



# Installation Guide

*For Hydraulic Systems*

**THRUSTERS AND STABILISERS**



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**MI**

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## Responsibility of the installer

### General:

- The installer must read this document to ensure necessary familiarity with the product before installation.
- Directions outlined in this document cannot be guaranteed to comply with all international and national regulations, including but not limited to health and safety procedures. It is the installers responsibility to adhere to all applicable international and national regulations when installing Sleipner products.
- This document contains general installation guidelines intended to support experienced installers. Contact professional installers familiar with the vessel, Sleipner products and applicable regulations if assistance is required.
- If local regulation requires any electrical work to be performed by a licensed professional, seek a licensed professional.
- When planning the installation of Sleipner products, ensure easy access to the products for future service and inspection requirements.

## Responsibility of the installer

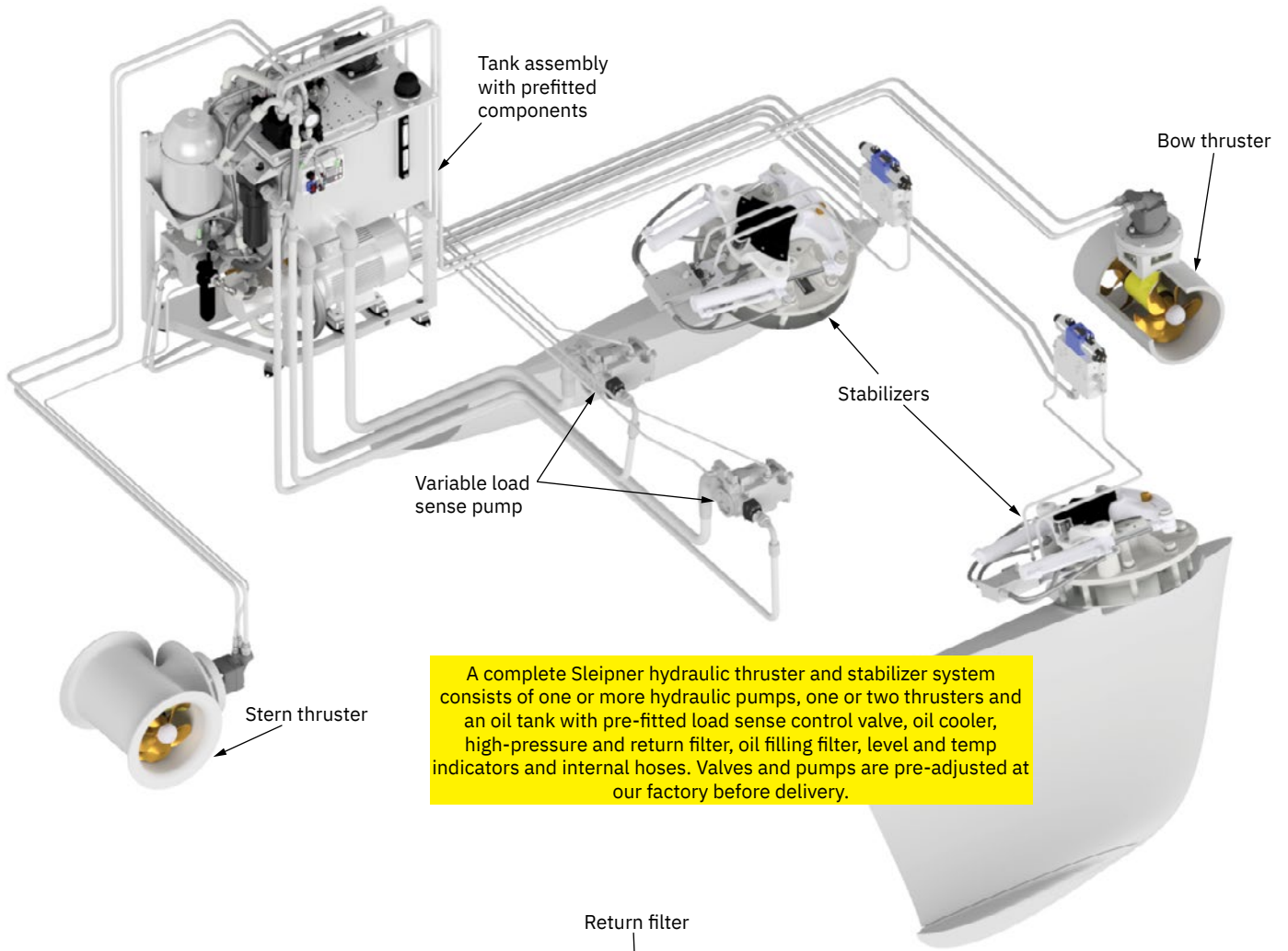
### Pre-installation planning for hydraulic systems

- Before installing the hydraulic system, Ensure you have available the following additional manuals:
  - Thruster installation and user manual.
  - The unique hydraulic system manual with complete system drawings.
  - Relevant control panel installation guides and user manuals.
- Before starting the installation procedure, make sure that no parts are missing or damaged during transportation.
- When installed in boats approved or classified according to international or special national rules, the installer is responsible for following the demands in accordance with their regulations/classification rules. The instructions in this guide can not be guaranteed to comply with all different regulations/classification rules.

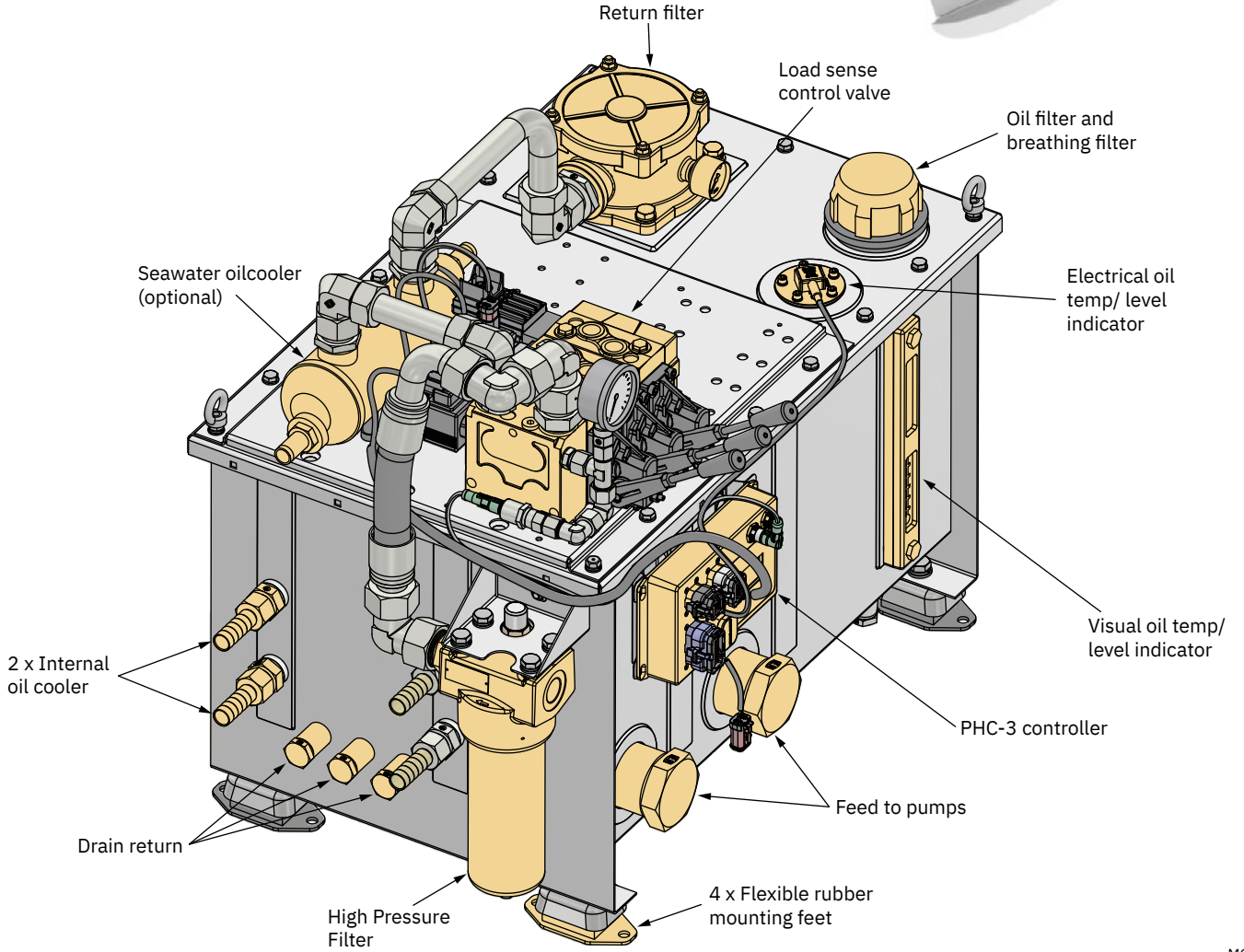
**(NB: Faulty installation of any part of the hydraulic system, tunnel, thruster or control panel will render all warranty given by Sleipner Motor AS void.)**

### Hydraulic systems:

- Observe safety precautions (wear protective goggles, gloves and other appropriate safety equipment when installing the hydraulic system and working with hydraulic oil).
- Hydraulic components can be damaged by dust and dirt, keep these away from the boat until you have finished the mechanical part of the installation (grinding, drilling etc.) and cleaned up.
- All hydraulic components must be installed in a clean environment to avoid contamination.
- All hose-ends and connection points should be sealed during the installation.
- Use only clean oil for reliable and trouble free operation for all hydraulic systems.
- Keep all hoses and looms clear of sharp edges and hot surfaces.
- Hoses and looms must be secured adequately to prevent chaffing.



A complete Sleipner hydraulic thruster and stabilizer system consists of one or more hydraulic pumps, one or two thrusters and an oil tank with pre-fitted load sense control valve, oil cooler, high-pressure and return filter, oil filling filter, level and temp indicators and internal hoses. Valves and pumps are pre-adjusted at our factory before delivery.

