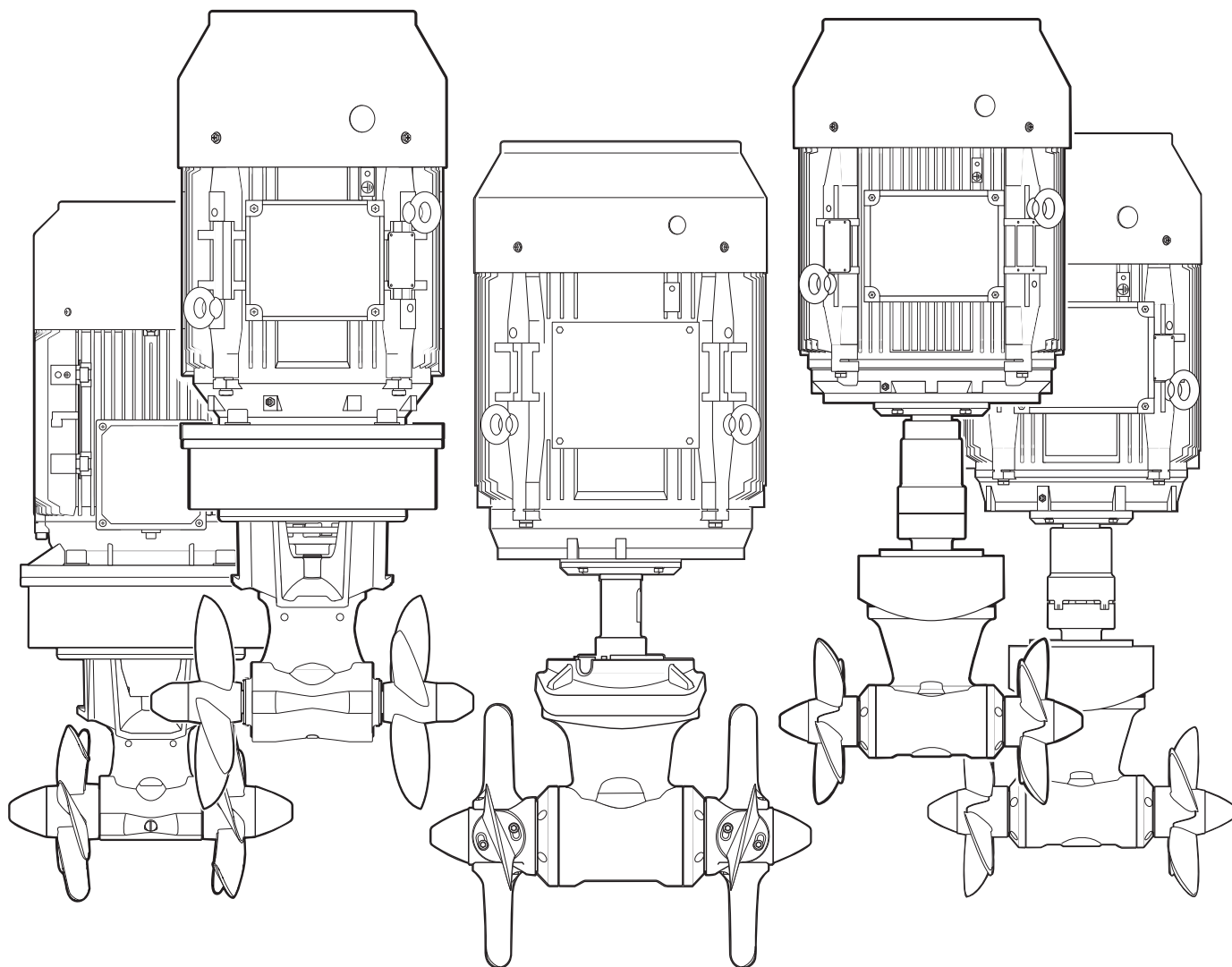


DOUBLE PROPELLER

QSA 240-250 • QSA 300-300 • QSA 320-300 • QSA 360-300 • QSA 400-300 • QSA 450-386
QSA 520-386 • QSA 750-513 • QSA 900-513 • QSA 1100-513



THREE-PHASE ELECTRIC THRUSTERS

USER MANUAL

EN

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1 - Information about the product

QSA Series

EN

**BEFORE USING THE THRUSTER, CAREFULLY READ THIS USER MANUAL.
IF IN DOUBT, CONTACT YOUR NEAREST QS SEAMASTER® DEALER.**

 QS SEAMASTER® RESERVES THE RIGHT TO INTRODUCE CHANGES TO THE EQUIPMENT AND THE CONTENTS OF THIS MANUAL WITHOUT PRIOR NOTICE. IN CASE OF DISCREPANCIES OR ERRORS BETWEEN THE TRANSLATED TEXT AND THE ORIGINAL ITALIAN TEXT, PLEASE REFER TO THE ITALIAN TEXT.

1.0 - Technical data

MODELS	QSA240250	QSA300300	QSA320300
N° Propellers	2 contra-rotating PLASTIC		2 contra-rotating NIBRAL
Tunnel Ø	250 mm (9" 27/32)	300 mm (11" 13/16)	300 mm (11" 13/16)
Motor type	two-pole electric motor		
Motor power	15 kW	15 kW	15 kW
Voltage	400/960 V	400/690 V	400/690 V
Thrust	240 kgf (529 lbs)	300 kgf (661 lbs)	320 kgf (705 lbs)
Limit thickness values of the tunnel	min. 6,5 mm - max 11 mm (min. 1/4" - max 7/16")	min. 9,5 mm - max 13,5 mm (min. 3/8" - max 17/32")	min. 9,5 mm - max 13,5 mm (min. 3/8" - max 17/32")
Boat length*	18-22 m (59-72 ft)	28-34 m (92-111 ft)	26-30m m (85-98 ft)
Weight	160 kg (353 lb)	162 kg (357 lb)	167 kg (368 lb)

MODELS	QSA360300	QSA400300	QSA450386
N° Propellers	2 contra-rotating NIBRAL		2 contra-rotating PLASTIC
Tunnel Ø	300 mm (11" 13/16)	300 mm (11" 13/16)	386 mm (15" 13/64)
Motor type	two-pole electric motor		
Motor power	22 kW	30 kW	30 kW
Voltage	400/960 V	400/690 V	400/690 V
Thrust	360 kgf (793 lbs)	400 kgf (881 lbs)	450 kgf (992 lbs)
Limit thickness values of the tunnel	min. 9,5 mm - max 13,5 mm (min. 3/8" - max 17/32")	min. 9,5 mm - max 13,5 mm (min. 3/8" - max 17/32")	min. 8 mm - max 15 mm (min. 5/16" - max 19/32")
Boat length*	28-34 m (92-111 ft)	28-34 m (92-111 ft)	22-37 m (72-118 ft)
Weight	216 kg (476 lb)	254 kg (560 lb)	274 kg (604 lb)

MODELS	QSA520386	QSA750513	QSA900513	QSA1100513
N° Propellers	2 Controrotanti (PLASTICA)	2 Controrotanti (NIBRAL)		
Tunnel Ø	386 mm (15" 13/64)	513mm (20" 13/64)	513mm (20" 13/64)	513mm (20" 13/64)
Motor type	two-pole electric motor	four-pole electric motor		
Motor power	37 kW	45 kW	55 kW	75 kW
Voltage	400/960 V	400/690 V	400/690 V	400/690 V
Thrust	520 kgf (1146 lbs)	750 kgf (1653 lbs)	900 kgf (2094 lbs)	1100 kgf (2425 lbs)
Limit thickness values of the tunnel	min. 6 mm - max 12 mm (min. 15/64" - max 15/32")	min.12 - max 22 mm (15/32" - 55/64")	min.12 - max 22 mm (15/32" - 55/64")	min.12 - max 22 mm (15/32" - 55/64")
Boat length*	25-40 m (82-131 ft)	32-48 m (105 - 155 ft)	32-48 m (105 - 155 ft)	32-48 m (105 - 155 ft)
Weight	282 kg (622 lb)	539 kg (1188 lb)	613 kg (1351 lb)	742 kg (1636 lb)

***WARNING:** Suitability may vary according to the boat type



2.0 - Package contains

- AC Thrusters
- Drilling template
- Gasket
- O-ring - for assembly (only Ø250 - Ø300 - Ø386B00)
- Gearleg screw
- VFD Inverter
- User's manual
- Conditions of warranty

2.1 - Needed tools for installation

- | | |
|-----------------|--|
| QSA Ø250 | • Drill and drill bits Ø 11 mm (7/64") • Hole saw Ø 46 mm (1" 13/16)
• Hex keys 4 mm, 5 mm, 8 mm e 10 mm • wrench 24 mm |
| QSA Ø300 | • Drill and drill bits Ø 15 mm (19/32") • Hole saw Ø 53 mm (2" 3/32)
• Hex keys 4 mm, 5 mm, 8 mm e 12 mm • wrench 27 mm |
| QSA Ø386 | • Drill and drill bits Ø 18 mm (45/64") • Hole saw Ø 80 mm (3" 5/32)
• Hex keys 5 mm, 8 mm e 14 mm • wrench 27 mm |
| QSA Ø513 | • Drill and drill bits Ø 18 mm (45/64") • Hole saw Ø 140 mm (5" 33/64)
• Hex keys 5 mm, 8 mm e 14 mm • wrench 32 mm |

2.2 - "QS Seamaster®" recommended accessories

- | | |
|----------|----------|
| • DPMS1T | • APMS1T |
| • DPMS2T | • APMS2T |
| • DPMSD | |



3.0 Important notes

This manual contains Warning and/or Caution symbols that are important for safety. Comply with the recommendations provided herein.



Warning symbol concerning hazardous situations.



Caution symbol to avoid direct or indirect damage to the product.

This document contains the instructions that are necessary for boat manufacturers and marine equipment installers to assemble and commission the Thrusters.

3.1 Precautions for the installer



PROCEEDING WITH THE INSTALLATION IN GOOD LIGHT CONDITIONS.

We recommend using an appropriate personal protective equipment.

QS Seamaster® thrusters are not suitable for installation in potentially explosive environments and/or atmospheres.

Assembly and subsequent checks or repairs must only be carried out by qualified personnel.



THE PRODUCT MUST BE DISCONNECTED FROM THE HYDRAULIC SYSTEM BEFORE INSTALLING OR PROVIDING MAINTENANCE.

QS Seamaster® takes no responsibility regarding the inadequate connection of the users to the hydraulic system and to the safety of itself.

3.2 - Installation requirements

It is strongly recommended to entrust a professional with the preparation and positioning of the tunnel in the hull.

These instructions are generic and do not show by any means the details of the operations of preparing the thruster, which falls under the competence of the shipyard. In case of problems caused by a defective installation, the installer will be held responsible.

Despite all components and moving mechanical parts are of high quality, the correct installation of the propulsion unit is fundamental for a safe and efficient use of the boat, as well as of the propulsion unit itself.

Please note that the installation of such unit is an operation requiring experience and technical competence. It is recommended to entrust the installation to competent staff and to consult the manufacturer or naval architects to fully evaluate the entity of the work.

