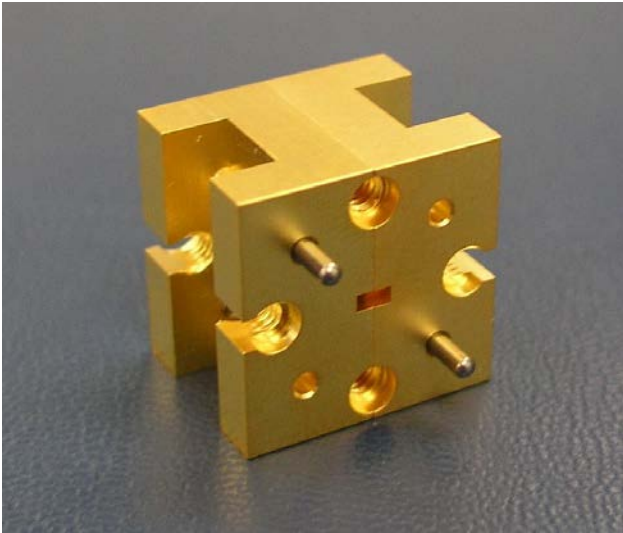


IRIS BANDPASS FILTERS



FEATURES:

- Waveguides Available – WR-42 up to WR-05
- Low Pass Band Insertion Loss
- Narrow Pass Band
- High Power Capabilities
- Space Qualified

APPLICATIONS:

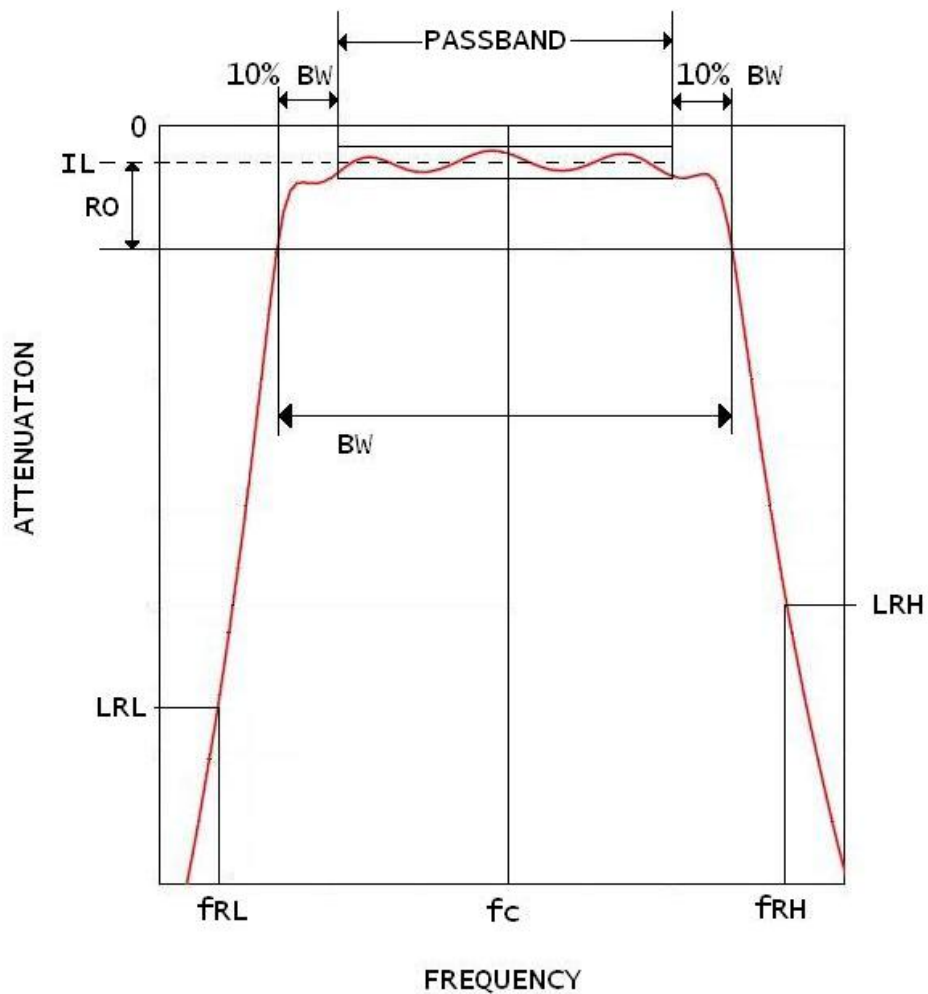
- Preselector Filter
- Spurious Mode Suppression
- Image Rejection
- Instrumentation

