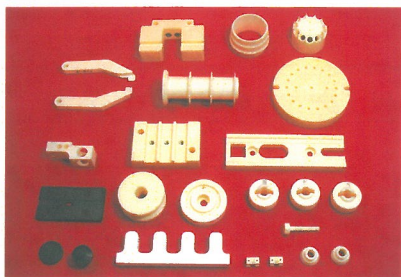


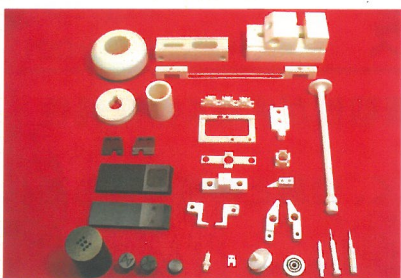
Characteristics of materials



Alumina Ceramics

[Al₂O₃]

Alumina is a typical material, and it is excellent in heat resistance, abrasion resistance, electric insulation.



Zirconia Ceramics

[ZrO₂]

Zirconia is excellent in mechanical strength and fracture toughness at room-temperature and it has largely abrasion resistance. Thermal expansion coefficient of zirconia is similar to that of metal and it is also suitable for the junction with the metal.



Silicon nitride Ceramics

[Si₃N₄]

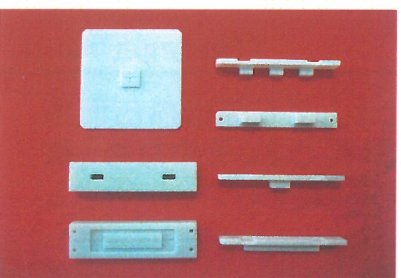
Silicon nitride is excellent in thermal shock resistance and mechanical strength at high-temperature, and it is also an excellent material in abrasion resistance, corrosion resistance



Silicon carbide Ceramics

[SiC]

Silicon carbide is the material in which the degradation of mechanical strength at high-temperature is small, and it is also an excellent material in abrasion resistance, corrosion resistance. Thermal conductivity of silicon carbide is higher than that of other ceramics, for example, alumina, zirconia, silicon nitride and so on.



Aluminum Nitride

[AlN]

The AlN(aluminum nitride) has a thermal conductivity of 6 times in comparison with the alumina, and coefficient of thermal expansion is small materials. Therefore, AlN is used for as heat tools using the high thermal conductivity and insulation characteristics.



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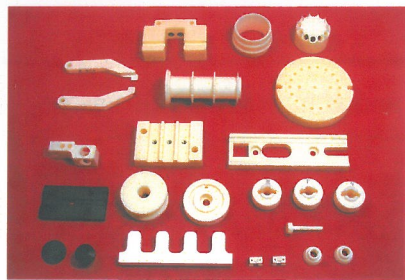
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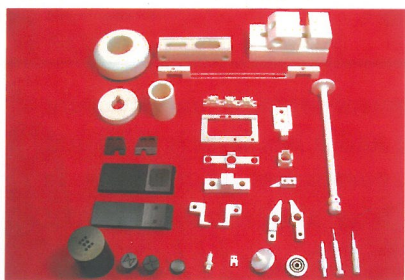
材質の特長



アルミナセラミックス

[アルミナ Al_2O_3]

代表的な材料であり、耐熱性、耐摩耗性、電気絶縁性に優れています。



ジルコニアセラミックス

[ジルコニア ZrO_2]

常温での機械的強度と破壊靱性が大きく耐摩耗性に優れています。

また、熱膨張率が金属に近く、金属との接合にも適しています。



窒化珪素セラミックス

[窒化珪素 Si_3N_4]

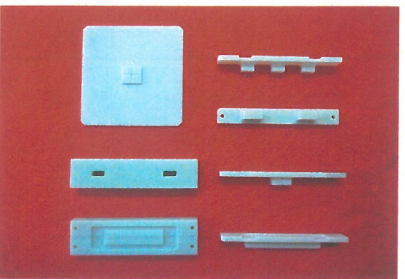
耐熱衝撃性及び高温での機械的強度に優れ、耐摩耗性、耐食性にも優れた材料です。



炭化珪素セラミックス

[炭化珪素 SiC]

高温での機械的強度の劣化が小さい材料で、耐摩耗性、耐食性に優れています。また、アルミナ、ジルコニア、窒化珪素などのセラミックスよりも熱伝導率が高いという特性を持っています。



窒化アルミ

[窒化アルミ AlN]

窒化アルミは、アルミナと比較して6倍の熱伝導率があり、熱膨張率が小さい材料です。そのため、高い熱伝導率と絶縁性を利用し、ヒートツール等として使用されます。



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Processing of Small Hole

ZrO₂

Processing cases

Appearance

Processing part of small hole

Enlargement of the part of small hole

Hole diameter $\phi 0.116 \sim 0.120$

Hole Pitch $0.250 \sim 0.255$

Hole diameter	$\phi 0.115 \pm 0.005\text{mm}$
Hole Pitch	$0.250 \pm 0.007\text{mm}$
Number of holes	49
Material	Zirconia
External size	$55 \times 55 \times 8\text{mm}$ (The thickness of the part which a holes were processed 0.5mm)

Si₃N₄

Processing cases

Appearance

Processing part of small hole

Enlargement of the part of small hole

Hole diameter $\phi 0.063 \sim \phi 0.070$

Hole pitch $0.112 \sim 0.130$

Hole diameter	$\phi 0.065 \pm 0.005\text{mm}$
Hole Pitch	$0.120 \pm 0.01\text{mm}$
Number of holes	19
Material	Silicone nitride
External size	$10 \times 10 \times 0.5\text{mm}$



