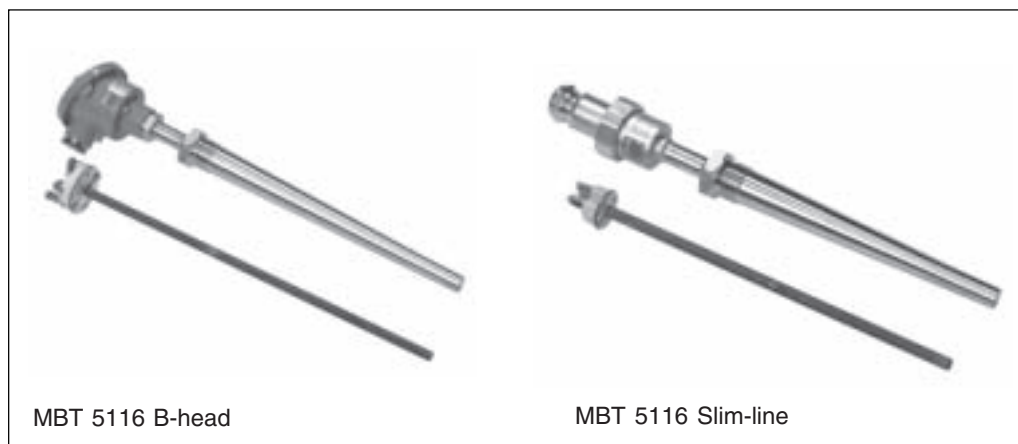


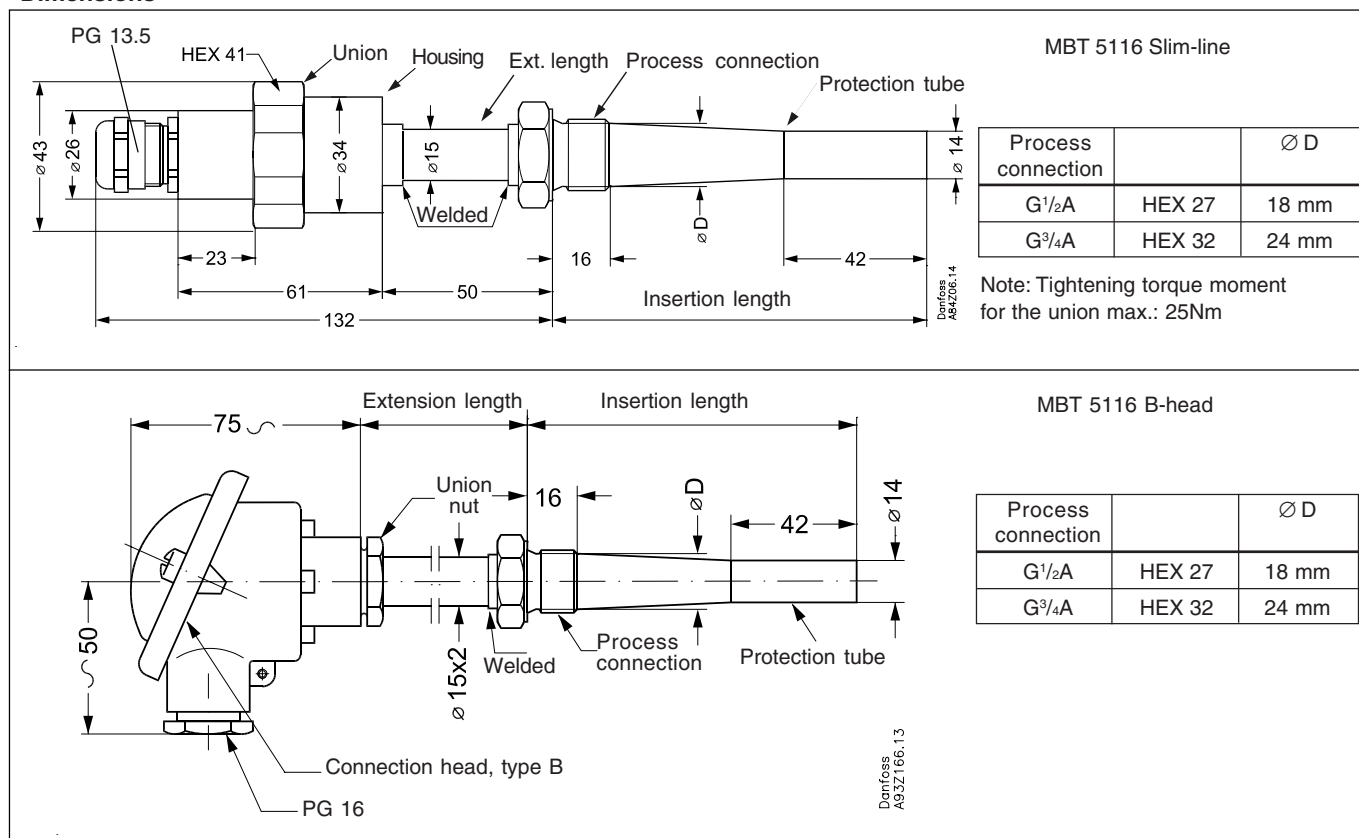
Exhaust gas temperature sensors
types MBT 5116 and MBT 5113