QS 4 - Safety

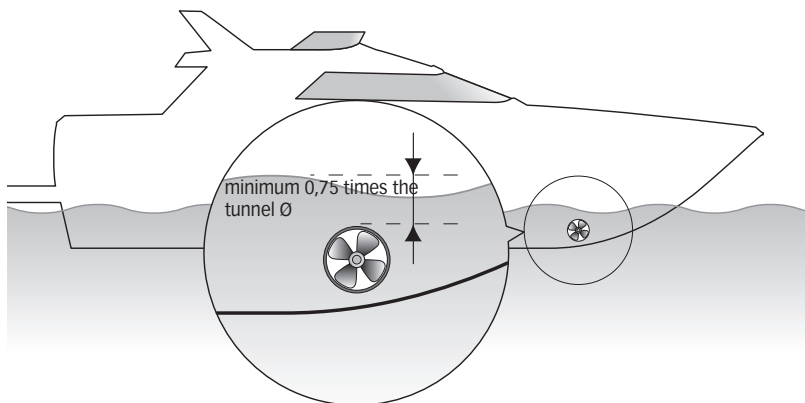
QSA series

4.0 - Warnings

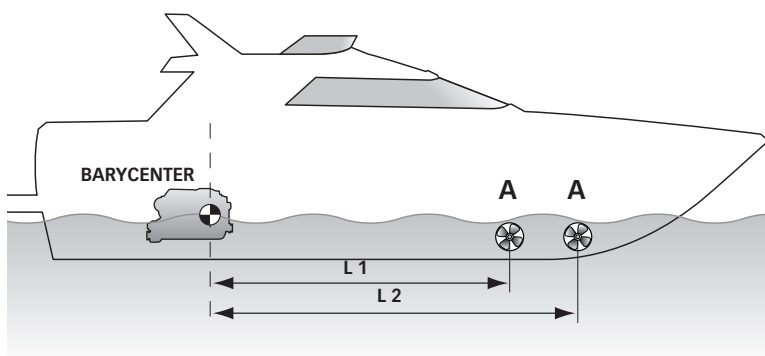


- QS SEAMASTER® Thrusters have been designed and constructed only for nautical use.
- Do not use these appliances for other uses.
- QS SEAMASTER® shall accept no responsibility for direct or indirect damages caused by improper use of the appliance or an improper installation.
- The Thruster is not designed to maintain loads generated in particular atmospheric conditions (storms).
- We recommend that you entrust the preparation and the positioning of the tunnel on the hull to a skilled professional.
- These are generic instructions and do not give details of the preparatory operations for installing the tunnel, which falls under the competence of the boatyard. The installer shall bear full responsibility for any problems caused by defective installation of the tunnel.
- Do not install the electric motor near easily inflammable objects.

5.0 - Propellers



- The position of the tunnel will depend on the interior and exterior shape of the boats bow.
- Optimal positioning of the tunnel will be in the bow and as low as possible and at a distance from the waterline which should be at least 0,75 times the tunnel diameter.

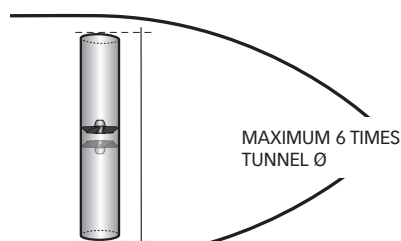
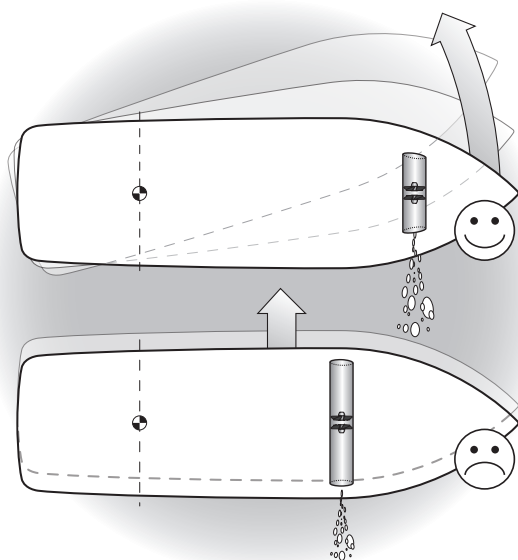


- To avoid cavitation in the propeller, the tunnel must be positioned as low as possible in the hull.
- The lever effect in the boat is proportional to the increase of the distance (L1 and L2) between the barycentre and the position of the tunnel A and B.

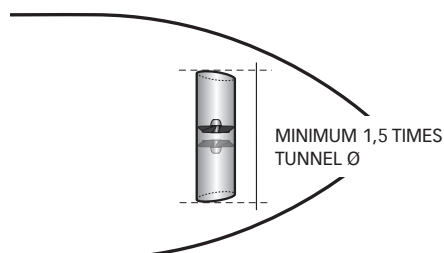


For greater lever effect prefer position B to position A.

- An increase in the length of the tunnel increases the effect of the loss of charge, decreasing the nominal driving force.
- For a correct use of the thruster we suggest a maximum length of 3-4 times the tunnel diameter and a minimum length of 1,5 times the tunnel diameter. To limit efficiency loss it is acceptable a length that is six times the tunnel diameter.



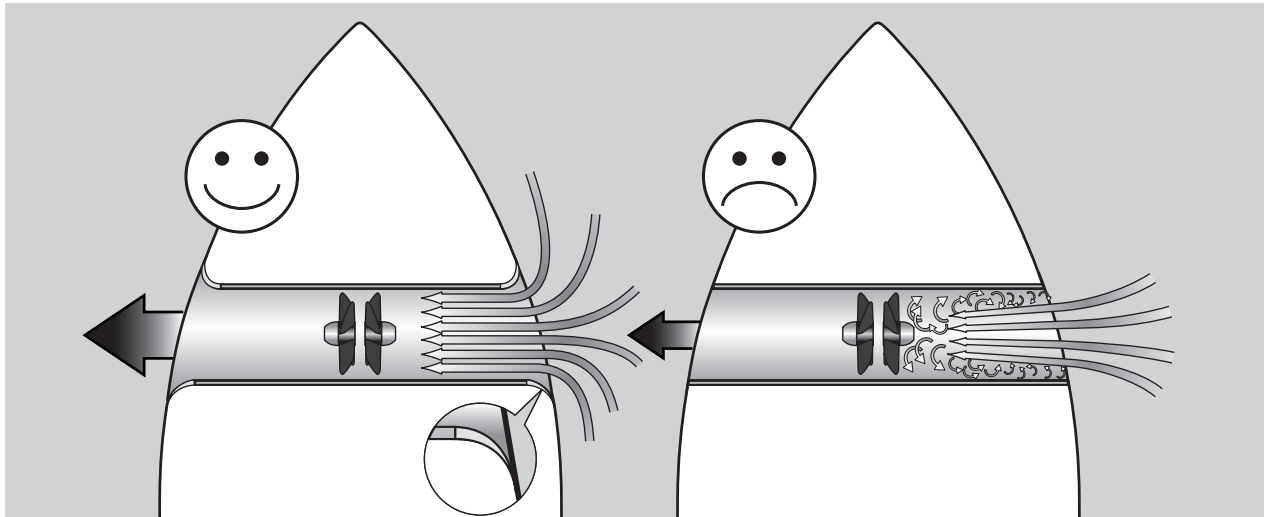
MAXIMUM 6 TIMES
TUNNEL Ø



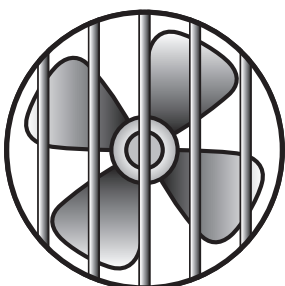
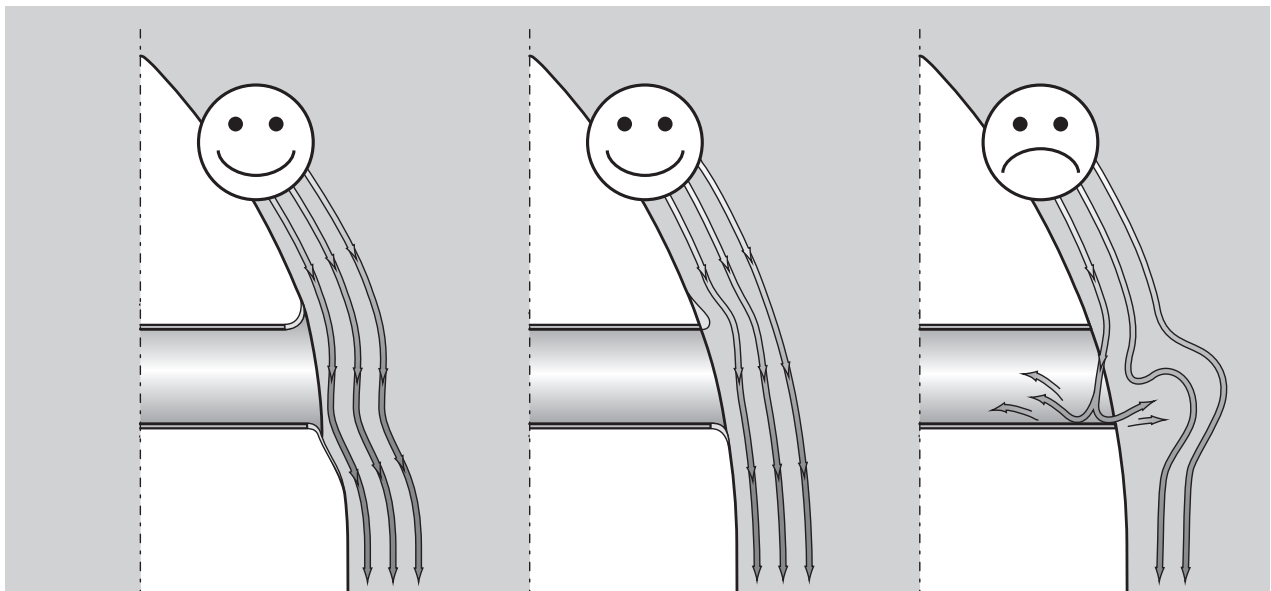
MINIMUM 1,5 TIMES
TUNNEL Ø

5.1 - Tunnel

- The rounded ends of the tunnel limit the creation of turbulences and cavitations, improving performance of the propeller thrust and reducing noise levels to a minimum.



- The force produced by the flow of the water when the boat is moving produces resistance on the rear face of the tunnel, which is an area exposed frontally to the water flow. To limit this phenomenon, prepare an indentation in the rear part of the tunnel. Otherwise, create a deflector on the front part of the tunnel.



- If the tunnel is near the waterline, it is advisable to fit a grating at the end of the tube. The grating must have vertical and as large as possible meshes to avoid contrasting the propeller thrust. The vertical meshes prevent the entry of most of the floating objects.

5.2 - Thruster

- It is recommended to install the thruster with a support base; the motor is already equipped with support feet.

Fig. A

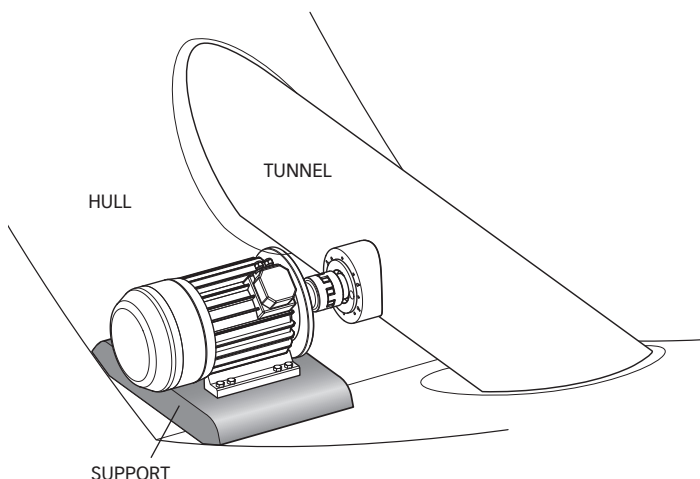


Fig. B

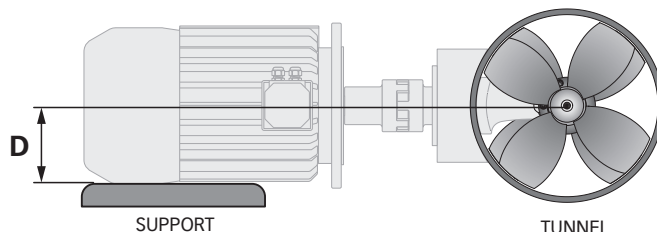
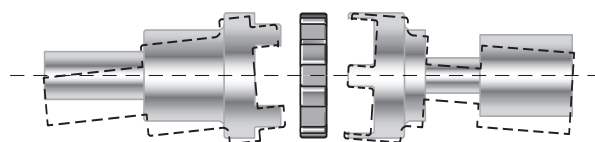


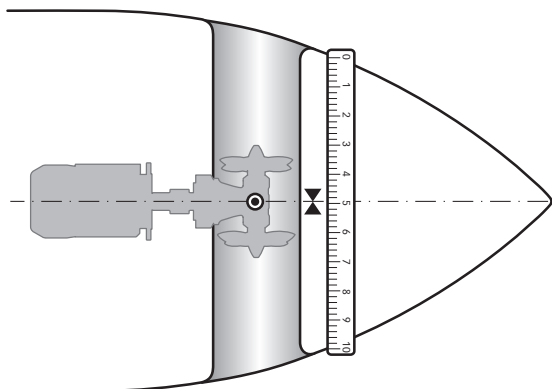
Fig. C



- FIG.A** The AC motor must be installed on a separate support from the hull. The support must be dimensioned so as to withstand the weight and power specified (table on page 4).
- FIG.B** The distance (D) between the tunnel centerline (figure B) and the motor support must allow correct alignment between the drive axle and the gearbox shaft.
- FIG.C** The angle between the two shafts (gearbox and engine) must not exceed +/- 1.5 degrees.

