



ZHPCG CK0226 POWER CABLE

WIRE & CABLE

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Application/Use

Rail approved zero Halogen Power Cables, available as 750V or 1800V rated.

ZHPCG cables are all Halogen free, flexible, with good oil and water resistance, making them ideal for the Rail market.

The construction is a dual wall combination of TE Connectivity formulated polymer blends.



1. IEC 60228 Tin Plated Class 5/6 Conductor
2. X-Linked Polyolefin Electrical Insulator
3. X-Linked Outer Jacket

ZHPCG Series Product Family

ZHPCG-15 (750/1300V)

IEC Class 5 – Flexible cable

ZHPCG-35 (1800/3300V)

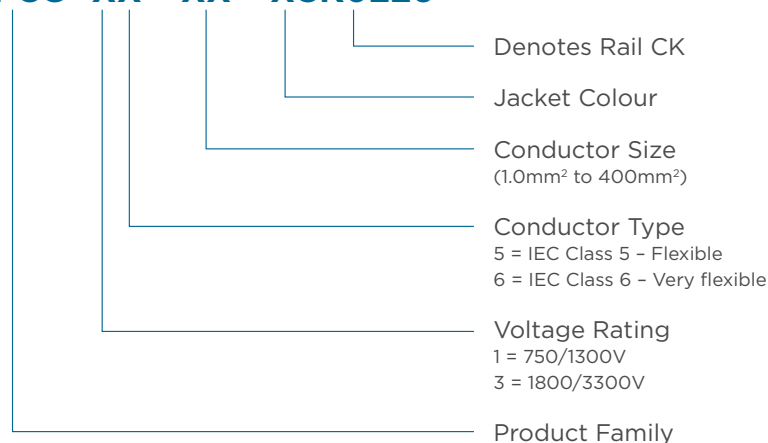
IEC Class 5 – Flexible cable

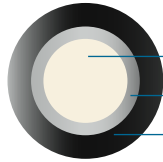
ZHPCG-36 (1800/3300V)

IEC Class 6 – Very flexible cable

Part Description

ZHPCG- XX - XX - XCK0226





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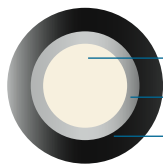
750 VOLT ZERO HALOGEN POWER CABLE

1. Conductor - Flexible tin plated copper special Class 5 to IEC 60228
2. Insulation - Flexible Polyolefin containing no added Halogens
3. Outer Jacket - Black Zerohal®

Part Description	Conductor		Finished Wire			Maximum Weight (kg/km)
	Maximum Diameter of Strands (mm)	Maximum Diameter (mm)	Max Resist @20 °C (Ohms/km)	Outer Diameter		
				Lower Spec Limit (mm)	Upper Spec Limit (mm)	
ZHPCG-15-1.0-#	0.21	1.25	20.00	3.62	4.00	28
ZHPCG-15-1.5-#	0.26	1.49	13.70	3.64	4.00	36
ZHPCG-15-2.5-#	0.26	1.97	8.21	4.07	4.50	45
ZHPCG-15-4.0-#	0.31	2.56	5.09	4.39	4.89	60
ZHPCG-15-6.0-#	0.31	3.05	3.39	5.06	5.56	85
ZHPCG-15-10.0-#	0.41	4.05	1.95	6.23	6.88	135
ZHPCG-15-16.0-#	0.41	5.20	1.24	7.63	8.48	195
ZHPCG-15-25.0-#	0.41	7.00	0.795	9.20	10.30	300
ZHPCG-15-35.0-#	0.41	7.75	0.565	10.70	11.90	443
ZHPCG-15-50.0-#	0.41	9.20	0.393	12.90	14.10	623
ZHPCG-15-70.0-#	0.51	11.50	0.277	14.90	16.30	847
ZHPCG-15-95.0-#	0.51	13.00	0.210	17.40	18.80	1119
ZHPCG-15-120.0-#	0.51	14.80	0.164	19.10	20.50	1445
ZHPCG-15-150.0-#	0.51	16.70	0.132	21.10	22.90	1775
ZHPCG-15-185.0-#	0.51	18.70	0.108	23.50	25.30	2115
ZHPCG-15-240.0-#	0.51	21.90	0.0817	26.90	28.70	2762
ZHPCG-15-300.0-#	0.51	26.90	0.0654	30.10	32.30	3452
ZHPCG-15-400.0-#	0.51	31.00	0.0495	34.10	36.30	4474

Zerohal® is a registered trademark of TE Connectivity





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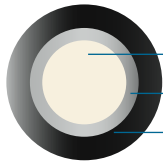
1800/3300 VOLT ZERO HALOGEN POWER CABLE

1. Conductor - Flexible tin plated copper special class 5 to IEC 60228
2. Insulation - Flexible Polyolefin containing no added Halogens
3. Outer Jacket - Black Zerohal®

