



E_{ca}

APPLICATION

X-VOLT[®] TSLF 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 EN 60228 and IEC 60228.

Hygroscopic tapes applied to achieve longitudinal watertightness on the conductor.

Conductor screen

Cross-linked semiconductor screen applied over conductor in a triple-extrusion process.

Insulation

Cross-linked polyethylene insulation type DIX8 according to HD 620-1; natural colour.

Cross-linked in catenary line with nitrogen atmosphere.

Insulation screen

Cross-linked semiconductor screen applied over insulation in a triple-extrusion process. Bonded to the insulation layer.

Longitudinal water-blocking

Hygroscopic tape completely covering the screen.

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

Polyethylene type DMP 17 according to HD 620-1.

Black colour (with conductive covering).

CHARACTERISTICS

-  **Electrical performance**
Maximum voltage: 12kV, 24kV and 36kV.
-  **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: E_{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: 15x cable diameter.
Abrasion resistant.
Tear resistant.
-  **Environmental performance**
Water resistance: AD8 Submersion.
-  **Installation conditions**
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE



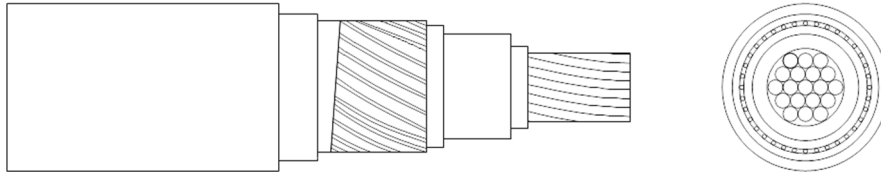
Based on
HD 620-10K



CPR (Construction Products Regulation)
E_{ca}



DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® TSLF 12kV

Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	Sheath Thickness (mm)	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 400	22,9	30,9	35	2,2	38,7	1.965	0,0778	0,092	0,524	700	800	498	494
1 x 500	26,3	35,2	35	2,3	43,3	2.360	0,0605	0,090	0,607	808	955	574	572
1 x 630	29,8	38,7	35	2,4	46,9	2.825	0,0469	0,088	0,674	931	1.092	652	647
1 x 800	34,0	43,7	50	2,6	52,6	3.605	0,0367	0,086	0,771	1.077	1.253	743	736

X-VOLT® TSLF 24kV

Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	Sheath Thickness (mm)	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	8,10	20,1	16	1,8	27,1	695	0,641	0,134	0,164	191	231	160	165
1 x 95	11,1	23,1	25	1,9	30,3	945	0,320	0,122	0,202	291	352	232	240
1 x 150	13,9	25,9	25	2,0	33,3	1.180	0,206	0,114	0,236	383	458	295	303
1 x 240	18,0	30,0	35	2,2	37,8	1.660	0,125	0,106	0,286	522	617	389	395
1 x 300	20,6	32,6	35	2,2	40,4	1.875	0,100	0,102	0,316	600	704	438	443
1 x 400	22,9	35,1	35	2,3	43,1	2.230	0,0778	0,100	0,360	700	800	498	494
1 x 500	26,3	39,4	35	2,4	47,6	2.660	0,0605	0,096	0,398	808	955	574	572
1 x 630	29,8	42,0	50	2,5	50,7	3.200	0,0469	0,094	0,439	931	1.092	652	647
1 x 800	34,0	47,9	50	2,8	57,2	3.970	0,0367	0,091	0,499	1.077	1.253	743	736
3 x 1 x 50	8,1	20,1	16	1,8	58,2	2.110	0,641	0,134	0,165	191	-	160	-
3 x 1 x 95	11,1	23,1	25	1,9	65,1	2.860	0,320	0,122	0,202	291	-	232	-
3 x 1 x 150	13,9	25,9	25	2,0	71,6	3.565	0,206	0,114	0,236	383	-	295	-
3 x 1 x 240	18,0	30,0	35	2,2	81,3	5.020	0,125	0,106	0,286	522	-	389	-
3 x 1 x 300	20,6	32,6	35	2,2	86,9	5.680	0,100	0,102	0,316	600	-	438	-
3 x 1 x 400	22,9	35,1	35	2,3	92,4	6.745	0,0778	0,100	0,360	700	-	498	-
3 x 1 x 630	29,8	42,0	50	2,5	109,0	9.685	0,0469	0,094	0,439	931	-	652	-

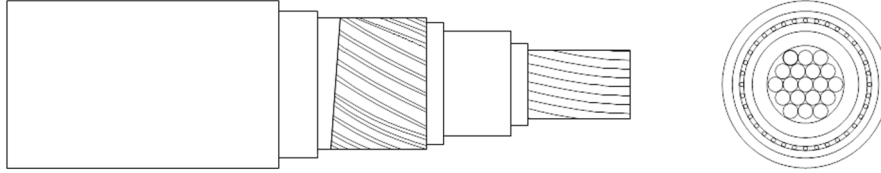
¹Open air installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation and ambient temperature of 25 °C; protected from direct sun radiation and with adequate ventilation (supported by cleats and hangers or on perforated tray).

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.

DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® TSLF 36kV

Cross-section (mm ²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm ²)	Sheath Thickness (mm)	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 95	11,1	28,1	25	2,1	35,7	1.210	0,320	0,132	0,154	291	352	232	240
1 x 150	13,9	30,9	35	2,2	38,8	1.545	0,206	0,124	0,179	383	458	295	303
1 x 240	18,0	35,0	35	2,3	43,1	1.965	0,125	0,114	0,216	522	617	389	395
1 x 300	20,6	37,6	35	2,4	45,8	2.225	0,100	0,109	0,235	600	704	438	443
1 x 400	22,9	41,1	35	2,5	48,4	2.590	0,0778	0,107	0,265	700	800	498	494
1 x 500	26,3	44,4	35	2,6	53,1	3.060	0,0605	0,103	0,291	808	955	574	572
1 x 630	29,8	47,0	50	2,7	56,1	3.615	0,0469	0,100	0,320	931	1.092	652	647
1 x 800	34,0	52,9	50	3,0	62,6	4.445	0,0367	0,097	0,362	1.077	1.253	743	736
3 x 1 x 95	11,1	28,1	25	2,1	76,7	3.655	0,320	0,132	0,154	291	-	232	-
3 x 1 x 150	13,9	30,9	35	2,2	83,3	4.675	0,206	0,124	0,179	383	-	295	-
3 x 1 x 240	18,0	35,0	35	2,3	92,5	5.945	0,125	0,114	0,216	522	-	389	-
3 x 1 x 300	20,6	37,6	35	2,4	98,5	6.730	0,100	0,109	0,235	600	-	438	-
3 x 1 x 400	22,9	41,1	35	2,5	104,0	7.845	0,0778	0,107	0,265	700	-	498	-

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.

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.