
Insulating Coatings

(Polyester, Polyurethane, Polyamide-imide)

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Insulating Coatings

(Polyester, Polyurethane, Polyamide-imide)

UE (Polyurethane)

Feature

Can be soldered and is versatile.

Usage

Coils for electronic devices, relay coils, etc.

PE (Polyester)

Feature

It is widely used as a general-purpose product.

Usage

General-purpose motors, transformers, etc.

AI (Polyamide-imide)

Feature

Excellent heat resistance, wear resistance, and refrigerant resistance.

Usage

Heat-resistant coils for electronic devices, etc.

Type	Temperature Index	nylon coat	colorant	Soldering
UE	130°C	○	○	○ (380°C)

Type	Temperature Index	nylon coat	colorant	Soldering
PE	155°C	○	✖	✖

Type	Temperature Index	nylon coat	colorant	Soldering
AI	210°C	✖	✖	✖

UE・PE・AI Method (Type 1)

Method [mm]					Dielectric breakdown voltage [V]
Conductor diameter		Minimum film thickness [mm]	Maximum outside diameter [mm]	Outer Diameter Center Value [mm]	
diameter [mm]	Tolerance [mm]				
0.70	±0.020	0.019	0.776	0.757	3050
0.65	±0.020	0.018	0.724	0.705	3050
0.60	±0.020	0.017	0.672	0.653	3050
0.55	±0.020	0.017	0.620	0.602	3050
0.50	±0.010	0.017	0.560	0.547	3050
0.45	±0.010	0.016	0.508	0.495	2800
0.40	±0.010	0.015	0.456	0.443	2800
0.35	±0.010	0.014	0.402	0.390	2800
0.32	±0.010	0.014	0.372	0.360	2800
0.29	±0.010	0.013	0.340	0.328	2400
0.26	±0.010	0.013	0.310	0.298	2400
0.23	±0.008	0.013	0.278	0.267	2400
0.20	±0.008	0.012	0.246	0.235	2400
0.18	±0.008	0.012	0.226	0.215	2400
0.16	±0.008	0.011	0.204	0.193	2200
0.15	±0.008	0.010	0.192	0.181	2200
0.14	±0.008	0.010	0.182	0.171	2200
0.13	±0.008	0.010	0.172	0.161	2200
0.12	±0.008	0.010	0.162	0.151	2000
0.11	±0.008	0.009	0.150	0.139	2000
0.10	±0.008	0.009	0.140	0.129	2000

UE・PE・AI Method (Type 2)

Method [mm]					Dielectric breakdown voltage [V]
Conductor diameter		Minimum film thickness [mm]	Maximum outside diameter [mm]	Outer Diameter Center Value [mm]	
diameter [mm]	Tolerance [mm]				
0.70	±0.008	0.013	0.746	0.735	2150
0.65	±0.008	0.012	0.694	0.684	2150
0.60	±0.008	0.012	0.644	0.634	2150
0.55	±0.006	0.012	0.592	0.583	2150
0.50	±0.006	0.012	0.542	0.533	2150
0.45	±0.006	0.011	0.490	0.481	2000
0.40	±0.005	0.011	0.439	0.4305	2000
0.35	±0.005	0.010	0.387	0.3785	2000
0.32	±0.005	0.010	0.357	0.3485	2000
0.29	±0.004	0.010	0.324	0.3160	1600
0.26	±0.004	0.009	0.294	0.2860	1600
0.23	±0.004	0.009	0.262	0.2560	1600
0.20	±0.003	0.008	0.231	0.2235	1600
0.18	±0.003	0.008	0.211	0.2035	1600
0.16	±0.003	0.007	0.189	0.1815	1300
0.15	±0.003	0.006	0.177	0.1695	1300
0.14	±0.003	0.006	0.167	0.1595	1300
0.13	±0.003	0.006	0.157	0.1495	1300
0.12	±0.003	0.006	0.147	0.1395	1300
0.11	±0.003	0.005	0.135	0.1275	1100
0.10	±0.003	0.005	0.125	0.1175	1100
0.09	±0.003	0.005	0.113	0.1065	1100
0.08	±0.003	0.005	0.103	0.0965	1100

Comparative characteristics of magnet wire

Comparative characteristics of magnet wire		UEW	PEW	AIW	
Temperature Index		120	155	200	
Thermal Characteristics	Resistance to cut through (°C)	240	270	400<	
	Heat shock resistance	△	○	◎	
	Spec of limit temp. (°C x 1h)	130	150	220	
	High temp. deterioration BDV	180	180	250	
Dielectric strength		○	○	○	
Crazing	Abrasion strength	△	○	◎	
	Crazing resistance	○	◎	◎	
	Flexibility	○	◎	◎	
Solderability		◎	✖	✖	
Water resistance	Moisture resistance 60°C 80%RH×72H		○	✖	◎
	Resistance to high temp., high moisture and high pressure (Quantity of water 0.2wt%)	120°C×72H	○	△	○
		130°C×72H	○	✖	○
		150°C×72H	✖	✖	○
chemical resistance	Acid resistance		○	◎	◎
	Alkali resistance		○	○	○
	Oil resistance		◎	◎	◎
	Varnish resistance		◎	◎	◎
	Xylene resistance		◎	◎	◎
	Alcohol resistance		○	◎	◎
	Gasoline resistance		◎	◎	◎
	Refrigerant resistance		△	○	◎