GÜNTHER GmbH
Temperaturmesstechnik

Product category 20-TOM
Sheathed Thermocouple Assemblies without Protection Tube

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Sheathed thermocouple assemblies without protection tube (20-TOM) are used in almost every branch of industry up to a temperature of 1100°C, with a platinum-rhodium-mantle up to 1300°C. Sheathed thermocouple assemblies essentially consist of thermo wires (inner conductors) insulated with high-purity, condensed magnesium oxide powder and an external mantle (sheath) of heat-resistant high-grade steel or nickel alloy (e.g. Inconel 600®). Sheathed thermocouple assemblies are available in single, double or triple element version. The outer diameter lies somewhere between 0,25 mm and 8,0 mm depending on technical assembly and customer preference. As a result of their structure, sheathed thermocouple assemblies offer numerous advantages when compared to their conventional counterparts.

- Small dimensions for temperature measurements at measuring sites with difficult accessibility (any desired length available)
- Short response time for exact measurements of temperature fluctuations
- Vibration and pressure resistant
- Optimal protection of inner conductors against corrosion, oxidation, mechanical damage and chemical contamination
- Increased stability of electric insulation compared to ceramic insulated thermocouples
- Simple and sealed assembly

Application Examples for Sheathed Thermocouple Assemblies without Protection Tube:

- Waste Recycling / Incineration
- Glass Industry
- Plant and Machine Construction
- Automobile Industry
- Heat Treatment
- Laboratories
- Industrial Furnace Construction
- Aluminium and Nonferrous Metal Industry
- Cement and Building Material Industry
- Energy Production
- Plastic Industry

Availability

We are able to deliver every current design and diameter of sheathed thermocouple assemblies with mounted sockets, connection heads, compensation cables, as well as accessories and mounting structures of every type.

For specialised requirements and standards (such as AMS, CQI-9, etc.), we offer sheathed thermocouple assemblies available with exceptionally narrow tolerances, often referred to as “better class 1”. Thermoelectric voltages and tolerances of our mineral-insulated gauge slides are pursuant to DIN EN 60584, class 1.

1 Connectors (Plug/Socket)

LEMO Size 0 - 3	
Standard	
Miniature	
High-Temp.-Standard	
High-Temp.-Miniature	
Ceramic-Standard	
Ceramic-Miniature	

2 Connection Head

With connecting thread	
B	(M24 x 1,5)
BUS	(M24 x 1,5)
BUZ	(M24 x 1,5)
BUZH	(M24 x 1,5)
BBK	(M24 x 1,5)
DL (MA)	(M10 x 1)
or with thread diameter of 15,3 mm	

