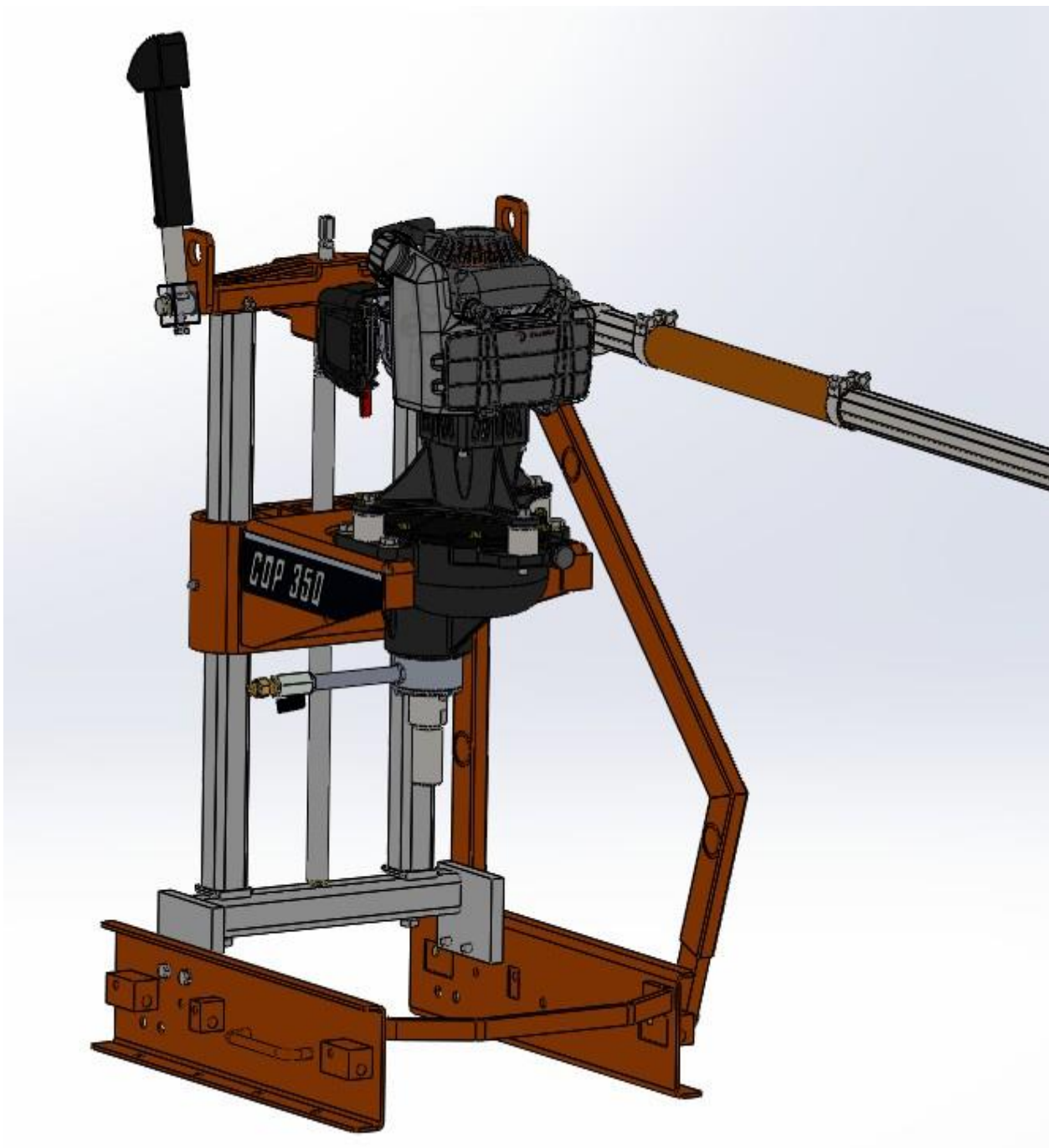


CDP 300 & 350 KP

OPERATING INSTRUCTIONS

Translation of the original instructions





Déclaration de conformité

The undersigned manufacturer:

SAINT - GOBAIN ABRASIVES S.A.
190, BD. J. F. KENNEDY
L-4930 BASCHARAGE

Declares that this product:

« Drill Rigs » : **CDP 300 KP**
CDP 350 KP

Code : **70184601368**
Code : **70184601369**

is in conformity with the following Directives :

- **“MACHINES” 2006/42/CE**
- **“ELECTROMAGNETIC COMPATIBILITY “ 2004/30/UE**
- **“Exhaust Emission Directive” 2012/46/UE**
- **“NOISE” 2000/14/CE**

And the European standard:

- **EN 12348 – Core drilling machines on stand – Safety**

Valid for machines as of serial number:
1601XXXXXX

Storage site for the technical documents:

Saint-Gobain Abrasives 190, Bd. J. F. Kennedy 4930 BASCHARAGE, LUXEMBOURG

This declaration of conformity loses its validity when the product is converted or modified without agreement.

Bascharage, Luxembourg, 01/02/2017.
Olivier Plenert, executive officer,



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Preface

We thank you for purchasing this **CLIPPER**-product.

This operating manual is designed to familiarize the user with this drill motor, and to use its intended applications.

Do not make any modifications, additions and alterations to the drill motor which could affect the safety without approval of the manufacturer (CE-Conformity expires)! The operating manual contains important information on how to operate the drill motor safely, properly and most efficiently. Observing these instructions helps to reduce danger, repair costs and downtimes and to increase the reliability and the life of the drill motor.

The operating manual is to be supplemented by the respective national rules and regulations for accident prevention and environmental protection. The operating manual is to be read and to applied by any person in charge of work with or on the drill motor, such as:

- **Operating** (including setting-up, troubleshooting in the course of work, care, disposal of fuels and consumables)
- **Servicing** (maintenance, inspection, repair work)

In addition to the operating manual and to the mandatory rules and regulations for accident prevention of the country and place of use of the drill motor, the recognized technical rules for safe and proper working conditions are also to be observed.

1. SAFETY INSTRUCTIONS AND WORK TECHNIQUE

1.1 General information, equipment, clothing

When working with the drill motor the accident prevention regulations of the responsible trade associations are to be observed! Read the entire operating manual carefully. All pieces of advice regarding the handling of the drill motor are also given for your personal safety!

Before using a new drill motor the first time the seller or an other expert must instruct the operator. Minors may not operate the drill motor. Young people who are over 16 years old are excepted from this prohibition provided that they are under supervision for training purposes. Children and animals are to be kept away from the working area of the drill motor.

Only give (borrow) the drill motor to people who are familiar with this type of machine as well as with the handling of this type of machine. Always pass on the operating manual!

Only drilling tools which have been delivered by CLIPPER or which have explicitly been released for this drill motor may be used. The use of other tools can lead to an increased risk of accident and is therefore not admissible. For any accident or damage which may occur when using tools which are not admitted no liability is assumed.

Only people who are rested and who are in good health, that means in good physical condition, are allowed to work with this drill motor. If you are tired from work make breaks in due time. After the consumption of alcohol working with the drill drive is not allowed.

In the work area of the drill motor the operator is responsible to third parties.

Scarf, tie, jewelry or other things that may be hindering the work may not be worn. When operating the drill motor the operator has to wear ear protection (ear muffs).

For this work proper equipment and clothing is required. The clothing should be appropriate and not be a hindrance. This includes among other things close-fitting clothing (no work coat), solid chrome leather gloves as well as shoes with a non-slipping sole and a steel-toe cap.

For all work which could lead to head injuries due to falling objects a protective helmet is to be worn. Before you start the drill motor and before you start working with it check, each time, if it is functioning properly and if it is in a proper condition. Particularly important are the throttle lever, stop switch and drilling tool.

The throttle should be used in a flexible manner and requires an essential maintenance. Check the condition and the maintenance of the drilling tool. No changes to the drive system shall be made. Caution: returning the throttle to its initial position does not cause the drilling tool to stop immediately (free stroke).

Do not smoke or be near a flame to refuel. Do not spill fuel. If this happens, clean the machine immediately and remove it at least 10 m before re-starting.

Stop the engine before refueling. Be careful not to spill fuel on your clothes, change clothing if necessary before resuming work.

Only operate the drive system when the operator has taken a stable position.

It is forbidden to work or even start the machine in a closed room (danger of asphyxiation). If you are working below ground level, it is essential to connect a gas discharge pipe.

Caution is advised when transporting the machine, especially in rain, snow or frost, and on sloping terrain.

Never carry or transport the machine with the rotating tool.

It is essential to stop the motor to transport the machine. For transport in a vehicle, secure the machine so that it does not tip, it does not spoil and does not lose fuel.

