

X-VOLT® AL (-OL/-2OL) RHZ1

Medium Voltage aluminium cable, XLPE insulation.

ACCORDING TO: IEC 60502-2



F_{ca}

APPLICATION

X-VOLT® RHZ1 is a Medium Voltage aluminium cable halogen-free 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, 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

Polyethylene type ST7 according to IEC 60502-2.

Red colour.

CHARACTERISTICS



Electrical performance

Medium Voltage: 3,6/6 (7,2) kV

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

Reaction to fire CPR: F_{ca} 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, fixed: 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: AD7 Immersion.



Installation conditions

Open Air.

Buried.

In conduit.

STANDARDS / COMPLIANCE



According to
IEC 60502-2



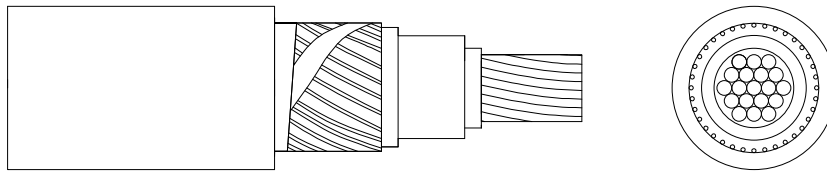
Standards and approvals
AENOR (except 3,6/6 (7,2) kV) / RETIE (18/30 (36) kV)



CPR (Construction Products Regulation)
F_{ca}



DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT[®] RHZ1 3,6/6 (7,2) 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 240	H16	17,9	24,1	30,6	1.210	0,125	0,093	0,571	502	367

X-VOLT[®] RHZ1 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 50	H16	7,9	15,1	21,2	540	0,641	0,121	0,262	184	152
1 x 95	H16	11,1	18,3	24,6	730	0,320	0,113	0,255	280	221
1 x 150	H16	13,9	21,1	27,0	915	0,206	0,100	0,381	368	281
1 x 240	H16	17,9	25,1	31,8	1.265	0,125	0,095	0,489	502	367
1 x 240	H35	17,9	25,1	32,1	1.450	0,125	0,096	0,489	502	367
1 x 300	H35	20,2	27,4	34,6	1.665	0,100	0,093	0,541	577	414
1 x 400	H16	22,8	30,6	37,7	1.820	0,0778	0,091	0,613	673	470
1 x 400	H25	22,8	30,6	37,7	1.905	0,0778	0,091	0,613	673	470
1 x 400	H35	22,8	30,6	38,0	2.000	0,0778	0,091	0,613	673	470
1 x 500	H16	26,4	34,1	41,4	2.140	0,0605	0,088	0,691	777	542
1 x 630	H16	29,9	37,6	45,3	2.635	0,0469	0,085	0,770	895	615
1 x 630	H50	29,9	37,6	45,9	2.975	0,0469	0,086	0,770	895	615
3 x 1 x 240	H35	17,9	25,1	69,0	4.390	0,125	0,096	0,489	502	367
3 x 1 x 300	H35	20,2	27,4	74,4	5.040	0,100	0,093	0,541	577	414
3 x 1 x 400	H35	22,8	30,6	81,7	6.065	0,0778	0,091	0,613	673	470

X-VOLT[®] RHZ1 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 95	H16	11,1	20,3	26,6	800	0,320	0,114	0,268	280	221
1 x 120	H16	12,9	22,1	28,6	915	0,253	0,109	0,298	324	252
1 x 150	H16	13,9	23,1	29,2	1.000	0,206	0,105	0,297	368	281
1 x 185	H25	15,5	24,7	31,4	1.235	0,164	0,107	0,323	424	317
1 x 240	H16	17,9	27,1	33,8	1.355	0,125	0,099	0,385	502	367
1 x 300	H16	20,2	29,4	36,3	1.580	0,100	0,096	0,424	577	414
1 x 400	H16	22,8	32,6	39,9	1.940	0,0778	0,094	0,479	673	470
1 x 500	H16	26,4	36,1	43,6	2.260	0,0605	0,091	0,538	777	542
1 x 630	H16	29,9	39,6	47,3	2.770	0,0469	0,088	0,598	895	615
1 x 800	H16	34,1	44,6	52,9	3.450	0,0367	0,087	0,683	1.036	700
1 x 800	H35	34,2	45,3	53,9	3.680	0,0367	0,088	0,695	1.036	700

