

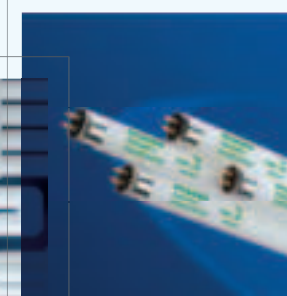
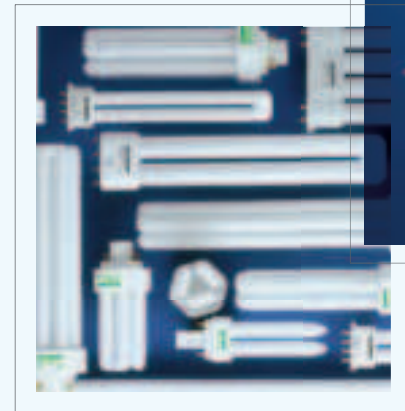
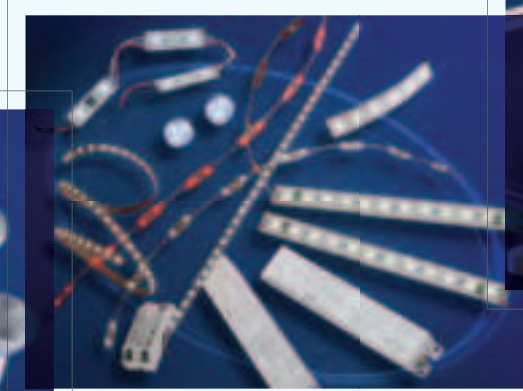
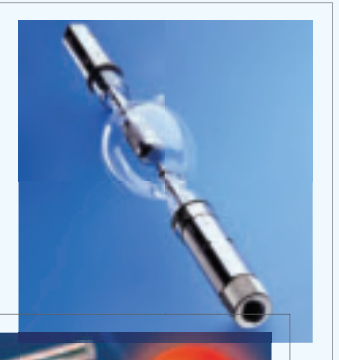


# Lamp and Ballast Catalog

# OSRAM SYLVANIA

## SEE THE WORLD IN A NEW LIGHT

For more than 100 years, OSRAM SYLVANIA has been a leader in the development of innovative lighting. This catalog provides specifications on over 3000 SYLVANIA and OSRAM branded products for a variety of lighting applications, each one designed and manufactured to the highest possible standards.



## A Lighting Industry Leader

With over 14,000 employees, OSRAM SYLVANIA is one of the leading lighting systems companies in North America. We are the North American business unit of OSRAM GmbH, one of the world's largest lighting manufacturers. OSRAM SYLVANIA is a member of the SIEMENS worldwide family of companies, which employs over 440,000 people in over 190 countries.

## Meeting Customer Expectations

OSRAM SYLVANIA makes ongoing investments in new and aggressive business practices. With the Total Cycle Time program, we have turned time into a strategic business ally. Our SAP program unites the entire organization with a sophisticated information system that helps serve our customers faster and more efficiently. Our ISO 9000, ISO 14001 and QS 9000 certifications show our achievements in delivering the highest quality lighting products.

## Lighting the World

OSRAM SYLVANIA, together with OSRAM GmbH, is the largest supplier of electronic lighting systems in the world. As leaders in fluorescent, halogen and metal halide technologies, the companies hold numerous international lighting patents and have an extensive engineering and manufacturing network. OSRAM GmbH and OSRAM SYLVANIA literally bring light to the world.

## Lamp Disposal Labeling

For all mercury-containing lamps manufactured after November 30, 2003, OSRAM SYLVANIA has incorporated the symbol "Hg" into the lamp etch, except for products where size or thermal constraints prevent etching in this manner. This action is part of the National Electrical Manufacturers Association (NEMA) lamp labeling initiative, the purpose of which is to guide users of lighting products—via internet or telephone—to appropriate contacts regarding disposal of spent mercury-containing lamps (fluorescent, compact fluorescent, and most HID).

Disposal labels appear on the inner-most packages of mercury-containing lamps, the outer cartons, or both. For Display-Optic and some other specialized lamp types, labeling is included in the stuffer. This labeling format complies with the requirements of existing states' legislation and has been designed to be universally applicable to all US States.

8THS	INCHES
1	
T2	1/4
3	
T4	1/2
T5	
T6	3/4
7	
T8 ▶	1
9	
B10 ▶	
11	
T12 ▶	
13	
PAR14	
15	
MR16 ▶	2
G16 1/2	
A17 ▶	
ET18	
A19 ▶	
PAR20 ▶	
A21	
22	
23	
	3
G25 ▶	
26	
27	
BT28	
29	
PAR30 ▶	
31	
	4
33	
34	
35	
36	
BT37	
PAR38 ▶	
39	
R40, G40 ▶	5
41	
42	
43	
44	
45	
PAR46 ▶	
47	
	6
49	
50	
51	
PAR52 ▶	
53	
54	
55	
BT56/PAR56	7
57	
58	
59	
60	
61	
62	
63	
PAR64 ▶	8
65	
66	
67	
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**(Hg) LAMP CONTAINS MERCURY**

**Manage in Accordance with Disposal Laws**

See: [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850



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## Important Notice

The data and suggested applications contained in this catalog, as well as any additional information our representatives may be able to furnish, are for general information only and are not intended and should not be taken as representations or warranties as to the suitability of a lamp for any particular application or use in any particular equipment, nor are our representatives authorized to make any such representations or give any such warranties. Applications and conditions of use are many and varied and beyond our control. We do not have the same degree of knowledge that the purchaser has with respect to the design of his equipment and the conditions of its use. Therefore, it is up to the purchaser to make his own determination as to the suitability of a lamp for his intended application or use and to assume responsibility for that determination.

OSRAM SYLVANIA claims to supply the best possible products at all times. For this reason, OSRAM SYLVANIA reserves the right to make changes in its products when it believes such changes will improve its products.

The specifications and information shown in this catalog are believed to be accurate. Although OSRAM SYLVANIA believes this information to be correct, no warranty is made or implied as to the accuracy of this information and OSRAM SYLVANIA does not accept or assume responsibility of liability for errors, changes, omissions, or for harm resulting therefrom.

**In accordance with our established policy to consistently improve our products, the specifications contained herein are subject to change without notice.**

The OSRAM SYLVANIA Test and Measurement Laboratory is a participant in the Energy Efficient Lighting (EEL) Program of the National Voluntary Laboratory Accreditation Program (NVLAP-NIST) and is accredited for testing of lighting products according to the guidelines for the EEL Program. OSRAM SYLVANIA lamp and ballast measurements are conducted under laboratory conditions utilizing American National Standards Institute (ANSI), Canadian Standards Association (CSA), Commission Internationale de l'Eclairage (CIE), and Illuminating Engineering Society of North America (IESNA) standards and practices. The OSRAM SYLVANIA Electronic Component and Systems Development Group participate in the Underwriters Laboratories Inc. Client Test Data Program. Ballast designs are tested for conformance to Underwriters Laboratory (UL) safety standards using practices audited, assessed and approved by UL. Actual lamp and ballast performance may vary depending on application and environment (i.e. ambient temperature, input voltage, ballast type, etc.)

OSRAM SYLVANIA designs and manufactures lamps and ballasts to meet American National Standard Institutes (ANSI) and/or IEC (International Electrotechnical Commission) standards of construction and performance through Total Quality Manufacturing (TQM) practices where applicable. In addition, ballasts are designed and manufactured to meet Underwriters Laboratory (UL) and Canadian Standards Association (CSA) safety standards as necessary. Ratings may change as a result of changes made to remain compliant with modified or updated standards. OSRAM SYLVANIA will release new or updated technical bulletins when appropriate. All product data presented in this catalog supersedes all data published before 10/1/07.

Many OSRAM SYLVANIA products listed in this catalog qualify under the North American Free Trade Agreement (NAFTA) as manufactured in Canada, the United States of America or Mexico.



**Luminance Contrast** The relationship between the luminances of an object and its immediate background.

**Luminance Ratio** The ratio between the luminances of any two areas in the visual field.

**Lux (lx)** A unit of illuminance equal to 1 lumen per square meter.

**Maximum Case Temperature** All OSRAM SYLVANIA electronic ballasts have a maximum allowable case temperature of 70°C and 90°C for magnetic fluorescent ballasts. Applications in which the case temperature exceeds this maximum void all warranties.

**Maximum Overall Length (MOL)** The total length of a lamp, from top of bulb to bottom of base.

**Mean Lumens** Lumen output of a light source after the source has been used. Mean lumen values for fluorescent and HID lamps are typically measured at 40% of their rated lives. Most high pressure sodium and mercury lamps are measured at 50% of their rated lives. All measurements are made on ANSI reference ballasts. Mean lumens are not typically measured for incandescent and tungsten halogen lamps.

**Mean Spherical Candela (MSCD)** The average value of the luminous intensity of a light source in all directions. To convert MSCD to Lumens, multiply by  $4\pi$  (12.57).

**Mean Time Between Failures (MTBF)** A calculation of ballast life based on thermal conditions, component values, and circuit characteristics used to develop relative predictions of ballast life. OSRAM SYLVANIA uses methodology that typically provides a 1:10 actual life prediction based on MTBF calculations.

**NAED** A five-digit number used to identify a specific OSRAM SYLVANIA lamp. This NAED number in this catalog is labeled Product Number and should be used when ordering OSRAM SYLVANIA products. NAED is the abbreviation for National Association of Electrical Distributors.

**Nanometer (nm)** A unit of length equal to  $10^{-9}$  meters; commonly used as a unit of wavelength.

**Nominal Watts** Wattage used to describe a lamp. Also see Power and Watt.

**OFR** Abbreviation for “ozone free” technology. Lamps with the designation OFR do not generate ozone during operation.

**Operating Position** Some lamps are specified/ designed to be operated in certain positions, i.e., horizontal or base up.

**Ordering Abbreviation** Provides a shorthand description of the lamp, using a unique code which can be used when ordering a lamp if the Product Number is not known. An example would be: CF15EL/R30/830/MED, which translates to a 15-watt Soft White DULUX® EL reflector electronic self-ballasted compact fluorescent lamp with an R30 reflector, 82CRI, 3000K color temperature and a medium screw base.

**PAR Lamps** Pressed aluminized reflector lamp, with the outer bulb formed from two pressed glass parts that are fused or sealed together. PAR lamps may be incandescent, halogen, or HID types.

**Parallel vs. Series** Wiring configurations for ballasts. Ballasts with parallel lamp circuitry have the benefit of companion lamps remaining lit, even if one of the lamps operated by the ballast should fail. Systems with series lamp wiring (magnetic ballasts and many rapid start electronic types) result in all lamps operated on the ballast going out if one should fail.

**Photo-Optic Specialty Lamps** Photo-Optic specialty lamps employ a variety of technologies to meet the very precise levels of performance required by the entertainment industry, science, medical and other high-tech fields.

**Power** The rate at which energy is taken from an electrical system or dissipated by a load, expressed in watts (W); power that is generated by a utility is typically expressed in volt-amperes (VA).

**Power Factor** A measure of the effectiveness with which an electrical device converts volt-amperes to watts; devices with power factors (>0.90) are “high power factor” devices.

**Preheat** A class of fluorescents requiring a starter, which allows the lamp and filaments to be properly heated before allowing the ballast to supply the correct current flow.

**Product Number** (See NAED.)

**Programmed Rapid Start (PS)** A method of starting fluorescent lamps where cathode heat is applied prior to lamp ignition, then removed or reduced once the lamp has ignited. PROStart® ballasts maximize the number of lamp starting cycles while maintaining energy efficiency. This is the preferred mode of lamp starting for applications with occupancy sensors and several on/off cycles per day. Additionally, the lamps will strike reliably in cold conditions down to 0°F.

**Rapid Start (RS)** Rapid start ballasts apply a low filament voltage to preheat the cathodes. Simultaneously, a starting voltage (lower than that used in instant start) is also applied to strike the arc. When the cathodes are hot enough, the lamp will strike. The filament voltage continues to be applied throughout the operation of the lamp. Rapid start ballasts appear to have a slight turn on delay compared to instant start. They will typically not be able to start lamps reliably under 50°F.

**Reference Ballast** A ballast specially constructed to have certain prescribed characteristics for use in testing electric-discharge lamps and other ballasts. Reference ballasts are typically defined by ANSI.

**Reflector** A device used to redirect the light by the process of reflection. Photo-Optic reflector lamps utilize ellipsoidal (converging light rays) or parabolic (collimating light rays) reflectors. Dichroic coated reflectors are designed to reflect visible light and pass through unwanted infrared wavelengths.

**Resistance (R)** A measure of resistance to flow of current, expressed in ohms ( $\Omega$ ).

**Safety** Ballasts should be installed and operated in compliance with the National Electric Code (NEC), Underwriters Laboratories Inc. (UL) requirements, and all applicable codes and regulations. Since it is possible to come in contact with potentially hazardous voltages, only qualified personnel should perform ballast installation. All installation, inspection, and maintenance of lighting fixtures should be done with the power to the fixture turned off.

**Shielding** A general term to include all devices used to block, diffuse or redirect light rays, including baffles, louvers, shades, diffusers and lenses.

**Single-Ended** Lamps having a single lamp base or point of electrical connection.

**Spectral Power Distribution (SPD)** A curve illustrating the distribution of radiant power produced by the lamp, at each wavelength across the spectrum.

**Spotlight** A luminaire using halogen/incandescent or a high intensity discharge (HID) lamp that produces a narrow beam angle designed to illuminate a specifically defined area. It can also be called a reflector lamp.

**TCLP Test (Toxicity Characteristic Leaching Procedure)** Federal EPA regulations (RCRA of 1990) have defined a TCLP test to determine whether wastes are to be treated as hazardous or non-hazardous.

**Total Harmonic Distortion (THD)** A measure of the distortion of an electrical wave form. Excessive THD (defined by ANSI as greater than 32%) may cause adverse effects to the electrical system. <20% THD ballasts are fine for most applications. However, in buildings with neutral problems caused by high THD loads such as computers, printers, DC supplies, etc., the <10% THD products can help reduce the overall % of Total Harmonic Distortion.

**Transient Protection** OSRAM SYLVANIA ballasts meet ANSI 62.41 Category A. This helps ensure immunity to electrical disturbances such as power line transients, and temporary line voltage dropouts, surges and sags.

**Trigger Start** A circuit used to eliminate the starter and start the preheat lamp almost instantly. In this circuit each electrode is connected to a separate winding in the ballast so that the electrode is continuously heated.

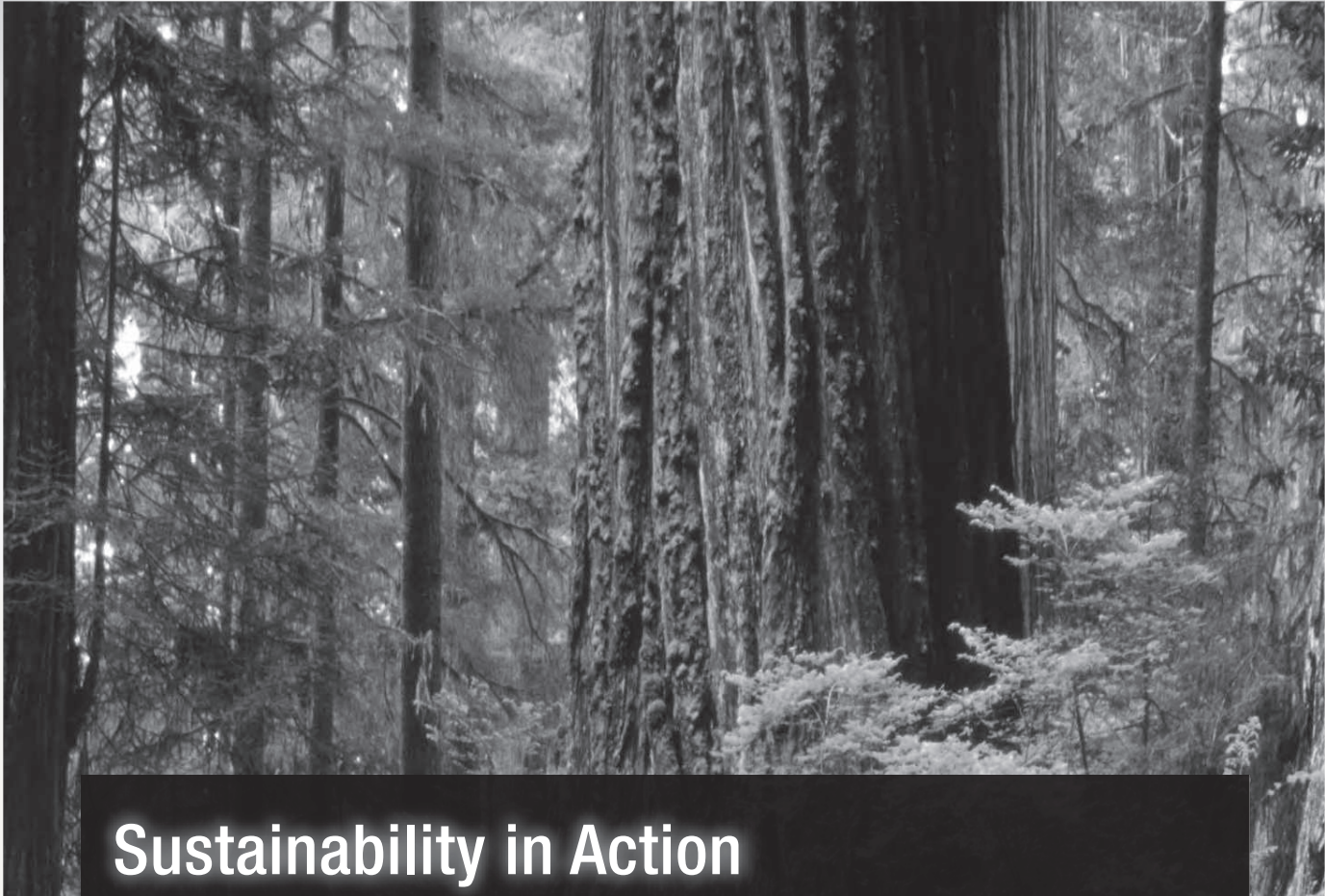
**Tungsten Halogen Cycle** A regenerative cycle of tungsten and halogen atoms, which, when incorporated into the design of halogen light sources, prevents blackening of the lamp envelope during life.

**Voltage (V)** A measure of electrical potential, expressed in volts (V). Voltage is the “force” that pushes electrical current through a conductor.

**Watt (W)** A unit of electrical power equal to 1 joule per second. Lamps are rated in watts to indicate power consumption. Also see Nominal watts.

**Wavelength ( $\lambda$ )** Distance between two successive points of a periodic wave; the wavelengths of light are typically expressed in nanometers (nm), or billionths of a meter.

**Working Distance** (See Focal Distance.)



## Sustainability in Action

Meeting our needs today without compromising the resources future generations will need — touches everything we do as a company. It's all about reducing environmental impact, a commitment that goes beyond our products to include how the products are manufactured, how they are used and how they are distributed and disposed. It even extends to the design of “greener” buildings.

### **Sustainability is everybody's business.**

When we can do more with less, everyone wins. Businesses need to find ways to grow without adding to our environmental footprint — and the good news is, we're making steady progress. Advanced technologies are helping us to be more efficient. We're using less energy and fewer resources, and generating less waste.

At a personal, corporate or national level, lighting plays an important role in any sustainability strategy. Whether you're interested in lowering your energy consumption, avoiding unnecessary maintenance, identifying options for lamp and ballast recycling,



or finding products with fewer hazardous materials, OSRAM SYLVANIA can help.

### **Global Care:**

Global Care represents our commitment to corporate responsibility. This initiative is designed to drive positive results to the triple bottom line addressing social, economic and environmental needs. Furthermore, we are dedicated to meeting our customers' lighting needs with a sustainable approach to product design, development, manufacturing and distribution.

We integrate environmental responsibility into every area of our company. As a result, we are using fewer natural resources, saving energy for our customers, reducing power plant emissions, and recycling lamps and other materials to avoid millions of pounds of waste in landfills.







## ECOLOGIC® products are the industry's most comprehensive line of environmentally preferable lighting solutions.

Our lamps designated as ECOLOGIC pass the U.S. EPA's Toxic Characteristic Leaching Procedure (TCLP) test for hazardous waste determination. Products meeting the TCLP test may be declared "universal waste" in many states, easing the administrative, storage and transportation burdens for these products. (Check your state and local governments for the most accurate regulations.)

ECOLOGIC lamps have little or no lead in their glass or bases, and little or no mercury in the HID and fluorescent lamp types. Many of these products also offer additional "green" features such as energy efficiency and long life, and are packaged using recycled and/or recyclable materials.

With more than 800 products meeting our strict ECOLOGIC guidelines and bearing the distinct "ECO®" designation, we offer more environmentally preferable lamp types than any other manufacturer.

In 2006, the ECOLOGIC program celebrated its 10-year anniversary. In those 10 years, we've avoided the use of over 580 tons of lead from our soldering production, and we've reduced the amount of mercury used in many of our lamps by up to 92%.







## Lamp Recycling. It's never been more important. It's never been easier.

When it comes to creating a sustainable future, we're all in it together. No company can go it alone. That's why SYLVANIA has joined forces with VEOLIA, a leading provider of environmental services in the U.S. to create a safe, convenient and cost-effective program to keep you in compliance with federal, state and local disposal regulations. Let us show you how easy it is to make a difference in the world. Please visit [www.sylvania.com/recycle](http://www.sylvania.com/recycle) for more information.



SEE THE WORLD IN A NEW LIGHT **SYLVANIA** 

# Energy and the Cost of Lighting

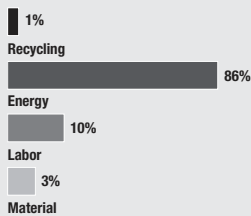
According to the U.S. Department of Energy, we consume about one-quarter of our electricity for lighting, at a cost of more than \$37 billion annually. Lighting accounts for the single largest portion of electric bills for commercial users, as much as 30% — and it can be a prime opportunity for reducing energy costs.

## Where does the cost of the average lighting system come from?

- Materials — the initial investment in fixtures, lamps, wires and ballasts
- Labor — the cost to install the lighting and maintain it day-to-day
- Electricity — the energy consumed to illuminate the lamps
- Recycling — removing and disposing of spent lamps in a way that does not negatively impact the environment

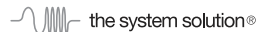
Figure 1

## Cost of Maintaining the Average Lighting System



As Figure 1 shows, the material cost of a lighting system: bulbs, ballasts and wiring, is small in relation to the cost of the energy to light it.

Advances in lighting technology have improved the energy efficiency of lighting by 30-60%, improvements that reduce environmental impacts while increasing the bottom line. Energy-efficient lighting requires less energy, which lowers electricity demand. With less demand, power plants burn less fossil fuel, reducing emissions of mercury and other air pollutants. So everybody profits.



## Energy-efficient systems

An important direction in lighting technology is the move toward systems. OSRAM SYLVANIA started the trend with THE SYSTEM SOLUTION®, a family of optimally balanced energy-saving lamps and electronic ballast combinations. By bringing lamp and ballast development under an integrated system concept, we have been able to design innovative SYLVANIA lighting systems that optimize energy savings without sacrificing other elements of performance.

OSRAM SYLVANIA has the competitive advantage, with years of experience in designing, developing and supporting integrated systems — both in ballasts and lamps. Our global network of design and manufacturing brings ballast and lamp knowledge together to produce innovative, cost-effective, energy saving systems.

## Saving energy, saving money

Energy costs represent your biggest and best opportunity for savings. Even seemingly minor energy efficiency improvements can have a major positive impact on operating expenses — long-term savings that can quickly repay the minimal capital investment.

For example, here are some things you can do right now:

- Upgrade to SYLVANIA Energy Saving lighting products to significantly reduce total energy usage and operating costs.
- Replace traditional T12 fluorescent systems with SYLVANIA OCTRON® T8 fluorescent lamps and SYLVANIA QUICKTRONIC® electronic ballasts for up to 50% energy savings.\* You'll also get the added assurance of QUICK 60+®, the industry's first and most comprehensive lighting system warranty.
- Implement a lighting maintenance and retrofit strategy to maintain safety, security, aesthetics and productivity, as well as to reduce labor costs. Our own SYLVANIA Lighting Services can help.
- Install dimmers and lighting control systems to save additional energy and add lighting design flexibility.

## OCTRON T8 fluorescent lamps—savings the world can live with

In 1981, OSRAM SYLVANIA invented the OCTRON T8 fluorescent lamp, ushering in a new era of energy efficiency in lighting. Since we introduced the SYLVANIA OCTRON family, we've saved our customers more than \$27 billion in electricity costs\*. We've avoided 4 tons of airborne mercury discharged from power plants\*\*, and saved enough electricity to run the Las Vegas Strip for 156 years!

## Rebates and tax benefits

As a way to reduce overall electricity demand, many utilities offer rebates to commercial customers who upgrade the efficiency of their lighting systems. Check with your local utility or ESCO to learn more about these additional savings opportunities. In addition, the Federal Energy Policy Act of 2005 (EPAAct 2005) offers tax benefits for energy-efficiency upgrades in commercial buildings undertaken in 2006 and 2007. (For more information, please visit [www.sylvania.com/EPACT](http://www.sylvania.com/EPACT)).

\* Based on \$.10/kWh

\*\* U.S. Department of Energy emissions conversion calculations



# SYLVANIA Products and the IESNA Progress Report

## A Proud Legacy of Achievement

Each year, The Progress Committee of the Illuminating Engineering Society of North America (IESNA) solicits the lighting industry for product submissions which, if accepted by the committee, are featured in the committee's Progress Report, which is published in the IESNA's publication "Lighting Design & Application". The mandate of the Progress Committee is "to keep in touch with developments in the art and science of lighting throughout the world and prepare a yearly review of achievements for the Illuminating Engineering Society of North America." Submissions are organized into one of seven categories:

light source, accessory, luminaire, research, application, publication and design tool. They are evaluated for their design, engineering characteristics, installation features and overall uniqueness. The 30-member committee of industry experts votes on up to 200 product submissions annually.

Over the years many SYLVANIA and OSRAM branded products have been accepted for the Progress Report. An itemized list of these products and their significant features, are listed in the tables that follow.

### 2007 Progress Report

OSRAM SYLVANIA submissions accepted by the IESNA Progress Report	Significance to the Lighting Industry
OPTOTRONIC® 3W/350 mA LED Power Supply	Smallest constant current power supply – lower than 5W for max power flexibility.
OPTOTRONIC 96W/24V LED Power Supply	Only 96w power supply that contains fittings and junction boxes. IP66 rated. Universal voltage.
OPTOTRONIC 240W/24V LED Power Supply	Only 240W power supply that contains fittings and junction boxes. IP66 rated. Universal voltage. 3 independently switchable channels.
QUICKTRONIC® QHE2x59/UNV-ISL-SC Ballasts	First high efficiency, low ballast factor, universal input voltage, instant start ballast for 8 foot T8 lamps.
QUICKTRONIC QHE2x59/UNV-ISH-SC Ballasts	First high efficiency, high ballast factor, universal input voltage, instant start ballast for 8 foot T8 lamps
QUICKTRONIC QHE2x86WT8HO/UNV-PSN-HT Ballasts	First high efficiency, normal ballast factor, universal input voltage, programmed start ballast for 8 foot T8/HO lamps
QUICKTRONIC QHE 3 & 4 32T8/347V ISH HT Ballasts	First high efficiency, 347V, high ballast factor, instant start ballasts for 4 foot T8 lamps
QUICKTRONIC QHE 3 & 4 32W T8 480V Ballasts	First high efficiency, 480V, high ballast factor, instant start ballasts for 4 foot T8 lamps
QUICKTRONIC QHE 2x40DL UNV ISN SC Ballasts	First high efficiency, 2-lamp universal voltage ballasts for DULUX L SUPERSAVER 40W and 28W lamps
QUICKTRONIC QHE 2,3,4 32T8 UNV PSH – HT Ballasts	First high efficiency, programmed start, 90°C rated ballasts for T8 lamps
QUICKTRONIC QHE 1,2,3,4 x32T8 UNV Type CC and Anti-Striation Control Ballasts	First high efficiency T8 ballasts that operate more lamp types than any other type CC ballast. -20°F starting temperature
QUICKTRONIC QTP2x54T5HO UNV PS80 SC Ballasts	First high efficiency T5HO ballast with 0.80 ballast factor for 20% energy savings
QUICKTRONIC QS2X54T5HO UNVPS80SC Ballasts	First high efficiency T5HO ballast with 0.80 ballast factor for 20% energy savings with bi level switching
QUICKTRONIC POWERSENSE T5 Dimming Ballasts	First high efficiency dimming ballasts for T5 lamps – dual control (0-10V & line voltage), universal voltage
QUICKTRONIC Helios 0-10V T8 Dimming Ballasts	First high efficiency dimming ballasts for T8 lamps with up to 1.2 ballast factor, auto start & restart technology 277V
METALARC® POWERBALL® 250W Ceramic Metal Halide Lamps	Smallest 250W single-ended ceramic metal halide in the industry.
20, 39, 70W METALARC POWERBALL Ceramic lamps with secure-fit G8.5 base design	Industry's first formed press G8.5 base low wattage CMH lamp.
OCTRON® SKYWHITE T8 Fluorescent Lamps	Industry's first 8000K T8 lamp
PENTRON® PREMIER ECOLOGIC® T8 Fluorescent Lamps	Industry's highest lumen 28W lamps.



## 2006 Progress Report

OSRAM SYLVANIA submissions accepted by the IESNA Progress Report	Significance to the Lighting Industry
20W METALARC® POWERBALL® Ceramic Metal Halide PAR 30 Lamp	Highest lamp life for 20W PAR 30 CMH.
39W METALARC POWERBALL Ceramic Metal Halide PAR 20 or PAR 30 Lamp	Highest CRI PAR 20 or PAR30 CMH – 5% improvement.
750W SUPER METALARC® Pulse Start	First base down 750w MH Pulse Start lamp.
54W PENTRON® HO Primary Colors T5 Fluorescent Lamps	First T5 HO single phosphor lamps.
aluPAR™ – Lighter, brighter, cooler PAR 56 Stage & Entertainment Lamp	First lightweight, aluminum reflector PAR 56. Lamp can be disassembled for recycling. Up to 50% lighter and 10% brighter.
QUICKTRONIC® QHE High Efficiency Family of 347V 4 – Lamp T8 Ballasts	First high efficiency T8 Instant Start low ballast factor ballast for 347V systems.
QUICKTRONIC QHE High efficiency Family of 347V T8 Instant Start Ballasts	First high efficiency T8 Instant start normal ballast factor ballast for 347V systems.
QUICKTRONIC QHE 3X40DL UNV IS T5 Ballasts	First high efficiency universal voltage ballast that can operate 3 DL40W or 3 DL40/28W SS lamps.
OCTRON® FBO29/800XP/SS/ECO 29W T8 Fluorescent Lamp	First 29W 1-5/8" leg U-bent lamp.
DRAGONstick	Expansion of DRAGON product family, includes heatsinks and available in 3300K.
DRAGONpuck Warm White	Expanded DRAGONpuck product family – 3300K version.
DRAGONtape Warm White	Expanded DRAGONtape product family – 3300K version.
HF <sup>2</sup> Linear LED module	First integrated LED strip with heat sink and optics. Increases accessibility of LED to non LED manufacturers.
HF <sup>2</sup> Eye LED module	First integrated LED point source with heat sink and optics. Increases accessibility of LED to non LED manufacturers. IP65 rated.
HF <sup>2</sup> X LED Module	Smallest 6 LED array with high luminance LEDs with optics.
OStar® Lighting LED component	Smallest 6 LED array with high luminance LEDs.

## 2005 Progress Report

OSRAM SYLVANIA submissions accepted by the IESNA Progress Report	Significance to the Lighting Industry
MINISTAR® Lamp	Smallest low voltage bi-pin halogen reflector lamp.
70W METALARC® POWERBALL® PLUS Ceramic Metal Halide Lamps (3000K, 95 CRI)	Highest CRI of 3000K CMH lamps.
320W METALARC POWERBALL Ceramic Metal Halide Lamp	Highest initial LPW (117LPW) for a 320W CMH lamp.
70W METALARC POWERBALL PAR30 Ceramic Metal Halide Lamp	First CMH lamp with neodymium glass.
70 and 100W LUMALUX® PLUS High Pressure Sodium Lamps	First non-cycling medium based HPS lamp.
39W METALARC POWERBALL Ceramic Metal Halide Lamp	Longest life 4000K 39W CMH lamp (12,000 hrs)
920W SUPER METALARC® Metal Halide Lamp	First 920W metal halide lamp direct retrofit for 1000W.
PENTRON® Constant HO ECOLOGIC® T5 Fluorescent Lamp	First T5 HO lamp with amalgam technology.
ICETRON® Reflector ECOLOGIC Inductively Coupled Electrodeless Fluorescent Lamp	First induction lamp with an internal reflector.
OCTRON® FBO29/800XP/SS/ECO 29Watt T8 Fluorescent Lamp	First 29W 1-5/8" leg u-bent lamp.
OPTOTRONIC® Constant Current Dimmable LED Power Supply for DRAGONtape and DRAGONpuck	First LED driver for DRAGONtape and DRAGONpuck module.
OPTOTRONIC Dimmable LED power supply for DRAGONtape and DRAGONpuck	First dimmable LED driver for DRAGONtape and DRAGONpuck.
DRAGONpuck LED Module	First high brightness LED with integrated optics.
DRAGONtape LED Module	Modular, high brightness configurable LED strip.
OPTOTRONIC LED power supply, 24V, 75W	First 75W universal voltage LED power supply.
OPTOTRONIC OT050/120-277/10E LED Power Supply	First 50W universal voltage LED power supply.

# Product Catalog Glossary of Terms

**Ampere** A unit expressing the rate of flow of electric current.

**ANSI (American National Standards Institute)** The organization that develops voluntary guidelines and produces performance standards for the electrical and other industries.

**Audible Noise (Sound)** All fluorescent lamp ballasts produce some noise. Most OSRAM SYLVANIA brand ballasts are sound rated A (up to 75% quieter than magnetic types) and are acceptable for most applications. Care should be taken when mounting the ballast to reduce vibration.

**Average Rated Life** An average rating, in hours, indicating when 50% of a large group of lamps have failed, when operated at nominal lamp voltage and current; manufacturers use 3 hours per start for fluorescent lamps and 10 hours per start for HID lamps when performing lamp life testing procedures; every lamp type has a unique mortality curve that depicts its average rated life. For Photo-Optic specialty lamps, average rated life refers to the operating period after which on statistical average, 50% of the lamps will perform within their specified values.

**Ballast** A device used with an electric discharge lamp to obtain the necessary circuit conditions (voltage, current and waveform) for starting and operating; all fluorescent and HID light sources require a ballast for proper operation. Dimming ballasts are special ballasts which, when used together with a dimmer, will vary the light output of a lamp. OSRAM Photo-Optic discharge lamps are either designed for AC operation (sine wave and/or square wave with recommended operational frequencies below 1KHz) or DC operation (current regulated or power regulated). Please see OSRAM lamp specifications for correct ballast or electronic control gear selection.

**Ballast Basics** Ballasts have two primary functions: 1) start the lamp and 2) control operation of the lamp once it has started. High frequency electronic ballasts operate lamps more efficiently and eliminate the hum and visible flicker normally associated with standard magnetic ballasts. Electronic ballasts also typically have better power quality than magnetic ballasts.

**Ballast Efficacy Factor (BEF)** Ballast factor (as a whole number) divided by input power (watts). Used to measure the level of efficiency of similar ballast models. For example, the OSRAM SYLVANIA QT2X32IS which has a ballast factor of 0.90 and input watts of 59 (BEF= 90/59 = 1.53), is more efficient than electronic ballasts with ballast factor of 0.875 and input watts of 62 (BEF=1.41).

**Ballast Factor (BF)** The measured ability of a particular ballast to produce light from the lamp(s) it powers; ballast factor is derived by dividing the lumen output of a particular lamp/ballast combination by the lumen output of the same lamp(s) on a reference ballast.

**Ballast Fusing** (See Fusing.)

**Ballast Life** OSRAM SYLVANIA ballasts are designed to have an average life expectancy of 60,000 hours. To maximize life, ambient temperature should be kept as low as possible. It is also important to maintain effective dissipation of heat using the lighting fixture as a heatsink for the ballast enclosure.

**Ballast Losses** Power consumed by a ballast that dissipates as heat instead of being converted into light. Electronic ballasts operate more efficiently than magnetic or hybrid ballasts. A typical ballast loss for a standard two lamp energy saving magnetic ballast is 12 watts, where an electronic equivalent would only be 7 watts.

**Ballast Types** There are three types of lighting ballasts: 1) Magnetic: an inefficient device that uses a core and coil assembly transformer to perform the minimum functions required to start and operate the lamp; 2) Hybrid or "low frequency electronic": essentially a magnetic ballast with a few electronic components that switch off voltage to the lamp coil once the lamp has started. A minimal increase in efficiency is obtained via more expensive magnetic core material and the absence of power to the lamp coils during operation; 3) High frequency electronic: a ballast that operates lamps at frequencies above 20,000 Hz. Maximum efficiency is obtained through the use of electronic circuitry and optimum lamp operating characteristics.

**Base** The lamp base mechanically holds the lamp in place in the application. The lamp base directly or indirectly (via a cable or lead-in wires) conducts electricity from the circuit to the lamp and can be designed to dissipate heat. Lamp bases should be operated within specified temperature ranges.

**Beam Angle** The angle between the two directions for which the intensity (candlepower) is 50% of the maximum intensity as measured in a plane through the nominal beam centerline (center beam candlepower).

**Beam Spread** In any plane, the angle between the two directions in the plane in which the candlepower is equal to a stated percent of the maximum candlepower in the beam.

**Black Body (Planckian radiator)** An ideal thermal radiator whose SPD curve is defined by its temperature in Kelvin and whose color coordinates lie exactly on the Planckian curve.

**Brightness** (See Luminance.)

**Bulb** Hard, soft or quartz glass enclosure, which can contain a vacuum, elemental inert gas or metal and a means of light generation (filament or electrodes).

**Candela (cd)** The unit of measure indicating the luminous intensity (candlepower) of a light source in a specific direction; any given light source will have many different intensities, depending upon the direction considered.

**Candlepower Distribution** A curve that represents the variation in luminous intensity (expressed in candelas) in a plane through the light center of a lamp or luminaire; each lamp or lamp/luminaire combination has a unique set of candlepower distributions that indicate how light will be spread.

**Center Beam Candlepower (CBCP)** The intensity of light produced at the center of a reflector lamp beam, expressed in candelas.

**Chromaticity** The aspect of color that includes consideration of its dominant wavelength and purity.

**Color Rendering Index (CRI)** The Color Rendering Index (CRI) measures the effect a light source has on the perceived color of objects and surfaces. High CRI light makes virtually all colors look natural and vibrant. Low CRI causes some colors to appear washed out or even to take on a completely different hue.

**Color Temperature (CT)** Color temperature, which is measured in Kelvin, indicates whether a lamp has a warm, midrange or cool color appearance. "Warm" light sources have a low color temperature (2000-3000K) and feature more light in the red/orange/yellow range. Light with a higher color temperature (>5000K) features more blue light and is referred to as "cool."

**Compact Fluorescent Lamps** Compact fluorescent lamps employ small diameter tubes that are bent so they begin and end in a single base. This allows them to be produced in a wide variety of configurations, greatly extending the applications for fluorescent lighting.

**Correlated Color Temperature (CCT)** A specification of the color appearance of a lamp, relating its color to that of a reference source, black body radiator, heated to a particular temperature, measured in degrees Kelvin (K); CCT generally measures the "warmth" or "coolness" of light source appearance.

**Current** A measure of the rate of flow of electricity, expressed in amperes (A).

**Description** (See Ordering Abbreviation.)

**Design Amperes** The approximate current which the lamp will draw at design volts.

**Directional Lighting** Illumination on the work-plane or on an object predominantly from a single direction.

**Double-Ended** Lamps that have two bases opposite one another for series electrical connection, mechanical mounting and heat dissipation.

**Efficacy** The rate at which a lamp is able to convert power (watts) into light (lumens), expressed in lumens per watt (LPW or lm/W). See also LPW Performance.

**Electronic Control Systems** (See Ballast.)

**EMI/RFI** Electronic Ballasts contain circuits that limit electrical noise conducted onto the power line or radiated through the air, otherwise referred to as EMI/RFI. OSRAM SYLVANIA ballasts comply with FCC 47 CFR Part 18, non-consumer limits for commercial applications. Ballasts for residential application must meet consumer limits. OSRAM SYLVANIA has a complete line of magnetic ballasts for residential use.

**Energy** A measure of work done by an electrical system over a given period of time, often expressed in kilowatt-hours (kWh).

**Filament** A tungsten wire purposely positioned inside a lamp bulb, that when heated electrically generates radiation in the visible, infrared and ultra-violet ranges. Tungsten material is most often used, as it has great tensile strength, is very durable, and can be heated very near its melting point without evaporating rapidly. Lamp filaments are offered in a variety of designs optimized for specific applications.

**Fixture** (See Luminaire.)

**Floodlight** A reflector lamp with a relatively wide beam pattern. Also a luminaire consisting of lamp and reflector at fixed distance providing a wide field of illumination.

**Fluorescent Lamp** A low pressure mercury vapor discharge light source. The electric discharge generates ultra-violet (UV) energy, which is absorbed by a phosphor and converted to visible light.

**Focal Distance** The distance between a lamp (light producing element) and the focal point of the reflector surrounding it. Lamp alignment can be adjusted to influence both illumination and color quality. Sometimes referred to as "working distance".

**Footcandle (fc)** A unit of illuminance equal to 1 lumen per square foot.

**Frequency** The number of times per second that an alternating current system reverses from positive to negative and back to positive, expressed in cycles per second or hertz (Hz).

**Fusing** All QUICKTRONIC® ballasts contain inherent electrical protection. Although there is no need to externally fuse the ballast, should code or regulation require one, 3 amp slow blow fuses are recommended.

**Glow to Arc Transition** In order to achieve full rated lamp life, a ballast should start a lamp so that the time from when the lamp begins to glow to the time the lamp arc strikes should be as short as possible. OSRAM SYLVANIA instant start ballasts typically accomplish this task within 50 msec.

**Grounding** The ballast case and fixture must always be grounded. The grounding helps assure safety, proper lamp starting, and acceptable EMI/RFI performance. Install ballast in accordance with national and local electric codes.

**Halogen Lamps** High pressure tungsten filament lamps containing halogen gases. The halogen gases allow the filaments to operate at higher efficacies than incandescent lamps. Halogen lamps also provide brighter, whiter light with better color characteristics, longer service life and improved energy efficiency.

**Harmonic** An electrical frequency that is an integer multiple of the fundamental frequency; for example, if 60 Hz is the fundamental frequency, then 120 Hz is the second harmonic and 180 Hz is the third harmonic. Some electronic devices, such as ballasts or power supplies, can cause harmonic distortion, directly affecting power quality.

**Hertz (Hz)** A unit of frequency equal to one cycle per second; see frequency.

### High-Intensity Discharge (HID) Lamps

Lamps in which an arc passing between two electrodes in a pressurized tube causes various metallic additives to vaporize and release large amounts of light. All HID lamps offer outstanding energy efficiency and service life. Metal halide lamps also offer good to excellent color rendering index (CRI).

**Hot Ignition** The restarting of a previously operating lamp shortly after turn-off. Hot ignition is a high performance feature in many OSRAM SYLVANIA discharge lamp types.

**Illuminance** Light arriving at a surface, expressed in lumens per unit area; 1 lumen per square foot equals 1 footcandle, while 1 lumen per square meter equals 1 lux.

**Incandescent Lamp** A light source using the principle of incandescence. When an electric current passes through a filament wire (usually tungsten), the heated wire glows. Filaments of standard incandescent lamps are enclosed in a vacuum or gas-filled bulb. They provide low initial cost, good color rendition and excellent optical control.

**Instant Start (IS)** Instant start ballasts apply high voltage across the lamp with no preheating of the cathode. This is the most energy efficient starting method for fluorescent lamp ballasting. IS ballasts use 1.5 to 2 watts less per lamp than rapid start ballast. Other IS ballast benefits typically include parallel lamp circuitry, longer remote wiring distance, easier installation due to less complicated wiring, and capability to start lamps at 0 degrees (versus 50 degrees F for rapid start).

**K-Factor** A measurement that quantifies the effect of non-linear equipment, such as lighting ballasts, on an electrical system. Lighting systems should be designed so that the transformer rating is sufficient for the ballast used (typically K-factor <4). All OSRAM SYLVANIA ballasts meet this specification.

**Lamp** Manufactured light source, synonymous with light bulb; the three broad categories of electric lamps are incandescent, fluorescent and high-intensity discharge.

**Lamp Current Crest Factor (LCCF)** The ratio of peak lamp current to the RMS (average) lamp current. Lamp manufacturers require a LCCF of less than 1.70 in order to achieve full lamp life.

**Lamp Disposal** When disposing of spent lamps, always consult federal, state, local and/or provincial hazardous waste disposal rules and regulations to ensure proper disposal.

**Lamp Flicker** Cyclic variation in output of a light source. High frequency electronic ballasts provide a minimal level of lamp flicker. Lamp flicker from magnetic ballasts may cause eye fatigue for some people.

**Lamp Fuse** Wire or device designed to protect a lamp from over-voltage or over-current conditions. OSRAM requires that all Photo-Optic lamps be fused in their applications to prevent lamp over-powering. Certain lamps contain their own internal fuse. Please ensure lamps in your specific application are fused with respect to their power source.

### Lamp Lumen Depreciation Factor (LLDF)

The multiplier to be used in illumination calculations to relate the initial rated output of light sources to the anticipated minimum rated output based on the relamping program to be used. (See Lumen Depreciation and Mean Lumens.)

**Lens** A glass or plastic element used in luminaires to change the direction and control the distribution of light rays.

**Light** Radiant energy that is capable of producing a visual sensation.

**Light Center Length (LCL)** The distance from a specified reference point on a lamp base to its light center.

**Light Loss Factor (LLF)** A factor used in calculating illuminance after a given period of time and under given conditions. It takes into account temperature and voltage variations, dirt accumulation on luminaire and room surfaces, lamp depreciation, maintenance procedures and atmosphere conditions. Formerly called maintenance factor.

**Low Temperature Starting QUICKTRONIC®** instant start and programmed rapid start electronic ballasts have the capability to start fluorescent lamps at temperatures down to 0°F providing the following conditions are met: 1. The ballast is operated at rated nominal line voltage; 2. Ballast cannot be tandem/remote wired for low temperature starting applications. Please note, starting time may increase at 0°F ambient temperatures. Enclosed fixtures are recommended as fluorescent lamps have reduced light output at cooler ambient temperatures. (See specifications for each model's starting temperature rating.)

**LPW Performance** Lumens Per Watt. The number of lumens produced by a light source for each watt of electrical power supplied to the light source. Also see Efficacy.

**Lumen Depreciation** The decrease in lumen output of a light source over time; every lamp type has a unique lumen depreciation curve (sometimes called a lumen maintenance curve) depicting the pattern of decreasing light output. See Lamp Lumen Depreciation Factor, LLDF and Mean Lumens.

**Lumen Maintenance** (See Lumen Depreciation.)

**Lumens (lm)** A unit of luminous flux; overall light output; quantity of light, expressed in lumens. For example, a dinner candle provides about 12 lumens and a 60-watt soft white incandescent lamp provides about 840 lumens.

**Luminaire** A light fixture; the complete lighting unit, including lamp, reflector, ballast, socket, wiring, diffuser and housing.

**Luminaire Efficiency** The ratio of luminous flux (lumens) emitted by a luminaire to that emitted by the lamp or lamps used therein.

**Luminance (L)** Light reflected in a particular direction; the photometric quantity most closely associated with brightness perception, measured in units of luminous intensity (candelas) per unit area (square feet or square meters).



## INCANDESCENT LIGHTING

The incandescent lamp consists of a wire filament on a suitable mount enclosed in a glass bulb containing a gas or a vacuum. When the lamp is connected to an electrical circuit, the current passing through the wire must overcome the filament's resistance, and the power consumed heats the filament to incandescence (causes it to glow).

### QUALITY LIGHT

Incandescent bulbs are still the standard choice when the quality of light really counts. The different shapes, coatings and features provide a variety of options for many lighting applications. With warm color temperatures and superior color rendering, nothing sets the mood like incandescent lighting.

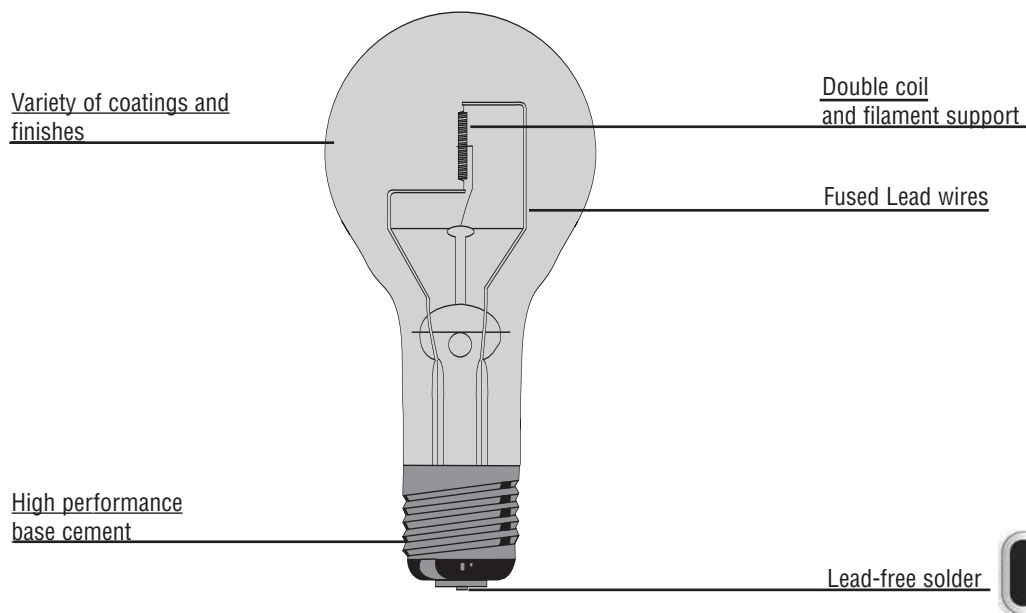
#### THE BEST QUALITY OF LIGHT FOR:

- Atmosphere*
- Romance*
- Warmth*
- Beauty*
- Comfort*
- Elegance*



### QUALITY CONSTRUCTION

*SYLVANIA uses the highest quality components designed to offer superior performance on every lamp.*



## LAMP CATEGORIES

SYLVANIA offers a wide assortment of premium lighting products that add value through superior performance, long life, beautiful light and rugged durability.

### Double Life

*Our long-life line of premium light bulbs*

Long Life without compromising brightness and light quality

- Lasts up to twice the life of a regular light bulb with almost the same light output
- Available in many different shapes and sizes



Perfect for hard to reach applications

### Daylight®

*Our most pleasing light*

Unique coating that simulates natural light

- Delivers whiter, more natural light
- Enhances color performance, vivid colors



The best choice to bring more natural light indoors

### Rough Service

*Our toughest line of light bulbs*

Able to withstand knocks and bumps

- Extra support
- Most durable construction



Ideal for applications where lamp may be subject to vibration

### Safeline®

*Our safest light bulbs*

Shatter resistant, weather resistant

- Safely contains glass in case of breakage
- Provides weather protection
- Provides weather and moisture resistance making bulbs ideal for indoor and outdoor applications.



Appropriate when safety comes first

### Specialty

*Our complete assortment of specialized light bulbs*

Diverse line of light bulbs for specific uses

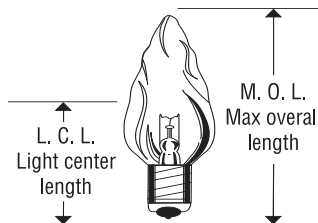
- |                   |                   |
|-------------------|-------------------|
| • SPOT-GRO®       | • Heat Lamps      |
| • Night Lights    | • Colored Lamps   |
| • Appliance Lamps | • Street lighting |



High quality lamps for multiple applications

## BULB IDENTIFICATION

**Light Center Length (L.C.L.)** is the distance from the center of the light source to the following point for the base used: Screw bases...bottom base contact; Bayonet candelabra and medium bayonet...top of base pins.



Bulb size - Max. Diameter (Divide by 8)

A-21 -  $21/8 = 2\ 5/8"$  Dia.

G-40 -  $40/8 = 5"$  Dia.

T-12 -  $12/8 = 1\ 1/2"$  Dia.

PS-30 -  $30/8 = 3\ 3/4"$  Dia.

## BASE IDENTIFICATION

Typical bases are shown. One lead-in wire is soldered to the center contact and the other soldered or welded to the upper rim of the base shell. Base shells are typically made of brass or aluminum. ANSI designations are in parentheses.



Candelabra cand. (E12)



Intermediate Inter. (E17)



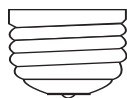
Medium (E26) & Medium Brass (E26)



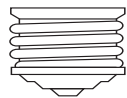
3 Contact Medium 3 C Med (E26D)



Medium Skirted Med. Skirt (E26/50x39)



Mogul Screw



3 Contact Mogul



Double Contact Bayonet D.C. Bay (BA15D)

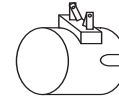


S14s



Ext. Mogul End Prong GX16d

Mogul End Prong



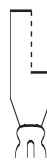
Med Side Pr.



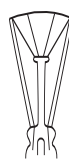
Screw Terminal G53

## FILAMENT IDENTIFICATION

A FILAMENT designation consists of a prefix letter to indicate whether the wire is straight or coiled, and a number to indicate the arrangement of the filament on the supports. Prefix letters include: C (coiled) --wire is wound into a helical coil or it may be deeply fluted; CC (coiled coil)--wire is wound into a helical coil and this coiled wire again wound into a helical coil.



C-8 CC-8



C-9 CC-9



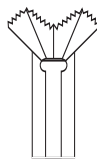
C-6 CC-6



C-2V CC-2V



C-7A CC-7A



C-11V



C-11 CC-11



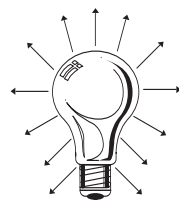
C-5



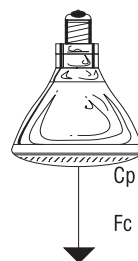
C-2R

## ADDITIONAL INFORMATION

**Lamps Listed** 115-125 volts (design voltage 120), 120-130 volts (design voltage 125), 125-130 volts (design voltage 130) and 230-250 volts (design voltage 240) are intended for use on circuits normally varying within these voltage limits.



LUMENS  
total lamp light output



Candle Power  
 $C_p = \text{Ray of Light in one direction}$   
 $F_c = \frac{\text{Max Beam } C_p}{D^2}$

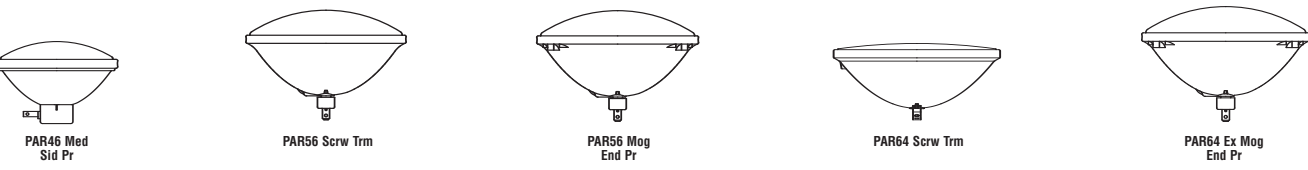
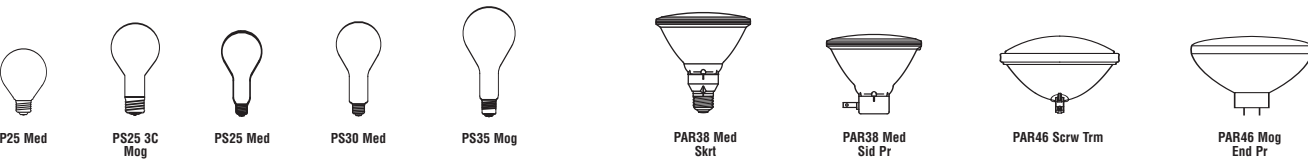
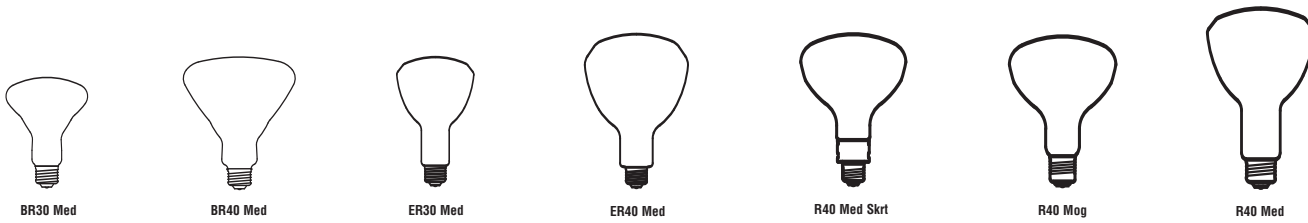
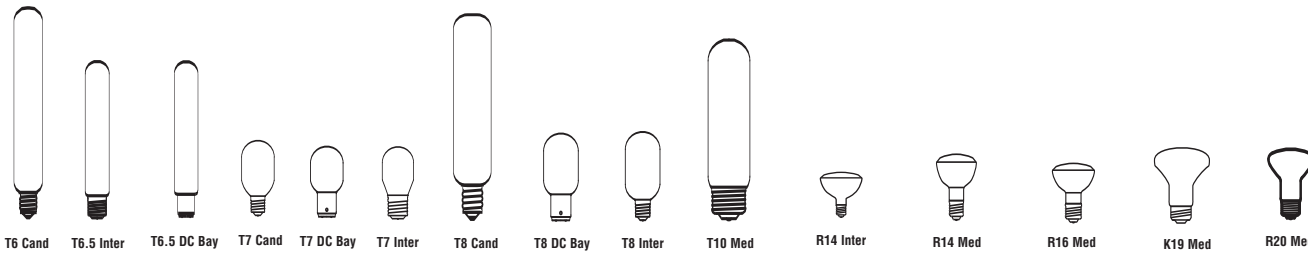
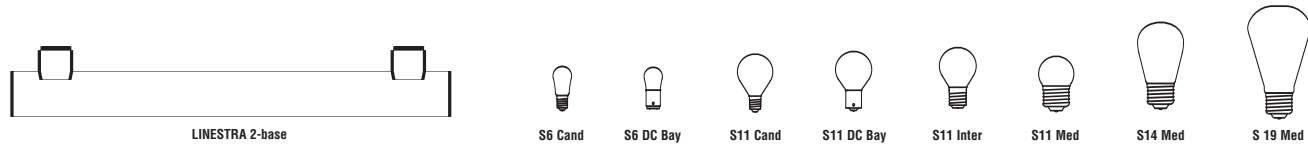
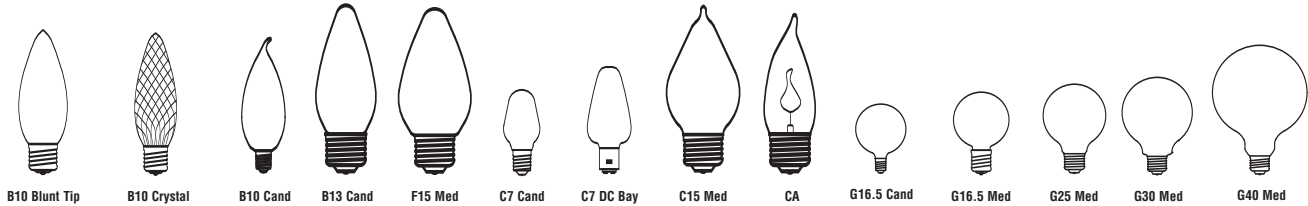
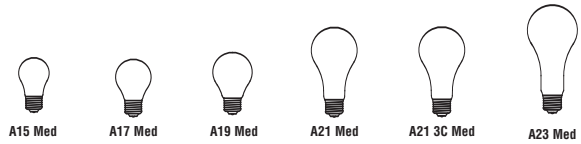
### Finishes

- W or SW - Soft White
- DAY - Daylight®
- Y - Yellow
- B - Blue
- R - Red
- G - Green
- A - Amber
- IC - Iridescent clear
- FL - Flood
- SP - Spot
- IF - Inside frost
- AIC - Amber iridescent clear



## INCANDESCENT LAMP SHAPES

A bulb designation consists of a letter(s) to indicate the shape and a figure(s) to indicate the approximate major diameter in eighths of an inch. For example, an F-15 bulb is a flame-shape, 15/8 of an inch or 1-7/8 inches in diameter.



## HOW TO READ PRODUCT INFORMATION - INCANDESCENT

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life (hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
<b>Bulb</b>			Describes the shape of the envelope followed by the lamp's major diameter given in eighths of an inch. See page 4: Incandescent Lamps.										
<b>Base</b>			See page 3: Base Identification.										
<b>Symbols &amp; Footnotes</b>			All symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and foot notes are at the end of the incandescent section.										
<b>Ordering Abbreviation</b>			A text description of the lamp. See below for several examples and explanations of some of the codes.										
<b>Class &amp; Filament</b>			The class is either B (vacuum) or C (gas filled). The filament designation describes the shape and mount structure of the filament. See page 3: Filament Identification.										
<b>Lumens, Beam Angle, CBCP</b>			This column may contain data for any of these values. Lumen values are followed by the designation 'lm'. Beam angles are indicated by either a '°' or the designation 'V x H' for non-symmetric beams. CBCP values are followed by the designation 'cd'.										

## HOW TO READ ORDERING ABBREVIATIONS

40B10C/CRYSTAL/DL/BL/2PK		60A/DL/SW/2PK/RP		65BR30/DL/FL/RP	
<b>40</b>	Nominal lamp wattage	<b>60</b>	Nominal lamp wattage	<b>65</b>	Nominal lamp wattage
<b>B</b>	Bulb shape	<b>A</b>	Bulb shape	<b>BR</b>	Bulb shape
<b>10</b>	Bulb size in 8th's of an inch	<b>DL</b>	Double life lamp	<b>30</b>	Bulb size in 8th's of an inch
<b>C</b>	Candelabra base	<b>SW</b>	Soft white	<b>DL</b>	Double life lamp
<b>CRYSTAL</b>	Crystal texture on bulb glass	<b>2PK</b>	2 lamps per package	<b>FL</b>	Flood beam pattern
<b>DL</b>	Double Life Lamp	<b>RP</b>	Retail pack	<b>RP</b>	Retail pack
<b>BL</b>	Blister pack				
<b>2PK</b>	2 lamps per package				

## INCANDESCENT BRAND NAME GUIDE

NOTE: These tables are intended only as a guide and may represent another lamp company's closest competitive type rather than an identical match. Individual manufacturers' performance values should be consulted. Environmental conditions, ballast type, and other auxiliary equipment may affect lamp performance.

## INCANDESCENT

SYLVANIA	GE*	PHILIPS**
Bug-Light	Bug-Lite	Bug-A-Way
Double Life	Long Life	Dura-Max
Double Life Soft White	Long Life Soft White	Dura-Max Soft White
Daylight®	Reveal	Natural
ellogic™	-	-
Energy Saver Soft White	Soft White Miser	Econ-O-Watt
EXCEL-LINE®	Extended Service	Extended Service
LINESTRA®	Lumiline	
RHINO COAT® SAFELINE®	COV-R-GUARD	Silicone Coated
Rough Service		Rough Service
Rough Service XL	Survivor	
Soft Pink	Soft Pink	Softone Pastels
Spot-GRO®	House Garden - Plant Light	Agro-Lite
SUPERSAVER®	Watt-Miser	Econo-o-Watt
SUPERSAVER EXCEL-LINE	Watt-Miser Plus	Extended Service
SUPERSAVER PAR	Watt-Miser PAR	Econo-o-PAR

\*Trademark and or registered trademark of General Electric Company. \*\*Trademark and or registered trademark of Philips.

**NOTES:**





## ELOGIC™ LAMPS

### Small Bulb. Big Difference

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
38	A17	Med	10825	●●	38A17/W/ELOGIC/4/48/RP	120	48	Soft White	C, CC-8	2250	410	2.88	3.75
57	A17	Med	11721	●●	57A17/W/ELOGIC/4/48/RP	120	48	Soft White	C, CC-8	1500	740	2.88	3.75
71	A17	Med	10826	●●	71A17/W/ELOGIC/4/48/RP	120	48	Soft White	C, CC-8	1125	1020	2.88	3.75
95	A17	Med	12953	●●	95A17/W/ELOGIC/4/48/RP	120	48	Soft White	C, CC-8	1125	1500	2.88	3.75

## DAYLIGHT® LAMPS

### White & Natural

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
25	G16.5	Candelabra	10221	●●	25G16.5C/DAY/2PK/BL	120	12	Daylight Globe	C, C-7A	1500			3.00
30 70 100	A21	3 CONTACT Med	19395	●●	30/100/DAYLIGHT/1/12	120	12	Daylight 3-Way	C, CC-8	1200	220lm 700lm 920lm	3.38	5.31
40	A15	Med	10181	●	40A15/DAY/FAN/BL/2/24	120	24	Daylight Fan	C, C-9	1000	340	2.38	3.50
	A19	Med	10897	●●	40A/DAY/4/160/RP	120	160	Daylight	C, CC-8	1500	350	3.13	4.44
			10864	●●	40A/DAY/RP/4/48	120	48	Daylight	C, CC-8	1500	350	3.13	4.44
			11100	●●	40A/DAY/RP/2/24	120	24	Daylight	C, CC-8	1500	350	3.13	4.44
			10829	●●	40A/DAY/RP/4/48 @ 120_volts, approximate 33 watts, 270 lumens, 3750 hours.	130	48	Daylight	C, CC-8	1500	350	3.13	4.44
	B10	Candelabra	13751	●●	40B10C/DAY/2PK/BL	120	12	Daylight Decor Bent Tip	C, C-7A	1500			3.88
		Med	15354	●●	40B10/DAY/2PK/BL	120	12	Daylight Decor Bent Tip	C, C-7A	1000			3.88
	G16.5	Candelabra	10367	●●	40G16.5C/DAY/2PK/BL	120	12	Daylight Globe	C, C-7A	1500			3.00
	G25	Med	15350	●●	40G25/CL/DAY/1/6	120	6	Daylight Clear Globe	C, C-9	1500			4.44
			13966	●●	40G25/DAY/1/6	120	6	Daylight Globe	C, C-9	1500			4.44
45	R20	Med	15677	●	45R20/DAY/1/6/RP	120	6	Daylight Reflector	C, C-9	2000			3.94
50 100 150	A21	3 CONTACT Med	18110	●	50/150/DAY/1/12	120	12	Daylight 3-way	C, CC-8	1200	460lm 1170lm 1630lm	3.38	5.31
50	R20	Med	15231	●	50R20/DAY/1/6/RP	120	6	Daylight Reflector	C, C-9	2000			3.94
60	A15	Med	10162	●	60A15/DAY/FAN/BL/2/24	120	24	Daylight Fan	C, C-9	1000	340	2.38	3.50
	A19	Med	11509	●●	60A/DAY/4/160/RP	120	160	Daylight	C, CC-8	1000	640	3.13	4.44
			11463	●●	60A/DAY/RP/4/48	120	48	Daylight	C, CC-8	1000	640	3.13	4.44
			11101	●●	60A/DAY/RP/2/24	120	24	Daylight	C, CC-8	1000	640	3.13	4.44
			11602	●●	60A/DAY/RP/4/48 @ 120_volts, approximate 53 watts, 490 lumens, 2500 hours.	130	48	Daylight	C, CC-8	1000	640	3.13	4.44
	B10	Candelabra	13750	●●	60B10C/DAY/2PK/BL	120	12	Daylight Decor Bent Tip	C, C-7A	1500			3.88
	G25	Med	15351	●●	60G25/CL/DAY/1/6	120	6	Daylight Clear Globe	C, C-9	1500			4.44
			13967	●●	60G25/DAY/1/6	120	6	Daylight Globe	C, C-9	1500			4.44
65	BR30	Med	15223	●	65BR30/DAY/1/6/RP	120	6	Daylight Reflector	C, CC-6	2000			5.38
	BR40	Med	15487	●	65BR40/FL/DAY/1/6/RP	120	6	Daylight Reflector	C, CC-6	2000			6.50
75	A19	Med	10863	●●	75A/DAY/4/160/RP	120	160	Daylight	C, CC-8	750	850	3.13	4.44
			10865	●●	75A/DAY/RP/4/48	120	48	Daylight	C, CC-8	750	850	3.13	4.44



A19



BR40



C7 Candelabra



B10



G25



A21



A15

**DAYLIGHT® LAMPS**

White &amp; Natural

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
75	A19	Med	11102		<b>75A/DAY/RP/2/24</b>	120	24	Daylight	C, CC-8	750	850	3.13	4.44
			10776	<sup>102,136</sup>	<b>75A/DAY/RP/4/48</b>	130	48	Daylight	C, CC-8	750	850	3.13	4.44
	BR40	Med	15349	<sup>46,57,107,155</sup>	<b>75BR40/FL/DAY/1/6/RP</b>	120	6	Daylight Reflector Flood	C, CC-6	2000			6.50
100	A19	Med	12948		<b>100A/DAY/4/160/RP</b>	120	160	Daylight	C, CC-8	750	1270	3.13	4.44
			12587		<b>100A/DAY/RP/4/48</b>	120	48	Daylight	C, CC-8	750	1270	3.13	4.44
			12952		<b>100A/DAY/RP/2/24</b>	120	24	Daylight	C, CC-8	750	1270	3.13	4.44
			12538	<sup>103,136</sup>	<b>100A/DAY/RP/4/48</b>	130	48	Daylight	C, CC-8	750	1270	3.13	4.44
<i>@ 120 volts, approximate 88 watts, 970 lumens, 1875 hours.</i>													

**DOUBLE LIFE LAMPS**

Lasts 2X longer than ordinary Soft White lamps

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
4	C7	Candelabra	13523		<b>4C7/DL/BL/4PK</b>	120	48	Double Life Night Light	B, C-9	6000	14		2.13
15	B10	Candelabra	13315		<b>15B10C/DL/BL</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.88
25	B10	Candelabra	13306		<b>25B10C/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.88
			13316		<b>25B10C/DL/BL</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.88
			13743		<b>25B10C/CRYSTAL/DL/BL/2PK</b>	120	12	Double Life Crystal Bent Tip	C, C-7A	3000			3.88
			13308		<b>25B10C/DLF/BL/4PK</b>	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000			3.88
			13317		<b>25B10C/DLF/BL</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-2V	3000			3.88
			Med	13331	<sup>94</sup>	<b>25B10/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000		
	13318	<sup>94</sup>	<b>25B10/DL/BL</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.81		
G25	Med	14105		<b>25G25/DL/RP/48</b>	120	48	Clear Double Life Globe	C, C-9	3000			4.44	
		14145		<b>25G25/DL/RP</b>	120	6	Clear Double Life Globe	C, C-9	3000			4.44	
		14103		<b>25G25/DL/SW/RP/48</b>	120	48	Soft White Double Life Globe	C, C-9	3000			4.44	
		14146		<b>25G25/DL/SW/RP</b>	120	6	Soft White Double Life Globe	C, C-9	3000			4.44	
30 70 100	A21	3 CONTACT Med	19345	<sup>118</sup>	<b>30/100A21/DL/SW/1/48</b>	120	48	Soft White Double Life 3-Way	C, CC-8	2400	270lm 860lm 1130lm	3.38	5.31
			19380		<b>30/100A21/DL/SW/RP</b>	120	12	Soft White Double Life 3-way	C, CC-8	2400	270lm 860lm 1130lm	3.38	5.31
32	B10	Candelabra	13737		<b>32B10C/CRYSTAL/DL/BL/2PK</b>	120	12	Double Life Crystal Bent Tip	C, C-7A	4000			3.88
40	A15	Med	10023		<b>40A15/CL/DL/FAN/BL/2/24</b>	120	24	Clear Double Life Ceiling Fan Light	C, C-9	2000	350	2.38	3.50



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R20

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## DOUBLE LIFE LAMPS

Lasts 2X longer than ordinary Soft White lamps

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
40	A15	Med	10046	●	40A15/CL/DL/FAN	120	24	Clear Double Life Fan Light	C, C-9	2000	350	2.38	3.50	
			10133	●	40A15/CL/DL/BL	120	12	Clear Double Life Appliance	C, C-9	2000	350	2.38	3.50	
			11664	●	40A15/DL/SW/BL/2/24	120	24	Soft White Double Life Fan	C, C-9	2000	310	2.38	3.50	
A19	Med	11646	●	40A/CL/DL/2PK/RP	120	24	Clear Double Life	C, CC-8	3000	385	3.13	4.44		
		10939	●	40A/DL/SW/4PK/RP	120	48	Soft White Double Life	C, CC-8	3000	390	3.13	4.44		
		11645	●	40A/DL/SW/2PK/RP	120	24	Soft White Double Life	C, CC-8	3000	390	3.13	4.44		
B10	Candelabra	13328	●	40B10C/DL/BL/4PK	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000				3.88	
		13319	●	40B10C/DL/BL/2PK	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000				3.88	
		13714	●	40B10C/CRYSTAL/DL/BL/4/24	120	24	Double Life Crystal Bent Tip	C, C-7A	3000				3.88	
		13741	●	40B10C/CRYSTAL/DL/BL/2PK	120	12	Double Life Crystal Bent Tip	C, C-7A	3000				3.88	
		13309	●	40B10C/DL/F/BL/4PK	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000				3.88	
		13320	●	40B10C/DL/F/BL/2PK	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000				3.88	
		Med	13321	●	40B10/DL/BL/2PK	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000				3.81
		13723	●	40B10/CRYSTAL/DL/BL/4PK	120	24	Double Life Crystal Bent Tip	C, C-7A	3000				3.81	
		13740	●	40B10/CRYSTAL/DL/BL/2PK	120	12	Double Life Crystal Bent Tip	C, C-7A	3000				3.81	
		13322	●	40B10/DL/F/BL/2PK	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000				3.81	
B13	Med	13366	●	40B13/DL/FAN/2/60/BL	120	60	Clear Double Life Ceiling Fan	C, C-9	3000	455			4.63	
		13369	●	40B13/DL/FAN/BL/2PK	120	12	Clear Double Life Ceiling Fan	C, C-9	3000	455			4.63	
G25	Med	14174	●	40G25/DL/1/48	120	48	Clear Double Life Globe	C, C-9	3000				4.44	
		14147	●	40G25/DL/RP	120	6	Clear Double Life Globe	C, C-9	3000				4.44	
		14148	●	40G25/DL/SW/RP	120	6	Soft White Double Life Globe	C, C-9	3000				4.44	
45	R20	Med Brass	15698	2,46,68,107,155	45R20/DL/RP	120	6	Double Life Reflector Flood	C, C-9	4000	260		3.94	
50 100 150	A21	3 CONTACT Med	18168	●	50150A21DL/SW/1/48	120	48	Soft White Double Life 3-way	C, CC-8	2400	540lm 1400lm 1940lm	3.38	5.31	
			18044	●	50/150A21/DL/SW/RP	120	12	Soft White Double Life 3-way	C, CC-8	2400	540lm 1400lm 1940lm	3.38	5.31	
50	R20	Med Brass	15346	2,46,68,107,155	50R20/DL/1/48	120	48	Double Life Reflector Flood	C, C-9	4000	290		3.94	
			14943	2,46,68,107,155	50R20/DL/RP	120	6	Double Life Reflector Flood	C, C-9	4000	290		3.94	





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A19

B10

B13

G25

BR30, BR40

**DOUBLE LIFE LAMPS**

Lasts 2X longer than ordinary Soft White lamps

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
60	A15	Med	10024	●	<b>60A15/CL/DL/FAN/BL/2/24</b>	120	24	Clear Double Life Fan Light	C, C-9	2000	530	2.38	3.50	
			10048	●	<b>60A15/CL/DL/FAN/RP</b>	120	24	Clear Double Life Fan Light	C, C-9	2000	530	2.38	3.50	
			10868	●	<b>60A15/DL/SW/BL/2/24</b>	120	24	Soft White Double Life Fan Light	C, C-9	2000	510	2.38	3.50	
	A19	Med	11260	●	<b>60A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	2000	790	3.13	4.44	
			11204	●	<b>60A/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	2000	770	3.13	4.44	
			11227	●	<b>60A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	2000	770	3.13	4.44	
	B10	Candelabra		13705	●	<b>60B10C/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.88
				13777	●	<b>60B10C/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.88
				13749	●	<b>60B10C/CRYSTAL/DL/BL/4/24</b>	120	24	Double Life Crystal Bent Tip	C, C-7A	3000			3.88
				13754	●	<b>60B10C/DL/F/BL/4PK</b>	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000			3.88
13778				●	<b>60B10C/DL/F/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000			3.88	
Med				13323	●	<b>60B10/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000			3.81
				13324	●	<b>60B10/DL/F/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000			3.81
B13		Med	13370	●	<b>60B13/DL/FAN/BL/2PK</b>	120	12	Clear Double Life Fan Lamp	C, C-9	3000	650		4.63	
G25	Med		14106	●	<b>60G25/DL/RP/48</b>	120	48	Clear Double Life Globe	C, C-9	3000			4.44	
			14149	●	<b>60G25/DL/RP</b>	120	6	Clear Double Life Globe	C, C-9	3000			4.44	
			14104	●	<b>60G25/DL/SW/RP/48</b>	120	48	Soft White Double Life Globe	C, C-9	3000			4.44	
			14150	●	<b>60G25/DL/SW/RP</b>	120	6	Soft White Double Life Globe	C, C-9	3000			4.44	
65	BR30	Med Brass	15266		<b>65BR30/DL/2/24</b>	120	24	Double Life Reflector Flood	C, CC-6	4000	510		5.38	
			15177		<b>65BR30/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	510		5.38	
	BR40	Med Brass	15332		<b>65BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	510		6.50	
75	A19	Med	11175	●	<b>75A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1085	3.13	4.44	
			11331	●	<b>75A/W/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1055	3.13	4.44	
			11337	●	<b>75A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1055	3.13	4.44	
	BR40	Med Brass	15213		<b>75BR40/DL/FL/1/24</b>	120	24	Double Life Reflector Flood	C, CC-6	4000	610		6.50	
			15144		<b>75BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	610		6.50	
100	A19	Med	11176	●	<b>100A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1550	3.13	4.44	
			11660	●	<b>100A/CL/DL/PLUS/2PK/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1590	3.13	4.44	
			16868	●	<b>100A/DL/SW/PLUS/4PK/RP/160</b>	120	160	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44	
			16864	●	<b>100A/DL/SW/PLUS/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44	



A19

BR40

S6

C7 Candelabra

S14

S11

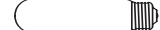
**DOUBLE LIFE LAMPS**

Lasts 2X longer than ordinary Soft White lamps

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
100	A19	Med	11332	108	<b>100A/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1530	3.13	4.44
			12480		<b>100A/DL/SW/PLUS/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44
			12805	108	<b>100A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1530	3.13	4.44
120	BR40	Med Brass	14915	2,46,57,107,155	<b>120BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	960		6.50

**GENERAL PURPOSE LAMPS**

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
3	S6	Candelabra	16757		<b>3S6/5</b>	120	240	Clear Indicator	B, C-7A	3000	10	1.44	1.88	
			16759	138	<b>3S6/5</b>	130	240	Clear Indicator	B, C-7A	3000	12	1.44	1.88	
4	C7	Candelabra	13523		<b>4C7/DL/BL/4PK</b>	120	48	Double Life Night Light	B, C-9	6000	14		2.13	
			13549		<b>4C7/BL/4PK</b>	120	48	Clear Night Light	B, C-9	3000	16		2.13	
			13542		<b>4C7/BL/2PK</b>	120	24	Clear Night Light	B, C-9	3000	16		2.13	
			13553		<b>4C7/W/BL/4PK</b>	120	48	White Night Light	B, C-7	3000	16		2.13	
			13538		<b>4C7/W/BL/2PK</b>	120	24	White Night Light	B, C-9	3000	16		2.13	
			13556		<b>4C7/BLUE/2PK</b>	120	24	Blue Nightlight	B, C-7A	3000			2.13	
			13557		<b>4C7/PINK/2PK</b>	120	24	Pink Nightlight	B, C-7A	3000			2.13	
6	S6	Candelabra	16927		<b>6S6/CL12V</b>	12	120	Clear Indicator	B, C-2R	1500	47	1.44	1.88	
			16929		<b>6S6/CL24V</b>	24	120	Clear Indicator	B, C-7A	1500	48	1.44	1.88	
			16930		<b>6S6/CL30V</b>	30	120	Clear Casino	B, C-7A	1500	46	1.44	1.88	
			16960		<b>6S6/CL</b>	120	120	Clear Indicator	B, C-7A	1500	41	1.44	1.88	
			16938		<b>6S6/CL</b>	130	120	Clear Indicator	B, C-7A	1500	37	1.44	1.88	
			16942		<b>6S6/CL145V</b>	145	120	Clear Indicator	B, C-7A	1500	33	1.44	1.88	
			16943		<b>6S6/CL155V</b>	155	120	Clear Indicator	B, C-7A	1500	36	1.44	1.88	
	DC Bayonet			16782		<b>6S6DC</b>	120	120	Clear Indicator	B, C-9	1500	41	1.44	1.81
				16784		<b>6S6DC</b>	130	120	Clear Indicator	B, C-9	1500	37	1.44	1.81
				16790		<b>6S6DC145V</b>	145	120	Clear Indicator	B, C-9	1500	37	1.44	1.72
	S14	Med Brass	17314		<b>6S14</b>	120	120	Clear	B, C-9	1500	40	2.50	3.50	
7	C7	Candelabra	13608		<b>7C7</b>	120	120	Clear Night Light	B, C-9	3000	43		2.13	
			13545		<b>7C7/BL/4PK</b>	120	48	Clear Night Light	B, C-9	3000	43		2.13	
			13543		<b>7C7/BL/2PK</b>	120	24	Clear Night Light	B, C-9	3000	43		2.13	
			13609		<b>7C7</b>	130	120	Clear Night Light	B, C-9	3000	42		2.13	
			13623		<b>7C7/CW</b>	120	120	White Night Light	B, C-9	3000	33		2.13	
			13544		<b>7C7/W/BL/4PK</b>	120	48	White Night Light	B, C-9	3000	33		2.13	
			13540		<b>7C7/W/BL/2PK</b>	120	24	White Night Light	B, C-9	3000	33		2.13	
7.5	S11	Med	19353		<b>7.5S</b>	120	120	Clear	B, C-9	1400	47	1.56	2.25	
			19355		<b>7.5S</b>	130	120	Clear	B, C-9	1400	45	1.56	2.25	
			19420		<b>7.5S/CW</b>	120	120	Ceramic White	B, C-9	1400	32		2.25	
			19433		<b>7.5S/CW/BL</b>	120	12	Ceramic White Utility Light	B, C-9	1400	32		2.25	
			19421		<b>7.5S/CW/BL/1/6</b>	120	6	Ceramic White Utility Light	B, C-9	1400	32		2.25	



S11

C7 Candelabra

S6

S14

A15

A21

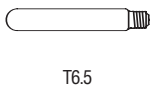
T6

T7

T10

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
7.5	S11	Med	19423		<b>7.5S/CR</b>	120	120	Ceramic Red	B, C-9	1400			2.25
10	C7	Candelabra	13636		<b>10C7/CL</b>	120	240	Clear Pilot Light Vibration Resistant	B, C-7A		38		2.13
	S6	Candelabra	16726		<b>10S6</b>	120	240	Clear Indicator	B, C-7A	1500	71	1.44	1.88
			16717		<b>10S6230V</b>	230	240	Clear Indicator	B, CC-7A	1500	65	1.44	1.88
	S11	Intermediate	16917		<b>10S11N/CL</b>	120	120	Clear Vibration Resistant	B, C-7A	1500	74	1.63	2.31
			16919		<b>10S11N/CL</b>	130	120	Clear Vibration Resistant	B, C-7A	1500	74	1.63	2.31
	S14	Med Brass	17406		<b>10S14</b>	120	120	Clear Vibration Resistant	B, C-9	1500	76	2.50	3.50
11	S14	Med Brass	17448		<b>11S14</b>	120	120	Clear Vibration Resistant	B, C-9	3000	74	2.50	3.50
			17450		<b>11S14</b>	130	120	Clear Vibration Resistant	B, C-9	3000	72	2.50	3.50
			17453		<b>11S14/IF</b>	130	120	Inside Frost Vibration Resistant	B, C-9	3000	68	2.50	3.50
			17487		<b>11S14/TR</b>	130	120	Transparent Red	B, C-9	3000		2.50	3.50
12	S6	Candelabra	16718		<b>12S6/250V</b>	250	240	Clear Indicator	B, CC-7A	1500	61	1.44	1.88
15	A15	Med	10015		<b>15A15/W/RP</b>	120	24	White Utility Light	C, C-9	2500	65	2.38	3.50
			10018		<b>15A15/CL</b>	120	120	Clear Utility Light	B, C-9	2500	105	2.38	3.50
			10028		<b>15A15/CL/RP</b>	120	24	Clear Utility Light	B, C-9	2500	105	2.38	3.50
			10019		<b>15A15/CL</b> <i>@ 120_volts, approximate 13 watts, 80 lumens, 6250 hours.</i>	130	120	Clear Utility Light	B, C-9	2500	105	2.38	3.50
			10037		<b>15A15</b>	120	120	Inside Frost	B, C-9	2500	100	2.38	3.50
			10031		<b>15A15/RP</b>	120	24	Inside Frost	B, C-9	2500	100	2.38	3.50
			10038		<b>15A15</b> <i>@ 120_volts, approximate 13 watts, 76 lumens, 6250 hours.</i>	130	120	Inside Frost	B, C-9	2500	100	2.38	3.50
15 135 150	A21	3 CONTACT Med	18009		<b>15/150A/SECURITYLIGHT</b>	120	12	Soft White Security 3-way	C, CC-8	1200	800m 2070lm 2150lm	3.38	5.31
15	S11	Med	17079		<b>15S11/102/IF</b>	120	120	Inside Frost Refrigerator	B, C-7A	400	138	1.56	2.25
	S14	Med Brass	17240		<b>15S14/CL</b>	130	120	Clear Vibration Resistant Sign	B, C-9	3000	106	2.50	3.50
	T6	Candelabra	18037		<b>15T6</b>	120	60	Clear Tubular	B, C-7A	2000	111		3.06
			18038		<b>15T6</b>	130	60	Clear Tubular	B, C-7A	2000	105		3.06
			18078		<b>15T6/145V</b>	145	60	Clear Tubular	B, C-7A	2000	112		3.06
			18036		<b>15T6/BL</b>	145	12	Clear Tubular	B, C-7A	2000	112		3.06
	T7	Candelabra	18185		<b>15T7C</b>	120	60	Clear	B, C-7A	1000	111	1.50	2.25
		DC Bayonet	18208		<b>15T7DC</b>	120	60	Clear	B, C-7A	1000	111	1.31	2.25
			18200		<b>15T7DC/BL</b>	120	12	Clear Carded	B, C-7A	1000	111	1.31	2.25
			18201		<b>15T7DC/BL/1/6</b>	120	6	Clear Carded	B, C-7A	1000	111	1.31	2.25
		Intermediate	18173		<b>15T7N</b>	120	60	Clear	B, C-7A	1000	115	1.56	2.25
			18174		<b>15T7N/BL</b>	120	12	Clear	B, C-7A	1000	115	1.56	2.25
	T10	Med	18501		<b>15T10/CL</b>	120	60	Clear Tubular	B, C-8	2500	112		5.63



T6.5



A19



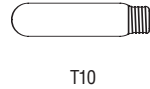
R14 Inter



R14



T8



T10

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)				
20	T6.5	DC Bayonet Intermediate	18144	_1	<b>20T6.5DC/IF</b>	120	60	Inside Frost Exit Lamp	B, C-8	10000	92		5.56				
			18143	_1	<b>20T6.5/IF</b>	120	60	Inside Frost Exit Lamp	B, C-8	10000	92		5.50				
25	A19	Med	11090		<b>25A/RS</b>	120	120	Inside Frost Rough Service	B, C-17	1000	210	2.50	3.94				
			11092		<b>25A/RS</b>	130	120	Inside Frost Rough Service	B, C-17	1000	210	2.50	3.94				
			10562		<b>25A/W/RP</b>	120	24	Soft White	C, C-9	2500	160	2.50	3.94				
			10644		<b>25A</b>	120	120	Standard Frost	B, C-9	2500	190	2.50	3.94				
			10634		<b>25A/RP</b>	120	24	Standard Frost	B, C-9	2500	190	2.50	3.94				
			10645	<sup>136,146</sup>	<b>25A</b>	130	120	Standard Frost	B, C-9	2500	180	2.50	3.94				
			<i>@120_volts, approximate 22 watts, 130 lumens, 6250 hours</i>														
			11285		<b>25A</b>	230	120	Standard Frost	B, C-17	1000	205	2.50	3.94				
			11289		<b>25A</b>	277	120	Standard Frost	B, C-17	1000	187	2.50	3.94				
			Med Brass	10693		<b>25A/CL</b>	120	120	Clear	B, C-9	2500	190	2.50	3.94			
				10683		<b>25A/CL/RP</b>	120	24	Clear	B, C-9	2500	190	2.50	3.94			
				10694	<sup>136,146</sup>	<b>25A/CL</b>	130	120	Clear	B, C-9	2500	180	2.50	3.94			
				<i>@120_volts, approximate 22 watts, 130 lumens, 6250 hours</i>													
				11710		<b>25A19/TB/RP</b>	125	6	Transparent Blue	B, C-9	3000		2.50	3.94			
				11714		<b>25A19/TG/RP</b>	125	6	Transparent Green	B, C-9	3000		2.50	3.94			
				11711		<b>25A19/TO/RP</b>	125	6	Transparent Orange	B, C-9	3000		2.50	3.94			
11712		<b>25A19/TR/RP</b>		125	6	Transparent Red	B, C-9	3000		2.50	3.94						
11713		<b>25A19/TY/RP</b>		125	6	Transparent Yellow	B, C-9	3000		2.50	3.94						
10449		<b>25A</b>		12	120	Standard Frost	B, C-6	1000	385	2.50	3.94						
R14	Intermediate	14793		<b>25R14N</b>	120	60	Reflector Mini Flood	B, CC-2V	1500	132		2.56					
		14784		<b>25R14N/RP</b>	120	6	Reflector Mini Flood	B, CC-2V	1500	132		2.56					
	Med	14818		<b>25R14/RP</b>	120	6	Reflector Mini Flood	C, CC-2V	1500	132		2.25					
T6.5	DC Bayonet	18129		<b>25T6.5/DC</b>	120	60	Clear Scale Illuminator	B, C-8	1000	242		5.56					
		18106		<b>25T6.5/DC</b>	130	60	Clear Scale Illuminator	B, C-8	1000	242		5.56					
		18117		<b>25T6.5/DC/IF</b>	120	60	Inside Frost Scale Illuminator	B, C-8	1000	225		5.56					
	Intermediate	18125		<b>25T6.5</b>	120	60	Clear	B, C-8	1000	242		5.50					
		18496		<b>25T6.5/CL/BL/10PK</b>	120	10	Clear	B, C-8	1000	242		5.50					
		18495		<b>25T6.5/BL/6PK</b>	120	6	Clear	B, C-8	1000	242		5.50					
		18128		<b>25T6.5</b>	130	60	Clear	B, C-8	1000	242		5.50					
		18113		<b>25T6.5/IF</b>	120	60	Inside Frost	B, C-8	1000	225		5.50					
18111		<b>25T6.5/IF</b>	130	60	Inside Frost	B, C-8	1000	225		5.50							
T8	Candelabra	18289	_111	<b>25T8C</b>	120	60	Clear Home Appliance	B, C-7A	1000	230	1.50	2.63					
		DC Bayonet	18310	_111	<b>25T8DC</b>	120	60	Clear Home Appliance	B, C-7A	1000	230	1.31	2.63				
	Intermediate	18321	_111	<b>25T8DC/BL</b>	120	12	Clear Home Appliance	B, C-7A	1000	230	1.31	2.63					
		18316	_111	<b>25T8DC</b>	130	60	Clear Home Appliance	B, C-7A	1000	215	1.31	2.63					
		18359	_111	<b>25T8N</b>	120	60	Clear Home Appliance	B, C-7A	1000	230	1.31	2.63					
		18365	_111	<b>25T8N/BL</b>	120	12	Clear Home Appliance	B, C-7A	1000	230	1.31	2.63					
		18360	_111	<b>25T8N/BL/1/6</b>	120	6	Clear Home Appliance	B, C-7A	1000	230	1.31	2.63					
T10	Med	18510		<b>25T10</b>	120	60	Clear	B, C-8	1000	232		5.63					





T10



A15



A21



R20



S11



A19

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
25	T10	Med	18491	●●	<b>25T10/CL/BL/6PK</b>	120	6	Clear	B, C-8	1000	232		5.63	
			18512	●●	<b>25T10</b>	130	60	Clear	B, C-8	1000	232		5.63	
			18503	●●	<b>25T10/IF</b>	120	60	Inside Frost	B, C-8	1000	230		5.63	
			18492	●●	<b>25T10/IF/BL/6PK</b>	120	6	Inside Frost	B, C-8	1000	230		5.63	
			18505	●●	<b>25T10/IF</b>	130	60	Inside Frost	B, C-8	1000	230		5.63	
30	A15	Med Brass	10122	77	<b>30A15</b>	130	120	Inside Frost	C, C-9	2000	200	2.38	3.50	
<i>@ 120_volts, approximate 26 watts, 150 lumens, 5000 hours.</i>														
30 70 100	A21	3 CONTACT Med	19395	●▼	<b>30/100/DAYLIGHT/1/12</b>	120	12	Daylight 3-Way	C, CC-8	1200	220lm 700lm 920lm	3.38	5.31	
			19345	●▼ <sup>118</sup>	<b>30/100A21/DL/SW/1/48</b>	120	48	Soft White Double Life 3-Way	C, CC-8	2400	270lm 860lm 1130lm	3.38	5.31	
			19380	●▼	<b>30/100A21/DL/SW/RP</b>	120	12	Soft White Double Life 3-way	C, CC-8	2400	270lm 860lm 1130lm	3.38	5.31	
			18029	●▼ <sup>118</sup>	<b>30/100A/W/DIYPACK</b>	120	48	Soft White 3-way	C, CC-8	1200	300lm 945lm 1245lm	3.38	5.31	
			19385	●▼ <sup>118</sup>	<b>30/100A21/W/RP</b>	120	12	Soft White 3-way	C, CC-8	1200	300lm 945lm 1245lm	3.38	5.31	
30	R20	Med Brass	14794	68,118	<b>30R20</b>	120	60	Reflector Flood	C, C-9	2000	140 40°		3.94	
			14836	68,118	<b>30R20/RP</b>	120	6	Reflector Flood	C, C-9	2000	140 40°		3.94	
			14802	136,147	<b>30R20</b>	130	60	Reflector Flood	C, C-9	2000	140 40°		3.94	
			<i>@ 120_volts, approximate 26 watts, 100 lumens, 5000 hours</i>											
	S11	DC Bayonet	10765	●	<b>30S11/DC/75V</b>	75	120	Clear Train Marker	C, C-7A	500	284	1.50	2.38	
32	A19	Med Brass	10983	● <sup>79</sup>	<b>32A19/49</b>	130	120	Clear Street Lighting Group Replacement	C, C-9	3000	258	2.88	4.25	
<i>@ 120_volts, approximate 28 watts, 200 lumens, 7500 hours.</i>														
34	A19	Med	11391	●	<b>40A/34/W/ES/4PK</b>	120	48	Soft White Energy Saver	C, CC-8	1500	375	3.13	4.44	
			11058	●●	<b>40A/34/SS</b>	120	48	Standard Frost SuperSaver	C, CC-8	1500	375	3.13	4.44	
			11379	●● <sup>136,150</sup>	<b>40A/34/SS</b>	130	48	Standard Frost SuperSaver	C, CC-8	1500	380	3.13	4.44	
	<i>@ 120_volts, approximate 30 watts, 290 lumens, 3750 hours</i>													
		Med Brass	11383	●	<b>40A/34/SS/XL</b>	120	48	Standard Frost SuperSaver XL	C, CC-8	2500	310	3.13	4.44	
	11387		● <sup>136,149</sup>	<b>40A/34/SS/XL</b>	130	48	Standard Frost SuperSaver XL	C, CC-8	2500	310	3.13	4.44		
<i>@ 120_volts, approximate 30 watts, 240 lumens, 6250 hours</i>														
40	A15	Candelabra	11534		<b>40A15C/SW/FAN/2/12/BL</b>	120	12	Soft White Ceiling Fan Light	C, C-9	1000	300	1.94	3.38	
			10029		<b>40A15C/CL/FAN/2/12/BL</b>	120	12	Clear Ceiling Fan	C, C-9	1000	330	1.94	3.38	
		Med	10181	●	<b>40A15/DAY/FAN/BL/2/24</b>	120	24	Daylight Fan	C, C-9	1000	340	2.38	3.50	
	11664		●	<b>40A15/DL/SW/FAN/BL/2/24</b>	120	24	Soft White Double Life Fan	C, C-9	2000	310	2.38	3.50		
	10061		●	<b>40A15/CL/DL/APPL/2/12/BL</b>	120	12	Clear Double Life Appliance	C, C-9	2000	350	2.38	3.50		



A15

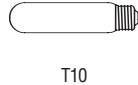
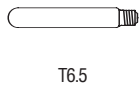
A19

K19

R14 Inter

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
40	A15	Med	10023	●	40A15/CL/DL/FAN/BL/2/24	120	24	Clear Double Life Ceiling Fan Light	C, C-9	2000	350	2.38	3.50
			10046	●	40A15/CL/DL/FAN	120	24	Clear Double Life Fan Light	C, C-9	2000	350	2.38	3.50
			10034	●	40A15/CL/DL/FAN/2/12/BL	120	12	Clear Double Life Fan Light	C, C-9	2000	350	2.38	3.50
			10133	●	40A15/CL/DL/BL	120	12	Clear Double Life Appliance	C, C-9	2000	350	2.38	3.50
			10082	●	40A15/SL	120	120	Safeline Appliance	C, C-9	1000	420	2.38	3.50
			11111	●	40A15/SW/FAN/BL/2/24	120	24	Soft White Ceiling Fan Light	C, C-9	1000	405	2.38	3.50
			11533	●	40A15/SW/FAN/2/12/BL	120	12	Soft White Ceiling Fan	C, C-9	1000	405	2.38	3.50
			10042	●	40A15/CL/FAN	120	24	Clear Ceiling Fan Light	C, C-9	1000	430	2.38	3.50
			10022	●	40A15/CL/FAN/BL/2/24	120	24	Clear Ceiling Fan Light	C, C-9	1000	430	2.38	3.50
			10036	●	40A15/CL/FAN/2/12/BL	120	12	Clear Ceiling Fan Light	C, C-9	1000	420	2.38	3.50
			10141	●	40A15/2PK/RP	120	24	Clear Appliance	C, C-9	1000	430	2.38	3.50
			10169	●	40A15/CL/BL/2/24	120	24	Clear Appliance	C, C-9	1000	430	2.38	3.50
			10066	●	40A15/CL/APPL/2/12/BL	120	12	Clear Appliance	C, C-9	1000	420	2.38	3.50
			10129	●	40A15/CL/BL	120	12	Clear Appliance	C, C-9	1000	430	2.38	3.50
			10119	●	40A15	120	120	Inside Frost Appliance	C, C-9	1000	420	2.38	3.50
			10117	●	40A15/IF/BL	120	12	Inside Frost Appliance	C, C-9	1000	420	2.38	3.50
			Med Brass	10365		40A15/1	250	120	Inside Frost Appliance	B, C-9	1000	330	2.50
10370		40A15/NEO		250	120	Neodymium Doped Appliance Lamp	B, C-9	1000	320	2.50	3.50		
A19	Med	10897	●☀	40A/DAY/4/160/RP	120	160	Daylight	C, CC-8	1500	350	3.13	4.44	
		10864	●☀	40A/DAY/RP/4/48	120	48	Daylight	C, CC-8	1500	350	3.13	4.44	
		11100	●☀	40A/DAY/RP/2/24	120	24	Daylight	C, CC-8	1500	350	3.13	4.44	
		10829	●☀ <sup>99,136</sup>	40A/DAY/RP/4/48 @ 120_volts, approximate 33 watts, 270 lumens, 3750 hours.	130	48	Daylight	C, CC-8	1500	350	3.13	4.44	
		10939	●☀	40A/DL/SW/4PK/RP	120	48	Soft White Double Life	C, CC-8	3000	390	3.13	4.44	
		11645	●☀	40A/DL/SW/2PK/RP	120	24	Soft White Double Life	C, CC-8	3000	390	3.13	4.44	
		11646	●☀	40AC/DL/2PK/RP	120	24	Clear Double Life	C, CC-8	3000	385	3.13	4.44	
		10996	●☀	40A/W/4/RP	120	48	Soft White	C, CC-8	1500	465	3.13	4.44	
		10977	●☀	40A/W/RP	120	24	Soft White	C, CC-8	1500	465	3.13	4.44	
		11223	●☀	40A/CL/RP	120	24	Clear	C, CC-8	1500	480	3.13	4.44	
		11036	●☀ <sup>136,153</sup>	40A/CL @ 120_volts, approximate 35 watts, 350 lumens, 3750 hours	130	120	Clear	C, CC-8	1500	460	3.13	4.44	
		11060	●☀	40A/4/RP	120	48	Standard Frost	C, CC-8	1500	470	3.13	4.44	
		11010	●☀	40A/RP	120	24	Standard Frost	C, CC-8	1500	470	3.13	4.44	
		11059	●☀ <sup>136,153</sup>	40A @ 120_volts, approximate 35 watts, 350 lumens, 3750 hours	130	48	Standard Frost	C, CC-8	1500	460	3.13	4.44	
		11011	●☀ <sup>136,153</sup>	40A/CVP @ 120_volts, approximate 35 watts, 350 lumens, 3750 hours	130	24	Standard Frost	C, CC-8	1500	460	3.13	4.44	
K19	Med	10471	●	40K19/DR	120	24	Inside Frost Directional Reflector	C, CC-6	1150	385		4.13	
R14	Intermediate	14820	●	40R14N/RP	120	6	Reflector Mini Flood	C, CC-2V	1500			2.56	



R14

R16

S11

T6.5

T8

T10

A21

BR30

R20

A19

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
40	R14	Med	14819	●	<b>40R14/RP</b>	120	6	Reflector Mini Flood	C, C-9	1500	185		2.25	
	R16	Med	14821	●	<b>40R16/FL/RP</b>	120	6	Reflector Mini Flood	C, C-9	1500			3.88	
	S11	Intermediate	13595	●	<b>40S11N</b>	120	120	Clear Hi Intensity	C, C-7A	500	440	1.63	2.31	
			13607	●	<b>40S11N/BL</b>	120	12	Clear Hi Intensity	C, C-7A	500	440	1.63	2.31	
			13644	●	<b>40S11N/BL/2/12</b>	120	12	Clear Hi Intensity	C, C-7A	500	440	1.63	2.31	
			13640	●	<b>40S11N/NEO/BULK</b>	120	6000	Neodymium doped Hi Intensity	C, C-7A	500		1.63	2.31	
	T6.5	Intermediate	18096	130	<b>40T6.5/2</b>	120	60	Clear Appliance	C, C-8	1000	365		5.50	
			18497		<b>40T6.5/CL/BL/10PK</b>	120	10	Clear Appliance	C, C-8	1000	365		5.50	
			18152		<b>40T6.5/CL/BL/6PK</b>	120	6	Clear Appliance	C, C-8	1000	365		5.50	
	T8	Intermediate	18358		<b>40T8N/NEODYMIUM</b>	120	6000	Neodymium Doped Appliance	B, C-7A	1000	300	1.31	2.63	
	T10	Med	18650	●	<b>40T10</b>	120	60	Clear	B, C-8	1000	420		5.63	
			18493	●	<b>40T10/CL/BL/6PK</b>	120	6	Clear	B, C-8	1000	420		5.63	
			18652	●	<b>40T10</b>	130	60	Clear	B, C-8	1000	420		5.63	
			18494	●	<b>40T10/IF/BL/6PK</b>	120	6	Inside Frost	B, C-8	1000	415		5.63	
			18669	●	<b>40T10/IF</b>	130	60	Inside Frost	B, C-8	1000	415		5.63	
45 95 140	A21	3 CONTACT Med	18048	●	<b>45/140A21/W/ES/RP</b>	120	12	Soft White 3-way Energy Saver	C, CC-8	1200	540lm 1300lm 1840lm	3.38	5.31	
45	BR30	Med	15103	●2,46,57,155	<b>45BR30/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	350lm 170 cd 60°		5.38	
			R20	Med	15677	●2,46,68,155	<b>45R20/DAY/1/6/RP</b>	120	6	Daylight Reflector	C, C-9	2000	215lm 360 cd 45°	
				15697	●2,46,68,155	<b>45R20</b>	120	60	Reflector Flood	C, C-9	2000	295lm 490 cd 45°		3.94
				14997	●2,46,68,155	<b>45R20/RP/2/12</b>	120	12	Reflector Flood	C, C-9	2000	295lm 490 cd 45°		3.94
				15670	●2,46,68,155	<b>45R20/RP</b>	120	6	Reflector Flood	C, C-9	2000	295lm 490 cd 45°		3.94
				15699	●2,46,68,105,136,155	<b>45R20</b>	130	60	Reflector Flood	C, C-9	2000	490 cd 45°		3.94
				<i>@ 120 volts, approximate 40 watts, 220 lumens, 5000 hours.</i>										
				15676	●2,46,68,105,136,155	<b>45R20/CVP</b>	130	6	Reflector Flood	C, C-9	2000	490 cd 45°		3.94
			<i>@ 120 volts, approximate 40 watts, 220 lumens, 5000 hours.</i>											
	Med Brass		15698	2,46,68,155	<b>45R20/DL/RP</b>	120	6	Double Life Reflector Flood	C, C-9	4000	260 430 cd 45°		3.94	
50	A19	Med	11096	●	<b>50A/RS/4/144/RP</b>	120	144	Inside Frost Rough Service	C	1000	510			
			14070	●	<b>50A/RS/2/RP</b>	120	24	Inside Frost Rough Service	C	1000	510			
			11393	●	<b>50A/RS</b>	250	120	Inside Frost Rough Service	C, C-22	1000	450	2.50	4.44	



A19

A21

ER30

R20

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
50	A19	Med	11397	●	<b>50A</b>	250	120	Inside Frost	B, CC-7A	1000	490	2.50	4.44
			11428	●	<b>50A</b>	277	120	Inside Frost	B, CC-7A	1000	475	2.50	4.44
	Med Brass		11118	116	<b>50A/RS/SL</b>	120	120	Safeline Rough Service	C, C-9	1000	490	2.50	3.94
			11068	133	<b>50A19/RS</b>	75	120	Inside Frost Rough Service Train	C, C-9	1000	505	2.50	3.94
50 100 150	A21	3 CONTACT Med	18110	●▼	<b>50/150/DAY/1/12</b>	120	12	Daylight 3-way	C, CC-8	1200	460lm 1170lm 1630lm	3.38	5.31
			18168	●▼	<b>50/150A21DL/SW/1/48</b>	120	48	Soft White Double Life 3-way	C, CC-8	2400	540lm 1400lm 1940lm	3.38	5.31
			18044	●▼	<b>50/150A21/DL/SW/RP</b>	120	12	Soft White Double Life 3-way	C, CC-8	2400	540lm 1400lm 1940lm	3.38	5.31
			18457	●▼	<b>50/150A21/W/2/48</b>	120	48	Soft White 3-Way	C, CC-8	1200	640lm 1570lm 2210lm	3.38	5.31
			18028	●▼	<b>50/150A/W/DIYPACK</b>	120	48	Soft White 3-way	C, CC-8	1200	640lm 1570lm 2210lm	3.38	5.31
			18458	●▼	<b>50/150A21/W/2PK/12</b>	120	12	Soft White 3-Way	C, CC-8	1200	640lm 1570lm 2210lm	3.38	5.31
			18060	●▼	<b>50/150A21/W/RP</b>	120	12	Soft White 3-way	C, CC-8	1200	640lm 1570lm 2210lm	3.38	5.31
			18726	●▼	<b>50/150A21/SPK/RP</b>	120	12	Soft Pink 3-way	C, CC-8	1200		3.38	5.31
			19404	●▼	<b>50/250A21/W/RP</b>	120	12	Soft White Reading Light 3-way	C, CC-8	1200	640lm 3300lm 3940lm	3.38	5.31
			50	A21	Med Brass	11572	⊗	<b>50A21</b>	12	24	Inside Frost RV-Marine	C, C-6	1000
11567	⊗	<b>50A21/RP</b>				12	12	Inside Frost RV-Marine	C, C-6	1000	865	3.88	4.94
11603	⊗	<b>50A21</b>				34	12	Inside Frost Train	C, C-9	1000	800	3.44	4.94
ER30	Med	15102		● <sub>2,155</sub>	<b>50ER30</b>	120	24	Elliptical Reflector Flood	C, CC-6	2000	350lm 800 cd 30°		6.38
		15110		● <sub>2,155</sub>	<b>50ER30/RP</b>	120	6	Elliptical Reflector Flood	C, CC-6	2000	350lm 800 cd 30°		6.38
		15107		● <sub>2,136,155,159</sub>	<b>50ER30</b>	130	24	Elliptical Reflector Flood	C, CC-6	2000	320lm 730 cd 30°		6.38
		<i>@ 120 volts, approximate 44 watts, 240 lumens, 5000 hours</i>											
R20	Med	15231		● <sub>2,46,68,107,155</sub>	<b>50R20/DAY/1/6/RP</b>	120	6	Daylight Reflector	C, C-9	2000	240lm 400 cd 45°		3.94
		14831		● <sub>2,46,68,107,155</sub>	<b>50R20</b>	120	60	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94
		14914		● <sub>2,46,68,107,155</sub>	<b>50R20/2PK</b>	120	48	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94
		14998	● <sub>107</sub>	<b>50R20/RP/2/12</b>	120	12	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94	





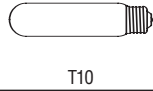
## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
50	R20	Med	14833	● 2,46,68,107,155	<b>50R20/RP</b>	120	6	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94
			14832	● 2,46,68,107,136,155,158	<b>50R20</b>	130	60	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94
			<i>@ 120_volts, approximate 44 watts, 250 lumens, 5000 hours</i>										
			14844	● 2,46,68,107,136,155,158	<b>50R20/CVP</b>	130	6	Reflector Flood	C, C-9	2000	330lm 550 cd 45°		3.94
			<i>@ 120_volts, approximate 44 watts, 250 lumens, 5000 hours</i>										
			14846	● 2,46,68,136,155	<b>50R20/PINK</b>	130	60	Pink Reflector	C, C-9	2000	420lm		3.94
		Med Brass	15346	2,46,68,107,155	<b>50R20/DL/1/48</b>	120	48	Double Life Reflector Flood	C, C-9	4000	290lm 480 cd 45°		3.94
			14943	2,46,68,107,155	<b>50R20/DL/RP</b>	120	6	Double Life Reflector Flood	C, C-9	4000	290lm 480 cd 45°		3.94
			14834	2,46,68,155	<b>50R20/PINK</b>	120	60	Pink Reflector	C, C-9	2000			3.94
			14842	2,46,68,155	<b>50R20/GRO</b>	120	6	Spot-GRO Reflector	C, C-9	2000			3.94
52	A19	Med	11392	● 104,136	<b>60A52/W/ES/4PK</b>	120	48	Soft White Energy Saver	C, CC-8	1000	715	3.13	4.44
			10893	● 104,136	<b>60A52/CL/SS</b>	130	48	Clear SuperSaver	C, CC-8	1000	740	3.13	4.44
			<i>@ 120_volts, approximate 46 watts, 560 lumens, 2500 hours.</i>										
			11376	● 136	<b>60A52/SS</b>	120	48	Standard Frost SuperSaver	C, CC-8	1000	750	3.13	4.44
			11380	● 136,164	<b>60A52/SS</b>	130	48	Standard Frost SuperSaver	C, CC-8	1000	710	3.13	4.44
			<i>@ 120_volts, approximate 46 watts, 540 lumens, 2500 hours</i>										
		Med Brass	11384	● 136	<b>60A52/SS/XL</b>	120	48	Standard SuperSaver XL	C, CC-8	2500	620	3.13	4.44
			11388	● 136,163	<b>60A52/SS/XL</b>	130	48	Standard SuperSaver XL	C, CC-8	2500	610	3.13	4.44
			<i>@ 120_volts, approximate 46 watts, 460 lumens, 6250 hours</i>										
58	A19	Med Brass	11149	● 136	<b>58A19/62</b>	120	120	Clear Street Lighting Group Replacement	C, C-9	3000	630	2.88	4.25
60	A15	Candelabra	10777		<b>60A15C/SW/FAN/2/12/BL</b>	120	12	Soft White Ceiling Fan Light	C, C-9	1000	510	1.94	3.38
			10894		<b>60A15C/CL/FAN/2/12/BL</b>	120	12	Clear Ceiling Fan Light	C, C-9	1000	560	1.94	3.38
		Med	10162	●	<b>60A15/DAY/FAN/BL/2/24</b>	120	24	Daylight Fan	C, C-9	1000	340	2.38	3.50
			10868	●	<b>60A15/DL/SW/BL/2/24</b>	120	24	Soft White Double Life Fan Light	C, C-9	2000	510	2.38	3.50
			10885	●	<b>60A15/SW/FAN/2/12/BL</b>	120	12	Soft White Double Life Fan Light	C, C-9	1000	680	2.38	3.50
			10048	●	<b>60A15/CL/DL/FAN/RP</b>	120	24	Clear Double Life Fan Light	C, C-9	2000	530	2.38	3.50
			10024	●	<b>60A15/CL/DL/FAN/BL/2/24</b>	120	24	Clear Double Life Fan Light	C, C-9	2000	530	2.38	3.50
			10040	●	<b>60A15/CL/DL/FAN/2/12/BL</b>	120	12	Clear Double Life Fan Light	C, C-9	2000	530	2.38	3.50
			11005	●	<b>60A15/SW/FAN/2PK</b>	120	24	Soft White Ceiling Fan	C, C-9	1000	680	2.38	3.50
			10842	●	<b>60A15/SW/FAN/BL/2/24</b>	120	24	Soft White Ceiling Fan	C, C-9	1000	680	2.38	3.50
			10841	●	<b>60A15/CL/FAN/BL/2/24</b>	120	24	Clear Ceiling Fan Light	C, C-9	1000	700	2.38	3.50



## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)		
60	A15	Med	11007	●	<b>60A15/CL/FAN/RP</b>	120	24	Clear Ceiling Fan Light	C, C-9	1000	700	2.38	3.50		
			10884	●	<b>60A15CL/FAN/2/12/BL</b>	120	12	Clear Ceiling Fan Light	C, C-9	1000	700	2.38	3.50		
		Med Brass	10886		<b>60A15/GARAGE/2/12/BL</b>	120	12	Clear Garage Light	C, C-9	1000	690	2.38	3.50		
		11008		<b>60A15/GARAGE/RP</b>	120	24	Inside Frost Garage Door	C, C-9	1000	690	2.38	3.50			
A19	Med	11509	●☀	<b>60A/DAY/4/160/RP</b>	120	160	Daylight	C, CC-8	1000	640	3.13	4.44			
		11463	●☀	<b>60A/DAY/RP/4/48</b>	120	48	Daylight	C, CC-8	1000	640	3.13	4.44			
		11101	●☀	<b>60A/DAY/RP/2/24</b>	120	24	Daylight	C, CC-8	1000	640	3.13	4.44			
		11602	●☀ <sup>101,136</sup>	<b>60A/DAY/RP/4/48</b> @ 120_volts, approximate 53 watts, 490 lumens, 2500 hours.	130	48	Daylight	C, CC-8	1000	640	3.13	4.44			
		11204	●☀	<b>60A/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	2000	770	3.13	4.44			
		11227	●☀	<b>60A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	2000	770	3.13	4.44			
		11260	●☀	<b>60A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	2000	790	3.13	4.44			
		10503	●☀	<b>60A/RS/SL/RP</b>	120	12	Safeline Rough Service Inside Frost	C, C-9	1000	555	3.13	4.44			
		13000	●☀	<b>60A/RS/2/RP</b>	120	24	Inside Frost Rough Service	C, C-9	1000	555	2.88	4.44			
		12977	●☀	<b>60A/RS/RP/1</b>	120	12	Inside Frost Rough Service	C, C-9	1000	555	2.88	4.44			
		12420	●☀ <sup>136,168</sup>	<b>60A/RS/2/RP</b> @ 120_volts, approximate 53 watts, 420 lumens, 2500 hours	130	24	Inside Frost Rough Service	C, C-9	1000	555	2.88	4.44			
		11205	●☀	<b>60A/W/4/RP</b>	120	48	Soft White	C, CC-8	1000	850	3.13	4.44			
		11208	●☀	<b>60A/W/RP</b>	120	24	Soft White	C, CC-8	1000	850	3.13	4.44			
		10553	●☀	<b>60A/CL</b>	120	120	Clear	C, CC-8	1000	880	3.13	4.44			
		11224	●☀	<b>60A/CL/RP</b>	120	24	Clear	C, CC-8	1000	880	3.13	4.44			
		10555	●☀ <sup>136,170</sup>	<b>60A/CL</b> @ 120_volts, approximate 53 watts, 650 lumens, 2500 hours	130	120	Clear	C, CC-8	1000	855	3.13	4.44			
		10558	●☀ <sup>170</sup>	<b>60A/CL/CVP</b> @ 120_volts, approximate 53 watts, 650 lumens, 2500 hours	130	24	Clear	C, CC-8	1000	855	3.13	4.44			
		11180	●☀	<b>60A/4/RP</b>	120	48	Standard Frost	C, CC-8	1000	870	3.13	4.44			
		11214	●☀	<b>60A/RP</b>	120	24	Standard Frost	C, CC-8	1000	870	3.13	4.44			
		11373	●☀ <sup>136,170</sup>	<b>60A</b> @ 120_volts, approximate 53 watts, 650 lumens, 2500 hours	130	48	Standard Frost	C, CC-8	1000	855	3.13	4.44			
		10489	●☀ <sup>136,170</sup>	<b>60A/CVP</b> @ 120_volts, approximate 53 watts, 650 lumens, 2500 hours	130	24	Standard Frost	C, CC-8	1000	855	3.13	4.44			
		11715	●	<b>60A/BLACKLIGHT/RP</b>	120	6	Blacklight	C, CC-8	1000		3.13	4.44			
		10390	●	<b>60A/Y/RP</b>	120	24	Yellow Bug Light	C, CC-8	1000		3.13	4.44			
		10386	●	<b>60A/Y/RP</b>	130	24	Yellow Bug Light	C, CC-8	1000		3.13	4.44			
		10576	●	<b>60A/SPK</b>	120	24	Soft Pink	C, CC-8	1000		3.13	4.44			
		12280	●	<b>60A/GRO</b>	120	6	Spot-GRO	C, C-9	1000		3.13	4.44			
				Med Brass	13021		<b>60A/RS/XL</b>	120	24	Inside Frost Rough Service XL	C, C-9	5000	450	2.88	4.44
					12455	<sup>80</sup>	<b>60A/RS/XL</b> @ 120_volts, approximate 53 watts, 340 lumens, 12500 hours.	130	24	Inside Frost Rough Service XL	C, C-9	5000	450	2.88	4.44
					10640	⊗	<b>60A</b>	24	120	Inside Frost Dental Spot	C, C-9	1000	1010	3.13	4.44



## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
60	C15	Med Brass	14200		<b>60C15/FAN/2PK</b>	120	12	Clear Ceiling Fan Light	C, C-9	4000	528		4.50
	K19	Med	10483	●	<b>60K19/DR</b>	120	24	Inside Frost Directional Reflector	C, CC-6	1150	630		4.13
	T10	Med	18710	●▽▲	<b>60T10/64</b>	120	60	Clear	C, C-8	1000	655		5.63
			18712	●▽▲	<b>60T1064BL</b>	120	6	Clear	C, C-8	1000	655		5.63
			18711	●▽▲	<b>60T10/CF</b>	120	60	Inside Frost Showcase	C, C-8	1000	630		5.63
	S14s		19675	▽▲	<b>LN60 125-130V</b>	125	25	Opal White LINESTRA 1605	B, C-8	1000	460		19.69
65	BR30	Med	15223	●▲2,46,57,155	<b>65BR30/DAY/1/6/RP</b>	120	6	Daylight Reflector	C, CC-6	2000	420lm 250 cd 60°		5.38
			15167	●▲2,46,57,155	<b>65BR30/FL/SL/RP</b>	130	6	Reflector Safeline Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			<i>@ 120_volts, approximate 57 watts, 470 lumens, 5000 hours.</i>										
			15148	●▲2,46,57,155	<b>65BR30/TRAY</b>	120	48	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			15165	●▲2,46,57,155	<b>65BR30/FL</b>	120	24	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			15246	●▲2,46,57,155	<b>65BR30/2/24/RP</b>	120	24	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			15160	●▲2,46,57,155	<b>65BR30/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			15149	●▲2,46,57,155	<b>65BR30/SP/RP</b>	120	6	Reflector Spot	C, CC-6	2000	620lm 580 cd 30°		5.38
			13129	●▲2,46,57,155	<b>65BR30/FL</b>	130	24	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			<i>@ 120_volts, approximate 57 watts, 470 lumens, 5000 hours.</i>										
			15172	●▲2,46,57,155	<b>65BR30/FL/CVP</b>	130	6	Reflector Flood	C, CC-6	2000	620lm 370 cd 60°		5.38
			<i>@ 120_volts, approximate 57 watts, 470 lumens, 5000 hours.</i>										
			15150	●▲2,46,57,155	<b>65BR30/A/RP</b>	120	6	Amber Reflector Flood	C, CC-6	2000			5.38
			15151	●▲2,46,57,155	<b>65BR30/B/RP</b>	120	6	Blue Reflector Flood	C, CC-6	2000			5.38
			15152	●▲2,46,57,155	<b>65BR30/G/RP</b>	120	6	Green Reflector Flood	C, CC-6	2000			5.38
			15153	●▲2,46,57,155	<b>65BR30/PK/RP</b>	120	6	Pink Reflector Flood	C, CC-6	2000			5.38
			15161	●▲2,46,57,155	<b>65BR30/R/RP</b>	120	6	Red Reflector Flood	C, CC-6	2000			5.38
			15154	●▲2,46,57,155	<b>65BR30/Y/RP</b>	120	6	Yellow Reflector Flood	C, CC-6	2000			5.38
			15156	●▲2,46,57,155	<b>65BR30/GRO/RP</b>	120	6	Spot-GRO Reflector	C, CC-6	2000			5.38
	Med Brass		15266	▲	<b>65BR30/DL/2/24</b>	120	24	Double Life Reflector Flood	C, CC-6	4000	510lm 300 cd 60°		5.38



BR30, BR40



PAR38



A19

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
65	BR30	Med Brass	15177	2,46,57,155	<b>65BR30/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	510lm 300 cd 60°		5.38
	BR40	Med	15360	46,57,155	<b>65BR/FL/24</b>	120	24	Reflector Flood	C, CC-6	2000	580lm 390 cd 60°		6.50
			15678	46,57,155	<b>65BR/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	580lm 390 cd 60°		6.50
			15679	46,57,106,136,155	<b>65BR/CVP</b>	130	6	Reflector Flood	C, CC-6	2000	540lm 390 cd 60°		6.50
			<i>@ 120_volts, approximate 57 watts, 410 lumens, 5000 hours.</i>										
		Med Brass	15332	46,57,155	<b>65BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	510lm 335 cd 60°		6.50
	PAR38	Med Skt	13804		<b>65PAR/SP</b>	120	15	Spot Super Saver	C, CC-6	1750	715lm 5500 cd 12°		5.31
			13802		<b>65PAR/FL</b>	120	15	Flood Super Saver	C, CC-6	1750	715lm 1700 cd 30°		5.31
			13805	136,173	<b>65PAR/FL</b>	130	15	Flood Super Saver	C, CC-6	1750	715lm 1700 cd 30°		5.31
			<i>@ 120_volts, approximate 57 watts, 540 lumens, 4375 hours</i>										
67	A19	Med	11394		<b>75A/67/W/ES/4PK</b>	120	48	Soft White Energy Saver	C, CC-8	750	1040	3.13	4.44
			11377		<b>75A/67/SS</b>	120	48	Standard Frost SuperSaver	C, CC-8	750	1050	3.13	4.44
			11381	136,175	<b>75A/67/SS</b>	130	48	Standard Frost SuperSaver	C, CC-8	750	1020	3.13	4.44
			<i>@ 120_volts, approximate 59 watts, 780 lumens, 1875 hours</i>										
		Med Brass	11385	108	<b>75A/67/SSXL</b>	120	48	Standard Frost SuperSaver XL	C, CC-8	2500	880	3.13	4.44
			11389	108,136,174	<b>75A/67/SSXL</b>	130	48	Standard Frost SuperSaver XL	C, CC-8	2500	860	3.13	4.44
			<i>@ 120_volts, approximate 59 watts, 660 lumens, 6250 hours</i>										
75	A19	Med	10863		<b>75A/DAY/4/160/RP</b>	120	160	Daylight	C, CC-8	750	850	3.13	4.44
			10865		<b>75A/DAY/RP/4/48</b>	120	48	Daylight	C, CC-8	750	850	3.13	4.44
			11102		<b>75A/DAY/RP/2/24</b>	120	24	Daylight	C, CC-8	750	850	3.13	4.44
			10776	102,136	<b>75A/DAY/RP/4/48</b>	130	48	Daylight	C, CC-8	750	850	3.13	4.44
			<i>@ 120_volts, approximate 66 watts, 650 lumens, 1875 hours.</i>										
			11331		<b>75A/W/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1055	3.13	4.44
			11337		<b>75A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1055	3.13	4.44
			11175		<b>75A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1085	3.13	4.44
			13001		<b>75A/RS/2/RP</b>	120	24	Inside Frost Rough Service	C, C-9	1000	818	2.88	4.44
			12579		<b>75A/RS/RP/1</b>	120	12	Inside Frost Rough Service	C, C-9	1000	818	2.88	4.44
			12586	136,179	<b>75A/RS/RP/1</b>	130	24	Inside Frost Rough Service	C, C-9	1000	818	2.88	4.44
			<i>@ 120_volts, approximate 66 watts, 620 lumens, 2500 hours</i>										





A19

A21

BR38

BR40

ER30

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)	
75	A19	Med	10970		<b>75A/W/4/RP</b>	120	48	Soft White	C, CC-8	750	1170	3.13	4.44	
			10967		<b>75A/W/RP</b>	120	24	Soft White	C, CC-8	750	1170	3.13	4.44	
			12500		<b>75A/CL</b>	120	120	Clear	C, CC-8	750	1200	3.13	4.44	
			11225		<b>75A/CL/RP</b>	120	24	Clear	C, CC-8	750	1200	3.13	4.44	
			12502	<small>136,183</small>	<b>75A/CL</b> <i>@ 120_volts, approximate 66 watts, 910 lumens, 1875 hours</i>	130	120	Clear	C, CC-8	750	1190	3.13	4.44	
			12525		<b>75A/4/RP</b>	120	48	Standard Frost	C, CC-8	750	1190	3.13	4.44	
			12521		<b>75A/RP</b>	120	24	Standard Frost	C, CC-8	750	1190	3.13	4.44	
			11374	<small>136,183</small>	<b>75A</b> <i>@ 120_volts, approximate 66 watts, 910 lumens, 1875 hours</i>	130	48	Standard Frost	C, CC-8	750	1190	3.13	4.44	
			12510	<small>183</small>	<b>75A/CVP</b> <i>@ 120_volts, approximate 66 watts, 910 lumens, 1875 hours</i>	130	24	Standard Frost	C, CC-8	750	1190	3.13	4.44	
			Med Brass			13022		<b>75A/RS/XL</b>	120	24	Inside Frost Rough Service XL	C, C-9	5000	650
12528	<small>81</small>	<b>75A/RS/XL</b> <i>@ 120_volts, approximate 66 watts, 500 lumens, 12500 hours.</i>				130	24	Inside Frost Rough Service XL	C, C-9	5000	700	2.88	4.44	
A21	Med		12554	<small>116</small>	<b>75A21/RS/SL/RP</b>	120	12	Safeline Rough Service Inside Frost	C, C-9	1000	800	3.13	4.44	
			Med Brass	11566		<b>75A21</b>	12	24	Inside Frost RV-Marine	C, C-6	1000	1420	3.88	5.31
BR38	Med		15620	<small>2,155</small>	<b>75/OPAR/BUG/RP</b>	120	6	Outdoor Bug Light	C, CC-6	2000			5.31	
			Med Brass	15607	<small>2,107,119,155</small>	<b>75/OPAR/FL</b>	120	12	Outdoor Reflector Economy Flood	C, CC-6	2000	650lm 45°		
BR40	Med		15349	<small>46,57,107,155</small>	<b>75BR40/FL/DAY/1/6/RP</b>	120	6	Daylight Reflector Flood	C, CC-6	2000	680lm 310 cd 60°		6.50	
			15126	<small>46,57,107,155</small>	<b>75BR/FL</b>	120	24	Reflector Flood	C, CC-6	2000	680lm 460 cd 60°		6.50	
			15128	<small>46,57,107,155</small>	<b>75BR/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	680lm 460 cd 60°		6.50	
			15125	<small>46,57,107,136,155,184</small>	<b>75BR/FL</b> <i>@ 120_volts, approximate 66 watts, 520 lumens, 5000 hours</i>	130	24	Reflector Flood	C, CC-6	2000	680lm 460 cd 60°		6.50	
			Med Brass	15213	<small>46,57,107,155</small>	<b>75BR40/DL/FL/1/24</b>	120	24	Double Life Reflector Flood	C, CC-6	4000	610lm 400 cd 60°		6.50
			15144	<small>46,57,107,155</small>	<b>75BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	610lm 400 cd 60°		6.50	
			ER30	Med		15100	<small>2,46,57,107,155</small>	<b>75ER30</b>	120	24	Elliptical Reflector Flood	C, CC-6	2000	580lm 1500 cd 30°
15109	<small>2,46,57,107,155</small>	<b>75ER30/RP</b>				120	6	Elliptical Reflector Flood	C, CC-6	2000	580lm 1500 cd 30°		6.38	
15101	<small>2,46,57,107,136,155,178</small>	<b>75ER30</b> <i>@ 120_volts, approximate 66 watts, 425 lumens, 4125 hours</i>				130	24	Elliptical Reflector Flood	C, CC-6	2000	580lm 1500 cd 30°		6.38	



K19



PAR38 Side Prong



R20



A19

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
75	K19	Med	12583	●	<b>75K19/DR</b>	120	24	Inside Frost Directional Reflector	C, CC-6	1150	855lm		4.13
	PAR38	Med Side Prong	13850	★	<b>75PAR/3FL</b>	120	12	Compact Flood	C, CC-6	2000	1040lm 1800 cd 30°		4.31
	R20	Med	14840	●	<b>75R20/RP</b>	120	6	Reflector Flood	C, CC-9	2000	500lm 500 cd 45°		3.94
	R30	Med	15146	●	<b>75R30/BLACKLIGHT/RP</b>	120	6	Blacklight	C, CC-6	1000			6.50
90	A19	Med	11396	●	<b>100A/90/W/ES/4PK</b>	120	48	Soft White Energy Saver	C, CC-8	750	1450	3.13	4.44
			11378	●	<b>100A/90/SS</b>	120	48	Standard Frost SuperSaver	C, CC-8	750	1480	3.13	4.44
			11382	●136,189	<b>100A/90/SS</b>	130	48	Standard Frost SuperSaver	C, CC-8	750	1480	3.13	4.44
			<i>@ 120_volts, approximate 79 watts, 1130 lumens, 1875 hours</i>										
	Med Brass		11386	108	<b>100A/90/SSXL</b>	120	48	Standard Frost SuperSaver XL	C, CC-8	2500	1220	3.13	4.44
			11390	108,136,186	<b>100A/90/SSXL</b>	130	48	Standard Frost SuperSaver XL	C, CC-8	2500	1230	3.13	4.44
			<i>@ 120_volts, approximate 79 watts, 940 lumens, 6250 hours</i>										
100	A19	Med	12948	●	<b>100A/DAY/4/160/RP</b>	120	160	Daylight	C, CC-8	750	1270	3.13	4.44
			12587	●	<b>100A/DAY/RP/4/48</b>	120	48	Daylight	C, CC-8	750	1270	3.13	4.44
			12952	●	<b>100A/DAY/RP/2/24</b>	120	24	Daylight	C, CC-8	750	1270	3.13	4.44
			12538	●103,136	<b>100A/DAY/RP/4/48</b>	130	48	Daylight	C, CC-8	750	1270	3.13	4.44
			<i>@ 120_volts, approximate 88 watts, 970 lumens, 1875 hours.</i>										
			16868	●	<b>100A/DL/SW/PLUS/4PK/RP/160</b>	120	160	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44
			16864	●	<b>100A/DL/SW/PLUS/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44
			11332	●108	<b>100A/DL/SW/4PK/RP</b>	120	48	Soft White Double Life	C, CC-8	1500	1530	3.13	4.44
			12480	●	<b>100A/DL/SW/PLUS/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1560	3.13	4.44
			12805	●108	<b>100A/DL/SW/2PK/RP</b>	120	24	Soft White Double Life	C, CC-8	1500	1530	3.13	4.44
			11660	●	<b>100A/CL/DL/PLUS/2PK/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1590	3.13	4.44
			11176	●108	<b>100A/CL/DL/RP</b>	120	24	Clear Double Life	C, CC-8	1500	1550	3.13	4.44
			13002	●	<b>100A/RS/2/RP</b>	120	24	Inside Frost Rough Service	C, C-9	1000	1260	2.88	4.44
			12997	●	<b>100A/RS/RP/1</b>	120	12	Inside Frost Rough Service	C, C-9	1000	1260	2.88	4.44
			12998	●136,190	<b>100A/RS/2/RP</b>	130	24	Inside Frost Rough Service	C, C-9	1000	1260	2.88	4.44
			<i>@ 120_volts, approximate 88 watts, 960 lumens, 2500 hours</i>										
			12770	●	<b>100A/W/4/RP</b>	120	48	Soft White	C, CC-8	750	1690	3.13	4.44
			12752	●	<b>100A/W/RP</b>	120	24	Soft White	C, CC-8	750	1690	3.13	4.44
			12529	●	<b>100A/CL</b>	120	120	Clear	C, CC-8	750	1720	3.13	4.44
			11226	●	<b>100A/CL/RP</b>	120	24	Clear	C, CC-8	750	1720	3.13	4.44
			12531	●136,193	<b>100A/CL</b>	130	120	Clear	C, CC-8	750	1700	3.13	4.44
			<i>@ 120_volts, approximate 88 watts, 1290 lumens, 1875 hours</i>										
			12750	●	<b>100A/4/RP</b>	120	48	Standard Frost	C, CC-8	750	1710	3.13	4.44
			12735	●	<b>100A/RP</b>	120	24	Standard Frost	C, CC-8	750	1710	3.13	4.44
			11375	●136,193	<b>100A</b>	130	48	Standard Frost	C, CC-8	750	1700	3.13	4.44
			<i>@ 120_volts, approximate 88 watts, 1290 lumens, 1875 hours</i>										



A19

A21

A23

BR38

BR40

K19

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)		
100	A19	Med	12709	136,193	<b>100A/CVP</b>	130	24	Standard Frost	C, CC-8	750	1700	3.13	4.44		
			<i>@ 120_volts, approximate 88 watts, 1290 lumens, 1875 hours</i>												
			12530		<b>100A/LHT</b>	120	120	Standard Frost Left Hand Thread	C, CC-8	750	1710	3.13	4.44		
		12763		<b>100A/Y/RP</b>	120	24	Yellow Bug Light	C, CC-8	1000		3.13	4.44			
		12766		<b>100A/SPK/RP</b>	120	24	Soft Pink	C, CC-8	1000		3.13	4.44			
		Med Brass	13023		<b>100A/RS/XL</b>	120	24	Inside Frost Rough Service XL	C, C-9	5000	840	2.88	4.44		
12559	82,136		<b>100A/RS/XL</b>	130	24	Inside Frost Rough Service XL	C, C-9	5000	1040	2.88	4.44				
<i>@ 120_volts, approximate 88 watts, 765 lumens, 12500 hours.</i>															
A21	Med	13218	83	<b>100A21/VS</b>	130	48	Inside Frost Vibration Service	C, C-9	1000	1340	3.88	5.31			
		<i>@ 120_volts, approximate 88 watts, 1020 lumens, 2500 hours.</i>													
		12866		<b>100A21</b>	120	48	Standard Frost	C, CC-8	750	1675	3.88	5.31			
		12883	136,192	<b>100A21</b>	130	48	Standard Frost	C, CC-8	750	1650	3.88	5.31			
		<i>@ 120_volts, approximate 88 watts, 1260 lumens, 1875 hours</i>													
		13404		<b>100A21</b>	230	24	Standard Frost	C, C-9	1000	1260	3.88	5.31			
		13406		<b>100A21</b>	250	24	Standard Frost	C, C-9	1000	1230	3.88	5.31			
		13397		<b>100A21</b>	277	24	Standard Frost	C, C-7A	1000	1042	3.88	5.31			
		12909		<b>100A21/LHT</b>	120	48	Standard Frost Left Hand Thread	C, CC-8	750	1675	3.88	5.31			
		Med Brass	12834	116	<b>100A21/SL</b>	120	48	Safeline Rhinocoat (Shatter Protected)	C, CC-8	750	1675	3.88	5.31		
			12992	116	<b>100A21/RS/SL/RP</b>	120	12	Safeline Rough Service	C, C-9	1000	1260	3.13	4.44		
12906	108		<b>100A21/99/XL</b>	120	48	Standard Frost Excel	C, CC-8	2500	1400	3.88	5.31				
12946	108,136,191		<b>100A21/99/XL</b>	130	48	Standard Frost Excel	C, CC-8	2500	1440	3.88	5.31				
<i>@ 120_volts, approximate 88 watts, 1100 lumens, 6250 hours</i>															
A23	Med	12859		<b>100A23</b>	34	12	Inside Frost	C, C-9	1000	1800	4.38	6.06			
		Med Brass	13280	108	<b>100A23/20</b>	120	24	Clear Oven	C, C-9	750	1390	4.38	6.06		
BR38	Med Brass	15626	2,46,57,155	<b>100/OPAR/FL/B/RP</b>	120	6	Blue Reflector Flood	C, CC-6	2000			5.31			
		15627	2,46,57,155	<b>100/OPAR/FL/G/RP</b>	120	6	Green Reflector Flood	C, CC-6	2000			5.31			
		15623	2,46,57,155	<b>100/OPAR/FL/R/RP</b>	120	6	Red Reflector Flood	C, CC-6	2000			5.31			
		15622	2,46,57,155	<b>100/OPAR/FL/Y/RP</b>	120	6	Yellow Reflector Flood	C, CC-6	2000			5.31			
BR40	Med	14851	57,107,155	<b>100BR/FL</b>	120	24	Reflector Flood	C, CC-6	2000	935lm 900 cd 60°		6.50			
		14871	57,107,155	<b>100BR/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	935lm 900 cd 60°		6.50			
		14847	57,107,136,155,194	<b>100BR/FL</b>	130	24	Reflector Flood	C, CC-6	2000	935lm 900 cd 60°		6.50			
<i>@ 120_volts, approximate 88 watts, 710 lumens, 5000 hours</i>															
K19	Med	12298		<b>100K19/DR</b>	120	24	Inside Frost Directional Reflector	C, CC-6	1150	1235		4.13			



PAR38



PS25



A23



BR40



ER40



A19



A21

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
100	PAR38	Med Skt	13849	★ <sup>24,46,155</sup>	<b>100PAR38/HEAT/RED</b>	120	15	Hard Glass PAR Heat Lamp with Red Lens	C	5000			
100 200 300	PS25	3 CONTACT Med	14374	●▼	<b>100/300PS25/RP</b>	120	12	Inside Frost 3-way 100/300W	C, CC-8	1200	1385lm 3540lm 4925lm	4.25	6.75
105	A23	Med Brass	13364	<sup>57,108</sup>	<b>K105A23/CL</b>	125	24	Clear Krypton Filled ST Ltg	C, C-9	12000	1120	4.38	6.06
120	BR40	Med	15074	● <sup>2,46,57,107,155</sup>	<b>120BR40/FL/SL</b>	130	24	RHINOCOAT Safeline Flood	C, CC-6	2000	1150lm 1000 cd 60°		6.50
					<i>@ 120_volts, approximate 105 watts, 850 lumens, 5000 hours</i>								
			14903	● <sup>2,46,57,107,155</sup>	<b>120BR/FL</b>	120	24	Reflector Flood	C, CC-6	2000	1150lm 1000 cd 60°		6.50
			14896	● <sup>2,46,57,107,155</sup>	<b>120BR/FL/RP</b>	120	6	Reflector Flood	C, CC-6	2000	1150lm 1000 cd 60°		6.50
			14899	● <sup>2,107,136,155,196</sup>	<b>120BR/FL</b>	130	24	Reflector Flood	C, CC-6	2000	1150lm 1000 cd 60°		6.50
					<i>@ 120_volts, approximate 105 watts, 850 lumens, 5000 hours</i>								
			14888	● <sup>2,46,57,107,136,155,196</sup>	<b>120BR/FL/CVP</b>	130	6	Reflector Flood	C, CC-6	2000	1150lm 1000 cd 60°		6.50
					<i>@ 120_volts, approximate 105 watts, 850 lumens, 5000 hours</i>								
			14911	● <sup>2,46,57,107,155</sup>	<b>120BR/SP</b>	120	24	Reflector Spot	C, CC-6	2000	1150lm 3300 cd 25°		6.50
			14897	● <sup>2,46,57,107,155</sup>	<b>120BR/SP/RP</b>	120	6	Reflector Spot	C, CC-6	2000	1150lm 3300 cd 25°		6.50
			14909	● <sup>2,46,57,107,136,155,196</sup>	<b>120BR/SP</b>	130	24	Reflector Spot	C, CC-6	2000	1150lm 3300 cd 25°		6.50
					<i>@ 120_volts, approximate 105 watts, 850 lumens, 5000 hours</i>								
			14898	● <sup>2,46,57,155</sup>	<b>120BR/GRO</b>	120	6	Spot-GRO Reflector	C, CC-6	2000			6.50
	Med Brass		14915	● <sup>2,46,57,107,155</sup>	<b>120BR/DL/FL/RP</b>	120	6	Double Life Reflector Flood	C, CC-6	4000	960lm 835 cd 60°		6.50
	ER40	Med	15166	● <sup>2,46,57,107,155</sup>	<b>120ER40</b>	120	24	Elliptical Reflector Flood	C, CC-6	2000	1370lm 2350 cd 30°		7.38
125	BR40	Med	15451	● <sup>57,155</sup>	<b>125BR40/HEAT/24PK</b>	120	24	Reflector Infrared Heat Lamp	C, C-9	4000			6.50
			14952	● <sup>57,155</sup>	<b>125BR40/1/RP</b>	120	6	Reflector Infrared Brooder Bulb	C, CC-6	5000			6.50
135	A19	Med Brass	12831	● <sup>3,108,136</sup>	<b>150A/135/SS/XL</b>	130	120	Standard Frost SuperSaver XL	C, CC-8	2500	2050	3.13	4.44
					<i>@ 120_volts, approximate 119 watts, 1560 lumens, 6250 hours</i>								
	A21	Med	12820	●	<b>150A21/135/SS</b>	120	48	Standard Frost SuperSaver	C, CC-8	750	2450	3.88	5.50
			12863	● <sup>4,136</sup>	<b>150A21/135/SS</b>	130	48	Standard Frost SuperSaver	C, CC-8	750	2450	3.88	5.50
					<i>@ 120_volts, approximate 119 watts, 1870 lumens, 1875 hours</i>								





A21



A23



BR38



PAR38



PAR38 Side Prong



PAR46



PS25



T10

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
150	A21	Med	13101	●	<b>150A21/W/RP</b>	120	12	Soft White	C, CC-8	750	2640	3.88	5.31
			13125	●	<b>150A21/CL/RP</b>	120	12	Clear Utility Light	C, CC-8	750	2780	3.88	5.31
			13148	● <sup>12,136</sup>	<b>150A21/CL</b> <i>@ 120_volts, approximate 132 watts, 2030 lumens, 1875 hours</i>	130	48	Clear	C, CC-8	750	2730	3.88	5.31
			13141	●	<b>150A21</b>	120	48	Standard Frost	C, CC-8	750	2740	3.88	5.31
			13165	●	<b>150A21/IF/RP</b>	120	12	Standard Frost Utility Light	C, CC-8	750	2740	3.88	5.31
			13153	● <sup>12,136</sup>	<b>150A21</b> <i>@ 120_volts, approximate 132 watts, 2030 lumens, 1875 hours</i>	130	48	Standard Frost	C, CC-8	750	2670	3.88	5.31
			Med Brass	13177	108	<b>150A21/99/XL</b>	120	48	Standard Frost Excel	C, CC-8	2500	2225	3.88
	13178	<sup>10,108,136</sup>	<b>150A21/99/XL</b> <i>@ 120_volts, approximate 132 watts, 1690 lumens, 6250 hours</i>	130	48	Standard Frost Excel	C, CC-8	2500	2225	3.88	5.31		
A23	Med	15241	●	<b>150A23/RS</b>	120	48	Inside Frost Rough Service	C, C-17	1000	2090	4.38	6.06	
		15243	● <sup>7,136</sup>	<b>150A23/RS</b> <i>@ 120_volts, approximate 132 watts, 1590 lumens, 2500 hours</i>	130	48	Inside Frost Rough Service	C, C-17	1000	2090	4.38	6.06	
		13041	●	<b>150A23</b>	120	48	Inside Frost	C, CC-8	750	2810	4.63	6.06	
BR38	Med Brass	15608	★ <sup>2,107,119,155</sup>	<b>150/OPAR/FL</b>	120	12	Outdoor Reflector Economy Flood	C, CC-6	2000	1350lm 45°		5.31	
PAR38	Med Skt	13921	★ <sup>8,119</sup>	<b>150PAR/SP</b>	130	15	Spot	C, CC-6	750	2175lm 18000 cd 12°		5.31	
		13922	★ <sup>8,119</sup>	<b>150PAR/FL</b> <i>@ 120_volts, approximate 132 watts, 1660 lumens, 1875 hours</i>	130	15	Flood	C, CC-6	750	2175lm 4500 cd 30°		5.31	
		Med Side Prong	13853	★ <sup>188</sup>	<b>150PAR/3FL</b>	120	12	Compact Flood	C, CC-6	2000	2175lm 4000 cd 30°		4.31
PAR46	Med Side Prong	15375	★ <sup>67,117,188</sup>	<b>150PAR46/3NSP 125-</b>	125	12	Narrow Spot	C, CC-2V	2000	1500lm 17500 cd 8x12 VH		4.00	
		Screw Term	15190	★ <sup>67,188</sup>	<b>150PAR46</b>	130	12	Clear Mine Headlamp	C, C-13	1000	1250lm 8x15 VH		3.75
PS25	Med	15276	● <sup>108</sup>	<b>150PS25/IF</b>	120	60	Inside Frost	C, C-9	1000	2340	5.25	6.94	
		15282	● <sup>9,108,136</sup>	<b>150PS25</b> <i>@ 120_volts, approximate 132 watts, 1770 lumens, 1875 hours</i>	130	60	Inside Frost	C, C-9	750	2330	5.25	6.94	
		Med Brass	15293	116	<b>150PS25/SL</b>	120	60	Safeline Rhinocoat (Shatter Protected)	C, C-9	1000	2200	5.25	6.94
		15300	116	<b>150PS25/RS/SL</b>	120	60	Safeline Rough Service	C, C-17	1000	2145	4.38	5.94	
	15431	<sup>5,108,136</sup>	<b>150PS25/99/XL</b> <i>@ 120_volts, approximate 132 watts, 1420 lumens, 6250 hours</i>	130	60	Inside Frost Excel-Line	C, C-9	2500	1870	5.25	6.94		
T10	S14s	19690	▼	<b>LN150 125-130</b>	125	16	Opal White LINESTRA 1604	B, C-8	1000	930		39.38	
175	PAR38	Med Skt	13836	★ <sup>24,46,155</sup>	<b>175W/PAR38/HEAT</b>	120	15	Hard Glass PAR Heat Lamp	C, CC-6	5000			5.31
			13840	★ <sup>24,46,155</sup>	<b>175 PAR38/HEAT/RED</b>	120	15	Hard Glass PAR Heat Lamp with Red Lens	C	5000			
200	A21	Med	13103	●	<b>200A21/W/1RP</b>	120	12	Soft White	C, CC-8	750	3650	3.88	5.31



