MINERAL INSULATED CABLES

AS COMPOSANTS

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MINERAL INSULATED CABLES

AS Composants has a complete range of mineral-insulated (MI) thermocouple cables, known for quality, robustness, and performance in extreme environments.

These cables consist of thermocouple wires surrounded by compacted magnesia (MgO) and inserted into a metallic sheath such as stainless steel or Inconel.

MI cables are used in many critical industrial sectors such as aerospace, nuclear power plants, chemical industry, marine applications, and semiconductors. Our company has stock available that can be supplemented by a European stock, ensuring quick availability and an e□ective response to requests. All the sheathed cables o□ered comply with international standards such as IEC 60584-2 Class 1, ASTM E230, and AMS2750G. They come with certificates guaranteeing their traceability and compliance.

The range of cables includes many sheath alloys, including AISI 316(L), 310, 321, Inconel 600, Inconel 625, Haynes, Hastelloy, platinum-rhodium, and other exotic materials such as molybdenum, titanium, and tantalum. Custom combinations of wires and sheaths are possible to meet specific needs. The cables are typically available in diameters ranging from 1mm to 10mm but other diameters are also possible.

These cables stand out for their excellent electrical resistance: their insulation resistance often exceeds 1000 MΩ, even at high temperatures. Their dielectric strength and low capacitance ensure a stable signal.

Finally, they can withstand temperatures ranging from -270 °C to 1650 °C, pressures up to 50,000 psi, and resist irradiated environments in nuclear facilities.

MATERIAL VS TEMPERATURE

SHEATH MATERIAL

Sheath Material	Recommanded max Using Temperature	Melting Temperature
AISI 310	1090°C	1400°C
AISI 316	900°C	1370°C
AISI 321	1090°C	1350°C
AISI 446	1090°C	1400°C
Inconel 600	1175°C	1345°C
Hastelloy X	1200°C	1260°C
Pyrosil® / Nicrobel C	1250°C	1380°C
PtRh10	1550°C	1850°C
Molybdenum	2000°C	2620°C
Tantalum	2200°C	2995°C

MATERIAU DU THERMOCOUPLE

Thermocouple	Elements	Recommanded max Using Temperature
B	PtRh30 – PtRh6	1700°C
E	Cu - CuNi	850°C
J	Fe - CuNi	750°C
K	NiCr - Ni	1200°C
N	NiCrSil - NiSil	1200°C
R	PtRh13 - Pt	1450°C
S	PtRh10 - Pt	1450°C
T	Cu-Ni	350°C

DIMENSIONS & TOLERANCES

FOLLOWING IEC61515

Øext. ±Tolerance (mm)	Sheath Thickness ±Tolerance (mm)		Øconductor ±Tolérance (mm)	
	Inconel 600	*Stainless Steel*	*Inconel 600*	*Stainless Steel*
1.0±0.05	0.13±0.05	0.13±0.05	0.16±0.05	0.16±0.05
1.5±0.05	0.24±0.05	0.24±0.05	0.25±0.05	0.25±0.05
1.6±0.05	0.25±0.06	0.25±0.06	0.26±0.06	0.26±0.06
2.0±0.05	0.31±0.08	0.31±0.08	0.33±0.08	0.33±0.08
3.0±0.05	0.40±0.10	0.43±0.10	0.52±0.10	0.48±0.10
4.5±0.05	0.55±0.12	0.57±0.10	0.79±0.12	0.73±0.10
6±0.05	0.73±0.15	0.84±0.15	1.10±0.15	1.00±0.15
8±0.05	0.98±0.20	1.15±0.15	1.56±0.15	1.36±0.15

MI THERMOCOUPLE CABLES – SS316L SHEATH

ACCURACY FOLLOWING CLASS 1 PER IEC 60584 OR ASTM E230

THERMOCOUPLE – SINGLE

Øext (mm)	Thermocouple				
	E	J	K	N	T
1		A0101	A0108		A0309
1.5		A0102	A0109		A1149
1.6		A0778			A3576
2		A0103	A0110		A1276
3	A4131	A0104	A0111		A1656
4.5		A0106	A0112		A1704
6	A1836	A0107	A0259		A1609
8		A3507	A1854		

