



PRODUCT STANDARD
TME DIVISION, BHOPAL

TM 02355

TME 2011

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MATERIAL SPECIFICATION OF WINDING WIRE, FLAT, FI Cu Fo 13 CR

1. General

1.1 Scope

This instruction lays down all the requirements which are made for the semi-finished product FI Cu Fo 13 CR.

1.2 Description, Definition

The insulation of FI Cu Fo 13 CR wire consists of a two layer corona-resistant polyimide (PI) foil tape, coated on one side with FEP (e.g Teflon FEP). The tape is wound 47 to 49% overlapped (FEP on the inside) and welded heat treatment.

The insulation will resist temperatures of up to 220 °C. The nominal thickness of the insulation (IA= Insulation coating) is 0.075 mm on each side.

1.3 Product Designation

For semi-finished Product	Designation text
Wire	FI Dr width (b) x thickness (s) - Cu Fo 13 CR

1.4 Dimensions

See order

1.5 Delivery Documents, Destination for Delivery

See order

1.6 Order

The order is the summary of the particulars and regulations that apply to the delivery. BHEL reserves the right to test all the requirements listed, test material for which is included in the order. The order can contain requirements which differ from of supplement instruction (except the section 2.1 'Properties').

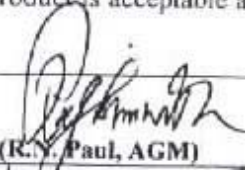
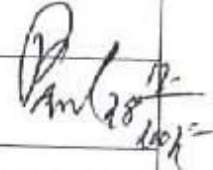
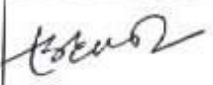

1.7 Supplier's Product Designation

Semi-finished product FI Cu Fo 13 CR must receive from the supplier a designation of quality which must be changed if alterations are made to the composition, the quality of the raw materials, the method of manufacture of other factors that could influence the technological properties of the semi-finished product.

1.8 Acceptance of New products

Attainment of the properties listed is not in itself sufficient for the acceptance of new, previously unaccepted products. Only if after particular experiments, practical service tests and if necessary, other considerations have been taken into account, appears that the new product is acceptable and interchangeable may be decided to convert to it.

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Date : 28.12.2002	CIM	2			28.12.2002
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2.0 Requirements

2.1 Properties

Code	Size, term	Unit	Values	Test Method
	Insulation coating over width 1)	mm	0.15 ± 0.02	IEC-851-2, Para 3 (=SEV 3634-2, 1987)
	Springiness angle For thicknesses over 0.560... 0.800 mm	Degree	Max. 6.0	IEC-851-3, Para.4 (=SEV 3634-3)
	>0.800...1.50 mm		Max. 5.5	
	>1.50...3.00 mm		Max. 5.0	
	>3.00 mm		Max. 4.5	
	Elongation at rupture of the wire Up to 2.5mm wire thickness	%	≥ 30	IEC-881-3, Para.3 (=SEV 3634-3, 1987)
	Over 2.5 mm wire thickness		≥ 32	
	Adherence (on elongation) Section detached	%	≥ 20	IEC-851-3, Para.5.5 (=SEV 3634-3, 1987)
	Flexibility in Mandrel winding test 2) Edge $\varnothing = 2b$	-	no crack	IEC-851-3, Para.5.1 (=SEV 3634-3)
	Flat surface $\varnothing = 2s$		no racks	
	Thermal shock resistance 2) On bent samples $220^{\circ}C$ Edge $\varnothing = 2b$	-	no crack	IEC-851-6, Para. 3 (=SEV 3634-6, 1987)
	Flat surface $\varnothing = 2s$		no racks	
	Dielectric breakdown voltage 3) Straight	kV	≥ 5.0	IEC-851-5, Para. 4
	After bending test		≥ 2.5	
	After thermal shock		≥ 2.5	

- 1) The insulation thickness (=21A) : insulated dimension minus bare dimension. The insulation tolerances may be exceeded if the outside dimensions of the insulated wire are not exceeded when the permissible tolerances of the bare wire and insulation are added together.
- 2) \varnothing = diameter of bending mandrel, expressed as a multiple of the wire width b or thickness s.
- 3) At least 4 out of 5 straight samples or 7 out of 8 curved samples of the same section of wire must meet the required break down voltage.

Note : The code numbers in section 2.1 serve as internal functional key and have therefore no significance for the supplier.

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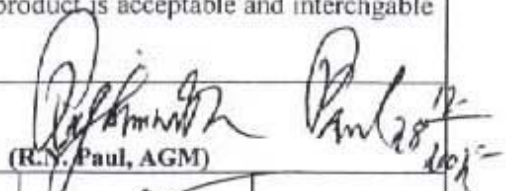
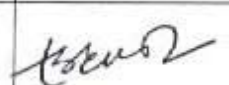
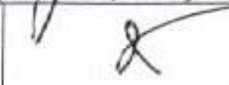
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