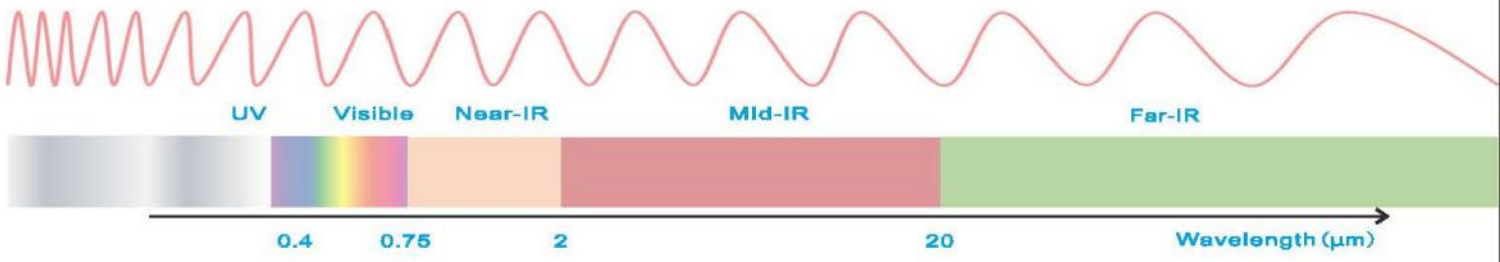
DayOptics

戴斯光电® DayOptronics



产品手册

PRODUCT MANUALS

高功率，高精度，高可靠性光学产品制造者

High Power, High Precision, High Reliable Optical Products Manufacturer

企业简介 / ABOUT US

湖南戴斯光电有限公司致力于高功率激光光学器件以及多领域的高性能镜头的设计和制造，汇聚了一批技术和管理资深人才，是一家集研发、生产和销售为一身的高新技术企业，总投资8000万元，员工总计:~400人（其中福州基地~200人，长沙基地~200人）厂区总面积:20000m²，1000级洁净车间1500m²。我们在高端镀膜，精密加工等领域具有相当的竞争优势，产品被广泛应用于纳秒、皮秒、飞秒激光器、激光种子源、医疗视光、军工国防、精密测量、人工智能、激光雷达、科研实验等领域。我们提供设计和定制各种应用需求的方案及样品，并在最短的时间内为客户提供最具竞争优势的量产产品。目前公司已在福建和湖南建立了生产基地，产品畅销中国、欧盟、英国、以色列等国内外市场。

Dayoptronics dedicate to high power laser optical components and multi-field high-performance lens' design and production.With about 400 staff(200 in Fuzhou and 200 in Changsha) and 80 millions RMB as total investment.it's a high-tech enterprise of R&D/production/sales.Dayoptronics owns plant of 20000m²,1500m² of 1000-class clean workshop included.

Our main advantages are in high-end coating,precision processing. The products are widely used in nanosecond,picosecond,femtosecond lasers,laser seed sources,medical optics, military defense,precision measurement,artificial intelligence,lidar,scientific research experiments and other fields.
We provide solutions and samples for designing and customizing various application requirements,and the most competitive mass-produced products in a very short time.

Dayoptronics has built production bases in Fujian and Hunan,Our products sell well in China, EU and other domestic and foreign markets.

福建戴斯光电有限公司是一家专业从事光学和晶体元件设计、生产与销售的企业，致力于为客户提供专业的光学解决方案。产品种类涉及晶体、光学元件、激光配件、干涉仪等，产品被广泛应用于纳秒、皮秒、飞秒激光器、光电子、半导体、通讯、医疗视光、军工国防、精密测量、人工智能、激光雷达、科研实验等领域。占地10000 m²，员工200余人，前身（福州光诚光电有限公司）成立于2005年，公司位于福州市。现为湖南戴斯光电有限公司的全资子公司。
自成立以来，公司本着持续创新的原则，不断改进生产工艺和技术，并积极研发新产品,先后与众多国际知名公司和研究机构建立合作平台。经过十几年的不懈努力，公司目前已经走向成熟，我们拥有着完整的生产线、一批优秀的技术人员、良好的质量控制团队，并于2020年通过ISO9001:2015质量体系的认证。
“质量成就未来”是我们坚持的宗旨，我们将本着质量第一、持续创新的企业文化精神，为国内外客户提供一流的产品、完善的服务，真诚与广大客户携手合作，共创辉煌。

Fujian Dayoptics, Inc. is a enterprise specialized in the design, production and sales of optical and crystal components, committed to providing professional optical solutions to customers. Our products are widely used in nanosecond, picosecond, femtosecond laser, optoelectronics, semiconductor, communication, medical optometry, military defense, precision measurement, artificial intelligence, lidar, scientific research and experiment and other fields. Covering an area of 10,000m ², the company has more than 200 employees. Its predecessor (Fuzhou Dayoptics,Inc.) was established in 2005, Located in Fuzhou. It is now a wholly-owned subsidiary of Hunan Dayoptronics Co., Ltd

Since its establishment, with the principle of continuous innovation, the company has been improving the production process and technology, and actively researching and developing new products, and has established a cooperation platform with many international well-known companies and research institutions. After more than ten years of unremitting efforts, the company has now become mature, we have a complete production line, a number of outstanding technical personnel, good quality control team, and we passed the ISO9001:2015 quality system certification in 2020.

“Quality makes future" is our tenet, we will be in the spirit of quality first, continuous innovation, to provide domestic and foreign customers with first-class products, perfect service, and sincerely cooperate with our customers to create brilliance.

RoHS ISO 9001 Registered

戴斯光电
DayOptronics

企业定位：

打造精密光学研发制造平台，服务激光光学 / 视光光学 / 车载和智能制造客户

企业理念：

勇于创新，持续改进，不断给用户创造价值，实现公司的生存发展。

DayOptics

The Company's Vision:

based on the vision of becoming a development and manufacturing platform for precision optics, we provide services for laser optics, optics, vehicle equipment and intelligent production customers.

Unified Corporate Philosophy:

unity, progressive, realistic and innovative. We are committed to offering the high performance optical solutions to our customers with value-added services.

产品介绍
PRODUCT INTRODUCTION

目 录
CATALOGUE

一、别汉棱镜 / Pechan Prism

技术指标/Specifications

1、材料：H-K9L（优点:可见光区域具有较好的透过。缺点:接收角一般）或H-ZF1（优点：获得更大的接收角度，缺点：紫外透过率略低）；
2、屋脊棱角精度：<10秒(可选择项5秒，保证图像获得更高分辨率)；
3、尺寸公差：+/-0.2mm ；
4、表面面型：λ/4（可选择λ/8，高面型可以减少成像时的畸变）；
5、表面光洁度：60/40 ；
6、镀膜：入射面：Ravg<0.5% @420-680nm、反射面：Ravg>85%@400-700nm（可选择介质膜R>98%提高系统整体清晰度）

1、Material:H-K9L--advantage:good transmittance in visible light region; disadvantage:the acceptance angle is average.H-ZF1--advantage:bigger acceptance angle; disadvantage:lower UV transmittance
2、Accuracy of Ridge angle:<10"(another option:5"--higher image resolution)
3、Dimension Tolerance:±0.2mm
4、Flatness:λ/4(another option:λ/8--high flatness can reduce the distortion of imaging)
5、Surface Quality:60/40
6、Coating:Incident surface Coating:Ravg<0.5%@420-680nm.Reflecting surface Coating:Ravg>85%@400-700nm(dielectric coating option:R>98%--to improve the overall clarity of the system)

特点和功能 / Features and Functions

别汉棱镜可以让影像做180°的旋转，通常在双筒望远镜内做为“图像架设系统”。

Pechan prism can rotate the image 180 degrees,Usually used in binoculars as "image erecting system".

优点 / Advantages

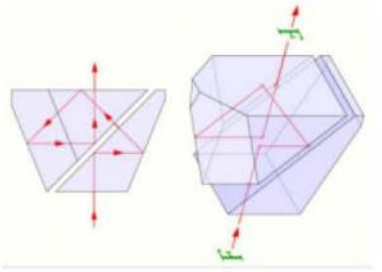
这个棱镜组由两个被空气隙分离的玻璃棱镜组成，多次的全反射造成影像在垂直方向的翻转，在第二个棱镜的"屋顶"将影像做了侧向的翻转，一起导致影像180°的旋转。影像的旋向性没有改变。

The prism group consists of two glass prisms separated by an air gap,Multiple times of total reflection caused the flip of the image in the vertical direction, and make the image flip in the lateral direction at the "roof" of the second prism, Causes the image to rotate 180 degrees.The rotation of the image has not changed.

利益 / Benefits

我们加工的产品具有多元化设计的特点，客户可以根据使用的需求选择各种材料，角精度，镀膜的配置以获得需要的产品

Our products have the characteristic of diversified design, customers can choose a variety of materials, angular accuracy, coating configuration according to their needs to get the product they need



二、偏振合束器 / Polarization Beam Combiner

技术指标/Specifications

1、材料BK7（性价比高）或UVFS（热稳定性好，承受功率更高）+ Quartz
2、设计波长：915nm/976nm（其他波长客户可以自行设计）
3、透过波前畸变：λ/4
4、表面光洁度：40/20（更高激光功率可选择20/10）
5、有效孔径：>85%
6、光束偏离：<3分 （减小发散角可选择<1'）
7、镀膜指标:PBS膜，Tp>97%（更高要求：Tp>98.5%）,Ts<0.1%，AOI=45°。 AR膜，R<0.2%,AOI=0°
8、损伤阈值:>5J/CM^2 @1064nm(更高要求：>15J/CM^2 @1064nm)

1、Material:BK7(high cost performance), UVFS(good thermal stability,higher power withstanding)+Quartz
2、Design Wavelength:915nm/976nm(customers can design other wavelengths by themselves)
3、Transmitting Wavefront Distortion:λ/4
4、Surface Quality:40/20(20/10--higher laser power)
5、Clear Aperture: > 85%
6、Beam Deviation: < 3'(< 1'--to reduce divergence angle)
7、Coating:PBS coating,Tp > 97%(Tp > 98.5%--higher requirements),Ts < 0.1%,AOI=45°.AR coating,R < 0.2%,AOI=0°
8、Damage Threshold: > 10J/CM²@1064nm(> 15J/CM²@1064nm--higher requirements)

特点和功能 / Features and Functions

本器件的主要用途是将两种偏振态、波长为915nm或975nm的单管半导体激光器的输出光束进行合束，从而制成光纤耦模块。本产品应当具备以下功能：承受功率高，插入损耗小，耦合后发散角度小，并且能够适应各种恶劣的环境下的温度变化。

The main purpose of this device is to combine the output beams of the single tube semiconductor laser which has 2 kinds of polarization states, and wavelength is 915nm or 975nm, to make the optical fiber coupling module. This product should have the following functions: High power withstanding, Low insertion loss, Small divergence angle after coupling, And it can adapt to temperature changes in all kinds of harsh environment.

优点 / Advantages

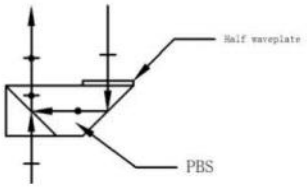
激光合束后功率变大，我们研发的合束器件将承受300W以上大激光功率。另外激光合束后应当将损耗降到最低，本合束器的P光和S光的损耗可以做到<1.5%,极大地降低激光的插损；并且合束后的两束激光产生的发散角应小于1毫弧，否则有可能因为两束合束激光的分离而造成损耗。在各种恶劣的环境下使用，特别是昼夜温差变化特别大(-20℃-80℃)的环境下，合束的光束也必须保证稳定。

The power increases after the laser beam combining, Our beam combiner will be able to withstand high laser power of more than 300w. Besides, the loss should be minimized after laser beam combination, The loss of p-ray and s-ray of the beam combiner can be less than 1.5%, The insertion loss of laser is greatly reduced. And the divergence angle of the combined two lasers should be less than 1 milliarc, otherwise the loss may be caused by the separation of two combined lasers. When the product is used in various harsh environments, especially when the temperature difference between day and night(-20℃—80℃) changes greatly, the combined beam must also be stable.

利益 / Benefits

两束单管半导体激光器通过本器件耦合后具有亮度高、波长一致性好、数值孔径小的优点，能够满足高功率光纤激光器对泵浦源的特殊需求。

The 2 single tube semiconductor laser coupled by this device have the advantages of high brightness, good wavelength consistency, small numerical aperture, It can meet the special needs of high power fiber laser for pump source.



三、激光线非偏振分光棱镜 / Laser Rays Non-polarized Beam Splitter

技术指标 / Specifications:

1.材料BK7（性价比高）或UVFS（热稳定性好，承受功率更高）
2.设计波长：532nm/633nm/1064nm（其他波长客户可以自行设计）
3.面型：λ/4　（成像畸变要求更高可选择λ/8）
4.表面光洁度：40/20（更高激光功率可选择20/10）
5.有效孔径：>85%
6.光束偏离：<3分　（对激光准直要求更高可选择<30秒）
7.镀膜:NPBS膜：T=R=50±10%，｜Tp-Ts｜<5%,AOI=45°。AR膜，R<0.2%,AOI=0°
8.损伤阈值:>10J/CM^2 @1064nm

1、Material: BK7（high cost performance）or UVFS（good thermal stability，higher power withstanding）
2、Design Wavelength:532nm/633nm/1064nm(customers can design other wavelengths by themselves)
3、Flatness:λ/4（λ/8--higher requirements for imaging distortion）
4、Surface Quality:40/20 (20/10--higher laser power)
5、Clear Aperture: > 85%
6、Beam Deviation: < 3'（ < 30"--higher requirements for laser collimation）
7、Coating:NPBS coating,T=R=50±10%, | Tp-Ts | <5%,AOI=45°.AR coating,R < 0.2%,AOI=0°
8、Damage Threshold: > 10J/CM²@1064nm

特点和功能 / Features and Functions

S偏振和P偏振的透射光差异<5%,可以将光均匀地分解成两束正交的光路，同时偏振的比例不发生改变。

The transmitted light difference of S polarization and p polarization is less than 5%, The light can be evenly divided into two orthogonal beams, At the same time, the proportion of polarization does not change.

优点 / Advantages

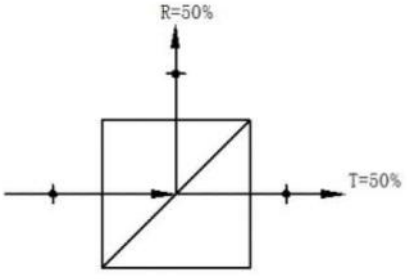
介质膜系，可以承受高功率。传统非偏振分光棱镜一般采用金属-电介质混合镀膜，金属膜具有一定的吸收，且两个三角棱镜采用胶水胶合。我们改进了这一款产品短板，采用深化光胶（光路无胶）替代胶水胶合工艺，大幅提升产品可承受激光功率。

Advantages:Dielectric coating series, it can withstand high power. Traditional nonpolarized beam splitter usually use metal-dielectric mixed coating. The metal coating has a certain absorption, and the two triangular prisms are glued together. We improved the short board of this product, Using deepening optical contacting(Light path without glue) instead of cemented process, Greatly improve the laser power that the product can withstand.

利益 / Benefits

客户可以获得功率高，光束偏离小，成像质量更清晰的产品

Customers can get products with high power, small beam deviation and clearer imaging quality.



四、高功率窄带滤光片 / High Power Narrow Band Filter

技术指标 / Specifications:

1.UVFS（热稳定性好，承受功率高）
2.尺寸：φ12.7*3/φ25.4*5。（其他尺寸可根据客户需求定制2-200mm）
3.设计波长：452nm/532nm/637nm/905nm/1064nm(其他波长可以按客户需求设计)
4.透射波前：λ/4（成像畸变要求更高可选择λ/8）
5.表面光洁度：40/20 （更高激光功率可选择20/10）
6.有效孔径：>85%
7.平行度＜1分（更高要求<1秒）
8.镀膜:T>93%，半高宽（FWHM）:15-60nm
9.截止:OD>3~5
10.损伤阈值:>20J/CM^2 @1064nm 20ns

1. Material: UVFS（good thermal stability, high power withstanding）
2. Dimensions: φ12.7*3/φ25.4*5. Other dimensions can be customized according to customer needs（2-200mm）
3. Design wavelengths: 452nm/532nm/637nm/905nm/1064nm（other wavelengths can be designed according to customer needs）
4. Transmitting Wavefront Distortion: λ/4（λ/8--ηigher requirements for imaging distortion）
5. Surface Quality: 40/20（20/10--higher laser power）
6. Clear Aperture: >85%
7. Parallelism: ＜1′（＜1″--higher requirements）
8. Coating: T > 93%, FWHM: 15-60nm
9. Cut Off Depth: OD > 3-5
10. Damage Threshold: > 20J/CM²@1064nm 20ns

功能 / Function

本产品是具有对选择性光谱波长透过或截止的光学元器件。镀膜时同时采用直接和间接光控技术，镀膜方式跟进需求采用：离子束辅助沉积镀膜(IAD)或离子溅射(IBS)

This product is an optical component with transmission or cut-off to selective spectral wavelength. Both direct and indirect optical control technology are used in coating，The coating method adopted follows up the demand：Ion Beam Assisted Deposition (IAD) or ion beam sputtering(IBS)

优点 / Advantages

介质膜系，采用融石英基底替代有色玻璃，可以得到更高的透过率，承受更高功率。产品截止带宽较大，从紫外到红外（300-1200nm）截止，并从中截取需要高透过的波长。

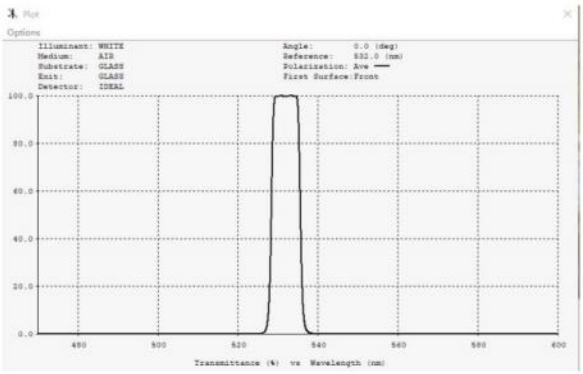
Dielectric coating series, fused silica substrate is used to replace colored glass, so the product can get higher transmittance, withstand higher power. The cut-off bandwidth of the product is relatively wide, from UV to IR（300-1200nm）, and customers can intercept the wavelength requiring high transmission.

利益 / Benefits

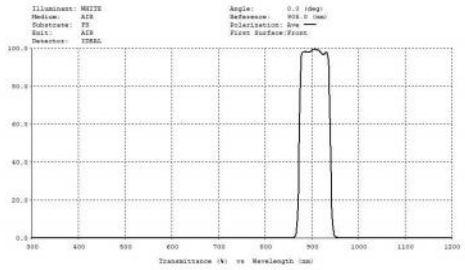
客户可以获得功率高，透过率高，截止波长宽的高性能产品

Customers can get high-performance products with high power, high transmittance and wide cut-off wavelength.

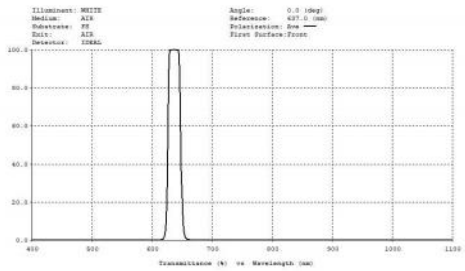
镀膜曲线 / Coating Curve



中心波长（center wavelength）：532nm
半高宽FWHM:10nm/透过率T:>95%/截止带=400-1100，OD AVG平均>3
半高宽FWHM:10nm/透过率T:>95%/截止带=400-1100，OD>3

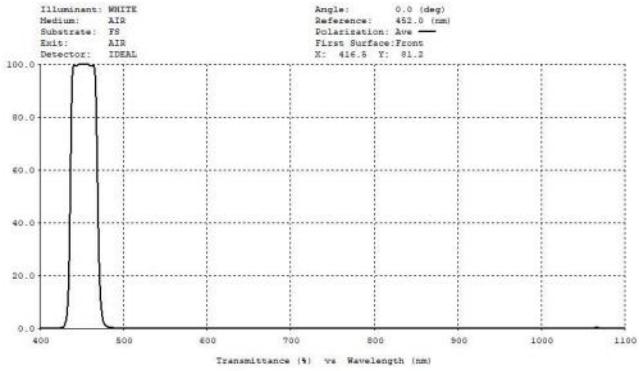


中心波长CWL:905nm
半高宽FWHM:60nm
透过率T:>93%
截止带入=300-1200nm OD>3

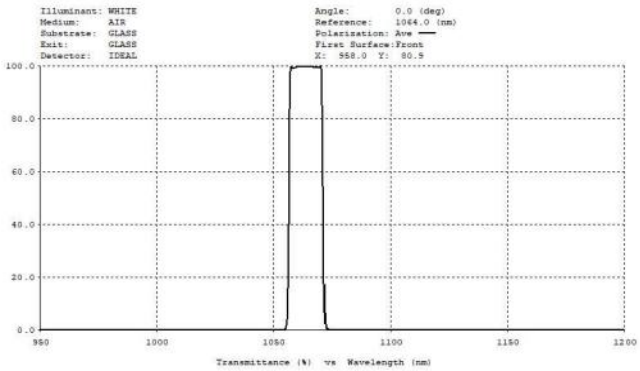


中心波长CWL:637nm
半高宽FWHM:20nm
透过率T:>95%
截止带入=400-1100nm OD>3

镀膜曲线 / Coating Curve



中心波长CWL:452nm
半高宽FWHM:30nm
透过率T:>93%
截止带入=400-1100nm OD>3



中心波长CWL:1064nm
半高宽FWHM:15nm
透过率T:>93%
截止带入=900-1200nm OD>5

五、QBH激光端帽 / QBH Laser End Cap

技术指标 / Specifications

1、材料:C7980 或C7979 ；
2、基本尺寸：φ8*22（或根据客户及具体情况）
3、局部面形：≤λ/10@632.8nm
4、波前畸变：≤λ/8@632.8nm
5、同轴度：≤0.02mm
6、有效孔径：≥95%
7、表面光洁度：10-5（更高激光功率可选择5-2或更高）

1、Materials: C7980 or C7979
2、Basic Dimension: φ8*22（according to customer needs or specific circumstances）
3、Part Flatness: ≤λ/10@632.8nm
4、Wavefront Distortion: ≤λ/8@632.8nm
5、Coaxiality: ≤0.02mm
6、Clear Aperture: ≥95%
7、Surface Quality: 10/5（5/2 or higher--higher laser power）

优势 / Advantages

1、两通光表面采用超光滑抛光
2、材料的选取与弱吸收值的监控
3、IBS镀膜，选取低吸收膜料，实现高损伤阈值镀膜

1、The 2 surfaces are polished with super smooth polishing
2、Selection of good materials and control of weak absorption
3、IBS coating, Choose low absorption coating materials, High damage threshold coating

利益 / Benefits

1、表面超光滑抛光减少亚表面损伤
2、选取优质材质，降低材质造成的高吸收，有效控制高功率下温升的风险
3、功率级别从百瓦/千瓦 提升到 几千瓦/万瓦；传输功率损耗大于等于98.5%或更高，激光损伤阈值可达到≥25J/cm2

1、Super smooth polishing reduces subsurface damage.
2、Select high quality materials, Reduce the high absorption caused by materials, Effectively control the risk of temperature rise under high power.
3、Power level raised from 100w/1000w to Several thousands watts/Tens of thousands of Watts; Transmission power loss ≥98.5% or higher, The laser damage threshold can reach more than 25J / cm²

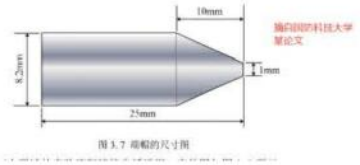
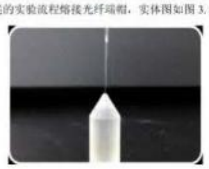


图 3.7 端帽的尺寸图

按照 2.2.2 节中所述的实验流程熔接光纤端帽，实体图如图 3.8 所示。



柱面镜 /CYLINDRICAL LENS

柱面镜总览 / Cylindrical Lenses Overview

产品说明 / Product Description

最近柱面镜已广泛应用于半导体二极管激光 F A C 镜头我们的程师有多年的镜片制造经验加上先进的检验仪器，我们生产的产品精度更高，品质更好。使用的材料涵盖紫外到红外，如石英、BK7、CaF2,S-TIH53 等等。尺寸范围广，从 1mm 到 100mm 不等，可依客户需要定制。

Recently cylindrial lens has been widely used in semiconductor diode lasers as FAC lenses. Dayoptics' engineers have many years of experience on fabrication on the lenses. Thus, we can provide the products with higher precision and better quality based on our advanced inspection instrument for the lenses. The material used from UV to IR, such as Fused Silica, BK7, CaF2, S-TIH53, etc.. The dimension can be from 1x1mm to 100x100mm as customer's requirements.

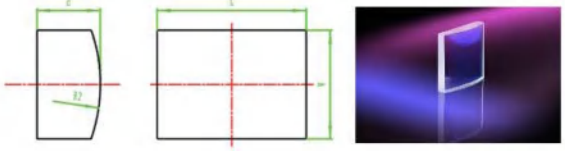
柱面镜名称 Lens	Material 材料
平凸柱面镜 Plano Convex Cylinder Lens	BK7;Fused Silica
平凹柱面镜 Plano Concave Cylinder Lens	BK7;Fused Silica
消色差柱面镜 Cylinder Positive Achromatic Lens	Depend on the design 根据设计要求
非球面柱面镜 Aspheric cylindrical lens	Depend on the design 根据设计要求

平凸柱面透镜 / Plano-Convex Cylindrical Lens

产品说明 / Product Description

平凸柱面镜只在一个方向聚光，外形和平凸透镜相似，它是圆柱的一部份且可代替球面，柱面透镜能把点光变成线光，且可用作产生激光的线性激光发生器。这种透镜以同一尺寸放大所以它能拉伸成像，把光调焦成一个细缝或是聚光成一个线性扫描探测器。

The plano-convex cylindrical lenses focus light within a single direction only. It's similar to plano-convex spherical lenses in appearance. It's a part of cylinder and it can replace spherical lenses. Cylindrical lenses turn point light into linear light and can be used as liner laser generator to generate lasers. Image plane is made with the lenses magnify at the same size, focus the light to be a finedraw or a linear sweep detector.



技术指标 / Specifications

材料 material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
曲率公差 Curvature Tolerance	2-600mm±1%
加工公差 Dimension Tolerance	长宽 ±0.05mm、中心厚 ±0.1mm
偏心 Centration	3 arc minute
面型 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	40/20（常规）

标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		长	宽		
SAC10007	H-K9L	4.6	4.6	AR@900-1000nm	13.4@587.6
SAC10012	H-K9L	3	3	AR@785-995nm	5.9@976
SAC10046	H-K9L	4.6	4.6	AR@900-1000nm	23.8@587.6
SAC10051	H-K9L	4.6	4.6	AR@900-1000nm	20.4@587.6
SAC10072	H-K9L	3	3	AR@760-860nm	9.8@976
SAC10084	H-K9L	4	4	AR@785-845nm	9.5@587.6
SAC10116	H-K9L	4	4	AR@890-940nm	11.23@915
SAC10117	ZF13	3.6	1.7	AR@780-1000nm	10.7@940
SAC10120	H-K9L	4	4	AR@808nm	5.8@808
SAC10127	C7980	3	3	AR@800-1000nm	10@976
SAC10134	H-K9L	4	4	AR@630-690nm	10.66@587.6
SAC10142	H-K9L	6	6	AR@790-990nm	15.6@915
SAC10163	H-K9L	3.5	3.5	AR@780-980nm	5.16@915
SAC10166	ZF7L	6	6	AR@800-950nm	4.84@589.3
SAC10167	H-K9L	3.6	3.6	AR@780-990nm	10.5@915
SAC10170	H-K9L	10	10	AR@760-790nm	20@587.6
SAC10171	H-K9L	8	8	AR@905-985nm	12.19@915
SAC10173	H-K9L	2.1	2.1	AR@400-700nm	7.7@532
SAC10174	H-K9L	2.1	2.1	AR@400-700nm	6.26@532
SAC10175	H-K9L	5	5	AR@400-700nm	12.38@532
SAC10176	LAF10L	3.5	3.5	AR@965-990nm	11.5@940
SAC10177	ZF6	4	4	AR@758-858nm	9@587.6
SAC10178	ZF6	4.6	4.6	AR@758-858nm	19.25@587.6
SAC10179	H-K9L	5	5	AR@770-1070nm	11.5@785
SAC10180	H-K9L	2.5	2.5	AR@780-1080nm	3.9@976
SAC10182	H-K9L	3	3	AR@900-1000nm	12@915
SAC10183	H-K9L	37	4.5	U/C	13.8@632.8
SAC10184	TIH53	52	52	AR@532nm	44.2@532nm

标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		长	宽		
SAC10186	ZF6	4	4	AR@700-1000nm	16.4@950
SAC10189	ZF13	2	2	AR@900-1000nm	22@975
SAC10191	H-K9L	4.3	4.3	AR@900-1000nm	20.4@587.6
SAC10195	ZF52	4	4	AR@900-1000nm	9.01@975
SAC10201	H-K9L	2.5	2.5	AR@400-700nm	4@632.8
SAC10203	H-K9L	2	2	AR@915nm	14.05@915
SAC10206	H-K9L	3	3	AR@780-1080nm	9.4@915
SAC10207	C7980	3.5	3.5	AR@780-1000nm	13@915
SAC10208	C7980	3.5	3.5	AR@780-1000nm	13@915
SAC10209	H-K9L	4.4	4.4	AR@700-1000nm	16.4@950
SAC10211	H-K9L	30	12	AR@950-990nm	46.68@976
SAC10212	H-K9L	30	12	AR@950-990nm	109.75@976
SAC10213	H-K9L	30	12	AR@950-990nm	98.5@976
Sac10214	H-K9L	6	6	AR@890-920nm	7.86@915
Sac10215	H-K9L	6	6	AR@890-920nm	10.8@915
Sac10216	H-K9L	6	6	AR@890-920nm	32.6@915
SAC10218	H-K9L	2	2	AR@400-650nm	3.8@450
SAC10219	H-K9L	4	4	AR@400-650nm	25@450
SAC10220	H-K9L	7	7	AR@440-645nm	22.9@532
SAC10221	C7980	4	4	AR@770-790nm	20@780
SAC10222	H-K9L	4.2	4.2	AR@700-1000nm	16.4@950
SAC10224	H-K9L	10	10	AR@1350-1600nm	23.5@1064
SAC10225	ZF7LA	2.5	2.5	AR@780-1080nm	4@976
SAC10226	H-K9L	4	4	AR@700-1100nm	29.9@976
SAC10227	H-K9L	7	7	AR@790-1060nm	13@976
SAC10228	H-K9L	7	7	AR@880-980nm	23@915
SAC10229	H-K9L	7	7	AR@880-980nm	12.31@976
SAC10230	H-K9L	6.3	6.3	AR@532nm	24.87@532
SAC10231	H-K9L	8	8	AR@880-980nm	28.5@915
SAC10232	H-K9L	11	11	AR@880-980nm	16.5@915
SAC10233	H-K9L	4.5	4.5	AR@905-985nm	14@915

标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		长	宽		
SAC10234	H-K9L	10	10	AR@905nm-985nm	25.8@976
SAC10235	ZF6	8	8	AR@420-680nm	18.5381@587.6
SAC10236	ZF6	8	8	AR@420-680nm	9.269@587.6
SAC10237	H-K9L	3	3	AR@420-680nm	4.84@587.6
SAC10238	H-K9L	5	5	AR@780-1080nm	18.6@976
Sac10239	H-K9L	9	9	AR@880-930nm	25.03@915
Sac10240	H-K9L	9	9	AR@880-930nm	14.88@915
SAC10241	H-K9L	4.6	4.6	AR@905-985nm	14@976
SAC10242	ZF52	6	6	AR@700-1100nm	5.47@1064
SAC10243	ZF52	6.5	6.5	AR@700-1100nm	15.98@1064
SAC10245	H-K9L	4	4	AR@700-1000nm	20.4@587.6
SAC10246	H-K9L	10	10	AR@905-985nm	25.5@976
Sac10247	H-K9L	5	5	AR@635nm	29.1@635
SAC10248	C7980	4	4	AR@1530-1570nm	10@1550
SAC10250	C7980	5	5	AR@800-1100nm	15@1064
SAC10251	C7980	4	4	AR@1530-1570nm	7@1500
SAC10252	H-K9L	14	12	AR@905-985nm	28.2@976
SAC10253	H-K9L	16	14	AR@900-1000nm	38.17@976
SAC10254	ZF52	6.5	6.5	AR@700-1100nm	15.2@976
SAC10255	ZF52	6	6	AR@700-1100nm	7.6@976
SAC10257	H-K9L	15	40	AR@650-1050nm	150@587.6
SAC10258	H-K9L	15	40	AR@650-1050nm	129.99@587.6
SAC10259	H-K9L	15	40	AR@650-1050nm	100@587.6
SAC10260	H-K9L	4.2	4.2	AR@900-1000nm	13.82915
SAC10261	H-K9L	15	30	AR@650-1050nm	129.99@587.6
SAC10262	H-K9L	30	20	AR@650-1050nm	950@587.6
Sac10263	H-K9L	40	22	AR@650-1050nm	900@587.6
SAC10264	H-K9L	40	22	AR@650-1050nm	850@587.6
SAC10265	H-K9L	40	22	AR@650-1050nm	800@587.6
SAC12049	C7980	3	3	AR@700-1100nm	5@1064

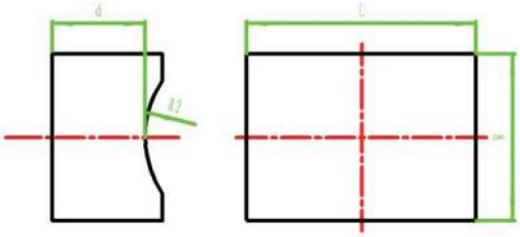
平凹柱面透镜 / Plano-Concave Cylindrical Lens

产品说明 / Product Description

平凹柱面镜的作用是使光束在某一平面内会聚或发散，而在与之垂直的平面（柱轴）内则不起作用，将透过的平面光波成为柱面波，或使原来的柱面波变成平面波或球面波。通常用于将准直激光源转换成线形光。

The plano-concave cylindrical lenses focus or separate light at a certain plane. It does not work in the plane (cylindrical axis) which is perpendicular to it, turning the transmitted plane optical wave into cylindrical, or turning the original cylindrical wave into plane or a spherical. Usually used to convert collimated laser sources into line lights.

