



# Installation Guide

*For DC External POD Electric Thruster Models*  
**SX35POD, SX50POD**



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# Contents

## Installation Manual

Responsibility of the Installer.....	3
General Installation Considerations and Precautions Guidelines .....	3
Product Measurements .....	4
Product Specifications .....	6
Propeller Installation.....	7
Tunnel Installation .....	8
Positioning of the SX with Hydrodynamical Cover .....	9
Hydropod Modification.....	10
Hydropod Installation.....	11
Grids or Cowls assembly.....	13
Electrical Installation.....	14
Electrical Reference Guide.....	14
Control Box Installation.....	15
Manual Main Switch Wiring Diagram 12V SX Thruster .....	17
Automatic Main Switch Wiring Diagram 12V SX Thruster.....	18
Control Panel Installation .....	19
<b>Pre-delivery Checklist .....</b>	<b>20</b>
<b>Service and Support.....</b>	<b>21</b>
<b>Product Spare Parts and Additional Resources.....</b>	<b>21</b>
<b>Warranty Statement.....</b>	<b>21</b>
<b>Patents.....</b>	<b>21</b>

## Responsibility of the Installer

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

### For thruster systems

- 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 SX/P35 and SX/P50 thruster systems

- Ensure that the external thruster assembly does not disturb the water flow under the hull. At higher speeds, if the thruster is installed too low it can cause damage to the thruster and/ or add additional drag and unwanted water splashing.
- The minimum tunnel depth from the water surface is 140mm (5,51") to the centre of tunnel diameter. Place the Thruster as deep as possible for better performance and reduced noise.
- When installing the thruster ensure it does not foul existing equipment inside the boat like motor bedding etc.
- If able ensure that stern-drives/ trim-tabs do not interfere with the water flow from the thruster as this can reduce the thrust effectiveness considerably. We recommend the use of our Sleipner cowls to enhance the performance and allow installation in shallow draft boats. Sleipner cowls will also minimise the effect if stern-drives/ trim-tabs obstruct the thruster.
- Ensure there is enough space both inside and outside the transom of the boat and the thruster does not get in conflict with existing equipment inside the boat like steering links etc. **(NB: It is possible to mount the tunnel offset from the boat's centre line if necessary. Hydro pods can not be installed on the transom)**
- To avoid cable overheating do not install place the volt cables from the thruster to the control box near any heat sources. **(NB: excluding SXP thrusters)**
- Do not lift the thruster by internal cable connections, main terminals.
- The thruster power supply circuit must include the recommended sized fuse and a battery isolation switch.
- The electric motor, components and cables must be mounted so they remain dry at all times.
- Do not use abrasive tools damaging the existing Epoxy coating when preparing for antifouling paint.

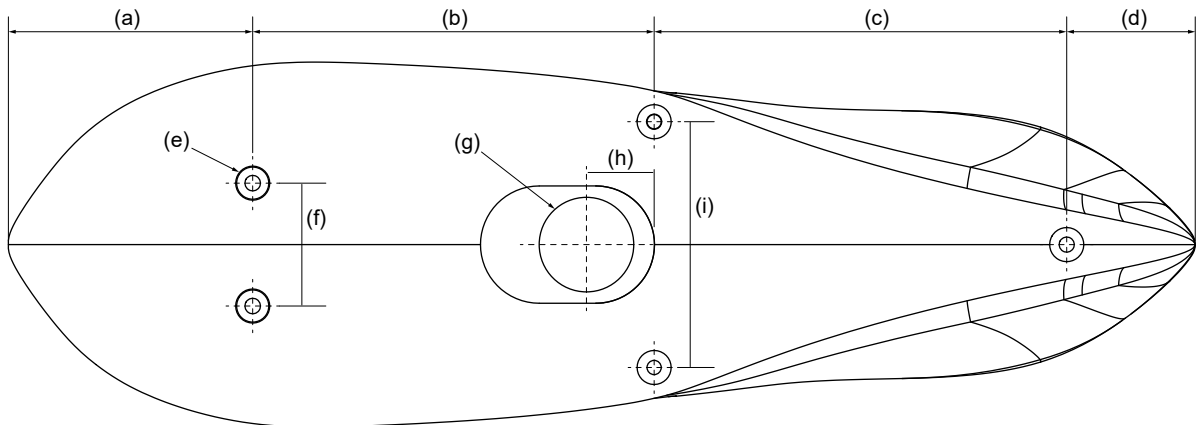
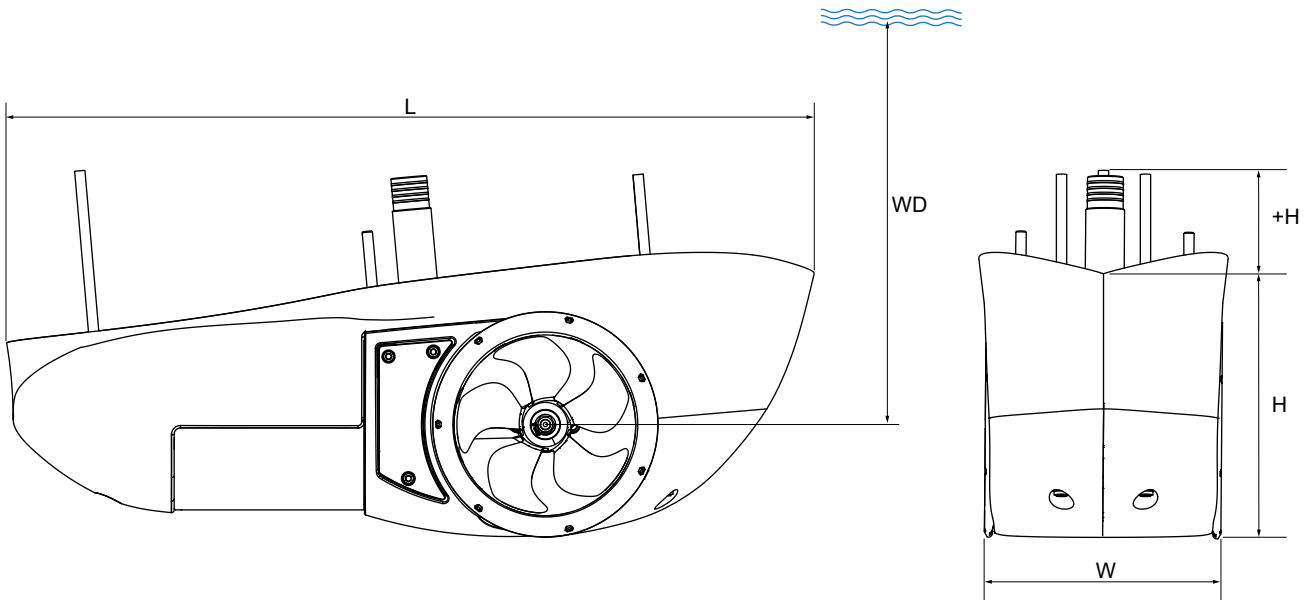
### Lithium Batteries for on/off thrusters models

- High capacity lithium batteries are capable of supplying a higher operating voltage to the motor than the on/off thrusters are rated for. Running thrusters at higher than rated voltage will reduce operating time, increase wear and damage the thruster. Operating the thruster outside specified ratings will void warranty.

**NEVER Disassemble any part of the Ignition Protected assembly. Tampering with the Ignition Protected assembly will cause it to lose this safety feature. If there is a problem with your Ignition Protected motor, please contact your dealer.**

