

X-VOLT[®] AL (-OL/-2OL) RHZ1 (S)

Medium Voltage aluminium cable, XLPE insulation.

ACCORDING TO: IEC 60502-2 / UNE-HD 620-10E (type 10E-4)



Eca

APPLICATION

X-VOLT[®] RHZ1 (S) is a Medium Voltage aluminium cable halogen-free and no flame propagation for fixed installations. Suitable for transport and distribution of electric power in medium voltage networks.

CONSTRUCTION

Conductor

Aluminium class 2 according to EN 60228 and IEC 60228.

Optionally, with longitudinal water tightness (cable type -2OL).

Conductor screen

Screen over the conductor, made of thermosetting semiconductor material.

Insulation

Cross-linked polyethylene type XLPE according to IEC 60502-2 and type DIX3 according to HD 620-1, natural colour.

Cross linked in catenary line with nitrogen atmosphere through a triple layer extrusion process.

Insulation screen

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

Metallic screen

Copper wires and copper tape screen, with a minimum cross-section of 16mm².

Longitudinal water tightness

Hygroscopic tape completely covering the screen (cable type -OL and -2OL).

Outer sheath

Polyolefin type ST12 according to IEC 60502-2 and type DM22 according to HD 620-1.

Red colour with two grey stripes.

Other colours under request.

CHARACTERISTICS



Electrical performance

Medium Voltage: 6/10 (12) kV
8,7/15 (17,5) 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 service temperature: -15°C.



Fire performance

Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Reaction to fire CPR: Eca according to EN 50575.
Halogen free 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: 15x cable diameter.
Minimum bending radius during installation: 20x cable diameter.
Abrasion resistant.
Tear resistant.



Environmental performance

UV Resistant according to UNE 211605.
Water Resistance: AD6 Waves.



Installation conditions

Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

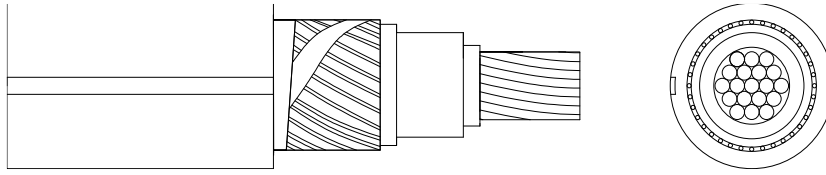


According to

IEC 60502-2 / UNE-HD 620-10E (type 10E-4)

X-VOLT[®] AL (-OL/-20L) RHZ1 (S)

DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT[®] RHZ1 (S) 6/10 (12) kV

Cross-section (mm ²)	Screen (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R max. 20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
1 x 120 *	H16	12,9	20,7	28,0	950	0,253	0,108	0,347	324	252
1 x 400	H16	22,8	31,2	39,3	2.010	0,0778	0,084	0,564	673	470

X-VOLT[®] RHZ1 (S) 8,7/15 (17,5) kV

Cross-section (mm ²)	Screen (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R max. 20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
1 x 120 *	H16	12,9	22,9	30,6	1.070	0,253	0,114	0,277	324	252
1 x 240	H16	17,9	27,9	36,0	1.560	0,125	0,103	0,356	502	367

X-VOLT[®] RHZ1 (S) 12/20 (24) kV

Cross-section (mm ²)	Screen (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R max. 20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
1 x 95	H16	11,1	23,1	30,8	1.045	0,320	0,123	0,215	280	221
1 x 120 *	H16	12,9	24,9	33,0	1.190	0,253	0,118	0,237	324	252
1 x 150	H16	14,0	26,0	34,1	1.295	0,206	0,115	0,252	368	281
1 x 150	H25	14,0	26,0	34,1	1.385	0,206	0,115	0,252	368	281
1 x 185 *	H16	15,5	27,5	35,6	1.445	0,164	0,111	0,272	424	317
1 x 240	H16	17,9	29,9	38,0	1.670	0,125	0,107	0,302	502	367
1 x 240	H50	17,9	29,9	38,7	2.015	0,125	0,108	0,302	502	367
1 x 300 *	H16	20,2	32,2	40,3	1.905	0,100	0,103	0,332	577	414
1 x 300 *	H25	20,2	32,2	40,3	1.990	0,100	0,103	0,332	577	414
1 x 400	H16	22,8	35,4	43,5	2.265	0,0778	0,100	0,373	673	470
1 x 400	H25	23,0	35,6	43,7	2.375	0,0778	0,100	0,375	673	470
1 x 630	H16	29,9	42,4	50,5	3.125	0,0469	0,092	0,462	895	615
1 x 800	H16	34,2	48,1	56,4	3.860	0,0367	0,091	0,440	1.036	700
3 x 1 x 630	H16	30,1	43,2	110,4	9.650	0,0469	0,092	0,462	895	615

