



SIDE-POWER Thruster Systems

SXP

- 35/140

- 50/140

Installation Manual



NEW

SX-Hydro pod



For installing SX thruster with the Hydro-pod modification please use the SX-Hydro pod installation guide.

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DECLARATION OF CONFORMITY

MC_0020



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

Declare that this product with accompanying standard control systems complies with the essential health and safety requirements according to:

DIRECTIVE 2013/53/EU
DIRECTIVE 2014/30/EU
DIRECTIVE 2014/35/EU

It is the installers responsibility

When installing Side-Power equipment to follow the outlined regulations/ classification rules (electrical/ mechanical) according to international or special national regulations. Instructions in this guide cannot be guaranteed to comply with global electric/ mechanic regulations/ classification rules.

It is the installers responsibility

To follow all health and safety laws in accordance with their local outlined regulations/ classification rules.

Before installation, it is important that the installer reads this guide to ensure necessary acquaintance with this product.

The recommendations made in this manual are guidelines ONLY, and Sleipner Motor AS (Side-Power) strongly recommend that before installation, advice is obtained from a naval architect familiar with the particular vessel and regulations/ classifications.

This manual is intended to support educated/ experienced staff and is therefore not sufficient in all details for professional installation. *(NB: These instructions are only general instruction. If you are not skilled to do this work, please contact professional installers for assistance.)*

All electrical work must be done by a licensed professional.

IMPORTANT

Faulty installation of the tunnel, thruster or panel will render all warranty given by Sleipner Motor AS void.

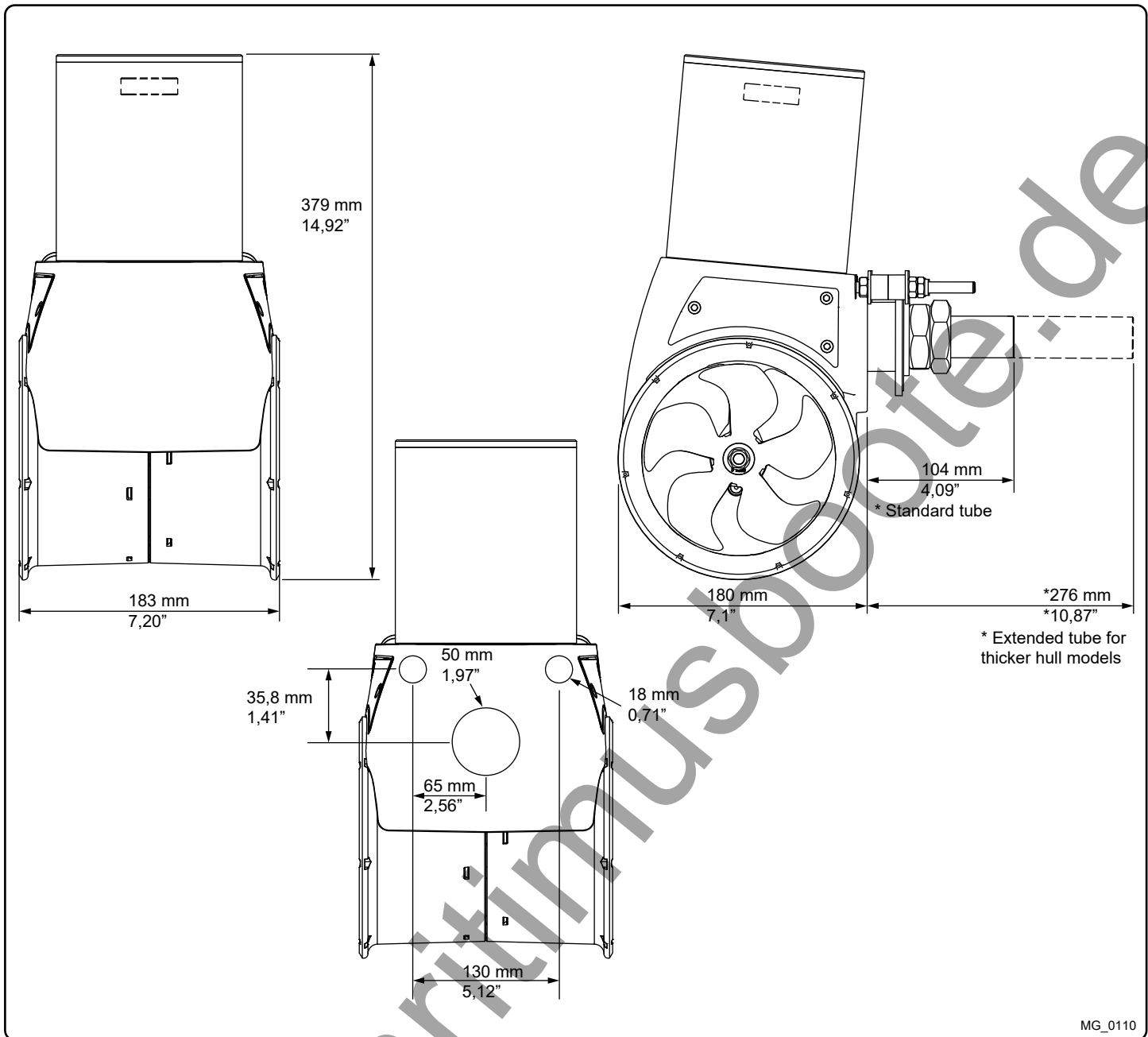
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Installation Considerations and Precautions

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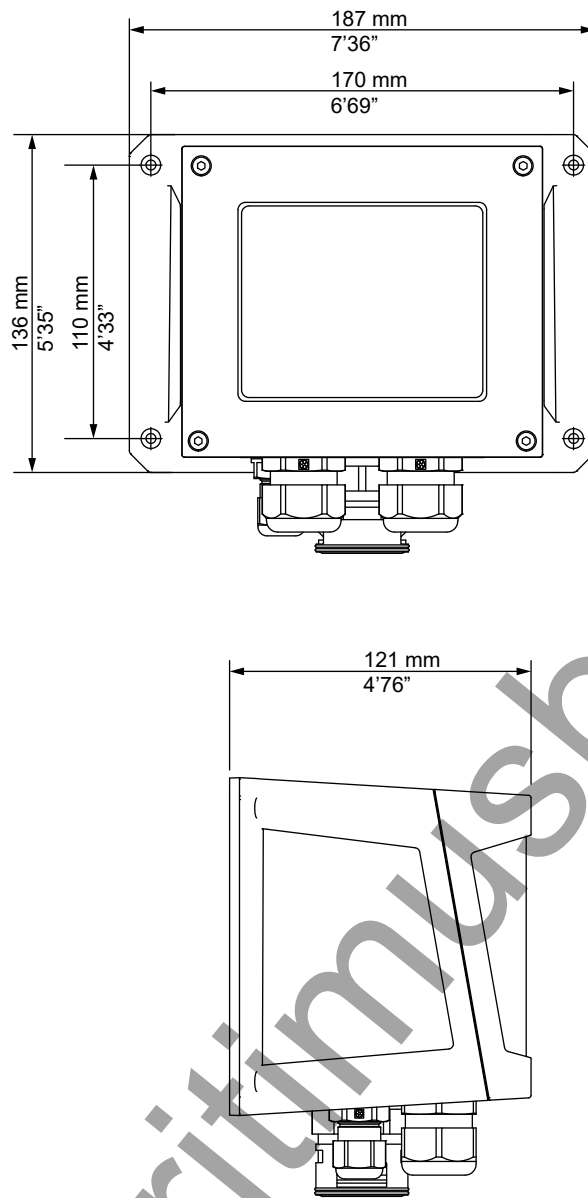
- Do not install the thruster in a position where you need to cut a stiffener/ stringer/ support for the hull integrity without checking with the boat builder this can be done safely.
- Contacts/ plugs or other joints in the control cables must be mounted so they will remain dry at all times.
- We advise painting the thruster with primer and antifouling. **(NB: Do not paint the anodes, sealings or propeller shafts)**
- Do not finish the inside of the tunnel with a layer of gelcoat/ topcoat or similar. There is only room for a thin coat of primer and two layers of anti-fouling between the tunnel and the props.
- keep installation within advised measurements. The entire surface is hard coated seawater resistant aluminium. Do not damage/penetrate the coat.
- The external stern thruster assembly and controller unit are ignition protected and can be installed in areas with the chance of explosive gases in accordance to ISO 8846 and ABYC c1500. (Certification pending)
- Ensure that the external stern thruster assembly does not disturb the water flow under the hull. At higher speeds, if the thruster is installed to low it can cause damage to the thruster and/ or add additional drag and unwanted water splashing.
- The recommended 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 sterndrives/ trimtabs do not interfere with the water flow from the thruster as this can reduce the thrust effectiveness considerably. We recommend the use of our Side-Power cowls to enhance the performance and allow installation in shallow draft boats. Side-Power cowls will also minimise the effect if sterndrives/ trimtabs 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 steerage links etc. **(NB: It is possible to mount the tunnel offset from the boat's centre line if necessary.)**
- Heat protection cut off is calculated from the thruster motor. To avoid cable overheating do not install place the volt cables from the thruster to the control box near any heat sources.



