



D_{ca}

APPLICATION

X-VOLT® TSLI is a halogen free cable for fixed installations. Suitable for transport and distribution of electric power in medium voltage networks. This cable is suitable for indoor, outdoor and buried installations.

CONSTRUCTION

Conductor

Aluminium class 2 according to IEC 60228. Hygroscopic tapes applied to achieve longitudinal watertightness on the conductor.

Conductor screen

Semiconducting screen applied over conductor in a triple-extrusion process.

Insulation

Cross-linked polyethylene type DIX 8 according to HD 620-1; natural colour.

Crosslinked in catenary line with nitrogen atmosphere.

Insulation screen

Semiconductor screen applied over insulation in a triple-extrusion process. Bonded to the insulation layer.

Longitudinal water-blocking

Semi-conducting swellable tape, helically applied.

Metallic screen

Metallic screen with copper wires, applied over the semi-conducting swellable tape.

Radial water-blocking barrier

Made up of an aluminium foil/polymer laminate bonded to the outer sheath.

Outer sheath Halogen free

Polyethylene type DMP 17 according to HD 620-1. Black colour

CHARACTERISTICS

- Electrical performance**
Maximum voltage: 12, 24 and 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: D_{ca}-s1a, 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 > 80%.
- Mechanical performance**
Minimum bending radius: 15x cable diameter.
Abrasion resistant.
Tear resistant.
- Environmental performance**
Water resistance: AD8 Submersion.
- Installation conditions**
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE



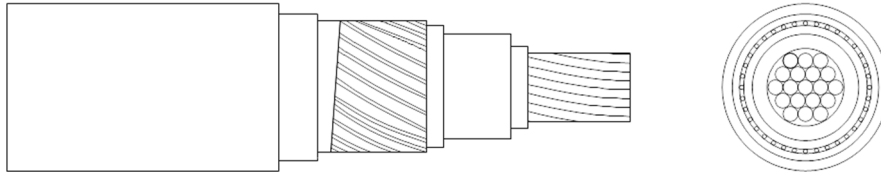
Based on
HD 620-10K



CPR (Construction Products Regulation)
D_{ca}-s1a, d2, a1



DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® TSLI 12kV

Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	External Diameter (mm)	Weight (Kg/Km)	R20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹		Buried (A) ²	
									Trefoil	Flat spaced	Trefoil	Flat spaced
1 x 240	18,0	25,8	35	35,8	1.675	0,125	0,102	0,426	522	617	389	395
1 x 300	20,0	27,8	35	37,8	1.880	0,100	0,099	0,465	600	704	438	443
1 x 400	22,8	30,9	35	38,9	2.085	0,0778	0,093	0,525	700	800	498	494
1 x 500	26,3	35,2	35	43,2	2.475	0,0605	0,090	0,608	808	955	574	572
1 x 630	29,8	38,7	35	46,7	2.935	0,0469	0,087	0,675	931	1.092	652	647

X-VOLT® TSLI 24kV

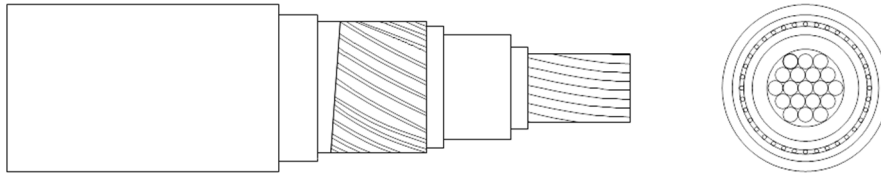
Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	External Diameter (mm)	Weight (Kg/Km)	R20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹		Buried (A) ²	
									Trefoil	Flat spaced	Trefoil	Flat spaced
1 x 50	8,1	20,1	16	31,1	1.055	0,641	0,143	0,164	191	231	160	165
1 x 95	11,1	23,1	25	34,1	1.330	0,320	0,129	0,201	291	352	232	240
1 x 150	13,9	25,9	25	36,0	1.445	0,206	0,119	0,235	383	458	295	303
1 x 240	18,0	30,0	35	38,0	1.765	0,125	0,106	0,285	522	617	389	395
1 x 400	22,8	35,0	35	43,0	2.340	0,0778	0,099	0,345	700	800	498	494
1 x 630	29,8	42,0	50	50,3	3.305	0,0469	0,092	0,429	931	1.092	652	647
1 x 800	34,0	47,1	50	56,0	4.035	0,0367	0,090	0,490	1.077	1.253	743	736
3 x 1 x 50	8,1	20,1	16	66,8	3.190	0,641	0,134	0,164	191	-	160	-
3 x 1 x 95	11,1	23,1	25	73,3	4.030	0,320	0,129	0,201	291	-	232	-
3 x 1 x 150	13,9	25,9	25	77,2	4.370	0,206	0,119	0,235	383	-	295	-
3 x 1 x 240	18,0	30,0	35	81,4	5.350	0,125	0,106	0,285	522	-	389	-
3 x 1 x 630	29,8	42,0	50	108,1	10.015	0,0469	0,092	0,429	931	-	652	-

¹Open air installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation and ambient temperature of 25 °C; protected from direct sun radiation and with adequate ventilation (supported by cleats and hangers or on perforated tray).

²Buried installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation direct buried at a depth of 0,7 m, ground temperature of 15 °C and soil thermal resistivity of 1,5 K·m/W.

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.

X-VOLT® AI TSLI



X-VOLT® TSLI 36kV

Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	External Diameter (mm)	Weight (Kg/Km)	R20°C (Ω/km)	X (Ω/km)	C (μF/km)	Open air (A) ¹		Buried (A) ²	
									Trefoil	Flat spaced	Trefoil	Flat spaced
1 x 150	13,9	30,9	25	39,9	1.740	0,206	0,125	0,178	383	458	295	303
1 x 240	18,0	35,0	35	43,1	2.080	0,125	0,113	0,213	522	617	389	395
1 x 400	22,8	41,0	35	48,0	2.690	0,0778	0,106	0,254	700	800	498	494
1 x 630	29,8	47,0	50	55,7	3.755	0,0469	0,098	0,313	931	1.092	652	647

¹ Open air installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation and ambient temperature of 25 °C; protected from direct sun radiation and with adequate ventilation (supported by cleats and hangers or on perforated tray).

² Buried installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation direct buried at a depth of 0,7 m, ground temperature of 15 °C and soil thermal resistivity of 1,5 K·m/W.

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.

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	1,04	1	0,96	0,92	0,88	0,84	0,79	0,73	0,68

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (°C)	10	15	20	25	30	35	40	45	50
Factor	1,03	1	0,96	0,92	0,89	0,86	0,82	0,77	0,73

CORRECTION FACTORS FOR THERMAL RESISTIVITY OF THE GROUND IN CABLES DIRECTLY BURIED

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
50 mm²	1,26	1,16	1	0,89	0,81	0,74
95 mm²	1,28	1,18	1	0,89	0,80	0,74
120 mm²	1,28	1,18	1	0,88	0,80	0,74
150 mm²	1,28	1,18	1	0,88	0,80	0,74
185 mm²	1,29	1,18	1	0,88	0,80	0,74
240 mm²	1,29	1,18	1	0,88	0,80	0,73
300 mm²	1,30	1,19	1	0,88	0,80	0,73
400 mm²	1,30	1,19	1	0,88	0,79	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.