

TYPE EXAMINATION CERTIFICATE

This is to certify:**That the Thermometer**

with type designation(s)

TSCh, TSChG, TSChg, TSChgG, TAS, TFCh, TFChG, TFChgG, TAF

Issued to

**Manotherm Beierfeld GmbH Druck- und
Temperaturmeßtechnik
Grünhain-Beierfeld, Germany**

is found to comply with

**DNV GL class guideline DNVGL-CG-0339 – Environmental test specification for electrical,
electronic and programmable equipment and systems****Application :****Thermometer types according to DIN EN 13190**Issued at **Hamburg** on **2017-10-06**This Certificate is valid until **2022-10-05**.for **DNV GL**DNV GL local station: **Essen**Approval Engineer: **Guido Friederich**

**Olaf Drews
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 Examination Certificate and not to the approval of equipment/systems installed.



Product description

Gas actuated thermometer with nitrogen filled measuring system.
Technical conformity according to EN 13190.

Types and additional technical data, range of application and test standard, based on
DNV GL Class Guideline, DNVGL-CG-0339 " Environmental test specification for electrical, electronic and
programmable equipment and systems".

Data Sheets	Type [T..NG]		Case Configuration		Amb. Temperature		Vibration Test	Stem				
	Base Type	NG case Ø			DNV GL CG-0339 Class	Dry heat/cold test range	DNV GL CG-0339 Class	Connection and types				
8201 03/17	TSCh	63	Bayonet ring case	without damping	D	-40°C / +60°C	A	rigid mount stem with neck tube TSch-Stem types A1 A3 A4 A4.1 A5 A6 TAS Stem types A1.5 A5.5 A3.5				
		100										
		160										
	TSChG	63		with dampening fluid	B	-20°C / +60°C	B					
		100										
		160										
82020 03/17	TSChg	63	Crimped- on ring case	without damping	D	-40°C / +60°C	A					
		80										
		100		with dampening fluid			B	-20°C / +60°C	B			
		160										
	TSChgG	63			B	-20°C / +60°C				B		
		80										
8291 03/17	TAS	63		B	-20°C / +60°C	B.2 increased						
		80										
		100										
		160										
	8221 03/17	TFCh	63	Bayonet ring case	without damping	D	-40°C / +60°C	A	with capillary line mount stem TFCh-Stem types A1 A2 A3 A4 A5 A6 A7			
			100									
160												
TFChG		63	with dampening fluid		B	-20°C / +60°C	B					
		100										
		160										
8222 03/17	TFChg	63	Crimped- on ring case	without damping	D	-40°C / +60°C	A					
		80										
		100		with dampening fluid			B	-20°C / +60°C	B			
		160										
	TFChgG	63			B	-20°C / +60°C					B	
		80										
8292 03/1	TAF	63			B	-20°C / +60°C	B.2 increased	TAF Stem-types A1.5 A5.5 A3.5				
		80										
		100										

Application/Limitation

Technical Data	Conformities / Teststandards
Measuring ranges	Ranges from 80 K to 600 K / Temperatures in °C; °F
Accuracy class	Double scale and others
Protection class	1 / DIN EN 13190
Humidity class	IP 65 / IEC 60529
Salt mist resistance	DNVGL-CG-0339, Section 3, Class B, Item 8.3
Fluids	Proved, based on DNVGL-CG-0339, Section 3, Item 10
Wetted parts	Fluids and media that will not damage the wetted parts and obstruct the measuring system
Part in contact with the environment	Temperature stem, process connection
	Case, neck tube or capillary line (depending on type)

Remark:

The selection of the thermometers for the corresponding service conditions (temperature, type of flowing media) as well as the proper assembly and installation is to be carried out in accordance with the instructions of the manufacturer.

Limitation

The types TFCh, TFChg, TSCh and TSChg may not be used for adverse conditions where high pulsation or vibration exists.

Type Examination documentation

- Data sheet nos.: 8222-03/17 ; 8291-03/17 ; 8292-03/17

Tests carried out

- Vibration test (according to DNVGL-CG-0339)
- Salt mist test (according to DNVGL-CG-0339)
- Humidity test (according to DNVGL-CG-0339)
- Ambient temperature: Dry heat and cold test (according to DNVGL-CG-0339)
- Temperature measurement in accordance with DIN EN 13190

Marking of product

Each thermometer is to be marked in accordance with EN 13190

The identification marking will include the following:

- Manufacturers name or trade mark
- Individual serial number
- Temperature range
- Unit of temperature
- Accuracy class

Certificate Retention Survey

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out.



Job Id: **262.1-025992-1**
Certificate No: **TAP000013X**

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

END OF CERTIFICATE