GÜNTHER GmbH
Temperaturmesstechnik

MarineTECH Series

According to guidelines
of Marine Classification Societies
Gemäß den Richtlinien der internationalen Schiffsklassifikations-Gesellschaften

Type Approval Certificate
Typgenehmigung
No. TAA0000T6

DNV·GL

Issue: November 2017

Guenther. Be better. Be TECH

GML-R Series

Resistance thermometer / Widerstandsthermometer

GML-R-01 GML-R-02 GML-R-03 GML-R-06

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GML-RM Series

Resistance thermometer / Widerstandsthermometer

GML-RM-07 GML-RM-08 GML-RM-09 GML-RM-10 GML-RM-11

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GML-T Series

Thermocouples / Thermoelemente

GML-T-01 GML-T-02 GML-T-03 GML-T-06 GML-T-04 GML-T-05

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Straight resistance thermometer

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +550°C. The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required.
Available with built-in transmitter.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Interchangeable measuring insert	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C Higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+550°C
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Protection tube diameter	standard Ø6- Ø12mm (other on request, max. Ø 22mm)
Material of protection tube	stainless steel no. 1.4571 (AISI 316 Ti) as standard, other on request (e.g. 1.4404, 1.4841)
Nominal length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of measuring insert	stainless steel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Straight resistance thermometer
GML-R-01 MarineTECH Series

Construction

1.Connection head


B


NA


BUZ


BUZH

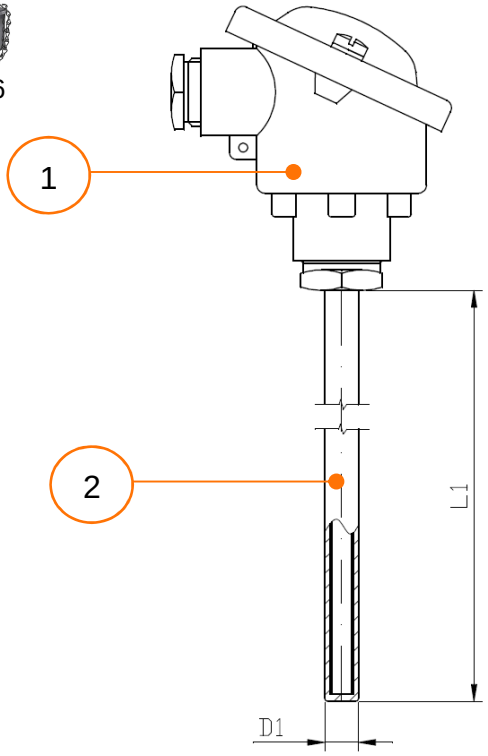

B05


B06

2. Installation part

Diameter: standard Ø6mm…Ø12mm

Length: 50..800mm



Drawing

L1 - Nominal length

Ø D1 - Protection tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

Compression fiting
Material: stainless steel
Sealing ring material:
stainless steel or teflon
e.g. G1/2”

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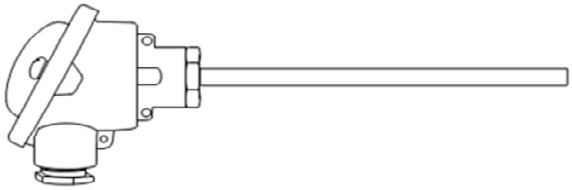

GML-R-01	-	75	-	1	-	12	-	2	-	10	-	100	/	

Type designations

Resistance thermometer with connection head (without process connection)

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Protection tube diameter (min Ø6mm, max Ø22mm) (ØD1)

6	6mm
8	8mm
9	9mm
10	10mm
11	11mm
….	other
22	22mm

Nominal length (L1)

xx	mm

Extra codes, one after the decimal

547	temperature transmitter Pr electronics 4…20mA (only for Pt100)

Example: Type **GML-R-01-75-1-12-2-10-100**

Resistance thermometer with connection head type B

1xPt100, 2-wire, accuracy: class B, diameter of protection tube: 10mm, nominal length: 100mm

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Screw-in resistance thermometer

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +550°C. The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required.
Available with built-in transmitter.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Interchangeable measuring insert	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C Higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+550°C
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Process connection	standard thread G1/2”, M20x1.5 (possible: G1/4”-G1”, M12x1-M27x2)
Protection tube diameter	standard Ø6- Ø12mm (other on request, max. Ø 22mm)
Material of protection tube	stainless steel no. 1.4571 (AISI 316 Ti) as standard, other on request (e.g. 1.4404, 1.4841)
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm)
Installation length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube and measuring insert	stainless steel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in resistance thermometer
GML-R-02 MarineTECH Series

Construction

1.Connection head

B NA BUZ BUZH B05 B06

2. Neck tube

Length 145mm, other on request

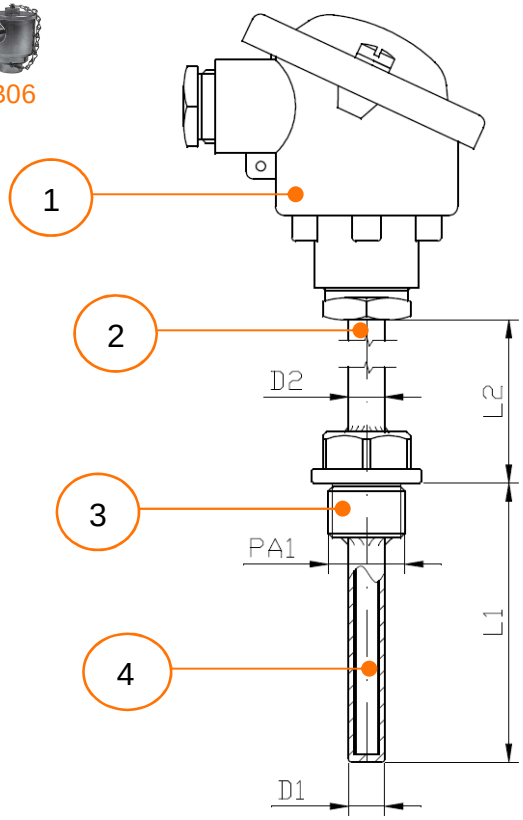
3. Process connection

Standard: G1/2", M20x1.5

4. Installation part

Diameter: standard Ø6mm…Ø12mm

Length: 50..800mm



Drawing

L1 - Installation length

L2 - Neck tube length

PA1 - Process connection

Ø D1 - Protection tube

Ø D2 - Neck tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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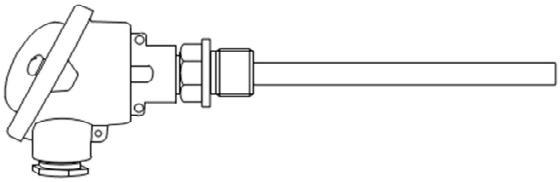

GML-R-02	-	75	-	1	-	12	-	2	-	10	-	100	-	G012	/	

Type designations

Screw-in resistance thermometer with connection head

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Protection tube diamter (min Ø6mm, max Ø22mm) (ØD1)

6	6mm
….	other
22	22mm

Installation length (L1)

xx	mm

Process connection (PA1)

G012	thread G1/2"
G034	thread G3/4"
MF20	thread M20x1.5
MF27	thread M27x2
….	other

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]
547	temperature transmitter Pr electronics 4…20mA (only for Pt100)

Example: Type **GML-R-02-75-1-12-2-10-100-G012**

Screw-in thermometer with head type B, 1x Pt100, 2-wire, class B, protection tube diameter: 10mm, installation length 100mm, G1/2" process connection