A21

A23

PAR46

PAR56

PS25

PS30

BR38

BR40

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
200	A21	Med	13107	●	<b>200A21</b>	120	24	Soft White Recessed Ceiling	C, CC-8	750	3650	3.88	5.31
			15476	●	<b>200A21/CL/RP</b>	120	12	Clear Utility Light	C, CC-8	750	3880	3.88	5.31
			15491	● <sup>21,136</sup>	<b>200A21/CL</b> @ 120_volts, approximate 176 watts, 2860 lumens, 1875 hours	130	48	Clear	C, CC-8	750	3880	3.88	5.31
			15499	●	<b>200A21/RP</b>	120	12	Standard Frost Utility Light	C, CC-8	750	3850	3.88	5.31
			15543	● <sup>21,136</sup>	<b>200A21</b> @ 120_volts, approximate 176 watts, 2860 lumens, 1875 hours	130	48	Standard Frost	C, CC-8	750	3760	3.88	5.31
	Med Brass		15555	● <sup>22,136</sup>	<b>200A21/99/XL</b> @ 120_volts, approximate 176 watts, 2220 lumens, 6750 hours	125	48	Standard Frost Excel	C, CC-8	2500	2910	3.88	5.31
A23	Med		15458	● <sup>15,136</sup>	<b>200A23/RS</b>	130	48	Inside Frost Rough Service	C, C-17	1000	2920	4.38	5.88
			15505	●	<b>200A23</b>	120	48	Inside Frost	C, CC-8	750	3930	4.63	6.06
PAR46	Med Side Prong		15191	★ <sup>57,117,188</sup>	<b>200PAR46/3NSP</b>	120	12	Narrow Spot	C, CC-13	2000	2270lm 31000 cd 8x12 VH		4.00
			15194	★ <sup>57,117,188</sup>	<b>200PAR46/3MFL</b>	120	12	Med Flood	C, CC-13	2000	2270lm 11500 cd 15x25 VH		4.00
			15196	★ <sup>57,117,188</sup>	<b>200PAR46/3MFL 125-</b>	125	12	Med Flood	C, CC-13	2000	2270lm 11500 cd 15x25 VH		4.00
PAR56	Mag End Prong		15007	★ <sup>57,117,188</sup>	<b>200PAR56/MFL</b>	120	12	Med Flood Clear	C, CC-13	2000	2270lm 15000 cd 15x20 VH		5.00
	Screw Term		14968	★	<b>200PAR56</b>	30	12	Locomotive Headlamp	C, CC-8	500	3700lm 27000 cd 9x9 VH		4.50
PS25	Med		15600	● <sup>20,136</sup>	<b>200PS25</b> @ 120_volts, approximate 176 watts, 2820 lumens, 1875 hours	130	60	Inside Frost	C, CC-6	750	3700	5.25	6.94
	Med Brass		15818	● <sup>17,136</sup>	<b>200PS25/99/XL</b> @ 120_volts, approximate 176 watts, 2360 lumens, 6250 hours	130	60	Inside Frost Excel-Line	C, CC-6	2500	3000	5.25	6.94
PS30	Med		15675	● <sup>16,136</sup>	<b>200PS/23</b>	130	60	Inside Frost Rough Service	C, C-9	1000	3080	6.00	8.06
			15653	● <sup>18,136</sup>	<b>200PS/IF</b> @ 120_volts, approximate 176 watts, 2710 lumens, 1875 hours	130	60	Inside Frost	C, C-9	750	3560	6.00	8.06
			15820	●	<b>200/CL</b>	277	60	Clear	C, C-9	1000	2360	6.00	8.06
	Med Brass		15687	116	<b>200PS/23/SL</b>	120	60	Safeline Rough Service	C, C-9	1000	3080	6.00	8.06
			15648	116	<b>200PS/SL</b>	120	60	Safeline	C, C-9	1000	3080	6.00	8.06
			15725	14,136	<b>200PS/CL/99/XL</b> @ 120_volts, approximate 176 watts, 2190 lumens, 6250 hours	130	60	Clear Excel-Line	C, C-9	2500	2875	6.00	8.06
202	PS25	Med Brass	15581	57	<b>202PS25/CL</b>	125	60	Clear Street Lighting Group Replacement	C, C-9	6000	2750	5.25	6.94
250	BR38	Med Brass	14661	★ <sup>25,46,136</sup>	<b>250K/BR38/FL</b> @ 120_volts, approximate 220 watts, 2360 lumens, 10000 hours	125	12	Reflector Flood Krypton	C, CC-6	4000	3100		5.81
	BR40	Med	14665	● <sup>24,46,57,155</sup>	<b>250BR40</b>	120	12	Reflector IR Heat Lamp Clear	C, CC-6	5000			6.50
			14664	● <sup>24,46,57,155</sup>	<b>250BR40/1</b>	120	6	Reflector IR Heat Lamp Clear	C, CC-6	5000			6.50



R40

BR40

PAR56

PS30

PS35

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
250	R40	Med	14663	★ <sup>24,46,57,155</sup>	<b>250R40/10</b>	120	6	Red Bowl IR Heat Lamp Reflector Hard Glass	C, C-6	5000			6.88
300	BR40	Med Brass	14779	<sup>2,46,57,155</sup>	<b>300BR/FL</b>	120	24	Reflector Flood	C, CC-2V	2000	3030lm 2900 cd 60°		6.50
	PAR56	Mog End Prong	14947	★ <sup>117,188</sup>	<b>300PAR56/NSP</b>	120	12	Narrow Spot	C, CC-13	2000	3840lm 68000 cd 8x10 VH		5.00
			14944	★ <sup>117,188</sup>	<b>300PAR56/NSP</b>	130	12	Narrow Spot	C, CC-13	2000	3840lm 68000 cd 8x10 VH		5.00
			14950	★ <sup>117,188</sup>	<b>300PAR56/MFL</b>	120	12	Med Flood	C, CC-13	2000	3840lm 24000 cd 11x25 VH		5.00
			14946	★ <sup>117,188</sup>	<b>300PAR56/MFL</b>	130	12	Med Flood	C, CC-13	2000	3840lm 24000 cd 11x25 VH		5.00
			14953	★ <sup>117,188</sup>	<b>300PAR56/WFL</b>	120	12	Wide Flood	C, CC-13	2000	3840lm 11000 cd 20x35 VH		5.00
			14945	★ <sup>117,188</sup>	<b>300PAR56/WFL</b>	130	12	Wide Flood	C, CC-13	2000	3840lm 11000 cd 20x35 VH		5.00
	Screw Term		14967	★ <sup>117,188</sup>	<b>25A/PAR56/WFL</b>	120	12	Swimming Pool	C, C-6	1000	6000lm 15x40 VH		4.50
	PS30	Med	15742	●	<b>300M/CL</b>	120	60	Clear Utility Light	C, C-9	750	5870	6.00	8.06
			15740	●	<b>300M/CL/RP</b>	120	12	Clear Utility Light	C, C-9	750	5870	6.00	8.06
			15744	● <sup>29,136</sup>	<b>300M/CL</b> @ 120_volts, approximate 264 watts, 4390 lumens, 1875 hours	130	60	Clear Utility Light	C, C-9	750	5820	6.00	8.06
			15737	●	<b>300M/IF</b>	120	60	Inside Frost Utility Light	C, C-9	750	5860	6.00	8.06
			15735	●	<b>300M/IF/RP</b>	120	12	Inside Frost Utility Light	C, C-9	750	5860	6.00	8.06
			15739	● <sup>29,136</sup>	<b>300M/IF</b> @ 120_volts, approximate 264 watts, 4390 lumens, 1875 hours	130	60	Inside Frost Utility Light	C, C-9	750	5760	6.00	8.06
			15738	● <sup>29</sup>	<b>300M/IF/CVP/6</b> @ 120_volts, approximate 264 watts, 4390 lumens, 1875 hours	130	6	Inside Frost Utility Light	C, C-9	750	5760	6.00	8.06
	Med Brass		15761	● <sup>27,136</sup>	<b>300M/IF/99/XL</b> @ 120_volts, approximate 264 watts, 3800 lumens, 6250 hours	130	60	Inside Frost Excel-Line	C, C-9	2500	4990	6.00	8.06
	PS35	Mogul	15904		<b>300PS35/CL/99/XL</b>	120	24	Clear Excel-Line	C, C-9	2500	5190	7.00	9.38
			15930		<b>300PS35/99IF/XL</b>	130	24	Inside Frost Excel-Line	C, C-9	2500	5070	7.00	9.38
			15915		<b>300PS35/CL</b>	120	24	Clear Utility Light	C, C-9	1000	5700	7.00	9.38
			15917		<b>300PS35/CL</b>	130	24	Clear Utility Light	C, C-9	1000	5250	7.00	9.38
			15918		<b>300PS35/IF</b>	120	24	Inside Frost Utility Light	C, C-9	1000	5700	7.00	9.38
			15920		<b>300PS35/IF</b>	130	24	Inside Frost Utility Light	C, C-9	1000	5250	7.00	9.38
			16068		<b>300PS35/CL</b>	277	24	Clear	C, C-7A	1000	4220	7.00	9.38
375	R40	Med Skirted	14747	★ <sup>24,46</sup>	<b>375R40/1</b>	120	24	Reflector IR Heat Lamp Clear	C, C-11	5000			7.63



PAR64



PS35



CA8, CA10, CA5



B10



F10



G16.5

## GENERAL PURPOSE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Lumens Beam Angle CBCP	LCL (in)	MOL (in)
500	PAR64	Ext Mog End Pr	14938	★57,117,188	500PAR64/NSP	120	6	Narrow Spot	C, CC-13	2000	6500lm 110000 cd 7x12 VH		6.00
			14932	★57,117,188	500PAR64/MFL	120	6	Med Flood	C, CC-13	2000	6500lm 37000 cd 11x25 VH		6.00
			14935	★57,117,188	500PAR64/WFL	120	6	Wide Flood	C, CC-13	2000	6500lm 13000 cd 20x40 VH		6.00
PS35	Mogul		16032		500PS35/CL	120	24	Clear	C, CC-8	1000	10000	7.00	9.38
			16034		500PS35/CL	130	24	Clear	C, CC-8	1000	10000	7.00	9.38
			16040		500PS35/IF	130	24	Inside Frost	C, CC-8	1000	10000	7.00	9.38

## DECORATIVE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)	
3	CA8	Candelabra	11688		3CA8C/CL/FL/BL/1/6	120	6	Clear Flicker	B	1500	3.50	
		CA10	Med	11689		3CA10/CL/FL/BL/1/6	120	6	Clear Flicker	B	1500	3.50
7.5	CA5	Candelabra	11687		7.5CA5C/CL/BL/3/18	120	18	Clear Décor Bent Tip	B, C-11V	3000	3.06	
15	B10	Candelabra	13315		15B10C/DL/BL	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13657		15B10C/BAGPK	120	200	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13448		15B10C/BL/2PK	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13675		15B10C/T/BL/2PK	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.63	
			Med	13433		15B10/BL/2PK	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.81
			13715		15B10/T/BL/2PK	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.56	
	F10	Candelabra	13435		15FC/AIC/BL/2PK	120	12	Amber Flame Shape Iridescent	B, C-7A	1500	3.06	
			13434		15FC/IC/BL/2PK	120	12	Clear Iridescent Flame Shape	B, C-7A	1500	3.06	
			13436		15FC/W/BL/2PK	120	12	White Flame Shape	B, C-7A	1500	3.06	
			G16.5	Candelabra	13709		15G16.5C/4M	120	24	Clear Globe	B, C-7A	4000
13616		15G16.5C			120	24	Clear Globe	B, C-7A	1500	3.00		
13617		15G16.5C/W			120	24	White Globe	B, C-7A	1500	3.00		
25	B10	Candelabra	13306		25B10C/DL/BL/4PK	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13316		25B10C/DL/BL	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13570		25B10C/BAGPK	120	200	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13452		25B10C/BL/2PK	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13678		25B10C/T/BL/2PK	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.63	
			13743		25B10C/CRYSTAL/DL/BL/2PK	120	12	Double Life Crystal Bent Tip	C, C-7A	3000	3.88	
			13308		25B10C/DL/F/BL/4PK	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13317		25B10C/DL/F/BL	120	12	Frosted Double Life Décor Bent Tip	C, C-2V	3000	3.88	





B10

C11

F15

G16.5

G25

G40

## DECORATIVE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)	
25	B10	Candelabra	13453		<b>25B10C/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-7A	1500	3.88	
		Med	13331		<b>25B10/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.81	
			13318		<b>25B10/DL/BL</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.81	
			13654		<b>25B10/BL/4PK</b>	120	24	Clear Décor Bent Tip	C, C-7A	1500	3.81	
			13438		<b>25B10/BL/2PK</b>	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.81	
			13717		<b>25B10/T/BL/2PK</b>	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.56	
			13439		<b>25B10/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-7A	1500	3.81	
	C11	Candelabra	11690		<b>25C11C/AM/SG/BL/1/6</b>	120	6	Spun-Glo Amber Fiber Wrapped	C, C-7A	1500	4.25	
F15	Med		13823		<b>25F/AIC/BL/2PK</b>	120	12	Amber Flame Shape Iridescent	C, C-7A	1500	4.50	
			13806		<b>25F/CL</b>	120	24	Clear Flame Shape	C, C-7A	1500	4.50	
			13862		<b>25F/CL/BL/2PK</b>	120	12	Clear Flame Shape	C, C-7A	1500	4.50	
			13821		<b>25F/IC/BL/2PK</b>	120	12	Iridescent Flame Shape	C, C-7A	1500	4.50	
			13820		<b>25F/W/BL/2PK</b>	120	12	Soft White Flame Shape	C, C-7A	1500	4.50	
		G16.5	Candelabra		10221		<b>25G16.5C/DAY/2PK/BL</b>	120	12	Daylight Globe	B, C-7A	1500
	13704				<b>25G16.5C/4M</b>	120	24	Clear Globe	B, C-7A	4000	3.00	
	13618				<b>25G16.5C</b>	120	24	Clear Globe	B, C-7A	1500	3.00	
	13625				<b>25G16.5C/BL</b>	120	12	Clear Globe	B, C-7A	1500	3.00	
	13622				<b>25G16.5C/W/BL</b>	120	12	White Globe	B, C-7A	1500	3.00	
	Med		10298		<b>25G16.5/BL</b>	120	12	Clear Globe	C, C-7A	1500	3.00	
	10297			<b>25G16.5/W/BL</b>	120	12	White Globe	C, C-7A	1500	3.00		
G25	Med			14105		<b>25G25/DL/RP/48</b>	120	48	Clear Double Life Globe	C, C-9	3000	4.44
				14145		<b>25G25/DL/RP</b>	120	6	Clear Double Life Globe	C, C-9	3000	4.44
				14276		<b>25G25/4M</b>	120	24	Clear Globe	C, C-9	4000	4.44
			14210		<b>25G25/3PK/RP</b>	120	24	Clear Globe	C, C-9	1500	4.44	
			14264		<b>25G25</b>	120	24	Clear Globe	C, C-9	1500	4.44	
			14282		<b>25G25/RP</b>	120	6	Clear Globe	C, C-9	1500	4.44	
			14103		<b>25G25/DL/SW/RP/48</b>	120	48	Soft White Double Life Globe	C, C-9	3000	4.44	
			14146		<b>25G25/DL/SW/RP</b>	120	6	Soft White Double Life Globe	C, C-9	3000	4.44	
			14277		<b>25G25/W/4M</b>	120	24	Soft White Globe	C, C-9	4000	4.44	
			14211		<b>25G25/W/3PK/RP</b>	120	24	Soft White Globe	C, C-9	1500	4.44	
			14265		<b>25G25/W</b>	120	24	Soft White Globe	C, C-9	1500	4.44	
			14286		<b>25G25/W/RP</b>	120	6	Soft White Globe	C, C-9	1500	4.44	
			G40	Med	14685		<b>25G40</b>	120	6	Clear Globe	C, C-9	2500
32	B10	Candelabra	13737		<b>32B10C/CRYSTAL/DL/BL/2PK</b>	120	12	Double Life Crystal Bent Tip	C, C-7A	4000	3.88	
40	B10	Candelabra	13751		<b>40B10C/DAY/2PK/BL</b>	120	12	Daylight Décor Bent Tip	C, C-7A	1500	3.88	
			13328		<b>40B10C/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13319		<b>40B10C/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	



B10

B13

C15

F15

G16.5

## DECORATIVE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)	
40	B10	Candelabra	13571		<b>40B10C/BAGPK</b>	120	200	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13648		<b>40B10C/BL/4PK</b>	120	24	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13456		<b>40B10C/BL/2PK</b>	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13681		<b>40B10C/T/BL/2PK</b>	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.63	
			13714		<b>40B10C/CRYSTAL/DL/BL/4/24</b>	120	24	Double Life Crystal Bent Tip	C, C-7A	3000	3.88	
			13741		<b>40B10C/CRYSTAL/DL/BL/2PK</b>	120	12	Double Life Crystal Bent Tip	C, C-7A	3000	3.88	
			13309		<b>40B10C/DL/F/BL/4PK</b>	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13320		<b>40B10C/DL/F/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13457		<b>40B10C/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-7A	1500	3.88	
			13682		<b>40B10C/F/T/BL/2PK</b>	120	12	Frosted Décor Blunt Tip	C, C-7A	1500	3.63	
	Med			15354		<b>40B10/DAY/2PK/BL</b>	120	12	Daylight Décor Bent Tip	C, C-7A	1000	3.88
				13321		<b>40B10/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.81
				13651		<b>40B10/BL/4PK</b>	120	24	Clear Décor Bent Tip	C, C-7A	1500	3.81
				13440		<b>40B10/BL/2PK</b>	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.81
				13719		<b>40B10/T/BL/2PK</b>	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.56
				13723		<b>40B10/CRYSTAL/DL/BL/4PK</b>	120	24	Double Life Crystal Bent Tip	C, C-7A	3000	3.81
				13740		<b>40B10/CRYSTAL/DL/BL/2PK</b>	120	12	Double Life Crystal Bent Tip	C, C-7A	3000	3.81
				13322		<b>40B10/DLF/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-2V	3000	3.81
				13441		<b>40B10/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-7A	1500	3.81
				13720		<b>40B10/F/T/BL/2PK</b>	120	12	Frosted Décor Blunt Tip	C, C-7A	1500	3.56
B13	Candelabra	Med	13357		<b>40B13C/CL/FAN/2/12/BL</b>	120	12	Clear Ceiling Fan Light	C, C-9	1500	4.00	
			13366		<b>40B13/DL/FAN/2/60/BL</b>	120	60	Clear Double Life Ceiling Fan	C, C-9	3000	4.63	
				13369		<b>40B13/DL/FAN/BL/2PK</b>	120	12	Clear Double Life Ceiling Fan	C, C-9	3000	4.63
				13367		<b>40B13/FAN/BL/2PK</b>	120	12	Clear Fan Lamp	C, C-9	1500	4.63
				13786		<b>40B13/CRYSTAL/FAN/4/72</b>	120	72	Crystal Fan Lamp	C, C-9	1500	4.63
				13785		<b>40B13/CRYSTAL/FAN/BL/2PK</b>	120	12	Crystal Fan Lamp	C, C-9	1500	4.63
				C15	Med	11691		<b>40C15C/AM/SG/BL/1/6</b>	120	6	Spun Glo Amber Fiber Wrap	C, C-9
F15	Med		13986		<b>40F/AIC/BL/2PK</b>	120	12	Amber Flame Shape Iridescent	C, C-7A	1500	4.50	
			13974		<b>40F/CL</b>	120	24	Clear Flame Shape	C, C-7A	1500	4.50	
			13985		<b>40F/IC/BL/2PK</b>	120	12	Iridescent Flame Shape	C, C-7A	1500	4.50	
			13984		<b>40F/W/BL/2PK</b>	120	12	White Flame Shape	C, C-7A	1500	4.50	
G16.5	Candelabra		10367		<b>40G16.5C/DAY/2PK/BL</b>	120	12	Daylight Globe	C, C-7A	1500	3.00	
			13702		<b>40G16.5C</b>	120	24	Clear Globe	C, C-7A	1500	3.00	
			13346		<b>40G16.5C/4PK/BL</b>	120	24	Clear Globe	C, C-7A	1500	3.00	



## DECORATIVE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)	
40	G16.5	Candelabra	13666		<b>40G16.5C/BL</b>	120	12	Clear Globe	C, C-7A	1500	3.00	
			13667		<b>40G16.5C/W/BL</b>	120	12	White Globe	C, C-7A	1500	3.00	
		Med	10352		<b>40G16.5/4PK/BL</b>	120	24	Clear Globe	C, C-7A	1500	3.00	
			10300		<b>40G16.5/BL</b>	120	12	Clear Globe	C, C-7A	1500	3.00	
			10299		<b>40G16.5/W/BL</b>	120	12	White Globe	C, C-7A	1500	3.00	
	G25	Med	15350		<b>40G25/CL/DAY/1/6</b>	120	6	Daylight Clear Globe	C, C-9	1500	4.44	
			13966		<b>40G25/DAY/1/6</b>	120	6	Daylight Globe	C, C-9	1500	4.44	
			14174		<b>40G25/DL/1/48</b>	120	48	Clear Double Life Globe	C, C-9	3000	4.44	
			14147		<b>40G25/DL/RP</b>	120	6	Clear Double Life Globe	C, C-9	3000	4.44	
			14212		<b>40G25/3PK/RP</b>	120	24	Clear Globe	C, C-9	1500	4.44	
			14266		<b>40G25</b>	120	24	Clear Globe	C, C-9	1500	4.44	
			14283		<b>40G25/RP</b>	120	6	Clear Globe	C, C-9	1500	4.44	
			14191		<b>40G25/CVP</b>	130	6	Clear Globe	C, C-9	1500	4.44	
			14148		<b>40G25/DL/SW/RP</b>	120	6	Soft White Double Life Globe	C, C-9	3000	4.44	
			14213		<b>40G25/W/3PK/RP</b>	120	24	Soft White Globe	C, C-9	1500	4.44	
			14267		<b>40G25/W</b>	120	24	Soft White Globe	C, C-9	1500	4.44	
			14287		<b>40G25/W/RP</b>	120	6	Soft White Globe	C, C-9	1500	4.44	
			14190		<b>40G25/W/CVP</b>	130	6	Soft White Globe	C, C-9	1500	4.44	
			15638		<b>40G25/CT/1/6</b>	120	6	Chrome Top Globe	C, C-9	1500	4.44	
			G30	Med	14405		<b>40G30/W/RP</b>	120	6	Soft White Globe	C, C-9	2500
G40	Med	14619		<b>40G40/RP</b>	120	6	Clear Globe	C, C-9	2500	6.94		
		14620		<b>40G40/W/RP</b>	120	6	Soft White Globe	C, C-9	2500	6.94		
60	A19	Med Brass	10613		<b>60A/SB</b>	120	120	Silver Bowl	C, CC-8	1000	4.44	
	B10	Candelabra	13750		<b>60B10C/DAY/2PK/BL</b>	120	12	Daylight Décor Bent Tip	C, C-7A	1500	3.88	
			13705		<b>60B10C/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13777		<b>60B10C/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13572		<b>60B10C/BAGPK</b>	120	200	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13649		<b>60B10C/BL/4PK</b>	120	24	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13460		<b>60B10C/BL/2PK</b>	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.88	
			13684		<b>60B10C/T/BL/2PK</b>	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.63	
			13749		<b>60B10C/CRYSTAL/DL/BL/4/24</b>	120	24	Double Life Crystal Bent Tip	C, C-7A	3000	3.88	
			13754		<b>60B10C/DL/F/BL/4PK</b>	120	24	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13778		<b>60B10C/DL/F/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.88	
			13461		<b>60B10C/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-7A	1500	3.88	
			13685		<b>60B10C/F/T/BL/2PK</b>	120	12	Frosted Décor Blunt Tip	C, C-7A	1500	3.63	
			Med	13254		<b>60B10/DL/BL/4PK</b>	120	24	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.81
				13323		<b>60B10/DL/BL/2PK</b>	120	12	Clear Double Life Décor Bent Tip	C, C-7A	3000	3.81



B10

B13

C15

F15

G16.5

G25

G30

G40

A21

P25

## DECORATIVE LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)	
60	B10	Med	13650		<b>60B10/BL/4PK</b>	120	24	Clear Décor Bent Tip	C, C-7A	1500	3.81	
			13442		<b>60B10/BL/2PK</b>	120	12	Clear Décor Bent Tip	C, C-7A	1500	3.81	
			13721		<b>60B10/T/BL/2PK</b>	120	12	Clear Décor Blunt Tip	C, C-7A	1500	3.56	
			13324		<b>60B10/DL/F/BL/2PK</b>	120	12	Frosted Double Life Décor Bent Tip	C, C-7A	3000	3.81	
			13443		<b>60B10/F/BL/2PK</b>	120	12	Frosted Décor Bent Tip	C, C-2V	1500	3.81	
B13	Candelabra	Med	13263		<b>60B13C/CL/FAN/2/12/BL</b>	120	12	Clear Ceiling Fan Light	C, C-9	1500	4.00	
			13370		<b>60B13/DL/FAN/BL/2PK</b>	120	12	Clear Double Life Fan Lamp	C, C-9	3000	4.63	
				13368		<b>60B13/FAN/BL/2PK</b>	120	12	Clear Fan Lamp	C, C-9	1500	4.63
C15	Med	13757		<b>60C15/SG/BL</b>	120	6	Spun-Glo Clear Fiber Wrapped	C, C-9	4000	4.50		
F15	Med	13993		<b>60F/CL</b>	120	24	Clear Flame Shape	C, C-7A	1500	4.50		
		13992		<b>60F/BL</b>	120	12	Clear Flame Shape	C, C-7A	1500	4.50		
		13982		<b>60F/IC/BL/2PK</b>	120	12	Iridescent Flame Shape	C, C-7A	1500	4.50		
G16.5	Candelabra	Med	13665		<b>60G16.5C/BL</b>	120	12	Clear Globe	C, C-2	1500	3.00	
			13664		<b>60G16.5C/W/BL</b>	120	12	Soft White Globe	C, C-2	1500	3.00	
				10382		<b>60G16.5/4PK/BL</b>	120	24	Clear Globe	C, C-7A	1500	3.00
				10302		<b>60G16.5/BL</b>	120	12	Clear Globe	C, C-7A	1500	3.00
				10301		<b>60G16.5/W/BL</b>	120	12	White Globe	C, C-7A	1500	3.00
G25	Med	15351		<b>60G25/CL/DAY/1/6</b>	120	6	Daylight Clear Globe	C, C-9	1500	4.44		
		13967		<b>60G25/DAY/1/6</b>	120	6	Daylight Globe	C, C-9	1500	4.44		
		14106		<b>60G25/DL/RP/48</b>	120	48	Clear Double Life Globe	C, C-9	3000	4.44		
		14149		<b>60G25/DL/RP</b>	120	6	Clear Double Life Globe	C, C-9	3000	4.44		
		14280		<b>60G25</b>	120	24	Clear Globe	C, C-9	1500	4.44		
		14214		<b>60G25/3PK/RP</b>	120	24	Clear Globe	C, C-9	1500	4.44		
		14261		<b>60G25/RP</b>	120	6	Clear Globe	C, C-9	1500	4.44		
		14104		<b>60G25/DL/SW/RP/48</b>	120	48	Soft White Double Life Globe	C, C-9	3000	4.44		
		14150		<b>60G25/DL/SW/RP</b>	120	6	Soft White Double Life Globe	C, C-9	3000	4.44		
		14215		<b>60G25/W/3PK/RP</b>	120	24	Soft White Globe	C, C-9	1500	4.44		
		14281		<b>60G25/W</b>	120	24	Soft White Globe	C, C-9	1500	4.44		
		14262		<b>60G25/W/RP</b>	120	6	Soft White Globe	C, C-9	1500	4.44		
		G30	Med	14407		<b>60G30/RP</b>	120	6	Clear Globe	C, C-9	2500	5.50
14406				<b>60G30/W/RP</b>	120	6	Soft White Globe	C, C-9	2500	5.50		
G40	Med	14621		<b>60G40/RP</b>	120	6	Clear Globe	C, C-9	2500	6.94		
		14622		<b>60G40/W/RP</b>	120	6	Soft White Globe	C, C-9	2500	6.94		
100	A21	Med	13195		<b>100A21/1SB/IF</b>	120	24	Silver Bowl	C, CC-6	1000	5.31	
	G40	Med	14623		<b>100G40/RP</b>	120	6	Clear Globe	C, C-9	2500	6.94	
			14624		<b>100G40/W/RP</b>	120	6	Soft White Globe	C, C-9	2500	6.94	
150	G40	Med	14913		<b>150G40/W/RP</b>	120	6	Soft White Globe	C, C-9	2500	6.94	
	P25	Med Brass	15014		<b>150P25/2SB</b>	120	60	Silver Bowl Clear Hard Glass Button	C, C-5	200	4.75	



PS25



PS35



A19



A21



A23

## DECORATIVE LAMPS












Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	MOL (in)
150	PS25	Med	15271	●	<b>150PS25/SB</b>	120	60	Silver Bowl	C, C-9	1000	6.94
300	PS35	Mogul	15958		<b>300PS35/SB/IF</b>	120	24	Silver Bowl Inside Frost Brass Base	C, C-9	1000	9.38

## TRAFFIC SIGNAL LAMPS

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Description	Class & Filament	Avg Rated Life(hrs)	Approx Lumens	LCL (in)	MOL (in)
54	A19	Med Brass	10441	▽ <sub>96,130</sub>	<b>54A19TS/8M/SS</b>	120	120	Clear Traffic Signal KR Filled w/ Heat Reflector	C, C-11V	8000	515	2.44	4.44
60	A19	Med Brass	10442	▽ <sub>96,130</sub>	<b>60A19TS/8M/SS 120-</b>	120	120	Clear Traffic Signal KR Filled w/ Heat Reflector	C, C-11V	8000	595	2.44	4.44
67	A21	Med Brass	12570	▽ <sub>96</sub>	<b>67A21/40/8M</b>	120	24	Clear Traffic Signal	C, C-9	8000	610	2.44	4.44
			12562	▽ <sub>96</sub>	<b>67A21/40/8M</b>	130	120	Clear Traffic Signal	C, C-9	8000	610	2.44	4.44
			12572	▽ <sub>96</sub>	<b>67A21/40/8M</b>	130	24	Clear Traffic Signal	C, C-9	8000	610	2.44	4.44
69	A21	Med Brass	12496	▽ <sub>96</sub>	<b>69A21/TS/8M</b>	120	24	Clear Traffic Signal	C, C-9	8000	640	2.44	4.44
			12497	▽ <sub>96</sub>	<b>69A21/TS/8M</b>	125	24	Clear Traffic Signal	C, C-9	8000	665	2.44	4.44
			12498	▽ <sub>96</sub>	<b>69A21/TS/8M</b>	130	24	Clear Traffic Signal	C, C-9	8000	640	2.44	4.44
90	A19	Med Brass	12299	▽ <sub>96,130</sub>	<b>90A19/1/TS/8M/SS 120-</b>	120	120	Clear Traffic Signal KR Filled w/ Heat Reflector	C, C-11V	8000	1000	3.00	4.44
			11151	▽★ <sub>96,130</sub>	<b>90A19/TS/8M/SS</b>	120	120	Clear Traffic Signal KR Filled w/ Heat Reflector	C, C-11V	8000	1000	2.44	4.44
101	A23	Med Brass	13305	▽ <sub>96</sub>	<b>101A23/6M</b>	120	120	Inside Frost Traffic Signal	C, C-9	6000	900	4.38	6.06
116	A21	Med Brass	12833	▽ <sub>96</sub>	<b>116A21/TS/8M</b>	120	24	Clear Traffic Signal	C, C-9	8000	1260	2.44	4.44
			12817	▽ <sub>96</sub>	<b>116A21/TS/8M</b>	130	24	Clear Traffic Signal	C, C-9	8000	1260	2.44	4.44
135	A21	Med Brass	12843	▽ <sub>96,130</sub>	<b>135A21/TS/8M/SS 120-</b>	120	24	Clear Traffic Signal KR Filled w/ Heat Reflector	C, C-11V	8000	1750	3.00	4.44
170	A23	Med Brass	15017	▽ <sub>96</sub>	<b>1950L/A23/8M</b>	120	60	Clear Traffic Signal	C, C-9	8000	1950	3.00	4.75
			15021	▽ <sub>96</sub>	<b>1950L/A23/8M</b>	130	60	Clear Traffic Signal	C, C-9	8000	1950	3.00	4.75



## SYMBOLS & FOOTNOTES FOR INCANDESCENT LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	Indicates aluminum base.
	Do not operate in household sockets.
	Operate base down.
	Operate base down to horizontal.
	Heat resistant, hard glass.
	PAR lamps are suitable for indoor and outdoor use.
	Do not operate in paper lined sockets.
	This lamp or ballast meets minimum Federal efficiency standards.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.

Footnote	Description
1	Indefinite long life. Designed for life in excess of 10,000 hours. In -service life depends upon burning conditions.
2	Should not be used in equipment where base temperature will exceed 500 F.
3	@ 120 volts, approximate 119 watts, 1560 lumens, 6250 hours
4	@ 120 volts, approximate 119 watts, 1870 lumens, 1875 hours
5	@ 120 volts, approximate 132 watts, 1420 lumens, 6250 hours
6	@ 120 volts, approximate 132 watts, 1580 lumens, 2500 hours
7	@ 120 volts, approximate 132 watts, 1590 lumens, 2500 hours
8	@ 120 volts, approximate 132 watts, 1660 lumens, 1875 hours
9	@ 120 volts, approximate 132 watts, 1770 lumens, 1875 hours
10	@ 120 volts, approximate 132 watts, 1690 lumens, 6250 hours
11	@ 120 volts, approximate 132 watts, 1880 lumens, 1875 hours
12	@ 120 volts, approximate 132 watts, 2030 lumens, 1875 hours
13	High temperature base. Designed to operate in equipment where base temperature run between 500F - 570F.
14	@ 120 volts, approximate 176 watts, 2190 lumens, 6250 hours
15	@ 120 volts, approximate 176 watts, 2220 lumens, 2500 hours
16	@ 120 volts, approximate 176 watts, 2350 lumens, 2500 hours
17	@ 120 volts, approximate 176 watts, 2360 lumens, 6250 hours
18	@ 120 volts, approximate 176 watts, 2710 lumens, 1875 hours
19	@ 120 volts, approximate 176 watts, 2740 lumens, 1875 hours
20	@ 120 volts, approximate 176 watts, 2820 lumens, 1875 hours
21	@ 120 volts, approximate 176 watts, 2860 lumens, 1875 hours
22	@ 120 volts, approximate 176 watts, 2220 lumens, 6750 hours
23	@ 120 volts, approximate 188 watts, 3190 lumens, 1125 hours
24	Designed for service other than illumination.
25	@ 120 volts, approximate 220 watts, 2360 lumens, 10000 hours
26	@ 120 volts, approximate 264 watts, 2310 lumens, 5000 hours
27	@ 120 volts, approximate 264 watts, 3800 lumens, 6250 hours

## SYMBOLS & FOOTNOTES FOR INCANDESCENT LAMPS

Footnote	Description
28	@ 120 volts, approximate 264 watts, 3850 lumens, 6250 hours
29	@ 120 volts, approximate 264 watts, 4390 lumens, 1875 hours
30	@ 120 volts, approximate 264 watts, 4305 lumens, 1875 hours
31	Additional product information can be found in the SYLVANIA Automotive, Miniature and Sealed Beam Lamp Catalog Form 208.
32	UV Filter capsule with axial filament in dichroic reflector.
33	UV Filter capsule with axial filament in aluminized reflector.
34	UV Filter capsule with axial filament in covered aluminized reflector .
35	2 3/4" circular window.
36	UV Filter capsule with axial filament in constant color, hard coated dichroic reflector.
37	UV Filter capsule with axial filament in constant color, hard coated Dichroic reflector and infrared reflective coating on the lamp capsule.
38	UV Filter capsule with axial filament in precisely engineered aluminum m reflector.
39	Suitable for indoor and outdoor use;
40	For indoor use only; suitable for outdoor use only if not directly exposed to weather
41	For indoor use only;
42	UV control capsule with transverse constant color filament in hard dichroic
43	State of the Art SPL Optics
44	Inner capsule with Infrared conserving coating and hard glass lens
45	UV Filter capsule with axial filament in covered dichroic reflector.
46	Operate only in porcelain sockets.
47	Infrared lamp technology
48	Caution: Operates under pressure and may shatter. Use appropriate techniques to protect people and surroundings. Do not operate in close proximity to persons, combustible materials, or substances affected by heat or drying. Do not operate over 110% rated voltage because such operation increases pressure and lamps' tendency to shatter. Ultraviolet output may cause skin and eye irritation with prolonged exposure. Protect bulb from abrasions and scratches. Do not insert lamps when power is on. Follow operation
49	ECE Approved
50	Lamp Life B3 @ 13.2 volts.
51	Universal lamp housings for T2 slide based pilot lamps.
52	Socket dimensions front to panel to end of terminals.
53	UL File No. E31557(M) CSA File No.LR20904
54	Universal lamp housings for T2.5 and T3.25 miniature bayonet based lamps.
55	UL File No. E31557(M) CSA File No.LR20904
56	MIL-Std. 18236 B-MIL Std. 202B
57	Should be shielded against moisture falling on bulb.
58	Material : Black Phenolic
59	There are two distinctively different lamps with this part number. When ordering T-1 3/4 , #7327, please also specify category and base type. S-11. #7327 discontinued.
60	MOL = Excluding pins.
61	Material : Plastic
62	Max. seal temperature 350 C (662F)
63	Max. bulb temperature 1000 C (1832F)
64	Min. bulb temperature 250 C (482F)
65	UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector.
66	UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector and infrared reflective coating on the lamp capsule.
67	UV Filter capsule with transverse filament in constant color, hard coated dichroic reflector .
68	Not recommended for use in enclosed close-fitting housings.
69	For Indoor Use only.
70	Because this bulb radiates considerable heat, do not use in enclosed, close fitting fixtures, or in close proximity to people, combustible materials, or substances adversely affected by heat or drying.

## SYMBOLS & FOOTNOTES FOR INCANDESCENT LAMPS

Footnote	Description
71	Even though this bulb may continue to light after the lens or reflector is cracked or broken, it should be replaced as soon as possible since the pressure filled inner capsule could unexpectedly shatter, creating a risk of personal injury or property damage. In addition, the inner capsule produces ultraviolet radiation that can cause injury to the eyes and skin with prolonged exposure without the blocking effect of the outer glass bulb.
72	To avoid electric shock and/or skin burns, turn off power and allow bulb to cool before handling or attempting replacement.
73	For indoor or outdoor use where not directly exposed to weather. Exposure to weather may damage the bulb.
74	Use only with ceramic/porcelain sockets and in fixtures rated for this bulb type, including voltage and wattage.
75	Screw bulb firmly but not forcibly into socket to obtain good electrical contact and to avoid damaging bulb and/or socket. Socket condition may affect bulb life. Replace socket if deterioration of socket or bulb contacts is observed.
76	Due to change from high pressure capsule to low pressure capsule, dimensions have been changed: LCL from 19.5 to 22mm and bulb diameter from 9 to 9.5mm.
77	@ 120 volts, approximate 26 watts, 150 lumens, 5000 hours.
78	Recommended operating position any within 60 degrees of vertically base up or base down.
79	@ 120 volts, approximate 28 watts, 200 lumens, 7500 hours.
80	@ 120 volts, approximate 53 watts, 340 lumens, 12500 hours.
81	@ 120 volts, approximate 66 watts, 500 lumens, 12500 hours.
82	@ 120 volts, approximate 88 watts, 765 lumens, 12500 hours.
83	@ 120 volts, approximate 88 watts, 1020 lumens, 2500 hours.
84	UV Filter Quartz
85	@ 120 volts, approximate 53 watts, 845 lumens, 6000 hours.
86	Operate only in heat resistant sockets
87	@ 120 volts, approximate 44 watts, 690 lumens, 6000 hours.
88	@ 120 volts, approximate 44 watts, 850 lumens, 6000 hours.
89	For use only in fixtures designed specifically for dichroic Reflector Lamps.
90	@ 120 volts, approximate 53 watts, 660 lumens, 6000 hours.
91	Max pin temperature 220 C.
92	Max pin temperature 250 C.
93	Max temperature at lens reflector joint 240 C.
94	Not for use in ceiling fan fixtures
95	For use where seal temperature does not exceed 662F.
96	Per Title 20 Section 1605.3(m) of the California Code of Regulations, this lamp may not be sold or offered for sale in the state of California for use in Traffic Signals.
97	Board Size MFX Base 1.6mm (0.062") Inside of Board
98	OSRAM Miniwatt lamps for printed circuit boards (the MF series) are designed to work on both inside and outside contact boards and various thickness boards. In order to assure proper electrical contact, be sure to check the thickness of the board and the location of the electrical contacts.
99	@ 120 volts, approximate 33 watts, 270 lumens, 3750 hours.
100	Operate within 25 degrees of vertical base up.
101	@ 120 volts, approximate 53 watts, 490 lumens, 2500 hours.
102	@ 120 volts, approximate 66 watts, 650 lumens, 1875 hours.
103	@ 120 volts, approximate 88 watts, 970 lumens, 1875 hours.
104	@ 120 volts, approximate 46 watts, 560 lumens, 2500 hours.
105	@ 120 volts, approximate 40 watts, 220 lumens, 5000 hours.
106	@ 120 volts, approximate 57 watts, 410 lumens, 5000 hours.
107	Lamps manufactured on or after January 1, 2007 are not for sale in Washington or Oregon.
108	Per Title 20 Section 1605.3(k) of the California Code of Regulations, this lamp may not be sold or offered for sale in the state of California.
109	Lamp may not be operated on a dimmer or DC current
110	Complies with part 15 of FCC rules.
111	Average laboratory life is 200 hours for vacuum cleaner and 600 hours for sewing machine services.
112	Life dependent on service conditions.
113	Operating position 45 degrees base down to horizontal.

## SYMBOLS & FOOTNOTES FOR INCANDESCENT LAMPS

Footnote	Description
114	Use only in fixtures designed to adequately dissipate heat from lamp.
115	3" Circular window.
116	Operation of lamp in any position other than base up may result in some loss of protective coating.
117	A protective shield must be used external to the lamp.
118	In base up operation, heat may eventually deteriorate paper-lined or plastic sockets.
119	Operate only in porcelain or other socket approved for 150 watt PAR lamp.
120	Metal sleeve with approximately 6 " flexible non-insulated leads. Leads not included in maximum overall length (M.O.L.).
121	High temperature base. Retards seal deterioration where seal temperature exceeds 650F.
122	Lightly inside frosted and side aluminized; M.O.L. exclusive of spring contact.
123	For use where seal temperature does not exceed 650F.
124	Life at rated voltage and at 650F maximum seal temperature.
125	Usually limited to intermittent burning.
126	Maximum bulb wall temperature 480F.
127	Lamp internally fused.
128	2 1/2" braided lead with lug.
129	Nickel sleeve with 11/4" - 11/2" flexible leads with lug. Leads not included in maximum overall length (M.O.L.)
130	Minimum run. Check nearest OSRAM SYLVANIA Sales Office for details.
131	This lamp should not be used in a location where water may be splashed on it.
132	Package quantity may change. See your OSRAM SYLVANIA Lighting Representative for details.
133	For diesel electric locomotives without voltage regulators.
134	Retrofit for 65BR30/FL, or 75R30/FL.
135	Available in bulk pack.
136	Incandescent lamps operated at less than rated voltage provide a lower light output, longer life, lower color temperature and are less efficient in terms of lumens per watt.
137	Approximate life for 130 volt tungsten halogen lamps operated at 120 volts is within the value calculated using the recommended equations for standard incandescent lamps, as set forth in the IES Handbook, 8th edition. Because of the uncertain nature of the halogen cycle on the coil when operated at less than rated voltage, life of tungsten halogen lamps varies considerably and unpredictably. OSRAM SYLVANIA does not recommend operation at other than rated voltage.
138	Nominal wattage - actual may be slightly higher to achieve required light output.
139	A suitable protective shield, screening technique, or both must be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.
140	Standard Clear - UV Filter Quartz
141	Standard Frosted - UV Filter Quartz
142	Starlite Low Pressure - UV Filter Quartz
143	Standard Clear - 24V - UV Filter Quartz - Not suitable for use in open fixtures.
144	Maximum contact to contact tolerance on RSC Base = 1/16"
145	Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.
146	@120 volts, approximate 22 watts, 130 lumens, 6250 hours
147	@ 120 volts, approximate 26 watts, 100 lumens, 5000 hours
148	@ 120 volts, approximate 28/66/94 watts, 255/800/1060 lumens, 1800 hours
149	@ 120 volts, approximate 30 watts, 240 lumens, 6250 hours
150	@ 120 volts, approximate 30 watts, 290 lumens, 3750 hours
151	@ 120 volts, approximate 31 watts, 275 lumens, 5000 hours
152	@ 120 volts, approximate 35 watts, 320 lumens, 6250 hours
153	@ 120 volts, approximate 35 watts, 350 lumens, 3750 hours
154	@ 120 volts, approximate 37 watts, 450 lumens, 7000 hours
155	May not give satisfactory performance if any accessory lighting equipment touches the glass bulb.
156	@ 120 volts, approximate 38 watts, 380 lumens, 2250 hours

## SYMBOLS & FOOTNOTES FOR INCANDESCENT LAMPS

Footnote	Description
157	@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours
158	@ 120 volts, approximate 44 watts, 250 lumens, 5000 hours
159	@ 120 volts, approximate 44 watts, 240 lumens, 5000 hours
160	@ 120 volts, approximate 44 watts, 400 lumens, 2500 hours
161	@ 120 volts, approximate 44 watts, 420 lumens, 5000 hours
162	@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours
163	@ 120 volts, approximate 46 watts, 460 lumens, 6250 hours
164	@ 120 volts, approximate 46 watts, 540 lumens, 2500 hours
165	@ 120 volts, approximate 46 watts, 600 lumens, 7000 hours
166	When calculations are based on bare lamp lumens, do not use this lumen rating.
167	@ 120 volts, approximate 47/94/141 watts, 545/1275/1820 lumens, 1800 hours
168	@ 120 volts, approximate 53 watts, 420 lumens, 2500 hours
169	@ 120 volts, approximate 53 watts, 495 lumens, 4000 hours
170	@ 120 volts, approximate 53 watts, 650 lumens, 2500 hours
171	@ 120 volts, approximate 53 watts, 645 lumens, 6000 hours
172	@ 120 volts, approximate 56 watts, 725 lumens, 1500 hours
173	@ 120 volts, approximate 57 watts, 540 lumens, 4375 hours
174	@ 120 volts, approximate 59 watts, 660 lumens, 6250 hours
175	@ 120 volts, approximate 59 watts, 780 lumens, 1875 hours
176	@ 120 volts, approximate 63 watts, 900 lumens, 7000 hours
177	Average laboratory life in excess of 5000 hours.
178	@ 120 volts, approximate 66 watts, 425 lumens, 4125 hours
179	@ 120 volts, approximate 66 watts, 620 lumens, 2500 hours
180	@ 120 volts, approximate 66 watts, 685 lumens, 4000 hours
181	@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours
182	@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours
183	@ 120 volts, approximate 66 watts, 910 lumens, 1875 hours
184	@ 120 volts, approximate 66 watts, 520 lumens, 5000 hours
185	@ 120 volts, approximate 70 watts, 985 lumens, 1125 hours
186	@ 120 volts, approximate 79 watts, 940 lumens, 6250 hours
187	@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours
188	For use only with heat-resisting connector and with bulb supported by bulb rim or metal shell of base.
189	@ 120 volts, approximate 79 watts, 1130 lumens, 1875 hours
190	@ 120 volts, approximate 88 watts, 960 lumens, 2500 hours
191	@ 120 volts, approximate 88 watts, 1100 lumens, 6250 hours
192	@ 120 volts, approximate 88 watts, 1260 lumens, 1875 hours
193	@ 120 volts, approximate 88 watts, 1290 lumens, 1875 hours
194	@ 120 volts, approximate 88 watts, 710 lumens, 5000 hours
195	@ 120 volts, approximate 94 watts, 1455 lumens, 1125 hours
196	@ 120 volts, approximate 105 watts, 850 lumens, 5000 hours
197	@ 120 volts, approximate 105 watts, 1370 lumens, 6000 hours
198	@ 120 volts, approximate 106 watts, 1040 lumens, 5000 hours



## Manufacturers' Cross Reference Guide (continued)

### INCANDESCENT LAMPS

SYLVANIA	GE	PHILIPS
4C7/BL/2PK	4C7 CARD 2	BC-4C7
4C7/W/BL/2PK	4C7/W CD2	BC4C7/W
10C7/CL	10C7 TRAY	10C7
10S11N/CL	10S11N	10S11N
15B10/BL/2PK	15CAC/F-CD/2-12	BC15BA9C/CL/LL
15B10C/DL/BL	---	15BA9C/4M
15S14/CL 130V	15S14/GR/CL 130V	---
20T6.5DC/IF	20T61/DC/F	20T61/2DC/IF
25B10C/DL/BL	25CAC	---
25B10/DL/BL	25CAC/L (120)	BC25B9-1/2/CL/LL
25G16.5C/4M	---	---
25G25	25G25	25G25/C/LL
25G25/DLSW/RP	25G25/W/L/24	---
25G40	25G40	25G40/4M
25T10	25T10	BC25T10
30/100A21/W/RP	30/100	30/100A/W
30A15	30A15-130	30A15
30R20	30R20-120	30R20
40A15/CL/FAN	40A15/CF CD2	BC40A15/FAN/CL/LL
40A15/SL	40A15/CF/STG CD2	40A/TF
40A	40A 48PK	40A
40A/34/SS	40A/34WM	40A-34A/EW
40A/34/SS/XL	40A/34/WMP/99	40A-34A/99/EW
40B10/BL/2PK	40CAM CD/2	BC40BA9-1/2/CL/LL
40B10C/DL/BL	40CAC/LL	40B101/2/4M
40B10/W/BL/2PK	40CAM/F CD/2	BC40B9-1/2/F/LL
40F/CL	40FM/L	BC40F15/CL/LL
40G161/2C	40GC-12PK-120	BC40G16-1/2C/CL/LL
40G25	40G25/L	40G25/CL/LL
40G25/DAY/1/6	40G25W/RVL PQ1/6	40G25/NL 6/1
40G40/W	40G40/W	40G40/CL/LL
40S11N/BL	40S11N/1CARD	BC40S11N/N TP
40T10/IF	40T10/F	BC40T10/IF
50/150A21/DLSW/RP	---	---
50/150/PS25	50/150 12PK	50/150A/DL
50A/RS/SL	50A/RS/CVG 24PK	50A/RS/TF
60A	60A	60A
60A/52SS	60A/52WM	60A-52A/EW
60A/52/SS/XL	60A/52WMP/98	---
60A/CL	60A/CL 24PK	60A/CL
60A/DLSW/2PK/RP	60A/W/LL-24PK-120	60A/WL
60A/GRO	60A/PL 6PK	60A/AGRO
60A/Y/RP	60A/Y 24PK	60A/Y
60A21/TS	---	K60A19/TS/EW
60B10C/BL/2PK	60CAC CD/2 6PK	BC60BA9C/CL/LL
60B10/DL/BL/2PK	---	60BA91/24M
60F/BL	---	BC60F15/CL/LL
60G25/RP	60G25 6PK 120V	60G25/CL/LL
60G25/DLSW/RP	---	60G25/W/LL
60K19/DR	---	60K19/DL
60T10/CF	60T10/F 24PK	60T10/64/IF
65BR30/DL/FL/RP	65R30/FL/LL 6PK	65BR30/FL/LL55
65BR30/FL/SS	75R30/FL/65WM	65BR30/FL55
65BR30/SP/RP	65R30/SP/LL 6PK	65BR30/SP20
65BR30/SP/SS	75R30/SP/65WM	65BR30/SP20
65BR30/PK/RP	65R30/FL/PK	---
75A	75A	75A
75A/CL	75A/CL 24PK	75A/CL
75A21/RS/SL	75A/RT 6PK	75A/RH/TF
75A/67/SS	75A/67WM	75A-67A/EW
75A/67/SS/XL	75A/67WMP/99	75A-67A/99/EW 120
75BR/FL	---	---
75ER30	75ER30	75ER30
75K19/DR	---	75K19/DL

### INCANDESCENT LAMPS

SYLVANIA	GE	PHILIPS
75R20/RP	75R20 6PK	75R20/LL
100A/90/W/ES/4PK	100A/90WM	100A-90A/EW
100A/90/SS/XL	100A/90WMP/98	100-90A/99EW
100A	100A	100A
100A/DL/SW/2PK/RP	---	100A/W
100A/RS/XL	100A/S-130V-24PK	---
100A21/VS	100A/RS 12PK-5	100A/RS/VS
100A23/20	100A23/20	100A23/20
100G40	---	100G40/CL/LL 6/1
100G40/W	100G40/W 6PK	100G40/W/LL 6/1
120BR/FL	120R40/FL/MI-6PK	120BR/FL60
120BR/SP	120R40/SP/MI-6PK	120BR/SP20
120ER40	120ER40	120ER40
125BR40	125R40	125R40/1
150A21	150A	150A
150A21/135/SS	150A/135WM	150A-135A/EW
150A21/99/XL	150Q21/99/IF	150A/99
150PAR46	150PAR46	---
175W/PAR38/HEAT	175PAR38/HEAT	175PAR38/HEAT/CL
200A21	200A 12PK	200A (A23)
200CL/99/XL	200/99	200/99
200PS/IF	200/IF	200/IF
200PS/CL/99/XL	200/99	200/99
250BR40	250R40/1	250R40/1
250KBR38/FL	---	K250PAR38/FL
300BR/FL	300R/FL	300R/FL
300M/CL	300M	300M
300PAR56/MFL	300PAR56/MFL	300PAR56/MFL
300PAR56/NSP	300PAR56/NSP	300PAR56/NSP
300PAR56/WFL	300PAR56/WFL	300PAR56/WFL
300PS35/99/IF/XL	300/99IF	300/99IF
375R40/1	375R40/1	375R40/1
500PAR64/NSP	500PAR64/NSP	500PAR64/NSP

## OSRAM SYLVANIA: THE LEADER IN HALOGEN LAMP TECHNOLOGY

Halogen lamps are generally of the 'lamp within a lamp' design. The outer 'lamp' or jacket is made from a heavy walled borosilicate glass. The inner 'lamp' is the tungsten halogen capsule that is made from either glass or quartz and contains a filament, lead wires and a halogen gas mixture.

### CAPSYLITE IR®

Save energy while still making your merchandise stand out from the crowd. Energy efficient SYLVANIA CAPSYLITE IR® lamps use a specially designed halogen light source that actually recycles some of the heat it creates to generate more light for less energy.



### Daylight Plus® PAR

The special blue lenses on these halogen PAR lamps help to fill your space with whiter, more natural light than standard halogen PAR or incandescent lamps.



### CAPSYLITE® Soft White Halogen PAR lamps

SYLVANIA CAPSYLITE Soft White Halogen PAR lamps provide the ultimate meeting point between the efficiency and color of a halogen lamp and the soft, glare free light distribution of an incandescent lamp. They can also be used as energy saving replacements for incandescent reflector lamps, with the 50W PAR30 Long Neck lamp replacing a standard 65W BR30 while maintaining the same light levels.



### CAPSYLITE® A-Line

Replace a standard incandescent lamp with a CAPSYLITE® A-Line lamp to get a crisp, bright, more natural light that really lasts. Average rated life for these lamp types is 3,000 to 3,500 hours - up to four times the ratings of the lamps that they replace!



### Soft Glass Halogen Lamps

SYLVANIA soft glass halogen lamps are an outstanding replacement for standard incandescent lamps in any application. All of the lamps fit standard fixtures, allowing them to be used anywhere to add a new dimension to home or business lighting.



### OSRAM MINISTAR™

OSRAM MINISTAR lamps represent a revolution in halogen reflector lamp design. Their unique integration of the reflective surface and the halogen capsule creates the world's smallest halogen reflector lamps.



### TRU-AIM® Low Voltage Lamps

SYLVANIA's complete line of TRU-AIM low voltage lamps provides a wide variety of extremely compact and highly directional light sources. Choose from standard MR16s (TRU-AIM), aluminized MR16s (TRU-AIM Brilliant), or top of the line TRU-AIM IR.



## FILAMENTS



CC-8



CC-2V



CC-6



Axial (AX)



Transverse (TR)



C-8 Double End

## BASES



E10  
Miniature Screw



E11 Mini can



E26 Medium Skt.



E26 Medium



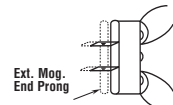
Recessed Single Contact  
RSC  
R7s



Screw Term.



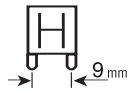
DC Bayonet  
B15d  
BA15d



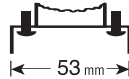
Ext. Mog.  
End Prong  
Mogul End Prong



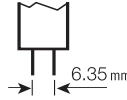
G4



G9



G53



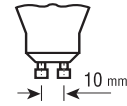
GY 6.35



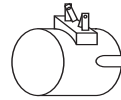
GU4



GU5.3



GU10



Med Side Pr.

## LAMPS



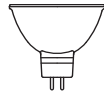
BT4



BT4T3, T4 BI-PIN



T4 G9.



MR16, MR11



PAR14



PAR16



PAR16 GU10



PAR20



F17



PAR30



PAR30LN



PAR36  
Medium Skt.



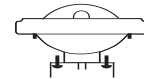
PAR38



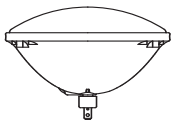
PAR38  
Medium Side Prong



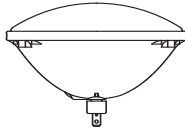
AR70



AR111



PAR56 Mog End Pr



PAR64 Mog End Pr



T4 DC Bayonet



T3, T4 Mini Can



T3, T4 RSC Double End



T10



B11



BT15



A19



G25

## HOW TO READ PRODUCT INFORMATION - TUNGSTEN HALOGEN

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Beam Type	Class & Filament	Avg Rated Life (hrs)	Approx Lumens	CBCP	Beam Angle	LCL (in)	MOL (in)
40	T4	G9	57017	☀ 5,10	40T4/G9/F/BL	120	10	Frosted		C, CC-2V	2000	480			1.00	1.88
60	PAR38	E26 Med Skt	14466	☀★☒Ⓢ 10,11	60PAR/CAP/IR/FL30	120	15		Flood	CC-8	3000	1110	3600	30		5.31
50	PAR30LN	E26 Med	14520	☀★☒Ⓢ 10,19,20	50PAR30LN/HAL/NFL25	120	15		Narrow Flood	CC-8	2500	660	2300	25		4.63

<b>Bulb</b>	Describes the shape of the bulb followed by the bulb's major diameter given in eighths of an inch. See page 42: Halogen Lamps.
<b>Base</b>	See page 42: Base Identification.
<b>Symbols &amp; Footnotes</b>	All symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and footnotes are at the end of the halogen section on page 64.
<b>Lamp Finish</b>	Applies only to non-reflector type lamps, usually either clear or frosted.
<b>Beam Type</b>	Applies only to reflector type lamps. Describes the beam angle qualitatively as either a spot or a flood, etc.

### How to Read Ordering Abbreviations

40T4/G9/F/BL		60PAR/CAP/IR/FL30		50PAR30LN/HAL/NFL25	
40	Nominal lamp wattage	60	Nominal lamp wattage	50	Nominal lamp wattage
T4/G9	T4 lamp with G9 base	PAR	Bulb shape PAR38	PAR30LN	Bulb shape PAR30 Long Neck
F	Frosted finish	CAP	CAPSYLITE lamp	HAL	Halogen lamp
BL	Blister Card Package	IR	Infrared conserving capsule	NFL25	Narrow Flood beam 25 degrees
		FL30	Flood beam 30 degrees		

### ANSI BEAM ANGLE DESIGNATION

Beam angles for reflector lamps are designated to conform with ANSI C78.379 -Classification of the Beam Patterns of Reflector Lamps. For beam angles less than 13°, beam angles are rounded to the nearest whole number. For beam angles between 13° and 50°, values are rounded to the nearest 5°. For beam angles 50° and greater, the value is rounded to the nearest 10°. As an example, a family of lamps with an average beam angle of 13° is classified as 15°, and a family of lamps with an average beam angle of 54° would be classified as 50°.

### LIFE RATING

The average rated life for 130V tungsten halogen lamps operated at 120V is conservatively estimated to be approximately 2 times the life when operated at 130V.

### ANSI CODE REFERENCE GUIDE

ANSI CODE	ITEM NO.	L.L. ORDERING ABBREVIATION (EXCEPT VOLTS)	VOLTS	ANSI CODE	ITEM NO.	L.L. ORDERING ABBREVIATION (EXCEPT VOLTS)	VOLTS	ANSI CODE	ITEM NO.	L.L. ORDERING ABBREVIATION (EXCEPT VOLTS)	VOLTS
BAB	58301	20MR16/T/FL35/C	12	ETD	58757	100Q/DC	120	FMW	58305	35MR16/T/FL35/C	12
EHM	58998	300T3Q/CL	120	ETF	58737	150Q/DC	120	FNV	58310	50MR16/T/WFL60/C	12
EHT	58762	250Q/CL/MC	120	ETG	58735	150Q/CL/MC/2	120	FPA	58311	65MR16/T/SP10/C	12
ESL	58738	150Q/CL/MC	120	ETH	58736	150Q/MC	120	FPB	58313	65MR16/T/FL35/C	12
ESM	58763	250Q/MC	120	EVR	58766	500Q/CL/MC	120	FPC	58312	65MR16/T/NFL25/C	12
ESN	58761	100Q/CL/MC	120	EXN	58309	50MR16/T/FL35/C	12	FRB	58303	35MR16/T/SP10/C	12
ESP	58742	150Q/CL/DC/1	120	EXT	58307	50MR16/T/SP10/C	12	FTB	55133	20MR11/T/SP10/C	12
ESR	58755	100Q/CL/DC	120	EXZ	58308	50MR16/T/NFL25/C	12	FTD	55134	20MR11/T/FL35/C	12
ESS	58720	250Q/CL/DC	120	EYV	58768	500Q/MC	130	FTE	55135	35MR11/T/SP10/C	12
ESX	58300	20MR16/T/SP10/C	12	EYW	58756	500Q/CL/MC	130	FTH	55136	35MR11/T/FL35/C	12
ETB	58753	250Q/DC	120	EYX	58767	500Q/MC	120				
ETC	58741	150Q/CL/DC	120	FCL	58996	500T3Q/CL	120				

## TUNGSTEN HALOGEN BRAND NAME GUIDE

SYLVANIA	GE*	PHILIPS**	OSRAM***
CAPSYLITE IR®	HIR PAR	Energy Advantage IR	
CAPSYLITE®	HALOGEN PLUS / HALOGEN Compact	Halogen WISO Reflector	HALOPAR
CAPSYLITE® COOL-LUX	Cool Beam PAR	Cool Beam Reflector	
CAPSYLITE® Designer 16	HALOGEN Compact PAR16	Halogen PAR16	HALOPAR16
CAPSYLITE® A-Line	A-Line		
Daylight Plus® PAR	Reveal	Natural	
TRU-AIM IR®	PRECISE COVERGLASS IR MR16	Halogen MR Energy Advantage IR	Decostar 51 IRC
TRU-AIM TITAN®	ConstantColor Precise Cover Glass	Halogen MR Long Life	Decostar 51 TITAN
TRU-AIM BRILLIANT®		Halogen MR Aluminum	Decostar 51 ALU
TRU-AIM® Standard MR16	Standard MR16	Halogen MR	Decostar 51
TRU-AIM® MR11	STANDARD MR11	Halogen MRC-11	Decostar 35
Softwhite Halogen PAR			
STANDARD Bi-Pin	Quartz Halogen		HALOSTAR Standard
STARLITE Bi-Pin		Halogen Low Voltage Capsule	HALOSTAR STARLITE
Double End	Quartzline	Halogen Double-Ended Linear	HALOLINE
SUPER Q	Halogen	Halogen Single-Ended	HALOLUX Ceram
Large PAR	Halogen		
Tubular Halogen T10	T10		HALOLUX Ceram
AR111	AR111	ALU Line PRO 111	HALOSPOT 111
AR70		Closed Aluminum Reflector	HALOSPOT 70
Soft Glass Halogen	A-Line / Decorative	Halogena	HALOLUX BT
Softwhite Halogen PAR			
Osram MINISTAR			MINISTAR

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**For weight and measurement information, please visit [www.sylvania.com](http://www.sylvania.com)**





## CAPSYLITE® A-LINE

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
42	A19	E26 Med	18907	★	42A/HAL/F	120	12	Inside Frost	C,CC-8	3500	580 2750	3.13	4.38
			18908	★ <sup>137,154</sup>	42A/HAL/F	130	12	Inside Frost	C,CC-8	3500	580 2750	3.13	4.38
@ 120 volts, approximate 37 watts, 450 lumens, 7000 hours													
50	A19	E26 Med	18968	★	50A/HAL/CRYSTAL	120	12	Crystal	C,CC-8	2500	860 2825	3.13	4.38
52	A19	E26 Med	18921	★	52A/HAL/F	120	12	Inside Frost	C,CC-8	3500	770 2775	3.13	4.38
			18922	★ <sup>137,165</sup>	52A/HAL/F	130	12	Inside Frost	C,CC-8	3500	770 2775	3.13	4.38
@ 120 volts, approximate 46 watts, 600 lumens, 7000 hours													
60	A19	E26 Med	18998	★	60A/HAL/CL/CLAM	120	6	Clear	C,CC-8	3000	965 2850	3.13	4.38
			18942	★	60A/HAL/CRYSTAL/CLAM	120	6	Crystal	C,CC-8	3000	965 2850	3.13	4.38
			18960	★	60A/HAL/F	120	12	Inside Frost	C,CC-8	3000	965 2850	3.13	4.38
			18999	★	60A/HAL/F/CLAM	120	6	Inside Frost	C,CC-8	3000	960 2850	3.13	4.38
72	A19	E26 Med	18937	★	72A/HAL/F	120	12	Inside Frost	C,CC-8	3500	1150 2825	3.13	4.38
			18938	★ <sup>137,176</sup>	72A/HAL/F	130	12	Inside Frost	C,CC-8	3500	1150 2825	3.13	4.38
@ 120 volts, approximate 63 watts, 900 lumens, 7000 hours													
75	A19	E26 Med	19000	★	75A/HAL/CL/CLAM	120	6	Clear	C,CC-8	3000	1330 2875	3.13	4.38
			18969	★	75A/HAL/CRYSTAL	120	12	Crystal	C,CC-8	3000	1330 2875	3.13	4.38
			18906	★	75A/HAL/CRYSTAL/CLAM	120	6	Crystal	C,CC-8	3000	1330 2875	3.13	4.38
			18965	★	75A/HAL/F	120	12	Inside Frost	C,CC-8	3000	1315 2875	3.13	4.38
			18997	★	75A/HAL/F/CLAM	120	6	Inside Frost	C,CC-8	3000	1315 2875	3.13	4.38
100	A19	E26 Med	19003	★	100A/HAL/CL/CLAM	120	6	Clear	C,CC-8	3000	1800 2900	3.13	4.38
			18911	★	100A/HAL/CRYSTAL/CLAM	120	6	Crystal	C,CC-8	3000	1800 2900	3.13	4.31
			18970	★	100A/HAL/F	120	12	Inside Frost	C,CC-8	3000	1800 2900	3.13	4.38
			18905	★	100A/HAL/F/CLAM	120	6	Inside Frost	C,CC-8	3000	1800 2900	3.13	4.38
150	A19	E26 Med	18912	★	150A/HAL/CLAM	120	6	Inside Frost	C,CC-8	3000	3000 2975	3.13	4.31



BT15



B11



G25



F17



T10

**HALOGEN BT15**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
60	BT15	E26 Med	18864	73,74,84,145	<b>60BT15/HAL/CL/BL</b>	120	10	Clear	C,CC-8	3000	820 2900	2.94	4.63
			18865	72,73,74,84,145	<b>60BT15/HAL/W/BL</b>	120	10	White	C,CC-8	3000	760 2900	2.94	4.63
75	BT15	E26 Med	18866	72,73,74,84,145	<b>75BT15/HAL/W/BL</b>	120	10	White	C,CC-8	3000	1010 2900	2.94	4.63
100	BT15	E26 Med	18867	72,73,74,84,145	<b>100BT15/HAL/W/BL</b>	120	10	White	C,CC-8	3000	1500 2900	2.94	4.63
150	BT15	E26 Med	18868	72,73,74,84,145	<b>150BT15/HAL/W/BL</b>	120	10	White	C,CC-8	3000	2400 2900	2.94	4.63

**HALOGEN DÉCOR LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
25	B11	Candelabra	13269	73,74,145	<b>25B11C/T/HAL/BL</b>	120	6	Clear	C,CC-2V	3000	180 2900	2.60	4.69
40	B11	Candelabra	13334	73,74,145	<b>40B11C/HAL/BL</b>	120	6	Clear	C,CC-2V	3000	380 2900	2.60	4.56
			G25	E26 Med	13998	73,74,145	<b>40G25/HAL</b>	120	6	Clear	C,CC-2V	3000	380 2900
60	G25	E26 Med	14000	73,74,145	<b>60G25/HAL</b>	120	6	Clear	C,CC-2V	3000	630 2900	3.25	4.44
			F17	E26 Med	13879		<b>60F/HAL/DAY/CLAM</b>	120	6	Crystal	C,CC-8	3000	960 2850

**TUBULAR HALOGEN T10**

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
75	T10	E26 Med	18846	139	<b>75T10/HAL/CL</b>	120	12	Clear	C,CC-2V	2000	1100 2900	2.94	4.13
			18847	139	<b>75T10/HAL/F</b>	120	12	Frosted	C,CC-2V	2000	1050 2900	2.94	4.13
100	T10	E26 Med	18848	139	<b>100T10/HAL/CL</b>	120	12	Clear	C,CC-2V	2000	1500 2900	2.94	4.13
			18849	139	<b>100T10/HAL/F</b>	120	12	Frosted	C,CC-2V	2000	1430 2900	2.94	4.13
150	T10	E26 Med	18850	46,139	<b>150T10/HAL/CL</b>	120	12	Clear	C,CC-2V	2000	2500 2900	2.94	4.13
			18851	46,139	<b>150T10/HAL/F</b>	120	12	Frosted	C,CC-2V	2000	2400 2900	2.94	4.13
230	T10	E26 Med	18852	46,139	<b>230T10/HAL/CL</b>	120	12	Clear	C,CC-2V	2000	4200 2900	2.94	4.13
			18853	46,139	<b>230T10/HAL/F</b>	120	12	Frosted	C,CC-2V	2000	4000 2900	2.94	4.13



PAR20



PAR30LN



PAR38



PAR14



PAR16 GU10

**DAYLIGHT PLUS® PAR LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	PAR20	E26 Med	15226	★ 118	50PAR20/HAL/DAY/NFL	120	6	NFL	C,CC-8	2500	500 2900	1000	30	3.25
	PAR30LN	E26 Med	15227	★ 73,118	50PAR30LN/HAL/DAY/WFL	120	6	WFL	C,CC-8	2500	550 2900	550	50	4.63
75	PAR30LN	E26 Med	15228	★ 73,118	75PAR30LN/HAL/DAY/WFL	120	6	WFL	C,CC-8	2500	1000 3000	1000	50	4.63
50	PAR38	E26 Med Skt	13973	★ 43,47,72,118	50PAR38/CAPIR/DAY/WSP12	120	15	WSP	C,CC-8	3000	700 2925	7000	12	5.31
			15259	★ 43,47,72,118	50PAR38/CAPIR/DAY/FL30	120	15	FL	C,CC-8	3000	700 2925	1800	30	5.31
			15229	★ 118	50PAR38/HAL/DAY/FL	120	6	FL	C,CC-8	2500	540 2900	1550	30	5.31
75	PAR38	E26 Med Skt	15230	★ 118	75PAR38/HAL/DAY/FL	120	6	FL	C,CC-8	2500	960 3000	2800	30	5.31

**SOFTWHITE HALOGEN PAR LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	PAR20	E26 Med	13260	★ 43,118	50PAR20/HAL/SW	120	6	FL	C,CC-8	2500	525 2850	525	40	3.25
	PAR30LN	E26 Med	13259	★ 43,73,118,134	50PAR30LN/HAL/SW	120	6	FL	C,CC-8	2500	600 2850	450	50	4.63
75	PAR30LN	E26 Med	13258	43,73,118	75PAR30LN/HAL/SW	120	6	FL	C,CC-8	2500	1050 2900	700	50	4.63
50	PAR38	E26 Med Skt	15236	★ 43,72,118	50PAR38/HAL/SW	120	6	FL	C,CC-8	2500	600 2850	550	50	5.31
75	PAR38	E26 Med Skt	13257	★ 43,72,118	75PAR38/HAL/SW	120	6	FL	C,CC-8	2500	980 2900	1300	50	5.31

**CAPSYLITE® PAR14 LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
35	PAR14	E26 Med	15364	 41,118	35PAR14/HAL/FL/FP	120	6	FL	C,CC-8	2000	450 2775	200	50	2.44

**CAPSYLITE® PAR16 LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
35	PAR16	GU10	13256	 72	35PAR16/HAL/GU10/FL/BL3	120	18	FL	C,CC-8	3000	280 2750	500	30	2.25
			59076	 72	35PAR16/HAL/GU10/FL/BL	120	6	FL	C,CC-8	3000	280 2750	500	30	2.25



PAR16 GU10



PAR16 GU10



PAR20

**CAPSYLITE® PAR16 LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
50	PAR16	GU10	59061	72	<b>50PAR16/HAL/GU10/FL/BL3</b>	120	18	FL	C,CC-8	3000	450 2800	800	30	2.25			
			59075	72	<b>50PAR16/HAL/GU10/FL/BL</b>	120	6	FL	C,CC-8	3000	450 2800	800	30	2.25			
			59024	68	<b>50PAR16/HAL/GU10/FL40</b>	120	10	FL	C,CC-2V	1000	400 2950	640	40	2.08			
			59020	68	<b>50PAR16/HAL/GU10/FL/CLAM</b>	120	6	FL	C,CC-2V	1000	400 2950	640	40	2.08			
60	PAR16	E26 Med	59032	69,118	<b>60PAR16/HAL/NSP10</b>	120	15	NSP	C,CC-8	2000	650 2850	5000	10	2.88			
			59037	69,118	<b>60PAR16/HAL/NSP10/RP</b>	120	6	NSP	C,CC-8	2000	650 2850	5000	10	2.88			
			59040	69,118,137,169	<b>60PAR16/HAL/NSP10</b>	130	15	NSP	C,CC-8	2000	650 2850	5000	10	2.88			
			@ 120 volts, approximate 53 watts, 495 lumens, 4000 hours														
			59030	69,118	<b>60PAR16/HAL/NFL30</b>	120	15	NFL	C,CC-8	2000	650 2850	1300	30	2.88			
			59031	69,118	<b>60PAR16/HAL/NFL30/RP</b>	120	6	NFL	C,CC-8	2000	650 2850	1300	30	2.88			
			59038	69,118,137,169	<b>60PAR16/HAL/NFL30</b>	130	15	NFL	C,CC-8	2000	650 2850	1300	30	2.88			
@ 120 volts, approximate 53 watts, 495 lumens, 4000 hours																	
75	PAR16	E26 Med	59036	69,118	<b>75PAR16/HAL/NSP10</b>	120	15	NSP	C,CC-8	2000	900 2900	7500	10	2.88			
			59044	69,118,137,180	<b>75PAR16/HAL/NSP10</b>	130	15	NSP	C,CC-8	2000	900 2900	7500	10	2.88			
			@ 120 volts, approximate 66 watts, 685 lumens, 4000 hours														
			59034	69,118	<b>75PAR16/HAL/NFL30</b>	120	15	NFL	C,CC-8	2000	900 2900	1900	30	2.88			
			59033	69,118	<b>75PAR16/HAL/NFL30/RP</b>	120	6	NFL	C,CC-8	2000	900 2900	1900	30	2.88			
59042	69,118,137,180	<b>75PAR16/HAL/NFL30</b>	130	15	NFL	C,CC-8	2000	900 2900	1900	30	2.88						
@ 120 volts, approximate 66 watts, 685 lumens, 4000 hours																	

**CAPSYLITE IR® PAR20**

Halogen PAR lamp with infrared reflective coating on the lamp capsule. Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
40	PAR20	E26 Med	14164	43,47,118	<b>40PAR20/CAPIR/NSP10</b>	120	15	NSP	C,CC-8	4000	510 2750	4200	10	3.25
			14166	43,47,118	<b>40PAR20/CAPIR/NFL30</b>	120	15	NFL	C,CC-8	4000	510 2750	1100	30	3.25
			14130	43,47,118	<b>40PAR20/CAPIR/WFL40</b>	120	15	WFL	C,CC-8	4000	510 2750	800	40	3.25



PAR20



PAR30

**CAPSYLITE® PAR20**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
35	PAR20	E26 Med	14467	★     43,118	<b>35PAR20/HAL/NSP10</b>	120	15	NSP	C,CC-8	2500	360 2775	3000	10	3.25			
			14464	★     43,118	<b>35PAR20/HAL/NFL30</b>	120	15	NFL	C,CC-8	2500	360 2775	800	30	3.25			
			14459	★     43,118,137,151	<b>35PAR20/HAL/NFL30</b>	130	15	NFL	C,CC-8	2500	360 2775	800	30	3.25			
			@ 120 volts, approximate 31 watts, 275 lumens, 5000 hours														
			14506	★     43,118	<b>35PAR20/HAL/WFL40</b>	120	15	WFL	C,CC-8	2500	360 2775	500	40	3.25			
			14461	★     43,118,137,151	<b>35PAR20/HAL/WFL40</b>	130	15	WFL	C,CC-8	2500	360 2775	500	40	3.25			
@ 120 volts, approximate 31 watts, 275 lumens, 5000 hours																	
50	PAR20	E26 Med	14500	★     43,118	<b>50PAR20/HAL/NSP10</b>	120	15	NSP	C,CC-8	2500	550 2850	4600	10	3.25			
			14528	★     43,118,137,161	<b>50PAR20/HAL/NSP10</b>	130	15	NSP	C,CC-8	2500	550 2850	4600	10	3.25			
			@ 120 volts, approximate 44 watts, 420 lumens, 5000 hours														
			14502	★     43,118	<b>50PAR20/HAL/NFL30</b>	120	15	NFL	C,CC-8	2500	550 2850	1200	30	3.25			
			14173	★     43,118	<b>50PAR20/HAL/NFL30/RP</b>	120	6	NFL	C,CC-8	2500	550 2850	1200	30	3.25			
			14529	★     43,118,137,161	<b>50PAR20/HAL/NFL30</b>	130	15	NFL	C,CC-8	2500	550 2850	1200	30	3.25			
			@ 120 volts, approximate 44 watts, 420 lumens, 5000 hours														
15662	★     43,118,137,161	<b>50PAR20/HAL/NFL30/CVP</b>	130	6	NFL	C,CC-8	2500	550 2850	1200	30	3.25						
@ 120 volts, approximate 44 watts, 420 lumens, 5000 hours																	
14700	★     43,118	<b>50PAR20/HAL/WFL40</b>	120	15	WFL	C,CC-8	2500	550 2850	900	40	3.25						

**CAPSYLITE IR® PAR30**

Halogen PAR lamp with infrared reflective coating on the lamp capsule. Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
40	PAR30	E26 Med	13968	★     43,47,118	<b>40PAR30/CAPIR/NSP9</b>	120	15	NSP	C,CC-8	4000	610 2750	8100	9	3.63			
			13969	★     43,47,118	<b>40PAR30/CAPIR/NFL25</b>	120	15	NFL	C,CC-8	4000	610 2750	2100	25	3.63			
			13970	★     43,47,118	<b>40PAR30/CAPIR/FL40</b>	120	15	FL	C,CC-8	4000	610 2750	1200	40	3.63			
50	PAR30	E26 Med	14355	★     43,47,118,137	<b>50PAR30/CAPIR/NSP9</b>	120	15	NSP	C,CC-8	3000	900 2825	13000	9	3.63			
			14354	★     43,47,118	<b>50PAR30/CAPIR/NFL25</b>	120	15	NFL	C,CC-8	3000	900 2825	2900	25	3.63			
			14132	★     43,47,87,118	<b>50PAR30/CAPIR/NFL25</b>	130	15	NFL	C,CC-8	3000	900 2825	2900	25	3.63			
			@ 120 volts, approximate 44 watts, 690 lumens, 6000 hours.														
			14714	★     43,47,118	<b>50PAR30/CAPIR/FL40</b>	120	15	FL	C,CC-8	3000	900 2825	1600	40	3.63			
14131	★     43,47,87,118,137	<b>50PAR30/CAPIR/FL40</b>	130	15	FL	C,CC-8	3000	900 2825	1600	40	3.63						
@ 120 volts, approximate 44 watts, 690 lumens, 6000 hours.																	





PAR30



PAR30LN

**CAPSYLITE® PAR30**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
50	PAR30	E26 Med	14526	★ 43,118	<b>50PAR30/HAL/NSP9</b>	120	15	NSP	C,CC-8	2500	660 2850	8800	9	3.63			
			14530	★ 43,118,137,162	<b>50PAR30/HAL/NSP9</b>	130	15	NSP	C,CC-8	2500	660 2850	8800	9	3.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
			14527	★ 43,118	<b>50PAR30/HAL/NFL25</b>	120	15	NFL	C,CC-8	2500	660 2850	2300	25	3.63			
			14531	★ 43,118,137,162	<b>50PAR30/HAL/NFL25</b>	130	15	NFL	C,CC-8	2500	660 2850	2300	25	3.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
			14710	★ 43,118	<b>50PAR30/HAL/FL40</b>	120	15	FL	C,CC-8	2500	660 2850	1300	40	3.63			
60	PAR30	E26 Med	14332	★ 43,118	<b>60PAR30/HAL/NSP9</b>	120	15	NSP	C,CC-8	3000	860 2875	12000	9	3.63			
			14333	★ 43,118	<b>60PAR30/HAL/NFL25</b>	120	15	NFL	C,CC-8	3000	860 2875	2775	25	3.63			
			14090	★ 43,90,118,137	<b>60PAR30/HAL/NFL25</b>	130	15	NFL	C,CC-8	3000	860 2875	2775	25	3.63			
			@ 120 volts, approximate 53 watts, 660 lumens, 6000 hours.														
			14084	★ 43,90	<b>60PAR30/HAL/FL40</b>	130	15	FL	C,CC-8	3000	860 2875	1550	40	3.63			
			@ 120 volts, approximate 53 watts, 660 lumens, 6000 hours.														
			75	PAR30	E26 Med	14604	★ 43,118	<b>75PAR30/HAL/NSP9</b>	120	15	NSP	C,CC-8	2500	1130 2900	15400	9	3.63
14628	★ 43,118,137,182	<b>75PAR30/HAL/NSP9</b>				130	15	NSP	C,CC-8	2500	1130 2900	15400	9	3.63			
@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours																	
14603	★ 43,118	<b>75PAR30/HAL/NFL25</b>				120	15	NFL	C,CC-8	2500	1130 2900	4000	25	3.63			
14627	★ 43,118,137,182	<b>75PAR30/HAL/NFL25</b>				130	15	NFL	C,CC-8	2500	1130 2900	4000	25	3.63			
@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours																	
14606	★ 43,118	<b>75PAR30/HAL/FL40</b>				120	15	FL	C,CC-8	2500	1130 2900	2100	40	3.63			
75	PAR30	E26 Med	14629	★ 43,118,137,182	<b>75PAR30/HAL/FL40</b>	130	15	FL	C,CC-8	2500	1130 2900	2100	40	3.63			
			@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours														

**CAPSYLITE® PAR30 LONG NECK**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
35	PAR30LN	E26 Med	14759	★ 43,73,118	<b>35PAR30LN/HAL/NSP9</b>	120	15	NSP	C,CC-8	2500	450 2775	4500	10	4.63
			14764	★ 43,73,118	<b>35PAR30LN/HAL/WFL50</b>	120	15	WFL	C,CC-8	2500	450 2775	450	50	4.63
50	PAR30LN	E26 Med	14509	★ 43,73,118,134	<b>50PAR30LN/HAL/NSP9</b>	120	15	NSP	C,CC-8	2500	660 2850	7000	10	4.63



PAR30LN



PAR38

**CAPSYLITE® PAR30 LONG NECK**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
50	PAR30LN	E26 Med	14482	★ [E] [E] [E] [E] 43.73.118,134,137,162	50PAR30LN\HAL\NSP9	130	15	NSP	C,CC-8	2500	660 2850	7000	10	4.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
			14520	★ [E] [E] [E] [E] 43.73.118,134	50PAR30LN\HAL\NFL25	120	15	NFL	C,CC-8	2500	660 2850	2100	25	4.63			
			14822	★ [E] [E] [E] [E] 43.73.118,134	50PAR30LN\HAL\NFL	120	6	NFL	C,CC-8	2500	660 2850	2100	25	4.63			
			14478	★ [E] [E] [E] [E] 43.73.118,134,137,162	50PAR30LN\HAL\NFL25	130	15	NFL	C,CC-8	2500	660 2850	2100	25	4.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
			14537	★ [E] [E] [E] [E] 43.73.118,134	50PAR30LN\HAL\WFL50	120	15	WFL	C,CC-8	2500	660 2850	660	50	4.63			
			14536	★ [E] [E] [E] [E] 43.73.118,134	50PAR30LN\HAL\WFL	120	6	WFL	C,CC-8	2500	660 2850	660	50	4.63			
			14486	★ [E] [E] [E] [E] 43.73.118,134,137,162	50PAR30LN\HAL\WFL50	130	15	WFL	C,CC-8	2500	660 2850	660	50	4.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
75	PAR30LN	E26 Med	15419	★ [E] [E] [E] [E] 43.73.118,134,137,162	50PAR30LN\HAL\WFL50\CVP	130	6	WFL	C,CC-8	2500	660 2850	660	50	4.63			
			@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours														
			14786	★ [E] [E] [E] [E] 43.73.118	75PAR30LN\HAL\NSP9	120	15	NSP	C,CC-8	2500	1130 2950	12000	10	4.63			
			14777	★ [E] [E] [E] [E] 43.73.118,137,182	75PAR30LN\HAL\NSP9	130	15	NSP	C,CC-8	2500	1130 2900	12000	10	4.63			
			@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours														
			14769	★ [E] [E] [E] [E] 43.73.118	75PAR30LN\HAL\NFL25	120	15	NFL	C,CC-8	2500	1130 2900	3600	25	4.63			
			14824	★ [E] [E] [E] [E] 43.73.118	75PAR30LN\HAL\NFL	120	6	NFL	C,CC-8	2500	1130 2900	3600	25	4.63			
			14778	★ [E] [E] [E] [E] 43.73.118,137,182	75PAR30LN\HAL\NFL25	130	15	NFL	C,CC-8	2500	1130 2900	3600	25	4.63			
			@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours														
			14768	★ [E] [E] [E] [E] 43.73.118	75PAR30LN\HAL\WFL50	120	15	WFL	C,CC-8	2500	1130 2900	1100	50	4.63			
14823	★ [E] [E] [E] [E] 43.73.118	75PAR30LN\HAL\WFL	120	6	WFL	C,CC-8	2500	1130 2900	1100	50	4.63						
14785	★ [E] [E] [E] [E] 43.73.118,137,182	75PAR30LN\HAL\WFL50	130	15	WFL	C,CC-8	2500	1130 2900	1100	50	4.63						
@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours																	
15418	★ [E] [E] [E] [E] 43.73.118,137,182	75PAR30LN\HAL\WFL50\CVP	130	6	WFL	C,CC-8	2500	1130 2900	1100	50	4.63						
@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours																	

**CAPSYLITE IR® PAR38**

Halogen PAR lamp with infrared reflective coating on the lamp capsule. Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	PAR38	E26 Med Skt	13973	★ [E] [E] [E] [E] 43.47.72,118	50PAR38\CAPIR\DAY\WSP12	120	15	WSP	C,CC-8	3000	700 2875	7000	12	5.31
			15259	★ [E] [E] [E] [E] 43.47.72,118	50PAR38\CAPIR\DAY\FL30	120	15	FL	C,CC-8	3000	700 2875	1800	30	5.31



PAR38

TUNGSTEN HALOGEN

### CAPSYLITE IR® PAR38

Halogen PAR lamp with infrared reflective coating on the lamp capsule. Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
50	PAR38	E26 Med Skt	14136	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	50PAR38/CAPIR/SP9	120	15	SP	C,CC-8	3000	850 2825	14000	9	5.31			
			14124	★ [Symbol] [Symbol] [Symbol] 43,47,72,88,118,137	50PAR38/CAPIR/SP9	130	15	SP	C,CC-8	3000	850 2825	14000	9	5.31			
			@ 120 volts, approximate 44 watts, 650 lumens, 6000 hours.														
			14138	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	50PAR38/CAPIR/NFL25	120	15	NFL	C,CC-8	3000	850 2825	3000	25	5.31			
			14125	★ [Symbol] [Symbol] [Symbol] 43,47,72,88,118,137	50PAR38/CAPIR/NFL25	130	15	NFL	C,CC-8	3000	850 2825	3000	25	5.31			
			@ 120 volts, approximate 44 watts, 650 lumens, 6000 hours.														
60	PAR38	E26 Med Skt	14485	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	60PAR38/CAPIR/SP9	120	15	SP	C,CC-8	3000	1110 2850	20000	9	5.31			
			14716	★ [Symbol] [Symbol] [Symbol] 43,47,72,85,118,137	60PAR38/CAPIR/SP9	130	15	SP	C,CC-8	3000	1110 2850	20000	9	5.31			
			@ 120 volts, approximate 53 watts, 845 lumens, 6000 hours.														
			14360	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	60PAR38/CAPIR/WSP12	120	15	WSP	C,CC-8	3000	1110 2850	12000	12	5.31			
			14442	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	60PAR38/CAPIR/NFL25	120	15	NFL	C,CC-8	3000	1110 2850	4000	25	5.31			
			14466	★ [Symbol] [Symbol] [Symbol] 43,47,72,118	60PAR38/CAPIR/FL30	120	15	FL	C,CC-8	3000	1110 2850	3600	30	5.31			
80	PAR38	E26 Med Skt	14715	★ [Symbol] [Symbol] [Symbol] 43,47,72,85,118,137	60PAR38/CAPIR/FL30	130	15	FL	C,CC-8	3000	1110 2850	3600	30	5.31			
			@ 120 volts, approximate 53 watts, 845 lumens, 6000 hours.														
			14347	★ [Symbol] [Symbol] [Symbol] 47,72,118	80PAR38/CAPIR/SP10	120	12	SP	C,CC-8	3000	1500 2900	25000	10	5.31			
			14327	★ [Symbol] [Symbol] [Symbol] 47,72,118	80PAR38/CAPIR/FL25	120	12	FL	C,CC-8	3000	1500 2900	5500	25	5.31			
			100	PAR38	E26 Med Skt	14324	★ [Symbol] [Symbol] [Symbol] 47,72,118	100PAR38/CAPIR/SP10	120	12	SP	C,CC-8	3000	2070 2900	29000	10	5.31
						14319	★ [Symbol] [Symbol] [Symbol] 47,72,118	100PAR38/CAPIR/NFL25	120	12	NFL	C,CC-8	3000	2070 2900	6300	25	5.31
14311	★ [Symbol] [Symbol] [Symbol] 47,72,118	100PAR38/CAPIR/FL40				120	12	FL	C,CC-8	3000	2070 2900	3400	40	5.31			

### CAPSYLITE® PAR38

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)		
45	PAR38	E26 Med Skt	14590	★ [Symbol] [Symbol] [Symbol] 43,72,118	45PAR38/HAL/SP9	120	15	SP	C,CC-8	2500	560 2825	10000	9	5.31		
			15538	★ [Symbol] [Symbol] [Symbol] 43,72,118	45PAR38/HAL/SP	120	6	SP	C,CC-8	2500	560 2825	10000	9	5.31		
			14593	★ [Symbol] [Symbol] [Symbol] 43,72,118,137,157	45PAR38/HAL/SP9	130	15	SP	C,CC-8	2500	560 2825	10000	9	5.31		
			@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours													
			14589	★ [Symbol] [Symbol] [Symbol] 43,72,118	45PAR38/HAL/WSP12	120	15	WSP	C,CC-8	2500	560 2825	6300	12	5.31		
			14592	★ [Symbol] [Symbol] [Symbol] 43,72,118,137,157	45PAR38/HAL/WSP12	130	15	WSP	C,CC-8	2500	560 2825	6300	12	5.31		
@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours																



PAR38

TUNGSTEN HALOGEN

## CAPSYLITE® PAR38

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)			
45	PAR38	E26 Med Skt	14588	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	45PAR38/HAL/FL30	120	15	FL	C,CC-8	2500	560 2825	1500	30	5.31			
			15537	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	45PAR38/HAL/FL	120	6	FL	C,CC-8	2500	560 2825	1500	30	5.31			
			14591	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,157	45PAR38/HAL/FL30	130	15	FL	C,CC-8	2500	560 2825	1500	30	5.31			
			@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours														
47	PAR38	E26 Med Skt	14401	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,157	45PAR38/HAL/WFL50	130	15	WFL	C,CC-8	2500	560 2825	700	50	5.31			
			@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours														
			15404	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137	47PAR38/HAL/DL/SP9	120	15	SP	C,CC-8	6000	570 2750	10000	9	5.31			
			15405	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137	47PAR38/HAL/DL/FL30	120	15	FL	C,CC-8	6000	570 2750	1500	30	5.31			
50	PAR38	E26 Med Skt	15521	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137	50PAR38/HAL/SP9	120	6	SP	C,CC-8	2500	650 2850	10500	9	5.31			
			15520	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137	50PAR38/HAL/FL30	120	6	FL	C,CC-8	2500	650 2850	1850	30	5.31			
60	PAR38	E26 Med Skt	14469	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	60PAR38/HAL/SP9	120	15	SP	C,CC-8	3000	850 2875	16000	9	5.31			
			14449	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,171	60PAR38/HAL/SP9	130	15	SP	C,CC-8	3000	850 2875	16000	9	5.31			
			@ 120 volts, approximate 53 watts, 645 lumens, 6000 hours														
			14472	★ [Symbol] [Symbol] [Symbol] [Symbol] 118	60PAR38/HAL/NFL25	120	15	NFL	C,CC-8	3000	850 2875	3700	25	5.31			
			14468	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	60PAR38/HAL/FL30	120	15	FL	C,CC-8	3000	850 2875	2500	30	5.31			
63	PAR38	E26 Med Skt	14448	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,171	60PAR38/HAL/FL30	130	15	FL	C,CC-8	3000	850 2875	2500	30	5.31			
			@ 120 volts, approximate 53 watts, 645 lumens, 6000 hours														
			15421	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	63PAR38/HAL/DL/SP9	120	15	SP	C,CC-8	6000	800 2800	14000	9	5.31			
			75	PAR38	E26 Med Skt	14514	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	75PAR38/HAL/SP9	120	15	SP	C,CC-8	2500	1060 2900	19200	9	5.31
			14854			★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	75PAR38/HAL/SP/RP	120	6	SP	C,CC-8	2500	1060 2900	19200	9	5.31	
14516	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,181	75PAR38/HAL/SP9	130			15	SP	C,CC-8	2500	1060 2900	19200	9	5.31				
@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours																	
14510	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	75PAR38/HAL/WSP12	120			15	WSP	C,CC-8	2500	1060 2900	12300	12	5.31				
75	PAR38	E26 Med Skt	14513	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	75PAR38/HAL/FL30	120	15	FL	C,CC-8	2500	1060 2900	3150	30	5.31			
			14853	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118	75PAR38/HAL/FL/RP	120	6	FL	C,CC-8	2500	1060 2900	3150	30	5.31			
			14515	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,181	75PAR38/HAL/FL30	130	15	FL	C,CC-8	2500	1060 2900	3150	30	5.31			
			@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours														
			14446	★ [Symbol] [Symbol] [Symbol] [Symbol] 43,72,118,137,181	75PAR38/HAL/FL/CVP	130	6	FL	C,CC-8	2500	1060 2900	3150	30	5.31			
@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours																	



PAR38



PAR38 Med Side Prong

**CAPSYLITE® PAR38**

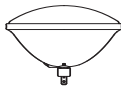
Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
75	PAR38	E26 Med Skt	14517	★ 43,72,118,137,181	<b>75PAR38/HAL/WFL50</b>	130	15	WFL	C,CC-8	2500	1060 2900	1300	50	5.31
@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours														
90	PAR38	E26 Med Skt	14586	★ 43,72,118	<b>90PAR38/HAL/SP9</b>	120	15	SP	C,CC-8	2500	1310 2925	19000	9	5.31
			15539	★ 43,72,118	<b>90PAR38/HAL/SP</b>	120	6	SP	C,CC-8	2500	1310 2925	19000	9	5.31
			14587	★ 43,72,118,137,187	<b>90PAR38/HAL/SP9</b>	130	15	SP	C,CC-8	2500	1310 2925	19000	9	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
			14580	★ 43,72,118	<b>90PAR38/HAL/WSP12</b>	120	15	WSP	C,CC-8	2500	1310 2925	14300	12	5.31
			14578	★ 43,72,118,137,187	<b>90PAR38/HAL/WSP12</b>	130	15	WSP	C,CC-8	2500	1310 2925	14300	12	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
			14601	★ 43,72,118,137,187	<b>90PAR38/HAL/NFL25</b>	130	15	NFL	C,CC-8	2500	1310 2925	4700	25	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
			14579	★ 43,72,118	<b>90PAR38/HAL/FL30</b>	120	15	FL	C,CC-8	2500	1310 2925	3500	30	5.31
			15545	★ 43,72,118	<b>90PAR38/HAL/FL</b>	120	6	FL	C,CC-8	2500	1310 2925	3500	30	5.31
			14577	★ 43,72,118,137,187	<b>90PAR38/HAL/FL30</b>	130	15	FL	C,CC-8	2500	1310 2925	3500	30	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
			14647	★ 43,72,118,137,187	<b>90PAR38/HAL/FL/CVP</b>	130	6	FL	C,CC-8	2500	1310 2925	3500	30	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
			14602	★ 43,72,118,137,187	<b>90PAR38/HAL/WFL50</b>	130	15	WFL	C,CC-8	2500	1310 2925	1600	50	5.31
@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours														
		Med Side Prong	14630	★ 43,72,118	<b>90PAR38/HAL/3WSP12</b>	120	15	WSP	C,CC-8	2500	1310 2925	14300	12	5.31
			14632	★ 43,72,118	<b>90PAR38/HAL/3FL30</b>	120	15	FL	C,CC-8	2500	1310 2925	3500	30	5.31
100	PAR38	E26 Med Skt	15522	★ 43,72,118	<b>100PAR38/HAL/SP9</b>	120	6	SP	C,CC-8	2500	1500 2950	22000	9	5.31
			15585	★ 43,72,118	<b>100PAR38/HAL/FL30</b>	120	6	FL	C,CC-8	2500	1500 2950	4000	30	5.31
106	PAR38	E26 Med Skt	15003	★ 43,72,118	<b>106PAR38/HAL/SP10</b>	120	15	SP	C,CC-8	2000	1800 2975	22500	10	5.31
			15001	★ 43,72,118	<b>106PAR38/HAL/WFL50</b>	120	15	WFL	C,CC-8	2000	1800 2975	2000	50	5.31
120	PAR38	E26 Med Skt	14856	★ 43,72,118	<b>120PAR38/HAL/SP10</b>	120	15	SP	C,CC-8	3000	1800 2950	22500	10	5.31
			14873	★ 43,72,118	<b>120PAR38/HAL/SP</b>	120	6	SP	C,CC-8	3000	1800 2950	22500	10	5.31
			14874	★ 43,72,118,137,197	<b>120PAR38/HAL/SP10</b>	130	15	SP	C,CC-8	3000	1800 2950	22500	10	5.31
@ 120 volts, approximate 105 watts, 1370 lumens, 6000 hours														
			14855	★ 43,72,118	<b>120PAR38/HAL/FL30</b>	120	15	FL	C,CC-8	3000	1800 2950	4600	30	5.31





PAR38



PAR56



PAR64

**CAPSYLITE® PAR38**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
120	PAR38	E26 Med Skt	14576	★ 43,72,118	<b>120PAR38/HAL/FL</b>	120	6	FL	C,CC-8	3000	1800 2950	4600	30	5.31
			14861	★ 43,72,118,137,197	<b>120PAR38/HAL/FL30</b>	130	15	FL	C,CC-8	3000	1800 2950	4600	30	5.31
			14594	★ 43,72,118	<b>120PAR38/HAL/WFL50</b>	120	15	WFL	C,CC-8	3000	1800 2950	2000	50	5.31
© 120 volts, approximate 105 watts, 1370 lumens, 6000 hours														
250	PAR38	E26 Med Skt	15526	★ 43,70,71,72,73,74	<b>250PAR38/HAL/SP10</b>	120	6	SP	C,CC-8	4500	3600 3025	46500	10	5.31
			15558	★ 43,70,71,72,73,74	<b>250PAR38/HAL/FL30</b>	120	6	FL	C,CC-8	4500	3600 3025	9000	30	5.31

**CAPSYLITE® COOL LUX**

Halogen PAR lamp with dichroic reflector. Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
90	PAR38	E26 Med Skt	14972	★ 72,89,118	<b>90PAR38/HAL/ZSP12</b>	120	15	SP	C,CC-8	2500	1260 2925	12000	12	5.31
			14971	★ 72,89,118	<b>90PAR38/HAL/ZFL30</b>	120	15	FL	C,CC-8	2500	1260 2925	3750	30	5.31
			14973	★ 72,89,118,137,187	<b>90PAR38/HAL/ZFL30</b>	130	15	FL	C,CC-8	2500	1260 2925	3750	30	5.31

**LARGE PAR LAMPS**

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
500	PAR56	Ext Mog End Pr	56210	★ 57,139,188	<b>500PAR56Q/HAL/NSP</b>	120	12	NSP	C,CC-6	4000	8800 2950	78500	8x15	5.00
			56211	★ 57,139,188	<b>500PAR56Q/HAL/MFL</b>	120	12	MFL	C,CC-6	4000	8800 2950	40000	11x30	5.00
			56212	★ 57,139,188	<b>500PAR56Q/HAL/WFL</b>	120	12	WFL	C,CC-6	4000	8800 2950	19500	20x45	5.00
1000	PAR64	Ext Mog End Pr	56206	★ 57,139,188	<b>1000PAR64Q/HAL/NSP</b>	120	6	NSP	C,CC-6	4000	19400 2950	135000	8x20	6.00
			56207	★ 57,139,188	<b>1000PAR64Q/HAL/MFL</b>	120	6	MFL	C,CC-6	4000	19400 2950	82000	10x30	6.00
			56208	★ 57,139,188	<b>1000PAR64Q/HAL/WFL</b>	120	6	WFL	C,CC-6	4000	19400 2950	23000	20x60	6.00

**CAPSYLITE® G9 LAMPS**

Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
25	T4	G9 Bipin	57020	72,84,145	<b>25T4/G9/CL</b>	120	20	Clear	C,CC-2V	2000	255 2900	0.88	20x60
			57034	72,84,145	<b>25T4/G9/CL/BL</b>	120	10	Clear	C,CC-2V	2000	255 2900	0.88	1.69
			57021	72,84,145	<b>25T4/G9/F</b>	120	20	Frosted	C,CC-2V	2000	230 2900	0.88	1.69
40	T4	G9 Bipin	57022	72,84,145	<b>40T4/G9/CL</b>	120	20	Clear	C,CC-2V	2000	510 2900	0.88	1.69
			57033	72,84,145	<b>40T4G9/CL/BL</b>	120	10	Clear	C,CC-2V	2000	510 2900	0.88	1.69
			57025	72,84,145	<b>40T4/G9/F</b>	120	20	Frosted	C,CC-2V	2000	480 2900	0.88	1.69
			57017	72,84,145	<b>40T4/G9/F/BL</b>	120	10	Frosted	C,CC-2V	2000	480 2900	0.88	1.69
60	T4	G9 Bipin	57023	72,84,145	<b>60T4/G9/CL</b>	120	20	Clear	C,CC-2V	2000	830 2900	1.06	2.00
			57035	72,84,145	<b>60T4G9/CL/BL</b>	120	10	Clear	C,CC-2V	2000	830 2900	1.06	2.00
			57024	72,84,145	<b>60T4/G9/F</b>	120	20	Frosted	C,CC-2V	2000	790 2900	1.06	2.00

**SUPERQ SINGLE END HALOGEN LAMPS**

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
75	T3	Min Can	58884	123,139	<b>75Q/CL/MC/RP</b>	120	6	Clear	C,CC-8	2000	1400 2950	1.19	2.56
100	T4	DC Bayonet	58755	123,139	<b>100Q/CL/DC(ESR)</b>	120	12	Clear	C,CC-2V	1000	1900 2950	1.38	2.44
			18845	123,139	<b>100Q/CL/DC/64475</b>	120	12	Clear	C,CC-2V	2000	1600 2950	2.19	3.38
			58732	123,139	<b>100Q/CL/DC</b>	130	12	Clear	C,CC-2V	1000	1900 2950	1.38	2.44
			58757	123,139	<b>100Q/DC(ETD)</b>	120	12	Frosted	C,CC-2V	1000	1750 2950	1.38	2.44
	Min Can	58761	123,139	<b>100Q/CL/MC(ESN)</b>	120	12	Clear	C,CC-2V	1000	1800 2950	1.38	2.75	
		58817	123,139	<b>100Q/CL/MC/FP(ESN)</b>	120	6	Clear	C,CC-8	1000	1800 2950	1.38	2.56	
		58760	123,139	<b>100Q/CL/MC</b>	130	12	Clear	C,CC-2V	1000	1800 2950	1.38	2.75	
150	T4	DC Bayonet	58741	123,139	<b>150Q/CL/DC(ETC)</b>	120	12	Clear	C,CC-8	2000	2800 2950	1.50	2.75
			58742	123,139	<b>150Q/CL/DC/1(ESP)</b>	120	12	Clear	C,CC-2V	1000	2400 2950	1.38	2.44
			58748	123,139	<b>150Q/CL/DC</b>	130	12	Clear	C,CC-2V	1000	2800 2950	1.38	2.75
			58737	123,139	<b>150Q/DC(ETF)</b>	120	12	Frosted	C,CC-8	2000	2700 2950	1.50	2.75



T3

**SUPERQ SINGLE END HALOGEN LAMPS**

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
150	T4	Min Can	58738	123,139	150Q/CL/MC(ESL)	120	12	Clear	C,CC-2V	1000	2800 2950	1.38	2.75
			58735	123,139	150Q/CL/MC/2(ETG)	120	12	Clear	C,CC-8	2000	2800 2950	1.50	3.00
			58733	123,139	150Q/CL/MC	130	12	Clear	C,CC-2V	1000	2800 2950	1.38	2.75
			58736	123,139	150Q/MC(ETH)	120	12	Frosted	C,CC-8	2000	2700 2950	1.50	3.00
250	T4	DC Bayonet	58720	123,139	250Q/CL/DC(ESS)	120	12	Clear	C,CC-8	2000	5000 2950	1.63	3.13
			58753	123,139	250Q/DC(ETB)	120	12	Frosted	C,CC-8	2000	4850 2950	1.63	3.13
			58754	123,139	250Q/DC	130	12	Frosted	C,CC-8	2000	4850 2950	1.63	3.13
		Min Can	58762	123,139	250Q/CL/MC(EHT)	120	12	Clear	C,CC-8	2000	5000 2950	1.63	3.13
			58764	123,139	250Q/CL/MC	130	12	Clear	C,CC-8	2000	5000 2950	1.63	3.13
			58763	123,139	250Q/MC(ESM)	120	12	Frosted	C,CC-8	2000	4850 2950	1.63	3.13
			58765	123,139	250Q/MC	130	12	Frosted	C,CC-8	2000	4850 2950	1.63	3.13
500	T4	Min Can	58766	123,139	500Q/CL/MC(EVR)	120	12	Clear	C,CC-8	2000	10450 2950	2.00	3.75
			58756	123,139	500Q/CL/MC(EYW)	130	12	Clear	C,CC-8	2000	10000 2950	2.00	3.75
			58767	123,139	500Q/MC(EYX)	120	12	Frosted	C,CC-8	2000	10100 2950	2.00	3.75
			58768	123,139	500Q/MC(EYV)	130	12	Frosted	C,CC-8	2000	10000 2950	2.00	3.75

**DOUBLE END QUARTZ LAMPS**

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
100	T3	RSC	58999	123,139	100T3Q/S/CL	120	20	Clear	C,C-8	2000	1600 2950		3.13
			58887	123,139	100T3Q/S/CL/RP	120	6	Clear	C,C-8	2000	1600 2950		3.13
150	T3	RSC	59001	123,139	150T3Q/S/CL	120	20	Clear	C,C-8	2000	2400 2950		3.13
			58886	123,139	150T3Q/S/CL/RP	120	6	Clear	C,C-8	2000	2400 2950		3.13
			58885	123,139	150T3Q/CL/RP	120	6	Clear	C,C-8	1500	2250 2950		4.69
200	T3	RSC	59003	123,139	200T3Q/CL	120	20	Clear	C,C-8	2000	3350 2950		4.69
300	T3	RSC	58998	123,139	300T3Q/CL(EHM)	120	20	Clear	C,C-8	2000	6000 2950		4.69



T3



T3



BT4



BT4

## DOUBLE END QUARTZ LAMPS

A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
300	T3	RSC	58920	123,139	<b>300T3Q/CL/FP(EHM)</b>	120	6	Clear	C,C-8	2000	6000 2950		4.69
			59000	123,139	<b>300T3Q/CL</b>	130	20	Clear	C,C-8	2000	6000 2950		4.69
500	T3	RSC	58996	123,139	<b>500T3Q/CL(FCL)</b>	120	20	Clear	C,C-8	2000	8750 2950		4.69
			58865	123,139	<b>500T3Q/CL/FP(FCL)</b>	120	6	Clear	C,C-8	2000	8750 2950		4.69
			58997	123,139	<b>500T3Q/CL</b>	130	20	Clear	C,C-8	2000	8750 2950		4.69
1000	T3	RSC	58948	123,139	<b>1000T3Q/CL</b>	240	12	Clear	C,C-8	2000	21500 2950		10.06
1500	T3	RSC	58859	123,139	<b>1500T3Q/CL</b>	208	12	Clear	C,C-8	2000	33000 2950		10.06
			58857	123,139	<b>1500T3Q/CL</b>	240	12	Clear	C,C-8	2000	33000 2950		10.06
			58858	123,139	<b>1500T3Q/CL</b>	277	12	Clear	C,C-8	2000	33000 2950		10.06

## OSRAM MINISTAR LAMPS

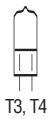
Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
10	T3	G4 Bipin	58520	72,84,123,145	<b>10T3Q/MINISTAR/S</b>	12	40	FL	C,C-8	2000	3000	80	35 x 60	1.31
20	T3	G4 Bipin	58521	72,84,123,145	<b>20T3Q/MINISTAR/S</b>	12	40	FL	C,C-8	2000	3000	120	35 x 60	1.31
			58518	72,84,123,145	<b>20BT4Q/MINISTAR/AX</b>	12	40	FL	C,C-8	2000	3000	800	20	1.75
35	BT4	GY6.35 Bipin	58519	72,84,123,145	<b>35BT4Q/MINISTAR/AX</b>	12	40	FL	C,C-8	2000	3000	1000	30	1.75

## BI-PIN IR LAMPS

UV Filter capsule with axial filament and infrared reflective coating. Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
25	BT4	GY6.35 Bipin	58897	145	<b>25BT4Q/IR</b>	12	40	Clear	C,AXIAL	4000	450 3000	1.13	1.75
35	BT4	GY6.35 Bipin	58896	145	<b>35BT4Q/IR</b>	12	40	Clear	C,AXIAL	4000	800 3000	1.13	1.75



T3, T4

### STARLITE BI-PIN LAMPS

Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
10	T3	G4 Bipin	58692	142,145	<b>10T3Q/CL/AX</b>	6	40	Clear	C,AXIAL	4000	130 3000	0.88	1.25
			58691	142,145	<b>10T3Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	130 3000	0.88	1.25
20	T3	G4 Bipin	58694	142,145	<b>20T3Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	320 3000	0.88	1.25
	T4	GY6.35 Bipin	58663	142,145	<b>20T4Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	320 3000	1.13	1.75
35	T4	GY6.35 Bipin	58672	142,145	<b>35T4Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	600 3000	1.13	1.75
50	T4	GY6.35 Bipin	58676	142,145	<b>50T4Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	910 3000	1.13	1.75
75	T4	GY6.35 Bipin	58680	142,145	<b>75T4Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	1450 3000	1.13	1.75
90	T4	GY6.35 Bipin	58684	142,145	<b>90T4Q/CL/AX</b>	12	40	Clear	C,AXIAL	4000	1800 3000	1.13	1.75

### STANDARD BI-PIN LAMPS

Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

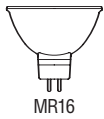
Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
5	T3	G4 Bipin	58652	123,140,145	<b>5T3Q/CL</b>	12	40	Clear	C,TR	2000	60 3000	0.88	1.25
			58651	123,141,145	<b>5T3Q/F</b>	12	40	Frosted	C,TR	2000	55 3000	0.88	1.25
10	T3	G4 Bipin	58658	123,140,145	<b>10T3Q/CL</b>	12	40	Clear	C,TR	2000	140 3000	0.88	1.25
			58650	123,140	<b>10T3Q/CL/RP</b>	12	6	Clear	C,TR	2000	140 3000	0.88	1.25
			58656	123,141,145	<b>10T3Q/F</b>	12	40	Frosted	C,TR	2000	130 3000	0.88	1.25
20	T3	G4 Bipin	58661	123,140,145	<b>20T3Q/CL</b>	12	40	Clear	C,TR	2000	320 3000	0.88	1.25
			58655	123,140	<b>20T3Q/CL/RP</b>	12	6	Clear	C,TR	2000	320 3000	0.88	1.25
50	T4	GY6.35 Bipin	58675	123,140	<b>50T4Q/CL</b>	12	40	Clear	C,TR	2000	910 3000	1.13	1.75
			58660	123,140	<b>50T4Q/CL/RP</b>	12	6	Clear	C,TR	2000	910 3000	1.13	1.75

### 24V BI-PIN LAMPS

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Lamp Finish	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	LCL (in)	MOL (in)
20	T3	G4 Bipin	58662	117,143	<b>20T3Q/CL</b>	24	40	Clear	C,AXIAL	1000	320 3000	0.88	1.25
50	T4	GY6.35 Bipin	58678	117,143	<b>50T4Q/CL/AX</b>	24	40	Clear	C,AXIAL	2000	850 3000	1.13	1.75





MR16

### TRU-AIM IR® MR16 LAMPS

UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector and infrared reflective coating on the lamp capsule.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	MR16	GU5.3 Bipin	58531	47,62,66,91,93	<b>20MR16/IR/SP10/C</b>	12	20	SP	C,AXIAL	5000	3000	6000	10	1.75
			58532	47,62,66,91,93	<b>20MR16/IR/NFL25/C</b>	12	20	NFL	C,AXIAL	5000	3000	2300	25	1.75
			58533	47,62,66,91,93	<b>20MR16/IR/FL35/C</b>	12	20	FL	C,AXIAL	5000	3000	1000	35	1.75
			58838	47,62,66,91,93	<b>20MR16/IR/WFL60/C</b>	12	20	WFL	C, AXIAL	5000	3000	450	60	1.75
37	MR16	GU5.3 Bipin	58641	37,47,62,92,93	<b>37MR16/IR/SP10/C</b>	12	20	SP	C, AXIAL	5000	3000	12500	10	1.75
			58634	37,47,62,92,93	<b>37MR16/IR/NFL25/C</b>	12	20	NFL	C, AXIAL	5000	3000	4400	25	1.75
			58633	37,47,62,92,93	<b>37MR16/IR/FL35/C</b>	12	20	FL	C, AXIAL	5000	3000	2200	35	1.75
			58837	47,62,66,92,93	<b>37MR16/IR/WFL60/C</b>	12	20	WFL	C, AXIAL	5000	3000	1100	60	1.75
50	MR16	GU5.3 Bipin	54175	37,47,62,92,93	<b>50MR16/IR/SP10/C</b>	12	20	SP	C, AXIAL	5000	3000	15000	10	1.75
			54174	37,47,62,92,93	<b>50MR16/IR/NFL25/C</b>	12	20	NFL	C, AXIAL	5000	3000	5700	25	1.75
			54173	37,47,62,92,93	<b>50MR16/IR/FL35/C</b>	12	20	FL	C, AXIAL	5000	3000	2850	35	1.75
			54237	47,62,66,92,93	<b>50MR16/IR/WFL60/C</b>	12	20	WFL	C, AXIAL	5000	3000	1430	60	1.75

### TRU-AIM TITAN® MR16 LAMPS

UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	MR16	GU5.3 Bipin	58300	62,65,91,145	<b>20MR16/T/SP10/C(ESX)</b>	12	20	SP	C, AXIAL	4000	3000	5000	10	1.75
			58301	62,65,91,93,145	<b>20MR16/T/FL35/C(BAB)</b>	12	20	FL	C, AXIAL	4000	3000	780	35	1.75
			58302	62,65,91,93,145	<b>20MR16/T/WFL60/C</b>	12	20	WFL	C, AXIAL	4000	3000	350	60	1.75
35	MR16	GU5.3 Bipin	58303	62,65,91,93,145	<b>35MR16/T/SP10/C(FRB)</b>	12	20	SP	C, AXIAL	4000	3000	9100	10	1.75
			58304	62,65,91,93,145	<b>35MR16/T/NFL25/C</b>	12	20	NFL	C, AXIAL	4000	3000	3100	25	1.75
			58305	62,65,91,93,145	<b>35MR16/T/FL35/C(FMW)</b>	12	20	FL	C, AXIAL	4000	3000	1500	35	1.75
			58306	62,65,91,93,145	<b>35MR16/T/WFL60/C</b>	12	20	WFL	C, AXIAL	4000	3000	700	60	1.75
50	MR16	GU5.3 Bipin	58307	62,65,91,93,145	<b>50MR16/T/SP10/C(EXT)</b>	12	20	SP	C, AXIAL	4000	3000	11500	10	1.75
			58308	62,65,91,93,145	<b>50MR16/T/NFL25/C(EXZ)</b>	12	20	NFL	C, AXIAL	4000	3000	4400	25	1.75
			58309	62,65,91,93,145	<b>50MR16/T/FL35/C(EXN)</b>	12	20	FL	C, AXIAL	4000	3000	2200	35	1.75



MR16

### TRU-AIM TITAN® MR16 LAMPS

UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	MR16	GU5.3 Bipin	58310	62,65,91, 93,145	<b>50MR16/T/WFL60/C(FW)</b>	12	20	WFL	C, AXIAL	4000	3000	1100	60	1.75
			58500	62,65,91, 93,145	<b>50MR16/T/DAY/NFL25/C</b>	12	10	NFL	C, AXIAL	4000	3050	2650	25	1.75
65	MR16	GU5.3 Bipin	58311	62,65,92, 93	<b>65MR16/T/SP10/C(FPA)</b>	12	20	SP	C, AXIAL	4000	3000	13300	10	1.75
			58312	62,65,92, 93	<b>65MR16/T/NFL25/C(FPC)</b>	12	20	NFL	C, AXIAL	4000	3000	3800	25	1.75
			58313	62,65,92, 93	<b>65MR16/T/FL35/C(FPB)</b>	12	20	FL	C, AXIAL	4000	3000	2000	35	1.75

### TRU-AIM BRILLIANT® MR16 LAMPS

UV Filter capsule with axial filament in constant color, aluminized reflector.

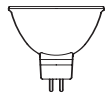
A suitable protective shield, screening technique or both shall be used to protect people and surroundings from the possibility of a lamp shattering.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	MR16	GU5.3 Bipin	58314	33,62,91, 117	<b>20MR16/B/SP10</b>	12	20	SP	C, AXIAL	4000	3000	5000	10	1.75
			58315	33,62,91, 117	<b>20MR16/B/FL35</b>	12	20	FL	C, AXIAL	4000	3000	780	35	1.75
35	MR16	GU5.3 Bipin	58316	33,62,92, 117	<b>35MR16/B/SP10</b>	12	20	SP	C, AXIAL	4000	3000	9100	10	1.75
			58317	33,62,92, 117	<b>35MR16/B/FL35</b>	12	20	FL	C, AXIAL	4000	3000	1500	35	1.75
50	MR16	GU5.3 Bipin	58319	33,62,92, 117	<b>50MR16/B/SP10</b>	12	20	SP	C, AXIAL	4000	3000	12500	10	1.75
			58320	33,62,92, 117	<b>50MR16/B/NFL25</b>	12	20	NFL	C, AXIAL	4000	3000	4400	25	1.75
			58321	33,62,92, 117	<b>50MR16/B/FL35</b>	12	20	FL	C, AXIAL	4000	3000	2200	35	1.75

### TRU-AIM® MR16 LAMPS

UV Filter capsule with axial filament in covered dichroic reflector.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	MR16	GU5.3 Bipin	54305	45,62,91, 93,145	<b>20MR16/SP10/C(ESX)</b>	12	20	SP	C, AXIAL	2000	3000	3000	10	1.75
			54306	45,62,91, 93,145	<b>20MR16/FL35/C(BAB)</b>	12	20	FL	C, AXIAL	2000	3000	510	35	1.75
35	MR16	GU5.3 Bipin	54307	45,62,92, 93,145	<b>35MR16/SP10/C(FRB)</b>	12	20	SP	C, AXIAL	2000	3000	6000	10	1.75
			58322	45,62,92, 93,145	<b>35MR16/NFL25/C</b>	12	20	NFL	C, AXIAL	2000	3000	2000	25	1.75
			58324	45,62,92, 93,145	<b>35MR16/FL35/C(FMW)</b>	12	20	FL	C, AXIAL	2000	3000	1000	35	1.75
50	MR16	GU5.3 Bipin	58325	45,62,92, 93,145	<b>50MR16/SP10/C(EXT)</b>	12	20	SP	C, AXIAL	2000	3000	7800	10	1.75



MR16, MR11, MR16 SIG 64005



PAR36

TUNGSTEN HALOGEN

**TRU-AIM® MR16 LAMPS**

UV Filter capsule with axial filament in covered dichroic reflector.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	MR16	GU5.3 Bipin	58326	45,62,92,93,145	<b>50MR16/NFL25/C(EXZ)</b>	12	20	NFL	C, AXIAL	2000	3000	2800	25	1.75
			58327	45,62,92,93,145	<b>50MR16/FL35/C(EXN)</b>	12	20	FL	C, AXIAL	2000	3000	1450	35	1.75
			58328	45,62,92,93,145	<b>50MR16/WFL60/C(FNV)</b>	12	20	WFL	C, AXIAL	2000	3000	690	60	1.75

**TRU-AIM® MR11 LAMPS**

UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	MR11	GU4 Bipin	55133	62,65,92,93	<b>20MR11/T/SP10/C(FTB)</b>	12	10	SP	C, AXIAL	4000	3000	4000	10	1.50
			55134	62,65,92,93	<b>20MR11/T/FL35/C(FTD)</b>	12	10	FL	C, AXIAL	4000	3000	700	35	1.50
35	MR11	GU4 Bipin	55135	62,65,92,93	<b>35MR11/T/SP10/C(FTE)</b>	12	10	SP	C, AXIAL	4000	3000	6200	10	1.50
			55136	62,65,92,93	<b>35MR11/T/FL35/C(FTH)</b>	12	10	FL	C, AXIAL	4000	3000	1350	35	1.50

**SIRIUS MR16 LAMPS**

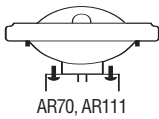
For traffic signal and other fiber optic applications.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
50	MR16 SIG 64005	K23D	58701	32,117	<b>50SIRIUS/SIG64005</b>	10	10		C, AXIAL	6000	220 3000			1.88

**CAPSYLITE® PAR36 LAMPS**

Suitable for use in unshielded fixtures.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
36	PAR36	Screw Term	55100	★  73	<b>36PAR36/HAL/VNSP5</b>	12	12	VNSP	C, C-8	4000	500 3000	17000	5	2.75
			55090	★  73	<b>36PAR36/HAL/NSP13</b>	12	12	NSP	C, C-8	4000	500 3000	3500	13	2.75
			55091	★  73	<b>36PAR36/HAL/WFL32</b>	12	12	WFL	C, C-8	4000	500 3000	1000	30	2.75
50	PAR36	Screw Term	55118	★  73	<b>50PAR36/HAL/NSP6</b>	12	12	NSP	C, C-8	4000	700 3000	25000	6	2.75
			55017	★  73	<b>50PAR36/HAL/WFL30</b>	12	12	WFL	C, C-8	4000	700 3000	1400	30	2.75



AR70, AR111

## AR70 ALUMINUM REFLECTOR LAMPS

UV Filter capsule with axial filament in precisely engineered aluminum reflector.

Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
20	AR70	DC Bayonet	59013	38,145	<b>20AR70/SP8</b>	12	10	SP	C, C-8	3000	3000	7700	8	1.94
			59012	38,145	<b>20AR70/FL25</b>	12	10	FL	C, C-8	3000	3000	900	25	1.94
50	AR70	DC Bayonet	59017	38,145	<b>50AR70/SP8</b>	12	10	SP	C, C-8	3000	3000	12500	8	1.94
			59016	38,145	<b>50AR70/FL25</b>	12	10	FL	C, C-8	3000	3000	2600	25	1.94












## AR111 ALUMINUM REFLECTOR LAMPS

UV Filter capsule with axial filament in precisely engineered aluminum reflector.

Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.

Watts	Bulb	Base	Product Number	Symbols & Footnotes	Ordering Abbreviation	Volts	Pkg Qty	Beam Type	Class & Filament	Avg Rated Life(hrs)	Lumens CCT	CBCP	Beam Angle	MOL (in)
35	AR111	Push Screw Term	55101	38,145	<b>35AR111/SSP4</b>	6	6	SSP	C, C-8	3000	3000	30000	4	2.38
			55102	38,145	<b>35AR111/SSP4</b>	12	6	SSP	C, C-8	3000	3000	40000	4	2.38
			55110	38,145	<b>35AR111/SP8</b>	12	6	SP	C, C-8	3000	3000	14000	8	2.25
			55114	38,145	<b>35AR111/FL25</b>	12	6	FL	C, C-8	3000	3000	2500	25	2.31
50	AR111	Push Screw Term	55105	38,145	<b>50AR111/SSP4</b>	12	6	SSP	C, C-8	3000	3000	45000	4	2.38
			55104	38,145	<b>50AR111/SP8</b>	12	6	SP	C, C-8	3000	3000	20000	8	2.25
			55103	38,145	<b>50AR111/FL25</b>	12	6	FL	C, C-8	3000	3000	4000	25	2.31
75	AR111	Push Screw Term	55125	38,145	<b>75AR111/SP8</b>	12	6	SP	C, C-8	3000	3000	30000	8	2.25
			55123	38,145	<b>75AR111/FL25</b>	12	6	FL	C, C-8	3000	3000	5300	25	2.31
			55124	38,145	<b>75AR111/WFL45</b>	12	6	WFL	C, C-8	3000	3000	2000	45	2.19
100	AR111	Push Screw Term	55129	38,145	<b>100AR111/SP8</b>	12	6	SP	C, C-8	3000	3000	48000	8	2.25
			55127	38,145	<b>100AR111/FL25</b>	12	6	FL	C, C-8	3000	3000	8500	25	2.31
			55128	38,145	<b>100AR111/WFL45</b>	12	6	WFL	C, C-8	3000	3000	2800	45	2.19

## SYMBOLS & FOOTNOTES FOR TUNGSTEN HALOGEN LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	Indicates aluminum base.
	Do not operate in household sockets.
	Operate base down.
	Operate base down to horizontal.
	Heat resistant, hard glass.
	PAR lamps are suitable for indoor and outdoor use.
	Do not operate in paper lined sockets.
	This lamp or ballast meets minimum Federal efficiency standards.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.

Footnote	Description
1	Indefinite long life. Designed for life in excess of 10,000 hours. In -service life depends upon burning conditions.
2	Should not be used in equipment where base temperature will exceed 500 F.
3	@ 120 volts, approximate 119 watts, 1560 lumens, 6250 hours
4	@ 120 volts, approximate 119 watts, 1870 lumens, 1875 hours
5	@ 120 volts, approximate 132 watts, 1420 lumens, 6250 hours
6	@ 120 volts, approximate 132 watts, 1580 lumens, 2500 hours
7	@ 120 volts, approximate 132 watts, 1590 lumens, 2500 hours
8	@ 120 volts, approximate 132 watts, 1660 lumens, 1875 hours
9	@ 120 volts, approximate 132 watts, 1770 lumens, 1875 hours
10	@ 120 volts, approximate 132 watts, 1690 lumens, 6250 hours
11	@ 120 volts, approximate 132 watts, 1880 lumens, 1875 hours
12	@ 120 volts, approximate 132 watts, 2030 lumens, 1875 hours
13	High temperature base. Designed to operate in equipment where base temperature run between 500F - 570F.
14	@ 120 volts, approximate 176 watts, 2190 lumens, 6250 hours
15	@ 120 volts, approximate 176 watts, 2220 lumens, 2500 hours
16	@ 120 volts, approximate 176 watts, 2350 lumens, 2500 hours
17	@ 120 volts, approximate 176 watts, 2360 lumens, 6250 hours
18	@ 120 volts, approximate 176 watts, 2710 lumens, 1875 hours
19	@ 120 volts, approximate 176 watts, 2740 lumens, 1875 hours
20	@ 120 volts, approximate 176 watts, 2820 lumens, 1875 hours
21	@ 120 volts, approximate 176 watts, 2860 lumens, 1875 hours
22	@ 120 volts, approximate 176 watts, 2220 lumens, 6750 hours
23	@ 120 volts, approximate 188 watts, 3190 lumens, 1125 hours
24	Designed for service other than illumination.
25	@ 120 volts, approximate 220 watts, 2360 lumens, 10000 hours
26	@ 120 volts, approximate 264 watts, 2310 lumens, 5000 hours
27	@ 120 volts, approximate 264 watts, 3800 lumens, 6250 hours



## SYMBOLS & FOOTNOTES FOR TUNGSTEN HALOGEN LAMPS

Footnote	Description
28	@ 120 volts, approximate 264 watts, 3850 lumens, 6250 hours
29	@ 120 volts, approximate 264 watts, 4390 lumens, 1875 hours
30	@ 120 volts, approximate 264 watts, 4305 lumens, 1875 hours
31	Additional product information can be found in the SYLVANIA Automotive, Miniature and Sealed Beam Lamp Catalog Form 208.
32	UV Filter capsule with axial filament in dichroic reflector.
33	UV Filter capsule with axial filament in aluminized reflector.
34	UV Filter capsule with axial filament in covered aluminized reflector .
35	2 3/4" circular window.
36	UV Filter capsule with axial filament in constant color, hard coated dichroic reflector.
37	UV Filter capsule with axial filament in constant color, hard coated Dichroic reflector and infrared reflective coating on the lamp capsule.
38	UV Filter capsule with axial filament in precisely engineered aluminum m reflector.
39	Suitable for indoor and outdoor use;
40	For indoor use only; suitable for outdoor use only if not directly exposed to weather
41	For indoor use only;
42	UV control capsule with transverse constant color filament in hard dichroic
43	State of the Art SPL Optics
44	Inner capsule with Infrared conserving coating and hard glass lens
45	UV Filter capsule with axial filament in covered dichroic reflector.
46	Operate only in porcelain sockets.
47	Infrared lamp technology
48	Caution: Operates under pressure and may shatter. Use appropriate techniques to protect people and surroundings. Do not operate in close proximity to persons, combustible materials, or substances affected by heat or drying. Do not operate over 110% rated voltage because such operation increases pressure and lamps' tendency to shatter. Ultraviolet output may cause skin and eye irritation with prolonged exposure. Protect bulb from abrasions and scratches. Do not insert lamps when power is on. Follow operation
49	ECE Approved
50	Lamp Life B3 @ 13.2 volts.
51	Universal lamp housings for T2 slide based pilot lamps.
52	Socket dimensions front to panel to end of terminals.
53	UL File No. E31557(M) CSA File No.LR20904
54	Universal lamp housings for T2.5 and T3.25 miniature bayonet based lamps.
55	UL File No. E31557(M) CSA File No.LR20904
56	MIL-Std. 18236 B-MIL Std. 202B
57	Should be shielded against moisture falling on bulb.
58	Material : Black Phenolic
59	There are two distinctively different lamps with this part number. When ordering T-1 3/4 , #7327, please also specify category and base type. S-11. #7327 discontinued.
60	MOL = Excluding pins.
61	Material : Plastic
62	Max. seal temperature 350 C (662F)
63	Max. bulb temperature 1000 C (1832F)
64	Min. bulb temperature 250 C (482F)
65	UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector.
66	UV Filter capsule with axial filament in covered constant color, hard coated dichroic reflector and infrared reflective coating on the lamp capsule.
67	UV Filter capsule with transverse filament in constant color, hard coated dichroic reflector .
68	Not recommended for use in enclosed close-fitting housings.
69	For Indoor Use only.
70	Because this bulb radiates considerable heat, do not use in enclosed, close fitting fixtures, or in close proximity to people, combustible materials, or substances adversely affected by heat or drying.

## SYMBOLS & FOOTNOTES FOR TUNGSTEN HALOGEN LAMPS

Footnote	Description
71	Even though this bulb may continue to light after the lens or reflector is cracked or broken, it should be replaced as soon as possible since the pressure filled inner capsule could unexpectedly shatter, creating a risk of personal injury or property damage. In addition, the inner capsule produces ultraviolet radiation that can cause injury to the eyes and skin with prolonged exposure without the blocking effect of the outer glass bulb.
72	To avoid electric shock and/or skin burns, turn off power and allow bulb to cool before handling or attempting replacement.
73	For indoor or outdoor use where not directly exposed to weather. Exposure to weather may damage the bulb.
74	Use only with ceramic/porcelain sockets and in fixtures rated for this bulb type, including voltage and wattage.
75	Screw bulb firmly but not forcibly into socket to obtain good electrical contact and to avoid damaging bulb and/or socket. Socket condition may affect bulb life. Replace socket if deterioration of socket or bulb contacts is observed.
76	Due to change from high pressure capsule to low pressure capsule, dimensions have been changed: LCL from 19.5 to 22mm and bulb diameter from 9 to 9.5mm.
77	@ 120 volts, approximate 26 watts, 150 lumens, 5000 hours.
78	Recommended operating position any within 60 degrees of vertically base up or base down.
79	@ 120 volts, approximate 28 watts, 200 lumens, 7500 hours.
80	@ 120 volts, approximate 53 watts, 340 lumens, 12500 hours.
81	@ 120 volts, approximate 66 watts, 500 lumens, 12500 hours.
82	@ 120 volts, approximate 88 watts, 765 lumens, 12500 hours.
83	@ 120 volts, approximate 88 watts, 1020 lumens, 2500 hours.
84	UV Filter Quartz
85	@ 120 volts, approximate 53 watts, 845 lumens, 6000 hours.
86	Operate only in heat resistant sockets
87	@ 120 volts, approximate 44 watts, 690 lumens, 6000 hours.
88	@ 120 volts, approximate 44 watts, 850 lumens, 6000 hours.
89	For use only in fixtures designed specifically for dichroic Reflector Lamps.
90	@ 120 volts, approximate 53 watts, 660 lumens, 6000 hours.
91	Max pin temperature 220 C.
92	Max pin temperature 250 C.
93	Max temperature at lens reflector joint 240 C.
94	Not for use in ceiling fan fixtures
95	For use where seal temperature does not exceed 662F.
96	Per Title 20 Section 1605.3(m) of the California Code of Regulations, this lamp may not be sold or offered for sale in the state of California for use in Traffic Signals.
97	Board Size MFX Base 1.6mm (0.062") Inside of Board
98	OSRAM Miniwatt lamps for printed circuit boards (the MF series) are designed to work on both inside and outside contact boards and various thickness boards. In order to assure proper electrical contact, be sure to check the thickness of the board and the location of the electrical contacts.
99	@ 120 volts, approximate 33 watts, 270 lumens, 3750 hours.
100	Operate within 25 degrees of vertical base up.
101	@ 120 volts, approximate 53 watts, 490 lumens, 2500 hours.
102	@ 120 volts, approximate 66 watts, 650 lumens, 1875 hours.
103	@ 120 volts, approximate 88 watts, 970 lumens, 1875 hours.
104	@ 120 volts, approximate 46 watts, 560 lumens, 2500 hours.
105	@ 120 volts, approximate 40 watts, 220 lumens, 5000 hours.
106	@ 120 volts, approximate 57 watts, 410 lumens, 5000 hours.
107	Lamps manufactured on or after January 1, 2007 are not for sale in Washington or Oregon.
108	Per Title 20 Section 1605.3(k) of the California Code of Regulations, this lamp may not be sold or offered for sale in the state of California.
109	Lamp may not be operated on a dimmer or DC current
110	Complies with part 15 of FCC rules.
111	Average laboratory life is 200 hours for vacuum cleaner and 600 hours for sewing machine services.
112	Life dependent on service conditions.
113	Operating position 45 degrees base down to horizontal.

