segments of the diamond core drill tube and/or damage to the machine!

► *Never split the core with the water diamond core drill.*

The core in the stone must be broken and pulled out with a suitable tool.

Illustration 14



Operation and controls

Freehand water core drilling

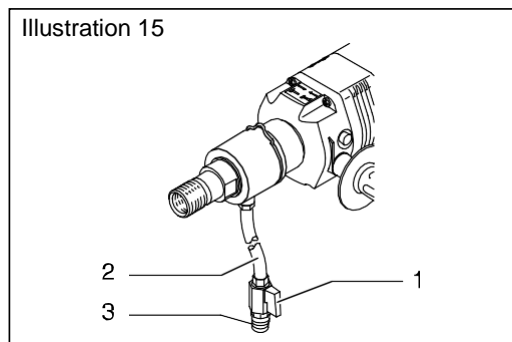
- Assembly and/or replacement (Illustration 6, Page 20) of the water diamond core drill tube.
- Before commissioning the diamond core drill, it is necessary to check all the points indicated in the chapter "Before starting work" (see from Page 17 to Page 19).
- Turn on the PRCD circuit breaker for personal protection (see Page 17).
- For water coring, mount the MAXIMA water adapter (4) (Illustration 3, see Page 18).
- Freehand **water** drilling should only be carried out with the MAXIMA centring plate ("Accessories", see page 15) and with a suitable water suction device (e.g. the special MAXIMA dust catcher).

Connecting the water supply to the MAXIMA water adapter

(Illustration 15)



- **Danger!**
Danger of injuries caused by electric shock.
- ▶ *The machine must be protected from splashing water. When connecting and disconnecting the water hose you should pay attention to the fact that no water should penetrate the air slot of the machine. Only intact Gardena couplings and intact Gardena hose parts should be used. It is necessary to check for wear or damage to the sealing rings. The machine must not be operated if the hose couplings are not airtight.*



- Connect the water supply (2) with coupling (3) to a hose with a piece of Gardena hose (½ inch).
- The water supply can be opened, closed and adjusted from the valve (1).

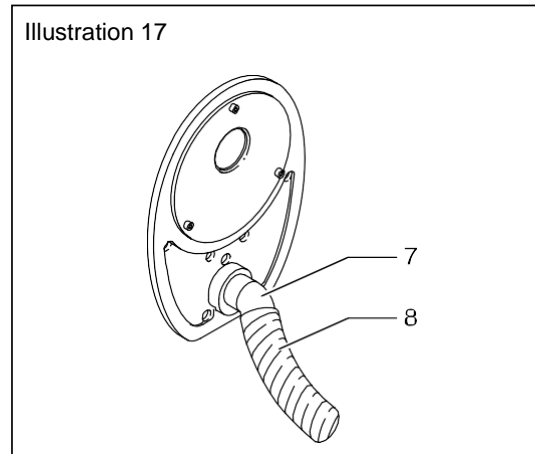
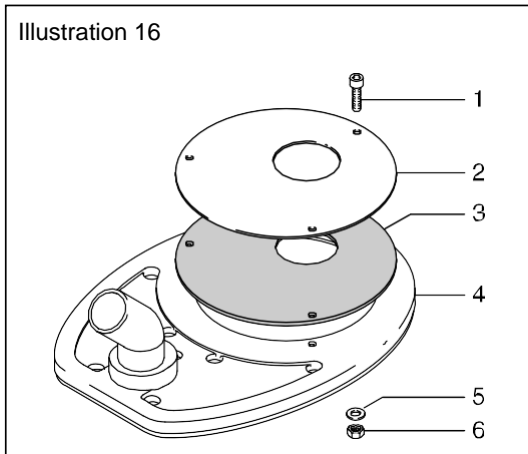
Use of the centring plate (accessory) (Illustration 16 and 17)

Freehand drilling should only be carried out with the MAXIMA centring plate and with a suitable water suction device (e.g. the special MAXIMA dust catcher). Before the centring plate is used, the suitable hermetically sealed rubber disc and the centring disc must be fitted in accordance with the diameter of the diamond core drill tube. The centring plate is available as an accessory (see "Tools and accessories", Page 15 and/or the MAXIMA Catalogue).



- **Danger!**
Danger of injuries caused by an involuntary detachment of the centring plate.
- ▶ *When long drillings are carried out on a wall or floor, it is necessary to empty the water extractor at intervals, because an extractor filled with water is no longer able to satisfactorily extract the centring plate.*
The bottom base for the centring plate must be flat and impermeable to air.

