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Cavity Filters

K&L Microwave's series of cavity filters covers the frequency range from 30 MHz to 40 GHz. These filters are available with 2 to 17 resonant sections and bandwidths from 0.2% to 50%. Although standard designs offer VSWR specifications of 1.5:1 maximum, the series lends itself to specifications as low as 1.2:1.

While the standard product offers excellent characteristics, K&L can enhance parameters such as insertion loss and power handling capacity (both peak and average) through special package design. As seen with the examples below, K&L's design engineers work with our customers to meet specialized package configurations.

The combline filter series provides an extremely small high "Q" device suitable for rugged environmental requirements in a practically unlimited range of applications. As a result of computer aided design and computerized machining equipment, the package size for this series can be optimized for performance requirements; therefore, there are no limitations of fixed package size.

Waveguide Filters

K&L Microwave offers as many solutions to customer requirements as there are applications. We have several state-of-the art design packages that can meet the most stringent customer demands as well as custom designs to fit the needs of the point-to-point radio market, which requires high volume product at competitive pricing. K&L also offers waveguide solutions for lower quantities with specialized applications.

K&L will quote the right solution to meet your company's waveguide requirements. Call our factory today and discuss your specific application with our technical sales staff.

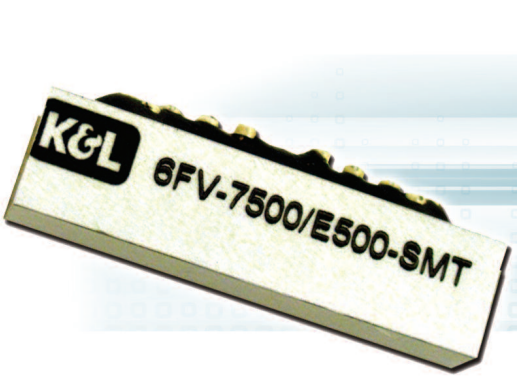
Rectangular Mode

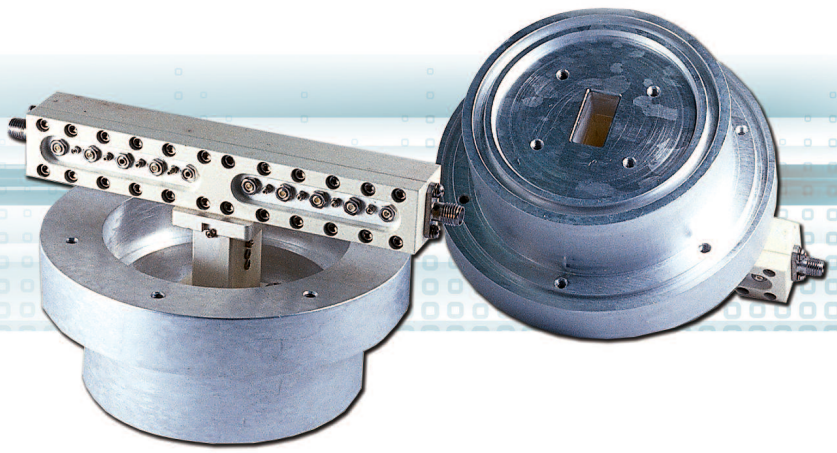
K&L offers rectangular waveguide in the TE 101 mode from 2.5 to 94 GHz. Types of filters offered include bandpass filters, diplexers and lowpass filters. K&L utilizes high performance proprietary and purchased software that minimizes tuning time and maximizes performance. K&L offers multiple diplexer configurations including "Tee" and "Y" junctions as well as rectangular transmit and receive ports with circular antenna ports. Rectangular waveguides are available from 1 to 20 % bandwidth with 2 to 20 sections.

Waveguide filters come with any choice of connectors or flange mounts available for your frequency range. K&L will create customer specific mounting applications to ensure mechanical fit to your special requirements.

Circular Mode

K&L offers circular mode waveguide filters that are Te111 mode filters available from .1 to 1.8 % bandwidth. These circular filters are offered from 2 to 6 sections and are part of K&L's C60 series products.