Part Description	Conductor		Finished Wire			Maximum Weight (kg/km)
	Maximum Diameter of Strands (mm)	Maximum Diameter (mm)	Max Resist @20 °C (Ohms/km)	Outer Diameter		
				Lower Spec Limit (mm)	Upper Spec Limit (mm)	
ZHPCG-35-1.5-#	0.26	1.55	13.7	4.40	4.70	37.9
ZHPCG-35-2.5-#	0.26	1.97	8.21	4.87	5.27	52.9
ZHPCG-35-4.0-#	0.31	2.56	5.09	5.41	5.91	72.7
ZHPCG-35-6.0-#	0.31	3.05	3.39	5.90	6.40	96.7
ZHPCG-35-10.0-#	0.41	4.05	1.95	7.03	7.63	141
ZHPCG-35-16.0-#	0.41	5.20	1.24	8.43	9.23	214
ZHPCG-35-25.0-#	0.41	7.00	0.795	10.00	11.0	316
ZHPCG-35-35.0-#	0.41	7.75	0.565	11.20	12.30	425
ZHPCG-35-50.0-#	0.41	9.2	0.393	12.90	14.10	582
ZHPCG-35-70.0-#	0.51	11.5	0.277	14.80	16.30	802
ZHPCG-35-95.0-#	0.51	13.0	0.210	17.30	18.60	1051
ZHPCG-35-120.0-#	0.51	14.8	0.164	19.10	20.50	1308
ZHPCG-35-150.0-#	0.51	16.7	0.132	20.80	22.30	1601
ZHPCG-35-185.0-#	0.51	18.7	0.108	22.70	24.20	1966
ZHPCG-35-240.0-#	0.51	21.9	0.0817	26.60	28.20	2542
ZHPCG-35-300.0-#	0.51	26.9	0.0654	31.70	33.60	3568
ZHPCG-35-400.0-#	0.51	31.0	0.0495	36.10	38.10	4652

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1800/3300 VOLT ZERO HALOGEN POWER CABLE

1. Conductor - Flexible tin plated copper special class 6 to IEC 60228
2. Insulation - Flexible Polyolefin containing no added Halogens
3. Outer Jacket - Black Zerohal®

Part Description	Conductor		Finished Wire			Maximum Weight (kg/km)
	Maximum Diameter of Strands (mm)	Maximum Diameter (mm)	Max Resist @20 °C (Ohms/km)	Outer Diameter		
				Lower Spec Limit (mm)	Upper Spec Limit (mm)	
ZHPCG-36-1.5-#	0.16	1.68	12.80	3.20	4.91	42.1
ZHPCG-36-2.5-#	0.16	2.60	7.76	5.43	5.99	63.2
ZHPCG-36-4.0-#	0.16	3.00	4.76	5.80	6.41	84.0
ZHPCG-36-6.0-#	0.21	3.80	3.23	6.57	7.25	111
ZHPCG-36-10.0-#	0.21	4.87	1.88	7.69	8.47	169
ZHPCG-36-16.0-#	0.21	5.80	1.19	8.76	9.66	248
ZHPCG-36-25.0-#	0.21	7.70	0.780	10.67	11.76	363
ZHPCG-36-35.0-#	0.21	9.00	0.550	12.00	13.23	495
ZHPCG-36-50.0-#	0.31	10.70	0.393	13.71	15.12	666
ZHPCG-36-70.0-#	0.31	12.60	0.270	15.70	17.30	916
ZHPCG-36-95.0-#	0.31	14.80	0.200	18.29	20.16	1227
ZHPCG-36-120.0-#	0.31	17.10	0.160	20.48	22.58	1539
ZHPCG-36-150.0-#	0.31	18.30	0.132	21.28	23.48	1839
ZHPCG-36-185.0-#	0.31	20.90	0.108	23.52	25.93	2229
ZHPCG-36-240.0-#	0.41	23.50	0.081	27.33	30.14	2905
ZHPCG-36-300.0-#	0.41	26.00	0.060	30.10	33.18	3595

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ZHPCG CK0226 POWER CABLE WIRE & CABLE

Approvals & Declarations:

- EN 45545-2
- DIN 5510-2
- TE WSD 1265

Continuous Operating Temperature

- -25°C to +105°C

Halogens

- Halogen free, low smoke, highly flame retarded

Voltage Rating

- ZHPCG-15 750/1300V
- ZHPCG-35 1800/3300V
- ZHPCG-36 1800/3300V

Conductor Size Range

- 1.0mm² to 400mm²

Conductor Type

- Tin plated copper stranded

Construction

- Single core

Colours

- Standard Jacket colour black
- Colours on request

EN45545

Test	Method	Result
Flammability – small scale	(IEC 60332-1-2)	Charring confined to between 50mm and 540mm
Flammability – large scale	(Clause 9.1.2 EN50305)	Max. burn length 1.5m
Smoke – large scale	(EN 61034-2)	3m cube box 90% min transmittance
Toxicity	(Clause 9.2 EN50305)	Index max 6

