

Data Sheet

Discharge Lamps

MBI/MBIF Metal Halide Lamp KOLORARC 250W, 400W, 1000W

Description

KOLORARC 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. All lamps have elliptical bulbs but the MBI version is clear while the MBIF lamp is coated internally with fluorescent phosphor.

Features

The light output of KOLORARC lamps shows a distinct improvement on high pressure mercury lamps. Their excellent colour rendering and clean white appearance make them particularly suitable for commercial interiors.

Applications

Commercial and industrial interiors and exterior applications where colour-correct and quality white light is required.

In addition, KOLORARC lamps are suitable for situations where television cameras may be used.

Clear lamps enable better optical control for applications such as floodlighting.

Physical Data

Dimensions

| | 250W | 400W | 1000W |
|----------------------------------|------|------|-------|
| Overall length (max) mm | 227 | 286 | 410 |
| Diameter (max) mm | 91 | 122 | 167 |
| Weight of mercury per lamp (max) | 25mg | 45mg | 90mg |
| Weight of lamp kg | 0.19 | 0.25 | 0.43 |

Cap – E40/45 (all ratings)

Minimum starting temperature = – 20°C

Bulb glass – hard (all ratings)

Operating Positions

BUH – Base up to horizontal. Operates in any position between cap up and cap 15° below horizontal.

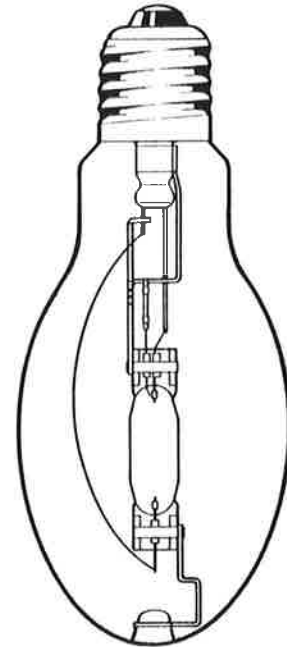
H – Horizontal. These lamps have primarily been designed for operating ±15° of horizontal but can also be used up to ±60° of the horizontal.

BU – Base up. Permitted operating position is cap up within ±30° of the vertical.

BD – Base down. Permitted operating position is cap down within ±30° of the vertical.

U – Universal operating. Suitable for operation in any position.

Not all permutations of wattage and operating position are available. Please check before ordering.



Lamp survival and lumen maintenance

The graph shows the survival of representative groups of lamps operated under controlled conditions at 10hrs/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

KOLORARC lamps take approximately 3-4 minutes to run up to 90% light output. The lamps will restrike within 7 minutes. The graph shows run up characteristics for a typical 400W KOLORARC lamp.

Luminous Data

Nominal Light Output for MBI and MBIF

| | 250W | 400W* | 1000W |
|-------------------------------------------|-------|-------|--------------------|
| Lumens 100 hrs | 19000 | 29000 | 92000 ¹ |
| Lumens 2000 hrs | 16000 | 24000 | 85000 ¹ |
| Average Luminance cd/cm ² : | | | |
| MBI | 490 | 290 | 420 |
| MBIF | 17 | 14 | 22 |

Notes

*As lamps operate at 375W when operated with Thorn control gear, lumen output is quoted for this condition.

¹ These figures apply to a vertical operating position. When operating horizontally reduce by 10%.

Colour Appearance

| | MBI | MBIF |
|--------------------------------------|-------|-------|
| Chromaticity | | |
| Co-ordinates x | 0.38 | 0.395 |
| y | 0.385 | 0.395 |
| Correlated colour temperature (K) | 4100 | 3800 |
| Colour rendering index (Ra) | 65 | 70 |

Spectral Distribution

See histograms

In order to maintain uniformity of appearance group replacement is recommended.

Electrical Data

| | 250W | 400W | 1000W |
|---------------------|------|------|-------|
| Lamp Volts ± 15 | 100 | 120 | 250 |
| Lamp Current (amps) | 2.9 | 3.5 | 4.2 |

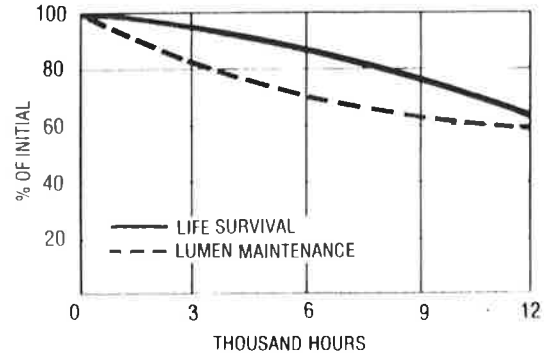
Supply voltage – 250W & 400W lamps are suitable for 220V and 240V supplies provided that suitable control gear is used. Standard control gear for the 1000W lamp is for 380-415V supplies. Lamps will start and operate with a 10% reduction in rated supply voltage when the correct gear is used.

However, in order to maximise lamp survival, lumen maintenance and colour uniformity, the supply voltage and ballast design voltage should be within $\pm 5\%$.

