

Engineering Data for Selfbonding Wires acc. to NEMA MW 1000:1997

AWG	Bare Copper Diameter (inches)			Resistance (ohms/1000 Ft.)			Type 1			Type 2			Elongation min. %	Dielectric Strength, min. breakdown (Volts)* type 1 type 2		Springback max. degr./turn	AWG
	Min.	Nom.	Max.				Min. Increase (inches)		Max. Overall Diameter (inches)	Min. Increase (inches)		Max. Overall Diameter (inches)					
				Film Coating	Self-Bonding Overcoat	Film Coating	Self-Bonding Overcoat										
24.0	0.0119	0.0201	0.0202	24.91	25.55	26.19	0.001	0.0005	0.0227	0.0019	0.0005	0.0238	28	2700	4850	67	24.0
25.0	0.0177	0.0179	0.0180	31.37	32.24	33.10	0.0009	0.0005	0.0203	0.0018	0.0005	0.0214	28	2625	4725	72	25.0
26.0	0.0157	0.0159	0.0160	39.71	40.89	42.07	0.0009	0.0005	0.0182	0.0017	0.0005	0.0193	27	2550	4600	76	26.0
27.0	0.0141	0.0142	0.0143	49.71	50.94	52.17	0.0008	0.0005	0.0164	0.0016	0.0005	0.0173	27	2500	4500	50	27.0
28.0	0.0125	0.0126	0.0127	63.02	64.70	66.37	0.0008	0.0005	0.0147	0.0016	0.0005	0.0156	26	2425	4375	55	28.0
29.0	0.0112	0.0113	0.0114	78.22	80.45	82.68	0.0007	0.0004	0.0133	0.0015	0.0004	0.0142	26	2375	4250	61	29.0
30.0	0.0099	0.0100	0.0101	99.65	102.7	105.8	0.0007	0.0004	0.0119	0.0014	0.0004	0.0128	25	2300	4150	66	30.0
31.0	0.0088	0.0089	0.0090	125.5	129.7	133.9	0.0006	0.0004	0.0108	0.0013	0.0004	0.0115	24	2075	3825		31.0
32.0	0.0079	0.0080	0.0081	154.9	160.6	166.2	0.0006	0.0004	0.0098	0.0012	0.0004	0.0102	24	1850	3525		32.0
33.0	0.0070	0.0071	0.0072	196.1	203.9	211.7	0.0005	0.0004	0.0088	0.0011	0.0004	0.0095	23	1675	3250		33.0
34.0	0.0062	0.0063	0.0064	248.2	259.0	269.8	0.0005	0.0003	0.0078	0.0010	0.0003	0.0084	22	1500	2975		34.0
35.0	0.0055	0.0056	0.0057	312.9	327.9	342.8	0.0004	0.0003	0.0070	0.0009	0.0003	0.0076	21	1325	2750		35.0
36.0	0.0049	0.0050	0.0051	390.8	411.4	431.9	0.0004	0.0003	0.0063	0.0008	0.0003	0.0069	20	1200	2525		36.0
37.0	0.0044	0.0045	0.0046	480.4	508.0	535.7	0.0003	0.0003	0.0057	0.0008	0.0003	0.0062	20	1075	2325		37.0
38.0	0.0039	0.0040	0.0041	604.7	643.3	681.9	0.0003	0.0002	0.0051	0.0007	0.0002	0.0056	19	950	2150		38.0
39.0	0.0034	0.0035	0.0036	784.3	840.7	897.1	0.0002	0.0002	0.0045	0.0006	0.0002	0.0050	18	850	1975		39.0
40.0	0.0030	0.0031	0.0032	992.7	1073	1152	0.0002	0.0002	0.0040	0.0006	0.0002	0.0044	17	775	1800		40.0
41.0	0.0027	0.0028	0.0029	1209	1316	1423	0.0002	0.0002	0.0036	0.0005	0.0002	0.0040	17	700	1675		41.0
42.0	0.0024	0.0025	0.0026	1504	1652	1801	0.0002	0.0002	0.0032	0.0004	0.0002	0.0037	16	625	1525		42.0
43.0	0.0021	0.0022	0.0023	1922	2137	2352	0.0002	0.0001	0.0029	0.0004	0.0001	0.0033	15	550	1400		43.0
44.0	0.0019	0.0020	0.0021	2305	2589	2873	0.0001	0.0001	0.0027	0.0004	0.0001	0.0030	14	500	1300		44.0
		Resistance (ohms/Ft.)															
45.0		0.00176		3.080	3.348	3.616	0.0001	0.0001	0.0023	0.0003	0.0001	0.00255	11				45.0
46.0		0.00157		3.870	4.207	4.544	0.0001	0.0001	0.0021	0.0003	0.0001	0.00235	10				46.0
47.0		0.00140		4.868	5.291	5.714	0.0001	0.0001	0.0019	0.0003	0.0001	0.00210	8				47.0
48.0		0.00124		6.205	6.745	7.285	0.0001	0.0001	0.0017	0.0002	0.0001	0.00185	7				48.0
49.0		0.00111		7.744	8.417	9.090	0.0001	0.0001	0.0015	0.0002	0.0001	0.00170	6				49.0
50.0		0.00099		9.734	10.58	11.43	0.0001	0.0001	0.0014	0.0002	0.0001	0.00160	5				50.0
51.0		0.00088		12.32	13.39	14.46	0.0001	0.0001	0.0013								51.0
52.0		0.00078		15.69	17.05	18.41	0.0001	0.00005	0.00115								52.0

