
SynWire V 155, copper wire, round, enamelled

- Solderable enamelled round cu.wire
- Insulated with polyurethane
- Class 155

Attributes

SynWire V 155 is a thermal class F enamelled copper wire which can be directly soldered. The most outstanding characteristic of this wire is the possibility of having an efficient and safe contact of the wire ends by fast and easy solderability with a solder bath temperature from 390 °C upwards without prior mechanical removal of the insulation film. This type of enamelled copper wire fulfills the requirements of modern winding technology.

State-of-the-art process technology ensures excellent formability, high elongation and good insulating properties. The chemical resistance to aggressive, fluid or gaseous media is limited; therefore, compatibility tests are recommended prior to application.

Application

transformers, relays, contactors, solenoid coils, small motors

Standards

IEC / DIN EN 60317-20

NEMA MW 79-C

UL approved

Delivery forms

Grade 1+2: 0.036 - 1.7 mm

Typical properties of enamelled round copper wire 0.160 mm, with insulation film grade 1

| Mechanical | Unit of measure | Set value | Actual value (typ.) |
|-----------------------------|-----------------|---------------------------|---------------------------|
| Outer diameter with varnish | mm | min. 0.172 - max. 0.182 | as set value |
| Bare wire diameter | mm | 0.157-0.163 | as set value |
| Adhesion and elongation | | mandrel diameter 0.160 mm | 1xd / 10 % pre-elongation |
| Scrape resistance | N | / | / |
| Pencil hardness of varnish | | H | 2H - 4H |
| Elongation at break | % | ≥22 | ≥28 |
| Coefficient of friction | μ | / | ≤ 0.140 |

| Electrical | Unit of measure | Set value | Actual value (typ.) |
|---|-----------------|---------------|---------------------|
| Dielectric strength RT | kV | ≥ 1.7 (twist) | ≥ 2.5 (cylinder) |
| High voltage discontinuities (test voltage 500 V) | | ≤ 10 on 30 m | ≤ 7 on 100 m |
| Electrical conductivity of Cu conductor | MS/m | 58-59 | ≥ 58.5 |

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| Thermal | Unit of measure | Set value | Actual value (typ.) |
|---|-----------------|----------------------------|-----------------------------|
| Temperature index TI | °C | 155 | 160 |
| Cut through temperature (pre-heated block) | °C | 200 | ≥ 200 |
| Dielectric loss factor | (°C)(tan δ) | / | ≥ 140 |
| Heat shock at 175 °C (no cracks in varnish after winding) | | mandrel diameter: 0.250 mm | 1 x d / 10 % pre-elongation |
| Solderability at 390 °C | s | ≤ 2 | ≤ 1 |

| Chemical | Set value | Actual value (typ.) |
|---|-----------|---------------------|
| Enamel pencil harness after storage ½ h/60 °C in standard solvent | min. H | 2H - 4H |
| 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 |

(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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