

CURRENT CARRYING CAPACITY IN NORMAL OPERATION

A) PVC insulated cables in ground

Load capacity, installed in ground, copper conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)				
	Single core in flat formation	Single core in trefoil formation	2 core	3 or 4 core	5 core
1.5	35	29.6	32	26	26
2.5	46	39	42	34	34
4	59	50	54	44	44
6	73	62	68	56	56
10	97	82	90	75	75
16	127	107	116	98	98
25	163	137	151	128	129
35	195	165	185	157	157
50	230	195	214	185	-
70	282	239	264	228	-
95	336	287	316	275	-
120	382	326	356	313	-
150	428	366	388	353	-
185	483	414	438	399	-
240	561	481	510	464	-
300	632	542	576	524	-
400	730	624	-	-	-
500	823	698	-	-	-
630	928	780	-	-	-
800	1046	870	-	-	-
1000	1180	973	-	-	-

Load capacity, installed in ground, aluminum conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)		
	Single core in flat formation	Single core in trefoil formation	3 or 4 core
25	-	-	99
35	151	127	118
50	179	151	142
70	218	186	176
95	261	223	211
120	297	254	242
150	332	285	270
185	376	323	308
240	437	378	363
300	494	427	412
400	572	496	475
500	649	562	-

CURRENT CARRYING CAPACITY IN NORMAL OPERATION

B) PVC insulated cables in air

Load capacity, installed in air, copper conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)				
	Single core in flat formation	Single core in trefoil formation	2 core	3 or 4 core	5 core
1.5	25	20	20	18.5	18.6
2.5	34	27	27	25	25
4	45	37	37	34	33
6	57	48	48	43	42
10	78	66	66	60	57
16	103	89	89	80	75
25	137	118	118	106	102
35	169	145	145	131	127
50	206	176	176	159	-
70	261	224	224	202	-
95	321	271	271	244	-
120	374	314	314	282	-
150	428	361	361	324	-
185	494	412	412	371	-
240	590	484	484	436	-
300	678	549	568	481	-
400	817	657	-	-	-
500	940	749	-	-	-
630	1071	854	-	-	-
800	1220	973	-	-	-
1000	1390	1109	-	-	-

Load capacity, installed in air, aluminum conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)		
	Single core in flat formation	Single core in trefoil formation	3 or 4 core
25	-	-	83
35	131	113	102
50	160	138	124
70	202	174	158
95	249	210	190
120	291	244	221
150	333	281	252
185	384	320	289
240	460	378	339
300	530	433	377
400	642	523	444
500	744	603	-

CURRENT CARRYING CAPACITY IN NORMAL OPERATION

C) XLPE insulated cables in ground

Load capacity, installed in ground, copper conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)				
	Single core in flat formation	Single core in trefoil formation	2 core	3 or 4 core	5 core
1.5	39	32	36	30	30
2.5	51	43	48	40	39
4	66	55	62	52	50
6	82	68	71	64	64
10	109	90	103	86	85
16	139	115	122	111	110
25	179	149	157	143	140
35	213	178	190	173	173
50	251	211	246	205	-
70	307	259	277	252	-
95	366	310	333	303	-
120	416	352	374	346	-
150	465	396	430	390	-
185	526	449	485	441	-
240	610	521	536	511	-
300	689	587	609	580	-
400	788	669	-	-	-
500	889	748	-	-	-
630	993	836	-	-	-
800	1112	934	-	-	-
1000	1240	1044	-	-	-

Load capacity, installed in ground, aluminum conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)		
	Single core in flat formation	Single core in trefoil formation	3 or 4 core
25	-	-	111
35	164	137	132
50	195	163	157
70	238	201	195
95	284	240	233
120	323	274	266
150	361	308	299
185	408	350	340
240	476	408	401
300	537	462	455
400	616	531	526
500	699	601	-

CURRENT CARRYING CAPACITY IN NORMAL OPERATION

D) XLPE insulated cables in air

Load capacity, installed in air, copper conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)				
	Single core in flat formation	Single core in trefoil formation	2 core	3 or 4 core	5 core
1.5	32	25	29	24	24
2.5	42	34	38	32	32
4	56	44	51	42	42
6	71	57	63	53	53
10	96	77	87	73	72
16	128	102	115	96	96
25	173	139	143	130	129
35	212	170	176	160	158
50	258	208	214	195	-
70	328	265	270	247	-
95	404	326	335	305	-
120	471	381	390	355	-
150	541	438	448	407	-
185	626	507	516	469	-
240	749	606	606	551	-
300	864	697	702	638	-
400	1018	816	-	-	-
500	1173	933	-	-	-
630	1340	1066	-	-	-
800	1531	1218	-	-	-
1000	1750	1392	-	-	-

