



# Installation Guide

*For Hydraulic Retractable Thruster Models*  
**SRHP650**



**SLEIPNER MOTOR AS**

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Accidental activation of the retract mechanism can cause serious injury due to the high-pressure force used for closing the hatch. IF operating the hatch during any work/ maintenance around or inside the retract hatch, USE CAUTION.

MC\_0411



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MC\_0451

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

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## Responsibility of the Installer

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The installer must read this document to ensure necessary familiarity with the product before installation.

Instructions in this document cannot be guaranteed to comply with all international and national regulations. It is the responsibility of the installer to follow all applicable international and national regulations when installing Sleipner products.

The recommendations given in this document are guidelines ONLY, and Sleipner strongly recommends that advice is obtained from a person familiar with the particular vessel and applicable regulations.

This document contains general installation instructions intended to support experienced installers. If you are not skilled in this type of work, please contact professional installers for assistance.

If required by local regulation, electrical work must be done by a licensed professional.

Appropriate health and safety procedures must be followed during installation.

Faulty installation of Sleipner products will render all warranties given by Sleipner Motor AS.

Ensure appropriate access to Sleipner products during installation planning for service, inspection and component replacement.

## General Installation Consideration and Precaution Guidelines

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### For thruster systems

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- Do not install the thruster in a position where you need to cut a stiffener/ stringer/ support that may jeopardise the hull integrity without checking with the boat builder this can be done safely.
- Paint the gear leg and propellers with anti-fouling. **(NB: Do not paint the anodes, sealing, rubber fittings or propeller shafts)**
- There is only room for a thin coat of primer and two layers of anti-fouling between the tunnel and the propellers.
- Never run the thruster out of water without load. Operated at no load, the thruster can reach extremely high speed, damaging the system.

### For retract thrusters

MC\_0474

- Stern mounted retract thrusters must not be installed to conflict with propulsion propellers or its water trail. **(NB: consult a naval architect for an exact position.)**
- Paint inside the retract housing with anti-fouling. **(NB: Do not paint the drive shaft.)**

### If an original Sleipner hydraulic system is NOT installed, please ensure the following:

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- Install an oil filter to keep the oil clean.
- Fit an oil cooler to ensure that the maximum oil temperature is below 75°C. Recommended operation temperature of hydraulic oil is 40-60°C.
- Hydraulic thrusters are supplied with hydraulic motors only.
- The installed hydraulic system is the responsibility of the fitter/ installer and must be within the limitations outlined in this manual to ensure no damage is caused to the thruster.
- The hydraulic valve must have flow and pressure limits that are either set within or can be adjusted to the limits of the thrusters capability.
- We strongly advise that a shock valve is fitted and set to 10% - 15% above the chosen maximum pressure set in the valve. This will prevent the system from being damaged if the propellers are blocked for any reason.
- Install a device to ensure the drive direction cannot be suddenly changed, as this can severely damage the gear leg. **(NB: Use a electric control system or a valve that ensures minimum 1 second delay when changing drive direction.)**

### For 650 retract thrusters

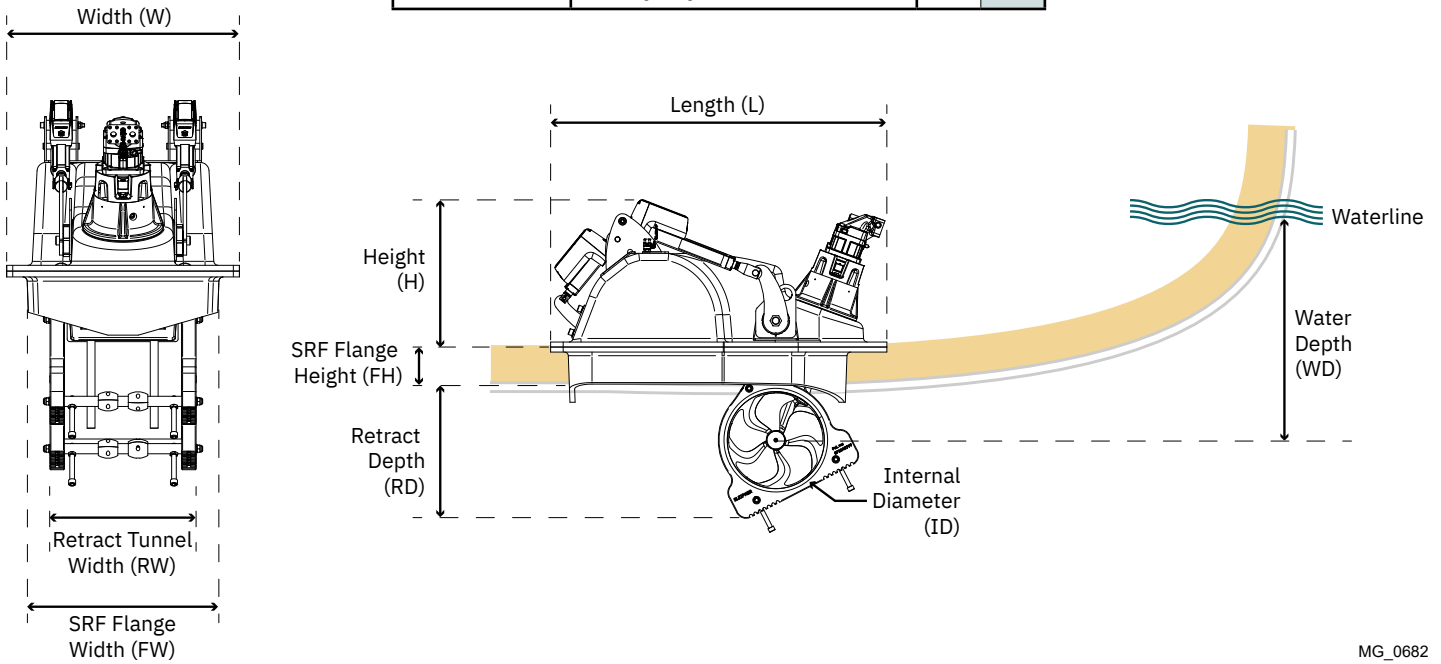
MC\_0631

- Due to the weight of the retract system it is important to utilise the defined lifting lugs when installing the retract housing.

When installing an S-Link™ system connect ONLY original Sleipner S-Link™ products or other authorized control equipment directly to the S-Link™ bus. Connecting non-authorized third-party equipment, it must always be connected through a Sleipner supplied interface product. Any attempt to directly control or connect into the S-Link™ control system without a designated and approved interface will render all warranties and responsibilities of all of the connected Sleipner products. If you are interfacing the S-Link™ bus by agreement with Sleipner through a designated Sleipner supplied interface, you are still required to install at least one original Sleipner control panel to enable efficient troubleshooting if necessary.

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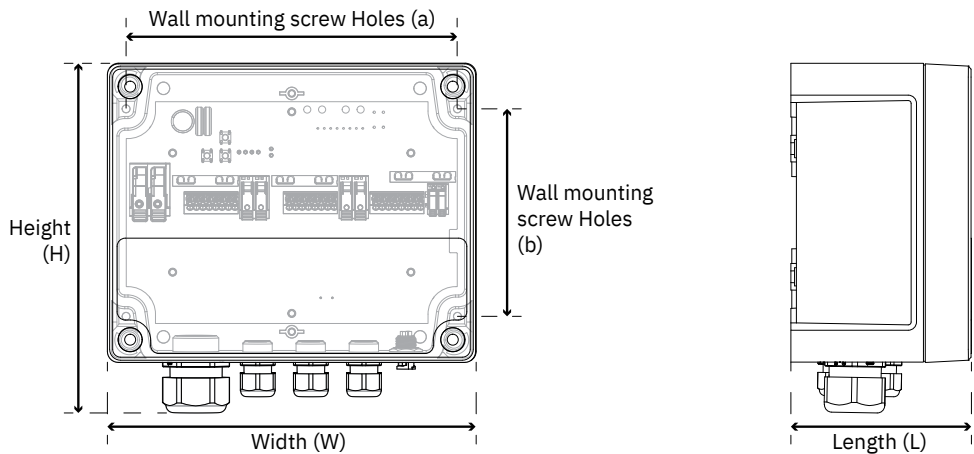
Dimension code	Dimension description	SRHP650	
		mm	inch
H	Height	587	23.1
L	Length	1340	52.8
W	Width	800	31.5
ID	Internal tunnel diameter	386	15.2
WD	Water depth	386	15.2
RD	Retract depth	355	14
RW	Retract width	548	21.6
FW	SRF flange width	651	25.6
FH	SRF flange height	148	5.8



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# SRC-3 Dimensions

Dimension code	Dimension description	SRC-3	
		mm	inch
H	Height	191	7.5
L	Length	98.4	3.9
W	Width	201.4	7.9
a	Wall mounting screw Holes	180.8	7.1
b	Wall mounting screw Holes	113.2	4.5



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Use sealants, adhesives or bonding material compatible with the materials of your vessels hull and Sleipner product.  
For information regards the material in Sleipner products, see table.

Product		Resin
Housing	SR(P)80/100	Polyester
Flange	SRF-185-GRP	Polyester
Flange	SRF-250-GRP	Polyester
Flange	SRF-300-GRP	Polyester
Flange	SRF-386-GRP	Polyester

## Product Specifications

MC\_0625

Product	Lubrication	Light Duty Thrust is kg	Heavy Duty Thrust is kg	Power Output kW / Hp	Weight kg / lbs	Maximum Operation Time
SRHP650	Gear oil API GL5 SAE 80W-90. Oil change	650	500	47 / 64	TBA	Continuous

## Flow and Pressure Specifications

MC\_0625

Thruster model	Motor type		60 % Thrust		80 % Thrust		100 % Thrust	
			Flow	Pressure	Flow	Pressure	Flow	Pressure
SRHP650	BA40	L/min-Bar	76	187	88	250	NA	NA
		USG-PSI	20	49	23	66	NA	NA
	BA45	L/min-Bar	85	164	98	219	110	274
		USG-PSI	22	43	26	58	29	72
	BA50	L/min-Bar	95	154	110	205	123	256
		USG-PSI	25	41	29	54	32	68
	BA56	L/min-Bar	105	134	121	178	136	223
		USG-PSI	28	35	32	47	36	59

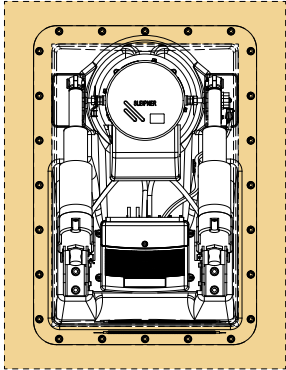
# Positioning of the Retract Thruster

## Retract Thruster

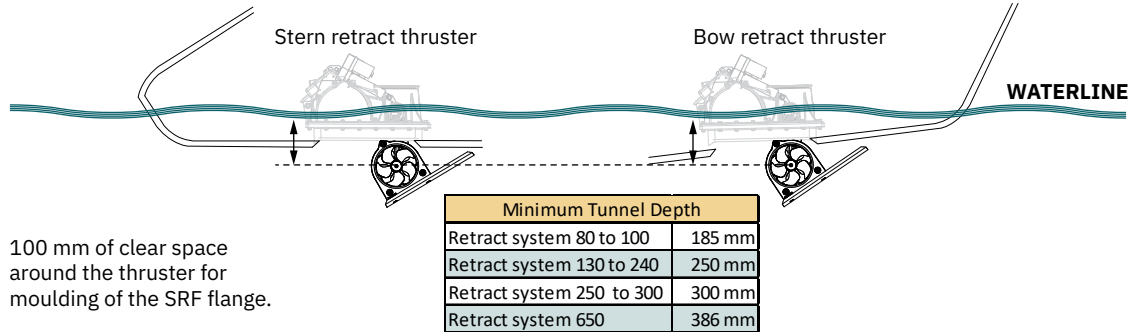
Ensure enough space for the complete retract unit including room for installation of SRF flange and for future service. Allow 100 mm of clear space around the thruster for moulding of the SRF flange. Ensure that when the thruster is deployed the depth of the propeller exceeds the minimum tunnel depth defined in below table. The thruster must always be installed so the hatch is opened towards the bow.

