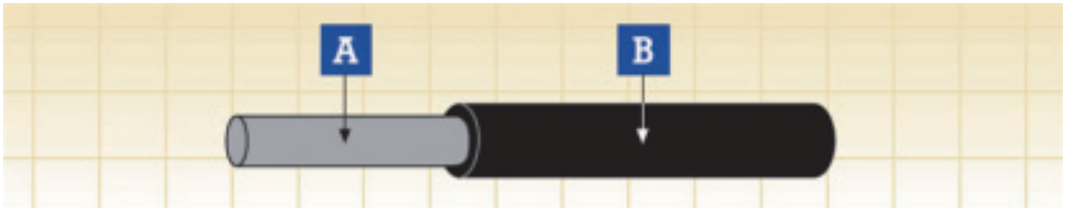
FIREROL Standard Wall Single Core Unsheathed Cables 0.6/1 kV or 1.8/3 kV EN 50264-2-1 (FRL-SW-1SU/FRL-SW-3SU)



A. Conductor B. Insulation

Application

-Used as power and control cable for protected installations inside and outside of rail and transport vehicles, where handling and installation cost are an important factor.
-Used in control, auxillary and main circuit wiring such as cable harnesses, switchboards and control panels, driver desks etc.

Construction

Conductor

Flexible tinned annealed copper wires, stranded as per HD 383 (IEC 60228) class 5

Insulation

LSZH elastomeric compound as defined in EN 50264-1 (EI 101 to EI 104)

Electrical & Mechanical Properties

Nominal Voltage	0.6/1 kV or 1.8/3 kV
Max. Conductor Temperature	90 °C (fixed installation)
Min. Permissible Ambient Temperature	-25 °C/-40 °C (fixed installation)
Bending Radius	3 x Overall Diameter (D<12mm); 4 x Overall Diameter (D>12mm)

Chemical & Environmental Properties

EN 60684-2	No fluorine
EN 50305; EN 60811-2-1	Resistance to mineral oil & fuel oil, acid & alkali
EN 50305	Resistance to ozone

Fire Performance for Rolling Stock Application

EN 50306-2	Hazard levels HL1, HL2/HL3, HL4
DIN 5510-2	Protection level 1/2/3/4
BS 6853	Interior use 1a, 1b, II; Exterior use 1a, 1b, II
NF F 16-101	F0

Fire Performance in General

EN 50265-2-1; IEC 60332-1-2; NF C 32-070 2.1 (C2)	Vertical flame propagation for a single insulated wire or cable
EN 50266-2-4 + EN 50305; IEC 60332-3-24; NF C 32-070 2.2 (C1); VDE 0472 Teil 804	Vertical flame spread of vertically mounted bunched wires or cables
EN 50268-2; IEC 61034-2; NF C 32-073 ; NF C 20-902; NF F 16 101; VDE 0472 Teil 816	Low Smoke Emission
EN 50267-2-1; IEC 60754-1; NF C 32-074; NF C 20-454; VDE 0472 Teil 815	Halogen Free
EN 50267-2-2/3; IEC 60754-2; NF C 32-074; NF C 20-453; VDE 0472 Teil 813	Low Corrosivity (Acidity & Conductivity)
EN 50305; NF X 70-100; NF F 63 808; TM1-04; BS6853	Low Toxicity
NF F 63 808; BS6853; NF F 16 101	Smoke Index

FRL-SW-1SU 0.6/1 kV

Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Overall Diameter		Weight	Max.Conductor Resistance	Min. Insulation Resistance	
			Min.	Max.		20 °C	20 °C	90 °C
mm^2	mm	mm	mm	mm	kg/km	Ω/km	MΩ x km	MΩ x km
1.0	1.25	0.8	2.8	3.2	18	20	65	0.65
1.5	1.5	0.8	3.0	3.5	20	13.7	55	0.55
2.5	1.95	0.8	3.4	3.9	30	8.21	50	0.5
4.0	2.5	0.8	3.9	4.6	50	5.09	40	0.4
6.0	3.0	0.9	4.6	5.4	70	3.39	35	0.35
10	3.9	1.1	5.8	6.8	130	1.95	30	0.3
16	5.0	1.1	7.2	8.5	170	1.24	30	0.3
25	6.4	1.3	8.6	10.0	260	0.795	30	0.3
35	7.7	1.3	10.2	11.5	350	0.565	25	0.25
50	9.2	1.5	11.6	13.5	500	0.393	25	0.25
70	11.0	1.5	13.3	15.5	690	0.277	20	0.2
95	12.5	1.6	14.9	17.4	910	0.210	20	0.2
120	14.2	1.6	16.5	19.3	1120	0.164	20	0.2
150	15.8	1.9	18.5	21.7	1430	0.132	15	0.15
185	17.5	1.9	20.1	23.6	1720	0.108	15	0.15
240	20.1	2.1	22.9	25.8	2290	0.0817	15	0.15
300	22.5	2.2	25.4	29.7	2810	0.0654	10	0.1
400	25.8	2.3	28.7	33.6	3690	0.0495	10	0.1

FRL-SW-3SU 1.8/3 kV

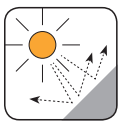
Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Overall Diameter		Weight	Max.Conductor Resistance	Min. Insulation Resistance	
			Min.	Max.		20 °C	20 °C	90 °C
mm^2	mm	mm	mm	mm	kg/km	Ω/km	MΩ x km	MΩ x km
1.5	1.5	2.5	6.2	7.3	70	13.70	120	1.2
2.5	1.95	2.5	6.6	7.8	90	8.21	100	1.0
4.0	2.5	2.5	7.1	8.4	110	5.09	90	0.9
6.0	3.0	2.5	7.6	8.9	130	3.39	80	0.8
10	3.9	2.5	8.4	9.9	190	1.95	65	0.65
16	5.0	2.5	9.5	11.1	250	1.24	55	0.55
25	6.4	2.5	10.8	12.7	330	0.795	45	0.45
35	7.7	2.5	12.0	14.1	430	0.565	40	0.4
50	9.2	2.5	13.4	15.7	570	0.393	35	0.35
70	11.0	2.5	15.1	17.7	760	0.277	30	0.3
95	12.5	2.7	16.9	19.8	980	0.210	30	0.3
120	14.2	2.7	18.5	21.7	1210	0.164	25	0.25
150	15.8	2.7	20.0	23.4	1500	0.132	20	0.2
185	17.5	2.7	21.6	25.3	1800	0.1080	20	0.2
240	20.1	2.7	24.1	28.2	2360	0.0817	20	0.2
300	22.5	2.7	26.3	30.8	2840	0.0654	15	0.15
400	25.8	2.9	29.8	34.9	3800	0.0495	15	0.15

(a) = for information, indicative only


Impact Resistant


Highly Flexible


UV Resistant


Ozone Resistant


Cold Resistant


Resistance To Soldering Heat


Acid & Alkaline Resistant


IRM 903 Fuel Oil Resistant


IRM 902 Mineral Oil Resistant


Fire Retardant NF C32-070-2.2(C1) IEC60332-3-24/EN50266-2-4


Flame Resistant EN50200:2000


Flame Retardant NF C32-070-2.1(C2) IEC60332-1-2/EN50265-2-1


Low Toxicity EN 50305; NF X 70-100; NF F 63 808; TM1-04; BS6853


Low Corrosivity IEC60754-2/EN50267-2-2/3 NF C32-074/NF C20-453


Low Smoke Emission IEC 61034-2 / EN 50268-2 NF C32-073/NF C 20-902

Zero Halogen IEC 60754-1/EN 50267-2-1 NF C20-454