description	* 35	* 50
Available DC System (v)	12v	12v
Thrust 12v or 24v (kg * lbs)	43 kg * 94 lbs	62 kg * 136 lbs
Thrust 10.5v or 21v (kg * lbs)	35 kg * 77 lbs	50 kg * 110 lbs
Typical Boat Size (m * ft)	6m - 10m * 19ft - 32ft	8m - 11m * 27ft - 37ft
Propulsion System	Single	Single
Power (kw * Hp)	1.8kw * 2hp	2.8kw * 3.75hp
Weight (kg * lbs)	14.3 kg * 31.5 lbs	14.3 kg * 31.5 lbs
Minimum Battery Capacity (CCA) 12v * 24v * 48v	300	380

*Valid for SE / SE IP & SEP / SEP IP

Motor:	Custom made PM-DC motor.
Gearhouse:	Seawater resistant aluminium. Ballbearing and ceramic axial seals at propeller shaft and a combination of ball bearing/ slide bearing at driveshaft.(Pre-filled and sealed for life)
Tunnel:	Hydrodynamic fibreglass reinforced snap on composite.
Propeller:	5-blade propeller, fibreglass reinforced composite.
Batteries:	Minimum recommended battery capacity (cold crank capacity (CCA) by DIN/SAE standard) <i>SEE 'ELECTRICAL SPECIFICATIONS</i>
Max. use:	S2 = 4 min. or appr. 7-10% within a limited time frame.
Safety:	Electronic time-lapse device protects against sudden change of drive direction. The electric thermal cut-off switch in electromotor protects against overheating (auto reset when electro motor cools down). If using the original Sidepower panel, the panel shuts off automatically 6 minutes after last use. An integrated microprocessor monitors solenoids, reducing wear and risk of solenoid lock-in. Auto-stop of the thruster in case of accidental solenoid lock-in or if run signal is continuous for more than 3 minutes



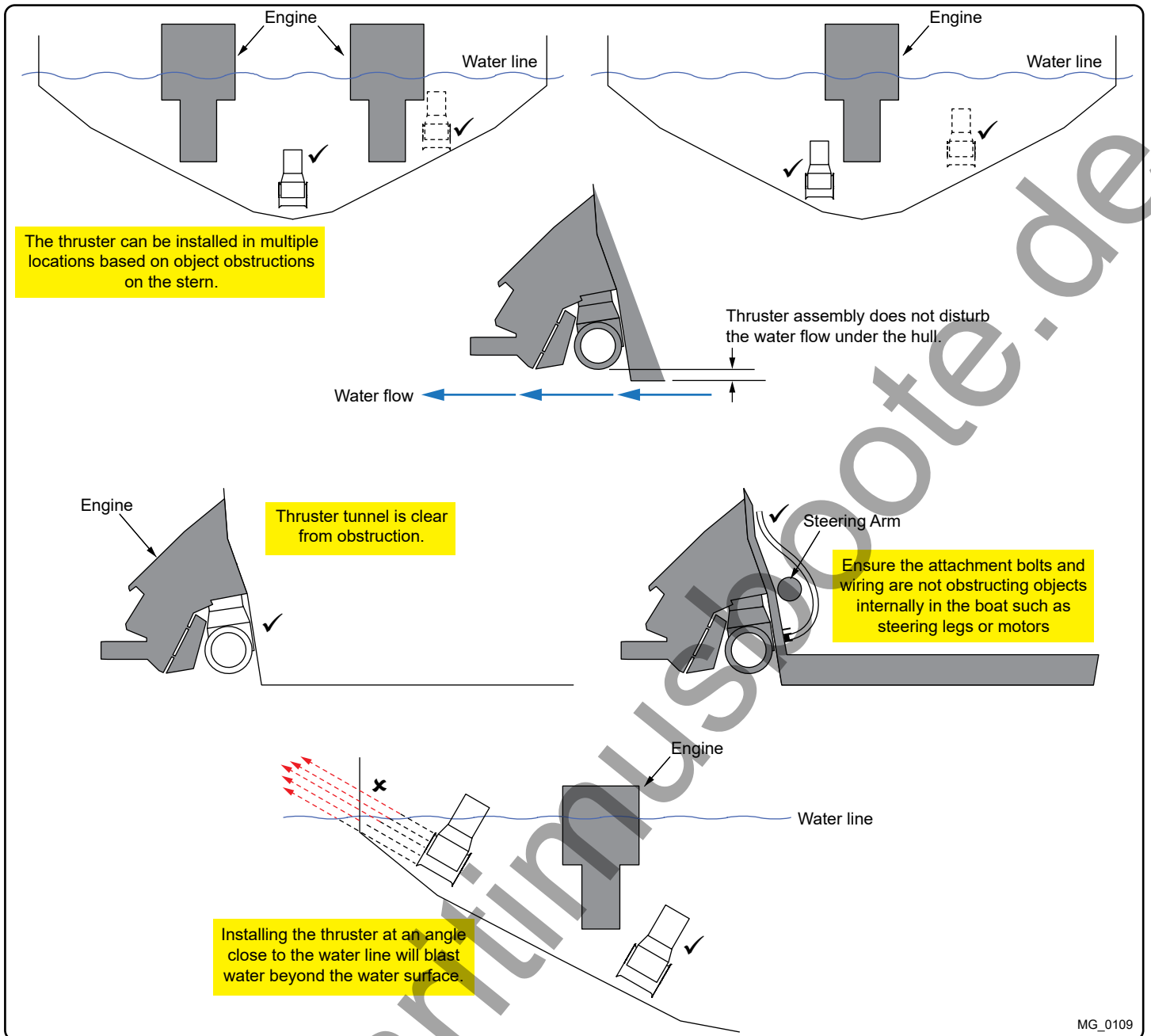
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Control Box Technical Specifications

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	SX35	SX50
Operation volts:	12v.	12v
Max Current:	250A	380A
Duty Cycle:	S2.	S2
Max ambient temp:	50°C	50°C
Min ambient temp:	-25°C	-25°C
Power supply cable:	35 - 70mm ² / AWG 2 - 00	35 - 70mm ² / AWG 2 - 00
Mount direction :	Any	Any



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Positioning the stern thruster

MC_0072

For best performance, the thruster must be installed as deep on the stern as possible and the thrusters water flow must not obstruct any objects.

The thruster should be installed as deep under the waterline as possible for two reasons:

1. So it does not suck air from the surface which will reduce performance and increase noise levels.
2. To receive maximum efficiency and thrust.

The thruster must be installed to ensure the propulsion water flow must not be obstructed by other objects. Objects that obstruct the water flow will greatly reduce the thrust output.

Position

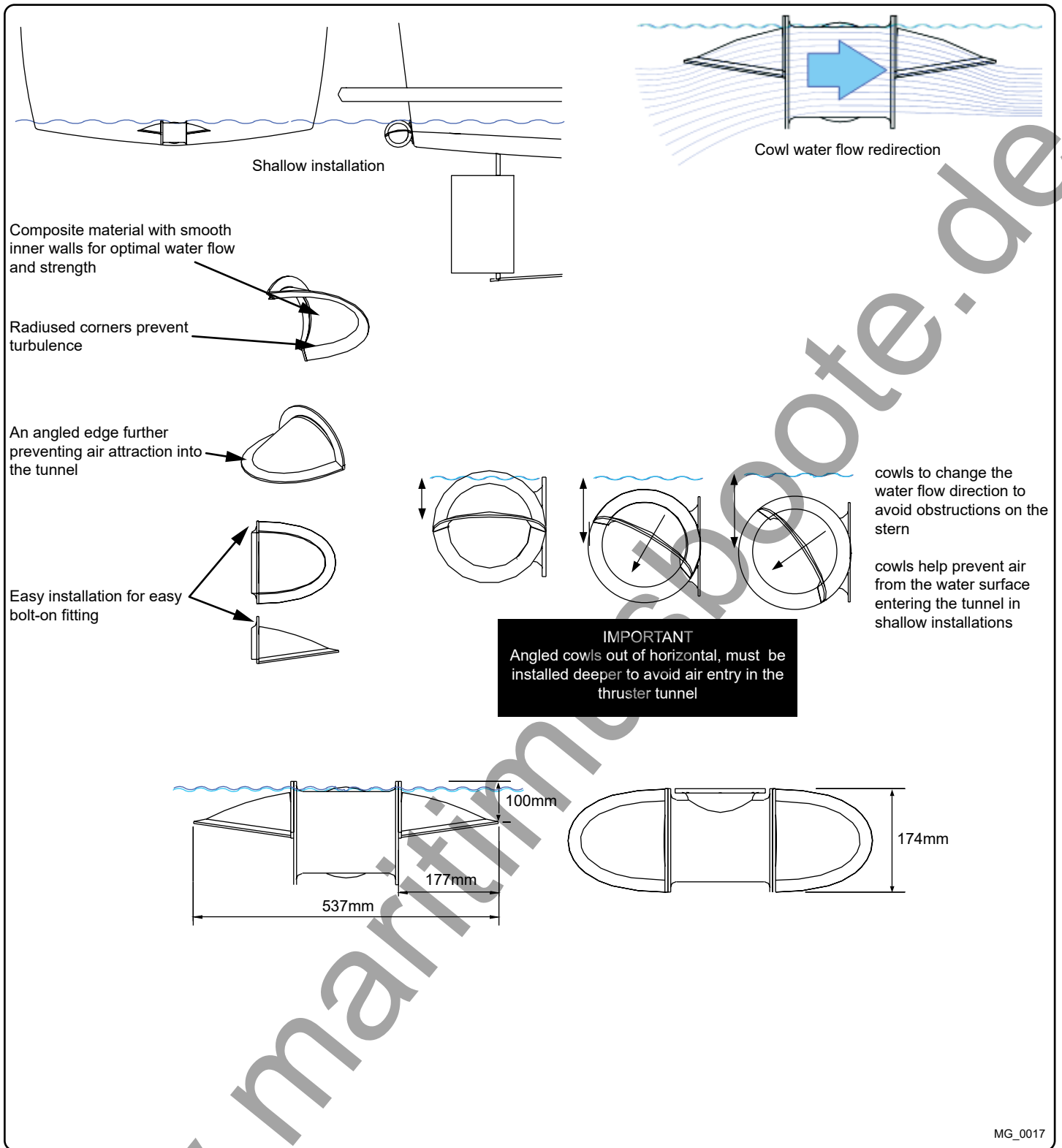
The thruster can be installed in multiple locations on the boat transom. Installing the thruster slightly off centre will not affect the overall effectiveness of the thruster. Installing the thruster off centre may be required to avoid any obstructions externally or internally on the vessel.

Ensure that the external stern thruster assembly does not disturb the water flow under the hull. At higher speeds, if the thruster is installed to low can cause damage to the thruster, additional drag and unwanted water splashing.

Alignment

The thruster can be installed at a slight angle if required for the water flow to avoid obstructions. These obstructions can include propellers systems, trim tabs or the hull. The average force the thruster propels water is 5-7 meters per sec, therefore angled installations must be as deep as possible under the water to minimise spray breaking beyond the water surface. **(NB: install the thruster at an angle only if no other suitable location can be found.)**

Max hull thickness 50mm include spacer



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Stern Thruster Cowls/ Grids

MC_0072

Installing a stern thruster cowl for stern thrusters that will allow installations in boats with shallow drafts or due to other obstructions on the stern. These can include obstacles such as trim tabs, jets or surface drive propeller systems where shallow installation of a stern thruster is the only option.

Cowls:

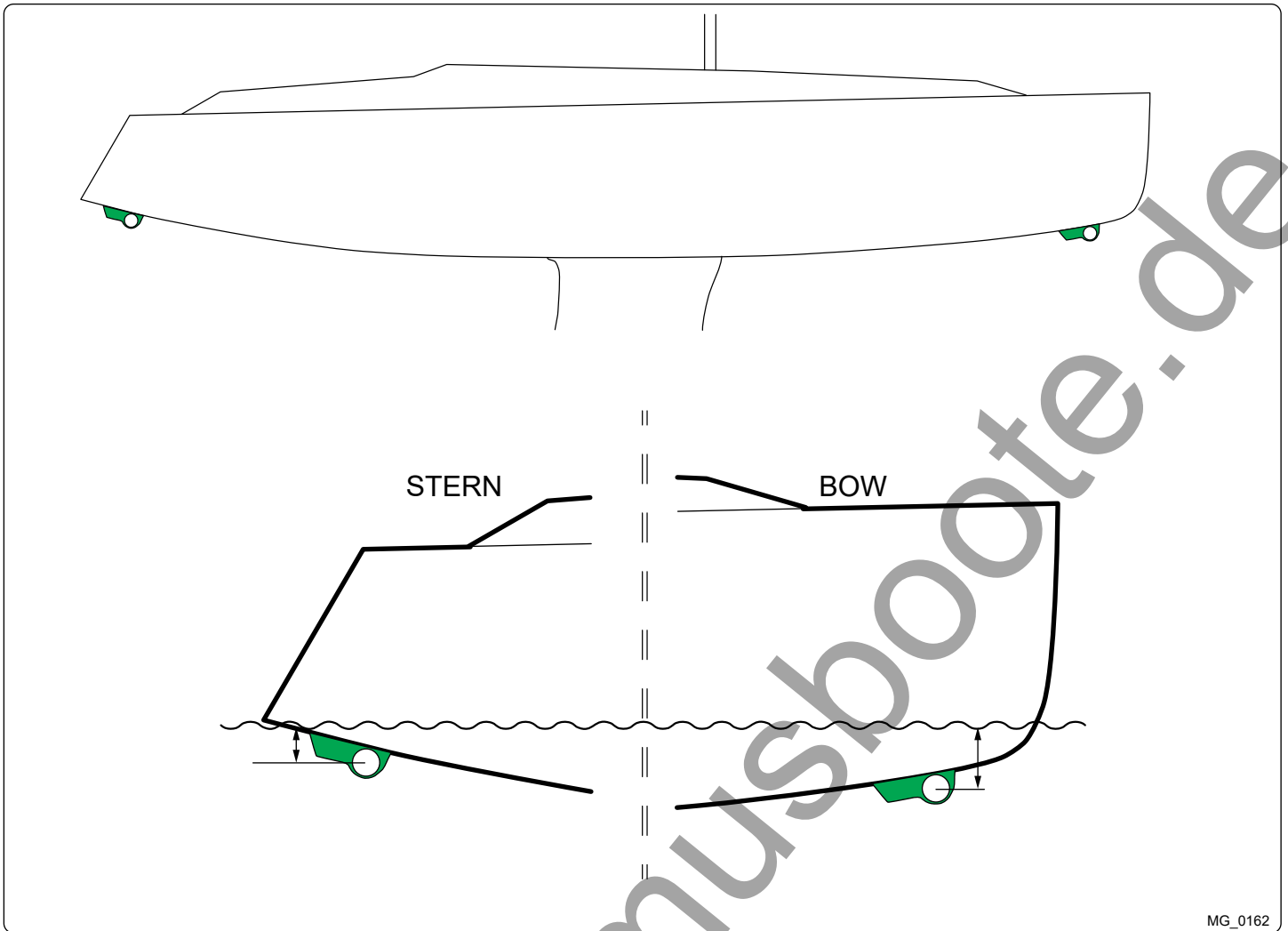
Designed to aid in water redirection and reduce air entering the tunnel in shallow installations.

Grids:

Designed to protect the thruster from objects while in use.

IMPORTANT

Install the cowls/ grids before mounting the tunnel to the SX thruster.



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Positioning of the SX with Hydrodynamical Cover

MC_0072

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.

Before installation, it is important that the installer reads this guide to ensure necessary acquaintance with this product.

- The electromotor must be handled with care. Do not lift it by internal connections/ main terminals or placed down on the driveshaft.
- With the boat on land, run the thruster for short bursts.
- While the thruster is in the air, ensure that the propellers have come to a complete stop before performing a directional change of the thruster, as it might cause damage to the thruster.
- It is important to follow the guidelines in this manual. Failure can result in severe damage to the thruster.

