

## Flange resistance thermometer with VARIVENT flange - Type TP19 / TW59...T303 -



### FEATURES

- "FR" HOUSING IN IP 67
- SINGLE OR DOUBLE PT100
- OPTIONALLY WITH MEASURING TRANSMITTER
- CONNECTION "VARIVENT" FLANGE, D = 25 OR 68 MM
- FULLY SEALED
- SHORT ADDRESSING TIMES AND TAPERED SENSOR TIP
- OPTIONAL AS QUICKTEMP VERSIONS FOR MEASURING POINTS REQUIRED FOR QUALITY ASSURANCE

### DESCRIPTION

The **TP19** resistance thermometers with/without transmitter are powerful, rugged devices for process measurements, the food, pharmaceutical and chemical industry, etc., completely made of stainless steel in a sealed design for hygienic applications.

The standard version of the temperature sensor is designed according to Accuracy Class A. Accuracy classes B 1/2, 1/3, 1/10 DIN are optionally available. The measuring inserts are single or double PT 100s, which can be exchanged. The utilisation of the measuring inserts must be adapted to the requirements with regard to temperature, length, flexibility, vibration resistance and measuring accuracy. Special devices are available for control processes, e.g. tapered sensor tip for particularly short half-value times.

The design according to IP 67 with exchangeable test insert provides access to the measuring point at any time and offers a reliable guarantee for tightness and long operating times, even under extreme operating conditions, as well as saving resources.

Programmable 4-20 mA, HART or Profibus PA transmitters can be installed for transmission of the measuring values. The QUICKTEMP series is particularly recommended for measuring points that require calibration.

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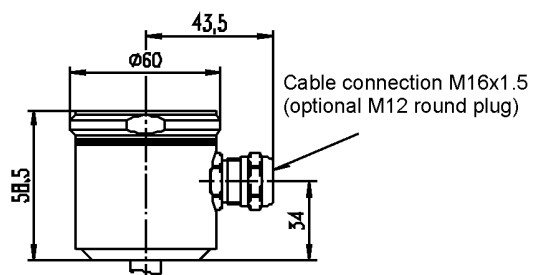
## TECHNICAL DATA

<b>Design configuration</b>	
Type	Field housing (Cr Ni St)
Temperature sensor	PT 100 according to EN 60751, exchangeable test insert (standard) Insertion tube 1.4571
Test insert, electrical	1 x PT 100 in a 2-, 3- or 4-wire circuit, standard: 1 x 3-wire circuit, Class A, 2 x PT 100 in 2- or 3-wire circuit
Electrical connection	M 16x1.5 cable connection, MS-nickel-plated, Optional: M12 x 1 round plug, 4-pin
Accuracy	- Standard: Tolerance Class A according to EN 60751, - Optional: Tolerance categories B 1/10, 1/5, 1/3, 1/2
Response time	T50 (measured in water): 6 s (design-dependent, d = 6 mm), < 6 s with tapered sensor tip, on request)
Temperature of measuring material	t <sub>max</sub> at the sensor = -20... +200°C
Casing material	Stainless steel 1.4301 (standard field housing)
Sensor material	Stainless steel 1.4571, optional 316L = 1.4435 or 1.4404, Optional: High surface quality
Sensor diameter	Standard: Continuously smooth, d = 6 mm, Optional: Tapered sensor tip d = 4 mm (exchangeable test insert) Tapered sensor tip d = 3 mm or 2 mm (test insert not exchangeable)
Sensor length	Standard EL: 35 mm, VARIVENT d = 68 mm, Deviating length on request
Collared tube	Standard: Neck pipe length = 50 mm, d = 12 mm for extending the distance, depending on the operating temperature, optionally in other lengths
Type of protection	EN 60529, IP 67 with cable connection, optionally with cable output
Permitted pressure	DN = 10 bar, depending on design and temperature
CE conformity	EMC guidelines are met, CE symbol
<b>Process connections</b>	
	-- VARIVENT flange d = 68 mm, DN 40/50 for pipe DN 40 – DN 125 -- Optional: - VARIVENT DN 25, d = 50 mm - VARIVENT DN 10/15, d = 31 mm Material No. 1.4404, optional 1.4435
<b>Accessories</b>	
	<b>(please order separately, see data sheet on WTH field construction overview)</b>
Parts for assembly	Accessories for VARIVENT installation systems on request
<b>Options</b>	
Electrical connection	- Ceramic connection base - Flexible connection wires - Sheathed cable version (vibration-resistant version) - Transmitter TE 42, programmable, 4...20 mA, 2-wire switch (standard) - Transmitter TE 41, programmable, galvanically separated - Transmitter TE 52, HART - Transmitter TE 82, Profibus PA - Configuration set including adapter and software for TE41 / TE42
Process connections	- Tapered sensor tip D = 3 mm or 4 mm - Exchangeable test insert, d = 3 mm - Neck pipe L = 75 mm, d = 12 mm (please specify other length) - VARIVENT flange DN 25, 316L, fully welded
Calibration	Factory calibration, calibration certificate (3-point / 5-point) with DKD standard
Certificates	Material certificate according to EN 10204, EHEDG, FDA

