We advise painting the gear house and propellers with antifouling.

The electromotor, components and cables must be mounted so they remain dry at all times.

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.

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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.
**Bow Installation Considerations and Precautions**

- The thruster must NOT be installed in compartments that require ignition proof electric equipment. If necessary, make a separate compartment. *(NB: Ignition Protected systems are tested to be installed in areas with possible explosive gases in accordance with ISO 8846)*

- The electromotor will generate some carbon dust so any storage compartments must be separated from the thruster to prevent nearby items becoming dusty/dirty. *(NB: IP version motors generate dust but are enclosed.)*

- When installing the thruster electromotor in small compartments, ensure the compartment is well ventilated to allow for cooling of the electromotor.

  - If the height of the room you are installing the thruster is limited, the thruster can be installed horizontally or at any angle in-between.
  - If the electromotor is positioned more than 30 degrees off vertical, it must be supported separately.
  - Beware of keeping installation within advised measurements. No part of the propeller or gear house must be outside the tunnel.

- 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.

- The electromotor, components and cables must be mounted so they remain dry at all times.

- We advise painting the gear house and propellers with antifouling. *(NB: Do not paint the anodes, sealings, rubber fittings 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.

- Don’t install the electromotor close to easily flammable objects or equipment as it will reach over 100°C before the temperature switch is activated.

- Do not store items close to the thruster motor. Any loose items near the thruster motor cis a potential fire hazard and can cause undesired short-circuiting.

**Thruster Installation Considerations and Precautions**

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 cable connections, main terminals or placed down on the driveshaft.

- The thruster power supply circuit must include the recommended sized fuse and a battery isolation switch.

- Never run the thruster out of water.

- It is important to follow the guidelines in this manual. Failure can result in severe damage to the thruster.
### Thruster Measurements

<table>
<thead>
<tr>
<th>Measurement code</th>
<th>Measurement description</th>
<th>*20 mm</th>
<th>*20 inch</th>
<th>*25 mm</th>
<th>*25 inch</th>
<th>*30 mm</th>
<th>*30 inch</th>
<th>*40 mm</th>
<th>*40 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>Internal tunnel diameter</td>
<td>110</td>
<td>4.33</td>
<td>110</td>
<td>4.33</td>
<td>125</td>
<td>4.92</td>
<td>125</td>
<td>4.92</td>
</tr>
<tr>
<td>T (min)</td>
<td>Tunnel thickness min.</td>
<td>4</td>
<td>0.16</td>
<td>4</td>
<td>0.16</td>
<td>4</td>
<td>0.16</td>
<td>4</td>
<td>0.16</td>
</tr>
<tr>
<td>T (max)</td>
<td>Tunnel thickness max.</td>
<td>6</td>
<td>0.24</td>
<td>6</td>
<td>0.24</td>
<td>6</td>
<td>0.24</td>
<td>6</td>
<td>0.24</td>
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<tr>
<td>TL</td>
<td>Minimum tunnel length</td>
<td>111</td>
<td>4.37</td>
<td>111</td>
<td>4.37</td>
<td>111</td>
<td>4.37</td>
<td>111</td>
<td>4.37</td>
</tr>
<tr>
<td>TL (recommended)</td>
<td>Recommended tunnel length</td>
<td>133</td>
<td>5.24</td>
<td>133</td>
<td>5.24</td>
<td>136</td>
<td>5.35</td>
<td>136</td>
<td>5.35</td>
</tr>
<tr>
<td>WD</td>
<td>Minimum water depth</td>
<td>110</td>
<td>4.33</td>
<td>110</td>
<td>4.33</td>
<td>125</td>
<td>4.92</td>
<td>125</td>
<td>4.92</td>
</tr>
<tr>
<td>H</td>
<td>Motor Height</td>
<td>209</td>
<td>8.23</td>
<td>252</td>
<td>9.92</td>
<td>263</td>
<td>10.35</td>
<td>263</td>
<td>10.35</td>
</tr>
<tr>
<td>W</td>
<td>Motor width</td>
<td>200</td>
<td>7.87</td>
<td>198</td>
<td>7.80</td>
<td>199</td>
<td>7.83</td>
<td>206</td>
<td>8.11</td>
</tr>
<tr>
<td>L</td>
<td>Motor length</td>
<td>183</td>
<td>7.20</td>
<td>183</td>
<td>7.20</td>
<td>183</td>
<td>7.20</td>
<td>183</td>
<td>7.20</td>
</tr>
</tbody>
</table>

