

# Type 11285



## Temperature sensors Pt to 180°C



- head with well
- head with well and current output
- cable
- pairs for heat measuring devices

### Characteristics

Sensor 1x or 2x Pt100

Connection 4-wire with the connection option of 3 or 2-wire, (2xPt100 - 2-wire)

Resistance or current output 4 to 20 mA.

Accurate measuring.

### Description - use

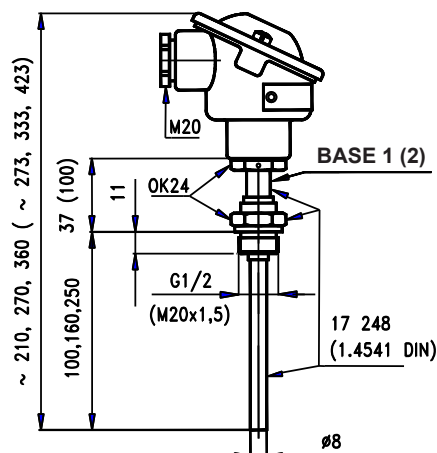
The sensors are designed for temperature measuring. The sensor signal can be evaluated for temperature measuring registration or signalisation. The paired are used as a part of heat measuring devices for sensing the temperature difference in the inlet and outlet piping. The product is subject to ČSN EN 60751, the paired are subject to Government Decree no. 464/2005 Coll., which in the CR implements the European Parliament and Council Directive 2004/22/ES and other related standards. The pair assignment is specified by the production number on the label. Digit indication 1 and 2 is used for differentiating for inlet and return piping.

**Head sensors** are connected by means of terminal in the head. They are produced in design with transmitter 4-20 mA, wells and stems are from stainless steel. Temperature of Al head max. -40 to +150°C, temperature of plastic head is max. -40 to +130°C, in sensors with transmitters, head temperature can be within range -25 to +75°C.

**Cable sensors** - connected by means of silicone cable. The option of use for sensing temperature of liquids, powder, viscose and soft materials in greater depths. Max. temperature up to +180°C.

### Dimension drawing

- head



Covered connection into terminal block placed in the head. Can be ordered upon customer request with plastic head for aggressive environment. Supplied also with transmitter 4 to 20 mA.

Material: well - stainless steel class 17 (DIN 1.4541), head - Al or plastic

### Technical data

**Measuring range:** -40 to +180°C for common use

0 to +180°C for paired design

**Measuring current:** 1 mA

**Tolerance class:** A, B according to ČSN EN 60751 (in 2xPt only B)

**Ingress protection:** IP 67 - cable design

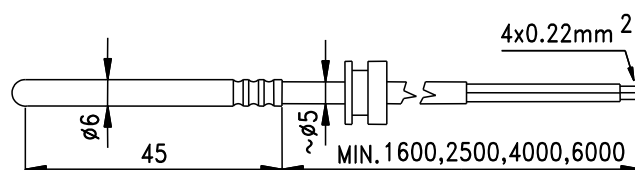
IP 54 - head design

**Time factor:** no well - water 6 s, air 20 s

with well - water 15 s, air 40 s

**Sensors with transmitter:** output signal 4-20 mA  
power supply 12-36 V DC  
polarity optional

- cable



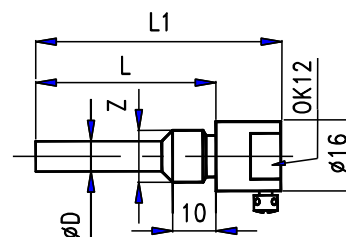
Temperature sensing in greater depths. Combination with silicone bushing up to max temperature +180°C is possible for wall passage.

Material: casing - Cu, cable - silicone

### Accessories upon order

- wells for cable sensors

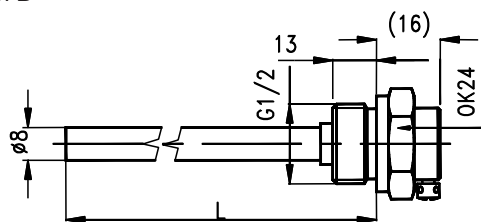
- design A



Material: stainless steel class 17 (DIN 1.4034), PN 63 dle ČSN 13 0010

Due to continual technical development the manufacturer reserves the right to change parameters without prior notification.

