

# mazda hytek lamps



# atlas & mazda HYTEK LAMPS

## INTRODUCTION AND CONTENTS

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Hytek lamps are specialised Discharge Lamps manufactured to meet the needs of research and industry for advanced compact and high brightness light sources.

There is also a variety of ultra-violet sources.

These proven ranges of discharge lamps are used for inspection and development projects in many locations and they undoubtedly have done much to maintain the superior quality and advanced design of much British industrial and engineering equipment.

The lamps are manufactured to exacting specification with advanced or high techniques – hence the name Hytek.

- 1 Mercury Lamps for projection purposes Type ME/D
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# mazda MERCURY LAMPS FOR PROJECTION PURPOSES TYPE MBD

Supply voltage 200/250 AC

## DESCRIPTION

Mercury vapour discharge lamps with quartz arc tubes loaded below 100W cm. of arc length and operating at pressures of 8/10 atmospheres.

The arc tubes are mounted in tubular outer bulbs, and the lamps are designed for vertical burning cap down. Restrictions in the arc tube ensure a stabilised and accurately focussed linear light source for projection purposes.

The lamps require control gear consisting of a choke and power factor correction capacitor.

## TYPICAL APPLICATION

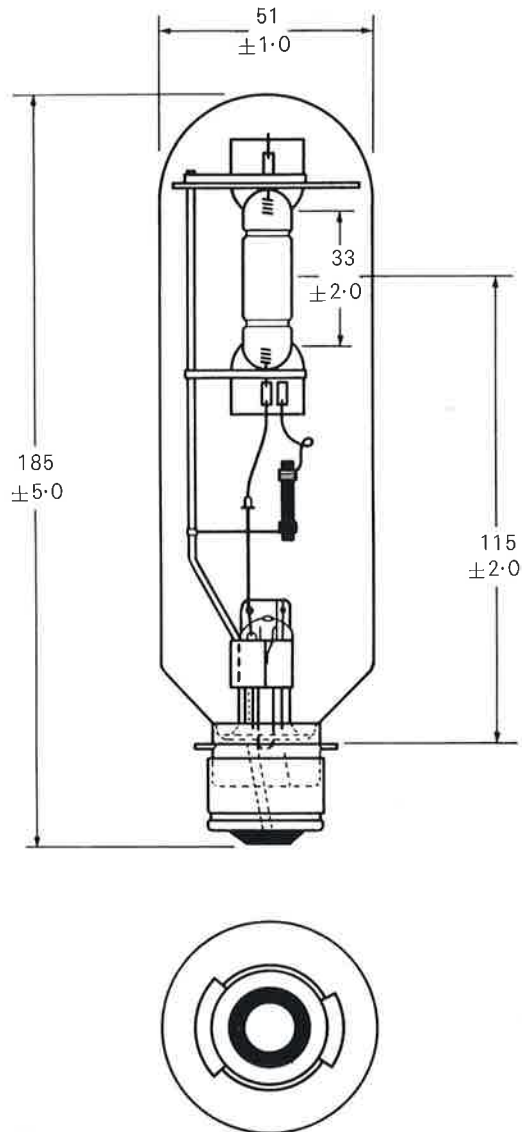
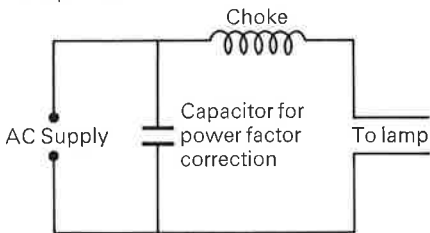
Optical instruments requiring accurate optical control eg spectroscopes, comparators, and other 'slit' instruments.

## CONTROL GEAR 240V 50Hz.

Choke Catalogue Rating No.	Capacitor Catalogue No.	Mfd rating
125W AME 53159-4	AMEC2234	8

## CIRCUIT DIAGRAM

AC Operation



All dimensions in mm

## LAMPS

Reference No.	Watts	Arc Length	Cap	Lamp Operating		Starting Current	Design Average Lumens	Life Hours
				Volts	Amps			
91-1159	125	33 ± 2	P28/25	110/140	1.15	2.0-1.5	4,000	1,500

# mazda MERCURY LAMPS FOR PROJECTION PURPOSES TYPE ME/D

Supply voltage 200/250.

## DESCRIPTION

Mercury vapour discharge lamps with quartz arc tubes loaded above 100W/cm of arc length and operating at a pressure of about 30 atmospheres.

The arc operates between solid tungsten electrodes providing a compact light source of high brightness. In the 250W ratings the quartz arc tube is enclosed in a metal case with clear apertures or with a quartz window to enable short wave U.V. to be utilised from the lamp, or with a glass window where short wave U.V. is not required. Alternatively the quartz arc tube is enclosed in a tubular glass outer bulb.

The 1,000W rating is a bare quartz arc tube. Lamps may be operated on DC or AC supplies in conjunction with appropriate control gear. For AC supplies this consists of a choke and power factor correction capacitor. In addition the 1,000W lamp utilises a starting capacitor in series with a push button switch. For DC operation of 250W lamps a choke and series resistance are required, the choke being retained for starting purposes. The 1,000W lamp on DC operation requires a series resistance, the lamp being started by means of a Tesla coil.

The lamps are designed for burning in the vertical position.

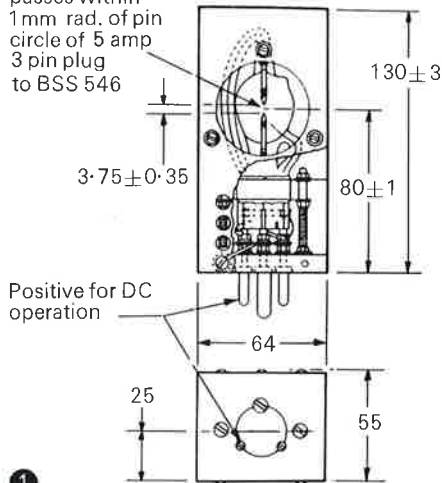
## TYPICAL APPLICATIONS

Monochrome slide and film projectors. Film printing. Projection microscopes. Profile projectors.

### 3-PIN BOX TYPE LAMP 250W

All dimensions in mm unless otherwise stated

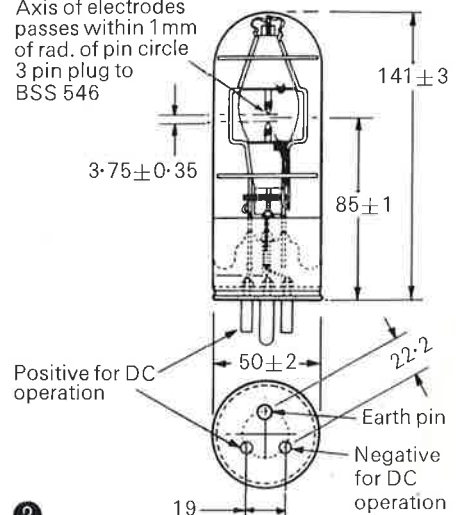
Axis of electrodes passes within 1 mm rad. of pin circle of 5 amp 3 pin plug to BSS 546



1

### LAMP WITH TUBULAR GLASS ENVELOPE 250W

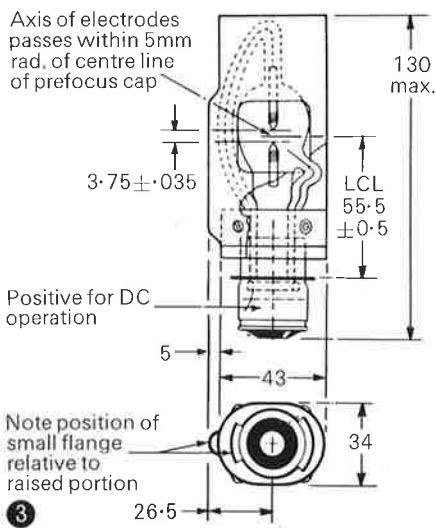
Axis of electrodes passes within 1 mm of rad. of pin circle 3 pin plug to BSS 546



2

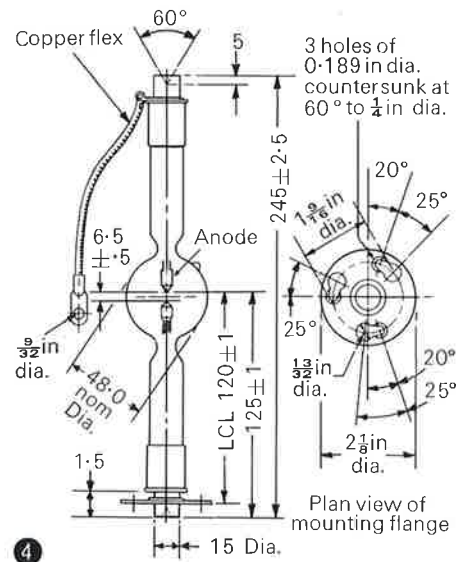
### PREFOCUS LAMP 250W

Axis of electrodes passes within 5mm rad. of centre line of prefocus cap



3

### LAMP WITH TAG/LEAD CONNECTION 1000W



4

## LAMPS

Reference No.	Watts	Arc Length mm	Cap	Outer Casing	Illus.	Lamp Operating Volts	Lamp Operating Amps	Starting Current Amps.	Max. Brightness Stilbs	Mean HCP	Life Hours
94-0001	250	3.75	3-pin	Metal Box Glass Window	1	60/75	3.7/4.6	4/5	20,000	1,300	500
94-0006	250	3.75	3-pin	Metal Box Quartz Window	1	60/75	3.7/4.6	4/5	20,000	1,300	500
94-0051	250	3.75	3-pin	Tubular Glass Bulb	2	60/75	3.7/4.6	4/5	20,000	1,300	500
94-0101	250	3.75	P28/25	Oval Metal Case	3	60/75	3.7/4.6	4/5	20,000	1,300	500
94-0151	1,000	6.5	Cylindrical with Disc	—	4	60/75	16/18	20/22	40,000	7,000	500

# mazda MERCURY LAMPS FOR PROJECTION PURPOSES TYPE ME/D

## CONTROL GEAR AC Operation

Rating	Supply AC	Choke	Capacitor	Starting Capacitor	
		Catalogue No.	Catalogue No.	Rating mfd.	
250W	200/250V	AME 53235	AME C2275	60	—
1,000W	200/250V	4 x AME 53235	3 x AME C2276	3 x 80	0.5 mfd*

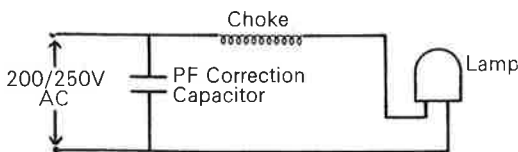
\*TCC type CP142W – 1,000V working – 70°C max. working temperature or equivalent.

