



KONGSBERG

KONGSBERG MetaPower®

Torque and Power Monitoring System for rotating shafts

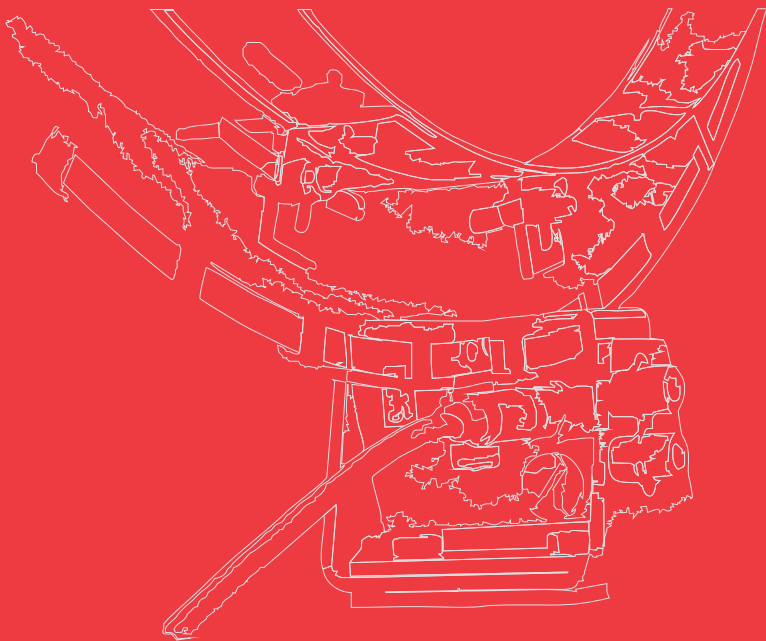


[www.kongsberg.com](http://www.kongsberg.com)

Torque and Power Monitoring System for rotating shafts  
System description and advantages  
System integration

# Maximize performance

by providing The Full Picture



**Our mission**  
We shall earn respect and recognition for our dedication to provide innovative and reliable marine electronics that ensure optimal operation at sea. By utilising and integrating our technology, experience and competencies in positioning, hydroacoustics, communication, control, navigation, simulation, and automation, we aim to give our customers The Full Picture. The Full Picture yields professional solutions and global services that make a difference enabling you to stay ahead of the competition.

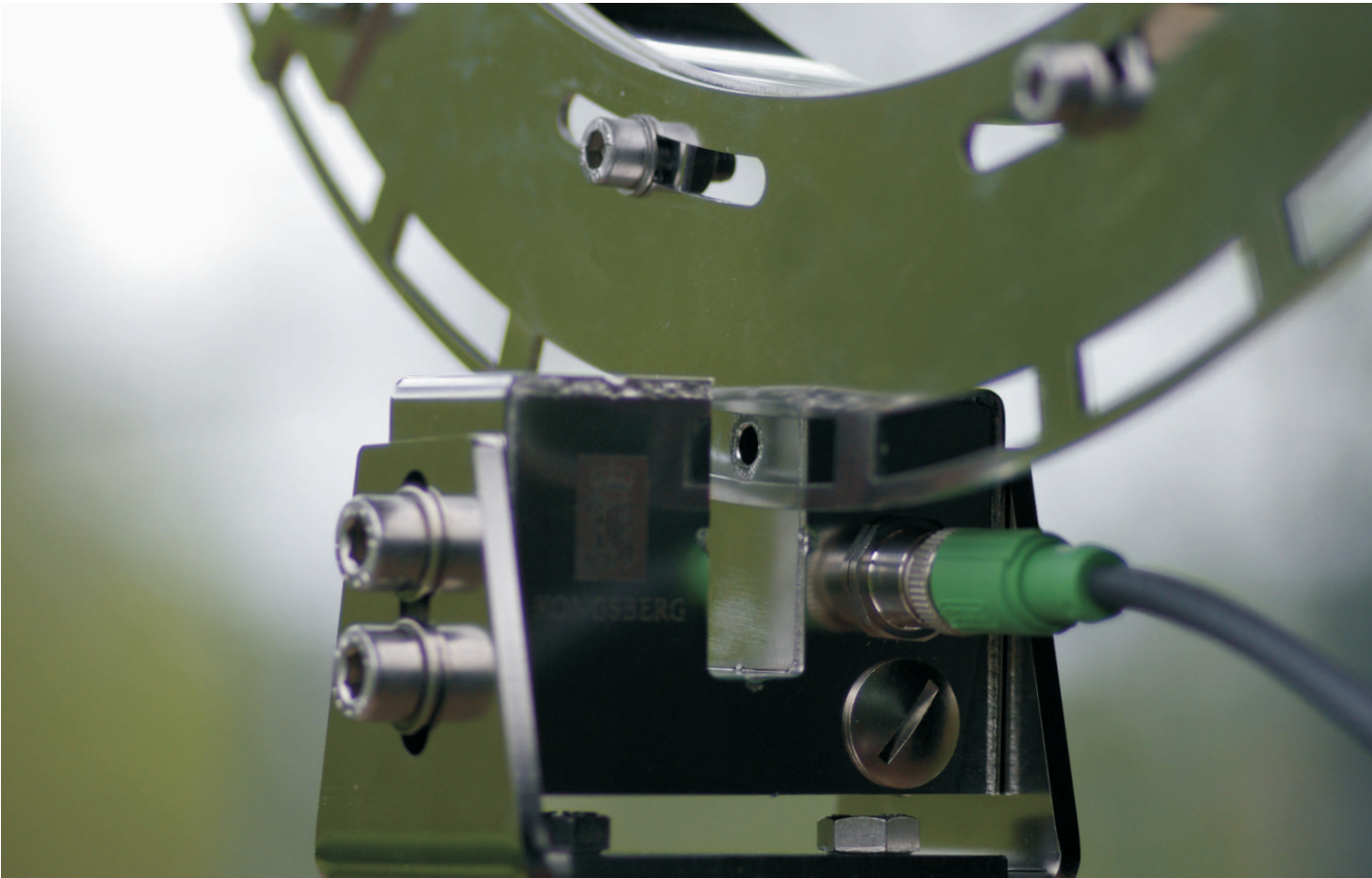
**Our philosophy**  
Our success depends on the success of our customers. Actively listening to our customers and truly understanding their needs, and then translating these needs into successful products and solutions is central to achieving our goal.  
Our people are the key to our success and we empower them to achieve. Working together in a global network of knowledge, guided by our values, engenders innovation and world class performance. Every day we have to think a little differently, because every client is unique. We aspire to translate the imagination and dedication of our staff into successful technologies and solutions. Our commitment is to add value to your operations by providing you with The Full Picture.

