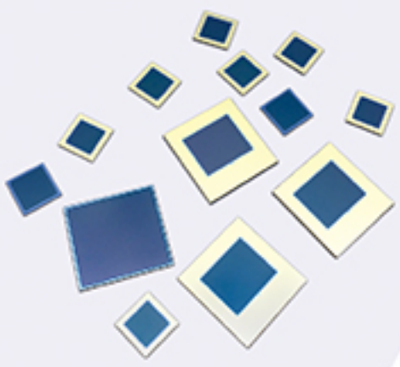
OFT An expert on the optical film and metallization coating

红外光学窗口

- 基板材料：锗或硅
- 光学薄膜：增透、长波通、带通或根据客户要求
- 金 属 化：Cr/Ni/Au,Ti/Ni/Au,Ti/Pt/Au,etc.
- 尺　　寸：根据客户需求
- 表面质量：40/20 or 20/10（MIL-PRF-13830B）
- 温湿试验：>500hour @ 85%&85℃

IR window for thermal imaging

- Substrate material: Germanium or Silicon
- Optical coating: AR, Long pass filter, Band pass filter or as customer required
- Metallization: Cr/Ni/Au, Ti/Ni/Au, Ti/Pt/Au, etc.
- Size: As customer required
- Surface quality: 40/20 or 20/10(MIL-PRF-13830B)
- Humidity and Temperature test: >500hour @ 85%&85℃



红外光学滤波片

奥夫特开发了系列红外带通滤波片，工作波长3~14um,
广泛应用于CO_2、CO、SO_2或者NH_3等气体分析与泄露检测。

- 基板材料：锗、硅、蓝宝石
- 中心波长：3~14um
- 相对带宽：>2%
- 峰值透过率：>90%
- 截止区域：UV ~ 14um
- 截止深度：可达OD4以上
- 表面质量：20/10（MIL-PRF-13830B）

IR optical filter

OFT developed a series of band pass filter for gas detector, which covered 3~14um wavelength region.
These filters can be applied to gas analysis, leak detect, such as CO_2, CO, SO_2 or NH_3, etc.

- Substrate material: Germanium, Silicon, Sapphire
- Central wavelength: 3~14um
- Relative bandwidth: >2%
- Peak transmissivity: >90%
- Block region: UV ~ 14um
- Block depth: Up to OD4
- Surface quality: Up to 20/10(MIL-PRF-13830B)

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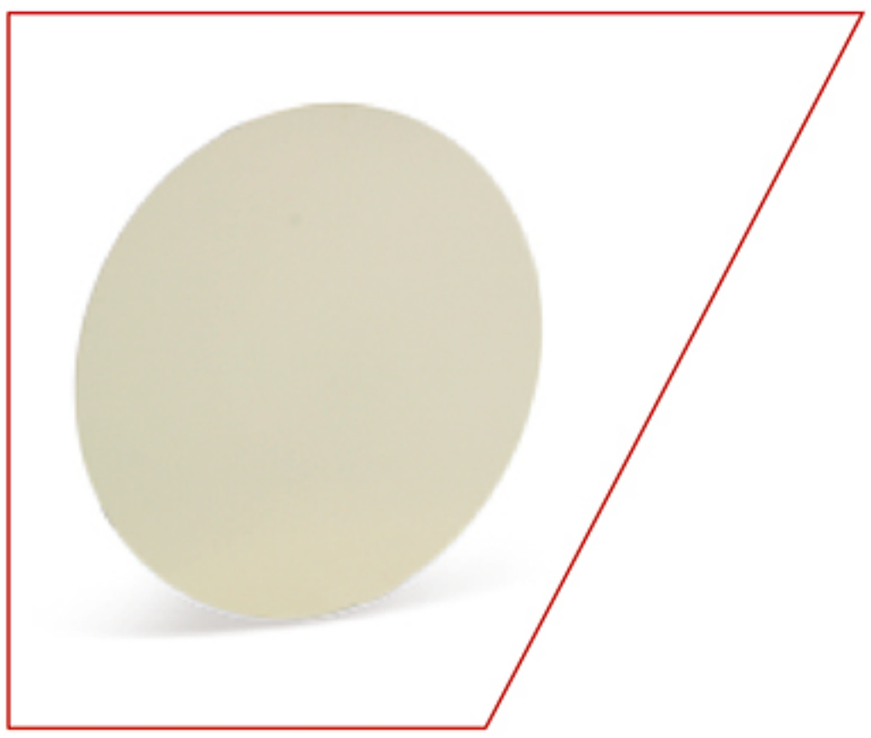
红外传感器晶圆封装窗口晶圆

- 基板材料：硅
- 光学薄膜：8~14um或根据客户要求
- 焊 料 环：Au80Sn20 或根据客户要求
- 尺　　寸：6 or 8 英寸
- 表面质量：40/20 or 20/10（MIL-PRF-13830B）
- 温湿试验：>500hour @85%&85℃

Wafer level window for IR sensor wafer level package application

- Substrate material: Silicon
- Optical coating: As customer required
- Solder alloy: Au80Sn20 or as customer required
- Size: 6 or 8 inch
- Surface quality: 40/20 or 20/10(MIL-PRF-13830B)
- Humidity and Temperature test: >500hour @85%&85℃



金锡合金薄膜

- 基板材料：硅、锗、氧化铝陶瓷、氮化铝陶瓷等
- 合金成分：Au80Sn20 或根据客户要求
- 薄膜厚度：2-15um或根据客户要求
- 尺　　寸：根据客户要求

