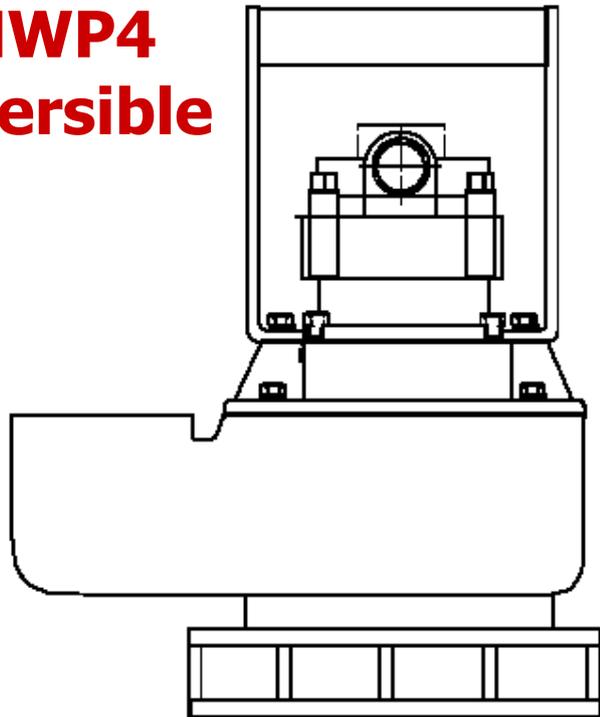


Operating Manual

HWP2/HWP3/HWP4 Hydraulic Submersible Pumps 2"-3"-4"

HWP2 from serial No. 6459
HWP3 from serial No. 6364
HWP4 from serial No. 6597

Revised
21.02.2019



Prior to Operation

We thank you for choosing a HYCON submersible pump.

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

Safety and Service Precautions

We hope you will be satisfied with your new HYCON submersible pump.

Best regards
HYCON A/S



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Safety Precautions

- Read the pump and power source operating manuals prior to use.
- Check the oil flow to the submersible pump (see technical data). Please also refer to page 4. A too high oil flow can cause the velocity on the pump to be too high and thereby involve a risk of defects.
- Make sure that the quick-release couplings are properly connected and locked. When disconnecting the couplings during operation, there is a risk of motor defects.
- Make sure that hose couplings and water hose are properly connected and locked.
- 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.
- 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 submersible pump, but always maintain a good footing and keep your balance. In excavations there is always a risk of earth slips.
- The operator must always use protective goggles, earplugs, hard hat and shoes when operating the submersible pump.
- Inspection or cleaning of the submersible pump and change or disconnection of hoses may never be done while the pump is connected to the powerpack.
- Always connect hoses to the submersible pump before starting the powerpack. Be sure that all couplings are tight.
- The pump may not be operated if the oil temperature is above 80 C°. Operation at higher temperatures may result in the pump (the motor) 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 submersible pump not in use should always be kept in a safe and dry place.
- Always use hoses, couplings and spares as such recommend by HYCON A/S. Always mount the hoses correctly, so that the pump runs the right way. If the pump runs the wrong way there is a risk of defects that are not covered by warranty.
- 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 pump. If this is not done, there is a risk of damage to the quick release couplings or the motor or the hydraulic system getting superheated.

Oil Flow and Pressure

Your new HYCON submersible pump 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 pump, 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 pump 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 the technical data, and on page 8 there is a guide to connection to hydraulic power sources and how to ensure that the submersible pump is not overloaded.

Useful Information regarding the Use of the Pump

The HYCON submersible pump is compact and light and offers high performance. The 2" pump weighs only 7.7 kg and pumps up to 35 m³ per hour, the 3" pump weighs only 11 kg and pumps up to 84 m³ per hour and the 4" pump weighs 26.7 kg and pumps up to 127 m³ per hour. Only hydraulic submersible pumps have such high performance in relation to size.

