

We manufacture numerous, precision Optical Components that can be easily inserted into the optical path, simply by plugging the Component Module into the FiberBench or FiberTable. A Component Module consists of an Optical Component mounted onto an intermediate Stage Adapter. Precision, hardened steel dowel pins on the underside of the Stage Adapter fit into receiving holes on the FiberBench Base and FiberTable.

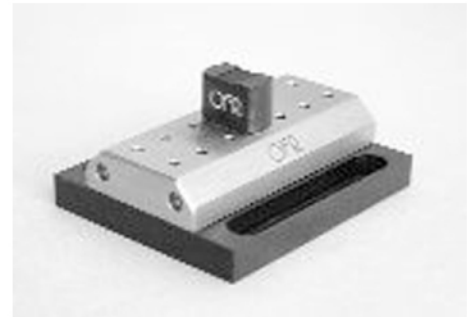
Empty Component For applications using non-OFR or loose optical components, empty Component Bases are available. These are used on all standard Optical Component Modules.

Catalog Number	Description
HCB	Fixed Base
RCB	Rotating Base
HOM	Half inch Optics Mount
ACB	Flexure Base



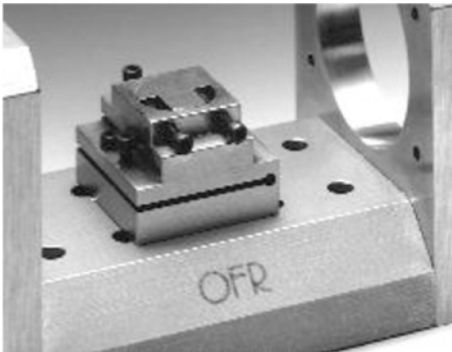
HOM

Fixed Component Base for half-inch components.



HCB

Fixed Base for non-deviating components, such as parallel windows, filters, etc.



ACB

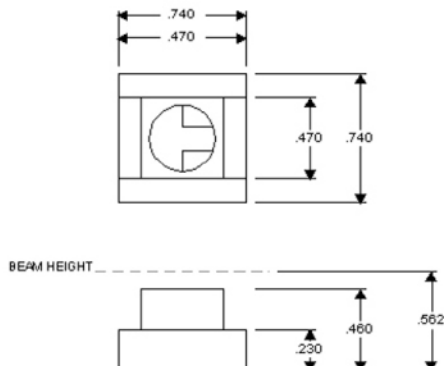
3-Axis Aiming Base for deviation compensation, featuring ultra-stable flexure joints. It is especially significant because it accommodates many different components. All Component Module Bases mount onto the FiberBench via hardened, precision pins, and are then locked for absolute stability.



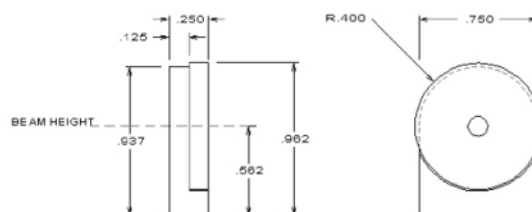
RCB

Rotating Base for components requiring rotation, such as retarders, polarizers, etc. 1.5° resolution.

ACB PLATFORM



RCB/RZB/PCB



50/50 Plate Beamsplitters

A Laser Beamsplitter plate, mounted on an ACB 3-Axis Aiming Base, comprises the Beamsplitter Module.

These produce a 50/50 split with unpolarized light within the wavelength band specified. The beamsplitter coating is dielectric, and all air surfaces are AR coated. When ordering, specify wavelength of operation.

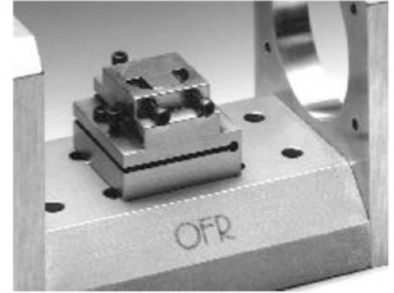
Beamsplitter Modules are intended for applications requiring access to two or more output beams. Split ratios other than 50/50 are available on special order.

Polarizing Beamsplitter

A Broadband Polarizing Beamsplitter prism cube, mounted on an ACB 3-Axis Aiming Base, comprises the Polarizing Beamsplitter Module.

This splits the collimated laser beam into its S and P polarized components, with the S(vertical) component reflecting 90° and the P(horizontal) component continuing undeviated.

Separation of polarization of the two components is > 1000:1 (30dB).



