

# Multi-Vapor™

## Metal Halide Lamps

Elliptical Clear

250W, 400W and 1000W

Elliptical Diffuse

250W and 400W

High Output Elliptical Clear & Diffuse

400W

### Product information

High brightness, high quality white light with excellent colour rendition and energy efficiency makes GE Multi-Vapor™ Metal Halide lamps particularly suitable for commercial and industrial interiors, particularly in high ceiling areas:

### Application areas

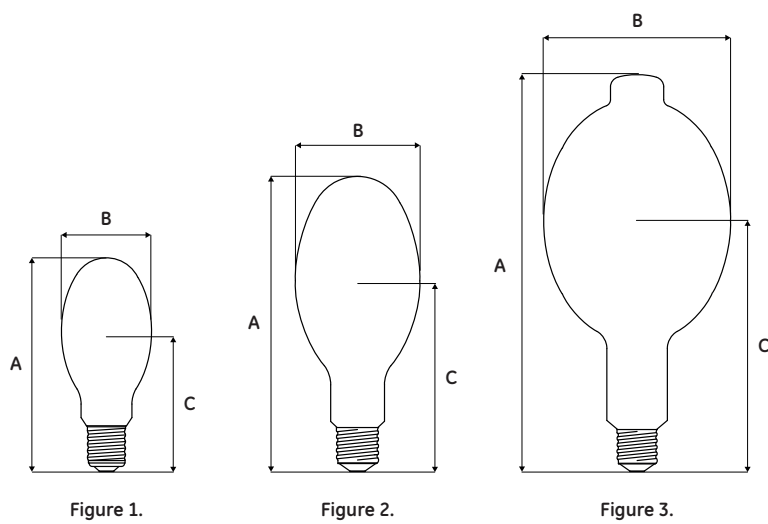
- Amenity areas
- Retail warehouses
- General warehousing
- Industrial units
- Architectural floodlighting
- Area floodlighting
- Parking lots and garages
- Sports stadiums

### Basic data

Product Code	Product Description	Nominal Wattage [W]	Rated Wattage [W]	Volts [V]	Cap	Nominal Lumen [lm]	Rated Lumen [lm]	Rated Lamp Efficacy [lm/W]	Mercury Content [mg]	CCT	Colour Rendering Index [Ra]	Ambient Temp. [°C]	Minimum Starting Temp. [°C]
<b>Multi-Vapor™ Elliptical Clear</b>													
44542	MVR 250/U/40	250	250	135	E40	20,800	20,940	84	31.0	4,200	65	25	-30
43907	MVR 400/U/40	400	400	135	E40	40,000	40,640	102	63.0	4,000	65	25	-30
41828	MVR 1000/U/40	1,000	1,000	250	E40	108,000	108,000	108	150.0	4,000	64	25	-30
<b>Multi-Vapor™ Elliptical Diffuse</b>													
44543	MVR 250/C/U/40	250	250	133	E40	20,000	20,310	81	31.0	3,900	70	25	-30
43908	MVR 400/C/U/40	400	400	135	E40	40,000	40,010	100	63.0	3,700	70	25	-30
<b>Multi-Vapor™ High Output Elliptical Clear</b>													
49860	MVR 400/VBU/40	400	400	135	E40	40,000	40,840	102	63.0	4,000	62	25	-30
<b>Multi-Vapor™ High Output Elliptical Diffuse</b>													
27738	MPR 400/C/VBU/0/40	400	400	135	E40	38,000	38,200	96	63.0	3,000	65	25	-30
49857	MVR 400/C/VBU/40	400	400	135	E40	40,000	40,210	101	63.0	3,700	65	25	-30



