

Keep this
manual onboard!



User Manual

For Thruster Models
AC Electric



SLEIPNER AS

P.O. Box 519

N-1612 Fredrikstad

Norway

www.sleipnergroup.com

DOCUMENT ID: 6054

REVISION: II

DATE: 2022

LANGUAGE: EN

**U
M**

To download your language go to www.sleipnergroup.com

Contents

User Manual

Responsibility of the user operating thrusters	3
General user considerations and precautions for electric thrusters	3
User operation	4
Compatible control device products	4
Proportional control panel.....	5
Maintenance.....	8 - 9
Variable frequency drive	8
PDC-301 Load Sharing	8
Basic troubleshooting	9
Advanced control panel troubleshooting	9
Seasonal checklist.....	10
Service and Support.....	11
Product Spare Parts and Additional Resources.....	11
Warranty Statement.....	11

Products

SAC320/300-I-2-H - AC Thruster ø300mm 230V
SAC240/250-C-4-VX01 - AC Thruster ø250mm 400V
SAC240/250-C-4-V - AC Thruster ø250mm 400V
SAC520/386-I-4-V - AC Thruster ø386mm 400V
SAC400/300-C-4-V - AC Thruster ø300mm 400V
SAC900/513-I-X-X01 - AC Thruster ø513mm 400V
SAC320/300-I-2-V - AC Thruster ø300mm 230V
SAC320/300-I-X01 - AC Thruster ø300mm 400V
SAC700/412-C-X01 - AC Thruster ø412mm 230/400V
SAC320/300-I-4-H - AC Thruster ø300mm 400V
SAC450/386-C-4-H - AC Thruster ø386mm 400V
SAC1100/513-I-4-V - AC Thruster ø513mm 400V
SAC450/386-C-5-X01 - AC Thruster ø386mm 690V
SAC700/412-C-4-V - AC Thruster ø412mm 400V
SAC520/386-C-4-H - AC Thruster ø386mm 400V
SAC400/300-C-5-X01 - AC Thruster ø300mm 660V
SAC900/513-I-4-H - AC Thruster ø513mm 400V
SAC450/386-C-4-V - AC Thruster ø386mm 400V



Sleipner Motor AS
P.O. Box 519, Arne Svendsensgt. 6-8
N-1612 Fredrikstad, Norway

MC_0020

Failure to follow the considerations and precautions can cause serious injury, damage and will render all warranties given by Sleipner Motor as VOID.

MC_0411

General Operation Considerations and Precautions Guidelines

MC_0444

For the operation of thrusters

MC_0418

Never use thrusters when close to objects, persons or animals in the water. The thruster will draw objects into the tunnel and the rotating propellers. This will cause serious injuries and damage the thruster.

Always turn the main power switch off before touching any part of the thruster. An incidental start while touching moving parts can cause serious injuries.

It is the owner, captains or other responsible parties full responsibility to assess the risk of any unexpected incidents on the vessel. If the thruster stops giving thrust for some reason while manoeuvring you must have considered a plan on how to avoid damage to persons or other objects.

- Always turn the control device off when the thruster is not in use or when leaving the boat.
- When leaving the boat always turn off the main power switch for the thruster.
- Never use thrusters out of water.
- If the thruster stops giving thrust while running, there is possibly a problem in the drive system. You must immediately stop running the thruster and turn it off. Running the thruster for more than a few seconds without resistance from the propeller can cause serious damage to the thruster.
- If two panels are operated with conflicting directions at the same time the thruster will not run. If both are operated in the same direction, the thruster will run in this direction.
- If you notice any faults with the thruster switch it off to avoid further damage.
- The primary purpose of the thruster is to manoeuvre or dock the vessel. Forward or reverse speed must not exceed 4 knots when operated.

For the operation of electric thrusters

MC_0004

Never store items (e.g. equipment, sails, ropes etc.) in the same compartment as the thruster. When the thruster runs for an extended period, it can reach 150°C and will cause damage to nearby items or cause a fire.

Any loose items near the thruster motor can cause problems with electrical wiring coming loose and short-circuiting.

- Ensure you know the location of the main battery switch that disconnects the thruster from all power sources (batteries) so the thruster can be turned off in case of serious malfunction.
- We advise keeping the main engine(s) running while using the thruster. This will keep the batteries in a good charge condition. It will also give better performance to the thruster.
- If the performance of the thruster is reduced check the battery system or check the tunnel for marine growth.
- The electric motor, its components, contacts/ plugs or other joints in the control cables must be mounted so they will remain dry at all times.