High Frequency, Medium Bandwidth — FV Series

Features:

- Small Package Design, High "Q" Response
- Ruggedized Package Design
- Covers the 500 MHz to 40 GHz Frequency Range
- Combline Design Results in Low Insertion Loss Performance
- 3 dB BW Available from 3-18%
- Designs Available in 3-17 Sections
- Custom Package Designs Available



Specifications:

Model	Frequency (GHz)	3 dB % BW	VSWR	Insertion Loss	Passband Return	Impedance (Ohms)	No. of Sections	Shock	Vibration	Temperature	Relative Humidity
FV-50	.5-2	3-18	1.5:1	0.1 dB per section @ BW ≥ 5%	≥ 3.5 X f_0	50	3-17	20 G's, 1/2 Sine, 11 Ms	10 G's, 10 Hz-2000 Hz	-55 to +85 °C	0-95%
FV-40	2-5										
FV-30	3-8										
FV-20	4-10										
FV-10	7-18										

To Order:

5 FV 20 — 6575 / T 750 - O / O
1 2 3 4 5 6 7 8

Code	Description
1	Number of Sections
2	Series (FV-Combline)
3	Package Designator 20 Series
4	Center Frequency (MHz)
5	Supplemental Codes (See Page 13)
6	Bandwidth (MHz)
7	Input Connector
8	Output Connector

Connectors:

Connector	Code
SMA Female	O
SMA Male	OP
N Female	N*
N Male	NP*
TNC Female	T*
TNC Male	TP*
RF Pins	P
Removable SMA	RO
Blind Mate	OB

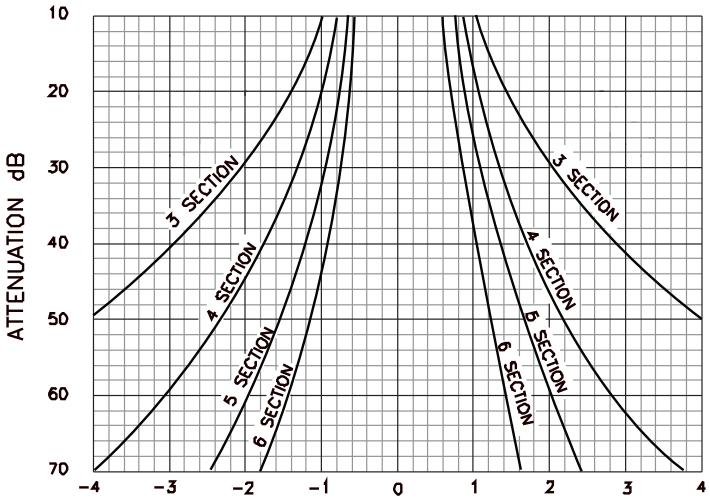
*Requires .75 W and .75 H

High Frequency, Medium Bandwidth — FV Series

Attenuation:

The adjacent curve is used to determine the out-of-band or stopband attenuation for K&L's combline filters. This curve shows the attenuation as multiples of the 3 dB bandwidth for filters up to 13 sections. The formula for approximate stopband attenuation:

$$\text{3 dB BW from } f_0 = \frac{\text{Reject Frequency-Center Frequency}}{\text{3 dB BW}}$$



Note: For more stringent rejection requirements, contact the factory.

Example:

Center Frequency = 6575 MHz
3 dB Bandwidth = 750 MHz
Number of Sections = 6

Find the attenuation at 5600 MHz and 7550 MHz by substituting in the formula:

$$\text{3 dB BW from } f_0 = \frac{5600-6575}{750} = -1.3 \text{ BW}$$

$$\text{3 dB BW from } f_0 = \frac{7550-6575}{750} = +1.3 \text{ BW}$$

From the 6 section curves -1.3 BW and +1.3 BW yield approximately 54 dB.

Mechanical:

The mechanical dimensions and mounting hole locations are dependent upon the design parameters specified by the customer. Contact K&L Microwave for details.

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