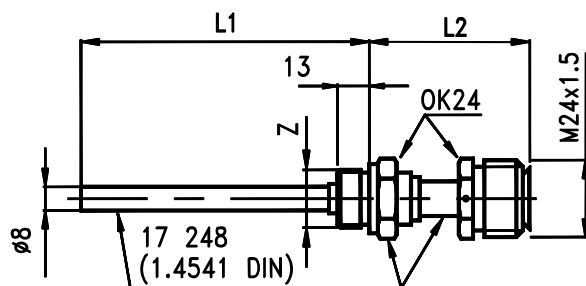
- design B



Materiál:  
stainless steel class 17 (DIN 1.4541), PN 63 dle ČSN 13 0010

- supplied with sealing Cu ring and sealing option

- wells for head sensors

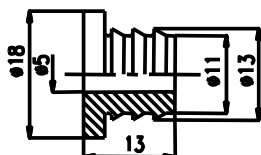


- supplied with sealing Cu ring and sealing option,  
Material: stainless steel 17 (DIN 1.4541), PN 40 according to ČSN 13 0010

- wells order numbers for head sensors

Well order no.	Z	L1	L2
405 911 090 016	G1/2	100	52
405 911 090 026		160	
405 911 090 036		250	
405 911 090 046	M20x1,5	100	52
405 911 090 056		160	
405 911 090 066		250	
405 911 090 116	G1/2	100	121
405 911 090 126		160	
405 911 090 136		250	
405 911 090 146	M20x1,5	100	121
405 911 090 156		160	
405 911 090 166		250	

- rubber bushing



The bushing has a function of wall, sheet metal plug, etc.  
Order No.: **405 061 014 516**  
Materiál: silicone (max. 180°C)

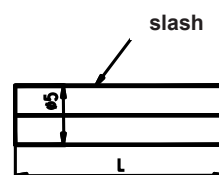
- sealing rings Cu (package 10 pcs) - for weld-on-pieces

Order No.	Dimension
405 911 082 616	13 x 17
405 911 082 716	21 x 25
405 911 082 816	20 x 24

- wells order numbers for cable sensors

version	Well order no.	Z	L	L1	ΦD
A	405 911 091 036	G1/4	34,5	49	8
	405 911 091 046	M12x1,5			
B	405 911 091 096	G1/2	54		
	405 911 091 056		100		
	405 911 091 076		160		
	405 911 091 106	M20x1,5	54		
	405 911 091 066		100		
	405 911 091 086		160		

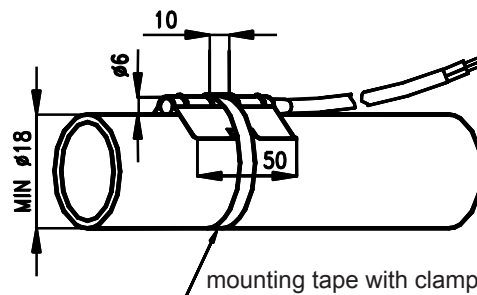
- distance pipe



L dist. pipes	L water tanks	Order No.	version
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It is used for securing the sensor position in the well.  
Materiál: Teflon

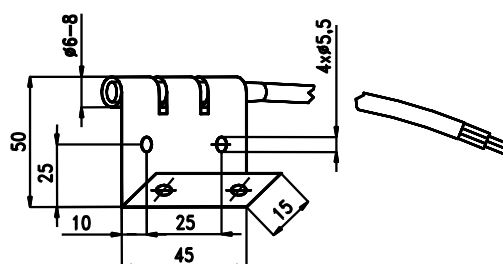
- holder P (attachable)



Order No.: **40 05120 804001**(Ø6)

Materiál: copper

- holder V (outdoor)