* Cable based on UNE-HD 620-10E.

¹ Three single-core cables in open air at 30°C ambient temperature according to IEC 60502-2.

² Three single-core cables direct buried at 0,8 m depth with soil thermal resistivity of 1,5 K·m/W and 20°C of ground temperature according to IEC 60502-2.

Reactance (X) is calculated at 50 Hz and for three single-core cables (in triangle or trefoil formation).

Capacitance values (C) are calculated in base to dimensional items of the cables that are in this specification.

In all cases are supposed a three-phase circuit.

X-VOLT[®] AL (-OL/-20L) RHZ1 (S)

X-VOLT[®] RHZ1 (S) 18/30 (36) kV

Cross-section (mm ²)	Screen (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R max. 20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
1 x 95	H16	11,1	28,1	36,2	1.320	0,320	0,134	0,165	280	221
1 x 120 *	H16	12,9	29,9	38,0	1.455	0,253	0,127	0,181	324	252
1 x 150	H16	14,0	31,0	39,1	1.570	0,206	0,124	0,191	368	281
1 x 150	H25	14,0	31,0	39,1	1.655	0,206	0,124	0,191	368	281
1 x 185 *	H16	15,5	32,5	40,6	1.725	0,164	0,120	0,192	424	317
1 x 185 *	H25	15,5	32,5	40,6	1.815	0,164	0,120	0,192	424	317
1 x 240	H16	17,9	34,9	43,0	1.975	0,125	0,114	0,226	502	367
1 x 240	H25	18,1	35,1	43,2	2.075	0,125	0,115	0,228	502	367
1 x 300 *	H16	20,2	37,2	45,3	2.220	0,100	0,110	0,247	577	414
1 x 400	H16	22,8	40,4	48,5	2.605	0,0778	0,107	0,275	673	470
1 x 400	H25	22,8	40,4	48,5	2.695	0,0778	0,107	0,275	673	470
1 x 630	H16	29,9	47,4	55,5	3.515	0,0469	0,098	0,337	895	615
1 x 630	H25	30,1	48,2	58,1	3.690	0,0469	0,101	0,344	895	615
1 x 630	H75	30,1	48,2	58,3	4.185	0,0469	0,101	0,344	895	615
1 x 800 *	H75	34,2	53,1	62,8	4.885	0,0367	0,097	0,387	1.036	700

* Cable based on UNE-HD 620-10E.

¹ Three single-core cables in open air at 30°C ambient temperature according to IEC 60502-2.

² Three single-core cables direct buried at 0,8 m depth with soil thermal resistivity of 1,5 K·m/W and 20°C of ground temperature according to IEC 60502-2.

Reactance (X) is calculated at 50 Hz and for three single-core cables (in triangle or trefoil formation).
Capacitance values (C) are calculated in base to dimensional items of the cables that are in this specification.
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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 AIR TEMPERATURE

Air T. (°C)	20	25	30	35	40	45	50	55	60
Factor	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (°C)	10	15	20	25	30	35	40	45	50
Factor	1,07	1,04	1	0,96	0,93	0,89	0,85	0,80	0,76

CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY (calculated for 240 mm² cable)

Direct buried cables						
0,5 K·m/W	0,8 K·m/W	1 K·m/W	1,5 K·m/W	2 K·m/W	2,5 K·m/W	3 K·m/W
1,36	1,29	1,18	1	0,88	0,80	0,73

Other correction factors (for grouping cables, for harmonic currents), that are not in this specification, can be applied. Further information can be found in IEC 60502-2.