Load capacity, installed in air, aluminum conductor

Nominal cross sectional area (mm ²)	Current carrying capacity (A)		
	Single core in flat formation	Single core in trefoil formation	3 or 4 core
25	-	-	100
35	163	131	122
50	200	161	147
70	254	205	189
95	313	253	232
120	366	296	270
150	420	341	308
185	486	395	357
240	585	475	435
300	675	548	501
400	798	647	592
500	926	749	-

RATING FACTORS FOR CALCULATION OF CURRENT CARRYING CAPACITY IN DIFFERENT CONDITIONS

RATING FACTOR FOR GROUND TEMPERATURE, SOIL THERMAL RESISTIVITY AND LOAD FACTOR

Max. conductor temperature °C	Ground temperature °C	Soil thermal resistivity															
		0.7 K m/W					1 K m/W					1.5 K m/W					2.5 K m/W
		Load factor					Load factor					Load factor					Load factor
		0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50 to 1.00
90	5	1.24	1.21	1.18	1.12	1.07	1.11	1.09	1.07	1.03	1.00	0.99	0.98	0.97	0.96	0.94	0.89
	10	1.23	1.19	1.16	1.11	1.05	1.09	1.07	1.05	1.01	0.98	0.97	0.96	0.95	0.93	0.91	0.86
	15	1.21	1.17	1.14	1.08	1.03	1.07	1.05	1.02	0.99	0.95	0.95	0.93	0.92	0.91	0.89	0.84
	20	1.19	1.15	1.12	1.06	1.00	1.05	1.02	1.00	0.96	0.93	0.92	0.91	0.90	0.88	0.86	0.81
	25						1.02	1.00	0.98	0.94	0.90	0.90	0.88	0.87	0.85	0.84	0.78
	30								0.95	0.91	0.88	0.87	0.86	0.84	0.83	0.81	0.75
	35													0.82	0.80	0.78	0.72
	40																0.68
70	5	1.29	1.26	1.22	1.15	1.09	1.13	1.11	1.08	1.04	1.00	0.99	0.98	0.97	0.95	0.93	0.86
	10	1.27	1.23	1.19	1.13	1.06	1.11	1.08	1.06	1.01	0.97	0.96	0.95	0.94	0.92	0.89	0.83
	15	1.25	1.21	1.17	1.10	1.03	1.08	1.06	1.03	0.99	0.94	0.93	0.92	0.91	0.88	0.86	0.79
	20	1.23	1.18	1.14	1.08	1.01	1.06	1.03	1.00	0.96	0.91	0.90	0.89	0.87	0.85	0.83	0.76
	25						1.03	1.00	0.97	0.93	0.88	0.87	0.85	0.84	0.82	0.79	0.72
	30								0.94	0.89	0.85	0.84	0.82	0.80	0.78	0.76	0.68
	35													0.77	0.74	0.72	0.63
	40																0.59

RATING FACTOR FOR SINGLE CORE CABLES, IN TREFOIL FORMATION WITH 7cm CLEARANCE BETWEEN SYSTEMS IN GROUND

Type of cables	Number of systems	Soil thermal resistivity																			
		0.7 K m/W					1 K m/W					1.5 K m/W					2.5 K m/W				
		Load factor					Load factor					Load factor					Load factor				
		0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00
XLPE cables	1	1.09	1.04	0.99	0.93	0.87	1.11	1.05	1.00	0.93	0.87	1.13	1.07	1.01	0.94	0.87	1.17	1.09	1.03	0.94	0.87
	2	0.97	0.90	0.84	0.77	0.71	0.98	0.91	0.85	0.77	0.71	1.00	0.92	0.86	0.77	0.71	1.02	0.94	0.87	0.78	0.71
	3	0.88	0.80	0.74	0.67	0.61	0.89	0.82	0.75	0.67	0.61	0.90	0.82	0.76	0.68	0.61	0.92	0.83	0.76	0.68	0.61
	4	0.83	0.75	0.69	0.62	0.56	0.84	0.76	0.70	0.62	0.56	0.85	0.77	0.70	0.62	0.56	0.82	0.78	0.71	0.63	0.56
	5	0.79	0.71	0.65	0.58	0.52	0.80	0.72	0.66	0.58	0.52	0.80	0.73	0.66	0.58	0.52	0.81	0.73	0.67	0.59	0.52
	6	0.76	0.68	0.62	0.55	0.50	0.77	0.69	0.63	0.55	0.50	0.77	0.70	0.63	0.56	0.50	0.78	0.70	0.64	0.56	0.50
	8	0.72	0.64	0.58	0.51	0.46	0.72	0.65	0.59	0.52	0.46	0.73	0.65	0.59	0.52	0.46	0.74	0.66	0.59	0.52	0.46
	10	0.69	0.61	0.56	0.49	0.44	0.69	0.62	0.56	0.49	0.44	0.70	0.62	0.56	0.49	0.44	0.70	0.63	0.57	0.49	0.44
PVC cables	1	1.01	1.02	0.99	0.93	0.87	1.04	1.05	1.00	0.93	0.87	1.07	1.06	1.01	0.94	0.87	1.11	1.08	1.01	0.94	0.87
	2	0.94	0.89	0.84	0.77	0.71	0.97	0.91	0.85	0.77	0.71	0.99	0.92	0.86	0.77	0.71	1.01	0.93	0.87	0.78	0.71
	3	0.86	0.79	0.74	0.67	0.61	0.89	0.81	0.75	0.67	0.61	0.90	0.83	0.76	0.68	0.61	0.91	0.83	0.77	0.68	0.61
	4	0.82	0.75	0.69	0.62	0.56	0.84	0.76	0.70	0.62	0.56	0.85	0.77	0.71	0.62	0.56	0.86	0.78	0.71	0.63	0.56
	5	0.78	0.71	0.65	0.58	0.52	0.80	0.72	0.66	0.58	0.52	0.80	0.73	0.66	0.58	0.52	0.81	0.73	0.67	0.59	0.52
	6	0.75	0.68	0.62	0.55	0.50	0.77	0.69	0.63	0.55	0.50	0.77	0.70	0.64	0.56	0.50	0.78	0.70	0.64	0.56	0.50
	8	0.71	0.64	0.58	0.51	0.46	0.72	0.65	0.59	0.52	0.46	0.73	0.65	0.59	0.52	0.46	0.73	0.66	0.60	0.52	0.46
	10	0.68	0.61	0.55	0.49	0.44	0.69	0.62	0.56	0.49	0.44	0.69	0.62	0.56	0.49	0.44	0.70	0.63	0.57	0.49	0.44

RATING FACTOR FOR SINGLE CORE CABLES, IN TREFOIL FORMATION WITH 25cm CLEARANCE BETWEEN SYSTEMS IN GROUND

Type of cables	Number of systems	Soil thermal resistivity																				
		0.7 K m/W					1 K m/W					1.5 K m/W					2.5 K m/W					
		Load factor					Load factor					Load factor					Load factor					
		0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	
XLPE cables	1	1.09	1.04	0.99	0.93	0.87	1.11	1.05	1.00	0.93	0.87	1.13	1.07	1.01	0.94	0.87	1.17	1.09	1.03	0.94	0.87	
	2	1.01	0.94	0.89	0.82	0.75	1.02	0.95	0.89	0.82	0.75	1.04	0.97	0.90	0.82	0.75	1.06	0.98	0.91	0.83	0.75	
	3	0.94	0.87	0.81	0.74	0.67	0.95	0.88	0.82	0.74	0.67	0.97	0.89	0.82	0.74	0.67	0.99	0.90	0.83	0.74	0.67	
	4	0.91	0.84	0.78	0.70	0.64	0.92	0.84	0.78	0.70	0.64	0.93	0.85	0.79	0.70	0.64	0.95	0.86	0.79	0.71	0.64	
	5	0.88	0.80	0.74	0.67	0.60	0.89	0.81	0.75	0.67	0.60	0.90	0.82	0.75	0.67	0.60	0.91	0.83	0.76	0.67	0.60	
	6	0.86	0.79	0.72	0.65	0.59	0.87	0.79	0.73	0.65	0.59	0.88	0.80	0.73	0.65	0.59	0.89	0.81	0.74	0.65	0.59	
	8	0.83	0.76	0.70	0.62	0.56	0.84	0.76	0.70	0.62	0.56	0.85	0.77	0.70	0.62	0.56	0.86	0.78	0.71	0.62	0.56	
	10	0.81	0.74	0.68	0.60	0.54	0.82	0.74	0.68	0.60	0.54	0.83	0.75	0.68	0.61	0.54	0.84	0.76	0.69	0.61	0.54	
	PVC cables	1	1.01	1.02	0.99	0.93	0.87	1.04	1.05	1.00	0.93	0.87	1.07	1.06	1.01	0.94	0.87	1.11	1.08	1.01	0.94	0.87
		2	0.97	0.95	0.89	0.82	0.75	1.00	0.96	0.90	0.82	0.75	1.03	0.97	0.91	0.82	0.75	1.06	0.98	0.92	0.83	0.75
3		0.94	0.88	0.82	0.74	0.67	0.97	0.88	0.82	0.74	0.67	0.97	0.89	0.83	0.74	0.67	0.98	0.90	0.84	0.74	0.67	
4		0.91	0.84	0.78	0.70	0.64	0.92	0.85	0.79	0.70	0.64	0.93	0.86	0.79	0.70	0.64	0.95	0.87	0.80	0.71	0.64	
5		0.88	0.81	0.75	0.67	0.60	0.89	0.82	0.76	0.67	0.60	0.90	0.82	0.76	0.67	0.60	0.91	0.83	0.77	0.67	0.60	
6		0.86	0.79	0.73	0.65	0.59	0.87	0.80	0.74	0.65	0.59	0.88	0.81	0.74	0.65	0.59	0.89	0.81	0.75	0.65	0.59	
8		0.83	0.76	0.70	0.62	0.56	0.84	0.77	0.71	0.62	0.56	0.85	0.78	0.71	0.62	0.56	0.86	0.78	0.72	0.62	0.56	
10		0.82	0.75	0.69	0.60	0.54	0.82	0.75	0.69	0.60	0.54	0.83	0.76	0.69	0.61	0.54	0.84	0.76	0.70	0.61	0.54	

