

T33 Selection Table

T33: Current Rating and Voltage Drop

Table 33-1: Current Rating and Voltage Drop

2- and 3-single-core cables having PVC (V-90HT) Insulation, sheathed and unheathed, non-armoured (Copper Conductor) 600/1000 V
Cable Categories: V-90HT SC

Current-Rating Capacities (Amp)

Conductor cross-sectional area	Unenclosed						Enclosed		Single Phase Voltage Drop
	Spaced		Spaced from surface		Touching		Conduit in air		
mm ²	A	A	A	A	A	A	A	A	mV/A/m
1.0	16	16	16	14	13	13	13	11	54.0
1.5	21	20	21	17	16	16	16	14	34.6
2.5	30	29	29	25	23	23	22	20	18.9
4	40	38	39	33	31	31	30	26	11.7
6	51	49	49	42	40	40	38	34	7.86
10	69	67	67	58	54	54	53	47	4.67
16	92	89	89	77	72	72	71	62	2.94
25	125	120	120	105	97	97	97	87	1.87
35	155	150	145	125	120	120	115	100	1.36
50	185	180	175	155	145	145	140	125	1.01
70	240	230	225	195	185	185	175	155	0.710
95	295	285	275	245	230	230	210	185	0.527
120	345	335	320	285	265	265	250	220	0.430
150	395	385	365	330	310	310	280	250	0.364
185	460	445	425	385	360	355	325	285	0.310
240	550	540	510	455	430	425	385	340	0.262
300	640	620	580	530	495	490	-	390	0.233
400	740	730	680	610	580	570	-	455	0.211
500	870	850	780	710	670	660	-	530	0.196
630	1010	990	900	820	770	760	-	620	0.183

Table 33-2: Current Rating and Voltage Drop

2-core, 3- and 4-core cables having PVC (V-90) Insulation, sheathed, armoured or non-armoured (Copper Conductor) 450/750 and 600/1000 V
Cable Categories: AS ORANGE / BLACK CIRCULAR

Current-Rating Capacities (Amp)

Conductor cross-sectional area	Unenclosed				Enclosed		Underground ducts		Three Phase Voltage Drop
	Spaced		Touching		Conduit in air				
mm ²	A	A	A	A	A	A	A	A	mV/A/m
1.0	15	13	14	12	11	10	17	15	46.8
1.5	19	16	18	15	14	13	22	19	30.0
2.5	27	23	26	22	20	18	31	26	16.4
4	37	31	34	29	26	24	40	34	10.2
6	46	40	44	37	34	31	51	43	6.80
10	64	54	60	51	47	42	68	57	4.05
16	85	72	80	68	63	56	88	74	2.55
25	115	97	105	91	88	79	115	96	1.61
35	140	120	130	110	105	92	140	115	1.17
50	170	145	160	135	125	110	165	140	0.868
70	215	185	200	170	155	140	205	175	0.609
95	265	230	250	215	190	165	250	210	0.450
120	305	265	290	245	225	195	290	240	0.366
150	350	305	330	280	255	225	325	270	0.307
185	405	350	375	325	295	260	370	310	0.259
240	475	410	445	385	345	305	430	370	0.216
300	550	470	510	440	400	-	495	415	0.190
400	630	540	590	500	465	-	560	480	0.171
500	720	620	670	570	620	-	650	540	0.158

Notes: 1. These ratings are based on ambient air temperature 40 degC, and ambient soil temperature 25 degC at 0.5 m depth.
2. Correction factors may apply subject to laying conditions please refer to Table 33-6, 33-7, 33-8, and 33-9

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Table 33-3: Current Rating and Voltage Drop

2- and 3-single-core cables having TPR Insulation, sheathed and unheathed, non-armoured (Copper Conductor) 600/1000 V
Cable Categories: ÖLFLEX® POWER TPR 90 SDI, ÖLFLEX® POWER TPR 90 EARTH

Current-Rating Capacities (Amp)

















