

Sheathed thermocouple type J with cable

Order nr.: 802310 1111

Sheathed thermocouples with cable are mineral insulated. We manufacture them from high-quality materials in a robust type. They are flexible and can thus be used flexibly in the high temperature range from -40 °C to 750 °C. Configure your probe according to your specifications and send us the order code: As standard, we offer Ø of 1.5 as well as 3 and 6 mm and a mounting length between 100 and 1500 mm. For the thermoelectric cables you can choose from PVC, silicone, PFA or glass fiber. In addition to open wire ends, we can also supply TE connectors and couplings in mini and standard sizes. Further model variants on request.



General Information	
Measuring range	-40 °C to +750 °C
Perm. °C range cable	see cable
Accuracy	Class 1 ¹⁾ : -40 °C bis +375 °C: ±1,5 °C 375 °C bis 750 °C: ±0,004 t ²⁾
Response time	t63 / t99: information is available on request
Pull-out force	≥ 30 N
Supply and output	
Measuring element	Thermocouple Type J
Measuring point	Measuring point isolated
Measurement signal	Thermovoltage
Ambient conditions	
Protection class	IP42 according DIN 60529
Humidity and moisture condensation resistance	according to application-specific qualification
Certificates and Standards	
Standards	DIN EN 61326-1:2013 DIN EN IEC 63000:2019-05
Directive	RoHS 2011/65/EU 2014/30/EU
Certificates	Certificate of suitability (on request)

Customizable options

- C - Length protection sleeve
- D - Ø protection sleeve
- E - Material connection cable
- F - Length connection cable
- G - Connector
- H - Bend protection



¹⁾ according to DIN IEC 60584 ²⁾ If the thermocouple is operated outside the specified measuring range of its respective tolerance class, irreversible changes may also occur on the thermocouple, which subsequently leads to a measurement deviation (even within the specified range).

Connection sleeve and sheathed thermocouple						
Connection sleeve		C - Length prot. sleeve		D - Ø prot. sleeve		Picture
Material	For Ø (D) 1.5 or 3: Stainless steel 1.4305 SUS 303 For Ø (D) 6: Stainless steel 1.4301 SUS 304	Code	Length (mm)	Code	Ø (mm)	
Length (mm)	40	C0100	100 ¹⁾	D015	1,5 ²⁾	
Z: Ø connection sleeve (mm)	For Ø (D) = 1.5 or 3: 5 For Ø (D) = 6: 7	C0150	150 ¹⁾	D030	3,0 ²⁾	
		C0200	200 ¹⁾	D060	6,0 ²⁾	
		C0250	250 ¹⁾	Technical drawing		
Sheathed thermocouple		C0300	300 ¹⁾			
Material protection sleeve	Stainless steel 1.4541 SUS321	C0400	400 ¹⁾			
C (Length) D (Ø)	please choose	C0500	500 ¹⁾			
Other protective sleeve lengths and Ø on request ¹⁾ Tolerance ± 1% ²⁾ Tolerance ± 0.1 mm		C1000	1000 ¹⁾			

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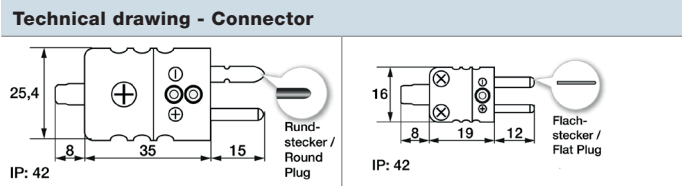
E - Cable material and configuration connection cable											
Code	Type	Color	IP	From (°C) ¹⁾	To (°C) ¹⁾	Outside material	Material strand	Ø (mm) ²⁾	Q (mm ²)	Color strand	Ω / m ⁴⁾
E8010	Thermocouple cable	Type J ³⁾	IP67	-30	+90	PVC	PVC	3,8	0,22	bk, wt	2,5
E8210	Thermocouple cable	Type J ³⁾	IP67	-50	+180	Silicone	FEP	3,6	0,22	bk, wt	2,5
E8510	Thermocouple cable	Type J ³⁾	IP67	-50	+260	PFA	PFA	2,6	0,22	bk, wt	2,5
E8310	Thermocouple cable	Type J ³⁾	IP20	-50	+400	Varnish	Glass fibre	3	0,22	bk, wt	2,5

