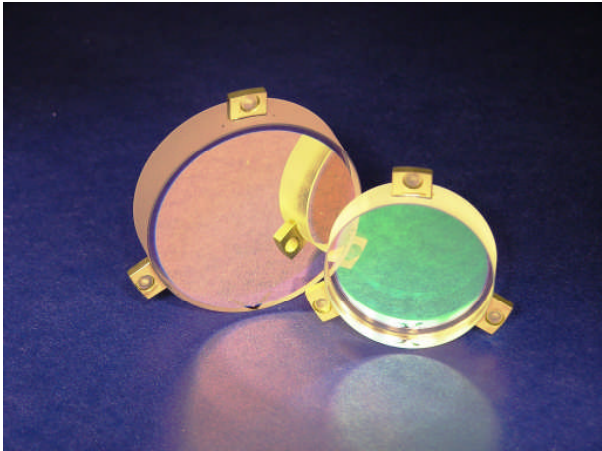




FABRY-PEROT INTERFEROMETER MIRRORS FP SERIES

It's Our Business To Be Exact!



Bristol Instruments is a source of mirrors for researchers who wish to preserve their original investment in a Burleigh RC series Fabry-Perot interferometer. The FP Series Fabry-Perot Interferometer Mirrors are compatible with most of Burleigh's RC systems, including the models RC-110, RC-140, and RC-150.

The FP series mirrors are functionally identical to the mirrors once provided by Burleigh. Therefore, the performance of an RC series Fabry-Perot interferometer used with these mirrors will be comparable to the original system specifications.

FEATURES

- **Compatible with Burleigh RC series Fabry-Perot interferometers**
- **Wavelength coverage from 450 nm to 12 μ m**
- **Standard reflectivity of 99.3%, 97.5%, or 93.0%**
- **Nominal surface flatness of $\lambda/200$**

Compatible with Burleigh® RC series Fabry-Perot Interferometers

MIRROR QUALITY

The FP series mirror sets include a pair of plane-parallel mirrors with a diameter of 50 mm. The mirrors are matched for a nominal surface flatness of $\lambda/200$ over 80% of the mirror diameter, where λ is the center of the mirror's operational wavelength range or 633 nm, whichever is greater. To ensure that the mirrors do not warp in their holders, the FP series mirrors are fixed in place using a mounting system similar to that originally used by Burleigh. This technique kinematically suspends the mirror in its holder, thereby preventing any distortion.

DIELECTRIC COATING OPTIONS

A multilayer dielectric coating is applied to the flat surface of the FP series mirrors. Three options are available for mirror reflectivity, 99.3 +0.5/-1%, 97.5 +1/-2%, and 93.0 +/- 2%. In order to maximize the performance of the Fabry-Perot interferometer, the wavelength range of the mirror coating is customized with a center wavelength between 450 nm to 12 μ m. The spectral coverage of the coating

depends on the center wavelength, and ranges from 100 to 500 nm. The mirrors are made from fused silica, water-free fused silica, or calcium fluoride, whichever is most appropriate for the wavelengths to be used.

Designation	Center Wavelength	Mirror Coating Bandwidth
VIS	450 - 1200 nm	100 nm
NIR	1.2 - 1.9 μ m	150 nm
IR	1.9 - 3.5 μ m	300 nm
FIR	3.5 - 12.0 μ m	500 nm

INTERFEROMETER PERFORMANCE CHARACTERISTICS

The typical performance of an RC series Fabry-Perot Interferometer used with various FP series mirrors from Bristol Instruments is given in the following table. The instrument finesse and transmission of the system are dependent on both mirror reflectivity and beam size. A high mirror reflectivity will provide higher instrument finesse, but it will also result in a lower transmission. With a large diameter beam, the surface flatness of the mirrors will be the primary factor limiting finesse and transmission. However, mirror surface flatness has little effect on finesse and transmission when a beam diameter on the order of 3 mm is used.

PERFORMANCE WITH RC SERIES INTERFEROMETER (1)

FP-50M

MIRROR DIAMETER	50.8 mm					
NOMINAL FLATNESS (2)	$\lambda / 200$					
REFLECTIVITY	99.3 +0.5 / -1%		97.5 +1 / -2%		93.0 +/- 2%	
BEAM SIZE	40 mm	< 3 mm	40 mm	< 3 mm	40 mm	< 3 mm
MINIMUM FINESSE (3)	50	150	40	70	25	30
MINIMUM TRANSMISSION (3)	10%	50%	40%	70%	70	80%

- (1) This table provides useful, but non-warranted, information about the performance of the FP series mirrors when used with a Burleigh RC Series Fabry-Perot Interferometer.
- (2) λ is the center of the mirror's operational wavelength range or 633 nm, whichever is greater.
- (3) For beam diameters between 3 mm and 80% of mirror diameter, the expected finesse and transmission values can be determined using a linear approximation.



Burleigh is a registered trademark of EXFO Electro-Optical Engineering Inc.

Bristol Instruments reserves the right to change the detail specifications as may be required to permit improvements in the design of its products. Specifications are subject to change without notice.

HOW TO ORDER FP SERIES FABRY-PEROT MIRROR SETS

FP-50M

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MIRROR SET

Choose:

WAVELENGTH RANGE

VIS: 400-1200 nm
 NIR: 1.2-1.9 μ m
 IR: 1.9-3.5 μ m
 FIR: 3.5-12.0 μ m

Choose:

MIRROR REFLECTIVITY

99: 99.3 +0.5 / -1%
 97: 97.5 +1 / -2%
 93: 93.0 +/- 2%

Choose:

CENTER WAVELENGTH



Call: (585) 924-2620 for more information or visit our website at : www.bristol-inst.com

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