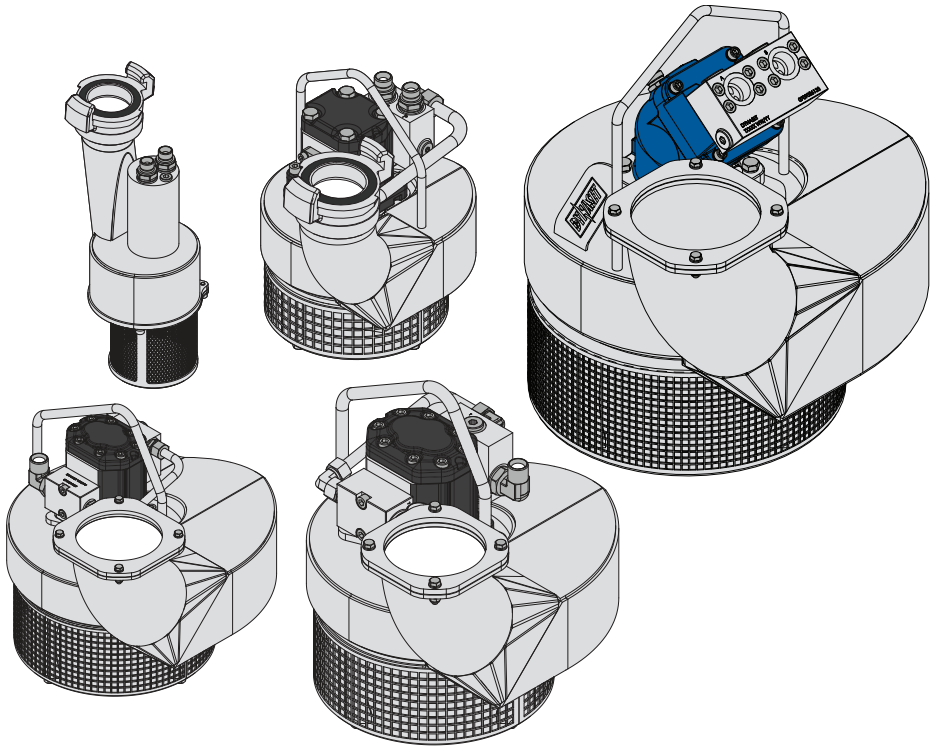
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DYNASET
POWERED BY HYDRAULICS



USER MANUAL

HSP HYDRAULIC SUBMERSIBLE PUMPS

HSP900/5-36 HSP6500/5-85 HSP16000/5-184
HSP3000/5-48 HSP8500/5-135

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1. GENERAL

This manual contains general information about assembly, installation, operation and maintenance of the DYNASET equipment.



WARNING

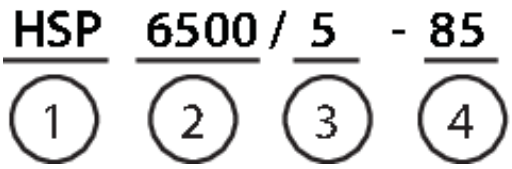
Read this user manual before the installation, use or maintenance of the DYNASET product to ensure proper handling, operation and maintenance right from the beginning. Pay attention to warnings and safety instructions, READ CHAPTER "2 Safety".

1.1 PRODUCT INFORMATION

Dynaset HSP hydraulic submersible pumps are designed for fast and efficient pumping of water and other liquids. The volute and impeller of the HSP pump are made of wear-resistant material which makes it a perfect choice for pumping liquids containing impurities and solids.

DYNASET submersible pumps can be used in municipal services, civil engineering, industry, agriculture, offshore etc.

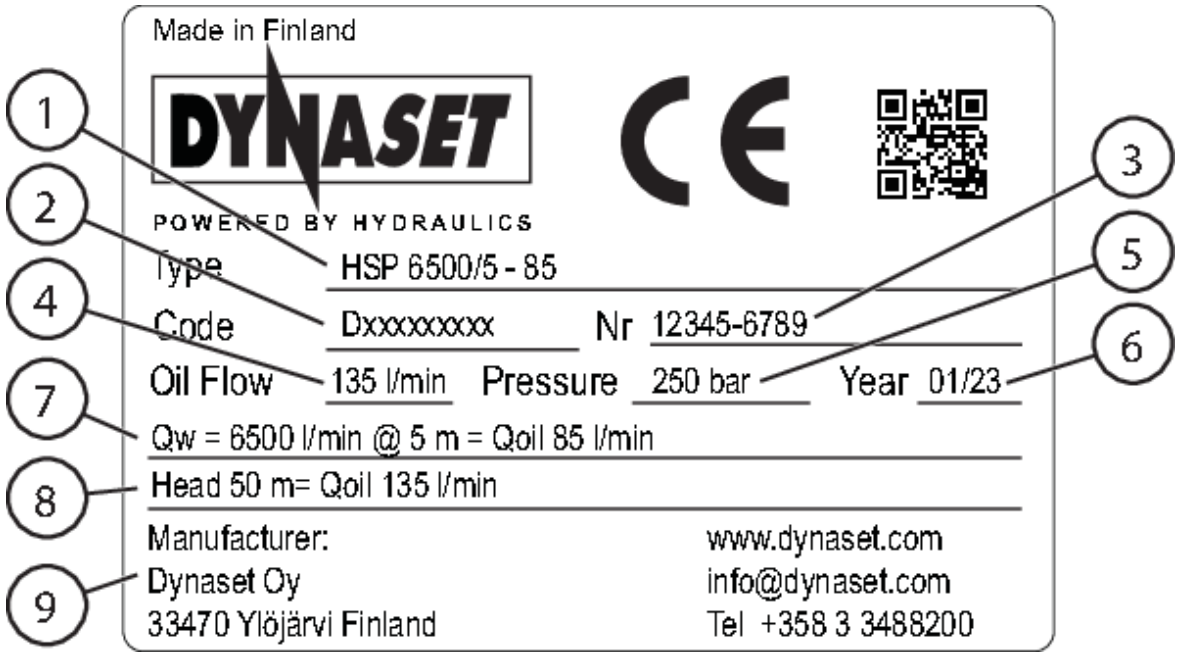
1.2 PRODUCT IDENTIFICATION KEY



Picture 1: Identification key for HSP pumps

1. Product group HSP Hydraulic Submersible Pumps.
2. Standard discharge. The volume rate of water flow that HSP model can produce.
3. Head of standard discharge. The head in which the standard discharge of the HSP pumps are measured.
4. Maximum hydraulic flow at max water flow.

1.3 TYPE PLATE



Picture 2: Type plate

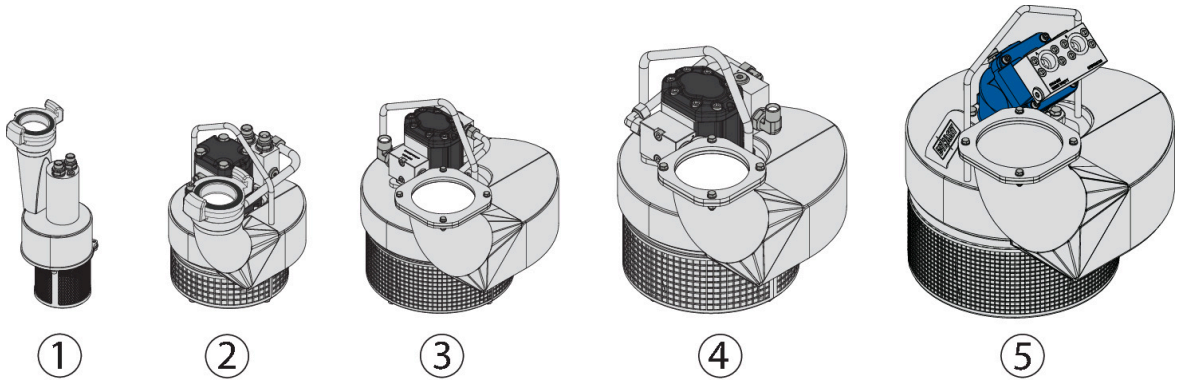
The products type plate shows the following information.

1. Product identification key
2. Product code
3. Serial number
4. Maximum hydraulic flow
5. Maximum hydraulic pressure
6. Production month / year
7. Output water flow max. at head of 5 meters with required oil flow
8. Output water flow at max. head with required oil flow
9. Manufacturer's contact information

NOTE!