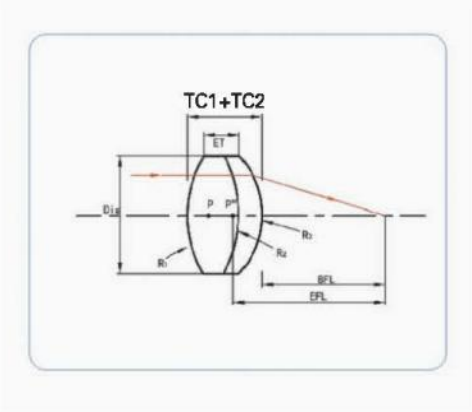
标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		长	宽		
SAC20020	H-K9L	5	5	AR@400-700nm	7.7@532
SAC20030	H-K9L	2.1	2.1	AR@405nm	12.75@587.6
SAC20032	C7980	10	10	AR@790-1060nm	22.4@915
SAC20033	LAK10	8	8	AR@950-990nm	18.78@976
SAC20034	LAK10	13	13	AR@950-990nm	41.9@976
SAC20035	H-K9L	6	6	AR@890-920nm	14.166@632.8
SAC20038	H-K9L	10	10	AR@905nm-985nm	12.9@976
SAC20040	H-K9L	4	4	AR@650nm-1050NM	3.9@587.6
SAC20041	H-K9L	10	10	AR@905-985nm	12.9@976
SAC20042	H-K9L	12	12	AR@900-1000nm	17.5@940



技术指标 / Specifications

材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
曲率公差 Curvature Tolerance	2-600mm±1%
加工公差 Dimension Tolerance	长宽 ±0.05mm、中心厚 ±0.1mm
偏心 Centration	3 arc minute
面型 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	40/20（常规）

消色差柱面透镜 / Cylinder Positive Achromatic Lens



技术指标 / Specifications

材料 Material	BK7; SF5
设计波长 Design Wavelength	589.6nm
尺寸公差 Diameter Tolerance	+0.0，-0.15mm
厚度公差 Thickness Tolerance	+/-0.1mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜

Part No. 标准型号	φ(mm)	f (mm)	R1 (mm)	R2=R3	TC1(mm)	TC2(mm)	f b (mm)	Lens A	Lens B
ALYP1301	12.5	25	10.55	10.55	7	2	18.32	BK7	SF5
ALYP1302	12.5	50	24.97	24.97	4	2	46.39	BK7	SF5
ALYP1303	12.5	75	38.1	38.1	3.5	2	71.79	BK7	SF5
ALYP1304	12.5	100	51.21	51.21	2	2	97.15	BK7	SF5

非球面柱面镜 / Aspheric Cylindrical Lens

产品说明 / Product Description

非球面柱面的设计和高数值孔径使它不仅能维持高光束质量，同时为一整个激光二极管的输出提供统一光学准直。

The design of aspheric cylinder and high numerical aperture makes it maintain a high beam quality, and provide unified optical collimation for the output of a laser diode.

Advantages 优点：
Aspheric cylindrical lens 非球面柱面透镜
High beam quality 高光束质量
High numerical aperture of sodium to be 0.64 --0.86(钠高数值孔径为 0.64 --0.86)
The parallel finite diffraction 横向有限的衍射
High transmission 高传输
Long-term stability 长期稳定

球面镜 /SPHERICAL LENS

透镜概括 / Lens Overview

产品说明 / Product Description

透镜是用透明物质制成的表面为球面一部分的光学元件，根据光的折射规律，几片透镜可以组成一个镜头，用来对物体形成一个真实或虚拟的像。福建戴斯光电有限公司提供的标准透镜的材料有BK7、硅石、蓝宝石、融合CaF 2和MgF 2，同时也可以按照客户的要求提供相应的材料。

A transparent optical component consisting of several pieces of optical glass with curved surfaces(usually spherical) that they serve to converge or diverge the transmitted rays from an object,thus forming a real or virtual image of that object.Dayoptics provides these lenses with the material of BK7,fused silica,sapphire,CaF2 and MgF2 as standard.Other materials lenses are available upon customer's requirements .

技术指标 / Specifications

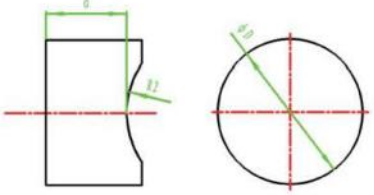
透镜 Lens	根据客户要求 Depend on the design
平凸透镜 Plano Convex Lens	BK7; 融石英 BK7;Fused Silica
平凹透镜 Plano Concave Lens	BK7; 融石英 BK7;Fused Silica
双凸透镜 Double Convex Lens	BK7; 融石英 BK7;Fused Silica
双凹透镜 Double Concave Lens	BK7; 融石英 BK7;Fused Silica
消色差透镜 Achromatic Lens	根据客户要求 Depend on the design
C 透镜 C-Lens	根据客户要求 Depend on the design
球透镜 Ball Lens	BK7; 融石英 BK7;Fused Silica

平凹球面透镜 / Plano-Concave Spherical Lens

产品说明 / Product Description

平凹球面透镜是由一个平面和一个凹球面组成，具有负焦距和负的球面偏差，能使准直入射光发散，只形成通过透镜看到的虚像。经常被用来扩展光束、增加系统长度和抵消系统中其他透镜的像差。广泛应用于显示系统、投影系统、 激光测量、 光学成像、光束控制等领域。

The plano-concave spherical lens is composed of a plane and a concave spherical substrate. with a negative focal length and a negative spherical deviation, It can diverge the collimated incident light and form the virtual image seen through the lens only. It is often used to expand the beam,Increase system length and cancel aberrations of other lenses in the system. It is widely used in display system, projection system, laser measurement, optical imaging, beam control and other fields.



技术指标 / Specifications

材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
外径 Diameter	Φ4-Φ80mm
偏心 Centration	1 arc minute
加工公差 Dimension Tolerance	中心厚公差：±0.05mm、外径公差：±0.05mm、矢高公差：±0.05mm
面型 Surface Figure	≤1 (0.5)
光洁度 Surface Quality	40/20

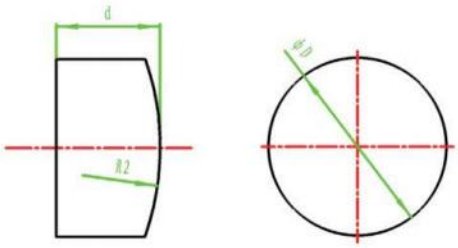
标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		直径	厚度		
COL10010	ZF6	Φ12	6	750-850nm	20
COL10020	K9L	φ5	1.4	660nm	20
COL10042	ZF6	Φ6.2	3.5	900-1000nm	8.1
COL10047	K9L	φ14	4	Uncoated	22.7
COL10048	K9L	φ6	1.42	425-675nm	18
COL10049	K9L	φ6	1.5	425-675nm	24
COL10050	ZLAF92	φ6	1.5	965-990nm	8.8
COL10051	ZK50	φ28	4	400-1000nm	
COL10053	K9L	φ7	10	Uncoated	13.6
COL10054	LAF10L	φ6	1.5	785-990nm	5.82
COL10058	C7980	φ40	5	950-990nm	154
COL10059	C7980	φ39	5	950-990nm	123
COL10060	LAF10L	Φ6	1.5	790-990nm	8.4
COL10061	LAF10L	φ6	1.5	790-990nm	8.2
COL10063	K9L	φ6	1.6	425-675nm	12
COL10066	ZF7LA	φ49	5.8	1540nm	99.8
COL10069	K9L	φ10	2	445,520,638nm	30
COL10072	K9L	φ7	3	780-1000nm	9.9
COL10073	K9L	φ12.7	5.12	808nm	15
COL10074	K9L	φ12.7	3.16	808nm	30
COL10075	C7980	φ32	4	400-650nm	131.8
COL10076	C7980	φ30	4.5	400-650nm	92
COL10077	K9L	φ5	3	640-660nm	6.45
COL10078	K9L	φ6.5	3.2	780-1000nm	16.2
COL10079	K9L	φ12	5	808-915nm	16.7
COL10080	K9L	φ6	3	532nm	99.486
COL10082	K9L	φ12	3.5	Uncoated	20.33
COL10083	K9L	φ10	1.4	400-700nm	498.4
COL10086	ZK11	φ14	3	400-840nm	26.3

平凸球面透镜 / Plano- Convex Spherical Lens

产品说明 / Product Description

平凸球面透镜由平面和凸球面组成，具有正焦距。被广泛地应用于用光束的聚焦和准直。是组成投影系统、成像系统、激光测量系统等不可或缺的光学元件。

The plano- convex spherical lens consists of a plane and a convex spherical lens with a positive focal length. It is widely used in focusing and collimating optical beams. It is an indispensable optical element for projection system, imaging system and laser measurement system.



标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		直径	厚度		
COL20009	K9L	φ12.7	6.35	Uncoated	1263
COL20010	C7980	φ6	1.5	375-500nm	13
COL20011	C7980		4	950-990nm	
COL20012	C7980	φ28	3	400-650nm	319.8

技术指标 / Specifications

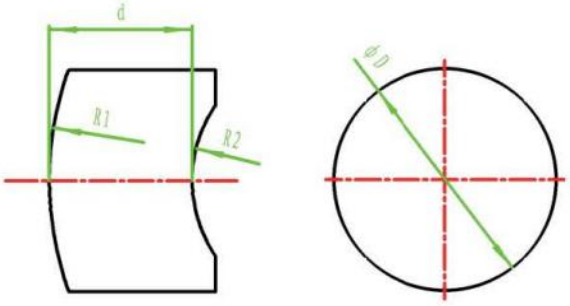
材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
外径 Diameter	Φ4-Φ80mm
偏心 Centration	1 arc minute
加工公差 Dimension Tolerance	中心厚公差：±0.05mm、外径公差：±0.05mm、矢高公差：±0.05mm
面型 Surface Figure	≤1 (0.5)
光洁度 Surface Quality	40/20

弯月球面透镜 / Meniscus Spherical Lens

产品说明 / Product Description

弯月透镜分正弯月和负弯月透镜。 弯月透镜透镜的一面是凸的，一面是凹的。可以是会聚透镜，也可以是发散透镜，由折射率、曲率半径共同决定。广泛的应用于照相系统、投影系统、成像系统、光学取景器、激光测量系统。

The meniscus lens can be divided into positive meniscus lens and negative meniscus lens. The meniscus lens is convex on one side and concave on the other. It can be a convergent lens or a divergent lens, which is determined by the refractive index, curvature and radius. It is widely used in photographic system, projection system, imaging system, optical viewfinder and laser measurement system.



标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		直径	厚度		
COL30071	ZF13	φ8	2.5	632.8nm	44.12
COL30090	ZF1	φ15	3	400-700nm	211.21
COL30103	ZF7LA	φ44	5.5	1540nm	91.32
COL30112	ZF7LA	φ50	8	1520-1560nm	110.2
COL30122	ZK7	φ14.5	3.5	400-700nm	48.21
COL30126	ZF7LA	φ10	3.3	400-840nm	20.9
COL30127	ZF7LA	φ10	2.8	400-840nm	10.7

技术指标 / Specifications

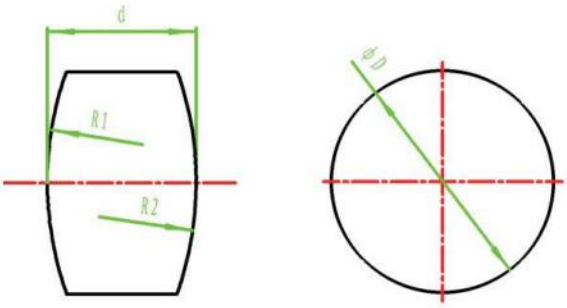
材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
外径 Diameter	Φ4-Φ80mm
偏心 Centration	1 arc minute
加工公差 Dimension Tolerance	中心厚公差：±0.05mm、外径公差：±0.05mm、矢高公差：±0.05mm
面型 Surface Figure	≤1 (0.5)
光洁度 Surface Quality	40/20

双凸球面透镜 / Double Convex Spherical Lens

产品说明 / Product Description

双凸透镜是由两个凸球面组成，具有正焦距，通常物体和图像在透镜的两边。主要用于汇聚来自点光源的光或向其它光学系统传递图像。

Double convex lens is composed of two convex spheres with positive focal length. Usually objects and images are on both sides of the lens. It is mainly used to collect light from point source or transmit images to other optical systems.



标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		直径	厚度		
COL40007	K9L	φ10	2.5	660nm	33.5
COL40033	K9L	φ10	3.5	660nm	23.7
COL40051	C7980	φ78	9.2	Uncoated	423.7
COL40053	ZF7LA	φ28	6	500-700nm	70
COL40058	ZK50	φ15	4.5	400-700nm	80.377
COL40059	ZF1	φ15	3.5	400-700nm	73.47
COL40073	ZF7LA	φ21	5	1520-1560nm	20.75
COL40082	ZK7	φ15.5	4.2	400-700nm	33.26

技术指标 / Specifications

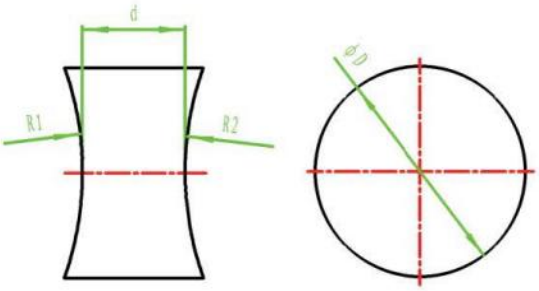
材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHARA、客户指定材料
外径 Diameter	Φ4-Φ80mm
偏心 Centration	1 arc minute
加工公差 Dimension Tolerance	中心厚公差：±0.05mm、外径公差：±0.05mm、矢高公差：±0.05mm
面型 Surface Figure	≤1 (0.5)
光洁度 Surface Quality	40/20

双凹球面透镜 / Double Concave Spherical Lens

产品说明 / Product Description

双凹球面透镜是由两个凹球面组成，焦距为负，通常用于缩小成像和发散光束等。广泛应用于显示系统、投影系统、 激光测量、光学成像、光束控制等领域。

Double concave spherical lens is composed of two concave spheres with negative focal length. It is usually used to shrink imaging and divergent beams. It is widely used in display system, projection system, laser measurement, optical imaging, beam control and other fields.

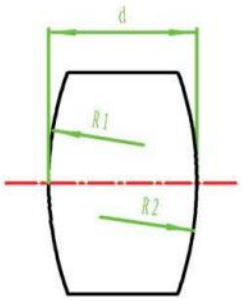


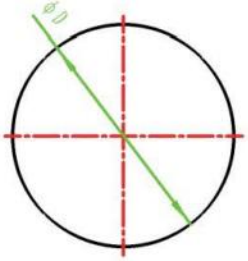
标准型号 PartNo	材料 Material	尺寸 Dimension		镀膜波长 Coating Wavelength	设计焦距 Focal Length
		直径	厚度		
COL50022	ZF52A	Φ8.5	1.5	1500-1600nm	4.94
COL50023	ZF1	φ15	3	400-700nm	208.58
COL50028	ZF7LA	φ18	2	1540nm	15.17
COL50032	ZF7LA	φ26	3	1520-1560nm	16.64

技术指标 / Specifications

材料 Material	CDGM 光学玻璃、CORNING、SCHOTT、HOYA、OHRAR、客户指定材料
外径 Diameter	Φ4-Φ80mm
偏心 Centration	1 arc minute
加工公差 Dimension Tolerance	中心厚公差：±0.05mm、外径公差：±0.05mm、矢高公差：±0.05mm
面型 Surface Figure	≤1（0.5）
光洁度 Surface Quality	40/20

双凸透镜 / Double Convex Lens



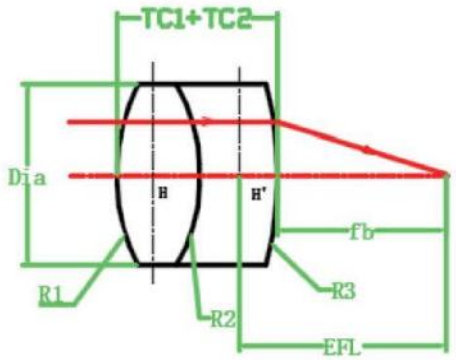


标准型号 Part No	φ (mm)	f (mm)	R1 (mm)	tc (mm)	te (mm)	fb (mm)
DCX1201	12.7	20	20.01	4	2	18.6
DCX1202	12.7	25	25.28	3.6	2	23.8
DCX1203	12.7	30	30.52	3.3	2	28.9
DCX1204	12.7	40	40.95	3	2	39
DCX1301	25.4	25.4	24.71	9	2	22.2
DCX1314	25.4	35	35.09	6.8	2	32.8
DCX1315	25.4	40	40.4	6.1	2	37.9
DCX1302	25.4	50	50.92	5.2	2	48.3
DCX1316	25.4	60	61.4	4.7	2	58.5
DCX1303	25.4	75	77.04	4.1	2	73.6
DCX1304	25.4	100	103.05	3.6	2	98.8
DCX1305	25.4	125	129.02	3.3	2	123.9
DCX1306	25.4	150	154.97	3	2	149
DCX1307	25.4	200	206.84	2.8	2	199
DCX1308	25.4	250	258.7	2.6	2	249.1
DCX1309	25.4	300	310.55	2.5	2	299.2
DCX1310	25.4	400	413.8	2.4	2	399
DCX1311	25.4	500	517.91	2.3	2	499.2
DCX1312	25.4	750	774.3	2.3	2	748.8
DCX1313	25.4	1000	1036.23	2.2	2	999.3

技术指标 / Specifications

材料 Material	BK7
设计波长 Design Wavelength	546.1nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜

消色差透镜 / Achromatic Lens



技术指标 / Specifications

设计波长 Design Wavelength	480.0,546.1,643.8nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/ Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	λ/4 Wave MgF2@550nm

正消色差透镜 / Positive Achromatic Lens

技术指标 / Specifications

Part No 标准型号	φ(mm)	f (mm)	R1 (mm)	R2=R3	TC1(mm)	TC2(mm)	f b (mm)	Lens A	Lens B
ALP0101	6	15	8.831	-6.546	2.71	1	13.066	BK7	SF5
ALP0102	6	20	12.356	-8.511	2.6	1	18.288	BK7	SF5
ALP0103	6	25	15.704	-10.666	2.3	1	23.455	BK7	SF5
ALP0104	6	30	18.88	-12.942	1.9	1	28.695	BK7	SF5
ALP0105	8	25	15.596	-10.814	2.9	1	23.125	BK7	SF5
ALP0106	8	30	18.88	-12.882	2.7	1	28.277	BK7	SF5
ALP0107	10	20	12.3	-9.02	3.6	1	17.625	BK7	SF5
ALP0201	12	25	15.346	-11.35	4.2	1.3	22.286	BK7	SF5
ALP0202	12.7	25	15.596	-11.402	4.3	1.3	22.251	BK7	SF5
ALP0203	12.7	30	18.535	-13.49	4	1.3	27.36	BK7	SF5
ALP0204	12.7	40	25.23	-17.539	3.4	1.3	37.778	BK7	SF5
ALP0205	12.7	50	31.26	-21.93	3.1	1.3	47.992	BK7	SF5
ALP0206	12.7	60	37.33	-26.42	2.8	1.3	58.127	BK7	SF5
ALP0207	12.7	75	46.77	-32.96	2.6	1.3	73.227	BK7	SF5
ALP0208	20	65	40.09	-29.58	6.3	2	60.868	BK7	SF5
ALP0301	25.4	60	37.33	-27.16	7	2	55.565	BK7	SF5
ALP0302	25.4	120	73.28	-54.33	4.2	2	117.103	BK7	SF5

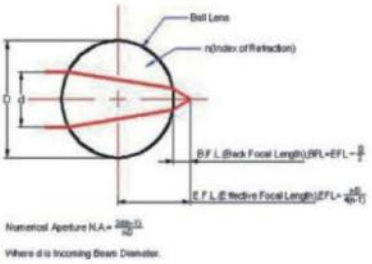
负消色差透镜 / Negative Achromatic Lens

技术指标 / Specifications

Part No 标准型号	φ(mm)	f (mm)	R1 (mm)	R2=R3	TC1(mm)	TC2(mm)	f b (mm)	Lens A	Lens B
ALN0101	12.7	-25	-15.6	13.09	3	2.67	-27.5	BK7	F2
ALN0102	12.7	-40	-24.45	17.97	3	2.34	-42.5	BK7	F2
ALN0103	25.4	-50	-31.19	24.89	3	4.22	-53.3	BK7	F2

球透镜 / Ball Lens

标准型号 Part No	尺寸 Diameter	尺寸公差 Dia tolerance(mm)	球度误差 Sphericity(mm)	光洁度 Surface Quality
BAL0010	1	+/-0.005mm	+/-0.002mm	40/20
BAL0030	3	+/-0.005mm	+/-0.002mm	40/20
BAL0040	4	+/-0.005mm	+/-0.002mm	40/20
BAL0050	5	+/-0.005mm	+/-0.002mm	40/20



技术指导 / Specifications

材料 Material	BK7 and other optical glass
直径公差 Diameter Tolerance	+/-0.005mm
球度公差 Sphericity	+/-0.001mm
光洁度 Surface Quality	40/20 Scratch/Dig
面型 Flatness	< 2.5Lambda

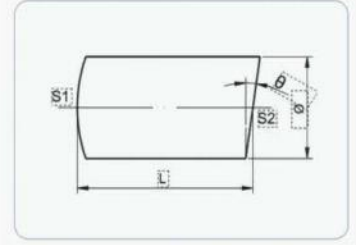
C 透镜 / C-Lens

Features 特性：
- Low Insertion Loss 低损耗
- High precision 高精度

Applications 应用：
- Collimators 准直仪
- Switches 转换器
- Laser Assembly 激光装配
- Isolators 隔离器
- Collimator Array 准直器系列

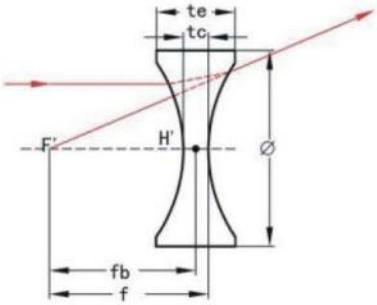
技术指导 / Specifications

直径公差 Diameter Tolerance	+0.005 , -0.01mm
长度公差 Length Tolerance	+/-0.04mm
光洁度 Surface Quality	20/10 Scratch/Dig
损伤阈值 Damage Threshold	600MW/cm^2
镀膜 Coating	R<0.25%@1550+/-40nm



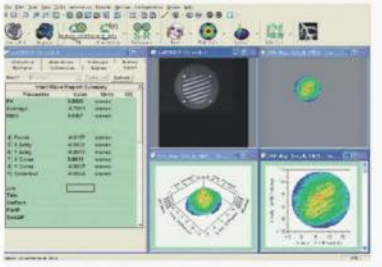
Part No. 标准型号	θ(°)	φ(mm)	中心波长 Central Wavelength (nm)	L (mm)
CLS0101	8	1	1550	2.62
CLS0102	8	1.8	1550	2.94
CLS0103	8	1.8	1310	3.85
CLS0104	8	1.8	1550	3.85
CLS0105	8	1.8	1550	6.61

双凹透镜 / Double Concave Lens



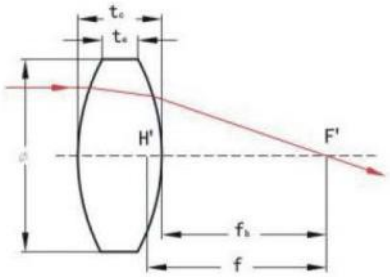
技术指标 / Specifications

材料 Material	BK7
设计波长 Design Wavelength	546.1nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜



Part No 标准型号	φ(mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
DCV1201	12.7	-25	26.25	2	3.6	-25.7
DCV1202	12.7	-30	31.44	2	3.3	-30.7
DCV1203	12.7	-40	41.8	2	3	-40.7
DCV1204	12.7	-50	52.17	2	2.8	-50.7
DCV1301	25	-25	26.25	2	8.6	-25.7
DCV1302	25.4	-35	36.62	2	6.5	-35.7
DCV1303	25.4	-50	52.17	2	5.1	-50.7
DCV1305	25.4	-75	78.09	2	4.1	-75.7
DCV1306	25.4	-100	104	2	3.6	-100.7

双凸透镜 / Double Convex Lens

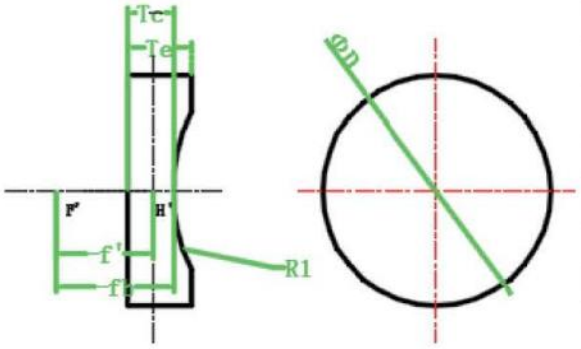


技术指标 / Specifications

材料 Material	BK7
设计波长 Design Wavelength	546.1nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜

Part No 标准型号	φ(mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
DCX1201	12.7	20	20.01	4	2	18.6
DCX1202	12.7	25	25.28	3.6	2	23.8
DCX1203	12.7	30	30.52	3.3	2	28.9
DCX1204	12.7	40	40.95	3	2	39
DCX1301	25.4	25.4	24.71	9	2	22.2
DCX1314	25.4	35	35.09	6.8	2	32.8
DCX1315	25.4	40	40.4	6.1	2	37.9
DCX1302	25.4	50	50.92	5.2	2	48.3
DCX1316	25.4	60	61.4	4.7	2	58.5
DCX1303	25.4	75	77.04	4.1	2	73.6
DCX1304	25.4	100	103.05	3.6	2	98.8
DCX1305	25.4	125	129.02	3.3	2	123.9
DCX1306	25.4	150	154.97	3	2	149
DCX1307	25.4	200	206.84	2.8	2	199
DCX1308	25.4	250	258.7	2.6	2	249.1
DCX1309	25.4	300	310.55	2.5	2	299.2
DCX1310	25.4	400	413.8	2.4	2	399
DCX1311	25.4	500	517.91	2.3	2	499.2
DCX1312	25.4	750	774.3	2.3	2	748.8
DCX1313	25.4	1000	1036.23	2.2	2	999.3

平凹透镜 / Plano Concave Lens

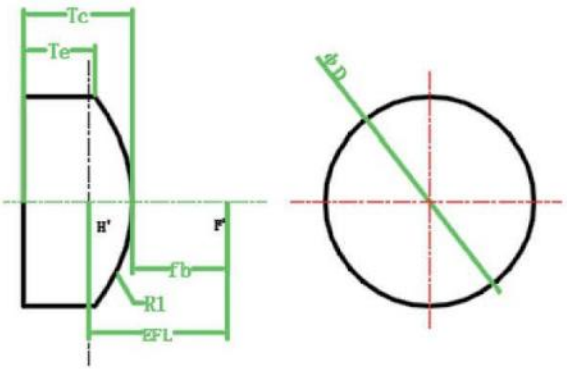


标准型号 Part No	φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
PCV1201	12.7	-15	-7.78	5.3	2	-16.3
PCV1202	12.7	-20	-10.37	4.1	2	-21.3
PCV1203	12.7	-25	-12.96	3.7	2	-26.3
PCV1204	12.7	-30	-15.55	3.4	2	-31.3
PCV1205	12.7	-40	-20.73	3	2	-41.3
PCV1206	12.7	-50	-25.92	2.8	2	-51.3
PCV1301	25.4	-25	-12.97	10.9	2	-26.3
PCV1302	25.4	-35	-18.14	7.2	2	-36.3
PCV1303	25.4	-50	-25.92	5.3	2	-51.3
PCX1305	25.4	-75	-38.87	4.1	2	-76.3
PCX1306	25.4	-100	-51.83	3.6	2	-101.3
PCX1307	25.4	-150	-77.75	3	2	-151.3
PCX1308	25.4	-200	-103.66	2.7	2	-201.3

技术指标 / Specifications

材料 Material	BK7
设计波长 Design Wavelength	546.1nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜

平凸透镜 / Plano Convex Lens



标准型号 Part No	φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
PCX1201	12.7	15	7.78	5.3	2	11.5
PCX1202	12.7	20	10.37	4.2	2	17.2
PCX1203	12.7	25	12.96	3.7	2	22.6
PCX1204	12.7	30	15.55	3.4	2	27.8
PCX1205	12.7	40	20.73	3	2	38
PCX1206	12.7	50	25.92	2.8	2	48.2
PCX1207	20	35	18.155	4.2	1.2	32.2
PCX1208	20	40	20.73	4.5	1.9	37
PCX1209	20	50	25.936	4	2	47.4
PCX1303	25.4	50	25.92	5.3	2	46.5
PCX1309	25.4	60	31.1	4.7	2	56.9
PCX1304	25.4	75	38.87	4.1	2	72.3
PCX1305	25.4	100	51.83	3.6	2	97.6
PCX1306	25.4	125	64.79	3.3	2	122.8
PCX1307	25.4	150	77.75	3	2	148
PCX1308	25.4	200	103.66	2.8	2	198.2

技术指标 / Specifications

材料 Material	BK7
设计波长 Design Wavelength	546.1nm
尺寸公差 Diameter Tolerance	+0.0 , -0.15mm
焦距公差 Paraxial Focal Length Tolerance	+/-2%
偏心 Centration	3 arc minute
通光口径 Clear Aperture	>85%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	60/40 Scratch/Dig
倒角 Bevel	0.25mm*45°
镀膜 Coating	Uncoated 不镀膜

偏振分光棱镜
POLARIZING BEAM SPLITTER(PBS)

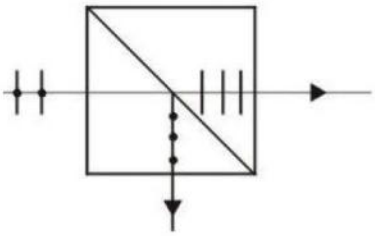
偏振分光棱镜 / Polarizing Beam Splitter

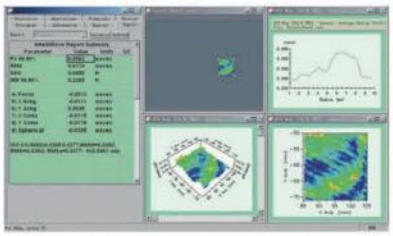
产品说明 / Product Description

偏振分光棱镜是常用的一种偏振器件，可以将入射光分成两束偏振方向互相垂直的线偏振光，其中一束出射光沿着入射方向，另一束出射光和入射光成 90 度夹角。棱镜端面镀增透膜，斜面镀制分光膜。

Polarizing Cube Beamsplitters split randomly polarized beams into two orthogonal, linearly, polarized components-S-polarized light is reflected at a 90deg. Angle while P-polarized light is transmitted. Each beamsplitter consists of a pair of precision high tolerance right angle prisms cemented together with a dielectric coating on the hypotenuse of one of prisms.

