



## Electrical Markets Division

### Global New Product Release:

# 3M™ Electrical Filament Tape 1039

#### Product Description

3M™ Electrical Filament Tape 1039 is polyester film/glass filament scrim tape coated with a pressure-sensitive acrylic adhesive system. The polyester film/glass filament scrim backing has excellent physical and electrical characteristics; making 1039 filament tape an excellent choice for use in “dry-type” transformers and motors winding applications.

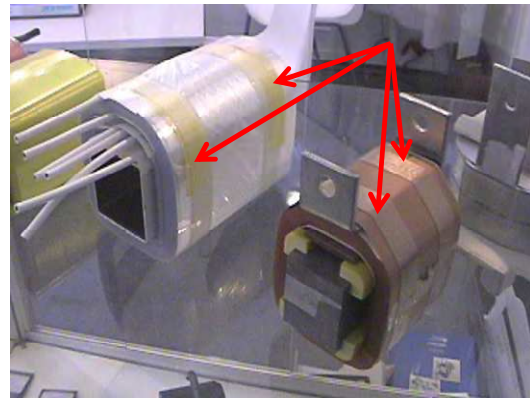
The electrical-grade construction of 1039 filament tape supports its use in critical electrical applications. This tape’s core construction is a 1-mil polyester film bonded to a fiberglass scrim matched with a specially designed electrical-grade acrylic adhesive. The result is a strong tape backing with a chemically resistant adhesive.

Underwriters Laboratories (UL) Component Recognition has been established for temperatures not exceeding 130°C applications. It is listed in File Number E17385 A and B, Guide OANZ2. UL recognized products have been evaluated for use as components of end-product equipment that is listed or classified by UL. To achieve UL recognition, components construction must meet UL specifications and conditions of acceptability for proper and safe use of the component or product.

#### Product Applications

The primary application for 1039 filament tape is holding down magnet wire, copper strips (sheets) and insulation materials during the demanding coil winding process. Once in place in the transformer coil, the tape provides a second key performance

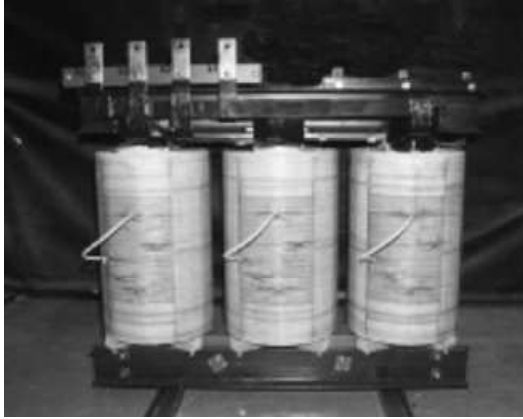
attribute by holding key components in place during the winding insulation process. These attributes together make 1039 filament tape the right choice for dry-type transformers.



Dry-type transformer windings are insulated via four primary techniques.

- Dip and bake or open wound
- Vacuum pressure impregnation (VPI)
- Vacuum pressure encapsulation (VPE)
- Encapsulation or sealed
- Cast coil – epoxy sealing

A core application for 1039 filament tape is holding down the magnet wire at the beginning and end of each layer. This is also referred to as the start and finish between magnet wire turns. In addition, 1039 filament tape is used to hold down the insulation sheet layers between magnet wire layers.



3M™ Electrical Filament Tape 1039 is particularly well suited for these applications because of the product’s high tensile strength. This allows the tape to withstand the stress applied to the tape when the windings are being applied at high winding machine speeds.

The process of applying magnet wire or copper strips is a “hands on” process that requires the tape to be durable with a good bond to the substrate. The 1039 filament tape has been specially designed to meet these demanding holding requirements.



## Summary of key Features, Advantages & Benefits

The 1039 filament tape provides five core performance benefits for critical dry-type transformer applications:

1. Good initial adhesion of the tape to magnet wire, strip copper and insulation materials
2. Stable adhesion even after long exposure to transformer fluids
3. Stiffness for excellent handling, which promotes operator efficiency during application of the tape during coil winding operations
4. Compatibility with diamond paper insulation thermal bonding with back side of tape
5. Easy consistent unwind to promote operator efficiency

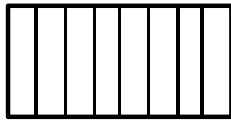
Feature	Advantage	Benefit
Polyester-Backing with Scrim Filaments and Acrylic Adhesive	Consistent Thickness	Application and Dielectric performance
	Good adhesion and cohesive strength	Product reliability and physical robustness
	Good Conformability	Reliable application contact
	Good physical strength	Promotes operator efficiency
	UL Recognition for Class B (130°C) applications	Conforms to application that require UL certification
Roll form	Custom slit widths	Adaptability for specific customer needs
	Custom die cut shapes	Adaptability for specific customer needs

## Product Typical Performance Attributes

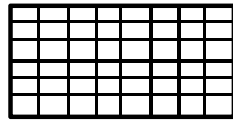
Product numbers for 3M™ Electrical Filament Tape 1039

US Stock Number	Description
80-6114-7164-2	1039 Filament Tape 23" x 60 yds Paper Core
80-6114-7165-9	1039 Filament Tape 23" x 60 yds Plastic Core

The diagrams show two products, 3M Filament Tape 1339 with linear glass strands that run down web and the new 1039 filament tape product with a scrim woven glass mat. The core difference in these products is the orientation of the glass reinforcement in the product's backing construction.



3M™ Filament Tape 1339 reinforcing fibers are linear down the roll



3M™ Filament Tape 1039 reinforcing scrim provides additional reinforcement

Please note that the only physical property difference seen in comparing the two products is in the total thickness. This is the result of using a woven glass scrim in 1039 filament tape compared to the linear glass strands in 1339 filament tape.

Properties	1039	1339
<b>Thickness</b>	7 mils (0,181 mm)	6.5 mils (0,165 mm)
<b>Breaking Strength (at break)</b>	275 lb/inch (481 N/10mm)	275 lb/inch (481 N/10mm)
<b>Elongation (at break)</b>	5%	5%
<b>Adhesion to Steel</b>	35 oz/inch (3.8 N/10 mm)	35 oz/inch (3.8 N/10 mm)
<b>Dielectric Breakdown</b>	5,500 V	5,500 V
<b>Temperature Class</b>	130°C	130°C
<b>Insulation Resistance</b>	1 x 10 <sup>5</sup> megaohms	1 x 10 <sup>5</sup> megaohms
<b>Electrolytic Corrosion</b>	1.0	1.0

Note: The above **typical technical data**, according to 3M test methods, should be considered representative and should not be used for specification purposes.

**Important Notice**

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

**Warranty; Limited Remedy; Limited Liability.**

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