

APPLICATION

Cable for power distribution and power supply stations used in Utility and Industrial applications, for rated voltages up to 18/30kV. Suitable for fixed installations, indoor or outdoor, in open air on cable trays, or underground in ducts or directly buried.

CABLE DESIGNATION

A: Cu / XLPE / Cu Tape screen / PVC or PE

B: Cu / XLPE / Cu Wire screen / PVC or PE

C: Al / XLPE / Cu Tape screen / PVC or PE

D: Al / XLPE / Cu Wire screen / PVC or PE

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 (strippable)¹, applied by simultaneous extrusion in just one operation.

Metallic Screen

Copper wire screen – annealed copper wires helically wound and an equalising copper tape applied in an open counter-helix.

Poly Propylene tape is applied over the screen.

Or **Copper tape screen** – a copper tape, helically applied with overlap.

Oversheath

Extruded PVC or PE.



MEDIUM VOLTAGE CABLES

Cu or Al - XLPE - Cu - PVC or PE

Single Core Cable

Unarmoured - XLPE Insulation - IEC 60502-2

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-2
Rated voltage $U_0/ U(U_m)$	3.6/6 (7.2) kV • 6/10 (12) kV • 8.7/15 (17.5) kV • 12/20 (24) kV • 18/30 (36) kV
Standard cross-section of wire screen (mm ²)	16 • 25 • 35
Test voltage	3.5 x U_0
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius – during installation (mm)	25 x d
Minimum bending radius – after installation (mm)	20 x d
Maximum pulling force over conductor (N)	Copper – 50 x S • Aluminium – 30 x S
Flame retardant (for PVC oversheath)	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
Fire retardant (for PVC oversheath. upon agreement)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 cm)

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

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Copper conductor constructions

Voltage		Conductor cross-section	Diameter over insulation	Approx. outer diameter	Approx. weight B-PVC	Current carrying capacity		Cond. max. short-circuit current, t=1s	Max symmetrical short-circuit for 3 second	Cond. DC resistance @ 20°C	Inductance	Capacitance
U_0/ U (kV)	U_m (kV)	(mm ²)	(mm)	(mm)	(kg/km)	In air (A)	Buried (A)	(kA)	(kA)	(Ω/km)	(mH/km)	(μF/km)
Copper conductor												
3.6/6	7.2	25	13.8	20.0	655	157	144	3.6	2.0	0.7270	0.41	0.27
		35	14.8	21.0	770	190	171	5.0	2.9	0.5240	0.39	0.30
		50	16.0	22.5	905	229	202	7.1	4.1	0.3870	0.37	0.33
		70	17.6	24.0	1120	286	246	10.0	5.8	0.2680	0.35	0.38
		95	19.4	26.0	1400	350	293	13.6	7.8	0.1930	0.33	0.43
		120	20.8	28.0	1675	406	332	17.2	9.9	0.1530	0.32	0.48
		150	22.3	29.0	1930	461	372	21.4	12.3	0.1240	0.31	0.51
		185	23.8	30.5	2305	526	418	26.5	15.3	0.0991	0.30	0.54
		240	26.6	33.5	2885	630	483	34.3	19.8	0.0754	0.29	0.60
		300	28.6	37.0	3555	731	541	42.9	24.8	0.0601	0.28	0.63
		400	32.6	40.5	4505	851	608	57.2	33.0	0.0470	0.28	0.66
		500	36.0	44.0	5480	956	675	71.5	41.2	0.0366	0.27	0.69
6/10	12	630	40.0	47.5	7110	1095	753	90.1	52.0	0.0283	0.27	0.76
		25	15.6	22.0	730	170	155	3.6	2.0	0.7270	0.47	0.23
		35	16.6	23.0	835	205	180	5.0	2.9	0.5240	0.44	0.25
		50	17.8	24.5	985	245	215	7.1	4.1	0.3870	0.42	0.28
		70	19.4	26.0	1210	310	260	10.0	5.8	0.2680	0.39	0.31
		95	21.2	28.0	1500	375	315	13.6	7.8	0.1930	0.38	0.35
		120	22.6	30.0	1760	435	355	17.2	9.9	0.1530	0.36	0.38
		150	24.1	31.0	2040	495	395	21.4	12.3	0.1240	0.35	0.41