Insulation resistance: ≥ 100 MOhm at min. 100 VDC | ¹⁾Perm. range °C | ²⁾Tolerance ± 0,2 mm | ³⁾Color according to IEC 584 | ⁴⁾per thermocouple

G - Connector									F - Length	
Picture	Code	Feature	Picture	Code	Feature	Picture	Code	Feature	Code	m
	G01	Insulated end ferrules (50 mm)		G11	Mini-TC connector Type J bk		G31	TC connector Type J bk	F010	1
Other connectors available on request									F020	2
									F030	3
									F040	4
									F050	5
									F100	10
									F150	15
									F200	20

H - Bend protection		
	Length (mm)	50
	Material	Stainless steel spring 1.4310 SUS 302
	Code	Feature
	H0	Without (Standard)
	H1	Metal bend protection ¹⁾

¹⁾on request



Important assembly advices

1) Installation with sufficient installation depth

Measurement errors can occur due to heat dissipation to the environment. To keep these as small as possible, we recommend immersing the protection sleeve of your temperature probe as deeply as possible into the medium to be measured during installation. The optimum installation depth should be 10-15 times the Ø of the protection sleeve or, when using an immersion sleeve, the Ø of the immersion sleeve. When installing in pipelines whose Ø does not have a sufficiently deep installation depth, you should install the probe either at an angle or in a pipe elbow. Make sure that there is sufficient space for the probe to be removed. 2) Installation at an angle with small pipe Ø 3) Not like this: Minimum installation depth not reached

4) Installation using an immersion sleeve (4): Please ensure that the Ø and length of the immersion sleeve are selected to suit the installation situation so that the minimum immersion depth can be achieved. Since the probe is not inserted directly into the medium, but via the immersion sleeve, the response times are somewhat slower. The probe should be selected in such a way that the protection sleeve touches the bottom of the immersion sleeve and that the air cushion around the protection sleeve is as small as possible. The use of thermal paste can improve the response times.

Installation by using an immersion sleeve (4): Please ensure that the Ø and length of the immersion sleeve are selected to suit the installation situation so that the minimum immersion depth can be achieved. Since the probe is not inserted directly into the medium, but via the immersion sleeve, the response times are somewhat slower. The probe should be selected in such a way that the protection sleeve touches the bottom of the immersion sleeve and that the air cushion around the protection sleeve is as small as possible. The use of thermal paste can improve the response times.

Please lay the cable with reserve loop (5). This allows you to extend the probe without disconnecting the electrical connection. Please pay attention to the bending radius. This should be at least 5 X D of the outer diameter of the sheathed thermocouple.

Delivery and Assembly						
Delivery and Packaging				Probe, separately packaged in PE bag		
Your order code						
Order nr.	Length protection sleeve	Ø protection sleeve	Material connection cable	Length connection cable	Connector	Bend protection
802310 1111	C_____	D_____	E_____	F_____	G_____	H_____

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Technical drawing

Customizable options

C - Length protection sleeve

D - Ø protection sleeve

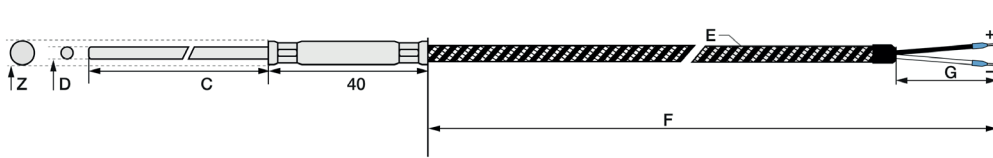
E - Material connection cable

F - Length connection cable

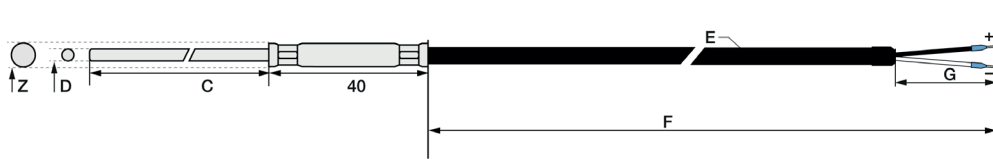
G - Connector

H - Bend protection
All dimensions in mm

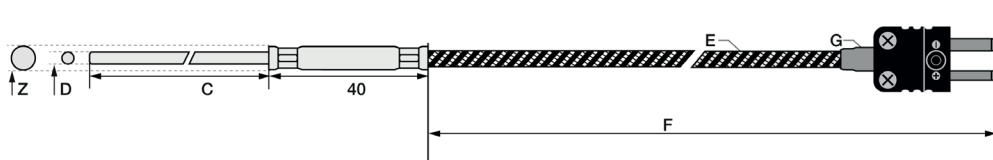
Version with insulated end ferrules



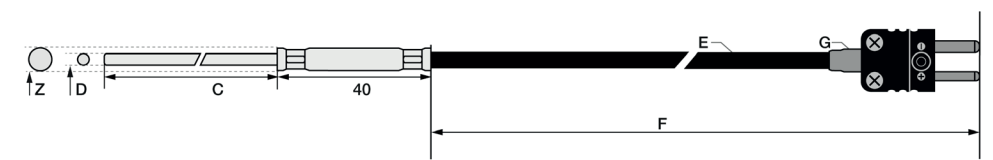
Version with insulated end ferrules



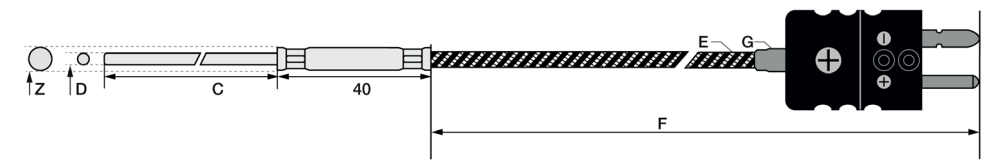
Version with mini TE connector



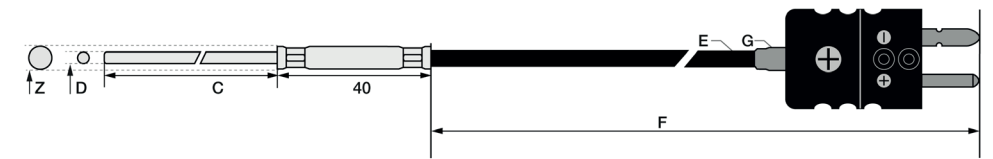
Version with mini TE connector



Version with TE connector



Version with TE connector



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Matching accessories: Thermocouple cables

Details of accessories can be found on our website.




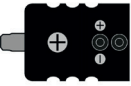
Thermocouple cables											
Please select your desired cable first.											
Order code	Type	Color	IP	From (°C) ¹⁾	To (°C) ¹⁾	Outside material	Material strand	Ø (mm) ²⁾	Q (mm ²)	Color strand	Ω / m ⁴⁾
809300 1	Thermocouple cable	Type J ³⁾	IP67	-30	+90	PVC	PVC	3,8	0,22	bk, wt	2,5
809340 1	Thermocouple cable	Type J ³⁾	IP20	-50	+400	Varnish	Glass fibre	3	0,22	bk, wt	2,5

Insulation resistance: ≥ 100 MOhm at min. 100 VDC | ¹⁾per. °C range | ²⁾Tolerance ± 0.2 mm | ³⁾Color according to IEC 584 | ⁴⁾per thermocouple

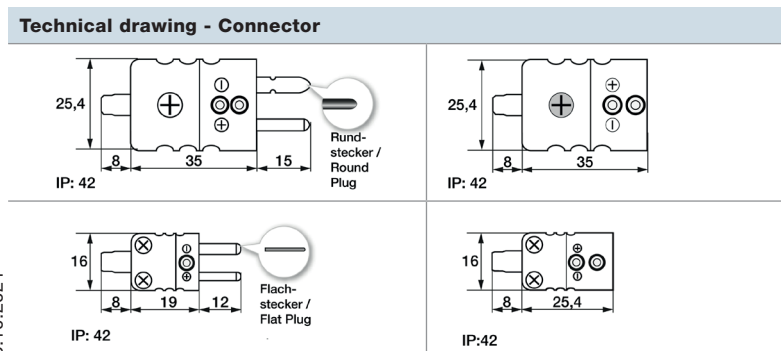
Now please select the length and add the code to the article no. of the cable.					
Length (m)	1	2	5	10	20
Code	010	020	050	100	200

Please append these digits to the part number of your desired cable.

Matching accessories: Connector

Connector					
Picture	Code	Feature	Picture	Code	Feature
	809140 1000	Mini-TC connector Type J bk		809100 1000	Mini-TC coupling Type J bk
	809150 1000	TC connector Type J bk		809110 1000	TC coupling Type J bk

Other connectors available on request

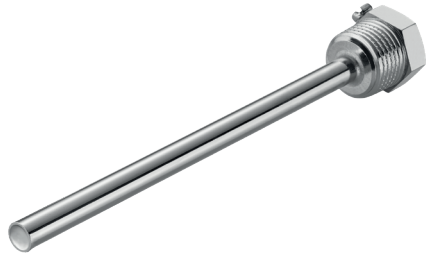


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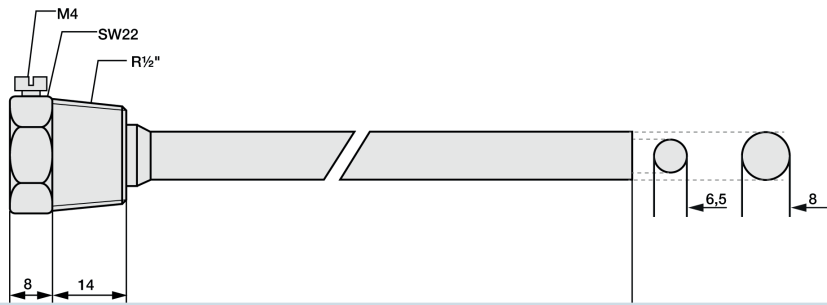
Matching accessories: Immersion sleeves

Brass immersion sleeve R1/2 „			
Article no.	809520 10XX	Code	Mounting length (mm)
Temp. max	+150 °C	05	50
Pressure proof up to	10 bar	10	100
Material	Nickel plated	15	150
Process connection	R1/2 „	20	200
Wrench size	22	25	250
Ø Inside / Outside (mm)	6,5 / 8	30	300
Scope of delivery	Immersion sleeve, packed in PE bag	40	400
Order code	809520 10	--	

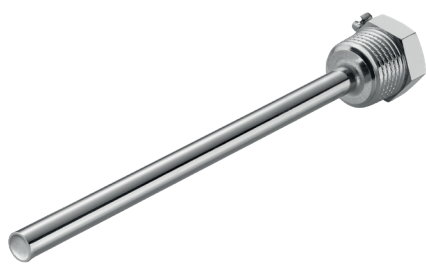


Please attach the code for the mounting length.

