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	Approx Lumens 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	Approx Lumens 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	Approx Lumens 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	Approx Lumens 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	**FS-4/BL/2PK**	12	Fluorescent starter for use with F13, F30 and F40 preheat lamps, blister pack with 2 starters. UL, CSA	
45812	**FS-5**	100	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps. UL, CSA	
45813	**FS-5/BL/2PK**	12	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps, blister pack with 2 starters. UL, CSA	
43813	**FS-12/BL/2PK**	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	**FS-25**	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	**FS-25/BL/2PK**	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	**FS-20 (COP-20)**	100	Fluorescent starter with cutout and manual reset for use with F15 & F20 preheat lamps. UL, CSA	
44102	**FS-40/400 (COP-40/400)**	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.
CRI	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 operration 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 FO96 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 QUICTRONIC 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 FO32/800XPS/ECO OCTRON(R) lamp 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.
20	The 36,000 hour average rated life of the FO32/800XP/ECO, FO30/800XP/SS/ECO, FO28/800XP/SS/ECO and FO32/25W/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 FO32/800/ECO OCTRON® lamps operated on rapid start ballasts is 30,000 hours. The life rating of FO32/800/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 powerfactor 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 www.NEMA.org.
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 www.lamprecycle.org
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 Els 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) SUPERSAVER(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 degreed 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 applicatons 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
OCTRON®		
FO17/830/ECO	F17T8/SPX30/ECO	F17T8/TL830/ALTO
FO17/835/ECO	F17T8/SPX35/ECO	F17T8/TL835/ALTO
FO17/841/ECO	F17T8/SPX41/ECO	F17T8/TL841/ALTO
		F17T8/TL850/ALTO
FO17/827/XP/ECO		
FO17/830/XP/ECO	F17T8/XL/SPX30/ECO	F17T8/TL830/PLUS/ALTO
FO17/835/XP/ECO	F17T8/XL/SPX35/ECO	F17T8/TL835/PLUS/ALTO
FO17/841/XP/ECO	F17T8/XL/SPX41/ECO	F17T8/TL841/PLUS/ALTO
FO17/850/XP/ECO	F17T8/XL/SPX50/ECO	F17T8/TL850/PLUS/ALTO