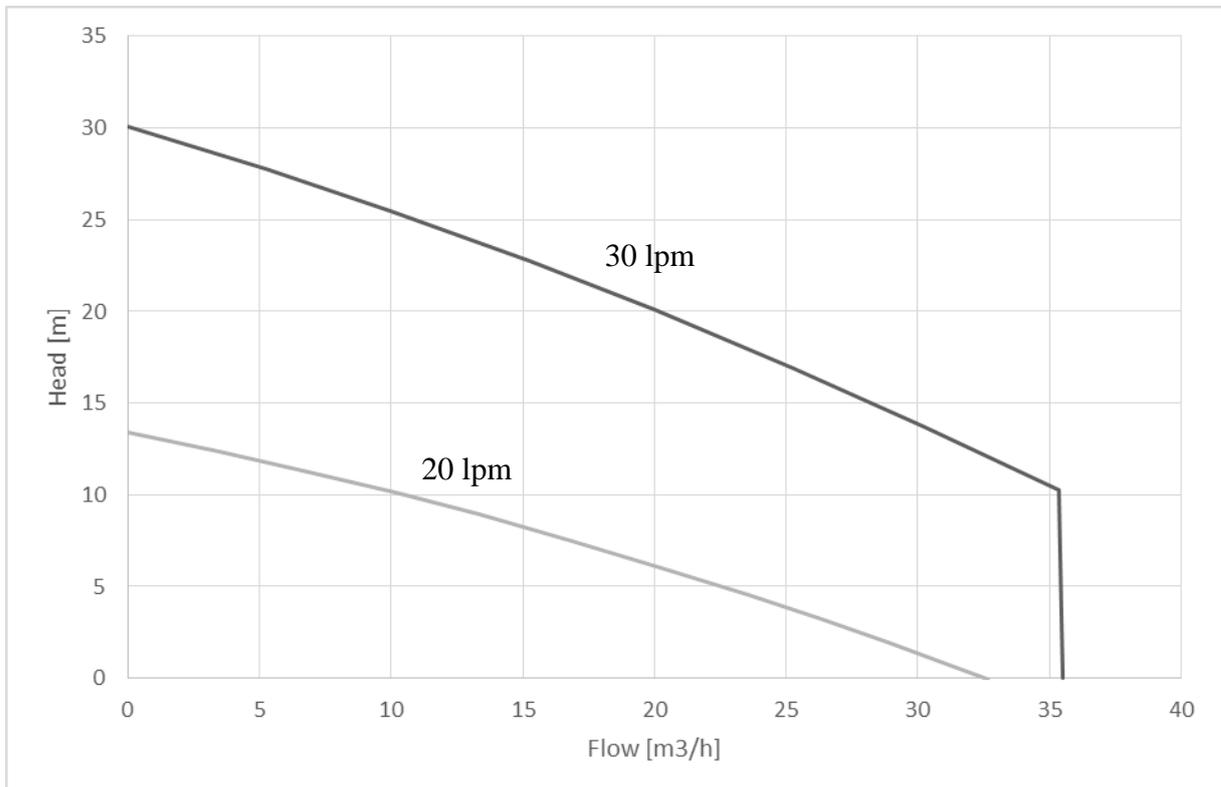
HYCON submersible pumps are perfect tools for pumping all kinds of fluids – especially dirty fluids. The pumps are VORTEX pumps, which are designed specifically to pump dirty fluids, without a need for extra maintenance and without reducing the lifetime of the pump and its components.

The 2" pump can pump solids up to ø38 mm, the 3" pump solids up to ø63 mm and the 4" pump solids up to ø74 mm.

