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# The ILT 5000 components. Designed with performance in mind.



## THE PLASMA TUBE

Extensive research has reinforced the reliability of the ILT 5000 Series plasma tube while reducing its overall cost. Various features extend the tube life, and enable it to be refurbished at less than half the cost of a new tube.

The entire tube is constructed of ceramic and metal capable of high temperature cycling. The bore material is beryllium oxide. Beryllium oxide is used for its high thermal conductivity and low sputtering characteristics. Internal gas return paths in the bore replace the use of fragile glass external paths. Two large Kovar end shrouds double the gas volume of other manufacturers, reducing gas contamination and depletion.

A pure molybdenum anode brazed in with OFHC copper also provides high thermal conductivity and is not adverse to the cathode. Processing under high vacuum and high temperature eliminates gas contamination from component out-gassing. Optical contamination is minimized by a continuously active non-evaporable getter, which builds in even longer tube life.

## AIR COOLING AND HEATSINK DESIGN

The ILT method of air cooling incorporates a fully brazed pure copper heat sink with more than 700 square inches of heat-dissipating surface area and two high-volume fans, versus one used in most designs. These move only cool ambient air through the resonator and across the heat sink, providing more efficient cooling of the tube and longer fan life. This overall design further strengthens system reliability.



## MODEL 5400 OEM POWER SUPPLY

We have united simplicity and technological ingenuity in a solid-state, reliable and compact switching power supply. The ILT 5000 Series power supply features a voltage doubled front end. This boosts the 115 VAC line input to 340 VDC and switches it to a fully isolated step-down transformer at 30 KHZ. This exclusive design provides line isolation and enables maximum laser energy output even at low-line voltage inputs. It is also available in 100 or 220 VAC.

## RESONATOR DESIGN

The base and main support structure are made from light aluminum plate, with four solid invar rods forming the optical support structure. These supply maximum stability even under severe conditions. Solid spring steel mirror adjustment gimbals offer easy adjustment along with high vibration and shock stability.



## OPTICAL CAVITY

The optical cavity is completely sealed from contamination. The cavity is connected to the plasma tube by a unique Kovar brewster tube shroud which is an integral part of the tube. Unlike other designs which seal the cavity to a fragile glass stub, this achieves a much tighter dust seal.

A Littrow prism in single-line output models guarantees 100% spectral purity and the ability to tune through the entire argon spectrum. In addition, a prism/high reflector combination greatly reduces power drift due to temperature changes.



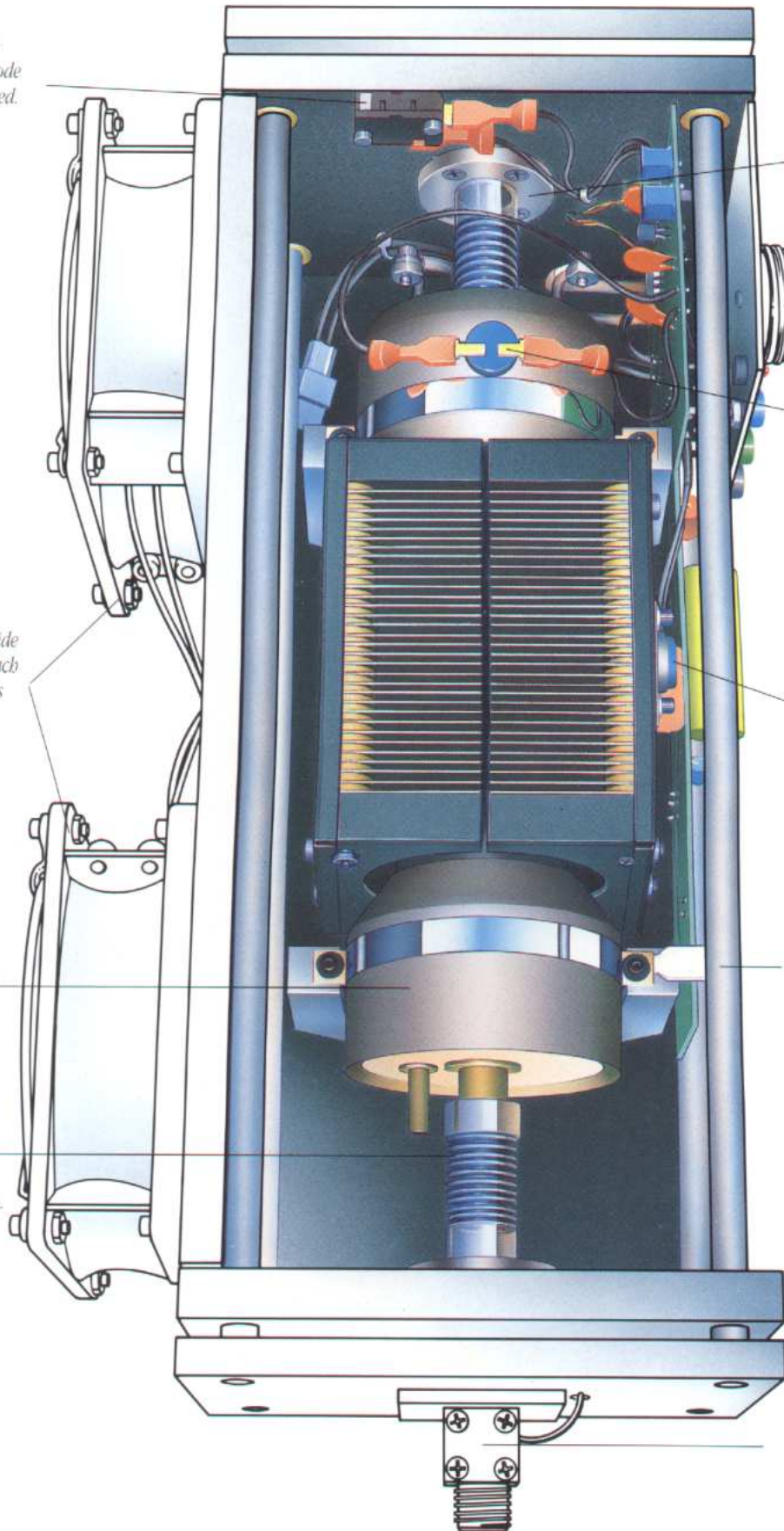
# An inside look at the MODEL 5490A

Cover interlock safety switch  
shuts down anode and cathode  
voltage when cover is removed.

Dual high volume fans provide  
120 CFM of cooling air at each  
end of plasma tube where it's  
most needed.

Large metal end shroud gas  
reservoir for added tube life.

Sealed optical cavity.  
Air tight seals provide mainte-  
nance free operation.



Mirror adjustment gimbal.  
One solid steel piece design  
provides field proven shock  
proof permanent alignment.

Fan thermostat controls cooling  
fans and monitors tube tempera-  
ture. Fans turn on when tube is  
up to operating temperature  
and turn off only after tube is  
completely cooled down. As a  
result, the tube can warm up  
and cool down faster.

Overtemp interlock.  
Plasma tube heatsink is moni-  
tored by a thermostat. If tube  
overbeats, the power to anode  
and cathode shuts down, protect-  
ing system against fan blockage  
and failure.

Solid invar rod resonator design.  
Four rod design provides  
maximum stability.

Light control models.  
Beam splitter/photo diode  
samples the beam and maintains  
constant power output.



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