Check the condition and the maintenance of the drilling tool.

No changes to the drive system shall be made.

Only operate the drive system when the operator has taken a stable position.

Be careful when you transport the drill motor in wet, icy or snowy weather as well as on slopes.

Never carry or transport the drill motor when the drilling tool is rotating.

When you transport the drill motor, always stop the engine. When transporting it in a vehicle, secure the drill motor so that it does not tip over, and that the drill motor is not damaged.

1.2 Rules at work, hazard notes

Only work in good lighting conditions. Work calmly and deliberately. Exclude any risk for third parties by working with circumspection. During the drilling work nobody, not even an operator, may enter the area where the drilling tool is operated.

Before starting the drilling work the exact location of existing lines is to be determined in agreement with the public utility companies and/or the operators. Areas in which drill cores could fall are to be covered accordingly and to be secured.

Only touch the drilling tool and the drill spindle when the motor is stopped.

Repair, maintenance and cleaning work may only be done when the motor is stopped.

1.3 Maintenance and repair

Only maintenance work and repair work which is described in this operating manual may be carried out. Further repair work is to be carried out by an authorized service company. For repair work only original spare parts may be used.

No modifications to the drill motor whatsoever are allowed because you could endanger your safety. As a matter of principle maintenance and repair work is only to be done when the engine is stopped!

2 Technical data and accessories

2.1 Technical data of the machine

CDP 350/300

Type	300	350
Stroke (mm)	410	410
Advance	Manual	Manual
Annular adjustment	until 45°	until 45°
Weight with engine (kg)	53	57
Length (mm)	650	650
Width (mm)	420	440
Height (mm)	1050	1050
Drilling area (mm)	Ø 110 - Ø 290	Ø 110 - Ø 354

Motor Solo by Alko

Engine	THERMAL- Two-stroke single cylinder
Displacement (cm ³)	54.2
Bore (mm)	45
Piston stroke (mm)	34
Power kW (PS)	2.3
Maximum engine speed (min-1)	11200 ± 300
Weight with gearbox (kg)	20
Pressure level L _{peq}	92 dB(A) according to EN ISO 11201
Sound pressure level L _w eq	103 dB(A) according to EN ISO 3744
Vibration Rate	2,1 m/s ² according to I EN 12096
Clutch release speed (min-1)	6500

Gearbox

Gear ratio (Ratio)	1/25
Oil reservoir volume (L)	0.9 (900)

Ignition system (electronic speed control)

Principe	Electronic ignition
Candle	BOSCH WSR6F (anti-interference)
Electrode distance (mm)	0.5

Fuel supply

Carburator	Diaphragm carburetor with position indifferent with primer and integrated fuel pump.
Air filter	Cloth
Fuel tank capacity (L(cm ³))	0.7(700)

Mixture

Engine oil 2T synthesis	1:50 = 1 oil volume + 50 petrol volumes
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For further information on the Solo By Alko thermal engine, please refer to the Solo By Alko manual supplied with your machine.

2.2 Accessories delivered with the machine

- Strap with rings length 2.1 m, ratchet, pin
- Ground pic x2
- Exhaust hose 3.3 m
- 10L pressurized water tank with hose
- 3-hole flange connection
- Tool kit
- Manual
- Spare parts list

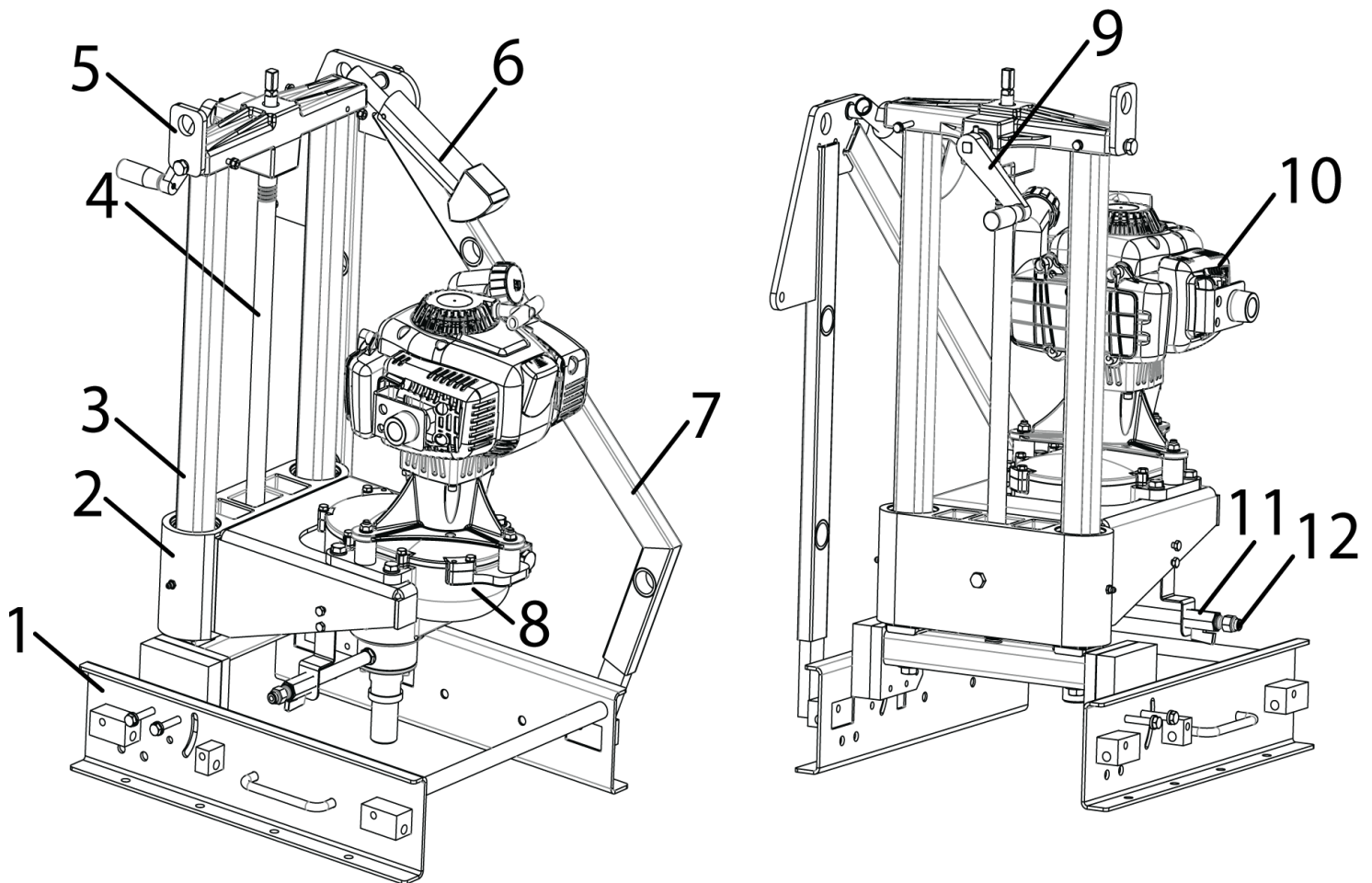
2.3 Optional accessories

	CDP 350	CDP 300
Footboard (for core sampling)	✓	✓

You will find the article codes of the accessories in the NORTON CLIPPER catalog. In case of use of accessories not approved or which do not correspond to the recommendations NORTON CLIPPER the responsibility of the manufacturer can under no circumstances be engaged. You will find in the NORTON CLIPPER diamond tools catalog a choice of tools adapted to the needs of the machine.

3 Description of the machine

3.1 Conception



- | | |
|------------------|----------------------|
| 1) Frame | 7) Lateral frame |
| 2) Slide | 8) Reducer |
| 3) Slide guide | 9) Crank |
| 4) Endless screw | 10) Engine 2 strokes |
| 5) Lifting plate | 11) Water hose |
| 6) Gas handle | 12) Connection |

3.2 *Functional description*

The CDP300 / 350 with thermal motor is a compact and lightweight machine which allows a practical implementation in the most exiguous places. The core drilling machine CDP300 / 350 with Alko thermal engine is used for drilling cores up to Ø 300 and Ø 350 mm respectively in both the concrete pipe industry and the sewage works to make the connections .

Thanks to the heat engine the machine is independent of any source of energy and can be implemented autonomously.

In order to use the heat engine in confined spaces, the machine is supplied with an exhaust hose to evacuate gases away from the workplace.

The muffler and the hose are equipped with a protection against burns.

The removable motor control handle (6) must be hand held by the operator and can be positioned in the correct position, on the left or on the right of the head of the machine.