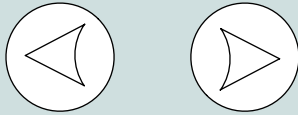
! Please refer to the graphic for special considerations relating to your model !

The following is an operation guide to ALL Sleipner control products. Ensure to familiarise yourself with the functionality and operation of your specific control device.

Take time to practice operation in open water to become familiar with the thruster and to avoid damages to your boat or people.

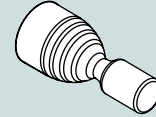
General operation

1. Turn on the main power switch for the bow thruster. *(NB: Always turn off the main power switch when not on-board.)*
2. Turn on the control panel by pushing the/ both "ON" button(s) on the original Sleipner panel simultaneously.
*Turn off the control panel by pushing the "OFF" button
3. To Turn the bow/ stern in the desired direction:



Button control panels

For button control, push the button in the corresponding direction you wish the bow/ stern to move.



Joystick control panels

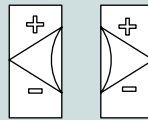
For joystick control, move the joystick in the direction you wish the bow/ stern to move.

(NB: If equipped for proportional control move the joystick equivalent to the amount of thrust you intend to receive.)

* For other controls like foot switches or toggle-switches please refer to that products user manual for detailed operational use.

Hold functionality

If equipped with 'hold' functionality push the button in the corresponding direction you wish the thrusters to engage a holding pattern:



Hold Button

+ or -

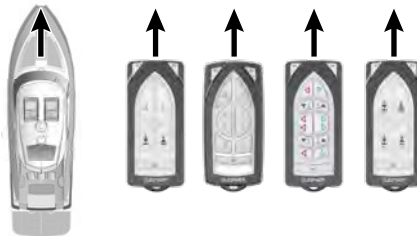
Will increase or decrease the holding force output of the thrusters

Operating a combined bow and stern thruster

The combination of a bow and stern thruster offers total manoeuvrability to move the bow and the stern separately from each other or in unison. This enables the boat to move sideways in both directions or turn the boat around a 360° axis while staying stationary.

Remote controls

Ensure the remote control is held in the same direction as the boat during operation.



Drift

Depending on the sideways speed of the bow/ stern, you must disengage the control device shortly before the vessel is in the desired position.

(NB: Be aware the boat will continue to move after disengaging the thruster control.)

At any significant cruising speed (+1-2 kn) the side thruster will have little effect to steer the vessel.

Compatible Control Device Products

! Please refer to the graphic for special considerations relating to your model !

PRO proportional CONTROL PANEL



PJC211

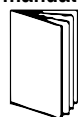
PJC212

S-Link REMOTE CONTROL



RCS-20

For additional information refer to your control device manual



Proportional Control Panel

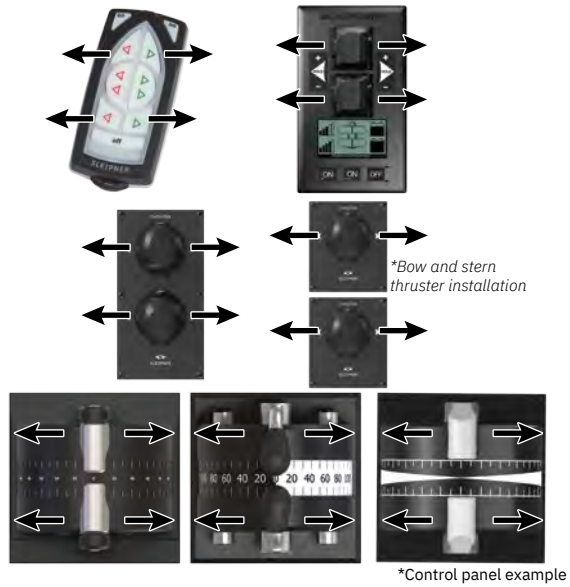
Activating the bow thruster



Activating the stern thruster



Activating both bow and stern thruster to push the boat sideways



Activating both bow and stern thruster to rotate the boat on axis



! Please refer to the graphic for special considerations relating to your model !

As a part of the seasonal service of your Thruster before every season, always check that:

In Water

- The area around the thruster inside the boat is clean and dry. Ensure there are no signs of water leaks.
- All electrical connections are clean and fastened firmly.
- Ensure that your batteries are in good condition.