Installing the thruster below the waterline as outlined is important for two reasons:

1. Avoid drawing air from the surface which will reduce performance and increase noise levels.
2. To get as much water pressure as possible to achieve maximum thrust.

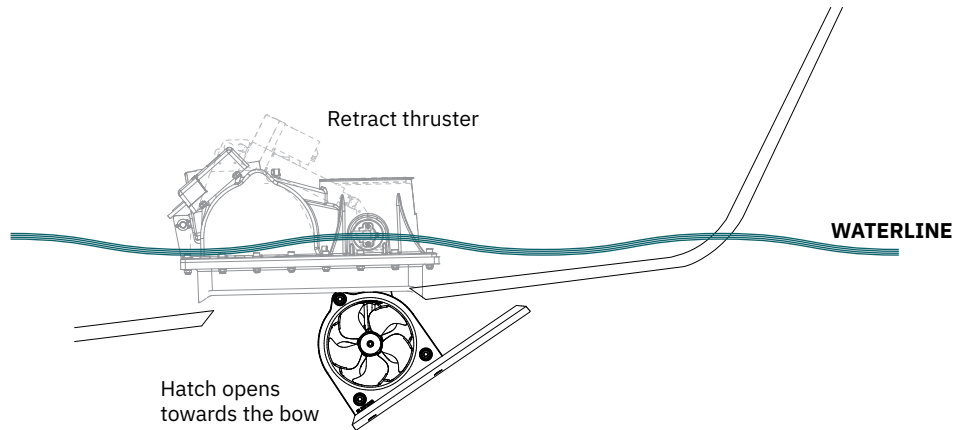


100 mm of clear space around the thruster for moulding of the SRF flange.



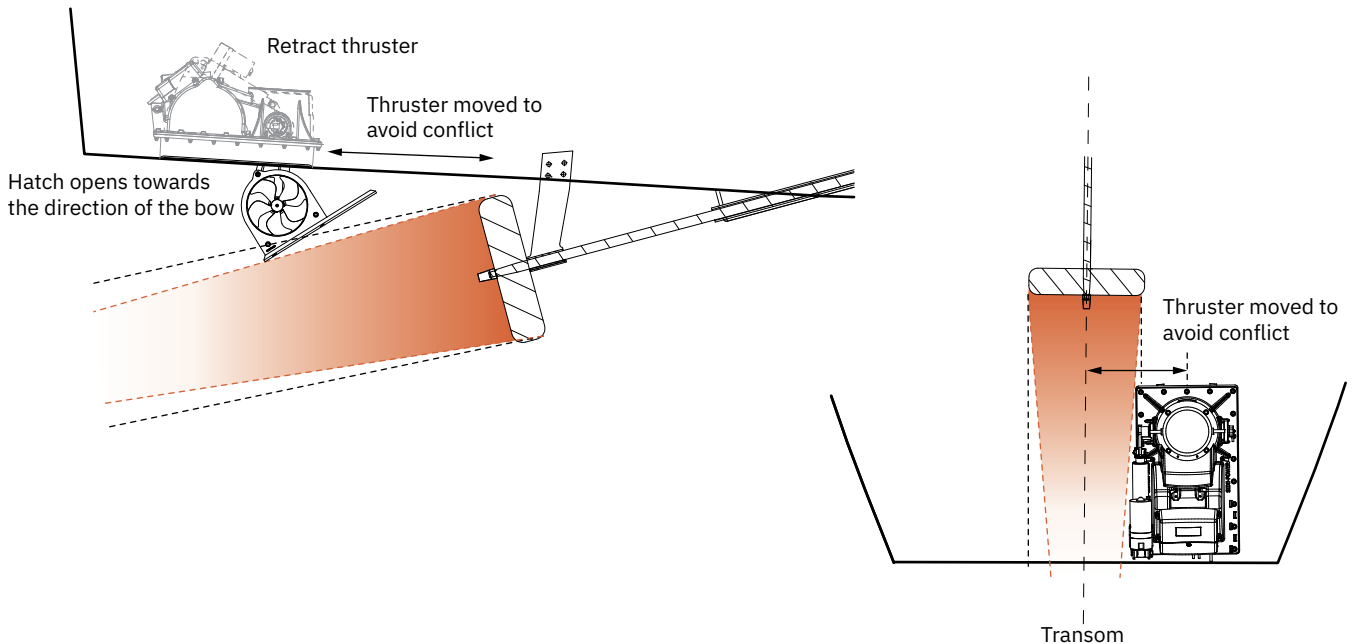
## Bow installation

The thruster must be installed in the center line of the keel and as far forward as possible while following the minimum tunnel depth requirement.



## Stern installation

To avoid conflict between the thruster and propulsion propellers, trim tabs or rudders the stern installation can be offset from the keel center line.

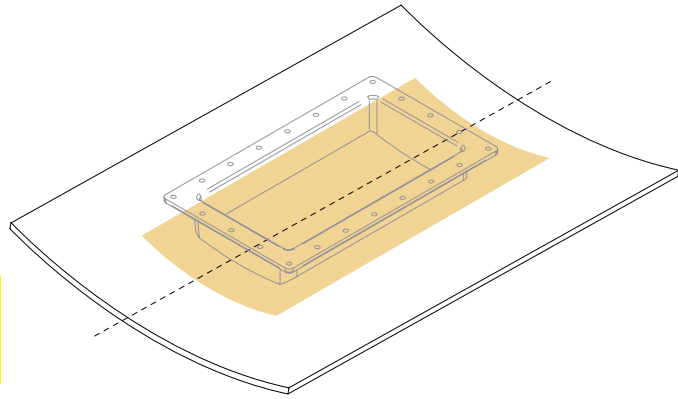


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Identify the location of the thruster considering space required for installation, operation and future maintenance.

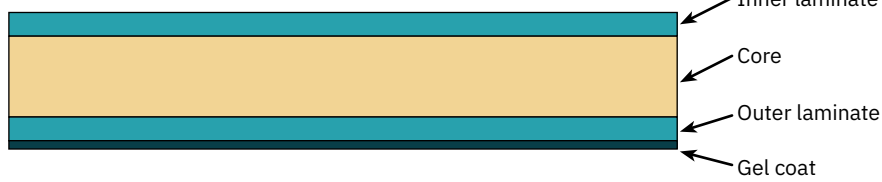
Ensure to have a minimum of 100mm space around the thruster installation to have service access

Bow thrusters must be positioned on the boat centre line.  
Stern thrusters can be positioned off the centre line.



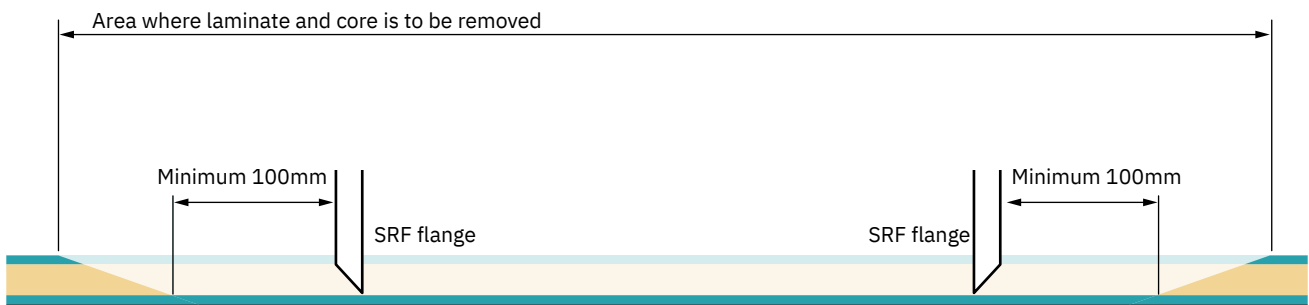
For vessels with sandwich hull construction, additional reinforcement of the area around the SRF flange is required.

### Cross section of a sandwich core hull



1. To achieve maximum strength and bonding in the area around the installation of the SRF flange remove the inner laminate and core material to expose the outer laminate. Remove enough area for a 100mm (minimum) clearance surrounding the SRF flange.
2. Reinforce the area by applying several bonding layers to strengthen the hull for the operation of the retract thruster.

1

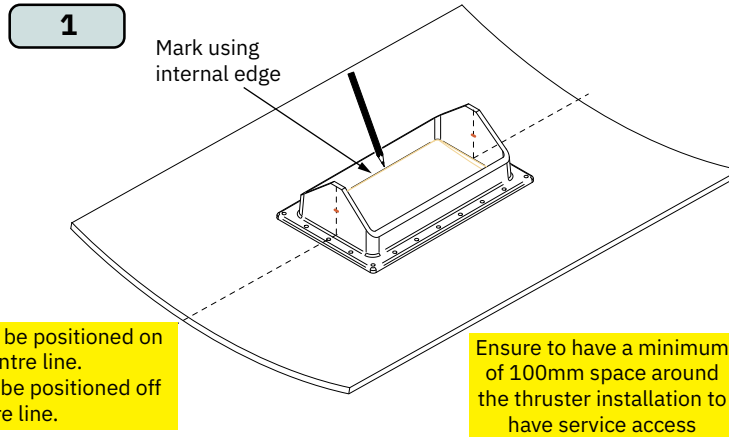


2



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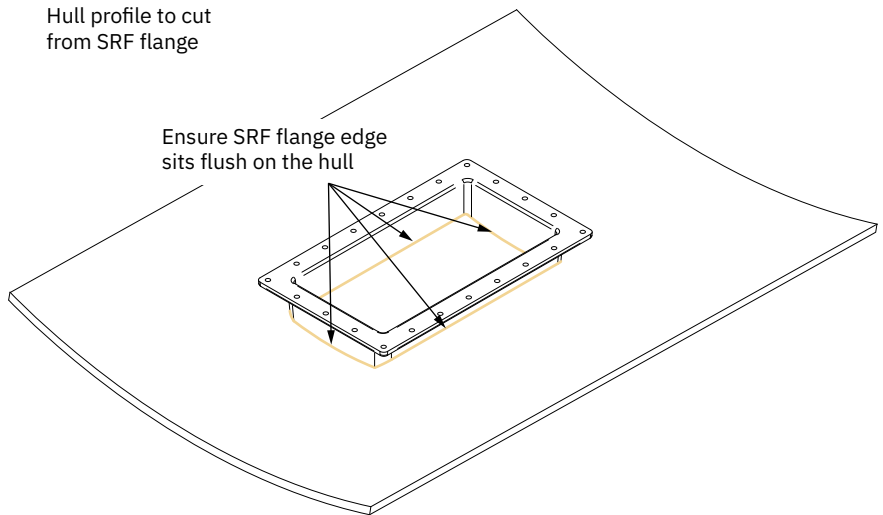
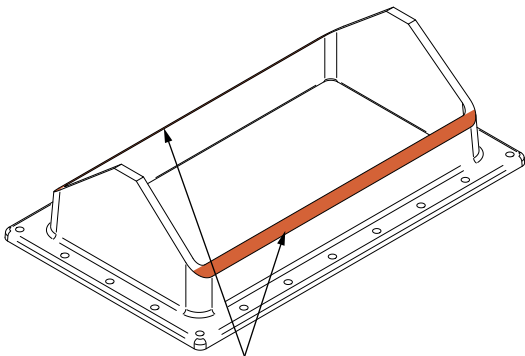
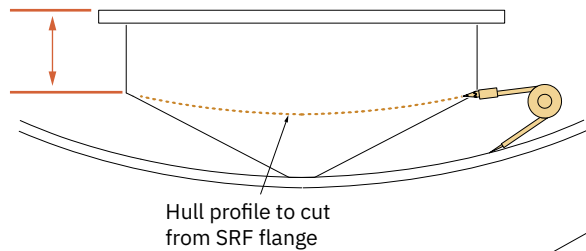
1. Flip the SRF flange upside down and position it at the identified installation location. Use the internal edge to mark where to cut out the thruster hatch from the hull.
2. The SRF flange must sit so the two side rails run flush with the hull. To do so the SRF flange must be trimmed down to match the hull profile curvature. **(NB: For guidance or methods to transfer the hull profile to the SRF flange for cutting, consult a naval architect. DO NOT cut the SRF flange length edge.)**



