Low Thermal Expansion Ceramic Mirror

Enabling High Precision and Light Weight with High Rigidity

**Characteristics**

- **Minimal temperature deformation** due to dense cordierite ceramic with extremely low thermal expansion rate
- **Approx. 70% weight reduction** when compared to low CTE glass (\(^*\) according to our research) via slim ribbed structure design with high rigidity
- **Rapid process time** even for complex designs due to good machinability property.

**Material Characteristics comparison with Low CTE Glass**

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Low CTE Glass</th>
<th>Ceramic &lt; Cordierite CO720 &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>kg/m(^3)</td>
<td>2.53</td>
<td>2.55</td>
</tr>
<tr>
<td>CTE</td>
<td>ppm/K</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Elasticity Modulus</td>
<td>GPa</td>
<td>90</td>
<td>144</td>
</tr>
<tr>
<td>Specific Rigidity</td>
<td>—</td>
<td>36</td>
<td>56</td>
</tr>
</tbody>
</table>

**Displacement Map**

- **Low CTE Glass**
- **Cordierite Ceramic**

**3-point Supported Deflection**

- **Low CTE Glass vs. Cordierite Ceramic**
  - **Approx. 40% Improvement**
  - **Comparison Conditions**
    - Product Size: Φ1020 x 120mm (Rib Structure)
    - Supported Points: Outside 3 Points
    - Load: Self-weight

*Values are typical properties, and may vary depending on product configurations or manufacturing processes.*