DNV·GL

Certificate No:
TAA00000AH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Switches

with type designation(s)
A, AA, B, BB, DA, DAA, DB, DBB, UXA, UXAA, UXB, UXBB, HA, HAA, HB, HBB, P, PV, M, MV

Issued to
Bachofen AG
USTER, Switzerland

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

Application :

Products are approved by this certificate are accepted for installations on all vessels classed by DNV GL.

Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**Not relevant**
Enclosure	**Type U: D, Type D: C. All other types: B**

This Certificate is valid until **2016-12-31**.

Issued at **Hamburg** on **2016-02-01**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Andrea Grün**

Duy Nam Le
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: **262.1-021004-1**
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Product description

Type: A, AA, B, BB, DA, DAA, DB, DBB, UXA, UXAA, UXB, UXBB, HA, HAA, HB, HBB, P, PV, M, MV with prefix 10, 30, 40

Flange type	Float type			
01 C				
21 C, E, V, N or L	01, 04, 041, 07, 08T1			
22 C, E, V, N or L	with or without suffix Gx (x=1, 2 or 3)			
31 C, E, V, N or L	140	050	081T1	090
32 C, E, V, N or L	141	051	082T1	091
41 C, E, V, N or L		052	083T1	092
42 C, E, V, N or L		053	084T1	093
		054		095

.A 01 04 or .P 01 04. and variations with rod extension facility
.A 01 041or .P01 041 and variations with fixed float module
Nominal pressure: PN 25 (flange 01), PN 40 DIN-flanges
Output: microswitch, 1 SPDT - max. contact rating 5 A, 250 V AC
Degree of protection: standard IP 65
Degree of protection DA: IP 67
Degree of protection UA: IP 68
P 01 04 pneumatic 3/2 way ON/OFF-valve, 0 - 10 bar
Density: standard 0.7 kg/dm³ ; 0.5 kg/dm³ and 0.8 kg/dm³ available
Float options: adjustable mech. switch differential, protective bellow

Test Standard

Guidelines for the Performance of Type Approvals VI-7-2, Edition 2012 for .A 01 04 or .P 01 04. and .A 01 041or .P01 041

Approval conditions

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.

Application/Limitation

Maximum liquid temperature:

Switch module	Temperature [°C]
Hx	400
Dx	120
Ux	80
All other types	330

For switches with float units 140 and 141:

a. The float stops are to be secured by split pins through the rod.
b. Guiding brackets for the vertical float rod is to be provided. The brackets are subject to approval in each case.
c. Gasket material is to be oil resistant.
d. For use in liquefied gas carriers, Materials and Material Certificates shall comply with DNV Rules for Ships Pt.5 Ch.5 Sec.2.

Type Approval documentation

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