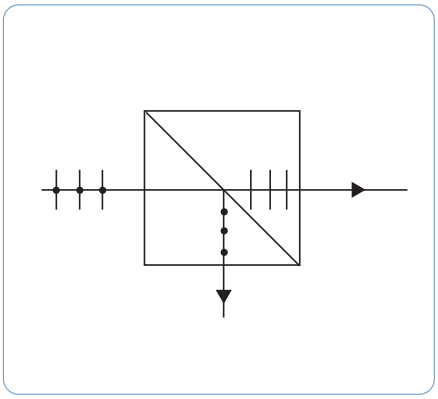
POLARIZING BEAM SPLITTER

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.

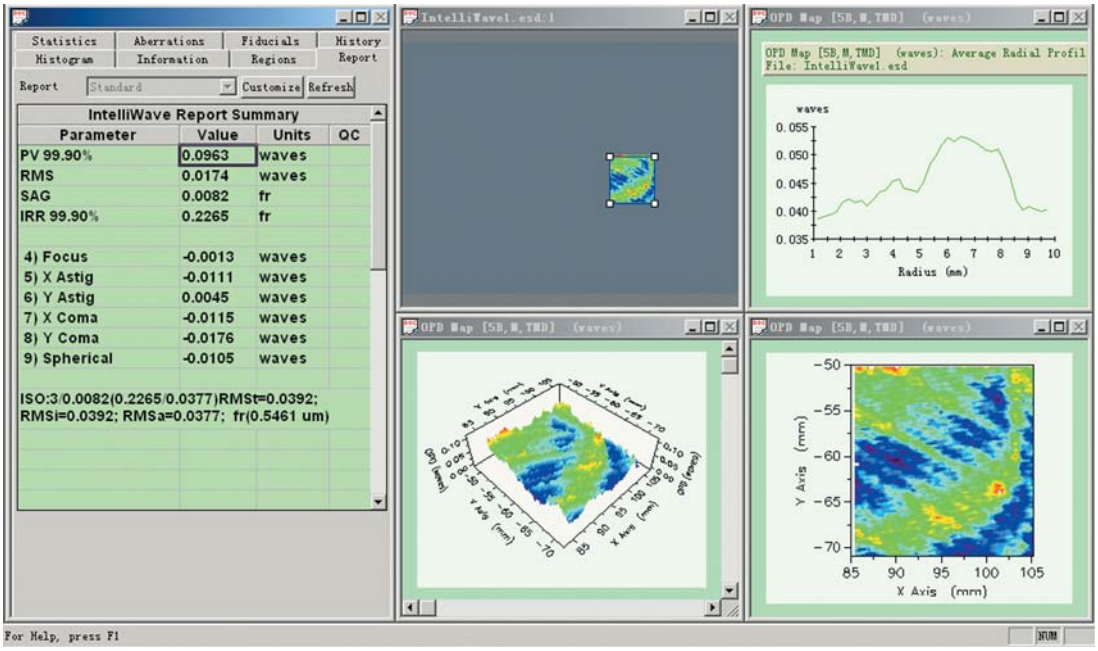
Currently. as coating technologies and assembly techniques have improved, so there are many types of polarizing beamsplitter cubes can be provided in the market. Dayoptics has own technology in providing two types of high precision polarizing beamsplitter cube. One is by using cemented method for PBS (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.

Dayoptics	Polarizing Beam Splitter (PBS)	
	Standard PBS	High Power PBS
Interface Surface	Cemented	Optically Bonded
Damaged Threshold @ 1064 nm	0.2-1 J/cm2	>15 J/cm2
Possible Damage Threhold @ 355nm	0.1-0.25 J/cm2	2-3J/cm2
Flatness	L/4	L/8
Transmission @ 1064nm	>95%	>96%
Surface Figure	60/40	40/20 (20/10)
Extinction Ratio	300:1-500:1	>1000:1



A primary advantage of a direct-bonding technique over optical contacting is that the increased strength of the bond allows processing after assembly, meaning that the bonded parts can be cut, shaped, polished or coated to create highly toleranced or multicomponent assemblie without the temperature constraints or threat of delamination exhibited by other assembly techniques. Because there is no epoxy, the finished units are compact and thermally stable, exhibiting insignificant levels of absorption or scattering loss at the optical interface.

