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RTDs with thread connection - Technical information יויוי



used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

What is a PT probe?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element.

The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications.

Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.



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Pt-s classes

Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes

the industr there are o and other t classes.	ther standa	ards		
IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ºC
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C

Standard		Range ºC	Ω at 0°C	
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C



Global cable insulation characteristics

	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good	Excellent	Poor
Fire resistance	Good	Good	Excellent	Excellent

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.



RTDs accessories

Temperature sensor accessories are equipment used to improve the performance of temperature measuring devices.

It is important to choose quality sensor accessories to ensure optimal performance and long-term reliability.

Our accessories are made of strong and resistant materials to guarantee maximum durability.

Eurosensors offers a wide selection of temperature sensor accessories to meet your specific needs.

Accessories include: thermocouple cables for reliable and accurate data transmission, compression fittings for easy installation, thermowells to protect sensors from mechanical damage, terminal heads for easy access to sensors, transmitters for networked data transmission, and ceramic terminal blocks for electrical isolation.

Additional accessories

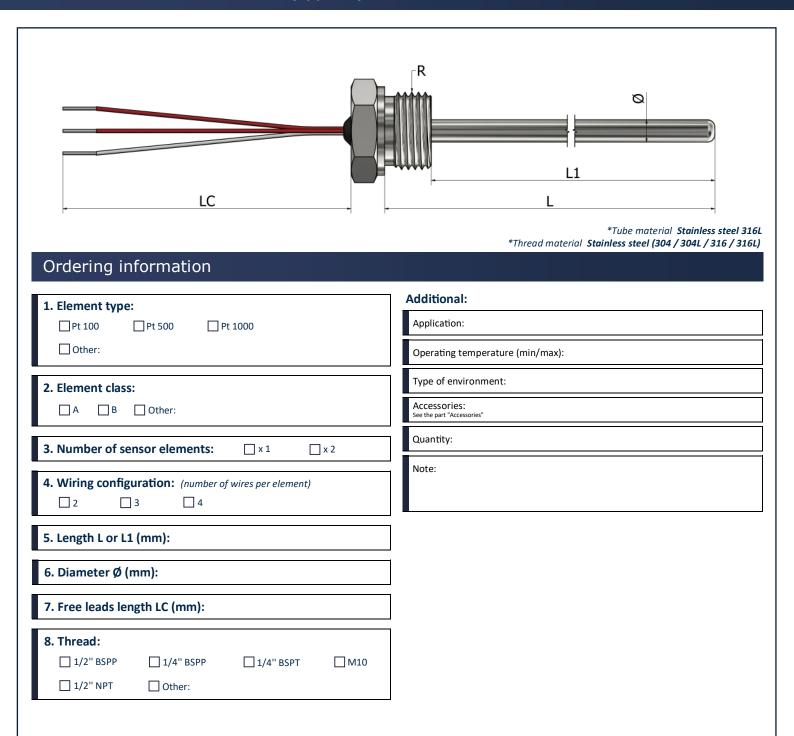
For more detailed information see "Accessories".





PR01 – RTDs with thread connection Fixed thread with free leads (type 1)





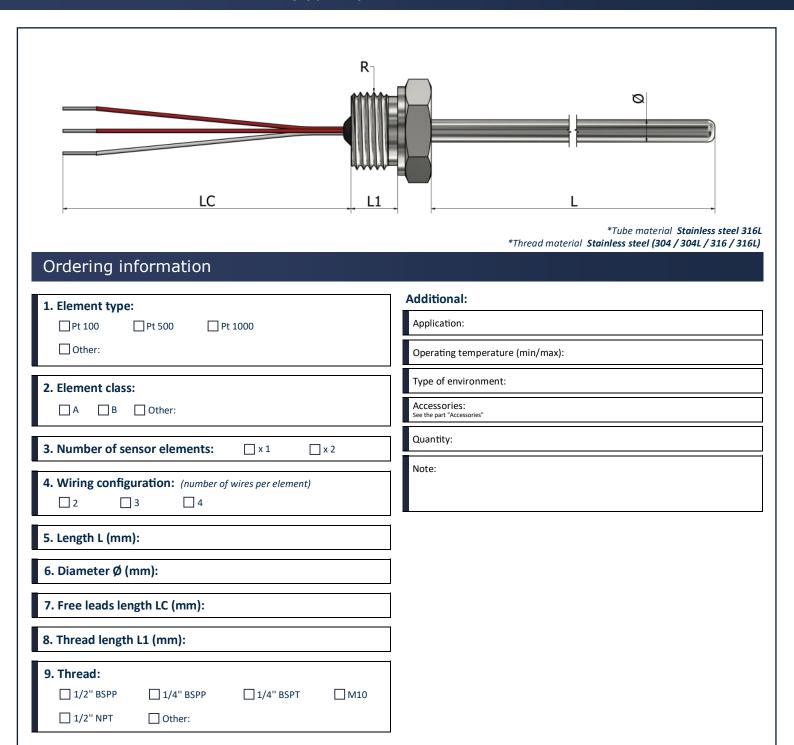
How to order?