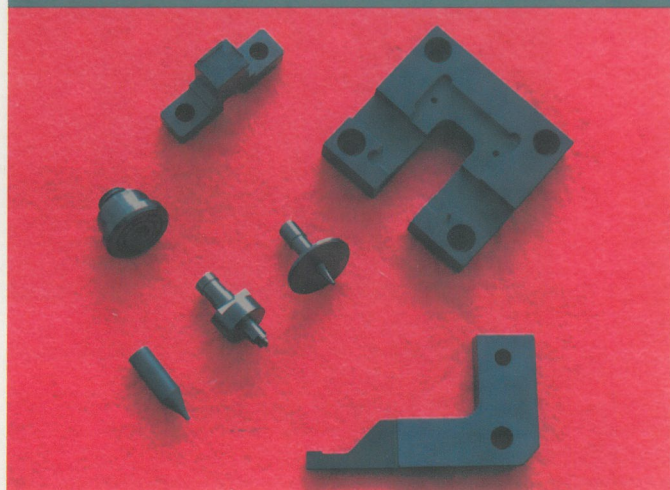
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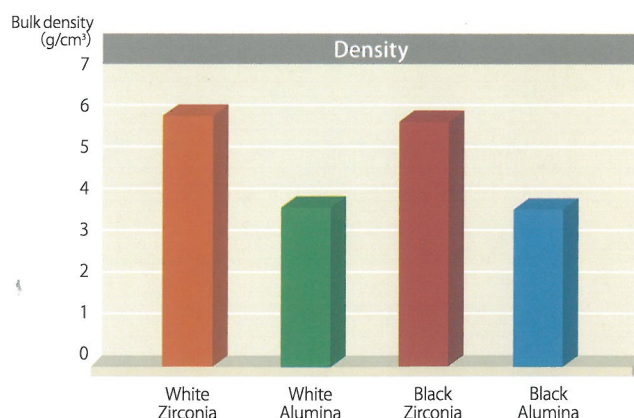
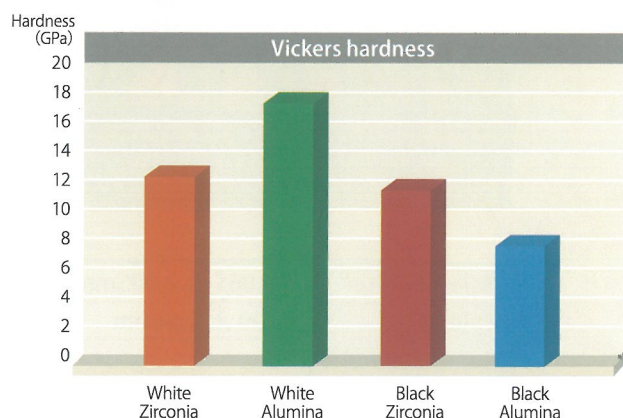
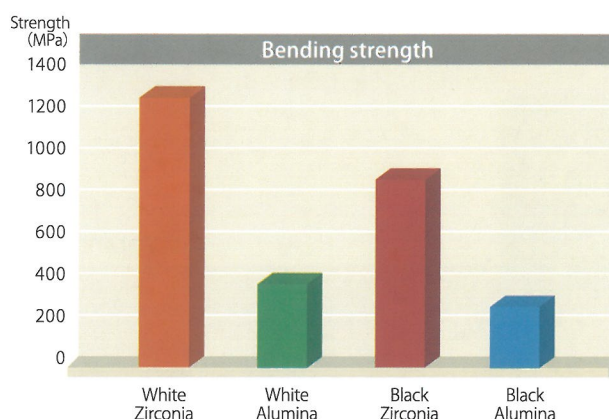
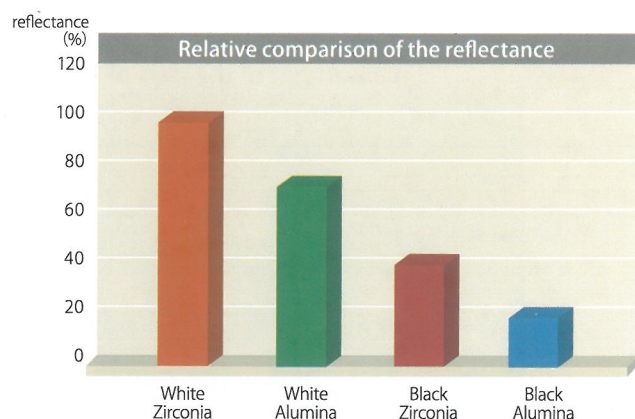
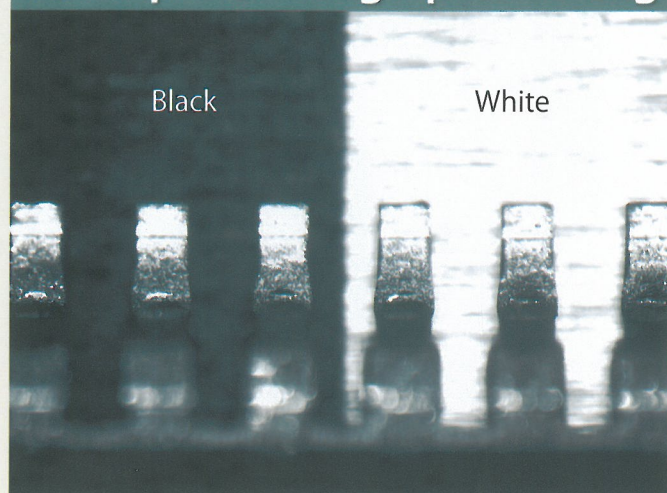
Black Ceramics for image processing

Black ceramics has a small reflectance, and is used as measures for halation. It has excellent abrasion resistance.

Products for Black Ceramics



Example of image processing



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