

Condition Monitoring System

Expert assistance and data logging



Based on developers knowledge and 100 years of experience, combined with state of the art machine learning algorithms and technology

The CMS system collects and stores all sensor and operational data from the Brunvoll propulsion systems onboard.

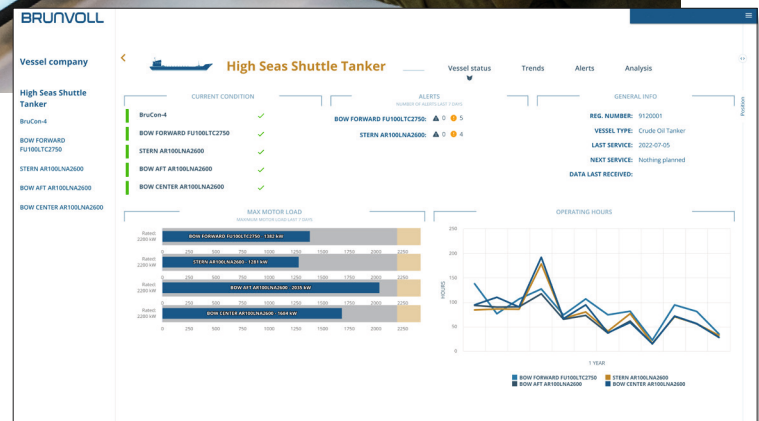
Brunvoll CMS gives recommendations based on collected data, data analytics / machine learning and the OEM competence that Brunvoll holds.

Developed together with several vessel owners in different vessel segments.

Brunvoll CMS follows Brunvoll's long traditions for in-house development and production.

Brunvoll CMS is designed for easy installation for retrofit projects.

Interface to most relevant external sensors onboard.



Data can be shared with other systems via APIs.

Brunvoll CMS can assist operators for optimized and energy efficient operation.

Data will be transferred between vessel and Brunvoll in a cyber secure and encrypted solution.

Vessel crew have option to give Brunvoll access to the system onboard for remote access, troubleshooting and updates.

Optional functions are available for more advanced monitoring:

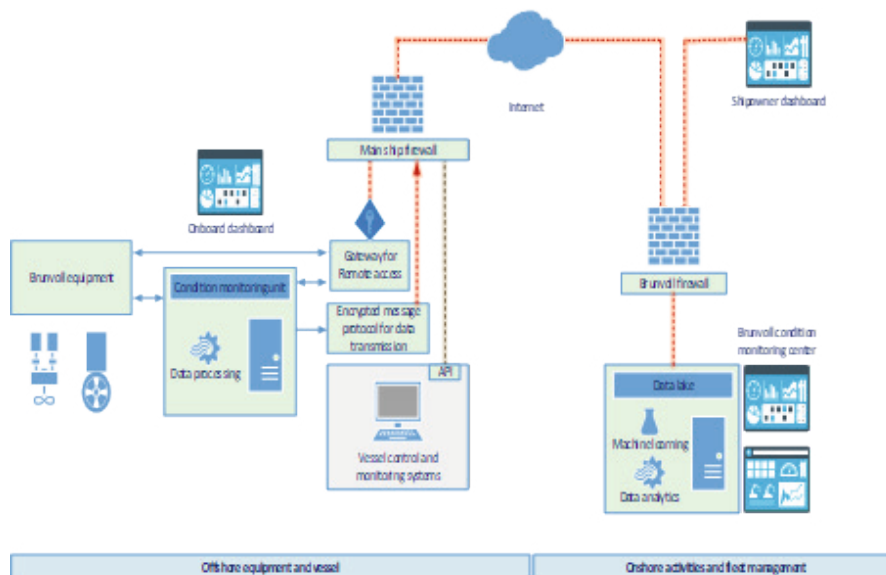
- Oil quality sensors
- Particle in oil counters
- Bearing monitoring
- Gear monitoring

Data Collection and Transfer

Data from the control system and additional sensors will be collected and minimized using smart methods for data compression to ensure that the stored data is at a minimum without loss of vital information.

When the vessel has a secure connection to the Brunvoll data lake, data will be transferred continuously so that it can be monitored in real time by authorized personnel.

If the vessel loses the connection, data will be stored locally until the connection is re-established. The system will automatically resume data transfer upon reconnection.



Condition Monitoring

Collected data from the Brunvoll equipment and other connected sources are stored by Brunvoll for further analyses.

Brunvoll ICT Department including operation and hosting of CMS is certified according to NS-EN ISO/IEC 27001:2017.

In addition to ordinary alarm and event monitoring- and analyses of trend curves and statistics, Brunvoll uses developed machine learning algorithms to detect early state changes for

The results of the analyses will be presented for the customer in vessel (or fleet) specific dashboards or used by qualified personnel in the Brunvoll Operations Centre. Through these services Brunvoll will give the customer advice if there is an observed condition change in the equipment.

Remote Diagnostics and Support

Using the live vessel data along with historical data sets, Brunvoll personnel can assist vessel crew to optimize operations and help solve issues more efficiently under time critical operation. With access given from the operator, Brunvoll can adjustments, modifications and updates of the control system.



Condition Monitoring Functions			
Lubrication and Servo		Power and Utilisation	
<ul style="list-style-type: none"> - Oil level monitoring gear - Oil level monitoring seal - Oil condition monitoring - Pitch system condition - Pitch movement monitoring 	<ul style="list-style-type: none"> - Azimuth movement monitoring - Azimuth lowering/retracting monitoring - Azimuth system condition 	<ul style="list-style-type: none"> - Power contribution indicator - Maximum load indicator - Time in overload indicator 	<ul style="list-style-type: none"> - Operation pattern indicator - Operation hour trend - Changes in operation pattern monitor
Gears and Bearings		Control System	
<ul style="list-style-type: none"> - Fault Frequency Indicator 	<ul style="list-style-type: none"> - Temperature Monitoring 	<ul style="list-style-type: none"> - System Conditioning Indicator - Alarm Critically Rating - Alarm Count 	<ul style="list-style-type: none"> - Onboard Data Interface - Vessel Position Tracking - Connectivity Indicator