ENGINEERING
TOMORROW

Data sheet

Exhaust gas temperature sensor
MBT 5114

MBT 5114 is a series of exhaust gas temperature sensors used for performance optimization and environmental impact control of large 4 stroke engines.

By utilizing RTD sensing elements the MBT 5114 provides a modern and total cost attractive alternative to the thermo couple exhaust gas sensors.

Features

- For measuring exhaust gas in stationary and marine:
  - diesel and gas engines
  - turbines
  - compressors
- Up to 600 °C media temperature (peak 700 °C)
- Fixed or adjustable insertion length
- 1 or 2 Pt 1000 elements
- No need for special compensation cable.
- Less noise sensitive
- No cold junction compensation
- Resistant to moisture (works from day one)
- No polarity on the cable (easy to install)
- Linear signal

Approvals

Lloyds Register of Shipping, LR
Germanischer Lloyd, GL
Det Norske Veritas, DNV
Registro Italiano Navara, RINA
Nippon Kaiji Kyokai, NKK
American Bureau of Shipping, ABS
Korean Register of Shipping, KRS
China Classification Society, CCS
Bureau Veritas, BV

Technical data

Main specifications

Measuring range	-50 – 600 °C
Short time temperature (15 min.)	650 °C
Max. peak temperature (1 min.)	700 °C
Element type	Pt 1000
Tolerances	EN 60751, class B

Mechanical and enviromental specifications

Ambient temperature		Max 200 °C on the sensor housing, cable depending on type (See Page 3)
Vibration stability	Shock	100 g / 6 ms
	Vibrations	4 g sine function 2 – 100 Hz, measured acc. to IEC 60068-2-6
Materials	Protection tube	W. no. 1.4571 (AISI 316 Ti)
Enclosure		IP65 according to IEC 60529

Response times

Type	**Indicative response times. Typical measured values.**			
	Water 0.2 m/s		**Air 6 m/s**	
	$t_{0.5}$	**$t_{0.9}$**	**$t_{0.5}$**	**$t_{0.9}$**
MBT 5114	1 s	3.5 s	15 s	50 s

Mounting

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

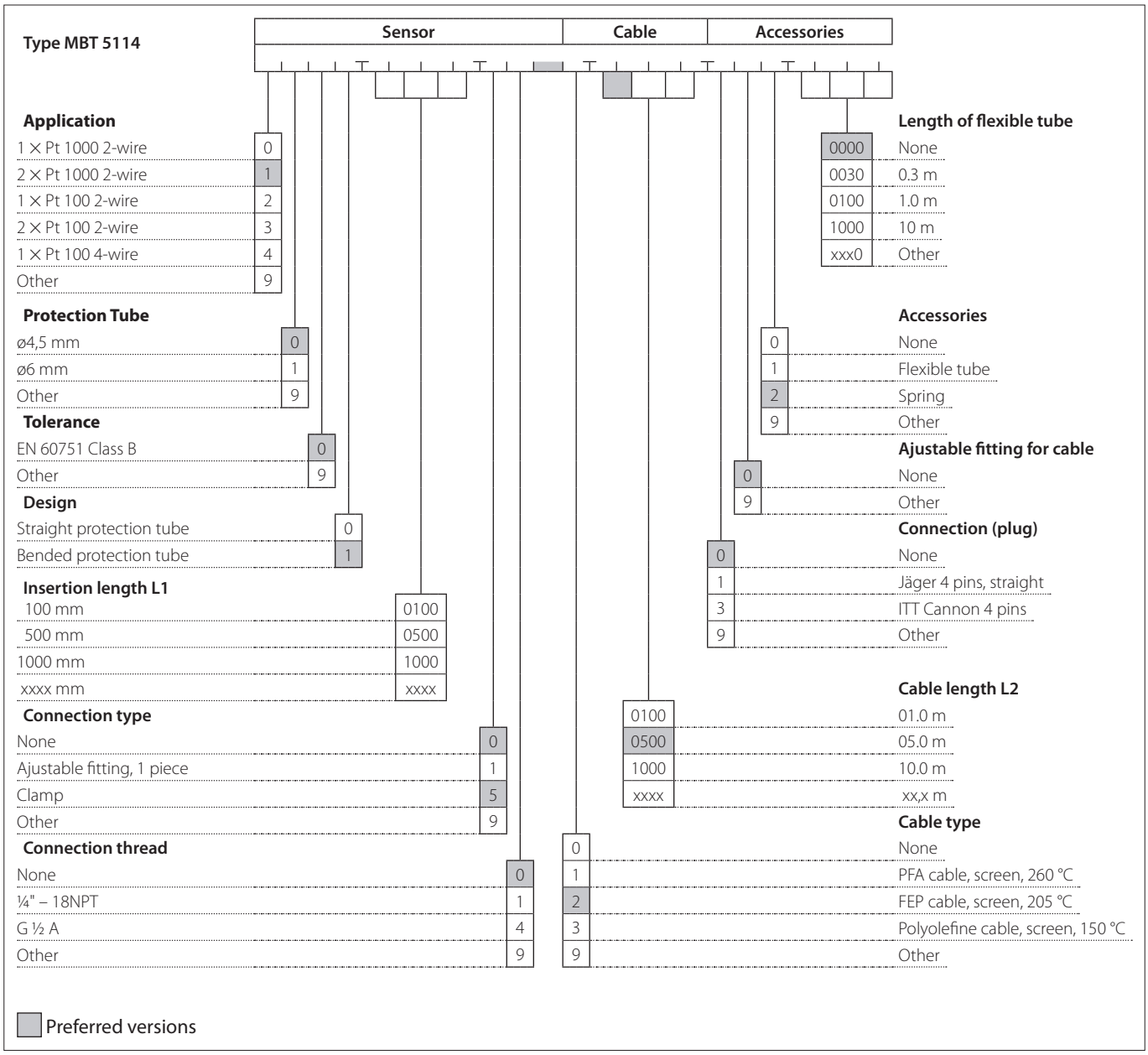
However, it is generally recommended that the sensor is supported close to the tip either by the mounting hole or by a sensor pocket.
The sensor might break in case it is mounted without a proper support in a vibrating application like exhaust gas monitoring.

