

### features

- Available in custom shapes and sizes
- Original 3D forming process can combine hole, step, convex and concave, chase and thread shapes
- Two types of material available
- Features heat resistance, chemical resistance, anti-wear and insulation
- Designed to withstand various environments

### ordering information

KNC	3333
Product Code	KOA Ref. No

### material characteristics

Item	Characteristics	
Material	Al <sub>2</sub> O <sub>3</sub>	MgO, SiO <sub>2</sub>
Alumina Content (%)	95	—
Color	White	
Apparent Density (g/cm <sup>3</sup> )	3.6	2.8
Water Absorption (%)	0	0
Transverse Strength (MPa)	≥330	139
Vickers Hardness at 300gf	1500	—
Line Expansion Coefficient (×10 <sup>-6</sup> /K)	7.4 (at 20°C – 800°C)	8.0 (at 20°C – 100°C)
Dielectric Constant (at 1MHz)	9	6.2
Dielectric Tangent (Ω, cm) (at 25°C)	8×10 <sup>-4</sup>	13×10 <sup>-4</sup>
Volume Resistivity Value	10 <sup>14</sup>	10 <sup>13</sup>
Dielectric Strength (kV/mm)	≥18	≥20

Above value is the reference value by test piece measurement and will change depending on product style.

## machining process

### Polishing Process

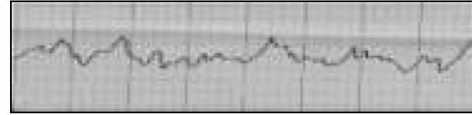
The surface characteristic is dependent upon usage purpose and may be obtained through the various polishing processing.

Finish Turning	Surface Roughness
No Polishing	Ra 1.0–2.0 $\mu$ m
Normal Abrasive	Ra 0.4–1.0 $\mu$ m
Gloss Grinding	Ra 0.2 $\mu$ m max.

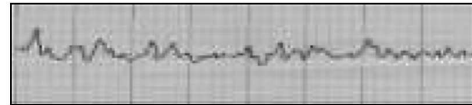
### Surface Roughness

KOA's Al<sub>2</sub>O<sub>3</sub> 95% material

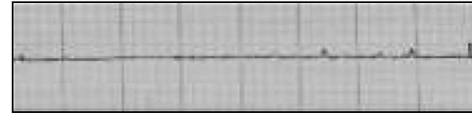
No polishing



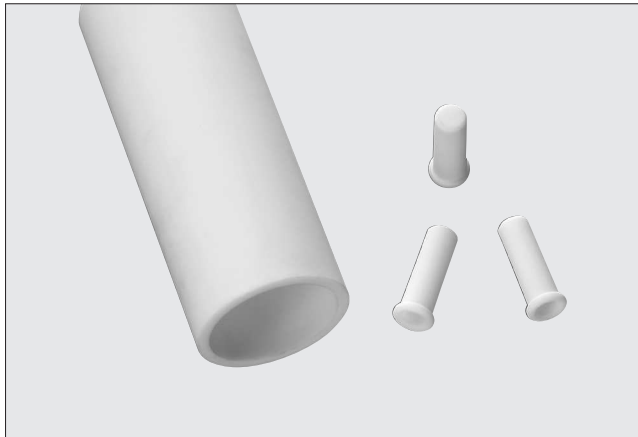
Normal abrasive



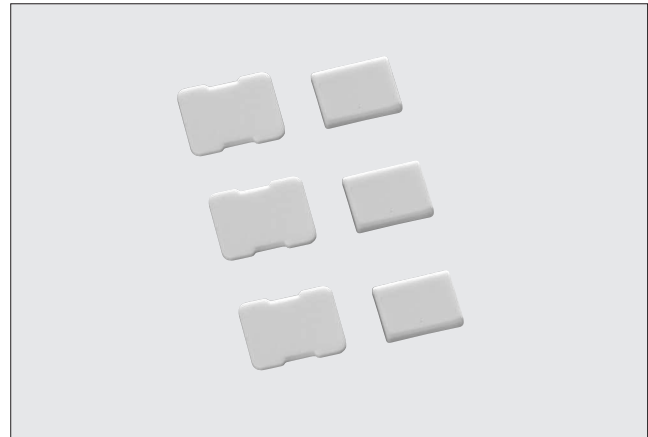
Gloss grinding



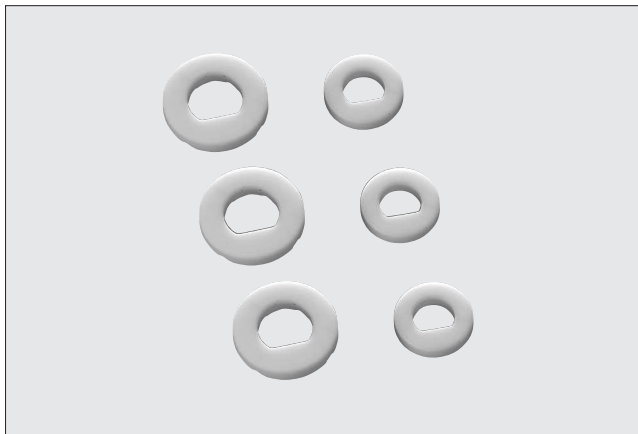
## product examples



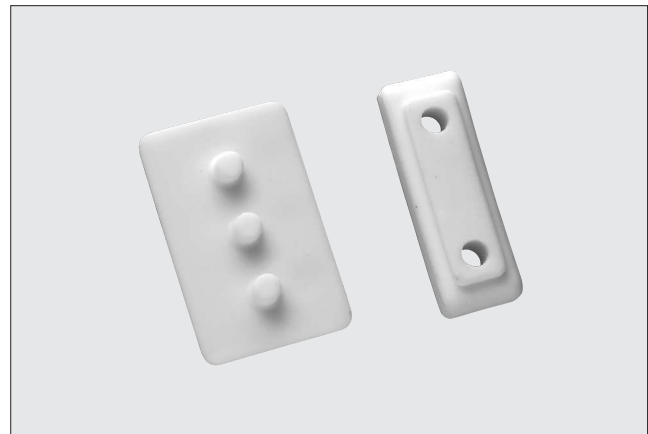
Insulation tube  
Protective tube



Heat transfer parts



Anti-wear parts



Other product