DESCRIPTION

Millitech series FIB iris bandpass filters have a narrow passband in the range of 1% to 15% of center frequency. These filters offer low insertion loss in the passband with a wide range of passband frequencies. Filters in this series are available from 18 to 220 GHz, and can handle up to 10 Watts. These filters also offer excellent rejection at high and low side rejection frequencies. Characteristics of the filter can be modified to suit specific rejection requirements.

Series FIB filters are constructed using rugged waveguide channel housing and are precision machined. Standard filter response is of a Chebyshev design. Consult Millitech for alternate topologies.

ELECTRICAL SPECIFICATIONS



LEGEND	
BW	Bandwidth
f_c	Center Frequency
f_{RL}	Low Side Rejection Frequency ($f_c - 1.5BW$)
f_{RH}	High Side Rejection Frequency ($f_c + 1.5BW$)
L_{RL}	Attenuation at f_{RL}
L_{RH}	Attenuation at f_{RH}
IL	Passband Insertion Loss
RO	Band-Edge Rolloff (1dB typ.)

MODEL	Frequency Band and Range (GHz)	Typical Passband IL (dB)	Maximum Passband IL (dB) (1)	L_{RL} @ F_{RL} (1)	L_{RH} @ F_{RH} (1)	Passband VSWR (1)
FIB-42	K 18 – 26.5	0.25	0.4	>50	45	1.5:1
FIB-28	Ka 26.5 – 40	0.25	0.4	>50	42	1.5:1
FIB-22	Q 33 – 50	0.3	0.5	>50	40	1.5:1
FIB-19	U 40 – 60	0.35	0.55	>50	38	1.5:1
FIB-15	V 50 – 75	0.35	0.55	>50	35	1.5:1
FIB-12	E 60 – 90	0.45	0.75	>50	35	1.5:1
FIB-10	W 75 – 110	0.6	0.9	50	30	1.5:1
FIB-08	F 90 – 140	(2)	(2)	(2)	(2)	(2)
FIB-06	D 110 – 170	(2)	(2)	(2)	(2)	(2)
FIB-05	G 140 – 220	(2)	(2)	(2)	(2)	(2)

(1) Specifications are based upon a 6-section, 10% bandwidth filter. Measurements are typical.

(2) Please consult Millitech for further information.

STANDARD MODELS

Standard Models are items that require no setup fee.

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-42-SK010	24.50	1.00	6	0.7	>50	>50	1	2.4
FIB-28-SA070	26.00	1.00	6	1.0	>50	50	1	2.5
FIB-28-SA080	28.50	2.50	7	1.0	>50	40	1	2.25
FIB-28-SA090	28.50	3.00	7	1.0	40	30	4	2.25
FIB-28-SA040	33.70	0.20	6	1.1	40	30	1	1.8
FIB-28-SA100	34.00	3.60	10	0.8	>50	>50	1	2.5
FIB-28-SA110	34.50	3.00	6	1.0	>50	40	1	1.75
FIB-28-SA030	34.60	0.20	6	1.0	40	30	1	1.8
FIB-28-SA060	35.00	0.80	3	0.3	40	30	1	1
FIB-28-SA120	35.00	1.00	5	1.0	40	30	1	1.5
FIB-28-SA130	35.00	1.00	4	1.1	30	20	1	1.25
FIB-28-SA050	35.55	0.30	6	1.1	40	30	1	1.8
FIB-28-SA140	35.64	0.70	4	1.5	34	24	1	1.25
FIB-28-SA020	36.40	3.60	7	0.7	40	30	1	1.75
FIB-28-SA010	36.50	2.00	4	1.0	40	30	1	1.44
FIB-28-SA120	37.70	0.90	7	1.2	45	35	1	1.75
FIB-28-SA130	38.00	3.00	5	1.0	40	30	4	2.25
FIB-22-RQ040	37.85	2.50	8	1.1	>50	>50	4	2.25
FIB-22-RQ030	38.65	2.00	7	1.4	55	50	2	1.75
FIB-22-RQ010	43.00	4.40	5	1.3	>50	40	2	1
FIB-22-RQ020	43.05	4.30	6	0.4	30	25	4	1.125
FIB-22-RQ050	44.50	4.00	6	1.0	>50	35	2	1.25