Gold-Tin alloy coating

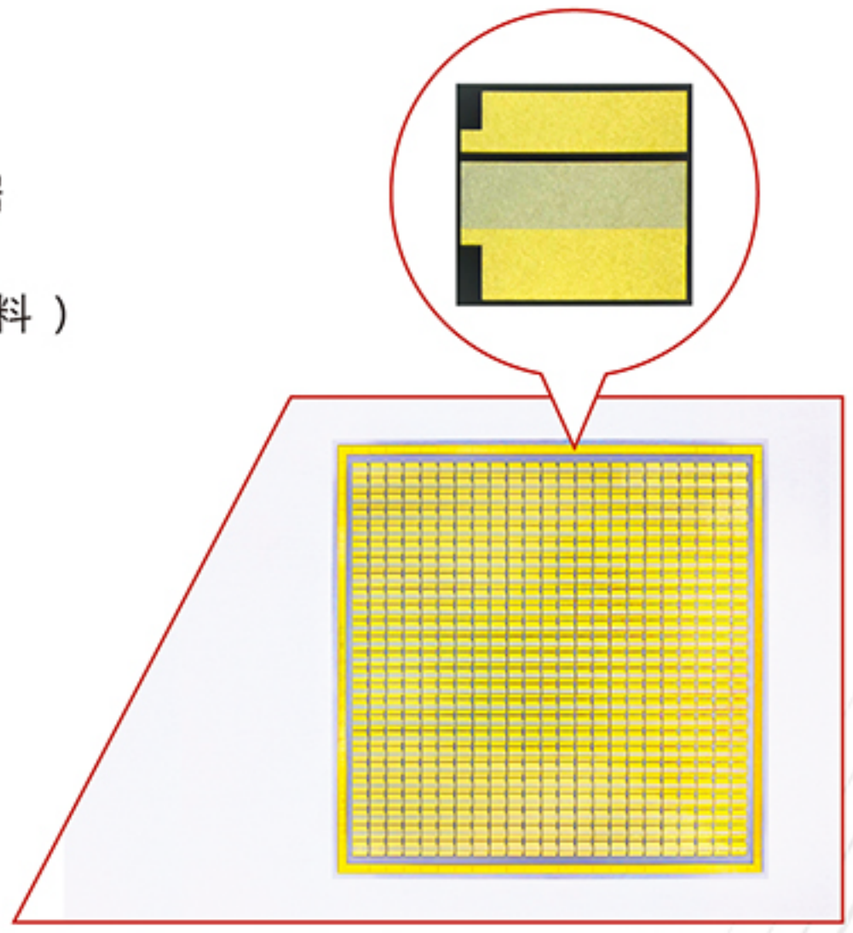
- Substrate: Silicon, Germanium, Alumina, AlN Ceramic, etc.
- Alloy composition: Au80Sn20 or as customer required
- Coating thickness: Up to 15um or as customer required
- Size: As customer required

金属化陶瓷基板

- 基板材料：氧化铝陶瓷、氮化铝陶瓷、氧化铍陶瓷等
- 金 属 化：Cr/Ni/Au,Ti/Ni/Au,Ti/Pt/Au或根据客户要求
  （可在上述金属化基础上图形化镀制金锡焊料）
- 图　　形：根据客户要求
- 尺　　寸：根据客户要求

Ceramic substrate metallization

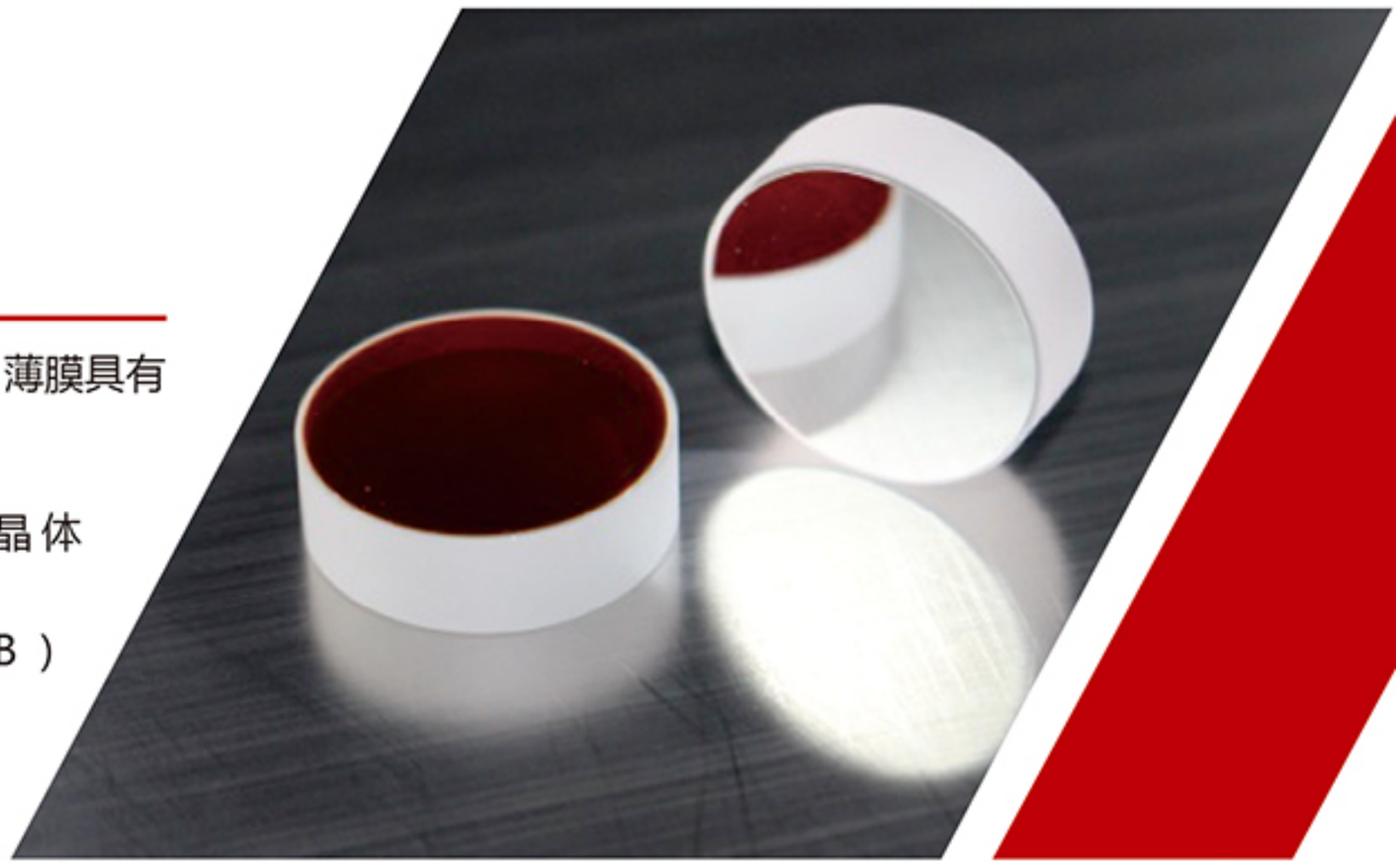
- Substrate: Alumina, AlN, BeO Ceramic, etc.
- Metallization: Cu/Ni/Au, Ti/Ni/Au, Ti/Pt/Au
- or as customer required
- (Metalized solder vacuum deposition)
- Pattern: As customer required
- Size: As customer required