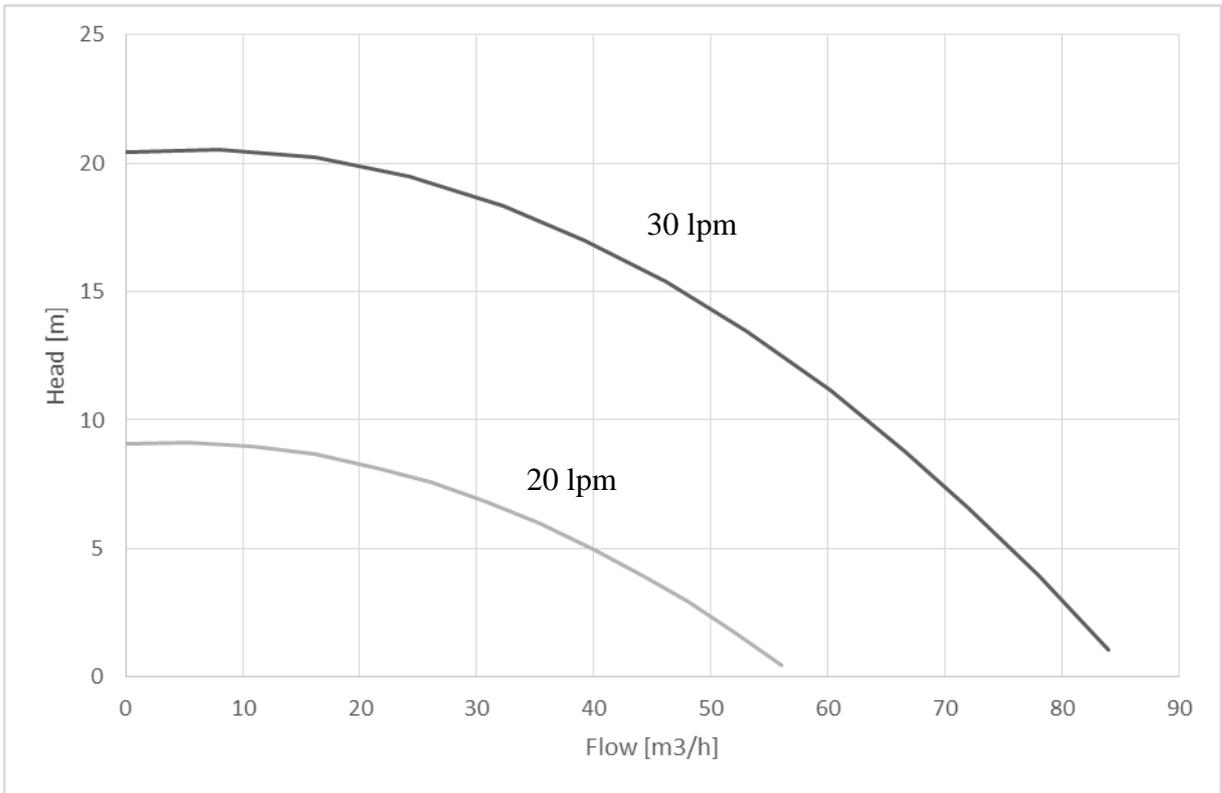
The pump can be used for many purposes and in many connections. In this respect an important feature of the pump is that it will not give any sparks. The construction of the pump allows it to run dry without damage.

The drop in the curves is when the pump meets the pressure limit of 172 bar pressure. Example the 2" pump at 30 lpm will not be able to pump more than 35 m³/h but will have that flow up to a lift height (Head) of 10 meters, before decreasing in pumped flow.

