



A.E.I. LAMP & LIGHTING CO. LTD

SfB (63)

UDC 621.32

# HIGH PRESSURE FLUORESCENT MERCURY DISCHARGE TYPE MBF/U

## GENERAL DESCRIPTION

Mercury Vapour Discharge lamps with quartz arc tube loaded below 100 watt/cm of arc length and operating at pressure of 8-10 atmospheres.

The Quartz arc tube is mounted in a glass outer bulb, the interior surface of which is coated with a fluorescent material. The fluorescent coating converts some of the invisible ultra-violet radiations of the mercury discharge into visible light. This does not affect the overall luminous efficiency of the lamp but by increasing the level of radiation at the red end of the visible spectrum, it modifies the characteristic colour of the mercury discharge. Colour appearance is similar to a daylight fluorescent tube and colour rendering is improved to the point where it is possible to distinguish colours acceptably.

The whole range of lamps have uniformly shaped elliptical bulbs, this contour allowing the most even distribution of fluorescent powder. Hence the light output is uniform over the whole surface area of the lamp. All lamp caps are nickel plated to give maximum resistance against corrosion.

### 80 & 125W

The arc tube mounting assembly is fixed by a clamp round the glass stem giving the most robust construction. The neck of the soft glass bulb is shaped to ensure positive locking onto the cap.

### 250, 400, 700 & 1000W

In addition to the clamp round the glass stem, the arc tube assembly in the larger lamps is securely located by a unique spring clip locating on a depression in the crown of the outer bulb.

The outer bulb is hard glass and suitable for use in exposed conditions. A new capping technique is employed whereby the glass is formed to the same shape as the cap thread. The cap is screwed on and locked without the use of conventional capping cement and eliminates any possibility of the lamp becoming detached from the cap during life.

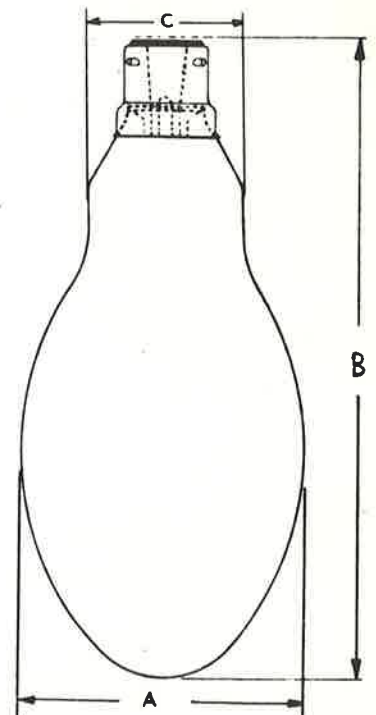
### Standard ratings

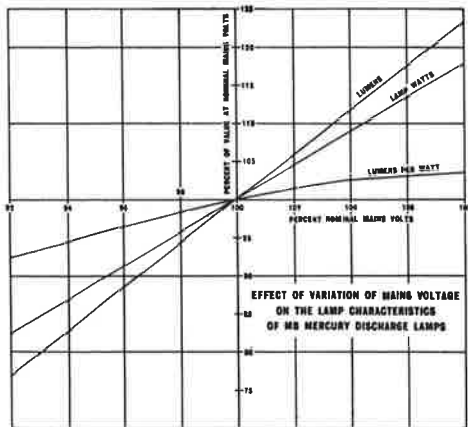
Watts	Volts	Cap	Type	Bulb	Rated Life (hours)	AEI L. & L. Ref. No.
80		3-pin BC (B22/25 × 26)				91-2084
125		*3-pin BC (B22/25 × 26)				91-2138
250	200/250	GES (E40/45)	MBF/U	Elliptical Fluorescent	5000	91-2211
400		GES (E40/45)				91-2411
700		GES (E40/45)				91-2601
1000		GES (E40/45)				91-2817

\* Please enquire for availability in other caps.

### Dimensions (in mm)

Watts	Cap	Diameter A	OAL B	Max. Neck Dia. C
80	3-pin BC	70 ± 1	148.5 ± 4	38
125	3-pin BC	75 ± 1	168.5 ± 5	42
250	GES	90 ± 1	220 ± 7	52
400	GES	120 ± 2	280 ± 6	52
700	GES	140 ± 1.5	320 ± 8	52
1000	GES	165 ± 1.5	400 ± 10	54





### Electrical Characteristics

Watts	Rating	Lamp Operating Volts	Nominal Lamp Operating Current (amps)	Starting Current (amps)
	Volts			
80	200/250	105/135	0.8	1.5 - 1.0
125	200/250	110/140	1.15	2.0 - 1.5
250	200/250	115/145	2.15	4.0 - 3.0
400	200/250	120/150	3.25	7.0 - 5.0
700	200/250	125/155	5.6	10.0 - 7.0
1000	200/250	130/160	7.5	15.0 - 8.0

Note: The starting current values given above represent the short circuit current at nominal supply voltage of the standard chokes used to operate the lamps. Circuits of this type have an inherent lagging power factor and therefore a capacitor is required as given in the circuit and control gear instructions. The incorporation of power factor correction capacitors in the lamp circuits result in the starting current values being lowered.

Striking Voltage – see graph.