## SYMBOLS & FOOTNOTES FOR TUNGSTEN HALOGEN LAMPS

Footnote	Description
114	Use only in fixtures designed to adequately dissipate heat from lamp.
115	3" Circular window.
116	Operation of lamp in any position other than base up may result in some loss of protective coating.
117	A protective shield must be used external to the lamp.
118	In base up operation, heat may eventually deteriorate paper-lined or plastic sockets.
119	Operate only in porcelain or other socket approved for 150 watt PAR lamp.
120	Metal sleeve with approximately 6 " flexible non-insulated leads. Leads not included in maximum overall length (M.O.L.).
121	High temperature base. Retards seal deterioration where seal temperature exceeds 650F.
122	Lightly inside frosted and side aluminized; M.O.L. exclusive of spring contact.
123	For use where seal temperature does not exceed 650F.
124	Life at rated voltage and at 650F maximum seal temperature.
125	Usually limited to intermittent burning.
126	Maximum bulb wall temperature 480F.
127	Lamp internally fused.
128	2 1/2" braided lead with lug.
129	Nickel sleeve with 11/4" - 11/2" flexible leads with lug. Leads not included in maximum overall length (M.O.L.)
130	Minimum run. Check nearest OSRAM SYLVANIA Sales Office for details.
131	This lamp should not be used in a location where water may be splashed on it.
132	Package quantity may change. See your OSRAM SYLVANIA Lighting Representative for details.
133	For diesel electric locomotives without voltage regulators.
134	Retrofit for 65BR30/FL, or 75R30/FL.
135	Available in bulk pack.
136	Incandescent lamps operated at less than rated voltage provide a lower light output, longer life, lower color temperature and are less efficient in terms of lumens per watt.
137	Approximate life for 130 volt tungsten halogen lamps operated at 120 volts is within the value calculated using the recommended equations for standard incandescent lamps, as set forth in the IES Handbook, 8th edition. Because of the uncertain nature of the halogen cycle on the coil when operated at less than rated voltage, life of tungsten halogen lamps varies considerably and unpredictably. OSRAM SYLVANIA does not recommend operation at other than rated voltage.
138	Nominal wattage - actual may be slightly higher to achieve required light output.
139	A suitable protective shield, screening technique, or both must be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.
140	Standard Clear - UV Filter Quartz
141	Standard Frosted - UV Filter Quartz
142	Starlite Low Pressure - UV Filter Quartz
143	Standard Clear - 24V - UV Filter Quartz - Not suitable for use in open fixtures.
144	Maximum contact to contact tolerance on RSC Base = 1/16"
145	Suitable for use in unshielded fixtures. Consult most recent luminaire standards for your area to determine luminaire requirements.
146	@120 volts, approximate 22 watts, 130 lumens, 6250 hours
147	@ 120 volts, approximate 26 watts, 100 lumens, 5000 hours
148	@ 120 volts, approximate 28/66/94 watts, 255/800/1060 lumens, 1800 hours
149	@ 120 volts, approximate 30 watts, 240 lumens, 6250 hours
150	@ 120 volts, approximate 30 watts, 290 lumens, 3750 hours
151	@ 120 volts, approximate 31 watts, 275 lumens, 5000 hours
152	@ 120 volts, approximate 35 watts, 320 lumens, 6250 hours
153	@ 120 volts, approximate 35 watts, 350 lumens, 3750 hours
154	@ 120 volts, approximate 37 watts, 450 lumens, 7000 hours
155	May not give satisfactory performance if any accessory lighting equipment touches the glass bulb.
156	@ 120 volts, approximate 38 watts, 380 lumens, 2250 hours

## SYMBOLS & FOOTNOTES FOR TUNGSTEN HALOGEN LAMPS

Footnote	Description
157	@ 120 volts, approximate 40 watts, 425 lumens, 5000 hours
158	@ 120 volts, approximate 44 watts, 250 lumens, 5000 hours
159	@ 120 volts, approximate 44 watts, 240 lumens, 5000 hours
160	@ 120 volts, approximate 44 watts, 400 lumens, 2500 hours
161	@ 120 volts, approximate 44 watts, 420 lumens, 5000 hours
162	@ 120 volts, approximate 44 watts, 500 lumens, 5000 hours
163	@ 120 volts, approximate 46 watts, 460 lumens, 6250 hours
164	@ 120 volts, approximate 46 watts, 540 lumens, 2500 hours
165	@ 120 volts, approximate 46 watts, 600 lumens, 7000 hours
166	When calculations are based on bare lamp lumens, do not use this lumen rating.
167	@ 120 volts, approximate 47/94/141 watts, 545/1275/1820 lumens, 1800 hours
168	@ 120 volts, approximate 53 watts, 420 lumens, 2500 hours
169	@ 120 volts, approximate 53 watts, 495 lumens, 4000 hours
170	@ 120 volts, approximate 53 watts, 650 lumens, 2500 hours
171	@ 120 volts, approximate 53 watts, 645 lumens, 6000 hours
172	@ 120 volts, approximate 56 watts, 725 lumens, 1500 hours
173	@ 120 volts, approximate 57 watts, 540 lumens, 4375 hours
174	@ 120 volts, approximate 59 watts, 660 lumens, 6250 hours
175	@ 120 volts, approximate 59 watts, 780 lumens, 1875 hours
176	@ 120 volts, approximate 63 watts, 900 lumens, 7000 hours
177	Average laboratory life in excess of 5000 hours.
178	@ 120 volts, approximate 66 watts, 425 lumens, 4125 hours
179	@ 120 volts, approximate 66 watts, 620 lumens, 2500 hours
180	@ 120 volts, approximate 66 watts, 685 lumens, 4000 hours
181	@ 120 volts, approximate 66 watts, 805 lumens, 5000 hours
182	@ 120 volts, approximate 66 watts, 860 lumens, 5000 hours
183	@ 120 volts, approximate 66 watts, 910 lumens, 1875 hours
184	@ 120 volts, approximate 66 watts, 520 lumens, 5000 hours
185	@ 120 volts, approximate 70 watts, 985 lumens, 1125 hours
186	@ 120 volts, approximate 79 watts, 940 lumens, 6250 hours
187	@ 120 volts, approximate 79 watts, 1000 lumens, 5000 hours
188	For use only with heat-resisting connector and with bulb supported by bulb rim or metal shell of base.
189	@ 120 volts, approximate 79 watts, 1130 lumens, 1875 hours
190	@ 120 volts, approximate 88 watts, 960 lumens, 2500 hours
191	@ 120 volts, approximate 88 watts, 1100 lumens, 6250 hours
192	@ 120 volts, approximate 88 watts, 1260 lumens, 1875 hours
193	@ 120 volts, approximate 88 watts, 1290 lumens, 1875 hours
194	@ 120 volts, approximate 88 watts, 710 lumens, 5000 hours
195	@ 120 volts, approximate 94 watts, 1455 lumens, 1125 hours
196	@ 120 volts, approximate 105 watts, 850 lumens, 5000 hours
197	@ 120 volts, approximate 105 watts, 1370 lumens, 6000 hours
198	@ 120 volts, approximate 106 watts, 1040 lumens, 5000 hours

# Manufacturers' Cross Reference

## HALOGEN LAMPS

SYLVANIA	GE	PHILIPS	OSRAM
<b>HALOGEN BT15</b>			
60BT15/HAL/CL/BL	---	BC60BT15/HAL/CL	---
60BT15/HAL/W/BL	---	BC60BT15/HAL/W	---
75BT15/HAL/W/BL	---	BC75BT15/HAL/W	---
100BT15/HAL/W/BL	---	BC100BT15/HAL/W	---
150BT15/HAL/W/BL	---	BC150BT15/HAL/W	---
<b>CAPSYLITE MIDBREAK</b>			
52A/CAP	50A/HAL	---	---
60A/HAL/DAY	60A/HAL	---	---
60A/HAL/DAY/CL	60A/HAL/CL	---	---
75A/HAL/DAY	75A/HAL	---	---
100A/HAL/DAY	90A/HAL	---	---
<b>CAPSYLITE PAR</b>			
60PAR16/CAP/NSP10	60PAR16/H/SP10	60PAR16/HAL/NSP10	---
60PAR16/CAP/NFL30	60PAR16/H/FL30	60PAR16/HAL/NFL27	---
75PAR16/CAP/NSP10	75PAR16/H/SP10	---	---
75PAR16/CAP/NFL30	75PAR16/H/FL30	---	---
50PAR20/HAL/SPL/NFL30	50PAR20/H/FL25	50PAR20/HAL/NFL30	---
50PAR20/HAL/SPL/NSP10	50PAR20/H/SP10	50PAR20/HAL/NSP9	---
50PAR30/CAP/SPL/NFL25	50PAR30/H/FL25	50PAR30/HAL/NFL30	---
50PAR30/CAP/SPL/NSP9	50PAR30/H/SP10	50PAR30S/HAL/NSP10	---
50PAR30/HAL/SPL/FL40	50PAR30/H/FL35	50PAR30S/HAL/FL40	---
50PAR30LN/CAP/SPL/NFL30	50PAR30L/H/FL40	50PAR30L/HAL/NFL30	---
50PAR30LN/CAP/SPL/NSP9	50PAR30L/H/SP10	50PAR30L/HAL/NSP9	---
50PAR30LN/CAP/SPL/WFL50	50PAR30L/H/WFL	50PAR30L/HAL/WFL60	---
60PAR30/CAP/SPL/NSP9	60PAR30/H/NSP9	60PAR30S/HAL/NSP10	---
60PAR30/CAP/SPL/NFL25	60PAR30/H/FL25	60PAR30S/HAL/NFL30	---
75PAR30/CAP/SPL/NSP9	75PAR30/H/SP10	75PAR30S/HAL/SP10	---
75PAR30/CAP/SPL/NFL25	75PAR30/H/FL25	75PAR30S/HAL/NFL30	---
75PAR30/CAP/SPL/FL40	75PAR20/H/FL35	75PAR30S/HAL/FL40	---
75PAR30LN/CAP/SPL/NSP9	75PAR30L/H/SP10	75PAR30L/HAL/NSP9	---
75PAR30LN/CAP/SPL/NFL25	75PAR30L/H/FL25	75PAR30L/HAL/NFL30	---
75PAR30LN/CAP/SPL/WFL50	75PAR30L/H/WFL	75PAR30L/HAL/FL40	---
36PAR36CAPNSP13	35PAR36/H/SP8	---	---
36PAR36CAPVNSP5	35PAR36/H/SP5	---	---
36PAR36CAPWFL	35PAR36/H/FL30	---	---
50PAR36CAPNSP6	50PAR36/H/SP5	---	---
45PAR/CAP/SPL/SP9	45PAR/H/SP10	---	---
45PAR/CAP/SPL/WSP12	---	45PAR38/HAL/SP12/LL	---
45PAR/CAP/SPL/FL30	45PAR/H/FL25	45PAR38/HAL/FL28/LL	---
60PAR/CAP/SPL/SP9	60PAR/H/SP10	60PAR38/HAL/NSP10/WLL	---
60PAR/CAP/SPL/WSP12	---	60PAR38/HAL/SP12/WLL	---
60PAR/CAP/SPL/NFL25	60PAR/H/FL25	---	---
60PAR/CAP/SPL/FL30	---	60PAR38/HAL/FL28/WLL	---
75PAR/CAP/SPL/SP9	75PAR/H/SP9	75PAR38/HAL/SP10/WLL	---
75PAR/CAP/SPL/FL30	75PAR/H/FL25	75PAR38/H/FL28/WLL	---
90PAR/CAP/SPL/SP9	90PAR/H/SP10	---	---
90PAR/CAP/SPL/WSP12	---	90PAR38/HAL/SP12/LL	---
90PAR/CAP/SPL/FL30	90PAR/H/FL25	90PAR38/HAL/FL28/LL	---
90PAR/CAP/SPL/WFL50	90PAR/H/WFL	90PAR38/HAL/WFL60/WLL	---
120PAR/CAP/SPL/SP9	120PAR/H/SP9	---	---
120PAR/CAP/SPL/FL30	120PAR/H/FL30	---	---
250PARCAPSPLSP10	Q250PAR/SP10	---	---
250PARCAPSPLFL30	Q250PAR/FL30	---	---
500PAR56QMFL	Q500PAR56MFL	500PAR56Q/MFL	---
500PAR56QNSP	Q500PAR56NSP	500PAR56Q/NSP	---
500PAR56QWFL	Q500PAR56WFL	500PAR56Q/WFL	---
1000PAR64QMFL	Q1000PAR64MFL	1000PAR64Q/MFL	---
1000PAR64QNSP	Q1000PAR64NSP	1000PAR64Q/NSP	---
1000PAR64QWFL	Q1000PAR64WFL	1000PAR64Q/WFL	---
<b>CAPSYLITE IR PAR</b>			
50PAR30/CAP/IR/NSP9 130V	45PAR30/HIR/SP9XL	---	---
50PAR30/CAP/IR/NFL25 130V	45PAR30/HIR/FL25XL	---	---



## Manufacturers' Cross Reference Guide (continued)

### HALOGEN LAMPS

SYLVANIA	GE	PHILIPS	OSRAM
<b>CAPSYLITE IR PAR (continued)</b>			
50PAR30/CAP/IR/FL40 130V	45PAR30/HIR/FL35XL	---	---
50PAR30/CAP/IR/NSP9	50PAR30/HIR/SP9	50PAR30S/IRC/NSP10	---
50PAR30/CAP/IR/NFL25	50PAR30/HIR/FL25	50PAR30S/IRC/NFL30	---
50PAR30/CAP/IR/FL40	50PAR30/HIR/FL35	50PAR30S/IRC/FL40	---
50PAR/CAP/IR/SP10 130V	45PAR/HIR/SP12/XL	---	---
50PAR/CAP/IR/NFL25 130V	45PAR/HIR/FL40/XL	---	---
50PAR/CAP/IR/SP10	50PAR/HIR/SP9	50PAR38/IRC/SP12	---
50PAR/CAP/IR/NFL25	50PAR/HIR/FL25	50PAR38/IRC/FL25	---
55PAR38/CAP/IR/XP/SP9	55PAR/HIR/SP12/XL	---	---
55PAR38/CAP/IR/XP/FL30	55PAR/HIR/FL40/XL	---	---
60PAR/CAP/IR/SP10	60PAR/HIR/SP10	60PAR38/IRC/SP10	---
60PAR/CAP/IR/WSP12	60PAR/HIR/SP12	60PAR38/IRC/WSP12	---
60PAR/CAP/IR/NFL25	---	60PAR38/IRC/FL25	---
60PAR/CAP/IR/FL30	60PAR/HIR/FL30	---	---
80PAR/CAP/IR/SP10	80PAR/HIR/SP10	---	---
80PAR/CAP/IR/FL25	80PAR/HIR/FL25	---	---
100PAR/CAP/IR/SP10	100PAR/HIR/SP10	100PAR38/IRC/SP10	---
100PAR/CAP/IR/NFL25	100PAR/HIR/FL25	100PAR38/IRC/FL25	---
100PAR/CAP/IR/FL40	100PAR/HIR/FL40	---	---
<b>TRU-AIM MR11</b>			
20MR11/SP10/FTB	Q20MR11/SP15(FTC)	20MRC11/SP10	46890SP
20MR11/FL35/FTD	Q20MR11/NFL30(FTD)	20MRC11/FL30	46890WFL
35MR11/FL40/FTH	Q35MR11/NFL30(FTH)	---	46892WFL
35MR11/SP10/FTE	Q35MR11/SP20(FTF)	---	46892SP
<b>STANDARD TRU-AIM MR16</b>			
20MR16/NSP8/ESX	Q20MR16/SP	20MRC16/SP10	41860SP
20MR16/FL40/BAB	Q20MR16/FL	20MRC16/FL36	41860WFL
35MR16/FL40	Q35MR16CG/FL	---	41865WFL
50MR16/NSP12/EXT	Q50MR16/SP	50MRC16/SP10	41870SP
50MR16/NFL25/EXZ	---	50MRC16/NFL24	---
50MR16/FL40/EXN	Q50MR16/FL	50MRC16/FL38	41870WFL
65MR16/NSP10/FPA	---	75MR16/SP10-EYF	---
65MR16/FL40/FPB	---	75MR16/FL36-EYC	---
<b>TRU-AIM BRILLIANT MR16</b>			
20MR16/B/FL35/C	---	---	41861WFL
50MR16/B/NSP11/C/EXT	---	50MRC16/SP12/A	---
50MR16/B/NFL25/EXZ	---	50MRC16/NFL24/A	---
50MR16/B/FL35/C/EXN	---	50MRC16/FL36	41871WFL
<b>TRU-AIM TITAN MR16</b>			
20MR16/T/NSP10/ESX	Q20MR16/C/VNSP7	20MRC16/CC/SP10	46860SP
20MR16/T/FL40/BAB	Q20MR16/C/FL40	20MRC16/CC/FL38	46860WFL
35MR16/T/NSP10/FRB	---	---	46865SP
35MR16/T/NFL25	Q35MR16/C/SP20	---	46865FL
35MR16/T/FL40/FMW	Q35MR16/C/FL40	---	46865WFL
50MR16/T/NSP10/EXT	Q50MR16/C/NSP15	50MRC16/CC/SP10	46870SP
50MR16/T/NFL25/EXZ	Q50MR16/C/NFL25	50MRC16/CC/NFL24	46870FL
50MR16/T/FL40/EXN	Q50MR16/C/FL40	50MRC16/CC/FL38	46870WFL
50MR16/T/VWFL60/FNV	Q50MR16/C/WFL55	---	46870VWFL
65MR16/T/NSP10/FPA	Q71MR16/C/NSP15	---	---
65MR16/T/NFL25	Q71MR16/C/NFL25	---	---
65MR16/T/FL40/FPB	Q71MR16/C/FL40	---	---
<b>TRU-AIM IR MR16</b>			
20MR16/IR/SP10/C	---	20MRC16/IRC/SP8	48860SP
20MR16/IR/NFL25/C	---	---	48860FL
20MR16/IR/FL40/C	---	20MRC16/IRC/FL36	48860WFL
20MR16/IR/WFL60/C	---	---	48860VWFL
37MR16/IR/SP10/C	Q37MR16/HIR/CG10	35MRC16/IRC/SP8	48865SP
37MR16/IR/NFL25/C	Q37MR16/HIR/CG25	35MRC16/IRC/NFL24	48865FL
37MR16/IR/FL40/C	Q37MR16/HIR/CG40	35MRC16/IRC/FL36	48865WFL
37MR16/IR/WFL60/C	---	35MRC16/IRC/WFL60	48865VWFL
50MR16/IR/SP10/C	Q50MR16/HIR/CG10	45MRC16/IRC/SP8	48870SP
50MR16/IR/NFL25/C	Q50MR16/HIR/CG25	45MRC16/IRC/NFL24	48870FL

## Manufacturers' Cross Reference (continued)

### HALOGEN LAMPS

SYLVANIA	GE	PHILIPS	OSRAM
<b>TRU-AIM IR MR16 (continued)</b>			
50MR16/IR/FL40/C	Q50MR16/HIR/CG40	45MRC16/IRC/FL36	48870WFL
50MR16/IR/WFL60/C	---	45MRC16/IRC/WFL60	48870VWFL
<b>SINGLE ENDED</b>			
100Q/CL/DC/64485	---	---	64485
100Q/CL/DC/ESR	Q100CL/DC	100Q/CL/DC ESR	---
100Q/CL/MC/ESN	Q100CL/MC	100Q/CL ESN	---
100Q/DC/ETD	Q100DC	---	---
150Q/CL/DC/1/ESP	Q150CL/DC/2V	---	---
150Q/CL/DC/ETC	Q150CL/DC	150Q/CL/DC ETC	---
150Q/CL/MC/2/ETG	Q150CL/MC	150Q/CL	---
150Q/CL/MC/ESL	Q150CL/MC/2V	---	---
150Q/DC/ETF	Q150DC	150Q/DC	---
150Q/MC/ETH	Q150MC	150Q ETH	---
250Q/CL/DC/ESS	Q250CL/DC	250Q/CL/DC ESS	---
250Q/CL/MC/EHT	Q250CL/MC	250Q/CL EHT	---
250Q/DC/ETB	Q250DC	---	---
250Q/MC/ESM	Q250MC	---	---
<b>DOUBLE ENDED</b>			
100T3Q/CL	Q100T3/CL/CD	BC100T3Q/CL/TP	---
150T3Q/S/CL	Q150T4/CL	BC150T3Q/CL/TP	---
150T3Q/CL	Q150T3/117/CL/CD	---	---
300T3Q/CL	Q300T3/CL	300T3Q/P/CL	---
500T3Q/CL	Q500T3/CL	500T3Q/P/CL	---
<b>BIPIN</b>			
5T3Q/CL	Q5T3/CL	5W/12V/CAPSULE	64405S
10T3Q/CL	Q10T3/CL	---	64415
20T3Q/CL	Q20T3/CL/CD	---	64425
50T4Q/CL	Q50T3/CL	50W/12V/CAPSULE	64440
75T4Q/CL/RP	Q75T4/CL/CD	---	---
10T3Q/CL/AX	---	10W/12V/CAPSULE	64415S
20T3Q/CL/AX	---	20W/12V/CAPSULE	64425S
35T4Q/CL/AX	Q35T3/CL	35W/12V/CAPSULE	64432S
50T4Q/CL/AX	---	---	64440S
75T4Q/CL/AX	---	---	64450S
90T4Q/CL/AX	---	---	64458S
<b>AR 70 &amp; AR111</b>			
20AR70/SP8	---	15ALR18/NSP6-GBA	41970 SP USA
20AR70/FL25	---	---	41970 FL USA
50AR70/SP8	---	50ALR18/SP10-GBJ	41990 SP USA
50AR70/FL25	---	50ALR18/NFL22-GBK	41990 FL USA
35AR111/SSP4	---	---	41830 SSP
50AR111/SSP4	---	---	41835 NSP 12V 50W
50AR111/SP8	---	---	41835 SP 12V 50W
50AR111/FL25	---	---	41835 FL 12V 50W
75AR111/SP8	---	---	41840 SP 12V 75W
75AR111/FL25	---	---	41840 FL 12V 75W
75AR111/WFL45	---	---	41840 WFL 12V 75W
100AR111/SP8	---	---	41850 SP 12V 100W
100AR111/FL25	---	---	41850 FL 12V 100W
100AR111/WFL45	---	---	41850 WFL 12V 100W

## MINIATURE &amp; AUTOMOTIVE LAMPS

Ordering Abbreviation	Product Number	Bulb	Base	Avg Rated Life (hrs)	Approx Lumens	Amps	Design Voltage (V)	Pkg Qty	MOL (in)	Footnotes
1076	36183	S8	DC Bayonet	200	402.12	1.8	13	1000	2	
1130	36237	S8	DC Bayonet	200	263.89	2.63	6	1000	2	
1141	36377	S8	SC Bayonet	1000	263.89	1.44	13	1000	2	
1156	36521	S8	SC Bayonet	1200	402	2.1	13	1000	2	
1156	36521	S8	SC Bayonet	1200	402	2.1	13	1000	2	
1157	36561	S8	DC Index	1200 5000	402.00 38.00	2.1 0.6	13 14	1000	2	
120MB	34503	T2.5	Mini Bayonet	10000	4.52	0.025	120	1000	1.19	
120MB	34503	T2.5	Mini Bayonet	10000	4.52	0.025	120	1000	1.19	
120MB 6W	34513	T2.5	Mini Bayonet	3000	18	0.052	120	1000	1.19	
120PC	34519	T2	Bipin	7500		0.025	120	1000	1.125	1
120PSB	34557	T2	Slide Base # 5	10000		0.025	120	1000	1.11	
120PSB	34557	T2	Slide Base # 5	10000		0.025	120	1000	1.11	
12PSB	32983	T2	Slide Base # 5	12000		0.17	12	1000	1.11	
161	34691	T3.25	W2.1x9.2D	4000	12.57	0.19	14	1000	1.054	
168	34711	T3.25	W2.1x9.2D	1500	37.7	0.35	14	1000	1.054	
17	33061	T1.75	W2.1x4.9D	5000	8.17	0.065	28	1000	0.8	
1815	37329	T3.25	Mini Bayonet	3000	17.59	0.2	14	1000	1.19	
1816	37333	T3.25	Mini Bayonet	1000	37.7	0.33	13	1000	1.19	
1819	37351	T3.25	Mini Bayonet	2500	4.27	0.04	28	1000	1.19	
1820	37355	T3.25	Mini Bayonet	1000	20.11	0.1	28	1000	1.19	
1822	37367	T3.25	Mini Bayonet	1000	26.39	0.1	36	1000	1.19	
1829	37377	T3.25	Mini Bayonet	1000	12.57	0.07	28	1000	1.19	
1835	37387	T3.25	Mini Bayonet	5000	13.82	0.05	55	1000	1.19	
1847	37391	T3.25	Mini Bayonet	5000	4.78	0.15	6	1000	1.19	
1864	37413	T3.25	Mini Bayonet	1500	37.7	0.17	28	1000	1.19	
1893	37505	T3.25	Mini Bayonet	2500	25.13	0.33	14	1000	1.19	
1895	37531	G4.5	Mini Bayonet	2000	25.13	0.27	14	1000	1.06	
194	34761	T3.25	W2.1x9.2D	2500	25.13	0.27	14	1000	1.054	
1992 ERD	30215	T3.25	Wedge	150	804	2.5	14	24	1	
214-2 BU	34942	T3	End Caps	1000	50.27	0.52	14	1000	1.72	
2187	37747	T1.75	5/8" Wire Term	7000	3.7	0.04	28	1000	0.52	
222	34967	TL3	Mini Screw	5		0.22	2	1000	0.94	
2342 24:30V30MA	39307	T5	W2x4.6D	1000		0.3	24	200	0.78	
24E	33181	T2	Slide Base # 3	7000		0.035	24	1000	1.69	
24ESB	33189	T2	Slide Base # 5	8000		0.04	24	1000	1.11	
24MB	33213	T2.5	Mini Bayonet	10000	6.28	0.07	24	1000	1.19	
24PSB	33229	T2	Slide Base # 5	10000		0.072	24	1000	1.11	
24X	33257	T2	Slide Base # 3	8000		0.035	24	1000	1.69	
259	35027	T3.25	W2.1x9.2D	5000	8.17	0.25	6	1000	1.054	
28ESB	33285	T2	Slide Base # 5	6000		0.04	28	1000	1.11	
28MB	33311	T2.5	Mini Bayonet	5000	3.64	0.04	28	1000	1.19	
28PSB	33327	T2	Slide Base # 5	5000		0.04	28	1000	1.11	
30099 PLH	32169	T2	Socket					100	0.91	2,3,4
30110 PILOT TPLR	32161	T2	Dome Trans					1000	0.38	5
30112 PILOT TPLG	32159	T2	Dome Trans					1000	0.38	5
30120 PILOT FLR	32119	T2	Dome Fluted					1000	0.38	5
31099 PLH BAY	32173	T2.5 & T3.25	Socket					100	1.68	2,4,6
313	35133	T3.25	Mini Bayonet	500	43.92	0.17	28	1000	1.06	
3157WL	59894	S8	Wedge	1200 5000	402.12 37.69	2.1 0.59	13 14	1000	1.7	
327	35155	T1.75	SC Midg Flanged	4000	4.27	0.04	28	1000	0.63	
328	35169	T1.75	SC Midg Flanged	1000	4.27	0.2	6	1000	0.63	

## MINIATURE & AUTOMOTIVE LAMPS

Ordering Abbreviation	Product Number	Bulb	Base	Avg Rated Life (hrs)	Approx Lumens	Amps	Design Voltage (V)	Pkg Qty	MOL (in)	Footnotes
<b>330</b>	35183	T1.75	SC Midg Flanged	1500	6.28	0.08	14	1000	0.63	
<b>334</b>	35205	T1.75	Midget Groove	4000	4.27	0.04	28	1000	0.63	
<b>3797 24V2W</b>	39375	T2.75	BA9S	200	16.96	0.083	24	200	0.932	
<b>382</b>	35311	T1.75	SC Midg Flanged	15000	3.76	0.08	14	1000	0.63	
<b>385</b>	35321	T1.75	SC Midg Flanged	10000	1.88	0.04	28	1000	0.36	
<b>387</b>	35327	T1.75	SC Midg Flanged	7000	3.76	0.04	28	1000	0.63	
<b>388</b>	35349	T1.75	Midget Groove	7000	3.76	0.04	28	1000	0.63	
<b>44</b>	33459	T3.25	Mini Bayonet	3000	11.28	0.25	6	1000	0.94	
<b>4414 PAR 36</b>	30965	PAR36	2 Screw Terminal	300		1.41	13	12	2 3/4	
<b>464</b>	35413	T3.25	W2.1x9.2D	1500	37.7	0.17	28	1000	1.054	
<b>47</b>	33479	T3.25	Mini Bayonet	3000	6.28	0.15	6	1000	0.94	
<b>48C</b>	33507	T2	Slide Base # 3	7000		0.035	48	1000	1.69	
<b>48PSB</b>	33599	T2	Slide Base # 5	10000		0.05	48	1000	1.69	
<b>502</b>	35417	G4.5	Mini Screw	100	7.53	0.15	5	1000	1.06	
<b>516/2PK/RP 12V</b>	35920	T5	W2.1x9.2D	300	43.98	0.312	13	12	1.49	
<b>52A TB OBS</b>	33711	T2	Slide Base # 6	8000		0.03	24	1000	0.92	
<b>53</b>	33719	G3.5	Mini Bayonet	1000	12.57	0.12	14	1000	0.6	
<b>55</b>	33785	G4.5	Mini Bayonet	500	25.13	0.41	7	1000	0.84	
<b>56</b>	33831	T1.75	W2.1x4.9D	20000	1.88	0.115	5	1000	0.8	
<b>57</b>	33871	G4.5	Mini Bayonet	500	25.13	0.24	14	1000	0.84	
<b>60MB</b>	33927	T2.5	Mini Bayonet	7500	9.17	0.05	60	1000	1.19	
<b>60PSB</b>	33945	T2	Slide Base # 5	7500		0.05	60	1000	1.11	
<b>6411 12V10W</b>	39407	T3.25	SV8.5-8	200	100.53	0.83	12	200	1.61	
<b>64111 12V5W</b>	39431	T2.75	Mini Bayonet	240	80.42		12	200	1.29	7
<b>6413 12V5W</b>	39405	T3.25	SV8.5-8	200	100.53	0.4	12	200	1.61	
<b>64150 H1 12V55W</b>	31393	T2.5	P14.5S	225	1621.06		12	100	2.43	
<b>64151 H3 12V55W</b>	31397	T3.25	PK22S	225	1520.53		12	100	1.65	8,9
<b>64156 H3 24V70W</b>	31415	T3.25	PK22S	225	1834.69		24	100	1.65	8,9
<b>6421 24V3W</b>	39376	T3.25	SV8.5-8	1000	17.59	0.125	24	200	1.61	
<b>6424 24V5W</b>	39411	T3.25	SV8.5-8	200	61.95	0.2	24	200	1.61	
<b>6429 24V10W</b>	39397	T3.25	SV8.5-8	200	105.55	0.42	24	200	1.61	
<b>656</b>	35561	T3.25	W2.1x9.2D	2500	7.79	0.06	28	1000	1.054	
<b>657</b>	35565	T3.25	W2.1x9.2D	15000	7.79	0.08	28	1000	1.054	
<b>657</b>	35565	T3.25	W2.1x9.2D	15000	7.79	0.08	28	1000	1.054	
<b>67</b>	34021	G6	SC Bayonet	5000	50.27	0.69	14	1000	1.44	
<b>68</b>	34067	G6	DC Bayonet	5000	50.27	0.59	14	1000	1.44	
<b>6PSB</b>	32803	T2	Slide Base # 5	20000		0.14	6	1000	1.11	
<b>73</b>	34091	T1.75	W2.1x4.9D	15000	3.77	0.08	14	1000	0.8	
<b>7327 BIPIN T1 3/4</b>	38289	T1.75	Bipin	4000	4.27	0.04	28	1000	0.63	10
<b>7371</b>	38379	T1.75	Bipin	20000	1.25	0.04	12	1000	0.63	
<b>7382</b>	38417	T1.75	Bipin	15000	3.76	0.08	14	1000	0.63	
<b>7511 P21W 24V21W</b>	39361	S8	BAY15S	150	464.95	0.88	24	200	2.095	
<b>755</b>	35763	T3.25	Mini Bayonet	20000	4.15	0.15	6	1000	0.94	
<b>755</b>	35763	T3.25	Mini Bayonet	20000	4.15	0.15	6	1000	0.94	
<b>756</b>	35771	T3.25	Mini Bayonet	15000	3.9	0.08	14	1000	1.06	
<b>757</b>	35781	T3.25	Mini Bayonet	7500	7.79	0.08	28	1000	1.06	
<b>85</b>	34179	T1.75	W2.1x4.9D	7000	3.77	0.04	28	1000	0.8	
<b>86</b>	34201	T1.75	W2.1x4.9D	20000	5.03	0.2	6	1000	0.8	
<b>88</b>	34219	S8	DC Bayonet	300	188.5	1.91	7	1000	2	
<b>89</b>	34233	G6	SC Bayonet	750	75.4	0.58	13	1000	1.44	
<b>90</b>	34271	G6	DC Bayonet	750	75.4	0.58	13	1000	1.44	
<b>90MB</b>	34299	T2.5	Mini Bayonet	5000	4.67	0.03	90	1000	1.19	

## MINIATURE & AUTOMOTIVE LAMPS

Ordering Abbreviation	Product Number	Bulb	Base	Avg Rated Life (hrs)	Approx Lumens	Amps	Design Voltage (V)	Pkg Qty	MOL (in)	Footnotes
912	35869	T5	W2.1x9.2D	1000	150.8	1	13	500	1.49	
918	35923	T5	W2.1x9.2D	500	81.62	0.54	13	500	1.49	
918/2PK/RP 13V	35921	T5	W2.1x9.2D	500	81.68	0.54	13	12	1.49	
93	34311	S8	SC Bayonet	700	188.5	1.04	13	1000	2	
93BL2PK 13V	16810	S8	SC Bayonet	700	188.49	1.04	13	24	1.8	
94	34337	S8	DC Bayonet	700	187.87	1.04	13	1000	2	
NE51 B1A	32427	T3.25	Mini Bayonet	25000		0.3	105	1000		11
NE51H B2A	32429	T3.25	Mini Bayonet	25000		1.2	105	1000		11
PR12	38931	B3.5	SC Mini Flanged	15	37.69	0.5	6	1000	1 1/4	
PR13	38939	B3.5	SC Mini Flanged	15	25.13	0.5	5	1000	1 1/4	
PR2	38891	B3.5	SC Mini Flanged	15	10.05	0.5	2	1000	1 1/4	
PR3	38901	B3.5	SC Mini Flanged	15	18.84	0.5	4	1000	1 1/4	
PR4	38911	B3.5	SC Mini Flanged	10	5.02	0.27	2	1000	1 1/4	
PR6	38917	B3.5	SC Mini Flanged	30	5.65	0.3	2	1000	1 1/4	
SM2A PCS 30096	32249	T2	Solder Lugs					500	1.2	2,12,13

## FOOTNOTES FOR MINIATURE LAMPS

Footnote	Description
1	MOL = Excluding pins.
2	Socket dimensions front to panel to end of terminals.
3	UL File No. E31557(M) CSA File No.LR20904
4	Universal lamp housings for T2.5 and T3.25 miniature bayonet based lamps.
5	Universal lamp housings for T2 slide based pilot lamps.
6	UL File No. E31557(M) CSA File No.LR20904
7	Caution: Operates under pressure and may shutter. Use appropriate techniques to protect people and surroundings. Do not operate in close proximity to persons, combustible materials, or substances affected by heat or drying. Do not operate over 110% rated voltage because such operation increases pressure and lamps' tendency to shatter. Ultraviolet output may cause skin and eye irritation with prolonged exposure. Protect bulb from abrasions and scratches. Do not insert lamps when power is on. Follow operating instructions.
8	ECE Approved
9	Lamp Life B3 @ 13.2 volts.
10	There are two distinctively different lamps with this part number. When ordering T-1 3/4 , #7327, please also specify category and base type. S-11. #7327 discontinued.
11	Material : Black Phenolic
12	MIL-Std. 18236 B-MIL Std. 202B
13	Material : Plastic

# OSRAM SYLVANIA: THE LEADER IN ENERGY-SAVING HID LAMPS

## UNDERSTANDING HIGH INTENSITY DISCHARGE LIGHTING

A brief description of the catalog format and related terminology will assist the reader in understanding the information presented in this section.

All product families are listed in ascending wattage, followed by alphabetical bulb designation to simplify lamp identification. Performance ratings are based on tests conducted under controlled conditions on AC circuits with auxiliary equipment meeting current published ANSI specifications.

Lamp performance under typical service conditions may vary from rated values. Ratings and specifications are subject to change without notice.

For more information on HID SYSTEM SOLUTIONS, refer to page 101.

### ANSI CODE

This is a unique code that describes the class and the electrical characteristics of the lamp and ballast as well as the fixture requirements. The code is developed and assigned by the American National Standards Institute (ANSI). It is intended to aid in matching the lamp to both the correct ballast and to a luminaire with the required features. The ANSI CODE consists of type of lamp (S = HPS, H = Mercury, M = Metal Halide, L = LPS, C = Ceramic Metal Halide), followed by the ballast number, and for metal halide and Ceramic metal halide lamps followed by the fixture requirement (O, E, S, F).

The emergence of electronic ballasts to operate metal halide lamps has produced additional need to separate the lamp designation of quartz and ceramic metal halide lamps, as there can be some important differences in system performance. Therefore the C lamp designation from NEMA has been introduced going forward for future differentiation of ceramic metal halide lamps and they will begin to be labeled accordingly.

### ARC LENGTH

Arc length is the dimension of the arc discharge measured from one electrode tip to the other. This is useful for optical design of reflectors and affects fixture efficiency.

### AVERAGE LIFE (HOURS)

The average life of a lamp is based on vertical operation (unless otherwise noted) of representative lamps operated under controlled conditions of at least 10 hours per start (except for M1500 and Briteline lamps, which are based on 5 hours per start). Average life is defined as the total operation hours at which 50% (Median) of any group of lamps is still operating (except for most High Pressures Sodium and Mercury lamps, for which 65% of the lamps are operating at the end of life denoted by a "+" next to the life rating). Variations in operating conditions such as bulb and base temperatures and line voltage can also affect lamp life.

Regular operation of lamps with off times less than the hot restrike time will shorten lamp life. For hot restrike values of specific lamp types, please refer to the SYLVANIA Metal Halide Lamp Specification Guide.

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

### BASE

Most SYLVANIA HID lamp bases for general lighting are made of corrosion-resistant brass with special lubricant to provide easy removal at end of lamp life. See the following pages for all base illustrations.

**E26 Medium** - Medium (MED) bases are used on lamps in E17 bulbs and are limited to 175W maximum.

**E26 Medium Skirted** - Medium skirted (Med. Skt.) bases consist of a medium brass base with a skirt, which is mechanically connected to a PAR38 bulb.

**E39 Mogul** - All (MOG) bases are embossed with letters and numbers representing months and years. The date of installation can be recorded by marking the letter of the current month and the number that coincides with the last digit of the current year.

**EX39 Exclusionary Mogul Base** - Exclusionary Mogul bases (EXCL MOG) are bases used on metal halide lamps having shrouded arc tubes, permitting them to be used in open fixture applications. These bases are compatible with exclusionary or standard mogul sockets.

**E39 POM** - Position Oriented Mogul (POM) bases are used on lamps designed to operate only in the horizontal position and require a special POM socket. A pin located on the base engages in a slot within the POM socket ensuring proper operating position of the lamp within the fixture.

**Rx7s / R7s Recessed Single Contact** - SYLVANIA double-ended HID lamps with recessed single contact (RSC) bases have silver plated contacts to provide maximum electrical contact.

### BULB

Each bulb description consists of a letter to indicate bulb shape, followed by numbers that indicate maximum bulb diameter in 1/8 inch increments. For example, a BT37 bulb is a blown shape with a tubular top, 37/8 of an inch or 4 5/8 inches in diameter. Illustrations of bulb shapes are shown on the following pages.

Although SYLVANIA HID bulbs are made of glass designed to resist thermal shock in normal applications, they must be shielded from direct contact with liquids, such as rain, during operation to avoid bulb breakage.

### COLOR RENDERING INDEX (CRI)

Color Rendering Index (CRI) is an international scale (numbering system) up to 100 indicating the relative color rendering quality of a light source when compared to a standard reference light source of the same chromaticity (color temperature). The CRI expresses the degree to which colors will appear "familiar" or "natural" under the light source selected. In general, the higher the CRI number, the better the color rendering properties of the light source being measured. The color rendering index of any two like sources should only be compared if those sources have the same correlated color temperature (CCT).

### CORRELATED COLOR TEMPERATURE (CCT)

The correlated color temperature of a light source, expressed in Kelvin (K), is a means of describing the appearance or chromaticity of the source. The correlated color temperature of the light source contributes to the visual appearance of the lighted space. "Warm" light sources have a low color temperature (2000-3000K) and feature more light in the red/orange/yellow range. Light with a higher color temperature (>4000K) features more blue and is referred to as "cool."

With new installations, or group relamps, all color performance evaluations should be made after at least 100 hours of operation (at recommended operating cycles) to allow the lamps to stabilize. Additional changes in chemistry within the arc tube over the life of the lamp may also cause the color temperature to shift as the lamp gets closer to the end of its rated life. To minimize color variation within an installation, it is recommended that HID lamps be group relamped and run on equal operating cycles.

### DIMMING HID

Most SYLVANIA HID products can be dimmed on stepped, bi-level dimming systems provided specific guidelines are followed. Generally, most Metalarc® metal halide lamps can be dimmed down to 50% of rated wattage depending on the lamp type and operating position. Lumalux® high pressure sodium lamps can also be dimmed down to 50% of rated wattage. In addition to lower light output, HID lamps may shift in overall color and exhibit a lower color rendering index (CRI) when operated in a dimmed mode. Some restrictions apply to both the operation of the ballast and lamp. For more information on dimming, please reference NEMA guidelines or contact a SYLVANIA representative.

### FIXTURE REQUIREMENT

Developed by the American National Standard Institute (ANSI), the fixture requirement code describes the type of fixture required for each lamp type. See lamp warnings for additional information and proper operating instructions.

**E** = Lamps classified as E-type are to be used only in suitably rated enclosed luminaires.

**O** = Lamps classified as O-type, comply with ANSI Standard C78.389 for containment testing and may be used in open luminaires.

**S** = When operated within 15 degrees of vertical, this lamp may be operated in an open luminaire provided the installation is not near people or flammable or combustible material, otherwise it must be operated in a suitably enclosed luminaire.

**F** = F-rated lamps require an enclosed fixture with a U.V filter and lens interlock.

The 2005 NEC requires that luminaires which use a metal halide lamp shall be provided with either a containment barrier that encloses the lamp (historically referred to as an enclosed luminaire) or shall be provided with a means, typically a special lampholder, that will only accept an ANSI Type-O metal halide lamp. (Exception: This requirement will not apply to open luminaires with thick-glass parabolic reflector PAR lamps.)



## UNDERSTANDING HIGH INTENSITY DISCHARGE LIGHTING (continued)

### FIXTURE REQUIREMENT (continued)

The 2005 NEC also requires that metal halide luminaires for new construction/major renovations in the playing and spectator areas of indoor sports, mixed use, and all purpose facilities, which are subject to physical damage, must be of a type that protects the lamp with a glass or plastic lens. Open luminaires will not be permitted. The use of self-extinguishing lamps is still recommended and permitted for all existing installations.

For more information regarding the use of Type-O, S, and E metal halide systems, please refer to the NEMA white paper on this subject that is freely available at [nema.org](http://nema.org).

### HOT RESTRIKE

In most instances, if an HID lamp experiences a momentary power interruption or sudden voltage drop, the lamp may extinguish. A lamp that is still hot will not restart immediately. Because the arc tube within the lamp must cool down before it can re-start, HID lamps have hot restrike times ranging from 1-15 minutes depending on the product type.

### KEY TO DATE OF MANUFACTURE

Consult your SYLVANIA Sales Representative or call 1-800-LIGHTBULB.

### LAMP WARNINGS

HID Metal Halide and Mercury lamps are marked with a "T" or "R" on their packaging. These letters provide safety information about the lamp. Below is the text used by the FDA to describe each of the letters.

**T: WARNING:** This lamp should self-extinguish within 15 minutes after the outer envelope is broken or punctured. If such damage occurs, TURN OFF AND REMOVE LAMP to avoid possible injury from hazardous shortwave ultraviolet radiation.

**R: WARNING:** This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for 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.

### LIGHT CENTER LENGTH (LCL)

The light center length of HID lamps is a measurement from the center of the arc tube to the bottom of the lamp base.

### LUMENS

Initial lumen ratings are based on photometry under controlled conditions of at least 10 hours per start in the prescribed position at rated lamp wattage after 100 operating hours. HQI®, LUMALUX® Super and SOX lamp ratings are based on measurements at constant input voltage. Lamp performance under typical service conditions may vary from rated values. Operating universal METALARC® lamps in off-vertical positions will result in reduced lumen output.

Mean lumens are measured on ANSI reference circuits at rated wattage (HQI, LUMALUX Super and SOX lamp ratings are based on input voltage) at 40% of average rated life except for those lamps with a "+" next to their life rating; these lamps are measured at 50% of average rated life. All measurements are based on ballast operation on systems with current crest factors of 1.8 or less. Higher current crest factors reduce values. In actual applications on CW or CWA ballasts, mean lumens may be higher than published ratings.

Unless otherwise noted, all photometry measurements are made on an ANSI reference ballast at rated lamp wattage.

### MAXIMUM OVERALL LENGTH (MOL)

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 (excluding any leadwires).

### ORDERING ABBREVIATION

Ordering abbreviation provides a shorthand description of the lamp, using a unique code which can be used when ordering a lamp if you do not know the product number. This information can be found on the lamp etc.

### PACKAGE QUANTITY

This identifies the number of lamps contained in a standard shipping carton.

### PRODUCT NUMBER

Product number is a five digit number used to identify a specific SYLVANIA lamp and should be used when ordering.

### WARM UP TIME

Most HID lamps do not have instant on capabilities. It may take several minutes for the arc tube to stabilize before optimal light output is achieved.

### WATTS

Watts shown are nominal lamp watts only.

## HOW TO READ PRODUCT INFORMATION - HID

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Ballast Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	(mean)	CRI	CCT (K)	Symbols & Footnotes
100	E17	E26 Med	67506	LU100/MED	S54	20	Clear	Universal	0	24000+	9500	8000	22	2100	5,34
320	BT37	E39 Excl Mogul	64851	MCP320/C/PS/BU-ONLY/840/BT37 PB	M154/O	6	Coated	Base up within 15" only	0	20000	36000	27000	88	3900	1,10,11,13
360	BT37	E39 Mogul	64655	MS360/SS/BU-HOR	M59/S	6	Clear	BU-HOR	S	20000V 15000H	36000V 30000H	23500V 19000H	65	4000	* 20,23,24
1000	BT37	E39 Mogul	64351	M1000/PS/U/BT37	M141/E	6	Clear	Universal	E	15000V 9000H	110000V 107800H	96000V 86300H	65	3800	2,10

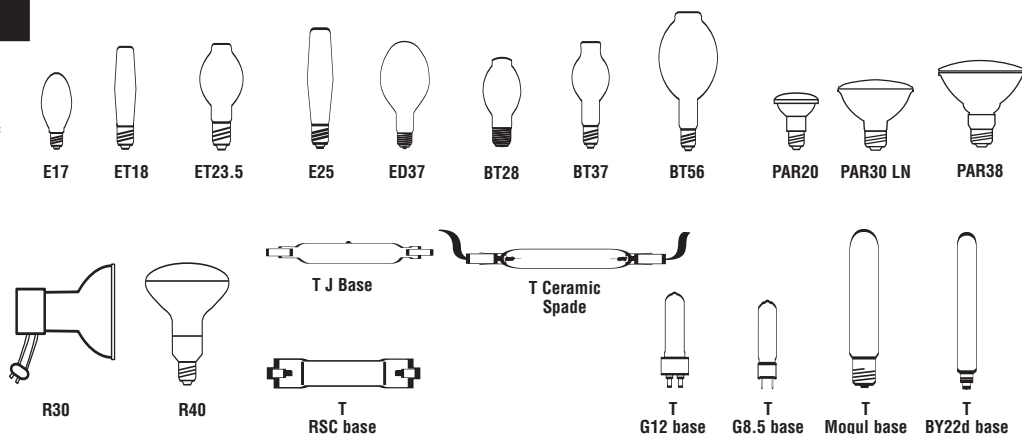
Please refer to the "Understanding High Intensity Discharge" section on previous pages for definitions and explanations of the category headers.

## HOW TO READ ORDERING ABBREVIATIONS

MS360/SS/BU-HOR		MCP320/C/PS/BU-ONLY/840/BT37 PB		LU100/D/MED		H39KC-175/DX	
<b>MS</b>	Super METALARC	<b>MCP</b>	Metalarc Ceramic Pro-Tech	<b>LU</b>	Lumalux®	<b>H39</b>	ANSI Ballast Number
<b>360</b>	Wattage	<b>320</b>	Wattage	<b>100</b>	Wattage	<b>175</b>	Wattage
<b>SS</b>	SUPERSAVER	<b>C</b>	Coated	<b>D</b>	Coated	<b>DX</b>	Brite White
<b>BU-HOR</b>	Operating Position: Base up through Horizontal	<b>PS</b>	Pulse Start	<b>MED</b>	Medium Base		Deluxe Coated
		<b>BU-ONLY</b>	Operating Position: Base up only				
		<b>840</b>	80+ CRI; 4000 CCT				
		<b>BT37</b>	Bulb Type				
		<b>PB</b>	Powerball				

## BULBS

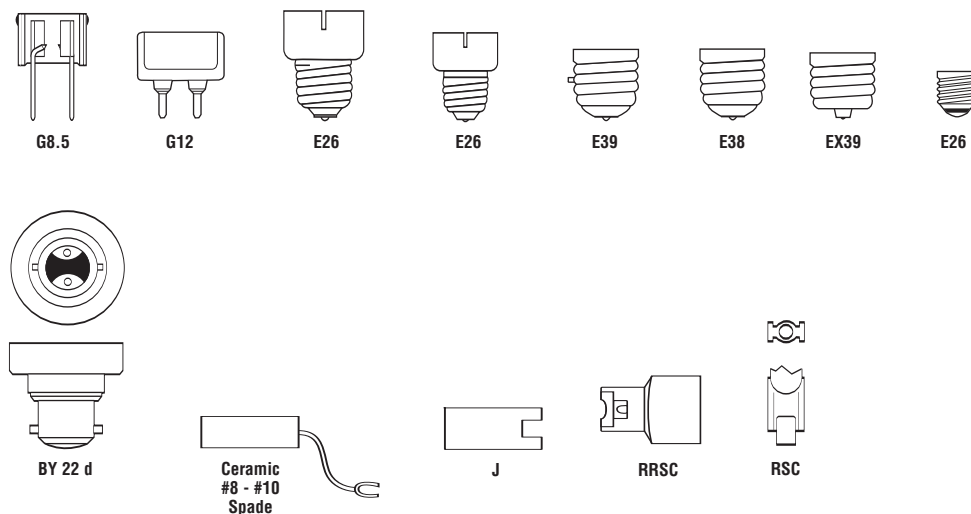
A bulb designation consists of a letter(s) to indicate the shape and a number(s) to indicate the approximate maximum diameter in eighths of an inch. Thus, an E17 lamp is an Ellipsoidal shape and 17/8 of an inch or 2 1/8 inches in diameter. Other letter designations include: BT=Bulbous Tubular; E or ED=Ellipsoidal; ET=Ellipsoidal Tubular; PAR=Parabolic; R=Reflector; T=Tubular.



## BASES

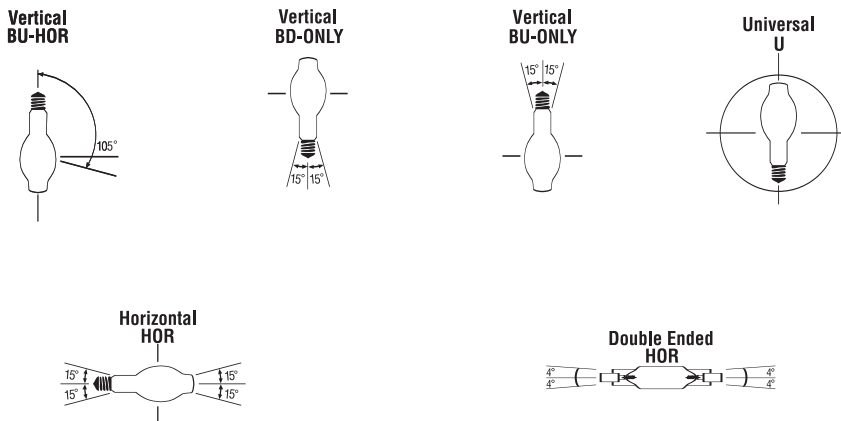
Lamps with screw bases have one lead-in wire soldered or welded to the center contact and the other soldered or welded to the upper rim of the base shell.

Bases with ceramic bodies have internal leads welded to either silver-plated contacts or external lead wires.



## OPERATING POSITIONS

A designated operating positions assure maximum lamp performance. Where it is not specified, the lamp is suitable for operation in any position.



## HID BRAND NAME GUIDE

Note: These tables are intended only as guides and may represent another lamp company's most similar product or product family rather than an identical match. Individual manufacturer's performance values should be consulted.

SYLVANIA	GE *	PHILIPS **
METALARC®	Multi-Vapor	Metal Halide
METALARC Powerball®	ConstantColor CMH	MasterColor
METALARC PRO-TECH®	Protected Multi-Vapor	Protected Metal Halide
Super METALARC	High Output Multi-Vapor	Metal Halide
METALARC Pulse Start	PulseArc Multi-Vapor	Pulse Start Metal Halide
METALARC Super Saver	Watt-Miser High Output Multi-Vapor	Metal Halide
METALARC Briteline	SportsLighting	Double-Ended Metal Halide
HQI®	Arcstream	Double-Ended Metal Halide
METALARC SAFELINE®	Saf-T-Gard Multi-Vapor	Safety Lifeguard Metal Halide

\*Trademark or registered trademark of General Electric Company.

SYLVANIA	GE *	PHILIPS **
LUMALUX®	Lucalox	Ceramalux
LUMALUX / ECO®	Ecolux	Ceramalux ALTO
LUMALUX PLUS®/ ECO	Ecolux NC	Ceramalux ALTO NC
LUMALUX Standby	Standby Longlife Lucalox	Ceramalux Instant Restrike
UNALUX®	E-Z Lux	Ceramalux RetroLux
SOX Low Pressure Sodium	SOX Low Pressure Sodium	SOX Low Pressure Sodium

\*\*Trademark or registered trademark of Philips.

## PHYSICAL DIMENSIONS

### BRITELINE PHYSICAL SIZE (dimensions in mm)

Bulb	LCL	MOL
T7	127	256
T8	127	254
T9	127	254

### HQI PHYSICAL SIZE (dimensions in mm)

Bulb	LCL	MOL
T6	57	114
T7	66	132
T7.5	56	84
R30	--	3.5

### MERCURY VAPOR (dimensions in inches)

Bulb	LCL	MOL
E17	3.75	5.44
ET23.5	5	7.5
ED28	5	8.31
ED37	7	11.5
BT56	9.5	15.38
PAR38	--	5.44
R40 (100W)	--	5.44
R40 (175W)	--	7.5

### METALARC METAL HALIDE (dimensions in inches)

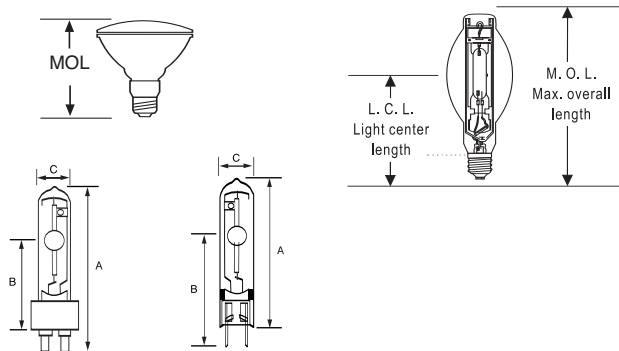
Physical size of all Metalarc lamps

Bulb	LCL	MOL
T4.5/TC	2	3.19
E17/ED17	3.4	5.44
ET18 (250W)	5.75	9.75
ET18 (400W)	6.14	9.75
ET23.5	4.49	6.97
BT28/ED28	5	8.31
BT37	7	11.5
BT56	9.5	15.38
T6	2.2	3.94
T6 (DE)	2.25	4.5
T7.5	2.2	4.13
PAR20	--	3.65
PAR30LN	--	4.76
PAR38	--	5.32

### LUMALUX HIGH PRESSURE SODIUM (dimensions in inches)

Physical size of all LUMALUX and UNALUX lamps

Bulb	LCL	MOL
T7	5	10.06
T14.5	6.89	11.22
E17	3.43	5.43
ET18	5.75	9.75
ET23.5	5	7.75
E25	8.75	15.08
BT28	5	8.98
BT28 (UNALUX)	5	8.31
BT37	7	11.5





The following items were accepted into the 2006 IESNA Progress Report, which recognizes innovative products introduced to the industry during that year.

- 20-watt PAR30 METALARC POWERBALL
- 39-watt PAR20 METALARC POWERBALL
- 39-watt PAR30 METALARC POWERBALL
- 750-watt METALARC Metal Halide

### LAMP DISPOSAL LABELING

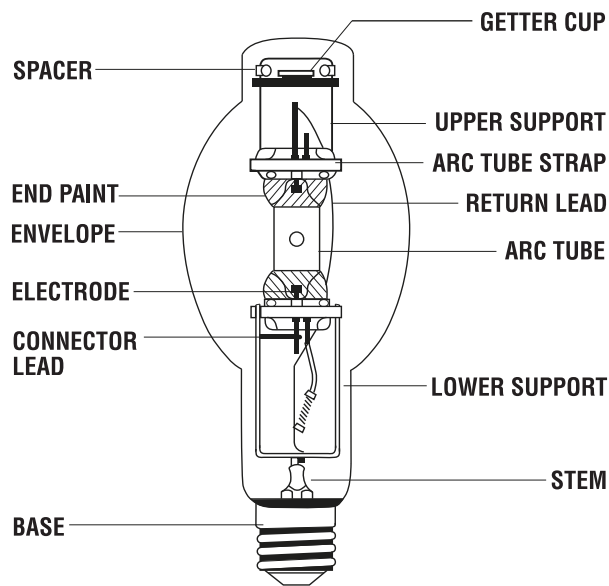
The following information appears on the packages of high intensity discharge lamps that contain mercury. For more information on lamp disposal labeling, see the inside back cover of this catalog.



For weight and measure information, please visit [www.sylvania.com](http://www.sylvania.com)

For more information about HID lamp warranties, please visit the warranty section of this catalog.

## GUIDE TO METAL HALIDE LAMPS



METALARC® Metal Halide lamps are designed for general lighting applications such as commercial, industrial lighting and outdoor floodlighting where good color and high efficiency are desired. OSRAM SYLVANIA currently offers ten families of Metal Halide lamps:

**STANDARD METALARC(M)** — Offered in a range of wattages (from 175-1500 watts), standard METALARC metal halide lamps allow for design flexibility with multiple light source solutions to choose from. METALARC lamps have significantly higher efficacy than mercury vapor or incandescent products and considerably better CRI than mercury vapor and high pressure sodium lamps.

**COMPACT METALARC(M/BT##)** — These lamps have reduced outer jacket sizes compared to standard metal halide lamps for use in smaller fixtures. The reduced bulb diameter allows fixture manufacturers to design more versatile, less expensive and highly efficient luminaries.

**SUPER METALARC(MS)** — Super METALARC lamps are position dedicated, which means that they are specifically designed to be run in particular operating positions. Because of this feature, these lamps exhibit improved performance over standard, universal operating metal halide lamps of similar wattage. Product features include long life, higher maintained lumens and

increased efficacy.

**METALARC PRO-TECH®(MP)** — These are specially designed lamps that incorporate a protective shroud to contain a non-passive arc tube failure. Metalarc Pro-Tech lamps can be used in open or enclosed fixtures. Dedicated bases are standard on both low and high wattage lamp types.

**METALARC POWERBALL® CERAMIC(MC or MCP)** — POWERBALL lamps use a patented round ceramic arc tube, which allows for a more uniform arc tube temperature, higher color rendering (>85), and improved color consistency. These lamps are ideal for applications that demand the best in color performance.

**METALARC PULSE START(M/PS)** — METALARC Pulse Start lamps utilize metal halide performance with proven ignitor technology for longer life, improved lumen maintenance and reduced color shift over lamp life compared to standard metal halide products. Lamp configurations include low and high wattage types, both clear and coated. METALARC PRO-TECH designs are also available for open fixture applications. All METALARC products lower than 150-watts and all METALARC POWERBALL products utilize Pulse Start technology exclusively.

**METALARC SUPERSAVER®(M/SS)** — Constructed with an enhanced arc tube for peak performance, METALARC SUPERSAVER lamps are designed as energy-saving, replacement metal halide lamps. The 360W SUPERSAVER lamp is a direct retrofit for existing 400W products, the 950W SUPERSAVER replaces 1000W lamps, and the 150W SUPERSAVER replaces 175 W lamps -- no ballast change is required.

**METALARC BRITELINE(M)** — These double-ended lamps are designed for compact fixtures, which provide excellent optical control and high efficiency. These higher wattage lamps are particularly well suited for sports lighting and outdoor floodlighting applications.

**METALARC SAFELINE®(MT)** — METALARC SAFELINE lamps are designed to self-extinguish when the outer bulb is broken reducing exposure to possible ultraviolet radiation. These lamps are recommended for use in sports facilities and other places of public assembly where the lamps may be subject to breakage by external objects.

**HQI®** — With their compact size and very short arc length, HQI metal halide lamps allow luminaire manufacturers to design highly efficient fixtures using proven quartz arc tube technology.

Enclosed fixture rated METALARC®, E-Type Lamp

R



ANSI Luminaire Code **E**  
ENCLOSED FIXTURE

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. RUPTURE RISKS:** This Metal Halide lamp is constructed of a UV-attenuating outer quartz bulb with an internal arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2192°F, 1200°C for a ceramic arc tube and 2012°F, 1100°C for quartz). If you are uncertain, contact your fixture manufacturer.
2. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
3. Only operate lamp in designated operating positions. (See catalog for illustration.)
4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
5. Never expose an operating lamp to moisture (such as rain, sleet or snow).
6. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
7. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.
8. Replace lamp at or before the end of rated life. (See catalog for rated life.)

FOR APPLICATIONS WHERE AN ADDITIONAL MEASURE OF SAFETY IS DESIRED, LAMPS USING AN INTERNAL SHIELD DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE ARE AVAILABLE.

- II. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

**III. ULTRAVIOLET RADIATION EXPOSURE:**

WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for 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. This product conforms to the following federal regulations: U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381

**IV. LAMP INSTALLATION:**

1. Screw lamp firmly but not forcibly into socket to avoid breakage.
2. All horizontal lamps with position oriented mogul (POM) bases (with locating pin) require a POM socket. Do not remove pin from base.
3. All pulse start lamps require a socket rated to withstand a 4000 volt pulse.
4. Never install the lamp into an ordinary household socket.

- V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

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Enclosed fixture rated METALARC® E-Type (Ceramic & Quartz, G12, G8.5 & DE, UV-Stop Outer-jacket) Lamp

R



ANSI Luminaire Code E  
ENCLOSED FIXTURE

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. **RUPTURE RISKS:** This Metal Halide lamp is constructed of an outer glass bulb with an internal ceramic or quartz arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE RISKS:**

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2192°F, 1200°C for a ceramic arc-tube and 2012°F, 1100°C for quartz). If you are uncertain, contact your fixture manufacturer.
  2. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
  3. Only operate lamp in designated operating positions. (See catalog for illustration.)
  4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
  5. Never expose operating lamp to moisture (such as rain, sleet or snow).
  6. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
  7. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.
  8. Replace lamp at or before the end of rated life. (See catalog for rated life.)
- II. **ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.
- III. **ULTRAVIOLET RADIATION EXPOSURE:**  
WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for 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. This product conforms to the following federal regulations: U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381
- IV. **LAMP INSTALLATION:**
1. Ensure that lamp is securely seated in the socket.
  2. All sockets must be rated to withstand the maximum pulse voltage output of the ballast.
  3. Never install the lamp into an ordinary household socket or a fixture intended for tungsten halogen lamps.
- V. **BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

## Open Fixture Rated, METALARC PRO-TECH®, O-Type Lamp

# R



ANSI Luminaire Code **O**  
**OPEN FIXTURE** permissible

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. RUPTURE RISKS:** This Metal Halide lamp is constructed of an outer glass bulb with an internal arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate with compatible ballast and fixture. (See catalog for specific information.)
2. Only operate lamp in designated operating positions. (See catalog for illustration.)
3. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
4. Never expose operating lamp to moisture (such as rain, sleet or snow).
5. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
6. Electrically insulate any metal support in contact with the outer glass bulb to avoid glass decomposition.
7. Replace lamp at or before the end of rated life. (See catalog for rated life.)

This lamp is intended for use in open fixtures since it contains a special shield which was designed to contain a ruptured arc-tube and thereby minimize the resultant risks of personal injury, property damage, burns and fire. In applications where an additional measure of safety is desired, an enclosed fixture may be used with a lens/diffuser material able to contain hot lamp fragments (up to 2192°F, 1200°C for a ceramic arc tube and 2012°F, 1100°C for quartz). If you are uncertain, contact your fixture manufacturer.

- II. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

**III. ULTRAVIOLET RADIATION EXPOSURE:**

WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for 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. This product conforms to the following federal regulations: U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381

**IV. LAMP INSTALLATION:**

1. Screw lamp firmly but not forcibly into socket to avoid breakage.
2. All pulse start lamps require a socket rated to withstand a 4000 volt pulse.
3. Never install the lamp into an ordinary household socket.

- V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

## METALARC®, S-Type Lamp

# R



ANSI Luminaire Code **S**  
**ENCLOSED FIXTURE/Open if meets**  
requirement of Paragraph I.1 below

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. RUPTURE RISKS:** This Metal Halide lamp is constructed of an outer glass bulb with an internal arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2012°F, 1100°C). If you are uncertain, contact your fixture manufacturer. When operated within 15° of vertical, this lamp may be operated in an open fixture **PROVIDED THE INSTALLATION IS NOT NEAR PEOPLE OR FLAMMABLE OR COMBUSTIBLE MATERIAL.**
2. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
3. Only operate lamp in designated operating positions. (See catalog for illustration.)
4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
5. Never expose an operating lamp to moisture (such as rain, sleet or snow).
6. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
7. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.
8. Replace lamp at or before the end of rated life. (See catalog for rated life.)

FOR APPLICATIONS WHERE AN ADDITIONAL MEASURE OF SAFETY IS DESIRED, LAMPS USING AN INTERNAL SHIELD DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE ARE AVAILABLE.

- II. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

**III. ULTRAVIOLET RADIATION EXPOSURE:**

**WARNING:** This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for 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. This product conforms to the following federal regulations: U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381

**IV. LAMP INSTALLATION:**

1. Screw lamp firmly but not forcibly into socket to avoid breakage.
2. All horizontal lamps with position oriented mogul (POM) bases (with locating pin) require a POM socket. Do not remove pin from base.
3. All pulse start lamps require a socket rated to withstand a 4000 volt pulse.
4. Never install the lamp into an ordinary household socket.

- V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

## METALARC® SAFELINE®, S-Type Lamp

# T



ANSI Luminaire Code **S**  
**ENCLOSED FIXTURE/Open if meets**  
requirement of Paragraph I.1 below

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. RUPTURE RISKS:** This Metal Halide lamp is constructed of an outer glass bulb with an internal arc-tube. Metal Halide arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2012°F, 1100°C). If you are uncertain, contact your fixture manufacturer. When operated within 15° of vertical, this lamp may be operated in an open fixture PROVIDED THE INSTALLATION IS NOT NEAR PEOPLE OR FLAMMABLE OR COMBUSTIBLE MATERIAL.
2. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
3. Only operate lamp in designated operating positions. (See catalog for illustration.)
4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
5. Never expose an operating lamp to moisture (such as rain, sleet or snow).
6. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
7. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.
8. Replace lamp at or before the end of rated life. (See catalog for rated life.)

FOR APPLICATIONS WHERE AN ADDITIONAL MEASURE OF SAFETY IS DESIRED, LAMPS USING AN INTERNAL SHIELD DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE ARE AVAILABLE.

- II. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.
- III ULTRAVIOLET RADIATION EXPOSURE:** This lamp should self-extinguish within 15 minutes after the outer envelope is broken or punctured. If such damage occurs, TURN OFF AND REMOVE LAMP to avoid possible injury from hazardous shortwave ultraviolet radiation. This product conforms to the following federal regulations: U.S.A.: 21 CFR 1040.30 and CANADA: SOR/80-381
- IV. LAMP INSTALLATION:**
1. Screw lamp firmly but not forcibly into socket to avoid breakage.
  2. Never install the lamp into an ordinary household socket.
- V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

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## METALARC® BRITELINE, F-Type Lamp



ANSI Luminaire Code F  
ENCLOSED FIXTURE with UV  
filter and lens interlock required

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. **RUPTURE RISKS:** This Metal Halide lamp is constructed with a quartz arc-tube which operates at high pressure and at very high temperatures. The arc-tube can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

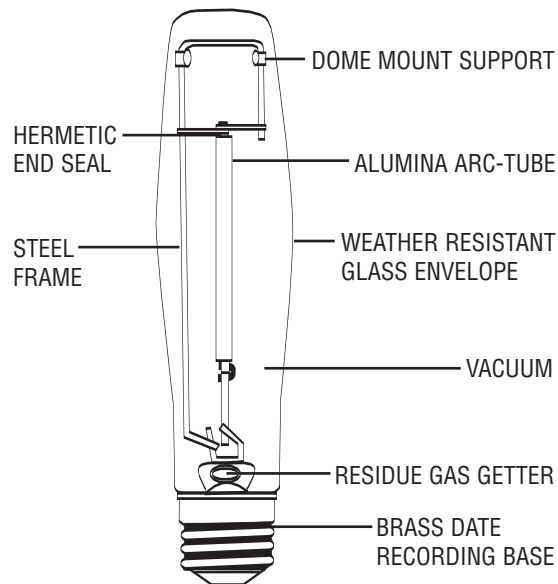
1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2012°F, 1100°C). If you are uncertain, contact your fixture manufacturer.
  2. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
  3. Only operate lamp in horizontal position. (See catalog for allowable deviation from horizontal.)
  4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
  5. Never expose operating lamp to moisture (such as rain, sleet or snow).
  6. Replace lamp if bulb is scratched, cracked or damaged in any way.
  7. Keep all metals at least 3 inches from the body of the arc tube to avoid glass decomposition.
  8. Replace lamp at or before the end of rated life. (See catalog for rated life.)
- II. **ULTRAVIOLET RADIATION HAZARD:** THIS LAMP EMITS ULTRAVIOLET (UV) POWER DURING OPERATION AND IS IN RISK GROUP 3 PER ANSI-IESNA Rp-27.3-96. THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INJURY FROM SHORTWAVE ULTRAVIOLET RADIATION. IT **MUST** BE OPERATED IN AN ENCLOSED FIXTURE WHICH FILTERS OUT THE HARMFUL SHORTWAVE ULTRAVIOLET RADIATION. IF YOU ARE UNCERTAIN, CONTACT YOUR FIXTURE MANUFACTURER.

A power interlock device is required to automatically turn off the lamp if the fixture assembly is opened. It is strongly recommended that a power interlock device also turn off power to the lamp if the fixture lens is broken. If the fixture lens breaks and the lamp remains on, turn off power immediately and repair before re-energizing.

This lamp is to be used **ONLY** in a fixture specifically designed for use with this lamp and recommended for its use by the equipment manufacturer.

- III. **ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. Allow lamp to cool before removing.
- IV. **LAMP INSTALLATION AND FIXTURE:** Do not remove lamp from package until ready for use and then handle only with clean cotton gloves. If lamp is handled, fingerprints, grease or oils may be removed from the bulb by wiping with alcohol. This will remove materials which cause whitish spotting (devitrification) and premature lamp failure. Dry lamp carefully with clean cotton cloth.
1. Install lamp without undue pressure.
  2. Ensure that lamp electrical connections are secure and nothing is touching bulb.
  3. All seal gaskets and wire insulation must be shielded from the UV radiation produced by this lamp.
  4. Fixture wiring must have a temperature rating of 250° C and a minimum voltage rating of 600 V RMS for all lamps except the 1500T7 lamp which must have a voltage rating of 1500V RMS.
  5. For maximum performance, all double-ended lamps must be operated with the arc-tube tip up.
- V. **BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

## GUIDE TO HIGH PRESSURE SODIUM LAMPS



High Pressure Sodium lamps are one of the most efficient HID sources available today. These lamps are used for general lighting applications where high efficiency and long life are desired while color rendering is not critical. Typical applications include street lighting, parking lot lighting, building floodlighting and general area lighting.

**LUMALUX PLUS® / ECO® AND LUMALUX PLUS®** — These environmentally friendlier lamps contain significantly less Mercury than standard high pressure sodium lamps. They will not cycle at the end of life and are rated for 30,000 hours life. All lamps operate on existing high pressure sodium ballasts. LUMALUX Plus / ECO lamps are designed with lead-free bases and they pass the existing Federal TCLP limits.\*

**LUMALUX® AND LUMALUX / ECO** — Available in a broad range of wattages, in both clear and coated configurations, LUMALUX and LUMALUX / ECO lamps are ideal for a variety of applications. LUMALUX medium based lamps are available in wattages ranging from 35-150 watts while mogul based lamps are offered in 50-1000 watts. The mogul based LUMALUX / ECO lamps operate on standard high pressure sodium ballasts and pass the Federal TCLP test.\*

**LUMALUX STANDBY** — These lamps are designed with two arc tubes to provide instant restrike capability in the event of a momentary power interruption. With almost twice the life of standard high pressure sodium lamps, LUMALUX Standby lamps are a great way to reduce maintenance costs.

**SOX** — These energy efficient low pressure sodium lamps emit a characteristic yellow light that is ideal for certain exterior street and area lighting.

\* based on NEMA LL Series Standards

### WARNING

#### LUMALUX, LUMALUX / ECO, LUMALUX PLUS / ECO, AND LUMALUX STANDBY LAMPS

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

**I. OPERATE WITH COMPATIBLE BALLAST AND FIXTURE ONLY:**

This lamp must be operated in a fixture and ballast which has an ANSI designation identical to that found on the lamp outer glass bulb. (with the exception of the LU/PLUS on Cooper ignitor 220C173G11, which may have compatibility issues).

**II. ELECTRICAL SHOCK AND BURN HAZARD:**

Do not remove or insert lamp when power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

**III. INSTALLATION AND OPERATING INSTRUCTIONS:**

See catalog for specific operating parameters.

1. A specially designed socket which is electrically rated to withstand a 4000 volt pulse is required for all High Pressure Sodium lamps except for the 750 and 1000 watt lamps which require a socket rated to withstand a 5000 volt pulse.
2. These lamps have a vacuum jacket and may implode if broken. For added safety, wear safety glasses and gloves when installing or removing lamps.
3. To avoid burn injury, allow lamp to cool before removing from fixture.
4. Screw lamp firmly but not forcibly into socket to avoid breakage.
5. Replace lamps at or before end of rated life. (See catalog for rated life.)
6. Never install it into an ordinary household socket.
7. This lamp may be operated in any position.

**IV. PROPER CARE AND MAINTENANCE:**

To reduce the possibility of a rupture and premature lamp failure:

1. Do not use with luminaires which would cause an excessive increase in arc-tube operating voltage.
2. Do not expose operating lamp to moisture (such as, rain, sleet or snow).
3. Replace lamp if outer glass bulb has been scratched, cracked, or damaged in any way.
4. Electrically insulate any metal support in contact with the outer glass bulb to avoid glass decomposition.

**V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.



**WARNING****LUMALUX® Double-Ended Quartz Jacketed Lamps**

ANSI LUMINAIRE Code F ENCLOSED FIXTURE with UV Filter and lens interlock required
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**I. OPERATE WITH COMPATIBLE BALLAST AND FIXTURE ONLY:** This lamp must be operated in a fixture and ballast which has an ANSI designation identical to that found on the lamp outer glass bulb.

**II. ULTRAVIOLET RADIATION HAZARD:** THIS LAMP EMITS ULTRAVIOLET (UV) POWER DURING OPERATION AND IS IN RISK GROUP 2 PER ANSI-IESNA Rp-27.3-96. THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INJURY FROM SHORTWAVE ULTRAVIOLET RADIATION. IT **MUST** BE OPERATED IN AN ENCLOSED FIXTURE WHICH FILTERS OUT THE HARMFUL SHORTWAVE ULTRAVIOLET RADIATION. IF YOU ARE UNCERTAIN, CONTACT YOUR FIXTURE MANUFACTURER.

A power interlock device is required to automatically turn off the lamp if the fixture assembly is opened. It is strongly recommended that a power interlock device also turn off power to the lamp if the fixture lens is broken. If the fixture lens breaks and the lamp remains on, turn off power immediately and repair before re-energizing.

This lamp is to be used **ONLY** in a fixture specifically designed for use with this lamp and recommended for its use by the equipment manufacturer.

**III. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. Allow lamp to cool before removing.

**IV. LAMP INSTALLATION AND FIXTURE:** Do not remove lamp from package until ready for use and then handle only with clean cotton gloves. If lamp is handled, fingerprints, grease or oils may be removed from the bulb by wiping with alcohol. This will remove materials which cause whitish spotting (devitrification) and premature lamp failure. Dry lamp carefully with clean cotton cloth.

1. Install lamp without undue pressure.
2. Ensure that lamp electrical connections are secure and nothing is touching bulb.
3. All seal gaskets and wire insulation must be shielded from the UV radiation produced by this lamp.
4. Fixture wiring must have a temperature rating of 250° C and a minimum voltage rating of 600 V RMS.
5. Never install it into a fixture designed for use with tungsten halogen lamps.
6. Do not expose operating lamp to moisture (such as rain, sleet or snow).
7. Replace lamp if outer glass bulb has been scratched, cracked, or damaged in any way.

**V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

**R****SOX LAMPS**

THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE

**I. BURNS AND FIRE HAZARD:**

Sox lamps contain a quantity of sodium which may heat from a reaction with moisture in the air or on the skin if a lamp is broken. Hot sodium will burn spontaneously when exposed to the air. Sodium lamps must be packed, shipped, and stored in the wrapping provided to reduce the risk of breakage.

**II. IMPLOSION HAZARD:**

**Always wear safety glasses when handling lamp.** Low pressure sodium lamps are made of glass and are evacuated and could therefore implode if damaged or handled incorrectly. Replace lamp if outer glass bulb has been scratched, cracked, or damaged in any way. To reduce the possibility of a lamp cracking or breaking, do not expose operating lamp to rain, snow, or water.

**III. ELECTRICAL SHOCK AND BURN HAZARD:**

Do not remove or insert lamp when power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

**IV. OPERATE WITH COMPATIBLE BALLAST AND FIXTURE ONLY:**

This lamp must be operated in a fixture and ballast which was specifically designed for use with this lamp.

**V. INSTALLATION AND OPERATING INSTRUCTIONS:**

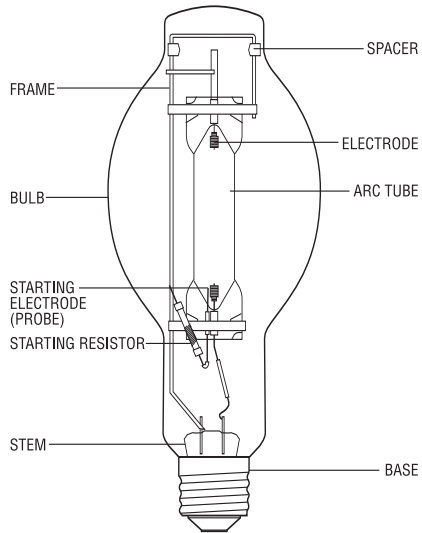
1. When operated in other than the base up orientation, single-based "SOX" lamps of from 35 watts to 180 watts must be supported at the end opposite to the base in such a way as to allow for thermal expansion and contraction along the lamp axis.
2. Install lamp firmly but not forcibly into socket to avoid breakage.
3. For maximum system performance, replace lamp at or before end of rated life. (See catalog for rated life.)
4. Only operate lamps in designated operating positions. (See catalog for illustration.)

**VI. LAMP DISPOSAL:**

To avoid the risk of personal injury or property damage from sodium reaction when disposing of spent lamps, the following procedure should be followed:

1. Before commencing, operator must be outfitted with appropriate OSHA-approved face mask, gloves and apron.
2. Place no more than 20 lamp(s) in a large, dry container. (Do not exceed one-quarter of the container height.)
3. Break lamp(s) into small pieces inside the container in a dry atmosphere and in a well ventilated area.
4. From a safe distance, carefully pour enough tap water into container to cover all materials.
5. After a few minutes, the reaction of the sodium with the large quantity of water will produce a mild sodium hydroxide solution which may be disposed of in accordance with applicable federal, state and local regulations.

## GUIDE TO MERCURY VAPOR LAMPS



OSRAM SYLVANIA Mercury lamps are designed primarily for use in general lighting applications where good efficiency and long life are desired while color rendering requirements are moderate. Applications include street lighting, industrial hi-bay, parking lot lighting, and general flood-lighting.

**STANDARD MERCURY** — Available in a wide range of lamp types from 75-1000 watts, in both clear and coated configurations, Mercury vapor lamps are ideal for a variety of lighting applications. PAR lamps offer floodlighting and ultra-violet spectra for special lighting applications.

### WARNING

#### STANDARD MERCURY "R" LAMPS

- I. **RUPTURE RISKS:** This Mercury lamp is constructed of an outer glass bulb with an internal arc-tube made of quartz. Mercury arc-tubes operate at high pressure and at very high temperatures and can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication. An arc-tube rupture can burst and shatter the outer glass bulb resulting in the discharge of glass fragments and extremely hot quartz particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate lamp with compatible ballast and fixture. (See catalog for specific information.)
  2. Fixture lens/diffuser material must be able to contain hot lamp fragments (as high as 1832°F, 1000°C). If you are uncertain, contact your fixture manufacturer.
  3. Never expose an operating lamp to moisture (such as rain, sleet, or snow).
  4. Replace lamp if outer glass bulb is scratched, cracked or damaged in any way.
  5. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.
  6. Replace lamp at or before the end of rated life. (See catalog for rated life.)
- II. **ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp when power is on. If outer glass bulb is broken, shut off power immediately and remove lamp after it has cooled.

III. **ULTRAVIOLET RADIATION EXPOSURE:**

**WARNING:** THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INFLAMMATION FROM SHORT WAVE ULTRAVIOLET RADIATION IF OUTER ENVELOPE OF THE LAMP IS BROKEN OR PUNCTURED. DO NOT USE WHERE PEOPLE WILL REMAIN FOR 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 COMMERCIALY AVAILABLE.

THIS PRODUCT CONFORMS TO THE FOLLOWING FEDERAL REGULATIONS:

U.S.A.: 21 CFR 1040.30

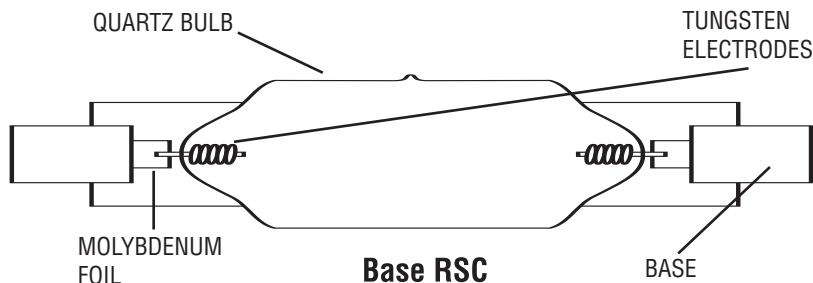
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IV. **INSTALLATION:**

1. Screw lamp firmly but not forcibly into socket to avoid breakage.
2. To avoid damaging a lamp, never install it into an ordinary household socket.
3. This lamp may be operated in any position.

- V. **BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.

## GUIDE TO REPROGRAPHIC LAMPS



OSRAM SYLVANIA reprographic lamps are designed for applications other than general lighting. These applications include: plate making, photo resist exposure, imaging and other requiring the use of ultraviolet energy.

### UNJACKETED REPROGRAPHIC E-TYPE LAMP



THE FOLLOWING INSTRUCTIONS MUST BE COMPLIED WITH TO AVOID RISK OF PERSONAL INJURY, PROPERTY DAMAGE AND POOR LAMP PERFORMANCE.

- I. RUPTURE RISKS:** This High Intensity Discharge (HID) lamp is constructed with a quartz arc-tube which operates at high pressure and at very high temperatures. The arc-tube can unexpectedly rupture due to internal causes or external factors such as a ballast failure or misapplication resulting in the discharge of glass fragments and extremely hot particles. In the event of such rupture, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**TO REDUCE THESE RISKS:**

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments (up to 2012°F, 1100°C). If you are uncertain, contact your fixture manufacturer.
2. Only operate lamp with compatible ballast (including capacitor and ignitor) and fixture.
3. Only operate lamp in horizontal position (Maximum deviation from horizontal is 15°).
4. Lamp must be turned off for a minimum of fifteen minutes at least once a week.
5. Never expose an operating lamp to moisture (such as rain, sleet or snow).
6. Replace lamp if bulb is scratched, cracked or damaged in any way.
7. Keep all metals at least 3 inches from the body of the arc-tube to avoid glass decomposition.
8. Do not operate lamps when output radiation falls below 75% of its initial value.

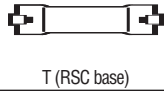
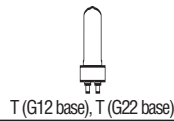
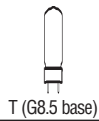
- II. ULTRAVIOLET RADIATION HAZARD:** THIS LAMP EMITS ULTRAVIOLET (UV) POWER DURING OPERATION AND IS IN RISK GROUP 3 PER ANSI-IESNA Rp-27.3-96. THIS LAMP CAN CAUSE SERIOUS SKIN BURN AND EYE INFLAMMATION FROM SHORTWAVE ULTRAVIOLET RADIATION. KEEP OUT OF DIRECT OR INDIRECT LIGHT DURING OPERATION UNLESS APPROPRIATE EYE AND SKIN PROTECTION IS WORN. A POWER INTERLOCK DEVICE IS RECOMMENDED TO AUTOMATICALLY TURN OFF THE LAMP IF THE FIXTURE ASSEMBLY IS OPENED.

DUE TO THE ULTRAVIOLET HAZARD, THIS LAMP IS TO BE USED **ONLY** IN EQUIPMENT SPECIFICALLY DESIGNED FOR USE WITH THIS LAMP AND RECOMMENDED FOR ITS USE BY THE EQUIPMENT MANUFACTURER.

- III. ELECTRICAL SHOCK AND BURN HAZARD:** Do not remove or insert lamp while power is on. Allow lamp to cool before removing.

- IV. LAMP INSTALLATION AND FIXTURE:** Do not remove lamp from package until ready for use and then handle only with clean cotton gloves. If lamp is handled, fingerprints, grease or oils may be removed from the bulb by wiping with alcohol. This will remove materials which cause whitish spotting (devitrification) and premature lamp failure. Dry lamp carefully with clean cotton cloth.
1. Install lamps without undue pressure.
  2. Ensure that lamp electrical connections are secure and nothing is touching bulb.
  3. The seal base temperature must not exceed 350° C and the bulb wall temperature, as measured in center, must be maintained between 600° C and 700° C.
  4. If cooling is required to maintain the seal/base and the bulb wall temperatures of item 3 above, air interlock vane switches are recommended to protect against fan-motor failure.
  5. All seal gaskets and wire insulation must be shielded from the UV radiation produced by this lamp.
  6. Fixture wiring must have a temperature rating of 250° C and a minimum voltage rating of 600V RMS for lamps of less than 1000 watts and 1500V RMS for lamps of 1000 watts or greater.
  7. For maximum performance, all double-ended lamps must be operated with the arc-tube tip up.

- V. BROKEN ARC-TUBE:** Take care in handling and disposing of this lamp. If arc-tube is broken, avoid skin contact with any of the contents and fragments. See Product Safety Data Sheet for further details.



## POWERBALL® CERAMIC METALARC® TUBULAR SINGLE-ENDED High CRI, Pulse Start, UV Stop – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
20	T4.5	G8.5	64882	MC20TC/U/G8.5/830PB	M156/E	12	Clear	Universal	E	12000	1700	1275	83	3000	1,4,18, 24,25,30,48
39	T4.5	G8.5	64791	MC39TC/U/G8.5/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24, 25,30,48
	T6	G12	64363	MC39T6/U/G12/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24, 25,30,48
			64325	MC39T6/U/G12/940PB	M130/E	12	Clear	Universal	E	12000	3300	2640	90	4200	1,4,18, 24,25,26,30,48
70	T4.5	G8.5	64825	MC70TC/U/G8.5/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6300	5040	95	3000	1,4,18, 24,25,26,30,48
	T6	G12	64361	MC70T6/U/G12/830PB	M139/E, M98/E	12	Clear	Universal	E	12000	7000	5600	87	3000	1,4,18,24, 25,26,30,48
			64200	MC70T6/U/G12/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6400	5120	95	3000	1,4,18, 24,25,26,30,48
			64338	MC70T6/U/G12/940PB	M139/E, M98/E	12	Clear	Universal	E	12000	6700	5360	93	4200	1,4,18,24, 25,26,30,48
150	T7.5	G12	64359	MC150T7.5/U/G12/830	M102/E, M142/E	12	Clear	Universal	E	12000	15500	12400	89	3000	1,4,18,24, 30,31,48
			64337	MC150T7.5/U/G12/940PB	M102/E, M142/E	12	Clear	Universal	E	12000	14500	11600	95	4200	1,4,18,24, 30,31,48
250	T9	G22	64167	MC250T9/U/G22/830PB	M80/E	10	Clear	Universal	E	12000	24500	19600	86	3000	1,4, 18,24,30,31,48

## POWERBALL® CERAMIC METALARC® TUBULAR DOUBLE-ENDED

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	T6	RX7s RSC	64793	MC70T6/DE/830PB	M139/E, M85/E, M98/E	12	Clear	HOR ± 45°	E	12000	6900	5520	88	3000	1,4,18,25, 26,30,35,48
150	T7.5	RX7s RSC	64794	MC150T7.5/DE/830PB	M102/E, M142/E, M81/E	12	Clear	HOR ± 45°	E	12000	14800	11840	91	3000	1,4,18,30, 37,48

## POWERBALL® CERAMIC METALARC® PAR High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
20	PAR30LN	E26 Med	64879	MCP20PAR30LN/U/830/SP/ECOPB	M156/O	6	SP	10°	Universal	O	12000	24000	1200	82	3100	1,4,7,17,24,30,48
			64878	MCP20PAR30LN/U/830/FL/ECOPB	M156/O	6	FL	30°	Universal	O	12000	4000	1200	82	3100	1,4,7,17,24,30,48
39	PAR20	E26 Med	64824	MCP39PAR20/U/830/SPPB	M130/O	12	SP	10°	Universal	O	12000	20000	2000	87	3000	1,4,17, 24,25,30,48
			64826	MCP39PAR20/U/830/FLPB	M130/O	12	FL	30°	Universal	O	12000	5000	2000	87	3000	1,4,17, 24,25,30,48
	PAR30LN	E26 Med	64880	MCP39PAR30LN/U/830/SP/ECOPB	M130/O	6	SP	10°	Universal	O	12000	39600	2300	85	3000	1,4, 7,17,24,25,30,48
			64881	MCP39PAR30LN/U/830/FL/ECOPB	M130/O	6	FL	30°	Universal	O	12000	8000	2300	85	3000	1,4, 7,17,24,25,30,48



PAR30 LN

PAR38

E17

## POWERBALL® CERAMIC METALARC® PAR High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
39	PAR30LN	E26 Med	64885	MCP39PAR30LN/U/830/VWFL/ECOPB	M130/O	6	VWFL	46°	Universal	0	12000	3500	2300	85	3000	1,4,7,17,24,25,30,48
70	PAR30LN	E26 Med	64201	MCP70PAR30LN/U/930/SP/ECOPB	M139/O, M98/O	6	SP	12°	Universal	0	12000	42000	3600	95	3000	1,4,7,17,25,26,30,48
			64202	MCP70PAR30LN/U/930/FL/ECOPB	M139/O, M98/O	6	FL	30°	Universal	0	12000	12000	3600	95	3000	1,4,7,17,25,26,30,48
	PAR38	E26 Med Skt	64749	MCP70PAR38/U/830/SP/ECOPB	M139/O, M98/O	6	SP	15°	Universal	0	12000	40000	4300	88	3000	1,4,7,17,26,30,38,48
			64750	MCP70PAR38/U/830/FL/ECOPB	M139/O, M98/O	6	FL	25°	Universal	0	12000	16000	4300	88	3000	1,4,7,17,26,30,38,48
			64751	MCP70PAR38/U/VWFL/830/ECOPB	M139/O, M98/O	6	VWFL	65°	Universal	0	12000	3500	4300	88	3000	1,4,7,17,26,30,38,48
100	PAR38	E26 Med Skt	64752	MCP100PAR38/U/830/SP/ECOPB	M90/O, M140/O	6	SP	15°	Universal	0	12000	58000	6500	88	3000	1,4,7,17,27,30,38,48
			64753	MCP100PAR38/U/830/FL/ECOPB	M90/O, M140/O	6	FL	25°	Universal	0	12000	25000	6500	88	3000	1,4,7,17,27,30,38,48
			64754	MCP100PAR38/U/830/VWFL/ECOPB	M90/O, M140/O	6	VWFL	60°	Universal	0	12000	6000	6500	88	3000	1,4,7,17,27,30,38,48
150	PAR38	E26 Med Skt	64841	MCP150/PAR38/U/830/SP/ECOPB	M102/O, M142/O	6	SP	15°	Universal	0	12000	50000	9100	88	3000	1,4,7,17,31,38,48
			64842	MCP150/PAR38/U/830/FL/ECOPB	M102/O, M142/O	6	FL	25°	Universal	0	12000	28000	9100	88	3000	1,4,7,17,31,38,48
			64843	MCP150/PAR38/U/830/VWFL/ECOPB	M102/O, M142/O	6	VWFL	65°	Universal	0	12000	6500	9100	88	3000	1,4,7,17,31,38,48

## POWERBALL® CERAMIC METALARC® E17 & HIGH WATTAGE High CRI, Pulse Start – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	(mean)	CRI	CCT (K)	Symbols & Footnotes
50	E17	E26 Med	64840	MCP50/U/MED/830PB	M110/O, M148/O	12	Clear	Universal	0	12000	4100	2850	88	3000	1,4,17,30,48
			64849	MCP50/C/U/MED/830PB	M110/O, M148/O	12	Coated	Universal	0	12000	3800	2640	88	2900	1,4,17,30,48
70	E17	E26 Med	64739	MCP70/U/MED/830PB	M139/O, M98/O	12	Clear	Universal	0	16000	5900	4365	88	3000	1,4,17,26,30,48
			64740	MCP70/C/U/MED/830PB	M139/O, M98/O	12	Coated	Universal	0	16000	5500	3900	88	3000	1,4,17,26,30,48
			64193	MCP70/U/MED/940PB	M139/O, M98/O	12	Clear	Universal	0	12000	6000	4800	93	4000	1,4,17,26,30,48
			64194	MCP70/C/U/MED/940PB	M139/O, M98/O	12	Coated	Universal	0	12000	5600	4480	93	3800	1,4,17,26,30,48
100	E17	E26 Med	64743	MCP100/U/MED/830PB	M90/O, M140/O	12	Clear	Universal	0	16000	9000	6660	88	3000	1,4,17,27,30,48
			64744	MCP100/C/U/MED/830PB	M90/O, M140/O	12	Coated	Universal	0	16000	8100	5994	88	3000	1,4,17,27,30,48
			64322	MCP100/U/MED/940PB	M90/O, M140/O	12	Clear	Universal	0	20000	8200	6150	93	4000	1,4,17,27,30,48
			64315	MCP100/C/U/MED/940PB	M90/O, M140/O	12	Clear	Universal	0	20000	7500	5625	90	4000	1,4,17,27,48



E17, E17/ED17



BT28, BT28/ED28, BT28/ET23.5



BT37

## POWERBALL® CERAMIC METALARC® E17 & HIGH WATTAGE High CRI, Pulse Start – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
150	E17	E26 Med	64741	<b>MCP150/U/MED/830PB</b>	M102/O	12	Clear	Universal	0	12000	13000	11000	88	3000	1,4,17,30,31,48
			64742	<b>MCP150/C/U/MED/830PB</b>	M102/O	12	Coated	Universal	0	12000	12000	10000	88	3000	1,4,17,30,31,48
250	BT28	EX39 Excl Mogul	64786	<b>MCP250/PS/BU-ONLY/940PB</b>	M153/O	6	Clear	BU ± 15°	0	15000	24000	19200	94	4200	1,4,17,23,48
			64821	<b>MCP250/C/PS/BU-ONLY/940PB</b>	M153/O	6	Coated	BU ± 15°	0	15000	22500	18000	94	4000	1,4,17,23,48
320	BT37	EX39 Excl Mogul	64834	<b>MCP320/PS/BU-ONLY/840PB</b>	M154/O	6	Clear	BU ± 15°	0	20000	37500	28125	88	4000	1,4,17,48
			64851	<b>MCP320/C/PS/BU-ONLY/840PB</b>	M154/O	6	Coated	BU ± 15°	0	20000	36000	27000	88	3900	1,4,17,48

## METALARC® PULSE START High Output, Reduced Color Shift – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
175	ED17	E26 Med	64171	<b>MS175/PS/BU-ONLY/MED</b>	M152/E, M137/E	12	Clear	BU ± 15°	E	15000	17500	12800	65	4000	4,18,23,39
			64170	<b>MS175/C/PS/BU-ONLY/MED</b>	M152/E, M137/E	12	Coated	BU ± 15°	E	15000	16600	12500	70	3700	4,18,23,39
	ED28	E39 Mogul	64815	<b>MS175/PS/BU-ONLY</b>	M152/E, M137/E	12	Clear	BU ± 15°	E	15000	17500	12800	65	4000	4,18,23,39
			64816	<b>MS175/C/PS/BU-ONLY</b>	M152/E, M137/E	12	Coated	BU ± 15°	E	15000	16600	12500	70	3700	4,18,23,39
200	ET23.5	E39 Mogul	64837	<b>MS200/PS/BU-ONLY/ET23.5</b>	M136/E	12	Clear	BU ± 15°	E	15000	19000	13300	65	4200	4,18,23
	BT28	E39 Mogul	64838	<b>MS200/PS/BU-ONLY/BT28</b>	M136/E	6	Clear	BU ± 15°	E	15000	19000	13500	65	4000	4,18,23
			64839	<b>MS200/C/PS/BU-ONLY/BT28</b>	M136/E	6	Coated	BU ± 15°	E	15000	18000	12800	70	3800	4,18,23
250	BT28	E39 Mogul	64320	<b>M250/PS/U</b>	M153/E, M138/E	6	Clear	Universal	E	15000V 12000H	22000V 19000H	15400V 14000H	65	3800	4,18,23
			64578	<b>MS250/PS/BU-ONLY</b>	M153/E, M138/E	6	Clear	BU ± 15°	E	20000	23000	17000	65	4200	4,18,23
			64617	<b>MS250/C/PS/BU-ONLY</b>	M153/E, M138/E	6	Coated	BU ± 15°	E	20000	21500	15500	70	3600	4,18,23
320	BT28	E39 Mogul	64507	<b>MS320/PS/BU-HOR</b>	M154/E, M132/E	6	Clear	BU-HOR	E	20000V 15000H	30000V 28000H	21000V 19700H	65	4300	4,18,23,41
			64646	<b>MS320/C/PS/BU-HOR</b>	M154/E, M132/E	6	Coated	BU-HOR	E	20000V 15000H	30000V 28000H	19700V 18400H	70	3900	4,18,23,41
400	BT28	E39 Mogul	64188	<b>M400/PS/U/BT28</b>	M155/E	6	Clear	Universal	E	20000V 15000H	36000V 31000H	25500V 22400H	65	4000	4,18,23,42
			64191	<b>MS400/PS/BD-ONLY/BT28</b>	M155/E, M135/E	6	Clear	BD ± 15°	E	20000	40000	32500	65	4100	4,18,23,42,46
			64189	<b>MS400/PS/BU-ONLY/BT28</b>	M155/E, M135/E	6	Clear	BU ± 15°	E	20000	40000	32500	65	4100	4,18,23,42,46
	BT37	E39 Mogul	64321	<b>M400/PS/U</b>	M155/E	6	Clear	Universal	E	20000V 15000H	36000V 31000H	25500V 22400H	65	4000	4,18,23
			64525	<b>MS400/PS/BU-ONLY</b>	M155/S, M135/S	6	Clear	BU ± 15°	S	20000	42000	31000	65	4000	4,6,20,21,23,24,42,46





BT37



E17



BT28

## METALARC® PULSE START

### High Output, Reduced Color Shift – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial) (mean)		CRI	CCT (K)	Symbols & Footnotes
400	BT37	E39 Mogul	64527	<b>MS400/C/PS/BU-ONLY</b>	M155/S, M135/S	6	Coated	BU ± 15°	S	20000	42000	29000	70	3600	4,6,20,21,23,24, 42,46
750	BT37	E39 Mogul	65424	<b>MS750/PS/BD-ONLY/BT37</b>	M149/E	6	Clear	BD ± 15°	E	16000	78000	67000	65	4000	☀ 4,18,33
			64787	<b>MS750/PS/BU-HOR/BT37</b>	M149/E	6	Clear	BU-HOR	E	16000V 12000H	78000V 68000H	67000V 56000H	65	4000	4,18,33
			64822	<b>MS750/C/PS/BU-HOR/BT37</b>	M149/E	6	Coated	BU-HOR	E	16000V 12000H	75000V 65000H	63000V 53000H	70	3700	4,18,33
1000	BT37	E39 Mogul	64351	<b>M1000/PS/U/BT37</b>	M141/E	6	Clear	Universal	E	15000V 9000H	110000V 107800H	96000V 86300H	65	3800	4,18

## METALARC PRO-TECH® PULSE START

### High Output, Reduced Color Shift – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial) (mean)		CRI	CCT (K)	Symbols & Footnotes
50	E17	E26 Med	64587	<b>MP50/U/MED</b>	M110/O	20	Clear	Universal	0	20000V 10000H	3450	1900	70	3000	4,17
			64588	<b>MP50/C/U/MED</b>	M110/O	20	Coated	Universal	0	20000V 10000H	3200	1820	70	2900	4,17
70	E17	E26 Med	64625	<b>MPD70/U/MED/840</b>	M98/O	20	Clear	Universal	0	7500H 6000V	5500	4000	80	4200	☀ 4,17
			64621	<b>MPD70/C/U/MED/840</b>	M98/O	20	Coated	Universal	0	7500H 6000V	5100	3800	82	4000	☀ 4,17
			64547	<b>MP70/U/MED</b>	M98/O	20	Clear	Universal	0	15000V 10000H	5200	3400	75	3000	4,17
			64546	<b>MP70/C/U/MED</b>	M98/O	20	Coated	Universal	0	15000V 10000H	4700	3100	75	2900	4,17
100	E17	E26 Med	64417	<b>MP100/U/MED</b>	M90/O	20	Clear	Universal	0	15000V 10000H	8500	5525	75	3000	4,17
			64418	<b>MP100/C/U/MED</b>	M90/O	20	Coated	Universal	0	15000V 10000H	7900	5800	75	2900	4,17
			64426	<b>MPD100/U/MED/840</b>	M90/O	20	Clear	Universal	0	7500V 6000H	8400	5800	82	4200	☀ 4,17
			64433	<b>MPD100/C/U/MED/840</b>	M90/O	20	Coated	Universal	0	7500V 6000H	7700	5500	82	4000	☀ 4,17
150	E17	E26 Med	64402	<b>MP150/U/MED</b>	M102/O	20	Clear	Universal	0	15000V 10000H	12900	8000	75	3000	4,17
			64406	<b>MP150/C/U/MED</b>	M102/O	20	Coated	Universal	0	15000V 10000H	11600	7500	75	2900	4,17
			64403	<b>MPD150/U/MED/840</b>	M102/O	20	Clear	Universal	0	7500V 6000H	12500	11000	88	4200	☀ 4,17
			64425	<b>MPD150/C/U/MED/840</b>	M102/O	20	Coated	Universal	0	7500V 6000H	11500	9500	88	4000	☀ 4,17
250	BT28	EX39 Excl Mogul	64790	<b>MP250/C/PS/BU-ONLY</b>	M153/O, M138/O	6	Coated	BU ± 15°	0	15000	21000	16000	70	4000	4,17,23
			64789	<b>MP250/PS/BU-ONLY</b>	M153/O, M138/O	6	Clear	BU ± 15°	0	15000	22500	17000	65	4000	4,17,23
320	BT28	EX39 Excl Mogul	64391	<b>MP320/350/PS/BU-ONLY/BT28</b>	M154/O, M132/O, M131/O	6	Clear	BU ± 15°	0	20000	28600V 33500H	21000V 24000H	65	3800 3600	4,17,23,41



BT28, BT37



PAR38



E17



BT28

## METALARC PRO-TECH® PULSE START

### High Output, Reduced Color Shift – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
320	BT28	EX39 Excl Mogul	64349	MP320/350/C/PS/BU-ONLY/BT28	M154/O, M132/O, M131/O	6	Coated	BU ± 15°	0	20000	27700V 32000H	19000V 22000H	70	3600	4,17,23,41
350	BT37	EX39 Excl Mogul	64769	MP350/400/PS/BU-ONLY	M131/O, M155/O, M135/O	6	Clear	BU ± 15°	0	20000	33000V 40000H	24500V 29500H	65	3700	4,17,23,42,46
			64770	MP350/400/C/PS/BU-ONLY	M131/O, M155/O, M135/O	6	Coated	BU ± 15°	0	20000	32000V 39000H	23000V 28000H	70	3500	4,17,23,42,46

## METALARC PRO-TECH® PULSE START - PAR

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
70	PAR38	E26 Med Skt	64590	MP70PAR38/U/SP20/ECO	M98/O	6	SP	20°	Universal	0	8500	18000	3400	75	3200	4,7,17,38
			64592	MP70PAR38/U/FL35/ECO	M98/O	6	FL	35°	Universal	0	8500	10000	3400	75	3200	4,7,17,38
			64594	MP70PAR38/U/VWFL65/ECO	M98/O	6	VWFL	65°	Universal	0	8500	3000	3400	75	3200	4,7,17,38
100	PAR38	E26 Med Skt	64580	MP100PAR38/U/SP20/ECO	M90/O	6	SP	20°	Universal	0	8500	26000	5800	75	3000	4,7,17,38
			64582	MP100PAR38/U/FL35/ECO	M90/O	6	FL	35°	Universal	0	8500	12000	5800	75	3000	4,7,17,38
			64584	MP100PAR38/U/VWFL65/ECO	M90/O	6	VWFL	65°	Universal	0	8500	4500	5800	75	3000	4,7,17,38
150	PAR38	E26 Med Skt	64593	MP150PAR38/U/SP20/ECO	M102/O	6	SP	20°	Universal	0	8500	34000	8800	75	3200	4,7,17,38
			64597	MP150PAR38/U/FL35/ECO	M102/O	6	FL	35°	Universal	0	8500	17000	8800	75	3200	4,7,17,38
			64599	MP150PAR38/U/VWFL65/ECO	M102/O	6	VWFL	65°	Universal	0	8500	7500	8800	75	3200	4,7,17,38

## METALARC PRO-TECH® SUPERSAVER®

### Energy Saving, Metal Halide Retrofit - Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
360	BT37	EX39 Excl Mogul	64737	MSP360/SS/BU-ONLY	M59/O, M165/O	6	Clear	BU ± 15°	0	20000	35000	23500	65	4000	12,17,46
			64738	MSP360/C/SS/BU-ONLY	M59/O, M165/O	6	Coated	BU ± 15°	0	20000	34000	22500	70	3600	12,17,46

## METALARC PRO-TECH®

### Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
175	ED17	E26 Med	64733	MP175/BU-ONLY/MED	M57/O	20	Clear	BU ± 15°	0	10000	14400	10800	65	3600	17
	BT28	EX39 Excl Mogul	64773	MP175/BU-ONLY	M57/O	6	Clear	BU ± 15°	0	10000	14400	10200	65	4000	17
			64774	MP175/C/BU-ONLY	M57/O	6	Coated	BU ± 15°	0	10000	12800	7800	70	3800	17
250	BT28	EX39 Excl Mogul	64404	MP250/BU-ONLY	M58/O	6	Clear	BU ± 15°	0	10000	23000	17000	65	4000	17
			64405	MP250/C/BU-ONLY	M58/O	6	Coated	BU ± 15°	0	10000	20000	14350	70	3800	17
400	BT37	EX39 Excl Mogul	64705	MP400/BU-ONLY	M59/O	6	Clear	BU ± 15°	0	20000	40000	26000	65	3600	17



BT37



BT56



BT28

## METALARC PRO-TECH® Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
400	BT37	EX39 Excl Mogul	64706	<b>MP400/C/BU-ONLY</b>	M59/O	6	Coated	BU ± 15°	0	20000	38500	25000	70	3400	17
			64717	<b>MP400/BD-ONLY</b>	M59/O	6	Clear	BD ± 15°	0	20000	40000	26000	65	3600	17
1000	BT56	EX39 Excl Mogul	64714	<b>MP1000/BU-ONLY</b>	M47/O	6	Clear	BU ± 15°	0	15000	109000	87500	65	3500	17
			64716	<b>MP1000/C/BU-ONLY</b>	M47/O	6	Coated	BU ± 15°	0	15000	102000	82000	70	3200	17

## METALARC® SUPER High Output, Position Dedicated – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
175	BT28	E39 POM	64439	<b>MS175/HOR</b>	M57/E	6	Clear	HOR ± 15°	E	10000	15000	8000	65	4200	11,18
			64440	<b>MS175/C/HOR</b>	M57/E	6	Coated	HOR ± 15°	E	10000	14500	8000	70	4000	11,18
250	BT28	E39 POM	64448	<b>MS250/HOR</b>	M58/E	6	Clear	HOR ± 15°	E	10000	23000	15000	65	4200	11,18
			64449	<b>MS250/C/HOR</b>	M58/E	6	Coated	HOR ± 15°	E	10000	22000	14000	70	3800	11,18
			64496	<b>MS250/3K/HOR</b>	M58/E	6	Coated	HOR ± 15°	E	10000	17200	13500	70	3200	11,18
400	BT28	E39 POM	64443	<b>MS400/HOR/BT28</b>	M59/E	6	Clear	HOR ± 15°	E	20000	39000	26000	65	4200	11,18
			64444	<b>MS400/C/HOR/BT28</b>	M59/E	6	Coated	HOR ± 15°	E	20000	36500	24000	70	3800	11,18
	BT37	E39 POM	64445	<b>MS400/HOR</b>	M59/E	6	Clear	HOR ± 15°	E	20000	39000	25000	65	4200	11,18
			64446	<b>MS400/C/HOR</b>	M59/E	6	Coated	HOR ± 15°	E	20000	38000	24000	70	3800	11,18
			64498	<b>MS400/3K/HOR</b>	M59/E	6	Coated	HOR ± 15°	E	20000	33500	23300	70	3200	11,18
	BT28	E39 Mogul	64441	<b>MS400/BU-ONLY/BT28</b>	M59/E	6	Clear	BU ± 15°	E	20000	40000	26000	65	3800	18
			BT37	E39 Mogul	64450	<b>MS400/BU-ONLY</b>	M59/S	6	Clear	BU ± 15°	S	20000	42000	26000	65
	64452	<b>MS400/C/BU-ONLY</b>			M59/S	6	Coated	BU ± 15°	S	20000	42000	24700	70	3600	6,20,47
	64454	<b>MS400/3K/BU-ONLY</b>			M59/S	6	Coated	BU ± 15°	S	20000	35000	22000	70	3200	20
	64451	<b>MS400/BD-ONLY</b>			M59/S	6	Clear	BD ± 15°	S	20000	42000	27500	65	4000	20
64435	<b>MS1000/BU-ONLY</b>	M47/S			6	Clear	BU ± 15°	S	18000	115000	92000	65	4000	20	
1000	BT56	E39 Mogul	64460	<b>MS1000/C/BU-ONLY</b>	M47/S	6	Coated	BU ± 15°	S	18000	110000	88000	70	3400	20
			64436	<b>MS1000/BD-ONLY</b>	M47/S	6	Clear	BD ± 15°	S	18000	115000	92000	65	4000	20

## METALARC® SUPERSAVER® Energy Saving, Metal Halide Retrofit

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
150	BT28	E39 Mogul	64719	<b>M150/SS/U/BT28</b>	M107/E, M57/E	6	Clear	Universal	E	10000V 7500H	13000V 12000H	7500V 8500H	65	4000	18,29,46
360	BT37	E39 Mogul	64655	<b>MS360/SS/BU-HOR</b>	M59/S, M165/S	6	Clear	BU-HOR	S	20000V 15000H	36000V 30000H	23500V 19000H	65	4000	12,20,46
			64656	<b>MS360/C/SS/BU-HOR</b>	M59/S, M165/S	6	Coated	BU-HOR	S	20000V 15000H	36000V 30000H	22500V 19000H	70	3600	12,20,46
		EX39 Excl Mogul	64737	<b>MSP360/SS/BU-ONLY</b>	M59/O, M165/O	6	Clear	BU ± 15°	O	20000	35000	23500	65	4000	12,17,46



BT37



BT56



E17



BT28



ET18

## METALARC® SUPERSAVER® Energy Saving, Metal Halide Retrofit

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
360	BT37	EX39 Excl Mogul	64738	<b>MSP360/C/SS/BU-ONLY</b>	M59/O, M165/O	6	Coated	BU ± 15°	O	20000	34000	22500	70	3600	12,17,46
950	BT56	E39 Mogul	64850	<b>M950/SS/U/BT56</b>	M47/E, M176/E	6	Clear	Universal	E	18000V 12000H	103000V 90000H	80000V 64000H	65	4000	18,44

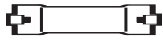
## METALARC® STANDARD

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
175	E17	E26 Med	64479	<b>M175/U/MED</b>	M57/E	20	Clear	Universal	E	10000V 7500H	14400V 12800H	9300	65	4000	18
			64480	<b>M175/C/U/MED</b>	M57/E	20	Coated	Universal	E	10000V 7500H	13000V 11080H	8400	70	3600	18
	BT28	E39 Mogul	64471	<b>M175/U</b>	M57/E	6	Clear	Universal	E	10000V 7500H	14400V 12800H	9300	65	4200	18
			64472	<b>M175/C/U</b>	M57/E	6	Coated	Universal	E	10000V 7500H	14000V 12000H	8400	70	3800	18
			64473	<b>M175/3K/BU-ONLY</b>	M57/E	6	Coated	BU ± 15°	E	10000	11800	7600	70	3200	18
250	ET18	E39 Mogul	64474	<b>M250/U/ET18</b>	M58/E	10	Clear	Universal	E	10000V 7500H	22000V 20000H	17500V 13500H	65	4000	18
			BT28	E39 Mogul	64457	<b>M250/U</b>	M58/E	6	Clear	Universal	E	10000V 7500H	22000V 20000H	15000V 13000H	65
	64458	<b>M250/C/U</b>			M58/E	6	Coated	Universal	E	10000V 7500H	21500V 19500H	17000V 14000H	70	3800	18
	64475	<b>M250/3K/BU-ONLY</b>			M58/E	6	Coated	BU ± 15°	E	10000	17500	13000	70	3200	18
	400	ET18	E39 Mogul	64575	<b>M400/U/ET18</b>	M59/E	10	Clear	Universal	E	20000V 15000H	36000V 33000H	25000V 21500H	65	4000
BT28				E39 Mogul	64488	<b>M400/U/BT28</b>	M59/E	6	Clear	Universal	E	20000V 15000H	36000V 32000H	25000V 20500H	65
		64489	<b>M400/C/U/BT28</b>		M59/E	6	Coated	Universal	E	20000V 15000H	36000V 32000H	25000V 20500H	70	3600	18
		BT37	E39 Mogul		64490	<b>M400/U</b>	M59/S	6	Clear	Universal	S	20000V 15000H	36000V 32000H	23500V 20500H	65
64492				<b>M400/C/U</b>	M59/S	6	Coated	Universal	S	20000V 15000H	36000V 32000H	22500V 20500H	70	3700	6,20,47
1000	BT37	E39 Mogul	64469	<b>M1000/U/BT37</b>	M47/E	6	Clear	Universal	E	15000V 9000H	110000V 107800H	96000V 86300H	65	3800	18
			BT56	E39 Mogul	64468	<b>M1000/U</b>	M47/S	6	Clear	Universal	S	18000V 12000H	110000V 107800H	86000V 86000H	65
	64470	<b>M1000/C/U</b>			M47/S	6	Coated	Universal	S	18000V 12000H	107000V 101600H	80000V 80700H	70	3400	20
1500	BT56	E39 Mogul	64431	<b>M1500/BU-HOR</b>	M48/E	6	Clear	BU-HOR	E	3000	170000V 153000H	140000	70	4000	18,28
			64432	<b>M1500/BD</b>	M48/E	6	Clear	BD ± 15°	E	3000	167000	140000	70	4000	18

H I D



BT37



T (RSC base)



R30/R40



T (G12 base)



ET23.5



E17

## METALARC® SAFELINE® Self-Extinguishing

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
400	BT37	E39 Mogul	64707	<b>MT400/BU-ONLY</b>	M59/S	6	Clear	BU ± 15°	S	20000	36000	22000	60	4500	12,16,20,32
			64709	<b>MT400/C/BU-ONLY</b>	M59/S	6	Coated	BU ± 15°	S	20000	35000	20600	65	4100	12,16,20,32

## METALARC® BRITELINE Double-Ended – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
1500	T7	RX7s RSC	66619	<b>M1500T7/DE</b>	M_F	10	Clear	HOR ± 4°	F	3000	150000	127500	65	4200	2,10,21,43,45,46
	T8	Cer #8-10 Spade	66632	<b>M1500T8/DE</b>	M133/F	10	Clear	HOR ± 4°	F	6000	150000	127500	65	4200	2,21,43,45
2000	T8	RX7s RSC	66627	<b>M2000T8/DE</b>	M_F	10	Clear	HOR ± 4°	F	3000	200000	170000	65	4000	2,10,21,43,45,46
	T9	Cer #8-10 Spade	66631	<b>M2000T9/DE</b>	M134/F	10	Clear	HOR ± 4°	F	3000	180000	153000	65	4200	2,21,43,45

## HQI® METAL HALIDE DOUBLE-ENDED Compact, Quartz – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	T6	RX7s RSC	64360	<b>HQI-DE70/WDX</b>	M85/E	12	Clear	HOR ± 45°	E	9000	5000	4400	76	3000	18,30
			64362	<b>HQI-DE70/NDX</b>	M85/E	12	Clear	HOR ± 45°	E	9000	5500	3800	83	4000	18,30
150	T7	RX7s RSC	64366	<b>HQI-DE150/WDX</b>	M81/E	12	Clear	HOR ± 45°	E	12000	11000	9000	76	3000	18,30
			64368	<b>HQI-DE150/NDX</b>	M81/E	12	Clear	HOR ± 45°	E	12000	11250	9500	85	4200	18,30

## HQI® FIBER-OPTIC INTEGRATED DICHROIC REFLECTOR Compact, High CRI, Quartz – Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
150	R30	2 Pin Connector	64339	<b>HQI-R150/NDX/FO</b>	M81/E	12	Clear	HOR	E	9000	11000		85	4200	

## HQI® METAL HALIDE SINGLE-ENDED

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
150	T7.5	G12	64342	<b>HQI-SE 150/NDX</b>	M81/E	12	Clear	Universal	E	9000	13000	9200	85	4200	18,30

## LUMALUX PLUS® AND LUMALUX PLUS® ECO® Non-Cycling High Pressure Sodium

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
50	ET23.5	E39 Mogul	67607	<b>LU50/PLUS/ECO</b>	S68	20	Clear	Universal	0	30000	4000	3600	22	1900	4,7,8
70	E17	E26 Medium	67322	<b>LU70/PLUS/MED</b>	S62	20	Clear	Universal	0	30000	6300	5600	22	1900	4,8
	ET23.5	E39 Mogul	67497	<b>LU70/PLUS/ECO</b>	S62	20	Clear	Universal	0	30000	6300	5600	22	1900	4,7,8



E17



ET23.5, BT28



ET18



E25



BT37



T (Mog base)

## LUMALUX PLUS® AND LUMALUX PLUS® ECO® Non-Cycling High Pressure Sodium

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial) (mean)		CRI	CCT (K)	Symbols & Footnotes
100	E17	E26 Medium	67323	<b>LU100/PLUS/MED</b>	S54	20	Clear	Universal	0	30000	10000	9000	22	2100	☀️ 4,8
	ET23.5	E39 Mogul	67559	<b>LU100/PLUS/ECO</b>	S54	20	Clear	Universal	0	30000	10000	9000	22	2100	☀️ 4,7,8
150	ET23.5	E39 Mogul	67494	<b>LU150/55/PLUS/ECO</b>	S55	20	Clear	Universal	0	30000	16000	14400	22	2100	☀️ 4,7,8,13,36
200	ET18	E39 Mogul	67495	<b>LU200/PLUS/ECO</b>	S66	20	Clear	Universal	0	30000	22000	19800	22	2100	☀️ 4,7,8
250	ET18	E39 Mogul	67572	<b>LU250/PLUS/ECO</b>	S50	20	Clear	Universal	0	30000	29000	26100	22	2100	☀️ 4,7,8
310	ET18	E39 Mogul	67660	<b>LU310/PLUS/ECO</b>	S67	20	Clear	Universal	0	30000	37000	33300	22	2100	☀️ 4,7,8
400	ET18	E39 Mogul	67312	<b>LU400/PLUS/ECO</b>	S51	20	Clear	Universal	0	30000	50000	45000	22	2100	☀️ 4,7,8
1000	E25	E39 Mogul	67316	<b>LU1000/PLUS</b>	S52	6	Clear	Universal	0	30000	130000	124000	22	2100	☀️ 4,8

## LUMALUX® STANDARD AND LUMALUX® ECO®

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial) (mean)		CRI	CCT (K)	Symbols & Footnotes
35	E17	E26 Medium	67500	<b>LU35/MED</b>	S76	20	Clear	Universal	0	16000+	2250	2050	22	1900	4,22
			67501	<b>LU35/D/MED</b>	S76	20	Coated	Universal	0	16000+	2100	1935	22	1900	4,22
50	E17	E26 Medium	67502	<b>LU50/MED</b>	S68	20	Clear	Universal	0	24000+	4000	3600	21	1900	4,22
			67503	<b>LU50/D/MED</b>	S68	20	Coated	Universal	0	24000+	3700	3420	22	1900	4,22
	ET23.5	E39 Mogul	67510	<b>LU50/ECO</b>	S68	20	Clear	Universal	0	24000+	4000	3600	22	1900	☀️ 4,7,22
			67511	<b>LU50/D</b>	S68	20	Coated	Universal	0	24000+	3700	3420	22	1900	4,22
70	E17	E26 Medium	67504	<b>LU70/MED</b>	S62	20	Clear	Universal	0	24000+	6300	5350	22	1900	4,22
			67505	<b>LU70/D/MED</b>	S62	20	Coated	Universal	0	24000+	5800	4900	22	1900	4,22
	ET23.5	E39 Mogul	67512	<b>LU70/ECO</b>	S62	20	Clear	Universal	0	24000+	6300	5500	22	1900	☀️ 4,7,22
			67513	<b>LU70/D</b>	S62	20	Coated	Universal	0	24000+	5500	4900	22	1900	4,22
100	E17	E26 Medium	67506	<b>LU100/MED</b>	S54	20	Clear	Universal	0	24000+	9500	8000	22	2100	4,22
			67507	<b>LU100/D/MED</b>	S54	20	Coated	Universal	0	24000+	8800	7500	22	2100	4,22
	ET23.5	E39 Mogul	67514	<b>LU100/ECO</b>	S54	20	Clear	Universal	0	24000+	9500	8000	22	2100	☀️ 4,7,22
			67515	<b>LU100/D</b>	S54	20	Coated	Universal	0	24000+	8800	7500	22	2100	4,22
150	E17	E26 Medium	67508	<b>LU150/55/MED</b>	S55	20	Clear	Universal	0	24000+	15800	13400	22	2100	4,13,22,36
			67509	<b>LU150/55/D/MED</b>	S55	20	Coated	Universal	0	24000+	14500	12300	22	2100	4,13,22,36
	ET23.5	E39 Mogul	67516	<b>LU150/55/ECO</b>	S55	20	Clear	Universal	0	24000+	16000	13800	22	2100	☀️ 4,7,13,22,36
			67517	<b>LU150/55/D</b>	S55	20	Coated	Universal	0	24000+	14000	12500	22	2100	4,13,22,36
	BT28	E39 Mogul	67518	<b>LU150/100</b>	S56	10	Clear	Universal	0	24000+	15700	14100	22	2100	4,14,22,36
200	ET18	E39 Mogul	67576	<b>LU200/ECO</b>	S66	20	Clear	Universal	0	24000+	22000	19800	22	2100	☀️ 4,7,22
250	ET18	E39 Mogul	67578	<b>LU250/ECO</b>	S50	20	Clear	Universal	0	24000+	29000	26100	22	2100	☀️ 4,7,22
			BT28	E39 Mogul	67521	<b>LU250/D</b>	S50	10	Coated	Universal	0	24000+	26000	23400	22
310	ET18	E39 Mogul	67580	<b>LU310/ECO</b>	S67	20	Clear	Universal	0	24000+	37000	32300	22	2100	☀️ 4,7,22
400	ET18	E39 Mogul	67533	<b>LU400/ECO</b>	S51	20	Clear	Universal	0	24000+	50000	45000	22	2100	☀️ 4,7,22
			BT37	E39 Mogul	67524	<b>LU400/D</b>	S51	10	Coated	Universal	0	24000+	47500	40000	22
600	T14.5	E40 Mogul	67610	<b>LU600 SUPER</b>	S106	12	Clear	Universal	0	24000	90000	81000	25	2200	3
750	BT37	E39 Mogul	67547	<b>LU750</b>	S111	6	Clear	Universal	0	24000+	105000	94500	22	2100	3,22
1000	E25	E39 Mogul	67307	<b>LU1000/ECO</b>	S52	6	Clear	Universal	0	24000+	130000	124000	22	2100	3,22





## LUMALUX® STANDBY Dual Arc Tube, Long Life

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	ET23.5	E39 Mogul	67540	<b>LU70/SBY</b>	S62	20	Clear	Universal	0	40000	6050	4950	22	1900	4,19
100	ET23.5	E39 Mogul	67542	<b>LU100/SBY</b>	S54	20	Clear	Universal	0	40000	9500	7600	22	2100	4,19
150	ET23.5	E39 Mogul	67544	<b>LU150/55/SBY</b>	S55	20	Clear	Universal	0	40000	15700	12100	22	2100	4,13,19,36
200	ET18	E39 Mogul	67586	<b>LU200/100/SBY</b>	S66	20	Clear	Universal	0	40000	21500	18000	22	2100	4,19
250	ET18	E39 Mogul	67582	<b>LU250/SBY</b>	S50	20	Clear	Universal	0	40000	27500	23200	22	2100	4,19
400	ET18	E39 Mogul	67584	<b>LU400/SBY</b>	S51	20	Clear	Universal	0	40000	47500	40000	22	2100	4,19
1000	E25	E39 Mogul	67543	<b>LU1000/SBY</b>	S52	6	Clear	Universal	0	24000+	127000	115000	22	2100	3,22

## SPECIALTY

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
400	T7	RX7s RSC	67527	<b>LU400T7/RSC</b>	S51	10	Clear	Horizontal	E	24000	4600	41400	21	2100	4,18
	T14.5	E40 Mogul	67711	<b>400W PLANTASTAR</b>	S51	12	Clear	Universal	0	16000	55000	50000	22	2000	3,43
600	T14.5	E40 Mogul	67712	<b>600W PLANTASTAR</b>	S106	12	Clear	Universal	0	16000	90000	81000	22	2000	3,43
1000	E25	E39 Mogul	67314	<b>LU1000/PLANTASTAR</b>	S52	6	Clear	Universal	0	24000	130000	124000	22	2100	3






## MERCURY VAPOR

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Arc Length (in)	Symbols & Footnotes
75	E17	E26 Med	69402	<b>H43AV-75/DX</b>	H43	20			Coated	Universal	0	16000+	2700	1800	45	4300		22,34
100	E17	E26 Med	69403	<b>H38AV-100/DX</b>	H38	20			Coated	Universal	0	18000+	4000	3560	45	4000		22,34
	PAR38	ADMed Skt	68843	<b>H44GS-100SP</b>	H44	12	SP	8°		Universal	0	16000	2500	1950	20	5900		22,34
		E26 Med Skt	68846	<b>H44GS-100/MDSKSP</b>	H44	12	SP	8°		Universal	0	16000	2500	1950	20	5900		22,34
	R40	E26 Med	69405	<b>H38BP-100/DX</b>	H38	10	FL		Coated	Universal	0	24000+	2500	2000	45	4000		22,34
	ET23.5	E39 Mogul	69408	<b>H38JA-100/DX</b>	H38	20			Coated	Universal	0	24000+	4100	3300	45	4000		22,34
175	R40	E26 Med	69406	<b>H39BP-175/DX</b>	H39	10	FL		Coated	Universal	0	24000+	5100	4100	45	4000		22,34
	ED28	E39 Mogul	69444	<b>H39KB-175</b>	H39	6			Clear	Universal	0	24000+	7700	7150	22	5900		22,34
			69445	<b>H39KC-175/DX</b>	H39	6			Coated	Universal	0	24000+	8400	6800	45	4000		22,34
250	ED28	E39 Mogul	69448	<b>H37KC-250/DX</b>	H37	6			Coated	Universal	0	24000+	12500	10000	45	4000		22,34
400	ED37	E39 Mogul	69449	<b>H33CD-400</b>	H33	6			Clear	Universal	0	24000+	20000	18700	22	5900		22,34
			69450	<b>H33GL-400/DX</b>	H33	6			Coated	Universal	0	24000+	23000	16200	43	4000		22,34
1000	BT56	E39 Mogul	69331	<b>H36GW-1000/DX</b>	H36	6			Coated	Universal	0	24000+	58000	48500	45	4000		9,22,34

## LOW PRESSURE SODIUM

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Approx Lumens (mean)	CRI	CCT (K)	Arc Length (in)	Symbols & Footnotes
18	T17	BY22D	69510	<b>SOX18</b>	L69	12			Clear	BU+/-	E	18000	1800	1620		1700		
35	T17	BY22D	69511	<b>SOX35</b>	L70	12			Clear	BU+/-	E	18000	4550	4095		1700		
55	T17	BY22D	69512	<b>SOX55</b>	L71	12			Clear	BU+/-	E	18000	7800	7800		1700		
90	T21	BY22D	69513	<b>SOX90</b>	L72	12			Clear	HOR+/-	E	18000	14300	12155		1700		
135	T21	BY22D	69514	<b>SOX135</b>	L73	12			Clear	HOR+/-	E	18000	22600	19210		1700		
180	T21	BY22D	69519	<b>SOX180 6PK</b>	L74RF	6			Clear	HOR+/-	E	18000	32000	22400		1700		

## SYMBOLS & FOOTNOTES FOR HIGH INTENSITY DISCHARGE (HID) LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	New item introduced within the past year.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.
	This lamp is a High Color Rendering Lamp

Footnote	Description
1	Consult your OSRAM SYLVANIA Lighting Representative for compatible electronic operating systems.
2	Use in equipment where gasket material is protected from all lamp radiation.
3	Use with 5000V pulse rated sockets only.
4	Use with 4000V pulse rated sockets only.
5	Unjacketed reprographical/photochemical lamp.
6	20,000 average rated life based on 10 hrs/start. 30,000 average rated life based on 120 hrs/start.
7	Passes Federal TCLP test based on NEMA LL Series Standards. TCLP data available upon request. Disposal regulations may vary depending on location. Please check your local and state/provincial regulations.
8	Voltage rise due to fixture effect is to be evaluated using standard lamp types and not LUMALUX PLUS lamp types
9	H34 and H36 lamps are not interchangeable.
10	Consult your OSRAM SYLVANIA Lighting Representative for lamp/ballast compatibility.
11	Horizontally oriented lamps require a position oriented mogul (POM) socket to accept position oriented mogul bases.
12	Operates at 360 watts on 400w M59 ballast or a M165 ballast.
13	55 Volt lamp.
14	100 Volt lamp.
15	UNALUX lamps must be operated on mercury lag or reactor ballasts only.
16	Lamps must be operated on CW/CWA ballasts only
17	O = Lamps classified as O-type, comply with ANSI standard C78.389 for containment testing and may be used in open luminaries. See lamp warning.
18	E = Lamps classified as E-type are to be used ONLY in suitably enclosed luminaries. See lamp warning.
19	Standby feature not guaranteed beyond 24,000 operating hours.
20	S = When operated within 15 degrees of vertical, this lamp may be operated in an open luminaire provided the installation is not near people or flammable or combustible material, otherwise it must be operated in a suitably enclosed luminaire. See lamp warning.
21	F = Enclosed luminaire with UV filter and lens interlock required. WARNING: This lamp emits ultraviolet radiation which can cause serious skin burn and eye inflammation. Additionally, this lamp operates under high pressure at very high temperatures. Should the lamp break there can exist a danger of personal injury and/or fire from the broken lamp particles being discharged. This lamp should only be used in fully enclosed luminaire with ultraviolet (UV) filter tempered glass lens capable of containing any particles discharges by breakage. Do not use this lamp if the filter lens is damaged or missing. This lamp should only be used in luminaires equipped with safety interlock lens switches. See lamp warning.
22	Mean lumens measured at 50% of average rated life
23	When operated on ballasts having a sustaining voltage less than 270V, lamp life may be significantly reduced.
24	The circuit must include overcurrent protection (I.e. Thermally switched ballast).
25	Lamp requires a nominal Open Circuit Voltage of 230V or higher. Without an igniter in the circuit minimum OCV is 209Vrms.
26	Lamps may be operated on ANSI M98 Compliant Ballast.
27	Lamps may be operated on ANSI M140 Compliant Ballast.
28	Published rated life based on 5 hours per start. Life rating will increase to 6,000 hours if operated for at least 10 hours per start in the base up position. Lumens will be lower for operating positions other than base up. See lumen tilt factor curve in the Metal Halide Specification Guide.
29	Operates at 150W on a 175W M57 ballast or a M107 ballast.
30	UV-Stop quartz
31	Lamps may be operated on a M142 Compliant ballast.

## SYMBOLS & FOOTNOTES FOR HIGH INTENSITY DISCHARGE (HID) LAMPS

Footnote	Description
32	Do not operate on dimming systems. Dimming systems will prevent a lamp the ability to self-extinguish.
33	When operating on a ballast with a sustaining voltage less than 310V, lamp life may be significantly reduced.
34	In general, Horizontal lumen values will be 5-10% lower than the vertical lumen values.
35	Lamps may be operated on ANSI M85 or M98 Compliant ballasts.
36	LU150/100 and LU150/55 lamps are not interchangeable.
37	Lamps may be operated on ANSI M142 or M81 Compliant ballasts.
38	Lamps with a E26 medium skirt base are not compatible with exclusionary medium sockets.
39	Lamps may be operated on ANSI M137 Compliant ballasts.
40	The ULX880 lamp should not be used on any circuit other than 480V H36 mercury reactor.
41	Lamps may be operated on ANSI M132 (320W) Compliant ballasts.
42	Lamps may be operated on ANSI M135 (400W) Compliant ballasts.
43	Use with 4-5kV igniter.
44	Operates at 950 watts on 1000W M47 CWA ballasts
45	For use where seal temperature does not exceed 350C.
46	Please consult with your ballast and fixture manufacturer for compatible systems
47	Lamps may be operated M155 or M135 pulse start ballast with a sustaining voltage greater than 270V
48	The emergence of electronic ballasts to operate metal halide lamps has produced additional need to separate the lamp designation of quartz and ceramic metal halide lamps, as there can be some important differences in system performance. Therefore the C lamp designation from NEMA has been introduced going forward for future differentiation of ceramic metal halide lamps and they will begin to be labeled accordingly.

# Manufacturers' Cross Reference

## HIGH INTENSITY DISCHARGE LAMPS

SYLVANIA	GE	PHILIPS
<b>METALARC CERAMIC METAL HALIDE</b>		
MC150T7.5/U/G12/940 PB	CMH150/T/U/942/G12	CDM150/T6/942
MC70T6/U/G12/940 PB	CMH70/T/U/942/G12	CDM70/T6/942
MC150T7.5/G12/U/830 PB	CMH150/T/U/830/G12	CDM150/T6/830
MC39T6/U/G12/830 PB	CMH39/T/U/830/G12	CDM35/T6/830
MCP70/U/MED/830 PB	CMH70/U/830MED	MHC70/U/MP/3K
MCP70/C/U/MED/830 PB	CMH70/C/U/830/MED	MHC70/C/U/MP/3K
MCP100/U/MED/830 PB	CMH100/U/830/MED	MHC100/U/MP/3KALTO
MCP100/C/U/MED/830 PB	CMH100/C/U/830/MED	MHC100/C/U/MP/3KALTO
MCP70PAR38/U/SP/830/ECO PB	CMH70/PAR38/830/SP15	CDM70/PAR38/SP/3K
MCP70PAR38/U/FL/830/ECO PB	CMH70PAR38/830FL25	CDM70/PAR38/FL/3K
MCP70PAR38/U/VWFL/830/ECO PB	CMH70/PAR38/830WF	CDM70/PAR38/WFL/3K
MCP100PAR38/U/SP/830/ECO PB	CMH100/PAR38/830S15	CDM100/PAR38/SP/3K
MCP100PAR38/U/FL/830/ECO PB	CMH100/PAR38/830/FL2	CDM100/PAR38/FL/3K
MCP100PAR38/U/VWFL/830/ECO PB	CMH100/PAR38/830W	CDM100/PARWFL/3K
MC39TC/U/G8.5/830 PB	CMH39/TC/U/830/G8.5	CDM35/TC/830
MC70T6/DE/830 PB	CMH70/TD/942/RX7S	CDM70/TD/830
MC150T7.5/DE/830 PB	CMH150/TD830/RX7S	CDM150/TD/830
MCP320/PS/BU-ONLY/840/BT37 PB	CMH320/PA/O	CDM320/V/O/PS/4K/ALTO
MCP70/U/MED/940 PB	CMH70/U/942/MED/O	MHC70/U/MP/4K/ALTO
MCP70/C/U/MED/940 PB	CMH70/C/U/942/MED/O	MHC70/C/U/MP/4K/ALTO
MC70T6/U/G12/930 PB	----	----
MCP70PAR30LN/U/930/SP/ECO PB 90V	CMH70/PAR30L/830SP	CDM70/PAR30L/M/SP (830)
MCP70PAR30LN/U/930/FL/ECO PB 90V	CMH70/PAR30L/830FL	CDM70/PAR30L/M/FL (830)
MCP100/U/MED/940 PB	----	MHC100/U/MP/4K/ALTO
MC39T6/U/G12/940 PB 90V	CMH39/T/U/942/G12	----
MCP150/U/MED/830 PB	CMH150/U/830/MED/O	MHC150/U/MP/3K/ALTO
MCP150/C/U/MED/830 PB	CMH150/C/U/830/MED/O	MHC150/C/U/MP/3K/ALTO
MCP250/PS/BU-ONLY/940 PB	CMH250/VBU/PA/O	----
MCP250/C/PS/BU-ONLY/940 PB	CMH250/C/VBU/PA/O	----
MCP39PAR20U830SP PB	CMH39/UPAR20/SP10	CDM35/PAR20/M/SP
MC70TC/U/G8.5/930 PB	CMH70/TC/U/942/G8.5	CDM70/TC/830
MCP39PAR20U830FL PB	CMH39/UPAR20/FL25	CDM35/PAR20/M/FL
MCP50/U/MED/830 PB	----	MHC50/U/MP/3K/ALTO
MCP150/PAR38/U/830/SP/ECO PB	----	----
MCP150/PAR38/U/830/FL/ECO PB	----	----
MCP150/PAR38/U/830/VWFL/ECO PB	----	----
MCP50/C/U/MED/830 PB	----	----
MCP320/C/PS/BU-ONLY/840/BT37 PB	CMH320/C/PA/O	CDM320/C/V/O/PS/4K/ALTO
MCP20PAR30LN/U/830/FL/ECO PB	CMH20PAR30/FL25	----
MCP20PAR30LN/U/830/SP/ECO PB	CMH20PAR30/SP10	----
MCP39PAR30LNU830SPECO PB	CMH39/PAR30L/SP10	CDM35/PAR30L/M/SP
MCP39PAR30LNU830FLECO PB	CMH39/PAR30L/FL25	CDM35/PAR30L/M/FL
MC20TC/U/G8.5/830PB	CMH20/TC/U/830/G8.5	----
MC70TC/U/G8.5/930PB	CMH70/T/U/830/G12	CDM70/T6/830
<b>METALARC PULSE START</b>		
MP50/C/U/MED	MXR50/U/MED	----
MP50/U/MED	MXR50/U/MED/O	----
MP70/C/U/MED	MVR70/C/U/MED	----
MP70/U/MED	MVR70/U/MED	----
MP100/C/U/MED	MXR100/C/U/MED	----
MP100/U/MED	MXR100/U/MED	----
MP150/C/U/MED	MXR150/C/U/MED/O	----
MP150/U/MED	MXR150/U/MED/O	----
MS175/C/PS/BU-ONLY	MVR175/C/VBU/PA	----
MS175/C/PS/BU-ONLY/MED	MVR175/C/VBU/MED/PA	----
MS175/PS/BU-ONLY	MVR175/VBU/PA	MS175/BU/PS
MS175/PS/BU-ONLY/MED	MVR175/VBU/VBU/PA	----
MS200/C/PS/BU-ONLY/BT28	----	----
MS200/PS/BU-ONLY/BT28	----	----
MS200/PS/BU-ONLY/ET23.5	----	----
M250/PS/U	----	----
MP250/C/PS/BU-ONLY	MVR250/C/VBU/PA	----
MP250/PS/BU-ONLY	MVR250/VBU/PA	----
MS250/C/PS/BU-ONLY	MVR250/C/VBU/MED/PA	----

## Manufacturers' Cross Reference Guide (continued)

### HIGH INTENSITY DISCHARGE LAMPS - METALARC CERAMIC

SYLVANIA	GE	PHILIPS
MS250/PS/BU-ONLY	MVR250/VBU/PA	----
MS320/C/PS/BU-HOR	MVR320/C/VBU/XHOPA	----
MS320/PS/BU-HOR	MVR320/VBU/XHO/PA	----
MP320/350/C/PS/BU-ONLY/BT28	MPR350/C/VBU/PA	MP350/C/BU/PS
MP320/350/C/PS/BU-ONLY/BT28	MPR320/C/VBU/XHO/PA	MP320/C/BU/PS
MP320/350/PS/BU-ONLY/BT28	MPR350/VBU/PA	MP350/BU/PS
MP320/350/PS/BU-ONLY/BT28	MPR320/VBU/XHOPA	MP320/BU/PS
MP350/400/C/PS/BU-ONLY	MPR400/C/VBU/XHOPA	MP400/C/BU/PS
MP350/400/PS/BU-ONLY	MPR350/VBU/PA	MP400/BU/PS
MS400/C/PS/BU-ONLY	MVR400/VBU/XHO/PA	MS400/C/BU/PS
MS400/PS/BD-ONLY/BT28	MVR400/C/VBU/ED28/PA	----
MS400/PS/BU-ONLY	MVR400/VBU/HO/PA	MS400/BU/PS
MS400/PS/BU-ONLY/BT28	MVR400/VBU/ED28/PA	----
MS750/C/PS/BU-HOR/BT37	----	----
MS750/PS/BD-ONLY/BT37	----	----
MS750/PS/BU-HOR/BT37	MVR750/VBU/PA	----
M1000/PS/U/BT37	MVR1000/U/BT37/PA	MS1000/BU/BT37/PS

### METALARC SUPERSAVER

M150/SS/U/BT-28	MVR150/U/WM	----
MS360/C/SS/BU-HOR	MVR360CVBU/WM/HO	----
MS360/SS/BU-HOR	MVR360/VBU/WM/HO	MS360/BU/EW
MSP360/C/SS/BU-ONLY	MVR360/C/VBU/WM/HO	MP360/C/BU/EW
MSP360/SS/BU-ONLY	MPR360/VBU/WM/HO/O	MP360BU/EW
M950/SS/U/BT56	----	----
METALARC SUPER		
MS175/HOR	MVR175/HOR	----
MS175/C/HOR	MVR175/C/HOR	MS175/C/HOR
MS250/3K/HOR	----	----
MS250/C/HOR	MVR250/C/HOR	MS250/C/HOR
MS250/HOR	MVR250/HOR	----
MS400/3K/BU-ONLY	MVR400/VBU/XHO	MS400/3K/BU
MS400/BD-ONLY	MVR400/VBD	----
MS400/BU-ONLY	MVR400/VBU/HO	MS400/BU
MS400/BU-ONLY/BT28	MVR400/VBU/BT28	MS400/BU/ED28
MS400/C/BU-ONLY	MVR400/C/VBU	MS400/C/BU
MS400/C/HOR	MVR400/C/HOR/MOG	----
MS400/C/HOR/BT28	----	----
MS400/HOR	MVR400/HOR/MOG	----
MS400/HOR/BT28	MVR400/HOR/BT28	----
MS1000/BD-ONLY	----	MS1000/BD
MS1000/BU-ONLY	MVR1000/VBU/HO	MS1000/BU
MS1000/C/BU-ONLY	MVR1000/C/VBU/HO	MS1000/C/BU

### METALARC STANDARD® & METALARC PRO-TECH®

M175/U	MVR175/U	MH175/U
M175/C/U	MVR175/C/U	MH175/C/U
M175/C/U/MED	MVR175/C/U/MED	MH175/C/U/M
M175/U/MED	MVR175/U/MED	MH175/U/M
M175/3K/BU-ONLY	MVR175/SP30/U	MH175/3K/BU
MP175/BU-ONLY	MPR175/VBU/O	MP175/BU
MP175/BU-ONLY/MED	----	----
MP175/C/BU-ONLY	MPR175/C/VBU/O	----
M250/U	MVR250/U	MH250/U
M250/C/U	MVR250/C/U	MH250/C/U
M250/3K/BU-ONLY	MVR250/SP30/U	MH250/3K/BU
M250/U/ET18	----	----
MP250/BU-ONLY	MPR250/VBU/O	MP250/BU
MP250/C/BU-ONLY	MPR250/C/VBU/O	----
M400/U	MVR400/U	MH400U
M400/C/U	MVR400/C/U	MH400/C/U
M400/C/U/BT28	MVR400/C/U/ED28	MH400/U/ED28
M400/U/BT28	MVR400/U/ED28	MH400/U/ED28
M400/U/ET18	----	----

# Manufacturers' Cross Reference (continued)

## HIGH INTENSITY DISCHARGE LAMPS - METAL HALIDE / HIGH PRESSURE SODIUM

SYLVANIA	GE	PHILIPS
<b>METALARC STANDARD® &amp; METALARC PRO-TECH®</b>		
MP400/BD-ONLY	----	----
MP400/BU-ONLY	MPR400/VBU/HO/O	MP400/BU
MP400/C/BU-ONLY	MPR400/C/VBU/HO/O	MP400/C/BU
M1000/U	MVR1000/U	MH1000/U
M1000/C/U	MVR1000/C/U	MH1000/C/U
M1000/U/BT37	MVR1000/U/BT37	MH1000/U/BT37
MP1000/BU-ONLY	MPR1000/VBU/O	MP1000/BU
MP1000/C/BU-ONLY	----	----
M1500/BD	----	MH1500/U
M1500/BU-HOR	MVR1500/HBU	MH1500/U
<b>METALARC BRITELINE</b>		
M1500T7/DE	SPL1500/L/H/652	----
M2000T8/DE	----	----
M2000T9/DE	MQI2000/T9/40	----
<b>METALARC SAFELINE</b>		
MT400/BU-ONLY	MVT400/VBU	MHT400/U
MT400/C/BU-ONLY	MVT400/C/VBU	MHT400/C/U
<b>DOUBLE-ENDED HQI</b>		
HQI-DE150/NDX	ARC150/TD/UVC/742	MHN150/TD/840
HQI-DE150/WDX	ARC150/TD/UVC/730	----
HQI-DE70/NDX	ARC70/TD/UVC/743	MHN70/TD/840
HQI-DE70/WDX	ARC70/TD/UVC/730	----
HQI-SE 150/NDX	ARC150T/U/840G12	----
<b>LUMALUX PLUS® ECOLOGIC®</b>		
LU50/PLUS/ECO	----	C50S68/ALTONC
LU70/PLUS/ECO	LU70/ECO/NC	C70S62/ALTO/PLUS
LU70/PLUS/MED	----	----
LU100/PLUS/ECO	LU100/ECO/NC	C100S54/ALTONC
LU150/55/PLUS/ECO	LU150/ECO/NC	C150S55/ALTONC
LU200/PLUS/ECO	LU200/ECO/NC	C200S66/ALTONC
LU250/PLUS/ECO	LU250/ECO/NC	C250S50/ALTO/NC
LU310/PLUS/ECO	----	----
LU400/PLUS/ECO	LU400/ECO/NC	CS400S51/ALTO/PLUS
<b>LUMALUX® STANDARD &amp; ECOLOGIC®</b>		
LU35/D/MED	LU35/D/MED	C35S76/D/M
LU35/MED	LU35/MED	C35S76/M
LU50/D/MED	LU50/D/MED	C50S68/D/M
LU50/ECO	LU50	C50S68/ALTO
LU50/MED	LU50/MED	C50S68/M
LU50/D	LU50/D	C50S68/D/ALTO
LU70/D	LU70/D	C70S62/D/ALTO
LU70/D/MED	LU70/D/MED	C70S62/D/M
LU70/ECO	LU70/ECO	C70S62/ALTO
LU70/MED	LU70/MED	C70S62/M
LU100/D	LU100/D	C100S54/D/ALTO
LU100/D/MED	LU100/D/MED	C100S54/D/M
LU100/ECO	LU100/ECO	C100S54/ALTO
LU100/MED	LU100/MED	C100S54/M
LU150/100	LU150/100	C150/S56/ALTO
LU150/55/D	LU150/55/D	C50S55/D/ALTO
LU150/55/D/MED	LU150/D/MED	C150S55/D/M
LU150/55/ECO	LU150/55/ECO	C150S55/ALTO
LU150/55/MED	LU150/MED	C150S55/M
LU200/ECO	LU200/ECO	C200S66/ALTO
LU250/D	LU250/D	C250S50/D/ALTO
LU250/ECO	LU250/ECO	C250S50/ALTO
LU310/ECO	LU310	C310S67
LU400/D	LU400/D	C400S51/D/ALTO



# Manufacturers' Cross Reference Guide (continued)

## HIGH INTENSITY DISCHARGE LAMPS - HIGH PRESSURE SODIUM / SOX / MERCURY VAPOR

SYLVANIA	GE	PHILIPS
----------	----	---------

### LUMALUX® STANDARD & ECOLOGIC®

LU400/ECO	LU400/ECO	C50S68/D/ALTO
LU750	LU750	----
LU1000	LU1000/ECO	C1000S52/ALTO

### LUMALUX STANDBY

LU70/SBY	LU70/SBY/XL	C70S62/2
LU100/SBY	LU100/SBY/XL	C100S54/2
LU150/55/SBY	LU150/55/SBY/XL	C150S55/2
LU200/100/SBY	LU200/SBY/XL	----
LU250/SBY	LU250/SBY/XL	C250S50/2
LU400/SBY	LU400/SBY/XL	C400S51/2
LU1000/SBY	LU1000/SBY/XL	C1000S52/2

### SOX LOW PRESSURE SODIUM

SOX18	SOX18	SOX-E18
SOX35	SOX35	SOX35
SOX55	SOX55	SOX55
SOX90	SOX90	SOX90
SOX180	----	SOX180

### MERCURY VAPOR

H33CD-400	HR400A33	H33CD-400
H33GL-400/DX	HR400DX33	H33GL-400/DX
H36GW-1000/DX	HR1000DX36	H36GW-1000/DX
H37KC-250/DX	HR250DX37	H37KC-250/DX
H38AV-100/DX	HR100DX38/MED	H38MP-100/DX
H38BP-100/DX	HR100RFL38	H38BP-100/DX
H38JA-100/DX	HR100DX38/12PK	H38JA-100/DX
H39BP-175/DX	HR175RFL39	H39BM-175
H39KB-175	HR175A39/CP	H39KB-175
H39KC-175/DX	HR175DX39	H39KC-175/DX
H43AV-75/DX	HR75DX43	H43AV-75/DX
H44GS-100/MDSKSP	HR100PSP44/MED	H44GS-100/M
H44GS-100SP	HR100PSP44	H44GS-100

## OSRAM SYLVANIA: THE LEADER IN ENERGY SAVING COMPACT FLUORESCENT LAMPS

The compact fluorescent lamp is an electric discharge device which utilizes a low pressure mercury vapor arc to generate ultra-violet (plus a little visible) energy. The ultra-violet energy is absorbed by a phosphor coat on the inside of the glass tube and converted by the phosphor to visible wavelengths; the wavelengths of the light generated are determined by the composition of the phosphor. In addition to the small amount of mercury vapor, the fluorescent tube contains an atmosphere of an inert gas, usually argon, krypton, neon, or a mixture of two or more of these gases. The pressure of the gases contained in the lamp is very low, usually from 2 to 3 torr. Atmospheric pressure is 760 torr.

### BULB

A wide variety of compact fluorescent bulb shapes are available

### PHOSPHOR

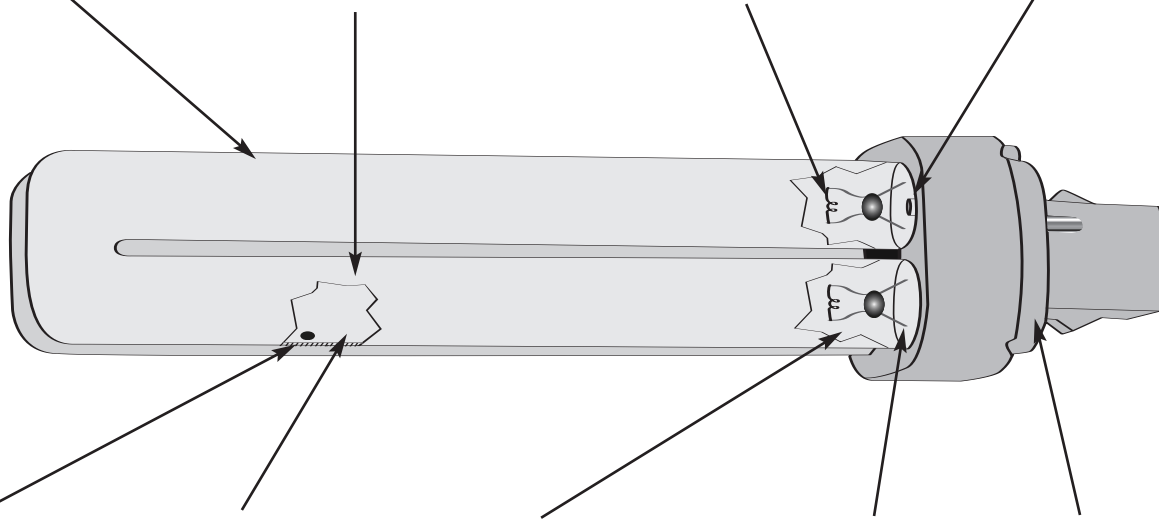
Coating inside the bulb transforms ultraviolet radiation into visible light. Color of light produced depends on composition of phosphor.

### CATHODE

"Hot cathodes" at each end of lamp are coated with emissive materials which emit electrons. Usually made of coiled-coil or single-coil tungsten wire.

### EXHAUST TUBE

Air is exhausted through this tube during manufacture and inert gas introduced into the bulb.



### MERCURY

A minute quantity of liquid mercury is placed in the bulb to furnish mercury vapor.

### GAS

Usually a mixture of argon and neon at low pressure.

### STEM PRESS

The lead-in wires have an air tight seal here and are made of specific material to assure about the same coefficient of expansion as the glass.

### LEAD-IN WIRES

Connect to the base pins and carry the current to and from the cathodes and the mercury arc.

### BASE

Several different types used to connect the lamp to the electric circuit and to support the lamp in the lampholder.

