HPS Elite Lamps

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HPS Elite Lamps

High Pressure Sodium Lamps with improved reliability

HPS Elite Lamp - Tubular Clear
50W, 70W, 100W, 150W, 250W, 400W & 600W

HPS Elite Lamp - Elliptical Diffused
50W, 70W, 70W IG, 100W, 150W, 250W, 400W

Product Information

HPS Elite High Pressure Sodium lamps offer outstanding luminous efficacy, lumen maintenance and long life, thus reducing energy and maintenance costs.

Features

HPS Elite Lamps have been designed to be very robust and rugged construction for use in the most demanding requirements.

Simplicity and robustness deliver higher reliability. In addition, they are compatible with both magnetic an electronic ballasts.

Superb performance and longer life

Xenon-fill sodium resistant ceramic arc tubes maintain slow voltage rise over lamp lifetime of up to 45,000Hrs.

Rugged monolithic arc tube with integrated starting aid for higher reliability.

Applications

Road and Tunnel

Industrial

Specialty

Street and Pedestrian

Car Park

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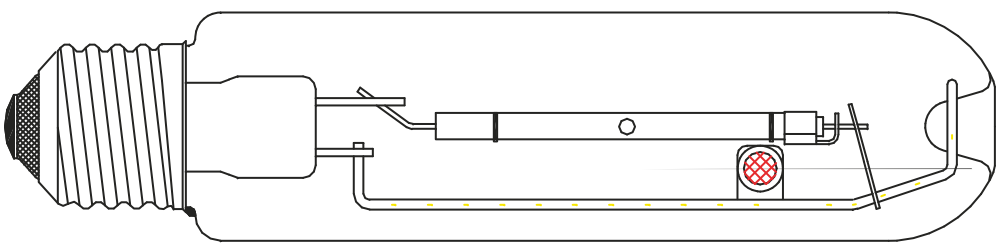
Technical Data

HPST Elite Lamp - Tubular Clear

Part Code:	00798	00800	00801	00802	00803	00804	00811
Description	HPST 50W/E27/ ELITE	HPST 70W/E27/ ELITE	HPST 100W/E40/ ELITE	HPST 150W/E40/ ELITE	HPST 250W/E40/ ELITE	HPST 400W/E40/ ELITE	HPST 600W/E40/ ELITE
Performance Data							
Rated Light Output (Lumens @ 100 hours)	4400	6600	10700	17500	33200	56500	88500
Lamp Lumens per Watt	88	90	97	111	125	132	148
Rated Life (Hrs @ 10Hr/Start	35000	40000	40000	45000	45000	45000	32000
Correlated Colour Temperature (K)	2100	2100	2100	2100	2100	2100	2100
Chromaticity (CIE - X Y)	540, 410	540, 410	540, 410	540, 410	540, 410	540, 410	540, 410
Colour Rendering Index (CRI) or (RA)	20	20	20	20	20	20	20
Typical Warm Up Time (Minutes	5	5	5	5	5	5	5
Typical Hot Restart Time (Minutes)	1	1	1	1	1	1	1
Burning Position	Universal	Universal	Universal	Universal	Universal	Universal	Universal
Energy Rating (ErP)	A	A+	A+	A+	A+	A++	A++
Physcial Data							
Base Designation	E27	E27	E40	E40	E40	E40	E40
Bulb Diameter (mm)	38	38	46	46	46	46	46
Max Overall Length (mm)	156	156	211	211	260	292	292
Light Centre Length (mm)	97	97	133	137	158	175	170
Effective Arc Length (mm)	30	38	44	58	67	87	117
Max Base Temperature (°C)	210	210	210	210	210	210	210
Max Bulb Temperature (°C)	400	400	400	400	400	400	400
Luminaire Type	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed
Socket Pulse Rating (kV)	2.8	2.8	5	5	5	5	5
Mercuy Content (mg)	8.3	10	13.3	13.3	23.3	19.2	21.1
Lamp Electrical Data							
Nominal Lamp Wattage (W)	50	70	100	150	250	400	600
Lamp Operating Voltage (V)	85	90	100	100	100	100	112
Lamp Operating Current (A)	0.76	1.0	1.2	1.8	2.9	4.5	6
Min Open Circuit Voltage (RMS)	198	198	198	198	198	198	198
Min Starting Pulse (Peak V)	1800	1800	2800	2800	2800	2800	2800
Min Pulse Width (Miroseconds)	1.95 @ 1500V	1.95 @ 1500V	1.95 @ 2500V	1.95 @ 2500V	1.95 @ 2500V	1.95 @ 2500V	1.95 @ 2500V
Min Pulse Rate Per 1/2 cycle	1	1	1	1	1	1	1
Pulse Position (Electrical Degrees)	60-90, 240-270	60-90, 240-270	60-90, 240-270	60-90, 240-270	60-90, 240-270	60-90, 240-270	60-90, 240-270

Outline

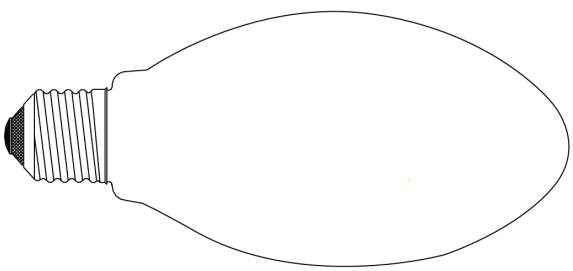


Technical Data

HPSE Elite Lamp - Elliptical Diffused

Part Code:	00799	00805	00806	00807	00808	00809	00810
Description	HPSE 50W/E27/ ELITE	HPSE 70W/E27/ ELITE	HPSE 70W/IG/E27/ ELITE	HPSE 100W/E40/ ELITE	HPSE 150W/E40/ ELITE	HPSE 250W/E40/ ELITE	HPSE 400W/E40/ ELITE
Performance Data							
Rated Light Output (Lumens @ 100 hours)	3600	6500	6600	10200	16900	31200	54000
Lamp Lumens per Watt	72	93	94	102	113	125	135
Rated Life (Hrs @ 10Hr/Start	35000	40000	12000	40000	45000	45000	45000
Correlated Colour Temperature (K)	2100	2100	2100	2100	2100	2100	2100
Chromaticity (CIE - X Y)	540, 400	540, 400	540, 400	540, 400	540, 400	540, 400	540, 400
Colour Rendering Index (CRI) or (RA)	20	20	20	20	20	20	20
Typical Warm Up Time (Minutes	5	5	5	5	5	5	5
Typical Hot Restart Time (Minutes)	1	1	1	1	1	1	1
Burning Position	Universal	Universal	Universal	Universal	Universal	Universal	Universal
Energy Rating (ErP)	A	A	A+	A+	A+	A+	A+
Physcial Data							
Base Designation	E27	E27	E27	E40	E40	E40	E40
Bulb Diameter (mm)	72	72	72	76	91	91	122
Max Overall Length (mm)	156	156	156	186	227	227	292
Light Centre Length (mm)	NA	NA	NA	NA	NA	NA	NA
Effective Arc Length (mm)	NA	NA	NA	NA	NA	NA	NA
Max Base Temperature (°C)	210	210	210	210	210	210	210
Max Bulb Temperature (°C)	400	400	400	400	400	400	400
Luminaire Type	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed	Open / Enclosed
Socket Pulse Rating (kV)	2.8	2.8	2.8	5	5	5	5
Mercuy Content (mg)	8.3	10	10	13.3	13.3	23.2	19.2
Lamp Electrical Data							
Nominal Lamp Wattage (W)	50	70	70	100	150	250	400
Lamp Operating Voltage (V)	85	90	90	100	100	100	100
Lamp Operating Current (A)	0.76	1.0	1.0	1.2	1.8	2.9	4.5
Min Open Circuit Voltage (RMS)	198	198	198	198	198	198	198
Min Starting Pulse (Peak V)	1800	1800	Internal	2800	2800	2800	2800
Min Pulse Width (Miroseconds)	1.95 @ 1500V	1.95 @ 1500V	Internal	1.95 @ 2500V	1.95 @ 2500V	1.95 @ 2500V	1.95 @ 2500V
Min Pulse Rate Per 1/2 cycle	1	1	Internal	1	1	1	1
Pulse Position (Electrical Degrees)	60-90, 240-270	60-90, 240-270	Internal	60-90, 240-270	60-90, 240-270	60-90, 240-270	60-90, 240-270

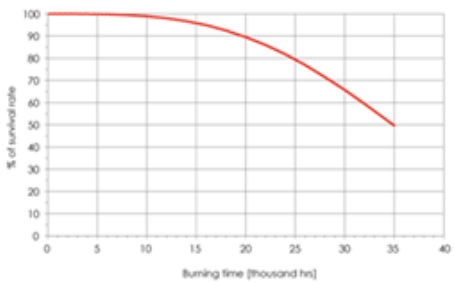
Outline



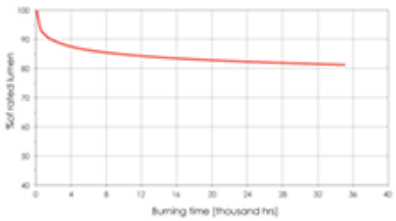
50W Lamps

Hrs	LSF	LLMF
2000	99	90
4000	99	87
6000	99	86
8000	99	85
12000	98	84
16000	96	83
20000	89	82
24000	80	82
30000	66	81

Lamp Survival Factor (LSF)



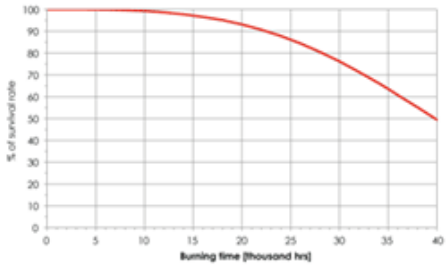
Lamp Lumen Maintaince Factor (LLMF)



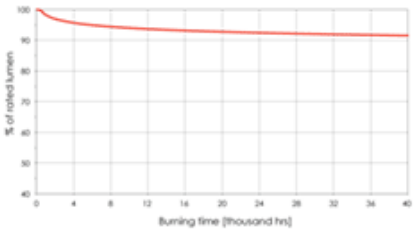
70W Lamps (not IG)

Hrs	LSF	LLMF
2000	99	98
4000	99	96
6000	99	95
8000	99	95
12000	98	94
16000	96	93
20000	92	93
24000	87	92
30000	76	92

Lamp Survival Factor (LSF)



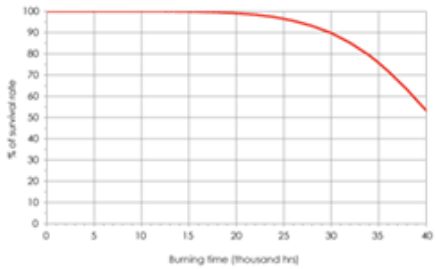
Lamp Lumen Maintaince Factor (LLMF)



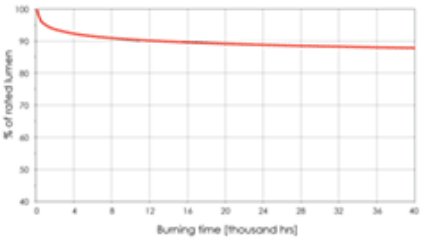
100W Lamps

Hrs	LSF	LLMF
2000	99	96
4000	99	93
6000	99	92
8000	99	91
12000	99	90
16000	99	89
20000	99	88
24000	96	88
30000	90	88

Lamp Survival Factor (LSF)



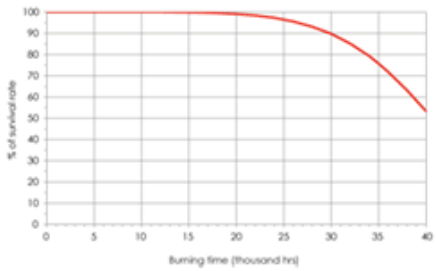
Lamp Lumen Maintaince Factor (LLMF)



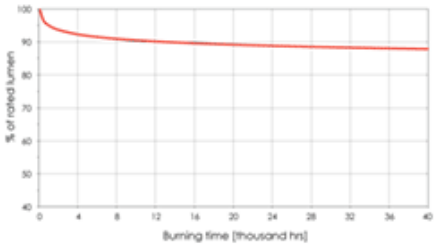
150W Lamps

Hrs	LSF	LLMF
2000	99	96
4000	99	93
6000	99	92
8000	99	91
12000	99	90
16000	99	89
20000	98	88
24000	96	88
30000	91	88

Lamp Survival Factor (LSF)



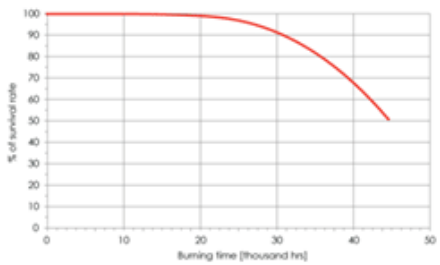
Lamp Lumen Maintaince Factor (LLMF)



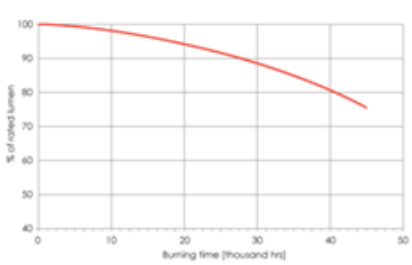
250W Lamps

Hrs	LSF	LLMF
2000	99	99
4000	99	99
6000	99	99
8000	99	98
12000	99	98
16000	99	97
20000	98	95
24000	96	93
30000	90	88

Lamp Survival Factor (LSF)



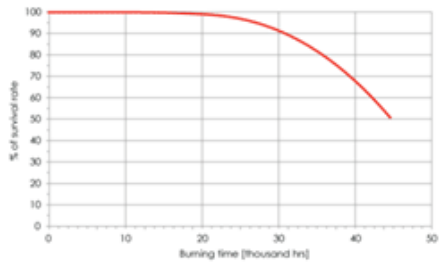
Lamp Lumen Maintaince Factor (LLMF)



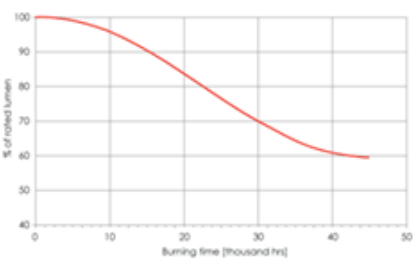
400W Lamps

Hrs	LSF	LLMF
2000	99	99
4000	99	99
6000	99	98
8000	99	97
12000	99	95
16000	99	90
20000	98	84
24000	96	80
30000	91	70

Lamp Survival Factor (LSF)



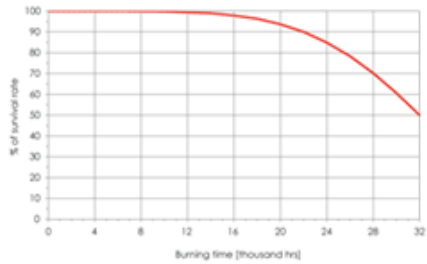
Lamp Lumen Maintaince Factor (LLMF)



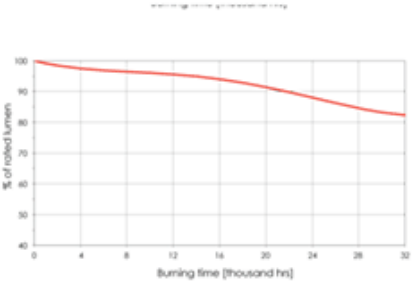
600W Lamps

Hrs	LSF	LLMF
2000	99	99
4000	99	98
6000	99	97
8000	99	96
12000	99	96
16000	98	95
20000	93	92
24000	84	88
30000	60	84

Lamp Survival Factor (LSF)



Lamp Lumen Maintaince Factor (LLMF)



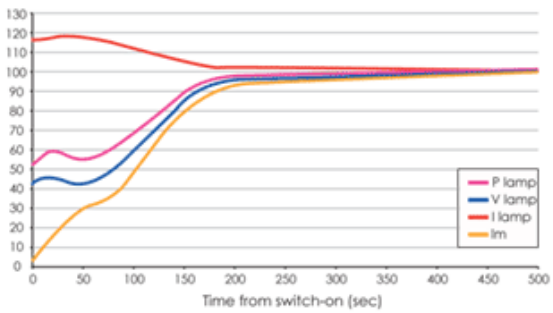
Run-up characteristics

The graph shows typical run-up characteristics for a 150W HPS Elite Lamp.

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

Watts	50	70	100	150	250	400	600
Run - UP (mins)	3	5	3.5	3.5	3	5	4

Typical run-up characteristics



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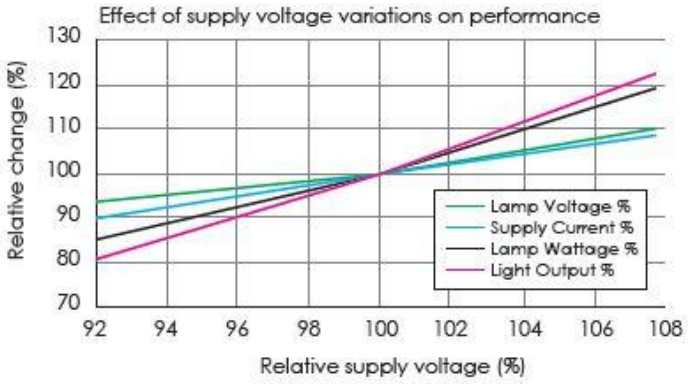
Supply voltage

Lamps are suitable for supplies in the range 220V to 250V 50/60Hz for appropriately rated series choke (reactor) ballasts.. Supplies outside this range require a transformer circuit to ensure correct lamp operation. Lamps will start and operate at 10% below the rated supply voltage when the correct control gear is used. In order to maximise lamp survival, lumen maintenance and colour uniformity, the supply voltage and ballast design voltage should be within ±3%. Supply variations of ±5% are permissible for short periods only. This may be achieved by measuring mean supply voltage at the installation and selecting ballasts with appropriate tapping points.



Ballasts

To achieve correct lamp starting, performance and life, it is important that the lamp and ballast are compatible and suitably rated for the supply voltage at the luminaire. Venture HPS Elite range are compliant with IEC60662. Ballasts used to operate these lamps should comply with ballast standards IEC60922 & IEC60923 and incorporate adequate overload protective measures to ensure that safety is maintained under abnormal lamp end-of-life rectification conditions and ballast thermal protection is one method of providing adequate protection.

Timed ignitors

Use of a "timed" or "cut-out" ignitor is not a specific requirement, but it is a good optional safety feature for the installation. The timed period must be adequate to allow lamps to cool and restart when the supply is Interrupted briefly. A period of 10 minutes continuous or Intermittent operation is recommended before the ignitor is automatically switched off.

Cable between ignitor and lamp

To achieve good starting, superimposed ignitors must be adjacent to the luminaire. Cable capacitance of wiring between the ignitor and lamp should not exceed 100pF (<1 metre length) when measured to adjacent earthed metal and/or other cables, unless otherwise stated by the ignitor manufacturer. When using Venture MCi6 Ignitor the ballast to lamp distance of 10m is permissible.

PFC capacitors for choke (reactor) circuits

Power Factor Correction is advisable in order to minimise supply current and electricity costs. For 220-250V supplies, 250V±10% rated capacitors are recommended.