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ENGINEERING TOMORROW

Data Sheet

Temperature sensor Type **MBT 3270**

Compact industrial temperature sensor.



The flexible temperature sensor MBT 3270 can be used in many industrial applications such as: Air Compressors, Mobile Hydraulics and Exhaust gas return systems. In other words applications where robustness, size and performance are essentials.

The sensor can be equipped with different sensing elements (RTD, NTC and PTC) and is available with different electrical connections (Cable, Delphi Metri Pack, AMP junior power Timer, Deutch DT04).

Features:

- OEM Temperature Sensor program
- Various sensor elements available (RTD, NTC, PTC)
- Robust, high protection against moisture
- Fixed measuring insert
- Brass or stainless steel
- Very low response times
- Temperature range up to 300 °C
- Available with cable or integrated plug (Delphi Metri Pack, AMP junior power Timer, Deutsch DT04)

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Product specification

Technical data

Cable version

Figure 1: Cable version

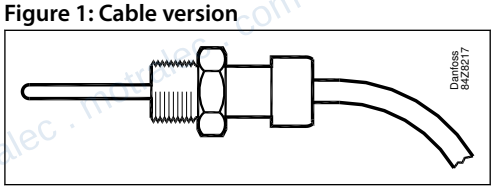


Table 1: General data

Features		Description	
Ambient temperature	Cable	PVC	-40 – 100 °C
		Silicon	-40 – 200 °C
		Teflon	-40 – 200 °C
		Polyolefin (oil resistant)	-40 – 150 °C
	Plug	AMP spade	-40 – 200 °C
		AMP Junior Power Timer	-40 – 125 °C
		Delphi Metri Pack 102	-40 – 125 °C
		Deutsch DT04-3P	-40 – 125 °C
Media temperature		Pt 100	-50 – 300 °C
		NTC	-50 – 150 °C, Special versions up to 300 °C
		PTC	-50 – 150 °C
Max. external pressure		Operating pressure	500 bar
		Burst pressure	> 900 bar
Max. tightening torque		M10 M14	17 Nm 24 Nm

Table 2: Performance

Features		Description
Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard, see page Cable version
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		Stripped wire ends Cable with AMP spade (6.35) Cable with AMP Junior Power Timer Cable with Delphi Metri Pack 102 Cable with Deutsch DT04-3P-2P Other on request
Connection		2, 3 or 4 wire (depending on electrical connection)

Table 3: Indicative response times

Material protection tube	Protection tube	Indicative response times	
		Water 0,2 m/s	
		$t_{0.5}$	$t_{0.9}$
Stainless steel	ø6 mm	6 s	18 s
	ø4 mm	2 s	6 s
	ø3 mm	1.5 s	3 s

NOTE:
Response times can vary very much depending on the design of the sensor and the temperature element chosen.

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Table 4: Mechanical and environmental specifications

Features	Description	
Sensor tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B: ± (0.3 + 0.005 × t) On request ± 1% at 25 ° C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	Sensor only	IP67 according to IEC 60529
	Cable with AMP spade	IP00 according to IEC 60529
	Cable with AMP Junior Timer	IP65 according to IEC 60529
	Cable with Delphi Metri Pack 102	IP65 according to IEC 60529
	Cable with Deutsch DT04	IP65 according to IEC 60529

Table 5: Materials

Features	Description
Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Cable	PVC, Silicon, Teflon (other on request)
Gasket	Viton, NBR (other on request)
Plug	PPS (Ryton 4)

Integrated plug version

Figure 2: Integrated plug version

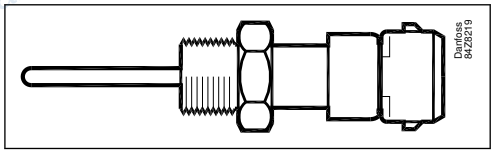


Table 6: General data

Features		Description
Ambient temperature	Plug	-40 – 125 °C
Media temperature	Pt 1000, Pt 100	-50 – 300 °C
	NTC	-50 – 150 °C, Special versions up to 300 °C
	PTC	-50 – 150 °C
Max. external pressure	Operating pressure	500 bar
	Burst pressure	> 900 bar
Max. tightening torque	M10 M14	17 Nm 24 Nm