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/-2OL) RHZ1

X-VOLT® RHZ1 12/20 (24) kV										
Cross-section (mm²)	Screen (mm²)	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 50	H16	7,9	18,9	25,2	665	0,641	0,132	0,184	184	152
1 x 70	H16	10,1	21,1	27,4	775	0,443	0,122	0,216	230	186
1 x 95	H16	11,1	22,1	28,6	875	0,320	0,119	0,230	280	221
1 x 95	H35	11,1	22,1	28,9	1.060	0,320	0,119	0,230	280	221
1 x 120	H16	12,9	23,9	30,4	990	0,253	0,113	0,255	324	252
1 x 120	H25	12,9	23,9	30,4	1.075	0,253	0,113	0,255	324	252
1 x 150	H16	14,0	25,0	31,7	1.090	0,206	0,111	0,272	368	281
1 x 150	H25	14,0	25,0	31,7	1.180	0,206	0,111	0,272	368	281
1 x 150	H35	14,1	25,1	32,1	1.280	0,206	0,112	0,270	368	281
1 x 185	H16	15,5	26,5	33,2	1.230	0,164	0,107	0,280	424	317
1 x 185	H25	15,5	26,5	33,2	1.320	0,164	0,107	0,280	424	317
1 x 240	H16	17,9	28,9	35,6	1.450	0,125	0,102	0,327	502	367
1 x 240	H25	17,9	28,9	35,7	1.540	0,125	0,102	0,327	502	367
1 x 240	H50	17,9	28,9	36,7	1.800	0,125	0,104	0,327	502	367
1 x 300	H16	20,2	31,2	38,3	1.685	0,100	0,100	0,359	577	414
1 x 300	H25	20,2	31,2	38,3	1.770	0,100	0,100	0,359	577	414
1 x 300	H50	20,2	31,2	39,0	2.020	0,100	0,101	0,359	577	414
1 x 400	H16	22,8	34,4	41,7	2.040	0,0778	0,097	0,404	673	470
1 x 400	H35	22,8	34,4	42,0	2.225	0,0778	0,097	0,404	673	470
1 x 400	H50	22,8	34,4	42,6	2.390	0,0778	0,098	0,404	673	470
1 x 500	H16	26,4	37,9	45,6	2.400	0,0605	0,094	0,453	777	542
1 x 500	H35	26,4	37,9	45,5	2.580	0,0605	0,094	0,453	777	542
1 x 500	H50	26,4	37,9	46,3	2.740	0,0605	0,095	0,453	777	542
1 x 630	H16	29,9	41,4	49,3	2.905	0,0469	0,091	0,470	895	615
1 x 630	H25	29,9	41,4	49,1	2.945	0,0469	0,090	0,470	895	615
1 x 630	H50	29,9	41,4	50,1	3.240	0,0469	0,091	0,470	895	615
1 x 800	H16	34,1	46,4	54,7	3.585	0,0367	0,089	0,572	1.036	700
1 x 800	H35	34,1	46,4	55,0	3.770	0,0367	0,090	0,572	1.036	700
1 x 1000	H16	38,4	50,7	60,1	4.365	0,0291	0,087	0,632	1.188	795
3 x 1 x 185	H16	15,5	26,5	71,9	3.765	0,164	0,107	0,280	424	317
3 x 1 x 185	H25	15,5	26,5	71,9	4.030	0,164	0,107	0,280	424	317
3 x 1 x 240	H16	17,9	28,9	77,5	4.445	0,125	0,102	0,327	502	367