Luminous Output—Average through life

Watts	Lumens
80	2720
125	4900
250	11000
400	19200
700	34500
1000	49000

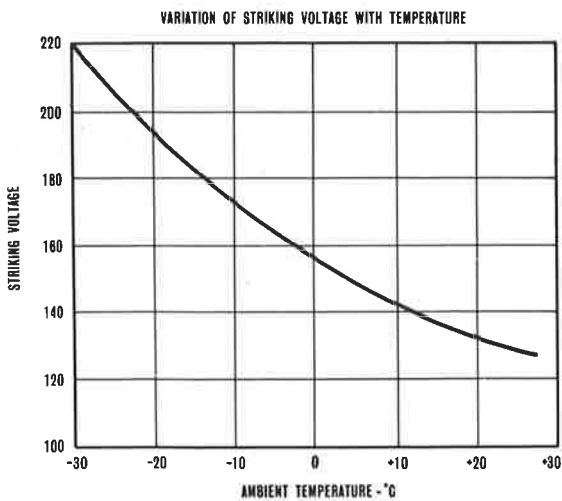
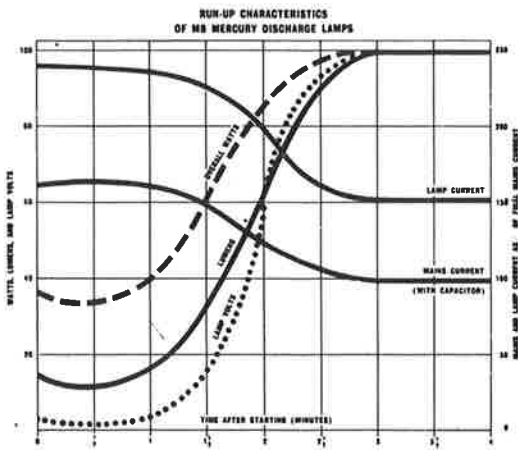
Lumen maintenance 90% through life.

Red Ratio 7% (nominal).

Run-up time 3-5 minutes (approx.).

Percentage luminance in spectral bands (all ratings)

Band	Waveband (micron)	Colour	% Luminance (approx.)
1	0.38 - 0.42	Far Violet	0.01
2	0.42 - 0.44	Violet	0.4
3	0.44 - 0.46	Blue	0.05
4	0.46 - 0.51	Blue Green	0.8
5	0.51 - 0.56	Green	46.0
6	0.56 - 0.61	Yellow	45.5
7	0.61 - 0.66	Light Red	6.0
8	0.66 - 0.76	Dark Red	0.5

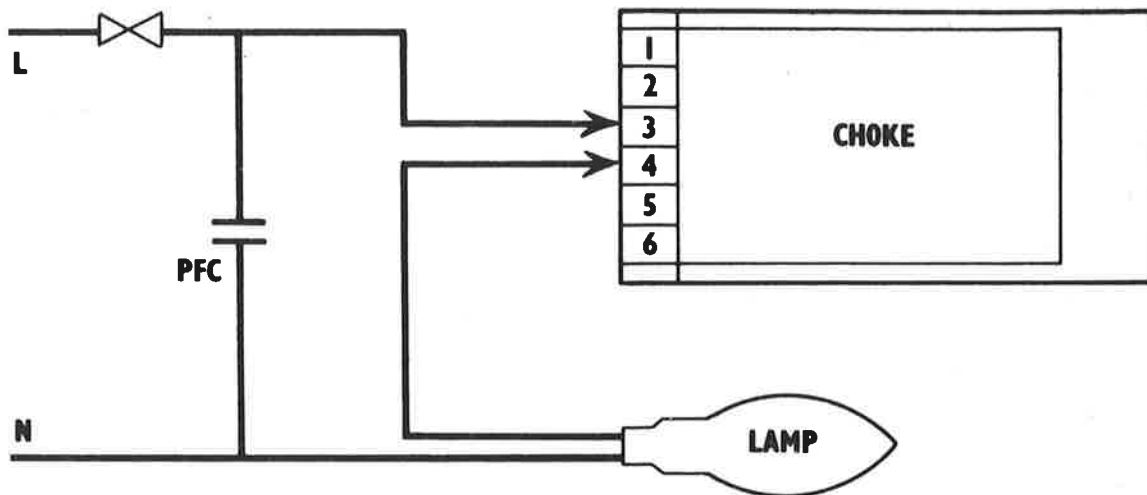


## OPERATING CONDITIONS

These lamps will operate satisfactorily in any position.  
In the event of the lamp being extinguished by an interruption in the supply, a short delay will occur while the lamp cools down, restrikes and runs up again.

## WARNING

Should the bulb be broken and the arc tube continue to glow, the lamp should not be used, as without the protection of the bulb the radiations from the arc tube are harmful to the eyes and skin.



Note: In the 1kW circuit, two chokes are connected in parallel.

## CIRCUIT AND CONTROL GEAR

The MBF/U type lamp is to be used with appropriate control gear. On a.c. 50-cycle circuits this takes the form of a choke connected in series with the lamp and also a capacitor for the power factor correction, connected across the supply leads, as shown in the circuit diagram.  
Further details of approved control gear are given in data sheet G6.

## BRITISH STANDARDS

Lamps described in this leaflet conform to the following standards where applicable.

BS 52:1952 Bayonet caps, holders and adapters.

BS 98:1962 Screw caps and holders.

BS 3677:1963 – Schedule of Fluorescent Mercury Discharge Lamps.