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MBIL Linear Metal Halide Lamps 750W, 1500W, 2000W

Description

MBIL lamps consist of a high pressure discharge in mercury vapour with Sodium/Scandium iodides in a quartz tubular envelope. R7s caps are used for 750W and 1500W but 2000W version has a special cap.

Benefits

The lamps give high light output with colour-rendering and appearance approximately to daylight. The absence of an outer jacket enables good photometric control from compact luminaires. MBIL lamps are designed for horizontal operation only but may be rotated 360° about the lamp axis without loss of photometric performance. Output is therefore independent of luminaire aiming position.

Applications

Exterior, industrial, commercial and sports floodlighting. The colour rendering properties of MBIL lamps are compatible for use with colour television cameras.

Physical Data

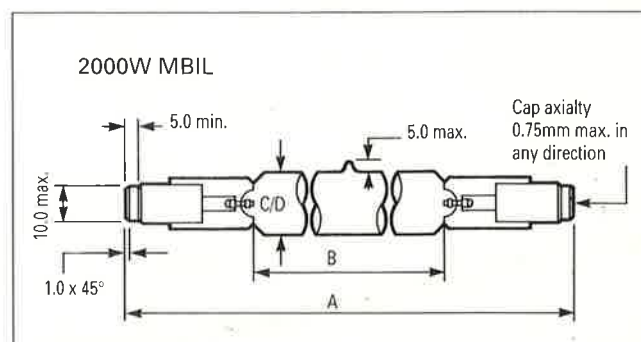
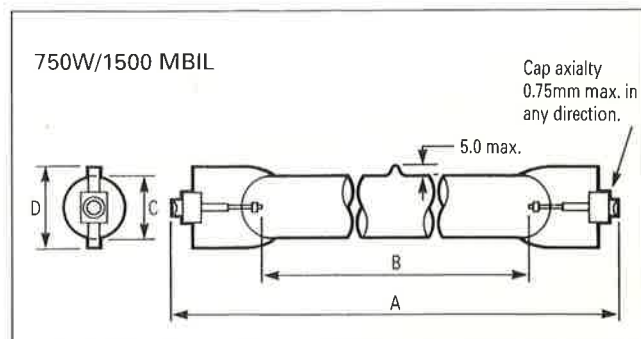
DIMENSIONS	750W	1500W	2000W
Overall length (max) mm A	256	256	311
Arc gap (max) mm B	192	184	200
Diameter (max) mm C	14.3	20.1	26.0
Overall width (max) mm D	17.0	23.0	26.0
Cap contacts	R7s	R7s	Special
Lamp weight (gm)	28	46	113
Operating position	Horizontal ± 15°		
Maximum cap/seal temperature	400°C		
Maximum bulb temperature	850°C		

Identify

Lamp specification 91-7461 750W
91-7473 1500W
91-7487 2000W

Lamp Survival and Lumen Maintenance

The graph shows the survival of representative groups of lamps operated under controlled conditions at 4 hours/start. Lamp life in service will be affected by a number of parameters such as mains voltage deviations, switching cycle, luminaire design and control gear. The information given is intended to be a practical guide in determining lamp replacement schedules.



The graph shows two scales. For regular use, eg a four hour cycle every day the "Thousand Hours" scale should be used. For intermittent use, eg once or twice a week during the winter months, life is determined more by installation time than usage. Under such conditions the "years" scale should be used. Lumen maintenance also varies with usage conditions.

Two sets of performance figures are given based on 10 hour and 4 hour switch cycles. The figures appropriate to particular applications should be used. This information should be treated as provisional for 2000W lamp until life results from production lamps are available. Check with regional office for latest update.

Lumen Maintenance

Burning Hours	750W		1500W		2000W	
	4 Hour Switch Cycle	10 Hour Switch Cycle	4 Hour Switch Cycle	10 Hour Switch Cycle	4 Hour Switch Cycle	10 Hour Switch Cycle
100	67000	67000	120000	120000	200000	200000
500	59600	64000	107000	114000	178000	190000
1000	54000	60000	96000	107000	160000	178000
2000	48000	54000	85000	96000	142000	160000

Run-Up Characteristics

MBIL lamps take approximately 2 minutes to run up to 90% light output. When hot the lamps will restrike within 20 minutes in still air with an ambient temperature of 25°C. A considerably shorter time is possible in favourable conditions. Installation design should make provision for standby or auxiliary lighting where occupation of the space relies upon continuous provision of artificial light. Minimum starting temperature -20°C.

