



USA

GE Thorn

MBI-T METAL HALIDE LAMP

KOLORARC 250W

Description

Kolorarc MBI-T lamps consist of a high pressure discharge in mercury vapour with metallic additives, operating in a quartz arc tube. The metallic additives are introduced as halide compounds which control the dosing and ensure that the metallic elements mix well with the mercury vapour. Lamps have a tubular clear bulb.

Features

The light output of Kolorarc MBI-T lamps shows a very marked improvement on colour improved high pressure mercury lamps. They provide high quality light with excellent colour rendering and a clean white appearance in a compact format. Lamp efficacy is also substantially better with a typical initial light output of 20,500 Lumens. Lumen maintenance is outstanding. The small light source provides for excellent optical control and precision manufacturing ensures very consistent performance. Lamps will operate on many High Pressure Sodium Circuits.

Applications

Commercial and industrial interiors where high quality white light with good colour rendition is required and energy efficiency is of importance. Floodlighting and all other applications where precise optical control is required.

Physical Data

Dimensions:

Rating	250W
Max. Overall Length (mm)	225
Light Centre Length (mm)	150
Max. Diameter (mm)	46
Arc Gap (mm)	22
Cap	E40/45
Bulb Glass	Hard
Weight (g)	167
Operating Position	Horizontal $\pm 15^\circ$

Note – For optimum performance lamps should be operated horizontally. When operated in other orientations lamp colour will vary from the specification shown.

Max. Cap Temperature	250°C
Max. Bulb Temperature	450°C
Min. Starting Temperature	-30°C



Data Sheet

MBI-T METAL HALIDE L

Lamp Survival and Lumen Maintenance

The graph shows provisional data on the survival of representative groups of lamps operated under control conditions at 10 hrs/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.

Run-up Characteristics

The graph shows typical run-up characteristics for a 250W lamp.

Rating	250W
Run-up Time to 90% light output	<2 minutes
Hot Restrike	<4 minutes

Photometric Data

<i>Nominal Light Output</i>	
Rating	250W
Lumens	
100 hrs	20500
2000 hrs	18700

Nominal Colour Appearance

Chromaticity x	0.372
co-ordinates y	0.371

<i>Nominal Colour Temperature K</i>	4200
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Colour Rendering

General Colour Rendering Index (Ra)	70
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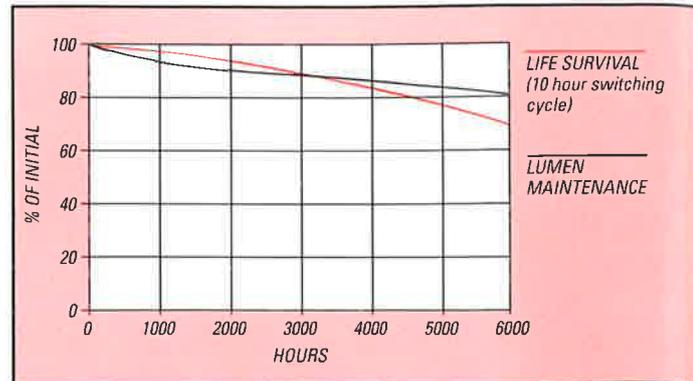
In service, colour variation from lamp to lamp is an inherent characteristic of metal halide lamps. Over time a gradual shift to a warmer colour normally occurs. Performance is also influenced by variations in operating conditions resulting from control gear and supply voltage tolerances and luminaire design. The graph shows the effect of supply voltage variation on lamp performance.

Electrical Data

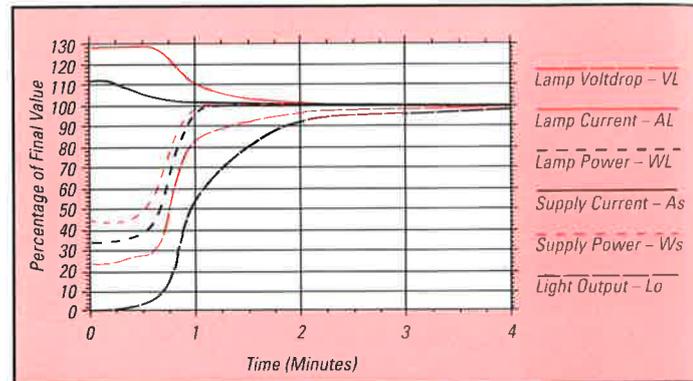
Based on nominal lamp and control gear. The information given is for a lamp operated on a standard 250W SON/Metal Halide ballast, an approved ignitor (see below) and a 30 μ F PFC capacitor.