**2**

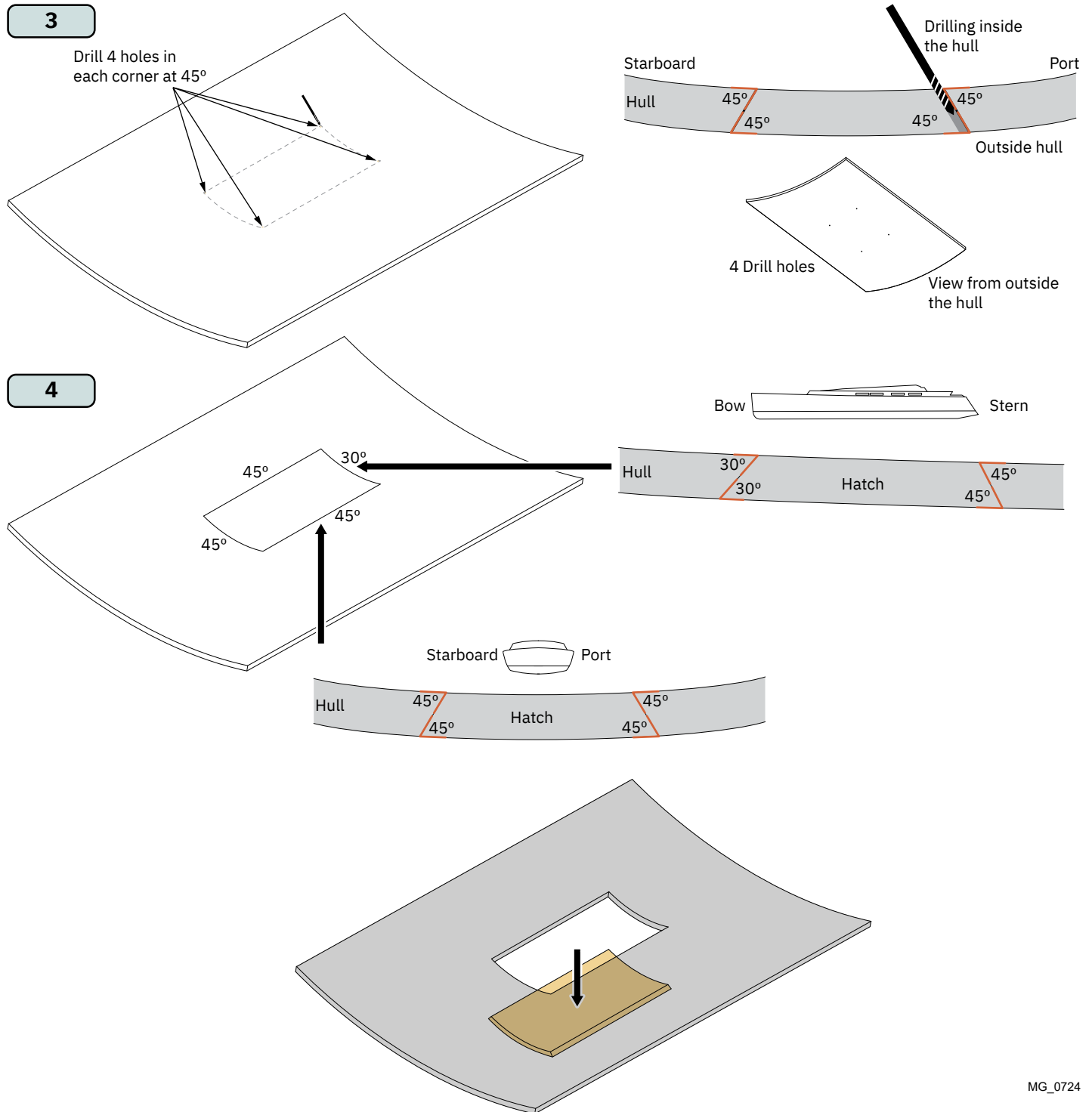
**Important**  
The minimum SRF flange height is stated on the product measurement page (MH)

- Ø185mm = 72mm
- Ø200mm = 97mm
- Ø300mm = 115mm
- Ø386mm = 148mm





- If cutting from outside, prepare for cutting by drilling 4 holes at 45° angle towards starboard and port side.
- The hatch opening must be cut at an angle of 45° on three sides and 30° on the side facing the bow. This ensures that forces from water hitting the closed hatch is absorbed by the surrounding hull. **(NB: Use a suitable cutting tool able to be set to the desired angle.)**



MG\_0724

Sleipner Retract Controller (SRC-3) has two operational modes, *Normal Operation* and *Service Mode*.

Operating actuators and thrusters during installation with personnel or other objects in proximity could cause serious personnel injury and impose damage to the unit. Therefore, power should always be disconnected from the SRC-3 when working on the retractable thruster or in the vicinity of the retract installation.

As an additional safety precaution, the SRC-3 is delivered with *Service Mode* as default configuration. In *Service Mode* all operation of actuators and thrusters via control panels is disabled. The only operation allowed in *Service Mode* is manual control of actuators through the button interface of the SRC-3.

To enable operation from control panel the SRC-3 must be set to *Normal Operation*. To change between *Service Mode* and *Normal Operation* use the Select button on the SRC-3.

When SRC-3 is set to *Normal Operation*, turning a control panel ON will deploy the thruster, and conversely, turning a panel OFF will retract the thruster.

## SRC-3 Fault Reporting

In the event of a fault being detected by SRC-3 the FAULT LED will turn red, and thruster operation becomes suspended. Fault handling is slightly different in *Normal Operation* and *Service Mode*.

### Normal Operation

If an actuator over-voltage, under-voltage, or over-temp fault occurs, it will still be possible to deploy and retract the thruster by turning the control panel ON and OFF.

If a Motion OUT or Motion IN fault occurs, the SRC-3 will automatically try to retract the thruster before disabling all actuator operation until the fault is cleared.

If any other fault occurs, actuator operation becomes suspended until the fault is cleared. See the control panel user manual for more information about fault handling.

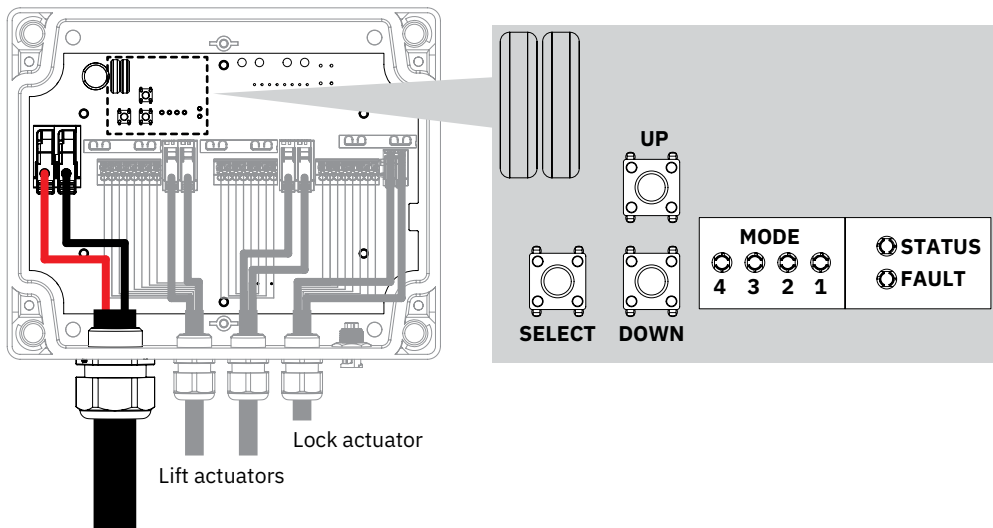
### Service Mode

Entering *Service Mode* is reported as a fault in the control panel, but since no actual fault has occurred in the SRC-3 the FAULT LED will not be constant ON, but will blink to indicate that manual actuator operation is possible. See *SRC-3 LED and Button Interface* chapter for detailed information.

## SRC-3 LED and Button Interface

SRC-3 has six LEDs indicating status of the retract controller and three buttons for manual control.

The location of the LEDs and buttons is shown in figure below.



The LEDs and buttons have different behaviour and functionality in *Service Mode* and *Normal Operation*.

Regardless of which mode SRC-3 set to, all 6 LEDs are lit for one second during power up. This is to indicate that the LEDs are working, and that the firmware was initialized correctly.

A constant green Status LED indicates *Normal Operation*. If the Status LED is blinking green, the SRC-3 is not communicating with other devices on the S-Link bus.

A blinking red FAULT LED indicates *Service Mode*. A constant red LED indicates that one or more faults have occurred, regardless of whether the SRC-3 is in *Service Mode* or *Normal Operation*.

The table below describes the LED behaviour for *Service Mode* and *Normal Operation*.

LED	Color	Service Mode	Normal Operation
STATUS	Green	OFF: Always OFF	ON: Power ok Blinking: Power ok, no S-Link communication
FAULT	Red	Blinking: In Service Mode and no fault detected ON: In Service Mode and fault detected	ON: SRC-3 is in a Fault State
MODE 4 - 1	Yellow	ON: In Service Mode and fault detected	ON: Identify fault types OFF: NO

Interpretation of the MODE LEDs depends on the status of the FAULT LED as described in table below.

Fault LED	MODE LED				Description
	4	3	2	1	
Blinking*	OFF	OFF	OFF	Blinking	Active menu option - Manual Operation
Blinking*	OFF	OFF	OFF	ON	Manual Operation selected
Blinking*	OFF	OFF	Blinking	OFF	Active menu option - Force Alignment
Blinking*	OFF	OFF	ON	OFF	Force Alignment of Lift Actuators selected
ON	ON	ON	ON	ON	Fault - No communication with Lift Actuator 1
ON	ON	ON	ON	OFF	Fault - No communication with Lift Actuator 2
ON	ON	ON	OFF	ON	Fault - No communication with Lock Actuator 1
ON	OFF	OFF	OFF	OFF	Fault – Check control panel to see fault code
OFF**	OFF	OFF	OFF	OFF	No Fault

\*Only valid for *Service Mode*

\*\*Only valid for *Normal Operation*

### Functionality of Buttons During Normal Operation

Holding the *Select* button for 3 seconds will cause the SRC-3 to enter *Service Mode*. The UP and DOWN buttons serve no function during *Normal Operation*.

### Functionality of Buttons in Service Mode

When the SRC-3 enters *Service Mode*, either during power up or by exiting *Normal Operation*, a navigation menu becomes activated. The MODE LEDs are blinking to indicate which of the two available menu options that is currently active:

- Manual Operation – MODE LED 1 blinks
- Force Alignment – MODE LED 2 blinks

The UP and DOWN buttons can be used to toggle between menu options. Selecting a menu option is done by pressing the *Select* button. When a menu option is selected the corresponding MODE LED will change from blinking to constant light. To return to the menu press the *Select* button again.

