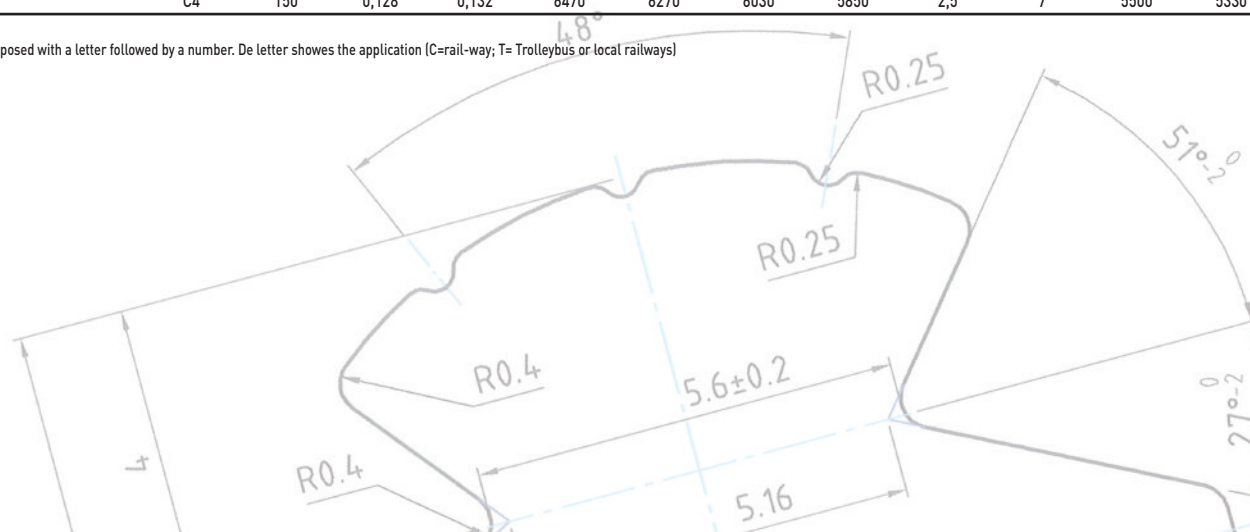


# Contact wire according to NF C 34-800

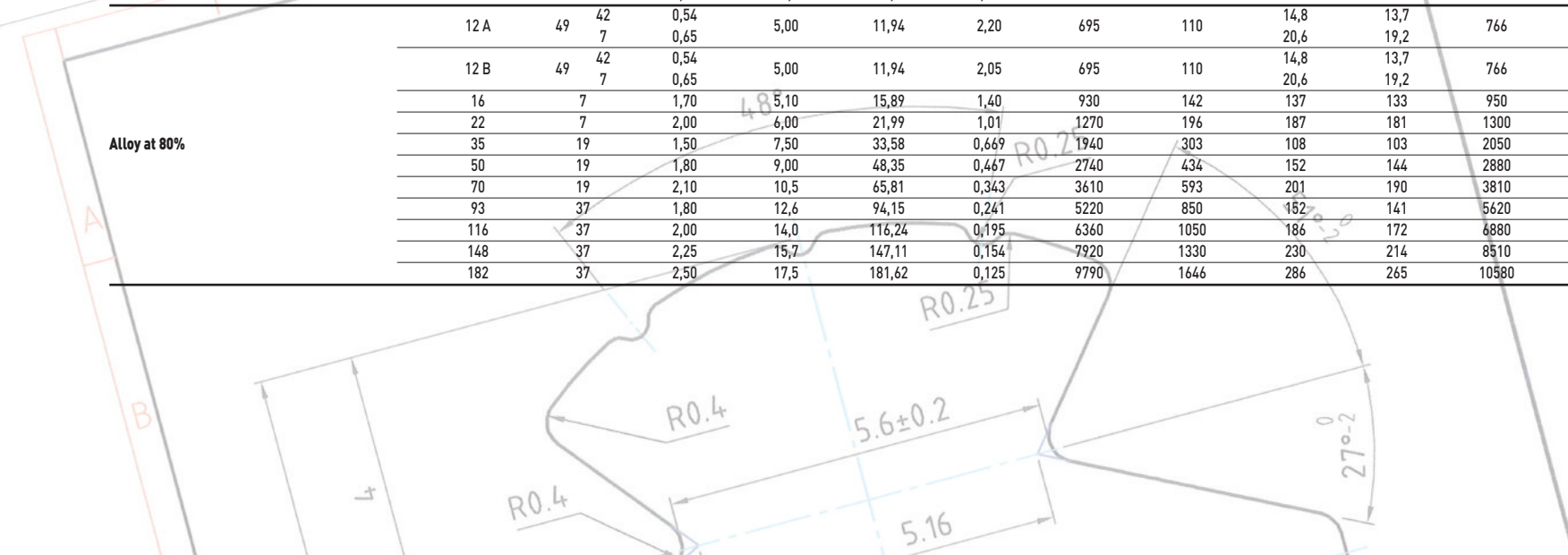
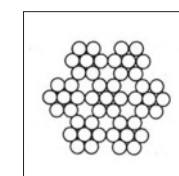
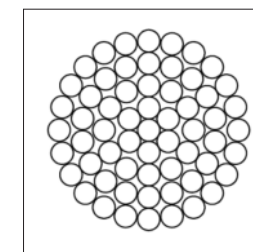
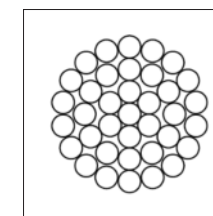
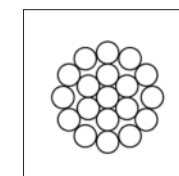
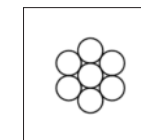
Material	Designation	Nominal cross section	Linear Resistance at 20°C	Breaking Load				Percentage elongation after fracture		Conventional elastic limit		Bending test		Mass				
				Without brazing		With brazings		Min. %	Max. %	Nom. daN	Min. daN	# min.	mandril mm	Min. kg/km	Nom. kg/km	Max. kg/km		
				Nom. daN	Max. daN	Nom. daN	Max. daN											
Copper	T1	68	0,259	0,267	2530	2450	2430	2360	3	7	2150	2090	8	30	586	605	623	
	C1	80	0,220	0,227	2980	2890	2860	2780	3	7	2530	2450	8	30	690	711	733	
	T2	84	0,210	0,216	3050	2960	2880	2800	3	7	2590	2510	8	30	724	747	769	
	T3	84	0,210	0,216	3050	2960	2880	2800	3	7	2590	2510	8	30	724	747	769	
	T4	86	0,205	0,211	3120	3030	2950	2860	3	7	2650	2570	8	30	742	765	788	
	T5	87,5	0,201	0,207	3180	3080	3000	2910	3	7	2700	2620	8	30	754	778	801	
	C2	100	0,176	0,181	3580	3470	3430	3330	3	7	3040	2950	7	30	862	889	916	
	T6	102	0,173	0,178	3650	3540	3500	3390	3	7	3100	3010	7	30	880	907	934	
