

## Flexible multipoint thermometer, Flex-R® Model TC96-R



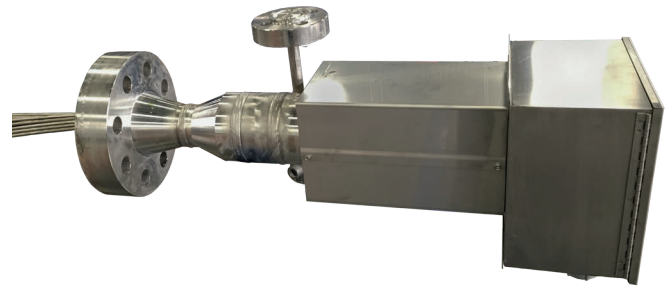
WIKA data sheet TE 70.10

### Applications

- Refining and petrochemical industry
- Measurement of temperature profiles in reactors, regenerators, and a variety of columns
- Detection of hotspots and uneven flow distribution

### Special features

- Real-time temperature readings
- High point density potential
- Secondary containment
- Adaptability to existing reactor nozzles
- Greater process control



Flexible multipoint thermometer, model TC96-R-C

### Description

In the petrochemical industry, there is an increasing need to determine temperature profiles accurately in demanding applications. This sector of industry is more and more confronted with higher legal regulations, increased competition and the need to operate older plants more efficiently. A profitable operation often needs to maximise production and extend the time between planned maintenance activities. An increasing flexibility with respect to new process methods and catalysts is becoming more and more important, as this often gives significant differences in operating conditions, reactor designs, process parameters, mechanical loading and reactivity of the catalyst.

With the modern flexible multipoint thermometer model TC96 Flex-R® you get the advantage of real radial temperature profiling in the vessel to detect hotspots, channeling effects and maldistribution of the catalyst in combination with a fast response time of 4 to 8 seconds.

## Specifications

### Versions

- Model TC96-R-C, Flex-R® with flange connection
- Model TC96-R-R, Flex-R® with Radial Tap
- Model TC96-R-N, Flex-R® with Radial Tap Nex Gen

### Materials

- Process connection made of stainless steel 321, 347, alloy 825 and a variety of other specialty steels as required
- MI cable made of 316, 308, 321, 347, Inconel 600 or other specialty metals

### Process connection

- Flanges of all major national and international standards
- Radial Tap or Radial Tap Nex Gen
- Special connections to customer specifications