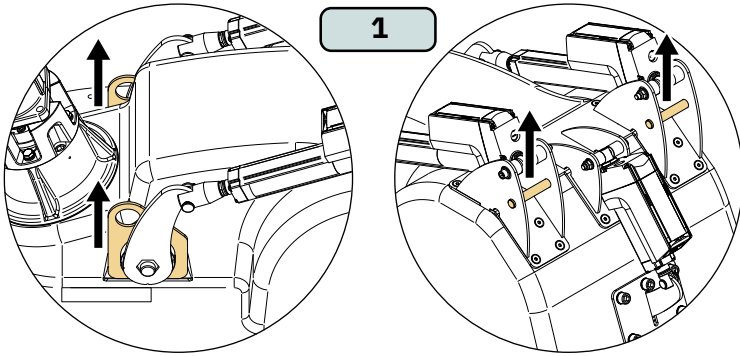
Selecting the menu option *Manual Operation* allows manual control of the lift actuators by using the UP and DOWN buttons. Pressing the DOWN button will deploy the thruster, pressing the UP button will retract the thruster.

The menu option *Force Alignment* enables automatic alignment of the two lift actuators using the UP and DOWN buttons. Pressing the UP button aligns with the least extended actuator and pressing the DOWN button aligns with the most extended actuator.

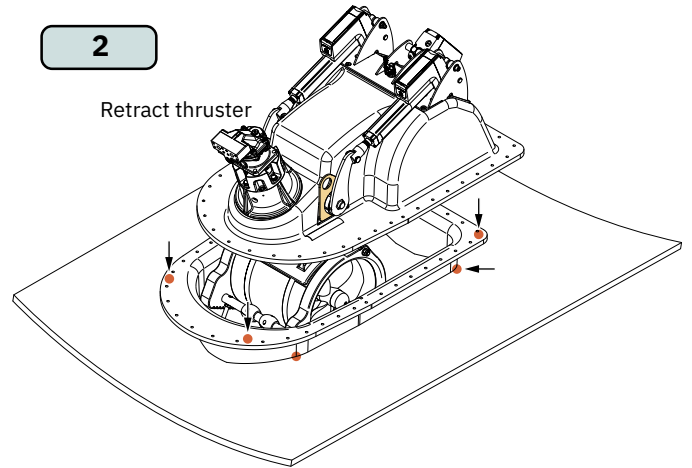
When the menu is active it is possible to enter *Normal Operation* by holding the *Select* button for 3 seconds.

Perform a temporarily installation to verify that there is no mechanical conflict when deploying and retracting the thruster.

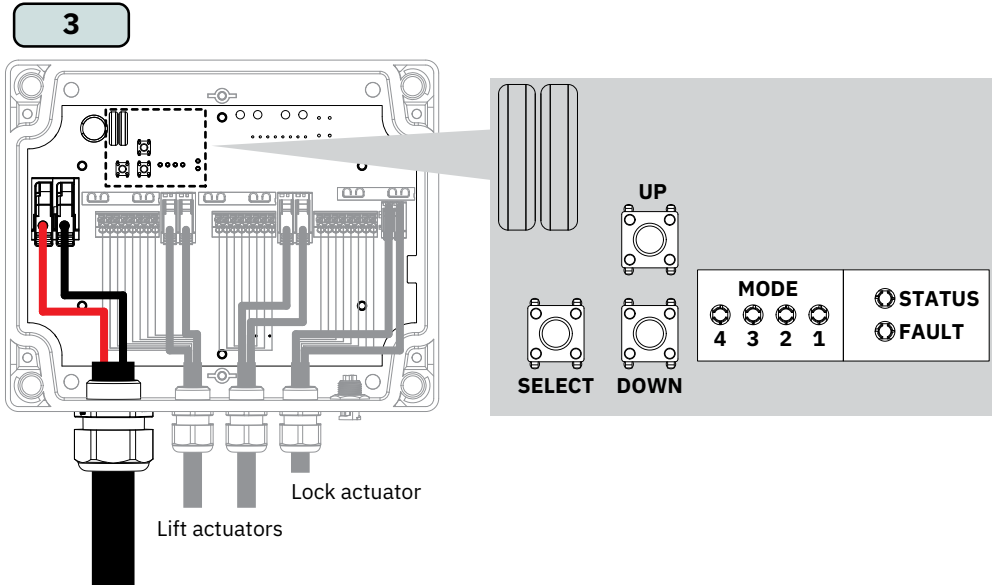
1. Use lifting lugs when handling the retract thruster.
2. Attach the retract housing to the SRF flange with 4 bolts, position the thruster over the hull opening. Temporarily attach the hatch to the twistings.
3. Temporarily connect +24 volt to the supply terminals of the SRC-3. Consult the instructions in chapter *SRC-3 LED and Button Interface* and use the down button to deploy the thruster.



Lifting lug for retract thruster



Retract thruster



Lock actuator

Lift actuators

## WARNING

Place the controller in **SERVICE MODE** to stop the hatch from closing unintentionally or automatically.

4. Press "DOWN" to extend the tunnel and check the hatch opens fully without touching the hull. If the hatch is obstructed by the hull in the front, lift the aft end of the SRF flange maintaining the reference height in front - until the hatch clears the hull when opened.
5. Press "UP" to retract the tunnel.

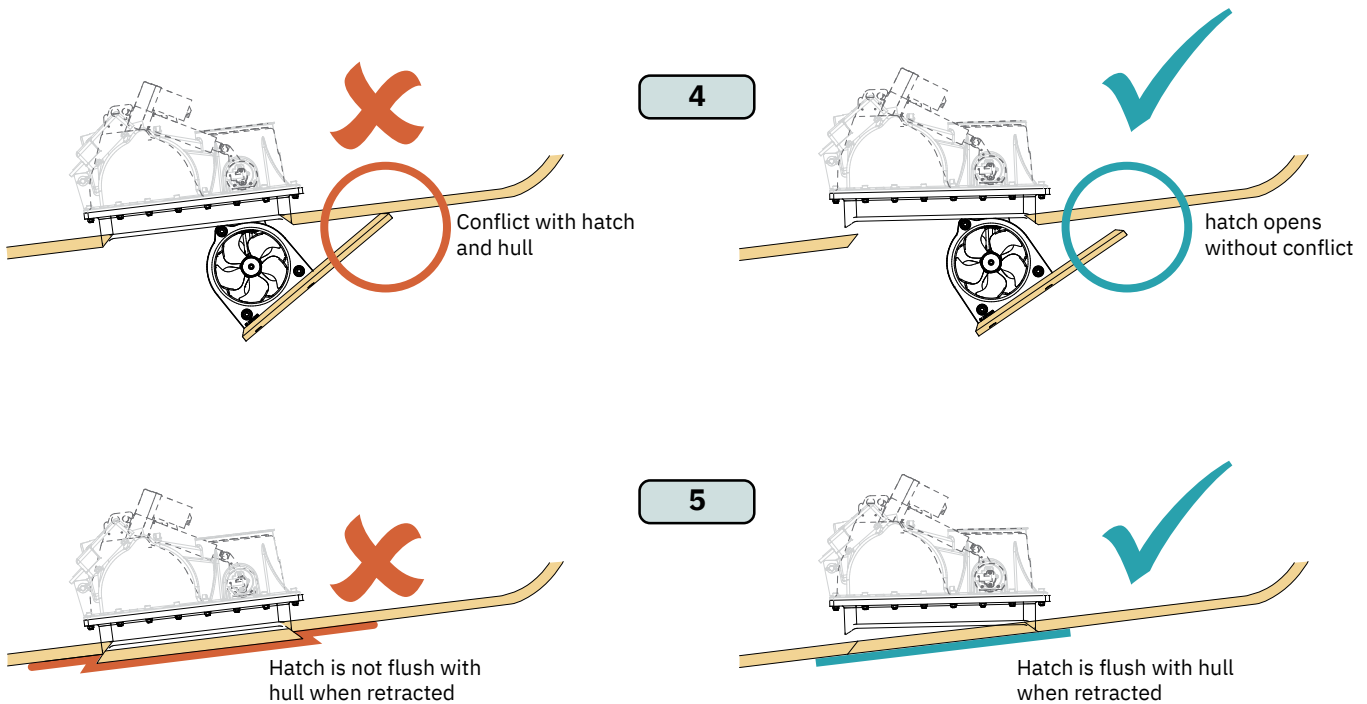
## IMPORTANT

The hatch contact edges and the hull contact edges **MUST** work as the mechanical end stop. During cruising, slamming forces from the water must be absorbed by these areas, not the thruster. Therefore ensure that there is pressure on the contact edges between the hatch and the hull when the hatch is closed. Raise the SRF flange until this is achieved.

After all, pre-checks are completed the retract system can be installed.



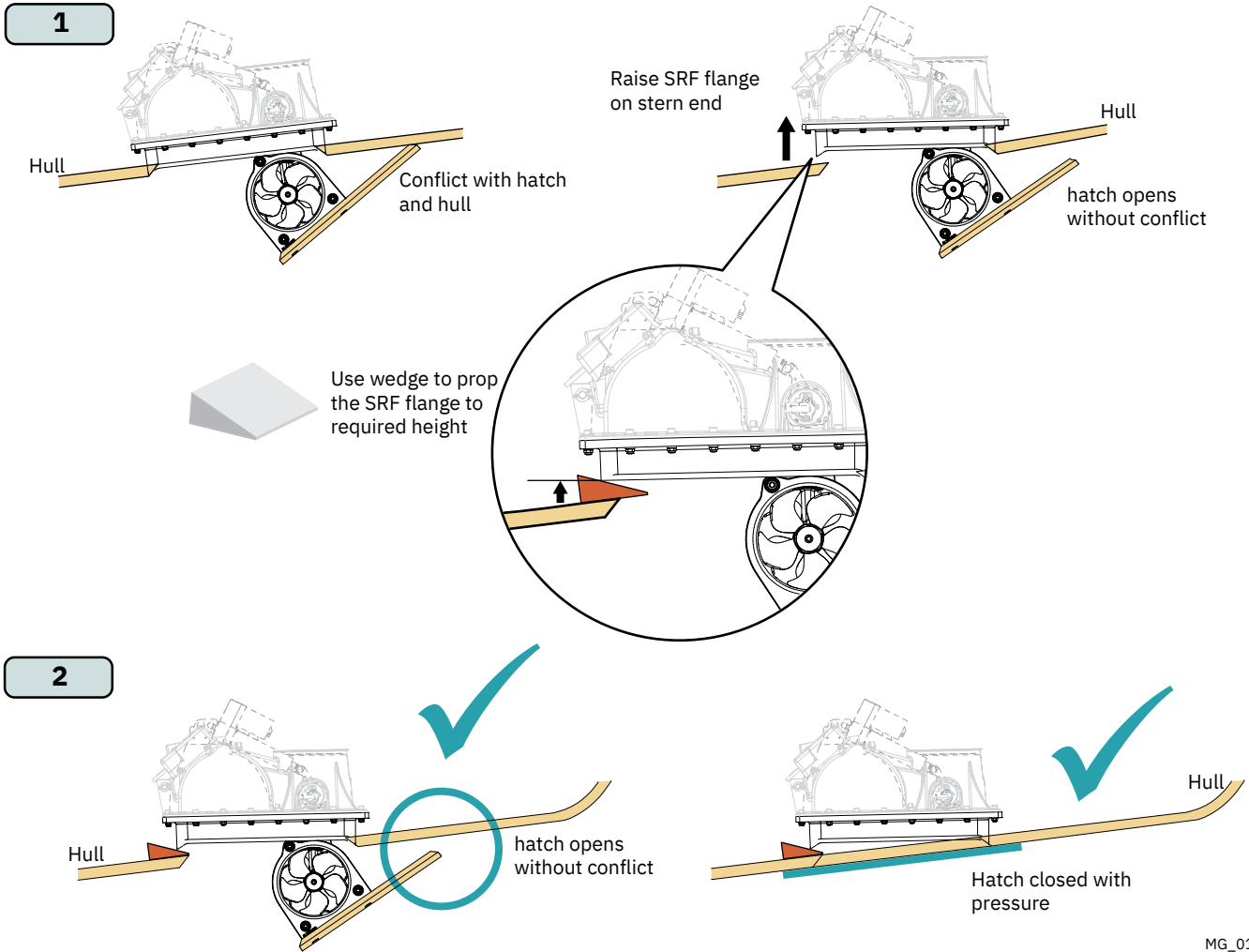
Accidental activation of the retract mechanism can cause serious injury due to the high-pressure force used for moving the hatch. IF operating the hatch during any work/ maintenance around or inside the retract hatch, **USE CAUTION**.