Features and applications



- 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



Technical data

Response time

Protection tube	Indicative response times according to 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 sec.	95 sec.	150 sec.

Material

Slim-Line	Housing	Nickel plated brass
	Union	Nickel plated brass
	Cover	Nickel plated brass
	Spring (internal mounted)	W.no. 1.4568
	Extension length	W. no. 1.4571 (AISI 316 Ti)
	Protection tube in contact with media	W. no. 1.4571 (AISI 316 Ti)
B-Head	Union	Nickel plated brass
	Connection head	Die cast aluminium
	Extension length	W. no. 1.4571 (AISI 316 Ti)
	Protection tube in contact with media	W. no. 1.4571 (AISI 316 Ti)

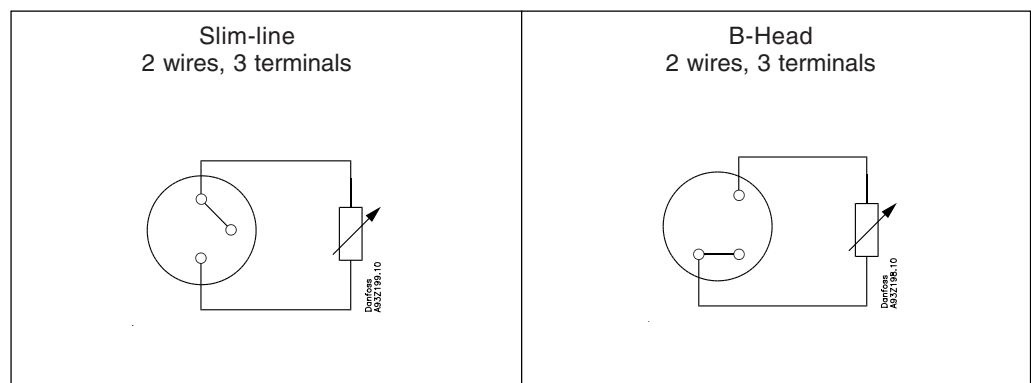
Mechanical and environmental specifications

Max. ambient temperature:	
Slim-Line:	75°C with 600°C media temperature
B-Head:	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 0.5M 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	PG13,5
B-Head	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

Electrical connection



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 MBT5116 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	084Z5158	084Z5048
150	084Z5159¹⁾	084Z5024¹⁾
170		084Z5161
200		084Z5025¹⁾
250		084Z5034
300		084Z5026