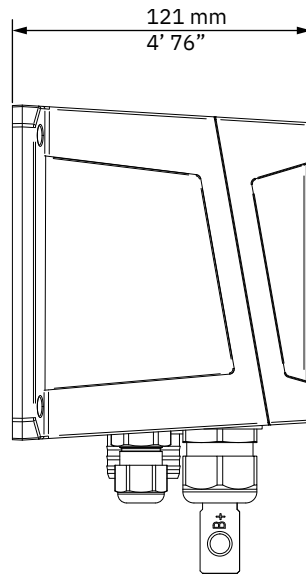
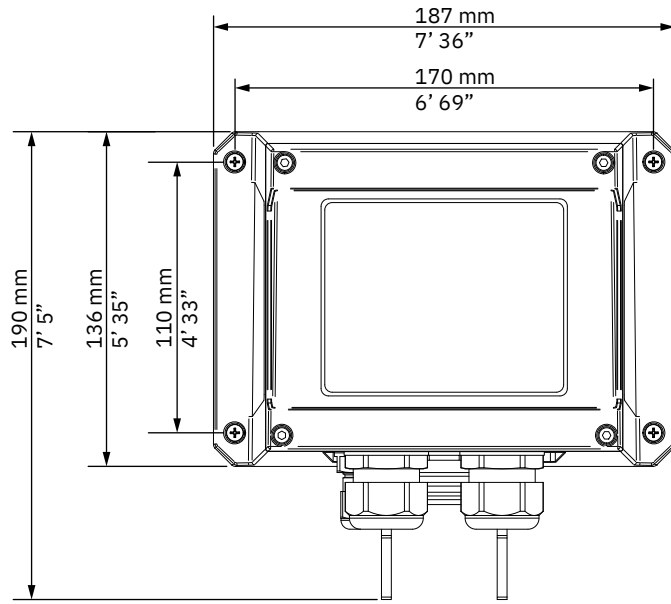
Measurement code	Measurement description	*35 12v		*50 12v	
		mm	inch	mm	inch
H	Mould Height	180	7.1	180	7.1
+H	Tube Height	183	7.2	183	7.2
W	Width	183	7.2	183	7.2
L	Length	630	24.8	630	24.8
WD	Minimum Water Depth	140	5.5	140	5.5
(a)	Measurement	129	5.1	129	5.1
(b)	Measurement	213	8.4	213	8.4
(c)	Measurement	218	8.6	218	8.6
(d)	Measurement	68	2.7	68	2.7
(e)	Measurement	18	0.7	18	0.7
(f)	Measurement	65	2.6	65	2.6
(g)	Measurement	50	2	50	2
(h)	Measurement	35.8	1.4	35.8	1.4
(i)	Measurement	130	5.1	130	5.1

\*Valid for SX & SXP



MG\_0080

# Product Measurements



MG\_0132

**SX/P Thruster**

Description	SX35 SXP35	SX50 SXP50
Nominal Voltage	12V	12V
Thrust 12V	43 kg / 94 lbs	62 kg / 136 lbs
Thrust 10.5V	35 kg / 77 lbs	50 kg / 110 lbs
Maximum Operation Time	S2 motor at 2 - 3 min. duty cycle at 20°C (ambient temperature)	S2 motor at 2 - 3 min. duty cycle at 20°C (ambient temperature)
Power	1.8kw / 2hp	2.8kw / 3.75hp
Weight	15.3 kg / 33.73 lbs	15.3 kg / 33.73 lbs

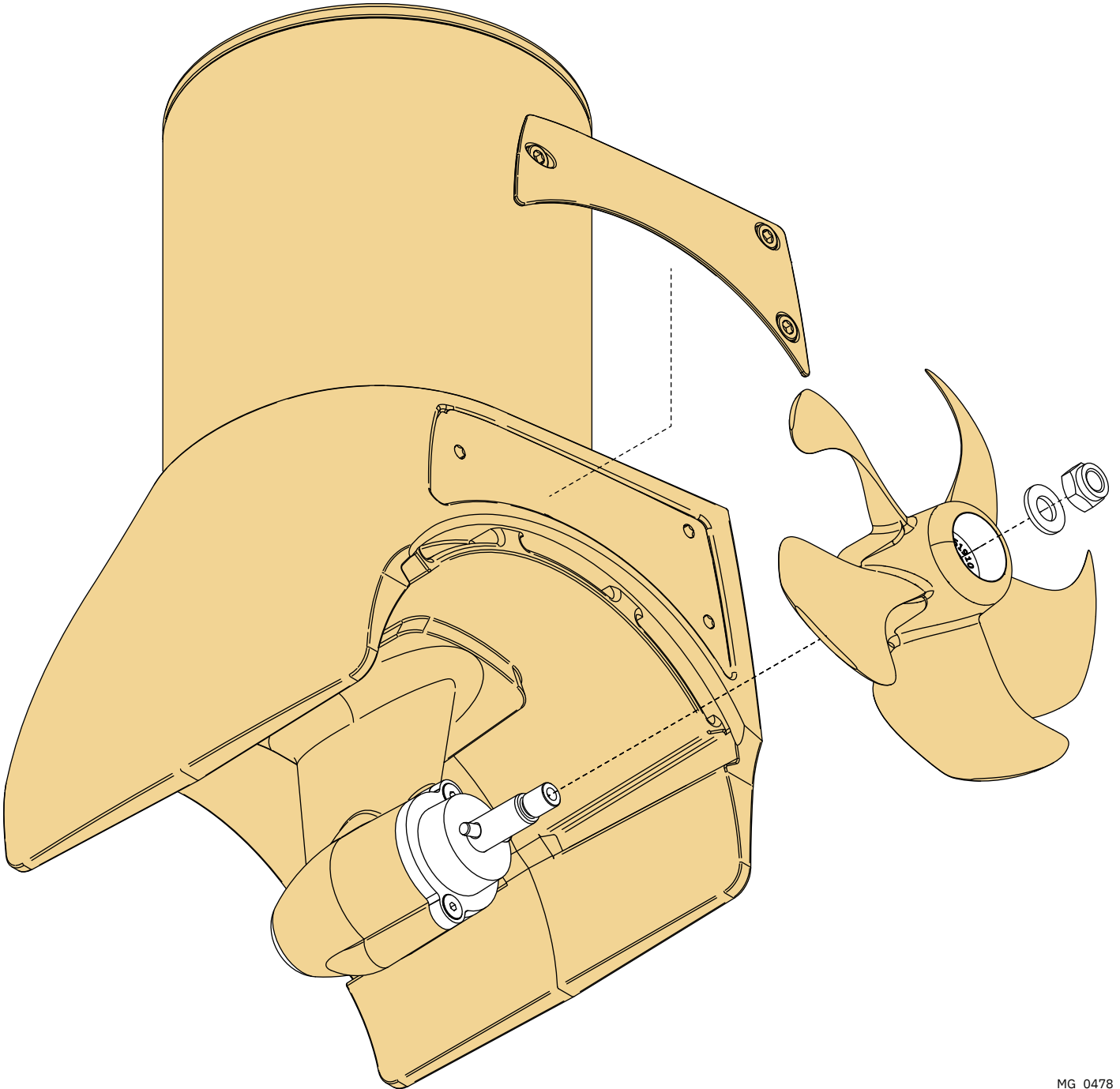
**SX/P Control Box**

Product	SX35 SXP35	SX50 SXP50
Nominal voltage	12V	12V
Max current	250A	380A
Motor duty cycle	Short time duty (S2)	Short time duty (S2)
Max ambient temp	50°C	50°C
Min ambient temp	-25°C	-25°C

1. Centre the drive pin and Insert the propeller onto the shaft spine. Rotate the propeller until the drive pin aligns with the internal slot in the propeller.
2. Insert the washer to the end of the shaft spline. Tighten with the propeller lock-nut.
3. Apply anti fouling to the gear leg and propeller. Do not apply anti fouling to any rubber elements of the gear leg or anodes if applicable.  
**(NB: Ensure to paint under plastic covers.)**

## WARNING

Do not use abrasive tools damaging the existing Epoxy coating when preparing for antifouling paint.