Notice that maximum hydraulic flow produces maximum discharge head, not maximum water output. Check more detailed output specifications and requirements from the chapter READ CHAPTER „10. TECHNICAL SPECIFICATIONS "

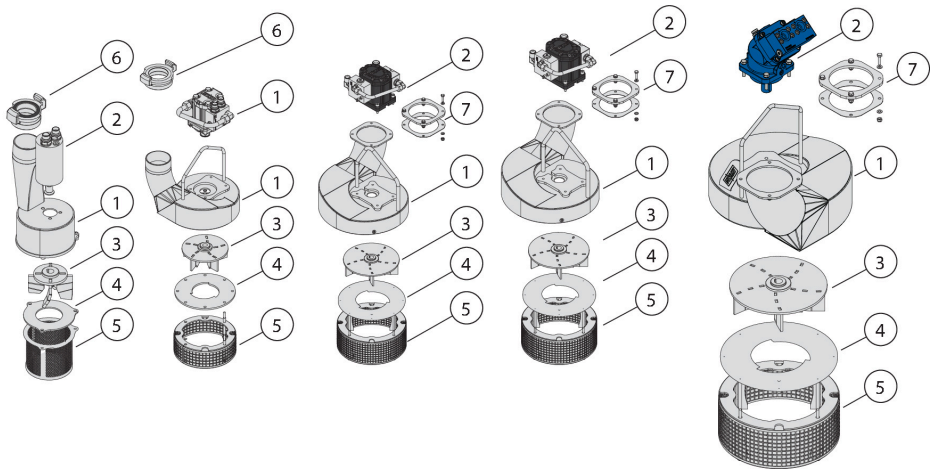
1.4 HSP PUMP LINE-UP



Picture 3: HSP pump line-up

1. HSP 900
2. HSP 3000
3. HSP 6500
4. HSP 8500
5. HSP 16000

1.5 MAIN COMPONENTS OF HSP PUMP

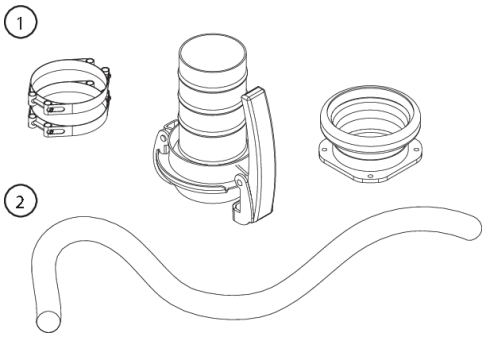


Picture 4: Main components of HSP pump

1. Pump body
2. Hydraulic motor
3. Impeller
4. Bottom plate, intake
5. Screen
6. Connection coupling
7. Connection plates

1.5.1 OPTIONAL EQUIPMENT

HSP series has also few optional equipment: Bauer coupling kit for HSP6500 and HSP8500 and a water hose kit for all models. Optional equipment are sold separately.



1. Bauer coupling kit
2. Water hose kit, 25m (82ft)

2. SAFETY

2.1 SAFETY PRECAUTIONS

⚠ WARNING

Operators and maintenance personnel must always comply with local safety regulations and precautions in order to close out the possibility of damages and accidents.

The pressure in the hydraulic circuit of HSP pump is considerably high. Keep the condition of your equipment and hydraulic system under constant observation.



Couplings, valves and hoses must be tight and clean to avoid possible leakages. Leaks in the hydraulic system must be repaired immediately to avoid injuries caused by high pressure blowouts.

In order to avoid accidents, do not clean or inspect HSP pump when the hydraulic fluid circuit is pressurized. Prior to any cleaning, inspection and service, hydraulic system of your base machine must be stopped, and all hydraulic fluid circuits must be depressurized.

Do not lift the pump by the hydraulic hoses.

⚠ WARNING

Cross connecting the hydraulic hoses and running the motor opposite direction can damage the motor. Make sure that the hoses are connected to the right ports.

WARNING

Excessive pressure, over 30 bar, in return line may damage the motor. Connect the return line straight to the tank line to prevent harmful back pressure to the return line. Always use a return line hose that is big enough, at least the size of the connection described in chapter "10 Technical specifications". Too small hose will create back pressure at longer distances.

2.2 SAFETY EQUIPMENT

Always wear appropriate clothing and safety equipment such as safety goggles, safety shoes and ear protection when operating the HSP pump.

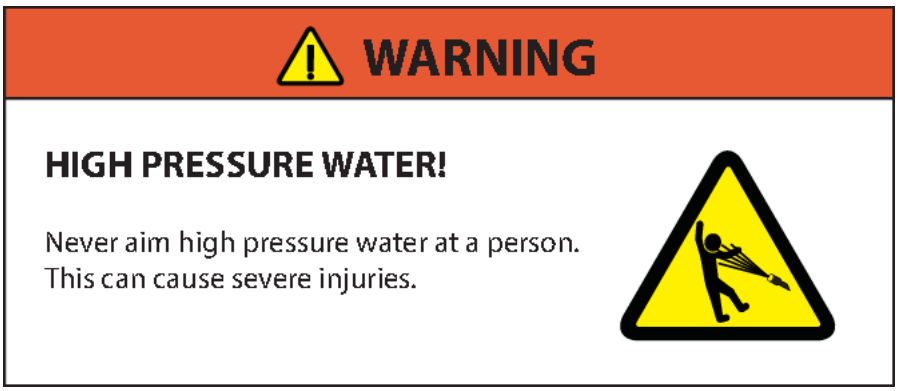


2.3 OPERATING SAFETY

When you operate the HSP pump, beware of the machinery parts warmed by hot hydraulic oil.



Never aim high pressure water at a person.



WARNING

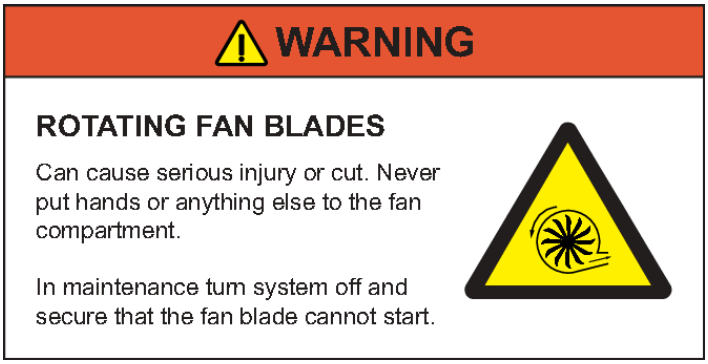
Do not exceed the maximum pressure.

WARNING

Always shut down the machine and prevent it from starting before you do any maintenance or changes to the unit. Disconnect the hydraulic hoses before you detach the screen.

WARNING

When you use HSP without the screen, always keep 5m (16ft) distance to the pump when it is turned on. Do not handle the pump when the screen is detached and pump is running.



2.4 MAINTENANCE SAFETY

WARNING

Installation and service of hydraulic equipment must be done by qualified and experienced personnel only.

NOTE!

When you do any maintenance to HSP pump, keep the components of the system clean. This is to ensure safe, reliable and long-life operation of your equipment.

Hydraulic system of a base machine must be maintained according to the service program.

2.5 WARNING LABELS

Product recipient is obligated to place warning labels on the DYNASET product.Attach labels to visible and appropriate place onto or close to DYNASET product where it's easily seen.

Attach labels to visible and appropriate place onto or close to DYNASET product where it's easily seen. Clean surface with solvent detergent before attaching labels.


READ OPERATING INSTRUCTIONS!


BEWARE ROTATING FAN BLADE!


HIGH PRESSURE OIL!

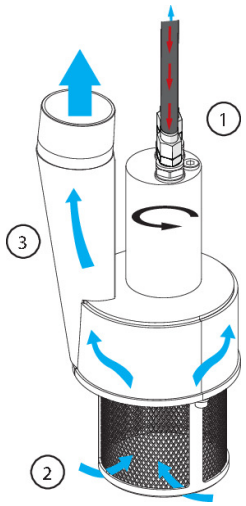

KEEP FROM FREEZING!

3. OPERATING PRINCIPLES

3.1 OPERATING DESCRIPTION

Simple construction ensures reliability and long service life of DYNASET HSP pump. Robust steel structure comprises discharge channel unit with incorporated pump housing.

Pump sub-unit consists of a hydraulic motor, body and impeller. Both body and impeller are made of high quality wear resistant steel. Hydraulic motors are gear or gerotor type depending on the pump. Pump can run dry because motor seal is oil lubricated.



Picture 5: Operation description of HSP pump

1. The pump is driven by a hydraulic motor. The hydraulic motor rotates the impeller.
2. Water flows to inlet chamber through the screen.
3. The operation of the pump is based on the vacuum created by the impeller that drives water through the pump to the output.

4. INSTALLATION

4.1 INSTALLATION TO A HYDRAULIC TOOL LINE

The HSP pump is recommended to be installed into the base machine's existing hydraulic tool line. Usually other installations are not required and the HSP pump can be operated from the existing controls.

Install the hydraulic tool lines pressure (P) and return (T) ports to their corresponding ports in the HSP pump.

⚠ WARNING

Cross connecting the hydraulic hoses and running the motor opposite direction can damage the motor. Make sure that the hoses are connected to the right ports.