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-22-RQ070	44.50	2.00	11	1.0	>50	>50	4	2.25
FIB-22-RQ-060	44.50	2.00	6	1.2	40	30	4	1.12
FIB-19-RU020	42.90	0.40	4	0.9	15	15	2	1
FIB-19-RU070	45.00	5.00	7	1.0	>50	>50	4	1.5
FIB-19-RU030	45.50	0.80	4	1.2	34	30	2	1
FIB-19-RU040	46.00	8.00	13	0.6	>50	>50	4	2.5
FIB-19-RU090	46.15	4.90	5	0.9	>50	25	4	1
FIB-19-RU050	49.65	0.90	4	1.2	38	30	2	1
FIB-19-RU080	53.00	6.00	7	1.0	>50	>50	4	1.25
FIB-19-RU010	53.50	9.00	9	0.5	40	30	[1]	1.25
FIB-19-RU060	54.10	1.00	4	1.0	30	30	2	1
FIB-15-RV210	54.25	8.70	7	0.5	30	25	4	1.25
FIB-15-RV130	56.50	5.00	8	1.2	30	30	2	1.25
FIB-15-RV230	57.00	8.00	11	0.6	40	>50	1	1.5
FIB-15- RV160	58.25	2.90	5	0.6	50	35	4	1.25
FIB-15-RV080	58.45	3.30	10	1.1	30	30	2	1.7
FIB-15-RV240	59.50	9.00	11	0.5	>50	>50	1	1.5
FIB-15-RV250	60.00	12.00	11	0.5	>50	>50	1	1.5
FIB-15-RV010	60.00	6.00	5	0.5	41	32	2	1
FIB-15-RV220	60.10	10.80	9	0.6	40	30	4	1.25
FIB-15-RV040	60.45	2.10	6	0.6	40	30	2	1.25
FIB-15-RV200	60.45	2.10	6	1.0	40	30	[1]	1
FIB-15-RV070	60.50	7.00	12	0.9	40	30	2	1.75
FIB-15-RV170	60.50	3.00	5	0.9	50	35	4	1.25

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-15-RV150	61.50	9.00	11	1.1	40	30	3	1.5
FIB-15-RV110	61.50	5.00	4	0.5	25	25	2	1
FIB-15-RV050	61.55	9.10	8	0.5	40	30	2	1.25
FIB-15-RV120	61.55	13.10	10	1.1	40	30	2	1.25
FIB-15-RV090	62.15	3.10	10	1.1	30	30	2	1.7
FIB-15-RV060	62.30	5.00	6	0.6	40	30	[1]	1
FIB-15-RV020	62.50	6.20	5	0.6	42	31	2	1
FIB-15-RV030	62.50	6.20	5	1.3	40	30	[1]	1.
FIB-15-RV100	62.50	6.20	9	2.0	40	25	2	1.25
FIB-15-RV180	62.65	3.10	5	0.8	50	35	4	1.25
FIB-15-RV140	63.50	5.00	7	1.1	30	30	2	1
FIB-15-RV190	64.85	2.90	5	0.8	50	35	4	1.25
FIB-12-RE060	64.85	10.50	9	0.6	40	30	4	1.25
FIB-12-RE050	65.20	1.60	4	0.6	40	30	[1]	0.75
FIB-12-RE100	65.55	2.50	8	1.1	>50	>50	1	1.25
FIB-12-RE090	67.95	2.70	5	1.6	40	30	2	0.75
FIB-12-RE040	73.50	5.00	5	0.8	30	15	15	0.75
FIB-12-RE299	73.5	5.00	12	1.0	[1]	90	[1]	1
FIB-12-RE030	75.05	4.50	6	0.8	40	30	2	1
FIB-12-RE070	75.25	11.70	9	0.7	40	30	4	1.25
FIB-12-RE120	77.00	3.00	5	0.8	40	30	1	0.75
FIB-12-RE130	77.00	16.00	20	0.7	>50	>50	1	2
FIB-12-RE010	78.50	7.80	5	0.7	>50	35	3	0.6

