

# ADVANCED INDUSTRIAL

HIGH PERFORMANCE PLASTIC SHAPES // PRECISION CNC MACHINED COMPONENTS



**Categories:** Polymer; Thermoplastic; Acetal (POM); Acetal Copolymer, Unreinforced

**Key Words:** POM, Polyoxymethylene; Polyformaldehyde; Polyacetal

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.20 %	0.20 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.90 %	0.90 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	88	88	ASTM D785
Hardness, Rockwell R	120	120	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	65.5 MPa	9500 psi	ASTM D638
Elongation at Break	30 %	30 %	ASTM D638
Tensile Modulus	2.76 GPa	400 ksi	ASTM D638
Flexural Strength	82.7 MPa	12000 psi	ASTM D790
Flexural Modulus	2.76 GPa	400 ksi	ASTM D790
Compressive Strength	93.1 MPa	13500 psi	10% Def.; ASTM D695
Compressive Modulus	1.79 GPa	260 ksi	ASTM D695
Shear Strength	55.2 MPa	8000 psi	ASTM D732
Izod Impact, Notched	0.534 J/cm	1.00 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.25	0.25	Dry vs. Steel; QTM55007
K (wear) Factor	403 x 10 <sup>-5</sup> mm <sup>3</sup> /N-M	200 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.0946 MPa-m/sec	2700 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+13 ohm	>= 1.00e+13 ohm	EOS/ESD S11.11
Dielectric Constant	3.8	3.8	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	16.5 kV/mm	420 kV/in	Short Term; ASTM D149
Dissipation Factor	0.0050	0.0050	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Thermal Properties	Metric	English	Comments
CTE, linear	97.2 µm/m-°C	54.0 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Thermal Conductivity	0.231 W/m-K	1.60 BTU-in/hr-ft <sup>2</sup> -°F	ASTM F433
Melting Point	168 °C	335 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	104 °C	220 °F	ASTM D648
Flammability, UL94	HB	HB	Estimated Rating
	@Thickness 3.17 mm	@Thickness 0.125 in	

Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	
Canada AG	Yes	Yes	
FDA	Yes	Yes	
NSF	Yes	Yes	STD 51 & 61 Natural Only
USDA	Yes	Yes	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Unacceptable	Unacceptable	
Acids, Weak	Limited	Limited	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Limited	Limited	
Conductive / Static Dissipative	No	No	
Continuous Sunlight	Limited	Limited	

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Hydrocarbons - Aliphatic	Acceptable	Acceptable
Hydrocarbons - Aromatic	Acceptable	Acceptable
Inorganic Salt Solutions	Acceptable	Acceptable
Ketones, Esters	Acceptable	Acceptable

## Descriptive Properties

Color	Natural / Black	
Machinability	1	1-10, 1=Easier to Machine