*Valid for SE & SEP

- Propeller position will vary with each thruster model
- The gear leg/propeller(s) must never extend out of the tunnel
Thruster Specifications

<table>
<thead>
<tr>
<th>Available DC System (v)</th>
<th>* 20</th>
<th>* 25</th>
<th>* 30</th>
<th>*40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor:</td>
<td>12v</td>
<td>12v</td>
<td>12v</td>
<td>12v</td>
</tr>
<tr>
<td>Gearhouse:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor bracket:</td>
<td>Single</td>
<td>Single</td>
<td>Single</td>
<td>Single</td>
</tr>
<tr>
<td>Tunnel:</td>
<td>Cross spun with rowing G.R.P tunnel Steel &amp; aluminium tunnels available at request.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propeller:</td>
<td>5-blade skewback &quot;Q-prop&quot; propeller, fibreglass reinforced composite.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batteries:</td>
<td>Minimum recommended battery capacity (cold crank capacity by DIN/SAE standard) Contact a battery supplier for more information.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. use:</td>
<td>2 - 3 min. duty cycle at 20°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety features:</td>
<td>- Electronic time-lapse device protects against sudden change of drive direction.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The electric thermal cut-off switch in electromotor protects against overheating (auto-reset when electro motor cools down).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Flexible coupling between electro-motor and driveshaft protects electromotor and gear system if propeller jams.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Original Sidepower panels shut off automatically 6 minutes after last use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Original Sidepower panels use child-safe double ON buttons.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- An integrated microprocessor monitors solenoids, reduce wear and risk of solenoid lock-in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Auto-stop of the thruster occurs when an undesirable solenoid lock-in occurs or when continuous operation cut-off timer exceeds 3 minutes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>* 20</th>
<th>* 25</th>
<th>* 30</th>
<th>*40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available DC System (v)</td>
<td>12v</td>
<td>12v</td>
<td>12v</td>
<td>12v</td>
</tr>
<tr>
<td>Thrust 12v or 24v (kg * lbs)</td>
<td>25 kg * 55 lbs</td>
<td>30 kg * 66 lbs</td>
<td>40 kg * 88 lbs</td>
<td>48 kg * 105 lbs</td>
</tr>
<tr>
<td>Thrust 10.5v or 21v (kg * lbs)</td>
<td>20 kg * 44 lbs</td>
<td>25 kg * 55 lbs</td>
<td>30 kg * 66 lbs</td>
<td>40 kg * 88 lbs</td>
</tr>
<tr>
<td>Typical Boat Size (m * ft)</td>
<td>&gt; 7m * &gt;23ft</td>
<td>&gt; 7m * &gt;23ft</td>
<td>6m - 8m * 20ft - 28ft</td>
<td>8m - 10.5m * 26ft - 34ft</td>
</tr>
<tr>
<td>Propulsion System</td>
<td>Single</td>
<td>Single</td>
<td>Single</td>
<td>Single</td>
</tr>
<tr>
<td>Power (kw * Hp)</td>
<td>1.5kw * 2hp</td>
<td>1.5kw * 2hp</td>
<td>1.5kw * 2hp</td>
<td>2.2kw * 3hp</td>
</tr>
<tr>
<td>Weight (kg * lbs)</td>
<td>9.5kg * 21lbs</td>
<td>9.5kg * 21lbs</td>
<td>9.5kg * 21lbs</td>
<td>10kg * 22lbs</td>
</tr>
</tbody>
</table>

*Valid for SE / SE IP & SEP / SEP IP
**Positioning of the tunnel / thruster**

**Aim to install the thruster as far forward as possible (1)**
Due to the leverage effect around the boats’ pivot point. The distance difference from the boat pivots’ point to the thruster will determine the amount of real rotation power for the boat.

**Aim to install the thruster as deep as possible under the waterline (2)**
Deeper installations prevent air from being sucked into the tunnel from the surface, resulting in reduced thrust performance and increase noise levels during operation. Deeper installations increase water pressure for maximum efficiency from the thruster.