⚠ WARNING

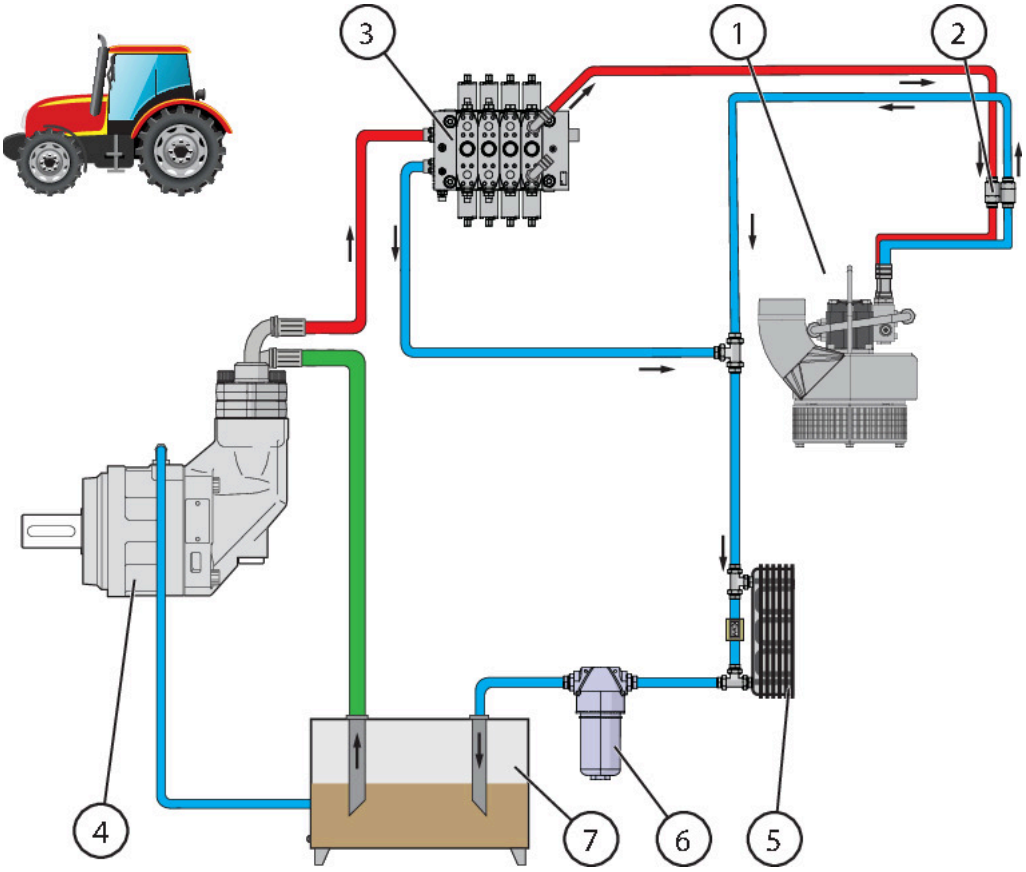
Excessive pressure, over 30 bar, in the return line may damage the motor. Connect the return line straight to the tank line to prevent harmful back pressure to the return line. Always use a return line hose that is big enough, at least the size of the connection described in chapter "10 technical specifications". Too small hose will create back pressure at longer distances.

Make sure that the hydraulic flow of the base machine is sufficient to run the unit. At least the nominal hydraulic flow must be available to get the maximum output power. Pump will run with lower hydraulic pressure and flow, but the pumping output is reduced. Check chapter "10 technical specifications" for output charts with different hydraulic pressure and flow characteristics.

⚠ WARNING

Make sure that the filtering degree and cooling capacity of the hydraulic system are sufficient.

The picture below presents an example of installing the HSP pump into an existing tool line.



Picture 6: Example of tool line installation

1. DYNASET HSP pump
2. Quick couplers for hydraulic connection
3. Base machines hydraulic valves
4. Base machines hydraulic pump
5. Oil cooler
6. Oil filter
7. Oil tank

4.2 HYDRAULIC FLUIDS

To use proper hydraulic fluid check chapter "6.3 Hydraulic fluids".

4.3 CONNECTING HYDRAULIC HOSES

Pressure line (P) and return line (T) of a hydraulic system are connected to the DYNASET unit's corresponding hydraulic ports.

⚠ WARNING

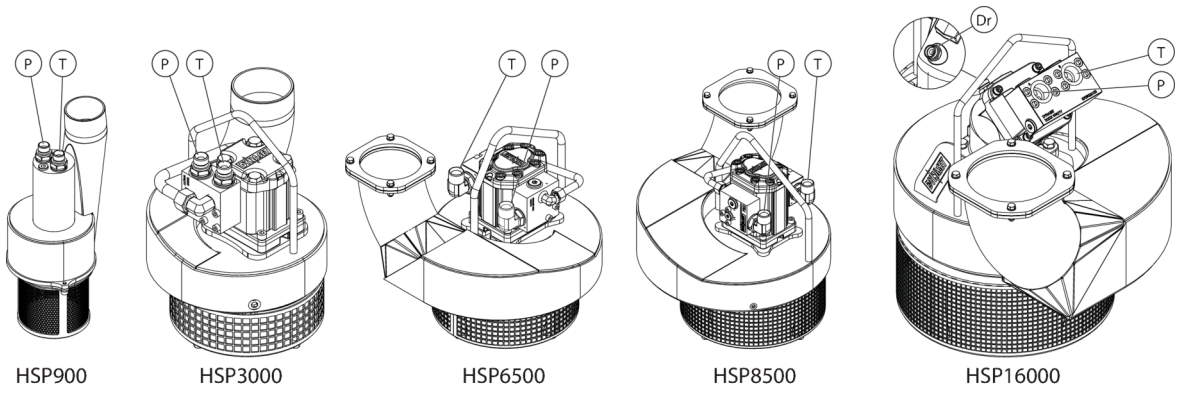
Cross connecting the hydraulic hoses and running the motor opposite direction can damage the motor. Make sure that the hoses are connected to the right ports.

⚠ WARNING

Excessive pressure, over 30 bar, in the return line may damage the motor. Connect the return line straight to the tank line to prevent harmful back pressure to the return line. Always use a return line hose that is big enough, at least the size of the connection described in chapter "10 Technical specifications". Too small hose will create back pressure at longer distances.

⚠ WARNING

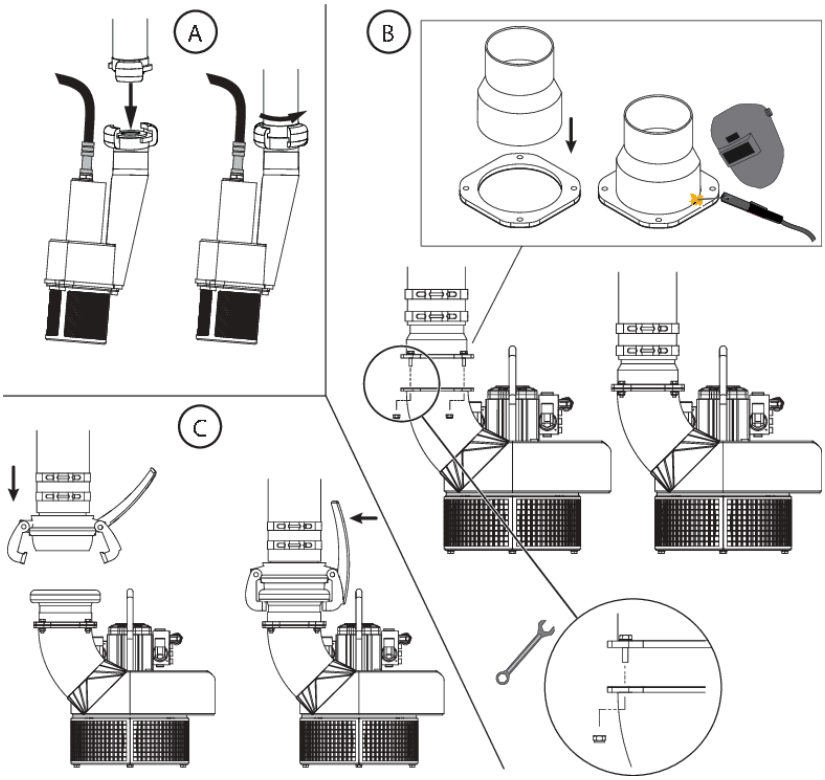
HSP16000 the drain line must be connected to the open return line to avoid excessive back pressure accumulating to the pump.



Picture 7: Connecting hydraulic hoses

4.4 CONNECTING THE DISCHARGE LINE

Discharge hose must be connected to the HSP pump, depending on the model, with a quick coupling, connection flange or Bauer coupling.



Picture 8: Connecting the discharge line

A) HSP 900 and HSP 3000 have a quick coupling for the connection. The output pipe is also threaded for custom inserts and connections. Measurements are in the chapter "10 Technical specifications".

B) HSP 6500, HSP 8500 and HSP 16000 come with a flange head and a connection flange plate. One can attach their connection straight to the pump's output flange or, as shown in the picture, use the included connection flange plate to weld their own attachment head to it and use it as the connection.

C) HSP6500 and HSP8500 can also be equipped with additional Bauer coupling. The Bauer coupling is sold separately.

After connecting the hose to the HSP, make sure that there are no sharp bends on the hose in order to avoid power loss.

