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

SHTherm® V180

- Enamelled round cu. wire
- Insulated with polyesterimide
- Solderable
- Class 180

Attributes

"SHTherm® V180" is a thermo-resistant, self-fluxing enamelled copper wire of thermal performance class H which, at solder bath temperatures from 465 °C upwards, provides the possibility of contacting without prior removal of the insulation film. This coating shows good thermo-resistance and chemical compatibility with commercial impregnating agents, impregnating varnishes, extrusion-coating agents, sealing compounds, solvents and detergents.
Sophisticated process technology and process setting ensure easy mouldability, very good elongation properties and low coefficients of friction as well as good and constant dielectric insulation properties of these wires.Thanks to this "SHTherm® V180" is ideally suited for processing on highspeed, sophisticated winding machines. Enamelled copper wires of this type can also be welded and mechanically connected.

Application

Electric motors, transformers, repeating coils, magnetic coils, contactors, relays.

Standards

DIN EN 60317-23

IEC 60317 - 23

NEMA MW 77-C

UL File No. E 75926 (M)

Delivery forms

Grade 1 : on request

Grade 2 : on request

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Updated 05/18

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Typical properties of enamelled round copper wire 0.500 mm, with insulation film grade 1

Mechanical	Unit of measure	Set value	Actual value
Outer diameter with varnish	mm	min. 0.524 - max. 0.544	as set value
Bare wire diameter	mm	0.495-0.505	as set value
Elongation and adhesion		mandrel diameter: 0.500 mm	1 x d /10 % pre-elongation
Scrape resistance	N	≥ 3.100	≥ 6.000
Pencil hardness of varnish		/	2H - 3H
Elongation at break	%	≥ 28	≥ 37
Coefficient of friction	µ	/	≤ 0.140

Thermal	Unit of measure	Set value	Actual value
Temperature index TI		180	190
Cut through temperature (pre-heated block)	°C	265	≥ 280
Dielectric loss factor	(°C)(tan δ)	-	≥150
Heat shock at 200 °C		mandrel diameter: 1.120 mm	1 x d /10 % pre-elongation
Solderability at 470 °C	s	≤ 3 sec	≤ 2 sec

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Electrical	Unit of measure	Set value	Actual value
Dielectric strength RT	kV	≥ 2,4 (twist)	≥ 3,0 (cylinder)
High voltage discontiniuties 750V		≤ 10 on 30 m	≤ 7 on 100 m
Electrical conductivity	MS/m	58 - 59	≥ 58.5

Chemical	Set value	Actual value
Pencil hardness (storage in standard solvent ½ h / 60 °C)	min. H	2H
Pencil hardness (storage in alcohol ½ h / 60 °C)	min. H	2H
Resistance to commercial impregnants^(1)	/	yes
Resistance to commercial refrigerants (1)	/	no
Resistance to dry transformer oils (1)	/	yes
Resistance to hydraulic oils (1)	/	no

Index

(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.

Temperature index (TI)

The temperature index is a dimensionless value and represents the long term thermal resistance or the admissible ageing temperature of the enamelled magnet wire in °C for an extrapolated life span of 20,000 h. The temperature index does not necessarily correspond to the thermal class.

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Thermal class	Enamelled magnet wire according to IEC 60317-.. or DIN EN 60317-... are to be rated as Class X, if (a) their long term thermal performance demonstrably proves an extrapolated life span of 20,000 h at an ageing temperature of min. X °C (tests preferably to be made on enamelled magnet wires with a nominal diameter of 1.00 mm Grade 2) and (b) the heat shock resistance complies with temperatures of 25 or 20°C above the rated thermal class.

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