ENGINEERING TOMORROW

Data Sheet

Temperature sensor Type **MBT 5111**

For measuring exhaust gas in stationary and marine applications

The MBT 5111 is a heavy-duty temperature sensor that can be used for measuring and regulating exhaust gas from diesel engines, turbines and compressors within stationary and marine applications.

This temperature sensor is based on a type K thermo couple, which measures temperatures up to 800 °C. The slim construction gives a short reaction time of $t_{0.5}$ = 2 sec. in water.

All parts in contact with the media are made of stainless steel AISI 316 Ti. The sensor is delivered with a 6 m extension cable as standard.

Features

- For measuring exhaust gas in stationary and marine:
  - diesel engines
  - turbines
  - compressors
- With thermocouple for up to 800 °C media temperature
- MBT 5111 with adjustable insertion length up to 150 mm using moveable compression fitting

Product specification

Technical specification

Table 1: Main specifications

Sensing element	1 × NiCr-Ni or 2x NiCr-Ni, type K
Measuring range	-40 – 800 °C
Thermocouple design	According to EN 61515
Tolerances	According to EN 60584-1 Class 2
Protection tube	AISI 316 Ti

Table 2: Response times

Type	Indicative response times	
	Water 0.2 m/s	
	$t_{0.5}$	$t_{0.9}$
MBT 5111 ø6	2 s	5 s
With pocket	12 s	38 s

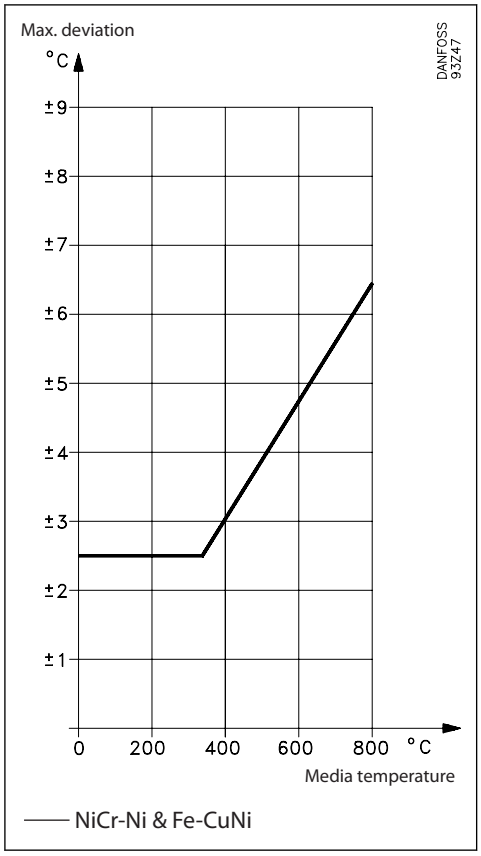
Table 3: Mechanical and environmental specifications

Ambient temperature	Depending on cable	
Vibration stability	Shock	100 g/6 ms
	Vibrations	4 g sine function 2 – 100 Hz, measured acc. to IEC 60068-2-6
Cable	MBT 5111 ø 6	2 × 0.5 mm2, armoured teflon (max. 260 °C)
Enclosure	IP65 according to IEC 60529	

Table 4: Net weight

MBT 5111 ø6	0.16 kg
1 m cable increases net weight with	approx. 40 g

Figure 1: Sensor tolerance EN 60584-1 Class 2



Mounting

The free insertion length may not exceed 25 × sensor diameter, e.g. 150 mm with a 6 mm sensor diameter.

The free insertion length is defined as the part of the outermost sensor end that is not supported by a pocket or a drilled hole in the machinery.

The free length of the cable must be supported for every ½ meter (= 100 × cable diameter).

Dimensions [mm]