## Torque and Power Monitoring System for rotating shafts

### Enables safe and efficient operation

The MetaPower® system measures torque and power transferred from the main engines to the propellers.

It gives the ship’s management full control of stress levels on the engine and shaft. Additionally, valuable information on propulsion and hull efficiency is provided by comparing of shaft power with relative fuel consumption.



### Service free operation

MetaPower’s patented technology requires no servicing because:

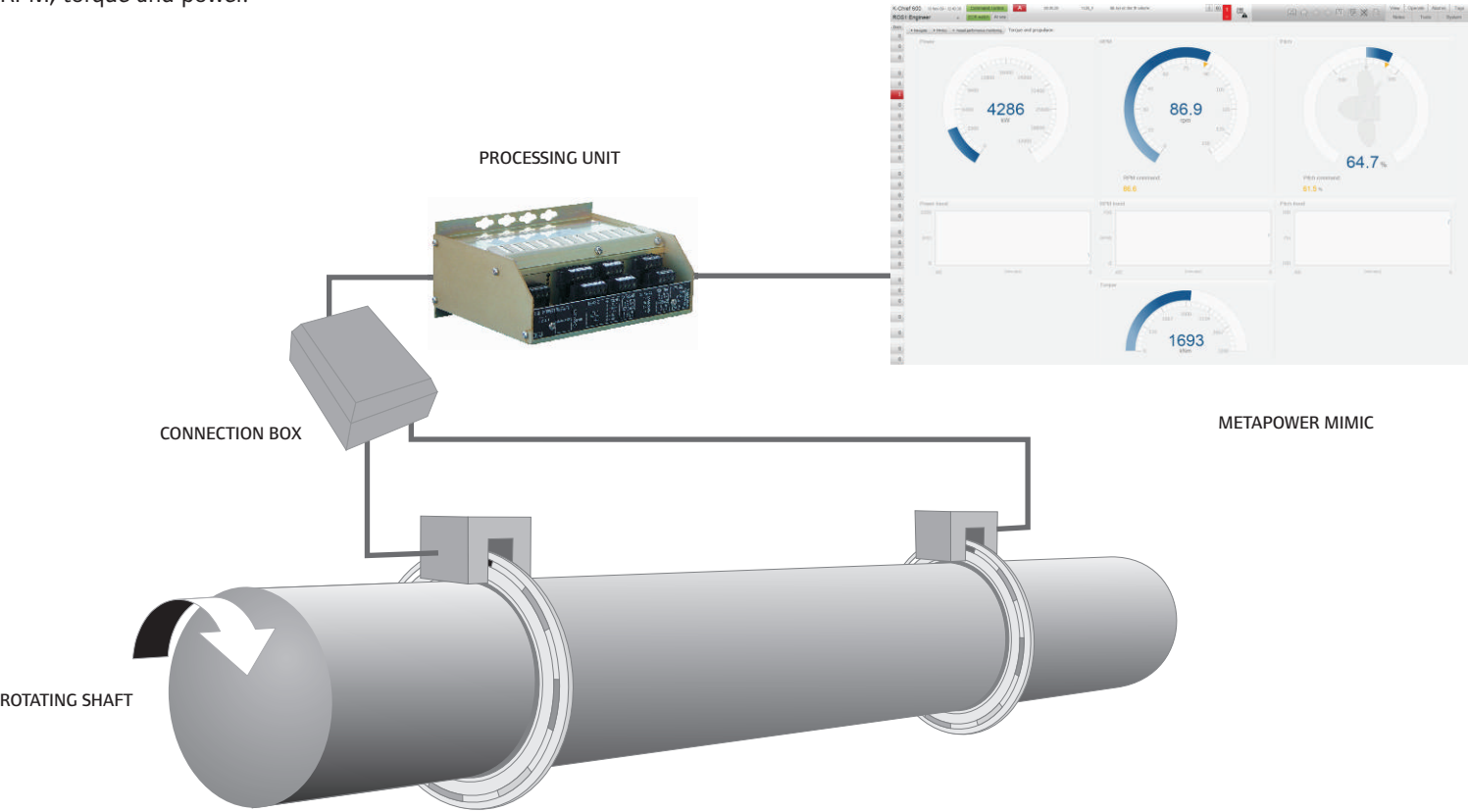
- No sensitive electronics
- No mechanical wear
- No zero point drifting over time
- Not affected by ambient temperature variations

