Polarizers

Natural light and most light sources emit unpolarized light. Polarizers are an excellent solution in applications that require glare reduction due to reflected light. They are also used in several optical instruments.

Unpolarized light passing a linear polarizing filter will be linear polarized afterwards in the orientation of the polarizing axis of the filter. A circular polarizer is a combination of a linear polarizer and a quarter wave retarder. Crossing the axes (or left handed with right handed, when using circular) blocks nearly all light. Circular polarizers are recommended if optics as mirrors are within the optical path from filter to sensor.

Schneider Kreuznach polarizers are designed to fulfill industrial requirements. They are made of dichroic laminated polarizing polymers cemented between 2 slides of protective glass. Polarizers are sensitive to humidity, therefore we recommend our unmounted filters as edge sealed version.

Linear and circular polarizers are available as glass filters, unmounted in sizes 10 mm to 74.0 mm diameter and mounted with common thread sizes M 25.5 to M 67 or as film up to 420 x 1270 mm size and 0.3 or 0.8 mm thick. Custom sizes on request.

Key Features

- Reduce reflections, increase contrast
- High extinction ratio
- Linear and circular polarizer available
- Glass filters and polarizing films available
- Sizes 10 mm to 74.0 mm diameter.
- Mounted with common thread sizes M 25.5 to M 67 available
- Standard Polarizing Films in 0.8mm and 0.3mm thickness and high extinction in 0.4mm thickness available
- Edge sealed available on request

Applications

- QA
- 3D
- Traffic
- Food & Beverage Inspection
- Mechanical Stress Test
- Automotive
- LCD Technology
- Scientific Research

Technical Specifications

| Filter types | IF AUF, IF MIK, IF AUC, IFK P-W76 IFK, IFK P-W64 0.4, IFK ZN/L |
| Surface¹ | 5/3 x 0.16 |
| Wave front distortion¹ | 13/2 (0.4 – 0.6) |
| Diameter tolerance | ±0 - 0.3 mm |

¹ Specification according to ISO 10110

Contact

Jos. Schneider Optische Werke GmbH
Ringstraße 132
55543 Bad Kreuznach
Germany
Phone +49 671 601-351
Fax +49 671 601-81-351
www.schneiderkreuznach.com
industrie@schneiderkreuznach.com

Schneider Asia Pacific Ltd.
20/F Central Tower, 28 Queen’s Road Central, Hong Kong
China
Phone +852 8302 0301
Fax +852 8302 4722
www.schneider-asiapacific.com
info@schneider-asiapacific.com

Schneider Optics Inc.
285 Oser Ave.
Hauppauge, NY 11788
USA
Phone +1 631 761-5000
Fax +1 631 761-5090
www.schneideroptics.com
oem@schneideroptics.com
Linear Glass Polarizers (IF AUF)

Linear Glass Polarizer
Schneider Kreuznach polarizers are designed to fulfill industrial requirements. They are made of dichroic laminated polarizing polymers cemented between 2 slides of protective float glass. Unpolarized light passing a linear polarizing filter will be linear polarized afterwards in the orientation of the polarizing axis of the filter. Crossing the axis blocks nearly all light. Polarizers are sensitive to humidity, therefore we recommend our unmounted filters as edge sealed version.

Linear polarizers are available unmounted in sizes 10 mm to 74 mm diameter and mounted with common thread sizes M 25.5 to M 67. Next to a standard polarizer mount, we offer a special industrial mount with locking screw to fix the position of the polarizer. Custom sizes on request.

Key Features
- Extinction Ratio >= 20.000:1
- Uncoated or with MRC AR coating available
- Unmounted or mounted in standard DH or in industrial SN2 mount with locking screw
- Sizes 10 mm to 74 mm diameter.
- Mounted with common thread sizes M 25.5 to M 67 available
- Edge sealed on request

Applications
- QA
- 3D
- Traffic
- Food & Beverage Inspection
- Mechanical Stress Test
- Factory Automation
- Scientific Research

Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>IF AUF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmittance</td>
<td>&gt; 50 %</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>&gt;= 20 000:1</td>
</tr>
<tr>
<td>Wavelength range</td>
<td>420 nm - 780 nm</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>2.7 mm±0.25 mm</td>
</tr>
</tbody>
</table>

Temperature Range: -20°C – +50°C

Specification according to ISO 10110
Linear Glass Polarizers (IFG MIK)

Linear Glass Polarizer
Schneider Kreuznach polarizers are designed to fulfill industrial requirements. They are made of dichroic laminated polarizing polymers cemented between 2 slides of protective glass. Unpolarized light passing a linear polarizing filter will be linear polarized afterwards in the orientation of the polarizing axes of the filter. Crossing the axis blocks nearly all light. IFG MIK polarizers feature a high extinction ratio needed for microscopy and metrology applications.

