

Optimize your ship operations

# SKF Marine condition monitoring solutions





## SKF Marine Condition Monitoring Kits

- Help maximize the availability of your critical and auxiliary machinery
- Simplify maintenance and reduce maintenance costs
- Give an early indication of possible problems
- Are easy to set up, use and understand

## Maximize availability

The performance of every auxiliary machine is vital. Even a small problem can delay your timetable or keep your ship in port, and the costs could be enormous. By using the SKF Marine Condition Monitoring Kits you can optimize your troubleshooting. You can rely on the SKF Marine Condition Monitoring Kit and the SKF Marine Condition Monitoring Route Kit to help maximize the reliability and availability of your auxiliary equipment, including:

- Pumps
- Compressors
- Motors
- Generators
- Rotary dryers
- Centrifuges
- Fans
- Purifiers
- Electric motors
- Turbines
- Transmissions
- Gearboxes

# Set your course for improved reliability

Ship uptime depends on the availability of on-board machinery. Finding ways to assess the condition of auxiliary machinery without having to disassemble the equipment is perhaps more important than ever. With the SKF Marine Condition Monitoring Kit and the SKF Marine Condition Monitoring Route Kit, you can take a reliable, cost-effective step toward condition-based maintenance – and thereby optimize your ship's operation.

Ship operators are under high pressure to manage vessels for longer periods of time and find ways to reduce maintenance and operating costs. To meet these challenges, more and more operators are turning to condition-based maintenance. After all, this approach helps enhance the reliability and availability of machinery, optimize maintenance planning and lower costs significantly.

With the SKF Marine Condition Monitoring Kit, taking the first, important step toward condition-based maintenance is quick, easy, reliable and affordable. The SKF Marine Condition Monitoring Route Kit makes asset condition maintenance possible, even for the entire fleet, by increasing operational safety and uptime.

## Made for your ship's auxiliary equipment

The SKF Marine Condition Monitoring Kits have been developed specifically for the demanding requirements of the maritime industry and tough on-board conditions. They are well suited for use on a wide range of vessels, including tankers, bulk carriers, container vessels, cruise ships, offshore supply vessels and offshore applications such as platforms.

This well-proven, reliable solution features preconfigured, marine-specific software that makes it quick and easy to monitor the condition of critical auxiliary machinery. In fact, anybody on board can understand the measurement result.

The SKF Enlight Centre is the new platform for condition monitoring that enables the on-board crew to view the status of the vessel's assets and the actions recommended by the condition monitoring experts.

The SKF Condition Monitoring Route Kit is a module in the SKF Marine Condition Monitoring Kit and aligns the condition monitoring programme with condition-based maintenance requirements. The big difference between the two kits is that the route-based solution provides regular data to allow tracking of how a fault is developing in order to optimize predictive maintenance. This makes it possible to extend the time between repairs, eliminate machine problems on time, allow spare part optimization, track ship and fleet condition and reduce maintenance costs. The system furthermore facilitates ease of use and communication, crew involvement and team work.

## Supports modern maintenance strategies

Taking the step toward condition-based maintenance does not have to be a large investment. With the SKF Marine Condition Monitoring Kit or the SKF Marine Condition Monitoring Route Kit, you can start with a small investment and look forward to quick and easy implementation. SKF can also provide advice on how to integrate the solution into your ship maintenance management systems (MMS). In addition to supporting modern maintenance strategies, this innovative solution offers an easy way to check machine acceptance criteria after a machine repair in the workshop or on board.

# SKF Marine Condition Monitoring Kit

With the SKF Marine Condition Monitoring Kit even an untrained user is able to understand the results of vibration data measurements and locate the source of the fault in the machinery. The marine-specific software is preconfigured to convert the measured data into an easy-to-understand colour-coded result. It gives an express analysis of the asset condition which allows customers to make a repair decision or to send data for further analysis by SKF.

## The SKF Marine Condition Monitoring Kit offers:

**Step-by-step work instructions** that help in implementation, eliminate guess-work and enhance reliability in daily use.

**Easy to use marine-specific software** that makes it possible for anyone on board to interpret the data correctly via the green – yellow – red colour code for improved reliability and cost-effective maintenance.

