Compensating Cables

Electrical Resistance

Unit :Q/m

Nom. Cross. Sec. Agea A(mm*)	Core No./Dia	BX	RX SX	NX	KX	WX	VX	EX	JX	TX
0.5	20/0.18	0.034	0.034	1.92	1.38	0.24	0.034	1.38	0.24	0.034
		0.034	0.10	0.76	0.56	0.46	0.98	0.98	0.98	0.98
		0.0680.	0.13	2.68	1.94	0.70	1.01	2.36	1.22	1.01
0.75	30/0.18	0.023	0.023	1.28	0.92	0.16	0.023	0.92	0.16	0.023
		0.023	0.067	0.50	0.37	0.31	0.65	0.65	0.65	0.65
		0.046	0.090	1.78	1.29	0.47	0.67	1.57	0.81	0.67
1.25	7/0.45	0.014	0.014	0.77	0.55	0.096	0.014	0.55	0.096	0.014
		0.014	0.040	0.30	0.22	0.18	0.39	0.39	0.39	0.39
		0.028	0.054	1.07	0.77	0.28	0.40	0.94	0.49	0.40
1.30	4/0.65 Or 1/1.3	0.013	0.013	0.74	0.53	0.092	0.013	0.53	0.092	0.013
		0.013	0.038	0.29	0.22	0.18	0.38	0.38	0.38	0.38
		0.026	0.051	1.03	0.75	0.27	0.39	0.91	0.47	0.39
2.0	7/0.6 or 1/1.6	0.0085	0.0085	0.49	0.35	0.060	0.0085	0.35	0.060	0.0085
		0.0085	0.025	0.19	0.14	0.12	0.25	0.25	0.25	0.25
		0.017	0.034	0.68	0.49	0.18	0.26	0.60	0.31	0.26
2.3	7/0.65	0.0074	0.0074	0.42	0.30	0.052	0.0074	0.30	0.052	0.0074
		0.0074	0.022	0.16	0.12	0.10	0.21	0.21	0.21	0.21
		0.015	0.029	0.58	0.42	0.15	0.22	0.51	0.26	0.22

Note: Upper column indicates positive leg resistance: middle column for negative leg resistance: and lower column for loop resistance.

Resistance vs. Wire Diameter [Resistance in ohms per double foot @ 20˚C (68˚F)]

AWG No.	Diameter		Type K	Type J	Type T	Type E	Type S	Type R	Type B
	Inches	mm							
6	0.162	4.11	0.023	0.014	0.012	0.027	0.007	0.007	0.000790
8	0.128	3.25	0.037	0.022	0.019	0.044	0.011	0.011	0.001256
10	0.102	2.59	0.058	0.034	0.029	0.069	0.018	0.018	0.001998
12	0.081	2.06	0.091	0.054	0.046	0.109	0.028	0.029	0.00318
14	0.064	1.63	0.146	0.087	0.074	0.175	0.045	0.047	0.00505
16	0.051	1.30	0.230	0.137	0.117	0.276	0.071	0.073	0.00803
18	0.040	1.02	0.374	0.222	0.190	0.448	0.116	0.119	0.01277
20	0.032	0.81	0.586	0.357	0.298	0.707	0.185	0.190	0.02030
24	0.0201	0.51	1.490	0.878	0.7526	1.78	0.464	0.478	0.05134
26	0.0159	0.40	2.381	1.405	1.204	2.836	0.740	0.760	0.08162
30	0.0100	0.25	5.984	3.551	3.043	7.169	1.85	1.91	0.2064
32	0.0080	0.20	9.524	5.599	4.758	11.31	1.96	3.04	0.3282
34	0.0063	0.16	15.17	8.946	7.66	18.09	4.66	4.82	0.5218
36	0.0050	0.13	24.08	14.20	12.17	28.76	7.40	7.64	0.8296
38	0.0039	0.10	38.20	23.35	19.99	45.41	11.6	11.95	1.3192
40	0.00315	0.08	60.88	37.01	31.64	73.57	18.6	19.3	2.098
44	0.0020	0.051	149.60	88.78	76.09	179.20	74.0	76.05	5.134
50	0.0010	0.025	598.40	355.1	304.3	716.9	185	191	20.64
56	0.00049	0.012	2408	1420	1217	2816	740	764	86.28

- Increase the resistance by 19% for nickel plated, Type RTD wire
- Not ANSI symbol.
- Maximum Resistance of reviewed wire.
- Resistivity for N is 1.324 times Type K Value.

