

Installation Guide

For Stern Thruster Tunnels



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MC_0020

Responsibility of the Installer

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

Directions outlined in this document cannot be guaranteed to comply with all international and national regulations. It is the installer's responsibility to adhere to all applicable international and national regulations when installing Sleipner products.

Any recommendations given in this document are guidelines ONLY. Sleipner strongly recommends seeking advice from someone familiar with the vessel and applicable regulations.

This document contains general installation guidelines intended to support experienced installers. Contact professional installers for assistance if required.

If local regulation requires any electrical work to be performed by a licensed professional, seek a licensed professional.

During installation, follow all appropriate health and safety procedures.

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

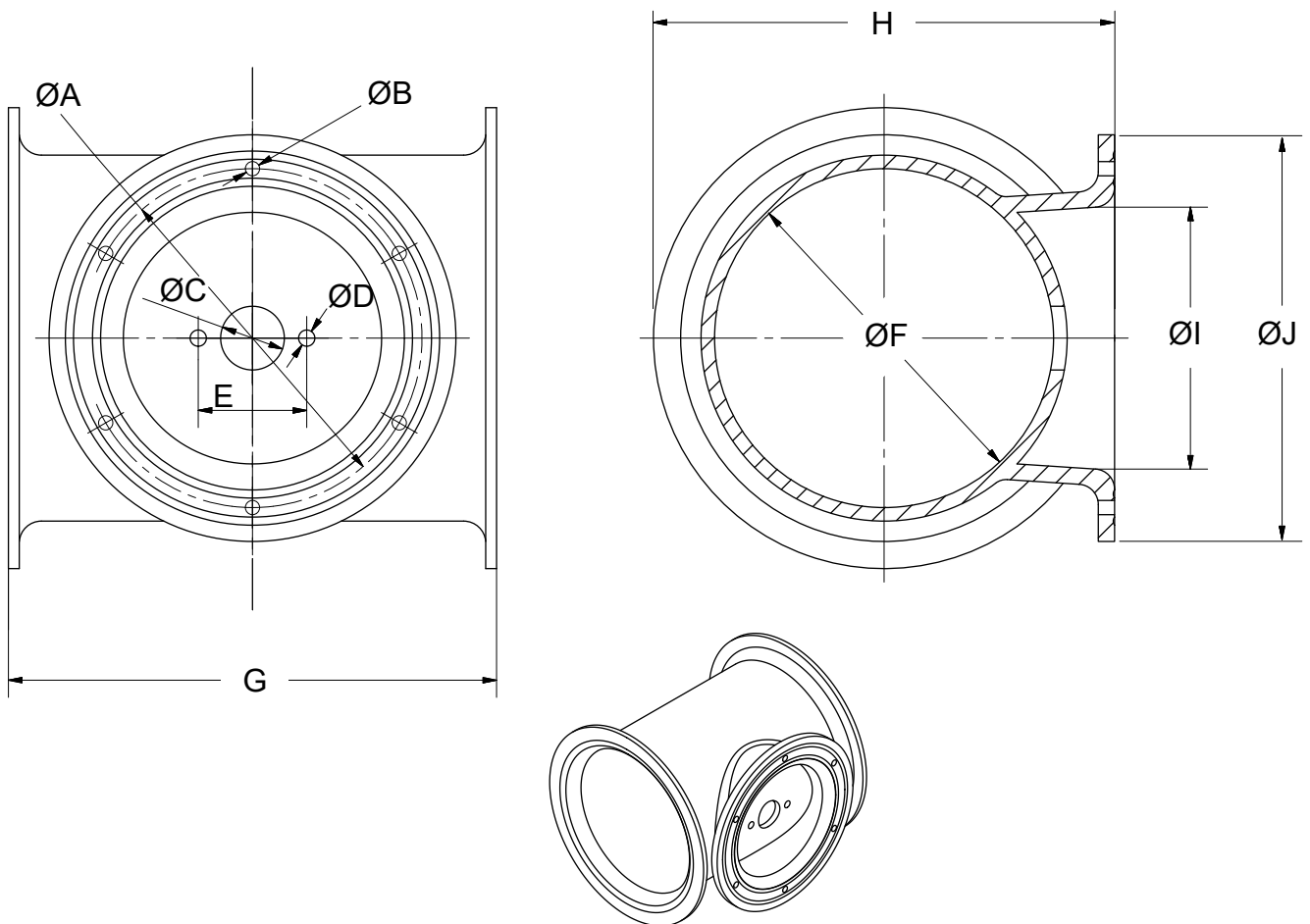
Ensure appropriate access to Sleipner products during installation planning for future service and inspection requirements.

General Installation Consideration and Precaution Guidelines

For stern tunnel installation

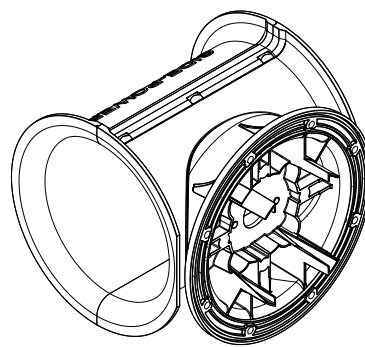
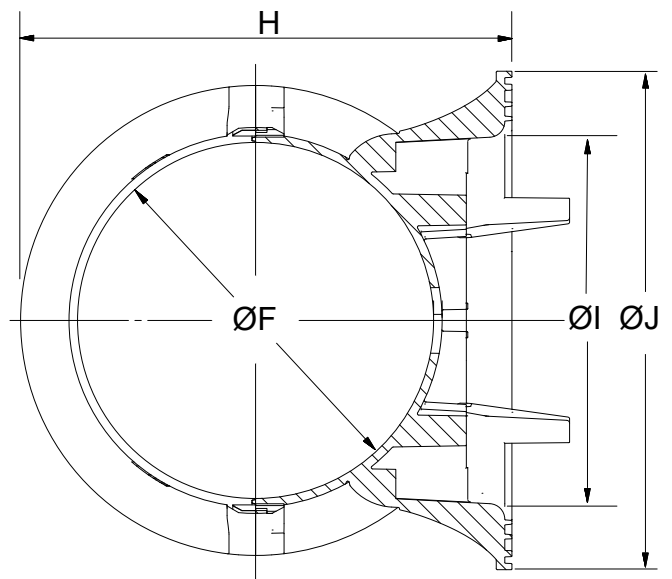
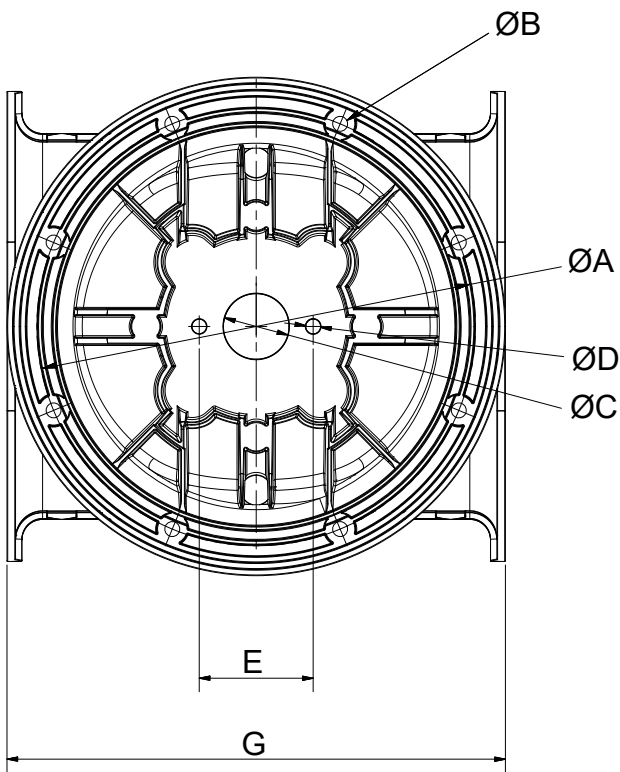
- If you are installing the Sleipner in a small room/ compartment, it should be ventilated to allow cooling of the electro motor.
- If the height of the room you are installing the Sleipner is limited, it can be installed horizontally or at any angle in-between.
 - If the electro motor is positioned more than 30° off vertical, it must be supported separately.
 - The electro motor must be handled with care. Do not lift it by internal connections/ main terminals or be placed down on the drive shaft.
 - 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 for the hull integrity without checking with the boat builder this can be done safely.
- The electro motor and solenoid system (excluding SX & EX series) are not considered waterproof and will be damaged if exposed to water (rust and corrosion). The thrusters installation compartment must be kept dry at all times. If required a separate compartment must be created.
 - Ensure the propeller/ rudder shaft or other moving parts with a high possibility of leakage is not in the electro motor compartment.
 - If needed We advise installing a self-activating bilge-pump, preferably with an alarm system, in the stern thruster compartment. **(NB: If you are not confident that you sealed this compartment, this pump is required.)**
- We advise painting the gear house and propellers with anti fouling. **(NB: Do not paint the anodes, sealing or propeller shafts)**
- Do not finish the inside of the tunnel with a layer of gel-coat/ 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.
- With the boat on land, run the thruster for a fraction of a second, as without resistance it will accelerate very fast to a damaging rpm.
- 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.
- Don't install the electro motor at close range to easily flammable objects as it will reach over 100°C before the temperature switch is activated.
- Do not store items close to the thruster motor as it can reach 100°C. Any loose items near the thruster motor can cause problems with electrical wiring coming loose and short-circuiting.
- 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.
- The recommended tunnel depth from the water surface is 140mm (5,51') to the centre of tunnel diameter.
- Ensure that while installing the thruster 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 will 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.)**
- If the stern width is too thick to fit the thruster correctly, the surrounding material can be removed from the area. **(NB: A naval architect/boat builder must confirm this work.)**
- Seal all drain holes going into the compartment of the thruster.
- The surrounding compartments and any plates or compartments above must provide adequate drainage to the bilge area away from the thrusters installation compartment.
- Sleipner stern thruster kits include a cable, so the electronic control unit generally placed on the electric motor, can be fitted away from the thruster in a higher position ensuring it stays dry at all times.