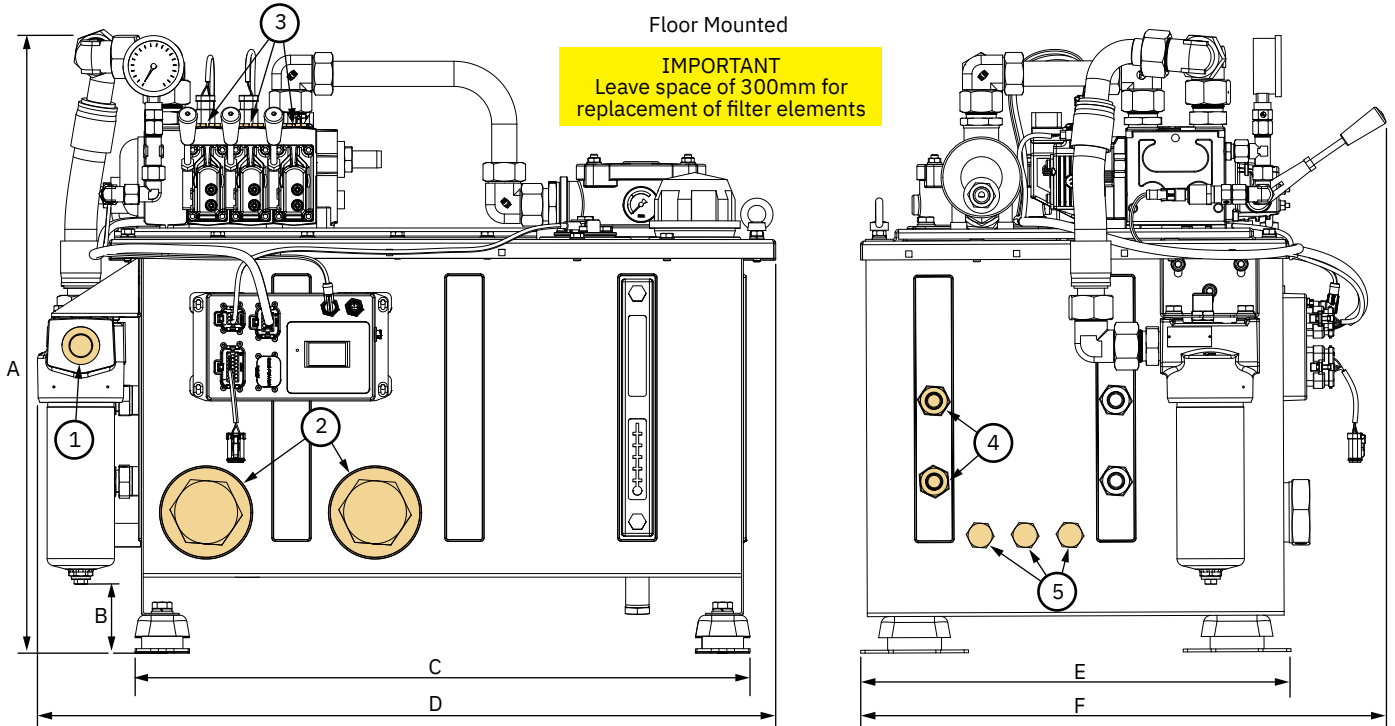


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## Tank Measurements

MC\_0284

Measurement code	Measurement description	*40L		*60L		*90L		*120L	
		mm	inch	mm	inch	mm	inch	mm	inch
A	Height	690	27.17	690	27.17	800	31.5	800	31.5
B	Filter change	100	3.9	100	3.9	100	3.9	100	3.9
C	Tank length	615	24.21	683	26.89	683	26.89	883	34.76
D	Total length	785	31	800	31.5	800	31.5	1000	39.4
E	Tank width	340	13.4	479	18.86	479	18.86	479	18.86
F	Total width	400	15.75	550	21.65	550	21.65	550	21.65



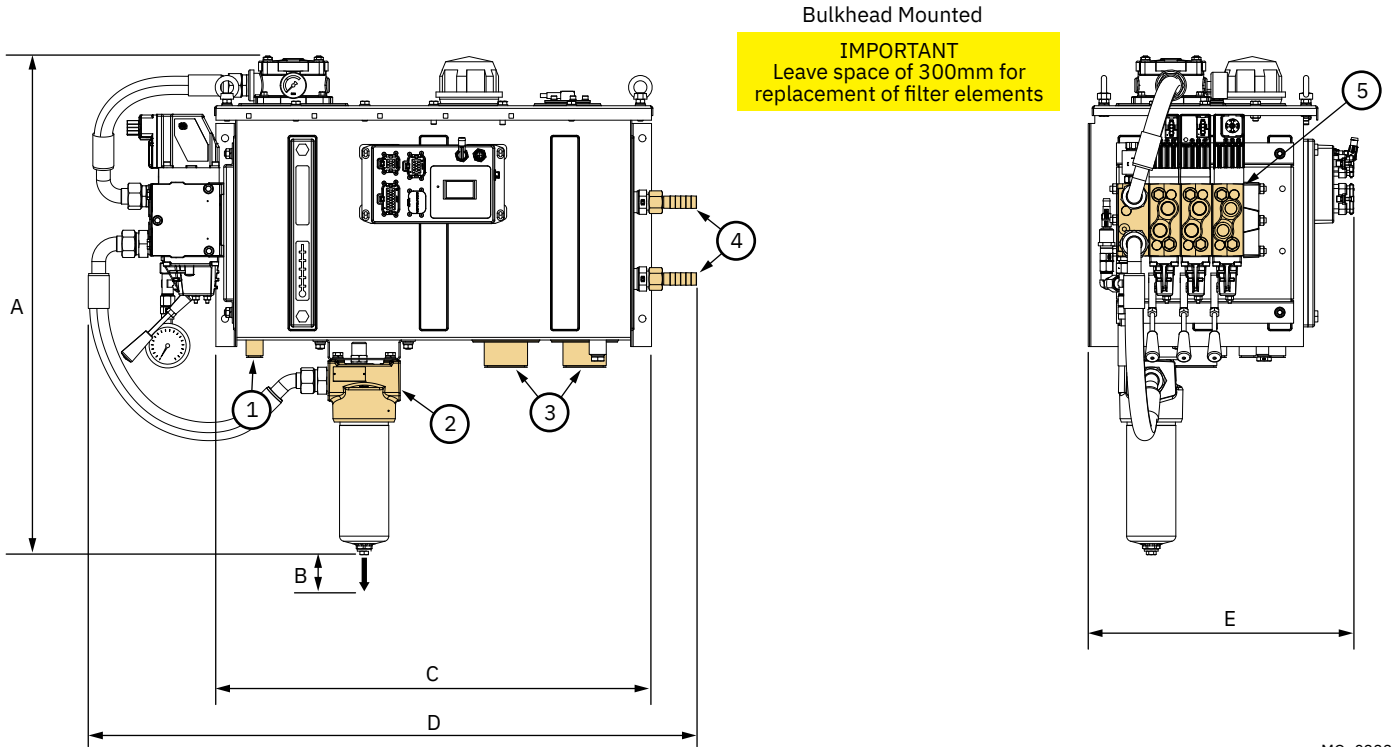
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## Specifications

MC\_0285

Description	*40L	*60L	*90L	*120L
(1) Pump to filter valve	1" BSP	1" BSP	1" BSP	1" BSP
(2) Tank to pump	2" BSP	2" BSP	2" BSP	2" BSP
(3) Valve ports to users	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP
(4) water to/ from oil cooler	3/4" Nipple	3/4" Nipple	3/4" Nipple	3/4" Nipple
(5) Bleed returns (3x)	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP
Tank Volume (ltr * usg)	52.8 * 13.9	93.9 * 24.8	122 * 32.3	160 * 42.3
Oil Volume (ltr * usg)	40 * 10.6	60 * 15.85	90 * 23.78	120 * 31.70
Dry Weighth (kg * lbs)	46 * 101	60 * 132	68 * 154	77 * 170

Measurement code	Measurement description	*40L		*60L	
		mm	inch	mm	inch
A	Height	705	27.8	860	33.6
B	Filter change	100	3.9	100	3.9
C	Tank length	600	23.6	600	23.6
D	Total length	870	34.3	890	35
E	Tank width	330	13	330	13



MG\_0333

## Specifications

MC\_0287

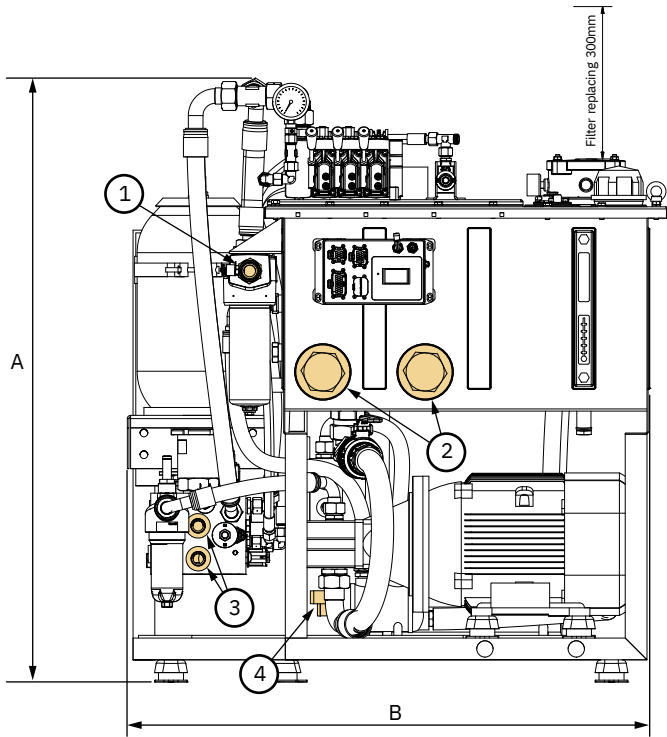
Description	*40L	*60L
(1) Bleed returns (3x)	1/2" BSP	1/2" BSP
(2) Pump to valve	1" BSP	1" BSP
(3) Tank to pump	2" BSP	2" BSP
(4) water to/ from oil cooler	3/4" Nipple	3/4" Nipple
(5) Valve ports to users	1/2" BSP	1/2" BSP
Tank Volume (ltr * usg)	52.7 * 13.9	80 * 21.2
Oil Volume (ltr * usg)	40 * 10.6	60 * 15.85
Dry Weight (kg * lbs)	45 * 99	59 * 130

