

# Multipoint thermometer in band design

## Models TR95-A-B, TC95-A-B, with thermowell

## Models TR95-B-B, TC95-B-B, without thermowell

WIKA data sheet TE 70.01

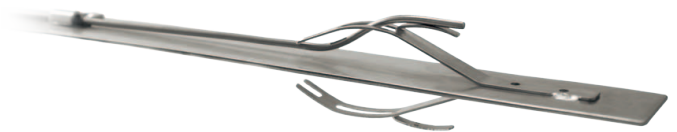


### Applications

- Chemical and petrochemical industry
- Measurement of temperature layerings or hotspots in reactors
- Fuel depots

### Special features

- Versions to customer specification
- Various process connections
- Exchangeable measuring inserts
- Application in conjunction with a thermowell
- Explosion-protected versions Ex i, Ex n and NAMUR NE24



**Multipoint thermometer in band design model Tx95-B-B**

### Description

Multipoint thermometers are often used for measuring temperature profiles in reactors or fuel depots or for the detection of the so-called "hotspots".

The so-called multipoint thermometer in band design is a common construction. In this design, several, if required, exchangeable thermocouples or resistance thermometers are linearly arranged on a guide band.

To achieve rapid response times, the individual measuring points are pressed by pressure springs to the internal side of the thermowell which forms a single entity with the thermometer or which can ideally be an already existing component of the reactor. Connection terminals or temperature transmitters are placed in the connection housing which is either a component of the multipoint thermometer or can be mounted separately, e.g. on a wall or pipeline.

## Specifications

### Versions

- Model Tx95-**A**-B: with thermowell
- Model Tx95-**B**-B: without thermowell

### Materials

- Stainless steel 316L or 1.4571
- Special alloys or carbon steels as thermowell material

### Process connection

- Flanges of all major national and international standards
- Threaded connections with male or female threads to customer specifications
- High pressure connections, such as sealing cone or lens-type sealing ring to customer specifications

### Sensors TC95-x-B

- Thermocouples as sheathed cable installation
- Single, double element
- Measuring point ungrounded or grounded
- For details, see data sheet TE 65.40 of the cable thermocouple model TC40

### Sensors TR95-x-B

- PT100 class A or B as sheathed cable installation
- Single, double sensor
- For details, see data sheet TE 60.40 of the cable resistance thermometer model TR40

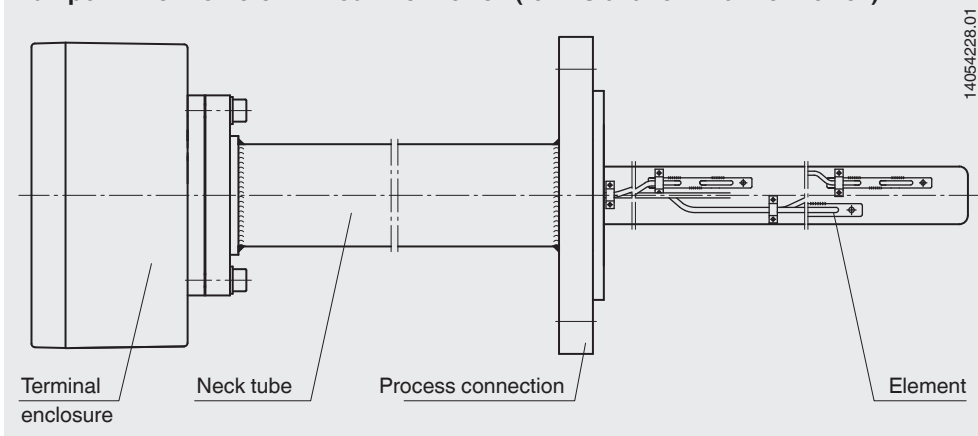
### Shipping

- Model Tx95-A-B with thermowell:  
In wooden box with lengths of up to 12 metres
- Model Tx95-B-x without thermowell:  
In wooden box, depending on design straight or rolled