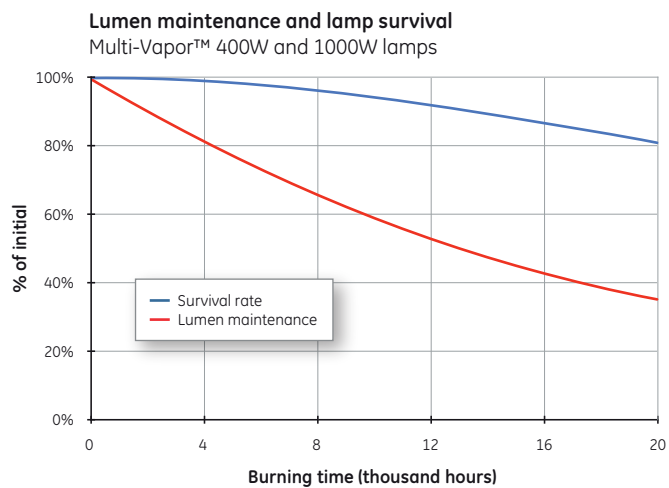
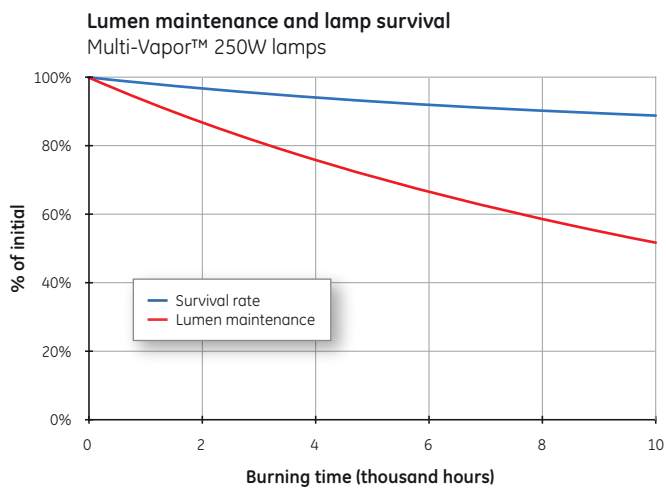
# Dimensions



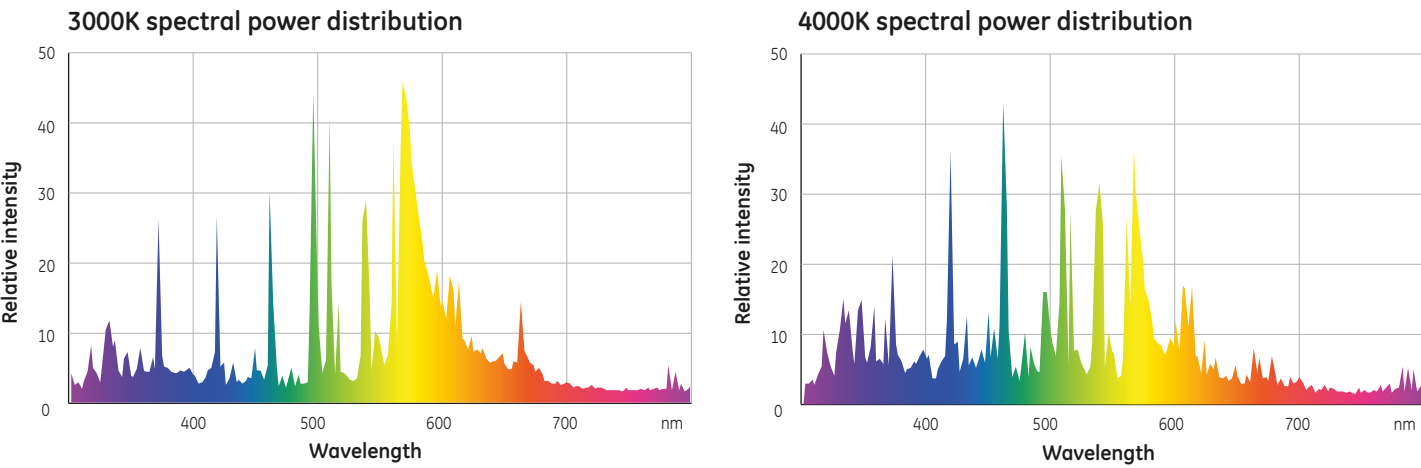
Product Code	Wattage	A Length [mm]	B Diameter [mm]	C LCL [mm]	Cap	Operating Position	Bulb Glass	Mass	Figure No.
44542	250	210	89	127	E40	Universal	Hard glass	155	1
43907	400	292	117	178	E40	Universal	Hard glass	245	2
41828	1000	390	178	241	E40	Universal	Hard glass	385	3
44543	250	210	89	-	E40	Universal	Hard glass	155	1
43908	400	292	117	-	E40	Universal	Hard glass	245	2
49860	400	292	117	178	E40	Universal	Hard glass	245	2
27738	400	292	117	-	E40	Vertical base up $\pm 15^\circ$	Hard glass	245	2
49857	400	292	117	-	E40	Vertical base up $\pm 15^\circ$	Hard glass	245	2

## Survival rate and lumen maintenance

The graph shows the survival of representative groups of lamps operated under controlled conditions at 10 hours per 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 procedures.



## Spectral power distribution



## Operating note

All metal halide 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 a switch off should be introduced 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 in the event of such failure with the exception of lamps which are rated for open fixtures such as: MPR 400/C/VBU/0/40 (27738).