FO17/865/XP/ECO	F17T8/XL/SPX65/ECO	F17T8/TL865 /PLUS/ALTO
FO17/830XPS/ECO		
FO17/835XPS/ECO		
FO17/841XPS/ECO		
FO25/830/ECO	F25T8/SPX30/ECO	F25T8/TL830/ALTO
FO25/835/ECO	F25T8/SPX35/ECO	F25T8/TL835/ALTO
FO25/841/ECO	F25T8/SPX41/ECO	F25T8/TL841/ALTO
		F25T8/TL850/ALTO
FO25/827/XP/ECO		
FO25/830/XP/ECO	F25T8/XP/SPX30/ECO	F25T8/TL830/PLUS/ALTO
FO25/835/XP/ECO	F25T8/XP/SPX35/ECO	F25T8/TL835/PLUS/ALTO
FO25/841/XP/ECO	F25T8/XP/SPX41/ECO	F25T8/TL841/PLUS/ALTO
FO25/850/XP/ECO	F25T8/XP/SPX50/ECO	F25T8/TL850/PLUS/ALTO
FO25/865/XP/ECO	F25T8/XP/SPX65/ECO	F25T8/TL865/PLUS/ALTO
FO25/830XPS/ECO		
FO25/835XPS/ECO		
FO25/841XPS/ECO		
FO32/25W/830XP/SS/ECO		F32T8/ADV830/XEW/LL/ALTO 25Watt
FO32/25W/835XP/SS/ECO		F32T8/ADV835/XEW/LL/ALTO 25Watt
FO32/25W/8410XP/SS/ECO		F32T8/ADV841/XEW/LL/ALTO 25Watt
FO32/25W/850XP/SS/ECO		F32T8/ADV850/XEW/LL/ALTO 25Watt
FO28/830XP/SS/ECO	F28T8/SP30UMX/ECO	F32T8/ADV830/EW/LL/ALTO 28Watt
FO28/835XP/SS/ECO	F28T8/SP35UMX/ECO	F32T8/ADV835/EW/LL/ALTO 28Watt
FO28/841XP/SS/ECO	F28T8/SP41UMX/ECO	F32T8/ADV841/EW/LL/ALTO 28Watt
FO28/850XP/SS/ECO	F28T8/SP50UMX/ECO	F32T8/ADV850/EW/LL/ALTO 28Watt
FO30/830XP/SS/ECO	F32T8XL/SP30/WM/ECO	F32T8/ADV830/EW/LL/ALTO 30Watt
FO30/835XP/SS/ECO	F32T8XL/SP35/WM/ECO	F32T8/ADV835/EW/LL/ALTO 30Watt
FO30/841XP/SS/ECO	F32T8XL/SP41/WM/ECO	F32T8/ADV841/EW/LL/ALTO 30Watt
FO30/850XP/SS/ECO	F32T8XL/SP50/WM/ECO	F32T8/ADV850/EW/LL/ALTO 30Watt
FO32/730/ECO	F32T8/SP30/ECO	F32T8/TL730/ALTO
FO32/735/ECO	F32T8/SP35/ECO	F32T8/TL735/ALTO
FO32/741/ECO	F32T8/SP41/ECO	F32T8/TL741/ALTO
FO32/750/ECO	F32T8/SP50/ECO	F32T8/TL750/ALTO
FO32/765/ECO	F32T8/SP65/ECO	
FO32/730/XP/ECO	F32T8/XL/SP30/ECO	F32T8/TL730/PLUS/ALTO
FO32/735/XP/ECO	F32T8/XL/SP35/ECO	F32T8/TL735/PLUS/ALTO
FO32/741/XP/ECO	F32T8/XL/SP41/ECO	F32T8/TL741/PLUS/ALTO
	-	F32T8/TL750/PLUS/ALTO
FO32/830/ECO	F32T8/SPX30/ECO	F32T8/TL830/ALTO
FO32/835/ECO	F32T8/SPX35/ECO	F32T8/TL835/ALTO
FO32/841/ECO	F32T8/SPX41/ECO	F32T8/TL841/ALTO
FO32/850/ECO	F32T8/SPX50/ECO	F32T8/TL850/ALTO
FO32/827/XP/ECO	-	-
FO32/830/XP/ECO	F32T8/XL/SPX30/ECO	F32T8/TL830 PLUS/ALTO
FO32/835/XP/ECO	F32T8/XL/SPX35/ECO	F32T8/TL835 PLUS/ALTO
FO32/841/XP/ECO	F32T8/XL/SPX41/ECO	F32T8/TL841 PLUS/ALTO
FO32/850/XP/ECO	F32T8/XL/SPX50/ECO	F32T8/TL850 PLUS/ALTO
FO32/865/XP/ECO	F32T8/XL/SPX65/ECO	F32T8/TL865 PLUS/ALTO
FO32/830XPS/ECO	F32T8SXL/SPX30/ECO	
FO32/835XPS/ECO	F32T8SXL/SPX35/ECO	
FO32/841XPS/ECO	F32T8SXL/SPX41/ECO	
FO32/830XPS/ECO	F32T8/XL/SPX30/HL/ECO	F32T8/ADV830/ALTO
FO32/835XPS/ECO	F32T8/XL/SPX35/HL/ECO	F32T8/ADV835/ALTO
FO32/841XPS/ECO	F32T8/XL/SPX41/HL/ECO	F32T8/ADV841/ALTO
FO32/850XPS/ECO	F32T8/XL/SPX50/HL/ECO	F32T8/ADV850/ALTO
FO32/865XPS/ECO		