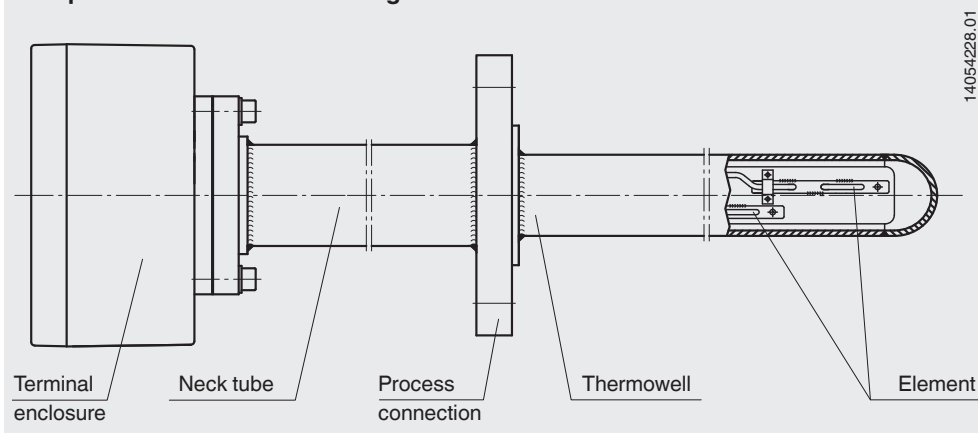
## Base elements of a multipoint thermometer

A multipoint thermometer can be basically divided into 5 individual assemblies which are described separately from each below:

**Multipoint thermometer without thermowell (for installation in a thermowell)**

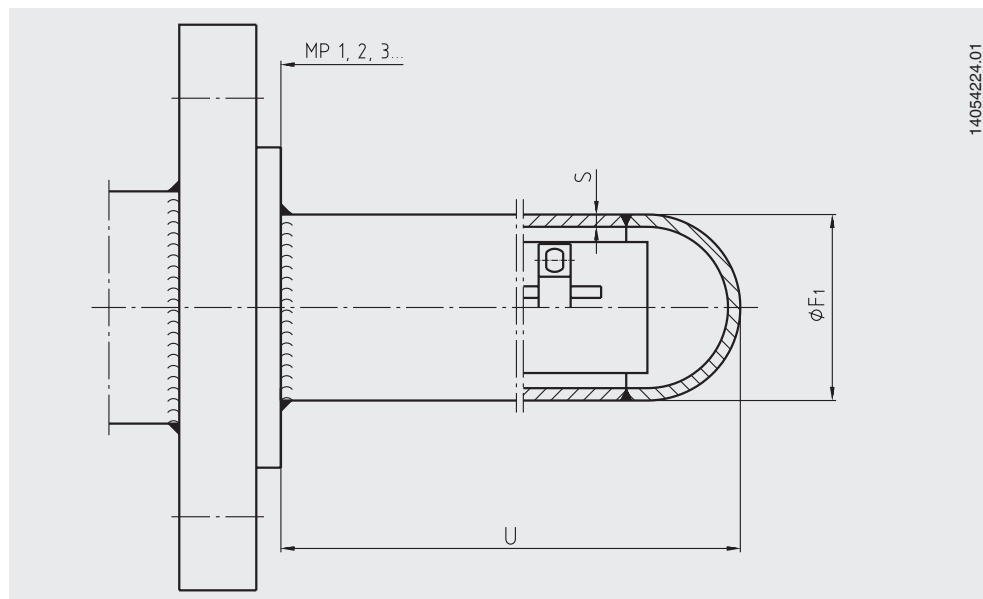


**Multipoint thermometer with integrated thermowell**



## Dimensions in mm

### ■ Thermowell (option)



#### Tube dimensions $\phi F_1 \times s$

- 48.3 x 3.2 mm
- 48.3 x 5.1 mm
- 48.3 x 7.1 mm
- 60.3 x 5.5 mm

#### Insertion length $U$

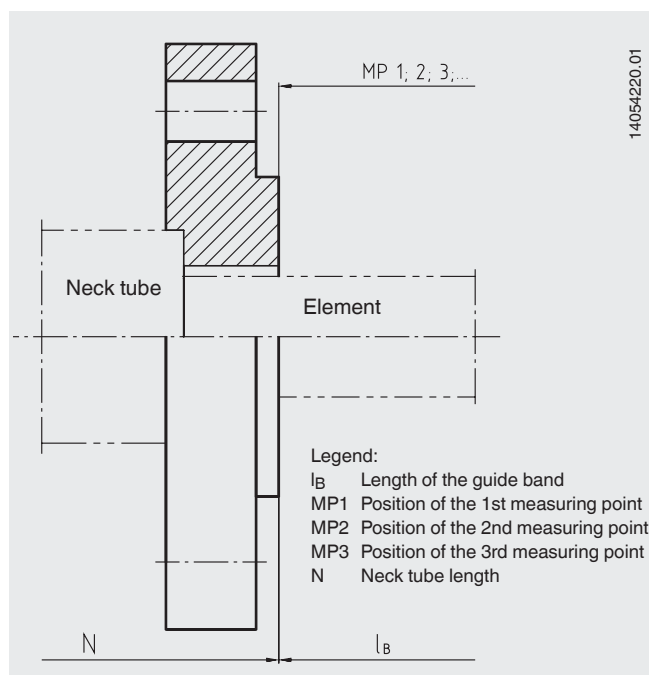
freely selectable (max. 10 m)

#### Material

Stainless steel 316  
 Stainless steel 316L  
 Stainless steel 1.4571 (316Ti)

In multipoint thermocouples Tx95-A-B in band design, the thermowell, depending on detailed specifications, is guided through the flange and thus takes over the function of the neck tube. Each multipoint thermometer Tx95-A-B and the suitable thermowell is designed and manufactured according to individual customer specifications.

### ■ Process connection



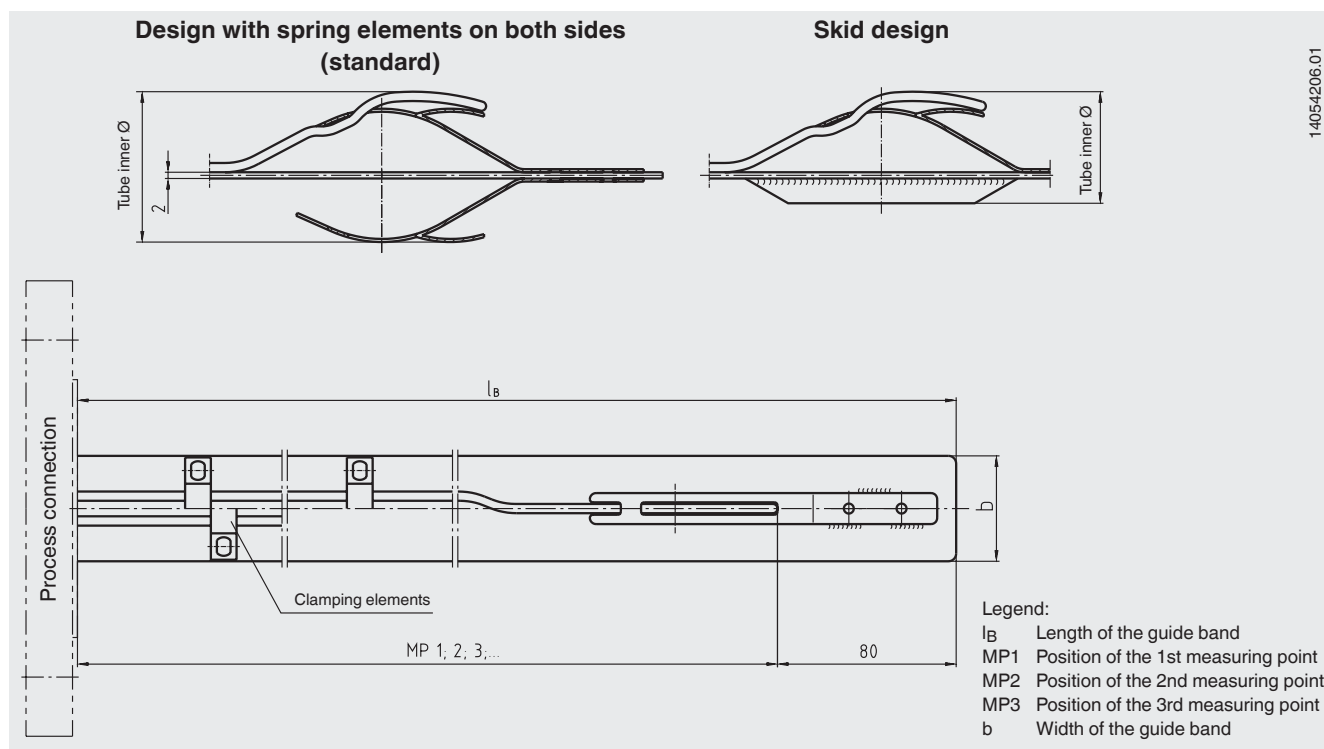
#### Flange designs

Flanges in accordance with applicable standards, such as ANSI/ASME B16.5, EN 1092-1, DIN 2527 or to customer specification

