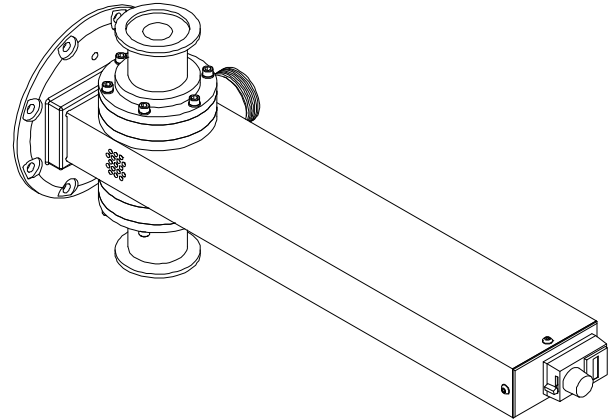


**Tunable Vacuum Applicator, WR284  
 with Quartz Tube**

APPROVALS			REVISIONS			
	INITIALS	DATE	REV	DESCRIPTION	DATE	APPR
Drawn	JFG	06APR07	2	Added integrated tuning	14NOV07	JFG
Engineering			3	Revised outline drawing	18AUG10	JFG
Manufacturing						
Marketing						

## 1.0 General Description

The applicator described in this document is designed for heating a column of material in a vacuum. The internal geometry is that of a cylindrical single mode resonant cavity within which the electric field is maximized along the center axis, thus maximizing the transfer of microwave energy to the material being heated. To accommodate materials of various dielectric property values, the cavity geometry is variable dynamically by means of a precision adjustable shorting plane in the waveguide. The cavity length can also be varied to allow the heating of longer columns of material or greater heating residence time.



A quartz tube is located inside the applicator along the center axis. Internal o-rings provide a vacuum tight seal at each end of the quartz tube while stainless steel vacuum fittings are provided for external connection to a vacuum pump and/or other accessories provided by the user. Perforations on the side of the applicator body allow viewing of the material being heated. A threaded boss for mounting a camera or IR sensor (specified by customer) on the cavity wall is also provided.

An optional configuration of the applicator includes an internal alumina insulating tube that allows the heating of materials to extreme temperatures. This feature also allows the propagation of  $TM_{01X}$  modes depending on the alumina tube dimensions and the characteristics of the materials being heated. Contact GAE for assistance with configuring the applicator for specific materials.

## 2.0 General Specifications

Frequency	2450 MHz +/- 30 MHz
Input Power	3 kW max. continuous
Input Waveguide	WR284
Waveguide Flange	WR284 (UG584/U) with "Q-D" taper
Tuning	Precision adjustable short circuit
Operating Temperature	-65 °F (-54 °C) to +450 °F (232 °C)
Vacuum Connections	ISO "KF" style flanges, size NW40
Construction Materials	Applicator Body: Aluminum Vacuum Tube: Fused quartz silica Vacuum Seal O-rings: Silicone Vacuum Flanges: Stainless Steel

## Tunable Vacuum Applicator, WR284 with Quartz Tube

### 3.0 Ordering Information

Description	Part No.
Tunable Vacuum Applicator, WR284 (without alumina tube)	912695
Alumina Insulation Tube, .75" ID x 1.50" OD x 3.76" LG (other sizes are available)	912793
IR Sensor Adapter, Heitronics KT-15, 300mm (adapters for other sensor types are available)	912794
Tube Extension Kit, 1" Incremental (includes quartz tube, spacers and hardware)	912796

### 4.0 Outline Drawing