## HOW TO READ PRODUCT INFORMATION - COMPACT FLUORESCENT

Nominal Wattage	Bulb	MOL (in)	(mm)	Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
13	Twist	4.6	117	Med	29116	<b>CF13EL/MINITWIST</b>		6	8000	3000	82	800	640	2,21,28, 36,63,64
26	D(T4)	6.8	173	G24D-3	20710	<b>CF26DD/830/ECO</b>	CFQ26W/G24D/30	50	10000	3000	82	1800	1548	2,21,28, 34,37
32	T(T4)	5.5	140	GX24Q-3	20885	<b>CF32DT/E/IN/835/ECO</b>	CFTR32W/GX24Q/35	50	10000	3500	82	2328 2400	2002 2064	2,21,28, 33,35,59
40	L(T5)	22.6	573	2G11	20586	<b>FT40DL/841/RS/ECO</b>	FT40W/2G11/RS/41	10	20000	4100	82	3150	2709	2,21,28

<b>Nominal Wattage</b>	Design wattage on reference ballast. Actual wattage dependent on ballast.
<b>Bulb</b>	Describes the shape of the bulb.
<b>Base</b>	Base designations for compact fluorescent lamps are the NEMA designations. Please see page 111 for base illustrations.
<b>MOL</b>	Maximum overall length. The actual length of the lamp measured from the bottom of the base to the top outside edge of the glass. In many cases, the bottom of the base is the bottom of the center post of the base of the lamp.
<b>Symbols &amp; Footnotes</b>	Most symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and footnotes are at the end of the fluorescent section.
<b>Ordering Abbreviation</b>	A text description of the lamp. Please see below for several examples and explanations of some of the codes.
<b>NEMA Generic Designation</b>	Designation assigned by NEMA (National Electrical Manufacturers Association).
<b>CCT</b>	Correlated Color Temperature. The degree of "whiteness" of the light. Expressed in kelvins (K). Please see page 109 for more information.
<b>CRI</b>	Color Rendering Index. A numbering system for rating the relative color rendering quality of a light source compared to a standard. Please see page 109 for more information.
<b>Initial &amp; Mean Lumens</b>	Initial lumens are measured when the lamp has been operating for 100 hours. Mean lumens are typically measured at 40% of the rated life of the lamp. Compact Fluorescent lamp lumens are measured at 25°C (77°F) and 35°C (95°F)

### How to Read Ordering Abbreviations

CF26DD/830		CF32DT/E/IN/835/ECO		FT40DL/841/RS/ECO		CF20EL/830/MED/ECO	
CF	Compact Fluorescent	CF	Compact Fluorescent	FT	Fluorescent Twin	CF	Compact Fluorescent
26	Nominal lamp wattage	32	Nominal lamp wattage	40	Nominal lamp wattage	20	Nominal lamp wattage
DD	DULUX® Double	DT	DULUX Triple	DL	DULUX Long	EL	Electronic Lamp
8	82 CRI	E	Electronic or dimming operation	8	82 CRI	8	82 CRI
30	3000K CCT	IN	Amalgam	41	4100K CCT	30	3000K CCT
		8	82 CRI	RS	Rapid Start	MED	Medium screw base
		35	3500K CCT	ECO	ECOLOGIC	ECO	ECOLOGIC
		ECO	ECOLOGIC				

### DULUX® LAMP FAMILIES

- CF... DS = DULUX Single, 2-pin for magnetic operation, ECOLOGIC®
- CF... DS/E = DULUX Single, 4-pin for electronic or dimming operation
- CF... DD = DULUX Double, 2-pin for magnetic operation, ECOLOGIC
- CF... DD/E = DULUX Double, 4-pin for electronic or dimming operation, ECOLOGIC
- CF... DT = DULUX Triple, 2-pin for magnetic operation, ECOLOGIC
- CF... DT/E = DULUX Triple, 4-pin for electronic or dimming operation, ECOLOGIC
- CF... DT/E/IN = DULUX Triple, 4-pin for electronic or dimming operation, amalgam, ECOLOGIC
- FT... DL = Fluorescent Twin, DULUX Long, 4-pin
- CF... DF = DULUX Flat, 4-pin
- CF... EL = DULUX self-ballasted, medium screw base

For weight and measurement information, please visit [www.sylvania.com](http://www.sylvania.com)

## Lamp Disposal Labeling

The following information appears on packages of fluorescent lamps. For more information on lamp disposal labeling, see the inside back cover of this catalog.



### Lamp Contains Mercury

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

## COMPACT FLUORESCENT LAMP COLORS

COLOR	COLOR ABBREVIATION	CORRELATED COLOR TEMPERATURE(1)	COLOR RENDERING INDEX(2)
DULUX® 2700K	827	2700	82
SOFT WHITE	Soft White	2900	82
WARM WHITE	WW	3000	52
DULUX SOFT WHITE	830	3000	82
DULUX 3000K	830	3000	82
DULUX 4100K	841	4100	82
DULUX 5000K	850	5000	82
DAYLIGHT™	D	6500	76

## COMPACT FLUORESCENT COMPETITIVE GUIDES

NOTE: These tables are intended only as guides and may represent another lamp company's most similar product or product family rather than an identical match. Individual manufacturer's performance values should be consulted. Environmental conditions, ballast type, and other auxiliary equipment may affect lamp performance.

## COMPACT FLUORESCENT BRAND NAMES

SYLVANIA	GE*	PHILIPS**
DULUX®	BIAX	PL
DULUX S	Low wattage BIAX	PL
DULUX D, D/E	Double BIAX	PL-C
DULUX T, T/E	Triple BIAX	PL-T
DULUX F	---	---
DULUX L	High Lumen BIAX	PL-L
DULUX EL	Spiral	Marathon Twister
---	2D	---
DURA-ONE™	GENURA	---
ECOLOGIC® (ECO®)	Ecolux (ECO)	ALTO

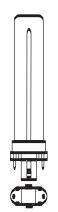
\* Trademarks or registered trademarks of General Electric Company \*\* Trademarks or registered trademarks of Philips

## COMPACT FLUORESCENT COLOR CROSS REFERENCE

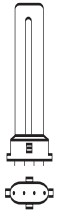
SYLVANIA	GE	PHILIPS
827	SPX27	27
830	SPX30	30, 830
835	SPX35	35, 835
841	SPX41	41, 841
850	SPX50	50, 850
865	SPX65	865
950		950

## COMPACT FLUORESCENT LAMPS

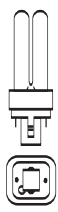
The overall length of DULUX® compact fluorescent lamps is measured from the bottom of the base to the outside edge of the glass. In many cases, the bottom of the base is the bottom of the center post of the base of the lamp.



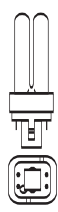
DULUX S



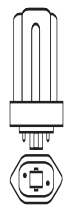
DULUX S/E



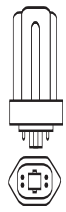
DULUX D



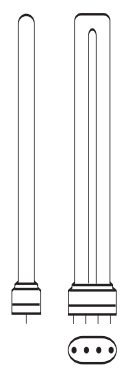
DULUX D/E



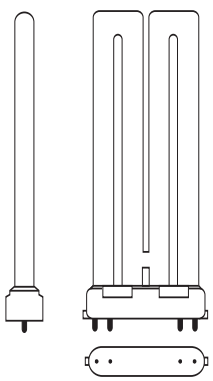
DULUX T



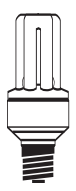
DULUX T/E  
DULUX T/E/N



DULUX L



DULUX F



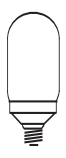
DULUX EL Triple



DULUX EL TWIST



DULUX EL CLASSIC (A-Shape)



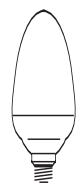
DULUX EL BULLET



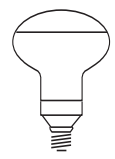
DULUX EL Low Profile GLOBE



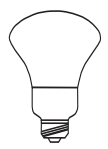
DULUX EL GLOBE



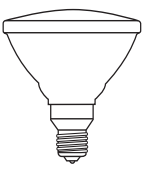
DULUX EL DECOR



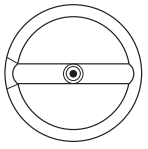
DULUX EL REFLECTOR



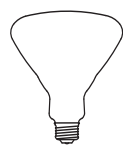
BR-30



PAR-38



DULUX EL Circline (6-1/2" & 8" outside diameters)



BR40 Med



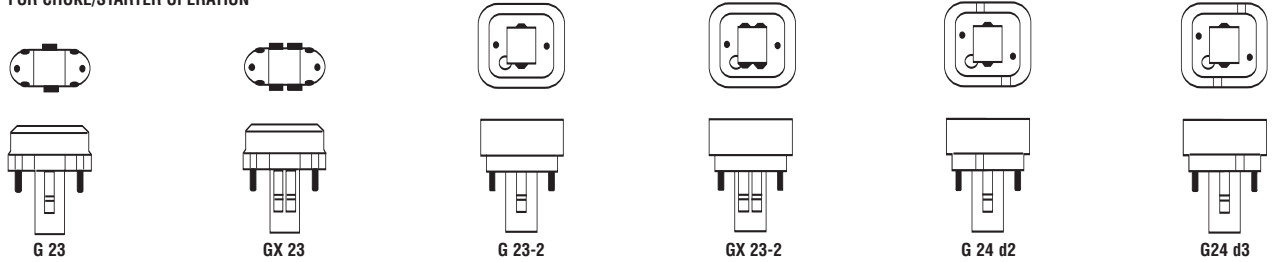
PAR38 Med Skrt

# BASES

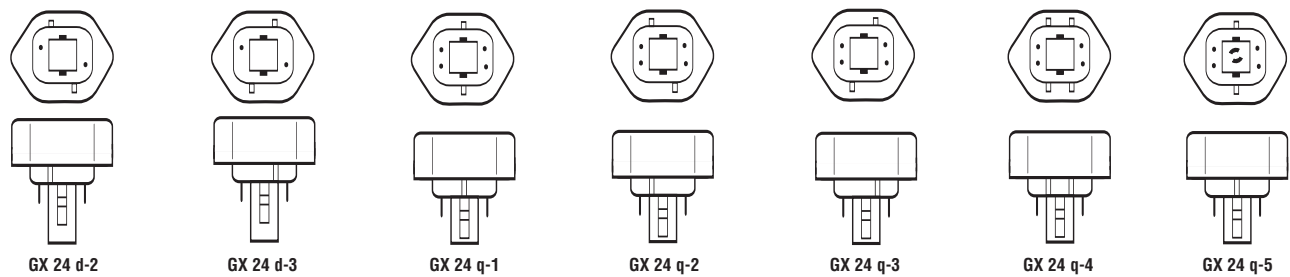
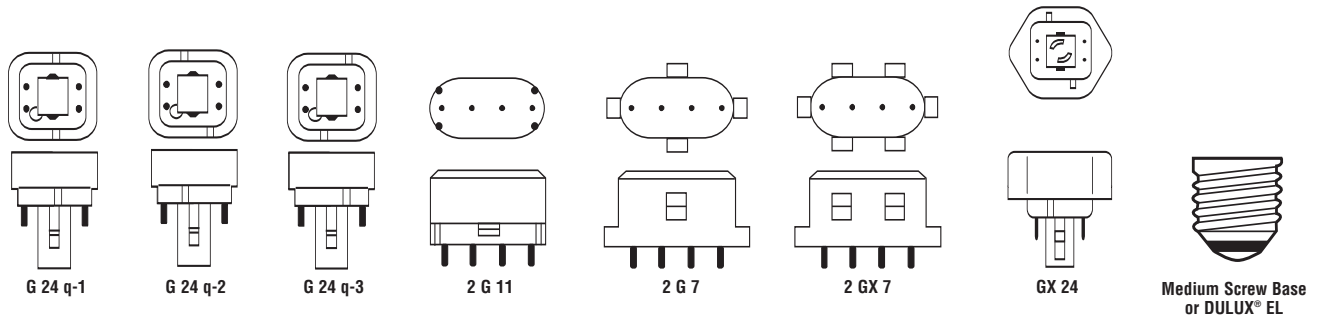
Pin-based compact fluorescent lamps have either 2 pins or 4 pins. Each 2-pin lamp has an internal starter and is designed for preheat, magnetic operation. The 4-pin lamps are designed for electronic ballast operation and are dimmable. These lamps have no internal starter; starting the lamps is a function of the ballast.

Medium screw base, compact fluorescent lamps have integral ballasts.

## FOR CHOKE/STARTER OPERATION



## FOR ELECTRONIC OR DIMMING OPERATION





## SYLVANIA DULUX® COMPACT FLUORESCENT CROSS REFERENCE

### DULUX S

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20325	CF5DS/827	CFT5W/G23/827	F5BX/SPX27	PL-S 5W/827	5	G23
20303	CF5DS/841	CFT5W/G23/827	F5BX/SPX41	—	5	G23
20327	CF7DS/827	CFT7W/G23/827	F7BX/SPX27	PL-S 7W/827	7	G23
20310	CF7DS/835	CFT7W/G23/835	F7BX/SPX35	PL-S 7W/835	7	G23
20304	CF7DS/841	CFT7W/G23/841	F7BX/SPX41	PL-S 7W/841	7	G23
20307	CF7DS/850	CFT7W/G23/850	—	PL-S 7W/850	7	G23
20329	CF9DS/827	CFT9W/G23/827	F9BX/SPX27	PL-S 9W/827	9	G23
20333	CF9DS/835	CFT9W/G23/835	F9BX/SPX35	PL-S 9W/835	9	G23
20305	CF9DS/841	CFT9W/G23/841	F9BX/SPX41	PL-S 9W/841	9	G23
20308	CF9DS/850	CFT9W/G23/850	—	PL-S 9W/850	9	G23
20331	CF13DS/827	CFT13W/GX23/827	F13BX/SPX27	PL-S 13W/827	13	GX23
20283	CF13DS/830	CFT13W/GX23/830	F13BX/SPX30	PL-S 13W/830	13	GX23
20335	CF13DS/835	CFT13W/GX23/835	F13BX/SPX35	PL-S 13W/835	13	GX23
20306	CF13DS/841	CFT13W/GX23/841	F13BX/SPX41	PL-S 13W/841	13	GX23
20309	CF13DS/850	CFT13W/GX23/850	F13BX/SPX50	PL-S 13W/850	13	GX23
20374	CFT13WDS/EC/827	CFT13W/GX23/827	F13BX/E/827	—	13	GX23
20397	CFT13WDS/EC/830	CFT13W/GX23/830	F13BX/E/830	—	13	GX23
20368	CFT13WDS/EC/835	CFT13W/GX23/835	F13BX/E/835	—	13	GX23
20375	CFT13WDS/EC/841	CFT13W/GX23/841	F13BX/E/841	—	13	GX23

### DULUX S/E

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20311	CF5DS/E/827	CFT5W/2G7/827	—	—	5	2G7
20315	CF5DS/E/841	CFT5W/2G7/841	—	—	5	2G7
20312	CF7DS/E/827	CFT7W/2G7/827	—	—	7	2G7
20316	CF7DS/E/841	CFT7W/2G7/841	—	—	7	2G7
20313	CF9DS/E/827	CFT9W/2G7/827	—	—	9	2G7
20317	CF9DS/E/841	CFT9W/2G7/841	—	—	9	2G7
20314	CF13DS/E/827	CFT13W/2GX7/827	—	—	13	2GX7
20284	CF13DS/E/830	CFT13W/2GX7/830	—	—	13	2GX7
20318	CF13DS/E/841	CFT13W/2GX7/841	—	—	13	2GX7

### DULUX D

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20689	CF9DD/827	CFQ9W/G23/827	F9DBX23T4/SPX27	—	9	G23-2
20783	CF9DD/830	CFQ9W/G23/830	—	—	9	G23-2
20690	CF9DD/835	CFQ9W/G23/835	—	—	9	G23-2
20691	CF13DD/827	CFQ13W/GX23/827	F13DBX23T4/SPX27	PL-C 13W/827/USA	13	GX23-2
20705	CF13DD/830	CFQ13W/GX23/830	F13DBX23T4/SPX30	PL-C 13W/830/USA	13	GX23-2
20692	CF13DD/835	CFQ13W/GX23/835	F13DBX23T4/SPX35	PL-C 13W/835/USA	13	GX23-2
20708	CF13DD/841	CFQ13W/GX23/841	F13DBX23T4/SPX41	PL-C 13W/841/USA	13	GX23-2
20676	CF18DD/827	CFQ18W/G24d/827	F18DBXT4/SPX27	PL-C 18W/827	18	G24 d-2
20709	CF18DD/830	CFQ18W/G24d/830	F18DBXT4/SPX30	PL-C 18W/830	18	G24 d-2
20677	CF18DD/835	CFQ18W/G24d/835	F18DBXT4/SPX35	PL-C 18W/835	18	G24 d-2
20678	CF18DD/841	CFQ18W/G24d/841	F18DBXT4/SPX41	PL-C 18W/841	18	G24 d-2
20679	CF26DD/827	CFQ26W/G24d/827	F26DBXT4/SPX27	PL-C 26W/827	26	G24 d-3
20710	CF26DD/830	CFQ26W/G24d/830	F26DBXT4/SPX30	PL-C 26W/830	26	G24 d-3
20680	CF26DD/835	CFQ26W/G24d/835	F26DBXT4/SPX35	PL-C 26W/835	26	G24 d-3
20681	CF26DD/841	CFQ26W/G24d/841	F26DBXT4/SPX41	PL-C 26W/841	26	G24 d-3

### DULUX D/E

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20682	CF13DD/E/827	CFQ13W/G24q/827	F13DBX/SPX27/4P	PL-C 13W/827/4P	13	G24 q-1
20721	CF13DD/E/830	CFQ13W/G24q/830	F13DBX/SPX30/4P	PL-C 13W/830/4P	13	G24 q-1
20671	CF13DD/E/835	CFQ13W/G24q/835	F13DBX/SPX35/4P	PL-C 13W/835/4P	13	G24 q-1
20667	CF13DD/E/841	CFQ13W/G24q/841	F13DBX/SPX41/4P	PL-C 13W/841/4P	13	G24 q-1
20683	CF18DD/E/827	CFQ18W/G24q/827	F18DBX/SPX27/4P	PL-C 18W/827/4P	18	G24 q-2
20724	CF18DD/E/830	CFQ18W/G24q/830	F18DBX/SPX30/4P	PL-C 18W/830/4P	18	G24 q-2
20672	CF18DD/E/835	CFQ18W/G24q/835	F18DBX/SPX35/4P	PL-C 18W/835/4P	18	G24 q-2
20668	CF18DD/E/841	CFQ18W/G24q/841	F18DBX/SPX41/4P	PL-C 18W/841/4P	18	G24 q-2
20684	CF26DD/E/827	CFQ26W/G24q/827	F26DBX/SPX27/4P	PL-C 26W/827/4P	26	G24 q-3
20722	CF26DD/E/830	CFQ26W/G24q/830	F26DBX/SPX30/4P	PL-C 26W/830/4P	26	G24 q-3
20673	CF26DD/E/835	CFQ26W/G24q/835	F26DBX/SPX35/4P	PL-C 26W/835/4P	26	G24 q-3
20669	CF26DD/E/841	CFQ26W/G24q/841	F26DBX/SPX41/4P	PL-C 26W/841/4P	26	G24 q-3

# SYLVANIA DULUX® COMPACT FLUORESCENT CROSS REFERENCE

## DULUX T

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20756	CF18DT/827	CFQ18W/GX24d/827	—	—	18	GX24 d-2
20752	CF26DT/827	CFQ26W/GX24d/827	—	—	26	GX24 d-3

## DULUX T/E

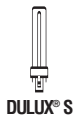
NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20891	CF13DT/E/827	CFTR13W/GX24q/827	F13TBX/827/4P/EOL	—	13	GX24 q-1
20892	CF13DT/E/830	CFTR13W/GX24q/830	—	—	13	GX24 q-1
20893	CF13DT/E/835	CFTR13W/GX24q/835	—	—	13	GX24 q-1
20894	CF13DT/E/841	CFTR13W/GX24q/841	—	—	13	GX24 q-1
20760	CF18DT/E/827	CFTR18W/GX24q/827	F18TBX/827/4P/EOL	—	18	GX24 q-2
20767	CF26DT/E/827	CFTR26W/GX24q/827	F26TBX/827/4P/EOL	—	26	GX24 q-3
20768	CF32DT/E/827	CFTR32W/GX24q/827	—	—	32	GX24 q-3

## DULUX T/E/IN

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20875	CF18DT/E/IN/827	CFTR18W/GX24q/827	F18TBX/SPX27/A/4P	PL-T 18W/827/4P	18	GX24 q-2
20876	CF18DT/E/IN/830	CFTR18W/GX24q/830	F18TBX/SPX30/A/4P	PL-T 18W/830/4P	18	GX24 q-2
20877	CF18DT/E/IN/835	CFTR18W/GX24q/835	F18TBX/SPX35/A/4P	PL-T 18W/835/4P	18	GX24 q-2
20878	CF18DT/E/IN/841	CFTR18W/GX24q/841	F18TBX/SPX41/A/4P	PL-T 18W/841/4P	18	GX24 q-2
20879	CF26DT/E/IN/827	CFTR26W/GX24q/827	F26TBX/SPX27/A/4P	PL-T 26W/827/4P	26	GX24 q-3
20880	CF26DT/E/IN/830	CFTR26W/GX24q/830	F26TBX/SPX30/A/4P	PL-T 26W/830/4P	26	GX24 q-3
20881	CF26DT/E/IN/835	CFTR26W/GX24q/835	F26TBX/SPX35/A/4P	PL-T 26W/835/4P	26	GX24 q-3
20882	CF26DT/E/IN/841	CFTR26W/GX24q/841	F26TBX/SPX41/A/4P	PL-T 26W/841/4P	26	GX24 q-3
20883	CF32DT/E/IN/827	CFTR32W/GX24q/827	F32TBX/SPX27/A/4P	PL-T 32W/827/4P	32	GX24 q-3
20884	CF32DT/E/IN/830	CFTR32W/GX24q/830	F32TBX/SPX30/A/4P	PL-T 32W/830/4P	32	GX24 q-3
20885	CF32DT/E/IN/835	CFTR32W/GX24q/835	F32TBX/SPX35/A/4P	PL-T 32W/835/4P	32	GX24 q-3
20886	CF32DT/E/IN/841	CFTR32W/GX24q/841	F32TBX/SPX41/A/4P	PL-T 32W/841/4P	32	GX24 q-3
20887	CF42DT/E/IN/827	CFTR42W/GX24q/827	F42TBX/827/A/4P/EOL	PL-T 42W/827/4P	42	GX24 q-4
20888	CF42DT/E/IN/830	CFTR42W/GX24q/830	F42TBX/830/A/4P/EOL	PL-T 42W/830/4P	42	GX24 q-4
20871	CF42DT/E/IN/835	CFTR42W/GX24q/835	F42TBX/835/A/4P/EOL	PL-T 42W/835/4P	42	GX24 q-4
20890	CF42DT/E/IN/841	CFTR42W/GX24q/841	F42TBX/841/A/4P/EOL	PL-T 42W/841/4P	42	GX24 q-4
20895	CF57DT/E/IN/827	CFTR57W/GX24q/827	F57QBX/827/A/4P/EOL	—	57	GX24 q-5
20896	CF57DT/E/IN/830	CFTR57W/GX24q/830	F57QBX/830/A/4P/EOL	PL-T 57W/830/4P/A	57	GX24 q-5
20897	CF57DT/E/IN/835	CFTR57W/GX24q/835	F57QBX/835/A/4P/EOL	PL-T 57W/835/4P/A	57	GX24 q-5
20899	CF57DT/E/IN/841	CFTR57W/GX24q/841	F57QBX/841/A/4P/EOL	PL-T 57W/841/4P/A	57	GX24 q-5
20794	CF70DT/E/IN/827	CFTR70W/GX24q/827	F70QBX/827/A/4P/EOL	—	70	GX24 q-6
20795	CF70DT/E/IN/830	CFTR70W/GX24q/830	F70QBX/830/A/4P/EOL	—	70	GX24 q-6
20796	CF70DT/E/IN/835	CFTR70W/GX24q/835	F70QBX/835/A/4P/EOL	—	70	GX24 q-6
20797	CF70DT/E/IN/841	CFTR70W/GX24q/841	F70QBX/841/A/4P/EOL	—	70	GX24 q-6

## DULUX L

NAED	SYLVANIA	NEMA / GENERIC	GE	PHILIPS	WATTAGE	BASE
20587	FT18DL830	FT18W/2G11/830	F18BX/SPX30	PL-L 18W/830	18	2G11
20595	FT18DL830RS	FT18W/2G11/RS/830	F18BX/SPX30/RS	PL-L 18W/830	18	2G11
20588	FT18DL835	FT18W/2G11/835	F18BX/SPX35	PL-L 18W/835	18	2G11
20594	FT18DL835RS	FT18W/2G11/RS/835	F18BX/SPX35/RS	PL-L 18W/835	18	2G11
20589	FT18DL841	FT18W/2G11/841	F18BX/SPX41	PL-L 18W/841	18	2G11
20593	FT18DL841RS	FT18W/2G11/RS/841	F18BX/SPX41/RS	PL-L 18W/841	18	2G11
20597	FT24DL830	FT24W/2G11/830	F27BX/SPX30/RS	PL-L 24W/830	24	2G11
20580	FT24DL835	FT24W/2G11/835	F27BX/SPX35/RS	PL-L 24W/835	24	2G11
20596	FT24DL841	FT24W/2G11/841	F27BX/SPX41/RS	PL-L 24W/841	24	2G11
20581	FT36DL830	FT36W/2G11/830	F39BX/SPX30/RS	PL-L 36W/830	36	2G11
20582	FT36DL835	FT36W/2G11/835	F39BX/SPX35/RS	PL-L 36W/835	36	2G11
20583	FT36DL841	FT36W/2G11/841	F39BX/SPX41/RS	PL-L 36W/841	36	2G11
20518	FT40DL/28W/830/SS/IS	FT40W/2G11/RS/830	—	—	28	2G11
20519	FT40DL/28W/835/SS/IS	FT40W/2G11/RS/835	—	—	28	2G11
20488	FT40DL/28W/841/SS/IS	FT40W/2G11/RS/841	—	—	28	2G11
20584	FT40DL830RS	FT40W/2G11/RS/830	F40/30BX/SPX30	PL-L 40W/830/RS/IS	40	2G11
20585	FT40DL835RS	FT40W/2G11/RS/835	F40/30BX/SPX35	PL-L 40W/835/RS/IS	40	2G11
20586	FT40DL841RS	FT40W/2G11/RS/841	F40/30BX/SPX41	PL-L 40W/841/RS/IS	40	2G11
20576	FT40DL850RS	FT40W/2G11/RS/850	F40/30BX/SPX50RS	—	40	2G11
20554	FT40DL965RS	FT40W/2G11/RS/865	—	—	40	2G11
20590	FT55DL830	FT55W/2G11/RS/830	F55BX/830	—	55	2G11
20591	FT55DL835	FT55W/2G11/RS/835	F55BX/835	—	55	2G11
20592	FT55DL841	FT55W/2G11/RS/841	F55BX/841	—	55	2G11
20563	FT55DL965	FT55W/2G11/RS/965	—	—	55	2G11
20572	FT80DL830	FT80W/2G11/RS/830	—	PL-L 80W/830/4P	80	2G11
20622	FT80DL835	FT80W/2G11/RS/835	—	PL-L 80W/835/4P	80	2G11
20624	FT80DL841	FT80W/2G11/RS/841	—	PL-L 80W/841/4P	80	2G11



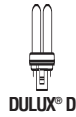
DULUX® S

## DULUX S PREHEAT 2-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

With starter in Lamp Base for Magnetic Ballast

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes	
		(in)	(mm)									Initial @25°C/77°F	Mean		
5	S (T4)	4.2	107	G23	20547	<b>CF5DS/827/RP/ECO</b>	CFT5W/G23/827	10	10000	2700	82	230	198	1,4,6,11,12,20,22	
					20325	<b>CF5DS/827/ECO</b>	CFT5W/G23/827	50	10000	2700	82	230	198	1,4,6,11,12,20,22	
					20303	<b>CF5DS/841/ECO</b>	CFT5W/G23/841	50	10000	4100	82	230	198	1,4,6,11,12,20,22	
7	S (T4)	5.3	135	G23	20548	<b>CF7DS/827/RP/ECO</b>	CFT7W/G23/827	10	10000	2700	82	400	344	1,4,6,11,12,20,22	
					20327	<b>CF7DS/827/ECO</b>	CFT7W/G23/827	50	10000	2700	82	400	344	1,4,6,11,12,20,22	
					20310	<b>CF7DS/835/ECO</b>	CFT7W/G23/835	50	10000	3500	82	400	344	1,4,6,11,12,20,22	
					20304	<b>CF7DS/841/ECO</b>	CFT7W/G23/841	50	10000	4100	82	400	344	1,4,6,11,12,20,22	
					20307	<b>CF7DS/850/ECO</b>	CFT7W/G23/850	50	10000	5000	82	400	344	1,4,6,11,12,20,22	
9	S (T4)	6.5	165	G23	20536	<b>CF9DS/827/RP/ECO</b>	CFT9W/G23/827	10	10000	2700	82	580	499	1,4,6,11,12,20,22	
					20329	<b>CF9DS/827/ECO</b>	CFT9W/G23/827	50	10000	2700	82	580	499	1,4,6,11,12,20,22	
					20299	<b>DULUX S 9W/78</b>		50	10000						1,4,10,11,12,22
					20333	<b>CF9DS/835/ECO</b>	CFT9W/G23/835	50	10000	3500	82	580	499	1,4,6,11,12,20,22	
					20305	<b>CF9DS/841/ECO</b>	CFT9W/G23/841	50	10000	4100	82	580	499	1,4,6,11,12,20,22	
					20308	<b>CF9DS/850/ECO</b>	CFT9W/G23/850	50	10000	5000	82	580	499	1,4,6,11,12,20,22	
13	S (T4)	7.1	180	GX23	20549	<b>CF13DS/827/RP/ECO</b>	CFT13W/GX23/827	10	10000	2700	82	800	688	1,4,6,11,12,20,22	
					20331	<b>CF13DS/827/ECO</b>	CFT13W/GX23/827	50	10000	2700	82	800	688	1,4,6,11,12,20,22	
					20283	<b>CF13DS/830/ECO</b>	CFT13W/GX23/830	50	10000	3000	82	800	688	1,4,6,11,12,20,22	
					20335	<b>CF13DS/835/ECO</b>	CFT13W/GX23/835	50	10000	3500	82	800	688	1,4,6,11,12,20,22	
					20306	<b>CF13DS/841/ECO</b>	CFT13DS/GX23/841	50	10000	4100	82	800	688	1,4,6,11,12,20,22	
					20309	<b>CF13DS/850/ECO</b>	CFT13W/GX23/850	50	10000	5000	82	800	688	1,4,6,11,12,20,22	
					20374	<b>CFT13WDS/EC/827/ECO</b>	CFT13W/GX23/827	10	10000	2700	82	800	688	1,2,4,11,12,20	
					20397	<b>CFT13WDS/EC/830/ECO</b>	CFT13W/GX23/830	10	10000	3000	82	800	688	1,2,4,11,12,20	
					20368	<b>CFT13WDS/EC/835/ECO</b>	CFT13W/GX23/835	10	10000	3500	82	800	688	1,2,4,11,12,20	
					20375	<b>CFT13WDS/EC/841/ECO</b>	CFT13W/GX23/841	10	10000	4100	82	800	688	1,2,4,11,12,20	

COMPACT FLUORESCENT



## DULUX S/E 4-PIN COMPACT FLUORESCENT LAMPS

for Dimming and Electronic Ballast. Lamps have End-of-lamp Life (EOL) Protection

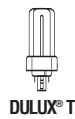
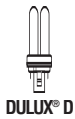
Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
5	S (T4)	3.4	85	2G7	20311	CF5DS/E/827	CFT5W/2G7/827	50	10000	2700	82	230	198	CR1 1,2,5,12,16,20
					20315	CF5DS/E/841	CFT5W/2G7/841	50	10000	4100	82	230	198	CR1 1,2,5,12,16,20
7	S (T4)	4.5	115	2G7	20312	CF7DS/E/827	CFT7W/2G7/827	50	10000	2700	82	400	344	CR1 1,2,5,12,16,20
					20316	CF7DS/E/841	CFT7W/2G7/841	50	10000	4100	82	400	344	CR1 1,2,5,12,16,20
9	S (T4)	5.7	145	2G7	20313	CF9DS/E/827	CFT9W/2G7/827	50	10000	2700	82	580	499	CR1 1,2,5,12,20
					20317	CF9DS/E/841	CFT9W/2G7/841	50	10000	4100	82	580	499	CR1 1,2,5,12,20
13	S (T4)	6.2	157	2GX7	20314	CF13DS/E/827	CFT13W/2GX7/827	50	10000	2700	82	800	688	CR1 1,2,5,12,20
					20284	CF13DS/E/830	CFT13W/2GX7/830	50	10000	3000	82	800	688	CR1 1,2,5,12,20
					20318	CF13DS/E/841	CFT13W/2GX7/841	50	10000	4100	82	800	688	CR1 1,2,5,12,20

## DULUX D PREHEAT 2-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

With starter in Lamp Base for Magnetic Ballast

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
9	D (T4)	4.3	110	G23-2	20537	CF9DD/827/RP/ECO	CFQ9W/G23/827	10	10000	2700	82	525	452	CR1 1,4,6,11,12,20,22
					20689	CF9DD/827/ECO	CFQ9W/G23/827	50	10000	2700	82	525	452	CR1 1,4,6,11,12,20,22
					20783	CF9DD/830/ECO	CFQ9W/G23/830	50	10000	3000	82	525	452	CR1 1,4,6,11,12,20,22
					20690	CF9DD/835/ECO	CFQ9W/G23/835	50	10000	3500	82	525	452	CR1 1,4,6,11,12,20,22
13	D (T4)	4.6	118	GX23-2	20691	CF13DD/827/ECO	CFQ13W/GX23/827	50	10000	2700	82	780	671	CR1 1,4,6,11,12,20,22
					20705	CF13DD/830/ECO	CFQ13W/GX23/830	50	10000	3000	82	780	671	CR1 1,4,6,11,12,20,22
					20692	CF13DD/835/ECO	CFQ13W/GX23/835	50	10000	3500	82	780	671	CR1 1,4,6,11,12,20,22
					20708	CF13DD/841/ECO	CFQ13W/GX23/841	50	10000	4100	82	780	671	CR1 1,4,6,11,12,20,22
18	D (T4)	6.0	153	G24D-2	20676	CF18DD/827/ECO	CFQ18W/G24D/827	50	10000	2700	82	1150	989	CR1 1,4,6,11,12,20,22
					20709	CF18DD/830/ECO	CFQ18W/G24D/830	50	10000	3000	82	1150	989	CR1 1,4,6,11,12,20,22
					20677	CF18DD/835/ECO	CFQ18W/G24D/835	50	10000	3500	82	1150	989	CR1 1,4,6,11,12,20,22
					20678	CF18DD/841/ECO	CFQ18W/G24D/841	50	10000	4100	82	1150	989	CR1 1,4,6,11,12,20,22
26	D (T4)	6.8	173	G24D-3	20679	CF26DD/827/ECO	CFQ26W/G24D/827	50	10000	2700	82	1710	1470	CR1 1,4,6,11,12,20,22
					20710	CF26DD/830/ECO	CFQ26W/G24D/830	50	10000	3000	82	1710	1470	CR1 1,4,6,11,12,20,22
					20680	CF26DD/835/ECO	CFQ26W/G24D/835	50	10000	3500	82	1710	1470	CR1 1,4,6,11,12,20,22
					20681	CF26DD/841/ECO	CFQ26W/G24D/841	50	10000	4100	82	1710	1470	CR1 1,4,6,11,12,20,22

COMPACT FLUORESCENT



DULUX® D

DULUX® T

## DULUX® D/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

for Dimming and Electronic Ballast. Lamps have End-of-lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
13	D (T4)	5.2	131	G24Q-1	20682	CF13DD/E/827/ECO	CFQ13W/G24Q/827	50	12000	2700	82	900	774	1,2,5,6, 7,12,20
					20721	CF13DD/E/830/ECO	CFQ13W/G24Q/830	50	12000	3000	82	900	774	1,2,5,6, 7,12,20
					20671	CF13DD/E/835/ECO	CFQ13W/G24Q/835	50	12000	3500	82	900	774	1,2,5,6, 7,12,20
					20667	CF13DD/E/841/ECO	CFQ13W/G24Q/841	50	12000	4100	82	900	774	1,2,5,6, 7,12,20
18	D (T4)	5.8	147	G24Q-2	20683	CF18DD/E/827/ECO	CFQ18W/G24Q/827	50	12000	2700	82	1150	989	1,2,5,6, 7,12,20
					20724	CF18DD/E/830/ECO	CFQ18W/G24Q/830	50	12000	3000	82	1150	989	1,2,5,6, 7,12,20
					20672	CF18DD/E/835/ECO	CFQ18W/G24Q/835	50	12000	3500	82	1150	989	1,2,5,6, 7,12,20
					20668	CF18DD/E/841/ECO	CFQ18W/G24Q/841	50	12000	4100	82	1150	989	1,2,5,6, 7,12,20
26	D (T4)	6.5	166	G24Q-3	20684	CF26DD/E/827/ECO	CFQ26W/G24Q/827	50	12000	2700	82	1710	1470	1,2,5,6, 7,12,20
					20722	CF26DD/E/830/ECO	CFQ26W/G24Q/830	50	12000	3000	82	1710	1470	1,2,5,6, 7,12,20
					20673	CF26DD/E/835/ECO	CFQ26W/G24Q/835	50	12000	3500	82	1710	1470	1,2,5,6, 7,12,20
					20669	CF26DD/E/841/ECO	CFQ26W/G24Q/841	50	12000	4100	82	1710	1470	1,2,5,6, 7,12,20

## DULUX T PREHEAT 2-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

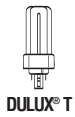
With starter in Lamp Base for Magnetic Ballast

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
18	T (T4)	4.8	123	GX24D-2	20756	CF18DT/827/ECO	CFTR18W/GX24D/827	50	12000	2700	82	1200	1032	1,4,6,11, 12,20,22
26	T (T4)	5.4	138	GX24D-3	20752	CF26DT/827/ECO	CFTR26W/GX24D/827	50	12000	2700	82	1800	1548	1,4,6,11, 12,20,22

## DULUX T/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

For dimming and electronic ballast. Lamps have End-of-Lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
13	T (T4)	4.2	106	GX24Q-1	20891	CF13DT/E/827/ECO	CFTR13W/GX24Q/827	50	12000	2700	82	900	774	1,2,5,6, 7,12,20
					20892	CF13DT/E/830/ECO	CFTR13W/GX24Q/830	50	12000	3000	82	900	774	1,2,5,6, 7,12,20
					20893	CF13DT/E/835/ECO	CFTR13W/GX24Q/835	50	12000	3500	82	900	774	1,2,5,6, 7,12,20
					20894	CF13DT/E/841/ECO	CFTR13W/GX24Q/841	50	12000	4100	82	900	774	1,2,5,6, 7,12,20
18	T (T4)	4.6	116	GX24Q-2	20760	CF18DT/E/827/ECO	CFTR18W/GX24Q/827	50	12000	2700	82	1200	1032	1,2,5,6, 7,12,20



## DULUX® D/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
26	T (T4)	5.2	124	GX24Q-3	20767	CF26DT/E/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1800	1548	1,2,5,6, 7,12,20
					20995	CF26DT/E/835/ECO/BL/1	CFTR26W/GX24Q/835	50	12000	3500	82	1800	1548	1,2,5,6, 7,12,20
32	T (T4)	5.8	147	GX24Q-3	20768	CF32DT/E/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2400	2064	1,2,5,6, 7,12,18,20

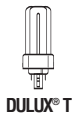
## DULUX T/E/IN AMALGAM, 4-PIN ECOLOGIC COMPACT FLUORESCENT LAMPS

For electronic ballast for high and low temperature applications. Lamps have End-of-Lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
18	T (T4)	4.4	111	GX24Q-2	20875	CF18DT/E/IN/827/ECO	CFTR18W/GX24Q/827	50	12000	2700	82	1164	1001	1,2,5,6, 7,12,20,21
					20876	CF18DT/E/IN/830/ECO	CFTR18W/GX24Q/830	50	12000	3000	82	1164	1001	1,2,5,6, 7,12,20,21
					20877	CF18DT/E/IN/835/ECO	CFTR18W/GX24Q/835	50	12000	3500	82	1164	1001	1,2,5,6, 7,12,20,21
					20878	CF18DT/E/IN/841/ECO	CFTR18W/GX24Q/841	50	12000	4100	82	1164	1001	1,2,5,6, 7,12,20,21
26	T (T4)	5.0	126	GX24Q-3	20879	CF26DT/E/IN/827/ECO	CFTR26W/GX24Q/827	50	12000	2700	82	1746	1501	1,2,5,6, 7,12,20,21
					20880	CF26DT/E/IN/830/ECO	CFTR26W/GX24Q/830	50	12000	3000	82	1746	1501	1,2,5,6, 7,12,20,21
					20881	CF26DT/E/IN/835/ECO	CFTR26W/GX24Q/835	50	12000	3500	82	1746	1501	1,2,5,6, 7,12,20,21
					20882	CF26DT/E/IN/841/ECO	CFTR26W/GX24Q/841	50	12000	4100	82	1746	1501	1,2,5,6, 7,12,20,21
32	T (T4)	5.6	142	GX24Q-3	20883	CF32DT/E/IN/827/ECO	CFTR32W/GX24Q/827	50	12000	2700	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20884	CF32DT/E/IN/830/ECO	CFTR32W/GX24Q/830	50	12000	3000	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20885	CF32DT/E/IN/835/ECO	CFTR32W/GX24Q/835	50	12000	3500	82	2328	2002	1,2,5,6, 7,12,18,20,21
					20886	CF32DT/E/IN/841/ECO	CFTR32W/GX24Q/841	50	12000	4100	82	2328	2002	1,2,5,6, 7,12,18,20,21
42	T (T4)	6.5	163	GX24Q-4	20887	CF42DT/E/IN/827/ECO	CFTR42W/GX24Q/827	50	12000	2700	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20888	CF42DT/E/IN/830/ECO	CFTR42W/GX24Q/830	50	12000	3000	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20871	CF42DT/E/IN/835/ECO	CFTR42W/GX24Q/835	50	12000	3500	82	3104	2670	1,2,5,6, 7,12,18,20,21
					20890	CF42DT/E/IN/841/ECO	CFTR42W/GX24Q/841	50	12000	4100	82	3104	2670	1,2,5,6, 7,12,18,20,21
57	T (T4)	7.76	197	GX24Q-5	20895	CF57DT/E/IN/827/ECO	CFTR57W/GX24Q/827	50	12000	2700	82	4171	3587	1,2,5,6, 12,18,20,21
					20896	CF57DT/E/IN/830/ECO	CFTR57W/GX24Q/830	50	12000	3000	82	4171	3587	1,2,5,6, 12,18,20,21
					20897	CF57DT/E/IN/835/ECO	CFTR57W/GX24Q/835	50	12000	3500	82	4171	3587	1,2,5,6, 12,18,20,21

COMPACT FLUORESCENT





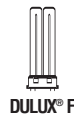
## DULUX® T/E/IN AMALGAM, 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
57	T (T4)	7.76	197	GX24Q-5	20899	<b>CF57DT/E/IN/841/ECO</b>	CFTR57W/GX24Q/841	50	12000	4100	82	4171 4300	3587 3698	1,2,5,6, 7,12,18,20,21

## DULUX L HIGH LUMEN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
		(in)	(mm)									Initial @25°C/77°F	Mean @35°C/95°F	
18	L (T5)	9.0	229	2G11	20587	<b>FT18DL/830/ECO</b>	FT18W/2G11/830	10	12000	3000	82	1250	1075	1,2,5,12, 20
					20588	<b>FT18DL/835/ECO</b>	FT18W/2G11/835	10	12000	3500	82	1250	1075	1,2,5,12, 20
					20589	<b>FT18DL/841/ECO</b>	FT18W/2G11/841	10	12000	4100	82	1250	1075	1,2,5,12, 20
	L (T5)	10.5	267	2G11	20595	<b>FT18DL/830/RS/ECO</b>	FT18W/2G11/RS/830	10	20000	3000	82	1250	1075	1,2,5,12, 20
					20594	<b>FT18DL/835/RS/ECO</b>	FT18W/2G11/RS/835	10	20000	3500	82	1250	1075	1,2,5,12, 20
					20593	<b>FT18DL/841/RS/ECO</b>	FT18W/2G11/RS/841	10	20000	4100	82	1250	1075	1,2,5,12, 20
24	L (T5)	12.9	326	2G11	20597	<b>FT24DL/830/ECO</b>	FT24W/2G11/830	10	12000	3000	82	1800	1548	1,2,5,12, 16,20
					20580	<b>FT24DL/835/ECO</b>	FT24W/2G11/835	10	12000	3500	82	1800	1548	1,2,5,12, 16,20
					20596	<b>FT24DL/841/ECO</b>	FT24W/2G11/841	10	12000	4100	82	1800	1548	1,2,5,12, 16,20
36	L (T5)	16.6	422	2G11	20581	<b>FT36DL/830/ECO</b>	FT36W/2G11/830	10	12000	3000	82	2900	2494	1,2,5,12, 16,20
					20582	<b>FT36DL/835/ECO</b>	FT36W/2G11/835	10	12000	3500	82	2900	2494	1,2,5,12, 16,20
					20583	<b>FT36DL/841/ECO</b>	FT36W/2G11/841	10	12000	4100	82	2900	2494	1,2,5,12, 16,20
40	L (T5)	22.4	570	2G11	20518	<b>FT40DL/28W/830/SS/IS/ECO</b>	FT28W/2G11/830	10	20000	3000	82	2800	2408	1,2,5,6,12,18, 20
					20584	<b>FT40DL/830/RS/ECO</b>	FT40W/2G11/RS/830	10	20000	3000	82	3150	2709	1,2,5,12, 20
		22.4	570	2G11	20519	<b>FT40DL/28W/835/SS/IS/ECO</b>	FT28W/2G11/835	10	20000	3500	82	2800	2408	1,2,5,6,12,18, 20
					20585	<b>FT40DL/835/RS/ECO</b>	FT40W/2G11/RS/835	10	20000	3500	82	3150	2709	1,2,5,12, 20
		22.4	570	2G11	20488	<b>FT40DL/28W/841/SS/IS/ECO</b>	FT28W/2G11/841	10	20000	4100	82	2800	2408	1,2,5,6,12,18, 20
					20586	<b>FT40DL/841/RS/ECO</b>	FT40W/2G11/RS/841	10	20000	4100	82	3150	2709	1,2,5,12, 20
20576					<b>FT40DL/850/RS/ECO</b>	FT40W/2G11/RS/850	10	20000	5000	82	3150	2709	1,2,5,12, 20	
50	L (T5)	22.6	573	2G11	20276	<b>FT50DL/841/RS/ECO</b>	FT50W/2G11/RS/841	10	14000	4100	82	4300	3655	1,2,5,12, 20
					20278	<b>FT50DL/835/RS/ECO</b>	FT50W/2G11/RS/835	10	14000	3500	82	4300	3655	1,2,5,12, 20

COMPACT FLUORESCENT



## DULUX® L HIGH LUMEN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
50	L (T5)	22.6	573	2G11	20280	<b>FT50DL/830/RS/ECO</b>	FT50W/2G11/RS/830	10	14000	3000	82	4300	3655	1,2,5,12,20
55	L (T5)	21.1	535	2G11	20590	<b>FT55DL/830/ECO</b>	FT55W/2G11/830	10	12000	3000	82	4800	4128	1,2,5,12,17,20
					20726	<b>FT55DL/930/ECO</b>	FT55W/2G11/30	10	12000	3000	90	4800	4128	1,2,5,12,17,20
					20591	<b>FT55DL/835/ECO</b>	FT55W/2G11/835	10	12000	3500	82	4800	4128	1,2,5,12,17,20
					20592	<b>FT55DL/841/ECO</b>	FT55W/2G11/841	10	12000	4100	82	4800	4128	1,2,5,12,17,20
					20725	<b>FT55DL/954/ECO</b>	FT55W/2G11/50	10	12000	5400	90	4800	4128	1,2,5,12,17,20
80	L (T5)	22.6	4.5	2G11	20572	<b>FT80DL/830/ECO</b>	FT80W/2G11/830	10	12000	3000	82	6000	5160	1,2,5,12,17,20
			573	2G11	20622	<b>FT80DL/835/ECO</b>	FT80W/2G11/835	10	12000	3500	82	6000	5160	1,2,5,12,17,20
			4.5	2G11	20624	<b>FT80DL/841/ECO</b>	FT80W/2G11/841	10	12000	4100	82	6000	5160	1,2,5,12,17,20

## DULUX F FLAT COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
18	F (T5)	4.8	122	2G10	20551	<b>CF18DF/830</b>	CFM18W/2G10/830	10	10000	3000	82	1100	946	1,2,5,12,19,20
					20552	<b>CF18DF/841</b>	CFM18W/2G10/841	10	10000	4100	82	1100	946	1,2,5,12,19,20
24	F (T5)	6.7	171	2G10	20553	<b>CF24DF/830</b>	CFM24W/2G10/830	10	10000	3000	82	1700	1462	1,2,5,12,19,20
					20558	<b>CF24DF/841</b>	CFM24W/2G10/841	10	10000	4100	82	1700	1462	1,2,5,12,19,20
36	F (T5)	8.5	217	2G10	20559	<b>CF36DF/830</b>	CFM36W/2G10/830	10	10000	3000	82	2800	2408	1,2,5,12,19,20
					20560	<b>CF36DF/841</b>	CFM36W/2G10/841	10	10000	4100	82	2800	2408	1,2,5,12,19,20

## DULUX EL SELF-BALLASTED COMPACT FLUORESCENT LAMPS

### Mini Twist Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)										Initial	Mean	
7	MINITWIST	4.4	Medium	2G10	29451	<b>CF7EL/MINI/827</b>	120	6	8000	2700	82	375	300	1,3,8,9,12,14,20
					29379	<b>CF7EL/MINI/830</b>	120	6	8000	3000	82	375	300	1,3,8,9,12,14,20
					29371	<b>CF7EL/MINI/830/BL</b>	120	6	8000	3000	82	375	300	1,3,8,9,12,14,20
		4.2	Medium	2G10	29697	<b>CF7EL/SUPER/830/BL</b>	120	6	10000	3000	82	375	300	1,3,8,9,12,14,20
11	MINITWIST	4.2	Medium	2G10	29766	<b>CF11EL/SUPER/830/BL</b>	120	6	10000	3000	82	600	480	1,3,8,9,12,14,20
					29378	<b>CF11EL/MINI/830</b>	120	6	8000	3000	82	600	480	1,3,8,9,12,14,20
					29364	<b>CF11EL/MINI/830/BL</b>	120	6	8000	3000	82	600	480	1,3,8,9,12,14,20
13	MINITWIST	4.6	Medium	2G10	29409	<b>CF13EL/MINI/827</b>	120	6	10000	2700	82	800	640	1,3,8,9,12,14,20



DULUX® EL Twist

## DULUX® EL SELF-BALLASTED COMPACT FLUORESCENT LAMPS

### Mini Twist Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Initial Lumens @25°C/77°F	Approx Mean Lumens	Symbols & Footnotes	
13	MINITWIST	4.6	Medium	29727	CF13EL/MICRO/830/RP2	120	12	12000	3000	82	825	660	CR1, SB, UL 1,3,8, 9,12,14,20	
		4.5	Medium	29376	CF13EL/MINI/830	120	6	8000	3000	82	800	640	CR1, SB, UL 1,3,8, 9,12,14,20	
		4.2	Medium	29059	CF13EL/SUPER/827/BL	120	6	10000	2700	82	880	704	CR1, SB, UL 1,3,8, 9,12,14,20	
				29449	CF13EL/SUPER/830/BL	120	6	10000	3000	82	880	704	CR1, SB, UL 1,3,8, 9,12,14,20	
		29713	CF13EL/SUPER/835/BL	120	6	10000	3500	82	800	640	CR1, SB, UL 1,3,8, 9,12,14,20			
	4.6	Medium	29567	CF13EL/MINI/841	120	6	10000	4100	82	800	640	CR1, SB, UL 1,3,8, 9,12,14,20		
	4.2	Medium	29588	CF13EL/SUPER/850/BL	120	10	10000	5000	82	800	640	CR1, SB, UL 1,3,8, 9,12,14,20		
			29469	CF13EL/MINI/865/BL/CS10	120	10	10000	6500	82	800	640	CR1, SB, UL 1,3,8, 9,12,14,20		
	19	MINITWIST	5.2	Medium	29410	CF19EL/MINI/827	120	6	8000	2700	82	1200	960	CR1, SB, UL 1,3,8, 9,12,14,20
			5.5	Medium	29396	CF19EL/MINI/830	120	6	8000	3000	82	1200	960	CR1, SB, UL 1,3,8, 9,12,14,20
4.7			Medium	29689	CF19EL/SUPER/830/BL	120	6	10000	3000	82	1200	960	CR1, SB, UL 1,3,8, 9,12,14,20	
				28950	CF19EL/SUPER/850/BL	120	6	10000	5000	82	1200	960	CR1, SB, UL 1,3,8, 9,12,14,20	
				29720	CF19EL/SUPER/865/BL	120	6	10000	6500	82	1200	960	CR1, SB, UL 1,3,8, 9,12,14,20	
20	MINITWIST	4.2	Medium	29728	CF20EL/MICRO/830/RP2	120	12	12000	3000	82	1280	1024	CR1, SB, UL 1,3,8, 9,12,14,20	
23	MINITWIST	4.6	Medium	29411	CF23EL/MINI/827	120	6	10000	2700	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
		4.4	Medium	29729	CF23EL/MICRO/830/RP2	120	12	12000	3000	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
		5.75	Medium	29397	CF23EL/MINI/830	120	6	8000	3000	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
		5.06	Medium	29692	CF23EL/SUPER/830/BL	120	6	10000	3000	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
				29714	CF23EL/SUPER/835/BL	120	6	10000	3500	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
		4.6	Medium	29564	CF23EL/MINI/841	120	6	10000	4100	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
		5.06	Medium	29690	CF23EL/SUPER/850/BL	120	6	10000	5000	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
				29716	CF23EL/SUPER/865/BL	120	6	10000	6500	82	1600	1280	CR1, SB, UL 1,3,8, 9,12,14,20	
30	MINITWIST	4.93	Medium	29578	CF30EL/MINI/835/DAY/BL	120	5	6000	3500	82	2000	1600	CR1, SB, UL 1,3,8, 9,12,14,20	

COMPACT FLUORESCENT



## DULUX® EL SELF-BALLASTED COMPACT FLUORESCENT LAMPS

### Twist Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
27	TWIST	6.1	Medium	29390	CF27EL/TWIST/830	120	6	10000	3000	82	1750	1400	CR1, UL 1,3,8, 9,12,14,20
30	TWIST	5.13	Medium	29395	CF30EL/TWIST/830	120	6	10000	3000	82	2000	1600	CR1, UL 1,3,8, 9,12,14,20
				29392	CF30EL/TWIST/830/BL	120	5	6000	3000	82	2000	1600	CR1, UL 1,3,8, 9,12,14,20
				29415	CF30EL/TWIST/827	120	6	10000	2700	82	2000	1600	CR1, UL 1,3,8, 9,12,14,20
40	TWIST	5.25	Medium	29147	CF40EL/TWIST/827	120	6	8000	2700	82	2600	2080	CR1, UL 1,3,8, 9,12,14,20
				29481	CF40EL/TWIST/830/BL	120	10	6000	3000	82	2600	2080	CR1, UL 1,3,8, 9,12,14,20
65	TWIST	7.85	Medium	29508	CF65EL/TWIST/841	120	6	8000	4100	82	4200	3360	CR1, UL 1,3,8, 9,12,14,20
12 19 28	TWIST	5.75	3CON Med	29523	CF28EL/3WAY/TWIST/827	120	6	6000	2700	82	600 1100 1800	480 880 1440	CR1, UL 1,3,8, 9,12,14,20
				29351	CF28EL/3WAY/TWIST/830	120	6	6000	3000	82	600 1100 1800	480 880 1440	CR1, UL 1,3,8, 9,12,14,20
				29349	CF28EL/3WAY/TWIST/830/BL	120	5	6000	3000	82	600 1100 1800	480 880 1440	CR1, UL 1,3,8, 9,12,14,20

### Classic (A-shape) Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
5	A15	3.95	Medium	29743	CF5EL/A15/DIM/830	120	6	15000	3000	82	200	160	CR1, UL 1,3,8, 12,14,20
9	A19	4	Medium	29665	CF9EL/A19/827	120	6	8000	2700	82	450	360	CR1, UL 1,3,8, 9,12,14,20
	A15	4	Medium	29526	CF9EL/A15/830/BL2	120	12	8000	3000	82	450	360	CR1, UL 1,3,8, 9,12,14,20
14	A19	4.75	Medium	29575	CF14EL/A19/827	120	6	6000	2700	82	800	640	CR1, UL 1,3,8, 9,12,14,20
				29468	CF14EL/A19/830	120	6	6000	3000	82	800	640	CR1, UL 1,3,8, 9,12,14,20
	5	Medium	29485	CF14EL/A19/830/BL	120	6	8000	3000	82	800	640	CR1, UL 1,3,8, 9,12,14,20	
	4.75	Medium	29346	CF14EL/A19/Y/BL	120	5	6000	-	-	405	324	UL 1,3,8, 9,12,14,20	

### Decorative Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
4	FLAME	4.25	Candelabra	29135	CF4EL/B15/C/827	120	6	6000	2700	82	160	128	CR1, UL 1,3,8, 9,12,14,20
				29121	CF4EL/B15/C/830/BL	120	6	6000	3000	82	160	128	CR1, UL 1,3,8, 9,12,14,20

COMPACT FLUORESCENT



DULUX® EL Globe



DULUX® EL Reflector



FLAME

# DULUX® EL SELF-BALLASTED COMPACT FLUORESCENT LAMPS

## Decorative Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
5	FLAME	5.06	Medium	29742	CF5EL/B10/DIM/830	120	6	25000	3000	82	200	160	1,3,8, 9,12,14,20
7	FLAME	5.0	Medium	29039	CF7EL/B15/827	120	6	6000	2700	82	280	224	1,3,8, 9,12,14,20
				29167	CF7EL/B15/830/BL	120	6	6000	3000	82	280	224	1,3,8, 9,12,14,20
9	FLAME	4.25	Candelabra	29584	CF9EL/B14/C/830/ADP/BL2	120	12	8000	3000	82	450	360	1,3,8, 9,12,14,20

## Globe Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
9	G25	4.25	Medium	29414	CF9EL/G25/827	120	6	8000	2700	82	495	396	1,3,8, 9,12,14,20
				29528	CF9EL/G25/830/BL2	120	12	8000	3000	82	495	396	1,3,8, 9,12,14,20
14	G30	5.5	Medium	29195	CF14EL/G30/830	120	6	6000	3000	82	700	560	1,3,8, 9,12,14,20

## Reflector Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
9	R20	3.94	Medium	29638	CF9EL/R20/827	120	6	8000	2700	82	300	240	1,3,8, 9,12,14,20
				29640	CF9EL/R20/830/BL	120	6	8000	3000	82	300	240	1,3,8, 9,12,14,20
14	R20	4.25	Medium	29624	CF14EL/R20/827	120	6	8000	2700	82	495	396	1,3,8, 9,12,14,20
				29587	CF14EL/R20/830/BL	120	6	8000	3000	82	495	396	1,3,8, 9,12,14,20
15	BR30	5.5	Medium	29465	CF15EL/BR30/DIM/827	120	6	6000	2700	82	600	480	1,3,8, 9,12,14,20
				29667	CF15EL/BR30/DIM/830/BL	120	6	8000	3000	82	600	480	1,3,8, 9,12,14,20
		5.6	Medium	29539	CF15EL/BR30/850/BL	120	6	6000	5000	82	560	448	1,3,8, 9,12,14,20
16	BR30	5.7	Medium	29591	CF16EL/BR30/827	120	6	8000	2700	82	750	600	1,3,8, 9,12,14,20
				29590	CF16EL/BR30/830	120	6	8000	3000	82	750	600	1,3,8, 9,12,14,20
19	PAR38	5.8	Medium	29581	CF19EL/PAR38/830	120	6	8000	3000	82	950	760	1,3,8, 9,12,14,20
20	BR40	6.5	Medium	29399	CF20EL/BR40/827	120	6	8000	2700	82	900	720	1,3,8, 9,12,14,20
				29363	CF20EL/BR40/830	120	6	8000	3000	82	900	720	1,3,8, 9,12,14,20
23	PAR38	6.25	Medium	29359	CF23EL/PAR38/827	120	6	8000	2700	82	1200	960	1,3,8, 9,12,14,20



## DULUX® EL SELF-BALLASTED COMPACT FLUORESCENT LAMPS

### Reflector Compact Fluorescent Lamps

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
23	PAR38	6.25	Medium	29897	CF23EL/PAR38/GL/827	120	6	8000	2700	82	1000	800	☑ ☑ ☑ 1,3,8, 9,12,14,20
	BR40	6.5	Medium	29442	CF23EL/BR40/830/BL	120	6	8000	3000	82	1250	1000	☑ ☑ ☑ 1,3,8, 9,12,14,20
	PAR38	6.25	Medium	29586	CF23EL/PAR38/830/BL	120	6	8000	3000	82	1200	960	☑ ☑ ☑ 1,3,8, 9,12,14,20

### DURA-ONE™ COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
20	A19	5.31	Medium	29537	CF20RC/A19/827	120	6	15000	2700	82	1200	960	1,3,8,12,15,20
23	BR30	5.56	Medium	29535	CF23RC/BR30/827	120	6	15000	2700	82	1100	880	☑ ☑ 1,3,8,12, 15,20







### LOW PROFILE BULLET AND CIRCLINE ELECTRONIC COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL (in)	Base	Product Number	Ordering Abbreviation	Voltage	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
14	BULLET	5.5	Medium	29196	CF14EL/T20/830	120	6	6000	3000	82	700	560	☑ ☑ ☑ 1,3,8, 9,12,14,20

COMPACT FLUORESCENT



## SYMBOLS & FOOTNOTES FOR COMPACT FLUORESCENT LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.
	This lamp is a High Color Rendering Lamp
	Product is Canadian Standards Association approved for the Canadian market
	Product is Underwriters Laboratories listed

Footnote	Description
1	Approximate initial lumens after 100 hours operation.
2	Minimum starting temperature is a function of the ballast; consult the ballast manufacturer.
3	Minimum starting temperature for DULUX EL lamps is 0° F, unless otherwise specified in product literature. .
4	2 pin CF lamps are not suitable for use in frequently cycled applications or with occupancy sensors. 2 pin CF lamps should never be installed in 4 pin sockets regardless if lamp will fit.
5	There is a NEMA supported, industry issue where T2, T4, and T5 fluorescent and compact fluorescent lamps operated on high frequency ballasts may experience an abnormal end-of-life phenomenon. This end-of-life phenomenon can resulting one or both of the following: 1. Bulb wall cracking near the lamp base. 2. The lamp can overheat in the base area and possibly melt the base and socket. NEMA recommends that high frequency compact fluorescent ballasts have an end-of-life shutdown circuit which will safely and reliably shut down the system in the rare event of an abnormal end-of-life failure mode described above. The final requirements of this system are yet to be defined by ANSI. For additional information refer to NEMA papers on their WEBSITE at www.NEMA.org.
6	SYLVANIA ECOLOGIC fluorescent lamps are designed to pass the Federal Toxic Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states. TCLP test results are available upon request. Lamp disposal regulations may vary, check your local & state regulations. For more information, please visit www.lamprecycle.org
7	This 4-pin DULUX lamp has an internal end-of-life mechanism (EOL) that shuts down the lamp preventing abnormal end-of life failure modes. This lamp was designed for use with high frequency ballasts that do not have their own end-of-life (lamp) sensing circuits, but it is also compatible with high frequency ballasts that have their own end-of-life (lamp) sensing circuits.
8	DULUX EIs meet CSA, FCC and UL requirements.
9	Caution: DULUX EL units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77degrees F (25 degrees C). 40 Watt lamp is designed for base down orientation only.
10	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.2m (8 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
11	2 pin CF lamps should never be installed in 4 pin sockets regardless if lamp will fit.
12	The life ratings of fluorescent lamps are based on 3 hr. burning cycles under specified conditions and with ballast meeting ANSI specifications. If burning cycle is increased, there will be a corresponding increase in the average hours life.
13	Caution: DULUX EL Circline units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells or lighted switches. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits.
14	Minimum starting temperature for DULUX EL lamps is 0 degrees F
15	Caution: Although DURA-ONE lamps can be used with occupancy sensors that have a fluorescent volt-amp rating, DURA-ONE lamps cannot be used on any other dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77°F (25°C). Operating temperature range of DURA-ONE lamps is -20°F/-29°C to 122°F/50°C.
16	These lamps may also be operated on rapid start circuits. On rapid start circuits the 24 watt lamp operates at 27 watts and the 36 watt lamp operated at 39 watts. Rated lamp life is unchanged.
17	Lumen output rated on high frequency operation. 60 HZ operation would result in lower lumen output.
18	Lumen output and life rated on high frequency operation.
19	DULUX F lamps can typically be operated on DULUX L and PENTRON HO ballasts of the same/similar wattage. Check with the ballast manufacturer to verify lamp/ballast compatibility.
20	Rule of Thumb for Compact Fluorescent Lamps: Divide wattage of incandescent lamp by 4 to determine approximate wattage of compact fluorescent lamp that will provide similar light output.
21	Optimum light output for DULUX T/E IN amalgam compact fluorescent lamps occurs at approximately 35 deg. C/ 95 deg. F ambient temperature when the lamp is operated in the base up position. The lumen value listed refers to the optimum light output. Non-amalgam compact fluorescent lamps provide at least 90% light output from 60-100 degrees F in the base up position, the temperature range is narrower for horizontal or base down position.
22	Minimum starting temperature: CF5: -22 degrees F; CF7: -4 degrees F; CF9: 14 degrees F; CF13DS: 14 degrees F; CF13DD: -4 degrees F; CF18DD: 5 degrees F; CF18DT: -4 degrees F; CF26: 14 degrees F.

# Manufacturers' Cross Reference

## COMPACT FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
CF5DS/827/ECO	F5BX/SPX27/827	PL-S_5W/27
CF5DS/827/RP/ECO	F5BX-SPX27_CD	PL-S_5W/27
CF5DS/841/ECO	F5BX/SPX41/840_10PK	PL-S 5W/841/2P/ALTO
CF7DS/827/ECO	F7BX/SPX27/827	PL-S7W/27
CF7DS/827/RP/ECO	F7BX/SPX27_CD	PL-S7W/27
CF7DS/835/ECO	F7BX7/SPX35/825_10PK	PL-S_7W/35
CF7DS/841/ECO	F7BX/SPX41/840_10PK	PL-S_7W/41
CF7DS/850/ECO	F7BX/SPX50/850	PL-S7W/50
CF7EL/DECO/MEDIUM/1/BL	FLE7/2/CAM/827	BC-EL/MCAN9ALTO
CF7EL/DECO/MEDIUM/2700K	FLE7/2/CAM/827	---
CF7EL/MINIWIST/1	---	---
CF7EL/MINIWIST/2700K	---	EL/MDT9
CF9DD/827/ECO	F9DBXT4/SPX41/827	---
CF9DD/835/ECO	---	---
CF9DS/827/ECO	F9BX/SPX27/827_10PK	PL-S9W/27
CF9DS/827/RP/ECO	F9BX/SPX27_CD	PL-S9W/27
CF9DS/835/ECO	F9BX/SPX35/835	PL-S9W/35
CF9DS/841/ECO	F9BX/SPX41/840_10PK	PL-S9W/41
CF9DS/850/ECO	F9BX/SPX50/850	PL-S9W/50
CF9EL/G25/2700K	FLE11/2/G25XL/CD_12	EL/AG25
CF9EL/R20/2700K	---	---
CF9WEL/FAN/2BL	FLE11/2/A17	---
CF11EL/MINIWIST/1	---	EL/mdT 11
CF13DD/827/ECO	F13DBX23T4/SPX27	PL-C_13W/27/USA
CF13DD/827/ECO/RP/1	FL3DBX/SPX27/CD	PL-C 13W/827/USA/ALTO
CF13DD/827/RP/ECO	FL3DBX/SPX27/CD	PL-C_13W/827
CF13DD/830/ECO	F13DBX23T4/SPX30	PL-C_13W/30/USA
CF13DD/835/ECO	F13DBX23T4/SPX35	PL-C_13W/35/USA
CF13DD/841/ECO	F13DBX23T4/SPX41	PL-C_13W/41/USA
CF13DD/E/827/ECO	F13DBX/SPX27/4P	PL-C_13W/27/4P
CF13DD/E/830/ECO	F13DBX/SPX30/4P	PL-C 13W/830/4P/ALTO
CF13DD/E/835/ECO	F13DBX/SPX35/4P	PL=C_13W/35/4P
CF13DD/E/841/ECO	F13DBX/SPX41/4P	PL-C_13W/41/4P
CF13DS/827/ECO	14650_F13BX/SPX27_#011	PL-S13W/27
CF13DS/827/ECO/RP/1	14650_F13BX/SPX27_#011	PL-S13W/27
CF13DS/830/ECO	F13BX/SPX30/830	PL-S13W/30
CF13DS/835/ECO	17048_F13BX/SPX35_#013	PL-S13W/35
CF13DS/841/ECO	20434_F13BX/SPX41_#014	PL-S13W/41
CF13DS/841/ECO/RP/1	20434_F13BX/SPX41_#014	PL-S13W/41
CF13DS/850/ECO	F13BX/SPX50/850	PL-S13W/50
CF13DT/E/827/ECO	F13TBX/SPX27/A/4P	---
CF13DT/E/830/ECO	F13TBX/SPX30/A/4P	---
CF13DT/E/835/ECO	F13TBX/SPX35/A/4P	---
CF13DT/E/841/ECO	F13TBX/SPX41/A/4P	---
CF13EL/MINIWIST/2700K	FLE13HT3/2/827	---
CF13EL/MINIWIST/4100K	---	14786-8
CF13EL/SUPERMINI/5K/1BL	---	EL/MDT135000K
CF13EL/SUPERMINI/120V	---	---
CF14EL/A19	FLE15/2/A21XL	---
CF14EL/A19/1/BL/YELLOW	FLE14/2/TC16/BUG	EL/O_15_BAW
CF14EL/A19/2700K	FLE15/A19/827	---
CF14EL/G/830/MED	FLG15/E-120	EL/A116WG30ALTO
CF14EL/R20/2700K	---	---
CF15BR30DIMMABLE3000KBL	FLE15/2/DV/R30	EL/A/R30
CF15EL/BR30/5000K/BL	---	---
CF15ELBR30/DIMMABLE/2700K	FLE15/2/DV/R30	EL/AR30DIM16ALTO
CF15ELBR30/DIMMABLE/2700K	FLE15/2/DV/R30	EL/AR30DIM16ALTO
CF15ELBR30DIMMABLERP3000K	FLE15/2/DV/R30	EL/A R30 Dim 16 ALTO
CF16EL/BR30	---	BR30 16 ALTO
CF16ELBR30/2700K	FLE15/A2/R30	EL/AR30
CF18DD/827/ECO	F18DBXT4/SPX27	PL-C_18W/27
CF18DD/830/ECO	F18DBXT4/SPX30	PL-C_18W/30
CF18DD/835/ECO	F18DBXT4/SPX35	PL-C_18W/35
CF18DD/841/ECO	F18DBXT4/SPX41	PL-C_18W/41

For more complete product information visit [www.sylvania.com](http://www.sylvania.com)

## Manufacturers' Cross Reference Guide (continued)

### COMPACT FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
CF18DD/E/827/ECO	F18DBX/SPX27/4P	PL-C_18W/27/4P
CF18DD/E/830/ECO	F18DBX/SPX30/4P	PL-C_18W/830/4P/ALTO
CF18DD/E/835/ECO	F18DBX/SPX35/4P	PL-C_18W/35/4P
CF18DD/E/841/ECO	F18DBX/SPX41/4P	PL-C_18W/41/4P
CF18DT/E/827/ECO	F18TBX827/4P/ECO	PL-T_18W/827/4P/ALTO
CF18DT/E/IN/827/ECO	F18TBX/SPX27/A/4P	PL-T_18W/827/4P
CF18DT/E/IN/830/ECO	F18TBX/SPX30/A/4P	PL-T_18W/30/4P/ALTO
CF18DT/E/IN/835/ECO	F18TBX/SPX35/A/4P	PL-T_18W/35/4P/ALTO
CF18DT/E/IN/841/ECO	F18TBX/SPX41/A/4P	PL-T_18W/41/4P/ALTO
CF19EL/MINITWIST	---	EL/MDT 20
CF19EL/MINITWIST/2700K	FLE20HT3/2/XL	EL/MDT20
CF19EL/MINITWIST/DAY/BL/1	---	---
CF19ELSUPERMINI5KBL	---	---
CF19ELSUPERMINI6500BL	FLE20HT3/2/D/2PK	---
CF19ELSUPERMINIRP3	---	---
CF20EL/BR40/2700K	FLE15/A2/R30	---
CF20EL/BR40/3000K	FLE23/A4/R40	EL/AR40
CF20EL/TWIST	FLE21/HLX/8/SW/CD	Mini-Deco Twister EL/mdT
CF23EL/BR40/BL/1	FLE23/A4/R40	---
CF23EL/MINITWIST/2700K	FLE23HT3/2/XL	EL/MDT27
CF23EL/PAR38/2700K	FLE26/2/PAR38/SW/CD	EL/APAR38
CF23EL/PAR38/2700K	FLE26/2/PAR38/SW/CD	EL/APAR38
CF23EL/PAR38/BL/1	---	---
CF23EL/TWIST	FLE27/HLX/8/SW/CD	---
CF23ELSUPERMINI6500RP3	---	---
CF23RC/BR30/2700K/1 120V	GENURA_EL23/R25/SW	---
CF26DD/827/ECO	F26DBXT4/SPX27	PL-C_26W/27
CF26DD/830/ECO	F26DBXT4/SPX30	PL-C_26W/30
CF26DD/835/ECO	F26DBXT4/SPX35	PL-C_26W/35
CF26DD/841/ECO	F26DBXT4/SPX41	PL-C_26W/41
CF26DD/E/827/ECO	F26DBXT4/SPX27/4P	PL-C_26W/27/4P
CF26DD/E/830/ECO	F26DBXT4/SPX30/4P	PL-C_26W/30/4P
CF26DD/E/835/ECO	F26DBX/SPX35/4P	PL-C_26W/35/4P
CF26DD/E/841/ECO	F26DBX/SPX41/4P	PL-C_26W/41/4P
CF26DT/E/827/ECO	F26TBX827/4P/ECO	PL-T_26W/827/4P/ALTO
CF26DT/E/827/ECO/RP/1	F26TBX827/4P/ECO	PL-T_26W/827/4P/ALTO
CF26DT/E/IN/827/ECO	F26TBX/SPX27/A/4P	PL-T_26W/827/4P
CF26DT/E/IN/830/ECO	F26TBX/SPX30/A/4P	PL-T_26W/30/4P/ALTO
CF26DT/E/IN/835/ECO	F26TBX/SPX35/A/4P	PL-T_26W/35/4P/ALTO
CF26DT/E/IN/841/ECO	F26TBX/SPX41/A/4P	PL-T_26W/41/4P/ALTO
CF27EL/TWIST	FLE26HT3/2/SW/3PK	EL/mdT 27
CF27EL/TWIST/2700K	FLE26HT3/2/SW/3PK	---
CF28EL/3WAY/TWIST/2700K	FLE29HLX/2D3/827	EL/TW134-26-18
CF28EL/3WAY/TWIST/2700K	FLE29HLX/2D3/827	EL/TW134-26-18
CF28EL/3WAY/TWIST/830/1		EL/TW134-26-18
CF28EL/3WAY/TWIST/830/BL/1		EL/TW134-26-18
CF30EL/CIRC/830/MED	FEA30CIR/SW/CD	FC9T5
CF30EL/TWIST/2700K	FLE29HLX/2/XL/827	EL/MDT27
CF32DT/E/827/ECO	---	PL-T_32W/827/4P/ALTO
CF32DT/E/IN/827/ECO	F32TBX/SPX27/A/4P	PL-T_32W/827/4P
CF32DT/E/IN/830/ECO	F32TBX/SPX30/A/4P	PL-T_32W/30/4P/ALTP
CF32DT/E/IN/835/ECO	F32TBX/SPX35/A/4P	PL-T_32W/35/4P/ALTO
CF32DT/E/IN/841/ECO	F32TBX/SPX41/A/4P	PL-T_32W/41/4P/ALTO
CF40EL/TWIST/2700K	FLE42HLX/VT/827	EL/DT42
CF42DT/E/IN/827/ECO	F42TBX/827/A/4P/EOL	PL-T_42W/827/4P
CF42DT/E/IN/830/ECO	F42TBX/830/A/48/EOL	PL-T_42W/30/4P/ALTO
CF42DT/E/IN/835/ECO	F42TBX/835/A/ECO	PL-T_42W/835/4P
CF42DT/E/IN/841/ECO	F42TBX/841/A/48/EOL	PL-T_42W/41/4P
CF4EL/DECO/CANDELABRA/1/BL	FLE5/2/CAC/827	EL/MCAN5
CF4EL/DECO/CANDELABRA/2700K	FLE5/2/CAM/827	EL/A mCan Cand.
CF57DT/E/IN/830/ECO	F57QBX/830/A/ECO	PL-T_57W/830/4P/A
CF57DT/E/IN/835/ECO	F57QBX/835/A/ECO	PL-T_57W/835/4P/A
CF57DT/E/IN/841/ECO	F57QBX/841/A/ECO	PL-T_57W/841/4P/A
FT18DL/830/ECO	F18BX/SPX30	PL-L_18W/830

For more complete product information visit [www.sylvania.com](http://www.sylvania.com)

# Manufacturers' Cross Reference (continued)

## COMPACT FLUORESCENT LAMPS

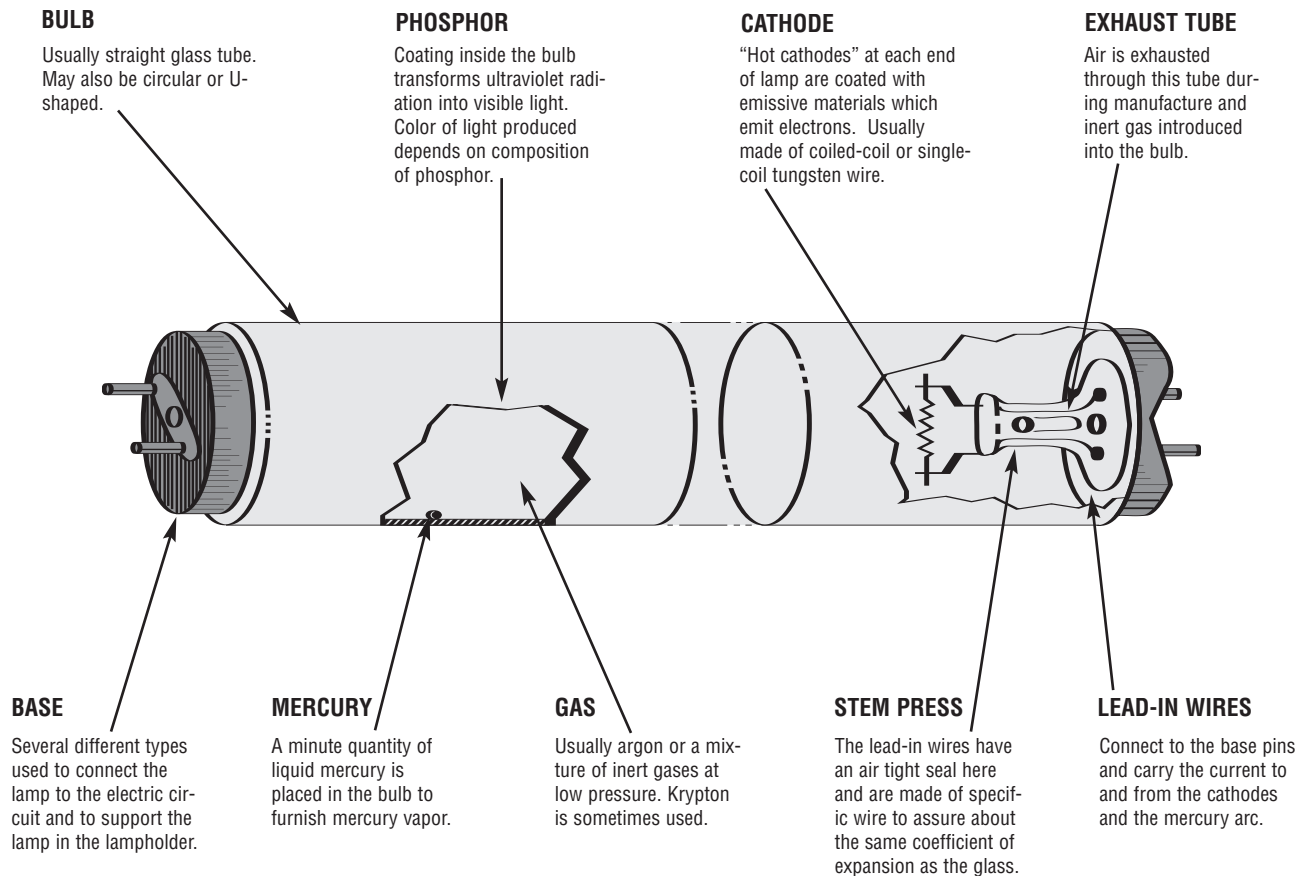
SYLVANIA	GE	PHILIPS
FT18DL/830/RS/ECO	F18BX/SPX30/RS	PL-L_18W/830
FT18DL/835/ECO	F18BX/SPX35	PL-L_18W/835
FT18DL/835/RS/ECO	F18BX/SPX35/RS	PL-L_18W/835
FT18DL/841/ECO	F18BX/SPX41	PL-L_18W/41
FT18DL/841/RS/ECO	F18BX/SPX41/RS	PL-L_18W/41
FT24DL/830/ECO	F27/24BX/SPX30	PL-L_24W/830
FT24DL/835/ECO	F27/24BX/SPX35	PL-L_24W/835
FT24DL/841/ECO	F27/24BX/SPX41	PL-L_24W/41
FT36DL/830/ECO	F39/36BX/SPX30	PL-L_36W/30
FT36DL/835/ECO	F39/36BX/SPX35	PL-L_36W/35
FT36DL/841/ECO	F39/36BX/SPX41	PL-L_36W/41
FT40DL/28W/830/SS/IS/ECO 100V	---	---
FT40DL/28W/835/SS/IS/ECO 100V	---	---
FT40DL/28W/841/SS/IS/ECO 100V	---	---
FT40DL/830/RS/ECO	F40/30BX/SPX30_36PK_BULK	PL-L_40W/30/RS
FT40DL/835/RS/ECO	F40/30BX/SPX35_36PK_BULK	PL-L_40W/35/RS
FT40DL/841/RS/ECO	F40/30BX/SPX41_36PK_BULK	PL-L_40W/41/RS
FT40DL/850/RS/ECO	F40/30BX/SPX50RS	---
FT55DL/C/841/ECO	---	---
FT80DL/830/ECO	---	PL-L_80W/830/4P
FT80DL/835/ECO	---	PL-L_80W/835/4P
FT80DL/841/ECO	---	PL-L_80W/841/4P

COMPACT FLUORESCENT

**Notes:**

## OSRAM SYLVANIA: THE LEADER IN ENERGY SAVING FLUORESCENT LAMPS

The fluorescent lamp is an electric discharge device which utilizes a low pressure mercury vapor arc to generate ultra-violet (plus a little visible) energy. The ultra-violet energy is absorbed by a phosphor coat on the inside of the glass tube and converted by the phosphor to visible wavelengths; the wavelengths of the light generated are determined by the composition of the phosphor. In addition to the small amount of mercury vapor, the fluorescent tube contains an atmosphere of an inert gas, usually argon, krypton, neon, or a mixture of two or more of these gases. The pressure of the gases contained in the lamp is very low, usually from 2 to 3 torr. Atmospheric pressure is 760 torr.





## HOW TO READ PRODUCT INFORMATION - FLUORESCENT

Nominal Wattage	Bulb	Nominal Length(in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21763	<b>F032/835XP/ECO</b>	30	24000	3500	85	3000	2850	Ⓔ Ⓒ 2,21,31,35,39,60,70
34	T12	48	47.78	Med Bipin	24594	<b>F34CW/SS</b> Formerly F40CW/SS	30	20000	4200	60	2650	2279	Ⓔ 2,10,13,19,21,42
54	T5	48	45.5	Mini Bipin	20857	<b>FP54/830/HO</b>	40	20000	3000	85	4450 5000	4228 4750	Ⓒ 2,21,26,35,59
60	T12	96	94	Single Pin	29815	<b>F96T12/CW/SS</b>	15	12000	4200	60	5300	4664	Ⓔ 2,15,21

<b>Nominal Wattage</b>	Design wattage on reference ballast. Actual wattage dependent on ballast.
<b>Bulb</b>	Describes the shape of the bulb followed by the bulb's diameter at its widest point. The diameter value is expressed in eighths of an inch. Ex. T = Tubular, 8 = 8/8 inch = 1 inch. Please see page 134 for bulb illustrations.
<b>Base</b>	Please see page 134 for base illustrations.
<b>Nominal Length</b>	The nominal length of linear fluorescent lamps is typically measured from back of lampholder to back of lampholder. PENTRON® linear lamp, CURVALUME® and Circline lamps are exceptions. The nominal length given for PENTRON linear lamps is the closest familiar nominal length. CURVALUME lamps are measured from the face of the bases to the outside of the glass bend. The measurement for Circline lamps is the outside diameter. Values are in inches.
<b>MOL</b>	Maximum overall length. The length of the lamp measured in inches.
<b>Symbols &amp; Footnotes</b>	Most symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and footnotes are at the end of the fluorescent section.
<b>Ordering Abbreviation</b>	A text description of the lamp. Please see below for several examples and explanations of some of the codes.
<b>CCT</b>	Correlated Color Temperature. The degree of "whiteness" of the light. Expressed in kelvins (K). Please see page 131 for more information.
<b>CRI</b>	Color Rendering Index. A numbering system for rating the relative color rendering quality of a light source compared to a standard. Please see page 131 for more information.
<b>Initial &amp; Mean Lumens</b>	Initial lumens are measured when the lamp has been operating for 100 hours. Mean lumens are typically measured at 40% of the rated life of the lamp. For longer life lamp such as the OCTRON® XP® lamps, the mean lumens are measured at the same point in time as they are measured for the standard lamps they replace. Fluorescent lamp lumens are typically measured at 25°C (77°F). The lamp lumens are measured at both 25°C (77°F) and 35°C (95°F) for PENTRON® linear lamps.

### How to Read Ordering Abbreviations

F032/835XP/ECO		F34CW/SS		FP54/830/HO		F96T12/CW/SS	
F	Fluorescent	F	Fluorescent	F	Fluorescent	F	Fluorescent
O	OCTRON®	34	Nominal lamp wattage	P	PENTRON	96	96" nominal length
32	Nominal lamp wattage	CW	Cool White phosphor	54	Nominal lamp wattage	T	Tubular Shape Bulb
8	85 CRI	SS	SUPERSAVER® - reduced wattage lamp	8	85 CRI	12	Bulb diameter; 1 1/2 inch = 1 1/2 inches
35	3500K CCT			30	3000K CCT	CW	Cool White phosphor
XP®	EXtended Performance			HO	High Output	SS	SUPERSAVER - reduced wattage lamp
ECO®	ECOLOGIC® - TCLP passing lamp						

### Lamp Disposal Labeling

The following information appears on the packages of fluorescent lamps. For more information on lamp disposal labeling, see the inside back cover of this catalog.



**Lamp Contains Mercury**

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

For weight and measurement information, please visit [www.sylvania.com](http://www.sylvania.com)

## FLUORESCENT LAMP COLORS

COLOR	COLOR ABBREVIATION	CORRELATED COLOR TEMPERATURE(1)	COLOR RENDERING INDEX(2)
OCTRON® "800" 2700K	827	2700	85
OCTRON XP® "800" 2700K	827	2700	85
WARM WHITE DELUXE	WWX	2900	82
WARM WHITE	WW	3000	52
WARM WHITE PLUS	WWP	3000	70
DESIGNER® 3000K	D30	3000	70
DESIGNER WARM WHITE	DWW	3000	70
DESIGNER "800" 3000K	D830	3000	80
DESIGNER WARM WHITE PLUS	DWWP	3000	80
OCTRON "700" 3000K	730	3000	75
OCTRON XP "700" 3000K	730	3000	78
OCTRON "800" 3000K	830	3000	82
OCTRON XP "800" 3000K	830	3000	85
OCTRON XPS® "800" 3000K	830	3000	85
PENTRON® 3000K	830	3000	85
GRO-LUX®Aquarium WIDE SPECTRUM	GRO/AQ/WS	3400	89
WHITE	W	3450	57
DESIGNER 3500K	D35	3500	70
DESIGNER "800" 3500K	D835	3500	80
ICETRON® 3500K	835	3500	80
PENTRON 3500K	835	3500	85
OCTRON "700" 3500K	735	3500	75
OCTRON XP "700" 3500K	735	3500	78
OCTRON "800" 3500K	835	3500	82
OCTRON XP "800" 3500K	835	3500	85
OCTRON XPS "800" 3500K	835	3500	86
NATURAL WHITE	N	3600	86
DESIGNER 4100K	D41	4100	70
DESIGNER COOL WHITE	DCW	4100	70
DESIGNER "800" 4100K	D841	4100	80
DESIGNER COOL WHITE PLUS	DCWP	4100	80
ICETRON 4100K	841	4100	80
OCTRON "700" 4100K	741	4100	75
OCTRON XP "700" 4100K	741	4100	78
OCTRON "800" 4100K	841	4100	82
OCTRON XP "800" 4100K	841	4100	85
OCTRON XPS "800" 4100K	841	4100	86
PENTRON 4100K	841	4100	85
COOL WHITE DELUXE	CWX	4100	87
LITE WHITE	LW	4150	48
COOL WHITE	CW	4200	60
COOL WHITE PLUS	CWP	4100	70
ICETRON 5000K	850	5000	80
OCTRON "700" 5000K	750	5000	75
OCTRON "800" 5000K	850	5000	80
OCTRON XP "800" 5000K	850	5000	85
OCTRON "900" 5000K	950	5000	90
PENTRON 5000K	580	5000	85
DESIGN 50®	DSGN50	5000	90
DAYLIGHT FULL SPECTRUM	DAYLIGHTFULL SPECTRUM	5000	90
DAYLIGHT®	DAYLIGHT	6500	76
DAYLIGHT 6500	DAYLIGHT6500V	6500	80
OCTRON "700" 6500K	765	6500	75
OCTRON XP "800" 6500K	865	6500	85
PENTRON 6500K	865	6500	85
DESIGNER 6500K	865	6500	80
DAYLIGHT DELUXE	DX	6500	88
OCTRON SKYWHITE	SKYWHITE	8000	88

## FLUORESCENT COMPETITIVE GUIDES

NOTE: These tables are intended only as guides and may represent another lamp company's most similar product or product family rather than an identical match. Individual manufacturer's performance values should be consulted. Environmental conditions, ballast type, and other auxiliary equipment may affect lamp performance.

### FLUORESCENT BRAND NAMES

SYLVANIA	GE*	PHILIPS**
CURVALUME® (FB)	MOD-U-LINE (U)	U-Bent (FB)
CWX		Home Light Everywhere (HL Everywhere)
DESIGN 50® (DSGN50)	Chroma 50 (C50)	Colortone 50 (C50)
DESIGNER® Series	Specification Series (SP)	SPEC or TL700
DESIGNER 800 Series	Specification Series (SPX)	Ultralume or TL800
DESIGNER Cool White	SP41	Home Light Cool (HL Cool)
DESIGNER Cool White PLUS	SPX41	41U
DESIGNER Warm White	Kitchen and Bath ULTRA (70 CRI)	SPEC30
DESIGNER Warm White PLUS (DWWP)	Kitchen and Bath ULTRA (80 CRI)	Home Light WX (HL WX)
DESIGNER 700, 3500K (D35)	SP35	Home Light Warm (HL Warm)
ECOLOGIC® (ECO®)	Ecolux (ECO)	ALTO
GRO-LUX®	Gro & Sho/Plant & Aquarium/Terrarium	Agro-Lite (AGRO)
ICETRON®	---	---
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 XP™ ECO	SP Ecolux XL T8 Lamps with Starcoat	TL700 PLUS ALTO
OCTRON 800 XP ECO	SPX Ecolux XL T8 Lamps with Starcoat	TL800 PLUS ALTO
OCTRON 800 XPS ECO	---	---
OCTRON 950	---	TL950
PENTRON®	T5 Starcoat	SILHOUETTE™
---	---	QL (similar to ICETRON, but not interchangeable)
SAFELINE®	covRguard	---
SUN STICK®	SUN (Sunshine)	C50
SUPERSAVER® (SS)	Watt-Miser (WM)	Econ-o-Watt (EW)
HO (800mA)	HO (800mA)	HO (800mA)
VHO (1500mA)	1500 (1500mA) & Power Grove	VHO (1500mA) (was SHO)
VHO/LT	T10/1500MA	VHO-0
XP®	XL	Plus
XPS®		Advantage

\* Trademarks or registered trademarks of General Electric Company \*\* Trademarks or registered trademarks of Philips

### FLUORESCENT COLOR CROSS REFERENCE

SYLVANIA	GE	PHILIPS	SYLVANIA	GE	PHILIPS
CW	CW	CW	D41	SP41	Spec 41
CWX		CWX, HL Everywhere		SP65	
D	D	D	D830	SPX30	30U
DX	DX	DX	D835	SPX35	35U
DSGN50	C50	50	D841	SPX41	41U
DSGN50	SGN	C50	D865		
DCW, D41	SP41	HL Cool	730	SP30	730
DCWP	SPX41	U41	735	SP35	735
DWW, D30	KB / 70 CRI, SP30	SPEC30	741	SP41	741
DWWP, D830	KB / 82 CRI, SPX30	HL WX	750	SP50	750
D35	SP35	HL Warm	765	SP65	
GRO/AQ		AGRO	827	SPX27	27
GRO/WS/AQ	PL/AQ		830	SPX30	30, 830
LW	LW	LW	835	SPX35	35, 835
N	N	N	841	SPX41	41, 841
SUN STICK	SUN	C50	850	SPX50	50, 850
WW	WW	WW	865	SPX65	865
D30	SP30	Spec 30	950		950
D35	SP35	Spec 35			

## FLUORESCENT COMPETITIVE GUIDES (continued)

### FLUORESCENT ELECTRICAL INTERCHANGEABILITY

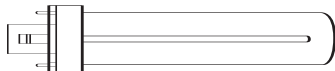
SYLVANIA	GE	PHILIPS
<b>Linear Lamps</b>		
F18T8/CW/K/23	F24" T8/CW/4	F15T8/CW/24
F18T8/CW/K/26	F26" T8/CW/4	F16T8/CW/26
F18T8/CW/K/28	F28" T8/CW/4	F17T8/CW/28
F18T8/CW/K/30	F30" T8/CW/4	F18T8/CW/30
F34CW/SS	F34CW/WM	F34CW/EW
Formerly known as F40CW/SS	F40CW/WM	F40CW/EW
F96T12/CW/SS	F96T12/CW/WM	F96T12/CW/EW
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6
FB40/CW/6/SS (new FB34/CW/6/SS)	F40CW/U/6/WM (new F34CW/U/6/WM)	FB40/CW/6/EW (new F34/CW/6/EW)
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 Series	T8 SP	TL70
OCTRON 800 Series	T8 SPX	TL80
FO17...	F17T8/SP(or SPX)...	F17T8/TL...
FO25...	F25T8/SP(or SPX)...	F25T8/TL...
FO32...	F32T8/SP(or SPX)...	F32T8/TL...
FO32/...XP®	F32T8/XL/SP (or SPX)	F32T8/TL...PLUS
FO32/...XPS®/ECO®	---	F32T8/ADV
FO30...XP/SS/ECO	F32T8/SP.../IS/WM/ECO	F32T8/ADV8.../EW
FO28/8...XP/SS/ECO	---	---
FO32/25W/8...XP/SS/ECO	---	F32T8/ADV8.../XEW/ALTO
FO40...	F40T8/SP... (or SPX)	F40T8/TL
FO72...	---	---
FO96...	F96T8/SP... (or SPX)	F96T8/TL...
FO96/7...XP/ECO	F96T8/XL.SP...	---
FO96/8...XP/ECO	F96T8/XL/SPX...	---
FO96/8...XP/SS/ECO	F96T8/SP.../WM	---
---	---	F48T8/TL.../HO
---	---	F60T8/TL.../HO
---	---	F72T8/TL.../HO
FO96.../HO/ECO	F96T8/SP (or SPX).../HO	F96T8/TL.../HO
---	F25T12/SP... (for T8 electronic ballasts)	---
FBO16...	---	---
FBO24...	---	---
FBO31...	F31T8/SPX.../U	---
FBO31...XP	---	---
FBO32...	F32T8/SP(or SPX).../U6	FB32T8/TL.../6
FBO32...XP	---	---
FBO31/...XPS/ECO	---	---
FBO32/...XPS/ECO	---	---
FBO32/8...XP/SS/ECO	---	---
FP14/8..	F14/T5/8..	F14T5/8..
FP21/8..	F21/T5/8..	F21T5/8..
FP28/8..	F28/T5/8..	F28T5/8..
FP35/8..	F35/T5/8..	F35T5/8..
FP24/8../HO	F24/T5/8../HO	F24T5/8../HO
FP39/8../HO	F39/T5/8../HO	F39T5/8../HO
FP54/8../HO	F54/T5/8../HO	F54T5/8../HO
FP80/8../HO	F80/T5/8../HO	F80T5/8../HO
---	F40T17/CW/IS	---
---	F96T17/...	---
HO (800mA)	HO (800mA)	HO (800mA)
F96T12/.../HO/COLDTEMP	F96T12/.../HO/CT	F96T12/.../HO-0
VHO (1500mA)	1500 or PG17 (both 1500mA)	VHO (1500mA)
VHO/LT (1500mA)	T10, 1500-0 (both 1500mA)	VHO-0 (1500mA)
<b>Induction Lamps</b>		
ICE 70/8... (ICETRON®)	---	---
ICE 100/8... (ICETRON)	---	---
ICE 150/8... (ICETRON)	---	---
---	EL23/R25/... (Genura™)	---
---	---	QL55W/... (QL)
---	---	QL85W/... (QL)
---	---	QL165W/... (QL)

For a more complete manufacturers' cross reference, please see that section of this catalog or visit the electronic catalog at [www.sylvania.com](http://www.sylvania.com).

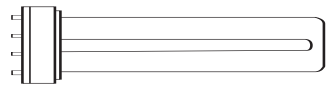
## FLUORESCENT LAMPS

The bulb shape and size of a fluorescent lamp are expressed by means of a code consisting of the letter "T" (which designates that the bulb is "tubular" in shape) followed by a number that expresses the diameter in eighths of an inch. Diameters range from T2 (1/4 inch) to T17 (2 1/8 inch). In nominal overall length, linear fluorescent lamps range from 6 to 96 inches. The nominal length is measured from back of lamp holder to back of lamp holder. For example, the actual overall length of the 40-watt rapid start T12 lamp with a nominal length of 48 inches is 47 3/4 inches. The nominal length given for PENTRON® linear lamps is the closest familiar nominal length. CURVALUME® U-shaped fluorescent lamps are available as OCTRON® T8 lamps with leg spacings of 1 1/2 inches and 6 inches and as rapid start T12 lamps with 6 spacings of 6 inches. The leg spacing is measured from the center of one leg to the center of the other leg. The overall length of the CURVALUME lamps is measured from the face of the bases to the outside of the glass bend. Circline lamps, which are circular in shape, are available as T9 lamps with outside diameters of 6 1/2, 8, 12 and 16 inches as well as PENTRON T5 lamps with outside diameters of 8.85 and 11.77 inches.

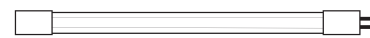
### Germicidal Compact Fluorescent



G23



2G11



Germicidal Single End

### T2 MINIATURE



T2 Axial Base (2/8" Diameter)

### PREHEAT, RAPID START



Preheat T5 Miniature Bipin (5/8" diameter)  
PENTRON T5 Miniature Bipin (5/8" diameter)



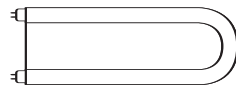
T8 Medium Bipin (1" diameter)



OCTRON T8 Medium Bipin (1" diameter)  
Rapid Start or Instant Start operation



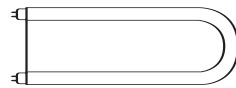
T12 Medium Bipin (1-1/2" diameter)



U-Shaped T12  
(1-1/2" diameter)  
6" leg spacing



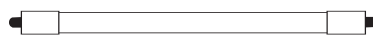
OCTRON T8 U-Shaped  
with 1 5/8" leg spacing  
(1" diameter)



OCTRON T8 U-Shaped  
with 6" leg spacing  
(1" diameter)



ICETRON®



Germicidal Single Pin

### HIGH OUTPUT AND VERY HIGH OUTPUT



OCTRON T8 Recessed Double Contact (1" diameter)



T12 Recessed Double Contact (1-1/2" diameter)



T14-1/2 Recessed Double Contact (1-13/16" diameter)

### INSTANT START



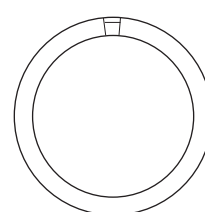
T6 Single Pin (3/4" diameter)



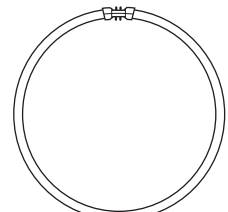
T8 Single Pin (1" diameter)  
OCTRON T8 Single Pin (1" diameter)



T12 Single Pin (1-1/2" diameter)



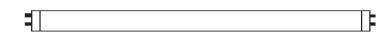
CIRCLINE 4-Pin T-9  
(6-1/2", 8", 12", 16"  
outside diameters)



PENTRON CIRCLINE 4-Pin T5  
(8.85" & 11.77"  
outside diameters)



Germicidal T5 Bipin

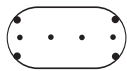


Germicidal T8 Bipin

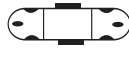
## BASES

For linear Preheat and Rapid Start Lamps, four electrical contacts are required, two at each end of the lamp. This is accomplished in the standard line of lamps by the use of a miniature bipin base for T5 lamps and a medium bipin for T8 and T12 lamps. The OCTRON® T8 medium bipin lamps may also be operated as instant start lamps with the proper wiring and ballasts. When operating OCTRON bipin lamps with instant start ballasts, the two contacts in the lamp holder are shorted together and connected to the single circuit in the ballast. In Circline lamps, the cathodes are connected to a four-pin base located between the junction of the two ends of the lamp. High Output (HO) and Very High Output (VHO) lamps have recessed double contact (RDC) type bases. Slimline Instant Start lamps require only two electrical contacts, one on each lamp end and have single pin bases.

### Germicidal Compact Fluorescent



GX 23



2 G 11

### SINGLE PIN



Single Pin for  
T6 Slimline



Single Pin for T8 Slimline  
& OCTRON



Single Pin for  
T12 Slimline

### BIPIN



Miniature Bipin for T5  
Preheat & PENTRON®



Miniature Bipin for T8  
Preheat & OCTRON



Medium Bipin for T12



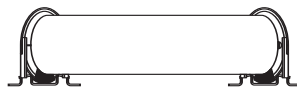
Axial T2 Subminiature



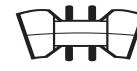
Recessed Double Contact  
for OCTRON T8 HO



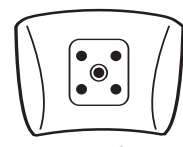
Recessed Double Contact  
for T12 HO & VHO



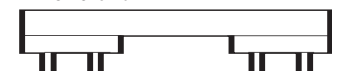
ICETRON® Mounting Brackets



4-pin for  
PENTRON Circline



4-pin for T9 Circline



OCTRON T8 & T12 Rapid Start  
CURVALUME

Germicidal Single End

Germicidal Single Pin

Germicidal T5 Bipin

Germicidal T8 Bipin

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

OCTRON® lamps are T8 fluorescent lamps designed to be operated on dedicated magnetic rapid start or electronic instant start or programmed rapid start (also known as programmed start) ballasts. For details on various lamp/ballast system combinations, please refer to the Systems Performance Guide in the "SYLVANIA QUICKTRONIC® Ballast Technology and Specification Guide".

### OCTRON® 800 XPS® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21680	<b>F032/830/XPS/ECO</b>	30	36000 (42000)	3000	85	3100	2945	19,31,33,48, 52,76,94
					21697	<b>F032/835/XPS/ECO</b>	30	36000 (42000)	3500	85	3100	2945	19,31,33,48, 52,76,94
					21681	<b>F032/841/XPS/ECO</b>	30	36000 (42000)	4100	85	3100	2945	19,31,33,48, 52,76,94
					21660	<b>F032/850/XPS/ECO</b>	30	36000 (42000)	5000	80	3000	2850	19,31,33, 48,52,76,94
					21659	<b>F032/865/XPS/ECO</b>	30	36000 (42000)	6500	80	2900	2750	19,31,33, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22150	<b>F017/830/XPS/ECO</b>	30	30000	3000	85	1400	1330	31,33,48,52, 76,93,94
					22151	<b>F017/835/XPS/ECO</b>	30	30000	3500	85	1400	1330	31,33,48,52, 76,93,94
					22152	<b>F017/841/XPS/ECO</b>	30	30000	4100	85	1400	1330	31,33,48,52, 76,93,94
25	T8	36	35.78	Med Bipin	22153	<b>F025/830/XPS/ECO</b>	30	30000	3000	85	2200	2090	31,33,48,52, 76,93,94
					22154	<b>F025/835/XPS/ECO</b>	30	30000	3500	85	2200	2090	31,33,48,52, 76,93,94
					22155	<b>F025/841/XPS/ECO</b>	30	30000	4100	85	2200	2090	31,33,48,52, 76,93,94

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25		48	47.78	Med Bipin	22232	<b>F032/25W/830/XP/SS/ECO</b>	30	36000 (42000)	3000	85	2475	2350	3,16,17,18, 20,31,33,76,94
					22233	<b>F032/25W/835/XP/SS/ECO</b>	30	36000 (42000)	3500	85	2475	2350	3,16,17,18, 20,31,33,76,94
					22234	<b>F032/25W/841/XP/SS/ECO</b>	30	36000 (42000)	4100	85	2475	2350	3,16,17,18, 20,31,33,76,94
					22235	<b>F032/25W/850/XP/SS/ECO</b>	30	36000 (42000)	5000	85	2300	2185	3,16,17,18, 20,31,33,76,94
28	T8	48	47.78	Med Bipin	22177	<b>F028/830/XP/SS/ECO</b>	30	36000 (42000)	3000	85	2725	2590	3,16,20,23, 31,33,44,76,94,95
					22178	<b>F028/835/XP/SS/ECO</b>	30	36000 (42000)	3500	85	2725	2590	3,16,20,23, 31,33,44,76,94,95
					22179	<b>F028/841/XP/SS/ECO</b>	30	36000 (42000)	4100	85	2725	2590	3,16,20,23, 31,33,44,76,94,95
					22184	<b>F028/850XP/SS/ECO</b>	30	36000 (42000)	5000	80	2600	2470	3,16,20, 23,31,33,76,94,95

FLUORESCENT



## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
30	T8	48	47.78	Med Bipin	22063	<b>F030/830/XP/SS/ECO</b>	30	36000 (42000)	3000	85	2850	2710	9,16,20,23, 31,33,76,94,95
					22060	<b>F030/835/XP/SS/ECO</b>	30	36000 (42000)	3500	85	2850	2710	9,16,20,23, 31,33,76,94,95
					22062	<b>F030/841/XP/SS/ECO</b>	30	36000 (42000)	4100	85	2850	2710	9,16,20,23, 31,33,76,87,95
					22202	<b>F030/850/XP/SS/ECO</b>	30	36000 (42000)	5000	85	2800	2660	9,16,20,23, 31,33,76,94,95

### OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	22039	<b>F032/827/XP/ECO</b>	30	36000 (42000)	2700	85	3000	2850	20,31,33,48, 52,76,94
					21759	<b>F032/830/XP/ECO</b>	30	36000 (42000)	3000	85	3000	2850	20,31,33,48, 52,76,94
					21763	<b>F032/835/XP/ECO</b>	30	36000 (42000)	3500	85	3000	2850	20,31,33,48, 52,76,94
					21767	<b>F032/841/XP/ECO</b>	30	36000 (42000)	4100	85	3000	2850	20,31,33,48, 52,76,94
					22026	<b>F032/850/XP/ECO</b>	30	36000 (42000)	5000	85	3000	2850	20,31,33,48, 52,76,94
					21720	<b>F032/865/XP/ECO</b>	30	36000 (42000)	6500	85	2850	2708	20,31,33,48, 52,76,94
					22594	<b>F032/SKYWHITE/XP/ECO</b>	30	36000 (42000)	8000	88	2650	2518	20,31,33,48, 52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	21587	<b>F017/827/XP/ECO</b>	30	24000	2700	85	1375	1305	31,33,44,48, 52,76,87
					21785	<b>F017/830/XP/ECO</b>	30	24000	3000	85	1375	1305	31,33,44,48, 52,76,87
					21778	<b>F017/835/XP/ECO</b>	30	24000	3500	85	1375	1305	31,33,44,48, 52,76,87
					21907	<b>F017/841/XP/ECO</b>	30	24000	4100	85	1375	1305	31,33,44,48, 52,76,87
					22193	<b>F017/850/XP/ECO</b>	30	24000	5000	85	1375	1305	31,33,44,48, 52,76,87
					21718	<b>F017/865/XP/ECO</b>	30	24000	6500	85	1250	1188	31,33,44,48, 52,76,87
25	T8	36	35.78	Med Bipin	21586	<b>F025/827/XP/ECO</b>	30	24000	2700	85	2175	2065	31,33,44,48, 52,76,87
					21910	<b>F025/830/XP/ECO</b>	30	24000	3000	85	2175	2065	31,33,44,48, 52,76,87
					21776	<b>F025/835/XP/ECO</b>	30	24000	3500	85	2175	2065	31,33,44,48, 52,76,87
					21774	<b>F025/841/XP/ECO</b>	30	24000	4100	85	2175	2065	31,33,44,48, 52,76,87

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25	T8	36	35.78	Med Bipin	22194	<b>F025/850/XP/ECO</b>	30	24000	5000	85	2175	2065	31,33,44,48, 52,76,87
					21719	<b>F025/865/XP/ECO</b>	30	24000	6500	85	2000	1900	31,33,44,48, 52,76,87
40	T8	60	59.61	Med Bipin	21912	<b>F040/830/XP/ECO</b>	30	24000	3000	85	3750	3560	31,33,44,48, 52,76,87
					21911	<b>F040/835/XP/ECO</b>	30	24000	3500	85	3750	3560	31,33,44,48, 52,76,87
					21916	<b>F040/841/XP/ECO</b>	30	24000	4100	85	3750	3560	31,33,44,48, 52,76,87
					21721	<b>F040/865/XP/ECO</b>	30	24000	6500	85	3650	3468	31,33,44,48, 52,76,87

### OCTRON® 700 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21711	<b>F032/730/XP/ECO</b>	30	36000 (42000)	3000	78	2850	2705	31,33,44, 48,52,76,94
					22044	<b>F032/735/XP/ECO</b>	30	36000 (42000)	3500	78	2850	2705	31,33,44, 48,52,76,94
					21712	<b>F032/741/XP/ECO</b>	30	36000 (42000)	4100	78	2850	2705	31,33,44, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	21699	<b>F017/735/XP/ECO</b>	30	24000	3500	78	1325	1255	31,33,44,48, 52,76,87
					21637	<b>F017/741/XP/ECO</b>	30	24000	4100	78	1325	1255	31,33,44,48, 52,76,87
25	T8	36	35.78	Med Bipin	21698	<b>F025/735/XP/ECO</b>	30	24000	3500	78	2050	1945	31,33,44,48, 52,76,87
					21639	<b>F025/741/XP/ECO</b>	30	24000	4100	78	2050	1945	31,33,44,48, 52,76,87

### OCTRON® 800 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21777	<b>F032/830/ECO</b>	30	30000 (35000)	3000	85	2950	2802	21,31,33, 48,52,76,94
					21779	<b>F032/835/ECO</b>	30	30000 (35000)	3500	85	2950	2802	21,31,33, 48,52,76,94
					21781	<b>F032/841/ECO</b>	30	30000 (35000)	4100	85	2950	2802	21,31,33, 48,52,76,94
					22143	<b>F032/850/ECO</b>	30	30000 (35000)	5000	80	2800	2660	21,31,33, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22135	<b>F017/830/ECO</b>	30	20000	3000	82	1350	1240	31,33,35,48, 52,76

FLUORESCENT

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 800 Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
17	T8	24	23.78	Med Bipin	22136	<b>F017/835/ECO</b>	30	20000	3500	82	1350	1240	31,33,35,48,52,76
					22137	<b>F017/841/ECO</b>	30	20000	4100	82	1350	1240	31,33,35,48,52,76
25	T8	36	35.78	Med Bipin	22138	<b>F025/830/ECO</b>	30	20000	3000	82	2150	1975	31,33,35,48,52,76
					22139	<b>F025/835/ECO</b>	30	20000	3500	82	2150	1975	31,33,35,48,52,76
					22140	<b>F025/841/ECO</b>	30	20000	4100	82	2150	1975	31,33,35,48,52,76
40	T8	60	59.61	Med Bipin	22144	<b>F040/830/ECO</b>	30	20000	3000	82	3650	3473	31,33,35,48,52,76
					22145	<b>F040/835/ECO</b>	30	20000	3500	82	3650	3473	31,33,35,48,52,76
					22146	<b>F040/841/ECO</b>	30	20000	4100	82	3650	3473	31,33,35,48,52,76

**OCTRON® 700 Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21997	<b>F032/730/ECO</b>	30	25000	3000	78	2800	2520	31,33,48,52,76,119
					21998	<b>F032/735/ECO</b>	30	25000	3500	78	2800	2520	31,33,48,52,76,119
					21678	<b>F032/735/SL</b>	30	25000	3500	78	2716	2444	31,33,52,96,98,119
					22181	<b>F032/741/ECO/CVP</b>	12	25000	4100	78	2800	2520	31,33,48,52,76,119
					21547	<b>F032/741/ECO/SL</b>	30	25000	4100	78	2716	2444	31,33,52,76,96,98,119
					21999	<b>F032/741/ECO</b>	30	25000	4100	78	2800	2520	31,33,48,52,76,119
					22141	<b>F032/750/ECO</b>	30	25000	5000	78	2650	2385	31,33,48,52,76,119
					22175	<b>F032/765/ECO</b>	30	25000	6500	78	2700	2430	31,33,48,52,76,119
14	T8	18	17.91	Med Bipin	21666	<b>F013/735/ECO</b>	30	20000	3500	75	830	745	31,33,35,48,52,76
					21667	<b>F013/741/ECO</b>	30	20000	4100	75	830	745	31,33,35,48,52,76
17	T8	24	23.78	Med Bipin	21918	<b>F017/730/ECO</b>	30	20000	3000	75	1300	1170	31,33,35,48,52,76
					21769	<b>F017/735/ECO</b>	30	20000	3500	75	1300	1170	31,33,35,48,52,76
					21770	<b>F017/741/ECO</b>	30	20000	4100	75	1300	1170	31,33,35,48,52,76
25	T8	36	35.78	Med Bipin	21937	<b>F025/730/ECO</b>	30	20000	3000	75	1950	1755	31,33,35,48,52,76

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
25	T8	36	35.78	Med Bipin	21941	<b>F025/735/ECO</b>	30	20000	3500	75	1950	1755	31,33,35,48,52,76
					21942	<b>F025/741/ECO</b>	30	20000	4100	75	1950	1755	31,33,35,48,52,76
40	T8	60	59.61	Med Bipin	22102	<b>F040/730/ECO</b>	30	20000	3000	75	3500	3150	31,33,35,48,52,76
					22103	<b>F040/735/ECO</b>	30	20000	3500	75	3500	3150	31,33,35,48,52,76
					22104	<b>F040/741/ECO</b>	30	20000	4100	75	3500	3150	31,33,35,48,52,76

**OCTRON® 800 XP® 8 Foot SUPERSAVER® Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
55	T8	96	94	Single Pin	22100	<b>F096/835/XP/SS/ECO</b>	24	18000	3500	85	5700	5415	7,31,33,76,85
					22101	<b>F096/841/XP/SS/ECO</b>	24	18000	4100	85	5700	5415	7,31,33,76,85

**OCTRON® 800 XP® 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
59	T8	96	94	Single Pin	22036	<b>F096/830/XP/ECO</b>	24	18000	3000	85	6100	5795	31,33,44,48,76,85
					22034	<b>F096/835/XP/ECO</b>	24	18000	3500	85	6100	5795	31,33,44,48,76,85
					22032	<b>F096/841/XP/ECO</b>	24	18000	4100	85	6100	5795	31,33,44,48,76,85
					22174	<b>F096/850/XP/ECO</b>	24	18000	5000	85	6100	5795	31,33,44,48,76,85

**OCTRON® 800 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
59		96	94	Single Pin	22147	<b>F096/830/ECO</b>	24	15000	3000	82	5900	5428	10,31,33,48,76
					22148	<b>F096/835/ECO</b>	24	15000	3500	82	5900	5428	10,31,33,48,76
					22149	<b>F096/841/ECO</b>	24	15000	4100	82	5900	5428	10,31,33,48,76
					22173	<b>F096/850/ECO</b>	24	15000	5000	80	5900	5428	10,31,33,48,76
86	T8	96	93.91	Recessed DC	22206	<b>F096/835/HO/ECO</b>	24	18000	3500	85	8200	7710	31,33,48,76
					22207	<b>F096/841/HO/ECO</b>	24	18000	4100	85	8200	7710	31,33,48,76

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
59	T8	96	94	Single Pin	22030	<b>F096/730/ECO</b>	24	15000	3000	75	5700	5130	31,33,48,76,84
					21737	<b>F096/735/ECO</b>	24	15000	3500	75	5700	5130	31,33,48,76,84
					21736	<b>F096/741/ECO</b>	24	15000	4100	75	5700	5130	31,33,48,76,84
86	T8	96	93.91	Recessed DC	22204	<b>F096/735/HO/ECO</b>	24	18000	3500	78	8000	7520	31,33,48,76
					22205	<b>F096/741/HO/ECO</b>	24	18000	4100	78	8000	7520	31,33,48,76

**OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

The OCTRON® CURVALUME® lamps are made to the same color standards and may be used in conjunction with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where OCTRON T8 systems are used. Since CURVALUME and linear OCTRON lamps of the same/similar wattages operate on the same ballasts, the types of ballasts used in an installation can be minimized. When OCTRON FBO31 lamps are used in 2X2 luminaires, the 2X2 luminaire can deliver light levels similar to 2X4 luminaires with the same number of linear OCTRON lamps. The nominal length of the CURVALUME lamp is measured from the base face to the outside of the glass bend.

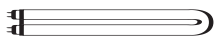
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
29	T8	22.5	22.6	Med Bipin	22195	<b>FBO29/830XP/SS/ECO</b>	15	24000	3000	85	2775	2636	31,33,44,54,76,87,95
					22196	<b>FBO29/835XP/SS/ECO</b>	15	24000	3500	85	2775	2636	31,33,44,54,76,87,95
					22197	<b>FBO29/841XP/SS/ECO</b>	15	24000	4100	85	2775	2636	31,33,44,54,76,87,95

**OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

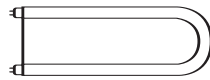
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
31	T8	22.5	22.6	Med Bipin	21693	<b>FB031/830/XP/ECO</b>	15	24000	3000	85	2775	2636	31,33,44,48,52,54,55,76,87
					21695	<b>FB031/835/XP/ECO</b>	15	24000	3500	85	2775	2636	31,33,44,48,52,54,55,76,87
					21696	<b>FB031/841/XP/ECO</b>	15	24000	4100	85	2775	2636	31,33,44,48,52,54,55,76,87

**OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
31		22.5	22.6	Med Bipin	21877	<b>FB031/830</b>	15	20000	3000	82	2725	2507	31,33,35,48,52,54,55
					21878	<b>FB031/835</b>	15	20000	3500	82	2725	2507	31,33,35,48,52,54,55
					21879	<b>FB031/841</b>	15	20000	4100	82	2725	2507	31,33,35,48,52,54,55
16	T8	10.5	10.60	Med Bipin	21834	<b>FB016/830</b>	15	20000	3000	82	1125	1035	31,33,35,48,52,54,55
					21835	<b>FB016/835</b>	15	20000	3500	82	1125	1035	31,33,35,48,52,54,55



T8 U-Shaped 1-5/8"



T8 U-Shaped 6"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
											@25°C/77°F		
16	T8	10.5	10.60	Med Bipin	21836	<b>FB016/841</b>	15	20000	4100	82	1125	1035	31,33,35,48,52,54,55
24	T8	16.5	16.6	Med Bipin	21874	<b>FB024/830</b>	15	20000	3000	82	1925	1771	31,33,35,48,52,54,55
					21875	<b>FB024/835</b>	15	20000	3500	82	1925	1771	31,33,35,48,52,54,55
					21876	<b>FB024/841</b>	15	20000	4100	82	1925	1771	31,33,35,48,52,54,55

**OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
											@25°C/77°F		
30	T8	22.5	22.6	Med Bipin	22170	<b>FB030/830XP/6/SS/ECO</b>	16	24000	3000	85	2800	2660	31,33,44,54,76,87,95
					22171	<b>FB030/835XP/6/SS/ECO</b>	16	24000	3500	85	2800	2660	31,33,44,54,76,87,95
					22172	<b>FB030/841XP/6/SS/ECO</b>	16	24000	4100	85	2800	2660	31,33,44,54,76,87,95

**OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
											@25°C/77°F		
32	T8	22.5	22.6	Med Bipin	22054	<b>FB032/830XP/6/ECO</b>	16	24000	3000	85	2900	2755	31,33,44,48,52,54,76,87
					22055	<b>FB032/835XP/6/ECO</b>	16	24000	3500	85	2900	2755	31,33,44,48,52,54,76,87
					22057	<b>FB032/841XP/6/ECO</b>	16	24000	4100	85	2900	2755	31,33,44,48,52,54,76,87

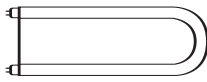
**OCTRON® 800 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
											@25°C/77°F		
32		22.5	22.6	Med Bipin	21663	<b>FB032/830/6/ECO</b>	16	20000	3000	82	2850	2622	31,33,35,48,52,54,76
					21670	<b>FB032/835/6/ECO</b>	16	20000	3500	82	2850	2622	31,33,35,48,52,54,76
					21671	<b>FB032/841/6/ECO</b>	16	20000	4100	82	2850	2622	31,33,35,48,52,54,76

**OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
											@25°C/77°F		
32		22.5	22.6	Med Bipin	22046	<b>FB032/730/6/ECO</b>	16	20000	3000	75	2750	2475	31,33,35,48,52,54,76
					22051	<b>FB032/735/6/ECO</b>	16	20000	3500	75	2750	2475	31,33,35,48,52,54,76





T8 U-Shaped 6"



T8 Med Bipin



T8 U-Shaped 1-5/8"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
32	T8	22.5	22.6	Med Bipin	22052	<b>FB032/741/6/ECO</b>	16	20000	4100	75	2750	2475	31,33,35,48,52,54,76
					22053	<b>FB032/750/6/ECO</b>	16	20000	5000	75	2625	2363	31,33,35,48,52,54,76

**OCTRON® 5000K And 6500K for Displays, Signage and Backlighting**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
14	T8	18	17.91	Med Bipin	21731	<b>F013/865XP/ECO</b>	30	24000	6500	85	850	805	31,33,44,48,52,76,87
15	T8	20	19.78	Med Bipin	21868	<b>F014/950/20in</b>	30	20000	5000	90	750	638	31,33,35,48,52
					21716	<b>F014/865/XP/ECO</b>	30	24000	6500	85	1000	950	31,33,44,48,52,76,87
16	T8	10.5	10.60	Med Bipin	21726	<b>FB016/865XP</b>	15	24000	6500	85	1125	1069	31,33,44,48,52,54,55,87
17	T8	24	23.78	Med Bipin	21871	<b>F017/950/24in</b>	30	20000	5000	90	800	680	31,33,35,48,52
					21718	<b>F017/865/XP/ECO</b>	30	24000	6500	85	1250	1188	31,33,44,48,52,76,87
21	T8	30	29.78	Med Bipin	21869	<b>F021/950/30in</b>	30	20000	5000	90	1000	850	31,33,35,48,52
					21730	<b>F021/865/XP/ECO</b>	30	24000	6500	85	1600	1520	31,33,44,48,52,76,87
25	T8	36	35.78	Med Bipin	21872	<b>F025/950/36in</b>	30	20000	5000	90	1250	1063	31,33,35,48,52
					21719	<b>F025/865/XP/ECO</b>	30	24000	6500	85	2000	1900	31,33,44,48,52,76,87
28	T8	40	39.78	Med Bipin	21870	<b>F028/950/40in</b>	30	20000	5000	90	1400	1190	31,33,35,48,52
32	T8	48	47.78	Med Bipin	21880	<b>F032/950/48in</b>	30	25000	5000	90	1800	1530	31,33,48,52
					21720	<b>F032/865/XP/ECO</b>	30	36000 ( )	6500	85	2850	2708	20,31,33,48,52,76,94
40	T8	60	59.61	Med Bipin	21873	<b>F040/950/60in</b>	30	20000	5000	90	2200	1870	31,33,35,48,52
					21721	<b>F040/865/XP/ECO</b>	30	24000	6500	85	3650	3468	31,33,44,48,52,76,87

**OCTRON® Specialty**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21961	<b>F032/GOLD</b>	10	25000			1700	1530	31,33,35,43,48,52

## PENTRON® T5 FLUORESCENT LAMPS

PENTRON® T5 lamps are designed to operate on dedicated electronic programmed rapid start (also know as programmed start) ballasts only. These lamps are globally standardized and are designed to operate with their peak light output at 35°C (95°F) ambient temperature. For comparison purposes and to accommodate existing lamp measurement standards, ratings are given at both 25°C (77°F) and 35°C (95°F). The new lamp dimensions allow for innovative fixture designs and improved fixture performance

### PENTRON® High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
28	T5	48	45.8	Mini Bipin	20868	FP28/830/ECO	40	20000	3000	85	2600	2418	31,33,38,48,74,76
					20901	FP28/835/ECO	40	20000	3500	85	2600	2418	31,33,38,48,74,76
					20902	FP28/841/ECO	40	20000	4100	85	2600	2418	31,33,38,48,74,76
					22203	FP28/850/ECO	40	20000	5000	85	2545	2367	31,33,38,48,74,76
					20990	FP28/865/ECO	40	20000	6500	85	2400	2232	31,33,38,48,74,76
					20977	FP28RED 40/CS 1/SKU	40	20000			2100		15,31,33,38,48,74
					20978	FP28GREEN 40/CS 1/SKU	40	20000			3500		15,31,33,38,48,74
					20986	FP28BLUE 40/CS 1/SKU	40	20000			700		15,31,33,38,48,74
14	T5	24	22.2	Mini Bipin	20907	FP14/830/ECO	40	20000	3000	85	1200	1116	31,33,38,48,74,76
					20908	FP14/835/ECO	40	20000	3500	85	1200	1116	31,33,38,48,74,76
					20914	FP14/841/ECO	40	20000	4100	85	1200	1116	31,33,38,48,74,76
					20988	FP14/865/ECO	40	20000	6500	85	1100	1045	31,33,38,48,74,76
21	T5	36	34	Mini Bipin	20919	FP21/830/ECO	40	20000	3000	85	1900	1767	31,33,38,48,74,76
					20921	FP21/835/ECO	40	20000	3500	85	1900	1767	31,33,38,48,74,76
					20924	FP21/841/ECO	40	20000	4100	85	1900	1767	31,33,38,48,74,76
					20989	FP21/865/ECO	40	20000	6500	85	1750	1662	31,33,38,48,74,76
35	T5	60	57.6	Mini Bipin	20925	FP35/830/ECO	40	20000	3000	85	3300	3069	31,33,38,48,74,76
					20926	FP35/835/ECO	40	20000	3500	85	3300	3069	31,33,38,48,74,76
					20927	FP35/841/ECO	40	20000	4100	85	3300	3069	31,33,38,48,74,76

### PENTRON® PREMIER™ High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
28	T5	48	45.8	Mini Bipin	20948	FP28/830PM/ECO	40	20000	3000	85	2730	2594	31,33,38,48,74,76
					20943	FP28/835PM/ECO	40	20000	3500	85	2730	2594	31,33,38,48,74,76
					20944	FP28/841PM/ECO	40	20000	4100	85	2730	2594	31,33,38,48,74,76

FLUORESCENT

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® High Output, High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
54	T5	48	45.8	Mini Bipin	20903	FP54/830/HO/ECO	40	25000 (35000)	3000	85	4450	4138	31,33,38,48,74,76
					20904	FP54/835/HO/ECO	40	25000 (35000)	3500	85	4450	4138	31,33,38,48,74,76
					21020	FP54/835/HO/ECO/SL	40	25000 (35000)	3500	85	4316	4014	31,33,38,48,74,76,96,98
					20906	FP54/841/HO/ECO	40	25000 (35000)	4100	85	4450	4138	31,33,38,48,74,76
					21021	FP54/841/HO/ECO/SL	40	25000 (35000)	4100	85	4316	4014	31,33,48,74,76,96,98
					20949	FP54/850/HO/ECO	40	25000 (35000)	5000	85	4375	4069	31,33,38,48,74,76
					21022	FP54/850/HO/ECO/SL	40	25000 (35000)	5000	85	4243	3946	31,33,48,74,76,96,98
					20862	FP54/865/HO/ECO	40	25000 (35000)	6500	85	4050	3766	31,33,38,48,74,76
					20997	FP54/RED/HO	40	20000				3300	15,31,33,38,48,74
					20998	FP54/GREEN/HO	40	20000				5550	15,31,33,38,48,74
					20999	FP54/BLUE/HO	40	20000				1150	15,31,33,38,48,74
					24	T5	24	22.2	Mini Bipin	20928	FP24/830/HO/ECO	40	20000
20929	FP24/835/HO/ECO	40	20000	3500						85	1750	1627	31,33,38,48,74,76
20931	FP24/841/HO/ECO	40	20000	4100						85	1750	1627	31,33,38,48,74,76
39	T5	36	34	Mini Bipin	20932	FP39/830/HO/ECO	40	20000	3000	85	3100	2883	31,33,38,48,74,76
					20933	FP39/835/HO/ECO	40	20000	3500	85	3101	2883	31,33,38,48,74,76
					20934	FP39/841/HO/ECO	40	20000	4100	85	3102	2883	31,33,38,48,74,76
80	T5	60	57.6	Mini Bipin	20935	FP80/830/HO/ECO	40	20000	3000	85	6150	5719	31,33,38,48,74,76
					20936	FP80/835/HO/ECO	40	20000	3500	85	6151	5720	31,33,38,48,74,76
					20937	FP80/841/HO/ECO	40	20000	4100	85	6152	5721	31,33,38,48,74,76

### PENTRON® High Output, Wide Temperature Range T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @35°C/95°F	Symbols & Footnotes
54	T5	48	45.8	Mini Bipin	21042	FP54/835/C/HO/ECO	40	25000 (35000)	3500	85	4900	4655	31,33,38,48,74,76
					21043	FP54/841/C/HO/ECO	40	25000 (35000)	4100	85	4900	4655	31,33,38,48,74,76
					21044	FP54/850/C/HO/ECO	40	25000 (35000)	5000	85	4800	4560	31,33,38,48,74,76



Circline 4-Pin T5



T12 Med Bipin

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® Circline T5 Lamps

Nominal Wattage	Bulb	Outside Diameter (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
22	T5	8.66 - 9.06	2GX13	20702	<b>FPC22/830</b>	12	12000	3000	82	1800	1585	31,33,38,48,74
				20712	<b>FPC22/835</b>	12	12000	3500	82	1800	1585	31,33,38,48,74
				20715	<b>FPC22/841</b>	12	12000	4100	82	1800	1585	31,33,38,48,74
40	T5	11.54 - 12.01	2GX13	20731	<b>FPC40/830</b>	12	12000	3000	82	3200	2815	31,33,38,48,74
				20732	<b>FPC40/835</b>	12	12000	3500	82	3200	2815	31,33,38,48,74
				20733	<b>FPC40/841</b>	12	12000	4100	82	3200	2815	31,33,38,48,74
55	T5	11.54 - 12.01	2GX13	20741	<b>FPC55/830/HO</b>	12	12000	3000	82	4000	3520	31,33,38,48,74
				20750	<b>FPC55/835/HO</b>	12	12000	3500	82	4000	3520	31,33,38,48,74
				20751	<b>FPC55/841/HO</b>	12	12000	4100	82	4000	3520	31,33,38,48,74

### RAPID START LAMPS

Rapid Start lamps, 3-foot and 4-foot in length, are typically designated by their wattage: e.g. F40 = Fluorescent 40W. Therefore lamps previously designated as F30T12/RS/SS, F40/SS and FB40/SS energy saving types will now be designated as F25T12/RS/SS, F34/SS and FB34/SS, respectively to comply with standard lamp designation nomenclature for these families of lamps.

