

HIGH VOLTAGE CABLE

APPLICATION

Cable for power distribution and power supply stations used in Utility and Industrial applications, for rated voltages 26/45kV and 36/60kV. Suitable for fixed installations, underground in ducts or directly buried.

CABLE DESIGNATION

Cu / XLPE / Cu Wire Screen / Al Tape / PE: XHIOLE(cbe)

Al / XLPE / Cu Wire Screen / Al Tape / PE: LXHIOLE(cbe)

CONSTRUCTION CHARACTERISTICS

Conductor

Plain annealed Copper or Aluminium, circular, stranded, class 2 per IEC 60228.

Insulation

Semi-conductive screen over the conductor, XLPE (cross-linked polyethylene) insulation and Semi-conductive screen over the insulation (adhered), applied by simultaneous extrusion in just one operation.

Metallic Screen

Annealed copper wires, helically wound and an equalising copper tape applied in an open counter-helix. Cross-section area of screen according to client request.

Oversheath

Aluminium copolymer coated tape, longitudinally applied, bonded to the extruded PE oversheath, type ST7.

Upon agreement, an extruded semi-conductive thin layer may be applied on the surface of the oversheath, to facilitate the detection and location of defective points.

Watertightness option

(cbe) – Conductor and metallic screen longitudinally watertight. Conductor: Use of waterblocking yarns and/or tapes between wire layers; Metallic screen: Assured by application of semi-conductive waterblocking tapes under and over the screen.

L – Radial watertightness provided by the aluminium-coated tape.

COLOUR AND CABLE MARKING

Black (other upon agreement). Oversheath marked at regular intervals with the following information:

CABELTE < cable designation > 1 x < cond. cross-section > / < screen cross-section (if copper wires screen) > < rated voltage > < order of manufacture > / < year of manufacture > < metric marking >

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 · IEC 60840
Rated voltage U_0 / $U(U_m)$	26/45 (52) kV – 36/60 (72,5) kV
Test voltage	2,5 x U_0
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C ($t \leq 5s$)



GENERAL CHARACTERISTICS

Minimum bending radius – during installation (mm) 30 x d



Minimum bending radius – after installation (mm) 15 x d

Maximum pulling force over conductor (N) Copper – 50 x S
Aluminium – 30 x S



d – cable outer diameter (mm) • S – conductor cross-section (mm²)

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Copper conductor constructions

Voltage		Conductor cross-section	Diameter over insulation	Approx. outer diameter	Approx. weight	Current carrying capacity 		Cond. max. short-circuit current, t=1s	Cond. DC resistance @ 20°C	Inductance 	Capacitance
U _o / U (kV)	Um (kV)					In air	Buried				
36/60	72,5	185	43,5	60,0	4.980	526	407	26,5	0,0991	0,46	0,15
		400	51,6	68,0	7.250	795	578	57,2	0,0470	0,40	0,20
		630	60,6	77,0	9.970	1 015	710	90,1	0,0283	0,37	0,25

Aluminium conductor constructions

Voltage		Conductor cross-section	Diameter over insulation	Approx. outer diameter	Approx. weight	Current carrying capacity 		Cond. max. short-circuit current, t=1s	Cond. DC resistance @ 20°C	Inductance 	Capacitance
U _o / U (kV)	Um (kV)					In air	Buried				
36/60	72,5	185	43,5	60,0	3.900	415	322	17,5	0,164	0,46	0,15
		400	51,5	68,0	4.840	637	467	37,8	0,0778	0,40	0,20
		630	60,5	77,0	6.090	857	597	59,5	0,0469	0,37	0,25
		1 000	69,0	86,0	7.620	1 082	724	94,5	0,0291	0,34	0,29

Current carrying capacity calculated considering the following conditions:

- Maximum conductor temperature = 90°C

- Cables in air: Ambient temperature = 30°C

- Cables directly buried: Ground temperature = 20°C • Depth of laying = 1,3 m • Thermal resistivity of soil = 1,2K.m/W