X-VOLT® Al
TSXI 12 - 24 - 36 kV

Cable for fixed installations.

BASED ON: HD 620-10K



D_{ca}

APPLICATION

X-VOLT® TSXI 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.
Water-blocking powders 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 DIX15 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 hygroscopic tape completely covering the insulation screen.
Metallic screen
Metallic screen with copper wires, applied over the semi-conducting swellable tape.
Semi-conducting layer
Semi-conducting tape covering the metallic screen.
Outer sheath Halogen free
Halogen free polyolefin type ST8 according to IEC 60502-2.
Black colour

CHARACTERISTICS

Electrical performance
Maximum voltage: 12 kV
24 kV
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}-s2,d2,a2 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, fixed: 15x cable diameter.
Minimum bending radius during installation: 30x cable diameter.

Environmental performance
Water resistance: AD6 Waves (IEC 60364-5-51).

Installation conditions
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

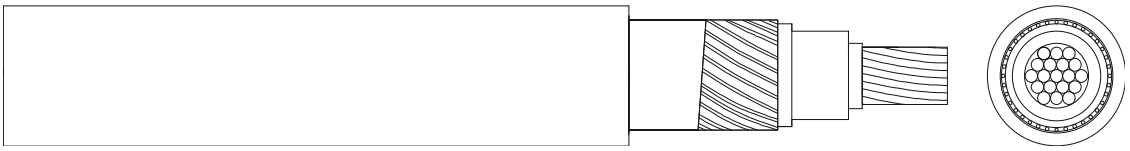
Based on
HD 620-10K

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DIMENSIONS & ADMISSIBLE INTENSITIES



X-VOLT® TSXI 12kV

Cross-section (mm²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm²)	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]	
									Trefoil	Flat spaced	Trefoil	Flat spaced
1 x 240	18,1	25,3	35	33,3	1.645	0,125	0,0975	0,494	522	617	389	395
1 x 300	20,3	275	35	35,5	1.860	0,100	0,0943	0,543	600	704	438	443
1 x 400	23,0	30,8	35	38,8	2.225	0,0778	0,0920	0,617	700	800	498	494
1 x 500	26,5	34,8	35	42,8	2.595	0,0605	0,0893	0,707	808	955	574	572
1 x 630	30,1	38,4	35	46,4	3.095	0,0469	0,0864	0,788	931	1.092	652	647

X-VOLT® TSXI 24kV

Cross-section (mm²)	Conductor Diameter (mm)	Insulation Diameter (mm)	Metallic Screen (mm²)	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]	
									Trefoil	Flat spaced	Trefoil	Flat spaced
1 x 50	8,0	19,0	16	26,7	830	0,641	0,135	0,186	191	231	160	165
1 x 95	11,3	22,3	25	30,0	1.145	0,320	0,121	0,233	291	352	232	240
1 x 150	14,1	25,1	25	34,8	1.530	0,206	0,116	0,273	383	458	295	303
1 x 240	18,1	29,1	35	37,1	1.850	0,125	0,104	0,330	522	617	389	395
1 x 400	23,0	34,6	35	42,6	2.450	0,0778	0,0979	0,407	700	800	498	494
1 x 630	30,1	42,2	50	50,6	3.500	0,0469	0,0918	0,513	931	1.092	652	647
1 x 800 *	34,2	47,1	50	55,4	4.000	0,0367	0,0896	0,581	1.077	1.253	743	736
1 x 1000 *	39,0	51,9	50	60,4	4.850	0,0291	0,0867	0,648	1.235	1.428	843	829
3 x 1 x 50	8,0	19,0	16	57,5	2.510	0,641	0,135	0,186	191	-	160	-
3 x 1 x 95	11,3	22,3	25	64,6	3.470	0,320	0,121	0,233	291	-	232	-
3 x 1 x 150	14,1	25,1	25	74,9	4.630	0,206	0,116	0,273	383	-	295	-
3 x 1 x 240	18,1	29,1	35	79,7	5.605	0,125	0,104	0,330	522	-	389	-
3 x 1 x 400	23,0	34,6	35	91,6	7.425	0,0778	0,0979	0,407	700	-	498	-
3 x 1 x 630	30,1	42,2	50	108,7	10.605	0,0469	0,0918	0,513	931	-	652	-

* Cables outside of the range of the standard.

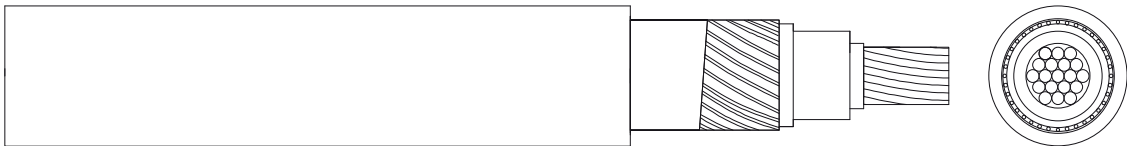
[1] Open air installation according to IEC 60502-2: three single-core cables in trefoil or flat spaced formation and ambient temperature of 25 °C; protected from direct sun radiation and with adequate ventilation (supported by cleats and hangers or on perforated tray).
[2] Buried installation according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

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X-VOLT® TSXI 36kV												
Cross-section (mm²)	**Conductor Diameter (mm)**	**Insulation Diameter (mm)**	**Metallic Screen (mm²)**	**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]**	
									Trefoil	**Flat spaced**	**Trefoil**	**Flat spaced**
1 x 150	14,1	29,7	25	38,4	1.705	0,206	0,122	0,205	383	458	295	303
1 x 240	18,1	33,7	35	41,7	2.125	0,125	0,112	0,244	522	617	389	395
1 x 400	23,0	39,2	35	47,2	2.765	0,0778	0,104	0,298	700	800	498	494
1 x 630	30,1	46,8	50	55,6	3.915	0,0469	0,0977	0,371	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.

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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	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.

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