DC Ignition Protected Thrusters:

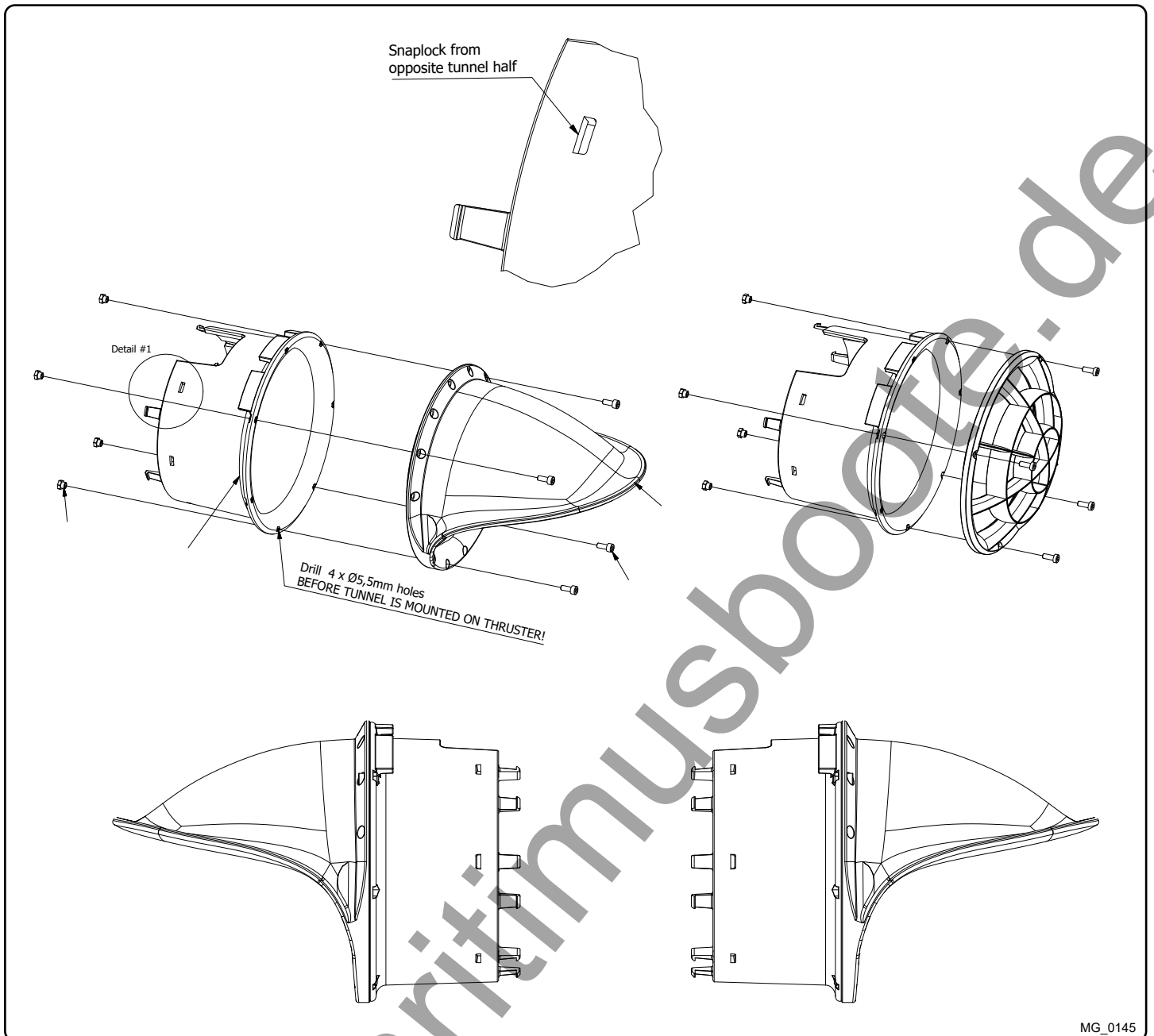
- If there is a problem with your Ignition Protected stern thruster, please contact your dealer.

NEVER

Disassemble any part of the Ignition Protected stern thruster assembly. Tampering with the Ignition Protected stern thruster assembly or any attempt to disassemble anything on this thruster assembly inside the boat can cause an explosion with severe consequences.

IMPORTANT

If installing S-link products DO NOT connect any other control equipment to the S-link controlled products except Side-Power original S-link products or via a Side-Power supplied interface product made for interfacing with other controls. Any attempt to directly control or at all connect into the S-link control system without the designated and approved interface will render all warranties and responsibilities for the complete line of Side-Power products connected void and null. If you are interfacing by agreement with Sleipner and through a designated Side-Power supplied interface, you are still required to also install at least one original Side-Power control panel to enable efficient troubleshooting if necessary.



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Grids or Cowls assembly

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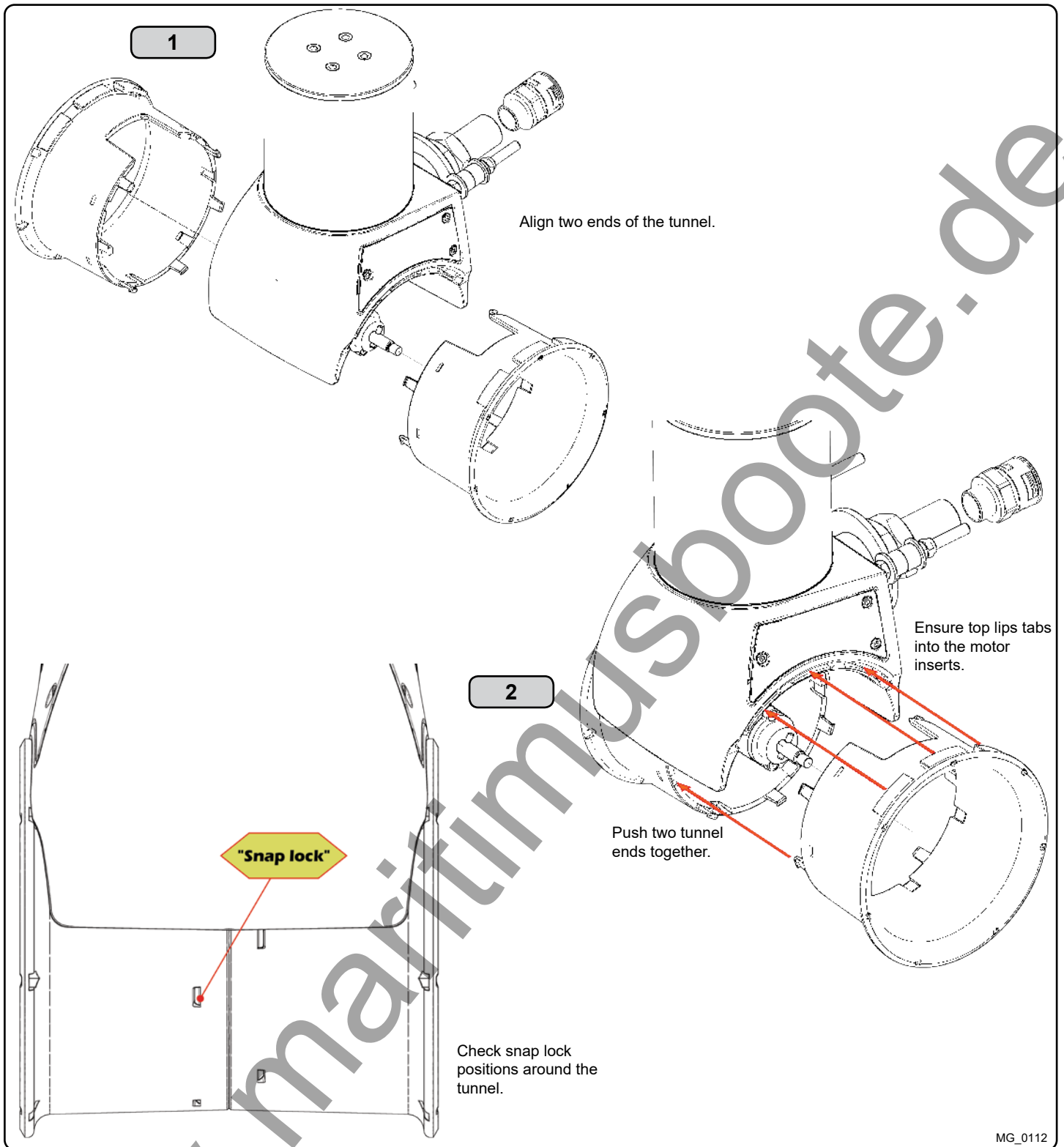
1. Install the cowls or grids before mounting the new tunnel to the thruster. **(NB: Remember the tunnel can not be removed without being destroyed.)**
2. Drill 4 holes in the mould marking on the tunnel.
3. Attach the cowls or grids with included bolts and washers. **(NB: Ensure the appropriate twist of the cowl to direct water away from obstacles)**
4. Attache the compleated tunnels.

For retrofit

1. Remove propeller and the old tunnel. **(NB: the tunnel is not designed to be removed non-destructively. Break off the snaplocks between the tunnel half ends by pushing a small screwdriver through the holes from the outside.)**
2. Follow the above installation process.

IMPORTANT

Cowls or Grids must be fitted to each tunnel half before you assemble the tunnel to the thruster unit.