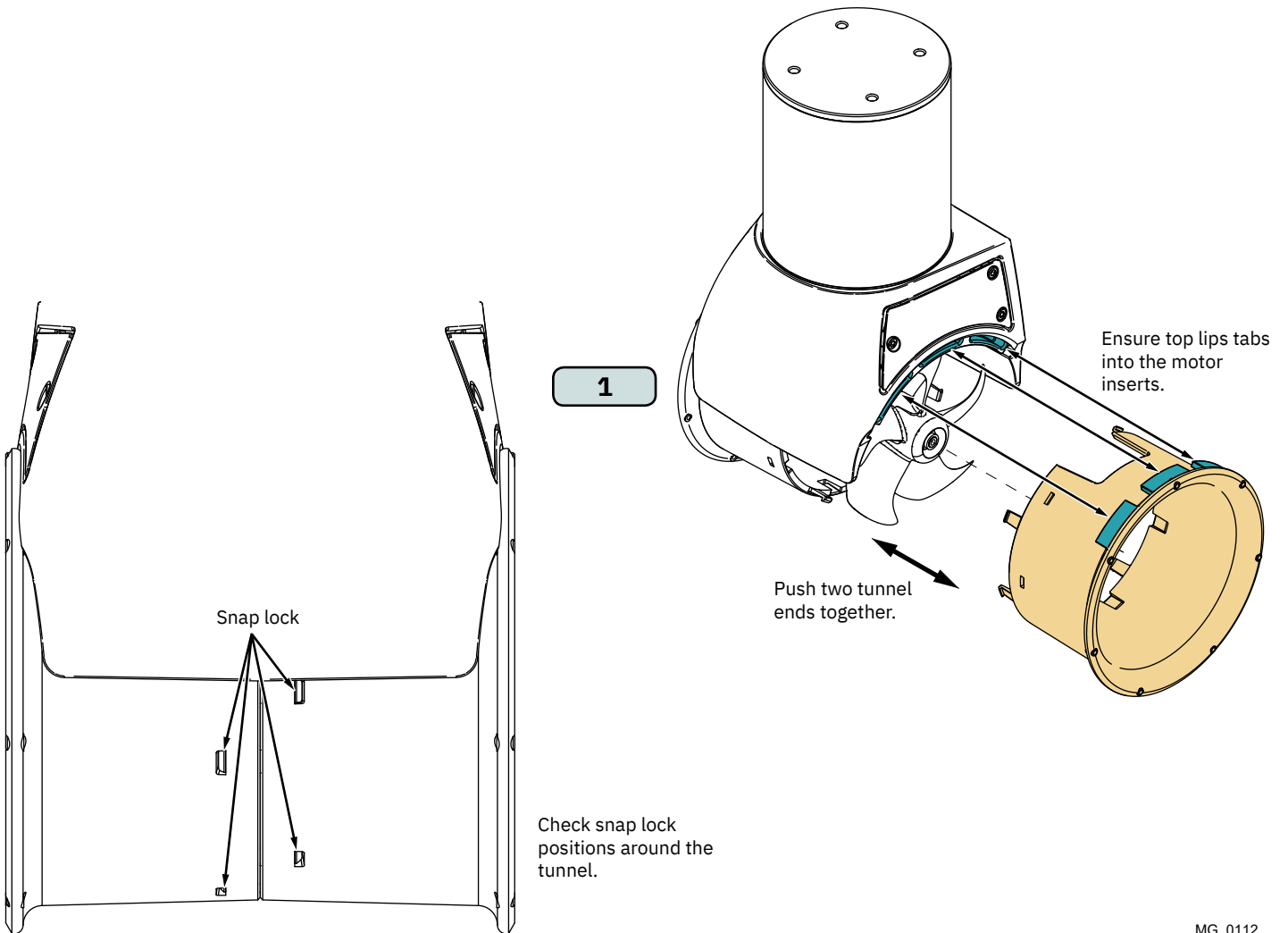


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1. Connect both ends of the tunnel to the thruster motor. All hooks must be completely interlocked making the inside of the tunnel smooth. **(NB: Ensure tunnel moulding around the gear leg and tunnel top align.)**

**IMPORTANT**

Ensure all snap-lock positions are correctly connected into place.

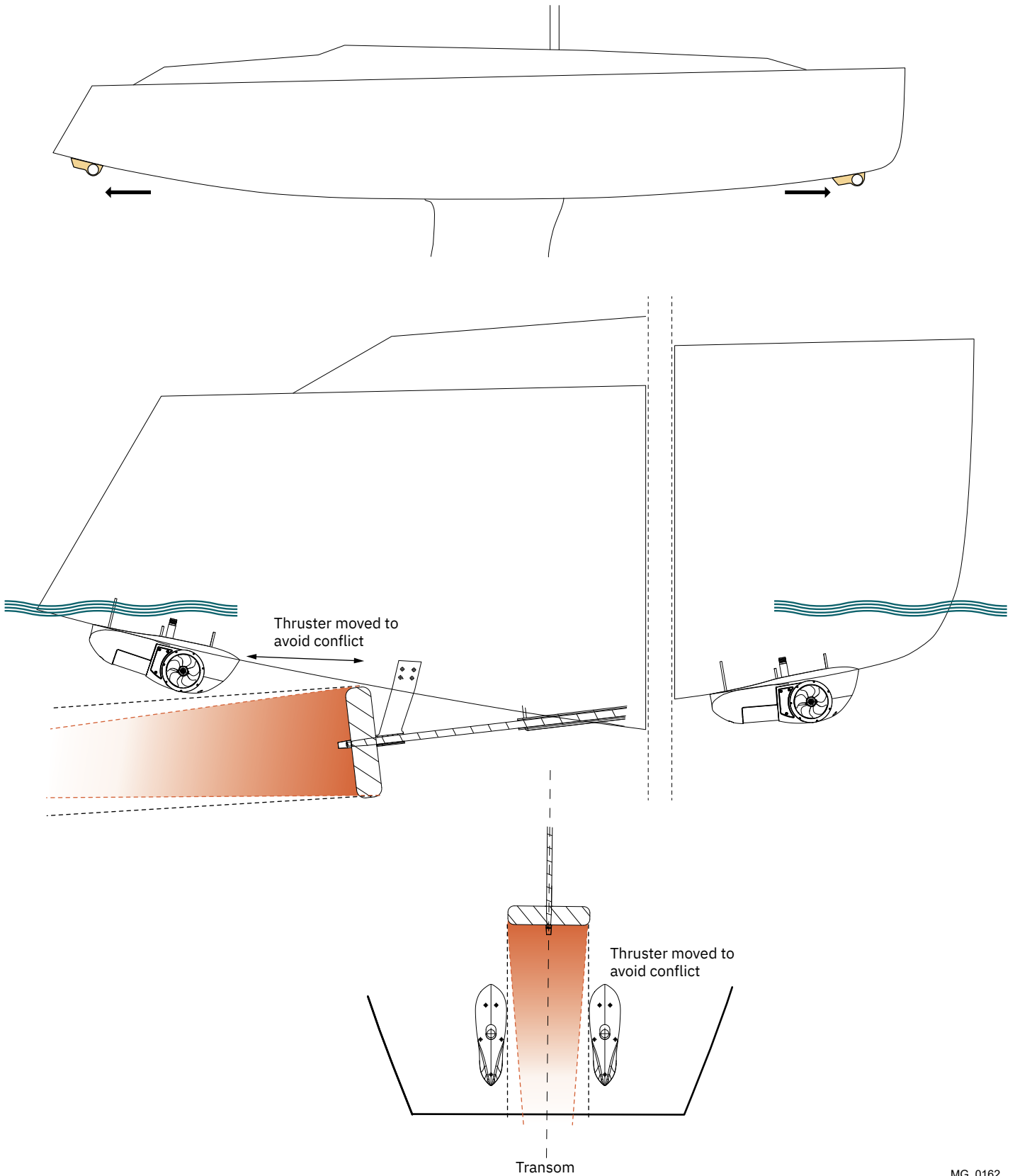


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**Aim to install the thruster as far forward/ Aft as possible**

Due to the leverage effect around the boats' pivot point. The relative distance difference from the boat pivots' point to the thruster will determine the amount of real thrust for the boats, rotation.



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

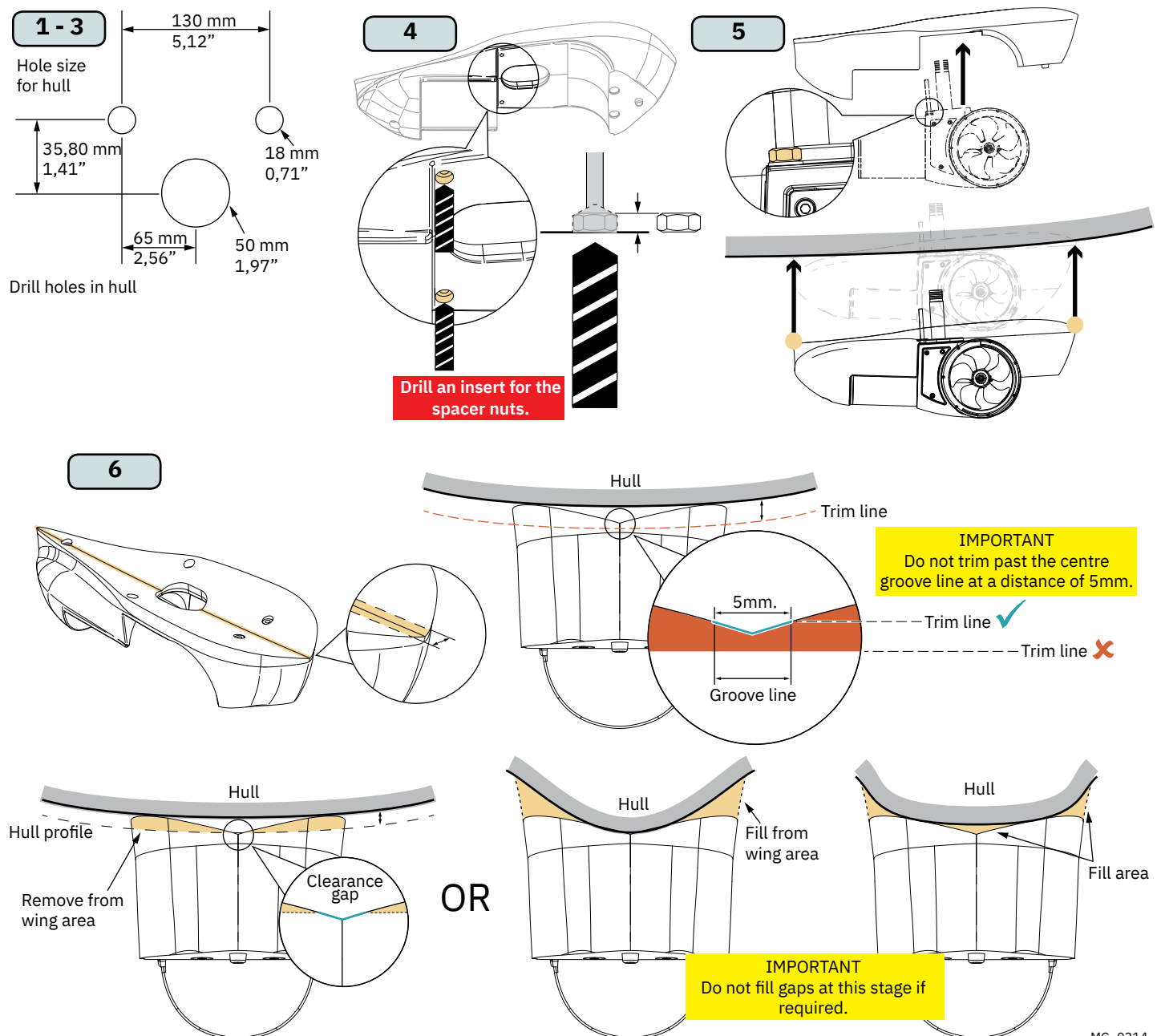
Define the location to install the thruster. **(NB: Ensure internally the thruster will not obstruct any objects. Ensure cables internally do not obstruct any objects. Do not place cables or control box close to high heat radiating parts EG. Turbo/ exhaust manifolds etc.)**

