DNV·GL

Certificate No:
TAA000026X

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Oil Condition Sensor

with type designation(s)
HYDACLAB HLB 1400

Issued to
Hydac Electronic GmbH
Saarbrücken, 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.

Location classes	
Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**B**

Issued at **Hamburg** on **2019-03-14**
This Certificate is valid until **2024-03-13**.
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Dariusz Lesniewski**

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.

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Job Id: **262.1-029374-1**
Certificate No: **TAA000026X**

Product description

Oil Condition Sensor HYDACLAB® HLB 1400

Model Code: HBL 14J8-XXXXX-S00
Description: **HBL 1 …**

4	Measured variables: - Saturation (rel. humidity) - Temperature - Electric conductivity - Dielectric constant (DK)
J	Mechanical connection: G3/4 A ISO 1179-2
8	Electrical connection: Male M12X1, 5 pole (without female connector)
XXXXXX	Signal technology **1C000** = 1 switching output / analogue 0utput **00S12** = RS485
S00	Modification number: standard - with ship approval

Power supply: 24V DC nominal
Output signal (analogue): 4-20mA / 0-10V DC
Switching outputs: PNP, 0.5mA max.
Communication interface: RS485, HSI (HYDAC Sensor Interface)
Indication LEDs: Stat, Cond, SP1, SP2 (green, yellow, red)
Housing: Stainless steel
Degree of protection: IP 67

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

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