Out of Water

- Check the propeller(s) or tunnel for any damage for example impact damage.
- The propeller(s) is fastened securely to the gear leg.
- Check all components of thruster are fastened securely.
- Clean the tunnel and gear leg from marine growth.
- Paint the propeller and gear leg with anti-fouling before every season to keep it clean from sea growth. **(NB: Never paint the anode, sealing or propeller shaft. Ensure paint does not enter the space between the propeller and the gear leg.)**
- Change the anode before every season, or when half the anode has eroded. Always use a sealant or thread glue on the holding screw to ensure that it does not fall off.
- If your product uses an external oil tank, ensure the oil level remains the same.
- If there is a problem with your Ignition Protected stern thruster, please contact your dealer.

Variable Frequency Drive

The variable frequency drive, delivered as part of the SAC thruster kit, is preconfigured and tuned for the specific thruster and motor. No additional setup is required after installation.

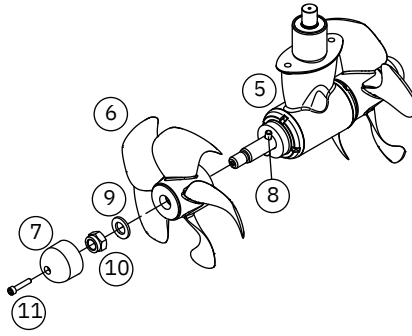
Maintenance

See own manual for VFD

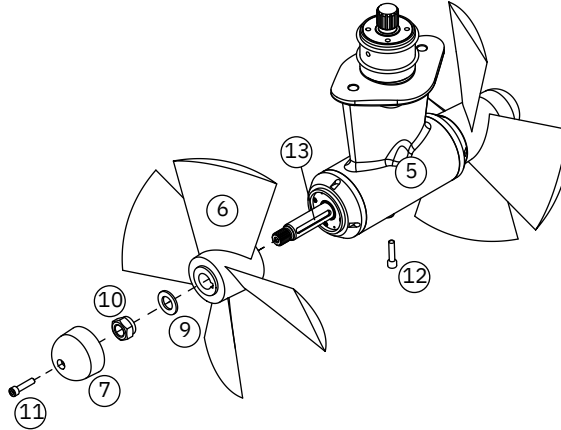
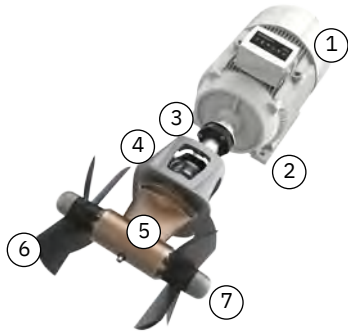
IMPORTANT

VFD comes pre-configured from the manufacturer. DO NOT personally reconfigure any settings on the VFD.

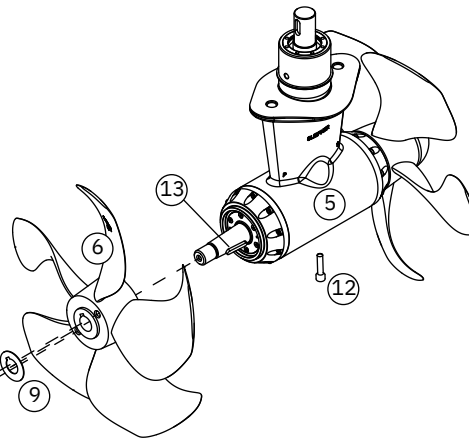
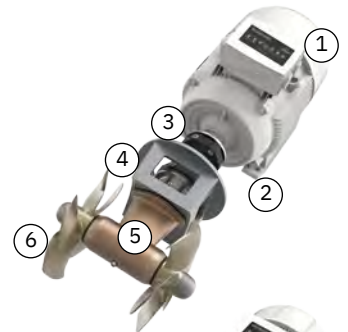
AC
 *240
 *320
 *360



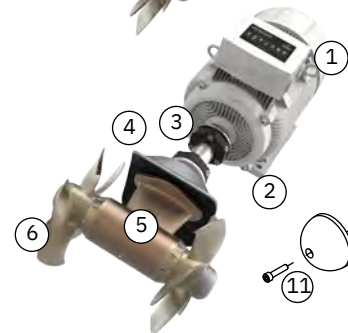
AC
 *450
 *520



AC
 *400



AC
 *700
 *750
 *900
 *1100
 *1300
 *1400



- KEY:**
1. Motor
 2. Mounting feet
 3. Cardan shaft with flexible coupling
 4. Bracket for gear leg support
 5. Gear Leg
 6. Propeller
 7. Anode
 8. Drive pin
 9. Washer
 10. Lock Nut
 11. Fastening Screw for anode
 12. Oil drain screw with washer
 13. Holding Key
 14. Pin Bolts

PDC-301 Load Sharing

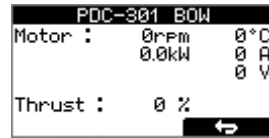
The Load Sharing limitation allows the system to limit the combined load on the generator from a bow and stern thruster when both thrusters are used at the same time. The load sharing will dynamically limit the thrust request for each thruster depending on the joystick position and limit settings. Load Sharing is configured by adjusting the PDC-301 parameter "Load share limit" in SETUP from any PJC2xx panel.