### 3' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25	T12	36	35.78	Med Bipin	23473	<b>F25T12/WW/RS/SS</b> <i>formerly F30T12/WW/RS/SS</i>	30	18000	3000	52	1975	1679	22,31,33
					23485	<b>F25T12/D35/RS/SS</b> <i>formerly F30T12/D35/RS/SS</i>	30	18000	3500	70	2050	1804	22,31,33
					23472	<b>F25T12/CW/RS/SS</b> <i>formerly F30T12/CW/RS/SS</i>	30	18000	4200	60	1925	1636	22,31,33

### 3' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
30	T12	36	35.78	Med Bipin	23490	<b>F30T12/SW/RP</b>	6	18000	3000	52	2275	1934	30,31,33,48
					23482	<b>F30T12/WW/RS</b>	30	18000	3000	52	2275	1934	30,31,33,48
					23474	<b>F30T12/D830/RS</b>	30	18000	3000	80	2290	2061	30,31,33,48
					23484	<b>F30T12/D35/RS</b>	30	18000	3500	70	2250	1980	30,31,33,48
					23139	<b>F30T12/D835/RS</b>	30	18000	3500	80	2290	2061	30,31,33,48
					23493	<b>F30T12/CW/RP</b>	6	18000	4200	60	2200	1870	30,31,33,48
					23476	<b>F30T12/CW/RS</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23487	<b>F30T12/CW/RS/UPC</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23478	<b>F30T12/D/RS</b>	30	18000	6500	76	1900	1615	30,31,33,48

### 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
34	T12	48	47.78	Med Bipin	24538	<b>F34WW/SS/ECO</b> <i>formerly F40WW/SS/ECO</i>	30	20000	3000	52	2750	2365	224,30,31,33,56,76
					24535	<b>F34/D30/SS/ECO</b> <i>formerly F40/D30/SS/ECO</i>	30	20000	3000	70	2800	2520	224,30,31,33,56,76

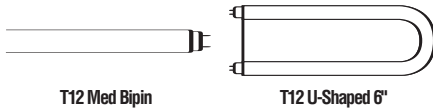
## RAPID START LAMPS

## 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
34	T12	48	47.78	Med Bipin	24589	<b>F34/D830/SS</b> <i>formerly F40/D830/SS</i>	30	20000	3000	80	2900	2610	☉   2,24,30,31,33,56
					24544	<b>F34/D830/SS/ECO</b> <i>formerly F40/D830/SS/ECO</i>	30	20000	3000	80	2900	2610	☉   2,24,30,31,33,56,76
					24591	<b>F34W/SS</b> <i>formerly F40W/SS</i>	30	20000	3450	57	2750	2365	☉ 2,24,30,31,33,56
					24585	<b>F34/D35/SS</b> <i>formerly F40/D35/SS</i>	30	20000	3500	70	2800	2520	☉   2,24,30,31,33,56
					24522	<b>F34/D35/SS/CVP</b> <i>formerly F40/D35/SS/CVP</i>	10	20000	3500	70	2800	2520	☉   2,24,30,31,33,56
					24540	<b>F34/D35/SS/ECO</b> <i>formerly F40/D35/SS/ECO</i>	30	20000	3500	70	2800	2520	☉   2,24,30,31,33,56,76
					24547	<b>F34/D835/SS/ECO</b> <i>formerly F40/D835/SS/ECO</i>	30	20000	3500	80	2900	2610	☉   2,24,30,31,33,56,76
					24542	<b>F34/D41/SS/ECO</b> <i>formerly F40/D41/SS/ECO</i>	30	20000	4100	70	2800	2520	☉   2,24,30,31,33,56,76
					24554	<b>F34/D841/SS/ECO</b> <i>formerly F40/D841/SS/ECO</i>	30	20000	4100	80	2900	2610	☉   2,24,30,31,33,56,76
					24588	<b>F34CWX/SS</b> <i>formerly F40CWX/SS</i>	30	20000	4100	87	1925	1656	2,24,30,31,33,56
					24566	<b>F34LW/SS/ECO</b> <i>formerly F40LW/SS/ECO</i>	30	20000	4150	48	2825	2430	☉  2,24,30,31,33,56,76
					24590	<b>F34LW/SS</b> <i>formerly F40LW/SS</i>	30	20000	4150	48	2825	2430	☉ 2,24,30,31,33,56
					24516	<b>F34CW/SS/10</b> <i>formerly F40CW/SS/10</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24524	<b>F34CW/SS/CVP</b> <i>formerly F40/CW/SS/CVP</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24396	<b>F34CW/SS/SL</b> <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	☉ 2,24,30,31,33,96,98
					24596	<b>F34CW/SS/ECO</b> <i>formerly F40CW/SS/ECO</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24632	<b>F34CW/SS/ECO/CVP</b> <i>formerly F40/CW/SS/ECO/CVP</i>	10	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24642	<b>F34CW/SS/ECO/CVP30</b> <i>formerly F40CW/SS/ECO/CVP30</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24633	<b>F34CW/SS/ECO/RP</b> <i>formerly F40/CW/SS/ECO/RP</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,48,56,76
					24599	<b>F34/DX/SS</b> <i>formerly F40/DX/SS</i>	30	20000	6500	88	1930	1565	2,24,30,31,33,56
24706	<b>F34/D865/SS</b> <i>formerly F40/D865/SS</i>	30	20000	6500	80	2650	2385	☉   2,24,30,31,33,56					

## 4' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24521	<b>F40/D30/ECO</b>	30	20000	3000	70	3200	2880	☉   2,30,31,33,48,56,64,76



T12 Med Bipin

T12 U-Shaped 6"

## RAPID START LAMPS

### 4' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24543	<b>F40/D830/ECO</b>	30	20000	3000	80	3300	2970	2,30,31,33,48,56,64,76
					24537	<b>F40/D35/ECO</b>	30	20000	3500	70	3200	2880	2,30,31,33,48,56,64,76
					24546	<b>F40/D835/ECO</b>	30	20000	3500	80	3300	2970	2,30,31,33,48,56,64,76
					24438	<b>F40N</b>	30	20000	3600	86	2100	1806	2,30,31,33,48,56,64
					24442	<b>F40CWX 10/CS</b>	10	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24441	<b>F40CWX</b>	30	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24541	<b>F40/D41/ECO</b>	30	20000	4100	70	3200	2880	2,30,31,33,48,56,64,76
					24553	<b>F40/D841/ECO</b>	30	20000	4100	80	3300	2970	2,30,31,33,48,56,64,76
					24584	<b>F40/D41</b>	30	20000	4100	70	3200	2880	2,30,31,33,48,56,64
					24683	<b>F40DSGN50</b>	30	20000	5000	90	2200	1892	2,30,31,33,48,56,64
					24477	<b>F40/DX</b>	30	20000	6500	88	2180	1770	2,30,31,33,48,56,64
					24570	<b>F40/D865</b>	30	20000	6500	80	3000	2700	2,30,31,33,48,56,64
					24673	<b>F40/GO</b>	10	20000			1980		2,30,31,33,48,56,64

### CURVALUME® SUPERSAVER® Rapid Start Lamps – U-Shaped, 6” Leg Spacing

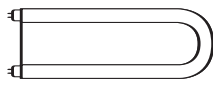
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
34	T12	22.5	22.6	Med Bipin	24062	<b>FB34/WW/6/SS/UPC</b> <i>formerly FB40/WW/6/SS</i>	12	18000	3000	52	2650	2279	24,30,31,33
					24052	<b>FB34/WW/6/SS/ECO</b> <i>formerly FB40/WW/6/SS/ECO</i>	12	18000	3000	52	2650	2279	24,30,31,33,76
					24065	<b>FB34/D35/6/SS</b> <i>formerly FB40/D35/SS</i>	12	18000	3500	70	2730	2457	24,30,31,33
					24059	<b>FB34/CW/6/SS/UPC</b> <i>formerly FB40/CW/SS/6</i>	12	18000	4200	60	2600	2236	24,30,31,33
					24054	<b>FB34/CW/6/SS/ECO</b> <i>formerly FB40/CW/6/SS/ECO</i>	12	18000	4200	60	2600	2236	24,30,31,33,76

### CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6” Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
40	T12	22.5	22.6	Med Bipin	24080	<b>FB40/D30/6</b>	12	18000	3000	70	3050	2745	30,31,33,48
					24017	<b>FB40/D830/6</b>	12	18000	3000	80	3200	2880	30,31,33,48
					24081	<b>FB40/D35/6</b>	12	18000	3500	70	3050	2745	30,31,33,48
					24004	<b>FB40/CWX/6</b>	12	18000	4100	87	2100	1806	30,31,33,48

FLUORESCENT





T12 U-Shaped 6"



Circline 4-Pin T9



T12 RDC

**RAPID START LAMPS****CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6” Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
40	T12	22.5	22.6	Med Bipin	24082	<b>FB40/D41/6</b>	12	18000	4100	70	3050	2745	☉  30,31,33,48

**Circline T9 Rapid Start Lamps**

Nominal Wattage	Bulb	Outside Diameter (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
20	T9	6.25 - 6.75	4 PIN	20155	<b>FC6T9/WW/RS</b>	12	8000	3000	52	800	696	31,33,42,48
				20156	<b>FC6T9/CW/RS</b>	12	8000	4200	60	750	653	31,33,42,48
22	T9	8.00 - 8.50	4 PIN	20088	<b>FC8T9/WW/RS</b>	12	12000	3000	52	1050	914	31,33,42,48
				20209	<b>FC8T9/DSW/RP</b>	6	12000	3000	70	1100	990	31,33,42,48
				20151	<b>FC8T9/CW/RS/6 PACK</b>	6	12000	4200	60	1050	914	31,33,42,48
				20148	<b>FC8T9/CW/RS</b>	12	12000	4200	60	1050	914	31,33,42,48
				20080	<b>FC8T9/D/RS</b>	12	12000	6500	76	900	783	31,33,42,48
30	T9	8.00 - 8.50	4 PIN	20210	<b>FC8T9/830/EL</b>	6	10000	3000	80	1850	1591	31,33,40,49,79,81
32	T9	11.5 - 12.0	4 PIN	20233	<b>FC12T9/DSW/RP</b>	6	15000	3000	70	2100	1806	31,33,42,48
				20037	<b>FC12T9/WW/RS</b>	12	15000	3000	52	1950	1697	31,33,42,48
				20143	<b>FC12T9/CW/RS/6 PACK</b>	6	15000	4200	60	1925	1675	31,33,42,48
				20142	<b>FC12T9/CW/RS</b>	12	15000	4200	60	1925	1675	31,33,42,48
				20030	<b>FC12T9/D/RS</b>	12	15000	6500	76	1650	1436	31,33,42,48
40	T9	15.6 - 16.0	4 PIN	20057	<b>FC16T9/WW/RS</b>	12	18000	3000	52	2800	2436	31,33,42,48
				20132	<b>FC16T9/CW/RS</b>	12	18000	4200	60	2750	2393	31,33,42,48
				20072	<b>FC16T9/D/RS</b>	12	18000	6500	76	2350	2045	31,33,42,48

**High Output (800mA) SUPERSAVER® Rapid Start Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
55	T12	48	46	Recessed DC	25137	<b>F48T12D35/HO/SS</b>	30	12000	3500	70	3750	3375	27,31,33,97
95	T12	96	93.91	Recessed DC	25011	<b>F96T12/WW/HO/SS</b>	15	12000	3000	52	7700	6237	☉ 27,31,33,97
					25024	<b>F96T12/D35/HO/SS</b>	15	12000	3500	48	8350	7515	☉  27,31,33,97
					25023	<b>F96T12/D41/HO/SS</b>	15	12000	4100	70	8350	7515	☉  27,31,33,97
					25025	<b>F96T12/LW/HO/SS</b>	15	12000	4150	48	8000	6480	☉ 27,31,33,97
					25010	<b>F96T12/CW/HO/SS</b>	15	12000	4200	60	8000	6480	☉ 27,31,33,97
					25001	<b>F96T12/CW/HO/SS/ECO</b>	15	12000	4200	60	8000	6480	☉  27,31,33,76,97

**High Output (800mA) Standard Rapid Start Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25	T12	18	15.91	Recessed DC	25303	<b>F18T12/DSGN50/HO</b>	30	9000	5000	90	850	740	31,33,48
35	T12	24	21.91	Recessed DC	25313	<b>F24T12/CW/HO</b>	30	9000	4200	60	1650	1337	31,33,48
					25312	<b>F24T12/DSGN50/HO</b>	30	9000	5000	90	1200	1044	31,33,48
					25314	<b>F24T12/D/HO</b>	30	9000	6500	76	1400	1134	31,33,48

## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @77°F	
42	T12	30	27.91	Recessed DC	25322	F30T12/CW/HO	30	9000	4200	60	2250	1825	31,33,48
45	T12	36	33.91	Recessed DC	25333	F36T12/CW/HO	30	9000	4200	60	2850	2309	31,33,48
					25334	F36T12/DSGN50/HO	30	9000	5000	90	2100	1701	31,33,48
					25332	F36T12/D/HO	30	9000	6500	76	2500	2025	31,33,48
55	T12	42	39.91	Recessed DC	25342	F42T12/CW/HO	30	9000	4200	60	3400	2754	31,33,48
					25344	F42T12/DSGN50/HO	30	9000	5000	90	2550	2066	31,33,48
					25343	F42T12/D/HO	30	9000	6500	76	3050	2471	31,33,48
60	T12	48	46	Recessed DC	25147	F48T12/WW/HO	30	12000	3000	52	4130	3345	31,33,48,97
					25148	F48T12/D830/HO	30	12000	3000	80	4400	4048	31,33,48,97
					25154	F48T12/D35/HO	30	12000	3500	70	4250	3825	31,33,48,97
					25136	F48T12/D41/HO	30	12000	4100	70	4250	3443	31,33,48,97
					25146	F48T12/CW/HO	30	12000	4200	60	4050	3281	31,33,48,97
					25122	F48T12/CW/HO/ECO	30	12000	4200	60	4050	3281	31,33,48,76,97
					25153	F48T12/DSGN50/HO	30	12000	5000	90	3050	2471	31,33,48,97
					25150	F48T12/D/HO	30	12000	6500	76	3600	2916	31,33,48,97
75	T12	60	57.91	Recessed DC	25128	F60T12/D35/HO	30	12000	3500	70	5600	5040	31,33,48,97
					25126	F60T12/CW/HO	30	12000	4200	60	5200	4212	31,33,48,97
					25119	F60T12/DSGN50/HO	30	12000	5000	90	3850	3119	31,33,48,97
					25120	F60T12/D/HO	30	12000	6500	76	4600	3826	31,33,48,97
80	T12	64	61.91	Recessed DC	25352	F64T12/CW/HO	30	12000	4200	60	5750	4658	31,33,48,97
					25355	F64T12/DSGN50/HO	30	12000	5000	90	4200	3402	31,33,48,97
					25353	F64T12/D/HO	30	12000	6500	76	4900	3969	31,33,48,97
85	T12	72	69.91	Recessed DC	25098	F72T12/D830/HO	15	12000	3000	80	6750	6210	1,31,33,48,97
					25177	F72T12/WW/HO	15	12000	3000	52	6400	5184	1,31,33,48,97
					27249	F72T12/D35/HO	15	12000	3500	70	6650	5985	1,31,33,48,97
					25281	F72T12/D835/HO	15	12000	3500	80	6750	6210	1,31,33,48,97
					25182	F72T12/N/HO	15	12000	3600	86	4400	3564	1,31,33,48,97
					27245	F72T12/D41/HO	15	12000	4100	70	6650	5985	1,31,33,48,97
					25176	F72T12/CW/HO	15	12000	4200	60	6250	5063	1,31,33,48,97
					25171	F72T12/CW/HO/ECO	15	12000	4200	60	6250	5063	1,31,33,48,76
					25190	F72T12/DSGN50/HO	15	12000	5000	90	4600	3726	1,31,33,48,97
					25189	F72T12/D/HO	15	12000	6500	76	5550	4496	1,31,33,48,97
100	T12	84	81.91	Recessed DC	25384	F84T12/CW/HO	15	12000	4200	60	7550	6115	31,33,48,97
					25386	F84T12/DSGN50/HO	15	12000	5000	90	5600	4536	31,33,48,97
					25385	F84T12/D/HO	15	12000	6500	76	6700	5427	31,33,48,97
110	T12	96	93.91	Recessed DC	25149	F96T12/D30/HO	15	12000	3000	70	9050	8145	31,33,48,97
					25152	F96T12/D830/HO	15	12000	3000	80	9400	8648	31,33,48,97
					25165	F96T12/D35/HO	15	12000	3500	70	9050	8145	31,33,48,97
					25166	F96T12/D835/HO	15	12000	3500	80	9400	8648	31,33,48,97
					25162	F96T12/N/HO	15	12000	3600	86	6050	4900	31,33,48,97
					25184	F96T12/D41/HO	15	12000	4100	70	9050	8145	31,33,48,97

## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
110	T12	96	93.91	Recessed DC	25164	F96T12/DSGN50/HO	15	12000	5000	90	6450	5225	31,33,48,97
					25185	F96T12/D865/HO	15	12000	6500	80	8800	7920	31,33,48,97

### High Output (800mA) Rapid Start Lamps for Cold Temperature Operation

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
110		96	93.91	Recessed DC	25118	F96T12/CW/HO/COLD/10/CVP	10	12000	4200	60	8600	6966	31,33,48,91,97
					25129	F96T12/CW/HO/CT/ECO	15	12000	4200	60	8600	6966	31,33,48,76,91,97
					25134	F96T12/CW/HO/COLD TEMP	15	12000	4200	60	8600	6966	31,33,48,91,97
					25135	F96T12/D/HO/COLD TEMP	15	12000	6500	76	7600	6156	31,33,48,91,97

### Very High Output (1500mA) SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
195	T12	96	93.91	Recessed DC	25296	F96T12/CW/VHO/SS	15	10000	4200	60	13000	9100	28,31,33,48,108

### Very High Output (1500mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
115	T12	48	46	Recessed DC	25248	F48T12/CW/VHO	30	10000	4200	60	6600	4620	31,33,48,108
					25249	F48T12/CW/VHO/LT	30	10000	4200	60	6750	5250	31,33,48,58,88,108
					25244	F48T12/D/VHO	30	10000	6500	76	5600	3920	31,33,48,108
135	T12	60	57.91	Recessed DC	25262	F60T12/CW/VHO	30	10000	4200	60	8700	6090	31,33,48,108
141	T12	60	57.91	Recessed DC	25263	F60T12/CW/VHO/LT	30	10000	4200	60	8700	6090	31,33,48,58,88,108
160	T12	72	69.91	Recessed DC	25272	F72T12/CW/VHO	15	10000	4200	60	10600	7420	31,33,48,108
					25274	F72T12/CW/VHO/LT	15	10000	4200	60	11000	7700	31,33,48,58,88,108
					25270	F72T12/D/VHO	15	10000	6500	76	9400	6580	31,33,48,108
215	T12	96	93.91	Recessed DC	25209	F96T12/CW/VHO	15	10000	4200	60	14000	9800	31,33,48,108
					25292	F96T12/CW/VHO/LT	15	10000	4200	60	15000	10500	31,33,48,58,88,108
					25210	F96T12/D/VHO	15	10000	6500	76	11600	8120	31,33,48,108

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T12	48	46.00	Single Pin	24829	F48T12/D35/SS	30	9000	3500	70	2575	2369	26,31,33
					24825	F48T12/D41/SS	30	9000	4100	70	2575	2369	26,31,33
					24823	F48T12/CW/SS	30	9000	4200	60	2450	2200	26,31,33
57	T12	96	94	Single Pin	29900	F96T12/D41/SSP/ECO	15	12000	4100	82	5600	5152	26,31,33,76,97

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
60	T12	96	94	Single Pin	29795	F96T12/WW/SS/ECO	15	12000	3000	52	5500	4840	26,31,33,76,97
					29809	F96T12/D30/SS/ECO	15	12000	3000	70	5600	5152	26,31,33,76,97
					29854	F96T12/D830/SS/ECO	15	12000	3000	80	5800	5452	26,31,33,76,97
					29819	F96T12/D35/SS	15	12000	3500	70	5600	5152	26,31,33,97
					29808	F96T12/D35/SS/ECO	15	12000	3500	70	5600	5152	26,31,33,76,97
					29811	F96T12/D835/SS	15	12000	3500	80	5800	5452	26,31,33,97
					29859	F96T12/D835/SS/ECO	15	12000	3500	80	5800	5452	26,31,33,76,97
					29853	F96T12/D41/SS/ECO	15	12000	4100	70	5600	5152	26,31,33,76,97
					29860	F96T12/D841/SS/ECO	15	12000	4100	80	5800	5452	26,31,33,76,97
					29820	F96T12/LW/SS	15	12000	4150	48	5600	4928	26,31,33,97
					29815	F96T12/CW/SS	15	12000	4200	60	5300	4664	26,31,33,97
					29805	F96T12/CW/SS/CVP	10	12000	4200	60	5300	4664	26,31,33,97
					29816	F96T12/CW/SS/UPC	15	12000	4200	60	5300	4664	26,31,33,97
					29555	F96T12/CW/SS/SL	15	12000	4200	60	5140	4420	26,31,33,96,97,98
					29505	F96T12/CW/SS/ECO	15	12000	4200	60	5300	4664	26,31,33,76,97
					29851	F96T12/D865/SS	15	12000	6500	80	5300	4770	26,31,33,97
					29828	F96T12/DX/SS	15	12000	6500	88	3860	3397	26,31,33,97
					29868	F96T12/DX/SS/ECO	15	12000	6500	88	3860	3397	26,31,33,76,97

### Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
21	T12	24	22	Single Pin	22403	F24T12/CW	30	7500	4200	60	1150	1000	31,33,48
25	T6	42	40	Single Pin	24270	F42T6/WW	24	7500	3032	52	1825	1606	31,33,48
					24269	F42T6/D35	24	7500	3500	70	1830	1684	31,33,48
					24266	F42T6/CW	24	7500	4200	60	1750	1540	31,33,48
30	T12	36	34	Single Pin	23618	F36T12/CW	30	7500	4200	60	1970	1734	31,33,48
38	T6	64	62	Single Pin	26470	F64T6/WW	24	7500	3000	52	2900	2552	31,33,48
					26466	F64T6/CW	24	7500	4200	60	2800	2464	31,33,48
	T8	72	70	Single Pin	27270	F72T8/WW	24	7500	3000	52	3100	2728	31,33,48
					27266	F72T8/CW	24	7500	4200	60	3050	2684	31,33,48
27200	F72T8/D	24	7500	6500	76	2600	2288	31,33,48					
39	T12	48	46	Single Pin	24832	F48T12/D35	30	9000	3500	70	3000	2760	31,33,48
					24827	F48T12/CW/ECO	30	9000	4200	60	2820	2482	31,33,48,76
					24830	F48T12/CW	30	9000	4200	60	2820	2482	31,33,48

## INSTANT START LAMPS

### Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
39	T12	48	46	Single Pin	24834	<b>F48T12/D</b>	30	9000	6500	76	2450	2156	31,33,48
					24836	<b>F48T12/D/ECO</b>	30	9000	6500	76	2450	2156	31,33,48,76
50	T12	60	58	Single Pin	26018	<b>F60T12/D35</b>	30	12000	3500	70	3850	3542	31,33,48,97
					26001	<b>F60T12/CW</b>	30	12000	4200	60	3700	3256	31,33,48,97
					26002	<b>F60T12/D</b>	30	12000	6500	76	3000	2640	31,33,48,97
51	T8	96	94	Single Pin	29666	<b>F96T8/CW</b>	24	7500	4200	60	4000	3520	31,33,48
					29650	<b>F96T8/D</b>	24	7500	6500	76	3550	3124	31,33,48
52	T12	64	62	Single Pin	26403	<b>F64T12/CW</b>	30	12000	4200	60	3900	3432	31,33,48,97
					26404	<b>F64T12/D</b>	30	12000	6500	76	3300	2904	31,33,48,97
55	T12	72	70	Single Pin	27255	<b>F72T12/D830</b>	15	12000	3000	80	4800	4512	31,33,48,97
					27250	<b>F72T12/D35</b>	15	12000	3500	70	4700	4324	31,33,48,97
					27243	<b>F72T12/D41</b>	15	12000	4100	70	4700	4324	31,33,48,97
					27256	<b>F72T12/CW</b>	15	12000	4200	60	4500	3960	31,33,48,97
					27259	<b>F72T12/D</b>	15	12000	6500	76	3800	3432	31,33,48,97
70	T12	84	82	Single Pin	28417	<b>F84T12/CW</b>	15	12000	4200	60	5300	4664	31,33,48,97
75	T12	96	94	Single Pin	29796	<b>F96T12/D30/ECO</b>	15	12000	3000	70	6420	5906	31,33,48,76,97
					29827	<b>F96T12/D830</b>	15	12000	3000	80	6550	6157	31,33,48,97
					29856	<b>F96T12/D830/ECO</b>	15	12000	3000	80	6550	6157	31,33,48,76,97
					29685	<b>F96T12/D35</b>	15	12000	3500	70	6420	5906	31,33,48,97
					29686	<b>F96T12/D35/ECO</b>	15	12000	3500	70	6420	5906	31,33,48,76,97
					29843	<b>F96T12/D835</b>	15	12000	3500	80	6550	6157	31,33,48,97
					29838	<b>F96T12/D835/ECO</b>	15	12000	3500	80	6550	6157	31,33,48,76,97
					29797	<b>F96T12/D41/CVP</b>	10	12000	4100	70	6420	5906	31,33,48,97
					29478	<b>F96T12/CWX</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29858	<b>F96T12/CWX/CVP</b>	10	12000	4100	87	4400	3872	31,33,48,97
					29489	<b>F96T12/CWX/UPC</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29852	<b>F96T12/D41/UPC</b>	15	12000	4100	70	6420	5906	31,33,48,97
					29798	<b>F96T12/D41/ECO</b>	15	12000	4100	70	6420	5906	31,33,48,76,97
					29857	<b>F96T12/D841</b>	15	12000	4100	80	6550	6157	31,33,48,97
					29850	<b>F96T12/D841/ECO</b>	15	12000	4100	80	6550	6157	31,33,48,76,97
					29833	<b>F96T12/DSGN50</b>	15	12000	5000	90	4400	3872	31,33,48,97
					29849	<b>F96T12/D865</b>	15	12000	6500	80	6000	5520	31,33,48,97
29500	<b>F96T12/DX</b>	15	12000	6500	88	4360	3837	31,33,48,97					

**PREHEAT LAMPS****Miniature T5 Preheat Lamps (Starter Required)**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
												@25°C/77°F	
4	T5	6	5.91	Mini Bipin	20416	F4T5/CW	24	6000	4200	60	135	117	31,33
					20415	F4T5CW/BL/1/6	6	6000	4200	60	135	117	31,33
6	T5	9	8.91	Mini Bipin	20617	F6T5/WW	24	7500	3000	52	275	239	31,33
					20619	F6T5CW/BL/1/6	6	7500	4200	60	270	235	31,33
					20616	F6T5/CW	24	7500	4200	60	270	235	31,33
8	T5	12	11.91	Mini Bipin	20817	F8T5/WW	24	7500	3000	52	400	348	31,33
					20819	F8T5/SW/BL/1/6	6	7500	3000	52	400	348	31,33
					20837	F8T5/CWX	24	7500	4100	87	270	235	CRI 31,33
					20816	F8T5/CW	24	7500	4200	60	390	339	31,33
					20834	F8T5CW/BL/1/6	6	7500	4200	60	390	339	31,33
					20820	F8T5/D	24	7500	6500	76	350	305	CRI 31,33
13	T5	21	20.91	Mini Bipin	21317	F13T5/WW	24	7500	3000	52	880	766	31,33
					21316	F13T5/CW	24	7500	4200	60	860	748	31,33
					21315	F13T5CW/BL/1/6	6	7500	4200	60	860	748	31,33

**Standard T8 and T12 Preheat Lamps (Starter Required)**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
												@25°C/77°F	
13	T8	12	11.71	Med Bipin	21766	F13T8/CW	24	7500	4200	60	530	461	31,33
14	T8	15	14.78	Med Bipin	21486	F14T8/CW	24	7500	4200	60	685	644	31,33
					21488	F14T8/D	24	7500	6500	76	575	561	CRI 31,33
					21435	F14T12/WW	30	9000	3000	52	660	574	31,33
					21451	F14T12/DSW/RP	6	9000	3000	70	720	648	CRI 31,33
					21536	F14T12/DCW/1/6/RP	6	9000	4100	70	720	648	31,33
					21409	F14T12/CW	30	9000	4200	60	650	566	31,33
					21410	F14T12/CW/6/RP	6	9000	4200	60	650	566	31,33
21411	F14T12/D	30	9000	6500	76	590	513	CRI 31,33					
15	T8	18	17.78	Med Bipin	21656	F15T8/DSW/RP	6	7500	3000	70	900	810	CRI 31,33
					21610	F15T8/D830	24	7500	3000	82	920	846	CRI 31,33
					21701	F15T8/WW	24	7500	3000	52	845	735	31,33
					21765	F15T8/SW/RP	6	7500	3000	52	845	735	31,33
					21609	F15T8/D35	24	7500	3500	70	940	846	CRI 31,33
					21682	F15T8/N	24	7500	3600	86	560	487	CRI 31,33
					21603	F15T8/DCW/RP	6	7500	4100	70	900	810	CRI 31,33
					21616	F15T8/CW	24	7500	4200	60	825	718	31,33
					21619	F15T8/CW/6PK	6	7500	4200	60	825	718	31,33
					21642	F15T8/DSGN50	24	7500	5000	90	600	539	CRI 31,33
					21600	F15T8/D	24	7500	6500	76	700	653	CRI 31,33
					T12	18	17.78	Med Bipin	21542	F15T12/WW	30	9000	3000
21551	F15T12/DSW/RP	6	9000	3000					70	770	693	CRI 31,33	
21532	F15T12/CW	30	9000	4200					60	750	653	31,33	



## PREHEAT LAMPS

### Standard T8 and T12 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
15	T12	18	17.78	Med Bipin	21513	F15T12/CW/6PK	6	9000	4200	60	750	653	31,33
					21535	F15T12/DCW/RP	6	9000	4100	76	770	693	CRU 31,33
					21534	F15T12/D	30	9000	6500	76	660	574	CRU 31,33
18	T8	24	23.78	Med Bipin	23014	F18T8CW/K24	24	7500	4200	60	1190	1035	31,33
					23012	F18T8CW/K24/1/12/UPC	12	7500	4200	60	1190	1035	31,33
					23027	F18T8CW/K26	24	7500	4200	60	1280	1079	31,33
		26	25.78	Med Bipin	23025	F18T8/CW/K26PLT	3168	7500	4200	60	1280	1079	31,33
					21728	F18T8/D/K26	24	7500	6500	76	1100	957	CRU 31,33
					23028	F18T8CW/K28	24	7500	4200	60	1360	1131	31,33
					23030	F18T8CW/K30	24	7500	4200	60	1400	1200	31,33
20	T12	24	23.78	Med Bipin	22131	F20T12/WW	30	9000	3000	52	1250	1088	31,33
					22134	F20T12/WW/RP	6	9000	3000	52	1250	1088	31,33
					22252	F20T12/DSW/RP	6	9000	3000	70	1300	1170	CRU 31,33
					22251	F20T12/D35	30	9000	3500	70	1300	1170	CRU 31,33
					22256	F20T12/DCW/RP	6	9000	4100	70	1300	1170	CRU 31,33
					22078	F20T12/CW	30	9000	4200	60	1200	1044	31,33
					22074	F20T12/CW/CVP/10	10	9000	4200	60	1200	1044	31,33
					22015	F20T12/CW/RP	6	9000	4200	60	1200	1044	31,33
					22073	F20T12/CW/UPC	30	9000	4200	60	1200	1044	31,33
					22119	F20T12/DSGN50	30	9000	5000	90	880	766	CRU 31,33
					22083	F20T12/D	30	9000	6500	76	1075	935	CRU 31,33
25	T12	28	27.78	Med Bipin	22527	F25T12/CW/28	30	7500	4200	60	1670	1453	31,33
					22333	F25T12/WW/30	30	7500	3000	52	1750	1523	31,33
		30	29.78	Med Bipin	22528	F25T12/CW/30	30	7500	4200	60	1730	1505	31,33
					22529	F25T12/CW/33	30	7500	4200	60	1850	1610	31,33
30	T8	36	35.78	Med Bipin	23701	F30T8/WW	24	7500	3000	52	2150	1871	31,33
					23140	F30T8/DWW/RP	6	7500	3000	70	2360	2124	CRU 31,33
					23182	F30T8/N	24	7500	3600	86	1500	1305	CRU 31,33
					23127	F30T8/CWX	24	7500	4100	87	1550	1349	CRU 31,33
					23116	F30T8/CW	24	7500	4200	60	2180	1897	31,33
					23121	F30T8CW 6/CS	6	7500	4200	60	2180	1897	31,33
					23100	F30T8/D	24	7500	6500	76	1850	1653	CRU 31,33
40	T12	48	47.2	Med Bipin	24409	L40W/30-1	25		3000	50		31	
58	T8	60	59.6	Med Bipin	24729	L58W/840	25	20000	4000	80	5200	4785	CRU 31,33,48
70	T8	70	70	Med Bipin	20804	L70W / 21 - 840	25	15000	4000	80	6550	6026	CRU 31,33,48

## SPECIALTY FLUORESCENT LAMPS

### SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21678	F032/735/SL	30	25000	3500	78	2716	2444	CRU 31,33,52,96,98,119

## SPECIALTY FLUORESCENT LAMPS

### SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21547	<b>F032/741ECO/SL</b>	30	25000	4100	78	2716	2444	31,33,52,76,96,98,119
34	T12	48	47.78	Med Bipin	24396	<b>F34CW/SS/SL</b> <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	2,24,30,31,33,96,98
54	T5	48	45.8	Mini Bipin	21020	<b>FP54/835/HO/ECO/SL</b>	40	25000	3500	85	4316	4014	31,33,38,48,74,76,96,98
					21021	<b>FP54/841/HO/ECO/SL</b>	40	25000	4100	85	4316	4014	31,33,48,74,76,96,98
					21022	<b>FP54/850/HO/ECO/SL</b>	40	25000	5000	85	4243	3946	31,33,48,74,76,96,98
60	T12	96	94	Single Pin	29555	<b>F96T12/CW/SS/SL</b>	15	12000	4200	60	5140	4420	26,31,33,96,97,98

### Weather-Shielded Jacketed Lamps

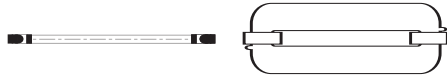
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
70	T14.5	60	57.91	Recessed DC	21124	<b>FJ60T12/CW/HO</b>	8	12000	4200	60	5300	4293	31,33,48,97,116
110	T12	96	93.1	Recessed DC	21356	<b>FJ96T12/CW/HO</b>	8	12000	4200	60	8500	6885	31,33,48,97,116
115	T12	48	45.91	Recessed DC	21330	<b>FJ48T12/CW/VHO/LT</b>	12	10000	4200	60	6750	4725	31,33,48,88,108,116
165	T12	72	69.91	Recessed DC	21335	<b>FJ72T12/CW/VHO/LT</b>	8	10000	4200	60	10700	7490	31,33,48,88,108,116
215	T12	96	93.1	Recessed DC	21340	<b>FJ96T12/CW/VHO/LT</b>	8	10000	4200	60	15300	10710	31,33,48,88,108,116

### GRO-LUX® Lamps for Plant Growth & Aquariums

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
15	T8	18	17.78	Med Bipin	21657	<b>F15T8/GRO/AQ/RP</b>	6	7500		66	325		31,33,48,57
20	T12	24	23.78	Med Bipin	22013	<b>F20T12/GRO/AQ/WS/RP</b>	6	9000	3400	89	750		31,33,48,57
					22029	<b>F20T12/GRO/AQ/RP</b>	6	9000		480	31,33,48,57		
40	T12	48	47.78	Med Bipin	24671	<b>F40/GRO/AQ/WS/RP</b>	6	20000	3400	89	1700		2,30,31,33,48,56,64
					24660	<b>F40/GRO/AQ/RP</b>	6	20000		1200	2,30,31,33,48,56,64		

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
6	T2	8.6	8.6	Axial	26204	<b>FM6/830</b>	20	10000	3000	80	330	297	3,31,33,38,48,74,118
					26213	<b>FM6/841</b>	20	10000	4100	80	330	297	3,31,33,38,48,74,118
8	T2	12.6	12.6	Axial	26237	<b>FM8/830</b>	20	10000	3000	80	540	486	3,31,33,38,48,74,118
					26232	<b>FM8/841</b>	20	10000	4100	80	540	486	3,31,33,38,48,74,118
11	T2	16.6	16.6	Axial	26239	<b>FM11/830</b>	20	10000	3000	80	750	675	3,31,33,38,48,74,118



T2 Axial Base

Icetron

## SPECIALTY FLUORESCENT LAMPS

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean	
11	T2	16.6	16.6	Axial	26235	<b>FM11/835</b>	20	10000	3000	80	750	675	3,31,33,38,48,74,118
					26231	<b>FM11/841</b>	20	10000	4100	80	750	675	3,31,33,38,48,74,118
13	T2	20.6	20.6	Axial	26253	<b>FM13/830</b>	20	10000	3000	80	930	837	3,31,33,38,48,74,118
					26291	<b>FM13/835</b>	20	10000	3500	80	930	837	3,31,33,38,48,74,118
					26230	<b>FM13/841</b>	20	10000	4100	80	930	837	3,31,33,38,48,74,118

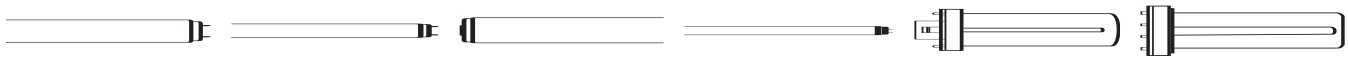
### ICETRON® Inductively Coupled, Electrodeless Lamps

The ICETRON® System is a unique adaptation of the inductively coupled electrodeless technology delivering high luminous efficacy and extremely long system life of 100,000 hours in a shape uniquely suited for a variety of lighting applications. The ICETRON lamps and ballasts are designed as dedicated systems and are not interchangeable with other lamps and ballasts. Please consult OSRAM SYLVANIA for fixture design and application assistance. An ICETRON Design Guide is available on request.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean	
70	T17	12.32	Mount Brkts		26087	<b>ICE70/835/2P/ECO</b>	1	100000	3500	80	6200	4605	6,31,33,38,51,76,78,100,101
					26081	<b>ICE70/835</b>	1	100000	3500	80	6200	4605	8,31,33,38,51,78,100,101
					26088	<b>ICE70/841/2P/ECO</b>	1	100000	4100	80	6200	4605	6,31,33,38,51,76,78,100,101
					26082	<b>ICE70/841</b>	1	100000	4100	80	6200	4605	8,31,33,38,51,78,100,101
					26089	<b>ICE70/850/2P/ECO</b>	1	100000	5000	80	5950	4420	6,31,33,38,51,76,78,100,101
100	T17	12.32	Mount Brkts		26102	<b>ICE100/835/2P/ECO</b>	1	100000	3500	80	8000	5945	6,31,33,38,51,76,78,100,101
					26103	<b>ICE100/841/2P/ECO</b>	1	100000	4100	80	8000	5945	6,31,33,38,51,76,78,100,101
					26105	<b>ICE100/850/2P/ECO</b>	1	100000	5000	80	7600	5645	6,31,33,38,51,76,78,100,101
					26106	<b>ICE100/BL/2P</b>	1						6,31,33,38,51,78,100,101,109
150	T17	16.28	Mount Brkts		26152	<b>ICE150/835/2P/ECO</b>	1	100000	3500	80	12000	8915	6,31,33,38,51,76,78,100,101
					26153	<b>ICE150/841/2P/ECO</b>	1	100000	4100	80	12000	8915	6,31,33,38,51,76,78,100,101
					26155	<b>ICE150/850/2P/ECO</b>	1	100000	5000	80	11650	8655	6,31,33,38,51,76,78,100,101
					26154	<b>ICE150/BL/2P</b>	1						31,33,38,51,78,100,101,109

### ICETRON® Inductively Coupled Electrodeless Reflector Lamp

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean	
100	T17	12.32	Mount Brkts		26161	<b>ICE100/841/R/2P/ECO</b>	1	100000	4100	80	7300	5014	6,31,33,38,51,76,78,100,101



T12 Med Bipin

T8 Med Bipin

T12 RDC

T5 Mini Bipin

CFL 2Pin

CFL 4 Pin

## SPECIALTY FLUORESCENT LAMPS

### Diazo (SDB)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
65	T12	48	47.78	Med Bipin	24465	F40T12/SDB/65W	30	1000					115

### Blacklight, Preheat Lamps (Starter Required)

These lamps are not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
15	T8	18	17.78	Med Bipin	21623	F15T8/350BL	24	7500					31,33,59,60,105
20	T12	24	23.78	Med Bipin	22113	F20T12/350BL	24	9000					31,33,59,60,106
22	T12	15	14.78	Med Bipin	21445	F15T12/350BL/500/PH	30						31,33,59,60,111
25	T8	18	17.78	Med Bipin	21703	F25T8/350BL/18in	24	7500					31,33,59,60,107
30	T8	36	35.78	Med Bipin	23113	F30T8/350BL	24	7500					31,33,59,60,109
32	T12	18	17.78	Med Bipin	21525	F18T12/350BL/700/PH	30						31,33,59,60,112

### Blacklight, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24922	F40/350BL	30	20000					2,30,31,33,56,60,64,110
115	T12	48	45.91	Recessed DC	25251	FR48T12/350BL/VHO/180	30	10000					31,33,60,90,113

### Blacklight Blue, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
4	T5	6	5.91	Mini Bipin	20425	F4T5/BLB	24	6000					31,33,59,60,99
8	T5	12	11.91	Mini Bipin	20825	F8T5/BLB	24	7500					31,33,59,60,99
15	T8	18	17.78	Med Bipin	21625	F15T8/BLB	6	7500					31,33,59,60,99

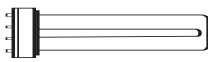
### Blacklight Blue, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24026	F40/BLB/RP	6	20000					2,30,31,33,56,60,64,102

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

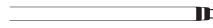
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
7	T5			G23	23372	GCF7DS/G23/SE/OF	10	8000					31,33,45,47,50,82
9	T5			G23	23373	GCF9DS/G23/SE/OF	10	8000					31,33,45,47,50,82
11	T4			G23	23377	GCF11DS/G23/SE/OF	10	8000					31,33,45,47,50,82
18	T5			2G11	23378	GFT18DL/2G11/SE/OF	10	8000					31,33,36,48,74,82
24	T5			2G11	23379	GFT24DL/2G11/SE/OF	10	8000					31,33,36,48,74,82



CFL 4 Pin



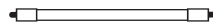
T5 Mini Bipin



T8 Med Bipin



T5 Single End, T6 Single End



T5 Single Pin

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial Mean @25°C/77°F	Symbols & Footnotes
36	T6			2G11	23380	GFT36DL/2G11/SE/OF	10	8000				31,33,36,48,74,82

### Germicidal, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial Mean @25°C/77°F	Symbols & Footnotes
6	T5			Mini Bipin	23375	G6T5/OF	10	6000				31,33,45,57,82
8	T5			Mini Bipin	20811	G8T5/OF	24	6000				31,33,45,59,82
10	T8			Med Bipin	23374	G10T8/OF	10	6000				31,33,59,82
15	T8			Med Bipin	21612	G15T8/OF	24	7500				31,33,45,59,82
16	T5			4 PIN	23384	G10T5/4P/SE/OF	10	9000				31,33,59,82
				Mini Bipin	23387	G20T5/G5/OF	10	9000				31,33,59,82
25	T5			Med Bipin	23376	G25T8/OF	10	8000				31,33,59,82
30	T8			Med Bipin	23112	G30T8/OF	24	7500				31,33,45,59,82
39	T5			4 PIN	23381	G36T5/4P/SE/OF	10	9000				31,33,57,82
				Mini Bipin	23382	G36T5/G5/OF	10	9000				31,33,59,82
55	T5			Med Bipin	23388	G55T8/OF	10	8000				31,33,59,82
65	T5			4 PIN	23386	G64T5/4P/SE/OF	10	9000				31,33,82

### Germicidal Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial Mean @25°C/77°F	Symbols & Footnotes
14	T5			Single Pin	23383	G14T5/SP/OF	10	8000				31,33,82
16	T5			Single Pin	23385	G10T5/SP/OF	10	9000				31,33,82
39	T5			Single Pin	23443	G36T5/SP/OF	10	9000				31,33,82
65	T5			Single Pin	23442	G64T5/SP/OF	10	9000				31,33,82

### Germicidal Amalgam Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial Mean @25°C/77°F	Symbols & Footnotes
120	T6			4 PIN	23364	G120T6/4P/SE/OF	5	8000				31,33,82
190	T6			4 PIN	23365	G190T6/4P/SE/OF	5	8000				31,33,82

## FLUORESCENT PREHEAT LAMP STARTERS

### GLOSTAT Starters

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42812	FS-2	100	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps. UL, CSA	
42901	FS-2/BL/2PK	12	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps, bulk pack with 2 starters. UL, CSA	
44812	FS-4 100/CS	100	Fluorescent starter for use with F13, F30 and F40 preheat lamps. UL, CSA	

## FLUORESCENT PREHEAT LAMP STARTERS

### GLOSTAT Starters








Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
44902	<b>FS-4/BL/2PK</b>	12	Fluorescent starter for use with F13, F30 and F40 preheat lamps, blister pack with 2 starters. UL, CSA	
45812	<b>FS-5</b>	100	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps. UL, CSA	
45813	<b>FS-5/BL/2PK</b>	12	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps, blister pack with 2 starters. UL, CSA	
43813	<b>FS-12/BL/2PK</b>	12	Fluorescent starter for use with FC12 Circline lamps when operated by preheat ballasts and F22T8 preheat lamps, blister pack with 2 starters. UL, CSA	
42512	<b>FS-25</b>	100	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps. UL, CSA	
42513	<b>FS-25/BL/2PK</b>	12	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps, blister pack with 2 starters. UL, CSA	

### COP Starters With Cutout And Manual Reset

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42302	<b>FS-20 (COP-20)</b>	100	Fluorescent starter with cutout and manual reset for use with F15 & F20 preheat lamps. UL, CSA	
44102	<b>FS-40/400 (COP-40/400)</b>	100	Fluorescent starter with cutout and manual reset for use with F40 preheat lamps. UL, CSA	



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	Rating given for 200mA operation.
	This fluorescent lamp generates radiant energy which is most beneficial for plant propagation and enhances vegetative and reproductive growth of many plants for home and commercial use.
	This lamp or ballast meets minimum Federal efficiency standards.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.
	This lamp is a High Color Rendering Lamp

Footnote	Description
1	May be operated at 100 watts (1000MA) same as F84T12/HO.
2	Average life rating at 12 hours operation per start is 28,800 hours.
3	Due to their small diameter, T2 miniature fluorescent lamps operate at higher surface temperatures than other fluorescent lamps. To avoid possible burns, do not touch the lamp during operation and allow sufficient cooling time before removing the lamp from the fixture. The typical bulb wall temperature during operation is 120 degrees at the ends. The maximum allowable bulb wall temperature is 150 degrees C. To avoid electrical shock, turn electrical power off before removing or installing the lamp.
4	The 30,000 hour average rated of the OCTRON (R) XPS CURVALUME (R) lamp is based on operation at 3 hours per start by a dedicated QUICKTRONIC(R) PSX ballast. If operated by other ballasts for T8 OCTRON lamps, life will be the same as that of the XP version of the lamp: typically 24,000 hours for rapid or programmed rapid start operation and 18,000 hours for instant start operation at 3 hours per start.
5	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12000 hours, would be 93%.
6	The /2P version of the ICETRON lamp is supplied with a 24 inch lead wire terminated by a 2-Pin connector rather than the old 12 inch lead, 3-Pin connector design. The /2P versions are powered by QT1X100 ICE/UNV-T or QT1X150 ICE/UNV-T ballasts.
7	Recommended to be used on any F96 T8 Instant Start circuit. It is not recommended to be used: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballast, or (3) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON F096 SUPERSAVER 55 watt T8 lamp. Any of the above situations could result in lamp starting and stabilization problems.
8	Current ballast design incorporates a modular 2-Pin connector plugin from the lamp. An adapter, NAED code 26240, is available to connect 3-Pin lamp types to current (2-Pin) design ballasts.
9	This lamp may also be operated by the OSRAM SYLVANIA QUICKTRONIC(R) PSN ballast (.88 BF), or the QUICKTRONIC PSX ballast (.71 BF).
10	The lumen maintenance factor used to determine the mean lumens value was 92%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 93%.
11	Minimum starting temperature for DULUX EL lamps is 0 degrees F
12	For operation in fixtures designed only for 24", 30 watt, T-12 Fluorescent lamps.
13	Life rating is based on rapid start operation. Life rating on instant start operation is 15,000 hrs.
14	Caution: Although DURA-ONE lamps can be used with occupancy sensors that have a fluorescent volt-amp rating, DURA-ONE lamps cannot be used on any other dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77°F (25°C). Operating temperature range of DURA-ONE lamps is -20°F/-29°C to 122°F/50°C.
15	Service life (that amount of time where light output remains greater than or equal to 80% of initial lumens) is 16,000 hours for FP28/RED, FP28/GREEN, FP54/RED/HO and FP54/GREEN/HO and 10,000 hours for FP28/BLUE and FP54/BLUE/HO.
16	The life of this lamp, operated on instant start electronic ballasts is 24,000 hours based on the industry standard life test standard of 3 hours per start.
17	Recommended to be used on any F32 T8 instant start circuit. It is not recommended to be used: (1) with rapid Start circuits unless the open circuit voltage is greater than 570V, (2) at lamp ambient temperatures below 70°F or in drafty locations, (3) in air handling fixtures, (4) on dimming ballasts, (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for 25W lamps, or (6) below 60°F starting temperature. Any of the above situations could result in lamp starting and stabilization problems or system compatibility issues.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
18	IF AN OPERATING LAMP IS EXPOSED TO TEMPERATURES BELOW 70°F OR MOVING AIR (WIND, DRAFTS OR AIR FLOW FROM AN AIR CONDITIONING OR VENTILATION SYSTEM) STRIATION, A RHYTHMIC PULSING PATTERN OF LIGHT RUNNING THE LENGTH OF THE TUBE AND/OR A REDUCTION IN LIGHT OUTPUT MAY OCCUR. While visually disconcerting, neither behavior is damaging to lamp life and removing the cause (draft or temperature) will return the lamp to normal operation.
19	The 36,000 hour average rated life of the F032/800XPS/ECO OCTRON(R) lamp is based on operation at 3 hours per start on a QUICKTRON-IC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
20	The 36,000 hour average rated life of the F032/800XP/ECO, F030/800XP/SS/ECO, F028/800XP/SS/ECO and F032/25W/800XP/SS/ECO OCTRON(R) lamps is based on operation at 3 hours per start on a QUICKTRONIC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
21	The life rating of F032/800/ECO OCTRON® lamps operated on rapid start ballasts is 30,000 hours. The life rating of F032/800/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.
22	Recommended only for use on 2-lamp, 30 watt rapid-start high power factor lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 25 watt lamps.
23	If an operating lamp is exposed to drafts or the ambient temperature falls below 60 degrees F, striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.
24	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps.
25	Recommended for use on two lamp 40 watt rapid start, high power factor, lead indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, (5) on inverter operated emergency lighting systems, or (6) on high frequency electronic ballasts. Use one Thrift/Mate with one F40/SS in each two lamp circuit.
26	Recommended for use on one or two lamp high power factor, lead, instant-start, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 32 watt or 60 watt lamps.
27	Recommended for use on one or two lamp high power factor, lead, 8-foot lamp, high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 95 watt lamps.
28	Recommended for use on 2-lamp high power factor, lead, 8-foot lamp, very high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless equipment is specifically listed for use with 195 watt lamps.
29	Recommended for use on two-lamp high power factor, lead-lag, Preheat, indoor ballasts that meet ANSI standards and installed in open type fixtures. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations (unstable operation or starting difficulties may be experienced below 60 degrees F or in strong drafts); (2) on low power factor ballasts, reduced current, reduced light output ballasts, dimming ballasts, or in inverter operated emergency lighting systems.
30	Average rated life is measured at 3 hours per start on 2-lamp, rapid start magnetic ballasts per IES recommended practice. Lamp life on single-lamp rapid start ballasts may be reduced.
31	Approximate initial lumens after 100 hours operation.
32	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps. Not to be used on electronic ballasts nor with any other impedance modifying devices.
33	The life ratings of fluorescent lamps are based on 3 hr. burning cycles under specified conditions and with ballast meeting ANSI specifications. If burning cycle is increased, there will be a corresponding increase in the average hours life.
34	Average rated life is based on 3 hours per start operated on rapid start circuits. Average rated life is 7,500 hours on preheat circuits and 5,000 hours on instant start circuits.
35	The life rating of OCTRON and OCTRON Curvalume lamps operated on magnetic rapid start ballasts is 20,000 hours. The life rating of OCTRON and OCTRON Curvalume lamps operated on instant start electronic ballasts is 15,000 hours.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
36	These lamps may also be operated on rapid start circuits. On rapid start circuits the 24 watt lamp operates at 27 watts and the 36 watt lamp operated at 39 watts. Rated lamp life is unchanged.
37	Lumen output rated on high frequency operation. 60 HZ operation would result in lower lumen output.
38	Lumen output and life rated on high frequency operation.
39	DULUX F lamps can typically be operated on DULUX L and PENTRON HO ballasts of the same/similar wattage. Check with the ballast manufacturer to verify lamp/ballast compatibility.
40	Rule of Thumb for Compact Fluorescent Lamps: Divide wattage of incandescent lamp by 4 to determine approximate wattage of compact fluorescent lamp that will provide similar light output.
41	Guarded OCTRON lamp has plastic tube guard, which filters 95% of the UV emissions and provides shatter protection.
42	Rating for OSRAM SYLVANIA Circline lamps are based on operation in Rapid Start circuits. They will also operate on preheat circuits.
43	Gold OCTRON lamp has plastic tube guard which filters wavelengths less than 525nm and provides shatter protection.
44	Life rating of OCTRON XP lamps operated on instant start electronic ballasts is 18,000 hours based on the industry standard life test cycle of 3 hours per start.
45	Germicidal lamps can be operated on corresponding wattage preheat ballasts.
46	Amalgam compact fluorescent lamps provide at least 90% light output from 40-140 degrees F. Non-amalgam compact fluorescent lamps provide at least 90% light output from 60-100 degrees F in the base up position, the temperature range is narrower for horizontal or base down.
47	Minimum starting temperature: CF5: -22 degrees F; CF7: -4 degrees F; CF9: 14 degrees F; CF13DS: 14 degrees F; CF13DD: -4 degrees F; CF18DD: 5 degrees F; CF18DT: -4 degrees F; CF26: 14 degrees F.
48	Minimum starting temperature is a function of the ballast; consult the ballast manufacturer.
49	Minimum starting temperature for DULUX EL lamps is 0° F, unless otherwise specified in product literature. .
50	2 pin CF lamps are not suitable for use in frequently cycled applications or with occupancy sensors. 2 pin CF lamps should never be installed in 4 pin sockets regardless if lamp will fit.
51	Color and CRI at amalgam tip temperature of 149 degrees F (65 degrees C) for ICETRON 70 and ICETRON 100 and at 158 degrees F (70 degrees C) amalgam tip temperature for ICETRON 150.
52	OCTRON lamps should be operated only with magnetic rapid start ballasts designed to operate 265 mA, T-8 lamps or high frequency (electronic) ballasts that are either instant start, or rapid start, or programmed rapid start specifically designed to operate T8 lamps. OCTRON lamps may be operated on instant start ballasts with ballast factors ranging from a minimum of 0.71 to a maximum of 1.20 at the nominal ballast input voltage. When OCTRON lamps are operated in the instant start mode, the two wires or two contacts of each socket should be connected to each other. They should then be connected to the appropriate ballast lead wire using National Electric Code techniques.
53	For operation on instant start circuits. Use only in fixtures equipped with Instant Start Ballasts.
54	Approximate length of OCTRON CURVALUME lamps is measured from base face to outside of glass bend.
55	For optimum performance OCTRON CURVALUME 1 5/8 inch leg spacing lamps in the 3000K, 3500K and 4100K color temperatures are now available only in the 82CRI version (800 series). These lamps are made to the same color standards and may be used in combination with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where T8 lamps are used.
56	The "RS" designation has been eliminated to simplify the ordering abbreviation.
57	Preheat lamp, starter required.
58	Low temperature performance rated at 35 degrees F ambient.
59	Starter required.
60	These lamps are not intended and should not be used for diagnostic, therapeutic, or cosmetic purposes.
61	For use with 4,6 & 8 watt lamps.
62	For use with 13,30 & 40 watt lamps.
63	For use with 14,15 & 20 watt lamps.
64	40W Rapid Start Lamps may be used in starter operated fixtures designed for 40W preheat lamps. Life rating for preheat service is approximately 15,000 hours average.
65	For use with 22 watt Circline lamps, 25 watt Std. Lp., FC6 & F18T8.
66	For use with 32 watt Circline lamps, F22T8.
67	For use with 15 & 20 watt lamps.
68	For use with 20 watt lamps.
69	For use with 30 watt lamps.
70	For use with 40 watt lamps.
71	For use with 90 & 100 watt lamps.
72	For use with 90 & 100 watt lamps (4-Pin type).

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
73	For use with GL-1302 GRO-LUX fixture.
74	There is a NEMA supported, industry issue where T2, T4, and T5 fluorescent and compact fluorescent lamps operated on high frequency ballasts may experience an abnormal end-of-life phenomenon. This end-of-life phenomenon can resulting one or both of the following: 1. Bulb wall cracking near the lamp base. 2. The lamp can overheat in the base area and possibly melt the base and socket. NEMA recommends that high frequency compact fluorescent ballasts have an end-of-life shutdown circuit which will safely and reliably shut down the system in the rare event of an abnormal end-of-life failure mode described above. The final requirements of this system are yet to be defined by ANSI. For additional information refer to NEMA papers on their WEBSITE at <a href="http://www.NEMA.org">www.NEMA.org</a> .
75	When base pins or R.D.C. bases are horizontal, window opening is centered downward or upward.
76	SYLVANIA ECOLOGIC fluorescent lamps are designed to pass the Federal Toxic Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states. TCLP test results are available upon request. Lamp disposal regulations may vary, check your local & state regulations. For more information, please visit <a href="http://www.lamprecycle.org">www.lamprecycle.org</a>
77	This 4-pin DULUX lamp has an internal end-of-life mechanism (EOL) that shuts down the lamp preventing abnormal end-of life failure modes. This lamp was designed for use with high frequency ballasts that do not have their own end-of-life (lamp)sensing circuits, but it is also compatible with high frequency ballasts that have their own end-of-life (lamp) sensing circuits.
78	ICETRON diameter is the outside diameter of the ferrite coil. ICETRON MOL is the length from the outside edge of the mounting bracket on one end to the outside edge of the mounting bracket on the opposite end.
79	DULUX EIs meet CSA, FCC and UL requirements.
80	Caution: DULUX EL units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77degrees F (25 degrees C). 40 Watt lamp is designed for base down orientation only.
81	Caution: DULUX EL Circline units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells or lighted switches. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits.
82	WARNING: To prevent possible serious injury, eyes and skin should not be exposed to direct or reflected ultraviolet power emitted by this lamp. This lamp is in Risk Group 3 per ANSI/IESNA RP-27.3-96. Adequate protection should be provided by clothing, gloves, opaque materials, and ordinary window glass. Although this lamp will operate in standard fluorescent fixtures, it should not be used for general lighting applications.
83	Mean lumens at 8,000 hours (40% of 20,000 hours for comparison to standard OCTRON and F40 rapid start lamps). The lumen maintenance factor at 40% of average rated life (9,600 hours) is 94%.
84	The lumen maintenance factor used to determine the mean lumens value was 90%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 91%.
85	The lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 6000 hours, 40% of 15,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 15000 hours. The lamp lumen maintenance factor at 40% of the 18,000 hour average rated life of this lamp, 7200 hours, would be 94%.
86	When base pins or R.D.C. bases are horizontal, window opening is centered to either side.
87	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of the 24,000 hour average rated life of this lamp, 9600 hours, would be 94%.
88	Low temperature performance rated at 35 degrees F ambient.
89	Cool White lamp with 30 degree aperture (Power Beam).
90	Blacklight lamp with 180 degree reflector>
91	Labeled for cold temperature (below 60 degrees F) operation only per EPACT.
92	Under ideal conditions, an average rated life of 10,000 hours at 3 hours/start is possible.
93	The 30,000 hour average rated life of the FO17/800XPS/ECO and FO25/800XPS/ECO OCTRON(R) lamps is based on operation at 3 hours start on a QUICKTRONIC(R) Programmed Start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 30,000 hours for rapid start operation, and 18,000 hours for instant start operation at 3 hours per start.
94	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8000 hours, 40% of 20,000 hours. It was used for comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12,000 hours, would be 93%
95	Recommended to be used on any F32 T8 Instant Start circuit. It is not recommended to be used:(1) with Rapid Start circuits unless the open circuit voltage is greater than 550V, (2) at lamp ambient temperatures below 60 degrees F or in drafty locations, (3) on dimming ballast or (4) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON(R) SUPER-SAVER(R) 28 or 30 watt, 4 foot or 30W U-bent T8 lamp. Any of the above situations could result in lamp starting and stabilization problems

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
96	SAFELINE lamps satisfy the criteria of having a non-shattering covering for prevention of glass and other lamp components in your product by containment within the safety coating material. The covering must be intact or the lamp must be replaced to be in compliance. An onsite inspector will require correction if the lamps are installed improperly or not maintained properly.
97	Average life rating at 12 hours operation per start is 18,000 hours.
98	SAFELINE lamps are intended for indoor use only. Lamps must be used in ambient temperatures below 135 degrees F. The coating is designed to withstand constant operating temperatures up to 239 degrees F and has a melting point in excess of 500 degrees F. Lamps must be used with sockets that provide adequate lamp pin to socket contact. Lamps must not be used with defective ballasts sockets, or fixtures with improper wiring.
99	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.25 meters (10 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
100	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. 1. This lamp operates at a higher temperature (130 C) than standard fluorescent lamps. To avoid the possibility of minor skin burns, do not touch lamp or metal mounting brackets during operation and allow sufficient cooling time prior to servicing, handling, or replacing lamp. 2. This lamp generates electric and magnetic fields during operation. The electric and magnetic fields generated by this lamp during operation in typical lighting applications do not pose exposure risks relative to the limits documented in ANSI C95.1. 3. To prevent electric shock, shut off the main power to the fixture and allow at least two minutes for ballast voltage to discharge before attempting to service or replace lamp. 4. To obtain optimum safety and system performance, use only with OSRAM SYLVANIA ballast. 5. To avoid potential electric shock hazard, do not use lamp if wires or insulation are cut or pulled out of connector.
101	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. Instructions for Installation and Use. 1) To avoid premature lamp or ballast failure and ensure proper lamp, ballast, and system performance, make sure lamp, ballast, and fixture are properly installed. Electrical interconnects, electrical grounds, thermal management, and heatsinking specifications and requirements must be fully adhered to in all applications. (See OSRAM SYLVANIA ICETRON DESIGN GUIDE.) 2. Do not alter the electrical connector on lamp and/or ballast. To do so may adversely affect lamp operation, ballast life, and/or emission of EMI (electromagnetic interference). 3. This product may cause interference with radios, cordless telephones, and remote control devices. If interference occurs, relocate the radios, cordless telephones, and/or remote control devices away from this product.
102	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
103	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.35 meters (14 inches) should be limited; for example exposure at 0.25m (10 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
104	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.45 meters (18 inches) should be limited; for example exposure at 0.3m (12 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
105	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.55 meters (22 inches) should be limited; for example exposure at 0.4m (16 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
106	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.65 meters (26 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
107	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.7 meters (28 inches) should be limited; for example exposure at 0.54m (20 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
108	Average life rating at 12 hours operation per start is 15,000 hours.
109	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.75 meters (30 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
110	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 1.0 meters (39 inches) should be limited; for example exposure at 0.64m (24 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
111	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.6 meters (24 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
112	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.8 meters (31 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
113	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 2.0 meters (79 inches) should be limited; for example exposure at 1.4m (55 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
114	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.2m (8 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
115	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.15m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
116	A fluorescent jacketed lamp consists of a T12 (1 1/2" diameter) lamp enclosed inside a T14.5 (1 13/16" diameter) glass jacket. A jacketed fluorescent lamp operates efficiently over a wide range of climatic conditions, including extremes of cold and strong wind in which an unjacketed (bare) lamp would be inefficient or inoperable. The jacket size provides the clearance necessary to minimize damaging lamp-jacket contact; narrow bands of rubber placed between the lamp and the jacket further prevent contact. A weather-tight seal is formed by neoprene rubber end caps.
117	Mean lumens at 7,200 hours (40% of 18,000 hour average rated life) equal 4,371. For comparison to an F72T12 Slimline lamp with an average rated life of 12,000 hours use a mean lumen value of 4418 based on 95% lumen maintenance at 4,800 hours, (40% of 12,000 hours).
118	Use only with electronic ballasts which have been specifically designed to operate T2 miniature fluorescent lamps and to reliably and safely control all lamp operating modes including end-of-lamp-life sensing circuitry. If a non-conforming ballast is used, very high temperatures (350 degrees C typical) may be generated at the ends of the lamp especially during end-of-lamp-life operation, causing the lamp to crack and resulting in potential fire, electrical shock, or burn hazards.
119	The life rating of FO32/700/ECO OCTRON® lamps operated on rapid start ballasts is 25,000 hours. The life rating of FO32/700/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.



# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
F017/830/ECO	F17T8/SPX30/ECO	F17T8/TL830/ALTO
F017/835/ECO	F17T8/SPX35/ECO	F17T8/TL835/ALTO
F017/841/ECO	F17T8/SPX41/ECO	F17T8/TL841/ALTO
		F17T8/TL850/ALTO
F017/827/XP/ECO		
F017/830/XP/ECO	F17T8/XL/SPX30/ECO	F17T8/TL830/PLUS/ALTO
F017/835/XP/ECO	F17T8/XL/SPX35/ECO	F17T8/TL835/PLUS/ALTO
F017/841/XP/ECO	F17T8/XL/SPX41/ECO	F17T8/TL841/PLUS/ALTO
F017/850/XP/ECO	F17T8/XL/SPX50/ECO	F17T8/TL850/PLUS/ALTO
F017/865/XP/ECO	F17T8/XL/SPX65/ECO	F17T8/TL865 /PLUS/ALTO
F017/830XPS/ECO		
F017/835XPS/ECO		
F017/841XPS/ECO		
F025/830/ECO	F25T8/SPX30/ECO	F25T8/TL830/ALTO
F025/835/ECO	F25T8/SPX35/ECO	F25T8/TL835/ALTO
F025/841/ECO	F25T8/SPX41/ECO	F25T8/TL841/ALTO
		F25T8/TL850/ALTO
F025/827/XP/ECO		
F025/830/XP/ECO	F25T8/XP/SPX30/ECO	F25T8/TL830/PLUS/ALTO
F025/835/XP/ECO	F25T8/XP/SPX35/ECO	F25T8/TL835/PLUS/ALTO
F025/841/XP/ECO	F25T8/XP/SPX41/ECO	F25T8/TL841/PLUS/ALTO
F025/850/XP/ECO	F25T8/XP/SPX50/ECO	F25T8/TL850/PLUS/ALTO
F025/865/XP/ECO	F25T8/XP/SPX65/ECO	F25T8/TL865/PLUS/ALTO
F025/830XPS/ECO		
F025/835XPS/ECO		
F025/841XPS/ECO		
F032/25W/830XP/SS/ECO		F32T8/ADV830/XEW/LL/ALTO 25Watt
F032/25W/835XP/SS/ECO		F32T8/ADV835/XEW/LL/ALTO 25Watt
F032/25W/8410XP/SS/ECO		F32T8/ADV841/XEW/LL/ALTO 25Watt
F032/25W/850XP/SS/ECO		F32T8/ADV850/XEW/LL/ALTO 25Watt
F028/830XP/SS/ECO	F28T8/SP30UMX/ECO	F32T8/ADV830/EW/LL/ALTO 28Watt
F028/835XP/SS/ECO	F28T8/SP35UMX/ECO	F32T8/ADV835/EW/LL/ALTO 28Watt
F028/841XP/SS/ECO	F28T8/SP41UMX/ECO	F32T8/ADV841/EW/LL/ALTO 28Watt
F028/850XP/SS/ECO	F28T8/SP50UMX/ECO	F32T8/ADV850/EW/LL/ALTO 28Watt
F030/830XP/SS/ECO	F32T8XL/SP30/WM/ECO	F32T8/ADV830/EW/LL/ALTO 30Watt
F030/835XP/SS/ECO	F32T8XL/SP35/WM/ECO	F32T8/ADV835/EW/LL/ALTO 30Watt
F030/841XP/SS/ECO	F32T8XL/SP41/WM/ECO	F32T8/ADV841/EW/LL/ALTO 30Watt
F030/850XP/SS/ECO	F32T8XL/SP50/WM/ECO	F32T8/ADV850/EW/LL/ALTO 30Watt
F032/730/ECO	F32T8/SP30/ECO	F32T8/TL730/ALTO
F032/735/ECO	F32T8/SP35/ECO	F32T8/TL735/ALTO
F032/741/ECO	F32T8/SP41/ECO	F32T8/TL741/ALTO
F032/750/ECO	F32T8/SP50/ECO	F32T8/TL750/ALTO
F032/765/ECO	F32T8/SP65/ECO	
F032/730/XP/ECO	F32T8/XL/SP30/ECO	F32T8/TL730/PLUS/ALTO
F032/735/XP/ECO	F32T8/XL/SP35/ECO	F32T8/TL735/PLUS/ALTO
F032/741/XP/ECO	F32T8/XL/SP41/ECO	F32T8/TL741/PLUS/ALTO
		F32T8/TL750/PLUS/ALTO
F032/830/ECO	F32T8/SPX30/ECO	F32T8/TL830/ALTO
F032/835/ECO	F32T8/SPX35/ECO	F32T8/TL835/ALTO
F032/841/ECO	F32T8/SPX41/ECO	F32T8/TL841/ALTO
F032/850/ECO	F32T8/SPX50/ECO	F32T8/TL850/ALTO
F032/827/XP/ECO	-	-
F032/830/XP/ECO	F32T8/XL/SPX30/ECO	F32T8/TL830 PLUS/ALTO
F032/835/XP/ECO	F32T8/XL/SPX35/ECO	F32T8/TL835 PLUS/ALTO
F032/841/XP/ECO	F32T8/XL/SPX41/ECO	F32T8/TL841 PLUS/ALTO
F032/850/XP/ECO	F32T8/XL/SPX50/ECO	F32T8/TL850 PLUS/ALTO
F032/865/XP/ECO	F32T8/XL/SPX65/ECO	F32T8/TL865 PLUS/ALTO
F032/830XPS/ECO	F32T8SXL/SPX30/ECO	
F032/835XPS/ECO	F32T8SXL/SPX35/ECO	
F032/841XPS/ECO	F32T8SXL/SPX41/ECO	
F032/830XPS/ECO	F32T8/XL/SPX30/HL/ECO	F32T8/ADV830/ALTO
F032/835XPS/ECO	F32T8/XL/SPX35/HL/ECO	F32T8/ADV835/ALTO
F032/841XPS/ECO	F32T8/XL/SPX41/HL/ECO	F32T8/ADV841/ALTO
F032/850XPS/ECO	F32T8/XL/SPX50/HL/ECO	F32T8/ADV850/ALTO
F032/865XPS/ECO		

# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
FO40/830/ECO	F40T8/SPX30	F40T8/TL830/ALTO
FO40/835/ECO	F40T8/SPX35	F40T8/TL835/ALTO
FO40/841/ECO	F40T8/SPX41	F40T8/TL841/ALTO
FO40/830/XP/ECO	-	-
FO40/835/XP/ECO	-	-
FO40/841/XP/ECO	-	-
FO96/830XP/SS/ECO	F96T8/XL/SP30/WM	
FO96/835XP/SS/ECO	F96T8/XL/SP35/WM	
FO96/841XP/SS/ECO	F96T8/XL/SP41/WM	
FO96/830/ECO	F96T8/SPX30	F96T8/TL830/ALTO
FO96/835/ECO	F96T8/SPX35	F96T8/TL835/ALTO
FO96/841/ECO	F96T8/SPX41	F96T8/TL841/ALTO
FO96/850/ECO	F96T8/SPX50	F96T8/TL850/ALTO
FO96/830/XP/ECO	F96T8/XL/SPX30	F96T8/TL830PLUS/ALTO
FO96/835/XP/ECO	F96T8/XL/SPX35	F96T8/TL835PLUS/ALTO
FO96/841/XP/ECO	F96T8/XL/SPX41	F96T8/TL841PLUS/ALTO
FO96/850/XP/ECO	F96T8/XL/SPX50	F96T8/TL850PLUS/ALTO
-	F96T8/SPX30/HO	F96T8/TL830/HO/PLUS
FO96/835/HO	F96T8/SPX35/HO	F96T8/TL835/HO/PLUS
FO96/841/HO	F96T8/SPX41/HO	F96T8/TL841/HO/PLUS
<b>OCTRON® CURVALUME®</b>		
FBO16/830	-	-
FBO16/835	-	-
FBO16/841	-	-
FBO16/865/XP	-	-
FBO24/830	-	-
FBO24/835	-	-
FBO24/841	-	-
FBO31/830	F31T8/SPX30/U	-
FBO31/835	F31T8/SPX35/U	-
FBO31/841	F31T8/SPX41/U	-
FBO29/830/XP/SS/ECO		
FBO29/835/XP/SS/ECO		
FBO29/841/XP/SS/ECO		
FBO31/830/XP/ECO	-	-
FBO31/835/XP/ECO	-	-
FBO31/841/XP/ECO	-	-
FBO30/830/XP/6/SS/ECO		
FBO30/835/XP/6/SS/ECO		
FBO30/841/XP/6/SS/ECO		
FBO32/830/6/ECO	F32T8/SPX30/U/6	FB32T8/TL830/6/ALTO
FBO32/835/6/ECO	F32T8/SPX35/U/6	FB32T8/TL835/6/ALTO
FBO32/841/6/ECO	F32T8/SPX41/U/6	FB32T8/TL841/6/ALTO
		FB32T8/TL850/6/ALTO
FBO32/830/6/XP/ECO	-	-
FBO32/835/6/XP/ECO	-	-
FBO32/841/6/XP/ECO	-	-
<b>PENTRON® &amp; PENTRON® HO</b>		
FP14/830/ECO	F14W/T5/830/ECO	F14T5/830/ALTO
FP14/835/ECO	F14W/T5/835/ECO	F14T5/835/ALTO
FP14/841/ECO	F14W/T5/841/ECO	F14T5/841/ALTO
	F14W/T5/850/ECO	
FP14/865/ECO	F14W/T5/865/ECO	
FP21/830/ECO	F21W/T5/830/ECO	F21T5/830/ALTO
FP21/835/ECO	F21W/T5/835/ECO	F21T5/835/ALTO
FP21/841/ECO	F21W/T5/841/ECO	F21T5/841/ALTO
	F21W/T5/850/ECO	
FP21/865/ECO	F21W/T5/865/ECO	
FP28/830/ECO	F28W/T5/830/ECO	F28T5/830/ALTO
FP28/835/ECO	F28W/T5/835/ECO	F28T5/835/ALTO
FP28/841/ECO	F28W/T5/841/ECO	F28T5/841/ALTO
FP21/850/ECO	F28W/T5/850/ECO	
FP21/865/ECO	F28W/T5/865/ECO	
FP35/830/ECO	F35W/T5/830/ECO	F35T5/830
FP35/835/ECO	F35W/T5/835/ECO	F35T5/835

# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON® CURVALUME®</b>		
FP35/841/ECO	F35W/T5/841/ECO F35W/T5/850/ECO F35W/T5/865/ECO	F35T5/841
FP24/830/HO/ECO	F24W/T5/830/ECO	F24T5/830/HO/ALTO
FP24/835/HO/ECO	F24W/T5/835/ECO	F24T5/835/HO/ALTO
FP24/841/HO/ECO	F24W/T5/841/ECO F24W/T5/850/ECO F24W/T5/865/ECO	F24T5/841/HO/ALTO
FP39/830/HO/ECO	F39W/T5/830/ECO	FP39/830/HO/ECO/ALTO
FP39/835/HO/ECO	F39W/T5/835/ECO	FP39/835/HO/ECO/ALTO
FP39/841/HO/ECO	F39W/T5/841/ECO F39W/T5/850/ECO F39W/T5/865/ECO	FP39/841/HO/ECO/ALTO
FP54/830/HO/ECO	F54W/T5/830/ECO	F54T5/830/HO/ALTO
FP54/835/HO/ECO	F54W/T5/835/ECO	F54T5/835/HO/ALTO
FP54/841/HO/ECO	F54W/T5/841/ECO	F54T5/841/HO/ALTO
FP54/850/HO/ECO	F54W/T5/850/ECO	F54T5/850/HO/ALTO
FP54/865/HO/ECO	F54W/T5/865/ECO	F54T5/865/HO/ALTO
FP54/835/C/HO/ECO		
FP54/841/C/HO/ECO		
FP54/850/C/HO/ECO		
FP80/830/HO/ECO	F80W/T5/830/ECO	F80T5/830/HO
FP80/835/HO/ECO	F80W/T5/835/ECO	F80T5/835/HO
FP80/841/HO/ECO	F80W/T5/841/ECO F54W/T5/850/ECO F54W/T5/865/ECO	F80T5/841/HO
<b>PENTRON® CIRCLINE</b>		
FPC22/830	-	TL5C 22W/830
FPC22/835	-	TL5C 22W/831
FPC22/841	-	TL5C 22W/832
FPC40/830	-	TL5C 40W/833
FPC40/835	-	TL5C 40W/834
FPC40/841	-	TL5C 40W/835
FPC55/830/HO	-	TL5C 55W/833
FPC55/835/HO	-	TL5C 55W/834
FPC55/841/HO	-	TL5C 55W/835
<b>F40 TYPES (STD &amp; SS)</b>		
F34/D30/SS/ECO	F34/SP30/RS/WM/ECO	
F34/D35/SS/ECO	F34/SP35/RS/WM/ECO	
F34/D41/SS/ECO	F34/SP41/RS/WM/ECO	
F34/D830/SS/ECO	F34/SPX30/RS/WM/ECO	F34/830/RS/EW/ALTO
F34/D835/SS/ECO	F34/SPX35/RS/WM/ECO	F34/835/RS/EW/ALTO
F34/D841/SS/ECO	F34/SPX41/RS/WM/ECO	F34/841/RS/EW/ALTO F34/850/RS/EW/ALTO
F40/D30/ECO	F40/SP30/RS/ECO	F40/SPEC30/RS/ALTO
F40/D35/ECO	F40/SP35/RS/ECO	F40/SPEC35/RS/ALTO
F40/D41/ECO	F40/SP41/RS/ECO	F40/SPEC41/RS/ALTO
F40/D830/ECO	F40/SPX30/RS/ECO	F40/830/8RS/ALTO
F40/D835/ECO	F40/SPX35/RS/ECO	F40/835/RS/ALTO
F40/D841/ECO	F40/SPX41/RS/ECO	F40/841/RS/ALTO
-	F40/XL/SP30, 35, 41	
-	F40/XL/SPX30, 35, 41, 50	-
<b>CURVALUME® 3"</b>		
-	F40/SP30/U/3	-
-	F40/SP41/U/3	-
<b>CURVALUME® 6"</b>		
FB34/D30/6/SS	-	FB34/SPEC30/6/EW/ALTO
FB34/D35/6/SS	-	FB34/SPEC35/6/EW/ALTO
FB34/D41/6/SS	-	FB34/SPEC41/6/EW/ALTO
FB40/D30/6	F40/SP30/U/6	FB40/SPEC30/6/ALTO
FB40/D30/6	F40/SP35/U/6	FB40/SPEC35/6/ALTO
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6/ALTO
FB40/D830/6	F40/SPX30/U/6	FB40/30U/6/ALTO
-	F40/SPX35/U/6	FB40/35U/6/ALTO
-	-	FB40/41U/6/ALTO

# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>SLIMLINE</b>		
-	F96T12/SP35/WMP	-
F96T12/D30/SS/ECO	F96T12/SP30/WM/ECO	
F96T12/D35/SS/ECO	F96T12/SP35/WM/ECO	
F96T12/D41/SS/ECO	F96T12/SP41/WM/ECO	
F96T12/D830/SS/ECO	F96T12/SPX30/WM/ECO	F96T12/830/EW/ALTO
F96T12/D835/SS/ECO	F96T12/SPX35/WM/ECO	F96T12/835/EW/ALTO
F96T12/D841/SS/ECO	F96T12/SPX41/WM/ECO	F96T12/841/EW/ALTO
-	F96T12/XL/SP35/WM	-
-	F96T12/XL/SP41/WM	-
F96T12/D30/ECO	F96T12/SP30/ECO	
F96T12/D35/ECO	F96T12/SP35/ECO	
F96T12/D41/ECO	F96T12/SP41/ECO	
F96T12/D830/ECO	F96T12/SPX30/ECO	F96T12/830/ALTO
F96T12/D835/ECO	F96T12/SPX35/ECO	F96T12/835/ALTO
F96T12/D841/ECO	F96T12/SPX41/ECO	F96T12/841/ALTO
-	F96T12/XL/SP35, 41	-
-	F96T12/XL/SPX35, 41, 50	-
<b>HIGH OUTPUT</b>		
F72T12/D830/HO	F72T12/SPX30/HO	F72T12/30U/HO
-	-	
F96T12/D35/HO/SS	F96T12/SP35/HO/WM	
F96T12/D41/HO/SS	F96T12/SP41/HO/WM	
F96T12/D830/HO/SS	F96T12/SPX830/HO/WM	F96T12/830/HO/EW/ALTO
F96T12/D835/HO/SS	F96T12/SPX35/HO/WM	F96T12/835/HO/EW/ALTO
F96T12/D841/HO/SS	F96T12/SPX41/HO/WM	F96T12/841/HO/EW/ALTO
F96T12/D30/HO	F96T12/SP30/HO	
F96T12/D35/HO	F96T12/SP35/HO	
F96T12/D41/HO	F96T12/SP41/HO	
F96T12/D830/HO	F96T12/SPX830/HO	F96T12/830/HO/ALTO
F96T12/D835/HO	F96T12/SPX35/HO	F96T12/835/HO/ALTO
F96T12/D841/HO	F96T12/SPX41/HO	F96T12/841/HO/ALTO
<b>APPLIANCE</b>		
F18T8CW/K24	F24T8/CW/4	
F18T8CW/K26	F26T8/CW/4	F16T8/CW/26
F18T8CW/K28	F28T8/CW/4	F17T8/CW/28
F18T8CW/K30	F30T8/CW/4	F18T8/CW/30/ALTO
F18T8/D/K26	-	-
<b>OTHER RAPID START</b>		
F25T12/D30/RS/SS	F25T12/SP30/RS/WM	-
F25T12/D35/RS/SS	F25T12/SP35/RS/WM	-
F30T12/D35/RS	F30T12/SP35/RS	F30T12/SPEC35/RS
F30T12/D41/RS	F30T12/SP41/RS	F30T12/SPEC41/RS
F30T12/D830/RS	F30T12/SPX30/RS	F30T12/30U/RS
F30T12/D835/RS	F30T12/SPX35/RS	F30T12/35U/RS

FLUORESCENT

**Notes:**



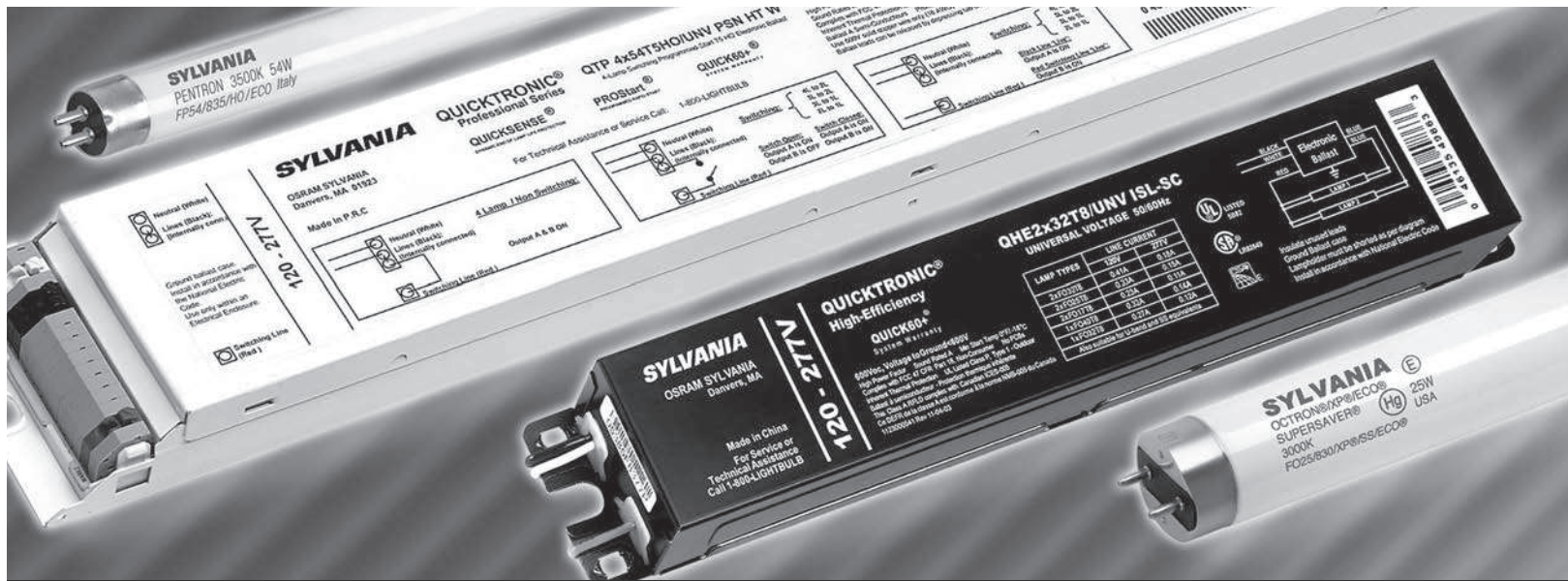


ELECTRONIC BALLASTS

# SYLVANIA QUICKTRONIC® Electronic & Magnetic Ballasts

# OSRAM OPTOTRONIC® LED Power Supplies





## The System is the Solution

### QUICKTRONIC® High Efficiency

High Efficiency Series products are energy-saving electronic T8 ballasts that save additional 6% (2 to 5 watts) over standard electronic ballasts. Features also include <10%THD and Universal Voltage. **SYLVANIA QUICKTRONIC High Efficiency (QHE)** ballast operate OCTRON® T8 lamps with maximum efficacy and high lumen output, and provides 30-50% energy savings when compared to F40T12 magnetic systems.

- High Efficiency Systems over 90% efficient (maximize energy savings)
- Over 100 LPW (lumens/watt) with OCTRON SUPERSAVER® lamps
- Lowest power T8 Instant Start Systems
- Same Light, Less Power


### Universal Voltage (120-277V)

Universal voltage models operate from 120-277 Volts, eliminating "incorrect line voltage" wiring errors and reducing the number of models in inventory by half.

### QUICKTRONIC

T8 Instant Start <20% THD Products.

### OSRAM SYLVANIA is the global leader in lighting systems.

The most important trend in lighting technology is the move toward systems ... we started this trend with  the system solution®, a family of optimally balanced energy saving lamps and electronic ballast combinations.

OSRAM SYLVANIA has the competitive advantage with years of experience in designing, developing and supporting integrated systems — both in ballasts and lamps. Our global network of design and manufacturing brings ballast and lamp knowledge together to produce innovative and cost-effective energy saving systems.

- Committed to providing energy efficient ballasts & lamps
- Our innovative system solutions exceed customer expectations
- New energy saving, higher efficiency, lower power systems
- These systems are covered by our **QUICK 60+®** warranty, the first and most comprehensive system warranty in the industry

### QUICKTRONIC Professional

Professional Series products incorporate one or more value added features such as <10%THD, PROStart® Programmed Rapid Start, Universal Voltage and QUICKSENSE® end-of-lamp-life sensing.

Complete performance data is available in the SYLVANIA QUICKTRONIC Electronic Ballast Technology & Specification Guide and at [www.sylvania.com](http://www.sylvania.com).





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## QUICKTRONIC Electronic Ballasts

### QUICKTRONIC Instant Start Ballasts for OCTRON® T8 Lamps

High Efficiency T8 Instant Start Universal Voltage <b>Low BF</b>	176
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### QUICKTRONIC PROStart® Ballasts for OCTRON T8 Lamps

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<b>SUPERSAVER® Xtreme Systems PROStart PSX</b> Universal Voltage <b>Low BF</b>	178
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### QUICKTRONIC Ballasts for 8 Foot Lamps (T8)

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High Efficiency PROStart 86T8/HO 90°C Case Temperature Universal Voltage <b>Normal BF</b>	179

### QUICKTRONIC Ballasts for CANADIAN 347Volt T8 Systems

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### QUICKTRONIC Ballasts for 8 foot T12 lamps & F40T12 Systems

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### The Original System Solution

The first matched T8 lamp and ballast systems for optimized performance and longer life.

#### QUICKTRONIC® High Efficiency Type CC & Lamp Striation Control (LSC) Models

Offer the same energy saving benefits as the High Efficiency QHE ballasts with two additional advantages:

- Meets UL Type CC (Commercial Cabinet) Rating: New microcontroller circuitry reduces arcing caused by loose or improper lamp pin to socket connections.
- Lamp Striation Control, (LSC): LSC circuitry minimizes lamp striations/strobing that can occur at lower temperatures and especially in T8 energy saving lamps. *(Please consult manufacturers for additional details.)*



#### Banded Packaging

New Banded Packaging has replaced the shrink-wrap product for added benefits:

- Distributor friendly; easy stocking for individual ballast sales
- Contractor friendly; easy handling; no tangled wires
- Reduce waste
- Easily removable bands



#### High Efficiency DL40/28W/SS Systems

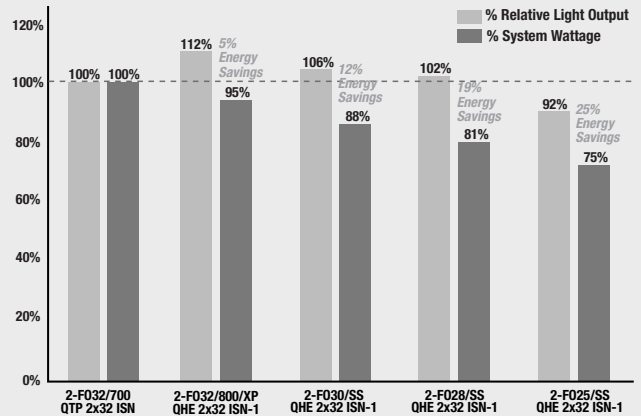
New exclusive QHE energy saving electronic DL40/28W/IS SUPERSAVER® Systems:

- SAME LIGHT, LESS POWER
- Saves up to 14% over standard systems
- Universal Input Voltage (120-277V)
- QUICKSENSE® end of lamp life sensing
- Auto reset



#### Key System Features:

- Lowest power T8 Instant Start Systems
- Over 100 LPW (lumens/watt) with OCTRON® SUPERSAVER lamps
- Provides 30-50% energy savings when compared to F40T12 Magnetic Systems
- QHE/SS Systems provide up to 25% savings compared to standard T8 systems
- Universal Input Voltage (120-277)



#### PROStart®

A programmed rapid starting method for fluorescent lamps that achieves up to 100,000 switching cycles which is ideal for use on **occupancy sensors**.



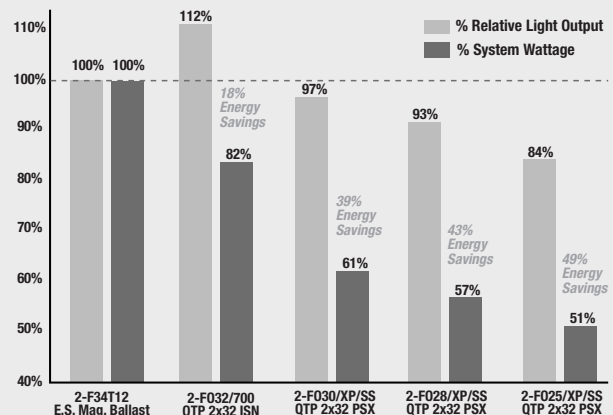
- Exclusive lamp warranty for occupancy sensor applications

#### SUPERSAVER® Xtreme Systems

New High Efficiency QUICKTRONIC PROStart PSX Universal Voltage ballasts when combined with OCTRON SUPERSAVER energy saving high performance T8 lamps provide the lowest power PROStart T8 systems available.

#### Key System Features:

- PROStart Xtreme: For frequent switching, Longest lamp life
- Universal Input Voltage (120-277)
- Available in 0.71 ballast factor







## MULTIWATT

New electronic ballasts that offer the versatility to operate multiple lamp types of various wattages. These multi-watt and multi-lamp models also can vary the number of lamps operated (i.e. 1 or 2 lamps), reducing the amount of ballast types required.

### Dual Entry CFL

Dual entry, color coded connectors located on the side and bottom allow for increased mounting flexibility with one ballast and also increased ease of installation.



### T5HO HELIOS™ Dimming

Electronic ballast with continuous 100-1% dimming range. They can be controlled by a wide variety of 0-10 volt DC control devices, including daylight sensors, building automation systems and compatible wall box dimming controllers.

### DALI Digital Dimming

DALI digital control technology offers full-range continuous dimming, individual fixture control and feedback. The communications protocol is "DALI", an acronym for "Digital Addressable Lighting Interface". DALI is the worldwide standard for digital lighting control.

## T8 & T5 POWERSENSE® DIMMING

The industry's first product to operate from either Power-line Fluorescent controllers or low-voltage (0-10 Vdc) controls.

- Efficient - Highest Energy Efficiency dimming system
- Versatile - Controls flexibility & universal-voltage
- Intelligent - Senses faulty wiring and lamp failure



## PENTRON® HO

New T5 high output fluorescent lamp systems provide almost twice the lumen output of standard lamps and allow new low profile fixtures to be designed.

## QUICKSENSE®

The patented end-of-lamp-life sensing technology that helps prevent lamp overheating and established the benchmark for industry recommendations for T5 and smaller diameter lamps.

### PLUS (High Ballast Factor) Systems

T8 lamps are run at higher lumen levels to allow fewer lamps or higher light levels.

### ICETRON® Systems

Unique "Inductively Coupled Electrodeless Fluorescent Lamp Systems" that provide 100,000 hour rated lamp life for use in high maintenance cost areas.

### Electronic Metal Halide Systems

QUICKTRONIC® MH features a state of the art electronic design to deliver performance levels unattainable with standard magnetic based lighting systems. Provides energy savings up to 50% compared to magnetic ballasts. *New high wattage systems coming soon!*

### LED Power Supplies & DIMMING Modules

OSRAM OPTOTRONIC® power supplies are available in wide range of input voltages for worldwide use on single-phase AC power lines. These supplies are available with constant voltage or constant current outputs.

The OPTOTRONIC OTDIM are dimming modules that can be used with LED power supply modules.

For Complete power supply and LED module details, refer to the OSRAM SYLVANIA LED Systems Specification Guide or [www.sylvania.com](http://www.sylvania.com).

## The QUICK 60+® System Warranty

It's the simple way to make sure you're completely covered.

It starts with the ballast. When you purchase any QUICKTRONIC ballast, it's warranted for a period of up to 60 months. Then, when you add SYLVANIA lamps, you benefit from additional coverage

for those lamps; that's the PLUS. (For lamp replacements, OSRAM SYLVANIA will send lamps to your facility – no labor for lamps.)

With our lamps and ballasts, your installation will enjoy the highest levels of performance. If there is an issue, there's only one phone call to make; you won't get caught in the middle!

It's that simple.

For detailed warranty information, call 1-800-LIGHTBULB, (1-800-544-4828) and request warranty service or visit [www.sylvania.com](http://www.sylvania.com).

# Electronic Fluorescent Ballasts

All data shown is for primary lamp types only. Complete performance data is available in the SYLVANIA QUICKTRONIC® Electronic Ballast Technology & Specification Guide and at [www.sylvania.com](http://www.sylvania.com)

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens <sup>1</sup>	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>											
<b>LOW BALLAST FACTOR</b>											
49837 49861 49862	QHE 1X32T8/UNV ISL-SC Banded Pack 10-Pack Pallet Pack	120-277	0.21/0.09	F032/700	2800	1	0.78	2185	1965	25	87
			0.21/0.09	F032/XP	3000	1	0.78	2340	2225	25	94
			0.20/0.09	F030/SS	2850	1	0.78	2220	2110	24	93
			<b>0.19/0.08</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.78</b>	<b>2125</b>	<b>2020</b>	<b>22</b>	<b>97</b>
			0.17/0.08	F025/SS	2475	1	0.78	1930	1835	20	97
49838 49863 49864	QHE 2X32T8/UNV ISL-SC Banded Pack 10-Pack Pallet Pack	120-277	0.41/0.18	F032/700	2800	2	0.78	4370	3930	48	91
			0.41/0.18	F032/XP	3000	2	0.78	4680	4445	48	98
			0.38/0.16	F030/SS	2850	2	0.78	4445	4225	45	99
			<b>0.35/0.15</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.78</b>	<b>4250</b>	<b>4040</b>	<b>42</b>	<b>101</b>
			0.32/0.14	F025/SS	2475	2	0.78	3860	3665	37	104
49839 49865 49866	QHE 3X32T8/UNV ISL-SC Banded Pack 10-Pack Pallet Pack	120-277	0.61/0.27	F032/700	2800	3	0.78	6550	5895	71	92
			0.61/0.27	F032/XP	3000	3	0.78	7020	6670	71	99
			0.58/0.25	F030/SS	2850	3	0.78	6670	6335	68	98
			<b>0.53/0.23</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.78</b>	<b>6380</b>	<b>6060</b>	<b>63</b>	<b>101</b>
			0.48/0.21	F025/SS	2475	3	0.78	5790	5500	55	105
49840 49867 49868	QHE 4X32T8/UNV ISL-SC Banded Pack 10-Pack Pallet Pack	120-277	0.80/0.35	F032/700	2800	4	0.78	8735	7860	95	92
			0.80/0.35	F032/XP	3000	4	0.78	9360	8890	95	99
			0.75/0.32	F030/SS	2850	4	0.78	8890	8445	89	100
			<b>0.71/0.31</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.78</b>	<b>8500</b>	<b>8075</b>	<b>84</b>	<b>101</b>
			0.62/0.27	F025/SS	2475	4	0.78	7720	7335	74	104
<b>NORMAL BALLAST FACTOR</b>											
49968 49851 49852	QHE 1X32T8/UNV ISN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.25/0.11	F032/700	2800	1	0.88	2465	2220	28	88
			0.25/0.11	F032/XP	3000	1	0.88	2640	2510	28	94
			0.22/0.09	F030/SS	2850	1	0.88	2510	2385	26	97
			<b>0.21/0.09</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.88</b>	<b>2400</b>	<b>2280</b>	<b>25</b>	<b>96</b>
			0.19/0.09	F025/SS	2475	1	0.88	2175	2065	22	99
49969 49853 49854	QHE 2X32T8/UNV ISN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.47/0.20	F032/700	2800	2	0.88	4925	4430	55	90
			0.47/0.20	F032/XP	3000	2	0.88	5280	5015	55	96
			0.44/0.19	F030/SS	2850	2	0.88	5015	4765	52	96
			<b>0.40/0.18</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.88</b>	<b>4800</b>	<b>4560</b>	<b>48</b>	<b>100</b>
			0.36/0.16	F025/SS	2475	2	0.88	4355	4135	43	101
49970 49855 49856	QHE 3X32T8/UNV ISN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.69/0.30	F032/700	2800	3	0.88	7390	6650	83/82	89/90
			0.69/0.30	F032/XP	3000	3	0.88	7920	7525	83/82	95/97
			0.66/0.28	F030/SS	2850	3	0.88	7525	7150	78/77	96/98
			<b>0.61/0.26</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.88</b>	<b>7195</b>	<b>6835</b>	<b>72</b>	<b>100</b>
			0.55/0.23	F025/SS	2475	3	0.88	6530	6205	65/64	101/102
49971 49857 49858	QHE 4X32T8/UNV ISN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.91/0.39	F032/700	2800	4	0.88	9855	8870	108/107	91/92
			0.91/0.39	F032/XP	3000	4	0.88	10560	10030	108/107	98/99
			0.86/0.37	F030/SS	2850	4	0.88	10030	9530	102/101	98/99
			<b>0.80/0.35</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.88</b>	<b>9590</b>	<b>9110</b>	<b>95</b>	<b>101</b>
			0.71/0.30	F025/SS	2475	4	0.88	8710	8275	85	102
<i>Instant Start QHE ISL and ISN models above also operate these lamps: F032, F031, F025, F024, F017, F016, F030/SS (30W), F029/SS (29W) &amp; F040T8</i>											
<b>HIGH BALLAST FACTOR</b>											
49919 49871 49872	QHE 1X32T8/UNV ISH-SC Banded Pack 10-Pack Pallet Pack	120-277	0.32/0.14	F032/700	2800	1	1.20	3360	3025	38	88
			0.32/0.14	F032/XP	3000	1	1.20	3600	3420	38	95
			0.30/0.13	F030SS	2850	1	1.20	3420	3250	36	95
			<b>0.27/0.12</b>	<b>F028SS</b>	<b>2725</b>	<b>1</b>	<b>1.20</b>	<b>3270</b>	<b>3105</b>	<b>33</b>	<b>99</b>
			0.26/0.12	F025/SS	2475	1	1.20	2970	2820	30	99
49920 49873 49874	QHE 2X32T8/UNV ISH-SC Banded Pack 10-Pack Pallet Pack	120-277	0.65/0.28	F032/700	2800	2	1.20	6720	6050	74/73	91/92
			0.65/0.28	F032/XP	3000	2	1.20	7200	6840	74/73	97/99
			0.59/0.25	F030SS	2850	2	1.20	6840	6500	70/69	98/99
			<b>0.55/0.23</b>	<b>F028SS</b>	<b>2725</b>	<b>2</b>	<b>1.20</b>	<b>6540</b>	<b>6210</b>	<b>65/64</b>	<b>101/102</b>
			0.50/0.22	F025/SS	2475	2	1.20	5940	5640	58/57	102/104
49921 49875 49876	QHE 3X32T8/UNV ISH-SC Banded Pack 10-Pack Pallet Pack	120-277	0.93/0.40	F032/700	2800	3	1.18	9910	8920	111/109	89/90
			0.93/0.40	F032/XP	3000	3	1.18	10620	10090	111/109	96/97
			0.87/0.38	F030SS	2850	3	1.18	10090	9585	104/103	97/98
			<b>0.82/0.35</b>	<b>F028SS</b>	<b>2725</b>	<b>3</b>	<b>1.18</b>	<b>9650</b>	<b>9170</b>	<b>98/96</b>	<b>98/101</b>
			0.72/0.31	F025/SS	2475	3	1.18	8760	8320	87/86	101/102
49922 49877 49878	QHE 4X32T8/UNV ISH Banded Pack 10-Pack Pallet Pack	120-277	1.21/0.52	F032/700	2800	4	1.15	12880	11590	144/141	89/91
			1.21/0.52	F032/XP	3000	4	1.15	13800	13110	144/141	96/98
			1.13/0.49	F030SS	2850	4	1.15	13110	12455	135/133	97/99
			<b>1.06/0.46</b>	<b>F028SS</b>	<b>2725</b>	<b>4</b>	<b>1.15</b>	<b>12535</b>	<b>11910</b>	<b>127/124</b>	<b>99/101</b>
			0.94/0.41	F025/SS	2475	4	1.15	11385	10815	112/111	102/103
<i>Instant Start QHE ISH models above also operate these lamps: F032, F031, F030/SS (30W) &amp; F029/SS (29W)</i>											

# Electronic Fluorescent Ballasts

**ELECTRONIC BALLASTS**

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens <sup>1</sup>	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® PROFESSIONAL 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>LOW BALLAST FACTOR</i>											
49832 49741 49742	QTP1x32T8/UNV ISL-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.22/0.10	F032/700	2800	1	0.78	2185	1965	28/26	70/76
			0.22/0.10	F032/XP	3000	1	0.78	2340	2220	28/26	84/90
			0.22/0.09	F030/SS	2850	1	0.78	2220	2110	26/24	86/93
			<b>0.21/0.08</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.78</b>	<b>2125</b>	<b>2020</b>	<b>25/23</b>	<b>85/92</b>
			0.17/0.08	F025/SS	2475	1	0.78	1930	1835	22/20	88/97
49834 49743 49744	QTP2x32T8/UNV ISL-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.44/0.19	F032/700	2800	2	0.78	4370	3930	51	86
			0.44/0.19	F032/XP	3000	2	0.78	4680	4445	51	92
			0.41/0.18	F030/SS	2850	2	0.78	4445	4220	48	93
			<b>0.38/0.17</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.78</b>	<b>4250</b>	<b>4040</b>	<b>45</b>	<b>94</b>
			0.34/0.15	F025/SS	2475	2	0.78	3860	3665	40	97
49835 49745 49746	QTP3x32T8/UNV ISL-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.65/0.27	F032/700	2800	3	0.78	6550	5895	75	87
			0.65/0.27	F032/XP	3000	3	0.78	7020	6670	75	94
			0.60/0.26	F030/SS	2850	3	0.78	6670	6335	71	94
			<b>0.57/0.25</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.78</b>	<b>6380</b>	<b>6060</b>	<b>67</b>	<b>95</b>
			0.50/0.21	F025/SS	2475	3	0.78	5790	5500	59	98
49836 49747 49748	QTP4x32T8/UNV ISL-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.80/0.35	F032/700	2800	4	0.78	8735	7860	98	89
			0.80/0.35	F032/XP	3000	4	0.78	9360	8890	98	96
			0.78/0.34	F030/SS	2850	4	0.78	8890	8445	92	97
			<b>0.73/0.32</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.78</b>	<b>8500</b>	<b>8075</b>	<b>86</b>	<b>99</b>
			0.63/0.28	F025/SS	2475	4	0.78	7720	7335	77	100
<i>NORMAL BALLAST FACTOR</i>											
49905 49941 49942	QTP1x32T8/UNV ISN-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.26/0.11	F032/700	2800	1	0.88	2465	2220	30	82
			0.26/0.11	F032/XP	3000	1	0.88	2640	2510	30	88
			0.25/0.11	F030/SS	2850	1	0.88	2510	2385	28	90
			<b>0.23/0.10</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.88</b>	<b>2400</b>	<b>2280</b>	<b>26</b>	<b>91</b>
			0.20/0.09	F025/SS	2475	1	0.88	2180	2070	23	95
49906 49943 49944	QTP2x32T8/UNV ISN-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.50/0.21	F032/700	2800	2	0.88	4930	4435	59	84
			0.50/0.21	F032/XP	3000	2	0.88	5280	5015	59	89
			0.46/0.20	F030/SS	2850	2	0.88	5015	4765	55	91
			<b>0.43/0.19</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.88</b>	<b>4800</b>	<b>4560</b>	<b>52</b>	<b>92</b>
			0.39/0.16	F025/SS	2475	2	0.88	4360	4140	46	95
49907 49945 49946	QTP3x32T8/UNV ISN-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.75/0.32	F032/700	2800	3	0.88	7390	6650	86	86
			0.75/0.32	F032/XP	3000	3	0.88	7920	7525	86	92
			0.69/0.30	F030/SS	2850	3	0.88	7520	7145	81	93
			<b>0.65/0.28</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.88</b>	<b>7190</b>	<b>6830</b>	<b>76</b>	<b>95</b>
			0.58/0.25	F025/SS	2475	3	0.88	6530	6205	67	98
49908 49947 49948	QTP4x32T8/UNV ISN-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.95/0.40	F032/700	2800	4	0.88	9855	8870	112	88
			0.95/0.40	F032/XP	3000	4	0.88	10560	10030	112	94
			0.91/0.39	F030/SS	2850	4	0.88	10030	9530	105	96
			<b>0.85/0.37</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.88</b>	<b>9590</b>	<b>9110</b>	<b>98</b>	<b>98</b>
			0.74/0.31	F025/SS	2475	4	0.88	8710	8275	88	99
<i>Instant Start QTP ISL and ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) &amp; F040T8</i>											
<i>HIGH BALLAST FACTOR</i>											
49829 49841 49842	QTP1x32T8/UNV ISH-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.33/0.15	F032/700	2800	1	1.20	3360	3025	41	82
			0.33/0.15	F032/XP	3000	1	1.20	3600	3420	41	88
			0.31/0.14	F030/SS	2850	1	1.20	3420	3250	39	89
			<b>0.29/0.13</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>1.20</b>	<b>3270</b>	<b>3105</b>	<b>36</b>	<b>91</b>
			0.27/0.12	F025/SS	2475	1	1.20	2970	2820	32	93
49830 49843 49844	QTP2x32T8/UNV ISH-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.65/0.28	F032/700	2800	2	1.20	6720	6050	78	86
			0.65/0.28	F032/XP	3000	2	1.20	7200	6840	78	92
			0.61/0.26	F030/SS	2850	2	1.20	6840	6500	73	93
			<b>0.57/0.25</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>1.20</b>	<b>6540</b>	<b>6210</b>	<b>69</b>	<b>95</b>
			0.51/0.22	F025/SS	2475	2	1.20	5940	5640	61	97
49831 49845 49846	QTP3x32T8/UNV ISH-SC <i>Banded Pack</i> 10-Pack <i>Pallet Pack</i>	120-277	0.95/0.41	F032/700	2800	3	1.18	9910	8920	114/111	87/89
			0.95/0.41	F032/XP	3000	3	1.18	10620	10090	114/111	93/96
			0.89/0.39	F030/SS	2850	3	1.18	10090	9585	107/104	94/97
			<b>0.84/0.36</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>1.18</b>	<b>9650</b>	<b>9170</b>	<b>100/98</b>	<b>97/98</b>
			0.75/0.32	F025/SS	2475	3	1.18	8760	8320	89/88	98/99
<i>Instant Start QTP ISH models above also operate these lamps: FB032, FB031, FB030/SS (30W) &amp; FB029/SS (29W)</i>											
<b>SPECIFICATIONS:</b>											
Information is subject to change at anytime without prior notice.											



# Electronic Fluorescent Ballasts

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens <sup>1</sup>	Input Wattage (W)	System Efficacy (lm/W)
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## QUICKTRONIC® HIGH EFFICIENCY SYSTEMS 32 T8 PROStart® PSX UNIVERSAL VOLTAGE SYSTEMS

### Xtreme SYSTEMS – LOW BALLAST FACTOR

51224 51420	QTP 1x32T8/UNV PSX-TC Banded Pack 10-Pack	120-277	0.21/0.09	F032/700	2800	1	0.71	1990	1790	25	80
			0.21/0.09	F032/XPS	3100	1	0.71	2200	2090	25	88
51225 51425	QTP 2x32T8/UNV PSX-TC Banded Pack 10-Pack	120-277	0.40/0.17	F032/700	2800	2	0.71	3975	3580	47/46	85/86
			0.40/0.17	F032/XPS	3100	2	0.71	4400	4180	47/46	94/96
51226 51430	QTP 3x32T8/UNV PSX-SC Banded Pack 10-Pack	120-277	0.59/0.25	F032/700	2800	3	0.71	5965	5370	73/71	82/84
			0.59/0.25	F032/XPS	3100	3	0.71	6600	6270	73/71	90/93
51227 51435	QTP 4x32T8/UNV PSX-SC Banded Pack 10-Pack	120-277	0.78/0.33	F032/700	2800	4	0.71	7950	7155	93/91	85/87
			0.78/0.33	F032/XPS	3100	4	0.71	8800	8360	93/91	95/96

### Xtreme SUPERSAVER® SYSTEMS – LOW BALLAST FACTOR

51224 51420 51421	QTP 1x32T8/UNV PSX-TC Banded Pack 10-Pack Pallet Pack	120-277	0.21/0.09	F032/700	2800	1	0.71	1990	1790	25	80
			0.21/0.09	F030/SS	2850	1	0.71	2020	1920	24	84
			<b>0.19/0.09</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.71</b>	<b>1935</b>	<b>1840</b>	<b>22</b>	<b>88</b>
			0.18/0.08	F025/SS	2475	1	0.71	1760	1670	20	88
51225 51425 51426	QTP 2x32T8/UNV PSX-TC Banded Pack 10-Pack Pallet Pack	120-277	0.37/0.16	F032/700	2800	2	0.71	3975	3580	47/46	85/86
			0.37/0.16	F030/SS	2850	2	0.71	4045	3840	44/43	92/94
			<b>0.35/0.15</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.71</b>	<b>3870</b>	<b>3675</b>	<b>41/40</b>	<b>94/97</b>
			0.32/0.14	F025/SS	2475	2	0.71	3515	3340	37/36	95/98
51226 51430 51431	QTP 3x32T8/UNV PSX-SC Banded Pack 10-Pack Pallet Pack	120-277	0.58/0.24	F032/700	2800	3	0.71	5965	5370	73/71	82/84
			0.58/0.24	F030/SS	2850	3	0.71	6070	5765	69/67	88/91
			<b>0.55/0.23</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.71</b>	<b>5805</b>	<b>5515</b>	<b>64/62</b>	<b>91/94</b>
			0.48/0.31	F025/SS	2475	3	0.71	5270	5010	57/56	93/94
51227 51435 51436	QTP 4x32T8/UNV PSX-SC Banded Pack 10-Pack Pallet Pack	120-277	0.74/0.31	F032/700	2800	4	0.71	7950	7155	93/91	85/87
			0.74/0.31	F030/SS	2850	4	0.71	8090	7685	88/86	92/94
			<b>0.70/0.30</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.71</b>	<b>7740</b>	<b>7350</b>	<b>82/80</b>	<b>94/97</b>
			0.63/0.27	F025/SS	2475	4	0.71	7030	6680	75/74	94/95

PROStart QTP PSX models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS(30W) & FB029/SS(29W)

## QUICKTRONIC PROFESSIONAL 32 T8 PROStart PSN UNIVERSAL VOLTAGE SYSTEMS

### NORMAL BALLAST FACTOR

51399 51400 51401	QTP 1x32T8/UNV PSN-TC Banded Pack 10-Pack Pallet Pack	120-277	0.26/0.11	F032/700	2800	1	0.88	2465	2220	31/30	79/82
			0.26/0.11	F032/XP	3000	1	0.88	2640	2510	31/30	85/88
			0.24/0.10	F030/SS	2850	1	0.88	2510	2385	29/28	87/90
			<b>0.23/0.09</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.88</b>	<b>2400</b>	<b>2280</b>	<b>27/26</b>	<b>89/92</b>
			0.20/0.09	F025/SS	2475	1	0.88	2175	2065	24/23	91/95
51402 51405 51406	QTP 2x32T8/UNV PSN-TC Banded Pack 10-Pack Pallet Pack	120-277	0.50/0.21	F032/700	2800	2	0.88	4930	4437	59/56	84/88
			0.50/0.21	F032/XP	3000	2	0.88	5280	5015	59/56	89/94
			0.47/0.20	F030/SS	2850	2	0.88	5015	4765	55/53	91/95
			<b>0.45/0.19</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.88</b>	<b>4800</b>	<b>4560</b>	<b>52/49</b>	<b>92/98</b>
			0.39/0.17	F025/SS	2475	2	0.88	4355	4135	46/44	95/99
51403 51410 51411	QTP 3x32T8/UNV PSN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.74/0.31	F032/700	2800	3	0.88	7390	6650	88/85	84/87
			0.74/0.31	F032/XP	3000	3	0.88	7920	7525	88/85	90/93
			0.70/0.29	F030/SS	2850	3	0.88	7525	7150	83/80	91/94
			<b>0.65/0.27</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.88</b>	<b>7195</b>	<b>6835</b>	<b>77/75</b>	<b>93/96</b>
			0.58/0.25	F025/SS	2475	3	0.88	6530	6205	69/68	95/96
51404 51415 51416	QTP 4x32T8/UNV PSN-SC Banded Pack 10-Pack Pallet Pack	120-277	0.99/0.41	F032/700	2800	4	0.88	9855	8870	118/113	83/87
			0.99/0.41	F032/XP	3000	4	0.88	10,560	10,030	118/113	90/94
			0.93/0.39	F030/SS	2850	4	0.88	10,030	9530	111/106	90/95
			<b>0.88/0.36</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.88</b>	<b>9590</b>	<b>9110</b>	<b>104/99</b>	<b>92/97</b>
			0.77/0.32	F025/SS	2475	4	0.88	8710	8275	92/90	95/97

PROStart QTP PSN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W) & FB029/SS (29W)

### PROStart

A programmed rapid starting method for fluorescent lamps that achieves up to 100,000 switching cycles which is ideal for use on occupancy sensors.

- Exclusive lamp warranty for occupancy sensor applications.



Electronic Fluorescent Ballasts

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® HIGH EFFICIENCY 32 T8 PROStart® UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>HIGH BALLAST FACTOR (90°C Case Temperature – Parallel Operation)<sup>1</sup></i>											
49450 ☼ 49459	QHE2x32T8/UNV-PSH-HT Banded Pack Pallet Pack	120-277	0.63/0.27	F032/700	2800	2	1.15	6440	5795	75/74	86/87
			0.63/0.27	F032/XP	3000	2	1.15	6900	6555	75/74	92/93
			0.60/0.25	F030/SS	2830	2	1.15	6510	6185	70/69	93/94
			<b>0.55/0.24</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>1.15</b>	<b>6270</b>	<b>5955</b>	<b>66/65</b>	<b>95/96</b>
			0.50/0.21	F025/SS	2475	2	1.15	5695	5410	59/58	96/98
49453 ☼ 49460	QHE3x32T8/UNV-PSH-HT Banded Pack Pallet Pack	120-277	0.94/0.40	F032/700	2800	3	1.15	9660	8695	110/109	88/89
			0.94/0.40	F032/XP	3000	3	1.15	10,350	9830	110/109	94/95
			0.88/0.38	F030/SS	2830	3	1.15	9765	9275	103/102	95/96
			<b>0.82/0.35</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>1.15</b>	<b>9400</b>	<b>8930</b>	<b>96/95</b>	<b>98/99</b>
			0.73/0.31	F025/SS	2475	3	1.15	8540	8110	86/85	99/100
49455 ☼ 49470	QHE4x32T8/UNV-PSH-HT Banded Pack Pallet Pack	120-277	1.24/0.53	F032/700	2800	4	1.15	12,880	11,590	146/144	88/89
			1.24/0.53	F032/XP	3000	4	1.15	13,800	13,110	146/144	95/96
			1.16/0.50	F030/SS	2830	4	1.15	13,020	13,370	137/135	95/96
			<b>1.09/0.46</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>1.15</b>	<b>12,535</b>	<b>11,910</b>	<b>128/126</b>	<b>98/99</b>
			0.97/0.41	F025/SS	2475	4	1.15	11,385	10,815	114/113	100/101
<i>PROStart® QHE PSH models above also operate these lamps: FBO32, FBO31, FB030/SS (30W) &amp; FBO29/SS (29W)</i>											
<b>QUICKTRONIC HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>NORMAL BALLAST FACTOR - UL Type CC - Lamp Striation Control/LSC<sup>1</sup></i>											
49381 49382	QHE1x32T8/UNV-ISN-SC-1 Banded Pack Pallet Pack	120-277	0.25/0.11	F032/700	2800	1	0.87	2435	2190	28	87
			0.25/0.11	F032/XP	3000	1	0.87	2610	2480	28	93
			0.23/0.09	F030/SS	2850	1	0.87	2480	2355	27/26	92/95
			<b>0.21/0.09</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.87</b>	<b>2370</b>	<b>2250</b>	<b>25/24</b>	<b>95/99</b>
			0.20/0.90	F025/SS	2475	1	0.87	2155	2045	23/22	94/98
49383 49384	QHE2x32T8/UNV-ISN-SC-1 Banded Pack Pallet Pack	120-277	0.47/0.20	F032/700	2800	2	0.87	4870	4385	55	89
			0.47/0.20	F032/XP	3000	2	0.87	5220	4960	55	95
			0.44/0.19	F030/SS	2850	2	0.87	4960	4710	52	95
			<b>0.40/0.18</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.87</b>	<b>4740</b>	<b>4500</b>	<b>48/47</b>	<b>99/101</b>
			0.37/0.16	F025/SS	2475	2	0.87	4305	4090	44/43	98/100
49385 49386	QHE3x32T8/UNV-ISN-SC-1 Banded Pack Pallet Pack	120-277	0.68/0.30	F032/700	2800	3	0.87	7305	6940	82/81	89/90
			0.68/0.30	F032/XP	3000	3	0.87	7830	7440	82/81	96/97
			0.65/0.28	F030/SS	2850	3	0.87	7440	7070	77/76	97/98
			<b>0.61/0.26</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.87</b>	<b>7110</b>	<b>6755</b>	<b>72/71</b>	<b>99/100</b>
			0.55/0.23	F025/SS	2475	3	0.87	6460	6135	65/64	99/101
49387 49388	QHE4x32T8/UNV-ISN-SC-1 Banded Pack Pallet Pack	120-277	0.92/0.39	F032/700	2800	4	0.87	9745	9255	109/107	89/91
			0.92/0.39	F032/XP	3000	4	0.87	10,440	9920	109/107	96/98
			0.86/0.37	F030/SS	2850	4	0.87	9920	9425	102	97
			<b>0.80/0.35</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.87</b>	<b>9485</b>	<b>9010</b>	<b>95/94</b>	<b>100/101</b>
			0.74/0.31	F025/SS	2475	4	0.87	8615	8185	87/86	99/100
<i>Instant Start QHE ISN models above also operate these lamps: FBO32, FBO31, F025, FB024, F017, FB016, FB030/SS (30W), FBO29/SS (29W) &amp; F040T8</i>											
<b>QUICKTRONIC HIGH EFFICIENCY 59 T8 (8 foot) INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>LOW BALLAST FACTOR<sup>2</sup></i>											
50239* 49869 49870	QHE2x59T8/UNV-ISL-SC 10-Pack Pallet Pack	120-277	0.80/0.34	F096T8/700 (59W)	5700	2	0.77	8780	7900	95/94	92/93
			0.80/0.34	F096T8/XP (59W)	6100	2	0.77	9380	8910	95/94	99/100
			<b>0.74/0.32</b>	<b>F096T8/XP/SS (55W)</b>	<b>5700</b>	<b>2</b>	<b>0.77</b>	<b>8780</b>	<b>8340</b>	<b>89/88</b>	<b>99/100</b>
<i>NORMAL BALLAST FACTOR<sup>2</sup></i>											
50237* 49859 49860	QHE2x59T8/UNV-ISN-SC 10-Pack Pallet Pack	120-277	0.92/0.40	F096T8/700 (59W)	5700	2	0.88	10,030	9025	109/107	92/94
			0.92/0.40	F096T8/XP (59W)	6100	2	0.88	10,735	10,200	109/107	98/100
			<b>0.84/0.36</b>	<b>F096T8/XP/SS (55W)</b>	<b>5700</b>	<b>2</b>	<b>0.88</b>	<b>10,030</b>	<b>9530</b>	<b>102/100</b>	<b>99/100</b>
<i>HIGH BALLAST FACTOR<sup>2</sup></i>											
50238* 49879 49880	QHE2x59T8/UNV-ISH 10-Pack Pallet Pack	120-277	1.20/0.52	F096T8/700 (59W)	5700	2	1.15	13,110	11,800	144/141	91/93
			1.20/0.52	F096T8/XP (59W)	6100	2	1.15	14,030	13,330	144/141	97/100
			<b>1.08/0.47</b>	<b>F096T8/XP/SS (55W)</b>	<b>5700</b>	<b>2</b>	<b>1.15</b>	<b>13,110</b>	<b>12,455</b>	<b>134/131</b>	<b>98/100</b>
<i>QHE2x59T8-ISL-SC and QHE2x59T8-ISN-SC models also operate these lamps: F072T8 &amp; F048T8</i>											
<b>QUICKTRONIC PROFESSIONAL 59 T8 (8 foot) INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>NORMAL BALLAST FACTOR<sup>2</sup></i>											
49590* 49598 49599	QTP 2x59T8/UNV ISN-SC 10-Pack Pallet Pack	120-277	0.93/0.40	F096T8/700 (59W)	5700	2	0.88	10,030	9027	112/110	90/91
			0.93/0.40	F096T8/XP (59W)	6100	2	0.88	10,735	10,200	112/110	96/98
				<b>F096T8/XP/SS (55W)</b>	<b>5700</b>	<b>2</b>	<b>0.88</b>	<b>10,030</b>	<b>9530</b>	<b>104/102</b>	<b>96/98</b>
<i>Instant Start QTP ISN models above also operate these lamps: F072T8 &amp; F048T8</i>											
<b>QUICKTRONIC HIGH EFFICIENCY 86 T8/HO (8 foot) PROStart UNIVERSAL VOLTAGE SYSTEMS</b>											
<i>NORMAL BALLAST FACTOR (90°C Case Temperature – Parallel Operation)<sup>2</sup></i>											
50304 ☼* 50305	QHE 2x86T8HO/UNV-PSN-HT-SC <sup>L</sup> Pallet Pack	120-277	☐	F096T8/700/HO	8000	2	☐	☐	☐	☐	☐
			☐	F096T8/800/HO	8200	2	☐	☐	☐	☐	☐
<i>PROStart® QHE 2x86T8HO also operates these lamps: F72, F60T8HO &amp; F48T8HO</i>											
1: Mean Lumens @ 8000 hours, 2: Mean Lumens for T8 (8 foot) @ 6000 hours, *10 Piece Banded Pack Item Number, ☐ Contact OSRAM SYLVANIA for product information.											

# Electronic Fluorescent Ballasts

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Rated Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens <sup>1</sup>	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® HIGH EFFICIENCY 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA</b>											
<b>LOW BALLAST FACTOR</b>											
49471	QHE 1X32T8/347 ISL-SC	347	0.08	F032/700	2800	1	0.78	2185	1965	25	87
			0.08	F032/XP	3000	1	0.78	2340	2220	25	94
			0.07	F030/SS	2850	1	0.78	2220	2110	24	93
			<b>0.07</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.78</b>	<b>2125</b>	<b>2020</b>	<b>22</b>	<b>97</b>
			0.06	F025/SS	2475	1	0.78	1930	1835	20	97
49473	QHE 2X32T8/347 ISL-SC	347	0.14	F032/700	2800	2	0.78	4370	3930	48	91
			0.14	F032/XP	3000	2	0.78	4680	4445	48	98
			0.13	F030/SS	2850	2	0.78	4445	4220	46	97
			<b>0.12</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.78</b>	<b>4250</b>	<b>4040</b>	<b>43</b>	<b>99</b>
			0.12	F025/SS	2475	2	0.78	3860	3665	38	102
49475	QHE 3X32T8/347 ISL-SC	347	0.21	F032/700	2800	3	0.78	6550	5895	71	92
			0.21	F032/XP	3000	3	0.78	7020	6670	71	99
			0.20	F030/SS	2850	3	0.78	6670	6340	67	100
			<b>0.18</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.78</b>	<b>6380</b>	<b>6060</b>	<b>62</b>	<b>103</b>
			0.17	F025/SS	2475	3	0.78	5790	5500	55	105
49477	QHE 4X32T8/347 ISL-SC	347	0.28	F032/700	2800	4	0.78	8735	7860	96	91
			0.28	F032/XP	3000	4	0.78	9360	8890	96	98
			0.26	F030/SS	2850	4	0.78	8890	8445	90	99
			<b>0.25</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.78</b>	<b>8500</b>	<b>8075</b>	<b>84</b>	<b>101</b>
			0.23	F025/SS	2475	4	0.78	7720	7335	74	104
<b>NORMAL BALLAST FACTOR</b>											
49461	QHE 1X32T8/347 ISN-SC	347	0.08	F032/700	2800	1	0.88	2465	2220	28	88
			0.08	F032/XP	3000	1	0.88	2640	2510	28	94
			0.08	F030/SS	2850	1	0.88	2510	2385	27	93
			<b>0.07</b>	<b>F028/SS</b>	<b>2725</b>	<b>1</b>	<b>0.88</b>	<b>2400</b>	<b>2280</b>	<b>25</b>	<b>96</b>
			0.07	F025/SS	2475	1	0.88	2175	2065	22	99
49463	QHE 2X32T8/347 ISN-SC	347	0.16	F032/700	2800	2	0.88	4925	4430	55	90
			0.16	F032/XP	3000	2	0.88	5280	5015	55	96
			0.15	F030/SS	2850	2	0.88	5015	4765	52	96
			<b>0.14</b>	<b>F028/SS</b>	<b>2725</b>	<b>2</b>	<b>0.88</b>	<b>4800</b>	<b>4560</b>	<b>48</b>	<b>100</b>
			0.13	F025/SS	2475	2	0.88	4355	4135	43	101
49465	QHE 3X32T8/347 ISN-SC	347	0.25	F032/700	2800	3	0.88	7390	6650	83	89
			0.25	F032/XP	3000	3	0.88	7920	7525	83	95
			0.24	F030/SS	2850	3	0.88	7525	7150	78	96
			<b>0.22</b>	<b>F028/SS</b>	<b>2725</b>	<b>3</b>	<b>0.88</b>	<b>7195</b>	<b>6835</b>	<b>74</b>	<b>97</b>
			0.20	F025/SS	2475	3	0.88	6530	6205	66	99
49467	QHE 4X32T8/347 ISN-SC	347	0.33	F032/700	2800	4	0.88	9855	8870	109	90
			0.33	F032/XP	3000	4	0.88	10,560	10,030	109	97
			0.31	F030/SS	2850	4	0.88	10,030	9530	103	97
			<b>0.29</b>	<b>F028/SS</b>	<b>2725</b>	<b>4</b>	<b>0.88</b>	<b>9590</b>	<b>9110</b>	<b>97</b>	<b>99</b>
			0.26	F025/SS	2475	4	0.88	8710	8275	87	100
<i>Instant Start QHE ISL and ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) &amp; F040T8</i>											
<b>QUICKTRONIC 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA</b>											
<b>LOW BALLAST FACTOR</b>											
49241	QT2X32T8/347 ISL-SC	347	0.15	F032/XP	3000	2	0.77	4620	4390	51	91
49939	QT4X32T8/347 ISL-SC	347	0.28	F032/XP	3000	4	0.77	9240	8775	98	94
<b>QUICKTRONIC PROFESSIONAL 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA</b>											
<b>NORMAL BALLAST FACTOR</b>											
49711	QTP1X32T8/347 ISN-SC	347	0.089	F032/XP	3000	1	0.88	2700	2565	31	90
49713	QTP2X32T8/347 ISN-SC	347	0.165	F032/XP	3000	2	0.88	5280	5015	59	89
<b>QUICKTRONIC 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA</b>											
<b>NORMAL BALLAST FACTOR</b>											
49993	QT3X32T8/347 ISN-SC	347	0.25	F032/XP	3000	3	0.90	8100	7695	87	93
49994	QT4X32T8/347 ISN-SC	347	0.34	F032/XP	3000	4	0.90	10,800	10,260	112	96
<i>Instant Start QTP ISN and QT ISL and ISN models above also operate these lamps: FB032, FB031, F025, F040, FB024, F017, FB016, F030/SS(30W), FB030/SS, FB029/SS, F028/SS(28W) &amp; F025/SS(25W)</i>											
<b>HIGH BALLAST FACTOR</b>											
49927	QT2X32T8/347 ISH-SC	347	0.23	F032/XP	3000	2	1.2	7200	6840	78	92
<i>Instant Start QT ISH model above also operates these lamps: F030/SS, F028/SS, F025/SS, FB032, FB031, FB030/SS &amp; FB029/SS</i>											
<b>QUICKTRONIC 59 T8 (8 foot) INSTANT START 347 VOLT SYSTEMS – CANADA</b>											
<b>NORMAL BALLAST FACTOR</b>											
49217	QT2X59/347 IS	347	0.33	F096T8 XP(59W)	6100	2	0.88	10,735	10,200	110	98
<i>Instant Start QT IS model above also operates the F096/SS lamp (55W)</i>											

<sup>1</sup>: Mean Lumens @ 8000 hours

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® PROFESSIONAL T5HO PROStart® PSN UNIVERSAL VOLTAGE SYSTEMS</b>										
<b>NORMAL BALLAST FACTOR<sup>3</sup></b>										
49111 (49110)♦	QTP 2x39-24T5HO/UNV PSN NL	120-277	0.47/0.20	FP24T5HO	2000	2 1	1.00 1.00	4000 2000	55/54 29	73/74 70
49111 (49110)♦	QTP 2x39-24T5HO/UNV PSN NL	120-277	0.76/0.32	FP39T5HO	3500	2 1	1.00 1.00	7000 3500	85/83 42	82/84 83
49131 (49130)♦	QTP 2x54T5HO/UNV PSN NL	120-277	1.00/0.43	FP54T5HO	5000	2 1	1.00 1.00	10000 5000	121/118 61	83/85 82
49151 (49150)♦	QTP 1x80T5HO/UNV PSN NL	120-277	0.74/0.32	FP80T5HO FT80T5DL	6000 7000	1 1	1.00 1.00	7000 6000	90 90	78 67
♦ (Item Number) = Item Number/NAED in parentheses are models with leads/wires. See Ballast Technology & Specification Guide for additional lamp types and full specifications.										
<b>QUICKTRONIC PROFESSIONAL T5 PROStart PSN UNIVERSAL VOLTAGE SYSTEMS</b>										
<b>NORMAL BALLAST FACTOR<sup>3</sup></b>										
49181 (49180)♦	QTP 2x28T5/UNV PSN NL	120-277	0.55/0.23	FP28T5	2900	2 1	1.00 1.00	5800 2900	65/63 32	89/92 90
PROStart® QTP PSN models above also operate these lamps: FP14, FP21 & FP35 ♦ (Item Number) = Item Number/NAED in parentheses are models with leads/wires.										
<b>QUICKTRONIC PROFESSIONAL T5HO PROStart UNIVERSAL VOLTAGE HIGH AMBIENT TEMP. SYSTEMS</b>										
<b>FIXED OUTPUT<sup>3</sup></b>										
49136 (49135)♦	QTP 2x54T5HO/UNV PSN HT NL	120-277	1.00/0.43	FP54T5HO	5000	2 1	1.00 1.00	10000 5000	121/118 61	83/85 82
<b>SWITCHABLE MODEL<sup>3</sup></b>										
49161 (49160)♦	QTP 4x54T5HO/UNV PSN HTW NL	120-277	2.00/0.85	FP54T5HO	5000	4 3 2 1	1.00 1.00 1.00 1.00	20000 15000 10000 5000	241/236 182/178 121/118 61	83/85 83/85 83/85 82
PROStart® QTP PSN models above also operate these lamps: FT55DL, FPC55, L58 ♦ (Item Number) = Item Number/NAED in parentheses are models with leads/wires.										
<b>QUICKTRONIC PROFESSIONAL T5HO PROStart 347- 480V HIGH AMBIENT TEMP. SYSTEMS</b>										
<b>NORMAL BALLAST FACTOR<sup>3</sup></b>										
49146 (49145)♦	QTP 2x54T5HO/347-480 PSN HT NL	347-480	0.35/0.25	FP54T5HO	5000	2 1	1.00 1.00	10000 5000	121/120 61	83 82
PROStart® QTP PSN models above also operate these lamps: FT55DL, FPC55, L58 ♦ (Item Number) = Item Number/NAED in parentheses are models with leads/wires.										
<b>QUICKTRONIC HIGH EFFICIENCY INSTANT START DL40 UNIVERSAL VOLTAGE SYSTEMS<sup>4</sup></b>										
49428 ☼	QHE 1x40DL/UNV ISN-SC	120-277	0.30/0.13 0.27/0.12	FT40T5 FT40DL/28W/SS/IS	3150 2800	1 1	0.90 1.07	2835 2995	35 32	81 94
49429	QHE 2x40DL/UNV ISN-SC	120-277	0.56/0.26 0.54/0.24	FT40T5 FT40DL/28W/SS/IS	3150 2800	2 2	0.90 1.07	5670 5990	68/67 64/63	83/84 94/95
49430	QHE 3x40DL/UNV ISN-SC	120-277	0.84/0.36 0.79/0.35	FT40T5 FT40DL/28W/SS/IS	3150 2800	3 3	0.90 1.07	8505 8990	100/99 95/94	85/86 95/96
<sup>4</sup> Ballast factor based upon 225mA nominal lamp current for FT40DL lamp and 190mA nominal lamp current for FT40DL/28W/SS/IS lamp.										
<b>QUICKTRONIC PROFESSIONAL PROStart DL40</b>										
<b>NORMAL BALLAST FACTOR</b>										
50320	QTP 1x40TT5/120 PSN-F Formerly: M1-PN-TT5/40-F-120	120	0.32	FT40T5	3150	1	0.88	2770	38	73
50330	QTP 1x40TT5/277 PSN-F Formerly: M1-PN-TT5/40-F-277	277	0.13	FT40T5	3150	1	0.88	2770	37	75
50340	QTP 2x40TT5/120 PSN-F Formerly: M2-PN-TT5/40-F-120	120	0.63	FT40T5	3150	2	0.88	5545	76	73
50350	QTP 2x40TT5/277 PSN-F Formerly: M2-PN-TT5/40-F-277	277	0.27	FT40T5	3150	2	0.88	5545	73	76
50360	QTP 3x40TT5/120 PSN-B Formerly: M3-PN-TT5/40-B-120	120	0.92	FT40T5	3150	3	0.88	8315	110	76
50370	QTP 3x40TT5/277 PSN-B Formerly: M3-PN-TT5/40-B-277	277	0.39	FT40T5	3150	3	0.88	8315	108	77

3: Rated lamp lumens and performance data based on PENTRON® HO lamps. Rated lumens at 35°C lamp ambient temperature



# Electronic Fluorescent Ballasts

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® PROFESSIONAL PROStart® COMPACT FLUORESCENT - UNIVERSAL VOLTAGE DUAL ENTRY<sup>5,6</sup></b>										
<b>NORMAL BALLAST FACTOR</b>										
51818 ☉ 51850 ☉	QTP 1/2x13CF/UNV QTP 1/2x13CF/UNV-KIT ▲	120-277	0.25/0.11	13W DD/E,T/E	900	1	1.00	900	16	56
				13W DD/E,T/E	900	2	1.00	1800	29	62
51823 ☉ 51851 ☉	QTP 1/2x18CF/UNV QTP 1/2x18CF/UNV-KIT ▲	120-277	0.32/0.14	18W DD/E,T/E	1200	1	1.00	1200	20	60
				18W DD/E,T/E	1200	2	1.00	2400	38	63
51833 ☉ 51852 ☉ 51898	QTP 2x26CF/UNV QTP 2x26CF/UNV-KIT ▲ QTP 2x26CF/UNV PEM	120-277	0.50/0.22	26W DD/E,T/E	1800	1	1.00	1800	28	64
				26W DD/E,T/E	1800	2	1.00	3600	54	67
				32W DT/E	2400	1	0.98	2350	35	67
				42W DT/E	3200	1	1.00	3200	45	71
51843 51853 ☉ 51863	QTP 2x26/32/42CF/UNV M QTP 2x26/32/42CF/UNV M-KIT ▲ QTP 2x26/32/42CF/UNV M PEM	120-277	0.90/0.40 0.53/0.23 0.57/0.25	26W DT/E	1800	2	1.02	3670	54	68
				32W DT/E	2400	2	0.96	4600	69	67
				42W DT/E	3200	2	0.95	6080	94	65
				57W DT/E	4300	1	1.00	4300	62	69
				70W DT/E	5200	1	0.92	4780	71	67
<i>Also operates: see Ballast Technology &amp; Specification Guide for additional lamp types.</i> ▲CF Kits include a ballast, screws, wire, mounting bracket, an instruction sheet and a wire removal tool.										
<b>NORMAL BALLAST FACTOR - QTP CF models above replace shaded item numbers below</b>										
51718 51748	QTP 1/2x13CF/UNV BS QTP 1/2x13CF/UNV TS	120-277	0.25/0.11	13W DD/E,T/E	900	1	1.00	900	16	56
				13W DD/E,T/E	900	2	1.00	1800	29	62
51723 51753	QTP 1/2x18CF/UNV BS QTP 1/2x18CF/UNV TS	120-277	0.32/0.14	18W DD/E,T/E	1200	1	1.00	1200	20	60
				18W DD/E,T/E	1200	2	1.00	2400	38	63
51733 51763	QTP 2x26CF/UNV BS QTP 2x26CF/UNV TS	120-277	0.50/0.22	26W DD/E,T/E	1800	1	1.00	1800	28	64
				26W DD/E,T/E	1800	2	1.00	3600	54	67
				32W DT/E	2400	1	0.98	2350	35	67
				42W DT/E	3200	1	1.00	3200	45	71
51738 51798 51768	QTP 1/2xCF/UNV BM QTP 1/2xCF/UNV PM QTP 1/2xCF/UNV TM	120-277	0.57/0.25	26W DD/E,T/E	1800	1	1.02	1830	28	65
				26W DD/E,T/E	1800	2	1.02	3670	57	64
				32W DT/E	2400	1	0.97	2330	36	65
				42W DT/E	3200	1	1.00	3200	46	70
51743 51803 51773	QTP 2x26/32/42CF/UNV BM QTP 2x26/32/42CF/UNV PM QTP 2x26/32/42CF/UNV TM Also operates one 57W or 70W CFL lamps	120-277	0.90/0.40 0.53/0.23 0.57/0.25	26W DT/E	1800	2	1.02	3670	54	68
				32W DT/E	2400	2	0.96	4600	69	67
				42W DT/E	3200	2	0.95	6080	94	65
				57W DT/E	4300	1	1.00	4300	62	69
				70W DT/E	5200	1	0.92	4780	71	67
<b>QUICKTRONIC HIGH EFFICIENCY POWERSENSE® 32 T8 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA</b>										
<b>Power-line control (2-wire) or 0-10Vdc control (4-wire) - 100-5% Dimming Range - &lt;10% THD</b>										
50705	QTP 1x32T8/UNV DIM-TC	120-277	0.27/0.12	F032XP	3000	1	0.88 0.05	2640 150	30 8	88
50707	QTP 2x32T8/UNV DIM-TC	120-277	0.54/0.24	F032XP	3000	2	0.88 0.05	5280 300	60/58 15	88/91
50714	QTP 3x32T8/UNV DIM-TCL	120-277	0.73/0.30	F032XP	3000	3	0.88 0.05	7920 450	87/84 20	91/94
50716	QTP 4x32T8/UNV DIM-TCL	120-277	0.96/0.40	F032XP	3000	4	0.88 0.05	10560 600	114/110 27	92/96
<i>POWERSENSE™ QTP models above also operate these lamps: F025, F017 &amp; FB032. POWERSENSE T8 replaces former Helios T8 dimming products.</i>										
<b>QUICKTRONIC HIGH EFFICIENCY HELIOS™ 32 T8 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA</b>										
<b>High Ballast Factor - "PLUS" High Light Output System - For 277V, 0-10Vdc Control Applications Only</b>										
50718 ☉	QTP 4x32T8/277 DIM PLUS-TCL	277	0.53	F032XP	3000	4	1.20 0.05	14400 600	145 28	99
<b>QUICKTRONIC HIGH EFFICIENCY POWERSENSE 28 T5 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA</b>										
<b>Power-line control (2-wire) or 0-10Vdc control (4-wire) - 100-1% Dimming Range - &lt;10% THD</b>										
50726 ☉	QTP 2x28T5/UNV DIM-TCL	120-277	0.53/0.23	FP28	2900	2	1.00 0.01	5800 58	63/62 10	92/94
<i>POWERSENSE™ QTP model above also operate these lamps: FP35, FP21 &amp; FP14</i>										
<b>QUICKTRONIC PROFESSIONAL HELIOS 54 T5 HO DIMMING SYSTEMS<sup>3</sup> - A list of controllers is available from OSRAM SYLVANIA</b>										
<b>(0-10Vdc control) - 100-1% Dimming Range - &lt;10% THD</b>										
49671	QT1x54/120PHO-DIM	120	0.54	FP54T5HO	5000	1	1.00 0.01	5000 50	62 8	81
49672	QT1x54/277PHO-DIM	277	0.23	FP54T5HO	5000	1	1.00 0.01	5000 50	61 8	82
49673	QT2x54/120PHO-DIM	120	1.07	FP54T5HO	5000	2	1.00 0.01	10000 100	120 18	83
49674	QT2x54/277PHO-DIM	277	0.45	FP54T5HO	5000	2	1.00 0.01	10000 100	117 18	85
<i>HELIOS QT models above also operate these lamps: FT55DL &amp; FPC55</i>										

3: Rated lamp lumens and performance data based on PENTRON® HO lamps. Rated lumens at 35°C lamp ambient temperature.

5: Rated lamp lumens and performance data based on DULUX T/E series 4 pin lamps. 6: Data is for all models within the brackets. The maximum input current is shown for maximum input power. ☉ New Product. Contact OSRAM SYLVANIA for product availability.

## Electronic Fluorescent Ballasts

**ELECTRONIC BALLASTS**

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® PROFESSIONAL DALI DIMMING SYSTEMS - 100-1% Dimming Range - &lt;10% THD - For a list of DALI controllers, contact OSRAM SYLVANIA</b>										
<b>T8</b>										
51350	QTP 1x32T8/UNV DALI	120-277	0.31/0.13	F032XP	3000	1	1.00 0.01	3000 30	36 6	83
51352	QTP 2x32T8/UNV DALI	120-277	0.61/0.26	F032XP	3000	2	1.00 0.01	6000 60	72/70 12	83/86
<i>DALI QTP models above also operate these lamps: FB032</i>										
<b>T5HO</b>										
51364	QTP 1x54T5HO/UNV DALI	120-277	0.52/0.22	FP54HO	5000	1	1.00 0.01	5000 50	62/61 9	81/82
51366	QTP 2x54T5HO/UNV DALI	120-277	1.05/0.44	FP54HO	5000	2	1.00 0.01	10,000 100	122/119 18	82/84
<b>T5</b>										
51356	QTP 1x28T5/UNV DALI	120-277	0.27/0.11	FP28	2900	1	1.00 0.01	2900 29	32 6	91
51358	QTP 2x28T5/UNV DALI	120-277	0.55/0.23	FP28	2900	2	1.00 0.01	5800 58	64/62 12	91/94
51357	QTP 1x14T5/UNV DALI	120-277	0.15/0.07	FP14	1350	1	1.00 0.01	1350 14	18	75
51359	QTP 2x14T5/UNV DALI	120-277	0.29/0.13	FP14	1350	2	1.00 0.01	2700 27	34/33	79/82
51360	QTP 1x35T5/UNV DALI	120-277	0.34/0.14	FP35	3650	1	1.00 0.01	3650 37	40/39	91/94
51361	QTP 2x35T5/UNV DALI	120-277	0.67/0.28	FP35	3650	2	1.00 0.01	7300 73	79/76	92/96
<b>QUICKTRONIC PROFESSIONAL DALI COMPACT FLUORESCENT DIMMING SYSTEMS - For a list of DALI controllers, contact OSRAM SYLVANIA</b>										
<b>T4 and TT5 DALI - 100-3% Dimming Range - &lt;10% THD</b>										
51370	QTP 1x18CF/UNV DALI	120-277	0.18/0.08	18W DD/E, T/E	1200	1	1.00 0.03	1200 35	20	60
51372	QTP 2x18CF/UNV DALI	120-277	0.33/0.14	18W DD/E, T/E	1200	2	1.00 0.03	2400 70	39/38	61/63
51375	QTP 1x26CF/UNV DALI	120-277	0.24/0.10	26W DD/E, T/E	1800	1	1.00 0.03	1800 55	28	64
51377	QTP 2x26CF/UNV DALI	120-277	0.49/0.22	26W DD/E, T/E	1800	2	1.00 0.03	3600 110	55/54	65/67
51380	QTP 1x32CF/UNV DALI	120-277	0.34/0.15	32W DT/E	2400	1	1.00 0.03	2400 70	38	63
51382	QTP 2x32CF/UNV DALI	120-277	0.60/0.26	32W DT/E	2400	2	1.00 0.03	4800 140	71/70	68/69
51384	QTP 1x42CF/UNV DALI	120-277	0.43/0.19	42W DT/E	3200	1	1.00 0.03	3200 95	49	65
51386	QTP 2x42CF/UNV DALI	120-277	0.82/0.36	42W DT/E	3200	2	1.00 0.03	6400 190	92/91	69/70
51390	QTP 1x40TT5/UNV DALI	120-277	0.41/0.17	40W DL	3150	1	1.00 0.03	3150 95	45/44	70/72
51392	QTP 2x40TT5/UNV DALI	120-277	0.83/0.37	40W DL	3150	2	1.00 0.03	6300 190	97/94	65/67
<b>QUICKTRONIC 96IS &amp; 96HO</b>										
<b>F96T12 Instant Start - Normal Ballast Factor- &lt;20%THD</b>										
49881	QT 2x96/120 IS	120	1.12	F96SS F96	5300 6420	2 2	0.85 0.85	9010 10910	107 132	84 83
49882	QT 2x96/277 IS	277	0.49	F96SS F96	5300 6420	2 2	0.85 0.85	9010 10910	107 132	84 83
<i>QT IS models above also operate these lamps: F84T12, F72T12 &amp; F60T12</i>										
<b>F96T12 High Output- Normal Ballast Factor- &lt;20%THD</b>										
49883	QT 2x96/120 HO	120	1.74	F96HOSS F96HO	8000 9050	2 2	0.89 0.89	14240 16109	170 205	84 79
49884	QT 2x96/277 HO	277	0.76	F96HOSS F96HO	8000 9050	2 2	0.85 0.85	13600 15385	170 205	80 75
<i>QT HO models above also operate these lamps: F84T12/HO, F72T12/HO, F60T12/HO, &amp; F48T12/HO</i>										



# Electronic Fluorescent / Metal Halide Ballasts

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
<b>QUICKTRONIC® PROFESSIONAL 40 T12 RAPID START</b>										
<b>NORMAL BALLAST FACTOR - &lt;10% THD, (3 lamp &lt;20% THD)</b>										
50684	QTP 1x40T12/120 RSN-SC	120	0.30	F40T12/D41	3200	1	0.85	2720	35	78
50685	QTP 1x40T12/277 RSN-SC	277	0.13	F40T12/D41	3200	1	0.85	2720	35	78
50686	QTP 2x40T12/120 RSN-SC	120	0.62	F40T12/D41	3200	2	0.85	5440	71	77
50687	QTP 2x40T12/277 RSN-SC	277	0.24	F40T12/D41	3200	2	0.85	5440	71	77
50688	QTP 3x40T12/120 RSN	120	0.91	F40T12/D41	3200	3	0.87	8352	107	78
50689	QTP 3x40T12/277 RSN	277	0.39	F40T12/D41	3200	3	0.87	8352	107	78
<i>QTP T12/RS models above also operate these lamps: F30T12 &amp; F25T12</i>										
<b>QUICKTRONIC ICE</b>										
<b>ICETRON® Universal Voltage - &lt;15% THD - Contact OSRAM SYLVANIA for ICETRON® lamp information</b>										
49753	QT 1x100 ICE/UNV-T	120-277	0.88/0.37	ICE100	8000	1	1.00	8000	106/103	75/77
49756	QT 1x100 ICE/UNV-W		0.66/0.29	ICE70	6200	1	1.05	6500	79/77	82/84
49772	QT 1x150 ICE/UNV-T	120-277	1.34/0.58	ICE150	12000	1	1.00	12000	161/156	74/76
49773	QT 1x150 ICE/UNV-W		1.28/0.54	ICE100	8000	1	1.38	11000	154/149	71/73
<b>QUICKTRONIC® FM – DEDICATED VOLTAGE (120V)</b>										
<b>Electronic T2 Fluorescent Subminiature Systems</b>										
49735 ☼	QT1x6-8FM/120	120	0.11	FM 6/H	330	1	1.00	330	8	41
		120	0.14	FM 8/H	540	1	1.00	540	10	54
49736 ☼	QT1x11-13FM/120	120	0.18	FM 11/H	750	1	1.00	750	13	58
		120	0.22	FM 13/H	930	1	1.00	930	16	58
<b>QUICKTRONIC PROFESSIONAL MH</b>										
<b>Electronic Metal Halide - Universal Voltage</b>										
51908	QTP1x20MH/UNV-F	120-277	0.21/0.085	20W T4.5	1700	1	1.0	1700	23	74
51909	QTP1x20MH/UNV-J									
51968 ☼ ☆	QTP2X20MH UNV F	120-277	0.38/0.16	20W T4.5	1700	2	1.0	3400	46	74
51969 ☼ ☆	QTP2X20MH UNV J									
51910	QTP1x39MH/UNV-F	120-277	0.39/0.17	39W T6	3400	1	1.0	3400	44	77
51911	QTP1x39MH/UNV-J									
51970 ☼ ☆	QTP2X39MH UNV F	120-277	0.75/0.33	39W T6	3400	2	1.0	6800	89	76
51971 ☼ ☆	QTP2X39MH UNV J									
51912 ☼ ☆	QTP1x70MH/UNV-F	120-277	0.67/0.29	70W T6	6700	1	1.0	6700	79	85
51913 ☼ ☆	QTP1x70MH/UNV-J									
51914 ☼ ☆	QTP1x100MH/UNV-F	120-277	0.96/0.41	100W E17	9000	1	1.0	9000	110	82
51915 ☼ ☆	QTP1x100MH/UNV-J									
<b>QUICKTRONIC MH</b>										
<b>Electronic Metal Halide</b>										
51958 ☼ ☆	QT1x20MH 120V SLIM	120	0.20	20W T4.5	1700	1	1.0	1700	23	74
51959 ☼ ☆	QT1x20MH UNV SQ	120-277	0.19/0.09	20W T4.5	1700	1	1.0	1700	23	74
51960 ☼ ☆	QT1x39MH 120V SLIM	120	0.38	39W T6	3400	1	1.0	3400	44	77
51961 ☼ ☆	QT1x39MH UNV SQ	120-277	0.38/0.17	39W T6	3400	1	1.0	3400	44	77
51962 ☼ ☆	QT1x70MH 120V SLIM	120	0.64	70W T6	6700	1	1.0	6700	79	85
51963 ☼ ☆	QT1x70MH 120V SQ	120	0.64	70W T6	6700	1	1.0	6700	79	85
51930 ☼ ☆	QT1x150MH/UNV F	120-277	1.40/0.60	150W T7.5	15500	1	1.0	15500	167	93
51931 ☼ ☆	QT1x150MH/UNV J	120-277	1.40/0.60	150W T7.5	15500	1	1.0	15500	167	93
<b>QUICKTRONIC HIGH EFFICIENCY MH</b>										
<b>Electronic Metal Halide - 208-277V</b>										
51980 ☼ ☆	QHE1X200MH 208-277V	208-277	1.06/0.79	200W E39	19000	1	1.0	19000	215	88
51981 ☼ ☆	QHE1X250MH 208-277V	208-277	1.32/0.99	250W E39	23500	1	1.0	23500	269	87
51982 ☼ ☆	QHE1X320MH 208-277V	208-277	1.69/1.27	320W E39	32000	1	1.0	32000	344	93
51983 ☼ ☆	QHE1X350MH 208-277V	208-277	1.85/1.39	350W EX39	33000	1	1.0	33000	376	88
51984 ☼ ☆	QHE1X400MH 208-277V	208-277	2.12/1.58	400W E39	42000	1	1.0	42000	430	98
<i>Also operates: For all of the above Metal Halide Ballasts, see Ballast Technology &amp; Specification Guide for additional lamp types</i>										

☆ Preliminary Data – check with OSRAM SYLVANIA for detailed specifications.

☼ New Product. Contact OSRAM SYLVANIA for product availability.

OSRAM SYLVANIA National Customer Service and Sales Center

184 1-800-LIGHTBULB (1-800-544-4828) or www.sylvania.com

Item Number	OSRAM SYLVANIA Description	Nominal Input Voltage (VAC)	Nominal Input Current (Amps)	Output Current (mA)	Remote Mounting (ft)	Location Rating	Dimming Range	Control Voltage				
<b>OPTOTRONIC® Electronic DRAGON Power Supplies</b>												
<b>OSRAM Constant Current LED DRAGON Power Supplies (DC Output) - Contact OSRAM SYLVANIA for DRAGON™ LED module ordering information</b>												
<b>AC Input</b>												
51524 ☼	OT3/120-240/350	120-240 (AC)	0.1A@120V	350	50	Dry	N/A	N/A				
51525	OT9/100-120/350 E	100-120 (AC)	0.18A@120V	350	30	Dry+Damp	N/A	N/A				
<b>DC Input</b>												
51526	OT9/10-24/350 DIM E	10-24 (DC)	1.1A@10V 0.5A@24V	350	30	Dry+Damp	100% to 0%	10V to 0V DC				
Item Number	OSRAM SYLVANIA Description	Nominal Input Voltage (VAC)	Nominal Input Current (Amps)	Output Voltage (Vdc)	Min. Output Power (W)	Max. Output Power (W)	Max. Line Ripple (V)	Remote Mounting (ft)	Compatible			Location Rating
									With OT9 Dim	With OT Dim	With OT RGB Controls	
<b>OPTOTRONIC Electronic LED Power Supplies</b>												
<b>OSRAM LED Power Supplies (DC Output) - 10.5 V DC - Contact OSRAM SYLVANIA for LED (Light Emitting Diodes) ordering information</b>												
51502 ☼	OT6/100-120/10CE	100-120	0.120@120V	10.5±0.5	0.4	6	±0.2V	32	YES	YES	YES	Dry+Damp
51505	OT25/120/10	120	0.26@120V	10.5±1.0	3	25	±1.1V	10	NO	NO	NO	Dry
51508	OT50/120/10	120	0.52@120V	10.5±1.0	10	50	±1.1V	8	NO	NO	NO	Dry+Damp
51509	OT50/120-277/10E	120-277	0.51@120V 0.22@277V	10.5±1.0	0.4	50	±0.2V	32	YES	YES	YES	Dry+Damp
51506	OT25/120/10CORD	120	0.42@120V	10.5±0.5	0.5	25	±0.5V	58	YES	YES	YES	Dry+Damp
<b>OSRAM LED Power Supplies (DC Output) - 24 V DC - Contact OSRAM SYLVANIA for LED (Light Emitting Diodes) ordering information</b>												
51503 ☼	OT6/100-120/24CE	100-120	0.15@120V	24.0±0.5	0.9	6	±0.4V	32	YES	YES	YES	Dry+Damp
51512	OT20/120-240/24S	120-240	0.35@120V 0.23@240V	24.0±0.5	0.9	20	±0.2V	32	YES	YES	YES	Dry
51513	OT75/120/24	120	1.2@120V	24.0±0.5	10	75	±1.0V	30	YES	NO	YES	Dry+Damp
51514	OT75/120-277/24E	120-277	0.75@120V 0.32@277V	24.0±0.5	0.9	75	±0.2V	32	YES	YES	YES	Dry+Damp
51511 ☼	OT96/120-277/24	120-277	0.91@120V 0.39@277V	24.0±0.5	0.8	96	±1.0V	10	YES	YES	YES	WET
51515 ☼	OT240/120-240/24/CH3	120-240	2.39@120V 1.19@240V	24.0±0.5	0.8	240	±1.0V	10	YES	YES	YES	WET
Item Number	OSRAM SYLVANIA Description	Nominal Input Voltage (VDC)	Max. Input Current (A)	Control Voltage (VDC)	Output Power per channel (W)	Max. Output Power (W)	Max. Power Loss (W)	Max. Output Current per channel (A)				
<b>OPTOTRONIC Electronic LED Dim/Sequencer Modules</b>												
<b>OSRAM LED Dim/Sequencer Modules - OTRGB operates in conjunction with the LED power supplies listed above</b>												
51517 51518	OT RGB DIM OT RGB SEQUENCER	10.5 / 24	6	0-10	0-21 / 0-48	60 / 140	4	2				
Item Number	OSRAM SYLVANIA Description	Nominal Input Voltage (VDC)	Nominal Input Current (A)	Control Voltage (VDC)	Max. Output Power (W)	Max. Output Current (A)						
<b>OPTOTRONIC Electronic LED Dimming Modules</b>												
<b>OSRAM LED Dimming Modules - OTDIM operates in conjunction with the LED power supplies listed above</b>												
51516	OT DIM	10.5 24	5.3 5.3	0-10VDC 0-10VDC	0-52.5 0-120	5 5						
Complete performance data is available in the SYLVANIA QUICKTRONIC® LED Systems Specification Guide and at <a href="http://www.sylvania.com">www.sylvania.com</a> .												