1. Pre drill all holes in the hydro pod at  $\varnothing 8.5$  mm and ensure all bolts pass through.
2. Mark the locations of the three drill holes for the SX thruster using the defined measurements or from a template to the hull. (NB: Maximum hull thickness is 50mm.)
3. Drill main hole for the cable tube, then two support bolt holes.
4. Drill an insert for the spacer nuts on the SX motor. **(NB: The spacer nuts assist the products corrosion protection.)**
5. Place the SX thruster into the Hydro pod mould. With the SX thruster in the hydro-pod place the unit onto the hull. Use the pre-drilled holes to guide the assembly to the desired location. **(NB: The SX thruster in the Hydro pod will ensure no flexing of the mould will occur.)**
6. Modify the Hydro pod mould to match the hull profile of the boat. Aim to obtain both the front and back tips of the mould sit flush to the hull. Follow the below instructions depending on the modification required:

A) Trim the wings of the hydro pod to match the hull profile. **(NB: Excessive heat caused by the cutting method can cause the mould to melt in the worked area.)**

OR

B) Determine to use appropriate filler to fill the gap between the hydro pod and the hull. **(NB: Do not fill gaps at this stage if required.)**

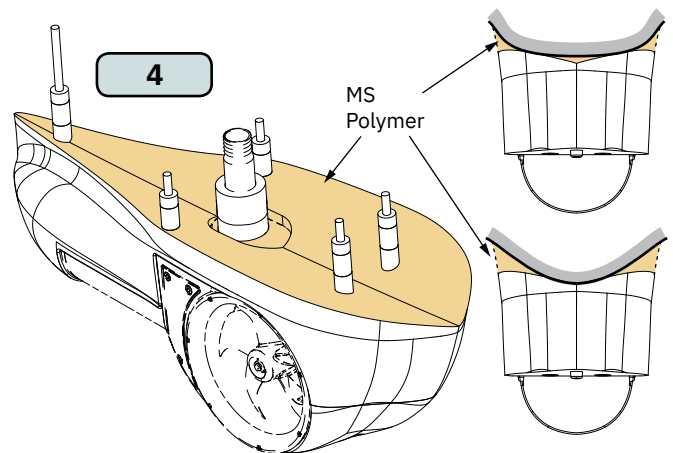
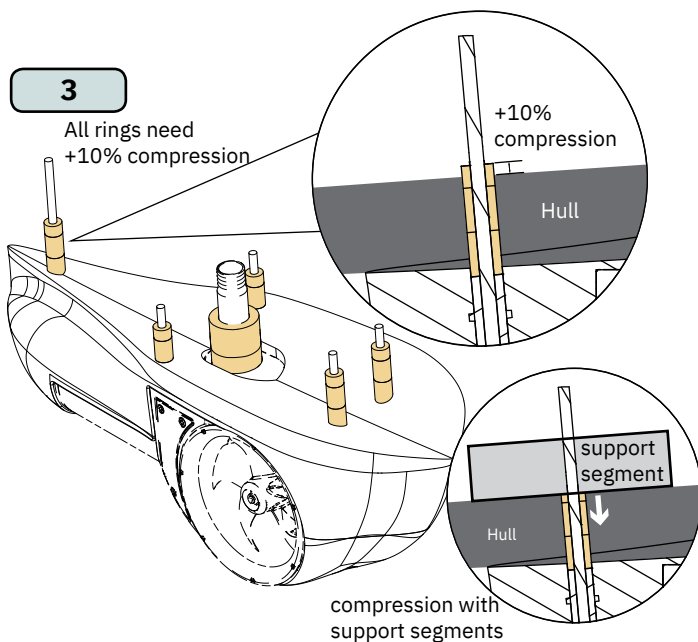
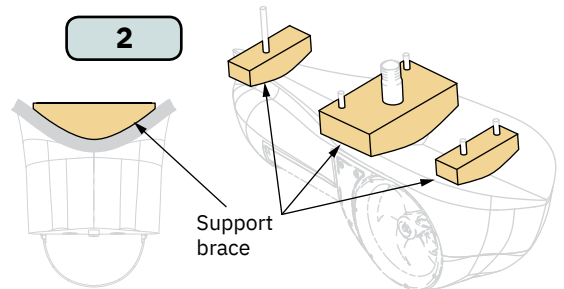
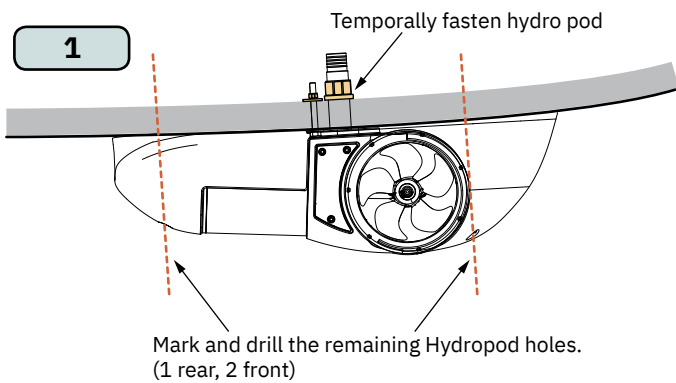


**! Please refer to the graphic for special considerations relating to your model !**

- Temporarily fasten the Hydro pod to the hull using the SX thruster bolts. Mark the remaining Hydro pod holes (1 rear, 2 front) and drill holes. Clean the area from dust for installation of the thruster. **(NB: Tightening the Hydro pod can reduce the gap between the mould and the hull from compression. Note this when if required to add MS Polymer to fill gaps.)**
- Make support segments based on the hull profile for the bolt and tube fasteners.
- Check the length of the compression rings. Compression rings must be longer than hull thickness to allow for compression (NB: Cut compression sealants to length top achieve 15% compression.)
- Apply a sealant (MS Polymer) to:
  - the inside surface of the cut-out holes on the hull.
  - To the surface of the washer to the thread and
  - in the recess of the main tube to the thread.
  - 1cm deep inside all compression ring.
 place all compression rings to bolt threads.

**IF:** required to fill gaps between the Hydro pod and the hull use an appropriate amount on the Hydro pod mould to achieve this.

