

▼ CHAPTERS

Optical Elements

Polarization Optics

Optical Isolators

Optical Systems

Optics Kits

▼ SECTIONS

Spherical Lenses

Achromatic Lenses

Aspheric Lenses

Cylindrical Lenses

Mirrors

Spectral Filters

ND Filters

Beamsplitters

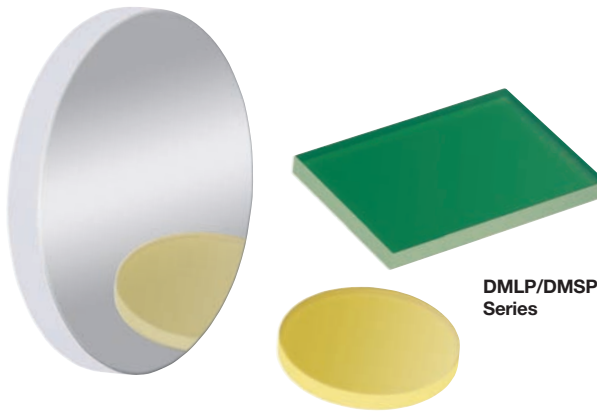
Prisms

Gratings

Windows

Diffusers

Dichroic Mirror/Beamsplitters (Page 1 of 5)



Features

- Dichroic Mirror with Long- (DMLP Series) or Shortpass (DMSP Series) Characteristics
- High Transmission and Reflectivity with Flat Response and Sharp Cut-Off Edges
- Fused Silica Substrate with Ultra-Low Autofluorescence
- Hard Dielectric Coating for Easy Handling and Cleaning with Negligible Degradation or Burn Out
- Resistant to Damage from UV Light and Chemicals
- Dichroic Surface and Part Number is Indicated with Engraving

NEW
versions

The DMLP Series of Dichroic Mirrors/Beamsplitters are designed for use with an angle of incidence of 45°. Each mirror is designed so that it transmits/reflects 50% of the incident beam at its design wavelength. Below the design wavelength is a spectral band over which the optic will reflect more than 90% of the incident light while above the design wavelength is a spectral band for which the optic will transmit more than 90% of the incident light for the longpass mirrors and vice versa for the shortpass mirrors. Therefore, the optic can combine two separate beams: one with a wavelength(s) shorter than the design wavelength and another with a wavelength(s) longer than the design wavelength without significant intensity losses to either beam. Alternatively, overlapping beams can be split using the same optic. Dichroic mirrors are frequently used in fluorescence microscopy where the light used to excite the sample is focused onto the sample with the same objective lens that is used to collect the light emitted by the sample.

Specifications

- **Substrate Material:** UV Fused Silica
- **Wavefront Distortion:** $\leq \lambda/4$ at 632 nm
- **Surface Quality:** 40-20 Scratch-Dig
- **Angle of Incidence:** 45°
- **Operating Temperature:** -50 to 80 °C

Typical Applications

- Fluorescence Microscopy
- Combining or Splitting Two Beams of Different Wavelengths
- Filtering of Spectral Components

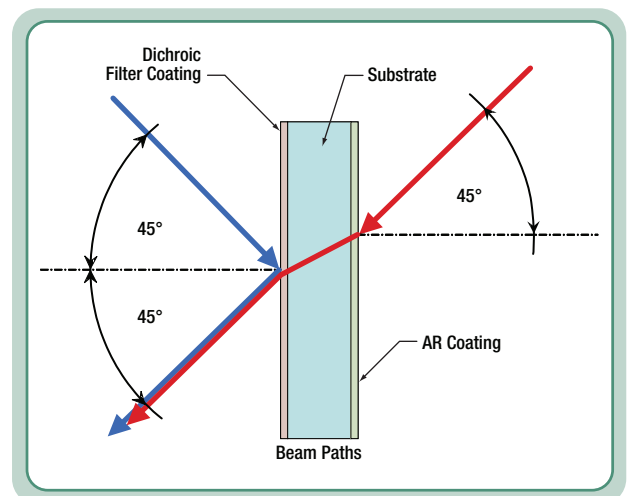
SIZE	CLEAR APERTURE	THICKNESS
Ø25.4 mm	Ø23.0 mm	3.2 mm
Ø50.8 mm	Ø48.0 mm	5.0 mm
25 mm x 36 mm	23 mm x 33 mm	3.0 mm