Maximum resistances based upon copper conductivity of 100 % I.A.C.S. Actual values may be up to 102 % I.A.C.S.
45 - 52 AWG theoretical bare wire diameters by resistance at 100% I.A.C.S.
* Voltage minimums based upon testing according to twisted pair method.

ELEKTRISOLA Selfbonding Wire Types

ELEKTRISOLA – Product - Name ELEKTRISOLA – Product - Code		Butybond 155 B155	Butybond alcohol 155 Ba155	Solabond 155 S155	Solabond Poly 180 SP180	Solabond 180 S180	Solabond 200 S200
General Description Basecoat Bondcoat Standards IEC (including the following norms) NEMA MW 1000 Diameters available		mod. Polyurethane Polyvinylbutyral	mod. Polyurethane Polyvinylbutyral	mod. Polyurethane Polyamide	mod. Polyurethane Polyamide	Polyesterimide Polyamide	Theic-mod. Polyesterimide Polyamide
Technical values 1. Thermal values of basecoat Temperature index 20.000 h acc. to ASTM D2307 Cut through temperature min. °C acc. to NEMA MW 1000, 3.5 Elektrisola typical values for 44/30 AWG, Type 1 Heat Shock min. °C acc. to NEMA MW 1000, 3.5 Elektrisola typical values for 44/30 AWG, Type 1 2. Electrical values High voltage continuity max. acc. to NEMA MW 1000, 3.9.2 Elektrisola typical values 44/30 AWG, Type 1 Dielectric strength at 68°F (20°C), 35% rel. humidity NEMA/Elektrisola typical values, Type 1 acc. to NEMA MW 1000, 3.8.3 twisted pair method for 30 AWG acc. to NEMA MW 1000, 3.8.7 cylinder electrode method for 44 AWG 3. Mechanical values Elongation min. acc. to NEMA MW 1000, 3.4 for 44/30 AWG, Type 1 Elektrisola typical values 44/30 AWG, Type 1 Tensile strength Elektrisola typical values 44/30 AWG, Type 1 4. Bonding of wire Method Hot air bonding Oven bonding Resistance bonding Solvent bonding Recommended solvent Recommended bonding temperature Resoftening temperature Recommended shelf life at 77°F(25°C)/60% relative humidity in months 5. Solderability acc. to NEMA MW 1000, 3.13 for 44/30 AWG, Type 1 Elektrisola typical values for AWG 44, Type 1, seconds at °C for AWG 30, Type 1, seconds at °C Properties Applications		IEC 60317-35, 60317-2 MW 130-C (proposed) 24 - 58 AWG	IEC 60317-35, 60317-2 MW 130-C (proposed) 32 - 58 AWG	IEC 60317-35, 60317-2 MW 130-C (proposed) 29 - 58 AWG	IEC 60317-35, 60317-2 n. a. 24 - 58 AWG	IEC 60317-36 n. a. 24 - 58 AWG	IEC 60317-37 n. a. 24 - 52 AWG
