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Copper Wire, round, enamelled, type V 155

Description	The enamelled copper wire type V 155 is a winding wire with a round copper conductor according to EN13601 Cu-ETP with a polyurethane(2) coating.
Properties	Type V 155 is a thermal class F (155 °C) enamelled copper wire which can be directly soldered. A special feature of this wire is the efficient and safe bonding via quick solderability at solder bath temperatures of 390 °C and higher without previous mechanical dissolving of the coating. Type V 155 is also suitable for bonding techniques, such as welding, connecting, and crimping, and fulfils 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	The enamelled copper wire type V 155 is used in transformers, relays, contactors, solenoid coils and small motors.
Standards	IEC 60317-20 DIN EN 60317-20 IEC 60317-0-1 DIN EN 60317-0-1 IEC 60851 series DIN EN 60851 series NEMA MW-79C UL approved RoHS compliant according to 2011/65 EC
Delivery format	Grade 1: 0.050 – 2.00 mm Grade 2: 0.050 – 2.00 mm

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Technical data

Typical material properties of the enamelled copper wire type V 155, Ø 0.16 mm, grade 1⁽⁴⁾ according to DIN EN 60317-20 and 60317-0-1

	Unit	
Mechanical		
Outer diameter	mm	max. 0.182 mm
Adhesion and elongation		1 x d, no cracks
Elongation at break	%	≥ 19 %

	Unit	
Electrical		
Dielectric strength at RT	kV	≥ 1.7 kV
High voltage defects on 30 m NominalØ > 0.125 ≤ 0.250 mm	V	≤ 25 at 500 V
Electric conductivity	m/Ωmm ²	58.5 m/Ωmm ²

	Unit	
Thermal		
Temperature index TI		> 155
Softening temperature, tested		≥ 200 °C
Heat shock at 175 °C		1,56 x d, no cracks
Solderability at 375 °C		≤ 1.3 s

	Unit	
Chemical		
Enamel pencil harness after storage ½ h/ 60 °C in standard solvent		min. H
Enamel pencil harness after storage ½ h/ 60 °C in alcohol		min. H

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	Unit	
Chemical		
Resistance to commercial impregnants ⁽¹⁾		yes
Resistance to commercial refrigerants ⁽¹⁾		no
Resistant to dry transformer oils ⁽¹⁾		not recommended
Resistance to hydraulic oils ⁽¹⁾		no

(1)

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Index	<p>(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.</p> <p>(2) Insulating varnish not polyamide modified.</p> <p>(3) Not recommended for use in oil transformers.</p> <p>(4) Tested according to IEC 60851-series, or DIN EN 60851-series, if not otherwise stated. The values shown correspond to the minimum requirements of the stated DIN EN standards. These standards do not provide a guarantee of suitability for certain applications.</p>
Temperature index (TI)	<p>The temperature index is a dimensionless value and represents the long term thermal resistance or the admissible ageing temperature of the enamelled copper wire in °C for an extrapolated life span of 20,000 h. The temperature index does not necessarily correspond to the thermal class.</p>
Thermal class	<p>Enamelled copper wires according to IEC 60317-.. or DIN EN 60317-... are to be rated as Class X, if</p> <p>(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 copper wires with a nominal diameter of 1.00 mm Grade 2) and</p> <p>(b) the heat shock resistance complies with temperatures of 25 or 20°C above the rated thermal class.</p>

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