Measurement code	Measurement description	90124i		90052i		90086i		90135i		90140i	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	Tunnel bolt circle	201	7.91	260	10.24	260	10.24	266	10.47	250	9.84
B	Bolt hole diameter	6.7	0.26	10.5	0.41	10.5	0.41	10.5	0.41	10.5	0.41
C	Gear leg hole diameter	28	1.1	28.5	1.12	33	1.3	46	1.81	47	1.85
D	Gear leg bolt hole diameter	8.5	0.33	8.7	0.34	8.7	0.34	11	0.43	12	0.47
E	Gear leg bolt hole center	41	1.61	46	1.81	56	2.2	80	3.15	80	3.15
F	Tunnel diameter	125	4.92	185	7.28	185	7.28	215	8.46	250	9.84
G	Tunnel length	197	7.76	335	13.19	335	13.19	330	12.99	360	14.17
H	Tunnel distance from hull	190	7.48	265	10.43	265	10.43	300	11.81	340	13.39
I	Cut out hull	160	6.29	204	8.03	216	8.5	203	7.99	185	7.28
J	Tunnel to hull diameter	225	8.9	290	11.4	294	11.57	305	12	300	11.8



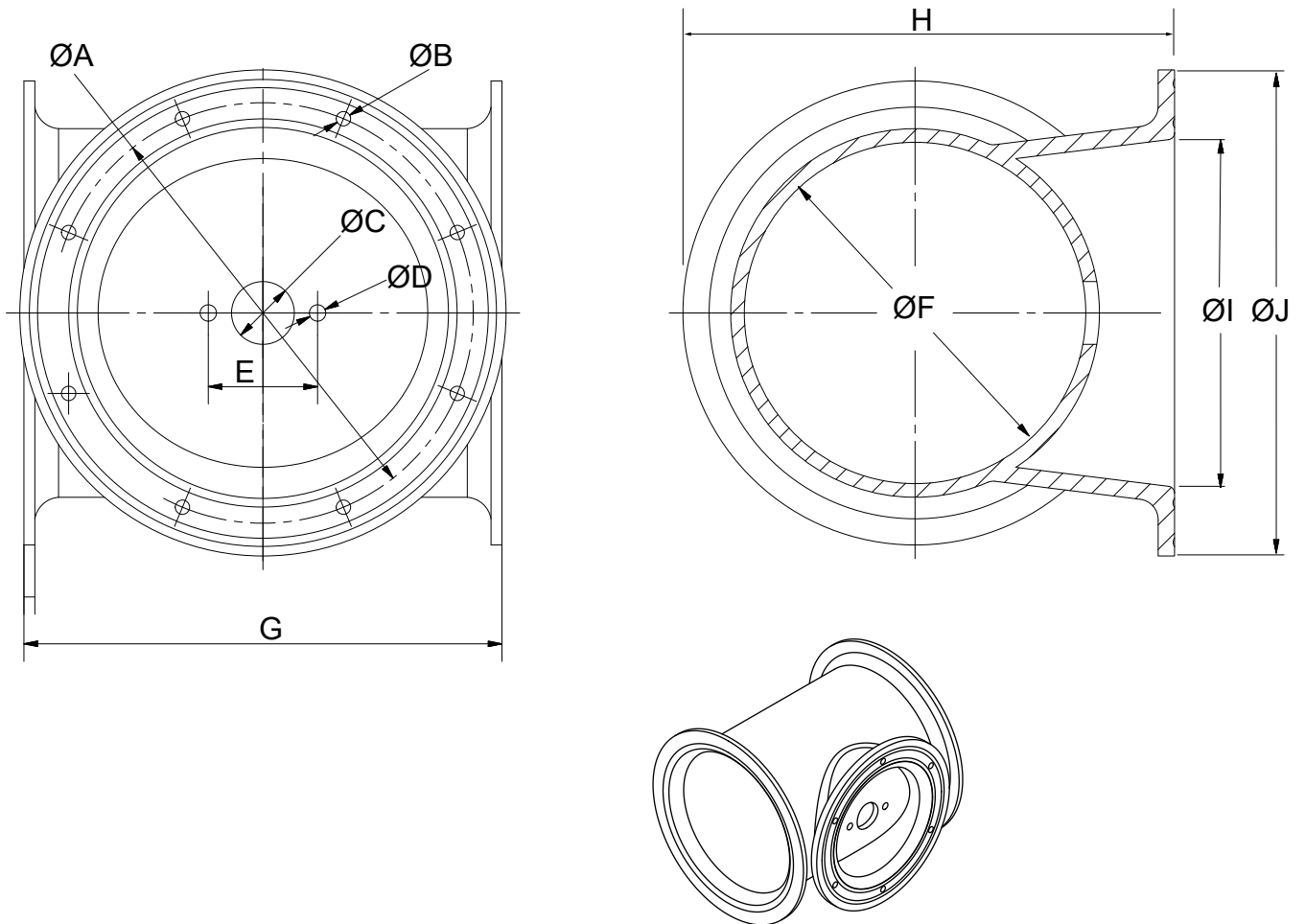
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Measurement code	Measurement description	90150i	
		mm	inch
A	Tunnel bolt circle	308	12.13
B	Bolt hole diameter	10.5	0.41
C	Gear leg hole diameter	46	1.81
D	Gear leg bolt hole diameter	10.4	0.41
E	Gear leg bolt hole center	80	3.15
F	Tunnel diameter	250	9.84
G	Tunnel length	350	13.78
H	Tunnel distance from hull	345	13.58
I	Cut out hull	257	10.12
J	Tunnel to hull diameter	350	13.8



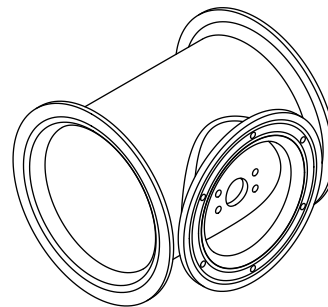
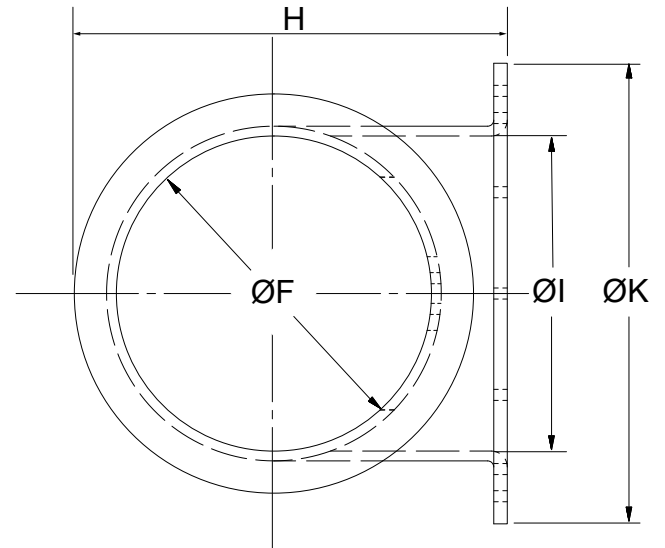
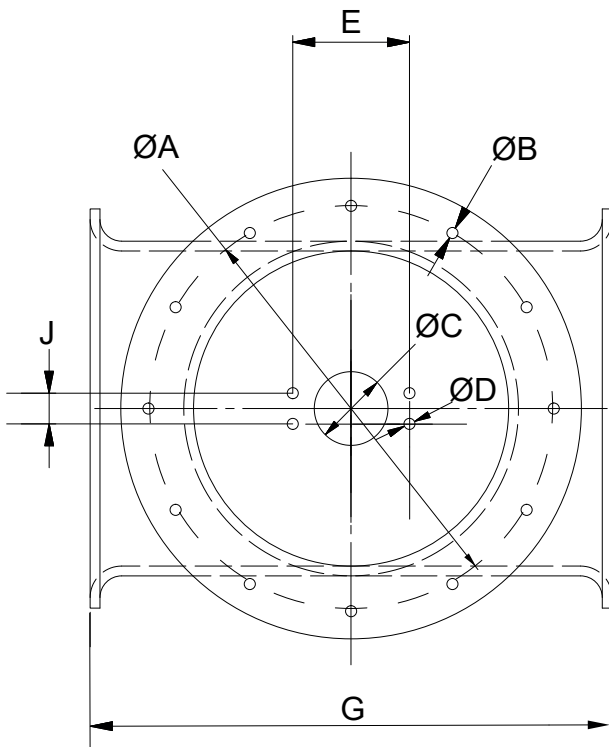
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Measurement code	Measurement description	90180i		90200i		90350		90550		90700	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	Tunnel bolt circle	308	12.13	346	13.62	346	13.62	535	21.06	540	17.72
B	Bolt hole diameter	12	0.47	12.5	0.49	12.5	0.49	12.5	0.49	19	0.75
C	Gear leg hole diameter	46	1.81	52	2.05	66.5	2.62	85	3.35	80	3.15
D	Gear leg bolt hole diameter	12	0.47	12.5	0.49	12.5	0.49	18	0.71	18	0.71
E	Gear leg bolt hole center	80	3.15	96	3.78	96	3.78	140	5.51	140	5.51
F	Tunnel diameter	250	9.84	300	11.81	300	11.81	386	15.20	411.5	16.20
G	Tunnel length	350	13.78	456	17.95	456	17.95	550	21.65	700	27.56
H	Tunnel distance from hull	353	13.89	419	16.49	419	16.5	581	22.87	535	21.06
I	Cut out hull	254	10	265	10.43	269	10.59	403	15.87	450	17.72
J	Tunnel to hull diameter	356	14	396	15.6	396	15.59	600	23.6	595	23.4



MG_0259

Measurement code	Measurement description	91000		91400	
		mm	inch	mm	inch
A	Tunnel bolt circle	680	26.77	750	29.53
B	Bolt hole diameter	18	0.71	20	0.79
C	Gear leg hole diameter	120	4.72	120	4.72
D	Gear leg bolt hole diameter	18	0.71	18	0.71
E	Gear leg bolt hole center to center	190	7.48	190	7.48
F	Tunnel diameter	513	20.20	610	24.02
G	Tunnel Length	850	33.46	860	33.86
H	Tunnel distance from hull	705	27.76	822	32.36
I	Cut out hull	551	21.69	621	24.45
J	Gear leg bolt hole center to center	50	1.97	50	1.97
K	Tunnel to hull diameter	755	29.72	810	31.89

