

HF-IXOSA 150/250V(300V)

Halogen free low smoke instrumentation, control and telecommunication cable



Type Approval Certificates

- American Bureau of Shipping
- Bureau Veritas
- China Classification Society
- Det Norske Veritas-Germanischer Lloyd
- Korean Register
- Lloyd's Register
- Nippon Kaiji Kyokai

Application

Cables are designed for interconnection of all sorts of instrumentation and communication equipment including telephone equipments



Conductors

circular stranded copper class 2 acc. to IEC 60228

Insulation

cross-linked polyethylene HF XLPE-90°C acc. to IEC 60092-351

Filler

polypropylene yarn

Inner Covering

polyester tape

Screen/Armour

copper wire braiding more than 90% coverage as armour and shielding to achieve better EMI (Electro Magnetic Interference) performance

Outer Sheath

thermoplastic polyolefine halogen-free compound type SHF1 acc. to IEC 60092-359

Color of Outer Sheath

grey

(optional: blue color for intrinsically safe application)

Core Identification

pair identification - core a:blue, core b:white with number print

triple identification - core a:blue, core b:white, core c:red with number print

quad identification - core a:blue, core b:white, core c:red,

core d:black with number print

Cable Marking

e.g. : S.E.C. HF-IXOSA 250V 7X2X0.75 SQMM IEC 60092-376 & IEC 60332-3-22 LSOH YYYY (WW)

Maximum conductor operating temperature	: +90°C
Lowest ambient temperature for fixed installation	: -40°C
Lowest installation temperature	: -15°C
Maximum short-circuit conductor temperature	: +250°C
Minimum bending radius	: 6D (D is the overall diameter of the cable)

Test Performances

Flame retardant	: IEC 60332-3-22 Category A
Smoke emission	: IEC 61034-2
Gases evolved during combustion	: IEC 60754-1: <0,5% acid gas IEC 60754-2: pH ≥4,3; conductivity ≤10 μSmm ⁻¹

Standards

Construction and Design	: IEC 60228, IEC 60092-350, IEC 60092-376
Materials	: IEC 60092-351, IEC 60092-359

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No. of Pairs/Triples	Conductor Size	Nominal Outer Diameter	Maximum Conductor Resistance	Voltage Test (A.C)	Minimum Insulation Resistance	Approx. Cable Weight
No.s	mm ²	mm	Ω/km.20°C	kV/5min	MΩkm.20°C	kg/km
1 x 2	0.75	8.0	26.0	1.5	850	100
1 x *4	0.75	8.5	26.0	1.5	850	130
2 x 2	0.75	11.1	26.0	1.5	850	150
3 x 2	0.75	11.7	26.0	1.5	850	180
4 x 2	0.75	12.7	26.0	1.5	850	245
5 x 2	0.75	14.4	26.0	1.5	850	280
6 x 2	0.75	15.5	26.0	1.5	850	320
7 x 2	0.75	15.5	26.0	1.5	850	375
8 x 2	0.75	16.7	26.0	1.5	850	410
9 x 2	0.75	18.1	26.0	1.5	850	450
10 x 2	0.75	19.5	26.0	1.5	850	500
12 x 2	0.75	20.2	26.0	1.5	850	555
14 x 2	0.75	21.2	26.0	1.5	850	630
15 x 2	0.75	21.8	26.0	1.5	850	670
16 x 2	0.75	22.3	26.0	1.5	850	700
19 x 2	0.75	23.5	26.0	1.5	850	800
20 x 2	0.75	24.3	26.0	1.5	850	830
23 x 2	0.75	26.1	26.0	1.5	850	930
24 x 2	0.75	27.6	26.0	1.5	850	960
27 x 2	0.75	28.2	26.0	1.5	850	1020
30 x 2	0.75	29.2	26.0	1.5	850	1070
32 x 2	0.75	29.9	26.0	1.5	850	1120
33 x 2	0.75	30.4	26.0	1.5	850	1140
37 x 2	0.75	31.6	26.0	1.5	850	1230
44 x 2	0.75	35.6	26.0	1.5	850	1500
1 x 3	0.75	8.4	26.0	1.5	850	100
2 x 3	0.75	12.2	26.0	1.5	850	190
3 x 3	0.75	12.9	26.0	1.5	850	210
4 x 3	0.75	14.5	26.0	1.5	850	310
5 x 3	0.75	16.0	26.0	1.5	850	370
6 x 3	0.75	17.2	26.0	1.5	850	420
7 x 3	0.75	17.2	26.0	1.5	850	440
8 x 3	0.75	18.6	26.0	1.5	850	500
9 x 3	0.75	20.1	26.0	1.5	850	570
10 x 3	0.75	21.8	26.0	1.5	850	640
12 x 3	0.75	22.5	26.0	1.5	850	700
14 x 3	0.75	23.7	26.0	1.5	850	790
15 x 3	0.75	24.4	26.0	1.5	850	830
16 x 3	0.75	25.0	26.0	1.5	850	870
19 x 3	0.75	26.4	26.0	1.5	850	990
20 x 3	0.75	27.2	26.0	1.5	850	1040
23 x 3	0.75	29.3	26.0	1.5	850	1190
24 x 3	0.75	31.0	26.0	1.5	850	1280
27 x 3	0.75	31.7	26.0	1.5	850	1360
30 x 3	0.75	32.9	26.0	1.5	850	1480
32 x 3	0.75	33.6	26.0	1.5	850	1500
33 x 3	0.75	34.2	26.0	1.5	850	1540
37 x 3	0.75	35.5	26.0	1.5	850	1670
44 x 3	0.75	40.6	26.0	1.5	850	2230

