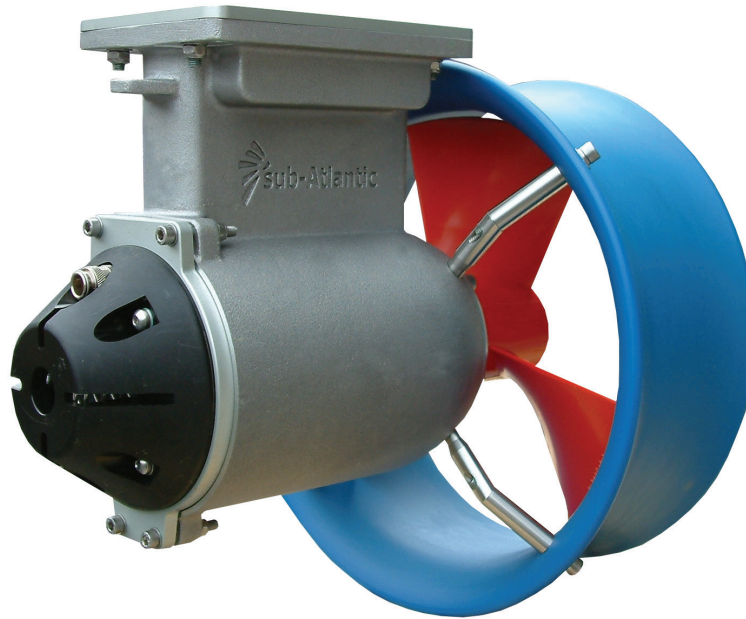


Brushless DC Thrusters

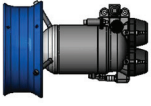
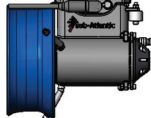



Forum's Sub-Atlantic direct drive range of brushless DC thrusters break new ground in thrust, low weight and enhanced reliability. They are currently available in three sizes, each incorporating Sub-Atlantic's unique Statorshield™ Technology. Sub-Atlantic's unique Statorshield™ system allows the thruster to continue running in the event of a shaft seal failure and subsequent flooding, without damage to the winding or electronic components. Integral electronic drives are oil filled and pressure compensated to 3000 metres / 10,000 feet. Three sizes are available with propeller diameters up to 246mm / 9.7" and bollard thrusts up to 100 kgf / 220 lbf.

FEATURES

- High reliability, Rugged Design
- Unique Statorshield™ Technology
- Continued Operation in the Event of Shaft Seal Failure
- Forward/Reverse Thrust within 5-10% band
- Three sizes available
- Direct Drive Reliability (no gearbox)
- Lightweight Design
- Integral Drive Electronics
- Various Connector Options
- Various Voltage Options

Brushless DC Thrusters

Image	Thruster Model	Propeller Diameter	Maximum Bollard Thrust	Supply Voltage (Standard)	Control	Weight in Air	Weight in Water
	SPE-75	144 mm 5.7 inches	26 kgf 57 lbf	300 Vdc	+/- 5 Vdc	3.3 kg 7.3 lbs	2.0 kg 4.4 lbs
	SPE-180	178 mm 7.0 inches	45 kgf 99 lbf	300 Vdc	+/- 5 Vdc	5.9 kg 13.0 lbs	3.8 kg 8.4 lbs
	SPE-250	246 mm 9.7 inches	100 kgf 220 lbf	600 Vdc	+/- 5 Vdc & CAN	13.0 kg 28.6 lbs	8.0 kg 17.6 lbs

STATORSHIELD™ TECHNOLOGY EQUATES TO RELIABILITY

Subsea thrusters are prone to water entering through the shaft seal and causing short circuit failure of the stator windings. Statorshield™ technology eliminates this problem by the introduction of an internal sealed diaphragm located between the rotor and stator, creating two separate isolated and sealed volumes (Rotor cavity and Stator cavity). Water cannot reach the stator and electronics through the shaft seal preventing catastrophic failure due to shaft seal leakage. Operation can continue until the machine is recovered when the rotor cavity can then be flushed, seals replaced and the unit refilled with oil.

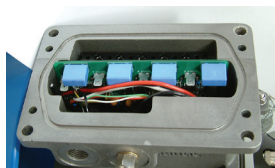


INNOVATIVE SHAFT SEALING

The thruster incorporates our proven ceramic wear ring technology used on all of our current electric and hydraulic thrusters. The ceramic ring provides a durable hard surface that prevents wear to the shaft and the resultant seal damage and consequential flooding.

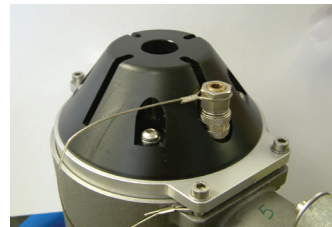
INTEGRAL DRIVE ELECTRONICS

All thrusters have integral drive electronics built into the housing. Electrical connections consist of main DC power input and a control signal. The control is analogue (+/- 5Vdc) but serial and CAN control is also available on some thrusters (see table above).



DEPTH RATING

Thrusters are rated to 3,000 metres/10,000 feet which is currently limited by the integral oil compensated drive electronics. Rating can be increased to full ocean depth by placing the electronics in a one-atmosphere housing.



PRESSURE COMPENSATION

Both the Rotor and the Stator cavities are compensated separately; the rotor cavity by an integral compensator on the rear of the thruster

while the stator cavity must be compensated by a separate external unit. A range of Compensators are available from Sub-Atlantic.

BRUSH AND HPU OPTIONS

Our brushless DC thrusters are also used to drive HPU's and for our SPE-75 has been adapted to have a brush head so that it can also be used as a cleaning tool on our Navajo vehicles.

The specification details are illustrative for marketing purposes only. Actual equipment may be different as a result of product improvement or other reasons. Specific interface and performance information should be reconfirmed at time of order placement.

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FORUM SUBSEA TECHNOLOGIES

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