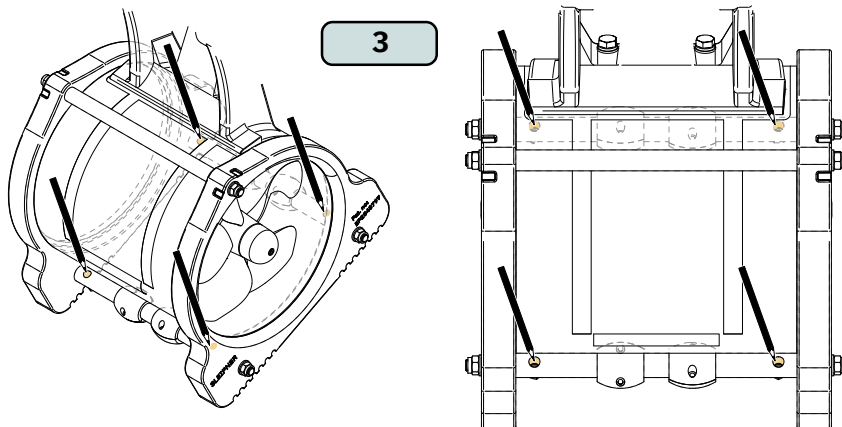
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To increase the distance between the hatch edge and the hull the SRF flange must be raised at the stern end.

1. With the hatch in the open position raise the stern end of the SRF flange until the appropriate clearance is achieved. Use a wedge to keep the thruster stable.
2. Open and close the hatch to ensure:
  - Clearance between the hull and hatch when the thruster is open
  - Hatch closes flush with the hull with full contact between hatch and hull.
3. Mark through the hatch bolt holes for permanently attaching the hatch.
4. Record the height and keep the wedges in place and secure the position of the SRF flange with filler in the corners.



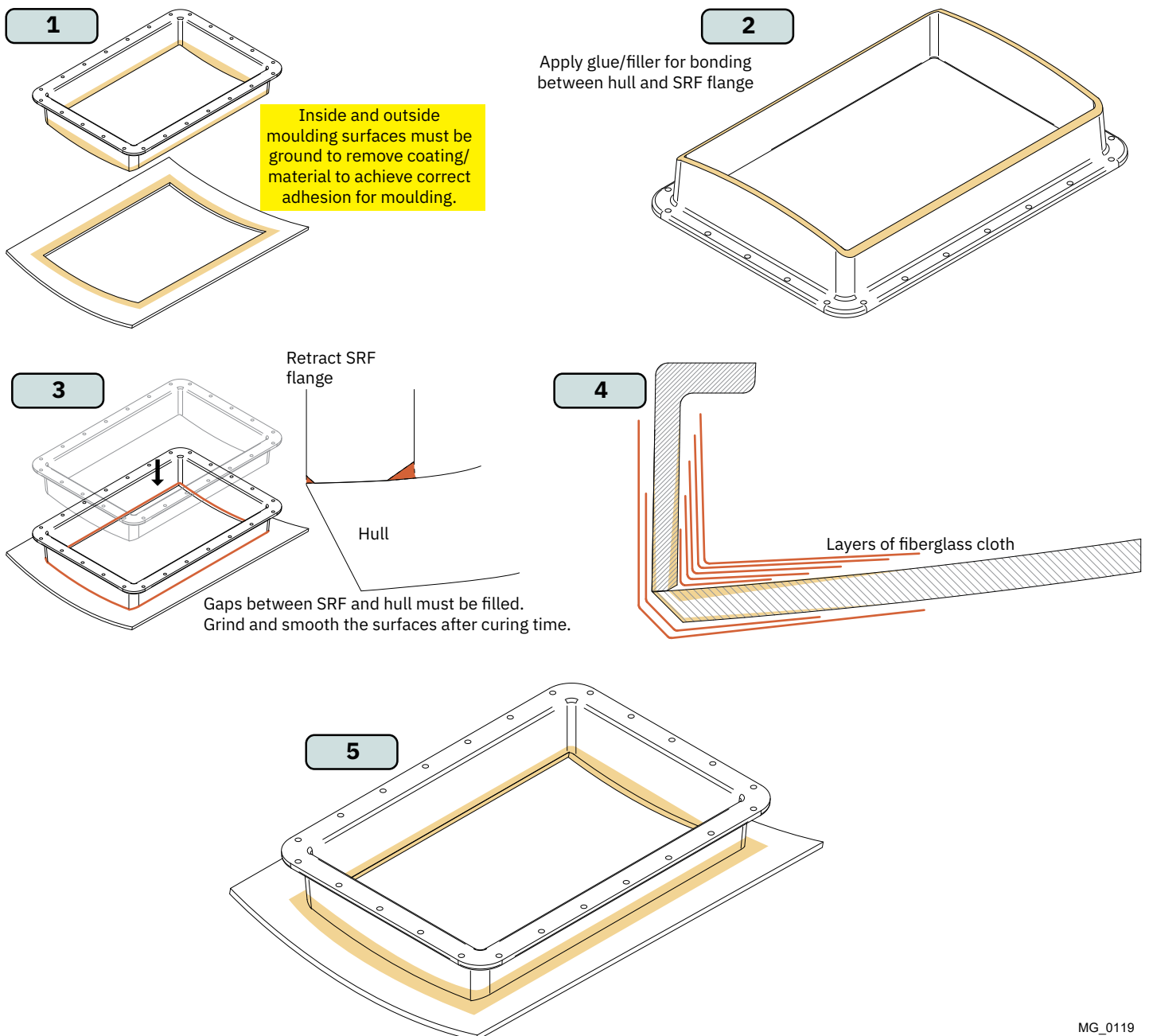
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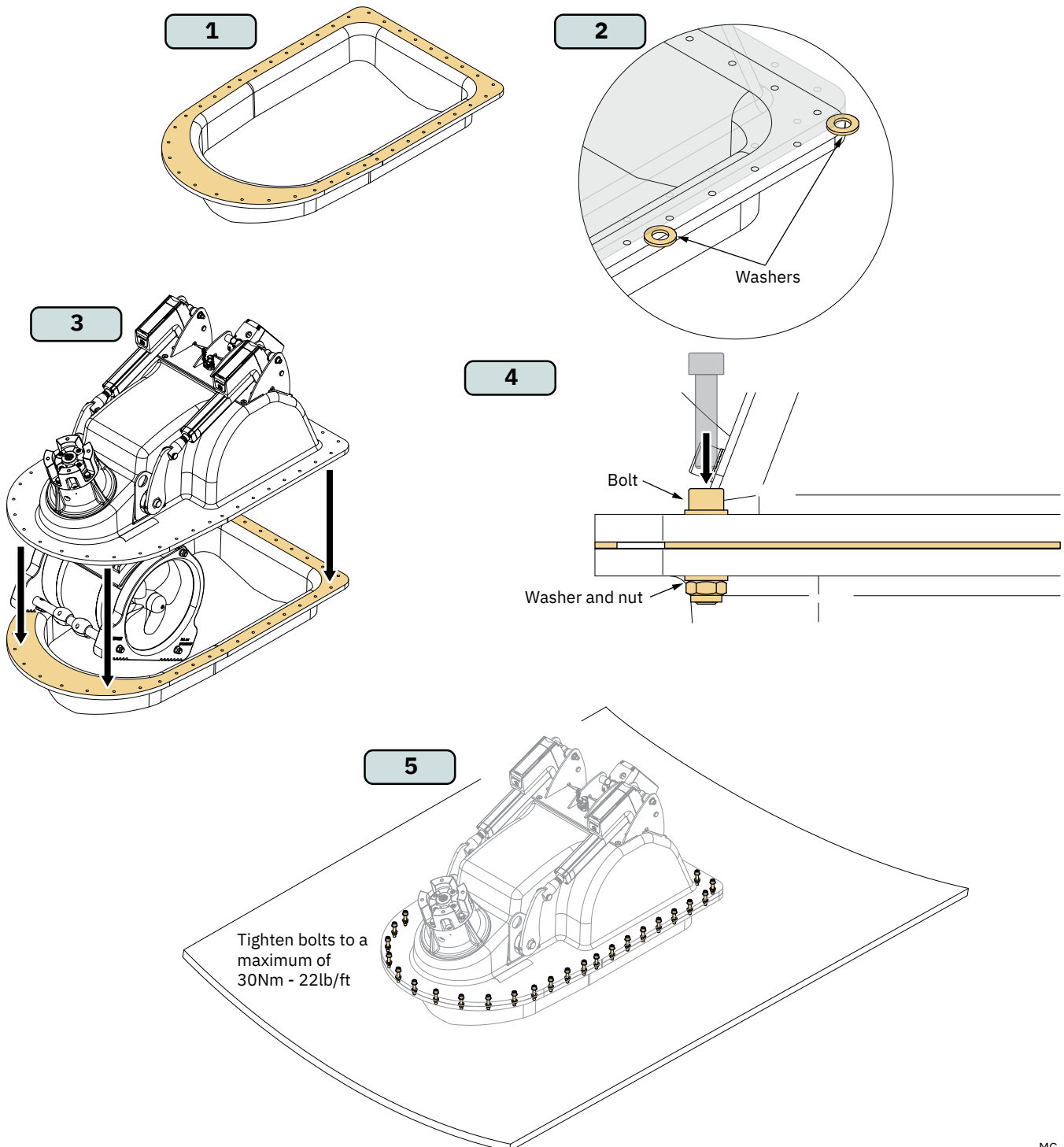
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1. Before grinding of hull and SRF flange, precautions must be taken against grinding dust inside the boat. Surfaces to be moulded/bonded must be ground to remove coating and material to achieve sufficient adhesion.
2. Apply glue/filler on bottom edges of SRF flange or on the hull for bonding between connection surfaces. Ensure the filler is compatible with hull materials.
3. Place the SRF flange into position ensuring the correct orientation. Gaps between SRF and hull must be filled. Grind and smooth the surfaces after curing time.
4. Laminate the inside and outside of the SRF flange to the hull by applying several layers of fibreglass and ensure that the resin and fibreglass is compatible with hull and flange materials.
5. After curing time, smooth all moulded surfaces and apply coating. Apply putty before coating if necessary.

Once the coating has cured the retract housing can be installed.