¹⁾ Preferred versions

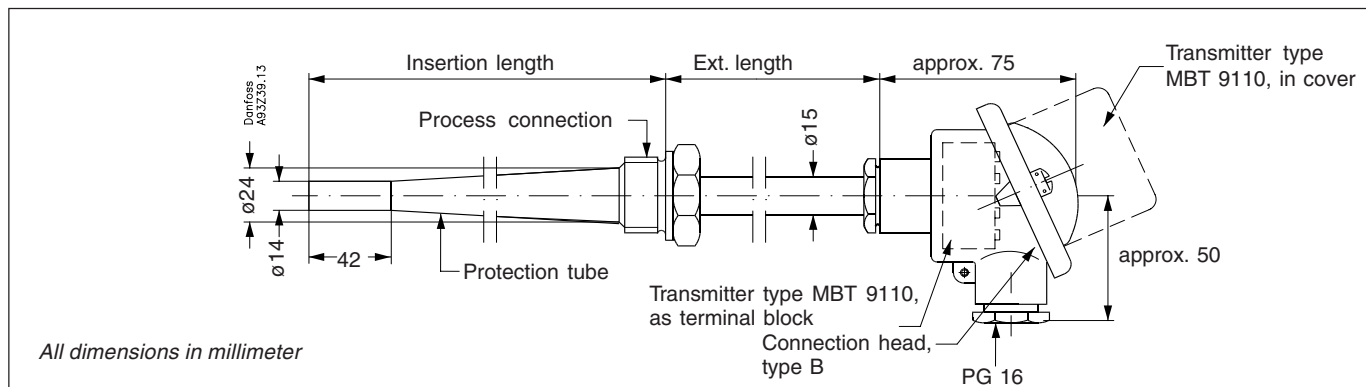
Other specifications on request

Features and application



- 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
 - with or without EEx ia IIC T4/T6 approval
- 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



Technical data

Response times

Protection tube	Indicative response times VDI/VDE 3522			
	Water 0.2 m/s		Air 1 m/s	
$\varnothing 24 \rightarrow \varnothing 14$	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
	30 sec.	95 sec.	150 sec.	450 sec.

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 60°C for sensor with temperature transm. EEx ia IIC T6
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	

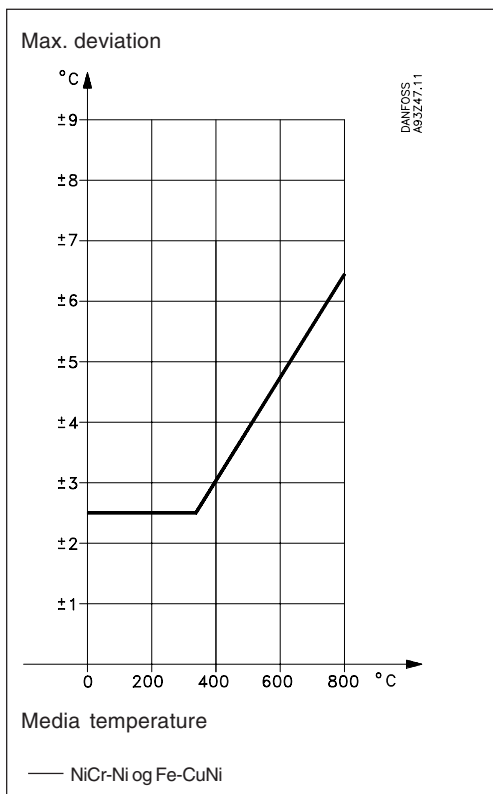
¹⁾ The temperature of the temperature transmitter is influenced by media temperature, ambient temperature and ventilation in the engine room. If the temperature exceeds the max. allowed temperature the temperature transmitter must be placed in a separated enclosure as described in the separate data sheet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

Sensor tolerance EN 60584-2 class 2



**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 W. no. 1.4571
- Electrical connection: Pg 16 (IP 65)

Insertion length [mm]	Process connection	
	G1/2"	G3/4"
80	084Z7008	
100	084Z7009	084Z5052
120	084Z7010	084Z7012
150	084Z7011	084Z5274
170		084Z7013
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 → Ø14 W. no. 1.4571 (AISI 316 Ti)
- 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

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