5. OPERATION

5.1 BEFORE STARTING THE HSP PUMP

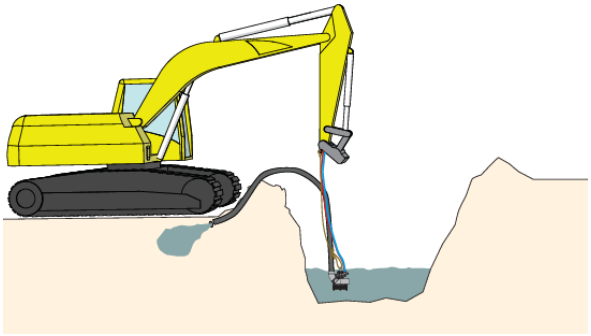
⚠ WARNING

Check all hoses and couplings in hydraulic and pumping fluid circuits before use to ensure there are no leaks or damages.

⚠ WARNING

Connect the hydraulic hoses correctly to the corresponding hydraulic ports. Crossing the hydraulic lines and running the pump opposite can damage the motor.

Place the pump into the liquid to be pumped and the outlet hose's end to wanted place.



Picture 9: Placing the HSP pump into the pumping location

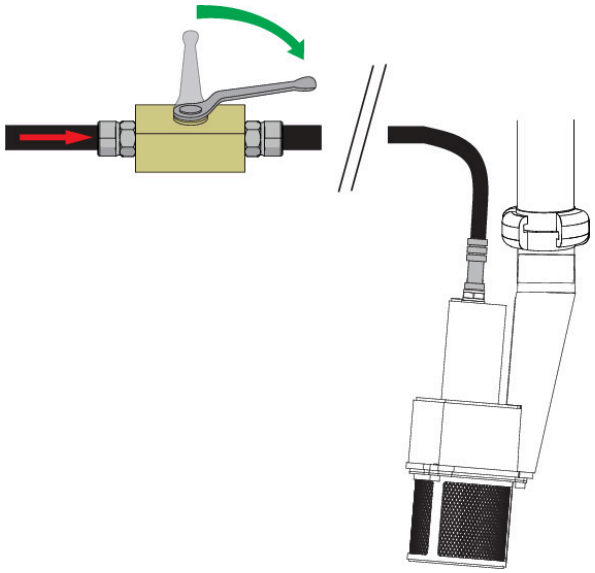
⚠ WARNING

Do not lift the pump by the hydraulic hoses.

Check that the pump inlet screen is clean.

5.2 STARTING THE HSP PUMP

When the engine of the base machine is running and hydraulic flow is available, you can start the HSP pump by opening the hydraulic flow to the unit. To check the pump discharge characteristics "READ CHAPTER „10. TECHNICAL SPECIFICATIONS “.



Picture 10: Starting the HSP pump

If the liquid contains too much impurity to be pumped through the intake screen, the screen can be detached.

⚠ WARNING

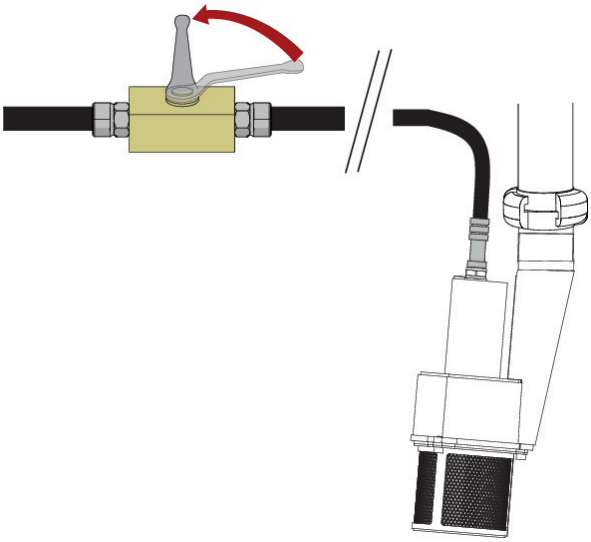
Always shut down the machine and prevent it from starting before you do any maintenance or changes to the unit. Disconnect the hydraulic hoses before detaching the screen.

⚠ WARNING

When you use HSP without the screen, always keep 5m (16ft) distance to the pump when it is turned on. Do not handle the pump when the screen is detached and pump is running.

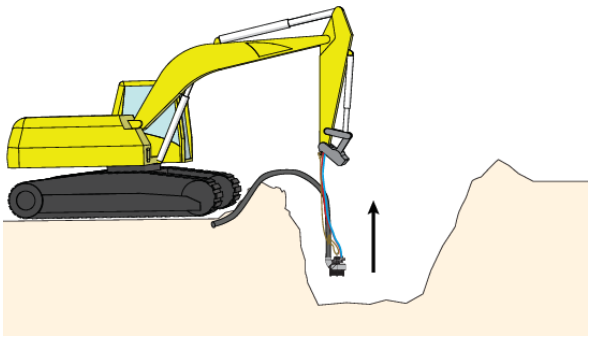
5.3 STOPPING THE HSP PUMP

When pumping is completed, you can stop the HSP pump by closing the hydraulic flow to the unit.



Picture 11: Stopping the HSP pump

Lift the pump out of the pumping location.



Picture 12: Lift the HSP pump out of the pumping location

⚠ WARNING

Do not lift the pump by the hydraulic hoses.

6. MAINTENANCE

6.1 GENERAL

⚠ WARNING

All installations and maintenance must be done according to this manual. All installations and maintenance that is not shown in this manual should only be done by a qualified mechanic or electrician depending on the jobs requirements.

⚠ WARNING

Before you do any maintenance or repair, always make sure that the pump is turned off and depressurized. Make sure that the system does not turn on while doing maintenance.

⚠ WARNING

All installation and maintenance of electric equipment must be done by qualified electrician only.



6.2 MAINTENANCE INTERVALS

All maintenance must be done as they are scheduled in this manual.

The following table provides maintenance schedule for DYNASET HSP pumps.

Check points	After daily use
Clean and inspect HSP pump	x

Replacement of sealings in the hydraulic motor is occasional and depends on a cleanliness of hydraulic oil.

6.3 HYDRAULIC FLUIDS

A wide range of standard hydraulic fluids can be used with the DYNASET hydraulic
é. Depending on the operating temperature, the following mineral hydraulic oils are recommended:

Mineral hydraulic oil	Operation temperature up to
ISO VG 32S	60°C (140°F)
ISO VG 46S	70°C (158°F)
ISO VG 68S	80°C (176°F)

WARNING

Recommended oil viscosity is between 10 and 35 cSt when operating at normal operating temperature.

Synthetic and bio-oils can also be used if their viscosity characteristics and lubricating efficiency are similar to mineral oils. Automatic transmission fluids and even engine oils can be used, provided that they are allowed to be used in hydraulic system of your base machine.

For the hydraulic fluid change interval, obey the base machine's maintenance instructions.

To use special hydraulic fluids with DYNASET equipment, contact the nearest DYNASET representative for more information.

6.4 CLEANING THE HSP PUMP

WARNING

Keep the HSP pump clean to enable its safe and longlife operation. Check and clean your HSP pump after every work shift.

6.5 TROUBLESHOOTING

FAILURE	REASON	CORRECTIVE ACTION
Clogging	Stone, hay or waterweeds may be stuck in the inlet chamber.	Stop the HSP pump, depressurize the hydraulic system, disconnect the hydraulic hoses and prevent the system start. Remove the screen if needed and remove clogging material.

FAILURE	REASON	CORRECTIVE ACTION
Liquid flow is too slow	The end of the discharge hose is too high.	Lower the end of the discharge hose.
	Insufficient hydraulic power.	Check hydraulic pressure and flow. Adjust if necessary.
	Stone, hay or waterweeds may be stuck in the inlet chamber.	Stop the HSP pump, depressurize the hydraulic system, disconnect the hydraulic hoses and prevent the system start. Remove the screen if needed and remove clogging material.

FAILURE	REASON	CORRECTIVE ACTION
Hydraulic oil leak	Hydraulic connections are loose.	Tighten the connections.
	Hydraulic motor's axle shaft seal is damaged.	Change the axle shaft seal.

7. MANUFACTURER'S LIMITED WARRANTY

7.1 WARRANTY COVERAGE

All hydraulic accessories manufactured by DYNASET OY are subject to the terms and conditions of this limited warranty. Products are warranted to the original purchaser to be free from defects in materials or workmanship. Exclusions from warranty are explained in item Exclusions from warranty.

7.2 BEGINNING OF WARRANTY PERIOD

Warranty period begins from the delivery date of the product. Delivery is considered to be done on the date when installation has been accomplished or purchaser has taken the product in use. Product is considered as taken in use at the date when DYNASET OY has delivered the product to purchaser, unless separately agreed otherwise by written agreement.

7.3 WARRANTY PERIOD

Warranty period is twenty-four (24) months based on maximum of 2000 hours usage during this time period. In cases where the system is provided complete with certain special components (e.g. drive unit), those components are considered as a subject to their manufacturer's warranty.

7.4 WARRANTY PROCEDURES

Immediately upon identifying a problem which purchaser believes to be a failure subject to the product's limited warranty, purchaser must contact primary to the seller of the product. Contact must be made as soon as possible, the latest thirty (30) days after the problem was identified. Seller and/or manufacturer technical staff determines the nature of the problem primarily by phone or e-mail. Purchaser commits to give necessary information and to perform routine diagnostic procedures in order to determine the nature of the problem and necessary procedures.

