Schwering & Hasse
Pyrmonter Str. 3-5
D-32676 Lügde
Telefon +49 / 5281 / 988-0
E-Mail info@sh-wire.de

SHTherm® 210 Flat Alu

- Enamelled flat aluminium wire, thermoresistant
- insulated with THEIC mod. polyesterimide with polyamide-imide topcoat
- Class 200

Attributes

SHTherm® 210 Flat Alu is a highly thermoresistant rectangular enamelled aluminium wire of heat performance class N with a wide range of good to very good quality features. Its insulation film consists of 2 different coatings on top of one another. These ensure a very good permanent thermal and overload resistance, excellent resistance against mechanical stress, as well as an excellent resistance to chemical attacks of commercial washing and cleaning agents, impregnating varnishes and resins, sealing compounds, thinners, solvents and refrigerants, oils as well as their vapours. This range of excellent features make SHTherm® 210 Flat Alu an all-round wire meeting the requirements of all applications with above average requirements to processing and operational features or operational safety in electrical systems.

Application

Generators, transformers

Standards

IEC / DIN EN 60317-73

NEMA MW 36-A

UL approved

Delivery forms

Grade 1: on request

Grad 2: on request

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Typical properties of enamelled flat aluminium wire 5.60 x 3.55 mm, with insulation film grade 2

Mechanical	Unit of measure	Set value	Actual value (typ.)
Bare wire width	mm	5.550-5.650	as set value
Bare wire thickness	mm	3.500-3.600	as set value
Width with varnish	mm	5.67 - 5.82	as set value
Thickness with varnish	mm	3.62 - 3.77	as set value
Varnish increase	µm	120 - 170 µm	as set value
Adhesion (no cracks in film after winding)		mandrel diamter	mandrel diameter
Bend over width		4 x width	3 x width
Bend over thickness		4 x thickness	3 x thickness
Elongation		15 % with cracks < 1 x width	32 % without cracks
Pencil hardness		H	4H - 5H
Elongation at break	%	≥ 15	≥ 32

Thermal	Unit of measure	Set value	Actual value (typ.)
Temperature index TI	°C	200	210
Heat shock at 220 °C (no cracks in varnish coat after winding)		mandrel diameter 6x thickness	mandrel diameter 4 x thickness

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Thermal	Unit of measure	Set value	Actual value (typ.)
Solderability		no	no

Electrical	Unit of measure	Set value	Actual value (typ.)
Dielectrical strength at RT	kV	≥ 2.0 (ball pit)	≥ 3 (ball pit)
High voltage discontiniuties test voltage 2,5 kV		/	≤ 7 on 100 m
Electrical conductivity	MS/m	35.5 - 36.2	≥ 35.85

Chemical	Set value	Actual value (typ.)
Pencil hardness (storage in standard solvent ½ h / 60 °C)	min. H	3H-5H
Pencil hardness (storage in alcohol ½ h / 60 °C)	min. H	3H-5H
Resistance to commercial impregnants^(1)	/	yes
Resistance to commercial refrigerants^(1)	/	yes
Resistance to commercial dry transformer oils^(1)	/	yes
Resistance to commercial hydraulic oils^(1)	/	yes

(1) Due to the variety of individual applications we cannot make any generally binding commitments regarding the compatibility. We recommend testing compatibility with the materials being used.