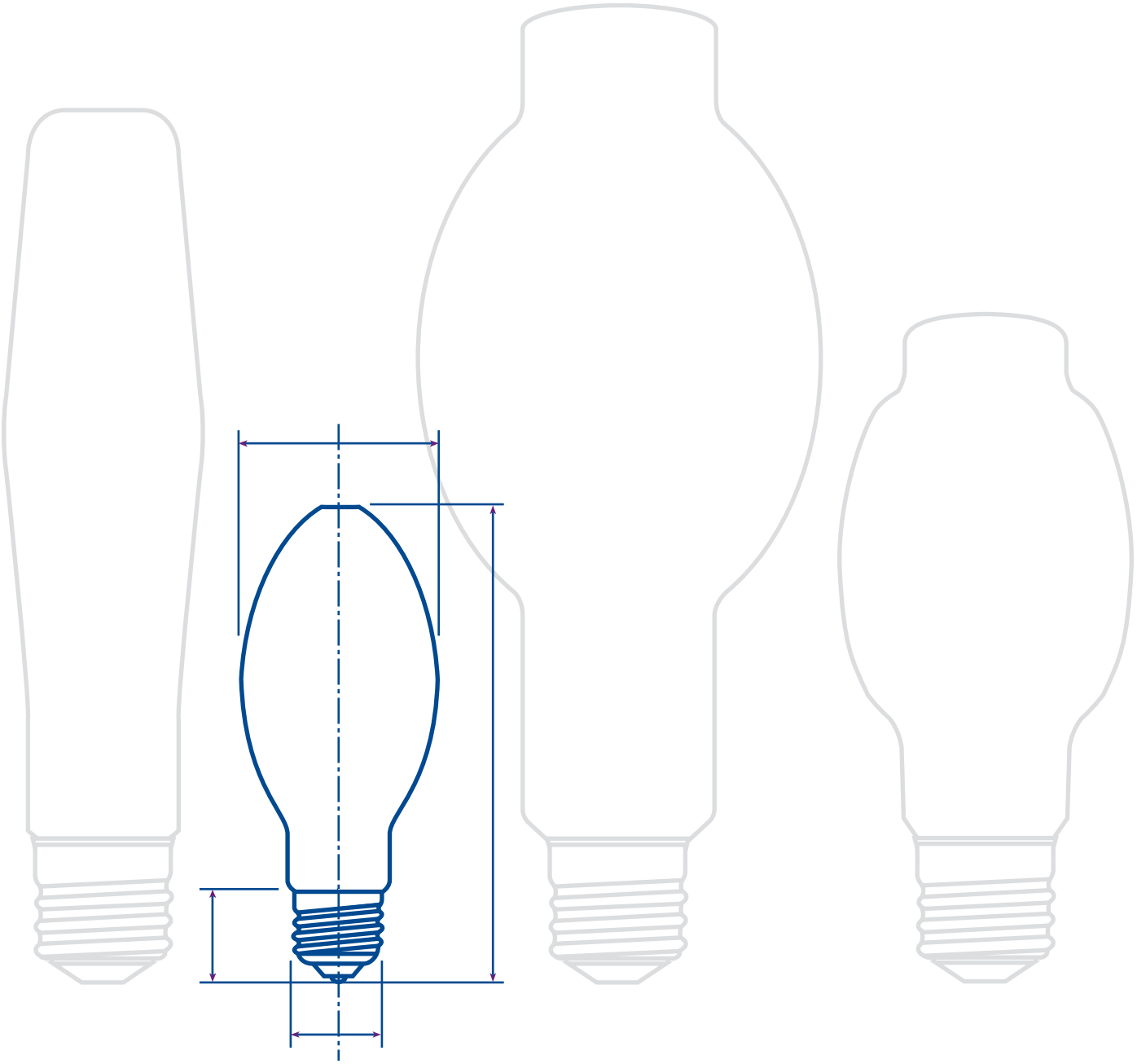
Product Information and Specification Guide

High Pressure Sodium Lamps



SEE THE WORLD IN A NEW LIGHT SYLVANIA

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SYLVANIA High Pressure Sodium Lamps

Specification Guide
This guide contains a complete listing of SYLVANIA High Pressure Sodium products available at its time of printing. The guide contains technical data (photometric, electrical, physical characteristics, and starting requirements) and is a supplement to the product information bulletins. Consult the online catalog at **www.mySYLVANIA.com/register** for the most up to date information, as ratings are subject to change without notice.

OSRAM SYLVANIA offers additional literature describing each product family, which is updated as new products become available.

Consult product catalog, online catalog, or printed packaging for High Pressure Sodium lamp warning.

Lumen Rating
SYLVANIA High Pressure Sodium lamps, with the exception of LUMALUX® Super and SOX lamps, are based on burning cycles of at least 10 hours per start and ballasts which meet ANSI standards.

LUMALUX Super and SOX lamp ratings are based on measurements at constant input voltage.

Mean lumens with a "+" next to their life rating shows these lamps are measured at 50% of average rated life while lamps without a "+" next to their life rating are measured at 40% of average rated life.

Operating cycles shorter than 10 hours per start will reduce lamp life as follows:

5 hours/start – Approximately 75% of Rating

2.5 hours/start – Approximately 55% of Rating

1.25 hours/start – Approximately 40% of Rating

Typical survival curves have been provided for most lamps contained herein. The curves illustrate the definition of average rated life and the percentage of expected lamp failures.

Maximum Base Temperature
A welded mogul screw base allows higher maximum operating base temperature than designated by ANSI. See specific product for detail.

Light Center Length
The light center length of HID lamps is usually measured from the center of the arc tube to the bottom of the lamp base.

Maximum Overall Length
The maximum overall length of single-ended lamps is the maximum distance from the top of the bulb to the bottom of the base. For double ended lamps, it is the maximum distance from end-to-end.

Arc Length
Arc length is the dimension of the arc discharge measured from one electrode tip to the other.

Key to Date of Manufacture
The existing date code system is comprised of 4 characters. The second character represents the year, i.e. 6 = 2006 and the third character represents the month, i.e. 1 = January 9 = September, a = October.

Date Code Reference Table

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004	/b418	/b428	/b438	/b448	/b458	/b468	/b478	/b488	/b498	/b4a8	/b4b8	/b4c8
2005	/b518	/b528	/b538	/b548	/b558	/b568	/b578	/b588	/b598	/b5a8	/b5b8	/b5c8
2006	/b618	/b628	/b638	/b648	/b658	/b668	/b678	/b688	/b698	/b6a8	/b6b8	/b6c8
2007	/b718	/b728	/b738	/b748	/b758	/b768	/b778	/b788	/b798	/b7a8	/b7b8	/b7c8
2008	/b818	/b828	/b838	/b848	/b858	/b868	/b878	/b888	/b898	/b8a8	/b8b8	/b8c8
2009	/b918	/b928	/b938	/b948	/b958	/b968	/b978	/b988	/b998	/b9a8	/b9b8	/b9c8
2010	/b018	/b028	/b038	/b048	/b058	/b068	/b078	/b088	/b098	/b0a8	/b0b8	/b0c8
2011	/b118	/b128	/b138	/b148	/b158	/b168	/b178	/b188	/b198	/b1a8	/b1b8	/b1c8
2012	/b218	/b228	/b238	/b248	/b258	/b268	/b278	/b288	/b298	/b2a8	/b2b8	/b2c8
2013	/b318	/b328	/b338	/b348	/b358	/b368	/b378	/b388	/b398	/b3a8	/b3b8	/b3c8
2014	/b418	/b428	/b438	/b448	/b458	/b468	/b478	/b488	/b498	/b4a8	/b4b8	/b4c8

LUMALUX® (High Pressure Sodium)

SYLVANIA LUMALUX Means Today's Most Efficient Light Source
High Pressure Sodium lamps deliver more lumens per watt over rated life than most other HID light sources available today. These lamps are used for general lighting applications where high efficiency and long life are desired, but color is not critical. Typical applications include street lighting, parking lot lighting, building floodlighting and general area lighting.

High Pressure Sodium Lamps may be used in open luminaires except for item 67527 (LU400T7/RSC) and SOX Low Pressure Sodium, which must be operated in an enclosed fixture.

Standard LUMALUX
Standard LUMALUX lamps are known for high efficacy, long life, and reliability. Lamps are available from 35 to 150 watts in medium base and 50 to 1000 watts in mogul base, and most types are available in clear and coated.

LUMALUX ECOLOGIC® Lamps
LUMALUX ECO® lamps have sufficiently low mercury and lead content to pass the Federal TCLP* test. Standard LUMALUX ECO lamps are direct replacements for Standard LUMALUX, and meet all physical and electrical ANSI requirements.

LUMALUX PLUS® and LUMALUX PLUS ECOLOGIC® Lamps
These advanced lamps incorporate the latest technology to eliminate end-of-life cycling which is characteristic of HPS lamps. Rather than on-again, off-again operation, which often makes end-of-life lamps difficult to detect, LUMALUX PLUS lamps will remain off when they have reached end-of-life. Life rating for this family of lamps exceeds that of any HPS lamps available today, and are rated @ 30,000 hours. In addition, LUMALUX PLUS ECO lamps contain up to 90% less mercury than standard HPS lamps, and are designed with a lead-free base. All LUMALUX PLUS ECO lamps pass the Federal TCLP* test. Now available in 50, 70, 100, 150, 200, 250, 310, 400 and 1000 watts.

LUMALUX Standby Lamps
After momentary power failure, the unheated "standby" arc tube will strike to provide light as soon as power is restored. This eliminates the normal time required for arc tube cool-down and the need for a standby incandescent circuit in the fixture. This instant restrike property can increase safety in dangerous industrial environments and reduce fixture costs. Now available in 70, 100, 150, 200, 250, 400 and 1000 watt sizes.

PLANTASTAR® Lamps
PLANTASTAR lamps are ideal for plant growth applications. The long luminous arc tube construction enhances light distribution. In addition, PLANTASTAR features optimized frame construction with patented shock absorber and extremely high luminous efficacy up to 145 lm/W.

UNALUX® Lamps
These lamps are energy-efficient HPS retrofits for mercury lamps, and will operate on all mercury reactor ballasts. Now available in 150, 215, 360 and 880 watts.

SOX Low Pressure Sodium Lamps
SOX lamps are the most efficient HID light source. They emit a characteristic monochromatic yellow light that is ideal for certain exterior street and area lighting applications.

* TCLP claims based on OSRAM SYLVANIA's TCLP test protocol. Some states and localities have lower limits than the Federal TCLP standard and have different disposal regulations regarding mercury-containing lamps. Data is available upon request.

Standard LUMALUX®

Medium Screw Base

	35 Watt		50 Watt		70 Watt	
						
	Clear	Coated	Clear	Coated	Clear	Coated
Item No.	67500	67501	67502	67503	67504	67505
Ordering Abbreviation	LU35MED	LU35/D/MED	LU50MED	LU50/D/MED	LU70MED	LU70/D/MED
ANSI Spec No.	S76	S76	S68	S68	S62	S62
Physical Characteristics						
Bulb Designation	E17					
Bulb Material	Borosilicate Glass					
Base Type	E26 Medium					
Operating Position	Universal					
Nominal Bulb Diameter mm (")	54 (2.13)					
Max. Overall Length mm (")	138 (5.43)					
Light Center Length mm (")	86.87 (3.42)					
Arc Length mm (")	22.5 (0.89)	N/A	22.5 (0.89)	N/A	27.6 (1.09)	N/A
Max. Bulb Temperature °C (°F)	385 (725)					
Max. Base Temperature °C (°F)	210 (410)					
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°					
Electrical Characteristics						
Nominal Lamp Watts	35		50		70	
Nominal Lamp Volts (RMS)	52					
Nominal Lamp Amps (RMS)	0.83		1.18		1.6	
Maximum Current Crest Factor	1.8					
Max. Starting Current (Amps)	1.25		1.85		2.4	
Allowable Voltage Rise due to Luminaires (Volts)	4					
Starting Requirements						
Min. Ballast Open Circuit Volts	110					
Pulse Peak Volts	Minimum 2500 Maximum 4000					
Pulse width at 90% Peak	1 µs at 2250V					
Pulse per Cycle	Minimum 1					
Time to Stabilization (Cold Start)	3-4 Minutes					
Restrike Time after Momentary Interruption (Typical)	1 Minute					
Photometric Characteristics						
Average Rated Life (Hours)	16000+		24000+		24000+	
Initial Lumens	2250	2100	4000	3700	6300	5800
Mean Lumens	2050	1935	3600	3420	5350	4900
Color Rendering Index (CRI)	22					
Correlated Color Temp. °K	1900					
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415					

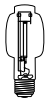
Standard LUMALUX®

Medium Screw Base

	100 Watt		150 Watt	
				
	Clear	Coated	Clear	Coated
Item No.	67506	67507	67508	67509
Ordering Abbreviation	LU100/MED	LU100/D/MED	LU150/55/MED	LU150/55/D/MED
ANSI Spec No.	S54	S54	S55	S55
Physical Characteristics				
Bulb Designation	E17			
Bulb Material	Borosilicate Glass			
Base Type	E26 Medium			
Operating Position	Universal			
Nominal Bulb Diameter mm (")	54 (2.13)			
Maximum Overall Length mm (")	138 (5.43)		145 (5.71)	
Light Center Length mm (")	86.87 (3.42)		93 (3.7)	
Arc Length mm (")	28.4 (1.12)	N/A	39 (1.54)	N/A
Maximum Bulb Temperature °C (°F)	400 (752)			
Maximum Base Temperature °C (°F)	210 (410)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°			
Electrical Characteristics				
Nominal Lamp Watts	100		150	
Nominal Lamp Volts (RMS)	55			
Nominal Lamp Amps (RMS)	2.1		3.2	
Maximum Current Crest Factor	1.8			
Maximum Starting Current (Amps)	3.2		4.8	
Allowable Voltage Rise due to Luminaires (Volts)	4		5	
Starting Requirements				
Minimum Ballast Open Circuit Volts	110			
Pulse Peak Volts	Minimum 2500 Maximum 4000			
Pulse width at 90% Peak	1 µs at 2250V			
Pulse per Cycle	Minimum 1			
Time to Stabilization (Cold Start)	3-4 Minutes			
Restrike Time after Momentary Interruption (Typical)	1 Minute			
Photometric Characteristics				
Average Rated Life (Hours)	24000+			
Initial Lumens	9500	8800	15800	14500
Mean Lumens	8000	7500	13400	12300
Color Rendering Index (CRI)	22			
Correlated Color Temperature °K	2100			
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415			

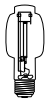
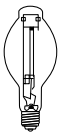
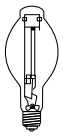
Standard LUMALUX®

Mogul Screw Base

	50 Watt	70 Watt	100 Watt	150 Watt	
					
	Coated	Coated	Coated	Coated	Clear
Item No.	67511	67513	67515	67517	67518
Ordering Abbreviation	LU50/D	LU70/D	LU100/D	LU150/55/D	LU150/100
ANSI Spec No.	S68	S62	S54	S55	S56
Physical Characteristics					
Bulb Designation	ET23.5				BT28
Bulb Material	Borosilicate Glass				
Base Type	E39 Mogul				
Operating Position	Universal				
Nominal Bulb Diameter mm (")	74.6 (2.94)				90 (3.53)
Maximum Overall Length mm (")	197 (7.75)				228 (8.98)
Light Center Length mm (")	127 (5.0)				
Arc Length mm (")	N/A				56.4 (2.22)
Maximum Bulb Temperature °C (°F)	400 (752)				
Maximum Base Temperature °C (°F)	250 (482)				
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°				
Electrical Characteristics					
Nominal Lamp Watts	50	70	100	150	
Nominal Lamp Volts (RMS)	52		55		100
Nominal Lamp Amps (RMS)	1.18	1.6	2.1	3.2	1.8
Maximum Current Crest Factor	1.8				
Maximum Starting Current (Amps)	1.85	2.4	3.2	4.8	3
Allowable Voltage Rise due to Luminaires (Volts)	4			5	7
Starting Requirements					
Minimum Ballast Open Circuit Volts	110				198
Pulse Peak Volts	Minimum 2500 Maximum 4000				
Pulse width at 90% Peak	1 µs at 2250V				
Pulse per Cycle	Minimum 1				
Time to Stabilization (Cold Start)	3-4 Minutes				
Restrike Time after Momentary Interruption (Typical)	1 Minute				
Photometric Characteristics					
Average Rated Life (Hours)	24000+				
Initial Lumens	3700	5500	8800	14000	15700
Mean Lumens	3420	4900	7500	12500	14100
Color Rendering Index (CRI)	22				
Correlated Color Temperature °K	1900		2100		
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415				

Standard LUMALUX®

Mogul Screw Base

	250 Watt	400 Watt	600 Watt	750 Watt	1000 Watt
					
	Coated	Coated	Clear	Clear	Clear
Item No.	67521	67524	67610	67547	67307
Ordering Abbreviation	LU250/D	LU400/D	LU600 SUPER	LU750	LU1000
ANSI Spec No.	S50	S51	S106	S111	S52
Physical Characteristics					
Bulb Designation	BT28	BT37	T14.5	BT37	E25
Bulb Material	Borosilicate Glass				
Base Type	E39 Mogul		E40 Mogul	E39 Mogul	
Operating Position	Universal				
Nominal Bulb Diameter mm (")	90 (3.53)	118 (4.6)	51 (1.81)	118 (4.6)	78 (3.1)
Maximum Overall Length mm (")	228 (8.98)	292 (11.5)	285 (11.22)	292 (11.5)	383 (15.08)
Light Center Length mm (")	127 (5.0)	178 (7.0)	175 (6.89)		222 (8.74)
Arc Length mm (")	N/A	N/A	120 (4.72)	126 (4.97)	206.2 (8.12)
Maximum Bulb Temperature °C (°F)	400 (752)		450 (842)	400 (752)	
Maximum Base Temperature °C (°F)	250 (482)				210 (410)
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°				
Electrical Characteristics					
Nominal Lamp Watts	250	400	600	750	1000
Nominal Lamp Volts (RMS)	100		105	120	250
Nominal Lamp Amps (RMS)	3	4.6	6.2	7	4.7
Maximum Current Crest Factor	1.8				
Maximum Starting Current (Amps)	4.5	7.5	N/A	10.5	8
Allowable Voltage Rise due to Luminaires (Volts)	10	11	N/A	20	25
Starting Requirements					
Minimum Ballast Open Circuit Volts	198				456
Pulse Peak Volts	Minimum 2500 Maximum 4000		Minimum 4000	Minimum 4000 Maximum 5000	Min. 3000 Max. 5000
Pulse width at 90% Peak	1 µs at 2250V		Minimum 2 µs	4 µs	4 µs at 2700V
Pulse per Cycle	Minimum 1				
Time to Stabilization (Cold Start)	3-4 Minutes		6-10 Minutes	3-4 Minutes	
Restrike Time after Momentary Interruption (Typical)	1 Minute		3-5 Minutes	1 1/2 Minutes	1 Minute
Photometric Characteristics					
Average Rated Life (Hours)	24000+		24000	24000+	
Initial Lumens	26000	47500	89000	105000	130000
Mean Lumens	23400	40000	82000	94500	124000
Color Rendering Index (CRI)	22		25	22	
Correlated Color Temperature °K	2100		2000	2100	
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415				

Standard
LUMALUX® ECOLOGIC®

Mogul Screw Base

	50 Watt	70 Watt	100 Watt	150 Watt
				
	Clear	Clear	Clear	Clear
Item No.	67510	67512	67514	67516
Ordering Abbreviation	LU50/ECO	LU70/ECO	LU100/ECO	LU150/55/ECO
ANSI Spec No.	S68	S62	S54	S55
Physical Characteristics				
Bulb Designation	ET23.5			
Bulb Material	Borosilicate Glass			
Base Type	E39 Mogul			
Operating Position	Universal			
Nominal Bulb Diameter mm (")	74.6 (2.94)			
Maximum Overall Length mm (")	197 (7.75)			
Light Center Length mm (")	127 (5.0)			
Arc Length mm (")	22.5 (0.89)	27.6 (1.09)	28.4 (1.12)	40.2 (1.58)
Maximum Bulb Temperature °C (°F)	400 (752)			
Maximum Base Temperature °C (°F)	250 (482)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°			
Electrical Characteristics				
Nominal Lamp Watts	50	70	100	150
Nominal Lamp Volts (RMS)	52		55	
Nominal Lamp Amps (RMS)	1.18	1.6	2.1	3.2
Maximum Current Crest Factor	1.8			
Maximum Starting Current (Amps)	1.85	2.4	3.2	4.8
Allowable Voltage Rise due to Luminaires (Volts)	4			5
Starting Requirements				
Minimum Ballast Open Circuit Volts	110			
Pulse Peak Volts	Minimum 2500 Maximum 4000			
Pulse width at 90% Peak	1 µs at 2250V			
Pulse per Cycle	Minimum 1			
Time to Stabilization (Cold Start)	3-4 Minutes			
Restrike Time after Momentary Interruption (Typical)	1 Minute			
Photometric Characteristics				
Average Rated Life (Hours)	24000+			
Initial Lumens	4000	6300	9500	16000
Mean Lumens	3600	5500	8000	13800
Color Rendering Index (CRI)	22			
Correlated Color Temperature °K	1900		2100	
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415			

Standard
LUMALUX® ECOLOGIC®

Mogul Screw Base

	200 Watt	250 Watt	310 Watt	400 Watt
				
	Clear	Clear	Clear	Clear
Item No.	67576	67578	67580	67533
Ordering Abbreviation	LU200/ECO	LU250/ECO	LU310/ECO	LU400/ECO
ANSI Spec No.	S66	S50	S67	S51
Physical Characteristics				
Bulb Designation	ET18			
Bulb Material	Borosilicate Glass			
Base Type	E39 Mogul			
Operating Position	Universal			
Nominal Bulb Diameter mm (")	57 (2.20)			
Maximum Overall Length mm (")	247.6 (9.75)			
Light Center Length mm (")	146 (5.75)			
Arc Length mm (")	63.6 (2.5)	69.6 (2.74)	73.8 (2.9)	81 (3.19)
Maximum Bulb Temperature °C (°F)	400 (752)			
Maximum Base Temperature °C (°F)	250 (482)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°			
Electrical Characteristics				
Nominal Lamp Watts	200	250	310	400
Nominal Lamp Volts (RMS)	100			
Nominal Lamp Amps (RMS)	2.4	3	3.6	4.6
Maximum Current Crest Factor	1.8			
Maximum Starting Current (Amps)	3.6	4.5	5.5	7.5
Allowable Voltage Rise due to Luminaires (Volts)	10			11
Starting Requirements				
Minimum Ballast Open Circuit Volts	198			
Pulse Peak Volts	Minimum 2500 Maximum 4000			
Pulse width at 90% Peak	1 µs at 2250V			
Pulse per Cycle	Minimum 1			
Time to Stabilization (Cold Start)	3-4 Minutes			
Restrike Time after Momentary Interruption (Typical)	1 Minute			
Photometric Characteristics				
Average Rated Life (Hours)	24000+			
Initial Lumens	22000	29000	37000	50000
Mean Lumens	19800	26100	32300	45000
Color Rendering Index (CRI)	22			
Correlated Color Temperature °K	2100			
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415			

LUMALUX PLUS® ECOLOGIC®

	Medium Screw Base		Mogul Screw Base			
	70 Watt	**100 Watt**	**50 Watt**	**70 Watt**	**100 Watt**	**150 Watt**
						
	Clear	Clear	Clear	Clear	Clear	Clear
Item No.	67322	67323	67607	67497	67559	67494
Ordering Abbreviation	LU70/PLUS/ MED/ECO	LU100/PLUS/ MED/ECO	LU50/PLUS/ ECO	LU70/PLUS/ ECO	LU100/PLUS/ ECO	LU150/55/ PLUS/ECO
ANSI Spec No.	S62	S54	S68	S62	S54	S55
Physical Characteristics						
Bulb Designation	E17		ET23.5			
Bulb Material	Borosilicate Glass		Borosilicate Glass			
Base Type	E26 Medium		E39 Mogul			
Operating Position	Universal		Universal			
Nominal Bulb Diameter mm (")	54 (2.13)		74.6 (2.94)			
Maximum Overall Length mm (")	138 (5.43)		197 (7.75)			
Light Center Length mm (")	86.87 (3.42)		127 (5.0)			
Arc Length mm (")	28.2 (1.11)	34 (1.34)	22.5 (0.89)	28.2 (1.11)	34.8 (1.37)	38.2 (1.5)
Maximum Bulb Temperature °C (°F)	385 (7.25)	400 (752)				
Maximum Base Temperature °C (°F)	210 (410)		250 (482)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°					
Electrical Characteristics						
Nominal Lamp Watts	70	100	50	70	100	150
Nominal Lamp Volts (RMS)	52	55	52		55	
Nominal Lamp Amps (RMS)	1.6	2.1	1.18	1.6	2.1	3.2
Maximum Current Crest Factor	1.8					
Maximum Starting Current (Amps)	2.4	3.2	1.85	2.4	3.2	4.8
Allowable Voltage Rise due to Luminaires (Volts) *	4					5
Starting Requirements						
Minimum Ballast Open Circuit Volts	110					
Pulse Peak Volts	Minimum 2500 Maximum 4000					
Pulse width at 90% Peak	1 µs at 2250V					
Pulse per Cycle	Minimum 1					
Time to Stabilization (Cold Start)	3-4 Minutes					
Restrike Time after Momentary Interruption (Typical)	1 Minute					
Photometric Characteristics						
Average Rated Life (Hours)	30000					
Initial Lumens	6300	10000	4000	6300	10000	16000
Mean Lumens	5600	9000	3600	5600	9000	14400
Color Rendering Index (CRI)	22					
Correlated Color Temperature °K	1900	2100	1900		2100	
Nominal CIE Chromaticity X Coordinates Y	0.533 0.418	0.523 0.415	0.523 0.415	0.533 0.418	0.523 0.415	

*Voltage rise due to luminaire must be measured using the equivalent Standard LUMALUX lamp and not the LUMALUX PLUS ECO lamp.

LUMALUX PLUS® ECOLOGIC®

Mogul Screw Base

	200 Watt	250 Watt	310 Watt	400 Watt	1000 Watt
					
	Clear	Clear	Clear	Clear	Clear
Item No.	67495	67572	67660	67312	67316
Ordering Abbreviation	LU200/PLUS/ECO	LU250/PLUS/ECO	LU310/PLUS/ECO	LU400/PLUS/ECO	LU1000/PLUS
ANSI Spec No.	S66	S50	S67	S51	S52
Physical Characteristics					
Bulb Designation	ET18				E25
Bulb Material	Borosilicate Glass				
Base Type	E39 Mogul				
Operating Position	Universal				
Nominal Bulb Diameter mm (")	57 (2.20)				78 (3.1)
Maximum Overall Length mm (")	247.6 (9.75)				383 (15.08)
Light Center Length mm (")	146 (5.75)				222 (8.74)
Arc Length mm (")	61.2 (2.41)	67.4 (2.65)	73.8 (2.9)	81.6 (3.21)	196 (8.68)
Maximum Bulb Temperature °C (°F)	400 (752)				
Maximum Base Temperature °C (°F)	250 (482)				210 (410)
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°				
Electrical Characteristics					
Nominal Lamp Watts	200	250	310	400	1000
Nominal Lamp Volts (RMS)	100				250
Nominal Lamp Amps (RMS)	2.4	3	3.6	4.6	4.7
Maximum Current Crest Factor	1.8				
Maximum Starting Current (Amps)	3.6	4.5	5.5	7.5	8
Allowable Voltage Rise due to Luminaires (Volts) *	10			11	25
Starting Requirements					
Minimum Ballast Open Circuit Volts	198				456
Pulse Peak Volts	Minimum 2500 Maximum 4000				Minimum 3000 Maximum 5000
Pulse width at 90% Peak	1 µs at 2250V				4µs at 2700V
Pulse per Cycle	Minimum 1				
Time to Stabilization (Cold Start)	3-4 Minutes				
Restrike Time after Momentary Interruption (Typical)	1 Minute				
Photometric Characteristics					
Average Rated Life (Hours)	30000				
Initial Lumens	22000	29000	37000	50000	130000
Mean Lumens	19800	26100	33300	45000	124000
Color Rendering Index (CRI)	22				
Correlated Color Temperature °K	2100				
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415			0.522 0.422	0.523 0.415

*Voltage rise due to luminaire must be measured using the equivalent Standard LUMALUX lamp and not the LUMALUX PLUS ECO lamp.

LUMALUX®
Standby

Mogul Screw Base

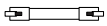
	70 Watt	100 Watt	150 Watt	200 Watt
				
	Clear	Clear	Clear	Clear
Item No.	67540	67542	67544	67586
Ordering Abbreviation	LU70/SBY	LU100/SBY	LU150/55/SBY	LU200/100/SBY
ANSI Spec No.	S62	S54	S55	S66
Physical Characteristics				
Bulb Designation	ET23.5			ET18
Bulb Material	Borosilicate Glass			
Base Type	E39 Mogul			
Operating Position	Universal			
Nominal Bulb Diameter mm (")	74.6 (2.94)			57 (2.20)
Maximum Overall Length mm (")	197 (7.75)			247.6 (9.75)
Light Center Length mm (")	127 (5.0)			146 (5.75)
Arc Length mm (")	27.6 (1.09)	29.2 (1.15)	40.2 (1.58)	63.6 (2.5)
Maximum Bulb Temperature °C (°F)	400 (752)			
Maximum Base Temperature °C (°F)	250 (482)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°			
Electrical Characteristics				
Nominal Lamp Watts	70	100	150	200
Nominal Lamp Volts (RMS)	52	55		100
Nominal Lamp Amps (RMS)	1.6	2.1	3.2	2.4
Maximum Current Crest Factor	1.8			
Maximum Starting Current (Amps)	2.4	3.2	4.8	3.6
Allowable Voltage Rise due to Luminaires (Volts)	4		5	10
Starting Requirements				
Minimum Ballast Open Circuit Volts	110			198
Pulse Peak Volts	Minimum 2500 Maximum 4000			
Pulse width at 90% Peak	1 µs at 2250V			
Pulse per Cycle	Minimum 1			
Time to Stabilization (Cold Start)	3-4 Minutes			
Restrike Time after Momentary Interruption (Typical)	Instantaneous			
Photometric Characteristics				
Average Rated Life (Hours)	40000			
Initial Lumens	6050	9500	15700	21500
Mean Lumens	4950	7600	12100	18000
Color Rendering Index (CRI)	22			
Correlated Color Temperature °K	1900	2100		
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415			

LUMALUX®
Standby

Mogul Screw Base

	250 Watt	400 Watt	1000 Watt
			
	Clear	Clear	Clear
Item No.	67582	67584	67543
Ordering Abbreviation	LU250/SBY	LU400/SBY	LU1000SBY
ANSI Spec No.	S50	S51	S52
Physical Characteristics			
Bulb Designation	ET18		E25
Bulb Material	Borosilicate Glass		
Base Type	E39 Mogul		
Operating Position	Universal		
Nominal Bulb Diameter mm (")	57 (2.20)		78 (3.1)
Maximum Overall Length mm (")	247.6 (9.75)		383 (15.08)
Light Center Length mm (")	146 (5.75)		222 (8.74)
Arc Length mm (")	63.6 (2.5)	84.6 (3.33)	206.2 (8.12)
Maximum Bulb Temperature °C (°F)	400 (752)		
Maximum Base Temperature °C (°F)	250 (482)		
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°		
Electrical Characteristics			
Nominal Lamp Watts	250	400	1000
Nominal Lamp Volts (RMS)	100		250
Nominal Lamp Amps (RMS)	3	4.6	4.7
Maximum Current Crest Factor	1.8		
Maximum Starting Current (Amps)	4.5	7.5	8
Allowable Voltage Rise due to Luminaires (Volts)	10	11	25
Starting Requirements			
Minimum Ballast Open Circuit Volts	198		456
Pulse Peak Volts	Minimum 2500 Maximum 4000		Minimum 3000 Maximum 5000
Pulse width at 90% Peak	1 µs at 2250V		4 µs at 2700V
Pulse per Cycle	Minimum 1		
Time to Stabilization (Cold Start)	3-4 Minutes		
Restrike Time after Momentary Interruption (Typical)	Instantaneous		
Photometric Characteristics			
Average Rated Life (Hours)	40000		24000+
Initial Lumens	27500	47500	127000
Mean Lumens	23200	40000	115000
Color Rendering Index (CRI)	22		
Correlated Color Temperature °K	2100		
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415		

Specialty

	400 Watt
	
	Clear
Item No.	67527
Ordering Abbreviation	LU400T7/RSC
ANSI Spec No.	S51
Physical Characteristics	
Bulb Designation	T7
Bulb Material	Borosilicate Glass
Base Type	RX7S RRSC
Operating Position	HOR
Nominal Bulb Diameter mm (")	22.25 (0.88)
Maximum Overall Length mm (")	256 (10.06)
Light Center Length mm (")	127 (5.0)
Arc Length mm (")	80.4 (3.17)
Maximum Bulb Temperature °C (°F)	800 (1504)
Maximum Base Temperature °C (°F)	175 (347)
Eccentricity: Base to Bulb Base to Arc Tube	N/A N/A
Electrical Characteristics	
Nominal Lamp Watts	400
Nominal Lamp Volts (RMS)	100
Nominal Lamp Amps (RMS)	4.7
Maximum Current Crest Factor	1.8
Maximum Starting Current (Amps)	7
Allowable Voltage Rise due to Luminaires (Volts)	10
Starting Requirements	
Minimum Ballast Open Circuit Volts	195
Pulse Peak Volts	Minimum 2500 Maximum 4000
Pulse width at 90% Peak	1 µs at 2250V
Pulse per Cycle	Minimum 1
Time to Stabilization (Cold Start)	5-6 Minutes
Restrike Time after Momentary Interruption (Typical)	1 Minute
Photometric Characteristics	
Average Rated Life (Hours)	24000
Initial Lumens	46000
Mean Lumens	41400
Color Rendering Index (CRI)	21
Correlated Color Temperature °K	2100
Nominal CIE Chromaticity Coordinates X Y	0.523 0.415

PLANTASTAR®

Mogul Screw Base

	400 Watt	600 Watt	1000 Watt
			
	Clear	Clear	Clear
Item No.	67711	67712	67314
Ordering Abbreviation	PLANTASTAR 400	PLANTASTAR 600	PLANTASTAR 1000
ANSI Spec No.	S51[1]	S106	S52
Physical Characteristics			
Bulb Designation	T14.5		E25
Bulb Material	Borosilicate Glass		
Base Type	E40 Mogul		E39 Mogul
Operating Position	Universal		
Nominal Bulb Diameter mm (")	46 (1.81)		78 (3.1)
Maximum Overall Length mm (")	285 (11.22)		383 (15.08)
Light Center Length mm (")	175 (6.89)		222 (8.74)
Arc Length mm (")	82 (3.23)	120 (4.72)	206.2 (8.12)
Maximum Bulb Temperature °C (°F)	400 (752)	430 (806)	400 (752)
Maximum Base Temperature °C (°F)	250 (482)		210 (410)
Electrical Characteristics			
Nominal Lamp Watts	400	600	1000
Nominal Lamp Volts (RMS)	100	110	250
Nominal Lamp Amps (RMS)	4.5	6.06	4.7
Maximum Current Crest Factor	1.8		
Maximum Starting Current (Amps)	7.5	10.5	8
Allowable Voltage Rise due to Luminaires (Volts)	11	15	25
Starting Requirements			
Minimum Ballast Open Circuit Volts	198	230	456
Pulse Peak Volts (Minimun-Maximum)	Minimum 4000 Maximum 5000		Minimum 3000 Maximum 5000
Pulse width at 90% Peak	2 µs		4 µs at 2700V
Pulse per Cycle	1 per 1/2 cycle		Minimum 1
Photometric Characteristics			
Average Rated Life (Hours)	16000[2]		24000[3]
Initial Lumens	55000	90000	130000
Mean Lumens	50000	81000	124000
Color Rendering Index (CRI)	22		
Correlated Color Temperature °K	2000		2100

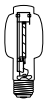
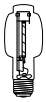
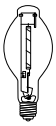
(1) Use 4-5kV ignitor

(2) Extremely constant luminous flux during the first 10,000 burning-hours. After this time or every two years it is advisable to exchange the lamps.

(3) Extremely constant luminous flux during the first 16,000 burning-hours. After this time or every two years it is advisable to exchange the lamps.

UNALUX®

Mogul Screw Base

	150 Watt	215 Watt	360 Watt	880 Watt
				
	Clear	Clear	Clear	Clear
Item No.	67528	67530	67531	67318
Ordering Abbreviation	ULX150	ULX215	ULX360	ULX880
ANSI Spec No.	S63	S65	S64	NA
Physical Characteristics				
Bulb Designation	BT28	BT28	BT37	E25
Bulb Material	Borosilicate Glass			
Base Type	E39 Mogul			
Operating Position	Universal			
Nominal Bulb Diameter mm (")	90 (3.53)		118 (4.6)	78 (3.1)
Maximum Overall Length mm (")	211 (8.31)		292 (11.5)	383 (15.08)
Light Center Length mm (")	127 (5)		178 (7)	241 (9.49)
Arc Length mm (")	61.2 (2.41)	62 (2.44)	76 (2.98)	165.4 (6.51)
Maximum Bulb Temperature °C (°F)	400 (752)			
Maximum Base Temperature °C (°F)	250 (482)			
Eccentricity: Base to Bulb Base to Arc Tube	3° 3°			
Electrical Characteristics				
Nominal Lamp Watts	150	215	360	880
Nominal Lamp Volts (RMS)	130			260
Nominal Lamp Amps (RMS)	1.5	2.1	3.2	4
Maximum Current Crest Factor	2			
Maximum Starting Current (Amps)	3.25	4.5	7.5	9.5
Allowable Voltage Rise due to Luminaires (Volts)	10			20
Starting Requirements				
Minimum Ballast Open Circuit Volts	202	198		375
Time to Stabilization (Cold Start) Minutes	3-4 Minutes			
Restrike Time after Momentary Interruption (Typical)	3-4 Minutes			
Photometric Characteristics				
Average Rated Life (Hours)	24000	16000		12000
Initial Lumens	11800	20000	36500	101000
Mean Lumens	10600	17000	32800	91000
Color Rendering Index (CRI)	20			
Correlated Color Temperature °K	1800	2000	2060	2100
Nominal CIE Chromaticity Coordinates X Y	0.545 0.402	0.516 0.408		0.512 0.42

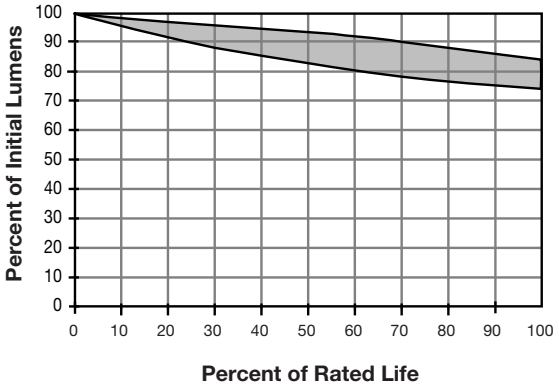
SOX

	18 Watt	35 Watt	55 Watt	90 Watt	135 Watt	180 Watt
						
	Clear	Clear	Clear	Clear	Clear	Clear
Item No.	69510	69511	69512	69513	69514	69519
Ordering Abbreviation	SOX18	SOX35	SOX55	SOX90	SOX135	SOX180
ANSI Spec No.	L69	L70	L71	L72	L73	L74
Physical Characteristics						
Bulb Designation	T17			T21		
Bulb Material	Borosilicate Glass					
Base Type	BY22D					
Operating Position	BU ± 110°			HOR ± 20°		
Nominal Bulb Diameter mm (")	54 (2.13)			68 (2.68)		
Max. Overall Length mm (")	216 (8.5)	311 (12.24)	425 (16.73)	527 (20.75)	775 (30.51)	1120 (44.1)
Max. Bulb Temperature °C (°F)	150 (302)					
Max. Base Temperature °C (°F)	150 (302)					
Eccentricity: Base to Bulb Base to Arc Tube	N/A N/A					
Electrical Characteristics						
Nominal Lamp Watts	18	35	55	90	135	180
Nominal Lamp Volts (RMS)	57	70	109	112	164	240
Nominal Lamp Amps (RMS)	0.35	0.6	0.59	0.94	0.95	0.9
Maximum Current Crest Factor	1.6					
Max. Starting Current (Amps)	0.43	0.74	0.73	1.16	1.17	1.12
Starting Requirements						
Minimum Ballast Open Circuit Volts	300 RMS, 425 Peak	390 RMS, 552 Peak	410 RMS, 580 Peak	420 RMS, 594 Peak	540 RMS, 764 Peak	600 RMS, 849 Peak
Time to Stabilization (Cold Start)	7-15 Minutes					
Restrike Time after Momentary Interruption (Typical)	2-4 Minutes					
Photometric Characteristics						
Average Rated Life (Hours)	18000					
Initial Lumens	1800	4550	7800	14300	22600	32000
Mean Lumens	1620	4095	7800	12155	19210	22400
Correlated Color Temperature °K	1700					

Lumen Maintenance Curves

The light output of HPS lamps gradually declines throughout lamp life. This phenomenon is also found in other electrical light sources, such as fluorescent & incandescent. Approximate lumen maintenance curves shown below are typical expected results and may change with variation of luminaires, ballasts, and input voltage.

Typical Lumen Maintenance Curve



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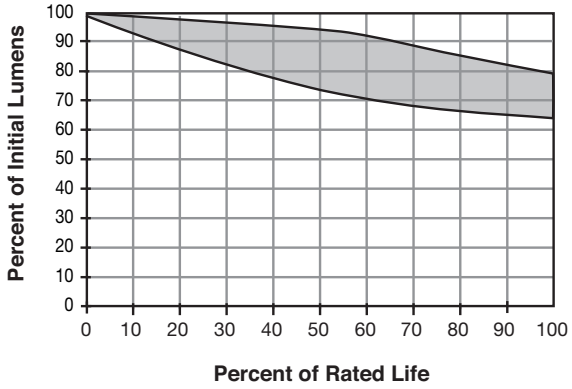
Typical Lumen Maintenance Curve



Standard LUMALUX®
LUMALUX Standby

LUMALUX PLANTASTAR®
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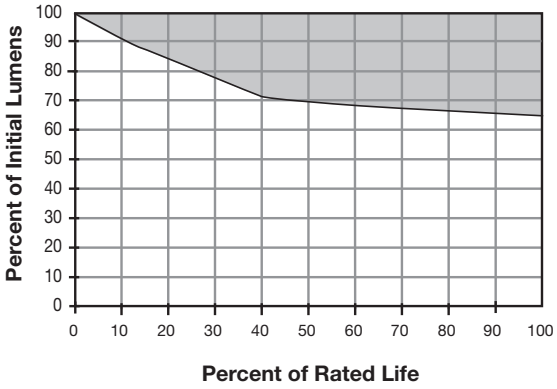
Typical Lumen Maintenance Curve

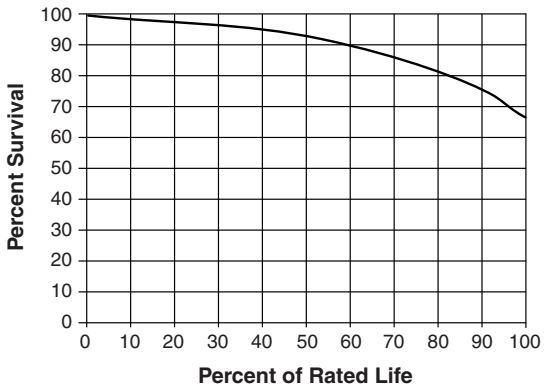


SOX Low Pressure Sodium

Typical Survival Curves

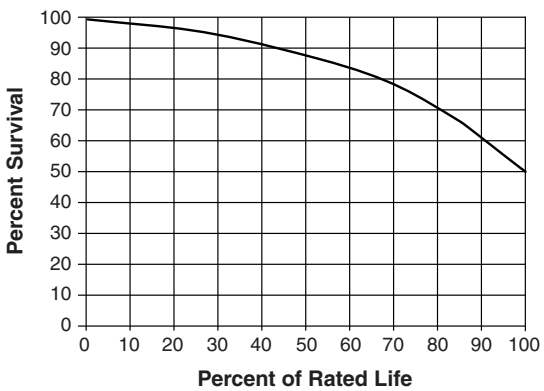
Typical Survival Curves are based on 10 hours per start, and the curves are nominal approximations. Actual lamp performance may vary.

Typical Survival Curve



Standard LUMALUX
LUMALUX PLUS ECOLOGIC®
LUMALUX Standby (except 1000W)

Typical Survival Curve



LUMALUX Standby (1000W)
SOX Low Pressure Sodium
UNALUX
LUMALUX PLANTASTAR

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