



VDI Fundamental Mixer Specifications

Product Name	WR15FM	WR12FM	WR10FM	WR8.0FM	WR6.5FM	WR5.1FM	WR4.3FM	WR3.4FM	WR2.8FM
RF Frequency (GHz)	50-75	60-90	75-110	90-140	110-170	140-220	170-260	220-330	260-400
RF/LO Input Flange††	WR-15 UG-385/U	WR-12 UG-387/U	WR-10.0 UG-387/U-M	WR-8.0 UG-387/U-M	WR-6.5 UG-387/U-M	WR-5.1 UG-387/U-M	WR-4.3 UG-387/U-M	WR-3.4 UG-387/U-M	WR-2.8 UG-387/U-M
Estimated Conversion Loss (dB, typical)*	8	8	8	8	8	9	9	10	10
Maximum Available IF Bandwidth (GHz)**	10	12	15	19	24	31	36	40	40
Change in Monitor Voltage (mV)†	<400	<400	<400	<400	<400	<400	<400	<400	<400
Bias Voltage for Current Bias Box (V)	+5	+5	+5	+5	+5	+5	+5	+5	+5

Product Name	WR2.2FM	WR1.9FM	WR1.5FM	WR1.2FM	WR1.0FM	WR0.8FM	WR0.65FM	WR0.4FM	WR0.34FM
RF Frequency (GHz)	330-500	400-600	500-750	600-900	750-1100	900-1400	1100-1700	2000-2800	2300-3200
RF/LO Input Flange††	WR-2.2 UG-387/U-M	WR-1.9 UG-387/U-M	WR-1.5 UG-387/U-M	WR-1.2 UG-387/U-M	WR-1.0 UG-387/U-M	~25dBi Diagonal Horn†	WM-164 UG-387/U-M	~25dBi Diagonal Horn†	~25dBi Diagonal Horn†
Estimated Conversion Loss (dB, typical)*	11	11	15	20	20	20	20	20	25
Maximum Available IF Bandwidth (GHz)**	40	40	40	40	40	40	40	40	40
Change in Monitor Voltage (mV)†	<400	<400	<400	<400	<400	<400	<400	<250	<250
Bias Voltage for Current Bias Box (V)	+5	+5	+5	+5	+5	+5	+5	-5	-5

†Current Bias Box includes a Voltage Monitor Port. The change in the monitor voltage represents the amount of power applied to the mixer. Exceeding maximum limit will damage the mixer.

††VDI Fundamental Mixers are single-ended, meaning that the RF and LO signals are coupled into the same waveguide flange. Thus, an external diplexer is required to spacially combine these two signals and couple them to the mixer.

*Conversion Loss is specified for ~1 GHz IF.

**IF bandwidth may be limited by external components, such as the bias-tee (see General Notes).

General Notes:

- VDI's Fundamental Mixers are shipped with a current bias box and a bias-tee and amplifier with a bandwidth of 10MHz to 6 GHz.
- The 6 GHz bias-tee and amplifier can be replaced by a 20 GHz or 40 GHz option. Contact VDI for more information.
- For high frequency FMs (WR0.8 and higher frequency), only I-V test and visual inspection will be completed prior to shipment.
- VDI does not manufacture nor own diplexers for all frequency bands, and therefore is unable to fully test the performance of the FMs. Rather, they are tested to ensure suitable coupling of the LO and RF power to the diodes in a detector mode.
- Additional testing of conversion loss and noise temperature can be arranged at additional cost.
- For low noise and ease-of-use, VDI SHMs are preferred.

How to Order:

PRODUCT or PRODUCT-XX

PRODUCT= Choose from "Product Name" in above table.

XX = Upgrade bias-tee (see examples below).

Examples:

WR3.4FM: 220-330 GHz Fundamental Mixer, Shipped with 6 GHz Bias Tee and Current Bias Box (attached).

WR3.4FM-20: 220-330 GHz Fundamental Mixer, Shipped with 20 GHz Bias Tee, Amplifier and Current Bias Box (attached). Contact VDI for pricing on 20 GHz option.

WR3.4FM-40: 220-330 GHz Fundamental Mixer, Shipped with 40 GHz Bias Tee, Amplifier and Current Bias Box (attached). Contact VDI for pricing on 40 GHz option.