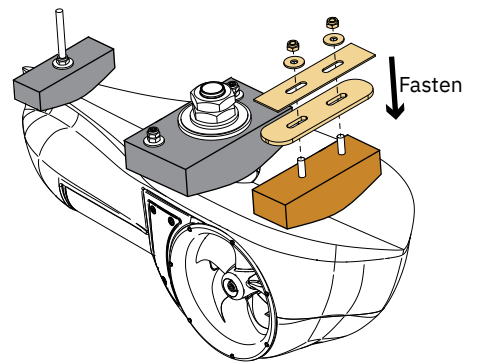
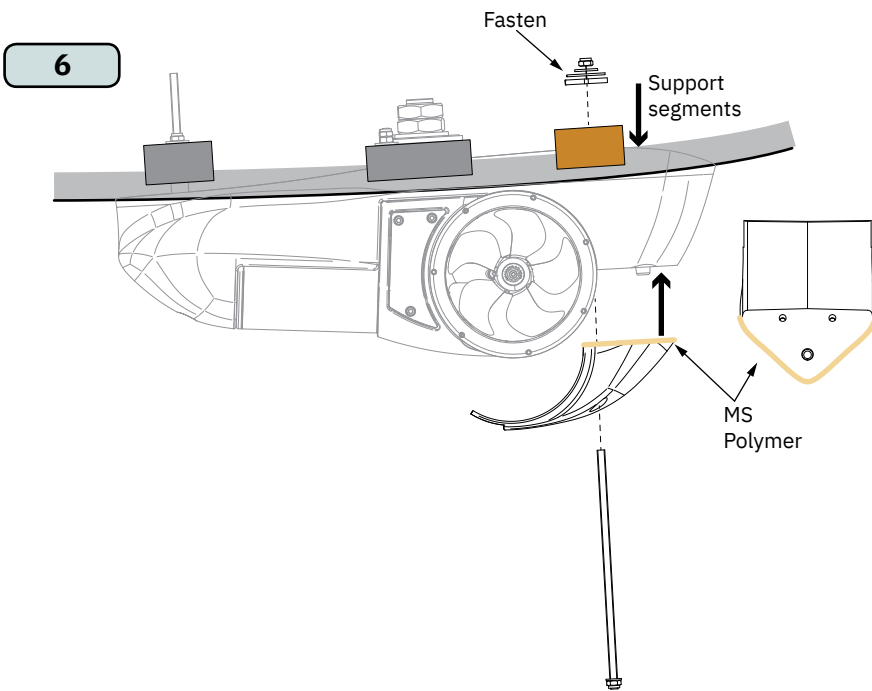
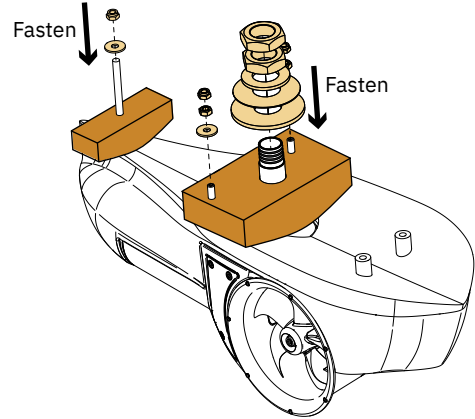
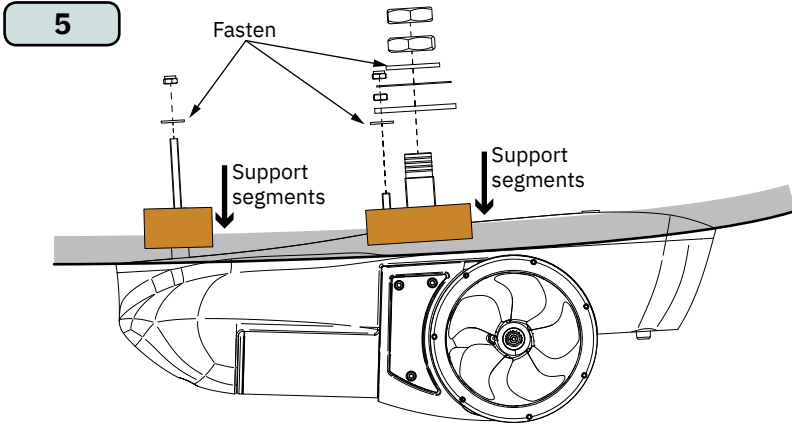
**(NB: Ensure ample sealant (MS Polymer) around the bolts and centre tube for a watertight fitting.)**



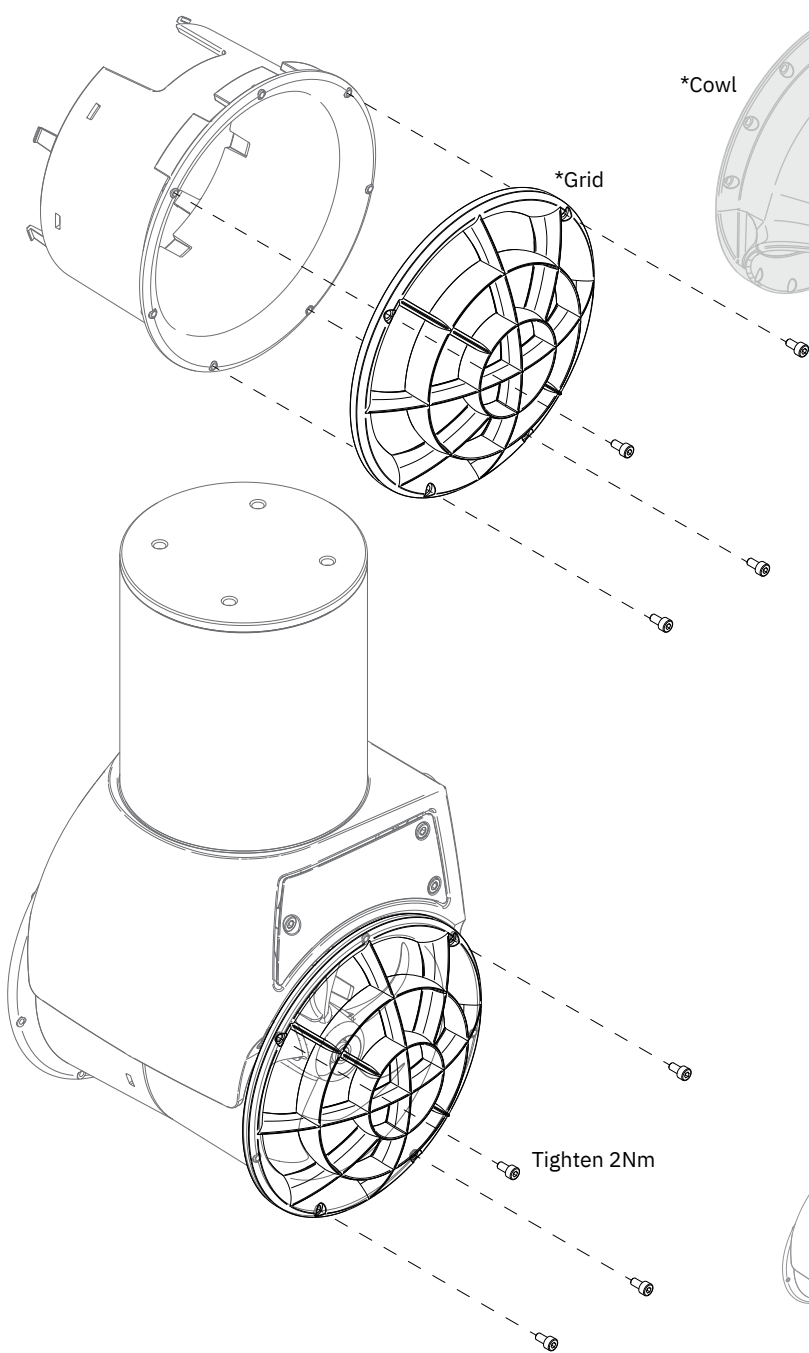
**! Please refer to the graphic for special considerations relating to your model !**

5. Place the Hydro pod to the hull without the nose cap. Fasten the Hydro pod via the SX thruster and back hydro pod securing bolt. **(NB: Wipe away MS Polymer that has been pushed out from the compression of the Hydro pod to the hull.)**
6. Place the Hydro pod nose cap and fasten nose cap securing bolt

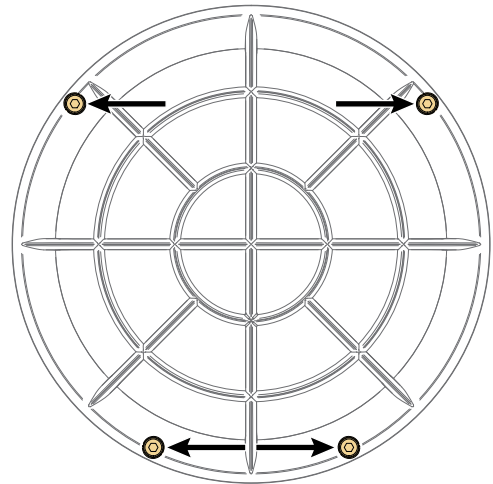
**For installations in high corrosive environments (saltwater) the exposed aluminium parts of the thruster must be coated with an epoxy primer before antifouling or/and use.**



1. Attach the cowls or grids with included bolts. *(NB: If installation of the cowls ensure the appropriate twist of the cowl to direct water away from obstacles. Cowls are not used in combination with the hydropod.)*

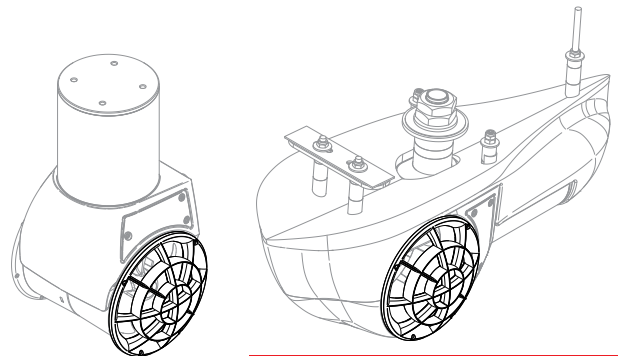


Grids and cowls can not be installed in combination. Only one option is possible at a time.