Application

The figure to the right depicts the optic being used to combine two beams: one with a wavelength in the transmission band (red) and another with a wavelength in the reflection band (blue). A dichroic mirror/beamsplitter differs from a typical beamsplitter in that the beams are combined or separated without a large loss in the intensity of either beam.

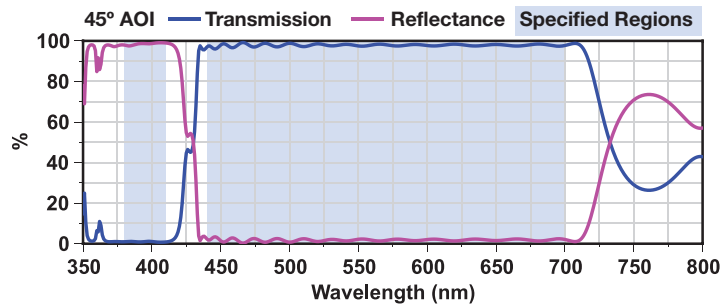
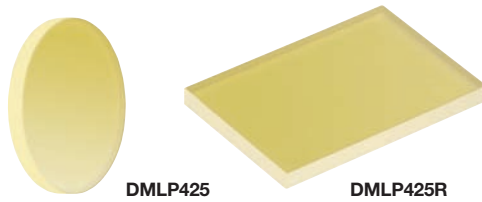
High Surface Quality and Durability

These filters have a hard-coated ion-beam-sputtered thin coating placed on a simple ultra-low-autofluorescence fused silica substrate without adhesives. The dielectric glass coatings have a scratch-dig of 40-20. Additionally, they are virtually impervious to humidity-induced shifting. The filters can be cleaned and handled like standard glass optics. They withstand high optical irradiation intensities with no noticeable degradation or burn out, even with prolonged use and exposure to ultraviolet light.



Dichroic Mirror/Beamsplitters (Page 2 of 5)

DMLP425 (Longpass Characteristics): 50% Transmission/Reflection at 425 nm



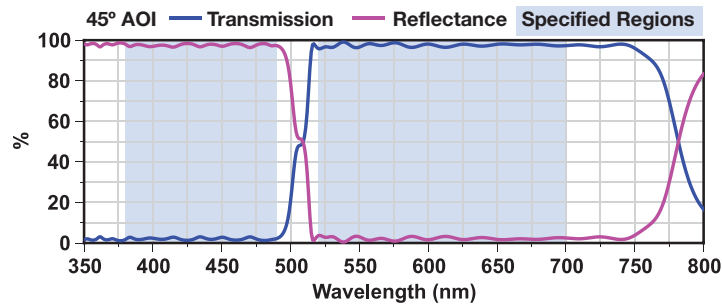
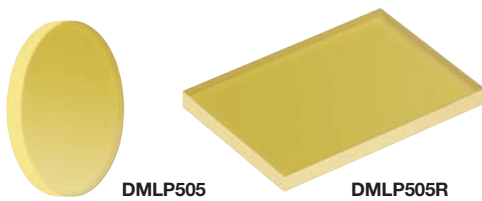
WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	425 nm
Reflection Band ($R_{avg} > 90\%$)*	380 - 410 nm
Transmission Band ($T_{avg} > 90\%$)*	440 - 700 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 700 nm)
Damage Threshold**	0.85 J/cm ² (@ 532 nm)

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

ITEM #	\$	£	€	RMB	SIZE
DMLP425	\$ 165.00	£ 118.80	€ 143.55	¥ 1,315.05	Ø25.4 mm
DMLP425L	\$ 300.00	£ 216.00	€ 261.00	¥ 2,391.00	Ø50.8 mm
DMLP425R	\$ 230.00	£ 165.60	€ 200.10	¥ 1,833.10	25 mm x 36 mm

