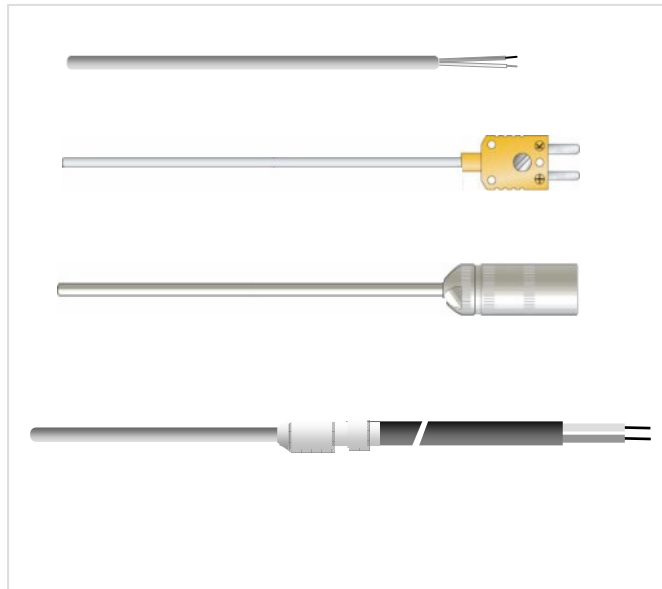


Mineral insulated thermocouples

Features

- For Temperatures from -200°C up to 1200°C
- Mineral insulation of high purity MgO powder insuring a high thermal conduction and so fast response times
- Flexibel, chock and vibration proof
- Thermocouple cables of PVC, Silicon, PTFE, Glass silk or stainless steel Armour braid
- Free blank ends, miniature or standard thermocouple plugs, Lemo plugs
- Available in diameters 1mm, 1,5mm, 2mm, 3mm and 6mm (other diameters are available on request)
- Sheaths of Inconel 600 or high temperature resistant Stainless steels
- Lengths of the MITC and cables are customisable to fit the customer application
- Fully conform with requirements of the international Standard DIN IEC 60584 Class 1



Description

The areas of application of mineral insulated Thermocouples are manifold. Whether in engine and plants construction, building controls, ovens, chemical industry, motor testing, medical and pharmaceutical productions or in climatic measurements, the mineral insulated Thermocouples presents properties that allow them to be used in almost all applications where temperature measurement is necessary.

The flexible sheath is mostly made of temperature resistant alloys such as inconel or refractory stainless steels for uses up to 1200°C. For temperatures up to 1335°C the special sheath material Omegaclad is used. This Material develops at high temperatures a protective thin film which slow down considerably the oxidation reactions that destruct the sheath.

According to the requirements of the IEC 60584 standard is the minimal bending radius of the MITC is at least 5 times the diameter of the sheath. The sensing insert (thermocouple wires) is insulated against the sheath with high density and highly pure Magnesium oxide (MgO) powder. The high compression and the excellent thermal properties of the MgO-powder ensure very short response times, which are limited only through the dimensions (diameter) of the protection tube (T90 of about 5 sec for diameter 1,5 mm).

The thermocouples are available in different execution forms. Whether with extension cables, thermocouple or LEMO plugs or with free ends, the dimensions can be fitted to fit the user application. The standard available diameters are 1, 1,5, 3 and 6 mm though other diameters (for example 2mm, 4,5 mm and 8 mm) are also available on request. The maximal allowed temperature for the connection end is limited through the sealing glue and / or the connected compensation cable to maximally 250°C (105°C when PVC insulated cables are used).

The MITCs can be used in up to 40 bar pressure. They are water-, choc and vibrationproof.

