



7 LAMPS

Ceramic Metal Halide	CMH Lamps
	 7.1

Metal Halide	MH Lamps
	 7.8

High Pressure Sodium	HPS Lamps
	 7.15

Mercury Vapour	MV Lamps
	 7.22

LED	LED Lamps
	 7.27

LED

Compact Fluorescent	CFL Lamps
	 7.33

Fluorescent	FL Lamps
	 7.39

Tungsten Halogen	TH Lamps
	 7.45

Incandescent	INCAND. Lamps
	 7.49





CERAMIC METAL HALIDE



CERA ARC EX / Outdoor

CERA ARC PRO / Indoor

Long Life

up to 24000 hrs

Low maintenance

Lamps need to be changed less often, therefore saving on maintenance costs, reducing waste, and lessening their environmental impact. Extra long lamp life EYE Twin Cera Arc lamp has a rated lamp life of 50,000 hrs.

High-Efficacy

up to 132lm/W

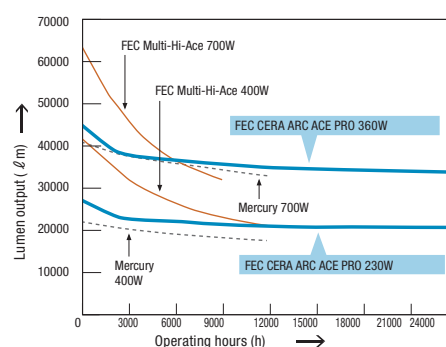
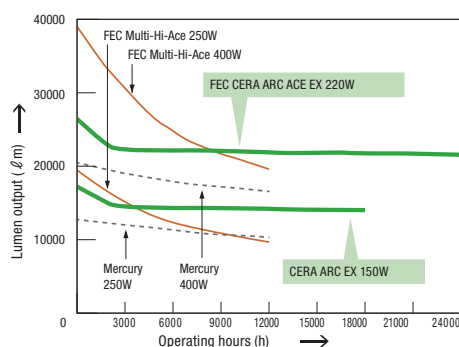
Reduced Carbon Footprint

The use of a more efficient light source leads to reduced energy consumption and CO₂ emissions. Cera Arc lamp efficacy is on par with LED lamps.

High Lumen Maintenance

Bright light right to the end

Engineered to suppress the rate of lumen depreciation, the lamps will offer a high rate of lumen maintenance, providing a high level of output for as long as the lamp is in operation.



Same Gear – Better Light

A simple direct replacement upgrade

Utilising the same outer bulbs as their Mercury Vapour / High-Pressure Sodium predecessors, the arc tube also remains in the same position, meaning that the same light distribution can be achieved.

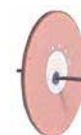
Built-in FEC Ignitor

Can be used directly on your existing Mercury & High Pressure Sodium control gears

The built-in FEC ignitor means that the lamps are compatible for use with both types of control gear.

Lighten the load on your control gear

Iwasaki's unique FEC ignitor ignites the lamp efficiently and effectively using a low-voltage pulse, thereby reducing the burden on the control gear when the product has reached the end of its lamp life. The low voltage of the ignition pulse ensures that less strain is placed upon the control gear in the event of a power surge, making these a control gear-friendly range of lamps. In the event of an arc tube or outer bulb leakage, the FEC ignitor cross-burns itself, thus terminating the ignition pulse; this in turn ensures no damage is done to the control gear.



Protected From the Inside

No need for cover glass

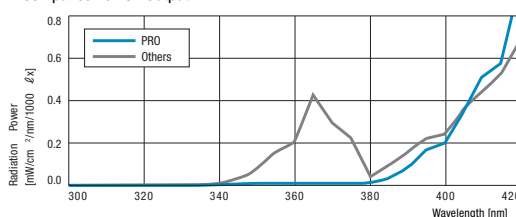
In the rare event of an arc tube rupture at the end of the product's lamp life, the protective shroud around the arc tube ensures that the damage is contained within, with no effect on the outer bulb.

UV Block Coating

Yes to Light, No to insects

With its UV block coating on the outer bulb, the UV output of the lamp is reduced by 90%, making this light source a far less inviting one for insects.

Comparison on UV Output



* CERA ARC EX T: 150W, FEC CERA ARC ACE EX T: 230W/375W, CERA ARC EX T: 230W/375W are also applicable.

Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Cera Arc™ EX (T) For use with High Pressure Sodium Control Gear (IEC 60662)

CMH	116240	50	Clear	Universal	CMT50/EX/U	80	0.76	5000	3500	75	18000	100	E27	1
	116345	70	Clear	Universal	CMT70/EX/U	85	0.98	7700	3500	75	18000	110	E27	1
	116355	70	Clear	Universal	CMT70/EX/U-I*	85	0.98	7700	3500	75	18000	110	E27	1
	116425	100	Clear	Universal	CMT100/EX/U	95	1.20	11500	3500	75	18000	115	E40	2
	116430	150	Clear	HOR±45°	CMT150/EX/HOR	100	1.80	17300	3500	75	24000	115	E40	(2)
	116435	250	Clear	HOR±45°	CMT250/EX/HOR	100	3.00	33000	3500	80	24000	132	E40	3

*With built-in FEC ignitor - external ignitor not required.

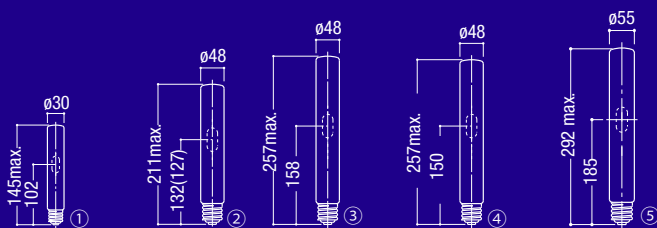
EYE Cera Arc™ EX (T) For use with Mercury Vapour Control Gear (IEC 60188) with designated ignitor

CMH	116550	230	Clear	HOR±45°	CMT220/EX/HOR	130	2.13	27700	3500	75	24000	120	E40	4
	116555	375	Clear	HOR±45°	CMT360/EX/HOR	135	3.25	45000	3500	75	24000	120	E40	5

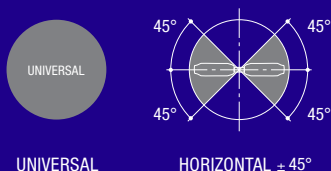
CMH = Ceramic Metal Halide Lamp.

Pictorial is representative only. Specifications may change without notice.

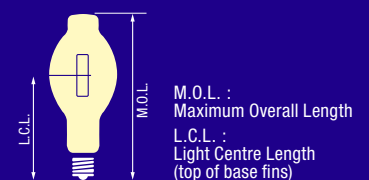
DIMENSIONS



BURNING POSITION



EXPLANATIONS



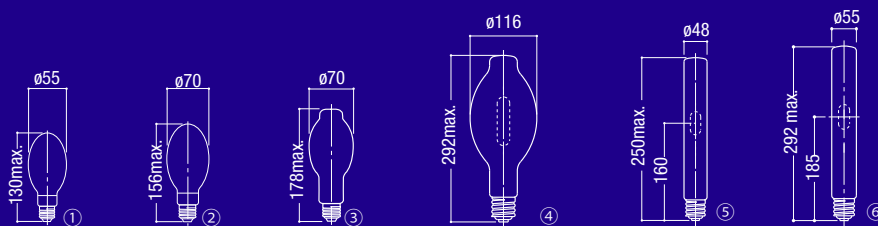
Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Cera Arc™ ACE EX (E, BT & T) For use with Mercury Vapour Control Gear (IEC 60188)

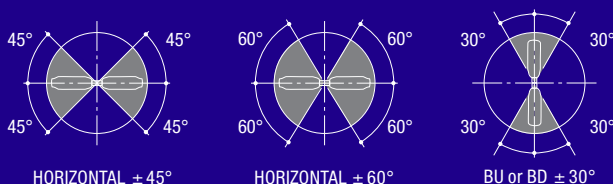
CMH	116495	45	Coated	HOR±60°	CM45FLS/EX/HOR	90	0.61	4100	3500	75	16000	91	E27	1
	116560	45	Coated	BU or BD ±30°	CM45FLS/EX/BUD	90	0.61	4100	3500	75	16000	91	E27	1
	116536	72	Coated	HOR±60°	CM70FLS/EX/HOR	105	0.80	7700	3500	75	20000	107	E27	2
	116565	72	Coated	BU or BD ±30°	CM70FLS/EX/BUD	105	0.80	7700	3500	75	20000	107	E27	2
	116570	115	Coated	HOR±45°	CM115FLS/EX/HOR	115	1.15	13800	3500	75	24000	120	E27	3
	116575	375	Coated	HOR±45°	CM360FLS/EX/HOR	135	3.25	43100	3500	75	24000	115	E40	4
	116540	230	Clear	HOR±45°	CMT220LS/EX/HOR	130	2.13	27700	3500	75	24000	120	E40	5
	116545	375	Clear	HOR±45°	CMT360LS/EX/HOR	135	3.25	45000	3500	75	24000	120	E40	6

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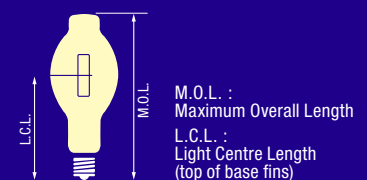
DIMENSIONS



BURNING POSITION



EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Cera Arc™ ACE PRO2 (BT) For use with Mercury Vapour Control Gear (IEC 60188)

CMH	116204	660	Clear	BU $\pm 15^\circ$	CM660LS/PRO2/BU	140	5.40	75000	4100	85	20000	113	E40	1
	116205	660	Coated	BU $\pm 15^\circ$	CM660FLS/PRO2/BU	140	5.40	71300	4100	85	20000	108	E40	1

EYE Cera Arc™ PRO (BT) For use with Mercury Vapour Control Gear (IEC 60188) with designated ignitor

CMH	116510	235	Clear	BU or BD $\pm 45^\circ$	CM230/PRO/BUD	130	2.13	27900	4100	80	24000	119	E40	2
	116505	375	Clear	BU or BD $\pm 45^\circ$	CM360/PRO/BUD	135	3.25	47000	4100	80	24000	125	E40	3
	116515	235	Coated	BU or BD $\pm 45^\circ$	CM230F/PRO/BUD	130	2.13	25900	4100	80	24000	110	E40	4
	116500	375	Coated	BU or BD $\pm 45^\circ$	CM360F/PRO/BUD	135	3.25	45300	4100	80	24000	121	E40	5

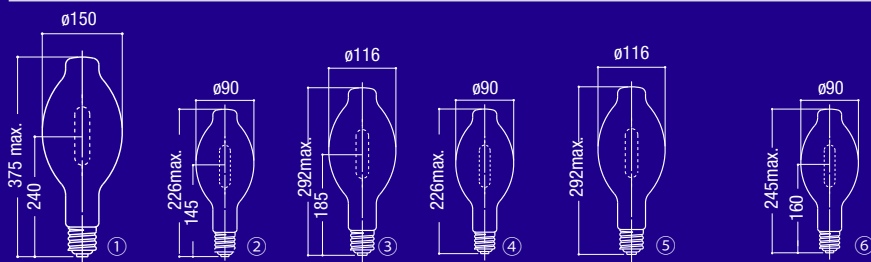
EYE Cera Arc™ ACE PRO (BT) For use with Mercury Vapour Control Gear (IEC 60188)

CMH	116520	235	Clear	BU or BD $\pm 45^\circ$	CM230LS/PRO/BUD	130	2.13	27900	4100	80	24000	119	E40	6
	116530	375	Clear	BU or BD $\pm 45^\circ$	CM360LS/PRO/BUD	135	3.25	47000	4100	80	24000	125	E40	3
	116525	235	Coated	BU or BD $\pm 45^\circ$	CM230FLS/PRO/BUD	130	2.13	25900	4100	80	24000	110	E40	6
	116535	375	Coated	BU or BD $\pm 45^\circ$	CM360FLS/PRO/BUD	135	3.25	45300	4100	80	24000	121	E40	5

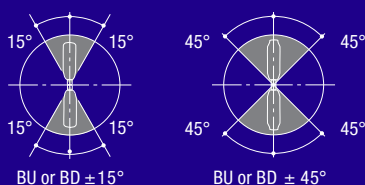
CMH = Ceramic Metal Halide Lamp.

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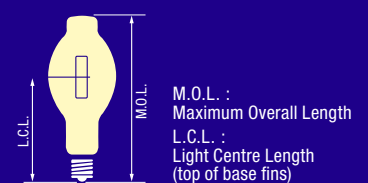
DIMENSIONS



BURNING POSITION



EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Cera Arc™ ACE PRO Reflector Lamp For use with Mercury Vapour Control Gear (IEC 60188)

CMH	116480	115	Clear	BU±60°	CMR115LS/PRO/BU	115	1.15	9000	4100	70	18000	78	E27	1
	116485	245	Clear	BU±60°	CMR230LS/PRO/BU	130	2.16	18500	4100	80	20000	76	E40	2
	116490	375	Clear	BU±60°	CMR360LS/PRO/BU	135	3.3	31500	4100	80	20000	84	E40	3

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Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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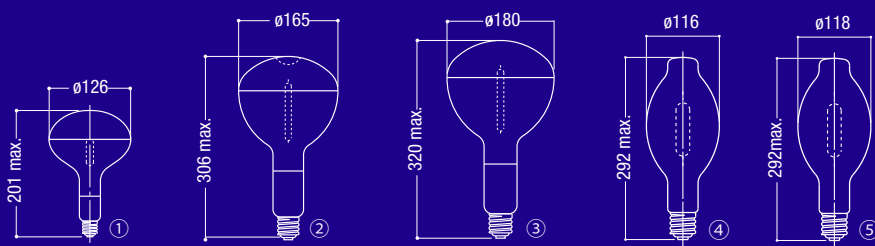
EYE Twin Cera Arc™ For use with High Pressure Sodium Control Gear (IEC 60662) with designated ignitor

CMH	116450	150	Coated	BU or BD ±45°	CM150FTW/W/BUD	95	1.90	15800	4100	70	50000	105	E40	4
	For use with Mercury Vapour Control Gear (IEC 60188) with designated ignitor													
	116460	230	Coated	BU or BD ±15°	CM230FTW/W/BUD	130	2.13	25900	4100	80	50000	110	E40	5

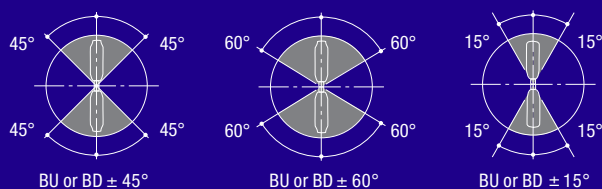
CMH = Ceramic Metal Halide Lamp.

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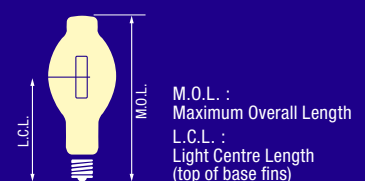
DIMENSIONS



BURNING POSITION



EXPLANATIONS



WARNINGS AND CAUTIONS: CERAMIC METAL HALIDE

IN GENERAL

1. This is an electric discharge lamp for use only on proper circuits and with proper auxiliary equipment, compatible with electrical specifications established by the local authorities and the lamp manufacturer - failure to comply with this may result in poor lamp performance and possible personal injury or property damage for which EYE Lighting shall not be held responsible.
2. Do not touch hot lamps and keep away from any flammable goods during operation or immediately after the power is turned OFF.
3. Do not scratch bulb or subject lamp to undue pressure. This could result in lamp breakage.
4. This lamp can cause serious skin burn and eye inflammation from short-wave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use in areas where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically turn off when the outer envelope is broken or punctured are commercially available.
5. When installing and replacing a lamp, power must be OFF to avoid possible electric shock hazards.
6. When the lamp has failed, replacement should be made as soon as possible after power is turned OFF.
7. When replacing a lamp, check the durability of the ballast, the wiring and the luminaire. If they have deteriorated, replace them with new ones immediately.
8. The lamp must have external protection against direct contact with water to minimise the possibility of glass bulb breakage.
9. The lamp should be firmly, but not forcibly, screwed into the socket.
10. Check the operating position of the lamps marked on the outer envelope. Lamps should be utilised in the correct operating position.
11. The lamp lumens will vary somewhat according to the operating position.
12. The lamp must have a suitable ballast. If it is connected directly without a ballast, the lamp will instantly fail.
13. For total supply load figures, add auxiliary watts to lamp watts.
14. Variation of line volts should be kept to within $\pm 6\%$ of the rated voltage of the ballast.
15. Do not use this lamp in a fixture designed for less than the rated lamp wattage.
16. These lamps normally exhibit some colour variation from lamp to lamp and a gradual change in colour throughout life. Operating conditions such as mounting and/or voltage variation can also effect the colour of these lamps.
17. When operating this lamp, the base temperature should not exceed 210°C (410°F) for E40 base and 190°C (374°F) for E27 base, the outer envelope should not exceed 400°C (752°F).
18. Do not use this lamp in a location subject to vibration or shock, unless an adequate vibration-proof fixture is used.
19. Do not use this lamp in a corrosive atmosphere, unless an adequate corrosion resistant-fixture is used.
20. The recommended ambient temperature limit for this lamp is -20°C (-4°F) minimum; 40°C (104°F) maximum.
21. This is a discharge lamp and requires a certain amount of time to restart and achieve full brightness after a power interruption.
22. Where lamps are to be operated continuously, they should be switched OFF and checked once a week for any abnormalities in order to prevent ballast damage or suitable protective measures should be taken to ensure that safety is maintained under this condition.
23. Replace the lamps at or before the end of rated life.

OPERATING INSTRUCTIONS

EYE CERA ARC™

1. EYE Cera Arc™ EX (T) operates on High Pressure Sodium Control Gear with designated ignitor.
2. EYE Cera Arc™ ACE EX (E, BT & T) operates on Mercury Vapour Control Gear.
3. EYE Cera Arc™ PRO (BT) operates on Mercury Vapour Control Gear with designated ignitor.
4. EYE Cera Arc™ ACE PRO (BT & Reflector) operates on Mercury Vapour Control Gear.
5. EYE Twin Cera Arc™ (150W) operates on High Pressure Sodium Control Gear with designated ignitor.
6. EYE Twin Cera Arc™ (230W) operates on Mercury Vapour Control Gear with designated ignitor.
7. For lamps with an integral ignitor the maximum wiring distances between the ballast and lamp should be limited to:
 - a) EYE Cera Arc™ EX - CMT70/EX/U-I: 1m
 - b) EYE Cera Arc™ ACE EX - 45W to 115W: 1m
 - c) EYE Cera Arc™ ACE EX - 220W to 360W: 50m
 - d) EYE Cera Arc™ ACE PRO - 115W to 360W: 50m
 - e) EYE Cera Arc™ ACE PRO2 - 660W: 50m.



METAL HALIDE



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Clean ACE - BT For use with Mercury Vapour Control Gear (IEC 60188)

MH	115395	250	Coated	Universal	MF250DL	130	2.13	14500	6500	90	10000	58	E40	1
	115400	400	Coated	Universal	MF400DL	135	3.25	24500	6500	90	12000	61	E40	2

EYE Clean ACE - Tubular For use with Mercury Vapour Control Gear (IEC 60188)

MH	115250	250	Clear	Universal	MT250DL	130	2.13	18200	6500	90	10000	58	E40	3
	115255	400	Clear	BU or BD $\pm 15^\circ$	MT400DL/BUD	135	3.25	32000	6500	90	12000	61	E40	4

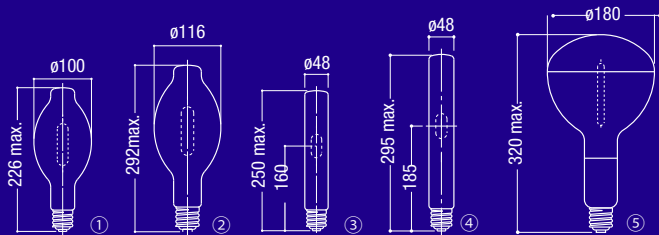
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EYE Clean ARC - Reflector For use with Mercury Vapour Control Gear (IEC 60188) with designated ignitor

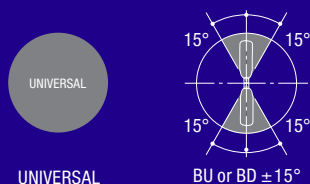
MH	115100	400	Clear	Universal	MRF400D	135	3.25	15000	6500	90	6000	37.5	E40	5
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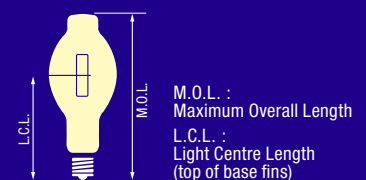
DIMENSIONS



BURNING POSITION



EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Multi Super ACE - BT Coated For use with Mercury Vapour Control Gear (IEC 60188)

MH	115330	250	Coated	Universal	MF250LSH/U	130	2.13	20000	4200	75	15000	80	E40	1
	115340	400	Coated	Universal	MF400LSH/U	135	3.25	38000	4200	75	15000	95	E40	2

EYE Multi Super ACE - BT Clear For use with Mercury Vapour Control Gear (IEC 60188)

MH	115300	250	Clear	Universal	M250LSH/U	130	2.13	21500	4500	70	15000	86	E40	3
	115305	400	Clear	Universal	M400LSH/U	135	3.25	40000	4500	70	15000	100	E40	4

EYE Multi Super Ace - BT (Teflon Coated) For use with Mercury Vapour Control Gear (IEC 60188)

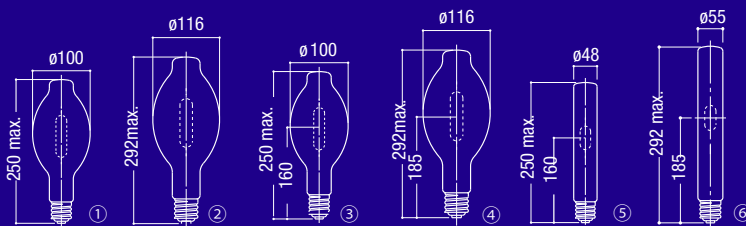
MH	115302	250	Clear	BU $\pm 15^\circ$	M250LSH/BUP	130	2.13	23800	4500	70	15000	95	E40	3
	115332	250	Coated	BU $\pm 15^\circ$	MF250LSH/BUP	130	2.13	22000	4200	75	15000	88	E40	1
	115307	400	Clear	BU $\pm 15^\circ$	M400LSH/BUP	135	3.25	44000	4500	70	15000	110	E40	4
	115342	400	Coated	BU $\pm 15^\circ$	MF400LSH/BUP	135	3.25	42000	4200	75	15000	105	E40	2

EYE Multi Super ACE - Tubular For use with Mercury Vapour Control Gear (IEC 60188)

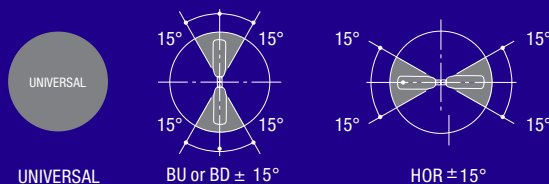
MH	115205	250	Clear	HOR $\pm 15^\circ$	MT250LSH/BH	130	2.13	19500	4500	70	15000	78	E40	5
	115215	400	Clear	HOR $\pm 15^\circ$	MT400LSH/BH	135	3.25	39000	4500	70	15000	97	E40	6

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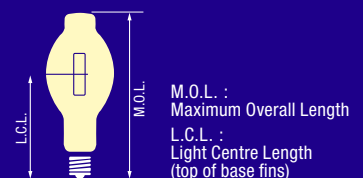
DIMENSIONS



BURNING POSITION



EXPLANATIONS



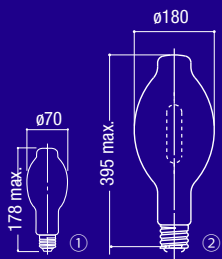
Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Multi Hi ACE - BT For use with Mercury Vapour Control Gear (IEC 60188)

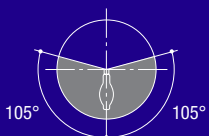
MH	115325	125	Coated	BUH $\pm 105^\circ$	MF125LE-BUH	125	1.15	8500	3800	70	9000	68	E27	1
	115315	1000	Clear	BUH $\pm 105^\circ$	M1000LE-BUH	145	7.50	90000	4200	65	9000	90	E40	2
	115350	1000	Coated	BUH $\pm 105^\circ$	MF1000LE-BUH	145	7.50	87000	3800	70	9000	87	E40	2

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DIMENSIONS

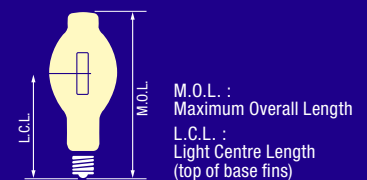


BURNING POSITION



BUH $\pm 105^\circ$ Base Up to Horizontal

EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Multi-Metal - BT (Teflon Coated) For use with Constant Wattage Metal Halide or Metal Halide Control Gear (IEC 61167)

MH	115047	250	Coated	BU $\pm 15^\circ$	MF250X/BUP	130	2.13	20000	3800	70	15000	80	E40	1
	115057	400	Coated	BU $\pm 15^\circ$	MF400X/BUP	135	3.25	36000	3800	70	15000	90	E40	2

EYE High Output Multi-Metal - BT For use with Metal Halide Control Gear (IEC 61167)

MH	115015	400	Clear	BU ±15°	M400SX/BU	135	3.25	42000	4200	65	20000	105	E40	6
	115050	400	Coated	BU ±15°	MF400SX/BU	135	3.25	40000	3800	70	20000	100	E40	2
	For use with Constant Wattage Metal Halide Control Gear (IEC 61167)													
	115025	1000	Clear	BU ±15°	M1000BSX/BU	263	4.10	120000	4200	65	9000	120	E40	4
	115065	1000	Coated	BU ±15°	MF1000BSX/BU	263	4.10	118000	3800	70	9000	118	E40	4

EYE Multi-Metal - BT Clear For use with Constant Wattage (CWA) & Metal Halide Control Gear (IEC 61167)

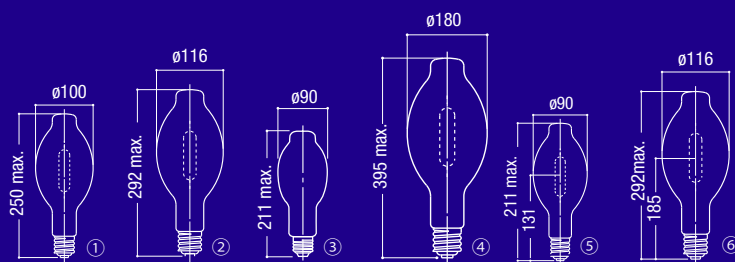
MH	115000	175	Clear	Universal	M175X/U	130	1.50	14000	4200	65	10000	80	E40	5
	115005	250	Clear	Universal	M250X/U	130	2.13	21000	4200	65	15000	84	E40	5
	115010	400	Clear	Universal	M400X/U	135	3.25	38000	4200	65	15000	95	E40	6
	115020	1000	Clear	Universal	M1000BX/U	263	4.10	115000	4200	65	9000	115	E40	4

EYE Multi-Metal - BT Coated For use with Constant Wattage Metal Halide Control Gear (IEC 61167)

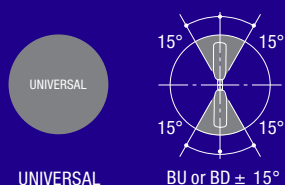
MH	115040	175	Coated	Universal	MF175X/U	130	1.50	13500	3800	70	10000	77	E40	3
	115045	250	Coated	Universal	MF250X/U	130	2.13	20000	3800	70	15000	80	E40	3
	115055	400	Coated	Universal	MF400X/U	135	3.25	36000	3800	70	15000	90	E40	2
	115060	1000	Coated	Universal	MF1000BX/U	263	4.10	110000	3800	70	9000	110	E40	4

Pictorial is representative only. Specifications may change without notice.

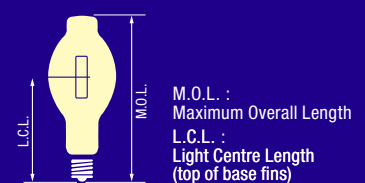
DIMENSIONS



BURNING POSITION



EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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EYE Multi-Metal - Tubular For use with Metal Halide Control Gear (IEC 61167)

MH	115200	250	Clear	HOR $\pm$ 60°	MT250-BH	130	2.13	18000	4200	65	10000	72	E40	1
	115210	400	Clear	HOR $\pm$ 60°	MT400-BH	135	3.25	32000	4200	65	10000	80	E40	2
	115235	1000	Clear	HOR $\pm$ 60°	MT1000A-BH/67	145	7.50	85000	4200	65	6000	85	E40	3

For use with Constant Wattage Metal Halide Control Gear (IEC 61167)

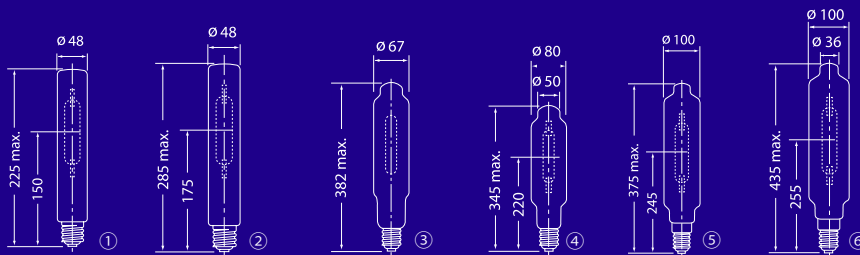
MH	115225	1000	Clear	HOR $\pm$ 60°	MT1000B-BH	230	4.70	115000	4200	65	9000	115	E40	4
	115230	1000	Clear	HOR $\pm$ 60°	MT1000B-BH-SRL	250	4.50	115000	4200	65	6000	115	E40	5

For use with Mercury Vapour Control Gear (IEC 60188)

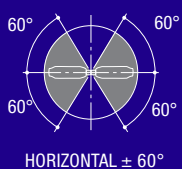
MH	115245	2000	Clear	HOR $\pm$ 60°	MT2000B-BH/L	230	9.20	220000	4200	65	9000	110	E40	6
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Pictorial is representative only. Specifications may change without notice.

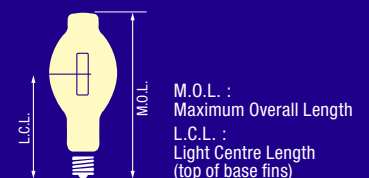
DIMENSIONS



BURNING POSITION



EXPLANATIONS



WARNINGS AND CAUTIONS: METAL HALIDE

IN GENERAL

1. This is an electric discharge lamp for use only on proper circuits and with proper auxiliary equipment, compatible with electrical specifications established by the local authorities and the lamp manufacturer - failure to comply with this may result in poor lamp performance and possible personal injury or property damage for which EYE Lighting shall not be held responsible.
2. Do not touch hot lamps and keep away from any flammable goods during operation or immediately after the power is turned OFF.
3. Do not scratch bulb or subject lamp to undue pressure. This could result in lamp breakage.
4. This lamp can cause serious skin burn and eye inflammation from short-wave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use in areas where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically turn off when the outer envelope is broken or punctured are commercially available.
5. When installing and replacing a lamp, power must be OFF to avoid possible electric shock hazards.
6. When the lamp has failed, replacement should be made as soon as possible after power is turned OFF.
7. When replacing a lamp, check the durability of the ballast, the wiring and the luminaire. If they have deteriorated, replace them with new ones immediately.
8. The lamp must have external protection against direct contact with water to minimise the possibility of glass bulb breakage.
9. The lamp should be firmly, but not forcibly, screwed into the socket.
10. Check the operating position of the lamps marked on the outer envelope. Lamps should be utilised in the correct operating position.
11. The lamp lumens will vary somewhat according to the operating position.
12. The lamp must have a suitable ballast. If it is connected directly without a ballast, the lamp will instantly fail.
13. For total supply load figures, add auxiliary watts to lamp watts.
14. Variation of line volts should be kept to within $\pm 6\%$ of the rated voltage of the ballast.
15. Do not use this lamp in a fixture designed for less than the rated lamp wattage.
16. These lamps normally exhibit some colour variation from lamp to lamp and a gradual change in colour throughout life. Operating conditions such as mounting and/or voltage variation can also effect the colour of these lamps.
17. When operating this lamp, the base temperature should not exceed 210°C (410°F) for E40 base and 190°C (374°F) for E27 base, the outer envelope should not exceed 400°C (752°F).
18. Do not use this lamp in a location subject to vibration or shock, unless an adequate vibration-proof fixture is used.
19. Do not use this lamp in a corrosive atmosphere, unless an adequate corrosion resistant-fixture is used.
20. The recommended ambient temperature limit for this lamp is -5°C (23°F) minimum; 40°C (104°F) maximum.
21. This is a discharge lamp and requires a certain amount of time to restart and achieve full brightness after a power interruption.
22. Where lamps are to be operated continuously, they should be switched OFF and checked once a week for any abnormalities in order to prevent ballast damage or suitable protective measures should be taken to ensure that safety is maintained under this condition.
23. Replace the lamps at or before the end of rated life.

OPERATING INSTRUCTIONS

EYE CLEAN ARC, EYE MULTI-METAL, EYE MULTI-METAL TUBULAR

1. When using this lamp the fixture must be enclosed. Enclosures must be made of suitable materials. Enclosures containing Metal Halide lamps must be capable of withstanding the discharge of hot quartz arc tube particles. EYE Lighting company has identified only tempered glass as a suitable lens or diffuser material. End users should contact the fixture manufacturer to determine if a suitable enclosure is available.
2. These lamps should be operated on appropriate ballast and ignitor for metal halide lamps.
3. MT1000B-D/BH, M1000B-D/BH should be operated on ANSI M47 ballast (CW, CWA) with specific capacitor.
4. EYE Multi-Metal Tubular 125W, 250W and 400W should be operated on ballast for mercury lamp and ignitor for metal halide lamps.
5. MT1000A-BH-L should be operated on ballast for 1000W mercury and ignitor for metal halide lamps.
6. MT2000B-BH-L: Use of external ignitor is recommended when ambient temperature is below -10°C. Otherwise, use with 8.8A reactor type ballast for 2000W metal halide without ignitor.

EYE MULTI SUPER ACE, EYE MULTI-HI-ACE, EYE CLEAN ACE

1. These lamps should be operated with reactor mercury ballasts. Never operate with the constant wattage type ballasts (CW or CWA).
2. When using this lamp the fixture must be enclosed unless using specially coated lamps designed for open fixtures. Enclosures must be made of suitable materials. Enclosures containing these lamps must be capable of withstanding the discharge of hot quartz arc tube particles. EYE Lighting has identified only tempered glass as a suitable lens or diffuser material. End users should contact the fixture manufacturer to determine if a suitable enclosure is available.
3. The wire length between the ballast and lamp should not be more than 50m (Maximum 25m for less than 125W).
4. The applied voltage at the lamp terminals should not exceed 265V as this may impair or damage the internal ignitor of the lamp (except for EYE Multi Super Ace).
5. For EYE Multi Super Ace, the recommended ambient temperature limit for the lamp is -20°C (-4°F) minimum; 40°C (104°F) maximum.



HIGH PRESSURE SODIUM



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Sunlux ACE - BT & Elliptical Clear For use with Mercury Vapour Control Gear (IEC 60188)

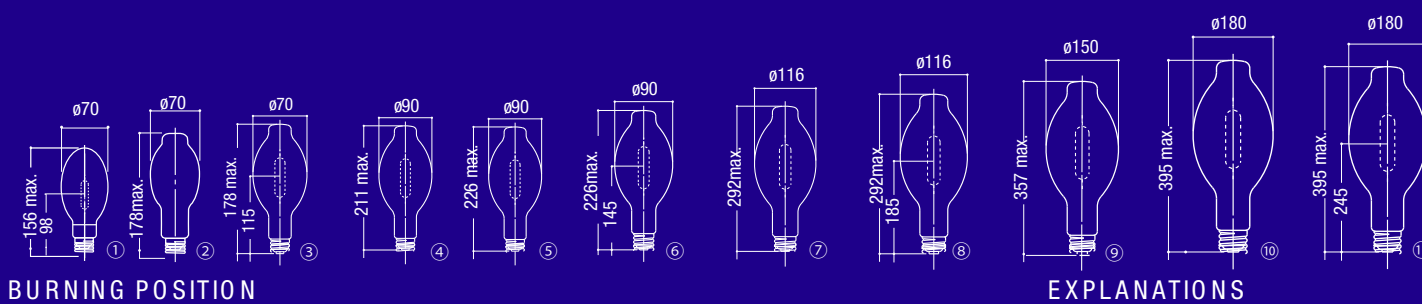
HPS	120230	75	Clear	Universal	NH75-LX/70S	115	0.80	6500	2100	25	20000	86	E27	1
	120235	115	Clear	Universal	NH110-LX	125	1.15	11600	2100	25	24000	100	E27	3
	120240	235	Clear	Universal	NH220-LX	130	2.13	28000	2100	25	24000	119	E40	6
	120245	375	Clear	Universal	NH360-LX	135	3.25	50000	2100	25	24000	133	E40	8
	120330	940	Clear	Universal	NH940-LX	145	7.50	138000	2100	25	24000	146	E40	11

Sunlux ACE - BT & Elliptical Coated For use with Mercury Vapour Control Gear (IEC 60188)

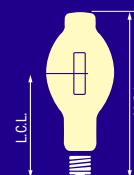
HPS	120335	75	Coated	Universal	NH75F-LX/70S	115	0.80	6200	2100	25	20000	82	E27	1
	120340	115	Coated	Universal	NH110F-LX	125	1.15	11000	2100	25	24000	95	E27	2
	120345	150	Coated	Universal	NH150F-LX	130	1.50	15000	2100	25	24000	100	E40	4
	120350	235	Coated	Universal	NH220F-LX	130	2.13	25500	2100	25	24000	108	E40	5
	120355	375	Coated	Universal	NH360F-LX	135	3.25	46000	2100	25	24000	122	E40	7
	120360	660	Coated	Universal	NH660F-LX	140	5.40	90000	2100	25	24000	136	E40	9
	120365	940	Coated	Universal	NH940F-LX	145	7.50	131000	2100	25	24000	139	E40	10

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS



UNIVERSAL



M.O.L. :
Maximum Overall Length
L.C.L. :
Light Centre Length
(top of base fins)

Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Sunlux ACE - Tubular For use with Mercury Vapour Control Gear (IEC 60188)

HPS	120450	235	Clear	Universal	NHT220-LX	130	2.13	28000	2100	25	24000	119	E40	1
	120455	375	Clear	Universal	NHT360-LX	135	3.25	50000	2100	25	24000	133	E40	2
	120460	940	Clear	Universal	NHT940-LX	145	7.50	138000	2100	25	24000	146	E40	3

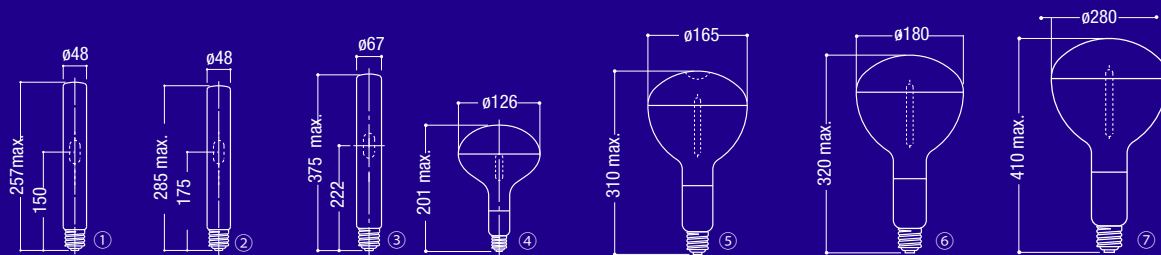
Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Max. Light (cd)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Base	Fig
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Sunlux ACE - Reflector For use with Mercury Vapour Control Gear (IEC 60188)

HPS	120400	75	Clear	Universal	NHR75-LX	115	0.80	0 - 67.5° 3700 0 - 90° 4400"	1120	2100	25	16000	E27	4
	120405	115	Clear	Universal	NHR110-LX	125	1.15	0 - 67.5° 6200 0 - 90° 7400"	1900	2100	25	24000	E27	4
	120410	235	Clear	Universal	NHR220-LX	130	2.13	0 - 67.5° 14000 0 - 90° 20000"	4500	2100	25	24000	E40	5
	120415	375	Clear	Universal	NHR360-LX	135	3.25	0 - 67.5° 25500 0 - 90° 34000"	7300	2100	25	24000	E40	6
	120420	660	Clear	Universal	NHR660-LX	140	5.40	0 - 67.5° 55600	16500	2100	25	24000	E40	7
	120425	940	Clear	Universal	NHR940-LX	145	7.50	0 - 67.5° 85000	25000	2100	25	24000	E40	7

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS

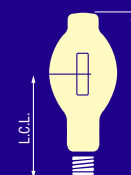


BURNING POSITION



UNIVERSAL

EXPLANATIONS



M.O.L. :
Maximum Overall Length
L.C.L. :
Light Centre Length
(top of base fins)

Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Ignitron - Elliptical For use with High Pressure Sodium Control Gear without ignitor (IEC 60662)

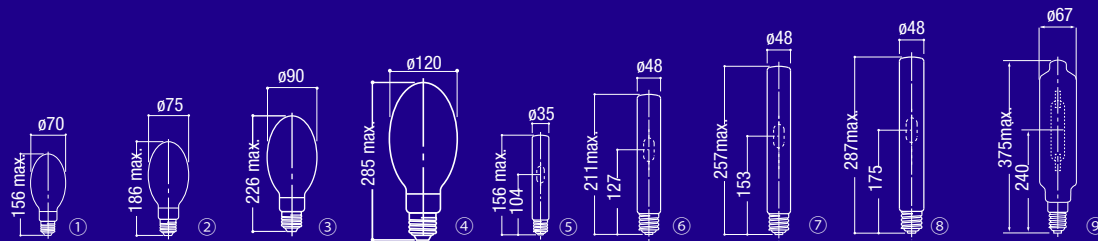
HPS	120550	50	Coated	Universal	NH50F/I	85	0.76	3800	2100	17	16000	76	E27	1
	120555	70	Coated	Universal	NH70F/I	90	0.98	5800	2100	17	16000	82	E27	1
	120570	100	Coated	Universal	NH100F/I	100	1.20	9500	2100	17	24000	95	E40	2
	120575	150	Coated	Universal	NH150F/I	100	1.80	14000	2100	17	24000	93	E40	3
	120580	250	Coated	Universal	NH250F/I	100	3.00	25800	2100	25	24000	103	E40	3
	120585	400	Coated	Universal	NH400F/I	105	4.45	47800	2100	25	24000	119	E40	4

Ignitron - Tubular For use with High Pressure Sodium Control Gear without ignitor (IEC 60662)

HPS	120505	70	Clear	Universal	NHT70/I	90	0.98	6000	2100	17	16000	85	E27	5
	120510	100	Clear	Universal	NHT100/I	100	1.20	10000	2100	17	24000	100	E40	6
	120515	150	Clear	Universal	NHT150/I	100	1.80	14500	2100	17	24000	96	E40	6
	120520	250	Clear	Universal	NHT250/I	100	3.00	27500	2100	25	24000	110	E40	7
	120525	400	Clear	Universal	NHT400/I	100	4.60	50000	2100	25	24000	125	E40	8
	120535	1000	Clear	Universal	NHT1000/I	100	10.60	133000	2100	25	24000	133	E40	9

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS

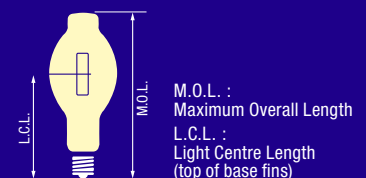


BURNING POSITION



UNIVERSAL

EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Sunlux - BT & Elliptical Clear For use with High Pressure Sodium Control Gear (IEC 60662)

HPS	-	400	Clear	Universal	NH400	105	4.45	50000	2100	25	24000	125	E40	3
	120020	1000	Clear	Universal	NH1000	110	10.30	133000	2100	25	24000	133	E40	4

Sunlux - BT & Elliptical Coated For use with High Pressure Sodium Control Gear (IEC 60662)

HPS	120050	70	Coated	Universal	NH70F/HV/70S	90	0.98	5800	2100	17	16000	82	E27	1
	120060	150	Coated	Universal	NH150F	100	1.80	14000	2100	25	24000	93	E40	2
	120065	250	Coated	Universal	NH250F	100	3.00	25800	2100	25	24000	103	E40	2
	120070	400	Coated	Universal	NH400F	105	4.45	47800	2100	25	24000	119	E40	3
	120075	1000	Coated	Universal	NH1000F	110	10.30	125000	2100	25	24000	125	E40	4

Sunlux - Tubular For use with High Pressure Sodium Control Gear (IEC 60662)

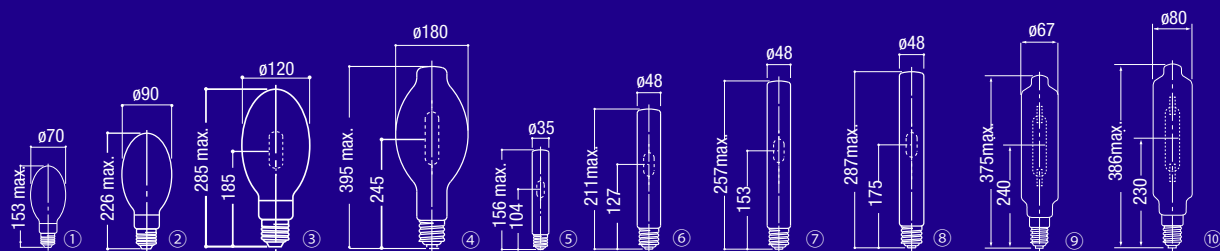
HPS	120150	70	Clear	Universal	NHT70	90	0.98	6000	2100	17	16000	85	E27	5
	120155	100	Clear	Universal	NHT100	100	1.20	10000	2100	17	24000	100	E40	6
	120160	150	Clear	Universal	NHT150	100	1.80	14500	2100	25	24000	96	E40	6
	120165	250	Clear	Universal	NHT250	100	3.00	27500	2100	25	24000	110	E40	7
	120170	400	Clear	Universal	NHT400	100	4.60	50000	2100	25	24000	125	E40	8
	120175	1000	Clear	Universal	NHT1000	100	10.6	133000	2100	25	24000	133	E40	9

Sunlux B lamp for use with Constant Wattage High Pressure Sodium Control Gear (IEC 60662)

HPS	120180	1000	Clear	Universal	NHT1000B	250	4.7	140000	2100	25	24000	140	E40	10
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Pictorial is representative only. Specifications may change without notice.

DIMENSIONS

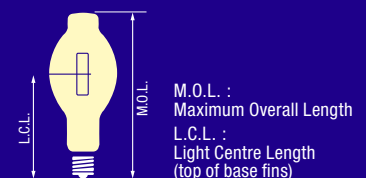


BURNING POSITION



UNIVERSAL

EXPLANATIONS



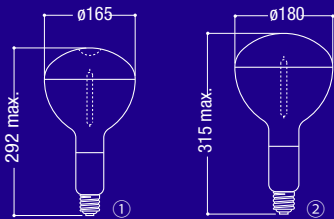
Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Max. Light (cd)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Base	Fig
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Sunlux - Reflector For use with High Pressure Sodium Control Gear (IEC 60662)

HPS	120150	100	Clear	Universal	NHR150	100	1.80	0 - 65° 8500 0 - 90° 9700	2200	2100	25	24000	E40	1
	120155	250	Clear	Universal	NHR250	100	3.00	0 - 65° 17400 0 - 90° 19800	5500	2100	25	24000	E40	1
	120160	400	Clear	Universal	NHR400	105	4.45	0 - 65° 29800 0 - 90° 33600	8600	2100	25	24000	E40	2

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS

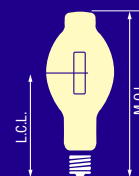


BURNING POSITION



UNIVERSAL

EXPLANATIONS



M.O.L. :
Maximum Overall Length
L.C.L. :
Light Centre Length
(top of base fins)

WARNINGS AND CAUTIONS: HIGH PRESSURE SODIUM

IN GENERAL

Apply for:

EYE Sunlux Ace
EYE Improved Colour Rendering Sunlux Ace
EYE Sunlux
EYE Ignitron

1. The lamp must have a suitable ballast, if it is connected directly to a power supply without a ballast, the lamp will instantly fail. This is an electric discharge lamp for use only with proper auxiliary equipment, compatible with electrical specifications (e.g. rated lamps watts, supply volts and frequency, etc) established by local authorities and the lamp manufacturer. Failure to comply with this may result in poor lamp performance and possible personal injury or property damage for which EYE Lighting will not be held responsible.
2. Do not touch hot lamps and keep away from any flammable goods during operation or immediately after the power is turned OFF.
3. Do not scratch bulb or subject lamp to undue pressure. This could result in lamp breakage.
4. When installing and replacing a lamp, power must be turned OFF to avoid possible electric shock hazards.
5. When the lamp has failed, replacement should be made as soon as possible after power is turned OFF.
6. When replacing a lamp, check the durability of the ballast, the wiring and the luminaire. If they have deteriorated, replace them with new ones immediately.
7. The lamp must have external protection against direct contact with water to minimise the possibility of glass bulb breakage with the exception of reflector type ones, unless otherwise noted.
8. This lamp is suitable for operation in any position.
9. For total supply load figures, add auxiliary watts to lamp watts.
10. When operating this lamp, the base temperature should not exceed 210°C (410°F) for E40 base and 190°C (374°F) for E27 base, the outer envelope should not exceed 400°C (752°F).
Do not use this lamp in a fixture designed for less than the rated lamp wattage.
11. Do not use this lamp in a location subject to vibration or shock, unless an adequate vibration-proof fixture is used.
12. Do not use this lamp in a corrosive atmosphere, unless an adequate corrosion resistant fixture is used.
13. The recommended ambient temperature range for this lamp is -60°C (76°F) minimum; 50°C (122°F) maximum.
14. This is a discharge lamp and requires a certain time to restart and achieve full brightness after a power interruption.
15. Where lamps are to be operated continuously, they should be switched OFF and checked once a week for any abnormalities in order to prevent ballast damage or suitable protective measures should be taken to ensure that safety is maintained under this condition.
16. At the end of lamp life a number of lamps will exhibit a rectifying effect and the higher current will flow in the circuit. In order to prevent circuit damage, suitable protective measures should be taken to ensure safety is maintained.
17. Do not turn OFF within 1 minute after lamp starting in order to avoid re-start problems.

OPERATING INSTRUCTIONS

EYE SUNLUX ACE, EYE SUNLUX ACE IMPROVED COLOUR RENDERING.

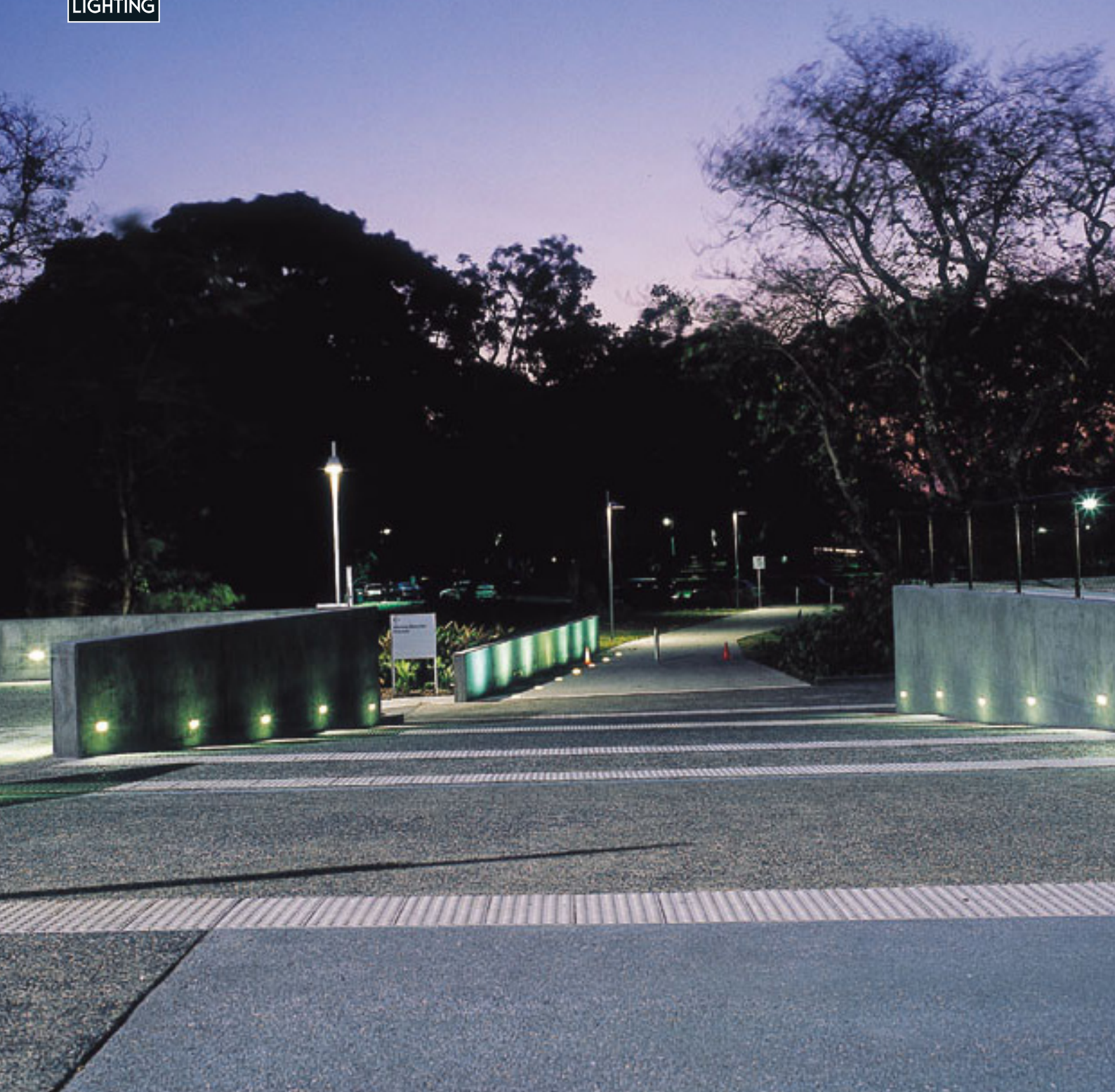
1. EYE Sunlux Ace lamps should be operated on reactor type or autotransformer type ballasts for mercury lamps (IEC 60188 M.V.L. Ballast) which have an open circuit voltage below 265V.
2. The supply voltage should be kept to within $\pm 6\%$ of the rated supply voltage of the ballast.
3. The maximum wiring distances between the ballast and the lamp should be limited to:
 - a) 50W and 75W: 1m.
 - b) 110W: 15m.
 - c) 220W and 360W: 25m.
 - d) 660W and 940W: 50W.
because of the reduction of pulse voltage.
4. Replace the lamp after the expiration of the rated life. Some lamps may continue to operate after their rated average life, however the lamps that are used after the rated average life do not perform as per specification.

EYE IGNITRON

1. EYE Ignitron should be operated on ballast for standard high pressure sodium (IEC 60662) without ignitor.'

EYE SUNLUX

1. EYE Sunlux lamps should be operated on a ballast for standard high pressure sodium (IEC 60662) lamps.



MERCURY VAPOUR



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Mercury Vapour - BT & Elliptical For use with Mercury Vapour Control Gear (IEC 60188)

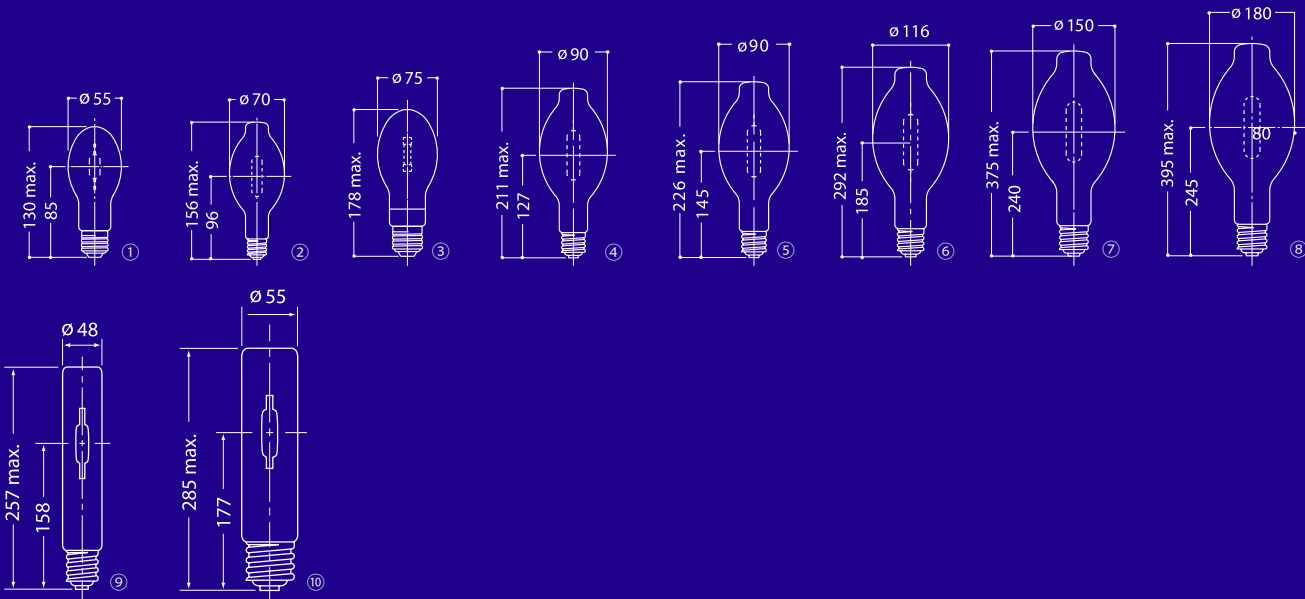
MV	110200	50	Coated	Universal	HF50PD	95	0.61	1900	4100	40	8000	38	E27	1
	110205	80	Coated	Universal	HF80PD	115	0.80	3600	4100	40	16000	45	E27	2
	110210	100	Coated	Universal	HF100PD	115	1.00	4500	4100	40	24000	45	E27	3
	110215	125	Coated	Universal	HF125PD	125	1.15	6250	4100	40	24000	50	E27	3
	110220	175	Coated	Universal	HF175PD	130	1.50	8900	4100	40	24000	50	E40	4
	110225	250	Coated	Universal	HF250PD	130	2.13	13700	4100	40	24000	54	E40	5
	110230	400	Coated	Universal	HF400PD	135	3.25	24000	4100	40	24000	60	E40	6
	110235	700	Coated	Universal	HF700PD	140	5.4	44000	4100	40	24000	62	E40	7
	110240	1000	Coated	Universal	HF1000PD	145	7.5	64000	4100	40	16000	64	E40	8
	Mercury Vapour "B" lamp for use with 415V control gear													
110245	1000	Coated	Universal	HF1000B-PD	265	4.00	64000	4100	40	24000	64	E40	8	

Mercury Vapour - Tubular For use with Mercury Vapour Control Gear (IEC 60188)

MV	110500	250	Clear	Universal	HT250	130	2.13	11500	5700	25	16000	46	E40	9
	110505	400	Clear	Universal	HT400	135	3.25	21000	5700	25	16000	52	E40	10

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS

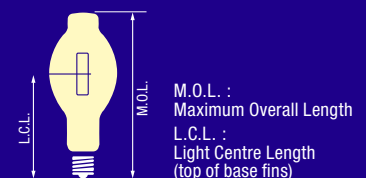


BURNING POSITION



UNIVERSAL

EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Max. Light (cd)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Base	Fig
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Mercury Vapour - Reflector For use with Mercury Vapour Control Gear (IEC 60188)

MV	110300	100	Clear	Universal	HRF100PD	115	1.00	0 - 65° 2800 0-90° 3300	800	4100	40	24000	E27	1
	110305	125	Clear	Universal	HRF125PD	125	1.15	0 - 65° 3700 0-90° 4300	1200	4100	40	24000	E27	1
	110310	250	Clear	Universal	HRF250PD	130	2.13	0 - 65° 7800 0-90° 8800	2500	4100	40	24000	E40	2
	110315	400	Clear	Universal	HRF400PD	135	3.25	0 - 65° 14000 0-90° 15500	4000	4100	40	24000	E40	3
	110320	700	Clear	Universal	HRF700PD	140	5.40	0 - 65° 27000 0-90° 31000	8500	4100	40	24000	E40	4
	110325	1000	Clear	Universal	HRF1000PD	145	7.50	0 - 65° 38000 0-90° 46000	11000	4100	40	16000	E40	4

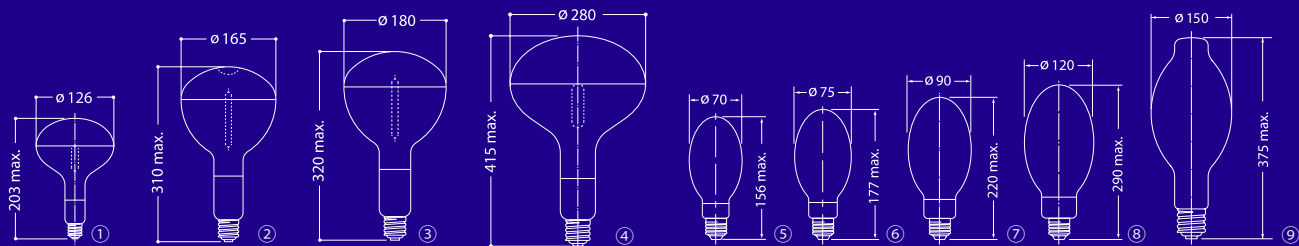
Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Self-Ballasted Mercury Vapour - BT & Elliptical Operates from mains voltage - for indoor use only

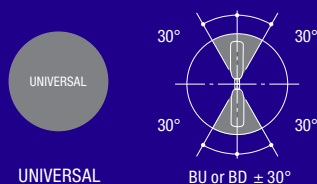
SB MV	110100	100	Coated	BUD ±30°	BHF100	240	0.45	1100	3900	58	6000	11	E27	5
	110105	160	Coated	Universal	BHF160	240	0.73	3000	3900	58	8000	18	E27	6
	110115	250	Coated	Universal	BHF250 (E27)	240	1.10	5700	3900	58	12000	22	E27	7
	110125	250	Coated	Universal	BHF250 (E40)	240	1.10	5700	3900	58	12000	22	E40	7
	110130	500	Coated	Universal	BHF500	240	2.20	14000	3900	58	16000	28	E40	8
	110135	750	Coated	Universal	BHF750	240	3.30	22000	3900	58	16000	29	E40	9

Pictorial is representative only. Specifications may change without notice.

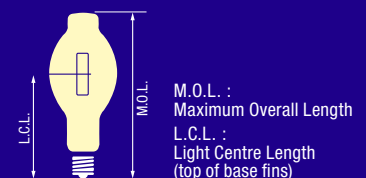
DIMENSIONS



BURNING POSITION



EXPLANATIONS



Code	Watts (W)	Finish	Burning Position	Product Description	Lamp Voltage (V)	Lamp Current (A)	Beam Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Base	Fig
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Self-Ballasted Mercury Vapour Reflector Operates from mains voltage - for indoor use only

SB MV	110000	160	Coated	Universal	BHR160 RSP38	240	0.73	1680	3900	58	10000 **	10.5	E27	1
	110005	250	Coated	Universal	BHR250 E27 R44	240	1.28	3900	3900	58	12000 *	15.6	E27	2
	110010	250	Coated	Universal	BHR250 E40 R44	240	1.28	3900	3900	58	12000 *	15.6	E40	2
	110035	500	Coated	Universal	BHR500 R57 110V	110	2.20	9100	3900	58	16000 **	18.2	E40	3
	110015	500	Coated	Universal	BHR500 R57	240	2.20	9100	3900	58	16000 **	18.2	E40	3
	110020	750	Coated	Universal	BHR750 R57	240	3.30	14000	3900	58	16000 ***	18.6	E40	3
	110025	750	Coated	Universal	BHR750 R60	240	3.30	14000	3900	58	16000 **	18.6	E40	4
	110030	1000	Coated	Universal	BHR1000 R88	240	4.8	20000	3900	58	16000 **	20	E40	5

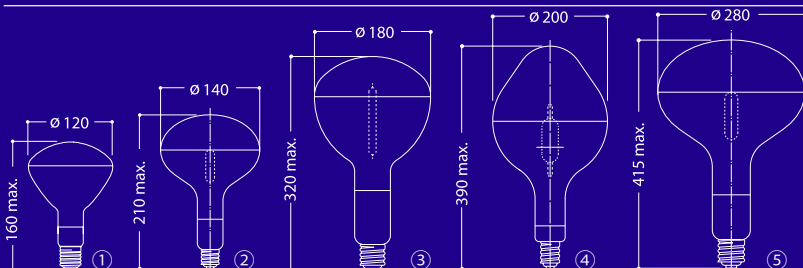
* = Indoor or Outdoor use. If outdoors, base down operation lamp should be protected by a fully enclosed fixture which is adequately ventilated. Base up operation lamp can be used in an open fixture 40° below horizontal.

** = Indoor and Outdoor use with suitable lamp holder.

*** = Indoor use only.

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS



BURNING POSITION



UNIVERSAL

EXPLANATIONS



WARNINGS AND CAUTIONS: MERCURY VAPOUR

IN GENERAL

1. The high pressure mercury lamp must have a suitable ballast. If it is connected directly to a power supply without a ballast, the lamp will instantly fail. This is an electric discharge lamp for use only with a proper auxiliary equipment, compatible with electrical specifications (e.g. rated lamp watts, supply volts and frequency, etc) established by local authorities and the lamp manufacturer. Failure to comply with this may result in poor lamp performance and possible personal injury or property damage for which EYE Lighting will not be held responsible.
2. Do not touch hot lamps with fingers or skin, and keep away any flammable goods during the operation or immediately after the power is turned OFF.
3. Do not scratch bulb or subject lamp to undue pressure which could result in lamp breakage.
4. The lamp can cause serious skin burn and eye inflammation from short-wave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.
5. When installing and replacing a lamp, power must be turned OFF to avoid possible electric shock hazards. The lamp should be firmly but not forcibly screwed into the socket.
6. When the lamp has failed, replacement should be made as soon as possible after power is turned OFF.
7. When replacing a lamp, check the durability of the ballast, the wiring and the luminaire. If they have deteriorated, replace with new ones immediately.
8. The lamp must have external protection against direct contact with water to minimise the possibility of glass bulb breakage, unless otherwise noted, with the exception of reflector type ones.
9. The high pressure mercury lamp is suitable for operation in any position.
10. For total supply load figures add auxiliary watts to lamp watts.
11. Variation of line volts should be kept to within the permissible range of voltage variation of the ballasts. For the EYE Self-ballasted Mercury lamps, variation of AC line volts should be kept to within $\pm 5\%$ of the rated voltage of the lamps. There is a chance the Self-Ballasted lamp will extinguish when the line voltage drops suddenly to less than 95% of the rated voltage.
12. When operating the hard glass bulb lamp, the base temperature should not exceed 210°C (410°F), and the outer envelope should not exceed 400°C (752°F). When operating the soft glass bulb lamp, the base temperature should not exceed 190°C (374°F), and the outer envelope should not exceed 250°C (482°F).
13. Do not use this lamp in a location subject to vibration or shock, unless an adequate vibration-proof fixture is used.
14. Do not use this lamp in corrosive atmospheres, unless an adequate corrosion resistant fixture is used.
15. The recommended ambient temperature limit for this lamp is -5°C (23°F) minimum; 50°C (122°F) maximum.
16. This is a discharge lamp and requires a certain time to restart and achieve full brightness, after a power interruption.

OPERATING INSTRUCTIONS

SELF BALLASTED MERCURY VAPOUR

1. These lamps feature a built-in ballast filament so that it may be connected directly to the power source without the use of a ballast.



LED DIRECT REPLACEMENT



PROFESSIONAL LED Direct Replacement Range

Perfect Fit - Mechanical and Thermal

Perfect Fit - Mechanical and Thermal

Mechanically (shape and size) exactly the same as the lamp they replace (MR16, PAR and Bulb types).
Thermal compatibility with existing sockets and fixtures.

Perfect Fit - Electrical

Perfect Fit - Electrical

100% compatible with the electrical input power characteristics

Perfect Fit - Optics

Perfect Fit - Optics

Delivers the same or better lighting effect (beam shape, intensity, colour point, colour rendering) as the original light source being replaced.
Perceived equal or better light quality.

EMC Compliant

EMC Compliant

Guaranteed trouble free - reliable operation
Product complies within all limits set out in AS/NZS CISPR 15:2011

PROFESSIONAL LED

DIRECT REPLACEMENT RANGE

LED MR16 | LED PAR | LED Bulb

Catering for both the domestic and commercial market, the EYELITE range focuses on exceptional product design incorporating advanced thermal management (to keep the lamp cool during operation) and latest LED chip technology from LED manufacturer 'Cree'.

Impressive Features

Life up to 35,000 hours

CRI >80

Improved lumen performance:

EYELITE's 7W LED MR16 lamp offers 450 lumens compared to many other market products.

A variety of base types enables easier direct replacement of phased out technologies – incandescent, halogen and PAR lamps.

Generally dimmable, check with supplier for exact match.



EG70 - EYELITE ZERO MINIMUM LOAD ELECTRONIC TRANSFORMER

For use with EYELITE professional direct replacement LED lamps



Class II



EG70

EG70 - EYELITE Zero minimum load electronic transformer

An electronic transformer for 12V LED and Halogen lamps or any other type of low loading lamp requiring 12V AC supply.

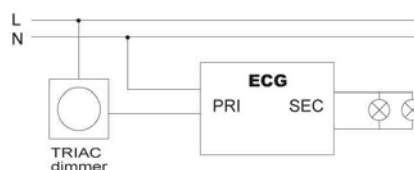
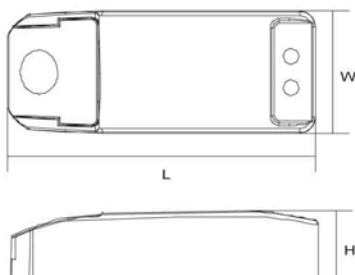
Product Features

- 1 Captured terminal screws
- 2 High efficiency (95%)
- 3 Safe no-load operation
- 4 Overload & short circuit protection with self resetting
- 5 Over temperature cut off
- 6 Dimmable with leading edge or trailing edge dimmer
- 7 Thermally stable and shatter-proof plastic casings
- 8 Long converter life of 50,000 hours
- 9 Simple installation



Specifications

Specification	EG70 (0 – 70W)
Product Code	L466100
Primary Voltage Range (V)	220 – 240
Frequency (Hz)	50/60
Input Current (A)	0.29
Secondary Voltage (V)	11.5
Lamp Wattage (W)	0 – 70
Efficiency (%)	>95
Power Factor	>0.99
Input Capacitance (nF)	100
Ambient Temperature (ta °C)	50
Max. Case Temperature (tc °C)	80
Dimming	Leading and Trailing edge
Dimensions (L x W x H mm)	113 x 44 x 28
Weight (g)	110
Primary Terminal	2-pole, screw terminal, Ø5.2mm
Secondary Terminal	2-pole, screw terminal, Ø3.2mm



Code	Watts (W)	Product Description	Lamp Voltage (V)	Beam Angle (°)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Dims (mm)	Base
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Professional LED MR16 Lamps (Cree LED) Operates on 10-60VA electronic transformer or 12V DC LED driver

LED	L460490	7	7W LED Platinum	12 (AC/DC)	32	410	2700	>80	35000	>59	50 x Ø48.5	GU5.3
	L460500	7	7W LED Platinum	12 (AC/DC)	32	450	3000	>80	35000	>64	50 x Ø48.5	GU5.3
	L460510	7	7W LED Platinum	12 (AC/DC)	32	470	4000	>80	35000	>67	50 x Ø48.5	GU5.3
	L460590	7	7W LED Platinum	12 (AC/DC)	54	380	2700	>80	35000	>54	50 x Ø48.5	GU5.3
	L460600	7	7W LED Platinum	12 (AC/DC)	54	390	3000	>80	35000	>56	50 x Ø48.5	GU5.3

Generally dimmable, check with supplier for exact match.

Professional LED MR16 Lamps (Cree LED) Operates on 220-240V

LED	L461290	7	7W LED Platinum	220-240 (AC)	32	370	2700	>80	35000	>53	58 x Ø49.5	GU10
	L461300	7	7W LED Platinum	220-240 (AC)	32	400	3000	>80	35000	>57	58 x Ø49.5	GU10
	L461310	7	7W LED Platinum	220-240 (AC)	32	410	4000	>80	35000	>59	58 x Ø49.5	GU10
	L461390	7	7W LED Platinum	220-240 (AC)	54	350	2700	>80	35000	>50	58 x Ø49.5	GU10
	L461400	7	7W LED Platinum	220-240 (AC)	54	370	3000	>80	35000	>53	58 x Ø49.5	GU10

Generally dimmable, check with supplier for exact match.

EMC Compliant - product complies within all limits set out in AS/NZS CISPR 15:2011.

Pictorial is representative only. Specifications may change without notice.

DIMENSIONS



GU5.3



GU10

Code	Watts (W)	Product Description	Lamp Voltage (V)	Beam Angle (°)	Initial Lumens (lm)	Colour Temp. (K)	Colour Rendering (Ra)	Life (hrs)	Efficacy (lm/W)	Dims (mm)	Base
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Professional LED PAR Lamps (Cree LED) Operates on 220-240V

LED	L462100	8	8W LED PAR16	220-240 (AC)	25	330	3000	>80	35000	>44	82 x Ø50	GU10
	L462500	8	8W LED PAR20	220-240 (AC)	35	330	2700	>80	35000	>41	94 x Ø60	E27
	L462800	20	20W LED PAR38	220-240 (AC)	22	1200	3000	>80	35000	>60	119.5 x Ø128.5	E27

Generally dimmable check with supplier for exact match.

Professional LED Bulb (Cree LED) Operates on 220-240V

LED	L464100	8	8W LED Non-CTA	220-240 (AC)	130	350	3000	>80	35000	>44	119 x Ø62	E27
	L464140	8	8W LED Non-CTA	220-240 (AC)	130	350	3000	>80	35000	>44	119 x Ø62	B22
	L464600	8	8W LED CTA	220-240 (AC)	130	330	2850	>80	35000	>41	119 x Ø62	E27
	L464640	8	8W LED CTA	220-240 (AC)	130	330	2850	>80	35000	>41	119 x Ø62	B22
	L464200	10	10W LED Non-CTA	220-240 (AC)	130	480	3000	>80	35000	>48	119 x Ø62	E27
	L464400	10	10W LED Non-CTA	220-240 (AC)	130	480	3000	>80	35000	>48	119 x Ø62	B22

Generally dimmable check with supplier for exact match.

Professional LED Candlelight Bulb (Cree LED) Operates on 220-240V

LED	L465100	4	4W LED Acriche	220-240 (AC)	180	90	2850	>80	25000	>23	110 x Ø41	E14
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Generally dimmable check with supplier for exact match

Professional LED AR-111 Reflector Lamp (Cree LED) Operates on 220-240V

LED	L463100	15	15W AR-111 LED Reflector Lamp	12 (AC)	25	750	3000	>80	35000	>50	60.5 x Ø111	G5 3
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EMC Compliant - product complies within all limits set out in AS/NZS CISPR 15:2011.

Pictorial is representative only. Specifications may change without notice.

WARNINGS AND CAUTIONS: LED DIRECT REPLACEMENT

IN GENERAL

LED LIGHT SOURCE CONSIDERATIONS

1. If you have decided to keep an existing light fixture and simply upgrade to an LED light source there are a number of LED direct replacement options to consider – LED MR16 lamps, LED PAR lamps and LED Bulbs.
2. LED 12V MR16 lamps with a GU5.3 base have been developed specifically as a direct replacement to Halogen 12V MR16 lamps (GU5.3 base). The only draw-back to this direct replacement option is that halogen lamps operate from external transformers which are sometimes incompatible with LED MR16 lamps.
3. The most common form of transformer designed to run halogen lamps is the electronic transformer which is rated at 60 watts. When combined with an LED lamp instead of a halogen lamp the transformer may occasionally fail to operate as the wattage from the LED lamp is too low to register.
4. It will become immediately obvious if the existing transformer is incompatible with the LED 12V MR16 light source as a constant flicker will become apparent. By upgrading to a DC Constant Voltage LED specific driver you will be able to experience maximum efficiencies of the LED lamp, save additional power through the driver itself and run the lamp at a cooler temperature.
5. To avoid upgrading to an LED driver there is one alternative which exists. LED 12V MR16 lamps which are sold with a rectifier will convert AC to DC allowing the LEDs to perform at their normal capacity. Labelled with the code '12V AC/DC' these LED lamps can operate on iron cores and a few electronic transformers.
6. LED PAR lamps act as a direct replacement for existing halogen and incandescent PAR lamps. The LED lamp can screw directly into the current socket used for the previous lamp. Featuring all the same benefits of older PAR lamps but achieving greater efficiencies and longer life resulting in fewer replacements.
7. LED Bulb lamps are a direct replacement for all existing incandescent, ball and mini krypton lamps. Simply remove the existing lamp and screw in the LED Bulb lamp.
8. The wide angle distribution LED Bulb has a similar light distribution angle to that of an incandescent lamp and is therefore recommended for usage in living room downlighting. On the other hand, the narrow angle distribution LED Bulb is most appropriate for hallway downlighting, lighting of toilets bathrooms and for highlighting pictures/ paintings.

LED WARNINGS AND CAUTIONS

1. Confirm the size and weight of the LED replacement lamp against the lamp being replaced.
2. Ensure the existing socket attachment position for downlights is a match to the light distribution of the replacement LED lamp. Failure to check the downlight position may result in the light beam being cut-off in the fixture and therefore not producing the required illumination level.
3. When installing an LED lamp in a luminaire with a dimmer or a closed cover check the compatibility of the particular LED lamp.
4. LED Bulbs cannot be used in outdoor luminaires.
5. Confirm the appropriate ambient temperature that the LED light source can operate within.