MEDIUM VOLTAGE CABLES

Cu or Al - XLPE - Cu - PVC or PE

Single Core Cable
Unarmoured - XLPE Insulation - IEC 60502-2

Voltage		Conductor cross- -section	Diameter over insulation	Approx. outer diameter	Approx. weight B-PVC	Current carrying capacity		Cond. max. short-circuit current, t=1s	Max symmetrical short-circuit for 3 second	Cond. DC resistance @ 20°C	Inductance	Capacitance
U ₀ / U (kV)	Um (kV)					In air (A)	Buried (A)					
Copper conductor												
6/10	12	185	25.8	32.5	2405	570	450	26.5	15.3	0.0991	0.34	0.45
		240	28.2	35.5	2990	670	520	34.3	19.8	0.0754	0.33	0.50
		300	30.4	38.0	3640	770	580	42.9	24.8	0.0601	0.32	0.54
		400	33.4	41.5	4580	890	650	57.2	33.0	0.0470	0.31	0.60
		500	36.4	44.5	5530	1020	740	71.5	41.2	0.0366	0.30	0.66
		630	40.5	48.0	7140	1190	830	90.1	52.0	0.0283	0.26	0.78
8.7/15	17.5	25	17.8	24.5	820	170	155	3.6	2.0	0.7270	0.47	0.18
		35	18.8	25.5	930	205	180	5.0	2.9	0.5240	0.44	0.20
		50	20.0	26.5	1075	245	215	7.1	4.1	0.3870	0.42	0.22
		70	21.6	28.5	1320	310	260	10.0	5.8	0.2680	0.39	0.25
		95	23.4	30.5	1595	375	315	13.6	7.8	0.1930	0.38	0.27
		120	24.8	32.0	1880	435	355	17.2	9.9	0.1530	0.36	0.30
		150	26.3	33.5	2145	495	395	21.4	12.3	0.1240	0.35	0.32
		185	28.0	35.0	2535	570	450	26.5	15.3	0.0991	0.34	0.34
		240	30.4	37.5	3130	670	520	34.3	19.8	0.0754	0.33	0.38
		300	32.6	40.5	3775	770	580	42.9	24.8	0.0601	0.32	0.42
		400	35.6	43.5	4720	890	650	57.2	33.0	0.0470	0.31	0.43
		500	38.6	47.0	5685	1020	740	71.5	41.2	0.0366	0.30	0.47
630	42.6	50.5	7315	1190	830	90.1	52.0	0.0283	0.28	0.52		
12/20	24	35	21.2	27.5	1025	198	183	5.0	2.9	0.5240	0.46	0.16
		50	22.4	29.0	1170	238	216	7.1	4.1	0.3870	0.44	0.18
		70	24.0	31.0	1425	296	263	10.0	5.8	0.2680	0.42	0.20
		95	25.8	32.5	1705	361	314	13.6	7.8	0.1930	0.41	0.21
		120	27.2	34.5	2000	417	355	17.2	9.9	0.1530	0.40	0.23
		150	28.7	35.5	2270	473	398	21.4	12.3	0.1240	0.39	0.25
		185	30.4	37.0	2660	543	448	26.5	15.3	0.0991	0.37	0.27
		240	32.8	39.5	3250	641	517	34.3	19.8	0.0754	0.36	0.30
		300	35.0	42.5	3920	735	581	42.7	24.8	0.0601	0.35	0.33
		400	38.0	45.5	4880	845	658	57.2	33.0	0.0470	0.33	0.37
		500	41.0	49.0	5855	956	740	71.5	41.2	0.0366	0.32	0.40
		630	45.0	52.5	7510	1095	829	90.1	52.0	0.0283	0.31	0.45
18/30	36	50	27.8	34.5	1630	248	232	7.1	4.1	0.3870	0.48	0.14
		70	29.4	36.0	1900	307	284	10.0	5.8	0.2680	0.46	0.16
		95	31.2	38.0	2250	373	339	13.6	7.8	0.1930	0.44	0.17
		120	32.6	39.5	2540	429	385	17.2	9.9	0.1530	0.43	0.18
		150	34.1	41.0	2970	484	430	21.4	12.3	0.1240	0.41	0.19
		185	35.8	42.0	3410	552	484	26.5	15.3	0.0991	0.40	0.21
		240	38.2	45.0	4040	649	559	34.3	19.8	0.0754	0.38	0.23
		300	40.4	48.0	4730	737	627	42.9	24.8	0.0601	0.37	0.25
		400	43.4	51.0	5740	861	701	57.2	33.0	0.0470	0.36	0.27
		500	46.4	54.5	6850	993	786	71.5	41.2	0.0366	0.35	0.30
		630	50.4	58.0	8350	1139	875	90.1	52.0	0.0283	0.33	0.33