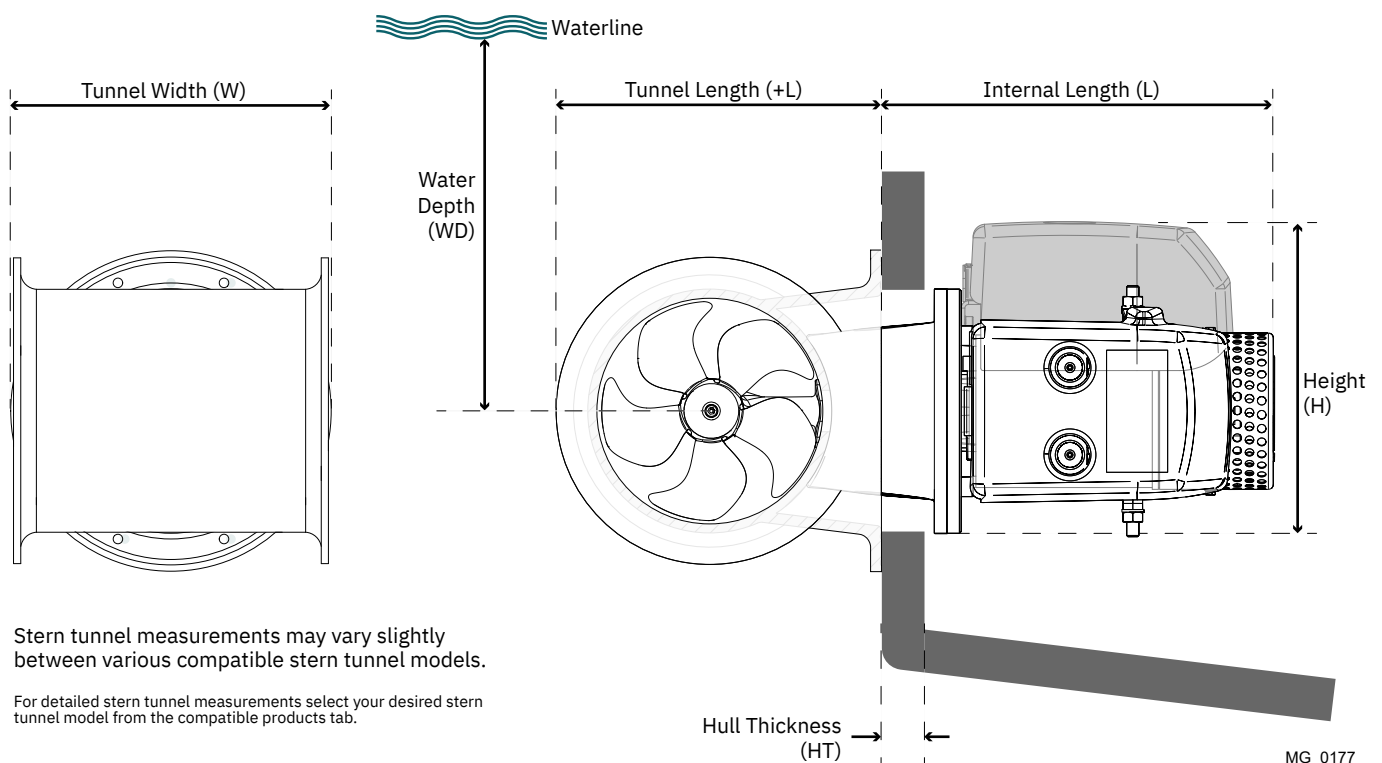


MG_0260

Measurement code	Measurement description	SE(P) 30		SE(P) 40		SE(P) 60		SE(P) 60		SE(P) 80		SE(P) 80		SE(P) 100	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	Internal Length	218	8.6	228	9	231	9.1	214	8.4	294	11.6	303	11.9	351	13.8
+L	Tunnel Length	188	7.4	188	7.4	265	10.4	265	10.4	265	10.4	265	10.4	265	10.4
WD	Water Depth	125	4.9	125	4.9	185	7.3	185	7.3	185	7.3	185	7.3	185	7.3
HT	Hull Thickness	19	0.8	17	0.7	43	1.7	56	2.2	56	2.2	56	2.2	60	2.4
H	Motor Height	198	7.9	205	8.1	200	7.9	202	8	253	10	261	10.3	292	11.5
W	Tunnel Width	197	7.8	197	7.8	335	13.2	335	13.2	335	13.2	335	13.2	335	13.2
Stern Tunnel		90140I 90124I		90124I		90052I		90052I		90086I		90086I		90086I	

Measurement code	Measurement description	SE(P) 100		SE(P) 120		SE(P) 130		SE(P) 130		SE(P) 150		SE(P) 170		SE(P) 210	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	Internal Length	351	13.8	361	14.2	352	13.9	348	13.7	380	15	362	14.3	422	16.6
+L	Tunnel Length	265	10.4	300	11.8	345	13.6	345	13.6	300	11.8	345	13.6	360	14.2
WD	Water Depth	185	7.3	215	8.5	250	9.9	250	9.9	215	8.5	250	9.9	250	9.8
HT	Hull Thickness	64	2.5	61	2.4	56	2.2	55	2.2	73	2.9	56	2.2	50	2
H	Motor Height	272	10.7	266	10.5	297	11.7	277	10.9	292	11.5	292	11.5	274	10.8
W	Tunnel Width	335	13.2	330	13	350	13.8	350	13.8	330	13	350	13.8	350	13.8
Stern Tunnel		90086I		90135I		90140I 90150I		90140I 90150I		90135I		90150I 90140I		90150I 90180I	

Measurement code	Measurement description	SE(P) 250		SE(P) 300	
		mm	inch	mm	inch
L	Internal Length	440	17.3	407.2	16
+L	Tunnel Length	417	16.4	422	16.6
WD	Water Depth	300	11.8	300	11.8
HT	Hull Thickness	68	2.7	67	2.6
H	Motor Height	337	13.3	350	13.8
W	Tunnel Width	456	18	456	18
Stern Tunnel		90200I		90200I	



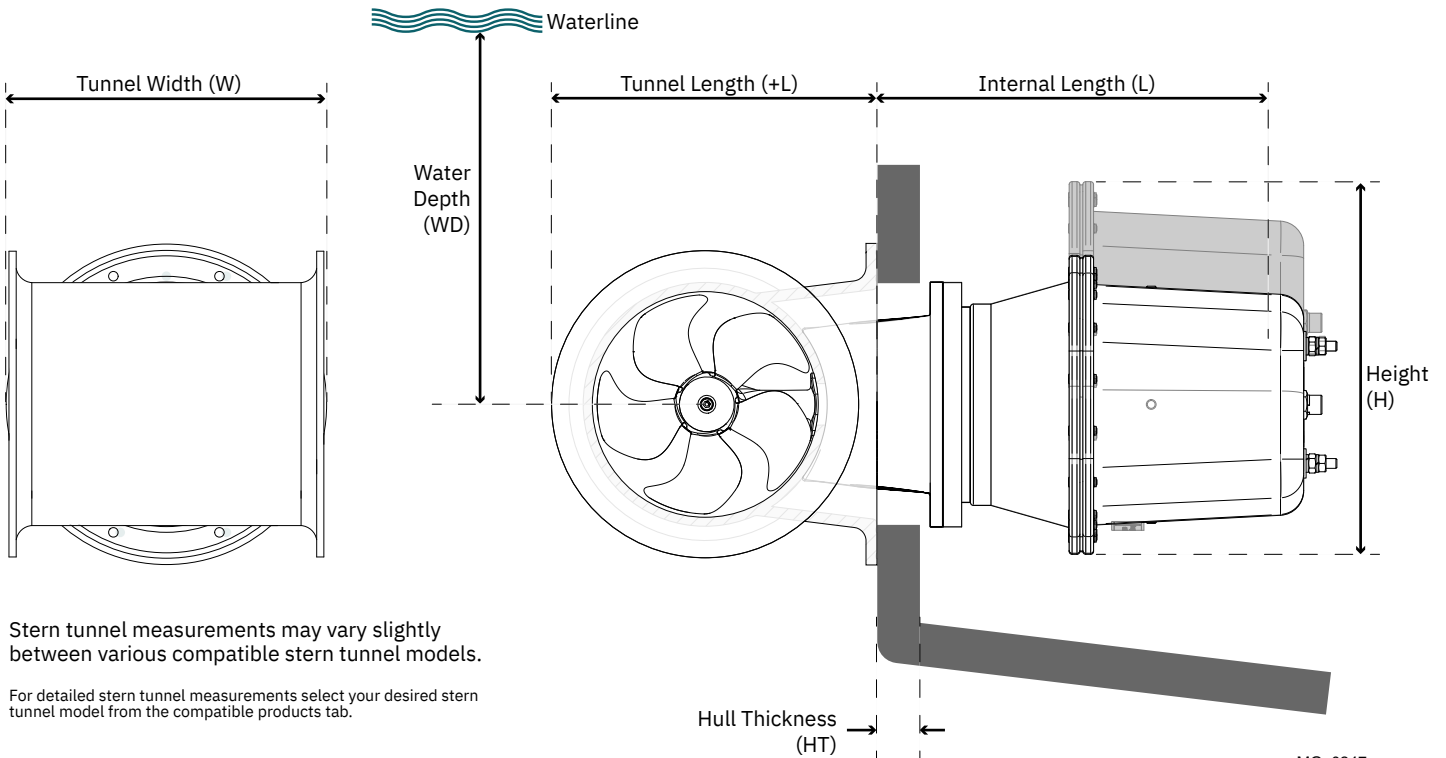
Stern tunnel measurements may vary slightly between various compatible stern tunnel models.

For detailed stern tunnel measurements select your desired stern tunnel model from the compatible products tab.