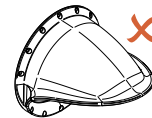


Correct rotation of the grid/ cowl requires the longer spaced bolts at the top and the shorter spaced bolts at the bottom

Tighten 2Nm



**WARNING**  
Cowls are not used in combination with the hydropod



1. Plan the location of all electrical components before starting with the electrical installation. Main electrical components will typically consist of battery, fuse, main switch, Proportional Power Controller (PPC) and Control Box, see Wiring Diagram chapter for an overview.

For safety reasons it is always recommended to install a fuse and a main switch on the power cable and as close as possible to the positive battery pole. Distance between battery and fuse should be less than 1 meter. The main switch must be installed such that is easily accessible to disconnect the thruster when not on-board or in the case of an emergency. Sleipner offers both manual main switches and Automatic Main Switches (AMS). Sleipner AMS is controlled by the control panel in addition to the option of manual operation. Turning on the control panel does also turn on the automatic main switch. When the control panel is turned off the automatic main switch is also turned off. This ensures that the control electronics and motor is only energized when the control panel is turned on. Sleipner offers AMS supporting either S-Link or ON/OFF control panels. Ensure to select a main switch with voltage and current ratings according to the specifications of the chosen thruster motor. Note that the AMS requires separate power supply which should be protected by a dedicated fuse.

For installations which requires ignition protected equipment ensure to use ignition protected fuse and main switch. Ensure to follow your national regulations.

2. Estimate the total length of the power cables to determine the recommended cross section. The total power cable length is defined as the distances from the positive battery pole, via fuse, main switch and PPC to the Control Box and all the way back to the negative battery pole. Compromising the cable sections named B+, M- and B- on the drawing in the Wiring Diagram chapter.
3. Find the recommended power cable cross section for you installation by using the estimated total power cable length and the table shown in Electrical Reference Guide chapter. Note that maximum cross section that fits through the grommet of the Control Box is 70mm<sup>2</sup>. Maximum cross section that fits with the power cable terminal inside the Control Box is 50mm<sup>2</sup>. If a 70mm<sup>2</sup> cable is used some of the wire strands must be cut off to fit the cable inside the terminal. If recommended cross section exceeds 70mm<sup>2</sup> it is recommended to use as short as possible cables between PPC and Control Box with maximum 70mm<sup>2</sup> cross section. The recommended cross section or larger should then be used for the rest of the power cables.
4. Find the recommended fuse rating by using the table shown in Electrical Reference Guide chapter. Use slow blow rated fuses to hold stated nominal current for minimum 5 minutes.
5. Select appropriate dimensioned battery with Cold Cranking Amps (CCA) according to recommendations in Electrical Reference Guide chapter. Battery voltage must be compliant with the voltage rating of the thruster motor and control circuitry. Capacity and rated discharge current of battery should be according to rated nominal current drawn and typical duty cycle for thruster operation. Nominal current drawn is listed in Electrical Reference Guide chapter. The actual voltage at the motor while running the thruster determines the motor RPM and thrust. Cable losses can reduce the voltage level and result in reduced thrust. Use larger cable cross section and high-capacity battery for improved performance.
6. Install the Control Box according to instructions in Control Box Installation chapter.
7. Install the control panel according to instructions in the installation manual of the selected Control Panel.
8. Install the battery, fuse, main switch and wiring according to instructions in Wiring Diagram chapter and installation manual of selected fuse and main switch.

### WARNING

**Check the following with the main switch is set to off. After all electrical connections have been completed check with an ohm meter that there is no electrical connection between**

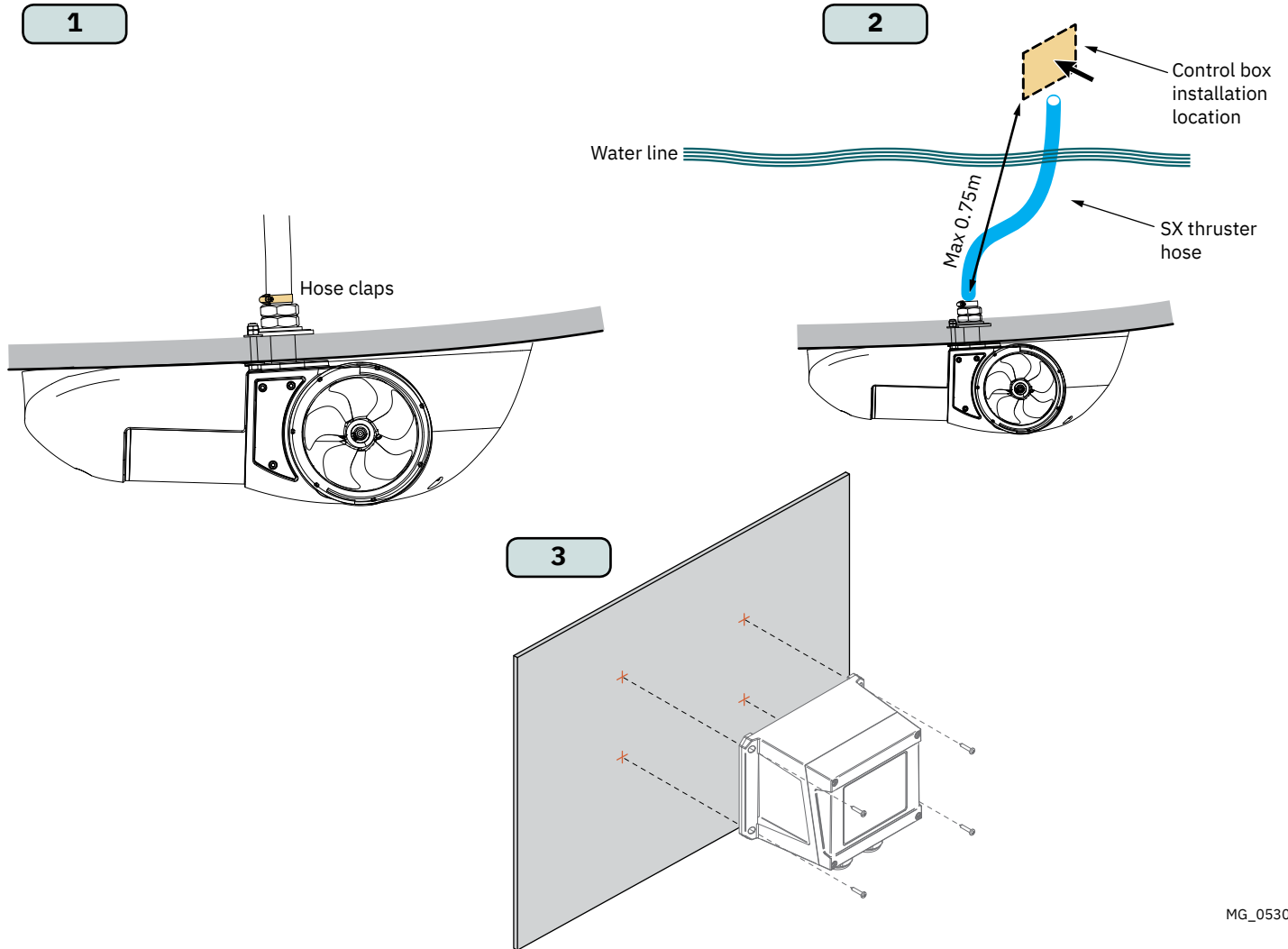
1. electro-motor flange and the positive terminal on the motor
  2. electro-motor flange and the battery negative terminal on the motor
- (If unsure contact skilled personnel.)