* Number of cores

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No. of Pairs/Triples	Conductor Size	Nominal Outer Diameter	Maximum Conductor Resistance	Voltage Test (A.C)	Minimum Insulation Resistance	Approx. Cable Weight
No.s	mm ²	mm	Ω/km·20°C	kV/5min	MΩkm·20°C	kg/km
1 x 2	1.0	8.4	18.8	1.5	850	130
1 x *4	1.0	10.0	18.8	1.5	850	130
2 x 2	1.0	11.7	18.8	1.5	850	230
3 x 2	1.0	12.4	18.8	1.5	850	260
4 x 2	1.0	13.5	18.8	1.5	850	325
5 x 2	1.0	15.3	18.8	1.5	850	370
6 x 2	1.0	16.5	18.8	1.5	850	410
7 x 2	1.0	16.5	18.8	1.5	850	440
8 x 2	1.0	17.8	18.8	1.5	850	490
9 x 2	1.0	19.3	18.8	1.5	850	560
10 x 2	1.0	20.8	18.8	1.5	850	710
12 x 2	1.0	21.5	18.8	1.5	850	780
14 x 2	1.0	22.6	18.8	1.5	850	870
15 x 2	1.0	23.3	18.8	1.5	850	910
16 x 2	1.0	23.9	18.8	1.5	850	940
19 x 2	1.0	25.2	18.8	1.5	850	1050
20 x 2	1.0	25.9	18.8	1.5	850	1100
23 x 2	1.0	27.9	18.8	1.5	850	1240
24 x 2	1.0	29.5	18.8	1.5	850	1320
27 x 2	1.0	30.2	18.8	1.5	850	1380
30 x 2	1.0	31.3	18.8	1.5	850	1480
32 x 2	1.0	32.0	18.8	1.5	850	1670
33 x 2	1.0	32.5	18.8	1.5	850	1740
37 x 2	1.0	33.8	18.8	1.5	850	1860
44 x 2	1.0	38.6	18.8	1.5	850	2300
1 x 3	1.0	8.8	18.8	1.5	850	110
2 x 3	1.0	12.9	18.8	1.5	850	220
3 x 3	1.0	13.7	18.8	1.5	850	270
4 x 3	1.0	15.4	18.8	1.5	850	350
5 x 3	1.0	17.0	18.8	1.5	850	430
6 x 3	1.0	18.3	18.8	1.5	850	490
7 x 3	1.0	18.3	18.8	1.5	850	510
8 x 3	1.0	19.8	18.8	1.5	850	590
9 x 3	1.0	21.5	18.8	1.5	850	670
10 x 3	1.0	23.3	18.8	1.5	850	760
12 x 3	1.0	24.1	18.8	1.5	850	830
14 x 3	1.0	25.3	18.8	1.5	850	930
15 x 3	1.0	26.1	18.8	1.5	850	990
16 x 3	1.0	26.8	18.8	1.5	850	1040
19 x 3	1.0	28.2	18.8	1.5	850	1190
20 x 3	1.0	29.1	18.8	1.5	850	1250
23 x 3	1.0	31.4	18.8	1.5	850	1430
24 x 3	1.0	33.2	18.8	1.5	850	1530
27 x 3	1.0	34.0	18.8	1.5	850	1640
30 x 3	1.0	35.2	18.8	1.5	850	1780
32 x 3	1.0	36.0	18.8	1.5	850	1820
33 x 3	1.0	37.1	18.8	1.5	850	2000
37 x 3	1.0	38.6	18.8	1.5	850	2180
44 x 3	1.0	43.5	18.8	1.5	850	2690