Technical drawing

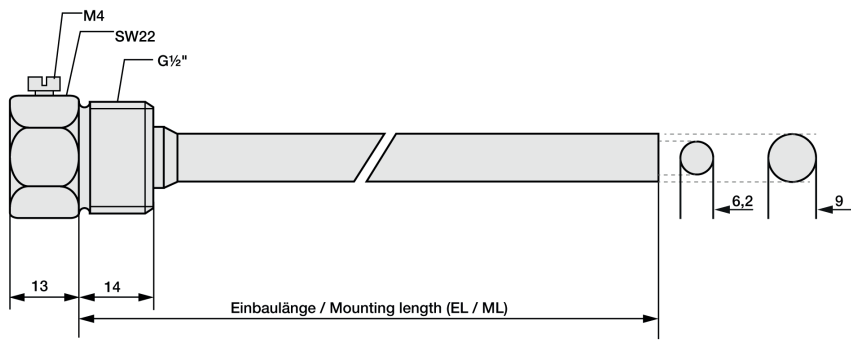


Stainless steel immersion sleeve G1/2 „			
Article no.	809520 20XX	Code	Mounting length (mm)
Temp. max	+600 °C	05	50
Pressure proof up to	40 bar	10	100
Material	Stainless steel 1.4571 316TI	15	150
Process connection	G1/2 „	20	200
Wrench size	22	25	250
Ø Inside / Outside (mm)	6,2 / 9	30	300
Scope of delivery	Immersion sleeve, packed in PE bag	40	300
Your order code	809520 20	--	



Please attach the code for the mounting length.

Technical drawing

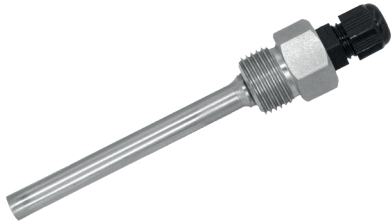


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Matching accessories: Immersion sleeves

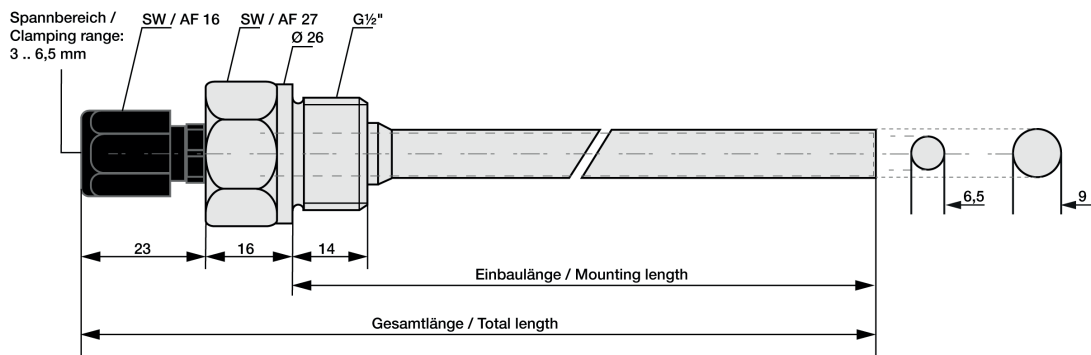
Immersion sleeve G1/2 „ with cable gland



Article no.	809520 60XX	Compression fitting		Code	Moun- ting length (mm)
Temp. max	+600 °C	Temp. max	100 °C	05	50
pressure proof until	40 bar	Material	Plastic	10	100
Material	Stainless steel 1.4571 316TI	Screw	M12 x 1,5	15	150
Process connec- tion	G1/2 „	Clamping range (mm)	3 bis 6,5	20	200
Wrench size	22			25	250
Scope of delivery	Immersion sleeve, packed in PE bag	Cable gland	strain relief	30	300
				40	400
Your order code	809520 60			--	

Please attach the code for the mounting length.