## CONTROL GEAR DC Operation

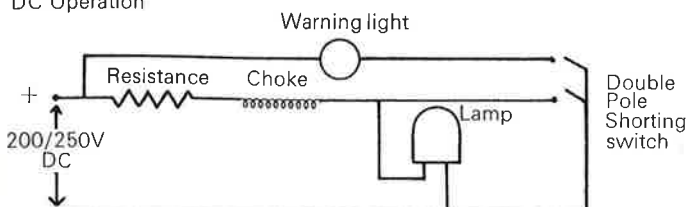
Supply Volts DC	250W		1,000W	
	Series Resistance Ohms	Choke	Series Resistance Ohms	Current Rating Amps
200	35.2	AME C53235	8.9	22.5
210	37.0		9.5	22.0
220	40.6		10.2	21.6
230	43.3		10.9	21.0
240	46.0		11.5	20.8
250	48.7		12.2	20.4

## CIRCUIT DIAGRAMS – 250W LAMPS

### AC Operation

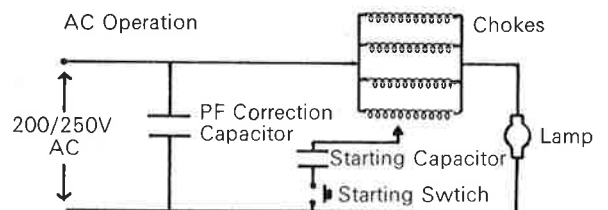


### DC Operation

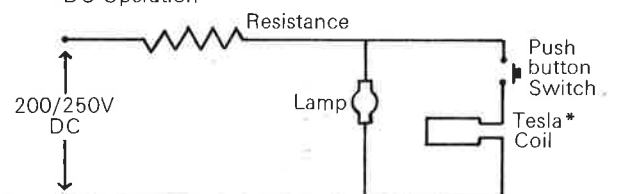


## CIRCUIT DIAGRAMS – 1,000W LAMPS

### AC Operation



### DC Operation



# mazda MERCURY LAMP FOR LONG WAVE U.V. TYPE MBW (BLACKLIGHT)

Supply voltage 200/250 AC

## DESCRIPTION

Mercury vapour discharge lamps with quartz arc tubes loaded below 100W/cm of arc length and operating at pressures of 8/10 atmospheres. The quartz arc tube is enclosed in a pear shaped outer bulb of Woods glass which absorbs virtually all radiation from the arc tube other than that in the long wave U.V. of predominantly 365 Nanometres; little visible light is emitted.

The lamp is thus eminently suitable as a source of long wave U.V radiation to excite fluorescence in susceptible substances.

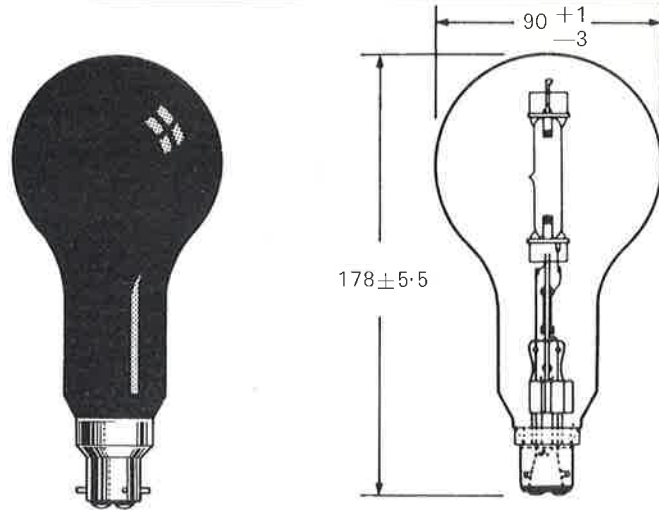
The lamp is designed for operation on 200/250W AC supplies with suitable control gear in the form of a series choke and power factor correction capacitor. It will operate in any position.

## TYPICAL APPLICATIONS

As a source of long wave U.V for bacteriological, mineralogical and forensic investigations. In connection with fluorescent pigments for various detection methods and for special effects in entertainments and shop window lighting.

## CONTROL GEAR

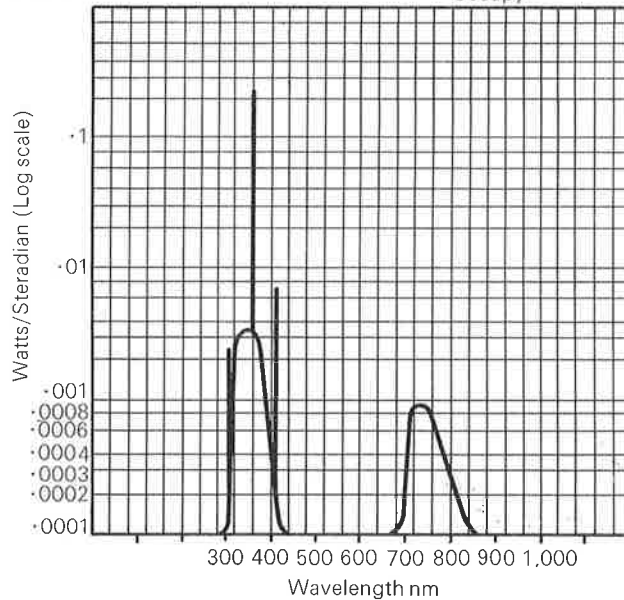
Rating	Choke Catalogue No.	Capacitor Catalogue No.	Mfd rating
125W	AME 53159-4	AME C2234	8



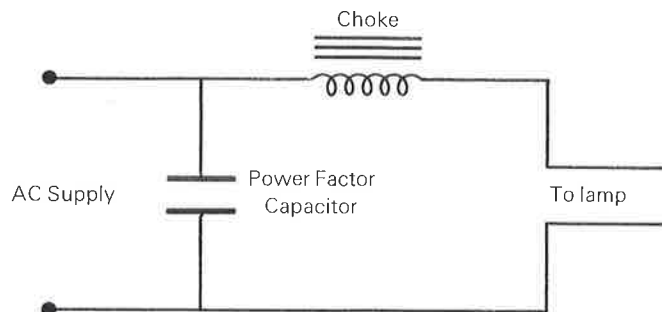
All dimensions in mm

## SPECTRAL DISTRIBUTION

lines assumed to occupy a bandwidth of 5 nm



## CIRCUIT DIAGRAM



## LAMPS

Reference No.	Watts	Cap	Lamp Operating Volts	Starting Amps	Starting Current	Life Hours
91-6217	125	B22/31 x 30 3-pin	110/140	1.15	2.0/1.5	1,500

# mazda MERCURY LAMPS FOR LONG WAVE U.V. TYPE M1 & M2

MERCURY DISCHARGE TUBE M.1

MERCURY DISCHARGE TUBE M.2

## DESCRIPTION

Low pressure discharge in mercury vapour between electrodes in a tubular glass envelope, these lamps provide both U.V and visible radiation especially useful in providing excitation of fluorescent materials at low illumination levels. The M1 lamp is designed for operation on 24V DC supplies with suitable series resistances, and the M2 type is designed for 200/250V AC supplies with suitable control gear either in the form of a choke or series resistance.

The lamps operate in any position.

## TYPICAL APPLICATION

As a source of long wave U.V for the excitation of low lumen levels of fluorescent pigments in display work.

## CONTROL GEAR M1 lamps DC Operation

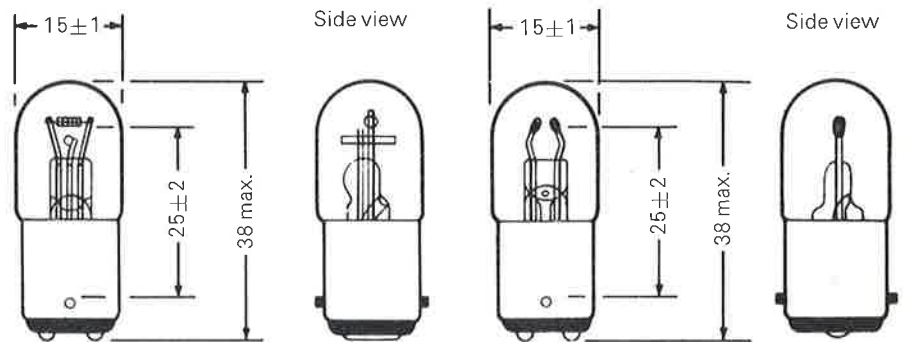
Supply Rating	Series Resistance	Heater Resistance
4.5W 24 DC	24 Ohms	30 Ohms

† Supplied by installer.

## M2 LAMPS AC OPERATION

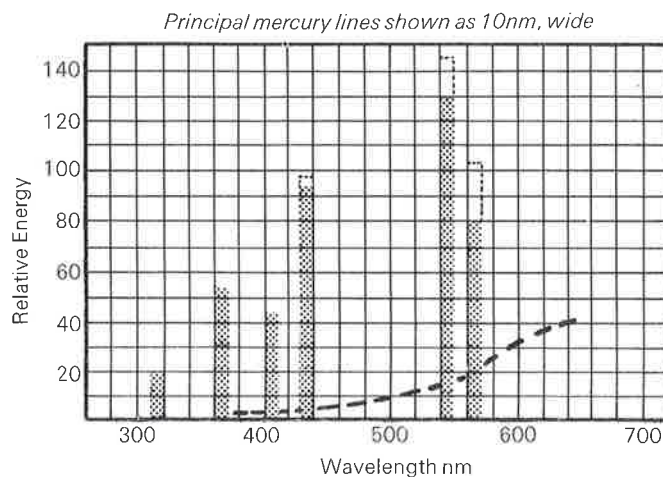
Supply Voltages	200/250V
Operating Current	0.9amps
Chokes in series	AME 62830.4 AME 62825

Alternatively series resistors of values between 480 and 160 ohms may be used in place of the series chokes to give operating currents ranging from 0.5 to 1.5 amps

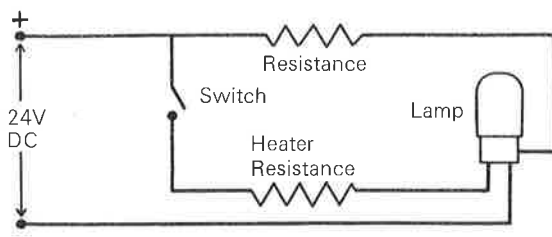


All dimensions in mm

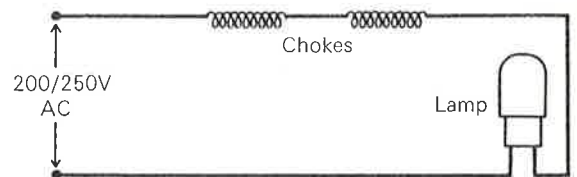
## APPROXIMATE SPECTRAL ENERGY DISTRIBUTION for M 1 and M 2 Mercury discharge tubes



## CIRCUIT DIAGRAMS



M1 Lamps - 24V DC Operation



M2 Lamps - 200/250V AC Operation

## LAMPS

Type	Reference No.	Rating *	Supply Volts	Cap	Filament Current	Max. Arc Current	Life Hours
M1	98-9001	4.5W	22 DC Min	S.B.C.	0.8 Amp	0.75 Amp	200
M2	98-9002	4.5W	200/250 AC	S.B.C.	—	0.5/1.5 Amp	200

\*At 0.75 Amp

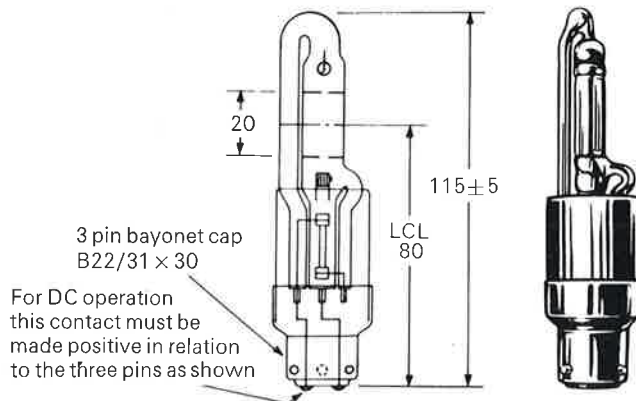
# mazda MERCURY LAMP FOR SHORT WAVE U.V. TYPE MBL/D

Supply voltage 200/250

## DESCRIPTION

Mercury discharge lamps with bare quartz arc tubes loaded below 100W cm of arc length and operating at a pressure of 8/10 atmospheres. The lamp transmits both long wave and short wave U.V. as well as visible light. Perforated diaphragms mounted above the electrodes ensure a stabilised and accurately focussed linear light source for optical purposes.