The reducer (8) can optionally be fitted with a 3-hole flange connection or a male threaded connection. The assembly of the tool is simplified by the use of the flange connection, disassembly, in particular in the event of blockage of the tool, is easily accomplished by removing the 3 bolts holding the diamond drill bit.

The cooling water is supplied to the machine either by the pressurized water tank or by the connection to the pressurized water system. The water hose connects to the water connection. The water is thus fed directly to the drill bit by the reducer and ensures the cooling of the latter and evacuates the core drilling muds.

The slide (2) is translated on a double column by means of a threaded rod (4) with a trapezoidal thread. The crank feed (9) ensures a regular and constant movement of the carriage on the column.

The feed is carried out manually by the crank which actuates the threaded rod. The drive can be carried out in 2 different points of the advance reducer.

The chassis (1) of the machine is specially adapted for mounting on pipes of different Ø. By default, the side frame of the machine is mounted on the left side, but it can also be turned upside down for right-side mounting. The frame is designed for optimal seating of the machine in a lateral lying position.

The CDP300 / 350 core drill offers angular adjustment for 90 ° and 45 ° holes. To do this, simply unscrew some screws and put the frame in the desired position. The machine can also be fastened by means of the straps or ground stakes supplied with the assembly. Numerous accessories allow a versatile implementation of the machine.

Transport of the machine is facilitated by its compact construction. The motor and its reducer can be easily disassembled for transport. The lifting hook (5) can be used to handle the CDP300 / 350 core drill by means of a crane or any other lifting device.

The position of the machine is located behind the guide column or on the left or right side of the machine.

For use with the machine we recommend NORTON CLIPPER diamond tools.

4 Basis safety rules

The following safety symbols are used in the operating instructions, in particular for points of high importance:

The important points in the text are printed in bold and italic or in a gray text box.



Information / Important: The texts in the box contain important information



Caution: Contains instructions which must be observed scrupulously so as to prevent any damage to the user and to the machine!

4.1 Use according to regulations

The machine was built in the current state of the art and recognized safety rules. However, use of the machine may constitute a risk of personal injury to the user or third parties and damage to the machine or other property may occur.

Only use the machine when it is in perfect condition from the technical point of view and in accordance with its intended use by observing the operating instructions, taking safety into account and being aware of the danger! In particular, eliminate (or cause to be eliminated) any breakdown likely to compromise safety!

The machine is intended exclusively for the coring of concrete, reinforced concrete and masonry. Another use or use beyond what is permitted, such as, for example, For woodworking, can not be considered to be in conformity with the intended use.

The company SAINT-GOBAINABRASIVES S.A. declines any responsibility for the damages that would result from such use. The user alone assumes the risk.

The machine must only be used with NORTON CLIPPER engines. Observe the recommendations in this leaflet. The intended use also includes observance of the service manual and compliance with inspection and maintenance conditions.



Warning: Read all instructions relating to the use of the machine!

4.2 Conditions d'utilisation

The scope of use of the machine can be expanded by the addition of options. Since the adaptation of these options is relatively simple, this can be done by the operator.

Any modifications to the machine which may affect the safety when using the machine and which are not part of the accessories must not be carried out without the authorization of NORTON CLIPPER!



Information: Read and follow the instructions for accessories!

4.3 Measures of organization

The operating instructions must always be available at the workplace and within easy reach (for instance: in the box intended for that purpose)!

In addition to the operating instructions, observe the general statutory requirements and other mandatory regulations on accident prevention and environmental protection and instruct the personnel accordingly!

Such obligations may also relate, for example, to the handling of hazardous materials, the provision / wearing of protective clothing and road traffic regulations.

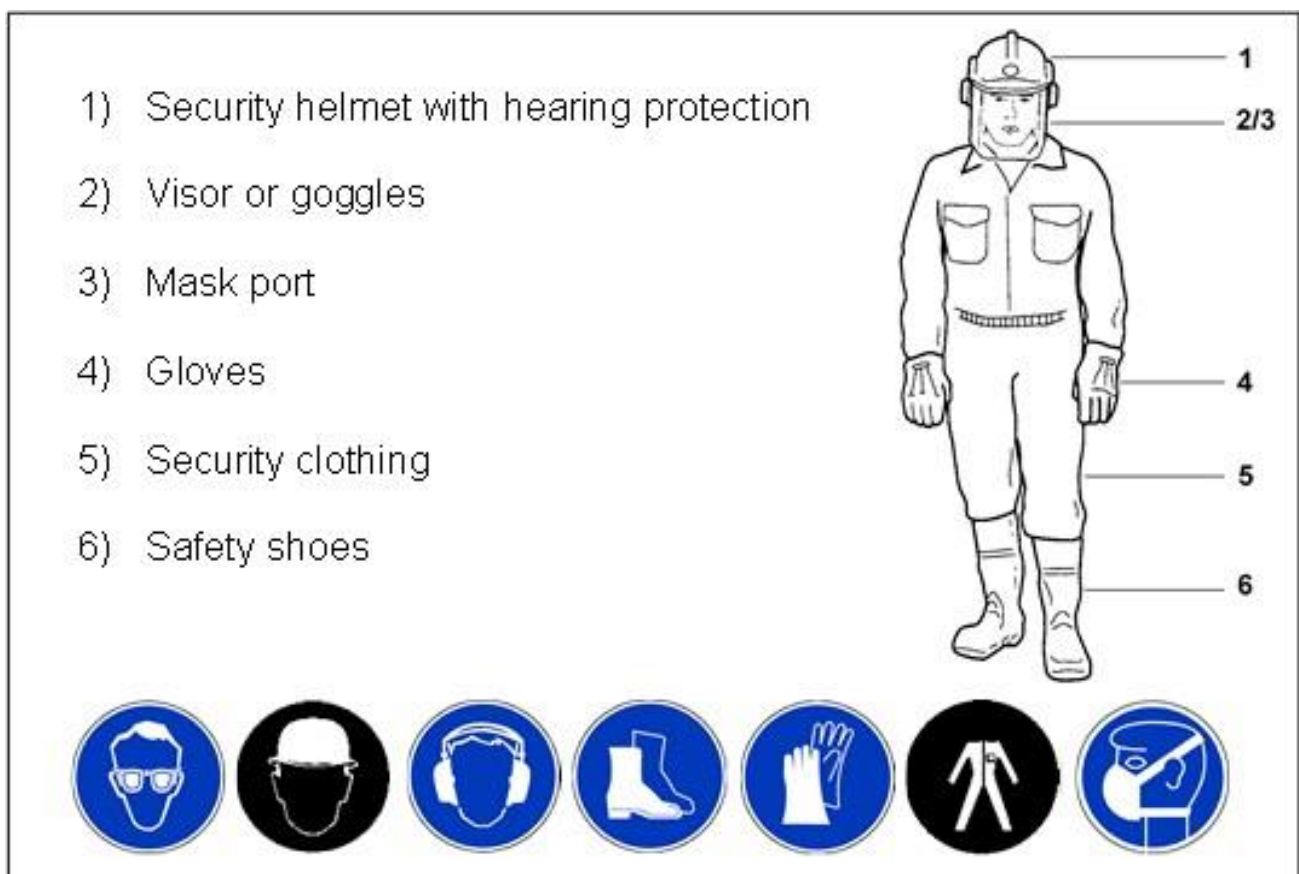
Complete instructions for use with instructions including the obligation to monitor and report in order to take account of the particularities of the operation, such as organization or workflow or personnel put into action. The personnel responsible for working on the machine must read the operating instructions before starting work and in particular the chapter "Safety instructions". It will be too late to do so during work. This applies in particular to personnel who only occasionally intervene on the machine, for assembly or maintenance for instance.

Ensure, at least from time to time, that personnel are working in accordance with safety instructions and are aware of the hazard and observe the instructions in the operating instructions!

It is not allowed that people working on the machine have long hair if they are not tied, they wear floating clothes and jewelry, including rings. They may remain hooked or be caught by the machine and thus injure the user.

Use personal protective equipment if necessary or as required. According to the safety regulations in force, the user must wear clothing and protections for his / her safety (for example: glasses, hearing protection, safety shoes, adapted safety clothing). Instructions for accident prevention must be observed!

Personal protective equipment should consist of the following parts:



Observe all safety and hazard warnings on the machine! Ensure that all warning signs close to the safety and hazards applied to the machine are always complete and readable!

If the machine changes or the running behavior influences safety, stop the machine immediately and report the incident to the competent person or workstation!

Do not carry out any measurements of transformation or assembly of additional elements on the machine likely to affect safety without the authorization of the supplier.

This is also applicable to the installation and adjustment of safety devices and valves as well as for welding work on load-bearing parts.

