

Resistance thermometers

WTh 23/24/25



WTh 23

Description **Version**
Compact screw-in resistance thermometer specially for heating, ventilation and air conditioning applications.

Technical specifications **Sensor**
1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert
Not replaceable

Thermowell
Ø 6 mm, stainless steel 316 Ti

Process connection
G $\frac{1}{4}$ B stainless steel 316 Ti

Installation length
100 mm

Connection head (degree of protection)
Type J, aluminium die cast (IP 54)

Measuring range
-35/+180 °C

- Options**
- Sensor class A
 - Sensor PT 1,000
 - Transmitter installation
 - Other thermowell diameters
 - Thermowell with bend, measuring tip with spring
 - Neck
 - Other process connections
 - Other installation lengths



WTh 24

Version
Screw-in resistance thermometer for medium pressure and flow loads, specially for mechanical engineering and plant engineering.

Sensor
1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert
Replaceable

Thermowell
As per DIN 43772
Ø 9 x 1 mm, stainless steel 316 Ti

Neck
Ø 9 x 1 mm, 25 mm long
Stainless steel 316 Ti

Process connection
G $\frac{1}{2}$ B stainless steel 316 Ti

Installation lengths
100, 160, 250 mm

Connection head (degree of protection)
Type B as per DIN 43729
Aluminium die cast (IP 54)

Measuring range
-35/+180 °C

- Sensor class A
- Sensor PT 1,000
- Transmitter installation (standard: 0/100 °C = 4–20 mA)
- Other installation lengths



WTh 25

Version
Screw-in resistance thermometer for medium pressure and flow loads at higher temperatures.

Sensor
1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert
Replaceable, Ø 6 mm

Thermowell
As per DIN 43772
Ø 9 x 1 mm, stainless steel 316 Ti

Neck
Ø 9 x 1 mm, 120 mm long
Stainless steel 316 Ti

Process connection
G $\frac{1}{2}$ B stainless steel 316 Ti

Installation lengths
100, 125, 160, 250, 400 mm

Connection head (degree of protection)
Type B as per DIN 43729
Aluminium die cast (IP 54)

Measuring range
-35/+400 °C

- Sensor class A
- Sensor PT 1,000
- Reduced measuring tip (6 mm)
- Transmitter installation
- EX version
- Other thermowell materials, process connections, installation lengths

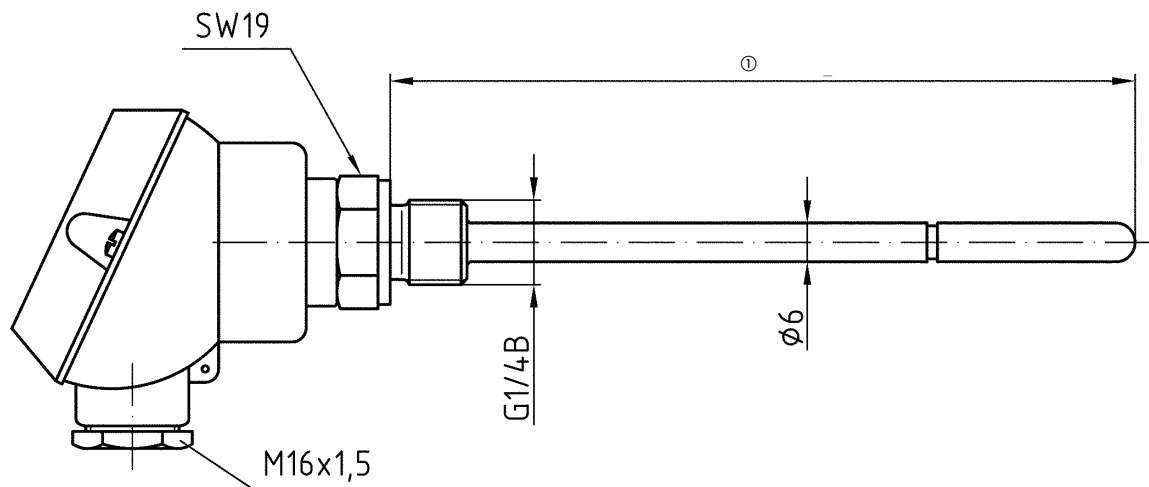
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See the catalogue DOMESTIC TECHNOLOGY for versions as injection-type and outdoor resistance thermometers for use in air ducts.

