DNV·GL

Certificate No:
TAA00002DN

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Metal Particle Detectors

with type designation(s)
Metallic Wear Debris Sensor MWDS FG-K19567-KW,
Fluid Condition Sensor FCS3111, FCS3112, FCS3113, FCS3121,
SDI BOX ACC6NF006

Issued to
Parker Hannifin Manufacturing Ltd
Littlehampton, West Sussex, United Kingdom

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Metallic Wear Debris Sensor MWDS FG-K19567-KW	**B**	**B**	**B**	**A**	**B**
Fluid Condition Sensor FCS3111, FCS3112, FCS3113, FCS3121	**B**	**B**	**B**	**A**	**B**
SDI BOX ACC6NF006	**B**	**B**	**A**	**A**	**B**

Issued at **Høvik** on **2019-08-22**
This Certificate is valid until **2024-08-21**.
DNV GL local station: **Manchester**

for **DNV GL**

Approval Engineer: **Nils Jarem**

Trond Sjåvåg
Head of Section

Job Id: **262.1-031124-1**
Certificate No: **TAA00002DN**

Product description

Metallic Wear Debris Sensor (MWDS) FG-K19567-KW
The Metallic Wear Debris Sensor (MWDS) can be used to monitor the amount of metallic ferrous and non-ferrous wear debris in an oil or fluid medium. Mounted into the lubrication system of a machine, the MWDS reports wear debris particles, resulting from machinery wear.
The MWDS differentiates between discrete metallic particles of ferrous and non-ferrous origin. It simultaneously quantifies the metallurgical composition and the size of particles in a fluid as the fluid flows through the MWDS.

Fluid Condition Sensor (FCS) FCS3111, FCS3112, FCS3113, FCS3121 and SDI BOX ACC6NF006
The Fluid Condition Sensor (FCS) is a robust online multi parameter sensor capable of measuring the temperature, moisture content, pressure, permittivity and conductivity of lubricating oils depending on the variant of sensor purchased.

Product Code	**Parameters Measured/ Features**
FCS3111	Temperature, Moisture, Pressure, Permittivity and AC Conductivity
FCS3112	Temperature and Moisture
FCS3113	Temperature, Permittivity and AC Conductivity
FCS3121	Fluid Condition Sensor+Sensor Display Interface
ACC6NF006	Display, 4 x 4-20mA outputs, Digital Communications Pass Through

Nominal voltage: 24V DC

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE