SynFlex Elektro GmbH
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SynWire V 180, Copper Wire, round, enamelled

- Solderable enamelled round cu.wire
- Insulated with polyurethane
- Class 180

Attributes

SynWire V 180 is a thermal class H enamelled copper wire which can be directly soldered.
The most outstanding characteristics of the wire is the possibilty of efficient and safe contacting of the wire ends by quick and exact soldering at solder bath temperatures from 390 °C upwards without prior mechanical removal of the insulation film. This type of enamelled copper wires fulfills the technical requirements of modern winding techniques and can be well impregnated and cast with compounds in accordance with the manufacturer's instructions. The excellent thermal resistance characteristics offer protection when wire-wound coils have to be compound cast and when subject to short-time overloads. The chemical resistance to aggressive liquid and gaseous mediums is limited, and therefore we recommend that you carry out compatibility tests before using this enamelled copper wire. SynWire V 180 can be easily welded and mechanically connected. Sophisticated process technology and process setting ensure easy mouldability, good elongation plus constant and good insulation characteristics of these wires.
The chemical resistance to aggressive, fluid or gaseous media is limited; therefore, compatibility tests are recommended prior to application.

Application

Contactors, magnetic coils, relays, small motors, transformers, inverters

Standards

IEC / DIN EN 60317-51

NEMA MW 82-C

UL approved

Delivery forms

Grade 1 + 2: 0.036 - 2.0 mm

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Updated 04/24

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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 (typ.)
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
Adhesion and elongation		mandrel diameter 0.500 mm	1 x d / 10 % pre-elongation
Scrape resistance	N	≥ 3.100	≥6
Pencil hardness of varnish		H	2H - 3H
Elongation at break	%	≥ 28	≥ 37
Coefficient of friction	µ	/	≤ 0.140

Thermal	Unit of measure	Set value	Actual value (typ.)
Temperature index TI	°C	180	185
Cut through temperature (pre-heated block)	°C	230	≥ 230
Dielectric loss factor	(°C)(tan δ)	/	≥140
Heat shock at 200 °C		mandrel diameter 1.120 mm	1 x d / 10 % pre-elongation
Solderability at 390 °C	s	≤ 4	≤ 2.5

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Chemical	Set value	Actual value (typ.)
Enamel pencil harness after storage ½ h/60 °C in standard solvent	min. H	2H - 3H
Enamel pencil harness after storage ½ h/60 °C in alcohol	min. H	H
Resistance to impregnants (1)	/	yes
Resistance to commercial refrigerants (1)	/	no
Resistance to dry transformer oils (1)	/	not recommended
Resistance to hydraulic oils (1)	/	no

Electrical	Unit of measure	Set value	Actual value (typ.)
Dielectric strength RT	kV	≥ 2.4 (twist)	≥ 3 (cylinder)
High voltage discontinuities (testing voltage 750 V)		≤ 10 on 30 m	≤ 7 on 100 m
Electrical conductivity of Cu conductor	MS/m	58-59	≥58.5

(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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