

## HUGHES Models 3118H-02 and 3218H Ruggedized Helium-Neon Lasers

**SHOCK RESISTANT-  
TAKES HEAVIER THAN  
NORMAL ABUSE**

Hughes now provides its ruggedized helium-neon lasers in two versions: the basic hard-seal plasma tube, Model 3118H-02, and the packaged laser head, Model 3218H. The Model 3218H laser head consists of the Model 3118H-02 plasma tube, shock mounted in a metal enclosure, together with ballast resistor and high voltage connector.

Both models have been developed for applications that demand small size and rugged construction to withstand heavy shock while operating. Such applications include portable construction alignment systems subject to greater than normal abuse, aiming devices for hand-held firearms, and industrial test systems requiring miniaturization or resistance to shock.

**HUGHES**

HUGHES AIRCRAFT COMPANY

INDUSTRIAL PRODUCTS DIVISION  
CARLSBAD, CALIFORNIA

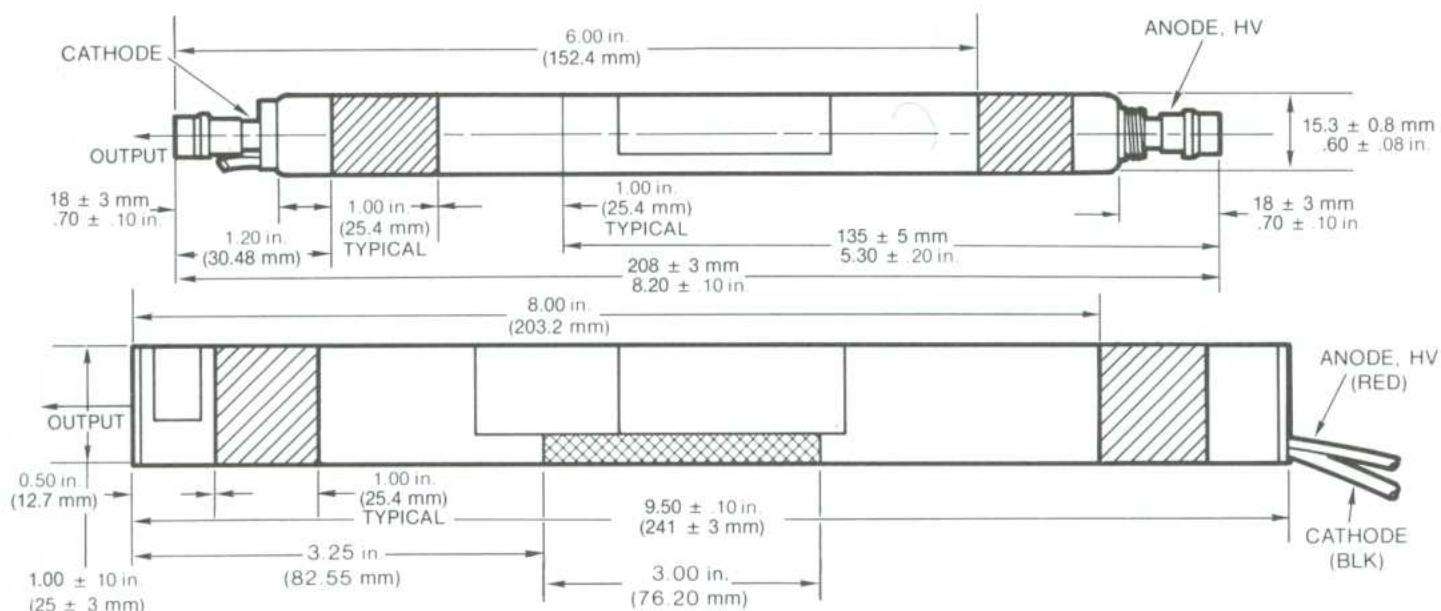
SPECIFICATIONS	Plasma Tube Model 3118H-02	Laser Head Model 3218H
Output power at $25^{\circ} \pm 5^{\circ}\text{C}$	0.5 mW, minimum;	1.0 mW, nominal
Transverse mode	$\text{TEM}_{01}$ (donut mode), nominal	
Polarization	Random	
Beam diameter $1/e^2$	0.8 mm	
Beam divergence	2.0 mrad	
Amplitude noise (30 Hz, 10 MHz)	10% rms, nominal	
Longitudinal mode spacing (c/2L)	750 MHz	
Starting voltage (with start wire)	$> 8 \text{ kVdc}$	
Operating current	$3.2 \pm 0.1 \text{ mA}$	
Operating voltage	$1200 \pm 150 \text{ Vdc}$	$1470 \pm 150 \text{ Vdc}$
Ballast resistor	75 k $\Omega$	Internal
Mass	78 g	300 g

### COMMON ENVIRONMENTAL SPECIFICATIONS

	Operating	Nonoperating
Temperature	$-20^{\circ}\text{C}$ to $50^{\circ}\text{C}$	$-40^{\circ}\text{C}$ to $80^{\circ}\text{C}$
Altitude	0-10,000 ft	0-70,000 ft
Relative humidity without condensation	0-100%	0-100%

### POWER SUPPLY

Both models operate on Model 466GS1 power supply (12 Vdc input) or Model 436GS1 power supply (120 Vac input).



RECOMMENDED  
MOUNTING AREAS



ALTERNATE  
MOUNTING AREA



### BUREAU OF RADIOLOGICAL HEALTH

The models on this data sheet are sold only on an OEM or export basis and have not been certified relative to BRH Performance Standard 21CFR1040. It is the user's responsibility to certify product compliance where applicable.

*Specifications are subject to change without notice.*

**HUGHES**

HUGHES AIRCRAFT COMPANY  
INDUSTRIAL PRODUCTS DIVISION  
CARLSBAD, CALIFORNIA

HUGHES AIRCRAFT COMPANY • Industrial Products Division  
6155 El Camino Real • Carlsbad, CA 92008 Tel: (619) 438-9191, Ext. 590  
TWX: 910-322-1393 HACINPD CSBD

HUGHES AIRCRAFT SYSTEMS INTERNATIONAL  
Frederik Hendriklaan 22, 2012-SH Haarlem, The Netherlands  
Tel: (23) 292453 • TLX: 41733 HASI NL