DNV·GL

Certificate No:
TAA000003S

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pressure Switch

with type designation(s)
Clogging Indicator

Issued to
HYDAC Filtertechnik GmbH
SULZBACH SAAR, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

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

Location classes:

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**Not relevant**
Enclosure	**B**

This Certificate is valid until **2019-06-30**.

Issued at **Høvik** on **2015-09-01**

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Ståle Sneen**

Odd Magne Nesvåg
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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Product description

Different types of clogging indicators:
-Oil temperature range: 0 to 95 degrees Celsius
-Environment: 0 to 55 degrees Celsius

Type code VD X LZ.1/-DB-TA
(X nominal cracking pressure in the range 0.8 bar till 8 bar) (X values 0.8; 1.2; 1.5; 2; 5 and 8)
-input voltage: DC 24V
-Max.operating pressure: 450 bar
-Cracking pressure Alarm: 88% to 105% of nominal cracking pressure
-Cracking pressure Warning: 63% to 80% of nominal cracking pressure

Type code VD X LZ.1/-BO-TA
(X nominal cracking pressure in the range 0.8 bar till 8 bar) (X values 0.8; 1.2; 1.5; 2; 5 and 8)
-input voltage: 24V AC/DC
-Max.operating pressure: 450 bar
-Cracking pressure Alarm: 88% to 105% of nominal cracking pressure
-Cracking pressure Warning: 63% to 80% of nominal cracking pressure

Type code VD X C.0/-TA-SO135
(X nominal cracking pressure in the range 0.8 bar till 8 bar) (X values 0.8; 1.2; 1.5; 2; 5 and 8)
-input voltage: 220V AC; 110 V DC
-Max.operating pressure: 400 bar
-Cracking pressure range: 0.8 bar to < 8bar= nominal pressure -10%; 8 bar =nominal pressure +/- 10%
-Switching capacity: 100 mA at 24V DC; ohmic 50 mA at 220 V AC
-Min.switching capacity: 10 mA at 6V AC/DC

Type code VM 5 C.0/-TA-30C
-input voltage: DC 24V
-Max.operating pressure: 210 bar
-Cracking pressure: 4.5 bar to 5.0 bar

Type code VD X LE.1/-TA
(X nominal cracking pressure in the range 0,8 bar till 8 bar) (X values 0.8; 1.2; 1.5; 2; 5 and 8)
-input voltage: 115V AC/DC
-Max.operating pressure: 450 bar
-Cracking pressure Alarm: 88% to 105% of nominal cracking pressure

Type code VD X C.0/-TA
(X nominal cracking pressure in the range 0.8 bar till 8 bar) (X values 0.8; 1.2; 1.5; 2; 5 and 8)
-input voltage: 250V AC; 24V DC
-Max.operating pressure: 400 bar
-Cracking pressure range: 0.8 bar to < 8bar = nominal pressure -10%;
8 bar = nominal pressure +/- 10%
-Switching capacity: ohmic 3A at 24V DC; ohmic 5A at 230 V AC
-Min.switching capacity: 20 mA at 24V AC/DC

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Marking of product

Hydac
Type designation (for example: VD5 C.0/-TA)
Max. voltage and schematic

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE