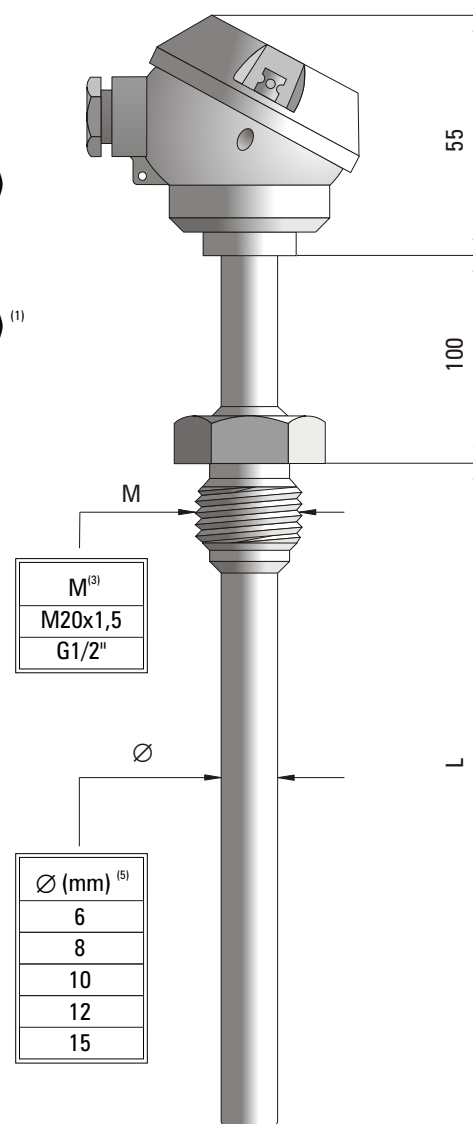


## TEMPERATURE SENSOR

**type 411, 412, 413, 414, 415**  
**type 421, 422, 423, 424, 425**

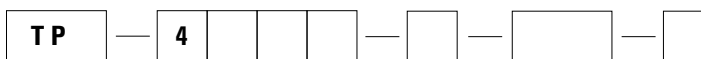
### SPECIFICATION

Temperature range	-40°C... +550°C -40°C... +400°C -40°C... +600°C -40°C... +900°C	(Pt100) (T) (J) (K)
Measuring element	platinum resistor thermocouple Cu-CuNi thermocouple Fe-CuNi thermocouple NiCr-NiAl	(Pt100) <sup>(1)</sup> (T) (J) (K)
Class of processing element	2 (B) <sup>(1)</sup>	
Conductor material	wire Cu/Ni (for Pt100)	
Assembly	2, 3 or 4 wires (for Pt100)	
Measuring junction	insulated <sup>(1)</sup>	
Sheath material	steel 1.4541	
Roughness of sheath surface	$R_a < 0,8 \mu\text{m}$ <sup>(2)</sup>	
Maximum operating pressure	see the Sheath Operating Loads information	
Connection head type	MA or B <sup>(4)</sup>	
Head operating temperature	-40°C... +100°C	
Fitting	welded stationary with thread M20x1,5 or G1/2" <sup>(3)</sup>	
Additional accessories	thermowell for welding temperature transmitter compensation cable	



- <sup>(1)</sup> Pt500, Pt1000, Ni100, Ni1000 on demand  
<sup>(2)</sup> Other parameters according to customer requirements  
<sup>(3)</sup> Other inch and metric threads on demand  
<sup>(4)</sup> Connection head with protection class IP65 or acid resistant on demand  
<sup>(5)</sup> Protection tube of outer diameter Ø9 and Ø11mm on demand

### ORDERING CODE



Thread: M 20x1,5 (1) or G1/2" (2)  
 Outer diameter: Ø6 (1), Ø8 (2), Ø10 (3), Ø12 (4), Ø15 (5)  
 Measuring element **Pt100, T, J or K**  
 Single (1) or double (2) measuring element  
 Sensor length L = 50, 100, 200, 300, 400, 600, 800 or 1000 mm<sup>(2)</sup>  
 Option with the head-mount transmitter **T**

**Example for order:** TP-411K-1-400 sensor with single thermocouple NiCr-NiAl (K), with connection head type MA, of outer diameter Ø = 6mm and length L=400mm with welded stationary fitting with thread M20x1,5.  
 TP-411K-1-400-T; TCH-2140-K sensor with connection head type B, option with the head-mount transmitter type TCH-2140-K.