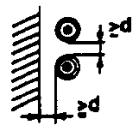
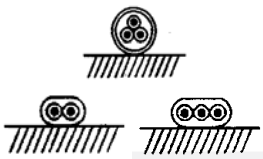
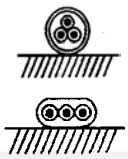
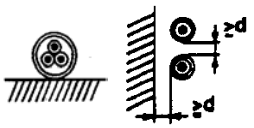
Table 12-1: Power rating

Of wires & cables having nominal voltage up to 1000 V and heat resistant wire & cables, ambient temperature 30 °C

Cable or lead category						
	A **Single core cable** • rubber insulated • PVC insulated • TPE insulated • heat resistant	**B** **Multi core cables and cords for home- and portable apparatus** • rubber insulated • PVC insulated • TPE insulated		**C** **Multicore cables + cords, excl. home- + portable apparatus** • rubber insulated • PVC insulated • TPE- insulated • heat resistant	**D** **Multicore heavy duty rubber cables** ≤ 0.6/1kV **Single core special rubber cables** 0.6/1kV or 1.8/3kV	
Method of installation						
Number of current carrying conductors	**1**[3]	**2**	**3**	**2** or **3**	**3**	**1**[3]
Nominal cross section in mm²	**Current rating in A**	**Current rating in A**		**Current rating in A**	**Current rating in A**	
0.08[1]	1.5	-	-	1	-	-
0.14[1]	3	-	-	2	-	-
0.25[1]	5	-	-	4	-	-
0.34[1]	8	-	-	6	-	-
0.5	12[2]	3	3	9[2]	-	-
0.75	15	6	6	12	-	-
1.0	19	10	10	15	-	-
1.5	24	16	16	18	23	30
2.5	32	25	20	26	30	41
4	42	32	25	34	41	55
6	54	40	-	44	53	70
10	73	63	-	61	74	98
16	98	-	-	82	99	132
25	129	-	-	108	131	176
35	158	-	-	135	162	218
50	198	-	-	168	202	276
70	245	-	-	207	250	347
95	292	-	-	250	301	416
120	344	-	-	292	-	488
150	391	-	-	335	-	566
185	448	-	-	382	-	644
240	528	-	-	453	-	775
300	608	-	-	523	-	898
400	726	-	-	-	-	-
500	830	-	-	-	-	-
Sources of current ratings of table 12-1:	DIN VDE 0298-4, 2003-08 Table 11 Column 2	DIN VDE 0298-4, 2003-08 Table 11 Column 3 + 4		DIN VDE 0298-4, 2003-08 Table 11 Column 5	DIN VDE 0298-4, 2003-08 Table 15 Column 4 + 2	

Note:
Design of tables 12 to 13 deviates from (58 pages-). VDE 0298-4 design. In case of doubt, appliance of the current issue of the DIN VDE 0298-4 is obligatory. Table 12-1 values have to be taken into consideration of further applicable converting/derating factors:

- Other ambient temperatures: Table 12-2
- more then 3 current carrying cores of multiconductor cables up to 10mm²: Table 12-3
- Ambient temperatures > 50 °C of heat resistant wire & cables: Table 12-4
- for winded, spooled cables: Table 12-5
- Grouping of singe core & multi core cables in conduits, raceways, wireways, floor & ceiling: Table 12-6
- Grouping of multi core cables in cable trays: Table 12-7
- Grouping of single core cables in cable trays : Table 12-8

Table 12-1 Column A – D, Cable Categories:

A: Singe cores: LiY, LiYCY-EA, H05V-K, H07V-K, H07V2-K, H07Z-K, Multi-standard wiring cable, ÖLFLEX® HEAT 105, -145, ÖLFLEX® HEAT 180 and ÖLFLEX® HEAT 205/260 wires/single core cables.

