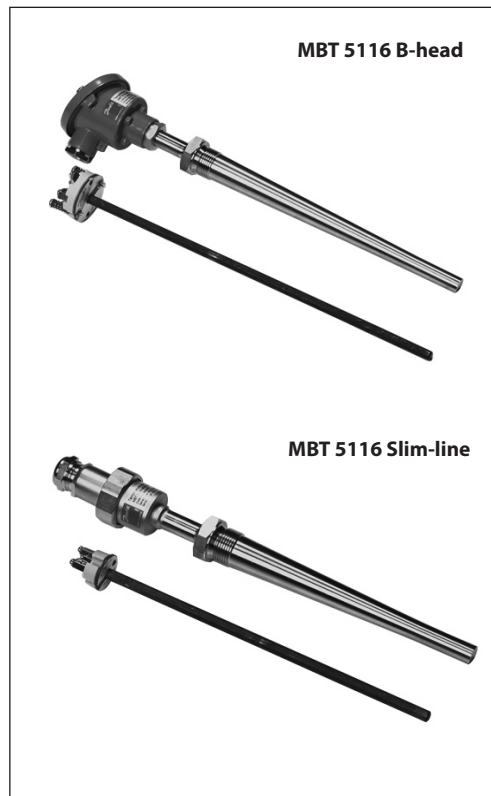


Exhaust gas temperature sensors types MBT 5116 and MBT 5113

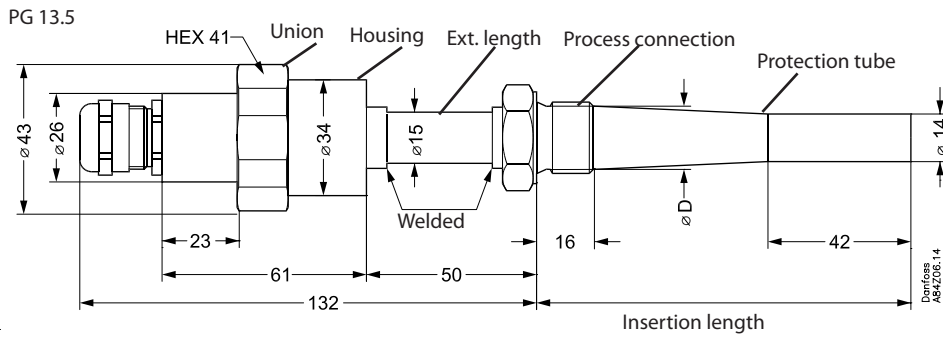
Features, MBT 5116



- For measuring and regulation exhaust gas temperature in stationary and marine
 - diesel engines
 - turbines
 - compressors
- Up to 600°C media temperatures
- Can be used with 2- or 3-wire connections
- Robust and compact construction with extremely high resistance to shock and vibration, measured according to IEC 68-2-6
- Pt100 thinfilm technology specially developed for heavy duty applications
- Can be mounted in all positions
- The small size of the thinfilm element reduces the necessary insertion length compared to sensors with wire wound elements
- Solid drilled protection tube
- Approvals:
 - Lloyds Register of Shipping, LR
 - Germanischer Lloyd, GL
 - Registro Italiano Navare, RINA
 - American Bureau of Shipping, ABS
 - Bureau Veritas, BV
 - Det Norske Veritas, DNV
 - Nippon Kaiji Kyokai, Class NK

Dimensions

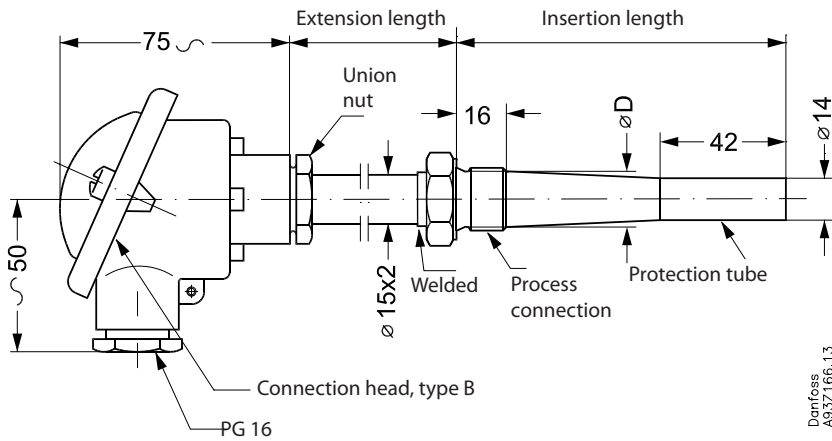
MBT 5116 Slim-line



Process connection		$\varnothing D$
G $\frac{1}{2}$ A	HEX 27	18 mm
G $\frac{3}{4}$ A	HEX 32	24 mm