The centre of the tunnel should be a minimum of 1 x the tunnel diameter below the waterline. The installer must make evaluations based on thruster performance, boat type and operating conditions. As a general recommendation, the position of the tunnel should not be a minimum of 1/4 of the diameter of the tunnel from the boat keel. *(NB: This can be overlooked depending on the installation methods defined in this manual.)*
Tunnel Length

Optimal tunnel length

Achieving the correct tunnel length depends on many factors from the hull type, operation and environmental conditions. Tunnels should avoid being longer than 4 x the tunnel diameter as this will reduce thruster performance. *(NB: Installing long length tunnels can flex/bend over time and may require additional support. Consult with a naval architect.)*

1. Do not allow the variable length of the tunnel walls to vary in length excessively. EG. the top tunnel wall is x 4 longer than the bottom wall.
2. If the tunnel is too long, the friction inside will reduce the water speed and thereby the thrust.
3. If the tunnel is too short (typically only in the bottom section of the tunnel) cavitation problems can occur as water flow will not be able to “straighten” itself before reaching the propeller. This cavitation will reduce performance and increase noise during operation.

Thruster within the tunnel

It is important the propellers and the lower unit/ gear leg must be entirely inside the thruster tunnel. Propellers that protrude from the tunnel will not perform as intended.

4. Standard Use
   Tunnel length must be long enough to ensure the propellers are not extruding the tunnel.

5. Flat Bottom Hull
   Tunnel lengths must be longer than the standard measurement outlined within the manual to ensure a circular vacuum is not created between the thruster and the bottom of the boat.

6. High-Speed Boats
   Tunnel lengths must be increased to protect the propeller from damage when crashing against the water surface during high-speed cruising. *(NB: This can include the length of a spoiler)*
A possible problem in sailboats or fast powerboats is that a non-rounded surface can generate drag from the back face of the tunnel, as it creates a “flat” area facing the flow of water.

This problem can be solved in two different ways, depending on what is possible or easier to perform.

2. The best solution which generally reduces the most drag is to make a recess in the hull at the back of the tunnel. As the back face is removed, water can flow freely past the tunnel entry. The depth and shape of this recess will depend on the boat and the angle facing up/down aft of the tunnel insert. Normally it is angled slightly down because of the water flow on this area.

3. Making a deflector/spoiler in front and underneath the tunnel can also reduce damage to the thruster and drag. The deflector/spoiler will push the water flow out from the hull so water can pass by the back face of the tunnel. The shape and size of this deflector/spoiler will depend on the hull shape. The easiest way of making the deflector/spoiler is to retain a part of the lower forward area of the tunnel while installing the tube. Use this area as support to mould a soft curve/spoiler shape from the hull.

4. The thruster propeller can spin (passively) producing noise while sailing or cruising as water is forced through the tunnel. Water flow directed through the tunnel at high speeds, during turning or as the boat bumps waves while underway can also damage the thruster.

(NB: As a rule, you should not see the back face of the tunnel when standing directly in front of the boat looking aft.)

---

**Tunnel installation in sailboats**

Some sailboats have a flat bottom and shallow draft in the bow section. This can make installing the thruster as far forward from the boat’s main pivot point difficult. (Fig. 1).

However, it is possible to install a tunnel thruster in most sailboats, even when the hull does not directly support the fitting of a tunnel.

Instead fit the tunnel halfway into the underneath section of the existing hull. Strengthen it with a deflector/spoiler directing the water flow around the tunnel. This will allow installation of the thruster in the proper position on the boat, maintaining the reliability and space advantages of the tunnel thruster.

This installation is being used by some of the world’s largest sailboat builders and has proven to give little to no speed loss during normal cruising. This can also be an installation method for flat bottomed barges to avoid extremely long tunnels and large oval tunnel openings in the hull.
1. A possible problem in sailboats or fast powerboats is that a non-rounded surface can generate drag from the back face of the tunnel, as it creates a “flat” area facing the flow of water (1).

This problem can be solved in two different ways, depending on what is possible or easier to perform.

2. The best solution which generally reduces the most drag is to make a recess in the hull at the back of the tunnel. As the back face is removed water can flow freely past the tunnel entry. The depth and shape of this recess will depend on the boat and the angle facing up/ down aft of the tunnel insert. Normally it is angled slightly down because of the water flow on this area (2).

3. Making a deflector/ spoiler in front and underneath the tunnel can also reduce damage to the thruster and drag. The deflector/ spoiler will push the water flow out from the hull so water can pass by the back face of the tunnel. The shape and size of this deflector/ spoiler will depend on the hull shape. The easiest way of making the deflector/ spoiler is to retain a part of the lower forward area of the tunnel while installing the tube. Use this area as support to mould a soft curve/spoiler shape from the hull. (3).

