



TIANJIN RUIYUAN ELECTRIC MATERIAL CO.,LTD.

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SPECIFICATION APPROVAL SHEET

Polyester-imide Overcoat Polyamide-imide Enamelled Copper Wire

HAI/U(200°C) Type 1

Size Range: (0.10-3.20)

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 basecoat of Polyester-imide and overcoat polyimide-imide on the conductor uniformly and perfectly.
- 1.3 Thermal Class : MW35-C H⁺ CLASS 200°C.
- 1.4 Environment Request : Conforms to “ROHS” and “does not have the halogon” the request.

2. Test Items and Characteristics :

Item	Characteristic
Appearance	(1) Surface no injuries and adhesion (2) Smooth surface and color uniform (3) 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	>300°C
Heat Shock	(1) No visible crack appear on the film. (2) Temperature 220±5°C, 1/2hour. Winding the rod depends on 3.9 terms
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
2.10~3.20	7000	3

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
1.829~2.588	25%	5d	
2.906~3.264	30%	--	
↑Or to its breaking point whichever is less			

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
0.70~2.59	PT-25	ER-9L	9.0
2.60~3.20	--	ER-12	10.0

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 at20°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	549.0	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	±0.01	0.026	0.310	2400	358.4	15	66	357	306
0.27	±0.01	0.026	0.320	2400	331.4	15	61	357	306
0.28	±0.01	0.026	0.330	2400	307.3	15	61	367	306
0.29	±0.01	0.026	0.340	2400	285.7	20	61	367	316
0.30	±0.01	0.028	0.352	2800	262.9	20	61	398	337
0.32	±0.01	0.028	0.372	2800	230.0	20	55	398	337
0.35	±0.01	0.028	0.402	2800	191.2	20	50	408	347
0.37	±0.01	0.028	0.424	2800	170.6	20	50	408	347
0.38	±0.01	0.028	0.434	2800	160.35	20	76	408	347
0.40	±0.01	0.030	0.456	2800	145.3	20	76	449	377
0.45	±0.01	0.032	0.508	2800	114.2	20	72	479	408
0.50	±0.01	0.034	0.560	3050	91.43	20	67	520	449
0.55	±0.02	0.034	0.620	3050	78.15	20	62	520	449
0.60	±0.02	0.034	0.672	3050	65.26	20	62	530	459

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
0.65	±0.02	0.036	0.724	3050	55.31	20	58	571	490
0.70	±0.02	0.038	0.776	3050	47.47	20	53	612	520
0.71	±0.02	0.038	0.786	3050	46.11	20	53	612	520
0.75	±0.02	0.040	0.830	3400	41.19	25	53	653	551
0.80	±0.02	0.042	0.882	3400	36.08	25	66	683	581
0.85	±0.02	0.044	0.934	3400	31.87	25	66	724	612
0.90	±0.02	0.046	0.986	3400	28.35	25	62	765	653
0.95	±0.02	0.048	1.038	3400	25.38	25	62	806	683
1.00	±0.03	0.050	1.102	3400	23.33	25	58	847	714
1.10	±0.03	0.052	1.204	4150	19.17	25	54	887	755
1.20	±0.03	0.052	1.304	4150	16.04	25	54	898	755
1.30	±0.03	0.054	1.408	4150	13.61	25	50	938	796
1.40	±0.03	0.054	1.508	4150	11.70	25	46	949	836
1.50	±0.03	0.056	1.612	4150	10.16	25	46	1000	836
1.60	±0.03	0.056	1.712	4150	8.906	25	42	1000	847
1.70	±0.03	0.058	1.814	4350	7.871	25	--	1020	887
1.80	±0.03	0.058	1.914	4350	7.007	25	--	1020	887
1.90	±0.03	0.060	2.018	4350	6.278	25	--	1120	928
2.00	±0.03	0.060	2.118	4350	5.656	30	--	1120	938
2.10	±0.03	0.062	2.220	4350	5.123	30	--	1120	969
2.20	±0.03	0.064	2.322	4350	4.662	30	--	1220	1000
2.30	±0.03	0.064	2.422	4350	4.260	30	--	1220	1010
2.40	±0.03	0.066	2.526	4350	3.908	30	--	1220	1020
2.50	±0.03	0.068	2.628	4350	3.598	30	--	1330	1120
2.60	±0.03	0.068	2.728	4350	3.324	30	--	1330	1120
2.70	±0.03	0.068	2.828	4350	3.079	30	--	--	--
2.80	±0.03	0.068	2.928	4350	2.861	30	--	--	--
2.90	±0.03	0.068	3.028	4350	2.665	30	--	--	--
3.00	±0.03	0.068	3.128	4350	2.489	30	--	--	--
3.20	±0.04	0.068	3.338	4350	2.198	30	--	--	--

Note: This product specification acknowledgement will come into effect one month after it is delivered to your company with or without your acknowledgement.