

VICTREX® PEEK 90HMF40

➤ Product Description:

High performance thermoplastic material, 40% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding, easy flow, colour black.

➤ Typical Application Areas:

Complex geometries with thinner cross sections or longer flow length where superior strength in a static or dynamic system is required. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

➤ Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
Tensile Strength	Break, 23°C	ISO 527	MPa	330
	Break, 120°C			220
	Break, 180°C			145
	Break, 275°C			85
Tensile Elongation	Break, 23°C	ISO 527	%	1.2
Tensile Modulus	23°C	ISO 527	GPa	43
Flexural Strength	23°C	ISO 178	MPa	475
	120°C			350
	180°C			220
	275°C			120
Flexural Modulus	23°C	ISO 178	GPa	37
Compressive Strength	23°C	ISO 604	MPa	310
	120°C			250
	200°C			120
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m ⁻²	8.0
	Unnotched, 23°C	ISO 179/1U		60
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	10.5
	Unnotched, 23°C	ISO 180/U		60
Thermal Data				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K ⁻¹	3.0
	Average below Tg			35
	Along flow above Tg			1.0
	Average above Tg			80
Heat Deflection Temperature	1.8 MPa	ISO 75A-f	°C	349
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m ⁻¹ K ⁻¹	4.3
	Average, 23°C			2.0
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	300

Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.45
Shore D hardness	23°C	ISO 868		88.5
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.3
	Saturation, 100°C			0.4

Electrical Properties				
Volume Resistivity	23°C, 1V	ASTM D4496	Ω cm	10 ⁵

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h (residual moisture <0.02%)
Temperature settings	365 / 370 / 375 / 380 / 385°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	190°C - 200°C
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	380°C nozzle, 190°C tool	1mm thick section	Victrex	mm	100
Mould Shrinkage	380°C nozzle, 190°C tool	Along flow	ISO 294-4	%	0.0
		Across flow			0.4

Important notes:

- Processing conditions quoted in our datasheets are typical of those used in our processing laboratories
Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions.
Mould shrinkage differs for along flow and across flow directions. "Along flow" direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould.
Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions.
- Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions

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