

Naval Marine Torsionmeter

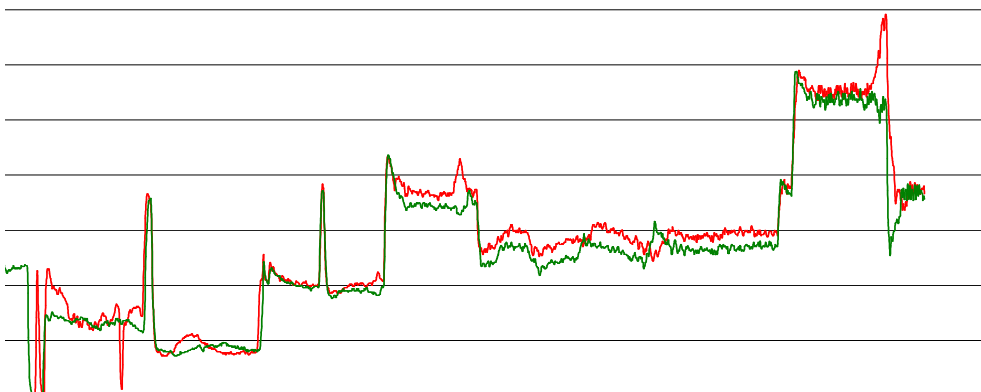
- Accurate Shaft Power and Torque Measurement
- Tested to Military Standards
- Simple Installation
- Minimal Service Requirements
- Ship Control System Data and Control Inputs

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.

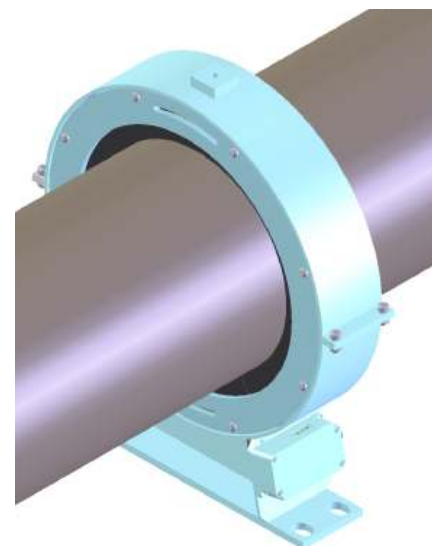
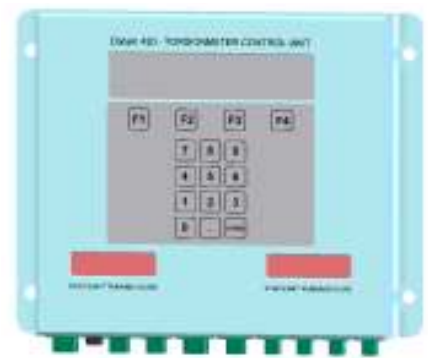
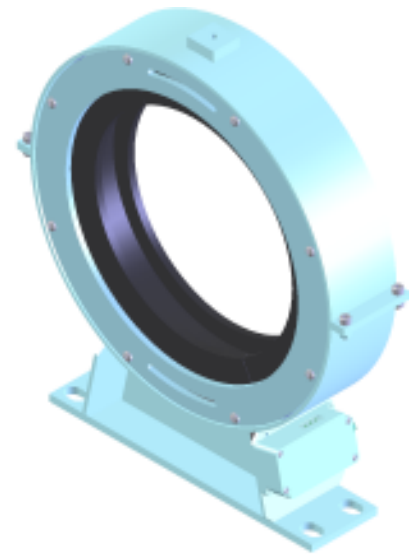
The Series 420 Torsionmeters provide both accurate and reliable data on the shaft power and torque but can also provide dynamic data showing the operational characteristics of the shaft system. The systems offer the latest technology and the flexibility to meet future requirements.

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



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 |