Screw-in resistance thermometer without protection tube

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +550°C. The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required. Most often for installation in existing pocket.
Available with built-in transmitter.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Interchangeable measuring insert	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C Higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+550°C
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Thermometer connection (to pocket)	thread M14x1.5, M18x1.5, M20x1.5, G1/2”
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm)
Installation length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube and measuring insert	stainless steel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in resistance thermometer without protection tube
GML-R-03 MarineTECH Series

Construction

1.Connection head


B


NA


BUZ


BUZH


B05


B06

2. Neck tube

Length 145mm, other on request

3. Thermometer connection to pocket

Thread M14x1.5, M18x1.5,
M20x1.5 or G1/2”

4. Installation part (spring loaded)

Insert diameter: standard Ø6mm
Length: 50..800mm

Drawing

L1 - Installation length
L2 - Neck tube length
PA1 - Process connection
Ø D1 - Protection tube
Ø D2 - Neck tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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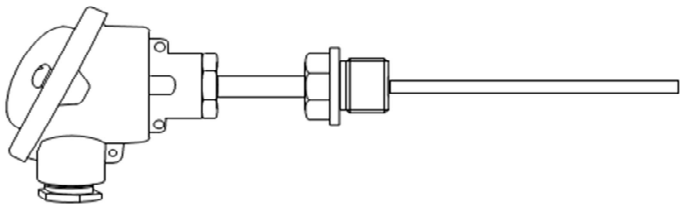

GML-R-03	- 75	- 1	- 12	- 2	- 6	- 100	- MF14	/ H145

Type designations

Screw-in resistance thermometer without protection tube

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Insert diameter (ØD1)

6	6mm	standard

Installation length to pocket (L1)

xx	mm

Thermometer connection (to pocket) (PA1)

G012	thread G1/2"
MF14	thread M14x1.5
MF18	thread M18x1.5
MF20	thread M20x1.5

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]
547	temperature transmitter 4…20mA PR electronics (only for Pt100)

Example: Type **GML-R-03-75-1-12-2-6-100-MF14/H050**

Screw-in resistance thermometer without protection tube with head type B

1x Pt100, 2-wire, accuracy class B, measuring insert Ø6mm, installation length to pocket: 100mm,

M14x1.5 thermometr connection (to pocket), neck pipe length: 145mm

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Screw-in resistance thermometer with additional pocket

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +550°C. The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required. Available with built-in transmitter.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Interchangeable measuring insert	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ItI), t=temperature in °C Class B ±(0.30 + 0.005 x ItI), t=temperature in °C Higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+550°C
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Thermometer connection (to pocket)	thread M14x1.5, M18x1.5, M20x1.5, G1/2”
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm)
Installation length (to pocket)	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube and measuring insert	stainless steel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Basic technical data for pocket:

Construction	welded version – standard, drilled on request
Pocket diameter	1.4571 standard, other on request
Protection tube diameter	Ø11mm standard, other on request
Thermometer connection	thread M14x1.5, M18x1.5, M20x1.5, G1/2”, other on request
Process connection	thread M20x1.5, G1/2” other on request
Installation length	50mm – 800mm (300mm for temperature of exhaust gases)

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in resistance thermometer with additional pocket
GML-R-06 MarineTECH Series

Construction

1.Connection head

B NA BUZ BUZH B05 B06

2. Neck tube

Length 145mm, other on request

3. Thermometer connection to pocket

Thread M14x1.5, M18x1.5, M20x1.5 or G1/2”

4. Spring loaded insert

Insert diameter: standard Ø6mm

5. Process connection

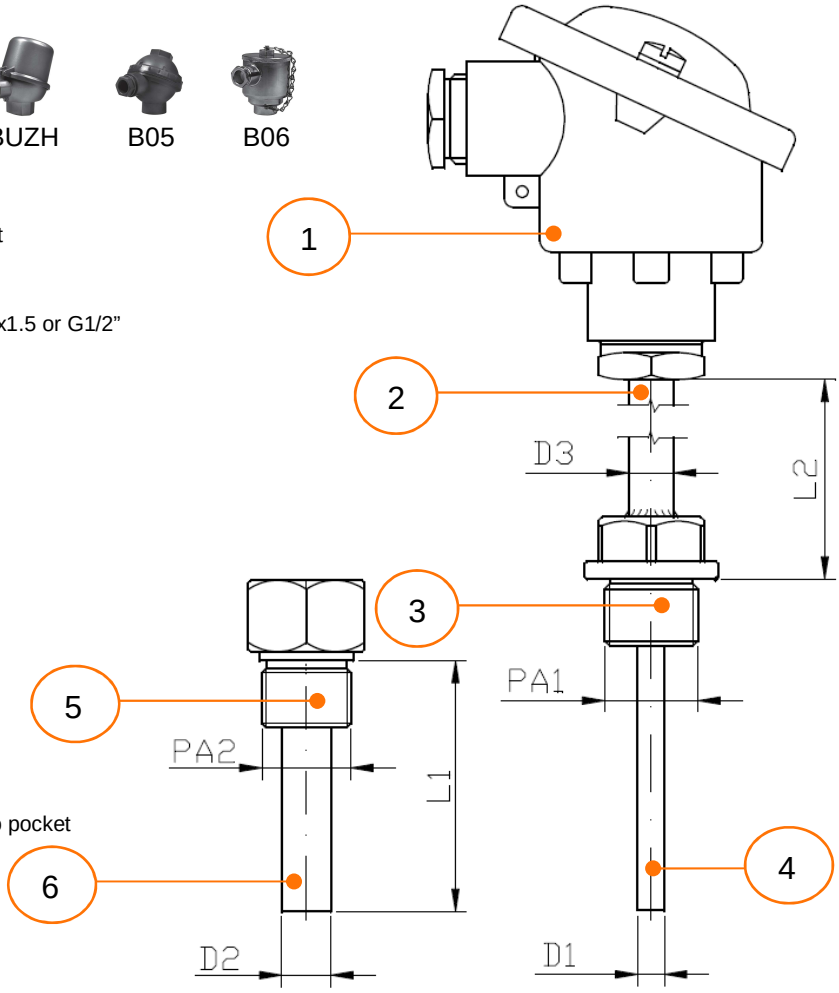
Standard M20x1.5 or G1/2”

6. Installation part

Diameter: standard 11mm

Length: 50…800mm

Drawing



L1 - Installation length

L2 - Neck tube length

PA1 - Thermometr connection to pocket

PA2 - Process connection

Ø D1 – Insert diameter

Ø D2 – Pocket diameter

Ø D3 – Neck tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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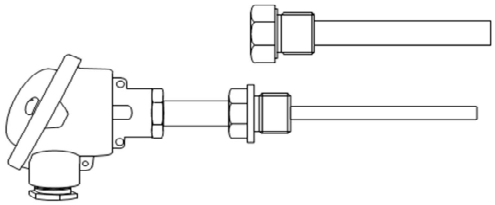

GML-R-06	- 75	- 1	- 12	- 2	- 11	- 100	- MF20 / H145

Type designations

Screw-in resistance thermometer with additional pocket

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Pocket diameter (ØD2)

11	11mm	standard, other on request

Installation length (L1)

xx	mm

Process connection (other thread on request) (PA2)

G012	thread G1/2"
MF20	thread M20x1.5

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]
547	temperature transmitter Pr electronics 4…20mA (only for Pt100)

Example: Type **GML-R-06-75-1-12-2-11-100-MF20/H145**

Screw-in resistance thermometer with additional pocket, with head type B

1x Pt100, 2-wire, accuracy class B, pocekt diameter: 11mm, installation length of pocket: 100mm,

