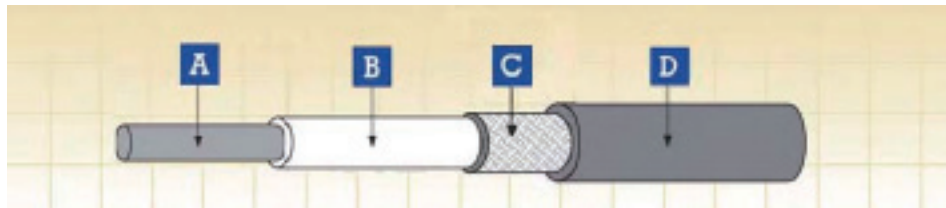


FIREROL Medium Wall Single Core Screened & Sheathed Cables 1.8/3 kV or 3.6/6 kV EN 50264-3-1 (FRL-MW-3S-OS/FRL-MW-6S-OS)



A. Conductor B. Insulation C. Screen D. Sheath

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)

Overall Screen

Tinned annealed copper wires

Sheath

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

Electrical & Mechanical Properties

Nominal Voltage

1.8/3 kV or 3.6/6 kV

Max. Conductor Temperature

90 °C (fixed installation)

Min. Permissible Ambient Temperature

-25 °C/-40 °C (fixed installation)

Bending Radius

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

No fluorine

Resistance to mineral oil & fuel oil, acid & alkali

Resistance to ozone

EN 60684-2

EN 50305; EN 60811-2-1

EN 50305

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

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

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

Low Corrosivity (Acidity & Conductivity)

Low Toxicity

Smoke Index

FRL-MW-3S-OS 1.8/3 kV

| Nominal Cross-Sectional Area | Conductor Diameter (a) | Min. Mean Thickness of Insulation | Min. Screen Wire Diameter | Min. Mean Thickness of Sheath | Overall Diameter | | Weight | Max. Conductor Resistance | Min. Insulation Resistance | |
|------------------------------|------------------------|-----------------------------------|---------------------------|-------------------------------|------------------|------|--------|---------------------------|----------------------------|---------|
| | | | | | Min. | Max. | | 20 °C | 20 °C | 90 °C |
| mm ² | mm | mm | mm | mm | mm | mm | kg/km | Ω/km | MΩ x km | MΩ x km |
| 1.5 | 1.5 | 1.3 | 0.16 | 0.8 | 6.6 | 7.6 | 103 | 13.7 | 21.8 | 0.218 |
| 2.5 | 1.95 | 1.3 | 0.16 | 0.8 | 6.9 | 8.1 | 123 | 8.21 | 18.8 | 0.188 |
| 4 | 2.5 | 1.3 | 0.21 | 0.8 | 7.5 | 8.8 | 157 | 5.09 | 16.2 | 0.162 |
| 6 | 3.0 | 1.3 | 0.21 | 0.8 | 7.9 | 9.4 | 189 | 3.39 | 14.4 | 0.144 |
| 10 | 3.9 | 1.5 | 0.21 | 0.8 | 9.1 | 10.8 | 264 | 1.95 | 12.8 | 0.128 |
| 16 | 5.0 | 1.5 | 0.26 | 0.8 | 10.2 | 12.0 | 359 | 1.24 | 10.7 | 0.107 |
| 25 | 6.4 | 1.8 | 0.26 | 1.0 | 12.1 | 14.2 | 510 | 0.795 | 10.3 | 0.103 |
| 35 | 7.7 | 1.8 | 0.31 | 1.0 | 13.3 | 15.2 | 650 | 0.565 | 8.9 | 0.089 |
| 50 | 9.2 | 1.8 | 0.31 | 1.0 | 14.7 | 16.8 | 846 | 0.393 | 7.8 | 0.078 |
| 70 | 11.0 | 1.8 | 0.31 | 1.0 | 16.6 | 19.3 | 1130 | 0.277 | 6.7 | 0.067 |
| 95 | 12.5 | 2.2 | 0.31 | 1.0 | 18.7 | 21.1 | 1436 | 0.210 | 6.5 | 0.065 |
| 120 | 14.2 | 2.2 | 0.31 | 1.0 | 20.6 | 23.0 | 1765 | 0.164 | 6.1 | 0.061 |
| 150 | 15.8 | 2.2 | 0.31 | 1.2 | 22.0 | 25.3 | 2128 | 0.132 | 5.8 | 0.058 |
| 185 | 17.5 | 2.4 | 0.31 | 1.2 | 24.0 | 29.0 | 2541 | 0.108 | 5.6 | 0.056 |
| 240 | 20.1 | 2.4 | 0.31 | 1.2 | 26.8 | 30.5 | 3244 | 0.0817 | 5.0 | 0.050 |
| 300 | 22.5 | 2.4 | 0.31 | 1.2 | 29.2 | 33.0 | 3934 | 0.0654 | 4.5 | 0.045 |
| 400 | 25.8 | 2.6 | 0.31 | 1.4 | 32.9 | 38.0 | 5078 | 0.0495 | 4.4 | 0.044 |