B: Multicore cables & service cords for home- and portable apparatus: ÖLFLEX® CLASSIC 100, H05VV-F, 450 P, 500 P 540 P, H05RR-F , H05RN-F, H05BQ-F, H07BQ-F

C: Multi core power and control cables excluding home and portable apparatus: All ÖLFLEX®-, ÖLFLEX® CRANE-, ÖLFLEX® HEAT-, ÖLFLEX® HEAT 180-, ÖLFLEX® HEAT 205/260- cables,

D: Multi core heavy duty rubber cables U_0/U ≤ 0.6/1kV: ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS, NSHTÖU, NSSHÖU, ÖLFLEX® HEAT-Multicore cables.
Single core special rubber cable $U_0/$: 0.6/1kV or 1.8/3 kV: NSGAFÖU, NSHXAFÖU; ÖLFLEX® HEAT® 145 single core cables

Current (power) ampacity of other cables:
Copper earthing cable ESUY see VDE 0105 part 1
H07RN-F/A 07RN-F/H07BQ-F for industrial use: see catalogue table T12-9.
Welding cable H01N2-D see catalogue table T12-10.
Cables for building wiring: NYM, NHXMH, NYY, NYCY, NYCWY, NHXHX see VDE 0298-4, 2003-08, Table 3 & 4.
Cables & wires in machines: see DIN EN 60204-1/VDE 0113-1
Cabels & wires in machines for USA: see National Electrical Code & NFPA 79, Table 13

[1] VDE 0891-1 -borrowed current ratings for conductor sizes < 0.5mm² (0.08-0.34 mm²)
[2] In terms of VDE 0298-4, 2003-08, Table 11 column 2 extended range for size 0.5 mm².
[3] Clustering of single core cables in touch to each other or bundled cables:

- on surfaces: Current rating values of Table 12-1 column A or D,
  - for 1~A.C. or – or D.C.-circuits a derating factor of 0.76
  - for 3~A.C. circuits a derating factor of 0.67
  have to be applied before applying conversion factor of Table 12-6
- free in air or on cable trays: Current rating values of table 12-1 column A or D,
  - for 1~A.C. – or D.C. circuits a derating factor of 0.8
  - for 3~A.C. circuits a derating factor of 0.7
  have to applied before applying conversion factor of table 12-8.
- Attention: Single cores (wires) installed in conduits or pipes in or attached to walls (Installation Methode A1 or B1) in buildings see VDE 0298, tables 3 or 5, column 2, 3, 6, or 7 & table 21.

Table 12-2: Correction Factors

For ambient temperatures different to 30 °C. For heat resistant cables and wires see Table T12-4 (in accordance to DIN VDE 0298-4, 2003-08, Table 17).

Rated temperature of the conductor of wire or cable. (See product page of the catalogue, Technical Data, Temperature range: upper value for static and/or flexing)					
	60 °C	70 °C	80 °C	85 °C	90 °C
Ambient temperature in °C	Correction factor, applicable to current value of T12-1				
10	1.29	1.22	1.18	1.17	1.15
15	1.22	1.17	1.14	1.13	1.12
20	1.15	1.12	1.10	1.09	1.08
25	1.08	1.06	1.05	1.04	1.04
30	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
35	0.91	0.94	0.95	0.95	0.96
40	0.82	0.87	0.89	0.90	0.91
45	0.71	0.79	0.84	0.85	0.87
50	0.58	0.71	0.77	-	0.82
55	0.41	0.61	0.71	-	0.76
60	-	0.50	0.63	-	0.71
65	-	0.35	0.55	-	0.65
70	-	-	0.45	-	0.58
75	-	-	0.32	-	0.50
80	-	-	-	-	0.41
85	-	-	-	-	0.29

Table 12-3: Correction Factors

for multiconductor cables and cords, having condcutor size up to 10 mm² (DIN VDE 0298-4, 2003-08. Table 26)

Number of current carrying conductors	Correction factors for cables in free air	Correction factors for cables in earth (burial)
5	0.75	0.70
7	0.65	0.60
10	0.55	0.50
14	0.50	0.45
19	0.45	0.40
24	0.40	0.35
40	0.35	0.30
61	0.30	0.25

Table 12-4: Correction factors of heat resistant cables and wires

Cables and wires classified according to its rated temperature of the conductor (See product page of the catalogue "Technical Data, Temperature Range, for upper value for static and/or flexing use").				
	ÖLFLEX® HEAT 105 H07V2-K ÖLFLEX®-FD ROBUST H07Z-K 90 °C	Halogen free single core H07Z-K 110 °C	ÖLFLEX® HEAT 145	ÖLFLEX® HEAT 180 Silicone rubber
Ambient temperature in °C	Correction factors, applying to current value of Table 12-1, column A, C or D for heat resistant wires and cables (Source: DIN VDE 0298-4, 2003-08, Table 18)			
up to 50	**1.00**	**1.00**	**1.00**	**1.00**
55	0.94	**1.00**	**1.00**	**1.00**
60	0.87	**1.00**	**1.00**	**1.00**
65	0.79	**1.00**	**1.00**	**1.00**
70	0.71	**1.00**	**1.00**	**1.00**
75	0.61	**1.00**	**1.00**	**1.00**
80	0.50	**1.00**	**1.00**	**1.00**
85	0.35	0.91	**1.00**	**1.00**
90	-	0.82	**1.00**	**1.00**
95	-	0.71	**1.00**	**1.00**
100	-	0.58	0.94	**1.00**
105	-	0.41	0.87	**1.00**
110	-	-	0.79	**1.00**
115	-	-	0.71	**1.00**
120	-	-	0.61	**1.00**
125	-	-	0.50	**1.00**
130	-	-	0.35	**1.00**
135	-	-	-	**1.00**
140	-	-	-	**1.00**
150	-	-	-	**1.00**
155	-	-	-	0.91
160	-	-	-	0.82
165	-	-	-	0.71
170	-	-	-	0.58
175	-	-	-	0.41

Table 12-5: Correction factors

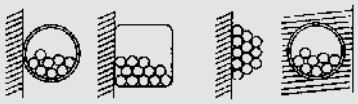
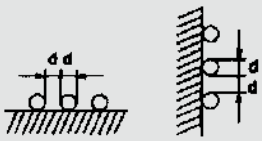
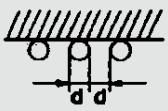
of spooled/winded cables (DIN VDE 0298-4, 2003-8. Table 27)

Number of layers on spool, reel or drum	1	2	3	4	5
Correction factor	**0.80**	**0.61**	**0.49**	**0.42**	**0.38**

For helix-type coiled/winded cables (spiral in one layer) the correction factor is 0.8.

Table 12-6: Correction factors

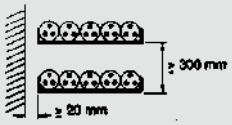
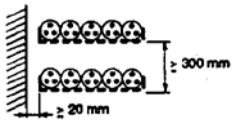
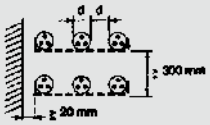
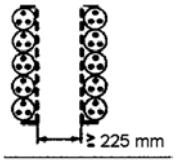
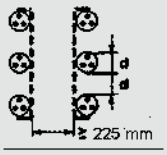
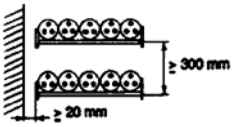
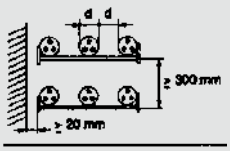
Grouping on the wall, floor, ceiling in conduits or closed wire ways (in accordance to DIN VDE 0298-4, 2003-08, Table 21).

Number of current-carrying multicore cables or number of groups of 2- or 3-phase A.C. circuits single core cables.															
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Type of installation (method)	**Correction factor, applicable to the current value of Table 12-1**														
On floors or walls with contact between each other bunched directely as well as in conduits or in wireways 	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
In touch between each other, directely attached to walls or floors in one layer. 	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
With clearance of “d” between each other, directely attached to walls or floors in one layer. 	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
In touch between each other, directely attached to cealings. 	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
With clearance of “d” between each other, directely attached to cealings in one layer. 	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

○ = Symbol of one single core or one multicore cable.
Notice: Correction factors can be applied only to similar loaded cables of a similar type of installation (wiring methode) and nominal cross sections differ one step only.