**Automatic analysis of machine condition** that helps by indicating possible faults, imbalances, bearing defects and misalignments.

## A complete kit

Bring it all together with the SKF Marine Condition Monitoring Kit. It includes everything you need to carry out dependable and easy condition monitoring on board:

- SKF Microlog GX 75
- SKF Marine machine library
- Quality work instructions for setting up and operating the system

## Additional support

The on-board implementation of the sensors can be carried out by the by customer under SKF supervision, or SKF can help set up the measuring points on your auxiliary machinery or SKF can do the complete commissioning.

- SKF can also offer a consulting service as part of a service agreement and training for the crew.

## SKF Microlog GX 75 handheld data collector

**Lightweight ergonomic** design makes it easy to use the tool and always have it close at hand.

**Extended battery life** allows a full day of work without recharging.

**Easy operation function keys** are designed for left or right-handed use. This provides ease of use when one hand is needed for the safety of the user.

It is **rugged and water-resistant**, designed specifically to withstand demanding on-board conditions for a long service life.

## Technical specifications

### Input sources

- Acceleration sensors
- Tachometer (speed reference), available on request

### Post-processing

Envelope (demodulator): with four selectable input filters for enhanced bearing and gear mesh fault detection.

## Measurement

- Range: DC to 40 kHz
- FFT: 100 to 25 600 lines
- Detection: RMS/peak/peak-peak/true peak/true peak-peak

## Data displays

- Table with bands: band name, level and value
- Status code highlighted in green, yellow or red

## Power

- Minimum of eight hours' continuous operation

## Physical data

- LCD screen: colour
- Case: high-impact ABS with IP 65 dust and splash rating
- Weight: 715 g (1.6 lb)
- Drop test: 2 m (6.6 ft), to MIL STD 810

## The SKF marine library

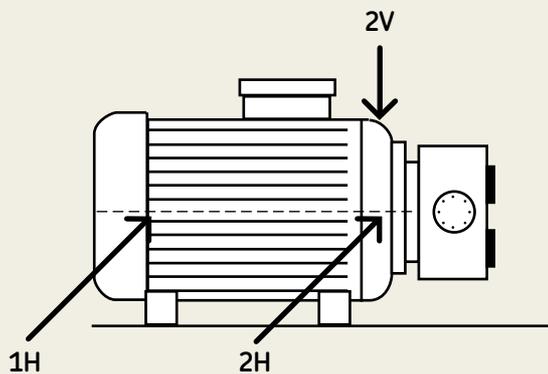
SKF has more than 30 years of experience in measuring noise and vibration in rotating machinery. This accumulated knowledge is reflected in the SKF Marine Condition Monitoring Kit and marine-specific application software. The software is based on more than 30 years of marine machinery trending, resulting in the SKF marine library, which includes models covering approximately 85% of on-board auxiliary machinery. It allows users to go beyond measuring the overall vibration levels recommended by class and also assess the condition of specific components and identify possible problems.



ENABLES  
MAINTENANCE  
WORK TO BE  
PLANNED IN  
ADVANCE



Example of machine model supplied with the SKF Marine Condition Monitoring Kit.



By measuring the vibration level at predefined measurement points, the condition of the auxiliary machine can be tracked and problems can easily be identified.

# SKF Marine Condition Monitoring Route Kit

The SKF Marine Condition Monitoring Route Kit offers predefined templates for marine machines and specific condition monitoring database settings, such as class alarm levels. It is possible to transfer the collected ship data to the SKF One Global Cloud, from which it can be accessed and analyzed by SKF experts to support the ship's engineer or the fleet technical manager, or directly by customers. The analyses and reports are presented in a clear and actionable manner to support the ship's engineers in performing maintenance activities.

## Benefits of working with the SKF experts:

- A global team of condition monitoring engineers, certified VA CAT II or higher
- The standardized method of working offered by condition-based maintenance ensures high-quality output through the early identification of faults and delivering benefits in terms of ROI
- A class-approved service supplier

## For each asset the customer will receive:

**Overall machine condition** and overall vibration levels.

### Machine component condition

through vibration spectrum analysis, detecting imbalance, misalignment, mechanical looseness, impeller wear, bearing & gear condition or cavitation issues.