7.5 WARRANTY REPAIRS

If the product is found to be defective during the warranty period, DYNASET OY will, at its option, either repair the product, author it to be repaired at its authorized workshop or exchange the defective product. If the product must be repaired elsewhere than premises of DYNASET OY or authorized workshop, all costs excluded from this warranty (travelling and waiting hours, daily allowance, travelling expenses and uninstallation/ reinstallation costs) will be charged from the purchaser. If the problem is not covered by this limited warranty, DYNASET OY has the right to charge purchaser of troubleshooting and repairing.

7.6 DELIVERY TERMS OF WARRANTY REPAIR

If the product is found possible to be defective under this limited warranty, and it needs to be repaired, DYNASET OY gives Warranty Return Number (WRN). Items being returned must be shipped, at the purchaser's cost, adequately packed for shipment, to the DYNASET OY or to other location authored by DYNASET OY.

Shipment documents must contain:

- Purchaser's name and contact information
- Receipt of original purchase
- WRN code
- Problem description

7.7 WARRANTY OF REPAIRED PRODUCT

Warranty period of the product repaired under this limited warranty continues to the end of original warranty period.

7.8 EXCLUSIONS FROM WARRANTY

This warranty shall not apply to:

- Failures due to normal wear and tear, improper installation, misuse, abuse, negligence, purchaser selection of improper product to intended use, accident, improper filtration of hydraulic oil or intake water or lack of maintenance.
- Cost of maintenance, adjustments, installation or startup.
- Coating, hydraulic oil, quick couplings and interconnection hoses (internal or external to system assemblies).
- Products altered or modified in a manner not authorized by DYNASET OY in writing.
- Products which have been repaired during warranty period by others than DYNASET OY or its authorized workshop.
- Costs of any other damage or loss, whether direct, indirect, incidental, special or consequential, arising out of the use of, or the inability to use, the product.
- Telephone or other communications expense.
- Product that is used in exceptional conditions, considered to cause excessive wear and tear.
- Faults caused by nature phenomenon like flood, thunder, etc.

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8. PRODUCT DISPOSAL

Dispose and recycle all DYNASET products and their packaging environmentally responsible way.

Do not dispose used oils, electrical components, batteries or any other hazardous waste with normal waste. They are harmful for the environment and can be recycled for re-use.

Contact your local waste recycling facility for more information about recycling hazardous waste.

NOTE!

Always act according to the waste legislation, regulations and recommendations in waste disposal and waste recycling issued by your local authorities.

9. DECLARATION OF CONFORMITY

We hereby declare that the design and manufacture of the product stated below are in conformity with the provisions of the European Parliament and Councils on the harmonization of the laws of Member States on the safety of machines.

Machine directive 2006/42/EC

Applied conformity standards:

EN ISO 4413:2010 Hydraulic fluid power - General rules and safety requirements for systems and their components.

Manufacturer:	DYNASET Oy Menotie 3, FI-33470 Ylöjärvi, Finland
Product group:	HSP HYDRAULIC SUBMERSIBLE PUMPS
Product:	HSP Hydraulic Submersible Pumps

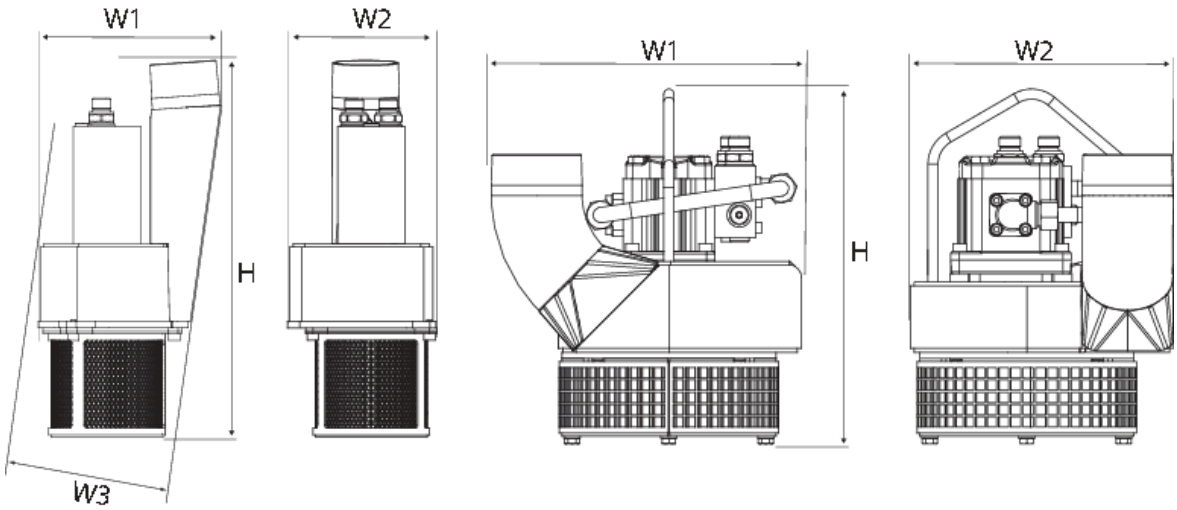
If the device has been modified by someone other than the manufacturer or without the manufacturer's permission, this declaration is not valid.



Pasi Yli-Kätkä
R&D Manager
Menotie 3, 33470
Ylöjärvi, Finland 02.01.2023

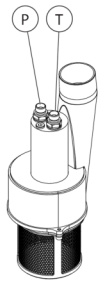
10. TECHNICAL SPECIFICATIONS

10.1 DIMENSIONS

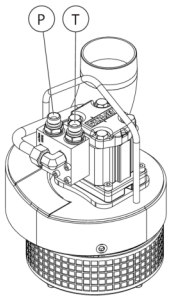


Model	Dimensions, mm (in)				Weight
	W1	W2	W3	H	kg (lbs)
HSP900/5-36	162 (6.4)	133 (5.2)	141 (5.6)	335 (13.2)	5.2 (11)
HSP3000/5-48	304 (12.0)	257 (10.1)	( )	347 (13.7)	10 (22)
HSP6500/5-85	477 (18.8)	436 (17.2)	( )	471 (18.5)	39 (86)
HSP8500/5-135	572 (22.5)	527 (20.7)	( )	525 (20.7)	51 (113)
HSP16000/5-184	741 (29.2)	689 (27.1)	( )	759 (29.9)	137 (302)