	T7	102	0,173	0,178	3650	3540	3500	3390	3	7	3100	3010	7	30	880	907	934	
	T8	106	0,166	0,171	3800	3680	3640	3530	3	7	3230	3130	7	30	914	942	971	
	C3	107	0,164	0,170	3830	3720	3670	3560	3	7	3260	3160	7	30	923	951	980	
	C4	150	0,117	0,121	5370	5210	5150	4990	3	7	4570	4430	6	30	1293	1334	1374	
	Copper-cadmium alloy	T1	68	0,282	0,290	3000	2910	2730	2650	2,5	7	2550	2470	8	30	586	605	623
		C1	80	0,240	0,247	3530	3420	3220	3120	2,5	7	3000	2910	8	30	690	711	733
T2		84	0,228	0,235	3700	3590	3380	3280	2,5	7	3150	3050	8	30	724	747	769	
T3		84	0,228	0,235	3700	3590	3380	3280	2,5	7	3150	3050	8	30	724	747	769	
T4		86	0,223	0,230	3790	3680	3460	3350	2,5	7	3220	3130	8	30	742	765	788	
T5		87,5	0,219	0,226	3860	3740	3520	3410	2,5	7	3280	3180	8	30	754	778	801	
C2		100	0,192	0,198	4310	4180	4020	3900	2,5	7	3660	3550	7	30	862	889	916	
T6		102	0,188	0,194	4400	4260	4100	3980	2,5	7	3740	3630	7	30	880	907	934	
T7		102	0,188	0,194	4400	4260	4100	3980	2,5	7	3740	3630	7	30	880	907	934	
T8		106	0,181	0,186	4570	4430	4260	4130	2,5	7	3880	3770	7	30	914	942	971	
C3	107	0,179	0,185	4610	4470	4300	4170	2,5	7	3920	3800	7	30	923	951	980		
C4	150	0,128	0,132	6470	6270	6030	5850	2,5	7	5500	5330	6	30	1293	1334	1374		

(1) The designation is composed with a letter followed by a number. De letter shows the application (C=rail-way; T= Trolleybus or local railways)



# Conductor according to NF C 34-110-2

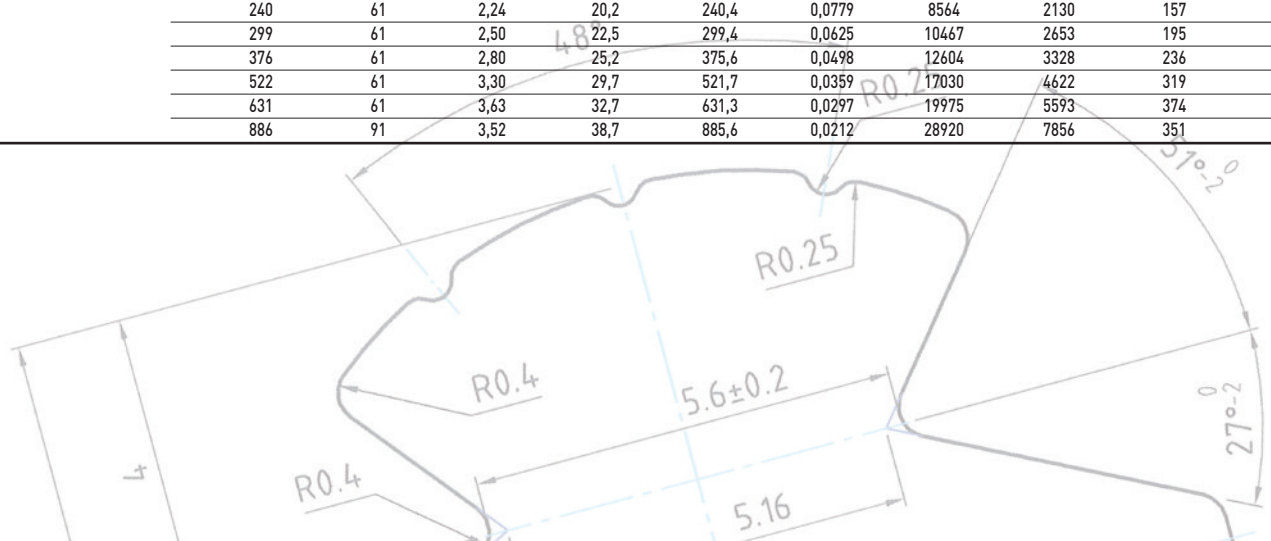
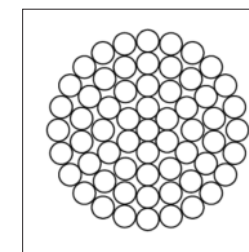
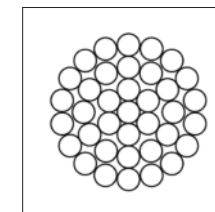
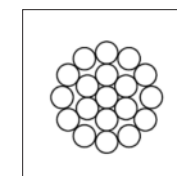
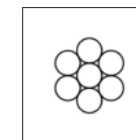
Material	Designation	Composition		Conductors Diametre	Nominal cross section	Linear Resistance at 20°C	Max load with accessoires	Linear mass	Wire after untwisting: maximum Load		Calculated maximum load	
		Number of wires	Wire diameter						Lower limit			
									Nom.	Min.		Nom.
mm <sup>2</sup>		mm	mm	mm <sup>2</sup>	Ω/km	daN	kg/km	daN	daN			
Alloy at 37%	116	37	2,00	14,0	116,24	0,451	8090	1050	239	222	8840	
	22	7	2,00	6,00	21,99	1,35	1430	196	211	204	1470	
	35	37	1,10	7,70	35,16	0,857	2330	317	68	63,4	2510	
Alloy at 60%	48	19	1,80	9,00	48,35	0,620	3090	434	172	163	3260	
	65	37	1,50	10,5	65,38	0,462	4190	590	123	114	4550	
	93	37	1,80	12,6	94,15	0,320	5890	850	172	159	6360	
	116	37	2,00	14,0	116,24	0,260	7190	1050	209	195	7730	
	182	37	2,50	17,5	181,62	0,167	10420	1646	303	282	11210	
Alloy at 72%	12 A	49	42 7	0,54 0,65	5,00	11,95	2,25	695	110	14,8 20,6	13,7 19,2	765
	12 B	49	42 7	0,54 0,65	5,00	11,95	2,12	695	110	14,8 20,6	13,7 19,2	765
	12	7	1,50	4,50	12,37	2,00	810	111	121	117	840	
	22	7	2,00	6,00	21,99	1,12	1330	196	197	191	1370	
	34	19	1,50	7,50	33,58	0,744	2150	303	120	113	2280	
	48	19	1,80	9,00	48,35	0,518	2930	434	163	154	3090	
	93	19	2,50	12,5	93,27	0,268	5360	840	297	281	5640	
	116	37	2,00	14,0	116,24	0,216	6690	1050	195	181	7210	
	148	19	3,15	15,8	148,07	0,169	7830	1330	445	413	8450	
	182	37	2,50	17,5	181,61	0,138	10150	1646	296	275	10950	
	12 A	49	42 7	0,54 0,65	5,00	11,94	2,20	695	110	14,8 20,6	13,7 19,2	766
	12 B	49	42 7	0,54 0,65	5,00	11,94	2,05	695	110	14,8 20,6	13,7 19,2	766
Alloy at 80%	16	7	1,70	5,10	15,89	1,40	930	142	137	133	950	
	22	7	2,00	6,00	21,99	1,01	1270	196	187	181	1300	
	35	19	1,50	7,50	33,58	0,669	1940	303	108	103	2050	
	50	19	1,80	9,00	48,35	0,467	2740	434	152	144	2880	
	70	19	2,10	10,5	65,81	0,343	3610	593	201	190	3810	
	93	37	1,80	12,6	94,15	0,241	5220	850	152	141	5620	
	116	37	2,00	14,0	116,24	0,195	6360	1050	186	172	6880	
	148	37	2,25	15,7	147,11	0,154	7920	1330	230	214	8510	
	182	37	2,50	17,5	181,62	0,125	9790	1646	286	265	10580	