Process connection: M20x1.5, neck tube length: 145mm

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Resistance thermometer with plug connector

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -50 up to +250°C.
The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required.
The sensors are made in technology resistant to shock and vibration. Optionally can be made with built-in temperature transmitter to convert resistance an analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Sensor	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C higher accuracy classes on request (AA (1/3B))
Measuring range	-50…+250°C
Electrical connection	plug-in connector according to EN 175301
Cable entry:	PG9
Process connection	standard: G1/4”, G1/2”, M20x1.5, other on request
Protection tube diameter	standard Ø6mm (other possible: Ø8mm, Ø9mm)
Material of protection tube	stainless steel (1.4571, 1.4404, 1.4301)
Neck tube (optional)	length 50mm, another on request
Material of neck tube	stainless steel
Installation length	50…300mm
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in resistance thermometer with additional pocket
GML-RM-07 MarineTECH Series

Construction

1.Connection

Plug-in connector
according to EN 175301

2. Neck tube (optional)

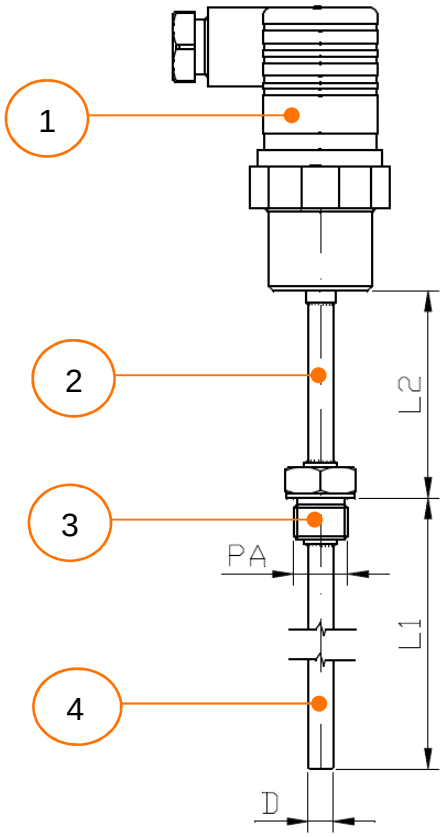
Length 50mm, other on request
with or without, depending on
requirement recommended for
temperature over 100°C

3. Process connection

Standard: G1/4", G1/2", M20x1.5
other on request

4. Installation part

Diameter: 6mm – 9mm
Length: min 50.. max 300mm



Drawing

L1 - installation length
L2 - neck tube length (if present)
PA - process connection
Ø D – protection tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP56 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ
- EMC – emmision (IEC 60533, IEC 61000-4) (for transmitter version)
- EMC – immunity (IEC 61000-4) (for transmitter version)

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)
CE

Options:

Built-in transmitter
Supply voltage: 7.5-32V DC
Output: 4-20mA

4..20mA

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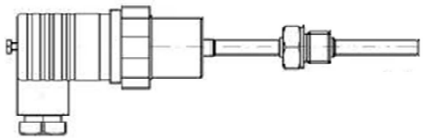


GML-RM-07	-	21	-	1	-	13	-	1	-	6	-	100	-	G012	/	

Type designations

Resistance thermometer with angle plug connector

Connection

21	angle plug connector
22	angle plug connector with transmitter 4..20mA (only Pt100)

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Protection tube diameter

6	6mm
8	8mm
9	9mm

Installation length

xx	mm

Process connection

G014	thread G1/4"
G012	thread G1/2"
MF20	thread M20x1.5
....	other
0	without thread

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]

Example:

Type **GML-RM-07-21-1-13-1-6-100-G012**

Screw-in thermometer with angle plug connector, 1x Pt100, 3-wire, class A, diameter 6mm, installation length 100mm, process conntection G1/2"

ver 11.17

Resistance thermometer with M12 connector

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -50 up to +250°C.
The temperature value is converted to resistance by the sensor Pt100 or Pt1000. The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required. The sensors are made in technology resistant to shock and vibration.
Optionally can be made with built-in temperature transmitter to convert resistance an analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermometer:

Sensor	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C higher accuracy classes on request (AA (1/3B))
Measuring range	-50…+250°C
Electrical connection	M12
Process connection	standard: G1/4”, G1/2”, M20x1.5, other on request
Protection tube diameter	standard Ø6mm (other possible: Ø8mm, Ø9mm)
Material of protection tube	stainless steel (1.4571, 1.4404, 1.4301)
Neck tube (optional)	length 50mm, another on request
Material of neck tube	stainless steel
Installation length	50…300mm
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in resistance thermometer with additional pocket
GML-RM-08 MarineTECH Series

Construction

1.Connection

M12 connector

2. Neck tube (optional)

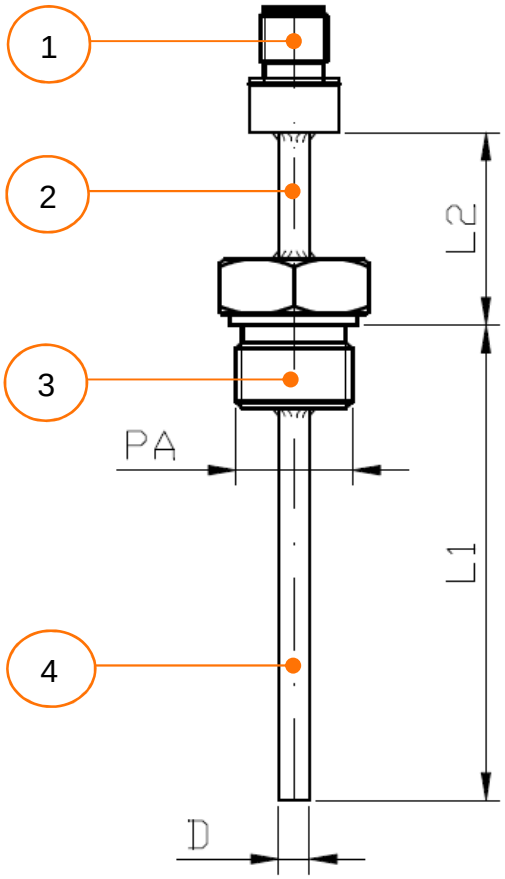
Length 50mm, other on request
with or without, depending on
requirement recommended for
temperature over 100°C

3. Process connection

Standard: G1/4", G1/2", M20x1.5
other on request

4. Installation part

Diameter: 6mm – 9mm
Length: min 50.. max 300mm



Drawing

L1 - Installation length
L2 - Neck tube length (if present)
PA - Process connection
Ø D – Protection tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP56 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ
- EMC – emmision (IEC 60533, IEC 61000-4) (for transmitter version)
- EMC – immunity (IEC 61000-4) (for transmitter version)

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)
CE

Options:

Built-in transmitter
Supply voltage: 7.5-32V DC
Output: 4-20mA

4..20mA

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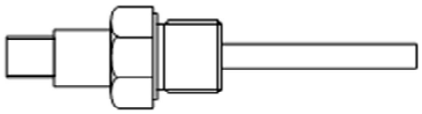


GML-RM-08	-	10	-	1	-	13	-	1	-	6	-	100	-	G012	/	

Type designations

Resistance thermometer with M12 connector

Connection

10	connector M12
20	connector M12 with transmitter 4..20mA (only Pt100)

Sensor option

1	1x
2	2x

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
24	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Protection tube diameter

6	6mm
8	8mm
9	9mm

Installation length

xx	mm

Process connection

G014	thread G1/4"
G012	thread G1/2"
MF20	thread M20x1.5
....	other
0	without thread

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]

Example:

Type **GML-RM-08-10-1-13-1-6-100-G012**

Screw-in thermometer with M12 connector, 1x Pt100, 3-wire, class A, diameter 6mm, installation length 100mm, process conntection G1/2"

ver 11.17

Outdoor/indoor temperature sensor

Temperature sensors are designed to measure air temperature. Guarantee protection of sensor: IP65.
The temperature value is converted to resistance by the sensor Pt100 or Pt1000 or other on request.
The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required. The sensors are made in technology resistant to shock and vibration.

