SynFlex Elektro GmbH
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SynWire W 210, Copper Wire, round, enamelled

- enamelled round cu.wire, thermo-resistant
- insulated with theic-mod. polyesterimide
- plus polyamide-imide overcoat
- class 200

Attributes

The SynWire W 210 is a thermal class N heat resistant enamelled copper wire with an extensive range of good and very good quality features. As it is a dual-coat wire 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 to chemical attacks e.g. by alkalines, washing and cleaning agents, impregnating varnishes and resins, sealing compounds, thinners, solvents and refrigerants as well as their vapours, an excellent mechanical abrasion resistance and a very low coefficient of friction of the wire surface. In individual cases, special material compatibilities may have to be tested. Bonding occurs after mechanical skinning via soldering or direct connection, welding, crimping.

Application

E-Mobility, control gears, electric motors, electrical tools, generators, polar windings, pump drives, refrigerators, transformers

Standards

IEC / DIN EN 60317-13
IEC / DIN EN 60317-0-1
NEMA MW 35-C
UL-approved

Delivery forms

Grade 1 and 2: 0.071 - 6.0 mm
Grade 3 on request

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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	≥ 3.950	≥ 7.500
Pencil hardness of varnish		H	4H - 5H
Elongation at break	%	≥ 28	≥ 38
Coefficient of friction	µ	/	≤ 0.140

Thermal	Unit of measure	Set value	Actual value (typ.)
Temperature index TI	°C	200	210
Cut through temperature (pre-heated block)	°C	320	≥ 360
Solderability		no	no
Heat shock at 220 °C (no cracks in varnish after winding)		mandrel diameter 1.120 mm	1 x d / 10 % pre-elongation
Dielectric loss factor	(°C)(tan δ)	/	≥185

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

Electrical	Unit of measure	Set value	Actual value (typ.)
Dielectrical strength at RT	kV	≥ 2.4 (Twist)	≥ 3 (Cylinder)
High voltage discontinuities (testing voltage)		≤ 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.