Currently. as coating technologies and assembly techniques have improved, so there are many types of polarizing beamsplitter cubes can be provided in the market. Dayoptics has own technology in providing two types of high precision polarizing beamsplitter cube. One is by using cemented method for PBS (as standard PBS), the other one is using optical bonding method for the interface of PBS (as high power PBS). The comparison specification of two PBS as following for your reference.





技术指标 / Specifications

	标准偏振分光棱镜 Standard PBS	高功率偏振分光棱镜 High Power PBS
界面 Interface Surface	Cemented 胶合	Optical Bonded 光胶
损伤阈值 @1064nm Damage Threshold@1064nm	0.3J/cm2	>15J/cm2
光束偏离 Beam Deviation	< 3'	< 3'
面形 Flatness	L/4	L/8
透过率 @1064nm Transmission@1064nm	Tp>95%	Tp>97%;Tp>96% @355nm
光洁度 Surface Figure	60/40 Scratch/Dig	40/20(20/10)Scratch/Dig
消光比 Extinction Ratio	>500:1	>1000:1

高功率偏振分光棱镜 / High Power Polarization Beam Splitter

产品说明 / Product Description

福建戴斯光电有限公司致力于生产和销售各种波段的高功率偏振分光棱镜，采用独特的光学胶合技术、高性能的镀膜设计，使其能够应用于大功率、高消光比的激光系统中。

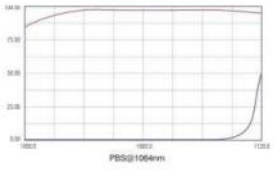
Dayoptics is dedicated to producing various High Power PBS. Compare to traditional PBS, it adopts special optical contacted technology which makes it has higher laser damage threshold and applied to high power and higher extinction ratio laser systems.

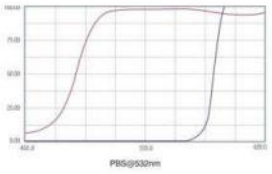
技术指标 / Specifications

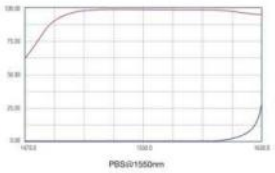
高损伤阀值 High damage threshold	~15 J/cm2@1064nm 20ns,20Hz
胶合方式 Cement Mode	Epoxy-freel Optical Contacted 光路无胶
消光比 Extinction Ratio	>30dB for 1064nm
透过参数 Transmission Parameter	Tp>97%@ 中心波长；Tp>96%@355nm
光洁度 Surface Quality	20*10
标准产品波长 Wavelength Range	1064nm+/-20nm(MAT.：BK7) 1550nm+/-25nm(MAT.：BK7) 532nm+/-20nm(MAT.：BK7) 355nm+/-7nm(MAT：fused silica)

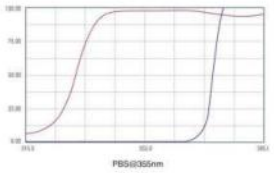
单波长 / Single Wavelength

标准型号 Standard Model	尺寸 Size
PBS206-HP	6.35*6.35mm+/-0.1
PBS212-HP	12.7*12.7mm+/-0.2
PBS225-HP	25.4*25.4mm+/-0.2

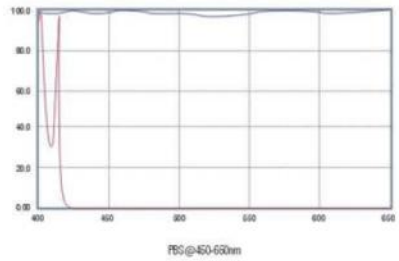




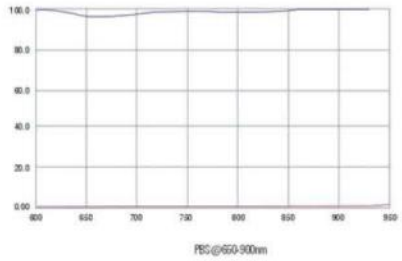




宽带的高功率偏振分光棱镜 / Broadband High Power Polarization Beam Splitter



PBS@450-650nm



PBS@650-900nm

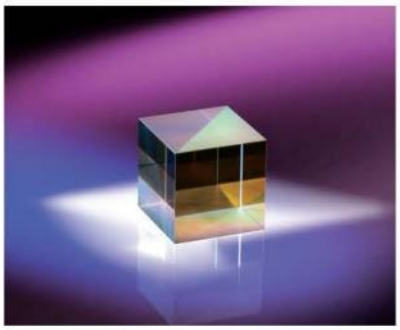
技术指标 / Specifications

高损伤阈值 High Damage Threshold	>3-5 J/cm2@1064nm 20ns,20Hz
胶合方式 Cement Mode	Epoxy-freel Optical Contacted 光路无胶
消光比 Extinction Ratio	>30dB
光束偏折 Beam Deviation	<3'
透过平均值 Transmission Average	Tavg>92%
面形 Surface Figure	λ/4@633nm
光洁度 Surface Quality	40/20
标准产品波长 Wavelength Range	450-650,650-900,900-1200,1200-1600nm

宽带 / Broadband

标准型号 Standard model	尺寸 size
PBS506-HP	6.35*6.35mm+/-0.1
PBS512-HP	12.7*12.7mm+/-0.2
PBS525-HP	25.4*25.4mm+/-0.2

标准偏振分光棱镜 / Polarization Cube Beam Splitter



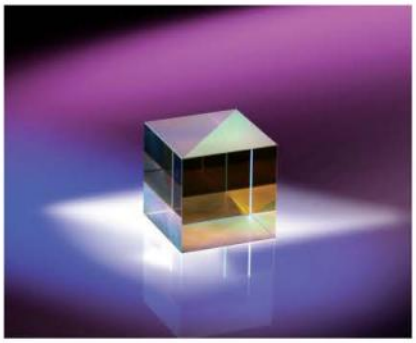
技术指标 / Specifications

尺寸公差 Dimension Tolerance	+/-0.2mm
界面 Interface	By epoxy 环氧
面形 Flatness	λ/4@632.8nm per 25mm
光洁度 Surface Quality	40/20 scratch and dig
消光比 Extinction Ratio	Tp:Ts>500:1
光束偏折 Beam Deviation	<3 arc minutes
透过参数 Transmission Parameter	>95%
有效口径 Clear Aperture	>85%
镀膜 Coatings	Polarization beamsplitter coating on hypotenuse face,AR-coatings(R<0.25%) on all input and output face
标准产品波长 Standard Coating Wavelength	488, 532, 632.8, 808, 980, 1064, 1310, 1550nm

单波长 / Single Wavelength

标准型号 Standard model	尺寸 size
PBS206	6.35*6.35mm+/-0.1
PBS212	12.7*12.7 mm +/-0.2
PBS225	25.4*25.4mm+/-0.2

宽带的标准偏振分光棱镜 / Broadband PBS



技术指标 / Specifications

尺寸公差 Dimension Tolerance	+/-0.2mm
界面 Interface	By epoxy
面形 Flatness	λ/4@632.8nm per 25mm
光洁度 Surface Quality	40/20 Scratch /Dig
消光比 Extinction Ratio	Tp:Ts>500:1
光束偏折 Beam Deviation	<3 arc minutes
透过参数 Transmission Parameter	>92%
有效口径 Clear Aperture	>85%
镀膜 Coatings	Polarization beamsplitter coating on hypotenuse face,AR-coatings(Ravg<1%)on all input and output face
标准产品波长 Standard Coating Wavelength	450-650, 650-900, 900-1200, 1200-1600nm

宽带 / Broadband

标准型号 Standard Model	尺寸 Size
PBS506	6.35*6.35mm+/-0.1
PBS512	12.7*12.7 mm +/-0.2
PBS525	25.4*25.4mm+/-0.2

窗片 WINDOW

窗片概述 / Windows

产品说明 / Product Description

光学窗口片是由相对平行的精磨面和抛光面组成的光学玻璃，它被用于隔离两个物理环境而允许光通过，经常应用在投影系统、成像系统、光学测量系统。福建戴斯光电提供各种类型的窗口，不同尺寸和材料的窗口可按客户需求定制。

Windows ,which consists of two relatively parallel precision grinding and polishing sides,are applied to isolate two different physical environments while allowing light to pass through. Dayoptics offer all kinds of windows,which are made from different materials.Windows of special sizes and materials are available upon requirement.Single layer or multiplayer anti-reflecting coatings on optical windows are available upon customers requirement.

技术指标 / Specifications

	BK7 BK7 Windows	融石英 Fused Silica Windows	蓝宝石 Sapphire
尺寸公差 Diameter Tolerance	+0.0，-0.1mm	+0.0，-0.1mm	+0.0，-0.2mm
厚度公差 Thickness Tolerance	+/-0.2mm	+/-0.2mm	+/-0.2mm
有效口径 Clear Aperture	>80%	>80%	>85%
平行度 Parallelism	1'（Standard）（普通） 10"（High Precision）（高精度）	1'（Standard） 10"（High Precision）	1'
光洁度 Surface Quality	60/40（Standard）（普通） 20/10（High Precision）（高精度）	60/40（Standard）	60/40 （Standard）
波前 Wavefront Distortion	λ/4(Standard)（普通） λ/10（High Precision）per 25mm@633nm（高精度）	λ/4(Standard) λ/10（High Precision）per 25mm@633nm	λ@633nm
倒角 Bevel	<0.25mm*45°	<0.25mm*45°	<0.25mm*45°
镀膜 Coatings	Uncoated 不镀膜	Uncoated 不镀膜	Uncoated 不镀膜

注：镀膜可根据客户要求
Note:We can make coatings as your requirement.

BK7 Windows

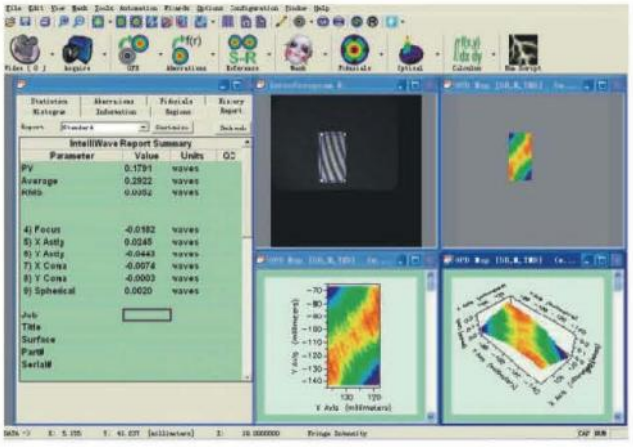
标准型号 Part No.	尺寸 (mm) Diameter (mm)	厚度 (mm) Thickness (mm)
WIN0101	10	3
WIN0102	12.7	3
WIN0103	25.4	3
WIN0104	10	6.35
WIN0105	12.7	6.35
WIN0106	25.4	6.35

融石英 Fused Silica Windows

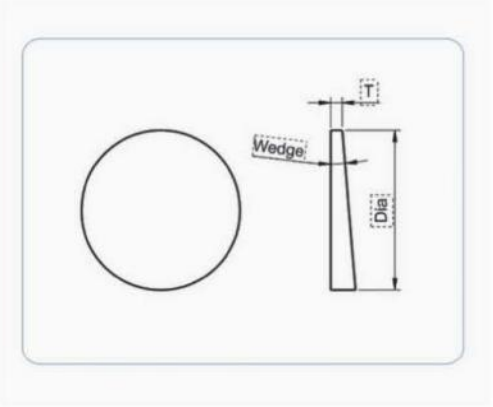
标准型号 Part No.	尺寸 (mm) Diameter (mm)	厚度 (mm) Thickness (mm)
WIN0201	10	3
WIN0202	12.7	3
WIN0203	25.4	3
WIN0204	10	6.35
WIN0205	12.7	6.35
WIN0206	25.4	6.35

蓝宝石 Sapphire Windows

标准型号 Part No.	尺寸 (mm) Diameter (mm)	厚度 (mm) Thickness (mm)
WIN0301	5.5	0.5
WIN0302	8.5	0.5
WIN0303	9.5	0.5
WIN0304	10	1
WIN0305	12.7	1
WIN0306	25.4	1



楔角窗片 / Wedges



技术指标 / Specifications

材料 Material	BK7,Fused Silica 融石英
尺寸公差 Diameter Tolerance	+0.0/-0.2mm
厚度公差 Thickness Tolerance	+/-0.1mm
通光口径 Clear Aperture	>80%
面形 Surface Figure	λ/4@632.8nm
光洁度 Surface Quality	40/20 scratch/dig
倒角 Bevel	0.25mm*45°
角度公差 Angle Tolerance	+/-3′

BK7 wedges

标准型号 Part No.	尺寸（mm）Diameter（mm）	厚度（mm）Thickness（mm）	楔角（°）Wedge（°）
WED1101	12.7	3	3
WED1201	12.7	3	0.5
WED1301	25.4	3	3
WED1401	25.4	3	0.5

融石英 Fused Silica wedges

标准型号 Part No.	尺寸（mm）Diameter（mm）	厚度（mm）Thickness（mm）	楔角（°）Wedge（°）
WED2101	12.7	6.35	3
WED2201	12.7	6.35	0.5
WED2301	25.4	6.35	3
WED2401	25.4	6.35	0.5

反射镜 MIRROR

技术指标 / Specifications

材料 Material	BK7, Fused Silica
尺寸 Dimension	2x2mm~50X50mm
损伤阈值 Damage Threshold	>10KW/cm2 for 1064nm
工作温度 Operation Temperature	-40℃ ~ 80℃
镀膜 Coating	R>99.9%@wavelength, AOI=0° or 45° R>97%@ UV wavelength, AOI=0° or 45°
光洁度 Surface Quality	20-10
面型 Flatness	每英寸 1/8 λ
波长 Wavelength	266nm,355nm,532nm,780nm,915nm,976nm,1064nm,1550nm, etc

标准型号 PartNo	材料 Material	尺寸 Dimension	波长 Wavelength
MIR10003	H-BK7	4*3-0.5	800-1100
MIR10007	H-K9L	2*6-0.5	HR@900-1000
MIR10008	H-K9L	6*6-0.5	HR@900-1000
MIR10022	H-K9L	3*1.85-0.7	780-1080
MIR10023	H-K9L	6*6-1	HR@780-990
MIR10024	H-K9L	7*10-1	HR@965-990
MIR10025	H-K9L	4.35*2.7-1	HR@965-985
MIR10026	H-K9L	4.35*3.145-1	HR@965-985
MIR10027	H-K9L	4.35*3.595-1	HR@965-985
MIR10028	H-K9L	7*10-1	HR@965-985
MIR10029	H-K9L	8*2.91-1	HR@890-1000
MIR10030	H-K9L	4.5*1.5-0.7	HR@900-990
MIR10034	H-K9L	3*1.85-0.7	HR@900-990
MIR10035	H-K9L	10*8-2	HR@790-990
MIR10036	H-K9L	3*1.85-0.7	HR@780-850
MIR10037	H-K9L	10*7-1	HR@965-990
MIR10039	H-K9L	6*5.8-1	HR@780-980
MIR10040	H-K9L	6*3-0.5	HR@900-1000
MIR10041	H-K9L	5*2.4-1	HR@790-990
MIR10044	H-K9L	4.5*1.5-0.7	HR@780-880
MIR10045	H-K9L	6*6-1	HR@780-980
MIR10048	H-K9L	3*2-0.7	HR@970-1070
MIR10049	C7980	3*3-2	HR@400-650
MIR10050	C7980	34.8*11.6-6	HR@400-650
MIR10051	C7980	34.8*25-6	HR@400-650
MIR10052	C7980	12*4-2	HR@400-650
MIR10053	C7980	4*4-0.8	HR@910-980
MIR10054	C7980	8*8-0.8	HR@910-980
MIR10055	H-K9L	φ20-5	HR1064
MIR10057	H-K9L	5*2-0.5	HR@800-1100
MIR10059	H-K9L	5*2.4-1	HR@790-990
MIR10061	H-K9L	6*2-0.5	HR@1530-1570
MIR10062	H-K9L	6*6-1	HR@1054-1074
MIR10063	H-K9L	6*6-1	HR@1530-1570
MIR10065	H-K9L	Φ25.4*6	HR@527-532
MIR10066	JGS1	2.44*4-1	HR@900-1000
MIR10067	JGS1	2.44*4.2-1	HR@900-1000
MIR10069	H-K9L	5*9-1	HR@750-1100
MIR10072	JGS1	φ25.4*6	HR@527-532
MIR10073	H-K9L	20*20-4	HR@790-830
MIR10074	H-K9L	32*16-3.5	HR@950-990
MIR10075	H-K9L	5*2.4-1	HR@790-990
MIR10076	H-K9L	0.65*0.25-0.4	1527-1610
MIR10077	JGS1	φ25.4*5	HR@1020-1070
MIR10081	JGS1	φ30*6	HR515-532
MIR10083	C7980	15*20-6	1064
MIR10084	C7980	15*20-6	1064
MIR10085	H-K9L	φ12.7*6.35	HR1064
MIR10086	H-K9L	φ12.7*3	532
MIR10087	H-K9L	φ12.7*3	1064
MIR10088	JGS1	φ38.1*10	HR@1020-1080

波片 WAVEPLATE

波片总览 / Waveplate Overview

Dayoptics 标准产品 / Dayoptics Standard Products

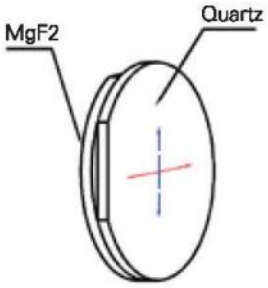
波片类型 Waveplate		产品型号 Part #	(λ/100 Bandwidth) λ/2@532nm (λ/100 精度带宽) λ/2@532nm	接收角度 Acceptance Angle	结构 Plates	标准厚度 Typical thickness	损伤阈值 Damage Threshold
Multi-order Waveplate(Quartz) 多级波片 (石英)(Can be Replaced by Low-order) (可被低级波片替代)		WPHXXXX	0.29nm (T=0.9686nm)	Low 低	Single 单片	1-2mm	1GW/cm2
Low-order Waveplate(Quartz) 低级波片 (石英)		WPLXXXX	0.92nm (T=0.3036mm)	Medium 中	Single 单片	0.2-0.5 mm	1GW/cm2
Zero-order Waveplate 零级波片 (Quartz) (石英)	Optically Contacted 光胶	WPOXXXX	19.22nm (▵T=0.0145mm)	Low 低	Double(Optical Contacted) 双片 (光胶)	~1mm	~200 MW/cm2
	Air-spaced 空气隙	WPAXXXX	19.22nm (▵T=0.0145mm)	Low 低	Double(Air Spaced) 双片 (空气隙)	~1mm	~500 MW/cm2
	Cemented 胶合	WPCXXXX	19.22nm (▵T=0.0145mm)	Low 低	DoubleCemented 双片 (胶合) (Epoxy)	~1mm	~10 MW/cm2
Achromatic Waveplate 消色差波片 (Quartz) (石英 +MgF2)		WPBXXXX	200nm	Low 低	Double 双片 (光胶或 (Optical Contacted or Air Contacted) (光胶或双片空气隙)	~2mm	~10MW/cm2
IR Waveplate		WPSXXX-M	19.22nm (T=0.022mm)	High 高	Single 单片	<0.2mm	>1GW/cm2
True Zero-order Waveplate 真正零级波片	High Power waveplate (Quartz,BK7,Fused Silica) 高功率 (石英,BK7, 融石英)	WPHXXXX	19.22nm (▵T=0.0145mm)	High 高	Double (Optical Bonding)	~1mm	>1GW/cm2
	Cemented(Quartz, BK7,Fused Silica) 胶合 (石英,BK7, 融石英)	WPFXXXX	19.22nm (▵T=0.0145mm)	High 高	Double (CementedContacted)	~1mm	~10MW/cm2
	Single Plate 单片 (Quartz)(石英)	WPSXXXX	19.22nm (▵T=0.0145mm)	High 高	Single 单片	<0.2mm	>1GW/cm2
	Single Plate 单片 (Quartz) with BK7 Holder(石英) 带有 BK7 支架	WPQXXXX	19.22nm (▵T=0.0145mm)	High 高	Single 单片 (BK7 Ring as Holder)	<0.2mm	>1GW/cm2
Double Wavelength Waveplate (Quartz) 双波长波片 (石英)		WPDXXXX	Very Small	Low 低	Single 单片	0.2-2mm	1GW/cm2
Fresnal Rhomb Retarder(Fused Silica,BK7,CaF2) 菲涅尔相位延迟器 (融石英,BK7,CaF2)		FRRXXXX	Broadband	Medium 中	Single or Double(Optical Contact or Cemented)		500MW/cm2
Polarization Rotators(Quartz) 旋光片 (石英)		WPRXXXX	20nm	High 高	Single 单片	3.33mm (90° @532nm)	1GW/cm2
IR Waveplate 红外波片		WPSXXX-M		High 高	Single 单片	<0.2mm	>1 GW/cm2

消色差波片 / Achromatic Waveplate

产品说明 / Product Description

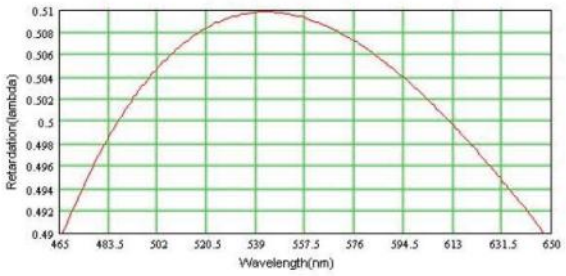
Dayoptics 生产的消色差波片由两种不同材料的双折射晶体组成，由于两种材料的色散不一样，因此可以在很宽的波长范围内实现较为均匀的相位延迟。由于消色差波片对波长的响应均匀平坦，所以可以用于可调谐激光器、多波长激光系统和其他宽带光源产品中。

Dayoptics has special designed achromatic waveplates by using two pieces of plates.It is similar to Zero-order waveplate except that the two plates are made from different materials,such as crystal quartz and magnesium fluoride.Since the dispersion of the birefringence can be different for the two materials,it is possible to specify the retardation values at a wavelength range,From the curve,you can see that the bandwidth of such achromatic waveplate is very wide ,while the achromatic waveplates remain a nearly constant retardance over a range of wavelength.

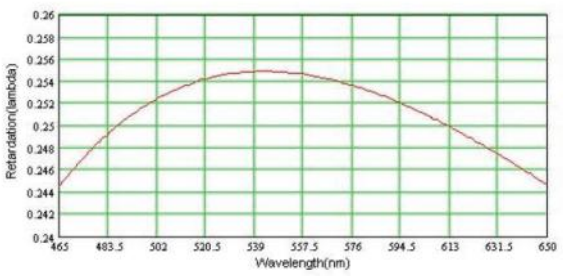


技术指标 / Specifications

材料 Material	Quartz and MgF2 石英晶体和 MgF2 晶体
透过波前 Wavefront Distortion	λ/8@633nm
尺寸公差 Dimension Tolerance	+0.0,-0.1
延迟精度 Retardation Tolerance	λ/100
平行度 Parallelism	<1 arc second
光洁度 Surface Quality	40/20 Scratch /Dig
有效口径 Clear Apterure	Central 90%
增透膜 AR Coating	Ravg<0.8% at Central Wavelength 中心波长
标准波长 Standard Wavelength	VIS 465-650nm,NIR650-1100nm,IR1000-1750m,



WPBXXXH 465-650nm



WPBXXXQ 465-650nm

光胶型消色差波片 / Optical Contacted Achromatic Waveplates

1/4 波长 Quartz Waveplate P/N#	1/2 波长 Half Waveplate P/N#	直径 (mm) Diameter(mm)
WPB210Q	WPB210H	10
WPB212Q	WPB212H	12.7
WPB215Q	WPB215H	15
WPB220Q	WPB220H	20
WPB225Q	WPB225H	25.4
WPB230Q	WPB230H	30

空气隙型消色差波片（带支架）/ Air-spaced Achromatic Waveplates

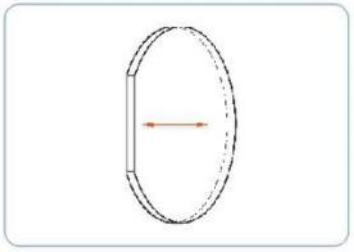
1/4 波长 Quartz Waveplate P/N#	1/2 波长 Half Waveplate P/N#	有效口径 (mm) Diameter(mm)	支架外径 (mm) holder DIA.
WPB510Q	WPB510H	10	12.7
WPB512Q	WPB512H	12.7	25.4
WPB515Q	WPB515H	15	25.4
WPB520Q	WPB520H	20	25.4
WPB525Q	WPB525H	25.4	30
WPB530Q	WPB530H	30	38.1

双波长波片 / Double Wavelength Waveplate

产品说明 / Product Description

双波长波片可以为2个波长实现所需的相位延迟，广泛应用于固体倍频激光系统中。Dayoptics生产的双波长波片标准波长：λ@1064&λ/2 @ 532nm and λ@355nm&λ/2 @ 532nm。其他波段的双波长或三波长波片我们也可以设计和制作。

Double Wavelength Waveplate is a special kind of multi-order waveplate.It can meet the required retardation at two wavelength at the same time.It widely used to improve the conversion efficiency in solid double frequency .laser device.double wavelength waveplate standard wavelength:λ@1064&λ/2 @ 532nm and λ@355nm&λ/2 @ 532nm



Better Parallelism 良好的平行度
Wide Angle Acceptance 波长带宽大
Better Temperature Bandwidth 温度带宽大
Wide Wavelength Bandwidth 视场角大
AR Coated,R<0.2% 两面镀增透膜

Standard Wavelength 标准波长：
λ@1064nm+λ/2@532nm
λ/2@1064nm+λ@532nm
λ@532nm+λ/2@355nm λ/2@532nm+λ@355nm
λ@800nm+λ/2@400nm λ/2@800nm+λ@400nm

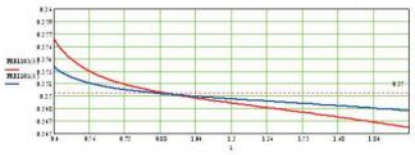
Dayoptics 标准产品 / Dayoptics Standard Products

P/ N# 型号	Diameter(mm) 直径 (mm)	Unit Price
WPD210	10	$68
WPD212	12.7	$78
WPD215	15	$88
WPD220	20	$98
WPD225	25.4	$108
WPD230	30	$118

菲涅尔相位延迟器 / Fresnal Rhomb Retarder

BK7 菲涅尔相位延迟器 / BK7 Fresnal Rhomb Retarder Specifications

材料 Material	BK7 Grade A Optical Glass A 级 BK7
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
有效口径 Clear Aperture	>80%
面形 Flatness	λ/10@632.8nm
光洁度 Surface Quality	20/10 Scratch/Dig
倒角 Bevel	0.2mm to 0.5mm
标准产品口径 Standard product Aperture	10*10mm

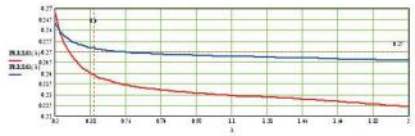


FRR1102,FRR1103 相位延迟曲线
FRR1102,FRR1103 retardation curve

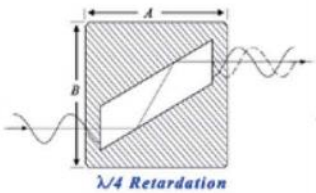
型号 Part No.	延迟参数 Ratardation	设计 Design	使用波长 Using Wavelength	支架外径尺寸 Mounted Dimension		
				A(mm)	B(mm)	H(mm)
FRR1101	λ/4	Single	400-2000nm	35	40	37
FRR1102	λ/2	Double	400-2000nm	64	40	37
FRR1103	λ/4	Double	400-2000nm	140	40	37

熔融石英 菲涅尔相位延迟器 / Fused Silica Fresnel Rhomb Retarder Specifications

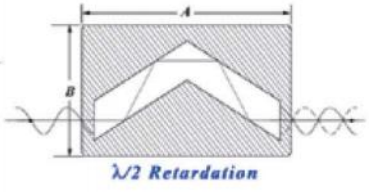
材料 Material	UV Grade Fused Silica 紫外级熔融石英
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
有效口径 Clear Aperture	>80%
面形 Flatness	λ/10@632.8nm
光洁度 Surface Quality	20/10 Scratch/Dig
倒角 Bevel	0.2mm to 0.5mm
标准产品口径 Standard product Aperture	10*10mm



FRR2102, FRR2103 相位延迟曲线
FRR2102,FRR2103 retardation curve



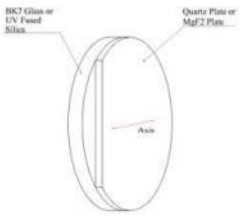
λ/4 Retardation



λ/2 Retardation

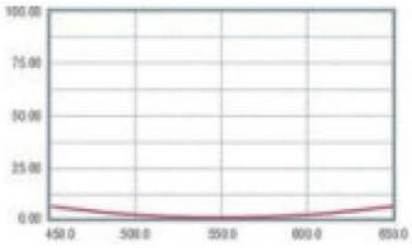
型号 Part No.	延迟参数 Ratardation	设计 Design	使用波长 Using Wavelength	支架外径尺寸 Mounted Dimension			单价 Unit Price
				A(mm)	B(mm)	H(mm)	
FRR1101	λ/4	Single	400-2000nm	35	40	37	$220
FRR1102	λ/2	Double	400-2000nm	64	40	37	$380
FRR1103	λ/4	Double	400-2000nm	140	40	37	$480

高功率波片 / High Power Waveplate

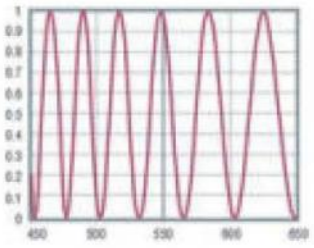


Features 特征
True Zero Order Waveplate 真正零级波片
Spectra epoxy Free 光路无胶
High damage threshold :>10J/cm2@1064nm,20ns,20Hz
高损伤阈值 :>10J/cm2@1064nm,20ns,20Hz
Wide Wavelength:400-3000nm 宽波长 :400-3000nm
Excellent UV Application 优异的紫外线应用
Great handing 良好的机械强度

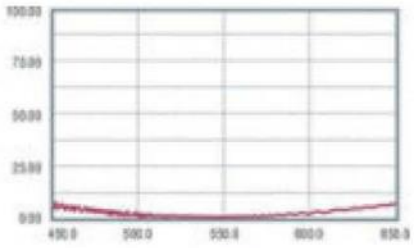
各种类型波片比较 Waveplate Comparison	高功率波片 High Power Waveplate	低级波片 Low-order Waveplate	真正零级波片（胶合 / 光胶） Zero-order waveplate (bonding /optical contact)
光诚光电产品型号 Part NO.	WPH	WPL	WPC/WPO
λ/100 光谱带宽 @532nmλ/ 100Spectra Bandwidth@532nm	9.16nm	0.51nm	9.16nm
λ/100 温度带宽ᐞ Tλ/100Temperture Bandwidth ᐞ T	230.56k	12.13k	230.56k
接收角度 Acceptance Angle	11.37°	2.63°	11.37°
损伤阈值 @1064nm,10ns,20Hz Damage Threshold@1064nm,10ns,20Hz	>10J/cm2	>10J/cm2	~0.1J/cm2（WPC） ~2J/cm2(WPO)
消光比 Extinction Ratio	High	High	Low



High Power Waveplate



Low-order Waveplate



Zero-order Waveplate

Dayoptics 标准产品 / Dayoptics Standard Products

Advantages of High Power Waveplate
a.Compare with WPL,WPH has better bandwidth ,retardance accuracy and temperature stability .
b.Based on unique optical bonding technology,WPH has higher damage threshold and better extinction ratio which compared with WPO or WPC.
c.The thickness of WPH is more suitable for handing compare with single plate true zero order waveplate,which is easy to be damaged.

