Schwering & Hasse
Pyrmonter Str. 3-5
D-32676 Lügde
Telefon +49 / 5281 / 988-0
E-Mail info@sh-wire.de

## SHTherm® 220 Glide

- Enamelled round copper wire, thermoresistant and self lubricating
- Insulated with polyamide-imide
- Class 220

### Attributes

SHTherm® 220 Glide 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 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.
The final layer of varnish serves the purpose of providing a superior gliding surface, giving the wire excellent windability features at higher speeds, and enabling a higher filling factor plus reduced soiling of the winding machines. The reduced coefficient of friction helps to avoid damage to the wire during winding and thus maintains the insualtion properties of the wire.

### Application

E-Mobility, control gears, electric motors, power tools, pump drives, refrigerators, special drives, special applications in the medical field

### Standards

IEC / DIN EN 60317-26
UL approved

### Delivery forms

Grade 1: 0.200 - 1.200 mm (>1.200 mm on request)
Grade 2: 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.) |
|---|---|---|---|
| Overall diameter | mm | min. 0.524 - max. 0.544 | as set value |
| Bare wire diameter | mm | 0.495-0.505 | as set value |
| Adhesion (no cracks in film after winding) | | mandrel diameter 0.500 mm | 1 x d / 10 % pre-elongation |
| Scrape resistance | N | ≥ 3.950 | ≥ 7.500 |
| Pencil hardness | | H | 5H - 6H |
| Elongation at break | % | ≥ 28 | ≥ 38 |
| Coefficient of friction | µ | / | ≤ 0.110 |
| Bare wire diameter | mm | 0.495-0.505 | as set value |
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| Elongation at break | % | ≥ 28 | ≥ 38 |
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| **Thermal** | Unit of measure | Set value | Actual value (typ.) |
|---|---|---|---|
| Temperature index TI | °C | 220 | 220 |
| Cut through temperature (pre-heated block) | °C | 350 | ≥ 400 |
| Dielectric loss factor (bending point) | (°C) (tan δ) | / | ≥ 240 |
| Heat shock at 240 °C (no cracks in varnish coat after winding) | | mandrel diameter 1.120 mm | 1 x d / 10 % pre-elongation |
| Solderability | | no | no |
| Heat shock at 240 °C (no cracks in varnish coat after winding) | | mandrel diameter 1.120 mm | 1 x d / 10 % pre-elongation |
| Solderability | | no | no |
| Dielectric loss factor (bending point) | (°C) (tan δ) | / | ≥ 240 |
| Cut through temperature (pre-heated block) | °C | 350 | ≥ 400 |
| Temperature index TI | °C | 220 | 220 |

| **Electrical** | Unit of measure | Set value | Actual value (typ.) |
|---|---|---|---|
| Dielectrical strength at RT | kV | ≥ 2.4 (twist) | ≥ 5 (cylinder) |
| High voltage discontiniuties 750V | | ≤ 10 on 30 m | ≤ 7 on 100 m |
| Electrical conductivity | MS/m | 58 - 59 | ≥ 58.5 |

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| **Electrical** | Unit of measure | Set value | Actual value (typ.) |
|---|---|---|---|
| Electrical conductivity | MS/m | 58 - 59 | ≥ 58.5 |
| High voltage discontiniuties 750V | | ≤ 10 on 30 m | ≤ 7 on 100 m |
| Dielectrical strength at RT | kV | ≥ 2.4 (twist) | ≥ 5 (cylinder) |

| **Chemical** | Set value | Actual value (typ.) |
|---|---|---|
| Pencil hardness (storage in standard solvent ½ h / 60 °C) | min. H | 4H - 6H |
| Pencil hardness (storage in alcohol ½ h / 60 °C) | min. H | 4H - 6H |
| 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 |
| Resistance to commercial hydraulic oils^(1) | / | yes |
| Resistance to commercial dry transformer oils^(1) | / | yes |
| Resistance to commercial refrigerants^(1) | / | yes |
| Resistance to commercial impregnants^(1) | / | yes |
| Pencil hardness (storage in alcohol ½ h / 60 °C) | min. H | 4H - 6H |
| Pencil hardness (storage in standard solvent ½ h / 60 °C) | min. H | 4H - 6H |

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(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.