Lamps can be operated in dedicated MBI-T luminaires with a 25 μ F PFC capacitor (0.9 PF achieved) which may result in lower costs. Information is available on request.

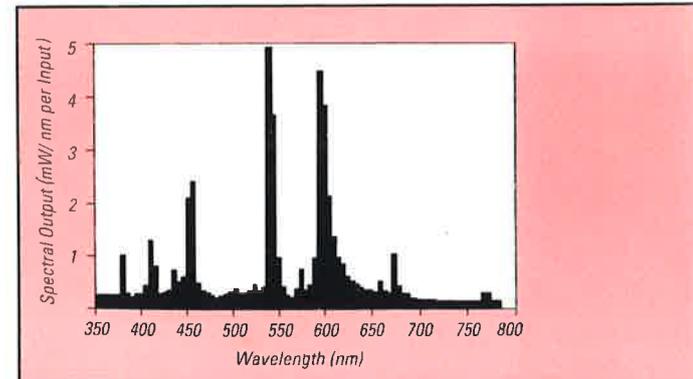
Life Survival (Provisional)



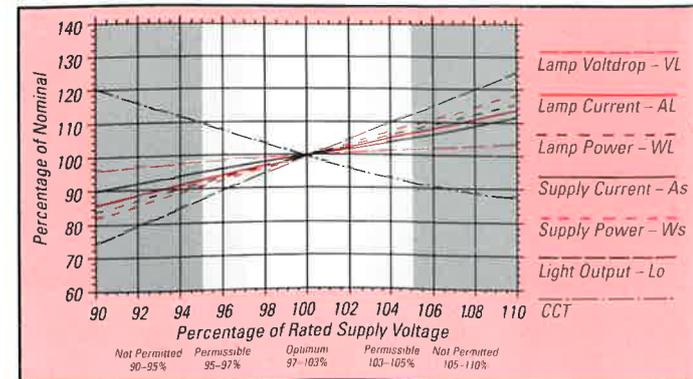
Typical Run Up Characteristics



Spectral Power Distribution



Effect of Supply Voltage Variation on Performance for typical lamp



LAMP KOLORARC 250W

Rating	250W		
Supply Voltage (V)	220	230	240
Lamp Voltage (V)	112	112	112
Lamp Current (A)	2.75	2.75	2.75
Objective Lamp Power (W)	270	270	270
Lamp Current Crest Factor			
Factor	1.44	1.44	1.44
Supply Current (A)	1.40	1.35	1.30
Supply Power (W)	296	298	300
Power Factor (Lagging)	>0.95	>0.95	>0.95
Max. Line Current –			
During Run-up (A)	1.70	1.60	1.50
Failed/Hot Lamp (A)	2.10	2.17	2.26
(Capacitor Current)			
% 3rd Harmonic in line Current	15%	15%	15%

Supply Voltage

Lamps will start and operate with a 10% reduction in rated supply voltage when the correct control gear is used. However, in order to maximise lamp survival, lumen maintenance and colour uniformity, the supply voltage and ballast design voltage should be within $\pm 3\%$. Supply 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. Lamps are suitable for 220V to 250V, 50/60 Hz supplies provided that suitable control gear is used.

Approved Gear Sets

As there are no international standards for metal halide lamps such as these, it is important to check the compatibility of lamp and control gear. The voltage rating of each control gear component must be matched to the nominal rating of the supply.

Fusing

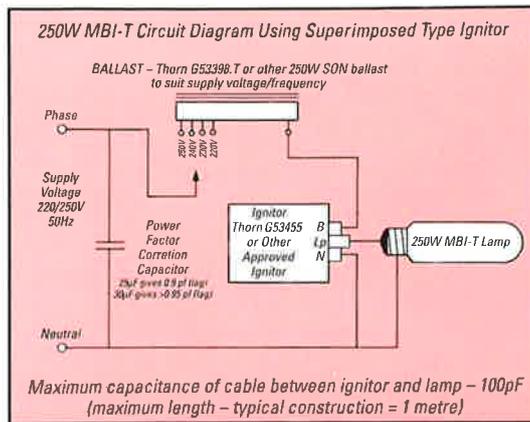
For a very short period after switch-on, a discharge lamp may act as a partial rectifier and as a result, the ballast may allow several times the normal circuit current to flow. To avoid nuisance fuse failure the ratings shown below should be used.