**Machine condition**, including failure mode, fault code and suggested maintenance task.

**A report** including the asset condition and actionable results.

## A complete kit

The SKF Marine Condition Monitoring Route Kit includes everything you need to carry out dependable and easy condition monitoring on board:

- SKF Microlog GX 75
- Models capturing the SKF expert knowledge in monitoring rotating equipment following SKF standards
- Studs for high quality vibration readings and easy connection
- Quality work instructions for setting up and operating the system
- Preprinted stickers
- Software package built around the SKF One Global Cloud
- The SKF Enlight Centre is for reporting and trending the asset information. The information is also accessible to all users, chief engineers, fleet managers, SKF experts, etc.

## Additional support

- SKF can help set up the vibration collection points on your auxiliary machinery
- Consulting service as part of a service agreement
- Training for the crew

## Technical specifications of the SKF Microlog GX 75 handheld measuring tool:

### Input sources

- Acceleration sensors
- Tachometer (speed reference)

### Post-processing

Envelope (demodulator): with four selectable input filters for enhanced bearing and gear mesh fault detection.

### Measurement

- Range: DC to 40 kHz
- FFT: 100 to 25 600 lines
- Detection: RMS/Peak/Peak-Peak/True Peak/True Peak-Peak

### Power

- Minimum of eight hours' continuous operation

### Physical data

- LCD screen: colour
- Case: high-impact ABS with IP 65 dust and splash rating
- Weight: 715 g (1.6 lb)
- Drop test: 2 m (6.6 ft), to MIL STD 810

# SKF ENLIGHT CENTRE SOFTWARE

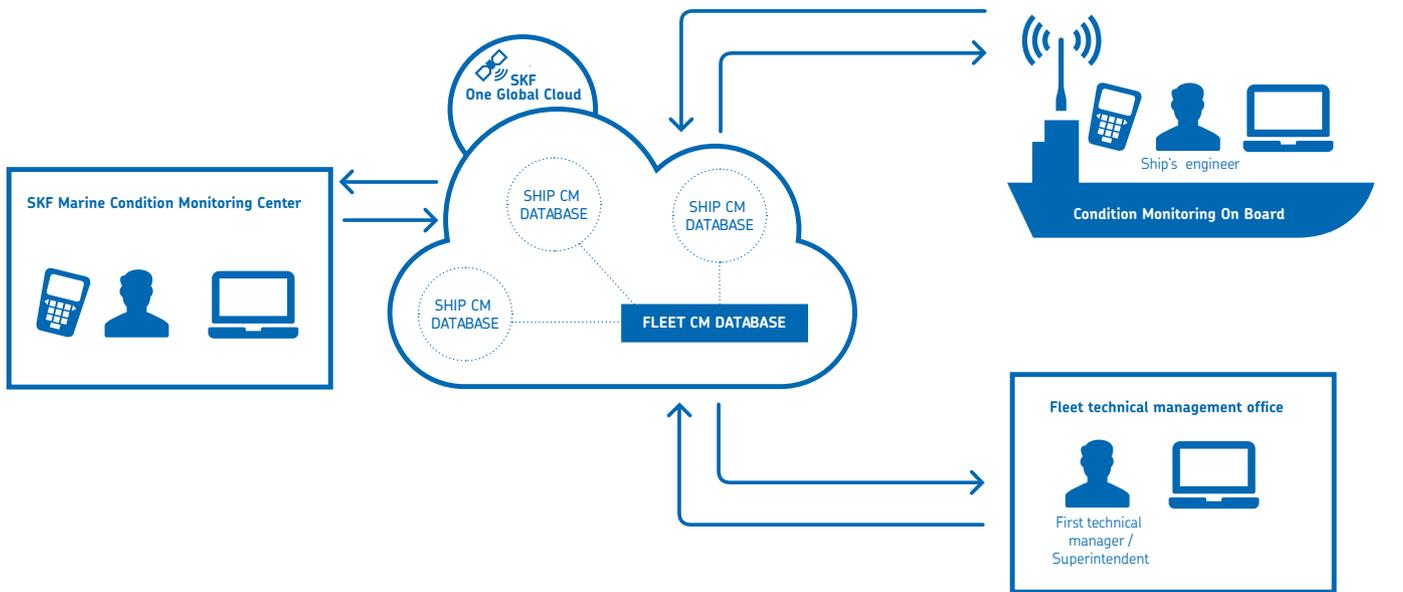
## Advantages:

- Deferral of maintenance is possible for the entire fleet: increased operational safety, minimal downtime
- Fleet performance evaluations are made simpler
- Planning of maintenance and spare parts supply is possible
- Cost savings through performing the right maintenance



## Optimize your workflow

### SKF Enlight Centre



### SKF Enlight Centre

# SKF Enlight Centre

**The SKF Enlight Centre provides a new quality of condition monitoring. The software considerably improves ease of use on the one hand, while facilitating communication, crew involvement and teamwork on the other. Furthermore you have the option of connecting directly to SKF remote diagnostic services. In this way our intelligent condition-based maintenance system achieves unrivaled performance and significant cost reductions.**

## Main benefits:

- A clearly arranged interface presents all of the information which is actually needed, including tasks and analyze views on the dashboard. Live data analysis is also possible.
- The intuitive and user-friendly handling minimizes the need for training.
- The system is web-based and receives the data directly from the SKF One Global Cloud. This helps to reduce IT costs.
- The centralization of the data provides access from anywhere. A single web log-in is all that is required.
- The platform offers different user roles, e.g. chief engineer, superintendent, fleet manager. If needed class surveyors and SKF remote diagnostic experts have access to the relevant data at any time.
- A condition-based maintenance (CBM) strategy can be successfully implemented, including planned maintenance work. It increases operational safety, reduces downtime and therefore contributes to making sustainable cost savings.

## A complete software

The SKF Enlight Centre includes everything required to keep the vessel's individual machines under surveillance. It facilitates the big step from reactive, unplanned maintenance to a predictable, condition-based and proactive maintenance system:

- Analyze view and calendar view:
  - Provides an easy-to-understand workflow, including exceptional actions and task tracking.
  - Real-time analytics and data visualization help the team to take the right steps.
- Route view:
  - Shows the next machines due for the data collection. The list is based on the corresponding schedule in the maintenance strategy.
- Dashboard:
  - Presents the condition of all assets and recommended maintenance actions at a glance.

