



# Current Carrying Capacity




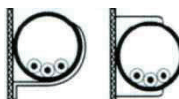

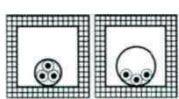

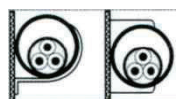
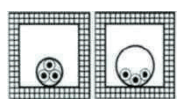
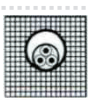

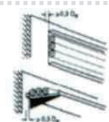


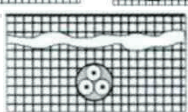

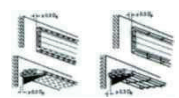


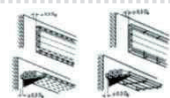

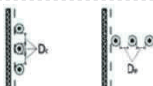
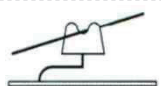


**DAEWON CABLE CO., LTD.**



## Method of Installation

■ Reference Specification : IEC 60364-5-52

Symbol	Reference Methods of Installation				
A1	- Insulated conductors in conduit in a thermally insulated wall		Room	- Multi-core cable direct in a thermally insulated wall	
A2	- Multi-core cable in conduit in a thermally insulated wall		Room		
B1	- Insulated conductors or single-core cables in conduit on a wooded or masonry wall, or spaced less than 0.3 times conduit diameter from it			- Insulated conductors or single-core cables in cable trunking on a wooden wall	
	- Single-core or multi-core cable in a building void - Insulated conductor in conduit in a building void			- Single-core or multi-core cable in a building void - Insulated conductor in conduit in a building void	
B2	- Multi-core cables in conduit on a wooded or masonry wall, or spaced less than 0.3 times conduit diameter from in			- Single-core or multi-core cable in a building void - Insulated conductor in conduit in a building void	
	- Multi-core cable in conduit in masonry wall				
C	- Single-core or multi-core cable on a wooden wall (Fixed on or spaced less than 0.3 times cable diameter from a wooden wall)			- On unperforated tray	
	- Single-core or multi-core cable direct in masonry				
D1	- Single-core or multi-core cable in conduit or in cable ducting in the ground				
D2	- Single-core or multi-core cables in the ground				
E	- Multi-core cable in free air (Spaced more than 0.3 times cable diameter from a wall)			- On perforated tray or on brackets or on a wire mesh	
	- On ladder				
F	- Single-core cable in free air (Spaced more than 0.3 times cable diameter from a wall)			- On perforated tray or on brackets or on a wire mesh	
	- On ladder				
G	- Single-core cables spaced in free air			- Bare or insulated conductors on insulators	

## Current Carrying Capacity

Voltage & type : Up to 0.6/1kV XLPE insulation

Temperature : Air 30°C, Ground 20°C

[Amperes]

Cross sectional area (mm <sup>2</sup> )	Method of installation											
	A1		A2		B1		B2		C		D1	
	2*	3*	2*	3*	2*	3*	2*	3*	2*	3*	2*	3*
1.5	19	17	18.5	16.5	23	20	22	19.5	24	22	25	21
2.5	26	23	25	22	31	28	30	26	33	30	33	28
4	35	31	33	30	42	37	40	35	45	40	43	36
6	45	40	42	38	54	48	51	44	58	52	53	44
10	61	54	57	51	75	66	69	60	80	71	71	58
16	81	73	76	68	100	88	91	80	107	96	91	75
25	106	95	99	89	133	117	119	105	138	119	116	96
35	131	117	121	109	164	144	146	128	171	147	139	115
50	158	141	145	130	198	175	175	154	209	179	164	135
70	200	179	183	164	253	222	221	194	269	229	203	167
95	241	216	220	197	306	269	265	233	328	278	239	197
120	278	249	253	227	354	312	305	268	382	322	271	223
150	318	285	290	259	—	—	—	—	441	371	306	251
185	362	324	329	295	—	—	—	—	506	424	343	281
240	424	380	386	346	—	—	—	—	599	500	395	324
300	486	435	442	396	—	—	—	—	693	576	446	365
400											508	417
500											569	467
630											628	515