PR02 – RTDs with thread connection Fixed thread with free leads (type 2)





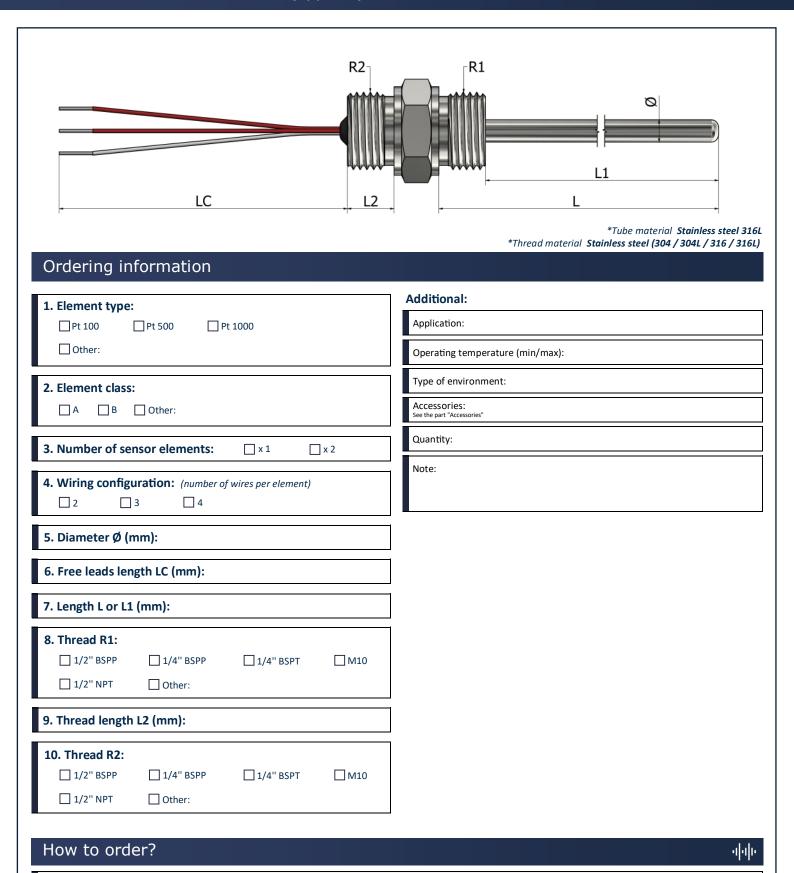
How to order?

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PR03 – RTDs with thread connection Fixed thread with free leads (type 3)





Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images,

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



PR10 – RTDs with thread connection Fixed thread with cable prolongation



50 LC	L1 L	
Ordering information	*Tube material Stainless stee *Thread material Stainless steel (304 / 304L / 316 /	
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	10. Thread: ☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M1 ☐ 1/2" NPT ☐ Other:	.0
2. Element class:	Additional: Application: Operating temperature (min/max):	
3. Number of sensor elements: \[\times x 1 \] \[\times x 2	Type of environment:	
4. Wiring configuration: (number of wires per element) 2	Accessories: See the part "Accessories" Quantity:	= = =
6. Diameter Ø (mm):	Note:	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other: 8. Cable length LC (mm):		
9. Crimp protection: Spring Heat shrink sleeve Without		
How to order?		44



PR13 – RTDs with thread connection Fixed thread (90° bend) (type 1)

