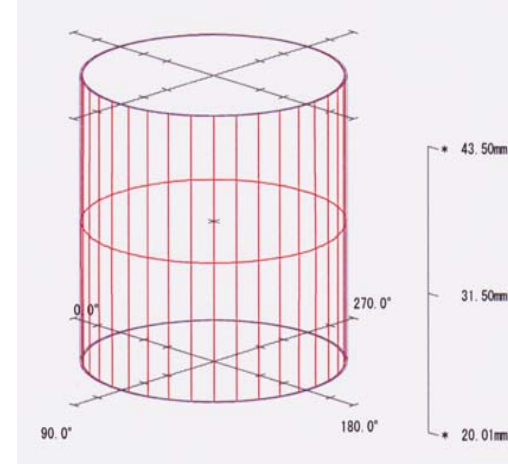
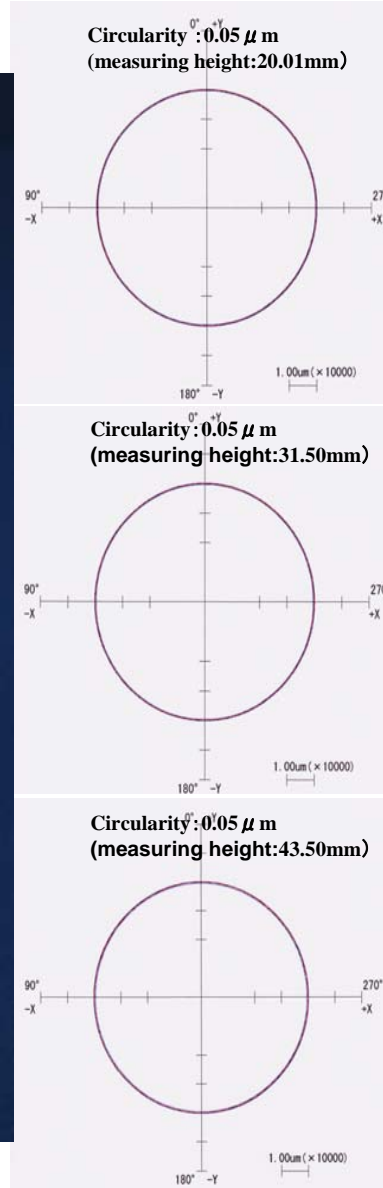


High precision

High precision processing is possible.

Example of a pump part:

【Finished with circularity of $0.05 \mu\text{m}$ & nearly equal circularity in the internal diameter all along 108 mm full length.】



Concentricity: $0.02 \mu\text{m}$
Cylindricity: $0.09 \mu\text{m}$

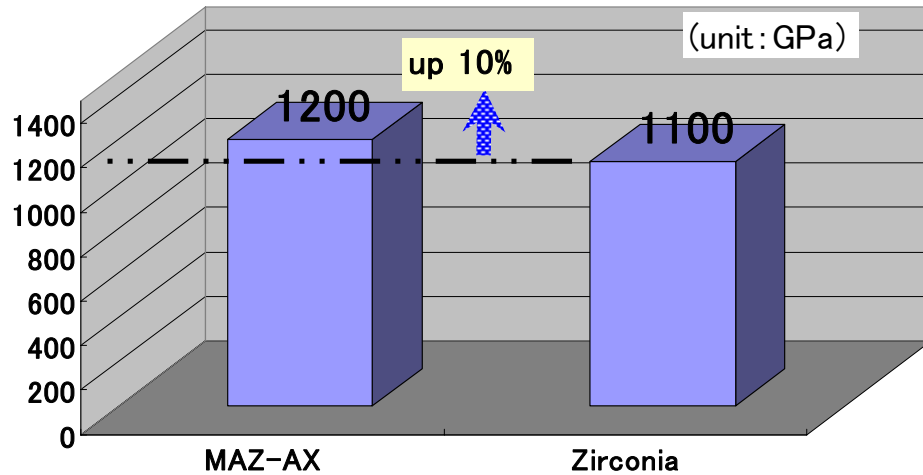
Central axis shift, etc. can be kept to the minimum.

Ultra precise parts

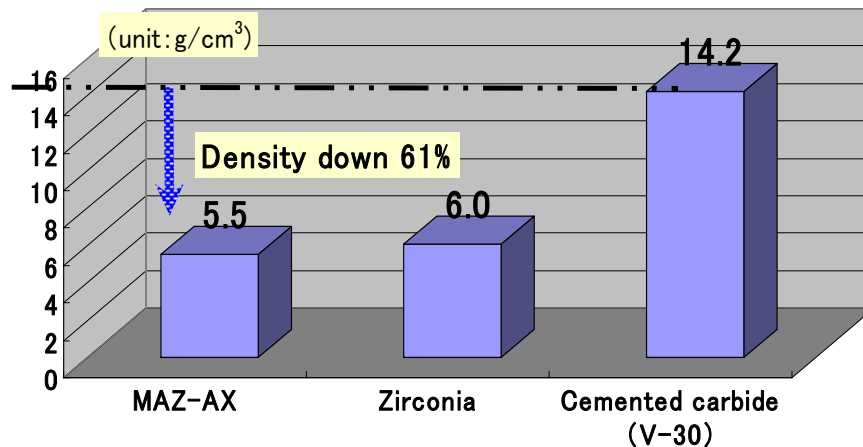
- Parts can be mounted with shrink-fit.
- Same processes as metal parts (welding, mounting) are possible with ceramics shrink-fitted in spots needed.
- Long life & low thermal expansion with less metal seizing / clinging than the Cemented carbide.
- Optimum materials for parts which need high stability.



Bending Strength



Density



INFORMATION

ARIAKE MATERIALS COMPANY, LIMITED

Advanced Enabling Materials for Semiconductor Manufacturing Equipment

For pump parts with high precision & high durability

MAZ

Characteristics

High mechanical strength & High durability

- Compound ceramics of Zirconia & Alumina.
- Higher bending strength and higher wear resistance than Zirconia.
- Machinable for high precision products.
- Effective for parts weight reduction as a substitute of cemented carbide.
- High durability against chemical and oily environment.

Properties Table

		MAZ-AX	Zirconia	Cemented carbide (V30)
Color		White	White	—
Bulk Density	g/cm ³	5.5	6.0	14.2
Fracture toughness	MPa·m ^{1/2}	5.1	5.0	—
Bending Strength	MPa	1200	1100	—
Young's Modulus	GPa	245	210	560
Thermal Expansion Coefficient	× 10 ⁻⁶ /°C	8.9	9.5	5.4
Thermal Conductivity (RT)	W/mK	6	3	71