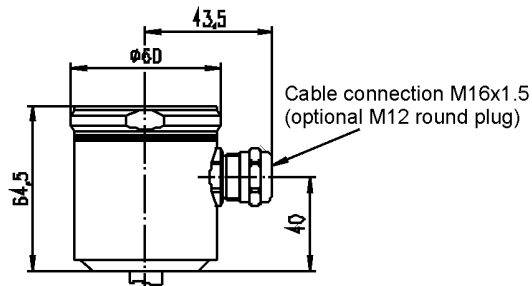
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# Flange resistance thermometer with VARIVENT flange - Type TP19 / TW59...T303 -

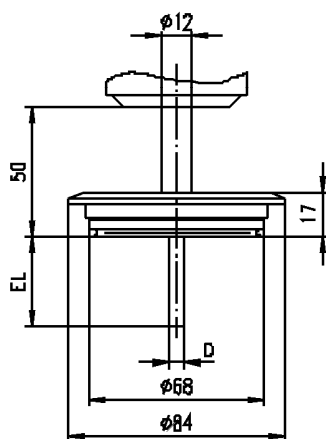
## DIMENSIONAL DRAWINGS



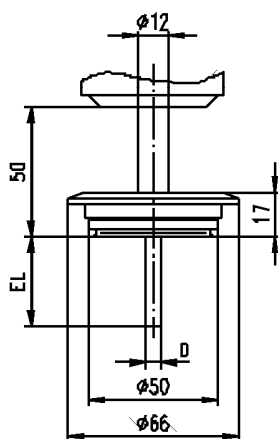
Field housing (stainless steel, IP67 EN 60529)  
Connection head H



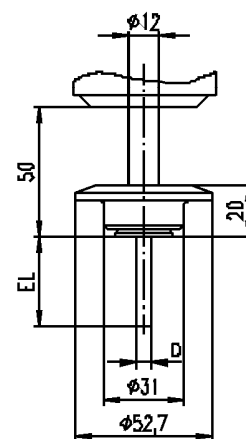
Field housing (stainless steel, IP67 EN 60529)  
Connection head P (for Profibus)



VARIVENT flange D = 68 mm

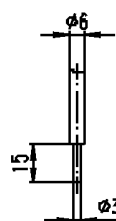


VARIVENT flange D = 50 mm



VARIVENT flange D = 31 mm

Note:  
Sensor  $\varnothing$  (D) = 6 mm (standard)  
Insertion length (EL) = 30 mm (standard)



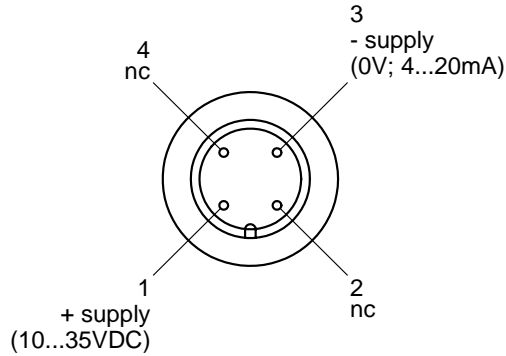
Option:  
Tapered tip  $\varnothing$  = 31 mm

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## ELECTRICAL CONNECTION

Version example: M12-round plug

### Connection with measuring transmitter\*



### Response times for WTH PT100

Apart from the protective pipe at the measuring point, the response time is mainly determined by the heat transport:

- Medium, flow speed, etc.
- Heat capacity

Higher flow speeds and heat capacities considerably reduce the response time. It specifies the time in which the measuring value will reach 50% or 90% of the final value

\*Connection without measuring transmitter, see device label

## ORDER INFORMATION

### Sensor type, tolerance class, circuitry

A	1 x PT 100, Klasse A, 2-Leiter
B	1 x PT 100, Klasse A, 3-Leiter
C	1 x PT 100, Klasse A, 4-Leiter
D	2 x PT 100, Klasse A, 2-Leiter
E	2 x PT 100, Klasse A, 3-Leiter

### Connection head

H	Field housing
P	Profibus housing
1	Form B, aluminium pressure casting
9	others

### Insertion length / nominal length

05	50 mm
10	100 mm
20	160 mm
30	200 mm
50	250 mm
70	300 mm
80	400 mm
90	others

### Output / measuring range

K0	00	
L0		Transmitter 4-20 mA, 2-wire
	30	0 - 50° C
	40	0 - 100° C
	50	0 - 150° C
	60	0 - 200° C
	70	0 - 300° C
	80	0 - 400° C
	99	other measuring ranges

TP19 / TW59

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We are currently improving our equipment and therefore reserve the right to make changes.

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