MEDIUM VOLTAGE CABLES

Cu or Al - XLPE - Cu - PVC or PE

Single Core Cable
Unarmoured- XLPE Insulation- IEC 60502-2

ALUMINIUM CONDUCTOR CONSTRUCTIONS

Voltage		Conductor cross- -section	Diameter over insulation	Approx. outer diameter	Approx. weight B-PVC	Current carrying capacity		Cond. max. short-circuit current, t=1s	Max symmetrical short-circuit for 3 second	Cond. DC resistance @ 20°C	Inductance	Capacitance
U ₀ / U (kV)	Um (kV)					In air (A)	Buried (A)					
Aluminium conductor												
3.6/6	7.2	25	13.8	20.0	505	121	111	2.3	1.3	1.2000	0.41	0.27
		35	14.8	21.0	560	147	132	3.2	1.9	0.8680	0.39	0.30
		50	16.0	22.0	615	176	156	4.7	2.7	0.6410	0.37	0.33
		70	17.6	24.0	705	221	191	6.5	3.8	0.4430	0.35	0.38
		95	19.4	25.5	830	270	227	8.9	5.1	0.3200	0.33	0.42
		120	20.8	27.5	950	315	260	11.2	6.5	0.2530	0.32	0.47
		150	22.3	29.0	1055	357	290	14.1	8.1	0.2060	0.31	0.51
		185	23.8	30.5	1205	411	326	17.4	10	0.1640	0.30	0.55
		240	26.6	33.5	1425	489	378	22.5	13	0.1250	0.29	0.60
		300	28.6	37.0	1695	571	426	28.1	16.3	0.1000	0.28	0.63
		400	32.6	40.0	2055	670	484	37.6	21.8	0.0778	0.28	0.66
		500	36.0	43.5	2450	782	544	47.0	27.2	0.0605	0.27	0.69
		630	40.0	49.0	3040	925	617	59.2	34.3	0.0469	0.26	0.79
6/10	12	25	15.6	22.0	575	130	115	2.3	1.3	1.2000	0.47	0.23
		35	16.6	23.0	630	155	140	3.2	1.8	0.8680	0.44	0.25
		50	17.8	24.5	700	185	165	4.7	2.7	0.6410	0.42	0.28
		70	19.4	26.0	795	235	200	6.5	3.8	0.4430	0.39	0.31
		95	21.2	28.0	925	285	240	8.9	5.1	0.3200	0.38	0.33
		120	22.6	29.5	1040	330	275	11.2	6.5	0.2530	0.36	0.38
		150	24.1	31.0	1165	375	305	14.1	8.1	0.2060	0.35	0.41
		185	25.8	32.5	1305	430	345	17.4	10	0.1640	0.34	0.45
		240	28.2	35.0	1525	510	400	22.5	13	0.1250	0.33	0.50
		300	30.4	38.0	1785	585	450	28.1	16.3	0.1000	0.32	0.54
		400	33.4	41.0	2125	710	520	37.6	21.8	0.0778	0.31	0.60
		500	36.4	44.5	2500	810	590	47.0	27.2	0.0605	0.30	0.66
		630	40.5	49.0	3070	960	670	59.2	34.3	0.0469	0.28	0.78
8.7/15	17.5	25	17.8	24.5	665	130	115	2.3	1.3	1.2000	0.47	0.18
		35	18.8	25.5	720	155	140	3.2	1.9	0.8680	0.44	0.20
		50	20.0	26.5	785	185	165	4.7	2.7	0.6410	0.42	0.22
		70	21.6	28.5	900	235	200	6.5	3.8	0.4430	0.39	0.25
		95	23.4	30.0	1020	285	240	8.9	5.1	0.3200	0.38	0.27
		120	24.8	32.0	1160	330	275	11.2	6.5	0.2530	0.36	0.30
		150	26.3	33.5	1270	375	305	14.1	8.1	0.2060	0.35	0.32
		185	28.0	35.0	1435	430	345	17.4	10	0.1640	0.34	0.34
		240	30.4	37.5	1665	510	400	22.5	13	0.1250	0.33	0.36
		300	32.6	40.5	1815	585	450	28.1	16.3	0.1000	0.32	0.42
		400	35.6	43.5	2270	710	520	37.6	21.8	0.0778	0.31	0.43
		500	38.6	46.5	2655	810	590	47.0	27.2	0.0605	0.30	0.47
		630	42.6	51.5	3240	960	670	59.2	34.3	0.0469	0.28	0.52

