

CONDUCTIVE POLYESTER TAPES

215.51 215.63
 215.51-03 215.65
 215.55

General

All of the grades are based upon non woven polyester fleece impregnated with an electrically conductive varnish, for use up to 155°C.

Application

If high tension is applied across an insulating material which is in a series with a small air gap, electrical discharges (corona) may occur in the air gap which, if prolonged will damage the solid insulation. These discharges can be prevented by coating the insulation with an electrical conducting layer. The air gap is thus shorted out and hence all of the electrical stress will occur across the solid insulation. Conductive tapes are especially designed for this purpose, and are used therefore in many applications where high tension is present across a combination of mixed dielectrics e.g. solid insulation with an air gap on series

The main use of the products is as a conductive layer on the straight portion of high voltage coils to control the electric stress and to dissipate any surface corona discharge which may occur.

Grades 215.51 and 215.51-03 (differing only in conductivity) are intended for use in both Resin Rich and VPI processed machines. Compatibility with epoxy anhydride cannot be assumed, the compatibility with such resins must be verified by specific testing.

Grade 215.55 is thinner than 215.51 and 215.51-03 and it may also be used for resin rich, polyesterimide (Samicabond[®]) VPI and epoxy VPI processing.

Grade 215.63 is used as a separate loose slot liner inserted into the slot at the time of winding to ensure a tight fit of the coil in the slot.

Grade 215.65 is identical to 215.55 with the addition of a self adhesive coating which is particularly useful for the application of the conductive layer to polyester film backed micapaper tapes.

Main Characteristics

The surface resistivity of our Conductive tapes is designed in such a way that even in the case of potential impulses with a relatively steep front, the potential adjusts itself so well that no discharges occur along the conducting surface. On the other hand, the conductivity is sufficiently high to avoid short circuiting of laminations in high voltage machines.

Conductive non-woven tapes are made of non-woven fleece that have been impregnated with carbon particles and are resistant to solvents. The tapes are supplied in the cured condition but can be impregnated with appropriate resins.

Conductive Polyester tapes

The advantages over conductive varnishes are :

- they obviate the use of conductive varnish in a workshop where only high quality insulating materials should be present.
- errors due to inconsistent stirring of containers and application of varnish are avoided.
- they form a permanent conductive layer.
- they have more uniform resistance value over the entire surface area.
- they can also be used as a slot liner to ensure a tight fit in the slots.

Conductive Polyester tape 215.55 is the standard grade for the applications

Processing

Grades 215.51, 215.51-03 and 215.55 are applied half lapped to the straight portion of the coil or bar either by hand or machine.

The tape should be tightly applied without creases, and should extend to a position corresponding to the outer end of the core support finger.

For the resin rich technique the tape is applied to the bar before pressing.

Grade 215.65 is a self adhesive coated version of 215.55 which is recommended for use with Samicatherm[®] P polyester film backed resin rich Samica[®] tape.

Grade 215.65 is normally applied after coil pressing.

Grade 215.63 is applied as a foil along the straight part of the coil as a loose slot liner to ensure a good fit in the slot.

Construction and Properties :

Characteristics	unit	215.51	215.51-03	215.55	215.63	215.65	Test norm
Thickness	mm	0.10 ± 0.03	0.10 ± 0.03	0.085± 0.03	0.17 ± 0.03	0.095±0.03	IEC 394-2
Weight per unit area	g/m ²	85 ± 10	75 ± 10	85 ± 8	113 ± 10	115 ± 13	IEC 394-2
- non woven fleece	g/m ²	60 ± 6	60 ± 6	60 ± 6	70 ± 5	60 ± 6	IEC 394-2
- Varnish content	g/m ²	25 ± 5	15 ± 3	25 ± 5	43 ± 5	55 ± 7 *	IEC 394-2
Tensile strength	N/cm	≥ 30	≥ 30	≥ 30	≥ 20	≥ 40	IEC 394-2
Elongation	%	≥ 10	≥ 10	≥ 8	≥ 5	≥ 8	IEC 394-2
Surface resistivity	Ω cm/cm	200 - 400	400 - 1000	200 - 400	200 - 400	< 3000	ASTMD257

* including adhesive

Conductive Polyester tapes

Similar Products As flexible products the ranges described are unique in the VRI product range.
For separator and rigid packing applications our Conductive Vetronite® Art.No. 432.10 and 432.10-01 is recommended.
An alternative technique to the application of conductive tapes is to coat the coil surface with VRI 8003 Conductive Varnish.

Storage and Shelf Life All conductive polyester tape products should be stored in clean dry conditions in the original packing under which conditions the shelf life is indefinite.

Mode of Supply All conductive tape products are supplied as rolls :
Width from 15mm to 40mm, or as full width (nominal 1000mm).
Length: 50m or 100m
Centres: 55mm.
Non standard formats available upon enquiry.

Health and Safety All of the conductive tape products are non toxic.
Normal good hygienic practices should apply.