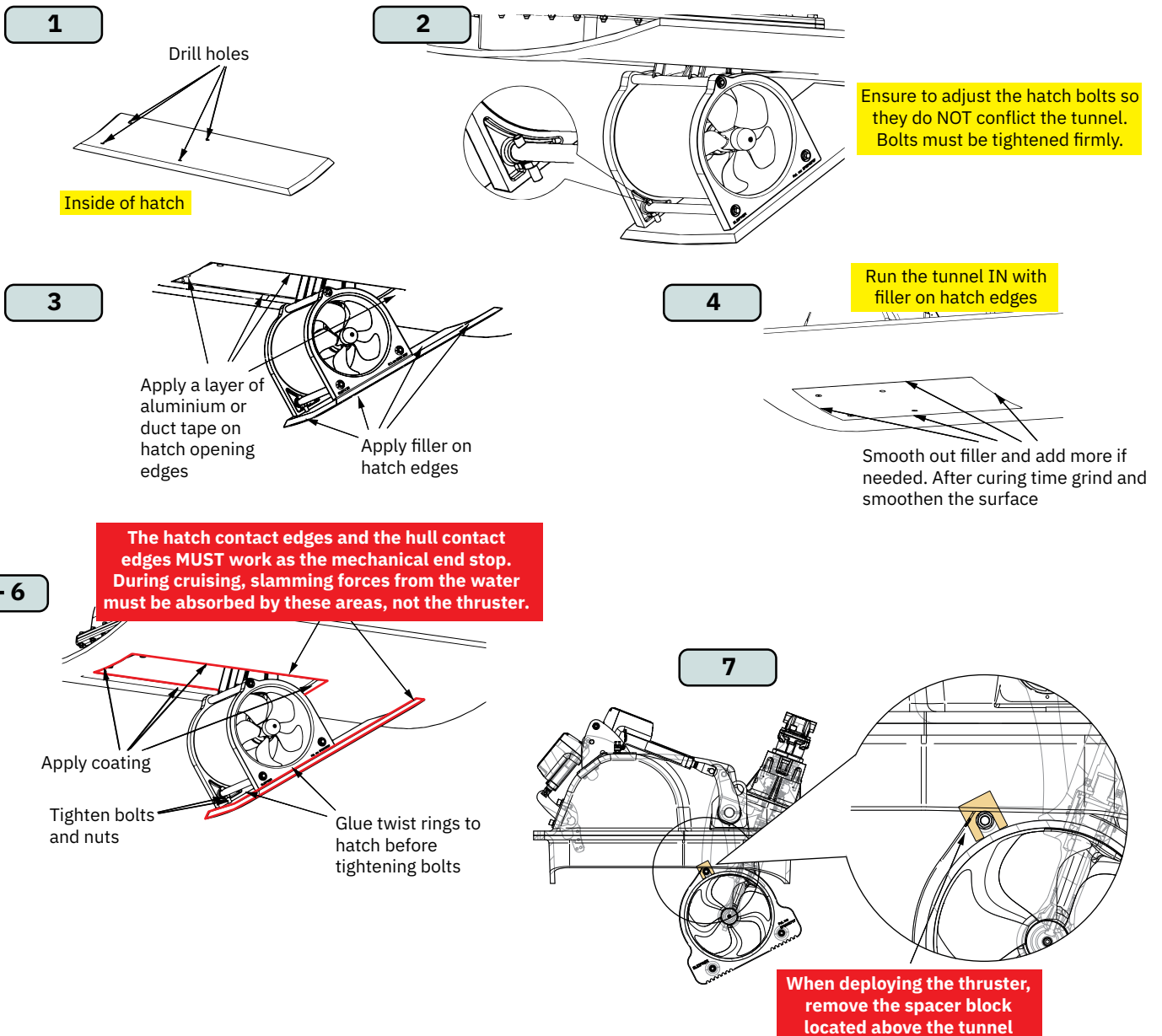


1. Apply MS Polymer or equivalent on SRF flange top surface to seal and avoid water leakage. **(NB: Ensure that glue is compatible with the SRF flange and retract housing materials.)**
2. Place washers as spacers on the SRF flange corners. **(NB: This Allow the MS Polymer or equivalent to semi-cure without compression, improving water tight sealing.)**
3. Place the thruster housing on the SRF flange.
4. Insert and lightly fasten bolts to allow for the future removal of the washer spacers. Allow the MS Polymer or equivalent to semi-cure and remove the washers.
5. Fasten bolts with the defined torque. Start with the 4 corner bolts.





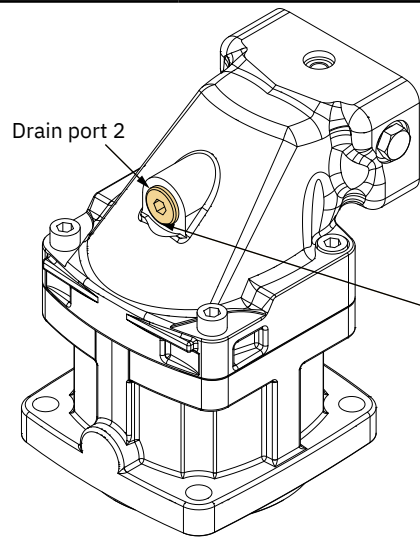
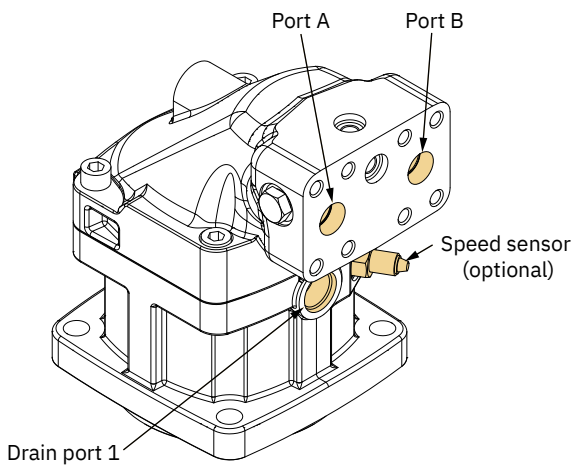
1. Drill 4 holes on the hatch where previously marked. **(NB: drill holes vertical to the hatch surface.)**
2. Bolt the hatch to the tunnel. Ensure the bolts do NOT conflict with the propeller tunnel. **(NB: Bolts can be cut, depending on hatch thickness.)**
3. Apply a layer of aluminium or duct tape on hatch opening edges on the hull. Apply filler or equivalent to hatch edges to create a perfect seal between hatch and hull.
4. Operate the thruster to "IN" position. Smooth out the filler and add more if needed. After curing time, grind and smooth the surface.
5. Apply glue on twist rings contact surface. Tighten bolts so hatch will fit properly.
6. Apply coating inside and outside of the hatch and on the hull.
7. Remove the red spacer block located above the tunnel.



Follow the defined hose specifications and connect hydraulic hoses to the motor.

Motor type	Port A/B	Port Flange Threads	Drain Port
BA40	3/4" 6000 PSI SAE J518/ISO6162 Code 62	3/8" UNC-2B 20 deep	3/4" - 16 UNF
BA45	3/4" 6000 PSI SAE J518/ISO6162 Code 62	3/8" UNC-2B 21 deep	3/4" - 16 UNF
BA50	3/4" 6000 PSI SAE J518/ISO6162 Code 62	3/8" UNC-2B 20 deep	3/4" - 16 UNF
BA56	3/4" 6000 PSI SAE J518/ISO6162 Code 62	3/8" UNC-2B 21 deep	3/4" - 16 UNF
BA60	3/4" 6000 PSI SAE J518/ISO6162 Code 62	3/8" UNC-2B 22 deep	7/8" - 16 UNF
BA80	1" 6000 PSI SAE J518/ ISO 6162 Code 62	7/16-14 UNC-2B 19 deep	7/8"-14 UNF
BA90	1" 6000 PSI SAE J518/ ISO 6162 Code 62	7/16-14 UNC-2B 19 deep	7/8"-14 UNF
BA110	1 1/4" 6000 PSI SAE J518/ ISO 6162 Code 62	1/2-13 UNC-2B 19 deep	1 1/16-12 UNF
BA125	1 1/4" 6000 PSI SAE J518/ ISO 6162 Code 62	1/2-13 UNC-2B 19 deep	7/8"-14 UNF
BA160	1 1/4" 6000 PSI SAE J518/ ISO 6162 Code 62	1/2-13 UNC-2B 19 deep	7/8"-14 UNF
BA180	1 1/4" 6000 PSI SAE J518/ ISO 6162 Code 62	1/2-13 UNC-2B 19 deep	7/8"-14 UNF

**BA - Hydraulic Motor**



**IMPORTANT**  
Always use the upper positioned drain port for optimal lubrication of the motor.

Pre fill motor housing from the upper drain port with hydraulic oil before start-up

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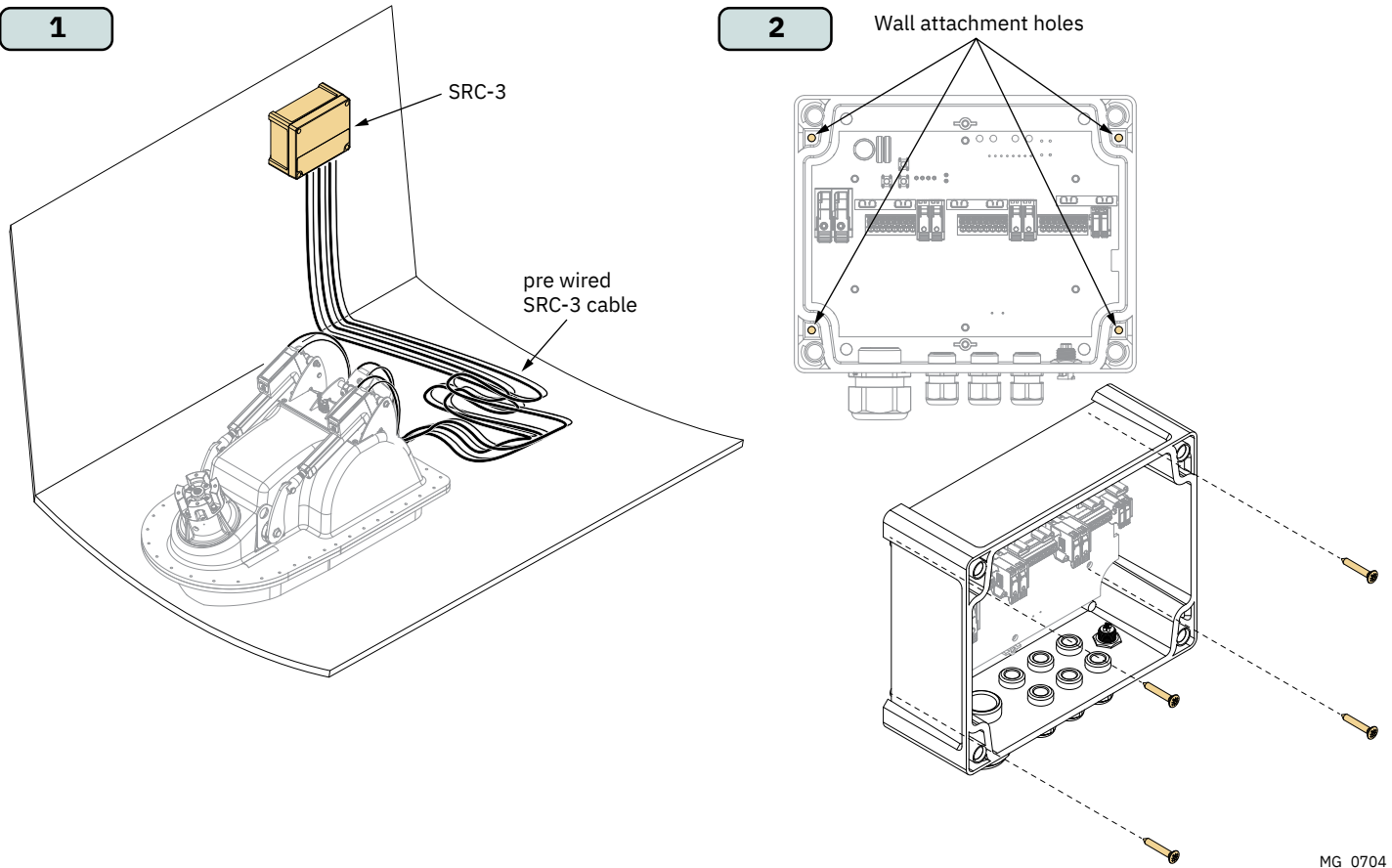
1. Plan the location of Sleipner Retract Controller (SRC-3) before starting with the electrical installation. Actuators are delivered with 5m cables. The SRC-3 must be mounted in a location that allows for connection of the actuator cables. Excessive cable lengths should be cut down to ensure an installation where the cables are properly laid out and fixated to avoid cable chafing and being caught in moving parts.