Technical Data

Features	Values																																								
Connection	Free bare ends, miniature or standard thermocouple plugs, LEMO plugs, compensation cables with or without the above mentioned plugs																																								
Cables	Compensation or extension Thermocouple cables with insulation:																																								
	<table border="1"> <thead> <tr> <th>Designation</th> <th>Wire insulation</th> <th>Sheath insulation</th> <th>Armour</th> <th>Cable max. temperature</th> </tr> </thead> <tbody> <tr> <td>GLS / GLS / V2A</td> <td>Glass silk</td> <td>Glass silk</td> <td>Stainless steel</td> <td>350°C</td> </tr> <tr> <td>GLS / GLS</td> <td>Glass silk</td> <td>Glass silk</td> <td>--</td> <td>350°C</td> </tr> <tr> <td>PTFE / PTFE</td> <td>PTFE</td> <td>PTFE</td> <td>--</td> <td>260°C</td> </tr> <tr> <td>FEP / FEP</td> <td>FEP</td> <td>FEP</td> <td>--</td> <td>200°C</td> </tr> <tr> <td>FEP / SIL</td> <td>FEP</td> <td>Silicon</td> <td>--</td> <td>180°C</td> </tr> <tr> <td>SIL / SIL</td> <td>Silicon</td> <td>Silicon</td> <td>--</td> <td>180°C</td> </tr> <tr> <td>PVC / PVC</td> <td>PVC</td> <td>PVC</td> <td>--</td> <td>105°C</td> </tr> </tbody> </table>	Designation	Wire insulation	Sheath insulation	Armour	Cable max. temperature	GLS / GLS / V2A	Glass silk	Glass silk	Stainless steel	350°C	GLS / GLS	Glass silk	Glass silk	--	350°C	PTFE / PTFE	PTFE	PTFE	--	260°C	FEP / FEP	FEP	FEP	--	200°C	FEP / SIL	FEP	Silicon	--	180°C	SIL / SIL	Silicon	Silicon	--	180°C	PVC / PVC	PVC	PVC	--	105°C
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The cables are also available with Copper or stainless steel between wire insulation and cable sheath shielding. Outer Armour of SS braid can be also available under request.																																									
Protection sheath	Inconel 600, or heat resistant stainless steel (1.4541) (Up to 1200°C) Omegaclad xxx for temperatures up to 1335°C (Only under special request)																																								
Thermocouples	Type K and Type J. other types are available on request Number of TC- pairs 1xK, 2xK, 1xJ and 2xJ (Other on request)																																								
Accuracy classes	The accuracy is conform to DIN IEC 60584 Class 1																																								
Diameters	1mm, 1,5 mm, 3 mm and 6 mm Other diameters (for example 2 mm and 8 mm) are available on request																																								
Standard lengths	NL 50 mm, 100 mm, 250 mm, 500 mm and 1000 mm Other nominal lengths are available on request																																								

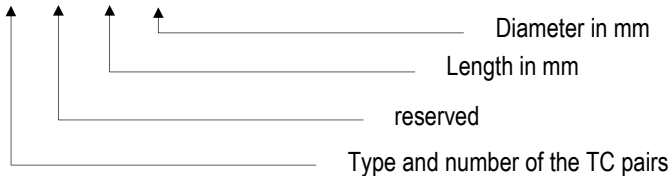
Dimensions

Basic execution



Article Number composition

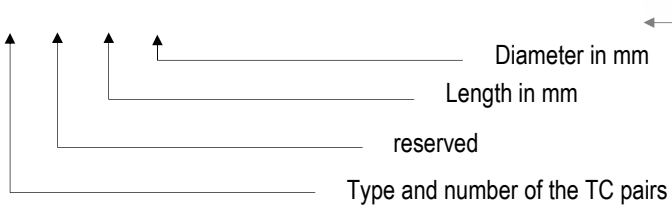
M(M)363 LLLL-DD



Example: **KK363 0250-60**
MITC 2xK, NL 250 mm, D 6,0 mm

Execution with Miniature TC plug

M(M)625 LLLL-DD



Example: **K625 0250-15**
MITC 1xK, NL 250 mm, D 1,5 mm,
with miniature or Standard plug

Article Nr: **0625 XXXX-XX**

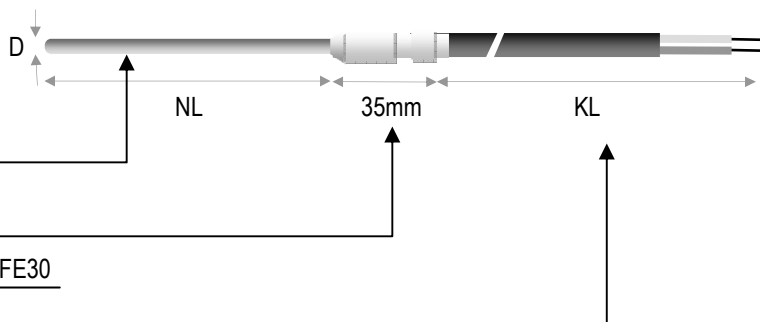
Order Information

Example

MITC 1xJ NL130 D3 1.4541

VH5x35 Stainless Steel

KL2500 PTFE/GLS/V2A 2x0,22 mm² FE30



The first line gives information about the MITC , Type , Length, Diameter and sheath material

The second line gives information about the jointure tube between Cable and MITC: Diameter x Length, Material

The third line give information about the cable: Length, Insulation, Wire cross section, Free ends length or plug type

The fourth line give the Temperature range

The technical information given in this documentation has been verified and controlled carefully. They are thought to inform the user about the product and its applications possibilities. The data given here have not to be taken as an insurance of some properties. They have to be carefully investigated through the user relatively to the intended application.