Optionally can be made with built-in temperature transmitter to convert resistance an analog signal to 4..20mA.

Basic technical data for thermometer:

Sensor	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+80°C
Housing	65x60x37mm, polyamide
Cable entry	PG7
Protection tube	28mm, tapered, stainless steel
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Resistance thermometer – outdoor/indoor temperature sensor
GML-RM-09 MarineTECH Series

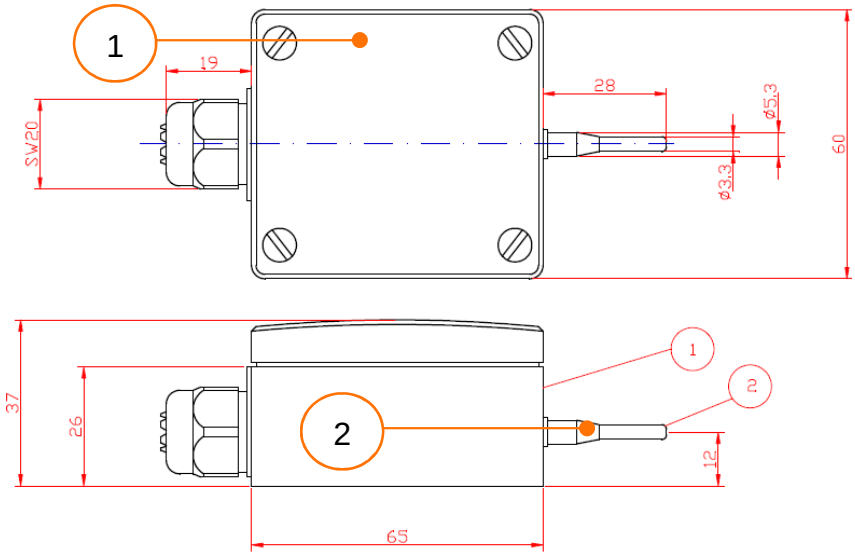
Construction / Drawing

1.Housing

Polyamide, protection class: IP65

2. Protection tube

Stainless steel, L=28mm, tapered



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP56 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Builit-in temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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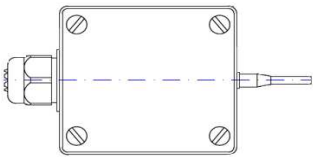


GML-RM-09	-	13	-	1	-	5.3	-	28	/	

Type designations

Resistance thermometer - outdoor/indoor temperature sensor

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
56	2x Pt100, 3-wire
67	2x Pt100, 4-wire

Accuracy

1	class A
2	class B

Protection tube diameter

5.3	5.3 tapered to 3.3mm (standard)
…….	other on request
-	without protection tube

Protection tube length

28	28mm (standard)
……	other on request

Extra codes, one after the decimal

547	temperature transmitter 4…20mA PR electronics (only for Pt100)

Example:

Type **GML-RM-09-13-1-5.3-28**

Resistance thermometer - outdoor/indoor temperature sensor, 1x Pt100, 3-wire, class A, protection tube diameter 5.3mm tapered to 3.3mm, length 28mm

ver 11.17

Duct temperature sensor

Our sensors measures air flow temperature in duct work areas. The sensor is supplied with 100mm length probe and an IP65 enclosure which is screwed close to protect the sensor from exposure to conditions within the duct work. The temperature value is converted to resistance by the sensor Pt100 or Pt1000 or other on request.
The connection can be carried out in a 2-wire or 3-, 4- wire circuits as required. The sensor s are made in technology resistant to shock and vibration.

Optionally can be made with built-in temperature transmitter to convert resistance an analog signal to 4..20mA

Basic technical data for thermometer:

Sensor	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C higher accuracy classes on request (AA (1/3B))
Measuring range	-25…+80°C
Housing	65x60x37mm, polyamide
Cable entry	PG7
Protection tube	Ø6 x 100mm, stainless steel
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Resistance thermometer – duct temperature sensor
GML-RM-10 MarineTECH Series

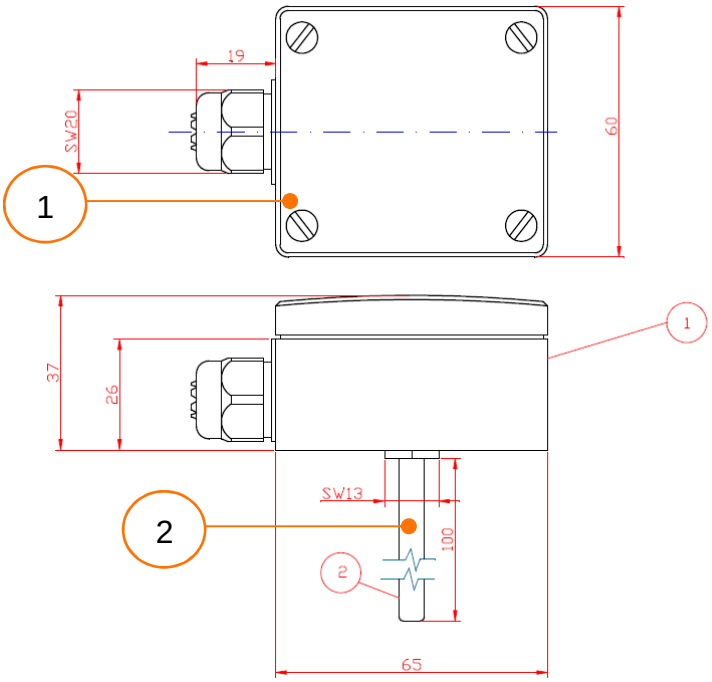
Construction / Drawing

1.Housing

Polyamide, protection class: IP65

2. Protection tube

Stainless steel, L=28mm, tapered



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP56 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Builit-in temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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GML-RM-10	-	13	-	1	-	6	-	100	/	

Type designations

Resistance thermometer - duct temperature sensor

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire

Accuracy

1	class A
2	class B

Protection tube diameter

6	6mm (standard)
…….	other on request

Protection tube length

100	100mm (standard)
……	other on request

Extra codes, one after the decimal

547	temperature transmitter 4…20mA PR electronics (only for Pt100)

Example:

Type **GML-RM-10-13-1-6-100**

Resistance thermometer - duct temperature sensor, 1x Pt100, 3-wire, class A, protection tube: 6x100mm

ver 11.17

Cable resistance thermometer

Cable sensors are designed to measure the temperature of liquid and gaseous media. Due to its construction, in particular, the materials used, the sensors can be used to a temperature in the range -50 to +260°C. There is a possibility to produce sensors with various measuring elements: Pt100, Pt1000 or Ni1000-LG.
For installation of sensors are available additional accessories as flanges, mounting threads. In the case of use with pocket to improve contact can be used optional thermal paste.