* 高功率波片的优点
a). 与低级波片相比，高功率波片使用带宽更大、延迟精度高、温度稳定性好
b). 基于特殊的光胶技术，高功率波片具有很高的激光损伤阈值和消光比
c). 高功率波片与真零级波片相比，具有更大的机械强度

1/4 波片 Quarter Waveplate Part No.	1/2 波片 Half Waveplate Part No.	直径 Diameter	Unit Price
WPH210Q	WPH210H	10	$86
WPH212Q	WPH212H	12.7	$95
WPH215Q	WPH215H	15	$102
WPH220Q	WPH220H	20	$115
WPH225Q	WPH225H	25.4	$128
WPH230Q	WPH230H	30	$158

支架 / Holders

型号 P/N#	直径 (mm) Diameter(mm)	厚度 (mm) Thickness(mm)	口径 (mm) Aperture(mm)	有效口径 (mm) CA(mm)	单价 Unit Price
WH2510	12.7	6	10	8	$6
WH2512	25.4	6	12.7	10	$6.50
WH2515	25.4	6	15	12.7	$7
WH3020	30	6	20	18	$8
WH3025	30	6	25.4	22.8	$8.50
WH3830	38.1	6	30	27	$9

Holders for Waveplates 波片支架

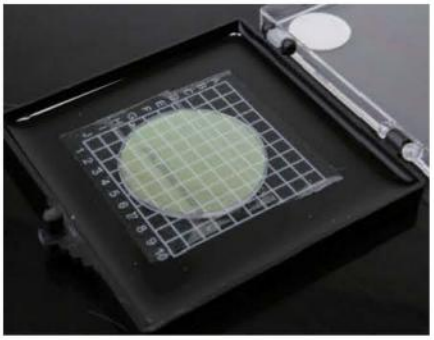
Specifications 技术指导：
Material:Black anodized aluminum 材料：硬铝，表面发黑
Diameter Tolerance:+0/-0.2mm 尺寸公差：+0/-0.2mm
Thickness Tolerance:+/-0.1mm 厚度公差：+/-0.1mm

旋转支架 / Holders For Waveplates

型号 P/N#	宽 Width	高 Height	厚 Length	内圈直径 Diameter (ring holder)	内圈厚度 Thickness (ring holder)
WRH25	40	60	10	25.4	6
WRH30	45	63	10	30	6

Material: Black anodized aluminum 材料：硬铝，表面发黑
Rotation Tolerance:<5° 旋转刻度：<5°
Diameter Tolerance:+0/-0.1mm 尺寸公差：+0/-0.1mm

红外波片 / IR Waveplate



技术指标 / Specifications

尺寸公差 Dimension	+0.0,-0.2mm
有效口径 Clear Aperture	>90%
面形 Wavefront Distortion	λ/8@633nm
光洁度 Surface Quality	40/20 Scratch/Dig
延迟精度 Retardation Tolerance	λ/300
平行度 Parallelism	< 1"
镀膜 Coating	R<0.5% @ central wavelength 中心波长

标准波长 Standard Wavelength：
λ/2： 3500nm，4000nm，4500nm，5000nm，5500nm，6000nm，6500nm，7000nm

λ/4： 3500nm，4000nm，4500nm，5000nm，5500nm，6000nm，6500nm，7000nm

Dayoptics 标准产品 / Dayoptics Standard Products(Without Holder)

P/N#1/4 波片 Quarter Waveplates	P/N#1/2 波片 Half Waveplates	直径 (mm) Diameter (mm)
WPS212Q-M	WPS212H-M	12.7
WPS220Q-M	WPS220H-M	20
WPS225Q-M	WPS225H-M	25.4

备注： 单片真正零级波片，对于 1/4 波片如果厚度太薄的话，我们会采用真正 1 级波片，具体数据向 sales@dayoptics.com 询问。
提供配套的标准支架。

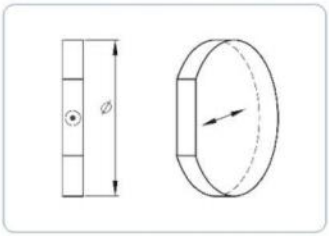
PS: as regards the true zero order quarter waveplate,if the thickness is too thin,we will do the one-order waveplate.More detail information,please send the mail to us:sales@dayoptics.com.

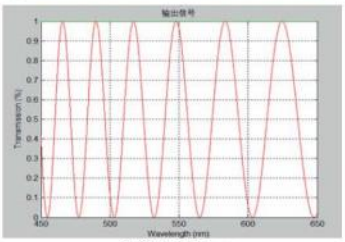
低级波片 / Low Order Wavepalte

产品说明 / Product Description

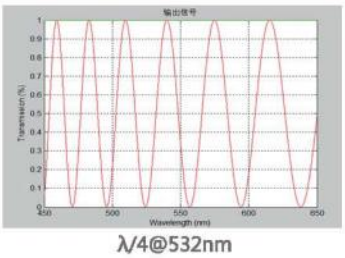
低级波片由单片石英晶体加工而成，对设计波长产生几个级次的相位延迟。厚度一般在 0.3mm 左右，波长带宽较窄，温度稳定性和视场角不如零级波片。可用于单色性很好的光源系统中。

The low-level waveplate is fabricated from a single quartz crystal, which generates several orders of phase Retardation for the designed wavelength. Generally, the thickness is about 0.3 mm, the wavelength bandwidth is narrower, the temperature stability and field of view angle are not as good as zero-order waveplate. It can be used in light source system with good monochromaticity.





λ/2@532nm



λ/4@532nm

技术指标 / Specifications

材料 Material	石英晶体 Quartz
尺寸公差 Dimension Tolerance	+0.0,-0.1
透过波前 Wavefront Distortion	λ/8@633nm
相位延迟精度 Retardation Tolerance	λ/60-λ/150(λ<400nm) λ/150-λ/350(400nm<λ<700nm) λ/350-λ/600(λ>700nm)
平行度 Parallelism	<1 arc second
光洁度 Surface Quality	20/10scratch /dig
有效口径 Clear Apterure	Central 90%
镀膜指标 AR Coating	<0.2%@wavelength
支架 Holder	Refer to <<Holders for waveplate>>

标准波长 Standard Wavelength:
266nm, 355nm, 632.8nm, 780nm, 808nm, 980nm, 1064nm, 1310nm, 1550nm

标准产品 / Dayoptics Standard Products(Without Holder)

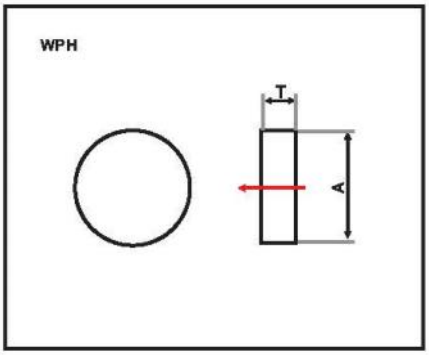
Quartz Waveplate P/N#	Half Waveplate P/N#	Diameter(mm)	Unit Price
WPL210Q	WPL210H	10	$45
WPL212Q	WPL212H	12.7	$52
WPL215Q	WPL215H	15	$65
WPL220Q	WPL220H	20	$75
WPL225Q	WPL225H	25.4	$85
WPL230Q	WPL230H	30	$95

偏振旋转片 / Polarization Rotators

产品说明 / Product Description

偏振旋光片由 Z 切的石英晶体制成，利用石英晶体的旋光特性，旋光片能够使入射的偏振光的偏振面发生旋转，旋转的角度和晶体的厚度有关，旋转方向目前有左旋和右旋两种可以选择。

Polarization rotators offer 45 ° to 90 ° rotation at a number of common laser wavelengths.The optical axis in polarization rotator is perpendicular to the polished face.The result is that the orientation of in put linearly polarized light is rotated as it propagates through the device.



使用波段：200-2300nm
优异的光学性能
增透膜：R<0.2%
产品尺寸：1 ~ 100mm
标准波长：532nm、632.8nm、1064nm
Specifications
Using wavelength:200-2300nm
Excellent optical performance
AR Coated,R<0.2%
Standard Wavelength:
532nm,632.8nm,1064nm

标准产品/Dayoptics Standard Products(Without Holder)

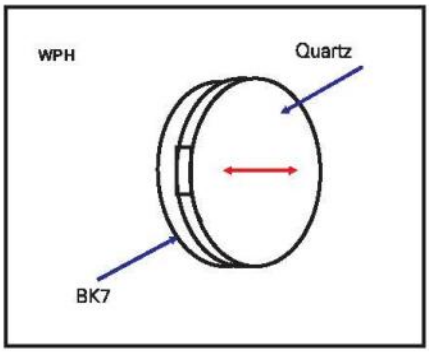
P/ N#1/4 波长 Quarter Waveplate	直径 (mm) Diameter(mm)	旋转角度 Rotation Angle
WPR4512	12.7	45°
WPR4515	15	45°
WPR4520	20	45°
WPR4525	25.4	45°
WPR9012	12.7	45°
WPR9015	15	45°
WPR9020	20	45°
WPR9025	25.4	45°

真正零级波片 –WPQ / True Zero Order Waveplate-WPQ

产品说明 / Product Description

WPQ 是我们的新产品，是单片真正零级波片装在环形玻璃支架上，光只通过石英材料，光路无胶。该波片能满足较高的损伤阈值和更好的平行度要求。支架可根据客户要求设计。

WPQ is our new product,true zero order waveplate single waveplate on annual glass frames,the ray only through the quartz,epoxy free.It can meet high damage threshold and better parallelism.The frames can be designed by different requirement.



标准波长 Standard Wavelength:
λ/4:532nm，632.8nm，780nm,808nm,980nm,1064nm,
1310nm,1480nm,1550nm

λ/2:532nm，632.8nm，780nm,808nm,980nm,1064nm,
1310nm,1480nm,1550nm

Dayoptics 标准产品 / Dayoptics Standard Products

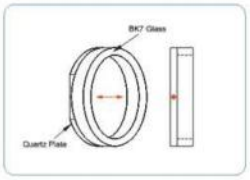
1/4 波片 Quarter Waveplate P/ N#	1/2 波片 Half Waveplate P/ N#	直径 (mm) Diameter(mm)
WPF210Q	WPF210H	10
WPF212Q	WPF212H	12.7
WPF215Q	WPF215H	15
WPF220Q	WPF220H	20
WPF225Q	WPF225H	25.4
WPF230Q	WPF230H	30

真正零级波片 / True Zero Order Waveplate

产品说明 / Product Description

胶合真零级波片由单片石英晶体真零级波片和 K9 基板胶合而成。石英晶体为非常薄的真正零级厚度，K9 基板用于增加其机械强度。

The bonded true zero-order wave plate is composed of a single quartz crystal true zero-order wave plate and a K9 substrate. Quartz crystal is very thin and true zero-order thickness. K9 substrate is used to increase its mechanical strength.



标准波长 Standard Wavelength:
λ/4: 1310nm, 1480nm, 1550nm
λ/2: 980nm, 1064nm, 1310nm,1480nm, 1550nm

标准产品 /Dayoptics Standard Products(Without Holder)

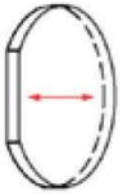
P/ N#1/4 波片 Quarter Waveplate	P/ N#1/2 波片 Half Waveplate	直径 (mm) Diameter(mm)
WPQ210Q	WPQ210H	10
WPQ212Q	WPQ212H	12.7
WPQ215Q	WPQ215H	15
WPQ220Q	WPQ220H	20
WPQ225Q	WPQ225H	25.4
WPQ230Q	WPQ230H	30

单片的真正零级波片 / Single True Zero Order Waveplate

产品说明 / Product Description

与胶合真零级波片相比，单个真零级波片仅由一块石英晶体组成，主要用于近红外波段。

Compared with bonded true zero-order waveplates, single true zero-order waveplates consist of only one piece of quartz crystal and are mainly used in near infrared bands.



标准波长 Standard Wavelength:
λ/4: 1310nm, 1480nm, 1550nm
λ/2: 980nm, 1064nm, 1310nm,1480nm, 1550nm

标准产品 /Dayoptics Standard Products(Without Holder)

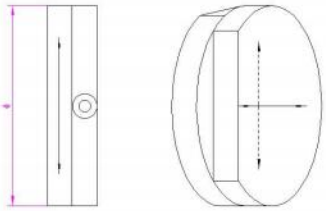
P/ N#1/4 波片 Quarter Waveplate	P/ N#1/2 波片 Half Waveplate	直径 (mm) Diameter(mm)
WPS210Q	WPS210H	10
WPS212Q	WPS212H	12.7
WPS215Q	WPS215H	15
WPS220Q	WPS220H	20
WPS225Q	WPS225H	25.4
WPS230Q	WPS230H	30

零级波片 / Zero Order Waveplate

产品说明 / Product Description

零级波片一般由两片石英晶体组成，两片晶体的厚度差产生所需波长的零级相位延迟。零级波片比低级波片具有更高的相位延迟精度，并对温度不敏感，使用带宽也更大。零级波片可用于精密的光学系统中。

The zero order waveplate is designed to give a retardance of zero full waves, plus the desired fraction.Zero order waveplate shows better performance than multiple order wavepalte.It has broad bandwidth and a lower sensitivity to temperature and wavelength changes.It should be considered for more critical applications.



技术指标 / Specification

材料 Material	石英 Quartz
尺寸公差 Dimension Tolerance	+0.0,-0.1
透过波前 Wavefront Distortion	<λ/8@633nm
延迟精度 Retardation Tolerance	λ/60-λ/150(λ<400nm) λ/150-λ/350(400nm<λ<700nm) λ/350-λ/600(λ>700nm)
平行度 Parallelism	<1 arc second
光洁度 Surface Quality	20/10scratch /dig
有效口径 Clear Apterure	中心 /Central 90%
增透膜 AR Coating	<0.2%@wavelength
支架 Holder	参考“支架和波片” Refer to<<Holders for waveplate>>

Note:wavelengths within the range of 240-2300nm are also available upon request.
注：在 240-2300nm 波长范围内皆可定做

Zero Order Waveplates Optically Contacted/ 光胶型零级波片
Optically Contacted/ 光胶
AR Coated,R<0.2%/l 两面镀增透膜
High Damage Threshold / 高损伤阀值
Better Temperature Bandwidth/l 温度带宽大
Wide Wavelength Bandwidth/l 波长带宽大

标准波长 StandardWavelength：:266nm,355nm,532nm,632.8nm,780nm,808nm,850nm,980nm,1064nm,1310nm,1480nm,1550nm

Dayoptics 标准产品（无支架）/ Dayoptics Standard Products(Without Holder)

P/N#/1/4 波长 Quartz Waveplate	P/N#/1/2 波长 Half Waveplate	直径 (mm Diameter(mm)	单价 Unit Price
WPO210Q	WPO210H	10	$75
WPO212Q	WPO212H	12.7	$82
WPO215Q	WPO215H	15	$88
WPO220Q	WPO220H	20	$92
WPO225Q	WPO225H	25.4	$108
WPO230Q	WPO230H	30	$128
WPL230Q	WPL230H	30	$95

ZERO ORDER WAVEPLATE
Zero Order Waveplate Air-spaced 空气隙型零级波片
Double Retardation Plates 双片空气隙设计
AR Coated,R<0.2% and Mounted 双面镀增透膜,装支架
High Damage Threshold 高损伤阀值
Better Temperature Bandwidth 温度带宽大
Wide Wavelength Bandwidth 波长带宽大

Dayoptics 标准产品 / Dayoptics Standard Products

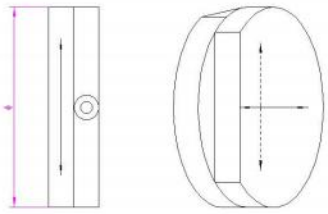
P/N#1/4 波片 Quartz Waveplates	P/N#1/2 波片 Half Waveplates	Waveplate Aperture(mm) 口径 (mm)	支架直径 (mm) Mount Diameter(mm)	Mount Thickness 支架厚度 (mm)	单价 Unit Price
WPA210Q	WPA210H	10	25.4	6	$85
WPA212Q	WPA212H	12.7	25.4	6	$92
WPA215Q	WPA215H	15	25.4	6	$98
WPA220Q	WPA220H	20	30	6	$108
WPA225Q	WPA225H	25.4	30	6	$118
WPA230Q	WPA230H	30	38.1	6	$138

胶合零级波片 / Zero Order Waveplates Cemented By Epoxy

产品说明 / Product Description

胶合型零级波片由两片光轴互相垂直的多级波片胶合而成的，因此其中一片的相位延迟被另一片相抵消，实际的位相变化是由它们厚度差产生的。因此可以适合生产任何波长和位相差的波片。

This type of zero order waveplate is constructed of two multiple order waveplate with their axes crossed.Thus the effect of the first plate is canceled by the second ,except for the residual difference between them.



Better Temperature Bandwidth 温度带宽大
Wide Wavelength Bandwidth 波长带宽大
AR Coated,R<0.2% 两面镀增透膜

Dayoptics 标准产品（不带支架）Dayoptics Standard Products(Without Holder)

P/N#/1/4 波长 Quartz Waveplate	P/N#/1/2 波长 Half Waveplate	直径 (mm Diameter(mm)	单价 Unit Price
WPC210Q	WPC210H	10	$72
WPC212Q	WPC212H	12.7	$80
WPC215Q	WPC215H	15	$86
WPC220Q	WPC220H	20	$90
WPC225Q	WPC225H	25.4	$106
WPC230Q	WPC230H	30	$126
WPL230Q	WPL230H	30	$95

格兰棱镜 POLARIZER

格兰总览 / Polarizers Overview

名称 Polarizer	损伤阈值 Damage Threshold	分界面 Interface	透过 Transmission	型号 Part #	材料 Material	波长 Wavelength (nm)	消光比 Extinction Ratio	视场角 Angular Field(°)
Glan-Laser Polarizer(PGL) 格兰激光棱镜	High Power 高功率 500MW/cm2(with escape windows)	Air-space 空气隙	Medium 中	PGL7***	Calcite	350-2300	<5*10-5	>7.7
				PGL6***	α-BBO	190-3500	<5*10-6	>6.0
				PGL8***	YVO4	500-4000	<5*10-6	>6.5
Glan-Taylor Polarizer(PGT) 格兰泰勒棱镜	Low to Medium 中低功率 200MW/cm2(without escape windows)	Air-space 空气隙	Medium 中	PGT7***	Calcite	350-2300	<5*10-5	>7.7
				PGT6***	α-BBO	190-3500	<5*10-6	>6.0
				PGT8***	YVO4	500-4000	<5*10-6	>6.5
High Transmission Glan-Laser Polarizer(PGH) 高透过率格兰激光棱镜	High Power 高功率 500MW/cm2(with escape windows)	Air-space 空气隙	High 高	PGH7***	Calcite	350-2300	<5*10-5	>7.7
				PGH8***	YVO4	500-4000	<5*10-6	>6.0
Glan-Thompson Polarizer(PGL) 格兰汤普森棱镜	Low Power 低功率 100MW/cm2	Cemented 胶合	Medium 中	PGM71**	Calcite	350-2300	<5*10-5	14-16
				PGM72**	Calcite	350-2300	<5*10-5	25-28
				PGM6***	α-BBO	220-900	<5*10-6	>15
Glan-Thompson Polarizer 格兰汤普森棱镜 Beamsplitter Cube (PGB) 格兰汤普森分束棱镜	Low to Medium 中低功率 150MW/cm2	Cemented 胶合	Medium 中	PGB7***	Calcite	350-2300	<5*10-5	14-16
Wollaston Polarizer(PWS) 渥拉斯通棱镜	Medium Power 中功率 200MW/cm2	Optical Contact 光胶	High 高	PWS6***	α-BBO	190-3500	<5*10-6	15-27
				PWS9***	Quartz	200-2300	<5*10-5	
	Low Power 低功率 100MW/cm2	Cemented 胶合	High 高	PWS7***	Calcite	350-2300	<5*10-5	16.7-22.5
				PWS8***	YVO4	500-4000	<5*10-6	19.6-23.3
Rochon Polarizer(PRH) 洛匈棱镜	Low Power 低功率 100MW/cm2	Cemented 胶合	High 高	PRH8***	YVO4	500-4000	<5*10-6	
	Medium Power 中功率 200MW/cm2	Optical Contact 光胶	High 高	PRH8***	α-BBO	190-3500	<5*10-6	
				PRH9***	Quartz	200-2300	<5*10-5	
				PRH5***	MgF2	120-8500	<5*10-4	

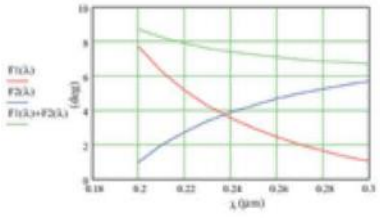
格兰泰勒棱镜 / Glan Taylor Polarizers

产品说明 / Product Description

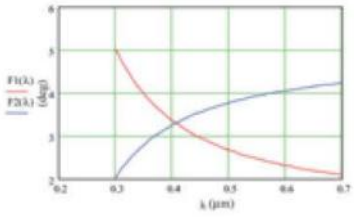
格兰泰勒棱镜由两片双折射晶体棱镜构成，具有很高的消光比。中间为空气隙间隔，能适用于中小功率激光系统。

Glan Taylor polarizer is made of two same birefringent material prisms that are assembled with an air space.Its length to aperture ratio which is less than 1.0 makes it a relatively thin polarizer.The polarizer with no side escape windows is suitable for low to medium power application where the side rejected beams are not required. The angular field of different materials of polarizers is listed below for comparison

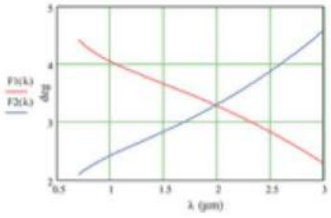
视场角和波长的关系曲线 Angular Field vs Wavelength



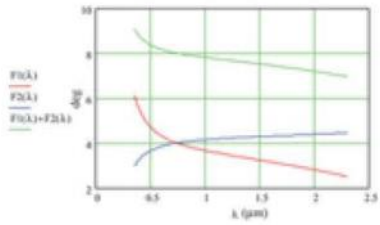
a-BBO,200-300nm



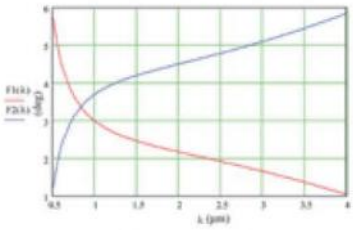
a-BBO,300-700nm



a-BBO,700-3000nm



Calcite,350-2300nm



YVO4,500-4000nm

Features 特点：

Air-spaced 空气隙间隔

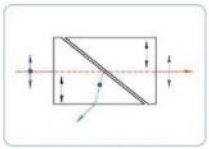
Close to Brewster's Angle Cutting 接近布鲁斯特角切割

High Polarization Purity 高偏振度

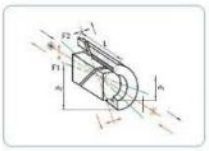
Short Length 结构紧凑，长度短

Suitable for low to medium power application where the rejected beam is not required

无逃逸窗口，反射光被吸收 适用于中低功率系



Glan-Laser Polarizer



Glan-Laser Prism

技术指标 / Specification

材料 Material	α-BBO,Calcite,YVO4
波长范围 Wavelength Range	α-BBO：190-3500nm，Calcite：350-2300nm，YVO4：500-4000nm
消光比 Extinction Ratio	α-BBO：<5*10-6，Calcite：<5*10-5，YVO4：<5*10-6
光洁度 Surface Quality	20/10Scratch/Dig
光束背离 Beam Deviation	<3 arc minutes
透过波前 Wavefront Distortion	<λ/4@633nm
损伤阈值 Damage Threshold	>200MW/cm2
镀膜 Coating	Single MgF2 单层 MgF2
支架 Mount	Black Anodized Aluminium 发黑铝支架

α-BBO 格兰泰勒棱镜 / α-BBO Glan Taylor Polarizer

Dayoptics 标准产品 / Dayoptics Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGT6206	200-300	<5*10-6	>6.0	6	15	15	$238
PGT6208	200-300	<5*10-6	>6.0	8	25.4	17	$279
PGT6210	200-300	<5*10-6	>6.0	10	25.4	19	$358
PGT6215	200-300	<5*10-6	>6.0	15	30	23	$598
PGT6220	200-300	<5*10-6	>6.0	20	38	29	$898
PGT6306	300-700	<5*10-6	>6.0	6	15	15	$238
PGT6308	300-700	<5*10-6	>6.0	8	25.4	17	$279
PGT6310	300-700	<5*10-6	>6.0	10	25.4	19	$358
PGT6315	300-700	<5*10-6	>6.0	15	30	23	$598
PGT6320	300-700	<5*10-6	>6.0	20	38	29	$898
PGT6706	700-3000	<5*10-6	>6.0	6	15	15	$238
PGT6708	700-3000	<5*10-6	>6.0	8	25.4	17	$279
PGT6710	700-3000	<5*10-6	>6.0	10	25.4	19	$358
PGT6715	700-3000	<5*10-6	>6.0	15	30	23	$598
PGT6720	700-3000	<5*10-6	>6.0	20	38	29	$898

格兰泰勒棱镜 / Calcite Glan Taylor Polarizer

Dayoptics 标准产品 / Dayoptics Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGT7006	350-2300	<5*10-5	>7.7	6	15	15	$166
PGT7008	350-2300	<5*10-5	>7.7	8	25.4	17	$194
PGT7010	350-2300	<5*10-5	>7.7	10	25.4	19	$250
PGT7015	350-2300	<5*10-5	>7.7	15	30	23	$389
PGT7020	350-2300	<5*10-5	>7.7	20	38	29	$678

YVO4 格兰泰勒棱镜 / YVO4 Glan Taylor Polarizer

Dayoptics 标准产品 / Dayoptics Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGT8006	500-4000	<5*10-6	>6.5	6	15	12	$190
PGT8008	500-4000	<5*10-6	>6.5	8	25.4	15	$228
PGT8010	500-4000	<5*10-6	>6.5	10	25.4	17	$304
PGT8015	500-4000	<5*10-6	>6.5	15	30	20	$518
PGT8020	500-4000	<5*10-6	>6.5	20	38	25	$798

格兰汤普森棱镜 / Glan Thompson Polarizer

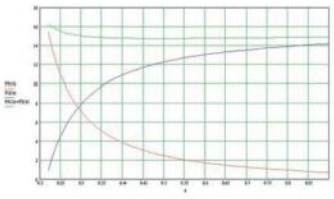
产品说明 / Product Description

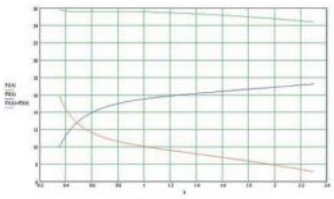
格兰汤姆森棱镜由两块冰洲石或者 a-BBO 晶体胶合构成，比空气隙格兰棱镜有更好的消光比，并拥有非常大的视场角，其视场角依赖于长度和口径的比值，目前标准的 L/A 值为 1.6：1、2.5：1 和 3.0：1。格兰汤普森棱镜有很宽的使用波段，a-BBO 棱镜可用于 220~900nm，冰洲石棱镜可用于 350 ~ 2300nm.

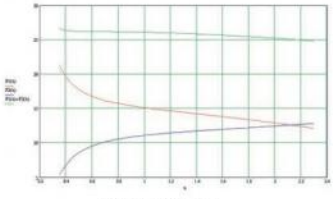
Glan Thompson polarizer is made of two calcite prisms or two a-BBO prisms cemented together .Two types of Glan Thompsons are available .One is the standard form and the other is the long form.Their length to aperture ratios 2.5:1 and 3.0:1 respectively.Glan Thompson polarizers tend to have higher extinction ratio than air spaced polarizers .In the ultra violet spectrum,their transmission is limited by absorption in birefriengent materials as well as the cement layer.a-BBO polarizers and Calcite polarizers can be used from about 220 to 900nm and 350 to 2300nm respectively.

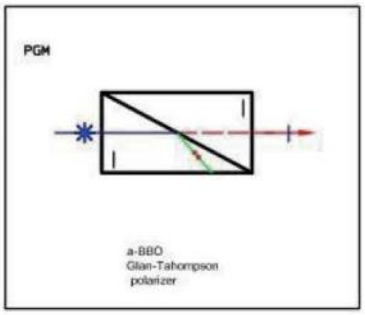
材料 Material
波长范围 Wavelength Range
光洁度 Surface Quality
透过波前 Wavefront Distortion
镀膜 Coating
消光比 Extinction Ratio
光束背离 Beam Deviation
损伤阈值 Damage Threshold
支架 Mount

Angular Field vs Wavelength 视场角和波长关系曲线图


a-BBO,220-900nm


Calcite:L/A=2.5(350-2300nm)


Calcite:L/A=3(350-2300nm)



技术指标 / Specification

材料 Material	α-BBO,Calcite
波长范围 Wavelength Range	α-BBO：200-900nm，Calcite：350-2300nm
消光比 Extinction Ratio	α-BBO：<5*10-6，Calcite：<5*10-5
光洁度 Surface Quality	20/10Scratch/Dig
光束偏折 Beam Deviation	<3 arc minutes
透过波前 Wavefront Distortion	<λ/4@633nm
损伤阈值 Damage Threshold	>200MW/cm2
镀膜 Coating	Single MgF2 单层 MgF2
支架 Mount	Black Anodized Aluminum 发黑的铝支架

α-BBO 格兰汤普森棱镜 / α-BBO Glan Thompson Polarizer Special for DUV,Visible and NIR(200-900nm)

标准产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGM6006	1.6	<5*10-6	>15	6	15	18	$398
PGM6008	1.6	<5*10-6	>15	8	25.4	21	$438
PGM6010	1.6	<5*10-6	>15	10	25.4	24.5	$538
PGM6012	1.6	<5*10-6	>15	12.7	25.4	29	$648
PGM6015	1.6	<5*10-6	>15	15	30	32.5	$808
PGM6020	1.6	<5*10-6	>15	20	38	41.5	$1,108

Calcite 格兰汤普森棱镜 / Calcite Glan Thompson Polarizer (350-2300nm)

标准产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGM7106	2.5	<5*10-5	14-16	6	15	23	$238
PGM7108	2.5	<5*10-5	14-16	8	25.4	28	$268
PGM7110	2.5	<5*10-5	14-16	10	25.4	33	$318
PGM7112	2.5	<5*10-5	14-16	12.7	25.4	39	$368
PGM7115	2.5	<5*10-5	14-16	15	30	45.5	$498
PGM7206	3	<5*10-5	25-28	6	15	26	$308
PGM7208	3	<5*10-5	25-28	8	25.4	32	$338
PGM7210	3	<5*10-5	25-28	10	25.4	38	$458
PGM7212	3	<5*10-5	25-28	12.7	25.4	46	$528
PGM7215	3	<5*10-5	25-28	15	30	53	$628

高功率格兰激光棱镜 / High Power Glan Laser Polarizer

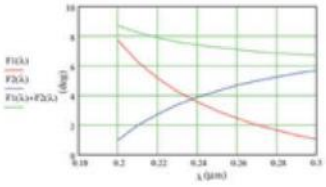
产品说明 / Product Description

格兰激光棱镜由两块相同的双折射棱镜组成，具有很高的消光比。相对比于格兰泰勒棱镜，格兰激光棱镜具有两个反射逃逸窗口，能够适用于高功率激光系统。

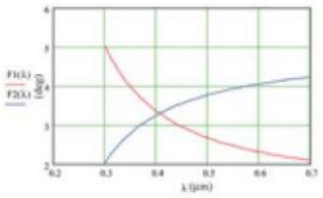
Glan Laser polarizer is made of two same birefringent material prisms that are assembled with an air space. The polarizer is a modification of the Glan Taylor type and is designed to have less reflection loss at the prism junction.The polarizer with two escape windows allows the rejected beam to escape out of the polarizer,which makes it more desirable for high energy lasers.The surface quality of these faces is relatively poor compare to that of entrance and exit faces .No scratch and dig surface quality specifications are assigned to these faces.The polarizer field F1 and F2 of these is shown in the plot below.

Features 特点：
Air-spaced 空气隙间隔
Close to Brewster’ s Angle Cutting　接近布鲁斯特角切割
Wide wavelength use 宽波段使用
High Polarization Purity 高偏振度
Short Length 两个窗口
Suitable for low to medium power application where the rejected beam is not required 适用于大功率系统

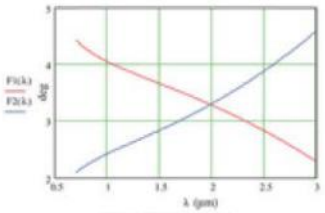
Angular Field vs Wavelength 视场角和波长关系曲线图



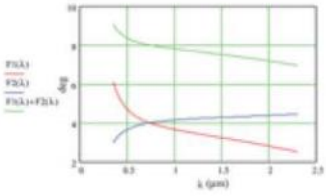
a-BBO,200-300nm



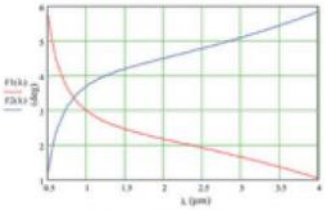
a-BBO,300-700nm



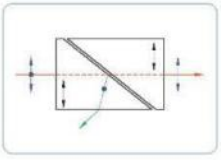
a-BBO,700-3000nm



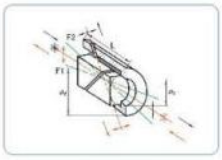
Calcite,350-2300nm



YVO4,500-4000nm



Glan-Laser Polarizer



Glan-Laser Prism

技术指标 / Specification

材料 Material	α-BBO,Calcite,YVO4
波长范围 Wavelength Range	α-BBO：190-3500nm，Calcite：350-2300nm，YVO4：500-4000nm
消光比 Extinction Ratio	α-BBO：<5*10-6，Calcite：<5*10-5，YVO4：<5*10-6
光洁度 Surface Quality	20/10Scratch/Dig
光束偏折 Beam Deviation	<3 arc minutes
透过波前 Wavefront Distortion	<λ/4@633nm
损伤阈值 Damage Threshold	>500MW/cm2
镀膜 Coating	Single MgF2 单层 MgF2
支架 Mount	Black Anodized Aluminium 硬铝，氧化发黑

α-BBO高功率格兰激光棱镜 / α-BBO High Power Glan Laser Polarizer

Dayoptics标准产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGL6206	200-300	<5*10-6	>6.0	6	15	29	$294
PGL6208	200-300	<5*10-6	>6.0	8	25.4	31	$338
PGL6210	200-300	<5*10-6	>6.0	10	25.4	31	$421
PGL6215	200-300	<5*10-6	>6.0	15	30	38.6	$668
PGL6220	200-300	<5*10-6	>6.0	20	38	48.9	$998
PGL6306	300-700	<5*10-6	>6.0	6	15	25	$294
PGL6308	300-700	<5*10-6	>6.0	8	25.4	25	$338
PGL6310	300-700	<5*10-6	>6.0	10	25.4	26	$421
PGL6315	300-700	<5*10-6	>6.0	15	30	33.4	$668
PGL6320	300-700	<5*10-6	>6.0	20	38	43.6	$998
PGL6706	700-3000	<5*10-6	>6.0	6	15	23	$294
PGL6708	700-3000	<5*10-6	>6.0	8	25.4	24.7	$338
PGL6710	700-3000	<5*10-6	>6.0	10	25.4	25.9	$421
PGL6715	700-3000	<5*10-6	>6.0	15	30	33	$668
PGL6720	700-3000	<5*10-6	>6.0	20	38	43.6	$998

Calcite高功率格兰激光棱镜 / Calcite High Power Glan Laser Polarizer

Dayoptics标准产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGL7006	350-2300	<5*10-5	>7.7	6	15	21	$182
PGL7008	350-2300	<5*10-5	>7.7	8	25.4	24.5	$221
PGL7010	350-2300	<5*10-5	>7.7	10	25.4	26.2	$268
PGL7015	350-2300	<5*10-5	>7.7	15	30	33.3	$418
PGL7020	350-2300	<5*10-5	>7.7	20	38	42.3	$718

YVO4高功率格兰激光棱镜 / YVO4 High Power Glan Laser Polarizer

Dayoptics 标准产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Unit Price 单价
PGL8006	500-4000	<5*10-6	>6.5	6	15	15.5	$238
PGL8008	500-4000	<5*10-6	>6.5	8	25.4	19	$304
PGL8010	500-4000	<5*10-6	>6.5	10	25.4	22.5	$376
PGL8015	500-4000	<5*10-6	>6.5	15	38	31	$628

高透过率格兰激光棱镜 / High Transmission Glan Laser Polarizer

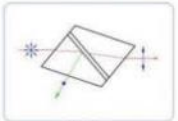
产品说明 / Product Description

1 高透过率格兰激光棱镜是一种特殊的格兰激光棱镜。入射角设计为布鲁斯特角，极大地提高了光的透过率。在很宽的波长范围内，透过率高达 98% 以上。
2 此棱镜无需镀膜。可由 Calcite 或 YVO4 晶体制成。
3 为了保证在很宽波长范围内的高透过率，不建议此棱镜应用于大的接收角。通常接收角的范围是 +/-5 度。
4. 由于不是正入射的，出射光和入射光之间有位移，使用时需要考虑。

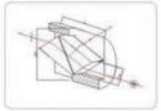
High Transmission Glan Laser Polarizers(PGH) is a special type of Glan Laser Polarizers.The incidence angle of thePGH is brewster angle cut which can great

improve the transmission ray up to 98% in wide range of wavelength without coating.The polarizer can be made from Calcite and YVO4 crystals.In order to get transmission of wide range of wavelength,the polarizers are not recommended to use for large acceptance angle.Typically used is within+/-5° .

Features 特征
UV High Power Application,>20J/cm2@1064nm,10ns,20Hz
高功率应用：>20J@1064nm,20ns,20Hz
High Transmission:>95% 优异的紫外应用
High Extinction Ratio ,Wide Acceptance Angle 高消光比，较大的接收角
Material:Calcite,a-BBO,YVO4 材料：冰洲石，α-BBO, YVO4
Dimension：3x3~20x20mm 尺寸：3x3mm ~ 20x20mm



Calcite
High Transmission
Glan-Laser Polarizer



Glan Laser Polarizer High Transmission
Curve Brewster Angle

技术指标 / Specification

材料 Material	Calcite,YVO4
Wavelength Range	Calcite：350-2300nm，YVO4：500-4000nm
Extinction Ratio	Calcite：<5*10-5，YVO4：<5*10-6
Transmission	>98%(typical)
Surface Quality	20/10Scratch/Dig
Beam Deviation	<3 arc minutes
Wavefront Distortion	<λ/4@633nm
Damage Threshold	>500MW/cm2
Coating	Uncoated 不镀膜
Mount	Black Anodized Aluminium 发黑的铝支架

Calcite 高透过率格兰激光棱镜 / Calcite High Transmission Glan Laser Polarizer

材料产品 / Standard Products

Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Beam Offset 位移量	Unit Price 单价
PGH7006	350-2300	<5*10-5	~5° (typical)	6	25.4	25	5.5	$258
PGH7008	350-2300	<5*10-5	~5° (typical)	8	25.4	32	7.8	$298
PGH7010	350-2300	<5*10-5	~5° (typical)	10	30	38	9.3	$368
PGH7015	350-2300	<5*10-5	~5° (typical)	15	38	54	14	$518

YVO4 高透过率格兰激光棱镜 / YVO4 High Transmission Glan Laser Polarizer

材料产品 / Standard Products

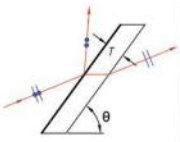
Part No. 型号	Wavelength Range(nm) 波长范围	Extinction Ratio 消光比	Angular 视场角 Field(°)	C.A.φa(mm) 口径	O.D.φd(mm) 支架外径	L+/-0.1(mm) 支架长度	Beam Offset 位移量	Unit Price 单价
PGH8006	500-4000	<5*10-6	~5° (typical)	6	25.4	28	5.5	$258
PGH8008	500-4000	<5*10-6	~5° (typical)	8	30	38	13.3	$428
PGH8010	500-4000	<5*10-6	~5° (typical)	10	38	45	16	$518

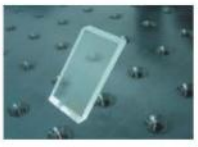
偏振片 / Polarizer

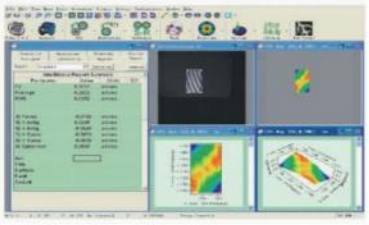
产品说明 / Product Description

Dayoptics 薄膜偏振片的镀膜是根据布儒斯特角和特定的双折射材料的偏振性决定的。

Dayoptics thin film polarizer based on a coating made up of particular birefringent materials having polarizer properties while the coating is designed under Brewster angle.
Brewster Angle :For light incident on a plane boundary
between two regions having different refractive indices,the angle of incidence at which the reflectance is zero for light that has its electrical field vector in the plane defined by the direction of propagation and the normal to the surface.For propagation from medium 1to medium 2,Brewster' s angle is given as arctan (n2/n1)







技术指标 / Specification

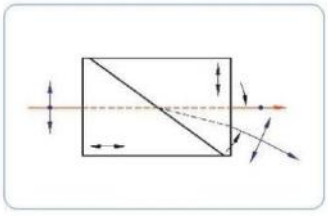
材料 Material	BK7
双面抛光 Two Surfaces Polished	
光洁度 Surface Quality	40/20 Both Sides
面形 Flatness	λ/8@633nm
其他面细磨 Other Surfaces Are Fine Ground	
倒角 Chamfer	<0.3*45°
一面镀膜 One Side Coating	Tp>97% and Ts<0.05%@1064nm(Brewster angle incidence 56.4 deg)
标准产品 Standard Products	
尺寸 Dimension	28.6*14.3mm
厚度 Thickness	3mm
型号 Standard Code	PTF1001

洛匈棱镜 / Rochon Polarizers

产品说明 / Product Description

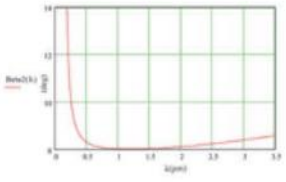
洛匈棱镜是最常用的一种起偏分束棱镜，可以输出两束线偏振光。通常应用在光度学中，两束光都可以利用。也可以用于紫外到中红外起偏振棱镜的作用。

Rochon polarizer is one of the earliest designs ,which is made of two Birefringent material prisms cemented or optical contacted together .Both ordinary and extraordinary beams propagate collinearly down the optic axis in the first prism under the ordinary refractive index,Upon entering the second prism the ordinary beam,however ,now has a lower refractive index and is refracted at the interface.Any separation angle can be for designed for specific wavelength upon requirement.

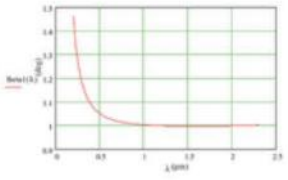


Features 特点：
Bandwidth Coverage Ultraviolet to Mid-Infrared 带宽覆盖紫外到中红外
High extinction radio 高消光比
No dislocation of ordinary light emission 寻常光出射无错位

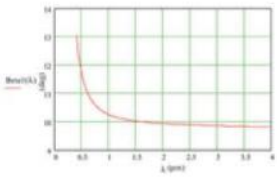
Angular Field vs Wavelength　两束出射光分离角度和波长关系曲线图（包装产品）



a-BBO,220-900nm



Quartz,200-3300nm



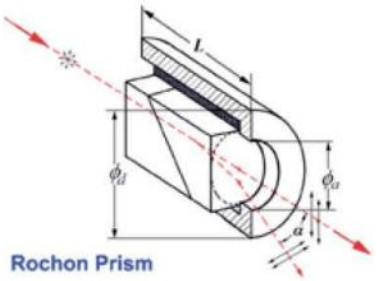
YVO4,500-4000nm

MgF2,160-1500nm

技术指标 / Specification

材料 Material	α-BBO,Calcite,YVO4, Quartz,MgF2
波长范围 Wavelength Range	α-BBO：190-3500nm,YVO4：500-4000nm ,Quartz：200-2300nm , MgF2:130-7000nm
消光比 Extinction Ratio	Quartz：<5*10-5 , α-BBO ,YVO4：<5*10-6, MgF2：<10-4
平行度 Parallelism	<1 arc min
光洁度 Surface Quality	20/10Scratch/Dig
光束偏折 Beam Deviation	<3 arc minutes
透过波前 Wavefront Distortion	<λ/4@633nm
损伤阈值 Damage Threshold	>500MW/cm2
镀膜 Coating	Single MgF2 单层 MgF2
支架 Mount	Black Anodized Aluminum 发黑的铝支架

MgF2 洛匈棱镜 / MgF2 Rochon Polarizer



标准产品 / Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PRH5006	<1*10-4	1.0-2 1@980nm	6	15	14	$230
PRH5008	<1*10-4	1.0-2 1@980nm	8	25.4	18	$313
PRH5010	<1*10-4	1.0-2 1@980nm	10	25.4	28	$403
PRH5015	<1*10-4	1.0-2 1@980nm	15	30	38	$668
PRH5020	<1*10-4	1.0-2 1@980nm	20	38	48	$998

α-BBO 洛匈棱镜 / α-BBO Rochon Polarizer

标准产品 / Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PRH6006	<5*10-6	8.0-14 8@800nm	6	15	14	$318
PRH6008	<5*10-6	8.0-14 8@800nm	8	25.4	16	$372
PRH6010	<5*10-6	8.0-14 8@800nm	10	25.4	18	$502
PRH6015	<5*10-6	8.0-14 8@800nm	15	30	23,0	$858
PRH6020	<5*10-6	8.0-14 8@800nm	20	38	28	$1,398

Quartz 洛匈棱镜 / Quartz Rochon Polarizer

标准产品 / Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PRH9006	<5*10-5	1.0-1.5 1@1064nm	6	15	20	$206
PRH9008	<5*10-5	1.0-1.5 1@1064nm	8	25.4	24	$270
PRH9010	<5*10-5	1.0-1.5 1@1064nm	10	25.4	28	$349
PRH9015	<5*10-5	1.0-1.5 1@1064nm	15	30	38	$588
PRH9020	<5*10-5	1.0-1.5 1@1064nm	20	38	48	$898

YVO4 洛匈棱镜 / YVO4 Rochon Polarizer

标准产品 / Standard Products

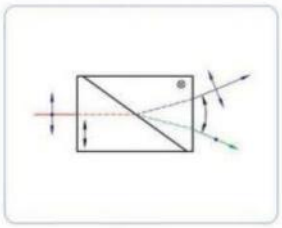
型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PRH8006	<5*10-6	9.8-13.0 10@1550nm	6	15	14	$259
PRH8008	<5*10-6	9.8-13.0 10@1550nm	8	25.4	16	$331
PRH8010	<5*10-6	9.8-13.0 10@1550nm	10	25.4	16	$426
PRH8015	<5*10-6	9.8-13.0 10@1550nm	15	30	20	$668
PRH8020	<5*10-6	9.8-13.0 10@1550nm	20	38	25	$998

渥拉斯通棱镜 / Wollaston Polarizers

产品说明 / Product Description

渥拉斯通棱镜由两块双折射晶体棱镜胶合或光胶而成，能产生两束彼此分开、振动互相垂直的线偏振光，分开角度取决于双折射晶体的切割角。

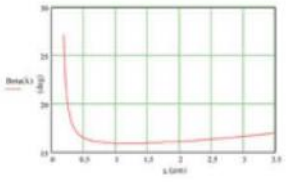
Wollaston polarizer is made of two birefringent material prisms that are cemented together .The deviations of the ordinary and extraordinary beams symmetrical about the input beam axis.so that the Wollaston polarizing beam splitter has approximately twice the deviation of the Rochon.The separation angle exhibits chromatic dispersion, as shown in the plot below.Any separation angle can be designed upon requirement .The separation angle of standard products vs wavelength is shown in the plot below.



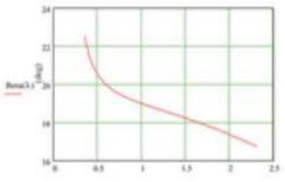
特点 Features:
输出两束线偏振光 Output of two linearly polarized beams
分离角度大 Large separation angle
高消光比 High extinction radio

Angular Field vs Wavelength

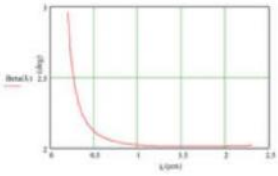
两束光的分离角和波长关系曲线
（标准产品）



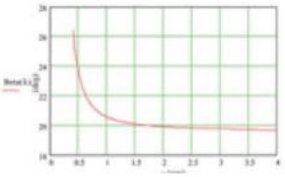
a-BBO,190-3500nm



Calcite,350-2300nm



Quartz,200-3300nm

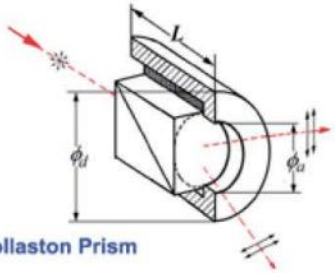


YVO4,500-4000nm

技术指标 / Specification

材料 Material	α-BBO,Calcite,YVO4,Quartz
波长范围 Wavelength Range	α-BBO：190-3500nm，Calcite：350-2300nm, YVO4:500-4000nm, Quartz:200-2300nm
消光比 Extinction Ratio	Calcite, Quartz：<5*10-5,α-BBO, YVO4：<5*10-6
光洁度 Surface Quality	20/10Scrach/Dig
光束偏折 Beam Deviation	<3 arc minutes
透过波前 Wavefront Distortion	<λ/4@633nm
损伤阈值 Damage Threshold	>500MW/cm2
镀膜 Coating	Single MgF2 单层 MgF2
支架 Mount	Black Anodized Aluminum 发黑的铝支架
支架 Mount	Black Anodized Aluminum 发黑的铝支架

α-BBO 渥拉斯通棱镜 / α-BBO Wollaston Polarizer



Wollaston Prism

Dayoptics标准产品 / WOLLASTON POLARIZERS Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PWS6006	<5*10-6	15-17 16@800nm	6	15	14	$262
PWS6008	<5*10-6	15-17 16@800nm	8	25.4	16	$338
PWS6010	<5*10-6	15-17 16@800nm	10	25.4	18	$448
PWS6015	<5*10-6	15-17 16@800nm	15	30	23	$708
PWS6020	<5*10-6	15-17 16@800nm	20	38	28	$1,128

Calcite Wollaston Polarizer

Dayoptics标准产品 / WOLLASTON POLARIZERS Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PWS7006	<5*10-5	16.7-22.5 19@980nm	6	15	14	$174
PWS7008	<5*10-5	16.7-22.5 19@980nm	8	25.4	16	$219
PWS7010	<5*10-5	16.7-22.5 19@980nm	10	25.4	18	$268
PWS7015	<5*10-5	16.7-22.5 19@980nm	15	30	23	$508
PWS7020	<5*10-5	16.7-22.5 19@980nm	20	38	28	$808

Quartz Wollaston Polarizer

Dayoptics标准产品 / Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PWS9006	<5*10-5	2-3 2@1064nm	6	15	20	$158
PWS9008	<5*10-5	2-3 2@1064nm	8	25.4	24	$202
PWS9010	<5*10-5	2-3 2@1064nm	10	25.4	28	$250
PWS9015	<5*10-5	2-3 2@1064nm	15	30	38	$388
PWS9020	<5*10-5	2-3 2@1064nm	20	38	48	$658

YVO4 Wollaston Polarizer

Dayoptics标准产品 / Standard Products

型号 Part No.	消光比 Extinction Ratio	视场角 Separate Field (°)	口径 C.A.φa(mm)	支架外径 O.D.φd(mm)	支架长度 L+/-0.1(mm)	单价 Unit Price
PWS8006	<5*10-6	19.6-23.3 20@1550nm	6	15	14	$223
PWS8008	<5*10-6	19.6-23.3 20@1550nm	8	25.4	16	$268
PWS8010	<5*10-6	19.6-23.3 20@1550nm	10	25.4	16	$359
PWS8015	<5*10-6	19.6-23.3 20@1550nm	15	30	20	$588
PWS8020	<5*10-6	19.6-23.3 20@1550nm	20	38	25	$968

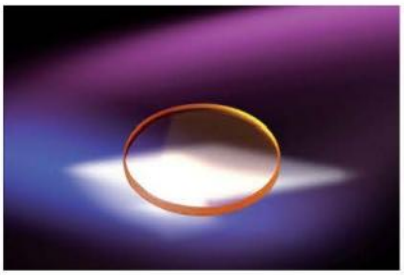
滤光片 FILTER

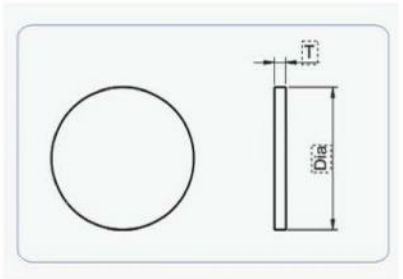
滤光片 / Filter

产品说明 / Product Description

滤光片用于筛选或过滤特殊波段，广泛用于光学设备，工业测量，环境保护等领域。我们提供长波通滤光片，窄带滤光片，带通滤光片，彩色玻璃滤光片等。
尺寸和镀膜的要求可根据客户要求设计制定。

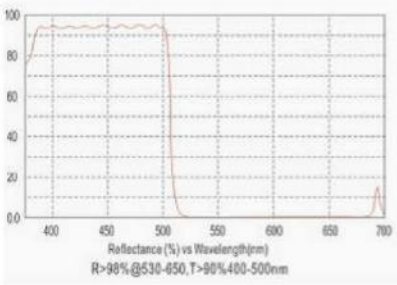
Filters are used for selecting or filtrating the specific wave band,they are widely used in optical instrument, industrial measurement, environment protection and many other applications.We can provides short pass filter,long pass filter,band pass filter ,color glass filter,etc.
The dimension and coating index can be customized according to customer requirements.

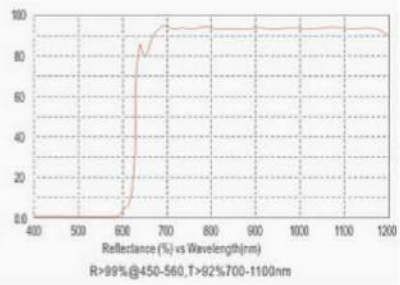


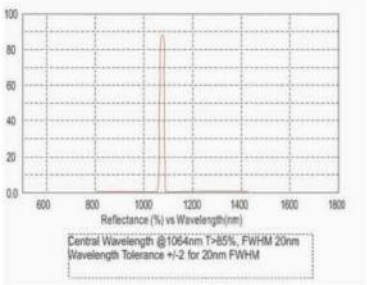


技术指标 / Specification

材料 Material	融石英；有色玻璃 BK7,Fused Silica,Color GlassBK7;
尺寸公差 Dimension Tolerance	+0.0，-0.2mm
平行度 Parallelism	<3 arc minute
通光口径 Clear Aperture	Central 90%
面形 Flatness	< λ@633nm
光洁度 Surface Quality	60/40 scratch/dig





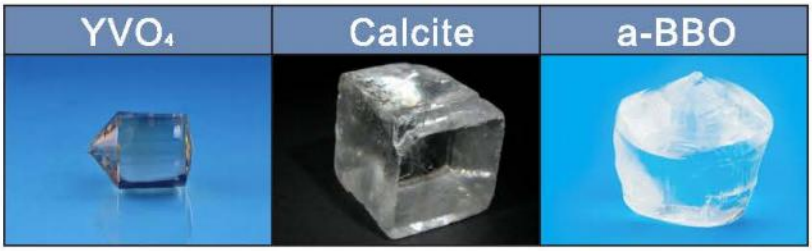


技术指标 / Specification

标准型号 PartNo	材料 Material	尺寸 Dimension	波长 wavelength
FIL10001	H-K9L	10*7*1	785-995
FIL10002	C7980 1F	7*7-0.5	
FIL10013	F-SILICA	3.5*3.5-1	
FIL10018	H-K9L	12*12-1	808/1064
FIL10020	JGS1	φ12.7*6.35	800-880/1064
FIL10021	H-K9L	φ12.7*3	1572±12/1064±10
FIL10024	H-K9L	3*3-1	527-537/1054-1074
FIL10025	B270	3*2-0.7	630-820/1020-1100
FIL10028	H-K9L	φ11*3	630-670/1064
FIL10029	JGS1	φ12.7*6.35	510-540/1020-1090
FIL10034	JGS1	φ12.7*6.3	800-890/1064
FIL10001	H-K9L	10*7*1	785-995
FIL10018	H-K9L	12*12-1	808/1064
FIL10020	JGS1	φ12.7*6.35	800-880/1064
FIL10021	H-K9L	φ12.7*3	1572±12/1064±10
FIL10024	H-K9L	3*3-1	527-537/1054-1074
FIL10025	B270	3*2-0.7	630-820/1020-1100
FIL10028	H-K9L	φ11*3	630-670/1064
FIL10029	JGS1	φ12.7*6.35	510-540/1020-1090
FIL10034	JGS1	φ12.7*6.3	800-890/1064

晶体 CRYSTAL

双折射晶体 / Birefringent Crystal



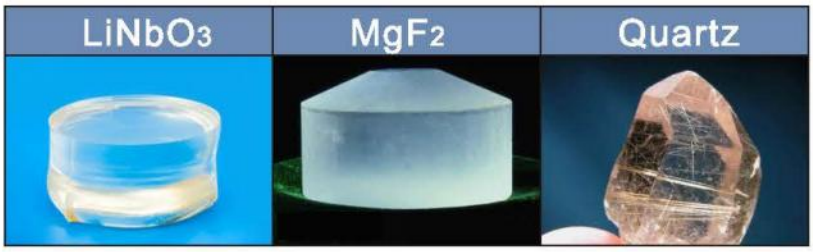
物理 & 光学性质 / Physical and Optical Properties

透光范围 Transparency Range	500-4000nm	350-2300nm	190-3500nm
晶体结构 Crystal Structure	Trigonal	Trigonal,	Trigonal,Space Group R3c
晶系 Crystal Class	Positive Uniaxial	Positive Uniaxial	Negative Uniaxial
晶胞 Crystal Cell	a=b=7.12 Å,c=6.29 Å	a=6.37 Å	a=b=12.532 Å,c=12.717 Å
密度 Density	4.22g/cm3	2.7g/cm3	3.85g/cm3
潮解性 Hygroscopic Susceptibility	Low	Low	Low
莫氏硬度 Mohs Hardness	5	3	4.5
热膨胀系数 Thermal Exp ansion Coefficient	aa=4.43*10 - 6/ kac=11.37*10 - 6/k	aa=24.39*10 - 5/k ac=5.68*10 - 5/k	Aa=4*10 - 6/k Ac=36*10 - 6/k
光学均匀性 Optical Homogeneity	10 - 6/cm	10 - 6/cm	10 - 6/cm
吸收系数 Absorption Coefficient	0.05%/cm-1 @ 1064 nm	0.07 @ 200nm 0.02 @ 500nm	0.05%/cm-1 @ 1064 nm
在 45°时屈光指数，双折射，离散角（ρ） Refractive Index, Birefringence(▵ n=ne-no) Walk-Off Angle@45°（ρ）	ne=2.2154,No=1.9929 ▵ n=0.2251 ρ=6.042° @633nm	ne=1.48520,no=1.6557 ▵ n=0.1705 ρ=6.20° @633nm	ne=1.54381,no=1.67056 ▵ n=0.1222 ρ=4.345° @532nm

特性 / Capabilities

直径 Diameter	Max.30-40mm	Max.150mm	Max.40-50mm
长度 Length	Max.25-35mm	Max.100mm	Max.25-35mm
光洁度 Surface Quality	Better than 20/10 Scratch/Dig Per MIL-0-13830A		
光束偏移 Beam Deviation	<10arc seconds		
光轴方向 Optical Axis Orientation	+/-0.2°		
面形 Flatness	<λ/8@633nm		
透过波前畸变 Transmission Wavefront Distortion	<λ/4@633nm		
镀膜 Coating	Upon Specification		

双折射晶体 / Birefringent Crystal



物理 & 光学性质 / Physical and Optical Properties

透光范围 Transparency Range	420-5200nm	120-8500nm	200-2300nm
晶体结构 Crystal Structure	Trigonal,Space Group R3c	Trigonal,Space Group R3c	Trigonal,Space Group R3c
晶系 Crystal Class	Positive Uniaxial	Positive Uniaxial	Negative Uniaxial
晶胞 Crystal Cell	a=b=0.515Å, c=13.863 A	a=b=4.621 Å,c=3.053 Å	
密度 Density	4.64g/cm3	3.18g/cm3	2.65g/cm3
潮解性 Hygroscopic Susceptibility	Low	Low	Low
莫氏硬度 Mohs Hardness	5	6	7
热膨胀系数 Thermal Expansion Coefficient	a_a=2.0*10^{-6} /k@25℃ a_c=2.2*10^{-6} /k@25℃	a_a=6.23-9.25*10^{-6} /k a_c=10.86-14.54*10^{-6} /k	a_a =6.2*10^{-6} /k a_c =10.7*10^{-6} /k
光学均匀性 Optical Homogeneity	5*10^{-5}/cm	10^{-6}/cm	10^{-6}/cm
吸收系数 Absorption Coefficient	0.1%/cm @ 1064nm	0.07at0.2μm;0.02at5.0μm	0.1%/cm @ 1064nm
在45°时屈光指数，双折射，离散角(ρ) Refractive Index, Birefringence(△n=ne-no) Walk-Off Angle@45°(ρ)	n_e=2.20263, n_o=2.28629 △n=0.08366 ρ=2.135° @633nm	n_e=1.38876, n_o=1.37698 △n=0.01178 ρ=0.488° @633nm	n_e=1.55170, n_o=1.54265 △n=0.00905 ρ=0.335° @633nm