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).

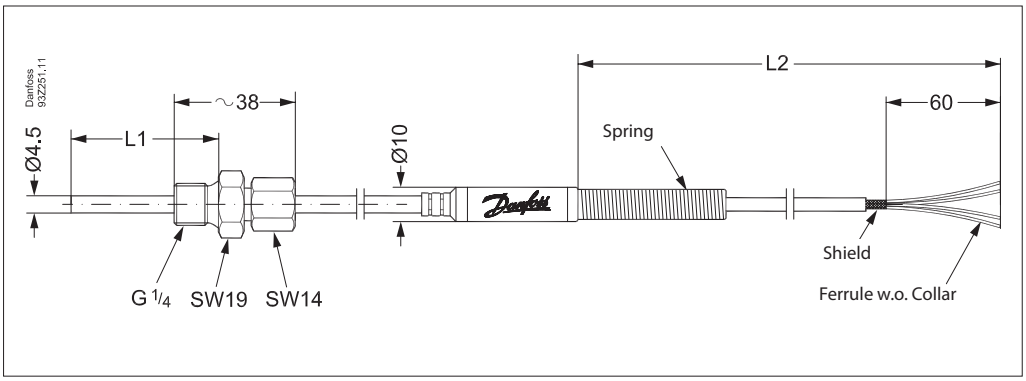
Especially for turbo inlet/outlet applications it is necessary to mount the sensor in a pocket to prevent sensor damage due to high media velocity and vibrations.

Ordering standard

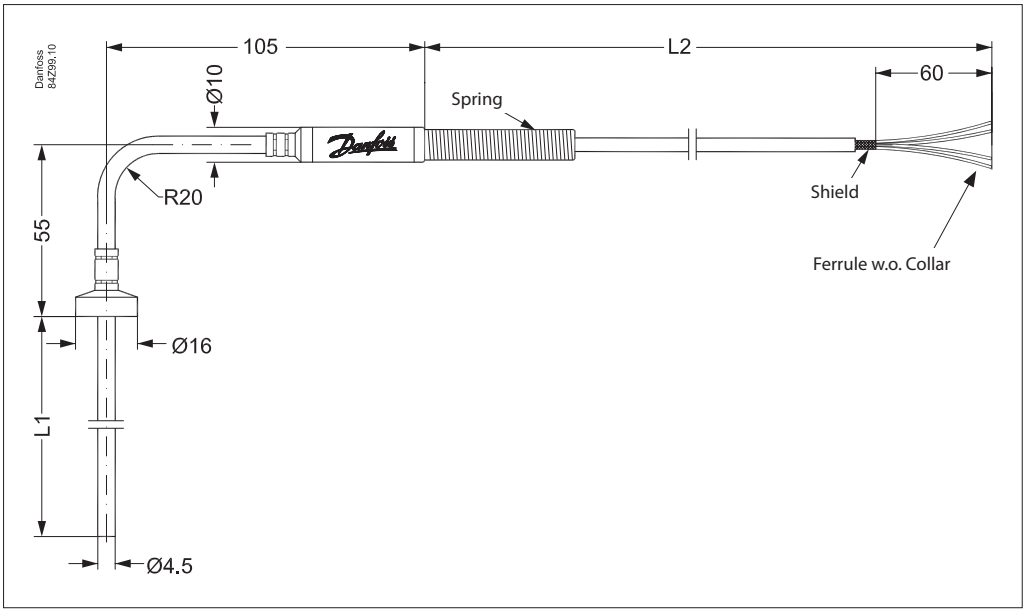


Dimensions [mm]

MBT 5114 straight version, adjustable



MBT 5114 angle version, fixed clamp



Net weight

MBT 5114	0.1 kg
1 m cable increases net weight with	approx. 40 g