MG_0177

Measurement code	Measurement description	SE(P) 30		SE(P) 40		SE(P) 60		SE(P) 60		SE(P) 80		SE(P) 80		SE(P) 100	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	Internal Length	256	10.1	268	10.6	278	10.9	278	10.9	364	14.3	364	14.3	458	14.3
+L	Tunnel Length	188	7.4	188	7.4	265	10.4	265	10.4	265	10.4	265	10.4	265	10.4
WD	Water Depth	125	4.9	125	4.9	185	7.3	185	7.3	185	7.3	185	7.3	185	7.3
HT	Hull Thickness	70	2.8	65	2.6	88	3.5	88	3.5	64	2.5	64	2.5	72	2.8
H	Motor Height	238	9.4	238	9.4	272	10.7	272	10.7	327	12.9	327	12.9	381	12.9
W	Tunnel Width	198	7.8	197	7.8	335	13.2	335	13.2	335	13.2	335	13.2	335	13.2
Stern Tunnel		90124I		90124I 90140I		90052I		90052I		90086I		90086I		90086I	

Measurement code	Measurement description	SE(P) 100		SE(P) 120		SE(P) 130		SE(P) 130		SE(P) 170	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	Internal Length	468	18.4	463	18.2	463	18.2	463	18.2	362	18.2
+L	Tunnel Length	265	10.4	300	11.8	345	13.6	345	13.6	345	13.6
WD	Water Depth	185	7.3	215	8.5	250	9.8	250	9.8	250	9.8
HT	Hull Thickness	81	3.2	97	3.8	83	3.3	83	3.3	56	2.2
H	Motor Height	381	15	381	15	381	15	381	15	292	11.5
W	Tunnel Width	335	13.2	330	13	350	13.8	350	13.8	350	13.8
Stern Tunnel		90086I		90135I		90140I 90150I		90140I 90150I		90140I 90150I	



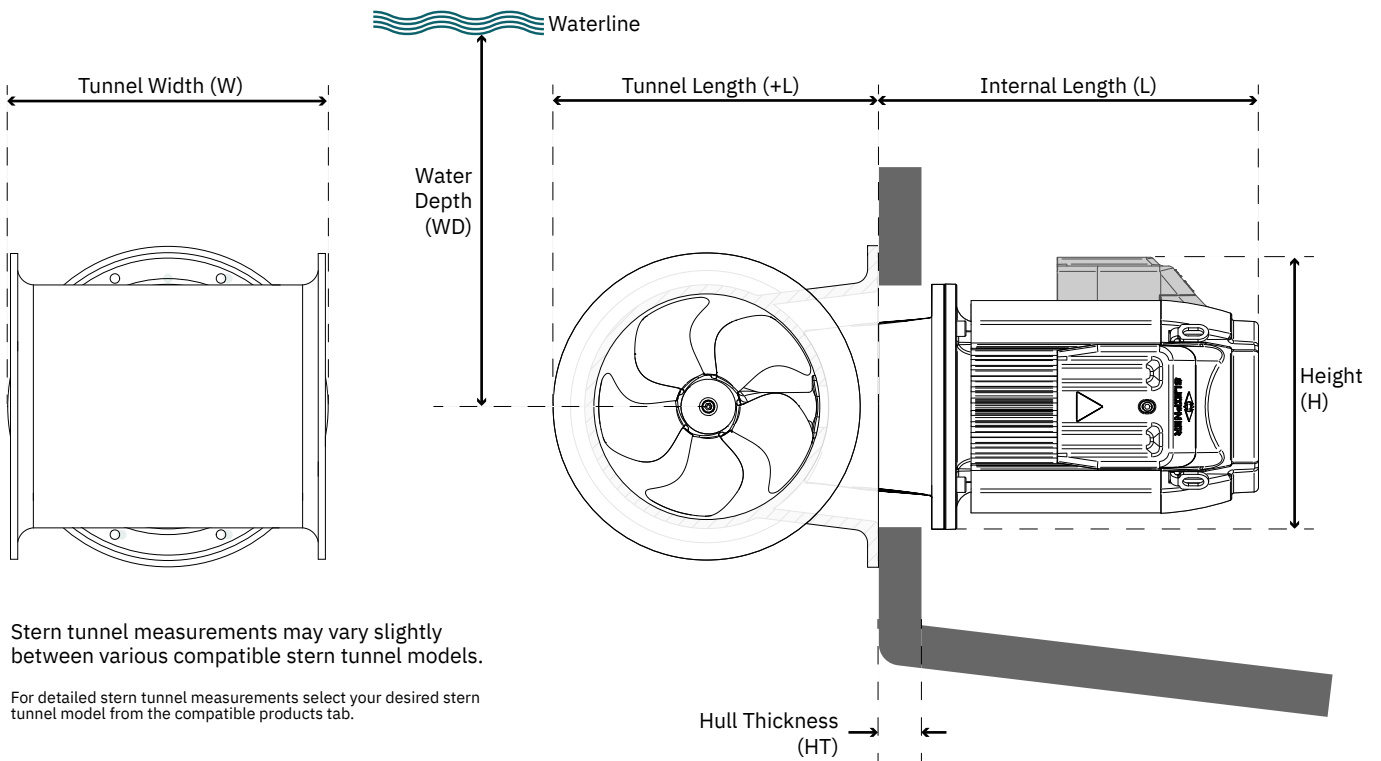
Stern tunnel measurements may vary slightly between various compatible stern tunnel models.

For detailed stern tunnel measurements select your desired stern tunnel model from the compatible products tab.

MG_0247

Measurement code	Measurement description	E100		E120		E130		E150		E170		E210		E240	
		24V & 48V mm	inch	24V & 48V mm	inch	24V & 48V mm	inch	24V & 48V mm	inch	24V & 48V mm	inch	24V & 48V mm	inch	48V mm	inch
L	Internal Length	359		354.5		339	13	354.5	14	339	13	370	14.5	370	14.5
+L	Tunnel Length	265		300	11.8	345		300	11.8	344.5	13.5	353	14	353	14
WD	Water Depth	185		215	8.5	250	10	215	8.5	250	10	250	10	250	10
HT	Hull Thickness	42	2	57	2.2	42	2	57	2.2	42	2	33	1	33	1
H	Motor Height	285	11	285	11	285	11	285	11	285	11	285	11	285	11
W	Tunnel Width	335		330	13	350	14	330	13	350	14	350	14	350	14
Stern Tunnel		90086I		90135I		90140I 90150I		90135I		90140I 90150I		90150I		90150I	

Measurement code	Measurement description	E250		E300	
		24V & 48V mm	inch	48V mm	inch
L	Internal Length	387	15	387	15
+L	Tunnel Length	419	16.5	419	16.5
WD	Water Depth	300	12	300	12
HT	Hull Thickness	50	2	50	2
H	Motor Height	285	11	285	11
W	Tunnel Width	456	18	456	18
Stern Tunnel		90200I		90200I	



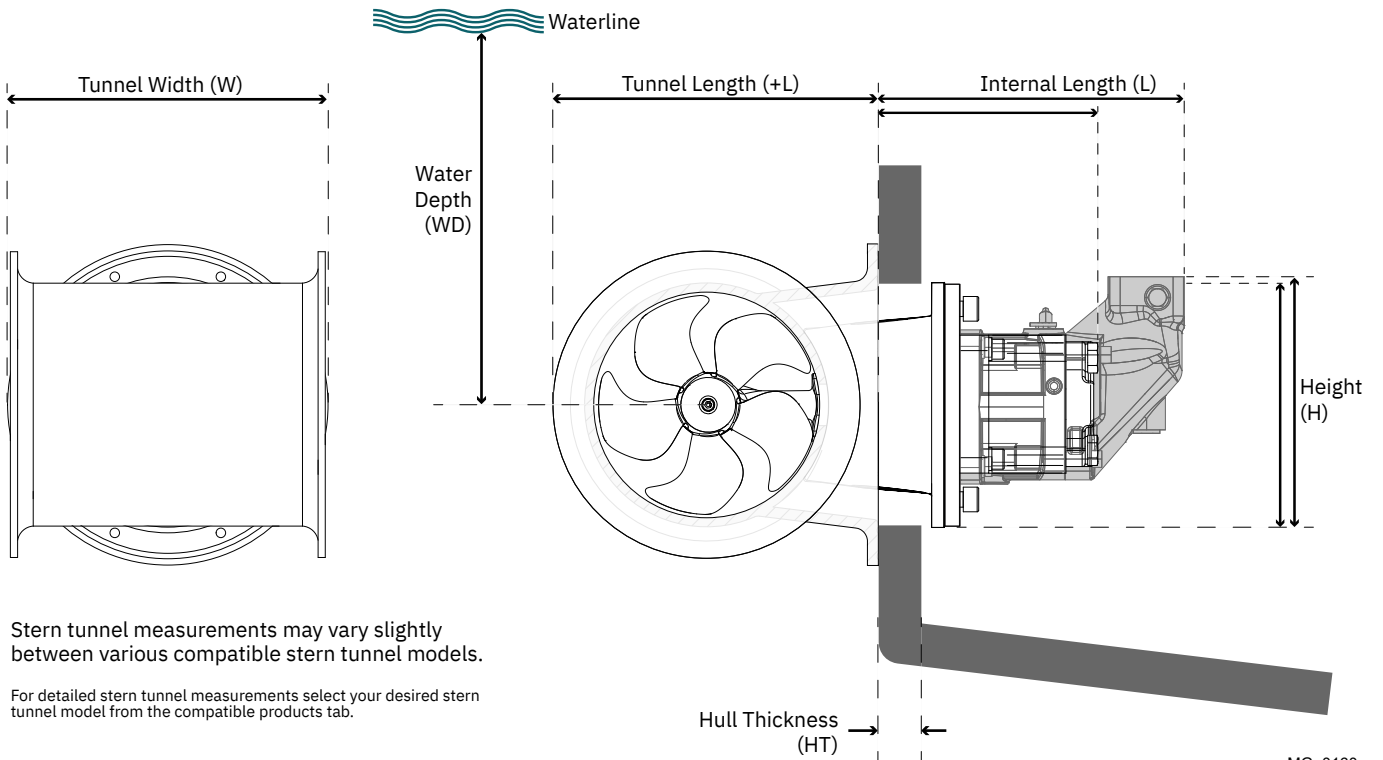
Stern tunnel measurements may vary slightly between various compatible stern tunnel models.

For detailed stern tunnel measurements select your desired stern tunnel model from the compatible products tab.