Example of Load Share operation:

The Bow PDC-301 "Load share limit" is set to 60%, and the Stern PDC-301 "Load share limit" is set to 80%. In the example, if the Bow thruster is operated at 100% thrust, output is reduced proportionally down to the limit value of 60% when the Stern joystick exceeds 60% signal. If the stern thruster is operated at 100% thrust, output is reduced proportionally down to the limit value of 80% when the Bow joystick exceeds 80% signal. In the example, the bow thruster will run at 60% and stern at 80% if both joysticks are at full in any direction.

How to find SAC thruster power load in kW

In PJC2xx panel, enter *SETUP->INFO->THRUSTER INFO* select *Bow PDC-301*. You will see this info screen for the Bow PDC-301:



Motor: speed (rpm), temperature (°C/°F), Power (kW), AC current (A) & AC voltage (V).
Thrust: Joystick thrust (%)

Ensure it is safe to run thruster at full speed before the next step.

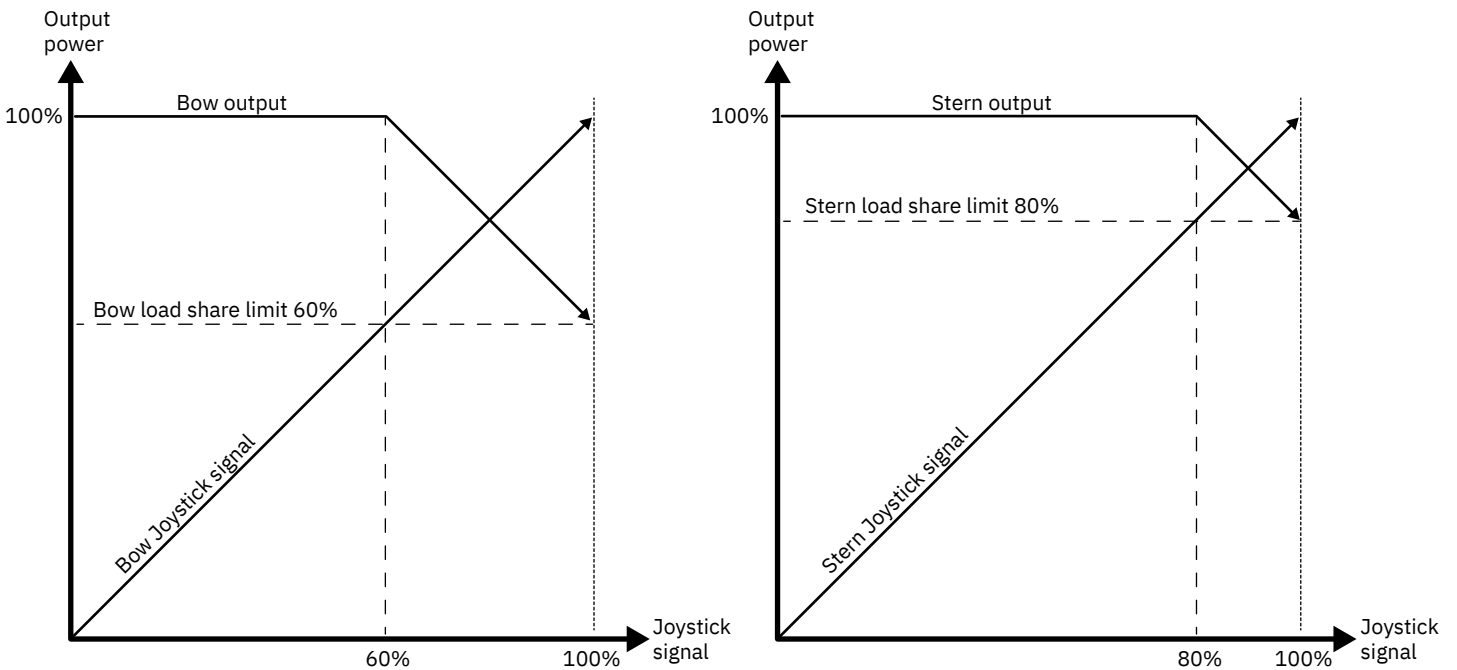
Run the Bow SAC thruster with 100% thrust (to starboard or port) and read the maximum power consumption (in kW) of the Bow SAC thruster in the display. Do the same for Stern SAC thruster.