		158°C 200 °C 225/230°C 175°C 190/180°C	158°C 200 °C 225/230°C 175°C 190/180°C	158°C 200°C 225/230°C 175°C 190/180°C	192°C 200°C 260/265°C 175°C 210/200°C	195°C 265°C 315/325°C 200°C 260/250°C	210°C 300°C 350/360°C 200°C 230/220°C
		15 2/1	15 2/1	15 2/1	15 2/1	15 2/1	15 2/1
		132 V/μ / 270 V/μm 100 V/μm / 200 V/μm	132 V/μ / 270 V/μm 100 V/μm / 200 V/μm	132 V/μ / 270 V/μm 100 V/μm / 200 V/μm	132 V/μ / 270 V/μm 100 V/μm / 200 V/μm	132 V/μ / 270 V/μm 100 V/μm / 200 V/μm	132 V/μ / 270 V/μm 100 V/μm / 200 V/μm
		14% / 25% 23% / 40%	14% / 25% 23% / 40%	14% / 25% 23% / 40%	14% / 25% 23% / 40%	14% / 25% 23% / 40%	14% / 25% 23% / 40%
		57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN
		35 - 58 AWG 24 - 38 AWG 25 - 38 AWG limited Ethanol / Methanol	35 - 58 AWG 24 - 38 AWG 25 - 38 AWG suitable Ethanol / Methanol	35 - 58 AWG 24 - 38 AWG 25 - 38 AWG suitable Ethanol / Methanol	35 - 58 AWG 24 - 38 AWG 25 - 38 AWG suitable Ethanol / Methanol	35 - 58 AWG 24 - 38 AWG 25 - 38 AWG limited Ethanol / Methanol	35 - 52 AWG 24 - 38 AWG 25 - 38 AWG limited Ethanol / Methanol
		110 - 140°C ≥ 100 ≤ 12	110 - 140°C ≥ 100 ≤ 12	140 - 170°C ≥ 120 ≤ 6	150 - 190°C ≥ 130 ≤ 6	160 - 190°C ≥ 140 ≤ 6	200 - 230°C ≥ 170 ≤ 6
		3s/390°C 4s/390°C 1.3s/370°C / 0.8s/390°C 2.8s/370°C / 1.4s/390°C	3s/390°C 4s/390°C 1.3s/370°C / 0.8s/390°C 2.8s/370°C / 1.4s/390°C	3s/390°C 4s/390°C 0.5s/370°C / 0.4s/390°C 1.2s/370°C / 0.7s/390°C	3s/390°C 4s/390°C 1.0s/370°C / 0.7s/390°C 2.8s/370°C / 1.6s/390°C	4s/470°C 5s/470°C 1.9s/470°C 3.4s/470°C	-- -- --
		Easy bonding, low sensitivity against humidity, low resof- tening temperature.	Easy bonding, low sensitivity against humidity, low resof- tening temperature, especially for solvent bonding.	Higher resoftening tempera- ture, hygroscopic, alcohol bonding possible.	Higher resoftening tempera- ture, not hygroscopic, alcohol bonding possible.	Very good thermal properties of base coat,high resoftening temperature, slightly hygro- scopic.	Good thermal properties of base coat, high resoftening temperature, slightly hygro- scopic.
		For stepper motors for quartz watches, instruments, voice coils, sensors, transponders.	For stepper motors for quartz watches, instruments, voice coils, sensors.	For instrument coils, voice coils, loudspeakers, small motors, sensors.	For instrument coils, loud- speakers, small motors, sensors, transponders.	For small motors, loud- speakers.	For small motors, loud- speakers.

Elektrisola typical values are the result of various tests and represent average values.