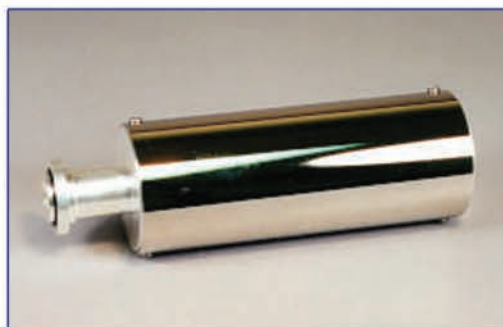


340 Series Mode Filters



Features

- Low Loss
- High Spurious Mode Attenuation



Ordering Information

340 - **XXX**

Three Digit of Waveguide Inside Diameter (See Appendix L)

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

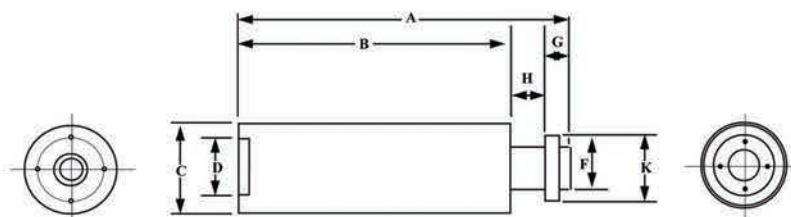
Description

Mi-Wave's 340 series. A critical consideration when using TE₀₁ mode circular waveguide is the preservation of mode purity. Due to the similarities between the TE₀₁ and TM₁₁ modes, even the slightest irregularities in the circular waveguide will cause mode conversion from TE₀₁ to TM₁₁. The large waveguide diameters will readily propagate TEM₁ modes which degrade the purity of the TE₀₁ signal. Extraneous TEM₁ and TEM_N modes cannot be reconvered to the TE₁₀ 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 (TMM₁, TEM_N) 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 TE₀₁ 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-Waves' standard circular flanges.

Applications

The 340 series mode filters are used to prevent TE₀₁ conversion to higher order modes. By attenuating unwanted TEM₁ 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.



Technical Specifications (typical)

	11.6-48.0	48.0-96.0	96.0-150
Frequency Band (GHz)			
Insertion Loss TE ₀₁ (dB) Max.	0.2	0.3	0.4
Insertion Loss TE ₀₁ (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