* Number of cores

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No.s	mm ²	mm	Ω/km-20°C	kV/5min	MΩkm-20°C	kg/km
1 x 2	1.5	9.5	12.8	1.5	850	110
1 x *4	1.5	10.0	12.8	1.5	850	160
2 x 2	1.5	13.5	12.8	1.5	850	200
3 x 2	1.5	14.7	12.8	1.5	850	290
4 x 2	1.5	16.1	12.8	1.5	850	325
5 x 2	1.5	17.7	12.8	1.5	850	390
6 x 5	1.5	19.1	12.8	1.5	850	430
7 x 2	1.5	19.1	12.8	1.5	850	470
8 x 2	1.5	20.7	12.8	1.5	850	525
9 x 2	1.5	22.4	12.8	1.5	850	590
10 x 2	1.5	24.3	12.8	1.5	850	635
12 x 2	1.5	25.1	12.8	1.5	850	735
14 x 2	1.5	26.5	12.8	1.5	850	815
15 x 2	1.5	27.3	12.8	1.5	850	890
16 x 2	1.5	28.0	12.8	1.5	850	940
19 x 2	1.5	29.5	12.8	1.5	850	1120
20 x 2	1.5	30.5	12.8	1.5	850	1190
23 x 2	1.5	32.8	12.8	1.5	850	1400
24 x 2	1.5	34.7	12.8	1.5	850	1510
27 x 2	1.5	35.6	12.8	1.5	850	1610
30 x 2	1.5	37.3	12.8	1.5	850	1840
32 x 2	1.5	38.2	12.8	1.5	850	1930
33 x 2	1.5	38.8	12.8	1.5	850	1980
37 x 2	1.5	40.4	12.8	1.5	850	2160
44 x 2	1.5	45.6	12.8	1.5	850	2630
1 x 3	1.5	10.1	12.8	1.5	850	150
2 x 3	1.5	15.4	12.8	1.5	850	320
3 x 3	1.5	16.3	12.8	1.5	850	420
4 x 3	1.5	17.8	12.8	1.5	850	470
5 x 3	1.5	19.7	12.8	1.5	850	570
6 x 3	1.5	21.3	12.8	1.5	850	650
7 x 3	1.5	21.3	12.8	1.5	850	680
8 x 3	1.5	23.1	12.8	1.5	850	780
9 x 3	1.5	25.1	12.8	1.5	850	900
10 x 3	1.5	27.3	12.8	1.5	850	1020
12 x 3	1.5	28.2	12.8	1.5	850	1130
14 x 3	1.5	29.7	12.8	1.5	850	1290
15 x 3	1.5	30.7	12.8	1.5	850	1370
16 x 3	1.5	31.4	12.8	1.5	850	1420
19 x 3	1.5	33.2	12.8	1.5	850	1630
20 x 3	1.5	34.3	12.8	1.5	850	1710
23 x 3	1.5	37.4	12.8	1.5	850	2060
24 x 3	1.5	39.6	12.8	1.5	850	2210
27 x 3	1.5	40.5	12.8	1.5	850	2380
30 x 3	1.5	42.1	12.8	1.5	850	2570
32 x 3	1.5	43.0	12.8	1.5	850	2710
33 x 3	1.5	43.8	12.8	1.5	850	2790
37 x 3	1.5	45.6	12.8	1.5	850	3040
44 x 3	1.5	51.5	12.8	1.5	850	3710