Please call us to discuss your OEM and custom requirements.

Key Features
- Extinction Ratio 40,000:1
- 12.5 mm and 16 mm diameter
- F6 glass substrate

Applications
- Microscopy
- Metrology
- Photometry
- Scientific Research

Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>IFG MIK</th>
<th>Wave front distortion</th>
<th>Parallelism</th>
<th>Diameter</th>
<th>Temperature Range</th>
<th>Substrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmittance</td>
<td>&gt; 50 %</td>
<td>13/3 (0.4 – 0.6)</td>
<td>2 arc minute</td>
<td>12.5 mm</td>
<td>-20°C – +70°C</td>
<td>F6</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>&gt; 4 0000:1</td>
<td></td>
<td></td>
<td>16 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wavelength range</td>
<td>420 nm - 750 nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass thickness</td>
<td>4.3 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td>5/2 × 0.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specification according to ISO 10110
Circular Glass Polarizers (IF AUC)

Circular Polarizer
Schneider Kreuznach polarizers are designed to fulfill industrial requirements. They are made of dichroic laminated polarizing polymers cemented between 2 slides of protective glass.

A circular polarizer is a combination of a linear polarizer with a quarter wave retarder. Crossing left handed with right handed blocks nearly all light. Circular polarizers are recommended if optics as mirrors are within the optical path from filter to sensor. IF AUC are mostly left handed, special right handed IF AUCR or left handed IF AUCL are available on request.

Polarizers are sensitive to humidity, therefore we Schneider Kreuznach recommends our unmounted filters as edge sealed version.

Circular polarizers are available unmounted in sizes 10 mm to 74 mm diameter and mounted with common thread sizes M 25.5 to M 67. Next to a standard polarizer mount, we offer a special industrial mount with locking screw to fix the position of the polarizer. Custom sizes on request.

Please call us to discuss your OEM and custom requirements.

Key Features
- left and right handed polarizer available
- Extinction Ratio >= 20000:1
- Uncoated or with MRC AR coating available
- Unmounted or mounted in standard DH mount or in industrial SN2 mount with locking screw
- Sizes 10 mm to 74 mm diameter.
- Mounted with common thread sizes M 25.5 to M 67 available
- Edge sealed on request

Applications
- QA
- 3D
- Traffic
- Food & Beverage Inspection
- Mechanical Stress Test
- Factory Automation
- Microscopy
- Scientific Research

Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>IF AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmittance</td>
<td>&gt; 50%</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>&gt;= 20000 :1</td>
</tr>
<tr>
<td>Wavelength range</td>
<td>420 nm - 780 nm</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>2.7 mm+0 - 0.25 mm</td>
</tr>
<tr>
<td>Diameter</td>
<td>25 - 140 mm</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-20°C – +50°C</td>
</tr>
</tbody>
</table>

1 Specification according to ISO 10110
Linear Polarizing Film (IFK P-W 76, IFK P-W 64)

**Linear Polarizing Films**

Polarizing Films consist of long chain polymers, which are aligned by a stretching process to produce the polarization effect. The polarizing film is covered on both sides with cellulose triacetate (TAC) for protection and is therefore mechanically stable.

Films with standard and high extinction ratio are available. For standard film 0.8mm and 0.3mm thickness can be chosen. Schneider Kreuznach offers laser custom sized pre-cuts shaped after customer drawings.