For further information refer to Data Sheet 4:90.2.

Recommended ratings for individual fusing of circuits:

Rating	250W
Fuse Rating	
HBC or MCB type 3 or 4 (Amps)	10
Rewirable fuse rating (Amps)	5
For multi-lamp fuse ratings refer to Data Sheet 4:90.2.	

Operating Circuits



WARNING

These lamps operate with a high internal pressure and there is a slight risk that lamps may shatter, particularly if run beyond rated life. At end of life continuous operation of discharge lamps should be avoided and a switch off introduced at least once every 24 hours to reduce the risk of shattering.

THE LAMP MUST BE FULLY ENCLOSED BY A LUMINAIRE TO ENSURE THE RETENTION OF ANY FRAGMENTS

Packaging

Rating	250W
Individual Pack dim. (mm)	50 x 50 x 270
Bulk Pack dim. (mm)	260 x 105 x 315
No. in outer pack	10
Bulk pack Gross Weight (kg)	3.10



Information for Luminaire Manufacturers

Ballasts:

Lamps should be used with ballasts having characteristics close to the following values.

Rating	250W			
Supply Voltage (V)	220	230	240	250
Impedance (Ω) at 3 Amps	60.0	64.0	67.7	71.3
Based on Cold watts loss (W)	24	25	26	27

The following ballasts are suitable:

All 250W High Pressure Sodium Ballasts manufactured for lamps complying with Lamp Specification IEC 662.

e.g. Thorn Ballast G53398.T (220–250V)

All ballasts should comply with Ballast Specification IEC 922 and IEC 923

Ignitors

Lamps should be used with ignitors having the following characteristics:

Rating	250W
Maximum Pulse Height (Kv) @ 20pF	4.5 peak
Minimum Pulse Height (Kv) @ 100pF	3.5 peak
Pulse width at 90% of peak height	>0.3 μ s
Pulse repetition rate (Typical)	3 per half cycle
Pulse Position ($^{\circ}$ el)	60 to 90 & 240 to 270

Ignitors should comply with ignitor specifications IEC926 and IEC927.

The following ignitors are approved:

Rating	250W
Thorn	G53455
Thorn	G53473#
Bag Turgi	MZN250SE
Bag Turgi	MZN400SU
Parry	PXE400
Parry	PWE400
May and Christie	ZG4.5SE
Tridonic	ZRM6-ES
Sabir	AIF40

#Impulser type – use in conjunction with Thorn ballast G53398.T.

To achieve good starting with superimposed types, ignitors must be adjacent to the luminaire. Cable capacitance between wiring from ignitor "Lp" terminal to lamp and adjacent metal and/or other cables should not exceed 100 pF (<1 metre length) unless otherwise stated by ignitor manufacturer.

PFC Capacitors

PFC Capacitors of the following values at 250V should be used.

250W	For dedicated MBI-T luminaires use $25\mu\text{F}\pm 10\%$ to achieve 0.9 (lag) eg. Thorn GC2346.
	For SON/Metal Halide compatible luminaires use $30\mu\text{F}\pm 10\%$ to achieve >0.95 (lag) eg. Thorn GC2386.

Operation and Maintenance

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

Before Use

1. Always isolate the equipment from the electricity supply before inserting the lamp.
2. Check that the replacement lamp is of the correct type for the application and for use in the circuit. Only appropriate control gear must be used.
3. Ensure that the lamp is correctly located in the lampholder.

During Use

4. During operation parts of the lamp surface may reach temperatures up to 450°C. Prevent liquid condensation droplets of water splashing onto the lamp as these may cause the bulb to shatter.
5. If the outer bulb is broken or scratched the lamp must not be operated as there is a risk from UVA and UVB radiation which is harmful to eyes and skin.
6. It is essential that the lamp only be used within luminaires with a front glass that will not break if the lamp shatters during operation. The lamp must not be operated if the front glass is either missing or broken.

Disposal

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

GE Thorn Lamps reserves the right to alter the specification without prior notice or public announcement.

Made in the United Kingdom

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