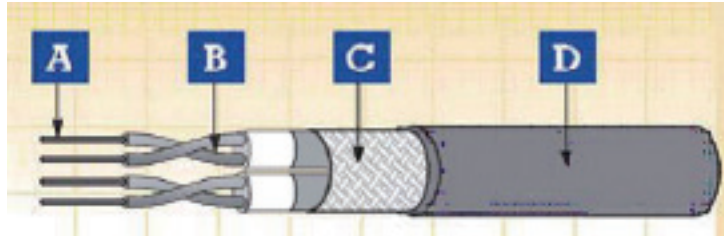


FIREROL Thin Wall Multipair Individually Screened Cables, with Overall Screen & Exposed Standard Wall Sheath

300/500 V

EN 50306-4 (FRL-TW-05MP-ESW-IOS)



A. Conductor B. Insulation+Pair Screen & Sheath C. Overall Screen D. Outer Sheath

Application

-Used as signal and control cable for protected installations inside and outside of rail and transport vehicles, where space and weight are an important factor.

-Used in cable harnesses, switchboards and control panels, driver desks etc.

Construction

Conductor

Tinned annealed copper wires as defined in EN 50306-2

Insulation

LSZH special compound

Pair Screen

Individual screened and sheathed. Screened according to EN 50306-3; Sheathed according to EN 50306-3 (S1, S2)

Pair Identification

Pairs numbered according to EN 50306-4

Overall Screen

Tinned annealed copper wires

Outer Sheath

LSZH special compound (S2, EM 101 - EM 104)

Electrical & Mechanical Properties

| | |
|--------------------------------------|------------------------------------|
| Nominal Voltage | 300/500 V |
| Max. Conductor Temperature | 90 °C/105 °C (fixed installation) |
| Min. Permissible Ambient Temperature | -25 °C/-40 °C (fixed installation) |
| Bending Radius | 10 x Overall Diameter |

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)
 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
 FRL-TW-05MP-ESW-IOS 300/500 V

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

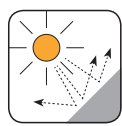
| Number of Pairs and Nominal Cross Section | Min. Thickness of Sheath at any Point | Overall Diameter | | Weight |
|---|---------------------------------------|------------------|------|--------|
| | | Min. | Max. | |
| N x n x mm ² | mm | mm | mm | kg/km |
| 2 x 2 x 0.5 | 1.0 | 10.1 | 11.3 | 100 |
| 3 x 2 x 0.5 | 1.0 | 10.8 | 12.0 | 150 |
| 4 x 2 x 0.5 | 1.0 | 11.8 | 13.0 | 180 |
| 7 x 2 x 0.5 | 1.0 | 13.9 | 15.5 | 270 |
| 2 x 2 x 0.75 | 1.0 | 10.9 | 12.1 | 120 |
| 3 x 2 x 0.75 | 1.0 | 11.6 | 12.8 | 170 |
| 4 x 2 x 0.75 | 1.0 | 12.8 | 14.0 | 220 |
| 7 x 2 x 0.75 | 1.0 | 15.1 | 16.7 | 330 |
| 2 x 2 x 1.0 | 1.0 | 11.3 | 12.5 | 130 |
| 3 x 2 x 1.0 | 1.0 | 12.0 | 13.2 | 190 |
| 4 x 2 x 1.0 | 1.0 | 13.2 | 14.4 | 235 |
| 7 x 2 x 1.0 | 1.0 | 15.7 | 17.3 | 370 |
| 2 x 2 x 1.5 | 1.0 | 13.3 | 14.5 | 180 |
| 3 x 2 x 1.5 | 1.0 | 14.0 | 15.6 | 260 |
| 4 x 2 x 1.5 | 1.0 | 15.5 | 17.1 | 340 |
| 7 x 2 x 1.5 | 1.0 | 18.7 | 20.3 | 540 |



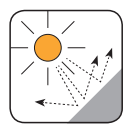
Corona Resistant



Highly Flexible



UV Resistant



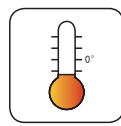
Ozone Resistant



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/EN50265-2-1



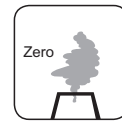
Low Toxicity
 EN 50305; NF X70-100/NF
 F63 808/TM1-04/BS 6853



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