Electrical products installed in gasoline engine spaces or other areas potentially exposed for explosive gases must be Ignition Protected. Products installed in such locations should conform to relevant standards, such as ISO 8846, SAE J1171 or UL 1500.

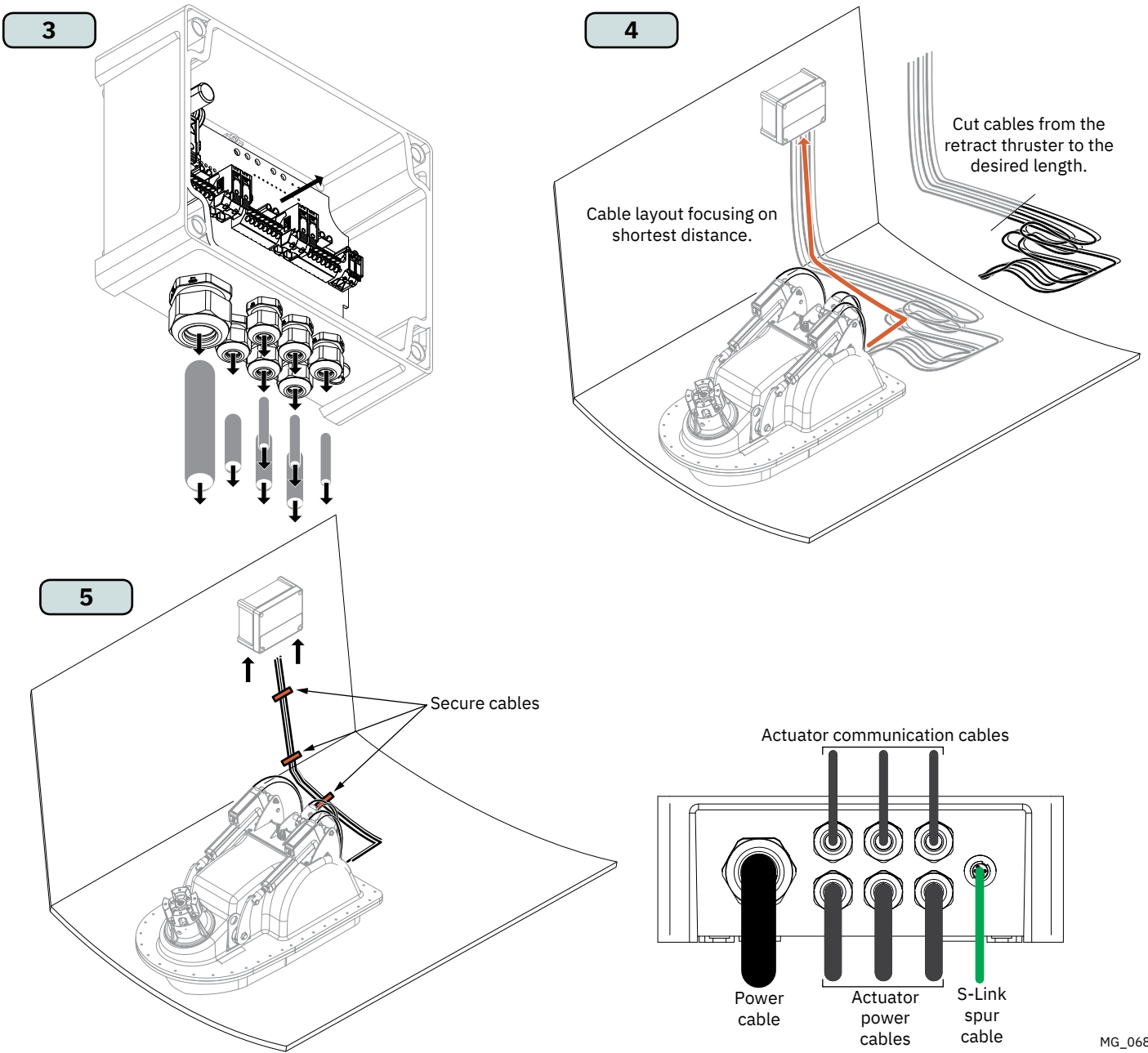
2. Install SRC according to instruction in chapter SRC-3 Installation.
3. Install the control panel according to the instructions in the Installation Guide included with the control panel.
4. See the S-Link System Description chapter for detailed information on the installation of the S-Link Power cable and additional S-Link components.

## SRC-3 Installation

1. Install the SRC-3 close to the retract thruster, preferably on a vertical surface with cables facing down. **(NB: The SRC-3 is delivered pre-wired with 5m cables. After initial installation of the retract thruster the SRC-3 will require re-wiring after cutting the cables to the shortest required length.)**
2. Remove lid and use the four mounting holes to mount the SRC-3.

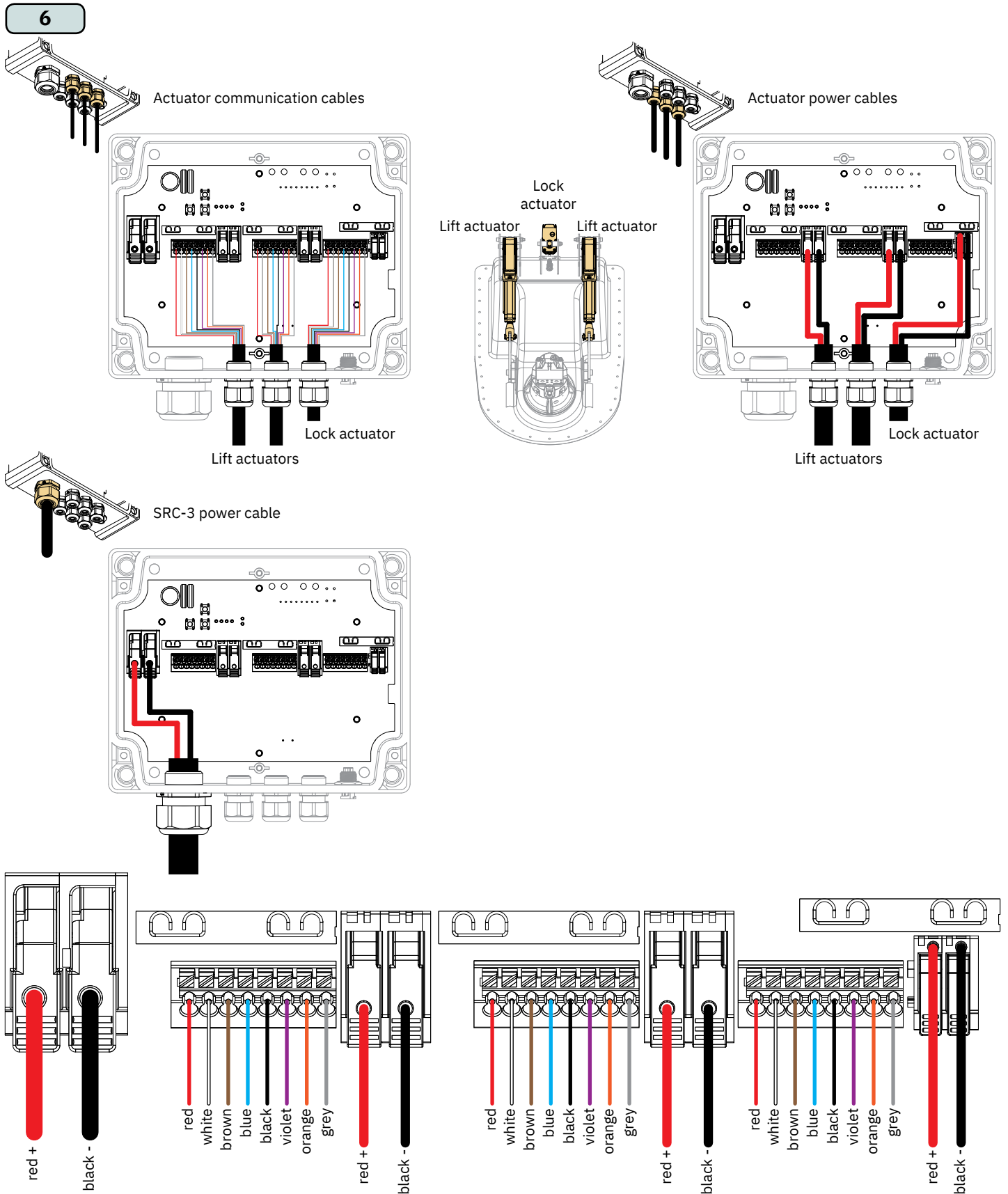


3. Remove all the pre-installed wiring connections and cables from the SRC-3 control box.
4. Plan the new wiring route from the retract thruster to the SRC-3 control box (**NB: minimise the cable lengths as much as possible**). Cut the cables at the SRC-3 control box end.
5. Secure the cable network route.



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6. Insert the cables back into the control box. See figure for specification of cable entry into SRC-3 and location of actuator types..