### Stand alone or integrated

MetaPower® can be delivered as a stand alone installation or integrated to KONGSBERG K-Chief or Autochief C20 systems.

MetaPower is 100% digital and based on optical measurement

The MetaPower® System measures the twist of a rotating shaft. Two slotted wheels are mounted on the shaft. Light is transmitted by LEDs through the slots in each wheel, converted to a digital electronic signal and sent back to the processing unit for calculation of the corresponding torque. The system displays RPM, torque and power.



High accuracy torque measurement

No need for strain gauges or any type of delicate electronics glued to, or mounted on the rotating shafts. The system is a digital measuring system using LED switches for the detection of shaft twist, shaft RPM and consequently the transferred power.

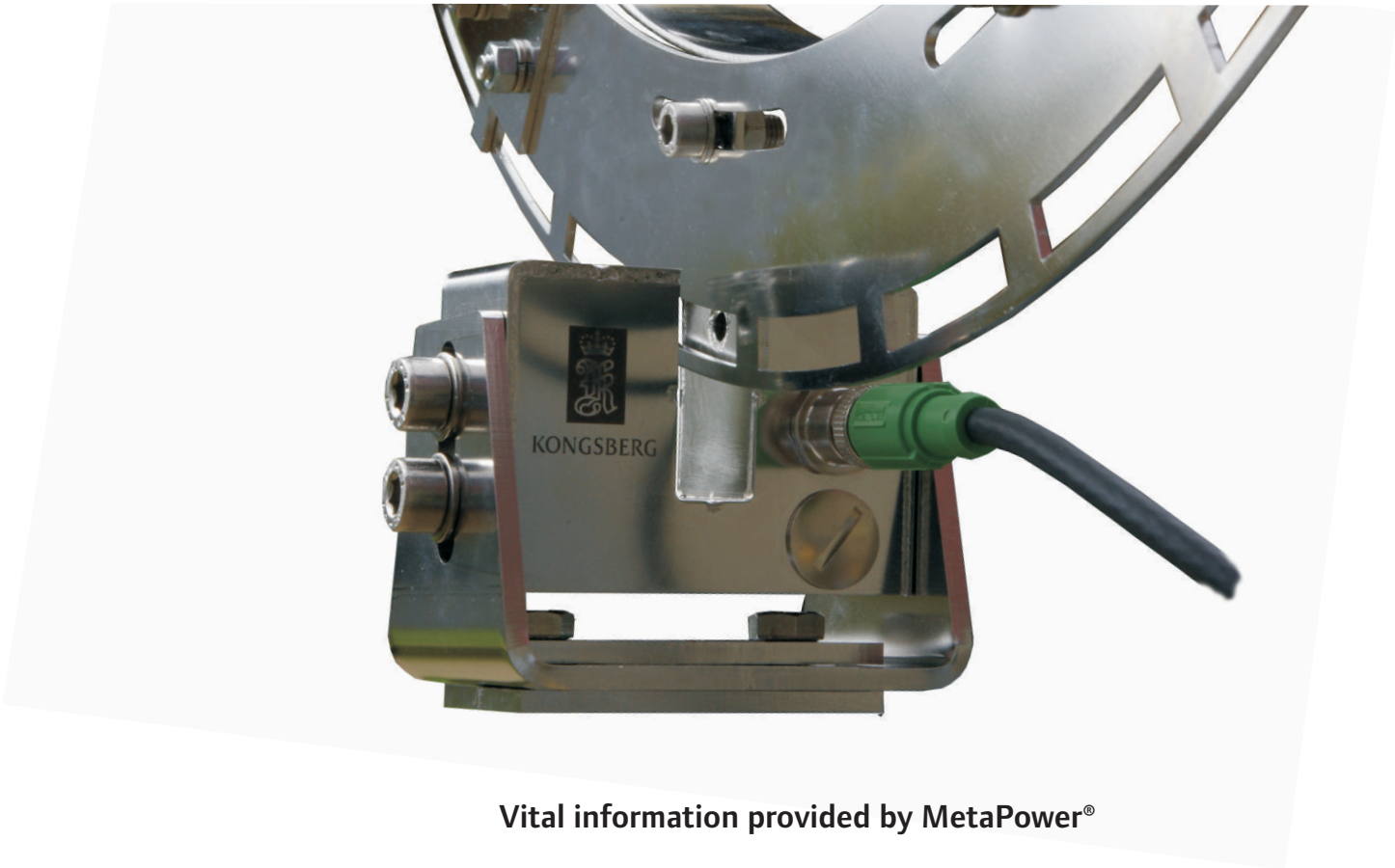
Service free operation