Standards	Flange design
<b>ASME B16.5</b>	Nominal width: 2 ... 4" Pressure rating: class 150 ... 2,500
<b>EN 1092-1/DIN 2527</b>	Nominal width: DN 50 ... DN 200 Pressure rating: PN 16 ... PN 100

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications.

■ **Element** (flat-steel band design with spring elements)



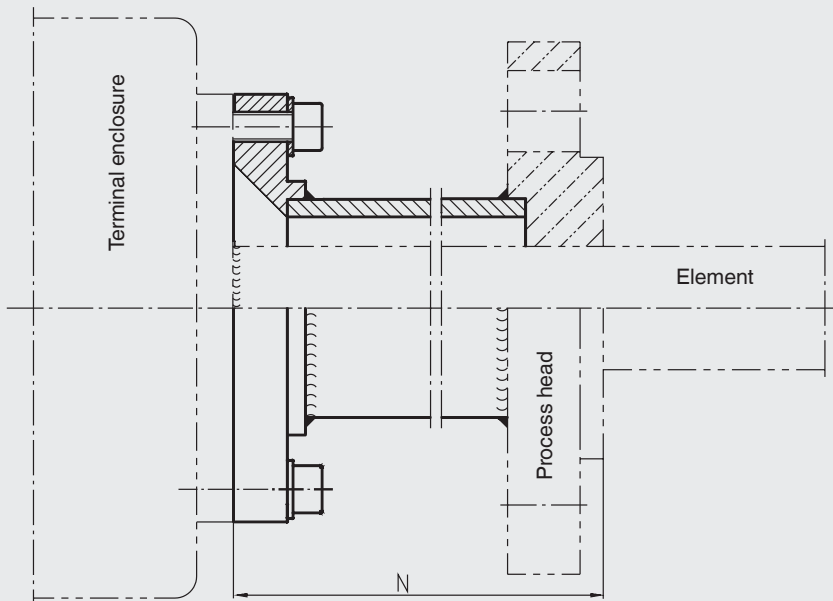
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Band dimension $b$	Inner diameter of tube	Band length $l_B$	Number of measuring points
34 x 2 mm	38 ... 60 mm	freely selectable (max. 40 m)	freely selectable
18 x 2 mm	20 ... 45 mm		(max. 10 MP, minimum distance of the measuring points: 200 mm)

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications.  
 Skid design with 18 mm band width in conjunction with small thermowell inner diameters

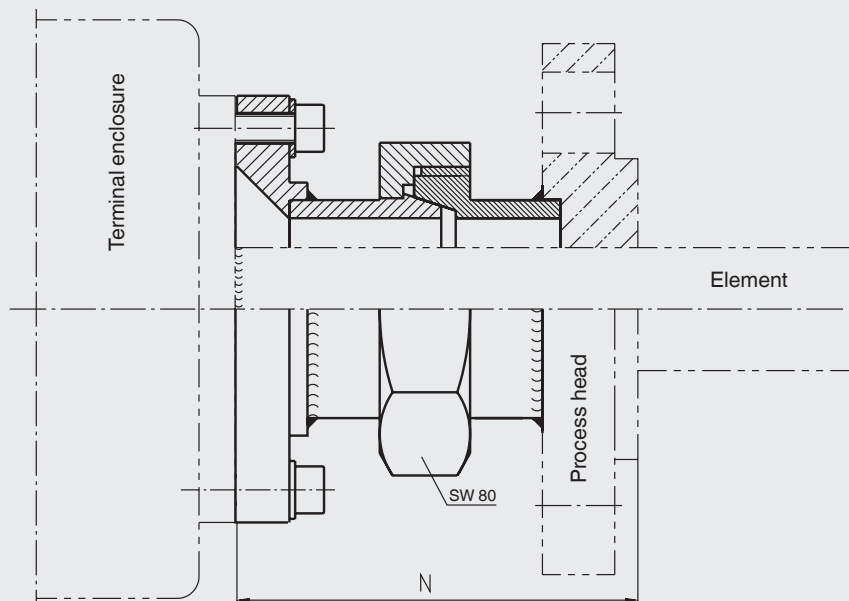
## ■ Neck tube

Straight tube design



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Separable threaded connection (rotatable)