Defective parts or components of the machine must be replaced immediately! Use only original parts! The parts and tools must comply with the technical specifications defined by NORTON CLIPPER! Repairs must be carried out in a workshop equipped for this purpose, repairs must only be carried out by qualified personnel!

Perform periodic control / inspections of the periodicals prescribed or indicated in the operating instructions!

Make known the location of fire extinguishers and give instructions for handling! Observe the ways of fire alarm and the ways of fighting fires!

4.4 Selection of staff

The work to be done on / with the machine can only be carried out by a trusted person. Respect the minimum age required by law!

Use only trained personnel, clearly define personnel skills for operation, installation, maintenance and repair! NORTON CLIPPER is able to help with this training. Ensure that only the personnel responsible for these operations work on / with the machine!

Determine the responsibility of the machine operator - also with regard to the statutory regulations for road traffic - and give him the authorization to refuse instructions contrary to safety and given by third parties! Personnel in training, apprenticeship, initiation or operating as part of a general training measure may work on / with the machine only under the permanent supervision of an experienced person!

The user of the machine must be rested, in good health and in good physical condition. A person who is prohibited from performing fatiguing work - for health reasons - should consult his doctor and ask him if he can work with a motorized device. It is forbidden to work with the machine after having consumed alcohol or drugs or after taking medicines which may limit the ability to react.

Work on electrical, pneumatic, thermal or hydraulic installations must only be carried out by qualified personnel or under the supervision of a qualified person according to the rules in force!



Caution: Only for persons who carry a pacemaker: the ignition system of this machine generates an electromagnetic field of very low intensity. An influence on certain types of cardiac pacemakers can not be totally excluded. In order to avoid any risk to health, Norton Clipper recommends that people with a pacemaker consult with their doctor and the manufacturer of the pacemaker.

4.5 Safety instructions for certain phases of work

Before commissioning:

Avoid any work that could interfere with safety! Before starting work, familiarize yourself with the working conditions existing on the site!

These conditions include, for example, the obstacles present in the working and traffic area, the resistance of the ground and the necessary protective devices between the site and the public road!

Take measures to ensure that the machine operates only in a safe and operable condition!

Only operate the machine when all protective and safety devices, such as removable protective devices etc, are in place and in working order!

Comply with technical safety and occupational health regulations.

Check the machine at least once per workstation for damage and defects visible from the outside!

Report immediately any changes (including changes in work behavior) to the appropriate person / position!

In case of malfunction, stop the machine immediately and lock it! Make it troublesome immediately!

The operator must ensure that he has a free field of view on his workstation so that he can intervene at any time in the work process.

Use only under watering, to avoid the formation of dust that is harmful to health and to increase the lifetime of the tool.

During start-up and shut-down operations observe the control indicators according to the operating instructions!

Before starting the machine, make sure that nobody can be take a risk by starting the machine.

Keep children and unauthorized persons away from the work area.

The noise protection devices must be in place on the machine during the working phases, the user and persons present at the workplace must wear the necessary noise protection!

Be sure to keep your distances from the trenches and embankments! Do not perform work when the machine is not in a safe working position! The workplace must be clean and tidy! Disorder increases the risk of accidents! Do not work when you are tired. Concentrate on your work.

Beware of tripping! Always unroll fully extension cords and hose rollers. After assembly, do not leave tools, like keys on the machine.

Diamond drills must comply with NORTON CLIPPER specifications. Defective tools must be removed and replaced immediately. Check if the area is crossed by electrical, water or gas lines!



Important: Use only under watering, in order to avoid the formation of dust is harmful to health and to increase the lifetime of the tool.

During commissioning

Fix the drill securely and check it during the drilling operation!

Never touch the rotating parts, especially the drill and the drive shaft!

After commissioning

Before leaving the work area, make sure that the machine can not be switched on accidentally!

4.6 Maintenance and special work on the machine

Perform the adjustment, maintenance and inspection operations prescribed by the operating instructions in accordance with the intervals specified by the operating instructions as well as the information concerning the replacement of parts / partial equipment!

Only qualified personnel can perform this work.

Inform the personnel responsible for operating the machine before starting any special or maintenance work! Designate the person responsible for surveillance!

For all work relating to service, adaptation to production or adjustment of the machine and its safety devices and maintenance, inspections and repairs, observe the start-up and shut-down operations in accordance with Instructions for use and maintenance instructions! If necessary, protect the maintenance area!

Maintenance and repairs may only be carried out if the machine is placed on a level ground capable of carrying it and protected so that it can not roll alone or flex ! If the machine has been switched off completely for maintenance or repair work, it must be protected against unintentional restart.

Individual parts and large assemblies that are to be replaced must be carefully slinged to lifting gear and insured. Use only suitable lifting gear in perfect technical condition as well as load-suspending means with sufficient load capacity. Do not stay or work under suspended loads! The slings of the loads and the guiding of the crane operators can only be carried out by experienced people! The guide must be within the visibility range of the driver or be able to communicate verbally with the driver.

Use all means of access and platforms provided for this purpose or other devices that comply with safety regulations for all mounting work that exceeds man's height. Do not use machine parts as a means of access! Wear a fall protection harness when performing maintenance work at a great height!

Clean the machine and in particular the connections and bolts and remove any leftover oil, fuel and cleaning agents before starting maintenance work or repairs! Do not use aggressive cleaning products! Use lint-free cloths!

Before cleaning the machine with water or steam jet (high pressure cleaner) or other cleaning agents, cover and glue all openings which, for safety and / or operation reasons, must be protected against the penetration of water, steam or cleaning products. To clean this machine, do not use a high pressure cleaner. The powerful jet of water could damage some parts of the machine. Remove protective covers / glues after cleaning!

Once the cleaning is complete, check that the connections are not loose and that they have no defects due to friction or other deterioration! Remedy immediately any defects found! Tighten loose screw connections as soon as maintenance and repairs are complete.

It is necessary to disassemble safety devices for assembly, maintenance or troubleshooting, which must be repaired and checked as soon as the maintenance work and repairs have been completed. Ensure that the disposal of consumables and spare parts is carried out safely and in a way that does not pollute the environment!

4.7 *Gas, dust, steam, smoke*

Use internal combustion engines in sufficiently ventilated rooms! Before proceeding with a start-up in an enclosed space, ensure adequate ventilation and clear out the exhaust gases thanks to the exhaust pipe supplied with the machine!

Welding, flame cutting or grinding work can only be carried out on the machine if express authorization has been given (because of the risk of fire or explosion)!

Before carrying out welding, flame cutting or grinding work, remove dust and flammable materials from the machine or around it and ensure sufficient ventilation (danger of explosion)! To carry out work in a reduced room, observe the national safety instructions!



Caution: Danger of death if gas inhalation!

4.8 *Noise*

The acoustic insulation provided for the machine must be in the protective position during operation! Wear prescribed personal protection against acoustic shock! (UVV 29 § 10).

The use of noisy motor devices may be subject to national or local regulations specifying the time slots to be respected.

4.9 *Lighting*

The machine is exclusively intended for use in daylight. In the case of use in an ill-lit or unlit work area, it is the responsibility of the user / site supervisor to ensure proper lighting for the job site.

4.10 *Transport*

For loading / transport, use only lifting gear suitable for the load to be lifted! Appoint an official with the required qualifications for these operations!

The machine must be handled only in accordance with the instructions given in the notice (in accordance with the position and lifting points)!

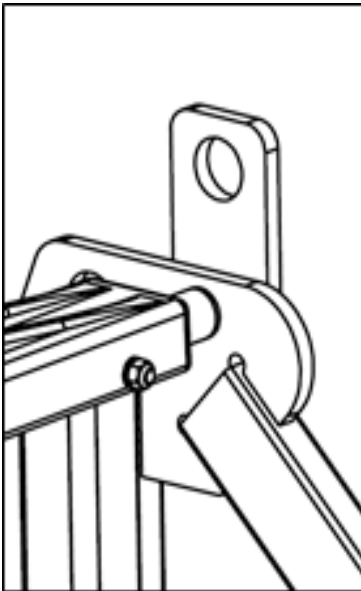
Only use suitable means of transport, which can support the required loads, secure the loads correctly! Use the anchor points for this purpose!


Before loading the machine or its components, make sure that all the components that can affect the stability or the center of gravity are blocked! Report any risks!

The diamond drill bit must be removed during transport. Even when the machine is not moving, the motor must be switched off!

Before re-starting, disassemble the items that have been used for transport! For a new transport, reassemble them and fix them correctly! Before transporting the machine, check the safe storage of accessories.

When restarting, proceed as described in the instructions! The use of the machine must only be carried out in accordance with the instructions in the operating instructions.