### Key Features

- Standard and high Extinction available
- Standard Film in 0.3 and 0.8mm thickness
- Extinction Ratio up to 40,000:1 for linear
- Sizes up to 431 x 1270 mm

### Applications

- QA
- 3D
- Traffic
- Food & Beverage Inspection
- Mechanical Stress Test
- Factory Automation
- Illumination
- Scientific Research

### Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>IFK P-W 76 0.8</th>
<th>IFK P-W 76 0.3</th>
<th>IFK P-W 64 0.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength range</td>
<td>430 nm - 780 nm</td>
<td>430 nm - 780 nm</td>
<td>400 nm - 780 nm</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>&gt;10,000:1</td>
<td>&gt;10,000:1</td>
<td>~ 40,000:1</td>
</tr>
<tr>
<td>Thickness</td>
<td>0.8 mm</td>
<td>0.3 mm</td>
<td>0.4 mm</td>
</tr>
<tr>
<td>Max Size (mm)</td>
<td>431 x 1270</td>
<td>425 x 1270</td>
<td>559 x 914</td>
</tr>
</tbody>
</table>

Specification according to ISO 10110
Circular Polarizing Film (IFK ZN/L)

Circular Polarizing Films
Polarizing Films consist of long chain polymers, which are aligned by a stretching process to produce the polarization effect. Combined with a quarter wave retarder, a circular polarizer is achieved. The polarizing film is covered on both sides with cellulose triacetate (TAC) for protection and is therefore mechanically stable.

Films with 0.9 mm and 0.3 mm thickness can be chosen. Schneider Kreuznach offers laser custom sized pre-cuts, shaped after customer drawings.

Key Features
- Standard Film in 0.3 and 0.9 mm thickness
- Extinction Ratio 10,000:1
- Sizes up to 615 x 625 mm

Applications
- QA
- 3D
- Traffic
- Food & Beverage Inspection
- Mechanical Stress Test
- Factory Automation
- Illumination
- Scientific Research

Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>IFK ZN/L 0.9</th>
<th>IFK ZN/L 0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength range</td>
<td>430 nm - 780 nm</td>
<td>420 x 600</td>
</tr>
<tr>
<td>Extinction Ratio</td>
<td>&gt; 10,000:1</td>
<td>615 x 625</td>
</tr>
<tr>
<td>Thickness</td>
<td>0.9 mm</td>
<td>0.3 mm</td>
</tr>
<tr>
<td>Max Size (mm)</td>
<td>420 x 600</td>
<td>&gt; 40 %</td>
</tr>
<tr>
<td>Substrate</td>
<td>Cellulose Triacetate (TAC)</td>
<td></td>
</tr>
<tr>
<td>Transmittance</td>
<td>&gt; 40 %</td>
<td></td>
</tr>
</tbody>
</table>

Specification according to ISO 10110
Edge Sealed Filters

Edge sealed filters

Filters are often used in harsh environments, such as factory automation. To protect the glass from chemical influence, we now offer edge sealing on request for all Schneider Kreuznach filters.

Edge sealed filters can be ordered on request only.

Key Features

-Insensitive to surrounding humidity
-Resistant in harsh environment

Applications

- Surveillance
- Factory automation
- Traffic

Technical Specifications

<table>
<thead>
<tr>
<th>Filter type</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature resistance</td>
<td>-55°C to 120°C</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>14N / mm²</td>
</tr>
<tr>
<td>Appearance</td>
<td>Light Yellow</td>
</tr>
<tr>
<td>Thickness</td>
<td>+ 0.1mm diameter</td>
</tr>
</tbody>
</table>

1 Specification according to ISO 10110
## Order Instructions:

| Mounted filter: | IF |
| Unmounted filter glass: | IFG |
| Film: | IFK |
| Type: | AUF, MIK, AUCL, AUR (glass filter) |
| | P-W76, P-W64, ZN/L, ZN/R (film) |
| Coating: | MRC (Multi resistant Coating for glass filters) |
| Mount: | DH (standard M- thread mounts) |
| Size: | SN2 (industrial M- thread mounts with set screw) |
| | Thread of mount for mounted filters (IF) or |
| | In mm for unmounted glass (IFG) and film (IFK) |
| RL | Edge Sealed |

### Examples:

<table>
<thead>
<tr>
<th>IFx</th>
<th>type</th>
<th>coating</th>
<th>mount</th>
<th>size</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFK</td>
<td>P-W76 0.8</td>
<td>Polarizing Film, linear thickness 0.8,</td>
<td>SN2 35.5</td>
<td>431 x 635</td>
</tr>
<tr>
<td>IF</td>
<td>AUF</td>
<td>Mounted Filter, linear polarizer</td>
<td>MRC</td>
<td>431 mm x 635 mm</td>
</tr>
<tr>
<td>IFG</td>
<td>AUCL</td>
<td>Mounted Filter, circ pol left handed</td>
<td>MRC AR Coated</td>
<td>34 mm diameter</td>
</tr>
</tbody>
</table>