

# APTIV XPI™ FILMS A105

## General Information

### Product Description

APTIV XPI™ Film A105 is an unfilled 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 A105 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

## Material Properties

Physical	Nominal Value	Unit	Test Method
Density <sup>1</sup> (23°C)	1.30	g/cm <sup>3</sup>	ISO 1183
Water Absorption <sup>2</sup> Equilibrium, 23°C, 0.0500 mm, 50% RH	0.040	%	ISO 62
Shrinkage MD <sup>3</sup> (200°C, 50.0 µm)	< 0.50	%	
Shrinkage TD <sup>3</sup> (200°C, 50.0 µm)	< 0.50	%	
Films	Nominal Value	Unit	Test Method
Film Thickness - Recommended / Available	100	µm	
Tensile Modulus			ISO 527
MD : 23°C, 100 µm	2400	MPa	
TD : 23°C, 100 µm	2300	MPa	
Tensile Stress			ISO 527
MD : Break, 23°C, 100 µm	120	MPa	
TD : Break, 23°C, 100 µm	120	MPa	
Tensile Elongation			ISO 527
MD : Break, 23°C, 100 µm	> 150	%	
TD : Break, 23°C, 100 µm	> 150	%	
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset)	143	°C	ISO 11357
Melting Temperature	343	°C	ISO 11357
CLTE - Flow <sup>4</sup> (0.0500 mm)	3.5E-5	cm/cm/°C	ASTM D696
Thermal Conductivity <sup>5</sup>	0.25	W/m/K	ASTM E1461
RTI Elec	240	°C	UL 746B

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Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Comparative Tracking Index (CTI) <sup>6</sup>	PLC 4		IEC 60112
Breakdown Voltage <sup>7</sup> (23°C)	16.2	kV	ASTM D149
Breakdown Voltage Retention <sup>8</sup> (180°C)	> 95.0	%	IEC 60243
Dielectric Constant <sup>9</sup> (23°C)	3.20		IEC 60250
Dissipation Factor <sup>10</sup>	3.0E-3		IEC 60250
Partial Discharge Inception Voltage <sup>11</sup>			
23°C	1199	V	IEC 60270
180°C	890	V	IEC 60296-PROA4

## Additional Information

### Product Dimensions

APTIV XPI™ Film A105 by Victrex is offered in a standard width of 650 mm and a standard roll outer diameter of 450 mm. The standard roll length of 1300 m is supplied on a 152 mm (6") core.

For non-standard formats of APTIV XPI™ Film A105, 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

<sup>1</sup> Crystalline

<sup>2</sup> 24 hrs

<sup>3</sup> TM-VX-84

<sup>4</sup> Below Tg

<sup>5</sup> Through Plane

<sup>6</sup> 23°C

<sup>7</sup> 1 kV/s

<sup>8</sup> 180 °C, 500 V/s

<sup>9</sup> 1 kHz

<sup>10</sup> 1MHz

<sup>11</sup> values reported in Vpk

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