Manufacturers' Cross Reference (continued)

FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
OCTRON®		
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
OCTRON® CURVALUME®		
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	-	-
PENTRON® & PENTRON® HO		
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
OCTRON® CURVALUME®		
FP35/841/ECO	F35W/T5/841/ECO	F35T5/841
	F35W/T5/850/ECO	
	F35W/T5/865/ECO	
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	F24T5/841/HO/ALTO
	F24W/T5/850/ECO	
	F24W/T5/865/ECO	
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	FP39/841/HO/ECO/ALTO
	F39W/T5/850/ECO	
	F39W/T5/865/ECO	
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	F80T5/841/HO
	F54W/T5/850/ECO	
	F54W/T5/865/ECO	
PENTRON® CIRCLINE		
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
F40 TYPES (STD & SS)		
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	-
CURVALUME® 3"		
-	F40/SP30/U/3	-
-	F40/SP41/U/3	-
CURVALUME® 6"		
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
SLIMLINE		
-	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	-
HIGH OUTPUT		
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
APPLIANCE		
F18T8CW/K24	F24"T8/CW/4	
F18T8CW/K26	F26"T8/CW/4	F16T8/CW/26
F18T8CW/K28	F28"T8/CW/4	F17T8/CW/28
F18T8CW/K30	F30"T8/CW/4	F18T8/CW/30/ALTO
F18T8/D/K26	-	-
OTHER RAPID START		
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

Notes:

SYLVANIA QUICKTRONIC®

Electronic & Magnetic Ballasts

OSRAM OPTOTRONIC®

LED Power Supplies

the system solution®

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.

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QUICKTRONIC Electronic Ballasts

QUICKTRONIC Instant Start Ballasts for OCTRON® T8 Lamps

QUICKTRONIC PROStart® Ballasts for OCTRON T8 Lamps

QUICKTRONIC Ballasts for 8 Foot Lamps (T8)

QUICKTRONIC Ballasts for CANADIAN 347Volt T8 Systems

QUICKTRONIC Ballasts for T5HO, T5, DL40, T4 Systems

QUICKTRONIC® DIMMING & DALI Ballasts

QUICKTRONIC Ballasts for 8 foot T12 lamps & F40T12 Systems

QUICKTRONIC Specialty Systems

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

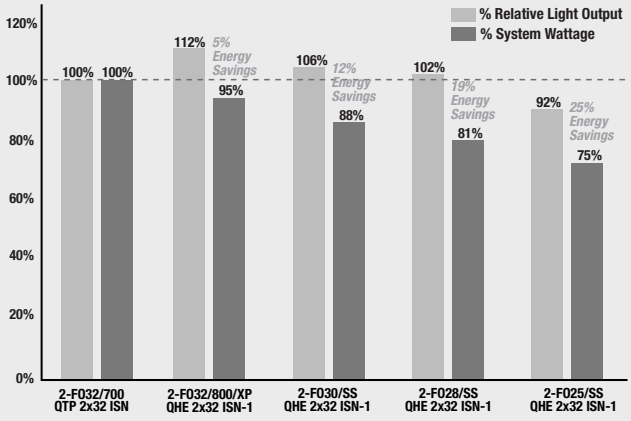
High Efficiency DL40/28W/SS Systems

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.**

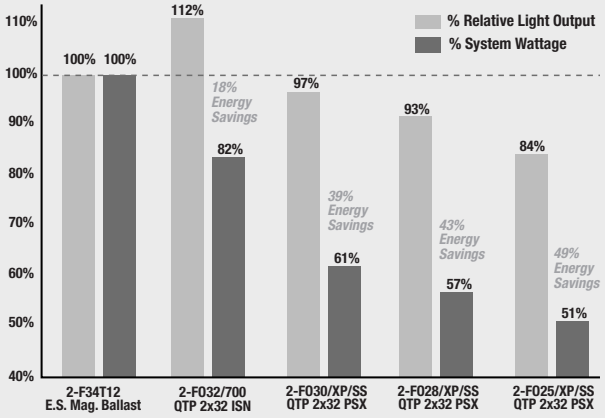
- *Exclusive lamp warranty for occupancy sensor applications*

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.

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.

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

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[1]	Input Wattage (W)	System Efficacy (lm/W)
QUICKTRONIC® *HIGH EFFICIENCY* 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS											
LOW BALLAST FACTOR											
	QHE 1X32T8/UNV ISL-SC		0.21/0.09	F032/700	2800	1	0.78	2185	1965	25	87
49837	*Banded Pack*		0.21/0.09	F032/XP	3000	1	0.78	2340	2225	25	94
49861	*10-Pack*	120-277	0.20/0.09	F030/SS	2850	1	0.78	2220	2110	24	93
49862	*Pallet Pack*		**0.19/0.08**	**F028/SS**	**2725**	**1**	**0.78**	**2125**	**2020**	**22**	**97**
			0.17/0.08	F025/SS	2475	1	0.78	1930	1835	20	97
	QHE 2X32T8/UNV ISL-SC		0.41/0.18	F032/700	2800	2	0.78	4370	3930	48	91
49838	*Banded Pack*		0.41/0.18	F032/XP	3000	2	0.78	4680	4445	48	98
49863	*10-Pack*	120-277	0.38/0.16	F030/SS	2850	2	0.78	4445	4225	45	99
49864	*Pallet Pack*		**0.35/0.15**	**F028/SS**	**2725**	**2**	**0.78**	**4250**	**4040**	**42**	**101**
			0.32/0.14	F025/SS	2475	2	0.78	3860	3665	37	104
	QHE 3X32T8/UNV ISL-SC		0.61/0.27	F032/700	2800	3	0.78	6550	5895	71	92
49839	*Banded Pack*		0.61/0.27	F032/XP	3000	3	0.78	7020	6670	71	99
49865	*10-Pack*	120-277	0.58/0.25	F030/SS	2850	3	0.78	6670	6335	68	98
49866	*Pallet Pack*		**0.53/0.23**	**F028/SS**	**2725**	**3**	**0.78**	**6380**	**6060**	**63**	**101**
			0.48/0.21	F025/SS	2475	3	0.78	5790	5500	55	105
	QHE 4X32T8/UNV ISL-SC		0.80/0.35	F032/700	2800	4	0.78	8735	7860	95	92
49840	*Banded Pack*		0.80/0.35	F032/XP	3000	4	0.78	9360	8890	95	99
49867	*10-Pack*	120-277	0.75/0.32	F030/SS	2850	4	0.78	8890	8445	89	100
49868	*Pallet Pack*		**0.71/0.31**	**F028/SS**	**2725**	**4**	**0.78**	**8500**	**8075**	**84**	**101**
			0.62/0.27	F025/SS	2475	4	0.78	7720	7335	74	104
NORMAL BALLAST FACTOR											
	QHE 1X32T8/UNV ISN-SC		0.25/0.11	F032/700	2800	1	0.88	2465	2220	28	88
49968	*Banded Pack*		0.25/0.11	F032/XP	3000	1	0.88	2640	2510	28	94
49851	*10-Pack*	120-277	0.22/0.09	F030/SS	2850	1	0.88	2510	2385	26	97
49852	*Pallet Pack*		**0.21/0.09**	**F028/SS**	**2725**	**1**	**0.88**	**2400**	**2280**	**25**	**96**
			0.19/0.09	F025/SS	2475	1	0.88	2175	2065	22	99
	QHE 2X32T8/UNV ISN-SC		0.47/0.20	F032/700	2800	2	0.88	4925	4430	55	90
49969	*Banded Pack*		0.47/0.20	F032/XP	3000	2	0.88	5280	5015	55	96
49853	*10-Pack*	120-277	0.44/0.19	F030/SS	2850	2	0.88	5015	4765	52	96
49854	*Pallet Pack*		**0.40/0.18**	**F028/SS**	**2725**	**2**	**0.88**	**4800**	**4560**	**48**	**100**
			0.36/0.16	F025/SS	2475	2	0.88	4355	4135	43	101
	QHE 3X32T8/UNV ISN-SC		0.69/0.30	F032/700	2800	3	0.88	7390	6650	83/82	89/90