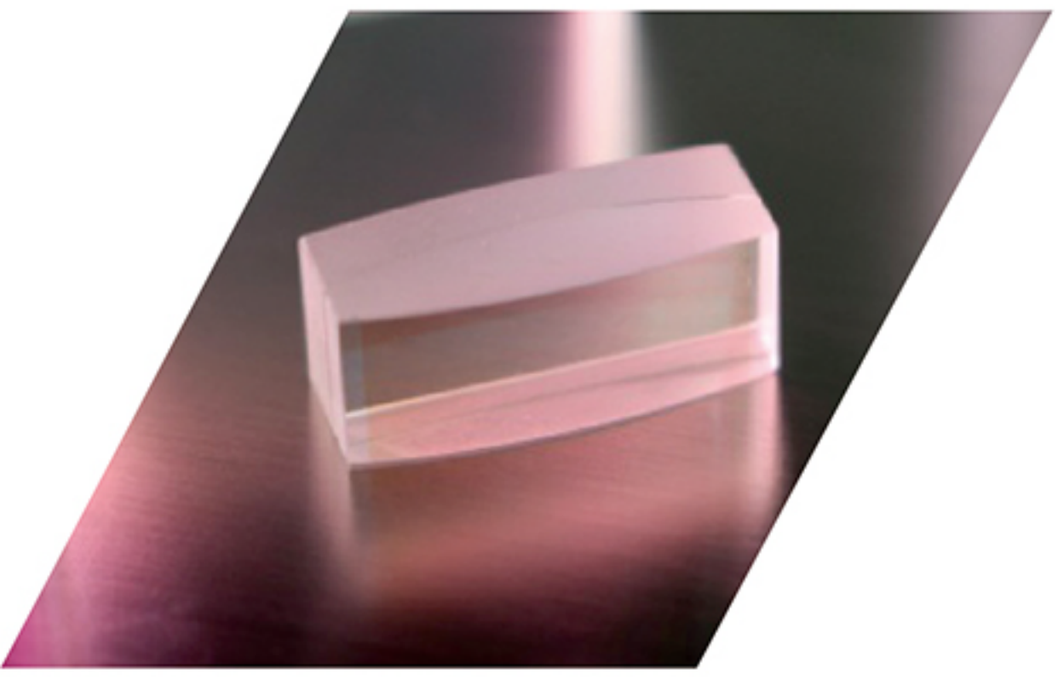


高损伤阈值激光薄膜

奥夫特开发了应用于高能激光系统的光学薄膜，薄膜具有非常高的损伤阈值，能够耐受强激光辐射。

- 基板材料：石英玻璃、光学玻璃、激光晶体
- 损伤阈值：70 J/cm²@3ns
- 表面质量：10/5（MIL-PRF-13830B）
- 波前畸变：λ/10
- 工作波长：266nm~3000nm
- 尺　　寸：根据客户需求

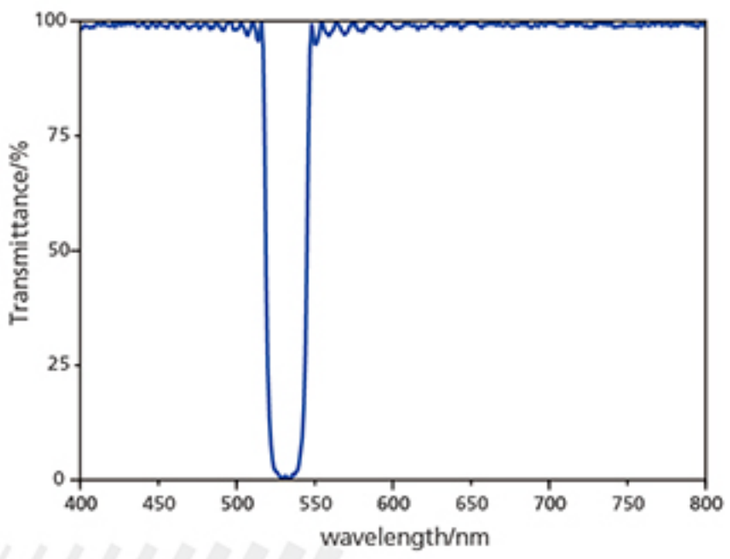




High-energy optical thin film

For high power laser system, OFT developed high quality optical thin films with good surface quality, excellent spectrum, high laser-induced damage threshold and low wave-front distortion.

- Substrate: Fused Silica, Optical Glass, Laser Crystal
- Damage Threshold: Up to 70 J/cm2@3ns
- Surface Quality: Up to 10/5(MIL-PRF-13830B)
- Wave-front distortion: Up to λ/10
- Work wavelength: 266nm~3000nm
- Size: As customer required



特殊要求镀膜

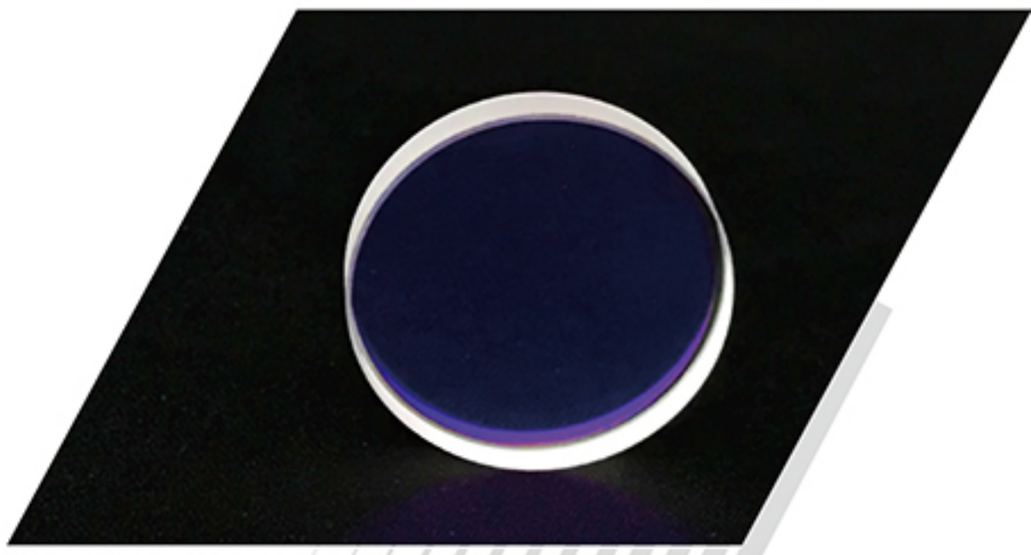
具备高损伤阈值及高难度光谱特性薄膜方面的设计与制备能力，满足性能定制化需求，例如：板条晶体、啁啾镜、负滤色片等元件镀膜。

- 类　　型：负滤色片
- 尺　　寸：Φ50.8mm×8mm；
- 光　　谱：中心波长532nm，半峰宽28nm
  Tave>95%@400-800nm，R>99.5%@532nm
- 表面质量：10-5 Scratch-dig；
- 波前畸变：≤1/6λ（λ=632.8nm）；
- 损伤阈值：≥40J/cm2@532nm，3ns。

Special requirements coating

Be able to design and fabricate optical thin films with high damage threshold and spectral patterns according to customer requirements, such as: slab crystals, chirped mirrors, minus filters, etc.

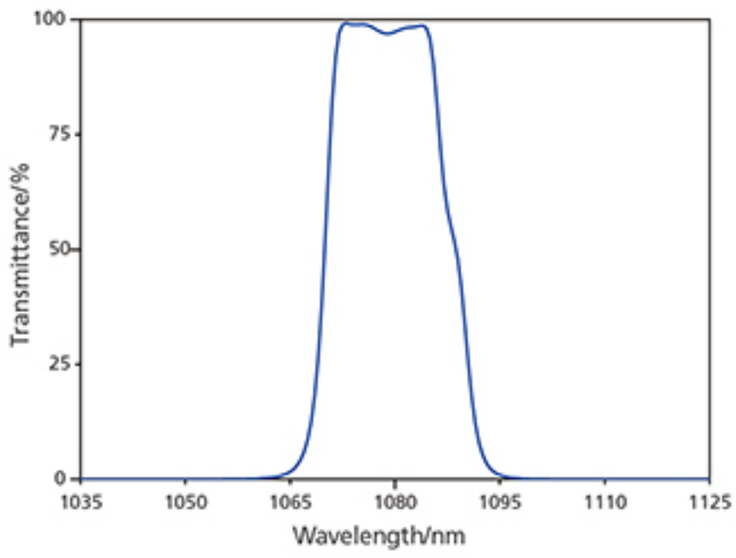
- Type: Minus filter
- Dimension: Φ50.8mm×8mm;
- Spectrum: CWL:532nm, FWHM:28nm
  Tave>95%@400-800nm, R>99.5%@532nm
- Surface quality: 10-5 Scratch-dig;
- Wavefront distortion: ≤1/6 λ （λ=632.8nm）;
- LIDT: ≥40J/cm2@ 532nm, 3ns.



合束镜

在激光领域，通常用于45°入射情况下合束或分离两个不同波长的光束。两个光束的波长越接近，制备难度越大；工作角度通常也会小于45°。

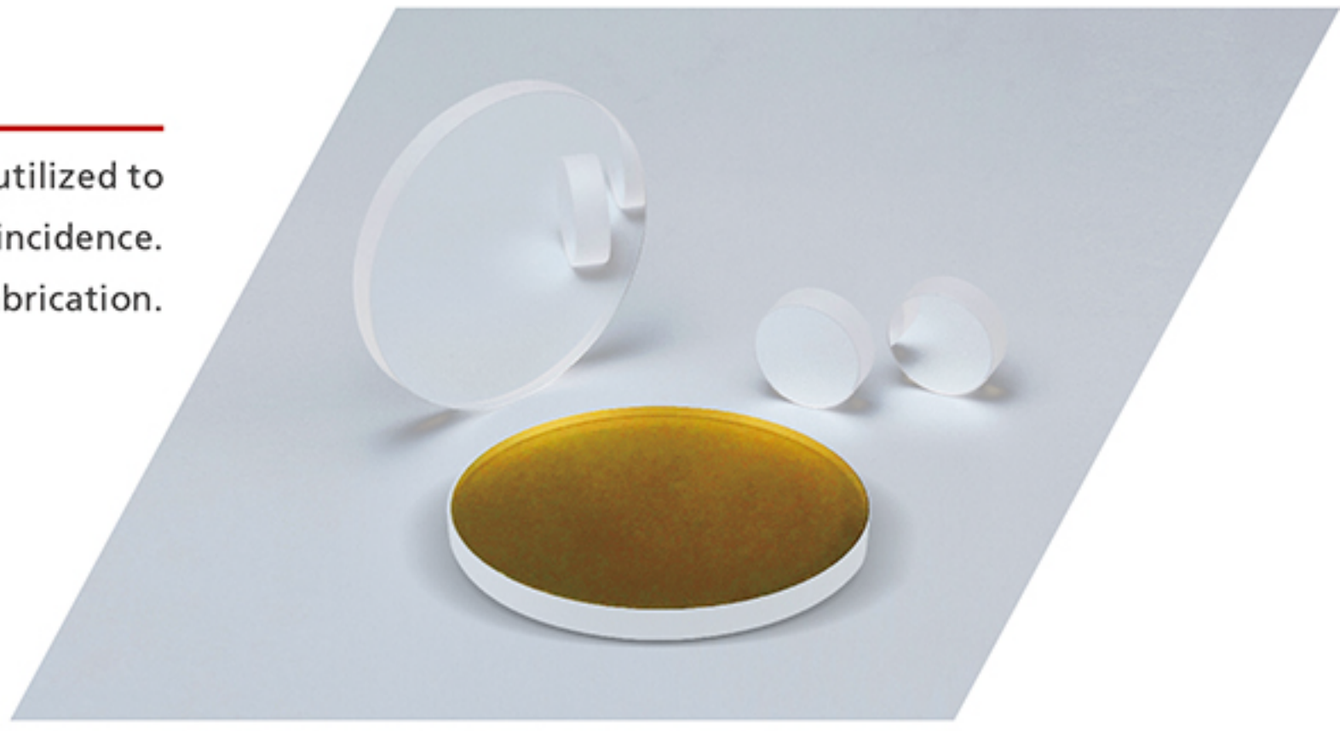
- 典 型 波 长：1064nm；
- 尺　　寸：Φ25.4mm×3mm；
- 光　　谱：25°入射，T>97%@1074-1084nm；
- 截 止 区：R>99% @950-1066nm；
- 透射波前畸变：PV<λ/4（λ=632.8nm）；
- 损 伤 阈 值：>5kw/cm2(连续激光)。