Resistance thermometers types WTh 23/24/25

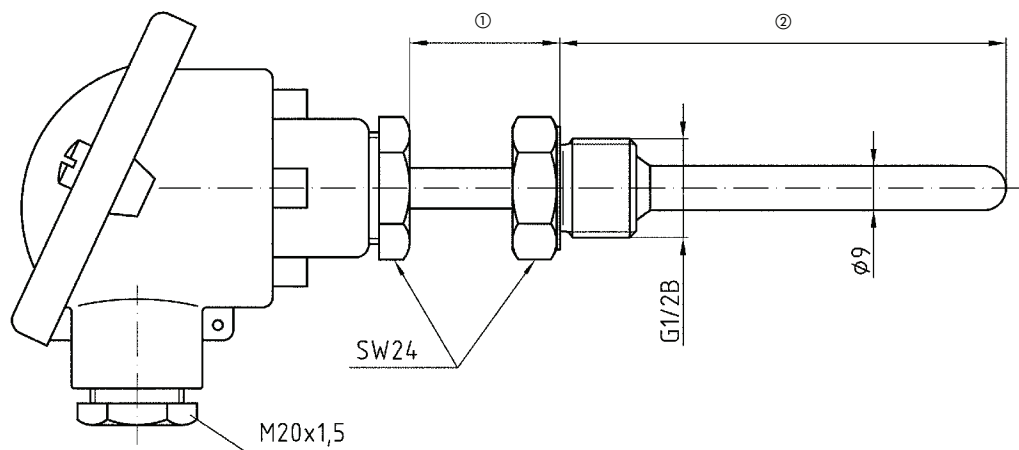
Dimensions (mm)

Type WTh 23

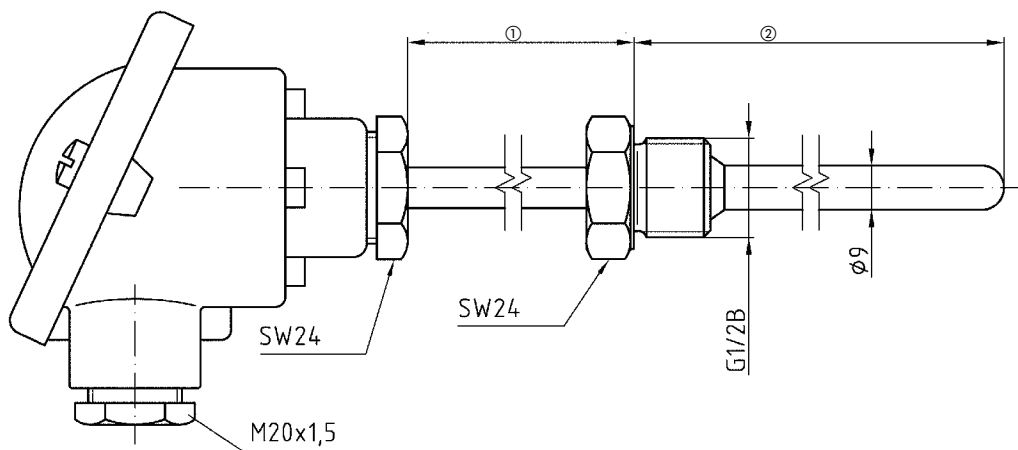


① Installation length

Type WTh 24

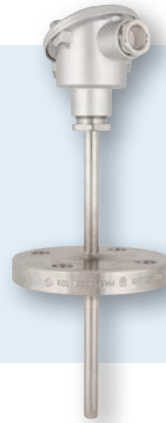
① Neck length (standard = 25)
② Installation length