## Discontinued Electronic Ballasts: Nearest Equivalent SYLVANIA Replacement

DISCONTINUED BALLASTS			NEAREST REPLACEMENT UNIVERSAL VOLTAGE BALLASTS	
	Item Number	OSRAM SYLVANIA Description	Item Number	OSRAM SYLVANIA Description
<b>T8, 1-Lamp, Instant Start</b>				
ISN	49911	QT1X32T8/120 ISN-SC	49941	QTP 1x32T8/UNV ISN-SC
	49912	QT1X32T8/277 ISN-SC		
	49951	QT1X32T8/120 ISN-SC-PAL		
	49952	QT1X32T8/277 ISN-SC-PAL		
	49811	QT1X32T8/120 ISN-SC SRNK		
	49812	QT1X32T8/277 ISN-SC SRNK		
ISL	49901	QTP 1x32T8/UNV ISN-SC SRNK	49905	QTP 1x32T8/UNV-ISN-SC-B
	49931	QT1X32T8/120 ISL-SC	49741	QTP 1x32T8/UNV ISL-SC
	49932	QT1X32T8/277 ISL-SC		
49701	QTP1X32T8/UNV-ISL-SC-SRNK	49832		
<b>T8, 2-Lamp, Instant Start</b>				
ISN	49913	QT2X32T8/120 ISN-SC	49943	QTP 2x32T8/UNV ISN-SC
	49914	QT2X32T8/277 ISN-SC		
	49953	QT2X32T8/120 ISN-SC-PAL		
	49954	QT2X32T8/277 ISN-SC-PAL		
	49813	QT2X32T8/120 ISN-SC SRNK		
	49814	QT2X32T8/277 ISN-SC SRNK		
ISL	49902	QTP 2x32T8/UNV ISN-SC SRNK	49906	QTP 2x32T8/UNV-ISN-SC-B
	49933	QT2X32T8/120 ISL-SC		
	49934	QT2X32T8/277 ISL-SC		
	49823	QT2X32T8/120ISLSCPAL		
	49803	QT2X32T8/120 ISL-SC SRNK		
ISH	49804	QT2X32T8/277 ISL-SC SRNK	49743	QTP 2x32T8/UNV ISL-SC
	49702	QTP 2x32T8/UNV-ISL-SC-SRNK		
	49834	QTP 2x32T8/UNV-ISL-SC-B		
	49744	QTP 2x32T8/UNV ISL-SC-PAL		
ISH	49923	QT2X32T8/120 ISH-SC	49843	QTP 2x32T8/UNV ISH-SC
	49924	QT2X32T8/277 ISH-SC		
	49973	QT2X32T8/120 ISH-SC-PAL		
	49974	QT2X32T8/277 ISH-SC-PAL		
<b>T8, 3-Lamp, Instant Start</b>				
ISN	49915	QT3X32T8/120 ISN-SC	49945	QTP 3x32T8/UNV ISN-SC
	49916	QT3X32T8/277 ISN-SC		
	49955	QT3X32T8/120 ISN-SC-PAL		
	49956	QT3X32T8/277 ISN-SC-PAL		
	49815	QT3X32T8/120 ISN-SC SRNK		
	49816	QT3X32T8/277 ISN-SC SRNK		
ISL	49903	QTP 3x32T8/UNV-ISN-SC SRNK	49946	QTP 3x32T8/UNV ISN-SC-PAL
	49935	QT3X32T8/120 ISL-SC		
	49936	QT3X32T8/277 ISL-SC		
	49825	QT3X32T8/120T8ISLSCPAL		
	49805	QT3X32T8/120 ISL-SC SRNK		
ISH	49806	QT3X32T8/277 ISL-SC SRNK	49907	QTP 3x32T8/UNV-ISN-SC-B
	49703	QTP 3x32T8/UNV-ISL-SC-SRNK		
	49835	QTP 3x32T8/UNV-ISL-SC-B		
	49745	QTP 3x32T8/UNV ISL-SC		
ISH	49525	QT3x32/120 PLUS	49845	QTP 3x32T8/UNV ISH-SC
	49526	QT3x32/277 PLUS		
<b>T8, 4-Lamp, Instant Start</b>				
ISN	49917	QT4X32T8/120 ISN-SC	49947	QTP 4x32T8/UNV ISN-SC
	49918	QT4X32T8/277 ISN-SC		
	49517	QT4X32120 IS		
	49957	QT4X32T8/120 ISN-SC-PAL		
	49958	QT4X32T8/277 ISN-SC-PAL		
	49557	QT4X32120-PAL		
ISL	49817	QT4X32T8/120 ISN-SC SRNK	49948	QTP 4x32T8/UNV ISN-SC-PAL
	49818	QT4X32T8/277 ISN-SC SRNK		
	49904	QTP4x32T8/UNV-ISN-SC SRNK		
	49747	QTP 4x32T8/UNV ISL-SC		
	49537	QT4X32/120 LP		
ISH	49538	QT4X32/277 LP	49908	QTP 4x32T8/UNV-ISN-SC-B
	49307	QT4X32/120 LP SRNK		
	49308	QT4X32/277 LP SRNK		
	49704	QTP4x32T8/UNV-ISL-SC-SRNK		
ISH	49521	QHE4X32T8/277 ISH	49747	QTP 4x32T8/UNV ISL-SC
	49522	QHE4X32T8/277 ISH-PAL		
ISH	49877	QHE 4X32T8/UNV ISH	49836	QTP 4x32T8/UNV-ISL-SC-B
	49878	QHE 4X32T8/UNV ISH-PAL		
<b>T8, 1-Lamp, Programmed Start</b>				
PSN	50804	QTP1X32T8/120 PSN-TC	51400	QTP 1x32T8/UNV PSN-TC
	50806	QTP1X32T8/277 PSN-TC		
	50805	QTP1X32T8/120 PSN-TC-PAL		
	50807	QTP1X32T8/277 PSN-TC-PAL		
PSN	50814	QTP2X32T8/120 PSN-SC	51401	QTP 1x32T8/UNV PSN-TC-PAL
	50824	QTP2X32T8/277 PSN-SC		
	50815	QTP2X32T8/120 PSN-SC-PAL		
	50825	QTP2X32T8/277 PSN-SC-PAL		
	51405	QTP 2x32T8/UNV PSN-TC		
PSN	51406	QTP 2x32T8/UNV PSN-TC-PAL		

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## Discontinued Electronic Ballasts: Nearest Equivalent SYLVANIA Replacement

**ELECTRONIC BALLASTS**

DISCONTINUED BALLASTS			NEAREST REPLACEMENT UNIVERSAL VOLTAGE BALLASTS	
Item Number	OSRAM SYLVANIA Description		Item Number	OSRAM SYLVANIA Description
<b>T8, 3-Lamp, Programmed Start</b>				
PSN	50830	QTP3X32T8/120 PSN-SC	51410	QTP 3x32T8/UNV PSN-SC
	50840	QTP3X32T8/277 PSN-SC		
	50832	QTP3X32T8/120 PSN-SC-PAL	51411	QTP 3x32T8/UNV PSN-SC-PAL
	50842	QTP3X32T8/277 PSN-SC-PAL		
<b>T8, 4-Lamp, Programmed Start</b>				
PSN	50850	QTP4X32T8/120 PSN-SC	51415	QTP 4x32T8/UNV PSN-SC
	50860	QTP4X32T8/277 PSN-SC		
	50852	QTP4X32T8/120 PSN-SC-PAL	51416	QTP 4x32T8/UNV PSN-SC-PAL
	50862	QTP4X32T8/277 PSN-SC-PAL		
<b>8' T8, 2-Lamp, Instant Start</b>				
ISN	49581	QT2X59T8/120 IS	49598	QTP 2x59T8/UNV ISN-SC
	49582	QT2X59T8/277 IS		
	49585	QT2X59T8/120 IS-PAL	49599	QTP 2x59T8/UNV ISN-SC-PAL
	49586	QT2X59T8/277 IS-PAL		
	49587	QT2X59T8/120 IS-SRINK	49590	QTP 2x59T8/UNV-ISN-SC-B
	49588	QT2X59T8/277 IS-SRINK		
	49028	QT2X59T8/120 IS-SRINK-IN 4PK		
	49597	QTP2x59T8/UNV ISN-SC-SRINK		
ISH	49583	QT2X59T8/120 PLUS	49879	QHE 2X59T8/UNV ISH
	49584	QT2X59T8/277 PLUS		
<b>T5HO, 1-Lamp, Programmed Start</b>				
	49121	QTP 1x54T5HO/UNV PSN	49131	QTP 2x54T5HO/UNV PSN
<b>FT40T5, 1-Lamp, Instant Start</b>				
ISN	49641	QT 1X40/120 DL	49428	QHE 1x40DL/UNV ISN-SC
	49642	QT 1X40/277 DL		
<b>FT40T5, 2-Lamp, Instant Start</b>				
ISN	49643	QT 2X40/120 DL	49429	QHE 2x40DL/UNV ISN-SC
	49644	QT 2X40/277 DL		
<b>FT40T5, 3-Lamp, Instant Start</b>				
ISN	49645	QT 3X40/120 DL	49430	QHE 3x40DL/UNV ISN-SC
	49646	QT 3X40/277 DL		
<b>T4, 1 and 2-Lamp, Programmed Rapid Start</b>				
	51778	QTP 1/2x13CF/UNV QS	51818	QTP 1/2x13CF/UNV
	51783	QTP 1/2x18CF/UNV QS	51823	QTP 1/2x18CF/UNV
	51793	QTP 2x26CF/UNV QS	51833	QTP 2x26CF/UNV
	51810	QTP 1/2x13CF/UNV DS	51850	QTP 1/2x13CF/UNV Kit
	51811	QTP 1/2x18CF/UNV DS	51851	QTP 1/2x18CF/UNV Kit
	51812	QTP 2x26/1x42/32CF/UNV DS	51852	QTP 2x26/1x42/32CF/UNV Kit
	51813	QTP 2x26/1x42/32CF/UNV DM	51853	QTP 2x26/1x42/32CF/UNV M Kit
<b>T8, 1-Lamp, Dimming Systems</b>				
	50700	QTP 1x32T8/120 DIM5-B	50705	QTP 1x32T8/UNV DIM-TC
	50701	QTP 1x32T8/120 DIM5-B NL		
	50710	QTP 1x32T8/277 DIM5-B		
	50711	QTP 1x32T8/277 DIM5-B NL		
<b>T8, 2-Lamp, Dimming Systems</b>				
	50720	QTP 2x32T8/120 DIM5-B	50707	QTP 2x32T8/UNV DIM-TC
	50721	QTP 2x32T8/120 DIM5-B NL		
	50730	QTP 2x32T8/277 DIM5-B		
	50731	QTP 2x32T8/277 DIM5-B NL		
<b>T8, 3-Lamp, Dimming Systems</b>				
	50750	QTP 3x32T8/120 DIM5-B	50714	QTP 3x32T8/UNV DIM-TCL
	50751	QTP 3x32T8/120 DIM5-B NL		
	50760	QTP 3x32T8/277 DIM5-B		
	50761	QTP 3x32T8/277 DIM5-B NL		
<b>T8, 4-Lamp, Dimming Systems</b>				
	50770	QTP 4x32T8/120 DIM10-Q	50716	QTP 4x32T8/UNV DIM-TCL
	50771	QTP 4x32T8/120 DIM10-Q NL		
	50780	QTP 4x32T8/277 DIM10-Q		
	50781	QTP 4x32T8/277 DIM10-Q NL		
<b>T2, 1 and 2-Lamp, Programmed Start</b>			<b>(Replacement Ballasts are 120V, 1-Lamp)</b>	
	49734	QT-FM	49735	QT1X6-8FM/120 (120V, 1 LAMP ONLY)
			49736	QT1X11-13FM/120 (120V, 1 LAMP ONLY)
<b>LED Power Supplies (DC Output), 10V DC</b>				
	51500	OT6/100-240/10COS	51502	OT6/100-120/10CE
<b>LED Power Supplies (DC Output), 24V DC</b>				
	51501	OT6/100-240/24COS	51503	OT6/100-120/24CE

# Electronic Ballast Cross Reference Guide QUICKCROSS

The smart electronics in SYLVANIA QUICKTRONIC® ballasts allow them to outperform the competition.

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	GE	Howard
<b>QUICKTRONIC HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 High Efficiency Instant Start - Low Ballast Factor - Small Can - <10% THD					
49861	QHE 1X32T8/UNV ISL-SC	IOP-1P32-LW-SC	B132IUNVEL-A	GE-132-MAX-L/ULTRA	N/A
49863	QHE 2X32T8/UNV ISL-SC	IOP-2P32-LW-SC	B232IUNVEL-A	GE-232-MAX-L/ULTRA	N/A
49865	QHE 3X32T8/UNV ISL-SC	IOP-3P32-LW-SC	B332IUNVEL-A	GE-332-MAX-L/ULTRA	N/A
49867	QHE 4X32T8/UNV ISL-SC	IOP-4P32-LW-SC	B432IUNVEL-A	GE-432-MAX-L/ULTRA	N/A
32 T8 High Efficiency Instant Start - Normal Ballast Factor - Small Can - <10% THD					
49851	QHE 1X32T8/UNV ISN-SC	IOP-1P32-SC	B132IUNVHE-A	GE-132-MAX-N/ULTRA	N/A
49853	QHE 2X32T8/UNV ISN-SC	IOP-2P32-SC	B232IUNVHE-A	GE-232-MAX-N/ULTRA	N/A
49855	QHE 3X32T8/UNV ISN-SC	IOP-3P32-SC	B332IUNVHE-A	GE-332-MAX-N/ULTRA	N/A
49857	QHE 4X32T8/UNV ISN-SC	IOP-4P32-SC	B432IUNVHE-A	GE-432-MAX-N/ULTRA	N/A
32 T8 High Efficiency Instant Start - High Ballast Factor - Small Can - <10% THD					
49871	QHE 1X32T8/UNV ISH-SC	IOP-1P32-HL-SC	N/A	N/A	N/A
49873	QHE 2X32T8/UNV ISH-SC	IOP-2P32-HL-SC	B232IUNVHEH-A	GE-232-MAX-H/ULTRA	N/A
49875	QHE 3X32T8/UNV ISH-SC	IOP-3P32-HL-90C-SC	B332IUNVHEH-A	GE-332-MAX-H/ULTRA	N/A
49877	QHE 4X32T8/UNV ISH	IOP-4P32-HL-90C-G	N/A	GE-432-MAX-H/ULTRA	N/A
<b>QUICKTRONIC PROFESSIONAL 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 Instant Start - Low Ballast Factor - Small Can - <10%THD					
49741	QTP 1x32T8/UNV ISL-SC	ICN-1P32-LWSC	N/A	N/A	EPL1/32IS/120-277
49743	QTP 2x32T8/UNV ISL-SC	ICN-2P32-LWSC	N/A	GE-232-MV-L	EPL2/32IS/120-277
49745	QTP 3x32T8/UNV ISL-SC	ICN-3P32-LWSC	N/A	GE-332-MV-L	EPL3/32IS/120-277
49747	QTP 4x32T8/UNV ISL-SC	ICN-4P32-LWSC	N/A	GE-432-MV-L	EPL4/32IS/120-277
32 T8 Instant Start - Normal Ballast Factor - Small Can - <10% THD					
49941	QTP 1x32T8/UNV ISN-SC	ICN-1P32-SC	B132IUNVHP-B	GE-132-MV-N	EP1/32IS/120-277
49943	QTP 2x32T8/UNV ISN-SC	ICN-2P32-SC	B232IUNVHP-B	GE-232-MV-N	EP2/32IS/120-277
49945	QTP 3x32T8/UNV ISN-SC	ICN-3P32-SC	B332IUNVHP-A	GE-332-MV-N	EP3/32IS/120-277
49947	QTP 4x32T8/UNV ISN-SC	ICN-4P32-SC	B432IUNVHP-A	GE-432-MV-N	EP4/32IS/120-277
32 T8 Instant Start - High Ballast Factor - Small Can - <10% THD					
49841	QTP 1x32T8/UNV ISH-SC	N/A	N/A	N/A	N/A
49843	QTP 2x32T8/UNV ISH-SC	N/A	N/A	GE-232-MV-H	N/A
49845	QTP 3x32T8/UNV ISH-SC	N/A	N/A	GE-332-MV-H	N/A
<b>QUICKTRONIC 32 T8 PROStart® PSX UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 Programmed Rapid Start - High Efficiency - Low Ballast Factor - <10%THD					
51420	QTP 1x32T8/UNV PSX-TC	IOP-1S32-LW-SC	N/A	N/A	N/A
51425	QTP 2x32T8/UNV PSX-TC	IOP-2S32-LW-SC	N/A	N/A	N/A
51430	QTP 3x32T8/UNV PSX-SC	IOP-3S32-LW-SC	N/A	N/A	N/A
51435	QTP 4x32T8/UNV PSX-SC	IOP-4S32-LW-SC	N/A	N/A	N/A
<b>QUICKTRONIC PROFESSIONAL 32 T8 PROStart PSN UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 Programmed Rapid Start - Normal Ballast Factor - <10%THD					
51400	QTP 1x32T8/UNVPSN-TC	IOP-1S32-SC	B132PUNVHP-A	N/A	N/A
51405	QTP 2x32T8/UNVPSN-TC	IOP-2S32-SC	B232PUNVHP-A	N/A	N/A
51410	QTP 3x32T8/UNVPSN-SC	IOP-3S32-SC	B332PUNVHP-A	N/A	N/A
51415	QTP 4x32T8/UNVPSN-SC	IOP-4S32-SC	B432PUNVHP-A	N/A	N/A

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Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	GE	Howard
<b>QUICKTRONIC HIGH EFFICIENCY 32 T8 PROStart® UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 Programmed Rapid Start - High Ballast Factor (90°C Case Temperature - Parallel Operation)					
49450	QHE2x32T8/UNV-PSH-HT	N/A	N/A	GE-232-MV-PS-H	N/A
49453	QHE3x32T8/UNV-PSH-HT	N/A	N/A	GE-332-MV-PS-H	N/A
49455	QHE4x32T8/UNV-PSH-HT	N/A	N/A	GE-432-MV-PS-H	N/A
<b>QUICKTRONIC HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS</b>					
32 T8 Instant Start - Normal Ballast Factor - UL Type CC - Lamp Striation Control/LSC					
49381	QHE1x32T8/UNV-ISN-SC-1	IOP-1P32-SC	N/A	GE-132-MAX-N/ULTRA	N/A
49383	QHE2x32T8/UNV-ISN-SC-1	IOP-2P32-SC	N/A	GE-232-MAX-N/ULTRA	N/A
49385	QHE3x32T8/UNV-ISN-SC-1	IOP-3P32-SC	N/A	GE-332-MAX-N/ULTRA	N/A
49387	QHE4x32T8/UNV-ISN-SC-1	IOP-4P32-SC	N/A	GE-432-MAX-N/ULTRA	N/A
<b>QUICKTRONIC HIGH EFFICIENCY 59 T8 &amp; QUICKTRONIC PROFESSIONAL 8 FOOT UNIVERSAL VOLTAGE</b>					
59W F96 T8 Instant Start - Low Ballast Factor - <10% THD					
50239	QHE 2x59T8/UNV-ISL-SC	N/A	N/A	N/A	N/A
59W F96 T8 Instant Start - Normal Ballast Factor - <10% THD					
49859	QHE 2x59T8/UNV-ISN-SC	IOP-2P59-SC	N/A	GE-259-MAX-N/ULTRA	N/A
59W F96 T8 Instant Start - High Ballast Factor - <10% THD					
49879	QHE 2x59T8/UNV-ISH	N/A	N/A	N/A	N/A
59W F96 T8 Instant Start - Normal Ballast Factor - <10% THD - Universal Voltage					
49598	QTP 2X59T8/UNV ISN-SC	N/A	B259IUNVHP-A	GE-259-MV-N	N/A
<b>QUICKTRONIC HIGH EFFICIENCY 86 T8/HO (8 FOOT) PROSTART UNIVERSAL VOLTAGE SYSTEMS</b>					
86W F96 T8/HO (8 foot) PROStart® - Normal Ballast Factor -(90°C Case Temperature - Parallel Operation)					
50304	QHE 2x86T8HO/UNV-PSN-HT-SCL	ICN-2S86	N/A	N/A	N/A
<b>QUICKTRONIC HIGH EFFICIENCY, PROFESSIONAL &amp; T8 INSTANT START 347 VOLT - CANADA</b>					
32 T8 High Efficiency Instant Start- Normal Ballast Factor - Small Can - <10% THD					
49461	QHE 1x32T8/347 ISN-SC	N/A	N/A	N/A	N/A
49463	QHE 2x32T8/347 ISN-SC	N/A	N/A	N/A	N/A
49465	QHE 3x32T8/347 ISN-SC	N/A	N/A	N/A	N/A
49467	QHE 4x32T8/347 ISN-SC	N/A	N/A	N/A	N/A
32 T8 High Efficiency Instant Start- Low Ballast Factor - Small Can - <10% THD					
49471	QHE 1x32T8/347 ISL-SC	N/A	N/A	N/A	N/A
49473	QHE 2x32T8/347 ISL-SC	N/A	N/A	N/A	N/A
49475	QHE 3x32T8/347 ISL-SC	N/A	N/A	N/A	N/A
49477	QHE 4x32T8/347 ISL-SC	N/A	N/A	N/A	N/A
32 T8 Instant Start- Normal Ballast Factor - Small Can - <10% THD					
49711	QTP 1x32T8/347 ISN-SC	N/A	N/A	N/A	N/A
49713	QTP 2x32T8/347 ISN-SC	N/A	B2321347HP-A	N/A	N/A
32 T8 Instant Start- Low Ballast Factor - Small Can - <20% THD - Small Can/Standard "F" Can					
49241	QT 2x32T8/347 ISL-SC	GEL-2P32-LW-RH-TP (F-Can)	B2321347L-A	N/A	N/A
49939	QT 4x32T8/347 ISL-SC	N/A	N/A	N/A	N/A
32 T8 Instant Start- Normal Ballast Factor - Small Can - <20% THD - Small Can/Standard "F" Can					
49993	QT 3x32T8/347 ISN-SC	GEL-3P32-RH-TP (F-Can)	B3321347RH (F-Can)	N/A	E3/32IS/347 (F-Can)
49994	QT 4x32T8/347 ISN-SC	GEL-4P32-RH-TP (F-Can)	B4321347RH (F-Can)	N/A	E4/32IS-347 (F-Can)
32 T8 Instant Start- High Ballast Factor - Small Can - <20% THD					
49927	QT 2x32T8/347 ISH-SC	N/A	N/A	N/A	N/A
<b>QUICKTRONIC 59 T8 8 FOOT SYSTEM - 347 VOLT - CANADA</b>					
59W F96 T8 Instant Start - Normal Ballast Factor - <20% THD					
49217	QT2x59/347IS	GEL-2P59	N/A	N/A	N/A

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# Electronic Ballast Cross Reference Guide QUICKCROSS

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ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)		
			GE	Howard	
<b>QUICKTRONIC PROFESSIONAL T5HO PROStart® UNIVERSAL VOLTAGE SYSTEMS</b>					
T5 HO - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)					
49111	QTP2x39-24T5HO/UNVPSN (1 Lamp) (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S39 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B239PUNV-D (1 Lamp) (16.88"L x 1.18"W x 1.0"H) (Mounting 16.28")		N/A
49111	QTP2x39-24T5HO/UNVPSN (FP39T5HO) (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S39 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B239PUNV-D (1 Lamp) (16.88"L x 1.18"W x 1.0"H) (Mounting 16.28")		N/A
49111	QTP2x39-24T5HO/UNVPSN (1 Lamp) (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S24 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B224PUNV-C (1 Lamp) (14.25"L x 1.18"W x 1.0"H) (Mounting 13.75")		N/A
49111	QTP2x39-24T5HO/UNVPSN (FP24T5HO) (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S24 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B224PUNV-C (1 Lamp) (14.25"L x 1.18"W x 1.0"H) (Mounting 13.75")		N/A
49131	QTP2x54T5HO/UNVPSN (16.73"L x 1.18"W x 0.87"H) (Mounting 16.34")	ICN-2S54 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B254PUNV-D (1 Lamp) (16.88"L x 1.18"W x 1.0"H) (Mounting 16.28")		EP2/54HO/PRS/120-277 (16.7"L x 1.18"W x 1.0"H)
49151	QTP1x80T5HO/UNVPSN (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-1S80 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	ES4515K (1 Lamp) (16.65"L x 1.24"W x 1.0"H) (Mounting 16.3")		N/A
<b>QUICKTRONIC PROFESSIONAL T5 PROStart UNIVERSAL VOLTAGE SYSTEMS</b>					
28W T5 - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)					
49181	QTP2x28T5/UNVPSN (1 Lamp) (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S28 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B228PUNV-C (1 Lamp) (14.25"L x 1.18"W x 1.0"H) (Mounting 13.75")		N/A
49181	QTP2x28T5/UNVPSN (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S28 (1 Lamp) (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B228PUNV-C (1 Lamp) (14.25"L x 1.18"W x 1.0"H) (Mounting 13.75")		N/A
<b>QUICKTRONIC PROStart T5HO UNIVERSAL High Ambient Temp.</b>					
T5 HO - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)					
49136	QTP 2x54T5HO/UNV PSN HT	ICN-2S54-90C	B254PUNV-D		EP2/54HO/PRS/MV/90C
T5 HO - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)					
49161	QTP 4x54T5HO/UNV PSN HTW	ICN-4S54-90C	B454PUNV-E		N/A
<b>QUICKTRONIC PROStart T5HO 347-480V High Ambient Temp.</b>					
T5 HO - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)					
49146	QTP 2x54T5HO/347-480 PSN HT (16.73"L x 1.18"W x 1.0"H) (Mounting 16.34")	HCN-2S54-90C (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B254PHRV-E (16.88"L x 1.74"W x 1.18"H) (Mounting 16.28")		N/A
<b>QUICKTRONIC HIGH EFFICIENCY INSTANT START DL40 UNIVERSAL VOLTAGE SYSTEMS</b>					
40W TT5 High Efficiency Instant Start - Small Can					
49428	QHE 1x40DL/UNV ISN-SC	N/A	N/A	N/A	N/A
49429	QHE 2x40DL/UNV ISN-SC	N/A	N/A	N/A	N/A
49430	QHE 3x40DL/UNV ISN-SC	N/A	N/A	N/A	N/A
<b>QUICKTRONIC PROFESSIONAL PROStart DL40</b>					
40W TT5 Programmed Rapid Start - Normal Ballast Factor - <10% THD					
50320	QTP1x40TT5/120PSN-F	REL-1TTS40	C240PUNVHP-B (1 Lamp)	C240PUNVHP-B (1 Lamp)	N/A
50330	QTP1x40TT5/277PSN-F	VEL-1TTS40	C240PUNVHP-B (1 Lamp)	C240PUNVHP-B (1 Lamp)	N/A
50340	QTP2x40TT5/120PSN-F	REL-2TTS40	C240PUNVHP-B	C240PUNVHP-B	N/A
50350	QTP2x40TT5/277PSN-F	VEL-2TTS40	C240PUNVHP-B	C240PUNVHP-B	N/A
50360	QTP3x40TT5/120PSN-B	N/A	N/A	N/A	N/A
50370	QTP3x40TT5/277PSN-B	N/A	N/A	N/A	N/A

The smart electronics in SYLVANIA QUICKTRONIC® ballasts allow them to outperform the competition.

Item Number	OSRAM SYLVANIA	Advance	U.L.T.	ESI (Energy Savings Inc is out of business)	Robertson
<b>QUICKTRONIC PROFESSIONAL CF - UNIVERSAL VOLTAGE DUAL ENTRY</b>					
CF T4 PROStart® - Programmed Rapid Start - Normal Ballast Factor - <10%THD <sup>1</sup> - CFL products run multiple lamp combinations and have various mounting/case styles - please refer to actual product specs.					
51818	QTP 1/2x13CF/UNV	ICF-2S13-H1-LD	C213UNV-BE C213UNV-SE	ES-2/1-CFQ-13/10-UNV-C	PSM213CQMVB
51823	QTP 1/2x18CF/UNV	ICF-2S18-H1-LD ICF-2S18-H1-LD	C218UNV-BE C218UNV-SE	ES-2/1-CFQ-18-UNV-C ES-2/1-CFQ-18-UNV-D	PSM218CQMVB PSM218CQMV
51833	QTP 2x26CF/UNV	ICF-2S26-H1-LD	C2642UNV-SE	ES-2/1-CFQ-26-UNV-D	PSG242TRMV
51898	QTP 2x26CF/UNV PEM	ICF-2S26-H1-LD	C2642UNV-SE	ES-2/1-CFQ-26-UNV-D	PSG242TRMV
51843	QTP 2x26/32/42CF/UNV M	ICF-2S42-M2-LS ICF- 2S42-M2-LD	C242UNV-BE	ES-2-CFH-42/32/26-UNV-H	PSG242TRMVB
51863	QTP 2x26/32/42CF/UNV M PEM	ICF-2S42-M2-BS	C242UNV-BES	N/A	PSG242TRMVB
CF T4 PROStart - Programmed Rapid Start - Normal Ballast Factor - <10%THD <sup>1</sup> QTP CF models above replace shaded item numbers below. CFL products run multiple lamp combinations and have various mounting/case styles - please refer to actual product specs.					
51718	QTP1/2x13CF/UNVBS	ICF-2S13-H1-LD	C213UNV-BE	ES-2/1-CFQ-13/10-UNV-C	PSM213CQMVB
51748	QTP1/2x13CF/UNVTS	ICF-2S13-H1-LD	C213UNV-SE	ES-2/1-CFQ-13/10-UNV-D	PSM213CQMV
51723	QTP1/2x18CF/UNVBS	ICF-2S18-H1-LD	C218UNV-BE	ES-2/1-CFQ-18-UNV-C	PSM218CQMVB
51753	QTP1/2x18CF/UNVTS	ICF-2S18-H1-LD	C218UNV-SE	ES-2/1-CFQ-18-UNV-D	PSM218CQMV
51733	QTP2x26CF/UNVBS	ICF-2S26-H1-LD	C2642UNV-BE	ES-2/1-CFQ-26-UNV-C	PSG242TRMVB
51763	QTP2x26CF/UNVTS	ICF-2S26-H1-LD	C2642UNV-SE	ES-2/1-CFQ-26-UNV-D	PSG242TRMV
51743	QTP2x26/32/42CF/UNVBM	ICF-2S42-M2-LS	C242UNV-BE	ES-2-CFH-42/32/26-UNV-H	PSG242TRMVB
51803	QTP2x26/32/42CF/UNVPM	ICF-2S42-M2-BS	C242UNV-BES	N/A	PSG242TRMVB
51773	QTP2x26/32/42CF/UNVTM	ICF-2S42-M2-LD	C242UNV-SE	ES-2-CFH-42/32/26-UNV-G	N/A
51740	QTP1x57CF/UNVBM (1X57)	ICF-2S42-M2-LS	C242UNV-BE	N/A	N/A
51740	QTP1x57CF/UNVBM (1X70)	ICF-1Q70-M3-LD	C242UNV-BE	N/A	N/A
51800	QTP1x57CF/UNVPM (1X57)	ICF-2S42-M2-BS	C242UNV-BES	N/A	N/A
51800	QTP1x57CF/UNVPM (1X70)	ICF-1Q70-M3-BS	C242UNV-BES	N/A	N/A
<b>Item Number</b>	<b>OSRAM SYLVANIA</b>	<b>Advance</b>	<b>U.L.T. Universal Lighting Technologies (formerly Magnetek)</b>		
<b>QUICKTRONIC PROFESSIONAL 40T12</b>					
40 T12 Rapid Start - Normal Ballast Factor - <10% THD					
50684	QTP1x40T12/120RSN-SC	REL-1S40-SC (REL-1S40-RH-TP)		B140R120HP	
50685	QTP1x40T12/277RSN-SC	VEL-2S40-SC (VEL-1S40-RH-TP)		B140R277HP	
50686	QTP2x40T12/120RSN-SC	REL-2S40-SC , RCN-2S40, REL-2S40-RH-TP		B240R120HP	
50687	QTP2x40T12/277RSN-SC	VEL-2S40-SC, VCN-2S40, VEL-2S40-RH-TP		B240R277HP	
50688	QTP3x40T12/120RSN	REL-3S40-RH-TP		B340R120HP	
50689	QTP3x40T12/277RSN	VEL-3S40-RH-TP		B340R277HP	
<b>QUICKTRONIC 8 foot T12 Systems</b>					
96 T12 Instant Start - Normal Ballast Factor - Large Can - <20% THD					
49881	QT2x96/120IS	REL-2P60-S		B2601120RH	
49882	QT2x96/277IS	VEL-2P75-S		B2601277RH	
96 T12/HO Rapid Start - Normal Ballast Factor - Large Can - <20% THD					
49883	QT2x96/120HO	REL-2S110		B295SR120HP	
49884	QT2x96/277HO	VEL-2S110		B295SR277HP	

# Electronic Ballast Cross Reference Guide QUICKCROSS

The smart electronics in SYLVANIA QUICKTRONIC® ballasts allow them to outperform the competition.

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA POWERSENSE® (2 wire Powerline & 0-10V) (120-277V)	Advance		U.L.T. (formerly Magnetek) Universal Lighting Technologies		LUTRON	
		Mark 10 (2 wire) Powerline (Dedicated Voltage)	Mark 7 (0-10V) (120-277V)	Ballastar (0-10V) (Dedicated Voltage)	Superdim (0-10V) (120-277V)	Tu-wire (Powerline) Dedicated Voltage Models Only	Eco-10 TVE (0-10V)

## QUICKTRONIC POWERSENSE T8 DIMMING UNIVERSAL VOLTAGE

32 T8 Dimming Systems - High Efficiency

50705	QTP 1x32T8/UNV DIM-TC	REZ-132-SC (120V)	IZT- 132-SC	B132R120V5	ES5821B	2W-T832-120-1	TVE-T832-120-1
		VEZ-132-SC (277V)		B132R277V5	ES5835K		TVE-T825-120-1
					ES5833B		TVE-T817-120-1
					ES5818K		TVE-T832-277-1
50707	QTP 2x32T8/UNV DIM-TC	REZ-2S32-SC(120V)	IZT-2S32-SC	B232SR120V5	ES5822B	2W-T832-120-2	TVE-T832-120-2
		VEZ-2S32-SC (277V)		B232SR277V5	ES5836K		TVE-T832-277-2
					ES5834B		
					ES5817K		
50714	QTP 3x32T8/UNV DIM-TCL	REZ-3S32-SC (120V)	IZT-3S32-SC	B332SR120V5			TVE-T832-120-3
		VEZ-3S32-SC (277V)		B332SR277V5			TVE-T832-277-3
50716	QTP 4x32T8/UNV DIM-TCL		IZT-4S32	N/A			
				B432P277V5-E			

Item Number	OSRAM SYLVANIA POWERSENSE (2 wire Powerline & 0-10V) (120-277V)	Advance		U.L.T. (formerly Magnetek) Universal Lighting Technologies		LUTRON	
		Mark 10 (2 wire) Powerline (Dedicated Voltage)	Mark 7 (0-10V) (120-277V)	Ballastar (0-10V) (Dedicated Voltage)	Superdim (0-10V) (120-277V)	Tu-wire (Powerline) Dedicated Voltage Models Only	Eco-10 TVE (0-10V)

## QUICKTRONIC POWERSENSE T5 DIMMING UNIVERSAL VOLTAGE

28 T5 Dimming Systems - High Efficiency

50726	QTP 2x28T5/UNV DIM-TCL				ES5851K		E3 T514 C120 2
			N/A	N/A	ES5861K		E3 T514 C 277 2
					ES5847K		E3 T521 C 120 2
							E3 T521 C 277 2
							ECO-T528-120-2
							ECO-T528-277-2

Item Number	OSRAM SYLVANIA	Advance	U.L.T.	Lutron
			Universal Lighting Technologies (formerly Magnetek)	

## QUICKTRONIC PROFESSIONAL 54 T5HO HELIOS™ DIMMING - A list of 0-10V controllers is available from OSRAM SYLVANIA

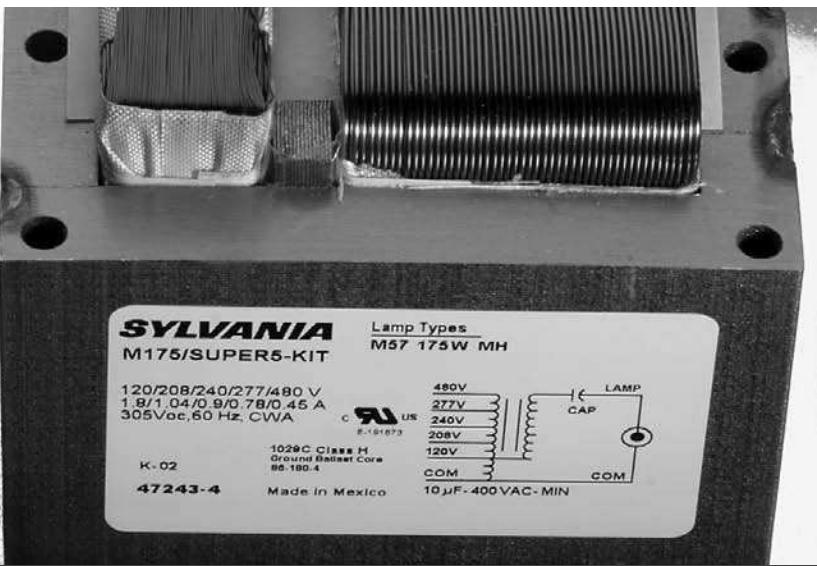
54 T5 HO Dimming Systems (0-10Vdc control) - 100-1% Dimming Range -<10% THD at full output, <20% THD at full dim

49671	QT1x54/120PHO-DIM	RZT-154	N/A	ECO T554-120-1
49672	QT1x54/277PHO-DIM	VZT-154	N/A	ECO T554-277-1
49673	QT2x54/120PHO-DIM	RZT-2S54	N/A	ECO T554-120-2
49674	QT2x54/277PHO-DIM	VZT-2S54	N/A	ECO T554-277-2

The smart electronics in SYLVANIA QUICKTRONIC® ballasts allow them to outperform the competition.

ELECTRONIC BALLASTS

Item Number	OSRAM SYLVANIA		U.L.T. Universal Lighting Technologies (formerly Magnetek)			AROMAT		Hatch	
		Advance							
<b>QUICKTRONIC PROFESSIONAL MH<sup>+</sup></b>									
METALARC® Metal Halide Universal Voltage - Operates Ceramic and Most Quartz MH Lamp									
51908	QTP1X20MH/UNV F	N/A	N/A	N/A	M2012-27CK-5EUF	MC20-1-F-UNIU			
51909	QTP1X20MH/UNV J	N/A	N/A	N/A	M2012-27CK-5EUJ	MC20-1-J-UNIU			
51968	QTP2X20MH/UNV F	N/A	N/A	N/A	N/A	MC20-2-F-UNNU			
51969	QTP2X20MH/UNV J	N/A	N/A	N/A	N/A	MC20-2-J-UNNU			
51910	QTP1X39MH/UNV F	IMH-50-A-LF	N/A	N/A	M3912-27CK-5EUF	MC39-1-F-UNIU			
51911	QTP1X39MH/UNV J	IMH-50-A-BLS	N/A	N/A	M3912-27CK-5EUJ	MC39-1-J-UNIU			
51970	QTP2X39MH/UNV F	IMH-239-A-LF	N/A	N/A	N/A	MC39-2-F-UNNU			
51971	QTP2X39MH/UNV J	IMH-239-A-BLS	N/A	N/A	N/A	MC39-2-J-UNNU			
51912	QTP1X70MH/UNV F	IMH-70-D-LF	EC70UNVSE	N/A	M7012-27CK-5EUF	MC70-1-F-UNIU			
51913	QTP1X70MH/UNV J	IMH-70-D-BLS	EC70UNVBS	N/A	M7012-27CK-5EUJ	MC70-1-F-UNIU			
51914	QTP1X100MH/UNV F	IMH-100-D-LF	EC100UNVSE	N/A	M10012-27CK-5EUF	MC100-1-F-UNIU			
51915	QTP1X100MH/UNV J	IMH-100-D-BLS	EC100UNVBS	N/A	M10012-27CK-5EUJ	MC100-1-J-UNIU			
Item Number	OSRAM SYLVANIA	Advance	Universal Lighting Technologies (formerly Magnetek)	AROMAT	Hatch	GE	Metrolight	Delta Power	
<b>QUICKTRONIC MH<sup>+</sup></b>									
METALARC® Metal Halide									
51958	QT1x20MH 120V SLIM	N/A	N/A	M2012CK-6EUN-F	MC20-1-F-120V	N/A	M20MH-UX-C	N/A	
51959	QT1x20MH UNV SQ	N/A	N/A	M2012CK-6EU-F	MC20-1-F-UNNU	N/A	N/A	N/A	
51960	QT1x39MH 120V SLIM	N/A	N/A	M3912CK-6EUN-F	N/A	N/A	M39MH-UX-C	N/A	
51961	QT1x39MH UNV SQ	IMH-39-G-LF	N/A	M3912CK-6EU-F	MC39-1-F-UNNU	GEMH39-MSF-120	N/A	N/A	
51962	QT1x70MH 120V SLIM	N/A	N/A	M7012CK-6EUN-F	MC70-1-F-120S	GEMH70-SLF-MV	N/A	N/A	
51963	QT1x70MH 120V SQ	N/A	N/A	M7012CK-6EU-F	N/A	GEMH70-MSF-120	N/A	N/A	
51930	QT1x150MH/UNV F	IMH-150-H-LF	EC150UNVASE	M15012-27CK-5EUN-F	N/A	N/A	M150MH-C-UX-US	N/A	
51931	QT1x150MH/UNV J	IMH-150-H-BLS	EC150UNVABM	M15012-27CK-5EUN-J	N/A	N/A	M150MH-S-UX-US	N/A	
Item Number	OSRAM SYLVANIA	Advance	Universal Lighting Technologies (formerly Magnetek)	GE	Metrolight	Delta Power			
<b>QUICKTRONIC HIGH EFFICIENCY MH<sup>+</sup></b>									
Electronic Metal Halide - 208-277V									
51980	QHE1X200MH 208-277V	IMH-200-C-LF	N/A	N/A	N/A	BA200M1A77DQ			
51981	QHE1X250MH 208-277V	N/A	EP250MRVASE	GE-MH-400-MAX-208-277	N/A	BA250M1A77DQ			
51982	QHE1X320MH 208-277V	IZTEMH4003PS	EP320MRVASE	GE-MH-400-MAX-208-277	M320MH-3-US-C-ND	BA320M1A77DQ			
51983	QHE1X350MH 208-277V	IZTEMH4003PS	EP350MRVASE	GE-MH-400-MAX-208-277	M350MH-3-US-C-ND	BA350M1A77DQ			
51984	QHE1X400MH 208-277V	IZTEMH4003PS	EP400MRVASE	GE-MH-400-MAX-208-277	M400MH-3-US-C-ND	BA400M1A77DQ			
<p>† Line voltage, case sizes, wiring diagrams and performance specifications may vary; please refer to manufacturer's specifications.</p> <p><b>PLEASE NOTE:</b></p> <p>This cross reference guide is intended as an aid for identifying comparable products as a convenience to the user. OSRAM SYLVANIA does not warrant or guarantee the accuracy or correctness of the content. Case sizes, wiring diagrams and performance specifications may vary, please refer to manufacturers specifications. Please refer to the OSRAM SYLVANIA catalog for verification of product specifications appropriate for the application. Information in this cross reference is subject to change at any time without prior notice. Please contact 1-800-LIGHTBULB or www.sylvania.com for additional information.</p>									



**SYLVANIA** Lamp Types  
**M175/SUPER5-KIT** M57 175W MH

120/208/240/277/480 V  
 1.8/1.04/0.9/0.78/0.45 A  
 305Voc, 60 Hz, CWVA

480V  
 277V  
 240V  
 208V  
 120V  
 COM

1028C Class H  
 Ground Release Core  
 86-180-4

K-02  
**47243-4** Made in Mexico

10µF-400VAC-MIN

Diagram: LAMP, CAP, COM

MAGNETIC BALLASTS

# Magnetic Ballasts

## Simplified Solutions

OSRAM SYLVANIA is focused on helping our customers understand our products, and to simplifying their use and applications. SYLVANIA magnetic fluorescent product labels include an industry first — a handy cross-reference guide to help identify the proper ballast for replacing existing installed products. The line voltage is also clearly identified to ensure proper application, and our shipping carton labels are also color coded to indicate the voltage to help avoid misapplication even before the ballasts are out of the box.

## Magnetic Ballasts

OSRAM SYLVANIA offers a wide range of Magnetic Ballast Products to support our customers with SYLVANIA brand lighting products. This array of products will allow our customers a broad selection of Magnetic ballasts to choose from to operate their SYLVANIA brand lamps.

- HID Magnetic SUPER 5 Kits
- Magnetic Fluorescent Sign Ballasts
- Pulse Start HID Ballasts
- F-Can HID Ballasts
- Indoor Enclosed HID Ballasts

Complete performance data is available in the Magnetic Ballast Catalog and at [www.sylvania.com](http://www.sylvania.com).

## Magnetic Fluorescent Ballasts

High quality products for most general applications - i.e. T12, T9, T8, and T5 lamps

## Magnetic Fluorescent Sign Ballasts

T12 high output magnetic ballasts for sign applications are designed to meet or exceed industry standards and requirements for the sign business.

## Magnetic HID Ballasts

### HID Magnetic Ballast Kits

Easy to use replacement kits for the range of metal halide, pulse start metal halide, high pressure sodium and mercury lamps. Kits include core and coil, capacitors and ignitors (where required), brackets and mounting hardware.

Our **SUPER 5 HID Kits** have 120, 208, 240, 277 and 480V input voltage taps to reduce the number of models in inventory.

### F-Can HID Ballasts

F-Can ballasts for indoor applications operate a range of metal halide, pulse start metal halide and high pressure sodium lamps with minimal noise.

### METALARC® Indoor Enclosed HID Ballasts

Indoor Enclosed ballasts for indoor applications where remote mounting is required.

SYLVANIA Magnetic HID ballast descriptions are based on the corresponding lamp description to make lamp/ballast matching and identification easier.

All fluorescent and HID carton labels also identify the corresponding lamp/ballast matching to make proper product selection as clear and as simple as possible.







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## Magnetic Ballasts

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### HID Magnetic Ballast Replacement Parts and Lamp & Ballast Kits

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### Ease of Use

The Magnetic section of the Product Line Guide provides our customers with OSRAM SYLVANIA product information as well as competitive manufacturers' cross reference catalog numbers. OSRAM SYLVANIA is focused on providing information to our customers, which will aid in the selection of the appropriate ballast for the desired application. The manufacturer's cross reference will help identify the proper ballast for the replacement of existing installed products.

OSRAM SYLVANIA customers can rely on one source for information on both lamps and ballasts. Having one source for lamps and ballasts reduces the time required for sorting out technical details and product specifications.

### Magnetic Ballast Warranty

All SYLVANIA HID and Fluorescent Sign Ballasts are guaranteed for up to 2 years. SYLVANIA Fluorescent Ballasts are guaranteed for up to 3 years. For Magnetic Ballast Limited Warranty details, go to [www.sylvania.com](http://www.sylvania.com)



# Energy Legislation Update

**On April 1, 2005** the 2000 Federal Ballast Efficacy Regulations were implemented to raise the minimum Ballast Efficacy Factor (BEF) for T12 fluorescent ballasts. The ruling affects only high power factor fluorescent ballasts for:

- One or two F40T12 and F40T12/U lamps operated on a 120 or 277V ballast
- Two F96T12 lamps operated on a 120 or 277V ballast
- Two F96T12HO lamps operated on a 120 or 277V ballast

**On August 8, 2005**, the Energy Policy Act of 2005 (EPAAct 2005) was signed. EPAAct 2005 addresses ballasts for reduced wattage T12 lamps not originally covered in the original 2000 Federal Ballast Efficacy Regulations. Minimum

ballast efficacy standards for ballasts capable of operating full and reduced wattage F40T12, F40T12/U, F96T12 and F96T12HO lamps have been set in EPAAct 2005. The levels set deadlines for the cessation of production of inefficient ballasts and the gradual phase out of replacement units.

Listed below is the essential timetable for the 2000 Federal Ballast Efficacy Regulations and EPAAct 2005 for Fixture Manufacturers, Residential Markets and Distributors (Replacement Market).

## Residential Market

T12 magnetic fluorescent normal power factor ballasts designed for residential applications were not affected by either ruling. However, ballasts sold must be marked *“For Residential Use Only”*.

### FIXTURE MARKET (OEM)

	2000 Federal Ballast Efficacy Regulation	EPAAct 2005
<b>Action</b>	<b>2005 BEF Standards for Full-Wattage T12 Lamps (F40T12, F40T12/U, F96T12 and F96T12HO)</b>	<b>2009 BEF Standards for Energy-Saving T12 Lamps (F40T12, F40T12/U, F96T12 and F96T12HO)</b>
Ballast manufacturers can no longer make ballasts that do not pass the new requirements for use in new fixtures.	April 1, 2005	July 1, 2009
Ballast manufacturers cannot sell ballasts that do not pass the new requirements to U.S. fixture manufacturers.	July 1, 2005	October 1, 2009
Fixture manufacturers cannot sell fixtures that include ballasts that do not pass the new requirements.	April 1, 2006	July 1, 2010

## DISTRIBUTOR / REPLACEMENT MARKET

### 2000 Federal Ballast Efficacy Regulations

Ballast manufacturers can manufacture and sell to distributors, fluorescent ballasts for Full-Wattage F40T12, F40T12/U, F96T12 and F96T12HO that do not meet the minimum Ballast Efficacy Factor (BEF) until July 1, 2010. However, the ruling stipulates these ballasts must meet the following criteria:

- Ballasts must be marked  
*"For Replacement Use Only"*
- Ballasts are only available with short leads
- Ballasts are to be in packages not exceeding ten ballasts

### EPAct 2005

#### Magnetic Fluorescent Ballasts

On July 1, 2009 EPAAct 2005 states that ballast manufacturers can manufacture and sell to distributors, fluorescent ballasts for Energy-Saving F40T12, F40T12/U, F96T12 and F96T12HO that do not meet the minimum Ballast Efficacy Factor (BEF) until July 1, 2010. As of July 1, 2009 energy-saving T12 ballasts manufactured and sold for replacement use must also meet the requirements listed above.

#### Mercury Vapor Ballasts

EPACT 2005 also states that Mercury Vapor Ballasts cannot be manufactured after January 1, 2008. Complete information on EPAAct 2005 is available in The Impact of EPAAct 2005 brochure (SYLVANIA literature code: EPACT2005) and at [www.sylvania.com](http://www.sylvania.com)

OSRAM SYLVANIA will continue to supply the Magnetic Fluorescent Ballasts listed below for T12 lamps until July 1, 2010 (for replacement purposes only):

Item #	OSRAM SYLVANIA Description*	Page #
48011	MB1x40/120RS-SRNK	198
48120	MB1x40/277RS-SRNK	198
48001	MB2x40/120RS-SRNK	198
48121	MB2x40/277RS-SRNK	198
48025	MB2x96/HO/120RS-SRNK	198
48027	MB2x96/HO/277RS-SRNK	198
48018	MB2x96/120IS-SRNK	199
48126	MB2x96/277IS-SRNK	199

\*These ballasts will all be labeled *"For Replacement Use Only"*, have shorter lead lengths and are individually shrink-wrapped.

OSRAM SYLVANIA is committed to understanding your lighting needs by offering a variety of lighting solutions. For additional product or industry information contact 1-800-LIGHTBULB or visit our website at [www.sylvania.com](http://www.sylvania.com).

# Magnetic Fluorescent Ballasts

MAGNETIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	No. of Lamps	Lamp Types	Input Power (Watts) <sup>1</sup>	Advance Catalog # <sup>2</sup>	Universal Lighting Technologies* Catalog # <sup>2</sup>	Valmont Catalog # <sup>2</sup>
<b>T8 RAPID START</b>								
<b>F017T8 Rapid Start - High Power Factor</b>								
48312	MB1x17/120RS	120	1	F017T8, FB016T8/U	31	R1P817TP	707TCP	8G4177W
<b>F025T8 or F032T8 Rapid Start - High Power Factor</b>								
48096	MB1x25/32/120RS-LW	120	1	F032T8, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	35	---	M132R120 <sup>4</sup>	---
48240	MB1x25/32/120RS-SRINK	120	1	F032T8, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	44	R1P825TP <sup>4</sup> & R1P32TP Mark III <sup>4</sup>	727LTCP <sup>4</sup> & M132R120 <sup>4</sup>	---
48241	MB1x25/32/277RS-SRINK	277	1	F032T8, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	43	V1P825TP <sup>4</sup> & V1P32TP Mark III <sup>4</sup>	728LTCP <sup>4</sup> & M132R277C <sup>4</sup>	---
48242	MB2x25/32/120RS-SRINK	120	2	F032T8, FB032T8/U, FB031T8/U, F025T8, FB024T8/U	74	R2P825TP <sup>4</sup> & R2P32TP Mark III <sup>4</sup>	731LTCP <sup>4</sup> & M232SR120C <sup>4</sup>	8G4126W18
48243	MB2x25/32/277RS-SRINK	277	2	F032T8, FB032T8/U, FB031T8/U, F025T8, FB024T8/U	75	V2P825TP <sup>4</sup> & V2P32TP Mark III <sup>4</sup>	732LTCP <sup>4</sup> & M232SR277C <sup>4</sup>	8G4136W18
<b>T12 RAPID START</b>								
<b>F30T12 Rapid Start - High Power Factor</b>								
48409	MB2x30/120RS-SRINK	120	2	F30T12, F25T12/SS	80, 70	R2SP30TP Mark III	573LTCP	8G3971W
48410	MB2x30/277RS-SRINK	277	2	F30T12, F25T12/SS	80, 70	V2SP30TP Mark III	588LTCP	8G3972W
48397	MB2x30/40/120RS	120	2	F30T12, F25T12/SS, F40T10, FC12T9 & FC16T9	66, 57	RC2SP40TP	W589DTCP	---
<b>F40T12 Rapid Start - High Power Factor</b>								
48011 ▲	MB1x40/120RS-SRINK	120	1	F40T12, F34T12 <sup>†</sup> , FB34T12/U, FB40T12/U, F40T10, F30T12	50, 44	R140TP Mark III	412LSLHTCP	8G1074W
48120 ▲	MB1x40/277RS-SRINK	277	1	F40T12, F34T12 <sup>†</sup> , FB34T12/U, FB40T12/U, F40T10, F30T12	50, 44	V140TP Mark III	458LSLHTCP	8G1084W
48001 ▲	MB2x40/120RS-SRINK	120	2	F40T12, F34T12, FB34T12/U, FB40T12/U, F40T10	87, 73	R2S40TP Mark III	446LSLHTCP	8G1024W
48121 ▲	MB2x40/277RS-SRINK	277	2	F40T12, F34T12, FB34T12/U, FB40T12/U, F40T10	89, 77	V2S40TP Mark III	443LSLHTCP	8G1034W
<b>F40T12 Rapid Start - Normal Power Factor - For Residential Use Only</b>								
48210	MB1x40/120RES-SRINK	120	1	F40T12, F30T12, FC12T9, FC16T9	31	RL140TP	413CTCP	8G1075
<b>T12/HO RAPID START</b>								
<b>F96T12/HO Rapid Start - High Power Factor</b>								
48127	MB1x96/HO/120RS-SRINK	120	1	F96T12/HO, F96T12/HO/SS(95W), F84T12/HO, F72T12/HO, F64T12/HO, F60T12/HO, F48T12/HO, F42T12/HO, F36T12/HO, F30T12/HO, F24T12/HO, F18T12/HO	136, 117	RS110TP	481LHTCP	8G3900W
48128	MB1x96/HO/277RS-SRINK	277	1	F96T12/HO, F96T12/HO/SS(95W), F84T12/HO, F72T12/HO, F64T12/HO, F60T12/HO, F48T12/HO, F42T12/HO, F36T12/HO, F30T12/HO, F24T12/HO, F18T12/HO	138, 122	VS110TP	479LHTCP	8G4200WF
48025 ▲	MB2x96/HO/120RS-SRINK	120	2	F96T12/HO, F96T12/HO/SS(95W), F84T12/HO, F72T12/HO, F64T12/HO, F60T12/HO, F48T12/HO, F42T12/HO, F36T12/HO, F30T12/HO, F24T12/HO, F18T12/HO	243, 211	R2S110TP Mark III	480SLHTCP	8G1144W
48027 ▲	MB2x96/HO/277RS-SRINK	277	2	F96T12/HO, F96T12/HO/SS(95W), F84T12/HO, F72T12/HO, F64T12/HO, F60T12/HO, F48T12/HO, F42T12/HO, F36T12/HO, F30T12/HO, F24T12/HO, F18T12/HO	242, 218	V2S110TP Mark III	487SLHTCP	8G1154W
48151	MB1/2x48/96/HO/120RS-SRINK/IN	120	1 or 2	F48T12/HO, F96T12/HO, F72T12/HO, F60T12/HO, F84T12/HO, F36T12/HO, F24T12/HO	154	RS110TP	490XLHTCP	---
<b>T12/HO SIGN BALLASTS</b>								
<b>T12/HO Rapid Start</b>								
48225	MSB-12-0412-TP	120	1-2	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. <sup>3</sup>	182	ASB-0412-12-BL-TP	USB-0412-12	6G3901WF
48226	MSB-24-0620-TP	120	2-4	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. <sup>3</sup>	282	ASB-0620-24-BL-TP	USB-0816-14	6G3814WF
48227	MSB-24-1224-TP	120	2-4	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. <sup>3</sup>	290	ASB-1224-24-BL-TP	USB-1024-14	6G3959WF
48228	MSB-24-2040-TP	120	2-4	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. See wiring diagram for further wiring instructions. <sup>3</sup>	471	ASB-2040-24-BL-TP	USB-1632-24	6G3782WF
48229	MSB-46-1240-TP	120	4-6	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. See wiring diagram for further wiring instructions. <sup>3</sup>	466	ASB-1240-46-BL-TP	USB-2036-46	6G3787AUF
48232	MSB-46-2448-TP	120	4-6	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements. See wiring diagram for further wiring instructions. <sup>3</sup>	588	ASB-2448-46-BL-TP	USB-2048-46	6G3942AW

OSRAM SYLVANIA National Customer Service and Sales Center

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Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	No. of Lamps	Lamp Types	Input Power (Watts) <sup>1</sup>	Advance Catalog # <sup>2</sup>	Universal Lighting Technologies* Catalog # <sup>2</sup>	Valmont Catalog # <sup>2</sup>
<b>J-BOX COVER</b>								
For Sign & F-Can Ballasts								
48275	JBox Cover					PC-875W	---	---
<b>T12/VHO RAPID START</b>								
F96T12/VHO Rapid Start - High Power Factor								
48129	MB1x96/VHO/120RS-SRNK	120	1	<b>F96T12/VHO, F96T12/VHO/SS(195W), F72T12/VHO, F60T12/VHO, F48T12/VHO</b>	218, 200	RC2S102TP <sup>4</sup>	951STCP	8G3927WF
48130	MB1x96/VHO/277RS-SRNK	277	1	<b>F96T12/VHO, F96T12/VHO/SS(195W), F72T12/VHO, F60T12/VHO, F48T12/VHO</b>	212, 192	VC2S102TP <sup>4</sup>	957STCP	8G3990WF
48131	MB2x96/VHO/120RS-SRNK	120	2	<b>F96T12/VHO, F96T12/VHO/SS(195W), F72T12/VHO, F60T12/VHO, F48T12/VHO</b>	452, 408	RS2S200TP	930KTCP	8G1201W
48132	MB2x96/VHO/277RS-SRNK	277	2	<b>F96T12/VHO, F96T12/VHO/SS(195W), F72T12/VHO, F60T12/VHO, F48T12/VHO</b>	423, 380	VS2S200TP	937KTCP	8G1211W
<b>T9 CIRCLINE RAPID START</b>								
FC8T9 Circline Rapid Start - Normal Power Factor								
48230	MB1x22/120CIRC-SRNK	120	1	<b>FC8T9</b>	29	RLQS122TPW	547RSWSTCP	8G1091G11
FC12T9 or FC16T9 Circline Rapid Start - Normal Power Factor								
48231	MB1x32/120CIRC-SRNK	120	1	<b>FC12T9, FC16T9</b>	31	RLCS140TPW	445RSWSTCP	8G1085G11
48210	MB1x40/120RES-SRNK	120	1	<b>FC12T9, FC16T9, F40T12, F30T12</b>	31, 32	RL140TP	---	---
FC12T9 & FC16T9 Circline Rapid Start - High Power Factor								
48397	MB2x30/40/120RS	120	2	<b>FC12T9 &amp; FC16T9, F40T10, F30T12, F25T12/SS</b>	71	---	---	---
<b>T12 INSTANT START SLIMLINE</b>								
F48T12 Instant Start - High Power Factor								
48122	MB2x48/120IS-SRNK	120	2	<b>F48T12, F48T12/SS(32W)</b>	87, 78	SM2E40STP	213TCP	8G1600W
48123	MB2x48/277IS-SRNK	277	2	<b>F48T12, F48T12/SS(32W)</b>	88, 81	VSM2E40STP	532BRTCP	8G1710W
F96T12 Instant Start - High Power Factor								
48124	MB1x96/120IS-SRNK	120	1	<b>F96T12, F96T12/SS(60W), F84T12, F72T12, F64T12, F60T12</b>	101, 87	RSM175STP	822BRTCP	8G1762W
48125	MB1x96/277IS-SRNK	277	1	<b>F96T12, F96T12/SS(60W), F84T12, F72T12, F64T12, F60T12</b>	101, 86	VSM175STP	828BRTCP	8G1764W
48018 ▲	MB2x96/120IS-SRNK	120	2	<b>F96T12, F96T12/SS(60W), F84T12, F72T12, F64T12, F60T12</b>	160, 135	R2E75STP Mark III	806SLHTCP	8G1004W
48126 ▲	MB2x96/277IS-SRNK	277	2	<b>F96T12, F96T12/SS(60W), F84T12, F72T12, F64T12, F60T12</b>	162, 140	V2E75STP Mark III	827SLHTCP	8G1014W
<b>T5, T8 and T12 PREHEAT START</b>								
F8T5 Preheat Start - Normal Power Factor								
48475	MB1x8/120PH/TP/S-SRNK	120	1	<b>F8T5, F4T5, F6T5</b>	10	LSX113TP <sup>4</sup>	---	89G489
F20T12 Preheat Start - Normal Power Factor								
48201	MB1x20/120PH/TP	120	1	<b>F20T12, F14T8, F14T12, F15T8, F15T12</b>	22	LC1420CTP	200H2P	---
48202	MB1x20/120PH	120	1	<b>F20T12, F14T8, F14T12, F15T8, F15T12</b>	22	LC1420C	200H2	89G457
<b>T8 and T12 TRIGGER START</b>								
F15T12 Trigger Start - Normal Power Factor								
48200	MB1x15/120PH/TP-SRNK	120	1	<b>F15T12, F14T8, F14T12, F15T8, F20T12</b>	33	RLQ120TP	546BTCP	8G3560
F20T12 Trigger Start - Normal Power Factor								
48203	MB2x20/120PH/TP-SRNK	120	2	<b>F20T12, F14T8, F14T12, F15T8, F15T12</b>	41	RL2SP20TP	447LRTCP	8G3912

\* Formerly MagneTek Lighting

▲ For Replacement Use Only

† Operating only 1 Energy Saver lamp on this ballast may effect the operation and life of the lamp. Consult individual lamp manufacturer for lamp specifications

1: Input Power (Watts) for primary lamp type and SUPERSAVER® equivalent, (where applicable). Primary lamp type and SUPERSAVER® equivalent in bold print.

2: This data is intended as an aid for identifying comparable products for the lamp types listed as a convenience to the user. OSRAM SYLVANIA does not warrant or guarantee the accuracy or correctness of the content. Case sizes, wiring diagrams and performance specifications may vary, please refer to manufacturers specifications. Please refer to the OSRAM SYLVANIA Magnetic Ballast catalog for verification of product specifications appropriate for the application.

3: Refer to SYLVANIA Sign Ballast Specification Sheet for detailed lamp configuration. Maximum Input Power (Watts) are listed.

4: Nearest Equivalent - Performance specifications may vary, please refer to manufacturer's specifications.

More complete product information is available in the SYLVANIA Magnetic Ballast Catalog or at [www.sylvania.com](http://www.sylvania.com)

**SPECIFICATIONS:**

Information is subject to change at anytime without prior notice.

MAGNETIC BALLASTS

# Magnetic HID Ballasts

MAGNETIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog # <sup>8</sup>	Universal Lighting Technologies* Catalog # <sup>8</sup>	Venture Lighting Catalog # <sup>8</sup>	Howard Industries Catalog # <sup>8,9</sup>
<b>METALARC® METAL HALIDE CORE &amp; COIL BALLAST KITS</b>								
<b>175W Metal Halide Lamp - ANSI Code M57</b>								
47243	M175/SUPER5-KIT	120/208/ 240/277/480	CWA	210	---	M175ML5AC3M & M175ML5AC3M-500K	---	M017581C212
47735	M175/MULTI-KIT	120/208/ 240/277	CWA	210	71A5590 & 71A5570-001D	M175MLTAC3M & M175MLTAC3M-500K	V90D6111K	M017571C211
47035	M175/480-KIT	480	CWA	210	71A5540 & 71A5540-001D	---	---	---
47253	M175/480/120T-KIT	480/120TAP	CWA	210	71A5540T	M17548TAC3M & M17548TAC3M-500K	---	---
47254	M175/120/277-KIT	120/277	CWA	210	71A5580	---	---	---
<b>250W Metal Halide Lamp - ANSI Code M58</b>								
47265	M250/SUPER5-KIT	120/208/ 240/277/480	CWA	290	71A5750 & 71A5750-001D	M250ML5AC4M & M250ML5AC4M-500K	---	M025081C211
47737	M250/MULTI-KIT	120/208/ 240/277	CWA	290	71A5790 & 71A5770-001D	M250MLTAC4M & M250MLTAC4M-500K	V90D6212K	M025071C211
47611	M250/480-KIT	480	CWA	290	71A5740 & 71A5740-001D	---	---	M025011C211
47268	M250/480/120T-KIT	480/120TAP	CWA	290	71A5740T	M25048TAC4M & M25048TAC4M-500K	V90Y6212TK	M025029C211
47049	M250/MULTI 3X4-KIT	120/208/ 240/277	CWA	294	71A5791 & 71A5771-001D	M250MLTAC3M & M250MLTAC3M-500K	V90D6211K	M025071C212
47050	M250/480-3X4-KIT	480	CWA	294	71A5741 & 71A5741-001D	---	V90Y6211K	M025011C212
<b>400W Metal Halide Lamp or 360W Metal Halide Lamp<sup>10</sup> - ANSI Code M59</b>								
47338	M400/SUPER5-KIT	120/208/ 240/277/480	CWA	458	71A6051 & 71A6051-001D	M400ML5AC4M & M400ML5AC4M-500K	---	M040081C211
47739	M400/MULTI-KIT	120/208/ 240/277	CWA	458	71A6091 & 71A6071-001D	M400MLTAC4M & M400MLTAC4M-500K	V90D6413K	M040071C211
47065	M400/480-KIT	480	CWA	458	71A6041 & 71A6041-001D	M400480AC4M	---	M040011C211
47394	M400/480/120T-KIT	480/120TAP	CWA	458	71A6041T	M40048TAC4M & M40048TAC4M-500K	V90Y6413TK	M040029C211
47075	M2x400/120/240-KIT	120/240	CWA	880	---	---	---	---
<b>1000W Metal Halide Lamp - ANSI Code M47</b>								
47427	M1000/SUPER5-KIT	120/208/ 240/277/480	CWA	1080	71A6552 <sup>8</sup> & 71A6552-001 <sup>6</sup>	M1000ML5AC5M & M1000ML5AC5M-500K	V90AM6514K	---
47744	M1000/MULTI-KIT	120/208/ 240/277	CWA	1080	71A6592 <sup>8</sup> & 71A6572-001 <sup>6</sup>	M1000MLTAC5M & M1000MLTAC5M-500K	V90D6514K	M0100071C212
47655	M1000/480-KIT	480	CWA	1080	71A6542 <sup>8</sup> & 71A6542-001 <sup>6</sup>	M1000480AC5M & M1000480AC5M-500K	---	M0100011C212
47432	M1000/480/120T-KIT	480/120TAP	CWA	1080	71A6542T <sup>6</sup>	M100048TAC5M & M100048TAC5M-500K	V90Y6514TK	---
<b>1500W Metal Halide Lamp - ANSI Code M48</b>								
46808	M1500/MULTI-KIT	120/208/ 240/277	CWA	1605	71A6792 <sup>8</sup> & 71A6772-001 <sup>6</sup>	M1500MLTAC5M & M1500MLTAC5M-500K	V90D6612K	M0150071C212
47095	M1500/480-KIT	480	CWA	1605	71A6742 <sup>8</sup> & 71A6742-001 <sup>6</sup>	M1500480AC5M & M1500480AC5M-500K	---	M0150011C212
47434	M1500/480/120T-KIT	480/120TAP	CWA	1605	---	M150048TAC5M & M150048TAC5M-500K	V90Y6612TK	---
<b>METALARC METAL HALIDE PULSE START CORE &amp; COIL BALLAST KITS</b>								
<b>35W Metal Halide Pulse Start Lamp - ANSI Code M130</b>								
47001	M35/MULTI-HQ/CI-KIT	120/208/ 240/277	CWA	58	---	---	---	---
47203	M35/120/277-KIT	120/277	HX-HPF	54	71A5081	---	---	---
<b>50W Metal Halide Pulse Start Lamp - ANSI Code M110</b>								
47007	M50/MULTI-KIT	120/208/ 240/277	HX-HPF	67	---	M50MLTLC3M & M50MLTLC3M-500K	V90D5731K	---
47204	M50/120/277-KIT	120/277	HX-HPF	67	71A5181 & 71A5181-001D	---	V90H5731K	---
<b>70W Metal Halide Pulse Start Lamp - ANSI Code M98</b>								
47013	M70/MULTI-KIT	120/208/ 240/277	HX-HPF	95	71A5292 & 71A5292-001D	M70MLTLC3M & M70MLTLC3M-500K	V90D5832K	---
47217	M70/120/277-KIT	120/277	HX-HPF	95	71A5282	---	V90H5832K	---
<b>70W Metal Halide Pulse Start Lamp - ANSI Code M98 or M139 or M85</b>								
47645	M70/MULTI-HQ/CI-KIT	120/208/ 240/277	CWA	95	---	---	V90D5810K	---
<b>100W Metal Halide Pulse Start Lamp - ANSI Code M90</b>								
47019	M100/MULTI-KIT	120/208/ 240/277	HX-HPF	130	71A5390 & 71A5390-001D	M100MLTLC3M & M100MLTLC3M-500K	V90D5932K	M010071C511
47219	M100/120/277-KIT	120/277	HX-HPF	130	71A5380	---	V90H5932K	---

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog # <sup>8</sup>	Universal Lighting Technologies* Catalog # <sup>8</sup>	Venture Lighting Catalog # <sup>8</sup>	Howard Industries Catalog # <sup>8,9</sup>
<b>150W Metal Halide Pulse Start Lamp - ANSI Code M102</b>								
47682	M150/MULTI-PS-KIT	120/208/ 240/277	HX-HPF	185	71A5492 & 71A5492-001D	M150MLTLC3M & M150MLTLC3M-500K	V90D7130K	---
47228	M150/120/277-PS-KIT	120/277	HX-HPF	185	71A5482	---	---	---
<b>150W Metal Halide Pulse Start Lamp - ANSI Code M102 or M142</b>								
47640	M150/MULTI-PS-CWA-KIT	120/208/ 240/277	CWA	189	---	---	V90D7110K	---
<b>150W Metal Halide Pulse Start Lamp - ANSI Code M81</b>								
47229	M150/MULTI-KIT	120/208/ 240/277	HX-HPF	185	71A5490	M150MLTLC3D & M150MLTLC3D-500K	---	---
<b>175W Metal Halide Pulse Start Lamp - ANSI Code M137 or M152</b>								
47686	M175/MULTI-PS-KIT	120/208/ 240/277	CWA	208	71A5593 & 71A5593-001D	P175MLTAC3M & P175MLTAC3M-500K	V90D7210K	---
46801	M175/480-PS-KIT	480	CWA	208	---	---	---	---
<b>200W Metal Halide Pulse Start Lamp - ANSI Code M136</b>								
47690	M200/MULTI-PS-KIT	120/208/ 240/277	CWA	232	71A5692 & 71A5692-001D	P200MLTAC3M & P200MLTAC3M-500K	V90D7310K	M020071C611
46802	M200/480-PS-KIT	480	CWA	232	---	---	---	M020011C611
47259	M200/480/120T-PS-KIT	480/120TAP	CWA	232	71A5642T	P20048TAC3M & P20048TAC3M-500K	V90Y7310TK	M020029C611
<b>250W HQI Metal Halide Lamp - ANSI Code M80</b>								
47273	M250/120/277-KIT	120/277	HX-HPF	290	71A5880	---	---	---
<b>250W Metal Halide Pulse Start Lamp - ANSI Code M138 or M153</b>								
47282	M250/SUPERS-PS-KIT	120/208/ 240/277/480	CWA	288	---	P250ML5AC4M	---	---
47112	M250/MULTI-PS-KIT	120/208/ 240/277	CWA	288	71A5792 & 71A5792-001D	P250MLTAC4M & P250MLTAC4M-500K	V90D8410K	M025071C611
47106	M250/480-PS-KIT	480	CWA	288	---	---	---	---
47283	M250/480/120T-PS-KIT	480/120TAP	CWA	288	71A5742T	P25048TAC4M & P25048TAC4M-500K	---	---
<b>320W Metal Halide Pulse Start Lamp - ANSI Code M132 or M154</b>								
47676	M320/MULTI-PS-KIT	120/208/ 240/277	CWA	368	71A5892 & 71A5892-001D	P320MLTAC4M & P320MLTAC4M-500K	V90D7411K	M032071C611
46803	M320/480-PS-KIT	480	CWA	368	---	---	---	---
47303	M320/480/120T-PS-KIT	480/120TAP	CWA	368	71A5842T & 71A5842-001DT	P32048TAC4M & P32048TAC4M-500K	V90Y7411TK	---
<b>350W Metal Halide Pulse Start Lamp - ANSI Code M131</b>								
47695	M350/MULTI-PS-KIT	120/208/ 240/277	CWA	400	71A5993 & 71A5993-001D	P350MLTAC4M & P350MLTAC4M-500K	V90D7512K	M035071C611
47697	M350/480-PS-KIT	480	CWA	400	---	---	---	---
47337	M350/480/120T-PS-KIT	480/120TAP	CWA	400	71A5943T	P35048TAC4M & P35048TAC4M-500K	V90Y7512TK	---
<b>400W Metal Halide Pulse Start Lamp - ANSI Code M155 or M135</b>								
47400	M400/SUPERS-PS-KIT	120/208/ 240/277/480	CWA	452	---	P400ML5AC4M	---	---
47132	M400/MULTI-PS-KIT	120/208/ 240/277	CWA	452	71A6092 & 71A6092-001D	P400MLTAC4M & P400MLTAC4M-500K	V90D7612K	M040071C611
47138	M400/480-PS-KIT	480	CWA	452	---	---	---	M040011C611
47403	M400/480/120T-PS-KIT	480/120TAP	CWA	452	71A6042T	P40048TAC4M & P40048TAC4M-500K	V90Y7612TK	M040029C611
<b>450W Metal Halide Pulse Start Lamp - ANSI Code M144</b>								
47405	M450/MULTI-PS-KIT	120/208/ 240/277	CWA	508	71A6393	P450MLTAC4M & P450MLTAC4M-500K	V90D8512K	---
46804	M450/480-PS-KIT	480	CWA	505	---	---	---	---
47408	M450/480/120T-PS-KIT	480/120TAP	CWA	505	71A6343T	P45048TAC4M & P45048TAC4M-500K	V90Y8511TK	---
<b>750W Metal Halide Pulse Start Lamp - ANSI Code M149</b>								
47717	M750/MULTI-PS-KIT	120/208/ 240/277	CWA	818	71A64E2 <sup>6,7</sup>	P750MLTAC5M & P750MLTAC5M-500K	V90D7910K	---
47409	M750/120/277/347/480-PS-KIT	120/277/ 347/480	CWA	818	71A64F2T <sup>6,7</sup>	---	V90J7910K <sup>7</sup>	---
47718	M750/480-PS-KIT	480	CWA	818	---	---	---	---
<b>1000W HQI<sup>®</sup> Metal Halide Lamp</b>								
47089	M1000/120/277/347/480-HQI-RL	120/277/347/480	Reg. Lag	1150	---	---	---	---
<b>1000W Metal Halide Pulse Start Lamp - ANSI Code M141</b>								
47416	M1000/MULTI-PS-KIT	120/208/ 240/277	CWA	1080	71A6593 <sup>6</sup>	P1000MLTAC5M & P1000MLTAC5M-500K	V90D7810K	---
47417	M1000/120/277/347/480-PS-KIT	120/277/347/480	CWA	1080	71A65F3T <sup>6,7</sup>	---	V90J7810K <sup>7</sup>	---
46805	M1000/480-PS-KIT	480	CWA	1080	---	---	---	---
<b>2000W HQI<sup>®</sup> Metal Halide Lamp</b>								
47090	M2000/277/347/480-HQI-RL	277/347/480	Reg. Lag	2200	---	---	---	---

OSRAM SYLVANIA National Customer Service and Sales Center  
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MAGNETIC BALLASTS



# Magnetic HID Ballasts

MAGNETIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog # <sup>8</sup>	Universal Lighting Technologies* Catalog # <sup>8</sup>	Venture Lighting Catalog # <sup>8</sup>	Howard Industries Catalog # <sup>8,9</sup>
<b>LUMALUX® HIGH PRESSURE SODIUM CORE &amp; COIL REACTOR BALLASTS</b>								
<b>35W High Pressure Sodium Lamp - ANSI Code S76</b>								
47269	LU35/120R	120	R-NPF	45	71A7707	1233-251U	---	---
47537	LU35/120R-INT <sup>5</sup>	120	R-NPF	45	71A7707B	---	---	---
<b>50W High Pressure Sodium Lamp - ANSI Code S68</b>								
47274	LU50/120R	120	R-NPF	60	71A7807	1233-35U	---	---
47548	LU50/120R-INT <sup>5</sup>	120	R-NPF	60	71A7807B	---	---	---
<b>70W High Pressure Sodium Lamp - ANSI Code S62</b>								
47284	LU70/120R	120	R-NPF	81	71A7907	1233-142U	---	---
47558	LU70/120R-INT <sup>5</sup>	120	R-NPF	81	71A7907B	---	---	---
<b>100W High Pressure Sodium Lamp - ANSI Code S54</b>								
47304	LU100/120R	120	R-NPF	120	71A8007	1233-10U	---	---
47585	LU100/120R-INT <sup>5</sup>	120	R-NPF	120	71A8007B	---	---	---
<b>150W High Pressure Sodium Lamp - ANSI Code S55</b>								
47319	LU150/120R	120	R-NPF	170	71A8107	1233-154U	---	---
47616	LU150/120R-INT <sup>5</sup>	120	R-NPF	170	71A8107B	---	---	---
<b>LUMALUX HIGH PRESSURE SODIUM CORE &amp; COIL BALLAST KITS</b>								
<b>35W High Pressure Sodium Lamp - ANSI Code S76</b>								
47271	LU35/120/240-KIT	120/240	HX-HPF	47	---	---	---	---
<b>50W High Pressure Sodium Lamp - ANSI Code S68</b>								
47549	LU50/120/277-KIT	120/277	HX-HPF	66	71A7801 & 71A7801-001D	---	V90H1132K	S005023C511
<b>70W High Pressure Sodium Lamp - ANSI Code S62</b>								
47301	LU70/MULTI-KIT	120/208/ 240/277	HX-HPF	91	71A7991 & 71A7971-001D	S70MLTLC3M & S70MLTLC3M-500K	V90D1233K	S007071C511
47579	LU70/480-KIT	480	HX-HPF	91	71A7941	---	---	---
47571	LU70/120/277-KIT	120/277	HX-HPF	91	71A7901	---	---	---
<b>100W High Pressure Sodium Lamp - ANSI Code S54</b>								
47316	LU100/MULTI-KIT	120/208/ 240/277	HX-HPF	128	71A8091 & 71A8071-001D	S100MLTLC3M & S100MLTLC3M-500K	V90D1333K	S010071C511
47593	LU100/480-KIT	480	HX-HPF	128	71A8041 & 71A8041-001D	---	---	---
47592	LU100/120/277-KIT	120/277	HX-HPF	128	71A8001	---	---	---
<b>150W High Pressure Sodium Lamp - ANSI Code S55</b>								
47335	LU150/MULTI-KIT	120/208/ 240/277	HX-HPF	188	71A8192 & 71A8172-001D	S150MLTLC3M & S150MLTLC3M-500K	V90D1435K	S015071C511
47619	LU150/480-KIT	480	HX-HPF	188	71A8142 & 71A8142-001D	---	---	---
47621	LU150/480/120T-KIT	480/120TAP	HX-HPF	188	71A8142T	S15048TLC3M & S15048TLC3M-500K	---	---
47617	LU150/120/277-KIT	120/277	HX-HPF	188	71A8102	---	---	---
47623	LU150/480-CWA-KIT	480	CWA	185	71A8148	---	---	---
<b>200W High Pressure Sodium Lamp - ANSI Code S66</b>								
47628	LU200/MULTI-KIT	120/208/ 240/277	CWA	230	71A8990 & 71A8970-001D	S200MLTAC4M & S200MLTAC4M-500K	V90D1610K	---
47631	LU200/480-KIT	480	CWA	230	71A8940 & 71A8940-001D	---	---	---
<b>250W High Pressure Sodium Lamp - ANSI Code S50</b>								
47634	LU250/SUPER5-KIT	120/208/ 240/277/480	CWA	295	71A8251 & 71A8251-001D	S250ML5AC4M & S250ML5AC4M-500K	---	S025081C211
47357	LU250/MULTI-KIT	120/208/ 240/277	CWA	295	71A8291 & 71A8271-001D	S250MLTAC4M & S250MLTAC4M-500K	V90D1711K	S025071C211
47358	LU250/480-KIT	480	CWA	295	71A8241 & 71A8241-001D	---	---	---
47637	LU250/480/120T-KIT	480/120TAP	CWA	295	71A8241T	S25048TAC4M & S25048TAC4M-500K	---	---
47642	LU250/120/277-KIT	120/277	CWA	295	71A8281	---	---	---

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog # <sup>8</sup>	Universal Lighting Technologies* Catalog # <sup>8</sup>	Venture Lighting Catalog # <sup>8</sup>	Howard Industries Catalog # <sup>8,9</sup>
<b>310W High Pressure Sodium Lamp - ANSI Code S67</b>								
47643	LU310/MULTI-KIT	120/208/ 240/277	CWA	355	71A8391 & 71A8371-001D	---	V90D1810K	---
47644	LU310/480-KIT	480	CWA	355	71A8341	---	---	---
<b>400W High Pressure Sodium Lamp - ANSI Code S51</b>								
47647	LU400/SUPER5-KIT	120/208/ 240/277/480	CWA	464	71A8453 & 71A8453-001D	S400ML5AC4M & S400ML5AC4M-500K	---	---
47364	LU400/MULTI-KIT	120/208/ 240/277	CWA	464	71A8493 & 71A8473-001D	S400MLTAC4M & S400MLTAC4M-500K	V90D1911K & V90D1912K	S040071C211
47376	LU400/480-KIT	480	CWA	464	71A8443 & 71A8443-001D	---	---	S040011C211
47657	LU400/480/120T-KIT	480/120TAP	CWA	464	71A8443T	S40048TAC4M & S40048TAC4M-500K	---	---
47656	LU400/120/277-KIT	120/277	CWA	464	---	---	---	---
<b>750W High Pressure Sodium Lamp - ANSI Code S111</b>								
47712	LU750/MULTI-KIT	120/208/ 240/277	CWA	830	71A86E5 <sup>6,7</sup>	---	---	---
47658	LU750/480-KIT	480	CWA	830	---	---	---	---
<b>1000W High Pressure Sodium Lamp - ANSI Code S52</b>								
47659	LU1000/SUPER5-KIT	120/208/ 240/277/480	CWA	1100	71A8753 <sup>6</sup> & 71A8753-001 <sup>6</sup>	S1000ML5AC5M & S1000ML5AC5M-500K	---	---
47389	LU1000/MULTI-KIT	120/208/ 240/277	CWA	1100	71A8793 <sup>6</sup> & 71A8773-001 <sup>6</sup>	S1000MLTAC5M & S1000MLTAC5M-500K	V90D2311K	S100071C211
47391	LU1000/480-KIT	480	CWA	1100	71A8743 <sup>6</sup> & 71A8743-001 <sup>6</sup>	---	---	S100011C211
<b>METALARC® METAL HALIDE F-CAN HID BALLASTS</b>								
<b>175W Metal Halide Lamp - ANSI Code M57</b>								
47743	M175/120/277/F-CAN	120/277	CWA	205	72C5581-NP & 72C5581-NP-001	1110-245SC-TC	---	---
<b>250W Metal Halide Lamp - ANSI Code M58</b>								
47751	M250/120/277/F-CAN	120/277	CWA	295	72C5782-NP & 72C5782-NP-001	1110-246C-TC <sup>4</sup>	---	---
<b>400W Metal Halide Lamp or 360W Metal Halide Lamp<sup>10</sup> - ANSI Code M59</b>								
47759	M400/120/277/F-CAN	120/277	CWA	460	72C6082-NP & 72C6082-NP-001	1110-247SC-TC	---	---
<b>METALARC METAL HALIDE PULSE START F-CAN HID BALLASTS</b>								
<b>35W Metal Halide Pulse Start Lamp - ANSI Code M130</b>								
47680	M35/120/277/F-CAN	120/277	HX-HPF	54	72C5081-NP	---	---	---
<b>50W Metal Halide Pulse Start Lamp - ANSI Code M110</b>								
47195	M50/120/277/F-CAN	120/277	HX-HPF	67	72C5181-NP & 72C5181-NP-001	11210-236C-TC	---	---
<b>70W Metal Halide Pulse Start Lamp - ANSI Code M139</b>								
47693	M70/120/277/F-CAN	120/277	HX-HPF	95	72C5281-NP	---	---	---
<b>70W Metal Halide Pulse Start Lamp - ANSI Code M98 or M143</b>								
47694	M70/120/277/F-CAN	120/277	HX-HPF	94	72C5282-NP & 72C5282-NP-001	11210-506C-TC	---	---
<b>100W Metal Halide Pulse Start Lamp - ANSI Code M90</b>								
47734	M100/120/277/F-CAN	120/277	HX-HPF	125	72C5381-NP & 72C5381-NP-001	11210-239C-TC	---	---
<b>150W Metal Halide Pulse Start Lamp - ANSI Code M102 or M142</b>								
47738	M150-PS/120/277/F-CAN	120/277	CWA	185	---	---	---	---
<b>175W Metal Halide Pulse Start Lamp - ANSI Code M137 or M152</b>								
47741	M175-PS/120/277/F-CAN	120/277	CWA	210	72C5582-NP & 72C5582-NP-001	---	---	---
<b>200W Metal Halide Pulse Start Lamp - ANSI Code M136</b>								
47747	M200-PS/120/277/F-CAN	120/277	CWA	240	---	---	---	---
<b>250W Metal Halide Pulse Start Lamp - ANSI Code M138 or M153</b>								
47749	M250-PS/120/277/F-CAN	120/277	CWA	295	72C5783-NP & 72C5783-NP-001	---	---	---
<b>320W Metal Halide Pulse Start Lamp - ANSI Code M132 or M154</b>								
47753	M320-PS/120/277/F-CAN	120/277	CWA	375	72C5882-NP & 72C5882-NP-001	P320277AFXM	---	---
<b>400W Metal Halide Pulse Start Lamp - ANSI Code M155 or M135</b>								
47757	M400-PS/120/277/F-CAN	120/277	CWA	465	72C6182-NP & 72C6182-NP-001	---	---	---


# Magnetic HID Ballasts

MAGNETIC BALLASTS

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog # <sup>8</sup>	Universal Lighting Technologies* Catalog # <sup>8</sup>	Venture Lighting Catalog # <sup>8</sup>	Howard Industries Catalog # <sup>8,9</sup>
<b>LUMALUX® HIGH PRESSURE SODIUM F-CAN HID BALLASTS</b>								
<b>35W High Pressure Sodium Lamp - ANSI Code S76</b>								
47761	LU35/120/277/F-CAN	120/277	HX-HPF	47	---	12210-261C-TC	---	---
<b>50W High Pressure Sodium Lamp - ANSI Code S68</b>								
47762	LU50/120/277/F-CAN	120/277	HX-HPF	65	72C7884-NP & 72C7884-NP-001	12210-236C-TC	---	---
<b>70W High Pressure Sodium Lamp - ANSI Code S62</b>								
47763	LU70/120/277/F-CAN	120/277	HX-HPF	90	72C7984-NP & 72C7984-NP-001	12210-237C-TC	---	---
<b>100W High Pressure Sodium Lamp - ANSI Code S54</b>								
47764	LU100/120/277/F-CAN	120/277	HX-HPF	125	72C8084-NP & 72C8084-NP-001	12210-239C-TC	---	---
<b>150W High Pressure Sodium Lamp - ANSI Code S55</b>								
47765	LU150/120/277/F-CAN	120/277	HX-HPF	185	72C885-NP	12210-241C-TC	---	---
<b>250W High Pressure Sodium Lamp - ANSI Code S50</b>								
47777	LU250/120/277/F-CAN	120/277	CWA	298	---	1220-246C-TC	---	---
<b>METALARC® METAL HALIDE INDOOR ENCLOSED HID BALLASTS</b>								
<b>175W Metal Halide Lamp - ANSI Code M57</b>								
47153	M175/MULTI-I/D	120/208/ 240/277	CWA	210	78E5590-001	---	---	---
<b>250W Metal Halide Lamp - ANSI Code M58</b>								
47158	M250/MULTI-I/D	120/208/ 240/277	CWA	290	78E5790-001	---	---	---
<b>400W Metal Halide Lamp or 360W Metal Halide Lamp<sup>10</sup> - ANSI Code M59</b>								
47172	M400/MULTI-I/D	120/208/ 240/277	CWA	458	78E6091-001	---	---	---
<b>1000W Metal Halide Lamp - ANSI Code M47</b>								
47207	M1000/MULTI-I/D	120/208/ 240/277	CWA	1080	78E6592-001	---	---	---
<i>EPA Act 2005 has mandated that no Mercury Vapor Ballasts be manufactured in the US effective January 1, 2008.</i>								
<b>MERCURY CORE &amp; COIL BALLAST KITS</b>								
<b>50W Mercury Lamp - ANSI Code H46</b>								
46518	H50/MULTI-KIT	120/208/ 240/277	CWA	68	---	---	---	---
<b>75W Mercury Lamp - ANSI Code H43</b>								
46519	H75/MULTI-KIT	120/208/ 240/277	CWA	92	71A2080 <sup>7</sup>	---	---	---
<b>100W Mercury Lamp - ANSI Code H38 or H44</b>								
46522	H100/MULTI-KIT	120/208/ 240/277	CWA	120	71A2591 & 71A2571-001D	H100MLTAC3M & H100MLTAC3M-500K	---	---
47472	H100/277-KIT	277	CWA	120	---	---	---	---
47471	H100/DUAL-KIT	120/240	CWA	120	71A2501 <sup>7</sup>	---	---	---
<b>175W Mercury Lamp - ANSI Code H39</b>								
47489	H175/MULTI-KIT	120/208/ 240/277	CWA	205	71A3092 & 71A3072-001D	H175MLTAC3M & H175MLTAC3M-500K	---	---
47490	H175/480-KIT	480	CWA	205	71A3042 & 71A3042-001D	---	---	---
<b>250W Mercury Lamp - ANSI Code H37</b>								
47499	H250/MULTI-KIT	120/208/ 240/277	CWA	285	71A3592 & 71A3572-001D	H250MLTAC3M & H250MLTAC3M-500K	---	---
47500	H250/480-KIT	480	CWA	285	71A3542 & 71A3542-001D	---	---	---
46531	H250/480/120T-KIT	480/120TAP	CWA	285	71A3542T	H25048TAC3M & H25048TAC3M-500K	---	---
<b>400W Mercury Lamp - ANSI Code H33</b>								
47509	H400/MULTI-KIT	120/208/ 240/277	CWA	454	71A4091 & 71A4071-001D	H400MLTAC4M & H400MLTAC4M-500K	---	---
47510	H400/480-KIT	480	CWA	454	71A4041 & 71A4041-001D	---	---	---
46533	H400/480/120T-KIT	480/120TAP	CWA	454	71A4041T	H40048TAC4M & H40048TAC4M-500K	---	---
47517	H2X400/120-KIT	120	CWA	880	---	---	---	---
47518	H2X400/277-KIT	277	CWA	880	---	---	---	---
<b>1000W Mercury Lamp - ANSI Code H36</b>								
47524	H1000/MULTI-KIT	120/208/ 240/277	CWA	1080	71A5070-001 <sup>6</sup>	H1000MLTAC5M & H1000MLTAC5M-500K	---	---
47525	H1000/480-KIT	480	CWA	1080	71A5040-001 <sup>6</sup>	---	---	---

OSRAM SYLVANIA National Customer Service and Sales Center

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Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	ANSI Code
<b>METALARC® METAL HALIDE LAMP &amp; BALLAST KITS</b>					
Lamp & Ballast Kits include SYLVANIA METALARC® Metal Halide lamp					
64782	M175/U LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	210	M57/E
64784	M250/U LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	290	M58/E
64847	MS360/SS LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	415	M59/S
64781	M400/U LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	458	M59/S
64848	M1000/U LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	1080	M47/S
<b>LUMALUX® HIGH PRESSURE SODIUM LAMP &amp; BALLAST KITS</b>					
Lamp & Ballast Kits include SYLVANIA LUMALUX® High Pressure Sodium lamp					
67621	LU100/ECO LAMP/MULTI-BALLAST KIT	120/208/240/277	HX-HPF	128	S54
67629	LU150/55/ECO LAMP/MULTI BALLAST KIT	120/208/240/277	HX-HPF	188	S55
67622	LU250/ECO LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	295	S50
67623	LU400/ECO LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	464	S51
67664	LU1000 LAMP/SUPER5 BALLAST KIT	120/208/240/277/480	CWA	1100	S52
<b>REPLACEMENT IGNITORS FOR SYLVANIA HID BALLASTS<sup>11</sup>:</b>					
47996	Ignitor/MH/PS/50-150				
47997	Ignitor/MH/PS/175-450				
47998	Ignitor/MH/PS/750				
47843	Ignitor/HPS/50-150				
47844	Ignitor/HPS/200-400				
47847	Ignitor/HPS/600-750				
<b>REPLACEMENT CAPACITORS FOR SYLVANIA HID BALLASTS:</b>					
47912	CAP 24Mfd 480VAC				
47920	CAP 26Mfd 525VAC				
47926	CAP 40Mfd 280VAC				
47927	CAP 52Mfd 280VAC				
47932	CAP 35Mfd 280VAC				
47938	CAP 28Mfd 330VAC				
47942	CAP 55Mfd 300VAC				
47952	CAP 10Mfd 400VAC				
47954	CAP 15Mfd 400VAC				
<b>FOOTNOTES:</b>					
<p>* Formerly MagneTek Lighting</p> <p>4: NEAREST EQUIVALENT - Performance specifications may vary, please refer to manufacturers specifications.</p> <p>5: R-INT = Reactor with Integral Ignitor</p> <p>6: OSRAM SYLVANIA'S HID Ballast is UL Class H Rated and can be used with the corresponding UL Rated fixtures only. The ADVANCE Ballast listed is Dual Rated UL Class H and N.</p> <p>7: Ballast Voltage may vary. Always check for required lamp and voltage.</p>		<p>8: This data is intended as an aid for identifying comparable products for the lamp types, ANSI Codes and Voltage listed as a convenience to the user. OSRAM SYLVANIA does not warrant or guarantee the accuracy or correctness of the content. Case sizes, wiring diagrams and performance specifications may vary, please refer to manufacturers specifications. Please refer to the OSRAM SYLVANIA Magnetic Ballast catalog for verification of product specifications appropriate for the application.</p> <p>9: Replacement Kit is indicated by a K at the end of the catalog number.</p>		<p>10: A 360W Metal Halide lamp ANSI Code M59 operated on this ballast will result in approximately a 10% reduction in Input Power (Watts).</p> <p>11: Only use with the corresponding SYLVANIA HID Ballasts. Please refer to OSRAM SYLVANIA Magnetic Ballast catalog for verification of product specifications appropriate for the application.</p> <p><b>HID Core &amp; Coil Ballast Kits</b> include ignitor where applicable, capacitor where applicable, mounting bracket, hardware and installation instructions.</p> <p>More complete product information is available in the SYLVANIA Magnetic Ballast Catalog or at <a href="http://www.sylvania.com">www.sylvania.com</a>.</p>	
<b>NOTES:</b>					<b>SPECIFICATIONS:</b>
<p>This data/cross reference is intended as an aid for identifying comparable products as a convenience to the user. OSRAM SYLVANIA does not warrant or guarantee the accuracy or correctness of the content. Cases sizes, wiring diagrams and performance specifications may vary, please refer to manufacturers specifications.</p>			<p>Please refer to the OSRAM SYLVANIA Magnetic Ballast catalog for verification of product specifications appropriate for the application.</p> <p>Please contact 1-800-LIGHTBULB or <a href="http://www.sylvania.com">www.sylvania.com</a> for additional information.</p>		<p>Information is subject to change at anytime without prior notice.</p>
<b>TRADEMARKS:</b>					
<p>SYLVANIA, OCTRON, ICETRON, CURVALUME, METALARC, PENTRON, POWERSENSE, PROSTART, QUICKSENSE, QUICK 60+, LUMALUX, SUPERSAVER, FIXTURESIDE ASSISTANCE, ECOLOGIC, XP, XPS and  the system solution® are registered trademarks of OSRAM SYLVANIA Inc. HELIOS is a trademark of OSRAM SYLVANIA Inc. QUICKTRONIC, OPTOTRONIC, DULUX and HQI are registered trademarks of OSRAM GmbH used under license. All other trademarks are those of their respective owners.</p>					



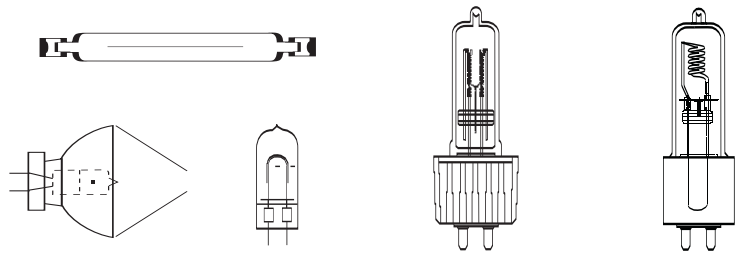
## OSRAM BRAND DISPLAY/OPTIC LIGHT SOURCES

Lighting to provide solutions in diverse applications such as cinema film projection, effect lighting, stage, studio, TV, display and projection systems, microlithography, medical/scientific, industrial, and airfield/aircraft.

### Display/Optic Lamp Types

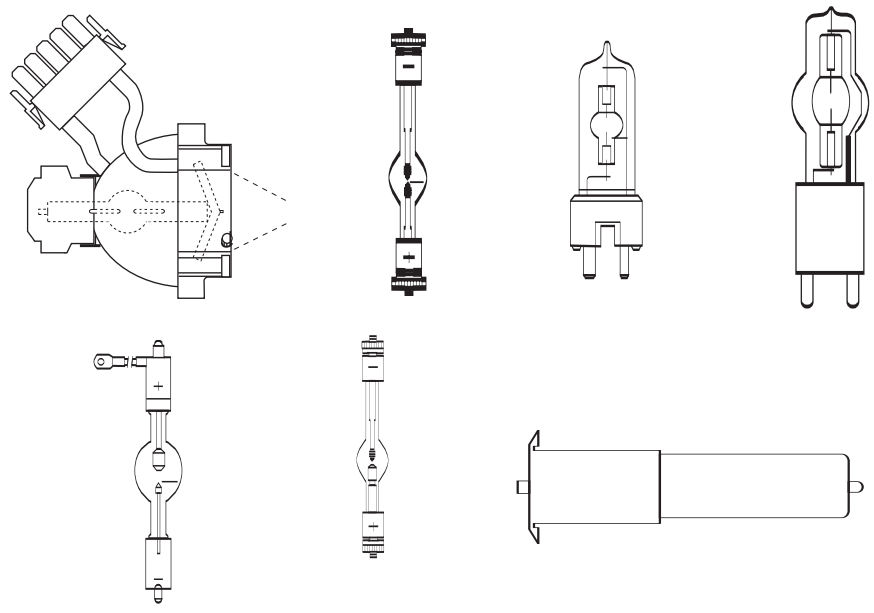
#### HALOGEN

**Airfield/Aircraft**  
**Audiovisual**  
**Special Purpose Heat Lamps**  
**Studio, Theatre, TV & Video**  
**aluPAR®**  
**HLX®**  
**HPL**  
**HPR®**  
**OSRAM STUDIOLINE®**  
**XENOPHOT®**



#### DISCHARGE

**HBO®**  
**HCD® 4ArXS**  
**HMI®**  
**HMP®**  
**HSD® 4ArXS**  
**HSR®**  
**HXP®**  
**HTI® SharXS®**  
**LINEX®**  
**P-VIP®**  
**VIP®**  
**XBO®**  
**XERADEX®**



#### IMPORTANT! DISPLAY/OPTIC WARNINGS

In accordance with ANSI/IESNA Standard RP-27, all Display/Optic Discharge lamps are Risk Group 3 products, and all Display/Optic Incandescent and Tungsten Halogen lamps are Risk Group 2 products.

Please read and understand the Safety and Warning Instructions for each lamp type before use. Safety and Warning Instructions can be found at the end of this Display/Optic section.

DISPLAY OPTIC



# SOLUTIONS FOR TODAY

## UPGRADES FOR POPULAR PROJECTION LAMPS

IF YOU ARE USING:	UPGRADE TO:	BENEFITS
BHC/DYS/DYV	BHC/DYS/DYV-5	Double the life at 120V <sup>3</sup>
EHJ 64655 HLX	EHJ 64655 HLX /7X	Increase life by 14 times <sup>2</sup>
EHJ 64655 HLX	EVC 64657 HLX	Increased life by 6 times <sup>2</sup>
ELC	ELC-HL	Increased brightness by 150 lumens <sup>4</sup>
ENX	ENX-5	Double the life at 82V <sup>3</sup>
ENX	ENX-7	Increased life by 2.5 times at 82V <sup>3</sup>
ENX	FXL	Increased light
EVC 64657 HLX	FNT 64656PT HLX	Increased light by 10% <sup>1</sup>
EVD 64663 HLX	64664 HLX	Increased life by 3 times <sup>2</sup> at 36V
EVD 64663 HLX	64665 HLX	Increased life by 6 times <sup>2</sup> at 36V
EYB	EYB-5	Double the life at 82V <sup>3</sup>
EYB	EYB-7	Increased life by 2.5 times at 82V <sup>3</sup>
FCR 64625 HLX	EVA 64623 HLX	Increased life by 40 times <sup>2</sup>
FCS 64640 HLX	FDV 64642 HLX	Increased life by 6 times <sup>2</sup>
FXL or ENX	FXL-HL	Increased light <sup>1</sup>

## TECHNICAL DATA

Ordering Abbreviation	Product Number	Watts	Volts	Rated Life (hrs)	Fig.	Base	"l" mm	"a" mm	"d" mm	Bulb Shape	Lumens
64664 HLX	54273	400	36	150	2	G6.35	57	36	18	T6	14,500
64665 HLX	54274	400	36	300	2	G6.35	60	36	18	T6	12,200
BHC/DYS/DYV	54836	600	120	75	3	GZ9.5	64	36.5	20	T6	17,500
BHC/DYS/DYV-5	54835	600	125	75	3	GZ9.5	63.5	36.5	20	T6	17,500
EHJ 64655 HLX	54254	250	24	50	2	G6.35	55	33	13.5	T4	10,000
EHJ 64655 HLX/7X	54272	250	24	700	2	G6.35	55	33	13.5	T4	8,000
ELC	54840	250	24	50	1	GX5.3	44.8	31.7	51	T3.5	800 <sup>4</sup>
ELC 64653 HLX	54212	250	24	50	1	GX5.3	44.5	35	51	T3.5	800 <sup>4</sup>
ELC-3/X	54841	250	24	300	1	GX5.3	44.8	31.7	51	T3.5	550 <sup>4</sup>
ELC-7/X	54814	250	24	700	1	GX5.3	44.8	31.7	51	T3.5	475 <sup>4</sup>
ELC-HL	54804	250	24	50	1	GX5.3	44.8	31.7	51	T3.5	950 <sup>4</sup>
ENX	54984	360	82	75	1	GY5.3	45	299	51	T3.5	460 <sup>4</sup>
ENX-5	54913	360	86	75	1	GY5.3	38.1	299	51	T3.5	540 <sup>4</sup>
ENX-7	54916	360	87.5	75	1	GY5.3	38.1	299	51	T3.5	540 <sup>4</sup>
EVA 64623 HLX	54251	100	12	2,000	2	GY6.35	44	30	11.5	T4	2,800
EVC 64657 HLX	54255	250	24	300	2	G6.35	55	33	13.5	T4	9,000
EVD 64663 HLX	54259	400	36	50	2	G6.35	60	36	15	T6	16,000
EYB	54446	360	82	75	4	G5.3	57.2	31.8	11.2	T3.5	10,000
EYB-5	54448	360	85.5	75	4	G5.3	54	31.8	11.2	T3.5	10,000
EYB-7	54455	360	87.5	75	4	G5.3	57.2	31.8	11.2	T3.5	10,000
FCR 64625 HLX	54248	100	12	50	2	GY6.35	44	30	11.5	T3.5	3,600
FCS 64640 HLX	54263	150	24	50	2	G6.35	50	32	13.5	T4	6,000
FDV 64642 HLX	54264	150	24	300	2	G6.35	50	32	13.5	T4	5,000
FNT 64656PT HLX	54253	275	24	75	2	G6.35	55	33	13.5	T4	10,000
FXL	54912	410	82	75	1	GY5.3	38.1	299	51	T3.5	640 <sup>4</sup>
FXL-HL	54904	410	82	40	1	GY5.3	38.1	299	51	T3.5	850 <sup>4</sup>

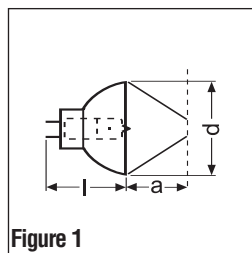


Figure 1

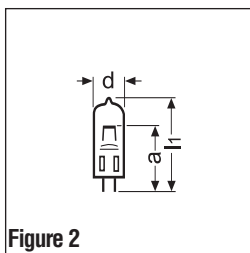


Figure 2

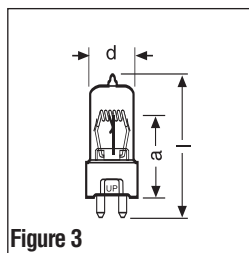


Figure 3

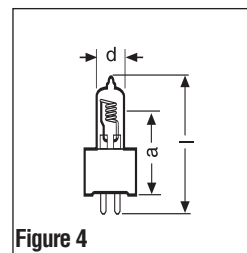


Figure 4

<sup>1</sup> Lamps designed for increased light output can have a reduced operating life

<sup>2</sup> Lamps designed with a longer operating life can produce fewer lumens

<sup>3</sup> Lamps operated at less than their rated voltage provide a longer life, reduced light output and lower color temperature. A 5% reduction in voltage can double lamp life, decrease luminous flux by 15% and decrease color temperature by 2%.

<sup>4</sup> Screen Lumens

## OSRAM Airfield Lamps

### Effective solutions for airfield lighting around the globe.



IRC Reflector



IRC PK30d



PK30d



R7s



GZ(Y)9.5

OSRAM lamps for the airfield lighting industry provide reliable solutions for complex optical systems. State-of-the-art manufacturing yields high quality lamps with precision filament alignment that is required in these demanding applications.

#### Why are airfield lighting systems necessary?

- Aviation safety
- Essential visual guidance for approach
- Landing
- Taxiing and take-off

#### Tungsten halogen technology

Reliability, longevity, and reasonable maintenance costs account for the success of tungsten halogen lamps as light sources for demanding airfield lighting applications.

#### Pre-focus technique

Simple replacement and easy adjustment reduces maintenance costs.

#### IRC technology (Infrared Reflective Coating)

The innovative IRC technology increases the efficiency of halogen lamps by reflecting a major part of the generated unwanted IR radiation back to the coil where it is converted into visible light. The infrared reflective coating at the outside of the burner acts as an IR mirror but lets nearly 100% of visible light pass.

- More light output
- Less electrical power
- Increased lifetime
- or
- A mix of all

#### Xenophot® technology (HLX)

Using xenon instead of krypton as the filling gas increases the luminous efficacy of a lamp- that's our basic idea behind our XENOPHOT technology.



**OSRAM aluPAR® Lamps with aluminum reflector**  
*lighter, brighter, cooler*



**Seeing is believing!**

Don't get weighed down with old technology!

**Features and Benefits**

- Tungsten halogen aluPAR lamps are made with an aluminum reflector which makes them up to 50% lighter than standard glass PAR lamps.
  - Lower transportation costs
  - Easier handling
- aluPAR is an environmentally preferable ECOLOGIC® product
- Fully compatible with current market standards

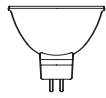
**Applications**

- Stage, Studio, Film
- Concert/Disco lighting touring
- Architectural lighting



**SEE THE WORLD IN A NEW LIGHT OSRAM**





MR11, MR13, MR16



A21, A23



Bi-Pin



Med 2-pin



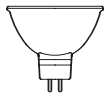
GZ9.5



PS25

**AUDIOVISUAL**

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
BAA	54924	<b>BAA</b>	Projector	75	28	GX5.3		2000	MR16	24	
BBA	11619	<b>BBA 118V</b>	Photoflood No.1/Enlarger & Printer	250	120	Med	8700	4	A21	12	
BRJ/EVB	54250	<b>BRJ/EVB 64633 HLX</b>	Projector, Microfilm, Microscope, Studio	150	15	G6.35	5600	50	T3.25	40	58
BRL	54249	<b>BRL 64610 HLX</b>	Projector, Microfilm, Microscope, Studio	50	12	G6.35	1600	50	T3	40	58
BRN	54698	<b>BRN</b>	Projector	1200	120	G17t		20	T7	24	13,58
BVE	54812	<b>BVE</b>	Projector, Microfilm, Stage & Studio	625	120	GY9.5		50	T6	24	58
CAX	58831	<b>CAX</b>	Projector, Microfilm, Microscope, Studio	50	120	DC Bayonet	750	250	T4	24	
DDL	54660	<b>DDL</b>	Projector - Microfilm	150	20	GX5.3		500	MR16	24	117
DDM	54737	<b>DDM</b>	Projector - Slide	80	19	GX5.3	400	50	MR16	24	117
DDS	54944	<b>DDS</b>	Projector - Microfilm	80	21	GX5.3		1000	MR16	24	117
DED	54726	<b>DED</b>	Projector - Microfilm	85	13.8	GX5.3	150	1000	MR16	24	60,117
DNE	54409	<b>DNE</b>	Projector	150	120	G7.9	100	15	TB16	24	60,117
DNF	54411	<b>DNF</b>	Projector - 8mm	150	21	GX7.9	300	25	MR18	24	60,117
DYH	54561	<b>DYH</b>	Projector, Stage & Studio	600	120	G5.3	17000	75	T6	24	
DZE/FDS	54755	<b>DZE/FDS</b>	Projector, Microfilm, Stage & Studio	150	24	GZ9.5	4000	100	T4	24	
EBV	11558	<b>EBV 118V</b>	Super Photoflood/ No.2	500	120	Med	17800	8	PS25	24	
ECA	13365	<b>ECA 120V</b>	Super Photoflood	250	120	Med Brass	6500	20	A23	24	
ECT	11560	<b>ECT 120V</b>	Photoflood	500	120	Med	13650	60	PS25/5	24	
EFM	54123	<b>EFM 64607</b>	Projector - 8mm	50	8	GZ6.35		50	MR16	20	60,117
EFN	54126	<b>EFN 64615 HLX</b>	Projector - 8mm	75	12	GZ6.35		50	MR16	20	60,117
EFP	54189	<b>EFP 64627 HLX</b>	Projector - 8mm	100	12	GZ6.35		50	MR16	20	60,117
EFP/X	54192	<b>EFP/X 64629 HLX</b>	Projector - 8mm	100	12	GZ6.35		600	MR16	20	60,117
EFR	54210	<b>EFR 64634 HLX</b>	Projector - 8mm	150	15	GZ6.35		50	MR16	20	60,117
EFR-5/X	54211	<b>EFR-5/X 64620 HLX</b>	Projector - 8mm	150	15	GY6.35		500	MR16	20	60,117
EHA	54585	<b>EHA</b>	Projector, Microfilm, Stage & Studio	500	120	GY9.5		50	T6	24	13
EHE	54038	<b>EHE 64626 HLX</b>	Projector	100	12	PG22	3600	50	T4	30	58
EHJ	54254	<b>EHJ 64655 HLX</b>	Projector, Microfilm, Microscope, Studio	250	24	G6.35	10000	50	T4	40	58
EHJ	54231	<b>EHJ 64655 HLX BULK</b>	Projector, Microfilm, Microscope, Studio	250	24	G6.35	10000	50	T4	250	
EHJ	54272	<b>EHJ 64655 HLX/7X</b>	Projector, Microfilm, Microscope, Studio	250	24	G6.35	8000	700	T4	24	58
EJA	54753	<b>EJA</b>	Projector - Fiber-optics	150	21	GX5.3	354	40	MR16	24	117
EJL	54730	<b>EJL</b>	Projector - 16mm Color printer	200	24	GX5.3	725	50	MR16	24	117
EJM	54747	<b>EJM</b>	Projector - 8mm	150	21	GX5.3	170	40	MR16	24	117
EJV	54732	<b>EJV</b>	Projector - 8mm, Printer	150	21	GX5.3	270	100	MR16	24	117



MR11, MR13, MR16



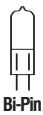
Bi-Pin

**AUDIOVISUAL**

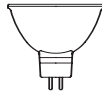
ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EKE	54842	<b>EKE</b>	Projector - 8mm, Fiber-Optics	150	21	GX5.3	160	200	MR16	24	117
EKE/X	58771	<b>EKE/X</b>	Projector - 8mm, Fiber-Optics	150	21	GX5.3	80	1000	MR16	24	117
EKP/ENA	54734	<b>EKP/ENA</b>	Projector - 8mm	80	30	GX5.3	115	25	MR16	24	117
ELC	54840	<b>ELC</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	800	50	MR16	24	117
	54804	<b>ELC-HL</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	950	50	MR16	24	117
	54212	<b>ELC 64653 HLX</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	900	50	MR16	20	60,117
	54841	<b>ELC-3/X</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	550	300	MR16	24	117
	54814	<b>ELC-7/X</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	475	700	MR16	24	117
	54811	<b>ELC-7/X BULK</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	475	700	MR16	100	117
	54366	<b>ELC-10 64659 HLX</b>	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	400	1000	MR16	20	117
ELD	54745	<b>ELD</b>	Projector - Microfilm	150	21	GX5.3	350	40	MR16	24	117
ELH	54776	<b>ELH</b>	Projector - Overhead	300	120	GY5.3	525	35	MR16	24	58,117
ENG	54957	<b>ENG</b>	Projector	300	120	GY5.3	690	15	MR16	24	58,117
ENH	54986	<b>ENH</b>	Projector - Slide	250	120	GY5.3	340	175	MR16	24	58,117
ENH	55002	<b>ENH SPOT</b>	Projector - Slide	250	120	GY5.3	340	175	MR16	24	58,117
ENH-5	54988	<b>ENH-5</b>	Projector - Overhead	250	125	GY5.3	340	175	MR16	24	58,117
ENL	58786	<b>ENL</b>	Projector - Display, Fiber-Optics	50	12	GX5.3	85	4000	MR16	24	117
ENX	54984	<b>ENX</b>	Projector - Overhead	360	82	GY5.3	460	75	MR16	24	58,117
ENX-5	54913	<b>ENX-5</b>	Projector - Overhead	360	86	GY5.3	540	75	MR16	24	117
ENX-7	54916	<b>ENX-7</b>	Projector - Overhead	360	87.5	GY5.3	540	75	MR16	24	117
EPT	58782	<b>EPT</b>	Projector - Fiber-Optics	42	10.8	GX5.3		8000	MR16	24	
EPX	54927	<b>EPX</b>	Projector - Microfilm	90	14.5	GX5.3	43	500	MR16	24	60,117
EPZ	54743	<b>EPZ</b>	Projector - Microfilm	50	13.8	GX5.3	80	3000	MR16	24	60,117
ESA/FHD	54260	<b>ESA/FHD 64225</b>	Projector	10	6	G4	200	100	T3	40	
ESB	54261	<b>ESB 64250 HLX</b>	Projector	20	6	G4	480	100	T3.5	40	
ETJ	54928	<b>ETJ</b>	Projector	250	120	GY5.3	600	175	MR16	24	58,117
EVA	54251	<b>EVA 64623 HLX</b>	Projector, Microfilm, Microscope, Studio	100	12	GY6.35	2800	2000	T4	40	58
EVC	54255	<b>EVC 64657 HLX</b>	Projector, Microfilm, Microscope, Studio	250	24	G6.35	9000	300	T4	40	58
EVD	54259	<b>EVD 64663 HLX</b>	Projector, Microfilm, Studio	400	36	GX6.35	16000	50	T6	40	58
EVW	54723	<b>EVW</b>	Projector	250	82	GY5.3	390	50	MR16	24	58,117
EXR	54392	<b>EXR</b>	Projector - Slide	300	82	GX5.3	925	35	MR13	24	58,117
EXW	54388	<b>EXW</b>	Projector - Slide	300	82	GX5.3	1050	15	MR13	24	58,117
EXY	54394	<b>EXY</b>	Projector - Slide	250	82	GX5.3	400	200	MR13	24	58,117

DISPLAY OPTIC HALOGEN





Bi-Pin



MR11, MR13, MR16



Med 2-pin



GZ9.5



B15d

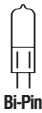


E14

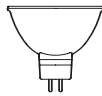
## AUDIOVISUAL

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EYB	54446	<b>EYB</b>	Projector, Stage & Studio	360	82	G5.3	10000	75	T3.5	24	58
EYB-5	54448	<b>EYB-5</b>	Projector, Microfilm, Stage & Studio	360	85.5	G5.3	10000	75	T3.5	24	58
EYB-7	54455	<b>EYB-7</b>	Projector, Microfilm, Stage & Studio	360	87.5	G5.3	10000	75	T3.5	24	58
EZE	54386	<b>EZE</b>	Projector, Stage & Studio	150	82	GX5.3	350	150	MR13	24	58,117
FCR	54248	<b>FCR 64625 HLX</b>	Projector, Microfilm, Microscope, Studio	100	12	GY6.35	3600	50	T3.5	40	58
FCS	54263	<b>FCS 64640 HLX</b>	Projector	150	24	G6.35	6000	50	T4	40	58
FDS/DZE	54277	<b>FDS/DZE 64643</b>	Projector, Microfilm, Microscope, Studio	150	24	GY9.5	5000	100	T5	12	58
FDT	54276	<b>FDT 64628</b>	Projector, Stage & Studio	100	12	GY9.5	3000	50	T4	12	58
FDV	54264	<b>FDV 64642 HLX</b>	Projector, Microfilm, Microscope, Studio	150	24	G6.35	5000	300	T4	40	58
FHS	54979	<b>FHS</b>	Projector - Slide	300	82	GX5.3	650	70	MR16	24	58,117
FKT/EYH	54547	<b>FKT/EYH</b>	Projector - Video Camera	250	120	G5.3	5400	200	T6	24	
FLE	54383	<b>FLE</b>	Projector	360	82	GY5.3	1250	75	MR16	24	9,117
FNS	58849	<b>FNS 64512</b>	Projector, Stage & Studio	300	120	GX6.35	9300	15	T6	12	58
FNT	54044	<b>FNT 64656 HLX</b>	Projector, Microfilm, Microscope, Studio	275	24	G6.35	10000	75	T4	100	58
FNT	54253	<b>FNT 64656 HLX</b>	Projector, Microfilm, Microscope, Studio	275	24	G6.35	10000	75	T4	40	58
FSX	54897	<b>FSX/230</b>	Projector	400	230	GY9.5		75	T6	24	13,58
FSY	54898	<b>FSY</b>	Projector	400	240	GY9.5		75	T6	24	13,58
FXL	54912	<b>FXL</b>	Projector - Overhead	410	82	GY5.3	640	75	MR16	24	58,117
FXL-HL	54904	<b>FXL-HL</b>	Projector - Overhead	410	82	GY5.3	850	40	MR16	24	58,117
GCB	54430	<b>GCB</b>	Projector, Stage & Studio, Video	200	30	G5.3	5300	200	T3	24	
	54246	<b>14V/35W/M/GZ4</b>	Medical Overhead Projection	35	14	GZ4		50	MR11	20	58,117
	58729	<b>60T4QCL</b>	Medical Overhead Illumination	60	24	DC Bayonet	1280	500	T4	12	
	54400	<b>85T3/RM</b>	Projector	85	82	GX5.3		40	MR16	24	117
	54466	<b>120/T4/SPECIAL</b>	Projector	120	24	Special	2750	500	T4	24	
	58939	<b>220T4Q/2PPF</b>	Medical Overhead Illumination	220	22	GY9.35	6200	200	T4	12	
	58941	<b>235T4Q/2PPF</b>	Medical Overhead Illumination	235	33	GZ9.5	5800	200	T4	12	
	76311	<b>8013</b>	Projector	10	6	BA15d		200		100	59
	76313	<b>8017</b>	Projector	15	6	B15d		1000		100	
	76314	<b>8018</b>	Projector	15	6	B15d		100		100	34,59
	76321	<b>8100</b>	Projector		5	E14		600		100	58
	54256	<b>62138 HLX</b>	Projector	100	12	G6.35	2800	50	T3	40	60





Bi-Pin



MR11, MR13, MR16

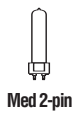


Med 2-pin

**AUDIOVISUAL**

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	54050	64223	Projector	10	6	G4	150	300	T3	100	
	54245	64223	Projector	10	6	G4	150	300	T3	40	
	54021	64251 HLX	Projector	20	6	PG22	500	100	T3	30	
	54122	64255	Projector	20	8	GZX4		50	MR11	20	60,117
	54901	64258 AHLX	Projector	20	12	G4	350	2000	T3	40	58
	54262	64258 HLX	Projector	20	12	G4	350	2000	T3	40	58
	54022	64260	Projector	30	12	PG22	800	50	T3	30	
	54247	64261	Projector	30	12	G6.35	750	50	T3.25	40	
	53999	64265 HLX	Projector	30	6	G4	765	100	T2	100	
	54606	64265 HLX	Projector	30	6	G4	765	100	T2	40	
	54258	64275	Projector	35	6	G4	780	50	T3	40	
	54301	64291 XIR 40W	Medical	40	22.8	G6.35	1200	600		40	59,203
	54302	64292 XIR 150W	Medical	150	22.8	G6.35	6000	600		40	59,203
	54275	64513	Projector, Stage & Studio	300	120	GX6.35	7700	150	T6	12	58
	54354	64514	Projector, Stage & Studio	300	120	GX6.35	8100	75	T6	12	58
	58524	64515	Projector, Stage & Studio	300	230	GX6.35	9600	15	T6	12	58
	54356	64516	Projector, Stage & Studio	300	230	GX6.35	7400	75	T6	12	11,58,202,211
	54138	64602	Projector, Microfilm, Microscope, Studio	50	12	G6.35	1000	1100	T3.25	100	58
	54607	64602	Projector, Microfilm, Microscope, Studio	50	12	G6.35	1000	1100	T3.25	40	58
	54028	64611 HLX	Projector	50	12	G6.35	1350	100	T3.25	100	58
	54608	64611 HLX	Projector	50	12	G6.35	1350	100	T3.25	40	58
	54124	64617	Projector	75	12	G5.3-4.8		25	MR11	20	60,117
	54121	64617 SPOT	Projector	75	12	G5.3-4.8		25	MR11	20	60,117
	54032	64621 HLX	Projector, Microfilm, Stage & Studio	100	12	PG22	2750	2000	T3	30	58
	54125	64624	Projector	100	12	G5.3-4.8		25	MR11	20	60,117
	54233	64635 HLX	Projector, Fiber-Optic	150	15	GZ6.35		50	MR16	20	60,117
	54214	64637	Projector	100	12	GZ6.35		1500	MR16	20	58,117
	54252	64638 HLX	Projector	100	24	G6.35	2900	300	T3	40	
	54257	64650	Projector, Microfilm, Microscope, Studio	50	23	G6.35	1000	1300	T4	40	
	54278	64654 HLX	Projector, Microfilm, Microscope, Studio	250	24	GY9.5	9000	300	T6	12	58
	54273	64664 HLX	Projector, Microfilm, Microscope, Studio	400	36	G6.35	14500	150	T6	12	58,267
	54274	64665 HLX	Projector, Microfilm, Microscope, Studio	400	36	G6.35	400	300	T6	12	58
	54303	64668 XIR 80W	Medical	80	22.8	G6.35	3000	750		40	59,203
	76305	70313 (390158)	Special Purpose	30	6	P47d				100	
	76304	70314 (390153)	Special Purpose	25	6	P47d				100	

DISPLAY OPTIC HALOGEN



Med 2-pin



A21, A23



G29.5



Bi-Pin



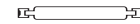
P28s



P40s



PAR36



R7s, RX7s



G22



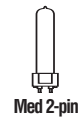
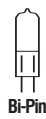
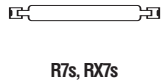
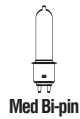
Med Bi-pin

## AUDIOVISUAL

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	76302	<b>70335 BULK</b>	Special Purpose	27	6	Special				200	
	54793	<b>JCP 650W/100V</b>	Overhead projection, fiber-optic, entertainment	650	100	GY9.5	18750	100	T6	12	

## STUDIO, THEATRE, TV & VIDEO

ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
BCA	11655	<b>BCA 118V</b>	4800	250	120	Medium	8912	12	A21	12	
BHC/DYS/DYV	54836	<b>BHC/DYS/DYV</b>		600	120	G29.5	17500	75	T6	24	58
BHC/DYS/DYV-5	54835	<b>BHC/DYS/DYV-5</b>		600	125	G29.5	17500	75	T6	24	16,58
BCM	54694	<b>BCM</b>	3200	20000	230	G38	580000	350	T32	1	58
BTL	54685	<b>BTL</b>	3050	500	120	P28s	11000	750	T6	12	
BTM	54686	<b>BTM</b>	3200	500	120	P28s	13000	100	T6	12	58
BTN	54687	<b>BTN</b>	3200	750	120	P28s	17000	500	T7	12	58
BTP	54688	<b>BTP</b>	3200	750	120	P28s	20000	200	T7	12	
BTR	54689	<b>BTR</b>	3200	1000	120	P28s	27500	250	T6	12	58
BVM	58827	<b>BVM 64540</b>	3400	650	230	GZ6.35	20000	15	T8	12	11
BVT	54690	<b>BVT</b>	3050	1000	120	P40s	23000	500	T7	6	
BWV	54691	<b>BWV</b>	3200	1000	120	P40s	27500	200	T6	6	
BVW	54692	<b>BVW</b>	3200	2000	120	P40s	59000	280	T9.5	6	
CXZ	54717	<b>CXZ</b>	3200	1500	120	G38	38500	325	T8	6	
CYV	54706	<b>CYV</b>	3200	1000	120	G38	27500	200	T7	6	
CYX	54613	<b>CYX</b>	3200	2000	120	G38	55000	300	T11	6	58
DNS/FMC	54655	<b>DNS/FMC</b>	3050	500	120	P28s	11000	500	T6	24	
DPY	54647	<b>DPY</b>	3200	5000	120	G38	143000	500	T17	1	58
DTA	54716	<b>DTA</b>	3200	1500	120	P40s	39000	100	T8	6	
DTY	54696	<b>DTY</b>	3200	10000	120	G38	290500	350	T24	1	58
DWE	54500	<b>DWE</b>	3200	650	120	G53	24000	100	PAR36	1	
DWT	58937	<b>DWT</b>	3000	1000	120	RX7s	22000	2000	T6	12	
DXW	53997	<b>DXW</b>	3200	1000	120	R7s	28000	150	T5	12	101
	58497	<b>DYS/300</b>	3200	300	120	G29.5	7500	100	T4	24	
ECR	54702	<b>ECR 64815 CP/83 230V</b>	3200	10000	230	G38	280000	400	T22	6	58
EFX	54787	<b>EFX</b>	3000	500	120	G22	10000	2000	T5	12	
EGE	54648	<b>EGE</b>	3000	500	120	P28s	10000	2000	T5	12	
EGG	54652	<b>EGG</b>	3000	750	120	P28s	15000	2000	T5	12	
EGJ	54654	<b>EGJ</b>	3200	1000	120	P28s	25500	400	T6	12	
EGK	54656	<b>EGK</b>	3200	1000	120	P28s	24500	400	T6	12	
EGN	54659	<b>EGN</b>	3200	500	120	G22	13000	100	T6	12	58
EGR	54662	<b>EGR</b>	3200	750	120	G22	20000	200	T7	12	58
EGT	54664	<b>EGT</b>	3200	1000	120	G22	27500	250	T6	12	58
EGW	58510	<b>EGW 64535</b>	3400	650	120	GY6.35	20000	15	T8	12	
EHC/EHB	54506	<b>EHC/EHB</b>	3200	500	120	G9.5	13000	300	T4	12	



Med Bi-pin

R7s, RX7s

GZ9.5

Bi-Pin

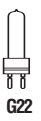
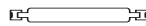
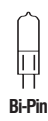
G22

Med 2-pin

# STUDIO, THEATRE, TV & VIDEO

ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EHD	54508	EHD	3000	500	120	G9.5	10600	2000	T4	12	
EHF	54510	EHF	3300	750	120	G9.5	20400	300	T5	12	
EHG	54512	EHG	3000	750	120	G9.5	15400	2000	T5	12	
EHP	58942	EHP	2900	300	120	R7s	5000	2500	T4	12	
EHR	58936	EHR	3000	400	120	R7s	7500	2000	T4	12	
EJG	54598	EJG	3200	750	120	R7s	20600	400	T3	12	60
EKB	54837	EKB	3200	420	120	GZ9.5	11000	75	T6	24	58
FAD	54574	FAD	3200	650	120	R7s	16500	100	T4	12	
FAL	58860	FAL	3200	420	120	R7s	11000	75	T4	24	24
FCB	54483	FCB	3200	600	120	R7s	16500	75	T4	24	
FCM	54442	FCM	3200	1000	120	R7s	28000	400	T3	12	60
FDA	54471	FDA	3200	400	120	R7s	10400	250	T4	12	24
FDB	54435	FDB	3200	1500	120	R7s	41200	400	T4	12	60
FDG	54387	64579 115-120V	3200	1000	120	R7s	33000	15	T4	12	12
FDN	54534	FDN	3200	500	120	R7s	12800	400	T2.5	12	60
FEL	54570	FEL	3200	1000	120	G9.5	27500	300	T6	12	
FEP	54515	FEP/240	3200	1000	240	G9.5	23000	150	T6	12	
FER	54571	FER	3200	1000	120	RX7s	27500	500	T6	12	
FEV	54441	FEV	3200	200	120	DC Bayonet	5500	50	T4	12	
FEX	54514	FEX/230	3200	2000	230	RX7s	50000	300	T8	12	11
FEX	54518	FEX/240	3200	2000	240	RX7s	50000	300	T8	12	
FEY	54559	FEY	3200	2000	120	RX7s	57400	400	T8	12	
FFJ	54488	FFJ	3200	600	120	R7s	16500	75	T4	24	24
FFM	58862	FFM	3200	420	120	R7s	11000	75	T4	24	24
FFT	54350	FFT	3200	1000	120	R7s	27000	300	T3	12	
FHM	54532	FHM	3200	1000	120	R7s	27300	300	T3	12	60
FKJ	54681	FKJ CP/71	3200	1000	230	G22	26000	200	T6	20	58
FKK	54699	FKK CP/73	3200	2000	230	G38	52000	400	T11	1	58
FKW	54711	FKW	3200	300	120	GY9.5	7800	200	T6	24	58
FLK	54589	FLK	3200	575	115	G9.5	16500	300	T5	12	188
FLK	54551	FLK/X 115V	3200	575	115	G9.5	10000	2000	T5	12	188
	54549	FLK PLUS HPR 575/115	3200	575	115	G9.5	16500	300	T6	12	187
FMR	54412	FMR	3000	600	120	GY9.35	12500	2000	T5	24	
FRG	54629	FRG	3200	500	120	GY9.35	13000	150	T6	24	58
FRK	54631	FRK	3200	650	120	GY9.5	16900	200	T7	24	58
FRL	54638	FRL CP/89	3200	650	230	GY9.5	16250	150	T7	25	58
FSH	54436	FSH	3200	125	120	G5.3	2500	200	T3	24	
FTK	54875	FTK	3200	500	120	GY9.5	12000	200	T6	24	58
FVL	54459	FVL	3200	200	120	GX5.3	5200	200	T4	24	
FVM	54900	FVM	3200	105	120	GX5.3	2250	250	T4	24	
GCA	54428	GCA	3200	250	120	G5.3	5700	200	T3	24	
GLA	54516	GLA 575/115/2000	3050	575	115	G9.5	10500	2000	T6	12	18

DISPLAY OPTIC HALOGEN



## STUDIO, THEATRE, TV & VIDEO

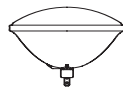
ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
GLC	54507	<b>GLC 575/115/300</b>	3250	575	115	G9.5	15500	300	T6	12	18,20
GLD	54522	<b>GLD 750/115/300</b>	3250	750	115	G9.5	19000	300	T6	12	18
GLE	54523	<b>GLE 750/115/1500</b>	3050	750	115	G9.5	17400	1500	T6	12	
GLF	54460	<b>GLF</b>	3100	235	230	G5.3	5100	100	T4	24	
	11624	<b>111A</b>	2900	75	120	SC Bayonet	1120	15	S11	24	
	11625	<b>140</b>	2900	75	120	Medium	1150	35	S14	24	
	58930	<b>150/25T4</b>	2700	150	25	R7s	2700	3000	T4	25	
	55052	<b>20PAR/36/CAP/WFL</b>		20	12	G53		4000	PAR36	12	
	11657	<b>211 118V</b>	3200	75	120	Medium	1215	200	A21	12	
	11656	<b>212 118V</b>	3050	150	120	Medium	2700	200	A21	12	
	54499	<b>4515 PAR36 30W</b>		30	6	G53	67000	100	PAR36	12	
	54001	<b>64501</b>	3400	150	120	GX6.35	4500	25	T4	25	
	58639	<b>64573</b>	3400	1000	120	GX6.35	33000	15	T8	25	
	58958	<b>64573</b>	3400	1000	120	GZ6.35	33000	15	T8	12	
	58525	<b>64575</b>	3400	1000	230	GX6.35	33000	15	T8	12	
	54232	<b>64614</b>		75	12	G5.3-4.8		25	T2.5	20	60
	54701	<b>64805 CP/85 (CP/29)</b>	3200	5000	230	G38	135000	400	T19	1	58
	58497	<b>DYS/300</b>	3200	300	115	GZ9.5	7500	100	T6	24	
	54625	<b>HPL 375/115 (UCF)</b>	3200	375	115	Sp Med Bipin	10540	300	T6	12	26
	54649	<b>HPL 375/115/X (UCF)</b>	2950	375	115	Sp Med Bipin	8000	1000	T8	12	26
	54623	<b>HPL 550/77 (UCF)</b>	3265	550	77	Sp Med Bipin	16170	300	T6	12	26
	54604	<b>HPL 550/77/X (UCF)</b>	3065	550	77	Sp Med Bipin	12160	1500	T6	12	26
	54622	<b>HPL 575/115 (UCF)</b>	3265	575	115	Sp Med Bipin	16520	300	T6	12	26
	54807	<b>HPL 575/115/X (UCF)</b>	3065	575	115	Sp Med Bipin	12360	1500	T6	12	26
	54817	<b>HPL 575/120 (UCF)</b>	3265	575	120	Sp Med Bipin	16460	300	T6	12	26
	54815	<b>HPL 575/120/X (UCF)</b>	3050	575	120	Sp Med Bipin	12360	1500	T6	12	26
	54618	<b>HPL 575/230 (UCF)</b>	3200	575	230	Sp Med Bipin	14900	400	T6	12	26
	54665	<b>HPL 575/230/X (UCF)</b>	3050	575	230	Sp Med Bipin	11780	1500	T6	12	26
	54619	<b>HPL 575/240 (UCF)</b>	3200	575	240	Sp Med Bipin	14900	400	T6	12	26
	54703	<b>HPL 575/240/X (UCF)</b>	3050	575	240	Sp Med Bipin	11780	1500	T6	12	26
	54602	<b>HPL 750/115 (UCF)</b>	3265	750	115	Sp Med Bipin	21900	300	T6	12	26
	54611	<b>HPL 750/115/X (UCF)</b>	3050	750	115	Sp Med Bipin	16400	1500	T6	12	26
	54605	<b>HPL 750/120 (UCF)</b>	3250	750	120	Sp Med Bipin	21900	300	T6	12	26
	54653	<b>HPL 750/120/X (UCF)</b>	3065	750	120	Sp Med Bipin	16400	1500	T6	12	26
	54603	<b>HPL 750/230 (UCF)</b>	3200	750	230	Sp Med Bipin	19750	300	T6	12	26
	54670	<b>HPL 750/230/X (UCF)</b>	3050	750	230	Sp Med Bipin	15600	1500	T6	12	26
	54614	<b>HPL 750/240 (UCF)</b>	3200	750	240	Sp Med Bipin	19750	300	T6	12	26
	54704	<b>HPL 750/240/X (UCF)</b>	3050	750	240	Sp Med Bipin	15600	1500	T6	12	26
	54825	<b>HPL 750/77 (UCF)</b>	3265	750	77	Sp Med Bipin	22950	300	T6	12	26
	54798	<b>HWHV 1200W/220V</b>	3200	1200	220	GX9.5	33500	300	T7	12	207
	54799	<b>HWLV 1200W/80V</b>	3200	1200	80	G22	37500	300	T7	12	207
	54796	<b>HWMV 1200W/115V</b>	3200	1200	115	GX9.5	37000	300	T7	12	207



QXL



STUDIOLINE



PAR 56, 64

## STUDIO, THEATRE, TV & VIDEO

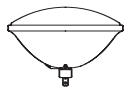
ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	54882	<b>QXL 750/77</b>	3250	750	77	QXL	22950	300	T6	12	178,180,181,184
	54883	<b>QXL 750/77/X</b>	3050	750	77	QXL	18000	1500	T6	12	178,180,181,184
	20607	<b>STUDIOLINE 55W/3200</b>	3200	55		2G11	3800	8000	T5	10	
	20608	<b>STUDIOLINE 55W/5600</b>	5600	55		2G11	3800	8000	T5	10	

### LARGE PAR - ALUPAR®

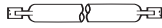
ANSI Code	Product Number	Ordering Abbreviation	Luminous Intensity (cd)	Watts	Volts	Base	Color Temp (K)	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	56003	<b>aluPAR 56/NSP/300W/120V</b>	68000	300	120	GX16d	2950	2000	PAR56	6	30,198,199
	56004	<b>aluPAR 56/MFL/300W/120V</b>	24000	300	120	GX16d	2950	2000	PAR56	6	29,198,199
	56005	<b>aluPAR 56/MFL/300W/120V</b>	11000	300	120	GX16d	2950	2000	PAR56	6	31,198,199
	56000	<b>aluPAR 56/NSP/300W/230V</b>	70000	300	230	GX16d	2950	2000	PAR56	6	30,198,199
	56001	<b>aluPAR 56/MFL/300W/230V</b>	30000	300	230	GX16d	2950	2000	PAR56	6	29,198,199
	56002	<b>aluPAR 56/MFL/300W/230V</b>	10000	300	230	GX16d	2950	2000	PAR56	6	31,198,199
	56086	<b>aluPAR 56/NSP/500W/120V</b>	96000	500	120	GX16d	2950	4000	PAR56	6	30,198,199
	56213	<b>aluPAR 56/MFL/500W/120V</b>	45000	500	120	GX16d	2950	4000	PAR56	6	29,198,199
	56006	<b>aluPAR 56/MFL/500W/120V</b>	21000	500	120	GX16d	2950	4000	PAR56	6	31,198,199
	56007	<b>aluPAR 64/NSP/500W/120V</b>	110000	500	120	GX16d	2950	2000	PAR64	6	30,198,199
	56008	<b>aluPAR 64/MFL/500W/120V</b>	37000	500	120	GX16d	2950	2000	PAR64	6	29,198,199
	56009	<b>aluPAR 64/MFL/500W/120V</b>	13000	500	120	GX16d	2950	2000	PAR64	6	31,198,199
	56018	<b>aluPAR 64/NSP/500W/230V</b>	140000	500	230	GX16d	3200	300	PAR64	6	30,198,199
	56019	<b>aluPAR 64/MFL/500W/230V</b>	65000	500	230	GX16d	3200	300	PAR64	6	29,198,199
	56017	<b>aluPAR 64/NSP/1000W/120V</b>	400000	1000	120	GX16d	3200	800	PAR64	6	32,198,199
	56010	<b>aluPAR 64/NSP/1000W/120V</b>	330000	1000	120	GX16d	3200	800	PAR64	6	30,198,199
	56011	<b>aluPAR 64/MFL/1000W/120V</b>	12000	1000	120	GX16d	3200	800	PAR64	6	29,198,199
	56012	<b>aluPAR 64/MFL/1000W/120V</b>	40000	1000	120	GX16d	3200	300	PAR64	6	31,198,199
	56014	<b>aluPAR 64/NSP/1000W/230V</b>	297000	1000	230	GX16d	3200	300	PAR64	6	30,198,199
	56015	<b>aluPAR 64/MFL/1000W/230V</b>	138000	1000	230	GX16d	3200	300	PAR64	6	29,198,199
	56016	<b>aluPAR 64/MFL/1000W/230V</b>	38000	1000	230	GX16d	3200	300	PAR64	6	31,198,199

### LARGE PAR - OTHER

ANSI Code	Product Number	Ordering Abbreviation	Luminous Intensity (cd)	Watts	Volts	Base	Color Temp (K)	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EXC	56280	<b>EXC/230</b>	320000	1000	230	GX16d	3200	300	PAR64	6	27,30
EXC	56232	<b>EXC/240</b>	320000	1000	240	GX16d	3200	300	PAR64	6	27,30
EXD	56281	<b>EXD/230</b>	270000	1000	230	GX16d	3200	300	PAR64	6	27
EXD	56233	<b>EXD/240</b>	270000	1000	240	GX16d	3200	300	PAR64	6	27
EXE	56283	<b>EXE/230</b>	125000	1000	230	GX16d	3200	300	PAR64	6	27
EXE	56234	<b>EXE/240</b>	125000	1000	240	GX16d	3200	300	PAR64	6	27
FFN	56214	<b>FFN</b>	400000	1000	120	GX16d	3200	800	PAR64	6	27,32
FFP	56215	<b>FFP</b>	330000	1000	120	GX16d	3200	800	PAR64	6	27,30
FFR	56217	<b>FFR</b>	125000	1000	120	GX16d	3200	800	PAR64	6	27,29



PAR 56, 64



RSC



Med Bi-pin



G22



B15d



E14

## STUDIO, THEATRE, TV & VIDEO LARGE PAR - OTHER

ANSI Code	Product Number	Ordering Abbreviation	Luminous Intensity (cd)	Watts	Volts	Base	Color Temp (K)	Avg Rated Life (hrs)	Bulb	Pkg Qty	Footnotes
FFS	56216	FFS	40000	1000	120	GX16d	3200	800	PAR64	6	27,31
	14974	350PAR56/SP		350	75	MEP		750	PAR56	12	27

## SPECIAL PURPOSE HEAT LAMPS

ANSI Code	Product Number	Ordering Abbreviation	Watts	Volts	Base	Lumens	Avg Rated Life (hrs)	Bulb	Pkg Qty	Footnotes
	59850	500T3Q/IR 120V	500	120	Flex Nick Leads		5000	T3	12	139
	59822	500T3Q/IR/7 120V	500	120	RSC		5000	T3	12	139
	54555	1000Q/T6/RTP/C	1000	120	G9.5	27500	300	T6	12	121
	54584	1000Q/T6/RTPFS	1000	120	G9.5	27500	300	T6	12	
	54752	1000T6QRTP/X	1000	120	G9.5	25000	2000	T6	12	
	54560	1000TQ/RTP/CR/BULK	1000	120	G9.5	25000	2000	T6	12	127
	54633	1500T6Q/RTP/GS	1500	120	G9.5	42000	300	T6	12	
	54537	2000T8Q/120V/G22	2000	120	G22	45000	2000	T8	12	184
FRN	54588	FRN 2000T7Q	2000	120	G9.5	56500	200	T7	12	
	54548	2500T8Q/120V	2500	120	GY9.5	75000	300	T6	12	
	59934	1200T3Q/IR/CL/HT 144V	1200	144	Flex Nick Leads		3000	T3	12	121,125,139
	59860	1000T3Q/IR 230-250V	1000	240	Flex Nick Leads		5000	T3	12	139
	54521	1000/240V/G9.5	1000	240	G9.5	23000	150	T6	12	
	59864	1600T3Q/IR 240V	1600	240	Flex Nick Leads		5000	T3	12	139
	59841	1600T3Q/IR/7 240V	1600	240	RSC		5000	T3	12	139
	59936	1600T3Q/IR 277V	1600	277	Flex Nick Leads		5000	T3	12	139
	59867	2500T3Q/IR 480V	2500	480	Flex Nick Leads		5000	T3	12	139
	59803	2500T3Q/IR/7 480V	2500	480	RSC		5000	T3	12	139
	59859	3650T3Q/IR/CL 480V	3650	480	Flex Nick Leads		5000	T3	12	139
	59870	3800T3Q/IR 570V	3800	570	Flex Nick Leads		5000	T3	12	139

## OPTOELECTRONICS

Ordering Abbreviation	Product Number	Watts	Volts	Base	Operating Position	Avg Rated Life (hrs)	Pkg Qty	Footnotes
8013	76311	10	6	BA15d	h 105	200	100	59
8017	76313	15	6	BA15d	Any	1000	100	
8018	76314	15	6	BA15d	h 30	100	100	34,59
8100	76321		6	E14	s 105	600	100	58
70314 (390153)	76304	25	6	P47d			100	
70335 BULK	76302	27	6	Special			200	

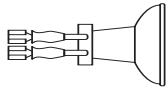
## AIRCRAFT

Watts	Bulb	Volts	Base	Product Number	Ordering Abbreviation	Application	Beam Type	CBCP	Filament	Avg Rated Life (hrs)	MOL (mm)	Pkg Qty	Footnotes
100	T3	12	PG22	54032	64621 HLX	Aircraft				2000	48	30	58





PAR46,64



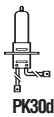
MR11, MR16 (leads)

## AIRCRAFT

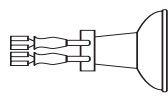
Watts	Bulb	Volts	Base	Product Number	Ordering Abbreviation	Application	Beam Type	CBCP	Filament	Avg Rated Life(hrs)	MOL (mm)	Pkg Qty	Footnotes
250	PAR46	28	G53	15399	<b>4551</b>	Aircraft Taxiing	VNSP	75000	CC-6	25	95.25	12	32
450	PAR46	28	G53	56229	<b>Q4681</b>	Aircraft Landing / Taxiway	VNSP	310000	CC-6	50	63.5	12	27,32
600	PAR64	28	G53	14936	<b>4559</b>	Aircraft Landing / Taxiway	VNSP	600000	CC-8	25	101.6	6	32
				56222	<b>Q4559</b>	Aircraft Landing / Taxiway	VNSP	600000	CC-8	100	101.6	6	27,32
				56223	<b>Q4559X</b>	Aircraft Landing / Taxiway	VNSP	765000	CC-8	100	101.6	6	27,32
1000	PAR64	28	G53	14988	<b>4557</b>	Aircraft Landing/Taxiway	VNSP	540000	CC-8	25	101.6	6	32
				14994	<b>5557</b>	Aircraft Landing/Taxiway	VNSP	540000	CC-8	50	101.6	6	32,67

## AIRFIELD

Watts	Bulb	Base	Product Number	Ordering Abbreviation	Application	Current (A)	Lumens	Filament	Avg Rated Life(hrs)	LCL (mm)	MOL (mm)	Pkg Qty	Footnotes
30	MR16	Leads-A	58964	<b>6.6A/30MR16/64331A/FL</b>	Airfield / Airport	6.6			1000		45.6	20	205
			58506	<b>6.6A/30MR16/64331A/SP</b>	Airfield/Airport	6.6			1000		45.6	20	205
	Leads-A/C	58730	<b>6.6A/30MR16/64331AC/FL</b>	Airfield / Airport	6.6			1000		45.6	10	138	
		58938	<b>6.6A/30MR16/64331AC/FL</b>	Airfield / Airport	6.6			1000		45.6	20	138	
	T3.5	GZ9.5	58850	<b>6.6A/30T3.5/64322/EXL/DL</b>	Airfield/Airport	6.6	400	C-8	2000	25.4	44.5	12	
	58893		<b>6.6A/30T3.5/EXL</b>	Airfield/Airport	6.6	600	C-8	1000	25.4	44.5	12		
	T10	Med Prefocus	17980	<b>6.6A/30T10/1P</b>	Airfield/Airport	6.6	400	C-2V	1000	38.1	100	60	
40	MR11	Leads-A	58899	<b>6.6A/40MR11/64333A</b>	Airfield / Airport	6.6			1500		37	20	205
		Leads-B	58787	<b>6.6A/40MR11/64333B</b>	Airfield / Airport	6.6			1500		37	10	208
			58889	<b>6.6A/40MR11/64333B</b>	Airfield / Airport	6.6			1500		37	20	208
45	MR16	Leads-A	58545	<b>6.6A/45MR16/64337A 45-15</b>	Airfield / Airport	6.6			1500		45.6	10	205
			58907	<b>6.6A/45MR16/64337A 45-15</b>	Airfield / Airport	6.6			1500		45.6	20	205
		Leads-B	58758	<b>6.6A/45MR16/64337B 45-15</b>	Airfield / Airport	6.6			1500		45.6	10	208
			58908	<b>6.6A/45MR16/64337B 45-15</b>	Airfield / Airport	6.6			1500		45.6	20	208
	T3	R7s	58704	<b>6.6A/45T3/CL/64315</b>	Airfield/Airport	6.6	750	C-8	1000	23	47.5	25	
	T3.5	G6.35	59928	<b>6.6A/45T3.5Q/64321</b>	Airfield / Airport	6.6	840	C-8	1200	33	45	40	58,60
			58813	<b>6.6A/45T3.5Q/64321</b>	Airfield / Airport	6.6	840	C-8	1200	33	45	100	58,60
		GZ9.5	58846	<b>6.6A/45T3.5/64320/EXM</b>	Airfield/Airport	6.6	875	C-8	1000	25.4	44.5	12	58,60
			58892	<b>6.6A/45T3.5/EXM</b>	Airfield/Airport	6.6	875	C-8	1000	25.4	44.5	12	58,60
	T4	PK30d-A	58697	<b>6.6A/45T4/64319 FEMALE</b>	Airfield/Airport	6.6	800	C-8	1000	20	53	100	58,120,205,271
58877			<b>6.6A/45T4CL/64318</b>	Airfield/Airport	6.6	800	C-8	1000	16	58	100	58,205,271	
PK30d-C		58705	<b>6.6A/45T4/CL/64317</b>	Airfield/Airport	6.6	800	C-8	1000	16	58	100	58,209	
		58722	<b>6.6A/45T4/64319Z</b>	Airfield/Airport	6.6	800	C-8	1000	20	53	100	58,121,209,268	
	T10	Med Prefocus	17981	<b>6.6A/45T10/P</b>	Airfield/Airport	6.6	675	C-2V	1000	38.1	100	60	
48	MR16	Leads-A	58891	<b>6.6A/48MR16/64337A 48-15</b>	Airfield/Airport	6.6			1500		45.6	20	205,271
			58905	<b>6.6A/48MR16/64337A LL IRC</b>	Airfield/Airport	6.6			3000		45.6	20	205,271
		Leads-A/C	58894	<b>6.6A/48W/MR16/64338AC</b>	Airfield / Airport	6.6			1000		45.6	20	58



PK30d



MR11, MR16 (leads)

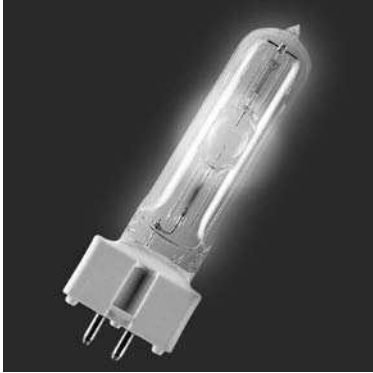


Med 2-pin

## AIRFIELD

Watts	Bulb	Base	Product Number	Ordering Abbreviation	Application	Current (A)	Lumens	Filament	Avg Rated Life(hrs)	LCL (mm)	MOL (mm)	Pkg Qty	Footnotes
48	MR16	Leads-B	58906☼	<b>6.6A/48MR16/64337B LL IRC</b>	Airfield/Airport	6.6			3000		45.6	20	208,271
		Leads-C	58952☼	<b>6.6A/48MR16/64337C LL IRC</b>	Airfield/Airport	6.6			3000		45.6	20	209
62	MR16	Leads-A	58493	<b>6.6A/62W/MR16/64336A</b>	Airfield/Airport	6.6			1500		44	20	205
65	T4	PK30d-C	58726	<b>6.6A/65T4/64328Z/HLX</b>	Airfield/Airport	6.6	1450	C Bar 6	1000	20	53	100	58,123,209,268
100	T4	PK30d-A	58709	<b>6.6A/100T4/64341/HLX</b>	Airfield/Airport	6.6		C Bar 6	1000	20	55	100	58,205,271
		PK30d-C	58703	<b>6.6A/100T4/64341Z/HLX</b>	Airfield/Airport	6.6	2700	C Bar 6	1000	20	55	100	125,209,268
		PK30d-C	58706	<b>6.6A/100T4/64342/HLX</b>	Airfield/Airport	6.6	2700	C Bar 6	1000	20	58	100	58,209
105	MR16	Leads-A	58953☼	<b>6.6A/105MR16/64339A</b>	Airfield / Airport	6.6			1000		45.6	20	205,271
		Leads-A/C	58960☼	<b>6.6A/105MR16/64339AC</b>	Airfield/Airport	6.6			1000		45.6	20	138
		Leads-B	58759☼	<b>6.6A/105MR16/64339B</b>	Airfield/Airport	6.6			1000		45.6	10	208
		Leads-B	58961☼	<b>6.6A/105MR16/64339B</b>	Airfield/Airport	6.6			1000		45.6	20	208
		Leads-C	58963☼	<b>6.6A/105MR16/64339C</b>	Airfield / Airport	6.6			1000		45.6	20	209,268
115	T4	GY9.5	58854☼	<b>6.6A/115T4Q/58798/2PPF/EVV</b>	Airfield/Airport	6.6	2900	C Bar 6	1000	39.1	57	12	140
150	T4	GY9.5	58855☼	<b>6.6A/150T4Q/64354/EWR/DL</b>	Airfield/Airport	6.6	4000	C Bar 6	1500	39.1	56.5	12	140
		GY9.5	58777☼	<b>6.6A/150T4Q/64354/EWR/DL</b>	Airfield/Airport	6.6	4000	C Bar 6	1500	39.1	56.5	30	58,140
		PK30d-A	58717	<b>6.6A/150T4/64361/HLX</b>	Airfield/Airport	6.6	3600	C Bar 6	1000	20	58	100	58,205,271,274
		PK30d-C	58724	<b>6.6A/150T4Q/64361Z/HLX</b>	Airfield/Airport	6.6	3600	C Bar 6	1000	20	58	100	58,209,268
200	PAR64	GX16d	56220☼	<b>6.6A/200PAR64Q/2P</b>	Airfield/Airport	6.6		CC-6	2000		114.3	6	27,278
	T4	G6.35	59078☼	<b>6.6A/200T4Q/64386</b>	Airfield / Airport	6.6	4700	C Bar 6	1200	33	47	40	58,60
			58815	<b>6.6A/200T4Q/64386</b>	Airfield / Airport	6.6	4700	C Bar 6	1200	33	47	100	58
			58851☼	<b>6.6A/200T4Q/2PPF/58750/EZL/DL</b>	Airfield/Airport	6.6	5200	CC-6	1000	39.1	65	12	140
	P30d	58821	<b>6.6A/200T4Q/CL/DCR/58746/DL</b>	Airfield/Airport	6.6	5000	CC-6	1000	27	80.9	100	58,60	
	PK30d-A	58649	<b>6.6A/200T4/64382A/HLX</b>	Airfield/Airport	6.6	4800	CC-6	1000	20	64	100	58,205	
	PK30d-C	58708	<b>6.6A/200T4/64382C/HLX</b>	Airfield/Airport	6.6	4800	CC-6	1000	20	64	100	58,209,273	
	T5	R7s	58707	<b>6.6A/200T5/CL/64380</b>	Airfield/Airport	6.6	4400	CC-8	1000	21.3	60.2	25	

## 4ArXS (For Architainment eXtreme Seal) Innovative metal halide lamps for creative architectural and effect lighting



### 4 ArXS HSD®

4ArXS HSD are new powerful metal halide lamps from OSRAM with innovative eXtreme Seal technology. The 4ArXS opens up new prospects for creative architectural and effect lighting.