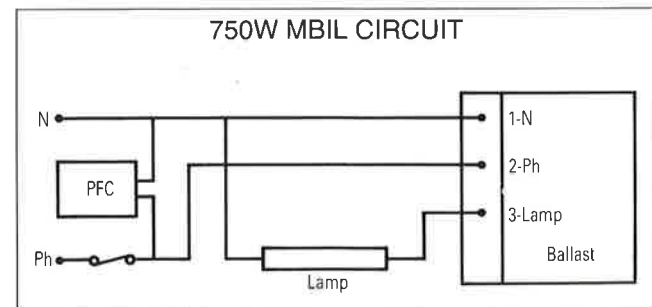
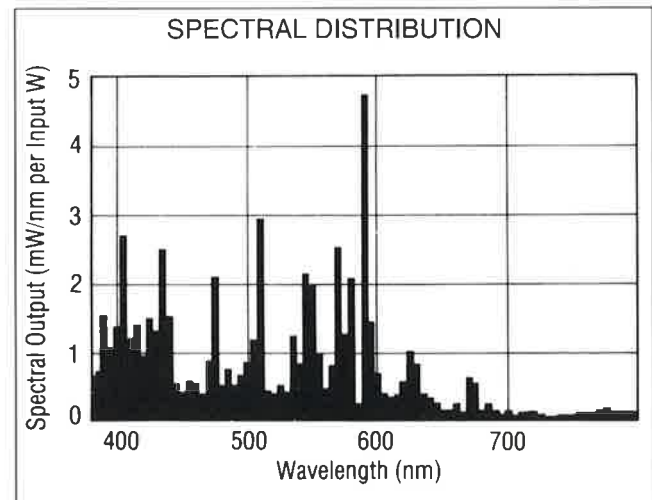
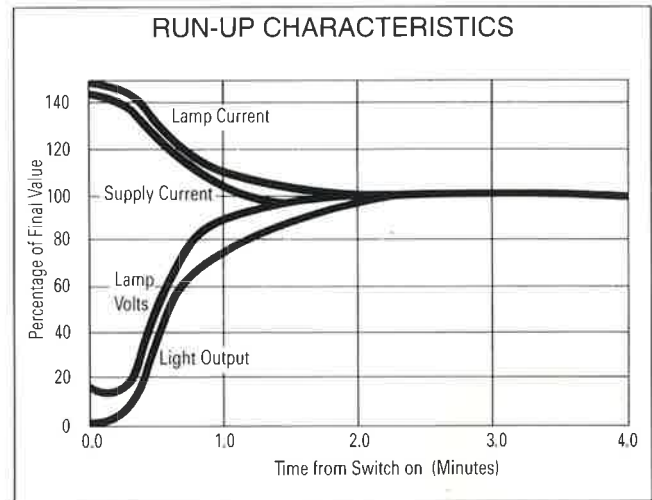
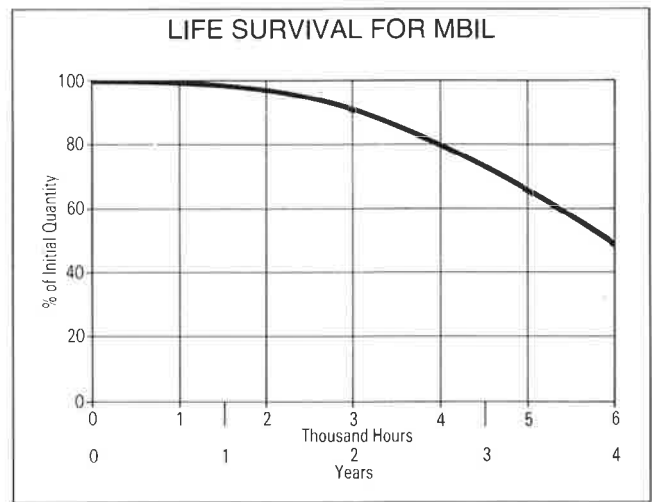
Luminous Data

	750W	1500W	2000W
Initial lumens	67,000	120,000	200,000
Chromaticity co-ordinates	x 0.340 y 0.360	0.340 0.360	0.340 0.360
Correlated Colour Temperature (K)	5.200	5.200	5.200
Colour Rendering Index (Ra)	65	65	65

NOTE: All performance information has been based upon lamps operating in Thorn OW luminaires. The floodlight forms the outer envelope of the lamp and is significant in controlling overall performance and life.

Electrical Data

	750W		1500W		2000W			
	220V	240V	380V*	400V*	415V*	380V	400V	415V
Supply Lamp Voltage (V)	500	500	250	250	250	230	230	230
Lamp current (A)	1.85	1.85	6.7	6.7	6.7	10.3	10.3	10.3
Lamp operating power (nominal) (W)	805	805	1500	1500	1500	2150	2150	2150
Supply current (A)	4.8	4.2	4.5	4.3	4.2	6.6	6.3	6.1
Supply power (W)	925	915	1575	1585	1590	2250	2255	2260



Power factor lagging	0.88	0.91	0.92	0.92	0.91	0.9	0.9	0.9
% 3rd harmonic	18	18	18	17	17	11	11	11
Starting current (A)	6.4	6.0	6.5	6.2	6.0	10.6	9.8	9.3
Failed/hot lamp current (A)	6.3	5.7	3.6	3.8	3.9	5.4	5.7	5.9
PFC capacitor (μF)	90	75	30	30	30	45	45	45

* Step up transformer G.47102 available for 220/240V supplies.

Fusing

750W 16A HBC FUSE or MCB†.

1500W/2000W

- (i) Single circuit – 16A HBC FUSE or MCB† in each line lead.
- (ii) Multiple circuits. For a balanced 3 phase installation of up to 3 lamps per phase, mainline fuse ratings.

