

# Crossed-Field Amplifier L-4997

Stellant's L-4997 is a backward-wave Crossed Field Amplifier (CFA) which has a minimum peak output power of 660 kW for all frequencies between 2.90 -3.10 GHz. The minimum electronic efficiency is 70%.

The low noise characteristics (-70 dB/10Hz) makes its suitable for MTI radar use.

The L-4997 is a cold cathode tube operating in the secondary emission mode. Beam confinement is by shielded permanent magnets. The RF input and output are through UG-53A/U standard waveguide flanges.

## KEY FEATURES

- \* High efficiency
- \* Cathode modulation
- \* Re-entrant design and distributed emission.
- \* Integral ion pump and permanent magnet
- \* Permanent Ion Pump

Electrical Characteristics	
Operating Frequency Range	2.90 - 3.10 GHz
Peak Power Output, Min	660 kW
Average Power Output, Min	10 kW
Peak Anode Voltage	50 kV
Anode Current, Peak/ Average	20 A / 300 mA
Pulse Width / Duty Cycle, Max	41 uS / .015
Peak Input Power, Min	48 kW
Efficiency, Min	70 %
Ion-Pump Voltage	3 kV

Mechanical Characteristics	
Dimensions	See the Outline Drawing
Operating Position	Any
Approximate Weight	110 lbs.
RF Input and Output Flanges	UG-53A/U
Output Waveguide Pressurization	40 psia

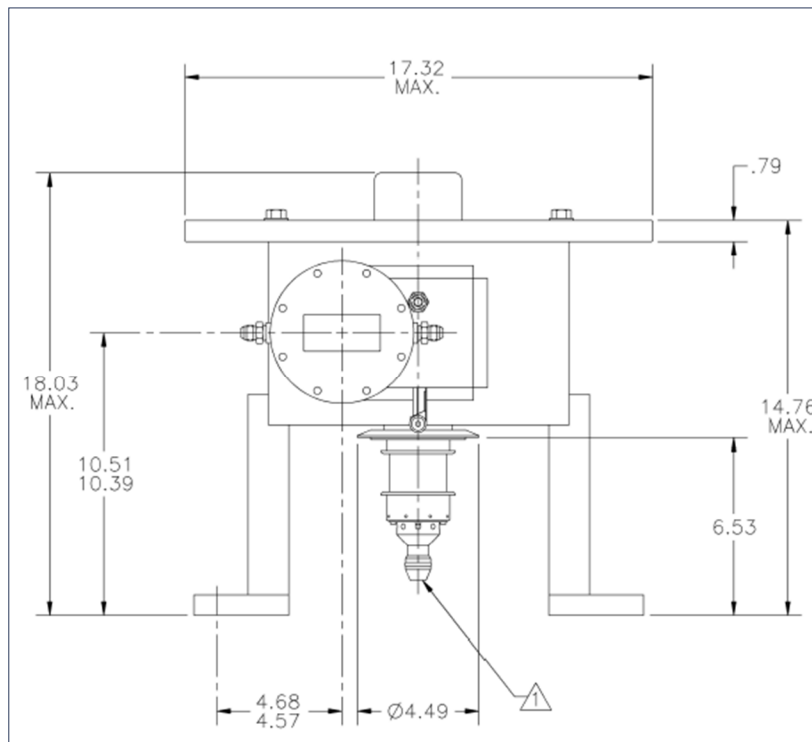
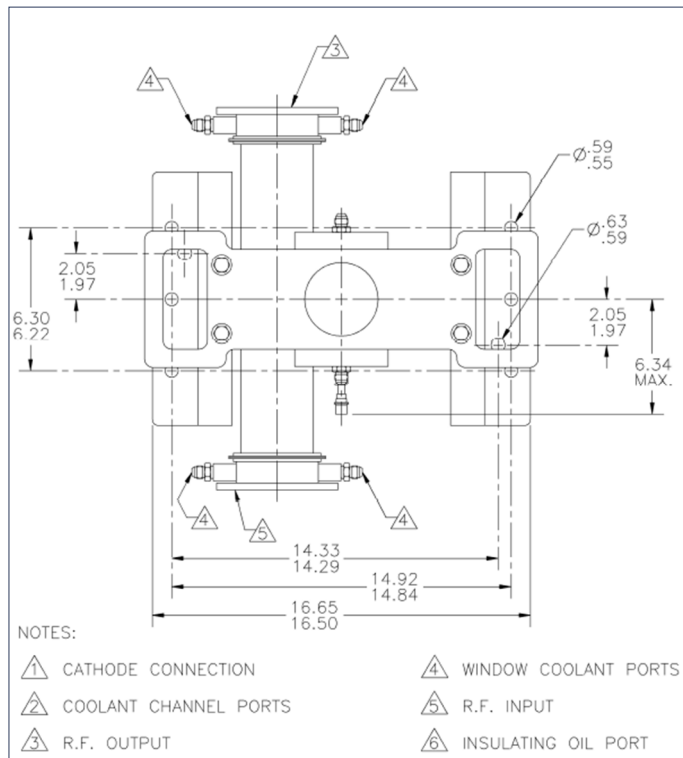
Auxiliary Equipment— Ion pump power supply required.