RATING FACTOR FOR SINGLE CORE CABLES, IN FLAT FORMATION WITH 7cm CLEARANCE BETWEEN CABLES IN GROUND

Type of cables	Number of systems	Soil thermal resistivity																			
		0.7 K m/W					1 K m/W					1.5 K m/W					2.5 K m/W				
		Load factor					Load factor					Load factor					Load factor				
		0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00
XLPE cables	1	1.08	1.05	0.99	0.91	0.85	1.13	1.07	1.00	0.92	0.85	1.18	1.09	1.01	0.92	0.85	1.19	1.11	1.03	0.93	0.85
	2	1.01	0.93	0.86	0.77	0.71	1.03	0.94	0.87	0.78	0.71	1.05	0.95	0.88	0.78	0.71	1.06	0.96	0.88	0.79	0.71
	3	0.92	0.84	0.77	0.69	0.62	0.93	0.85	0.77	0.69	0.62	0.95	0.86	0.78	0.69	0.62	0.96	0.86	0.79	0.69	0.62
	4	0.88	0.80	0.73	0.65	0.58	0.89	0.80	0.73	0.65	0.58	0.90	0.81	0.74	0.65	0.58	0.91	0.82	0.74	0.65	0.58
	5	0.84	0.76	0.69	0.61	0.55	0.85	0.77	0.70	0.61	0.55	0.87	0.78	0.70	0.62	0.55	0.87	0.78	0.71	0.62	0.55
	6	0.82	0.74	0.67	0.59	0.53	0.83	0.75	0.68	0.60	0.53	0.84	0.75	0.68	0.60	0.53	0.85	0.76	0.69	0.60	0.53
	8	0.79	0.71	0.64	0.57	0.51	0.80	0.71	0.65	0.57	0.51	0.81	0.72	0.65	0.57	0.51	0.81	0.72	0.65	0.57	0.51
	10	0.77	0.69	0.62	0.55	0.49	0.78	0.69	0.63	0.55	0.49	0.78	0.70	0.63	0.55	0.49	0.79	0.70	0.63	0.55	0.49
PVC cables	1	0.96	0.97	0.98	0.91	0.85	1.01	1.01	1.00	0.92	0.85	1.07	1.05	1.01	0.92	0.85	1.16	1.10	1.02	0.93	0.85
	2	0.92	0.89	0.86	0.77	0.71	0.96	0.94	0.87	0.78	0.71	1.00	0.95	0.88	0.78	0.71	1.05	0.97	0.89	0.79	0.71
	3	0.88	0.84	0.77	0.69	0.62	0.91	0.85	0.78	0.69	0.62	0.95	0.86	0.79	0.69	0.62	0.96	0.87	0.79	0.69	0.62
	4	0.86	0.80	0.73	0.65	0.58	0.89	0.81	0.74	0.65	0.58	0.90	0.82	0.74	0.65	0.58	0.91	0.82	0.75	0.65	0.58
	5	0.84	0.76	0.70	0.61	0.55	0.85	0.77	0.70	0.61	0.55	0.87	0.78	0.71	0.62	0.55	0.87	0.79	0.71	0.62	0.55
	6	0.82	0.74	0.68	0.59	0.53	0.83	0.75	0.68	0.60	0.53	0.84	0.76	0.69	0.60	0.53	0.85	0.76	0.69	0.60	0.53
	8	0.79	0.71	0.65	0.57	0.51	0.80	0.72	0.65	0.57	0.51	0.81	0.72	0.65	0.57	0.51	0.81	0.73	0.66	0.57	0.51
	10	0.77	0.69	0.63	0.55	0.49	0.78	0.70	0.63	0.55	0.49	0.79	0.70	0.63	0.55	0.49	0.79	0.71	0.64	0.55	0.49