DIN 5510-2 (SEE TEST REPORT WT2387)

Test	Method	Result
Flammability – small scale	EN60332-1-2	PASS
Flammability – large scale	EN50305	PASS
Smoke – 3m Cube	EN61034-2	PASS
PH & Conductivity	EN50267-2-2	PASS
Evolution of HCl	EN50267-2-1	PASS
Fluorine Content	EN60684-2	PASS
Toxicity	Clause 9.2 EN50305	PASS

GENERAL PROPERTIES (SEE WSD 1265 FOR FULL DETAILS)

Property	Requirements and relevant conditions				Test Basis
GENERAL PROPERTIES					
Dimensions	As specification control drawing				IEC 60811-203
Concentricity	70% minimum				IEC 60811-201 & 202
Weight per Unit Length	As specification control drawing				See section 10.3
Colour	Black - Colours available on request				By inspection
Workmanship	Insulation free of cracks, splits, irregularities or foreign material				By inspection
Jacket Wrinkling	Insulation free of wrinkles or creases when flexed				See section 10.6
PHYSICAL PROPERTIES					
Insulation Tensile Strength & Ultimate Elongation	Tensile Strength 8 MPa minimum, Elongation ≥125%				IEC 60811-501
Scrape Abrasion Resistance	Cable (mm²)	Load (N)	Minimum cycles at 20°C	Minimum cycles at 90°C	EN 50305
	1 – 6	10	250	20	
	10 – 25	15	350	150	
	35 – 95	20	500	400	
	120 – 400	25	650	550	
Dynamic Cut-through	Cable (mm²)	Minimum force at 20°C (N)		Minimum force at 90°C (N)	EN 50305
	1 – 6	120		24	
	10 – 25	200		40	
	35 – 95	500		100	
	120 – 400	700		140	
Notch Propagation	No dielectric breakdown				EN 50305

GENERAL PROPERTIES (SEE WSD 1265 FOR FULL DETAILS) - CONTINUED

THERMAL PROPERTIES					
Thermal Endurance	20,000 hours @ 105°C minimum				EN 50305
Accelerated Aging	No cracks, flowing or dielectric breakdown				IEC 60811-401
Cold Bend	No cracking or breakdown				IEC 60811-504
Shrinkage	Change in length shall be no more than 1%				IEC 60811-502
Blocking	Cores to be separated without transfer of insulation				ENG-SYS-825-905
ELECTRICAL PROPERTIES					
Conductor Resistance	See individual Specification Control Drawing				EN 50305
Dielectric Strength AC Voltage Test	No dielectric breakdown between conductor and water				EN 50305
	Cable voltage rating		Voltage/time		
	750V 1800V		3.0kV for 5 min 6.0kV for 5 min		
Breakdown Voltage	Cable voltage rating		Min breakdown voltage		EN 50305
	750V 1800V		8kV 15kV		
Insulation Resistance K Factor	Temp (°C)	20	60	90	EN 50305
	K (MΩ.km)	500	10	5	
Temperature Insulation Stability	No dielectric breakdown				EN 50305
	Cable voltage rating		Voltage		
	750V 1800V		1.5kV DC 3.0kV DC		
Surface Leakage Current	Less than 1 mA				EN 50305
Insulation Continuity Proof Test	No dielectric breakdown				BS 5099
ENVIRONMENTAL PROPERTIES					
Fluid Immersion	No cracking, delamination, or breakdown in voltage test				IEC 60811-404 IEC 60811-501
	Fluid (temp/time)	% TS ret min	% Eb ret min	% Thickness swell maximum	
	Diesel (70°C/168h)	60	60	20	
	Diesel (20°C/168h)	70	60	10	
	IRM 902 (100°C/24h)	70	70	10	
	Silicone oil (100°C/24h)	70	70	10	
Ozone Resistance	No cracks, crazing or breakdown				EN 50305
U.V. Stability	No cracking on 5 X mandrel. No breakdown following voltage test				ASTM G154
Hydrolytic Stability	No damage on 5 X mandrel. No bend or breakdown when cooled				ENG-SYS-825-905
Water Absorption	4% max				IEC 60811-402
Salt Resistance	Tensile strength retention 85% minimum				ASTM B117 and IEC 60811-501

Business locations

Asia:	86.213.398.0184
Australia:	1.800.144.078
Eire:	800.557.810
Germany:	49.173.316.9004
New Zealand	0800.TYCO.HELP
N America:	1.800.430.7226 X4 (East Coast)
N America:	1.800.430.7226 X5 (West Coast)
UK:	44.800.988.9177

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