The lamp is designed to operate in the vertical cap down position on 200/250V AC and DC supplies with suitable control gear. For AC operation this consists of a series choke and power factor correction capacitor. For DC operation, a series choke and a series resistor are required together with a quick break switch for starting purposes.



## TYPICAL APPLICATION

As a source of short wave U.V. in measuring instruments eg spectral photometers.

### CONTROL GEAR AC Operation

Rating	Choke Catalogue No.	Capacitor Catalogue No.	Mfd rating
125W	AME 53159-4	AME C2234	8

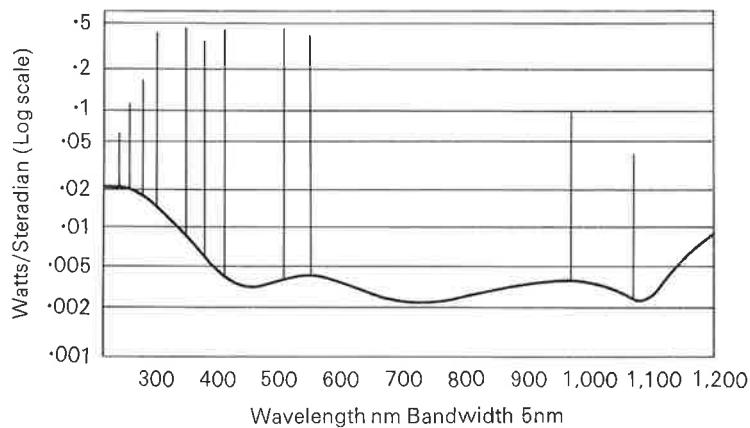
### CONTROL GEAR DC Operation

Rating	Supply Volts DC	Resistance* Ohms	Current Rating Amps	Choke Reference No.
	200	79		
	210	87		
125W	220	95	2.3	AME 53159-4
	230	105		
	240	112		
	250	123		

\*Supplied by installer

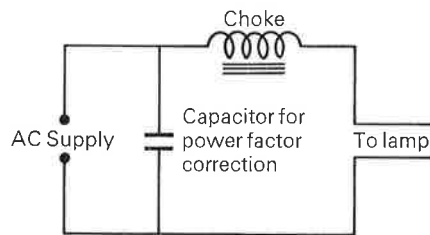
All dimensions in mm

## SPECTRAL DISTRIBUTION

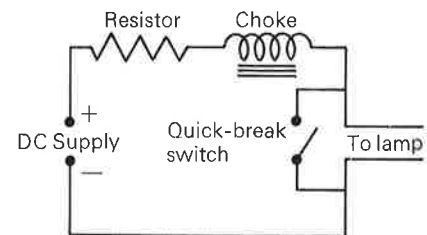


## CIRCUIT DIAGRAMS

AC Operation



DC Operation



## LAMPS

Reference No.	Watts	Arc Length mm	Cap	Lamp Operating Volts	Lamp Operating Amps	Starting Current Amps	Max. Brightness Stilbs	Life Hours
91-9006	125	20	B22/31 x 30 3-pin	110	1.25	3.0	800	1,000

# mazda COMPACT SOURCE MERCURY IODIDE PROJECTION PURPOSES 400W CSI

LAMP REFERENCE NUMBER 99-0201

## DESCRIPTION

The 400 watt compact source iodide lamp is a new design of projector lamp giving white light of good colour rendering properties at an efficiency of 80 l/w for 100 hours. The source size is approximately 9mm x 5mm and the brightness is about 8,000 candelas per square cm.

The high efficiency is obtained by the use of an arc discharge. The iodide technique has been used to introduce additional elements into the arc and to keep the bulb wall clean throughout life.

The lamp is somewhat unconventional in appearance. It is extremely rugged. The small total physical size and the ability to operate it in any position ensures that the lamp can be readily fitted into existing equipment and simplifies the design of new equipment. The single ended construction and the degree of prefocusing provided means that lamp replacement is straight-forward.

## APPLICATIONS

The major advantage of this lamp is its high efficiency, combined with its robustness, simplicity, small size and relatively low power consumption.

In general, considerations of source size, lamp size, lamp rating and efficiency indicates that it can be used in applications which at present use 100V-240V hard glass filament projector lamps of 250W-1,000W rating to give a substantial advantage in terms of either increased light output or a reduction in input power and heat.

## CONTROL GEAR

The lamp is designed for operation with control gear consisting of a choke, capacitor and starter switch which gives a high-voltage, high frequency pulse.

Control gear in box catalogue no. AME 53196.4

## LAMPHOLDER

A lampholder, catalogue number L1101 is available for use with this lamp

## PHYSICAL DIMENSIONS

(in millimetres)

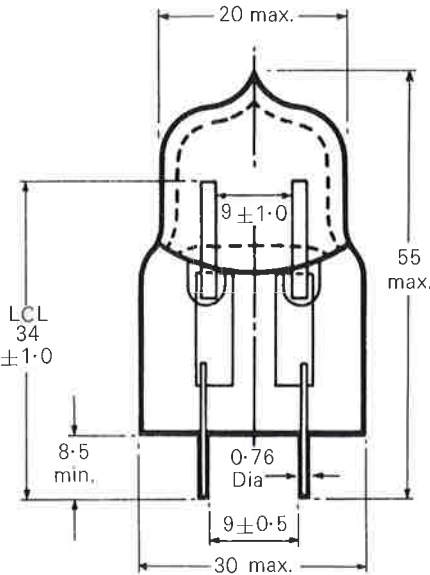
Arc Length	9 ± 1.0
Arc Size	9 x 5
Overall Length (max.)	55
LCL	34 ± 1
Diameter (max.)	30
Pin Length (min.)	8.5
Pin Spacing	9.0 ± 0.5
Pin Diameter	0.76

## LIFE

(Normal objective) - 100 hours

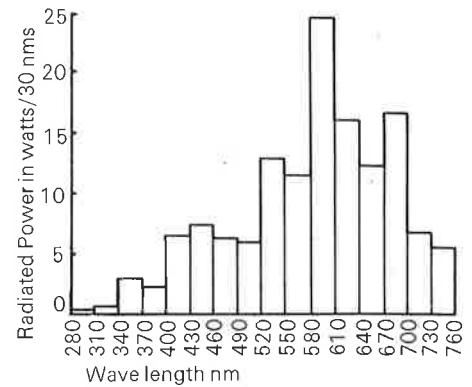
## OPERATING POSITION

Universal



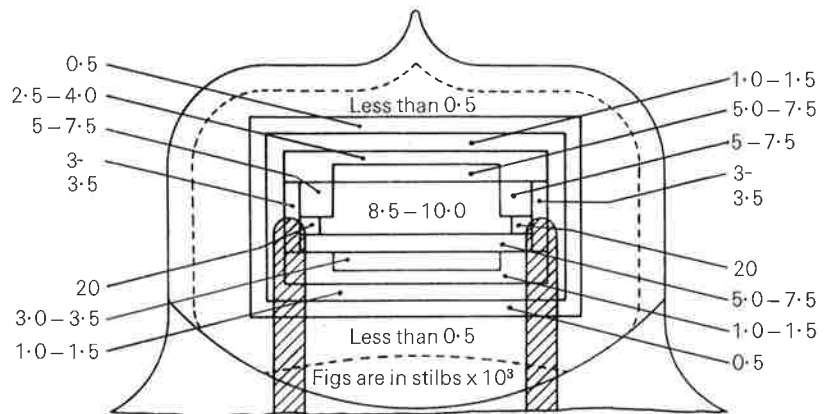
## TYPICAL SPECTRAL POWER HISTOGRAM

for the 400W compact source iodide lamp



All dimensions in mm

## TYPICAL BRIGHTNESS DISTRIBUTION DIAGRAM



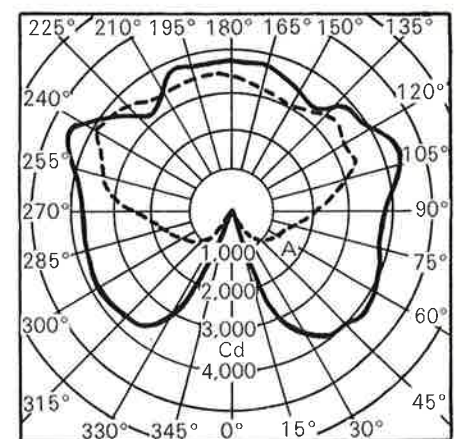
## ELECTRICAL CHARACTERISTICS

Supply Volts AC	240
Arc Watts	400
Arc Volts	100
Arc Current (amps)	5
Run up Time (secs.)	30
Re-starting Time (mins.)	3/5

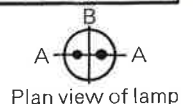
## LUMINOUS CHARACTERISTICS

Initial Lum. Eff. (min.)	80 lumens/watt
Lumen Maintenance	90%
Colour Rendering	Good
Chromaticity Co-ordinates	x = .433 y = .382

## TYPICAL CANDLEPOWER DISTRIBUTION IN VERTICAL PLANES



A - through electrodes  
B - normal to electrodes



# mazda COMPACT SOURCE MERCURY IODIDE LAMPS FOR PROJECTOR PURPOSES 1000W CSI

LAMP REFERENCE NUMBER 99-0221

## DESCRIPTION

The 1000W Compact Source Iodide Lamp gives white light of good colour rendering at an efficiency of 93L/W for 200 hours life

## APPLICATIONS

The high efficiency, robustness and small size of this lamp, makes it eminently suitable for projector purposes such as for follow spotlights.

## ELECTRICAL CHARACTERISTICS

Supply volts	240
Arc watts	1000
Arc volts	70—85
Arc current	15 amps
Run-up time	30 secs
Re-start time	2—5 mins

## DIMENSIONS

Arc length	14±1mm
Overall length	115mm max.
Light centre length	63.5±2mm
Diameter	32 mm max.
Cap	Medium Bipost—G22

## LUMINOUS CHARACTERISTICS

Initial efficiency L/W	93
Lumen maintenance	80%
Colour rendering	Good

Chromaticity coordinates X=0.424  
Y=0.402

## LIFE

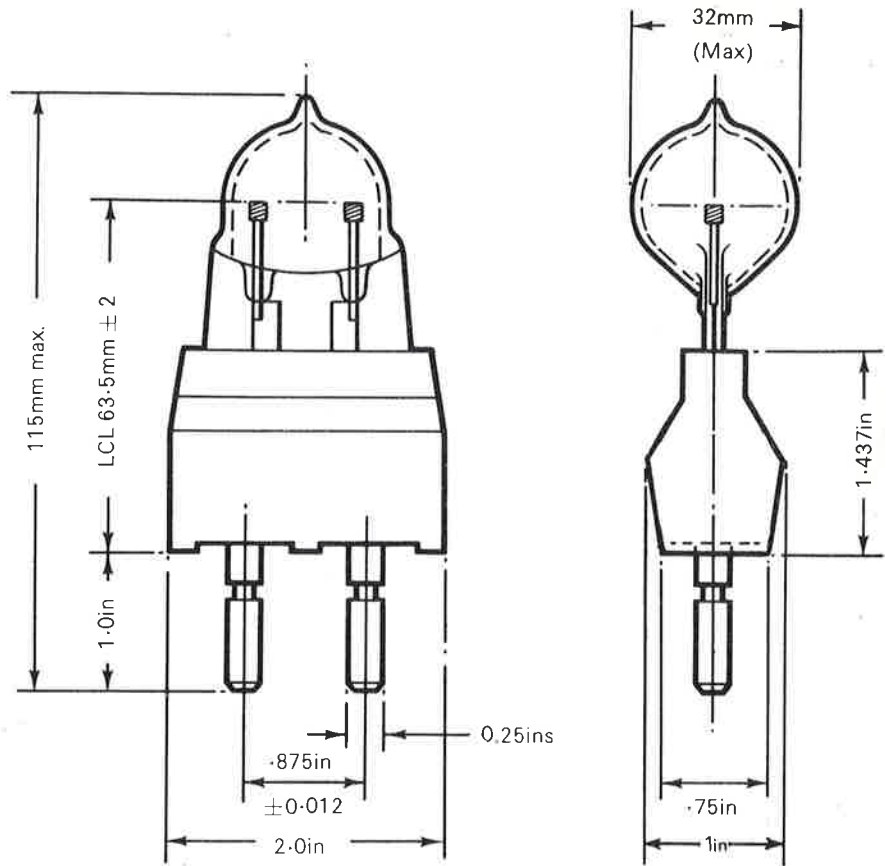
(Nominal objective) – 200 hours

## OPERATING POSITION

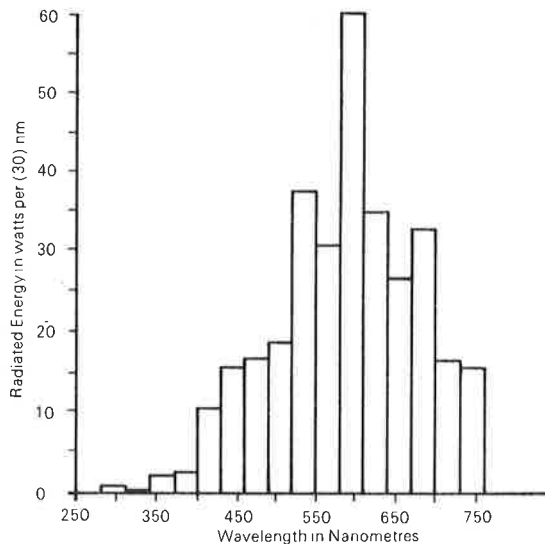
Universal

## CONTROL GEAR

Control gear and box AME 53255



TYPICAL SPECTRAL POWER HISTOGRAM



# atlas SEALED BEAM COMPACT SOURCE MERCURY IODIDE LAMP-1000W CSI/SB

LAMP REFERENCE NUMBER 99-1222

## DESCRIPTION

The 1kW sealed beam compact source iodide lamp consists of the standard 1kW CSI lamp 99-0221 (see opposite) enclosed in an 8in diameter sealed-beam reflector envelope. This results in a beam intensity of 1.5 million candelas with a beam spread of 18° (to 0.1 peak intensity).

## APPLICATIONS

Floodlighting, especially for filming TV outside broadcasts. Also as a general replacement for carbon arcs.

## ELECTRICAL CHARACTERISTICS

Supply voltage	220, 240, AC
Arc watts	1 000
Arc volts	70/85
Arc current	15 amps approx.
Run-up time	30 secs
Restart time	5 minutes

## DIMENSIONS

Diameter	205mm
Overall length	175mm maximum
Cap	Bi-post G38

## LUMINOUS CHARACTERISTICS

Initial beam candlepower (peak)	1.5 million candelas
Beam spread	$\frac{1}{2}$ Peak $\frac{1}{3}$ Peak $\frac{1}{5}$ Peak $\frac{1}{10}$ Peak
	$\pm 3^\circ$ $\pm 4^\circ$ $\pm 6^\circ$ $\pm 9^\circ$

## COLOUR RENDERING

Good  
Chromaticity co-ordinates: X=0.424  
Y=0.402

## LIFE

(Nominal objective) 500 hours

## OPERATING POSITION

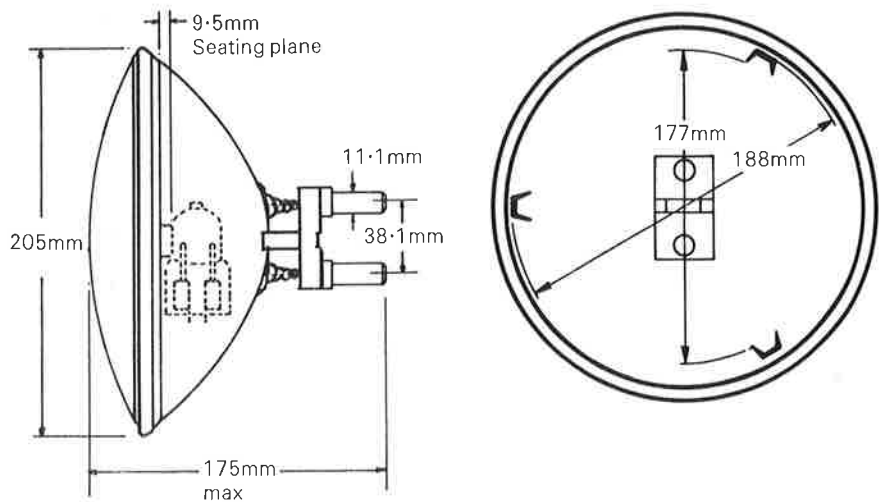
Universal

## CONTROL GEAR

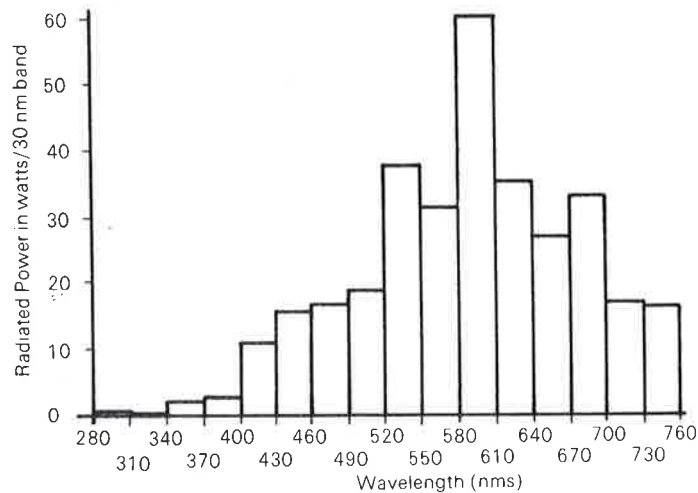
Control gear and box, AME 53255, consisting of series Ballast circuit and high voltage pulse starter unit. The starter unit is mounted on a detachable chassis and may be removed and fixed separately. This enables the starter unit to be mounted on the lamp housing ensuring a short, totally enclosed HT lead.

## LAMP FITTINGS

Suitable fittings, COM 1000 series, are available for use with this lamp, giving a variety of light distributions and incorporating the starter unit in the fitting housing.



## SPECTRAL ENERGY HISTOGRAM



## WARNING

The unit generates high voltage pulses for lamp starting. Suitable safety precautions should be taken during installation and operation of the unit. The control unit and associated lamp house must be earthed. The H.V. cable should be protected from accidental damage. The supply must be disconnected before servicing. For outdoor use the lamp must be protected from rain.

# atlas MERCURY IODIDE LAMP TYPE MBIL/H 750W

Supply voltage – 200/250 A.C.

## DESCRIPTION

A mercury iodide lamp with a quartz tube loaded below 100W/cm. arc length at a pressure of 8/10 atmospheres.

The lamp is for use in OD.0750 floodlight fitting only and the data for the lamp is this fitting is as below :-

Lighting design lamp lumens	60,000
Lamp operating position – horizontal	$\pm 20^\circ$
Total circuit watts per fitting	900
Circuit power factor (lagging)	0.80
Mains current at 240V	4.7 Amps

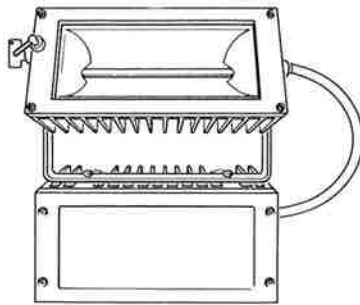
Life 3,000 hours

## APPLICATION

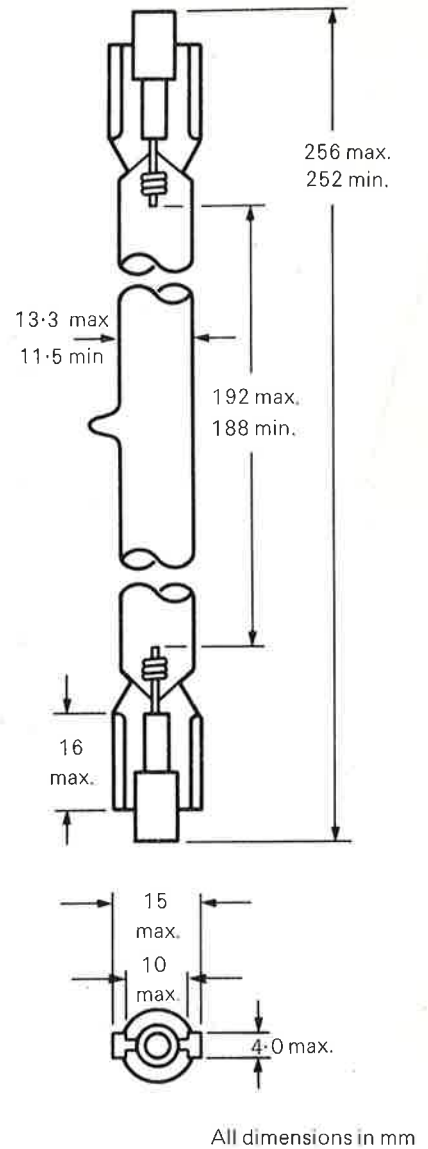
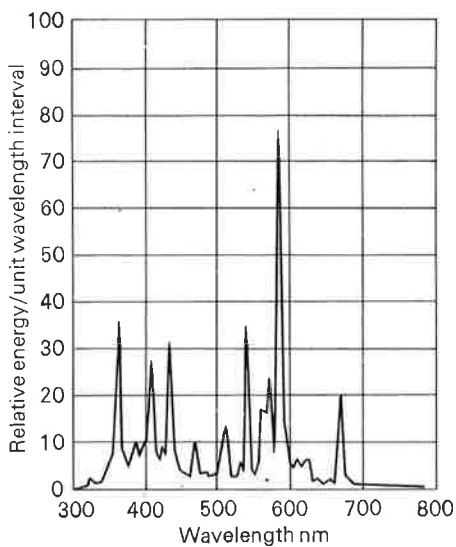
The lamp is an integral part of the OD.0750 floodlight which is primarily used for high tower floodlighting applications outdoors.

Watts	Lamp Reference No.	Std. Pack
750	91-7461	1

OD.0750 FITTING with 750W lamp and gear



## SPECTRAL DISTRIBUTION of 750W mercury iodide lamp



# atlas MERCURY IODIDE LAMP TYPE MBIL/H 1 600W

LAMP REFERENCE NUMBER 91-7475

## DESCRIPTION

A mercury iodide lamp with quartz arc tube loaded below 100W/cm at a pressure of 8/10 atmospheres. The lamp is for use in ON 1600 floodlighting fitting.

## CONTROL GEAR

(See circuit diagram)

Supply volts	220, 240, 50Hz
Rating	1 600W
Chokes	2 × AME 53254-4
Capacitors	6 × AME 2236

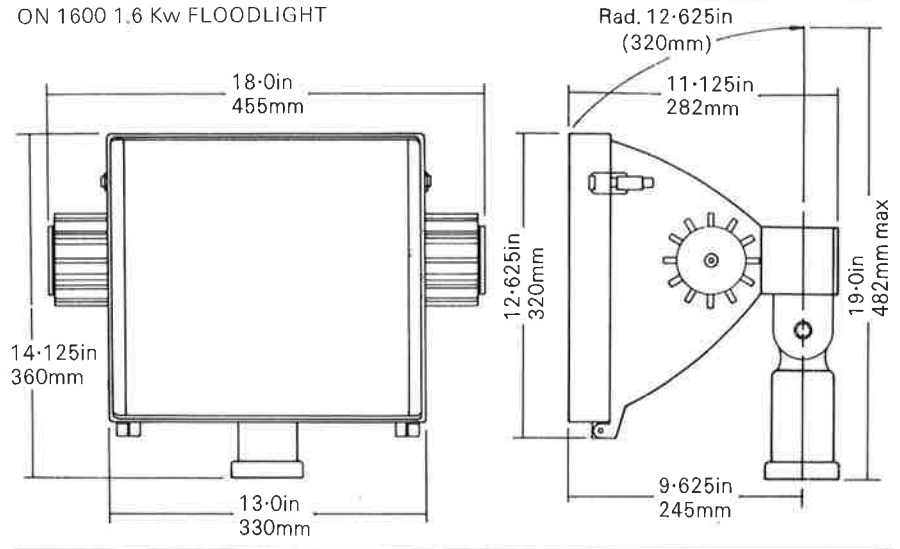
## LAMP CHARACTERISTICS

Rating	1 600W
Caps	Ceramic
Operating volts	450
Operating amps	3.75
Nominal lumens (initial)	135 000
Nominal lumens (throughout life)	115 000
Life (hrs)	2000 hours life

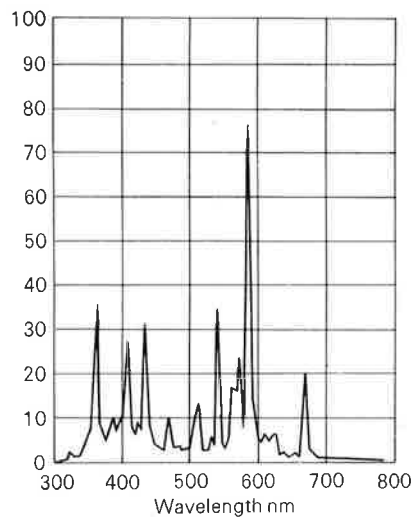
## SAFETY PRECAUTIONS

The light emitted by the lamp should not be observed with the naked eye for it has a U.V. content normally filtered out by the projector. The lamp (arc tube) should not be touched with the bare hand but if this is unavoidable, it should be cleaned with a methylated spirit damped cloth before operation.

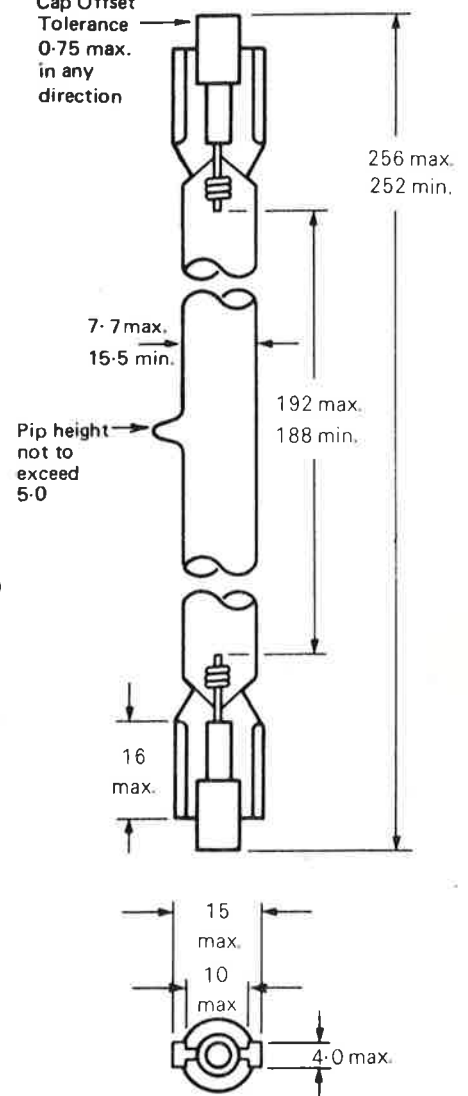
ON 1600 1.6 Kw FLOODLIGHT



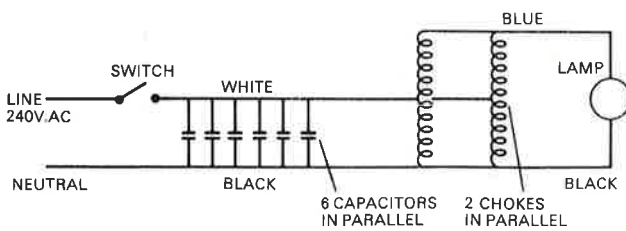
TYPICAL SPECTRAL DISTRIBUTION CURVE



Cap Offset  
Tolerance  
0.75 max.  
in any  
direction



CIRCUIT DIAGRAM



All dimensions in mm

# mazda MERCURY IODIDE LAMP TYPE MBIL/H 1200W FOR PHOTOPRINTING

LAMP REFERENCE NUMBER 91-7470

## DESCRIPTION

A mercury iodide lamp with a quartz arc tube loaded below 100W/cm arc length at a pressure of 8/10 atmospheres.

The Halide additives to the arc tube are chosen to give maximum radiation in the 360 to 450 nanometre region. The lamp is designed to operate in an enclosure in still air. It will only remain stable in operation provided the quartz wall temperature operates between 600 and 750°C.

## GENERAL APPLICATION

For photoprinting purposes in the graphic arts industry, this encompasses diazo printing, photo-resists etc. The UV output enables faster printing speeds than those obtained from conventional carbon-arc lamps.

## CONTROL GEAR

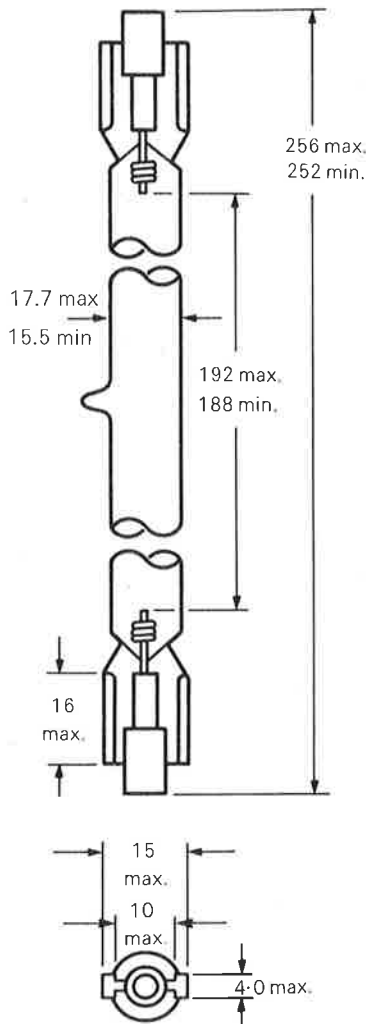
(See circuit diagram)

Supply volts	240V 50Hz
Rating	1 200W
Chokes	2 × AME 53254-4
Capacitors	6 × AME C2236
Life rating	25

## LAMP CHARACTERISTICS

Rating	1 200W
Caps	Ceramic
Operating volts	350 ± 30
Operating amps	4.0
Life	500 hours

Operating position – Horizontal

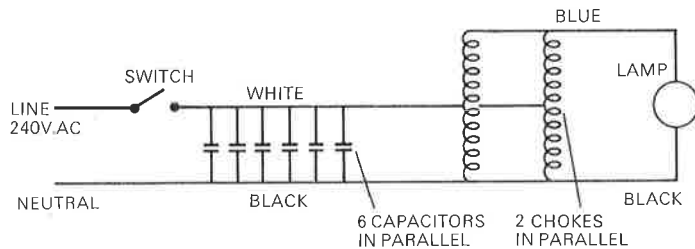
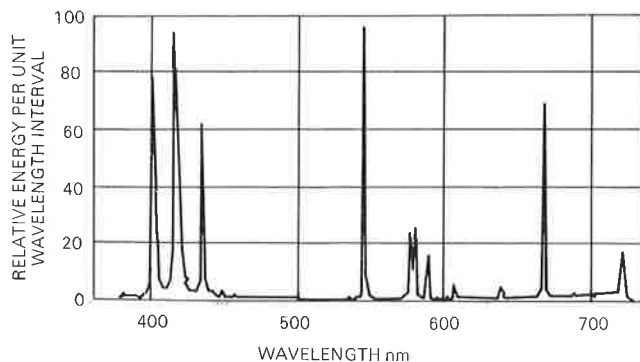


All dimensions in mm

## TYPICAL SPECTRAL DISTRIBUTION CURVE

## CIRCUIT DIAGRAM

SPECTRAL ENERGY DISTRIBUTION 1200w. MBIL/H LAMP



# mazda COMPACT LINEAR SOURCE XENON LAMPS TYPE XB 1000W AND 1500W

## DESCRIPTION

Linear source xenon lamps consist of an arc burning between tungsten electrodes operating in an atmosphere of pure xenon contained in a tubular quartz bulb. The spectrum of the radiation is virtually continuous extending from the ultra-violet through the visible into the infra-red. The colour of the visible radiation is very similar to noon sunlight with a colour temperature of approximately 5,600°K. Light output may be modified over a wide range without appreciably altering the colour of the light by adjusting the power input.

The lamps require a starter unit to initiate the arc, and a series inductance and power factor correction capacitor are also required. For further details see Control Gear and Accessories Catalogue.

