



Class 180 Glass Fiber Covered High-Temperature Rectangular Copper Magnet Wire

1. Specifications

Insulation materials	Glass Fiber (Organic Varnish Treated)
Thermal Class	180
Conductor	Copper
Insulation thickness	Single/Double
Certificate	MW-52C



2. Wire Types

- Class 180 Glass Fiber Covered High-Temperature Organic Varnish Treated Bare Rectangular Copper Magnet Wire
- Class 180 Glass Fiber Covered High-Temperature Organic Varnish Treated Film-Insulated Rectangular Copper Magnet Wire
- Class 180 Glass Fiber Covered Bare Rectangular Copper Magnet Wire
- Class 180 Glass Fiber Covered Film-Insulated Rectangular Copper Magnet Wire
- Class 180 Glass Fiber Covered High-Temperature Rectangular Copper Magnet Wire

3. Dimensions

Table1 Increase in Dimensions for Glass Fiber Covered Rectangular Magnet Wire

Nominal Width of Conductor (Inches)		Increase in Dimensions (Inches)																	
		Glass Fiber Covering Over Rectangular Bare Copper Conductor						Glass Fiber Covering Over Heavy Enameled Rectangular Wire						Glass Fiber Covering Over Quad Build Enameled Rectangular Wire					
		Single Covering Glass Fiber			Double Covering Glass Fiber			Single Covering Heavy Film + Single Glass			Double Covering Heavy Film + Double Glass			Single Covering Quad Film + Single Glass			Double Covering Quad Film + Double Glass		
Over	Up To and Incl.	Min.	Nom.	Max.	Min.	Nom.	Max.	Min.	Nom.	Max.	Min.	Nom.	Max.	Min.	Nom.	Max.	Min.	Nom.	Max.
-	0.102	0.0050	0.0060	0.0070	0.0080	0.0100	0.0120	0.0080	0.0100	0.0120	0.0110	0.0140	0.0170	0.0100	0.0120	0.0140	0.0130	0.0160	0.0190



0.102	0.162	0.0060	0.0070	0.0080	0.0090	0.0110	0.0130	0.0090	0.0110	0.0130	0.0120	0.0150	0.0180	0.0110	0.0130	0.0150	0.0140	0.0170	0.0200
			0					0	0		0					0			0
0.162	0.182	0.0070	0.0080	0.0090	0.0100	0.0120	0.0140	0.0100	0.0120	0.0140	0.0130	0.0160	0.0190	0.0120	0.0140	0.0160	0.0150	0.0180	0.0210
			0			0		0	0		0			0		0			0
0.183	0.229	0.0070	0.0080	0.0090	0.0110	0.0130	0.0150	0.0100	0.0120	0.0140	0.0140	0.0170	0.0200	0.0120	0.0140	0.0160	0.0160	0.0190	0.0220
			0			0	0	0	0		0			0		0			0
0.230	0.289	0.0080	0.0090	0.0100	0.0110	0.0130	0.0160	0.0110	0.0130	0.0150	0.0140	0.0175	0.0210	0.0130	0.0150	0.0170	0.0160	0.0195	0.0230
			0			5			0		0			0		0			0
0.289	0.344	0.0080	0.0090	0.0100	0.0120	0.0140	0.0170	0.0110	0.0130	0.0150	0.0150	0.0185	0.0220	0.0130	0.0150	0.0170	0.0170	0.0205	0.0240
			0		0	5			0		0			0		0			0
0.344	0.517	0.0080	0.0090	0.0110	0.0130	0.0160	0.0190	0.0110	0.0130	0.0160	0.0160	0.0200	0.0240	0.0130	0.0155	0.0180	0.0180	0.0220	0.0260
			5		0	0			5		0			0		0			0

4. General Requirements

Properties	Requirement
DIMENSIONS	<p>Rectangular Wire:</p> <ol style="list-style-type: none"> 1. Radii in accordance with 0.51-0.99mm ($\pm 25\%$) 2. Thickness tolerances in accordance 1.016-7.341mm 3. Width tolerances in accordance with 2.057-16.535mm 4. Dimensions and increase in thickness in accordance with Table1
ADHERENCE AND FLEXIBILITY	<p><u>Single or Double with underlying film</u>: no cracks visible in the film insulation after 20% elongation. Examine with normal vision and without removing the glass fiber covering.</p> <p><u>Double without underlying film</u>: not less than 75 V/mil (2950 V/mm) of minimum thickness of the polyester glass fiber covering on one side</p>
ELONGATION	Not less than 32% for a thickness of 0.049 in. (1.25 mm) and greater, or 30% for a thickness of less than 0.049 in. (1.25 mm)
SPRINGBACK	<p>Glass fiber covered bare: not greater than 5°</p> <p>Glass fiber covered Heavy film-insulated: not greater than 5.5°</p>
DIELECTRIC BREAKDOWN	<p>Not less than 90 V/mil (3543 V/mm) of the minimum thickness of the glass fiber covering on one side plus the minimum breakdown given in Table2 for the film-insulated wire, if applicable</p> <p>NOTE—The minimum thickness of the glass fiber covering is 35% of the maximum increase in dimensions calculated from: Single: rectangular:</p> <p>Table1</p> <p>Double: rectangular without underlying film: Table1</p>

Table2 Dielectric Breakdown, Film-Insulated Rectangular Magnet Wire

Film Insulation	Minimum Breakdown Voltage	
	Any Three of Four Values	Fourth Value
Heavy	1500	500
Quad	2500	900

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