特性 / Capabilities

直径 Diameter	Max.30-40mm	Max.50mm	Max.100mm
长度 Length	Max.25-35mm	Max.100mm	Max.100mm
光洁度 Surface Quality	Better than 20/10 Scratch/Dig Per MIL-0-13830A		
光束偏离 Beam Deviation	<10arc seconds		
光轴方向 Optical Axis Orientation	+/-0.2°		
面形 Flatness	<λ/8@633nm		
透过波前畸变 Transmission Wavefront Distortion	<λ/4@633nm		
镀膜 Coating	Upon Specification		

激光晶体 / Laser Crystal

Ti:Sapphire	Nd:YAG	Nd:YVO4
		

物理 & 光学性质 / Physical and Optical Properties

化学分子Chemical Formula	$Ti_3+:Al_2O_3$	$Nd:Y_3Al_5O_{12}$	$Nd:YVO_4$
晶体结构Crystal Structure	Hexagonal	Cubic	Zircon Tetragonal, Space Group D4h
熔点Melting Point	2050 ℃	1970 ℃	
密度Density	3.98 g/cm³	4.56 g/cm³	4.22 g/cm³
莫氏硬度Mohs Hardness	9	8.5	5
热传导系数Thermal Conductivity Coefficient	0.11 cal/(℃x secx cm)	14 W/m /K@20 ℃ 10.5 W/m /K@100 ℃	‖C: 5.23 W/m/K ^C: 5.10 W/m/K
热膨胀系数Thermal Expansion Coefficient		7.8x 10-6/K[111],0- 250 ℃	a_a=4.43x10^{-6} /K a_c=11.37x10^{-6} /K
激射波长Lasing Wavelength	660~1050 nm (795nm)	1064nm	914nm, 1064nm, 1342nm
吸收范围Absorption Range	400~600 nm (488nm)	lamp pump	808nm
晶格常数Lattice Constant	a=4.748, c=12.957	12.01	a=b=7.12,c=6.29
荧光寿命Fluorescence Lifetime	3.2 μ sec(T = 300 K)	230msec	90 msec (about 50 m s for 2 atm% Nd doped) @ 808nm
吸收系数Absorption Coefficient	1.0~7.5cm^{-1} @490nm	7.1 cm^{-1}	31.4 cm^{-1}@ 808 nm
折射率Refractive Index	1.76 @ 800nm	1.82 @1064nm	no =1.9573, ne =2.1652@1064nm
极化发射Polarized Emission	Unpolarized	Unpolarized	Parallel to Optic Axis (C-axis)

特性 / Capabilities

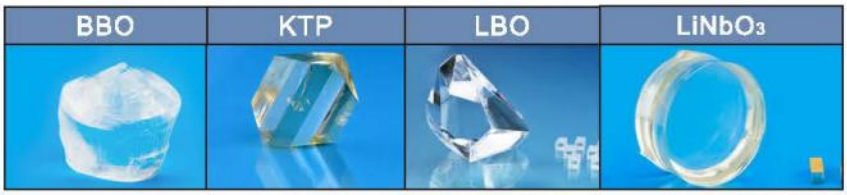
浓度Concentration	0.06-0.5 wt%Ti dopant	0.5-1.2 atm%Nd dopant (10% tolerance)	0.2-3 atm%Nd dopant (10% tolerance)
品质因数Figure of Merit	100-300		
孔径Aperature	2-50mm	3-14mm	1-20mm
路径长度Path Length	2-130mm	1-60mm	0.02-20mm
端点配置End Configuration	Flat/Flat or Brewster/Brewster Ends or Specified		

激光晶体 / Laser Crystal

物理 & 光学性质 / Physical and Optical Properties

晶体 Laser Crystal	Ti:Sapphire	Nd:YAG	Nd:YVO4
晶向 Orientation	Optical Axis C Normal to Rod Axis	<111>Crystalline Direction(+/-0.5℃)	a-cut Crystalline Direction(+/-0.5℃)
平行度 Parallelism	<10 arc seconds		
光洁度 Surface Quality	Better than 60/40 Scratch/Dig Per MIL-O-13830A	Better than 20/10 Scratch/Dig Per MIL-O-13830A	Better than 20/10Scratch/Dig Per MIL-O-13830A
面形 Surface Flatness	<λ/10@633nm	<λ/10@632.8nm	<λ/10@632.8nm
透过波前 Wavefront Distortion	<λ/4 per inch@633nm	<λ/10 @632.8nm for3-7mm <λ/8 per inch@632.8nm for>=7mm	<λ/8@633nm
垂直度 Perpendicularity	<5 arc minutes	<5 arc minutes	<5 arc minutes
通光口径 Clear Aperture	Central 90%	Central 95%	Central 95%
倒角 Chamfer	0.15*44°	0.15*45°	0.15*45
损伤阈值 Damage Threshold	Over 15J/cm2(Rods without Coating) over 700MW/ cm2(Coating)	Over 15J/cm2(Rods without Coating) over 700MW/ cm2(Coating)	Over 15J/cm2(Rods without Coating) over 700MW/ cm2(Coating)
镀膜 Coatings	AR@700-1100nm	a)AR@10664nm,R<0.1%	a)AR@10664nm,R<0.1%
		b)AR@1064nm,R<0.1%; HT@808nm,T>95%	b)AR@1064nm,R<0.1%; HT@808nm,T>95%
		c)HR@1064nm,R<99.8%;HT @808nm,T>95%	c)HR@1064nm,R<99.8%;HT@8 08nm,T>95%
		d)HR@1064nm,R<99.8%;HT @808nm,T>95%;HR@532nm ,R>99%	d)HR@1064nm,R<99.8%;HT @808nm,T>95%;HR@532nm ,R>99%

非线性光学聚合物晶体 / NLO Crystal



物理 & 光学性质 / Physical and Optical Properties

晶体结构 Crystal Structure	Trigonal,Space Group R3c	Orthorhombic,Point Group mm²	Orthorhombic,Point Group mm²	Trigonal,Space Group R3c
透过范围 Transparency Range	189-3500nm	350-4500nm	160-2600nm	420-5200nm
细胞参数 Cell Parameters	A=b=12.532 Å C=12.717 Å	A=6.404 Å B=10.616 Å C=12.814 Å	A=8.44731Å B=7.3788 Å C=5.1395 Å	a=0.515Å c=13.863Å
熔点 Melting Point	1095+/-5℃	1172℃ Incongruent	834℃	1255+/-5℃
居里温度 Curie Point	925+/-5℃	936℃	5	1140+/-5℃
光学均匀性 Optical Homogeneity	$\Delta n \approx 10^{-6}$ /cm	$\Delta n \approx 10^{-6}$ /cm	$\Delta n \approx 10^{-6}$ /cm	$\Delta n \approx 5*10^{-5}$ /cm
莫氏硬度 Mohs Hardness	4.5	5	6	5
密度 Density	3.85g/cm³	3.01g/cm³	2.47g/cm³	4.64g/cm³
热导系数 Thermal Conductivity	^C,0.012W/cm/k ||C,0.016W/cm/k	0.03 W/cm/k	0.035 W/cm/k	0.046 W/cm/k
二倍频波长范围 Phase-matchable SHG Range	205-1750nm	1000-2000nm	800-2000nm	1100-3000nm
吸收系数 Absorption Coefficient	<0.1%/cm@1064nm	<1%/cm@1064nm and 532nm	<=1%/cm@1064nm	<0.1%/cm@1064nm
非线性光学系数 NLO coefficients	d_{21}=2.2pm/V d_{31}=0.08pm/V d_{22}=2.2pm/V	d_{31}=1.95pm/V d_{32}=3.90pm/V d_{33}=15.3pm/V d_{24}=3.90pm/V d_{15}=1.95pm/V	d_{21}=0.67pm/V d_{22}=0.04pm/V d_{23}=0.85pm/V d_{24}=0.85pm/V d_{16}=0.67pm/V	$d_{21}=d_{22}=d_{16}$=2.6pm/V $d_{31}=d_{32}=d_{24}$=4.6pm/V d_{33}=25.6 pm/V
损伤阈值 @1064nmDamage Threshold@1064nm	12.9J/cm² 9.9GW/cm²	6.0J/cm² 4.6GW/cm²	24.6J/cm² 18.9GW/cm²	200MW/ cm²
折射率 @1064nm@532nm Refractive Index@1064nm@532nm	Ne=1.5425 No=1.6551 Ne=1.5555 No=1.6749	Nx=1.73991 Ny=1.74802 Nz=1.82956 Nx=1.77903 Ny=1.79002 Nz=1.88628	Nx=1.56447 Ny=1.59050 Nz=1.60538 Nx=1.57842 Ny=1.60650 Nz=1.62154	Ne=2.23216 No=2.15600 Ne=2.32309 No=2.23415

NLO Crystal

Typical Specification and Capabilities

NLO Crystal	BBO	KTP	LBO	LiNbO3
Angle Tolerance	▵θ<+/-0.5° ; ▵ø<+/-0.5			
Dimension Tolerance	(w+/-0.1mm)*(H+/-0.1mm)*(L+0.2mm/-0.1mm)	(w+/-0.1mm)*(H+/-0.1mm)*(L+0.2mm/-0.1mm)	(w+/-0.1mm)*(H+/-0.2mm)*(L+0.2mm/-0.2mm)	(w+/-0.1mm)*(H+/-0.2mm)*(L+0.2mm/-0.2mm)
Flatness	<λ/8@633nm	<λ/8@633nm	<λ/4@632.8nm	<λ/8@633nm
Scratch/Dig Code	Better than 10/5 Scratch /Dig per MIL-O-13830A			
Parallelism	<20 arc seconds			
Perpendicularity	<5 arc minutes	<5 arc minutes	<30 arc minutes	<5 arc minutes
Wavefront Distortion	<λ/8@633nm	<λ/8@633nm	<λ/4@632nm	<λ/8@633nm
Clear Aperture	>90% Central Area	>90% Central Area	>80% Central Area	>90% Central Area
Aperture	1*1-12*12mm	1*1-10*10mm	2-10mm	1-50mm
Length	0.02-25mm	0.05-20mm	0.3-20mm	0.3-20mm
Phase Matching Type	Type Ⅰ or Type Ⅱ	Type Ⅱ	Type Ⅰ or Type Ⅱ	Type Ⅰ or Type Ⅱ
End Configuration	Flat or Brewster or Specified	Flat or Brewster or Specified	Flat,Spherical,Parallel and Wedged	Flat,Spherical,Parallel and Wedged
Typical Coating	Antireflective coating	Antireflective coating High reflective coating	Antireflective coating	Antireflective coating

硅晶体 / Silicon(si) Crystals

产品说明 / Product Description

硅 (Si) 是常用的作为衬底材料对红外反射镜和窗片，在 1.5 um-8um。在 9nm 时强吸收也使得它不适合于 CO2 激光传输的应用程序，但由于其高热电导率和低密度，它经常被用于激光镜。硅也是一个有用的发射机在 20 um 范围。

Silicon(Si) is commonly used as a substrate material for infrared reflectors and windows in the 1.5um-8um region.The strong absorption band at 9um makes it unsuitable for CO2 laser transmission applications but it is frequently used for laser mirrors because of its high thermal conductivity and low density.Silicon is also a useful transmitter in 20um range.

物理性能 / Physical Properties

材料类型 Material Type	CZ FZ;N or P
晶体定向 Crystal Direction	{100}{111}
电阻率 (Ohm/cm)Resistivity (Ohm/cm)	0.003-50
热导系数 (J/K.M.S)Thermal Conductivity(J/K.M.S)	163.3@273K
密度 Density	2.33g/cm³ at20℃
熔点 Melting Point	1410℃
沸点 Boiling Point	3265℃
努氏硬度 Knoop Hardness	1150
透光范围 Transparency Range	1000nm-10000nm，30000nm-300000nm

被动晶体 / Passive Crystal

Cr4+:YAG

物理特性 / Physical Properties

化学分子 Chemical Formula	Cr4+:Y3A15O12
晶体结构 Crystal Structure	Cubic Garnet
还原时间 Recovery Time	8.5us
莫氏硬度 Hardness Mohs	8.5
密度 Density	4.56g/cm³
晶向 Orientation	[100]+/-10°
热导系数 Thermal Conductivity	12.13W/m/k
折射率 Refractive Index	1.82@1064nm

光学性质 / Optical Properties

基态吸收截面 Base State Absorption Cross Section	δs1=4.3*10-18cm²
发散状态的吸收截面 Emission State Absorption Cross Section	δs1=4.3*10-18cm²
荧光寿命 Fluorescence Lifetime	3.4us

能力 / Capabilities

Cr4+ 参杂量 Cr4+Dopant Concentration	0.5mol%-3mol%
孔径 Aperture	2*2-14*14mm
初始透过率 Initial transmission	10%-99%

技术指标 / Typical Specification and Tolerance

尺寸公差 Dimension Tolerance	(W+/-0.1mm)*(H+/-0.1mm)*(L+0.2mm/-0.1mm)
面形 Flatness	<λ/8@633nm
光洁度 Scratch/Dig	Better than 10/5 Scratch /Dig per MIL-O-13830A
平行度 Parallelism	<20 arc seconds
垂直度 Perpendicularity	<5 arc minutes
透过波前 Wavefront Distortion	Less than λ/8@633nm
通光口径 Clear Aperture	>90% Central Area
镀膜 Coating	Anti-reflective

TGG 单晶 / Terbium Gallium Garnet(TGG)

产品说明 / Product Description

TGG 单晶是制作法拉第旋光器及隔离器的最佳磁光材料，法拉第旋光器由 TGG 晶棒和一个特殊设计的磁体组成。通过磁光材料的光束的偏振方向将在磁场作用下发生偏转，其偏转方向只与磁场方向有关，而与光束传播方向无关。光隔离器由一个 45 度偏转的旋光器和一对偏振态成 45 度偏振器组成，它使光束仅能沿一个方向通过，而使反向光束被阻隔。TGG 单晶具有大的磁光常数、高热导性、低的光损失和高激光损伤阈值，广泛应用于 YAG 激光器、掺钛宝石可调谐激光器和环型腔激光器中。

Terbium Gallium Garnet(TGG) is the right crystal material for Farady devices(Rotator and Isolator).The Farady rotator is made up of a TGG rod contained in a special designed magnet.The polarization of a light beam passing through the rotator makes rotation. The direction of rotation is only dependent on the direction of the magnetic field and not on the direction of propagation of the light beam to pass through in one direction only. With a combination of excellent properties,such as large verdet constant, low light loss, high thermal conductance and high light damage threshold,TGG is the unique material for Farady devices.It is widely used for YAG lasers and Ti:sapphire tunable lasers, ring lasers, etc.
Physical Properties

物理特性 / Physical Properties

晶体 Crystal	Terbium Gallium Garnet(Tb3Ga5O12)
定向精度 Orientation	[111]Within 5 Degrees
透过波前（每英寸长度） Wavefront Distortion(Per Inch of Rod Length)	λ/8
消光比 Extinction Ratio	30Db over 2/3 Clear Aperture
直径 Diameter Tolerance	+0.000" /-0.002"
长度公差 Length Tolerance	+0.010/-0.010"
倒角 Chamfer	0.005" +/-0.003" @45° +/-5°
面形 Flatness	λ/10 wave@633nm
平行度 Parallelism	<1 minutes of arc
侧面垂直度 Perpendicularity	<10 minutes of arc
光洁度 Surface Quality	10/5Scratch /Dig per MIL-O-13830A
反射率 Reflectivity	<0.25%@1064nm
热导吸收 Thermal Conductivity	7.4W cm-1K-1
折射率 Refractive Index	1.95@1064nm

棱镜 PRISM

棱镜概括 / Prism Summarization

Dayoptics 提供多种高精度棱镜，包括五角棱镜，五角分光棱镜，直角棱镜，角锥。我们的微型五棱镜，直角棱镜广泛用于光通信。如关于微棱镜的光学信息，请参阅“微光学”。其它的棱镜，如道威棱镜，屋脊棱镜，也可应要求提供。

Dayoptics provides a variety of high-precision prisms, including pentagonal prisms, pentagonal spectroscopic prisms, right-angle prisms, pyramids. Our miniature pentaprism and right angle prism are widely used in optical communication. For optical information about microprisms, please see Microoptics. Other prisms, such as Dow Prism and Roof Prism, can also be provided as required.

技术指导 / Specifications

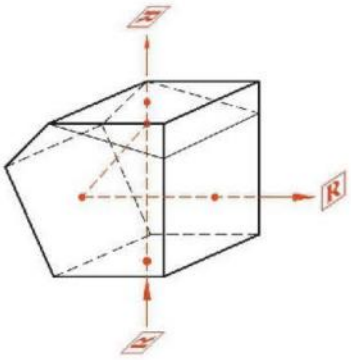
棱镜 Prism	材料 Material	角精度 Angle Precision	应用 Application
Pentagonal Prism 五角棱镜	BK7	1Min Deviation 30Sec Deviation 10 Sec Deviation	Plumb Level, Surveying , Alignment, Range Finding and Optical Tooling 垂直水平、测量、对齐、测距光学工具
Pentagonal Splitting Prism 五角分光棱镜	BK7	1Min Deviation 30Sec Deviation 10 Sec Deviation Transmission/ Reflection:20/80+/-5 or 50/50+/-5	Plumb Level, Surveying , Alignment, Range Finding and Optical Tooling 垂直水平、测量、对齐、测距光学工具
Corner Cube Retronreflector 角锥	BK7	3Sec Deviation 5Sec Deviation	Plumb Level, Surveying , Alignment, Range Finding and Optical Tooling 垂直水平、测量、对齐、测距光学工具
Right Angle Prism 直角棱镜	BK7Fused Silica	3Min Deviation 1Min Deviation 30Sec Deviation 10Sec Deviation 5 Sec Deviation	Plumb Level, Surveying , Alignment, Range Finding and Optical Tooling 垂直水平、测量、对齐、测距光学工具
Anamorphic Prism 整形棱镜	BK7	30Sec Deviation	For Beam Expansion 扩束
Dove Prism 道威棱镜	BK7	30Sec Deviation	Medical instrumentOptical Tooling and Other Optical Systems 医疗器械，光学加工和其他光学系统
Roof Prism 屋脊棱镜	BK7	3Sec Deviation 5Sec Deviation	Medical instrumentOptical Tooling and Other Optical Systems 医疗器械，光学加工和其他光学系统
Rhomboid Prism 斜方棱镜	BK7	3Min Deviation 1Min Deviation 30Sec Deviation 10Sec Deviation 5 Sec Deviation	Plumb Level, Surveying , Alignment, Range Finding and Optical Tooling 垂直水平、测量、对齐、测距光学工具

五角分光棱镜 / Pentagonal Splitting Prism

产品说明 / Product Description

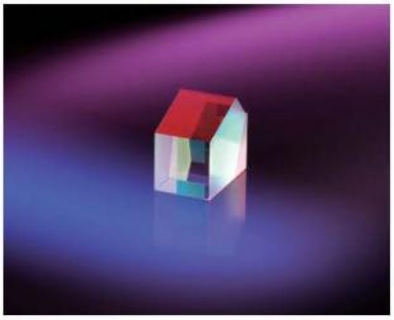
在五角棱镜的基础上增加一个契角片，第一个面镀反射膜，那么五角棱镜就可以应用于分光。 我们标准产品的透过比 / 分光比 (T/r) :20/80,50/50. 也可按客户要求。

By adding a wedge and with partial reflective coating on first reflective surface.Penta prism can be used as beamsplitter.We supply pentagonal splitting prism with standard Transmission/reflection(T/R) ratio ofz0/80,50/50.Other T/R ratio is available upon request.



技术指导 / Specifications

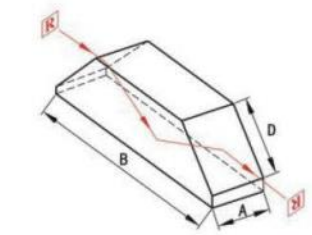
材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+/-0.2mm
90°偏心公差 90° Deviation Tolerance	According to the Form 详见表格
面形 Flatness	λ/2(Standard)(标准) λ/4(High Precision)(高精度)@633nm
反射率 Reflectivity	R>95% per Face @400-700nm
光洁度 Surface Quality	60/40 scratch/dig
透过分光比 / 反射分光比 Beamsplitter Ratio Transmission/Reflection	20/80+/-5 or 50/50+/-5
镀膜 Coating on Input and Output Surface	Uncoated 不镀膜

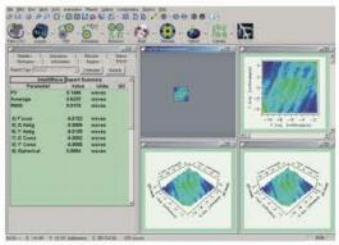


技术指导 / Specifications

尺寸 (mm) Size(mm)	1 分角精度 1 min.Deviation	30 秒角精度 30Sec.Deviation	10 秒角精度 10Sec.Deviation
A*H	Part No.	Part No.	Part No.
7*6	PPS1103	PPS1203	PPS1303
10*10	PPS1104	PPS1204	PPS1304
15*15	PPS1105	PPS1205	PPS1305
20*20	PPS1106	PPS1206	PPS1306

道威棱镜 / Dove Prisms





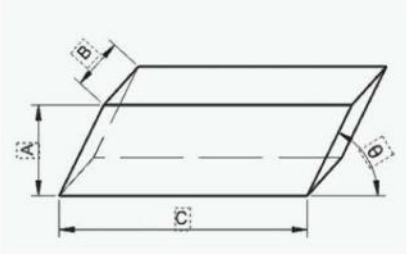
技术指标 / Specifications

材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
通光口径 Clear Aperture	>80%
角度公差 Angle Tolerance	+/-3 arc minutes
面形 Flatness	λ/2@633nm
光洁度 Surface Quality	60/40 scratch/dig
倒角 Bevel	0.2mm to 0.5mm
镀膜 Coating	Uncoated 不镀膜

技术指标 / Specifications

Part No.	A(mm)	B(mm)	C(mm)
DOP1101	21.1	5	5
DOP1102	42.3	10	10
DOP1103	63.4	15	15

斜方棱镜 / Rhomboid Prisms



技术指标 / Specifications

材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+0.0/-0.2mm
通光口径 Clear Aperture	>80%
角度公差 Angle Tolerance	3' (3" can be avaiable) (3"亦可)
面形 Flatness	λ/4@633nm
光洁度 Surface Quality	60/40 scratch/dig(20/10 can be available)(20/10 亦可)
倒角 Bevel	0.2mm to 0.5mm

技术指标 / Specifications

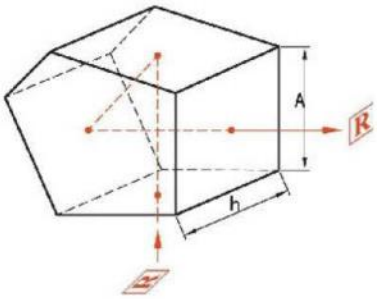
Part No.	A(mm)	B(mm)	C(mm)	θ
RHP1101	3.5	3.5	6.3	45°
RHP1102	10	10	14.2	45°
RHP1103	15	15	21.2	45°

五角棱镜 / Pentagonal Prism

产品说明 / Product Description

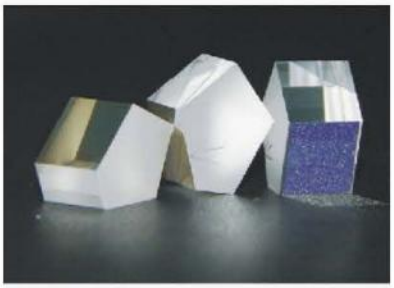
五角棱镜是光束定角度 (90°) 转向器之一。它有两个用途：其一是，不管第一面上的入射角是多少，出射光把入射光转向一定角度 (90°)；其二是，它和直角棱镜不同，所成的象既无旋转也无镜面反射。五角棱镜最适用于图像观察系统或测量仪器。 五角棱镜无法实现基于临界角原理的内部全反射。因此，此棱镜的两个反射面一般被镀上金属膜和介质膜。我们的标准产品是镀铝或加强铝。

Pentagonal prism can deviate an incident beam without inverting or reversing 90 °.The deviation angle of 90 ° is independent of any rotation of the prism about an axis parallel to the line of intersection of the two reflectingfaces.It is commonly used in plumb level, surveying, alignment, range finding and optical tooling.The reflecting surfaces of this prism must be coated with a metallic or dielectric coating.The standard pentagonal prism reflecting surfaces are coated with aluminum or enhanced aluminum.



技术指导 / Specifications

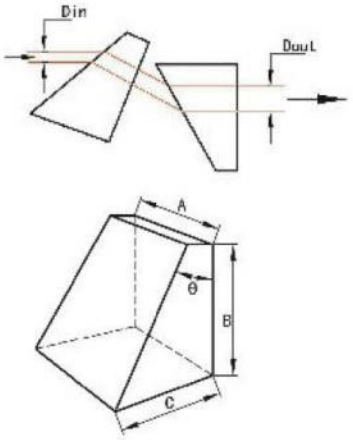
材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+/-0.2mm
90°偏心公差 90° Deviation Tolerance	According to the Table 详见表格
面形 Flatness	λ/2(Standard)(普通) λ/4(High Precision) 高精度)@633nm
反射率 Reflectivity	R>95% per Face @400-700nm
光洁度 Surface Quality	60/40 scratch/dig
镀膜 Coating on Input and Output Surface	Uncoated 不镀膜



技术指导 / Specifications

尺寸 (mm) Size(mm)	1 分角精度 1 min.Deviation	30 秒角精度 30Sec.Deviation	10 秒角精度 10Sec.Deviation
A*H	Part No.	Part No.	Part No.
2.5*2.5	PTP1101	PTP1201	PTP1301
7*5	PTP1102	PTP1202	PTP1302
7*5	PTP1103	PTP1203	PTP1303
10*10	PTP1104	PTP1204	PTP1304
15*15	PTP1105	PTP1205	PTP1305
20*20	PTP1106	PTP1206	PTP1306

整形棱镜 / Anamorphic Prism



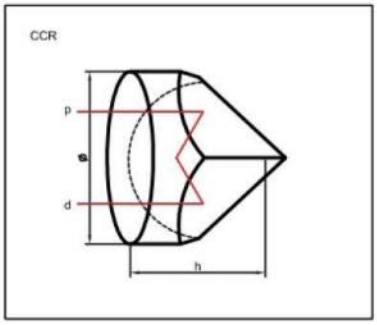
技术指标 / Specifications

材料 Material	SF11 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
通光口径 Clear Aperture	>80%
面形 Flatness	λ/8@633nm
Theta(θ)Theta	q=29° 27' +/-3"
光洁度 Surface Quality	60/40 scratch/dig
镀膜 Coating	MgF2 Single Layer on Perpendicular Surface 在垂直面镀单层 MgF2

技术指标 / Specifications

Part No.	A(mm)	B(mm)	C(mm)
ANP0101	12	12	8.5

角锥 / Corner Cube Retroreflector



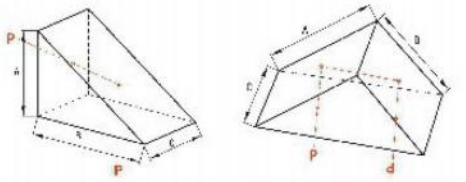
技术指标 / Specifications

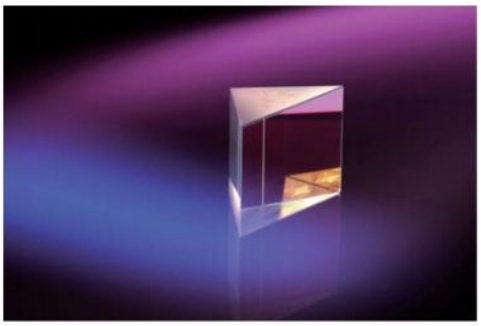
材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
通光口径 Clear Aperture	>80%
角精度 Deviation	180° +/- 3 arc seconds
面形 Flatness	λ/4 on big surface, λ/10 on Other Surfaces
光洁度 Surface Quality	60/40 scratch/dig
透过波前 Wavefront Distortion	λ/2@633nm
倒角Bevel	0.2mm to 0.5mm
镀膜 Coating on Input and Output Surface	Uncoated

技术指标 / Specifications

Part No.	尺寸 φ(mm)	高度 h(mm)
CCR1101	15	11.3
CCR1102	25.4	19
CCR1103	38.1	29.2
CCR1104	50.8	38.1

直角棱镜 / Right Angle Prism





高精度直角棱镜：高精度角度 (<5 second)，高面型 (<lambda/10)，同时我们也可以按照客户的要求进行设计制定高精度的角度。

High precision RAP:high angle precision(<5 second),high flatness(<lambda/10),high angle pyramid tolerance(<5 second) are available upon requirement.

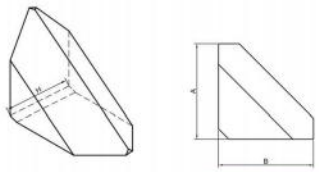
技术指标 / Specifications

材料 Material	BK7 Grade A Optical Glass
尺寸公差 Dimension Tolerance	+0.0,-0.2mm
通光口径 Clear Aperture	>80%
角度公差 Angle Tolerance	See the Table 详见表格
面形 Flatness	λ/2@633nm
光洁度 Surface Quality	60/40 scratch/dig
倒角Bevel	0.2mm to 0.5mm
镀膜 Coating	Uncoated 不镀膜

技术指导 / Specifications

尺寸 (mm) Size(mm)	3 分角精度 3 min.Deviation	1 分角精度 1 min.Deviation	30 秒角精度 30Sec.Deviation
A,B,C	Part No.	Part No.	Part No.
A=B=C=2.0	RAP1101	RAP1201	RAP1301
A=B=C=3.2	RAP1102	RAP1202	RAP1302
A=B=C=5.0	RAP1103	RAP1203	RAP1303
A=B=C=10.0	RAP1104	RAP1204	RAP1304
A=B=C=12.7	RAP1105	RAP1205	RAP1305
A=B=C=15.0	RAP1106	RAP1206	RAP1306
A=B=C=20.0	RAP1107	RAP1207	RAP1307
A=B=C=25.4	RAP1108	RAP1208	RAP1308
A=B=C=30.0	RAP1109	RAP1209	RAP1309

屋脊棱镜 / Roof Prism

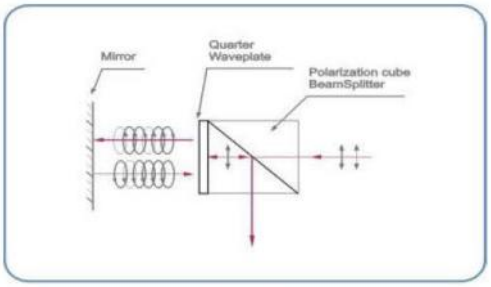


技术指标 / Specifications

材料 Material	BK7 or UV Grade Fused SilicaBK7 或者紫外级融石英
尺寸公差 Dimension Tolerance	+/-0.1mm
通光口径 Clear Aperture	>80%
角度公差 Angle Tolerance	+/-30 arc sec
面形 Flatness	λ/4@633nm
光洁度 Surface Quality	60/40 scratch/dig
倒角 Bevel	0.2mm to 0.5mm
镀膜 Coating	Uncoated 不镀膜

Part No.	A(mm)	B(mm)	H(mm)
RFP1101	15	15	12
RFP1102	23	23	18
RFP1103	31.5	31.5	23

组合件 P-POLARIZATION MUX OPTIC



Isolators

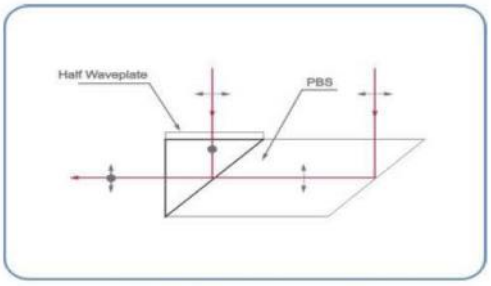
技术指标 / Specifications

材料 Material	BK7+Quartz
波长 Wavelength	1064nm
面形 Surface Flatness	<λ/4@633nm(or better)
光洁度 Surface Quality	20/10Scratch/Dig
通光口径 Clear Aperture	>85%
光束偏折 Beam Deviation	<3'
镀膜 Coating	PBS Coating，Tp>96%,Ts<0.1@ AOI=45°；AR Coating，R<0.2%@1064nm

标准品 / Standard Products

PBS+ 波片标准型号 / PBS+Waveplate

Part No. 标准型号	Dimension 尺寸	Dimension Tolerance(mm) 尺寸公差
OAPW635	6.35*6.35	+/-0.1mm
OAPW1000	10*10	+/-0.2mm



PBS +Waveplate

隔离器 / Isolators

Part No. 标准型号	Dimension	Dimension Tolerance(mm)
OAPW-I635	6.35*6.35	+/-0.1mm
OAPW-I1000	10*10	+/-0.2mm

Minimum Order Quality:5pcs

Note:We can make the Micro-Optics Assembly according to your requirements.

起订量：5pcs

我们可以根据您提供的产品指标进行加工。

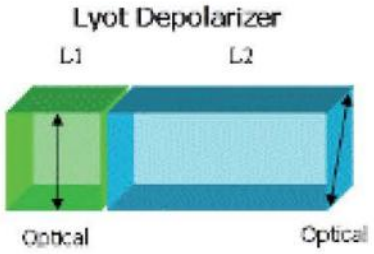
退偏器 DEPOLARIZER

Lyot 型退偏器 / Lyot Depolarizer

产品说明 / Product Description

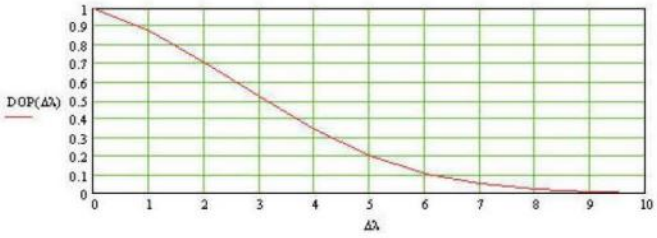
光学退偏器可以让入射的线偏振光转换成非偏振光。Lyot 型退偏器由两块晶体组合而成，两块晶体的光轴夹角为 45 度，可用于多色光的退偏。

Dayoptics Lyot depolarizer consists of two crystalline plane parallel plates whose axes is 45 ° apart from each other with optical contacted.The thickness ratio of two plates length is typically 2:1.The depolarizer is not suitable for usage in monochromatic light.

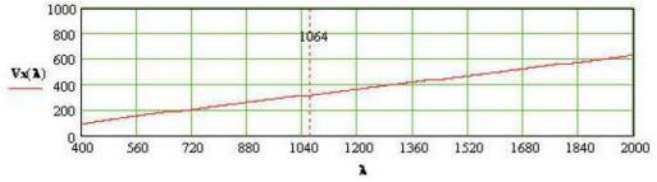


Theory Data	设计数据
DOP-Degree of Polarization,	DOP – 偏振度
DOP=1 good polarization,	DOP=1 ：偏振度良好
DOP= 0 good depolarization	DOP=0 ：非偏振度良
Material:Calcite	好

Material: 材料 Calcite

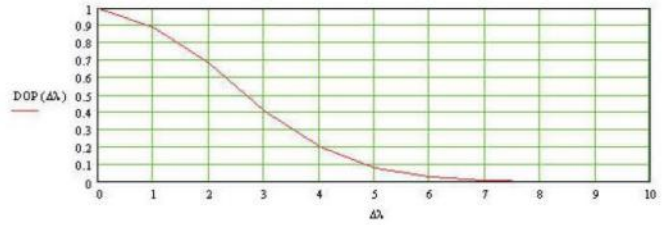


DOP Vs.wavelength bandwidth
DOP vs. 激光带宽
Laser beam Wavelength is 1550nm,with total length of 6mm
激光中心波长：1550nm, 退偏器厚度：6mm

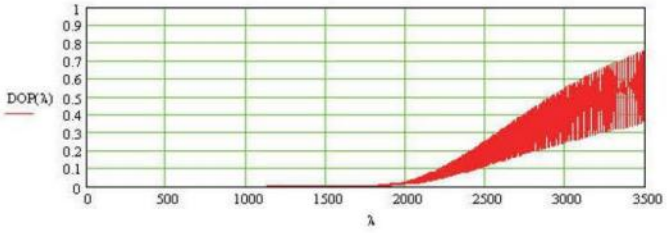


DOP Vs. input wavelength
DOP Vs. 激光波长
DOP Vs. input wavelength (Input beam with 10nm bandwidth,total length 6mm)
(带宽 10nm 时各波长的退偏情况，退偏器厚度：6mm)

Material 材料 : YVO4

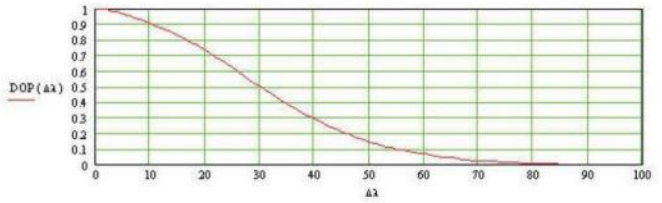


DOP Vs.wavelength bandwidth
DOP vs. 激光带宽
Laser beam Wavelength is 1550nm,with total length of 6mm
激光中心波长：1550nm, 退偏器厚度：6mm

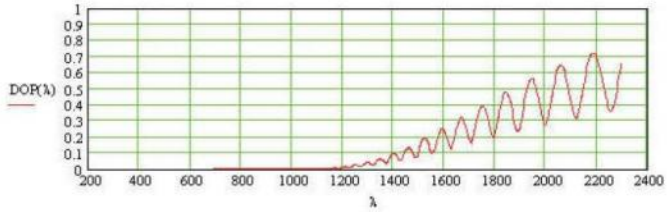


DOP Vs.wavelength bandwidth
DOP Vs. 激光波长
Laser beam Wavelength is 1550nm,with total length of 6mm
(带宽 10nm 时各波长的退偏情况，退偏器厚度：6mm)

Material 材料 :Quartz



DOP Vs.wavelength bandwidth
DOP vs. 激光带宽
Laser beam Wavelength is 1064nm,with total length of 6mm
激光中心波长：1064nm, 退偏器厚度：6mm



DOP Vs. input wavelength
DOP Vs. 激光波长
(带宽 100nm 时各波长的退偏情况，退偏器厚度：6mm)
(Input beam with 100nm bandwidth,total length 6mm)

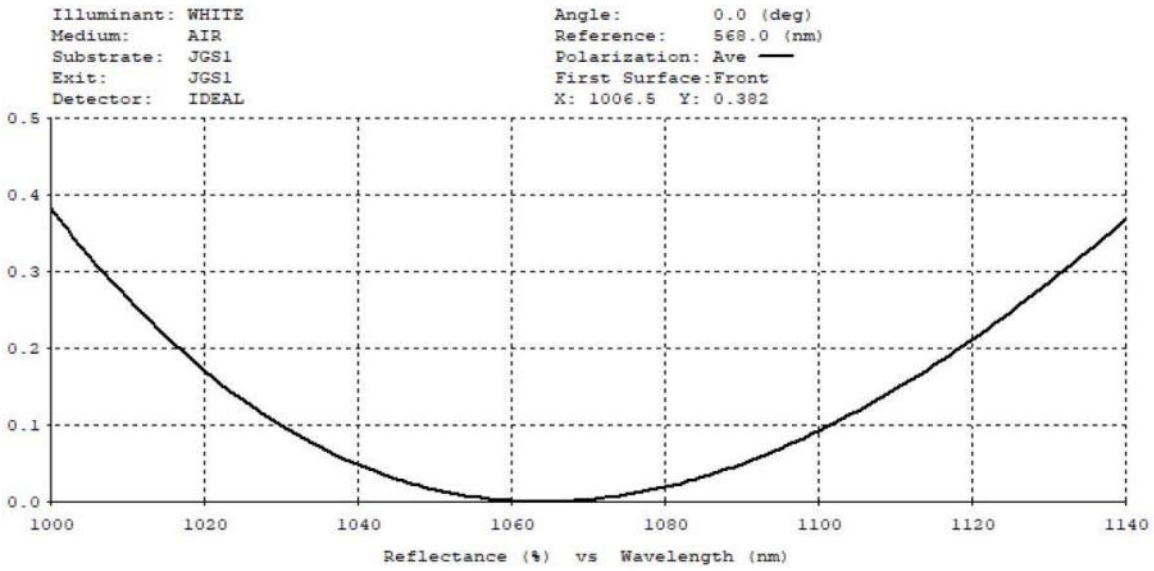
Lyot Depolarizer

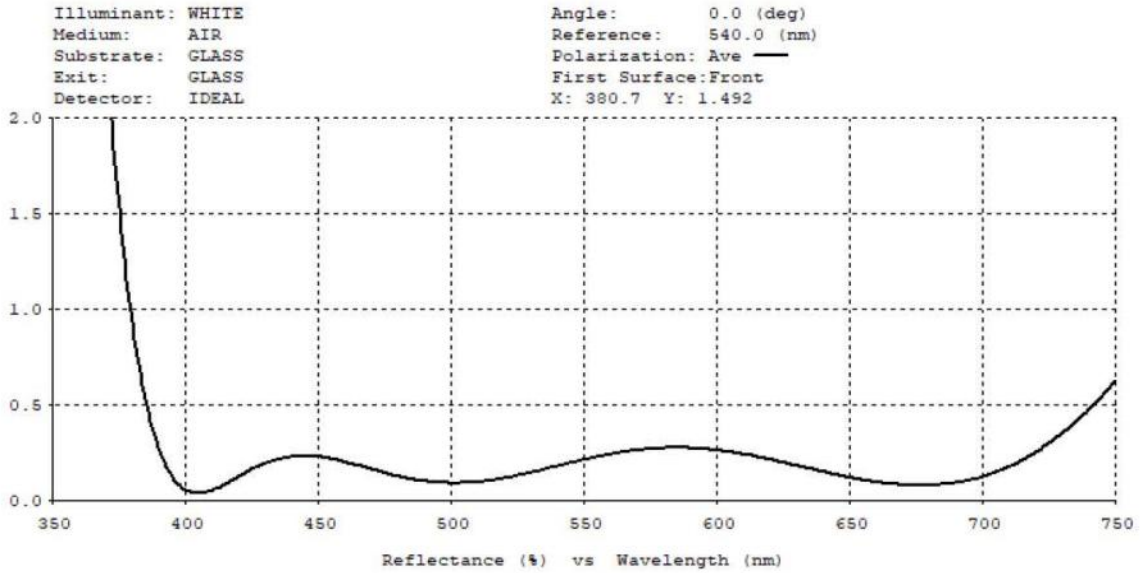
技术指标 / Specifications

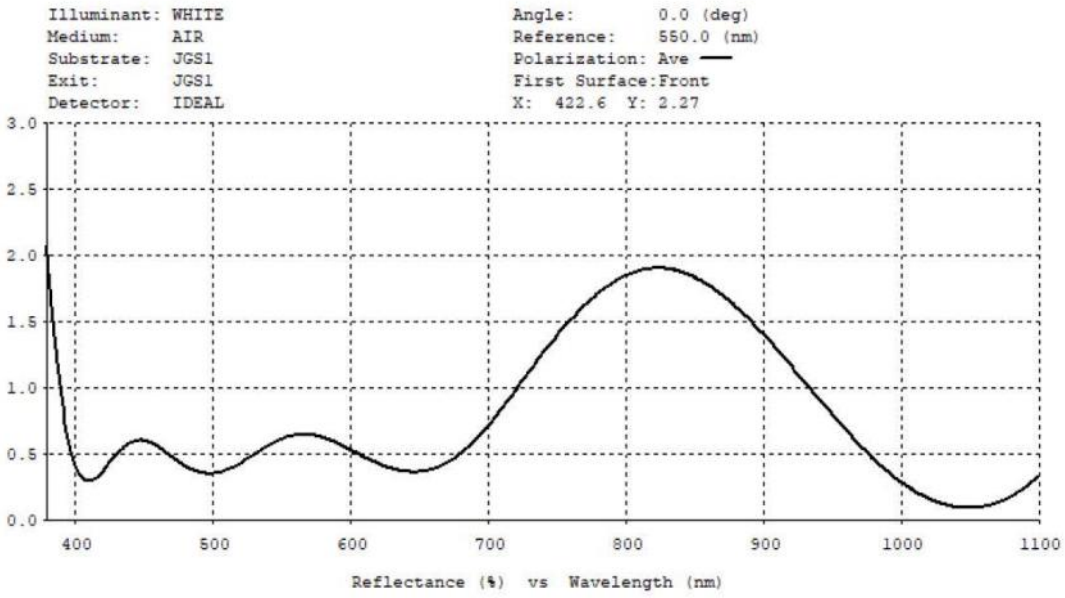
材料 Material	Calcite,YVO4,Quartz
波长范围 Wavelength Range	Calcite:350-2300nm,YVO4:500-4000nm,Quartz:200-2300nm
尺寸公差 Dimension	+0/-0.2mm
平行度 Parallelism	<20 arc second
面形 Flatness	λ/4@633nm
光洁度 Surface Quality	20/10Scratch/Dig
胶合方式 Cement Mode	Optical Cement
镀膜根据客户要求 Coating is available upon requirement	
支架根据客户要求 Mount is available upon requirement	
总长度 Total Length	6mm

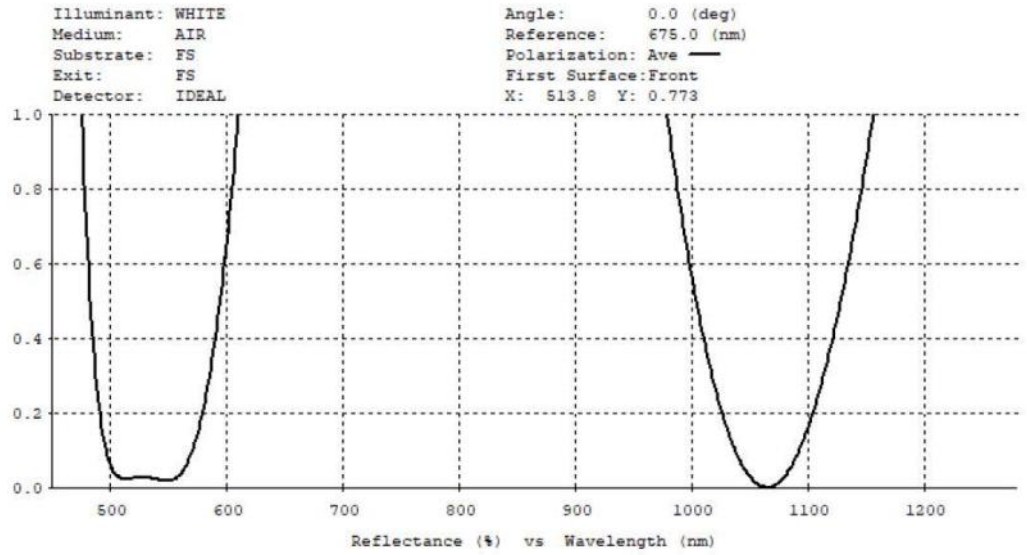
镀膜 COATING

增透膜 / Anti-Reflective Coating

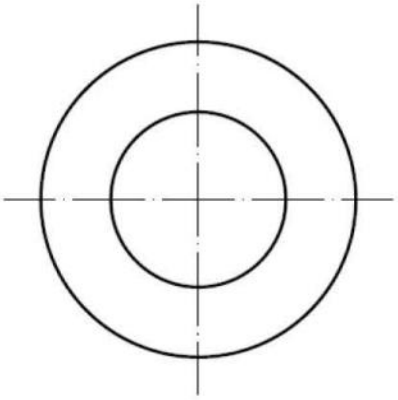





Illuminant: WHITE
Medium: AIR
Substrate: JGS1
Exit: JGS1
Detector: IDEAL
Angle: 0.0 (deg)
Reference: 550.0 (nm)
Polarization: Ave
First Surface:Front
X: 422.6 Y: 2.27
3.0
2.5
2.0
1.5
1.0
0.5
0.0
400
500
600
700
800
900
1000
1100
Reflectance (%) vs Wavelength (nm)

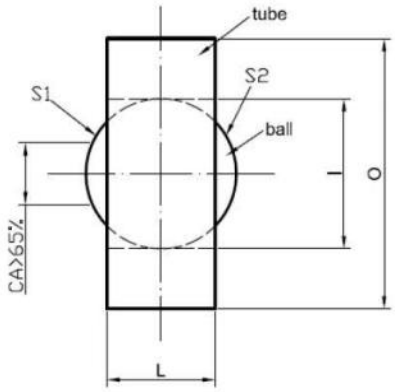

Illuminant: WHITE
Medium: AIR
Substrate: FS
Exit: FS
Detector: IDEAL
Angle: 0.0 (deg)
Reference: 675.0 (nm)
Polarization: Ave
First Surface:Front
X: 513.8 Y: 0.773
1.0
0.8
0.6
0.4
0.2
0.0
500
600
700
800
900
1000
1100
1200
Reflectance (%) vs Wavelength (nm)

球透镜镀膜 / Ball Lens With AR Coating



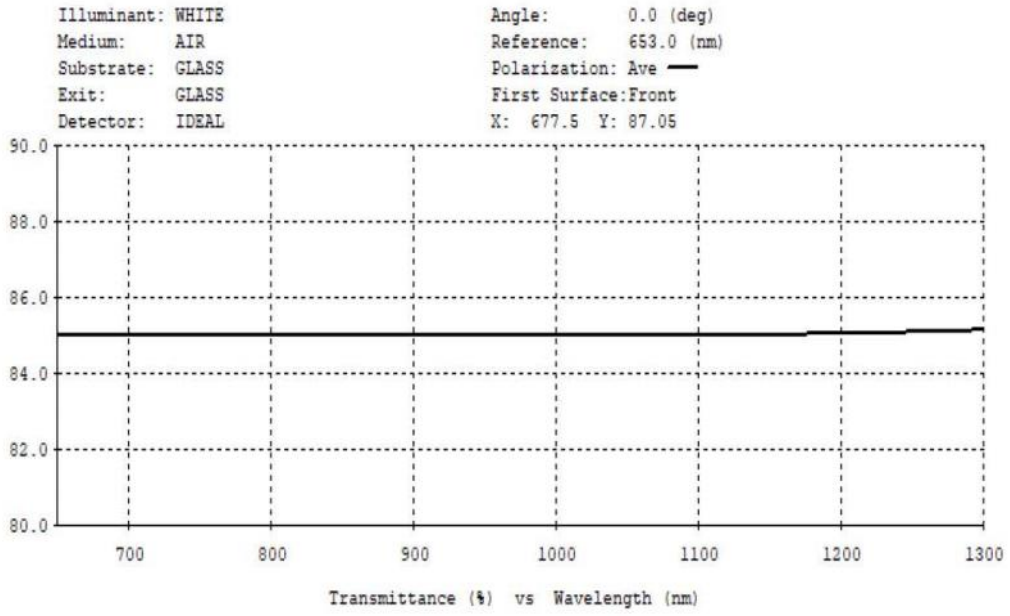
技术指标 / Specifications

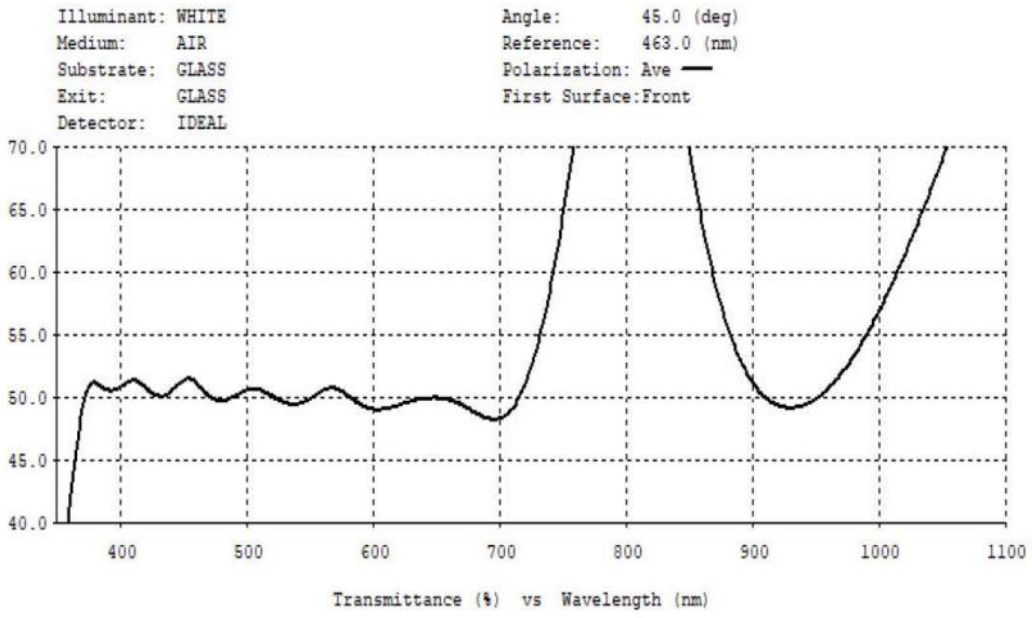
	Ball Lens 球透镜	Holder 套管
材料 Material	Optical glass 光学材料	Borosilicate 硼硅酸盐玻璃
光洁度 Surface Quality	40/20	60/40
有效口径 Clear Aperture	65%	
镀膜 Coating Speification	R<0.2% @ 1550+/-40 nm, R<0.2% @ 1064+/-40nm	

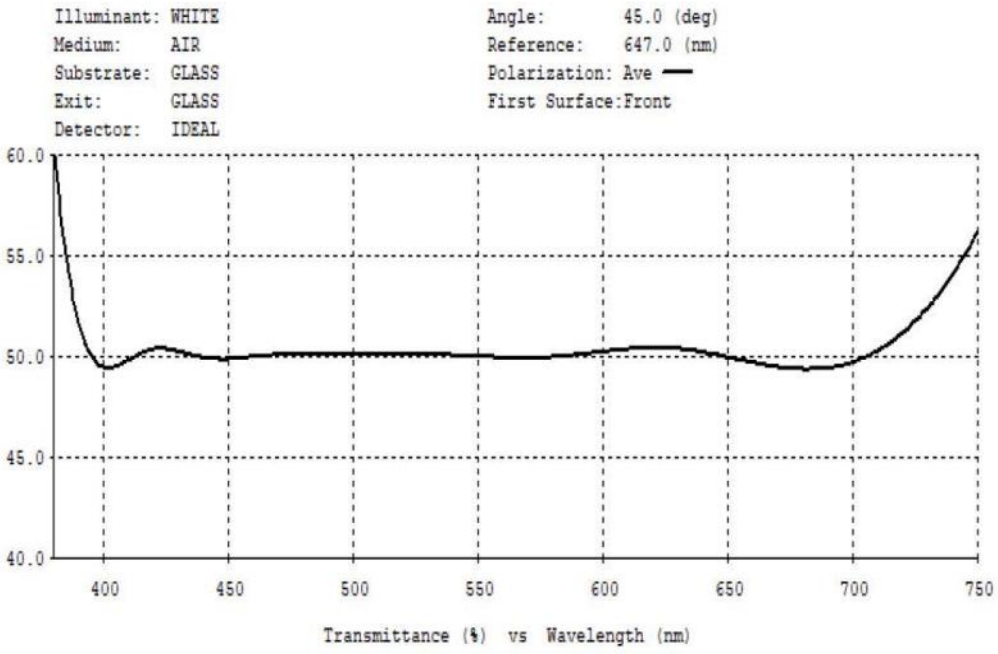


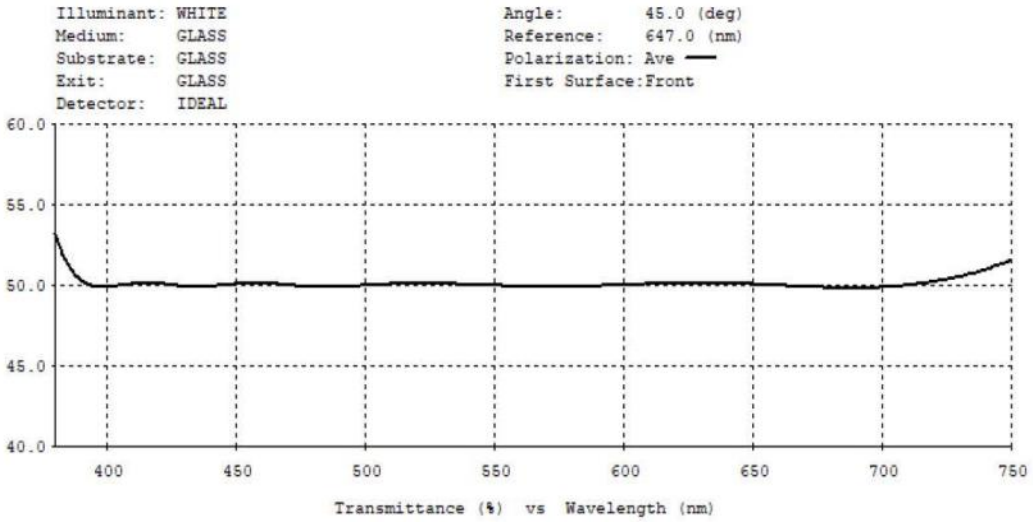
球透镜直径 Ball(+/-0.005mm)	套管外径 Tube:O(+/-0.2mm)	套管内径 Tube:I(+0.015/-0mm)	套管厚度 Tube:T(+/-0.05mm)
1	1.8	1	0.72
3	5.4	3	2.1
4	7.2	4	2.8
5	9	5	3.5

HR 膜和 PR 膜 / Dielectric Coating-HR Coating And PR Coating






Illuminant: WHITE
Medium: AIR
Substrate: GLASS
Exit: GLASS
Detector: IDEAL
Angle: 45.0 (deg)
Reference: 647.0 (nm)
Polarization: Ave
First Surface:Front
60.0
55.0
50.0
45.0
40.0
400
450
500
550
600
650
700
750
Transmittance (%) vs Wavelength (nm)

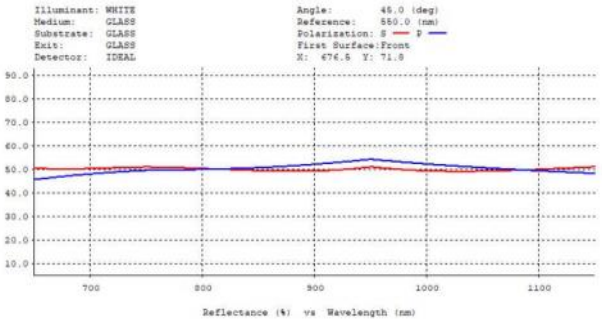

Illuminant: WHITE
Medium: GLASS
Substrate: GLASS
Exit: GLASS
Detector: IDEAL
Angle: 45.0 (deg)
Reference: 647.0 (nm)
Polarization: Ave
First Surface:Front
60.0
55.0
50.0
45.0
40.0
400
450
500
550
600
650
700
750
Transmittance (%) vs Wavelength (nm)

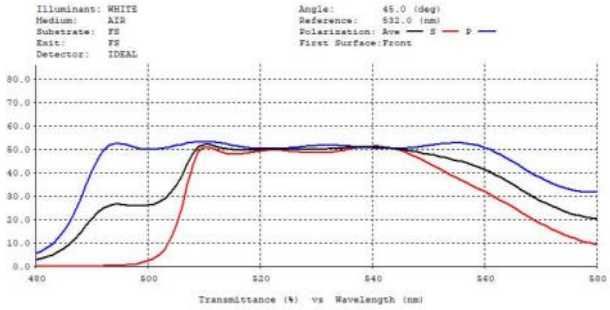
镜面金属膜 / Metal Coating

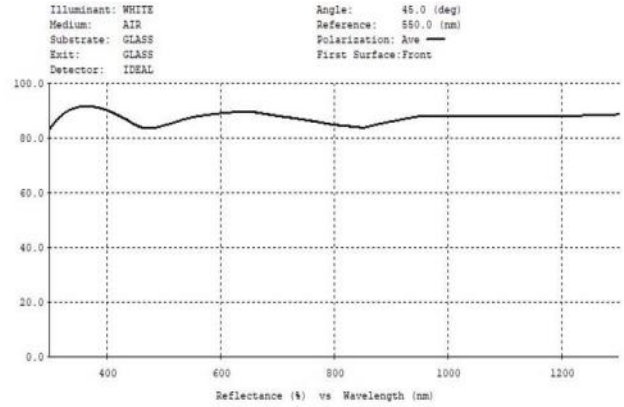
产品说明 / Product Description

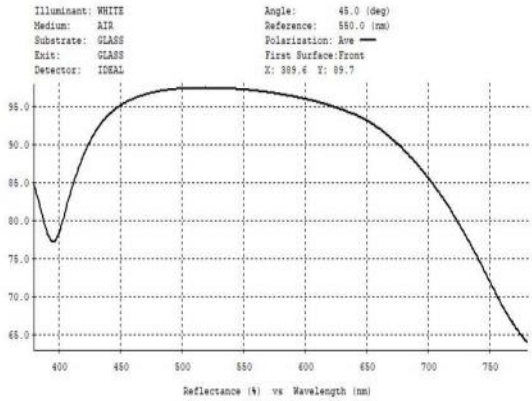
在镜子表面镀上一层薄薄的金属膜。最常见的金属涂层有铝、银、金等。

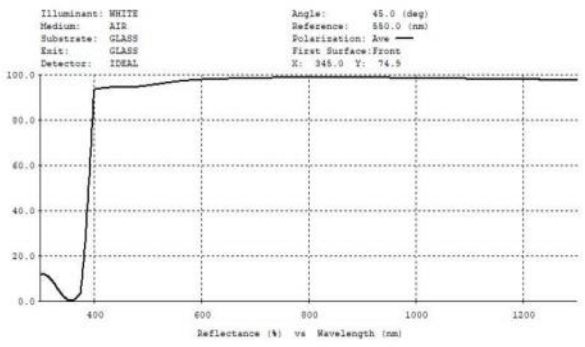
A thin layer of metal deposited on the surface of a substrate.The film may serve as a reflector,beamsplitter,neutral density filter or electromagnetic interference filter.The most common metal coating as for mirror is Al,Ag,Au,Cr,etc.