## APPLICATION

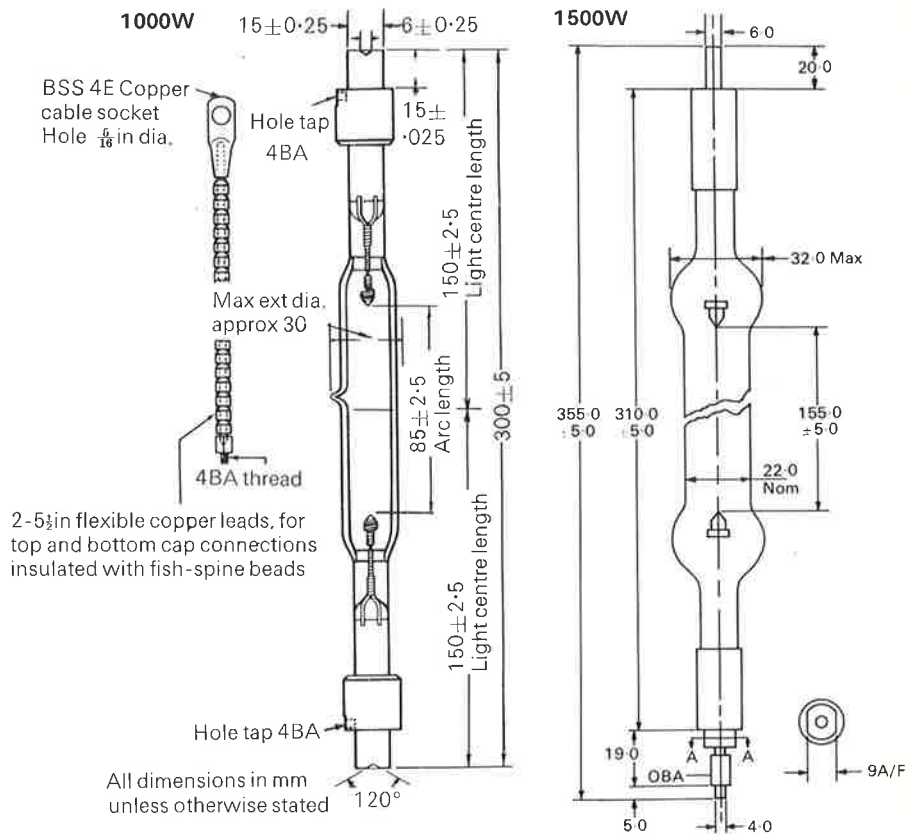
High speed photography and cinematography  
Colour matching  
Fadeometer testing  
Graphic arts  
Optical instruments  
Laboratory and general scientific purposes.

## POSITION OF BURNING

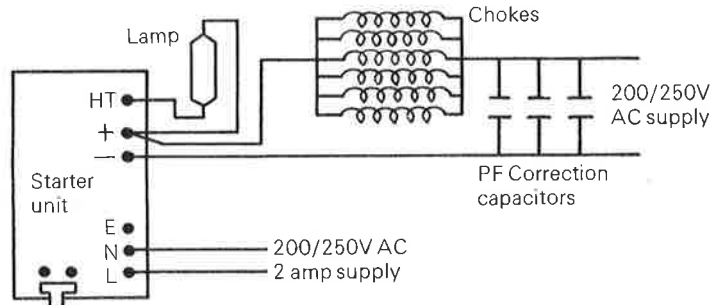
Vertical  $\pm 15^\circ$ .

## CAPS

Special cylindrical.



## CIRCUIT DIAGRAM



## LAMPS

Rating	Reference No.	Supply Volts	Arc Length (mm)	Lamp Operating		Lumens	Life
				Volts	Amps		
1000W	98-0125	200/250V 50HZ	85 $\pm$ 2.5	42	25	22,000	500
1500W	98.0150	200/250V 50HZ	155	65/80	20/25	33000	1500

## CONTROL GEAR

Rating	Starter Reference No.	Chokes Reference No.	Capacitors MFD	Reference No.	Mains Current Amps
1000W	AME 53239	6 x AME 53235	240 or 300	3 x AME C2276 3 x AME C2276	7 $\frac{1}{2}$ 5
1500W.	DETAILS	ON	APPLICATION	+ AME C2275	

# mazda COMPACT SOURCE XENON LAMPS TYPE XE/D

## DESCRIPTION

Xenon compact source discharge lamps consist of an arc burning between electrodes of tungsten in a high pressure atmosphere of pure xenon contained in a quartz bulb.

The high brightness light source emits virtually continuous radiation, extending from the ultra-violet through the visible into the infra-red. The approximate colour temperature is 5,600°K, similar to noon sunlight.

All lamps require a starter unit to strike the arc. In addition AC lamps require control gear in the form of a series inductance and a power factor correction capacitor, while DC lamps require series resistances.

Alternatively the DC lamps may be run off AC supplies using a rectifier ballast unit.

All starters require a 200/250V 50c/s 2 amp supply.

## APPLICATION

High speed photography and cinematography  
Colour matching  
Fadeometer testing  
Graphic arts  
Optical instruments  
Laboratory and general scientific purposes.

## POSITION OF BURNING

Vertical  $\pm 15^\circ$  except for 2KW 3 electrode lamp which burns vertically or horizontally  $+15^\circ$ .

## CAPS

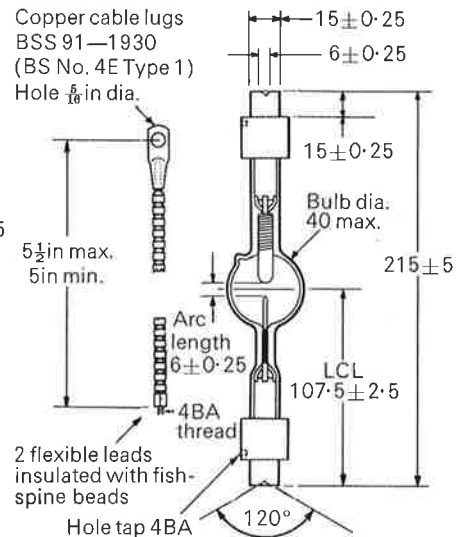
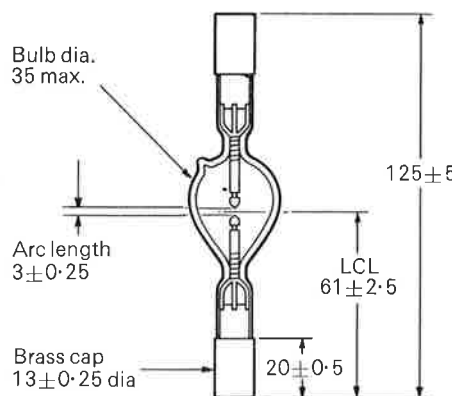
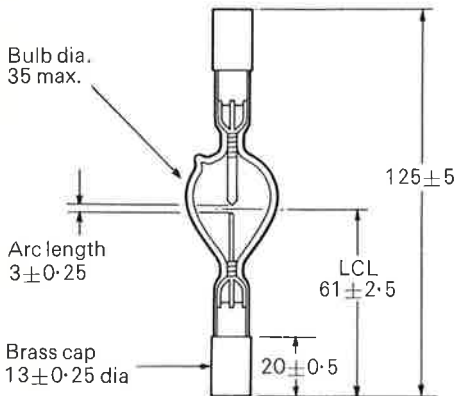
All lamps are fitted with special cylindrical caps. Lamps of 500W and 2KW have a cone centre for mounting, and a flexible lead.

250W/DC

250W/AC

500W/DC

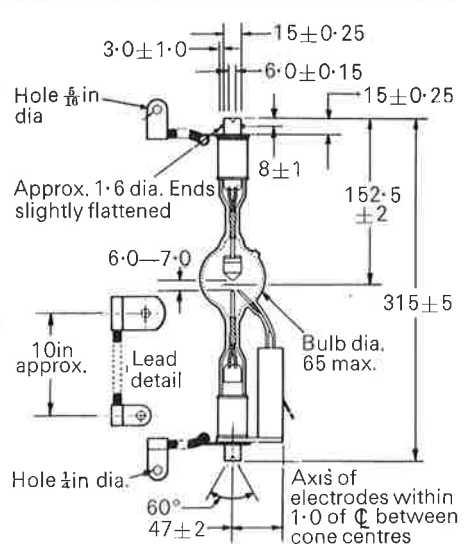
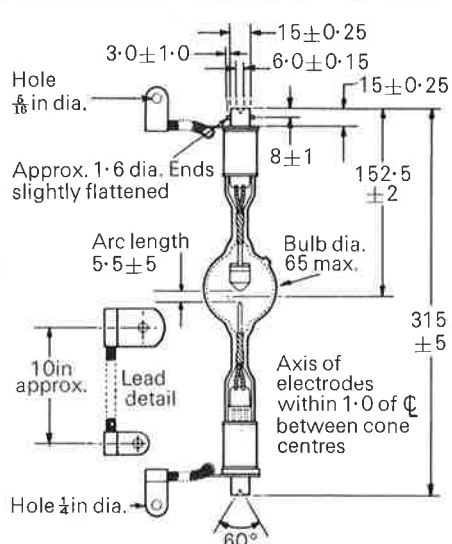
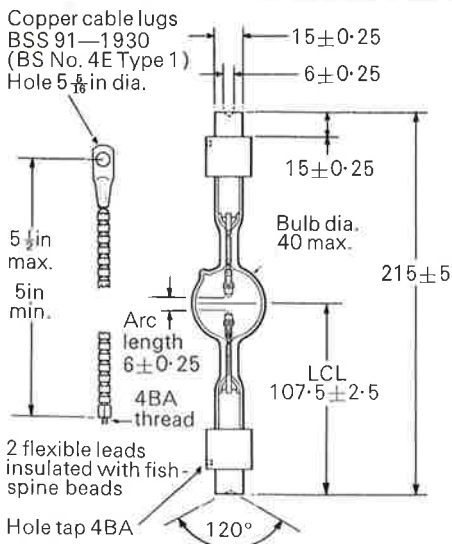
All dimensions in mm unless otherwise stated.



500W/AC

2 KW 2 Electrode

2KW DC 3 electrodes



# mazda COMPACT SOURCE XENON LAMPS TYPE XE/D

## LAMPS

Rating Watts	Reference No.	Supply Volts	Arc size mm	Lamp Operating Volts	Operating Amps	Lumens	Luminance*	Life Hours
250	98 - 0352	65 min. DC	3x2	16.5	15	5,000	11,000	1,500
250	98 - 0351	200/520 AC	3x2	16	17	5,000	10,000	500
500	98 - 1002	65 min DC	5x3	22	23	12,000	20,000	1,000
500	98 - 1001	200/250 AC	5.5x3	20	27	11,000	11,000	500
2KW 2 Electrodes	98 - 1506	65 min. DC	4.5x4	25	80	70,000	120,000	1,000
2KW 3 Electrodes	98 - 1503	35 min. DC	6.0x4	23	87	64,000	80,000	1,000

\*Luminance=Average luminance of brightest circle of 2mm diam. in candelas/sq.cm.

