

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Particle detector

with type designation(s)
CS 1000 Series Contamination Sensor

Issued to

HYDAC Filter Systems GmbH
Industriegebiet,
66280 Sulzbach/Saar, Germany

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.

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	C

Issued at **Hamburg** on **2018-11-16**

This Certificate is valid until **2023-11-15**.

DNV GL local station: **Essen**

Approval Engineer: **Marco Rinkel**

for **DNV GL**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

The Contamination Sensor CS 1000 series is an online fluid sensor for permanent monitoring of particle contamination in fluids.

Model code

CS **x** **x** **x** **x -** **x -** **x -** **x -** **x -** **x / -** **xxx**
Type

CS = ContaminationSensor

Series

1 = 1000 series, 4 particle size channels

Contamination codes

2 = ISO 4406 : 1999; SAE AS 4059 / >4 µm(c) >6 µm(c) >14 µm(c) >21 µm(c)

3 = ISO 4406 : 1987; > 2 µm > 5 µm > 15 µm > 25 µm NAS 1638 2-5 µm; 5-15 µm; 15-25 µm; > 25 µm can be changed ISO 4406 : 1999; SAE AS 4059 / >4 µm(c) >6 µm(c) >14 µm(c) >21 µm(c) can be changed

Options

1 = without display

2 = with display (display can be rotated through 270°)

Media

0 = based on mineral oil

1 = phosphate ester

Analogue interfaces

A = 4 to 20 mA

B = 2 to 10 V

Switching output

0 = Switching output threshold

Digital interface

0 = RS485

Electrical connection type

0 = male M12x1, 8-pole, pin,
to VDE0627 or IEC61984

Hydraulic connection

0 = Inline or hose connection

1 = Flange connection

Modification number

000 = Standard

Application/Limitation

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.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to DNV GL Rules and Ex-Certification / Special Condition for Safe Use listed in valid Excertificate issued by a notified/recognized Certification Body.

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