

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Sample Gas Probe

with type designation(s)
GAS 222.15-MA

Issued to

Bühler Technologies GmbH
Ratingen, Nordrhein-Westfalen, 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	D
Humidity	B
Vibration	B
EMC	B
Enclosure	B (IP66)

Issued at **Hamburg** on **2019-09-17**

This Certificate is valid until **2024-09-16**.

DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Didier Girardin**

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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

GAS 222.15-MA Sample Gas Probe

The sample gas probe is intended for installation into gas analysis systems.

The probe is equipped with an outlet filter (filter inside the probe) and with self-regulated PTC heating cartridges as well as a temperature contact. When the operating temperature is reached, the contact switches and signals the unit is ready for use. The temperature contact can be a NC contact or a NO contact.

Technical Data:

Probe gas inlet temperature: max. 200 °C
Ambient temperature: -20 to +60 °C
Self-regulating heater: +180 °C
Low temperature alarm: Switching current max. 4 A (switch-back point < 140 °C)
Electrical data: 115/230 V, 50/60 Hz, 400 W

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.
- Each product delivery is to be supplied with related manual for installation, maintenance and use
- " GAS 222.15-MA " sample gas probe shall be installed, calibrated and operated in compliance with manufacturer's instructions.

Type Approval documentation

Test Reports:

Phoenix Testlab E181579E1 U190520E1 2nd version, U181579E1, S181579E1 2nd version

Installation and Operation Instructions BE460070 07/2019

Drawing No. 46/N56-Z01-01-2A, Rev. A, 09.07.2019

Tests carried out

Applicable tests according to DNV GL CG-0339, November 2016

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Job Id: **262.1-031372-1**
Certificate No: **TAA00002FW**

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