

MEDIUM VOLTAGE CABLES

Physical & electrical characteristics

Copper 12.7/22kV – Single core heavy duty screened unarmoured												
Product code: 1CCUX22HD												
Nominal conductor area mm ²	35	50	70	95	120	150	185	240	300	400	500	630
Nominal conductor diameter mm	7.0	8.2	9.8	11.5	12.9	14.3	16.1	18.2	20.6	23.5	26.6	30.3
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	27.9	29.0	30.8	32.5	34.1	35.5	37.5	39.9	42.4	46.3	49.4	53.5
Approx mass kg/100m	115	140	185	215	240	270	310	370	430	525	630	770
Max pulling tension on conductor kN	2.5	3.5	4.9	6.7	8.4	11	13	17	21	25	25	25
Max pulling tension on stocking grip kN	2.5	2.9	3.3	3.7	4.1	4.4	4.9	5.6	6.3	7.5	8.5	10
Min bending radius* during installation mm	500	520	550	590	610	640	670	720	760	830	890	960
Min bending radius* set in position mm	330	350	370	390	410	430	450	480	510	560	590	640
Max conductor resistance, dc @ 20°C Ohm/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km	0.668	0.494	0.342	0.247	0.196	0.159	0.128	0.0978	0.0788	0.0627	0.0503	0.0408
Inductance, trefoil touching mH/km	0.502	0.479	0.444	0.422	0.405	0.392	0.379	0.365	0.353	0.342	0.330	0.321
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.158	0.151	0.140	0.133	0.127	0.123	0.119	0.115	0.111	0.108	0.104	0.101
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	1.09+ j0.0931	0.783+ j0.0868	0.550+ j0.0767	0.475+ j0.0708	0.435+ j0.0660	0.406+ j0.0625	0.381+ j0.0589	0.358+ j0.0550	0.343+ j0.0520	0.330+ j0.0491	0.320+ j0.0460	0.312+ j0.0435
Capacitance, phase to earth µF/km	0.164	0.179	0.200	0.223	0.241	0.259	0.282	0.310	0.343	0.386	0.426	0.473
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	3.64	3.49	3.33	3.21	3.12	3.06	2.99	2.91	2.85	2.78	2.73	2.68
Charging current @ rated voltage & 50 Hz A/phase/km	0.652	0.713	0.799	0.888	0.961	1.03	1.12	1.24	1.37	1.54	1.70	1.89
Short circuit rating	Phase conductor kA, 1 sec	5.0	7.2	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	90.1
	Metallic screen kA, 1 sec	5.0	7.1	10	10	10	10	10	10	10	10	10
Continuous current rating	In ground, direct buried A	175	205	250	295	335	370	415	480	535	600	740
	In ground, in singleway ducts A	170	195	235	275	305	335	370	415	460	510	615
	In free air, unenclosed & spaced from wall A	185	220	270	330	375	425	485	565	645	740	960

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.