NEW
NEW

DMLP505 (Longpass Characteristics): 50% Transmission/Reflection at 505 nm



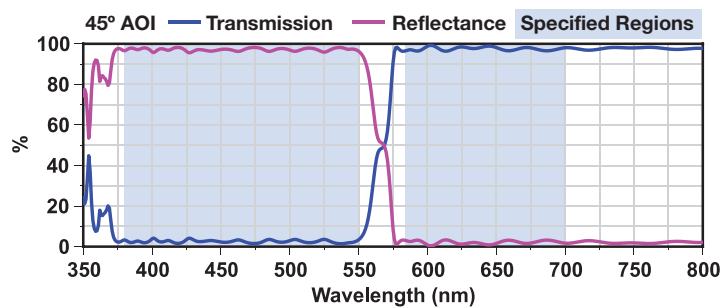
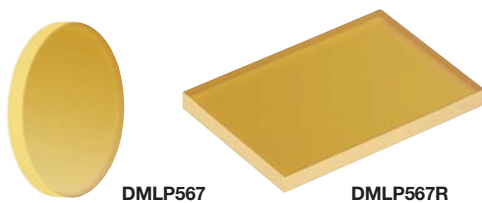
WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	505 nm
Reflection Band ($R_{avg} > 90\%$)*	380 - 490 nm
Transmission Band ($T_{avg} > 90\%$)*	520 - 700 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 700 nm)
Damage Threshold**	1.67 J/cm ² (@ 532 nm)

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

ITEM #	\$	£	€	RMB	SIZE
DMLP505	\$ 165.00	£ 118.80	€ 143.55	¥ 1,315.05	Ø25.4 mm
DMLP505L	\$ 300.00	£ 216.00	€ 261.00	¥ 2,391.00	Ø50.8 mm
DMLP505R	\$ 230.00	£ 165.60	€ 200.10	¥ 1,833.10	25 mm x 36 mm

NEW
NEW

DMLP567: (Longpass Characteristics): 50% Transmission/Reflection at 567 nm



WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	567 nm
Reflection Band ($R_{avg} > 90\%$)*	380 - 550 nm
Transmission Band ($T_{avg} > 90\%$)*	584 - 700 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 700 nm)
Damage Threshold**	1.96 J/cm ² (@ 532 nm)

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

ITEM #	\$	£	€	RMB	SIZE
DMLP567	\$ 165.00	£ 118.80	€ 143.55	¥ 1,315.05	Ø25.4 mm
DMLP567L	\$ 300.00	£ 216.00	€ 261.00	¥ 2,391.00	Ø50.8 mm
DMLP567R	\$ 230.00	£ 165.60	€ 200.10	¥ 1,833.10	25 mm x 36 mm

NEW
NEW

▼ CHAPTERS

Optical Elements

Polarization Optics

Optical Isolators

Optical Systems

Optics Kits

▼ SECTIONS

Spherical Lenses

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Aspheric Lenses

Cylindrical Lenses

Mirrors

Spectral Filters

ND Filters

Beamsplitters

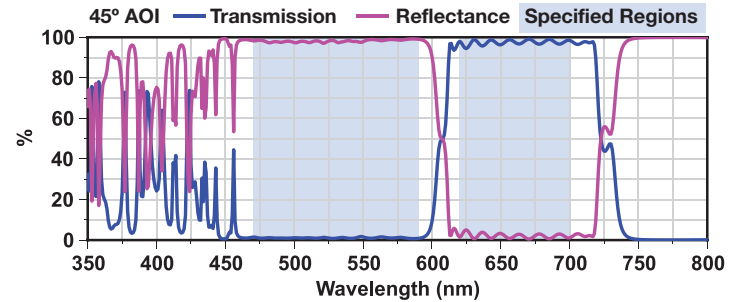
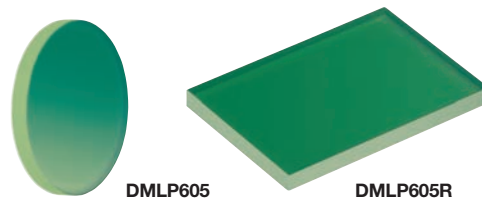
Prisms