3 Process Connector (Detachable)

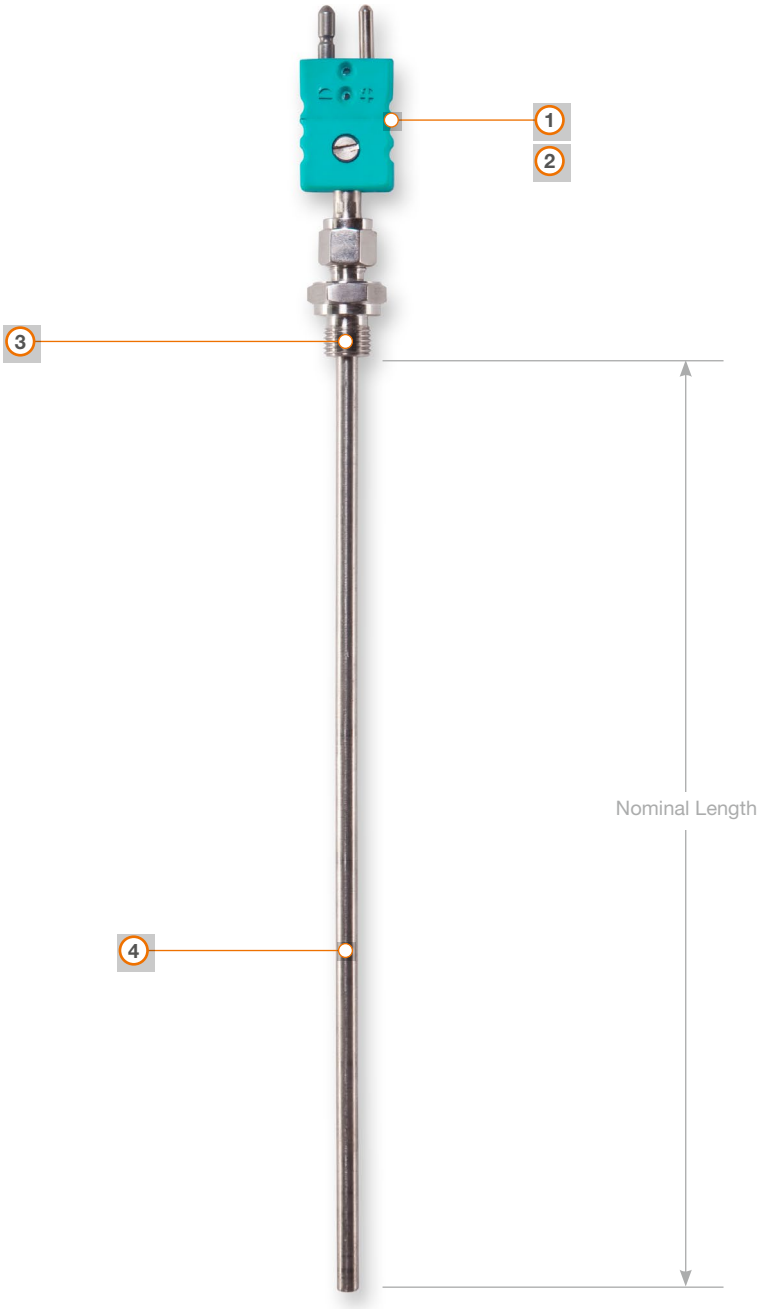
Clamp Connectors	Steel/High-Grade Steel
Pressure Ring	Teflon
Cutting Ring	High-Grade Steel

M 8x1 for Mantle Diameter 1,0-3,0 mm
G 1/8 A for Mantle Diameter 1,0-3,0 mm
G 1/4 A for Mantle Diameter 4,5-8,0 mm
G 1/2 A for Mantle Diameter 4,5-8,0 mm

4 Sheathed Thermocouple (Thermocouple/Mantle Materials)

NiCr-Ni/K	Inconel 2.4816
Fe-CuNi/L	1.4541/2.4816
Fe-CuNi/J	1.4541/2.4816
PtRh-Pt/S	Inconel 2.4816
Nicrosil-Nisil/N	Inconel 2.4816
Mantle Diameter:	0,5 - 8 mm
Single, Double or Triple	

Example of a common implementation in this product line



Individual Solutions such as, for example materials, process connectors, accessories, etc.not listed here, are often viable.

Please contact us for further information!

20 - TOM // Sheath thermocouples without protection tube

Sheath thermocouple | 2 | 0 | - | | | | | | | | | - | | | | |

Nominal length / mm

Connection head with a connection thread			with a connection diameter of 15.3 mm	
B	(M24 x 1.5)	**20 10**	B	**25 10**
BUS	(M24 x 1.5)	**20 15**	BUS	**25 15**
BUSH	(M24 x 1.5)	**20 20**	BUSH	**25 20**
BUZ	(M24 x 1.5)	**20 25**	BUZ	**25 25**
BUZH	(M24 x 1.5)	**20 30**	BUZH	**25 30**
BBK	(M24 x 1.5)	**20 35**	BBK	**25 35**
DL (MA)	(M10 x1)	**20 40**	DL (MA)	**25 40**

