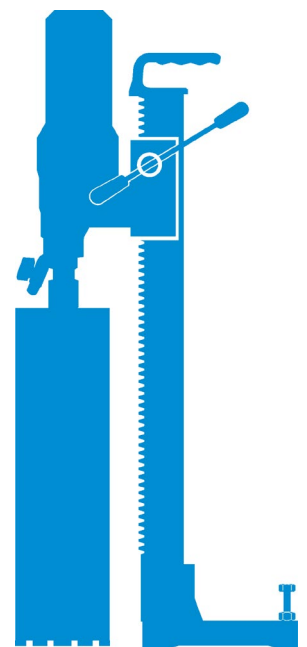




Operating Instructions

DRS162

Index 000



Congratulations!

With a Hydrostress unit from TYROLIT you have chosen a tried and tested piece of equipment designed and built to the highest technical standards. Only genuine TYROLIT Hydrostress replacement parts can guarantee quality and interchangeability. If maintenance work is neglected or carried out inexpertly we will be unable to honour our warranty obligations. Any repair work must be carried out by trained personnel only.

Our after-sales service is available to help ensure that your TYROLIT Hydrostress units remain in perfect working order.

We hope that working with your TYROLIT unit will be a satisfying and fault-free experience.

TYROLIT Hydrostress

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1 Important Safety Instructions

Important instructions and warning notices are allegorized on the machine by means of symbols:



Before you start working, read the operating instructions of the machine.



Work concentrated and carefully. Keep your workplace clean and avoid dangerous situations.



In order to protect the user, take precautions.

In order to protect yourself, implement the following actions:



Wear ear protectors



Wear protective goggles



Wear protective helmet



Wear protective gloves



Wear protective boots



Warning of general danger



Warning of dangerous voltage



Warning of hot surface



Machine, drill bit and rig are heavy danger of being crushed

2 Technical Data

Diamond Core Drill DRS162★★	
Parameter	Value
Rated voltage:	230 V ~
Power input:	2500 W
Rated current:	11,5 A
Frequency:	50-60Hz
Rated speed:	450 min ⁻¹
Max. drilling diameter:	162 mm
Tool fitting:	R ½" und 1 ¼" UNC
Protection class:	I
Degree of protection:	IP 20
Column height drill rig:	790 mm
Stroke:	556 mm
Net weight:	approx. 15,5 kg
Interference suppression:	EN 55014 und EN 61000

Subject to alterations!

2.1 Available accessories:

Vacuum plate	TYROLIT No.10993961
Vacuum pump VPE600	TYROLIT No.10999500
Water tank 10 l	TYROLIT No.10991465

2.2 Supply

Diamond drilling system incl. drill with ball valve and GARDENA connector, PRCD-safety switch integrated in the cable, mounted on the rig, operating instructions and fork wrenches 32 / 41 in the cardboard box.

2.3 Application for Indented Purpose

The Diamond Core Drilling system DRS162 is indented for professional use and may be used by instructed personnel only.

With the appropriate wet drill bits, the system may be used for wet drillings only, e.g. in concrete, stone and masonry.

It may be used completely mounted only.

3 Safety Instructions



- Safe work with the machine is only possible, if you read these operating instructions completely and strictly follow the instructions contained herein. In addition, the general safety instructions in the enclosed brochure have to be observed. Take part in a practical introduction before the first use.
- If the connection cable is getting damaged or cut during the work, don't touch it, but instantly pull the plug out of the socket. Never use the machine with damaged connection cable.
- When drilling in ceilings or walls make sure you will not cut through electrical mains, gas or water pipes. Use metal detection systems if needed. Before you start working, consult a statics specialist to determine the exact drilling position. If drilling through ceilings, secure the place below, because the core may drop out.
- Pay attention that the tool is not exposed to direct rain.
- Do not use the tool in an environment with danger of explosion.
- Do not use the tool standing on a ladder.
- Do not drill in asbestos-containing materials.
- Never carry the tool at its cable and always check the tool, cable and plug before use. Have damages only repaired by specialists. Only insert the plug into the socket when the tool switch is OFF.
- Modifications of the tool are prohibited.
- The machine should only run under supervision of. Pull the plug and switch the machine off if it is not under supervision, e.g. in case of setting up and stripping down the machine, in case of voltage drop or when fixing or mounting an accessory.
- Switch the machine off if it stops for whatever reason. This way, you avoid that it starts suddenly and not under supervision.
- Do not use the machine if a part of the housing is damaged or in case of damages on the switch, the connecting cable or plug.
- Power tools have to be inspected visually by a specialist in regular intervals.