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No. of Pairs/Triples	Conductor Size	Nominal Outer Diameter	Maximum Conductor Resistance	Voltage Test (A.C)	Minimum Insulation Resistance	Approx. Cable Weight
No.s	mm ²	mm	Ω/km-20°C	kV/5min	MΩ·km-20°C	kg/km
1 x 2	2.5	10.5	7.86	1.5	850	150
1 x *4	2.5	12.0	7.86	1.5	850	230
2 x 2	2.5	15.5	7.86	1.5	850	320
3 x 2	2.5	16.5	7.86	1.5	850	420
4 x 2	2.5	18.0	7.86	1.5	850	460
5 x 2	2.5	19.8	7.86	1.5	850	560
6 x 2	2.5	21.5	7.86	1.5	850	650
7 x 2	2.5	21.5	7.86	1.5	850	680
8 x 2	2.5	23.4	7.86	1.5	850	780
9 x 2	2.5	25.3	7.86	1.5	850	900
10 x 2	2.5	27.6	7.86	1.5	850	1020
12 x 2	2.5	28.5	7.86	1.5	850	1130
14 x 2	2.5	30.1	7.86	1.5	850	1260
15 x 2	2.5	31.0	7.86	1.5	850	1340
16 x 2	2.5	31.8	7.86	1.5	850	1420
19 x 2	2.5	33.6	7.86	1.5	850	1620
20 x 2	2.5	34.7	7.86	1.5	850	1710
23 x 2	2.5	37.8	7.86	1.5	850	2070
24 x 2	2.5	40.1	7.86	1.5	850	2220
27 x 2	2.5	41.0	7.86	1.5	850	2380
30 x 2	2.5	42.5	7.86	1.5	850	2570
32 x 2	2.5	43.5	7.86	1.5	850	2710
33 x 2	2.5	44.3	7.86	1.5	850	2790
37 x 2	2.5	46.1	7.86	1.5	850	3040
44 x 2	2.5	56.5	7.86	1.5	850	4370
1 x 3	2.5	11.1	7.86	1.5	850	190
2 x 3	2.5	17.2	7.86	1.5	850	420
3 x 3	2.5	18.3	7.86	1.5	850	570
4 x 3	2.5	20.1	7.86	1.5	850	630
5 x 3	2.5	22.2	7.86	1.5	850	770
6 x 3	2.5	24.1	7.86	1.5	850	890
7 x 3	2.5	24.1	7.86	1.5	850	950
8 x 3	2.5	26.2	7.86	1.5	850	1080
9 x 3	2.5	28.4	7.86	1.5	850	1240
10 x 3	2.5	31.0	7.86	1.5	850	1410
12 x 3	2.5	32.1	7.86	1.5	850	1580
14 x 3	2.5	33.8	7.86	1.5	850	1810
15 x 3	2.5	34.9	7.86	1.5	850	1920
16 x 3	2.5	35.8	7.86	1.5	850	1970
19 x 3	2.5	38.3	7.86	1.5	850	2410
20 x 3	2.5	39.5	7.86	1.5	850	2540
23 x 3	2.5	42.6	7.86	1.5	850	2910
24 x 3	2.5	45.2	7.86	1.5	850	3120
27 x 3	2.5	46.3	7.86	1.5	850	3370
30 x 3	2.5	48.0	7.86	1.5	850	3660
32 x 3	2.5	49.1	7.86	1.5	850	3860
33 x 3	2.5	50.0	7.86	1.5	850	3980
37 x 3	2.5	52.1	7.86	1.5	850	4360
44 x 3	2.5	58.9	7.86	1.5	850	5320