Flatness of PBS inspected by Interferometer



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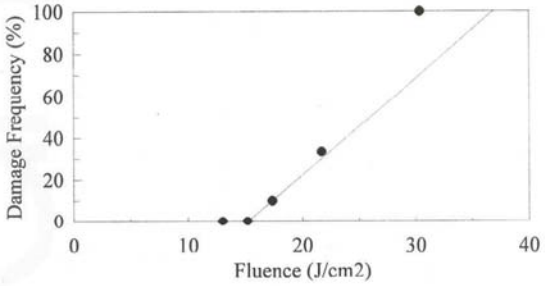
HIGH POWER POLARIZATION BEAMSPLITTER

High Power Damage Threshold Report from Quantel

LASER DAMAGE THRESHOLD

Customer:	Dayoptics, Inc.	Certificate No.:	13866 #1
Purchase Order Number:	P338	Issued:	Dec. 1, 2008
Substrate Material:	BK-7 Glass	Coating Type:	B/S@1064 nmm
Part No.:	PBS206-HP PBS cube	Lot No.:	136
Special Requirements:	Per P.O.		
Wavelength (nm):	1064	Spot Diam. (FW/e2, mm):	.5
Repetition Freq. (Hz):	20	Incidence Angle (deg.):	Normal
Pulse Width (FWHM, ns):	20	Polarization State:	Circular
Axial Modes:	Multiple	Transverse Modes:	TEMoo
No. Sites Tested:	26	No. Shots/Site:	200
Damage Definition:	Permanent surface change	Inspection Method:	Nomarski/Darkfield 150X
Preparation:	N2 Dustoff		



J/cm2	MW/cm2	%Fail
30.4	1214	100
21.7	867	33.3
17.3	694	10
15.2	607	0
13	520	0

Test Results: Damage Threshold: **15.2** J/cm2 or **607** MW/cm2
Damage Type: Propagating pit(s) on the hypotenuse

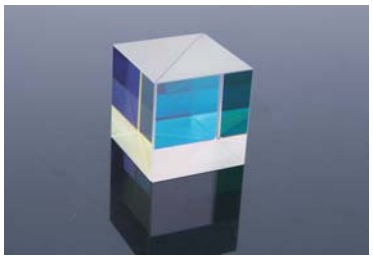
Notes:

"Big Sky Laser Technologies, Inc., certifies that the Laser Damage Threshold of this sample was tested as shown hereon. Fluence measurement precision was plus or minus 10%, traceable to NIST. The test method was substantially in agreement with ISO 11254. Specific calibration data are maintained in this office and are available on request. We certify that this test report conforms to all applicable provisions of the purchase order."

Jeff Runkel

HIGH POWER POLARIZATION BEAMSPLITTER

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.

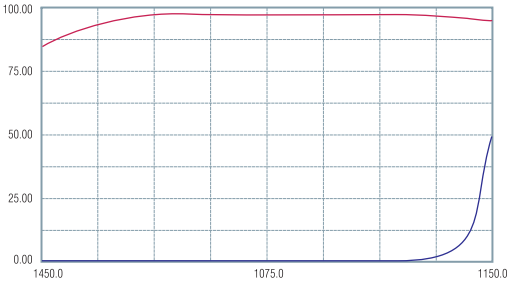


Features

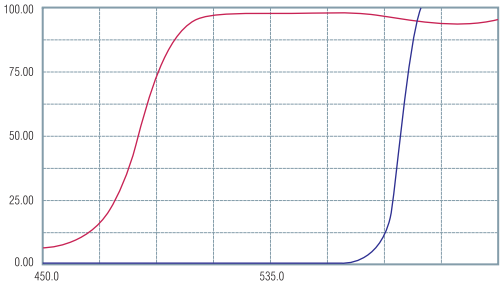
- High Power High Damage Threshold: ~10J/cm^2 @ 1064nm 20ns, 20Hz （Certificate No. 13866#1）
- Green Optics. Epoxy-free! Optical Contacted.
- Transmission: >96%@Central Wavelength
- Extinction Ratio: Better than 30dB for 1064nm
- High Coating Performance
- Surface quality: 40/20
- Wavelength Range (Other Material & Wavelength Available)

  1064nm+/-30nm (Material: BK7) 1550nm+/-35nm (Material: BK7)

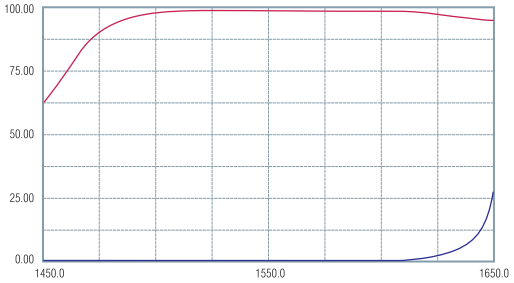
  532nm+/-20nm (Material: BK7) 355nm+/-10nm (Material: Fused Silica)
- Design & Technical Support Services and Volume Production.