	<p>Caution: Before transport, be sure to lock all moving parts of the machine. Dismantle the diamond drill before transport! Only use lifting gear suitable for the load to be lifted. Only lift the machine by lifting eye!</p>
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4.11 Storage

Place the machine in a dry, well-ventilated area that is not accessible to unauthorized persons. For longer storage (during winter), it should be thoroughly cleaned and handled with suitable corrosion protection.

Note: Put drills that are not mounted in a dry, well-ventilated area that is not accessible to unauthorized persons.

Store the small diameter drills only in the prone position, and the large diameter drills only stand up and do not put anything on top.

4.12 Statement regarding the vibration emissions

Declared vibration emission value according to EN 12096.

Machine Model / code	Measured emission value de vibrations m/s ²	Uncertainty K m/s ²	Tool used Model / code
CDP 350 KP 70184601369	<2.5	0.5	DRILL ROBO FORSHEDA Ø 201 701846 12956
CDP 300 KP 70184601368			

- The vibration value is less than 2.5 m / s².
- Values determined according to the procedure described in EN 12348.

- Measurements are made with new machines. Actual values on site may vary with the conditions of use, depending on:
 - Materials worked
 - Machine Wear
 - Lack of maintenance
 - Tool not suitable for application
 - Tool in poor condition
 - Non-specialized operator
 - Etc ...

- Vibration exposure time is also a function of work performance (related to machine / tool / material/ operator suitability)

- In assessing the risks due to hand-arm vibration, it is also necessary to take account, during a working day, of the actual operating time of the machine at full speed; It is not uncommon to note that this effective working time is limited to 50% of the total working time, taking into account all stops (pauses, water and fuel supplies, preparation of work, moving the machine, assembling The tool ...).

4.13 Statement regarding to the noise emissions

Declared noise emission valu according to EN ISO 11201 and NF EN ISO 3744.

Machine Model / code	Pressure Level acoustic L _{Peq} EN ISO 11201	Uncertainty K (Pressure level acoustic L _{Peq} EN ISO 11201)	Level of acoustic power L _{Weq} NF EN ISO 3744	Uncertainty K (Level of acoustic power L _{Weq} NF EN ISO 3744)
CDP 350 KP 70184601369	92 dB(A)	2.5 dB(A)	103 dB(A)	4 dB(A)
CDP 300 KP 70184601368				

- Values determined according to the procedure described in EN12348.
- Measurements are made with new machines. Actual values on site may vary with the conditions of use, depending on:
 - Machine Wear
 - Lack of maintenance
 - Tool not suitable for application
 - Tool in poor condition
 - Non-specialized operator
 - Etc ...
- The measured values refer to an operator in the normal operating position as described in this manual.

5 Commissioning

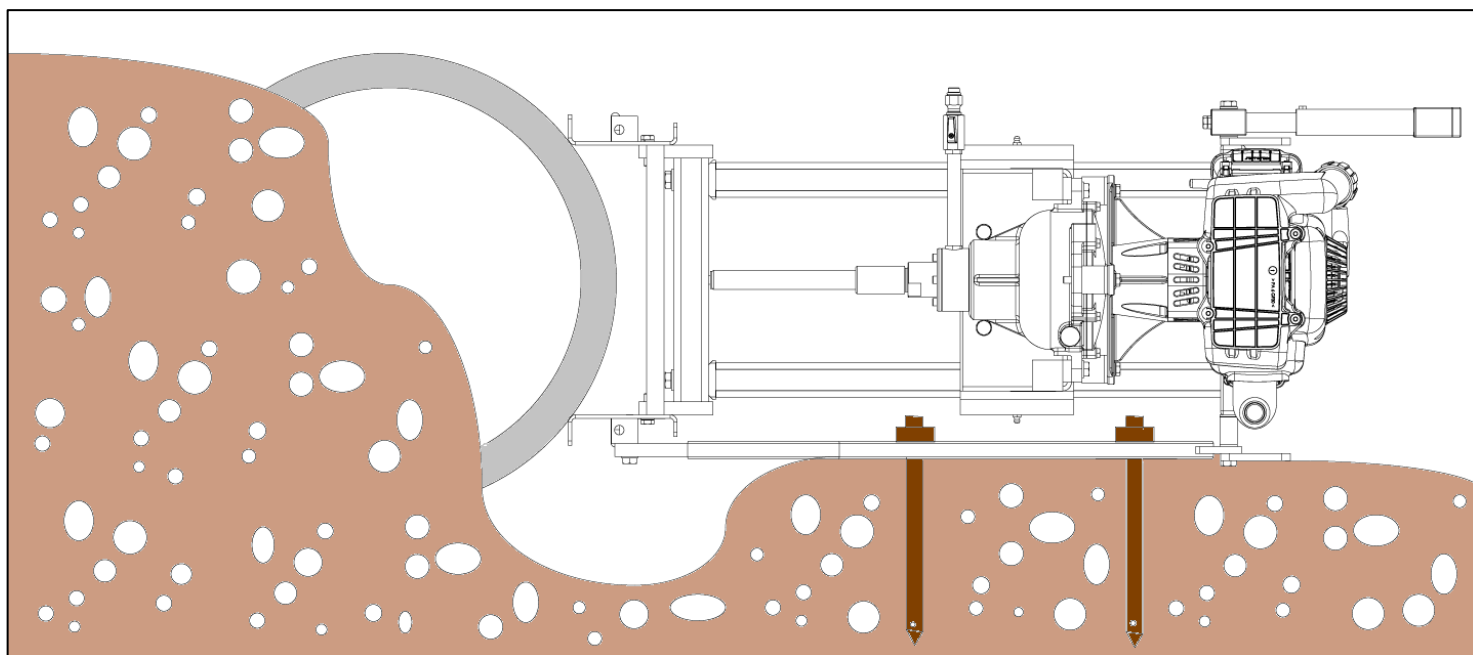
5.1 Delivery checks

Remove the packaging from the transport and place the machine on a flat and stable surface. Recycle packaging in accordance with environmental regulations. As the machine is delivered assembled, it is sufficient to check its integrity before use.

A complete list of components can be found in the section “Technical data and accessories”.

5.2 Fixation of the machine

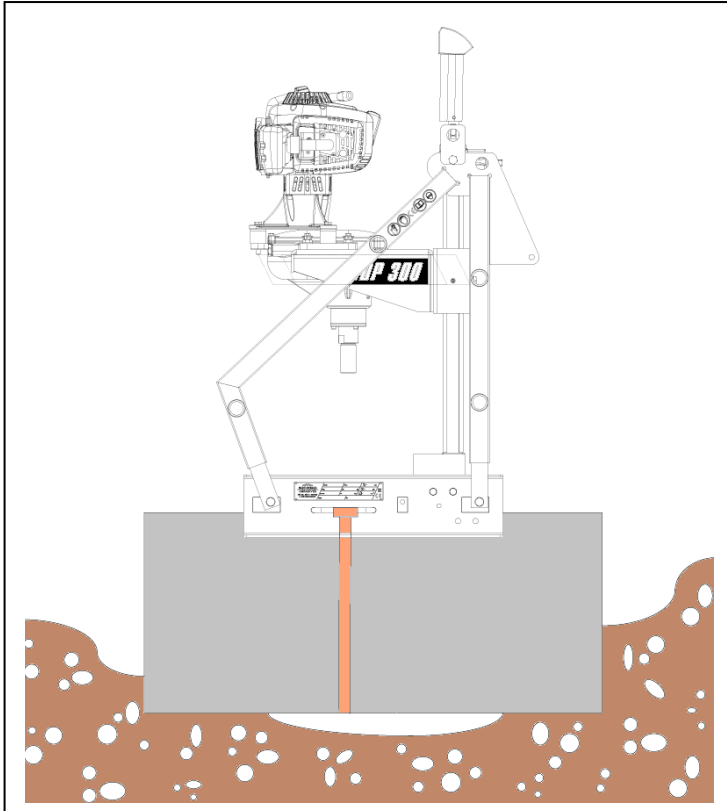
5.2.1 Thanks to the peaks of anchorage



Place the machine on the ground, perpendicular to the pipe axis, fix it with the two peak of anchorage, so that the base of the tube adheres well to the pipe with its two points of support (centering effect).

For better stability and good tilt, the machine may be wedged with a board at the front or at the back.

