

# Material Specifications:

PROPERTIES	UNITS	HEANIUM <sup>®</sup>	HZIRCONIA
Density	g/cc	3.8	6.02
Surface finish - as fired - ground - polished	microinches microinches microinches	64 32 16	15 - 30 10 1 - 3
Grain Size	microns	11	0.9
Water Absorption	%	0	0
Flexural Strength	MPa	345	900
Elastic Modulus	GPa	303	200
Shear Modulus	GPa	124	113
Poisson's Ratio	-	0.21	0.23
Compression Strength	MPa	2070	2500
Hardness	R45N scale	80	82
Tensile Strength	MPa	193	550
Fracture Toughness	MPa(m <sup>1/2</sup> )	4.5	13
Thermal Conductivity	W/m <sup>°K</sup>	23	2.2
Coeff. of Thermal Exp.	(x 10 <sup>-6</sup> /°F)	7.5	10.3
Thermal Shock Res.	(°F)	450	660
Maximum Use Temp.	(°F)	2900	1700

# Heanium<sup>®</sup> Solid Ceramics

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**APPLICATIONS:** Comprised primarily of high-purity aluminum oxide, Heanium is formulated specifically for use in industrial applications in which wear resistance, corrosion resistance, and electrical insulation are of prime importance. These qualities extend the life and improve the efficiency of production machinery.

**COMPLEX GEOMETRY:** The ability to extrude, injection mold, dry press, isostatic press, and machine Heanium allows parts to be made into virtually any shape, efficiently and economically, from simple eyelets to complex guides. We possess the tooling, equipment, and expertise to produce enumerable standard and custom parts.

**SLOTS AND GROOVES:** All Heanium components can be modified to suit specific applications. Eyelets and Bellmouth Bushings can be provided with slots and/or grooves to match self-threading and clip-mounting needs.

**ADAPTABLE MOUNTING:** Heanium parts can be assembled with various fittings and hardware. Mountings, shanks, casings, bushings, and bearings enable Heanium parts to be readily installed on machinery. Our in-house machining capabilities allow us to manufacture customized mounting holders for your special needs.

**PART NUMBERING:** Our part numbering system allows quick-and-easy part selection using the functional outside diameter or width of the part. These dimensions are highlighted throughout this catalog for easy reference.

**TOLERANCES:** Standard tolerances on Heanium components are .010 inch or  $\pm 1.5\%$ , whichever is greater. Dimensions on parts can be held to tighter tolerances as required, utilizing diamond grinding and honing. Special tolerances apply to rods and tubes as noted on pages 38-39.

**POLISH:** Standard finish (Ra) on all surfaces is 64  $\mu\text{in}$ . Polishing to 32  $\mu\text{in}$  (P2 Polish) or 16  $\mu\text{in}$  (P1 Polish) is available.

**QUALITY:** To ensure reliable performance, each Heanium part is subjected to rigid manufacturing and inspection standards consistent with our ISO certification.

**PART AVAILABILITY:** We produce thousands of Heanium ceramics for use in industrial applications and can custom make thousands more. This catalog lists only the most frequently-used Heanium parts. Please contact our **technical sales** department for more information. Customer service remains a top priority and we are committed to providing you with the right part for your specific needs.