Figure 2: Sensor and cable dimensions

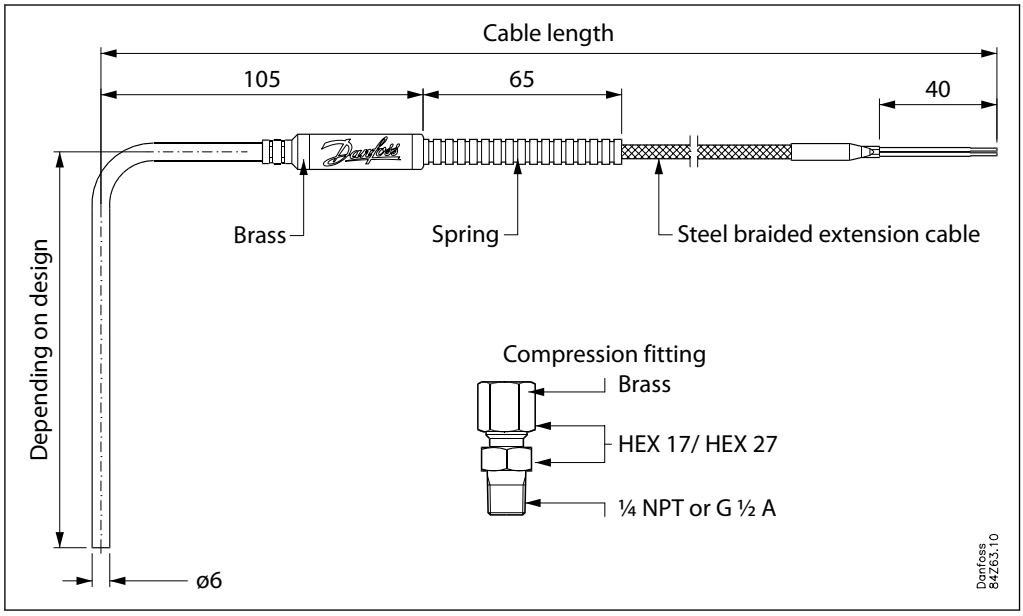


Figure 3: Cable dimensions

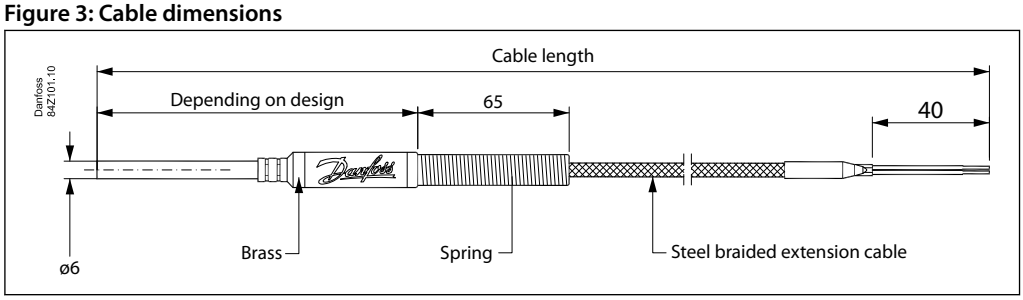
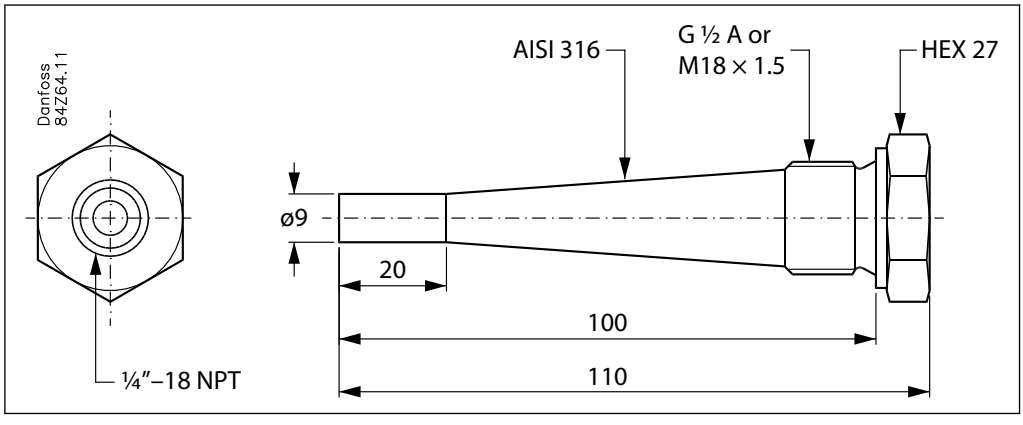