Gratings

Windows

Diffusers

Dichroic Mirror/Beamsplitters (Page 3 of 5)

**DMLP605 (Longpass Characteristics):
50% Transmission/Reflection at 605 nm**

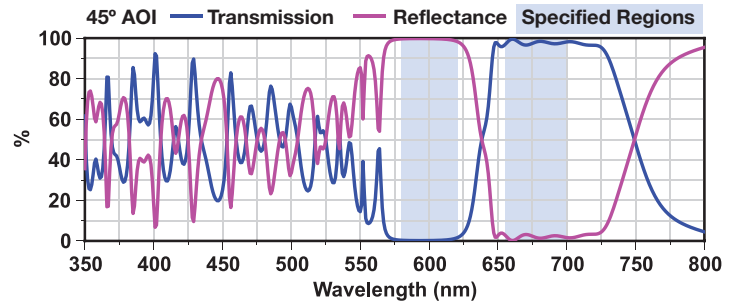
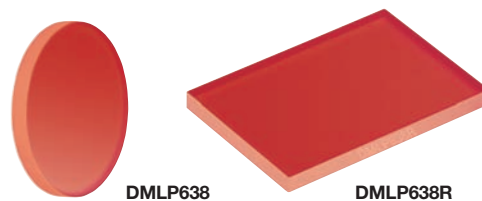
WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	605 nm
Reflection Band ($R_{avg} > 90\%$)*	470 - 590 nm
Transmission Band ($T_{avg} > 90\%$)*	620 - 700 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 700 nm)
Damage Threshold**	0.43 J/cm ² (@ 532 nm)

NEW

NEW

ITEM #	\$	£	€	RMB	SIZE
DMLP605	\$ 165.00	£ 118.80	€ 143,55	¥ 1,315.05	Ø25.4 mm
DMLP605L	\$ 400.00	£ 288.00	€ 348,00	¥ 3,188.00	Ø50.8 mm
DMLP605R	\$ 300.00	£ 216.00	€ 261,00	¥ 2,391.00	25 mm x 36 mm

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

**DMLP638 (Longpass Characteristics):
50% Transmission/Reflection at 638 nm**

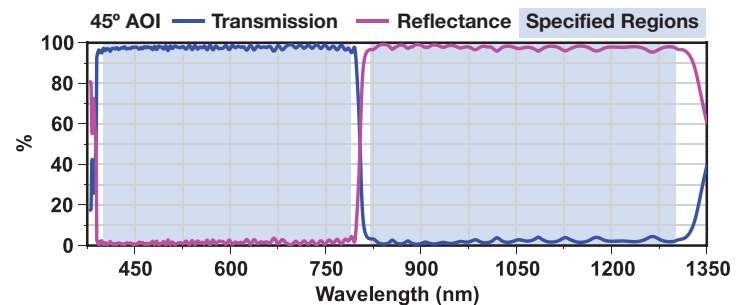
WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	638 nm
Reflection Band ($R_{avg} > 90\%$)*	580 - 621 nm
Transmission Band ($T_{avg} > 90\%$)*	655 - 700 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 700 nm)
Damage Threshold**	0.25 J/cm ² (@ 532 nm)

NEW

NEW

ITEM #	\$	£	€	RMB	SIZE
DMLP638	\$ 165.00	£ 118.80	€ 143,55	¥ 1,315.05	Ø25.4 mm
DMLP638L	\$ 300.00	£ 216.00	€ 261,00	¥ 2,391.00	Ø50.8 mm
DMLP638R	\$ 230.00	£ 165.60	€ 200,10	¥ 1,833.10	25 mm x 36 mm