Operation and controls



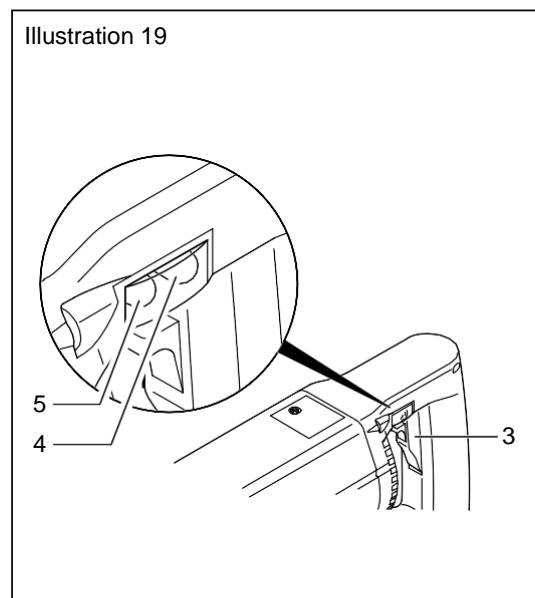
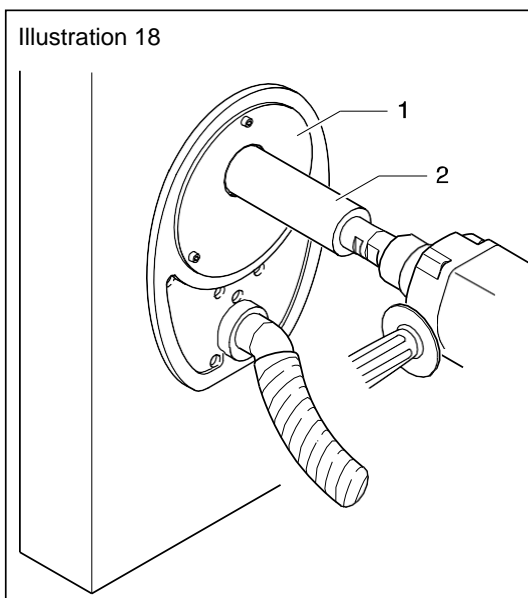
- The centring disc (2) and the hermetically sealed rubber disc (3) must be chosen in accordance with the diameter of the water core drill.
- The hermetically sealed rubber disc (3) and the centring disc (2) shall be screwed onto the centring plate (4) in accordance with Illustration 5. Material for screwing, respectively 3 times hollow hex screw M6 (1), washer M6 (5) and hexagonal nut M6 (6).
- Connect the water suction hose to the fittings (7) (8) (Illustration 17).



Caution!

If you connect the suction hose at low ambient temperatures, you may need to use more force.

Starting the diamond core drill, and drilling (Illustrations 18 and 19)



- Orient on the hole and fix the centring plate (1).
- Start the water extractor in continuous operation mode.
- Check whether the centring plate has stuck to the wall or floor.
- The diamond core drill must always be held in place with both hands on both handles.
- Insert, under non-operating conditions, the water diamond core drill tube into the centring plate. The water diamond core drill tube must not come into contact with the wall or the floor.

Operation and controls



Caution!

*When freehand drilling is performed, the ON/OFF **switch must not** be locked.*

- Start the diamond core drill by pressing the ON/OFF switch (3), and wait until the operating speed has been reached – the green LED indicator light (5) lights up (Illustration 19, Page 27).
- Slightly open the water supply.
- Apply the water diamond core drill tube and drill exerting a slight thrust pressure.



Attention!

Water diamond core drill tubes can get blunt or destroyed as a result of overheating (see Page 29, "Operational approach with the water diamond core drill tube").

► *Advancement can be as fast as the water diamond core drill tube's capacity to grind the material. Consequently, excessive pressure should not be exerted on the water diamond core drill tube.*

- The water diamond core drill tube must be pulled back slightly at intervals, to rinse the drilling sludge.
- If it advances too fast, then the red LED light (4) comes on. In this case, advancement should be reduced immediately until the green LED light (5) comes back on (Illustration 19, Page 27).

If this alarm signal is not observed, i.e. if advancement is not reduced, the electronic system trips and disconnects due to overload of the diamond core drill.

The drilling process can then be resumed and can continue as described above.



Caution!

The diamond core drill also switches off if the water diamond core drill tube does not have sufficient cutting power. In this case it is necessary to check whether the water diamond core drill tube is blunt (see page 29, "Operational approach with the water diamond core drill tube").

If the diamond core drill is put into operation without water extraction, then it is important for the draining water to be collected and that no damage is caused.



Danger!

Falling cores can cause very serious injuries!

► *In the case of breakthrough drilling, the spaces below and/or behind must absolutely be checked, and the entire danger area must be isolated. The core must be protected with formwork, to prevent it from falling down.*

Conclusion of the drilling process

- After reaching the drilling depth, the diamond core drill must be pulled back slowly, with the water diamond core drill tube rotating. The water diamond core drill tube still remains in the centring plate.
- After drilling, let the water run for a short time, to rinse the drilling sludge between the water diamond core drill tube and the core.
- Let go of the ON/OFF switch, in order to disengage the diamond core drill.
- Close the water supply tap and water suction.
- Now remove the stationary diamond core drill tube from the hole, and at the same time remove the centring plate.
- Remove the core (Illustration 14, see Page 25).