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-12-RE140	78.5	5.00	9	1.0	>50	>50	1	1.5
FIB-12-RE150	78.50	15.00	14	0.6	>50	>50	1	1.5
FIB-12-RE160	79.50	9.00	7	1.1	>50	40	1	1
FIB-12-RE020	81.00	8.00	8	0.7	28	23	2	1
FIB-12-RE080	83.20	14.40	9	0.8	30	30	4	1.25
FIB-12-RE300	83.50	5.00	10	1.0	90	[1]	[1]	1
FIB-12-RE110	88.00	1.60	6	2.0	45	40	1	1
FIB-10-RW090	75.25	11.50	10	1.1	10	23	2	1.25
FIB-10-RW170	78.00	6.00	10	0.8	>50	>50	1	1.25
FIB-10-RW180	79.00	8.00	8	1.0	>50	40	1	1
FIB-10-RW190	80.00	10.00	15	1.1	>50	>50	3	1.75
FIB-10-RW130	80.50	11.00	9	1.0	40	30	4	1
FIB-10-RW200	83.00	6.00	10	1.0	>50	>50	1	1.25
FIB-10-RW210	83.50	3.00	8	1.2	>50	>50	1	1
FIB-10-RW220	85.00	14.00	9	0.9	>50	>50	1	1
FIB-10-RW230	88.00	6.00	10	0.7	>50	>50	1	1.25
FIB-10-RW010	89.00	3.20	6	1.0	>50	>50	3	0.75
FIB-10-RW250	89.00	10.00	7	1.0	40	30	1	0.75
FIB-10-RW260	90.00	1.00	1	1.5	40	30	3	1
FIB-10-RW140	91.05	11.10	9	1.1	40	30	4	1
FIB-10-RW280	93.50	7	10	1.0	>50	>50	1	1.25

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-10-RW290	93.50	3.00	15	1.8	>50	>50	3	1.75
FIB-10-RW300	93.95	3.90	6	0.8	45	40	2	0.75
FIB-10-RW310	94.00	4.00	14	1.5	>50	>50	1	1.5
FIB-10-RW040	94.00	1.00	8	2.0	>50	30	2	1
FIB-10-RW120	94.00	0.60	4	1.3	40	30	[1]	0.75
FIB-10-RW320	94.00	2.80	6	1.1	45	40	2	0.75
FIB-10-RW100	94.00	1.00	6	2.1	35	45	3	1
FIB-10-RW020	94.20	3.20	4	1.0	45	37	3	0.6
FIB-10-RW160	94.58	2.00	5	1.3	40	30	3	0.75
FIB-10-RW030	94.60	0.80	5	4.0	>50	>50	3	0.6
FIB-10-RW070	94.80	1.00	6	1.9	50	50	2	1
FIB-10-RW050	95.00	9.50	5	0.9	40	30	2	1
FIB-10-RW060	95.00	1.80	7	1.3	40	30	2	1
FIB-10-RW080	95.75	7.50	9	0.9	40	30	[1]	1.5
FIB-10-RW350	99.50	7.00	10	0.8	>50	>50	1	1.25
FIB-10-RW110	100.00	14.00	9	0.7	40	30	3	1
FIB-10-RW150	102.00	16.00	9	1.0	40	30	4	1
FIB-10-RW360	103.00	14.00	8	0.8	45	27	2	1
FIB-10-RW370	106.00	8.00	10	1.2	>50	>50	1	1.25
FIB-08-RF020	94.00	4.00	6	0.8	>50	30	1	0.75
FIB-08-RF030	105.00	7.00	6	1.0	>50	30	1	0.75
FIB-08-RF040	109.00	8.00	10	1.2	>50	>50	2	1

Model Number	Center Frequency (GHz)	Bandwidth (GHz)	Number of Sections	Typical Passband IL (dB)	Low Side Rejection (dB)	High Side Rejection (dB)	Outline Figure	A (in)
FIB-08-RF010	112.50	7.00	6	1.0	40	38	3	0.6
FIB-08-RF050	113.50	9.00	13	1.5	>50	>50	1	1.25
FIB-08-RF060	121.00	8.00	12	1.2	>50	>50	2	1
FIB-08-RF070	131.00	18.00	9	0.6	50	40	2	0.75
FIB-06-RD010	128.00	32.00	13	1.0	40	30	1	1
FIB-05-RG010	150.00	8.00	4	1.7	[1]	18	2	1.2
FIB-05-RG040	164.00	16.00	7	1.0	>50	35	2	0.75
FIB-05-RG030	170.75	17.50	11	1.4	13	20	3	0.75
FIB-05-RG020	210.00	20.00	5	2.0	30	[1]	3	0.6
FIB-04-R010	240.00	16.00	7	3.0	40	30	2	0.75

(1) Please consult Millitech for further information.

