

# Operating Manual

## Hydraulic Breakers

**HH20•HH20RV•HH23•HH25•HH27**

**From Serial No. 7600**

Revised 20.09.2019

### **Prior to Operation**

We thank you for choosing a HYCON breaker.

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

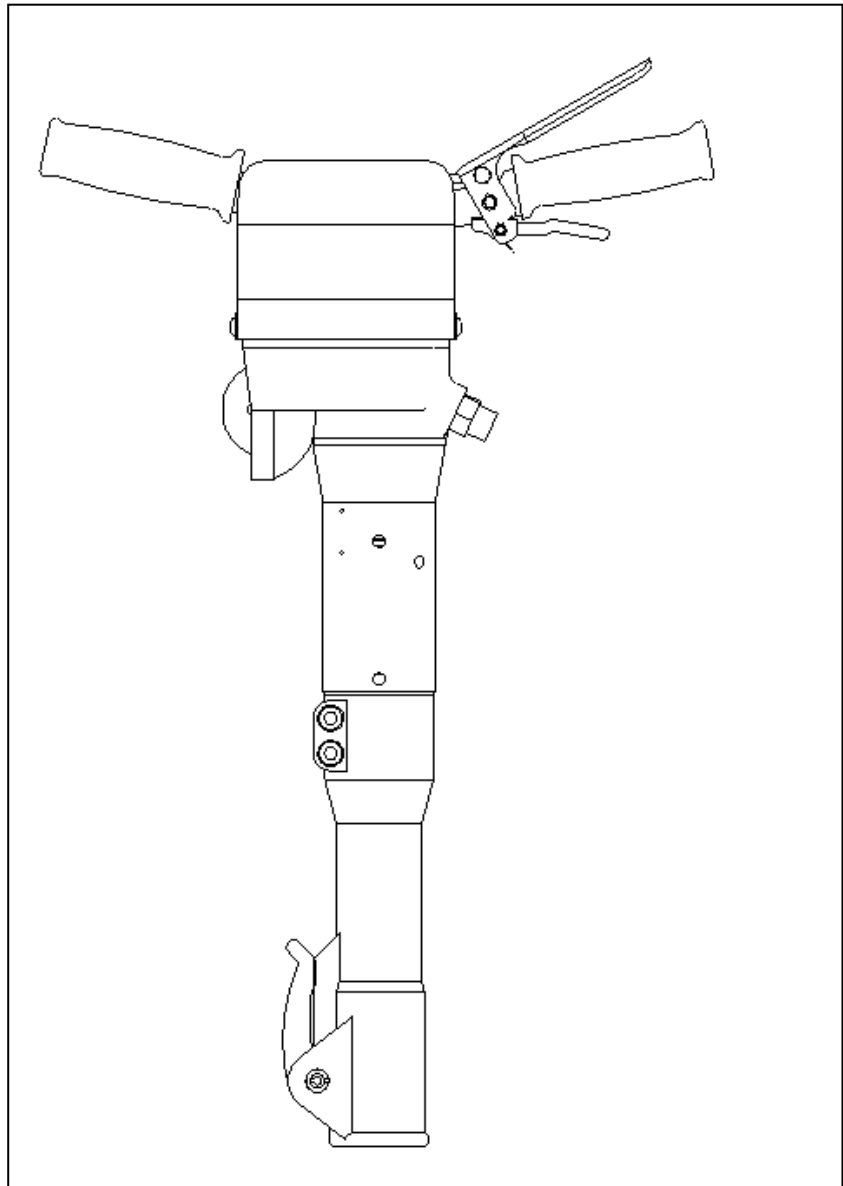
### **Safety and Service Precautions**

and

### **Oil Flow and Pressure**

We hope you will be satisfied with your new HYCON breaker.