2 : Two Load Conductor

3 : Three Load Conductor

## Current Carrying Capacity

Voltage & type : Up to 0.6/1kV XLPE insulation  
 Temperature : Air 30°C, Ground 20°C

[Amperes]

Cross sectional area (mm <sup>2</sup> )	Method of installation								
	D2		Multi-core cable		Single-core cable				
			E	E	F	F	F	G	G
	2*	3*	2*	3*	2* Flat Touching	3* Trefoil	3* Flat Touching	3* Horizontal Flat Spaced	3* Vertical Flat Spaced
1.5	27	23	26	23	-	-	-	-	-
2.5	35	30	36	32	-	-	-	-	-
4	46	39	49	42	-	-	-	-	-
6	58	49	63	54	-	-	-	-	-
10	77	65	86	75	-	-	-	-	-
16	100	84	115	100	-	-	-	-	-
25	129	107	149	127	161	135	141	182	161
35	155	129	185	158	200	169	176	226	201
50	183	153	225	192	242	207	216	275	246
70	225	188	289	246	310	268	279	353	318
95	270	226	352	298	377	328	342	430	389
120	306	257	410	346	437	383	400	500	454
150	343	287	473	399	504	444	464	577	527
185	387	324	542	456	575	510	533	661	605
240	448	375	641	538	679	607	634	781	719
300	502	419	741	621	783	703	736	902	833
400	571	476	-	-	940	823	868	1085	1008
500	638	532	-	-	1083	946	998	1253	1169
630	699	583	-	-	1254	1088	1151	1454	1362

2 : Two Load Conductor

3 : Three Load Conductor

## Current Carrying Capacity

Voltage & type : Up to 0.6/1kV PVC insulation

Temperature : Air 30°C, Ground 20°C

[Amperes]

Cross sectional area (mm <sup>2</sup> )	Method of installation											
	A1		A2		B1		B2		C		D1	
	2*	3*	2*	3*	2*	3*	2*	3*	2*	3*	2*	3*
1.5	14.5	13.5	14	13	17.5	15.5	16.5	15	19.5	17.5	22	18
2.5	19.5	18	18.5	17.5	24	21	23	20	27	24	29	24
4	26	24	25	23	32	28	30	27	36	32	37	30
6	34	31	32	29	41	36	38	34	46	41	46	38
10	46	42	43	39	57	50	52	46	63	57	60	50
16	61	56	57	52	76	68	69	62	85	76	78	64
25	80	73	75	68	101	89	90	80	112	96	99	82
35	99	89	92	83	125	110	111	99	138	119	119	98
50	119	108	110	99	151	134	133	118	168	144	140	116
70	151	136	139	125	192	171	168	149	213	184	173	143
95	182	164	167	150	232	207	201	179	258	223	204	169
120	210	188	192	172	269	239	232	206	299	259	231	192
150	240	216	219	196					344	299	261	217
185	273	245	248	223					392	341	292	243
240	321	286	291	261					461	403	336	280
300	367	328	334	298					530	464	379	316

2 : Two Load Conductor

3 : Three Load Conductor

## Current Carrying Capacity

Voltage & type : Up to 0.6/1kV PVC insulation  
 Temperature : Air 30°C, Ground 20°C

[Amperes]

Cross sectional area (mm <sup>2</sup> )	Method of installation								
	D2		Multi-core cable		Single-core cable				
			E	E	F	F	F	G	G
	2*	3*	2*	3*	2* Flat Touching	3* Trefoil	3* Flat Touching	3* Horizontal Flat Spaced	3* Vertical Flat Spaced
1.5	22	19	22	18.5	-	-	-	-	-
2.5	28	24	30	25	-	-	-	-	-
4	38	33	40	34	-	-	-	-	-
6	48	41	51	43	-	-	-	-	-
10	64	54	70	60	-	-	-	-	-
16	83	70	94	80	-	-	-	-	-
25	110	92	119	101	131	110	114	146	130
35	132	110	148	126	162	137	143	181	162
50	156	130	180	153	196	167	174	219	197
70	192	162	232	196	251	216	225	281	254
95	230	193	282	238	304	264	275	341	311
120	261	220	328	276	352	308	321	396	362
150	293	246	379	319	406	356	372	456	419
185	331	278	434	364	463	409	427	521	480
240	382	320	514	430	546	485	507	615	459
300	427	359	593	497	629	561	587	709	659
400	-	-	-	-	754	656	689	852	795
500	-	-	-	-	868	749	789	982	920
630	-	-	-	-	1005	855	905	1138	1070