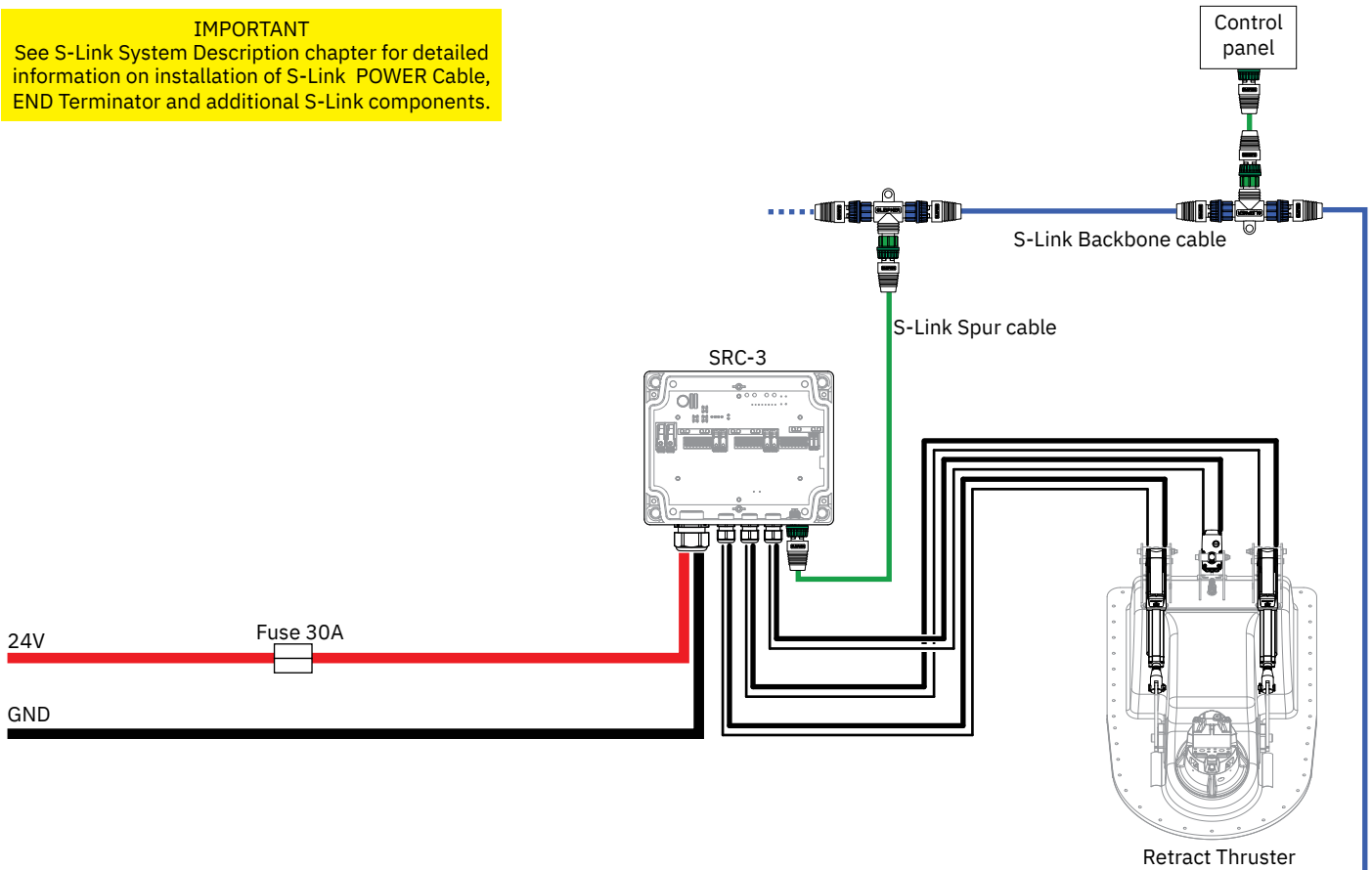


# Manual Main Switch Wiring Diagram 24V Retract Thruster

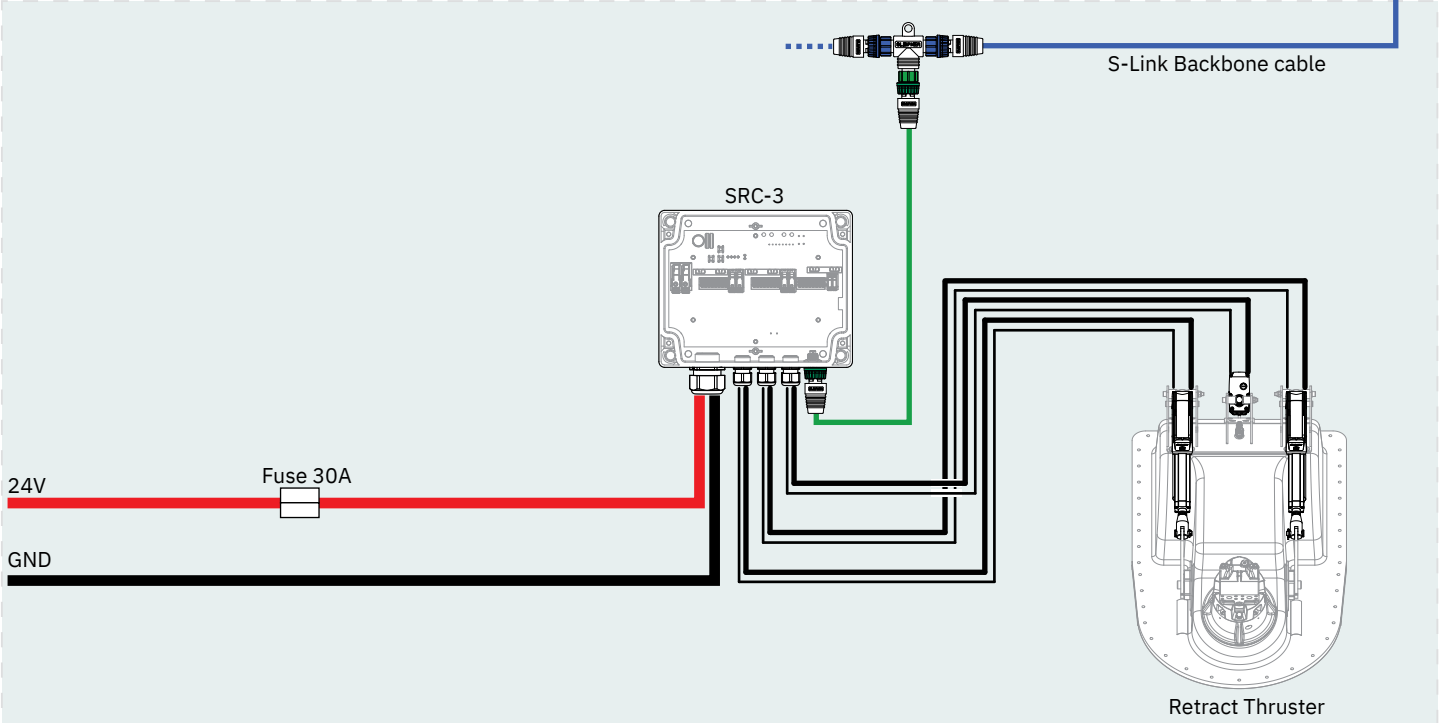
The Top wiring diagram is for a single bow or stern thruster system

## IMPORTANT

See S-Link System Description chapter for detailed information on installation of S-Link POWER Cable, END Terminator and additional S-Link components.



The top and bottom wiring diagram is for a dual thruster system, for example a bow and stern installation.



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S-Link is a CAN-based control system used for communication between Sleipner products installed on a vessel. The system uses BACKBONE Cables as a common power and communication bus with separate SPUR Cables to each connected unit. Only one S-Link POWER cable shall be connected to the BACKBONE Cable. Units with low power consumption are powered directly from the S-Link bus.

**Main advantages of S-Link system:**

- Compact and waterproof plugs.
- BACKBONE and SPUR Cables have different colour coding and keying to ensure correct and easy installation. BACKBONE Cables have blue connectors and SPUR Cables have green connectors.
- Different cable lengths and BACKBONE Extenders make the system scalable and flexible to install.

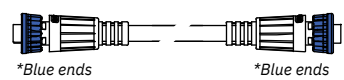
**Installation of S-Link cables:**

Select appropriate cables to keep the length of BACKBONE- and SPUR Cables to a minimum. In case of planned installation with total BACKBONE Cable length exceeding 100 meters please consult your local distributor. The S-Link cables should be properly fastened when installed to avoid sharp bend radius, cable chafing and undesired strain on connectors. Locking mechanism on connectors must be fully closed. To ensure long lifetime, cables, T-Connectors and Extenders should not be located so that they are permanently immersed in water or other fluids. It is also recommended to install cables such that water and condensation do not run along the cables and into the connectors.

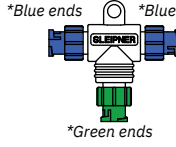
The POWER Cable should ideally be connected around the middle of the BACKBONE bus to ensure an equal voltage drop at each end of the BACKBONE Cable. The yellow and black wire in the POWER Cable shall be connected to GND and the red wire connected to +12VDC or +24VDC.

To reduce the risk of interference, avoid routing the S-Link cables close to equipment such as radio transmitters, antennas or high voltage cables. The backbone must be terminated at each end with the END Terminator.

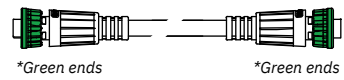
SPUR cables can be left unterminated to prepare for the installation of future additional equipment. In such cases, ensure to protect open connectors from water and moisture to avoid corrosion in the connectors.




**BACKBONE Cable**  
Forms the communication and power bus throughout a vessel. Available in different standard lengths.




**T-Connector**  
Used for connection of SPUR or POWER Cable to the BACKBONE Cable. One T-Connector for each connected cable.



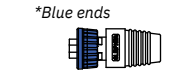
**SPUR Cable**  
Used to connect S-Link compliant products to the backbone cable. One SPUR Cable must be used for each connected component, with no exceptions. Recommended to be as short as practically possible. Available in different standard lengths.



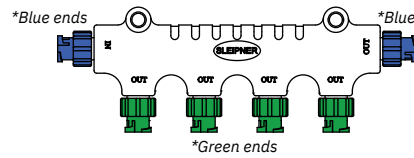
**BACKBONE Extender**  
Connects two BACKBONE Cables to extend the length.



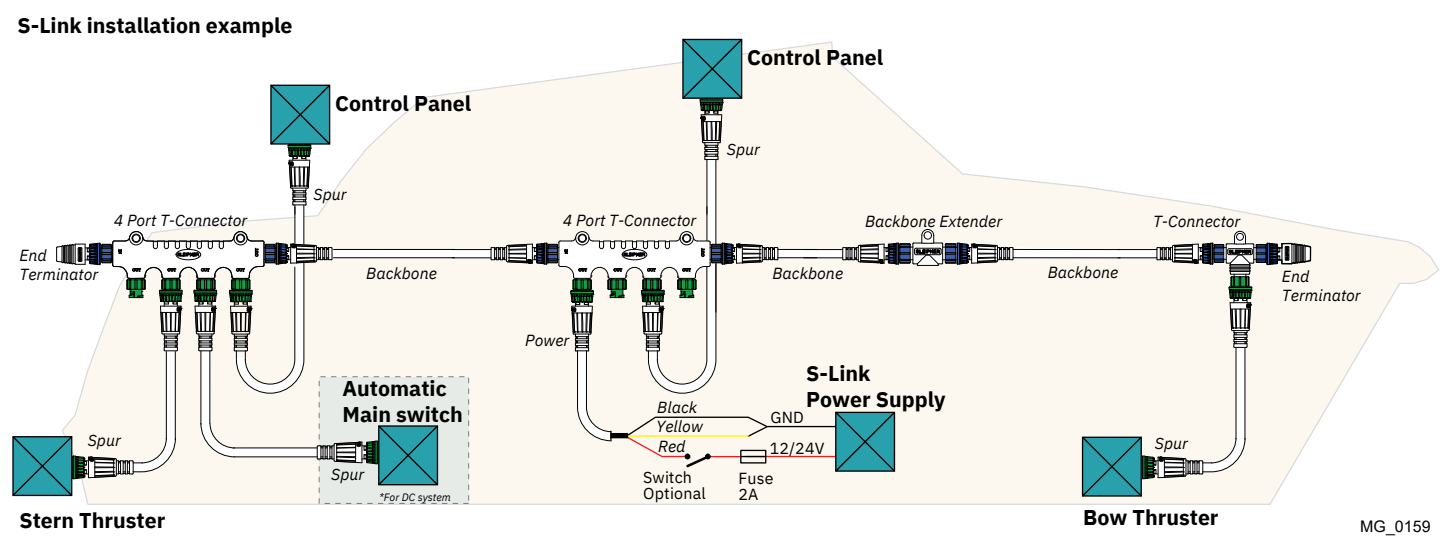
**POWER Cable**  
Required in all installations for connection of BACKBONE Cable to a power supply and should be protected with a 2A fuse.



**END Terminator**  
Must be one at each end of the BACKBONE bus.



**4-Port T-Connector**  
The 4-PORT T-connector allows multiple SPUR Cables to be connected. The 4-PORT T-connector comes with two sealing caps to protect unused ports.





**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)



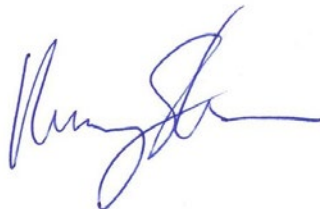
# CE Declaration of conformity (DoC)

We, the manufacturer:	<b>Sleipner Motor AS</b> Arne Svendsens gate 6-8, NO 1612 Fredrikstad, Norway	
With ISO 9001 certificate:	1484-2007-AQ-NOR-NA, issued by DNV-GL	
Declare that the product:	<b>Product Description:</b> Retract thruster hydraulic <b>Model Number:</b> SRHP650	
Subject to installation, maintenance and use conforming to their intended purpose, is in conformity with the provisions of the following EU Directives:	<ul style="list-style-type: none"> <li>• Electromagnetic Compatibility (EMC) - Directive 2014/30/EU</li> <li>• Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) - Directive 2011/65/EU</li> </ul>	
The product is designed to meet the standards and criteria outlined in:	<b>EMC</b> EN 60945:2002 IEC 60533:2015  <b>RoHS</b> EN 63000:2018	

This declaration of conformity is issued under the exclusive responsibility of the manufacturer.

Fredrikstad, 1st of September 2023

Ronny Skauen, President and CEO







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