49970	*Banded Pack*		0.69/0.30	F032/XP	3000	3	0.88	7920	7525	83/82	95/97
49855	*10-Pack*	120-277	0.66/0.28	F030/SS	2850	3	0.88	7525	7150	78/77	96/98
49856	*Pallet Pack*		**0.61/0.26**	**F028/SS**	**2725**	**3**	**0.88**	**7195**	**6835**	**72**	**100**
			0.55/0.23	F025/SS	2475	3	0.88	6530	6205	65/64	101/102
	QHE 4X32T8/UNV ISN-SC		0.91/0.39	F032/700	2800	4	0.88	9855	8870	108/107	91/92
49971	*Banded Pack*		0.91/0.39	F032/XP	3000	4	0.88	10560	10030	108/107	98/99
49857	*10-Pack*	120-277	0.86/0.37	F030/SS	2850	4	0.88	10030	9530	102/101	98/99
49858	*Pallet Pack*		**0.80/0.35**	**F028/SS**	**2725**	**4**	**0.88**	**9590**	**9110**	**95**	**101**
			0.71/0.30	F025/SS	2475	4	0.88	8710	8275	85	102
Instant Start QHE ISL and ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) & F040T8											
HIGH BALLAST FACTOR											
	QHE 1X32T8/UNV ISH-SC		0.32/0.14	F032/700	2800	1	1.20	3360	3025	38	88
49919	*Banded Pack*		0.32/0.14	F032/XP	3000	1	1.20	3600	3420	38	95
49871	*10-Pack*	120-277	0.30/0.13	F030SS	2850	1	1.20	3420	3250	36	95
49872	*Pallet Pack*		**0.27/0.12**	**F028SS**	**2725**	**1**	**1.20**	**3270**	**3105**	**33**	**99**
			0.26/0.12	F025/SS	2475	1	1.20	2970	2820	30	99
	QHE 2X32T8/UNV ISH-SC		0.65/0.28	F032/700	2800	2	1.20	6720	6050	74/73	91/92
49920	*Banded Pack*		0.65/0.28	F032/XP	3000	2	1.20	7200	6840	74/73	97/99
49873	*10-Pack*	120-277	0.59/0.25	F030SS	2850	2	1.20	6840	6500	70/69	98/99
49874	*Pallet Pack*		**0.55/0.23**	**F028SS**	**2725**	**2**	**1.20**	**6540**	**6210**	**65/64**	**101/102**
			0.50/0.22	F025/SS	2475	2	1.20	5940	5640	58/57	102/104
	QHE 3X32T8/UNV ISH-SC		0.93/0.40	F032/700	2800	3	1.18	9910	8920	111/109	89/90
49921	*Banded Pack*		0.93/0.40	F032/XP	3000	3	1.18	10620	10090	111/109	96/97
49875	*10-Pack*	120-277	0.87/0.38	F030SS	2850	3	1.18	10090	9585	104/103	97/98
49876	*Pallet Pack*		**0.82/0.35**	**F028SS**	**2725**	**3**	**1.18**	**9650**	**9170**	**98/96**	**98/101**
			0.72/0.31	F025/SS	2475	3	1.18	8760	8320	87/86	101/102
	QHE 4X32T8/UNV ISH		1.21/0.52	F032/700	2800	4	1.15	12880	11590	144/141	89/91
49922	*Banded Pack*		1.21/0.52	F032/XP	3000	4	1.15	13800	13110	144/141	96/98
49877	*10-Pack*	120-277	1.13/0.49	F030SS	2850	4	1.15	13110	12455	135/133	97/99
49878	*Pallet Pack*		**1.06/0.46**	**F028SS**	**2725**	**4**	**1.15**	**12535**	**11910**	**127/124**	**99/101**
			0.94/0.41	F025/SS	2475	4	1.15	11385	10815	112/111	102/103
Instant Start QHE ISH models above also operate these lamps: FB032, FB031, FB030/SS (30W) & FB029/SS (29W)											

