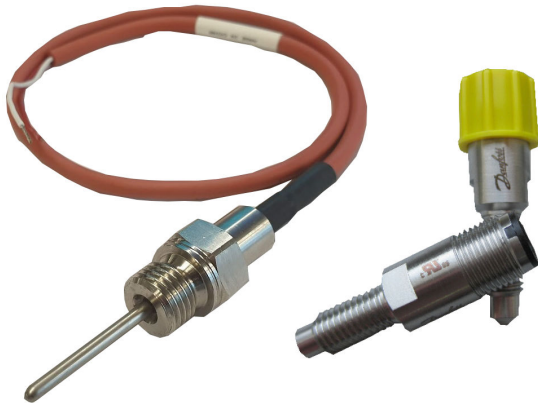


Data Sheet

Temperature sensor
Type **MBT 5270**

Compact temperature sensor for harsh marine applications.



The flexible temperature sensor MBT 5270 can be used in many marine and industrial applications such as: Air Compressors, Mobile Hydraulics and Marine EGR systems. In other words applications where robustness, size and performance are essentials.

The sensor can be equipped with different sensing elements (RTD and NTC).

Features:

- OEM Temperature Sensor program
- Various sensor elements available (RTD and NTC)
- Robust, high protection against moisture
- Fixed measuring insert
- Stainless steel
- Very low response times
- Temperature range up to 300 °C
- Available with cable and plug

Product specifications

Technical data

Cable version

Figure 1: Cable version

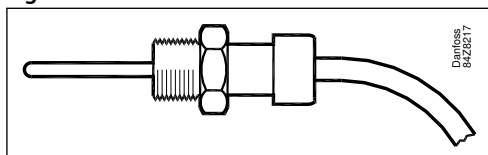


Table 1: General data

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
		Deutsch DT04-3P	-40 – 125 °C
Media temperature	Pt 100		-50 – 300 °C
	NTC		-50 – 150 °C, Special versions up to 300 °C
Max. external pressure	Operating pressure		400 bar
	Burst pressure		Max. 500 bar
Max. tightening torque	M14		24 Nm

Table 2: Performance

Features		Description
Sensor Element		Pt 100, Pt 1000, NTC
Process Connection		Refer to ordering standard, see page Cable version
Sensor insertion length	Stainless steel	35 mm @ d ≤ 5 mm
Electrical Connection		Stripped wire ends Cable with AMP spade (6.35) 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	ø3 mm	0.5 s	1.5 s

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

Table 4: Mechanical and environmental specifications

Features	Description	
Sensor tolerances	Pt 1000 / Pt 100	EN 60751 Class B: ± (0.3 + 0.005 × t)
	NTC	On request
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 Deutsch DT04	IP65 according to IEC 60529

Temperature sensor, Type MBT 5270

Table 5: Materials

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

Integrated plug version

Figure 2: Integrated plug version

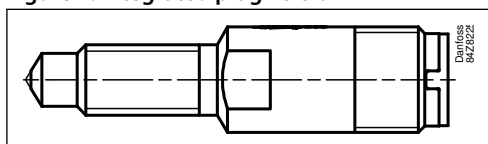


Table 6: General data

Features	Description
Ambient temperature	Plug -40 – 125 °C
Media temperature	Pt 1000, Pt 100 NTC -50 – 300 °C -50 – 150 °C special versions up to 300 °C
Max. external pressure	Operating pressure 400 bar Burst pressure > 500 bar
Max. tightening torque	M8 10 Nm

Table 7: Performance

Features	Description
Sensor Element	Pt 100, Pt 1000, NTC
Process Connection	Refer to ordering standard, see page Integrated plug version
Sensor insertion length	Stainless steel 70 mm @ d ≥ 8 mm 50 mm @ 8 > d > 5 mm
Electrical Connection	M12 x1
Connection	2 wire

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

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 EN 60751 Class B On request
Vibration stability	Shock 50 g / 6 ms Vibrations, x-y-z directions 15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	M12 x 1 IP65 according to IEC 60529

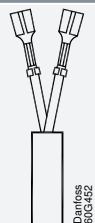
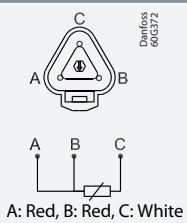
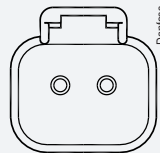
Table 10: Materials

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

Electrical connection

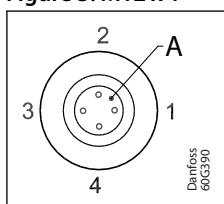
Cable version

Table 11: Electrical connections

AMP spade (6.35)	Deutsch DT04 3 pin	Deutsch DT04 2 pin
		

Integrated plug version

Figure 3: M12 x 1



A Key

Dimensions

Cable version

Examples:

