

Fiber-insulated wires

Silix® round

- Bare round copper wire insulated with glass yarn
- Winding wire with excellent thermal and chemical resistance
- Temperature Index 180 or 200

General description

SILIX®-covered bare round wires are insulated with a double covering of glass-yarn fibers (SILIX®), available in three different versions:

V180: impregnated with modified polyesterimide varnish.

V180K: impregnated with modified polyesterimide varnish in a thermal-adhesive version.

VSi: impregnated with silicone-based varnish.

Silicone impregnation is not available in the thermal-adhesive version.

Users should consider that a silicone impregnation gives a lower level of adhesion than polyesterimide impregnations (see IEC 60317-50 standards).

Application

- Motors and magnet coils subjected to constantly high thermal and mechanical stress
- Thermo-elements

Conventional Types

Covered bare copper wires, insulated with:

- 2 fine or reinforced impregnated covering layers
- coating varnishes: epoxy, polyesterimide, silicone, 'B'-Staged varnish

Conductor diameter: 0,80 to 6,00 mm

The standard diameters of the conductors (nominal diameter) comply with standard IEC 60317-0-1.

Build Criteria Round Wire

Nominal Bare Wire Diameter d (mm)	Max. Increase in Dimensions (mm)	
	Glass Fibre Covering over Bare Conductor	
	Double Covering	
	fine	reinforced
0.80 ≤ d ≤ 1.40	0.13 to 0.20	0.19 to 0.22
1.40 < d ≤ 2.00	0.13 to 0.20	0.21 to 0.25
d > 2.00	0.19 to 0.22	0.21 to 0.25

Standards

SILIX®-covered round bare copper wires meet the requirements of IEC Publications 60317-0-6, 60317-49 (TI 180) and 60317-50 (TI 200).

The test methods are based on IEC Publication 60851:

- 60851-1 General
- 60851-2 Definition of dimensions
- 60851-3 Mechanical properties
- 60851-4 Chemical properties
- 60851-5 Electrical properties
- 60851-6 Thermal properties

Advantages

- Excellent resistance to high temperatures in continuous mode, depending on the type of impregnation used.
- Good resistance to mineral oil and corrosive vapors.
- Good resistance to abrasion and scraping.

Processing Instructions

The nature of the insulation calls for some precautions. For the items with a thermal adhesive bond coat (K), the storage time is limited to 1 year at room temperature and 60 % relative humidity.

Order Data

Quantity, Designation, Supply Form e.g.:

The designation shall comprise:

For round shape:	RD
Nominal dimension in mm:	2.24
Conductor material:	Cu
Designation of the insulation:	2Silix V180 Fine
Reel type: e.g.:	DIN 355

Example of complete order:

2000 Kg RD 2Silix V180 Fine Ø 2.24mm D355

		2Silix V180 (K)	2Silix VSi	Test standard
Mechanical properties				
Springiness /diameter above 1.60 mm	°	≤ 5.0	≤ 5.0	IEC60851-3 test 7
Flexibility - Mandrel winding 10xd		no cracks	no cracks	IEC60851-3 test 8
Adherence after elongation	20 %	no loss of adhesion	no loss of adhesion	IEC60851-3 test 8
Shear strength (for V180K only)	N/mm ²	≥ 3	na	Delle test 1.47.14
Electrical properties				
Breakdown voltage after winding 10xd	V/mm	≥ 2200	≥ 2200	IEC60851-3 test 13
Thermal properties				
Heat shock 30 min / 200 °C after winding 12xd		no cracks	no cracks	IEC60851-3 test 9
Thermal endurance	TI	180	200	NEMA MW 1000

Appearance

Slight color variations are raw material or process-related and have no influence on the technical properties of the wire

The product properties set forth in this data sheet are based on the results of testing of typical material produced by the company Delle Fil SAS. Some variation in product properties is typical. Comments or suggestions relating to any subject other than product properties are offered only to call the end-user's or other person's attention to considerations which may be relevant in the independent determination of the use and/or manner of use of product. Delle Fil SAS does not claim or warrant that the use of its product will have the results described in this data sheet or that the information provided is complete, accurate or useful. The user should test the product to determine its properties and its suitability for the intended use. Delle Fil SAS expressly disclaims any liability for any damage, harm, injury, cost or expense to any person resulting directly or indirectly from that person's reliance on any information contained in this data sheet. Nothing contained in this data sheet constitutes representation or warranty as to any matter whatsoever. Delle Fil SAS makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Delle Fil SAS shall in no event be liable for incidental, exemplary, punitive or consequential damages.