# Tank Measurements

MC\_0288

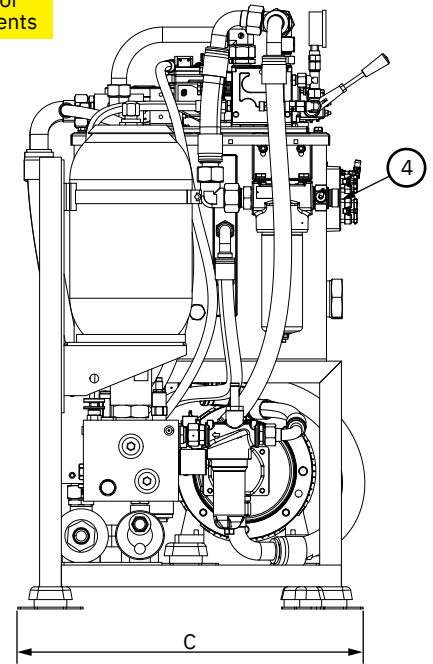
Measurement code	Measurement description	*10 2424		*10 2426		*10 2429		*10 2430		*10 2431		*10 24201	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	Height (60L)	1110+200	43.31+7.9	1225+170	48.23+6.7	1100+200	43.31+7.9	1140+150	44.9+5.9	1250+300	49.2+11.8	1190+350	46.9+13.8
A	Height (90L)	1220+200	48+7.9	1335+170	52.56+6.7	1100+200	43.31+7.9	1250+150	49.2+5.9	1250+300	49.2+11.8	1190+350	46.9 +13.8
B	Length	995	39.2	1035	40.7	990	39	995	39.2	1020	40.2	785	31
C	Width	635	25	670	26.4	535	21.1	670	26.4	695	27.4	635	25

Measurement code	Measurement description	*10 24202A		*10 24203	
		mm	inch	mm	inch
A	Height (60L)	1450+300	57.1+11.8	1380+200	54.3+7.9
A	Height (90L)	1450+300	57.1+11.8	1380+200	54.3+7.9
B	Length	1300	51.2	1365	53.8
C	Width	695	27.4	915	36



Rack Mounted

**IMPORTANT**  
Leave space of 300mm for replacement of filter elements



MG\_0334

# Specifications

MC\_0289

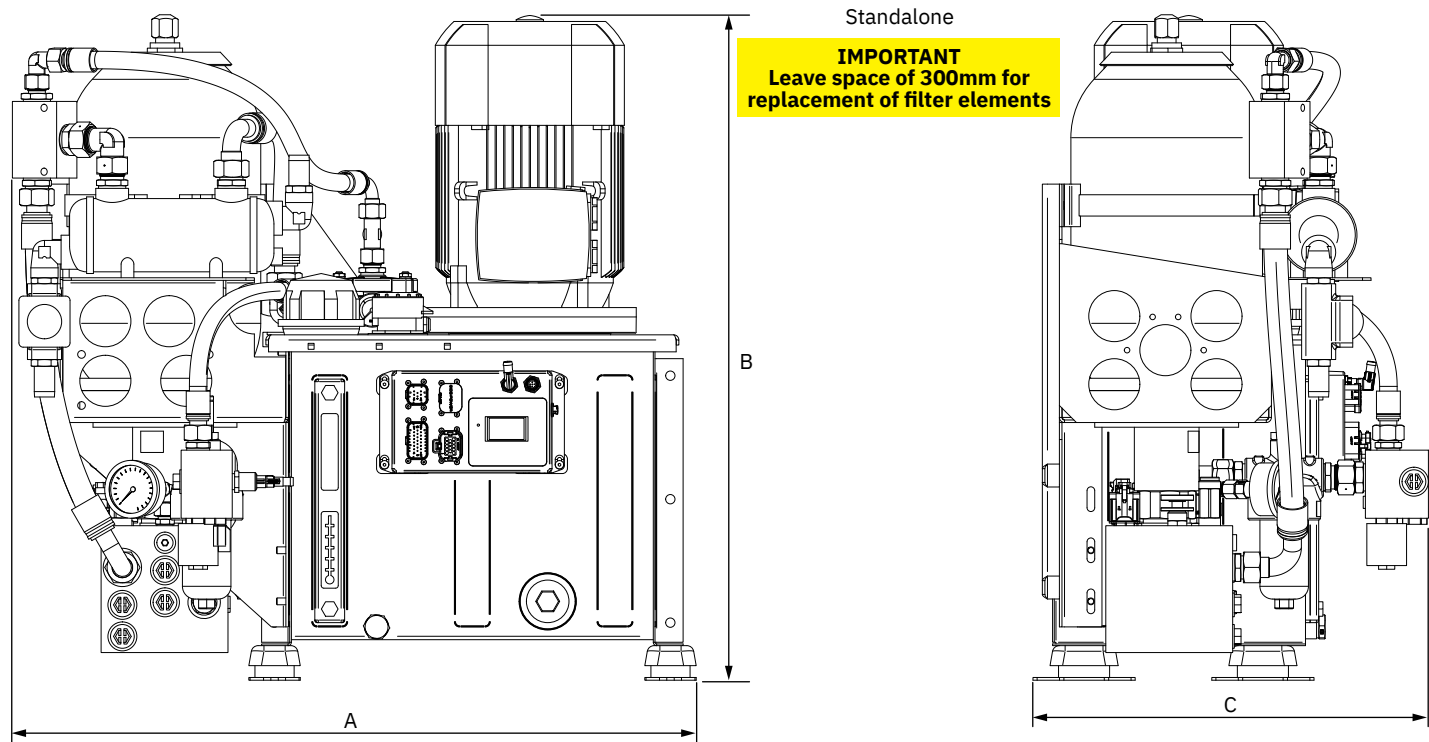
Description	*10 2424	*10 2426	*10 2429	*10 2430	*10 2431	*10 24201	*10 24202A	*10 24203
(1) PTO oil pressure	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP
(2) Feed to PTO	2.5" Hose	2.5" Hose	2" Hose	2.5" Hose	2.5" Hose	2.5" Hose	2.5" Hose	2.5" Hose
(3) Stabilizer pressure	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP	3/4" BSP
(4) water OUT/ IN	1" Nipple	1" Nipple	1" Nipple	1" Nipple	1" Nipple	1" Nipple	1" Nipple	1" Nipple
Output (kw)	5 - 11	11 - 15	5 - 7.5	7 - 11	11 - 15	5 - 7.5	11 - 15	11 - 15
Generator load (kw)	6 - 14.9	14 - 19.4	6 - 9.8	14.9	14.9 - 19.4	6 - 9.8	14.9 - 19.4	14.9 - 19.4
Tank Size	60L / 90L	60L / 90L	40L	60L / 90L	95L	55L	95L	95L
Actuator	SPS 55 / 66	SPS 9*	SPS 55 / 66	SPS 66	SPS 9*	SPS 55 / 66	SPS 9*	SPS 9*
Dry weight (kg * lbs) ±10 / 22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	460 * 1015

## Tank Measurements

MC\_0290

Measurement code	Measurement description	*10 4435xx		*10 4450xx		*10 4455xx		*10 44110xx		*10 44150xx	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	Length	762	30	756	29.8	790	31.1	890*	35	1010*	39.8
B	Height	726	28.6	726	28.6	780	30.7	1060*	41.7	1060*	41.7
C	Width	432	17	432	17	465	18.3	480*	18.9	480*	18.9

\*Preliminary measurements



MG\_0335

## Specifications

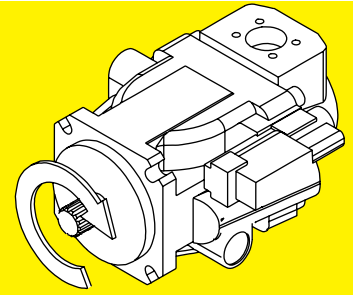
MC\_0291

Description	*10 4435xx	*10 4450xx	*10 4455xx	*10 44110xx	*10 44150xx
Output (kw)	3.5	4.6	5.5	11	15
Generator load (kVa)	4.6	6	7	14.9	19.4
Actuator	SPS 55	SPS 55	SPS 66	SPS 9*	SPS 9*
Dry weight (kg * lbs)	111 * 245	116 * 256	135 * 298	N/A*	N/A*



### IMPORTANT

- Check that the power source drive direction is in accordance with pump rotation ! Pump direction is decided as seen on picture, facing the pump shaft, i.e the pump direction will be the opposite of engine / PTO / generator.  
(NB: Please see (PTO) pump nameplate L=CCW and R=CW)
- Ensure that the power source and connection point can handle the torque and load from the hydraulic pump.
- As soon as the pump is connected to the power source, it is very important NOT to run the power source before the installation is complete and the pump is pre-filled with hydraulic oil.



Due to our experience with hydraulic thrusters/stabilizers, we know there are usually three methods of connecting a hydraulic pump to the engine or generator:

- Power Take Off (PTO) at the gearbox or the engine
- Front mounted to the engine crankshaft with use of a bracket and a flexible coupling
- AC power pack

Belt drive installations is not recommended due to the high load required to power this type of equipment. Please contact your Sleipner distributor if belt drive installation is the only option

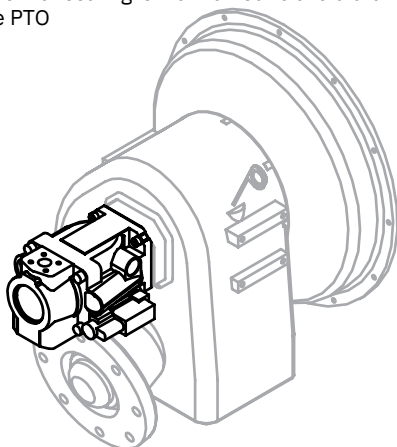
#### PTO mounted pump

The easiest and most reliable way to install the pump is to use gearbox/engine PTO. Sleipner standard pumps comes with SAE flange and spline to fit directly to a wide range of live or clutched PTOs. Our pumps comes standard with one of the following SAE standards:

- SAE-B (2 bolt, 13 teeth)
- SAE-C (4 bolt, 14 teeth)
- SAE-CC (4 bolt, 17 teeth)

For other shaft and flange options or special adapters, contact your local Sleipner distributor.

When fitted to a wet pressurised PTO, make sure that sealing is maintained to avoid draining the PTO



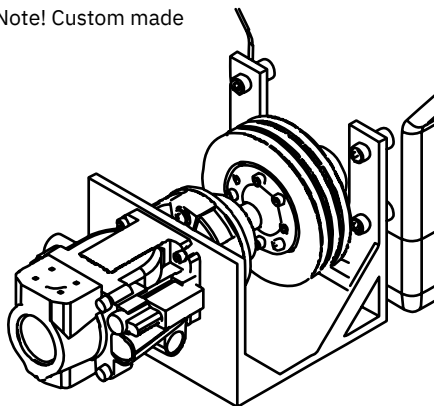
PTO mounted pump

#### Front mounted pump

A more demanding but reliable way to install the pump is to connect the pump to the crankshaft in front of the engine with use of a bracket and a flexible coupling. Even when using a flexible coupling, it's very important to get the best possible alignment of the pump shaft and crankshaft to reduce stress on the engine/pump shaft bearings.

It is important that the hydraulic pump is fixed to the bracket, and the bracket itself is locked to the engine. The pump has to move with the engine.

