

340 Series

Mode Filters

Features

- Low Loss
- High Spurious Mode Attenuation

Ordering Information

340 - XXX

Three Digit of Waveguide Inside Diameter (See Appendix L)



Description 340 Series Mode Filters

Mi-Wave's 340 series a critical consideration when using TE_{01} mode circular waveguide is the preservation of mode purity. Due to the similarities between the TE_{01} and TM_{11} modes, even the slightest irregularities in the circular waveguide will cause mode conversion from TE_{01} to TM_{11} . And the large waveguide diameters will readily propagate TE_{M1} modes which degrade the purity of the TE_{01} signal. Extraneous TE_{M1} and TE_{MN} modes cannot be reconverted to the TE_{10} rectangular mode - they show up as large spurious losses.

Each 340 series mode filter consists of a section of lossy wall waveguide. Because the higher order modes (TM_{M1} , TE_{MN}) have wall currents, they are sharply attenuated and do not propagate. Although the energy transferred to these modes is minimal, mode filters must be placed periodically along the transmission line. The TE_{01} mode, which does not have wall currents, passes through this section unaffected. The 340 series mode filters are available in circular waveguide sizes from 12.4 to 140 GHz. They are fitted with one male and one female type of **Mi-Wave's** standard circular flanges.

Applications

The 340 series mode filters are used to prevent TE_{01} conversion to higher order modes. By attenuating unwanted TE_{M1} modes, the 340 series filters allow for the low loss transmission of $TE_{01,02}$ modes in circular waveguide and eliminate unwanted resonances, it is recommended that the 340 series filters be placed at least every 10 feet in long

For Example: **Mi-Wave's** model number 340-688 is a mode filter for a frequency range of 25.3 to 34.9 GHz with an 0.688" inside

Please Note: Due to the non-standardization of this product line, we recommend that you contact **Mi-Wave** for more specific information

Mi-Wave

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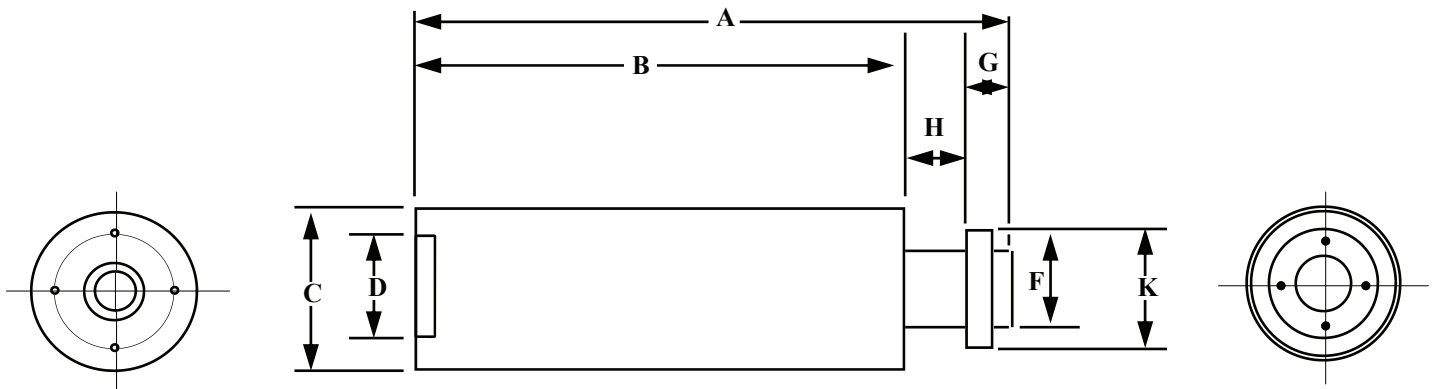
E: sales@miwv.com

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Technical Specifications

Frequency Band (GHz)	11.6-48.0	48.0-96.0	96.0-150.0
Insertion Loss TE₀₁ (dB) Max.	0.2	0.3	0.4
Insertion Loss TE₁₁ (dB) Min.	10.0	10.0	10.0
VSWR Min.	1.20	1.20	1.25



Dimensional Specifications

Model No.	A		B		C		D		F		G		H		K	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
340-201	4.28	108.71	3.18	80.77	1.38	35.05	.292	7.42	.201	5.11	.48	12.19	.28	7.11	1.20	30.48
340-250	4.28	108.71	3.18	80.77	1.38	35.05	.292	7.42	.250	6.35	.48	12.19	.28	7.11	1.20	30.48
340-291	4.28	108.71	3.18	80.77	1.38	35.05	.376	9.55	.291	7.39	.48	12.19	.28	7.11	1.20	30.48
340-353	4.28	108.71	3.18	80.77	1.38	35.05	.437	11.1	.353	8.97	.48	12.19	.28	7.11	1.20	30.48
340-495	6.85	173.99	4.70	119.38	2.12	53.85	.626	15.9	.495	12.6	.42	10.67	.30	7.62	1.95	49.53
340-545	7.56	192.02	5.45	138.43	2.12	53.85	.626	15.9	.545	13.8	.42	10.67	.30	7.62	1.95	49.53
340-634	7.56	192.02	5.45	138.43	2.12	53.85	.789	20.0	.688	17.5	.42	10.67	.30	7.62	1.95	49.53

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