ADVANCED INDUSTRIAL

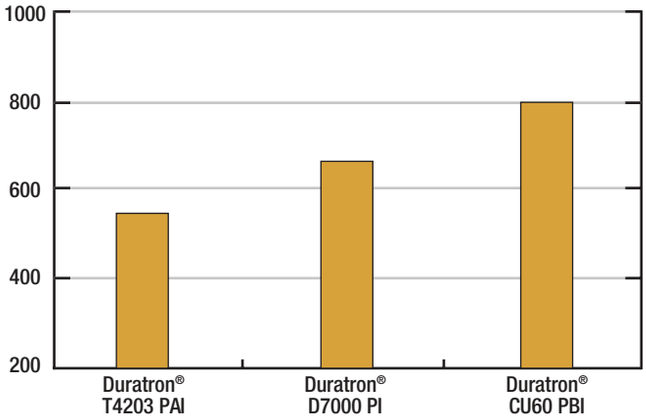
HIGH PERFORMANCE PLASTIC SHAPES // PRECISION CNC MACHINED COMPONENTS

Machinable Polyimide
Thermal Resistance Over 600˚F

SIMPLY NO SUBSTITUTE

Duratron® D7000 PI

A Perfect Fit
(Heat Deflection Temperature- 264psi)



Competitive Advantage

• Quadrant Duratron® D7000 series machinable polyimide fits perfectly in the Quadrant performance portfolio. It is an exceptional value for applications where thermal requirements exclude Quadrant Duratron® PAI and do not require the extraordinary thermal resistance of Quadrant Duratron® PBI. Quadrant Duratron® PI is available in several grades for structural and wear applications and in the broadest range of shapes - particularly thick sheets, larger sheet geometries and heavy-wall tubes.

• Quadrant Duratron® PI machinable shapes are ideal starting points for designs that reduce weight, extend length of service before maintenance or replacement and reduce overall cost by increasing process uptime. Quadrant Duratron® PI materials are just one of the solutions in the machinable plastics industry's broadest product line.

Key Benefits

- Good performance at elevated temperature (>600˚F)
- Good chemical resistance
- Easily machined from a broad range of shapes
  - rod, sheet, tubular forms
- High strength, tough and dimensionally stable

Common Applications

- Valve and pump seats, seals, and wear surfaces
- Structural and wear parts for semiconductor and electronics manufacturing
- Fixtures and handling parts for glass and plastics manufacturing
- Metal replacement for aerospace components -lightweight, lubrication-free

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Data Sheet - Duratron® D7000 PI

	Property	Units	Test Method	Typical Average Value
Mechanical Properties	Specific Gravity @ 73˚F	-	ASTM D792	1.37
	Ultimate Tensile Strength	psi	ASTM D638	17,500
	Tensile Modulus	psi	ASTM D638	540,000
	Elongation, at break	%	ASTM D638	6
	Flexural Strength	psi	ASTM D790	25,000
	Flexural Modulus of Elasticity	psi	ASTM D790	550,000
	Shear Strength	psi	ASTM D732	16,000
	Compressive Strength @ 10% Deformation	psi	ASTM D695	27,000
	Compressive Modulus	psi	ASTM D695	380,000
	Hardness, Rockwell	-	ASTM D785	R128
	Hardness, Durometer, Shore “D” Scale	-	ASTM D2240	90
	Notched Izod Impact (1/8”)	ft. lb./in. of notch	ASTM D256	1.0
	Coefficient of Friction - Dynamic (unlub.)	-	QTM 55007	0.29
	Limiting PV with 4:1 safety factor applied	ft. lbs./in.^{2} -min.	QTM 55007	15,000
	Wear Factor x 10-10, at 50 psi x 100 fpm	in^3 -min./ft. lbs. hr	QTM 55010	150
Thermal Properties	Coefficient of Liner Thermal Expansion (-40˚F to 300˚F)	in./in./˚F	ASTM E831	2.25 x 10^{-5}
	Deflection Temperature @ 264 psi	˚F	ASTM D648	670
	Tg-Glass Transition (amorphous)	˚F	ASTM D3418	690
	Melting Point (crystalline) peak	˚F	ASTM D3418	N/A
	Continuous Use Temperature (1)	˚F	-	500
	Thermal Conductivity	BTU in./(hr. ft.^{2} ˚F)	ASTM E1530	1.50
Electrical Properties	Dielectric Strength	Volts/mil	ASTM D149	395
	Surface Resistivity	ohms/square	EOS/ESD S11.11	>10^{13}
	Dielectric Constant, 106 Hz	-	ASTM D150	3.2
	Dissipation Factor, 106 Hz	-	ASTM D150	0.005
	Flammability @ 3.1mm (1/8 in.)(2)	-	UL94	V-0
Other	Water Absorption Immersion, 24 Hours @ 73˚ F	% by wt.	ASTM D570(2)	0.7
	Absorption Immersion, Saturation @ 73˚ F(2)	% by wt.	ASTM D570(2)	3.8

(1) Data represents Quadrant’s estimated maximum long-term service temperature based on practical field experience.
(2) Specimens: 1/8” thick x 2” diameter or square.
(3) Estimated rating based on available data. The UL-94 Test is a laboratory test and does not relate to actual fire hazard.

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