Type WTh 25

① Neck length (standard = 140)
② Installation length

Resistance thermometers

WTh 26/27/28



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WTh 26

Technical specifications

Version

Weld-in resistance thermometer for high pressure and flow loads

Sensor

1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert

Replaceable, Ø 6 mm

Thermowell

As per DIN 43772-4
Stainless steel 316 Ti

Neck

Ø 11 x 2 mm, 140 mm long
Stainless steel 316 Ti

Installation lengths (L1/L3)

65/110, 65/140, 65/200,
125/ 200, 125/260

Connection head

(degree of protection)
Type B as per DIN 43729
Aluminium die cast (IP 54)

Measuring range

-35/+550 °C

Options

- Sensor class A
- Without thermowell (thread M 18 x 1.5 or M 14 x 1.5)
- Transmitter installation
- EX version
- Other thermowell materials, process connections, installation lengths, connection heads

WTh 27

Version

Flanged resistance thermometer for medium pressure and flow loads

Sensor

1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert

Replaceable, Ø 6 mm

Flanged thermowell

Several parts, Ø 11 x 2 mm
Flange connection as per EN 1092-1 type B 1, DN 25, PN 40
Stainless steel 316 Ti

Neck

Ø 11 x 2 mm, 120 mm long
Stainless steel 316 Ti

Installation lengths

100, 160, 250, 400 mm

Connection head

(degree of protection)
Type B as per DIN 43729
Aluminium die cast (IP 54)

Measuring range

-35/+400 °C

- Sensor class A
- Reduced measuring tip (6 mm)
- Transmitter installation
- EX version
- Other thermowell materials, process connections, installation lengths, connection heads

WTh 28

Version

Resistance thermometer for hygienic processes, e.g. food, beverages, pharmaceutical, biotechnology applications

Sensor

1 x Pt 100
2-, 3- or 4-wire
Class B, IEC 751

Measuring insert

Replaceable, Ø 6 mm

Thermowell

Ø 9 x 1 mm, stainless steel 316 Ti

Neck

Ø 9 x 1 mm, 140 mm long
Stainless steel 316 Ti

Process connection

Either clamp, screw connection
DIN 11851, weld-in ball, weld-in socket

Installation length

100, 125, 160, 250, 400 mm

Connection head

(degree of protection)
Type B, type BUZ
Aluminium die cast (IP 68)

Measuring range

-35/+300 °C

- Sensor class A
- Reduced measuring tip (6 mm)
- Other thermowell materials
- Other process connections
- Other installation lengths
- Transmitter installation
- EX version
- Field housing

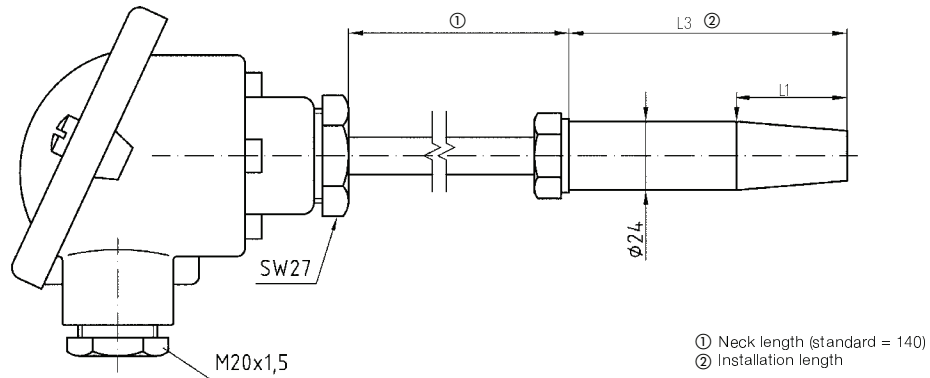
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See the catalogue DOMESTIC TECHNOLOGY for versions as injection-type and outdoor resistance thermometers for use in air ducts.