- To position the thruster in the tube, find the halfway point. **Fig.D**

Fig. D



- Use the flange to mark the centre of the holes on the tube. **Fig.E**

Fig. E

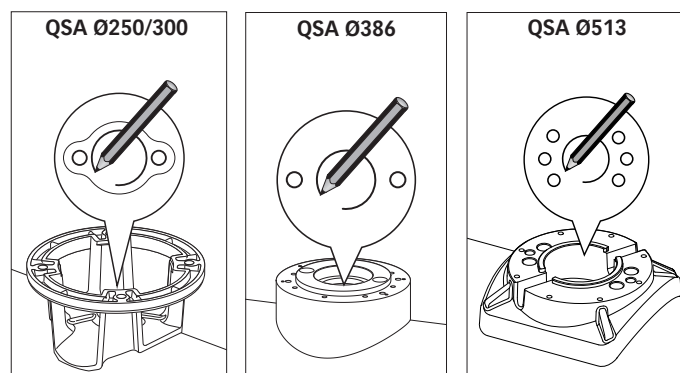
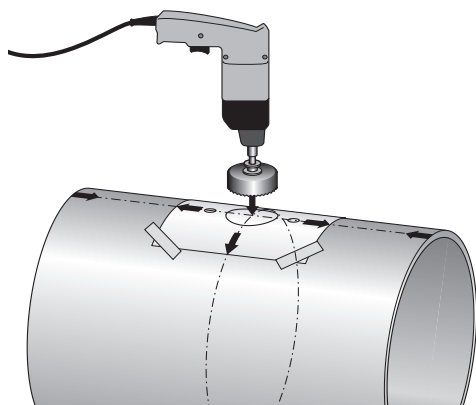


Fig. F



- Fix the drilling template on the reference points, making sure they are aligned with precision at the half-way point of the tube. **FIG.F**

N.B. All holes must be exactly aligned with the half-way point of the tunnel, since tolerance between propeller and tunnel is minimal.

- Take care that there are no resin residues in the contact area between flange and tube; this could cause misalignment. Any resin residues and any other hindrance to correct contact must be removed by sandpaper.

Fig.G

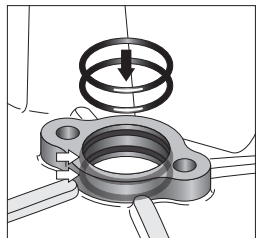
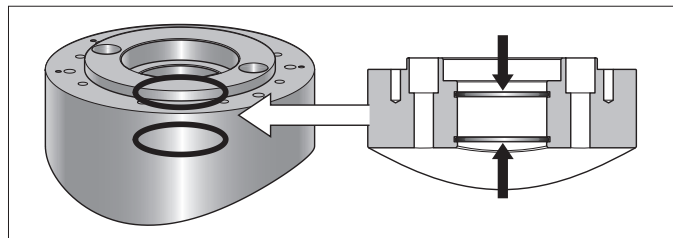


Fig.H



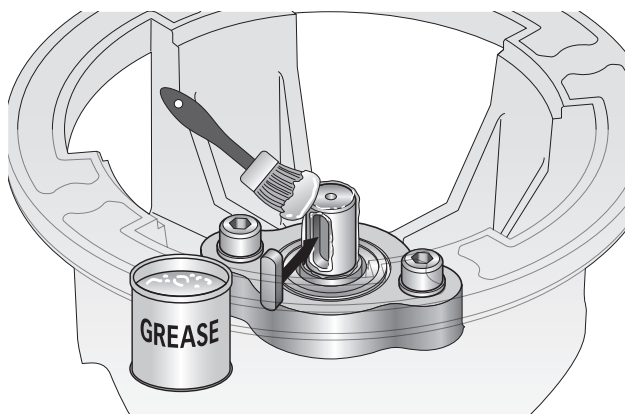
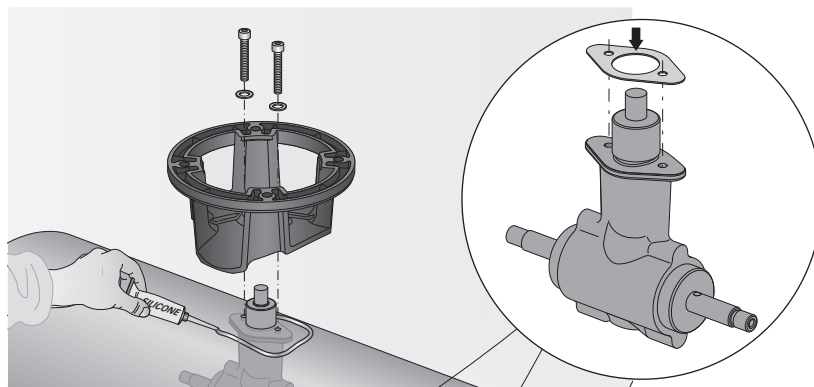
- Insert two o-rings into the special seats inside the flange.

Fig.G QSA Ø250/300

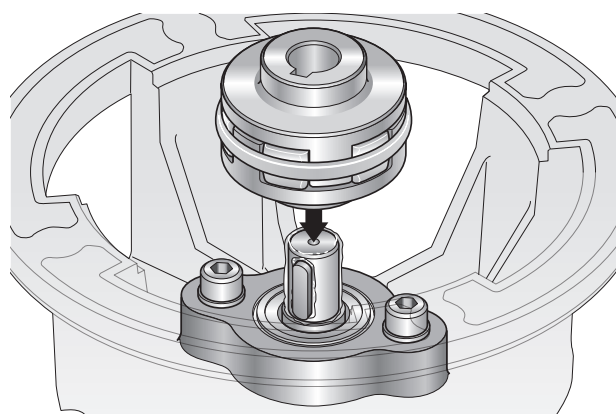
Fig.H QSA Ø386

5.3.0 - QSA Ø250/300 Gearleg and motor support flange

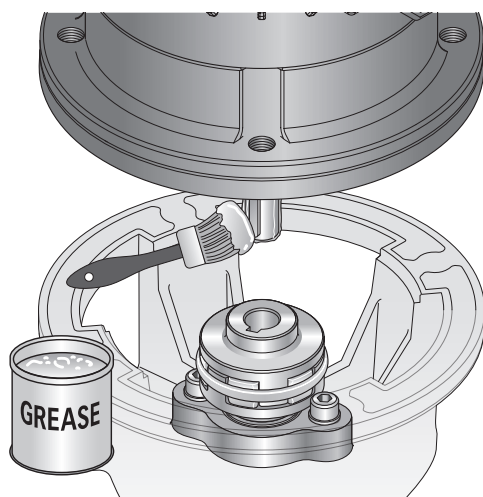
- Proceed with fitting the gearleg with the special seal gasket.
- For further protection against the entry of water, apply silicone for nautical use around the point of contact between flange and tube.
- Fasten everything to the flange using the special screws.



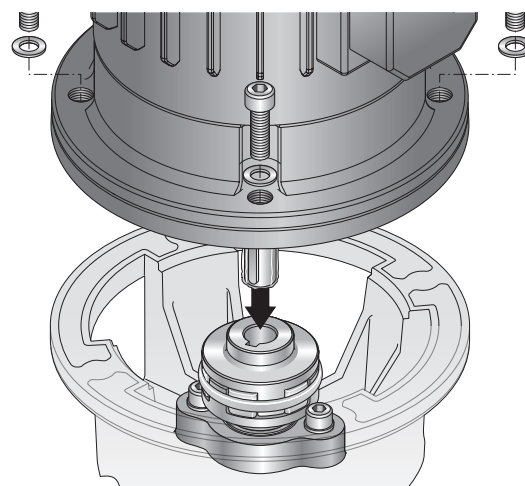
- Grease the terminal part of the gearleg shaft; fit the small key into its seat.



- Insert the elastic joint in the terminal part of the gearleg shaft.



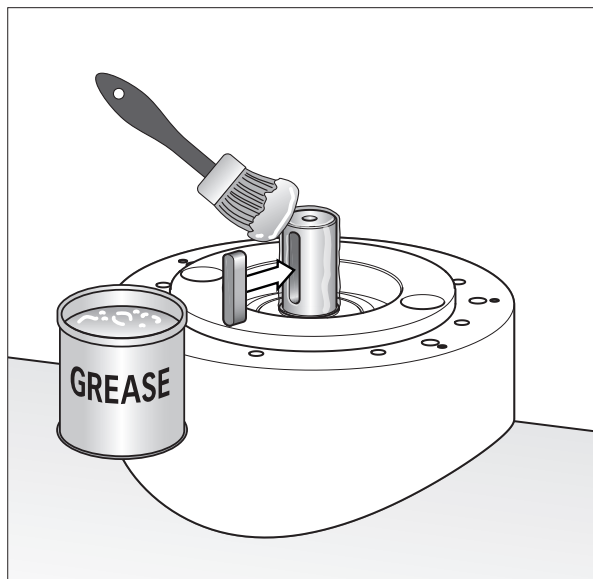
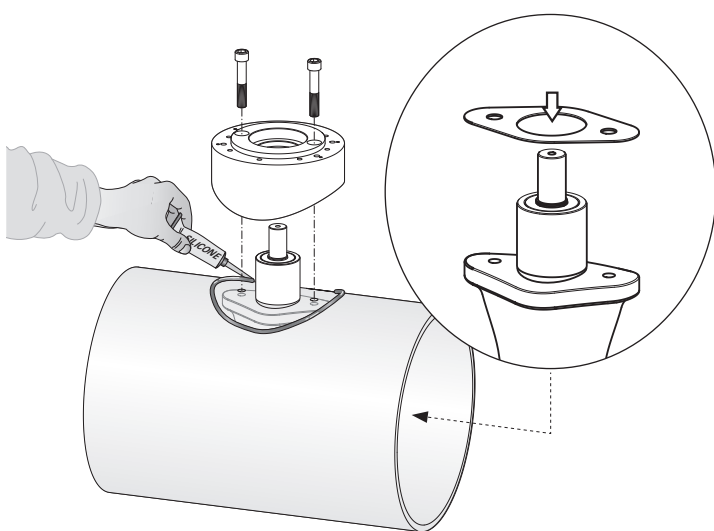
- Grease the terminal part of the gearleg shaft.



- Insert the motor onto the elastic joint. Secure with four screws and four washers.

