

Fibre-insulated wires

Thermex® 220 G1 1 DAGLAS

- Covered enameled flat copper wire with excellent mechanical and thermal properties
- Wire especially designed for automatic Roebel bar manufacturing lines
- Temperature Index 155

General description

The covered winding wire TX 220 G1 1 DAGLAS is an enameled rectangular copper conductor THERMEX® 220 Grade 1, insulated with a single covering of fused glass/polyester fibre blend. This insulation has excellent mechanical properties and a high bonding strength which are important in case of using automatic Roebel machines for bars of Hydro- and Turbo-Generators.

Application

Conductor strands of Roebel bars in Hydro- and Turbo-Generators

Conventional Types

Rectangular copper wires:

- Thickness: 0,80 to 6,00 mm
- Width: 2,00 to 22,00 mm
- Cross section: 2,00 to 80,00 mm²
- Recommended width/thickness ratio: max. 10:1

The standard dimensions of the conductors (nominal dimensions), the tolerances and the overall dimensions of the enameled wire comply with the IEC standard 60317-02.

Standards

There are no particular existing standards for this product at today. The test methods are based on IEC Publication IEC 60851:

- 60851-1 General
- 60851-2 Definition of dimensions
- 60851-3 Mechanical properties
- 60851-4 Chemical properties
- 60851-5 Electrical properties
- 60851-6 Thermal properties

Advantages

- Covering with excellent mechanical properties and resistance to abrasion
- Excellent interturn dielectric strength
- Good chemical resistance (against solvents of impregnating varnishes)

Processing Instructions

Can be processed without reservation under normal working conditions.

Order Data

Quantity, Designation, Supply form e.g.:

The designation shall comprise:

For rectangular shape of wire:	FL
Designation of the insulation:	Thermex 220 G1 1Daglas
Nominal dimension in mm:	2.24 x 5.00
Reel type: e.g.:	VM 800

Example of complete order:

2000 kg FL TX220 G1 1Daglas 2.24x5.00mm V800

		Thermex 220 G1 1Daglas	Test standard
Increase due the insulation	mm	0.19 to 0.22	
Mechanical properties			
Elongation at break / thickness up to 2.5 mm	%	≥ 30	IEC 60851-3 test 6
Elongation at break / thickness above 2.5 mm	%	≥ 32	IEC 60851-3 test 6
Springiness	°	≤ 5.5	IEC60851-3 test 7
Flexibility if width up to 8 mm Flatwise bent on mandrel Ø 6 x thickness		no cracks	IEC60851-3 test 8
Flexibility if width above 8 mm Flatwise bent on mandrel Ø 8 x thickness		no cracks	IEC60851-3 test 8
Flexibility if width up to 8 mm Edgewise bent on mandrel Ø 6 x width		no cracks	IEC60851-3 test 8
Flexibility if width above 8 mm Edgewise bent on mandrel Ø 8 x width		no cracks	IEC60851-3 test 8
Adherence after elongation	20 %	no loss of adhesion	IEC60851-3 test 8
Electrical properties			
Breakdown voltage - straight samples	V	≥ 2500	IEC60851-5 test 13
Breakdown voltage - bent samples	V	≥ 1500	IEC60851-5 test 13
Breakdown voltage - bent samples after heat shock	V	≥ 1500	IEC60851-5 test 13
Thermal properties			
Heatshock 30 min / 180 °C if width up to 8 mm Edgewise mandrel Ø 8 x width		no cracks	IEC60851-6 test 9
Heatshock 30 min / 180 °C if width above 8 mm Edgewise mandrel Ø 10 x width		no cracks	IEC60851-6 test 9
Heatshock 30 min / 180 °C if width up to 8 mm Flatwise mandrel Ø 8 x thickness		no cracks	IEC60851-6 test 9
Heatshock 30 min / 180 °C if width above 8 mm Flatwise mandrel Ø 10 x width		no cracks	IEC60851-6 test 9

Appearance

Slight color variations are raw material or process-related and have no influence on the technical properties of the wire

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