Coolant Requirements, Ethylene-Glycol or Pure Water		
Ethylene-Glycol - A mixture of water/ethylene glycol (ratio 35%/ 65% by weight)		Water
Pressure Drop, Min/Max	Window (0.5 / 6.0 ) psi	Body ( 6.0 / 20) psi
Window Pressure, Max	55 psi	55 psi
Body Pressure, Max	75 psi	75 psi
Input Coolant Temperature	65°C	65°C
Window Coolant Flow Rate	0.5 gpm	0.4 gpm
Body Coolant Flow Rate	4.2 gpm	3.0 gpm

Absolute Ratings	
Peak Anode Voltage	60 kV
Peak Anode Current	17 - 24 A
Average Input Power	17 kW
Peak Input Power	1400 kW
Duty Cycle	.016
Pulse Width	0.10 - 50 μS
VSWR	1.3
Anode Temperature	-25 - +75 °C
Cathode End Temperature	+200 °C
Input Pressurization	40 - 55 psia
Output Pressurization	40 - 55 psia

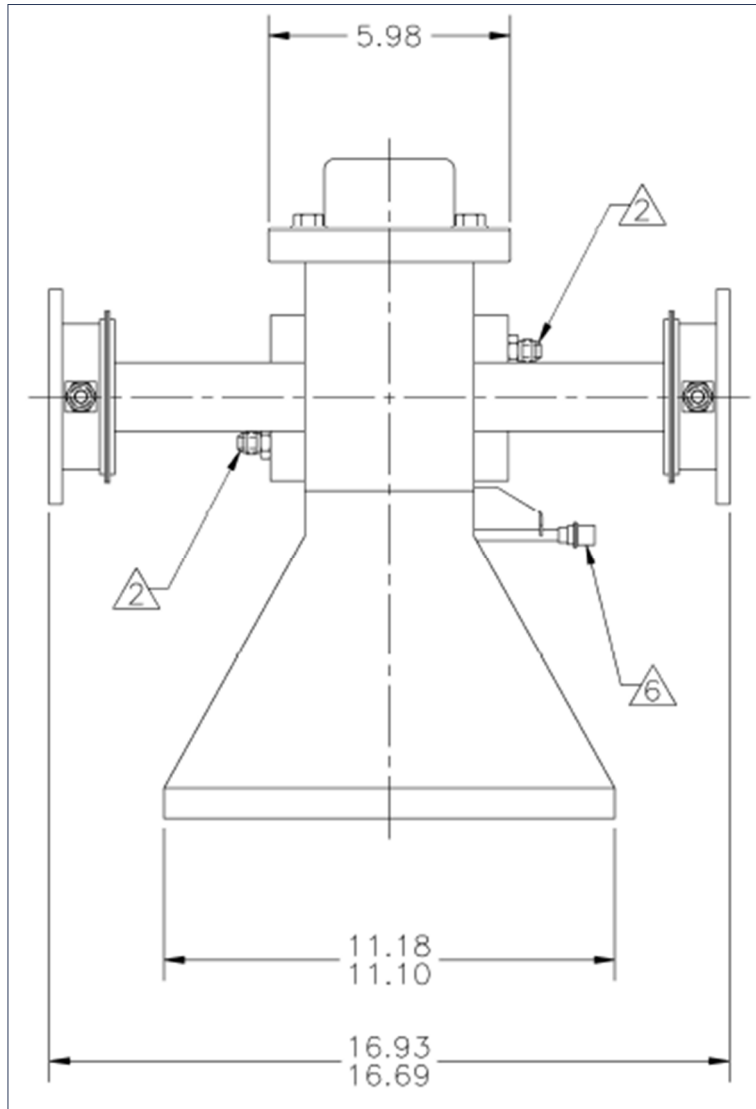
Typical Operation	
Operating Frequency	3 GHz
Anode Voltage	48 kV
Anode Peak Current	20 A
Pulse Width	41 μS
Duty Cycle	.016
Peak Drive Power	48 kW
Average Output Power	11 kW
Minimum Signal/Noise Ratio	35 dB
VSWR	1.1
Efficiency	72 %

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Detailed outline drawings are available on request. Specifications and features are subject to change without notice.

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