Table 12-7: Correction factors

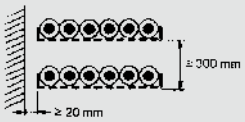
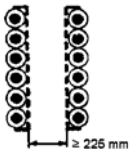
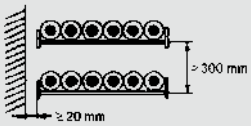
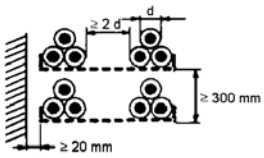
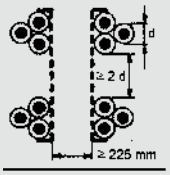
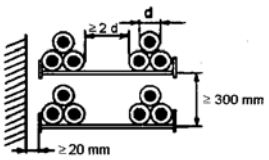
for grouping/clustering of multi conductor cables in cable trays (in accordance to DIN VDE 0298-4, 2003-08, table 22)

Cable arrangement			Number of cable trays	Number of multi conductor cables					
				1	2	3	4	6	9
				Correction factors					
Cable tray, non-punched	in touch		**1**	**0.97**	**0.84**	**0.78**	**0.75**	**0.71**	**0.68**
			2	0.97	0.83	0.76	0.72	0.68	0.63
			3	0.97	0.82	0.75	0.71	0.66	0.61
			6	0.97	0.81	0.73	0.69	0.63	0.58
Cable tray, punched (ventilated)	in touch		**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
			6	1.00	0.84	0.77	0.73	0.68	0.64
	with space		**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	–
	in touch		**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
	with space		**1**	**1.00**	**0.91**	**0.89**	**0.88**	**0.87**	–
			2	1.00	0.91	0.88	0.87	0.85	–
Cable tray, ladder type	in touch		**1**	**1.00**	**0.87**	**0.82**	**0.80**	**0.79**	**0.78**
			2	1.00	0.86	0.81	0.78	0.76	0.73
			3	1.00	0.85	0.79	0.76	0.73	0.70
			6	1.00	0.83	0.76	0.73	0.69	0.66
	with space		**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	–

Note: Correction factors are applicable to similar loaded cables of a similar type of installation (wiring methode) of groups of cables, lying in one-layer only, as shown at this page. Correction factors are not applicable to cables lying on top to each other as well as if minimum distance required according that table is not guaranteed. In such cases correction factors of this table have to be additional corrected too. I.e according Table 12-6.

Table 12-8: Correction factors

for grouping/clustering of single core cables in cable trays. Applicable to current values of table 12-1 (Origin of T12-8 = DIN VDE 0298-4 2003-08, Table 23).

Cable arrangement		Number of cable trays	Number of 3-phase circuits comprising single core cables			Applicable as a multplier of the rated values of:
			1	2	3	
			Correction factor			
Cable tray, punched (ventilated)	in touch 	1	**0.98**	**0.91**	**0.87**	three cables, horizontal array, one-layer configuration
		2	0.96	0.87	0.81	
		3	0.95	0.85	0.78	
	in touch 	1	**0.96**	**0.86**	–	three cables, vertical array, one-layer configuration
		2	0.95	0.84	–	
Cable tray, ladder type	in touch 	1	**1.00**	**0.97**	**0.96**	three cables, horizontal array, one-layer configuration
		2	0.98	0.93	0.89	
		3	0.97	0.90	0.86	
Cable tray, punched (ventilated)		1	**1.00**	**0.98**	**0.96**	three cables, horizontal array, delta-configuration
		2	0.97	0.93	0.89	
		3	0.96	0.92	0.86	
		1	**1.00**	**0.91**	**0.89**	three cables, vertical array, delta-configuration
		2	1.00	0.90	0.86	
Cable tray, ladder type		1	**1.00**	**1.00**	**1.00**	three cables, horizontal array, delta-configuration
		2	0.97	0.95	0.93	
		3	0.96	0.94	0.90	

Note: Correction factors are applicable to similar loaded cables of a similar type of installation (wiring methode) of groups of single core cables, lying in one-layer or delta configuration only, as shown at this page. Conversion factors are not applicable to cables lying on top to each other as well as if minimum distance required according that table is not guaranteed. In such cases correction factors of this table have to be additional corrected too. I.e according Table 12-6. In cases where a splitting into certain numbers of parallel groups of cables is needed, each group of 3 current carrying cables is considered as being one entire circuit.

Table 12-9: Power rating of rubber cables

H07RN-F and A07RN-F in industrial application usage (in accordance with DIN VDE 0298-4, Aug. 2003 Table 13)

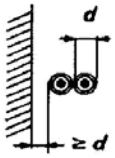
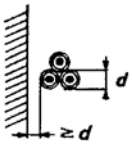
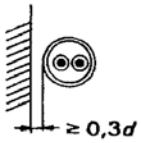
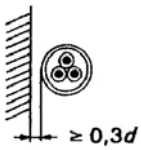
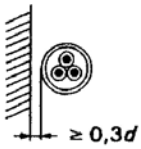
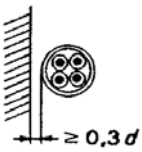
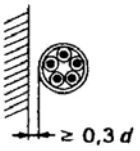
Rated temperature at the conductor	60 °C						
Ambient-temperature	30 °C						
Installation-methode **Free in air**							
Number of current carrying conductors	2	3	2	2	3	3	3
Conductors nominal cross- section in mm²	**Current rating in A**						
1	-	-	15	15.5	12.5	13	13.5
1.5	19	16.5	18.5	19.5	15.5	16	16.5
2.5	26	22	25	26	21	22	23
4	34	30	34	35	29	30	30
6	43	38	43	44	36	37	38
10	60	53	60	62	51	52	54
16	79	71	79	82	67	69	71
25	104	94	105	109	89	92	94
35	129	117	-	135	110	114	-
50	162	148	-	169	138	143	-
70	202	185	-	211	172	178	-
95	240	222	-	250	204	210	-
120	280	260	-	292	238	246	-
150	321	300	-	335	273	282	-
185	363	341	-	378	309	319	-
240	433	407	-	447	365	377	-
300	497	468	-	509	415	430	-
400	586	553	-	-	-	-	-
500	970	634	-	-	-	-	-
630	784	742	-	-	-	-	-
Correction factors for:							
Other ambient temperatures	see Table T 12-2						
Grouping/Clustering	–	T 12-8			T 12-7		
Spooled/ winded cables	–	–			T 12-5		
Multi conductor cables	–				T 12-3	–	

Table 12-10: Power ratings & conditions of arc-welding cables

H01N2-D and H01N2-E (in accordance to DINVDE 0298-4, 2003-08, Table 16)

Rated temperature at the conductor	85 °C						
Ambient temperature	30 °C						
Applying condition of the cable	in free air 						
Number of current carrying conductors	1						
Mode of operation	**Continuous**	**Interrupt**					
Operating periode	–	5 min					
Operating factor OF	100 %	85 %	80 %	60 %	35 %	20 %	8 %
Nom. cross section copper conductor mm²	**Rating in A**						
10	96	97	98	102	114	137	198
16	130	132	134	142	166	204	301
25	173	179	181	196	234	293	442
35	216	226	229	250	304	384	584
50	274	287	293	323	398	508	779
70	341	360	368	409	510	655	1011
95	413	438	448	502	632	816	1266
120	480	511	523	588	745	966	1502
150	557	594	609	687	875	1137	1771
185	638	683	700	793	1012	1319	2059
Mode of operation	**Continuous**	**Interrupt**					
Operating periode	–	10 min					
Operating factor OF	100 %	85 %	80 %	60 %	35 %	20 %	8 %
Nom. cross section copper conductor mm²	**Rating in A**						
10	96	96	96	97	102	113	152
16	130	131	131	133	144	167	233
25	173	175	176	182	204	244	351
35	216	220	222	233	268	324	477
50	274	281	284	303	356	439	654
70	341	352	358	387	463	578	872
95	413	430	438	478	582	734	1117
120	480	503	513	564	692	880	1348
150	557	586	597	661	819	1046	1609
185	638	674	688	765	955	1226	1892
Other ambient temperatures	Tabelle T 12-2						