Note: Tightening torque moment for the union max.: 25 Nm

MBT 5116 B-head

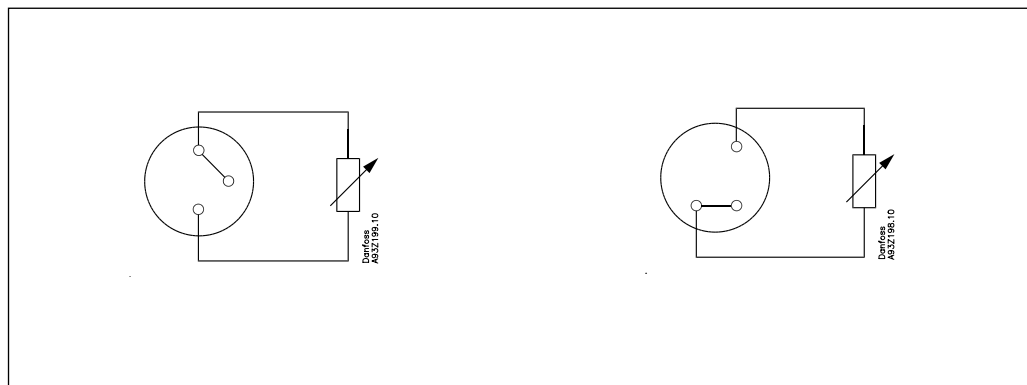


Process connection		$\varnothing D$
G $\frac{1}{2}$ A	HEX 27	18 mm
G $\frac{3}{4}$ A	HEX 32	24 mm

Electrical connection

Slim-line, 2 wires, 3 terminals

B-Head, 2 wires, 3 terminals



Technical data
Response time

Protection tube	Indicative response times according to VDI/VDE 3522			
	Water 0.2 m/s		Air 1 m/s	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
ø24 → ø14	30 s.	95 s.	150 s.	450 s.

Material

Slim-Line	Housing	Nickel plated brass
	Union	Nickel plated brass
	Cover	Nickel plated brass
	Spring (internal mounted)	W.no. 1.4568
	Extension length	AISI 316
	Protection tube in contact with media	AISI 316
B-Head	Union	Nickel plated brass
	Connection head	Die cast aluminium
	Extension length	AISI 316
	Protection tube in contact with media	AISI 316

Mechanical and environmental specifications

Max. ambient temperature: Slim-Line: B-Head:	75°C with 600°C media temperature 90°C with 600°C media temperature
Sensor tolerance	EN 60751 Class B: $\pm(0.3 + 0.005xt)$ t = temperature of medium, numerical value
Insulation resistance	Minimum 0.5 M Ohm at 600°C according to EN60751
Vibration stability	Shock: 100g in 6 ms Vibrations: 4g sine function, 2–200Hz, measured according to IEC 68-2-6
Enclosure	IP65 according to IEC 529
Cable entry: Slim-Line B-Head	PG13,5 PG16

Weight approx.[kg]

Insertion length (mm)	Process connection			
	Slim-line		B-head	
	G1/2"	G3/4"	G1/2"	G3/4"
80	0.43		0.48	
100	0.46	0.52	0.52	0.60
120	0.48	0.57	0.56	0.64
150	0.52	0.64	0.60	0.70
170		0.68		0.72
200		0.76		0.76
250		0.89		0.85
300		0.99		1.04

**Ordering MBT5116
Slim-Line**

Measuring range:	-50 to +600°C
Resistance value:	Pt100
Tolerance:	EN 60751 class B
Extension length:	50mm
Electrical connection:	Pg13.5 (IP65)

Insertion length [mm]	MBT 5116 Slim-Line	
	Process connection	
	G1/2"	G3/4"
80	084Z8157¹⁾	
100	084Z8158¹⁾	084Z8150¹⁾
120	084Z8159	084Z8151
150	084Z8186¹⁾	084Z8152¹⁾
170		084Z8153
200		084Z8154¹⁾
250		084Z8155
300		084Z8156

¹⁾ Preferred versions
Other specifications on request

**Ordering MBT 5116
B-Head**

Measuring range:	-50 to +600°C
Resistance value:	Pt100
Tolerance:	EN 60751 class B
Extension length:	50mm
Electrical connection:	Pg16 (IP65)

Insertion length [mm]	MBT 5116 B-Head	
	Process connection	
	G1/2"	G3/4"
80	084Z5156¹⁾	
100	084Z5157¹⁾	084Z5160¹⁾
120		084Z5048
150	084Z5159¹⁾	084Z5024¹⁾
170		084Z5161
200		084Z5025¹⁾
250		084Z5034
300		084Z5026