1: 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	Mean Lumens[1]	Input Wattage (W)	System Efficacy (lm/W)
QUICKTRONIC® *PROFESSIONAL* 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS											
				LOW BALLAST FACTOR							
	QTP1x32T8/UNV ISL-SC		0.22/0.10	F032/700	2800	1	0.78	2185	1965	28/26	70/76
49832	*Banded Pack*		0.22/0.10	F032/XP	3000	1	0.78	2340	2220	28/26	84/90
49741	*10-Pack*	120-277	0.22/0.09	F030/SS	2850	1	0.78	2220	2110	26/24	86/93
49742	*Pallet Pack*		**0.21/0.08**	**F028/SS**	**2725**	**1**	**0.78**	**2125**	**2020**	**25/23**	**85/92**
			0.17/0.08	F025/SS	2475	1	0.78	1930	1835	22/20	88/97
	QTP2x32T8/UNV ISL-SC		0.44/0.19	F032/700	2800	2	0.78	4370	3930	51	86
49834	*Banded Pack*		0.44/0.19	F032/XP	3000	2	0.78	4680	4445	51	92
49743	*10-Pack*	120-277	0.41/0.18	F030/SS	2850	2	0.78	4445	4220	48	93
49744	*Pallet Pack*		**0.38/0.17**	**F028/SS**	**2725**	**2**	**0.78**	**4250**	**4040**	**45**	**94**
			0.34/0.15	F025/SS	2475	2	0.78	3860	3665	40	97
	QTP3x32T8/UNV ISL-SC		0.65/0.27	F032/700	2800	3	0.78	6550	5895	75	87
49835	*Banded Pack*		0.65/0.27	F032/XP	3000	3	0.78	7020	6670	75	94
49745	*10-Pack*	120-277	0.60/0.26	F030/SS	2850	3	0.78	6670	6335	71	94
49746	*Pallet Pack*		**0.57/0.25**	**F028/SS**	**2725**	**3**	**0.78**	**6380**	**6060**	**67**	**95**
			0.50/0.21	F025/SS	2475	3	0.78	5790	5500	59	98
	QTP4x32T8/UNV ISL-SC		0.80/0.35	F032/700	2800	4	0.78	8735	7860	98	89
49836	*Banded Pack*		0.80/0.35	F032/XP	3000	4	0.78	9360	8890	98	96
49747	*10-Pack*	120-277	0.78/0.34	F030/SS	2850	4	0.78	8890	8445	92	97
49748	*Pallet Pack*		**0.73/0.32**	**F028/SS**	**2725**	**4**	**0.78**	**8500**	**8075**	**86**	**99**
			0.63/0.28	F025/SS	2475	4	0.78	7720	7335	77	100
				NORMAL BALLAST FACTOR							
	QTP1x32T8/UNV ISN-SC		0.26/0.11	F032/700	2800	1	0.88	2465	2220	30	82
49905	*Banded Pack*		0.26/0.11	F032/XP	3000	1	0.88	2640	2510	30	88
49941	*10-Pack*	120-277	0.25/0.11	F030/SS	2850	1	0.88	2510	2385	28	90
49942	*Pallet Pack*		**0.23/0.10**	**F028/SS**	**2725**	**1**	**0.88**	**2400**	**2280**	**26**	**91**
			0.20/0.09	F025/SS	2475	1	0.88	2180	2070	23	95
	QTP2x32T8/UNV ISN-SC		0.50/0.21	F032/700	2800	2	0.88	4930	4435	59	84
49906	*Banded Pack*		0.50/0.21	F032/XP	3000	2	0.88	5280	5015	59	89
49943	*10-Pack*	120-277	0.46/0.20	F030/SS	2850	2	0.88	5015	4765	55	91