Joining elements Plug			Coupler		
Lemo	Size 0	**30 10**	Lemo	Size 0	**35 10**
Lemo	Size 1	**30 15**	Lemo	Size 1	**35 15**
Lemo	Size 2	**30 20**	Lemo	Size 2	**35 20**
Lemo	Size 3	**30 25**	Lemo	Size 3	**35 25**
Standard		**30 30**	Standard		**35 30**
Miniature		**30 35**	Miniature		**35 35**
High-temp standard		**30 40**	High-temp standard		**35 40**
High-temp miniature		**30 45**	High-temp miniature		**35 45**
Ceramic standard		**30 50**	Ceramic standard		**35 50**
Ceramic miniature		**30 55**	Ceramic miniature		**35 55**

Cable transition sleeve + compensation cable **4X XX**
(XXX = length of the compensation cable in XX.X m)

Sheath element (type/number of thermocouples/sheath material/diameter)

Thermocouple	NiCr-Ni /K			Fe-CuNi/L		Fe-CuNi/J		PtRh-Pt/S		Nicrosil-Nisil/N	
Sheath material	Alloy 600 2.4816			1.4541/2.4816		1.4541/2.4816		Alloy 600 2.4816		Alloy 600 2.4816	
Sheath ø / mm	Standard	Double	Triple	Standard	Double	Standard	Double	Standard	Double	Standard	Double
0.5	**01**	-	-	-	-	-	-	-	-	-	-
1	**02**	-	-	**22**	-	**42**	-	**62**	-	**82**	-
1.5	**03**	**13**	-	**23**	**33**	**43**	**53**	**63**	**73**	**83**	**93**
2	**04**	**14**	-	**24**	**34**	**44**	**54**	**64**	**74**	**84**	**94**
3	**05**	**15**	**69**	**25**	**35**	**45**	**55**	**65**	**75**	**85**	**95**
4.5	**06**	**16**	**79**	**26**	**36**	**46**	**56**	**66**	**76**	**86**	**96**
6	**07**	**17**	**89**	**27**	**37**	**47**	**57**	**67**	**77**	**87**	**97**
8	**08**	**18**	**99**	-	-	-	-	-	-	-	-
3.2	**09**	**19**	-	-	-	-	-	-	-	-	-
Special size / Special material											**00**

Fastening:
Attachment screw joint: Material **Steel / Stainless steel**

(Tapered ring unit, mat. no. 1.4541)		
M 8 x 1 for sheath ø 1.0-3.0 mm	**11**	**21**
G 1/8 A for sheath ø 1.0-3.0 mm	**12**	**22**
G 1/4 A for sheath ø 4.5-8.0 mm	**13**	**23**
G 1/2 A for sheath ø 4.5-8.0 mm	**14**	**24**

(Tapered ring unit St. 35.8)			Screw joint	
M 8 x 1 for sheath ø 1,0-3,0 mm	**51**	**31**	G 1/4 A	**80**
G 1/8 A for sheath ø 1,0-3,0 mm	**52**	**32**	G 3/8 A	**81**
G 1/4 A for sheath ø 4,5-8,0 mm	**53**	**33**	G 1/2 A	**82**
G 1/2 A for sheath ø 4,5-8,0 mm	**54**	**34**	G 1 A	**83**
			M 20 x 1.5	**84**
			M 18 x 1.5	**85**
(Teflon thrust collar)			M 14 x 1.5	**86**
M 8 x 1 for sheath ø 1.0-3.0 mm	**61**	**41**		
G 1/8 A for sheath ø 1.0-3.0 mm	**62**	**42**	No fastening	**99**
G 1/4 A for sheath ø 4.5-8.0 mm	**63**	**43**		
G 1/2 A for sheath ø 4.5-8.0 mm	**64**	**44**	Other	**88**

Custom designs: | 2 | 0 | - | 9 | 9 | 2 | 0 | x | x | x | x | - | | | | |

Consecutive no. Nominal length / mm