

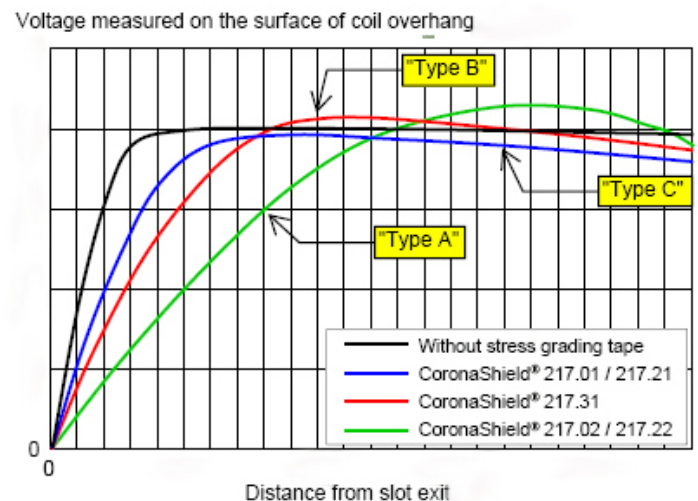
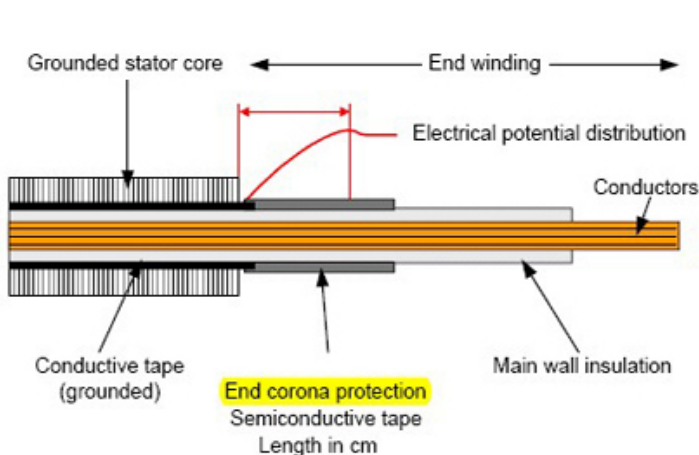
Anti corona

CoronaShield® SC 217.21

- ▶ "Type C" slight stress-grading characteristic
- ▶ Impregnated on a woven polyester tape
- ▶ Compatible with epoxy anhydride systems
- ▶ Suitable for RR as well as VPI
- ▶ For end corona protection (stress grading)

General description

217.21 is a woven polyester fabric tape, impregnated with an electrically semiconductive varnish in the "B" stage, for use up to class F (155°C), suitable for Resin Rich and can also be used for VPI processed machines.



Application

In electricity, a corona discharge - also called partial discharge - is an electrical discharge caused by the ionization of a fluid surrounding a conductor. This occurs when the potential gradient exceeds a certain value, but conditions are insufficient to cause complete electrical breakdown or arcing. Precautions must be taken to prevent the onset of corona, otherwise free radicals and ions generated in corona reactions will rapidly destroy organic materials such as binder resins and polymer films. These materials are necessary to provide a sufficient mechanical strength of the coil or bar and to give a tight fit in the slot. Erosion of organic materials in the insulation may be regarded as one of the initial steps leading to failure of the machine.

The use of corona protection materials is recommended for machines with a rated voltage > 5 kV.

End Corona Protection (Stress Grading):

There is an increase of electric field strength at the slot exit of the stator which can cause flashovers on the surface of the coils or bars. This can be prevented by applying end corona protection materials. These materials have a nonlinear current-voltage characteristic and show a stress-grading effect on the main wall surface.

Scope of Application:

With the product we add a semiconductive layer at the slot exit of high voltage coils. We reduce thus electrical stress outside of the core, where the electrical field strength would otherwise lead to damages on the insulation. The tape is intended for use in both Resin Rich and VPI processed machines.