Insertion length: $L_i = 21$ to xx (max. 80 mm)

Cable length: $L_c = 0.5$ m to $x.xx$ m

Figure 4: -50 – 150 °C

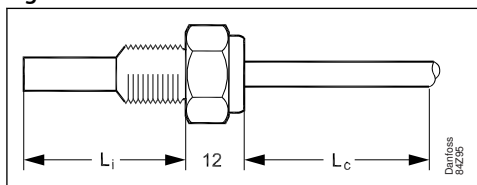
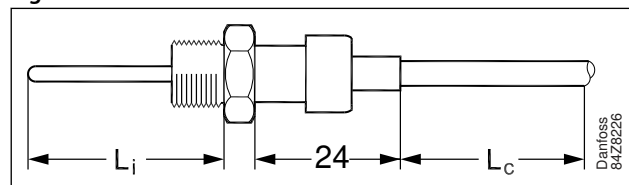
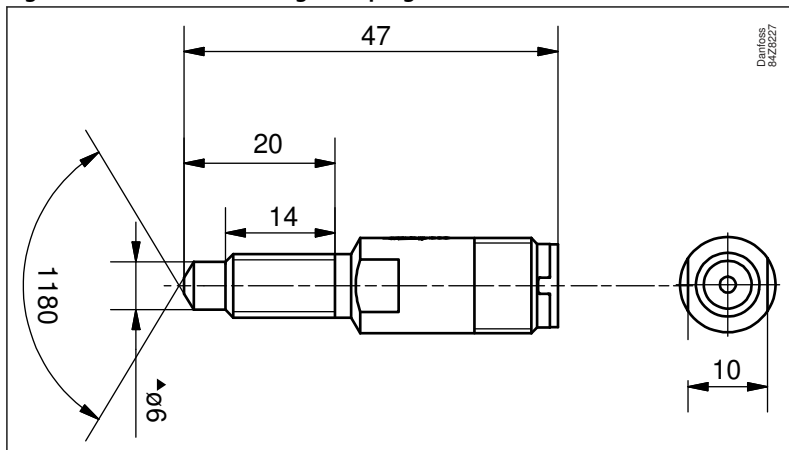


Figure 5: -50 – 150 °C / 300 °C



Integrated plug version

Figure 6: Dimensions of integrated plug version



Ordering

Cable version

Figure 7: Ordering for MBT 5270 - Cable version

Type MBT 5270

Measuring range

-50 – 150 °C

-50 – 200 °C

-50 – 300 °C

Other

Resistance value

1 × Pt 100

1 × Pt 1000

1 × NTC 1000

1 × NTC 2000

1 × NTC 10000

Other

Tolerance

EN 60751 Class B

± 1%

± 2%

± 3%

Other

NTC characteristic

No NTC

25°/25°

Other

Protection tube

Acid-Proof Steel, AISI 316

Other

Insertion length (100 mm max)

25 mm

30 mm

40 mm

60 mm

Other

Cable length

050

100

200

400

xxx

Cable

0

1

3

4

5

6

9

Connection

0

1

2

Plug

0

1

2

5

9

Insert

0

Process connection

0

1

2

3

C

9

Integrated plug version

Figure 8: Ordering for MBT 5270 - Integrated plug version

Type MBT 5270			
Measuring range			
-50 – 150 °C	0		
-50 – 200 °C	1		
-50 – 300 °C	2		
Other	9		
Resistance value			
1 × Pt 100	0		
1 × Pt 1000	2		
NTC 2000, B25/85 2880 - 4570	6		
NTC 2700, B25/85 2880 - 4570	K		
NTC 3000, B25/50 3499	A		
NTC 5000, B25/100 3988	L		
Other (e.g. NTC)	9		
Tolerance			
EN 60751 Class B	0		
± 1%	1		
± 2%	2		
± 3%	3		
Other	9		
NTC characteristic			
No NTC	0		
Other	9		
Protection tube			
Acid-Proof Steel, AISI 316	1		
Other	9		
Insertion length (80 mm max)			
24 mm	0 2 4		
28 mm	0 2 8		
40 mm	0 4 0		
Other (21 – 80)	x x x		

Connection	
2-wire	0
Other	9

Plug	
M12 x 1	F

Insert	
Fixed	0

Process connection	
M8 x 1,25	H

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 12: MBT 5270

File name	Document type	Document topic	Approval authority
084R1022.01	Manufacturers Declaration	China RoHS	Danfoss
TAA000006F Rev. 2	Marine - Safety Certificate	–	DNV GL
097R0004.01	Manufacturers Declaration	RoHS	Danfoss

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