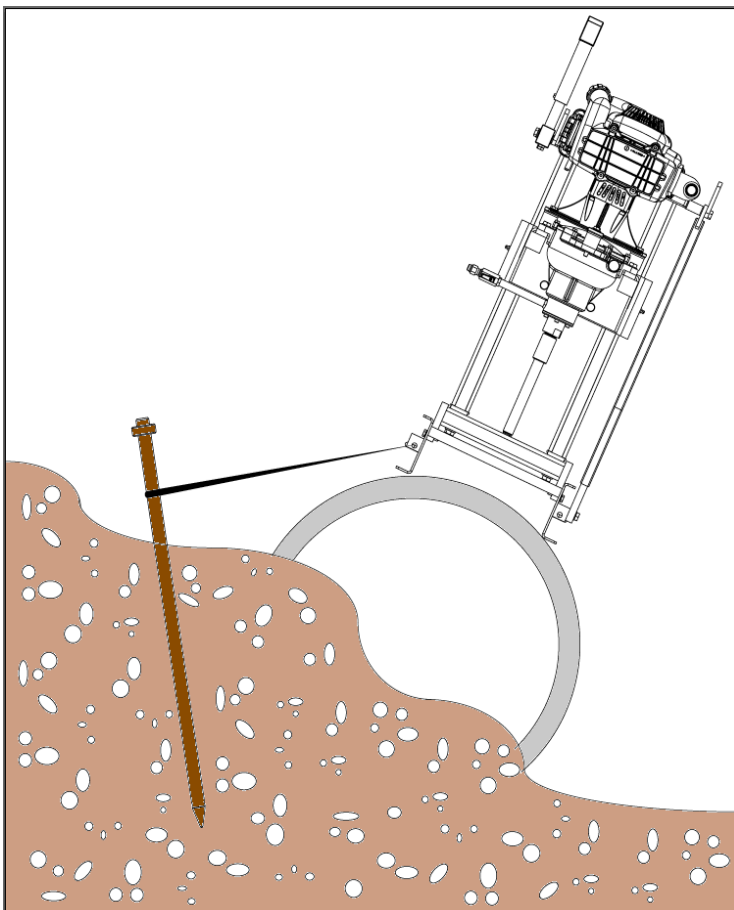
5.2.2 Thanks to the strap for the clear pipes



Secure the end of the strap to the side of the machine using a shackle.
 Pass the other end of the strap under the hose (be careful not to twist it).
 Attach the pawl on the other side of the machine with the pin.
 Pull the strap through the slot of the ratchet and stretch it.

Opening the ratchet: Reassemble the locking handle until the release. The strap can then be removed.

5.2.3 Thanks to the peaks of anchorage and the strap



When direct attachment to the ground with the peaks of anchorage is not possible due to site conditions:

- Push 1 or 2 peaks behind the pipe and hang the machine with the strap.
- When drilling, stabilize the machine by pressing on the base or support.

5.3 Water supply



Important: Use only under watering, in order to avoid the formation of dust is harmful to health and to increase the lifetime of the tool.



Caution: Water sampling tools should never be used for dry drilling!
Always ensure adequate water supply! Important: The surface of the flanges must



Caution: Use only clear water containing no impurities or aggregates!
Do not use salt water!

The water arriving on the cutting tool serves to cool the latter and to evacuate the coring sludge.

5.3.1 With pressurize water tank

When the tank is new, first attach the hose to the tank.

Ordering:

- Lift the red button and remove the remaining pressure.
- Unscrew the pump (press the handle and turn it to the left).
- Put about 10 liters of water. Do not fill tank completely. Replace the pump (right).
- Pressurize the tank about 2 bar.
- For a constant water supply it is necessary to have a minimum pressure of 0.5 bar.

Connection to core drill

The tank is connected by a hose with an express connection to the motor of the drilling machine. The amount of water is regulated by the tap.

Disconnecting the quick connection

To disconnect the connection, apply pressure to the connection and remove the outer ring. Follow the safety rules for the tank.

Safety requirements

Checking the safety valve: the safety valve operates correctly when it is triggered from 6 bar pressure. Change immediately a damaged tank (cracked bump). Repairs to the tank are not tolerated! Do not expose to water for a long time under pressure. Protect the tank from freezing.



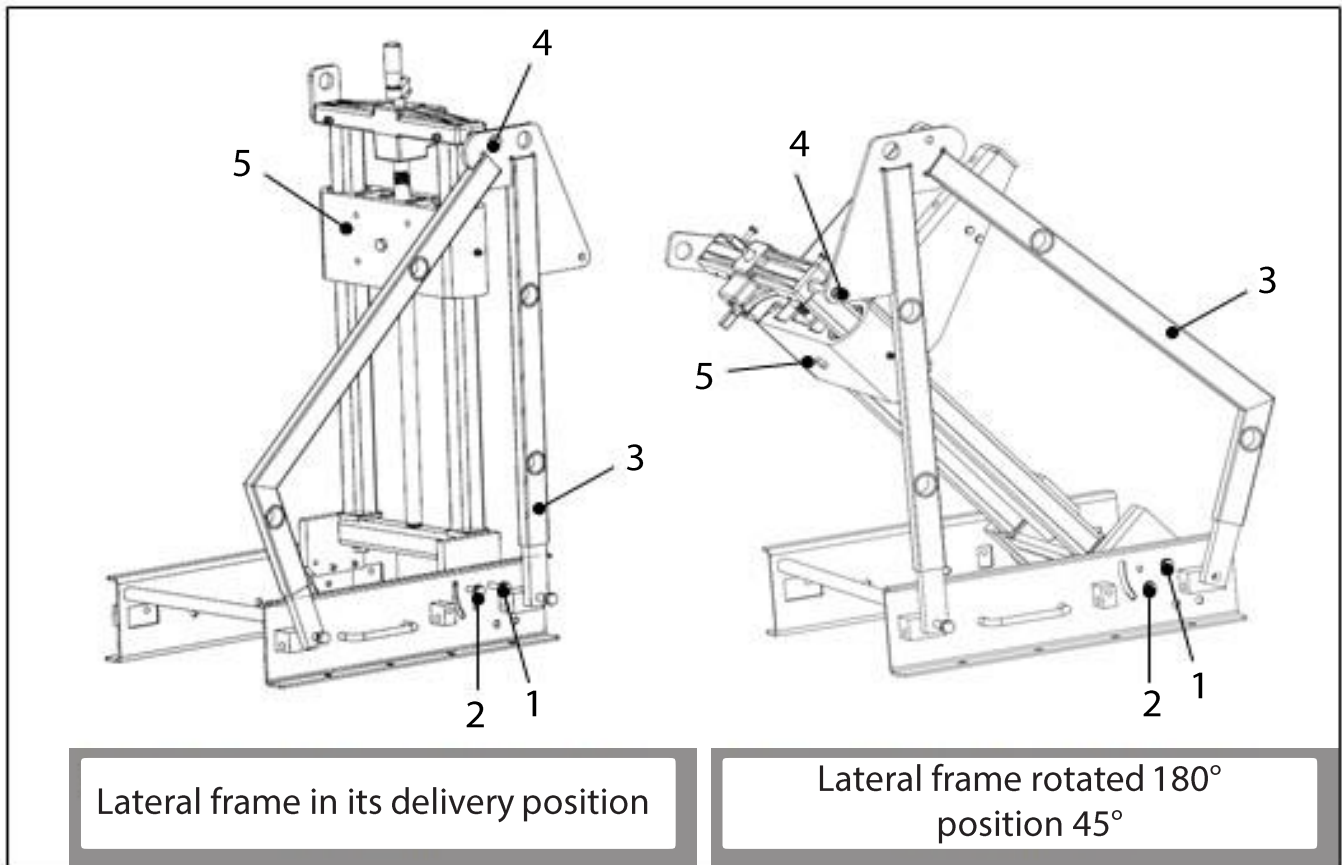
Note: Read and follow the instructions in the operating instructions of the pressure water tank!

5.3.2 By water line

Connect the water line to the machine using a hose. Adjust the flow of water through the tap of the core drill.

5.4 Angle adjustment

Upon delivery, the machine is in the 90 ° core position. To make an angular adjustment, proceed as follows:



- Remove the floor frame (Item 3) and the screws (Item 1, 2, 4) Turn the floor frame (Item 3) and the frame (Item 5) by 180 °
- Place the floor frame screws (3)
- Place the frame screws (Pos.1, 2)
- Place the screw (Item 4)
- Tighten all screws (Pos 1, 2, 3, 4).

5.5 The drill

Drills must comply with the Norton Clipper specifications.

Use diamond drills adapted to the materials to be cut and to the conditions of use! In case of improper use of the machine or with inappropriate tools, the responsibility of the manufacturer can under no circumstances be incurred in case of damage or accident.

The drills used on the machine must be adapted to the maximum rotational speeds of the machine. On machines with variable speed, the tools must be adapted to the maximum speed of the machine, whatever the Ø of the tool. Check the direction of rotation of the tool with respect to the machine! Check the assembly and positioning of the tool, the defective tools must be disassembled immediately! Before mounting or changing a tool, the machine motor must be switched off. After mounting the tool remove the tools from the machine.