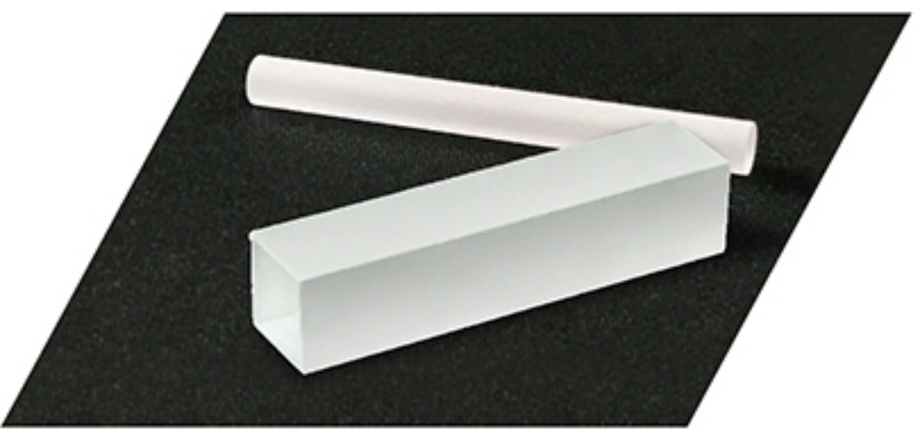


Beam combining filters

In laser optical system, Beam combing filters are often utilized to combine or separate two laser beams at a 45° angle of incidence. The closer the two wavelengths, the tougher the fabrication. And the working angle would be less than 45°.

- Typical wavelength: 1064nm;
- Dimension: Φ25.4mm×3mm;
- Spectrum: 25°, T>97%@1074-1084nm;
- Block: R>99% @950-1066nm;
- Wavefront distortion: PV<λ/4 (λ=632.8nm);
- LIDT: >5kw/cm2(continuous laser).

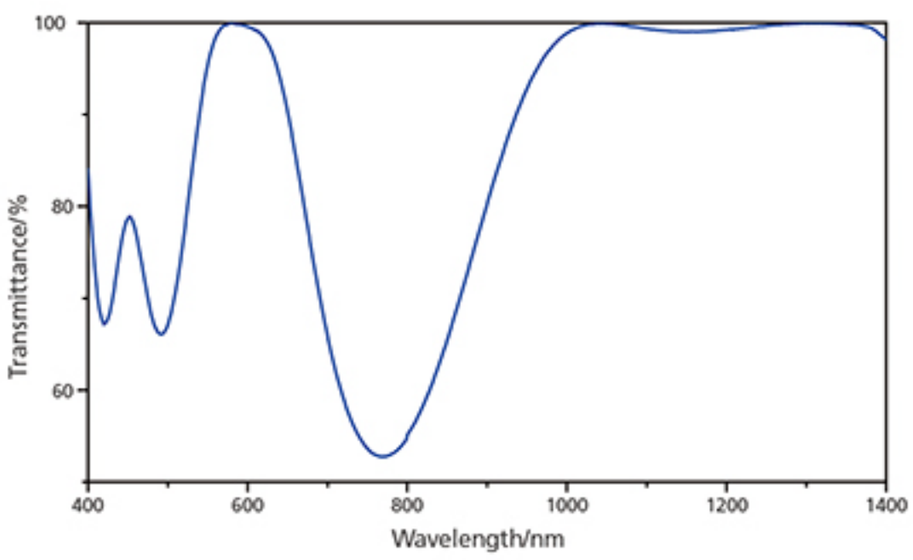




晶体镀膜

可对TB26、TGG、ZGP、LBO、YCOB、 Nd:YAG、YAG 和石英转子等晶体进行定制化镀膜，满足客户高损伤阈值要求。

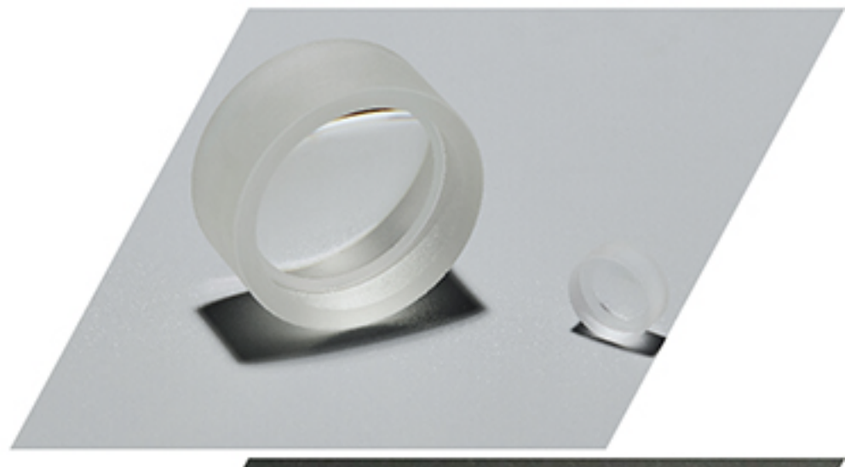
- 类　　型：LBO 晶体镀膜
- 尺　　寸：Φ25.4mm×5mm；
- 光　　谱：入射角： 0°±3°，
  T>99.8%@589nm&1064nm&1319nm；
- 表 面 质 量：10-5 Scratch-dig；
- 透射波前畸变：≤1/8λ（λ=632.8nm）；
- 损 伤 阈 值：≥ 8J/cm2@ 1064nm，3ns。



Crystal coating

High laser thin films can be successfully deposited on crystal materials, such as TB26、TGG、ZGP、LBO、YCOB、 Nd:YAG、YAG and quartz.