Number of lamps per Phase	Fuse/MCB† Rating	
	1500W	2000W
1	20A	25A
2	30A	40A
3	40A	63A

- (iii) Multiple circuits. For a balanced 3 phase installation exceeding 3 lamps per phase, mainline fuse ratings.

Circuit voltage	Fuse/MCB† Rating	
	1500W	2000W
415V	3.5 x total no. of lamps	5.4 x total no. of lamps
400V	3.5 x total no. of lamps	5.7 x total no. of lamps
380V	3.5 x total no. of lamps	6.1 x total no. of lamps

† Use type suitable for inductive load (eg 3 or 4)

Thorn Control Gear

	750W	1500W	2000W
Ballast	G53402.2 (220V)	G53308.T (380/400/415V)	G53471.T (380/400/415V)
	G53402.4 (240V)		G53468.T (380/400/415V)
Ignitor	Not required	G53342	G53470
Capacitor	3xGC2386 (220V)	GC2411	GC2411
	3xGC2346 (240V)		GC2413

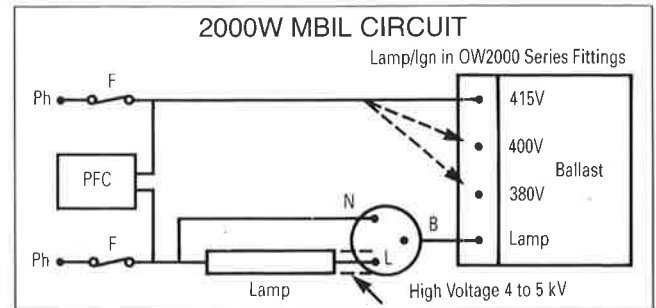
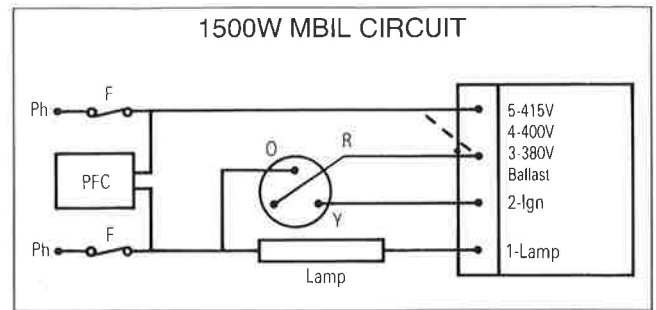
Details of control gear for supplies other than shown on application.

Supply Voltage

In order to maximise lamp survival, lumen maintenance and colour uniformity, the supply voltage and ballast design voltage should be within $\pm 3\%$. Supply voltage variations of $\pm 5\%$ are permissible for short periods only. It is therefore essential to use a ballast appropriate to the supply voltage at the luminaire.

Maximum Cable Capacitance

1. For 1500W lamp to achieve good starting the cable length between lamp and control gear must not exceed 50 metres (or 15,500 pF) for 415V or 38 metres (or 11,500 pF) for 380/400V.



2. For 2000W lamp to achieve good starting the ignitor must be adjacent to the luminaire. Cable capacitance between wiring from "Lp" terminal to lamp, and adjacent metal and/or other cables should not exceed 100 pf.

Lamp Enclosure

The bulb is made of quartz which transmits U.V.A. and U.V.B. radiation. Lamps should always be operated in enclosed luminaires with UV absorbent front glasses. Personnel should never be exposed to radiation from a bare lamp. There is a minor risk of the lamp envelope shattering on failure and full enclosure is essential to retain the fragments under such circumstances.

Installation, Operation and Disposal

The following information gives precautions for the safe handling, installation, use and disposal of lamps. Compliance with these instructions is essential.

Before Use

1. Always isolate the equipment from the electricity supply before inserting or removing a lamp.
2. Check that the replacement lamp is of the correct type for the application and for use in the circuit. Only the appropriate control gear must be used.
3. Ensure that the lamp is correctly located in the lampholder and that the quartz bulb is clean. Operating when dirty results in permanent marking of the bulb surface. Excessive handling of the quartz bulb should be avoided. The lamp can be cleaned with a soft cloth moistened with methyated spirit.

During Use

4. During operation, parts of the lamp surface may reach temperatures of up to 850°C. Prevent condensation droplets or water splashing onto the lamp as these may cause the bulb to shatter.
5. If the bulb is broken or scratched the lamp must not be operated.
6. The bulb is made of quartz which transmits U.V. radiation. This radiation is harmful to eyes and skin.

Operators must be shielded from direct or reflected short wave radiation.

7. It is essential that the lamp only be used within a luminaire with a front glass that will not break if the lamp shatters during operation. The lamp should not be operated if the front glass is either missing or broken.

Disposal

8. Ensure that the lamp has cooled sufficiently and the supply is isolated before removal from the luminaire.
9. Small quantities of lamps may be disposed of with ordinary refuse. The lamps should be placed in original or similar packaging before disposal.
10. Large quantities of lamps must be disposed of in accordance with the rules of the Local Authority.

THORN Lighting reserve the right to alter the specification without prior notice or public announcement.

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