



# Caledonian

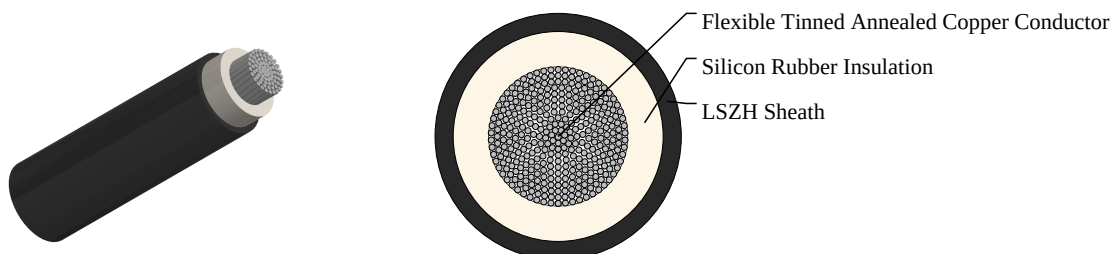
## EN 50382 High Temperature Rolling Stock Cables

[www.caledonian-cables.com](http://www.caledonian-cables.com)

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### FIREROL High Temperature Single Core Sheathed Cables

EN 50382-2 (FRL-HT-6S)



### VOLTAGE RATING

3.6/6 kV

### CABLE CONSTRUCTION

Conductor: Flexible tinned annealed copper wires (red copper only for 150 °C core temperature) class 5 according to HD 383

Insulation: Silicon rubber according to EN 50382-1 (EI 112)

Outer Sheath: LSZH elastomeric compound according to EN 50382-1 (EM 105, EM 106 or EM 107)

### MECHANICAL PROPERTIES

Max. Conductor Temperature: 120 °C/150 °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 AND 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                      |
| 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                                               |
| EN 45545-2  | R15 Interior/ R16 Exterior HL1, HL2, HL3         |

### 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 |
|---------------------------------------------------|-----------------------------------------------------------------|



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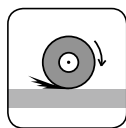
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|                                                                                   |                                                                     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 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                                                         |
| EN45545-2                                                                         | Requirement for fire behavior of materials & components R15/R16     |

### DIMENSION AND PARAMETERS

| Nominal Cross-sectional Area | Conductor Diameter | Min. Mean Thickness of Insulation | Min. Average Sheath Thickness | Overall Diameter (min.) | Overall Diameter (max.) | Approx. Weight | Max. Conductor Resistance (Tinned Conductor) at 20 °C | Max. Conductor Resistance (Plain Conductor) at 20 °C | Min. Insulation Resistance at 20 °C | Min. Insulation Resistance at 150 °C |
|------------------------------|--------------------|-----------------------------------|-------------------------------|-------------------------|-------------------------|----------------|-------------------------------------------------------|------------------------------------------------------|-------------------------------------|--------------------------------------|
| mm <sup>2</sup>              | mm                 | mm                                | mm                            | mm                      | mm                      | kg/km          | Ω/km                                                  | Ω/km                                                 | MΩ × km                             | MΩ × km                              |
| 70                           | 11.0               | 2.9                               | 1.5                           | 19.2                    | 22.4                    | 870            | 0.277                                                 | 0.272                                                | 280                                 | 0.50                                 |



Abrasion Retardant



Acid & Alkaline Resistant



Cold 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



Highly Flexible



Impact Resistant



IRM 902  
Mineral Oil Resistant



IRM 903  
Fuel Oil Resistant



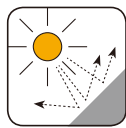
Low Corrosivity  
IEC60754-2/EN50267-2-2/3  
NF C32-074/NF C20-453



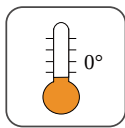
Low Smoke Emission  
IEC 61034-2 / EN 50268-2  
NF C32-073/NF C 20-902



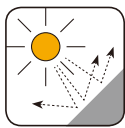
Low Toxicity  
EN 50305; NF X70-100/NF  
F63 808/TM1-04/BS 6853



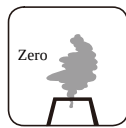
Ozone Resistant



Resistance To Soldering Heat



UV Resistant



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