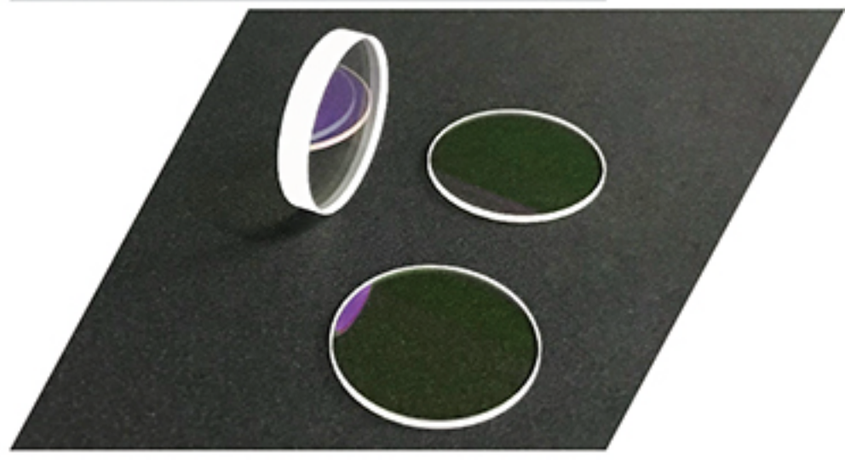
- Type: LBO crystal coating;
- Dimension: Φ25.4mm×5mm;
- Spectrum: working angle : 0°±3°,
  T>99.8%@589nm&1064nm&1319nm;
- Surface quality: 10-5 Scratch-dig;
- Wavefront distortion: ⩽1/8 λ (λ =632.8nm);
- LIDT: ⩾ 8J/cm2@ 1064nm,3ns.



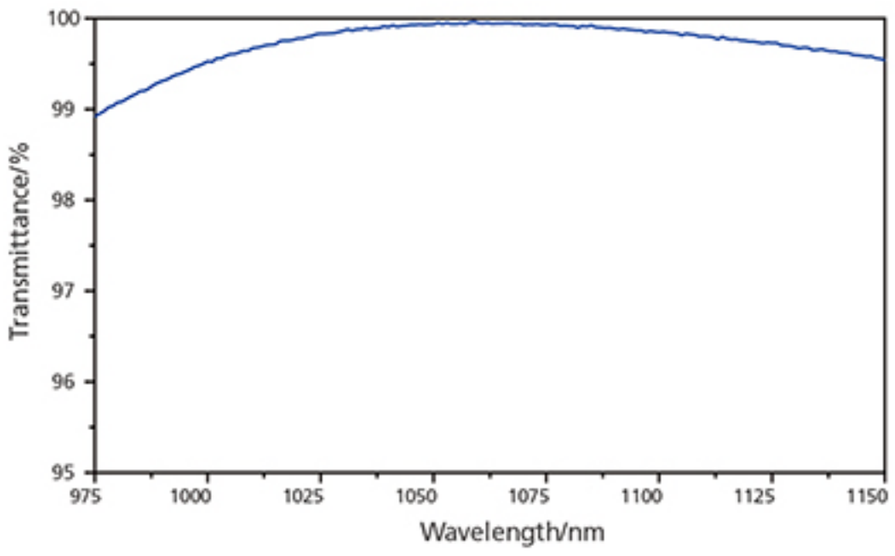
增透膜

奥夫特可提供具有优越光谱特性和抗激光损伤特性的增透膜，波长覆盖范围为248nm~4500nm，基板加工可根据客户要求定制。

- 典 型 波 长：1064nm；
- 尺　　寸：Φ25.4mm×2mm；
- 光　　谱：垂直入射，T>99.9%@1064nm；
- 透射波前畸变：PV<λ/10（λ=633nm）；
- 损 伤 阈 值：>30J/cm2@1064nm，3ns。



Anti-reflection film



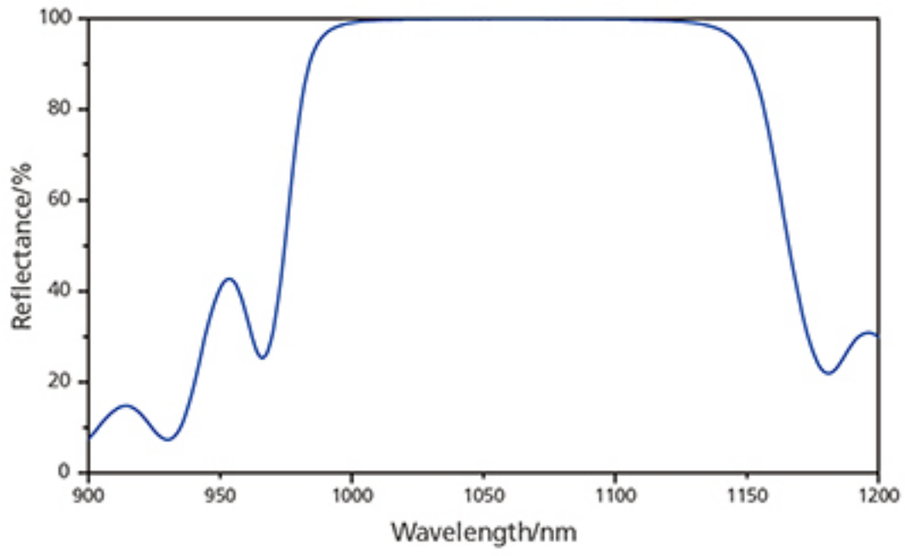
OFT can offer anti-reflection mirrors with spectral patterns and high laser-induced damage thresholds. The working wavelength extents from 248nm to 4500nm. Substrates, on which optical thin films are, can be cut and polished according to customer requirements.

- Typical wavelength: 1064nm;
- Dimension: Φ25.4mm×2mm;
- Spectrum: normal incidence,T>99.9%@1064nm;
- Transmittance Wavefront distortion: PV<λ/10（λ=633nm）;
- LIDT: >30J/cm2@1064nm, 3ns.