Important: Before mounting, clean the bearing surfaces of the tool!

5.5.1 With adapter 1“1/4 UNC



Important: The threads of the fittings must be clean!

Mount the UNC adapter on the gear unit. Insert the adapter on the gearbox spindle so that the teeth are assembled, then screw the adapter studs into the reducer shaft.

Reassemble the drilling trolley so that the drill bit can be mounted easily under the adapter. When mounting the drill follow the following procedure:

- First the brass ring,
- then the O-ring,
- last the drill bit.

5.5.2 With 3-hole flange



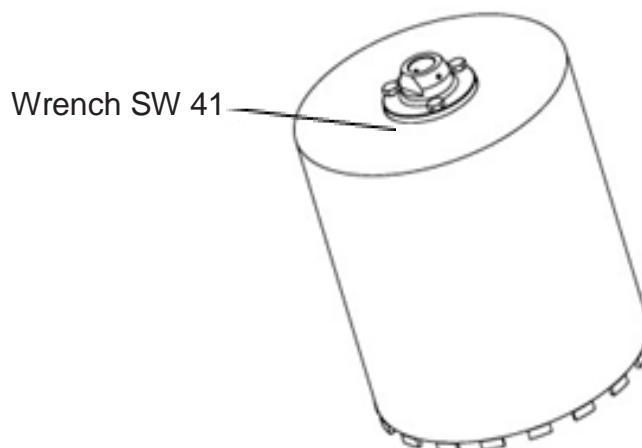
Important: The surface of the flanges must be clean!

Install the 3-hole flange adapter on the gear unit. Insert the adapter on the gearbox spindle so that the teeth are assembled, then screw the adapter studs into the reducer shaft. Reassemble the drilling trolley so that the drill bit can be mounted easily under the adapter.

Mount the 3 screws M10 x 20 through the flange in the drill threads with a SW 17 wrench. During this procedure hold the flange with a wrench SW 41.

5.5.3 Mounting of the diamond drill

Ensure that the bearing surfaces of the flanges are clean. Secure the drill spindle in order to obtain a regular tightening of the 3 fixing screws. To do this, tilt the locking lever between the motor and the gear wheel set.



6 In function



Caution: Release the workplace from anything that could interfere with the workflow! Pay attention to the correct mounting of the drills! With the exception of the user, no other person can linger in the field of work



Warning: Never touch the rotating parts, especially the drill bit and the drill spindle!



Caution: Before work, make sure that no pipe is in the drilling zone!

6.1 Before starting

Make sure that the machine is in perfect condition for safe operation:

- All parts must be installed impeccably.
- The stop button must be able to be pressed easily.
- The starting lever, throttle trigger lock and throttle trigger must operate easily - the throttle trigger must return automatically to the idle position under the effect of its spring. Starting from the position ▲ of the starting lever, this lever must return to the normal running position I under the effect of its spring when the throttle trigger is pressed at the same time.
- Check the tightening of the ignition cable contact on the spark plug - loose contact may cause sparking of sparks which may ignite the fuel mixture which could have escaped - risk of fire!
- Do not modify the control and safety devices.

It is forbidden to use the machine if it is not in perfect working order!

Ensure recovery of water and coring muds. Core sludge must be recovered, filtered and recycled. Secure the machine according to the case of the implementation. Approach the drill with the crank 5 mm from the point to be drilled.



Important: Install the exhaust hose for work in enclosed or lowered areas (trenches)!

6.2 Start coring



Important: Observe the provisions of the previous paragraphs, especially those points that are appealing to safety!



Warning: The machine must only be transported or moved when the motor is switched off! This is also valid for small displacement in the trench!



Warning: Wear the protections to the person suitable for the work to be carried



Warning: Never touch the rotating parts, especially the drill bit and the drill spindle!

Keep away from third parties put yourself in the operator position behind or on the left or right side of the machine. Switch on the water supply as described in the “Water supply” chapter. The drill bit is approximately 5 mm above the surface to be drilled. Start the engine as described in the previous chapter. Begin the core drilling with a measured feed. Gently rotate the feed crank to begin the core drilling. After priming, maintain a constant coring pressure according to the material to be coroded. The feed must be adapted to the material to be cut!



Fast forward - Overloaded motor!
Advance too low - Frozen segments!

6.3 Stop coring

Turn the crank in reverse to remove the drill from the core hole. As soon as the drill bit is removed from the core hole, stop the motor.

Stop the engine:

- Press the stop button.
- The motor stops.
- Release the stop button.
- The stop button returns to its initial position under the effect of its spring.

Close the water supply. If no further drilling is planned, remove the drill bit. Carry out the cleaning and maintenance operations according to the chapter “Maintenance and repairs”.

6.4 Change the diamond drill

The drill bit must be changed when:

- the drill bits are completely worn,
- the composition of the material to be cut is different,
- the drill bit is veiled and does not turn round,
- Diamond segments are broken or worn.

To assemble a new drill follow the description in section 4.7 “Diamond drill bits”.

7 Maintenance and repairs



Caution: All cleaning and repair work should only be done with the engine stopped!

Depending on the work cycle, the following maintenance work should be carried out. The wear parts must be checked, if necessary, the necessary adjustments or the defective parts must be replaced. In the case of heat engines, the maintenance recommended by the engine manufacturer must be carried out.

		Before each use	After works	Weekly	In case of breakdown	If defective
Machine complete	To check	X			X	X
	To clean		X			
Threaded shaft	To grease			X		
Guiding column	To grease		X			
Drills	To check	X	X		X	
	Clean the connections		X			
	To repair					X

7.1 The drill core

After the drilling, clean the machine, and check its various functions. Perform repairs immediately. (For parts to be replaced see spare parts list). Lubricate the guide column slightly.

7.2 The drill

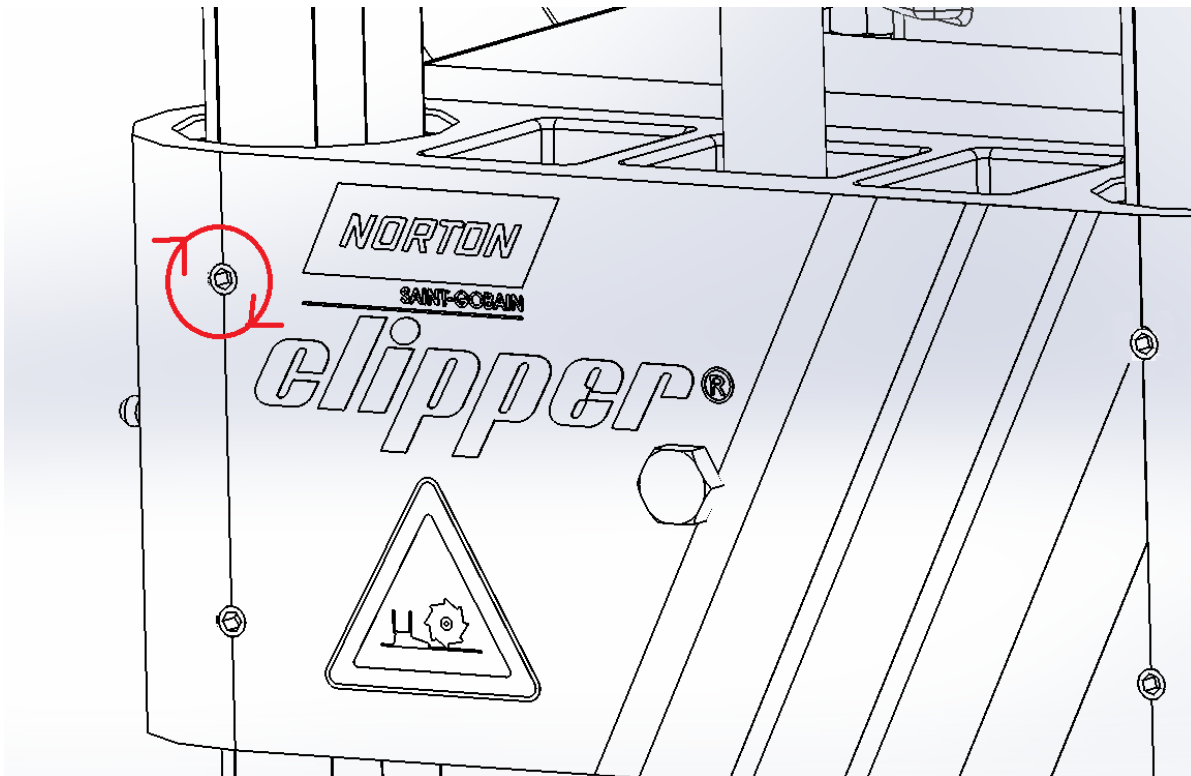
After the drilling operation, check exactly the drill bit on the following points:

Rupture of segments or segment fragments, segment tears, drill deformation, wear.

