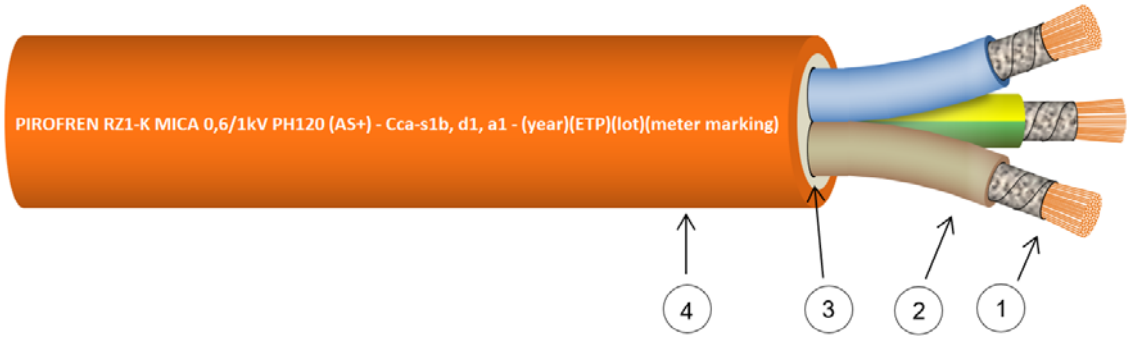
Fire resistant and halogen free power cables

DESCRIPTION

Power cables with cross linked polyethylene insulation and halogen free polyolefin outer sheath. These cables have intrinsic resistance to fire and are intended for use in emergency circuits where the cable should be kept in service for a while even in the middle of fire. These cables are suitable for transport and distribution of electric power for indoor or outdoor fixed installations and for industrial use. These cables are suitable for air, buried or in conduit installations.
Construction is according to IEC-60502-1 and UNE 211025.

CONSTRUCTION

1 - Conductor:	Flexible bare copper, class 5	a/EN 60228
	Mica insulating tape, fire resistant	
2 - Insulation:	Cross linked polyethylene, type XLPE	
	· Identification 1x: natural (uncoloured)	
	· " (up to 5c): blue, brown, black, grey, green/yellow	a/HD 308
	· Assembly of cores: concentric stranded	
3 – Bedding:	Thermoplastic compound LSZH	
4 – Outer sheath:	Halogen free compound, type ST8	
	· Standard colour: Orange	a/RAL 2003
	Other colors are possible upon request	



TECHNICAL CHARACTERISTICS

Rated voltage:	0.6 / 1 kVac	
Test voltage:	3500 Vac	
Operating temperature:	-15 ºC to +90 ºC	
Min. service temperature:	-25 ºC (fixed and protected installations)	
Installation temperature:	-5 ºC to +40 ºC	
Maximum short-circuit temperature:	250 ºC (max 5 s)	a/IEC 60724
Bending radius:	5 Ø	
Water resistant:	AD7	a/IEC-60364-3
Hydrocarbon resistant:	O.K.	a/ICEA S-73-532
UV resistant:	O.K.	a/UNE 211605
CPR classification (class)	Cca-s1b, d1, a1	a/EN 50575

FIRE BEHAVIOUR SPECIFICATIONS

TEST	STANDARDS	VALUES
Fire Resistant PH120 (120' at 840 ºC with impacts)	IEC 60331-1 and -2 EN 50200, EN 50362	Complies
Fire Resistant	NF C-32-070	Category CR1-C1
Resistance 2 h at 400 ºC	EN 12101-3	Complies, class F400
Flame retardant	EN 60332-1-2, IEC 60332-1-2	Complies
Fire retardant (Cca-s1b, d1, a1)	EN 50399	Complies
Low Smoke emission:	EN 61034-2, IEC 61034-1-2	Complies, transmittance > 60%
Halogen free (HCl)	EN 60754-1, IEC 60754-1	Complies
Determination of degree of acidity of gases	EN 60754-2, IEC 60754-2	pH ≥ 4,3 / Conductivity ≤ 10 µS/mm

DATA AND DIMENSIONS

Dimensions and weights are approximates, subject to small variations due to process.