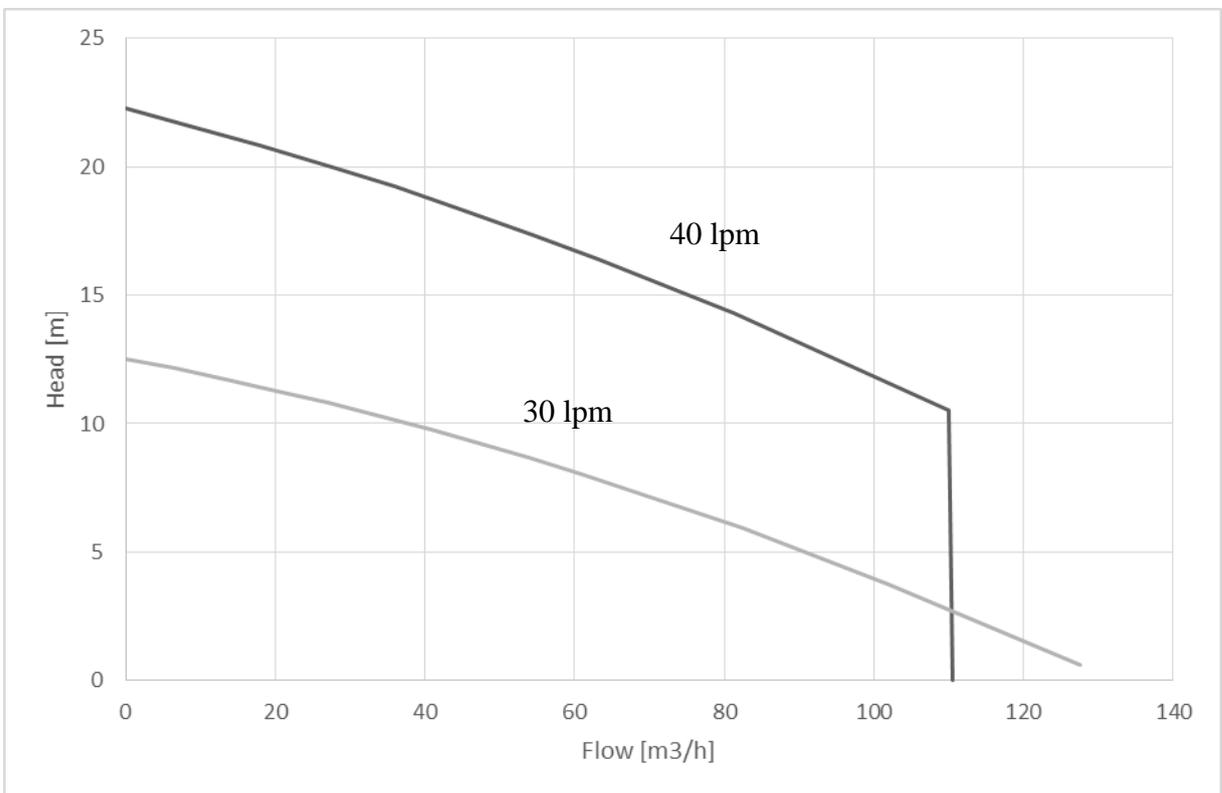
Pumping Capacity HWP2



Pumping Capacity HWP3



Pumping Capacity HWP4



The pump can also be connected to excavators and other machines. We recommend the use of a HYCON oil flow divider to protect the pump against a too high oil supply, a too high pressure and backwards rotation. Please refer to page 8.

For operation in sensitive environments,
you should only use bio-degradable oil.

Starting Instructions

START

- Mount a water hose.
- Connect hoses – clean couplings before connection.
- Get a good footing before you start pumping.
- Lower the pump into the fluid. Make sure that the water hose is fixed.
- Set the power source on "ON".

STOP

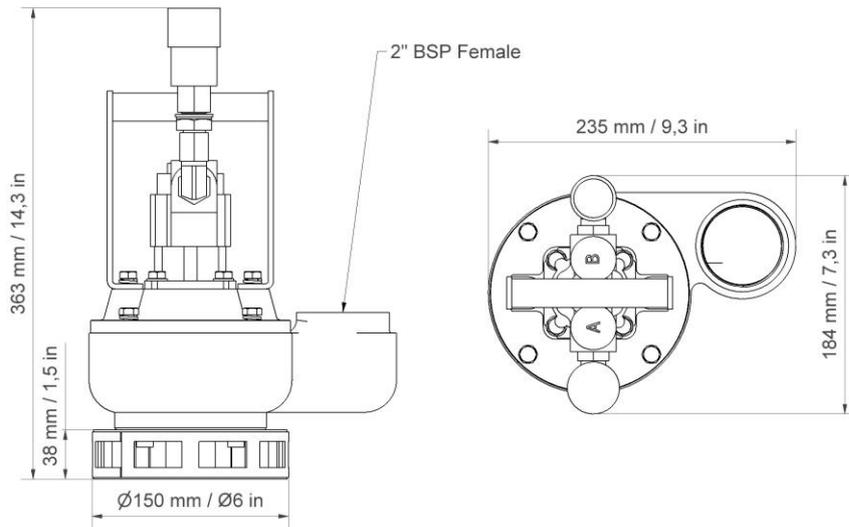
- Set the power source on "OFF".