反射镜

低散射、低吸收、超高激光损伤阈值，工作波长范围覆盖248nm~3000nm，元件尺寸可根据客户要求定制。

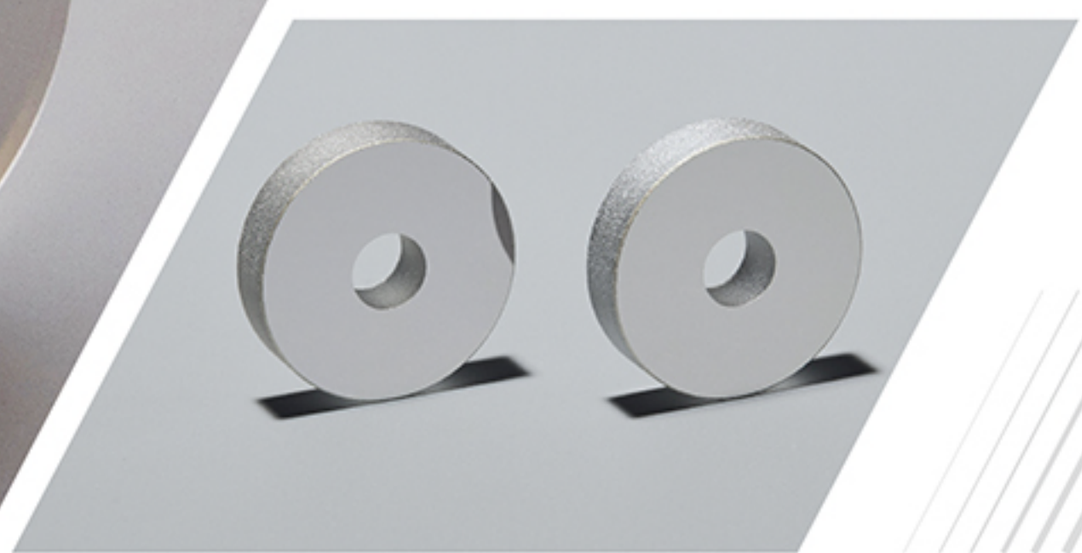
- 类　　型：基频反射镜；
- 尺　　寸：Φ25.4mm×3mm；
- 光　　谱：垂直入射，R>99.9%@1053nm；
- 反射波前畸变：PV<λ/6（λ=632.8nm）；
- 损 伤 阈 值：>40J/cm2@1053nm，3ns。

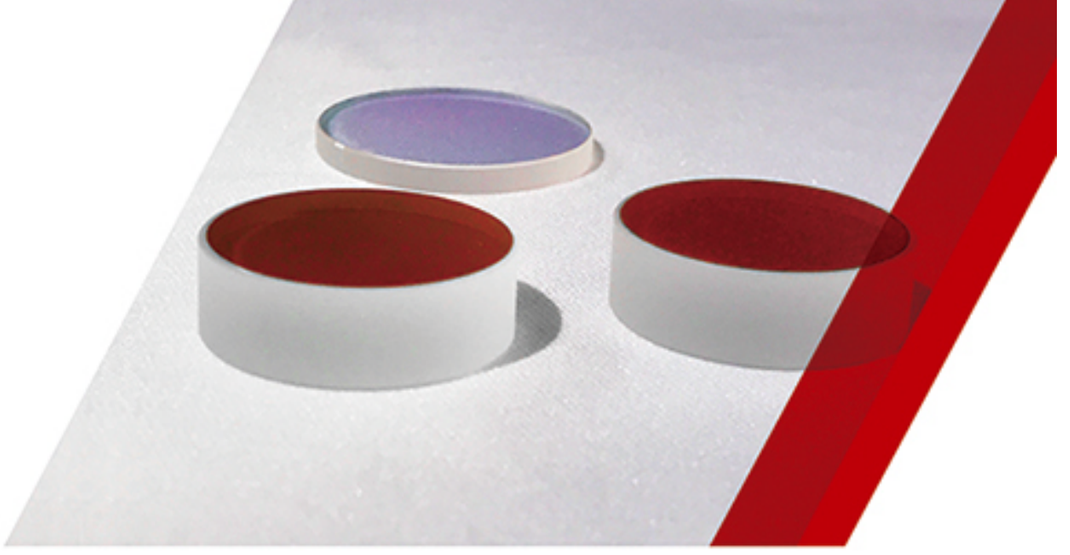


reflector

OFT can supply high reflectance mirrors with Low scattering, low absorption and ultra-high laser-induced damage thresholds. The working wavelength extents from 248nm to 4500nm., Substrates, on which optical thin films are, can be cut and polished according to customer requirements.

- Type: Fundamental frequency reflector;
- Dimension: Φ25.4mm×3mm;
- Spectrum: Vertical incidence，R>99.9%@1053nm;
- Reflction Wavefront distortion: PV<λ/6（λ=632.8nm）;
- LIDT: >40J/cm2@1053nm，3ns.

