1000 PEEK AE

Poly-ether-ether-ketone

JXD Machining 1000 PEEK AE is an unfilled polyetheretherketone developed for general purposes in the aerospace industry. This grade offers the highest elongation and toughness of all materials in the PEEK family. Ideal for instrument and seal components, where ductility and inertness are critical, JXD Machining1000 PEEK AE shapes are known for their ability to fit within a variety of applications and industries.

PRODUCT DATASHEET

		ISO*			ASTM*		
		Test methods	Units	Indicative values	Test methods	Units	Indicative values
Thermal properties (1)	Melting temperature (DSC, 10°C (50°F) / min)	ISO 11357-1/-3	°C	340	ASTM D3418	°F	644
	Glass transition temperature (DMA- Tan δ) (2)		°C			°F	
	Thermal conductivity at 23°C (73°F)		W/(K.m)	0.25		BTU in./(hr.ft².°F)	1.75
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)				ASTM E-831 (TMA)	µin./in./°F	26
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)		µm/(m.K)	50			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)		µm/(m.K)	55			
	Coefficient of linear thermal expansion (>150°C) (> 300°F)		µm/(m.K)	130			
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	160	ASTM D648	°F	320
	Continuous allowable service temperature in air (20.000 hrs) (3)		°C	250		°F	480
	Min. service temperature (4)		°C	-50		°F	
	Flammability: UL 94 (3 mm (1/8 in.)) (5)			V-0			V-0
	Flammability: Oxygen Index	ISO 4589-1/-2	%	35			
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2 (7)	MPa	115	ASTM D638 (8)	PSI	16,000
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%	5	ASTM D638 (8)	%	5
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	17	ASTM D638 (8)	%	40
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	4300	ASTM D638 (8)	KSI	630
	Shear Strength	ASTM D732	MPa	55	ASTM D732	PSI	8000
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	38 / 75 / 140			
	Compressive strength				ASTM D695 (11)	PSI	20,000
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	no break			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	3.5			
	Izod Impact notched				ASTM D256	ft.lb./in	0.6
	Flexural strength	ISO 178 (12)	MPa	170	ASTM D790 (13)	PSI	25,000
	Flexural modulus of elasticity	ISO 178 (12)	MPa		ASTM D790	KSI	600
	Rockwell M hardness (14)	ISO 2039-2		105	ASTM D785		100
	Rockwell R hardness (14)	ISO 2039-2			ASTM 2240		126
Electrical Properties	Electric strength	IEC 60243-1 (15)	kV/mm	24	ASTM D149	Volts/mil	480
	Volume resistivity	IEC 62631-3-1	Ohm.cm	10^14	ASTM D257	Ohm.cm	
	Surface resistivity	ANSI/ESD STM 11.11	Ohm	10^13	ANSI/ESD STM 11.11	Ohm	10^13
	Dielectric constant at 1 MHz	IEC 62631-2-1		3.2	ASTM D150		3.3
	Dissipation factor at 1MHz	IEC 62631-2-1		0.002	ASTM D150		0.003
Miscellaneous	Colour			Natural (beige)			Natural (beige)
	Density	ISO 1183-1	g/cm³	1.31			
	Specific Gravity				ASTM D792		1.31
	Water absorption after 24h immersion in water of 23 °C (73°F)	ISO 62 (16)	%	0.06	ASTM D570 (17)	%	0.10
	Water absorption at saturation in water of 23 °C (73°F)		%	0.45	ASTM D570 (17)	%	0.5
	Wear rate	ISO 7148-2 (18)	µm/km	28	QTM 55010 (19)	In³.min/ft.lbs.hrX10-¹⁰	375
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)		0.3-0.5	QTM 55007 (20)		0.32
	Limiting PV at 100 FPM (safety factor 4)				QTM 55007 (21)	ft.lbs/in².min	8500
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings		MPa.m/s	0.33 / 0.21			
	Limiting PV at 0.5 m/s cylindrical sleeve bearings	QTM 55007 (21)	MPa.m/s				
	Chemical Resistance						

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m NYP: there is no yield point

This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. See the remaining notes on the next page.