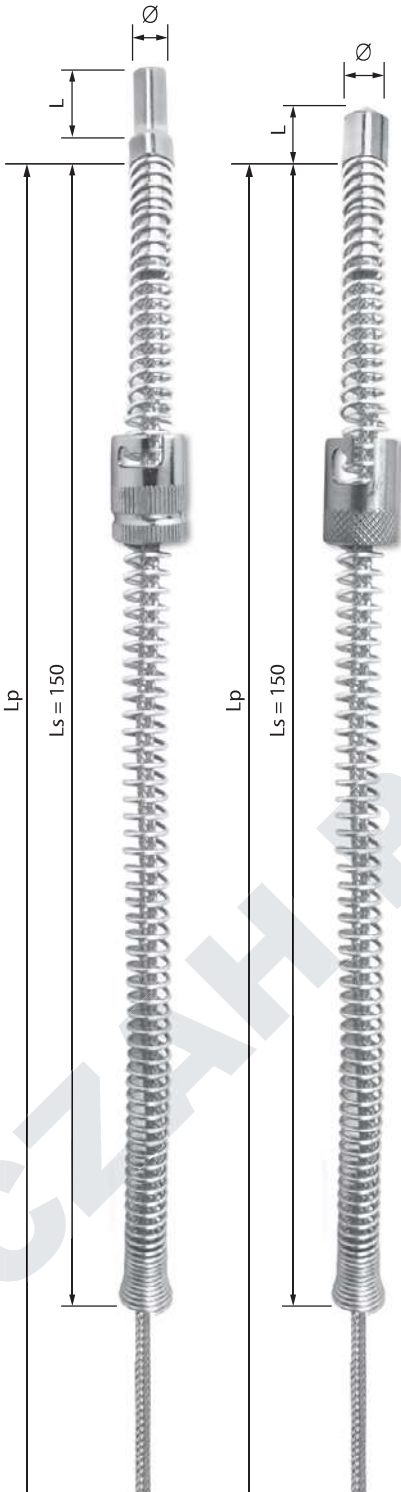


04

THERMOCOUPLES AND RESISTANCE THERMOMETERS WITH BAYONET

Sensors intended for temperature measurements in injection moulding machines, injection cylinders and machine parts exposed to overheating. Sensors can be made in two versions: thermocouple NiCr-NiAl (K) and Fe-CuNi (J) or resistance Pt100, Pt500, Pt1000. Operating range depends on a cable and is up to 400 °C.



04	sensor type	accuracy class	hot junction type or number of wires	type of measuring tip	length of measuring tip	cable length Lp	cable type	bayonet connector type / thread dimension	max. operating temperature
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Pt100, Pt500, Pt1000, J, K, T other types on request

Give accuracy class eg: 1, 2 for 3; table I, page 63

Give hot junction type or the number of wires, table 2 (eg. I1, Z1, 2, 3 or 4)

Give type of measuring tip; table 3

Give measuring tip length L [mm]

Give cable length [mm]

Give cable type; table 4

Give bayonet connector type / fitting thread, table 5 (skip if not requested)

Give maximum operating temperature [°C]

TAB. ORDERING CODE:

04	J	2	I1	KK3	30	1500	TW204	B1/KM101	400
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04 – J – 2 – I1 – KK3 – 30 – 1500 – TW204 – B1/KM101 – 400 °C

Temperature sensor model 04 (thermocouple), type J, accuracy class '2', insulated hot junction (I1), round braid made of steel grade 321, diameter Ø 6 mm, a 30 mm measuring tip, cable length 1500 mm in fiberglass insulation and metal braid (2 x 0,22 mm²). Bayonet connector with two slots, type B1 (inside diameter 12,3 mm) and compression fitting with thread M10x1.

TAB. 1 SENSOR TYPE *)

TEMPERATURE RANGES FOR THERMOCOUPLES *)			
SENSOR TYPE	TYPE OF THERMO-ELECTRODES	LONG-TERM OPERATING RANGE [°C] *)	SHOR-TERM OPERATING RANGE [°C] *)
J	Fe - CuNi	+20 ÷ 400	-180 ÷ 400
T	Cu - CuNi	-185 ÷ 300	-250 ÷ 400
K	NiCr - NiAl	0 ÷ 400	-180 ÷ 400

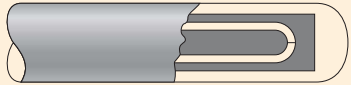
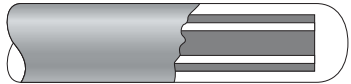
*) Given temperature ranges are mostly dependent on a cable and sheath material. Tolerance to PN-EN 60584-1, table I, page 63