Note! Custom made



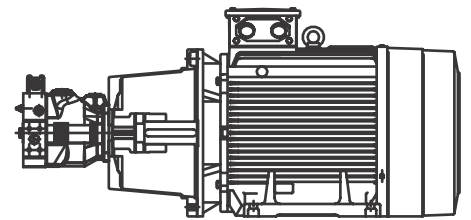
Front mounted pump

#### AC Power pack

A 3-phase AC motor is designed to run both directions. It can also power up a hydraulic pump in a reliable way. It's important to match the drive direction of the AC motor and the pump. A trained professional should be responsible for the electrical installation of the motor.

Due to high start-up current a soft start/VFD might be required.

Other options could be to install the pump directly to the generator, or consider a fully AC electric Sleipner thruster. (See SAC range thrusters)



AC power pack

# Tank Assembly Installation

- Place the tank in a position where you have access to connection and inspection points. Ensure that there is enough space to lift out and replace the filters. Keep in mind to make room for access to the oil filling point.

**(NB: Place the tank high enough to get the oil level above the hydraulic pump. The system requires overpressure/gravity feed in the pump feed lines.)**

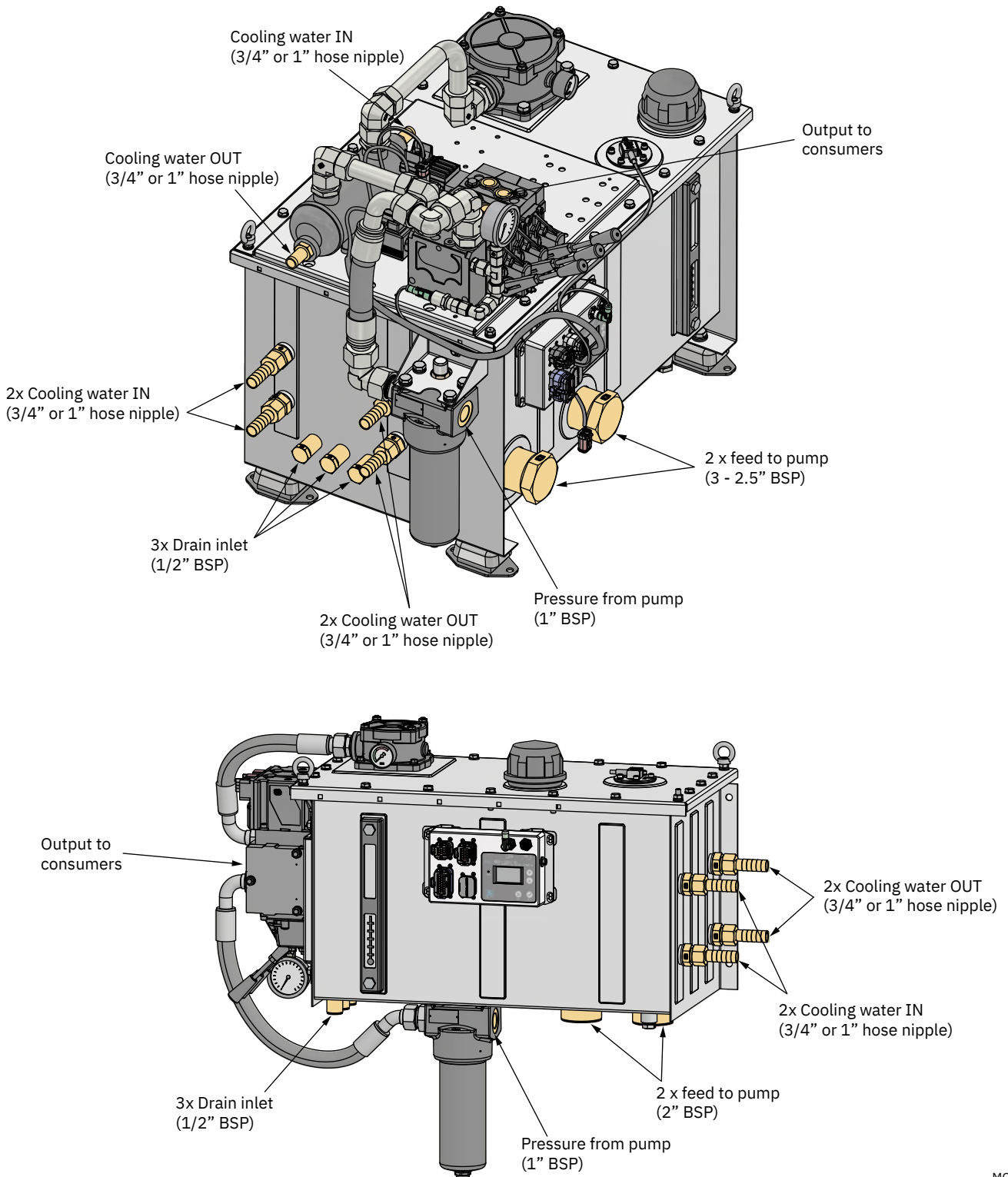
- Secure the tank assembly properly.
- Ground the tank electrically to the boat's bonding system.
- Ensure that the tank and other components are thoroughly clean before you start installation of fittings and hoses. Also, make sure that the fittings and hoses are thoroughly clean (avoid ingress of dirt, water and other contamination).

Each thruster system is calculated and correctly set up individually by Sleipner. Please see the unique system drawings in the provided system manual for hose/tube/fittings dimensions. Hoses and fittings must be installed by trained professionals only. Make sure to clean the hoses internally before assembly, all hoses MUST be cleaned with jet pellets or flushed before they are fitted. To ensure easy and trouble free connection, apply a small amount of oil to threads and mating faces before joining. Different kinds of fittings will require different tightening torque to avoid leakage. If in doubt, please contact a skilled professional to get the best results. It may be required to check and re-tighten all hose connections after start-up and sea trial.

**(NB: Using excessive amount of sharp 90° elbows, T-connections or smaller hoses than recommended in the hydraulic schematic will increase the pressure drop through the system and reduce the efficiency/performance.)**

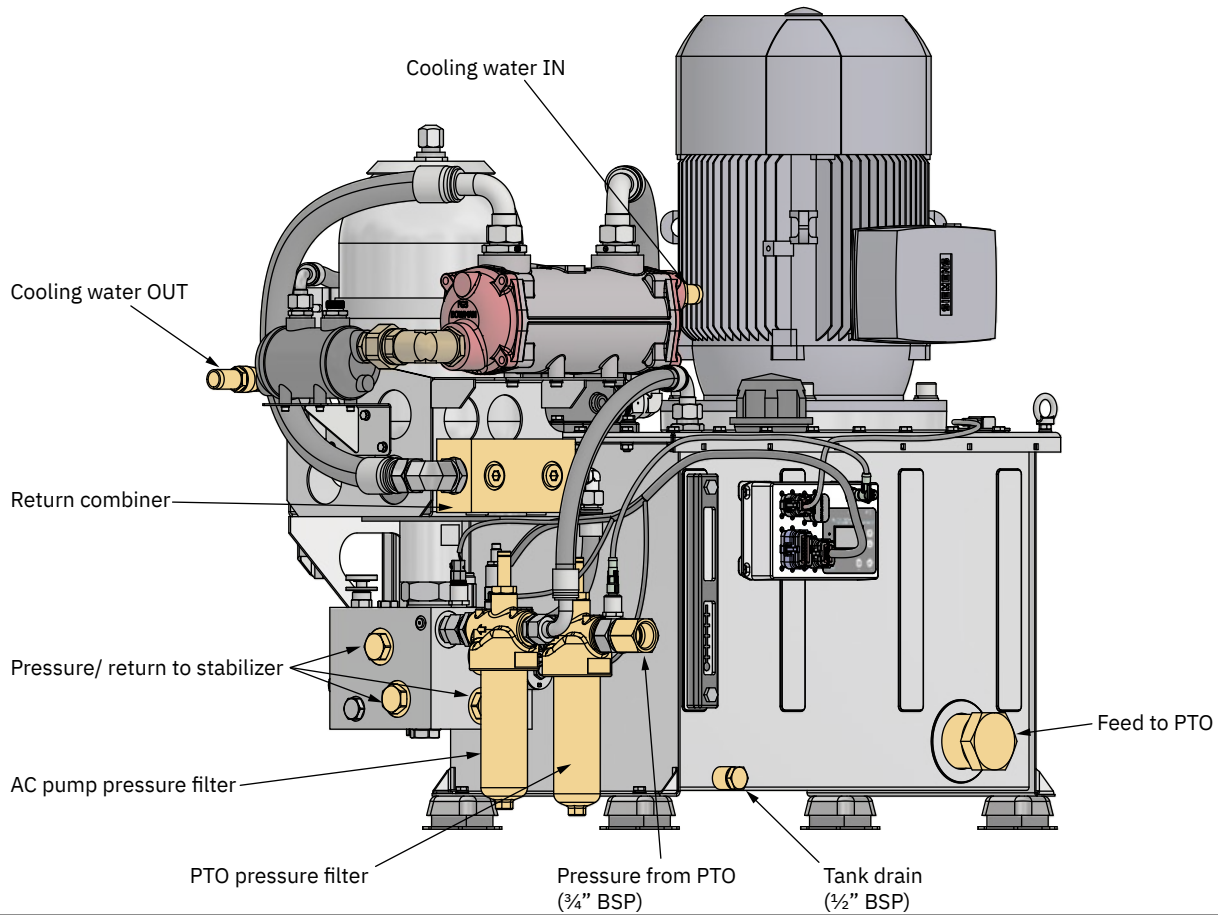
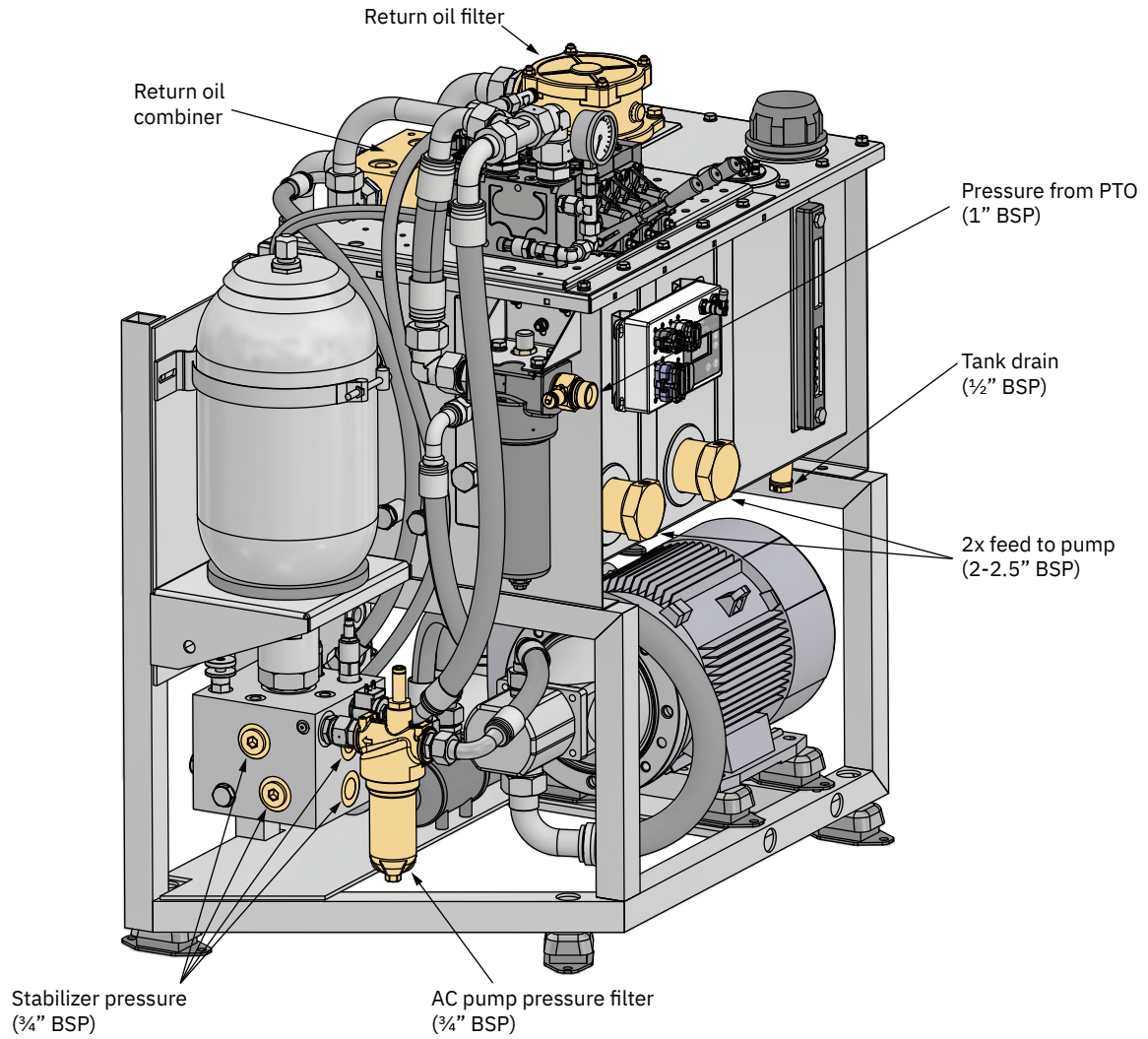
It is critical that pump feed lines can provide good gravity feed oil supply to all pumps. Avoid elbows, excessive lengths etc. If in doubt, go up in size or contact Sleipner for advice.