5.3.1 - QSA Ø386 Gearleg and motor support flange

- Proceed with fitting the gearleg with the special seal gasket.
 - For further protection against the entry of water, apply silicone for nautical use around the point of contact between flange and tube.
 - Fasten everything to the flange using the special screws.
-
- Grease the terminal part of the gearleg shaft; fit the small key into its seat.



5.3.2 - QSA Ø513 Gearleg and motor support flange

fig.I

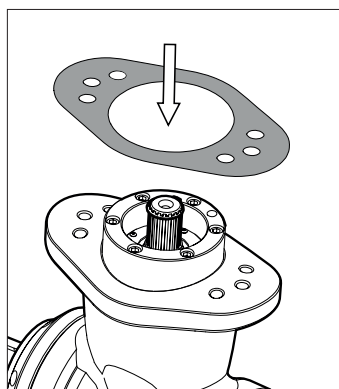


fig.E

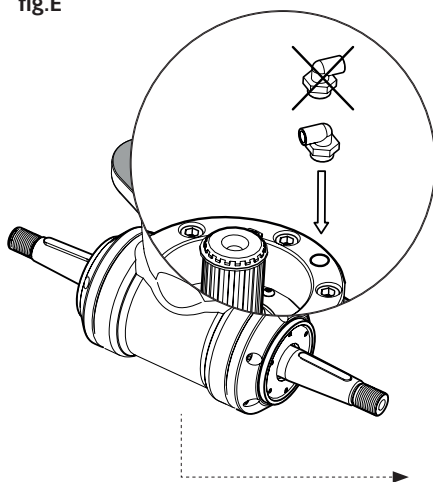
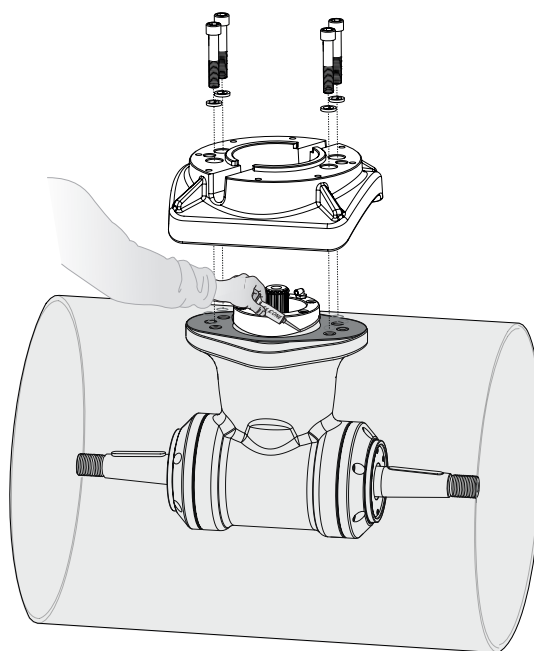


fig.F

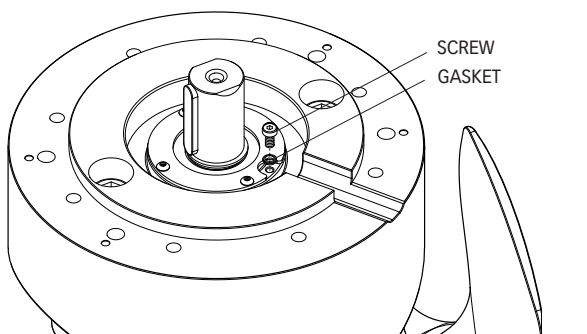


- **Fig.I** Apply to the gearleg the special seal gasket.
- **Fig.E** Remove the lid on the gearbox and insert the connection to subsequently connect the oil tank. Screw on and turn the connection's head towards the center, in order to ease the coupling with the flange.

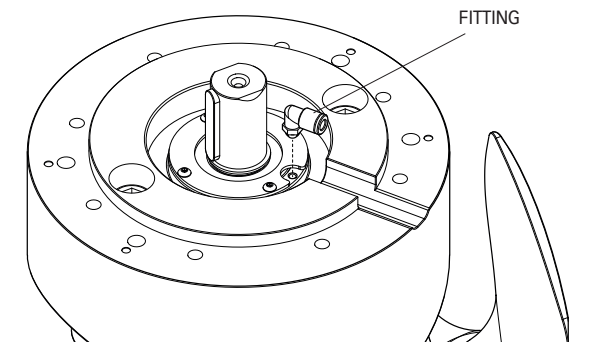
- **Fig.F** Proceed with fitting the gearleg. For further protection against the entry of water, apply silicone for nautical use around the point of contact between flange and tube. Fasten everything to the flange using the special screws.

5.4.0 - QSA Ø386 Rilsan Tube and oil tank

A

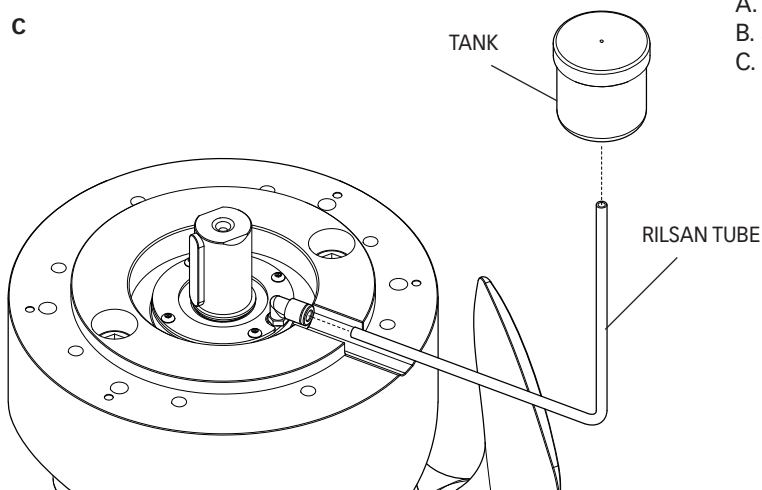


B

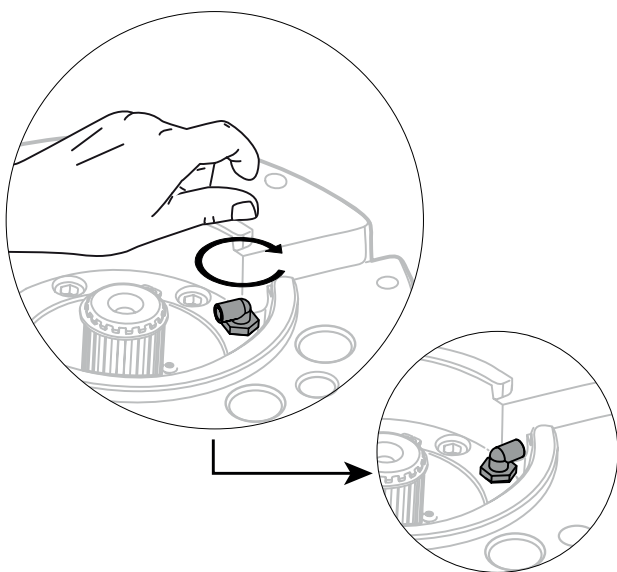


- A. Remove the screw and the gasket
- B. Screw the fitting supplied
- C. Insert the rilsan tube into the fitting and into the tank

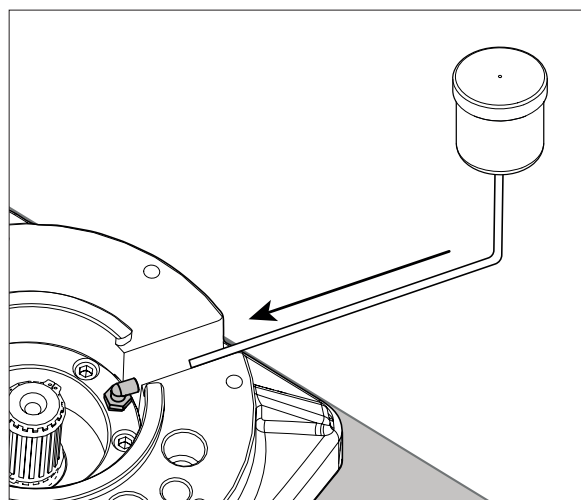
C



5.4.1 - QSA Ø513 Rilsan Tube and oil tank



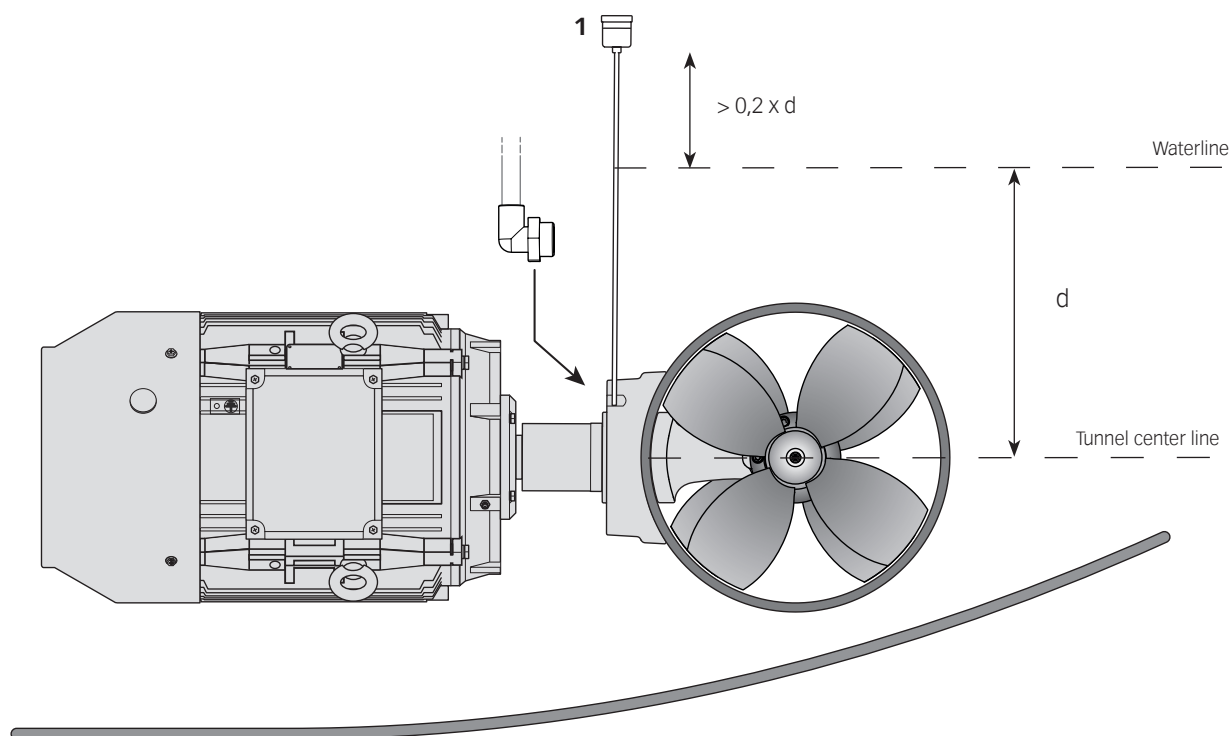
- After fixing the flange, turn the fitting clockwise and align it with the flange opening.