4. The thrust propeller can spin (passively) producing noise while sailing or cruising as water is forced through the tunnel. Waterflow directed through the tunnel at high speeds, during turning or as the boat bumps waves while underway can also damage the thrust (4).

(NB: As a rule, you should not see the back face of the tunnel when standing directly in front of the boat looking aft.)
Rounded tunnel ends will maximise thrust and minimise noise and cavitation.

For best performance round the tunnel connection to the hull-side as much as possible. The minimum rounding has a radius of 10% of the diameter of the tunnel.

Significant advantages of a rounded tunnel over a sharp tunnel to hull connections are:

1. A rounded tunnel end will prevent the creation of turbulence/ cavitation created from a sharp tunnel end when water passes by the tunnel.
   - The turbulence/ cavitation will block the outer area of the tunnel and thereby reduces the effective tunnel diameter and thrust.
   - Turbulence/ cavitation on the propeller will lessen the thrusters performance and create excess noise.

2. For steel/ aluminium hulls angled tunnel ends also offer similar performance as a rounded connection.

3. A rounded tunnel end makes the thruster draw water from along the hull-side, creating a vacuum that will suck the boat sideways and thereby give additional thrust.
   - With a sharp tunnel end, the thruster will be unable to take water from along the hull-side, and you will not gain the desired vacuum and additional thrust. This "free" extra thrust in optimal installations be 30 - 40% of the total thrust.

(NB: A Side-power thruster propeller does not produce cavitation at working speed. Therefore, any cavitation and cavitation noise in the tunnel will be caused during improper tunnel installation.)
1. Find the position in the boat considering the information earlier in this manual and the applicable measurements for the thruster model you are installing. Mark the centre of the tunnel on both sides of the hull. Drill a hole horizontally at these marks.

2. Mark the circle for the tunnel opening (outside diameter of the tunnel) and cut the hole.

3. Grind off the gel coat to the “real fibreglass” area 12cm around the hole on both inside and outside the hull to cast the tunnel to the hull (Fig. 3).

4. Insert the tunnel and mark its shape to fit the hull. *(NB: if you are installing with a deflector/spoiler, leave a part of the tunnel in the front and underside of the tunnel that will cover the back face.)*

5. Cut the tunnel ends to the desired shape and lightly sand its surface. Clean the area with acetone or similar where you are going to apply fibreglass. *(NB: Do not cast or add fibreglass to the area were the thruster will be placed.)*

6. Cast the tunnel to the inside of the hull, use at least eight layers of 300g fibreglass and resin, preferably alternating mat and rowing types of fibreglass. To round the tunnel ends to a 10% radius make further layers inside to preserve the desired hull thickness. *(NB: Ensure gaps between the tunnel and the hull are completely filled with resin/fibreglass. In areas where you cannot access to make layers of resin/fibreglass, a resin/fibreglass mixture must be used in that area.)*

**IMPORTANT**

We recommend that a professional does the fibreglass, steel or aluminium fitting of the tunnel. These instructions are only general instructions and do not explain in any way the details of fibreglass work. Problems caused by faulty installation of the tunnel, are the installers full responsibility.
With tunnel installed and cast.

1. Round the edges with a radius of 10% of the tunnel diameter.
2. For steel/ aluminium hulls make a slope with a length of 10-15% of the tunnel diameter.  
   *(NB: If this is not possible, round the tunnel end as much as possible.)*
3. Additionally cast two layers on the outside of the tunnel/ hull in a 10cm area
4. Follow the same method if making the deflector/ spoiler.

You must apply gel coat to areas you have grounded/ moulded to make waterproof. These areas allow water access to the hull which is typically not waterproof without these applications outside. *(NB: All original Side-Power tunnels are fully waterproof when delivered except in the areas where you have cut and bonded it to the hull.)*

**IMPORTANT**

Avoid all casting where the motor-bracket is to be placed, as this will cause misfit and possible failure to the gear house.
Stern thruster installation has extra considerations and precautions and thruster installation procedures.

See the attached manual supplied in the stern thruster kit
Bow Installation Considerations and Precautions

• The thruster must NOT be installed in compartments that require ignition proof electric equipment. If necessary, make a separate compartment. 
  (NB: Ignition Protected systems are tested to be installed in areas with possible explosive gases in accordance with ISO 8846)

• The electromotor will generate some carbon dust so any storage compartments must be separated from the thruster to prevent nearby items becoming dusty/ dirty. (NB: IP version motors generate dust but are enclosed.)