Note: Rejection values measured at typical room temperature. Typical filter roll-off is 1dB.

OUTLINE DRAWING

FIGURE 1

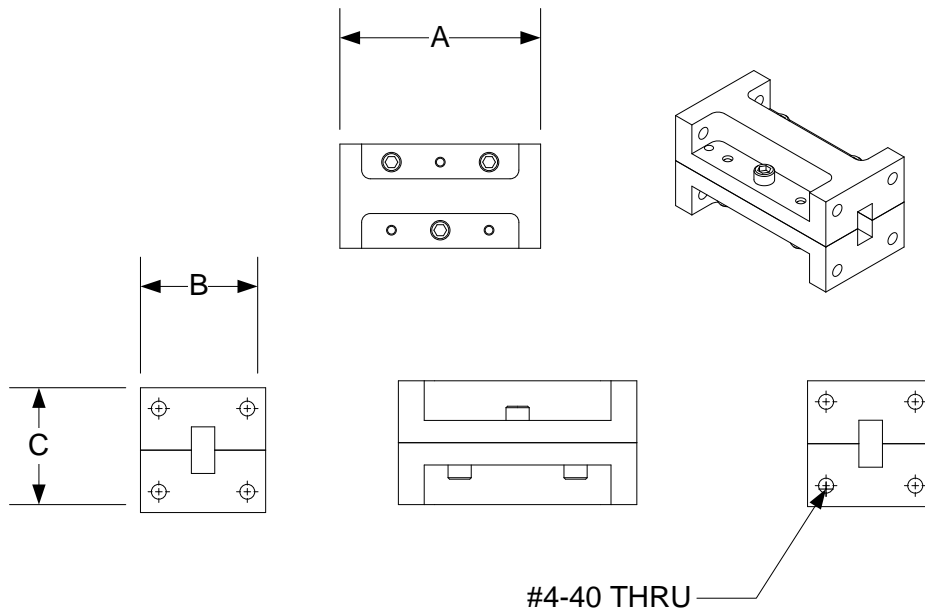


FIGURE 2

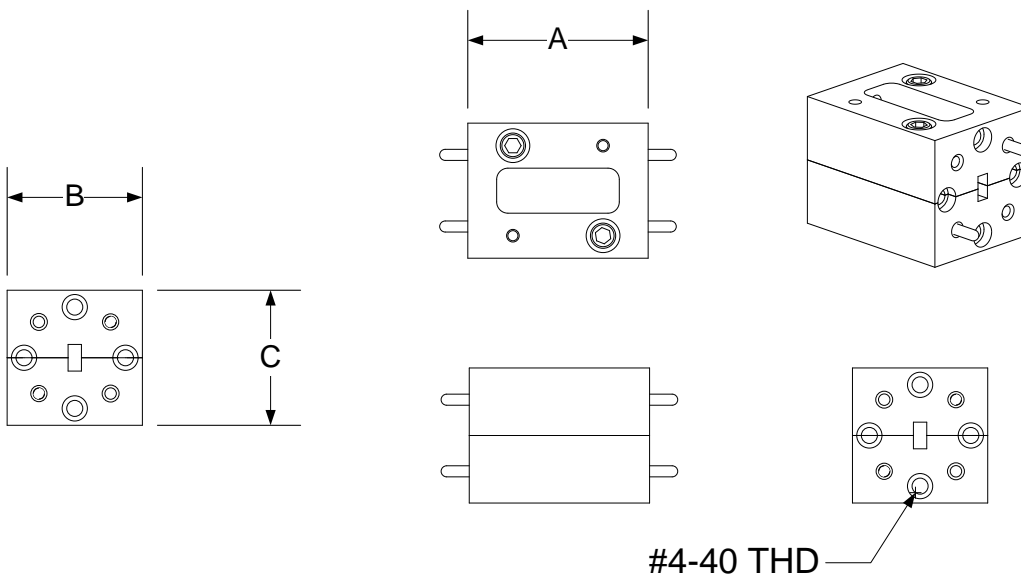
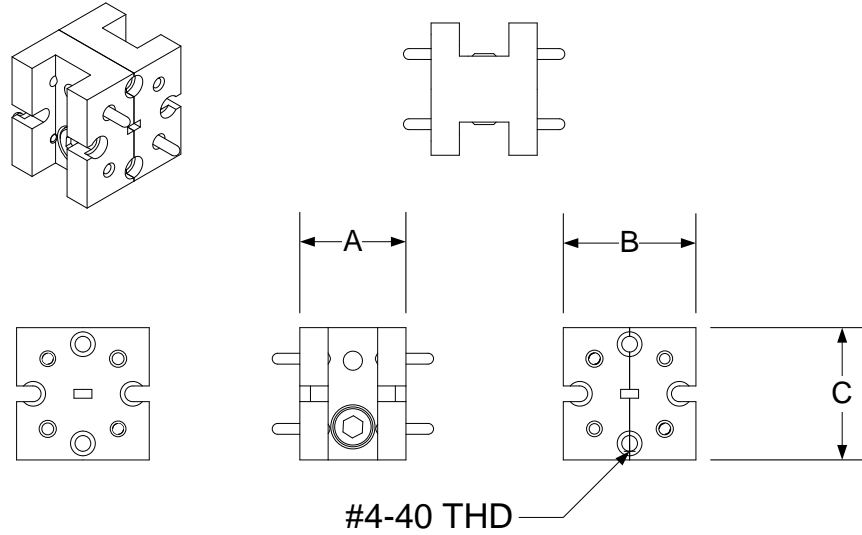