### Sensors TC96

- Single or double element
- Measuring point ungrounded or grounded

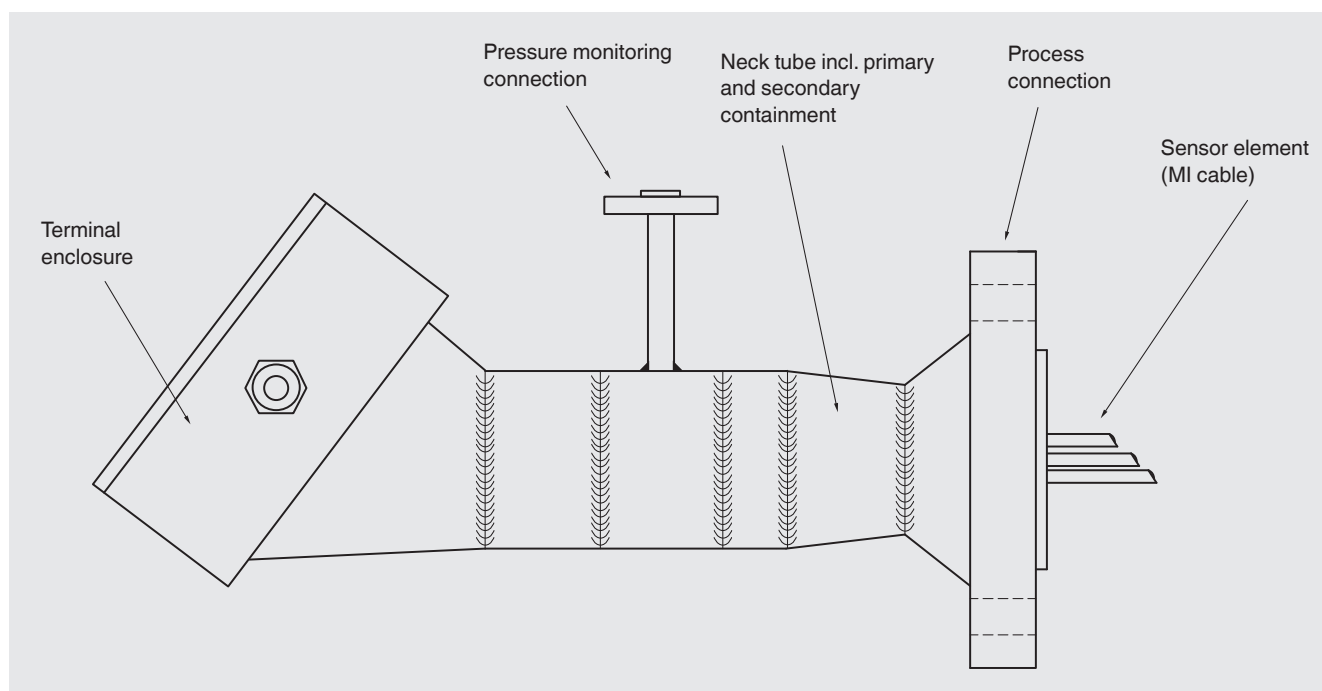
For details, see Technical information IN 00.23 on [www.wika.com](http://www.wika.com)

### Shipping

All TC96 Flex-R® models are shipped in a wooden box.

## Base elements of a flexible multipoint thermometer, model TC96 Flex-R®

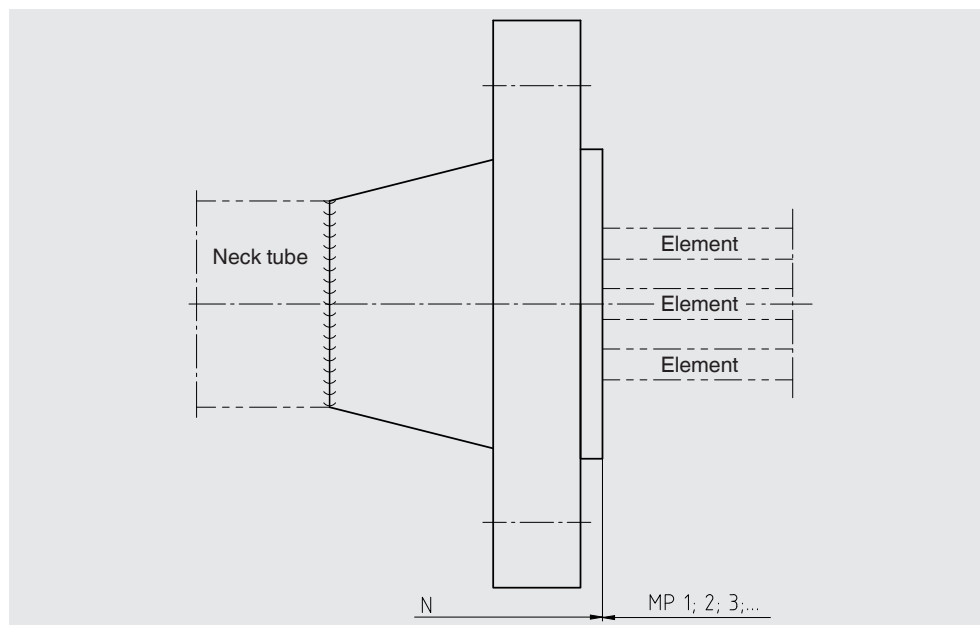
A multipoint thermometer can be basically divided into 5 individual assemblies which are described separately:



## Sensor element

MI cable specification	
Diameter	1/4" (6.35 mm), 5/16" (7.94 mm)
Type (single/double)	K, E, J others as specified
Sheath material	Stainless steel 316, 308, 321, 347, Inconel 600
Length min ... max	0.3 ... 20 m (1 ... 150 ft)
Number of measuring points	1 ... 100

## Process connection model TC96-R-C

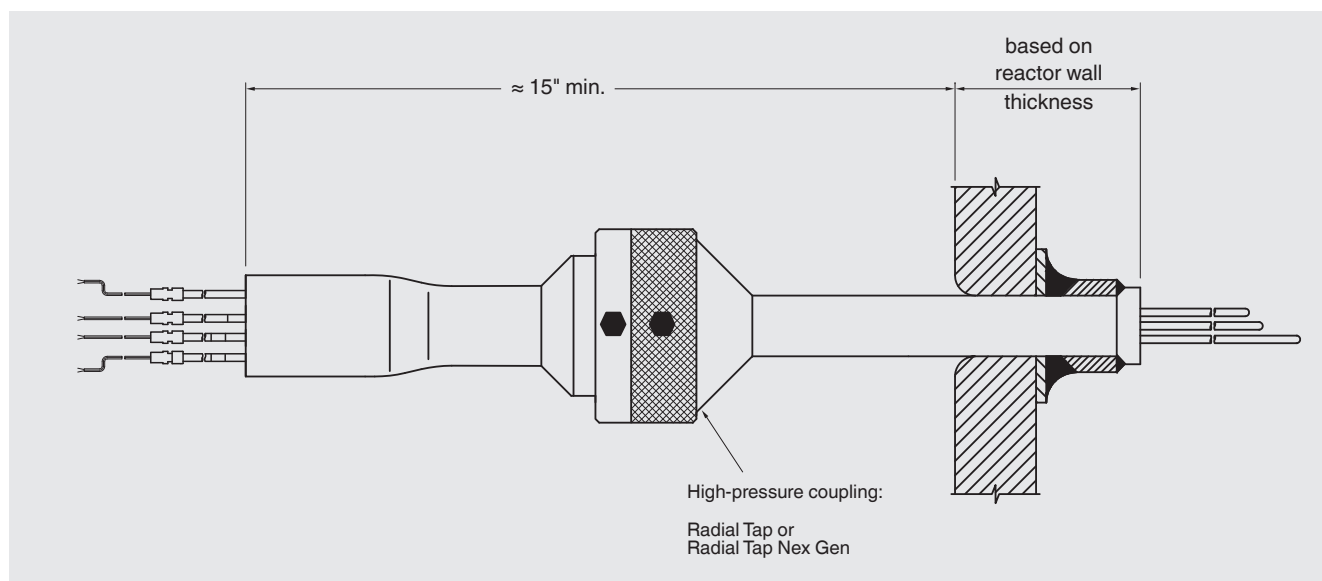


### Flange designs

Flanges in accordance with applicable standards, such as ANSI/ASME B16.5 or to customer specification

Standards	Flange design
ASME B16.5	Nominal width: 1" ... 12" Pressure rating: class 150 ... 2,500
EN 1092-1/DIN 2527	Nominal width: DN 50 ... DN 200 Pressure rating: PN 16 ... PN 100