COMPACT FLUORESCENT



Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base	Base Type
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2-PIN & 4-PIN "PL-S" - Shape Type Triphosphor - Twin Tube

CFL	S380000	7	CFL-7W-TT2P/827/G23 STD	400	2700	Incand.	80	10000	136	G23	2 Pin
	S380155	9	CFL-9W-TT2P/827/G23 STD	600	2700	Incand.	80	10000	166	G23	2 Pin
	S380310	11	CFL-11W-TT2P/827/G23 STD	900	2700	Incand.	80	10000	234	G23	2 Pin
	S380325	11	CFL-11W-TT2P/841/G23 STD	870	4100	Cool White	80	10000	234	G23	2 Pin
	S381665	7	CFL-7W-TT4P/827/2G7 STD	400	2700	Incand.	80	8000	118	2G7	4 Pin
	S381780	11	CFL-11W-TT4P/827/2G7 STD	900	2700	Incand.	80	8000	220	2G7	4 Pin
	S381800	11	CFL-11W-TT4P/841/2G7 STD	900	4100	Cool White	80	8000	220	2G7	4 Pin

4-PIN "PL-L" - Shape Type Triphosphor - Twin Tube

CFL	S382055	18	CFL-18W-TT4P/830/2G11 STD	1200	3000	Warm White	80	10000	222	2G11	4 Pin
	S382065	18	CFL-18W-TT4P/841/2G11 STD	1200	4100	Cool White	80	10000	222	2G11	4 Pin
	S382180	24	CFL-24W-TT4P/841/2G11 STD	1750	4100	Cool White	80	10000	319	2G11	4 Pin
	S382445	36	CFL-36W-TT4P/841/2G11 STD	2700	4100	Cool White	80	10000	418	2G11	4 Pin
	S382550	40	CFL-40W-TT4P/830/2G11 STD	3300	3000	Warm White	80	10000	530	2G11	4 Pin
	S382560	40	CFL-40W-TT4P/841/2G11 STD	3300	4100	Cool White	80	10000	530	2G11	4 Pin
	S382675	55	CFL-55W-TT4P/841/2G11 STD	4600	4100	Cool White	80	10000	530	2G11	4 Pin

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



PL-S 2-Pin



PL-S 4-Pin



PL-L 4-Pin

Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base	Base Type
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2-PIN & 4-PIN "PL-C" - Shape Type Triphosphor - Double Twin Tube

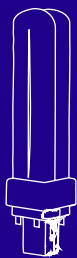
CFL	S384615	10	CFL-10W-DTT2P/827/G24d-1 STD	600	2700	Incand.	80	10000	119	G24d-1	2 Pin
	S384730	13	CFL-13W-DTT2P/827/G24d-1 STD	900	2700	Incand.	80	10000	134	G24d-1	2 Pin
	S384745	13	CFL-13W-DTT2P/841/G24d-1 STD	900	4100	Cool White	80	10000	134	G24d-1	2 Pin
	S384845	18	CFL-18W-DTT2P/827/G24d-2 STD	1200	2700	Incand.	80	10000	153	G24d-2	2 Pin
	S384860	18	CFL-18W-DTT2P/841/G24d-2 STD	1200	4100	Cool White	80	10000	153	G24d-2	2 Pin
	S384975	26	CFL-26W-DTT2P/841/G24d-3 STD	1800	4100	Cool White	80	10000	173	G24d-3	2 Pin
	S385310	13	CFL-13W-DTT4P/830/G24q-1 STD	900	3000	Warm White	80	10000	134	G24q-1	4 Pin
	S385320	13	CFL-13W-DTT4P/841/G24q-1 STD	900	4100	Cool White	80	10000	134	G24q-1	4 Pin
	S385425	18	CFL-18W-DTT4P/830/G24q-2 STD	1200	3000	Warm White	80	10000	153	G24q-2	4 Pin
	S385435	18	CFL-18W-DTT4P/841/G24q-2 STD	1200	4100	Cool White	80	10000	153	G24q-2	4 Pin
	S385540	26	CFL-26W-DTT4P/830/G24q-3 STD	1800	3000	Warm White	80	10000	173	G24q-3	4 Pin
	S385550	26	CFL-26W-DTT4P/841/G24q-3 STD	1800	4100	Cool White	80	10000	173	G24q-3	4 Pin

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



PL-C 2-Pin

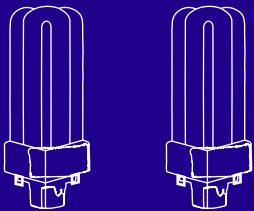


PL-C 4-Pin

Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base	Base Type
2-PIN & 4-PIN “PL-T” - Shape Type Triphosphor - Triple Twin Tube										
S386700	18	CFL-18W-TTT2P/827/GX24d-2 STD	1200	2700	Incand.	80	10000	98	GX24d-2	2 Pin
S386715	18	CFL-18W-TTT2P/841/GX24d-2 STD	1200	4100	Cool White	80	10000	98	GX24d-2	2 Pin
S386830	26	CFL-26W-TTT2P/841/GX24d-3 STD	1800	4100	Cool White	80	10000	123	GX24d-3	2 Pin
S387540	18	CFL-18W-TTT4P/830/GX24q-2 STD	1200	3000	Warm White	80	10000	117	GX24q-2	4 Pin
S387550	18	CFL-18W-TTT4P/841/GX24q-2 STD	1200	4100	Cool White	80	10000	117	GX24q-2	4 Pin
S387700	26	CFL-26W-TTT4P/841/GX24q-3 STD	1800	4100	Cool White	80	10000	127	GX24q-3	4 Pin
S387815	32	CFL-32W-TTT4P/841/GX24q-3 STD	2400	4100	Cool White	80	10000	143	GX24q-3	4 Pin
S387930	42	CFL-42W-TTT4P/841/GX24q-4 STD	3100	4100	Cool White	80	10000	159	GX24q-4	4 Pin

Pictorial is representative only. Specifications may change without notice.

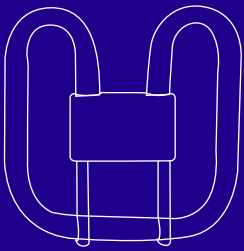
ILLUSTRATIONS



Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base	Base Type
2-PIN & 4-PIN 2D - Square Type Triphosphor										
S390140	16	CFL-16W-2D2P/827/GR8 STD	1000	2700	Incand.	80	8000	140	GR8	2 Pin
S390280	28	CFL-28W-2D2P/827/GR8 STD	1800	2700	Incand.	80	8000	205	GR8	2 Pin
S390700	16	CFL-16W-2D4P/827/GR10q STD	1000	2700	Incand.	80	8000	140	GR10q	4 Pin
S390840	28	CFL-28W-2D4P/827/GR10q STD	1800	2700	Incand.	80	8000	205	GR10q	4 Pin
S390980	38	CFL-38W-2D4P/827/GR10q STD	2500	2700	Incand.	80	8000	205	GR10q	4 Pin

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



2D 2-Pin & 4-Pin

USING COMPACT FLUORESCENT LAMPS

IN GENERAL

TYPES OF CFLS

1. Pin-type CFLs are the same as the 'Energy Savers' with the bayonet and screw bases but they do not have an internal ballast, therefore must be matched with the correct fitting. Select them by the wattage and base type to ensure a correct replacement match.

ENERGY SAVING

2. The energy efficiency of CFLs means that they will be used more extensively as incandescent and halogen lamps are phased-out.

COLOUR TEMPERATURE

3. An additional feature that they offer is availability in a variety of colour temperatures. As they are used adjacent to other light sources or if CFL fixtures are retrofitted, the issue of colour matching will become important. A colour temperature of 827 is good where incandescent lamps have been used; while a "Warm White" (830) matches halogen lamps more closely. In office situations where other fluorescent lamps are used, a "Cool White" (841) may be best.



FLUORESCENT



Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base
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T5 High Efficiency Triphosphor

T5-LF	S425000	14	LF-14W-T5/830/HE/G5-16/549 STD	1200 (at 25°C) 1350 (at 35°C)	3000	Warm White	>80	20000	559	G5
	S425010	14	LF-14W-T5/840/HE/G5-16/549 STD	1200 (at 25°C) 1350 (at 35°C)	4000	Cool White	>80	20000	559	G5
	S425455	28	LF-28W-T5/830/HE/G5-16/1149 STD	2600 (at 25°C) 2900 (at 35°C)	3000	Warm White	>80	20000	1168	G5
	S425465	28	LF-28W-T5/840/HE/G5-16/1149 STD	2600 (at 25°C) 2900 (at 35°C)	4000	Cool White	>80	20000	1168	G5
	S425470	28	LF-28W-T5/865/HE/G5-16/1149 STD	2600 (at 25°C) 2900 (at 35°C)	6500	Daylight	>80	20000	1168	G5

T5 High Output Triphosphor

T5-LF	S425280	24	LF-24W-T5/830/HO/G5-16/549 STD	1750 (at 25°C) 2000 (at 35°C)	3000	Warm White	>80	20000	559	G5
	S425290	24	LF-24W-T5/840/HO/G5-16/549 STD	1750 (at 25°C) 2000 (at 35°C)	4000	Cool White	>80	20000	559	G5
	S425980	54	LF-54W-T5/830/HO/G5-16/1149 STD	4450 (at 25°C) 5000 (at 35°C)	3000	Warm White	>80	20000	1168	G5
	S425990	54	LF-54W-T5/840/HO/G5-16/1149 STD	4450 (at 25°C) 5000 (at 35°C)	4000	Cool White	>80	20000	1168	G5
	S435995	54	LF-54W-T5/865/HO/G5-16/1149 STD	4450 (at 25°C) 5000 (at 35°C)	6500	Daylight	>80	20000	1168	G5

LF = Linear Fluorescent.

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



T5 Linear Fluorescent

Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L (mm)	Base
T8 Triphosphor									
S430405	18	LF-18W-T8/827/G13-26/590 STD	1350	2700	Incand.	>80	20000	610	G13
S430140	18	LF-18W-T8/830/G13-26/590 STD	1350	3000	Warm White	>80	20000	610	G13
S430415	18	LF-18W-T8/835/G13-26/590 STD	1350	3500	White	>80	20000	610	G13
S430420	18	LF-18W-T8/840/G13-26/590 STD	1350	4000	Cool White	>80	20000	610	G13
S430820	36	LF-36W-T8/827/G13-26/1200 STD	3350	2700	Incand.	>80	20000	1220	G13
S430825	36	LF-36W-T8/830/G13-26/1200 STD	3350	3000	Warm White	>80	20000	1220	G13
S430830	36	LF-36W-T8/835/G13-26/1200 STD	3350	3500	White	>80	20000	1220	G13
S430835	36	LF-36W-T8/840/G13-26/1200 STD	3350	4000	Cool White	>80	20000	1220	G13
S430845	36	LF-36W-T8/860/G13-26/1200 STD	3250	6000	Daylight	>80	20000	1220	G13

LF = Linear Fluorescent.

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



T8 Linear Fluorescent

Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base
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T8 Special Enhanced Colour Rendering and Food Presentation Fluorescent Lamps

T8-LF SPECIAL	S430440	18	LF-18W-T8/940/G13-26/590 STD	1200	4000	Cool White (Quad-Phosphor)	>90	20000	610	G13
	S430450	18	LF-18W-T8/76/G13-26/590 STD	750	-	Food Display (DIN10504)	N/A	20000	610	G13
	S430855	36	LF-36W-T8/940/G13-26/1200 STD	2900	4000	Cool White (Quad-Phosphor)	>90	20000	1220	G13
	S430865	36	LF-36W-T8/76/G13-26/1200 STD	1800	-	Food Display (DIN10504)	N/A	20000	1220	G13

LF = Linear Fluorescent.

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS

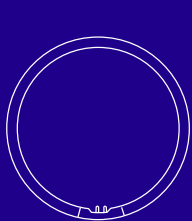


T8 Linear Fluorescent

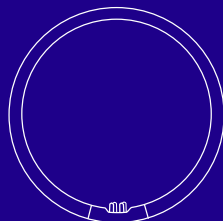
Code	Watts (W)	Product Description	Initial Lumens (lm)	Colour Temp. (K)	Colour Effect	Colour Rendering (Ra)	Life (hrs)	M.O.L. (mm)	Base
T5 Circular Triphosphor									
T5-CIRC	S450155	22	CF-22W-CIRCT5/830/G10q STD	1500	3000	Warm White	>80	8000	188 G10q
	S450160	22	CF-22W-CIRCT5/841/G10q STD	1500	4000	Cool White	>80	8000	188 G10q
	S450165	22	CF-22W-CIRCT5/865/G10q STD	1500	6500	Daylight	>80	8000	188 G10q
	S450330	32	CF-32W-CIRCT5/830/G10q STD	2250	3000	Warm White	>80	8000	248 G10q
	S450340	32	CF-32W-CIRCT5/841/G10q STD	2250	4000	Cool White	>80	8000	248 G10q
	S450365	32	CF-32W-CIRCT5/865/G10q STD	2250	6500	Daylight	>80	8000	248 G10q
	S450505	40	CF-40W-CIRCT5/830/G10q STD	2800	3000	Warm White	>80	8000	300 G10q
	S450515	40	CF-40W-CIRCT5/841/G10q STD	2800	4000	Cool White	>80	8000	300 G10q
	S450525	40	CF-40W-CIRCT5/865/G10q STD	2800	6500	Daylight	>80	8000	300 G10q
T9 Circular Triphosphor									
T9-CIRC	S455920	22	CF-22W-CIRCT9/830/G10q STD	1300	3000	Warm White	>80	8000	215 G10q
	S456095	32	CF-32W-CIRCT9/830/G10q STD	2510	3000	Warm White	>80	8000	300 G10q
	S456100	32	CF-32W-CIRCT9/841/G10q STD	2510	4100	Cool White	>80	8000	300 G10q
	S456270	40	CF-40W-CIRCT9/830/G10q STD	3270	3000	Warm White	>80	8000	395 G10q
	S456280	40	CF-40W-CIRCT9/841/G10q STD	3270	4100	Cool White	>80	8000	395 G10q

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



T5 Circular Fluorescent



T9 Circular Fluorescent

USING LINEAR & CIRCULAR FLUORESCENT LAMPS

LINEAR FLUORESCENT LAMPS

HE & HO T5 LAMPS

1. T5 lamps come in both HE (High Efficiency) and HO (High Output) versions. This means that there are at least two different lamps of the same length available which work with different electronic ballasts. Mixing up or wrongly fitting lamps can lead to a drastic reduction in life span! Always check the length and wattage to achieve a correct match.