2 : Two Load Conductor  
 3 : Three Load Conductor

## Correction Factor

### ■ Temperature

Temperature(℃)	In Air		In Ground	
	PVC insulation	XLPE insulation	PVC insulation	XLPE insulation
10	1.22	1.15	1.10	1.07
15	1.17	1.12	1.05	1.04
20	1.12	1.08	1.00	1.00
25	1.06	1.04	0.95	0.96
30	1.00	1.00	0.89	0.93
35	0.94	0.96	0.84	0.89
40	0.87	0.91	0.77	0.85
45	0.79	0.87	0.71	0.80
50	0.71	0.82	0.63	0.76
55	0.61	0.76	0.55	0.71
60	0.50	0.71	0.45	0.65
65	–	0.65	–	0.60
70	–	0.58	–	0.53
75	–	0.50	–	0.46
80	–	0.41	–	0.38

### ■ Soil Thermal Resistivity (Symbol D1, D2)

Resistivity (K.m/W)	0.5	0.7	1.0	1.5	2.0	2.5	3.0
D1	1.28	1.20	1.18	1.1	1.05	1	0.96
D2	1.88	1.62	1.5	1.28	1.12	1	0.90

## Correction Factor

### ■ Depth of Laying

Depth of Laying m		0.5	0.6	0.8	1.0	1.25	1.5	1.75	2	2.5	3
Single Core Cables	≤ 185SQ	1.04	1.02	1.00	0.98	0.96	0.95	0.94	0.93	0.91	0.90
	> 185SQ	1.05	1.03	1.00	0.97	0.95	0.93	0.92	0.91	0.89	0.88
Three Core Cables		1.03	1.02	1.00	0.99	0.97	0.96	0.95	0.94	0.93	0.92

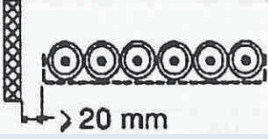
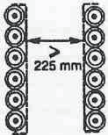
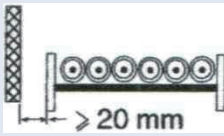
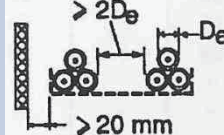
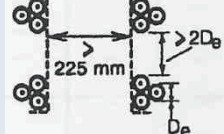
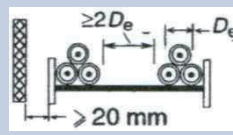
### ■ Group of More than One circuit or More than One multi-core cable in Air

Arrangement	Number of circuit or multi-cable											
	1	2	3	4	5	6	7	8	9	12	16	20
Bunched in Air, on a surface, Embedded or Enclosed	1.00	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.45	0.41	0.38
Single layer on wall, Floor or Unperforated Tray	1.00	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	—	—	—
Single layer fixed directly under a wooden ceiling	0.95	0.81	0.72	0.68	0.66	0.64	0.63	0.62	0.61	—	—	—
Single layer on a perforated horizontal or vertical tray	1.00	0.88	0.82	0.77	0.75	0.73	0.73	0.72	0.72	—	—	—
Single layer on a ladder support or cleats tec.	1.00	0.87	0.82	0.80	0.80	0.79	0.79	0.78	0.78	—	—	—

\* If the cable to cable distance is more than two times of cable diameter, the correction factor is ignored