If you notice any such error, the tool should be returned for repair. Also check the threaded connection for cleanliness.

A blunt drill bit must be re-sharpened (see accessory: Norton Clipper re-sharpening plate.)

7.3 Slider



Screw gently the M8 screw by 1/8 of a turn to adjust the slider' clearance.

8 Search for errors

Cause	Remedy
Diamond tool that gets blunt	
Segments with bond too hard	Use a drill bit in the softer segments or decrease the speed and increase the advance pressure.
The contact surface of the segments is too big	Use a drill with less of segments or decrease the rotation speed and increase the advance pressure
Rotation speed is too fast	Decrease the rotation speed
Drill stumbles against the frame	Decrease the rotation speed, increase the water flow and increase the advance
Segments worn !	Reform the drill
Diamond granulation is embedded in the binder	Sharpen the drill (sharpen plate) and continue the drill core with a lower advance pressure
The contact surface of the segments is clogged by the slurry of material.	Increase the water flow, and re-sharpen the segments.
Contact surface of segments clogged with steel chips.	Reduce rotational speed, re-sharpen drill bit and increase water flow.
Abnormal wear of segment flanks, no cutting path.	Reform / change the ovalized drill and return, New segments. Control and change optionally the bearing of the drive shaft

Abnormal and premature wear	
Segments with bond too tender	Use a drill bit with harder segments or increase the rotational speed and decrease substantially the feed pressure.
Segments too narrow in relation to engine power and feed pressure.	Decrease the advance and use segments wider
Rotation speed too lower	Increase the rotation speed
Ovalized drill	To be replaced by a new one, have the old one repaired if possible. Check the drive shaft bearing and, if necessary, replace it.
Foret deviates from its trajectory.	Sharpen the drill (sharpen plate) and continue the drill core with a lower advance pressure
Material with too abrasive aggregates	Increase the rotation speed and the water flow or use a drill with harder segments
Water intake too low	Increase the water intake
The drill bit is locked	
Iron shavings are wedged between the drill and the core or the outer wall	Stop the machine and unlock the tool thanks to a wrench with back and forth movements, remove the tool at the same time with advance. In case of not successful, disassemble the drill bit and drill again with a drill with a bigger Ø
The machine is destabilized during the drill	Unscrew the drill and remove it. Break and exit the core. Re-fix the machine and make a new drilling test. If the refocusing is not anymore possible, drill with a drill which have a bigger Ø
Foret deviates from its trajectory because of the the wrong guiding of the trolley	Stop the drill core and remove the drill bit. Break the core. Adjust again the guiding. Check the play of the shaft and adjust it eventually. Never try to continue a drill core which has been deviates with the same drill bit, but with a new one which have a bigger diameter.

SAINT-GOBAIN ABRASIVES NV/SA
INDUSTRIELAAN 129
1070 ANDERLECHT : BRUSSEL
BELGIUM
TEL: +32 2 267 21 00
FAX: +32 2 267 84 24

SAINT-GOBAIN ABRASIVES, S.R.O.
VINOHRADSKÁ 184
130 52 PRAHA 3
CZECH REPUBLIC
TEL: +420 267 132 026
+420 267 132 029
FAX: +420 267 132 021-2

SAINT-GOBAIN ABRASIVES A/S
ROBERT JACOBSENS VEJ 62A
2300 KØBENHAVN S
DENMARK
TEL: +45 4675 5244

PO BOX 643706
FORTUNE TOWER OFFICE 2106
JLT BLOCK C
(NEXT TO METRO STATION)
JUMEIRA LAKE TOWER, DUBAI
UNITED ARAB EMIRATES
TEL: +971 4 431 5154
FAX: +971 4 431 5434

SAINT-GOBAIN ABRASIFS
RUE DE L'AMBASSADEUR - B.P.8
78 702 CONFLANS CEDEX
FRANCE
TEL: +33 (0)1 34 90 40 00
FAX: +33 (0)1 39 19 89 56

SAINT-GOBAIN ABRASIVES GMBH
BIRKENSTRASSE 45-49
D-50389 WESSELING
GERMANY
TEL: +49 (0) 2236 703-1
+49 (0) 2236 8996-0
+49 (0) 2236 8911-0
FAX: +49 (0) 2236 703-367
+49 (0) 2236 8996-10
+49 (0) 2236 8911-30

FÜR DEN FACHHANDEL ÖSTERREICH
TEL: +43 (00) 662 430 076

SAINT-GOBAIN ABRASIVES KFT.
1225 BUDAPEST
BÁNYALÉG U. 60/B.
HUNGARY
TEL: +36 1 371 22 50
FAX: +36 1 371 22 55

SAINT-GOBAIN ABRASIVI S.P.A
VIA PER CESANO BOSCONI 4
I-20094 CORSICO MILANO
ITALY
TEL: +39 02 44 851
FAX: +39 02 44 78 266

SAINT-GOBAIN ABRASIVES S.A.
190 RUE J.F. KENNEDY
L-4930 BASCHARAGE
GRAND DUCHE DE LUXEMBOURG
TEL: +352 50 401 1
FAX: +352 50 16 33
NO. VERT (FRANCE) 0800 906 903

SAINT-GOBAIN ABRASIFS, S.A.
2 ALLÉE DES FIGUIERS
AIN SEBAË - CASABLANCA
MOROCCO
TEL: +212 5 22 66 57 31
FAX: +212 5 22 35 09 65

SAINT-GOBAIN ABRASIVES BV
GROENLOSEWEG 28
7151 HW EIBERGEN
P.O. BOX 10
7150 AA EIBERGEN
THE NETHERLANDS
TEL: +31 545 466466
FAX: +31 545 474605

SAINT-GOBAIN ABRASIVES AS
POSTBOKS 11, ALNABRU,
0614 OSLO
BROBEKKVEIEN 84,
0582 OSLO
NORWAY
TEL: +47 63 87 06 00
FAX: +47 63 87 06 01

SAINT-GOBAIN HPM POLSKA SP. Z O.O.
UL. TORUŃSKA 239/241
62-600 KOŁO
POLAND
TEL: +48 63 26 17 100
FAX: +48 63 27 20 401

SAINT-GOBAIN ABRASIVOS, L. DA
ZONA INDUSTRIAL DAMAIA
I-SECTOR VIII, NO. 122
APARTADO 6050
4476 - 908 MAIA
PORTUGAL
TEL: +351 229 437 940
FAX: +351 229 437 949

SAINT-GOBAIN GLASS
BUSINESS UNIT ABRASIVI
PUNCT DE LUCRU: LOC.VETIS,JUD.
SATU MARE 447355
STR. CAREIULUI 11
PARC INDUSTRIAL RENOVATIO
ROMANIA
TEL: +40 261 839 709
FAX: +40 261 839 710

SG HPM RUS
58, F. ENGELS STR.
STROENIE 2
105082 MOSCOW
RUSSIA
TEL: +74 955 408 355
FAX: +74 959 373 224

SAINT-GOBAIN
ABRASIVES (PTY) LTD
2 MONTEER ROAD
ISANDO 1600
P.O. BOX 67
SOUTH AFRICA
TEL: +27 11 961 2000
FAX: +27 11 961 2184/5

SAINT-GOBAIN ABRASIVOS, S.A.
CTRA. DE GUIPÚZCOA, KM. 7,5
E-31195 BERRIOPLANO (NAVARRA)
SPAIN
TEL: +34 948 306 000
FAX: +34 948 306 042

SAINT GOBAIN ABRASIVES AB
GÅRDSFOGDEVÄGEN 18A
168 66 BROMMA • SVERIGE
SWEDEN
TEL: +46 8 580 881 00
FAX: +46 8 580 881 01

SAINT-GOBAIN ABRASIVES
MUEYYETZADE MAH.
GALIPDEDE CAD. NO:99, KAT:3
34425 BEYOGLU-ISTANBUL-TURKEY
TEL: 0090-212-245 85 21
FAX: 0090-212-245 85 27

SAINT-GOBAIN ABRASIVES LTD.
DOXEY RD
STAFFORD
ST16 1EA
UNITED KINGDOM
TEL: +44 1785 222 000
FAX: +44 1785 213 487

SAINT-GOBAIN ABRASIVES
190, Bd. J. F. Kennedy
L-4930 BASCHARAGE
LUXEMBOURG
Tel.: ++352 50401-1
Fax: ++352 501633
e-mail: sales.nlx@saint-gobain.com

www.construction.norton.eu