MG_0611

Measurement code	Measurement description	SH100		SH160		SH240		SH320		SH400		SH420		SH550	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	Internal Length	172	7	172	7	91	3.6	195	7.7	305	12	257	10.1	257	10.1
+L	Tunnel Length	256	10	300	11.8	340	13.4	420	16.5	422	16.6	540	21.3	540	21.3
WD	Water Depth	150	6	215	8.5	250	9.8	300	11.8	300	11.8	380	15	380	15
HT	Hull Thickness	35	1.4	54	2.1	60	2.4	60	2.4	60	2.4	54	2.1	54	2.1
H	Motor Height	200	8	200	8	200	7.9	258	10.2	258	10.2	200	7.9	220	8.7
W	Tunnel Width	337	13.3	330	13	350	13.8	456	18	456	18	550	21.7	550	21.7
Stern Tunnel		90086I		90135I		90140I		90200I		90350		90550		90550	

Measurement code	Measurement description	SH1000		SH1400	
		mm	inch	mm	inch
L	Internal Length	405	7.3	470	18.5
+L	Tunnel Length	705	0.3	820	32.3
WD	Water Depth	770	30.3	915	36
HT	Hull Thickness	120	4.7	145	5.7
H	Motor Height	200	7.9	250	9.8
W	Tunnel Width	850	33.5	860	33.9
Stern Tunnel		91000		91400	



Stern tunnel measurements may vary slightly between various compatible stern tunnel models.

For detailed stern tunnel measurements select your desired stern tunnel model from the compatible products tab.

MG_0160

Install the thruster as deep as possible on the vessel's transom (Fig. 1).

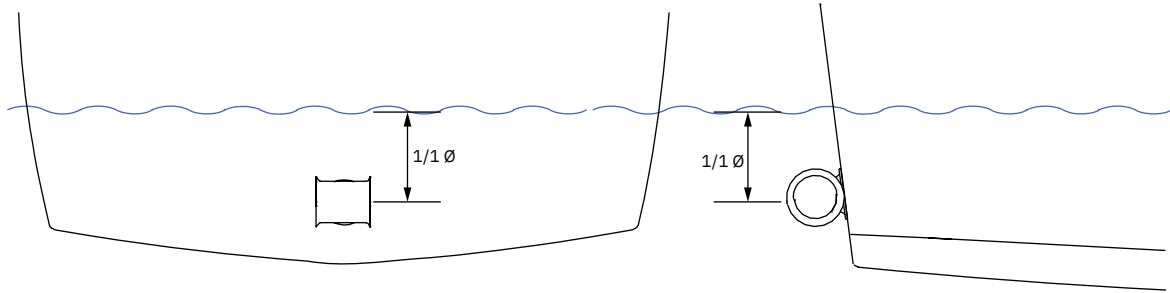
The tunnel should be installed as deep under the waterline as possible for two reasons:

1. So that it does not suck air down from the surface which will reduce performance and increase noise levels.
2. To get as much water pressure as possible to receive maximum efficiency from the thruster.

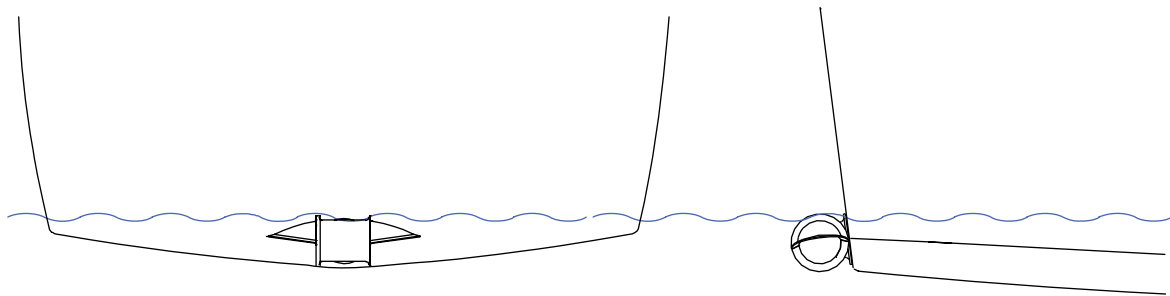
Generally, the top of the tunnel should be a minimum of $1/2$ x the tunnel diameter below the waterline. For best performance, the distance should be $1/1$ x tunnel diameter below the waterline.

Stern thruster installation for shallow vessels (Fig. 2).

When installing in shallow hull vessels, add stern cowls to the installation process. See next page



Standard stern thruster tunnel installation



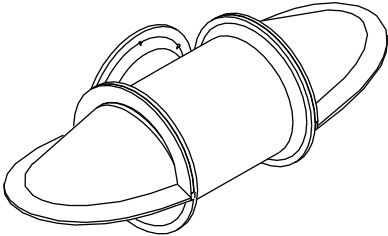
Stern thruster and cowl installation for shallow vessels

MG_0018

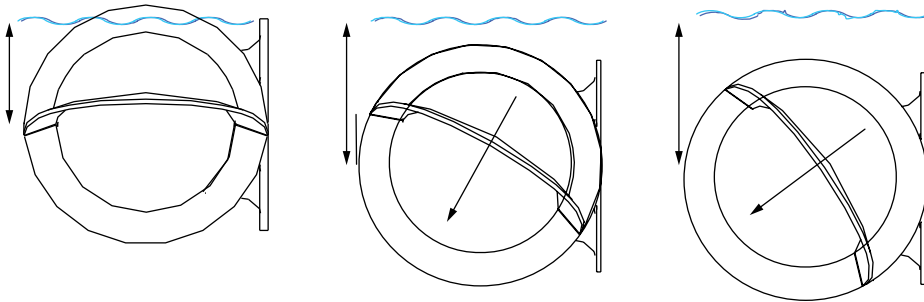
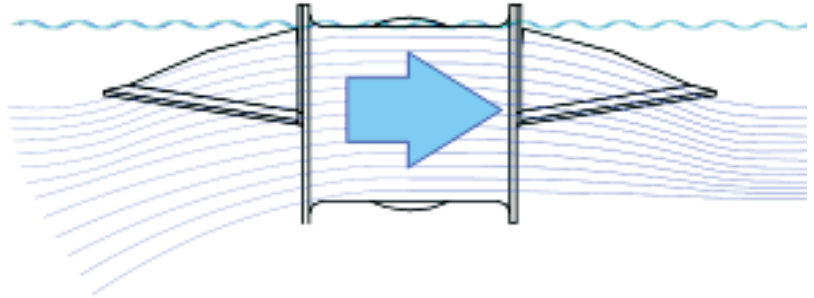
For vessels with shallow drafts or obstructions on the stern that prevents a recommended tunnel to surface distance, a set of stern thruster cowl will limit the cavitation issue. These obstructions can include obstacles such as trim tabs, jets or surface drive propeller systems where shallow installation of a stern thruster is the only option.

Note that installing a thruster cowl will reduce the efficiency of the thruster compared with the “deep” installation, but will improve the efficiency compared with the shallow installation.

For available thruster cowl models that fits your tunnel, see Sleipner.no



A standard sleipner stern thruster tunnel with add-on cowls for shallow installation



Cowls installed to change the water flow direction to avoid obstructions on the stern

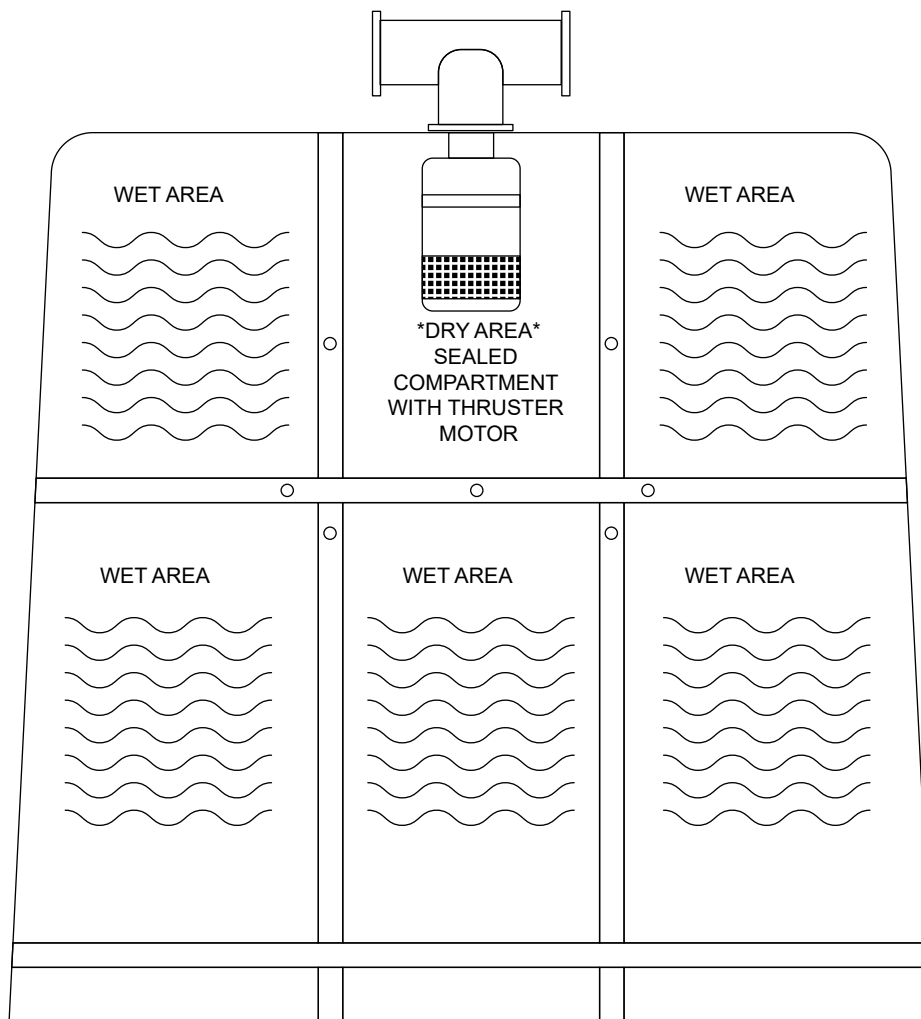
Installing cowls will help preventing air from the water surface entering the tunnel in shallow installations

IMPORTANT
 Angled cowls out of horizontal, must be installed deeper to avoid air entry in the thruster tunnel

The thruster motor and solenoid system is not to be considered as waterproof and will become damaged if exposed to constant moisture. This will cause rust and corrosion on the system. The bilge area at the stern of the vessel is generally a 'wet' area and may require to be modified to create a dry compartment for the thruster motor solenoids.

