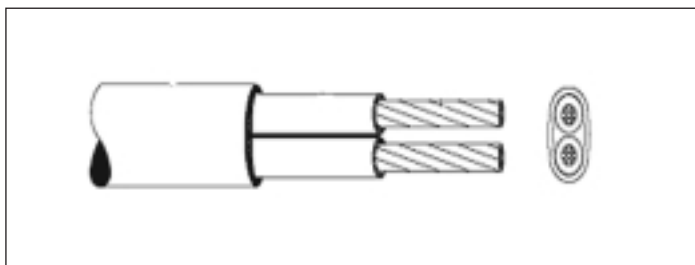


GEFRAN TC/TR ACCESSORIES

EXTENSION AND COMPENSATION CABLES FOR THERMOCOUPLES

PVC CABLE



Characteristics: Flexible wire
PVC isolation
PVC sheathing

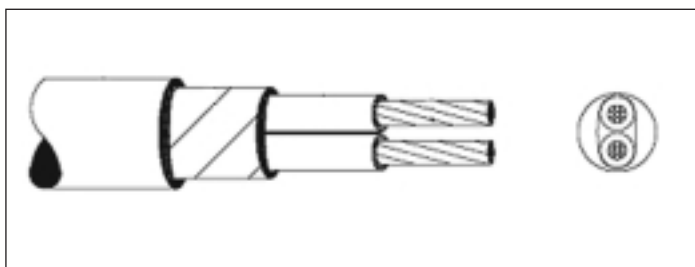
Temperatura: +95°C ÷ -30°C

Fire resistance: Does not propagate fire;
self-extinguishing

Impermeability: Excellent water resistance

Standards and color: DIN 43710-43713
43714 or ANSI MC 96.1

PMP CABLE



Characteristics: Flexible wire
PVC isolation
Al/Mylar (aluminum alloy)
shielding
PVC sheathing

Temperature: +95°C ÷ -30°C

Fire resistance: Does not propagate fire;
self-extinguishing

Impermeability: Excellent water resistance

Standards and color: DIN 43710-43713
43714 or ANSI MC 96.1

PSP CABLE



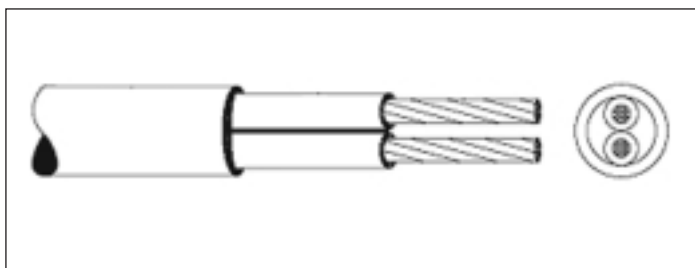
Characteristics: PVC isolation
Stranding
Cu sn shield
Round PVC sheathing

Temperature: +105°C ÷ -25°C

Fire resistance: Does not propagate fire;
self-extinguishing

Standards and color: DIN 43710-43713
43714 or ANSI MC 96.1

GSC CABLE



Characteristics: Flexible wire
Silicone rubber isolation
Silicone rubber sheathing

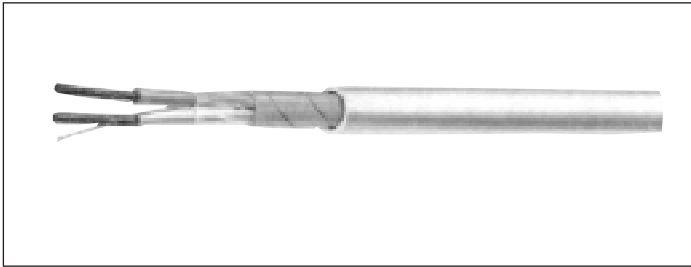
Temperature: +200°C ÷ -60°C

Fire resistance: Does not propagate fire;
self-extinguishing

Impermeability: Excellent water resistance

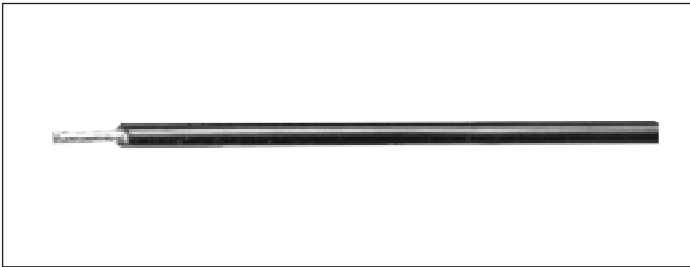
Standards and color: DIN 43710-43713
43714 or ANSI MC 96.1

GSMYC CABLE



<i>Characteristics:</i>	Silicone isolation Stranding Al/Mylar (aluminum alloy) shielding Silicone sheathing
<i>Temperature:</i>	+180°C ÷ -30°C
<i>Fire resistance:</i>	Does not propagate fire; self-extinguishing
<i>Impermeability:</i>	Excellent water resistance
<i>Standards and color:</i>	DIN 43710-43713 43714 or ANSI MC 96.1

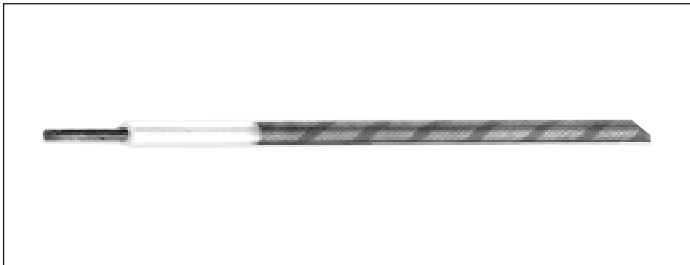
GS CABLE



<i>Characteristics:</i>	Cu r / Cu sn wire Silicone rubber isolation
<i>Temperature:</i>	+180°C ÷ -30°
<i>Construction:</i>	wire made of elementary red, tinned, or nickel-plated copper strands, silicone rubber sheathing.
<i>Properties and uses:</i>	heat resistant, flexible.

For high temperatures of motors, transformers, generators, electrical equipment, wiring for home appliances and lighting.

GST CABLE

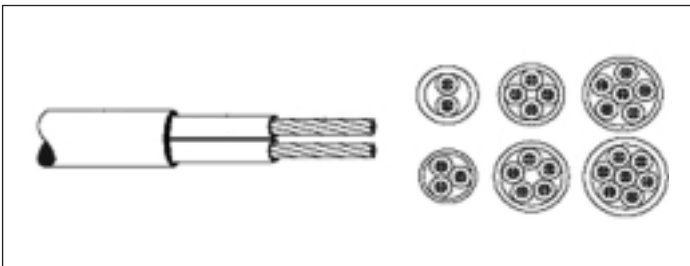


<i>Characteristics:</i>	Cu r / Cu sn wire Silicone rubber isolation Fiberglass isolation
<i>Temperature:</i>	+220°C ÷ -30°
<i>Construction:</i>	wire made of elementary red or tinned copper strands, silicone rubber sheathing, siliconed fiber-glass braiding.
<i>Properties and uses:</i>	heat resistant, flexible.

For high temperatures of motors, transformers, generators, electrical equipment, wiring for home appliances and lighting.

Colors: GREY/GREEN, BLUE, BROWN, BLACK, WHITE, RED

GSM CABLE



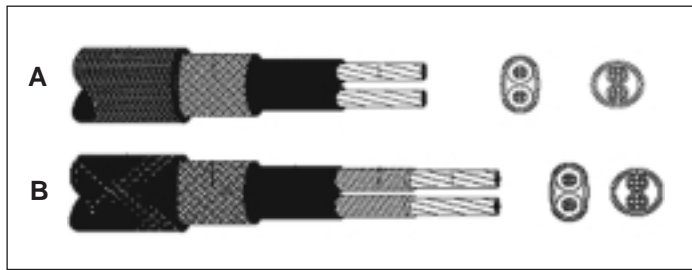
<i>Characteristics:</i>	- Flexible red (Cu r) or tinned (CU sn) copper wire - Silicone rubber isolation - Silicone rubber sheathing
<i>Temperature:</i>	+180°C ÷ -60°
<i>Peaks:</i>	+200°C
<i>Rated voltage:</i>	300/500 V
<i>Test voltage:</i>	2000 V

<i>Fire resistance:</i>	Good
<i>Oil resistance:</i>	Good
<i>Impermeability:</i>	Excellent
<i>Flexibility:</i>	Excellent

Colors: BRICK RED sheathing (BLACK on request); Color codes as per VDE 0293/10.77

2 wires:	brown – blue
3 wires:	yellow green – black – blue
4 wires:	yellow green – black – blue – brown
5 wires:	yellow green – black – blue - brown – black
6 wires and up:	black with printed number starting from inside with 1 yellow green in outer position

TTS CABLE

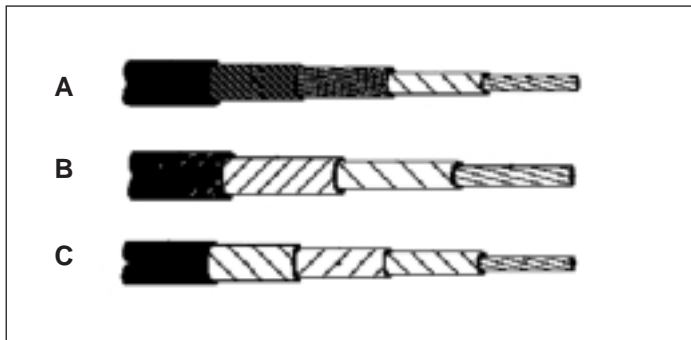


Characteristics: Flexible wire
 Conductive glass braiding impregnated with silicone rubber
 Conductive glass braiding
 Tinned copper braiding
 Spiral made of conductive glass braiding impregnated with silicone rubber (version B only)

Temperature: +250°C ÷ -60°C

Fire resistance: does not propagate fire; self-extinguishing
Impermeability: low resistance to water
Standards and color: DIN 43710-43713-43714 or ANSI MC 96.1

NST CABLE



A: Characteristics Sect. 1x1.5 - Sect. 1x2 - Sect. 1x2.5:
 - Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire
 - P.T.F.E. tape
 - Conductive glass spiral impregnated with silicone rubber
 - Conductive glass braiding impregnated with silicone rubber

B: Characteristics Sect. 1x3 - Sect. 1x4 - Sect. 1x6:
 - Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire
 - P.T.F.E. tape
 - Conductive glass tape impregnated with silicone rubber
 - Conductive glass braiding impregnated with silicone rubber

C: Characteristics Sect. 1x8 - Sect. 1x10 - Sect. 1x16 - Sect. 1x25:
 - Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire
 - Conductive glass tape
 - P.T.F.E. tape
 - Conductive glass tape impregnated with silicone rubber
 - Conductive glass braiding impregnated with silicone rubber