If the installation has two Bow and/ or Stern SAC thrusters, read power from each PDC-301 and add them together.

How to limit SAC thrusters to a fixed maximum power load

Bow SAC thruster maximum power consumption is 40kW and Bow Load share limit is set to 60%.
Stern SAC thruster maximum power consumption is 30kW and Stern Load share limit is set to 80%.
The maximum load is then calculated when running Bow and Stern at 100% joystick signal.
Bow thruster load = 40kW * 60% = 24kW
Stern thruster load = 30kW * 80% = 24kW
Total thruster load = Bow 24kW + Stern 24kW = 48kW

The limit levels for bow and stern thruster can be set to best balance different thruster sizes or to prioritize one of the thrusters in the limit state.



Before seeking assistance from the website help desk from your Sleipner dealer/ distributor, please perform these tests.
(NB: If you are unable to understand or perform these checks, you must consult a Sleipner distributor.)

CHECK	SOLUTION
The motor runs, but there is no thrust	
Check propellers are fitted, fastened correctly and there is no damage to the prop shaft.	Re-fasten or replace if necessary
* Check the flexible coupling between the motor and drive shaft is fitted correctly and not damaged.	Replace if necessary
* Check the gear leg is not damaged.	Replace if necessary
The thrusters performance is reduced	
Check the propeller, gear house and tunnel are free from growth/ barnacles or debris and damage.	Remove growth and clean. (NB: If there is obstruction in the tunnel it will disturb/ block the water flow and significantly reduce performance.)
Check the battery is in a good working condition.	(NB: Keep the main engine(s) running in use to have a continuous charge to the batteries) <ul style="list-style-type: none"> Check batteries are not worn out or in a bad charged condition Check electrical connections/ wiring for damage or wear (corrosion) Check cables are the correct size per the product manual Tighten/ re-adjust connections
The thruster does not start/ works in only one direction or does not turn off	
Check the main switch is active/ on.	Open the main switch if it is closed.
Check all battery fuses are in good condition.	<ul style="list-style-type: none"> Check batteries Check electrical connections/ wiring for damage or wear (corrosion) Tighten/ re-adjust and clean connections
The thruster is not shutting off after the Joy Stick/ panel is disengaged.	Hit the main switch to disengage the thruster. Contact and consult a Sleipner distributor as the control system has been damaged.
The thruster works in only one direction	
Damaged relay.	Hit the main switch to disengage the thruster. Contact and consult a Sleipner distributor as the control system has been damaged.
The thruster runs in a pulsing action	
This is a build-in error response. -Solenoids failure	Hit the main switch to disengage the thruster. Contact and consult a Sleipner distributor.
The solenoid might be in a lock-in/ auto stop position.	Hit the main switch to disengage the thruster. Contact and consult a Sleipner distributor.

* Not applicable to SX thrusters.

Advanced Control Panel Troubleshooting

Control panels operating on the S-link system display all faults via the control panel interface or via other warning methods.

To review any issues of your product refer to the appropriate user manual for a complete list of fault codes and troubleshooting guides.

For additional supporting documentation, we advise you to visit our website www.sleipnergroupp.com



CHECK TO PERFORM	DATE											
The thruster components are fastened securely.												
The area around the thruster is clean and dry. If there are signs of water or oil leaks												
Paint the propeller and gear leg with anti-fouling.												
Batteries are in good condition.												
All electrical connections are clean and fastened firmly.												
Change the anode.												
Check oil in the oil reservoir.												

Find your local professional dealer from our certified worldwide network for expert service and support. visit our website www.sleipnergrouper.com/support

Product Spare Parts and Additional Resources

For additional supporting documentation, we advise you to visit our website 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. 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

© **Sleipner Group**, All rights reserved
The information given in the document was right at the time it was published. However, Sleipner Group cannot accept liability for any inaccuracies or omissions it may contain. Continuous product improvement may change the product specifications without notice. Therefore, Sleipner Group cannot accept liability for any possible differences between product and document.

Register your product and learn more at www.sleipnergroun.com



SLEIPNER AS

P.O. Box 519

N-1612 Fredrikstad

Norway

www.sleipnergroun.com

Made in Norway