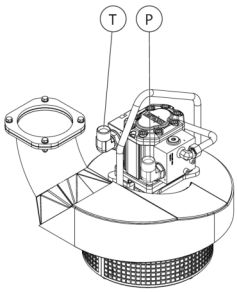
10.2 CONNECTIONS



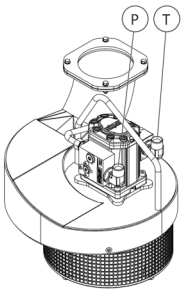
HSP900



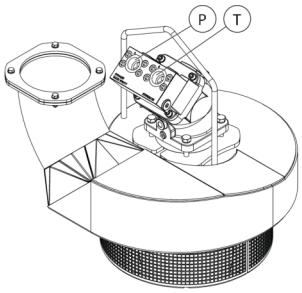
HSP3000



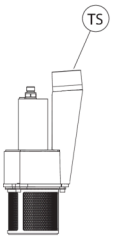
HSP6500

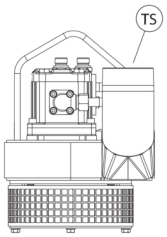


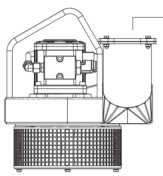
HSP8500

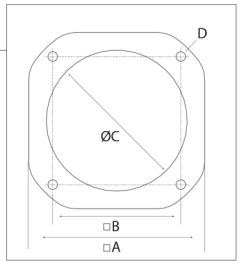


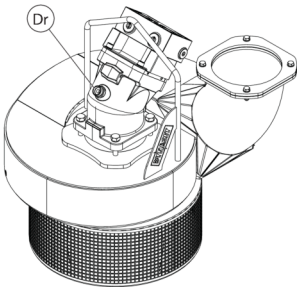
HSP16000











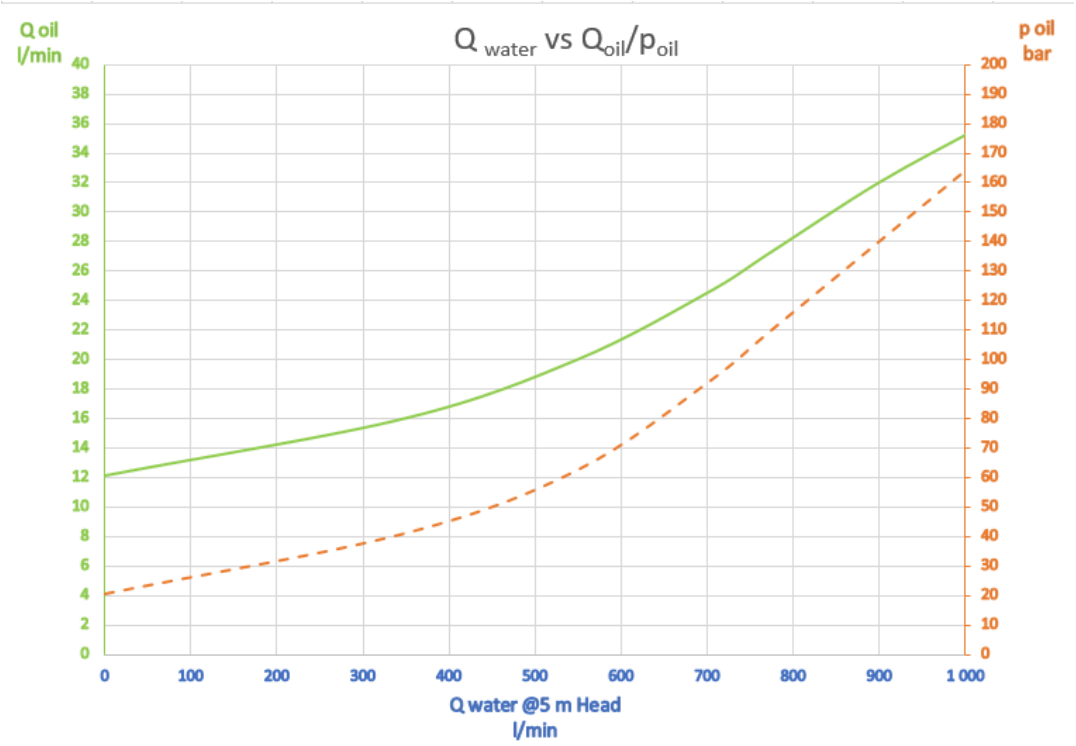
Model	Connections				Hose size, mm (in)	Connection flange, mm (in)			
	Pressure Line, P	Return Line, T	Thread size, TS	Drain Line, Dr	Drain line	A	B	C	D
HSP900/5-36	BSPP 3/8	BSPP 3/8	R2"	-	-	( )	( )	( )	( )
HSP3000/5-48	BSPP 1/2	BSPP 1/2	R3"	-	-	( )	( )	( )	( )
HSP6500/5-85	BSPP 3/4	BSPP 1	-"	-	-	165 (6.5)	120 (4.7)	132 (5.2)	9.5 (0.4)
HSP8500/5-135	BSPP 1	BSPP 1	-"	-	-	205 (8.1)	150 (5.9)	155 (6.1)	9.5 (0.4)
HSP16000/5-184	BSPP 1 1/4	BSPP 1 1/4	-"	L22-DIN 2353	19 (3/4)	225 (8.9)	205 (8.1)	180 (7.1)	16 (0.6)

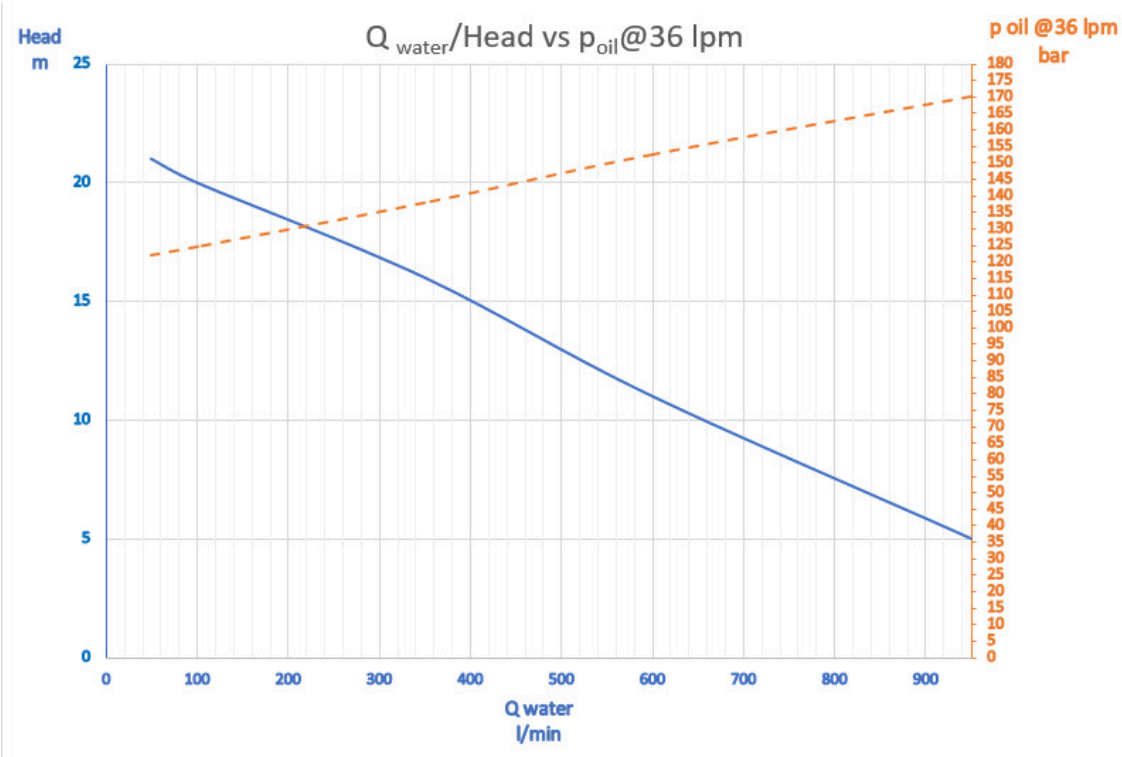
10.3 TECHNICAL SPECIFICATIONS

		HSP900/5-36	HSP3000/5-48	HSP6500/5-85	HSP8500/ 5-135	HSP16000/ 5-184
DISCHARGE CHARACTERISTICS						
Discharge at max. hyd. flow	**l/min (gpm)**	900 (237.78)	3,000 (792.60)	6,500 (1,717.31)	8,500 (2,245.71)	16,000 (4,227.21)
Discharge at standard head of 5m	**l/min (gpm)**	900 (237.78)	3,000 (792.60)	6,500 (1,717.31)	8,500 (2,245.71)	16,000 (4,227.21)
Discharge at max. head	**l/min (gpm)**	50 (13.21)	300 (79.26)	100 (26.42)	50 (13.21)	5,000 (1,321.00)
Pump head max.	**m (ft)**	21 (69)	50 (164)	50 (164)	40 (131)	30 (98)
Output connection**	**in**	R2"	R3"	5"	6"	8"
Water temperature max.	**°C(°F)**	50 (122)	50 (122)	50 (122)	50 (122)	50 (122)
HYDRAULIC POWER REQUIREMENTS						
Flow at max water discharge	**l/min (gpm)**	36 (9.51)	48 (12.68)	85 (22.46)	135 (35.67)	140 (36.99)
Flow at max water head	**l/min (gpm)**	36 (9.51)	70 (18.49)	135 (35.67)	215 (56.80)	220 (58.12)
Pressure max.	**bar (psi)**	170 (44.91)	250 (66.05)	250 (66.05)	230 (60.77)	400 (105.68)
Tank pressure max.	**bar (psi)**	30 (7.93)	30 (7.93)	30 (7.93)	30 (7.93)	30 (7.93)
Hydraulic Motor		gerotor	gear	gear	gear	axial piston
HYDRAULIC FLUID REQUIREMENTS						
Viscosity	**cSt**	10-200 / optimum 25-35	10-200 / optimum 25-35	10-200 / optimum 25-35	10-200 / optimum 25-35	10-200 / optimum 25-35
Temperature max.*	**°C(°F)**	70 (158)	70 (158)	70 (158)	70 (158)	70 (158)
Filter ratio	**µm**	25>	25>	25>	25>	25>

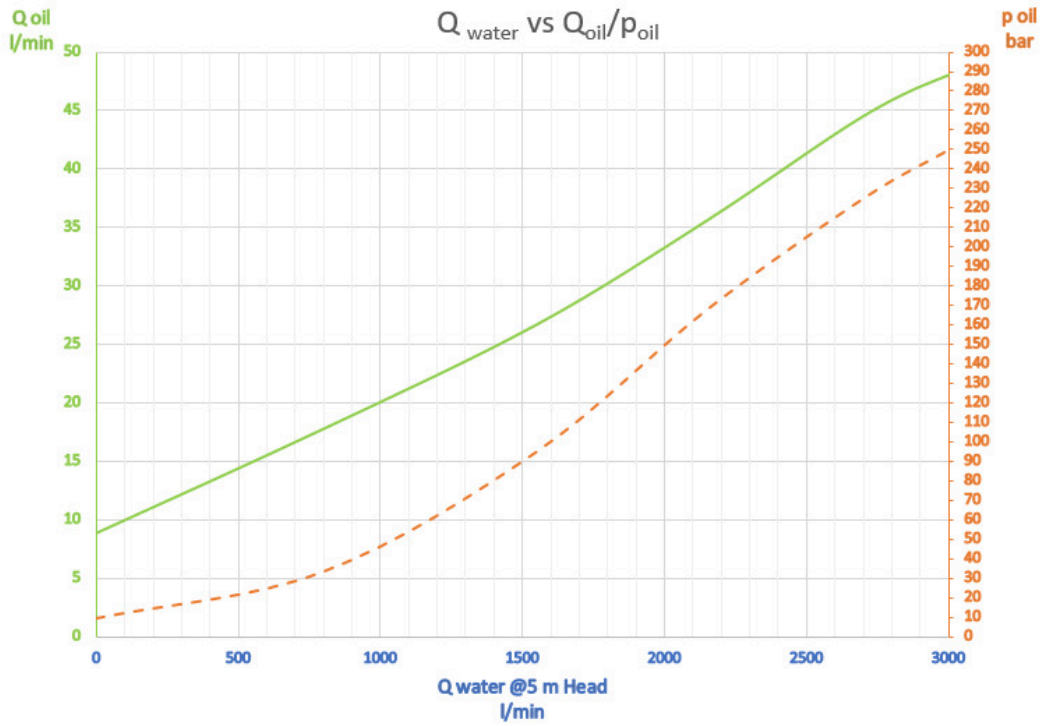
Gallons are U.S. liquid gallons
* Depending on hydraulic fluid.
**HSP 900 & 3000 are threaded, 6500, 8500 & 16000 are flanged