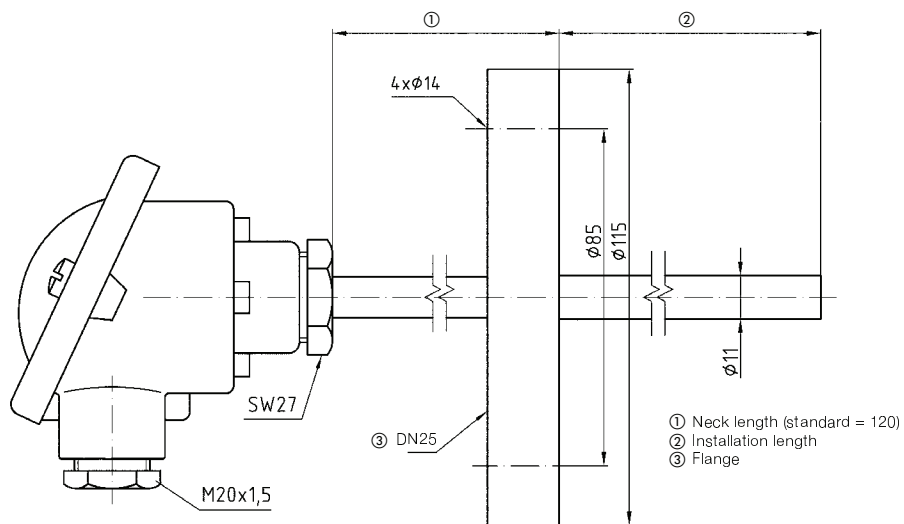
Resistance thermometers WTh 26/27/28

Dimensions (mm)

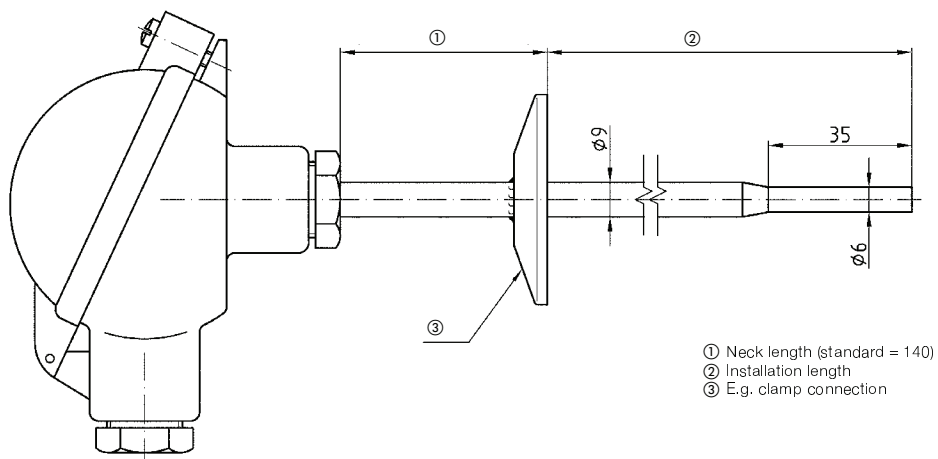
Type WTh 26



Type WTh 27

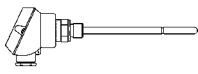
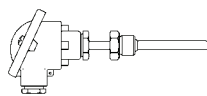
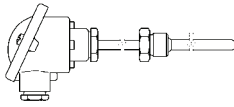