- Always lead the cable to the back, away from the machine.
- When using the drill, cooling water is never allowed to get into the motor and electrical parts.
- Overhead-drillings only with suitable safety measures (water collection).
- After an interruption of your work, only switch the machine on again after having checked that the drill bit can be turned freely.
- The tool may be used with the drill rig only.
- Do not touch rotating parts.
- Persons under 16 years of age are not allowed to use the tool.
- During use, the user and other persons standing nearby have to wear suitable ear protectors, goggles, helmets, protective gloves and boots.



- Always work concentrated and carefully. Do not use the tool when you are lacking in concentration.



For further safety instructions, please refer to the enclosure!

3.1 Electrical Connection



The DRS 162★★ is made in protection class I. For protection purposes the machine can only be run with a GFCI. For this reason, the machine is standard equipped with a PRCD switch integrated in the cord which allows to connect the unit directly with a grounded socket.



Attention!

- ▶ The PRCD-protective switch must not lay in water.
- ▶ PRCD-protective switches must not be used to switch the tool on and off.
- ▶ Before you start working, check the proper functioning by pressing the TEST button.

Only use 3-wire extension cable with protecting conductor and a sufficient cross-section (min. 2.5 mm²). A cross-section which is too small could lead to an excessive power loss and to overheating of machine and cable.

First, check the correspondence of voltage and frequency and compare it with the data mentioned on the identification plate. Voltage differences from + 6 % to – 10 % are allowed.

3.2 Water Supply



If the drill bit is not cooled enough with water, the diamond segments could heat up and consequently get damaged and weakened. For this reason, always make sure that the cooling system is not blocked.

In order to supply the machine with water, please proceed as follows:

- Connect the tool to the water supply system or a water pressure vessel by means of the GARDENA connector.
- Always make sure that the machine only runs with enough clear water as the seals get damaged when the machine is running dry.
- Attention! The maximum water pressure should not exceed 3 bar.
- Make sure that the segments are well cooled. If the drilling water is clear, the segments are well cooled.

3.3 Drill Bit Change



Attention!

When you use or sharpen the machine, it might heat up enormously. You could burn your hands or get cut or ripped by the segments. Always disconnect the plug from the mains before the beginning of any work on the tool. Always use protective gloves when changing the drill bit.



The drill spindle has a right-hand thread.

To counterhold on spindle always use an jaw wrench SW 32.

Never remove the drill bit with impacts, otherwise it could get damaged.

With some waterproof grease, which is put on the drill bit thread between spindle and drill bit, and a copper ring between spindle and drill bit you can remove the drill bit easier.

4 Using the Drilling system



In order to operate safely, please observe the following instructions:

Safety at work

- Make sure that your work place is free of anything that might disturb your work.
- Pay attention that your work place is well-lit.
- Make sure that you observe the conditions for the connection with the power supply.
- When laying the cables, make sure that it cannot be damaged by the tool.
- Make sure that you always can overlook the work place in a sufficient way and that you always can reach all necessary control elements and safety devices.
- In order to avoid accidents, keep other persons away from your work place.

