X-VOLT®
FR-N10XA8E-AR EDR
FR-N20XA8E-AR EDR
FR-N30XA8E-AR EDR

Medium voltage aluminium cable, XLPE insulation. Halogen free.

ACCORDING TO: NF C 33-226

APPLICATION

X-VOLT® FR-NxxXA8E-AR EDR medium voltage aluminium cables for electricity transmission and distribution for buried installations with mechanical protection, with Reinforced Direct Burial (EDR). Halogen free.

CONSTRUCTION

Conductor
Aluminium class 2 according to NF-EN 60228 and IEC 60228.

Conductor screen
Screen over the insulation, made of thermosetting and strippable semiconductor material.

Insulation
Cross-linked polyethylene (XLPE).

Insulation screen
Screen over the insulation, made of thermosetting and strippable semiconductor material.

Longitudinal sealing
Swelling powder.

Metallic screen
Longitudinal aluminium tape bonded to the outer sheath.

Protective sheath
Extruded PE material. Black colour with two grey stripes.

EDR outer sheath
Extruded PE material. Black colour.

CARACTÉRISTIQUES

Electrical performance
Medium voltage: 6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Thermal performance
Maximum conductor temperature: 90°C.
Maximum short-circuit temperature: 250°C (max 5 s).
Minimum installation temperature: -10°C.

Fire performance
Low smoke halogen free emission according to EN 60754-1 / IEC 60754-1.
Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.

Mechanical performance
Minimum bending radius (during installation): 26x cable diameter (single-core) and 13x cable diameter (trefoil / bundled).
Impact resistance: Extra High severity (≤ 40J).

Environmental performance
Water presence: AD8 Submersion.
Termite resistant according to Annex M of standard NF C33-226.

Installation conditions
Open air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

According to
NF C 33-226

Standards and approvals
CE / RoHS / EDF

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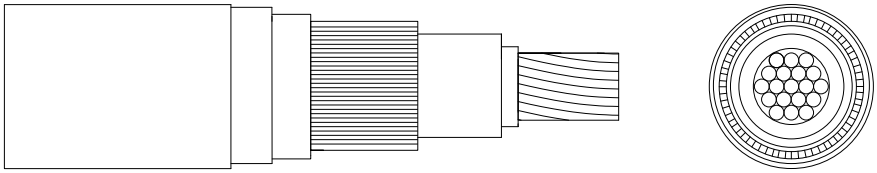
DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® FR-N10XA8E-AR EDR 6/10 (12) kV

Cross-section (mm²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	Toutes Zones (Hiver) (A)	Dense urban zone (Summer) (A)	Dense urban zone (Heatwave) (A)	Touching cables (Winter) (A)	Touching cables (Summer) (A)	Dense urban zone (Summer) (A)
1 x 240	18,0	25,8	40,0	1.705	497	404	354	286	514	469

X-VOLT® FR-N20XA8E-AR EDR 12/20 (24) kV

Cross-section (mm²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	Toutes Zones (Hiver) (A)	Dense urban zone (Summer) (A)	Dense urban zone (Heatwave) (A)	Touching cables (Winter) (A)	Touching cables (Summer) (A)	Dense urban zone (Summer) (A)
1 x 50	8,0	20,0	33,2	985	201	166	146	120	193	177
1 x 95	11,2	22,2	35,4	1.180	295	242	213	173	292	267
1 x 150	13,9	23,7	36,9	1.360	377	307	270	219	377	345
1 x 240	18,0	28,0	41,2	1.785	497	404	354	286	514	469
1 x 300	20,0	30,2	43,4	2.025	550	446	391	316	579	528
1 x 400	22,9	33,3	46,5	2.390	639	517	452	367	688	626
1 x 500	26,4	36,9	51,1	2.740	709	568	497	403	-	-
1 x 630	29,9	40,6	55,3	3.365	846	685	598	483	-	-
3 x 1 x 50	8,0	20,0	71,4	2.980	201	166	146	120	193	177
3 x 1 x 95	11,2	22,2	75,9	3.565	295	242	213	173	292	267
3 x 1 x 150	13,9	23,7	79,4	4.120	377	307	270	219	377	345
3 x 1 x 240	18,0	28,0	88,6	5.400	497	404	354	286	514	469
3 x 1x 300	20,0	30,2	93,4	6.135	550	446	391	316	579	528
3 x 1 x 400	22,9	33,3	99,7	7.225	639	517	452	367	688	626
3 x1 x 630	29,8	40,2	115,3	10.035	846	685	598	483	-	-

Current-carrying capacities of cables laid directly in the ground at a depth of 0.8 m and laid in gallery/tunnel (touching cables) according to standard NF C 33-226.

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X-VOLT® FR-N30XA8E-AR EDR 18/30 (36) kV

Cross-section (mm^2)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	Toutes Zones (Hiver) (A)	Dense urban zone (Summer) (A)	Dense urban zone (Heatwave) (A)	Touching cables (Winter) (A)	Touching cables (Summer) (A)	Dense urban zone (Summer) (A)
1 x 95	11,2	26,0	39,2	1.400	295	242	213	173	292	267
1 x 150	13,9	27,5	40,7	1.585	377	307	270	219	377	345
1 x 240	18,0	31,6	44,8	2.020	497	404	354	286	514	469
1 x 300	20,0	33,6	46,6	2.230	550	446	391	316	579	528
1 x 400	22,9	36,7	49,9	2.640	639	517	452	367	688	626
1 x 500	26,4	40,5	53,0	2.905	709	568	497	403	-	-
1 x 630	29,9	44,0	56,9	3.505	846	685	598	483	-	-
3 x 1 x 95	11,2	26,0	84,1	4.225	295	242	213	173	292	267
3 x 1 x 150	13,9	27,5	87,6	4.810	377	307	270	219	377	345
3 x 1 x 240	18,0	31,6	96,4	6.120	497	404	354	286	514	469
3 x 1x 300	20,0	33,6	100,2	6.750	550	446	391	316	579	528
3 x 1 x 400	22,9	36,7	107,0	7.980	639	517	452	367	688	626

Current-carrying capacities of cables laid directly in the ground at a depth of 0.8 m and laid in gallery/tunnel (touching cables) according to standard NF C 33-226.

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SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm²	299	211	173	134	94	77	67	60	55

CORRECTION FACTORS FOR DIRECT BURIED AT DIFFERENT DEPTHS

Depth (m)	0,6	0,8	1,0	1,2	1,4
Factor	1,03	1,00	0,98	0,96	0,95

Other correction factors (for cable grouping, for harmonic currents), which are not in this specification, can be applied. Further information can be found in standard NF C 33-226.

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