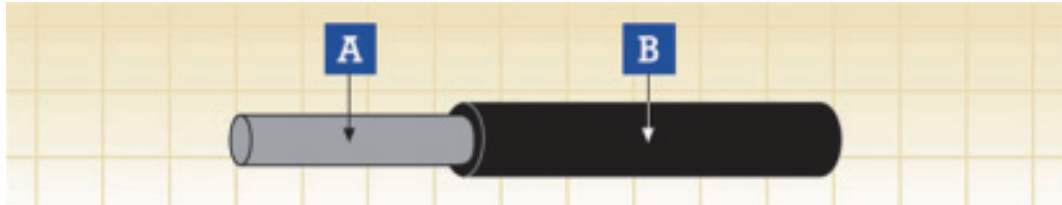


FIREROL Medium Wall Single Core Unsheathed Cables 0.6/1 kV or 1.8/3 kV EN 50264-3-1 (FRL-MW-1SU/FRL-MW-3SU)



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 106 to EI 109)

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

For 0.6/1KV Cables

Fixed installation:

3 x Overall Diameter (D<12mm);

4 x Overall Diameter (D>12mm)

Flexible installation:

6 x Overall Diameter (D<12mm);

8 x Overall Diameter (D>12mm)

For 1.8/3KV Cables

Fixed installation:

5 x Overall Diameter (D<12mm);

6 x Overall Diameter (D>12mm)

Flexible installation:

10 x Overall Diameter (D<12mm);

12 x Overall Diameter (D>12mm)

Chemical & Environmental Properties

EN 60684-2

EN 50305; EN 60811-2-1

EN 50305

No fluorine

Resistance to mineral oil & fuel oil, acid & alkali

Resistance to ozone

Fire Performance for Rolling Stock Application

EN 50306-2

DIN 5510-2

BS 6853

NF F 16-101

Hazard levels HL1, HL2/HL3, HL4

Protection level 1/2/3/4

Interior use 1a, 1b, II; Exterior use 1a, 1b, II

F0

Fire Performance in General

EN 50265-2-1; IEC 60332-1-2; NF C 32-070 2.1 (C2)

EN 50266-2-4 + EN 50305; IEC 60332-3-24;

NF C 32-070 2.2 (C1); VDE 0472 Teil 804

EN 50268-2; IEC 61034-2; NF C 32-073 ;

NF C 20-902; NF F 16 101; VDE 0472 Teil 816

EN 50267-2-1; IEC 60754-1; NF C 32-074;

NF C 20-454; VDE 0472 Teil 815

Vertical flame propagation for a single insulated wire or cable

Vertical flame spread of vertically mounted bunched wires or cables

Low Smoke Emission

Halogen Free

EN 50267-2-2/3; IEC 60754-2; NF C 32-074;
 NF C 20-453; VDE 0472 Teil 813
 EN 50305; NF X 70-100; NF F 63 808; TM1-04; BS6853
 NF F 63 808; BS6853; NF F 16 101

Low Corrosivity (Acidity & Conductivity)

Low Toxicity
 Smoke Index



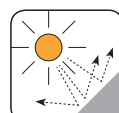
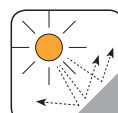
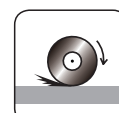
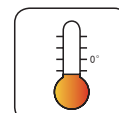
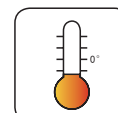








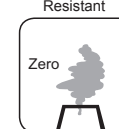
FRL-MW-1SU 0.6/1 kV

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	0.6	2.4	2.8	10	20	11.4	0.114
1.5	1.5	0.7	2.8	3.3	20	13.7	11.0	0.110
2.5	1.95	0.7	3.2	3.8	30	8.21	9.1	0.091
4	2.5	0.7	3.8	4.4	50	5.09	7.5	0.075
6	3.0	0.7	4.2	5.0	60	3.39	6.5	0.065
10	3.9	0.7	5.1	5.9	110	1.95	5.2	0.052
16	5.0	0.7	6.1	7.2	160	1.24	4.2	0.042
25	6.4	0.9	7.8	9.1	240	0.795	4.1	0.041
35	7.7	0.9	9.0	10.6	330	0.565	3.5	0.035
50	9.2	1.0	10.6	12.4	460	0.393	3.3	0.033
70	11.0	1.1	12.5	14.6	660	0.277	3.0	0.030
95	12.5	1.1	13.9	16.3	860	0.210	2.7	0.027
120	14.2	1.2	15.7	18.4	1080	0.164	2.7	0.027
150	15.8	1.4	17.6	20.6	1370	0.132	2.7	0.027
185	17.5	1.6	19.6	22.9	1690	0.108	2.6	0.026
240	20.1	1.7	22.2	26.0	2230	0.0817	2.6	0.026
300	22.5	1.8	24.6	28.8	2780	0.0654	2.4	0.024
400	25.8	2.0	28.1	32.9	3740	0.0495	2.4	0.024

FRL-MW-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	2.0	5.3	6.2	50	13.7	21.0	0.210
2.5	1.95	2.0	5.7	6.7	60	8.21	18.0	0.180
4	2.5	2.0	6.2	7.3	80	5.09	15.5	0.155
6	3.0	2.0	6.7	7.8	100	3.39	13.7	0.137
10	3.9	2.0	7.5	8.8	150	1.95	11.5	0.115
16	5.0	2.0	8.6	10.0	220	1.24	9.5	0.095
25	6.4	2.0	9.9	11.6	290	0.795	7.9	0.079
35	7.7	2.0	11.1	13.0	390	0.565	6.8	0.068
50	9.2	2.0	12.5	14.6	530	0.393	5.9	0.059
70	11.0	2.0	14.2	16.6	720	0.277	5.0	0.050
95	12.5	2.2	16.0	18.7	940	0.210	4.5	0.045
120	14.2	2.2	17.6	20.6	1160	0.164	4.0	0.040
150	15.8	2.2	19.1	22.3	1440	0.132	3.7	0.037
185	17.5	2.4	20.9	24.4	1760	0.108	3.4	0.034
240	20.1	2.4	23.7	27.5	2350	0.0817	3.0	0.030
300	22.5	2.4	25.6	30.1	2820	0.0654	2.7	0.027
400	25.8	2.6	29.2	34.2	3730	0.0495	2.4	0.024

(a)= For information, indicative only

 Impact Resistant	 Highly Flexible	 UV Resistant	 Ozone Resistant	 Abrasion Retardant	 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 Retardant NF C32-070-2.1(C2) IEC60332-1-2/EN50265-1-1	 Low Toxicity EN 50305; NF X70-100/NF F63 808/TM1-04/BS 6853	 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 Zero Halogen IEC 60754-1/EN 50267-2-1 NF C20-454