## Correction Factor

### ■ Group of More than One circuit of Single-core cable in One or Multi-Tray, Ladder, Cleats

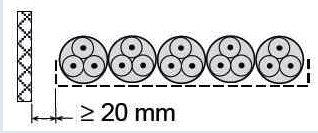
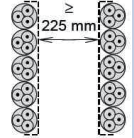
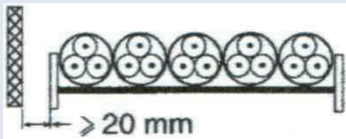
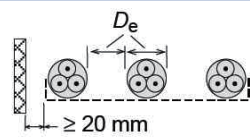
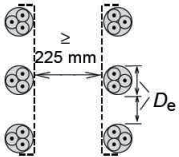
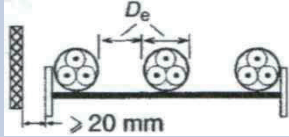
Arrangement	No. of Tray	Number of Circuit		
		1	2	3
Perforated Tray <sup>1)</sup> (Touching) 	1	0.98	0.91	0.87
	2	0.96	0.87	0.81
	3	0.95	0.85	0.78
Vertically Perforated Tray <sup>2)</sup> (Touching) 	1	0.96	0.86	—
	2	0.95	0.84	—
Cable on ladder Supports, cleats, etc <sup>1)</sup> 	1	1.00	0.97	0.96
	2	0.98	0.93	0.89
	3	0.97	0.90	0.86
Perforated Tray <sup>1)</sup> (Trefoil Spaced) 	1	1.00	0.98	0.96
	2	0.97	0.93	0.89
	3	0.96	0.92	0.86
Vertically Perforated Tray <sup>2)</sup> (Trefoil Spaced) 	1	1.00	0.91	0.89
	2	1.00	0.90	0.86
Cable on ladder Supports, cleats, etc <sup>1)</sup> 	1	1.00	1.00	1.00
	2	0.97	0.95	0.93
	3	0.96	0.94	0.90

Remark 1) Value are given for a vertical spacing between rays of 300mm and at least 20mm between the tray and any wall. For closer spacing the factors should be reduced.

2) Value are given for a horizontal spacing between trays of 225mm with trays mounted back to back. For closer spacing the factors should be reduced.

## Correction Factor

### ■ Group of More than One Multi-core cable in One or Multi-Tray, Ladder, Cleats

Arrangement	No. of Tray	Number of Circuit					
		1	2	3	4	6	9
Perforated Tray <sup>1)</sup> (Touching) 	1	1.00	0.88	0.82	0.79	0.76	0.73
	2	1.00	0.87	0.80	0.77	0.73	0.68
	3	1.00	0.86	0.79	0.76	0.71	0.66
Vertically Perforated Tray <sup>2)</sup> (Touching) 	1	1.00	0.88	0.82	0.78	0.73	0.72
	2	1.00	0.88	0.81	0.76	0.71	0.70
Cable on ladder Supports, cleats, Etc <sup>1)</sup> 	1	1.00	0.87	0.82	0.80	0.79	0.78
	2	1.00	0.86	0.80	0.78	0.76	0.73
	3	1.00	0.85	0.79	0.76	0.73	0.70
Perforated Tray <sup>1)</sup> (Spaced) 	1	1.00	1.00	0.98	0.95	0.91	—
	2	1.00	0.99	0.96	0.92	0.87	—
	3	1.00	0.98	0.95	0.91	0.85	—
Vertically Perforated Tray <sup>2)</sup> (Trefoil Spaced) 	1	1.00	0.91	0.89	0.88	0.87	—
	2	1.00	0.91	0.88	0.87	0.85	—
Cable on ladder Supports, cleats, Etc <sup>1)</sup> 	1	1.00	1.00	1.00	1.00	1.00	—
	2	1.00	0.99	0.98	0.97	0.96	—
	3	1.00	0.98	0.97	0.96	0.93	—

Remark 1) Value are given for a vertical spacing between rays of 300mm and at least 20mm between the tray and any wall. For closer spacing the factors should be reduced.

2) Value are given for a horizontal spacing between trays of 225mm with trays mounted back to back. For closer spacing the factors should be reduced.