Type WTh 28



Resistance thermometers

DG: H, PG: 4

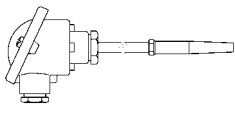
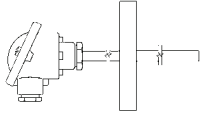
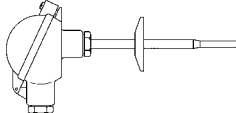
Type	WTh 23	WTh 24	WTh 25	
Version				
Sensor	1 x Pt 100 3-wire, class B	1 x Pt 100 3-wire, class B	1 x Pt 100 3-wire, class B	
Thermowell/probe diameter Material	6 mm Stainless steel 316 Ti	9 mm Stainless steel 316 Ti	9 mm Stainless steel 316 Ti	
Neck	---	25 mm	120 mm	
Process connection	G $\frac{1}{4}$ B Stainless steel 316 Ti	G $\frac{1}{2}$ B Stainless steel 316 Ti	G $\frac{1}{2}$ B Stainless steel 316 Ti	
Connection head/ Electr. connection	Type J/cable gland	DIN 43729, type B Cable gland	DIN 43729, type B Cable gland	
Measuring range fixed (moving)	-35/+180 °C	-35/+180 °C	-35/+400 °C	
Installation length	Price € Part no.	Price € Part no.	Price € Part no.	
65 mm	---	---	---	
100 mm	32225	32210	32240	
125 mm	---	---	32241	
160 mm	32226	32211	32242	
250 mm	32227	32212	32243	
400 mm	32228	---	32244	
Extra charges (without PG)	Price €	Price €	Price €	
Per additional 100 mm installation length**			WTh 25	WTh 25 Ex 
Transmitter installation* DC 7.5-30 V/4-20 mA				---
1 x Pt 100 4-wire				
2 x Pt 100 2-wire		---		
Sensor class A				
Reduced measuring tip (Ø 6 mm) for 1 x Pt 100	---	---		
EX version WTh	---	---	---	
Connection head design BBK		---	---	---
EX transmitter Ex ia** DC 12-36 V/4-20 mA (only applies in conjunction with EX version)	---	---	---	

* Applies to standard measuring ranges (-50/+50, 0/50, 0/100, 0/120, 0/150, 0/200, 0/300 °C), extra charge in all other cases € 11.00.

** Applies up to 1000 mm, one-time extra charge for installation length greater than 1000 mm: € 62.00.

Resistance thermometers

DG: H, PG: 4

Type	WTh 26	WTh 27	WTh 28
Version			
Sensor	1 x Pt 100 3-wire, class B	1 x Pt 100 3-wire, class B	1 x Pt 100 3-wire, class B
Thermowell/probe Diameter Material	Weld-in thermowell As per DIN 43772* Stainless steel 316 Ti	11 mm Stainless steel 316 Ti	9 mm Stainless steel 316 Ti
Neck	140 mm	120 mm	140 mm
Process connection	Weld-in thermowell As per DIN 43772*	Flange EN 1091-1 Type B1 DN 25/PN 40	Clamp 1"
Connection head/ Electr. connection	DIN 43729, type B Cable gland	DIN 43729, type B Cable gland	Type B, type BUZ Cable gland
Measuring range	-35/+550 °C	-35/+400 °C	-35/+200 °C
Installation length	Price € Part no.	Price € Part no.	Price € Part no.
65 mm	32250	---	---
100 mm	32251	32260	32230
125 mm	---	---	32231
160 mm	32253	32261	32232
250 mm	32254	32262	32233
400 mm	---	32263	32234
Extra charges (without PG)	Price €	Price €	Price €
Per additional 100 mm installation length ***	---		
Transmitter installation* DC 7.5-30 V/4-20 mA			
1 x Pt 100 4-wire			
2 x Pt 100 2-wire			
Sensor class A			
Reduced measuring tip (Ø 6 mm) for 1 x Pt 100	---		
Clamp 1½"	---	---	On request
DIN 11851, DN 40	---	---	On request
Hygienic, DN 40	---	---	On request
Weld-in ball	---	---	On request
Weld-in socket	---	---	On request
EX version WTh			
EX transmitter Ex ib** DC 12-36 V/4-20 mA (only applies in conjunction with EX version)			

* See page 276 for thermowell made of other materials.

** Applies to standard measuring ranges (-50/+50, 0/50, 0/100, 0/120, 0/150, 0/200, 0/300, 0/400, 0/500 °C), extra charge in all other cases € 11.00.

***Applies up to 1000 mm, one-time extra charge for installation length greater than 1000 mm € 62.00.

Resistance thermometer WTh 30 for hygienic processes



- Hygienic design as per EHEDG recommendations
- Compact design
- High accuracy
- Short response time
- Various process connections
- Transducer can be integrated



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Application For temperature measurement in tanks and pipelines and applications requiring hygienic process connections, materials and processing. Specially suitable for food, pharmaceutical and biotechnology applications due to the compact design and the high accuracy.