Table 7: Performance

Features		Description
Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard, see page Integrated plug version
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		AMP Junior Power Timer Delphi Metri Pack Deutsch DT04 Other on request
Connection		2 wire

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Table 8: Indicative response times

Material protection tube	Protection tube	Indicative response times	
		Water 0,2 m/s	
		$t_{0.5}$	$t_{0.9}$
Stainless Steel	ø6 mm	6 s	18 s
	ø4 mm	2 s	6 s
	ø3 mm	0.5 s	1.5 s

NOTE:
Response times can vary very much depending on the design of the sensor and the temperature element chosen.

Table 9: Mechanical and environmental specifications

Features	Description	
Sensor tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B On request ± 1% at 25 °C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	AMP Junior Power Timer Delphi Metri Pack Deutsch DT04	IP65 according to IEC 60529

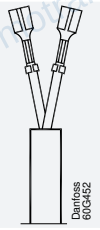
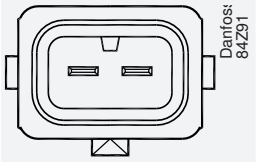
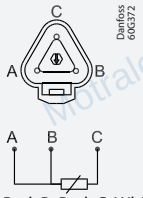
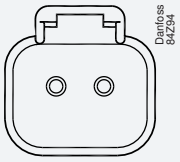
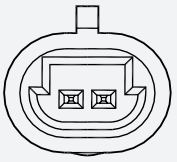
Table 10: Materials

Features	Description
Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Gasket	Viton, NBR (other on request)
Plug	PPS (Ryton 4)

Electrical connection

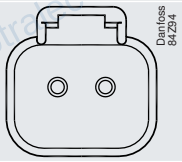
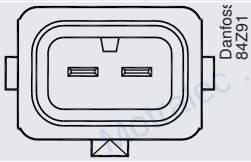
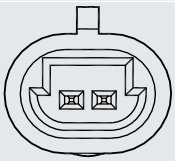
Cable version

Table 11: Electrical connection of cable version

AMP spade (6.35)	AMP Junior Power Timer	Deutsch DT04 3 pin	Deutsch DT04 2 pin	Delphi Metri Pack 102
		 A: Red, B: Red, C: White		

Integrated plug version

Table 12: Electrical connection of integrated plug version

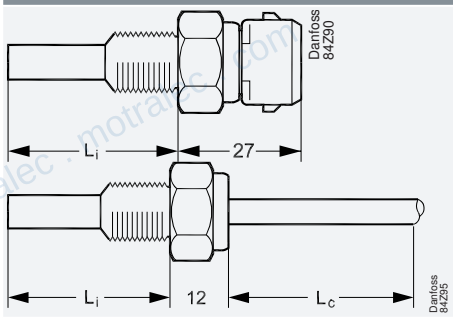
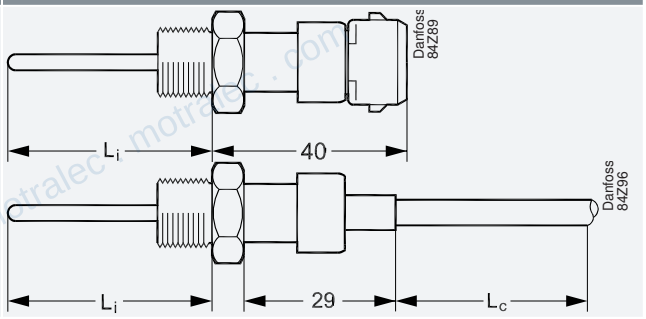
Deutsch DT04	AMP Junior Power Timer	Delphi Metri Pack 102
		