Using plumbing tape, hemp, similar products or excessive amounts of tread sealant can contaminate the hydraulic oil and cause problems with sensitive control valves, pumps etc.



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# Hose Connections



MG\_0338

1. The cooling pumps must be installed with the rotor axis in a horizontal position and the feet facing downwards and the pressure port facing up. Install the pump as close as possible to the suction source

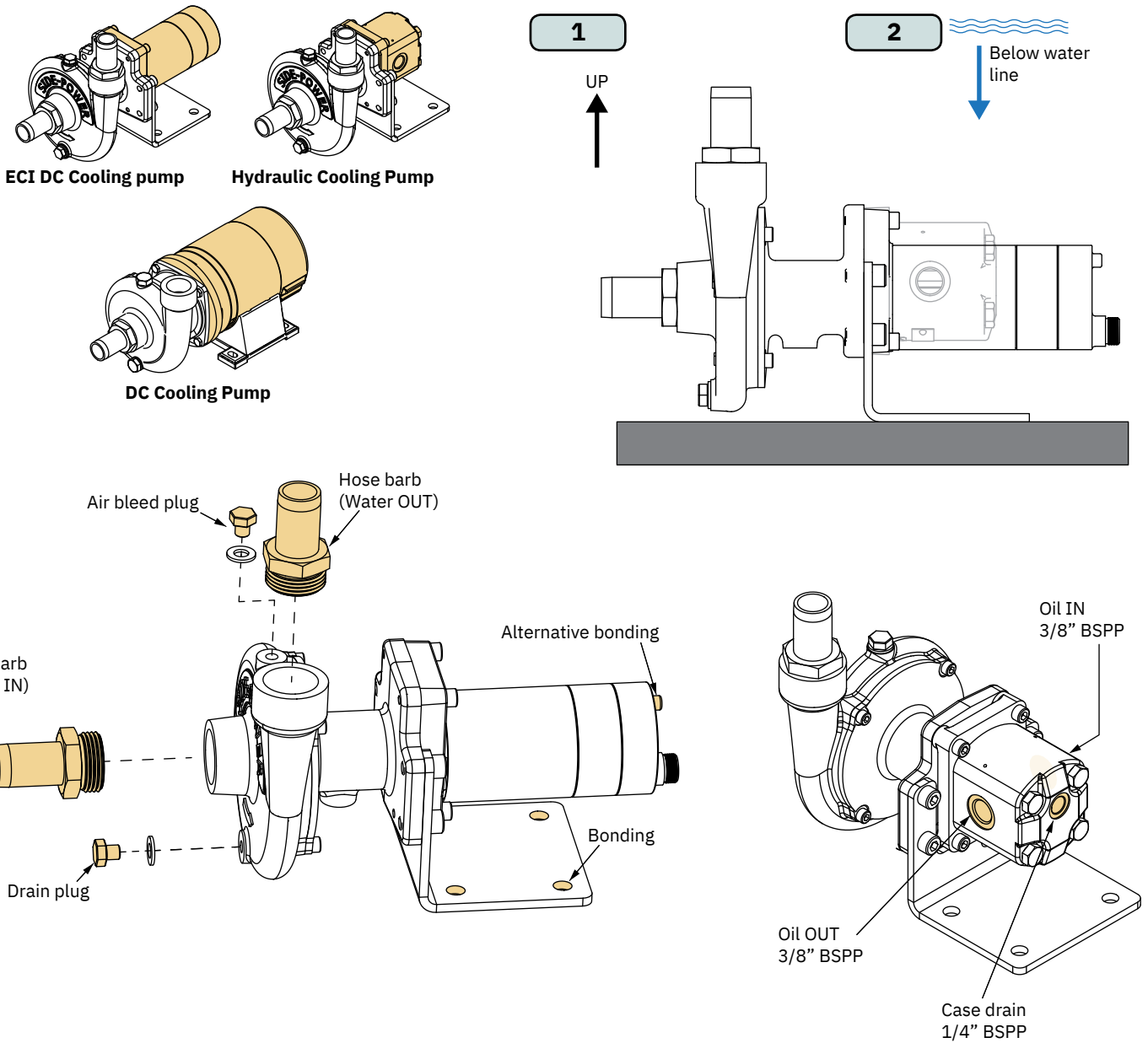
**IMPORTANT**

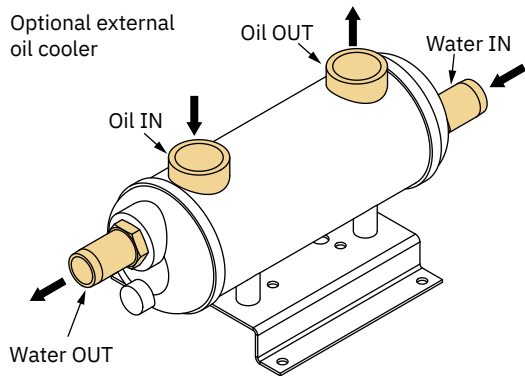
**For safety avoid installing the motor under the cooling pump due to water condensation created by the cooling pump.**

2. Install the cooling pump below the water line, for gravity feed, and with continuous rising water lines to avoid air locks.

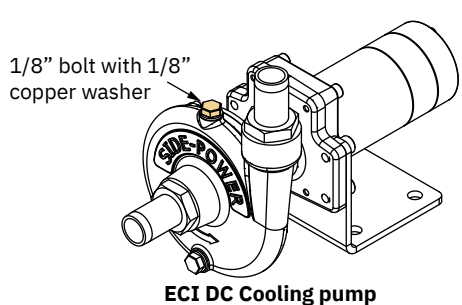
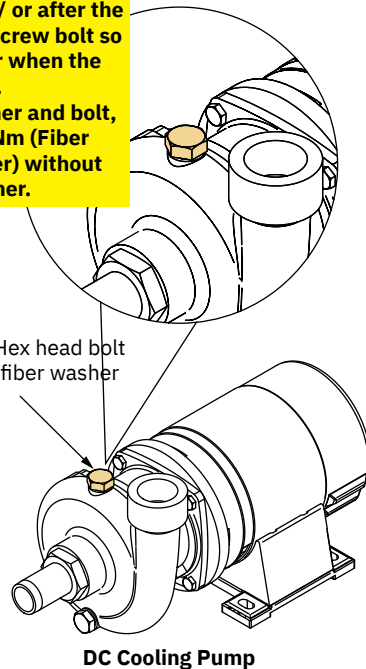
**IMPORTANT**

**The cooling water pumps should be bonded. Remove paint at bonding connection point.**

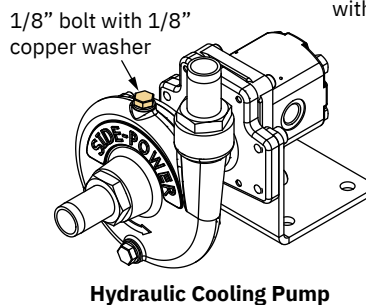




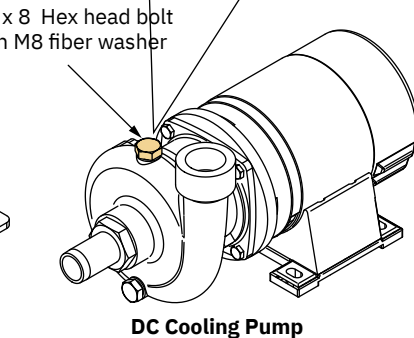
**Before SEA TRIAL/ STARTUP and/ or after the vessel has been out of water. Unscrew bolt so the water pump fills with water when the vessel is in the water. When water is flowing refit washer and bolt, carefully tighten the bolt to 5Nm (Fiber washer) / 12Nm (Copper washer) without damaging the fiber washer.**



**ECI DC Cooling pump**



**Hydraulic Cooling Pump**



**DC Cooling Pump**

MG\_0339

**Cooling water**

MC\_0293

The hydraulic tank can be supplied with two internal oil coolers for light duty cooling capacity. For increased cooling capacity, additional external oil coolers can be provided.