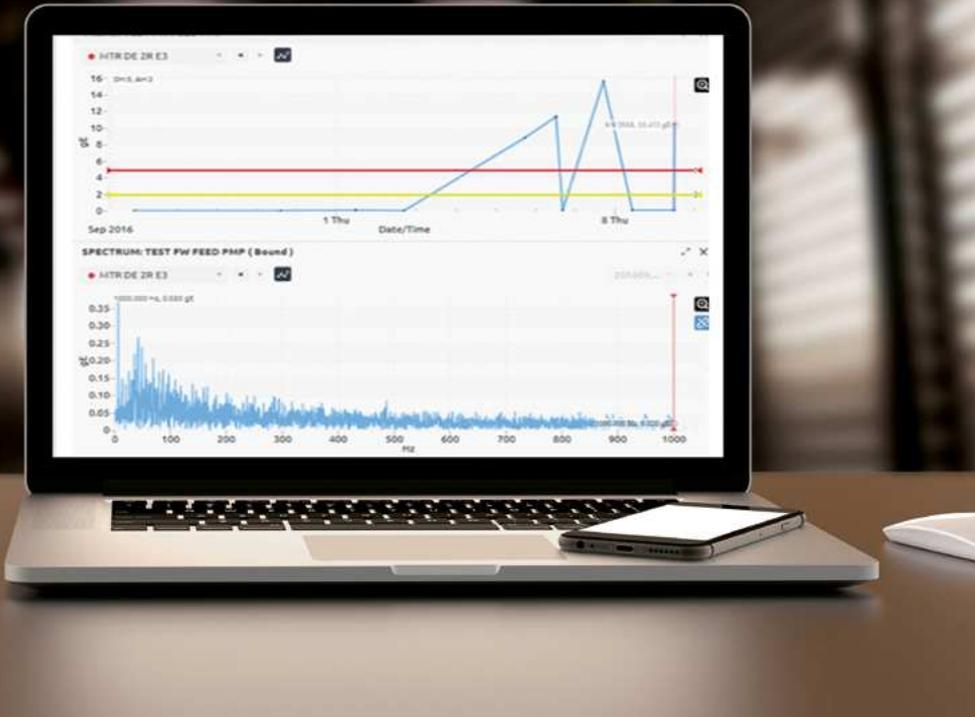
## Installation and operation

- The on-board implementation of the sensors can be carried out by the customer's team, under SKF supervision. Every step is performed in accordance with SKF Marine condition-based maintenance standards
- Following the agreed maintenance strategy, the SKF Enlight Centre shows exactly which machine data must be collected in the coming days and weeks.
- Existing condition-monitoring solutions, such as the SKF Marine Condition Monitoring Route Kit, can

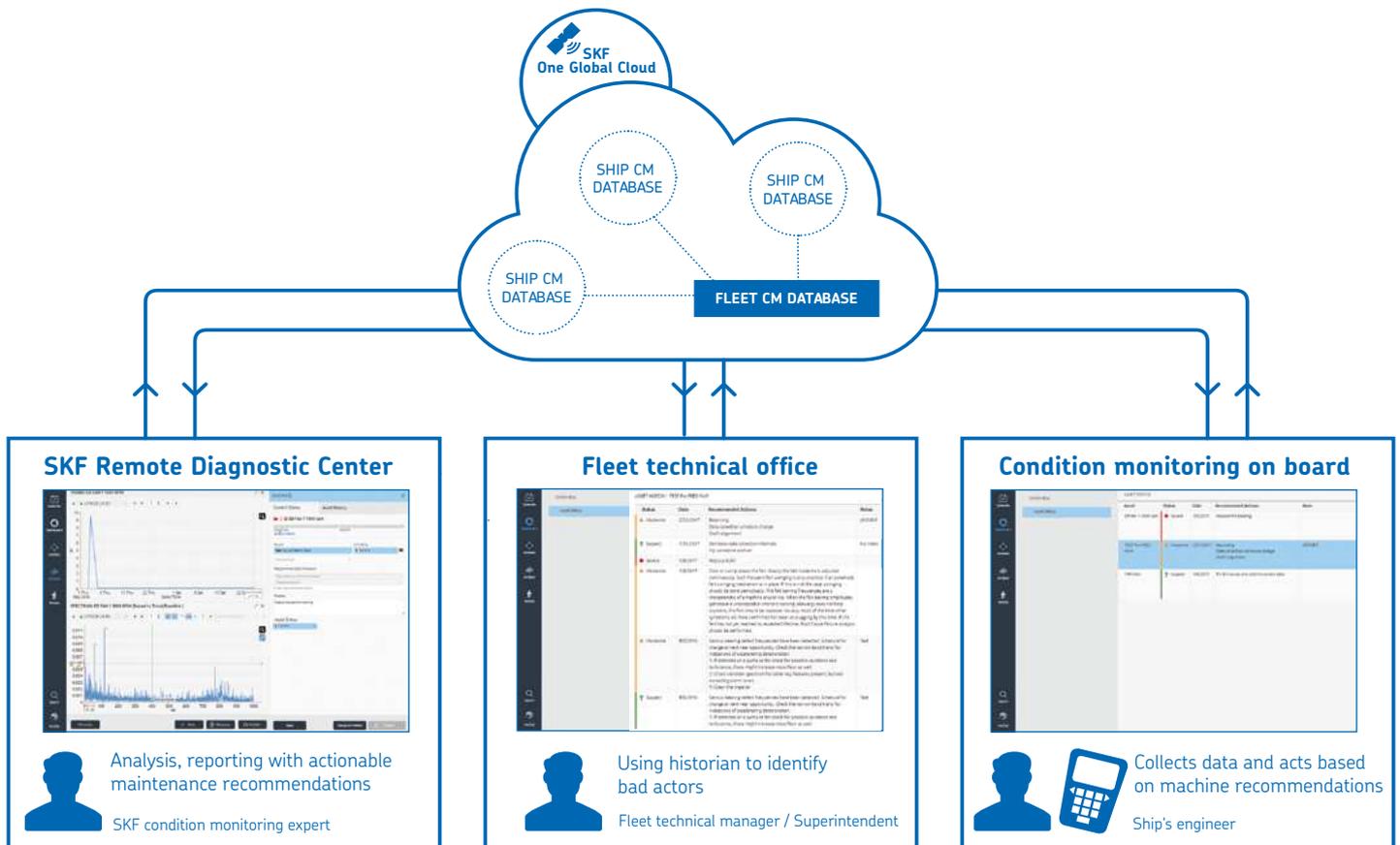
also be used to collect the data and transfer it to the SKF One Global Cloud.