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

**DMSP805 (Shortpass Characteristics):
50% Transmission/Reflection at 805 nm**

WAVELENGTH CHARACTERISTICS		
Cutoff Wavelength (50%)	805 nm	
Reflection Band ($R_{avg} > 90\%$) ^a	820 - 1300 nm	
Transmission Band ($T_{avg} > 90\%$) ^a	400 - 790 nm	
AR Coating (Back Side)	$R_{avg} < 2\%$ (400 - 790 nm)	
Damage Threshold	@ 532 nm ^b	2.12 J/cm ²
	@ 1064 nm ^c	10.40 J/cm ²

*Unpolarized Light

^b10 Hz, 10 ns, Ø250 µm Beam^c10 Hz, 12 ns, Ø250 µm Beam

ITEM #	\$	£	€	RMB	SIZE
DMSP805	\$ 255.00	£ 183.60	€ 221,85	¥ 2,032.35	Ø25.4 mm
DMSP805L	\$ 550.00	£ 396.00	€ 478,50	¥ 4,383.50	Ø50.8 mm
DMSP805R	\$ 490.00	£ 352.80	€ 426,30	¥ 3,905.30	25 mm x 36 mm

Dichroic Mirror/Beamsplitters (Page 4 of 5)

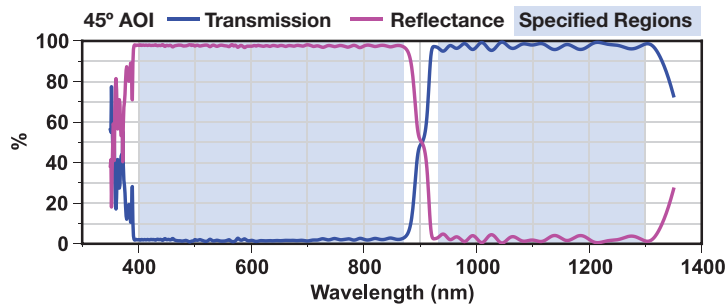
DMLP900 (Longpass Characteristics): 50% Transmission/Reflection at 900 nm



WAVELENGTH CHARACTERISTICS		
Cutoff Wavelength (50%)	900 nm	
Reflection Band ($R_{avg} > 90\%$) ^a	400 - 872 nm	
Transmission Band ($T_{avg} > 90\%$) ^a	932 - 1300 nm	
AR Coating (Back Side)	$R_{avg} < 2\%$ (932 - 1300 nm)	
Damage Threshold	@ 532 nm ^b	1.21 J/cm ²
	@ 1064 nm ^c	6.78 J/cm ²

^aUnpolarized Light

^b10 Hz, 10 ns, Ø250 µm Beam

^c10 Hz, 12 ns, Ø250 µm Beam


ITEM #	\$	£	€	RMB	SIZE
DMLP900	\$ 195.00	£ 140.40	€ 169,65	¥ 1,554.15	Ø25.4 mm
DMLP900L	\$ 400.00	£ 288.00	€ 348,00	¥ 3,188.00	Ø50.8 mm
DMLP900R	\$ 360.00	£ 259.20	€ 313,20	¥ 2,869.20	25 mm x 36 mm

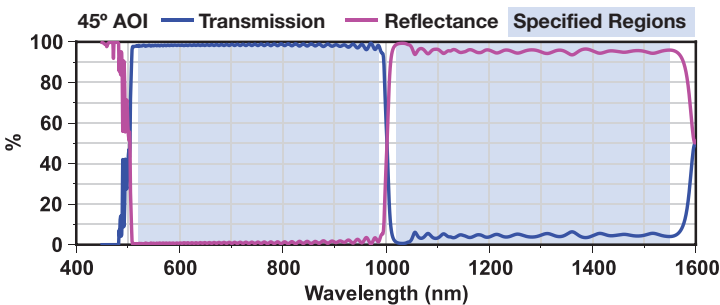
DMSP1000 (Shortpass Characteristics): 50% Transmission/Reflection at 1000 nm