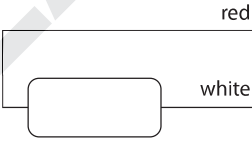
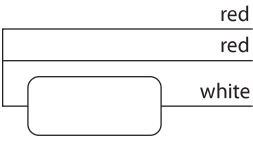
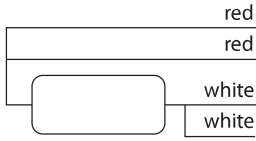
TEMPERATURE RANGE FOR RESISTANCE THERMOMETERS			
TOLERANCE CLASS	FOR WIRE WOUND RESISTORS	FOR THIN FILM RESISTORS	TOLERANCE VALUE **)
A	-100 ÷ +300	-30 ÷ +300	± (0.15+0.002 t)
B	-196 ÷ +400	-50 ÷ +400	± (0.3+0.005 t)

*) to PN-EN60751:2009

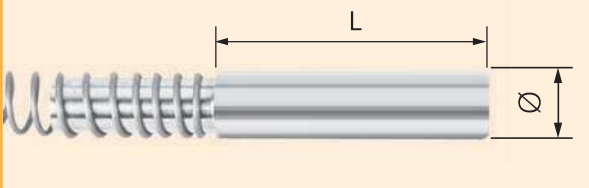
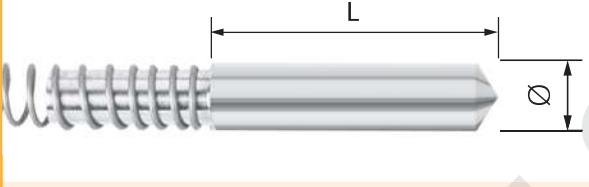
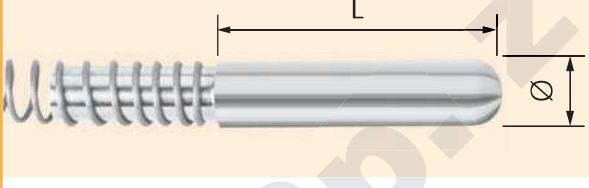
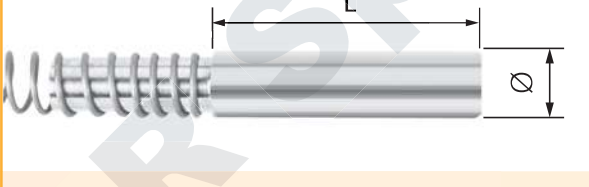
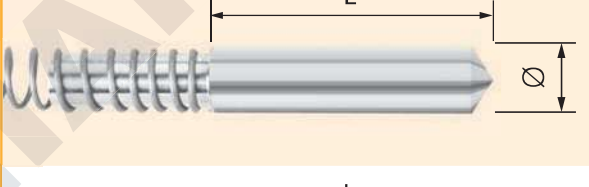
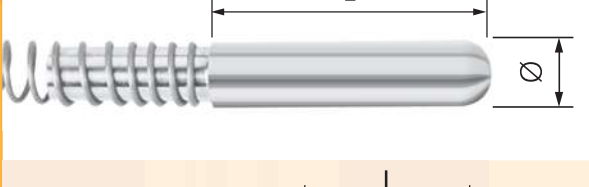
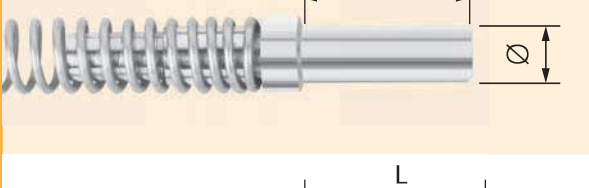

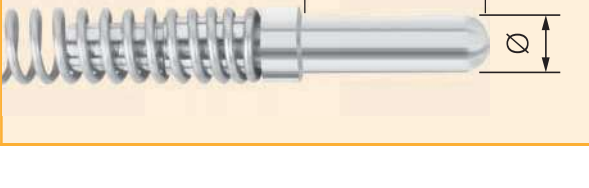
**)|t| = temperature in °C no matter what unit (absolute value)

TAB. 2 HOT JUNCTION TYPES, WIRING CONFIGURATION AND COLOUR MARKING

HOT JUNCTION TYPES		
HOT JUNCTION CODE	DESCRIPTION	DRAWING
I1	Simplex insulated junction	
Z1	Simplex grounded junction	