Working temperature: +250°C ÷ -60°C

Peaks: +280°C

Rated voltage: 300/500V

Test voltage: 2000V

Tape overlapping: 50%

Max. T of copper wire: 150°C

Max. T of 130 micron nickel-plated wire: 350°C

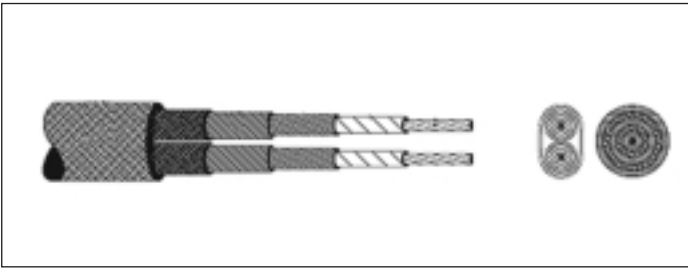
Max. T of nickel wire: 99.20%: 600°C

Fire resistance: Excellent

Impermeability: Good

Standards and color: Color of standard cable with copper wire: black striped
 Color of standard cable with nickel-plated copper wire: blue striped
 Color of standard cable with nickel wire: green striped
 On request, can be striped yellow, red, yellow-green, brown, combinations of above colors, or all white.

FTA CABLE



Characteristics:

- Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire
- P.T.F.E. tape
- Conductive glass spiral impregnated with silicone rubber
- Conductive glass braiding impregnated with silicone rubber
- Galvanized iron or tinned copper braiding

Working temperature: +250°C ÷ -60°C

Peaks: +280°C

Rated voltage: 300/500 V

Test voltage: 2000 V

Tape overlapping: 50%

Max. T of copper wire: 150°C

Max. T of 130 micron nickel-plated wire: 350°C

Max. T of nickel wire: 99.20%: 600°C

Fire resistance: excellent

Impermeability: good

Standards and color: color of unipolar or bipolar cable: subject to availability.

NSTTS CABLE



Characteristics:

- Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire
- P.T.F.E. tape
- Conductive glass spiral impregnated with silicone rubber
- Conductive glass braiding impregnated with silicone rubber
- Galvanized iron braiding

Working temperature: +260°C ÷ -60°C

Peaks: +290°C

Rated voltage: 300/500 V

Test voltage: 2000 V

Tape overlapping: 50%

Max. T of copper wire: 150°C

Max. T of 130 micron nickel-plated wire: 350°C

Max. T of nickel wire: 99.20%: 600°C

Fire resistance: excellent

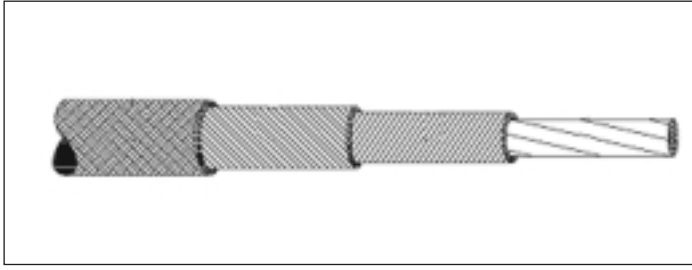
Impermeability: good

Standards and color: color of bipolar cable: subject to availability.

Color of tripolar cable: 1st cable yellow-green; 2nd cable white, 3rd cable as per table

Color of quadripole cable: 1st cable yellow-green; 2nd cable white, 3rd cable crossed black, 4th cable as per table

SST CABLE



Characteristics:

- Red copper (Cu r), nickel-plated (Cu Ni) or nickel (Ni 99%) wire or alloys
- Conductive glass spiral impregnated with silicone rubber
- Conductive glass braiding impregnated with silicone rubber

Working temperature: +220°C ÷ -60°C

Peaks: +250°C

Rated voltage: 300/500 V

Test voltage: 1000 V

Tape overlapping: 50%

Max. T of copper wire: 150°C

Max. T of 130 micron nickel-plated wire: 350°C

Max. T of nickel wire: 99.20%: 600°C

Fire resistance: excellent

Impermeability: good

Standards and color:

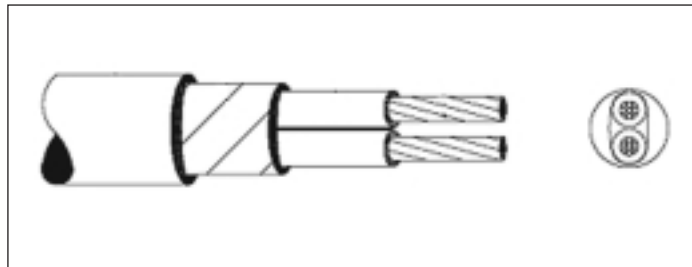
Color of standard cable with copper wire: white

Color of standard cable with nickel-plated copper wire: blue striped

Color of standard cable with nickel wire: green striped

On request, can be striped yellow, red, yellow-green, brown, combinations of above colors, or all white

GSC-SCH CABLE



Characteristics:

- Flexible wire
- Silicone rubber isolation
- Silicone rubber sheathing
- Tinned copper braiding

Temperature:

+200°C ÷ -60°C

Fire resistance:

Does not propagate fire;
self-extinguishing

Impermeability:

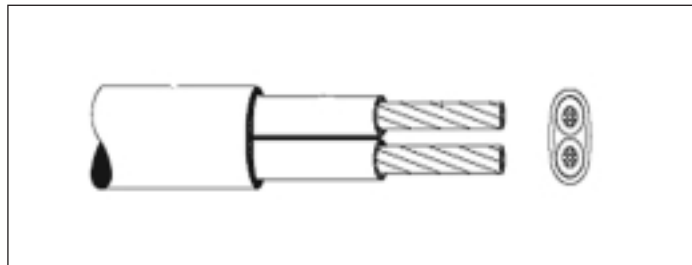
Excellent water resistance

Standards and color:

DIN 43710-43713

43714 or ANSI MC 96.1

TES CABLE



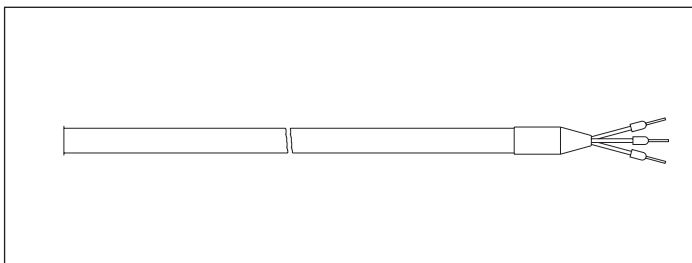
Characteristics:

- Flexible wire
- Teflon® isolation
- Fiberglass braiding

Temperature:

+250°C ÷ -60°C

FG40HG4 CABLE



Characteristics:

- 4 Cu-Sn wires
- Silicone rubber isolation
- Aluminum-Mylar shielding
- Continuity wire

Outer sheathing made of
black silicone rubber

Temperature:

+200°C ÷ -60°C

PROTECTIVE SHEATHINGS

METAL SHEATHINGS

◆ AISI 304

[10% nickel 19% chromium – 0.08% max. carbon - 2% max. manganese - 1% silicon – traces of sulfur and phosphorus – balance iron]

Working temperature: up to 899°C in oxidizing atmosphere.

Resists corrosion in a wide range of industrial applications.

Mechanical properties are good at temperatures from -184°C to +788°C.

Principal sectors for protection of thermocouples: chemical; food; plastics; petrochemical.

◆ AISI 310

[19-22% nickel - 24-26% chromium – 0.75% max. silicon - 15% max. carbon – 0.40% max. phosphorus - 2% max. manganese – 0.30% max. sulfur – balance iron]

Working temperature: 1149°C.

Good resistance to oxidation and carbonous atmosphere.

Good resistance to thermal shock; widely used in presence of 15% max. sulfurous gases.

◆ AISI 316

[12% nickel - 17% chromium - 2% molybdenum - 2% max. manganese – 0.08% max. carbon - 1% max. silicon – traces of sulfur and phosphorus – balance iron]

Working temperature: up to 927°C in oxidizing atmosphere.

Principal sectors for protection of thermocouples: chemical; food; plastics; petrochemical.

◆ AISI 446

[27% chromium – 0.25% max. nitrogen – 0.20% carbon – 1.5% max. manganese - 1% silicon - traces of sulfur and phosphorus – balance iron]

Working temperature: up to 1093°C in oxidizing atmosphere.

Excellent resistance to corrosion and oxidation.

Principal sectors of use: treatment and annealing furnaces; salt baths; lead casting; sulfurous atmosphere; asphalt mixing; coffee roasting; waste incineration furnaces.

Not used in casehardening atmosphere.

◆ INCONEL 600

[76% nickel - 16% chromium - 8% iron]

Working temperature: up to 1140°C in oxidizing atmosphere; up to 1038°C in reducing atmosphere.

Not used in sulfurous atmosphere at temperature exceeding 538°C.

Principal sectors of use: cyanide salt baths; waste incineration furnaces.

◆ CAST IRON

Working temperature: up to 740°C in oxidizing atmosphere.

Principal sector of use: casting of non-ferrous metals.

Can be used at 871°C in reducing atmosphere.

◆ CARBON STEEL

[0.17% carbon – 0.75% manganese – 0.035% max. phosphorus – 0.045% max. sulfur – balance iron]

Working temperature: up to 538°C in non-oxidizing atmosphere.

Principal sectors of use: casting of lead, manganese, zinc; fission furnaces.

CERAMIC SHEATHINGS

◆ **KER 710**

[**Aluminum 710 Al₂O₃** 99.7% recrystallized]

Resistant to gases containing hydrofluoric acid, to alkaline fumes, to oxidizing, reducing, neutral atmospheres, and to temperature changes.

Offers higher mechanical strength than any other type of ceramic.

Maximum working temperature: 1900°C.

◆ **KER 610**

[**Dimulit 610 - Pythagoras 610**]

The most used of all non-porous ceramic minerals; used to build internal, external, and isolation pipes.

Offers good resistance to hydrofluoric acid gases, sudden temperature changes, and mechanical agents.

Reacts with basic slag.

Maximum working temperature: 1600°C.

◆ **KER 530**

[**Sillimantite 530**]

Seldom used; normally used as external sheathing in combination with a gas-tight internal sheathing.

Porous ceramic, resistant to thermal shock, reacts with basic slag.

Maximum working temperature: 1600°C.

CARBIDE SHEATHINGS

◆ **Carborundum**

[90% silicon carbide - 9% silicon oxide - 1% aluminum oxide]

Working temperature: up to 1650°C.

Porous sheathing used as added protection for aluminum sheathing.

Resistant to thermal shock; can be used to cast non-ferrous metals.

SLIDING COMPRESSION FITTINGS



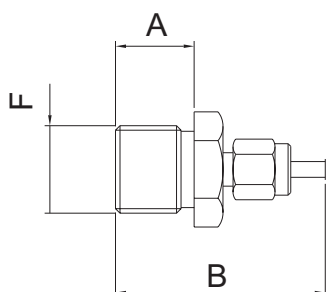
Stainless steel compression fittings
Brass compression fittings