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Tunnel Installation

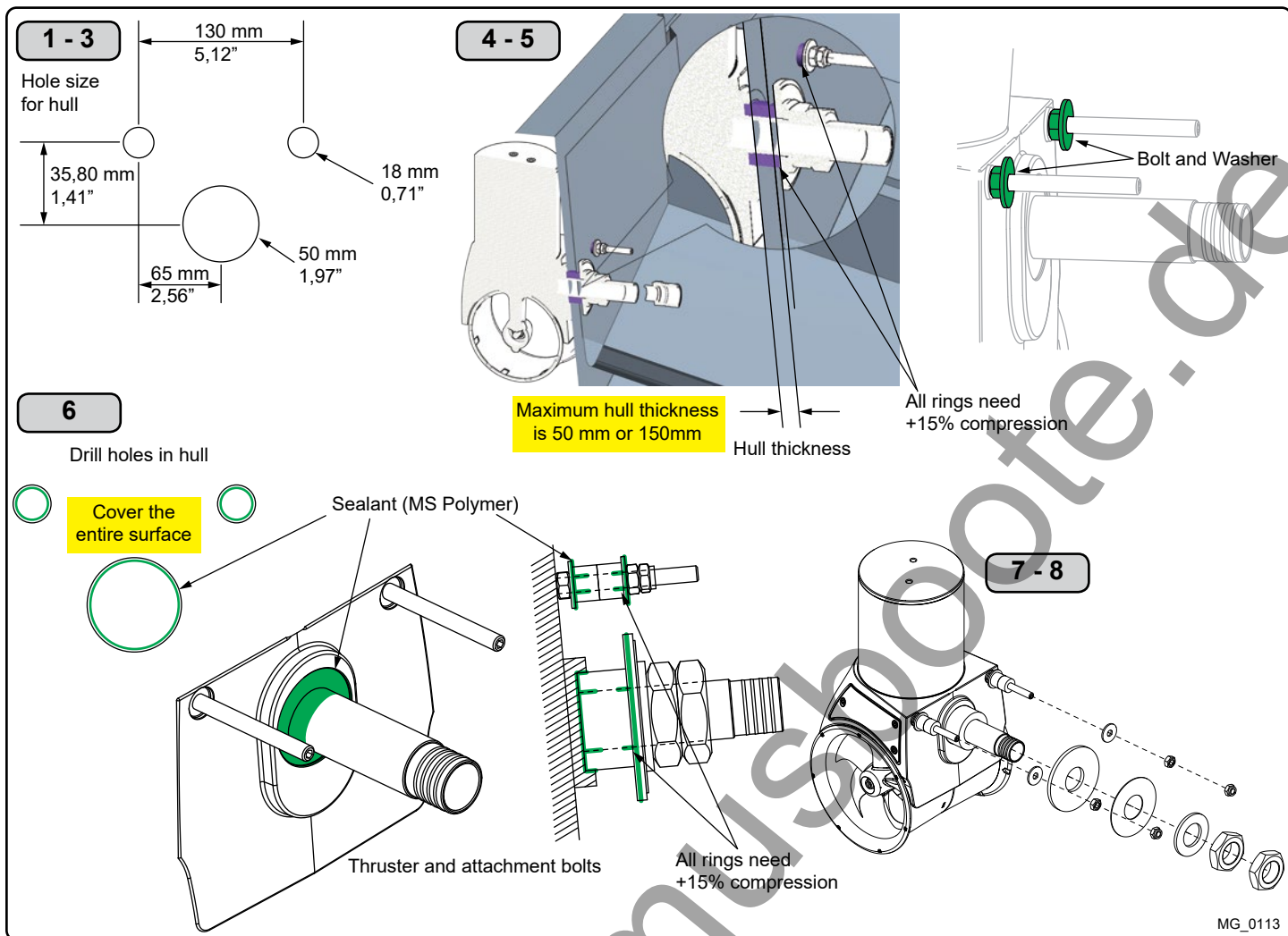
MC_0074

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

1. Ensure grids or cowls are installed if in use.
2. 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.



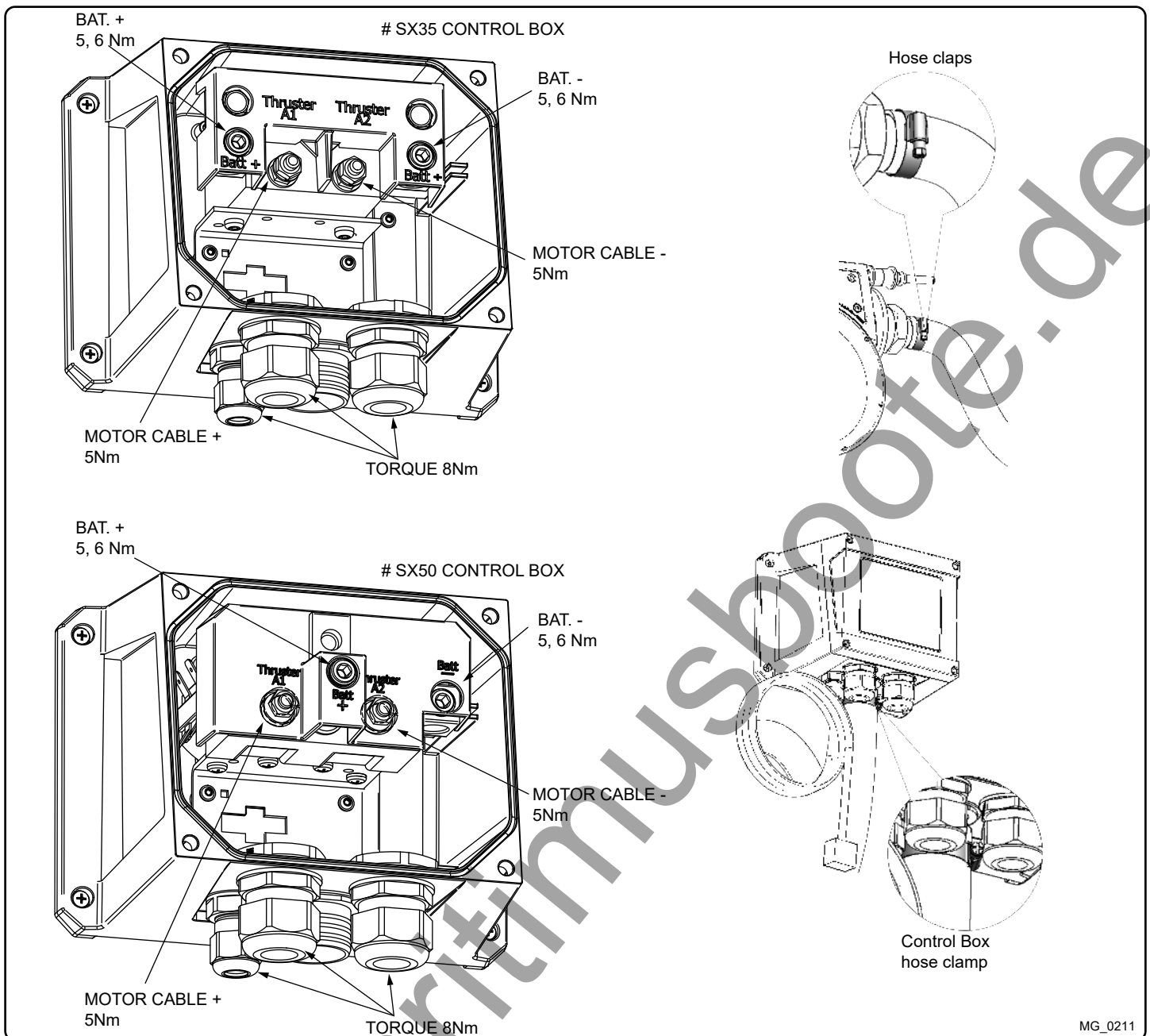
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Motor Installation

MC_0074

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

1. Define the location to install the thruster. **(NB: Ensure the thruster does not protrude past the transom profile on any side and there is no obstruction to the thrusters water flow. Also, check internally the thruster will not obstruct any objects.)**
2. Mark the locations of the three drill holes using the defined measurements in this manual or from a template. **(NB: Maximum hull thickness is 50mm including optional spacer or 150mm for extended hull thickness models.)**
3. Drill main hole, then two support bolt holes. Clean the area from dust for installation of the thruster.
4. Install a bolt and washer to ensure top bolts contact surface area is level with the main tube. Temporally place the thruster through the holes to ensure correct fitting. Using the cable leads from the thruster define the location within the vessel for the installation of the control box. **(NB: 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.)**
5. 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.)**
5. The thruster assembly must sit flush on the transom. Grind and sand the area if required to ensure a secure fit. **(NB: Use caution when grinding/sanding surfaces as to not remove too much fibreglass.)**
6. Ensure both bolts and washers to the support bars on the thruster are attached.
Apply a sealant (MS Polymer) to:
 - the inside surface of the cutout 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. **(NB: Ensure ample sealant (MS Polymer) around the bolts and centre tube for a watertight fitting.)**
7. Insert the thruster with compression rings into the hole.
8. Fasten the thruster



