

RED HENE CYLINDRICAL LASER HEADS

MELLES GRIOT POLARIZED 7mW HELIUM-NEON LASER

These Cylindrical Laser Heads are packaged red helium neon lasers. The power supply is separated from the laser head and the two are interconnected by a 1.8m cable. This allows certain mounting freedoms in restricted situations. The cylindrical housing is compatible with our 07 HLH 001, 07 HLH 002, 07 HLH 003 or 07 HLA 001 laser holders and other mechanical hardware components (see page 462).

The plasma tubes used in these lasers are the same as described earlier in this catalog and feature all the same advantages of stability, reliability and long-life. All BRH safety features are incorporated and the lasers are fully certified and labeled by Melles Griot.

Output powers of 1, 2, 4, 5 and 7 milliwatts are offered in both randomly and linearly polarized versions. The lasers are permanently and concentrically mounted within metal tubes for protection and ease of use. The connected cable is for the external power supply which should be ordered separately (see page 360).

Red HeNe Cylindrical Laser Heads

SPECIFICATIONS	05 LHP 171
Minimum CW Power Output at 632.8nm TEM ₀₀ : (mW)	7
Beam Diameter 1/e ² : (mm)	1.00
Beam Divergence: (mrad, full)	0.8
Polarization Ratio:	500:1
Longitudinal Mode Spacing: (MHz)	380
Operating Current, nominal: (mA)	7.0
Operating Voltage: (VDC) ±100	2600
Recommended Minimum Power Supply Resistance: (kΩ)	75
Weight: (kg)	0.68
Long Term Drift:	±2%
Starting Voltage: (kVDC)	> 10
Ballast:	Included

Common To All Product Numbers

Static Alignment:	Centered to outer cylinder within 0.25mm and 1.0 milliradian
Angular Drift:	<0.03 milliradians after 15 minutes.
Amplitude Noise:	< 1% (30Hz to 10MHz rms)
Dimensions:	±0.5mm

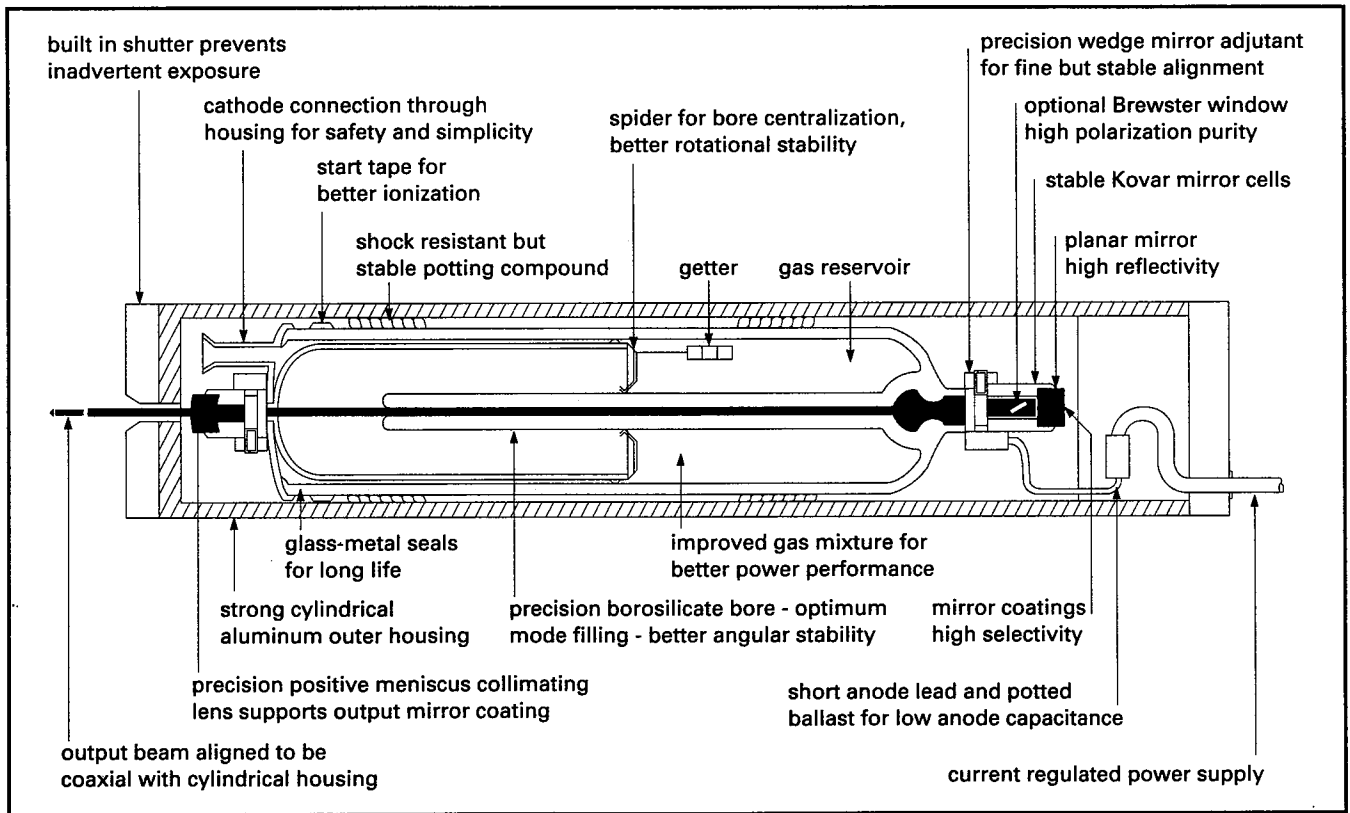
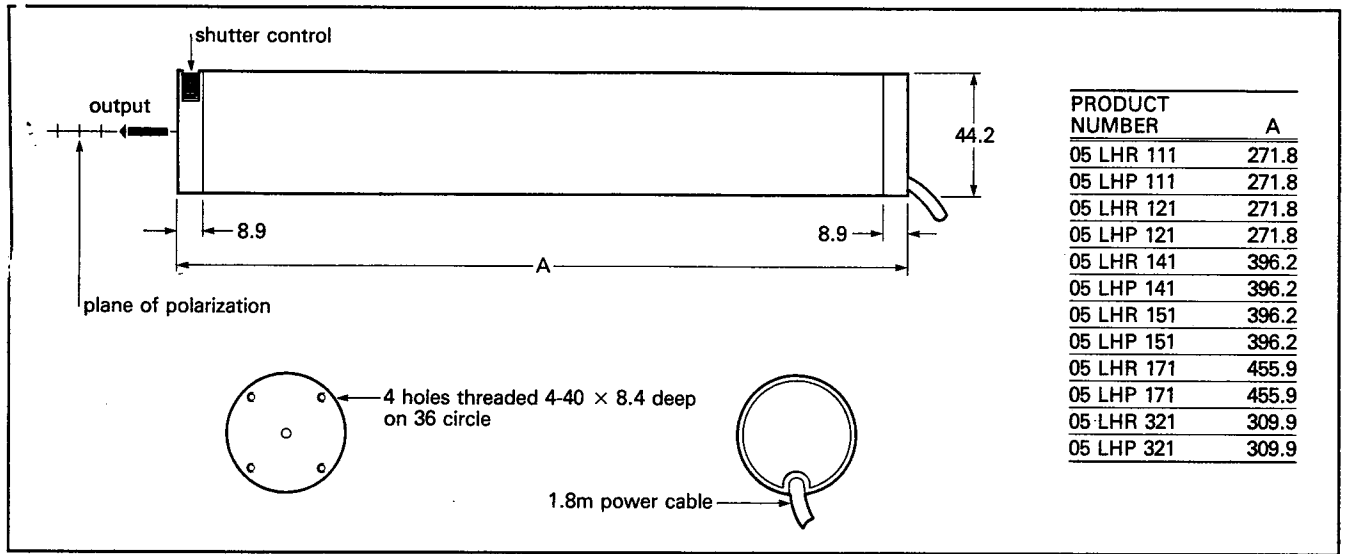
This is a decent-sized source of photons for the **Experimental Table**. Four by five and eight by ten inch holograms can be exposed with it in under a minute.

This laser still puts out >7mW, even though it's over ten years old. Melles Griot is the world's largest manufacturer of Helium Neon Lasers, and the tubes are well-sealed for longevity. Back then the manufacturer painted the laser heads and power supplies a unique beige color; nowadays they have followed everyone else and paint them black.

This Laser Head Polarized has its plane of polarization set by the Brewster Window inside the tube, and is aligned with the "tail" of the power cord exiting the rear of the laser.

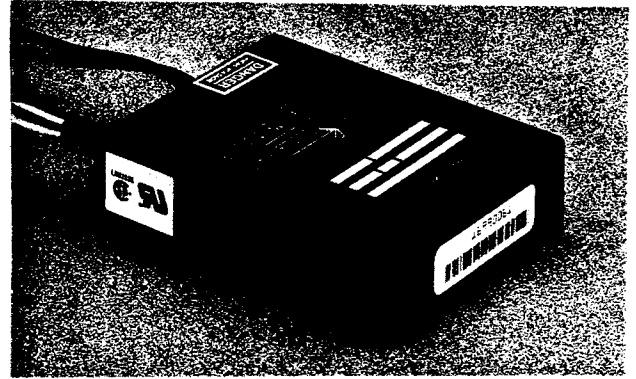
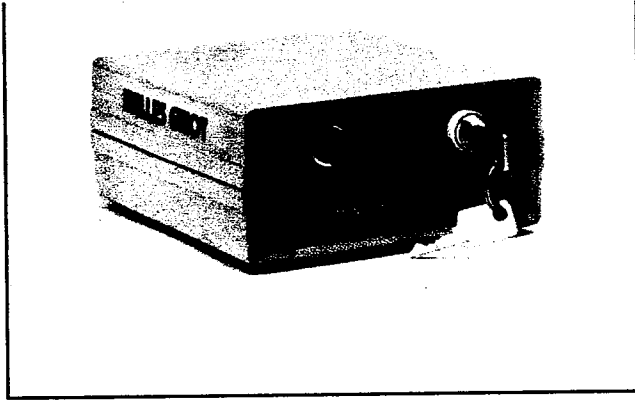
There is a shutter on the output end cap. If there is no emission, and the tube is warm, then the shutter is closed. It is rather stiff opening or closing it.

Environmental Specifications	Operating	Non-Operating
Temperature:	-20 to +50 °C	-40 to +80 °C
Altitude:	0 to 3000 meters	0 to 5800 meters
Relative Humidity:	0 to 100%	0 to 100%
Shock:	15g for 11msec	15g for 11msec



CROSS-SECTIONAL VIEW OF A MELLES GRIOT HELIUM NEON LASER HEAD showing the details of the plasma tube.

FURTHER READING: The latest OPTICS GUIDE from Melles Griot.



These power supplies are designed specifically for use with Melles Griot cylindrical laser heads as previously described. Four versions are available: one to drive red lasers with 1 to 5mW output power, one for use with the 7mW lasers, one for use with green lasers, and one for use with infrared lasers. All models may be operated from either 115 or 230VAC (50 or 60Hz). They incorporate all required BRH safety features such as key-locks, power-on indicator and a 3 to 5 second operating time delay.

Power Supplies are packaged in a plastic housing. A 1.8 meter line cord plugs into the rear of the supply. Also provided are output sockets for the laser head and a replaceable-fuse holder.

If the **Rocker Switch** is pressed and the **Indicator Light** doesn't come on, check the electrical plug and plug box ON THE Control Panel. If the **Indicator Light** is on, the laser may take a while before it emits as there is a federally-mandated delay built-in to the **Power Supply**. If the laser has been sitting for a while, like days or weeks it may take a matter of minutes before it lights.

SPECIFICATIONS	05 LPL 370
Power Range of Lasers Driven: (mW)	7
Input Voltage: (VAC)	115/230±10%
Input Frequency: (Hz)	50 or 60
Input Current: (mA average)	120/60
Recommended Fusing: (A)	1.0
Output Current: (mA)	7.0±0.5
Laser Beam Amplitude	
Ripple: (% rms)	0.2
Operating Voltage: (VDC)	2500-2700
Starting Voltage: (kVDC)	10
Conversion Efficiency: (%)	87
Heat Sink:	None Required
Required Ballast:	None
BRH Time Delay: (sec)	3 to 5
Dimensions: (mm)	±0.5

There is a little **Black Box** inside all these **Power Supply Boxes** that has unmarked electrical components that not only transform and rectify the household current to satisfy the laser but there also is a time bomb ticking in it. If the laser doesn't light after about a half an hour, the **Power Supply** is probably dead. This laser is on its third one.

The old **05 LPL 370** went out with a whimper and now we use a **MWK Industries Item 24ANS12 COMPLETE SELF-CONTAINED He-Ne POWER SUPPLY** for the juice to lase the Neon atoms. It turns on with a **Rocker Switch** rather than the **Key** of the original. **NEVER, EVER SWITCH ON THE POWER SUPPLY WITHOUT A LASER ATTACHED!**