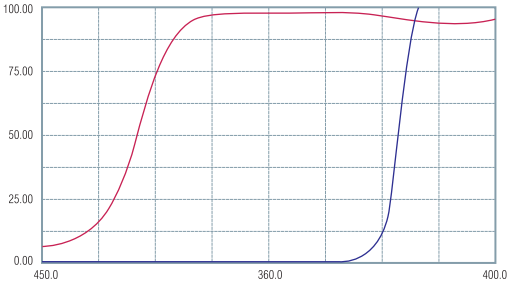
PBS@1064nm



PBS@532nm



PBS@1550nm



PBS@355nm

Single Wavelength

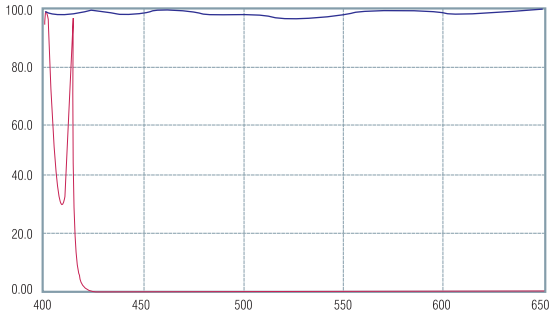
Part No.	Size Tolerance	Unit Price
PBS206-HP	6.35x6.35mm +/-0.1	$58
PBS212-HP	12.7x12.7mm +/-0.2	$128
PBS225-HP	25.4x25.4 mm +/-0.2	$220

Order information: 1064nm PBS206-HP-1064nm

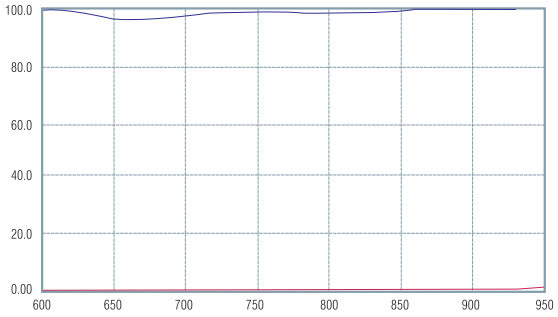
HIGH POWER POLARIZATION BEAMSPLITTER

Specifications

High Power High Damage Threshold	> 3-5J/cm2 @ 1064nm 20ns, 20Hz
Green Optics	Epoxy-free! Optical Contacted
Extinction Ratio	>30dB
Avarage	Tavg>92%
Wavelength Range	450-650nm、650-900nm 、900-1200nm、1200-1600nm
Surface Quality	40/20 (20/10 can be available)
Surface Figure	< 1/4 wave @633nm



PBS@450-650nm



PBS@650-900nm

Broadband Wavelength

Part No.	Size Tolerance	Unit Price
PBS506-HP	6.35x6.35 mm +/-0.1	$68
PBS512-HP	12.7x12.7 mm+/-0.2	$148
PBS525-HP	25.4x25.4 mm +/-0.2	$288

Order information: 450-650nm PBS506-HP-450-650nm

POLARIZATION CUBE BEAMSPLITTER

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 by epoxy together with a dielectric coating on the hypotenuse of one of prisms.

Single Wavelength PBS

Dimension Tolerance	±0.2mm
Interface	By epoxy
Flatness	λ /4 @ 632.8 nm per 25mm
Surface Quality	40/20 scratch and dig
Extinction Ratio	>500:1
Beam Deviation	<3 arc minutes
Principal Transmittance	>95% and Ts<0.2%
Principal Reflectance	Rs>99% and Rp<5%
Coatings	Polarization beamsplitter coating on hypotenuse face, AR-coatings (R< 0.25%) on all input and output face.
Standard Coating Wavelength	488, 532, 632.8, 808,980, 1064, 1310, 1550 nm

Part No.	Size Tolerance	Unit Price
PBS206	6.35x6.35 mm +/-0.1	$38
PBS212	12.7x12.7 mm +/-0.2	$45
PBS225	25.4x25.4 mm +/-0.2	$68

Order information: 1064nm PBS206-1064nm

Broadband PBS

Dimension Tolerance	±0.2mm
Interface	By epoxy
Flatness	λ /4 @ 632.8 nm per 25mm
Surface Quality	40/20 scratch and dig
Extinction Ratio	>500:1
Beam Deviation	<3 arc minutes
Principal Transmittance	>92% and Ts<0.2%
Principal Reflectance	Rs>99% and Rp<5%
Coatings	Polarization beamsplitter coating on hypotenuse face, AR-coatings (Ravg< 1%) on all input and output face.
Standard Coating Wavelength	400-700, 700-1000, 1000-1200, 1200-1600 nm

Part No.	Size Tolerance	Unit Price
PBS506	6.35x6.35mm +/-0.1	$45
PBS512	12.7x12.7mm +/-0.2	$55
PBS525	25.4x25.4 mm +/-0.2	$78

Order information: 450-650nm PBS506-450-650nm