

X = Extension cable  
C = Compensating cable

International  
Standard

Former Standard

T/C Calibration	Cable Code	Material identification		Nominal temperature range	IEC584-3 1989, mod. BS4937, Part 30 1993	American ANSI / MC 96.1	German DIN 43713/43714	French NFE 18001
		Positive	Negative					
E	EX	Nickel Chromium	Constantan	0...+870°C 32...+1600°F				
J	JX	Iron@	Constantan	0...+760°C 32...+1400°F				
K	KX	Nickel Chromium NC/Chromel	Nickel Aluminium@ NA or Alumel	0...+1260°C 32...+2300°F				
N	NX	Nicrosil	Nisil	0...+1260°C 32...+2300°F				
T	TX	Copper	Constantan	-184...+370°C -300...+700°F				
S	SC	Platinum 10% Rhodium	Platinum	0...+1480°C 32...+2700°F				
R	RC	Platinum 13% Rhodium	Platinum					
U	RCA SCA	Copper	Copper low nickel					
		Compensating for "R" or "S"						
B	BC	Platinum 30% Rhodium	Platinum 6% Rhodium	870...+1700°C 1600...+3100°F				
Vx	KCB	Copper	Constantan					
		Compensating for "K"						

(@ Magnetic)

Table 3 - Colour code and limits of error for duplex insulated thermocouple cables to ANSI MC 96.1 - 1975 rules

Type	Conductors		Colours			Temperature field	Limits of error			
	Positive	Negative	Sheath	Positive	Negative		Standard		Special	
T	Copper	Constantan	White	Blue	Red	-200...0°C 0...+370°C	± 1°C	(± 1.5%)	± 0.5°C	(± 0.8%)
J	Iron	Constantan	Black	White	Red	0...+760°C	± 2.2°C	(± 0.75%)	± 1.1°C	(± 0.4%)
E	Chromel	Constantan	Purple	Purple	Red	-200...0°C 0...+870°C	± 1.7°C	(± 1%)	± 1°C	(± 0.5%)
K	Chromel	Alumel	Yellow	Yellow	Red	0...+1260°C	± 2.2°C	(± 0.75%)	± 1.1°C	(± 0.4%)

Table 4 - Colour code and limits of error for duplex insulated thermocouple extension and compensating cables according to ANSI MC 96.1 - 1975

Type	Conductors		Colours			Temperature field	Limits of error	
	Positive	Negative	Sheath	Positive	Negative		Standard	Special
TX	Copper	Constantan	Blue	Blue	Red	-60...+100°C	± 1.0°C	± 0.5°C
JX	Iron	Constantan	Black	White	Red	0...+200°C	± 2.2°C	± 1.1°C
EX	Chromel	Constantan	Purple	Purple	Red	0...+200°C	± 1.7°C	-
KX	Chromel	Alumel	Yellow	Yellow	Red	0...+200°C	± 2.2°C	-
WX*	Iron	Cu/Nickel	White	Green	Red	+24...+200°C	± 3.33°C	-
VX**	Copper	Constantan	Red	Brown	Red	+24...+200°C	± 3.33C	-
SX	Copper	Cu/Ni alloy	Green	Black	Red	0...+200°C	± .057mV	-
BX	Copper	Cu/Ni alloy	Grey	Grey	Red	0...+50°C +50...+200°C	.000 mV ± .033 mV (± 3.7°C)	-

\* The compensating cable WX for K thermocouple included in previous ASA C 96.1 964 rules, has been excluded from ANSI MC 96.1 1975 rules

\*\* The compensating cable VX for K thermocouples included in previous ISA RP1, has been excluded from up-to-date ASA and ANSI rules

# 045.2

## Thermocouple and Compensating cables



### TYPE

### DESCRIPTION

### CHARACTERISTICS



GS-E-F/1.5  
Armoured

045.011

Construction characteristics as cable type GS-E-F/1,5 but with an external braiding of galvanized steel wires. Dimensions: 7,5 x 6mm

Max. temperature: 250°C  
Good resistance to moisture, but none to petroleum, excellent to abrasion.



G-N-F/1.5

045.012

Conductors stranded 19x0.32 section 1,5 mm<sup>2</sup>, rubber insulated. Wires are twisted together to form a pair. Overall neoprene sheath  
Dimensions: Ø 9mm

Max. temperature: 80°C  
Excellent resistance to moisture and abrasion, good to petroleum, slow aging, big electrical rigidity.  
Recommended for fixed external laying  
Calibration: JX, SX, WX



GS-E-F/0.5  
Armoured

045.013

Conductors stranded 7 x 0.32 or 16 x 0.20, section 0.5 mm<sup>2</sup> silicon rubber insulated, parallel and united together by impregnated fiberglass braid.  
External braiding of tinned copper wires.  
Dimensions: 4.5 x 3.5 mm

Max. temperature: 250°C  
Good resistance to moisture, few to petroleum, excellent to abrasion.  
Calibration: JX, WX, SX



E-E-F/0.5  
Armoured

045.014

Conductors stranded 16 x 0.20 or 7 x 0.32, section 0.5 mm<sup>2</sup> Fiberglass insulated wires are twisted together to form a pair.  
Pair is protected by an impregnated fiberglass braid.  
External braiding of tinned copper wires.  
Dimensions: Ø 4.8mm

Max temperature: 500°C  
Few resistance to petroleum and moisture, very good to abrasion.  
Calibration: JX, KX, WX



E-E-R/0.51/0.81

045.015  
045.016

Solid conductors Ø:  
1) 0.51 mm (24 AWG)  
2) 0.81 mm (20 AWG)  
fiberglass braid insulated, parallel and united together by external braiding of impregnated fiberglass.  
Dimensions (mm): 1) 1.3 x 2 - 2) 1.7 x 2.9

Max. temperature: 500°C  
Few resistance to moisture, petroleum and abrasion.  
Particularly indicated for high temperature.  
Calibration: JX, KX, TX



TpTpR/0.51/0.81

045.017  
045.018

Solid conductors Ø:  
1) 0.51 mm (24 AWG)  
2) 0.81 mm (20 AWG)  
insulated by Teflon\* sheath and united by Teflon PTFE sheath  
Dimensions (mm): 1) 1.2 x 2.3 - 2) 1.6 x 2.9

Max. temperature 260°C  
Exceptional resistance to atmospheric and chemical elements.  
Not inflammable.  
Calibration: JX, KX, TX



TtTfR

045.019  
045.020  
045.021

Solid conductors Ø:  
1) 0.32 mm (28 AWG)  
2) 0.51 mm (24 AWG)  
3) 0.81 mm (20 AWG)  
insulated by extruded Teflon FEP\*. parallel and united together by Teflon FEP sheath.  
Dimensions (mm):  
1) 1.5x2.6 - 2) 1.8x3 - 3) 2.1x3.6

Max. temperature: 200°C  
Exceptional resistance to chemical elements, not inflammable Teflon allows to obtain cables having very little external dimensions.  
Calibration: JX, KX, TX