## Correction Factor

### ■ Multi-cable in Direct buried (One core or multi-core cable)

No. of circuit	Cable to cable distance				
	Cables Touching	One cable Diameter	0.125m	0.25m	0.5m
2	0.75	0.80	0.85	0.90	0.90
3	0.65	0.70	0.75	0.80	0.85
4	0.60	0.60	0.70	0.75	0.80
5	0.55	0.55	0.65	0.70	0.80
6	0.50	0.55	0.60	0.70	0.80

### ■ Multi-cable with multi-core in Duct

No. of circuit	Duct to duct distance			
	Duct Touching	0.25m	0.5m	1.0m
2	0.85	0.90	0.95	0.95
3	0.75	0.85	0.90	0.95
4	0.70	0.80	0.85	0.90
5	0.65	0.80	0.85	0.90
6	0.60	0.80	0.80	0.90

### ■ Multi-cable with single core in Duct

No. of circuit	Duct to duct distance			
	Duct Touching	0.25m	0.5m	1.0m
2	0.80	0.90	0.90	0.95
3	0.70	0.80	0.85	0.90
4	0.65	0.75	0.80	0.90
5	0.60	0.70	0.80	0.90
6	0.60	0.70	0.80	0.90

## Current Carrying Capacity

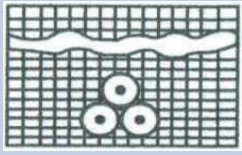
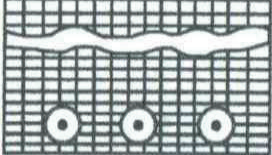
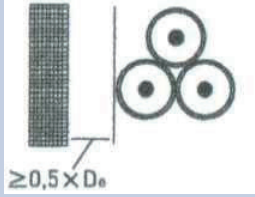
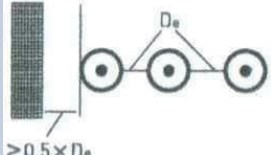
■ Reference Specification : IEC 60502-2

Voltage & type : 3.6/6kV ~ 18/30kV XLPE insulation Single core cable

Temperature : Air 30°C, Ground 20°C

Spacing in Flat formation : One cable diameter

[Amperes]

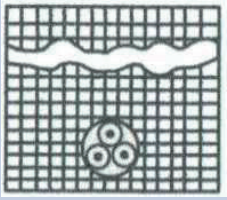
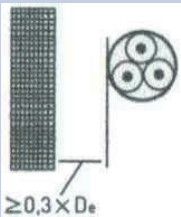
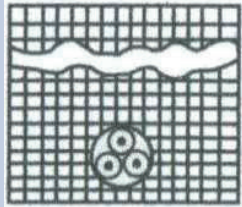
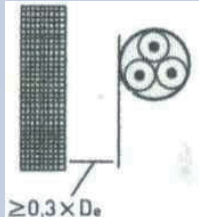
Cross sectional area (mm <sup>2</sup> )	Method of installation			
	Direct Buried		Air	
	Trefoil	Flat	Trefoil	Flat
				
16	109	113	125	150
25	140	144	163	196
35	166	172	196	238
50	196	203	238	286
70	239	246	296	356
95	285	293	361	434
120	323	332	417	500
150	361	366	473	559
185	406	410	543	637
240	469	470	641	745
300	526	524	735	846
400	590	572	845	938

## Current Carrying Capacity

■ Reference Specification : IEC 60502-2

Voltage & type : 3.6/6kV ~ 18/30kV XLPE insulation Three core cable  
Temperature : Air 30°C, Ground 20°C

[Amperes]

Cross sectional area (mm <sup>2</sup> )	Method of installation			
	Un-armored		Armored	
	Direct Buried	Air	Direct Buried	Air
				
16	101	109	101	110
25	129	142	129	143
35	153	170	154	172
50	181	204	181	205
70	221	253	220	253
95	262	304	263	307
120	298	351	298	352
150	334	398	332	397
185	377	455	374	453
240	434	531	431	529
300	489	606	482	599
400	553	696	541	683

## Correction Factor

### ■ Ambient Air Temperature

Ambient temperature(℃)	20	25	30	35	40	45	50	55	60
XLPE Insulation	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71

### ■ Ambient Ground Temperature

Ambient temperature(℃)	10	15	20	25	30	35	40	45	50
XLPE Insulation	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76

