

Operating Manual

Hydraulic Rock Drill HRD20

From serial
number 3195

Revised
03.11.2014



Prior to Operation

We thank you for choosing a HYCON rock drill.

To ensure smooth operation and long-lasting performance of your new tool, we recommend you to study this operating manual carefully and pay special attention to the chapters about

Safety and Service Precautions

and

Oil Flow and Pressure

We hope you will be satisfied with your new HYCON rock drill.

Best regards
HYCON A/S



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Safety Precautions

- Read the rock drill and power source operating manuals prior to use.
- Only use the rock drill in accordance with the local working regulations on allowed working time
- Check the oil flow to the rock drill. The oil flow may not exceed 30 l.p.m./max. 150 bar.
- A fine jet of oil at pressure can penetrate the skin. It is therefore important never to use your fingers to check for oil leaks and never to hold your face close to suspected leaks – use a piece of cardboard instead. If oil has penetrated the skin, you should get medical treatment immediately.
- Never leave the rock drill when connected to the powerpack.
- Always use correct tool
- Make sure that the tool is firmly fastened
- Always use approved hoses. Contact your dealer, if necessary.
- The operator must pay extra attention and show caution when working in difficult working areas, such as slopes and other dangerous nature of the ground. Do not reach too far with the rock drill, but always maintain a good footing and keep your balance.
- The operator must be properly trained in using the rock drill or under supervision of a qualified instructor.
- The operator must always use protective goggles, earplugs, hard hat and shoes when operating the rock drill.
- Never wear loose clothing as it may get entangled in the moving parts of the rock drill.
- Inspection or cleaning of the rock drill, change of tool or disconnection of hoses may never be done while the rock drill is connected to the powerpack, as unintentional activation can cause severe damage.
- Always connect hoses to the rock drill before starting the powerpack. Be sure that all couplings are tight.

- The rock drill may not be operated if the oil temperature is above 80 C°. Operation at higher temperatures may result in the rock drill getting warmer than normal and the operator risks getting burnt on it.
- To avoid all personal injury and damage to material, all repair, maintenance and service work must be carried out by authorized or properly trained persons only.

IMPORTANT

- A rock drill not in use should always be kept in a safe and dry place.
- The rock drill may never be operated without tool, or without being held against the working surface, as this may result in overload of the rock drill.
- Always make sure that the rock drill labels and warning signs are legible.
- Always use hoses, couplings and spares as such recommend by HYCON A/S.
- Repairs may only be carried out by experienced personnel.
- Make sure that all couplings are cleaned before connection.
- Always disconnect the hydraulic circuit before connecting or disconnecting the rock drill. If this is not done, there is a risk of damage to the quick release couplings or the hydraulic system getting superheated.

Oil Flow and Pressure

Your new HYCON rock drill is designed for a certain oil flow, working pressure and maximum pressure. A too high oil flow and/or a too high pressure results in overload of the rock drill, meaning that the lifetime of your new HYCON tool will not be as expected, and that your service and repair costs will be too high.

It is important to check that the breaker is not supplied with an oil flow beyond its design capacity, that the working pressure is correct and that the maximum allowed pressure is not exceeded.

On page 5 you will find a complete survey of the technical data, and on page 7 there is a guide to connection to hydraulic power sources and how to ensure that the rock drill is not overloaded.

Starting Instructions

START

- Insert tool.
- Connect hoses – clean couplings before connection.
- Set the power source on "ON".
- Check blow frequency and rotation settings (see below)
- Get a good footing before you start drilling to avoid stumbling during operation.
- Press the drill end against the material to be drilled, then press the control lever down towards the handle and the rock drill will start drilling.

STOP

- Let go of the trigger lever, and the rock drill will stop working.