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Control Box Installation

MC_0075

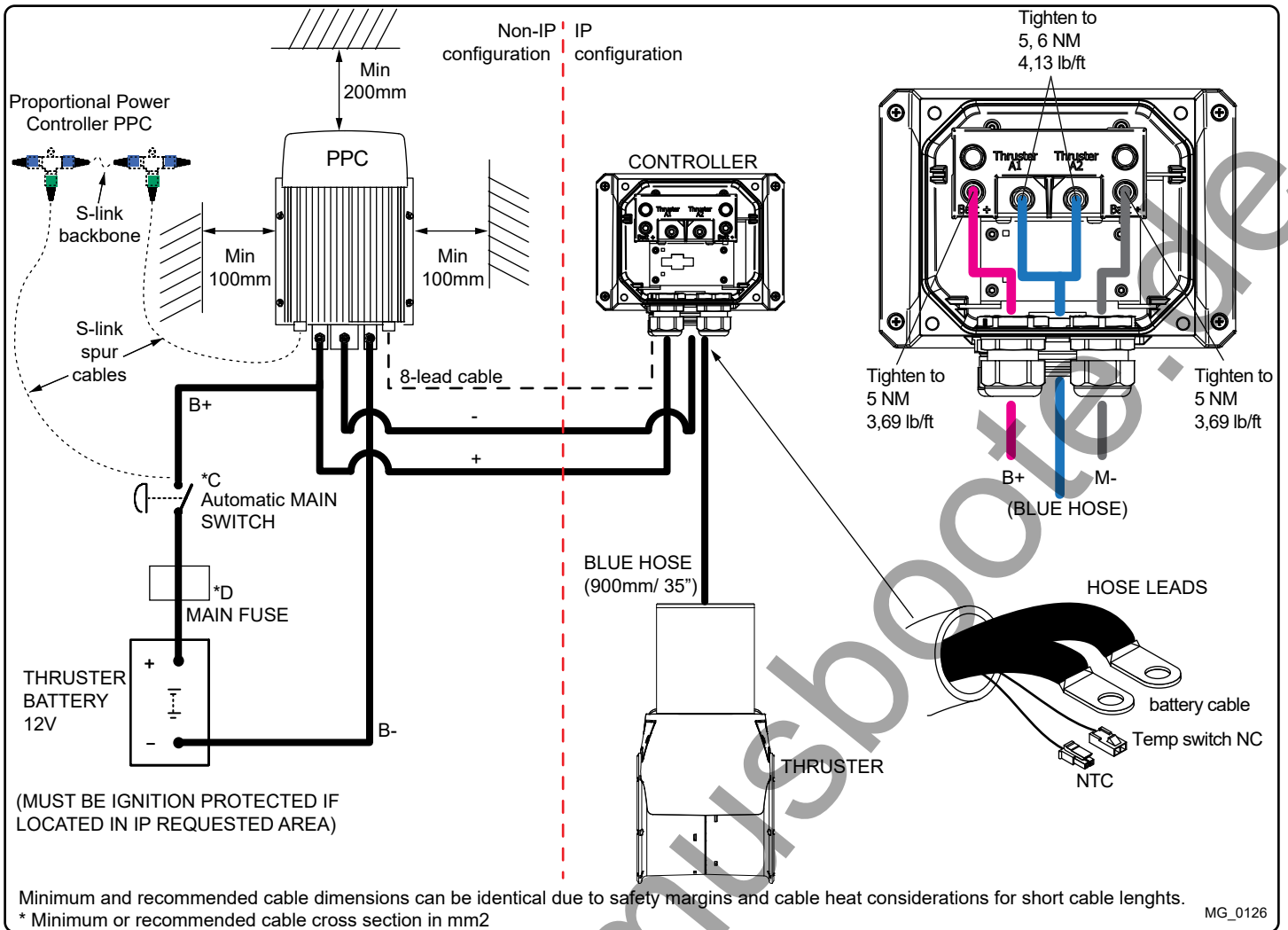
! Please refer to the graphic for special considerations relating to your model !

The control box is the central component that can be connected to several other control panels. The control box can be mounted in any orientation, preferably with cables facing down. **(NB: The control box must be positioned within 0,75 meters from the thruster assembly with the provided cables and not near any object that radiate high temperatures.)**

1. Define the location to install the control box. **(NB: Ensure cables will not obstruct any objects.)**
2. Mark the locations of the four drill holes and drill the holes.
3. Attach cables to the control box **(NB: the control box internal components can be removed via its attachment screws for easier installation using thick battery cables.)**
4. Tighten hose clamps in order to ensure Ignition Protection as illustrated.
5. Fasten the control box to the hull.

IMPORTANT

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



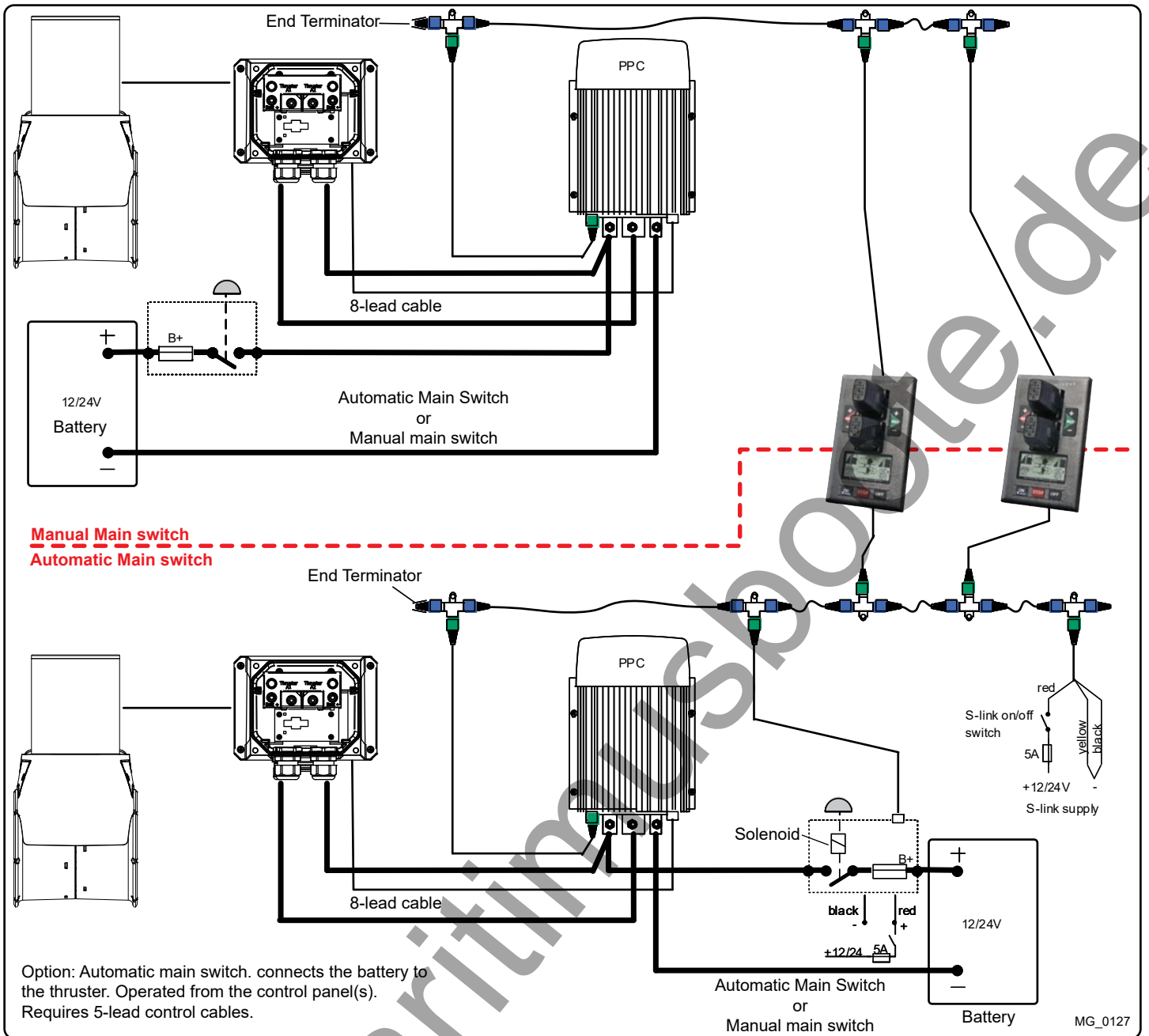
EN Thruster Electrical Installation MC_0035

