

APTIV XPI™ FILMS B105

General Information

Product Description

APTIV XPI™ Film B105 is a mineral filled semi-crystalline film made from VICTREX™ PEEK polymer. The film provides durability and reliability in the most demanding application environments by incorporating all of the outstanding properties of VICTREX™ PEEK (PolyEtherEtherKetone) polymer in a thin film format. It is typically used as high-voltage e-motor stator insulation, enabling excellent thermal management as well as high electrical performance and maximised copper fill factor, resulting in enhanced e-motor efficiency.

APTIV XPI™ Film B105 offers increased thermal conductivity and meets the requirements of high-voltage (800 V) Slot Liner applications such as:

- Long-term thermal stability in high electric field strength rotating machines
- Excellent dielectric performance for primary and secondary insulation concepts in 800+ V electric machines
- Well-engineered mechanical properties for use on automated assembly lines and processing equipment
- High compatibility to a wide range of impregnation resins
- Optimum wear resistance for impregnation resin-free electric machine concepts
- Outstanding chemical resistance and hydrolysis resistance to water, ATF, oils and cooling fluids to support all cooling concepts, from water to direct oil immersion
- Enhanced thermal conductivity upon minimum slot liner thickness for ultra-low thermal resistance

Material Properties

Physical	Nominal Value	Unit	Test Method
Density ¹ (23°C)	1.45	g/cm ³	ISO 1183
Water Absorption ² Equilibrium, 23°C, 0.0500 mm, 50% RH	0.080	%	ISO 62
Shrinkage MD ³ (200°C, 50.0 µm)	< 0.50	%	
Shrinkage TD ³ (200°C, 50.0 µm)	< 0.50	%	
Films	Nominal Value	Unit	Test Method
Film Thickness - Recommended / Available	100	µm	
Tensile Modulus MD : 23°C, 100 µm TD : 23°C, 100 µm	4500 4200	MPa	ISO 527
Tensile Stress MD : Break, 23°C, 100 µm TD : Break, 23°C, 100 µm	100 80.0	MPa	ISO 527
Tensile Elongation MD : Break, 23°C, 100 µm TD : Break, 23°C, 100 µm	> 100 > 10	%	ISO 527
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset)	143	°C	ISO 11357
Melting Temperature	343	°C	ISO 11357
CLTE - Flow ⁴ (0.0500 mm)	3.5E-5	cm/cm/°C	ASTM D696
Thermal Conductivity ⁵	0.43	W/m/K	ASTM E1461
RTI Elec	240	°C	UL 746B

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Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁶ (23°C)	1.0E+16	ohms·cm	IEC 60093
Comparative Tracking Index (CTI) ⁷	PLC 4		IEC 60112
Breakdown Voltage ⁸ (23°C)	16.5	kV	ASTM D149
Breakdown Voltage Retention ⁹ (180°C)	> 95.0	%	IEC 60243
Dielectric Constant ¹⁰ (23°C)	3.20		IEC 60250
Dissipation Factor ¹¹	3.0E-3		IEC 60250
Partial Discharge Inception Voltage ¹²			IEC 60270
23°C	1187	V	
180°C	921	V	

Additional Information

Product Dimensions

APTIV XPI™ Film B105 by Victrex is offered in a standard width of 610 mm and a standard roll outer diameter of 300 mm. The standard roll length of 400 m is supplied on a 152 mm (6") core.

For non-standard formats of APTIV XPI™ Film B105, please contact the Victrex sales team. Victrex can assist customers by referring them to our network of vendors. These vendors offer a variety of high-precision services, including slitting, coating, laminating, and other ancillary kitting solutions.

Notes

¹ Crystalline

² 24 hrs

³ TM-VX-84

⁴ Below Tg

⁵ Through Plane

⁶ Tested on resin feedstock

⁷ 23°C

⁸ 1 kV/s

⁹ 180 °C, 500 V/s

¹⁰ 1 kHz, Tested on resin feedstock

¹¹ 1MHz, Tested on resin feedstock

¹² values reported in Vpk

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