Best regards  
HYCON A/S



### **HYCON A/S**

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## Safety Precautions

- Only use the breaker in accordance with the local working regulations on allowed working time based on breaker vibration level. Working with the breaker longer than prescribed may damage the operator. Please refer to the chapter about vibrations, page 4.
- All HYCON breakers are supplied with safety trigger. The safety trigger may not be dismantled. Always make sure that it is in order.
- In case of horizontal breaking or breaking above the head, always be aware of material falling down.
- 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 breaker when connected to the powerpack.
- Always use correct tool
- Before connecting the breaker to the power source, always check that the latch is in order to prevent the tool from falling out of the nose part.
- Always use approved hoses. Contact your dealer, if necessary. Mount the hoses correctly – the valve housing is marked with "P" and "T".
- The operator must make sure that there are no persons nearby when he starts breaking. Flying pieces of broken material can cause severe injury.
- 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 breaker, but always maintain a good footing and keep your balance.
- The operator must be properly trained in using the breaker or under supervision of a qualified instructor.
- The operator must always use protective goggles, earplugs, hard hat and shoes when operating the breaker.
- Never use the breaker close to electric cables. Prior to operation, check whether there are hidden or buried cables in the ground.
- Never wear loose clothing as it may get entangled in the moving parts of the breaker.

- Inspection or cleaning of the breaker, change of tool or disconnection of hoses may never be done while the breaker is connected to the powerpack, as unintentional activation of the breaker can cause severe damage.
- Always connect hoses to the breaker before starting the powerpack. Be sure that all couplings are tight.
- The breaker may not be operated if the oil temperature is above 70 C°. Operation at higher temperatures may result in the breaker 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 breaker not in use should always be kept in a safe and dry place.
- Try not to do a job with a breaker which is too small for the job.
- Keep the tool sharp for maximum breaker performance. Make sure that the tool is sharp-pointed and not round.
- The breaker may never be operated without tool, or without being held against the working surface, as this may result in overload of the breaker.
- Always make sure that the breaker 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 breaker. 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 breaker 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 breaker, meaning that the lifetime of your new HYCON breaker 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 6 you will find a complete survey of the technical data, and on page 8 there is a guide to connection to hydraulic power sources and how to ensure that the breaker is not overloaded.

The HYCON breakers are available both as 20 l.p.m. and 30 l.p.m. models. The individual types are stated on the ID-tag.

## **Vibration Level**

There are many examinations about the risk of contracting the so-called "white fingers" disease as a consequence of the use of tools with high vibration level. Hand-held electric, pneumatic and hydraulic breakers belong to this category.

To reduce the risk of injury, a number of guidelines for maximum daily use have been laid down. The risk is minimized if you keep the times of maximum daily use.

It is therefore important to manufacturers of handheld breakers that they offer breakers with a low vibration level.

At HYCON, we attach great importance to the protection of our customers in the form of a very low vibration level.

Therefore, your new HYCON breaker is equipped with a handle designed for the lowest possible vibration level, even though the breaker has high performance. On all HYCON breakers we mount our best vibration-dampened handle as standard to protect you as user.

If you wish to obtain further information about the guidelines for maximum daily use, please contact us.

# Starting Instructions

## START

- Insert tool
- Connect hoses – clean couplings before connection
- Set the power source on "ON"
- Release the safety trigger
- Press the trigger lever down towards the handle
- Always work at right angles to the material, and only break pieces of a size that makes the material break quickly. If it does not break quickly, either the breaker is too small for the job, or you try to break too large pieces.