Wire Insulation Identification

Appearance of Thermocouple Grade Wire	Insulation Code	Insulation		Temperature Range, Insulation	Abrasion Resistance	Flexibility	Water Submersion
		Overall	Conductors				
		Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)	-40 to 105˚C -40 to 221˚F	Good	Excellent	Good
		Kapton	Kapton	-267 to 316˚C -450 to 600˚F	Excellent	Good	Good
		Glass Braid	Glass Braid	-73 to 482˚C -100 to 900˚F	Poor	Good	Poor
		High Temp Glass Braid	High Temp Glass Braid	-73 to 871˚C -100 to 1300˚F	Poor	Good	Poor
		Nextel Braid	Nextel Braid	-73 to 1204˚C -100 to 2200˚F	Poor	Good	Poor
		Silica	Silica	-73 to 1038˚C -100 to1 990˚F	Poor	Good	Poor
		TEF	TEF	-267 to 260˚C -450 to 500˚C	Excellent	Good	Excellent

*** Customized Cables with various combinations of overall and conductor insulations are available as per customer's requirements.**

Application Guide

Comments	Resistance To:				
	Solvent	**Acid**	**Base**	**Flame**	**Humidity**
Color Coded PVC Extruded Over Each Bare Wire. PVC Applied Over Insulated Primaries. Affected by Ketones, Esters	Fair	Good	Good	Good	Good
Color Coded PVC Extruded Over Each Bare Wire. PVC Applied Over Insulated Primaries. Affected by Ketones, Esters	Excellent	Excellent	Excellent	Excellent	Excellent
Color Coded PFA Extruded Over Each Bare Wire. PFA Jacket Extruded Over insulated Primaries. Superior Abrasion and Moisture Resistance. Same Basic Characteristics as FEP but Higher Temperature Rating	Excellent	Excellent	Excellent	Excellent	Excellent
Fused Kapton Tape Approx 0.15mm Applied to Conductors. A 0.10mm Jacket Is Then Applied to both. Excellent Moisture and Abrasion Resistance, High dielectric Strength (7 KV/mil) Retains Much Physical Integrity After Gamma Radiation. FEP is used as Adhesive Binding Agent(Melts at approx. 260˚C [500˚F])	Good	Good	Good	Good	Excellent
PFA Extruded Over Each Bare Wire and a Glass Braid on the Jacket. May Be used for Single Measurement to 343˚C (650˚F)	Excellent	Excellent	Excellent	Excellent	Excellent
0.12mm Glass Braid Over Each Conductor, and Binder Impregnated. Overall Glass Braid Applied and Bindered. Binder Improves Moisture and Abrasion Resistance but is Destroyed Above 204˚C (400˚F)	Excellent	Excellent	Excellent	Excellent	Fair
High Temp. Glass Braid Over Each conductor and Binder Impregnated. Overall High Temp Glass Braid Applied and Bindered. Binder Improves Moisture and Abrasion Resistance but is Destroyed Above 400˚F	Excellent	Excellent	Excellent	Excellent	Fair
Braid of Vitreous Silica Fiber Applied to each Bare Wire, Then Over Both. Suitable to 982˚C (1800˚F) it not subjected to Flexure or Abrasion	Excellent	Good to 315˚C(600˚F)	Poor to 315˚C(600˚F)	Excellent	Poor
High Temp, Alumina-Boria-Silica CeramicFiber Braided Over Each Conductor Then Over Both. Not recommended for Platinum Thermocouples or exposure to molten tin and copper, hydrofluoric or Phosphoric Acids, or Strong Alkalies	Excellent	Good	Good	Excellent	Fair
Silica is a very High Purity,Chemically Stable Yarn. (SiO_2 Content 99%)	Excellent	Good	Poor	Excellent	Fair
Color Coded TFE Tape Applied to Conductors and Jacket. Superior Abrasion, moisture, and Chemical Resistance.	Excellent	Excellent	Excellent	Excellent	Excellent