

Naval Marine Torsionmeter

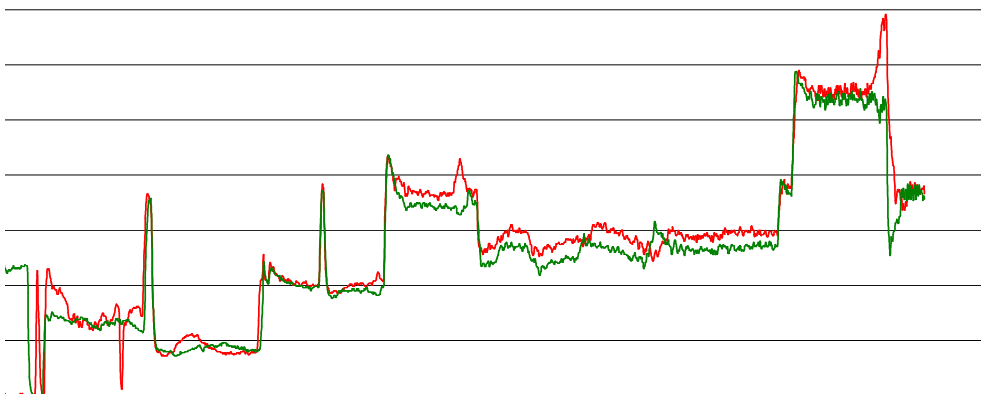
- Accurate Shaft Power and Torque Measurement
- Tested to Military Standards
- Simple Installation
- Minimal Service Requirements
- Ship Control System Data and Control Inputs

The Datum Electronics Limited Series 420 Naval Marine Torsionmeters have been designed to meet the needs of the world's Navies to improve propulsion efficiency and operating reliability.

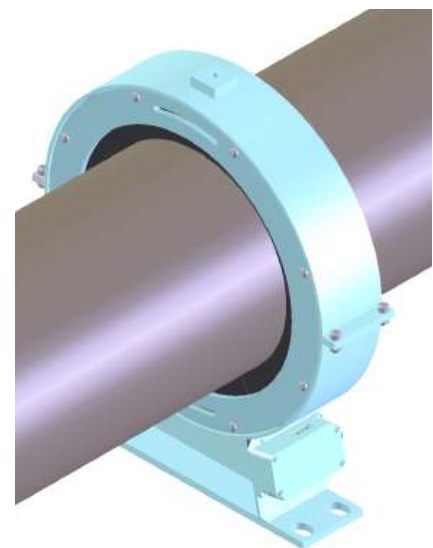
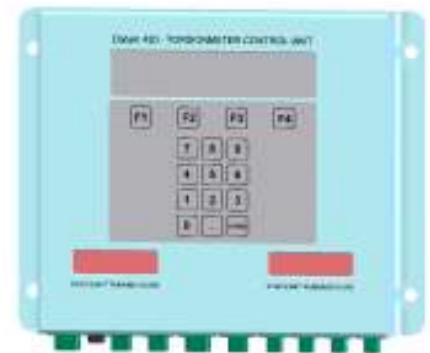
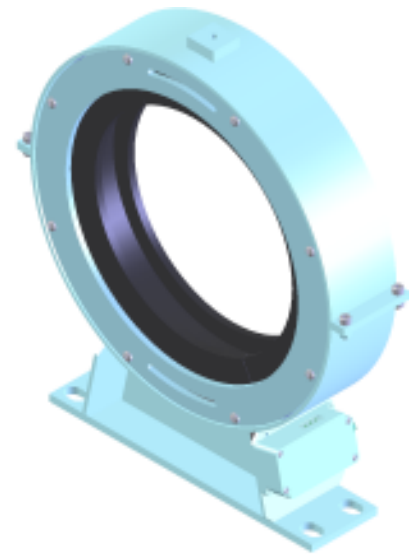
The Series 420 Torsionmeters provide both accurate and reliable data on the shaft power and torque but can also provide dynamic data showing the operational characteristics of the shaft system. The systems offer the latest technology and the flexibility to meet future requirements.

Designed to operate in challenging environments encountered in a naval fleet, each part of the system has been tested to military standards for shock, vibration, EMC (Electro Magnetic Compatibility), Contamination (Oil, Grease, Glycol, Diesel, Salt Spray), Temperature and Humidity.

The dynamic data options are a key tool providing information on shaft bending and misalignment, shaft vibration, and propulsion system condition.



Typical Dynamic Torque Data from Sea Trials



Torque and Power Measurement

Naval Marine System Specification

Accuracy	
<i>Instrumentation Accuracy</i>	
Shaft Torque	0.1%
Shaft RPM	0.1%
Shaft Power	0.1%
<i>System Accuracy</i>	
Shaft Torque	0.1% +Ke
Shaft RPM	0.1%
Shaft Power	0.1% +Ke
Ke	Total error in shaft modulus constant and shaft diameter measurement
<i>System Repeatability</i>	
Shaft Torque	0.05%
Shaft RPM	0.05%
Shaft Power	0.05%
<i>Data Output and Display</i>	
Power, Torque and Speed Display	The display presents average values of torque, speed and power. The time period of this average is set the application and can vary from 1 second to 15 minutes
Power Measurement Data Output	Average Values of Shaft Torque and Speed are transmitted 5 times per second
Dynamic Torque Measurement (optional)	Torque is transmitted 5000 times per second
<i>Environmental</i>	
Operating Temperature	-15°C to +55°C
Storage Temperature	-25°C to +70°C
Temperature Effect on readings	0.01% per degree centigrade
Instrument Stability /Time Drift	Less than 0.1% per annum
Humidity	Temperature Cycled at RH 93%
Vibration	Tested to DefStan 08-123
Shock	Tested to DefStan 08-123 MIL 901 D
Underwater Shock	Design and approved to meet captive requirements of UK MOD
Salt Atmosphere	28 day Salt Spray and Humidity Test to Def Stan 08-123
EMC	Tested to Def Stan 59-41 and Def Stan 61-5
<i>Environmental Sealing</i>	
Shaft Unit 106100/106-420 Generic	IP67
Stator Electronics Unit 106115	IP67
Bulkhead Control Unit 106200	IP67
Remote Display 106300	IP67
Contamination	All materials and external components used have been tested to DefStan 08-123, contaminants include Diesel oil, Sea water, Hydraulic oil, Gear oil, Grease, Water/antifreeze
Rotor Stator Air Gap	+/-13mm radial, +/-8mm Lateral
<i>Power Supplies</i>	
Supply Voltage main Control Unit	110-230V AC or DC12-24V
Supply Voltage Stator	Supplied from control unit
Remote Display	11-230Vac
<i>Cables (Lengths)</i>	
Stator to Control Unit	Up to 20 meters – supplied
Control Unit to Remote Display	Up to 1500 meters – not supplied
Data Cables	Up to 1500 meters – not supplied
Supply Cables	Not supplied
<i>Dimensions</i>	
Shaft Unit 420 Series	See Series 420 GA
Shaft Unit 106000 Minehunter Small Shaft	See 106100
Control Unit 106200	See 106200
Remote Display 106300	See 106300