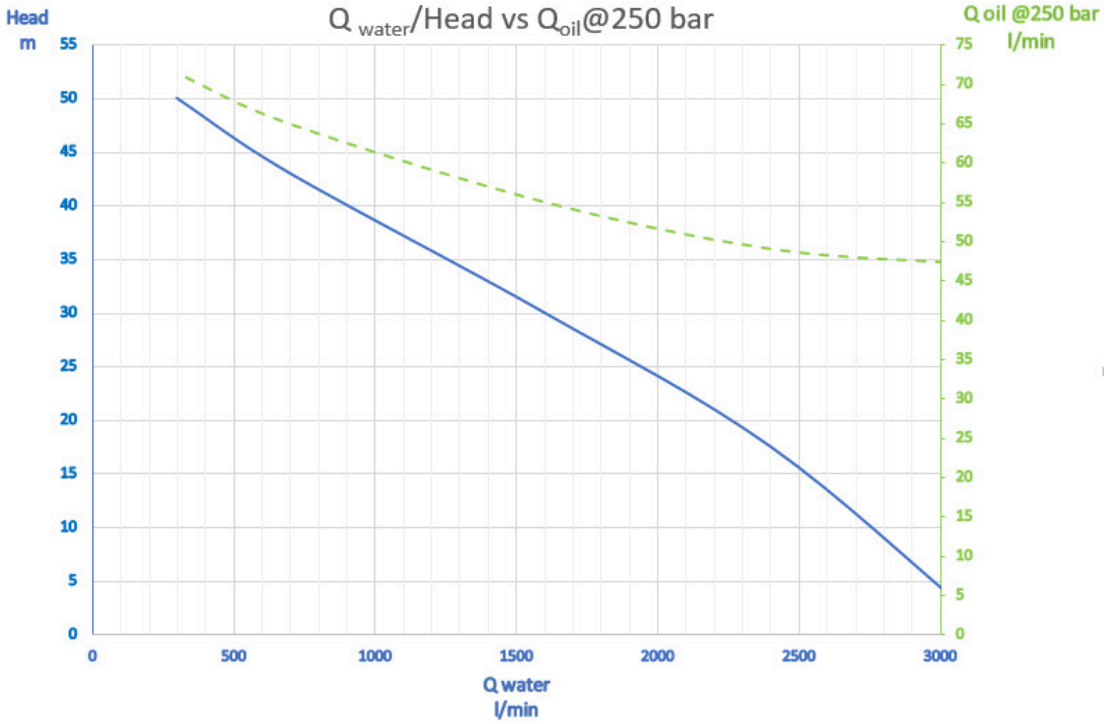
HSP 900


Q water vs Qoil/poil
Q oil l/min
p oil bar
Q water @5 m Head l/min

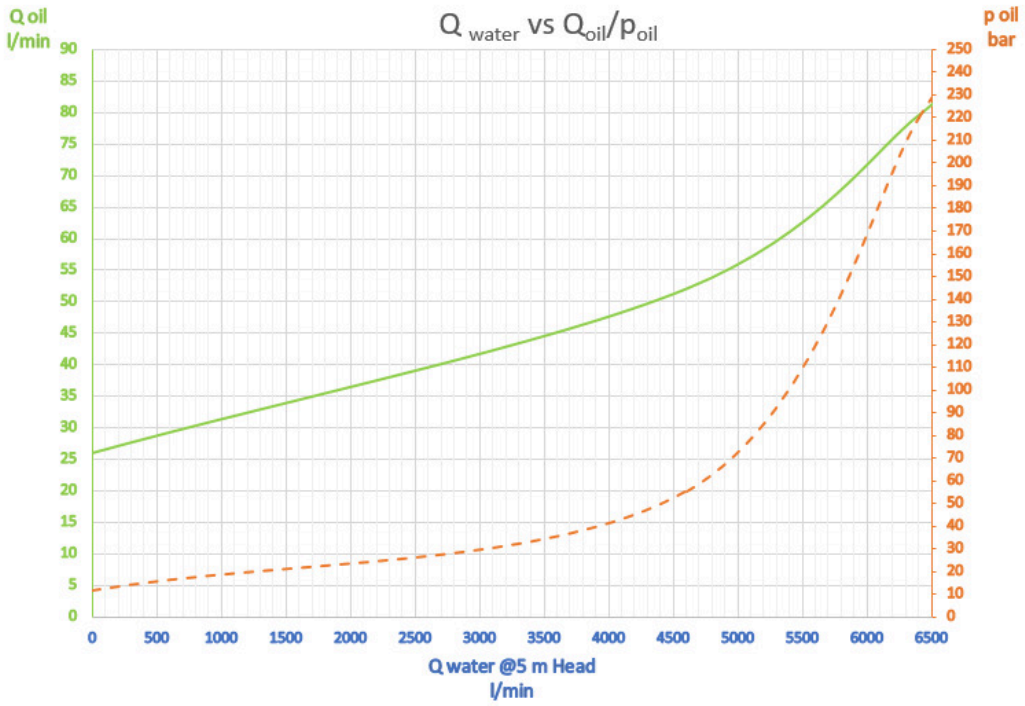

Q water/Head vs poil@36 lpm
Head m
p oil @36 lpm bar
Q water l/min

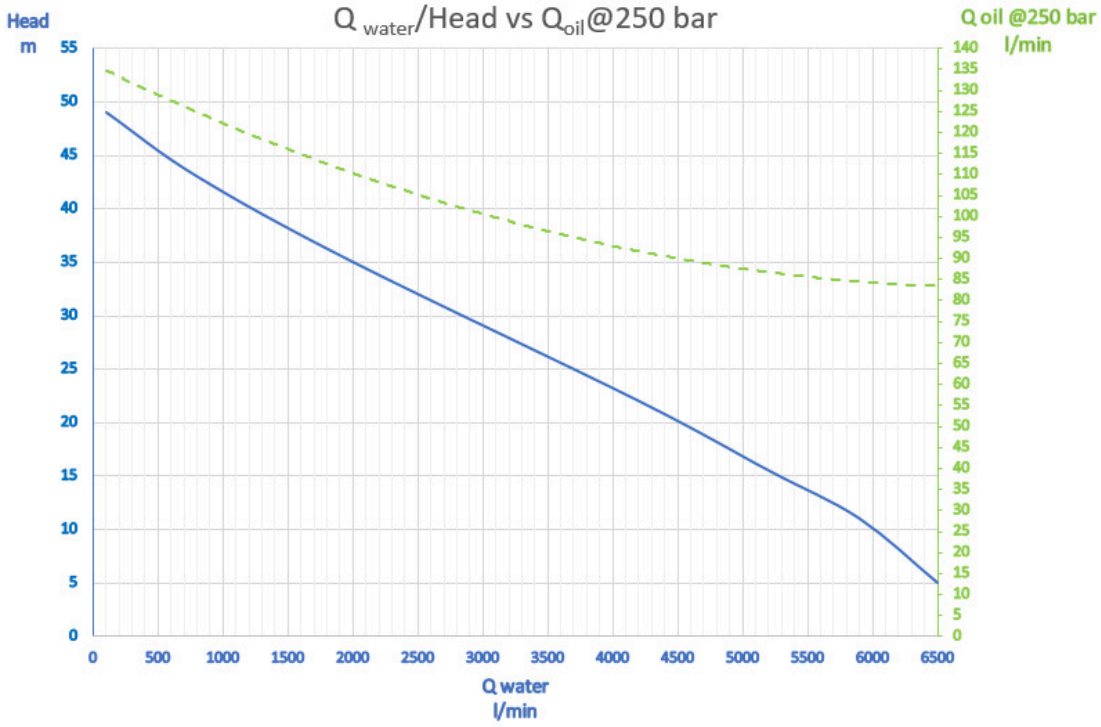
HSP 3000


Q water vs Qoil/poil
Q oil l/min
p oil bar
Q water @5 m Head l/min

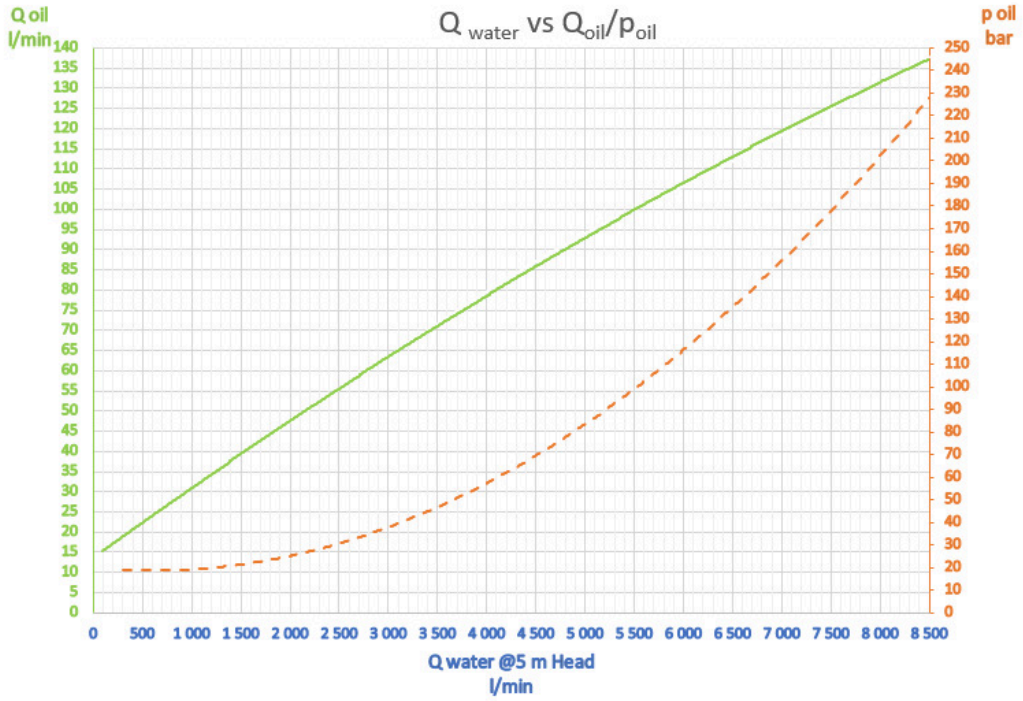

Qwater/Head vs Qoil@250 bar
Head m
Q oil @250 bar l/min
Q water l/min

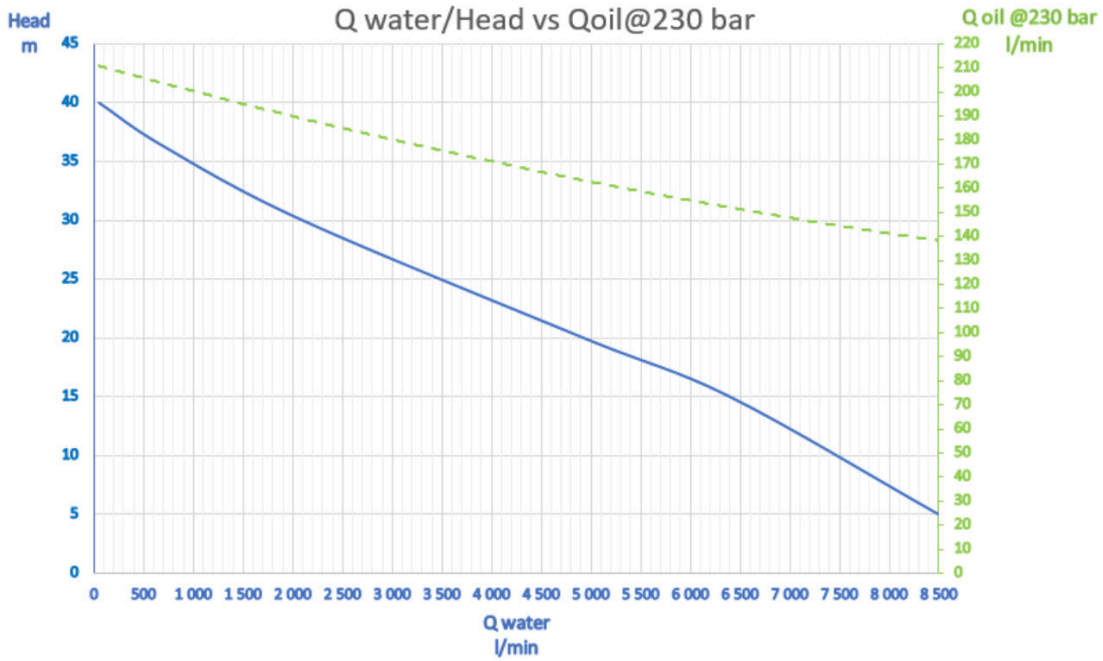
HSP 6500


Q water vs Qoil/poil
Q oil l/min
p oil bar
Q water @5 m Head l/min

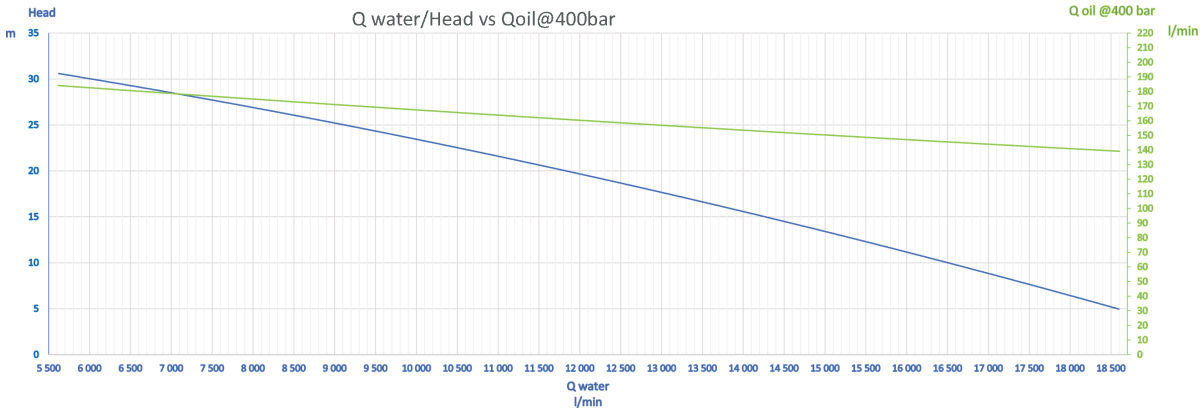

Q water/Head vs Qoil@250 bar
Head m
Q oil @250 bar l/min
Q water l/min

HSP 8500


Q water vs Qoil/poil
Q oil l/min
p oil bar
Q water @5 m Head l/min


Q water/Head vs Qoil@230 bar
Head m
Q oil @230 bar l/min
Q water l/min

HSP 16000


Q water/Head vs Qoil@400bar
Head
m
Q oil @400 bar
l/min
35
30
25
20
15
10
5
0
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
5 500
6 000
6 500
7 000
7 500
8 000
8 500
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13 500
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14 500
15 000
15 500
16 000
16 500
17 000
17 500
18 000
18 500
Q water
l/min

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DYNASET

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ELECTRICITY

HG Hydraulic Generator