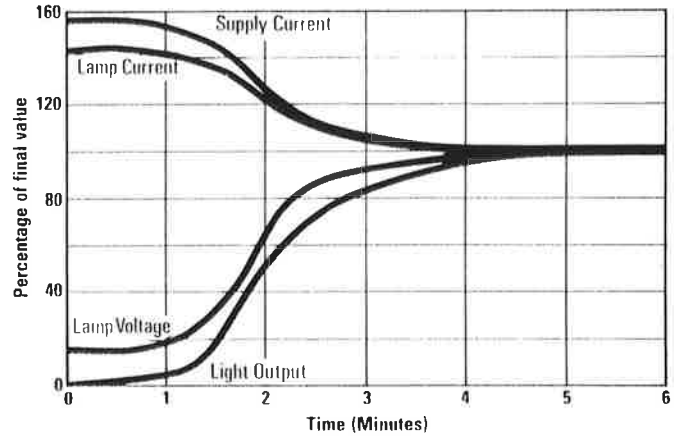
The lamp is started by a high voltage pulse which is supplied by a separate ignitor. The ignitor ceases to function once the lamp has started.

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.

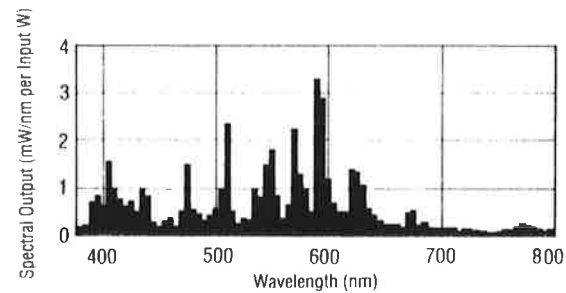
LIFE SURVIVAL AND LUMEN MAINTENANCE



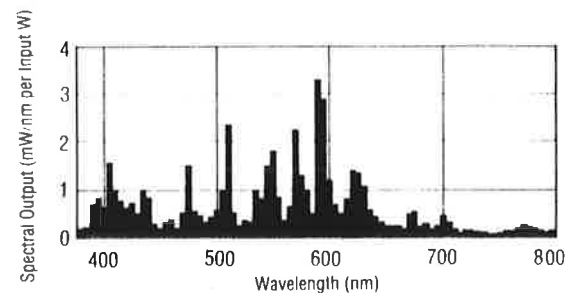
RUN-UP CHARACTERISTICS FOR 400W KOLORARC



SPECTRAL DISTRIBUTION



MBI



MBIF

Fusing

For a very short period after switch-on a discharge lamp may act as a rectifier and as a result the ballast may allow several times the normal circuit current to flow. To avoid fuse failures the ratings shown below should be used. For further information refer to Data Sheet 4:90.2. To prevent rectification occurring at end of life continuous operation of discharge lamps should be avoided and a switch off introduced at least once every 24 hours.

Recommended ratings for individual fusing of circuits,

| | | | |
|-------------------------------|-----|-----|------|
| Lamp Power (watts) | 250 | 400 | 1000 |
| Fuse rating HBC or MCB (Amps) | 10 | 16 | 16 |
| Rewirable fuse rating (Amps) | 5 | 10 | 10 |

Operating Circuits

See diagrams.

Guidance for Luminaire Manufacturers

Ignitor characteristics

| | 250 400W | 1000W |
|--------------------------------|------------------|---------------------------|
| Pulse height (max) | 5,0kv | 5,0kv |
| Pulse height (min) | 3,5kv | 2,0kv |
| Pulse width at 90% volts (min) | 0,5 microsecs | 60 microsecs |
| Pulse repetition rate | 3 per half cycle | 1 per negative half cycle |

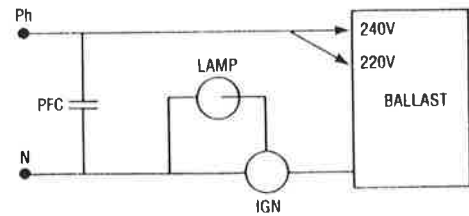
Temperature Limits

max permissible bulb temp = 450°C
max permissible cap temp = 250°C

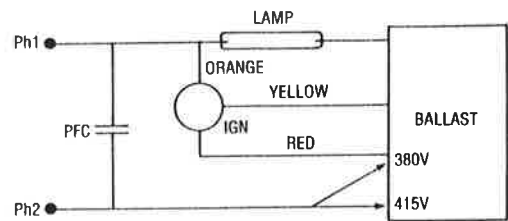
It is important that these lamps are operated in suitably enclosed luminaires with U.V.-absorbing cover glasses.

Packaging

| | 250W | 400W | 1000W |
|-------------------------------------|--------------|--------------|-----------------------|
| Individual carton measurements (mm) | 113x113 x267 | 128x128 x330 | 215x215 x460 |
| Bulk Pack dimensions (mm) | 580x240 x280 | 655x275 x340 | individual packs only |
| No in outer pack | 10 | 10 | 1 |
| Total Weight kg | 3,10 | 4,22 | 0,87 |



250 + 400 W



1000W

Operation and Maintenance

Guide for the Safe Installation, Operation and Disposal of High Pressure Mercury lamps.

Before Use

Always isolate the equipment from the electricity supply before inserting or replacing a lamp.

Check that the replacement lamp is the correct type for the application. This includes checking that the lamp voltage (if applicable), wattage and cap are suitable for use in the circuit and with the control gear.

Ensure that the lamp is correctly located in the lampholder and the glass bulb is not scratched during insertion.

During Use

Important:– Lamps should always be used in suitably enclosed luminaires with UV absorbant colour glasses.

If the outer bulb is broken the lamp must not be operated.

Disposal

These lamps should be broken in a container. Precautions must be taken against flying glass or other fragments. The operation should be carried out outdoors (or in a well-ventilated area). With metal halide lamps it is not necessary to break up the inner arc tube. The debris of 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.

Made in the UK.