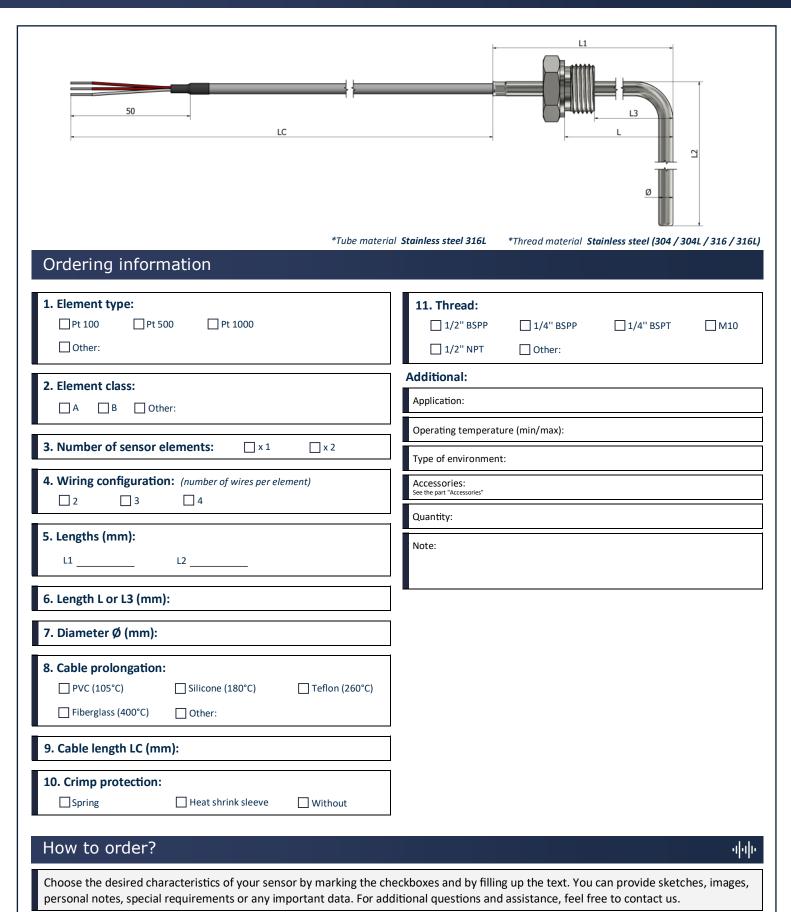


	50	LC *Tube mater	ial Stainless steel 316L	*Thread material \$	tainless steel (304 / 3	04L/316/31
Ordering inform	nation					
1. Element type: Pt 100 Pt 50 Other:	00 Pt 1000		11. Thread: ☐ 1/2" BSPP ☐ 1/2" NPT	☐ 1/4" BSPP☐ Other:	☐ 1/4" BSPT	□M10
2. Element class:			Additional:			
☐ A ☐ B ☐ Othe	er:		Application:			
3. Number of sensor e	lements:	□ x 2	Operating temperate			
4. Wiring configuration	1: (number of wires per ele	ement)	Accessories: See the part "Accessories"			
5. Lengths (mm):			Quantity:			
L1	L2		Note:			
6. Length L or L3 (mm)	:]			
7. Diameter Ø (mm):						
8. Cable prolongation: PVC (105°C) Fiberglass (400°C)	Silicone (180°C) Other:	☐ Teflon (260°C)				
9. Cable length LC (mn	1):		-]			
10. Crimp protection:	☐ Heat shrink sleeve	Without	-]			
How to order? Choose the desired char personal notes, special recommendations.						ارا hes, images,



PR14 – RTDs with thread connection Fixed thread (90° bend) (type 2)







PR15 – RTDs with thread connection Fixed thread with 90° cable prolongation



50 LC	Ø III
	al Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	10. Thread: 1/2" BSPP
2. Element class:	Additional:
☐ A ☐ B ☐ Other:	Application:
2 Number of course demands.	Operating temperature (min/max):
3. Number of sensor elements: \(\times x 1 \) \(\times x 2 \)	Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
□2 □3 □4	Quantity:
5. Length L or L1 (mm):	Note:
6. Diameter Ø (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	_
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	
How to order?	اراً العاملة eckboxes and by filling up the text. You can provide sketches, images,

