

NEMA American Wire Types

ELEKTRISOLA - Product-Name	Polysol 155	Polysol 155-N	Polysol 180	Estersol 180	Amidester 200	ML220
ELEKTRISOLA - Product-Code	P155	PN155	P180	E180	A200	
General						
Description	mod. Polyurethane	mod. Polyurethane / Polyamide overcoat	mod. Polyurethane	Polyesterimide	Theic-mod. Polyesterimide	Polyimide
Standards:						
IEC (including the following norms)	IEC 60317-20, 317-4	IEC 317-21, 317-19	IEC 60317-20	IEC 60317-23, IEC 60317-3/8	IEC 60317-8	IEC 60317-7
NEMA (including the following norms)	MW 79, MW 2, MW 75	MW 80, MW 28	MW82, MW28	MW 77, MW 5, MW 26	MW 74, MW 5, MW 30	MW 16
UL-approval	yes	yes	yes	yes	yes	no, JW 1177
Diameters available	0,010 - 0,50 mm	0,010 - 0,50 mm	0,010 - 0,50 mm	0,010 - 0,50 mm	0,010 - 0,50 mm	0,02 - 0,11 mm, ex USA
Properties	24 - 56 AWG	24 - 56 AWG	24 - 56 AWG	24 - 56 AWG	24 - 56 AWG	38 - 52 AWG
	Very good solderability and high thermal properties.	Very good solderability and high thermal properties.	Good solderability at 370°C and elevated thermal values	Solderable at high temperatures, very good thermal and good chemical resistance.	High thermal properties and good chemical resistance.	Excellent thermal properties, excellent chemical and high radiation resistance.
Applications	Used in small transformers, linear motors, relays, solenoids, small motors, clock coils, watch coils, fly-back transformers, magnetic heads, instruments	Used in appliance motors, encapsulated coils, solenoids, transformers, toroids.	Used for automotive coils as relais and ignition coils, in transformers and in solenoids	Used in small motors, small transformers, automotive coils.	Used in motors, small motors, transformers.	Used in military and space applications.
TECHNICAL VALUES						
1. Thermal Values						
Temperature index 20.000 h acc. to ASTM D2307	158°C	170°C	>180°C	181°C	210°C	245°C
Cut through temperature min °C acc. to NEMA MW1000, 3.50.1.1	>= 200°C	>=200°C	>= 200°C	>= 265°C	>= 300°C	>= 400°C
Elektrisola typical values for44/30 AWG, Single	225/230°C	225/230°C	260/265°C	315/325°C	350/360°C	450°C
Heat Sh°Ck min °C acc. toNEMA MW1000, 3.5.1.1	<= 175°C	>= 175°C	<= 175°C	<= 200°C	<= 200°C	<= 240°C
Elektrisola typical values for44/30 AWG, Single	190/180°C	190/180°C	210/200°C	260/250°C	230/220°C	300°C
2. Electrical values						
Low voltage continuity max. acc. to NEMA MW 1000, 3.9.1.1.2	<= 15/15	<= 15/15	<= 15/15	<= 15/15	<= 15/15	<= 15/15
Elektrisola typical values for 44/30 AWG, Single	0/0	0/0	0/0	0/0	0/0	0/0
High voltage continuity max. acc. to NEMA MW1000, 3.9.1.1.1	<= 15/15	<= 15/15	<= 15/15	<= 15/15	<= 60/25	<= 60/25
Elektrisola typical values for 0,05 mm/0,25 mm (44/30 AWG), Single	>=2/1	36557	>=2/1	>=2/1	>=2/1	>=2/1
Breakdown voltage (at 20o C, 35% humidity) acc. to NEMA MW1000, 3.8.1.1.2/Elektrisola typical values to cylindrical test 0,05mm/0.25mm (45/30 AWG), Single	9000/6000 V/mil	8700/5800 V/mil	9000/6000 V/mil	9000/6000 V/mil	9000/6000 V/mil	9000 V/mil
Decrease of breakdown voltage in % at elevated temperature Elektrisola typical value for 30AWG, Single, in % at °C Elektrisola typical value for 44AWG, Single, in % at °C (45/30 AWG)	25% at 155°C		20% at 180°C	20% at 180°C	20% at 200°C	15% at 220°C
3. Mechanical values						
Elongation min. acc. to NEMA MW1000 3.4.1.1 for 44/30 AWG	>=14%/25%	>=14%/25%	>=14%/25%	>=14%/25%	>=14%/25%	>=14%/25%
Elektrisola typical values for 44/30 AWG	23% / 40%	23% / 40%	23% / 40%	23% / 40%	23% / 40%	23% / 40%
Tensile strength min	57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN	57/1370 cN
4. Chemical compatibility						
Solubility per NEMA MW1000, 3.51.1.1.3	Pass	Pass	Pass	Pass	Pass	Pass
Decrease of breakdown voltage in %	5%	5%	5%	5%	5%	5%
General statements about chemical compatibility are not possible due to the high number of influencing factors such as winding, impregnation molding and cleaning materials etc.						
5. Solderability						
acc. to NEMA MW 1000, 3.13.1.1, max. seconds at °C for 44/30 AWG	4s/390°C / 5s/390°C	4s/390°C / 5s/390°C	4s/390°C / 5s/390°C	4s/470°C / 5s/470°C		--
Elektrisola typical values acc. to NEMA MW1000, 3.13.1.1, for 44 AWG	0,3s/370°C / 0,2s/390°C	0,3s/370°C / 0,2s/390°C	0,9s/370°C / 0,6s/390°C	1,8s/470°C		--
for 30 AWG	0,7s/370°C / 0,5s/390°C	0,7s/370°C / 0,5s/390°C	2,5s/370°C / 1,4s/390°C	2,8s/470°C		--