#### Features and Benefits:

- Average service life of 2000 to 6000 hours
- Outstanding luminous intensity and color consistency throughout the life of the lamp
- Low devitrification of the bulb wall
- Daylight type (6000 K) and "bright light" type (7000 – 8000K)
- Simple and reliable cold starting

#### Applications:

- Architectural lighting
- Projected advertising
- Nightclub lighting
- TV shows, concerts, musicals and theatre

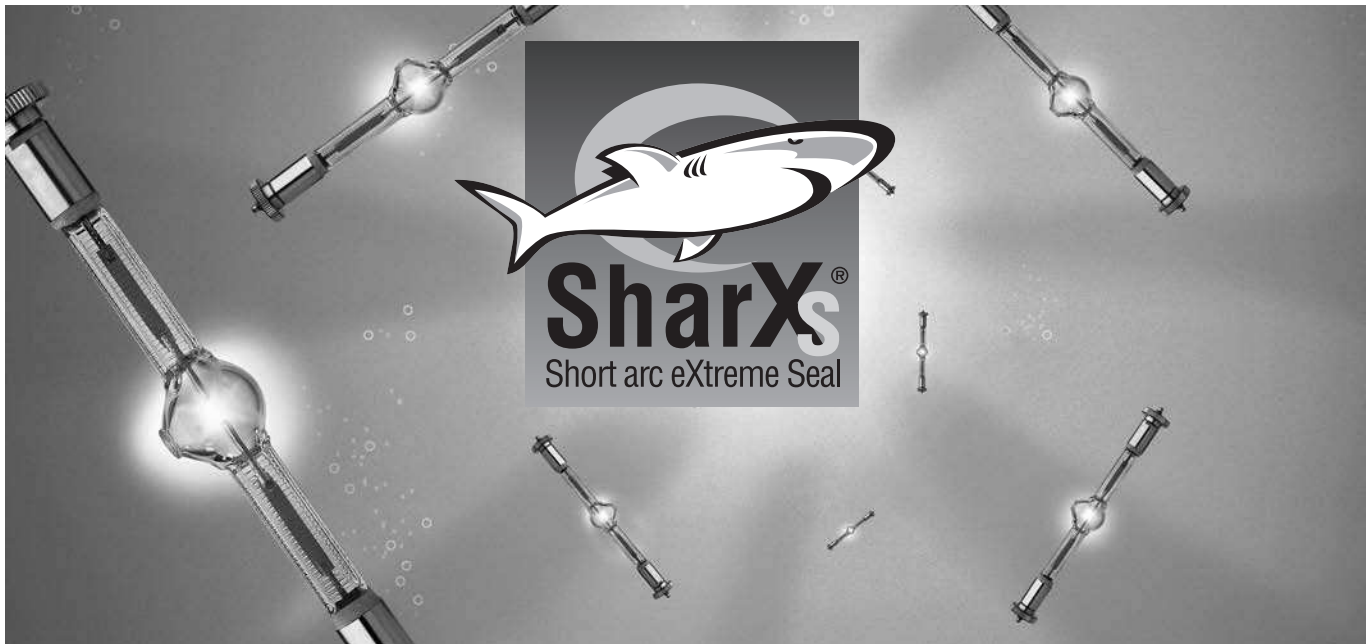
Optimized lamp seal technology to withstand interior base temperatures up to 450 °C.

## LIGHT THEM UP!



## SharXS® HTI® from OSRAM

*The original light with a bite*



The SharXS (Short arc eXtreme Seal) HTI family uses state-of-the-art HTI technology to achieve a particularly high luminous efficacy. The arc in these innovative light sources has been reduced to 3-7mm. What this means for you is the SharXS HTI produces a higher luminance from the same wattage and therefore saves electricity and reduces operating costs.

### Features and Benefits

- Less sensitive to heat
- Always ready for a hot restart
- Allows more compact luminaire design
- Pre-focus base for accurate lamp installation
- OSRAM SFc10-4 Pre-focus socket with its unique high performance contact system pairs with all lamp wattages

### Ideal for intelligent luminaires

- Moving heads
- Scanners
- Projectors
- Color changers

### eXtreme-Seal (XS) Technology

Optimized lamp seal technology to withstand interior base temperatures up to 450 °C.

### SharXS HTI in its element

SharXS lamps are at home in all areas of entertainment lighting

- Shows
- Clubs
- Special Events
- Concerts
- TV studios
- Advertising and retail

## Baby SharXS® HTI® from OSRAM

*An offspring with just as sharp of a bite*



### SharXS HTI now in just 93mm

Measuring only 93mm, the latest offspring in the family has all the benefits of the full-size OSRAM SharXS HTI.

- Short 5mm arc for greater efficiency
- eXtreme Seal(XS) technology for improved thermal loading
- Modular design with the same dimensions for all wattages

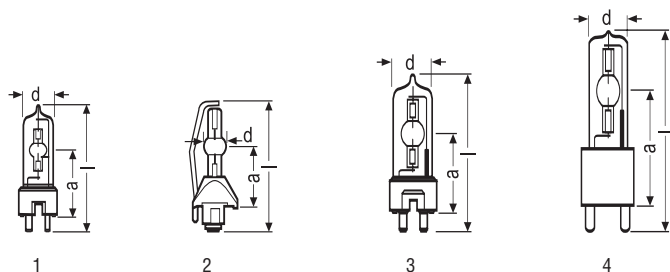
### Good genes: the new Baby SharXS

The tiny Baby SharXS develops all its power from just 93mm. The small dimensions of the Baby SharXS will inspire designers to create compact luminaires. Because of their lower weight, not only will these luminaires be easier to handle but more of them will fit on a lighting rig.

**NOTES:**

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# HMI® METAL HALIDE



## HMI® SINGLE-ENDED

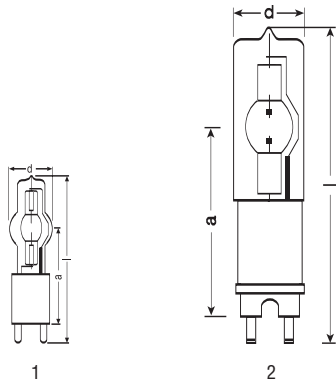
Ordering Abbreviation	HMI 200 W/SE	HMI 250 W/SE	HMI 400 W/SE
Product Number	54061	54062	54137
Watts (W)	200	270	400
Volts (V)	70	50	70
Current (A)	3.0	5.0	6.9
CRI	>90	>90	>90
Lumens (lm)	16000	16200	33000
Color Temp (K)	6000	6000	6000
Length l max (mm)	80	84	110
Distance a (mm)	39	35	60
Diameter d (mm)	20	12	23
Electrode Gap - cold (mm)	5	5	6
Avg Rated Life (hrs)	200	250	650
Operating Position	Any	p 45	Any
Base	GZY9.5	FaX1.5	GZ9.5
Hot Restart	Yes	Yes	Yes
Fig No	1	2	3
Symbols & Footnotes	1	1,60	90

## HMI® SINGLE-ENDED

Ordering Abbreviation	HMI 575 W/SEL XS	HMI 700 W/SE XS	HMI 1200 W/SEL XS
Product Number	54063	54310*	54067
Watts (W)	575	700	1200
Volts (V)	95	95	100
Current (A)	7.0	9.0	13.8
CRI	>90	>90	>90
Lumens (lm)	49000	55000	110000
Color Temp (K)	6000	6000	6000
Length l max (mm)	145	145	200
Distance a (mm)	70	70	107
Diameter d (mm)	30	30	42
Electrode Gap - cold (mm)	7	7	10
Avg Rated Life (hrs)	1000	750	1000
Operating Position	Any	Any	Any
Base	G22	G22	G38
Hot Restart	Yes	Yes	Yes
Fig No	4	4	4
Symbols & Footnotes	90,161	161	90,161



## HMI® METAL HALIDE



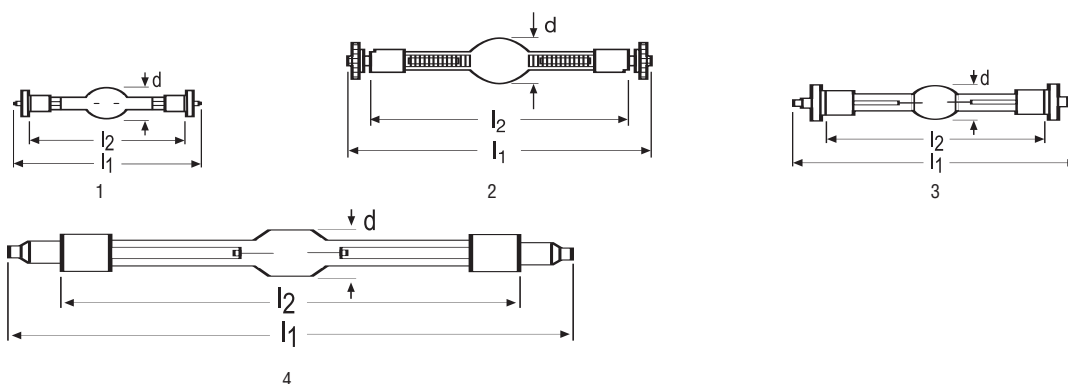
### HMI® SINGLE-ENDED

Ordering Abbreviation	HMI 2500 W/SE XS	HMI 4000 W/SE XS	HMI 6000 W/SE XS
Product Number	54070	54321*	54099
Watts (W)	2500	4000	6000
Volts (V)	115	200	123
Current (A)	25.6	24.0	55.0
CRI	>90	>90	>90
Lumens (lm)	240000	380000	600000
Color Temp (K)	6000	6000	6000
Length l max (mm)	225	250	360
Distance a (mm)	127	142	210
Diameter d (mm)	60	75	75
Electrode Gap - cold (mm)	14	20	23
Avg Rated Life (hrs)	500	500	500
Operating Position	Any	Any	s 135
Base	G38	G38	GX38
Hot Restart	Yes	Yes	Yes
Fig No	1	1	2
Symbols & Footnotes	90,161	90,161	58,90,139,161

### HMI® SINGLE-ENDED

Ordering Abbreviation	HMI 12000 W/SE XS	HMI 12000W/SE/GX51	HMI 18000 W/SE/GX51
Product Number	54113	54357*	54289*
Watts (W)	12000	12000	18000
Volts (V)	160	160	225
Current (A)	84.0	84.0	88.0
CRI	>90	>90	>90
Lumens (lm)	1150000	1150000	1600000
Color Temp (K)	6000	6000	6000
Length l max (mm)	450	460	495
Distance a (mm)	255	260	260
Diameter d (mm)	100	100	100
Electrode Gap - cold (mm)	27	27	44
Avg Rated Life (hrs)	300	300	300
Operating Position	s 135	s 135	s 135
Base	GX38	GX51	GX51
Hot Restart	Yes	Yes	Yes
Fig No	2	2	2
Symbols & Footnotes	58,90,139,161	58,90,161	58,90,161

## HMI® METAL HALIDE



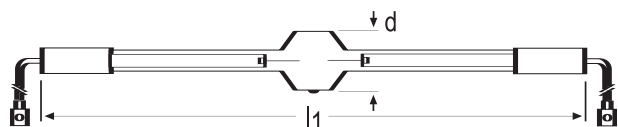
### HMI® DOUBLE-ENDED

Ordering Abbreviation	HMI 575 W/DXS	HMI 575 W/GS	HMI 1200 W/DXS	HMI 1200 W/GS	HMI 1200 W/S XS
Product Number	54313	54098 <sup>⚡</sup>	55139 <sup>⚡</sup>	54066 <sup>⚡</sup>	54088 <sup>⚡</sup>
Watts (W)	575	575	1200	1200	1200
Volts (V)	95	95	100	100	100
Current (A)	7.0	7.0	13.8	13.8	13.8
CRI	>90	>90	>90	>90	>90
Lumens (lm)	49000	49000	110000	110000	110000
Color Temp (K)	6000	6000	6000	6000	6000
Length l1 max (mm)	135	135	220	220	135
Length l2 max (mm)	115	115	180	180	115
Diameter d (mm)	21	21	27	27	21
Electrode Gap - cold (mm)	7	7	10	10	7
Avg Rated Life (hrs)	1000	1000	750	750	750
Operating Position	Any	Any	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc15.5	SFc15.5	SFc10-4
Hot Restart	Yes	Yes	Yes	Yes	Yes
Fig No	1	1	2	2	3
Symbols & Footnotes	55,90,161	52,90	55,90,161	52,90	43,90,161,196,201

### HMI® DOUBLE-ENDED

Ordering Abbreviation	HMI 2500 W/DXS	HMI 2500 W/S XS	HMI 4000 W	HMI 4000 W/DXS	
Product Number	54265 <sup>⚡</sup>	54068	54071 <sup>⚡</sup>	54314 <sup>⚡</sup>	
Watts (W)	2500	2500	4000	4000	
Volts (V)	115	115	200	200	
Current (A)	25.6	25.6	24.0	24.0	
CRI	>90	>90	>90	>90	
Lumens (lm)	240000	240000	380000	380000	
Color Temp (K)	6000	6000	6000	6000	
Length l1 max (mm)	355	210	405	405	
Length l2 max (mm)	290	150	340	340	
Diameter d (mm)	31.5	31.5	36	36	
Electrode Gap - cold (mm)	14	14	34	34	
Avg Rated Life (hrs)	500	500	500	500	
Operating Position	p 30	p 30	p 15	p 15	
Base	SFa21	SFa21	SFa21	SFa21	
Hot Restart	Yes	Yes	Yes	Yes	
Fig No	4	4	4	4	
Symbols & Footnotes	55,60,161	43,60,90,161,201	60,90,219	55,60,90,161,219	

# HMI® METAL HALIDE



2

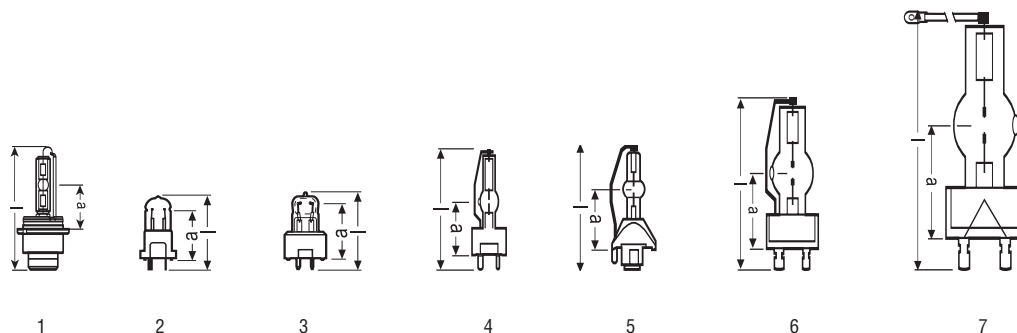
## HMI® DOUBLE-ENDED

Ordering Abbreviation	HMI 6000 W	HMI 6000 W/DXS	HMI 12000 W/DXS	HMI 12000 W/XS
Product Number	54073*	54315*	54316*	54074*
Watts (W)	6000	6000	12000	12000
Volts (V)	123	123	160	160
Current (A)	55.0	55.0	84.0	84.0
CRI	>90	>90	>90	>90
Lumens (lm)	570000	570000	1150000	1150000
Color Temp (K)	6000	6000	6000	6000
Length l1 max (mm)	450	450	470	470
Length l2 max (mm)				
Diameter d (mm)	54	54	64	64
Electrode Gap - cold (mm)	21	21	25	25
Avg Rated Life (hrs)	500	500	500	500
Operating Position	p 15	p 15	p 15	p 15
Base	S25.5	S25.5	S30	S30
Hot Restart	Yes	Yes	Yes	Yes
Fig No	2	2	2	2
Symbols & Footnotes	60,90	55,60,90,161	55,60,90,161	60,90,161

## HMI® DOUBLE-ENDED

Ordering Abbreviation	HMI 18000 W/DXS			
Product Number	54317*			
Watts (W)	18000			
Volts (V)	225			
Current (A)	88.0			
CRI	>90			
Lumens (lm)	1700000			
Color Temp (K)	6000			
Length l1 max (mm)	500			
Length l2 max (mm)				
Diameter d (mm)	70			
Electrode Gap - cold (mm)	44			
Avg Rated Life (hrs)	300			
Operating Position	p 15			
Base	S30			
Hot Restart	Yes			
Fig No	2			
Symbols & Footnotes	55,60,90,161,219			

# HTI® METAL HALIDE



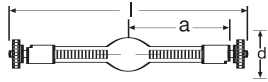
## HTI® SINGLE-ENDED

Ordering Abbreviation	HTI S 35/12	HTI 150 W	HTI 152 W	HTI 405 W/SE XS	HTI 600 W/SE
Product Number	69000	54078	54079	54139	54087
Watts (W)	35	150	150	400	600
Volts (V)	85	90	95	55	95
Current (A)	2.5	1.8	1.8	7.3	7.7
CRI	>90	>70	>90	>90	>90
Lumens (lm)	3200	9500	9500	28000	48000
Average Luminance (cd/cm <sup>2</sup> )	6500	5000	4200	40000	25000
Color Temp (K)	4250	6500	5000	5800	5300
Length l max (mm)	79.5	46	48	80	84
Distance a (mm)	27.1	30	30	36.5	35
Electrode Gap - cold (mm)	4.2	5.0	6.75	3.0	5.5
Avg Rated Life (hrs)	3000	750	2000	500	300
Operating Position	p 10	Any	Any	p 45	p 45
Base	P32d-2	GY9.5 Bipin Prefocus	GY9.5 Bipin Prefocus	GY9.5 Bipin Prefocus	FaX1.5
Hot Restart	Yes	No	No	No	Yes
Fig No	1	2	3	4	5
Symbols & Footnotes	60	2,90	90	1,10,48,53,60,161	10,37,60,90,112

## HTI® SINGLE-ENDED

Ordering Abbreviation	HTI 700 W/SE/75	HTI 705 W/SE XS	HTI 1200 W/SE XS	HTI 1800W/SE XS	HTI 2500 W/SE XS
Product Number	54329*	54130	54141	54770*	54142
Watts (W)	700	700	1200	1800	2500
Volts (V)	70	70	100	100	115
Current (A)	10	10	13.8	20	25.6
CRI	>80	>80	>90	>90	>90
Lumens (lm)	59000	59000	99000	155000	240000
Average Luminance (cd/cm <sup>2</sup> )			26000	35000	30000
Color Temp (K)	7500	5500	5400	5600	6000
Length l max (mm)	85	85	135	135	180
Distance a (mm)	39	39	59	59	85
Electrode Gap - cold (mm)	4	4	7	7	14
Avg Rated Life (hrs)	500	500	600	750	600
Operating Position	p 45	p 45	s 135	s 135	s 135
Base	FaX1.5	GY9.5 Bipin Prefocus	GY22	GY22	G22+ Cable
Hot Restart	Yes	No	Yes	Yes	Yes
Fig No	5	4	6	6	7
Symbols & Footnotes	10,60,161	10,60,161	10,19,58,90,161	10,19,58,90,161	28,58,90,161

## HTI® METAL HALIDE



1

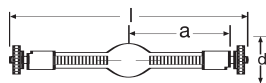
### HTI® SHARXS® DOUBLE-ENDED

Ordering Abbreviation	HTI 400W/D3/75 SHARXS	HTI 400W/D3/75 SHARXS BULK	HTI 575W/D4/60 SHARXS
Product Number	54241	54280*	54296*
Watts (W)	400	400	575
Volts (V)	49	49	69
Current (A)	8.5	8.5	8.3
CRI	>80	>80	>85
Lumens (lm)	26000	26000	49000
Average Luminance (cd/cm <sup>2</sup> )	55000	55000	49000
Color Temp (K)	7500	7500	6000
Length l max (mm)	136	136	136
Distance a (mm)	57.5	57.5	57.5
Diameter d (mm)	18	18	20
Electrode Gap - cold (mm)	3	3	4
Avg Rated Life (hrs)	1000	1000	750
Operating Position	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc10-4
Hot Restart	Yes	Yes	yes
Fig No	1	1	1
Symbols & Footnotes	90,161,166,167	90,161,166,167,290	90,161,166,167

### HTI® SHARXS® DOUBLE-ENDED

Ordering Abbreviation	HTI 575W/D4/75 SHARXS	HTI 700W/D4/60 SHARXS	HTI 700W/D4/60 SHARXS BULK
Product Number	54270*	54282*	54283*
Watts (W)	575	700	700
Volts (V)	64	70	70
Current (A)	9	10.0/11.0	10.0/11.0
CRI	>80	>80	>80
Lumens (lm)	44000	59000	59000
Average Luminance (cd/cm <sup>2</sup> )	49000	60000	60000
Color Temp (K)	7500	6000	6000
Length l max (mm)	136	136	136
Distance a (mm)	57.5	57.5	57.5
Diameter d (mm)	20.5	20	20
Electrode Gap - cold (mm)	4	4	4
Avg Rated Life (hrs)	750	750	750
Operating Position	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc10-4
Hot Restart	yes	Yes	Yes
Fig No	1	1	1
Symbols & Footnotes	90,161,166,167	90,161,166,167	90,161,166,167,290

## HTI® METAL HALIDE



1

### HTI® SHARXS® DOUBLE-ENDED

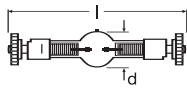
Ordering Abbreviation	HTI 700W/D4/75 SHARXS	HTI 700W/D4/75 SHARXS BULK	HTI 1200W/D7/60 SHARXS
Product Number	54242	54281*	54268*
Watts (W)	700	700	1200
Volts (V)	70	70	100
Current (A)	10.0/11.0	10.0/11.0	12.7/13.8
CRI	>80	>80	>90
Lumens (lm)	59000	59000	110000
Average Luminance (cd/cm <sup>2</sup> )	60000	60000	41000
Color Temp (K)	7500	7500	6000
Length l max (mm)	136	136	136
Distance a (mm)	57.5	57.5	57.5
Diameter d (mm)	20.5	20.5	21
Electrode Gap - cold (mm)	4	4	7
Avg Rated Life (hrs)	750	750	750
Operating Position	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc10-4
Hot Restart	Yes	Yes	Yes
Fig No	1	1	1
Symbols & Footnotes	90,161,166,167	90,161,166,167,290	90,161,166,167,196

### HTI® SHARXS® DOUBLE-ENDED

Ordering Abbreviation	HTI 1200W/D7/60 SHARXS BULK	HTI 1200W/D7/75 SHARXS	HTI 1500W/D7/60 SHARXS
Product Number	54202*	54269*	54319*
Watts (W)	1200	1200	1500
Volts (V)	100	100	110
Current (A)	12.7/13.8	12.7/13.8	13.6
CRI	>90	>80	>90
Lumens (lm)	110000	110000	155000
Average Luminance (cd/cm <sup>2</sup> )	41000	41000	
Color Temp (K)	6000	7500	6000
Length l max (mm)	136	136	136
Distance a (mm)	57.5	57.5	57.5
Diameter d (mm)	21	21	25
Electrode Gap - cold (mm)	7	7	7
Avg Rated Life (hrs)	750	750	750
Operating Position	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc10-4
Hot Restart	Yes	Yes	Yes
Fig No	1	1	1
Symbols & Footnotes	90,161,166,167,196,290	90,161,166,167	90,161,166,167



## HTI® METAL HALIDE



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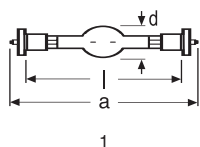
### HTI® BABY SHARXS® DOUBLE-ENDED

Ordering Abbreviation	HTI 250W/D5/80 BABY SHARXS	HTI 300W/D5/57 BABY SHARXS	HTI 300W/D5/65 BABY SHARXS
Product Number	54297*	54298*	54299*
Watts (W)	250	300	300
Volts (V)	90	80	80
Current (A)	3.2	4.3	4.3
CRI	>80	>85	>85
Lumens (lm)	18000	20000	22000
Color Temp (K)	8000	5700	6500
Length l max (mm)	93	93	93
Distance a (mm)	35	35	35
Diameter d (mm)	16	16	16
Electrode Gap - cold (mm)	5	5.5	5.5
Avg Rated Life (hrs)	3000	3000	750
Operating Position	Any	Any	Any
Base	SFc10-4	SFc10-4	SFc10-4
Hot Restart	Yes	Yes	Yes
Fig No	1	1	1
Symbols & Footnotes	1,161,167,206	1,161,167,206	1,161,167,206

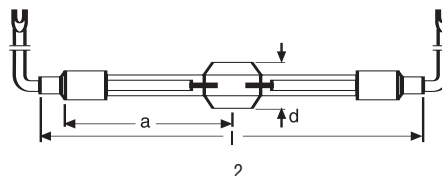
### HTI® BABY SHARXS® DOUBLE-ENDED

Ordering Abbreviation	HTI 400W/D5/60 BABY SHARXS	HTI 575W/D5/56 BABY SHARXS	
Product Number	54300*	54359*	
Watts (W)	400	575	
Volts (V)	95	95	
Current (A)	7.0	7.0	
CRI	>85	>85	
Lumens (lm)	33000	43000	
Color Temp (K)	6000	5600	
Length l max (mm)	93	93	
Distance a (mm)	35	35	
Diameter d (mm)	18	18	
Electrode Gap - cold (mm)	5.5	5	
Avg Rated Life (hrs)	750	500	
Operating Position	Any	Any	
Base	SFc10-4	SFc10-4	
Hot Restart	Yes	Yes	
Fig No	1	1	
Symbols & Footnotes	1,161,167,206	1,161,167,206	

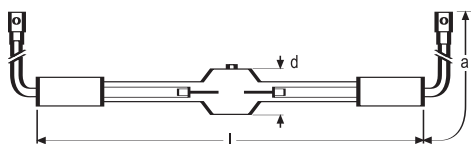
# HTI® METAL HALIDE



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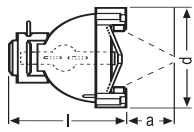


3

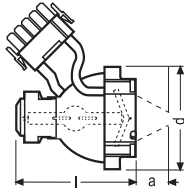
## HTI® DOUBLE-ENDED - OTHER

Ordering Abbreviation	HTI 300 W/DX	HTI 2500 W/DEL	HTI 4000 W/DE
Product Number	54143 <sup>2</sup>	54399	54133
Watts (W)	300	2500	4000
Volts (V)	100	115	115
Current (A)	3.6	26.0	39.0
CRI	90	90	90
Lumens (lm)	22000	270000	360000
Average Luminance (cd/cm <sup>2</sup> )	20000		35000
Color Temp (K)	6500	6000	6300
Length l max (mm)	92	295	270
Distance a (mm)	70	108	140
Diameter d (mm)	16	31.5	40
Electrode Gap - cold (mm)	5.5	25	15
Avg Rated Life (hrs)	750	2000	500
Operating Position	p 45	p 45	p 30
Base	SFc10-4	Special	S25.5
Hot Restart	Yes	Yes	Yes
Fig No	1	2	3
Symbols & Footnotes	60,90	60,90	60,90

## HTI® METAL HALIDE



1

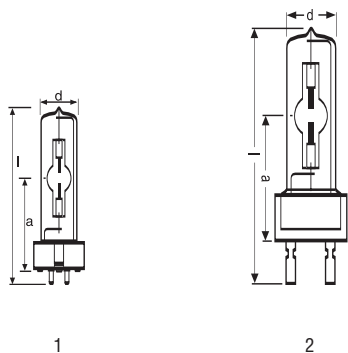


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### HTI® WITH DICHOIC REFLECTOR

Ordering Abbreviation	HTI 250 W/22	HTI 250 W/32	HTI 250 W/32C	HTI 400 W/24	HTI 403 W/24
Product Number	54080	54081	54089	54083	54104
Watts (W)	270	270	270	400	400
Volts (V)	45	45	45	55	55
Current (A)	6.0	6.0	6.0	7.3	7.3
CRI	70	70	70	70	70
Color Temp (K)	5600	5600	5600	5600	5600
Length l max (mm)	73	73	73	73	73
Working Distance a (mm)	22	32	32	24	24
Diameter d (mm)	67	67	67	67	67
Electrode Gap - cold (mm)	2.5	2.5	2.5	4.0	4.0
Avg Rated Life (hrs)	250	250	250	250	750
Operating Position	P 20	P 20	P 20	P 20	P 20
Hot Restart	Yes	Yes	Yes	Yes	Yes
Fig No	1	1	2	2	2
Symbols & Footnotes	1,60	1,60,63	60,90	1,60	1,60

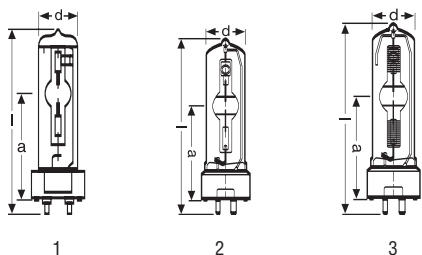
# HSR® METAL HALIDE



## HSR® WITH OUTER JACKET

Ordering Abbreviation	HSR 400/60	HSR 575/60	HSR 575/72	HSR 700/60	HSR 1200/60
Product Number	54102	54115	54116	54107	54168
Watts (W)	400	575	575	700	1200
Volts (V)	67	95	95	72	100
Current (A)	6.9	7.0	7.0	11.0	13.8
CRI	>85	>85	>85	>85	>85
Lumens (lm)	33000	49000	49000	58000	110000
Average Luminance (cd/cm <sup>2</sup> )	20000	10000	10000	10000	20000
Color Temp (K)	6000	6000	7200	6000	6000
Length l max (mm)	110	125	125	155	175
Distance a (mm)	62	65	65	75	85
Diameter d (mm)	23	30	30	30	40
Electrode Gap - cold (mm)	5	7	7	8	10
Avg Rated Life (hrs)	650	1000	1000	1000	1000
Operating Position	Any	Any	Any	Any	Any
Base	GX9.5	GX9.5	GX9.5	G22	G22
Hot Restart	No	No	No	NO	No
Fig No	1	1	1	2	2
Symbols & Footnotes	90	90	90	90	90

## HSD® METAL HALIDE



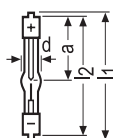
### HSD® 4ARXS METAL HALIDE

Ordering Abbreviation	HSD 150W/70 4ARXS	HSD 150W/UL/75 4ARXS	HSD 200W/60 4ARXS	HSD 250W/60 4ARXS	
Product Number	54311*	54312*	54167	54170	
Watts (W)	150	150	200	250	
Volts (V)	97	97	70	90	
Current (A)	1.8	1.8	3.3	3.1	
CRI	>85	>85	>80	>85	
Lumens (lm)	12000	11000	13000	17000	
Color Temp (K)	7000	7500	6000	6000	
Length l (mm)	105	105	108	108	
Distance a (mm)	56	56	55	55	
Diameter d (mm)	20	20	23	23	
Electrode Gap - cold (mm)	5.5	5.5	5	5	
Avg Rated Life (hrs)	3000	6000	2000	2000	
Operating Position	Any	Any	Any	Any	
Base	G12	G12	GY9.5	GY9.5	
Hot Restart	No	No	No	No	
Fig No	1	1	2	2	
Symbols & Footnotes	90,161	90,161	90,161,191	90,161	

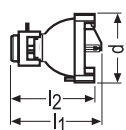
### HSD® 4ARXS METAL HALIDE

Ordering Abbreviation	HSD 250W/80 4ARXS	HSD 575W/72 4ARXS	HSD 250W/UL/75 4ARXS	HSD 575W/60 4ARXS	HSD 575W/UL/75 4ARXS
Product Number	54243	54129	54288*	54271*	54287*
Watts (W)	250	575	250	575	575
Volts (V)	95	88	90	88	88
Current (A)	3.2	7.4	3.1	7.4	7.4
CRI	>85	>85	>85	>85	>80
Lumens (lm)	17000	45000	15000	45000	43000
Color Temp (K)	8000	7200	7500	6000	7500
Length l (mm)	108	135	108	135	135
Distance a (mm)	55	65	55	65	65
Diameter d (mm)	23	30	23	30	30
Electrode Gap - cold (mm)	5	7	5	7	7
Avg Rated Life (hrs)	3000	3000	6000	3000	6000
Operating Position	Any	Any	Any	Any	Any
Base	GY9.5	GX9.5	GY9.5	GX9.5	GX9.5
Hot Restart	No	No	No	No	No
Fig No	2	3	2	3	3
Symbols & Footnotes	90,161	90,161	90,161	90,161	90,161

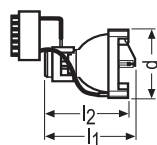
# XBO® ≤450W XENON SHORT ARC



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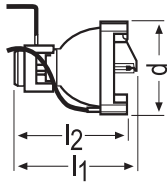


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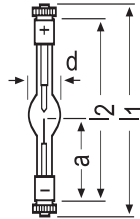
Ordering Abbreviation	XBO 75 W/2	XBO 75 W/2 OFR	XBO 100 W OFR	XBO R 100 W/45 OFR	XBO R 100 W/45C OFR
Product Number	69231	69232	69233	69197	69191
Watts (W)	75	75	100	100	100
Volts (V)	14	14	14	13	13
Type of Current	DC	DC	DC	DC	DC
Current (A)	5.4	5.4	7.0	7.0	7.0
Current Control Range (A)					
Lumens (lm)	1000	1000	1900		
Luminous Intensity (cd)	100	100	270		
Average Luminance (cd/cm <sup>2</sup> )	40000	40000	31000		
Luminous Area -- w x h (mm)	0.25 x 0.5	0.25 x 0.5	0.4 x 0.8	0.4 x 0.9	0.4 x .09
Length l1 max (mm)	90	90	90	83	83
Length l2 max (mm)	82	82	82	75	75
Distance a (mm)	43	43	44.5	0	0
Diameter d (mm)	10	10	11	67	67
Avg Rated Life Vertical (hrs)	400	400	500		
Avg Rated Life Horizontal (hrs)	400	400		500	500
Operating Position	s 105	s 105	s 105	p 15	p 15
Cooling	0	0	Required	Required	Required
Base Anode	SFa9-2	SFa7.5-2	SFa9-2		
Base Cathode	SFa7.5-2	SFa7.5-2	SFa7.5-2		
Fig No	1	1	1	2	3
Symbols & Footnotes	38,58,129,157,179	56,58,129,157,179	56,58,129,157,179	56,60,129,146,157,168,190	44,56,60,129,157,190



# XBO® ≤450W XENON SHORT ARC



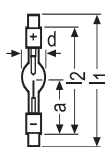
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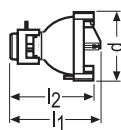
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Ordering Abbreviation	XBO R 101 W/45C OFR	XBO 150 W/1	XBO 150 W/1 OFR	XBO 150 W/4	XBO 150 W/CR OFR
Product Number	69190	69234	69235	69238	69237
Watts (W)	100	150	150	150	150
Volts (V)	13	20	20	20	18
Type of Current	DC	DC	DC	DC	DC
Current (A)	7.0	7.5	7.5	7.5	8.5
Current Control Range (A)					
Lumens (lm)		3000	3000	3000	2900
Luminous Intensity (cd)		300	300	300	290
Average Luminance (cd/cm <sup>2</sup> )		15000	15000	15000	20000
Luminous Area -- w x h (mm)	0	0.5 x 2.2	0.5 x 2.2	0.5 x 2.2	0.5 x 1.6
Length l1 max (mm)	83	150	150	150	150
Length l2 max (mm)	75	127	127	127	127
Distance a (mm)	0	57	57	57	57
Diameter d (mm)	67	20	20	20	20
Avg Rated Life Vertical (hrs)		1200	1200	1200	3000
Avg Rated Life Horizontal (hrs)	500				1200
Operating Position	p 15	s 15	s 15	s 15	s15 p15
Cooling	Required	Required	Required	Required	Required
Base Anode		SFc12-4	SFc12-4	SFc12-4	SFc12-4
Base Cathode		SFcX12-4	SFcX12-4	SFcX12.4	SFcX12-4
Fig No	1	2	2	2	2
Symbols & Footnotes	44,56,60,129,157,190,202	39,58,129,157,179,212	56,58,129,157,179,212	40,58,129,157,179	56,58,60,68,129,157,179,213

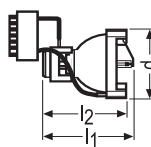
# XBO® ≤450W XENON SHORT ARC



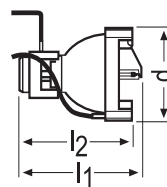
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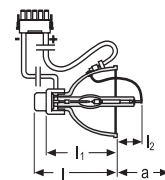
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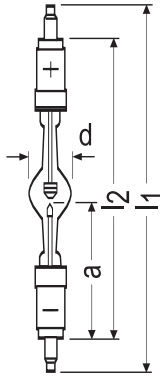
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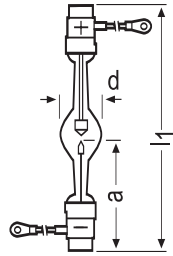
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Ordering Abbreviation	XBO 150 W/S	XBO R 180 W/45/OFR	XBO R 180 W/45C OFR	XBO R 181 W/45C OFR	XBO R 300 W/60C OFR
Product Number	69236	69186	69183	69184	69167
Watts (W)	150	180	180	180	300
Volts (V)	20	14	14	14	17
Type of Current	DC	DC	DC	DC	DC
Current (A)	7.5	12.0	12.0	12.0	16.0
Current Control Range (A)					14 - 19
Lumens (lm)	2200				
Luminous Intensity (cd)	220				
Average Luminance (cd/cm <sup>2</sup> )	18000				
Luminous Area -- w x h (mm)	0.5 x 1.9	0	0	0	0
Length l1 max (mm)	117	90	90	90	62
Length l2 max (mm)	96	75	75	75	30
Distance a (mm)	47.5	0	0	0	60
Diameter d (mm)	20	67	67	67	82.5
Avg Rated Life Vertical (hrs)	1000	500	500	500	
Avg Rated Life Horizontal (hrs)	800				1000
Operating Position	s15 p15	p 15	p 15	p 15	p20
Cooling	Required	Required	Required	Required	Required
Base Anode	SFa12-11				
Base Cathode	SFa12-11				
Fig No	1	2	3	4	5
Symbols & Footnotes	43,58,60,68,129,157,179	36,56,60,129,157,190	44,56,60,129,157,190	44,56,60,129,157,190,202	44,56,60,129,157,165

## XBO® ≤450W XENON SHORT ARC



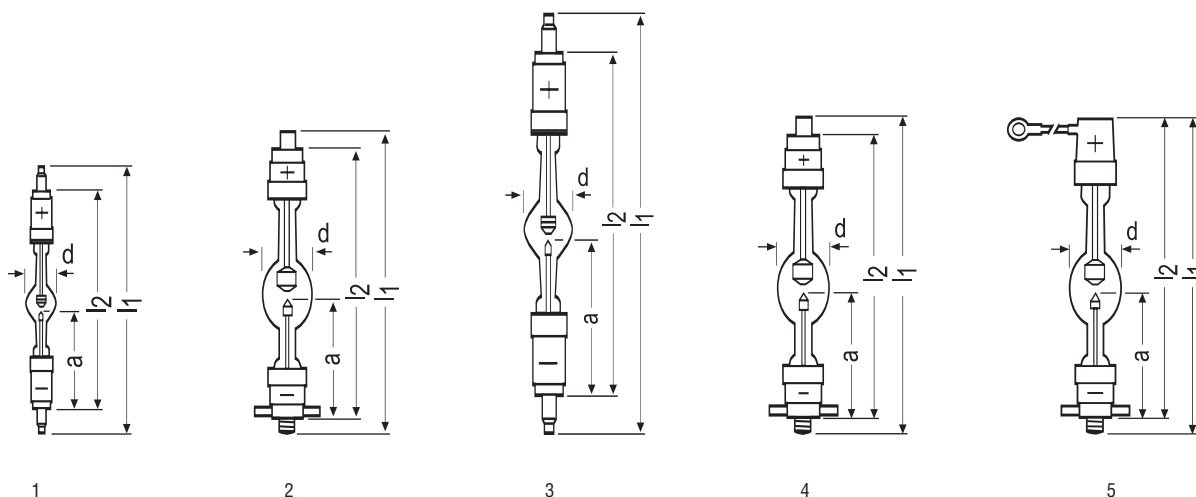
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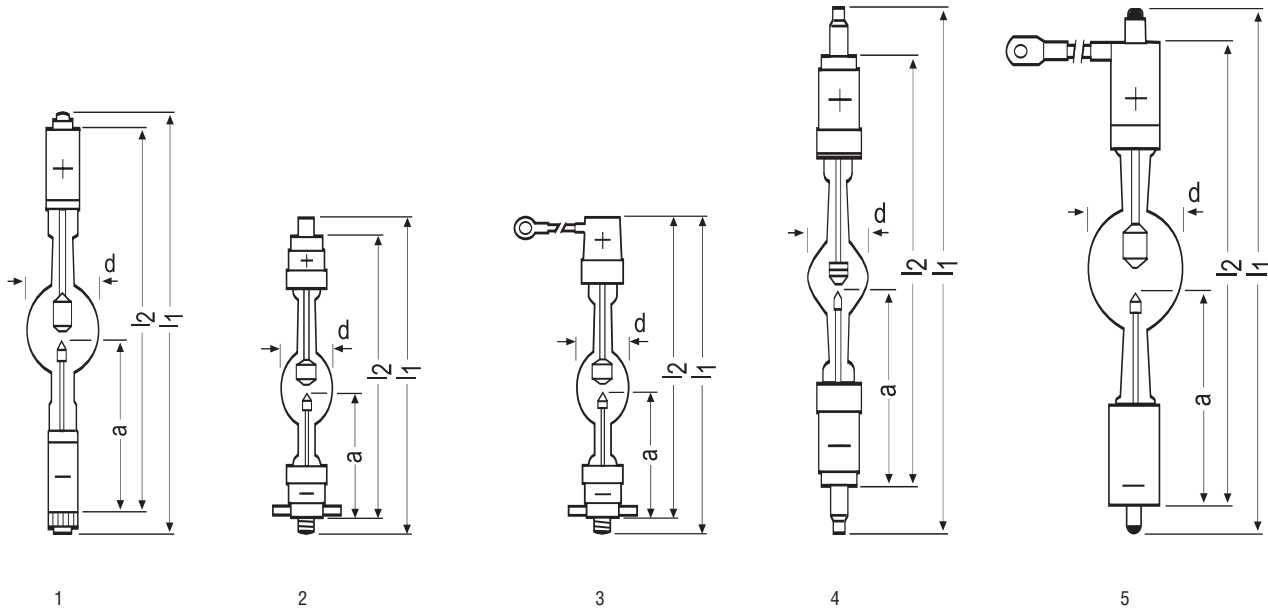
Ordering Abbreviation	XBO 450 W	XBO 450 W OFR	XBO 450 W/1	XBO 450 W/2 OFR	XBO 450 W/4
Product Number	69241	69245	69242	69243	69244
Watts (W)	450	450	450	450	450
Volts (V)	17	17	17	17	17
Type of Current	DC	DC	DC	DC	DC
Current (A)	25.0	25.0	25.0	25.0	25.0
Current Control Range (A)	17-30	17-30	17-30	17-30	17-30
Lumens (lm)	13000	13000	13000	13000	13000
Luminous Intensity (cd)	1300	1300	1300	1300	1300
Average Luminance (cd/cm <sup>2</sup> )	35000	35000	45000	35000	35000
Luminous Area -- w x h (mm)	0.9 x 2.7	0.9 x 2.7	0.7 x 2.2	0.9 X 2.7	0.9 x 2.7
Length l1 max (mm)	260	260	260	177	260
Length l2 max (mm)		212	212	0	212
Distance a (mm)	95.5	95.5	95.5	79	95.5
Diameter d (mm)	29	29	29	29	29
Avg Rated Life Vertical (hrs)	2000	2000	800	2000	2000
Avg Rated Life Horizontal (hrs)			800		
Operating Position	s 30	s 30	s 100	s 30	s 30
Cooling	Required	Required	Required	Required	Required
Base Anode	SFa20-8	SFa20-8	SFa20-8	SK19/36	SFa20-8
Base Cathode	SFa20-10	SFa20-10	SFa20-10	SK19/36	SFa20-10
Fig No	1	1	1	2	1
Symbols & Footnotes	41,42,58,129,157,179	56,58,129,157,179	58,129,157,179	56,58,129,157,179	40,58,129,157,179

# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 500 W/H OFR	XBO 700 W/HS OFR	XBO 900 W OFR	XBO 1000 W/HS OFR	XBO 1000 W/HSC OFR
Product Number	69257	69260	69261	69263	69264
Watts (W)	500	700	900	1000	1000
Volts (V)	17	18	19	19	19
Type of Current	DC	DC	DC	DC	DC
Current (A)	28	37	45	50	50
Current Control Range (A)	17-30	30-45	30-53	30-55	30-55
Lumens (lm)	14500	20000	30000	32000	32000
Luminous Intensity (cd)	1450	2000	3000	3000	3000
Average Luminance (cd/cm <sup>2</sup> )	40000	40000	50000	60000	60000
Luminous Area -- w x h (mm)	0.9 x 2.5	1.1 x 2.9	1.1 x 3.3	1.1 x 2.8	1.1 x 2.8
Length l1 max (mm)	190	235	325	235	236
Length l2 max (mm)	165	205	277	205	222
Distance a (mm)	75	95	123	95	95
Diameter d (mm)	35	40	40	40	40
Warranty	2000	1500	2400	2000	2000
Operating Position	s30 p30	s20 p20	s 30	s20 p20	s20 p20
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required				
Base Anode	SFa16-8	SFa27-11	SFa25-10	SFa27-11	SK27/50
Base Cathode	SFa15-10	SFcX27-8	SFa25-12	SFcX27-8	SFcX27-8
Fig No	1	2	3	4	5
Symbols & Footnotes	45,56,58,60,109,129,157,179	43,45,56,58,60,129,157,179	56,58,129,157,179	43,45,56,58,60,129,157,179	43,44,45,56,58,60,129,157,179

# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



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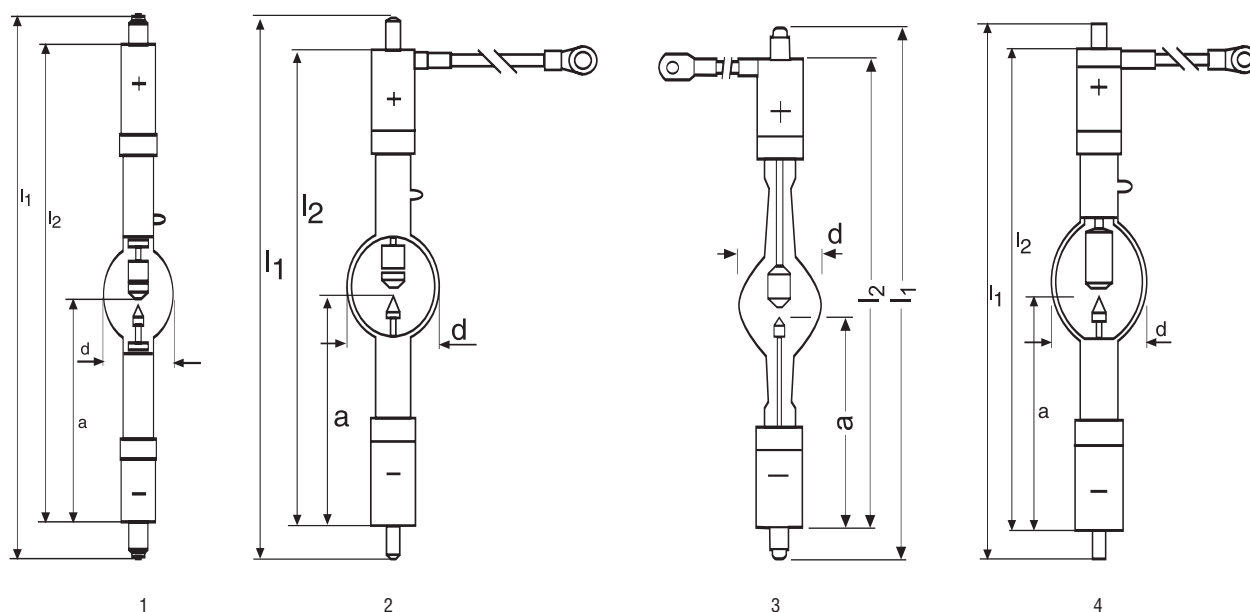
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DISPLAY OPTIC DISCHARGE

Ordering Abbreviation	XBO 1000 W/HTP OFR	XBO 1600 W/HS OFR	XBO 1600 W/HSC OFR	XBO 1600 W OFR	XBO 1600 W/CA OFR
Product Number	69265	69268	69269	69266	69267
Watts (W)	1000	1550	1550	1600	1600
Volts (V)	21	23	23	24	24
Type of Current	DC	DC	DC	DC	DC
Current (A)	45	65	65	65	65
Current Control Range (A)	30-55	50-75	50-70	45-75	45-75
Lumens (lm)	35000	70000	70000	60000	60000
Luminous Intensity (cd)	3200	5500	5500	6000	6000
Average Luminance (cd/cm <sup>2</sup> )	45000	70000	70000	65000	65000
Luminous Area -- w x h (mm)	1.0 x 4.0	1.0 x 3.2	1.0 x 3.2	1.4 x 4.0	1.4 x 4.0
Length l <sub>1</sub> max (mm)	330	235	236	370	370
Length l <sub>2</sub> max (mm)	277	205	222	322	322
Distance a (mm)	123	95	95	142.5	143
Diameter d (mm)	46	46	46	52	52
Warranty	2400	2000	2000	2400	2400
Operating Position	s30 p30	s20 p20	s20 p20	s 30	s 30
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required				
Base Anode	SFa25-14	SFa27-11	SK27/50	SFa27-10	SFaX27-10
Base Cathode	SFc25-14	SFcX27-8	SFcX27-8	SFa27-12	SFa27-12
Fig No	1	2	3	4	5
Symbols & Footnotes	45,51,56,58,60,109,129,157,179	43,45,56,58,60,129,157,179	43,44,45,56,58,60,129,157,179	56,58,129,157,179	47,56,58,129,157,179

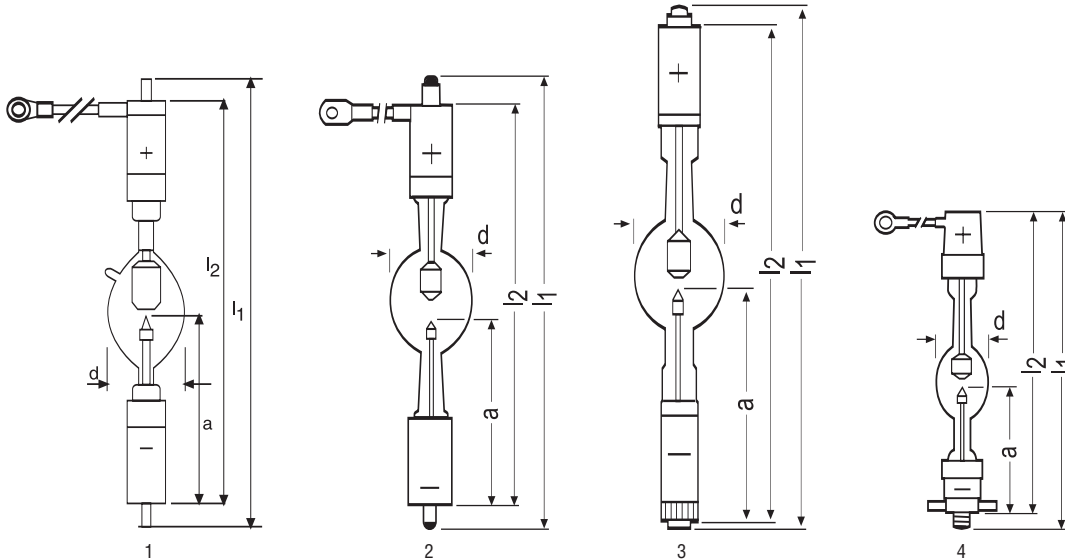
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 2000 W/DTP OFR	XBO 2000 W/H CL OFR	XBO 2000 W/H OFR	XBO 2000 W/H XL OFR	XBO 2000 W/HCC OFR
Product Number	69155*	69470*	69385*	69477*	69384*
Watts (W)	2000	2000	2000	2000	2000
Volts (V)	25	28	28	27	28
Type of Current	DC	DC	DC	DC	DC
Current (A)	80	70	70	70	70
Current Control Range (A)	50-85	50-85	50-85	50-85	50-85
Lumens (lm)	80000	80000	80000	80000	80000
Luminous Intensity (cd)	7500	7500	7500	7500	7500
Average Luminance (cd/cm <sup>2</sup> )	75000	80000	80000	75000	80000
Luminous Area -- w x h (mm)	1.3 x 4.0	1.3 x 4.8	1.3 x 4.8	1.3 x 4.8	1.3 x 4.8
Length l1 max (mm)	403	370	370	365	370
Length l2 max (mm)	354	322	322	320	322
Distance a (mm)	160	142.5	142.5	142.5	142.5
Diameter d (mm)	52	46	52	52	52
Warranty	2400	2400	2400	3500	2400
Operating Position	s30 p30	s30 p30	s30 p30	s30 p30	s30 p30
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required			Required	
Base Anode	SFa 25-14	SFaX27-10	SFaX27-10	SFaX27-10	SFaX27-10
Base Cathode	SFc25-14	SFaX27-12	SFaX27-12	SFaX27-12	SFaX27-12
Fig No	1	2	3	4	3
Symbols & Footnotes	51,56,58,60,109,129,157,179,279	45,56,58,60,129,157,179,281	45,56,58,60,129,157,179,193	45,56,58,60,129,157,179,280	44,45,56,58,60,129,157,179,195



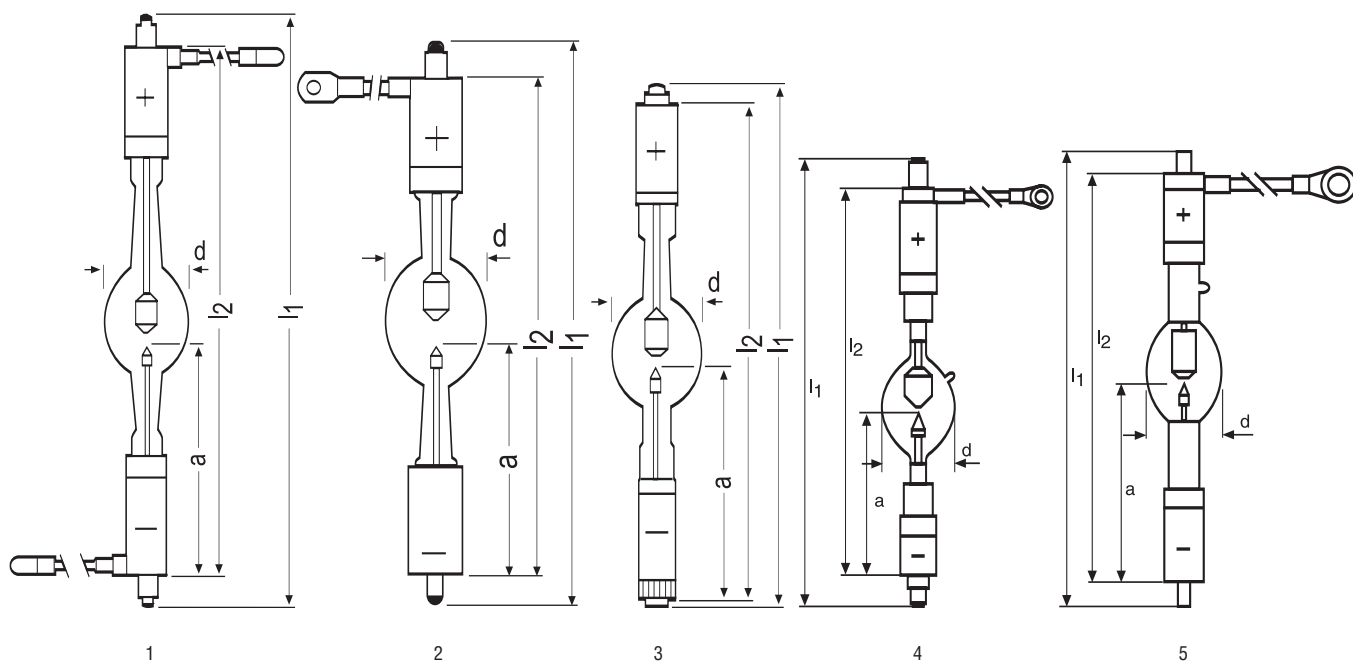
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



DISPLAY OPTIC DISCHARGE

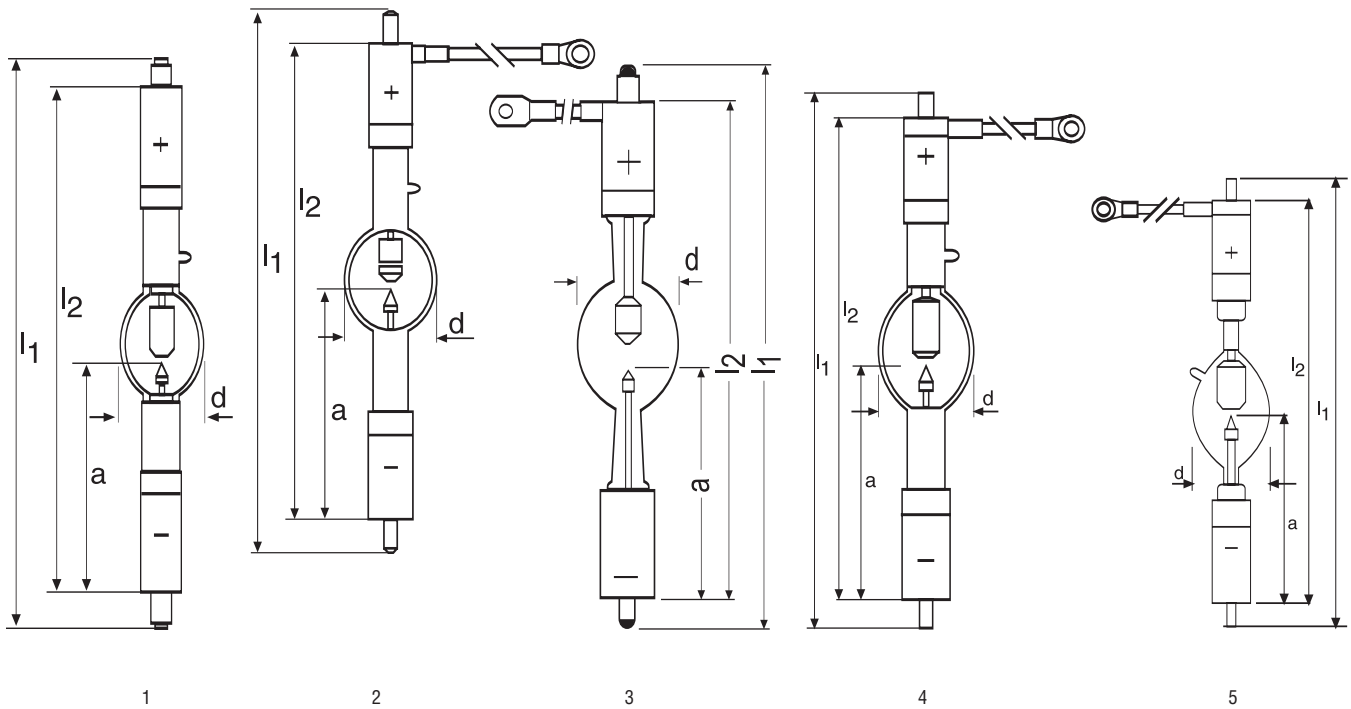
Ordering Abbreviation	XBO 2000 W/HPS OFR	XBO 2000 W/HS OFR	XBO 2000 W/HTP OFR	XBO 2000 W/SHSC OFR	XBO 2001 W/HTP OFR
Product Number	69486*	69270	69247	69256	69310
Watts (W)	2000	2000	2000	2000	2000
Volts (V)	25	24	27	27	25
Type of Current	DC	DC	DC	DC	DC
Current (A)	80	80	70	70	80
Current Control Range (A)	60-90	50-85	50-85	50-85	50-85
Lumens (lm)	75000	80000	80000	80000	80000
Luminous Intensity (cd)	8000	7500	7500	7500	7500
Average Luminance (cd/cm <sup>2</sup> )	160000	80000	75000	80000	75000
Luminous Area -- w x h (mm)	1.3 x 3.2	1.3 x 4.0	1.3 x 4.8	1.3 x 4.0	1.3 x 4.0
Length l1 max (mm)	332	342	375	236	375
Length l2 max (mm)	295	302	322	222	322
Distance a (mm)	128	145	142.5	95	142.5
Diameter d (mm)	46	60	52	46	60
Warranty	2400	2400	2400	2000	2400
Operating Position	s15 p15	s30 p30	s30 p30	s20 p20	s30 p30
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization			Required		Required
Base Anode	SFaX30-14/68	SFaX27-9.5	SFa25-14	SK27/50	SFa25-14
Base Cathode	SFc30-20/50	SFa27-7.9	SFc25-14	SFcX27-8	SFc25-14
Fig No	1	2	3	4	3
Symbols & Footnotes	56,58,60,129,157,179,282,283	43,45,56,58,60,129,157,179	45,51,56,58,60,109,129,157,179	49,56,58,60,129,157,179	45,51,56,58,60,109,129,157,179

# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 2500 W OFR	XBO 2500 W/HS OFR	XBO 2500 W/HTP OFR	XBO 3000 W/DHP OFR	XBO 3000 W/DHS OFR
Product Number	69248	69249	69160*	69480*	69462*
Watts (W)	2500	2500	2500	2600	3000
Volts (V)	29	28	28	29	29
Type of Current	DC	DC	DC	DC	DC
Current (A)	85	90	90	90	110
Current Control Range (A)	60-95	70-100	70-100	80-110	60-120
Lumens (lm)	100000	100000	100000	140000	130000
Luminous Intensity (cd)	9500	10000	9500	13500	12000
Average Luminance (cd/cm <sup>2</sup> )	61000	80000	60000	180000	105000
Luminous Area -- w x h (mm)	1.5 x 6.0	1.5 x 4.5	1.5 x 6.0	1,3 x 3,5	1.7 x 4.0
Length l1 max (mm)	428	342	398	340	340
Length l2 max (mm)	382	302	357	294	300
Distance a (mm)	167.5	145	165	123	145
Diameter d (mm)	60	60	60	55	55
Warranty	2000	1500	1500	1500	1500
Operating Position	s 30	s30 p20	s30 p30	s15 p15	s30 p30
Cooling		Required	Required	Required	Required
Magnetic Arc Stabilization			Required		Required
Base Anode	SFaX27-13	SFaX27-9.5	SFa27-14	SFaX27-14/80	SFaX 27-9.5
Base Cathode	SFaX27-14	SFa27-7.9	SFc27-14	SFc27-16/45	SFa 27-7.9
Fig No	1	2	3	4	5
Symbols & Footnotes	56,58,129,157,179	43,45,56,58,60,129,157,179	45,51,56,58,60,109,129,157,179	56,58,60,129,157,179,279,282	43,45,56,58,60,129,157,179,279

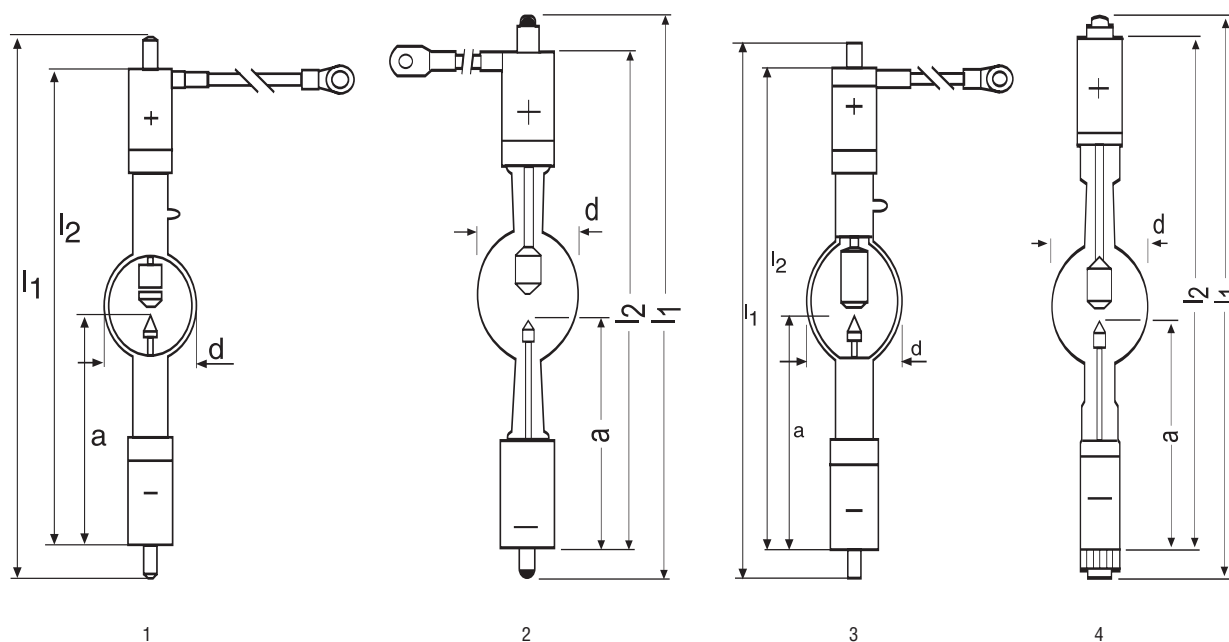
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



DISPLAY OPTIC DISCHARGE

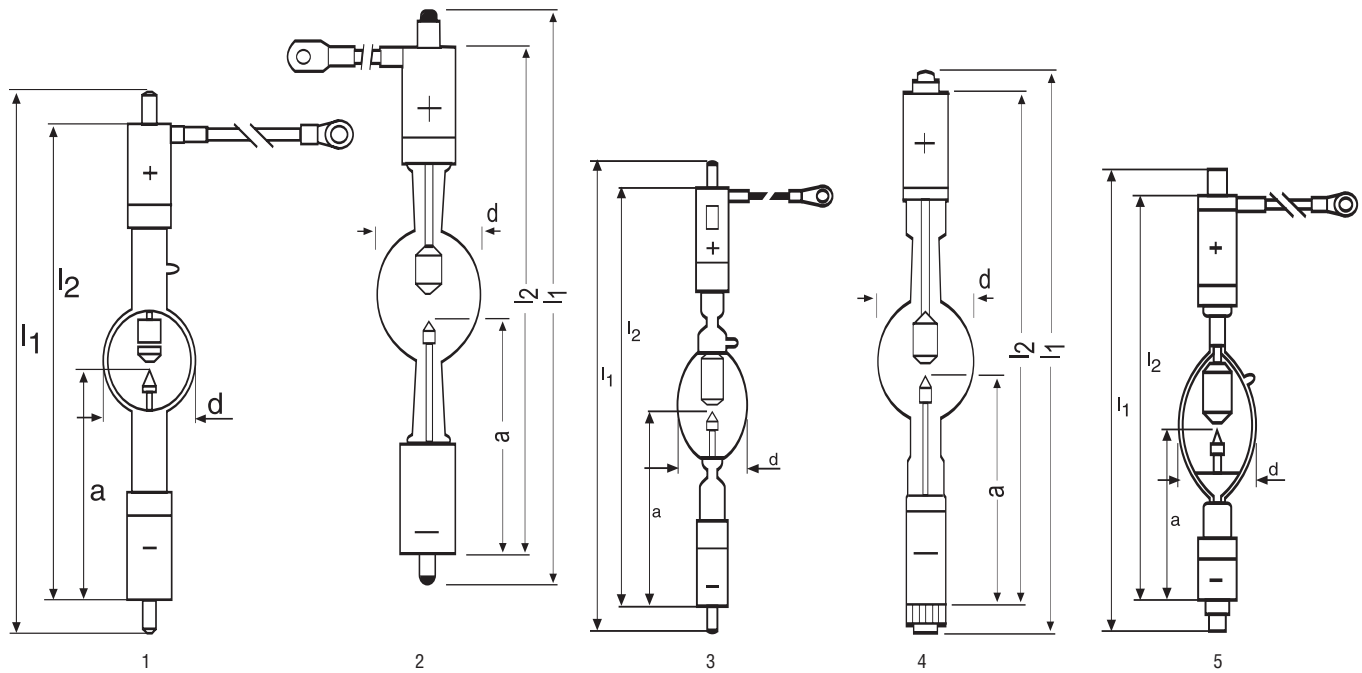
Ordering Abbreviation	XBO 3000 W/DTP OFR	XBO 3000 W/H CL OFR	XBO 3000 W/H OFR	XBO 3000 W/H XL OFR	XBO 3000 W/HPS OFR
Product Number	69154*	69475*	69251	69478*	69487*
Watts (W)	3000	3000	3000	3000	3000
Volts (V)	27	30	30	30	29
Type of Current	DC	DC	DC	DC	DC
Current (A)	110	100	100	100	105
Current Control Range (A)	60-120	60-110	60-110	70-110	70-110
Lumens (lm)	130000	130000	130000	130000	140000
Luminous Intensity (cd)	15000	12000	12000	12000	13500
Average Luminance (cd/cm <sup>2</sup> )	120000	85000	85000	90000	180000
Luminous Area -- w x h (mm)	1.5 x 4.0	1.7 x 5.0	1.7 x 5.0	1.7 x 5.0	1.3 x 3.5
Length l <sub>1</sub> max (mm)	403	428	428	423	332
Length l <sub>2</sub> max (mm)	352	382	382	380	295
Distance a (mm)	160	167.5	167.5	167.5	128
Diameter d (mm)	60	55	66	60	55
Warranty	1500	1500	1500	2200	1000
Operating Position	s30 p30	s30 p30	s30 p30	s30 p30	s15 p15
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required	Required	
Base Anode	SFc27-14	SFaX27-13	SFaX27-13	SFaX27-13	SFaX30-14/68
Base Cathode	SFa27-14	SFa27-14	SFa27-14	SFa27-14	SFc30-20/50
Fig No	1	2	3	4	5
Symbols & Footnotes	51,56,129,157,179,279	45,56,58,60,129,157,179,281	45,56,58,60,109,129,157,179	45,56,58,60,129,157,179,280	56,58,60,129,157,179,282,283

# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 3000 W/HS CL OFR	XBO 3000 W/HS OFR	XBO 3000 W/HS XL OFR	XBO 3000 W/HSLA OFR	XBO 3000 W/HTP OFR
Product Number	69153*	69250	69479*	69390*	69252
Watts (W)	3000	3000	3000	3000	3000
Volts (V)	29	29	30	29	29
Type of Current	DC	DC	DC	DC	DC
Current (A)	100	100	100	110	100
Current Control Range (A)	60-110	60-110	70-110	60-120	60-110
Lumens (lm)	130000	130000	130000	130000	130000
Luminous Intensity (cd)	12000	12000	12000	12000	12000
Average Luminance (cd/cm <sup>2</sup> )	90000	90000	90000	105000	85000
Luminous Area -- w x h (mm)	1.7 x 5.0	1.7 x 5.0	1.7 x 5.0	1.7 x 4.0	1.7 x 5.0
Length l1 max (mm)	342	342	340	342	405
Length l2 max (mm)	302	302	300	302	357
Distance a (mm)	145	145	145	145	162.5
Diameter d (mm)	55	60	60	54	66
Warranty	1500	1500	2200	1500	1500
Operating Position	s30 p30	s30 p30	s30 p30	s30 p30	s30 p30
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required	Required	
Base Anode	SFaX27-9.5	SFaX27-9.5	SFaX27-9.5	SFaX 27-9.5	SFa27-14
Base Cathode	SFa27-7.9	SFa27-7.9	SFa27-7.9	SFa 27-7.9	SFc27-14
Fig No	1	2	3	2	4
Symbols & Footnotes	56,58,60,129,157,179,281	43,45,56,58,60,109,129,157,179	43,45,56,58,60,129,157,179,280	43,45,56,58,60,109,129,157,179,210	45,51,56,58,60,129,157,179

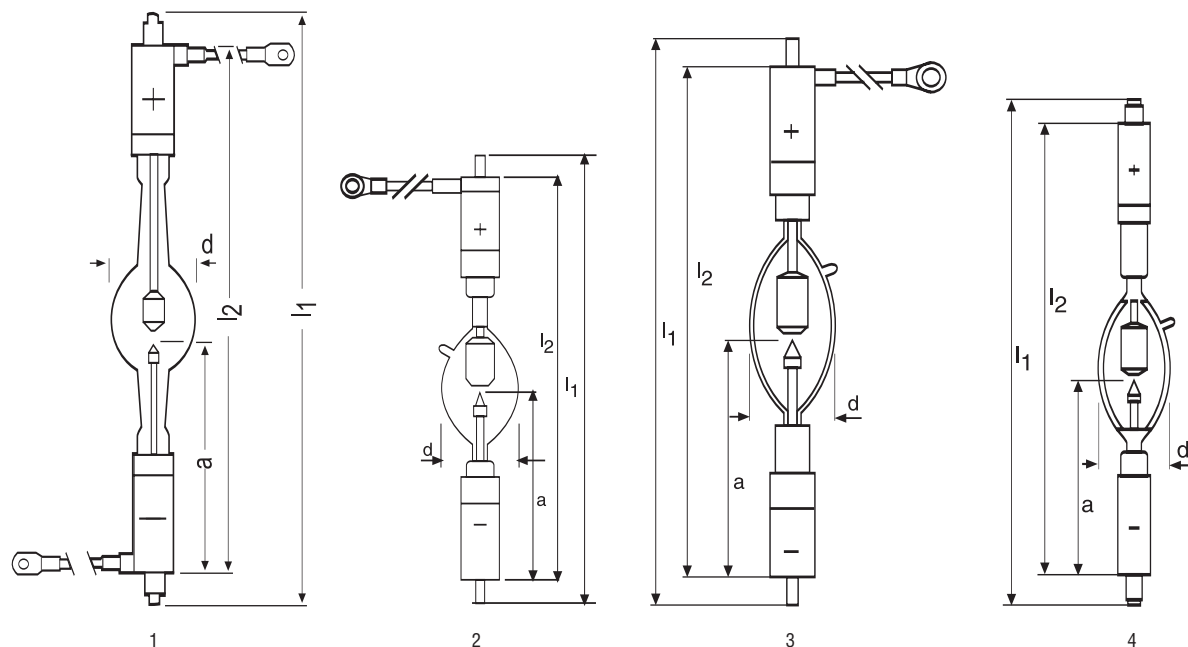
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



DISPLAY OPTIC DISCHARGE

Ordering Abbreviation	XBO 4000 W/HS CL OFR	XBO 4000 W/HS OFR	XBO 4000 W/HS XL OFR	XBO 4000 W/HTP OFR	XBO 4000 W/DHP OFR
Product Number	69394*	69254	69474*	69296	69481*
Watts (W)	4000	4000	4000	4000	4200
Volts (V)	28	28	27	30	34
Type of Current	DC	DC	DC	DC	DC
Current (A)	135	135	135	130	125
Current Control Range (A)	80-150	80-150	80-150	100-140	100-130
Lumens (lm)	155000	155000	155000	155000	170000
Luminous Intensity (cd)	17000	17000	17000	16000	17000
Average Luminance (cd/cm <sup>2</sup> )	90000	90000	90000	90000	140000
Luminous Area -- w x h (mm)	1.9 x 6.0	1.9 x 6.0	1.9 x 6.0	1.9 x 6.0	1.6 x 5.0
Length l1 max (mm)	410	410	408	433	340
Length l2 max (mm)	370	370	368	382	294
Distance a (mm)	171	171	171	167.5	123
Diameter d (mm)	60	70	70	70	55
Warranty	1000	1000	1500	1000	700
Operating Position	s20 p20	s20 p20	s20p20	s20 p20	s15 p15
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required		
Base Anode	SFaX30-9.5	SFaX30-9.5	SFaX30-9.5	SFa27-14	SFaX27-14/80
Base Cathode	SFa30-7.9	SFa30-7.9	SFa30-7.9	SFc27-14	SFc27-16/45
Fig No	1	2	3	4	5
Symbols & Footnotes	56,58,60,129,157,179,281	43,45,56,58,60,109,129,157,179	43,45,56,58,60,129,157,179,280	45,51,56,58,60,129,157,179	56,58,60,129,157,179,279,282

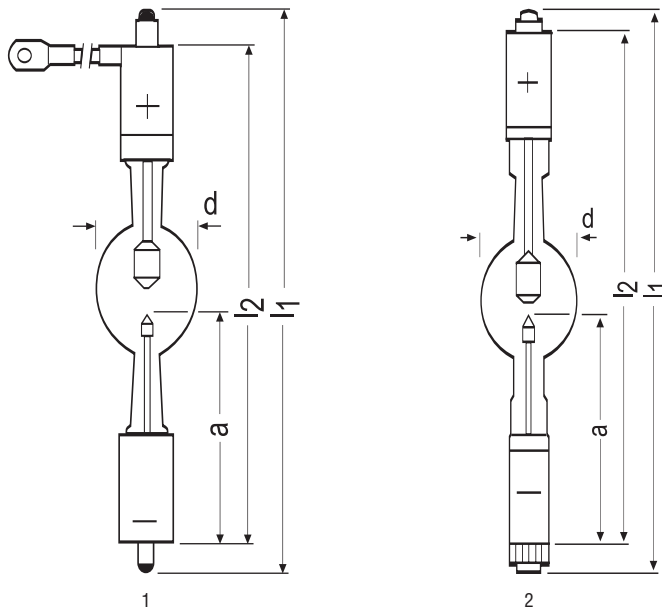
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 4200 W/CA OFR	XBO 4200 W/GS OFR	XBO 4200 W/HPS OFR	XBO 4500 W/DHP OFR	XBO 4500 W/DTP OFR
Product Number	69294	69350	69488*	69463*	69459*
Watts (W)	4200	4200	4200	4500	4500
Volts (V)	29	29	35	30	32
Type of Current	DC	DC	DC	DC	DC
Current (A)	140	140	120	145	145
Current Control Range (A)	80-160	80-160	80-130	80-150	80-150
Lumens (lm)	190000	190000	170000	190000	190000
Luminous Intensity (cd)	20000	20000	17000	22000	25000
Average Luminance (cd/cm <sup>2</sup> )	100000	100000	160000	115000	115000
Luminous Area -- w x h (mm)	2.1 x 5.7	2.1 x 5.7	1.5 x 4.5	1.9 x 5.0	1.9 x 5.0
Length l1 max (mm)	428	428	332	408	433
Length l2 max (mm)	382	382	295	368	384
Distance a (mm)	167.5	167.5	128	171	165
Diameter d (mm)	70	60	55	60	60
Warranty	1000	1000	500	1000	1000
Operating Position	s 15	s 15	s15 p15	s15 p15	s15 p15
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization		Required		Required	Required
Base Anode	SFaX27-13	SFaX27-13	SFaX30-14/68	SFaX30-9.5	SFcX27-14
Base Cathode	SFaX27-14	SFaX27-14	SFc30-20/50	SFa30-7.9	SFa27-14
Fig No	1	1	2	3	4
Symbols & Footnotes	47,56,58,129,157,179,220	52,56,58,109,129,157,179	56,58,60,129,157,179,282,283	56,58,60,129,157,179,279,282	51,56,58,60,129,157,179,279



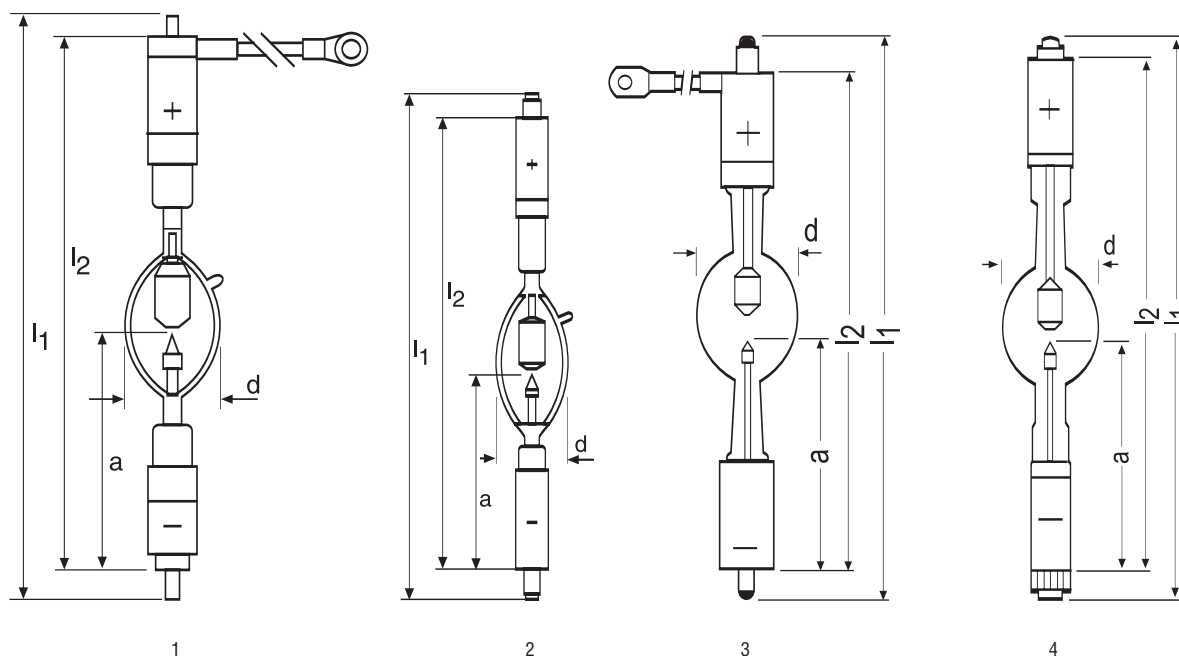
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



DISPLAY OPTIC DISCHARGE

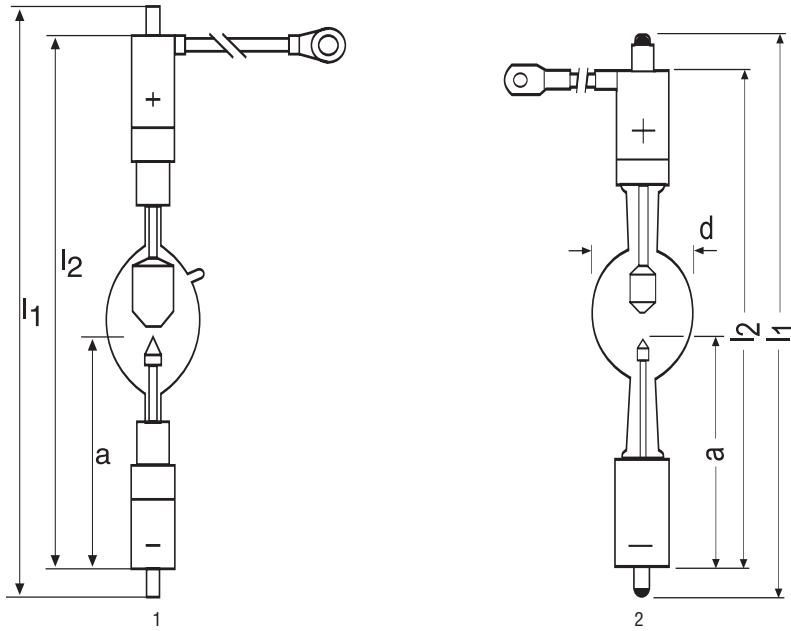
Ordering Abbreviation	XBO 4500 W/HS OFR	XBO 4500 W/HSLA OFR	XBO 4500 W/HTP OFR	XBO 5000 W/H OFR	XBO 5000 W/HTP OFR
Product Number	69359	69389*	69360	69315	69336
Watts (W)	4500	4500	4500	5000	5000
Volts (V)	32	30	32	35	34
Type of Current	DC	DC	DC	DC	DC
Current (A)	135	145	135	140	140
Current Control Range (A)	80-150	80-150	80-150	100-150	100-150
Lumens (lm)	190000	160000	190000	225000	225000
Luminous Intensity (cd)	22000	22000	22000	27000	27000
Average Luminance (cd/cm <sup>2</sup> )	120000	115001	105000	95000	95000
Luminous Area -- w x h (mm)	1.9 x 6.0	1.9 x 5.0	1.9 x 6.0	2.2 x 6.5	2.2 x 6.5
Length l1 max (mm)	410	410	433	433	433
Length l2 max (mm)	370	370	382	382	382
Distance a (mm)	171	171	171	168	165
Diameter d (mm)	70	60	70	70	70
Warranty	1000	1000	1000	1000	1000
Operating Position	s15 p15	s15 p15	s15 p15	s15 p15	s15 p15
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required	Required	Required
Base Anode	SFa30-7.9	SFaX30-9.5	SFa27-14	SFaX27-13	SFa27-14
Base Cathode	SFaX30-9.5	SFa30-7.9	SFc27-14	SFaX27-14	SFc27-14
Fig No	1	1	2	1	2
Symbols & Footnotes	43,45,56,58,60,109,129,157,179	43,45,56,58,60,109,129,157,179,210	45,51,56,58,109,129,157,179	45,56,58,60,109,129,157,179	45,51,56,58,60,109,129,157,179

# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



Ordering Abbreviation	XBO 6000 W/DHP OFR	XBO 6000 W/DTP OFR	XBO 6000 W/HS OFR	XBO 6000 W/HSLA OFR	XBO 6000 W/HTP OFR
Product Number	69476*	69460*	69339	69386*	69340
Watts (W)	6000	6000	6000	6000	6000
Volts (V)	35	39	37	35	37
Type of Current	DC	DC	DC	DC	DC
Current (A)	170	155	160	170	160
Current Control Range (A)	140-175	140-175	110 - 165	140-175	110 - 165
Lumens (lm)	280000	270000	280000	280000	280000
Luminous Intensity (cd)	30000	33000	40000	30000	40000
Average Luminance (cd/cm <sup>2</sup> )	160000	130000	105000	160000	105000
Luminous Area -- w x h (mm)	1.9 x 6.0	1.9 x 7.0	2.0 x 7.5	1.9 x 6.0	2.0 x 7.5
Length l1 max (mm)	431	433	433	433	433
Length l2 max (mm)	391	386	393	393	382
Distance a (mm)	170.5	165	170.5	170.5	165
Diameter d (mm)	70	70	78	70	78
Warranty	600	600	750	600	750
Operating Position	s15 p15	s15 p15	s15 p15	s15 p15	s15 p15
Cooling	Required	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required	Required	Required
Base Anode	SFaX30-9.5	SFc27-14	SFaX30-9.5	SFaX30-9.5	SFaX27-14
Base Cathode	SFa30-7.9	SFa27-14	SFa30-7.9	SFa30-7.9	SFc27-14
Fig No	1	2	3	3	4
Symbols & Footnotes	56,58,60,129,157,179,279,282	51,56,58,60,109,129,157,179,279	43,45,56,58,60,109,129,157,179	43,45,56,58,60,109,129,157,179,210	43,45,51,56,58,60,109,129,157,179

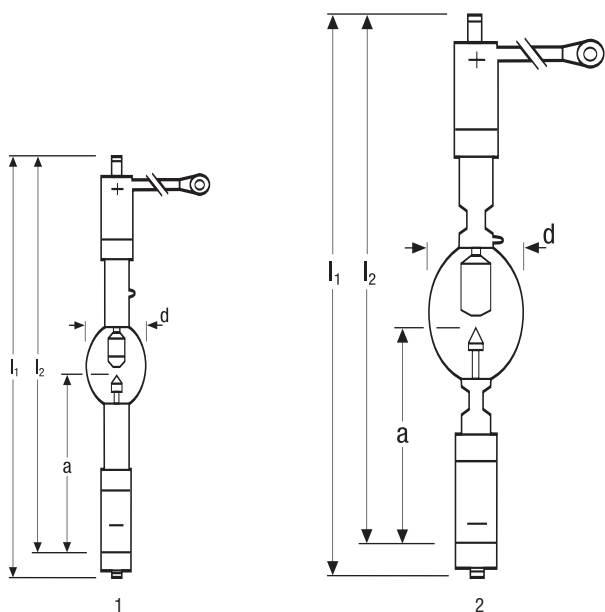
# XBO® >450W XENON SHORT ARC CINEMA FILM PROJECTION



DISPLAY OPTIC DISCHARGE

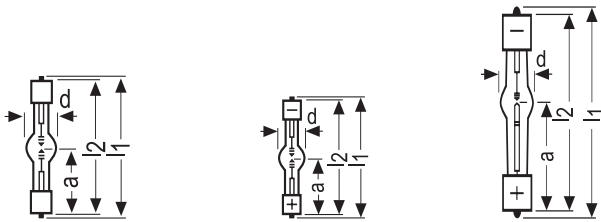
Ordering Abbreviation	XBO 6500 W/DHP OFR	XBO 6500 W/HSLA OFR	XBO 7000 W/HS OFR	XBO 8000 W/HS OFR
Product Number	69461*	69489*	69295	69351
Watts (W)	6500	6500	7000	8000
Volts (V)	38	38	42	45
Type of Current	DC	DC	DC	DC
Current (A)	170	170	160	175
Current Control Range (A)	140-175	140-175	110-165	150-180
Lumens (lm)	300000	300000	350000	400000
Luminous Intensity (cd)	32000	32000	35000	40000
Average Luminance (cd/cm <sup>2</sup> )	160000	160000	100000	110000
Luminous Area -- w x h (mm)	2.0 x 6.3	2.0 x 6.3	2.0 x 7.5	2.5 x 10.5
Length l1 max (mm)	431	433	433	433
Length l2 max (mm)	391	393	393	393
Distance a (mm)	170.5	170.5	170.5	170.5
Diameter d (mm)	70	70	78	90
Warranty	500	500	650	500
Operating Position	s15 p15	s15 p15	s15 p15	s 15, p15
Cooling	Required	Required	Required	Required
Magnetic Arc Stabilization	Required	Required	Required	Required
Base Anode	SFaX30-9.5	SFaX30-9.5	SFaX30-9.5	SFaX 30-9.5
Base Cathode	SFa30-7.9	SFa30-7.9	SFa30-8.0	SFa 30-7.9
Fig No	1	2	2	2
Symbols & Footnotes	56,58,60,129,157,179,279,282	43,45,56,58,60,109,129,157,179,210	43,45,56,58,60,109,129,157,179	43,45,56,58,60,109,129,157,179

# XSTAGE™ XENON SHORT ARC ENTERTAINMENT



Ordering Abbreviation	Xstage 2000W OFR	Xstage 3000W OFR	Xstage 4000W OFR	Xstage 7000W OFR
Product Number	69482*	69483*	69484*	69485*
Watts (W)	2000	3000	4000	7000
Volts (V)	23	30	30	40
Type of Current	DC	DC	DC	DC
Current (A)	90	100	130	160
Current Control Range (A)	70-110	70-110	80-135	110-165
Lumens (lm)	80000	140000	150000	330000
Luminous Intensity (cd)	9000	13500	17000	33000
Average Luminance (cd/cm <sup>2</sup> )	170000	200000	120000	120000
Luminous Area -- w x h (mm)	1.2x2.7	1.3x3.5	1.9x5.0	2.0x7.0
Length l1 max (mm)	300	300	315	405
Length l2 max (mm)	262	262	277	354
Distance a (mm)	120	120	120	162.5
Diameter d (mm)	46.5	55	60	70
Warranty	1000	1000	1000	1000
Operating Position	any	any	any	any
Cooling	Required	Required	Required	Required
Magnetic Arc Stabilization				
Base Anode	SFaX27-9.5	SFaX27-9.6	SFaX27-9.7	SFaX27-9.8
Base Cathode	SFc28-27	SFc28-28	SFc28-29	SFc28-30
Fig No	1	1	1	2
Symbols & Footnotes	56,129,157,179	56,129,157,179	56,129,157,179	56,129,157,179

# HBO® MERCURY SHORT ARC



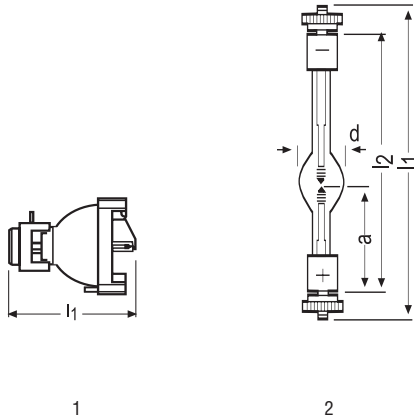
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Ordering Abbreviation	HBO 50 W AC L1	HBO 50 W AC L2	HBO 50 W/3	HBO 100 W/2	HBO 103 W/2
Product Number	69213	69214	69215	69217	69182
Watts (W)	50	50	50	100	100
Volts (V)	42	37	23	20	23
Type of Current	AC	AC	DC	DC	DC
Current (A)	1.3	1.45	2.3	5.0	4.44
Lumens (lm)	2000	2000	1300	2200	2550
Luminous Intensity (cd)	230	230	150	260	270.0
Average Luminance (cd/cm <sup>2</sup> )	30000	30000	90000	170000	150000
Luminous Area – w x h (mm)	0.3 x 1.0	0.3 x 1.0	0.2 x 0.35	0.25 x 0.25	0.25 x 0.25
Luminous Efficacy (lm/W)	40	40	26	22	30
Length l1 max (mm)	53	53	53	90	90
Length l2 max (mm)	47	47	47	82	82
Distance a (mm)	22	22	22	43	43
Diameter d (mm)	8.5	8.5	9	10	10
Avg Rated Life (hrs)	100	100	200	200	300
Operating Position	s 45	s 45	s 45	s 90	s 90
Cooling	Convection	Convection	Convection	Convection	Convection
Base Anode	SFa6-2	SFa6-2	SFa6-2	SFa7.5-2	SFa7.5-2
Base Cathode	SFa6-2	SFa6-2	SFa8-2	SFa9-2	SFa9-2
Fig No	1	1	2	3	3
Symbols & Footnotes	58	58	58	58	58,222

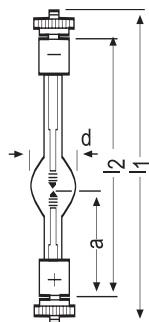
# HBO® MERCURY SHORT ARC



Ordering Abbreviation	HBO R 103 W/45	HBO 200 W/2 L1	HBO 200 W/2 L2	HBO 200 W/2 TM L2	HBO 200 W/4
Product Number	69311	69198	69222	69223	69224
Watts (W)	100	200	200	200	200
Volts (V)	23	61	53	47	61
Type of Current	DC	DC or AC	DC or AC	DC or AC	AC
Current (A)	4.3				3.6
Lumens (lm)		9500	9500	9500	9500
Luminous Intensity (cd)		1000	1000	1000	1000
Average Luminance (cd/cm <sup>2</sup> )		40000	40000	40000	40000
Luminous Area – w x h (mm)		0.6 x 2.2	0.6 x 2.2	0.6 x 2.2	0.6 x 2.2
Luminous Efficacy (lm/W)		47.5	47.5	47.5	47.5
Length l1 max (mm)	81.50	128	128	128	128
Length l2 max (mm)		102	102	102	102
Distance a (mm)		40	40	40	40
Diameter d (mm)	67	17	17	17	17
Avg Rated Life (hrs)	300	400	400	200	200
Operating Position	p 20	s 45	s 45	s 45	s 45
Cooling	Convection	Convection	Convection	Convection	Convection
Base Anode	Pin	SFc10-4	SFc10-4	8-32 UNC-3A	SFc10-4
Base Cathode	Pin	SFc10-4	SFc10-4	8-32 UNC-3A	SFc10-4
Fig No	1	2	2	2	2
Symbols & Footnotes	60,190,223	58,86,226,227	58,86,226,227	58,87	58,225



# HBO® MERCURY SHORT ARC

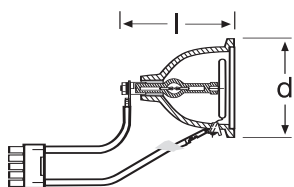


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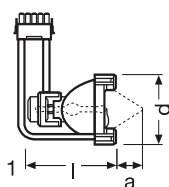
DISPLAY OPTIC DISCHARGE

Ordering Abbreviation	HBO 200 W/DC	HBO 200 W/DC TM	HBO 202 W/4
Product Number	69225	69163*	69316
Watts (W)	200	200	200
Volts (V)	57	56	61
Type of Current	DC	DC	AC
Current (A)	3.5		3.6
Lumens (lm)	10000	9500	0
Luminous Intensity (cd)	1100	1000	1000
Average Luminance (cd/cm <sup>2</sup> )	40000	40000	40000
Luminous Area – w x h (mm)	0.75 x 2.3	0.6 x 2.2	0.6 x 2.2
Luminous Efficacy (lm/W)	50	50	47.5
Length l1 max (mm)	128	128	128
Length l2 max (mm)	102	102	102
Distance a (mm)	40	40	40
Diameter d (mm)	17	17	17
Avg Rated Life (hrs)	1000	400	200
Operating Position	s 15	s20	s 45
Cooling	Convection	Convection	Convection
Base Anode	SFc10-4	8-32 UNC-3A	SFc10-4
Base Cathode	SFc10-4	8-32 UNC-3A	SFc10-4
Fig No	1	1	1
Symbols & Footnotes	58	58,200	58,69

# HXP® MERCURY SHORT ARC



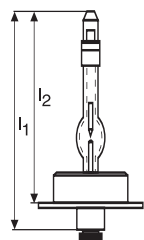
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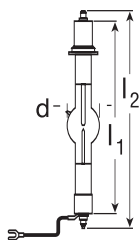
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Ordering Abbreviation	HXP R 120 W/17C	HXP R 120 W/45 C UV	HXP R 120 W/45 C VIS
Product Number	69125	69120	69119
Watts (W)	120	120	120
Volts (V)	75	75	75
Type of Current	AC	AC	AC
Current (A)	1.4	1.4	1.4
Lumens (lm)	4400		2800
Color Temp (K)			9500
Length l max (mm)	77	77	77
Diameter d (mm)	56	64	64
Working Distance A (mm)	17.3	45	45
Avg Rated Life (hrs)	2000	2000	2000
Hot Restart	p 20	p 20	p 20
Operating Position	Special	Special	Special
Base	Yes	Yes	Yes
Fig No	1	2	2
Symbols & Footnotes	60,170,172,173,174	60,100,169,170,171,172,	60,100,169,170,171,172

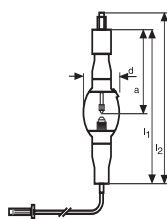
# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



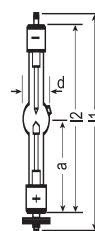
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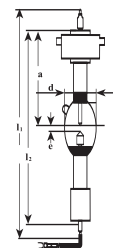
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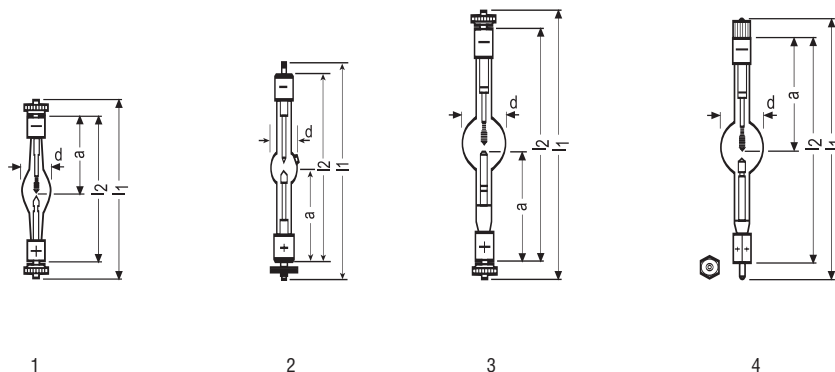
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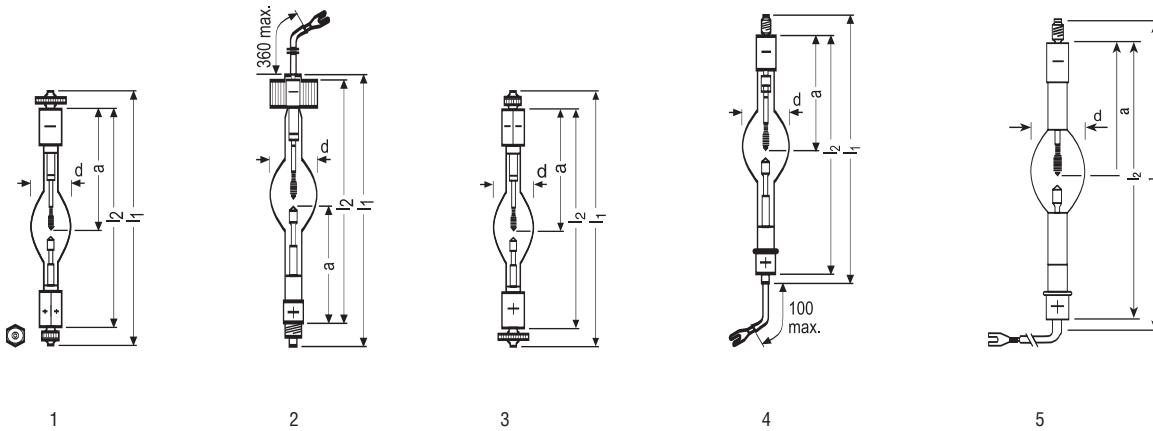
Ordering Abbreviation	HBO 200 W/DN-I	HBO 201 W/HS-D2	HBO 510 W/FU	HBO 250 W/BY	HBO 250 W/HS
Product Number	69136	69168	69134	69246	69364
Watts (W)	200	200	200	250	250
Volts (V)	25	25	59	40	40
Type of Current	DC	DC	DC	DC	DC
Current (A)	8.0	8.0	3.0	6.5	6.25
Radiant Intensity 350..450 nm (mW/sr)					
Length l1 max (mm)	145.8	150	111	152	143
Length l2 max (mm)	131	127	120	125	125
Distance a (mm)			55	62	62
Diameter d (mm)	20	20	16	20	20
Electrode Gap -- cold (mm)	1.9	2	2.4	2	2
Avg Rated Life (hrs)	1000	1000	400	1000	1000
Operating Position	Horizontal	Vertical, anode up	Vertical, anode down	Vertical, anode down	Vertical, anode down
Cooling	Convection	Convection	Convection	Forced Base	Convection
Base Anode		SFcX32-22	Cable connection	SFc13-5/20	SFa 13-5/20
Base Cathode		SFcX12-4/15	SfcY 10-4/14	SFc13-5/20	Special
Fig No	1	2	3	4	5
Symbols & Footnotes	129,160,186	129,160,186	182	186	160,186

# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



Ordering Abbreviation	HBO 350 W	HBO 350 W/S	HBO 450 W/GS	HBO 500 W/A	HBO 500 W/B
Product Number	69226	69228	69343	69205	69206
Watts (W)	350	350	450	500	500
Volts (V)	68	68	50	60	48
Type of Current	DC	DC	DC	DC	DC
Current (A)	5.3	5.15	9.0	8.3	10.3
Radiant Intensity 350..450 nm (mW/sr)	4600	4700		6230	5800
Length l1 max (mm)	128	127	150	190	180
Length l2 max (mm)	102	103	105	161.5	151.5
Distance a (mm)	45	52.5	53	73	78.5
Diameter d (mm)	20	20	22	29	29
Electrode Gap -- cold (mm)	2.9	3	2.2	4.5	3
Avg Rated Life (hrs)	600	600	600	800	800
Operating Position	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down
Cooling	Convection	Convection	Convection	Convection	Convection
Base Anode	SFcY 10-4	SFcY10-4	SFc 13-8	SFcY13-5	SFcX13-5/20
Base Cathode	SFcY 10-4	SFcY10-4	SFc 13-4	SFcY13-5	SFcY 13-15/20
Fig No	1	1	2	3	4
Symbols & Footnotes	89,229,230,231	89,231	291	231,235	96,231,236

# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



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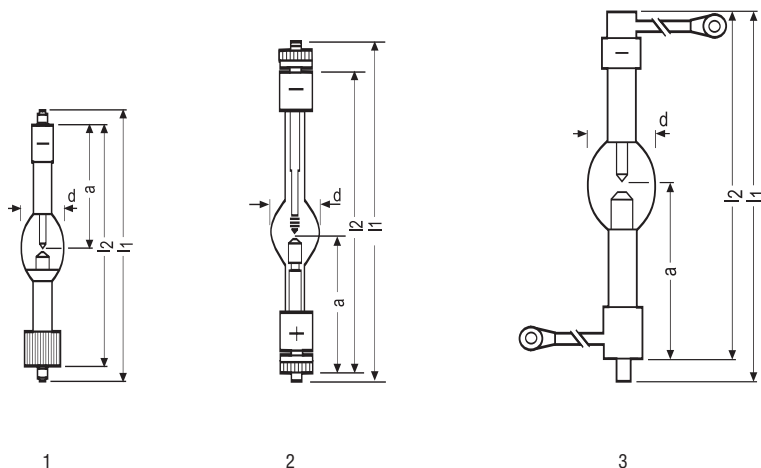
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DISPLAY OPTIC DISCHARGE

Ordering Abbreviation	HBO 1000 W/CEL	HBO 1000 W/NEL	HBO 1002 W/CEL	HBO 1002 W/NEL	HBO 1002 W/NIL
Product Number	69175	69176	69177	69273	69347
Watts (W)	750	750	750	750	750
Volts (V)	47	47	47	47	25
Type of Current	DC	DC	DC	DC	DC
Current (A)	16.0	16.0	16.0	16.0	27.1
Radiant Intensity 350..450 nm (mW/sr)	8300	8300	8300	8300	
Length l1 max (mm)	175	190	175	190	187
Length l2 max (mm)	157	168	157	168	168
Distance a (mm)	78.5	84.5	78.5	78.5	78.5
Diameter d (mm)	28	28	28	28	29
Electrode Gap -- cold (mm)	3	3	3	3	3
Avg Rated Life (hrs)	2500	2500	2500	2500	1500
Operating Position	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down
Cooling	Convection	Convection	Convection	Convection	Forced Base
Base Anode	SxFc15-6/20	SFa15-5/16	SFc15-6/20	SFaX14-5/21	SFaX14-5/21
Base Cathode	SFc15-6/20	SFaX14-5/21	SxFc15-6/20	SFc15-6/25	SFc15-6/25
Fig No	1	2	3	4	5
Symbols & Footnotes	75,237,243	97,237,253,254	78,237,244	98,237,243	98,237,243

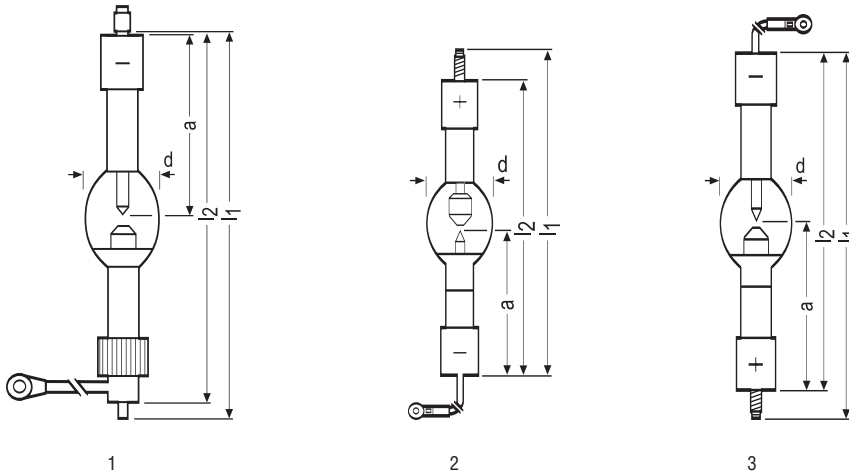
# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



Ordering Abbreviation	HBO 1003 W/PI	HBO 1003 W/PIL	HBO 1000 W/D	HBO 1500 W/CIEL	HBO 1500 W/CIL
Product Number	69195	69180	69200	69171	69179
Watts (W)	750	750	1000	1500	1500
Volts (V)	26	26	38	23	23
Type of Current	DC	DC	DC	DC	DC
Current (A)	27.1	25.8	26.5	65.2	65.2
Radiant Intensity 350..450 nm (mW/sr)			10800		
Length l1 max (mm)	197	195	240	262	262
Length l2 max (mm)	169.5	169.5	208	242	242
Distance a (mm)	85	85	89.5	122	122
Diameter d (mm)	29	29	40	52	52
Electrode Gap -- cold (mm)	3	3	3	4	4
Avg Rated Life (hrs)	850	1500	1000	2250	1500
Operating Position	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode down
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SFcX14-6/25	SFcX14-6/25	SFc15-6/25	SFa27-20/22	SFa27-10/35
Base Cathode	SFc15-6/25	SFc15-6/25	SFc15-6/25	SFa27-20/23	SFa27-20/23
Fig No	1	1	2	3	3
Symbols & Footnotes	237,242,249	64,237,242	74,243	258,260,266	260,266



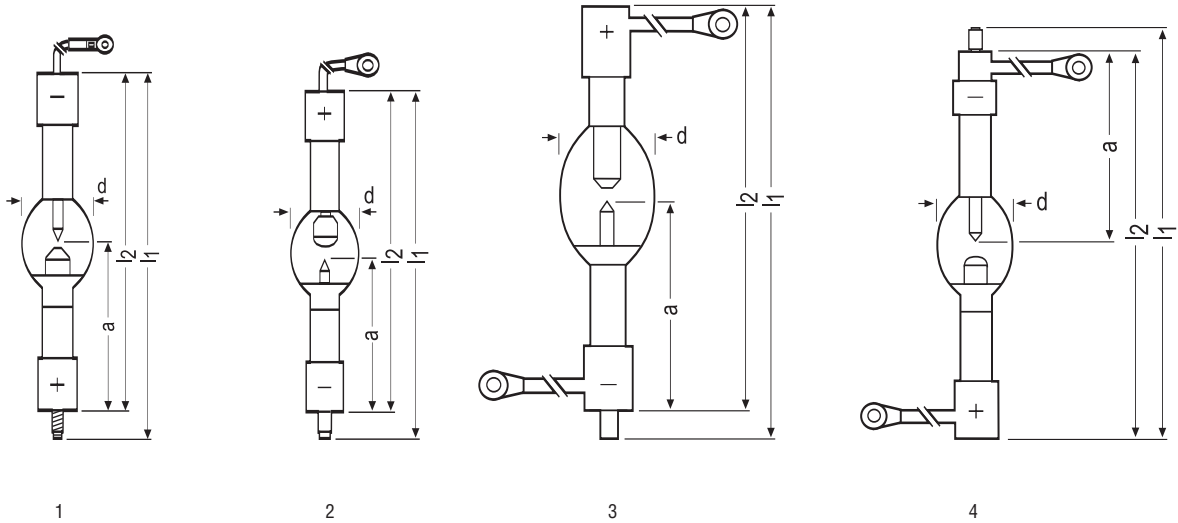
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DISPLAY OPTIC DISCHARGE

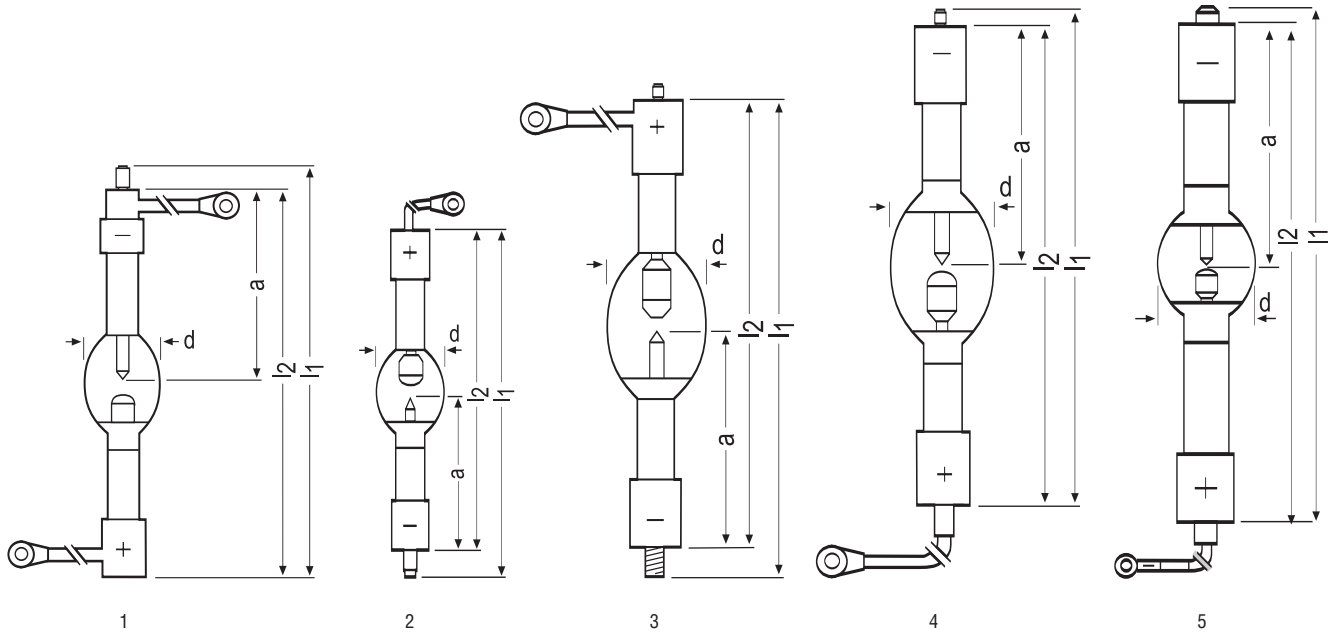
Ordering Abbreviation	HBO 1500 W/PI	HBO 1500 W/PIL	HBO 1500 W/PIL HP	HBO 2000 W/NIL	HBO 2001 W/NIEL
Product Number	69319	69181	69122	69303	69306
Watts (W)	1500	1500	1500	1750	1750
Volts (V)	23	23	23	26	26
Type of Current	DC	DC	DC	DC	DC
Current (A)	65.2	65.2	65.0	67.0	67.0
Radiant Intensity 350..450 nm (mW/sr)				5200	
Length l1 max (mm)	267	273	273	241	251
Length l2 max (mm)	240	242	242	221	231
Distance a (mm)	118	118	118	112.25	112.5
Diameter d (mm)	47	46	52	52	52
Electrode Gap -- cold (mm)	4	4	4	4.5	4.5
Avg Rated Life (hrs)	850	1500	1500	1500	2250
Operating Position	Vertical, anode down	Vertical, anode down	Vertical, anode down	Vertical, anode up	Vertical, anode down
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SFc30-6/25	SFc30-6/25	SFc30-6/25	SFc27-12/35	SFc27-10/35
Base Cathode	SFc27-10/35	SFc27-10/35	SFc27-10/35	SFc27-7/35	SFc27-7/35
Fig No	1	1	1	2	3
Symbols & Footnotes	257,262	61,262	241,242	241,260	241,260

# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



Ordering Abbreviation	HBO 2001 W/NIL	HBO 2002 W/NIL	HBO 2001 W/CIEL	HBO 2001 W/CIL	HBO 2002 W/MA
Product Number	69292	69287	69166	69189	69199
Watts (W)	1750	1750	2000	2000	2000
Volts (V)	26	24	26	26	37
Type of Current	DC	DC	DC	DC	DC
Current (A)	67.0	67.0	77.0	77.0	54.0
Radiant Intensity 350..450 nm (mW/sr)					
Length l1 max (mm)	251	254	329	329	292
Length l2 max (mm)	231	234	309	307	272
Distance a (mm)	112	107.5	148.75	149	138.5
Diameter d (mm)	50	52	62	62	62
Electrode Gap -- cold (mm)	4.5	4.5	4	4.5	3
Avg Rated Life (hrs)	1500	1500	2250	1500	1000
Operating Position	Vertical, anode down	Vertical, anode up	Vertical, anode up	Vertical, anode up	Vertical, anode down
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SFc27-10/35	SFc27-7/35	SF33.5/50	SF33.5/50	SF27/35
Base Cathode	SFaX27-7/35	SFc27-10x1.25/35	SFa33.5-10/50	SFa33.5-10//50	SFa27-10/35
Fig No	1	2	3	3	4
Symbols & Footnotes	241,260	79,241	79,114,264	79,241,264	79,241,260

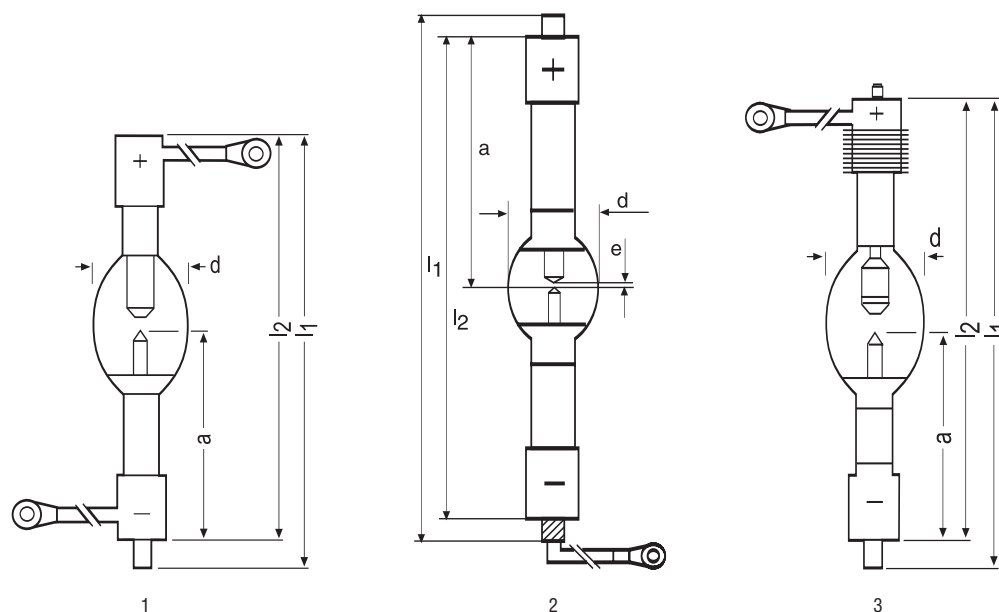
# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



DISPLAY OPTIC DISCHARGE

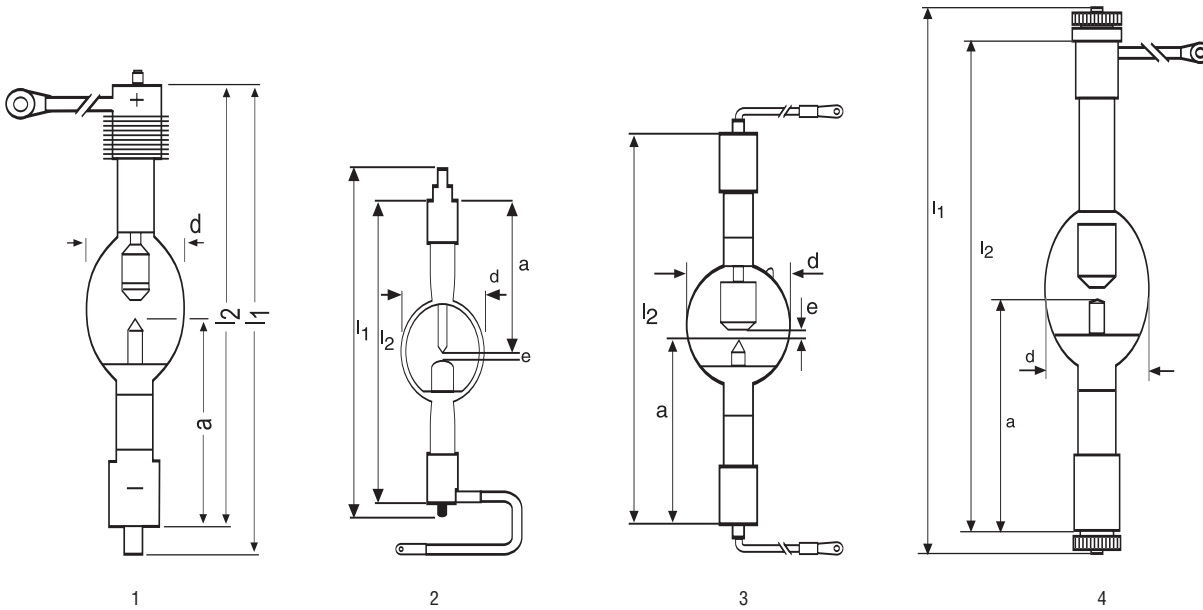
Ordering Abbreviation	HBO 2002 W/MAL	HBO 2011 W/NIL	HBO 2500 W/PIL	HBO 2501 W/NIL	HBO 2510 W/NIL
Product Number	69121	69288	69172	69289	69299
Watts (W)	2000	2000	2500	2500	2500
Volts (V)	40	24	28	23	23
Type of Current	DC	DC	DC	DC	DC
Current (A)	50.0	80.0	90.0	110.0	109.0
Radiant Intensity 350..450 nm (mW/sr)					
Length l1 max (mm)	292	256	350	367	367
Length l2 max (mm)	272	236	315	327	327
Distance a (mm)	138.5	107.75	149	157.75	157.5
Diameter d (mm)	62	52	62	70	70
Electrode Gap -- cold (mm)	3	4.5	6.7	4.5	4.5
Avg Rated Life (hrs)	1500	1500	1500	1500	1500
Operating Position	Vertical, anode down	Vertical, anode up	Vertical, anode up	Vertical, anode down	Vertical, anode up
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SF27/35	SFc27-7/35	SFc30-6/50	SFc33.5-8/50	SFc33.5-8/50
Base Cathode	SFa27-10/35	SFc27-12x1.5/35	SFc30-6.3/50	SFc33.5-14/5	SFc33.5-14/50
Fig No	1	2	3	4	5
Symbols & Footnotes	79,260	79,241	241,242,266	79	72,241

# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



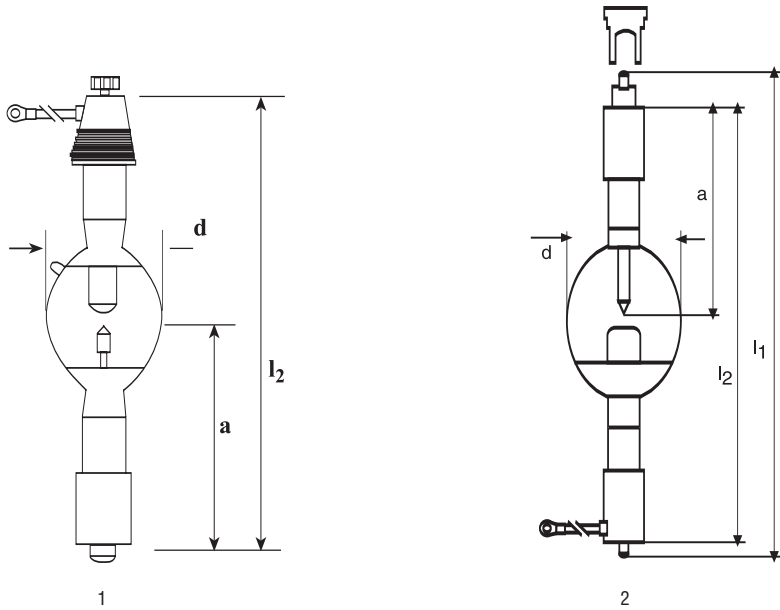
Ordering Abbreviation	HBO 2700 W/CIL	HBO 3500 W/NIL	HBO 3500 W/PI	HBO 3500 W/PIL	HBO 3501 W/PI
Product Number	69344	69456*	69174	69169	69127
Watts (W)	2700	3500	3400	3400	3400
Volts (V)	24	27	23	23	23
Type of Current	DC	DC	DC	DC	DC
Current (A)	110.0	130	148.0	148.0	148.0
Radiant Intensity 350..450 nm (mW/sr)					
Length l1 max (mm)	334	382	340	360	360
Length l2 max (mm)	309	337	315	315	315
Distance a (mm)	148.75	180	154	154	154
Diameter d (mm)	62	82	77	77	77
Electrode Gap -- cold (mm)	4.8	5.5	4.5	4.5	4.5
Avg Rated Life (hrs)	1500	1500	850	1500	850
Operating Position	Vertical, anode up	Vertical, anode up	Vertical, anode up	Vertical, anode up	Vertical, anode up
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SFa33.5/50	SFc33.5-16-50	SFaX40-6/50	SFaX40-6/50	SFaX40-6/50
Base Cathode	SFa33.5-14.59	SFa33.5-12/50	SFc32.5-6.7/50	SFc32.5-6.7/50	SFc32.5-6.7/50
Fig No	1	2	3	3	3
Symbols & Footnotes	79,129,264	129,260,284	99,241,266	241,266	241,266

## HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



Ordering Abbreviation	HBO 3501 W/PIL	HBO 3500 W/HK	HBO 4500 W/CIL	HBO 5000 W/TA	HBO 5001 W/JF
Product Number	69165	69137*	69162	69135	69161*
Watts (W)	3400	3500	4500	5000	5000
Volts (V)	23	55	30	50	62
Type of Current	DC	DC	DC	DC	DC
Current (A)	148.0	63.5	148.0	100.0	80.0
Radiant Intensity 350..450 nm (mW/sr)					
Length l1 max (mm)	360	315	360		486
Length l2 max (mm)	315		315	327.5	355
Distance a (mm)	154	142.7	154	148.5	206
Diameter d (mm)	77	70	77	80	85
Electrode Gap -- cold (mm)	4.5	6.4	4.5	7.5	7.5
Avg Rated Life (hrs)	1500	1000	1500	850	850
Operating Position	Vertical, anode up	Vertical, anode up	Vertical, anode up	Vertical, anode up	Vertical, anode up
Cooling	Forced Base	Forced Base	Forced Base	Forced Base	Forced Base
Base Anode	SFc32.5-6.7/50	SFa 27-10/42	SFAX40-6/50	SFa 33.5-12/50	SFa 38-14/65
Base Cathode	SFaX40-6/50	SFc 27-14-8/35	SFC32.5-6.7/50	SFa 33.5-12/50	SFXa 38-14/65
Fig No	1	2	1	3	4
Symbols & Footnotes	163,266	100,189	186	183,266	135,266

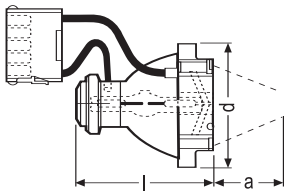
# HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



Ordering Abbreviation	HBO 5500 W/PI	HBO 5000 W/HK
Product Number	69164	69138*
Watts (W)	5000	5100
Volts (V)	25	70
Type of Current	DC	DC
Current (A)	200.0	72.0
Radiant Intensity 350..450 nm (mW/sr)		65.8
Length l1 max (mm)		355
Length l2 max (mm)	355	302
Distance a (mm)	154	152.5
Diameter d (mm)	85	82
Electrode Gap -- cold (mm)	5.5	7.5
Avg Rated Life (hrs)	850	1000
Operating Position	Vertical, anode up	Vertical, anode down
Cooling	Forced Base	Forced Base
Base Anode	SfCx 42.5-6/50	SfYa29-10/42
Base Cathode	SFa 37.5-9/50	SfC29-20-12/42
Fig No	1	2
Symbols & Footnotes	135,201,266	80

DISPLAY OPTIC DISCHARGE

# VIP® VIDEO AND DATA PROJECTION



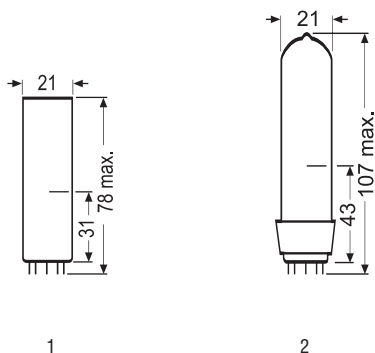
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DISPLAY OPTIC DISCHARGE

Ordering Abbreviation	VIP R 273/45
Product Number	69327
Watts (W)	270
Volts (V)	38
Current (A)	7.1
Lumens (lm)	17000
Average Luminance (cd/cm <sup>2</sup> )	100000
Color Temp (K)	5800
Length l (mm)	73
Distance a (mm)	45
Diameter d (mm)	67
Arc Length (mm)	1.9
Avg Rated Life (hrs)	1000
Operating Position	Horizontal, tip-off up
Base	
Hot Restart	Yes
Fig No	1
Symbols & Footnotes	1,113,124

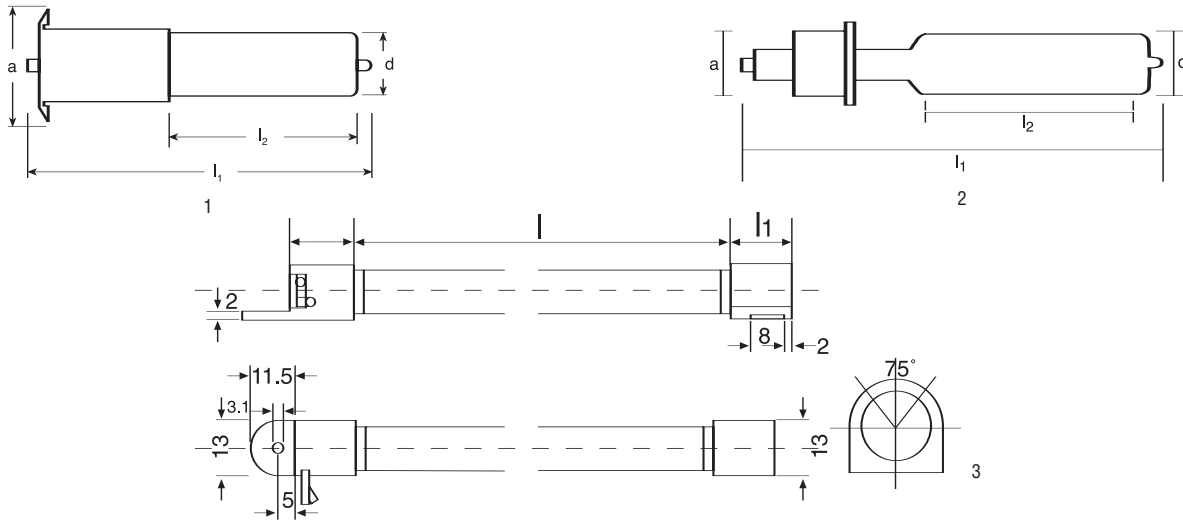


# SPECTRAL



Ordering Abbreviation	Na 10 FL	Na/10
Product Number	69284	69282
Elements	Sodium	Sodium
Watts (W)	9	15
Volts (V)	16	15
Current (A)	0.57	1.0
Type of Current	AC	AC
Operating Position	Vertical, base down	Vertical, base down
Base	Pico 9	Pico 9
Fig No	1	2
Symbols & Footnotes	119,128	128

## EXCIMER LAMPS



### XERADEX®

Ordering Abbreviation	XERADEX 20	XERADEX 20/HV	XERADEX 20/SY45/45
Product Number	69338	69352	69349
Watts (W)	20	20	20
Length l1 max (mm)	245	245	300
Length l2 max (mm)	120	120	125
Distance a (mm)	75	75	45
Diameter d (mm)	40	40	40
Avg Rated Life (hrs)	1500	1500	1500
Operating Position	Any	Any	Any
Fig No	1	1	2
Symbols & Footnotes	115,118,145,147	115,118,145,158	115,118,145,148

### LINEX®

Ordering Abbreviation	LX40T3/956/A3	LX24T3/956/A4
Product Number	52079	52155
Watts (W)	40	24
Avg Rated Life (hrs)	2000	2000
Base	Special	Special
Illuminance @ 8mm (Lx)	80000	48000
Bulb	T3	T3
Lamp Finish	Coated	Coated
Hot Restart	Yes	Yes
Length L (mm)	350	235
Length L1 (mm)	15	15
MOL (mm)	391.5	267.5
Fig No	3	3
Symbols & Footnotes	176,204	176,204

# LAMP BASES



BA15d  
IEC 7004-11  
DIN 49721  
DL  
Bayonet



BA15s  
IEC 7004-11A  
DIN 49720  
SC  
Bayonet



BA20d  
IEC 7004-12  
DIN 49730



E10  
IEC 7004-22  
DIN 49610  
miniature  
Edison



E14  
IEC 7004-23  
DIN 49615  
small  
Edison



E27/E26  
IEC 7004-21  
DIN 49620  
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E27-EURO



E40/E39  
IEC 7004-21  
DIN 49625  
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E40-EURO



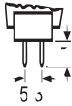
FaX1.5-3x1



G4  
IEC 7004-72  
DIN 49757  
2-pin



GX5.3  
IEC 7004-61  
DIN 49640  
2-pin



G5.3-4.8  
2-pin



GY5.3  
2-pin



G6.35-15  
G6.35-20  
G6.35-25  
IEC 7004-59  
2-pin



GX6.35-25  
IEC 7004-59  
2-pin



GY6.35-15  
IEC 7004-59  
2-pin



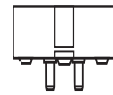
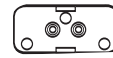
GZ6.35  
IEC 7004-59 A  
DIN 49754  
2-pin



GZX9.5  
GZZ9.5  
IEC 7004-70 B  
DIN 49756  
2-pin  
pre-focus



G9.5  
IEC 7004-70  
medium  
2-pin



GX9.5  
DIN 49638  
IEC 7004-70 A  
2-pin  
pre-focus

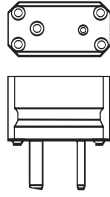


GY9.5  
GZ9.5  
DIN 49756  
IEC 7004-70 B  
2-pin  
pre-focus

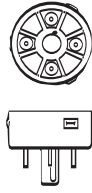
# LAMP BASES



GX16d  
2-pin



GY16  
DIN 49758  
IEC 7004-45  
2-pin



GY17q  
DIN 49758  
IEC 7004-74  
4-pin



GY17t  
DIN 49665  
IEC 7004-45  
4-pin



G22  
IEC 7004-75  
medium  
Bipost



GY22  
2-pin



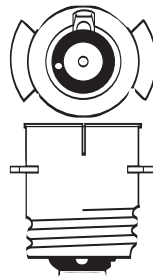
G38  
IEC 7004-76  
MOGUL  
Bipost



GX38q



K24s  
Length of cable  
250 mm  
Hole of cable lug  
ø 8.4 mm  
DIN 49748



P40s  
DIN 49728  
IEC 7004-43  
medium  
pre-focus



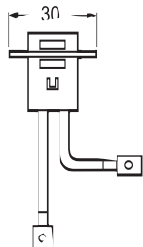
Pico9  
DIN 41539



PG22-6.35  
DIN 49751  
IEC 7004-48



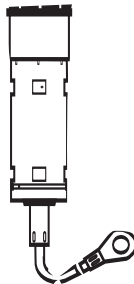
P28s  
DIN 49728  
IEC 7004-42  
MOGUL  
pre-focus



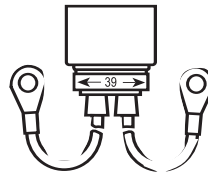
PK30d



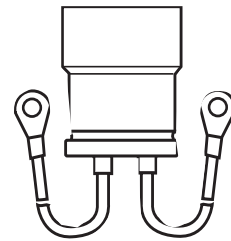
R7s  
RX7s  
DIN 49750  
IEC 7004-92



K30 s  
Length of cable  
275 mm  
Hole of cable lug  
dia 8.4 mm  
DIN 49748

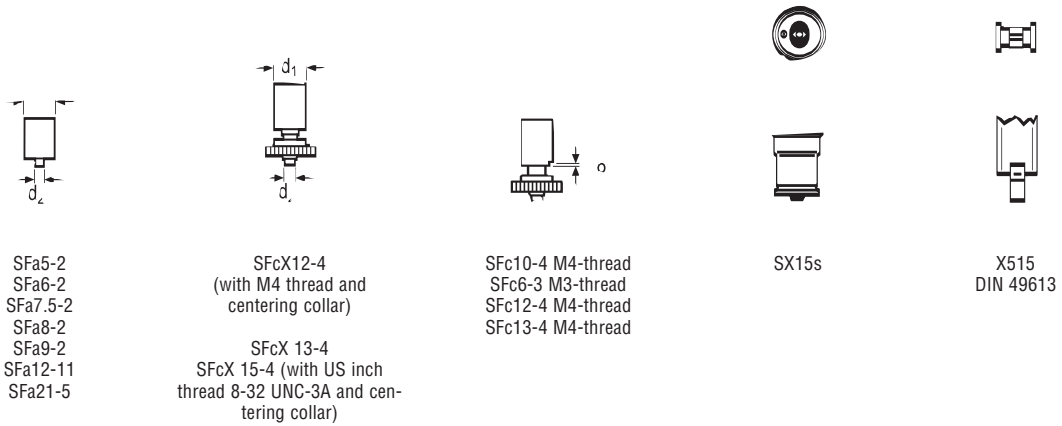
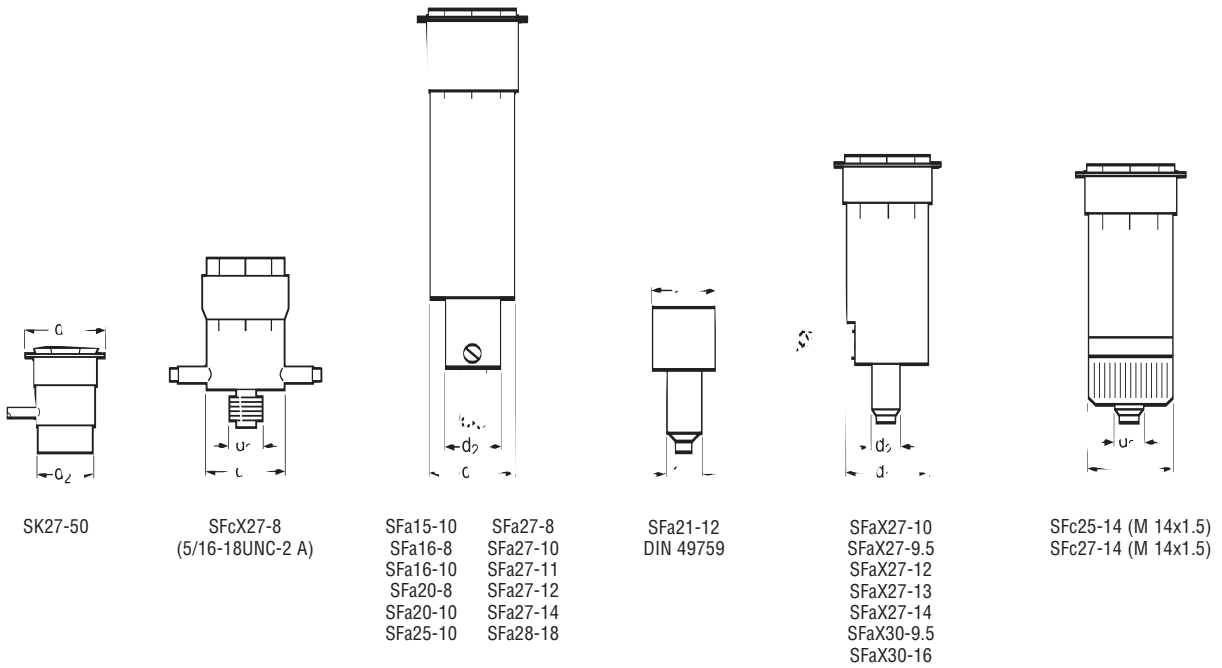


K39 d  
with flexible Siaf cable  
Length of cable 300 mm.  
Hole of cable lug dia. 8.4 mm



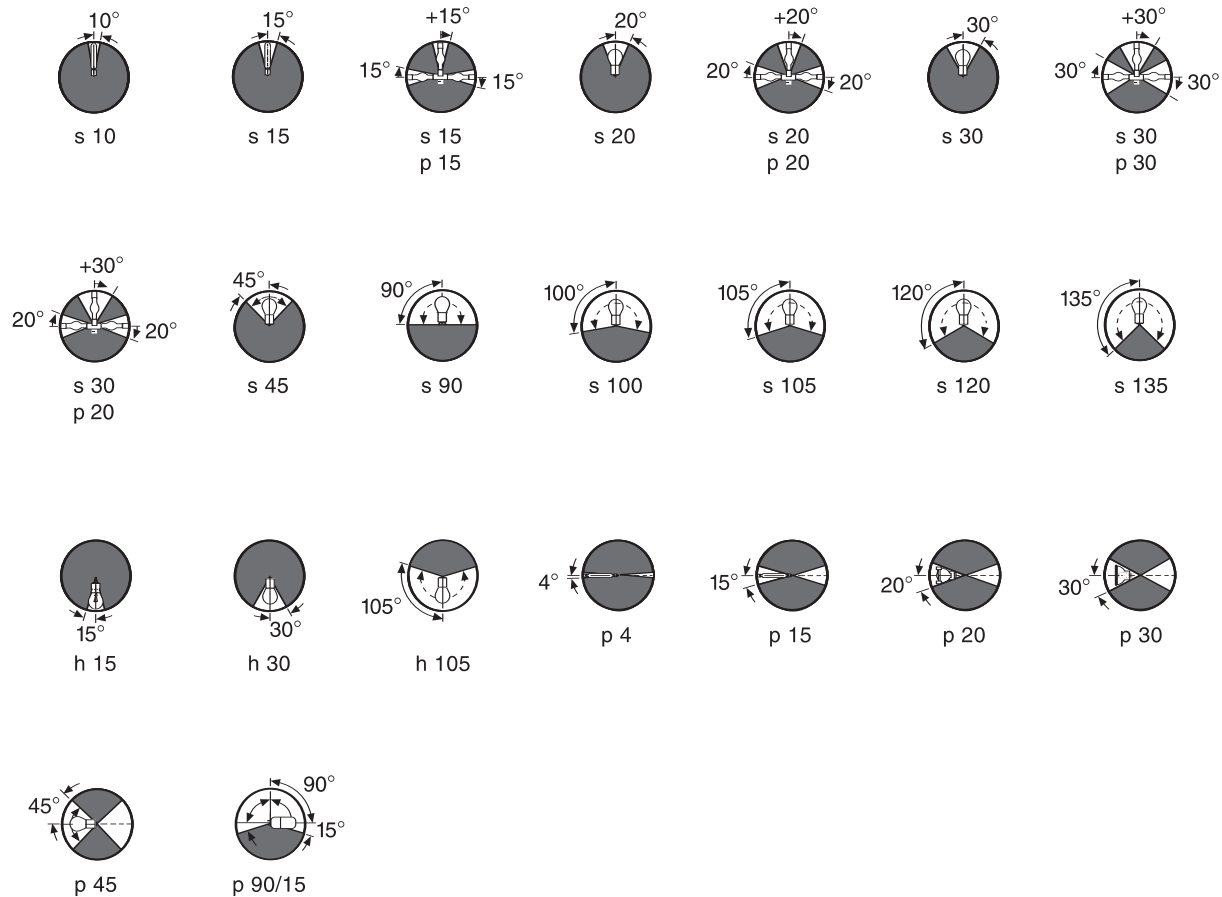
K59 d  
with flexible Siaf cable  
Length of cable 350 mm.  
Hole of cable lug dia. 8.4 mm  
DIN 49732

# LAMP BASES



## OPERATING POSITIONS

### Schematic diagrams



□ permitted  
 ■ not permitted

## GENERAL INFORMATION

In North America, OSRAM brand Display/Optic lighting products are sold by OSRAM SYLVANIA AND OSRAM SYLVANIA LTD. Sales are subject to standard terms and conditions of sale prevailing as of the date of purchase.