Settings	Blows 1/min	Rotations rpm
0	1500	0
1	1350	200
2	1100	300
3	900	400

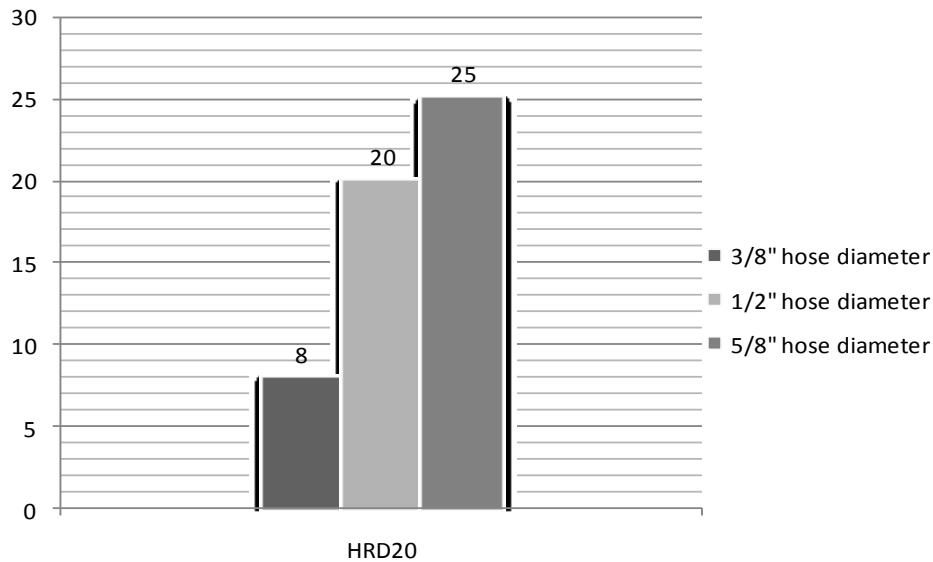


Technical Data

Weight w/o hoses and tool	20 kg				
Dimension	Total length: 626 mm Total width: 412 mm				
Oil flow	25-30 l.p.m.				
Rotation speed	0-400 1/min				
Rotation direction (seen from the top)	Counterclockwise				
Rotation torque	15 Nm				
Striking energy	50 Joule				
Working pressure	115 bar				
Max return pressure	10 bar				
Pressure relief valve on power source	Max. 150 bar				
Max. oil temperature	80° C				
Tool chuck size	22x108 mm				
Built in compressor air supply	Max. 0.08 m ³ /min. / 2 bar				
Drilling performance	ø45 - 3 m deep For drilling holes deeper than 800 mm, the HRD20 must be rebuilt for external air supply				
Under water use	The HRD20 must be rebuilt for external air supply				
Blow frequency/rotations	4 settings	0	1	2	3
	Blows 1/min	1500	1350	1100	900
	Rotations rpm	0	200	300	400
Noise level 1 m L_{PA}	95 dB				
Noise level L_{WA}	107 dB				
Vibration level	23.6 m/s ²				

Performance Chart

HRD20 Rock Drill
Maximum length of different sizes of hoses



Pressure from power pack: 150 bar., Flow: 28 l.p.m., zero elevation, 2 set couplings per 10 m hose.

Integrated Air Supply

The drill has integrated air supply for flushing, but please note that it is limited in performance.

Inadequate air flushing will significantly reduce the drilling performance.

The flushing is usually acceptable to a depth of 80 cm – below it will need additional air supply.

The rock drill can be modified for external air supply by a kit available.

The kit will, however, replace the integrated air flushing function so that external air supply must be used at all times.

Connection to Hydraulic Power Sources

The rock drill can be connected to various hydraulic power sources, such as excavators, trucks, loaders, tractors etc., and of course HYCON powerpacks, the design of which ensures your new HYCON rock drill the absolute best working conditions.

It is important that the rock drill is not subjected to an oil flow and a working pressure beyond its design capability.

Check the oil flow and the working pressure by means of test equipment. The test equipment should comprise a pressure gauge, a flow meter and a valve for adjustment of pressure.

Make sure that:

- the oil supply is not too high
- the working pressure is not too high
- the return pressure is not too high
- the pressure relief valve is not set higher than 150 bar
- the internal diameter of the hoses is sufficient (min. 1/2")
- all couplings are clean
- the power source is equipped with an oil filter of min. 25 Micron

Hoses with too small internal diameter and/or defect couplings cause the rock drill to work with incorrect working pressure.

Your dealer can help you check this.

If the output of the power source is too high:

- the power source must be adjusted to correct output
- or you can choose to mount a HYCON oil flow divider to protect the rock drill against overload
- or you can choose one of our HYCON powerpacks. Your dealer can guide you in choosing the right powerpack.

In case of doubt, please contact your dealer or HYCON A/S.