### ■ Depth of Laying for Direct Buried Cables

Depth of Laying m		0.5	0.6	0.8	1.0	1.25	1.5	1.75	2	2.5	3
Single Core Cables	≤ 185SQ	1.04	1.02	1.00	0.98	0.96	0.95	0.94	0.93	0.91	0.90
	> 185SQ	1.06	1.04	1.00	0.97	0.95	0.93	0.91	0.9	0.88	0.86
Three Core Cables		1.04	1.03	1.00	0.98	0.96	0.95	0.94	0.93	0.91	0.90

### ■ Soil Thermal Resistivity(for Buried Single-Core Cables)

Cross sectional area (mm <sup>2</sup> )	Thermal Resistivity K.m/W							
	0.7	0.8	0.9	1.0	1.5	2	2.5	3
16	1.29	1.24	1.19	1.15	1.00	0.89	0.82	0.75
25	1.30	1.25	1.20	1.16	1.00	0.89	0.81	0.75
35	1.30	1.25	1.21	1.16	1.00	0.89	0.81	0.75
50	1.32	1.26	1.21	1.16	1.00	0.89	0.81	0.74
70	1.33	1.27	1.22	1.17	1.00	0.89	0.81	0.74
95	1.34	1.28	1.22	1.18	1.00	0.89	0.80	0.74
120	1.34	1.28	1.22	1.18	1.00	0.88	0.80	0.74
150	1.35	1.28	1.23	1.18	1.00	0.88	0.80	0.74
185	1.35	1.29	1.23	1.18	1.00	0.88	0.80	0.74
240	1.36	1.29	1.23	1.18	1.00	0.88	0.80	0.73
300	1.36	1.30	1.24	1.19	1.00	0.88	0.80	0.73
400	1.37	1.30	1.24	1.19	1.00	0.88	0.79	0.73

## Correction Factor

### ■ Soil Thermal Resistivity( for Buried Three-Core Cables)

Cross sectional area (mm <sup>2</sup> )	Thermal Resistivity K.m/W							
	0.7	0.8	0.9	1.0	1.5	2	2.5	3
16	1.23	1.19	1.19	1.13	1.00	0.91	0.84	0.78
25	1.24	1.20	1.20	1.13	1.00	0.91	0.84	0.78
35	1.25	1.21	1.21	1.13	1.00	0.91	0.83	0.78
50	1.25	1.21	1.21	1.14	1.00	0.91	0.83	0.77
70	1.26	1.21	1.22	1.14	1.00	0.90	0.83	0.77
95	1.26	1.22	1.22	1.14	1.00	0.90	0.83	0.77
120	1.26	1.22	1.22	1.14	1.00	0.90	0.83	0.77
150	1.27	1.22	1.23	1.15	1.00	0.90	0.83	0.77
185	1.27	1.23	1.23	1.15	1.00	0.90	0.83	0.77
240	1.28	1.23	1.23	1.15	1.00	0.90	0.83	0.77
300	1.28	1.23	1.24	1.15	1.00	0.90	0.82	0.77
400	1.28	1.23	1.24	1.15	1.00	0.90	0.82	0.76

### ■ Group Rating Factors of Three-Core Cables in Horizontal Formation Laid Direct in the Ground

Number of Cables in Group	Spacing Between Cable Center				
	Touching	0.2m	0.4m	0.6m	0.8m
2	0.80	0.86	0.90	0.90	0.94
3	0.69	0.77	0.82	0.86	0.89
4	0.62	0.72	0.79	0.93	0.87
5	0.57	0.68	0.76	0.81	0.85
6	0.54	0.65	0.74	0.80	0.84

### ■ Group Rating Factors of Three-Phase Circuits of Single-Cables Laid Direct in the Ground

Number of Cables in Group	Spacing Between Cable Center				
	Touching	0.2m	0.4m	0.6m	0.8m
2	0.73	0.83	0.88	0.90	0.92
3	0.60	0.73	0.79	0.83	0.86
4	0.54	0.68	0.75	0.80	0.84
5	0.49	0.63	0.72	0.78	0.82
6	0.46	0.61	0.70	0.76	0.81