We recommend using our brass head centrifugal pump for seawater supply, this will require separate water intake and discharge(strainer, cock valve, through hull fittings are not included). These pumps are not self-priming and will need to be installed below waterline for gravity feed in any hull angle. To avoid airlocks in the pump/hoses, hoses have to be routed with continuous rise from through hull fitting to the pump and from pump to discharge. Discharge to engine exhaust will cause back pressure, and pump malfunction. This pump is available in 24V DC and hydraulic driven versions. If the above requirements are not possible to obtain, a self-priming impeller pump can be considered for extra head/pressure. Cooling water taken from main engines are not recommended.

Through hull water intake should be forward facing scoop type to ensure good water supply also at speed.

Our internal oil coolers are CuNi 90/10 coils that will need approx. 15 l/min seawater, max. 17 l/min. Water flow above 17 l/m will damage the oil coolers over time.

External oil coolers will handle 30 l/m seawater, or more, depending cooler model. Optimally, the direction of the oil flow in a oil cooler has to be opposite to the water flow direction.

Our centrifugal seawater pump will supply aprox 30 l/m cooling water, and can supply 2xinternal CuNi coils in parallel, and/or external oil coolers in series.

Cooling pump can be controlled directly by the Sleipner thruster/stabilizer control system.

Cooling pump start point is at 50 degrees C oil temp. Oil temp alarm is at 75 degrees C. Running the system above alarm level will damage oil and hydraulic components.

**Cooling Pump**

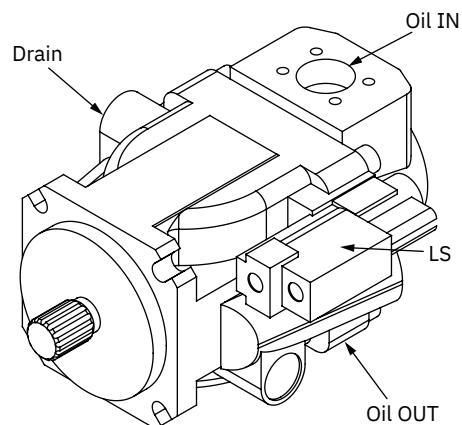
MC\_0293

Before SEATRIAL, STARTUP and/or when vessel is put on shore after being on land it is very important to ensure that the cooling pump is primed with water before running the system. These pumps are not self-priming and will need to be installed below waterline for gravity feed in any hull angle. To avoid airlocks in the pump/ hoses. Hoses have to be routed with continuous rise from through hull fitting to the pump and from pump to discharge.

- Ensure that ball valve to water intake is opened.
- Unscrew/loosen bolt on cooling pump as illustrated to let water rise into the pump.
- When water flows out of bolt location, tighten the bolt as indicated without damaging the washer. The pump is now primed and ready to be run.
- Bolt torque: 5Nm on Hydraulic/ECI DC pumps with fibre washer.
- Bolt torque: 12Nm on DC pumps with copper washer.



- Fit the LS-hose from the «LS»-port at the valve to the «X»-port on the pump. Using too long/ deep threads (e.g. JIC threads) will jam the pump pressure regulator spring, causing the pump to malfunction.
- The drain hose should be connected to the highest position of port «L1» and «L2» at the pump (please see pump drawings) to ensure best priming of the pump. Use one of the three drains (1/2" BSP-connections) at the tank.
- Suction hose can be mounted with nipples and hose clamps at pump inlet (2-2½" SAE 3000 PSI). Use a reinforced hose that will not collapse due to suction in the hose. To avoid pump damaging cavitation in the suction line, try to avoid using sharp 90° elbows or T-connections close to the pump.
- Pressure hose has to be mounted at pump outlet (1-1¼" SAE 6000 PSI) and at the free 1" BSP port at the high-pressure filter on the oil tank.



## Valve connections and connections for additional consumers

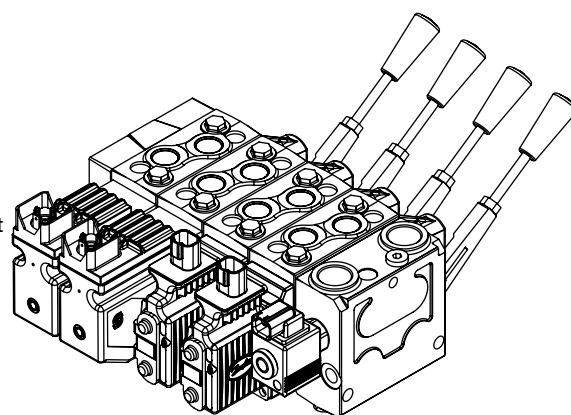
Sleipner hydraulic thruster systems can be delivered with various numbers of modules and set-ups. Please see enclosed system drawings and valve documentation for Flow/Pressure settings at the actual valve module.

Be sure to connect your consumers to the correct modules (correct set-up for correct consumer). Attach each consumer to the A and B consumer ports.

Please see the consumers installation manual for how to install additional consumers that are not Sleipner products.

Connect drain from consumers to drain port at tank.

If resetting or fine tuning of the valves is necessary, please contact your Sleipner distributor.



## System fill-up

Prior to filling the tank, prime the pump(s) through their upper drain port. Use only oil quality as specified.

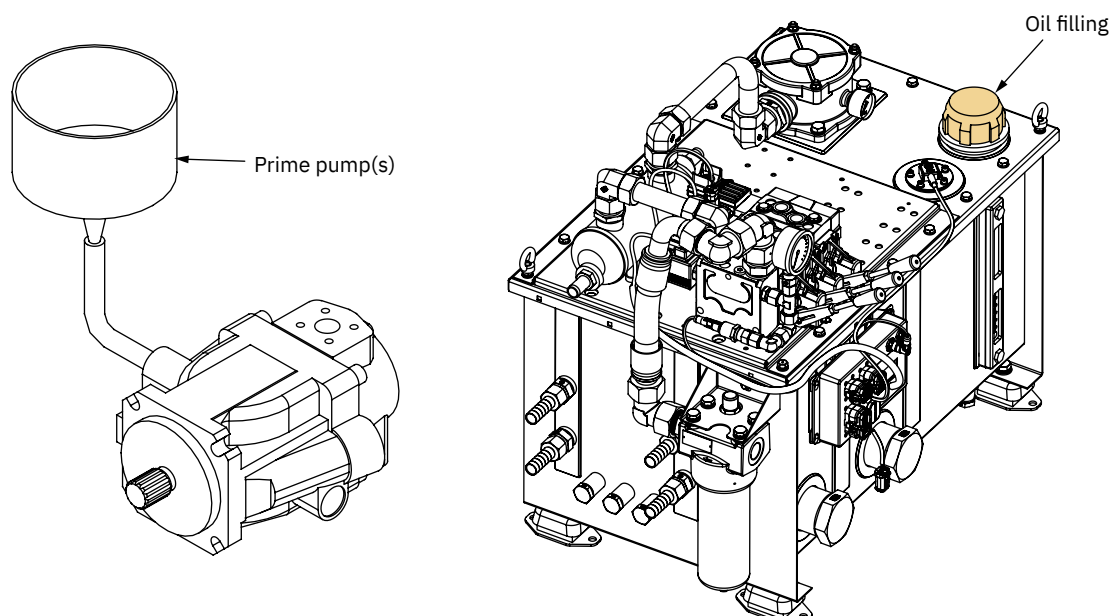
Fill the tank with correct hydraulic oil through the filler/breather unit. It is recommended to use a filler trolley with filter (10 micron). Use only new mineral based hydraulic oil, ISO VG46. Use ISO VG32 oil on systems without stabilizers when the vessel will operate in Arctic conditions.

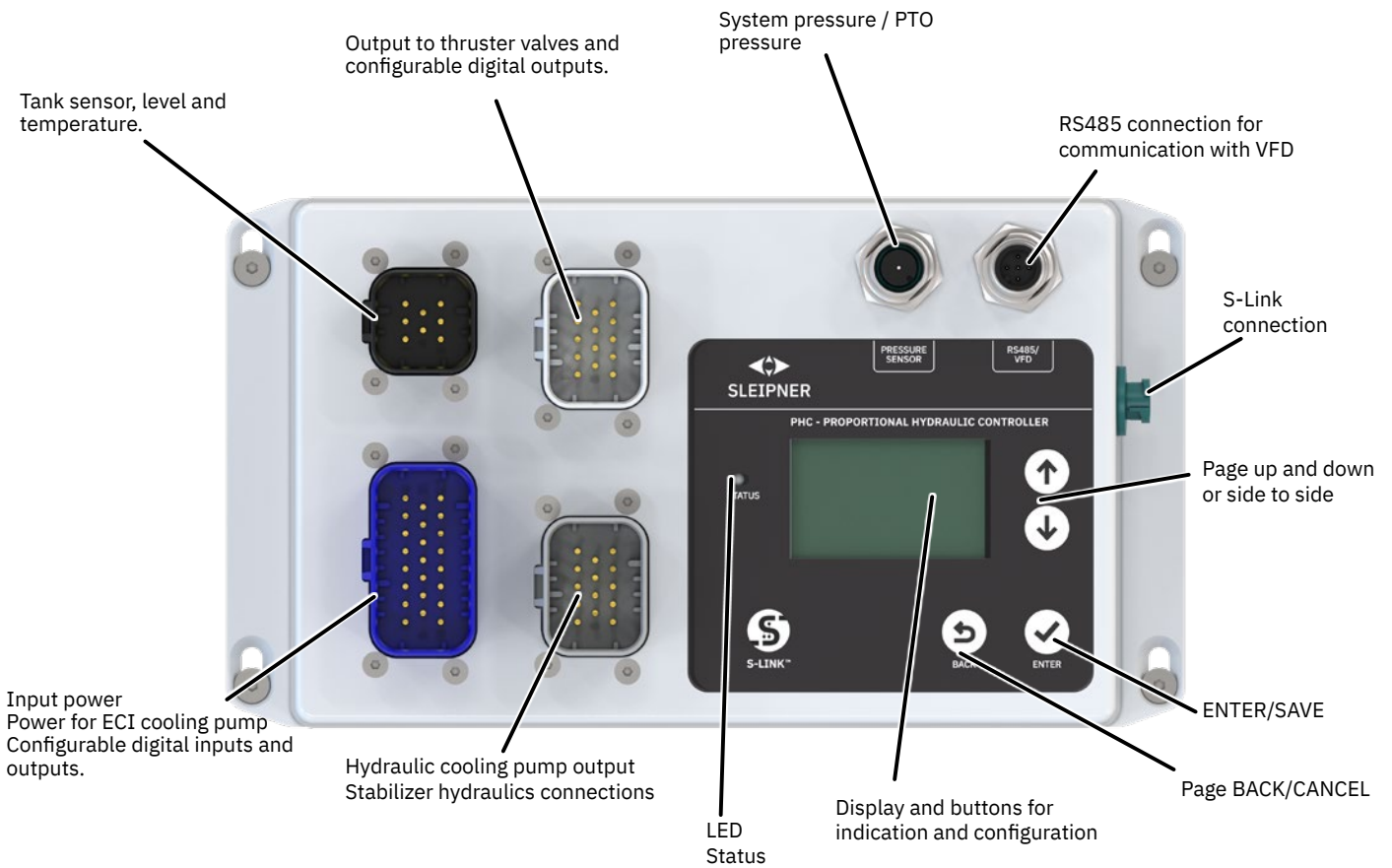
**(NB: Oil to be according to ISO 11158 Class HV/DIN 51524 Part 3 Class HVLV.)**

The oil level in the tank should be approximately 3/4 full, or at the middle of the upper indicator of the sight glass. Because vessels heel and the fact that we have an air breathing filter in the oil filler cap, avoid higher oil level than what the sight glass can indicate.