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Dimensions

Cable version

Table 13: Dimensions

-50 – 150 °C	-50 – 150 °C / 300 °C
	

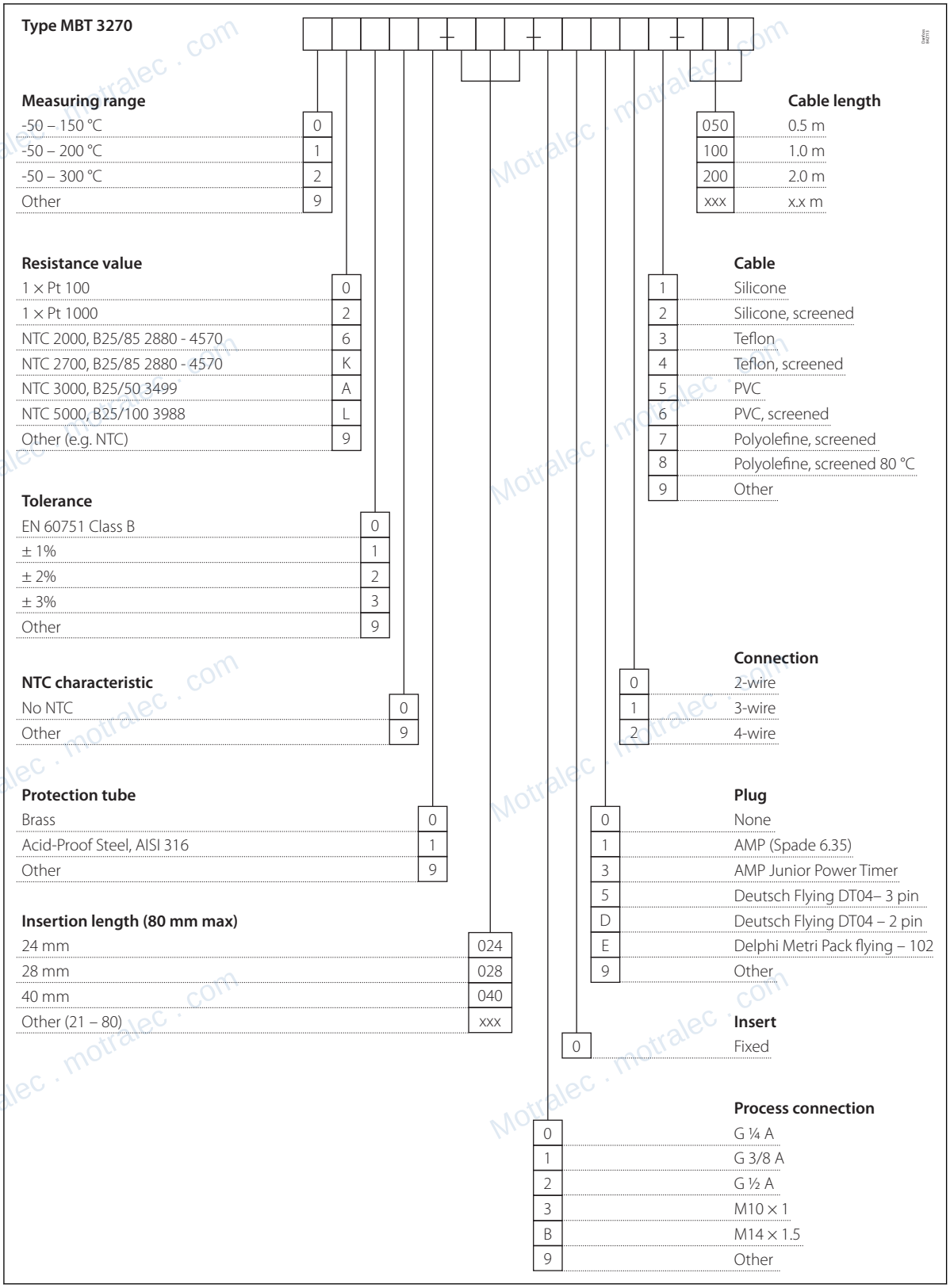
Examples:
Insertion length: Li = 21 to xx (max. 80 mm)
Cable length: Lc = 0.5 m to x.xx m
Tube diameter depends on the chosen sensor element and the wanted response time.