Required space for operation and maintenance

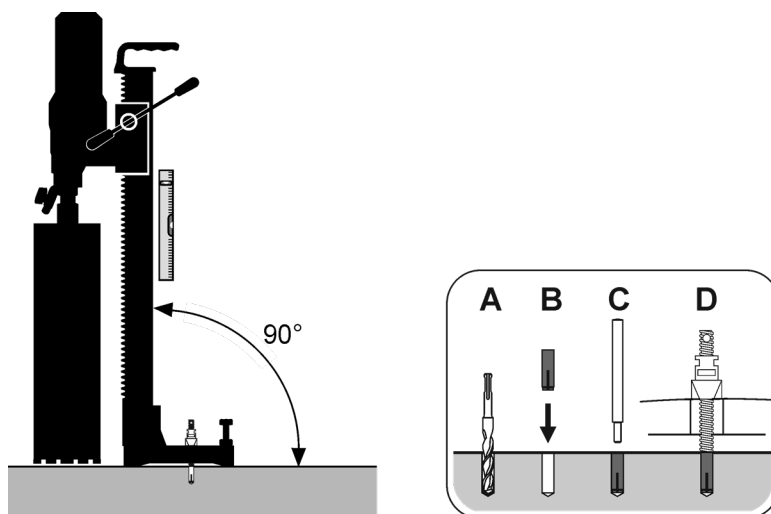
If possible, make sure that you have enough free space for operation and maintenance around the machine (about 2 metres). This way, you can work safely and in case of operating trouble you can intervene immediately.

4.1 Preparation

- When you drill into blocs, make sure that the blocs are well anchored and fixed.
- Before drilling in supporting parts, make sure that you do not disregard the statics. Observe the instructions of the experts who are responsible for the design.
- Make sure that you do not damage any gas mains, water mains or electric cables while drilling.
- Pay attention that you do not touch any metallic parts of the machine when you drill walls and grounds and electric cables could lie under water.
- Pay attention that the drilling core does not hurt anybody or damage anything when it drops out. Please clear and clean your work place.
- If the drilling core might cause any damage when it drops out, use an appropriate device that can hold back the drilling core.
- Make sure that the drill bit is well fixed.
- Only use tools which are suitable for the particular material.

4.2 Surface interface

4.2.1 Dowel anchoring



The DRU162 ★★ drill rig can be securely attached to the surface with dowel anchoring.

Subsurface-specific anchoring elements must be used to secure the DRA162 ★★ drill rig. When positioning the dowels the installation instructions of the dowel manufacturer must be followed.

Example:

TYROLIT
HYDROSTRESS

M 12 x 50

Made in Germany

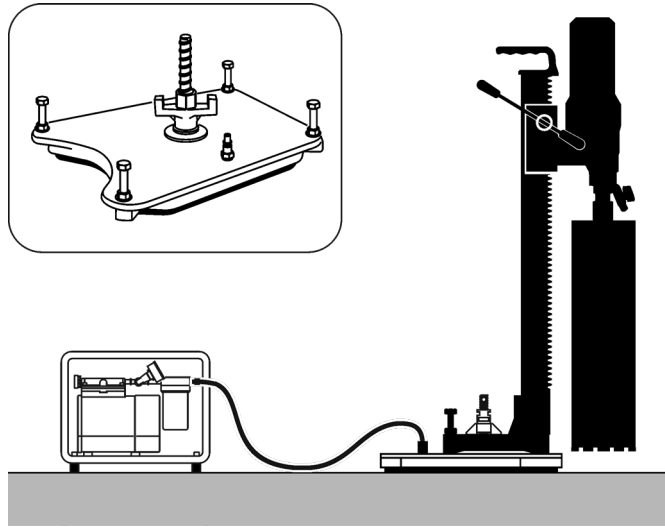
Concrete ≥ C20/25

„a“	min 400 mm
„a _r “	min 200 mm
„d“	min 200 mm
„b“	min 400 mm

106/2

03/04 5.000

4.2.2 Vacuum fixing (optional)



The DRA162 ★ ★ drill rig can be securely attached to the surface with the appropriate TYROLIT Hydrostress components.



Attention!

It is important that the drill rig is tightly connected with the ground. Incorrectly fixed drill rigs can cause injuries of the operator and damages on the drilling system. Movements during drilling cause hits of the drill bit against the drilling wall, what can lead to a breaking out of the segments. The drill bit can also cant in the bore hole, what causes damages on this.

