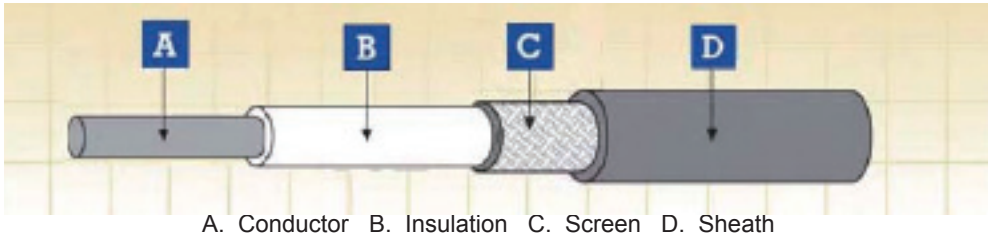
FIREROL High Temperature Single Core Screened & Sheathed Cables 1.8/3 kV or 3.6/6 kV EN 50382-2 (FRL-HT-3S-OS/FRL-HT-6S-OS)



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

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)

Overal Screen

Tinned annealed copper wires

Outer Sheath

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

Electrical & Mechanical Properties

Nominal Voltage	1.8/3 kV or 3.6/6 kV
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 & Environmental Properties

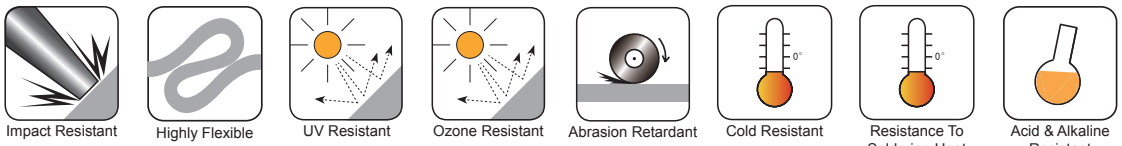
EN 60684-2	No fluorine
EN 50305; EN 60811-2-1	Resistance to mineral oil & fuel oil, acid & alkali
EN 50305	Resistance to ozone

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



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

Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Min. Screen Wire Diameter	Min. Average Sheath Thickness	Overall Diameter		Weight	Max.Conductor Resistance		Min. Insulation Resistance	
								Tinned Conductor	Plain Conductor		
					Min.	Max.		20 °C	20 °C	20 °C	150 °C
mm²	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	Ω/km	MΩ x km	MΩ x km
1.5	1.5	1.3	0.16	1.4	6.8	7.9	113	13.7	13.3	670	1.30
2.5	1.95	1.3	0.16	1.4	7.2	8.4	134	8.21	7.98	570	1.10
4	2.5	1.3	0.21	1.4	7.7	9.0	171	5.09	4.95	480	0.90
6	3.0	1.3	0.21	1.4	8.2	9.6	205	3.39	3.30	420	0.80
10	3.9	1.5	0.21	1.4	9.4	11.0	283	1.95	1.91	380	0.70
16	5.0	1.5	0.26	1.4	10.5	12.2	381	1.24	1.21	310	0.60
25	6.4	1.8	0.26	1.4	12.3	14.4	539	0.795	0.780	300	0.60
35	7.7	1.8	0.31	1.4	13.6	15.9	682	0.565	0.554	250	0.50
50	9.2	1.8	0.31	1.4	15.0	17.5	882	0.393	0.386	220	0.40
70	11.0	1.8	0.31	1.5	16.8	19.7	1174	0.277	0.272	200	0.40
95	12.5	2.2	0.31	1.5	19.0	22.2	1483	0.210	0.206	190	0.40
120	14.2	2.2	0.31	1.6	20.8	24.3	1819	0.164	0.161	180	0.30
150	15.8	2.2	0.31	1.6	22.3	26.1	2188	0.132	0.129	160	0.30
185	17.5	2.4	0.31	1.7	24.5	28.6	2606	0.108	0.106	160	0.30
240	20.1	2.4	0.31	1.8	27.1	31.7	3318	0.0817	0.0801	140	0.20
300	22.5	2.4	0.31	1.9	29.5	34.6	4015	0.0654	0.0641	120	0.20
400	25.8	2.6	0.31	2.0	33.2	38.9	5170	0.0495	0.0486	120	0.20

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

Nominal Cross-Sectional Area	Conductor Diameter (a)	Min. Mean Thickness of Insulation	Min. Screen Wire Diameter	Min. Average Sheath Thickness	Overall Diameter		Weight	Max.Conductor Resistance		Min. Insulation Resistance	
								Tinned Conductor	Plain Conductor		
					Min.	Max.		20 °C	20 °C	20 °C	150 °C
mm²	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	Ω/km	MΩ x km	MΩ x km
2.5	1.95	2.6	0.16	1.4	9.9	11.6	209	8.21	7.98	870	1.70
4	2.5	2.6	0.16	1.4	10.4	12.2	240	5.09	4.95	750	1.50
6	3.0	2.6	0.21	1.4	10.9	12.8	291	3.39	3.30	670	1.30
10	3.9	2.6	0.21	1.4	11.8	13.8	363	1.95	1.91	570	1.10
16	5.0	2.6	0.21	1.4	12.8	15.0	453	1.24	1.21	480	0.90
25	6.4	2.9	0.26	1.4	14.7	17.2	640	0.795	0.780	430	0.80
35	7.7	2.9	0.26	1.4	15.9	18.6	770	0.565	0.554	380	0.70
50	9.2	2.9	0.31	1.5	17.5	20.5	1012	0.393	0.386	330	0.60
70	11.0	2.9	0.31	1.5	19.2	22.4	1307	0.277	0.272	280	0.50
95	12.5	2.9	0.31	1.6	20.8	24.3	1586	0.210	0.206	250	0.50
120	14.2	2.9	0.31	1.6	22.4	26.2	1916	0.164	0.161	230	0.40
150	15.8	2.9	0.31	1.7	24.1	28.2	2309	0.132	0.129	210	0.40
185	17.5	3.2	0.31	1.8	26.4	30.9	2750	0.108	0.106	210	0.40
240	20.1	3.4	0.31	1.9	29.4	34.4	3420	0.0817	0.0801	190	0.30
300	22.5	3.4	0.31	1.9	31.7	37.1	4150	0.0654	0.0641	170	0.30
400	25.8	3.4	0.31	2.0	35.0	40.9	5200	0.0495	0.0486	150	0.30

(a)= For information, indicative only


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