



## **HF500BB RF AMPLIFIER**

QEI designed the HF500BB from specifications supplied by Brookhaven National Laboratory (BNL). The HF500BB is a broadband (1-30 MHz), 500 Watt CW, Class A, solid state, water cooled RF Amplifier.

The amplifier is designed to operate from 1 to 30 megahertz with a continuous power output of 500 Watts. The HF500BB uses solid state amplifiers in full class A operation. The power supply is linear regulated and requires a 208/240 VAC single phase mains power. The amplifier and power supply is water cooled.

The entire RF amplifier, is housed in a single 48.3cm wide x 51.4cm deep x 52.7cm high rack mountable aluminum chassis.

The amplifier utilizes five class A RF Amplifiers. Each amplifier uses a pair of MRF154 MOSFETs biased for class A operation. One as a driver and four in the PA. The amplifiers, splitter, and combiner are all broadband to accommodate the 1-30 megahertz bandwidth.

Full metering of amplifier parameters along with RF output power and voltage displayed on the two front panel meters.

The power supply develops approximately 56 VDC from a single phase isolation

transformer and full wave bridge rectifier assembly. This voltage is then linearly regulated to 50 VDC to power the RF amplifiers.

The amplifier requires less than 0dBm to supply a full 500 Watt output. The RF path consists of a RF limiter to prevent overdriving the amplifier to a broadband 30dB gain integrated circuit RF amplifier. The output of this amplifier powers the driver amplifier to an output of about 125 Watts. The output of the driver is passed through a four way splitter to the four power amplifiers. These amplifiers are rated at 125 Watts each. The output of each of these amplifiers is connected to a four way combiner and finally to the output connector.



The HF500BB is fully protected against RF overdrive, overcurrent, and water flow. The HF500BB can be remotely operated and has status outputs for water flow, overcurrent fault, and circuit breaker condition.

Although this amplifier was specifically designed to BNL specifications, QEI can modify and design an amplifier to your specific needs.

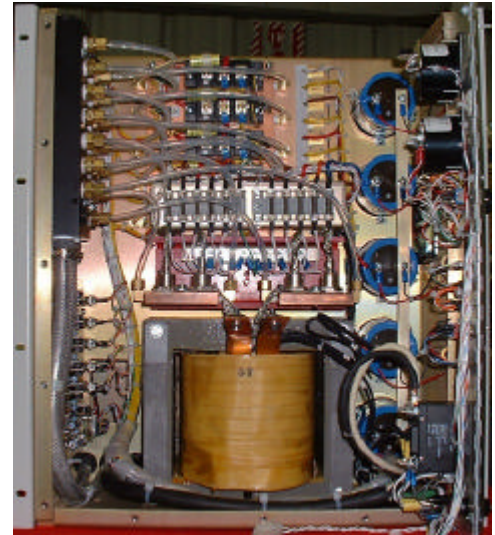
# HF500BB RF Amplifier

## GENERAL

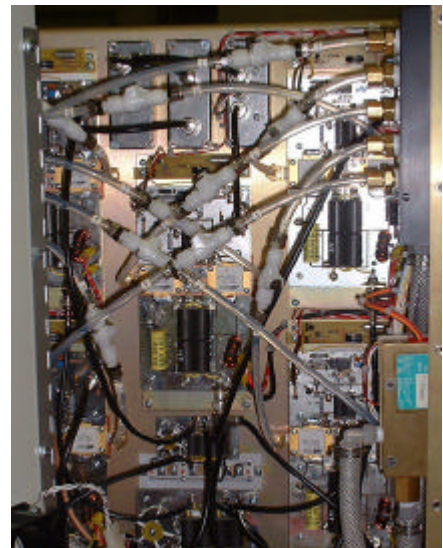
**Power Output** .....0-500 Watts  
**Frequency Range:**..... 1-30 MHz  
**Full Power Bandwidth:** .....1-30 MHz  
**Amplifier Class:**..... 'A' to 500 Watts  
**Power Supply:** .....Linear Regulated  
**RF Load Impedance:**.....50 Ohms  
**Output Connector:** .....type 'N' female  
**VSWR:**any magnitude or phase to 500 Watts  
**Gain:**.....60dB  
**Phase Shift:** .....less than 45 degrees at 500 Watts  
**Harmonic Distortion:** ..-30 dB at 500 Watts

## ELECTRICAL/MECHANICAL

**Mains AC Power:**.... 208 VAC, 60 Hz, single phase (other voltages and configurations available)  
**Ambient Temperature Range:**  
Operating: ..... -15° C to +40° C  
Startup: ..... 0° C to +50° C  
**Maximum Humidity:**.. 95% non-condensing  
**Maximum Altitude:** ..... 10,000 feet AMSL  
**Cabinet Size:**19" (48.3 cm) W x 20.25" (51.4 cm) D x 20.75" (51.7 cm) H  
**Weight:**..... 182 pounds (82.5kg)  
**Shipping Weight:** .....230 pounds (104.3kg)



Front Interior (Power Supply)



Rear Interior (RF Amplifiers)

Years of field proven experience in custom design will assure you of the best possible product, with the most effective interface and monitoring system.

QEI is always available to discuss your present and future needs. Please contact us so that we may quote on your project.

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