

X-VOLT®

RHVhMVh 3x Cu +H1

Medium Voltage copper cable, XLPE insulation and hydrocarbon resistant.

ACCORDING TO: IEC 60502-2. / Repsol ED-P-10.01-01



APPLICATION

Medium Voltage copper cable for the transmission and distribution of electricity. This cable is recommended for installations where there may be a risk of oils and/or hydrocarbon type chemical agents coming into contact with the cable.

- Distribution networks.

CONSTRUCTION

Conductor

Electrolytic annealed copper, class 2 according to EN 60228 and IEC 60228.

Conductor screen

Screen over the conductor, made of thermosetting semiconductor material.

Insulation

Cross-linked polyethylene type XLPE according to IEC 60502-2, in dry atmosphere catenary tube, through a triple layer extrusion process.

Insulation screen

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

Cores identification

The cores are identified with a tape placed along the cable between the external semiconductor and the metallic screen.

Colours are brown, green and yellow.

Metallic screen

Metallic screen made of copper tape. It consists in two copper tapes of 0,1 mm of thickness placed helicoidally and overlapped (H1 screen) over the outer semi-conducting screen.

Assembly of cores

The three cores are assembled helicoidally with the metallic screens in touch.

Separation sheath

PVC type ST2 according to IEC 60502-2.

The special compound gives a high level of resistance to hydrocarbons and mineral oils.

Armour

Galvanized steel wire wrapped helicoidally around the cable and fixed with a counter-wound metal tape.

Outer sheath

PVC type ST2 according to IEC 60502-2.

The special compound gives a high level of resistance to hydrocarbons and mineral oils.

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

Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 60332-3 / IEC 60332-3.
Reduced halogen emission. Chlorine < 15%.



Mechanical performance

Minimum bending radius: 15x cable diameter.
Abrasion resistant.
Tear resistant.



Environmental performance

Chemical resistance: Excellent.
Oil resistant: according to UIC 895 OR.
Hydrocarbon resistant: according to UIC 895 OR.



Installation conditions

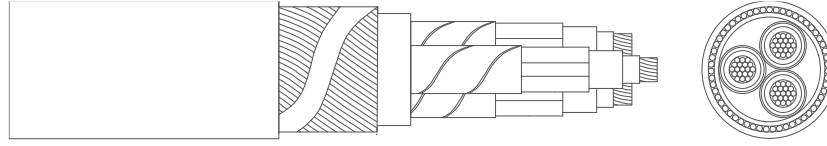
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE



According to
IEC 60502-2 / Repsol ED-P-10.01-01

DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT [®] RHVhMVh 3,6/6 (7,2) kV									
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R _{20°C} (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
3 x 50	8,5	14,5	48,5	5.265	0,387	0,093	0,308	205	181
3 x 70	10,0	16,0	52,1	6.265	0,268	0,089	0,348	253	220
3 x 95	11,1	17,1	54,9	7.600	0,193	0,086	0,377	307	262
3 x 120	12,8	18,8	59,0	8.455	0,153	0,083	0,421	352	298
3 x 150	15,0	21,0	64,1	10.035	0,124	0,080	0,479	397	332
3 x 185	16,5	22,5	67,9	11.670	0,0991	0,079	0,518	453	374
3 x 240	18,1	24,3	72,8	13.735	0,0754	0,078	0,541	529	431

X-VOLT [®] RHVhMVh 6/10 (12) kV									
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R _{20°C} (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
3 x 50	8,5	15,7	51,7	5.650	0,387	0,098	0,259	205	181
3 x 70	10,0	17,2	55,1	6.640	0,268	0,093	0,291	253	220
3 x 95	11,1	18,3	57,9	7.740	0,193	0,090	0,315	307	262
3 x 120	12,8	20,0	62,1	8.920	0,153	0,087	0,351	352	298
3 x 150	15,0	22,2	67,3	10.500	0,124	0,084	0,398	397	332
3 x 185	16,5	23,7	70,7	12.030	0,0991	0,082	0,430	453	374
3 x 240	18,1	25,6	75,4	14.090	0,0754	0,081	0,445	529	431

X-VOLT [®] RHVhMVh 8,7/15 (17,5) kV									
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R _{20°C} (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
3 x 35	7,2	16,4	53,2	5.710	0,524	0,110	0,188	172	154
3 x 50	8,5	17,7	56,2	6.480	0,387	0,105	0,209	205	181
3 x 70	10,0	19,2	59,8	7.560	0,268	0,100	0,234	253	220
3 x 95	11,1	20,3	62,6	8.685	0,193	0,097	0,252	307	262
3 x 120	12,8	22,0	66,8	9.760	0,153	0,093	0,279	352	298
3 x 150	15,0	24,2	71,8	11.375	0,124	0,089	0,315	397	332
3 x 240	18,1	27,3	80,0	14.970	0,0754	0,085	0,354	529	431

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

² Three core armoured 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.

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[®] CU

RHVhMVh 3x Cu +H1

X-VOLT [®] RHVhMVh 12/20 (24) kV									
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R _{20°C} (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
3 x 35	7,2	18,2	57,5	6.210	0,524	0,117	0,163	172	154
3 x 50	8,5	19,5	60,5	6.960	0,387	0,111	0,181	205	181
3 x 70	10,0	21,0	64,1	8.070	0,268	0,127	0,201	253	220
3 x 95	11,1	22,1	67,5	9.550	0,193	0,102	0,216	307	262
3 x 120	12,8	23,8	70,9	10.410	0,153	0,098	0,239	352	298
3 x 150	15,0	26,0	76,2	12.095	0,124	0,093	0,268	397	332
3 x 185	16,5	27,5	79,9	13.760	0,0991	0,091	0,288	453	374
3 x 240	18,1	29,1	83,9	15.750	0,0754	0,089	0,309	529	431

X-VOLT [®] RHVhMVh 18/30 (36) kV									
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	External Diameter (mm)	Weight (Kg/Km)	R _{20°C} (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹	Buried (A) ²
3 x 50	8,5	24,1	71,5	8.875	0,387	0,125	0,140	205	181
3 x 150	15,0	30,6	86,7	14.180	0,268	0,104	0,201	397	332

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

² Three core armoured 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.

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[®] CU

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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/mm ²	452	320	261	202	143	117	101	90	83

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

Direct buried cables Thermal resist. (K·m/W)	0,7	0,8	0,9	1	1,5	2	2,5	3
Factor 3x35	1,25	1,21	1,17	1,13	1	0,91	0,83	0,78
Factor 3x120	1,26	1,22	1,18	1,14	1	0,9	0,83	0,77
Factor 3x240	1,28	1,23	1,19	1,15	1	0,9	0,83	0,77

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.