4.3 Drilling

4.3.1 Vertical drilling

- Switch the PRCD on.
- Open the water supply.
- Turn the motor on without touching the surface with the drill bit.
- Turn the handle to lower the drill bit until it touches the surface.
- In order to reach an exact centring of the drill bit, keep the feed low for the first centimeter of cutting depth.
- Then you can drill faster. A drilling speed which is too low reduces the power. On the other hand, when the drilling speed is too high, the diamond segments quickly become blunt.



You have hit reinforced iron when you recognise while drilling that the feed rate gets very low, when you need to use more force, or when the water leaking from the bore hole clearly shows some metal chips. Reduce the pressure on the drill bit to cut through the reinforced iron without any problems. You can increase the pressure again when you have cut through the reinforced iron.

4.3.2 Drill Bits



Always use drill bits which match the material which has to be drilled. You can prevent the machine from damage if you only use drill bits which are balanced and not deformed. Pay attention that diamond segments have enough relief cut towards the drill bit body.

4.3.3 Overload Protection

In order to protect the operator, motor and drill bit, the DRA162 ★★ is equipped with a mechanical and electronic overload protection.

Mechanical: If the drill bit is suddenly blocked in the hole, a clutch will slip disengaging the drill spindle from the motor.

Electronic: In case of overload due to too large feed force, the motor cuts off automatically. After discharge, switching OFF and ON again, drilling can be continued.

4.3.4 Safety Clutch

The safety clutch should absorb shock and excessive stress.

To keep it in good condition, the clutch should slip for a very short time (max. 2 seconds) in each case only. After excessive wearing the clutch has to be renewed by an authorized service shop.

4.3.5 Fracture of Segment

If a diamond segment, parts of the armouring or something similar break out while drilling, and consequently the drill bit seizes, stop working on this bore and drill a hole having the same centre and a diameter being 15 – 20 mm bigger.

Do not try to finish your work using another drill bit of the same diameter!

4.3.6 After Drilling

When you have finished drilling:

- Pull the drill bit out of the hole.
- Stop the motor by using the motor switch and not the PRCD switch.
- Close the water supply.

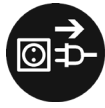
Removal of the core when it sticks in the drill bit:

- Separate the drill bit from the motor.
- Put the drill bit in a vertical position.
- Knock carefully on the pipe by using a wooden hammer shank till the drilling core slips out. Never throw the drill bit against a wall by force or set about it with tools, such as hammer or jaw wrench. Otherwise, the pipe could go out of shape and neither the drilling core can be extracted nor the drill bit is reused.

Removal of the core from blind holes:

- Break off the core with a cotter or lever, or in pieces. Lift the core out with appropriate tongs or drill a hole in the core, screw an eyebolt in and pull the core out.

4.4 Care and Maintenance



Before the beginning of the maintenance or repair works you have to disconnect the plug from the mains!

4.4.1 Machine :

Repairs may be executed only by appropriately qualified and experienced personnel. After every repair the machine has to be inspected by an electric specialist. Due to its design, the machine needs a minimum of care and maintenance. Regularly the following works have to be carried out or rather the component parts have to be inspected:

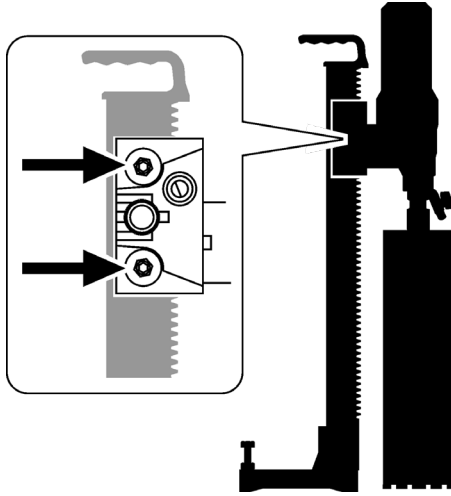
- Clean the drilling system after you have finished drilling. Then grease the thread of the drill spindle. The ventilation slots always have to be clean and open. Pay attention that no water gets into the machine during the cleaning process.
- After the first 150 hours of operation you have to change the gearbox oil. Gearbox oil changes cause a considerable longer lifetime of the gearbox.
- After approx. 200 hours of operation the carbon brushes have to be checked by an electric specialist and if necessary removed them (use original carbon brushes only).
- Have switch, cable and plug checked by an electric specialist quarterly.