Available stainless steel models

	ø 1	ø 1,5	ø 2	ø 3	ø 4	ø 4,5	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14
1/8 NPT	RAC101	RAC102	RAC103	E0301238	RAC105	E0301239	RAC107	E0301240				
1/4 NPT				RAC112	RAC113	E0301241	RAC115	E0301236	E0301221			
3/8 NPT					RAC121	E0301242		E0301223	E0301224	RAC126		
1/2 NPT				RAC129		E0301243		E0301225	E0301226	E0301235	RAC136	
3/4 NPT												
1 NPT												
G 1/8	RAC143	E0301247	RAC145	RAC146	RAC147	RAC148	RAC149	RAC150				
G 1/4			RAC153	E0301244	RAC155	E0301262	RAC157		E0301227			
G 3/8						RAC164		E0301229	E0301230	RAC168		
G 1/2				RAC171		E0301234		E0301231	E0301232	E0301233	E0301257	RAC278
G 3/4								E0301245	E0301246			
G 1												

Available brass models

	ø 1	ø 1,5	ø 2	ø 3	ø 4	ø 4,5	ø 5	ø 6	ø 8	ø 10	ø 12	ø 14
1/8 NPT	RAC185	RAC186	RAC187	E0325052	E0325053	RAC190	E0325055	E0325056				
1/4 NPT				RAC196	RAC197	RAC198	E0325060	E0325061	E0325062			
3/8 NPT					RAC205		E0325066	E0325067	E0325068	RAC210		
1/2 NPT												
3/4 NPT												
1 NPT												
G 1/8	RAC227	RAC228	RAC229	E0325102	E0325103	RAC232	E0325105	E0325106				
G 1/4				E0325109	E0325113	RAC240	E0325110	E0325111	E0325112			
G 3/8						RAC248		E0325117	E0325118	RAC252		
G 1/2			RAC254	RAC255				E0325123	E0325124	E0325125	E0325127	
G 3/4												
G 1												



Mechanical dimensions of fitting (F)		
FITTING (F)	A (mm)	B (mm)
G 1/8	10	35
G 1/4	12	35
G 3/8	15	40
G 1/2	15	40
1/8 NPT	11	35
1/4 NPT	16	40
3/8 NPT	16	40
1/2 NPT	20	45

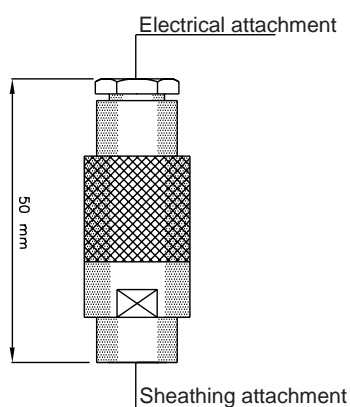
CONNECTION HEADS



Available models

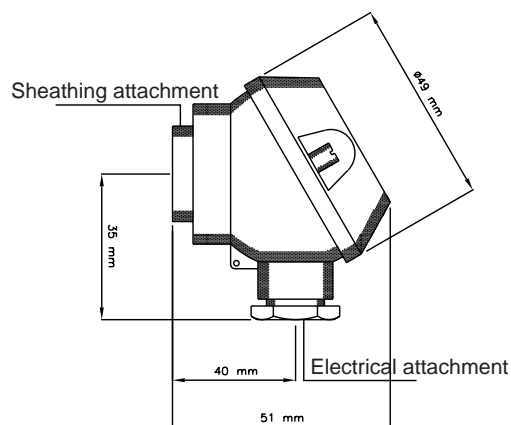
MIGNON head		E2225020
BUZ-H head	1/2NPT - PG16	E2229037
BUZ-H head	G1/2 - PG16	E2229041
BUZ-H head	M24x1,5 - PG16	E2229039
DIN-A head	D.22,3 - PG16	E2229015
DIN-A head	G1/2 - G1/2	E2229018
DIN-B head	G1/2 - G1/2	E2229014
DIN-B head	G1/2 - PG16	E2229006
DIN-B head	M24x1,5 - G1/2	E2229011
DIN-B head	M24x1,5 - PG16	E2229012
DIN BUS head	G1/2 - PG16	E2229065
DIN BUS head	M24x1,5 - PG16	E2229013
DIN J head	G1/4 - PG9	E2229002
DIN J head	M10x1 - PG9	E2229001
EEX head	d II C 2 GD	E2229035
CEAA head	G1/2 - M20x1,5	E2229022
CEAA head	M24x1,5 - PG16	E2229009
CEAA head	G1/2 - G1/2	E2229021

Mignon



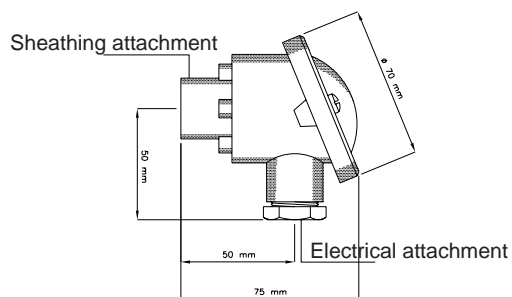
Electrical attachment: 1/4 GAS
Protection level: IP54
Material: nickel-plated brass

DIN J



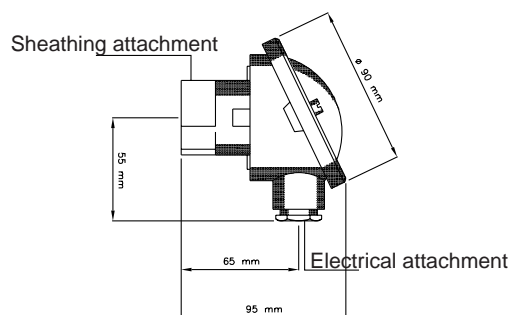
Electrical attachment: PG9
Protection level: IP54
Material: Aluminum alloy, gray epoxy paint

DIN B



Electrical attachment: PG16 / 1/2 GAS
Protection level: IP54
Material: Aluminum alloy, gray epoxy paint