- The SKF remote diagnostic experts analyze the data and develop actionable maintenance recommendations
- The results will be presented on the SKF Enlight Centre dashboard. This information can be transferred immediately into tasks for the crew. Furthermore, it also provides suggestions for upcoming maintenance work.
- Using the calendar view the SKF Enlight Centre offers a communication forum between the vessel's crew, the on-shore office and the SKF remote diagnostic experts.
- The chronology of all the recommended maintenance actions for a specific asset will be stored, so it can be used to obtain a better evaluation of recurring problems.

REDUCE ON-BOARD  
MAINTENANCE WORK BY  
**UP TO 20%**



The synergy network that makes monitoring more reliable – and more efficient.



# SKF – sets global standards for maintenance services

SKF Marine, the Marine Business Unit of SKF, has implemented a global SKF standard for condition-based maintenance (CBM) as well as condition monitoring services. This includes delivery standards and operating standards which are also aligned with ISO and class societies' requirements. The quality control of our services is exceptionally high. Each SKF location needs to pass a certification training course and an internal audit before being approved. SKF is one of the first companies in the world to hold a global class-approved service supplier certificate.

## Service performed by experts

The SKF remote diagnostic experts help you to set up an individual condition-based maintenance strategy, customized to the special needs of your fleet. Therefore an efficient condition monitoring program will be implemented. It can also be integrated seamlessly into the ship's current maintenance management system.

## Worldwide support for the marine industry

SKF Marine consists of SKF experts with decades of relevant experience. You can benefit from their know-how by using a complete range of SKF products and services, delivered with world-class logistics through the industry's best and most reliable distribution system.

### Areas of expertise:

- Classification societies
- OEMs
- Ship designers
- Shipyards
- Ship owners and operators
- Technical managers

Whatever your location or wherever your operations take you, SKF Marine assures timely accessibility to the services, products and solutions needed to optimize ship performance, safety and reliability. With a presence in more than 130 countries, 110 production sites in 28 countries and distributors, sales agents and service stations in more than 15,000 locations, SKF can deliver the right solutions anytime, anywhere around the globe.

To find locations that are approved by SKF Marine to work to the standard, take a look at [www.skf-marine.com](http://www.skf-marine.com) or scan the QR code below.



24/7  
SERVICE



## Contact

For any requests, feedback, suggestions or complaints, please send an email to: [marine.support@skf.com](mailto:marine.support@skf.com)

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### The SKF Marine Condition Monitoring Kits are available in two variants:

#### CMXA 75 MXP-K-SL

The SKF Marine Condition Monitoring Kit (entry level) including SKF Microlog Analyser, conformance check module, full suite of SKF marine library templates, standard accessories, one accelerometer with integral cable and quality work instructions.

The SKF Marine Condition Monitoring Route Kit (advanced level) including SKF Microlog Analyser, route functionality, full suite of SKF marine library templates, standard accessories, one accelerometer with integral cable and quality work instructions. This kit needs to be complemented with SKF One Global Cloud offer.

**Please note that for the SKF Marine Condition Monitoring Kit the Enlight Centre software is needed.**

#### CEMEC 100-COMPANY

#### CEMEC 100-SHIP

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PUB 43/P2 17203 EN · February 2017

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