## Electrical Reference Guide

Model Size	System Voltage	Nominal current draw	Min. battery CCA	Rec. fuse	Cross Section Guide for Power Cables												
					Unit	<7m total + & -		7-14m total + & -		15-21m total + & -		22-28m total + & -		28-35m total + & -		36-45m total + & -	
						Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.
35/140	12V	245 A	DIN: 200 SAE: 380 EN: 330	ANL 150	mm <sup>2</sup>	35	50	50	70	70	95	95	120	120	2 x 70	2 x 70	2 x 95
					AWG	2	1/0	1/0	2/0	2/0	3/0	3/0	4/0	4/0	2 x 2/0	2 x 2/0	2 x 3/0
50/140S	12V	370 A	DIN: 350 SAE: 665 EN: 600	ANL 325	mm <sup>2</sup>	50	50	70	95	120	2 x 70	2 x 70	2 x 95	2 x 95	2 x 120	2 x 120	2 x 120
					AWG	1/0	1/0	2/0	3/0	4/0	2 x 2/0	2 x 2/0	2 x 3/0	2 x 3/0	2 x 4/0	2 x 4/0	2 x 4/0

Follow the below steps to install the Control Box. Additional installation details can be found in the corresponding graphics.

1. Pull the blue SX Thruster Hose around the cable harness coming out of the SX Thruster. Fasten the hose clamp.
2. Define the location to install the Control Box. It can be mounted in any orientation, preferably with cables facing down. The control box must be positioned within 0.75 meters from the thruster attachment bolts. Ensure that the SX Thruster Hose will not obstruct any objects and not placed near any object that radiate high temperatures.
3. Mark the locations of the four drill holes and drill the holes. Ensure that the back wall where the Control Box is to be mounted have sufficient thickness and strength.

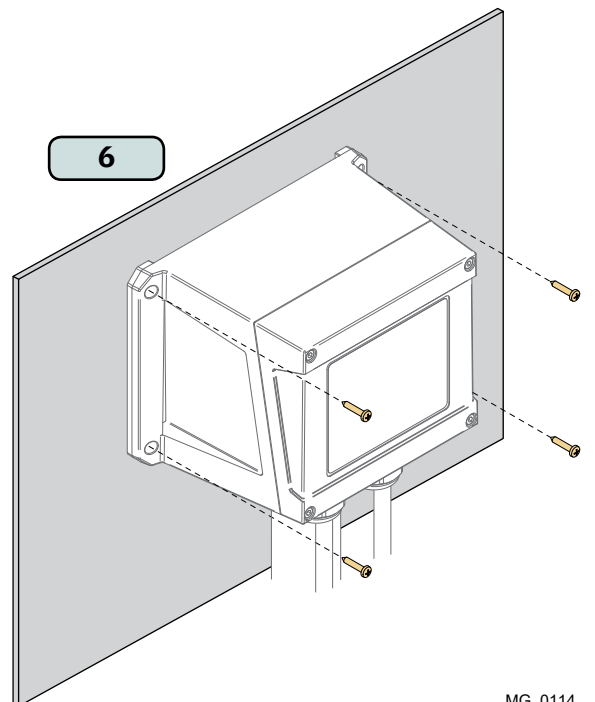
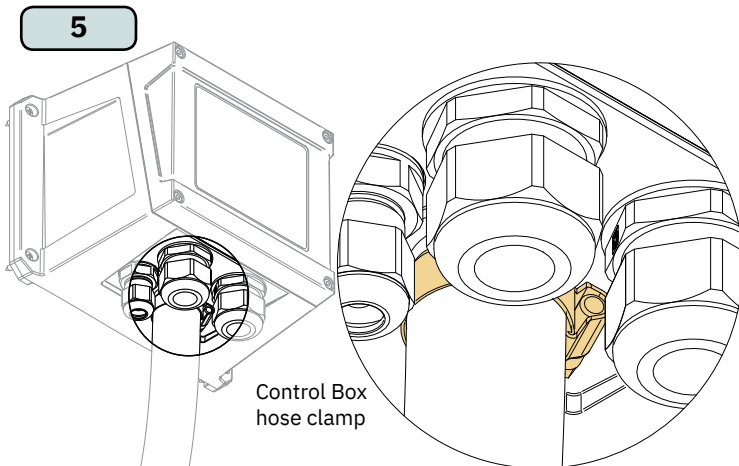
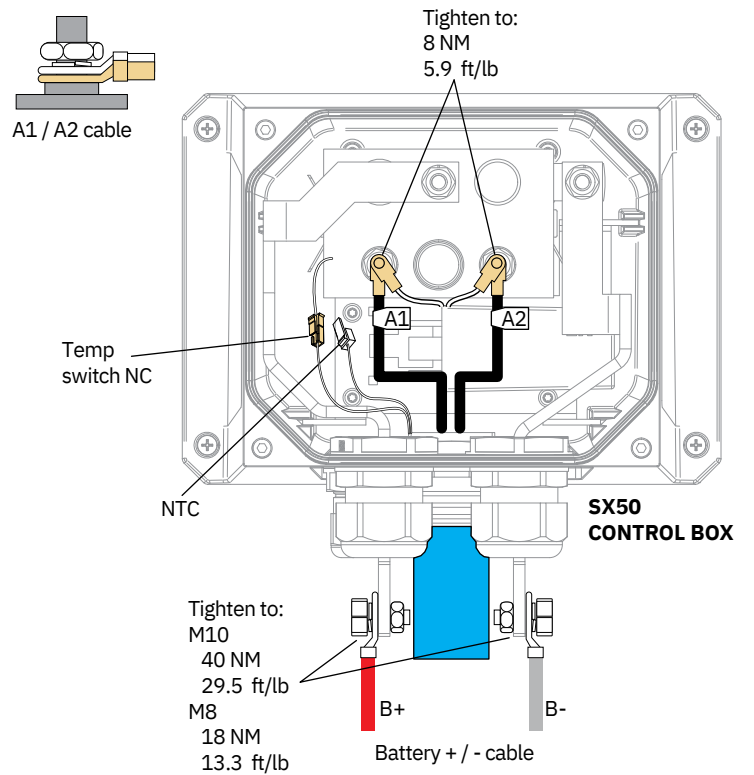
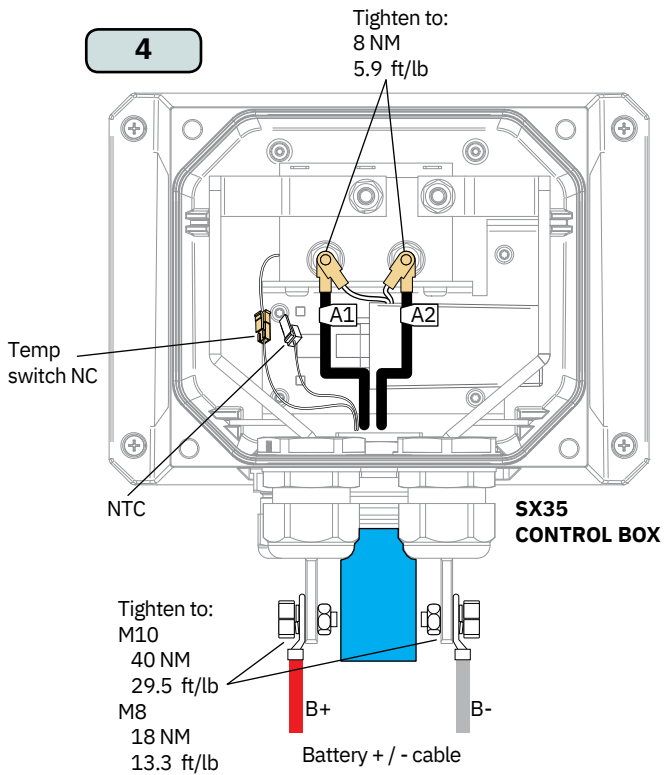


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4. Follow the cable marking and fasten motor power cables coming from the SX Thruster in the control box. The motor power cables are marked A1 and A2 and should be fastened to the terminal with corresponding marking. Place the ring cable lug connected to the white wire between the lug of the motor power cable and the nut. Fasten the nut with recommended torque. Ensure that the ring cable lug is kept at same terminal as originally placed.
  - Insert the B+ and M- power cables to the external connectors as shown in figure below. Fasten the power cables to the terminals with recommended torque.
  - Connect the Temp Switch (**NB: Additionally connect the NTC connector for proportional thrusters.**)
5. Tighten hose clamp on Control Box.
6. Fasten the control box to the hull.