MEDIUM VOLTAGE CABLES

Cu or Al - XLPE - Cu - PVC or PE

Single Core Cable

Unarmoured- XLPE Insulation- IEC 60502-2

Voltage		Conductor cross- -section	Diameter over insulation	Approx. outer diameter	Approx. weight B-PVC	Current carrying capacity ⚡		Cond. max. short-circuit current, t=1s	Max symmetrical short-circuit for 3 second	Cond. DC resistance @ 20°C	Inductance ⚡	Capacitance
U ₀ / U (kV)	Um (kV)					In air (A)	Buried (A)					
Aluminium conductor												
12/20	24	35	21.2	27.5	815	159	142	3.2	1.9	0.8680	0.44	0.17
		50	22.4	28.5	880	190	167	4.7	2.7	0.6410	0.42	0.18
		70	24.0	30.5	1005	235	204	6.5	3.8	0.4430	0.40	0.21
		95	25.8	32.5	1130	287	244	8.9	5.1	0.3200	0.38	0.23
		120	27.2	34.0	1275	330	277	11.2	6.5	0.2530	0.36	0.25
		150	28.7	35.5	1395	375	309	14.1	8.1	0.2060	0.35	0.27
		185	30.4	37.0	1565	428	350	17.4	10	0.1640	0.34	0.29
		240	32.8	39.5	1785	505	405	22.5	13.0	0.1250	0.33	0.32
		300	35.0	42.5	2065	578	455	28.1	16.3	0.1000	0.32	0.35
		400	38.0	45.5	2425	674	520	37.6	21.8	0.0778	0.30	0.39
		500	41.0	48.5	2825	778	592	47.0	27.2	0.0605	0.30	0.43
630	45.0	53.5	3425	896	672	59.2	34.3	0.0469	0.28	0.49		
18/30	36	50	27.8	34.0	1330	200	165	4.7	2.7	0.6410	0.46	0.14
		70	29.4	36.0	1470	250	205	6.5	3.8	0.4430	0.43	0.16
		95	31.2	37.5	1650	305	245	8.9	5.1	0.3200	0.41	0.17
		120	32.6	39.5	1786	350	275	11.2	6.5	0.2530	0.39	0.19
		150	34.1	41.0	2040	395	310	14.1	8.1	0.2060	0.38	0.20
		185	35.8	42.5	2250	455	350	17.4	10	0.1640	0.37	0.21
		240	38.2	45.0	2510	540	410	22.5	13	0.1250	0.36	0.24
		300	40.4	48.0	2810	584	465	28.1	16.3	0.1000	0.34	0.26
		400	43.4	51.0	3290	681	531	37.6	21.8	0.0778	0.33	0.29
		500	46.4	54.0	3750	792	605	47.0	27.2	0.0605	0.32	0.31
		630	50.4	59.0	4360	933	684	59.2	34.3	0.0469	0.30	0.35

Other compositions are available, contact info@fast-cables.com for information.

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 = 15°C • Depth of laying = 0.5 m • Thermal resistivity of soil = 1.5 K.m/W