Operational data and dimensions are nominal values. OSRAM reserves the right to make technical modifications without notice. All supplies are subject to availability.

® = Registered trademarks of OSRAM GmbH


Lamps are designated in accordance with ANSI standard C78.370-1982 (As amended).

When disposing of spent lamps, always consult federal, state, local and/or provincial hazardous waste disposal rules and regulations to ensure proper disposal.

Use of improper, unapproved or unsuitable ballasts will negatively impact the performance of Display/Optic lamps and could void the lamp warranty. A list of power supply manufacturers is available upon request.

Discharge lamps in the HCD®, HMD®, HMI®, HMP®, HTI®, HSR®, HSD®, HBO®, HXP® OSRAM STUDIOLINE® and VIP® types and the spectral lamps contain small quantities of harmful substances (such as mercury).

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
Footnote	Description
1	Type of current: square-wave AC.
2	Lamp arc needs to be in horizontal operating position.
3	Any operating position allowed with appropriate cooling.
4	In certain countries there are third party property rights relating to equipment which must be observed if these lamps are used in dentistry.
5	Lamp suited for video camera heads; 500hr life @ 1.8V/ 45 min. ON / 15 min. OFF.
6	WARNING: This lamp is designed for heating purposes. It emits a strong Infrared radiation with a temperature at focal point approx. 1300 degrees C. Read Safety and Warning instructions before using this lamp.
7	Lamp also available in BELLAPHOTÖ (Product Number 54163).
8	Lamp also available in BELLAPHOTÖ (Product Number 54840).
9	Lamp service life 75hr life is defined at 76V with a duty cycle of 45 min. ON / 15 min. OFF.
10	Current bar needs to be positioned underneath the discharge arc during operation.
11	Lamp also available in 240 V model.
12	Preferred operating position is horizontal; vertical possible for short periods.
13	Lamp has internal proximity reflector.
14	Base - filament connections: Pins 1 and 4.
15	Lamp has monoplane filament 10 X 10 mm.
16	Lamp has monoplane filament.
17	Lamp also available as a 240V model (Product Number 54977).
18	Lamp has a biplane filament.
19	WARNING: Lamp has a special GY22 base. Ignition voltage must be applied only to the thin pin.
20	Lamp interchangeable with HX 602
21	Lamp interchangeable with HX 600
22	Lamp also available as 115V model (Product Number 54636).
23	Lamp has two separately switchable filaments.
24	Length l = Contact to contact.
25	Lamp also available in 240 V version : Product Number 54619.
26	High-performance HPL halogen lamps are manufactured under license from ETC,Inc.
27	Do not tilt perpendicular to the filament.
28	WARNING: The contact pins on the base are connected internally. The electrode farthest from the base must be connected via cable.
29	MFL=Medium Flood
30	NSP=Narrow Spot
31	WFL=Wide Flood
32	VNSP=Very Narrow Spot.
33	With biplane filament , higher luminous intensity can be achieved.
34	Lamp has a flat core filament with filament area perpendicular to the lamp axis.
35	Hg 100 also suitable for DC operation (no igniter needed when connected to 230V)
36	Lamp also available with connecting cable and plug-in contact.XBO R 180W/45 C OFR (Product Number 69183).
37	Lampholder for FaX 1.5 base = HMI Socket 46721 (Product Number 69302).
38	Lamp also available in ozone-free version XBO 75 W/2 OFR (Product Number 69232)
39	Lamp also available in ozone-free version XBO 150 W/1 OFR (Product Number 69235)
40	Lamp uses Suprasil quartz glass.
41	Lamp also available in ozone-free version XBO 450 W OFR (Product Number 69245)
42	Lamp also available in Suprasil quartz glass version XBO 450 W/4 (Product Number 69244)
43	S=Short
44	C=Base with Cable



## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
45	H=Suitable for horizontal operation
46	TC=Thread and Cable
47	CA=Cable on anode base
48	All HTI« lamps are hot restrikeable with the exception of HTI 150, HTI 152, HTI 405 W/SE, and 705 W/SE.
49	SHSC=Extra short version for horizontal burning position, anode connection via cable (super short)
50	TM=Threaded Modified
51	TP=Threaded Pin
52	GS=Gap Shortened
53	SE=Single Ended
54	DE=Double Ended
55	DX= Double Ended eXtreme Seal technology
56	OFR=Ozone Free
57	Molybdenum pins have 1mm diameter.
58	s (Operating Position) = Vertical, base down
59	h (Operating Position) = Vertical, base up
60	p (Operating Position) = Horizontal
61	Lamp also available with 850 hr HBO 1500 W/PI (Product Number 69319)
62	Lamp also available as version HBO 2001 W/CI with 850hr life (Product number 69219)
63	Lamp is also available with connecting cable and plug-in contact. HTI 250W/32 C (Product Number 54089).
64	Lamp also available as version HBO 1003 W/PI with 850hr life (Product Number 69195)
65	Lamp also available as version HBO 2500 W/PI with 850hr life (Product Number 69178)
66	Technical data if operated on AC: Current = 7.1 A, Volts = 67 V.
67	Average service life of lamp if operated with 400W is 100 hrs.
68	Magnetic arc stabilization required.
69	Lamp same as HBO 200 W/4 (Product Number 69224 but with increased radiation in the wavelength range below 450nm for UV-curing.
70	Technical lamp data if operated on AC: Current=4.2 A, Volts=65 V, Lumens=10,000 lm, Luminous Efficacy=50 lm/W.
71	Electrical data if lamp is operated on AC: Current=7.8 A, Volts=67 V.
72	Lamp has been specially adjustment for uniform illumination in the far field(200-250) mm focal length.
73	Cathode Base with 8-32 UNC-3A thread.
74	Anode Base=Sleeve base with M 6 thread.
75	Anode Base=Hexagon base with M 6 thread.
76	Anode Base with 8-32 UNC-3A thread.
77	Anode Base=Sleeve base with cooling fins and cable connection (M 6).
78	Anode Base with M 6 thread.
79	Anode Base with cable connection (M 8).
80	Anode Base with cable connection (M 6).
81	Anode Base with 8-32 UNC-3 thread.
82	Pin dimensions at front ceramic ring 2mm diameter, 10 mm length. Pin dimensions at rear ceramic base cap 2.5mm diameter, 11mm length.
83	Anode base with M 5x 0.9 thread
84	Cathode Hexagon base with M 5x 0.9 thread
85	Anode base with cable: length 340mm; connector 8/25.
86	For DC operation both Product Numbers 69198 & 69222 can be used (47...65Volts / 3.1...4.2Amps). For AC operation Product Number 69198 (L1 version 57 65 Volt / 3.6 Amps) or Product Number 69222 (L2 version 49 57 Volt / 4.2 Amps) can be used.
87	Product Number 69223 can be used for DC operation (47...65 Volts / 3.1...4.2Amps) and for AC operation (L2 version 49 57 Volt / 4.2 Amps).
88	For DC operation Product Number 69204 can be used (67-85 Volts / 5.9 - 7.4 Amps). For AC operation Product Number 69204 can be used (L2 version 69-77 Volt / 7.8 Amps).
89	Anode and Cathode Base with UNC-3B thread.
90	Type of current: sine-wave (sinusoidal) AC.

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
91	Photometric data refer to discharge tube (lamp burner).
92	Lamp also available with 850 hrs (HBO 3500 W/PI, Product Number 69174)
93	Lamp also available with 850 hrs (HBO 3501 W/PI, Product Number 69127)
94	Lamp also available as Longlife version HBO 2500 W/PIL with 1500hr life (Product Number 69172).
95	Lamp also available as Longlife version HBO 3500 W/PIL with 1500hr life (Product Number 69169).
96	Cathode base with M 5x 0.9 thread
97	Cathode base with cable connection (M5)
98	Anode Base=Sleeve base with cable connection (M5)
99	Lamp also available as Longlife version HBO 3500 W/PIL with 1500hr life (Product Number 69169).
100	Anode base with cable connection
101	Length l1 = Contact to contact.
102	Lamp has a parabolic reflector.
103	Lamp wattage - After seasoning for 1/2 hour 1000 watts based on 2 filaments together, 400 watts based on 1 filament.
104	Average service life = 25 hrs. based on 2 filaments together, 100 hrs. with 1 filament.
105	Average service life = 50 hrs. based on 2 filaments together, 100 hrs. with 1 filament.
106	Ignition voltage = 36 kVs
107	Ignition: Min. open circuit voltage for cold / hot ignition = 85 / 110 V
108	Cooling: Min. air flow velocity around discharge vessel = 6 m/s
109	Magnetic arc stabilization: necessary for horizontal operation
110	Product number 54100 is the replacement for product number 54048.
111	HMI PAR lens set for OSRAM HMI 1200 PAR 64 comprising of NSP, VNSP, MFL, and VWFL lenses.
112	OSRAM socket #46721, cable length 22" for use with the following OSRAM lamps: HTI 400W/SE (product number 54084), HTI 600W/SE (product number 54087), and HMI 250W/SE (product number 54062).
113	Lamp has a elliptical reflector.
114	Lamp also available as version HBO 2001 W/CIL with 1500hr life (product number 69189)
115	The XERADEX 20 lamp must be operated with DBD 20/110-240/ECG-XERADEX power supply (Product Number 69128 or 69129).
116	This power supply is designed to operate the XERADEX 20 lamp (Product Number 69338).
117	Lumens refers to screen lumens.
118	XERADEX lamps are only to be operated in appropriate equipment. Read and understand the Product Safety Warnings before using this product. XERADEX lamps generate a strong 172 nm (VUV) radiation. This short-wave radiation will convert atmospheric oxygen (O <sub>2</sub> ) surrounding the lamp into ozone (O <sub>3</sub> ). Ozone gas is toxic when inhaled in high concentrations over long periods of time. Ozone levels can be measured and monitored with commercial measuring equipment. Always keep ozone levels below the applicable TLV (threshold limit value).
119	For Na 10 FL (product number 69284) use adapter no. 454/s using Pico 9 bases with P28 sockets.
120	Lamp also available with male connectors (Product Number 58722)
121	Lamp also available with female connectors (Product Number 58697)
122	Lamp also available with male connectors (Product Number 58726)
123	Lamp also available with female connectors (Product Number 58721)
124	All VIP« lamps are for AC operation on electronic power supplies and are hot restrikeable. All VIP« lamps need forced cooling.
125	Lamp also available with female connectors (Product Number 58709)
126	Lamp also available with female connectors (Product Number 58717)
127	Clean room ready packaging.
128	Safety: Because the danger from glare, UV radiation and overpressure during operation, spectral lamps may only be operated in sealed housings specially designed for the purpose. Suitable filters must be fitted to ensure that UV radiation is reduced to permissible levels.
129	This lamp has positive pressure even when cold. Please read safety/warning instructions before using this lamp.
130	Line drawing represented does not show cable connection.
131	Lamp HSD 250/78 also available with 7800K color temperature and average rated life at 3000 hr. Product Number 54118.
132	Lamp XBO 10000 W/HS OFR also available with current control range 160-299 amps. Product Number 69342.
133	Lamp HSD 250 also available with 6000K color temperature and average rated life at 2000 hr. Product Number 54170.
134	Connector = Female, round, with 4mm pin.

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
135	Lamp life may vary depending on duty cycle and application.
136	Connector = Female.
137	Connector = Male.
138	Snap-on connector, female / male contact.
139	In horizontal operation position it is recommended that the "lead connection" wire be in the top position with filler tip facing down.
140	This lamp type is twice the life of the ANSI standard version.
141	This lamp type is twice the life of the standard version.
142	Please see Product Number 58795 for double life version.
143	Please see Product Number 58789 for double life version.
144	Please see Product Number 58794 for double life version.
145	XERADEX lamp life is rated in terms of 70% of initial UVC output on a continuous burn cycle.
146	Lamp also available with connecting cable and plug-in contact. XBO R 100W/45 C OFR (Product Number 69191).
147	Base is KF50 flange fitting; lamp is designed for use in vacuum environments at pressures above 300 mbar.
148	Base is KF40 flange fitting; lamp is designed for use in high vacuum environments at pressures above 30 mbar and below 10 <sup>-3</sup> mbar.
149	Please see Product Number 58779 for double life version.
150	Please see Product Number 58819 for double life version.
151	Please see Product Number 58821 for double life version.
152	Maximum permitted base temperature is 350 degrees C at molybdenum foil / pinch seal region.
153	Distance b = Ignition Electrode. Base for ignition electrode is SFC 6-3.
154	HBO 200W L1 and HBO 200W L2 can be operated on AC or DC.
155	HBO 200W L1 (Product Number 69218) technical data if operated on AC current: Volts = 61 +/- 4, Current (A) = 3.6.
156	HBO 200W L2 (Product Number 69220) technical data if operated on AC current: Volts = 53 +/- 4, Current (A) = 4.2.
157	Distance a is from end of base to the respective electrode tip (cold) - see lamp drawing.
158	Base is KF50 flange fitting; lamp is designed for use in high vacuum environments at pressures above 200 mbar and below 10 <sup>-3</sup> mbar.
159	For use indoors or outdoors. When used outdoors, protect the lens of the bulb from direct contact with moisture (rain, snow, etc.) to avoid cracking or breaking.
160	2000hr warranty against non-passive lamp failure.
161	Optimized lamp eXtreme Seal (XS) technology to withstand interior base temperatures of up to 450 degrees celsius.
162	When operated on electronic control gear (ECG) service life extended to 3000h.
163	Also available with 850h, HBO 3501 W/PI: NAED 69127.
164	SHP - series (Super High Performance Technology).
165	Lamp focus is 60mm in front of reflector rim.
166	Lamp is part of the SharXS HTI lamp series. All SharXS HTI lamps are identical in terms of their shape, size, and bases.
167	Base has notch for pre-alignment.
168	Lamp current not to exceed 7.2A.
169	125 mm (front ring to plug) and 95 mm (rear cap to plug) silicon cables terminated with MATE-N-LOK plug no. 350809-1 with pins no. 926868-3 by AMP Inc.
170	It takes time for the mercury in the lamp to evaporate. Typically 95% of luminous output are generated after approximately 120 seconds. For quality inspection purposes allow for five minutes burning time.
171	Excessive airflow may lead to mercury condensation in the discharge lamp bulb and consequently to a performance drop.
172	Operation time after which either aperture lumens decrease to 50% of initial value or the lamp voltage reaches 115 V and the lamp cannot be ignited. Switching cycle: 210 minutes on / 30 minutes off.
173	Operational bulb wall temperatures lower than 850°C may lead to mercury condensation and prevent the lamp from reaching stable operation conditions; temperatures higher than 950°C may lead to premature failures of the lamp.
174	For rectangular aperture of 5.0 x 3.8 mm (hor. x vert.) at working distance 17.3 mm.
175	Output is understood as total energy in the range 320 ... 500 nm focused on an aperture with diameter d at working distance a in front of the reflector.

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
176	Beam Angle data refers to aperture.
177	Lamp is suited for use in ASML equipment (PAS 5500/22, /100, /100B, /TFH100).
178	The QXL lamp allows easy one-hand replacement without opening the light fixture. 1/4 turn twist in/out, no tool required.
179	With vertical operating position: anode(+) on top.
180	QXL is a trademark of Electronics Theatre Controls Inc., and used under license
181	The QXL 750/77 lamp has been designed and approved by ETC in the Source Four® Revolution™
182	Anode: Cable connection length 110mm
183	Cathode Base with cable connection (M 12).
184	Lamp uses eXtreme Seal (XS) Technology, which effectively protects the seal up to 500°C.
185	Cable Connector TP120.
186	This lamp is used for OEB/WEE applications.
187	Lamp is interchangeable with FLK naed 54589
188	Lamp is interchangeable with FLK PLUS HPR 575/115 naed 54549
189	Lamp designed for the manufacture of printed Board Circuits in Hakuto exposure equipment HAP 3500 and 3510 series
190	The focus lies 45mm in front of the mounting rim (working distance).
191	Lamp description changed from HSD 200 to HSD 200W/60 4ARXS
192	Lamp description changed from HTI 575 W/DE to HTI 575/D5/56 Baby-Sharxs
193	Includes screw hole in anode lamp base with installed cable. No screw hole in cathode lamp base.
194	Includes screw hole in anode & cathode lamp base. Includes 1 installed cable for anode lamp base. Cathode cable provided on request when ordering.
195	Includes screw hole in anode & cathode lamp base. Includes 1 anode cable & 1 cathode cable in box, not installed.
196	HTI 1200W/D7/60 SharXS lamp (Product No. 54268-10 case & 54202-30 case) is a direct and equal replacement for the HMI 1200W/S lamp (Product No.54088)
197	Cathode Base with Cable connection (M 10)
198	Easy disassembly into components allow for environmentally preferred waste disposal
199	Aluminum reflector reduces weight by up to 50% compared to standard glass PAR lamps
200	The HBO 200 W/DC TM is a direct and equal replacement for the HBO 200 W/2 TM (product No. 69221)
201	Lamp bases need to be forced cooled.
202	The connecting cables do not have a plug-in connector.
203	XIR=Xenon Infrared
204	Average service life can vary by application. Call National Customer Sales and Support (888) 677-2627 for more information.
205	Connector = female, flat
206	Lamp is part of the Baby SharXS HTI lamp series. All Baby SharXS HTI lamps are identical in terms of their shape, size, and bases.
207	Reinforced pinch-seal neck design for moving head applications
208	Connector = female, round
209	Connector = male, flat
210	LA= Lumen Advanced (High Efficiency Lamp)
211	Photometric values are measured at rated current.
212	Lamp also available in Suprasil quartz glass version: XBO 150 W/4 (Product Number 69238).
213	Lamp is suitable for Crosfield color scanner (CR = Crosfield).
214	Photometric data is measured in vertical operating position at rated wattage.
215	Lamp also available in Suprasil quartz version: XBO 450 W/4 (Product Number 69244).
216	For vertical operating position; anode(+) on top.
217	Lamp has same dimensions as XBO 1600 W/HSC OFR (Product Number 69268).
218	Lamp also available as XBO 2001 W/HTP OFR (Product Number 69310).
219	Necessary input voltage: 380 volt.
220	Lamp also available as XBO 4200 W/GS with 60mm bulb diameter and 500 hrs life.
221	Lamp also available as XBO 5000W/HBM OFR with anode base SFaX30-9,5 and cathode base SFa30-8.
222	Lamp optimized for fluorescence microscopy.
223	Lamp also available with AMP plug contact. HBO R 103/45 C (Product Number 69311).

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
224	HBO 200W/2 and HBO 500W/2 can be operated on AC or DC.
225	Lamp also available with increased radiation in the wavelength range below 450nm for UV-curing. HBO 202W/4 (Product Number 69316).
226	Lamp also available with threaded pin 8-32 UNC-3A: HBO 200 W/2TM (Product Number 69223).
227	Technical data if operated on AC current: Volts=65, Lumens=10,000 lm, Luminous Efficacy=50 lm/W.
228	Lens set available (NSP,MFL,WFL,SWFL) Ref. No. 46771.
229	Lamps suitable for pulse operation between 250W and 500W. Maximum permissible average power is 350W (also for constant power operation).
230	HBO 350W (Product Number 69226) replaces HBO 350 W/G (Product Number 69227).
231	Lamp service life is defined with a switch-on/switch off duty cycle of 12hours ON / 30 minutes OFF.
232	Distance a = Distance (cold) of either anode base to anode tip or cathode base to cathode tip depending on lamp type.
233	NOTE: Maximum permitted base temperature: 230 degrees C (446 degrees F).
234	lamp base is with 8-32 UNC-3A thread.
235	Lamp base(s) with M 5x0.9 thread.
236	Lamp anode base (hexagon) with thread M5x0.9
237	Lamps suitable for pulse operation between 700W and 1000W. Maximum permissible average power is 750W (also for constant power operation).
238	Available in 2500 hrs. life: HBO 1000 W/CEL (Product Number 69175).
239	Discharge tube needs to be in horizontal operating position.
240	Available in 2500 hrs. life: HBO 1002 W/CEL (Product Number 69177).
241	Lamp should not be ignited more than ten times over lifetime.
242	Lamp has cooling fins on anode base.
243	Cathode Base=Sleeve base with M 6 thread.
244	Cathode Base=Hexagon base with M 6 thread.
245	Lamp has anode base with cooling fins and cable connection (M 6).
246	Lamp is available in 2500 hrs life: HBO 1000 W/NEL (Product Number 69176).
247	Lamp is available in 2500 hrs. life: HBO 1002 W/NEL (Product Number 69273).
248	The radiant Power of the I-line is measured in the wavelength range: 365 + 2.5 nm.
249	Lamp also available as Longlife version HBO 1003 W/PIL (Product Number 69180) with 1500hr life.
250	Lamp filler tip needs to point upwards during operation.
251	Cathode Base=Sleeve base with cooling fins and cable connection (M 6).
252	Cathode Base with M 6 thread.
253	Cathode Base with cooling fins.
254	Anode sleeve base without thread.
255	Anode Base=Sleeve base with cable connection (M 6).
256	Maximum permitted base temperature: 200 degrees C (392 degrees F).
257	Lamp also available as Longlife version HBO 1500 W/PIL (Product Number 69181) with 1500hr life.
258	Lamp also available as Longlife version HBO 1500 W/CIL (Product Number 69179) with 1500hr life.
259	Lamp also available as Longlife version HBO 2001 W/NIL with 1500hr life (Product Number 69292).
260	Cathode Base with cable connection (M 8).
261	Permitted wattage range: 300W to 600W.
262	Anode Base=Cooling fins with cable connection (M 8).
263	The average rated life of this lamp depends on the operating mode (initial power setting).
264	Cathode Base with cable connection (M 6).
265	Lamp also available as Longlife version HBO 2501 W/NIL (Product Number 69289) with 1500hr.
266	Anode Base with cable connection (M 10).
267	Lamp has round-core double filament.
268	Male contacts according to DIN 46248.
269	Lamp is also available with male contact(Product Number 58724).
270	Permitted wattage range: 400W to 700W.
271	Female contact is according to DIN 46247.

## SYMBOLS & FOOTNOTES FOR DISPLAY/OPTIC LAMPS

Footnote	Description
272	Despite transverse filament, lamp can be inclined at any angle in s 90 position.
273	Lamp has snap-on male contact to DIN 46248.
274	Lamp also available with male contact according to DIN 46248. 64361/HLX Z (Product Number 58717)
275	Lamp has D.C. Bay Ring.
276	WARNING: Lamp only for use where seal temperature does not exceed 650 degrees F (343 degrees C). Minimum bulb wall temperature 480 degrees F (249 degrees C).
277	Lamp has 1.75 inch (44.45mm) stranded Nickel leads.
278	Max. Beam Candlepower (MBCP) : 175 kcd.
279	D=Digital
280	XL=Xtreme Life
281	CL=Classic Line
282	HP=High Performance
283	S=Sony (Sony projector)
284	Anode base with thread (M16)
285	High temperature base. Retards seal deterioration where seal temperature exceeds 650°F.
286	For use where seal temperature does not exceed 650°F.
287	Life at rated voltage and at 650°F maximum seal temperature.
288	Usually limited to intermittent burning.
289	A suitable protective shield, screening technique, or both must be used to protect people and surroundings from the possibility of a lamp shattering and from possible ultraviolet radiation.
290	Bulk pack= 30/case
291	Anode: Hexagon base with thread 8-32 UNC

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54633	219	54927	212	58846	220	69184	239	69350	249
54638	216	54928	212	58849	213	69186	239	69351	252
54647	215	54944	211	58850	220	69189	263	69352	270
54648	215	54957	212	58851	221	69190	238	69359	250
54649	217	54979	213	58854	221	69191	237	69360	250
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## WARNING

### TUNGSTEN HALOGEN & INCANDESCENT DISPLAY/OPTIC LAMPS

The following information pertains to all Display/Optic Tungsten-Halogen and Incandescent lamps including Infrared Heat Lamps, Current-Controlled Airfield Lamps, PAR and other Reflector Lamps.

#### WARNING:

In accordance with ANSI/IESNA Standard RP-27, Display/Optic incandescent & tungsten halogen lamps are Risk Group 2 products.

**Read and understand this warning before using this bulb!**

**THIS LAMP EMITS ULTRAVIOLET AND INFRARED RADIATION. ALWAYS WEAR SUITABLE EYE PROTECTION WHEN WORKING NEAR THIS LAMP. THIS LAMP OPERATES AT HIGH PRESSURE AND AT HIGH TEMPERATURE AND MAY SHATTER UNEXPECTEDLY. THIS LAMP MUST BE USED IN A FIXTURE THAT HAS A SUITABLE PROTECTIVE SHIELD AND/OR SCREEN TO PROTECT PEOPLE AND SURROUNDINGS AGAINST THE RISK OF PERSONAL INJURY AND/OR PROPERTY DAMAGE FROM LAMP SHATTERING AND EXPOSURE TO INFRARED OR ULTRAVIOLET RADIATION.**

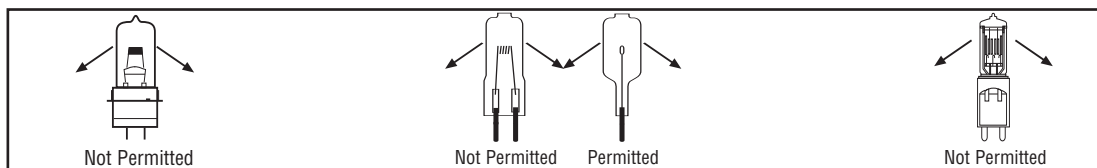
**ALL OF THE FOLLOWING PROCEDURES MUST BE FOLLOWED FOR SAFETY AND TO OBTAIN SATISFACTORY LAMP PERFORMANCE.**

#### GENERAL SAFETY AND INSTALLATION TIPS:

1. This lamp generates UV (ultraviolet) and/or IR (infrared) radiation. Prolonged exposure to this lamp may cause skin and eye irritation from the radiation when operated at or above rated voltage.  
Please note that lamp with reference number 64614 has enhanced UV output as a result of its reflector coating.
2. To avoid risk of serious eye injury from the intense light, do not stare at operating lamp.
3. Because this lamp radiates considerable heat, do not use in close proximity to people, combustible materials, or substances adversely affected by heat or drying.
4. To avoid shattering of glass parts and/or lens/reflector, keep water, other liquids and metal objects from contacting hot glass surfaces. Protect the entire lamp from moisture (rain, snow, etc.) to avoid cracking or breaking.
5. Protect the lamp from contamination, abrasion and scratches. Do not use if lamp is scratched, cracked or damaged in any way.
6. For safe and proper lamp operation, operate at rated voltage and wattage. Operation above rated voltage increases UV output and internal pressure, thus increasing the risk of rupture.
7. This lamp (for reflectorized lamps, this applies to inner lamp capsule) operates at high internal pressure and at high surface temperature and may unexpectedly shatter resulting in hot, flying fragments of glass or metal. Although this lamp was carefully constructed, tested and inspected before packing and shipping, under certain conditions beyond the manufacturer's control, the glass parts could crack or break.
8. For PAR and other reflectorized lamps: Even though this lamp may continue to operate after the reflector and/or lens is broken or damaged, it should be replaced as soon as possible since the pressure-filled inner lamp capsule could unexpectedly shatter if scratched or otherwise damaged, creating a risk of personal injury or property damage.

#### LAMP MOUNTING AND OPERATION:

1. Use only in equipment/fixture specifying this lamp type, including voltage and wattage. Use in circuits, which do not exceed rated voltage and in sockets and equipment designed for its use.
2. Do not touch or handle the quartz glass with bare fingers. Contaminants can burn in at high operating temperatures and cause glass to recrystallize. This makes the glass opaque and milky; it increasingly loses its strength, and the risk of bursting increases. If lamp is touched, clean with denatured alcohol and wipe dry with a soft, clean lint-free cloth before operating.
3. Make sure lamp is properly installed into socket to obtain good electrical contact and to avoid damaging lamp and/or socket. A heat resistant connector should be used to make electrical contact to the lamp base for safety and to obtain rated lamp life. To avoid damage to lamps with bipin bases, do not twist. Pull old lamp straight out and push new lamp straight in. For safe and proper operation of lamps with lead wires, please ensure that the lamp is securely supported and the lead-wires are securely connected to the electrical supply.  
For PAR 36, 46, 56, 64 lamps: To avoid breaking, the lamp must be supported by its rim.
4. Operating temperatures deteriorate lamp sockets. Socket condition may affect lamp life. Replace socket if deterioration of socket or lamp base contacts is observed.
5. Do not move, bump or bounce equipment/fixture during operation because mechanical shock can cause shattering and failure of the lamp.
6. For PAR 36, 46, 56 and 64 lamps: Lamp should be operated with a protective shield (especially in public places -- churches, auditoriums, etc) to prevent the risk of personal injury or property damage from flying lamp fragments in the event of the lamp cracking or breaking.
7. To avoid risk of burns or electrical shock, do not remove or insert lamp when power is on, allow lamp to cool to room temperature before removing or storing.
8. Replace all equipment/fixture covers and shields after servicing to prevent personal injury or property damage.
9. All Display/Optic lamps have a range of permissible operating positions. Please see relevant operating position information in our literature or on-line catalog and only operate lamps at the operating positions specified. The basic rule for all single-ended Display/Optic halogen and incandescent lamps is that the lamp may only be tilted/inclined perpendicular to the plane through both filament lead-wires (see illustrations and list of affected filament designs below).



#### Affected Filament Designs:

**C-2V, C-6, C-6F, C-13, C-13D, CC-2V, CC-6, CC-13, CC-13D, 2C-8, 2CC-8**

10. Keep lamp seal temperature below 350°C (660°F) and the lamp wall temperature between 250°C (480°F) and 900°C (1650°F). When used in equipment designed to provide cooling to operating lamp, do not obstruct equipment cooling system.
11. Filaments for high luminance applications are designed in such a way that the incandescent elements do not block each other in the direction of projection. The positioning of single filament coils in one plane is called a monoplane filament. Biplane filaments have the incandescent elements staggered forward and backward in two parallel planes while maintaining adequate spacing to prevent arc-over.
12. Note: Photometric values of a frosted lamp will vary from the published values of the same non-frosted type.

## TUNGSTEN HALOGEN & INCANDESCENT DISPLAY/OPTIC LAMPS (continued)

### LAMP DIMMING:

1. **Incandescent lamps (non-halogen):** Incandescent lamps perform according to fixed relationships between luminous flux, luminous efficacy, color temperature, electrical voltage, electrical current and electrical power consumption. In general, a 5% increase in applied lamp voltage results in half the lamp life, and conversely a 5% reduction of lamp voltage results in twice the lamp life.
2. **Tungsten-Halogen Lamps:** In standard incandescent lamp operation, there is an inverse relationship of lamp life vs. supply voltage; i.e., the lower the voltage, the longer the life. In some tungsten halogen lamps, however, this holds true only when operated within 5 to 10% of the rated voltage. Further dimming, beyond the 10%, may affect the halogen chemistry in the lamp and may cause filament corrosion. There are also tungsten halogen lamps that only achieve nominal lamp lives regardless of the level of dimming that is used. Unlike standard incandescent lamps, the relationships in halogen lamps are not clear-cut because of the halogen chemical cycle. For the vaporized tungsten to be removed from the inner bulb wall, a minimum bulb wall temperature is necessary. This temperature is directly related to the power input to the lamp such that a reduction in power effects a reduction in the bulb wall temperature. Special design techniques have been incorporated in modern halogen lamps to prevent blackening regardless of the level of dimming. Consideration must be given to lamp dimming in applications that require maximum constancy of color temperature (photographic and video recording, for example), since the color temperature changes with the filament temperature.

### CURRENT-CONTROLLED HALOGEN LAMPS:

Some lamp types are designed for constant current operation, primarily for airfield applications. They are usually operated in series with an isolation transformer tap connected to each lamp to ensure that all lamps have the same brightness. Constant current-operated lamps differ in performance from the published values of constant applied voltage lamps. Direct series connection of non-constant current designed lamps is not recommended.

### INFRARED HEAT LAMPS:

These lamps are designed for use in applications specifically requiring an infrared radiation source. Infrared radiation from these lamps causes surfaces to be heated. These lamps operate at high temperatures. Allow sufficient cooling time before handling. A listing of Kelvin temperatures, method for electrical connection, and operating positions with appropriate cooling recommendations for tungsten halogen special heat lamps can be found in the OSRAM literature or in the on-line catalog.

**CAUTION:** The infrared reflector lamp, HLX 64635 is specially designed to produce high temperatures at its focal point (approximately 1300°C / 2372°F) for soldering, welding and heating applications.

### LAMP DISPOSAL:

1. Disposal of spent lamps must be in accordance with applicable federal, state/provincial, and local regulations.
2. Lamp users in North America may obtain specific state or province information concerning disposal regulations, toll free, by calling 1-866-666-6850.
3. OSRAM SYLVANIA Products Inc. cannot advise lamp users as to general or specific disposal regulations for federal, state/provincial, and/or local municipalities.

## WARNING

### METAL HALIDE DISPLAY/OPTIC LAMPS [HCD<sup>®</sup>, HMI<sup>®</sup>, HMD<sup>®</sup>, HMP<sup>®</sup>, HSD<sup>®</sup>, HSR<sup>®</sup>, HTI<sup>®</sup>]

#### WARNING:

In accordance with ANSI/IESNA Standard RP-27, Display/Optic metal halide lamps are a Risk Group 3 product.

**Read and understand this warning before using this lamp!**

**THIS LAMP EMITS ULTRAVIOLET AND INFRARED RADIATION. ALWAYS WEAR SUITABLE EYE PROTECTION WHEN WORKING NEAR THIS LAMP. THIS LAMP OPERATES AT HIGH PRESSURE AND AT HIGH TEMPERATURE AND MAY SHATTER UNEXPECTEDLY. THIS LAMP MUST BE USED IN A FIXTURE THAT HAS A SUITABLE PROTECTIVE SHIELD AND/OR SCREEN TO PROTECT PEOPLE AND SURROUNDINGS AGAINST THE RISK OF PERSONAL INJURY AND/OR PROPERTY DAMAGE FROM LAMP SHATTERING AND EXPOSURE TO INFRARED OR ULTRAVIOLET RADIATION.**

#### RUPTURE & RADIATION (UV-IR-VISIBLE) HAZARD:

1. All Display/Optic metal halide lamps operate at high internal pressures (upwards of 500psi or 35bar possible) and may unexpectedly rupture resulting in the discharge of hot fragments (approximately 800°C / 1472°F) of quartz and/or metal particles, as well as the release of mercury/mercury vapor. In the event of such a rupture, there is a risk of personal injury, burns and fire.
2. All Display/Optic metal halide lamps generate ultraviolet (UV), infrared (IR) and visible radiation during operation. This radiation can cause permanent damage to the eyes (including blindness) and serious injury to the skin (including burns and blistering). To avoid eye damage, other personal injury and/or property damage, the lamp **MUST** be operated in a suitable fixture.
3. A suitable fixture is one that will prevent the arc from being viewed directly while operating, and in the event of a lamp rupture, will prevent hot (up to 800°C / 1472°F), flying fragments of quartz and/or metal from escaping into the area.
4. To minimize the risk of a lamp rupture, replace the lamp at or before the end of rated life (see OSRAM SYLVANIA product catalog for rated life) or when the lamp shows signs of blackening.
5. The discharge vessel of Display/Optic metal halide lamps is constructed of quartz glass that is filled with a quantity of mercury, elemental metals and/or rare earth elements. These lamps are **not** at positive pressure when cold (not operating, at room temperature).

#### GENERAL SAFETY & INSTALLATION TIPS

##### BROKEN LAMPS (MERCURY VAPOR RELEASE AND DISPOSAL):

1. In the event of a lamp rupturing during operation, all personnel should leave the area immediately to avoid the inhalation of mercury vapor. The area should then be thoroughly ventilated for a minimum of 30 minutes or until the mercury vapor in the area is below the ACGIH TLV (American Conference of Governmental Industrial Hygienists Threshold Limit Value). Inhaling vapor or small particles of mercury or its compounds can be harmful to lungs, kidneys and nervous system. Penetration of the skin or ingestion can also be harmful.
2. To avoid mercury vapor getting into air conditioning systems, mercury vapor-absorbing filters should be used. ***When the lamp housing has cooled, mercury residue may be picked up with special mercury adsorptive agents or a mercury vacuum cleaner (available from laboratory safety equipment suppliers) and disposed of in accordance with local, state and federal regulations.*** There should be no direct skin contact with and/or inhalation of mercury residues that may be residing in lamp housing, optics or lamp parts.  
If a cold (room temperature) lamp is broken, proceed with clean up and disposal as indicated above (in the ***bold, italic statement***).

## METAL HALIDE DISPLAY/OPTIC LAMPS [HCD<sup>®</sup>, HMI<sup>®</sup>, HMD<sup>®</sup>, HMP<sup>®</sup>, HSD<sup>®</sup>, HSR<sup>®</sup>, HTI<sup>®</sup>] (continued)

### INSTALLATION:

1. Do not use if lamp is scratched, cracked or damaged in any way.
  2. To prevent electric shock, shut off main power to the fixture before attempting to service or replace lamp.
  3. To avoid damaging the quartz and causing premature lamp failure, do not handle lamp with bare hands. Use clean gloves.
  4. If the quartz parts are inadvertently touched, clean fingerprints off with denatured alcohol and wipe dry with a clean, soft, lint-free cloth. Do not use cleaning rags or material that can leave a residue.
  5. To prevent skin burns, allow lamp to cool before handling.
  6. To avoid breakage, mounting of the lamp must be free of mechanical stress during installation and during operation by allowing for thermal expansion along its axis.
  7. Display/Optic metal halide lamps should not be subjected to force/stress during installation. Single-ended lamp types use a metal bar, which runs parallel to the lamp body and provides an electrical path for the lamp current (from the socket end to the opposite end of the lamp). To avoid overheating the lamp current bar, Display/Optic metal halide lamp types without outer jackets should not have the lamp current bar positioned above the discharge arc during operation. Single-ended lamp types with outer jackets may be operated in any position and with any current bar position.
  8. Replace all fixture covers and shields after replacing lamp to prevent eye damage, other personal injury or property damage.
  9. Use only in instruments/equipment specifying this light source.
  10. **CAUTION - Shorting Hazard:** The HTI 2500 W/SE has both base pins connected to the same point inside the lamp socket. A lead wire on the opposite side of the lamp provides the current connection necessary for operating the lamp.
  11. Make sure lamp is properly installed into socket/connector to obtain good electrical and thermal contact and avoid damaging lamp and/or socket/connector. electrical connections should be free from dirt and corrosion. Socket/connector condition may affect lamp life. Replace socket/connector or lamp if deterioration (pitting, scorching, corrosion, etc.) is observed.
- Please note that certain Display/Optic, AC metal halide lamps have dedicated pins or connectors for high voltage ignition.

### OPERATION:

1. Magnetic current-limiting ballasts (chokes) provide sine-wave current operation for lamps. However, electronic control gear (ECG) allows for square wave current operation, often at higher frequencies. Some Display/Optic metal halide lamps have been designed for, and therefore require, ECG square-wave operation. Please see OSRAM literature for power requirements for your specific lamp type.
2. Operate with compatible power supply and fixture only.
3. OSRAM Display/Optic metal halide discharge lamps are designed for either hot re-start (high ignition voltages) or cold start (low ignition voltages only). Please see OSRAM literature for power requirements for your specific lamp type.
4. To ensure that lamps operate at the correct power during AC operation, connections on the ballast/choke in the power supply should be made to the correct voltage taps; i.e., tap voltage should match input line voltage. To avoid wall blackening, overheating or other premature failure modes, OSRAM strongly advises against operating Display/Optic metal halide lamps at higher than rated wattage ("boosted operation"). Only OSRAM HMP Display/Optic metal halide lamps are offered with a unique power feature allowing for operation at increased wattage of up to 1.5 times their rated wattage, but with reduced service life. For safe lamp operation and optimum performance, use only those ballasts/power supplies that have been approved by OSRAM. See your OSRAM dealer for a list of approved equipment.
5. Dimming of Display/Optic metal halide lamps, like incandescent lamps, causes a drop in luminous output. If a metal halide lamp is dimmed by electrical means, it will not reach its optimum operating state and, unlike incandescent lamps, will not last longer. When dimmed, the lamp wall temperature falls more rapidly on a lamp that has no outer jacket. In metal halide lamps without an outer jacket, reduced power operation causes an increase in the color temperature and a reduction in CRI. Lamps with outer jackets can have either a vacuum or filling gas (often Nitrogen) within. Metal halide lamps with outer jackets tend to maintain their color properties better under dimmed conditions because the outer jacket provides thermal insulation against internal lamp cooling.
6. Display/Optic metal halide lamps need 5 to 20 minutes (depending on lamp type and cooling conditions) before they reach their operating temperatures. To ensure proper ignition on subsequent start-up, lamps should not be switched off during the warm-up period.
7. Average service life of these lamps is determined by the ON/OFF duty cycle. Lamp performance is reduced with increased duty cycle.

### OPERATING POSITION:

Display/Optic metal halide lamps may only be used in the operating positions described in the OSRAM SYLVANIA product catalog. Please note that lamp photometric values and arc stability can be effected by the operating position.

### OZONE GENERATION:

- During operation, Display/Optic metal halide lamps produce a spectrum that ranges from about 150 nm in the ultraviolet region to the infrared region.
- If the quartz glass bulb is transparent in the ultraviolet region between 180 and 220 nm, this short-wave radiation will convert a small quantity of atmospheric oxygen (O<sub>2</sub>) surrounding the lamp into ozone (O<sub>3</sub>). Moreover, the oxygen molecules will link together with the nitrogen (N<sub>2</sub>) in the air, creating nitrogen oxides (NO<sub>x</sub>). (Some believe that the smell attributed to ozone is in actuality from the nitrogen oxides.)
- Ozone gas is toxic when inhaled in high concentrations over long periods of time. Ozone levels can be measured and monitored with commercial measuring equipment. Always keep ozone levels below the applicable TLV (threshold limit value)
- An "ozone smell" (or smell of nitrogen oxide) may be detected shortly after ignition. There are two probable causes for this condition. O<sub>3</sub> and NO<sub>x</sub> production is caused by the (short-duration) radiation of the spark gap used for lamp ignition. Or, the cold condition of the quartz glass bulb has slightly shifted its UV-absorption characteristics thus permitting a small amount of radiation in the very short-wave ultraviolet range to be emitted by the bulb. Typically, after the lamp has run up to its operating temperature range, virtually no ozone is produced by the lamp, as a rule, due to the quartz glass absorption and the self-absorption of the plasma.

### LAMP COOLING:

1. All Display/Optic metal halide lamp bases must be kept below 230°C (446°F) during operation to prevent premature lamp failure. If convection cooling is inadequate, forced air-cooling may be used. Please see OSRAM literature for cooling requirements of specific lamp types.
2. If forced air-cooling is used, care must be taken to direct airflow at the bases only. Striking elsewhere on the lamp with the airflow will result in poor lamp performance or premature failure.
3. Discoloration, surface pitting, and/or corrosion of the lamp connections indicates a thermal overload. To obtain optimum lamp performance, components exhibiting these conditions must be cleaned or replaced.

### LAMP REMOVAL:

- Turn off power to the lamp and allow lamp to cool (forced or convection) for a minimum of 30 minutes prior to shutting main fixture power and opening fixture. Do not remove lamp until it has cooled.
- Lamps should be placed in their original OSRAM SYLVANIA packaging for temporary storage until disposal and/or transportation to a disposal location. See "Lamp Transportation" and "Lamp Disposal" sections below for relevant information.



## METAL HALIDE DISPLAY/OPTIC LAMPS [HCD<sup>®</sup>, HMI<sup>®</sup>, HMD<sup>®</sup>, HMP<sup>®</sup>, HSD<sup>®</sup>, HSR<sup>®</sup>, HTI<sup>®</sup>] (continued)

### LAMP TRANSPORTATION:

1. All Display/Optic metal halide lamps should be transported ONLY in their original packaging.
2. Transportation in non-original packaging can damage the lamp and void warranty.
3. U.S. Federal regulations require mercury-containing lamps to be shipped ONLY in DOT-compliant packaging. Original OSRAM packaging is DOT-compliant.

### MERCURY FILL OF Display/Optic METAL HALIDE LAMPS:

- Mercury is referred to by its chemical symbol, Hg, which is derived from the Greek and Latin "hydrargyrum," a silvery shiny liquid metal at room temperature. In humid air it is covered with a gray oxide skin. Of all metals it has the highest vapor pressure which increases exponentially with rising temperatures. For this reason, mercury is volatile at room temperature. The colorless and odorless vapors produced are poisonous and heavier than air.
- The inhalation (respiration) of mercury or mercury compounds as vapor or dust will lead to the damage of lungs, kidneys, and the nervous system. Apart from inhalation, mercury can be transmitted through the skin (penetration) or through the gastro-intestinal tract (ingestion), which is also harmful.
- The ACGIH TLVs are merely guidelines to assist in the control of health hazards. The ACGIH states that the TLVs refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. Therefore, the TLV for mercury should never be exceeded.
- Analytical detection of mercury vapor is possible by means of gas/vapor detector tubes (rough measurement) or air-monitors that absorb mercury vapor.

OSRAM metal halide lamps have the following mercury contents:

Lamp Family	Maximum Mercury Content (mg)
HMI	1200
HMP	70
HTI	180
HSR/HSD	110
HMD	520
HCD	23

### PROPERTIES OF MERCURY:

- Chemical symbol: Hg
- Atomic number: 80
- Molecular Weight: 200.59
- Density: 13.6 g/cm<sup>3</sup> @ 20°C / 68°F
- Melting Point: -39°C / -38.2°F
- Boiling Point: 357°C / 674°F
- Vapor pressure:
  - 160 Pa @ 20°C / 68°F
  - 370 Pa @ 30°C / 86°F
  - 823 Pa @ 40°C / 104°F
- Concentration in air:
  - 13.6 mg/m<sup>3</sup> @ 20°C / 68°F
  - 29.6 mg/m<sup>3</sup> @ 30°C / 86°F
  - 62.7 mg/m<sup>3</sup> @ 40°C / 104°F
- CAS Registry Number: 7439-97-6
- RCRA waste number: U151
- Other Names: Hydrargyrum, Colloidal mercury, Kwik, Mercure, Mercurio, Metallic mercury, Quecksilber, Quick silver, Liquid Silver

### LAMP DISPOSAL:

1. Disposal of spent lamps must be in accordance with applicable federal, state/provincial, and local regulations. State laws may differ in their disposal requirements for lamps.
2. Lamp users in North America may obtain specific state or province information concerning disposal regulations, toll free, by calling 1-866-666-6850.
3. OSRAM SYLVANIA Products Inc. cannot advise lamp users as to general or specific disposal regulations for federal, state/provincial, and/or local municipalities. It is the responsibility of the waste generator to ensure proper classification and disposal of waste products.



## Lamp Contains Mercury

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

### WARNING

#### VIP SUPER HIGH PRESSURE MERCURY LAMPS (DISPLAY/OPTIC)

##### WARNING:

In accordance with ANSI/IESNA Standard RP-27, VIP Super High Pressure Mercury Lamps are Risk Group 3 products.

**Read and understand this entire statement before using this lamp!**

##### RUPTURE & RADIATION (UV- VISIBLE) HAZARD:

1. The discharge vessel of Super High Pressure Mercury VIP lamps is constructed of quartz glass that is filled with a quantity of mercury. These lamps are not pressurized when cold (i.e., at room temperature).
2. **All Super High Pressure Mercury VIP lamps have high internal pressures (up to approximately 3,675 psi or 250 bar) during operation and may unexpectedly rupture resulting in the discharge of hot fragments (approximately 800°C / 1472°F) of quartz and/or metal particles, as well as the release of mercury/mercury vapor.** In the event of such a rupture, there is a risk of personal injury, burns, and fire.
3. **Super High Pressure Mercury VIP lamps generate intense ultraviolet (UV), visible and infrared radiation during operation. This radiation can cause permanent damage to the eyes (including blindness) and serious injury to the skin (including burns and blistering).** To avoid eye damage, other personal injury, and/or property damage, the lamp **MUST** be operated in a suitable fixture.
4. A suitable fixture is one that will prevent the arc from being viewed directly while operating, and in the event of a lamp rupture, will prevent hot (up to 800°C / 1472°F), flying fragments of quartz and/or metal from escaping into the area.
5. To minimize the risk of a lamp rupture, replace the lamp at or before the end of rated life (see OSRAM SYLVANIA product catalog for rated life).



## VIP SUPER HIGH PRESSURE MERCURY LAMPS (DISPLAY/OPTIC) (continued)

### BROKEN LAMPS (MERCURY VAPOR RELEASE AND DISPOSAL):

1. In the event of a lamp rupturing during operation, all personnel should leave the area immediately to avoid the inhalation of mercury vapor. The area should then be thoroughly ventilated for a minimum of 30 minutes or until the mercury vapor in the area is below the ACGIH TLV (American Conference of Governmental Industrial Hygienists Threshold Limit Value). Inhaling vapor or small particles of mercury or its compounds can be harmful to lungs, kidneys, and nervous system. Penetration of the skin or ingestion can also be harmful.
2. When the lamp housing has cooled, mercury residue may be picked up with special mercury adsorptive agents or a mercury vacuum cleaner (available from laboratory safety equipment suppliers) and disposed of in accordance with local, state, and federal regulations. There should be no direct skin contact with and/or inhalation of mercury residues that may be residing in lamp housing, optics or lamp parts.
3. If a cold (room temperature) lamp is broken, proceed with clean-up and disposal as indicated in item 2 above.

### GENERAL SAFETY & INSTALLATION TIPS

#### INSTALLATION:

1. Do not use if lamp or any lamp parts such as reflector, front glass, etc. are scratched, cracked, or damaged in any way.
2. To prevent electric shock, shut off main power to the fixture before attempting to service or replace lamp.
3. If the quartz parts are inadvertently touched, clean fingerprints off with denatured alcohol and wipe dry with a soft, clean, lint-free cloth. Do not use cleaning rags or material that can leave a residue.
4. To prevent skin burns, allow lamp to cool before handling.
5. To avoid breakage, mounting of the lamp must be free of mechanical stress during installation and during operation by allowing for thermal expansion.
6. Super High Pressure Mercury VIP lamps should not be subjected to force/stress during installation.
7. Replace all fixture covers and shields after replacing lamp to prevent eye damage, other personal injury, or property damage.
8. Use only in instruments/equipment specifying this light source.
9. Make sure lamp is properly connected to avoid damaging lamp and/or socket/connector. Electrical connections should be free from dirt and corrosion. Socket/connector condition may affect lamp life.
10. Replace socket/connector or lamp if deterioration (pitting, scorching, corrosion, etc.) of either is observed.

#### OPERATION:

1. Super High Pressure Mercury VIP lamps are designed for operation on AC only.
2. Operate with compatible power supply and fixture only.
3. Super High Pressure Mercury VIP lamps need approximately 5 minutes (depending on lamp type and cooling conditions) before they reach their operating temperatures. To ensure proper ignition on the following start-up, lamps should not be switched off during the warm-up period.
4. The average service life of Super High Pressure Mercury VIP lamps is influenced by their ON/OFF-duty cycle. Lamp performance is reduced with increased duty cycle.

#### OPERATING POSITION:

Super High Pressure Mercury VIP lamps may only be operated in the positions described in the OSRAM SYLVANIA product catalog and/or technical literature.

#### LAMP COOLING:

1. To prevent premature failure, forced-air cooling is required. Maximum permitted lamp temperatures are described in the available technical literature.
2. Discoloration, surface pitting, and/or corrosion of the lamp connections indicate a thermal overload. Components exhibiting these conditions must be cleaned or replaced.

#### LAMP REMOVAL:

Turn off power to the lamp and allow lamp to cool (forced) for a minimum of 15 minutes prior to shutting main fixture power and opening fixture. Do not remove lamp until it has cooled.

#### LAMP TRANSPORTATION:

1. All Super High Pressure Mercury VIP lamps should be transported ONLY in their original packaging.
2. Transportation in non-original packaging can result in damage to the lamp thus voiding the warranty.
3. U.S. Federal regulations require mercury-containing lamps to be shipped ONLY in DOT-compliant packaging. Original OSRAM packaging is DOT-compliant.

#### MERCURY FILL OF SUPER HIGH PRESSURE MERCURY VIP LAMPS:

Mercury is referred to by its chemical symbol, Hg, which is derived from the Greek and Latin "hydrargyrum," a silvery, shiny liquid metal at room temperature. In humid air it is covered with a gray oxide skin. Of all metals it has the highest vapor pressure which increases exponentially with rising temperatures. For this reason, mercury is volatile at room temperature. The colorless and odorless vapors produced are poisonous and heavier than air.

The inhalation (respiration) of mercury or mercury compounds as vapor or dust may lead to the damage of lungs, kidneys, and the nervous system. Apart from inhalation, mercury can be transmitted through the skin (penetration) or through the gastro-intestinal tract (ingestion), which is also harmful.

Threshold Limit Values (TLVs) are not fine lines between safe and dangerous concentrations but are guidelines to assist in the control of health hazards. They represent the maximum exposure to substances, both short-term and long-term, that a person may experience without resulting in health-related problems. Therefore, the TLV for mercury should never be exceeded.

Analytical detection of mercury vapor is possible by means of gas/vapor detector tubes (rough measurement) or air-monitors that absorb mercury vapor.

OSRAM Super High Pressure Mercury VIP lamps have the following mercury contents:

Power level	Maximum Mercury content (mg)
100-200W	12

#### PROPERTIES OF MERCURY:

- Chemical symbol: Hg
- Atomic number: 80
- Molecular Weight: 200.59
- Density: 13.6 g/cm<sup>3</sup> @ 20°C / 68°F
- Melting Point: -39°C / -38.2°F
- Boiling Point: 357°C / 674°F
- Vapor pressure: 160 Pa @ 20°C / 68°F  
370 Pa @ 30°C / 86°F  
823 Pa @ 40°C / 104°F

## VIP® SUPER HIGH PRESSURE MERCURY LAMPS (DISPLAY/OPTIC) (continued)

- Concentration in air: 13.6 mg/m<sup>3</sup> @ 20°C / 68°F  
29.6 mg/m<sup>3</sup> @ 30°C / 86°F  
62.7 mg/m<sup>3</sup> @ 40°C / 104°F
- CAS Registry Number: 7439-97-6
- RCRA waste number: U151
- Other Names: Hydrargyrum, Colloidal mercury, Kwik, Mercure, Mercurio, Metallic mercury, Quecksilber, Quick silver, Liquid Silver

### LAMP DISPOSAL:

1. Disposal of spent lamps must be in accordance with applicable federal, state/provincial, and local regulations. Some U.S. states differ in their disposal requirements for lamps containing mercury.
2. Lamp users in North America may obtain specific state or province information concerning disposal regulations, toll free, by calling 1-866-666-6850.
3. OSRAM SYLVANIA INC. cannot advise lamp users as to general or specific disposal regulations for federal, state/provincial, and/or local municipalities.

**Hg** Lamp Contains Mercury

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

### WARNING

## XBO® HIGH PRESSURE XENON LAMPS

### WARNING:

In accordance with ANSI/IESNA Standard RP-27, this XBO bulb is a Risk Group 3 product.

*Read and understand this warning before using this bulb!*

**XBO lamps are at high internal pressure when cold (up to 35 bar or approximately 525 psi) and at operating temperature (up to 80 bar or approximately 1200 psi at bulb wall temperatures of 600°C to 800°C). Therefore, XBO lamps may unexpectedly rupture resulting in the discharge of hot fragments of quartz and/or glass and metal. In the event of such a rupture, there is a risk of personal injury, burns and fire. Only handle lamps with their protective covers in place. Do not handle lamps without their protective covers unless government-approved (OSHA-approved in the U.S.A.) safety glasses, facemask (with neck protector), chest protector, and gauntlets are worn.**

### RUPTURE & RADIATION (UV-VISIBLE-IR) HAZARDS:

1. Intense ultraviolet (UV), visible, and infrared (IR) radiation is also generated during operation. This radiation can cause permanent damage to the eyes (including blindness) and serious injury to the skin (including burns and blistering). Some operating lamps also generate ozone (O<sub>3</sub>). Others, designated "OFR," are constructed of materials that prevent the generation of ozone. See the "Ozone Generation" section below.
2. To avoid eye damage, other personal injury and/or property damage, the lamp MUST be operated in a suitable fixture. A suitable fixture is one that will prevent the arc from being viewed directly while operating. It is ventilated to the outside for those lamps that produce ozone and, in the event of a rupture, will prevent hot (up to 800°C), flying fragments of quartz and/or glass or metal from escaping into the surrounding area.
3. To minimize the risk of a lamp rupture, the lamp must be replaced at or before the end of rated life (see catalog for rated life) or when the lamp shows signs of advanced blackening or quartz devitrification (recrystallization, a white, frosted appearance).
4. XBO lamps are constructed of quartz glass, tungsten electrodes and either tungsten support rods or molybdenum foils. High wattage XBO lamps used for cinema film projection have nickel-plated end caps (bases). Reflectorized XBO lamps have a dichroic-coated borosilicate glass reflector.

### GENERAL SAFETY & INSTALLATION TIPS

#### INSTALLATION:

1. Do not use if lamp is scratched, cracked, or damaged in any way.
2. To prevent electric shock, shut off main power to the fixture before attempting to service or replace lamp.
3. To avoid damaging the quartz and causing premature lamp failure, do not handle lamp with bare hands.
4. Handle lamp ONLY with suitable, clean, safety gloves. See special handling instructions for using government-approved personal protective safety equipment with high-pressure lamps.
5. If the quartz parts (or the reflector for reflectorized lamps) are inadvertently touched, clean fingerprints off with denatured alcohol and wipe dry with a soft, clean, lint-free cloth. Do not use cleaning rags or material that can leave a residue.
6. To prevent skin burns, allow lamp to cool before handling.
7. To avoid breakage, mounting of the lamp must be free of mechanical stress during installation and during operation by allowing for thermal expansion along its axis. For this reason, XBO lamps should be fixed at one end only and the electrical connection on the other end must be flexible enough to avoid stressing the lamp.
8. XBO lamps should not be subjected to force/stress during installation.
9. Handle lamp only with protective safety cover in place. When installing lamp, remove safety cover only AFTER fully securing lamp in lamphouse/fixture and immediately preceding the replacement of equipment covers or closing of lamphouse door.
10. Replace all fixture covers and shields after replacing lamp to prevent eye damage, other personal injury, and/or property damage.
11. Use only in instruments/equipment specifying this lamp type.
12. Make sure lamp is properly installed into socket/connector to obtain good electrical and thermal contact and avoid damaging lamp and/or socket/connector. Electrical connections should be free from dirt and corrosion.
13. Socket/connector condition may affect lamp life. Replace socket/connector or lamp if deterioration (pitting, scorching, corrosion, etc.) of either is observed.
14. All XBO lamps are designed for DC operation. Make sure that the polarity is correct before turning power on. Incorrect polarity can destroy the lamp in a matter of seconds. Operate with compatible power supply and fixture only.
15. For best performance, operate this XBO lamp at rated current. Note: some low wattage XBO lamps may not be operated above their specified rated wattage. See catalog for details.
16. For those XBO lamps that have a current control range, the current may be increased to its maximum value to compensate for loss of light over the life of the lamp. Operating the lamp at minimum current does not prolong the life of the lamp. The DC current may only be varied within specified control limits for the selected type. (See catalog for these limits for your specific lamp type.)

## XBO® HIGH PRESSURE XENON LAMPS (continued)

17. When installing bare lamps that have an included flat washer, slip the washer over the threaded pin on the cathode (- negative) side. Removal of this flat washer (after half the average life) will allow a rotation of the lamp by 180° resulting in better output maintenance over life for horizontally operated lamps. This should be done only if darkening is evident in the upper part of the bulb. In instances where bare lamp cathode bases are provided with two metal pins, they may be engaged with the two slots on the protective cover to screw the cathode end of the lamp into its socket.

### LAMP REMOVAL:

1. Turn off power to the lamp and allow it to cool (forced or convection) for a minimum of 15 minutes prior to shutting main fixture power and opening fixture. Do not remove lamp until it has cooled. After the lamp has cooled, place the protective cover around it and reverse the procedure described above. See special handling instructions for using government-approved safety equipment with high-pressure lamps.
2. Lamp should be placed in the original OSRAM SYLVANIA packaging for temporary storage until disposal and/or transportation to a disposal location. See "Lamp Disposal" section below for transportation and spent lamp disposal information.

### OPERATING POSITION:

1. XBO bare lamps are designed to operate vertically. Of those, some (having an "H" in their designation) may also be operated in the horizontal position as well. For vertically operated lamps, the anode (+ positive) electrode must be on the top. See catalog for operating position and permissible deviation for your specific type.
2. Some horizontally operated lamps require magnetic arc stabilization. Check the catalog for your specific lamp type.
3. XBO reflector lamps are designed to operate with lamp/reflector axis within 15° of the horizontal position.

### LAMP COOLING:

1. Discoloration, surface pitting, and/or corrosion of the lamp indicates a thermal overload. Components exhibiting these conditions must be cleaned or replaced.
2. If forced-air cooling is used, care must be taken to direct airflow at the lamp bases only. Striking the lamp elsewhere with the airflow will result in poor lamp performance or premature failure.
3. To prevent premature failure, the following cooling instructions must be followed:  
**Bare lamps** - Bases must be kept below 230°C (445°F) during operation. If convection cooling is insufficient and additional cooling is required, forced air-cooling may be used. If forced air is used, care must be taken to direct airflow at bases only, since striking elsewhere on the lamp with the airflow will result in poor lamp performance or premature failure. See catalog for your specific lamp type to learn whether forced air-cooling is required.  
**Reflector lamps** - To avoid damaging the reflector coating, do not allow the outer reflector surface to exceed the maximum temperature of 250°C (480°F). [Optimum temperature: 175-200°C (345-390°F)] To prevent premature failure, the lamp ends must not exceed the maximum temperature of 350°C (660°F). [Optimum temperature: 200-250°C (385-480°F)] Forced air-cooling is therefore required and the air flow must be directed perpendicular to the lamp/reflector axis, through the slots in the openings of both ceramics. See catalog for diagram.

### OZONE GENERATION:

An electrical discharge in xenon gas generates radiant energy ranging from approximately 140 nm in the UV region to far into the infrared region. Xenon lamps are made of quartz glass. The quartz glass allows for the transmission of short UV wavelengths starting from approximately 140 nm, depending on the quartz type. Ozone gas (O<sub>3</sub>) is generated by the conversion of oxygen (O<sub>2</sub>) in the air by UV energy in the range of approximately 110-200 nm. Ozone is extremely toxic and will cause serious health problems if inhaled in excess of allowable limits over a prolonged period of time. For more information on allowable limits, please refer to the ACGIH (American Conference of Governmental Industrial Hygienists) publication, "TLVs and BEIs" (Threshold Limit Values and Biological Exposure Indices). Ozone production can be suppressed in xenon discharge lamps by adding materials to the quartz glass that block short-wave UV transmission.

### QUARTZ GLASS DESIGN OPTIONS:

OSRAM XBO® xenon lamps are offered in three quartz glass designs. They are:

1. **OSRAM XBO W/4:** These lamps are fabricated from synthetic Suprasil quartz glass. Suprasil quartz is low in impurities and provides for maximum short-wave UV transmission and consequently allows for the production of ozone. These lamps should always be used with external ventilation with no possible direct exposure to humans. Under no circumstances may the applicable maximum allowable workplace concentration of ozone be exceeded for any OSRAM xenon XBO lamps.
2. **OSRAM XBO:** These lamps use standard quartz glass and will also emit UV radiation that produces ozone. These lamps, like the W/4 types, must always be externally ventilated. With these types of lamps, health risks must always be minimized by suitably extracting the air from the lamp housing and externally venting it.
3. **OSRAM XBO OFR:** These lamps are designated "Ozone-Free" and are characterized by the letters "OFR" in the order description. OSRAM XBO OFR type lamps have their quartz glass transparently coated to effectively suppress radiation below approximately 250 nm, resulting in the elimination of ozone production during operation.

### LAMP DISPOSAL:

1. There is a risk that a lamp could rupture because of its high internal pressure (both hot and at room temperature). A lamp rupture could result in personal injury or property damage from flying fragments of glass and/or metal. Therefore, spent (end-of-life) lamps should ALWAYS be stored in the protective covers and packaging in which they originally came, and ultimately depressurized before release for disposal. The following is one example of a depressurizing method for XBO lamps prior to disposal, but it may not be the most suitable or appropriate method depending on the circumstance:
  - The operator must wear government-approved (OSHA-approved in the U.S.A.) safety glasses, facemask (with neck protector), chest protector, and gauntlets during this entire procedure.
  - With protective lamp covers in place, place lamps<sup>1</sup> into steel drum<sup>2</sup> and lock down cover with bolt ring and bolt.
  - Drop drum onto solid surface (concrete floor) from at least five feet. Increase height as needed to ensure all lamps are depressurized.
  - Wait for dust to settle (about 5 minutes) before opening drum. Loosen bolt and allow gas to escape before complete removal of cover.
    - <sup>1</sup> The lamps should not exceed the half-full point in the drums. Adjust the maximum number of lamps accordingly.
    - <sup>2</sup> 8, 20, or 30-gallon drums, depending on quantity of lamps to be de-pressurized, are available. Drums of 20-gauge steel are recommended and are available from many safety supply companies.
2. Disposal of spent lamps must be in accordance with applicable federal, state/provincial, and local regulations. State laws differ in their disposal requirements.
3. Lamp users in North America may obtain specific state or province information concerning disposal regulations, toll free, by calling 1-866-666-6850.
4. OSRAM SYLVANIA Products Inc. cannot advise lamp users as to general or specific disposal regulations for federal, state/provincial, and/or local municipalities.

## WARNING

### HBO® HIGH PRESSURE MERCURY LAMPS

#### WARNING:

In accordance with ANSI/IESNA Standard RP-27, this HBO bulb is a Risk Group 3 product.

**Read and understand this warning before using this bulb!**

#### RUPTURE & RADIATION (UV- VISIBLE) HAZARD:

1. The discharge vessel of HBO lamps is constructed of quartz glass that is filled with a quantity of mercury and either Argon or Xenon gas. Most HBO lamps are not at positive pressure when cold (not operating, at room temperature). However, there are several HBO lamps that DO have a positive internal pressure of upto approximately 8 bar (or approximately 120 psi) in the cold (room temperature) state. The printing of the following bold warning statement on individual packages identifies them as positive-pressure lamps.

#### WARNING

**RISK OF LAMP RUPTURING. TO AVOID PERSONAL INJURY OR PROPERTY DAMAGE, ALWAYS WEAR PROTECTIVE CLOTHING WHEN HANDLING THESE LAMPS. Never handle these lamps unless government-approved (OSHA-approved in the U.S.A.) safety glasses, facemask (with neck protector), chest protector, and gauntlets are worn.**

These positive-pressure lamps may unexpectedly rupture resulting in the discharge of quartz and/or metal fragments as well as exposing the surrounding area to mercury. In the event of such a rupture, there is a risk of personal injury or property damage. Therefore these positive-pressure lamps should be handled in accordance with these safety instructions.

2. All HBO lamps have high internal pressures (400 - 1100 psi or 30 to 75 bar) during operation and may unexpectedly rupture resulting in the discharge of hot fragments (approximately 800°C / 1472°F) of quartz and/or metal particles, as well as the release of mercury/mercury vapor. In the event of such a rupture, there is a risk of personal injury, burns, and fire.
3. All HBO lamps generate intense ultraviolet (UV) and visible radiation during operation. This radiation can cause permanent damage to the eyes (including blindness) and serious injury to the skin (including burns and blistering). To avoid eye damage, other personal injury, and/or property damage, the lamp MUST be operated in a suitable fixture.
4. A suitable fixture is one that will prevent the arc from being viewed directly while operating, and in the event of a lamp rupture, will prevent hot (up to 800°C / 1472°F), flying fragments of quartz and/or metal from escaping into the area.
5. Fixtures for lamps that produce ozone during operation should be ventilated and filtered to the outside for ozone removal.
6. To minimize the risk of a lamp rupture, replace the lamp at or before the end of rated life (see OSRAM SYLVANIA product catalog for rated life) or when the lamp shows signs of blackening.

#### BROKEN LAMPS (MERCURY VAPOR RELEASE AND DISPOSAL):

1. In the event of a lamp rupturing during operation, all personnel should leave the area immediately to avoid the inhalation of mercury vapor. The area should then be thoroughly ventilated for a minimum of 30 minutes or until the mercury vapor in the area is below the ACGIH TLV (American Conference of Governmental Industrial Hygienists Threshold Limit Value). Inhaling vapor or small particles of mercury or its compounds can be harmful to lungs, kidneys, and nervous system. Penetration of the skin or ingestion can also be harmful.
2. To avoid mercury vapor getting into air conditioning systems, instruments/equipment using lamps of 350 watts or greater should be connected to separate air exhaust systems through mercury vapor-absorbing filters. When the lamp housing has cooled, **mercury residue may be picked up with special mercury adsorptive agents or a mercury vacuum cleaner (available from laboratory safety equipment suppliers) and disposed of in accordance with local, state, and federal regulations.** There should be no direct skin contact with and/or inhalation of mercury residues that may be residing in lamp housing, optics or lamp parts. If a cold (room temperature) lamp is broken, proceed with clean-up and disposal as indicated above (in the **bold, italicized statement**).

#### GENERAL SAFETY & INSTALLATION TIPS

##### INSTALLATION:

1. Do not use if lamp is scratched, cracked, or damaged in any way.
2. To prevent electric shock, shut off main power to the fixture before attempting to service or replace lamp.
3. To avoid damaging the quartz and causing premature lamp failure, do not handle lamp with bare hands.
4. Only handle lamp with suitable, clean safety gloves. See special, bolded warning for using government-approved safety equipment when handling positive-pressure lamps.
5. If the quartz parts are inadvertently touched, clean fingerprints off with denatured alcohol and wipe dry with a soft, clean, lint-free cloth. Do not use cleaning rags or material that can leave a residue.
6. To prevent skin burns, allow lamp to cool before handling.
7. To avoid breakage, mounting of the lamp must be free of mechanical stress during installation and during operation by allowing for thermal expansion along its axis. For this reason, HBO lamps should be fixed at one end only and the electrical connection on the other end must be flexible enough to avoid stressing the lamp.
8. HBO lamps should not be subjected to force/stress during installation.
9. Replace all fixture covers and shields after replacing lamp to prevent eye damage, other personal injury, or property damage.
10. Use only in instruments/equipment specifying this light source.
11. Make sure lamp is properly installed into socket/connector to obtain good electrical and thermal contact and avoid damaging lamp and/or socket/connector. Electrical connections should be free from dirt and corrosion.
12. Socket/connector condition may affect lamp life. Replace socket/connector or lamp if deterioration (pitting, scorching, corrosion, etc.) of either is observed.

##### OPERATION:

1. Some HBO lamps are designed for operation on only AC or only DC while some are designed for operation on either AC or DC.
2. Note: all HBO lamps with power consumption of 350 W and higher are only suited for DC operation. Make sure that the polarity is correct before turning power on. Incorrect polarity can destroy the lamp in a matter of seconds.
3. Operate with compatible power supply and fixture only.
4. To ensure that AC-suited lamps operate at correct power during AC operation, connections on the ballast/choke in the power supply should be made to the voltage taps that are marked the same as the marking on the lamp base (L1 or L2). Some power supplies are equipped with a switch (or taps) for selecting L1 or L2. For correct and safe lamp operation, use only those ballasts/power supplies that have been approved or meet minimum requirements as specified by OSRAM. See your OSRAM dealer for list of approved equipment.
5. HBO lamps need 5 to 20 minutes (depending on lamp type and cooling conditions) before they reach their operating temperatures. To ensure proper ignition on subsequent start-up, lamps should not be switched off during the warm-up period.
6. The average service life of high wattage HBO lamps (≥350 watts) is determined by their ON/OFF duty cycle. These lamps have been designed for a limited amount of ignitions only (less than 10). Lamp performance is reduced with increased duty cycle.

## HBO® HIGH PRESSURE MERCURY LAMPS (continued)

### OPERATING POSITION:

HBO lamps may only be operated in the operating positions described in the OSRAM SYLVANIA product catalog.

Some HBO lamps are designed to operate horizontally (mainly low wattage types in the power range of 50 to 200 W) and others, vertically (all lamp types with power consumption of 350 W and higher). Greater arc stability is obtained in vertically operating lamps when they are operated as close to vertical as possible. See catalog for permissible operating positions and electrode positions.

### OZONE GENERATION:

During operation, HBO lamps produce a spectrum that ranges from about 150 nm in the ultraviolet region to the infrared region.

If the quartz glass bulb is transparent in the ultraviolet region between 180 and 220 nm, this short-wave radiation will convert a small quantity of atmospheric oxygen ( $O_2$ ) surrounding the lamp into ozone ( $O_3$ ). Moreover, the oxygen molecules will link together with the nitrogen ( $N_2$ ) in the air, creating nitrogen oxides ( $NO_x$ ). (Some believe that the smell attributed to ozone is in actuality from the nitrogen oxides.)

Ozone gas is toxic when inhaled in high concentrations over long periods of time. Ozone levels can be measured and monitored with commercial measuring equipment. Always keep ozone levels below the applicable TLV (threshold limit value).

The production of ozone and nitrogen oxide can be suppressed by using doped quartz glass, which absorbs the ozone-producing ultraviolet radiation. The quartz glass used in high wattage i-line (365nm) enhanced HBO lamps only transmits wavelengths above 250 nm, which provides effective, ozone-free lamps. Please be advised that the OSRAM HBO 4000 W/PL lamp is designed to generate UV wavelengths below 250nm. Consequently, this lamp will generate ozone in operation and should be externally ventilated.

An "ozone smell" (or smell of nitrogen oxide) may be detected shortly after ignition. There are two probable causes for this condition.  $O_3$  and  $NO_x$  production is caused by the (short-duration) radiation of the spark gap used for lamp ignition. Or, the cold condition of the quartz glass bulb has slightly shifted its UV-absorption characteristics thus permitting a small amount of radiation in the very short-wave ultraviolet range to be emitted by the bulb. Typically, after the lamp has run up to its operating temperature range, virtually no ozone is produced by the lamp, as a rule, due to the quartz glass absorption and the self-absorption of the plasma.

### LAMP COOLING:

1. To prevent premature failure, lamp base temperatures must be kept below 230°C (446°F) for 50 to 350 watt lamps and below 200°C (392°F) for all lamps with power consumption of more than 350 watts.
2. Discoloration, surface pitting, and/or corrosion of the lamp connections indicates a thermal overload. Components exhibiting these conditions must be cleaned or replaced.
3. If convection cooling is insufficient and additional cooling is required, cooling fins may be applied to the bases and/or forced air may be used.
4. If forced air is used, care must be taken to direct airflow at the bases only. Striking elsewhere on the lamp with the airflow will result in poor lamp performance or premature failure.

### LAMP REMOVAL:

Turn off power to the lamp and allow lamp to cool (forced or convection) for a minimum of 30 minutes prior to shutting main fixture power and opening fixture. Do not remove lamp until it has cooled. See special, bolded warning for using government-approved safety equipment when handling positive-pressure lamps.

Lamps should be placed in their original OSRAM SYLVANIA packaging for temporary storage until disposal and/or transportation to a disposal location. See "Lamp Transportation" and "Lamp Disposal" sections below for relevant information.

### LAMP TRANSPORTATION:

1. All HBO lamps should be transported ONLY in their original packaging.
2. Transportation in non-original packaging can damage the lamp and void warranty.
3. U.S. Federal regulations require mercury-containing lamps to be shipped ONLY in DOT-compliant packaging. Original OSRAM packaging is DOT-compliant.
4. When transporting positive-pressure lamps, the bolded warning found in the "Rupture & Radiation Hazard" section MUST be placed on outside surface of the shipping carton and the warning instructions must also be placed inside the shipping packaging.

### MERCURY FILL OF HBO LAMPS:

Mercury is referred to by its chemical symbol, Hg, which is derived from the Greek and Latin "hydrargyrum," a silvery shiny liquid metal at room temperature. In humid air it is covered with a gray oxide skin. Of all metals it has the highest vapor pressure which increases exponentially with rising temperatures. For this reason, mercury is volatile at room temperature. The colorless and odorless vapors produced are poisonous and heavier than air.

The inhalation (respiration) of mercury or mercury compounds as vapor or dust will lead to the damage of lungs, kidneys, and the nervous system. Apart from inhalation, mercury can be transmitted through the skin (penetration) or through the gastro-intestinal tract (ingestion), which is also harmful.

The ACGIH threshold limit values (TLVs) are merely guidelines to assist in the control of health hazards. The ACGIH says that the TLVs refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. Therefore, the TLV for mercury should never be exceeded.

Analytical detection of mercury vapor is possible by means of gas/vapor detector tubes (rough measurement) or air-monitors that absorb mercury vapor.

OSRAM HBO® lamps have the following mercury contents:

Power level	Maximum Mercury content (mg)
50 - 200 W	110
350 W	300
500 W	500
1,000 W	1,000
1,500 W	800
2,000 - 2,500 W	5,000
3,500 W and higher	12,000

## HBO® HIGH PRESSURE MERCURY LAMPS (continued)

### PROPERTIES OF MERCURY:

- Chemical symbol: Hg
- Atomic number: 80
- Molecular Weight: 200.59
- Density: 13.6 g/cm<sup>3</sup> @ 20°C / 68°F
- Melting Point: -39°C / -38.2°F
- Boiling Point: 357°C / 674°F
- Vapor pressure:
  - 160 Pa @ 20°C / 68°F
  - 370 Pa @ 30°C / 86°F
  - 823 Pa @ 40°C / 104°F
- Concentration in air:
  - 13.6 mg/m<sup>3</sup> @ 20°C / 68°F
  - 29.6 mg/m<sup>3</sup> @ 30°C / 86°F
  - 62.7 mg/m<sup>3</sup> @ 40°C / 104°F
- CAS Registry Number: 7439-97-6
- RCRA waste number: U151
- Other Names: Hydrargyrum, Colloidal mercury, Kwik, Mercure, Mercurio, Metallic mercury, Quecksilber, Quick silver, Liquid Silver

### LAMP DISPOSAL:

1. Disposal of spent lamps must be in accordance with applicable federal, state/provincial, and local regulations. State laws differ in their disposal requirements for lamps containing mercury.
2. Lamp users in North America may obtain specific state or province information concerning disposal regulations, toll free, by calling 1-866-666-6850.



3. OSRAM SYLVANIA Products Inc. cannot advise lamp users as to general or specific disposal regulations for federal, state/provincial, and/or local municipalities.

### Special disposal note for cold, positive-pressure lamps (see "RUPTURE & RADIATION HAZARD" section for applicable lamps)

There is a risk that these lamps could rupture because of their high internal pressure when hot (during operation) and when cold (at room temperature when not operating). A lamp rupture could result in personal injury or property damage from flying fragments of quartz and/or metal. Therefore, spent (end-of-life) lamps should ALWAYS be stored in the packaging in which they originally came.

## Lamp Disposal Labeling

The following information appears on the packages and/or stuffer of mercury-containing Display/Optic lamps. For more information on lamp disposal labeling, see the inside back cover of this catalog.



**NOTES:**



## LED SYSTEMS

The most important trend in lighting technology is the move towards systems... we started this trend with THE SYSTEM SOLUTION® , a family of optimally balanced energy saving lamps and ballast combinations. We are now extending that trend with LED systems for the lighting market.

LED systems are quickly becoming the light source of choice for signage applications due to their ruggedness, reliability, long life, energy efficiency and low maintenance requirements. They have also opened new avenues in lighting with their color mixing and color sequencing capabilities. They offer unique capabilities for architectural enhancements and decorative lighting due to their small sizes and system flexibility.

OSRAM SYLVANIA has the competitive advantage in the arena of LED systems with years of experience in designing and developing discrete LEDs, LED modules and OPTOTRONIC® electronic LED power supplies and controls. Our global network of design and manufacturing brings LED, electronics, and lighting systems knowledge together to produce innovative, efficient, environmentally friendly and energy saving systems. Our LED systems are also covered by our comprehensive LED system warranty.

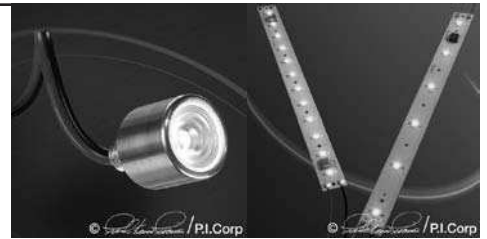
**Consult Ballast section, page 185 for listings of OPTOTRONIC LED power supplies and controls.**

### LED ADVANTAGES

- Low energy consumption
- Long service life
- Directional distribution of light
- High color efficiency
- Small size
- Flexible lighting solutions
- No IR/UV radiation
- Innovative system solutions

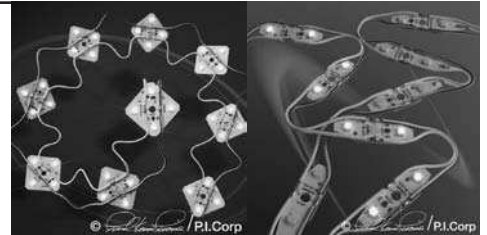
#### Hi-flux (HF) systems

Hi Flux LED modules are the latest generation of power LEDs. They offer exciting possibilities for LEDs in general illumination applications including signage, cove lighting, spot and flood lighting, display lighting, freezer and refrigeration lighting.



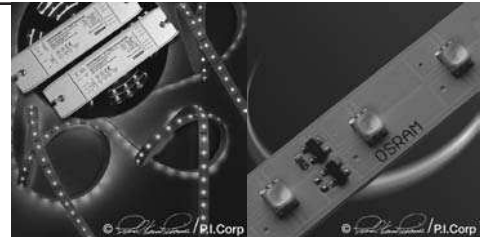
#### BACKlight Systems

Designed especially for signage applications the BACKlight System offers a versatile alternative to neon for channel letter signs. It comes in various colors and due to its high flexibility is also suitable for any application requiring LEDs oriented in a 3-dimensional setting. This product is conformally coated and is listed in the UL Sign Accessories Manual (SAM).



#### LINEARlight Colormix Systems

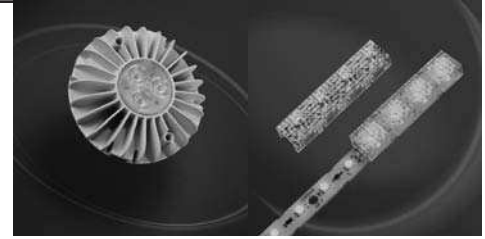
LINEARlight Colormix Flexible and Rigid modules along with OPTOTRONIC® RGB Control system offer simple dynamic control for creating colored lighting. The Colormix module features a 3-chip LED with high luminous efficacy to achieve an infinite number of colors. Connectors are available for both the flexible and rigid modules.



## LED SYSTEMS CONTINUED...

### LINEARlight Systems

Flexible LINEARlight reels are available with TOPLED or SIDELED options and in a variety of colors. The LINEARlight MULTIFLEX provides new dimensions for innovative lighting. POWERFLEX LINEARlight modules offer superior lumen output for white light. The LINEARlight modules are mounted on rigid boards which make them an ideal choice for small and sleek luminaires. Optics and connectors are available for the rigid modules.



### Accessories: connectors, optics, thermal solutions

Accessories to LED modules aid in a complete system solution. Connector systems are designed to simplify the installation process by eliminating the need to solder wires. Optic accessories provide light intensification and mechanical protection. Thermal solutions supply proper thermal management allowing for an optimal service life.

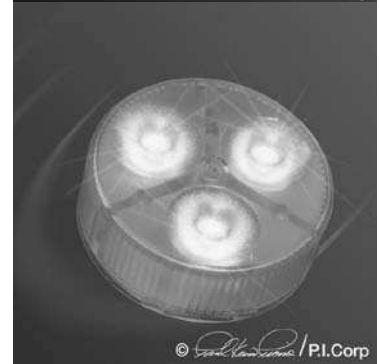
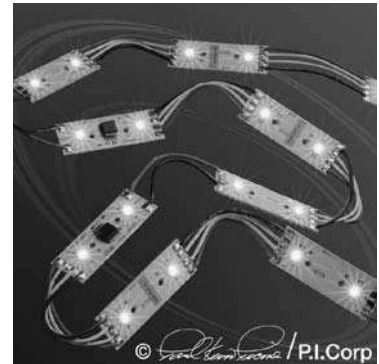
### How to read Product Descriptions:

BACKlight2G	633	BL02ST	S1
BACKlight	Wave	ID#	Color Code
Second	length		S=Super Red
Generation	633nm		

HF2Chain	36	W3	-865
HiFlux Second	# of	Color	Color Temp
Generation	LED 36	Code	865=6500K
Chain		W3=White	

### Color Definition

S,S1	Super Red
A,A1	Amber Red
Y,Y1,Y2	Yellow
O,O1	Orange
T,T2	True Green
B,B1	Blue
W,W2,W3	White



## Safety Information for all LED modules and accessories

**WARNING: ONLY QUALIFIED PERSONNEL SHOULD PERFORM INSTALLATION. TO AVOID ELECTRICAL SHOCK OR COMPONENT DAMAGE, DISCONNECT POWER BEFORE ATTEMPTING INSTALLATION OF THE POWER SUPPLIES AND/OR MODULES.**

Failure to install the power supplies and/or LED modules in accordance with the National Electric Code (NEC), all applicable Federal, State and local electric codes as well as the specific Underwriter's Laboratories (UL) safety standards for the installation, location and application may cause serious personal injury, death, property damage and/or product malfunction. These instructions are guidelines for installation of OSRAM LED modules and power supplies. Installation requirements may vary depending on the application. Licensed electricians should provide all installation services for connection of both primary and secondary (input/output) of the power supplies.

1. The LED module itself and all its components must not be subjected to mechanical stress.
2. Assembly must not damage or destroy conducting paths on the circuit board.
3. Installation of LED modules (with power supplies) should adhere to all applicable electrical and safety standards. Only qualified personnel should perform installations.
4. Correct electrical polarity needs to be observed. Wrong polarity may destroy the module.
5. Unbalanced voltage drop can cause hazardous overload and damage the LED module.
6. Ensure that the power supply is of adequate power to operate the total load.
7. Pay attention to standard ESD precautions when installing the module.
8. Damage by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture, condensation and other harmful elements.
9. Modules may be hot to the touch. Use caution when handling.
10. Only install according to the heat sinking parameters outlined.
11. For applications involving exposure to humidity and dust, the module must be protected by a fixture or housing with a suitable protection glass. The module can be protected against condensation water by treatment with an appropriate circuit board conformal coating. The conformal coating should have the following features:
  - Optical transparency
  - UV resistance
  - Thermal expansion properties matching those of the module (15-30 x 10-6cm/cm/K)
  - Low permeability of steam for all climate conditions
  - Resistance against corrosive environments

Note: The "AFL" grade conformal coating from Electrolube, Inc. ([www.electrolube.com](http://www.electrolube.com)) has met the conditions for LINEARlight Colormix in our tests.

\*For product specific safety information please see the appropriate Product Information Bulletin

The LED Module incorporates no protection against short circuits, overload or overheating. Therefore it is absolutely necessary to operate the modules with an electronically stabilized power supply offering protection against the above mentioned safety risks.

**OSRAM OPTOTRONIC power supplies are specifically designed with protection features for safe operation.**

When using power supplies other than OPTOTRONIC the following basic safety features are required in addition to any other application specific concerns and local safety codes:

- Short circuit protection
- Overload protection
- Overheat protection
- Correct output voltage, including consideration for ripple and spikes.

## SPOT/FLOOD PRODUCTS

### HF<sup>2</sup>Eye

Task lighting, Accent lighting, Outdoor and landscape lighting, Shelf lighting, Display case lighting, Vehicle cabin lighting, Solar powered installations

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	OPTOTRONIC Power Supply	Current (Amps)	Load Wattage	Beam Angle (Degrees)	Luminous Intensity
70199	HF2Eye/W3-833	6	264	White	3300K	Constant Current	.35	1.2	15	230
70200	HF2Eye/W3-854	6	264	White	5400K	Constant Current	.35	1.2	15	310



### DRAGONPUCK

Task lighting, Accent lighting, Outdoor and landscape lighting, Shelf lighting, Refrigerator and freezer display case lighting, Light box, Backlit graphics, Edge lighting, Vehicle cabin lighting, Solar powered installations

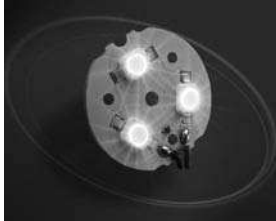
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Beam Angle (Degrees)	Luminous Intensity (cd)
70107	DRAGONPUCK/OS/DP3/W2-854	1	16	White	5400	3	Constant Current	.35	3.6	20	285
70108	DRAGONPUCK/OS/DP3/W2-865	1	16	White	6500	3	Constant Current	.35	3.6	20	285
70120	DRAGONPUCK/OS/DP3/W2-847	1	16	White	4700	3	Constant Current	.35	3.6	20	285
70121	DRAGONPUCK/OS/DP3/A1	1	16	Red	617	3	Constant Current	.35	2.4	16	215
70122	DRAGONPUCK/OS/DP3/B1	1	16	Blue	470	3	Constant Current	.35	3.6	16	100
70123	DRAGONPUCK/OS/DP3/V1	1	16	Verde	505	3	Constant Current	.35	3.6	16	285
70124	DRAGONPUCK/OS/DP3/Y1	1	16	Yellow	587	3	Constant Current	.35	2.4	16	215
70142	DRAGONPUCK/OS/DP3/W2-733	1	16	White	3300	3	Constant Current	.35	3.6	20	230
70167	DRAGONPUCK/OS/DP3/W3-733	1	16	White	3300	3	Constant Current	.35	3.6	16	600
70168	DRAGONPUCK/OS/W3-847	1	16	White	4700	3	Constant Current	.35	3.6	16	900
70169	DRAGONPUCK/OS/W3-854	1	16	White	5400	3	Constant Current	.35	3.6	16	900
70170	DRAGONPUCK/OS/W3-865	1	16	White	6500	3	Constant Current	.35	3.6	16	900



## HFdisk

Task lighting, Accent lighting, Outdoor and landscape lighting, Shelf lighting, Display case lighting, Vehicle cabin lighting, Solar powered installations

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Lumens
70203	<b>HFdisk/3/W2-733</b>	10	100	White	3300K	3	Constant Current	.35	3.6	120	60
70204	<b>HFdisk/3/W2-847</b>	10	100	White	4700K	3	Constant Current	.35	3.6	120	75



## HF²X

Task lighting, Accent lighting, Outdoor and landscape lighting, Shelf lighting, Display case lighting, Vehicle cabin lighting, Solar powered installations

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	OPTOTRONIC Power Supply	Current (Amps)	Load Wattage	Radiance Angle (Degrees)	Luminous Intensity
70184	<b>HF2X/120/W3-854</b>	6	120	White	5400K	Constant Current	.35	1.2	120	15
70191	<b>HF2X/60/W3-854</b>	6	120	White	5400K	Constant Current	.35	1.2	60	33
70201	<b>HF2X/12/W3-854</b>	6	120	White	5400K	Constant Current	.35	1.2	12	675
70202	<b>HF2X/30/W3-854</b>	6	120	White	5400K	Constant Current	.35	1.2	30	110
70164	<b>HF2X/120/W3-733</b>	6	120	White	3300K	Constant Current	.35	1.2	120	10
70192	<b>HF2X/12/W3-733</b>	6	120	White	3300K	Constant Current	.35	1.2	12	45
70193	<b>HF2X/30/W3-733</b>	6	120	White	3300K	Constant Current	.35	1.2	30	75
70190	<b>HF2X/120/W3-847</b>	6	120	White	4700K	Constant Current	.35	1.2	120	*
70189	<b>HF2X/60/W3-847</b>	6	120	White	4700K	Constant Current	.35	1.2	60	*
70174	<b>HF2X/12/W3-847</b>	6	120	White	4700K	Constant Current	.35	1.2	12	*
70176	<b>HF2X/30/W3-847</b>	6	120	White	4700K	Constant Current	.35	1.2	30	*
70194	<b>HF2X/60/W3-733</b>	6	120	White	3300K	Constant Current	.35	1.2	60	22



## HF<sup>2</sup>Flood

Down lighting, Accent lighting, Cove lighting, Outdoor and landscape lighting, Vehicle cabin lighting, Solar powered installations

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	OPTOTRONIC Power Supply	Current (Amps)	Load Wattage	Radiance Angle (Degrees)	Luminous Intensity
70244	HF2Flood/25/C006A/W3-733	1	20	White	3300K	24 Vdc	.50	12	25	700
70243	HF2Flood/25/C006A/W3-847	1	20	White	4700K	24 Vdc	.50	12	25	700
70242	HF2Flood/25/C006A/W3-854	1	20	White	5400K	24 Vdc	.50	12	25	700
70241	HF2Flood/25/C006A/W3-865	1	20	White	6500K	24 Vdc	.50	12	25	600
70255	HF2Flood/38/C006A/W3-733	1	20	White	3300K	24 Vdc	.50	12	38	***
70256	HF2Flood/38/C006A/W3-847	1	20	White	4700K	24 Vdc	.50	12	38	***
70257	HF2Flood/38/C006A/W3-854	1	20	White	5400K	24 Vdc	.50	12	38	***
70258	HF2Flood/38/C006A/W3-865	1	20	White	6500K	24 Vdc	.50	12	38	***



## LINEAR PRODUCTS

### HF<sup>2</sup>Stick

Shelf lighting, Under cabinet lighting, Refrigerator and freezer case lighting, Cove lighting, Display lighting, Street lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70232	HF2Stick/6/W3-854-11.8 IN	1	6	White	5400K	6	24 Vdc	.50	12	120	375	383
70215	HF2Stick/6/W3-865-11.8 IN	6	6	White	6500K	6	24 Vdc	.50	12	120	375	383



### HF<sup>2</sup>Linear

Shelf lighting, Under cabinet lighting, Refrigerator and freezer case lighting, Cove lighting, Display lighting, Street lighting

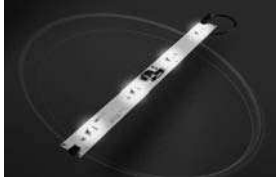
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70250	HF2Linear/6/L30/W3-865-12.1 IN	6	6	White	6500K	6	24 Vdc	.50	12	30	270	268
70214	HF2Linear/6/L30/W3-854-12.1 IN	6	6	White	5400K	6	24 Vdc	.50	12	30	270	268
70178	HF2Linear/6/L30/W3-733-12.1 IN	1	6	White	3300K	6	24 Vdc	.50	12	30	270	268
70109	HF2Linear/6/L30/W3-847-12.1 IN	1	6	White	4700K	6	24 Vdc	.50	12	30	270	268



## HF<sup>2</sup>Stick XB

Shelf lighting, Under cabinet lighting, Refrigerator and freezer case lighting, Cove lighting, Display lighting, Street lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70212	HF2StickXB/4/W3-727-11.5 IN	10	50	White	2700K	4	24 Vdc	0.23	5.6	100	130	135
70225	HF2StickXB/4/W3-841-11.5 IN	10	50	White	4100K	4	24 Vdc	0.23	5.6	100	150	156
70226	HF2StickXB/4/W3-865-11.5 IN	10	50	White	6500K	4	24 Vdc	0.21	5.1	100	240	250



## DRAGONstick

Shelf Lighting, Under cabinet lighting, Refrigerator and freezer lighting, Display case lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70221	DRAGONstick/6/W3-847 11.5 IN	1	10	White	4700K	6	24 Vdc	0.35	8.5	120	200	208
70128	DRAGONstick/OS/DS12/W2-847	1	10	White	4700K	12	24 Vdc	0.7	17	120	300	313
70158	DRAGONstick/OS/DS6/W2-733	1	10	White	3300K	6	24 Vdc	0.35	8.5	120	120	125
70180	DRAGONstick/OS/DS12/W2-733	1	10	White	3300K	12	24 Vdc	0.7	17	120	240	250



## LINEARlight Flex Top Colormix

Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

Product Number	Ordering Description	Pkg Qty	Case Qty	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70127	LINEARFLEX TOP/OS/LM10L/B7RGB	1	8								
	Red Channel			617nm	200	24 Vdc	0.5	12.1	120	213	16.3
	Green Channel			525nm	200	24 Vdc	1	24	120	336	25.6
	Blue Channel			467nm	200	24 Vdc	0.8	19.2	120	54	4.1





## LINEARlight Flex Top Colormix

Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

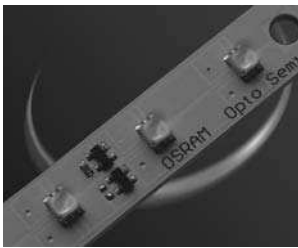
Product Number	Ordering Description	Pkg Qty	Case Qty	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70229	<b>LNRFLXTPLM10LB8RGB213.1FT</b>	1	8								
	Red Channel			625nm	200	24 Vdc	0.5	12.1	120	385	29.4
	Green Channel			525nm	200	24 Vdc	1	24	120	770	58.8
	Blue Channel			467nm	200	24 Vdc	0.6	14.4	120	130	9.9



## LINEARlight Colormix

Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

Product Number	Ordering Description	Pkg Qty	Case Qty	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70080	<b>LNRCLRMX/LM01M/RGB 1.48 FT</b>	1	10								
	All Colors			cool white	30	24 Vdc	0.33	8	120	87	58
	Red Channel			617nm	30	24 Vdc	0.075	1.8	120	32	21
	Green Channel			525nm	30	24 Vdc	0.15	3.6	120	51	34
	Blue Channel			470nm	30	24 Vdc	0.12	2.9	120	8	5



## LINEARlight MULTI FLEX

Cove lighting, Edge lighting, Border marking, Commercial signs, Emergency and rescue signs, Path and contour marking, Backlighting complex contours, Refrigeration cases, Display shelves, Recessed lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70181	<b>LLMULTIFLX/THN/W3-880-3.2 FT</b>	1	10	White	8800K	96	24 Vdc	0.25	6	45	88	28
70205	<b>LLMULTIFLX/THN/W3-827-3.2 FT</b>	1	8	White	2700K	96	24 Vdc	0.25	6	45	83	26
70182	<b>LLMULTIFLX/THN/W3-865-3.2 FT</b>	1	8	White	6500K	96	24 Vdc	0.25	6	45	180	56



## LINEARlight

Escape route marker, Border marker, Walkways, Outlines

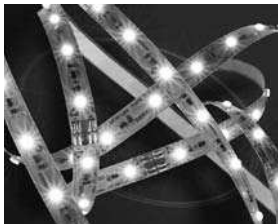
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70044	LINEAR/633/OS/LM01A/S1	1	10	Super Red	633nm	32	10 Vdc	0.4	4.2	120	54	37
70007	LINEAR/615/OS/LM01A/A1	1	10	Amber Red	617nm	32	10 Vdc	0.4	4.2	120	86	59
70083	LINEAR/610/OS/LM01A/O1	1	10	Orange	606nm	32	10 Vdc	0.4	4.2	120	98	67
70006	LINEAR/587/OS/LM01A/Y2	1	10	Yellow	587nm	32	10 Vdc	0.4	4.2	120	69	47
70008	LINEAR/525/OS/LM01A/T2	1	10	True Green	525nm	32	10 Vdc	0.4	4.2	120	57	39
70009	LINEAR/470/OS/LM01A/B1	1	10	Blue	469nm	32	10 Vdc	0.4	4.2	120	10	7
70111	LINEAR/LM01A/W2-847 1.47FT	1	10	White	4700K	32	10 Vdc	0.4	4.2	120	57	39
70112	LINEAR/LM01A/W2-854 1.47FT	1	10	White	5400K	32	10 Vdc	0.4	4.2	120	57	39
70113	LINEAR/LM01A/W2-865 1.47FT	1	10	White	6500K	32	10 Vdc	0.4	4.2	120	57	39
70265	LINEAR/LM01/W3-733 1.47FT	1	10	White	3300K	32	10 Vdc	0.4	4.2	120	68	46



## LINEARlight POWER FLEX

Cove lighting, Edge lighting, Border marking, Commercial signs, Emergency and rescue signs, Path and contour marking, Backlighting complex contours, Refrigeration cases, Display shelves, Recessed lighting

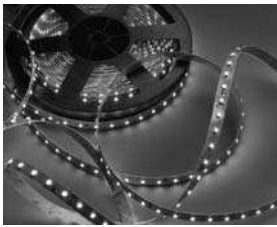
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70137	LNRPWFLX/LM10P/W3-847 9FT	1	8	White	4700K	120	24 Vdc	3	72	120	1400	152
70098	LNRPWFLX/LM10P/W3-854 9FT	1	8	White	5400K	120	24 Vdc	3	72	120	1400	152
70138	LNRPWFLX/LM10P/W3-865 9FT	1	8	White	6500K	120	24 Vdc	3	72	120	1400	152
70267	LNRPWFLX/LM10P/W3-733 9FT	1	1	White	3300K	120	24 Vdc	3	72	120	1300	144
70268	LNRPWFLX/LM10P/W3-727 9FT	1	1	White	2700K	120	24 Vdc	3	72	120	1300	144



## LINEARlight FLEX TOPLED

Cove lighting, Edge lighting, Border marking, Commercial signs, Emergency and rescue signs, Path and contour marking, Backlighting complex contours, Refrigeration cases, Display shelves, Recessed lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70061	LNRFLXTP/587/LM10A/Y1 27.5FT	1	1	Yellow	587nm	600	24 Vdc	3	72	120	1290	47
70135	LNRFLXTP/617/LM10A/A1 27.5FT	1	1	Amber Red	617nm	600	24 Vdc	3	72	120	1620	59
70063	LNRFLXTP/525/LM10A/T1 27.5FT	1	1	True Green	525nm	600	24 Vdc	3	72	120	675	25
70064	LNRFLXTP/470/LM10A/B 27.5FT	1	1	Blue	469nm	600	24 Vdc	3	72	120	170	6
70105	LNRFLXTP/LM10A/W2-847 27.5FT	1	1	White	4700K	600	24 Vdc	3.6	86.4	120	1290	47
70089	LNRFLXTP/LM10A/W2-854 27.5FT	1	1	White	5400K	600	24 Vdc	3.6	86.4	120	1290	47
70104	LNRFLXTP/LM10A/W2-865 27.5FT	1	1	White	6500K	600	24 Vdc	3.6	86.4	120	1290	47
70266	LNRFLXTP/LM10A/W3-727 27.5FT	1	1	White	2700K	600	24 Vdc	3.6	86.4	120	1440	52



## LINEARlight FLEX SIDELED

Cove lighting, Edge lighting, Border marking, Commercial signs, Emergency and rescue signs, Path and contour marking, Backlighting complex contours, Refrigeration cases, Display shelves, Recessed lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70066	LNRFLXSD/615/LM11A/A 13.8FT	1	1	Red	615nm	300	10 Vdc	1.5	15.75	120	117	8.5
70067	LNRFLXSD/587/LM11A/Y 13.8FT	1	1	Yellow	587nm	300	10 Vdc	2.25	23.63	120	405	29
70068	LNRFLXSD/525/LM11A/T 13.8FT	1	1	True Green	528nm	300	10 Vdc	3	31.5	120	147	11
70069	LNRFLXSD/470/LM11A/B 13.8FT	1	1	Blue	470nm	300	10 Vdc	3	31.5	120	37	3
70070	LNRFLXSD/LM11A/W 13.8FT	1	1	White	x=0.32, y=0.31	300	10 Vdc	3	31.5	120	405	29



## DRAGONtape

Task lighting, Underer cabinet lighting, Accent lighting, Cove lighting, Outdoor and landscape lighting, Refrigerator and freezer lighting, Light box, Backlit graphics, Edge lighting, Vehicle cabin lighting, Solar powered installations

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70106	DRAGONtape/OS/DT6/W2-847	1	25	White	4700K	6	Constant Current	.35	7.2	120	150	300
70099	DRAGONtape/OS/DT6/W2-854	1	25	White	5400K	6	Constant Current	.35	7.2	120	150	300
70100	DRAGONtape/OS/DT6/W2-865	1	25	White	6500K	6	Constant Current	.35	7.2	120	150	300
70151	DRAGONtape/OS/DT6/W2-733	1	25	White	3300K	6	Constant Current	.35	7.2	120	120	240
70101	DRAGONtape/OS/DT6/A1	1	25	Red	617nm	6	Constant Current	.35	4.8	120	108	216
70117	DRAGONtape/OS/DT6/Y1	1	25	Yellow	587nm	6	Constant Current	.35	4.8	120	108	216
70118	DRAGONtape/OS/DT6/V1	1	25	Verde	505nm	6	Constant Current	.35	7.2	120	150	300
70119	DRAGONtape/OS/DT6/B1	1	25	Blue	465nm	6	Constant Current	.35	7.2	120	48	96



## CHAIN PRODUCTS

### HF<sup>2</sup>Chain

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70165	HF2Chain/36/W3-865	1	10	White	6500K	36	24 Vdc	2.2	52	120	1320	110



## BACKlight 2G BLO2

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

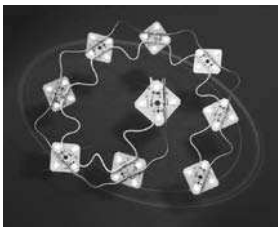
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70235	<b>B2G/633/BL02ST/S1 31.5FT</b>	1	5	Super Red	633nm	240	10 Vdc	3.6	38	120	490	16
70175	<b>B2G/617/BL02ST/A2 31.5FT</b>	1	5	Amber Red	617nm	240	10 Vdc	3.6	38	120	1180	37.5
70236	<b>B2G/606/BL02ST/O1 31.5FT</b>	1	5	Orange	606nm	240	10 Vdc	3.6	38	120	980	31
70237	<b>B2G/587/BL02ST/Y2 31.5FT</b>	1	5	Yellow	587nm	240	10 Vdc	3.6	38	120	980	31
70238	<b>B2G/525/BL02ST/T2 31.5FT</b>	1	5	Green	525nm	240	10 Vdc	3	32	120	430	14
70239	<b>B2G/470/BL02ST/B1 31.5FT</b>	1	5	Blue	470nm	240	10 Vdc	3	32	120	100	3
70144	<b>B2G/BL02ST/W2-865 31.5FT</b>	1	5	White	6500K	240	10 Vdc	3.6	38	120	520	17
70271	<b>B2G/BL02S/W3-854 31.5FT</b>	1	5	White	5400K	240	10 Vdc	4.2	44	120	880	28
70272	<b>B2G/BL02S/W3-865 31.5FT</b>	1	5	White	6500K	240	10 Vdc	4.2	44	120	880	28



## BACKlight 2G BLO4

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

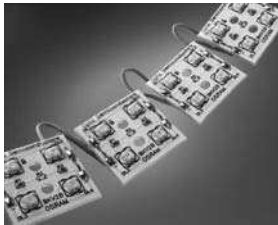
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70173**	<b>B2G/BL04ST/W2-865 15.75FT</b>	1	5 reels	White	6500K	240	10 Vdc	3.6	38	120	520	33
70172**	<b>B2G/525/BL04ST/T2 15.75FT</b>	1	5 reels	Green	525nm	240	10 Vdc	3	32	120	430	27
70171**	<b>B2G/470/BL04ST/B1</b>	1	5 reels	Blue	470nm	240	10 Vdc	3	32	120	100	6
70274	<b>B2G/BL04S/W3-865</b>	1	5 reels	White	6500K	240	10 Vdc	4.2	44	120	880	55.9



## BACKlight

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength / (CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70081	<b>BACKLITE/633/LM03A/S 1.8FT</b>	1	20	Super Red	633nm	32	10.5 Vdc	0.4	4.2	120	54	30
70011	<b>BACKLITE/615/LM03A/A 1.8FT</b>	1	20	Amber Red	617nm	32	10.5 Vdc	0.4	4.2	120	54	30
70071	<b>BACKLITE/610/LM03A/O 1.8FT</b>	1	20	Orange	606nm	32	10.5 Vdc	0.4	4.2	120	86	48
70012	<b>BACKLITE/587/LM03A/Y 1.8FT</b>	1	20	Yellow	587nm	32	10.5 Vdc	0.4	4.2	120	69	38
70013	<b>BACKLITE/525/LM03A/T 1.8FT</b>	1	20	True Green	525nm	32	10.5 Vdc	0.4	4.2	120	57	31
70014	<b>BACKLITE/470/LM03A/B 1.8FT</b>	1	20	Blue	470nm	32	10.5 Vdc	0.4	4.2	120	9	5
70102	<b>BACKLITE/LM03A/W2-854 1.8FT</b>	1	20	White	5400K	32	10.5 Vdc	0.5	5.3	120	69	38
70103	<b>BACKLITE/LM03A/W2-865 1.8FT</b>	1	20	White	6500K	32	10.5 Vdc	0.5	5.3	120	69	38



## LINEARlight Colorpod

Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Lens	LEDs/ Module	OPTOTRONIC Power Supply	Load Wattage
70210	<b>LINEARlight Colorpod/Clear-36 FT</b>	1	12	RGB	Clear	50	7.5 Vdc	25
70211	<b>LINEARlight Colorpod/Frosted- 36 FT</b>	1	12	RGB	Frosted	50	7.5 Vdc	25

\* To be used only with OTCP power supplies and controls.



## LINEARlight Colorpod XB

Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Lens	LEDs/ Module	OPTOTRONIC Power Supply	Load Wattage
70208	<b>LINEARlight Colorpod XB/Frosted- 67 FT</b>	1	6	RGB	Frosted	50	12 Vdc	50
70209	<b>LINEARlight Colorpod XB/Clear- 67 FT</b>	1	6	RGB	Clear	50	12 Vdc	50

\*To be used only with OTCP power supplies and controls.



## ACCESSORIES FOR SPOT/FLOOD PRODUCTS

### Spot/Flood Thermal Management Solutions

Thermal management solutions for DRAGONpuck® and HFDisk modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Diameter (in.)	Height (in.)
70136	Heatsink/DRAGONpuck-50	1	50	3.5	0.79



## ACCESSORIES FOR LINEAR PRODUCTS

### HF²Stick - Linear Connector System

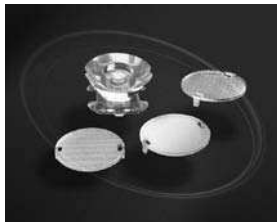
Compatible with HF2Stick and HF2Linear modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length (in.)	Type
70251	HF2Stick-Linear/Conn/2pin-input	10	500	20	Power Feed
70252	HF2Stick-Linear/Conn-4in	10	500	4	Board to Board
70253	HF2Stick-Linear/Conn-2in	10	500	2	Board to Board

### HF²Stick Optical Solutions

Compatible with HF2 Stick and DRAGONstick modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Beam Angle (Degrees)
70159	LED/Optic/Spot/Lens-2	12	12	4
70160	LED/Optic/Wide/Sub Lens-15	12	144	30
70161	LED/Optic/Oval/Sub Lens- 4x27	12	144	±4 x ±27
70162	LED/Optic/Diffuser/Sub Lens-5	12	144	10



### Thermal Management Solutions

Compatible with HF2Stick, HF2Stick XB, HF2Chain and DRAGONstick modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in. (mm)	Width in. (mm)	Height in. (mm)
70186	Heatsink/Linear/1 ft	1	25	12 (304.8)	2.5 (63.5)	0.72 (18.3)



For all module dimensions see [sylvania.com/led](http://sylvania.com/led)



## HF<sup>2</sup>Stick XB Connector

Accessory to HF2Stick XB modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70197	<b>HF2StickXB Connector/input conn</b>	10	500	.57 (14.5)	.28 (7)	.34 (8.7)	12 (305)
70196	<b>HF2StickXB Connector/conn</b>	10	500	.57 (14.5)	.28 (7)	.34 (8.7)	1.77 (45)
70195	<b>HF2StickXB Connector/conn-12</b>	10	500	.57 (14.5)	.28 (7)	.34 (8.7)	11.9 (303)



## Colormix Connector System

Accessory to Colormix Rigid module

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70114	<b>CLRMXCONN/LM4PIN/Feeder</b>	10	500	0.29(7.3)	0.49(12.5)	0.43(11)	19.7 (500)
70110	<b>CLRMXCONN/LMConn45</b>	10	1000	2.35(59.6)	0.49(12.5)	0.43(11)	1.77 (45)



## LINEARlight Rigid Connector Systems

Accessory to LINEARlight module

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70115	LINEARCONN/LM2-PIN/Feeder	10	500	0.54(13.6)	0.24(6.1)	0.19(5)	19.7 (550)
70116	LINEARBBCONN/LMCONN	10	500	0.44(11.2)	0.24(6.1)	0.18(4.65)	
70133	LINEARLIGHTCONN/LMCONN-50	10	500	0.54(13.6)	0.24(6.1)	0.19(5)	19.7 (500)



## LINEARlight Optics

Accessory to LINEARlight modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Viewing Angle (Degrees)
70072	<b>LINEARLT Optics OS-OP4X1-20 + OS-LM01A</b>	1	80	2.20(56)	0.47(12)	20/25



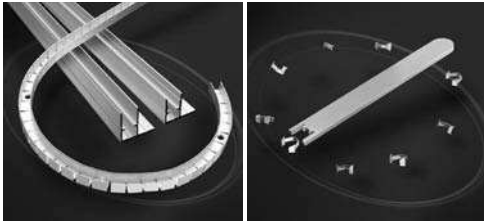
## LINEARlight MULTI FLEX Mounting Accessories

Accessory for LINEARlight MULTI FLEX modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length (mm)	External Width (mm)	Height (mm)	Internal Width (mm)	Base Width (mm)
70220	<b>LLMULTIFLX/INSTALL-SCREWS</b>	20	100					
70207	<b>LLMULTIFLX/INSTALL-TOOL</b>	1	10					
70206	<b>LLMULTIFLX/STR-CHANNEL - 3.2 FT**</b>	5	5	1000	10.5	18.5	8	20
70187	<b>LLMULTIFLX/THN/FLX-CHANNEL - 3.2 FT*</b>	20	20	1000	9	9	7	7
70188	<b>LLMULTIFLX/THN/STR-CHANNEL - 3.2 FT**</b>	5	5	1000	10	16.5	8	20

\* Flex channel only used with 70181

\*\*70206 and 70188 can be used with 70205 and 70182



## LINEARlight FLEX Top Colormix Connector System

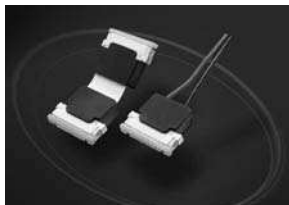
Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70183	<b>LM4PINFLEXCONNBPSS</b>	10	1000	0.48 (12.25)	0.65 (16.5)	0.2 (5)	19.69 (500)
70263	<b>LM2CONN5FLEXCONNBB</b>	10	2000	1.4 (34.5)	0.65 (16.5)	0.2 (5)	0.39 (10)



## LINEARlight FLEX Connectors

Compatible with LINEARlight POWERFLEX, LINEARlight Flex TOPLED, and LINEARlight FLEXSIDE LED

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70269	<b>LM2PINFLEXCONN</b>	10	1000	0.48 (12.25)	0.65 (16.5)	0.2 (5)	19.69 (500)
70263	<b>LM2CONN5FLEXCONNBB</b>	10	2000	1.4 (34.5)	0.65 (16.5)	0.2 (5)	0.39 (10)



## ACCESSORIES FOR CHAIN PRODUCTS

### BACKlight Connector

Compatible with BACKlight, BACKlight B2G BL02, and BACKlight B2G BL04

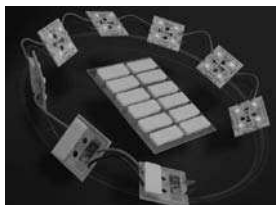
Product Number	Ordering Description	Pkg Qty	Case Qty	Height in (mm)	Width in (mm)	Depth in (mm)	Strip Length in (mm)
70126	<b>BACKLITECONN/LM03A/CONN</b>	100	1000	0.27 (6.86)	0.39 (9.9)	0.39 (9.9)	0.22 (5.6)



### BACKlight Tape

Accessory to BACKlight, BACKlight 2G and LINEARlight Rigid modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Depth in (mm)
70125	<b>BACKlite Tape/OS/LM03A</b>	40	400	1(25.4)	0.4 (10.16)	0.1 (2.54)



## LINEARlight Colorpod Mounting Accessories

Accessories to LINEARlight Colorpod modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)
70216	<b>LINEARlight Colorpod/Track- 4ft (Mounting track - 4ft)</b>	1	50	4 ft
70217	<b>LINEARlight Colorpod/Clip (Mounting Clip)</b>	50	1000	-

## LINEARlight Colorpod XB Mounting Accessories

Accessories to LINEARlight Colorpod XB modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)
70218	<b>LINEARlight Colorpod XB/Track- 4ft (Mounting track - 4ft)</b>	1	50	4 ft
70219	<b>LINEARlight Colorpod XB/Clip (Mounting Clip)</b>	50	1000	-

## CONSUMER LUMINAIRES

SYLVANIA Consumer Luminaires offer consumer and professional products to both new and existing markets that incorporate advanced, innovative LED technology.

The consumer luminaires product portfolio includes:



### SYLVANIA **DOT·it**™ Bright White LED light™

Meet the bright, long-lasting light that you can stick practically anywhere—over and over. DOT-it bright white LED lights outperform incandescent tap lights in brightness and life. This small, versatile light can be placed in a diverse range of locations to help provide bright, white light where needed. Use it in your car behind the seatback, in your home as an under cabinet light, in your workshop or garden shed, for your child's backpack or on your boat.

### MOBILE & FUNCTIONAL LIGHTING

#### SYLVANIA Portable Lighting Products (Lanterns, Flashlights, Reading Lights, Safety Lights and more)

are as durable as they are attractive, and go anywhere you do. Put them in your backpack or suitcase. On your bike. In your car. Take them to the beach, the mountains or use them around the house. Whatever activity you enjoy—hiking, camping, boating, cycling or working on the house, let SYLVANIA portable lights light the way for you. They're perfect as safety and emergency lights, too.

### SYLVANIA LED Strip Lights

bring colored light and lighting effects to alcoves, task areas, accent areas and other tight spaces without the expense or constraints of conventional colored lighting methods. The soft-edge fixture design is available in fixed lengths and three LED colors. Each LED strip light comes with a power cord, connection cord and mounting screws and brackets. The housing snaps into mounting brackets; no need to open the case to mount the strip. And, LED fixtures can be connected to one another to form longer lighting strips.

### SYLVANIA Night Lights

are as functional as they are decorative. They provide just the right amount of light needed for visibility and peace-of-mind. No need to light up an area unnecessarily—wasting energy. SYLVANIA Night Lights can be used just about anywhere you need the perfect little light: bedroom, bathroom, kitchen, entryway/hallway, basement, garages, utility room, hotel rooms and nursing homes.

### MOOD & DECORATIVE LIGHTING

#### SYLVANIA MOSAIC™ Color Changing Products

Color your world, indoors and out, with SYLVANIA MOSAIC Color Changing Products. They brighten up any application and make every occasion a special one. These innovative LEDs combine bright, colorful light with long lasting, durable LED technology. SYLVANIA MOSAIC products are currently available as SYLVANIA LED Light Chains, and SYLVANIA Night Lights.

#### SYLVANIA lightingBrilliance™ – LED Recessed Lights

require no maintenance and are shock and vibration-resistant—providing long service life. Each recessed luminaire is equipped with four long-life LEDs in either white or blue with a lightly frosted lens. The mounting ring, available in stainless steel or granite, beautifully complements any décor or surrounding. Electronic power supplies to operate 10V LED fixtures are included in the LED Recessed Lighting Starter Kit. Installed in walls, floors or ceilings, they are ideal for living rooms, bathrooms and for marking out walkways, gardens or patios. Used indoors or outdoors, SYLVANIA LED recessed lighting can enhance the design of your retail, hospitality, residential or office application.

#### SYLVANIA LED Light Chains

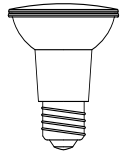
can make so many applications more festive and unique everyday. Party on, outdoors on the patio or deck, with Light Chains. Give one to your favorite student for their dorm room. Light up your landscape. Highlight treasured items in a cabinet or display case. Whenever and wherever you want your lighting to look spectacular, use a SYLVANIA LED Light Chain. Available with cool-white or color changing LEDs.

Please visit [www.sylvania.com](http://www.sylvania.com) or contact your local SYLVANIA Sales Representative for the most up-to-date listings of our Consumer Luminaires products

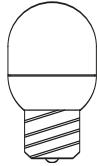
## LED RETROFIT LAMPS

LED Retrofit Lamps fill the niche for LED replacements for traditional incandescent or halogen S14, PAR20 and MR16 lamps. LED technology offers substantially better improved energy savings and exceptionally long life. They are ideal where temperature extremes and difficult or hard-to-reach locations are a factor with conventional light sources.

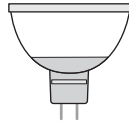
Contact your local SYLVANIA Sales Representative of the most up-to-date lists of LED Retrofit products.



Par20



S14



MR16

### LED RETROFIT LAMPS – PAR20

Product Number	Symbols & Footnotes	Ordering Code	LED Finish	Wattage	Voltage	MOL (in.)	Beam Angle	Base	Units per Case
72100	1,2,3	PAR20/36/36LED/Y/FL	Red	2.0	120V	3.25	Flood	Medium	12
72101	1,2,3	PAR20/36/36LED/R/FL	Yellow	2.2	120V	3.25	Flood	Medium	12
72102	1,2,3	PAR20/36/36LED/B/FL	Blue	1.5	120V	3.25	Flood	Medium	12
72103	1,2,3	PAR20/36/36LED/G/FL	Green	1.5	120V	3.25	Flood	Medium	12

### LED RETROFIT LAMPS – S14

Product Number	Symbols & Footnotes	Ordering Code	LED Finish	Wattage	Voltage	MOL (in.)	Cover Finish	Base	Units per Case
72090	1,2,3	S14/30LED/G	Green	1.6	120V	3.15	Acrylic Soft White	Medium	15
72091	1,2,3	S14/30LED/B	Blue	1.6	120V	3.15	Acrylic Soft White	Medium	15
72092	1,2,3	S14/30LED/R	Red	1.1	120V	3.15	Acrylic Soft White	Medium	15
72093	1,2,3	S14/30LED/Y	Yellow	1.1	120V	3.15	Acrylic Soft White	Medium	15
72094	1,2,3	S14/30LED/RGB	Color Changing	0.9	120V	3.15	Acrylic Soft White	Medium	15

### LED RETROFIT LAMPS – MR16

Product Number	Symbols & Footnotes	Ordering Code	Max. Luminous Intensity (cd)	Color Temp. (K)	Wattage	Voltage	MOL(in.)	Beam Angle	Units per Case
72098	3	LED/MR16/DRAGON/W/730/NSP6/CLAM	869	3000	2.8	12V	2	6	6
72099	3	LED/MR16/DRAGON/W/735/NSP6/CLAM	955	3500	2.8	12V	2	6	6
72084	3	LED/MR16/DRAGON/W/730/NSP6/COUNTER	869	3000	2.8	12V	2	6	6
72085	3	LED/MR16/DRAGON/W/735/NSP6/COUNTER	955	3500	2.8	12V	2	6	6
72086	3	LED/MR16/DRAGON/W/B/NSP6/COUNTER	303	470	2.8	12V	2	6	6

### FOOTNOTES FOR LED RETROFIT LAMPS

Footnote	Description
1.	<p>CAUTIONS</p> <ul style="list-style-type: none"> <li>This lamp is not intended for use in emergency light fixtures or exit lights</li> <li>Not for use with dimmers</li> <li>No user serviceable parts inside. To avoid electrical shock, do not disassemble lamp</li> <li>Risk of electrical shock – do not use where directly exposed to water</li> </ul>
2.	Please contact your local SYLVANIA Sales Representative for a most updated product list on LED Retrofit Lamps
3.	<p>To avoid electrical shock and early lamp failure, this lamp must only be used indoors and in dry locations</p> <ul style="list-style-type: none"> <li>No user serviceable parts inside. To avoid electrical shock, do not disassemble lamp</li> <li>This lamp is not intended for use in emergency light fixtures or exit signs</li> <li>LED MR16 lamps will not dim. The lamps will extinguish at lower dimmer settings. Dimming circuits will not harm the lamps</li> <li>LED MR fits most standard, low voltage MR16 lighting fixtures including: track, strips for case lighting, adjustable downlighting, landscape lighting and recessed lighting</li> <li>LED MR16 lamps are not compatible with integral electronic transformers; LED MR16 lamps can run on magnetic transformers only</li> <li>Please contact your local SYLVANIA Sales Representative for most updated product lists on LED Retrofit Lamps</li> </ul>

# SYLVANIA HID SYSTEM LIMITED WARRANTY

## Combination Lamp and Ballast System Limited Warranty

OSRAM SYLVANIA Products Inc. ("OSPI") warrants SYLVANIA lamps installed on SYLVANIA magnetic ballasts to be free from defects in material and workmanship and to operate from the date of installation (or 3 months from date of manufacture if installation date is not known or available) for the lamp and ballast warranty

periods and subject to the Terms and Conditions specified below. If lamps fail to operate for the warranty period, OSPI will provide a free replacement lamp (no labor allowance). If a SYLVANIA magnetic ballast fails to operate within the warranty period, OSPI will provide a free replacement ballast (no labor allowance).

System	Avg. Rated Lamp Life*	Lamp Warranty Period	Ballast Warranty Period
METALARC®	7,000-12,000 hrs	6 months	24 months
METALARC®	15,000-20,000 hrs	12 months	24 months
LUMALUX®	24,000 hrs	12 months	24 months
LUMALUX®	30,000 hrs	24 months	24 months

### TERMS AND CONDITIONS

SYLVANIA lamps and SYLVANIA ballasts must be installed together as a system and be installed and operated under suitable environmental conditions and in accordance with the latest National Electrical Code, Underwriters Laboratory Bulletins, and ANSI Specifications. This warranty will not apply in the event of conditions demonstrating abnormal use or stress, such as operating temperatures in excess of maximum rated temperatures, under/over voltage conditions, excessive switching cycles or operating hours, dirty or cracked sockets, or improper lamp or ballast installation. Replacement of SYLVANIA lamps with lamps of other manufacturers will void the lamp portion of this warranty. Replacement of the SYLVANIA ballast with any other ballast will void the entire warranty.

### FURTHER CONDITIONS

1. Warranty periods based on a minimum 4,000 hours/year to a maximum 6,000 hours/year operation (minimum 10hr/start for lamp).
2. The lighting system must operate the lamp within current ANSI Specifications.
3. OSRAM SYLVANIA reserves the right to examine all failed lamps to verify cause of failure and shall be the sole judge as to whether the lamps are in fact defective.
4. System warranty valid only for installations of 50 or more lamps and ballasts. Contact OSRAM SYLVANIA for further details.
5. Check with OSRAM SYLVANIA when using occupancy sensors or dimming, as some situations may void the warranty.

### WARRANTY ACTIVATION / SERVICE CLAIMS

The HID System warranty is automatically activated after OSPI receives a completed HID System warranty registration form within 30 days after installation. An acknowledgment will be sent for each registration along with a reference number for future correspondence. Service claims can be made by contacting 1-800-LIGHTBULB to initiate the process for problem resolution.

### LABOR OPTIONS

**No labor allowance is made for lamp or ballast replacement.**

### RETURN OF DEFECTIVE PRODUCT

After contacting OSRAM SYLVANIA and receiving a RETURN MATERIAL AUTHORIZATION NUMBER, the user shall promptly return the product at the user's expense to OSRAM SYLVANIA after receiving instructions as to if, when and where to ship product. Failure to follow this procedure shall void this warranty.

### REPLACEMENT OF PRODUCT, LIMITS OF LIABILITY

The foregoing shall constitute the sole and exclusive remedy of the purchaser and the sole and exclusive liability of OSPI. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. OSPI will not, under any circumstance, whether as a result of breach of contract or warranty, tort, or otherwise, be liable for any incidental, special or consequential damages, including lost profits or revenues or any other costs or damages.

OSPI reserves the right to examine all failed lamps and/or ballasts and reserves the right to be the sole judge as to whether any lamps and/or ballasts are defective and covered under this warranty.

\*Subject to and limited by the lamp warranty period limitations set forth above.

## QUESTIONS?

Please call customer service at 1-800-654-0089 or contact your local OSRAM SYLVANIA representative.

HID043

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# QUICK 60+<sup>®</sup> Limited Warranty

Subject to change without notice.

## The Heart of a Comprehensive System Service Program

Compare lighting system warranties – you'll see that our QUICK 60+ warranty offers better coverage, more service options and, more important, peace of mind.

### Combination Lamp and Ballast System Limited Warranty

OSRAM SYLVANIA Products Inc. ("OSPI") warrants SYLVANIA lamps installed on QUICKTRONIC<sup>®</sup> ballasts to be free from defects in material and workmanship and to operate from the date of installation (or date of manufacture if installation date is not known or available) for the time periods and subject to the Terms and Conditions

specified below. If lamps fail to operate for the warranty period, OSPI will provide a free replacement lamp (but no labor allowance). If a QUICKTRONIC ballast fails to operate within the warranty period, OSPI will provide a free replacement ballast and labor allowance in accordance with the "Labor Options" set forth below.

System <sup>3,4</sup>	Lamp	Ballast Warranty Period <sup>5,8</sup>	Lamp Warranty Period <sup>*</sup>
QUICKTRONIC <sup>®</sup> T8 <sup>1</sup>	OCTRON XPS <sup>®</sup> , XP & XP/SS <sup>2,3</sup>	60 mos.	36 mos.
QUICKTRONIC T8 <sup>1</sup>	OCTRON family	60 mos.	30 mos.
QUICKTRONIC T8 High Ambient <sup>1,9</sup>	OCTRON XP, XP/SS <sup>2,3</sup>	36/60mos.@<90°/70°C	36 mos.
QUICKTRONIC 59	OCTRON F096/XP, F096/XP/SS	60 mos.	30 mos.
QUICKTRONIC 59	OCTRON F096	60 mos.	24 mos.
QUICKTRONIC 86/T8HO High Ambient <sup>1</sup>	OCTRON F096HO	36/60mos.@<90°/70°C	30 mos.
QUICKTRONIC 96IS/96HO & 40T12	N/A	60 mos.	N/A
QUICKTRONIC T5 <sup>1</sup> , T5/HO <sup>1</sup>	PENTRON <sup>®</sup> Family	60 mos.	24 mos.
QUICKTRONIC 54T5HO <sup>1</sup> High Ambient	PENTRON <sup>®</sup> FP54/HO, FP54/C/HO	36/60 mos.@<90°/70°C	36 mos.
QUICKTRONIC 54T5/HO <sup>1</sup>	PENTRON <sup>®</sup> FP54/HO, FP54/C/HO	60 mos.	36 mos.
QUICKTRONIC 54PHO & DL40	DULUX <sup>®</sup> FT55DL, FT40DL & FT40/28SS	60 mos.	12 mos.
QUICKTRONIC CF <sup>1</sup>	DULUX <sup>®</sup> D/E, T/E, T/E/IN, T/E/C	60 mos.	12 mos.
QUICKTRONIC FM	FM	24 mos.	6 mos.
QUICKTRONIC ICE <sup>1,5</sup>	ICETRON <sup>®</sup>	60 mos.	60 mos.
QUICKTRONIC MH <sup>7</sup>	METALARC <sup>®</sup> Family <sup>6</sup> (7K-12K hrs. avg. rated life)	36/60 mos.	6 mos.
QUICKTRONIC MH <sup>7</sup>	METALARC <sup>®</sup> Family <sup>6</sup> (15K-20K hrs. avg. rated life)	36/60 mos.	12 mos.

\* NOTE: Fluorescent lamp warranty periods are based on a 3 hour minimum cycle, unless otherwise noted, with a maximum of 4000 hours per year. Other operating cycles may affect warranty period. Lamp warranty can renew when installation is group relamped, contact OSRAM SYLVANIA for details.

1 Occupancy sensor application, 15 minute/start minimum, allowed with QUICKTRONIC PROStart<sup>®</sup> and with QUICKTRONIC ICE ballasts.

2 OCTRON SUPERSAVER<sup>®</sup> bipin lamps operate on Instant Start & PROStart (non-dimming) models only.

3 QUICKTRONIC, Professional Series and High Efficiency Series including all IS, PS & DIM models where applicable.

4 Labor options must be pre-approved by OSPI. Any labor option or cost that is not pre-approved will not be eligible for reimbursement.

5 ICETRON Lamp Warranty Period allows up to 8760 hrs per year (continuous operation).

6 Contact OSRAM SYLVANIA for detailed specifications of METALARC<sup>®</sup> lamps.

7 QUICKTRONIC MH ballasts warranty is 36 or 60 months, depending on maximum case temperature. Refer to product specifications for details. Electronic HID system warranty period is based on a minimum cycle of 10hr/start up to a maximum operation of 6,000 hours/year.

8 Maximum Case Temperature <70°C, for normal environmental operating conditions (40°C max. ambient) unless noted.

Refer to product specifications for details.

9 QUICKTRONIC T8 High Ambient (HT) Series

#### TERMS AND CONDITIONS

SYLVANIA lamps and QUICKTRONIC ballasts must be installed together as a system and be installed and operated under suitable environmental conditions and in accordance with the latest National Electrical Code, Underwriters Laboratory Bulletins, and ANSI Specifications. **This warranty will not apply in the event of conditions demonstrating abnormal use or stress, such as operating temperatures in excess of maximum rated temperatures, under/over voltage conditions, excessive switching cycles (see above Note #1) or operating hours, dirty or cracked sockets, or improper lamp or ballast installation.** Replacement of SYLVANIA lamps with lamps of other manufacturers will void the lamp portion of this warranty. Replacement of the QUICKTRONIC ballast with any other ballast will void the entire warranty.

#### WARRANTY ACTIVATION / SERVICE CLAIMS

The QUICK 60+ warranty is automatically activated after OSPI receives a completed QUICK 60+ warranty registration form within 30 days after installation. An acknowledgment will be sent for each registration along with a reference number for future correspondence. Service claims can be made by contacting 1-800-LIGHTBULB to initiate the process for problem resolution.

#### LABOR OPTIONS (Ballast and ICETRON lamps only)

**No labor allowance is made for any lamp replacement except ICETRON, during the warranty period.** OSPI provides for several labor options for service under the QUICK 60+ warranty program.

1. OSPI will provide full service coverage through SYLVANIA LIGHTING SERVICES at no cost to the user of the ballast, or

2. OSPI will contact a service provider and coordinate replacement at no cost to the user of the ballast, or

3. OSPI will reimburse the purchaser reasonable, customary and necessary labor charges required to install the ballast replacement.

**4. Labor options must be pre-approved by OSPI. Any labor option or cost that is not pre-approved will not be eligible for reimbursement.**

#### RETURN OF DEFECTIVE PRODUCT

After contacting OSRAM SYLVANIA and receiving a return AUTHORIZATION NUMBER, the user shall promptly return the product at the user's expense to OSRAM SYLVANIA after receiving instructions as to if, when and where to ship product. Failure to follow this procedure shall void this warranty.

#### REPLACEMENT OF PRODUCT, LIMITS OF LIABILITY

The foregoing shall constitute the sole and exclusive remedy of the purchaser and the sole and exclusive liability of OSPI. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. OSPI will not, under any circumstance, be liable for any incidental, special or consequential damages, including lost profits or revenues or any other costs or damages.

OSPI reserves the right to examine all failed lamps and/or ballasts and reserves the right to be the sole judge as to whether any lamps and/or ballasts are defective and covered under this warranty.

**QUESTIONS?** Please call customer service at 1-800-654-0089 or contact your local OSRAM SYLVANIA representative.

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Photocopy the form below and use it to register any installation featuring QUICKTRONIC<sup>®</sup> ballast systems. Also available, is our on-line version which you may find by visiting our web site at [www.sylvania.com](http://www.sylvania.com). The warranty coverage begins from the date of installation, but you must register an installation in order to receive warranty service.

**Installation Information**

Location Name: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Send Registration To: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Installation Date: \_\_\_\_\_

Operating Hours: \_\_\_\_\_ hours/day \_\_\_\_\_ days/year

Occupancy Sensors:  Yes  No

Comments \_\_\_\_\_

**Type & Quantities** (Description and NAED Item # as Shown on label (or packaging))

Ballast Description	NAED Item #	Quantity	Lamp Description	NAED Item #	Quantity	Comments
<i>e.g. QTP2X32T8/UNV ISN-TC</i>	<i>49943</i>	<i>800</i>	<i>F032/830/XP/ECO</i>	<i>21759</i>	<i>1600</i>	

**Please Complete and Return To:**  
**OSRAM SYLVANIA**  
 Attn: Warranty Dept.  
 18725 N. Union Street, Westfield, IN 46074  
 Tel #: 800/654-0089 Email: [warranty.service@sylvania.com](mailto:warranty.service@sylvania.com)

**Or Complete and Fax To:**  
**OSRAM SYLVANIA**  
**Fax #: 866/632-9674**

**OSRAM SYLVANIA National Customer Service and Sales Center**  
[www.sylvania.com](http://www.sylvania.com)



## Magnetic Ballast Limited Warranty

OSRAM SYLVANIA Products Inc. ("OS") warrants SYLVANIA fluorescent magnetic ballasts and high intensity discharge (HID) magnetic ballasts to be free from defects in material and workmanship and to

operate from the date of manufacture for the time periods specified below.

Magnetic Ballast Type	Ballast Warranty Period*
Fluorescent Magnetic	36 months
High Intensity Discharge (HID) Magnetic	24 months
Magnetic Sign	24 months

\*Note - Warranty periods are based on typical 4000 hr/12 months operation; longer operating cycles may limit warranty period. Contact OS for details.

#### TERMS AND CONDITIONS

SYLVANIA magnetic fluorescent and HID ballasts must be installed and operated under suitable environmental conditions and in accordance with the latest National Electrical Code, Underwriters Laboratory Bulletins, ANSI Specifications, CSA standards, and in accordance with OS installation instructions, where applicable. This warranty will not apply if conditions demonstrate abnormal use or stress, such as operating temperatures in excess of maximum rated temperatures, under/over voltage conditions, excessive switching cycles or operating hours, dirty or cracked sockets, or improper lamp or ballast installation.

#### WARRANTY ACTIVATION / SERVICE CLAIMS

Warranty is activated after installation. Service claims can be made by contacting 1-800-654-0089 (press "2") to initiate the process for problem resolution.

#### REPLACEMENT OF PRODUCT

OS shall correct any defects by replacing or repairing, at OS's option, any ballast determined to be defective under the terms of this warranty. Note: Labor costs are not reimbursed by OS.

#### RETURN OF DEFECTIVE BALLAST

After contacting OS and receiving a return AUTHORIZATION NUMBER, the purchaser may be requested to promptly return the ballast at the purchaser's expense to OS after receiving instructions as to if, when and where to ship the ballast. Failure to follow this procedure shall void this warranty.

#### LIMITS OF LIABILITY

The foregoing shall constitute the sole and exclusive remedy of the purchaser and the sole and exclusive liability of OS. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. OS will not, under any circumstance, whether as a result of breach of contract or warranty, tort, or otherwise, be liable for any costs or damages, including lost profits or revenues, incidental, special or consequential damages.

OS reserves the right to examine all failed ballasts and reserves the right to be the sole judge as to whether any ballasts are defective and covered under this warranty. This warranty does not cover lamps operated by the ballast.

**QUESTIONS?** Please call customer service at 1-800-654-0089 contact your local OSRAM SYLVANIA representative.

# LED SYSTEM WARRANTY

## Limited Warranty

OSRAM SYLVANIA Products, Inc. (OSI) is pleased to provide the following warranty for the periods shown below. This warranty covers OSI's LED Modules and Optotronic® Power supplies or controls when installed as a system.

### OSI LED System Limited Warranty

OSI warrants each OSI LED Module or Optotronic, Power supply or control to be free from defects in materials and workmanship, and to operate from the date of installation (or date of manufacturer if installation date is not known or available, or verifiable) for the time periods and subject to the Terms and Conditions

specified below. If an OSI LED module or an Optotronic, Power supply or control fails to operate for the specified warranty period, OSI will provide a free replacement component in accordance with the Terms and Conditions set forth below (labor not included).

### OSRAM LED SYSTEMS FOR LIGHTING WARRANTY

System*	LED Module Family	Power Supply and Control Warranty Period	LED Module Warranty Period
Optotronic, OT and OSRAM LED Lamp Modules, Power Supply or Controls	BACKlight, LINEARlight, LINEARlight Flex, (Colormix), EFFECTlight, COINlight, MARKERlight	60 months	60 Months

#### TERMS AND CONDITIONS

This warranty only applies when OSI's OSRAM LED Lamp Module is properly wired and installed; is operated on a suitable power supply within the electrical values recommended by OSI; used in lighting equipment designed and approved for the application and in environmental conditions (temperature, humidity) within the normal specified operating range of the system. This warranty does not apply to any abnormal use or use in violation of any applicable standard, code or instructions for use in installations including those contained in the latest National Electrical Code (NEC), the Standards for Safety of Underwriters Laboratory, Inc. (UL), Standards for the American National Standards Institute (ANSI) or, in Canada, the Canadian Standards Association (CSA). This warranty will not apply in the event of conditions demonstrating abnormal use or stress, including under/over voltage/current conditions, excessive switching cycles or operating hours or outside the following recommended operating conditions:

- Warranty Period is based on typical 8,760 hr./yr. operation on a continuous burning cycle of 24 hours.
- Mean operating temperature for LED Module: 25°C
- Maximum operating temperature for LED Module: 65°C
- Operate at rated DC Voltage
- Mean ambient operating temperature for Optotronic, Power supplies and controls is 40°C

Replacement of OSI LED Module components with LED components of other manufacturers will void the entire warranty. Inappropriate use and selection of power supply will void the entire warranty.

#### WARRANTY SERVICE CLAIMS

Warranty claims can be serviced by calling OSI's National Customer Service & Sales Center:

**1-800-654-0089**

**Fax: 866-632-9674**

**Email: [warranty.service@sylvania.com](mailto:warranty.service@sylvania.com)**

If you are unsure whether a situation exists that is covered by this warranty, please contact OSI's National Customer Service & Sales Center for assistance.

#### RETURN OF DEFECTIVE PRODUCT

After contacting OSI, the purchaser/user shall promptly return the product after receiving instructions regarding if, when and where to ship product. Failure to follow this procedure shall void this warranty.

#### REPLACEMENT OF PRODUCT, LIMITS OF LIABILITY

The foregoing shall constitute the exclusive remedy of the purchaser and the sole liability of OSI for the OSI LED Lamp Module component and Optotronic, power supply or controls. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. In no event shall OSI be liable for any other costs or damages, including lost profits or revenues, incidental, special or consequential damages.

OSI reserves the right to examine all failed OSI Module LED and Optotronic, power supply, controls and components to determine the cause of failure and patterns of usage and reserves the right to be the sole judge as to whether any such controls or components are defective and covered under this warranty.

**QUESTIONS?** Please call customer service at 1-800-654-0089 or contact your local OSRAM SYLVANIA representative.

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## LIMITED PRODUCT WARRANTY HBO® SEMICONDUCTOR LAMPS

OSRAM SYLVANIA INC. (OSI) warrants that its HBO OSRAM mercury short arc lamp (HBO Lamp) for microlithography will be in conformity with OSI published specifications and free from defects in material and workmanship. In the event a non conformity or defect causes a catastrophic (non-passive) failure which results in damage to customer's Stepper machine during the average rated life of the HBO Lamp, customer's sole and exclusive remedy will be reimbursement for actual direct expenses incurred by the customer for parts, materials and outside labor for the repair of the damaged Stepper, up to a maximum of \$1.5 million per occurrence. As a precondition of such reimbursement, customer must notify OSI within 10 days of the catastrophic failure; make available the HBO Lamp for testing; allow, if requested, the inspection of the damaged Stepper machine; and provide such other documentation or information as OSI may reasonably require to review and process customer's claim, including an itemized proof of loss with supporting documentation and invoices. This limited warranty shall be void if a catastrophic lamp failure results from accident, abuse, misuse, misapplication or occurs during operation of the HBO Lamp beyond its average rated life or during operation of a Stepper machine beyond its operating specifications.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, THERE ARE NO OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE HBO LAMP.

OSI'S SOLE LIABILITY TO CUSTOMER, AS A RESULT OF THE SALE OR USE OF THE HBO LAMP, IS LIMITED TO THE REIMBURSEMENT REMEDY DETAILED ABOVE. IN NO EVENT WILL OSI BE LIABLE TO THE CUSTOMER, OR ITS CUSTOMERS, AFFILIATES OR DISTRIBUTORS FOR ANY LOST PROFITS, LOST SAVINGS, DOWN TIME, INABILITY TO USE CUSTOMER'S STEPPER MACHINE, OR FOR ANY OTHER CONSEQUENTIAL, DIRECT, INDIRECT, SPECIAL, EXEMPLARY AND PUNITIVE DAMAGES OR FOR ANY OTHER DAMAGES OF ANY KIND OR NATURE.

For purposes of notification to OSI, send all requested information, including invoices and other supporting documentation to:

Quality Department  
OSRAM SYLVANIA  
c/o Danzas AEI  
8470 Gravista Street  
El Paso, TX 79907  
Phone: 915-775-2939  
Fax: 915-775-2924

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**Notes:**

**Note:**

At the time of printing, new wattages of SYLVANIA Incandescent A19, Medium Screw Base, 120 Volt and 130 Volt lamps with Soft White, Inside Frost and Clear finishes have been developed to meet new State of California standards effective January 1, 2008 but are not yet listed in this catalog. For more information on the legislation and these new lamps, please visit [www.sylvania.com](http://www.sylvania.com). Click on State Product Regulations.

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