• When installing the thruster electromotor in small compartments, ensure the compartment is well ventilated to allow for cooling of the electromotor.
  - If the height of the room you are installing the thruster is limited, the thruster can be installed horizontally or at any angle in-between.
  - Beware of keeping installation within advised measurements. No part of the propeller or gear house must be outside the tunnel.

• 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.

• The electromotor, components and cables must be mounted so they remain dry at all times.

• We advise painting the gear house and propellers with antifouling. (NB: Do not paint the anodes, sealings, rubber fittings 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.

• Don’t install the electromotor close to easily flammable objects or equipment as it will reach over 100°C before the temperature switch is activated.

• Do not store items close to the thruster motor. Any loose items near the thruster motor cis a potential fire hazard and can cause undesired short-circuiting.

Thruster Installation Considerations and Precautions

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 cable connections, main terminals or placed down on the driveshaft.

• The thruster power supply circuit must include the recommended sized fuse and a battery isolation switch.

• Never run the thruster out of water.

• It is important to follow the guidelines in this manual. Failure can result in severe damage to the thruster.
**Gear Leg & Motor Bracket Installation**

1. Mark the tunnel centreline and the boat’s centreline. *(NB: Install the gear leg and propeller as shown above for the thrust direction to correspond with the control panel.)*

2. Use the gasket or template (recommended) to mark the hole centres and double-check the measurements. One hole MUST be placed using the boat centreline as shown above. *(NB: All holes must be in-line with the tunnels’ centreline for correct installation, clearance between the propeller and the tunnel is minimal.)*

3. Smooth the surface of the tunnel. A rough surface will cause possible failure/movement of the gear leg. The motor bracket must rest steadily on the tunnel.

4. Drill the main centre hole followed by the two screw-holes.

5. Place the gear leg (without the propeller) with the gasket on inside the tunnel. Place the propeller on the gear leg to ensure it is centred and rotates freely with the same clearance from each blade to the tunnel wall. Place top motor bracket to measure the driveshaft has come through the motor bracket at the correct height. Remove the gear leg and propeller for final installation.

6. Apply appropriate sealant to both sides of the gasket and place on the gear leg. Place the gear leg in the tunnel (without the propeller).

7. Install the top motor bracket and gear leg gently together. Use appropriate sealant to ensure that no leakages occur. *(NB: See your sealant datasheet for the correct application process.)*

8. Fasten the gear leg and the motor bracket with the bolts provided. Tighten to torque as shown above.
1. Insert the propeller onto the shaft spine. Rotate the propeller until the shaft spline aligns with the internal spline in the propeller.

2. Insert the washer to the end of the shaft spline. Fasten with the propeller lock-nut.

3. Apply antifouling to the gear leg and propeller. Do not apply antifouling to any rubber elements of the gear leg or anodes.

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

1. Insert the drive pin to the motor drive shaft. Insert the coupling to align with the drive pin in the motor shaft.

2. Install the motor onto the motor bracket ensuring the couplings are engaged together correctly (top and bottom). *(NB: The motor can be placed in all directions on the motor bracket. However, ensure the cable terminals are accessible for electrical installation later.)*

3. If you are installing the motor at an angle of more than 30 degrees off vertical, the motor will require separate/additional support. *(NB: Do not position supports on the motor's top cap.)*

4. Fasten the bolts holding the motor to the motor bracket with the above torque.

5. Check the drive shafts are engaged by rotating the propeller. *(NB: Rotating the propellers can be hard due to the gear reduction and the motor, however the propeller must be able to rotate via hand power.)*

**IMPORTANT**

*The thruster motor assembly must be protected using suitable covering to avoid dust/debris ingress from fabrication/maintenance/shipbuilding operations. On completion of operations, the cover must be removed before operating the thruster.*
**IMPORTANT**
Do NOT use washers between lugs, this causes overheating and fire. Spring washers must be placed in the outer position before tightening the nut.

---

**Thruster Electrical Installation**

1. Information of electrical table. see next page
   - All power cable lengths represent the total length of the combined (+) and (-) cables.
   - Battery capacity is stated as minimum cold crank capacity, (CCA).
   - Use slow blow rated fuses to hold stated Amp-Draw for min. 5 minutes.
   - Consider the AMP hours (Ah) for your specific duty cycle.