MetaPower® transmits lights by LEDs and thus has no wear and tear on the components. Maintenance is reduced to cleaning the lenses and code wheels with compressed air, and is conducted by the crew.



Advantages compared to conventional torque measuring methods

- No sensitive electronics
- No mechanical wear
- No zero point drifting over time
- Not affected by ambient temperature variations
- Easy to re-install after stern-tube inspections (no need for new strain gauges)
- Ideal for use in hazardous areas
- Not affected by centrifugal forces
- Insensitive to electrical fields



Vital information provided by MetaPower®

Data provided	MetaPower®	Integration with AutoChief C20
RPM	X	X
Torque	X	X
Power	X	X
Average Power	X	X
Continuous logging	X	X
PC Connection/Software	X	
Additional displays for brigde available	X	not needed

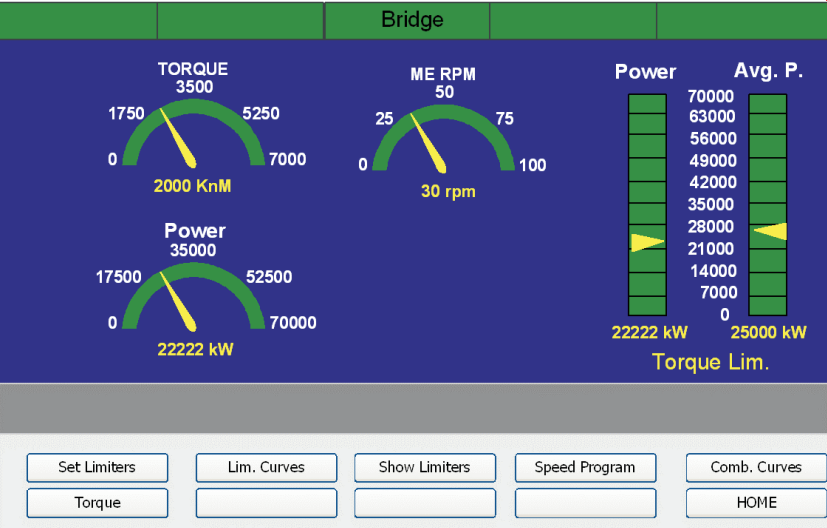


It's the combination that counts

MetaPower® can be delivered as a stand alone installation, or integrated with KONGSBERG K-Chief or AutoChief C20 monitoring and control systems.



