Ceramic Components for Semiconductor Processing
TECHNOLOGY

DESIGN & SIMULATION TECHNOLOGY

- SUPER COMPUTER
- Thermal conductivity analysis
- Stress analysis
- Fluid thermal analysis
- Shock analysis
- Electro magnetic field analysis
- Piezo electric device vibration analysis
- Electrical analysis

ANALYSIS TECHNOLOGY

- TEM
- XRD
- EPMA
- AFM

EVALUATION TECHNOLOGY

- Electrical evaluation
- Durability evaluation
- Mechanical evaluation
- Thermal friction evaluation
### Unit Conversion Table

#### Stress

<table>
<thead>
<tr>
<th>Mpa</th>
<th>Kgf/mm²</th>
<th>Kgf/cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.807</td>
<td>10³</td>
</tr>
<tr>
<td>9.807×10⁴</td>
<td>10³×10⁴</td>
<td>10⁶</td>
</tr>
</tbody>
</table>

#### Thermal Conductivity

<table>
<thead>
<tr>
<th>W/(m·K)</th>
<th>Cal/cm°C·Sec</th>
<th>K</th>
<th>sec·Cal/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>2.45</td>
<td>1</td>
<td>2.45</td>
</tr>
<tr>
<td>300</td>
<td>3.06</td>
<td>1</td>
<td>3.06</td>
</tr>
<tr>
<td>500</td>
<td>4.75</td>
<td>1</td>
<td>4.75</td>
</tr>
</tbody>
</table>

#### Notes
- These values are only for reference, showing the measurement results of test pieces specified.
- The values may change dependent on the using conditions and the shape of products.
- For more details, please feel free to contact us.
Alumina Wafer Polishing Plate / Turn Table
- Material: Al₂O₃
- Size: Up to 39" in diameter
- Features:
  ● High rigidity
  ● High chemical durability
  ● Surface shape & roughness control

Silicon Carbide Wafer Polishing Plate
- Material: SiC
- Size: Up to 30" in diameter
- Features:
  ● High thermal conductivity
  ● Low thermal expansion
  ● High rigidity

Pad Dresser
- Material: Al₂O₃, SiC, Si₃N₄
- Features:
  ● High wear resistance
  ● Square bumps / pyramid bumps

Sapphire Carrier Plate
- Material: Sapphire
- Size: Up to 8" in diameter
- Features:
  ● High purity
  ● High chemical durability
  ● No grain boundary
  ● Transparent
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**Plasma Proof Dome**

- Material: Al₂O₃
- Size: For 200mm / 300mm equipment
- Features:
  - High purity
  - High plasma durability

**Plasma Proof Ring**

- Material: Al₂O₃, Y₂O₃
- Size: For 200mm / 300mm equipment
- Features:
  - High purity
  - High plasma durability

**Electro-Static Chuck**

- Material: Al₂O₃, AlN, Sapphire
- Size: For 200mm / 300mm equipment
- Features:
  - High purity
  - High plasma durability
  - Good chucking / de-chucking response
  - High temp. and low temp. application

**Heater**

- Material: AlN
- Size: For 200mm / 300mm equipment
- Features:
  - High purity
  - High plasma durability
  - Uniform thermal distribution
**Vacuum Chuck**

- **Material**: Al₂O₃, Porous Al₂O₃, SiC
- **Size**: For 200mm / 300mm equipment
- **Features**:
  - High purity
  - High chemical durability
  - Vacuum channel inside
  - Variety surface shape

**Nozzle**

- **Material**: Al₂O₃
- **Size**: Nozzle diameter +/−5 μm
- **Features**:
  - High plasma durability
  - Gas flow rate control

**End Effector**

- **Material**: Al₂O₃, SiC, Sapphire
- **Size**: For 200mm / 300mm equipment
- **Features**:
  - High purity
  - Vacuum channel inside
  - SiC coating
  - Mirror polished surface

**Chamber Window & Tube**

- **Material**: Sapphire
- **Features**:
  - High purity
  - High plasma durability
  - Transparent
  - High transmission factor
**USM Stage - Assembly Technology**

- Material: \( \text{Al}_2\text{O}_3, \text{Al} \)
- Non Magnetic Metal, etc.
- Features:
  - Ultrasonic Motor drive
  - High positioning accuracy
  - Compact design

**Metalized Products - Metal Assembly Technology**

- Material: \( \text{Al}_2\text{O}_3, \text{Al}, \text{Stainless steel}, \text{etc.} \)
- Application:
  - IC Packages
  - High vacuum component
  - High voltage terminal, etc.

**Coating Technology**

- Material: \( \text{SiC}, \text{DLC}, \text{etc.} \)
- Features:
  - Discharge of static electricity
  - Soft contact

**Large Size Product Manufacturing Technology**

- Material: \( \text{Al}_2\text{O}_3, \text{Y}_2\text{O}_3, \text{SiC}, \text{Si}_3\text{N}_4 \)
- Application:
  - LCD manufacturing equipment
  - Lithography equipment

**Material Development Technology**

- Material: Low thermal expansion materials
- Application:
  - Lithography equipment
  - Wafer Inspection equipment