Always check oil level and refill during start-up and air purging.

Pump damages caused by running pumps without oil is not covered by warranty.





PHC-3

See PHC-3 Manual for detailed information and operation.

- Normally, fitted on hydraulic tank delivered from factory.
- Communicate over S-Link with SCU. (Stabilizer)
- Intelligent monitoring and logging of issues
- Mostly Plug and play installation
- Intelligent load control on generators
- The new ECI cooling pump connects directly to the controller harness with a ready-made cable for simple installation. The PHC-3 controller communicates with the pump unit, allowing variable flow control and advanced diagnostics.
- Local view and control
- Waterproof (IP67)

Before installing the electric wiring, it's important to remove the positive battery terminal.

More detailed information is found in the specific system manuals.

**Thruster:**

Ensure that the hydraulic system and components are installed in accordance with the provided system manual.

Ensure that the vessel is secured. (In the event of undesired directional movement of the thruster(s))

Observe safety precautions (wear protective goggles and gloves).

Disconnect all electrical plugs from the valve block.

Check that the valve block manual lever(s) are in their central position (no load).

Ensure that the oil tank is filled with oil in accordance with system manual.

Start the engine(s) / hydraulic pump(s) at idle while observing the pressure gauge installed at the control valve. As soon as the pump is running, you should read a standby pressure at 18-22 bar. If no pressure is present, the pump is probably running in the wrong direction. Stop the engines immediately to minimize potential pump damage. If pump pressure is ok, keep running for approximately 30 sec.

Stop the engine(s).

Check oil level in the tank and refill if necessary.

Check system for leakage and adjust if necessary.

Restart the engine(s) / hydraulic pump(s).

Run the thruster to approximately 30% effect in both directions, using the manual lever at the valve block. Be aware that there can be a delayed response from the hydraulic consumer until all air is purged from the system. Manual air bleeding should not be necessary.

Check the oil level in the tank and refill if necessary and re-check system for leakage.

**Repeat the above procedure on additional thruster or other hydraulic consumers as required.**

Run each hydraulic consumer separately at full power manually (e.g. additional thruster, windlass etc.) Ensure their individual pressure indications are in accordance with their system manuals. Monitor the filter indicators making sure the filters working properly and not in need of replacement.

Re-connect all electrical plugs on the valve block and ensure correct functionality.

Ensure that the standby pressure is less than 40 bar at the valve block pressure gauge when thruster and other consumers are not in use (system in standby mode).

Continuously monitor the system oil temperature and filter bypass indicators during the first hours of running. Especially when initially throttling the engines to full power. The oil temperature should not increase to more than 60° C.

**WARNING**

**Overheating over 60° C will reduce the lifetime of your oil. Overheating over 90° C can seriously damage your hydraulic system components.**

**For detailed Stabilizer STARTUP - see Stabilizer manuals**



Before start-up: Thruster

- ..... Hoses and fittings are in accordance to the hose list in the unique hydraulic system drawing. (Sizes and pressure ratings)
- ..... All connections are tight and secure. It may be required to check and re-tighten all hose connections after start-up and sea trial.
- ..... Oil level is ok.
- ..... The oil tank is properly fastened.
- ..... There is enough space around the oil tank to change filters, fill oil and inspect the gauges and indicators.
- ..... The oil tank is placed high enough to pressurize the pump feed port. (oil level above the pump)
- ..... Cooling water is connected to the oil coolers. (approx 15 l/min, max 30°C)
- ..... Pump drive direction will correspond with the power source drive direction
- ..... Front mounted pump is aligned to the power source crank shaft, and fixed to move with the power source.
- ..... The pump is pre-filled with oil.
- ..... The drain line is connected to the upper drain port at the pump(s).
- ..... The LS line is connected to the pump. Correct adaptor/fittings is used (NOT JIC threads).
- ..... A drain line is connected to the thruster(s).

After start-up:

- ..... Standby pressure is 18-22 bar. (seen at the pressure gauge at the control valve on the oil tank)
- ..... No leakages.
- ..... Oil level/temp is ok.
- ..... The thrust direction is in accordance to the joystick movement.
- ..... All control stations are connected and working properly.
- ..... The oil pressure when running each of the hydraulic consumers is in accordance to the setup in the system manual.
- ..... The filter indicators are ok when running a large consumer (high oil flow).

Hydraulic system serial no.: .....

Standby pressure: ..... bar

System work pressure (bow-thruster): ..... bar

System work pressure (stern-thruster): ..... bar

System work pressure (extra consumer #1): ..... bar

(.#2): ..... bar

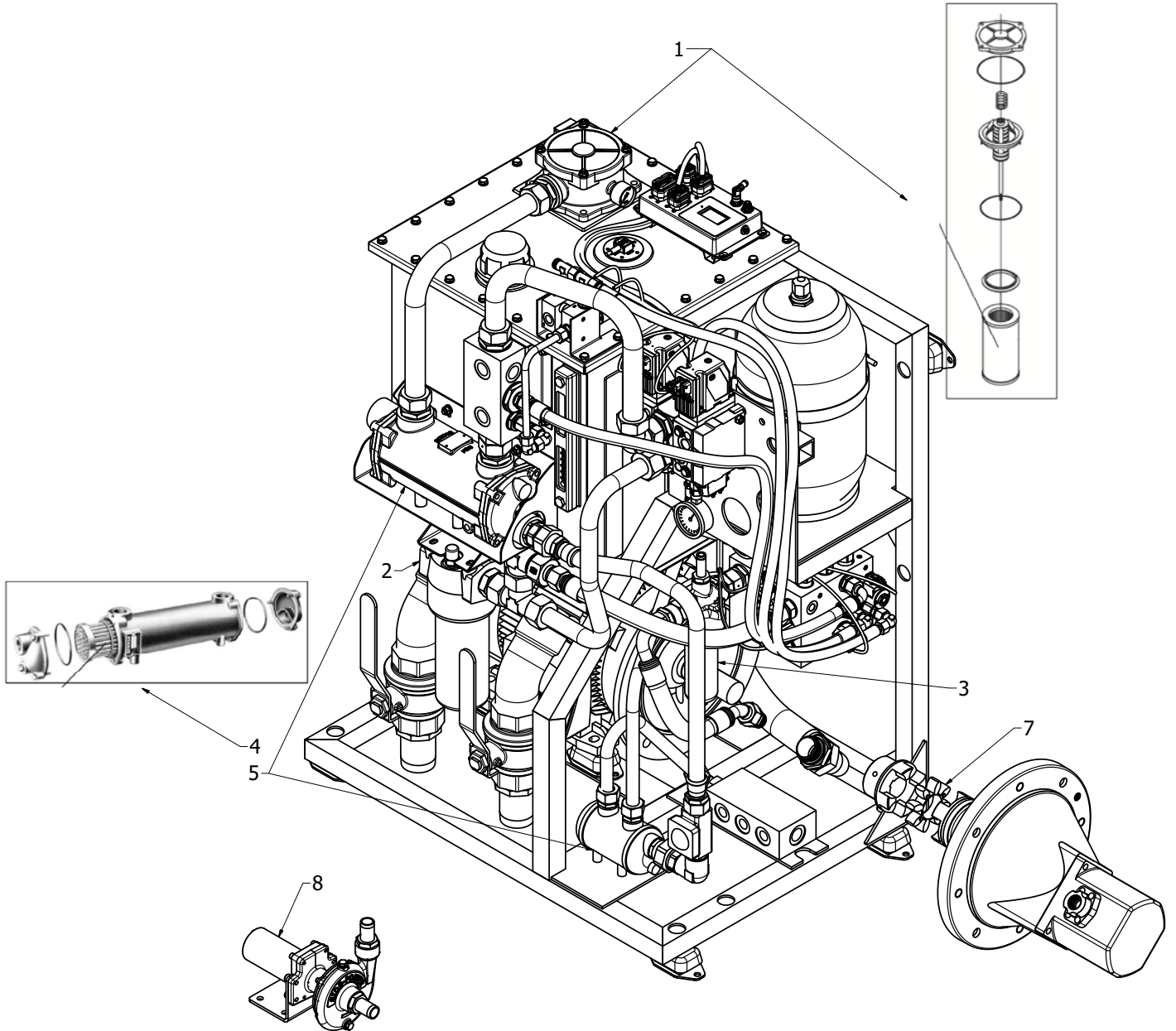
(.#3): ..... bar

The hydraulic thruster system has been installed as per the instructions in this manual and all points in checklist above have been controlled.

Signed: .....

Date: .....