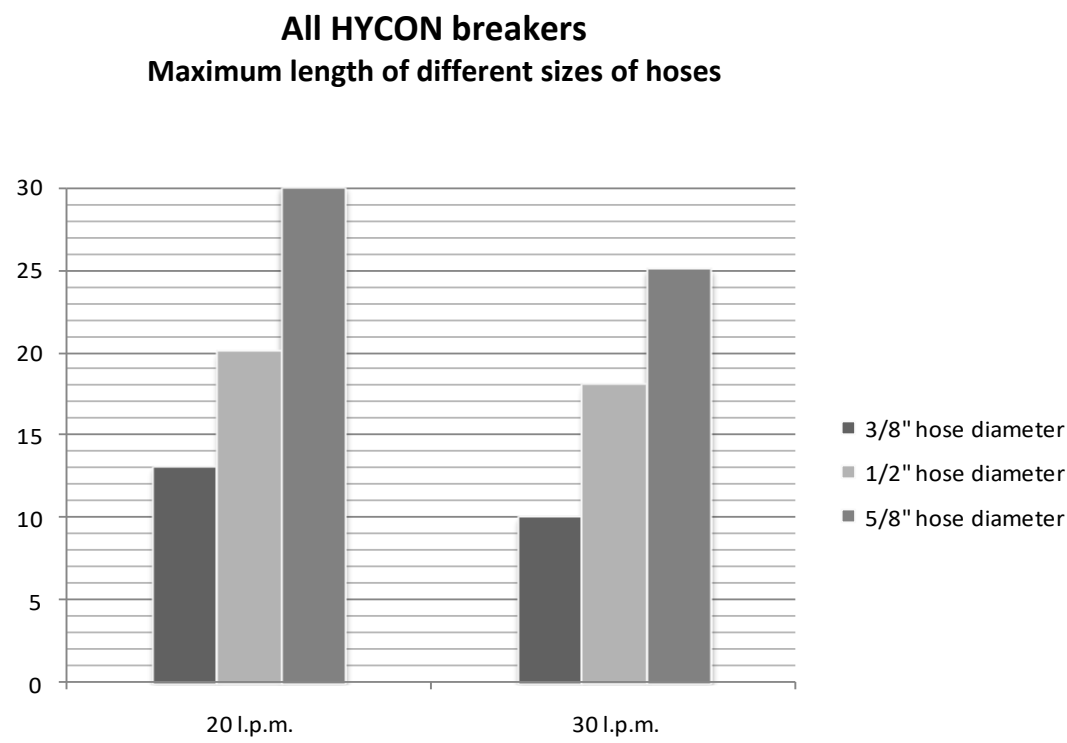
## STOP

- Let go of the trigger lever
- The safety trigger automatically re-locks the trigger lever.

## Technical Data

	HH20	HH20RV	HH23		HH25		HH27
	20 l.p.m.	20 l.p.m.	20 l.p.m.	30 l.p.m.	20 l.p.m.	30 l.p.m.	30 l.p.m.
<b>Weight breaker</b> kg	22.0	23.9	23.4	23.5	25.3	25.8	27.4
<b>Service weight incl. moil point and hoses</b> kg	25.3	28.5	26.7	26.8	29.9	30.2	32.0
<b>EHTMA category</b>	C	C	C	D	C	D	D
<b>Oil flow</b> l.p.m. (g.p.m.)	20 (5)	20 (5)	20 (5)	30 (8)	20 (5)	30 (8)	30 (8)
<b>Working pressure</b> Bar (psi)	110 (1600)	110 (1600)	120 (1750)	120 (1750)	120 (1750)	120 (1750)	130 (1900)
<b>Max. setting pressure relief valve</b> Bar (psi)	160 (2300)	160 (2300)	160 (2300)	160 (2300)	160 (2300)	160 (2300)	160 (2300)
<b>Max. return pressure</b> Bar (psi)	15 (220)	15 (220)	15 (220)	15 (220)	15 (220)	15 (220)	15 (220)
<b>Blow frequency</b> 1/min.	1560	1560	1380	1380	1380	1380	1260
<b>Blow energy</b> Joule	60	60	85	95	85	95	105
<b>Max. oil temperature</b> C°	70	70	70	70	70	70	70
<b>Accumulator charging pressure</b> Bar (psi)	50 (730)	50 (730)	50 (730)	50 (730)	50 (730)	50 (730)	60 (870)
<b>Cooling capacity needed</b> kW	2	2	2	3	2	3	3
<b>Vibration level 3 axis (ISO 20643)</b> m/s <sup>2</sup> (dB)	6.8 (137)	4.8 (137)	8.0 (138)	8.0 (138)	9.4 (139)	9.4 (139)	10.7 (141)
<b>Uncertainty (K)</b> m/s <sup>2</sup> (dB)	1.2 (122)	1.2 (122)	1.3 (122)	1.3 (122)	1.4 (123)	1.4 (123)	1.6 (124)
<b>Sound pressure level (L<sub>PA</sub>) 1 m</b> dB	94	96	96	96	96	96	98
<b>Sound power level (L<sub>WA</sub>) guaranteed</b> dB	106	108	108	108	108	108	110
<b>Tool size standard</b> mm	25x108	32x160	25x108	25x108	32x160	32x160	32x160
<b>Tool sizes on request</b> mm	28x152		28x152	28x152	28x152	28x152	28x152
	32x152		32x152	32x152	32x152	32x152	32x152
	32x160		32x160	32x160	32x160		

# Performance Chart



Pressure from power pack: 150 bar., Flow: 20 l.p.m., zero elevation, 2 set couplings per 10 m hose.