49944	*Pallet Pack*		**0.43/0.19**	**F028/SS**	**2725**	**2**	**0.88**	**4800**	**4560**	**52**	**92**
			0.39/0.16	F025/SS	2475	2	0.88	4360	4140	46	95
	QTP3x32T8/UNV ISN-SC		0.75/0.32	F032/700	2800	3	0.88	7390	6650	86	86
49907	*Banded Pack*		0.75/0.32	F032/XP	3000	3	0.88	7920	7525	86	92
49945	*10-Pack*	120-277	0.69/0.30	F030/SS	2850	3	0.88	7520	7145	81	93
49946	*Pallet Pack*		**0.65/0.28**	**F028/SS**	**2725**	**3**	**0.88**	**7190**	**6830**	**76**	**95**
			0.58/0.25	F025/SS	2475	3	0.88	6530	6205	67	98
	QTP4x32T8/UNV ISN-SC		0.95/0.40	F032/700	2800	4	0.88	9855	8870	112	88
49908	*Banded Pack*		0.95/0.40	F032/XP	3000	4	0.88	10560	10030	112	94
49947	*10-Pack*	120-277	0.91/0.39	F030/SS	2850	4	0.88	10030	9530	105	96
49948	*Pallet Pack*		**0.85/0.37**	**F028/SS**	**2725**	**4**	**0.88**	**9590**	**9110**	**98**	**98**
			0.74/0.31	F025/SS	2475	4	0.88	8710	8275	88	99
Instant Start QTP ISL and ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) & F040T8											
				HIGH BALLAST FACTOR							
	QTP1x32T8/UNV ISH-SC		0.33/0.15	F032/700	2800	1	1.20	3360	3025	41	82
49829	*Banded Pack*		0.33/0.15	F032/XP	3000	1	1.20	3600	3420	41	88
49841	*10-Pack*	120-277	0.31/0.14	F030/SS	2850	1	1.20	3420	3250	39	89
49842	*Pallet Pack*		**0.29/0.13**	**F028/SS**	**2725**	**1**	**1.20**	**3270**	**3105**	**36**	**91**
			0.27/0.12	F025/SS	2475	1	1.20	2970	2820	32	93
	QTP2x32T8/UNV ISH-SC		0.65/0.28	F032/700	2800	2	1.20	6720	6050	78	86
49830	*Banded Pack*		0.65/0.28	F032/XP	3000	2	1.20	7200	6840	78	92
49843	*10-Pack*	120-277	0.61/0.26	F030/SS	2850	2	1.20	6840	6500	73	93
49844	*Pallet Pack*		**0.57/0.25**	**F028/SS**	**2725**	**2**	**1.20**	**6540**	**6210**	**69**	**95**
			0.51/0.22	F025/SS	2475	2	1.20	5940	5640	61	97
	QTP3x32T8/UNV ISH-SC		0.95/0.41	F032/700	2800	3	1.18	9910	8920	114/111	87/89
49831	*Banded Pack*		0.95/0.41	F032/XP	3000	3	1.18	10620	10090	114/111	93/96
49845	*10-Pack*	120-277	0.89/0.39	F030/SS	2850	3	1.18	10090	9585	107/104	94/97
49846	*Pallet Pack*		**0.84/0.36**	**F028/SS**	**2725**	**3**	**1.18**	**9650**	**9170**	**100/98**	**97/98**
			0.75/0.32	F025/SS	2475	3	1.18	8760	8320	89/88	98/99
Instant Start QTP ISH models above also operate these lamps: FB032, FB031, FB030/SS (30W) & FB029/SS (29W)											