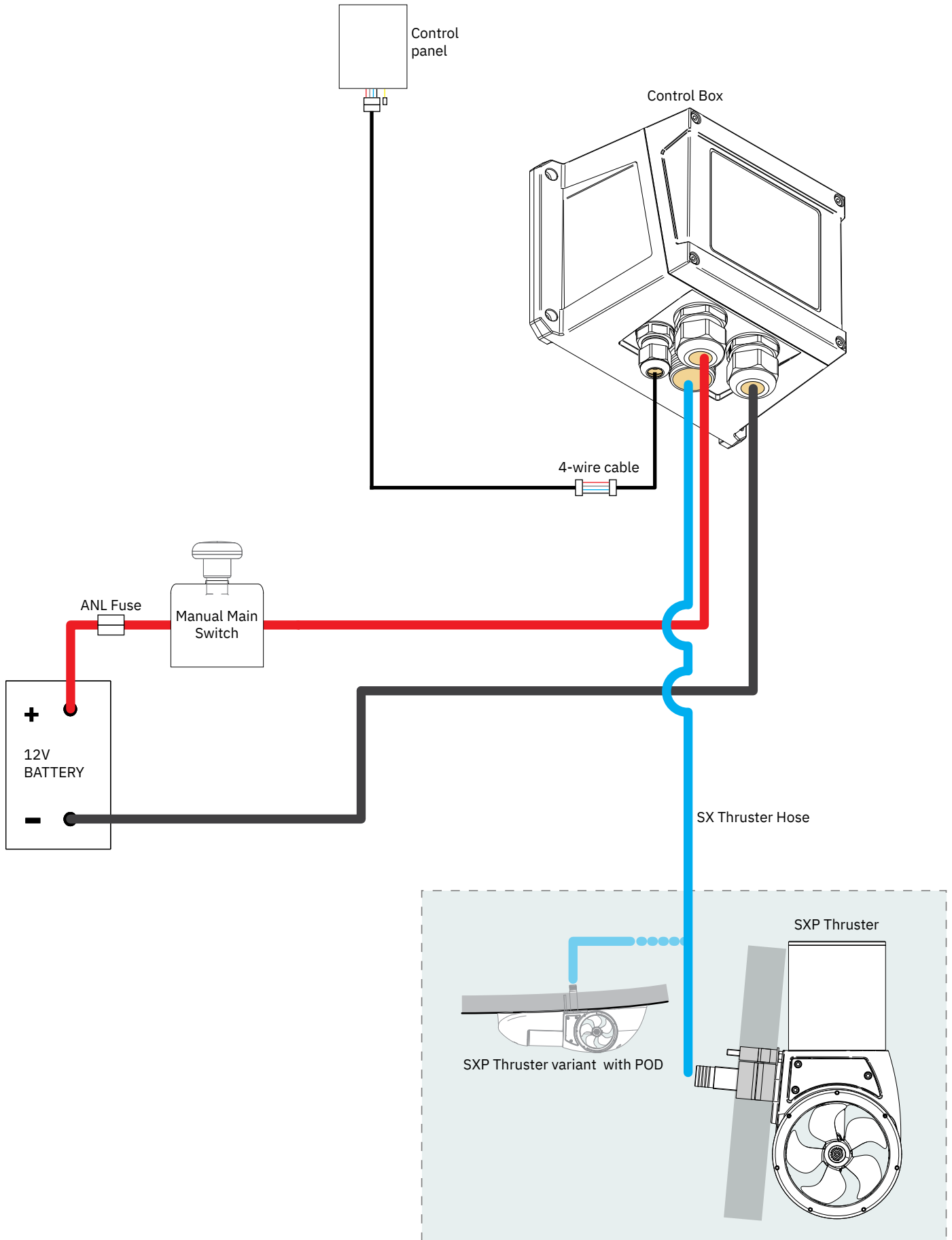
**IMPORTANT**

It is the installers full responsibility to follow instructions and ensure total Ignition Protection.

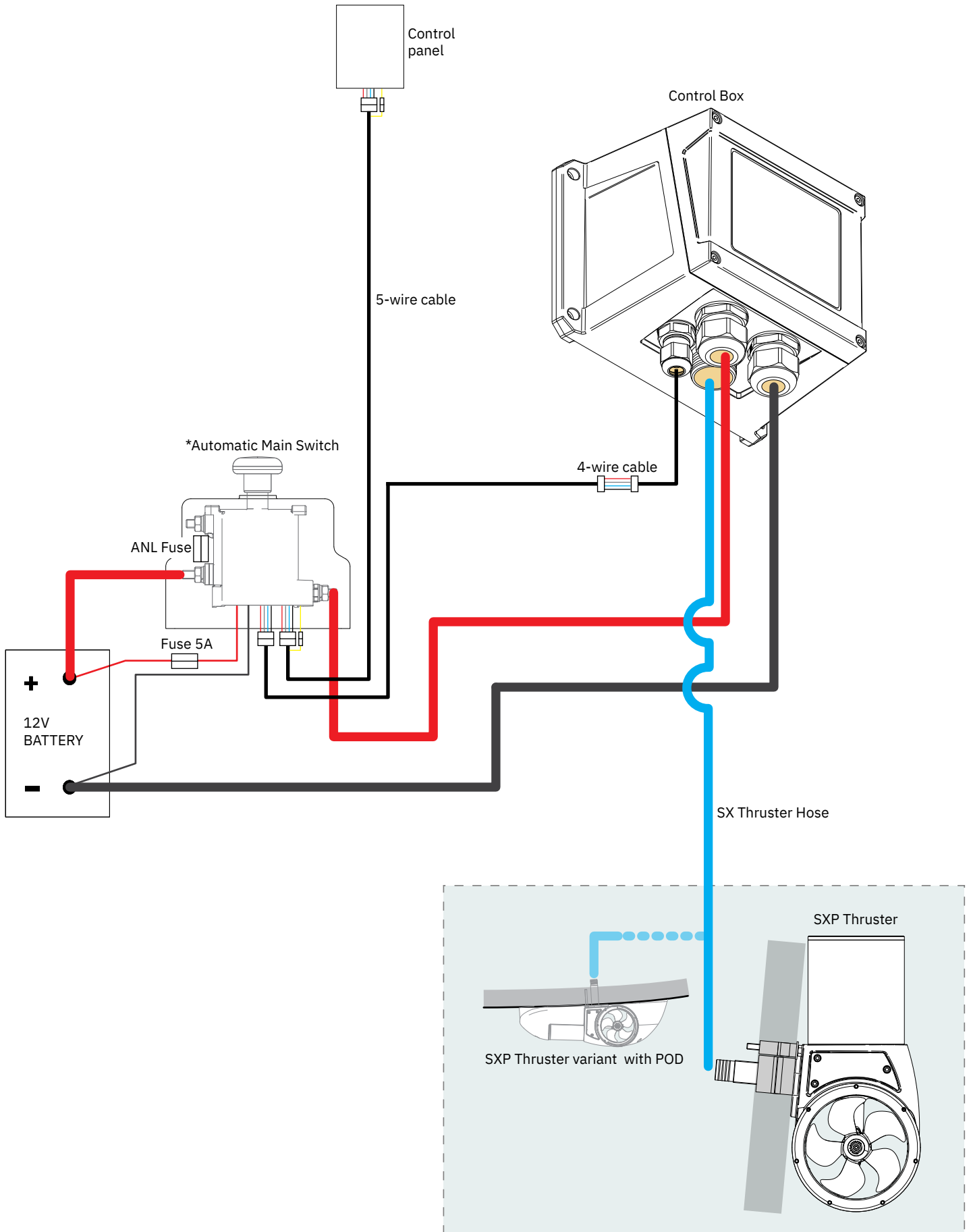




# Manual Main Switch Wiring Diagram 12V SX Thruster



# Automatic Main Switch Wiring Diagram 12V SX Thruster



For **Control Panel** installation please refer to the Installation Guide accompanying the control panel to be installed.



- ..... Propeller is fastened correctly to the shaft.
- ..... Propeller turns freely in tunnel.
- ..... Primer and anti-fouling have been applied to the gear house and propeller but NOT on the anode or the gear house lid where the propeller is fastened. **(NB: Do not use abrasive tools damaging the existing Epoxy coating when preparing for antifouling paint.)**
- ..... Correct drive direction as per control panel.
- ..... The bolts holding the thruster to the hull are tightened correctly.
- ..... All electrical connections are clean, dry and tight, and the correct cable, fuse and main switch size.
- ..... No water leakage around hull penetrated studs

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

Signed: .....

Date: .....

Extra pre-delivery tests by installer / yard who does not use other quality control systems !

Thruster type: .....

Serial number:.....

Date of delivery:.....

Correct drive direction as per control panel: .....

The compartment for the thruster has been isolated from general bilge water and has no obvious or suspected risks for flooding:

.....  
.....  
.....

Other comments by installer: .....

.....  
.....  
.....

**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

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