4.4.2 Drill Rig

- Always keep the drill rig clean, especially the column with the tothing and the 4 sliding pieces in the mounting plate. In order to allow the free movement of the pinion shaft it should be slightly lubricated.
- In order to achieve a good performance of the drill rig, the 4 sliding pieces in the machine holder have to move along the column without backlash



If the position has changed, it can be readjusted as follows:



- Loosen the counter nut on the Allen screw by means of an jaw wrench SW17
- Adjust the Allen screws and the position of the thrust piece to the column by means of a hex head wrench.
- Tighten the counter nut again and check whether the carriage moves easily on the column.

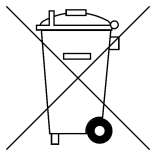
4.5 Environmental Protection



Raw material recycling instead of waste disposal

In order to avoid damages on transportation, the power tool has to be delivered in sturdy packing. The packing as well as the tool and its accessories are made of recyclable materials and can be disposed accordingly.

The tool's plastic components are marked according to their material, which makes it possible to remove environmental friendly and differentiated because of available collection facilities.



Only for EU countries

Do not dispose of electric tools together with household waste material!

In observance of European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

4.6 Noise Emission / Vibration

The indication of noise emission is measured according to DIN 45 635, part 21. The level of acoustic pressure on the work place could exceed 85 dB (A); in this case protection measures must be taken.



Wear ear protectors!

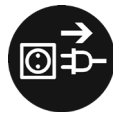
**The typical hand-arm vibration is below 2.5 m/s².
Measured values determined according to EN 60 745.**

The declared vibration emission level represents the main applications of the tool. However if the tool is used for different applications, with different accessories or poorly maintained, the vibration emission may differ. This may significantly increase the exposure level over the total working period.

An estimation of the level of exposure to vibration should also take into account the times when the tool is switched off or when it is running but not actually doing the job. This may significantly reduce the exposure level over the total working period.

Identify additional safety measures to protect the operator from the effects of vibration such as: maintain the tool and the accessories, keep the hands warm, organisation of work patterns.

4.7 In Case of Malfunction



**In case of breakdown, switch the motor off and disconnect it from the power.
Repairs of the electrical parts may only be performed by an authorised service specialist.**

4.8 Trouble Shooting

Error	Possible Cause	Error Recovery
Machine does not work	Mains current supply interrupted Line cord or plug damaged Switch damaged The PRCD-switch is off	Plug in another electric appliance and check the functioning Have it checked by an electric specialist and replaced if necessary Have it checked by an electric specialist and replaced if necessary Press RESET to switch on
Motor runs, drill bit does not rotate	Gearbox damaged	have the tool repaired by an authorised service workshop
Drilling speed too slow	Water pressure / water flow rate too high Drill bit damaged Gearbox damaged Drill bit is blunt	Regulate the water quantity Check if drill bit is damaged and replace it if necessary Have the tool repaired by an authorised service workshop Sharpen the drill bit with a sharpening block while using the flush
Motor cuts off	The tool stops The tool overheats, overload protection of the motor has reacted	Lead the tool in a straight manner Discharge the tool and restart it by pressing the switch
Water drops out of the gearbox housing	Shaft sealing rings damaged	Have the tool repaired by an authorised service workshop
Drilling system has too much backlash	Guidance has too much backlash	Readjust the guidance

5 EC Declaration of Conformity

Description Drill rig

Type designation DRS162

We declare under our sole responsibility that this product complies with the following directives and standards:

2006 / 42 / EG

2011 / 65 / EU

2014 / 30 / EU

EN 61029

EN 55014

EN 61000

TYROLIT Hydrostress AG

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CH-8330 Pfäffikon

Switzerland

Pfäffikon, 10.11.2016



Pascal Schmid
Leiter Entwicklung

