

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pressure Indicator**with type designation(s)
DS11, DS21

Issued to

FISCHER Mess- und Regeltechnik GmbH
Bad Salzuflen, Nordrhein-Westfalen, Germanyis 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	A*
EMC	N/A
Enclosure	B (IP54)

Issued at **Hamburg** on **2019-06-03**This Certificate is valid until **2024-06-02**.
DNV GL local station: **Magdeburg**Approval Engineer: **Holger Jansen**

Digitally Signed By: Rinkel, Marco

for **DNV GL**

Location: Hamburg, on behalf of

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

Pressure Indicator and Switching Device

Type: DS11, DS21

Pressure indicator: 270° scale, Indicator class: 2.5

Ranges	Max. Static Pressure DS11 [DS21]
0 - 400 mbar	6 [6] bar
0 - 0.6 bar	10 [10] bar
0 - 1 bar	16 [16] bar
0 - 1.6bar; 0 - 2.5bar; 0 – 4bar; 0 – 6bar	25 [16] bar
0 - 10 bar [only DS11]	25 bar

Max. medium temperature:	70° C
Gasket and membrane:	NBR or Viton
Wetted parts:	1.4310, 1.4305
Pressure gauge:	GKAlSi 10(MgCu), with hart coat or 1.4305
Output:	2 c/o - contacts separate adjustable
Rating:	3A, 250 V AC, 250 VA
Electrical connection:	fixed cable, length 3m, type MPRX 0,6/1 (Nexans) or equivalent

Type DS21: identical technical data, gaskets and membrane = viton

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 Ships Pt.4 Ch.9 Control and Monitoring Systems.

A* Vibration test: 2 to 17 Hz amplitude = 1.6 mm,
17 to 100 Hz acceleration = 2g

Type Approval documentation

Data sheets: DS11, Rev.B 2014-08
DS21, Rev.B 2014-08
Drawings: DS11 Dwg.-no. 24855, Rev.d; 2019-02-13
DS11 Dwg.-no. 02.011.00.24857.3, Rev.e; 2018-02-06
DS21 Dwg.-no. 26023, Rev.g; 2019-02-15
DS21 Dwg.-no. 02.021.00.26067.3, Rev.h; 2018-02-12
DS11-DS21 Dwg.-no. 02.021.01.34017.3, Rev.a; 2011-02-08
Test reports: TÜV 57 011 7, 1982-06-04
Type Approval Assessment Report 2019-05-21

Tests carried out

Applicable tests according to DNV GL Class Guideline CG0339, November 2016.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Job Id: **262.1-030917-1**
Certificate No: **TAA00002BW**

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