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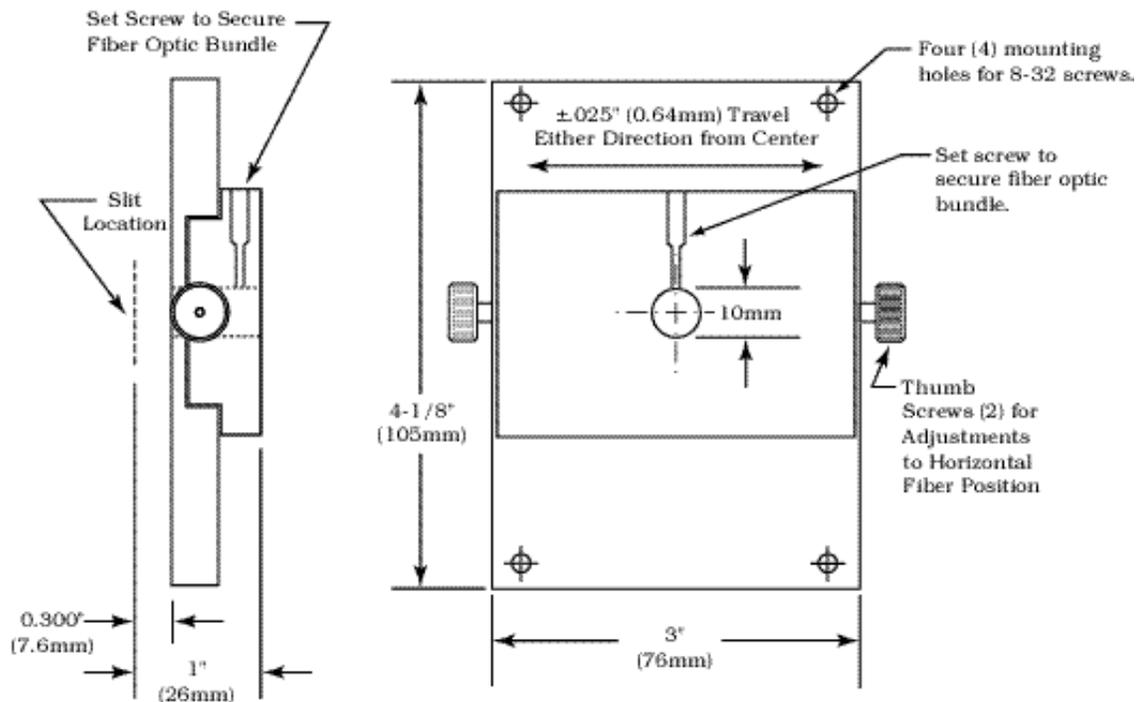
**Operating Instructions
for
FC-446-020
Adjustable Fiber Optic Adapter**

Model FC-446-020

Adjustable Fiber Optic Adapter for ARC SpectraPro® Monochromators and Spectrographs

Description: The FC-446-020 is an adjustable fiber optic adapter designed for use with SpectraPro series monochromators and spectrographs. It includes an integrated horizontal slide mechanism to position fibers at the slit opening.

The diagram below shows the FC-446-020:



The assembly is designed for use with 10mm diameter fiber optic bundles. The following procedure is recommended for installing and aligning the FC-446-020 and fiber optic bundles.

Fiber Optic Bundle Requirements:

The standard FC-0446-020 adapter does not include a fiber optic bundle. These are available from Acton Research Corporation, or can be provided by the customer. The fiber optic bundle must terminate in a 10mm diameter (+0.00/-0.050mm) ferrule with a length of at least 25mm. A 50mm long ferrule is recommended for easier handling. The end of the ferrule should be flat, and the total fiber bundle can be any length.

Mounting the FC-446-020 to standard SpectraPro Slit Assemblies:

Position the FC-446-020 against the slit assembly so that the red dot is facing up, and slide mechanism is facing away from the slit. Secure using the four 8-32 screws provided.

Installing the Fiber Optic Bundle:

For installation of the fibers, it is recommended that the fibers be illuminated with a suitable light source, and a light detection system be used to detect signal levels.

1. Slide the split clamp collar (provided) over the 10mm diameter ferrule of the fiber bundle.
2. Slide the 10mm diameter ferrule into the FC-446-020 until it just contacts the slit assembly.

3. After contact is made, pull the fiber ferrule back slightly so that it is not in contact with the slit assembly. This allows easy slit width adjustments without interference from the fiber ferrule.

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CAUTION: On some SpectraPro monochromators and spectrographs, the fiber ferrule can come into direct contact with the slit blades, and on others it can contact the slit height baffle. Never force the fiber optic bundle against the slits or height baffle, or permanent damage may result.
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4. Slide the split clamp collar against the FC-446-020 adapter and tighten the split clamp collar. This prevents the fiber from contacting the slit assembly during alignment.
5. Rotate the fiber bundle, especially if the fibers are arranged in a specific orientation (a line of fibers, for example) until maximum signal is detected.
6. When the fiber has been rotated for maximum signal, tighten the set screw to secure the fiber in the FC-446-020.
7. Slowly turn the knurled thumb screws on the side of the FC-446-020 to control the horizontal slide mechanism, until the fibers are aligned horizontally with the slit and maximum signal is detected.
8. Repeat steps 5 through 7 as outlined above to insure precise alignment with maximum signal levels. Repeat as necessary until maximum signal is achieved.

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RECOMMENDED MINIMUM BEND RADIUS FOR FUSED SILICA FIBERS:

Fiber Diameters in Microns	Momentary Min.	Bend Radius	Long Term Min.	Bend Radius
	<u>INCHES</u>	<u>MILLIMETERS</u>	<u>INCHES</u>	<u>MILLIMETERS</u>
50	0.20	5	0.59	15
100	.039	10	1.18	30
150	0.59	15	1.77	45
200	0.79	20	2.36	60
250	0.98	25	2.95	75
300	1.18	30	3.54	90
350	1.38	35	4.13	105
400	1.58	40	4.72	120
450	1.77	45	5.31	135
500	1.97	50	5.90	150
550	2.16	55	6.5	165
600	2.35	60	7.09	180
650	2.55	65	7.98	195
700	2.75	70	8.27	210
750	2.95	75	8.86	225
800	3.15	80	9.45	240
900	3.54	90	10.63	270
1000	3.94	100	11.81	300
1100	4.33	110	12.99	330
1200	4.72	120	14.17	360
1300	5.12	130	15.35	390
1400	5.51	140	16.54	420
1500	5.90	150	17.72	450
1600	6.30	160	18.90	480

Minimum bend DIAMETER is equal to the radius X2.

Momentary means minutes.

Supplemental Instructions for FC-446-20-SMA

Per customer specification this Adjustable Fiber Optic Adapter is modified to accept a fiber bundle with an “SMA” connector.

The following procedure is recommended for installing the Adjustable Fiber Optic Adapter:

1. Remove the vertical height baffle from inside the entrance slit housing by removing the four binder head screws.
2. Position the Adjustable Fiber Optic Adapter against the slit assembly so that the red dot is facing up, and the slide mechanism is facing away from the slit. Secure using the four mounting screws provided.
3. Remove the two stainless steel 4-40 socket head cap screws from the face of the Adjustable Fiber Optic Adapter. Slide out and remove the rectangular piece secured by the two stainless steel cap screws.
4. Attach the fiber bundle “SMA” connector to the mating connector on the rectangular piece removed in step 3.
5. Re-install the rectangular piece with the fiber bundle attached.
6. Adjust the translation assembly until maximum signal is achieved.

Delete this sections not applicable.