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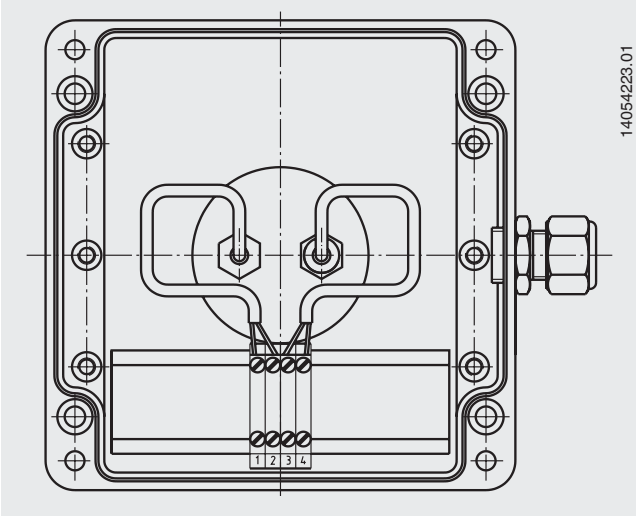
Version	Tube dimension	Length N
<b>Straight tube design</b>	60.3 x 5.5 mm	250 mm or longer
<b>Separable threaded connection</b>	60.3 x 5.5 mm 80 mm flats	250 mm or longer

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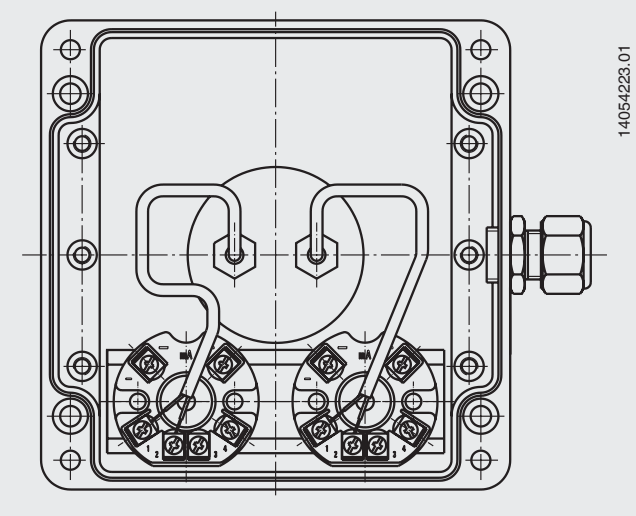
## ■ Terminal enclosure