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



PR20 – RTDs with thread connection Nozzle



50	LC				R ©
		*Nozzle ai	nd thread material S	tainless steel (304 / 3	304L/316/31
Ordering information					
1. Element type: Pt 100 Pt 500 Pt 1000 Other:		10. Thread: ☐ 1/2" BSPP ☐ 1/2" NPT	☐ 1/4" BSPP☐ Other:	☐ 1/4" BSPT	□M10
2. Element class:		Additional:			
☐ A ☐ B ☐ Other:		Application:			
3. Number of sensor elements: \[\subseteq x 1	□ x 2	Operating temperatu			
4. Wiring configuration: (number of wires per elemen	it)	Type of environment Accessories:	:		
2 3 4		See the part "Accessories"			
5. Length L (mm):		Quantity:			
6. Diameter Ø (mm):					
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Teflon (260°C)				
8. Cable length LC (mm):					
9. Crimp protection: Spring Heat shrink sleeve	☐ Without				
How to order?					ф.



PR21 – RTDs with thread connection Nozzle (90° bend)



50	LC	-		-		Rø
		*Tube material Stainl	ess steel 316L *Nozzle ar	nd thread material S a	tainless steel (304 / 3	04L/316/316
Ordering inforn	nation					
1. Element type: Pt 100 Pt 50 Other:	00 Pt 1000		11. Thread: ☐ 1/2" BSPP ☐ 1/2" NPT	☐ 1/4" BSPP	☐ 1/4" BSPT	□M10
2. Element class:			Additional:			
☐A ☐B ☐ Oth	er:		Application:			
3. Number of sensor e	elements:	□ x 2	Operating temperatu	re (min/max):		
			Type of environment	:		
4. Wiring configuratio ☐ 2 ☐ 3	n: (number of wires per ele	ement)	Accessories: See the part "Accessories"			
5. Lengths (mm):			Quantity:			
L1	L2		Note:			
6. Length L (mm):						
7. Diameter Ø (mm):						
8. Cable prolongation	:]			
☐ PVC (105°C)	Silicone (180°C)	Teflon (260°C)				
Fiberglass (400°C)	Other:					
9. Cable length LC (mr	m):					
10. Crimp protection: ☐ Spring	☐ Heat shrink sleeve	Without				
How to order? Choose the desired cha	racteristics of your sen requirements or any in					ા ન hes, images,



PR22 – RTDs with thread connection Bolt

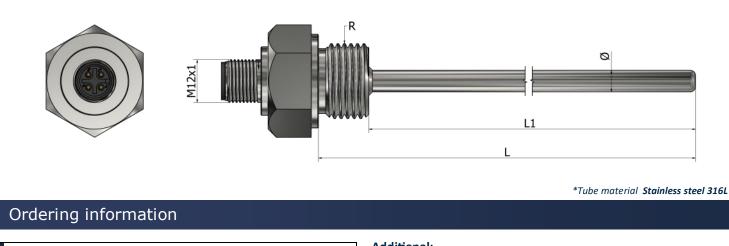


50 LC	
Ordering information	*Bolt material Stainless steel (304 / 304L / 316 / 3
1. Element type: ☐ Pt 100 ☐ Pt 500 ☐ Pt 1000 ☐ Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: \ \ \times 1 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Quantity: Note:
5. Length L (mm): 6. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm): 8. Crimp protection: Spring Heat shrink sleeve Without	
9. Thread: 1/2" BSPP	



PR30 – RTDs with thread connection Integrated M12 connector





Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
☐ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
☐ A ☐ B ☐ Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\square \times 1$ $\square \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L or L1 (mm):	
6. Diameter Ø (mm):	

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7. Thread:1/2" BSPP

■ 1/2" NPT



Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

☐ 1/4" BSPP

Other:

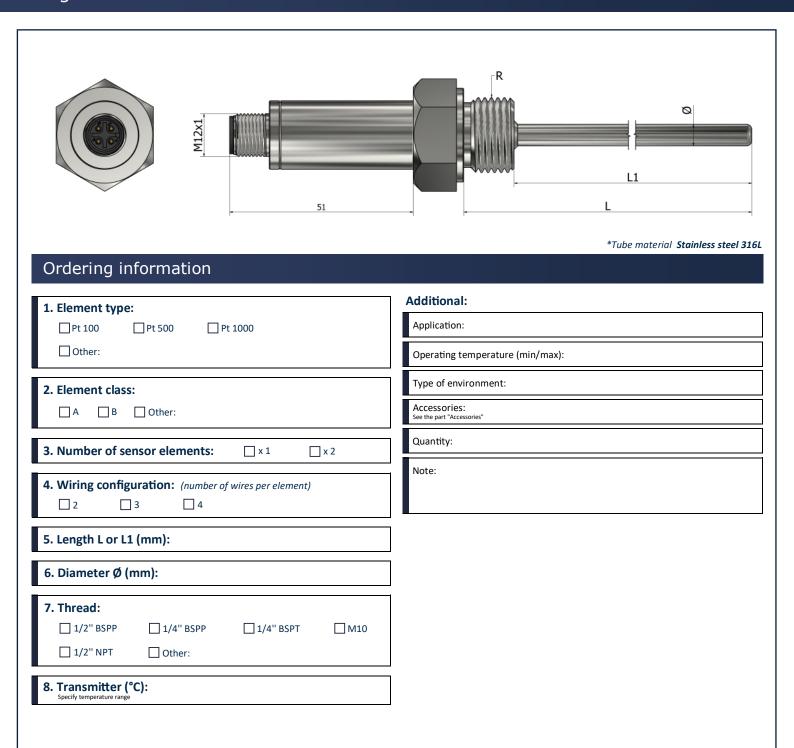
☐ 1/4" BSPT

☐ M10



PR31 – RTDs with thread connection Integrated M12 connector with transmitter





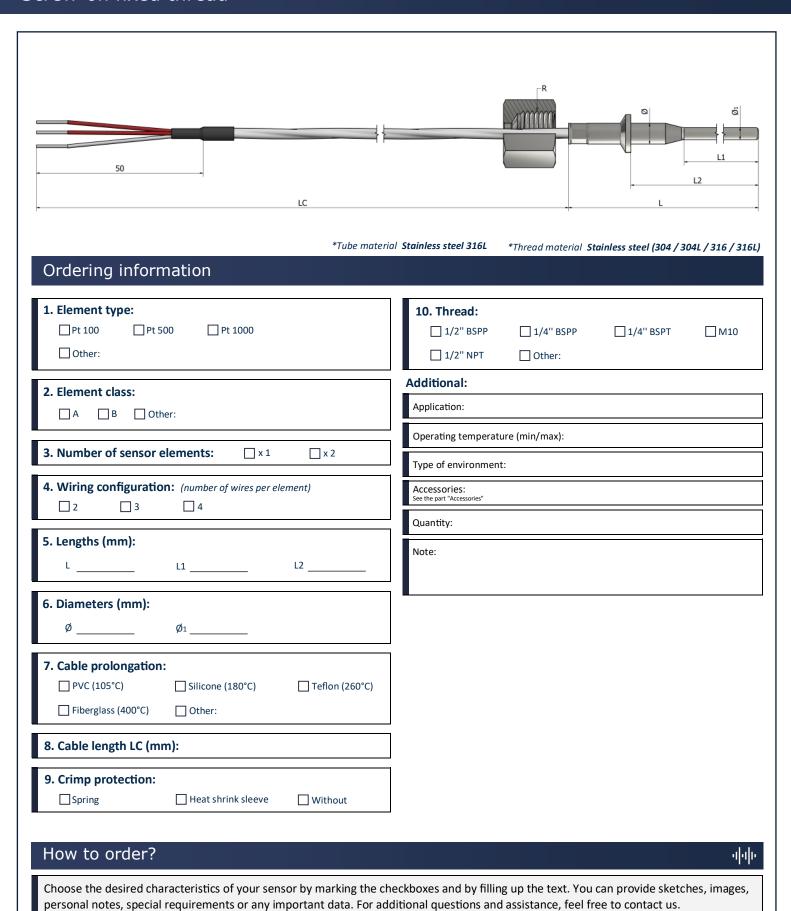
How to order?