Conductor cross-sectional area	Unenclosed						Enclosed		Single Phase Voltage Drop
	Spaced		Spaced from surface		Touching		Conduit in air		
									
mm ²	A	A	A	A	A	A	A	A	mV/A/m
1.0	20	19	20	16	16	16	16	14	54.0
1.5	26	25	25	21	20	20	20	18	34.6
2.5	36	35	36	30	28	28	28	25	18.9
4	48	46	47	40	37	37	37	33	11.7
6	61	59	60	50	47	47	47	42	7.86
10	84	81	82	69	65	65	65	58	4.67
16	110	110	110	92	86	86	86	78	2.94
25	150	145	145	125	115	115	115	110	1.87
35	185	180	175	155	145	145	145	125	1.36
50	230	220	215	190	175	175	175	155	1.01
70	290	280	275	240	225	225	220	190	0.710
95	360	350	340	300	280	280	260	230	0.527
120	420	410	395	350	325	325	310	270	0.430
150	485	470	450	405	375	375	350	310	0.364
185	570	550	520	470	435	435	400	355	0.310
240	680	660	620	560	520	520	475	420	0.262
300	790	770	720	650	610	600	-	485	0.233
400	920	900	840	760	710	700	-	560	0.211
500	1080	1050	970	870	820	810	-	650	0.196
630	1260	1230	1110	1010	950	940	-	760	0.183

Table 33-4: Current Rating and Voltage Drop

2-core, 3- and 4-core cables having TPR Insulation, sheathed, armoured or non-armoured (Copper Conductor) 600/1000 V
Cable Categories: ÖLFLEX® POWER TPR 90 MC

Current-Rating Capacities (Amp)

Conductor cross-sectional area	Unenclosed				Enclosed		Underground ducts		Three Phase Voltage Drop
	Spaced		Touching		Conduit in air				
									
mm ²	A	A	A	A	A	A	A	A	mV/A/m
1.0	18	16	17	14	13	12	20	17	46.8
1.5	24	20	22	19	17	16	25	21	30.0
2.5	34	28	31	26	24	22	35	30	16.4
4	45	38	42	35	33	29	46	38	10.2
6	57	48	53	45	42	38	57	48	6.80
10	78	66	73	62	59	53	77	64	4.05
16	105	88	97	83	79	70	100	83	2.55
25	140	120	130	110	110	98	130	110	1.61
35	175	145	160	135	130	115	160	135	1.17
50	210	180	195	170	160	140	190	160	0.868
70	270	230	250	215	200	175	235	200	0.609
95	330	285	310	265	240	210	285	240	0.450
120	385	330	360	305	285	250	325	275	0.366
150	440	375	410	350	325	280	375	310	0.307
185	510	435	475	405	375	325	425	355	0.259
240	600	520	560	480	445	385	500	420	0.216
300	690	590	640	550	520	-	570	475	0.190
400	800	680	750	630	600	-	650	540	0.171
500	920	780	850	720	770	-	750	620	0.158

Notes: 1. These ratings are based on ambient air temperature 40 degC, and ambient soil temperature 25 degC at 0.5 m depth.
2. Correction factors may apply subject to laying conditions please refer to Table 33-6, 33-7, 33-8, and 33-9.





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Table 33-5: Current Rating and Voltage Drop

Cables having TPR Insulation, sheathed and unheathed, non-armoured (Copper Conductor) 600/1000 V - Flexing Application
Cable Categories: ÖLFLEX® POWER TPR 90 SDI, EARTH and MC

Current-Rating Capacities (Amp)

Conductor cross-sectional area	Single- and 2-core		3- and 4-core		Three Phase Voltage Drop
	Protected from sun	Exposed to sun	Protected from sun	Exposed to sun	
					
mm²	A	A	A	A	mV/A/m
6	54	43	46	37	7.29
10	74	58	63	50	4.38
16	99	77	85	66	2.68
25	135	105	115	88	1.62
35	165	125	140	105	1.19
50	195	145	165	125	0.902
70	250	185	215	155	0.608
95	290	210	250	180	0.485
120	340	245	290	210	0.387
150	390	280	335	240	0.317
185	440	315	380	270	0.275
240 *	510	365	445	310	0.233
300 *	600	420	510	360	0.205
400 *	720	500	620	425	0.180
500 **	800	560	-	-	0.170

Notes: 1. These ratings are based on ambient air temperature 40 degC.
2. * denote as for single-core, 2-core, and 3-core only.
3. ** denote as for single-core only.

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Table 33-6: Correction Factors for Other Temperature

Correction Factors for variations in ambient temperature for cables in air and for cables buried direct in ground																	
Ambient Temperature (°C)	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	100
Conductor Temperature (°C)	75	1.35	1.28	1.21	1.14	1.07	1.00	0.91	0.82	0.72	0.60	0.49	0.37	-	-	-	-
	80	1.31	1.25	1.19	1.12	1.06	1.00	0.92	0.84	0.76	0.66	0.56	0.45	0.27	-	-	-
	90	1.26	1.20	1.15	1.10	1.05	1.00	0.94	0.88	0.81	0.73	0.65	0.57	0.47	0.34	0.19	-
	110	1.16	1.13	1.10	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76	0.71	0.65	0.60	0.53