FIGURE 3



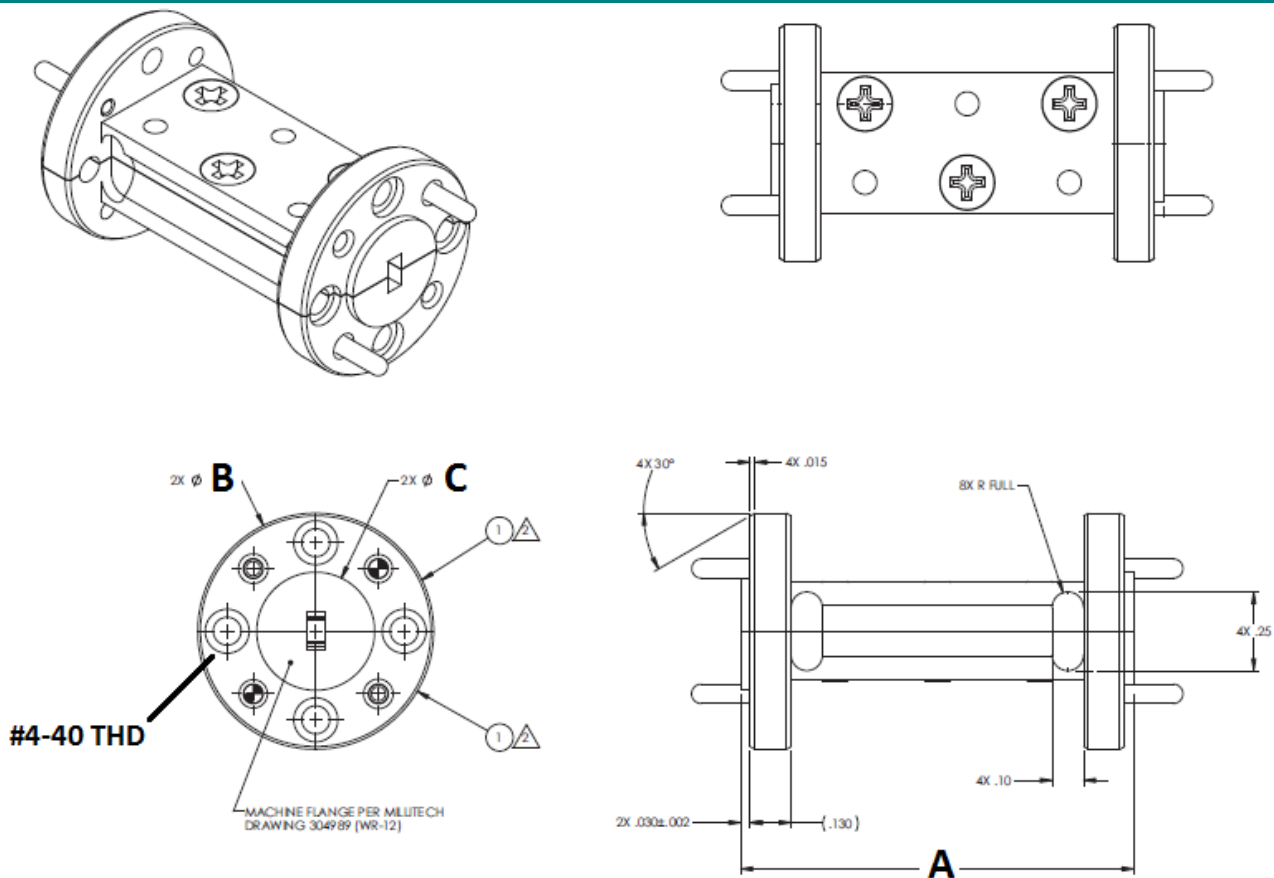
MECHANICAL SPECIFICATIONS (SQUARE FLANGE)