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Ordering

Cable version

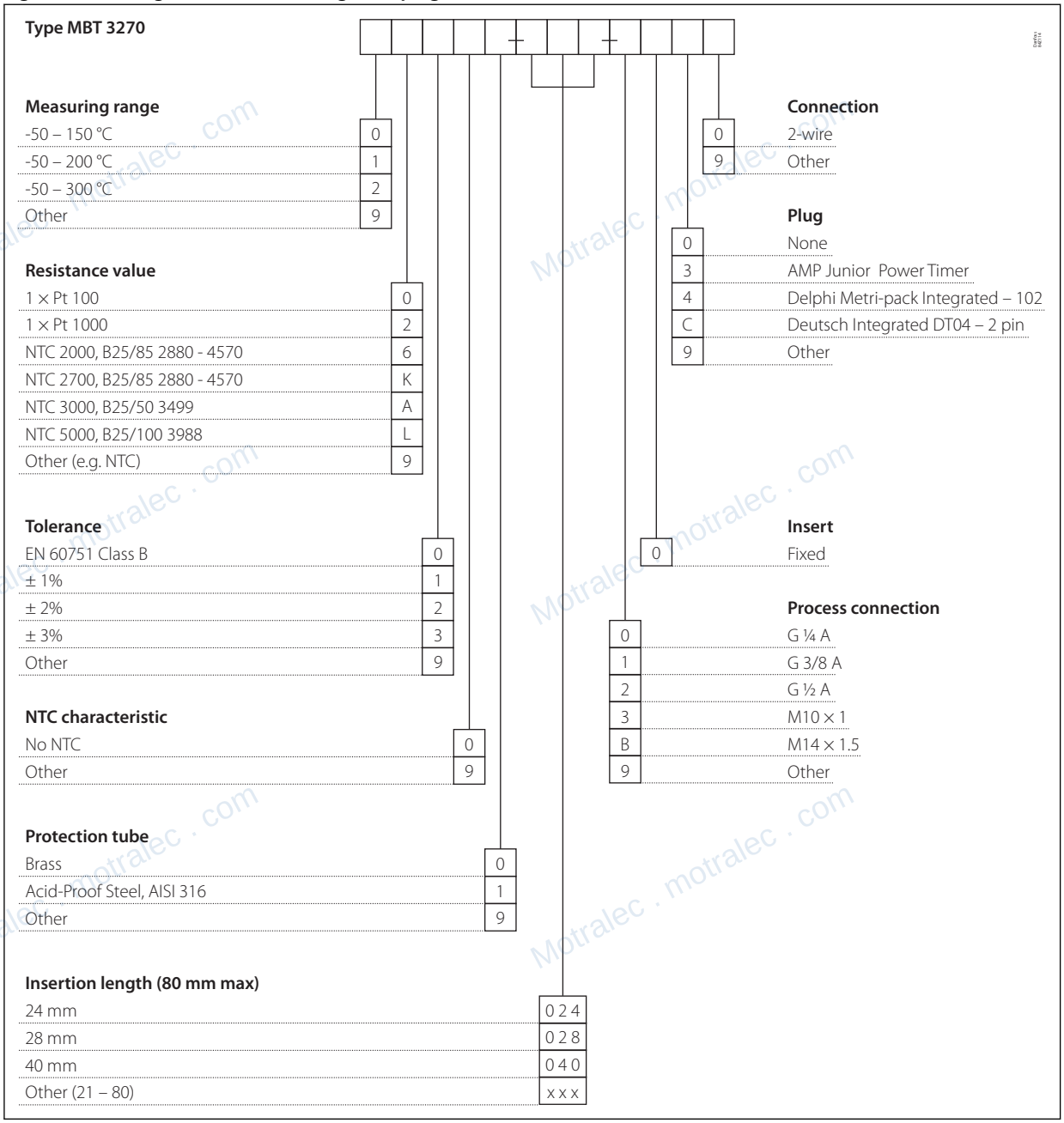
Figure 3: Ordering for MBT 3270 - Cable version



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Integrated plug version

Figure 4: Ordering for MBT 3270 - Integrated plug version



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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 14: MBT 3270

File name	Document type	Document topic	Approval authority
E494625	Electrical - Safety Certificate	–	UL
DK.C.32.004.A 41461	Measuring - Performance Certificate	–	GOST
097R0004.01	Manufacturers Declaration	RoHS	Danfoss
084R1022.01	Manufacturers Declaration	China RoHS	Danfoss
087R0017.00	Manufacturers Declaration	Simple apparatus	Danfoss
OC.C.32.004.A 75977	Measuring - Performance Certificate	–	GOST

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