Table 33-7: Correction Factors for Group Installation

Correction Factors for bunched circuits of single-core or multicore cables in air or in wiring enclosures																	
Arrangement of Cables	Correction Factor																
	Number of Circuits																
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20	>	
Bunched in air	1.00	0.87	0.75	0.72	0.70	0.67	-	-	-	-	-	-	-	-	-	-	-
Bunched on a surface or enclosed	1.00	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38		
Single layer on wall or floor	Touching	1.00	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
	Spaced	1.00	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer on wall under ceiling	Touching	0.95	0.81	0.72	0.68	0.66	0.64	0.63	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
	Spaced	0.95	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85

- Notes:
- This factors are applicable to numbers of circuits comprising the following:
 - Group of two, three or four single-core cables
 - Multicore cables
 - Cables passing more than once through the same group of cables or wiring enclosures and circuits connected in parallel
 - Spaced means a clearance of one cable diameter between cable surfaces of adjacent cables. Where the cables concern are not of the same size, the spacing will be based on the largest cable diameter in the adjacent group.
 - Earthing conductors, lightly loaded neutral conductors of three-phase circuits and conductors subject only to momentary loading, such as control wiring, are not taken into account when the number of circuits
 - These factors are based on uniform groups of cables, equally loaded.

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T33: Correction Factors

Table 33-8: Correction Factors for Installation in Trays (Single-core)

Correction Factors for circuits of single-core cables installed in trays, racks, cleats, or other supports in air

Installation		Number of tier or rows of cable support	Arrangements of cables in a circuits	Correction Factors		
				Number of Circuits per tier or row		
				1	2	3
Unperforated trays		1	2 or 3 cables in horizontal formation	0.95	0.85	0.84
		2		0.92	0.83	0.79
		3		0.91	0.82	0.76
Perforated trays		1	2 or 3 cables in horizontal formation	0.97	0.89	0.87
		2		0.94	0.85	0.81
		3		0.93	0.84	0.79
Ladder supports, racks and cleats		1	2 or 3 cables in horizontal formation	1.00	0.95	0.94
		2		0.95	0.90	0.88
		3		0.95	0.89	0.85
Vertical perforated trays		1	2 or 3 cables in vertical formation	0.94	0.85	-
		2		0.92	0.83	-
Unperforated trays		1	2 or 3 cables in horizontal formation	0.98	0.96	0.94
		2		0.95	0.91	0.87
		3		0.94	0.90	0.85
Perforated trays		1	2 or 3 cables in horizontal formation	1.00	0.98	0.96
		2		0.97	0.93	0.89
		3		0.96	0.92	0.86
Ladder supports		1	2 or 3 cables in horizontal formation	1.00	1.00	1.00
		2		0.97	0.95	0.93
		3		0.97	0.94	0.90
Vertical perforated trays		1	2 or 3 cables in vertical formation	1.00	0.91	0.89
		2		1.00	0.90	0.86

Table 33-9: Correction Factors for Installation in Trays (Multicore)

Correction Factors for circuits of multicore cables installed in trays, racks, cleats, or other supports in air

Installation		Number of tier or rows of cable support	Correction Factors					
			Number of Circuits per tier or row					
			1	2	3	4	5	6
Unperforated trays		1	0.97	0.85	0.78	0.75	0.71	0.68
		2	0.97	0.84	0.76	0.73	0.68	0.63
		3	0.97	0.83	0.75	0.72	0.66	0.61
		1	0.97	0.96	0.94	0.93	0.90	-
		2	0.97	0.95	0.92	0.90	0.86	-
		3	0.97	0.94	0.91	0.89	0.84	-
Perforated trays		1	1.00	0.88	0.82	0.78	0.76	0.73
		2	1.00	0.87	0.80	0.76	0.73	0.68
		3	1.00	0.86	0.79	0.75	0.71	0.66
		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	-
Ladder supports, racks and cleats		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
		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	-
Vertical perforated trays		1	1.00	0.88	0.82	0.77	0.73	0.72
		2	1.00	0.88	0.81	0.76	0.72	0.70
		1	1.00	0.91	0.89	0.88	0.87	-
		2	1.00	0.91	0.88	0.87	0.86	-

- Notes: 1. Vertical spacing of horizontal trays and ladder supports shall not be less than 300 mm.
 2. The horizontal spacing of vertical trays mounted back to back shall not be less than 230 mm.
 3. "D" equals the cable outside diameter or in the case of a flat multicore cable the maximum dimension of the cable.
 4. These factors are applicable to single layers of cables or trefoil groups. Where there is more than one layer on the same tray or ladder support, Table 33-8 may be used.

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