Cross section mm²	Resistance Ω/km at 20 °C	Voltage Drop V/Axkm		Intensity maximum, A		Insulation thickness, mm	Sheath		Weight Kg/km
		Cos ϕ 0,8	Cos ϕ 1	In air	buried		thickness, mm	Ø outer, mm	
1x1,5	13,3	23,664	29,374	21	21	0,7	1,4	7,8	82
1x2,5	7,98	14,251	17,624	30	27	0,7	1,4	8	91
1x4	4,95	8,891	10,933	40	35	0,7	1,4	8,9	122
1x6	3,30	5,967	7,288	52	44	0,7	1,4	9,6	149
1x10	1,91	3,498	4,218	72	58	0,7	1,4	10,5	195
1x16	1,21	2,24	2,673	97	75	0,7	1,4	11,7	265
1x25	0,780	1,49	1,723	122	96	0,9	1,4	13,4	367
1x35	0,554	1,084	1,223	153	117	0,9	1,4	14,7	478
1x50	0,386	0,784	0,852	188	138	1,0	1,4	16,4	624
1x70	0,272	0,577	0,601	243	170	1,1	1,5	18,7	866
1x95	0,206	0,459	0,456	298	202	1,1	1,6	20,6	1090
1x120	0,161	0,378	0,355	350	230	1,2	1,6	22,9	1368
1x150	0,129	0,32	0,284	401	260	1,4	1,7	24,8	1652
1x185	0,106	0,279	0,234	460	291	1,6	1,7	27,2	1996
1x240	0,0801	0,231	0,177	545	336	1,7	1,8	31,4	2625
1x300	0,0641	0,201	0,142	630	380	1,8	1,9	34,4	3262
1x400	0,0486	0,17	0,107	---	446	2,0	2,0	39,5	4250
2x1,5	13,3	27,39	33,918	23	24	0,7	1,25	10,9	165
2x2,5	7,98	16,51	20,35	32	32	0,7	1,25	11,9	204
2x4	4,95	10,322	12,624	44	42	0,7	1,25	12,7	255
2x6	3.30	6,949	8,416	57	53	0,7	1,25	14,1	327
2x10	1,91	4,096	4,87	78	70	0,7	1,25	15,9	446
2x95	0,206	0,568	0,526	320	233	1,1	2,0	36,4	2879
3G1,5	13,3	16,51	20,35	23	24	0,7	1,25	11,4	181
3G2,5	7,98	10,322	12,624	32	32	0,7	1,25	12,5	227
3G4	4,95	6,949	8,416	44	42	0,7	1,25	13,4	295
3G6	3,30	4,096	4,87	57	53	0,7	1,25	14,9	382
3G10	1,91	27,39	33,918	78	70	0,7	1,25	16,8	530
3x16	1,21	2,206	2,673	91	75	0,7	1,5	19,7	775

Cross section mm²	Resistance Ω/km at 20 °C	Voltage Drop V/Axkm		Intensity maximum, A		Insulation thickness, mm	Sheath		Weight Kg/km
		Cos ϕ 0,8	Cos ϕ 1	In air	buried		thickness, mm	Ø outer, mm	
3x25	0,780	1,445	1,723	115	96	0,9	1,6	24	1165
3x35	0,554	1,044	1,223	143	117	0,9	1,7	26,8	1546
3x50	0,386	0,747	0,852	174	138	1,0	1,8	30,6	2066
3x70	0,272	0,544	0,601	223	170	1,1	1,9	36	2962
3x95	0,206	0,428	0,456	271	202	1,1	2,0	39,4	3681
4G1,5	13,3	23,61	29,374	20	21	0,7	1,25	12,3	208
4G2,5	7,98	14,199	17,624	28	27	0,7	1,25	13,5	262
4G4	4,95	8,843	10,933	38	35	0,7	1,25	14,5	347
4G6	3,30	5,924	7,288	49	44	0,7	1,4	16,5	467
4G10	1,91	3,46	4,218	68	58	0,7	1,4	18,7	658
4x16	1,21	2,206	2,673	91	75	0,7	1,5	21,9	1030
4x25	0,780	1,445	1,723	115	96	0,9	1,7	26,4	1517
4x35	0,554	1,044	1,223	143	117	0,9	1,7	29,3	1983
4x50	0,386	0,747	0,852	174	138	1,0	1,9	34	2697
4x70	0,272	0,544	0,601	223	170	1,1	2,0	39,7	3805
5G1,5	13,3	23,61	29,374	20	21	0,7	1,25	13,3	237
5G2,5	7,98	14,199	17,624	28	27	0,7	1,25	14,6	301
5G4	4,95	8,843	10,933	38	35	0,7	1,4	16	415
5G6	3,30	5,924	7,288	49	44	0,7	1,4	18,1	555
5G10	1,91	3,46	4,218	68	58	0,7	1,4	20,5	783
5G16	1,21	2,206	2,673	91	75	0,7	1,6	24	1229
5G25	0,780	1,445	1,723	115	96	0,9	1,7	29	1806
5G35	0,554	1,044	1,223	143	117	0,9	1,8	32,2	2377
5G50	0,386	0,747	0,852	174	138	1,0	2,0	37,8	3279

REFERENCE CONDITIONS FOR THE CALCULATION OF INTENSITY
(Other conditions are possible, consult standards HD 60364-5-52 and IEC 60364-5-52)

According HD 60364-5-52 and IEC 60364-5-52
Maximum intensity to air in tray, temperature ambient 40 ºC:

Installation type F XLPE3 column 11 (1x triphasic)

Installation type E XLPE2 column 12 (2x, 3G monophasic)

Installation type E XLPE3 column 10 (3x, 4x, 4G, 5G triphasic)

Maximum intensity directly buried (method D2) or under conduit (method D1), thermal resistivity of soil de 2,5 K.m/W and ambient temperature on the ground of 25 ºC:

Installation type D1/D2 XLPE2 2x, 3G monophasic

Installation type D1/D2 XLPE3 1x, 3x, 4x, 4G, 5G triphasic

VOLTAGE DROP:
Monophasic method 2x, 3G
Triphasic method 1x, 3x, 4x, 4G, 5G