SINGLE (ONE RESISTOR)		
2-WIRE DESIGN	3-WIRE DESIGN	4-WIRE DESIGN
		

TAB. 3 TYPES OF BAYONET CONNECTOR *) **)

PART NUMBER	BAYONET TYPE	MATERIAL	SPRING DIAMETER	BAYONET END OF LENGTH 'L'	DIAMETER
KP1	flat tip	stainless steel	Ø 6		Ø 6
KS2	conical tip	stainless steel	Ø 6		Ø 6
KK3	round tip	stainless steel	Ø 6		Ø 6
KP4	flat tip	stainless steel	Ø 8		Ø 8
KS5	conical tip	stainless steel	Ø 8		Ø 8
KK6	round tip	stainless steel	Ø 8		Ø 8
KP7	flat tip	stainless steel	Ø 8		Ø 6
KS8	conical tip	stainless steel	Ø 8		Ø 6
KK9	round tip	stainless steel	Ø 8		Ø 6

*) other tip type available on request

**) LZ- standard length of the spring is 150 mm, other lengths available on request

TAB. 4 EXTENSION AND COMPENSATING CABLES

Temperature sensors can be produced with cables of different designs. The following insulation types are available: PCV, PTFE, fiberglass, Kapton or combination of the mentioned materials. Cable sections are 0.22mm² (7/0.2 mm). To choose the appropriate cable, please see table D, page 54.

The most common cables:

TS201 - 2x0,22 mm² – Silicone insulated

TW204 - 2x0,22 mm² – fiberglass insulated / stainless steel overbraid


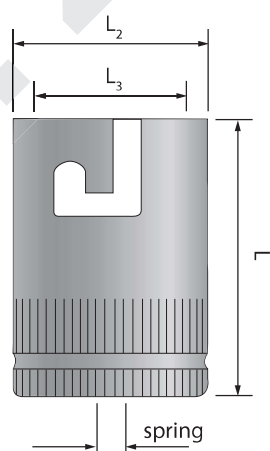

TT201 - 2x0,22 mm² – Teflon insulated

TT204 - 2x0,22 mm² - Teflon insulated / stainless steel overbraid

RW202 - 2x0,22 mm² – fiberglass insulated / stainless steel overbraid

RW203 - 2x0,22 mm² - fiberglass insulated / stainless steel overbraid

TAB. 5 TYPES OF BAYONET CONNECTOR AND COMPRESSION FITTING *)

BAYONET CODE	MATERIAL	DIMENSIONS		NUMBER OF SLOTS	DRAWING
B1	brass		spring Ø 6 mm L - 20 mm, L ₂ - Ø 16 mm, L ₃ - Ø 12,3 mm	2	
B2	brass		spring Ø 6 mm L - 20 mm, L ₂ - Ø 18 mm, L ₃ - Ø 14,2 mm	2	
B3	brass		spring Ø 8 mm L - 20 mm, L ₂ - Ø 18 mm, L ₃ - Ø 14,2 mm	2	
B4	brass		spring Ø 8 mm L - 20 mm, L ₂ - Ø 16 mm, L ₃ - Ø 12,3 mm	2	
B5	stainless steel		spring Ø 6 mm L - 18 mm, L ₂ - Ø 14 mm, L ₃ - Ø 12,2 mm	2	
B6	stainless steel		spring Ø 6 mm L - 18 mm, L ₂ - Ø 16,5 mm, L ₃ - Ø 15,2 mm	2	
B7	stainless steel		spring Ø 8 mm L - 18 mm, L ₂ - Ø 15,5 mm, L ₃ - Ø 14,2 mm	2	
B8	stainless steel		spring Ø 8 mm L - 18 mm, L ₂ - Ø 14 mm, L ₃ - Ø 12,2 mm	2	

*) other types of bayonet connector available on request

COMPRESSION FITTING TYPE	MATERIAL	DIMENSIONS			DRAWING
		L	G	L ₂	
KM101	brass	23	M10 x 1	8	
KM121	brass	25	M12 x 1	10	
KM1215	brass	25	M12 x 1,5	10	
KM141	brass	25	M14 x 1	10	
KS101	stainless steel	23	M10 x 1	8	
KS121	stainless steel	25	M12 x 1	10	
KS1215	stainless steel	25	M12 x 1,5	10	
KS141	stainless steel	25	M14 x 1	10	

*) other types of bayonet connector on request