Catalog Numbers	
50/50 Plates	Polarizing Cubes
MS-B-VL-λ	PSCL-B-VL-λ
MS-B-HL-λ	PSCL-B-HL-λ
MS-B-VR-λ	PSCL-B-VR-λ
MS-B-HR-λ	PSCL-B-HR-λ

Wavelength	Order as
450-675 nm	VIS
630-860 nm	VNIR
950-1100 nm	YAG
1270-1600 nm	IR

Broadband PSP* Beamsplitters (*Polarization-State-Preserving)

The PSP Beamsplitter

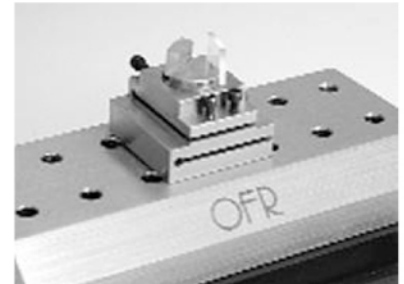
In most fiber-optic applications it is necessary to maintain of the light in the system. However, if an ordinary beamsplitter is used, the SOP will be changed. An “ordinary” beamsplitter is described as a plate of glass at 45° that reflects (S) and transmits (P) incident light, whether coated or uncoated. This is because this type of beamsplitter affects the SOP of the S and P beams. The PSP beamsplitter maintains a constant amplitude split ratio for any input SOP. The PSP beamsplitter produces a 50/50 split within 3% for both output beams. Other split ratios are available on a custom basis. A special PSP beamsplitter with 4% reflection and 96% transmission is used to sample the optical beam for the purpose of mounting power

Specifications

- $R_s=T_s=50\% \pm 3\%$
- $R_p=T_p=50\% \pm 3\%$
- Bandwidth: $\lambda_c \pm 50-100\text{nm}$
- Custom ratios available

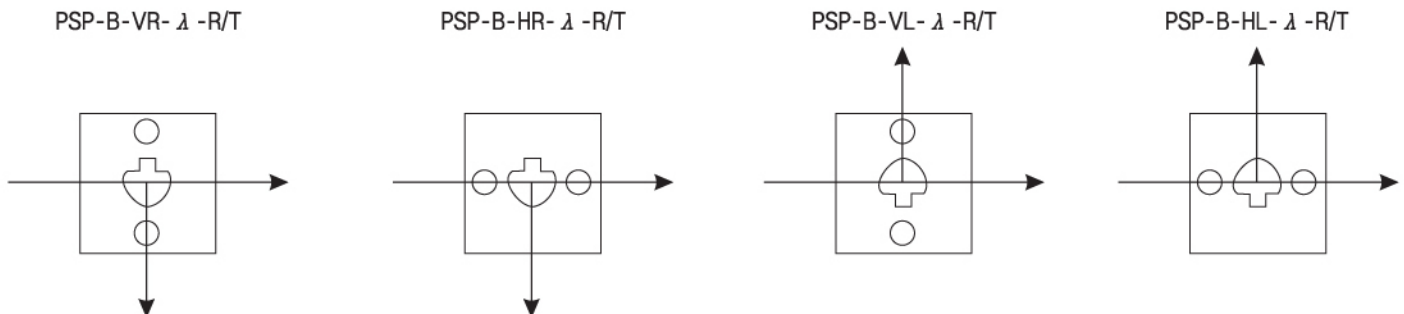
Center(λ _c) Wavelength	Order as
633 nm	VIR
800 nm	NIR1
1064 nm	YAG
1310 nm	IR1
1550 nm	IR2

NOTE : some wavelegths under development



PSP-B-λ -50/50

Ordering information for PSP Beamsplitters :



*V : Vertical, H : Horizontal, R : Right, L : Left

Rotating Linear Polarizers

Linear Polarizers, mounted in RCB Rotating Cell. These are dichroic type linear Polarizers with both sides AR coated. Specify wavelength when ordering.

*Wavelength	Coating
425 - 675 nm	Inquire
630 - 860 nm	Inquire
780 - 850 nm	NIR2
900 - 1125 nm	YAG
1200 - 1400 nm	IR1
1400 - 1650 nm	IR2



Catalog Number	Description	Aperture	Walk-Off	Ext.	Trans.	Wavelength
PCB-1.5- λ	Rotating Polarizer	1.5 mm	na	> 40 dB	> 98%	1310nm, 1550nm
PCB-2.5- λ	Rotating Polarizer	2.5 mm	na	> 40 dB	> 98%	All *
PCB-4- λ	Rotating Polarizer	4 mm	na	> 40 dB	> 98%	All *
PCB-6- λ	Rotating Polarizer	6mm	na	> 40 dB	> 98%	All *

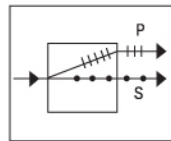
Calcite Walk-Off Polarizers

Walk-Off Polarizers, precision polished calcite blocks, are specifically designed for construction of polarization independent systems and other optical devices.

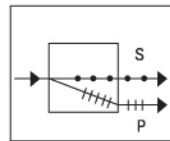
For complete separation of S and P, beam diameter cannot exceed Clear Aperture, otherwise overlap will occur.