Description WTh 30 consists of a sturdy stainless steel housing with diverse process connections and a Pt 100 measuring insert which is directly integrated in a thermowell. The change in resistance depending on the measured temperature is directly available as a signal or can be detected by a transducer and converted into a 4–20 mA output signal. The instrument is connected by means of a compact M12 plug connection.

Technical specifications

Measuring range
-50/+200 °C

Response time
As per to EN 60751, test in flowing water (without transducer) T 90 = 5.5 s

Sensor
1 x Pt 100, 4-wire
Class A, IEC 751

Thermowell
Stainless steel 316, Ø 6 mm

Installation lengths
30, 35, 50, 100, 150, 200 mm

Housing
Stainless steel, Ø 18 mm

Degree of protection
IP 67 (EN 60529)

Electrical connections

M 12 connection, connector housing stainless steel

Process connections

Stainless steel 316 L, one of the following: G $\frac{1}{2}$ B; G $\frac{1}{2}$ B conical, metal seal; grooved union nut DIN 11851; Clamp DIN 32676; Clamp ISO 2852; Tri-Clamp VARIVENT® type N

Surface roughness

Ra < 0.8 µm
Welding seam < 1.6 µm

Operating pressure

Max. 16 bar
(VARIVENT® type N max. 10 bar)

Technical specifications Transducer (option)

Version
Transducer directly integrated in the plug housing, with encapsulated electronics.

Measuring ranges
0/100° C (standard)
0/150 °C
-50/+100° C

Supply voltage

DC 8.5–36 V

Output signal

4–20 mA, 2-wire

Options

- Integrated transducer
- Other process connections
- Electropolishing
- Replaceable measuring insert
- Other installation lengths
- Weld-in sockets

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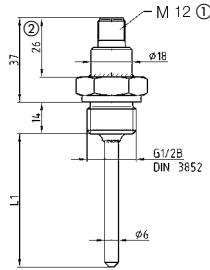
See page 275
for prices.

Resistance thermometers WTh 30

Electrical connections and dimensions (mm)

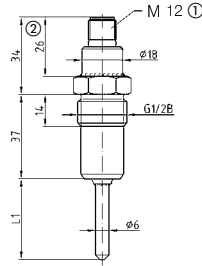
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Connection G1/2B



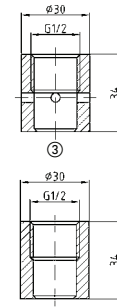
- ① Connector 4-pin
- ② Version with integrated transducer (um 24 mm longer)

Connection G1/2B, conical metal seal



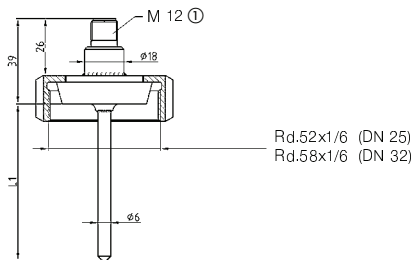
- ① Connector 4-pin
- ② Version with integrated transducer (um 24 mm longer)

Weld-in socket



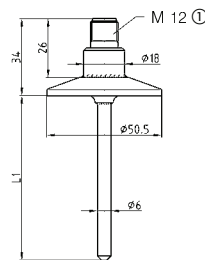
- ③ Socket with inspection hole
- ④ Socket without inspection hole

Tapered socket with grooved union nut DIN 11851



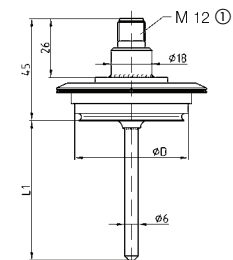
- ① Connector 4-pin

Clamp connection



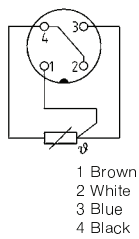
- ① Connector 4-pin
- Clamp DIN 32676 DN 25, DN 40
- Clamp ISO 2852 1", 1 1/2"
- TriClamp 1", 1 1/2"

