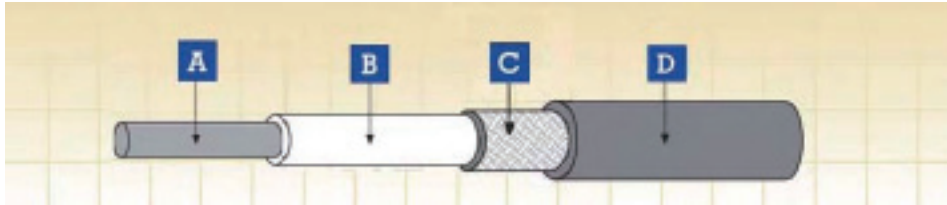


## FIREROL Standard Wall Single Core Screened & Sheathed Cables 1.8/3 kV or 3.6/6 kV EN 50264-2-1 (FRL-SW-3S-OS/FRL-SW-6S-OS)



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, auxiliary 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)

#### 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	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 NF F 63 808; BS6853; NF F 16 101	Low Toxicity Smoke Index

## FRL-SW-3S-OS 1.8/3 kV

Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Min. Mean Thickness of Sheath	Overall Diameter		Min. Wire Diameter of Screen	Weight	Max. Conductor Resistance	Min. Insulation Resistance	
				Min.	Max.				20 °C	90 °C
mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	MΩ x km	MΩ x km
1.5	1.5	1.3	1.4	7.1	78.2	0.16	99	13.70	960	9.6
2.5	1.95	1.3	1.4	7.5	8.7	0.16	120	8.21	850	8.5
4.0	2.5	1.3	1.4	8.1	9.4	0.21	150	5.09	750	7.5
6.0	3.0	1.3	1.4	8.6	10.0	0.21	175	3.39	670	6.7
10	3.9	2.2	1.4	11.1	12.9	0.21	290	1.95	550	5.5
16	5.0	2.2	1.4	12.3	14.2	0.26	370	1.24	450	4.5
25	6.4	2.2	1.4	13.6	15.8	0.26	480	0.795	390	3.9
35	7.7	2.2	1.4	14.95	17.25	0.31	610	0.565	350	3.5
50	9.2	2.2	1.4	16.35	19.05	0.31	770	0.393	300	3.0
70	11.0	2.2	1.5	18.25	21.25	0.31	1010	0.277	260	2.6
95	12.5	2.4	1.6	10.35	23.05	0.31	1270	0.210	250	2.5
120	14.2	2.4	1.6	21.85	25.35	0.31	1530	0.164	220	2.2
150	15.8	2.4	1.7	23.45	27.35	0.31	1870	0.132	210	2.1
185	17.5	2.4	1.7	24.75	28.85	0.31	2190	0.1080	200	2.0
240	20.1	2.4	1.8	27.75	32.35	0.31	2830	0.0817	180	1.8
300	22.5	2.4	1.9	30.15	35.15	0.31	3375	0.0654	170	1.7
400	25.8	2.6	2.0	33.45	39.05	0.31	4400	0.0495	150	1.5

## FRL-SW-6S-OS 3/6 kV

Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Min. Mean Thickness of Sheath	Overall Diameter		Min. Wire Diameter of Screen	Weight	Max. Conductor Resistance	Min. Insulation Resistance	
				Min.	Max.				20 °C	90 °C
mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	MΩ x km	MΩ x km
2.5	1.95	3.0	1.4	10.9	12.7	0.16	200	8.21	1300	13
4.0	2.5	3.0	1.4	11.4	13.3	0.16	225	5.09	1150	11.5
6.0	3.0	3.0	1.4	12.0	13.9	0.21	280	3.39	1050	10.5
10	3.9	3.0	1.4	12.8	14.9	0.21	355	1.95	850	8.5
16	5.0	3.0	1.4	13.8	16.1	0.21	420	1.24	710	7.1
25	6.4	3.0	1.4	15.3	17.8	0.26	540	0.795	630	6.3
35	7.7	3.0	1.4	16.5	19.2	0.26	658	0.565	550	5.5
50	9.2	3.0	1.5	18.25	21.25	0.31	850	0.393	500	5.0
70	11.0	3.0	1.5	19.95	23.15	0.31	1080	0.277	430	4.3
95	12.5	3.0	1.6	21.55	25.05	0.31	1320	0.210	400	4.0
120	14.2	3.1	1.7	23.45	27.35	0.31	1600	0.164	360	3.6
150	15.8	3.1	1.7	24.95	28.15	0.31	1930	0.132	340	3.4
185	17.5	3.2	1.8	26.95	31.45	0.31	2290	0.108	330	3.3
240	20.1	3.4	1.9	29.95	34.95	0.31	2970	0.0817	300	3.0
300	22.5	3.4	1.9	32.25	37.65	0.31	3565	0.0654	250	2.5
400	25.8	3.4	2.0	35.55	41.45	0.31	4620	0.0495	230	2.3

(a) = for information, indicative only