Basic technical data for thermometer:

Sensor	1x Pt100, 2x Pt100, 1x Pt1000, 2x Pt1000
Connection	2-wire, 3-wire or 4-wire
Accuracy	EN 60751 Class A ±(0.15 + 0.005 x ltl), t=temperature in °C Class B ±(0.30 + 0.005 x ltl), t=temperature in °C higher accuracy classes on request (AA (1/3B))
Measuring range	PVC cable -5 ..+105°C Silicon cable -50 ..+180°C Teflon PFA cable -50..+260°C
Protection tube diameter	Diameter 6mm Length: 50mm, 80mm, 100mm, other on request
Material of protection tube	Stainless steel
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Cable resistance thermometer
GML-RM-11 MarineTECH Series

Construction

1. Cable

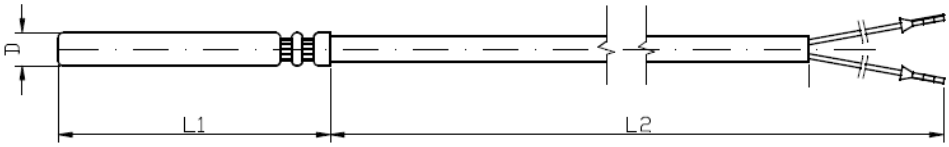
PVC, silikon, teflon PFA
other on request

2. Sensor in protection tube

Stainless steel, diameter Ø6
Length by type

Drawing

D - Diameter
L1 - Protection tube length
L2 - Cable length



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP56 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >100mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

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GML-RM-11	-	13	-	1	-	6	-	50	-	1.5	-	ES	/	

Type designations

Cable resistance thermometer

Measuring insert

12	Pt100, 2-wire
13	Pt100, 3-wire
14	Pt100, 4-wire
22	Pt1000, 2-wire
23	Pt1000, 3-wire
23	Pt1000, 4-wire

Accuracy

1	class A
2	class B

Protection tube diameter

6	6mm (standard)
…….	other on request

Protection tube length

50	50mm (standard)
80	80mm
100	100mm
……	other on request

Cable length

1.5	1500mm
……	other on request

Cable insulation

ES	teflon/silikon
ECE	teflon FEP /metal braid/teflon FEP
ASA	teflon PFA/silikon/teflon PFA
……	other on request

Extra codes, one after the decimal

Example:

Type **GML-RM-11-13-1-6-50-1.5-ES**

Cable resistance thermometer, 1x Pt100, 3-wire, class A, protection tube: 6x50mm, 1.5 meters cable in teflon/silikon insulation

Straight thermocouple

The straight thermocouple are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used measure to temperature in the range of -25 up to +1000°C Optionally can be made with temperature transmitter to convert emf to analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermocouple:

Interchangeable measuring insert	NiCr-Ni/K, Fe-CuNi/J
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xItI), t=temperature in °C
Measuring range	-25…1000°C (up to +700˚C for type J)
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Protection tube diameter	standard Ø6- Ø22mm (other on request, max. Ø 22mm)
Material of protection tube	stainless steel no. 1.4571 (AISI 316 Ti) as standard, other on request (e.g. 1.4404, 1.4841)
Nominal length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of measuring insert	2.4816 Inconel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Straight thermocouple
GML-T-01 MarineTECH Series

Construction

1.Connection head


B


NA


BUZ


BUZH


B05

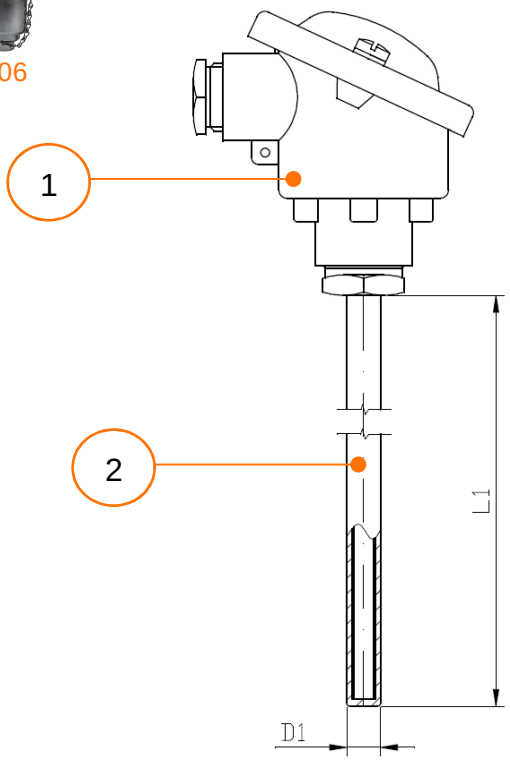

B06

2. Installation part

Diameter: standard

Ø6mm…Ø12mm

Length: 50..800mm



Drawing

L1 - Nominal length

Ø D1 – Protection tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

Compression fiting
Material: stainless steel
Sealing ring material:
stainless steel or teflon
e.g. G1/2”

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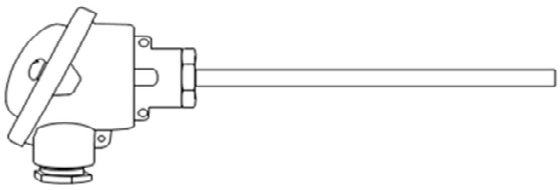

GML-T-01	-	75	-	1	-	K	-	1	-	10	-	100	/	0

Type designations

Thermocouple with connection head (without process connection)

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K
J	Fe-CuNi/J

Accuracy

1	class 1

Protection tube diameter (min Ø6mm, max Ø22mm) (ØD1)

6	6mm
8	6mm
9	6mm
10	6mm
11	6mm
….	other
22	22mm

Nominal length (L1)

mm	xx

Extra codes, one after the decimal

549	temperature transmitter 4…20mA PR electronics

Example:

Type **GML-T-01-75-1-K-1-10-100**

Thermocouple with connection head type B

1x NiCr-Ni/K, accuracy: class 1, diameter of protection tube 10mm, nominal length 100mm

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Screw-in thermocouple

The screw-in thermocouple are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +1000°C. Optionally can be made with temperature transmitter to convert emf to analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermocouple:

Interchangeable measuring insert	NiCr-Ni/K, Fe-CuNi/J
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xItI), t=temperature in °C
Measuring range	-25…1000°C (up to +700˚C for type J)
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Process connection	standard thread G1/2”, M20x1.5 (possible: G1/4”-G1”, M12x1-M27x2)
Protection tube diameter	standard Ø6- Ø12mm (other on request, max. Ø 22mm)
Material of protection tube	stainless steel no. 1.4571 (AISI 316 Ti) as standard, other on request (e.g. 1.4404, 1.4841)
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm)
Installation length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube / measuring insert	stainless steel / 2.4816 Inconel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in thermocouple
GML-T-02 MarineTECH Series