VARIVENT® connection



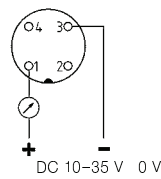
D=68 for VARIVENT® type N

Pin assignment
Without transducer



1 x Pt 100, 4-wire

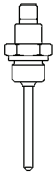
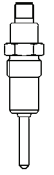
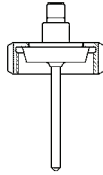
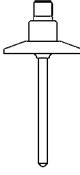
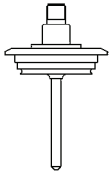
Pin assignment
With transducer



4-20 mA, 2-wire

Resistance thermometers WTh 30

DG: H, PG: 4

Type	WTh 30	WTh 30 DK	WTh 30 MR	WTh 30 CP	WTh 30 VT
Version					
Sensor	1 x Pt 100 4-wire, class A	1 x Pt 100 4-wire, class A	1 x Pt 100 4-wire, class A	1 x Pt 100 4-wire, class A	1 x Pt 100 4-wire, class A
Thermowell/probe Diameter Material	6 mm Stainless steel 316 L	6 mm Stainless steel 316 L	6 mm Stainless steel 316 L	6 mm Stainless steel 316 L	6 mm Stainless steel 316 L
Process connection	G½B	G½B, conical, metal seal	Grooved union nut DIN 11851 DN 25/PN 40	Clamp ISO 2852 DN 25	VARIVENT® Type N
Electrical connection	M 12 connector	M 12 connector	M 12 connector	M 12 connector	M 12 connector
Measuring range	-50/+200 °C	-50/+200 °C	-50/+200 °C	-50/+200 °C	-50/+200 °C
Installation length L1	Price € Part no.	Price € Part no.	Price € Part no.	Price € Part no.	Price € Part no.
30 mm	32302	32310	32318	32326	32334
35 mm	32303	32311	32319	32327	32335
50 mm	32304	32312	32320	32328	32336
100 mm	32305	32313	32321	32329	32337
150 mm	32306	32314	32322	32330	32338
200 mm	32307	32315	32323	32331	32339
Extra charges (without PG)	Price €	Price €	Price €	Price €	Price €
Installed transducer 4–20 mA*					
Process connection					
DIN 11851 DN 32	---	---	---	---	---
ISO Clamp DN 38	---	---	---	No extra charge	---
DIN Clamp DN 25	---	---	---	No extra charge	---
DIN Clamp DN 40	---	---	---	No extra charge	---
Tri-Clamp 1"	---	---	---	No extra charge	---
Tri-Clamp 1½"	---	---	---	No extra charge	---
Accessories				Part no.	Price €
Weld-in socket for G½B conical, metal seal, without inspection hole				32340	
				32341	

* Please specify desired measuring range: 0/100 °C (standard), 0/150 °C, -50/+100 °C (corresponding to 4–20 mA each)

