

MEDIUM VOLTAGE CABLES

Physical & electrical characteristics

Aluminium 12.7/22kV – Single core heavy duty screened unarmoured												
Product code: 1CALX22HD												
Nominal conductor area mm ²	35	50	70	95	120	150	185	240	300	400	500	630
Nominal conductor diameter mm	7.1	8.1	9.8	11.5	12.9	14.2	16.0	18.1	20.6	23.5	26.6	30.2
Nominal insulation thickness mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Approx cable diameter mm	26.6	28.9	30.8	32.5	34.1	35.4	37.4	39.7	42.4	46.3	49.4	53.4
Approx mass kg/100m	80	95	120	150	165	180	195	220	245	285	320	375
Max pulling tension on conductor kN	1.8	2.5	3.5	4.8	6.0	7.5	9.3	12	15	20	25	25
Max pulling tension on stocking grip kN	1.8	2.5	3.3	3.7	4.1	4.4	4.9	5.5	6.3	7.5	8.5	10
Min bending radius* during installation mm	480	520	550	590	610	640	670	720	760	830	890	960
Min bending radius* set in position mm	320	350	370	390	410	430	450	480	510	560	590	640
Max conductor resistance, dc @ 20°C Ohm/km	0.868	0.641	0.443	0.320	0.253	0.206	0.164	0.125	0.100	0.0778	0.0605	0.0469
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km	1.11	0.822	0.568	0.411	0.325	0.265	0.211	0.161	0.130	0.101	0.0799	0.0633
Inductance, trefoil touching mH/km	0.491	0.480	0.444	0.422	0.409	0.396	0.380	0.366	0.353	0.344	0.331	0.321
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.154	0.151	0.140	0.133	0.128	0.124	0.119	0.115	0.111	0.108	0.104	0.101
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	1.71+ j0.0908	1.24+ j0.0871	0.871+ j0.0767	0.635+ j0.0708	0.535+ j0.0669	0.488+ j0.0636	0.446+ j0.0590	0.407+ j0.0553	0.382+ j0.0520	0.360+ j0.0495	0.343+ j0.0465	0.330+ j0.0435
Capacitance, phase to earth µF/km	0.165	0.178	0.200	0.223	0.240	0.258	0.280	0.308	0.343	0.386	0.426	0.472
Min insulation resistance @ 20°C MOhm.km	16,000	14,000	13,000	11,000	10,000	9,700	8,900	8,100	7,300	6,500	5,900	5,300
Electric stress at conductor screen kV/mm	3.63	3.50	3.33	3.21	3.13	3.06	2.99	2.92	2.85	2.78	2.73	2.68
Charging current @ rated voltage & 50 Hz A/phase/km	0.657	0.710	0.799	0.888	0.958	1.03	1.12	1.23	1.37	1.54	1.70	1.88
Short circuit rating	Phase conductor kA, 1 sec	3.3	4.7	6.6	9.0	11.3	14.2	17.5	22.7	28.3	37.8	59.5
	Metallic screen kA, 1 sec	3.3	4.7	6.6	8.9	10	10	10	10	10	10	10
Continuous current rating	In ground, direct buried A	135	160	195	230	260	290	330	380	425	485	615
	In ground, in singleway ducts A	135	155	190	220	245	270	305	345	380	430	530
	In free air, unenclosed & spaced from wall A	140	170	210	255	295	330	380	445	515	595	795

The cables described in this technical manual are designed to be used for the supply of electrical energy in fixed applications up to the rated voltages at a nominal power frequency between 49Hz and 61Hz. All values in this catalogue are for XLPE cables only. *Increased radius required for HDPE and nylon incorporating designs.