

Power Cables

Product Facts

- Choice of jacket materials
- -65°C to +260°C
[-85°F to +500°F]
- Size and weight savings
- Excellent flexibility
- Resistance to solvents and chemicals
- Corona resistance
- Increased flexibility in installation
- Arc-resistance of materials



Each power cable offers particular advantages for specific applications and is also available in multiconductor constructions and shielded and jacketed versions. Cables offer size and weight savings, good resistance to abrasion and cut-through, and the ability to operate in difficult environments.

Applications

TE offers a range of flexible Raychem power cables that are insulated and jacketed using materials that provide improved performance over other materials, such as CSP/EPR, silicone, or PCP/Butyl. Five different types of cable are available:

Type TR is a general purpose, single-wall, 125°C [257°F] construction normally specified for use inside cabinets in protected areas.

Type ZHI is a halogen-free 105°C [221°F] cable with good oil resistance. It is particularly suitable for use in offshore, ship, and mass transit applications where low-fire-hazard performance is required. Refer to TE specification WCD 2015.

Type AFR is a 105°C [221°F], single-extrusion, abrasion-resistant, flame- and fuel-resistant, radiation-crosslinked polyolefin.

Type FTR is a dual-wall, 125°C [257°F], diesel-oil-resistant cable originally developed for tank engine compartment applications. It meets the German BWB VG 95218 specification. Refer to TE specification WCD 2002. (US Alternative Type 10603)

Type ZHPCG is a halogen-free, 115°C [239°F] cable with good oil resistance and resistance to water. It is particularly suitable to the Mass Transit, Marine and Off-Shore industries where its low fire hazard performance and flexibility are key to a successful installation. Refer to TE Specification WSD 1265. (US Alternative Type 2HPC06XT and 2HPC20XT)

Type 80 Flexible Light Weight Aluminum Power Feeders are designed with a dual wall flexible ETFE ($\pm 175^\circ\text{C}$) insulation based system to allow the cable to be bent and routed in extremely tight areas with no wrinkling or cracking of the insulation. The design has been tested to verify

that it meets key aerospace industry requirements of flexibility, corona resistance and wrinkling in high voltage applications. TE also has the facilities to test corona resistance or production wire and cable at 400 Hz and various altitudes. (Contact TE for more information)

Type Superflex is a 260°C rated fluoropolymer insulation based system. The need for a combination of high temperature and high performance in wire insulation has become a critical factor in today's platforms. This is especially true in large diameter power feeder applications where temperature and durability are key. TE new product line offering comes rated at 200°C for 10 K hours. (Contact TE for more information)

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

Power Cables (Continued)

Specifications/Approvals*

Series	Military	TE
TR	—	WCD 2003, WSD51/1602
ZHI	Def. Standard 61-12 Part 31 (jacket material)	WSD 2015
FTR	BWB VG 95218 Types G, H, and K	WSD 2002
AFR	—	WCD 2011, WSD51/1619
ZHPCG	—	WSD 1265
80	—	SPEC 80
Superflex	—	WCD 3111

*See specifications listed for details of performance.

Conductors (Tinned Soft Copper)

Conductor Size mm ²	Stranding		Max. Resistance at 20°C in Ω/km (Ω/1000 ft) Class 5/6
	IEC Class 5 Nom. Dia.	IEC Class 6 Nom. Dia.	
1.5	1.49 [.05]	1.53 [.06]	13.20 [4.02]
2.5	1.90 [.07]	2.40 [.09]	7.82 [2.38]
4.0	2.49 [.10]	2.90 [.11]	4.85 [1.48]
6.0	3.00 [.12]	3.60 [.14]	3.23 [0.98]
10.0	4.60 [.18]	4.55 [.18]	1.88 [0.57]
16.0	5.70 [.22]	5.50 [.22]	1.19 [0.36]
25.0	7.10 [.28]	7.30 [.29]	0.78 [0.24]
35.0	8.50 [.33]	8.55 [.34]	0.55 [0.17]
50.0	10.30 [.41]	10.15 [.40]	0.39 [0.12]
70.0	12.40 [.49]	12.00 [.47]	0.27 [0.08]
95.0	14.50 [.57]	14.05 [.55]	0.20 [0.06]
120.0	16.00 [.63]	16.30 [.64]	0.15 [0.05]
150.0	18.00 [.71]	17.40 [.68]	0.13 [0.04]
185.0	20.00 [.79]	20.00 [.79]	0.10 [0.030]
240.0	23.00 [.91]	—	0.08 [0.024]
300.0	26.00 [1.0]	—	0.06 [0.018]
400.0	30.00 [1.2]	—	0.05 [0.015]

*For Type 80 and Superflex, contact TE for conductor details.

Materials Performance Summary

Material	Tensile Strength N/mm ² typical	Abrasion Resistance	Cut Through	Temperature Rating °C 10000 h	Preferred Color
TR	20	Excellent	Good	125	Black
ZHI	9	Good	Very Good	105	Black
FTR	18	Good	Good	125	Black
AFR	18	Excellent	Very Good	105	Grey
ZHPCG	9	Good	Good	115	Black
80	-21	Very Good	Very Good	175	White
Superflex	-14	Very Good	Very Good	260	White

Note: Where a higher operating temperature is required, TE SPEC 55 wire provides outstanding performance up to 200°C continuous operating temperature. For these or other special applications, please contact TE.

Power Cables (Continued)

Table 1. Nominal Diameters and Maximum Weights

Conductor Size (mm ²)	TR 16			FTR 16		
	Part No.	Nom. OD in mm (in)	Max. weight in kg/km (lb/1000 ft)	Part No.	Nom. OD in mm (in)	Max. weight in kg/km (lb/1000 ft)
1.5	—	—	—	—	—	—
2.5	TR 16-2.5	3.9 [.15]	34.0 [22.8]	—	—	—
4.0	-4	4.5 [.17]	51.0 [34.2]	FTR 16-4	5.6 [.22]	72.0 [48.4]
6.0	-6	5.2 [.20]	73.0 [48.9]	-6	6.3 [.25]	95.0 [63.8]
10.0	-10	6.2 [.24]	117.0 [78.4]	-10	7.5 [.29]	151.0 [101.5]
16.0	-16	7.4 [.29]	182.0 [121.9]	-16	8.8 [.35]	228.0 [153.2]
25.0	-25	9.3 [.37]	274.0 [183.6]	-25	10.7 [.42]	335.0 [225.1]
35.0	-35	10.6 [.42]	383.0 [256.6]	-35	12.1 [.48]	463.0 [311.1]
50.0	-50	12.5 [.49]	542.0 [363.1]	-50	14.0 [.55]	631.0 [424.0]
70.0	-70	14.6 [.57]	765.0 [512.6]	-70	16.2 [.64]	878.0 [589.9]
95.0	-95	17.0 [.67]	1020.0 [683.4]	-95	18.8 [.74]	1170.0 [786.1]
120.0	—	—	—	-120	21.3 [.84]	1481.0 [995.1]

Table 2. Nominal Diameters and Maximum Weights

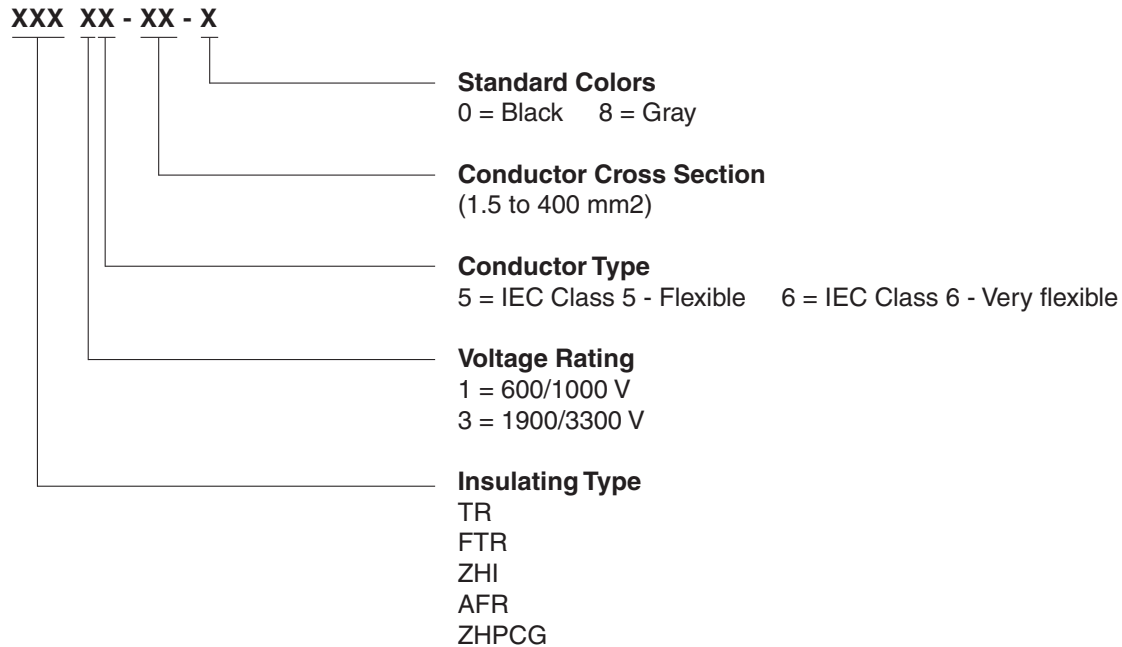
Conductor Size (mm ²)	ZHI 15			AFR 35		
	Part No.	Nom. OD in mm (in)	Max. Weight in kg/km (lb/1000 ft)	Part No.	Nom. OD in mm (in)	Max. Weight in kg/km (lb/1000 ft)
1.5	ZHI 15 -1.5	4.09 [.16]	33.5 [22.4]	AFR 35-1.5	2.7 [.11]	21.6 [14.5]
2.5	-2.5	4.69 [.18]	48.8 [32.7]	-2.5	3.7 [.15]	38.6 [25.9]
4.0	-4	5.49 [.22]	72.1 [48.3]	-4	4.7 [.18]	61.1 [41.1]
6.0	-6	6.16 [.24]	99.8 [66.9]	-6	5.6 [.22]	90.1 [60.5]
10.0	-10	8.20 [.32]	159.0 [106.5]	-10	7.0 [.28]	153.5 [103.1]
16.0	-16	9.30 [.37]	223.0 [149.4]	-16	8.1 [.32]	211.2 [141.9]
25.0	-25	10.90 [.43]	331.0 [221.8]	-25	10.4 [.41]	336.1 [225.8]
35.0	-35	12.30 [.48]	448.0 [300.2]	-35	11.6 [.46]	455.4 [305.7]
50.0	-50	14.70 [.58]	631.0 [422.8]	-50	13.7 [.54]	638.3 [428.9]
70.0	-70	16.80 [.66]	852.0 [570.8]	-70	16.0 [.63]	834.9 [561.0]
95.0	-95	19.10 [.75]	1108.0 [742.4]	-95	18.3 [.72]	1148.0 [771.4]
120.0	-120	21.00 [.83]	1438.0 [963.5]	-120	20.4 [.80]	1501.9 [1009.1]
150.0	-150	23.00 [.91]	1748.0 [1171.2]	-150	22.6 [.89]	1834.0 [1233.0]
185.0	-185	25.60 [1.01]	2088.0 [1399.0]	-185	24.8 [.98]	2177.0 [1463.0]
240.0	-240	28.60 [1.13]	2705.0 [1812.4]	-240	27.8 [1.10]	2817.0 [1892.0]
300.0	-300	32.00 [1.26]	3363.0 [2253.2]	-300	32.0 [1.20]	3579.0 [2405.0]
400.0	-400	36.40 [1.43]	4396.0 [2945.3]	-400	36.0 [1.40]	4636.0 [3115.0]