Order No.: **405 011 073 216**

Materiál: steel class 11 (DIN 1.0320) with PÚ

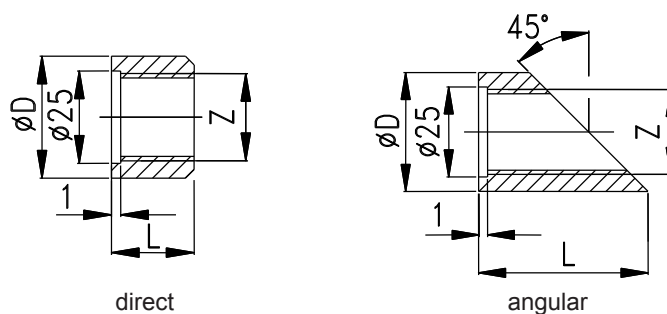
Rated values of measuring resistance Pt for information purposes depending on temperature (ČSN EN 60 751)

t [°C]	Pt100 [Ω]	t [°C]	Pt100 [Ω]	t [°C]	Pt100 [Ω]
-40	84,27	40	115,54	120	146,07
-30	88,22	50	119,40	130	149,83
-20	92,16	60	123,24	140	153,58
-10	96,09	70	127,08	150	157,33
0	100,00	80	130,90	160	161,05
10	103,90	90	134,71	170	164,77
20	107,79	100	138,51	180	168,48
30	111,67	110	142,29	190	172,17

Permitted resistance deviations of Pt sensors from rated values for tolerance classes specified in °C

Tolerance class	Tolerance $\Delta T/K$ temperature   t   in °C	tolerance at t = 0 °C	
		$\Delta T/K$	Pt 100 [Ω]
A ČSN EN 60751	$\pm 0,15 + 0,002   t  $	$\pm 0,15$	99,94 to 100,06
B ČSN EN 60751	$\pm 0,30 + 0,005   t  $	$\pm 0,30$	99,88 to 100,12

- weld-on-pieces



Order No. weld-on-piece	Type	Z	L	Ø D
405 911 081 416	direct	G1/2	19	28
405 911 081 016		G1/4	26	20
405 911 081 616	angular	G1/2	40	28
405 911 081 816			46	
405 911 081 216		G1/4	33	20
405 911 081 516	direct	M20x1,5	19	28
405 911 081 116		M12x1,5	26	20
405 911 081 716	angular	M20x1,5	40	28
405 911 081 916			46	
405 911 081 316		M12x1,5	33	20

The weld-on-pieces are supplied with sealing Cu rings and have aperture for sealing option.

Material: welding steel class 11 (DIN 1.0308, DIN 2391)

## Warranty

24 months warranty is provided from the delivery date unless specified otherwise in the purchase contract.

## Ordering devices

Code	Name			
405 11285	Cable temperature sensor, head			
	<b>Code</b>	<b>Measuring resistance</b>		
	1	1 x Pt 100		
	2	1 x Pt 500		
	3	1 x Pt 1000		
	4	2 x Pt 100 (only unpaired design)		
	5	2 x Pt 500 (only unpaired design)		
	6	2 x Pt 1000 (only unpaired design)		
	7	1 x Pt 100 with transmitter		
	<b>Code</b>	<b>Specified design</b>		
	1	Cable		
	2	Head with base 1 (37mm)		
	3	Head with base 2 (100mm)		
	4	head with transmitter, extension 1, range -40 to +60°C		
	5	head with transmitter, extension 1, range 0 to +100°C		
	6	head with transmitter, extension 1, range 0 to +180°C		
	7	head with transmitter, extension 2, range -40 to +60°C		
	8	head with transmitter, extension 2, range 0 to +100°C		
	9	head with transmitter, extension 2, range 0 to +180°C		
	<b>Code</b>	<b>Tolerance class, design</b>		
	1	According to ČSN EN 60751 (except for 2xPt100)		
	2	B according to ČSN EN 60751		
	4	paired		
	<b>Code</b>	<b>Well length, cable length, well thread</b>		
	1	<i>- cable sensors -</i> cable length 1.6 m		
	2	cable length 2.5 m		
	3	cable length 4 m		
	4	cable length 6 m		
	5	cable length 1.6 m - screened		
	6	cable length 2.5 m - screened		
	7	cable length 4 m - screened		
	8	cable length 6 m - screened		
	1	<i>- head sensors with thread M 20 x 1,5 -</i> rated length L = 100 mm		
	2	rated length L = 160 mm		
	3	rated length L = 250 mm		
	4	<i>- head sensors with thread G 1/2 -</i> rated length L = 100 mm		
	5	rated length L = 160 mm		
	6	rated length L = 250 mm		
405 11285	1	2	2	1
Ordered No				

**Order example:** 1 temperature sensor, type 11285, 1xPt100, head with base 1 (37mm), tolerance class B, well length 100mm, thread M20x1,5