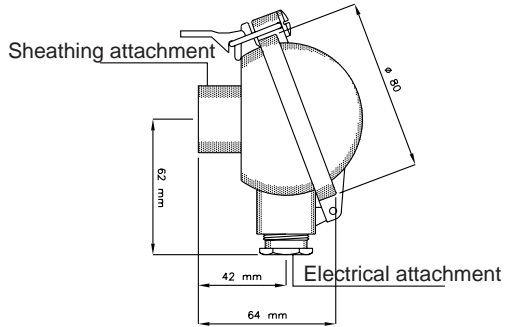
DIN A



Electrical attachment: 1/2 GAS
Protection level: IP54
Material: Aluminum alloy, gray epoxy paint

CONNECTION HEADS

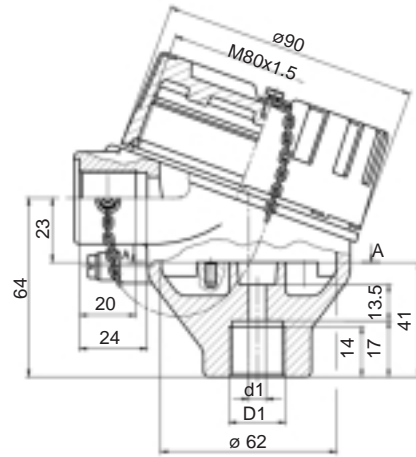
DIN BUS



Electrical attachment: PG16
 Protection level: IP54/IP65*
 Material: Aluminum alloy, gray epoxy paint

* IP65 on Request

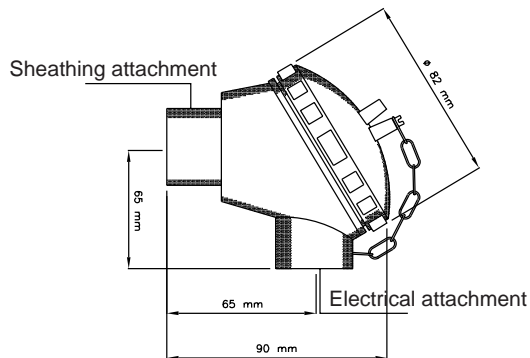
EEX



Electrical attachment: 1/2 GK
 Protection level: IP54/IP68*
 Material: Die-cast aluminum
 Protection: Chrome plating and chemical resistant paint
 Execution: EEX - d - IIc - 2GD

* IP68 on Request

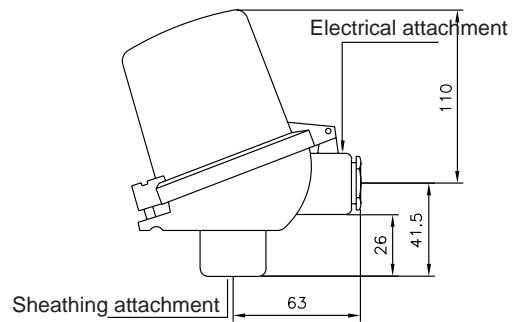
CEAA



Electrical attachment: 1/2 NPT
 Protection level: IP54/IP65*
 Material: Aluminum alloy, gray epoxy paint

* IP65 on Request

BUZ H



Electrical attachment: PG 16
 Protection level: IP54/IP65*
 Material: Aluminum alloy, gray epoxy paint

* IP65 on Request

4-20mA SIGNAL AMPLIFIERS



Available models

4-20mA amplifier for Pt100	ETMX4505
4-20mA amplifier for Pt100 certified Atex II 1G Eex ia IIB T4/T5/T6	ETMX4506
4-20mA amplifier for Thermocouple certified Atex II 1G Eex ia IIB T4/T5/T6	ETMZ5504
4-20mA amplifier for Thermocouple	ETMZ5505
Inor 4-20mA amplifier for Thermocouple and Pt100 programmable from PC	ETMZ5506
Software Inor 4-20mA 20mA amplifier programmable from PC, complete with connector cable	---
Datexel 4-20mA amplifier for Thermocouple and Pt100 programmable from PC	---
Software for Datexel 4-20mA amplifier programmable from PC, complete with connector cable	---

ADAPTER FOR 4-20mA SIGNAL AMPLIFIERS



Available models

DIN rail adapter for 4-20mA head amplifiers	---
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DISPLAY



Available models

Plug-in display with open collector	TDP-1001
Plug-in display Eex ib IIC T4	TDP-2000
Adapter with cable clamp PG-11	TDP-PG11
Adapter with cable clamp PG-13.5	TDP-PG13
Adapter with cable clamp PG-16	TDP-PG16

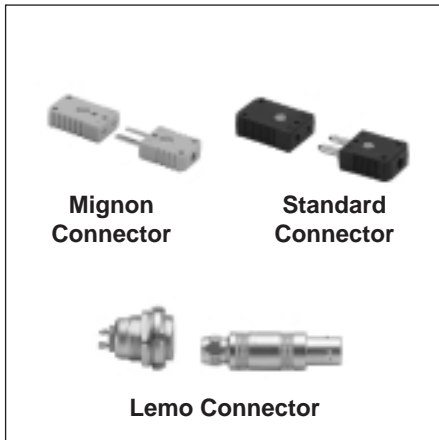
IP67 REMOTE TEMPERATURE INPUTS ON CANOPEN FIELDBUS



Available models

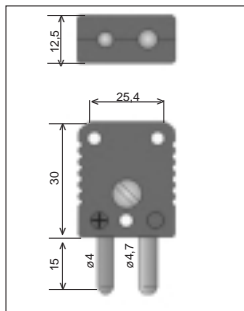
For plate mounting	GLK67-BRTC
For mounting with Harting connector	GLK67-IRTC