Construction

1.Connection head

B NA BUZ BUZH B05 B06

2. Neck tube

Length 145mm, other on request

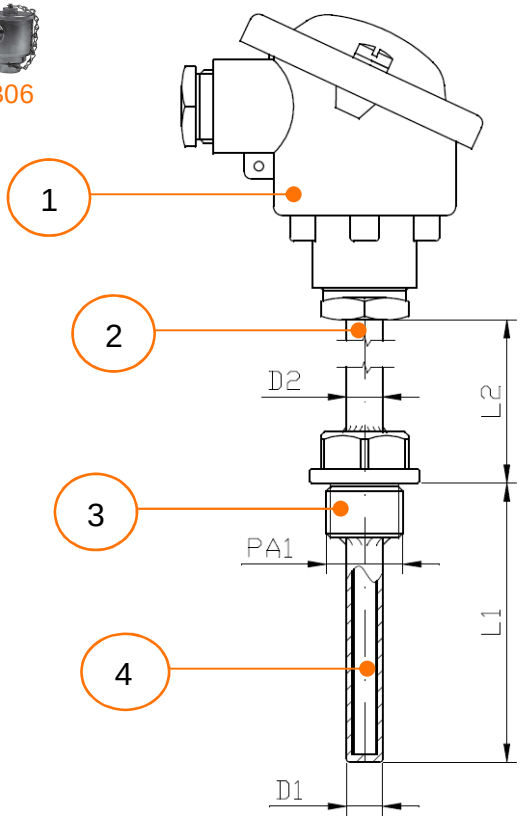
3. Process connection

Standard: G1/2", M20x1.5

4. Installation part

Diameter: standard Ø6mm…Ø12mm

Length: 50..800mm



Drawing

L1 - Installation length

L2 - Neck tube length

PA1 - Process connection

Ø D1 – Protection tube diameter

Ø D2 – Neck tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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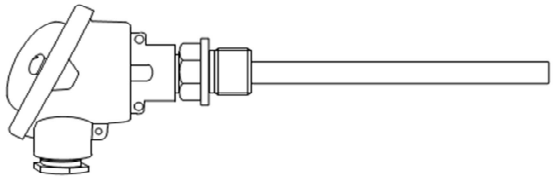

GML-T-02	- 75	- 1	- K	- 1	- 9	- 100	- G012	/

Type designations

Screw-in thermocouple with connection head

Connection head

30	VA(BEG), stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	polyamide head

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K
J	Fe-CuNi/J

Accuracy

1	class 1

Protection tube diameter (min Ø6mm, max Ø22mm) (ØD1)

6	6mm
8	8mm
9	9mm
…..	other
22	22mm

Installation length (L1)

xx	mm

Process connection (PA1)

G012	thread G1/2"
G034	thread G3/4"
MF20	thread M20x1.5
MF27	thread M27x2
….	other

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]
549	temperature transmitter 4…20mA PR electronics

Example:

Type **GML-T-02-75-1-K-1-9-100-G012**

Screw-in thermocouple with connection head type B

1x NiCr-Ni/K, accuracy: class 1, diameter 9mm, installation length 100mm, G1/2" process connection

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Screw-in thermocouple without protection tube

The screw-in thermocouple are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +1000°C. Most often for installation in existing pocket.
Optionally can be made with temperature transmitter to convert emf to analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermocouple:

Interchangeable measuring insert	NiCr-Ni/K, Fe-CuNi/J
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xItI), t=temperature in °C
Measuring range	-25…1000°C (up to +700˚C for type J)
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Sensor connection (to pocket)	thread M14x1.5, M18x1.5, M20x1.5, G1/2”
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm
Installation length	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube / measuring insert	stainless steel / 2.4816 Inconel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in thermocouple without protection tube
GML-T-03 MarineTECH Series

Construction

1.Connection head


B


NA


BUZ


BUZH


B05


B06

2. Neck tube

Length 145mm, other on request

3. Sensor connection to pocket

Thread M14x1.5, M18x1.5,
M20x1.5 or G1/2”

4. Installation part (spring loaded)

Insert diameter: standard Ø6mm
Length: 50..800mm

Drawing

L1 - Installation length
L2 - Neck tube length
PA1 - Process connection
Ø D1 - Protection tube diameter
Ø D2 - Neck tube diameter

Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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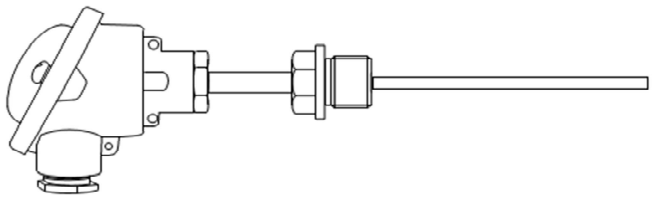

GML-T-03	- 75	- 1	- K	- 1	- 6	- 100	- MF14	/ H145

Type designations

Screw-in thermocouple without protection tube

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K
J	Fe-CuNi/J

Accuracy

1	class 1

Insert diameter (ØD1)

6	6mm	standard

Installation length to pocket (L1)

xx	mm

Thermocouple connection (to pocket) (PA1)

G012	thread G1/2"
MF14	thread M14x1.5
MF18	thread M18x1.5
MF20	thread M20x1.5

Extra codes, one after the decimal

H050	H, xxx - neck pipe length in [mm]
549	temperature transmitter 4…20mA PR electronics

Example:

Type **GML-T-03-75-1-K-1-6-100-MF14/H145**

Screw-in thermocouple without protection tube with connection head type B

1x NiCr-Ni/K, accuracy: class 1, measuring insert: 6mm, installation length: 100mm,

M14x1.5 thermometr connection (to pocket), neck pipe length: 145mm

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Screw-in thermocouple with additional pocket

The resistance thermometers are designed to measure the temperature of liquid (cooling water, sea water, oil, fuel) or gaseous media, due to its construction, in particular used materials, the sensors can be used to measure temperature in the range of -25 up to +1000°C. Optionally can be made with temperature transmitter to convert emf to analog signal to 4..20mA.
Robust design to meet the requirements of marine applications.

Basic technical data for thermocouple:

Interchangeable measuring insert	NiCr-Ni/K, Fe-CuNi/J
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xItI), t=temperature in °C
Measuring range	-25…1000°C (up to +700˚C for type J)
Connection head (with screw terminals)	form B, NA, BUZH (aluminum), resistant to maritime conditions form B05 (polyamide) form B06 (stainless steel)
Cable entry	M20x1.5
Sensor connection (to pocket)	thread M14x1.5, M18x1.5, M20x1.5, G1/2”
Neck tube	length 145mm, standard diameter Ø11mm, another on request (Ø6mm-Ø22mm, length 50-200mm)
Installation length (to pocket)	50mm – 800mm (max 300mm for temperature of exhaust gases)
Material of neck tube / measuring insert	stainless steel / 2.4816 Inconel
Mineral-insulated insert diameter	min. Ø 2mm, max Ø 6mm (standard Ø 6mm)
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6**

Basic technical data for pocket:

Construction	welded version – standard, drilled on request
Pocket diameter	1.4571 standard, other on request
Protection tube diameter	Ø11mm standard, other on request
Sensor connection	thread M14x1.5, M18x1.5, M20x1.5, G1/2”
Process connection	thread M20x1.5, G1/2” other on request
Installation length	50mm – 800mm (300mm for temperature of exhaust gases)

Sensor has been designed and control in accordance with the DNV GL requirements

Screw-in thermocouple with additional pocket
GML-T-06 MarineTECH Series

Construction

1.Connection head

B NA BUZ BUZH B05 B06

2. Neck tube

Length 145mm, other on request

3. Sensor connection to pocket

Thread M14x1.5, M18x1.5, M20x1.5 or G1/2”

4. Spring loaded insert

Insert diameter: standard Ø6mm

5. Process connection

Standard M20x1.5, G1/2”