## Process connection models TC96-R-R, TC96-R-N



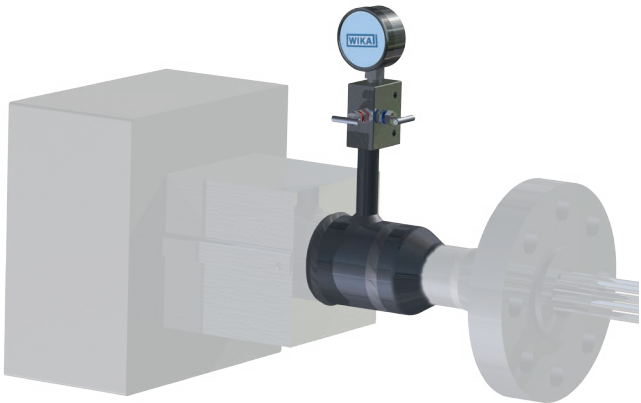
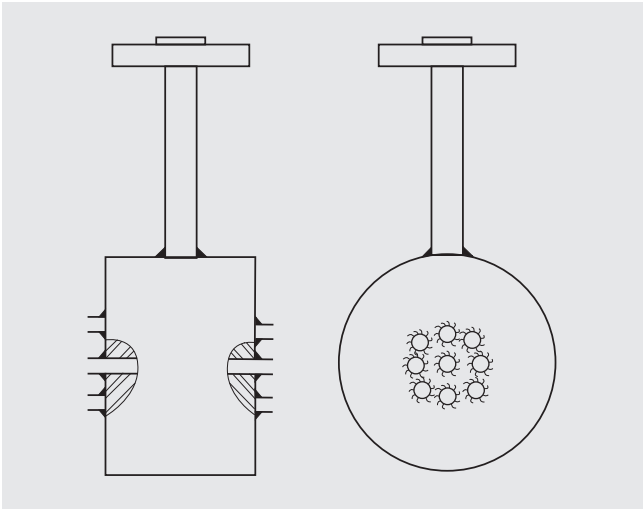
Material: Incoloy 825

These connectors are available in all required sizes and pressure ratings.

## Primary and secondary containment

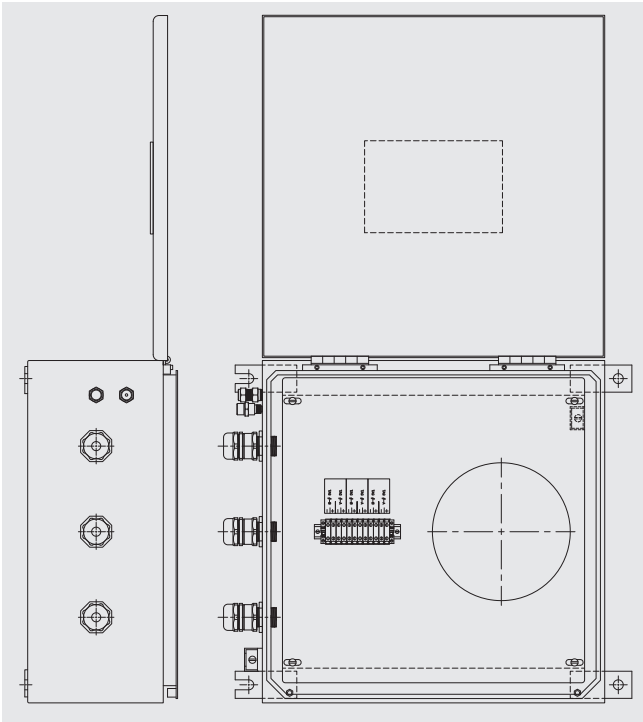
Specifications	
Diameter	Varies by flange and number of thermocouples
Length	Varies by pressure rating and number of thermocouples
Material	Incoloy 825

## Pressure monitoring



Specifications	
<b>Diameter</b>	Varies by process connection and number of thermocouples
<b>Material</b>	Inconel 825
<b>Connections</b>	Several different options like welding socket, flange connection oder valves are existing

## Terminal enclosure



This terminal enclosure shows just a sample for a possible configuration. The design of the terminal enclosure depends on the requirements of the application and will be engineered individually for each assembly.

## Routing of the MI cable inside the reactor

The correct length of the TC96-R (Flex-R®) will be designed depending on the vessel data:

- Diameter
- Height
- Material



For further information please see the TC96-R Flex-R® questionnaire at [www.wika.com](http://www.wika.com).

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