WAVELENGTH CHARACTERISTICS		
Cutoff Wavelength (50%)	1000 nm	
Reflection Band ($R_{avg} > 90\%$) ^a	1020 - 1550 nm	
Transmission Band ($T_{avg} > 90\%$) ^a	520 - 985 nm	
AR Coating (Back Side)	$R_{avg} < 2\%$ (520 - 985 nm)	
Damage Threshold	@ 532 nm ^b	1.34 J/cm ²
	@ 1064 nm ^c	9.74 J/cm ²

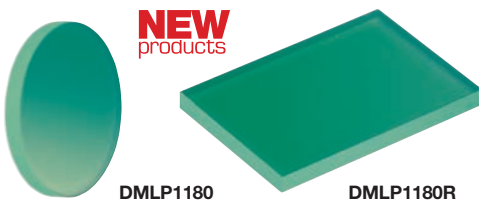
^aUnpolarized Light

^b10 Hz, 10 ns, Ø250 µm Beam

^c10 Hz, 12 ns, Ø250 µm Beam


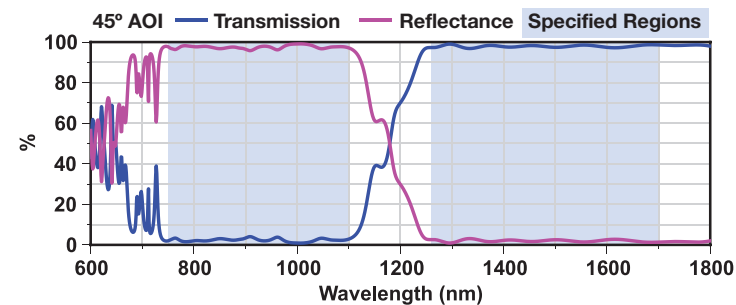
ITEM #	\$	£	€	RMB	SIZE
DMSP1000	\$ 255.00	£ 183.60	€ 221,85	¥ 2,032.35	Ø25.4 mm
DMSP1000L	\$ 550.00	£ 396.00	€ 478,50	¥ 4,383.50	Ø50.8 mm
DMSP1000R	\$ 490.00	£ 352.80	€ 426,30	¥ 3,905.30	25 mm x 36 mm

DMLP1180 (Longpass Characteristics): 50% Transmission/Reflection at 1180 nm



WAVELENGTH CHARACTERISTICS		
Cutoff Wavelength (50%)	1180 nm	
Reflection Band ($R_{avg} > 90\%$) [*]	750 - 1100 nm	
Transmission Band ($T_{avg} > 90\%$) [*]	1260 - 1700 nm	
AR Coating (Back Side)	$R_{avg} < 2\%$ (1260 - 1700 nm)	
Damage Threshold ^{**}	1.78 J/cm ² (@ 1064 nm)	

^{*}Unpolarized Light

^{**}10 Hz, 12 ns, Ø250 µm Beam


ITEM #	\$	£	€	RMB	SIZE
DMLP1180	\$ 190.00	£ 136.80	€ 165,30	¥ 1,514.30	Ø25.4 mm
DMLP1180L	\$ 400.00	£ 288.00	€ 348,00	¥ 3,188.00	Ø50.8 mm
DMLP1180R	\$ 320.00	£ 230.40	€ 278,40	¥ 2,550.40	25 mm x 36 mm