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PR40 – RTDs with thread connection Screw-on fixed thread







PR50 – RTDs with thread connection Thread connection (spring loaded)

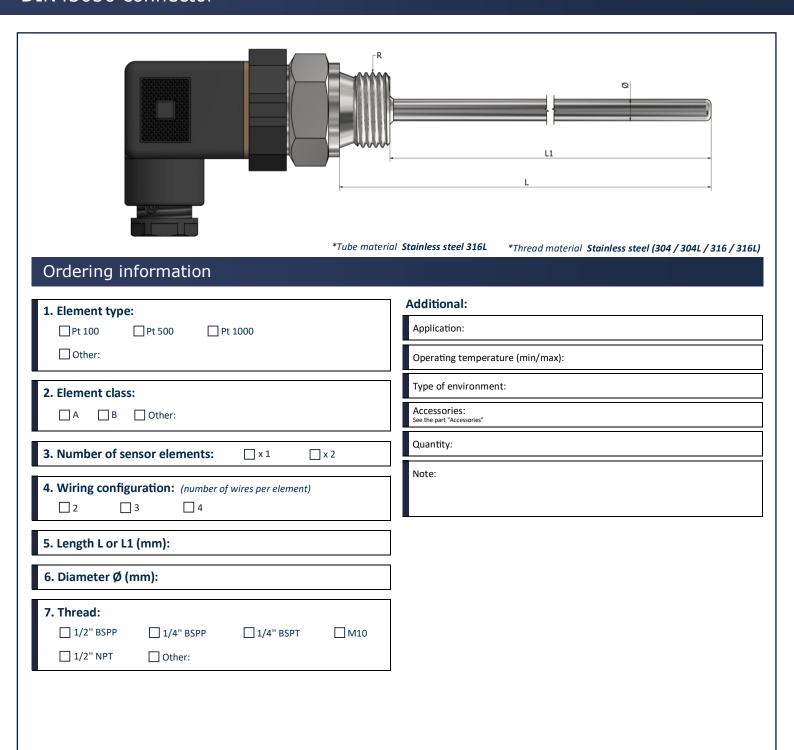


50 LC	L2 L1
-	terial Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 3
1. Element type: Pt 100	10. Thread: 1/2" BSPP
2. Element class: A B Other:	Additional: Application:
3. Number of sensor elements: $\square \times 1$ $\square \times 2$	Operating temperature (min/max): Type of environment:
4. Wiring configuration: (number of wires per element) ☐ 2 ☐ 3 ☐ 4	Accessories: See the part "Accessories"
5. Lengths (mm): L L1 L2	Quantity: Note:
6. Diameter Ø (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	



PR60 – RTDs with thread connection DIN43650 connector





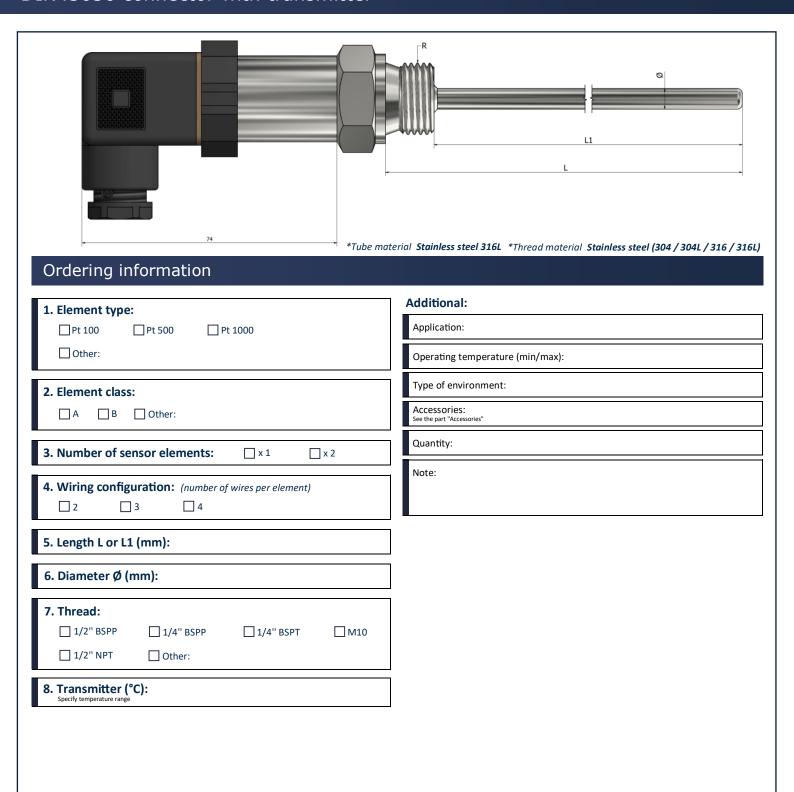
How to order?

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PR61 – RTDs with thread connection DIN43650 connector with transmitter





How to order?

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