To create a dry compartment, the installer must ensure:

- Sealing all drain holes running into the thruster compartment.
- To modify any surrounding compartments and plates to allow water to drain away from the thrusters compartment.
- Isolate the thrusters compartment from other elements of the vessel such as propeller shafts or rudder shafts that can cause water infiltration.
- If a self-draining system/ bilge pump fails, ensure that water can not overflow into the thruster compartment. **(NB: We recommend installing a self activating bilge pump with an alarm system in the thruster compartment.)**
- If installing an electric motor remove and Install the control-cable system for the thruster higher up to ensure they are kept dry at all times. **(NB: the Sleipner stern thruster kit will include a cable for the electronic control box that is pre-installed on the electro motor. These cables are purchasable separately if you have not purchased our stern thruster kit.)**



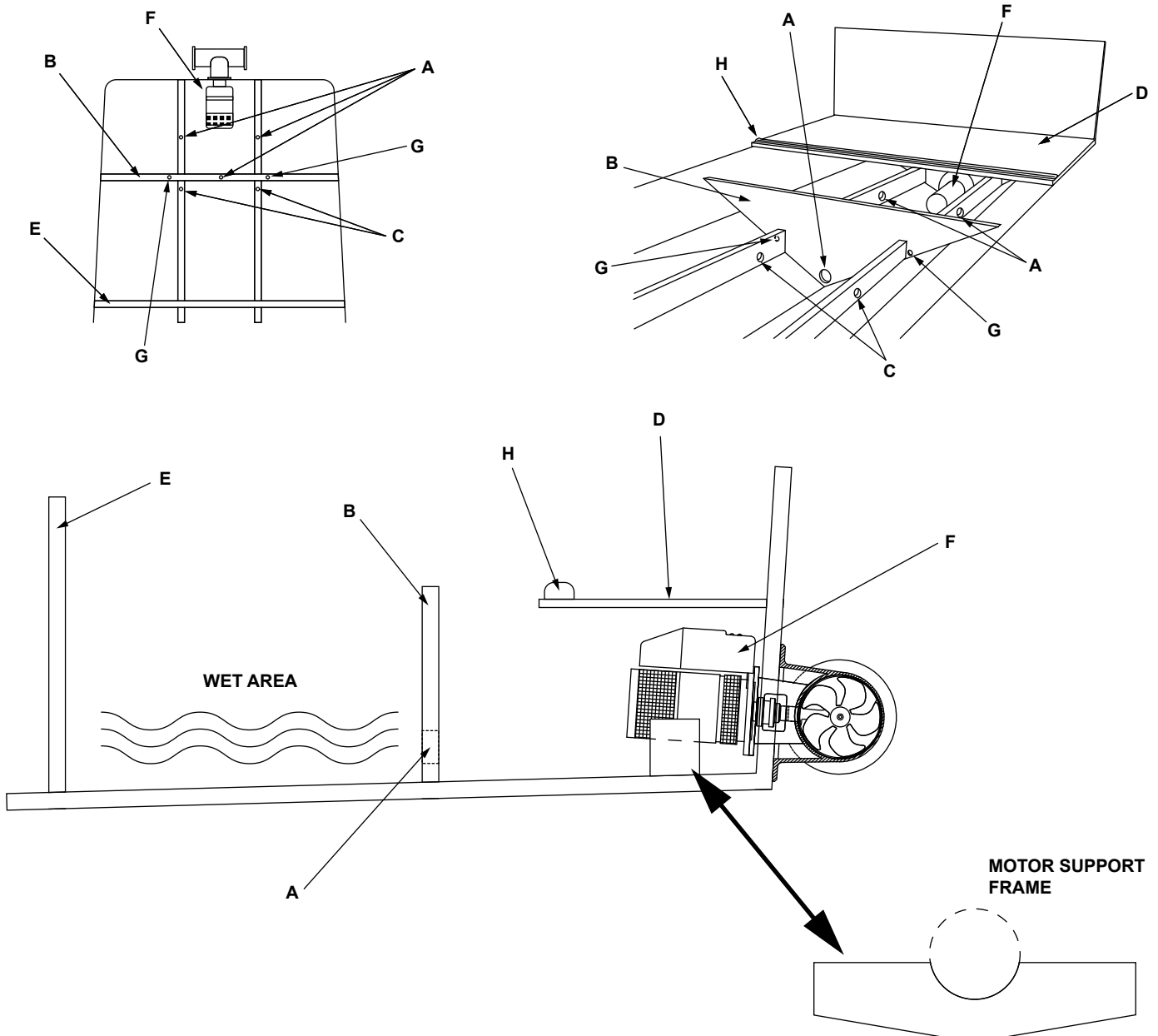
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Description of illustrations:

- (A) All drainage holes or other openings from wet areas into the thruster compartment must be sealed.
- (B) Originally non-sealed bulkhead
- (C) The vessels stringers often include drain holes from the side compartments
- (D) Plate above bilge where the steering system and other technical installations are usually installed
- (E) Watertight bulkhead to engine room.
- (F) Thruster
- (G) Ensure there are draining holes in these positions to lead the water to the bilge pump.
- (H) Install anti-drip edges on all surfaces above the thruster compartment to ensure water will drain to surrounding wet areas of the bilge.

Support for the thruster:

Placing the thruster on it sides creates a strain on the gear leg and motor bracket in supporting the weight of the motor. The weight strain can potentially cause damage to the installed product, especially in heavy seas. Create a support frame for the motor to rest upon reducing the weight strain on the thruster and tunnel connection point.



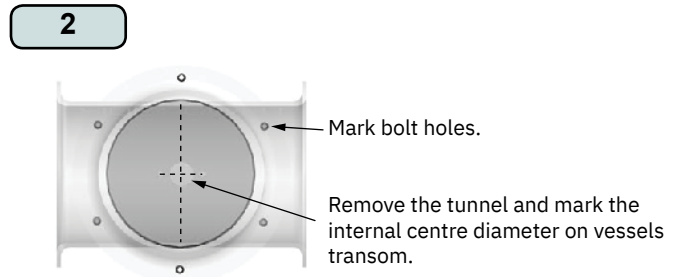
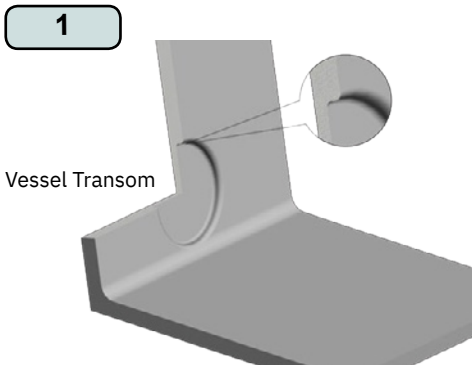
MG_0011

1. Ensure the tunnel flange is flush on the transom. If necessary level the transom area. **(NB: Ensure to maintain the minimum transom thickness for your model)**
2. Hold the tunnel horizontal in place and mark the tunnel mould bolt holes. Remove the tunnel to calculate and mark the internal centre diameter of the tunnel mould.
3. Cut the internal centre diameter of the tunnel mould and then the surrounding bolt holes.
4. Install the gear leg to the stern tunnel mould defined in your thruster install guide. **(NB: Install the oil lead if used as space will be limited in the future.)**
5. To ensure no water ingress prepare the tunnel with a gel-coat or similar both externally and internally around the bolt areas.
6. Ensure support for the thruster motor is installed to ensure the weight of the motor can not cause a twisting action on the tunnel

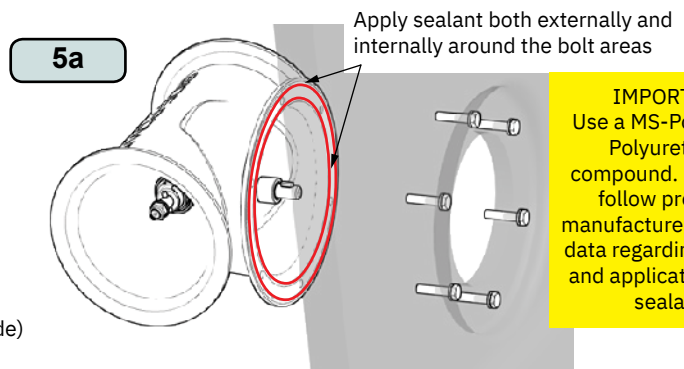
(NB: Not included in the Sleipner stern thruster kit are bolts, washers and nuts. These size requirements will vary depending on your vessel's transom thickness. We recommend A4 stainless with A4 lock nuts and large diameter A4 washers on both internally and externally on the tunnel installation.)

Bolts diameter (stainless steel):

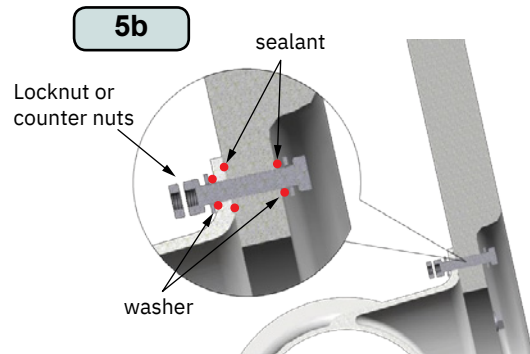
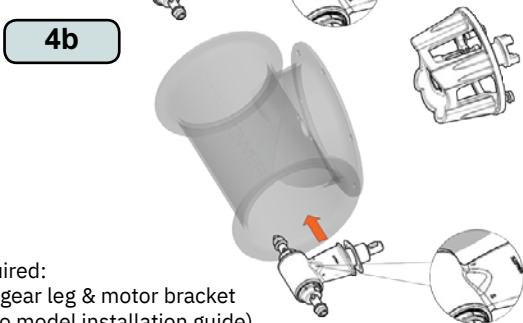
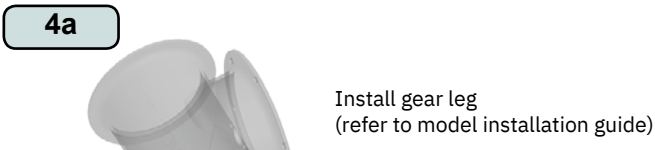
Refer to the measurement "B" in the table covering the relevant tunnel type.



IMPORTANT
Boatbuilder/Naval architect must be consulted and approve if transom must be customized in order to get the stern thruster to be installed.