* Number of cores

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No.s	mm ²	mm	Ω/km-20°C	kV/5min	MΩkm-20°C	kg/km
2	0.75	7.9	26.0	1.5	850	95
3	0.75	8.3	26.0	1.5	850	110
4	0.75	8.9	26.0	1.5	850	125
5	0.75	9.6	26.0	1.5	850	160
6	0.75	10.3	26.0	1.5	850	170
7	0.75	10.3	26.0	1.5	850	185
8	0.75	11.1	26.0	1.5	850	210
9	0.75	11.8	26.0	1.5	850	230
10	0.75	12.7	26.0	1.5	850	255
12	0.75	13.1	26.0	1.5	850	285
14	0.75	13.7	26.0	1.5	850	315
15	0.75	14.5	26.0	1.5	850	330
16	0.75	14.9	26.0	1.5	850	345
19	0.75	15.6	26.0	1.5	850	420
20	0.75	16.0	26.0	1.5	850	440
23	0.75	17.0	26.0	1.5	850	500
24	0.75	18.0	26.0	1.5	850	520
27	0.75	18.3	26.0	1.5	850	560
30	0.75	19.0	26.0	1.5	850	610
32	0.75	19.3	26.0	1.5	850	625
33	0.75	19.7	26.0	1.5	850	640
37	0.75	20.4	26.0	1.5	850	700
44	0.75	22.8	26.0	1.5	850	810
2	1.0	8.3	18.2	1.5	850	120
3	1.0	8.7	18.2	1.5	850	135
4	1.0	9.4	18.2	1.5	850	150
5	1.0	10.2	18.2	1.5	850	170
6	1.0	10.9	18.2	1.5	850	200
7	1.0	10.9	18.2	1.5	850	220
8	1.0	11.7	18.2	1.5	850	240
9	1.0	12.5	18.2	1.5	850	270
10	1.0	13.5	18.2	1.5	850	315
12	1.0	13.9	18.2	1.5	850	340
14	1.0	15.0	18.2	1.5	850	375
15	1.0	15.4	18.2	1.5	850	400
16	1.0	15.8	18.2	1.5	850	420
19	1.0	16.6	18.2	1.5	850	480
20	1.0	17.0	18.2	1.5	850	510
23	1.0	18.2	18.2	1.5	850	570
24	1.0	19.2	18.2	1.5	850	590
27	1.0	19.5	18.2	1.5	850	630
30	1.0	20.2	18.2	1.5	850	680
32	1.0	20.6	18.2	1.5	850	710
33	1.0	21.0	18.2	1.5	850	730
37	1.0	21.8	18.2	1.5	850	790
44	1.0	24.4	18.2	1.5	850	940

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No. of Cores	Conductor Size	Nominal Outer Diameter	Maximum Conductor Resistance	Voltage Test (A.C)	Minimum Insulation Resistance	Approx. Cable Weight
No.s	mm ²	mm	Ω/km·20°C	kV/5min	MΩkm·20°C	kg/km
2	1.5	9.4	12.8	1.5	850	140
3	1.5	9.9	12.8	1.5	850	165
4	1.5	10.7	12.8	1.5	850	190
5	1.5	11.6	12.8	1.5	850	220
6	1.5	12.5	12.8	1.5	850	260
7	1.5	12.5	12.8	1.5	850	290
8	1.5	13.5	12.8	1.5	850	320
9	1.5	14.9	12.8	1.5	850	360
10	1.5	16.1	12.8	1.5	850	415
12	1.5	16.6	12.8	1.5	850	460
14	1.5	17.4	12.8	1.5	850	515
15	1.5	17.8	12.8	1.5	850	550
16	1.5	18.3	12.8	1.5	850	580
19	1.5	19.2	12.8	1.5	850	670
20	1.5	19.8	12.8	1.5	850	710
23	1.5	21.1	12.8	1.5	850	800
24	1.5	22.4	12.8	1.5	850	830
27	1.5	22.7	12.8	1.5	850	900
30	1.5	23.6	12.8	1.5	850	980
32	1.5	24.1	12.8	1.5	850	1030
33	1.5	24.5	12.8	1.5	850	1060
37	1.5	25.5	12.8	1.5	850	1160
44	1.5	28.6	12.8	1.5	850	1380
2	2.5	10.4	7.86	1.5	850	170
3	2.5	11.0	7.86	1.5	850	210
4	2.5	11.9	7.86	1.5	850	250
5	2.5	12.9	7.86	1.5	850	295
6	2.5	14.5	7.86	1.5	850	350
7	2.5	14.5	7.86	1.5	850	395
8	2.5	15.6	7.86	1.5	850	440
9	2.5	16.7	7.86	1.5	850	495
10	2.5	18.1	7.86	1.5	850	565
12	2.5	18.6	7.86	1.5	850	640
14	2.5	19.6	7.86	1.5	850	725
15	2.5	20.1	7.86	1.5	850	775
16	2.5	20.6	7.86	1.5	850	820
19	2.5	21.7	7.86	1.5	850	955
20	2.5	22.3	7.86	1.5	850	1010
23	2.5	23.9	7.86	1.5	850	1145
24	2.5	25.3	7.86	1.5	850	1190
27	2.5	25.8	7.86	1.5	850	1305
30	2.5	26.8	7.86	1.5	850	1430
32	2.5	27.3	7.86	1.5	850	1510
33	2.5	27.9	7.86	1.5	850	1555
37	2.5	28.9	7.86	1.5	850	1715
44	2.5	31.6	7.86	1.5	850	2040