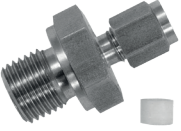
Technical drawing



Matching accessories: Compression fittings

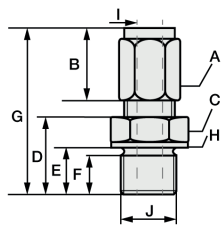
Compression fitting with PTFE clamping ring

Compression fittings with PTFE clamping ring can be used several times. They are only pressure-tight up to 10 bar. For assembly, please tighten the connecting nut of the compression fitting by hand as far as it will go (clearly noticeable) by hand. With a wrench suitable for the width across flats, please make a 1/4 turn for compression fittings with PTFE pressure ring.

	Article no.	809610 2XXX	Code	I - Ø Inside (mm)	Code	J - Process connection
	Temp. max	+260 °C	0	1	27	M6x1 ¹⁾
	Pressure proof up to	10 bar	1	1,5	28	M8x1 ¹⁾
	Material	Stainless steel 1.4571 316TI	3	3	22	M10x1
	Material clamping ring	PTFE	6	6	14	G1/8 „
	Scope of delivery	Compression fitting, packed in PE bag			12	G1/4 „
					11	G1/2 „
	Your order code	809610 2	-		--	

Append the code for Ø Inside & process connection to the article no. | ¹⁾ not available for Ø Inside (I) 6 mm

Dimensions for technical drawing




I	J	A	B	C	D	E	F	G	H
1	M6x1 ¹⁾	SW10	13	SW12	13	9	8	31	Ø10
1,5	M8x1 ¹⁾	SW10	13	SW12	13,5	9,5	8	31	Ø11,8
3	M10x1	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW14	13,5	9,5	8	32	Ø13,8
6	G1/8 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW14	13,5	9,5	8	32	Ø13,8
	G1/4 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW19	20	14	12	38,5	Ø18
	G1/2 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW27	23	17	14	38,5	Ø26

All dimensions in mm | ¹⁾ not available for Ø Inner (I) 6 mm

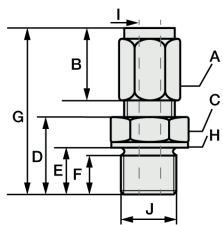
Compression fitting with stainless steel cutting ring

In compression fittings with stainless steel cutting ring, the compression fitting connects with the protective sleeve. This connection is pressure-resistant up to 40 bar. Therefore, these compression fittings can also only be used once and must be tightened more firmly. For assembly, please tighten the union nut of the compression fitting by hand as far as it will go (clearly noticeable). With a wrench suitable for the wrench size, please make 1 3/4 turns for compression fittings with stainless steel cutting ring.

	Article no.	809610 1XXX	Code	I - Ø Inside (mm)	Code	J - Process connection
	Temp. max	+800 °C	1	1,5	27	M6x1 ¹⁾
	Pressure proof up to	40 bar	3	3	28	M8x1 ¹⁾
	Material	Stainless steel 1.4571 316TI	6	6	22	M10x1
	Material clamping ring	Stainless steel 1.4571 316TI			14	G1/8 „
	Scope of delivery	Cutting ring screw fitting, packed in PE bag			12	G1/4 „
					11	G1/2 „
	Your order code	809610 1	-		--	

Append the code for Ø Inside & process connection to the article no. | ¹⁾ not available for Ø Inside (I) 6 mm

Dimensions for technical drawing



I	J	A	B	C	D	E	F	G	H
1,5	M6x1 ¹⁾	SW10	13	SW12	13	9	8	31	Ø10
3	M8x1 ¹⁾	SW10	13	SW12	13,5	9,5	8	31	Ø11,8
6	M10x1	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW14	13,5	9,5	8	32	Ø13,8
	G1/8 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW14	13,5	9,5	8	32	Ø13,8
	G1/4 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW19	20	14	12	38,5	Ø18
	G1/2 „	Ø 1,5 & 3: SW10 Ø 6: SW12	13	SW27	23	17	14	38,5	Ø26

All dimensions in mm | ¹⁾ not available for Ø Inner (I) 6 mm

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