CONNECTORS

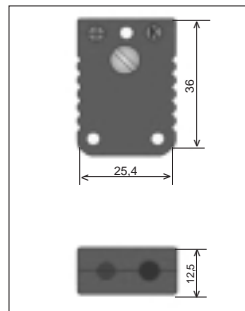


Available models

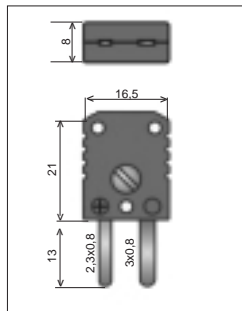
Standard compensated male connector for TC J black	E1827106
Standard compensated female connector for TC J black	E1827107
Compensated panel connector for TC J black	E1827108
Mignon compensated male connector for TC J black	E1927106
Mignon compensated female connector for TC J black	E1927107
Standard compensated male connector for TC K yellow	E1827116
Standard compensated female connector for TC K yellow	E1827117
Compensated panel connector for TC K yellow	E1827118
Mignon compensated male connector for TC K yellow	E1927116
Mignon compensated female connector for TC K yellow	E1927117
Standard compensated male connector for TC T blue	E1827101
Standard compensated female connector for TC T blue	E1827102
Compensated panel connector for TC T blue	E1827103
Mignon compensated male connector for TC T blue	E1927125
Mignon compensated female connector for TC T blue	E1927126
Standard compensated male connector for TC E violet	E1827125
Standard compensated female connector for TC E violet	E1827126
Compensated panel connector for TC E violet	----
Mignon compensated male connector for TC E violet	E1927131
Mignon compensated female connector for TC E violet	E1927132
Lemo connector ERD-1S-302-C-L-L	CON850
Lemo connector ERD-1S-303-C-L-L	CON851
Lemo connector ERD-1S-304-C-L-L	CON852
Lemo connector ERD-2S-302-C-L-L	CON853
Lemo connector ERD-2S-303-C-L-L	CON854
Lemo connector ERD-2S-304-C-L-L	CON855
Lemo connector FFA-1S-302-C-L-A-L-47	CON856
Lemo connector FFA-1S-303-C-L-A-L-47	CON857
Lemo connector FFA-1S-304-C-L-A-L-52	CON858
Lemo connector FFA-2S-302-C-L-A-L-47	CON859
Lemo connector FFA-2S-303-C-L-A-L-47	CON860
Lemo connector FFA-2S-304-C-L-A-L-47	CON861



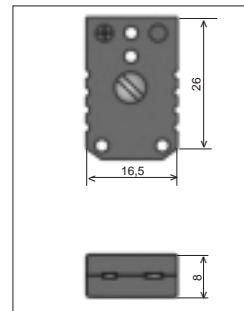
-50...+120°C
Standard compensated male connector



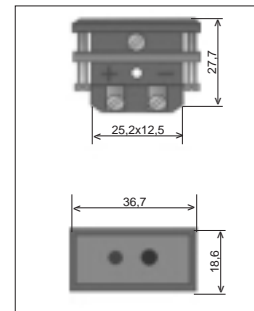
-50...+120°C
Standard compensated female connector



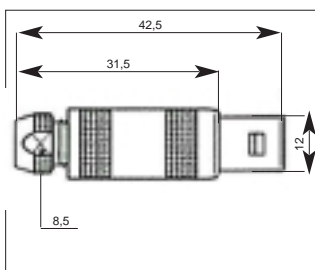
-50...+120°C
Mignon compensated male connector



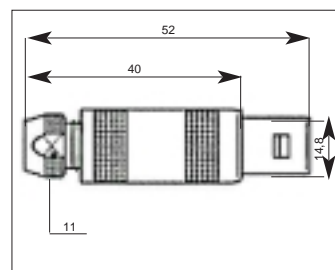
-50...+120°C
Mignon compensated female connector



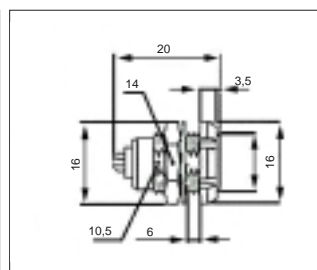
-50...+120°C
Panel compensated connector



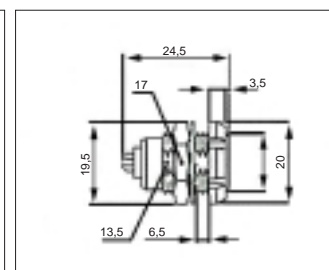
Lemo connector modell FFA serie 1S



Lemo connector modell FFA serie 2S



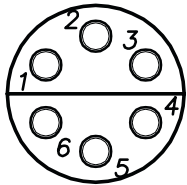
Lemo connector modell ERD serie 1S



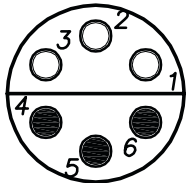
Lemo connector modell ERD serie 2S

CONNECTION DIAGRAMS FOR LEMO AND Pt100 CONNECTORS

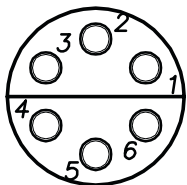
6-wire connection



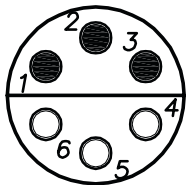
Soldering side (ERO)



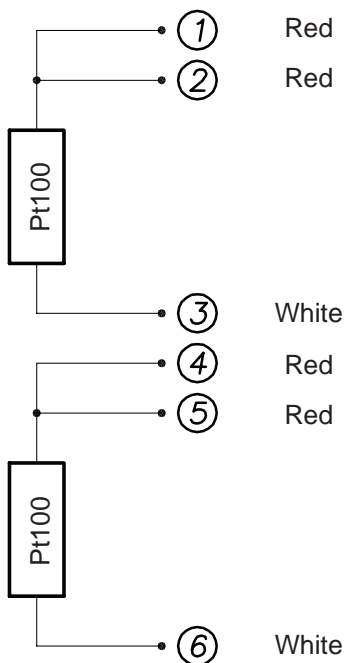
Connector side (ERO)



