

X-VOLT[®] AL (-OL)

HEPRZ1 (AS)

Medium Voltage aluminium cable, HEPR insulation.

ACCORDING TO: UNE-HD 620-9E (type 9E-5) / NI 56.43.01



Cca

APPLICATION

X-VOLT[®] HEPRZ1 (AS) AL is a Medium Voltage aluminium cable halogen-free with low smoke emission and no fire propagation properties for the transmission and distribution of electricity.

CONSTRUCTION

Conductor

Aluminium class 2 according to EN 60228 and IEC 60228.

Conductor screen

Screen over the conductor, made of thermosetting semiconductor material.

Insulation

High module ethylene propylene rubber (HEPR) type DIH-2 according to HD 620-1, in dry atmosphere catenary tube, through a triple layer extrusion process.

Insulation screen

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

Metallic screen

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

Separator

Polyester tape completely covering the screen to facilitate the stripping of the outer sheath.

Optionally, substituted by hygroscopic tape (cables with longitudinal sealing, type -OL).

Filler

Additional fireproof polyolefin layer, halogen free.

Outer sheath

Polyolefin, halogen free type DMZ2 according to HD 620-1.

Red colour with two green stripes.

CHARACTERISTICS



Electrical performance

Medium Voltage: 12/20 (24) kV
18/30 (36) kV



Thermal performance

Maximum conductor temperature: 105°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 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
UNE-HD 620-9E (type 9E-5) / NI 56.43.01



Standards and approvals
AENOR



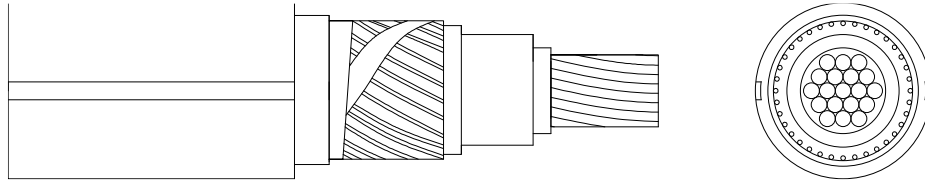
CPR (Construction Products Regulation)
C_{ca}-s1b, d2, a1



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DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT[®] HEPRZ1 (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 50	16	7,9	17,5	32,6	1.340	0,641	0,141	0,246	180	145
1 x 95	16	11,1	20,1	34,2	1.495	0,320	0,130	0,328	275	215
1 x 150	16	14,0	23,2	35,3	1.590	0,206	0,117	0,206	360	275
1 x 240	16	17,9	27,5	39,3	1.985	0,125	0,109	0,444	495	365
1 x 400	16	22,9	33,0	44,6	2.640	0,0778	0,101	0,551	660	470
1 x 630	16	29,9	40,0	51,6	3.570	0,0469	0,093	0,688	905	615

X-VOLT[®] HEPRZ1 (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 50	16	7,9	24,1	39,2	1.800	0,641	0,160	0,167	180	145
1 x 50	25	7,9	24,1	39,2	1.885	0,641	0,160	0,167	180	145
1 x 95	25	11,1	25,3	37,4	1.745	0,320	0,136	0,226	275	215
1 x 120 *	25	12,9	26,7	38,8	1.870	0,253	0,128	0,253	320	245
1 x 150	16	14,0	27,2	39,3	1.865	0,206	0,124	0,279	360	275
1 x 150	25	14,0	27,2	39,3	1.950	0,206	0,124	0,279	360	275
1 x 150 *	50	14,0	27,2	40,0	2.215	0,206	0,125	0,279	360	275
1 x 185 *	25	15,5	28,9	41,0	2.140	0,164	0,120	0,297	415	315
1 x 240	16	17,9	30,9	42,4	2.240	0,125	0,113	0,339	495	365
1 x 240	25	17,9	30,9	42,4	2.330	0,125	0,113	0,339	495	365
1 x 240 *	50	17,9	30,9	43,1	2.590	0,125	0,114	0,339	495	365
1 x 300 *	16	20,2	33,6	45,1	2.540	0,100	0,110	0,362	565	410
1 x 300 *	25	20,2	33,6	45,1	2.630	0,100	0,110	0,362	565	410
1 x 400	16	22,8	36,8	48,4	2.960	0,0778	0,106	0,405	660	470
1 x 400	25	22,8	36,8	48,4	3.050	0,0778	0,106	0,405	660	470
1 x 400 *	50	22,8	36,8	49,0	3.310	0,0778	0,107	0,405	660	470
1 x 500 *	16	26,4	40,3	51,9	3.370	0,0605	0,102	0,453	775	540
1 x 500 *	25	26,4	40,3	51,9	3.460	0,0605	0,102	0,453	775	540
1 x 630	25	29,9	43,8	55,4	4.025	0,0469	0,098	0,500	905	615
1 x 800 *	25	34,1	49,4	61,0	4.840	0,0367	0,096	0,545	1.065	710

* Cable based on UNE-HD 620-9E

¹ Three single-core cables in open air at 40°C ambient temperature according to UNE 211435.

² Three single-core cables direct buried at 1 m depth with soil thermal resistivity of 1,5 K-m/W and 25°C of ground temperature according to UNE 211435.

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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SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm²	281	199	162	126	89	73	63	56	51

CORRECTION FACTORS FOR AIR TEMPERATURE

Air T. (°C)	20	25	30	35	40	45	50	55	60
Factor	1,14	1,11	1,07	1,04	1	0,96	0,92	0,88	0,83

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (°C)	10	15	20	25	30	35	40	45	50
Factor	1,09	1,06	1,03	1	0,97	0,94	0,90	0,87	0,83

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

Moisture degree of soil	Very Damp	Slightly Damp	Slightly dry	Dry	Very dry	Very dry
Thermal resist. (K·m/W)	0,8	1	1,5	2	2,5	3
Factor	1,29	1,18	1	0,88	0,8	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 UNE 211435.