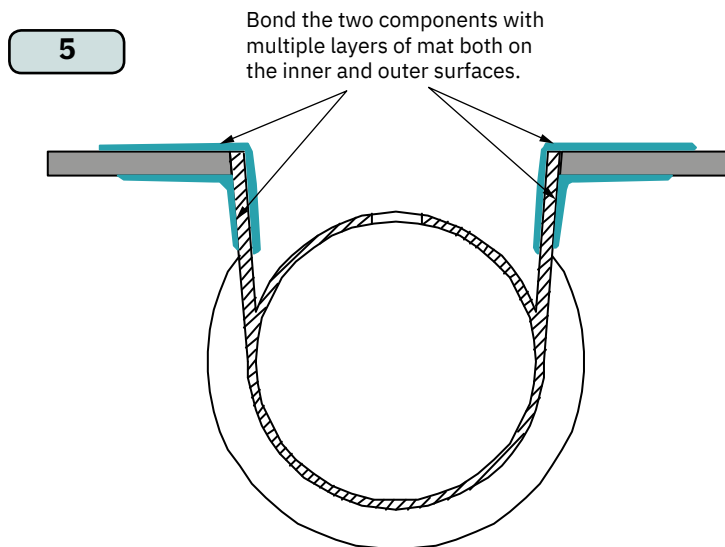
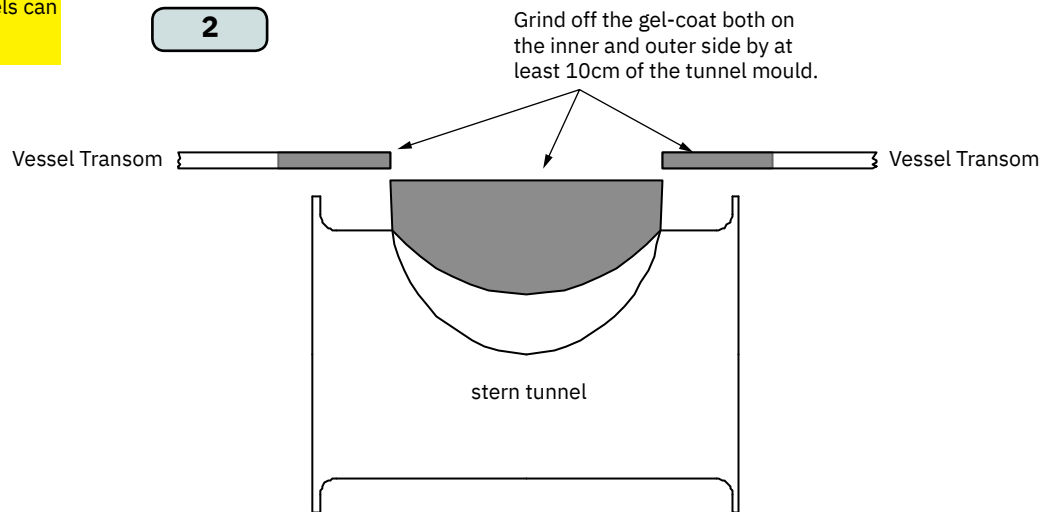


IMPORTANT
Use a MS-Polymer or Polyurethane compound. Ensure to follow products manufacturer technical data regarding priming and application of the sealant.



1. Cut and remove the bolting section of the tunnel mould.
2. Grind off the gel-coat both on the inner and outer side by at least 10cm of the tunnel mould.
3. Place the tunnel mould in the desired location on the transom and mark the diameter of the tunnel on the vessel.
4. Cut and remove the marked area from the transom of the vessel. Grind off the gel-coat both on the inner and outer side by at least 10cm of the vessel transom.
5. Insert the tunnel horizontally in place and bond the two components with multiple layers of mat both on the inner and outer surfaces. Ensure not to reduce the internal diameter of the tunnel mould. Reducing the internal diameter will make installation of the thruster motor more difficult.
6. Apply gel-coat or similar to the bonded areas
7. Install the gear leg to the stern tunnel mould defined in your thruster install guide.
8. Ensure support for the thruster motor is installed to ensure the weight of the motor can not cause a twisting action on the tunnel

IMPORTANT
Mould-in installation is **ONLY** for stern GRP tunnels. Composite stern tunnels can **NOT** be moulded in this way.

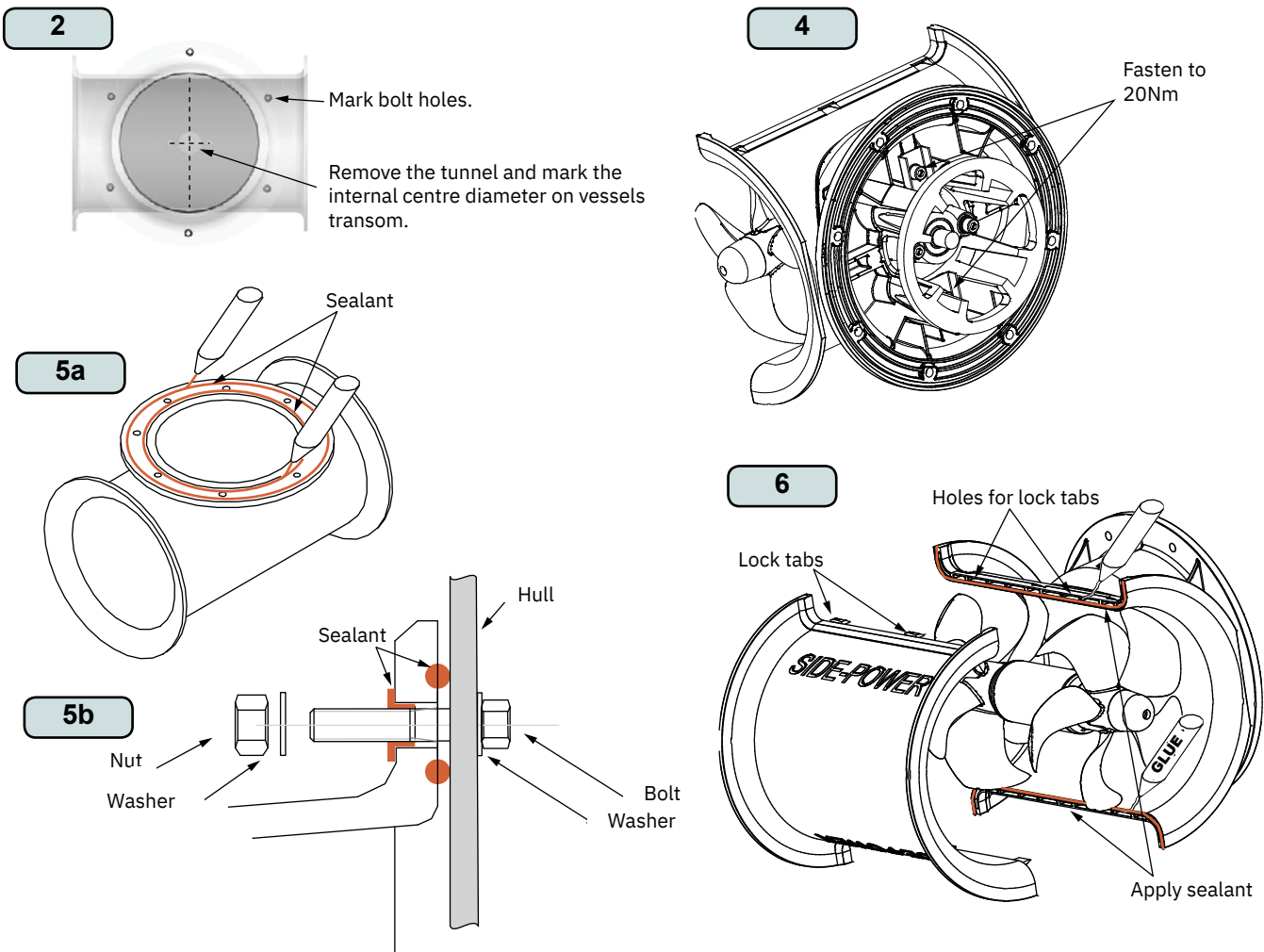


1. Ensure the tunnel flange is flush on the transom. If necessary level the transom area. **(NB: Ensure to maintain the minimum transom thickness for your model)**
2. Hold the tunnel horizontal in place and mark the tunnel mould bolt holes. Remove the tunnel to calculate and mark the internal centre diameter of the tunnel mould.
3. Cut the internal centre diameter of the tunnel mould and then the surrounding bolt holes.
4. Install the gear leg to the stern tunnel mould defined in your thruster install guide. Insert the motor bracket with the included metal supports. Metal supports will remove the requirement for additional support frames for the thruster motor.
5. To ensure no water ingress prepare the tunnel with a gel-coat or similar both externally and internally around the bolt areas.
6. Install the outer half of the tunnel mould. Use a sealant to ensure a secure bond. Ensure the locking tabs on the outer half tunnel engage/ into the other half of the tunnel mould.

(NB: Not included in the Sleipner stern thruster kit are Bolts, washers and nuts. These size requirements will vary depending on your vessel's transom thickness. We recommend A4 stainless with A4 lock nuts and large diameter A4 washers on both internally and externally on the tunnel installation.)

Bolts diameter (stainless steel):

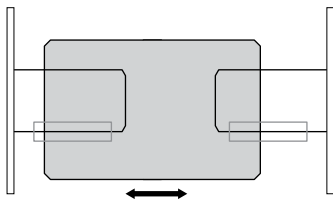
Refer to the measurement "B" in the table covering the relevant tunnel type.



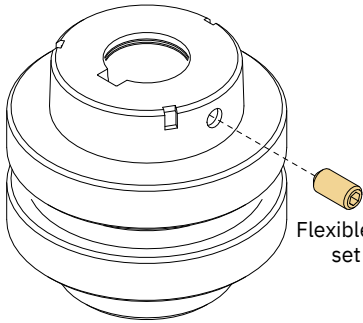
MG_0801

The tunnel thickness may vary depending on your unique stern tunnel installation. To ensure appropriate engagement of the gear leg and motor drive shafts the flexible coupling will require adjustment.