		Value	Test norm
Thickness	mm	0.20 ± 0.04	IEC 60394-2
Total weight	g/m ²	360 ± 30	ISO 536
Schrinkage 2h at 160°C	%	≥6	
Elongation at break	%	≥10	IEC 60394-2
Thermal class	°C	155	IEC 60085
Tensile strength	N/cm	≥80	IEC 60394-2

Basis for selection

The selection of suitable materials depends on the type of high-voltage machine that is to be deployed as well as the insulation system and techniques are used (VPI or RR).

Processing Instructions

The "B" stage tape must be tightly applied without any wrinkles, half overlapped after pressing of the main wall insulation. Please don't press the tape to avoid any risk of migration of the silicon carbide particles.

During the post curing of the insulation the tape shrinks, this ensures a good contact with the conductive layer and the coil surface. The tape should overlap the conductive layer by 20 mm and the recommended axial length of the stress grading tape you can calculate with following formula:

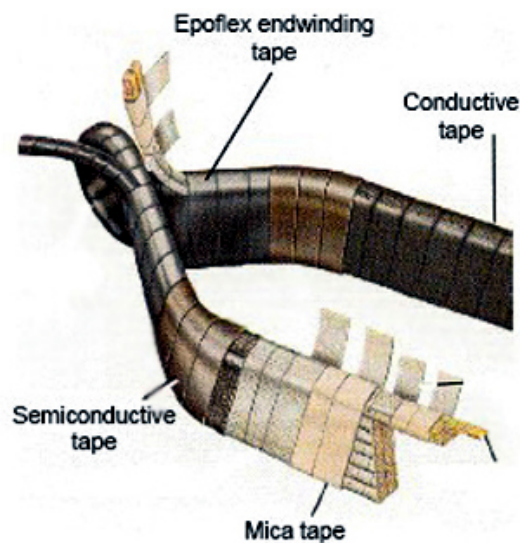
- Length in cm from slot exit = Maximum test voltage of coil in kV / 2
- e.g. for 11 kV coil we have a test voltage = 2 x 11 kV + 1 = 23 kV
- L = 23 / 2 = 11.5 cm

As a protective covering layer either Epoflex® 215.01 or Epoflex® 219.61-10 should be applied over the semiconductive tape for Resin Rich applications.

For VPI applications we recommend a covering of the tape with a shrinkable woven polyester tape 101.15 or Epoflex® 324.03. Drying at 120°C ensures shrinkage of the polyester tapes and this improves the contact between the semiconductive tape layers.

Please do not hesitate to contact us for detailed processing recommendations regarding your application.

Processing



Related products

Other End Corona Products:

- 8001 Semiconductive varnish (mainly for maintenance)
- 217.01 Semiconductive tape ("Type C" stress-grading characteristic)
- 217.02 / 217.22 Semiconductive tape ("Type A" stress-grading characteristic)
- 217.31 Semiconductive tape ("Type B" stress-grading characteristic)

Complementary Products:

- 8004 Conductive mastic (Internal Corona Protection)
- 215.55 Conductive polyester fleece tape (Internal/External Corona Protection)
- 8003 Conductive varnish (External Corona Protection)
- 215.51 Conductive polyester fleece tape (External Corona Protection)
- 215.51-03 Conductive polyester fleece tape (External Corona Protection)
- 432.10-01 Conductive Vetronite® sheet (slot packing material)
- 432.11 Conductive Vetronite® sheet (slot packing material)
- 92.200 Conductive Side Ripple Springs-Vetronite® (for side walls of slot wedges in generators)

Storage Conditions

Semiconductive tape products should be stored in cool, clean and dry conditions in the original packing.

Shelf life

At 20°C ± 5°C = 6 months

At 5°C = 12 months

Form of delivery

Corona Shield tapes are supplied as rolls, standard widths ranging from 20 to 450 mm with a length of 50 m. Our range of cores cover both manual and machine processing.

Health and safety

The tapes are non toxic. We recommend however, that good hygiene practices, including hand washing and the use of barrier and cleansing creams is adopted.

The product properties set forth in this data sheet are based on the results of testing of typical material produced by the affiliated companies of Von Roll Holding Ltd. (underneath referred as Von Roll). 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. Von Roll 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. Von Roll 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. Von Roll makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Von Roll shall in no event be liable for incidental, exemplary, punitive or consequential damages.