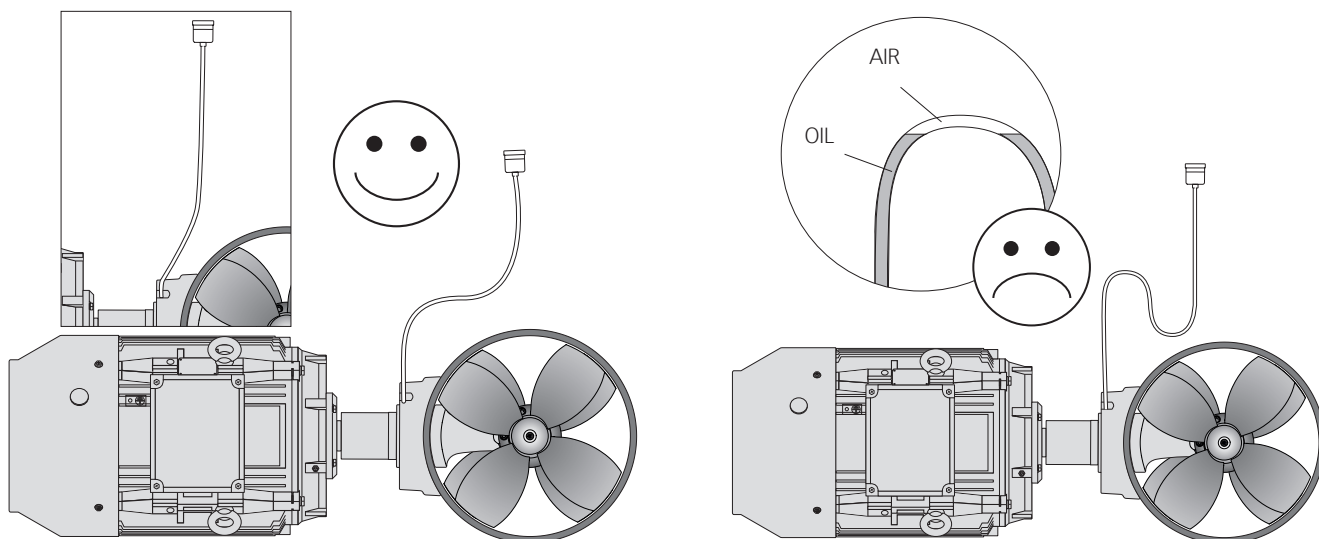
- Insert the Rilsan pipe into the fitting with the special expansion tank.

5.5 - Oil tank positioning

- Fit the oil tank (1) above the waterline by at least 20% of the distance (d) from the waterline to the centre of the tunnel. This is for ensuring enough overpressure of oil in the gearhouse.
- Fill the oil tank with gear oil type GL-5



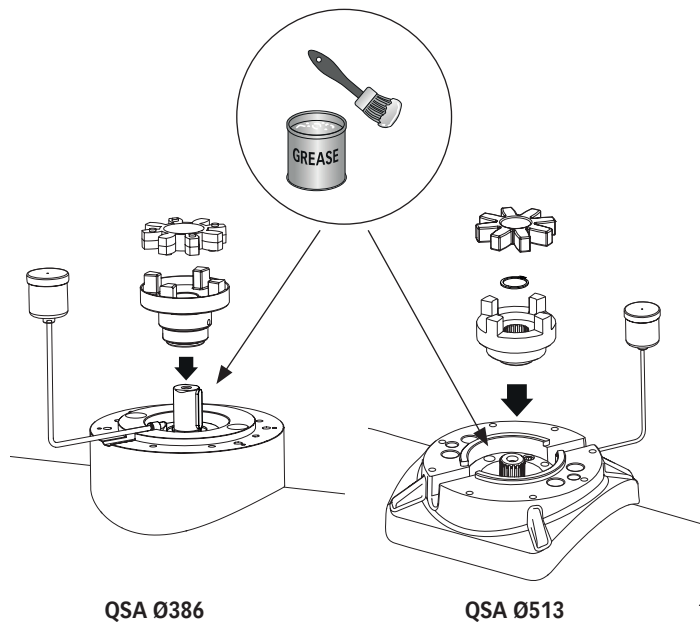
**POSITION THE PIPE CORRECTLY, IN ORDER TO PREVENT "SIPHON" EFFECT.
THE TANK MUST ALWAYS END UP IN VERTICAL POSITION.**



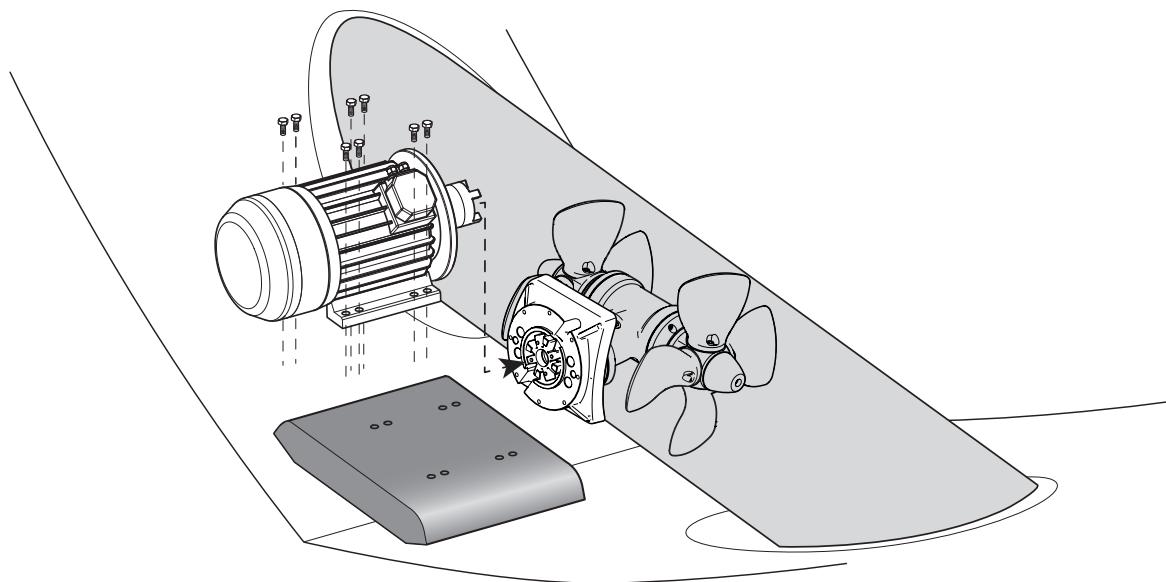
5.6 - QSA Ø386/513 Coupling/Motor assembly

1 - Grease the end part of the reducer and insert the lower half-joint, fix it with an elastic ring, and the elastic coupling in the end part of the reducer foot shaft.

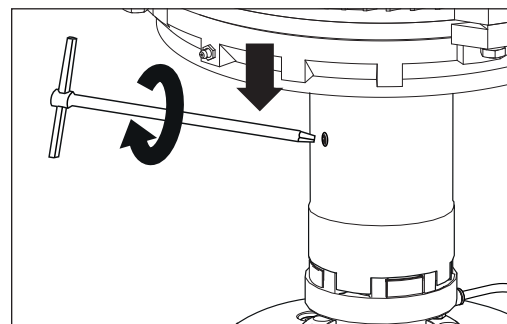
2 - Lubricate the end of the motor shaft and mount the upper half-joint.



3 - Mount the motor on the gearleg and fix it to the support.

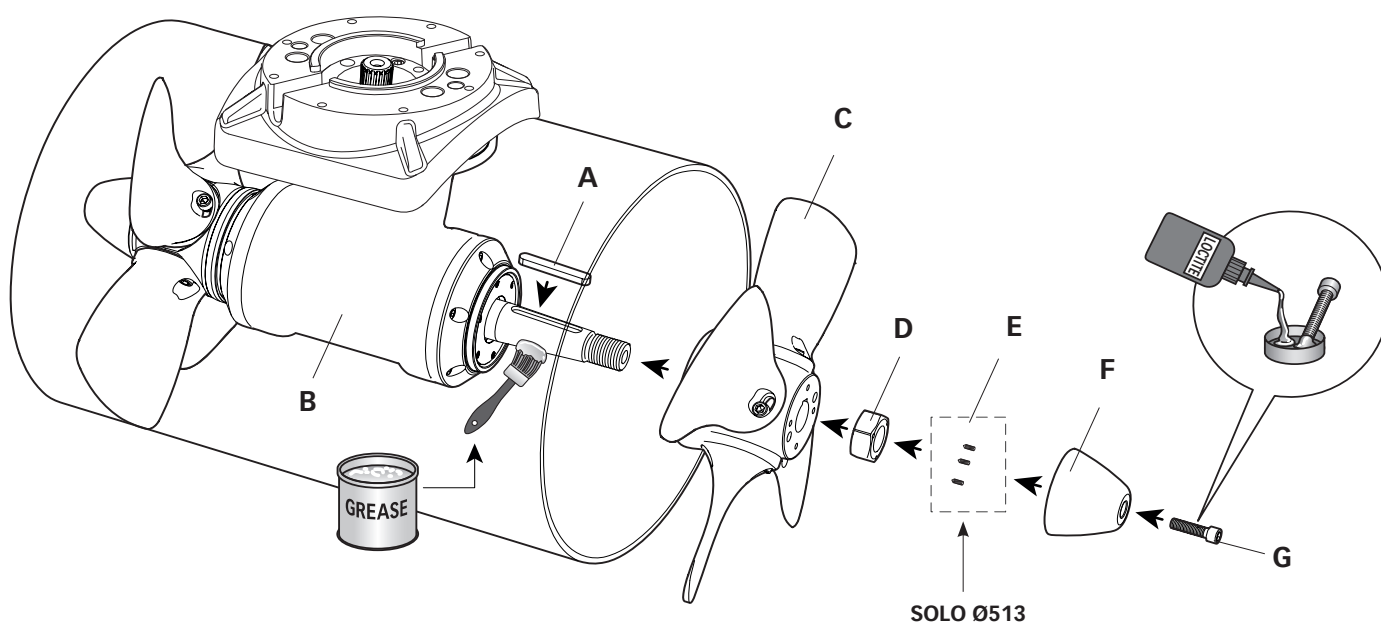


4 - Tighten the coupling screw, hold down towards the gearleg.

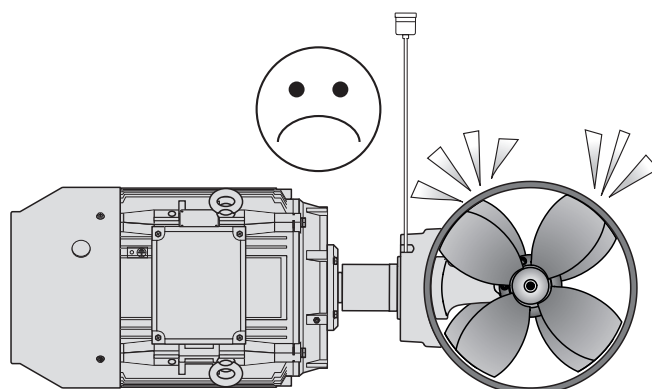
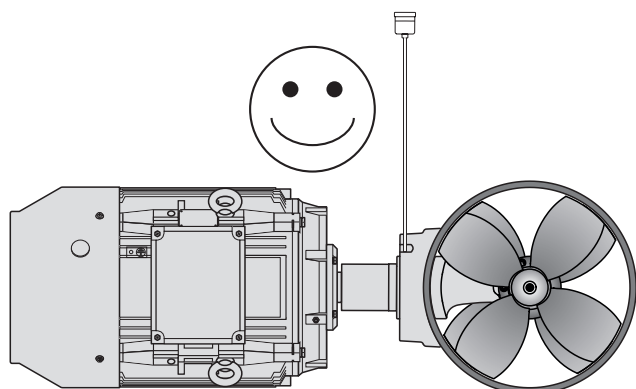