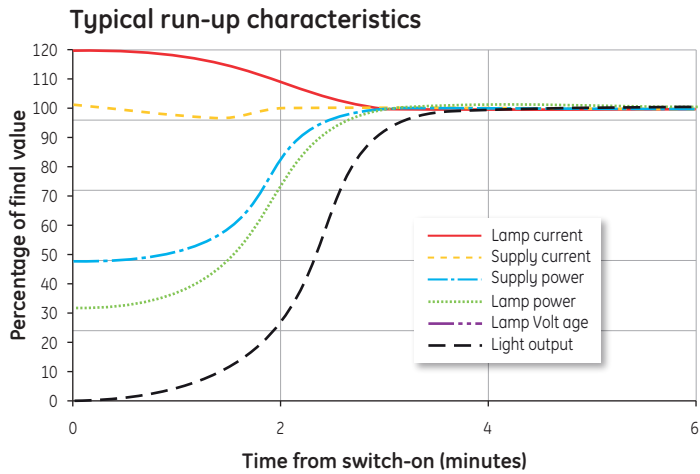
## Electrical data

Data is based on a nominal lamp operating from an ANSI reference ballast according to C78.43 with power factor correction.

Wattage	Volts [V]	Current [A]	Maximum Current Crest Factor
<b>Multi-Vapor™ Elliptical Clear</b>			
250	133	2.1	1.8
400	135	3.2	1.8
1000	V263 H255	V4.1 H4.2	1.8
<b>Multi-Vapor™ Elliptical Diffuse</b>			
250	133	2.1	1.8
400	135	3.2	1.8
<b>Multi-Vapor™ High Output Elliptical Clear</b>			
400	135	3.2	1.8
<b>Multi-Vapor™ High Output Elliptical Diffuse</b>			
400	135	3.2	1.8
400	135	3.2	1.8

## Run-up characteristics

Time for light output to reach 90% of the final value is determined by actual supply voltage and ballast design. Typical values are:



## Hot re-strike time

All ratings re-strike within 10 minutes following a short interruption in the supply. Actual re-strike time is determined by ignitor type, pulse voltage and cooling rate of the lamp.

## Supply voltage

Lamps are suitable for supplies in the range described in the ballast manufacturer's datasheet.

Supplies outside this range require a transformer (conventional, high reactance or CWA) to ensure correct lamp operation. Lamps start and operate at 10% below the rated supply voltage when the correct control gear is used. However, in order to maximise lamp survival, lumen maintenance and colour uniformity the actual supply voltage and ballast design voltage should be within  $\pm 3\%$ . Supply variation of  $\pm 5\%$  is permissible for short periods only. Matching of multi-tapped ballasts to actual supply voltage may be achieved by measuring mean supply voltage at the installation and selecting the appropriate ballast setting/tapping.

## Control gear

Lamps of this type are designed to operate on control gear specified in ANSI standard C78-43. It is essential to use a ballast appropriate to the supply voltage at the luminaire. For typical wiring diagrams for control circuits refer to actual ballast and ignitor manufacturer's data for terminal identification and wiring information.

## Fusing of circuits

A number of factors need to be taken into account when selecting the rating and characteristic of the supply line fuse/MCB:

- (a) At the instant the circuit is switched-on, PFC capacitor current can be many times the steady state value for a very short period (few hundred microseconds).
- (b) For a short period (few seconds) after switch-on all discharge lamps may act as a partial rectifier and as a result the ballast can allow several times the normal supply current to flow.
- (c) During the lamp run-up period supply current is higher than normal (see graph).

To avoid nuisance fuse failure/tripping of the MCB, ratings need to allow for all these factors. Individual lamp circuits should be fused using the single circuit value in the table. For multiple lamp installations, ratings in the table apply to main distribution line fuses supplying several lamp circuits.

## Guidance for luminaire manufacturers

### Lamp operating temperature limits

Watts	Maximum Cap Temperature [°C]	Maximum Bulb Temperature [°C]
250	210	400
400	210	400
1000	210	430

## Ballasts

These lamps are compatible with ballasts manufactured to meet specifications shown in ANSI C78-43. Ballast and luminaire thermal testing should be undertaken to ensure the ballast is not overloaded under lamp operating conditions approaching rated life. To maintain optimum system performance and minimise risk of ballast thermal overload, lamps should not be operated past rated life.

## Ballast thermal protection

Use of ballasts incorporating a thermal cut-out is not a specific requirement but is a good optional safety measure.

## Ballast voltage adjustment

Series choke (reactor) ballasts incorporating additional tapings at  $\pm 10V$  of the rated supply voltage are recommended. Alternatively a single additional tapping 10V above the rated supply voltage will ensure lamps are not overloaded due to excessive supply voltage.

## PFC capacitors for ballasts

Power Factor Correction is advisable in order to minimise supply current and energy costs. Power Factor Correction capacitor values and ratings are dependent upon the type of ballast and supply voltage used. Follow the ballast manufacturer's recommendations.