Cable compression fittings in accordance with customer specification

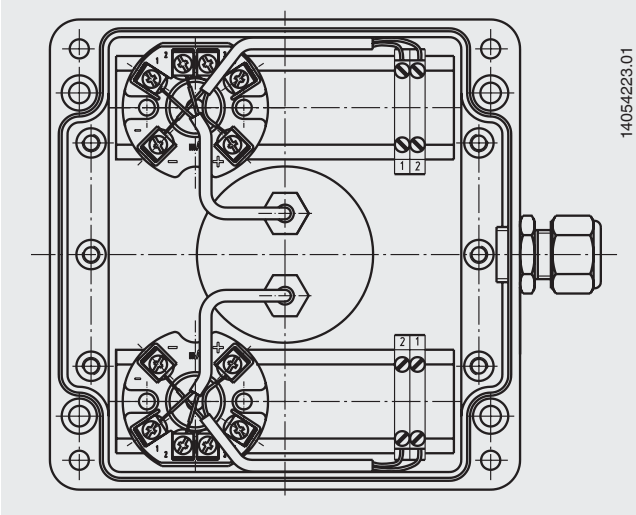
Connection terminals



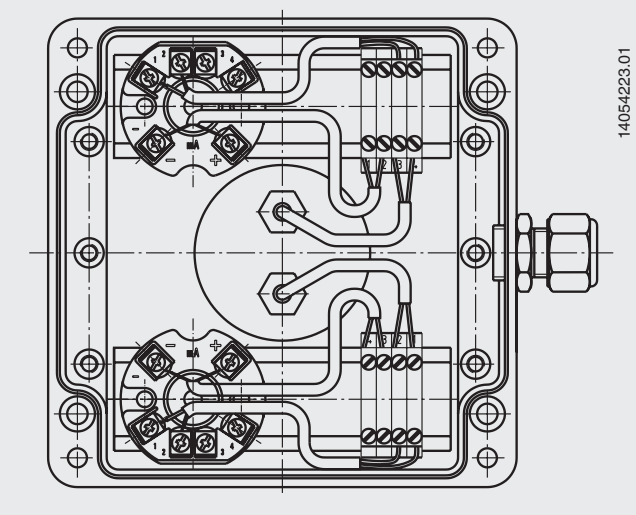
Transmitters



Transmitter on terminal



Terminal on transmitter on terminal



The actual wiring can deviate from the illustration in the data sheet.

Connection options in the terminal enclosure	Terminal enclosure dimensions in mm		
	ca. 160 x 160	ca. 160 x 260	ca. 250 x 400
Connection terminals	up to 10 MP	up to 10 MP	up to 10 MP
Transmitters	up to 4 MP	up to 8 MP	up to 10 MP
Transmitter on terminal	up to 3 MP	up to 6 MP	up to 10 MP
Terminal on transmitter on terminal	up to 2 MP	up to 4 MP	up to 8 MP

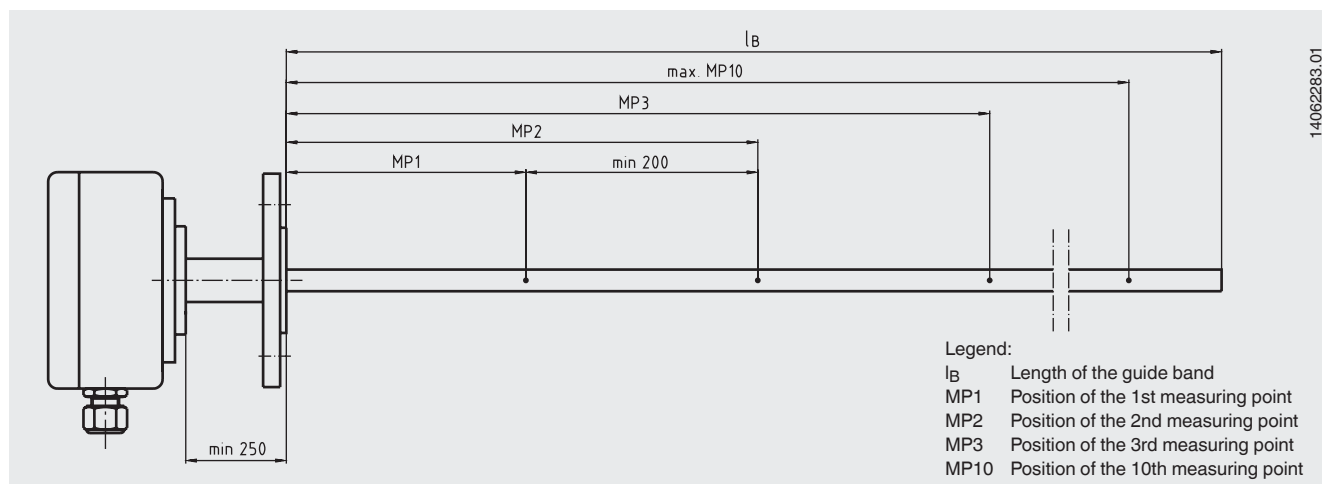
MP = measuring points

**Materials:** plastic or aluminium

**Note:** Depending on the manufacturer, the terminal enclosure dimensions can deviate from the data sheet values

Each multipoint thermometer model Tx95-x-B is designed and manufactured according to individual customer specifications. In multipoint thermometers with explosion protection, the terminal enclosure dimensions can deviate considerably from the data sheet specifications, depending on design.

## Position of the measuring points



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