6. Installation part

Diameter: standard 11mm

Length: 50…800mm

Drawing

L1 - Installation length

L2 - Neck tube length

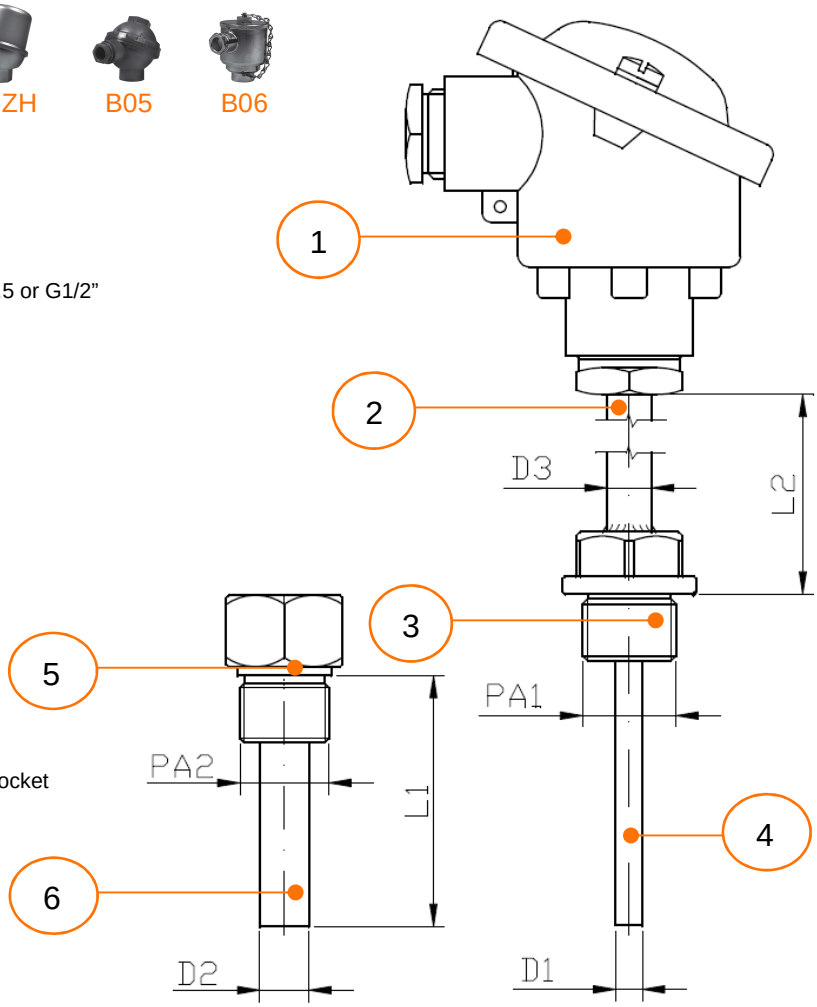
PA1 - Thermometr connection to pocket

PA2 - Process connection

Ø D1 – Insert diameter

Ø D2 – Pocket diameter

Ø D3 – Neck tube diameter



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6)
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Temperature transmitter
Supply voltage: 8 - 35V DC
Output: 4 - 20mA
DNV-GL approval

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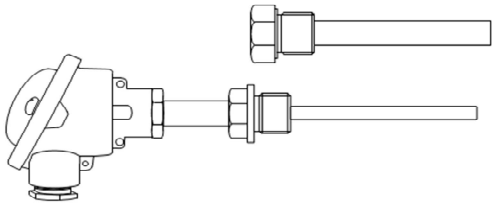

GML-T-06	- 75	- 1	- K	- 1	- 11	- 100	- MF20	/ H145

Type designations

Screw-in thermocouple with additional pocket

Connection head

30	B06, stainless steel
55	NA, alu, resistant to maritime conditions
75	B, alu, resistant to maritime conditions
85	BUZH, alu, resistant to maritime conditions
90	B05, polyamide head

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K
J	Fe-CuNi/J

Accuracy

1	class 1

Pocket diameter (ØD2)

11	11mm	standard, other on request

Installation length (L1)

xx	mm

Process connection (other thread on request) (PA2)

G012	thread G1/2"
MF20	thread M20x1.5

Extra codes, one after the decimal

Hxxx	H, xxx - neck pipe length in [mm]
549	temperature transmitter 4…20mA PR electronics

Example: Type **GML-T-06-75-1-12-2-11-100-MF20/H145**

Screw-in thermocouple with additional pocket, with head type B

1x NiCr-Ni/K, accuracy: class 1, pocket diameter: 11mm, installation length: 100mm,

Process connection: M20x1.5, neck tube length: 145mm

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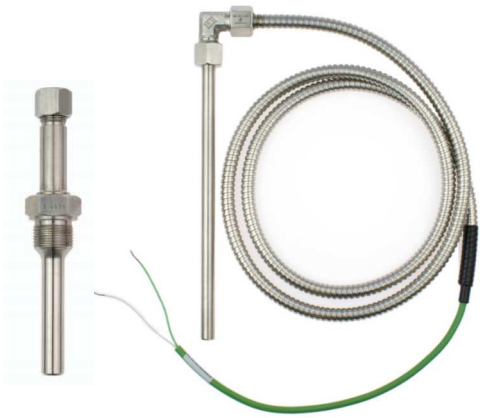


Thermocouple to measure the temperature of exhaust gases

Extreme operating temperatures and high vibrations generated in the exhaust gas pipes require a very robust design.
Our solutions can be fully customized and have already proven themselves countless times in generators, turbines and compressors for example.

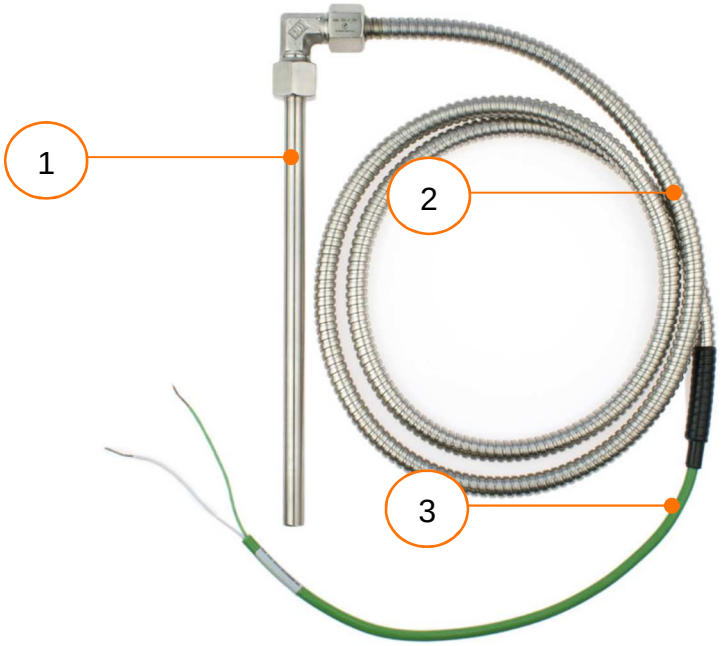
Basic technical data for thermocouple:

Thermocouple type	NiCr-Ni/K
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xltl), t=temperature in °C
Measuring range	0…800°C
Compesation cable	cable in flexible stainless steel conduit (Peshel)
Protection tube diameter	standard Ø9.5mm (other possible: Ø10mm)
Material of protection tube	stainless steel 1.4571 / 1.4404
Accessories	Drilled protection tube, material: 1.4571 – to order separatly
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6** **10g frequency range 40-2000Hz**