Operational approach with water diamond core drill tubes

For hard stone, in principle, a "soft" diamond core drill tube is used, so that during the drilling process the diamond fragments are quickly freed from the segments. If water suction or cooling is not employed during processing, then the diamond core drill tube rubs more and more "soft" drilling powder. As a result, the segments of the core drill tube become red-hot, soft, and diamond fragments sink into the substrate. The diamond core drill tube then loses its sharpness. The cutting power decreases and the operator has to increase the pressure on the water diamond core drill tube, with the consequence of aggravating the situation. After drilling a few holes, the segments of the core drill tube are "glazed", or they tear even with minimal resistance in the stone, and the diamond core pipe must be replaced. Through the intermediate cuts of the diamond core drill tube in a sharp plate or soft stone you can release the sunken diamonds again, and the diamond core drill tube is sharpened again. To extend the life of the diamond core drill tube, and to continue to maintain high cutting speed, cooling by suction is necessary with diamond core drill tubes for dry core drilling, and water cooling is required for water-based diamond core drill tubes.

Cleaning



Danger!

Risk of death caused by electric shock.

- ▶ *Before performing any work on the diamond core drill it is necessary to pull the plug out of the electric current.*

After carrying out each drilling job, the machine must be cleaned.

- The diamond core drill must be thoroughly cleaned by rubbing, even blowing with compressed air.
- The core drill tube detection thread must be greased slightly.
- If it has been used, clean the centring plate under running water.
- The drill stand, if it was used, must be thoroughly cleaned and blown with compressed air. The guide of the drill slide and the advancement speed adjustment device must be slightly greased. The additional water suction head must be emptied and blown, and the thread must be slightly greased.
- Care must be taken that the handles are dry and degreased.

Maintenance



Danger!

Risk of death caused by electric shock.

- ▶ *Before performing any work on the diamond core drill it is necessary to pull the plug out of the electric current.*

Maintenance of the diamond core drill must be carried out at least once a year. In addition, maintenance is required from time to time based on the wear of the carbon brushes.

For repair and assistance work, only companies specialized in repairs and maintenance, and authorized by Maxima SpA can be commissioned

In this respect, you must be sure that only original MAXIMA spare parts and original MAXIMA accessories are used.

Declaration of conformity

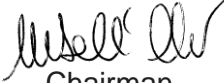
CE Under our responsibility we declare that this product complies with the following standards or regulatory documentation:

EN 60745

in accordance with the provisions of the Directives

2006/42/EC

7 July 2011


Chairman
i.t. Mirco Dall'Olio

Maxima SpA - Via Matteotti, 6
42028 Poviglio (Re) Italy

Warranty

Electrical equipment marketed by Maxima S.p.A.

They have been designed and built taking into account the legal regulations on technical work tools concerning protection from dangers of death and health hazards.

We guarantee the impeccable quality of our products, and we assume the costs of eliminating any defects by replacing faulty components, or by replacing them with new equipment in the event of defects in design, material and/or construction, within the warranty periods. The warranty for commercial use is 12 months.

The following conditions are required to assert warranty claims based on defects in design, material and/or construction:

1. Proof of purchase and compliance with the instructions contained in the manual

To avail of a warranty claim, an original proof of purchase issued in printed form must always be presented. The receipt must contain the full address, date of purchase and name of the product model.

All instructions in the manual corresponding to the machinery and all safety warnings must have been complied with.

Damage caused by operating errors cannot be recognized as warranty claims.

2. Correct use of the machine

Maxima S.p.A products are designed and manufactured for specific purposes of use.

No warranty claim can be granted in the event of non-compliant use, in relation to the provisions on the basis of the content of the instruction manual, in case of use unrelated to the purpose, or in case of use of unsuitable accessories. The warranty lapses in case of use of machinery with permanent and piecework operation, and also in case of rental or lease of the machine.

3. Compliance with maintenance intervals

A prerequisite for asserting warranty claims is periodic maintenance carried out by us or by a company specializing in maintenance and repair work and authorized by us. Maintenance must be carried out from time to time according to the consumption of the carbon brushes, and must in any case be carried out at least once a year.

Machinery must be cleaned in accordance with the provisions of this instruction manual. In the event of intervention by third parties (opening of the machine), all warranty claims are lost.

Maintenance and repair work does not generally constitute a warranty claim.

4. Use of MAXIMA original spare parts

It is important to ensure that only genuine MAXIMA spare parts and MAXIMA accessories are used. They can be purchased from qualified and authorized dealers. The type and amount of grease must be decided in accordance with the list of valid greases. In the case of the use of non-original parts, possible consequences with damage to the machine and a higher risk of accidents cannot be excluded. Machines disassembled, or partially dismantled and repaired with non-original parts lose all warranty rights.

5. Wear parts

Certain components are subject to wear and tear due to the use of the machine and/or a normal wear process due to the use of the relevant power tool. These components include carbon brushes, ball bearings, switches, electric power cables, sealing gaskets, ring gaskets for shafts. Wear parts are not part of the warranty claims.



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