▼ CHAPTERS

Optical Elements

Polarization Optics

Optical Isolators

Optical Systems

Optics Kits

▼ SECTIONS

Spherical Lenses

Achromatic Lenses

Aspheric Lenses

Cylindrical Lenses

Mirrors

Spectral Filters

ND Filters

Beamsplitters

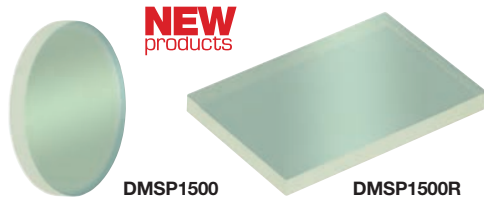
Prisms

Gratings

Windows

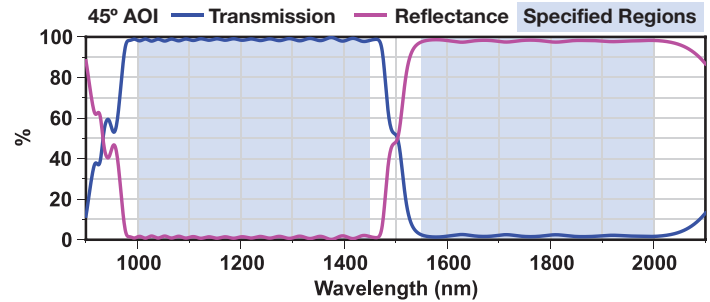
Diffusers

Dichroic Mirror/Beamsplitters (Page 5 of 5)

**DMSP1500 (Shortpass Characteristics):
50% Transmission/Reflection at 1500 nm**

WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	1500 nm
Reflection Band ($R_{avg} > 90\%$)*	1000 - 1450 nm
Transmission Band ($T_{avg} > 90\%$)*	1550 - 2000 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (1550 - 2000 nm)
Damage Threshold**	4.52 J/cm ² (@ 1064 nm)

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam

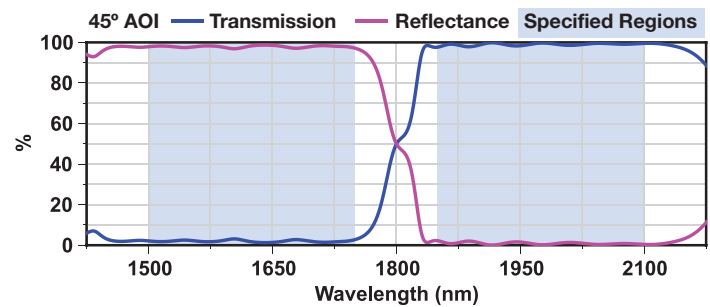


ITEM #	\$	£	€	RMB	SIZE
DMSP1500	\$ 255.00	£ 183.60	€ 221,85	¥ 2,032.35	Ø25.4 mm
DMSP1500L	\$ 550.00	£ 396.00	€ 478,50	¥ 4,383.50	Ø50.8 mm
DMSP1500R	\$ 490.00	£ 352.80	€ 426,30	¥ 3,905.30	25 mm x 36 mm

**DMLP1800: (Longpass Characteristics):
50% Transmission/Reflection at 1800 nm**

WAVELENGTH CHARACTERISTICS	
Cutoff Wavelength (50%)	1800 nm
Reflection Band ($R_{avg} > 90\%$)*	1500 - 1750 nm
Transmission Band ($T_{avg} > 90\%$)*	1850 - 2100 nm
AR Coating (Back Side)	$R_{avg} < 2\%$ (1500 - 2100 nm)
Damage Threshold**	5.12 J/cm ² (@ 1064 nm)

*Unpolarized Light **10 Hz, 10 ns, Ø250 µm Beam



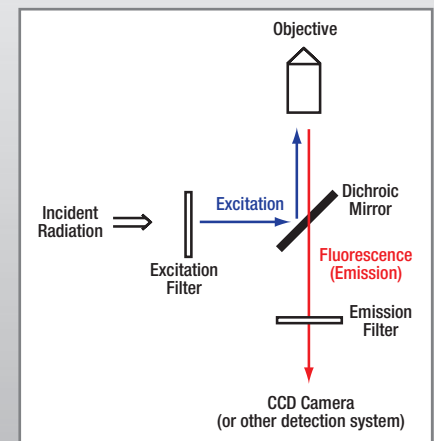
ITEM #	\$	£	€	RMB	SIZE
DMLP1800	\$ 255.00	£ 183.60	€ 221,85	¥ 2,032.35	Ø25.4 mm

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- ◆ 25.2 mm x 35.6 mm Dichroic Beamsplitter
- ◆ Available Fluorescence Filter Sets:
 - YFP • CY3.5 • TXRED
 - CFP • TRITC • WGF
 - GFP • FITC • BFP



For more details, see pages 1718 - 1719