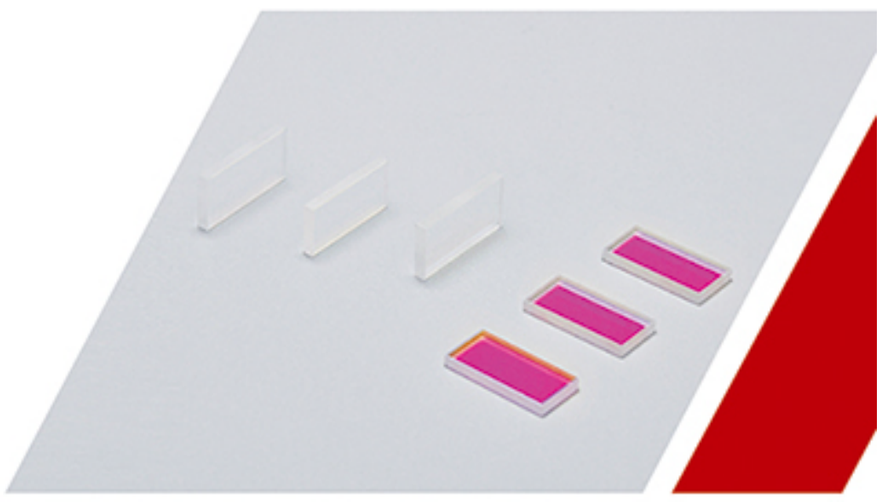


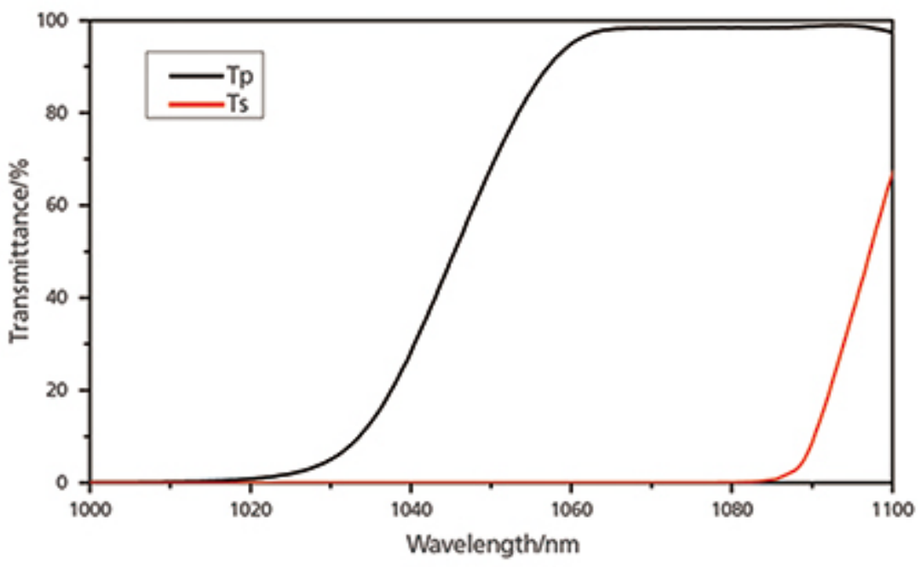


薄膜偏振片

替代格兰泰勒棱镜和偏振立方分束器（偏振立方体）应用的典型薄膜偏振片，具有孔径大、损耗低和系统设计灵活的特点。

- 类　　型：单波长偏振片
- 尺　　寸：Φ25.4mm×3mm；
- 光　　谱：56°入射，Tp > 98% @1064nm，Rs > 99.7% @1064nm；
- 反射波前：PV<λ/10（λ=632.8nm）；
- 透射波前：PV<λ/10（λ=632.8nm）；
- 损伤阈值：S光>35J/cm2@1064nm, 3ns；P光>18J/cm2@1064nm, 3ns。





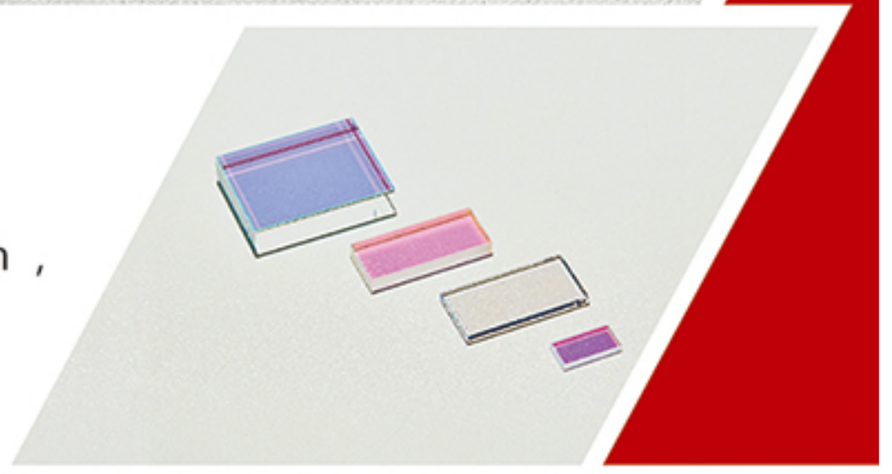
Polarizer

Thin film polarizer on plane subtrate, is assumed to be with large aperture, low loss and flexible system design ,which often replace Glan-Taylor polarizer and polarization cube beam splitter (polarization cube) in optical system.

- Type: Polarizer
- Dimension: Φ25.4mm×3mm;
- Spectrum: 56°,Tp > 98% @1064nm,Rs > 99.7% @1064nm;
- Reflected wavefront: PV<λ/10 (λ=632.8nm);
- Transmission wavefront: PV<λ/10 (λ=632.8nm);
- LIDT: S light > 35J/cm2 @1064nm,3ns; P light > 18J/cm2@1064nm,3ns.

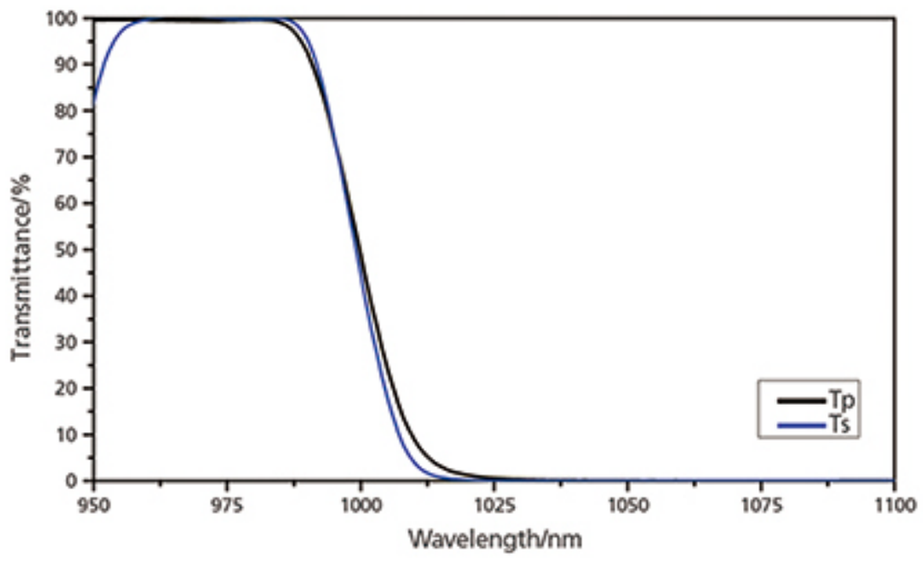
消偏振镜

光线倾斜入射时，膜系会产生偏振效应。在大部分应用中，这种效应会使系统性能劣变，因此必须消除或抑制。平板薄膜的消偏振设计是一个很棘手的问题，至今缺乏有效的方法。OFT提出了一种普适性的方法，针对分束或合束类薄膜，可以在较好的消除倾斜入射的偏振效应。



- 类　　型：45°合束镜
- 尺　　寸：Φ25.4mm×3mm；
- 光　　谱：45°入射，Rp,s>99.5%@1030nm-1100nm，Tp，s > 99% @960nm-985nm，Tp 和 Ts 在透射率为50%处的波长差为1nm；
- 反射波前畸变：PV<λ/8（λ=632.8nm）

Depolarizer



When working at oblique angles of incidence, the spectrum shows strong polarization effects. This may highly degrade the systematic performance. Thus it should be eliminated or suppressed. There has been no universal theory of design. OFT proposes an approach to the design of non-polarizing beam splitters.

- Type: 45° PBC
- Dimension: Φ25.4mm×3mm;
- Spectrum: 45°, Rp, s > 99.5% @1030nm-1100nm, Tp, s > 99% @960nm-985nm, wavelength difference between Tp and Ts at 50% :1 nm ;
- Wavefront distortion: PV< λ /8 (λ =632.8nm)