## CONTROL GEAR for AC lamps on 200/250V/50Hz supplies

Rating	Starter Catalogue No.	Chokes		Capacitors		Mains Current Amps
		Catalogue No.	Watts Loss	Mfd	Catalogue No.	
250W	AME 53239	4 x AME 53235	100	160 or 200	2 x AME C2276 2 x AME C2275 + AME C2276	5 2
500W	AME 53239	6 x AME 53235	150	240 or 300	3 x AME C2276 3 x AME C2275 + AME C2275	8½ 4½

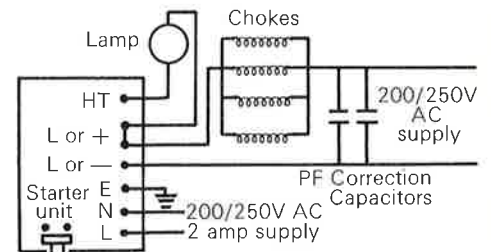
## CONTROL GEAR for DC lamps on 35/65V DC supplies

Rating	DC Supply Volts	Starter Catalogue No.	Series Resistance	
			Ohms	Current Amps
250W	65V min.	AME 53239	$\frac{V-16.5}{15}$	15
500W	65V min	AME 53239	$\frac{V-25}{23}$	23
2KW 2 Electrodes	65V min	AME 53233	$\frac{V-25}{80}$	80
2KW 3 Electrodes	35V min	AME 53234	$\frac{V-23}{87}$	87

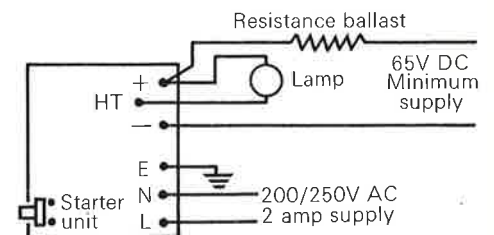
## CONTROL GEAR for DC lamps on 200/250V 50Hz supplies

Rating	Starter Catalogue No.	Rectifier Ballast Catalogue No.
250W	AME 53239	AME 53236
500W	AME 53239	AME 53236
2KW 2 Electrodes	AME 53233	AME 53237
2KW 3 Electrodes	AME 53234	AME 53238

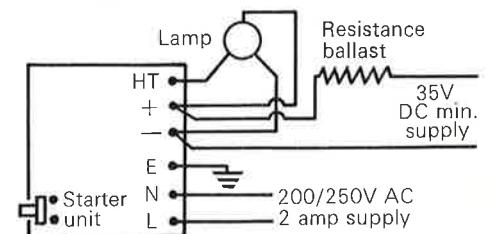
## CIRCUIT DIAGRAMS



For AC types 250W and 500W



For DC types 250W and 2KW (2 Electrode)



For 2KW (3 electrode)

# mazda PULSED XENON ARC LAMPS (LINEAR TYPES)

## DESCRIPTION

These pulsed xenon arc lamps consist of an arc between tungsten electrodes operating in an atmosphere of pure xenon contained in a tubular quartz bulb.

The spectrum of the radiation is virtually continuous extending from the ultra-violet through the visible into the infra-red. The colour of the visible radiation is very similar to noon sunlight having a colour temperature of 5,600°K. Light output is controlled by the gear which pulses the lamp for a specific period.

## APPLICATION

Photo reproduction  
Until recently the standard light source for copy board illumination has been the open carbon arc. Over the last two or three years special discharge lamps have been used, particularly pulsed Xenon lamps.

## CONTROL GEAR

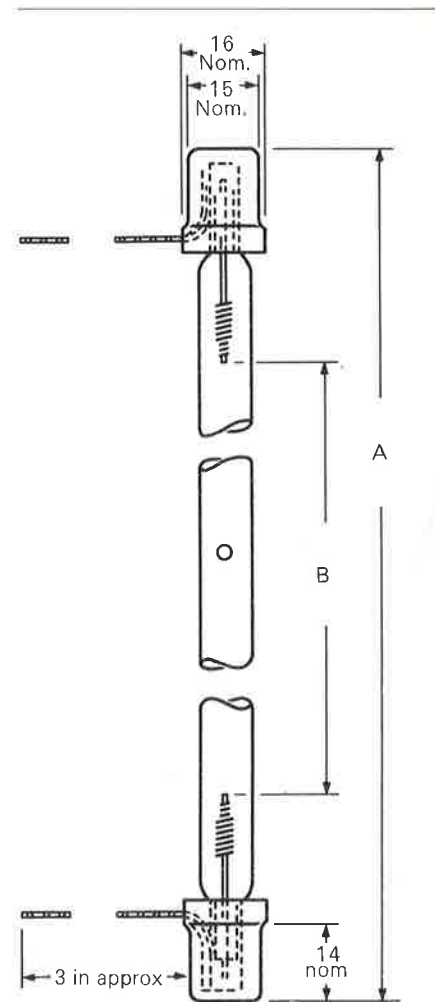
Light output is controlled by the gear which pulses the lamp for a specific period. The lamps are designed to operate at a 100 cycle per second pulse rate for pulse width of 1 millisecond at half peak. Suitable gear for operating the lamp is manufactured by Thymer, Ascomvx, Et Littlejohn. Other companies have gear under development.

## LAMP SPECIFICATION

Type	Pulsed Xenon Arc
Cap	Ceramic with flexible leads.
Operating Position	Universal. Forced cooling essential
Arc Voltage	110±5
Supply Voltage	200/250V 50Hz
Pulsed Frequency	100Hz
Design Wattage	1,500 and 3,000
Efficacy	25 lumens per watt
Life	500 hours.

## LAMPS

Rating	Lamp Reference No.
1,500W	98-2015
3,000W	98-2030



Rating	A	B
1,500W	392±3	310 approx.
3,000W	695±3	615 approx.

All dimensions in mm unless otherwise stated

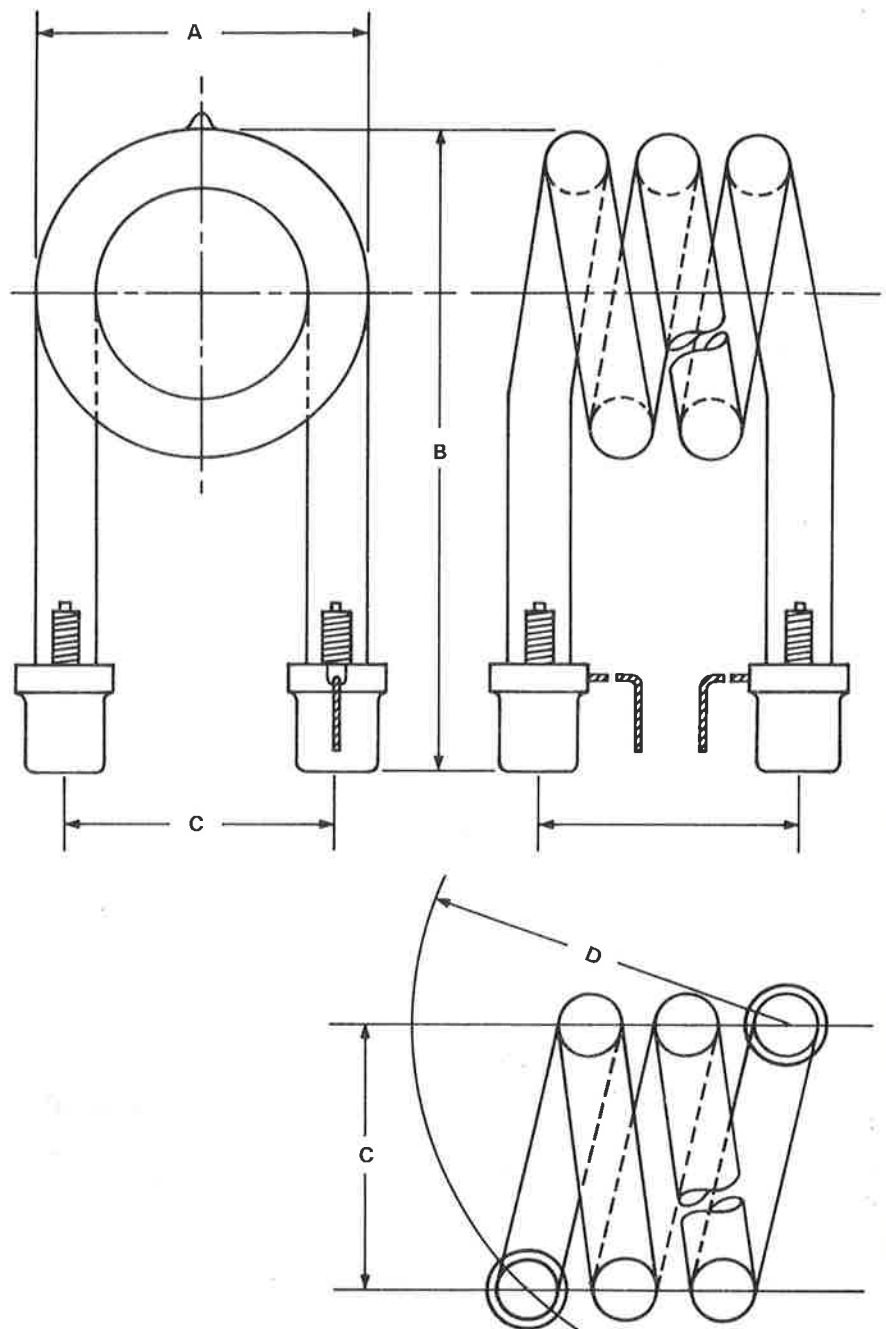
# mazda PULSED XENON ARC (HELICAL TYPE) 4kW AND 8kW

## LAMP SPECIFICATION

Caps	Ceramic with flexible leads	
Supply volts	200/250V 50Hz	
Pulse frequency	100Hz	
Design wattage	4kW	8kW
Efficacy	30L/W	
Life	200 hours	
Lamp references	98-2050	98-2070

## DESCRIPTION

These pulsed xenon lamps are higher wattage versions of the linear type (shown opposite), designed to operate on control-gear providing 100 c.p.s. pulses. In order to provide a more concentrated source the quartz tube is formed into a helix.



	4 kw	8 kw
<b>A</b>	60 max	60 max
<b>B</b>	118 max	118 max
<b>C</b>	48	48
<b>D</b>	64.5	102

# mazda STANDARD XENON LAMP '4 IN 1' HOUSING

## GENERAL SPECIFICATION

**The '4 in 1' system** Four optical systems each 90° apart, can be illuminated by a single xenon lamp. The '4 in 1' range of two standard lamphouses has been designed to accommodate 250W or 500W-2KW xenon lamps.

**Construction and finish** Both lamp-houses are in 16 SWG mild steel welded construction and finished in grey synthetic stoving enamel.

**Lamp mounts and shields** The mount is a unit assembly, is fully adjustable and retains the xenon lamp between spring loaded retention cups. The lamp is surrounded by a metal box type heat shield which also provides mechanical protection. The lamphouses are supplied with four plastic feet for free standing operation.

**Mechanical adjustments** All mechanical adjustments are carried out by varying the position of the lamp mount assembly.

**Electrical connections** Provision for three cable inlets has been made, in addition to an earth connection.

### 250W HOUSING CATALOGUE No. AME 6078

#### Dimensions

Base	6in x 6in
Overall height	10½in
Optical centre line height from table surface	5in
Weight	10lbs

**Optical features** Provision is made for mounting a standard 2in x 2in heat filter to the lamp shield.

**Cooling** Under normal operating conditions, convection cooling only is necessary. For continuous operation or for operation in confined spaces, forced air cooling may be necessary.

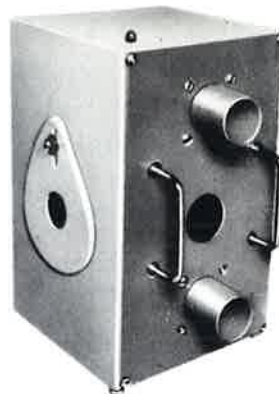
**Safety** The front panel is retained by four screws and cannot be accidentally opened. The housing must be effectively earthed before switching on. Unauthorised persons should not have access to the housing interior once electrical connection has been made.

