



Optimizing Efficiency Requires Measurement of True Output

Binsfeld Engineering's TorqueTrak telemetry instruments measure torque, RPM's and power data.

Binsfeld Engineering specializes in transmitting sensor signals from rotating machinery and has been designing wireless, noncontact data transmission systems since 1974. Today, its TorqueTrak telemetry instruments are commonly used to measure true mechanical Torque & Power on rotating propeller shafts in all types of ships and marine craft. Specialized data acquisition hardware and software from business partner, OpDAQ Systems, allows the logging, display and analysis of the torque, RPM and power (Hp or kW) measurement data. Binsfeld counts as many as 15 major engine OEM's – representing virtually the entire spectrum of marine propulsion – as well as the U.S. Navy and Coast Guard and myriad shipyards as customers. The reasons why are now obvious enough.

WHY DO I NEED TO MEASURE TORQUE AND POWER?

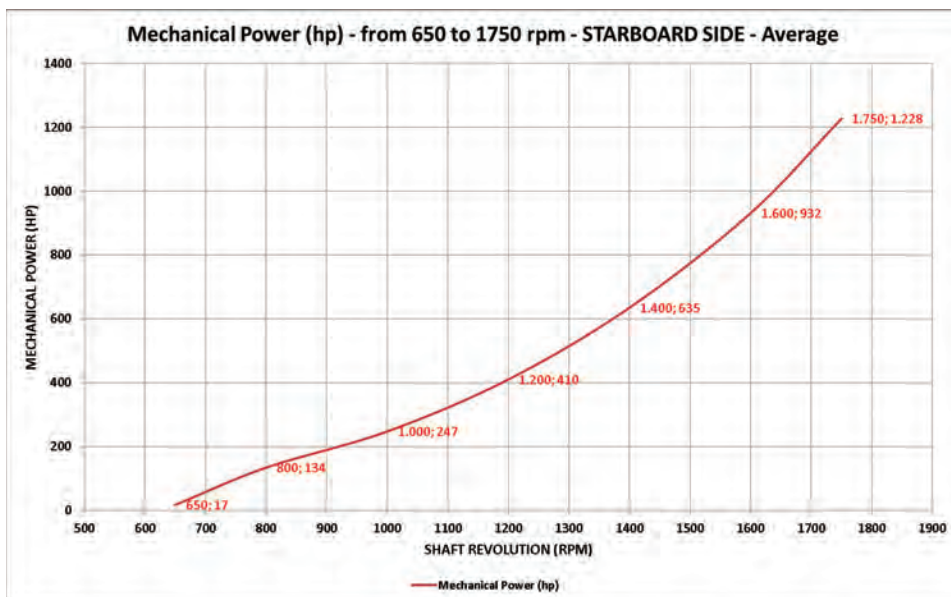
In today's world of increased emissions regulations and high-priced bunkers, marine operators need to leverage every advantage possible in order to maximize the bottom line. For starters, measuring true mechanical Torque

and Power on rotating shafts allows users to optimize fuel efficiency by first verifying the true power output of the engine(s) and then comparing the fuel input to Engine Power Output, as well as to Vessel Speed. Continuously monitoring the material load on conveyor equipment, as indicated by the Torque on the drive shaft allows the user to speed up or slow down the process accordingly; even stop the process altogether in the case of a material jam, before any damage can occur to the equipment. For example, using the TorqueTrak Revolution output signal to sound an alarm and/or shut down the equipment when the load exceeds the safe limit can save money, headaches and unnecessary repair bills. The TorqueTrak monitoring solution also provides diagnostics that defines just how much mechanical Power (Hp or kW) is truly needed to accomplish a task. And, in terms of Preventive Maintenance, TorqueTrak diagnoses and eliminates torsional vibration conditions that, if left unchecked, will result in premature fatigue and/or failure of the equipment.

INSTALLATION & LOGISTICS

All instruments feature sophisticated 14-bit signal processing for a very accurate and reliable data signal. Calibration is done off-the-shaft. The TorqueTrak system is suitable for any size shaft and any torque/power level, and is mounted externally to the propeller shaft. Engine/shaft disassembly are not required. Vessel operators can use TortqueTrak instrumentation as a temporary, sea-trial measure, or as a permanent Installation, for continuous monitoring and control of Torque, RPM and Power data. In most cases, Binsfield can respond to requests with delivery lead time of 2 weeks or less and for permanent installations, just 6 weeks. The basic application is to measure true mechanical torque on a rotating propeller shaft during sea trial or maintenance. On twin-prop ships, measure torque on both propeller shafts simultaneously using two TorqueTrak 10K systems. In this way, users can easily determine whether the two engines are putting out rated power and, just as importantly, whether they're properly balanced.

The TorqueTrak Revolution is a permanently installed instrument for continuous monitoring and control. One of the primary application objectives aboard marine vessels is to Optimize Power Efficiency – to maximize the Power-Output per Fuel-Input ratio. The TorqueTrak Revolution provides continuous dynamic measurement and data output for Torque, RPM & Power on the propeller shafts. This "Power" data can be compared real-time to fuel consumption, ship speed, heading, weather conditions and other variables giving you the "Power Efficiency" information needed to make decisions. Daily and monthly reports showing average shaft Power compared to fuel consumption, ship speed and distance traveled can be made and the software runs on a common laptop or PC. The Torque signal can also be used as a High Torque monitor/alarm, indicating a jammed propeller, for example. The TorqueTrak Revolution system features Inductive Power and Inductive Data Transfer - there are no mechanical wear surfaces, so long-term reliable operation should be expected.



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