The most common application of Walk-Off Polarizers is in a 1x2 splitter configuration.

These Polarizers are capable of handling extremely high optical powers, and have extremely wide bandwidth and the highest polarization ratio of all types of polarizers.



Left Handed Walk-Off Polarizer



Right Handed Walk-Off Polarizer

Wavelength	Coating
425 - 675 nm	VIS
630 - 860 nm	NIR1
780 - 850 nm	NIR2
900 - 1125 nm	YAG
1200 - 1400 nm	IR1
1400 - 1625 nm	IR2



Catalog Number	Description	Aperture	Walk-Off	Ext.	Trans.	Wavelength
PBB-6- λ -R	Walk-Off Polarizer	0.5 mm	0.6 mm	> 50 dB	> 98%	All *
PBB-6- λ -L	Walk-Off Polarizer	0.5 mm	0.6 mm	> 50 dB	> 98%	All *
PBB-8- λ -R	Walk-Off Polarizer	0.5 mm	0.8 mm	> 50 dB	> 98%	All *
PBB-8- λ -L	Walk-Off Polarizer	0.5 mm	0.8 mm	> 50 dB	> 98%	All *
PBB-10- λ -R	Walk-Off Polarizer	0.5 mm	1 mm	> 50 dB	> 98%	All *
PBB-10- λ -L	Walk-Off Polarizer	1 mm	1 mm	> 50 dB	> 98%	All *
PBB-12- λ -R	Walk-Off Polarizer	0.5 mm	1.2 mm	> 50 dB	> 98%	All *
PBB-12- λ -L	Walk-Off Polarizer	0.5 mm	1.2 mm	> 50 dB	> 98%	All *
PBB-16- λ -R	Walk-Off Polarizer	0.5 mm	1.6 mm	> 50 dB	> 98%	All *
PBB-16- λ -L	Walk-Off Polarizer	0.5 mm	1.6 mm	> 50 dB	> 98%	All *

Retarders

A Crystal Quartz Zero-Order or Achromatic Retarder in a Rotating Base comprises the Retarder Module. 1/4-Wave and 1/2-Wave Retarders are available for all standard laser wavelengths. These Zero-Order retarders have the widest bandwidth(6nm) and highest extinction potential(10^4 - 10^5) of all types of retarders.

In order to function in as many applications as possible, the Retarders are mounted in a Rotating Cell with engraved angle-index.

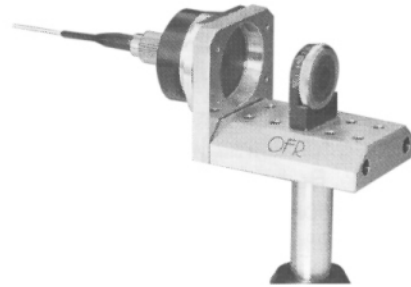
The 1/4-Wave Retarder produces circularly polarized light. It is used with a 1/2-Wave Retarder to construct a Polarization controller.

The 1/2-Wave Retarder is generally used to control rotation of the plane of polarization.

Retarders are manufactured to the exact wavelength of intended use, and all surfaces are AR coated. Therefore, when ordering, specify wavelength of operation.

Catalog Number	Description	Insertion Loss	Aperture
RZB-1/4- λ	1/4-wave zero order	< 0.1 dB	4 mm
RZB-1/2- λ	1/2-wave	< 0.1 dB	4 mm
RMAB-1/4- λ -IR	1/4-wave,1200-1600nm	< 0.1 dB	4 mm
RMAB-1/2- λ -IR	1/2-wave,1200-1600nm	< 0.1 dB	4 mm

λ : when ordering, specify wavelength, for example RZB-1/2-1310.



RZB mounted on FB-51 with PAF

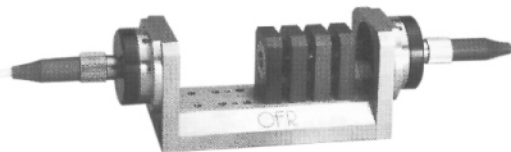
Attenuators

A Neutral Density Filter, mounted in Fixed Component Base, comprises the dB Attenuator Module. These are available in dB attenuation steps of 3,6,10,20,30 and 40 dB.

Any of these can be added in series to achieve higher attenuation values. For example, 20dB plus 30 dB yield a total of 50dB. This is easily achieved by setting the Modules onto the Component Stage.

Components are tilted to prevent back reflection.

Both the FiberBench and FiberTable are designed to accept several Modules.



FDB modules in fiber-fiber coupling table.

Catalog Number	Attenuation Steps(dB)					
FDB-(dB)	3	6	10	20	30	40
Transmittance	0.5	0.2	10^{-1}	10^{-2}	10^{-3}	10^{-4}

NOTE : Order as FDB-20, for example.

