Light Guiding Prismatic Plate (LGP)
Microstructured acrylic for light-management

Evonik Cyro LLC has entered into an exclusive agreement with precision optics manufacturer, Jungbecker, to provide their acrylic-based light-guiding solutions throughout North America.

Using a proprietary process, Jungbecker can replicate high precision microstructures directly onto Evonik’s ACRYLITE® acrylic-based solutions, delivering a range of controlled, light shaping properties.

**Product**
The Light Guiding Prismatic Plate (LGP) decouples light, which is fed into the sheet from the edges across the surface area from the use of integrated prismatic optics. The optical structure is not acting as a diffusor but rather, uses total internal reflection and refraction of the microprisms. The direct portion of the light is also de-glared.

**Properties**
- Decouples light fed in from the edge uniformly across the wide surface area
- Light extraction through a calculated combination of light refraction and total internal reflection of the integrated optical elements
- 40% of light is indirect, in a batwing profile
- 60% of light is downlight, de-glared
- Homogenous light output for a panel width of 300 mm (LEDs single sided) or for a panel width of 600 mm (LEDs double sided)
- Efficiency up to 85%
- Transparent look when not lit

**Applications**
- Ultra-thin fixture profiles

**Processing**
The recommended fabrication methods for Jungbecker Optics are:
- Circular saw cutting (edge polishing required in a 2nd step)
- Laser cutting

It is important for the laser to have 360° suction, which means the air, smoke and dust should be extracted from under and over the sheets.

**Thermoforming**
Jungbecker Optics can be thermoformed according to customer specifications, however there are limitations to the curvature that can be achieved. Please consult with Evonik if interested in forming a specific part.

Light distribution as simulated in a reference luminaire
Technical Data

<table>
<thead>
<tr>
<th>Standard material</th>
<th>Acrylic (clear)</th>
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<tbody>
<tr>
<td><strong>Size</strong></td>
<td>1520 mm x 320 mm</td>
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<tr>
<td></td>
<td>620 mm x 620 mm</td>
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<tr>
<td><strong>Thickness</strong></td>
<td>6 mm (3.0 - 8.0 mm upon request)</td>
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<tr>
<td><strong>Prism structure</strong></td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Refractive index</strong></td>
<td>1.491</td>
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<tr>
<td><strong>Transmittance</strong></td>
<td>92%</td>
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<tr>
<td><strong>Efficiency</strong></td>
<td>&gt; 95 % (in typical LED luminaire)</td>
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<tr>
<td><strong>Temperature range</strong></td>
<td>-40 °C up to +80 °C</td>
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<tr>
<td><strong>Customization options</strong></td>
<td>development of prismatic microstructures for your specific applications, tooling and series production</td>
</tr>
</tbody>
</table>

*Contact Evonik for availability of additional sizes*