

Torlon Specs

				Torlon 4503	Torlon 4203	Torlon 4203L	Torlon 4501	Torlon 4301	Torlon 4301	Torlon 5530	Torlon 5030
		Units	ASTM Test Method	Compression Molded Polyamideimide	Extruded Polyamideimide	Injection Molded Polyamideimide	Compression Molded Bearing Polyamideimide	Extruded Bearing Grade Polyamideimide	Injection Molded Bearing Polyamideimide	Compression Molded 30% GF Polyamideimide	Injection Molded 30% GF Polyamideimide
MECHANICAL	Strength to Weight Ratio	ksi									
	Specific Gravity @73 F		D792	1.40	1.41	1.41	1.45	1.45	1.45	1.61	1.60
	Tensile Strength @73 F, (ult)(yld)	psi	D638	18000 (ult)	18000 (ult)	22000 (ult)	10000 (ult)	12000 (ult)	19000	14000 (ult)	24000 (ult)
	Tensile Modulus of Elasticity @ 73 F	psi	D638	500000	600000	600000	440000	900000	760000	500000	1200000
	Tensile Elongation at Break @ 73 F	%	D638	5	5	15	3	3	7	3	4
	Flexural Strength @ 73 F	psi	D790	24000	24000	28000	20000	31000	25000	20000	36000
	Flexural Modulus of Elasticity @ 73 F	psi	D790	600000	600000	700000	650000	1000000	750000	800000	1000000
	Shear Strength @ 73 F	psi	D732		16000	15000		16400	13000		24500
	Compressive Strength, (% Deformation) @73 F	psi	D695	17000 (10)	28000 (10)	32000 (10)	18000 (10)	24000 (10)	24000 (10)	18000 (10)	38000 (10)
	Compressive Modulus of Elasticity @73 F	psi	D695	350000	700000	700000	350000	950000	950000	350000	600000
	Hardness, Rockwell, Scale as noted @73 F		D785	M119 (E80)	M120 (E80)	M120 (E80)	M106 (E70)	M106 (E70)	M106 (E70)	M120 E77)	M125 (E77)
	Hardness, Durometer, Shore D @73 F		D2240	D90			D90			D90	
	Izod Impact, (Notched) @73 F	ft-lb/in of notch	D256 TypeA	1.5	2.0	2.5	0.5	0.8	1.1	0.7	1.3
	Coefficient of Friction, (Dry vs. Steel) Dynamic			0.30	0.27	0.35	0.20	0.20	0.20	0.20	0.19
Limiting PV, (with 4 to 1 factor of safety applied)	psi-ft/min			17500			22500	22500	30000	20000	
THERMAL	Coefficient of Linear Thermal Expansion @73 F	in/in/F	E-831 (TMA)	1.5E-05	1.7E-05	1.7E-05	2.0E-05	1.4E-05	1.4E-05	2.5E-05	1.0E-05
	Heat Deflection Temperature @ 264 psi	F	D648	532	532	532	534	534	534	520	539
	Tg-Glass transition temperature, (Amorphous)	F	D3418	527	527	527	527	527	527	527	527
	Melting Point, (VS=Vicat Softening Temp.)	F	D3418								
	Continuous Service Temperature in Air, (Max.)	F		500	500	500	500	500	500	500	500
	Thermal Conductivity	BTU-in/hr-ft2-F		1.80	1.80	1.80	3.70	3.70	3.70	2.50	2.50
ELECTRICAL	Dielectric Strength, Short Term	Volts/mil	D149	580	580	580				700	840
	Volume Resistivity	ohm-cm	D257	2.0E+17	2.0E+17	2.0E+17	8.0E+15	3.0E+15	8.0E+15	2.0E+17	2.0E+17
	Dielectric Constant @ 10E6 Hz		D150	3.9	3.9	3.4	5.4	6.0	5.4	6.3	6.5
	Dissipation Factor @ 10E6 Hz		D150	0.031	0.031	0.031	0.042	0.037	0.042	0.220	0.023
Flammability @ 3.1 mm unless noted		UL94	V-O	V-O	V-O	V-O	V-O	V-O	V-O	V-O	
H₂O	Water Absorption, Immersion, 24 Hrs	% by wt.	D570(7)	0.35	0.40	0.33	0.30	0.28	0.28	0.30	0.30
	Water Absorption, Saturation	% by wt.	D570(7)	1.70	1.70	1.70	1.50	1.50	1.50	1.50	1.50