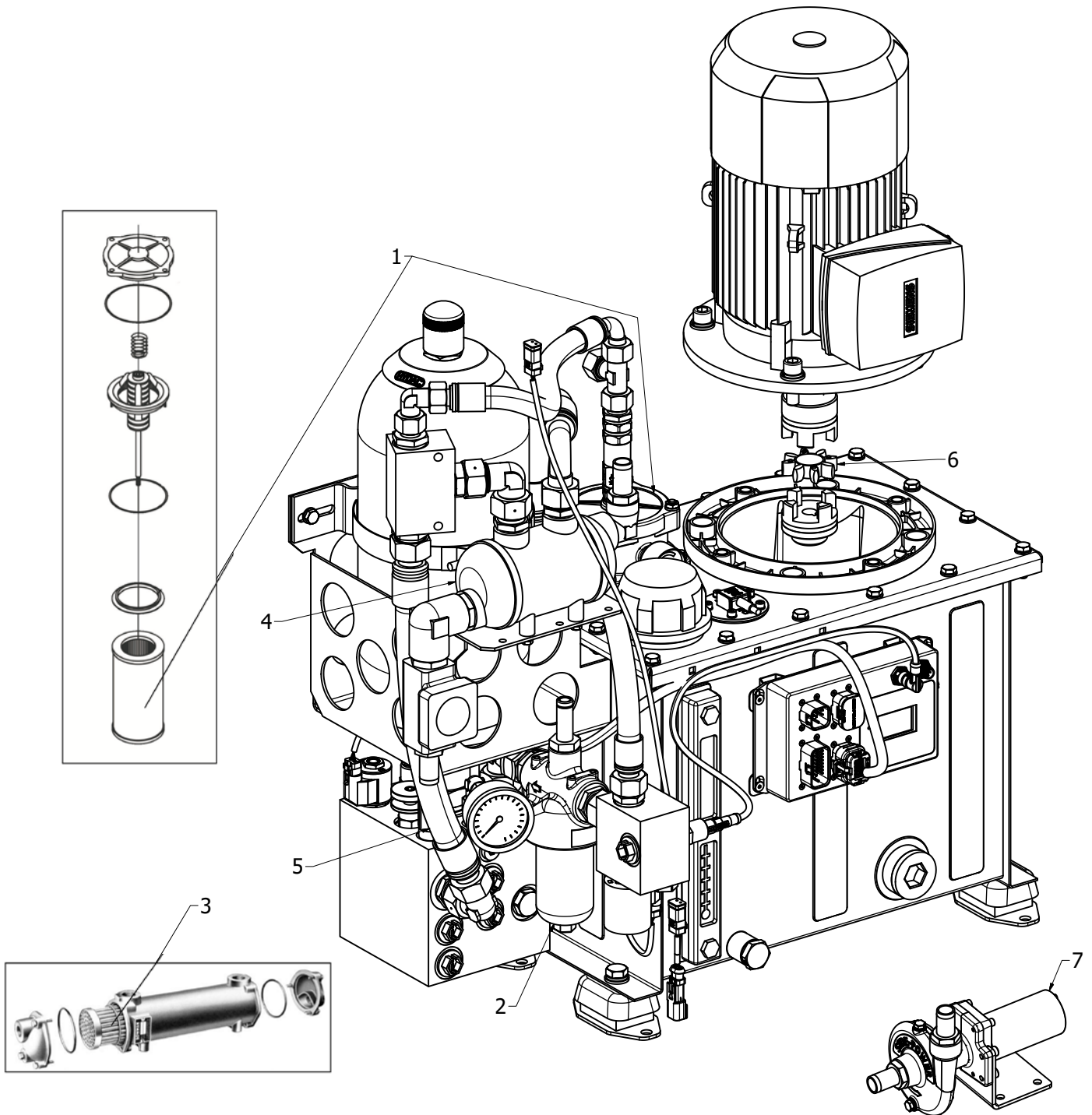
**For detailed Stabilizer Check list - see Stabilizer manuals**



<b>Combined Stabiliser/thruster HYD Rack</b>		<b>Spare parts</b>
<b>Pos. #</b>	<b>Description</b>	
		<b>Art. #</b>
<b>8</b>	<b>Cooling pump</b>	
	ECI DC cooling pump 24V - 1"	10 2376-1
	ECI DC cooling pump 24V - 3/4"	10 2376-34
	DC cooling pump 12V	10 2377-12V
	DC cooling pump 24V	10 2377-24V
	Hydraulic cooling pump	10 2357
<b>7</b>	<b>Drive coupling element</b>	
	Motor - 5,5Kw Compact (Frame size 112, Ø28mm Shaft)	10 50R24-S
	Motor - 5,5Kw (Frame size 132, Ø38mm Shaft)	10 50R28-S
	Motor - 7,5Kw Compact (Frame size 132, Ø28mm Shaft)	10 50R24-S
	Motor - 11Kw Compact (Frame size 132, Ø38mm Shaft)	10 50R28-S
	Motor - 11Kw (Frame size 160, Ø42mm Shaft)	10 50R38-S
	Motor - 15Kw (Frame size 160, Ø42mm Shaft)	10 50R38-S
<b>6</b>	<b>Hydraulic hoses</b>	<b>N/A**</b>
<b>5</b>	<b>Oil cooler</b>	<b>N/A*</b>
<b>4</b>	<b>Oil cooler element</b>	<b>N/A*</b>
<b>3</b>	<b>Pressure filter element (AC)</b>	
	Filter code 245LEN063 - 40L tank	10 2604
	Filter code 245LEN063 - 55/60L tank	10 2604
	Filter code 245LEN063 - 90/95/120L tank	10 2604
<b>2</b>	<b>Pressure filter element (PTO)</b>	
	Filter code EPF22 - 40L tank	10 2582
	Filter code EPF22 - 55/60L tank	10 2582
	Filter code EPF32 - 90/95/120L	10 2584
<b>1</b>	<b>Return filter element</b>	
	Filter code TTF3 - 40L tank	10 2572
	Filter code TTF6 - 55/60L tank	10 2574
	Filter code TTF6 - 90/95/120L tank	10 2574

\* Please provide parts serial number when placing an order.

\*\* Part number is taped to the actual hose, please provide this number when ordering hoses.



<b>Stabiliser Standalone Powerpack system</b>		<b>Spare parts</b>
<b>Pos. #</b>	<b>Description</b>	
		<b>Art. #</b>
<b>7</b>	<b>Cooling pump</b>	
	ECI DC cooling pump 24V - 1"	10 2376-1
	ECI DC cooling pump 24V - 3/4"	10 2376-34
	DC cooling pump 12V	10 2377-12V
	DC cooling pump 24V	10 2377-24V
	Hydraulic cooling pump	10 2357
<b>6</b>	<b>Drive coupling element</b>	10 5028-R
<b>5</b>	<b>Hydraulic hoses</b>	N/A**
<b>4</b>	<b>Oil cooler</b>	N/A*
<b>3</b>	<b>Oil cooler element</b>	N/A*
<b>2</b>	<b>Pressure filter element</b>	
	Filter code 245LEN040 - (25L Tank (10 44035x, 10 44050x, 10 44055x))	10 2609
	Filter code 245LEN063 - (75L Tank (10 44110x, 10 44150x))	10 2604
<b>1</b>	<b>Return filter element</b>	
	Filter code TTF3 - (25L Tank (10 44035x, 10 44050x, 10 44055x))	10 2572
	Filter code TTF6 - (75L Tank (10 44110x, 10 44150x))	10 2574
<i>* Please provide parts serial number when placing an order.</i>		
<i>** Part number is taped to the actual hose, please provide this number when ordering hoses.</i>		

**Find your local professional dealer from our certified worldwide network for expert service and support. visit our website [www.sleipnergrouper.com/support](http://www.sleipnergrouper.com/support)**

## Product spare parts and additional resources

**For additional supporting documentation, we advise you to visit our website [www.sleipnergrouper.com](http://www.sleipnergrouper.com) and find your Sleipner product.**

## Warranty statement

1. Sleipner Motor AS (The “Warrantor”) warrants that the equipment (parts, materials, and embedded software of products) manufactured by the Warrantor is free from defects in workmanship and materials for purpose for which the equipment is intended and under normal use and maintenance service (the “Warranty”).
2. This Warranty is in effect for two years (Leisure Use) or one year (Commercial and other Non-leisure Use) from the date of delivery/purchase by the end user, with the following exceptions:
  - (a) For demonstration vessels, or vessels kept on the water, the dealer is considered as the end user from 6 months after their launch of the vessel;
  - (b) The warranty period starts no later than 18 months after the first launch of the vessel.
 Please note that the boat manufacturer and dealer must pay particular attention to correct maintenance and service both by the products manuals as well as general good practice for the location the boat is kept in the period the boat is in their care. In cases where the 6 and 18 months grace periods for boat builders and dealers are passed, it is possible to obtain a full warranty upon inspection and approval of the warrantor or such representative.
3. Certain parts, classified as wearable or service parts, are not covered by the warranty. A failure to follow the required maintenance and service work as described in the product manual render all warranty on parts or components directly or indirectly affected by this void. Please also note that for some parts, time is also a factor separately from actual operational hours.
4. This Warranty is transferable and covers the equipment for the specified warranty period.
5. The warranty does not apply to defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specifically designed as waterproof.
6. In case the equipment seems to be defective, the warranty holder (the “Claimant”) must do the following to make a claim:
  - (a) Contact the dealer or service centre where the equipment was purchased and make the claim. Alternatively, the Claimant can make the claim to a dealer or service centre found at [www.sleipnergrouper.com](http://www.sleipnergrouper.com). The Claimant must present a detailed written statement of the nature and circumstances of the defect, to the best of the Claimant’s knowledge, including product identification and serial nbr., the date and place of purchase and the name and address of the installer. Proof of purchase date should be included with the claim, to verify that the warranty period has not expired;
  - (b) Make the equipment available for troubleshooting and repair, with direct and workable access, including dismantling of furnishings or similar, if any, either at the premises of the Warrantor or an authorised service representative approved by the Warrantor. Equipment can only be returned to the Warrantor or an authorised service representative for repair following a pre-approval by the Warrantor’s Help Desk and if so, with the Return Authorisation Number visible postage/shipping prepaid and at the expense of the Claimant.
7. Examination and handling of the warranty claim:
  - (a) If upon the Warrantor’s or authorised service Representative’s examination, the defect is determined to result from defective material or workmanship in the warranty period, the equipment will be repaired or replaced at the Warrantor’s option without charge, and returned to the Purchaser at the Warrantor’s expense. If, on the other hand, the claim is determined to result from circumstances such as described in section 4 above or a result of wear and tear exceeding that for which the equipment is intended (e.g. commercial use of equipment intended for leisure use), the costs for the troubleshooting and repair shall be borne by the Claimant;
  - (b) No refund of the purchase price will be granted to the Claimant, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. In the event that attempts to remedy the defect have failed, the Claimant may claim a refund of the purchase price, provided that the Claimant submits a statement in writing from a professional boating equipment supplier that the installation instructions of the Installation and Operation Manual have been complied with and that the defect remains.
8. Warranty service shall be performed only by the Warrantor, or an authorised service representative, and any attempt to remedy the defect by anyone else shall render this warranty void.
9. No other warranty is given beyond those described above, implied or otherwise, including any implied warranty of merchantability, fitness for a particular purpose other than the purpose for which the equipment is intended, and any other obligations on the part of the Warrantor or its employees and representatives.
10. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives based on this Warranty for injury to any person or persons, or damage to property, loss of income or profit, or any other incidental, consequential or resulting damage or cost claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment or damages arising from collision with other vessels or objects.
11. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.

## Patents

At Sleipner we continually reinvest to develop and offer the latest technology in marine advancements. To see the many unique designs we have patented, visit our website [www.sleipnergrouper.com/patents](http://www.sleipnergrouper.com/patents)



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