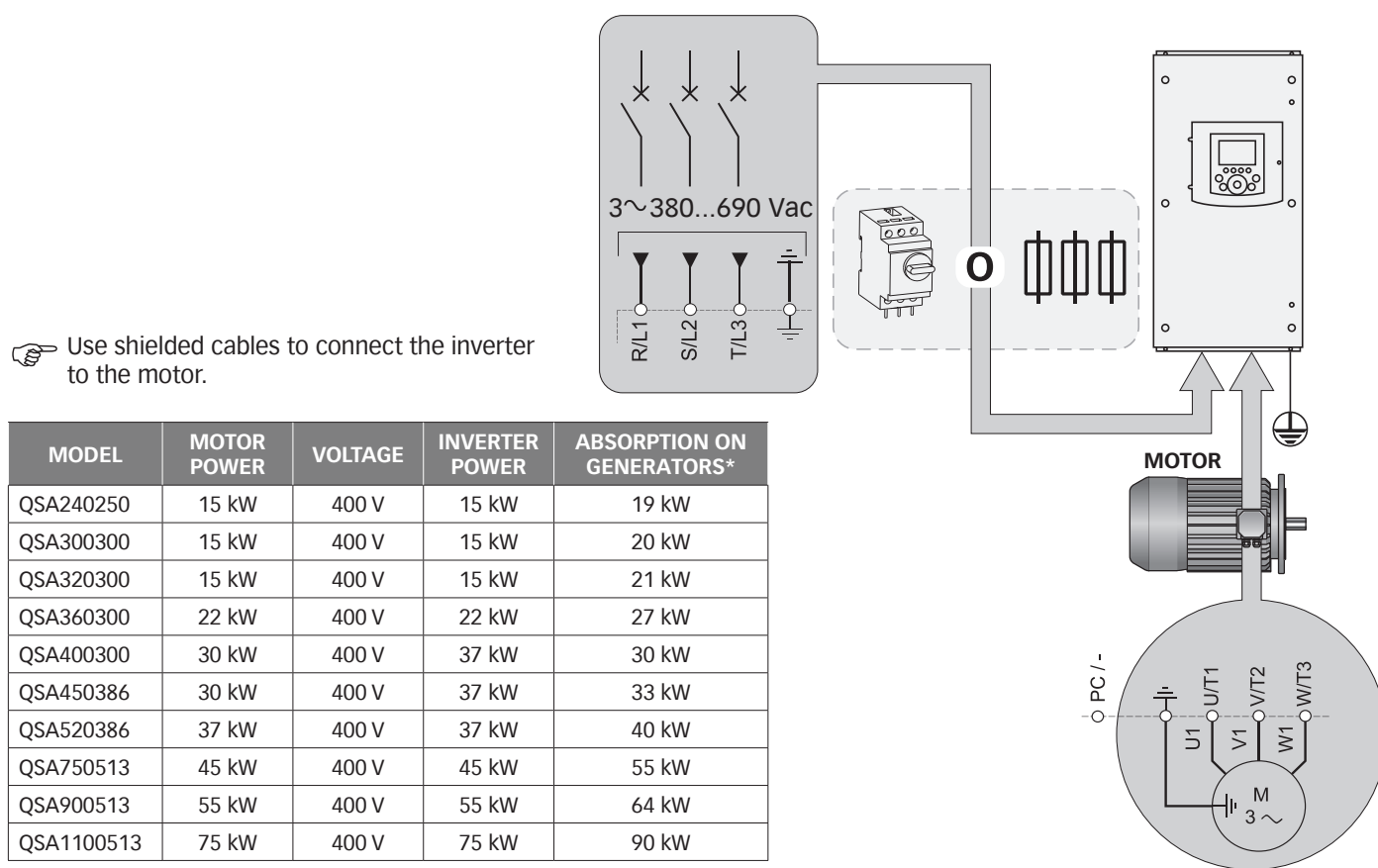
5.7 - Propellers fitting

Insert the drive pins **A** into the holes of the gearleg shafts **B**, assemble the propellers **C** into the gearbox, making it fit in correctly with the drive pins **A**, fix the propellers with the self-braking nuts **D**, (and tight screw **E**, **ONLY Ø513**). The anodes **F** must be locked with the screws **G** soaked with building adhesive (such as Loctite).



WARNING: Once the assembly is over, make sure that the propellers are exactly positioned at the centre of the tunnel.





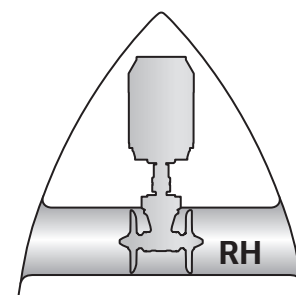
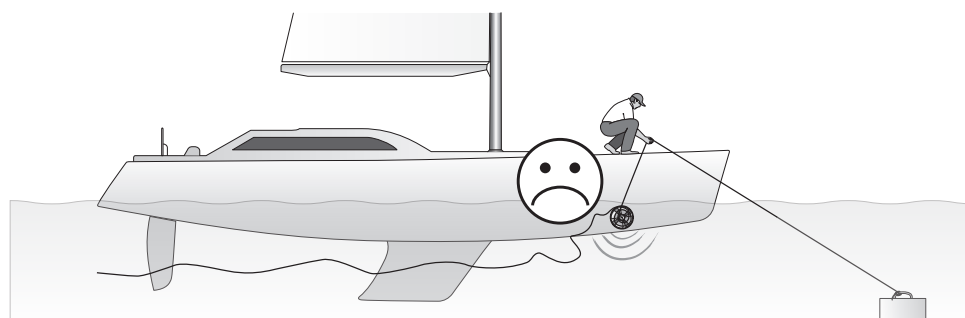
*this data refer to S3 operating mode (periodic intermittent duty) - for any modification please contact QS Seamaster

QS 7 - Warnings

QSA series

7.0 - Warnings

- WARNING:** This thruster is not designed for a continuous use. It is equipped with protections which limit its operation at a maximum time span, as reported on the controls' manual. It is strongly forbidden to bypass or modify such protections in order to increase the operating time span, under pain of voiding the warranty and thus lifting any responsibility from QS SEAMASTER.
- WARNING:** Make sure no swimmers or floating objects are in the vicinity before switching on the thruster.
- WARNING:** There must not be flammable materials in the peak or in the area where the Thruster motor is.
- WARNING:** Do not operate the bow thruster out of the water for more than 10 seconds.
- WARNING:** During docking, it is recommended not to leave in the water any free rope, which may be sucked in by the propellers, thus leading them to break.



NOTE: the bow thruster must be installed with the RH propeller on the right-hand side of the gearleg (see figure).

Start-up happens following activation of a DPMS o APMS panel.

QS 9 - Maintenance

QSA series

QS Seamaster® thrusters are made in materials that are resistant to the sea environment: In any case, it is indispensable to periodically remove deposits that form on the outer surfaces to avoid corrosions, interruptions and consequent system inefficiency.

ACCORDING TO THE USE WE RECOMMEND CHECKING PERIODICALLY THE OIL SEALS AND IF NECESSARY REPLACING THEM.



WARNING: make sure that the power supply to the electric motor is not switched on when maintenance operations are carried out.

Dismantle once a year, following the points below:

- Clean propellers, tunnel and gearleg.
- Replace the anodes (carry out this operation more often if needed).
- Replace the propellers if damaged or worn out.
- Check the tightness of all screws.
- Ensure that there is no water seepage inside.
- Check that all electrical connections are well tightened and oxide-less.
- Check that the batteries are in good conditions.
- Remove the graphite residues resulting from the normal motor brushes use.

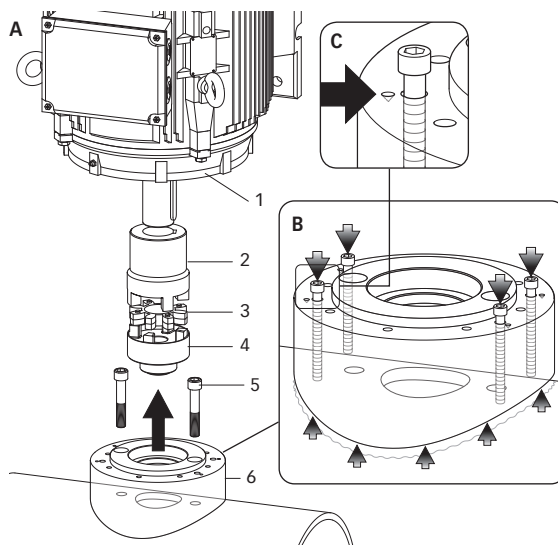


WARNING: do not paint the anodes, the sealings and the gearleg's shafts where the propellers are lodged.

GEARLEG FLANGE DISASSEMBLY Ø386

A) Dismantle the various components of the motor (1-2-3-4-5).

B) To force the detachment of the gearleg flange (10) from the tunnel, use 4 screws M12x100. The 4 holes where the screws will be inserted are highlighted by small cone-shaped holes (particular C).



QS 10 - Disposal of the product

QSA Series

During the installation, also at the end of product lifetime, the disassembly and scrapping operations must be performed by qualified personnel.

This product is made up of different types of material, some of which can be recycled while others must be disposed of.

Seek information on the recycling and disposal systems envisaged by the local regulations in your area for this product category. Some parts of the product may contain polluting or hazardous substances which, if disposed of into the environment, constitute serious environmental and health risks.



As indicated by the symbol, it is forbidden to throw this product in the household wastes. Recycling according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing an equivalent product.

Local legislation may include the application of serious fines in the event of improper disposal of this product.

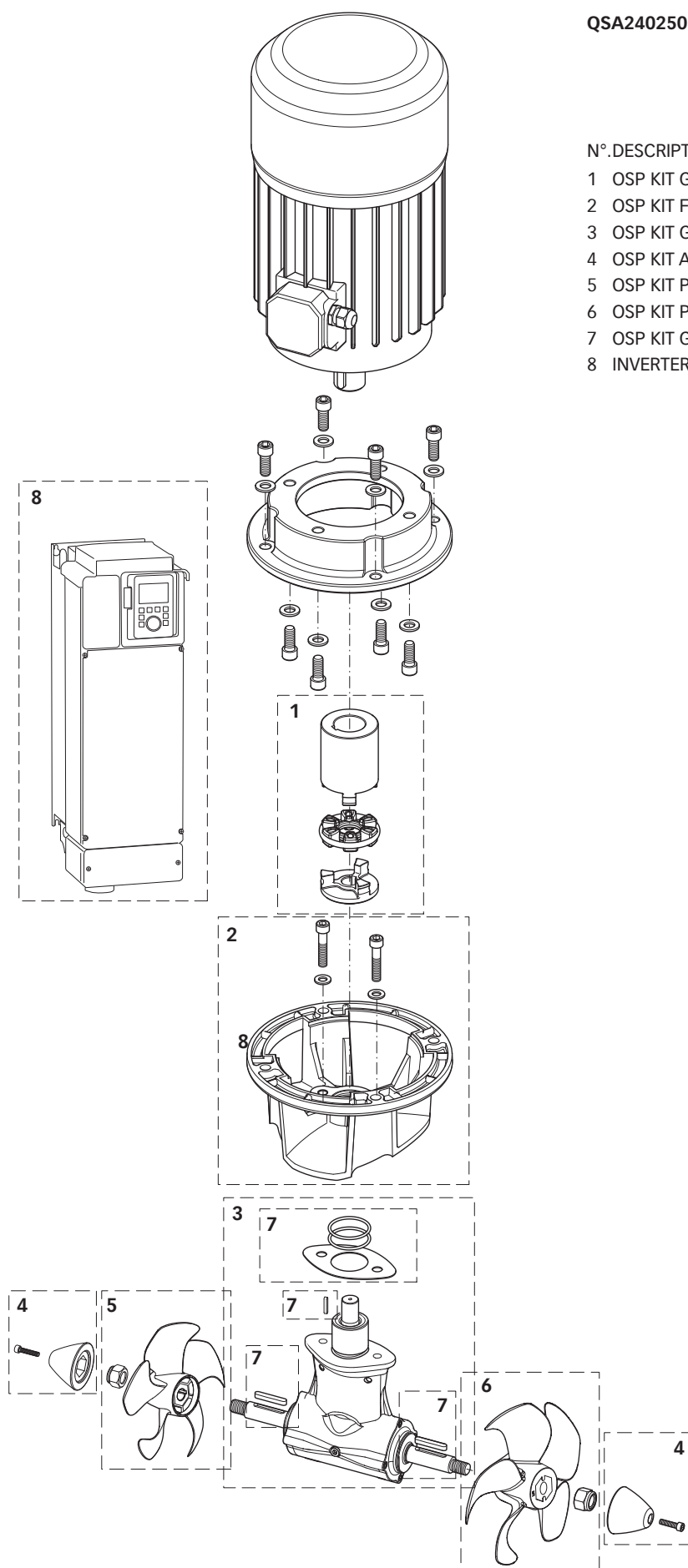
QSA240250

N°.DESCRIPTION

- 1 OSP KIT GIUNTO QSAØ250
- 2 OSP KIT FLANGE QSAØ250
- 3 OSP KIT GEARLEG Ø250
- 4 OSP KIT ANODES PROPELLER QSAØ250
- 5 OSP KIT PROPELLER Ø250 RH QS
- 6 OSP KIT PROPELLER Ø250 LH QS
- 7 OSP KIT GASKETS + KEYS Ø250
- 8 INVERTER VFD 15KW 400V QS