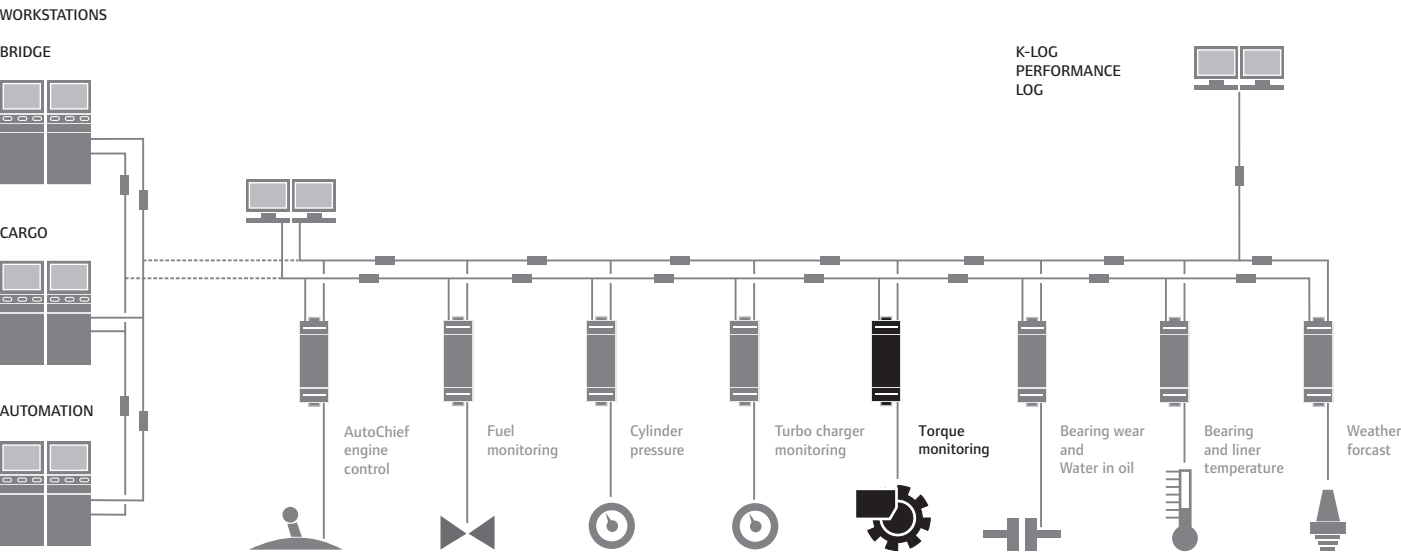
Integrated to K-Chief – AutoChief sequence view including torque and power information



The AutoChief Control Panel is designed for ease of operation. An advanced, yet easy to use multifunction controller gives access to all MetaPower® functions avoiding an additional LCD display.

Complete integration into KONGSBERG Fuel Performance

MetaPower® is a vital part of the KONGSBERG Fuel Performance concept. This module is an extension of the KONGSBERG K-Chief alarm monitoring system, integrating additional performance monitoring sensors to provide a complete solution for engine monitoring.



KONGSBERG Support 24

We are always there, wherever you need us

KONGSBERG customer services organisation is designed to provide high-quality, global support, whenever and wherever it is needed. We are committed to providing easy access to support and service, and to responding promptly to your needs. Support and service activities are supervised from our headquarters in Norway, with service and support centres at strategic locations around the globe – where you are and the action is. As part of our commitment to total customer satisfaction, we offer a wide variety of services to meet individual customers' operational needs. KONGSBERG support 24 is a solution designed to give round-the-clock support. For mission-critical operations, KONGSBERG support 24 can be extended to include remote monitoring. We can adapt the level of support needs by offering service agreements, on-site spare part stocks and quick on-site response arrangements.

**Global and local support**  
We provide global support from local service and support facilities at strategic locations world wide. Service and support work is carried out under the supervision of your personal account manager, who will ensure that you receive high-quality service and support where and when you need it. Your account manager will ensure continuity and work closely with your personnel to improve and optimise system availability and performance. Under the direction of your account manager, and with a local inventory of spare parts, our well-qualified field service engineers will be able to help you quickly and effectively.



**Solid competence reduces cost**  
We have always recognised the importance of supporting our products and systems with professional training. A wide range of courses are therefore offered to ensure that you achieve the goal of full system utilisation with safe and efficient operation.



**Upgrading that pays**  
Product and system upgrades can improve your vessel's operations and reduce your overall maintenance costs. We will ensure that existing products and systems can be extended or upgraded based on standard upgrade kits.



Support 24

Call +47 815 35 355  
E-mail: [km.support@kongsberg.com](mailto:km.support@kongsberg.com)

[www.kongsberg.com](http://www.kongsberg.com)