MODEL	A (in/mm)	B (in/mm)	C (in/mm)	Flange MIL.F-3922
FIB-42	(1)	0.875/22.2	0.875/22.2	/54-001
FIB-28	(1)	0.75/19.1	0.75/19.1	/54-003
FIB-22	(1)	1.125/28.6	1.125/28.6	/67B-006
FIB-19	(1)	1.125/28.6	1.125/28.6	/67B-007
FIB-15	(1)	0.75/19.1	0.75/19.1	/67B-008
FIB-12	(1)	0.75/19.1	0.75/19.1	/67B-009
FIB-10	(1)	0.75/19.1	0.75/19.1	/67B-010
FIB-08	(1)	0.75/19.1	0.75/19.1	/67B-M08
FIB-06	(1)	0.75/19.1	0.75/19.1	/67B-M06
FIB-05	(1)	0.75/19.1	0.75/19.1	/67B-M05

(1) Length of FIB will depend on center frequency and number of sections.

Note: Outline of the FIB will vary depending on model and length. Typically, if the FIB length is 1" or greater, Figure2 will be used for WR-22 and smaller. If the FIB length is smaller than 1", Figure3 will be used. Figure1 is used for WR-42 and WR-28.

FIGURE 4



MECHANICAL SPECIFICATIONS (ROUND FLANGE)

MODEL	A (in/mm)	B (in/mm)	C (in/mm)	Flange MIL.F-3922
FIB-22	(1)	1.125/28.6	0.500/12.7	/67B-006
FIB-15	(1)	0.75/19.1	0.75/9.52	/67B-008
FIB-12	(1)	0.75/19.1	0.75/9.52	/67B-009
FIB-10	(1)	0.75/19.1	0.75/9.52	/67B-010

(1) Length of FIB will depend on center frequency and number of sections.

HOW TO ORDER

Specify Model Number FIB-AA-BCDDO
<p>AA = Waveguide Standard</p> <ul style="list-style-type: none"> 05 – WR-05 (140 – 220 GHz) 06 – WR-06 (110 – 170 GHz) 08 – WR-08 (90 – 140 GHz) 10 – WR-10 (75 – 110 GHz) 12 – WR-12 (60 – 90 GHz) 15 – WR-15 (50 – 75 GHz) 19 – WR-19 (40 – 60 GHz) 22 – WR-22 (33 – 50 GHz) 28 – WR-28 (26.5 – 40 GHz) 42 – WR-42 (18 – 26.5 GHz)
<p>B = Flange Type</p> <ul style="list-style-type: none"> R – Round S – Square
<p>C = Frequency Band</p> <ul style="list-style-type: none"> K – 18 - 26.5 GHz A – 26.5 - 40 GHz (Ka) Q – 33 - 50 GHz U – 40 - 60 GHz V – 50 - 75 GHz E – 60 - 90 GHz W – 75 - 110 GHz F – 90 - 140 GHz D – 110 - 170 GHz G – 140 - 220 GHz
<p>DD = See Standard Models Table Above</p> <p>If you would like a product not listed in our Standard Products table, please contact Millitech for model number. When ordering please indicate center frequency, bandwidth, desired levels of attenuation outside of the passband, as well as any special requests.</p>