



TIANJIN RUIYUAN ELECTRIC MATERIAL CO.,LTD.

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SPECIFICATION APPROVAL SHEET

Polyamide-imide Enamelled Copper Wire

AIW/U(220°C) One Type

Size Range: (0.10-2.00)

NOTE : Approval content

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Test report

Tianjin Ruiyuan Electric Material Co.,Ltd.

(Stamp)

APPROVED	CHECKED	PREPARED

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1. Materials :

- 1.1 Conductor : The conductor shall be annealed copper wire complying with specified in JISC3103.
- 1.2 Insulating Materials : The insulating film of the wire shall be made by baking insulating varnish mainly polyimide-imide on the conductor uniformly and perfectly.
- 1.3 Thermal Class : MW81-C CLASS 220°C.
- 1.4 Environment Request : Conforms to "ROHS" and "does not have the halogen" the request.

2. Test Items and Characteristics :

Item	Characteristic
Appearance	(1) Surface no injuries and adhesion (2) Smooth surface and color uniform Insulation film is not nail scrape
Dimensions	According to Table. (non JIS specifications to another branch calculated)
Pinhole	DC 12V 1min, maximum 3 take a test piece of about 5M.
Flexibility	Stretching method and mandrel-winding method, film no crack.
Adherence	The film no crack.
Resistance to abrasion	According to Table.
Breakdown Voltage	According to Table.
Cut-through	350°C
Heat Shock	(1) No visible crack appear on the film. (2) Temperature 240±5°C, 1/2hour.
Resistance to solvent	Nail method or Pencil method, the film peels no expose the conductor.
Conductor Resistance	According to Table.
Elongation	According to Table.

3. Testing method:

- 3.1 Appearance : Comply with JISC 3216.
- 3.2 Dimensions : Comply with JISC 3216-2.
- 3.3 Pinhole : Comply with JISC 3216-5.
- 3.4 Flexibility : Comply with JISC 3216-3. Stretching method for those of ϕ 0.35mm or less, elongation to 20% or its breaking, point. Mandrel-winding method for those of ϕ 0.37mm or above, winding diameter of 1d
- 3.5 Adherence : Comply with JISC 3216-3
- 3.6 Resistance to abrasion : Comply with JISC 3216-3.
- 3.7 Breakdown voltage : Comply with JISC 3216-5.

Conductor diameter (mm)	Tensile force (g)	No. of twist turns per about 12cm in length
0.08~0.11	10	30
0.12~0.17	40	24
0.18~0.29	120	20
0.30~0.45	350	16
0.50~0.70	450	12
0.75~1.20	1500	9
1.30~2.00	4000	6

3.8 Cut-through : Comply with MW 1000 parts paragraph3.50.

Size Ranges	Recommended Load(grams)
0.079~0.114	150
0.127~0.254	250
0.287~0.361	300
0.404~0.455	600
0.511~0.912	1000
1.024~1.628	2000

3.9 Heat Shock: Comply with MW 1000 parts paragraph3.5.

Material AWG SIZE	Elongation percent	Mandrel Diameter	Examined with
0.051~0.226	20%↑	3d	6X-10X magnification
0.254~1.628	20%	3d	NORMAL VISION
1.829~2.00	25%	5d	

3.10 Resistance to solvent : Comply with JISC 3216-4.

3.11 Conductor Resistance : Comply with JISC 3216-5.

3.12 Elongation : Comply with JISC 3216-3.

Elongation (%) = [(length between gauge lines with parts in contact) - (gauge length)] / (gauge length) × 100

4. Package:

Range of Diameter (φmm)	Type of reel		Min. Weight (kg)
	JIS	PEWSC	
0.10~0.15	PT-4	ER-5L	1.0
0.16~0.29	PT-10	ER-6L	3.5
0.30~0.69	PT-15	ER-7L	5.0
0.70~2.00	PT-25	ER-9L	9.0

5. Package Label: Mark in the Reel.

5.1 Type of wire

5.2 Diameter of Conductor

5.3 Manufacture NO.

5.4 Net weight of one reel of winding

5.5 Date of manufacture

5.6 Name of code of manufacture

6.Storage conditions and shelf life.

6.1 There are no specific requirements in any of International Standards (JIS3202、 3003、 NEMA1000).

6.2 Recommend to store in room temperature, dry and ventilated environment.

6.3 If the product is stored more than 3 years, tests should be performed in accordance with International Standards to check its validity before use.

Table

Diameter of Conductor (φmm)	Conductor tolerance (mm)	Min. Increase in Diameter (mm)	Max. Finished overall Diameter (mm)	Insulation breakdown voltage (v)	Conductor Resistance at 20°C (Ω/KM)	Min Elongation (%)	Max. Springiness (°)	Resistance to abrasion	
								Average	Minimum
0.10	±0.008	0.018	0.140	2000	2647	15	--	--	--
0.11	±0.008	0.018	0.150	2000	2153	15	--	--	--
0.12	±0.008	0.020	0.162	2200	1786	15	--	--	--
0.13	±0.008	0.020	0.172	2200	1505	15	--	--	--
0.14	±0.008	0.020	0.182	2200	1286	15	--	--	--
0.15	±0.008	0.020	0.192	2200	1111	15	--	--	--
0.16	±0.008	0.022	0.204	2200	969.5	15	--	--	--
0.17	±0.008	0.022	0.214	2200	853.5	15	--	--	--
0.18	±0.008	0.024	0.226	2400	757.2	15	--	--	--
0.19	±0.008	0.024	0.236	2400	676.2	15	--	--	--
0.20	±0.008	0.024	0.246	2400	607.6	15	--	--	--
0.21	±0.008	0.024	0.256	2400	549	15	--	--	--
0.22	±0.008	0.024	0.266	2400	498.4	15	--	--	--
0.23	±0.008	0.026	0.278	2400	454.5	15	--	--	--
0.24	±0.008	0.026	0.288	2400	416.2	15	--	--	--
0.25	±0.008	0.026	0.298	2400	382.5	15	66	--	--
0.26	±0.010	0.026	0.310	2400	358.4	15	66	360	310
0.27	±0.010	0.026	0.320	2400	331.4	15	61	360	310
0.28	±0.010	0.026	0.330	2400	307.3	15	61	365	310
0.29	±0.010	0.026	0.340	2400	285.7	20	61	365	315
0.30	±0.010	0.028	0.352	2800	262.9	20	61	395	340
0.32	±0.010	0.028	0.372	2800	230	20	55	400	340
0.35	±0.010	0.028	0.402	2800	191.2	20	50	405	345
0.37	±0.010	0.028	0.424	2800	170.6	20	50	410	350
0.40	±0.010	0.030	0.456	2800	145.3	20	76	445	380
0.45	±0.010	0.032	0.508	2800	114.2	20	72	460	410
0.50	±0.010	0.034	0.560	3050	91.43	20	67	520	445
0.55	±0.020	0.034	0.620	3050	78.15	20	62	525	450
0.60	±0.020	0.034	0.672	3050	65.26	20	62	535	455
0.65	±0.020	0.036	0.724	3050	55.31	20	58	570	485
0.70	±0.020	0.038	0.776	3050	47.47	20	53	610	520
0.75	±0.020	0.040	0.830	3400	41.19	20	53	650	550
0.80	±0.020	0.042	0.882	3400	36.08	25	66	685	585

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								Average	Minimum
0.85	±0.020	0.044	0.934	3400	31.87	25	66	725	625
0.90	±0.020	0.046	0.986	3400	28.35	25	62	765	650
0.95	±0.020	0.048	1.038	3400	25.38	25	62	805	680
1.00	±0.030	0.050	1.102	3400	23.33	25	58	845	715
1.10	±0.030	0.052	1.204	4150	19.17	25	54	885	755
1.20	±0.030	0.052	1.304	4150	16.04	25	54	900	960
1.30	±0.030	0.054	1.408	4150	13.61	25	50	940	800
1.40	±0.030	0.054	1.508	4150	11.70	25	46	950	805
1.50	±0.030	0.056	1.612	4150	10.16	25	46	995	840
1.60	±0.030	0.056	1.712	4150	8.906	25	42	1005	850
1.70	±0.030	0.058	1.814	4350	7.871	25	--	1045	885
1.80	±0.030	0.058	1.914	4350	7.007	25	--	1055	890
1.90	±0.030	0.060	2.018	4350	6.278	25	--	1100	925
2.00	±0.030	0.060	2.118	4350	5.656	30	--	1105	935