2. Use appropriate sized cables and batteries with high cranking capacity to feed the thruster. The actual voltage at the motor while running the thruster decides the motors output RPM and thrust. Use larger cables and stronger batteries for better results.
   - See electrical specifications for advised minimum cables and batteries (CCA).

3. Install the main switch as close to the battery as possible and ensure the main positive lead can take loads without noticeable voltage drop.
   - Ensure the main switch (battery isolator) can be turned off independently and manually when not on board or in emergencies.
   - Ensure it is easily accessible and update instructions that this should be turned off like the boat’s other main switches.

   It is advised to install a fuse in the positive lead for protection against short-circuiting.
   - Ensure a slow type and appropriately sized to take the amperage draw for at least 5 minutes.

   *(NB: For Ignition Protected installations remember to use ignition protected fuses and switches if fitted in areas that require this feature. Ensure to follow your national regulations)*

5. Cable lugs must have adequate electrical and mechanical isolation and fitted with cable lug covers.

6. Fasten cables to the required torque.

---

**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.
1. Ensure the main switch (battery isolator) can be turned off independently and manually when not on board or in emergencies.

2. Install the main switch as close to the battery as possible and ensure the main positive lead can take loads without noticeable voltage drop.

3. Use appropriate sized cables and batteries with high cranking capacity to feed the thruster. The actual voltage at the motor while running the thruster decides the motors output RPM and thrust. Use larger cables and stronger batteries for better results.

- Consider the AMP hours (Ah) for your specific duty cycle.

- Ensure it is easily accessible and update instructions that this should be turned off like the boat’s other main switches.

- See electrical specifications for advised minimum cables and batteries (CCA).

After all electrical connections have been completed check with an ohm meter that there is no electrical connection between lugs. Use slow blow rated fuses to hold stated Amp-Draw for min. 5 minutes.

**Battery**

- 12V or 24V

Do NOT use washers between lugs, this causes overheating and fire. Spring position before tightening the nut.

**Fuse**

- See next page!
All Sidepower control panels can be used in any combination.

- All control panels can be installed using:
  - Y-connectors - for standard on/off
  - T-connectors - for S-link proportional power system.

\textit{(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.)}

- Sidepower on/off equipment it is entirely “plug & play” and require no additional configuration setup.

See the Control panel manual for more information.
Visual Wiring Diagram

With Automatic Main Switch:

To define appropriate (-) cable and fuse size contact a skilled electrician

IMPORTANT
Check the following with the main switch in the off position

After all electrical connections have been completed check with an ohm meter that there is no electrical connection between electromotor body and positive terminal on the motor and between the electromotor body and the negative (A1) terminal on the motor. If you feel unsure about how to perform this check, contact skilled personnel for guidance

Common negative MUST be wired when using control panel 8940 and 8909C if separate battery banks are installed. (Bow and Stern thrusters combined)

With Manual Main Switch:

To define appropriate (-) cable and fuse size contact a skilled electrician
Control Panel Installation

Find a suitable location for the control panel where it does not obstruct or is obstructed by other devices. Install the control panel on a flat surface where it is easy to use.

1. Use the supplied 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.
5. Insert the control panel in place and fasten screws.
6. Insert the control panels covering caps.
Pre-delivery Checklist

☐........... 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.

☐........... Anti-fouling has been applied to the gearhouse and propeller but NOT anodes, sealings/rubber fittings or propeller shafts.

☐........... Propeller is fastened correctly to the shaft.

☐........... Propeller turns freely in tunnel.

☐........... The anode and/or holding screw is tightened well with thread glue.

☐........... Check the boat for potential water leakage around installation areas.

☐........... Correct drive direction as per controlpanel.

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

Signed: ..........................................................................................

Date: .............................................................................................

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:

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Other comments by installer: ........................................................................................................
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........................................................................................................................................................
The compartment for the thruster has been isolated from general bilge water and has no obvious or suspected risks for flooding:
Correct drive direction as per control panel.

Date of delivery: 
Serial number: 
Thruster type: 

Date: 

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

- Correct drive direction as per control panel.
- Check the boat for potential water leakage around installation areas.
- Propeller is fastened correctly to the shaft.
- 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 switch size.
- 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;
- 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;
- 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;
- 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.

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 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.

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. 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.

7. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.
Worldwide sales and service

www.side-power.com

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