# Conductor according to NF C 34-110-3

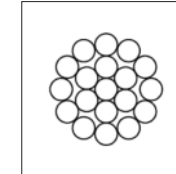
Material	Designation	Composition	Conductors Diametre	Nominal cross section	Linear Resistance at 20°C	Calculated Maximum load	Linear mass	Wire after untwisting: maximum Load		
								Lower limit		
								Mean value	Min.	
Number of wires		Wire diameter								
		Nom.	Nom.	mm <sup>2</sup>	Ω/km	Min.	Nom.	Mean value	Min.	
		mm	mm			daN	kg/km	daN		
mm <sup>2</sup>										
	5,5	7	1,00	3,0	5,5	3,34	236	48,2	35	31
	10,8	7	1,40	4,2	10,8	1,70	443	94,4	65	59
	12,4	7	1,50	4,5	12,4	1,48	509	108	75	67
	14,1	7	1,60	4,8	14,1	1,30	563	123	83	75
	17,8	7	1,80	5,4	17,8	1,03	713	156	105	95
	22	7	2,00	6,0	22,0	0,83	880	193	130	117
	24,2	7	2,10	6,3	24,2	0,76	944	212	139	125
	25,2	7	2,14	6,4	25,2	0,73	980	221	144	130
	27,6	7	2,24	6,7	27,6	0,67	1074	242	158	142
	34,4	7	2,50	7,5	34,4	0,53	1337	301	197	177
	29,2	19	1,40	7,0	29,2	0,63	1165	258	65	58
	38	19	1,60	8,0	38,2	0,486	1480	337	82	74
	48	19	1,80	9,0	48,3	0,384	1874	426	104	94
	60	19	2,00	10,0	59,7	0,311	2313	526	128	112
	75	19	2,24	11,2	74,9	0,248	2822	660	157	141
	93	19	2,50	12,5	93,3	0,199	3513	822	194	175
	116	37	2,00	14,0	116,2	0,161	4407	1028	128	116
	145,8	37	2,24	15,7	145,8	0,128	5374	1290	157	141
	181,6	37	2,50	17,5	181,6	0,103	6693	1606	195	175
	199,5	37	2,62	18,3	199,5	0,0935	6930	1764	206	186
	228	37	2,80	19,6	227,8	0,0819	7915	2015	236	212
	262	37	3,00	21,0	261,5	0,0713	9086	2313	271	244
	288	37	3,15	22,0	288,3	0,0647	9744	2550	290	261
	240	61	2,24	20,2	240,4	0,0779	8564	2130	157	141
	299	61	2,50	22,5	299,4	0,0625	10467	2653	195	175
	376	61	2,80	25,2	375,6	0,0498	12604	3328	236	212
	522	61	3,30	29,7	521,7	0,0359	17030	4622	319	287
	631	61	3,63	32,7	631,3	0,0297	19975	5593	374	336
	886	91	3,52	38,7	885,6	0,0212	28920	7856	351	316

Hard drawn copper



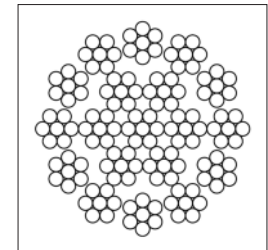
# Conductor according to NF F 55-681

Material	Designation	Composition		Conductors Diametre			Linear Resistance after fracture (l = 100)	Percentage elongation	Bendings on wires
		Number of wires conductor	Wire diameter	Min.	Nom.	Max.	Max.	Min. %	Min. #
				mm	mm	mm	Ω/km		
mm <sup>2</sup>	mm	mm	mm	mm	mm	Ω/km	Min. %	#	
Annealed Copper	29,3	19	1,40	6,70	7,00	7,30	0,638	20	10
	48,3	19	1,80	8,60	9,00	9,40	0,386	20	7
	74,9	19	2,24	10,70	11,20	11,70	0,249	20	4
	240	61	2,24	19,30	20,15	21,00	0,0776	25	4



# Flexible conductor according to NF F 55-681

Material	Designation	Composition			Conductors Diametre			Linear Resistance after fracture (l = 100)	Percentage elongation	Bendings on wires	
		Bunches	Number of wires conductor	Wire diameter	Min.	Nom.	Max.	Max.	Min. %	Max. %	Min. #
					mm	mm	mm	mm			
mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	Ω/km	Min. %	Max. %	#	
Annealed Copper	26 (1)	19	7	0,50	7,30	7,50	7,70	0,735	10	20	27
	50	37	7	0,50	10,10	10,50	10,90	0,378	20		27
	75 (1)	37	7	0,61	12,50	12,70	12,90	0,263	10	20	21
	95	37	7	0,68	13,70	14,30	14,90	0,204	25		21
	104,5	19	7	1,00	14,40	15,00	15,60	0,184	28		11
	147	37	7	0,85	17,20	17,90	18,60	0,131	28		15
	164 (1)	37	7	0,90	18,10	18,35	18,60	0,122	10	20	15



(1) 95% of the wires must be  $\geq 10\%$