Sensor has been designed and control in accordance with the DNV GL requirements

Thermocouple with angle connector
GML-T-04 MarineTECH Series

Construction



1. Immersion part

Diameter: standard 9.5mm

2. Cable protection

Stainless steel conduit

3. Compensation cable

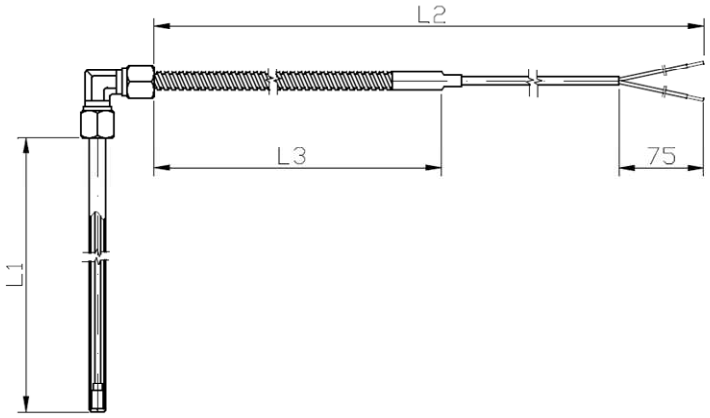
Teflon/silicon 2x0.50mm²

Drawing

L1 - Nominal length

L2 - Cable length

L3 - Conduit length



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6), 10g 40-2000Hz
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Protection tube
Material: 1.4571 /1.4404

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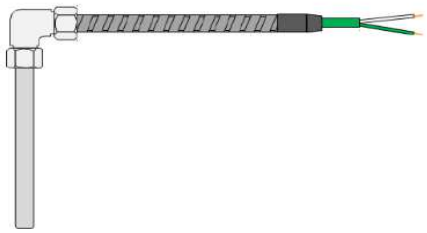

GML-T-04	-	91	-	1	-	K	-	1	-	9.5	-	100	/	P2

Type designations

Thermocouple with angle connector

Connection

91	angle connecor, resistant to martime conditions

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K

Accuracy

1	klasa 1

Protection tube diameter:

12/8	12mm x 50mm and next 8mm
10	10mm all along
9.5	9.5mm all along
8	8mm all along

Nominal length (L1)

100	100mm
……	other [mm] (limit: 300mm)

Extra codes, one after the decimal (L2, L3)

Px	where x is the length of cable in flexible stainless steel conduit (Peshel) in [m]
Cx	where x is the length of cable in [m]

Example: Type **GML-T-04-91-1-K-1-9.5-100/P2**

Thermocouple with angle connector, 1x NiCr-Ni/K, accuracy: class 1,

diameter 9.5mm, nominal length 100mm, 2 meters cable in stainless steel conduit

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Thermocouple to measure the temperature of exhaust gases

Extreme operating temperatures and high vibrations generated in the exhaust gas pipes require a very robust design.
Our solutions can be fully customized and have already proven themselves countless times in generators, turbines and compressors for example.

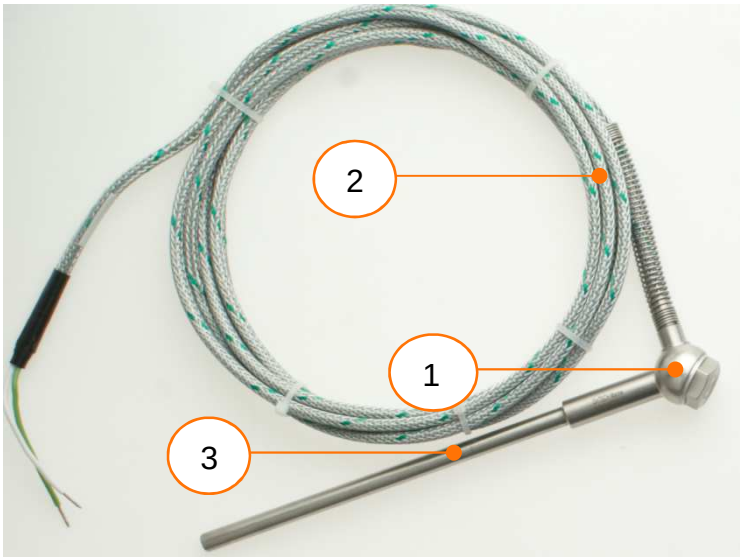
Basic technical data for thermocouple:

Thermocouple type	NiCr-Ni/K
Multiplicity	single (1x), double (2x)
Accuracy	EN 60584 Class 1 -25°C..+375°C ±1.5°C, +375°C..+1000°C ±(0.0040 xItI), t=temperature in °C
Measuring range	0…800°C
Compesation cable	silicon/silicon/metal braid
Protection tube diameter	Ø12x50mm and next 8mm (standard), 8mm-9.5mm-10mm all allong optional)
Material of protection tube	stainless steel 1.4571
Accessories	drilled protection tube, material 1.4571 – to order separatly
Additional option	inspection hole for reference thermocouple
High vibration resistance	**4g frequency range 2-100Hz, tested acc. to IEC 60068-2-6** **10g frequency range 40-2000Hz**

Sensor has been designed and control in accordance with the DNV GL requirements

Thermocouple with spherical head
GML-T-05 MarineTECH Series

Construction



1. Head

Spherical,
as a option with a inspection hole
for reference thermocouple

2. Compensation cable

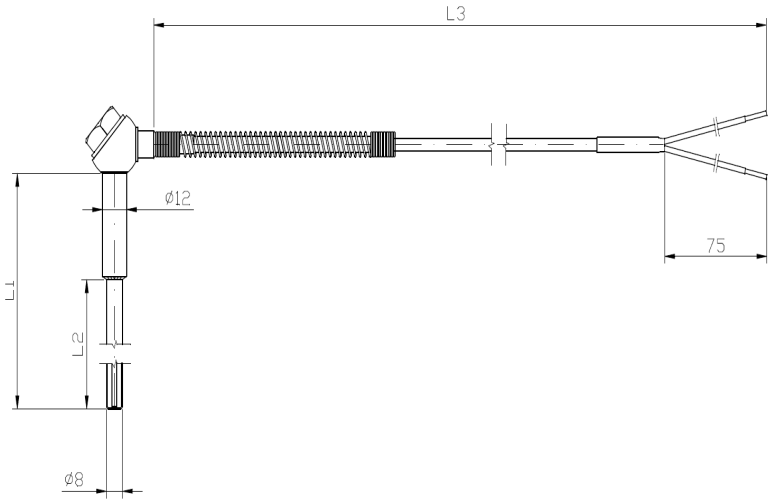
Silicon/silicon/metal braid, 2x0.75mm²

3. Installation part

Diameter: standard 8.0mm

Drawing

L1 - Nominal length
L2 - Ø 8mm part length
L3 - Cable length



Mechanical and environmental specifications:

- Ambient temperature: -25°C..85°C (Climatic tests: IEC 60068-2-2, IEC 60068-2-1, IEC 60068-2-30)
- Salt resistance (tested acc. to IEC 60068-2-52)
- Vibration resistance: 4g/2-100Hz (IEC 60068-2-6), 10g 40-2000Hz
- IP protection: ≥IP54 (IEC 60529)
- Insulation of resistance 500V DC, 20°C, >1000mΩ

Approvals:

DNV GL (Type Approval Certificate No. TAA0000T6)

Options:

Protection tube
Material: 1.4571 /1.4404

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GML-T-05	-	92	-	1	-	K	-	1	-	9.5	-	100	/	C2

Type designations

Thermocouple with spherical head

Connection

92	spherical head , resistant to martime conditions

Sensor option

1	1x
2	2x

Measuring insert

K	NiCr-Ni/K

Accuracy

1	klasa 1

Protection tube diameter

12/8	12mm x 50mm and next 8mm (standard)
10	10mm all along
9.5	9.5mm all along
8	8mm all along

Nominal length (L1)

100	100mm
……	other [mm] (limit: 300mm)

Extra codes, one after the decimal

Cx	where x is the length of cable in [m]

Example: Type **GML-T-05-92-1-K-1-9.5-100/C2**

Thermocouple with spherical head, 1x NiCr-Ni/K, accuracy: class 1,

diameter 9.5mm, nominal length 100mm, cable 2 meters

ver 11.17