## Connection to Hydraulic Power Sources

The breaker 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 breaker the absolute best working conditions.

It is important that the breaker is not subjected to an oil flow and a working pressure beyond its design capability. Please refer to the ID-tag on the breaker in case of doubt. 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 the pressure.

Make sure that:

- the oil flow 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 160 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 breaker 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 breaker 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

NB. At service/repair it is important to mount the hoses correctly. The feed line from the power source must be mounted at "P" and the return line at "T". "P" and "T" are marked on the valve housing.

## Underwater tools

The HYCON breakers are made in an underwater version and when used underwater we recommend some more cleaning to avoid the tool is aggressive corroded due to the constant water/saltwater contamination.

1. Disconnect the tool from the power pack when finished with the job.
2. Rinse the tool with fresh water immediate after.
  - a. For all tools with a plastic cover, there are holes made for easy cleaning of the internal parts and avoid water is trapped inside.
3. Ensure that all water is out of the tool.
4. Spray all parts with a water dispersal spray – E.g. Liqui Moly – Marine Multi-spray.

## Trouble Shooting

Before you start locating faults, check that the oil flow from the power source is correct and that the pressure relief valve is set correctly. Follow the instructions in the workshop manual of the power source.

Problem	Cause	Solution
Breaker does not start, there is <i>no</i> pressure in P-hose	Trigger mechanism does not actuate trigger piston correctly	Dismount top cover, and check and adjust functioning.
Breaker does not start, there <i>is</i> pressure in P-hose	Striking piston is stuck in cylinder	Nose part is tightened too hard. Seizing between cylinder and striking piston. Polish or replace components.
	Defective Q.R. coupling	Check Q.R. coupling
	Oil supply is made to T-connection	Switch pump and tank line
Chisel falls out during operation	Latch and pin are worn	Replace parts.
	Chisel bushing is worn	Replace parts.
	Wrong chisel size	Check
Breaker works irregularly	Impurities in hydraulic oil	Replace oil and oil filter
	Oil level in power source too low	Add hydraulic oil
	Wrong chisel size or worn chisel bushing	Check
Bad performance	Internal leak	Dismount valve housing and replace O-rings.

	Oil flow from the power source is not correct for the breaker	Check oil flow
	Accumulator pressure too low	Charge with Nitrogen.
	Defective diaphragm	Replace diaphragm
	Defective Q.R. coupling	Check Q.R. coupling
	Return pressure too high	Check power source/hoses
	Hose diameter too small	Check hoses

## Oil Types

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

<b>Ambient temperature range</b>	Below 10°C 50°F	10 ... 30°C 50 ... 86°F	Above 30°C 86°F
<b>Recommended oil viscosity grade</b>	VG 32	VG 46	VG 68

<b>Recommended oil cleanliness</b>	ISO 4406 /19/16 / NAS 1638 10	
<b>Permitted viscosity</b>	cSt	15 – 1000
<b>Recommended viscosity</b>	cSt	20 – 40
<b>Viscosity index</b>	Minimum	100
<b>Oil temperature area</b>	°C /°F	-20 to 70 / -4 to 158

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



## EC-Declaration of Conformity

**HYCON A/S**

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We hereby declare that

**Fra serienr.**

<b>HH20 hydraulic breaker</b> (service weight 25.3 kg)	7600
<b>HH20RV hydraulic breaker</b> (service weight 28.5 kg)	7600
<b>HH23 hydraulic breaker</b> (service weight 26.7 kg)	7600
<b>HH25 hydraulic breaker</b> (service weight 29.9 kg)	7600
<b>HH27 hydraulic breaker</b> (service weight 32.0 kg)	7600

are manufactured in conformity with the EC Directives 2006/42/EC and 2000/14/EC.

**Notified Body 1585:**

AkustikNet A/S  
Frederikssundsvej 179 B  
DK-2700 Brønshøj  
Denmark

	<b>HH20</b>	<b>HH20RV</b>	<b>HH23</b>	<b>HH25</b>	<b>HH27</b>
Measured sound power level:	104 dB	107 dB	107 dB	106 dB	107 dB
Guaranteed sound power level:	106 dB	108 dB	108 dB	108 dB	110 dB

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Martin Møller  
General Manager  
20.09.2019

## **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.