SynFlex Elektro GmbH
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SynWire W 220 Flat

- Enamelled flat copper wire, thermoresistant
- Insulated with polyamide-imide
- Class 220

Attributes

SHTherm® 220 Flat is a highly thermoresistant enamelled copper wire of heat performance class R with superior thermal, chemical and mechanical resistance. It is used for special applications requiring the following criteria:

- very high permanent thermal resistance and short-time thermal overload
- very good resistance to aggressive mediums in liquid or gas form

SHTherm® 220 Flat is ideally suited for use in special safety-relevant and electrical life support equipment. Sophisticated process technology and process setting ensure easy mouldability, good elongation and constant insulation properties of these wires.

Application

E-Mobility, hybrid constructions

Standards

IEC / DIN EN 60317-58

NEMA MW 84-C

Delivery forms

Grade 1: on request

Grade 2: on request

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Updated 06/18

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

Mechanical	Unit of measure	Set value	Actual value (typ.)
Width with varnish	mm	5.67 - 5.82	as set value
Bare wire width	mm	5.550-5.650	as set value
Thickness with varnish	mm	3.62 - 3.77	as set value
Bare wire thickness	mm	3.500-3.600	as set value
Varnish increase	µm	120 - 170	as set value
Adhesion (no cracks in film after winding)		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	%	≥ 32	≥ 38

Thermal	Unit of measure	Set value	Actual value (typ.)
Temperature index TI	°C	220	220
Heat shock at 240 °C (no cracks in varnish coat after winding)		mandrel diameter 6 x 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	58 - 59	≥ 58.5

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.

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