DNV·GL

Certificate No:
**TAA00000T6**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Temperature Sensor**

with type designation(s)
**Resistance Thermometer GML-R,**
**Thermocouple GML-T,**
**Resistance Thermometer GML-RM**

Issued to
**Guenther Polska Sp. z o.o.**
**Wroclaw, Poland**

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.**

**Location classes:**

| Type | Temperature | Humidity | Vibration | EMC | Enclosure |
|---|---|---|---|---|---|
| **Resistance Thermometer GML-R** | **D** | **B** | **B** | **NA** | **B** |
| **Thermocouple GML-T** | **D** | **B** | **B** | **NA** | **B** |
| **Resistance Thermometer GML-RM** | **D** | **B** | **B** | **A** | **C** |

This Certificate is valid until **2021-10-26**.

Issued at **Høvik** on **2016-10-19**

for **DNV GL**

DNV GL local station: **Katowice**

Approval Engineer: **Nils Jarem**

**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.


© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-023869-2**
Certificate No: **TAA00000T6**

## Product description

Temperature sensors/transmitters:

GML-R RESISTANCE THERMOMETER
Maximum operating temperature: +550°C
Measuring insert: 1x Pt100, 2x Pt100, 1xPt1000, 2xPt1000, other resistance type
Connection: 2-wire, 3-wire or 4-wire-connection
Measuring tolerance: EN-60751 class A for 3- or 4-wire circuit, B for 2-, 3-, 4-wire circuit
Installation/nominal length: up to 800mm

GML-T THERMOCOUPLE
Maximum operating temperature: +1150°C
Element type: 1x or 2x NiCr-Ni/K, 1x or 2x Fe-CuNi/J, other acc. to EN-60584-1
Measuring tolerance: EN-60584-1 class 1
Installation/nominal length: up to 800mm

GML-RM RESISTANCE THERMOMETER
Temperature range: -50…+250°C (for construction without a head :..+400°C)
Measuring insert: 1x Pt100, 2x Pt100, 1xPt1000, 2xPt1000, other resistance type
Connection: 2-wire, 3-wire or 4-wire-connection
Measuring tolerance: EN-60751 class A for 3- or 4-wire circuit, B for 2-, 3-, 4-wire circuit
Installation/nominal length: up to 300mm
Integrated temperature transmitter with output signal 4..20mA: possible as an option

## Application/Limitation

The maximum length of the probes series GML-R and GML-T is 300mm except the probes dedicated for waste incinerator and other similar thermal processes where it is max 800mm.

## Approval conditions

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

## Type Approval documentation

## Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.
Exhaust gas temperature sensors with head C01 have been subjected to the extreme vibration strain test (10g strain from 40Hz to 2000Hz at a temperature +600°C) according to class guideline DNVGL-CG-0339, November 2015.

## Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

## 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