X-VOLT® AL (-OL/-2OL) RHZ1 (AS)

Medium Voltage aluminium cable, XLPE insulation.

ACCORDING TO: IEC 60502-2 / UNE-HD 620-10E (type 10E-5)

C_{ca}

APPLICATION

X-VOLT® RHZ1 (AS) is a Medium Voltage aluminium cable halogen-free with low smoke emission and no fire propagation properties 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 16mm^2.

Longitudinal water tightness
Hygroscopic tape completely covering the screen (cable type –OL and -2OL).

Filler
Additional fireproof polyolefin layer, halogen free.

Outer sheath
Polyolefin type ST12 according to IEC 60502-2 and type DMZ2 according to HD 620-1.
Red colour with two green stripes.
Other colours under request.

CHARACTERISTICS

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 service temperature: -15°C.

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 50399.
Reaction to fire CPR: C_{ca}-s1b,d2,a1 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.
Low smoke emission according to EN 61034 / IEC 61034:
Light transmittance > 60%.

Mechanical performance
Minimum bending radius, fixed: 15x cable diameter.
Minimum vending 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-5)

Standards and approvals
AENOR

CPR (Construction Products Regulation)
C_{ca}-s1b,d2,a1

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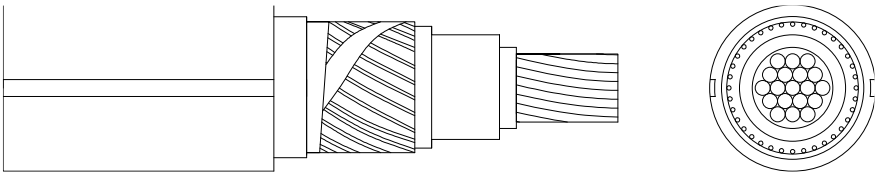
DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® RHZ1 (AS) 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	35,4	1.550	0,253	0,123	0,347	324	252
1 x 150	H16	14,0	21,8	36,5	1.670	0,206	0,119	0,371	368	281
1 x 185 *	H16	15,5	23,3	38,0	1.835	0,164	0,116	0,402	424	317
1 x 240	H16	17,9	25,7	38,4	1.885	0,125	0,107	0,451	502	367
1 x 300 *	H16	20,2	28,0	40,7	2.130	0,100	0,103	0,499	577	414
1 x 400	H16	22,8	31,2	43,9	2.515	0,0778	0,100	0,564	673	470
1 x 500 *	H16	26,4	34,7	47,4	2.890	0,0605	0,096	0,636	777	542
1 x 630	H16	29,9	38,2	50,9	3.420	0,0469	0,093	0,708	895	615
1 x 630	H35	29,9	38,2	51,2	3.610	0,0469	0,093	0,708	895	615

X-VOLT® RHZ1 (AS) 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 70	H25	10,1	22,1	36,8	1.550	0,443	0,140	0,202	196	171
1 x 95	H25	11,1	23,1	37,8	1.670	0,320	0,136	0,215	280	221
1 x 120 *	H16	12,9	24,9	39,6	1.820	0,253	0,130	0,237	324	252
1 x 150	H16	14,0	26,0	40,7	1.945	0,206	0,126	0,252	368	281
1 x 185 *	H16	15,5	27,5	42,2	2.120	0,164	0,122	0,272	424	317
1 x 240	H16	17,9	29,9	42,6	2.165	0,125	0,113	0,302	502	367
1 x 300 *	H16	20,2	32,2	44,9	2.420	0,100	0,109	0,332	577	414
1 x 300 *	H25	20,2	32,2	44,9	2.510	0,100	0,109	0,332	577	414
1 x 400	H16	22,8	35,4	48,1	2.825	0,0778	0,106	0,373	673	470
1 x 400	H90	22,8	35,4	50,1	3.600	0,0778	0,109	0,373	673	470
1 x 630	H16	29,9	42,4	55,1	3.770	0,0469	0,098	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.

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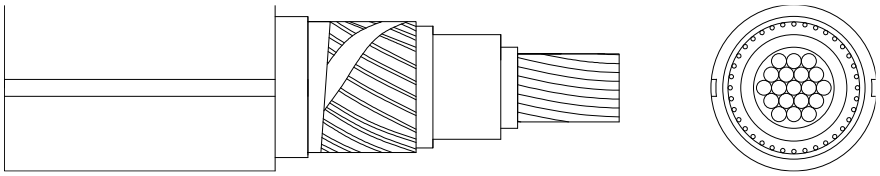

X-VOLT® RHZ1 (AS) 18/30 (36) kV										
Cross-section (mm^2)	Screen (mm^2)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R max. 20°C (Ω/km)	X (Ω/km)	C (µF/km)	Open air (A) [1]	Buried (A) [2]
1 x 95	H16	11,1	28,1	42,8	2.010	0,320	0,144	0,165	280	221
1 x 150	H16	14,0	31,0	45,7	2.310	0,206	0,134	0,191	368	281
1 x 150	H25	14,0	31,0	45,7	2.395	0,206	0,134	0,191	368	281
1 x 185 *	H16	15,5	32,5	47,2	2.495	0,164	0,129	0,205	424	317
1 x 185 *	H25	15,5	32,5	47,2	2.580	0,164	0,129	0,205	424	317
1 x 240	H16	17,9	34,9	47,6	2.530	0,125	0,121	0,226	502	367
1 x 240	H25	17,9	34,9	47,6	2.615	0,125	0,121	0,226	502	367
1 x 300 *	H16	20,2	37,2	49,9	2.805	0,100	0,116	0,247	577	414
1 x 300 *	H25	20,2	37,2	49,9	2.895	0,100	0,116	0,247	577	414
1 x 400	H16	22,8	40,4	53,1	3.230	0,0778	0,112	0,275	673	470
1 x 400	H25	22,8	40,4	53,1	3.315	0,0778	0,112	0,275	673	470
1 x 500 *	H16	26,4	43,9	56,6	3.650	0,0605	0,107	0,306	777	542
1 x 500 *	H25	26,4	43,9	56,6	3.740	0,0605	0,107	0,306	777	542
1 x 630	H16	29,9	47,4	60,1	4.225	0,0469	0,103	0,337	895	615
1 x 630	H25	29,9	47,4	60,1	4.315	0,0469	0,103	0,337	895	615
1 x 1000 *	H16	38,4	56,7	69,4	5.810	0,0291	0,096	0,419	1.188	795

* 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						
0,7 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.