THERMOCOUPLE - DUPLEX

Øext (mm)	Thermocouple				
	E	J	K	N	T
1.5		A1812			
2		A1258			
3		A0105			
4.5	A1488	A0965	A1250		
6		A0460	A1624		
8		A1120			

MI THERMOCOUPLE CABLES – SS310 SHEATH

ACCURACY FOLLOWING CLASS 1 PER IEC 60584 OR ASTM E230

THERMOCOUPLE – SINGLE

Øext (mm)	Thermocouple				
	E	J	K	N	T
1					
1.5					
2					
3			A1514		
4.5			A1633		
6			A0952		
8			A3238		

THERMOCOUPLE - DUPLEX

Øext (mm)	Thermocouple				
	E	J	K	N	T
1.5					
2					
3			A3853		
4.5					
6			A1224		
8			A3644		

MI THERMOCOUPLE CABLES – SS321 SHEATH

ACCURACY FOLLOWING CLASS 1 PER IEC 60584 OR ASTM E230

THERMOCOUPLE – SINGLE

Øext (mm)	Thermocouple				
	E	J	K	N	T
1		A3684	A2311		
1.5		A3685			
2		A0221	A2920		
3		A0646	A1483		
4.5			A2982		
6		A0809	A0306		
8					

THERMOCOUPLE - DUPLEX

Øext (mm)	Thermocouple				
	E	J	K	N	T
1.5					
2					
3					
4.5					
6		A2380	A1074		
8			A1548		

MI THERMOCOUPLE CABLES – INCONEL600 SHEATH

ACCURACY FOLLOWING CLASS 1 PER IEC 60584 OR ASTM E230

THERMOCOUPLE – SINGLE

Øext (mm)	Thermocouple				
	E	J	K	N	T
0.5			A1571	A1264	
0.8			A3633		
1	A1641	A1547	A0113	A1315	
1.5			A0114	A1118	
1.6			A0992		
2	A1648	A4316	A0115	A0535	
3	A2007	A1068	A0116	A0957	
3.2			A3589	A5009	
4.5	A2979	A1112	A0118	A1139	
6		A1046	A0120	A1123	
8			A0253		

THERMOCOUPLE - DUPLEX

Øext (mm)	Thermocouple				
	E	J	K	N	T
1					
1.5			A1148		
2			A1873		
3			A0117	A1645	
4.5			A0119	A1141	
6		A1045	A0121	A2081	
8			A0333	A3174	

MI Thermocouple Cables – Nicrobel C Sheath

Accuracy following Class 1 per IEC 60584 or ASTM E230

Thermocouple – Single

Øext (mm)	Thermocouple				
	E	J	K	N	T
1					
1.5				A3616	
2				A2606	
3				A2365	
4.5				A4257	
6				A5024	
8					

MI Thermocouple Cables – Pyrosil® Sheath

Accuracy following Class 1 per IEC 60584 or ASTM E230

Thermocouple – Single

Øext (mm)	Thermocouple				
	E	J	K	N	T
1				A0542	
1.5				A1834	
2				A1835	
3			A2974	A1923	
4.5					
6					
8					

PROBE MI CABLES – SS316L SHEATH

PROBE MI CABLES – COPPER WIRES

Øext (mm)	Conductors Number				
	2	3	4	6	8
1	A1901 (1)				
2		A4182 (2)	A1401		
3	A3300	A0868	A0311	A0938	
4.5		A0745	A1195	A1027	
6	A0123	A1464	A0310	A0125	A3006
8			A3954		

PROBE MI CABLES – NICKEL WIRES

Øext (mm)	Conductors Number				
	2	3	4	6	8
1					
2	A1494		A1877		
3		A0558	A1527	A0614	
4.5		A1739	A1715	A1504	
6		A1314	A0126 A2199 (2)	A0613	
8			A1490		

(1) SS304L
(2) SS321

MORE THAN A SUPPLIER

EUROPE

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