

# Mica taped wires

## SamicaShield®

- **Mica-insulated winding wire with outstanding resistance to corona for inverter-driven motors**

### Description:

SamicaShield® winding wires are round copper wires with a new type of very thin and pore-free mica insulation. These wires have been especially developed for use in electrical low voltage machines with rated voltages in excess of 400 Volts which operate in frequency converter mode.

### Dimensions:

Bare or enameled copper wire in coating classes Grade 1 or Grade 2 with following dimensions:

0.70 - 2.00 mm diameter

The individual, conventional conductor diameters (nominal diameters), the diameters over the insulation and their tolerances correspond to IEC Publication 60317-0-1.

### Advantages:

Due to its outstanding corona resistance compared to standard enamel or filled enamel insulations, SamicaShield has a much longer life time in low voltage motors driven by inverters. SamicaShield wires can be used in motors up to about 1000 V nominal voltage.

### Processing instructions:

SamicaShield winding wires can be processed under normal working conditions if the tools and equipment are designed in such a way that:

- the wire is not bent at sharp angles,
- the wire surface is not drawn across grooved surfaces,
- the insulation is not subjected to heavy punctual impacts (hammer blows)
- do not wind across the flange.
- in order to maintain tension during the winding operation, the wire - and not the spool core - should be braked.

### Order data:

Quantity, designation and mode of supply

The designation shall contain:

Type of wire:		SamicaShield round wire
Designation of the insulation	with bare copper:	RD SA922
Designation of the insulation	with Grade 1 enameled copper:	RD TX200 G1 SA922
Nominal dimesnion in mm:		1.00 mm

The order shall specify the type of reels required, e.g.:

Cylindrical reels acc. to IEC 60264-2: DIN 250, 355, 500  
or conical reels acc. to IEC 60263-3: DIN A250, A315

e.g.: 2000 kg RD TX200 G1 SA922 1.00mm A250

## Characteristics of SamicaShield round wire in the supplied state: (e.g. values for diameter 1.00 mm)

SamicaShield types		SA922	SA927	SA920	SA926	Test standard
Thickness increase due to insulation, overlapping		<b>25 %</b>	<b>45 %</b>	<b>50 %</b>	<b>66 %</b>	
With bare copper	mm	<b>0.18 +/- 0.03</b>	<b>0.20 +/-0.03</b>	<b>0.22 +/-0.03</b>	<b>0.34 +/-0.03</b>	
With enameled copper Grade 1	mm	<b>0.23 +/-0.05</b>	<b>0.25 +/-0.05</b>	<b>0.27 +/- 0.05</b>	<b>0.40 +/- 0.05</b>	
With enameled copper Grade 2	mm	<b>0.26 +/-0.05</b>	<b>0.28 +/- 0.05</b>	<b>0.30 +/-0.05</b>	<b>0.43 +/- 0.05</b>	
<b>Mechanical properties</b>						
Elongation at break	%		≥ 20			IEC60851-3 test 6
Springiness	°		≤ 60			IEC60851-3 test 7
<b>Electrical properties</b>						
Specific resistance at 20 °C						IEC 60851-5 test 5
Puls endurance test, twisted pairs 20 kHz, 3 kV, 0.025 ns, 90 °C	h	> 10	> 10	> 10	> 10	
Breakdown voltage after bending winding mandrel 10xd:	V/mm					IEC60851-5 test 13
With bare copper	V	≥ 1500	≥ 1600	≥ 1600	≥ 2200	
With enameled copper Grade 1	V	≥ 4000	≥ 4200	≥ 4200	≥ 5000	
With enameled copper Grade 2	V	≥ 5000	≥ 5200	≥ 5200	≥ 6000	
<b>Thermal properties</b>						
Heatshock 30 min / 180 °C Winding mandrel 10 x d		no cracks	no cracks	no cracks	no cracks	IEC60851-6 test 9
Thermal endurance:						
With bare copper	TI	155	155	155	155	
With enameled copper Grade 1	TI	180	180	180	180	
With enameled copper Grade 2	TI	180	180	180	180	

### 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 Torns Fil De Bobinage 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. Torns Fil De Bobinage 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. Torns Fil De Bobinage 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. Torns Fil De Bobinage SAS makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Torns Fil De Bobinage SAS shall in no event be liable for incidental, exemplary, punitive or consequential damages.