Technical Data

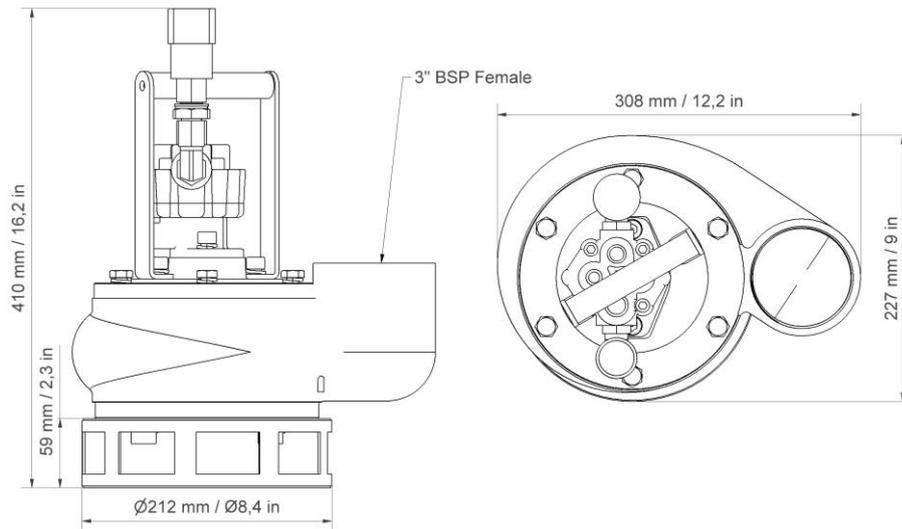
	2" Pump	3" Pump	4" Pump
Weight w/o hoses	7.7 kg	11 kg	26.7 kg
Oil flow	20-30 l.p.m.	20-30 l.p.m.	30-40 l.p.m.
Working pressure nominal	90-140 bar	120-140 bar	120-150 bar
Pressure relief valve in power source	Max. 172 bar	Max. 172 bar	Max. 172 bar
Max. return pressure	40 bar	40 bar	40 bar
Max. oil temperature	80°C	80°C	80°C
Max. water temperature	80°C	80°C	80°C
Max. solid size	ø38 mm	ø63 mm	ø74 mm
Max. pumping capacity	35 m ³ /hour	84 m ³ /hour	127 m ³ /hour
Max. head	30 m	20 m	22 m
Connection water hose	2" thread internal BSP	3" thread internal BSP	4" thread internal BSP
May run dry	Yes	Yes	Yes

Dimensions

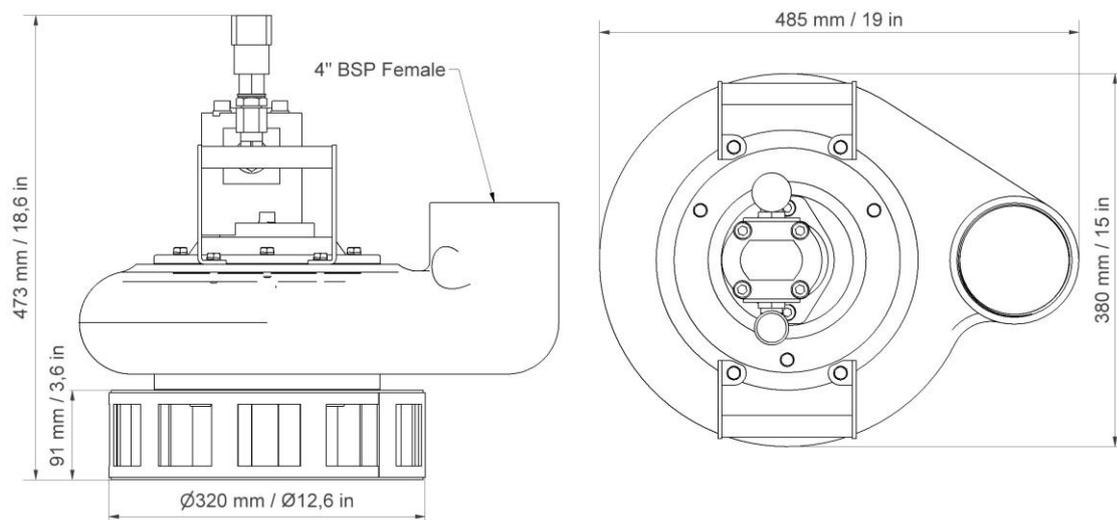
HWP2



HWP3



HWP4



Connection to Hydraulic Power Sources

The submersible pump 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 pump the absolute best working conditions.

It is important that the submersible pump is not subjected to an oil flow and a working pressure beyond its design capability. Please refer to the ID-tag.

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 172 bar
- the internal diameter of the hoses is sufficient (min. 1/2")
- all couplings are in order
- 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 pump 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 pump 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 hydraulic hoses	X		

NB. At service/repair it is important that the quick-release couplings are mounted correctly.

Oil Types

The HYCON submersible pump 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 parts of the pump.

EC-Declaration of Conformity



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We hereby confirm that

submersible pumps HWP2/HWP3/HWP4

HWP2 from serial No. 6459
HWP3 from serial No. 6364
HWP4 from serial No. 6597

are manufactured in conformity with EC-directive 2006/42/EC.

HYCON A/S
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Denmark

A handwritten signature in blue ink, appearing to read "Martin Møller".

Martin Møller
Managing Director

21.02.2019

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.