High Reflectivity Aluminum Mirror for Projection Display

Our Alflex™ product line incorporates a broadband and color optimized narrow band, high-reflectivity aluminum-coated mirror offering unprecedented performance and durability. Increased lifetime requirements of RPTV were a key feature for the newly developed Alflex™. Alflex™ is a confident choice for LCD and LCOS projectors where the high reflectivity over the whole visible spectrum is not required.

**Benefits**

- Best cost performance
- Reasonable light output for optical systems
- Excellent environmental stability
- Temp resistance up to 200 °C
- Increased lifetime for RPTV applications
- Can be customized for AOI, color bands, polarization
- Neutral color
- ROHS compliant

**Applications**

Optics Balzers Alflex™ is designed to optimize the cost performance of optical systems. Examples are the folding mirrors and LightTunnels™ used in rear projection and data projection systems.

**Technical data**

**Reflectivity**

<table>
<thead>
<tr>
<th>Model</th>
<th>Ravg. (%)</th>
<th>Wavelength (nm)</th>
<th>Polarization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alflex™ 45B</td>
<td>≥96</td>
<td>420–500</td>
<td>q.pol</td>
</tr>
<tr>
<td>Alflex™ 45B</td>
<td>≥98</td>
<td>420–500</td>
<td>s.pol</td>
</tr>
<tr>
<td>Alflex™ 45G</td>
<td>≥96</td>
<td>480–600</td>
<td>p.pol</td>
</tr>
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<td>≥98</td>
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<td>s.pol</td>
</tr>
<tr>
<td>Alflex™ 45G</td>
<td>≥95</td>
<td>480–600</td>
<td>p.pol</td>
</tr>
<tr>
<td>Alflex™ 45R</td>
<td>≥96</td>
<td>560–670</td>
<td>q.pol</td>
</tr>
<tr>
<td>Alflex™ 45R</td>
<td>≥98</td>
<td>560–670</td>
<td>s.pol</td>
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<tr>
<td>Alflex™ 45R</td>
<td>≥95</td>
<td>560–670</td>
<td>p.pol</td>
</tr>
<tr>
<td>Alflex™ 45RGB</td>
<td>≥92</td>
<td>430–670</td>
<td>q.pol</td>
</tr>
<tr>
<td>Alflex™ 45RGB</td>
<td>≥96</td>
<td>430–670</td>
<td>s.pol</td>
</tr>
<tr>
<td>Alflex™ 45RGB</td>
<td>≥90</td>
<td>430–670</td>
<td>p.pol</td>
</tr>
</tbody>
</table>

Typical cosmetic specification based on ISO-norm [size 30.0 • 30.0 mm]: 5/3 • 0.25; R1.0

**Dimensions**

- Customized length • width • 1.1 mm

**Substrate type**

- Floatglass, other substrates on request

**Operating temperature**

- 200 °C max

**Environmental reliability testing**

- Temperature (MIL-M-13508 C, para. 4.4.4)
  - 5 h each at –62 °C and +71 °C.
- Hardness (MIL-M-13508 C, para. 4.4.5)
  - 50 strokes with cheesecloth
- Adherence (MIL-M-13508 C, para. 4.4.6)
  - Scotch tape test

**Humidity (MIL-M-13508 C, para. 4.4.7)**

- 24 h at 49 °C and r.h. 95%

**Salt fog (MIL-M-13508 C, para. 4.4.8)**

- 24 h salt spray 4.5% NaCl

**ROHS compliant**
### Typical spectral characteristics of Alflex™

#### Alflex™ mirror narrowband blue
- **AOI = 45°, q-, s-, p-pol**

#### Alflex™ mirror narrowband green
- **AOI = 45°, q-, s-, p-pol**

#### Alflex™ mirror narrowband red
- **AOI = 45°, q-, s-, p-pol**

#### Alflex™ mirror broadband
- **AOI = 45°, q-, s-, p-pol**

<table>
<thead>
<tr>
<th>Wavelength [nm]</th>
<th>Reflectance [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>410 430 450 470 490 510</td>
<td></td>
</tr>
<tr>
<td>550 570 590 610 630 650 670</td>
<td></td>
</tr>
<tr>
<td>420 440 460 480 500 520 540 560 580 600 620 640 660 680</td>
<td></td>
</tr>
</tbody>
</table>

Subject to technical change without notice