HGV POWER BOX Variable Hydraulic Generator System
HGV Variable Hydraulic Generator System
HWG Hydraulic Welding Generator
HGG Hydraulic Ground Power Generator

HIGH PRESSURE WATER

HPW Hydraulic High Pressure Water Pump
HPW Hydraulic Power Washer
KPL High Pressure Street Washing Unit
KPL-WEED Weed Killing Unit
SCU Surface Cleaning Unit
HPW-DUST High Pressure Dust Suppression System
PPL High Pressure Pipe Cleaning Unit
HPW-FIRE High Pressure Firefighting System
FP Fire Fighting Piercing Kit
HDF Hydraulic Drilling Fluid Pump
JPL High Pressure Bin Washing System
HSP Hydraulic Submersible Pump

COMPRESSED AIR

HK Hydraulic Piston Compressor
HKL Hydraulic Rotary Vane Compressor
HKR Hydraulic Screw Compressor

MAGNET POWER

HMG PRO Hydraulic Magnet Generator
MAG Lift Magnet
HMAG PRO Hydraulic Magnet

VIBRATION

HVB Hydraulic Vibration Pump
HVD Hydraulic Directional Vibra
HRC Hydraulic Reversal Cylinder

POWER BOOSTING

HPI Hydraulic Pressure Intensifier
HPI-C Hydraulic Pressure Intensifier for Cylinder

VACUUM

HCF Hydraulic Centrifugal Fan
HRVB Hydraulic Recycling Vacuum Bucket

KNOW-HOW

Hydraulic Power Take-off (PTO)
Hydraulic Power Unit Technology
HEU Hydraulic Expansion Unit
HRU Hydraulic Rescue Unis
De-Icing Technology
Installation Valves
HHK Hydraulic Grinder
HV/HVY Hydraulic Winch / Winch Unit

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