Thermowells for resistance thermometers

Weld-in thermowells, single-piece as per DIN – type 4 Permissible operating pressure as per DIN 43772							
Type	Thermometer connection	Hole	Length L3	Cone length L1	Thermowell material	Part no.	Prices*
D1	M 18 x 1.5	7 mm	140 mm	65 mm	1.0460 (C 22.8)	64590	On request
					1.4571 (CrNiMoTi)	64591	On request
					1.7335 (13CrMo44)	64592	On request
					1.5415 (15Mo3)	64593	On request
					1.7380 (10CrMo910)	64594	On request
D2	M 18 x 1.5	7 mm	200 mm	125 mm	1.0460 (C 22.8)	64595	On request
					1.4571 (CrNiMoTi)	64596	On request
					1.7335 (13CrMo44)	64597	On request
					1.5415 (15Mo3)	64598	On request
					1.7380 (10CrMo910)	64599	On request
D3	M 18 x 1.5	7 mm	200 mm	65 mm	1.0460 (C 22.8)	64600	On request
					1.4571 (CrNiMoTi)	64601	On request
					1.7335 (13CrMo44)	64602	On request
					1.5415 (15Mo3)	64603	On request
					1.7380 (10CrMo910)	64604	On request
D4	M 18 x 1.5	7 mm	260 mm	125 mm	1.0460 (C 22.8)	64605	On request
					1.4571 (CrNiMoTi)	64606	On request
					1.7335 (13CrMo44)	64607	On request
					1.5415 (15Mo3)	64608	On request
					1.7380 (10CrMo910)	64609	On request
Weld-in thermowells, single-piece, similar to DIN – type 4 Permissible operating pressure as per DIN 43772							
Type	Thermometer connection	Hole	Length L3	Cone L1	Thermowell material	Part no.	Prices*
D 0 S	M 18 x 1.5	7 mm	110 mm	65 mm	1.4571 (CrNiMoTi)	64610	On request
					1.7335 (13CrMo44)	64611	On request
					1.5415 (15Mo3)	64612	On request
					1.7380 (10CrMo910)	64613	On request
D 1 S	M 18 x 1.5	7 mm	140 mm	65 mm	1.4571 (CrNiMoTi)	64614	On request
					1.7335 (13CrMo44)	64615	On request
					1.5415 (15Mo3)	64616	On request
					1.7380 (10CrMo910)	64617	On request
D 4 S	M 18 x 1.5	7 mm	200 mm	65 mm	1.4571 (CrNiMoTi)	64618	On request
					1.7335 (13CrMo44)	64619	On request
					1.5415 (15Mo3)	64620	On request
					1.7380 (10CrMo910)	64621	On request
D 5 S	M 18 x 1.5	7 mm	200 mm	125 mm	1.4571 (CrNiMoTi)	64622	On request
					1.7335 (13CrMo44)	64623	On request
					1.5415 (15Mo3)	64624	On request
					1.7380 (10CrMo910)	64625	On request

*The prices of the above thermowells vary greatly depending on the quantities ordered. Please enquire for project-specific prices.

Pipeline temperature sensors RTS



- The pipe can be cleaned with a scraper
- No swirls in the pipe
- No danger of sensor damage in highly viscous media



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4

Application For temperature measurement in pipes in which a probe must not extend into the medium. Specially for hygienic applications in the food and pharmaceutical industries as well as for biotechnology and painting systems.

Description The RTS pipe temperature sensor consists of a pipe piece with variable process connections and a sensor part contained in the centre. The sensor part contains a flush Pt 100 sensor. A number of thermal coupling and decoupling measures at the Pt 100 sensor minimise thermal errors. This allows for optimum detection of the temperature of the medium. The pipe temperature sensor can be easily installed at any point of the pipe. Measurements are made without a probe extending into the medium. Special inner pipe coatings are available for corrosive media. Superior surface quality is possible by means of electropolishing.

Technical specifications

Measuring range
0/150 °C

Sensor
1 x Pt 100 2-, 3- or 4-wire
Class B, IEC 751

Base values
As per IEC 751

Measuring current
Approx. 1 mA (film measuring resistor)

Process connection (both ends)
One of the following: Clamp DIN 32676,
pipe connection DIN 11851/SMS with grooved nut,
male thread DIN 11887/SMS,
Flange as per DIN EN/ANSI

Nominal diameters
DN 25 to DN 100
or 1" to 4"

Pipe material
Stainless steel 304

Insulation resistance
≥ 100 MOhm at 20 °C (DC 500 V)

Electrical connection
Connector ISO 4400

Degree of protection
IP 65 (EN 60529)

Technical specifications transmitter (option)

Version
Ceramic hybrid transmitter,
mounted directly in the neck

Ambient temperature
Max. 100 °C

Supply voltage
DC 12–28 V

Output signal
4–20 mA, 2-wire

Options

- Transmitter installation
- Other pipe materials
- Inner pipe electropolished
- Other process connections
- Other pipe dimensions
- Other measuring ranges
- Fixed cable connection
- Other connectors
- Sensor class A
- Digital plug-in display DA 06 (for version with transmitter)

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Prices on request.