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

1. Explanation of electrical table. *see next page*
 - All power cable lengths are the total of + and - (to and from).
 - Battery size is stated as minimum cold crank capacity, not Ah.
 - Use slow fuse rated to hold stated Amp-Draw for min. 5 minutes.
 - * Cable size and main battery size when an extra bow battery with minimum the CCA mentioned as A is installed.
2. Use appropriate sized cables and batteries with a high cranking capacity to feed the thruster. The actual voltage at the motor while running the thruster decides the motors output RPM and thrust. You can use larger cables for better results.
 - Advised minimum cables and batteries sizes. *See next page.*
3. Connect the battery supply to the thruster or control unit (PPC) for proportional control units.
 - Install a main manual/ automatic switch that can take the load without noticeable voltage drop from the positive lead terminal on the battery to the thruster (or PPC unit). The main switch must be accessible to turn off the thruster independently from the rest of the electrical operation of the vessel when not onboard or in emergencies. **(NB: It is advised to install a fuse on the positive cable for protection against short-circuiting of the main cables. The fuse should ensure no voltage decrease, slow-blow and sized to take the amperage draw for at least 5 minutes.)**
 - A circuit breaker can be used instead of the fuse and main power switch If the functionality is the same.
4. Remember to use ignition protected fuses and switches if fitted in areas that require this feature. **(NB: For Ignition Protected installations)**
5. Cables must have adequate electrical and mechanical isolation against contact with anything but the lead terminal on the battery and fitted with cable ends.
6. Fasten cables to the required torque. *see next page*

IMPORTANT
 Check the following with the main switch 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.

Model Size	System Voltage	Nominal current draw	Min. battery CCA	Rec. fuse		<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.
*35/140S	12 V	245 A	DIN: 200 SAE: 380 EN: 330	ANL 150	mm2	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	12 V	370 A	DIN: 350 SAE: 665 EN: 600	ANL 325	mm2	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
	24 V	170 A	DIN: 175 SAE :332 EN: 280	ANL 150	mm2	25	25	25	35	35	50	35	50	50	70	70	70
					AWG	3	3	3	2	2	1/0	2	1/0	1/0	2/0	2/0	2/0



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Control Panel Cable Installation

MC_0041

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

- All standard Sidepower control panels can be used in any combination as well as any two-way switching device. If an automatic main switch is installed, a separate switch to control on/off is required.
- Many control panels can be installed using optional Y-connectors or T-connectors if installing an S-link proportional power system. **(NB: If two or more control panels are operated at the same time in opposite directions, the electronic control box will stop the thruster until it receives a single signal or thrust in one direction.)**
- When using original Sidepower equipment it is entirely "plug & go" and no additional configuration setup is required.
- All controls must have spring load for automatic return to neutral position.

(NB: If the drive direction of the thruster is running opposite to the control panel, swap the blue and grey wire on the control wire or control box solenoid.)

Pin configuration of 4 pole AMP contact:

- Pin1: BLACK = Ground
- Pin2: BLUE = Engages thruster SB solenoid
- Pin3: GREY = Engages thruster Port solenoid
- Pin4: RED = Positive voltage for the control panel

Example of the control wiring with S-link system for boats with one control position and one thruster.

Control Panel



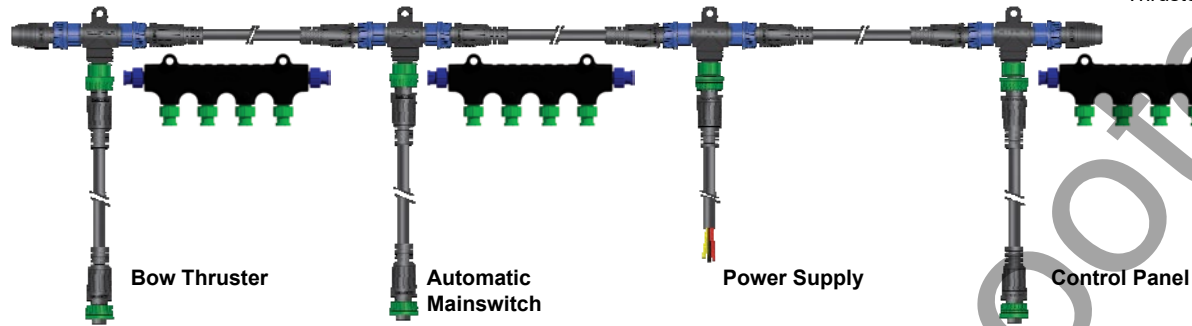
BB1=

BB2=

Positive, Negative & Shield

You need:

- 2 x 6 1327 End terminators
- 3 x 6 1326 T-connectors
- 1 x 6 1328 Power spur
- 2 x 6 1320-xxM Backbone cables
- 2 x 6 1321-xxM Spur cables



Bow Thruster

Automatic Mainswitch

Power Supply

Control Panel



BACKBONE Cable
Forms the main "loop" around the boat.



T- Connector
Must be one for each spur, including power cable



SPUR Cable
Must be used to connect all parts to the backbone cable (One for each component, no exceptions). Recommended to be as short as practically possible.



BACKBONE extender
Connects two BACKBONE cables to extend length.



POWER Cable
Must be one in each system, length 2.5m



END terminator
Must be one for each end of the BACKBONE "loop".



4-Port T Connector
The 4-port T-connector allows multiple spur cables to be connected. (NB: Comes with two sealing caps to protect.)

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S-link Planning & Precautions

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S-link is a "CAN" based control system with full intelligent communication between all units in the system.

Main advantages include:

- Round, compact and waterproof plugs with unique keying and colour coding to avoid faulty hookup.
- An unlimited number of commands or information transfer on a single cable.
- Proprietary Slepner commands but built 100% on NMEA 2000 standard.

Routing the Backbone:

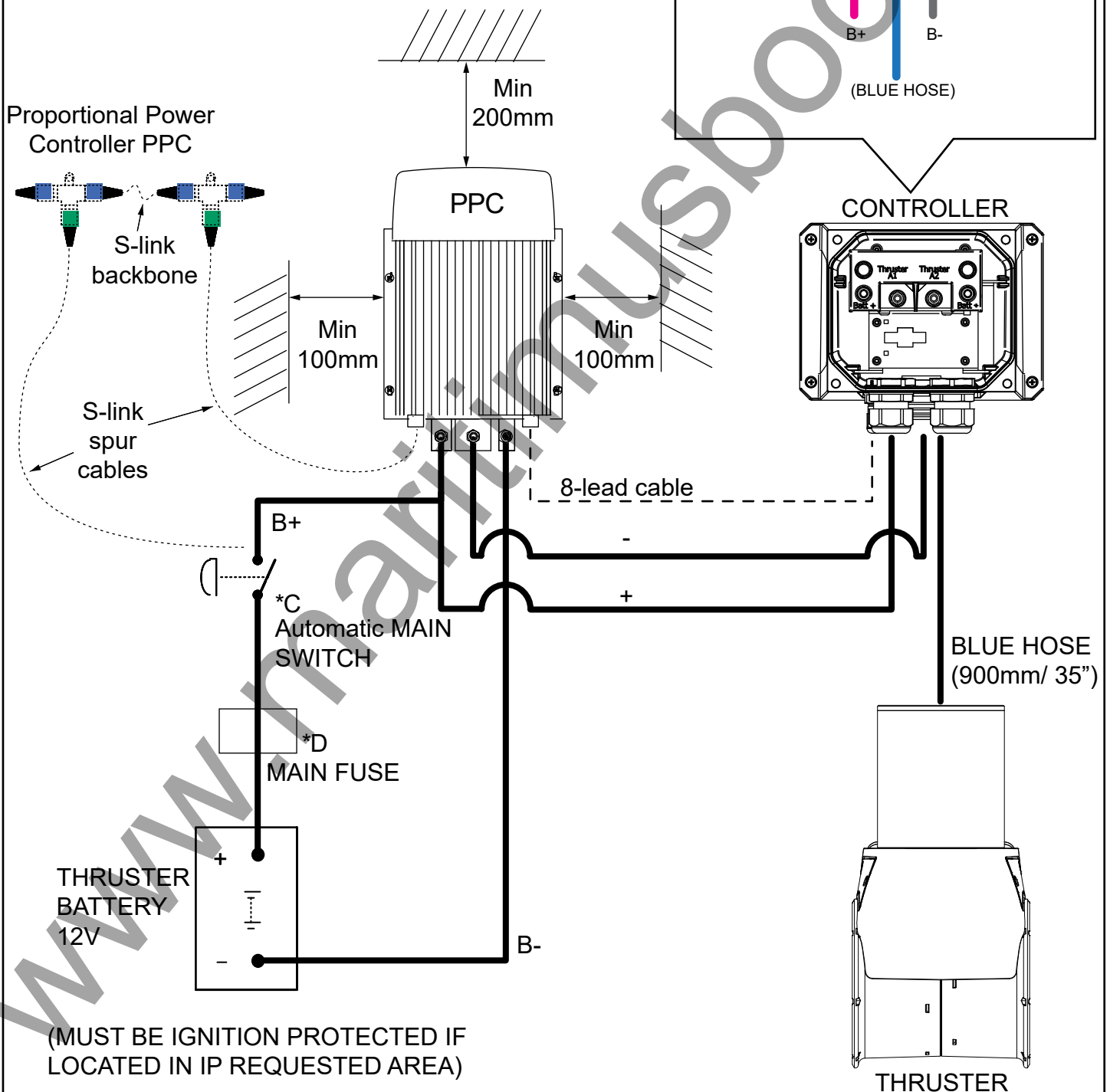
Keep routing backbone spur cables to a minimum. Avoid routing the S-link cables close to equipment that might cause interference to the S-link signals such as radio transmitter equipment, antennas or high voltage cables. The backbone MUST be terminated at each end with the 6 1327 End Terminator.