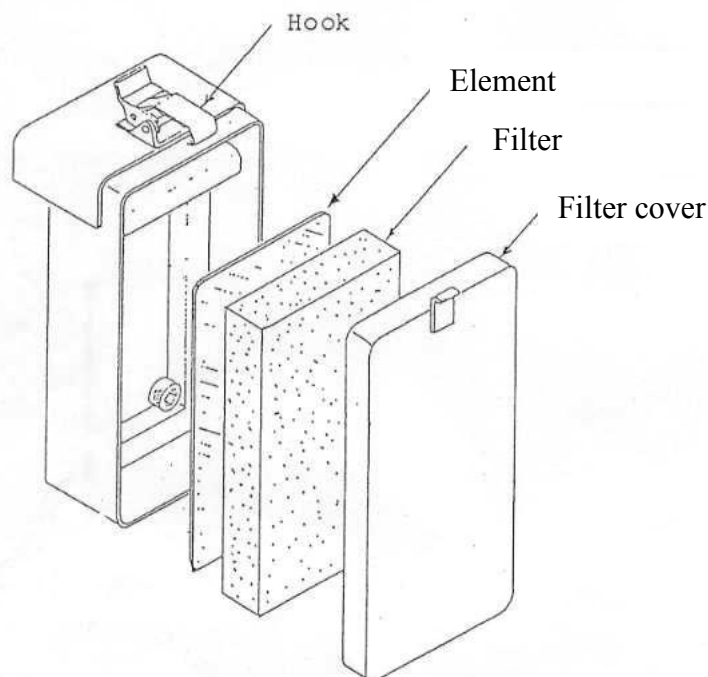
Service and Maintenance

Service/Maintenance	Daily	Weekly	Yearly
Check couplings and clean carefully	X		
Check hoses	X		
Check accumulator			X
Clean air filter	X		

NB. At service/repair it is important to mount the hoses correctly. The feed line from the power source must be mounted at the upper inlet and the return line at the lower outlet.

MAINTENANCE

- 1) Check hydraulic oil on a regular basis to ensure it is always clean. If the oil sticks or changes the colour, replace it.
- 2) Before starting, check if oil volume is sufficient as it decreases by connecting and disconnecting the hoses.
- 3) The air filter protects the built-in compressor from sucking in dust. Take out the element and the filter from the filter housing and clean them daily. The negligence of doing this causes fast wear of the compressor cylinder, piston ring and valve.



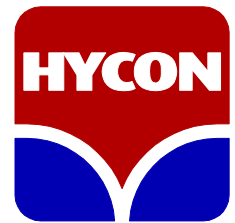
Inspection point	Inspection time	200 hours or 1 year	400 hours or 2 years	Over 3 years
Accumulator gas pressure check		0		
Replacement of accumulator diaphragm			0	
Replacement of U-cup packing			0	
Replacement of valve rod o-ring			0	
Replacement of compressor piston ring		0		
Replacement of gear case grease			0	
Replacement of motor shaft o-ring			0	
Replacement of every o-ring				0

Oil Types

The HYCON rock drill uses standard hydraulic oil, i.e. all types of mineral oil and biodegradable oil, which comply with the following values:

Recommended viscosity	20-40 cSt
Permitted viscosity	15-1000 cSt
Viscosity index	Min. 100
Temperature area	-20° to +70° C

If using biodegradable oil, we recommend the use of oil based on rape. Other types of oil can be aggressive towards the seals. If you are in doubt, please ask your dealer.



EC-Declaration of Conformity

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From serial No.

We hereby declare that **HRD 20 hydraulic rock drill**
(service weight 25 kg)

3195

is manufactured in conformity with the EC Directive 2006/42/EC.

HYCON A/S
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Denmark

A handwritten signature in blue ink, appearing to read "Henrik Steen".

Henrik Steen
General Manager

15.04.2004

Warranty Terms

We grant 12 months warranty from the first date of operation – however, not more than 18 months from the date of delivery.

The warranty applies to faults that can be related to construction and production errors.

Faults caused by incorrect operation, incorrect handling, lack of maintenance or the like, will not be accepted as warranty.

The warranty covers the parts necessary for repair and the suggested average time needed for repair.

For further warranty details, please contact your local dealer.