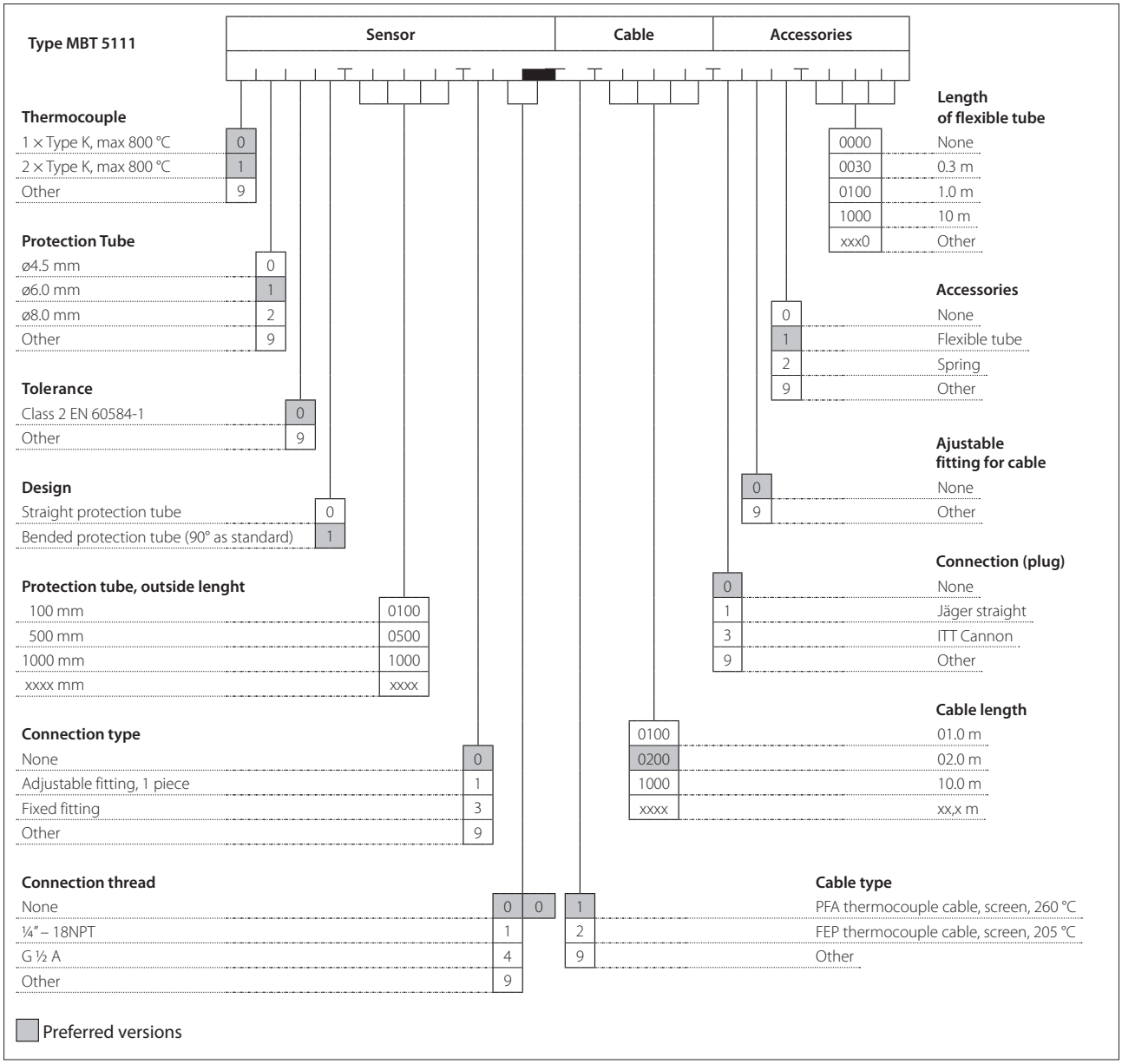
Figure 4: Sensor



All dimensions are in millimeters

Ordering

Ordering standard



Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 5: Certificates and declarations

File name	Document type	Document topic	Approval authority
CPH 04967-AE009	Marine - Safety Certificate	-	KR
16-LD1487293-PDA	Marine - Safety Certificate	-	ABS
06510-E0 BV	Marine - Safety Certificate	-	BV
ELE-006715XG-003	Marine - Safety Certificate	-	RINA
17-20082(E1)	Marine - Safety Certificate	-	LR
TAA0000130 Rev. 1	Marine - Safety Certificate	-	DNV GL
GB19PTB00025	Marine - Safety Certificate	-	CCS
DK.C.32.004.A 41459	Measuring - Performance Certificate	-	GOST
097R0004.01	Manufacturers Declaration	RoHS	Danfoss
084R1021.00	Manufacturers Declaration	China RoHS	Danfoss
SMS.W.II-2179-B.0	Marine - Manufacturing Permission	-	BV
087R0017.00	Manufacturers Declaration	Simple apparatus	Danfoss

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