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/-2OL) RHZ1

X-VOLT® RHZ1 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 50	H16	7,9	23,5	30,0	850	0,641	0,143	0,143	184	152
1 x 50	H25	7,9	23,5	30,0	940	0,641	0,143	0,143	184	152
1 x 70	H16	10,1	25,7	32,4	985	0,443	0,133	0,165	230	186
1 x 95	H16	11,1	26,7	33,4	1.085	0,320	0,128	0,175	280	221
1 x 95	H25	11,1	26,7	33,4	1.175	0,320	0,128	0,175	280	221
1 x 95	H35	11,1	26,7	33,7	1.085	0,320	0,128	0,175	280	221
1 x 120	H16	12,9	28,5	35,4	1.220	0,253	0,123	0,193	324	252
1 x 120	H25	12,9	28,5	35,4	1.305	0,253	0,123	0,193	324	252
1 x 120	H35	12,9	28,5	35,6	1.405	0,253	0,123	0,193	324	252
1 x 150	H16	14,0	29,6	36,5	1.325	0,206	0,119	0,205	368	281
1 x 150	H25	14,0	29,6	36,5	1.410	0,206	0,119	0,205	368	281
1 x 150	H35	13,9	29,5	37,0	1.520	0,206	0,120	0,205	368	281
1 x 185	H16	15,5	31,1	37,9	1.480	0,164	0,115	0,219	424	317
1 x 185	H25	15,7	31,3	38,4	1.585	0,164	0,115	0,220	424	317
1 x 185	H35	15,5	31,1	38,1	1.665	0,164	0,116	0,219	424	317
1 x 240	H16	17,9	33,5	40,8	1.730	0,125	0,111	0,224	502	367
1 x 240	H25	17,9	33,5	40,8	1.815	0,125	0,111	0,224	502	367
1 x 240	H35	17,9	33,5	41,1	1.915	0,125	0,111	0,242	502	367
1 x 300	H16	20,2	35,8	42,6	1.970	0,100	0,106	0,265	577	414
1 x 300	H25	20,2	35,8	42,6	2.055	0,100	0,106	0,265	577	414
1 x 300	H35	20,2	35,8	43,7	2.205	0,100	0,106	0,265	577	414
1 x 300	H50	20,2	35,8	50,0	2.315	0,100	0,108	0,265	577	414
1 x 400	H16	22,8	39,0	46,6	2.355	0,0778	0,104	0,296	673	470
1 x 400	H25	22,8	39,0	46,0	2.435	0,0778	0,103	0,296	673	470
1 x 400	H35	22,8	39,0	47,0	2.540	0,0778	0,103	0,296	673	470
1 x 500	H16	26,4	42,5	50,4	2.730	0,0605	0,100	0,330	777	542
1 x 500	H25	26,4	42,5	50,4	2.815	0,0605	0,100	0,330	777	542
1 x 500	H35	26,4	42,5	50,7	2.915	0,0605	0,100	0,330	777	542
1 x 630	H16	29,9	46,0	53,4	3.250	0,0469	0,096	0,363	895	615
1 x 630	H25	29,9	46,0	53,4	3.340	0,0469	0,096	0,363	895	615
1 x 630	H35	29,9	46,0	53,7	3.435	0,0469	0,096	0,363	895	615
1 x 630	H50	29,9	46,0	55,0	3.615	0,0469	0,098	0,363	895	615
1 x 800	H16	34,1	51,0	59,7	3.995	0,0367	0,094	0,411	1.036	700
1 x 800	H25	34,1	51,0	59,7	4.085	0,0367	0,094	0,411	1.036	700
1 x 800	H35	34,1	51,0	60,0	4.185	0,0367	0,094	0,411	1.036	700
1 x 1000	H16	38,4	55,3	64,2	4.760	0,0291	0,092	0,453	1.188	795
1 x 1000	H25	38,4	55,3	64,2	4.850	0,0291	0,092	0,453	1.188	795
3 x 1 x 95	H16	11,1	26,7	72,3	3.320	0,320	0,128	0,175	280	221
3 x 1 x 120	H16	12,9	28,5	76,1	3.705	0,253	0,123	0,193	324	252
3 x 1 x 150	H16	14,0	29,6	78,8	4.030	0,206	0,119	0,205	368	281
3 x 1 x 185	H16	15,5	31,1	81,8	4.530	0,164	0,115	0,219	424	317
3 x 1 x 240	H16	17,9	33,5	88,2	5.275	0,125	0,111	0,224	502	367
3 x 1 x 400	H16	22,8	39,0	100,1	7.130	0,0778	0,104	0,296	673	470

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/-2OL) RHZ1

SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm ²	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.