Table 3. Nominal Diameters and Maximum Weights

Conductor Size (mm ²)	ZHPCG-15			ZHPCG-35		
	Part No.	Nom. OD in mm [in]	Max. Weight in kg/km [lb/1000 ft]	Part No.	Nom. OD in mm [in]	Max. Weight in kg/km [lb/1000 ft]
1	ZHPCG-15-1	3.77 [.14]	28.0 [18.1]	ZHPCG-35 -1	—	—
1.5	-1.5	3.79 [.15]	36.0 [24.2]	-1.5	4.55 [.18]	37.9 [25.5]
2.5	-2.5	4.27 [.17]	45.0 [30.2]	-2.5	5.07 [.20]	52.9 [35.5]
4.0	-4	4.64 [.18]	60.0 [40.3]	-4	5.66 [.22]	72.7 [48.9]
6.0	-6	5.31 [.21]	85.0 [57.1]	-6	6.15 [.24]	96.7 [65.0]
10.0	-10	6.53 [.26]	135.0 [90.7]	-10	7.33 [.29]	141.0 [94.7]
16.0	-16	8.03 [.32]	195.0 [131.0]	-16	8.83 [.35]	214.0 [143.8]
25.0	-25	9.70 [.38]	300.0 [201.6]	-25	10.50 [.41]	316.0 [212.3]
35.0	-35	11.30 [.44]	443.0 [297.7]	-35	11.70 [.46]	425.0 [285.6]
50.0	-50	13.50 [.53]	623.0 [418.6]	-50	13.48 [.53]	582.0 [391.0]
70.0	-70	15.60 [.61]	847.0 [569.1]	-70	15.33 [.60]	802.0 [538.9]
95.0	-95	18.10 [.71]	1119.0 [751.9]	-95	17.93 [.71]	1051.0 [706.2]
120.0	-120	19.80 [.78]	1445.0 [970.9]	-120	19.80 [.78]	1308.0 [878.8]
150.0	-150	22.00 [.87]	1775.0 [1192.7]	-150	21.44 [.84]	1601.0 [1075.7]
185.0	-185	24.40 [.96]	2115.0 [1421.2]	-184	23.28 [.92]	1966.0 [1321.0]
240.0	-240	27.80 [1.09]	2762.0 [1856.0]	-240	27.33 [1.08]	2542.0 [1708.0]
300.0	-300	31.20 [1.23]	3452.0 [2320.0]	-300	32.50 [1.28]	3568.0 [2397.3]
400.0	-400	35.20 [1.39]	4474.0 [3006.4]	-400	37.00 [1.46]	4652.0 [3125.7]

Power Cables (Continued)

Part Numbering System



*For Type 80 and Superflex, contact TE for conductor details.

Part Numbering System is a cross reference only and not meant for part creation.