FRL-MW-6S-OS 3.6/6 kV

| Nominal Cross-Sectional Area | Conductor Diameter (a) | Min. Mean Thickness of Insulation | Min. Screen Wire Diameter | Min. Mean Thickness of Sheath | Overall Diameter | | Weight | Max. Conductor Resistance | Min. Insulation Resistance | |
|------------------------------|------------------------|-----------------------------------|---------------------------|-------------------------------|------------------|------|--------|---------------------------|----------------------------|---------|
| | | | | | Min. | Max. | | 20 °C | 20 °C | 90 °C |
| mm ² | mm | mm | mm | mm | mm | mm | kg/km | Ω/km | MΩ x km | MΩ x km |
| 2.5 | 1.95 | 2.6 | 0.16 | 0.8 | 9.6 | 10.7 | 120 | 8.21 | 24.6 | 0.246 |
| 4 | 2.5 | 2.6 | 0.21 | 0.8 | 10.1 | 11.3 | 140 | 5.09 | 21.6 | 0.216 |
| 6 | 3.0 | 2.6 | 0.21 | 0.8 | 10.6 | 12.0 | 165 | 3.39 | 19.5 | 0.195 |
| 10 | 3.9 | 2.6 | 0.21 | 0.8 | 11.5 | 13.0 | 220 | 1.95 | 16.7 | 0.167 |
| 16 | 5.0 | 2.6 | 0.26 | 0.8 | 12.6 | 14.0 | 290 | 1.24 | 14.2 | 0.142 |
| 25 | 6.4 | 2.9 | 0.26 | 1.0 | 14.4 | 16.4 | 430 | 0.795 | 13.1 | 0.131 |
| 35 | 7.7 | 2.9 | 0.31 | 1.0 | 15.6 | 18.1 | 540 | 0.565 | 11.6 | 0.116 |
| 50 | 9.2 | 2.9 | 0.31 | 1.0 | 17.2 | 19.7 | 670 | 0.393 | 10.2 | 0.102 |
| 70 | 11.0 | 2.9 | 0.31 | 1.0 | 18.9 | 21.7 | 880 | 0.277 | 8.9 | 0.089 |
| 95 | 12.5 | 2.9 | 0.31 | 1.0 | 20.5 | 23.4 | 1100 | 0.210 | 8.0 | 0.080 |
| 120 | 14.2 | 2.9 | 0.31 | 1.2 | 22.1 | 25.7 | 1380 | 0.164 | 7.5 | 0.075 |
| 150 | 15.8 | 2.9 | 0.31 | 1.2 | 23.8 | 27.4 | 1660 | 0.132 | 6.9 | 0.069 |
| 185 | 17.5 | 3.2 | 0.31 | 1.2 | 26.0 | 30.0 | 2010 | 0.108 | 6.7 | 0.067 |
| 240 | 20.1 | 3.4 | 0.31 | 1.4 | 29.0 | 33.7 | 2670 | 0.0817 | 6.4 | 0.064 |
| 300 | 22.5 | 3.4 | 0.31 | 1.4 | 31.4 | 36.4 | 3170 | 0.0654 | 5.9 | 0.059 |
| 400 | 25.8 | 3.4 | 0.31 | 1.4 | 34.8 | 40.0 | 4150 | 0.0495 | 5.2 | 0.052 |

(a)= For information, indicative only