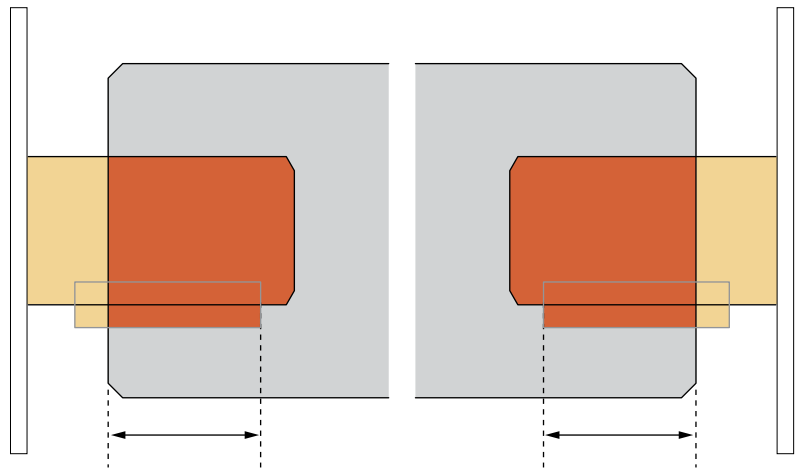
To adjust the flexible coupling locate and loosen any set screws holding the coupling to the shaft.



Adjust the coupling if required



Flexible coupling set screw

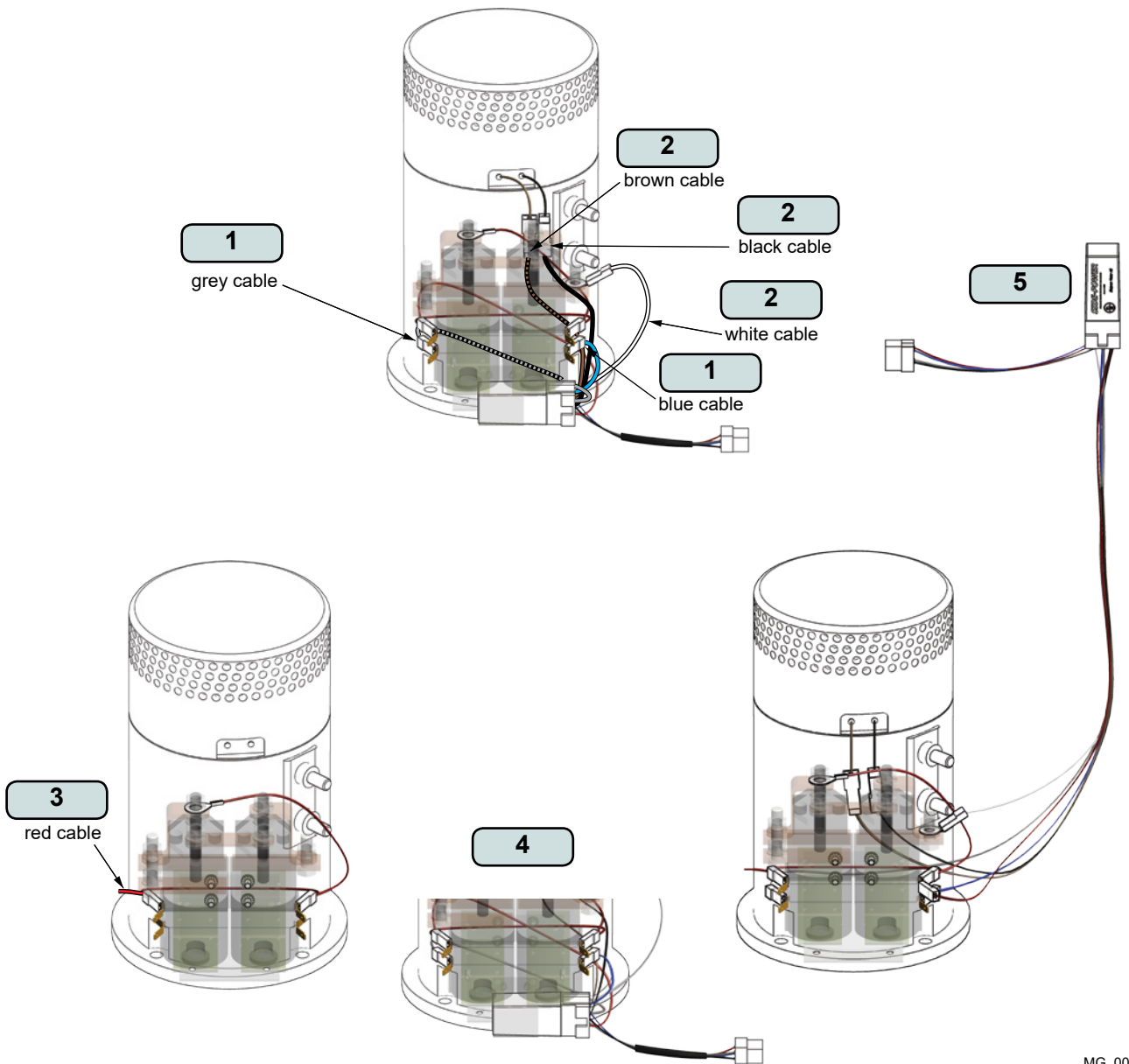


IMPORTANT
Ensure a minimum of 80% engagement on both the motor and thruster drive shaft key

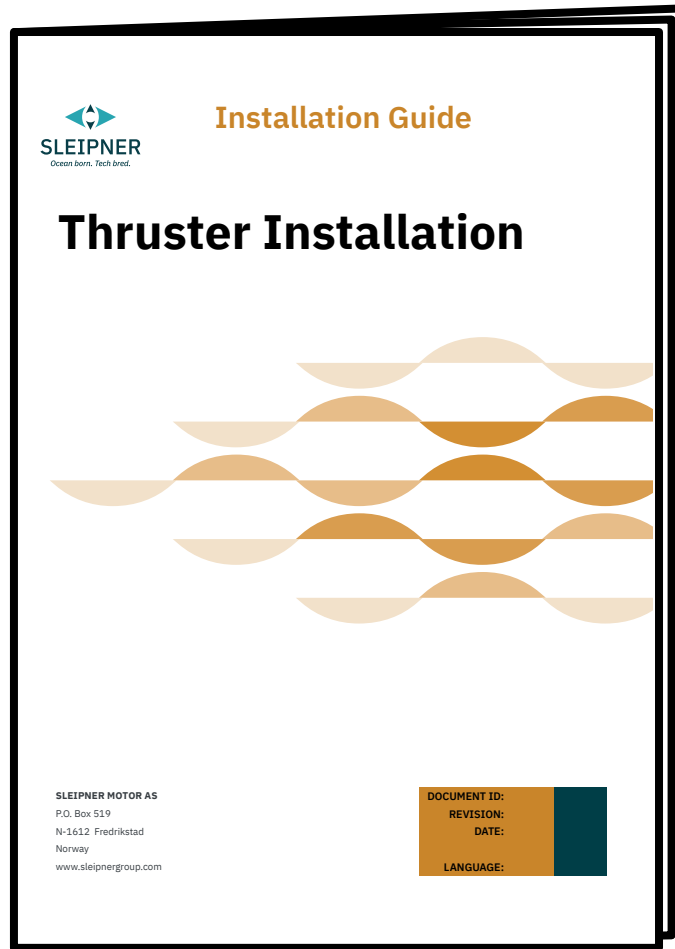
The electronic control box and its contact are the most sensitive parts on the thruster to water influence. It is our recommendation the control box is removed from the thruster and installed higher in the vessel. **(NB: Included with the stern-thruster tunnel kit is an extension cable that will allow the remote installation of the control box.)**

Procedure:

1. Replace the GREY and BLUE cables connected to the sides of the main solenoids with the GREY and BLUE cables on the extension cable.
2. Exchange the BLACK, BROWN and WHITE cables connected to the motor and solenoids with the BLACK, BROWN and WHITE cables on the extension cable.
3. Cut the zip tie holding the remaining RED and other cables commonly located behind the solenoid. Leave the RED wires on the main solenoids and Cut only the RED cable connected to the control box.
4. Remove the electronic control box and its harness from the solenoid system on the thruster.
5. Install the electronic control box higher in the vessel where it will remain dry while docked and at sea. **(NB: Install the control box that even in extreme flooding it will remain dry.)**
6. Connect The extension cable to the control box and the AMP to the control panel.



For **Thruster** installation please refer to the supplied manual in your Sleipner product delivery



MC_0032

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

Product Spare Parts and Additional Resources

For additional supporting documentation, we advise you to visit our website www.sleipnergrou.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.sleipnergrou.com. The Claimant must present a detailed written statement of the nature and circumstances of the defect, to the best of the Claimant's knowledge, including product identification and serial nbr., the date and place of purchase and the name and address of the installer. Proof of purchase date should be included with the claim, to verify that the warranty period has not expired;
 - (b) Make the equipment available for troubleshooting and repair, with direct and workable access, including dismantling of furnishings or similar, if any, either at the premises of the Warrantor or an authorised service representative approved by the Warrantor. Equipment can only be returned to the Warrantor or an authorised service representative for repair following a pre-approval by the Warrantor's Help Desk and if so, with the Return Authorisation Number visible postage/shipping prepaid and at the expense of the Claimant.
7. Examination and handling of the warranty claim:
 - (a) If upon the Warrantor's or authorised service Representative's examination, the defect is determined to result from defective material or workmanship in the warranty period, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense. If, on the other hand, the claim is determined to result from circumstances such as described in section 4 above or a result of wear and tear exceeding that for which the equipment is intended (e.g. commercial use of equipment intended for leisure use), the costs for the troubleshooting and repair shall be borne by the Claimant;
 - (b) No refund of the purchase price will be granted to the Claimant, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. In the event that attempts to remedy the defect have failed, the Claimant may claim a refund of the purchase price, provided that the Claimant submits a statement in writing from a professional boating equipment supplier that the installation instructions of the Installation and Operation Manual have been complied with and that the defect remains.
8. Warranty service shall be performed only by the Warrantor, or an authorised service representative, and any attempt to remedy the defect by anyone else shall render this warranty void.
9. No other warranty is given beyond those described above, implied or otherwise, including any implied warranty of merchantability, fitness for a particular purpose other than the purpose for which the equipment is intended, and any other obligations on the part of the Warrantor or its employees and representatives.
10. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives based on this Warranty for injury to any person or persons, or damage to property, loss of income or profit, or any other incidental, consequential or resulting damage or cost claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment or damages arising from collision with other vessels or objects.
11. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.

Patents

At Sleipner we continually reinvest to develop and offer the latest technology in marine advancements. To see the many unique designs we have patented visit our website www.sleipnergrou.com/patents

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www.sleipnergroup.com



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