### 500W/2KW HOUSING CATALOGUE No. AME 6077

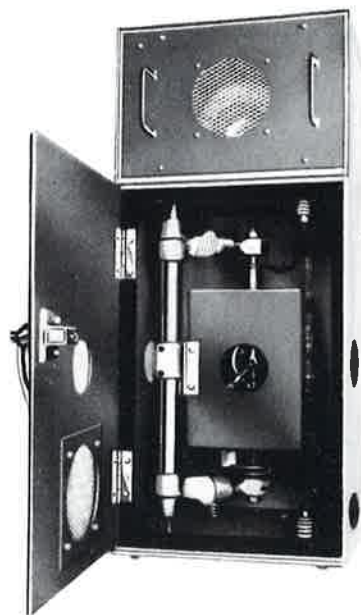
#### Dimensions

Base	12in x 12in
Overall height	26in
Optical centre line height from table surface	9½in
Weight	50lbs

**Optical features** Provisions is made for the attachment of a rear aluminised spherical mirror by means of an adjustable mount



AME 6078



AME 6077

attached to the lamp shield. On the opposite face provision is made for mounting a standard 2in x 2in heater filter. The aluminised reflector is supplied as part of the standard unit, but heat filters are not included.

#### SAFETY REQUIREMENTS

**Ventilation** Xenon lamps when in operation, generate ozone. Adequate room ventilation or the use of a ducted system where necessary, must be provided.

**U.V radiation** The radiation from a xenon lamp is rich in ultra-violet, and when the eyes and skin are exposed directly to the radiation, harmful effects such as conjunctivitis and skin irritation may be experienced. A completely sealed lamphouse system will ensure maximum safety.

#### ADDITIONAL FACILITIES

The standard housings are designed for free standing use. However, to ensure precise registration of the housing in one or more

optical systems, provision has been made for Kinematic mounting. A special Kinematic base plate suitable for either housing, providing location for PTI standard optical benches is available.

**Other available accessories include –** Heat filters.

Special lens mounts to accept a range of standard lenses, condensers and other proprietary optical systems.

Fan cooling units for 250W housing ducts.

**Enquiries for these additional features should be made to –**

Goulding & Partners (Consultant Engineers) Ltd, 1a Essex Road, Acton, London W.3.

# mazda SHORT AND LONG-WAVE U.V. AND GERMICIDAL LAMPS

## FLUORESCENT TYPE GERMICIDAL TUBES

These lamps are in standard fluorescent lamp sizes. The lamps are made without phosphors, and the tube is a special glass which transmits short wave U.V. Approximately 95% of the radiated energy is in the 253.7 Nanometres band which is near the maximum for germicidal effectiveness. The lamps are useful for the irradiation of airborne bacteria or moulds, and also for the irradiation of surfaces on which bacteria and/or mould spores have collected.

A publication 'Germicidal Radiation and its Application' is available on request.

### TYPICAL APPLICATION

For hospitals etc. : for sterilising purposes.

### TUBES

Lamp Rating	Reference No.	Nominal Dimensions	mm	Std. Pack
15W	92-2013	18" x 1"	457 x 25	25
30W	92-4540	3' x 1"	914 x 25	25

## LONG WAVE ULTRA-VIOLET FLUORESCENT TYPE TUBES

The germicidal tubes shown are short wave ultra-violet sources. Long wave ultra-violet fluorescent type tubes as below are also available

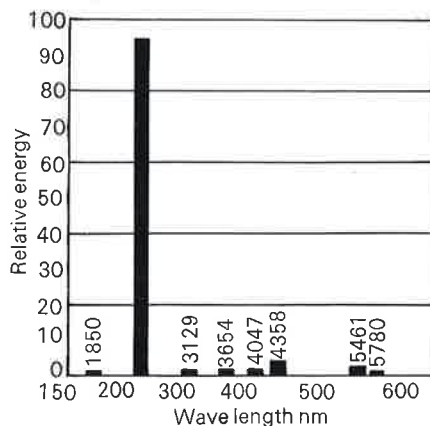
Type	Ratings
Ultra-Violet (Non filter)	5ft 65/80W, 4ft 40W, 2ft 20W, 1½ft 15W, 12in 8W
Blacklight blue U.V.	4ft 40W, 1½ft 15W, 12in 8W, 9in 6W, 6in 4W

### FITTINGS AND CONTROL GEAR

All tubes on this page go into standard fittings and operate on standard fluorescent control gear.

The 30W tube operates on 200/250V AC and the 15W on 100/250V AC. Alternatively two 15W tubes may be run as a series pair on 200/250V AC.

### SPECTRAL ENERGY DISTRIBUTION GERMICIDAL TUBE



# mazda LINEAR NEON HIGH INTENSITY OBSTRUCTION LIGHT

LAMP REFERENCE NUMBER 98-4501

## DESCRIPTION

The 160W linear neon high intensity obstruction Light is designed to give red light at high efficiency, with long life and low power consumption. The main spectral energy line is at 640 nanometres, and the lamp is designed to operate either as a static burning source or, by means of an electronic switching unit, to operate as an occulting beacon which flashes up to 180 per minute.

## APPLICATIONS

For use on masts, chimneys or buildings which constitute a hazard or obstruction to military and civil aviation.

## FITTINGS AND CONTROL GEAR

Details of a specially designed fitting unit including control gear, are available on request. Details of a separate flashing control unit are also available.

## LAMP DATA

Watts 160

Nominal arc current 1.33 amps

Nominal arc voltage 157

Initial light output 2,000 lumens

Minimum light output at 4,000 hours  
1,850 lumens

Rated life continuous burning 4,000 hours

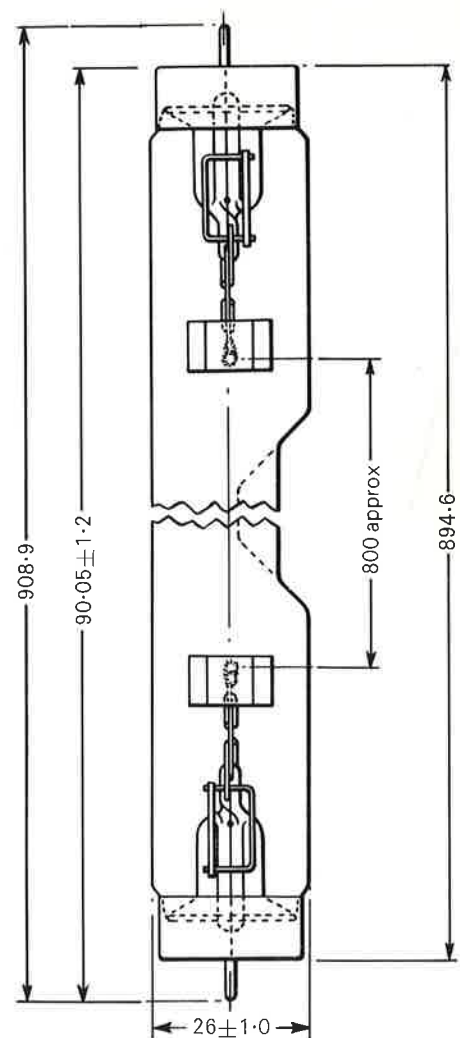
Rated life flashing 30 million flashes

## DIMENSIONS

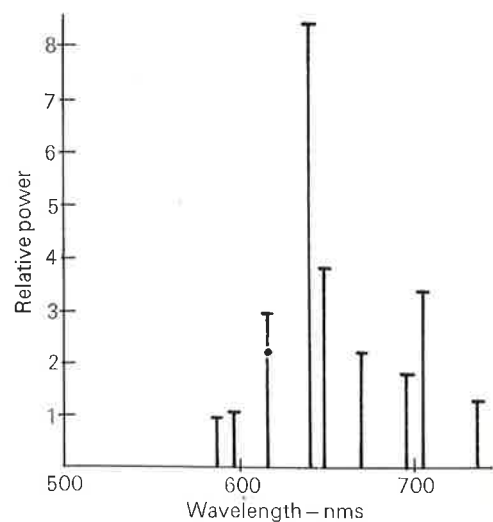
Diameter  $26 \text{mm} \pm 1 \text{mm}$

Overall length 35.78in maximum

Caps G 13/10  $\times$  24 – bi-pin



160W LINEAR NEON LAMP  
Spectral energy diagram



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# THORN LIGHTING LIMITED

*A member of the Thorn Group*

## REGIONAL HEADQUARTERS

### London Region

Victoria Trading Estate, Victoria Way,  
Charlton, London, S.E.7.  
Telephone: 01-858 3281.  
Telex: Thornlight Charlton 896171

### Eastern Region

Angel Road Works,  
402 Angel Road, Edmonton, N.18.  
Telephone: 01-807 3050  
Telex: Thornlite Edmonton 23157

### South East Region

Thorn Industrial Estate,  
Homesdale Road, Bromley, BRI 2QP, Kent  
Telephone: 01-460 9966  
Telex: Thornlite Bromley 25823

### South West Region

Thorn House, Penarth Road,  
Cardiff, CF1 7YP  
Telephone: 0222-31491/3, 45621  
Telex: Thornlite Cardiff 49334

### Midland Region

Thorn House, Saltley Trading Estate,  
Aston Church Road, Saltley, Birmingham 8  
Telephone: 021-327 1535  
Telex: Thornlite Birmingham 33235

### North West Region

Thorn House, 2 Claytonbrook Road,  
Clayton, Manchester M11 1BP  
Telephone: 061-223 1322  
Telex: Thornlite Manchester 668642

### North East Region

Thorn House, 3 Ring Road,  
Lower Wortley, Leeds 12  
Telephone: 0532-636321  
Telex: Thornlite Leeds 55110

### Scotland

Thorn House, Lawmoor Street,  
Glasgow, C5  
Telephone: 041-429 5151, 5671  
Telex: Thornlite Glasgow 77630

### Northern Ireland

10 Severn Street, Belfast, BT4 1FB  
Telephone: 0232-56004/5, 51477/9  
Telex: Thornlite Belfast 74695

### Head Office and Showroom

Thorn House, Upper Saint Martins Lane,  
London, WC2H 9ED  
Telephone: 01-836 2444  
Telex: Thorn London 24184/5

### Government Sales Unit

Atlas House, Great Cambridge Road,  
Enfield, Middlesex.  
Telephone 01-363 5353

## OVERSEAS COMPANIES

### Australia

Thorn Lighting Industries (Pty) Ltd  
Maldon Street, PO Box 74  
Broadmeadows, Victoria 3047

### Austria

Thorn Electrical Industries GmbH  
1010 Wien, Rosenbursenstrasse 8

### Denmark

Thorn Electric A/S  
Fabriksparken 4, 2600 Glostrup

### France

Thorn Electrique  
83, Rue Pierre Demours, Paris 17eme

### Germany

Etron-Licht GmbH  
2000 Hamburg 61, Borsteler Chaussee 287

### Ireland

Thorn Lighting Limited,  
4 Ushers Quay,  
Dublin 8. Telephone Dublin 777786

### Italy

Societa Industriale Vicentina Illuminazione SpA  
Casella Postale 104, Vicenza

### New Zealand

Thorn Electrical Industries (NZ) Ltd  
PO Box 15150, New Lynn, Auckland 7

### Norway

Norske Thorn A/S  
Tollbugatan 8b, Oslo 1

### South Africa

Thorn Lighting (SA) Ltd  
PO Box 43075, Industria, Transvaal

### Sweden

Svenska Thorn AB  
Ballstavagen 30/32, 161 71 Bromma