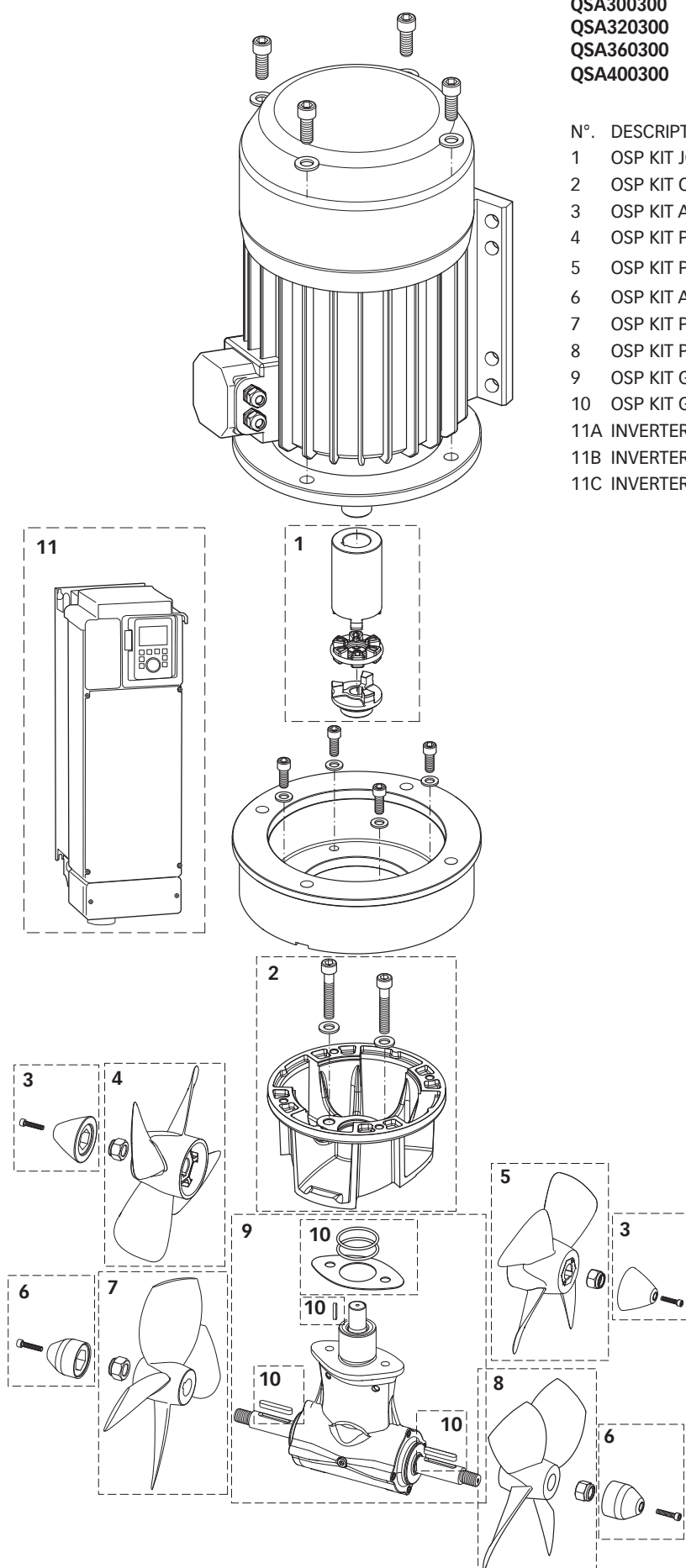
CODE

- FVSGG250AC00S00
FVSGFL0QS250S00
FVSGGBT2500S00
FVSGAN0QS250S00
FVSGEL250R00S00
FVSGEL250L00S00
FVSGGRCQS250S00
FVNV015KW4QSA00

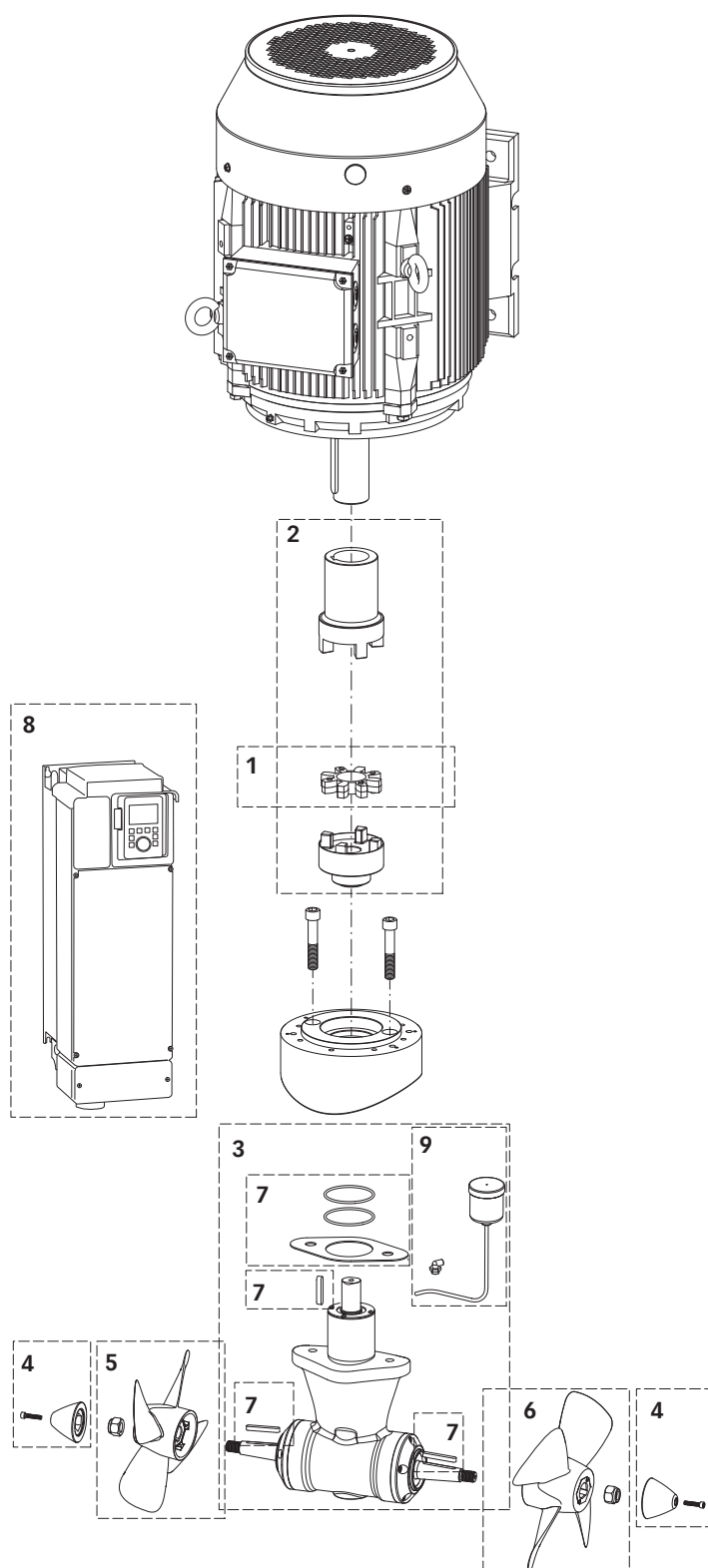


QSA300300
QSA320300
QSA360300
QSA400300

N°.	DESCRIPTION	CODE
1	OSP KIT JOINT QSA Ø300	FVSGG30QSA00S00
2	OSP KIT OSP KIT FLANGE QS300	FVSGFL0QS300S00
3	OSP KIT ANODES PROPELLER QS 300	FVSGAN0QS300S00
4	OSP KIT PROPELLER Ø300 RH QS	FVSGEL300R00S00
5	OSP KIT PROPELLER Ø300 LH QS	FVSGEL300L00S00
6	OSP KIT ANODES PROPELLER QSØ300 N	FVSGAN0QS30NS00
7	OSP KIT PROPELLER Ø300 RH N QS	FVSGEL300RN0S00
8	OSP KIT PROPELLER Ø300 LH N QS	FVSGEL300LN0S00
9	OSP KIT GEARLEG Ø300 QS	FVSGGBT3000S00
10	OSP KIT GASKETS+KEYS Ø300	FVSGGRCQS300S00
11A	INVERTER 15KW 400V IP20 QS -DPMS-	FVNV015KW4QSA00
11B	INVERTER 22KW 400V IP20 QS -DPMS-	FVNV022KW4QSA00
11C	INVERTER 37KW 400V IP20 QS -DPMS-	FVNV037KW4QSA00