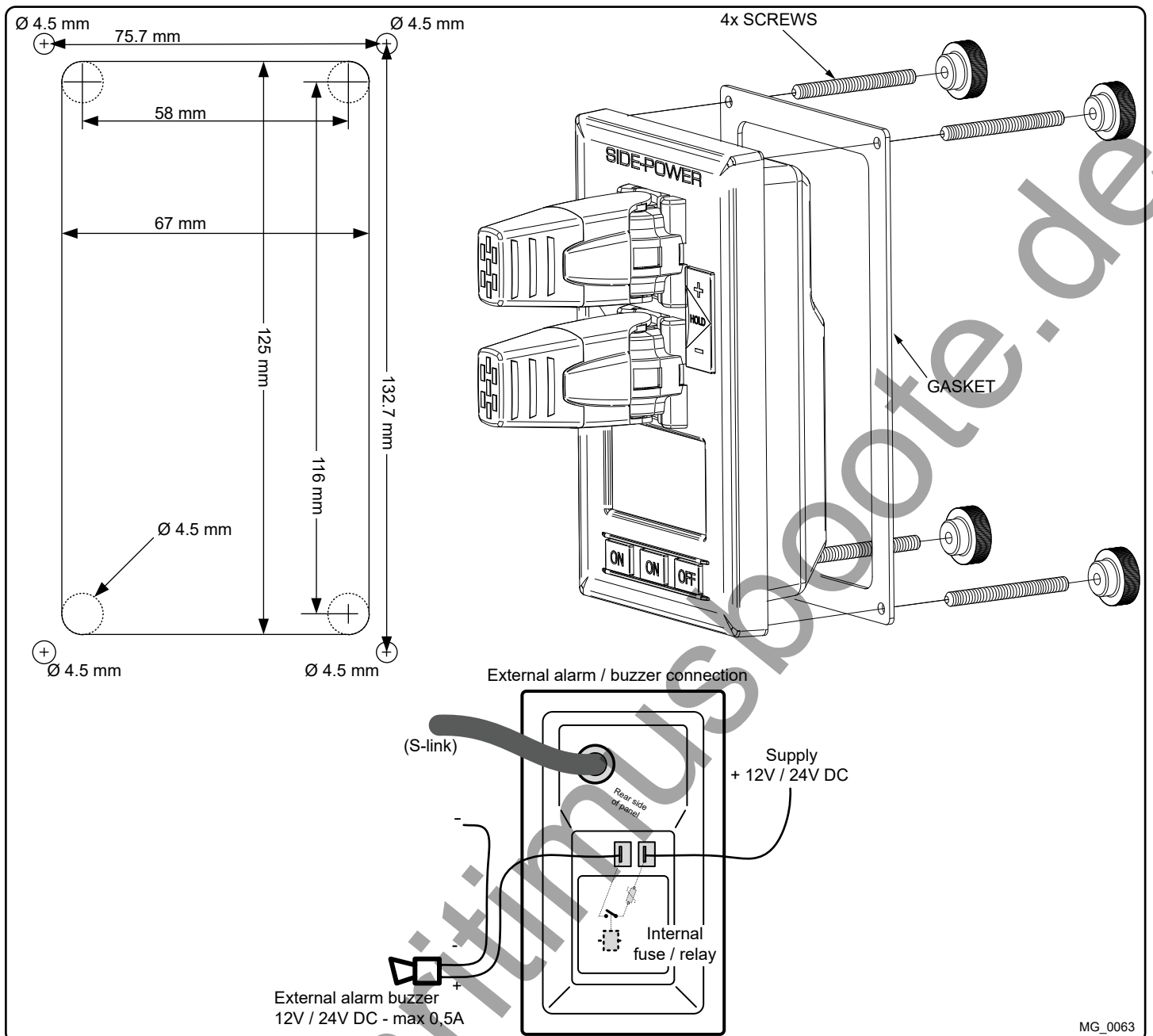
Spur cables:

Spur cables can be left unterminated (NB: Routing can be prepared for future additional equipment). Make sure to protect open connectors from water and moisture to avoid corrosion in the connectors.

CONTROLLER CONNECTIONS:

- <<B+>>: Power supply pos from thruster battery/ Main switch/ Main fuse
- <<B->>: Power supply neg from thruster battery
- 2 Motor cables from thruster
- 4 wires from thruster overtemp switch
- 2 Control cables from control panel(s) remote





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Control Panel Installation

MC_0042

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

Find a comfortable location for the control panel where it does not obstruct or is obstructed by other controls. Install the control panel where it is easy to use. **(NB: As a guide the side thruster is often operated together with the gear/throttle control. For the optimal user-friendly solution install the control panel where access to both controls are accessible with one hand for each control.)**

1. Use the enclosed cut-out template to mark the area to remove on your control dash.
2. Cut out the area per template for the control panel. **(NB: If the front surface around your cut out is jagged or chipped, use a sealant to assist the gasket.)**
3. Place the gasket to the back face of the panel
4. Plug cables into the connectors at the rear of the control panel. **(NB: Twist the locking ring on the connector clockwise to secure connector.)**
5. Insert the control panel in place and fasten screws.
6. insert the control panels covering caps.

- Propeller is fastened correctly to the shaft.
- Propeller turns freely in tunnel.
- The anode and/or holding screw is tightened well with thread glue.
- Anti-fouling has been applied to the gearhouse and propeller but NOT on the anode or the gearhouse lid where the propeller is fastened.
- Correct drive direction as per controlpanel.
- The bolts holding the gearhouse and motorbracket together are tightened correctly.
- The bolts holding the motor to its bracket are tightened correctly.
- All electrical connections are clean, dry and tight, and the correct cable, fuse and main switch size.
- Check that there is no electrical connection between the electromotor body and positive terminal on the motor, and between the electromotor body and the negative (A1) terminal on the motor with an ohm meter.

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 controlpanel:

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:

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

For the most up to date documentation, we advise you to visit our website www.maritimusboote.de for the spare parts list.

1. The equipment manufactured by Sleipner Motor AS (The "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service.
2. This Warranty is in effect for of two years (Leisure Use) or one year (Commercial use) from the date of purchase by the user. Proof of purchase must be included, to establish that it is inside the warranty period.
3. This Warranty is transferable and covers the product for the specified time period.
4. In case any part of the equipment proves to be defective, other than those parts excluded in paragraph 5 below, the owner should do the following:
 - (a) Prepare a detailed written statement of the nature and circumstances of the defect, to the best of the Owner's knowledge, including the date of purchase, the place of purchase, the name and address of the installer, and the Purchaser's name, address and telephone number;
 - (b) The Owner should return the defective part or unit along with the statement referenced in the preceding paragraph to the warrantor, Sleipner Motor AS or an authorized Service Centre, postage/shipping prepaid and at the expense of the Purchaser;
 - (c) If upon the Warrantor's or Authorized Service Centre's examination, the defect is determined to result from defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense;
 - (d) no refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. Prior to refund of the purchase price, Purchaser must submit 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;
 - (e) warranty service shall be performed only by the Warrantor, or an authorized Service Centre, and any attempt to remedy the defect by anyone else shall render this warranty void.
5. There shall be no warranty for 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. No other express warranty is hereby given and there are no warranties which extend beyond those described in section 4 above. This Warranty is expressly in lieu of any other expressed or implied warranties, including any implied warranty of merchantability, fitness for the ordinary purposes for which such goods are used, or fitness for a particular purpose, and any other obligations on the part of the Warrantor or its employees and representatives.
7. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, loss of income or profit, or any other consequential or resulting damage or cost which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment, or part thereof.
8. The Warrantor assumes no liability for incidental or consequential damages of any kind including damages arising from collision with other vessels or objects.
9. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.