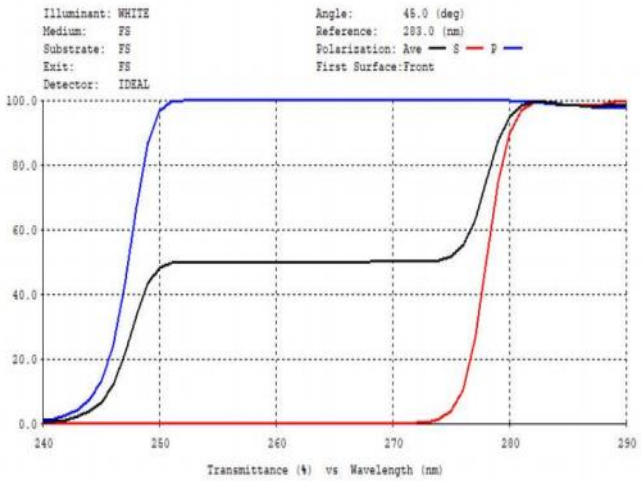


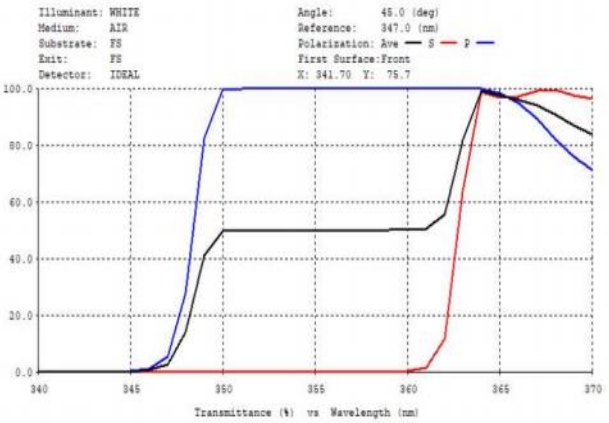


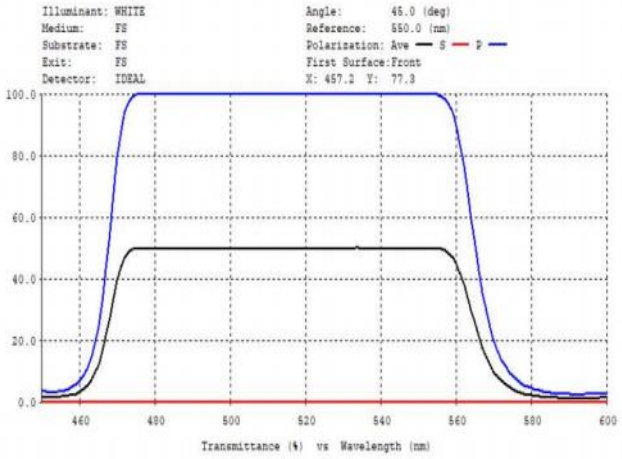


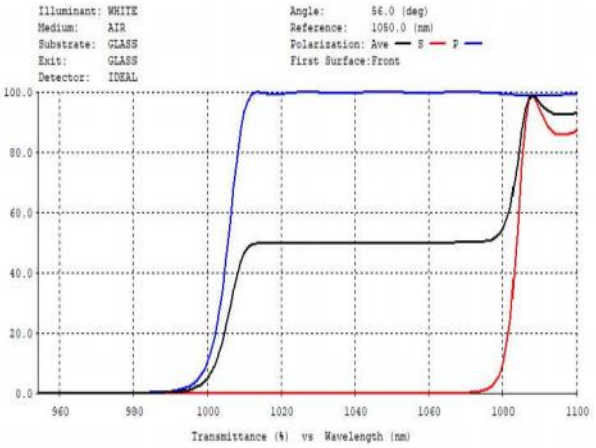


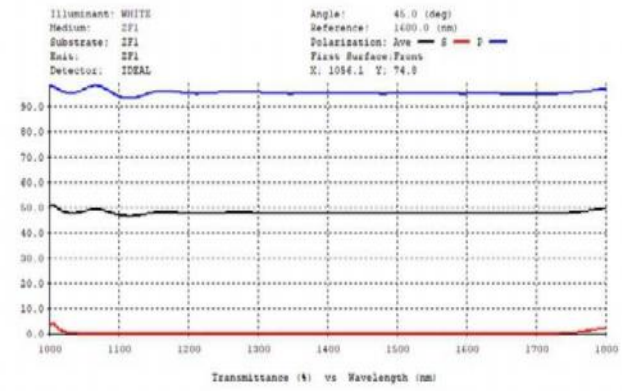
偏振膜 / Polarization Beam Splitter Coating

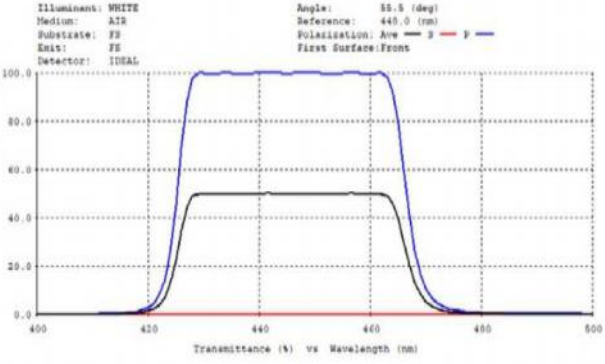




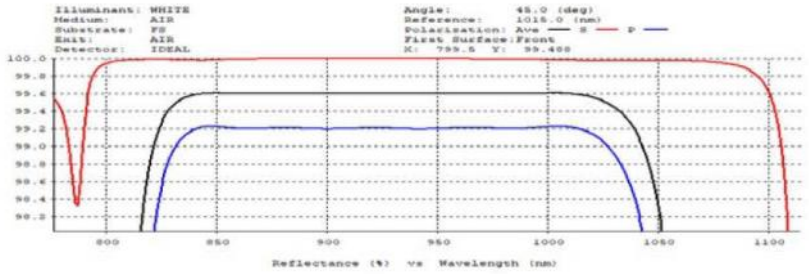


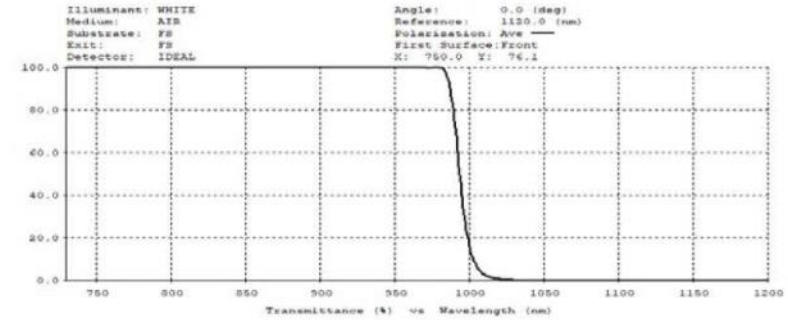


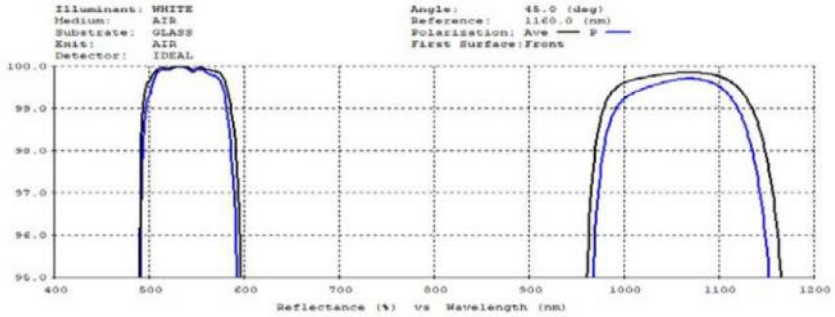


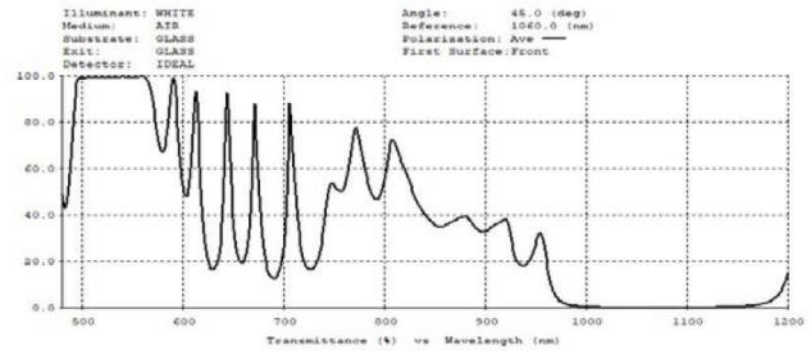


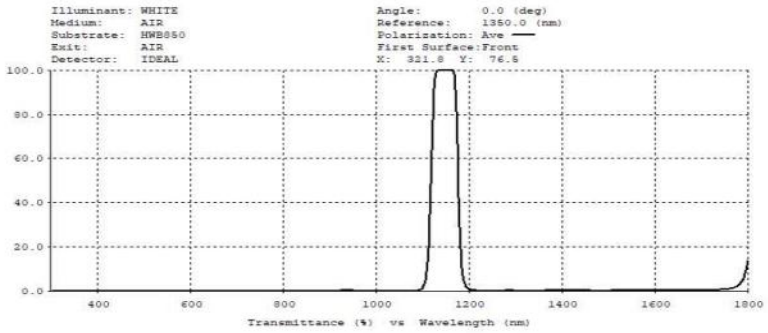
各种规格的反射镜（Mirror）、滤光片（Filter）

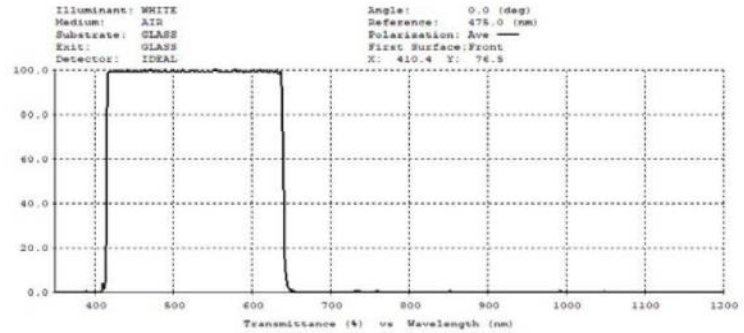


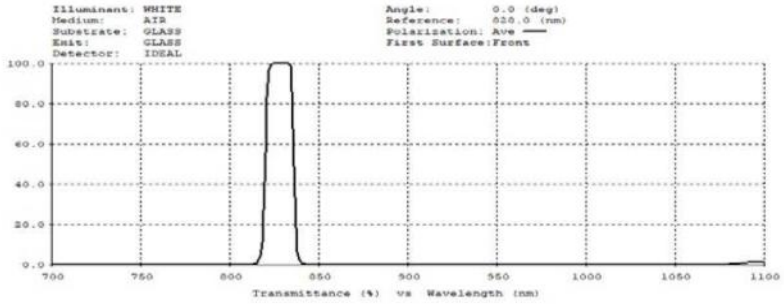


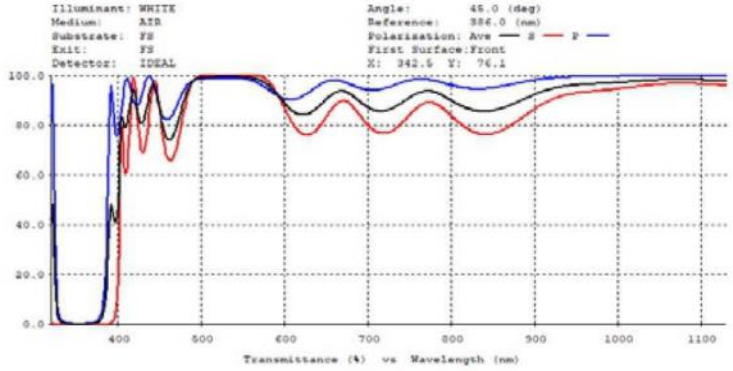




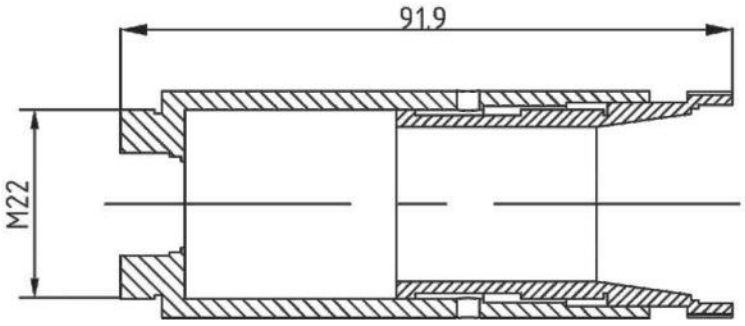

Illuminant: WHITE
Medium: AIR
Substrate: HWB850
Exit: AIR
Detector: IDEAL
Angle: 0.0 (deg)
Reference: 1350.0 (nm)
Polarization: Ave
First Surface:Front
X: 321.8 Y: 76.5
100.0
80.0
60.0
40.0
20.0
0.0
400
600
800
1000
1200
1400
1600
1800
Transmittance (%) vs Wavelength (nm)


Illuminant: WHITE
Medium: AIR
Substrate: GLASS
Exit: GLASS
Detector: IDEAL
Angle: 0.0 (deg)
Reference: 475.0 (nm)
Polarization: Ave
First Surface:Front
X: 410.4 Y: 76.5
100.0
80.0
60.0
40.0
20.0
0.0
400
500
600
700
800
900
1000
1100
1200
Transmittance (%) vs Wavelength (nm)

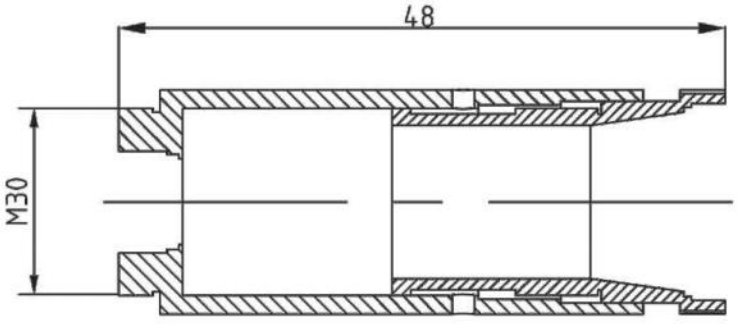

Illuminant: WHITE
Medium: AIR
Substrate: GLASS
Exit: GLASS
Detector: IDEAL
Angle: 0.0 (deg)
Reference: 820.0 (nm)
Polarization: Ave
First Surface:Front
100.0
80.0
60.0
40.0
20.0
0.0
700
750
800
850
900
950
1000
1050
1100
Transmittance (%) vs Wavelength (nm)


Illuminant: WHITE
Medium: AIR
Substrate: FS
Exit: FS
Detector: IDEAL
Angle: 45.0 (deg)
Reference: 586.0 (nm)
Polarization: Ave S P
First Surface:Front
X: 342.5 Y: 76.1
100.0
80.0
60.0
40.0
20.0
0.0
400
500
600
700
800
900
1000
1100
Transmittance (%) vs Wavelength (nm)

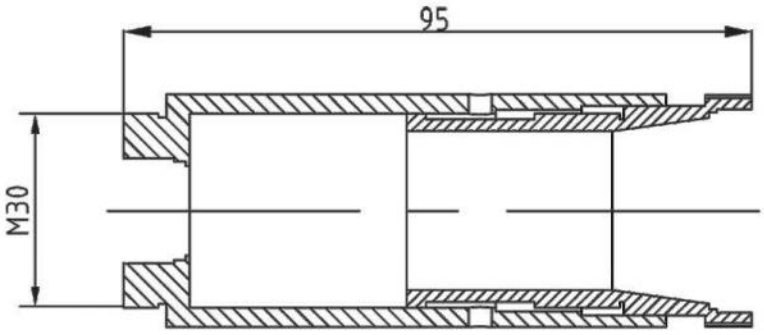
扩束镜规格书 LASER BEAM EXPANDER



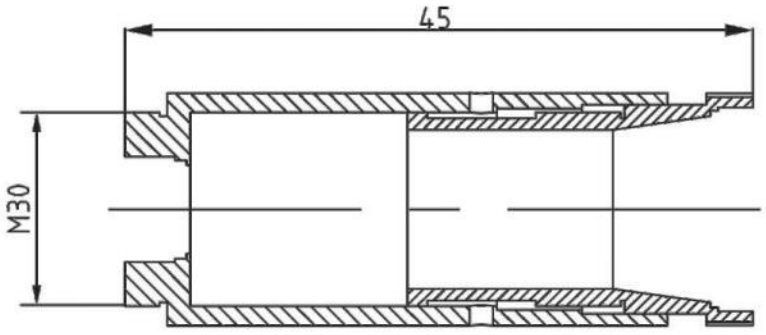
产品规格书 Product Specification	
项目(Project)	规格(Standard)
波长(WaveLength)	355nm
扩束倍数(Expansion Power)	5×
入射孔径(Entrance aperture)	4mm
出射孔径(Exit aperture)	25mm
外形尺寸(Contour dimension)	M22×0.75mm
材料(Material)	C7980
光洁度(S/D)	20-10
波前差(Wavefront error)	<1/10λ@355nm for input beam <4mm
透过率(Total transmission)	>98%
激光损伤阈值(Damage threshold,pulsed)	15J/cm²@355nm,6ns,100Hz
环保&安全(HSF&Safety)	ROHS



产品规格书 Product Specification	
项目(Project)	规格(Standard)
波长(WaveLength)	355nm
扩束倍数(Expansion Power)	2.5×
入射孔径(Entrance aperture)	10mm
出射孔径(Exit aperture)	25mm
外形尺寸(Contour dimension)	M30×1mm
材料(Material)	C7980
光洁度(S/D)	20-10
波前差(Wavefront error)	<1/10λ@355nm for input beam <4mm
透过率(Total transmission)	>98%
激光损伤阈值(Damage threshold,pulsed)	15J/cm²@355nm,6ns,100Hz
环保&安全(HSF&Safety)	ROHS



产品规格书 Product Specification	
项目(Project)	规格(Standard)
波长(WaveLength)	355nm
扩束倍数(Expansion Power)	12×
入射孔径(Entrance aperture)	3mm
出射孔径(Exit aperture)	38mm
外形尺寸(Contour dimension)	M30×1mm
材料(Material)	C7980
光洁度(S/D)	20-10
波前差(Wavefront error)	<1/10λ@355nm for input beam <4mm
透过率(Total transmission)	>98%
激光损伤阈值(Damage threshold,pulsed)	15J/cm²@355nm,6ns,100Hz
环保&安全(HSF&Safety)	ROHS



产品规格书 Product Specification	
项目(Project)	规格(Standard)
波长(WaveLength)	355nm
扩束倍数(Expansion Power)	2×
入射孔径(Entrance aperture)	10mm
出射孔径(Exit aperture)	22mm
外形尺寸(Contour dimension)	M30×1mm
材料(Material)	C7980
光洁度(S/D)	20-10
波前差(Wavefront error)	<1/10λ@355nm for input beam <4mm
透过率(Total transmission)	>98%
激光损伤阈值(Damage threshold,pulsed)	15J/cm²@355nm,6ns,100Hz
环保&安全(HSF&Safety)	ROHS

镜头 LENS

无畸变镜头 No Distortion Lens

产品说明 / Product Description

无畸变、高分辨率、大景深、大视场角、高相对亮度、日夜共焦、抗高低温。

Features: No Distortion, High Resolution, Large Depth Of Field, Large Field Of View, High Relative Illumination, Ir Correction, High Temperature Resistance.

N438C123IR16MP

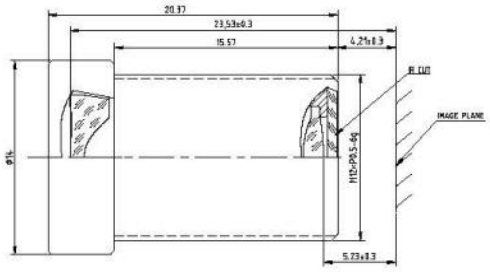
项目 (Project)	N438C123IR16MP		
焦距 (Focal Length)	4.38mm±5%		
相对孔径 (F No.)	2.8±5%		
视角场 (FOV)	水平 (H)	垂直 (V)	对角 (D)
	72°	54°	90°
TV畸变 (TV Distortion)	< 1.2%		
聚焦范围 (Focus range)	0.1m~∞		
像素 (Pixel)	16MP		
相对亮度 (Relative Illmination)	90% at full field		
日夜共焦 (IR Correction)	No		
机械后焦 (Flange Back Focal Length)	6.17mm±0.2		
光学总长 (TTL)	25.12±0.3mm		
接口 (Mount)	M12×P0.5-6g		
光圈类型 (Iris Type)	固定 (Fix)		
像面大小 (Image Circle)	1/2.3" (φ7.9)		
操作温度 (Operating Temperature)	-20℃~+80℃		
环保&安全 (HSF&Safety)	ROHS		
备注 (Remarks)	可以根据客户提供个性化设计与定制 We can provide personalized design and customize		

N42C123IR16MP -

项目 (Project)	N42C123IR16MP		
焦距 (Focal Length)	4.2mm±5%		
相对孔径 (F No.)	2.8±5%		
视角场 (FOV)	水平 (H)	垂直 (V)	对角 (D)
	72°	54°	90°
TV畸变 (TV Distortion)	< 1.2%		
聚焦范围 (Focus range)	0.1m~∞		
像素 (Pixel)	16MP		
相对亮度 (Relative Illmination)	82% at full field		
日夜共焦 (IR Correction)	No		
机械后焦 (Flange Back Focal Length)	5.08mm±0.2		
光学总长 (TTL)	25.21±0.3mm		
接口 (Mount)	M12×P0.5-6g		
光圈类型 (Iris Type)	固定 (Fix)		
像面大小 (Image Circle)	1/2.3" (φ7.9)		
操作温度 (Operating Temperature)	-20℃~+80℃		
环保&安全 (HSF&Safety)	ROHS		
备注 (Remarks)	可以根据客户提供个性化设计与定制 We can provide personalized design and customize		

技术信息 INFORMATION TECHNOLOGY

N419C125N5MP1



技术指标 / Specifications

项目 (Project)	规格 (Standard)		
相对孔径 (F No.)	2.3±5%		
焦距 (Focal Length)	4.2mm±5%		
机械后焦 (Flange Back Focal Length)	4.21mm±0.3		
像面大小 (Image Circle)	1/2.5"(7.13)		
视场角 (FOV)	23.53±0.3mm		
光学畸变 (Optical Distortion)	M12XP0.5-6g		
像素 (Pixel)	固定 (Fix)		
相对亮度 (Relative Illmination)	水平 (H)	垂直 (V)	对角 (D)
	68.3°	54 °	80.6°
日夜共焦 (IR Correction)	<6%		
操作温度 (Operating Temperature)	0.3m ~∞		
环保 & 安全 (HSF&Safety)	5MP		
光学总长 (TTL)	80% at full field		
接口 (Mount)	NO		
光圈类型 (Iris Type)	-20℃ ~ +60℃		
聚焦范围 (Focus Range)	ROHS		
备注 (Remarks)	客户有特殊要求，可定制 (Customers have special renquirements,can be customized)		

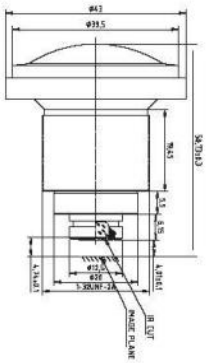
全景镜头 Panoramic Lens

产品说明 / Product Description

高分辨率、大景深、190 视场角、高相对亮度、日夜共焦、抗高低温。

Features: High Resolution, Large Depth Of Field, Fov 190°, High Relative Illumination, Ir Correction, High Temperature Resistance.

F18C23IR12MP



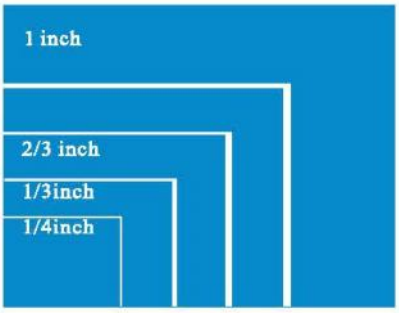
项目 (Project)	F18C23IR12MP		
焦距 (Focal Length)	1.82mm±5%		
相对孔径 (F No.)	1.7±5%		
视角场 (FOV)	水平 (H)	垂直 (V)	对角 (D)
	190°	190°	190°
TV畸变 (TV Distortion)	<3%		
聚焦范围 (Focus range)	0.1m~∞		
像素 (Pixel)	12MP		
相对亮度 (Relative Illmination)	75% at full field		
日夜共焦 (IR Correction)	Yes		
机械后焦 (Flange Back Focal Length)	4.01mm±0.1		
光学总长 (TTL)	50.73±0.3mm		
接口 (Mount)	1-32UNF-2A		
光圈类型 (Iris Type)	固定 (Fix)		
像面大小 (Image Circle)	1/1.7" (φ5.6)		
操作温度 (Operating Temperature)	-20℃~+80℃		
环保&安全 (HSF&Safety)	ROHS		
备注 (Remarks)	可以根据客户要求个性化设计与定制 We can provide personalized design and customize		

图像尺寸 Image Size

如果镜头规格比摄像机传感器大，则无需切割即可使用。

Image Size - Image element of CCTV camera

As long as lens Format Size is lager than Image Element of camera,then are compatible.



图像元件 Image Element	图像尺寸（mm） Image Size(mm)			镜头规格 Lens Format Size		
	水平 Horizontal	垂直 vertical	对角 diagonal	1′	1/2′	1/3′
1英尺	12.8	9.6	16.0	0	×	×
2/3英尺	8.8	6.6	11.0	0	×	×
1/2英尺	6.4	4.8	8.0	0	0	0
1/3英尺	4.8	3.6	6.0	0	0	0
1/4英尺	3.6	2.7	4.5	0	0	0
35mm（ref.）	36.0	24.0	43.3	–	–	–

接口 Interface

CCTV摄像机有C接口和CS接口2种类型。C接口和CS接口的区别在于凸缘衬圈长度不同。

Type of Mount-type of CCTV camera.

CCTV camera has two types of mount, such as C and CS mount.The difference between C & CS is only the flange back distance.

规格 STANDARD	CS接口 CS mount（in air）	C 接口 C mount
凸缘衬圈长度 flange back distance.	12.5mmi（n air）	17.526mm（in air）
接口螺径 Diameter of screw thread	Φ25.4（1-32 UN）	

焦距 Focal Length

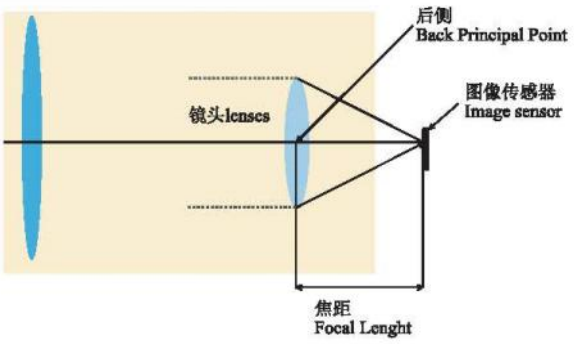
所谓焦距，是指镜头的后侧主点到对焦位置（图像传感器受光面）的距离。

如果焦距变长，则视角变窄（如果焦距变短，则视角变宽）

Focal Length - From Back Principal Point To Focal Point

Focal Length is the distance from back principal point to focal point(usually image plain).

The longer the focal length becomes,the narrower the angle of view.



视角 Visual Angle

视角是指图像传感器的受光范围（摄像范围）。视角一般使用角度表示。一般来说，实用角度表示将镜头对焦于无限远位置时的摄影范围（角度）。视角可以根据焦距和图像尺寸求得。知道视角和图像尺寸，可以得出需要大概多大焦距的镜头。以下算式是假设失真率为0%时的算式。

Focal Length - From Back Principal Point to Focal Point. Angle of view is the shooting range that can be captured by image sensor,and it is expressed in degree. Normally angle of view means the shooting range when focused using focal length and image size.The formula below is available when assuming than distortion is 0%.

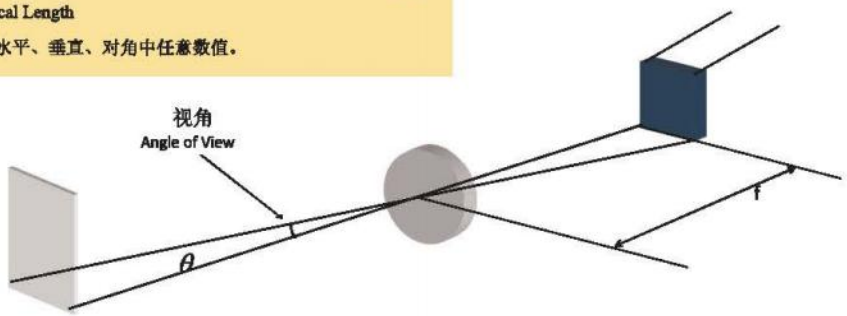
θ =视角 Angle of view

H′ =图像尺寸 Image size

$$\theta = 2\tan^{-1}\frac{H'}{2f}$$

f=焦距 Focal Length

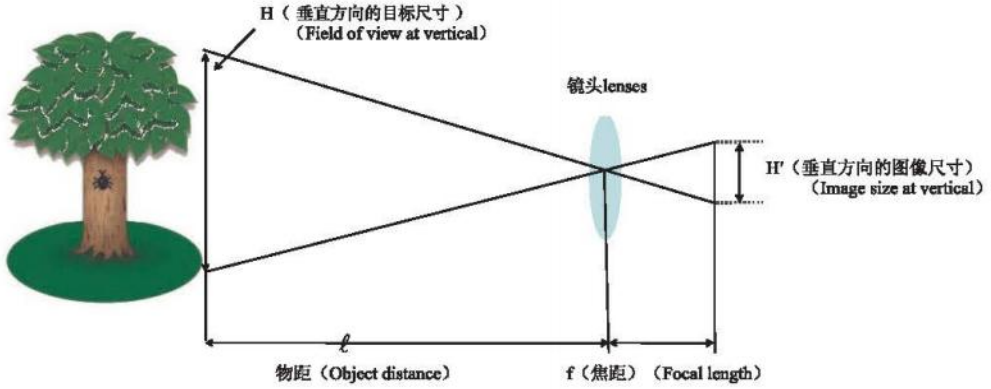
*1-H'输入水平、垂直、对角中任意数值。



摄影范围和焦距 Range And Focus Of Photography

至目标距离有限时，如果知道图像传感器尺寸、焦距、至目标的距离，即可求得摄影范围。

Field of view & Focal Length - Relation ship between Object Size & Focal length. When object distance is limited,object size can be calculated using image size,focal length of lens and object distance. In another word,when you are thinking which focal length of lens to choose ,calulate it using each value of object distance and image size.The formula below is available when assuming that distortion is 0%.



H=视野范围（Field of view）

视野范围 Field of view $H = H' \frac{\ell}{f}$

ℓ =目标距离 Object Distance

H′ =图像尺寸image Size

f=焦距 Focal Length

焦距 Focal length $f = \ell \frac{H'}{H}$

F值和T值-镜头亮度 F Values And T Values - Lens Brightness

F值和T值 表示镜头的亮度。两值越小，表示镜头亮度越高。
一般来说，产品目录等中使用F值表示。 F值可以通过以下算是求得。

F Number & T Number - Brightness of lens
Either F number (F No)and T number (T No)indicates how bright how bright lens is.
Smaller value of F No or T No.means lens is brighter.
F No. Is calculated by the formula on the right:

F值 F number

f=焦距 Focal length

d=有效瞳径 Effective diameter of lens $F值 = \frac{f}{d}$

透过率作为100%情况下进行的计算（spectral transmittance is assumed as 100%）

T值相比F值考虑镜头的透过率，所以，T值表示比F值更精确的镜头亮度。T值可以通过以下算式求得：
T number is more accurate value of brightness of lens than F number since it is calculated using transmittance Of lens.
T NO. Is calculated by formula on the right

T 值 T number

F=焦距 F number

t=镜头透过率（%）
Transmittance% of lens

$T值 = \frac{F}{\sqrt{t\ (\%)}}$

湖南戴斯光电有限公司
Hunan DayOptronics Co.,Ltd

湖南省长沙市宁乡高新区金水西路008号（410600）

008 ,Jinshui West Road,Ningxiang High-tech Zone,
Changsha (410600) , Hunan,
T +86-731-87051588 F +86-731-87051788
H +www. dayoptronics. com E sales@dayoptronics.com

福建戴斯光电有限公司
Fujian Dayoptics , Inc

福州市仓山区福湾工业区阳岐支路6号

Yangqi Branch,8 Jinshan Fuwan Park,Fuzhou,
Fujian,350008,China.
T +86 591 8321 5681 F +86 5918321 5359
H www. dayoptics. com E sales@dayoptics.com