COLOUR TEMPERATURE

2. While a variety of colour temperatures and special colours are available, the market tends to focus on Warm White (830) and Cool White (840) for simplicity. A colour that matches the warmer glow of incandescent lamps is available (827) as is a more neutral white colour (835). Also, higher colour rendering lamps are available (940) for situations where correct colour reproduction is important.

LUMEN MAINTENANCE AND LUMEN DEPRECIATION

3. Over time, the light output of a fluorescent lamp fades - however, it may still use the same amount of power. This is called "lumen depreciation". Many older/lower specification lamp designs have a very high rate of lumen depreciation. This brightness difference can become readily apparent if a lamp is replaced next to an older lamp (eg, in a twin or triple fixture). A periodic re-lamping program is recommended to ensure adequate lighting levels rather than waiting for lamps to fail.

CIRCULAR FLUORESCENT LAMPS

TRI-PHOSPHOR TYPES

1. Different phosphor coating specifications have been used in the market. Tri-Phosphor types are preferred over Halo-Phosphor versions because of improved colour rendering and increased light output.

COLOUR TEMPERATURE

2. A colour temperature of Warm White (830) is often a good match for residential and other situations where incandescent and halogen lighting is used (or has been used). The Warm White light will render colours in the decor in a similar way. Cooler "daylight" colours (eg, 850 or 865) may appear too blue and may change the colour of clothes, objects and the general decor in unexpected ways.

LUMEN MAINTENANCE AND LUMEN DEPRECIATION

3. Over time, the light output of a fluorescent lamp fades - however, it still may use the same amount of power. This is called "lumen depreciation". A periodic re-lamping program is recommended to ensure adequate lighting levels rather than waiting for lamps to fail.

CORRECT MATCH WITH LUMINAIRE

4. Always ensure that the correct tube type, wattage and base type are matched to the light fixture's requirements when making a replacement. Note that T5 lamps must be used with approved electronic ballasts.



TUNGSTEN HALOGEN



Code	Watts (W)	Burning Position	Product Description	Lamp Voltage (V)	Initial Lumens (lm)	Colour Temp. (K)	Life (hrs)	M.O.L. (mm)	Filament	Base
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Tungsten Halogen 'J' Lamps Operates on mains voltage

TH-LINEAR	105000	100	HOR $\pm 5^\circ$	J100S (SHORT)	240 - 250	1350	2750	2000	80.3	CC-8	R7s
	105010	150	HOR $\pm 5^\circ$	J150S (SHORT)	240 - 250	2100	2800	2000	80.3	CC-8	R7s
	105005	150	HOR $\pm 5^\circ$	J150	240 - 250	2100	2800	2000	118.6	CC-8	R7s
	105015	200	HOR $\pm 5^\circ$	J200	240 - 250	3200	2800	2000	118.6	C-8	R7s
	105020	250	HOR $\pm 5^\circ$	J250	240 - 250	4000	2800	2000	118.6	C-8	R7s
	105025	300	HOR $\pm 5^\circ$	J300	240 - 250	5000	2850	2000	118.6	C-8	R7s
	105030	500	Universal	J500	110 - 120	10000	3000	2000	118.6	C-8	R7s
	105035	500	HOR $\pm 5^\circ$	J500/6	240 - 250	9500	2900	2000	118.6	C-8	R7s
	105040	750	HOR $\pm 5^\circ$	J750	240 - 250	15000	3000	2000	190.1	C-8	R7s
	105045	1000	Universal	J1000	240 - 250	21000	3000	2000	190.1	C-8	R7s
	105050	1000	Universal	J1000L (LONG)	240 - 250	21000	3000	2000	255.1	C-8	R7s
	105055	1500	Universal	J1500	240 - 250	33000	3000	2000	255.1	C-8	R7s
	105060	2000	HOR $\pm 5^\circ$	J2000	240 - 250	44000	3000	2000	333.5	C-8	R7s
	105065	2000	HOR $\pm 5^\circ$	J2000 (Fa4)	240 - 250	44000	3000	2000	334.4	C-8	R7s

TH - Tungsten Halogen.

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



Double Ended Tungsten Halogen

Code	Watts (W)	Burning Position	Product Description	Lamp Voltage (V)	Initial Lumens (lm)	Colour Temp. (K)	Life (hrs)	M.O.L. (mm)	Filament	Base
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Double Jacketed Tubular Type Operates on mains voltage

TH	105070	500	HOR $\pm 15^\circ$	JT500	240 - 250	10000	3000	2000	215	CC-8	E40
	105075	1000	HOR $\pm 15^\circ$	JT1000	240 - 250	24000	3000	2000	255	C-8	E40

Single Ended Tubular Type Operates on mains voltage

TH	105400	100	Universal	JD100 (E11 - M2)	240 - 250	1400	2850	1500	80	CC-13	E11
	105410	100	Universal	JD100 (E14 - M6)	240 - 250	1400	2850	1500	80	CC-13	E14
	105420	150	Universal	JD150 (E11 - M2)	240 - 250	2250	2900	1500	80	CC-13	E11
	105425	150	Universal	JD150 (E14 - M6)	240 - 250	2250	2900	1500	80	CC-13	E14
	105435	250	Universal	JD250 (E11 - M2)	240 - 250	4500	2900	2000	81	CC-8	E11
	105440	250	Universal	JD250 (E14 - M6)	240 - 250	4500	2900	2000	81	CC-8	E14
	105460	500	Universal	JD500 (E11 - M5)	240 - 250	9500	2950	2000	95	CC-8	E11

*TH - Tungsten Halogen.

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



JT 500



JT1000



JD 100 - JD150



JD250 - JD500

WARNINGS AND CAUTIONS: TUNGSTEN HALOGEN

IN GENERAL

TUNGSTEN HALOGEN

1. Protect lamp against abrasions and scratches and against contact with liquids when the lamp is operating.
2. Use only in luminaires designed for the proper operation of halogen lamps with approved safety standards on electrical and thermal operation. Luminaires must also offer protection in case the lamp shatters during operation.
3. Use only in sockets and housings designed to withstand the lamp's high operating temperatures.
4. Do not operate in close proximity to people, combustible materials or substances that are flammable or adversely affected by heat or drying. Do not touch or look at the lamp during operation to avoid risk of burning or other injury.
5. Do not cause any shock to the lamp or luminaire when the lamp is operating because mechanical shocks can cause the lamp shatter or fail.
6. Lamps are suitable for operation in any position except where specified differently.
7. Tungsten Halogen lamps become very hot when operating. Care should be taken to allow the lamp to cool before removing.
8. Dispose of lamp with care at end of operating life.
9. A slight change in voltage may cause deterioration in lamp life. Rated lamp life represents average operating life under controlled operating conditions.



INCANDESCENT



Code	Watts (W)	Product Description	Finish	Lamp Voltage (V)	Life (hrs)	M.O.L. (mm)	Shape	Base Type	Base
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Pilot Types - SES, ES & BC Operates on mains voltage

INCAND.	S195000	15	I-15W-T22PILOT/CL/2M/240V/E14 STD	Clear	240	2000	49	T22 Pilot	Brass	E14
	S195005	15	I-15W-T22PILOT/CL/2M/240V/B15d STD	Clear	240	2000	52	T22 Pilot	Brass	B15d
	S195045	15	I-15W-T26PILOT/CL/2M/240V/B22d STD	Clear	240	2000	52	T26 Pilot	Brass	B22d
	S195050	15	I-15W-T29PILOT/CL/2M/240V/E27 STD	Clear	240	2000	57	T29 Pilot	Brass	E27
	S195060	15	I-15W-T22PILOT/FR/2M/240V/E14 STD	Frosted	240	2000	49	T22 Pilot	Brass	E14

Oven Types 300°C Rated - SES & ES Operates on mains voltage

INCAND.	S199000	15	I-15W-T22OVEN/CL/2M/240V/E14 STD	Oven Rated - Clear	240	2000	49	T22 Oven	Brass	E14
	S199350	25	I-25W-T29OVEN/CL/2M/240V/E27 STD	Oven Rated - Clear	240	2000	57	T29 Oven	Brass	E27

Infrared Heat Lamp Types - R-40 ES Shape Operates on mains voltage

INCAND.	S203095	275	I-275W-R125/INFRARED/CL/5M/240V/E27 STD	Clear Front Lens	240	5000	185	R-125 Reflector	Nickel Plated	E27
	S203125	375	I-375W-R125/INFRARED/CL/5M/240V/E27 STD	Clear Front Lens	240	5000	185	R-125 Reflector	Nickel Plated	E27

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS



E14 Base



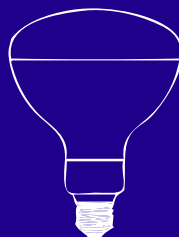
B15d Base



B22d Base



E27 Base



Infrared Heat Lamps

Pilot and Oven Lamps

Code	Watts (W)	Product Description	Finish	Lamp Voltage (V)	Life (hrs)	M.O.L. (mm)	Shape	Base Type	Base	
Candle Types - SES, ES, SBC & BC Operates on mains voltage										
INCAND.	S210000	25	I-25W-B35/CL/2M/240V/E14 STD	Clear	240	2000	104	B35 - Candle	Brass	E14
	S210005	25	I-25W-B35/CL/2M/240V/B15d STD	Clear	240	2000	102	B35 - Candle	Brass	B15d
	S210010	25	I-25W-B35/CL/2M/240V/B22d STD	Clear	240	2000	96	B35 - Candle	Brass	B22d
	S210015	25	I-25W-B35/CL/2M/240V/E27 STD	Clear	240	2000	98	B35 - Candle	Brass	E27
	S210020	25	I-25W-B35/FR/2M/240V/E14 STD	Frosted	240	2000	104	B35 - Candle	Brass	E14
	S210025	25	I-25W-B35/FR/2M/240V/B15d STD	Frosted	240	2000	102	B35 - Candle	Brass	B15d
	S210030	25	I-25W-B35/FR/2M/240V/B22d STD	Frosted	240	2000	96	B35 - Candle	Brass	B22d
	S210035	25	I-25W-B35/FR/2M/240V/E27 STD	Frosted	240	2000	98	B35 - Candle	Brass	E27

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS

Candle Type Lamps



E14 Base



B15d Base



B22d Base



E27 Base

Code	Watts (W)	Product Description	Finish	Lamp Voltage (V)	Life (hrs)	M.O.L. (mm)	Shape	Base Type	Base
Fancy Round Types - SES, ES, SBC & BC Operates on mains voltage									
S212765	25	I-25W-P45/CL/2M/240V/E14 STD	Clear	240	2000	82	P-45 Fancy Round	Brass	E14
S212770	25	I-25W-P45/CL/2M/240V/B15d STD	Clear	240	2000	77	P-45 Fancy Round	Brass	B15d
S212775	25	I-25W-P45/CL/2M/240V/B22d STD	Clear	240	2000	73	P-45 Fancy Round	Brass	B22d
S212780	25	I-25W-P45/CL/2M/240V/E27 STD	Clear	240	2000	73	P-45 Fancy Round	Brass	E27
S212785	25	I-25W-P45/FR/2M/240V/E14 STD	Frosted	240	2000	82	P-45 Fancy Round	Brass	E14
S212790	25	I-25W-P45/FR/2M/240V/B15d STD	Frosted	240	2000	77	P-45 Fancy Round	Brass	B15d
S212795	25	I-25W-P45/FR/2M/240V/B22d STD	Frosted	240	2000	73	P-45 Fancy Round	Brass	B22d
S212800	25	I-25W-P45/FR/2M/240V/E27 STD	Frosted	240	2000	73	P-45 Fancy Round	Brass	E27
S212805	25	I-25W-P45/WH/2M/240V/E14 STD	White	240	2000	82	P-45 Fancy Round	Brass	E14

Pictorial is representative only. Specifications may change without notice.

ILLUSTRATIONS

Fancy Round Lamps



E14 Base



B15d Base



B22d Base



E27 Base