MARINE & PORTS

Torductor Marine

Ship's propulsion engine efficiency monitoring

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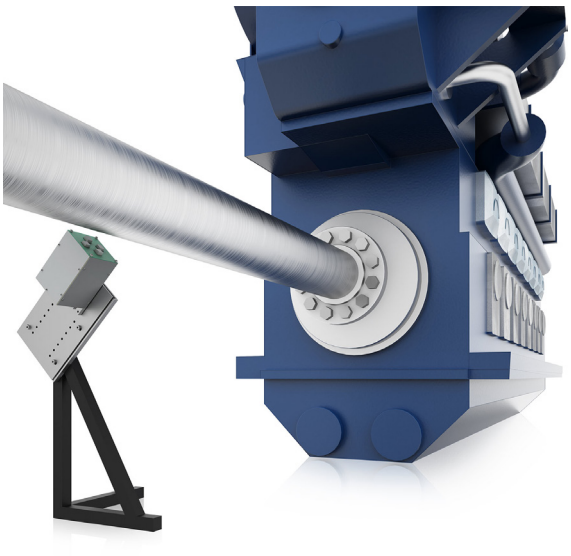
Providing essential insight in fuel consumption and engine performance

Fuel expenditures contribute heavily to the operational costs of any ship. The first step in controlling these costs is information.

Information about the efficiency of the propulsion machinery and electrical generation plant enables ship operators to control these costs by taking corrective actions or other measures to run the ship more efficiently. Torductor Marine is the tool to provide this information.

Over 50 years of experience in measuring shaft torque, power and fuel efficiency has led to the development of a brand new version of ABB's well proven solution: Torductor Marine. With the help of new technology, the main benefits of the classic Torductor are still standing, but now in a price competitive and more flexible package.



Torductor Marine offers a simple, yet complete solution for monitoring and reporting engine performance and fuel consumption. Primarily targeted at the Marine market, it provides a means to comply with the requirements enforced by the European Union and the International Maritime Organization. Examples of these requirements include MRV (Monitoring, Reporting and Verification) and SEEMP (Ship's Energy Efficient Management Plan).

Torductor Marine exists in two versions:
The standard version is suitable for a single propulsion shaft. An extended version is available for ships with two shafts. The latter provides a costs effective way to measure the complete propulsion line with one system. Both types are equipped with a central processing unit and a touch screen operation and information display, providing all the relevant information and interactions with the system.

For advanced ship performance monitoring, Torductor Marine will deliver Key Performance Indicators like propulsion power, Specific Fuel Oil Consumption (SFOC), total number of shaft revolutions and the total amount of energy developed during a voyage. In combination with ABB's Coriolis Master flow meters the Specific Fuel Oil Consumption (SFOC) can also be delivered.

The sensors are the basis of Torductor Marine. Propulsion power is measured by ABB's unique torque transducer, a truly contactless device that requires only 25 cm of free shaft length without the need to bind any electronic devices to the shaft. Fuel Oil Consumption is recorded by ABB Coriolis Master, measuring mass flow without inserting rotating devices in the fuel line.

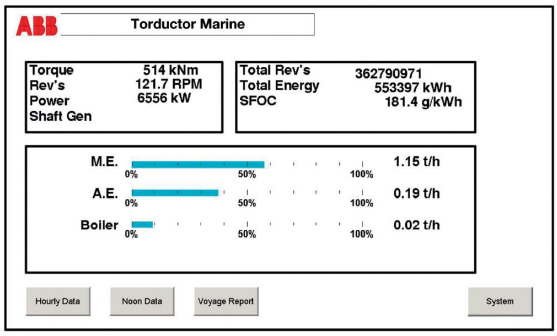
The contactless transducer is mounted facing the propeller shaft with a gap of approximately 1.5 mm. Other than the shaft itself, there are no moving parts. There is no need for delicate slip ring or telemetry solutions for power supply and the return of the measured signal.

- One size fits all: same size sensor for all supported shaft diameters
- Unmatched long term stability. Torductor uses the magnetic properties of the shaft, which do not change over time
- Maintenance free. No need for recalibration during the lifetime, if the shaft is not replaced
- The transducers require only 250mm of free length and constant cross section from the shaft
- Solid or tubular shafts work equally well
- The sensor is virtually insensitive to moisture and dirt
- Easy and quick installation of the sensor

All this amounts to unrivaled dependability and long-term repeatability. Torductor Marine really means fit-and-forget. You can concentrate on the readings the system presents to you, and rely on them.

Basic functions
The basic system provides information about the shaft torque, speed, power and delivered energy.

The Torductor Marine system consists of:
• QGTA 501 torque transducers, facing the propulsion shaft
• A perforated belt, mounted around the shaft, providing holes for the speed sensor
• One speed sensor, determining the speed of the shaft
• A processing unit
• A 7” touch screen, mounted on a suitable position, e.g. engine control room desk.
• A built-in webserver, to display available info at any Java enabled PC with a network connection to Torductor Marine



Fuel Efficiency
The system is ready to measure fuel efficiency of all fuel consuming equipment on the vessel. Adding relevant fuel measuring instruments enables reporting of energy, specific fuel consumption (SFOC), accumulated fuel consumption, e.g. per trip, and the trend in fuel consumption.

The system is equipped with interfaces for ABB Coriolis Master Massflow instruments. However, optionally it is also possible to connect flow meters from other suppliers to the system.

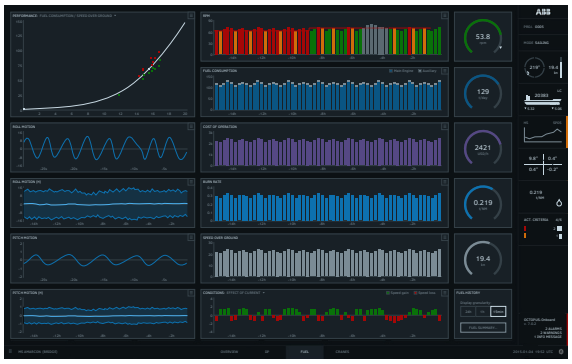


ABB Ability™ Marine Advisory System - OCTOPUS
The Torductor Marine seamlessly integrates with ABB’s OCTOPUS suite. All data measured by Torductor Marine is available for analysis and reporting by ABB’s OCTOPUS suite. Furthermore, this information can be made available to vessel’s owners and managers through the ABB Ability™ Marine Advisory System - OCTOPUS Portal.

Technical Data

Transducer QGTA 501	
Voltage	Stabilized 230 VAC/60 Hz from power supply unit
Shaft diameter	50 - 1000mm
Accuracy	<0.5%
Ambient temperature	**70** °C

Processing unit QGTC 101 (Single shaft), QGTC 502 (dual shaft)	
Supply Voltage	Selectable 120 V or 230 VAC , ± 10%
Frequency	50/60 Hz
Power consumption	300 VA Max.
Ambient temperature	0–50 °C (electronics)
Outputs	100 - 200V, 50 - 400Hz transducer supply 2 outputs. 4-20mA or 0-10V
Communication	Ethernet Modbus RTU, Modbus TCP, NMEA

Fuel Efficiency System	
Inputs	Max. 6 fuel flow meters , ABB FCB 150 Coriolis Master instrument Connected to the processing unit by means of Modbus RS485 Interface to other type of instruments available on request
Output	Display on operator screen and through web server (standard) Connection to ABB's Marine Software or other fuel efficiency reporting system (optional)

Contact

For your local ABB marine service center, please go to
http://new.abb.com/marine

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