¹⁾ Preferred versions
Other specifications on request

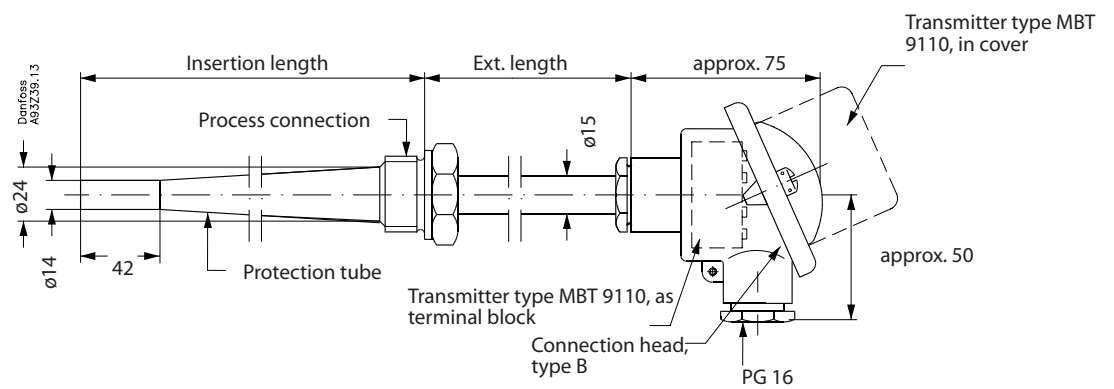
Features



MBT 5113 with thermocouple

- For measuring and regulating exhaust gas in stationary and marine
 - diesel engines
 - turbines
 - compressors
- With thermocouple up to 800°C media temperature
- Available with built-in transmitter
- Approvals
 - Lloyds Register of Shipping, LR
 - Germanischer Lloyd, GL
 - Bureau Veritas, BV
 - Det Norske Veritas, DNV
 - Nippon Kaiji Kyokai, ClassNK
 - American Bureau of Shipping ABS
 - Registra Italiano Navare, Rina

Dimensions



All dimensions in millimeter

Technical data

Response times

	Indicative response times VDI/VDE 3522			
	Water 0.2 m/s		Air 1 m/s	
ø24 → ø14	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
	30 s.	95 s.	150 s.	450 s.

Mechanical and environmental specifications

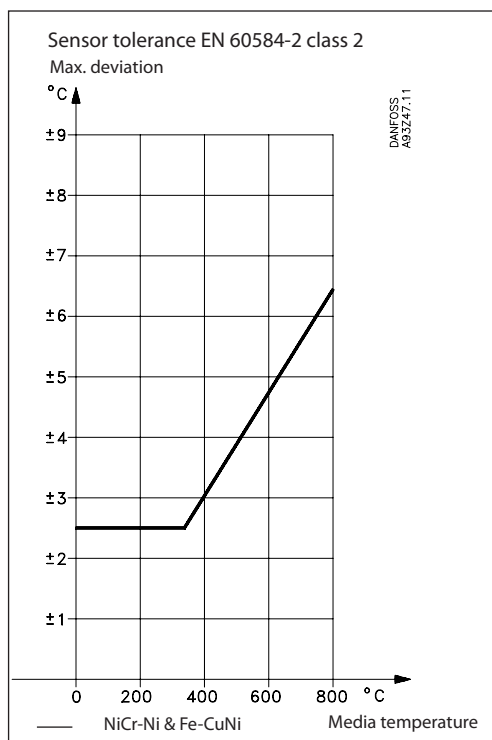
Max. temperature 1)	Ambient:	90°C for sensors without temperature transmitter
	Transmitter:	85°C for sensors with temperature transm. galvanic isolation
Vibration stability	Shock:	100 g in 6 ms
	Vibrations:	4g sine function 2-100 Hz , measured according to IEC 68-2-6
Enclosure	IP 65 according to IEC 529	
Cable entry	PG 16	

1) The temperature of the temperature transmitter is influenced by media temperature, ambient temperature and ventilation in the engine room. If the temperature exceeds the max. allowed temperature the temperature transmitter must be placed in a separated enclosure as described in the separate data sheet for MBT 9110.

Weight without transmitter 1) - ca. [kg]

Insertion length [mm]	Process connection	
	G1/2"	G3/4"
80	0.48	
100	0.52	0.60
120	0.56	0.64
150	0.60	0.70
170		0.72
200		0.76
250		0.85
300		1.04

1) MBT 9110 increases weight by approx. 50 g (as terminal block) or approx. 80 g (in hightened lid).



**Ordering - Standard
MBT 5113 B-Head**

Measuring range:	-50 to +800°C
Thermocouple:	1 × NiCr-Ni, type K
Tolerance:	EN 60584-2 class 2
Extension length:	50 mm
Protection tube:	Tapered Ø24 → Ø14, AISI 316
Electrical connection:	Pg 16 (IP 65)

Insertion length [mm]	Process connection G3/4"
100	084Z5052
150	084Z5274
200	084Z5248
250	084Z5275
300	084Z7014

**Ordering - Standard
MBT5113 B-Head
with built-in transmitter**

Measuring range:	-50 to +800°C
Thermocouple:	1 × NiCr-Ni, type K
Tolerance:	EN 60584-2 class 2
Extension length	100 mm
Protection tube:	Tapered Ø24 → Ø 14, AISI 316
Electrical connection:	Pg 16 (IP 65)
Transmitter type:	MBT9110 as terminal block
Transmitter output:	4-20 mA
Transmitter setting:	0 to 600°C

Insertion length [mm]	Process connection G3/4"
100	084Z5276
150	084Z5257
200	084Z5277
250	084Z5278

Recommendations

- In order to reduce the heat at the temperature transmitter the recommended extension length for sensors with temperature transmitter type MBT 9110 is 100 mm
- Thermocouple 1 × NiCr-Ni, type K are recommended as standard for sensors with temperature transmitters

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.