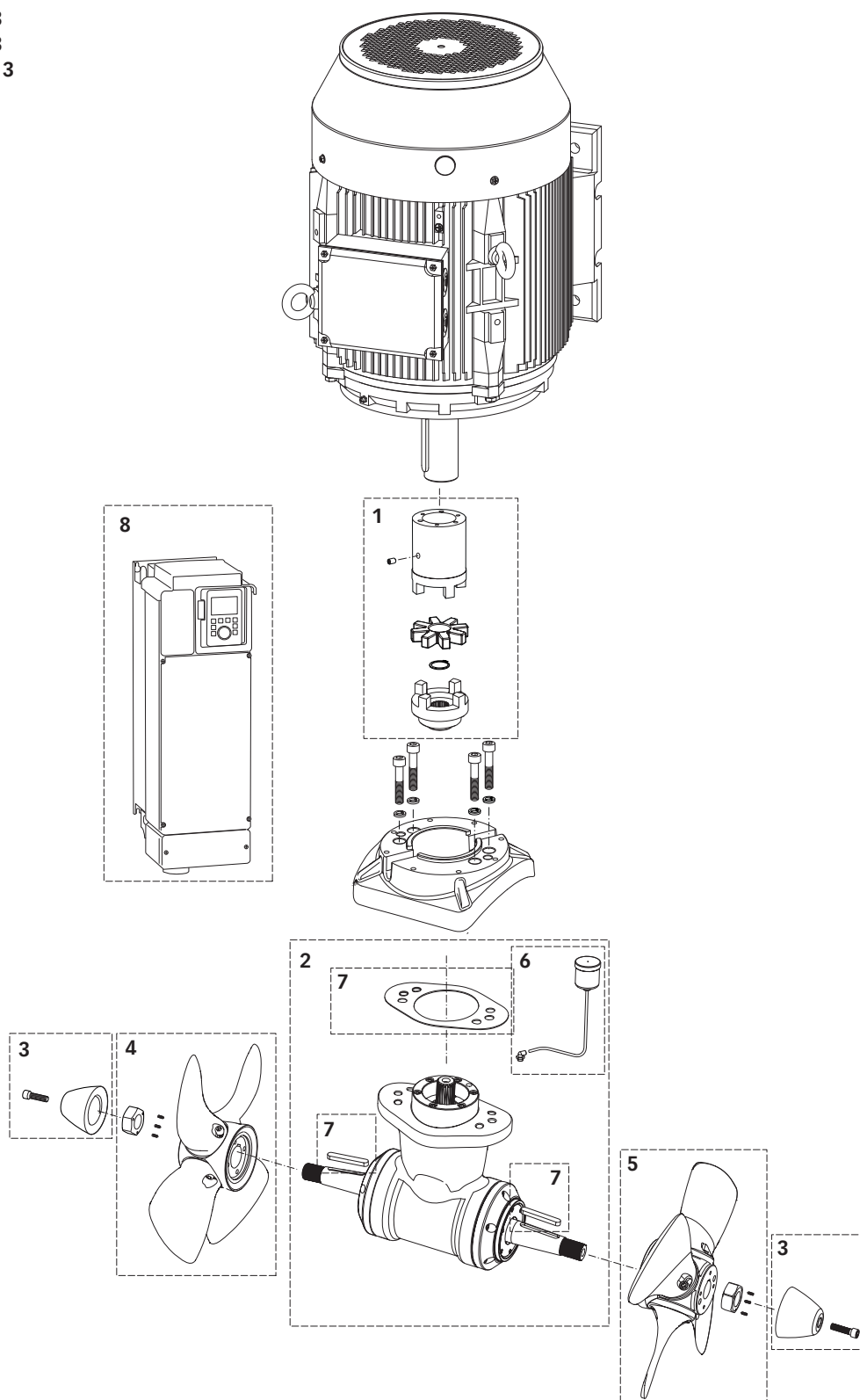


QSA 450-386
QSA 520-386



Nº.	DESCRIPTION	CODE	Nº.	DESCRIPTION	CODE
1	OSP KIT FLEXIBLE COUPLING D109 386	FVSGGPVP1090S00	6	OSP KIT PROPELLER Ø386 LH	FVSGEL386LP0S00
2	OSP KIT JOINT QSA Ø386 MOTOR	FVSGG3863255S00	7	OSP KIT GASKETS + KEYS Ø386	FVSGGRNQS38BS00
3	OSP KIT GEARLEG QSA Ø386 B00	FVSGBBT386BS00	8	OSP KIT RILSAN TUBE, TANK AND FITTING	FVSGTBRLLSRBS00
4	OSP KIT ANODES FOR PROPELLER Ø386	FVSGANQSA38AS00	9	INVERTER 37KW 400V IP20 QS -DPMS-	FVNV037KW4QSA00
5	OSP KIT PROPELLER Ø386 RH	FVSGEL386RP0S00			

QSA 750-513
QSA 900-513
QSA 1100-513



N° DESCRIPTION

1A OSP KIT JOINT QSA 513-1100

1B OSP KIT JOINT QSA 513-900

1C OSP KIT JOINT QSA 513-750

2 OSP KIT GEARLEG Ø513

3 OSP KIT ANODE Ø513

4 OSP KIT PROPELLER RH N Ø513 P600 75KW

4A OSP KIT PROPELLER RH N Ø513 P480 45-55KW

CODE

FVSGGP513110S00

FVSGGP513090S00

FVSGGP513070S00

FVSGGBT5130S00

FVSGEL513R01S00

FVSGEL513RN4S00

FVSGEL513RN3S00

N° DESCRIPTION

5 OSP KIT PROPELLER LH N Ø513 P600 75KW

5A OSP KIT PROPELLER LH N Ø513 P480 45-55KW

6 Ø513 OSP KIT RILSAN TUBE, TANK AND FITTING

7 OSP GASKET + KEYS Ø513

8A INVERTER 45KW 400V IP20 QS -DPMS-

8B INVERTER 55KW 400V IP20 QS -DPMS-

8C INVERTER 75KW 400V IP20 QS -DPMS-

CODE

FVSGEL513LN4S00

FVSGEL513LN3S00

FVSGTBRSSRBS00

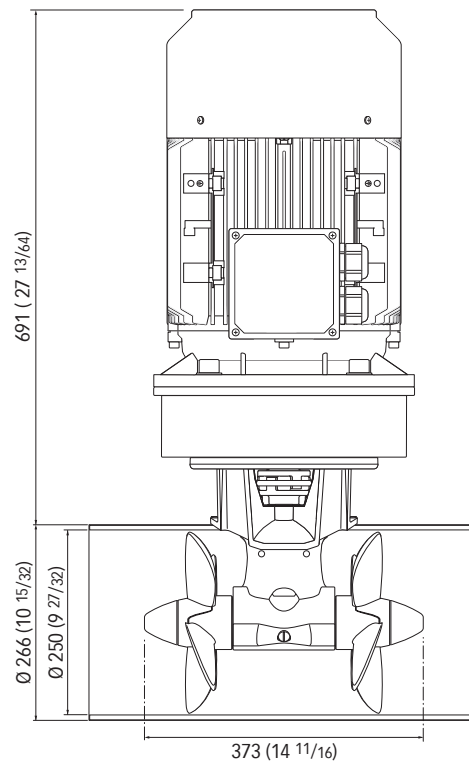
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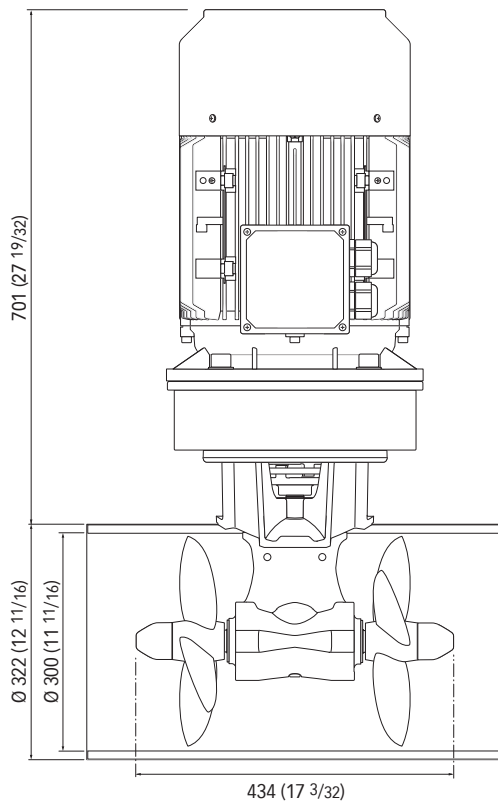
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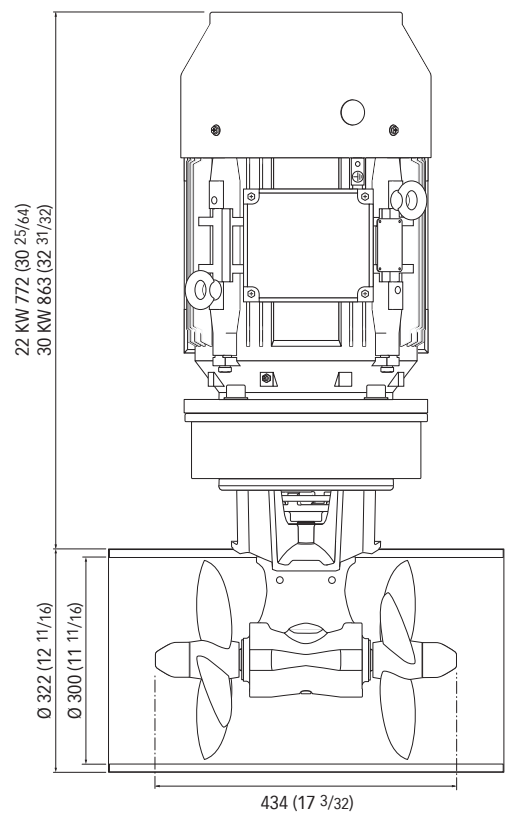
QSA 240-250



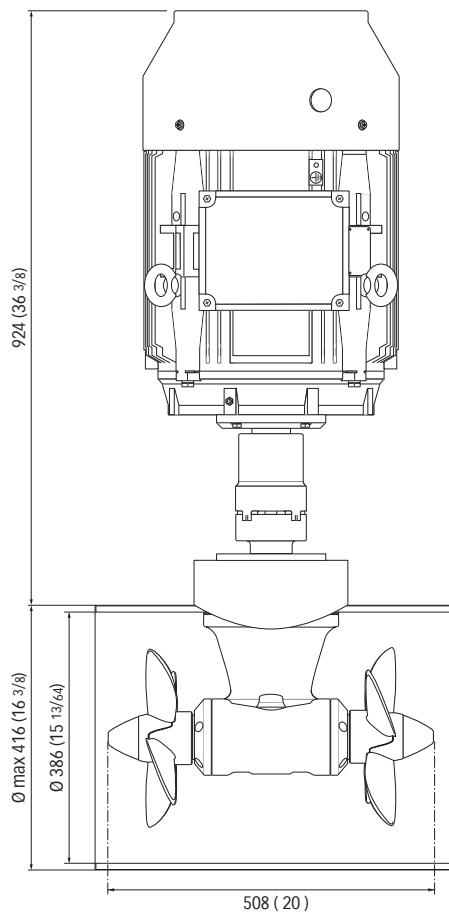
QSA 300-300 QSA 320-300



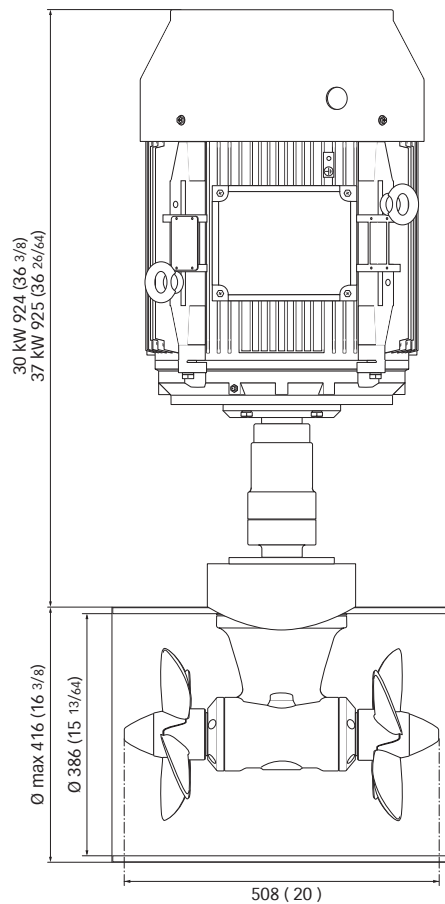
QSA 360-300 QSA 400-300



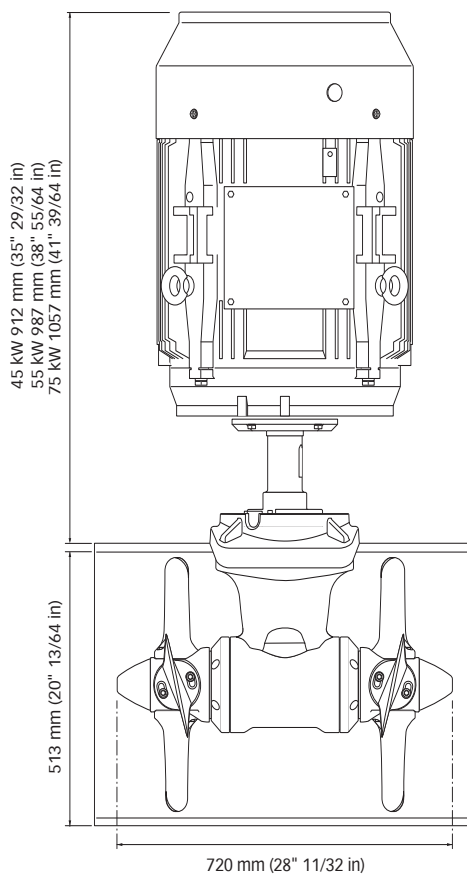
QSA 450-386



QSA 520-386



**QSA 750-513
QSA 900-513
QSA 1100-513**



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