DNV·GL

Certificate No:
MRA000001X

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to

Lenord, Bauer & Co. GmbH

Oberhausen, Germany

for
Sensors

with type designation(s)
GEL 2475Y118; GEL 2475Y262

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Sensors

Intended service
Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.
Sensors intended for Speed measurement based on magnetic measurement principle.

Temperature [°C]:	**-25°C - +80°C**
Vibration:	**5-25Hz/± 1.6 mm - 25-40Hz/4g - 40-2000Hz/10g (without 600°C)**
EMC:	**General power distribution zone**
IP Code:	**IP66, IP68, IPX9**

This Certificate is valid until **2023-08-30**.

Issued at **Hamburg** on **2018-08-31**
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Heinz Scheffler**

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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Product description

The speed sensors based on magnetic measurement principle and is suitable for ferromagnetic measuring scale such as slotted disk.
The speed sensor is delivered in two types of executions:

- 1. GEL 2475Y118: Cable length 6 m
- 2. GEL 2475Y262: Cable length 12 m

Technical data:

- Power supply: 24 VDC
- Number of measuring systems: 2 channels, galvanically isolated
- Output signal: square-wave signals with voltage output signal
- Output frequenz: 0 to 8 kHz
- Phase shift: depends on geometry of target; distance between sensing elements: 10.5 mm
- Operating and ambient temperature: -25 °C to +85 °C
- Degree of protection: IP66, IP 68
- Housing material of sensor: stainless steel

Manufactured by

Lenord, Bauer & Co. GmbH
45966 Gladbeck
Germany

Application/Limitation

The Type Approval covers hardware listed under type designation.

Maximum operating and ambient temperature by +85 °C affects the life cycle significantly.

Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organizations.

Type Approval documentation

Name	Number	Date
Enviromental Test Report	U180411E1	14.06.2018
Enviromental Test Report	U180411E2	26.06.2018
EMC Test Report	E180411E1	10.07.2018
EOL Test	1810005570	24.04.2018
Documents List	180411	30.07.2018

Marking of product

The products to be marked with:

- Manufacturer name: Lenord + Bauer
- Country of origin: Germany
- Unique serial number: Ser.-Nr: xxxxx
- Model name:
  - GEL 2475Y118 (Lenord, Bauer & Co. GmbH) or PAAF475735 (Wärtsilä®)
  - GEL 2475Y262 (Lenord, Bauer & Co. GmbH) or PAAF475736 (Wärtsilä®)

Other Conditions

The Sensors have been verified for compliance with EU Mutual Recognition Technical Requirements for Sensors version 0.3, dated 2016-04-01.

Test parameters:

- Temperature: -25°C - +80°C
- Vibration: 5-25Hz/± 1.6 mm - 25-40Hz/4g - 40-2000Hz/10g (without 600°C)
- Humidity: 95%RH @ 55°C
- EMC: General power distribution zone
- Enclosure: IP66, IP 68, IPX9

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 annually and at renewal of this certificate.

END OF CERTIFICATE