RATING FACTOR FOR **THREE** CORE CABLES, WITH **7cm** CLEARANCE BETWEEN CABLES IN GROUND

Type of cables	Number of systems	Soil thermal resistivity																			
		0.7 K m/W					1 K m/W					1.5 K m/W					2.5 K m/W				
		Load factor					Load factor					Load factor					Load factor				
		0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00	0.50	0.60	0.70	0.85	1.00
XLPE cables	1	1.02	1.03	0.99	0.94	0.89	1.06	1.05	1.00	0.94	0.89	1.09	1.06	1.01	0.94	0.89	1.11	1.07	1.02	0.95	0.89
	2	0.95	0.89	0.84	0.77	0.72	0.98	0.91	0.85	0.78	0.72	0.99	0.92	0.86	0.78	0.72	1.01	0.94	0.87	0.79	0.72
	3	0.86	0.80	0.74	0.68	0.62	0.89	0.81	0.75	0.68	0.62	0.90	0.83	0.77	0.69	0.62	0.92	0.84	0.77	0.69	0.62
	4	0.82	0.75	0.69	0.63	0.57	0.84	0.76	0.70	0.63	0.57	0.85	0.78	0.71	0.63	0.57	0.86	0.78	0.72	0.64	0.57
	5	0.78	0.71	0.65	0.59	0.53	0.80	0.72	0.66	0.59	0.53	0.81	0.73	0.67	0.59	0.53	0.82	0.74	0.67	0.60	0.53
	6	0.75	0.68	0.63	0.56	0.51	0.77	0.69	0.63	0.56	0.51	0.78	0.70	0.64	0.57	0.51	0.79	0.71	0.65	0.57	0.51
	8	0.71	0.64	0.59	0.52	0.47	0.72	0.65	0.59	0.52	0.47	0.73	0.66	0.60	0.52	0.47	0.74	0.66	0.60	0.53	0.47
10	0.68	0.61	0.56	0.49	0.44	0.69	0.62	0.56	0.50	0.44	0.70	0.63	0.57	0.50	0.44	0.71	0.63	0.57	0.50	0.44	
PVC cables	1	0.91	0.92	0.94	0.94	0.89	0.97	0.97	1.00	0.94	0.89	1.04	1.03	1.01	0.94	0.89	1.13	1.07	1.02	0.95	0.89
	2	0.86	0.87	0.85	0.77	0.72	0.91	0.90	0.86	0.78	0.72	0.97	0.93	0.87	0.78	0.72	1.01	0.94	0.88	0.79	0.72
	3	0.82	0.80	0.75	0.68	0.62	0.86	0.82	0.76	0.68	0.62	0.91	0.84	0.77	0.69	0.62	0.92	0.84	0.78	0.69	0.62
	4	0.80	0.76	0.70	0.63	0.57	0.84	0.77	0.71	0.63	0.57	0.86	0.78	0.72	0.63	0.57	0.87	0.79	0.73	0.64	0.57
	5	0.78	0.72	0.66	0.59	0.53	0.81	0.73	0.67	0.59	0.53	0.81	0.74	0.68	0.59	0.53	0.82	0.75	0.68	0.60	0.53
	6	0.76	0.69	0.64	0.56	0.51	0.77	0.70	0.64	0.56	0.51	0.78	0.71	0.65	0.57	0.51	0.79	0.72	0.65	0.57	0.51
	8	0.72	0.65	0.59	0.52	0.47	0.73	0.66	0.60	0.52	0.47	0.74	0.67	0.61	0.52	0.47	0.75	0.67	0.61	0.53	0.47
10	0.69	0.62	0.57	0.49	0.44	0.70	0.63	0.57	0.50	0.44	0.71	0.64	0.58	0.50	0.44	0.71	0.64	0.58	0.50	0.44	

RATING FACTOR FOR **DIFFERENT** AIR TEMPERATURE

Type of cables	Max. conductor temperature °C	Air temperature (°C)								
		10	15	20	25	30	35	40	45	50
		Rating factor								
XLPE cables	90	1.15	1.12	1.08	1.04	1.0	0.96	0.91	0.87	0.82
PVC cables	70	1.22	1.17	1.12	1.06	1.0	0.94	0.87	0.79	0.71