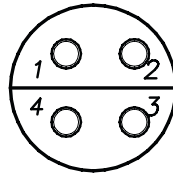
Soldering side (FFA)



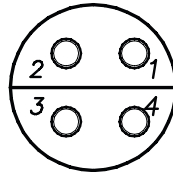
Connector side (FFA)



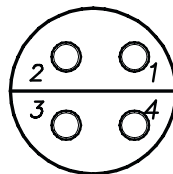
4-wire connection



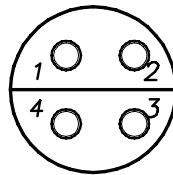
Soldering side (ERO)



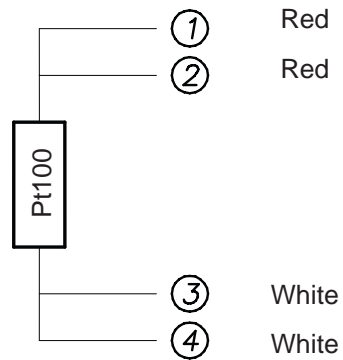
Connector side (ERO)



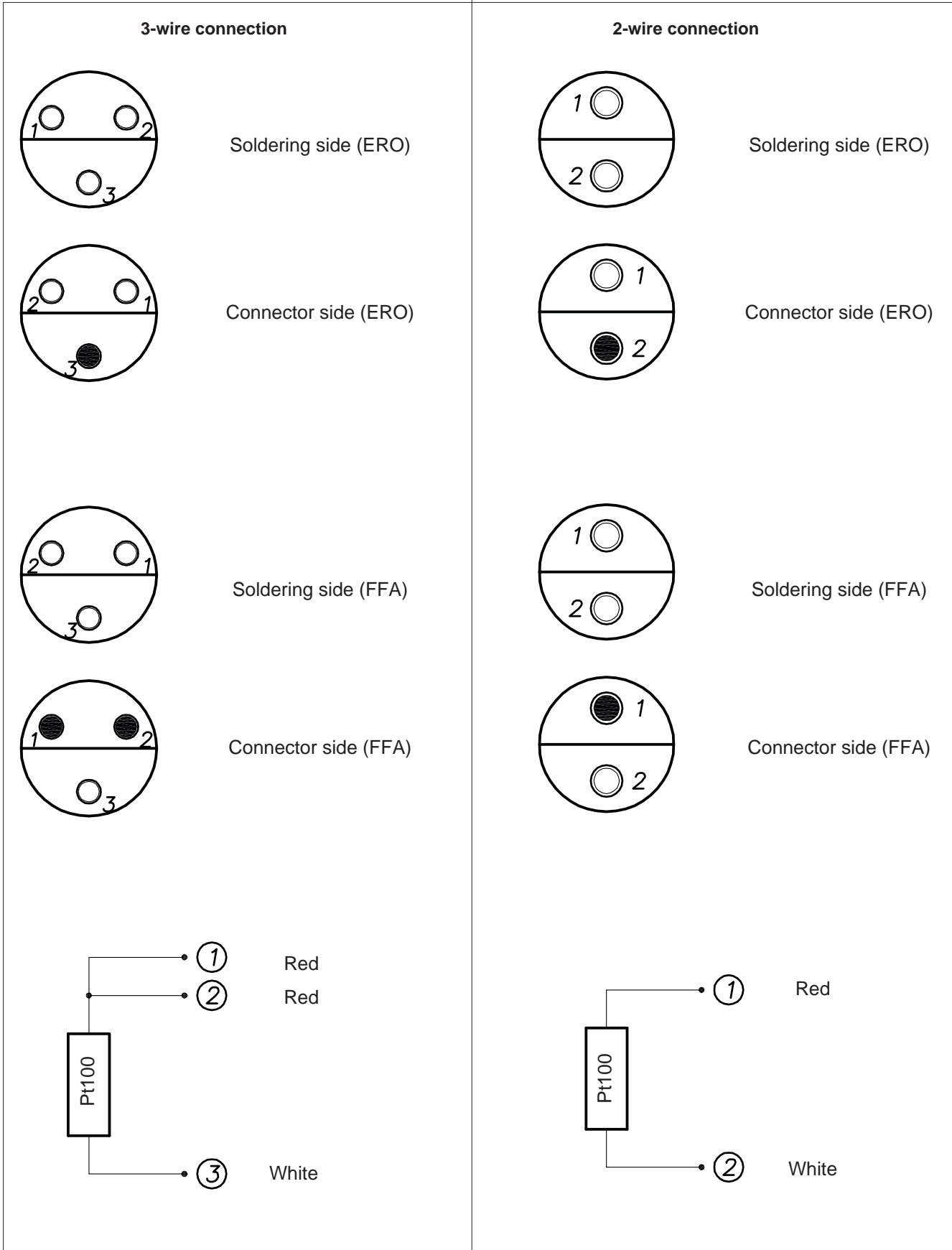
Soldering side (FFA)



Connector side (FFA)



CONNECTION DIAGRAMS FOR LEMO AND Pt100 CONNECTORS



GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice

GEFRAN spa
 via Sebina, 74
 25050 PROVAGLIO D'ISEO (BS) - ITALIA
 tel. 0309888.1 - fax. 0309839063
 Internet: <http://www.gefran.com>
www.gefranonline.com