SPECIFICATIONS:

Information is subject to change at anytime without prior notice.

1: 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	Mean Lumens[1]	Input Wattage (W)	System Efficacy (lm/W)
QUICKTRONIC® *HIGH EFFICIENCY SYSTEMS* 32 T8 PROStart® PSX UNIVERSAL VOLTAGE SYSTEMS											
Xtreme SYSTEMS – LOW BALLAST FACTOR											
51224	QTP 1x32T8/UNV PSX-TC *Banded Pack*	120-277	0.21/0.09	F032/700	2800	1	0.71	1990	1790	25	80
51420	*10-Pack*		0.21/0.09	F032/XPS	3100	1	0.71	2200	2090	25	88
51225	QTP 2x32T8/UNV PSX-TC *Banded Pack*	120-277	0.40/0.17	F032/700	2800	2	0.71	3975	3580	47/46	85/86
51425	*10-Pack*		0.40/0.17	F032/XPS	3100	2	0.71	4400	4180	47/46	94/96
51226	QTP 3x32T8/UNV PSX-SC *Banded Pack*	120-277	0.59/0.25	F032/700	2800	3	0.71	5965	5370	73/71	82/84
51430	*10-Pack*		0.59/0.25	F032/XPS	3100	3	0.71	6600	6270	73/71	90/93
51227	QTP 4x32T8/UNV PSX-SC *Banded Pack*	120-277	0.78/0.33	F032/700	2800	4	0.71	7950	7155	93/91	85/87
51435	*10-Pack*		0.78/0.33	F032/XPS	3100	4	0.71	8800	8360	93/91	95/96
Xtreme SUPERSAVER® SYSTEMS – LOW BALLAST FACTOR											
51224	QTP 1x32T8/UNV PSX-TC *Banded Pack*	120-277	0.21/0.09	F032/700	2800	1	0.71	1990	1790	25	80
51420	*10-Pack*		0.21/0.09	F030/SS	2850	1	0.71	2020	1920	24	84
51421	*Pallet Pack*		**0.19/0.09**	**F028/SS**	**2725**	**1**	**0.71**	**1935**	**1840**	**22**	**88**
			0.18/0.08	F025/SS	2475	1	0.71	1760	1670	20	88
51225	QTP 2x32T8/UNV PSX-TC *Banded Pack*	120-277	0.37/0.16	F032/700	2800	2	0.71	3975	3580	47/46	85/86
51425	*10-Pack*		0.37/0.16	F030/SS	2850	2	0.71	4045	3840	44/43	92/94
51426	*Pallet Pack*		**0.35/0.15**	**F028/SS**	**2725**	**2**	**0.71**	**3870**	**3675**	**41/40**	**94/97**
			0.32/0.14	F025/SS	2475	2	0.71	3515	3340	37/36	95/98
51226	QTP 3x32T8/UNV PSX-SC *Banded Pack*	120-277	0.58/0.24	F032/700	2800	3	0.71	5965	5370	73/71	82/84
51430	*10-Pack*		0.58/0.24	F030/SS	2850	3	0.71	6070	5765	69/67	88/91
51431	*Pallet Pack*		**0.55/0.23**	**F028/SS**	**2725**	**3**	**0.71**	**5805**	**5515**	**64/62**	**91/94**
			0.48/0.31	F025/SS	2475	3	0.71	5270	5010	57/56	93/94
51227	QTP 4x32T8/UNV PSX-SC *Banded Pack*	120-277	0.74/0.31	F032/700	2800	4	0.71	7950	7155	93/91	85/87
51435	*10-Pack*		0.74/0.31	F030/SS	2850	4	0.71	8090	7685	88/86	92/94
51436	*Pallet Pack*		**0.70/0.30**	**F028/SS**	**2725**	**4**	**0.71**	**7740**	**7350**	**82/80**	**94/97**
			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	QTP 1x32T8/UNV PSN-TC *Banded Pack*	120-277	0.26/0.11	F032/700	2800	1	0.88	2465	2220	31/30	79/82
51400	*10-Pack*		0.26/0.11	F032/XP	3000	1	0.88	2640	2510	31/30	85/88
51401	*Pallet Pack*		0.24/0.10	F030/SS	2850	1	0.88	2510	2385	29/28	87/90
			0.23/0.09	**F028/SS**	**2725**	**1**	**0.88**	**2400**	**2280**	**27/26**	**89/92**
			0.20/0.09	F025/SS	2475	1	0.88	2175	2065	24/23	91/95
51402	QTP 2x32T8/UNV PSN-TC *Banded Pack*	120-277	0.50/0.21	F032/700	2800	2	0.88	4930	4437	59/56	84/88
51405	*10-Pack*		0.50/0.21	F032/XP	3000	2	0.88	5280	5015	59/56	89/94
51406	*Pallet Pack*		0.47/0.20	F030/SS	2850	2	0.88	5015	4765	55/53	91/95
			0.45/0.19	**F028/SS**	**2725**	**2**	**0.88**	**4800**	**4560**	**52/49**	**92/98**
			0.39/0.17	F025/SS	2475	2	0.88	4355	4135	46/44	95/99
51403	QTP 3x32T8/UNV PSN-SC *Banded Pack*	120-277	0.74/0.31	F032/700	2800	3	0.88	7390	6650	88/85	84/87
51410	*10-Pack*		0.74/0.31	F032/XP	3000	3	0.88	7920	7525	88/85	90/93
51411	*Pallet Pack*		0.70/0.29	F030/SS	2850	3	0.88	7525	7150	83/80	91/94
			0.65/0.27	**F028/SS**	**2725**	**3**	**0.88**	**7195**	**6835**	**77/75**	**93/96**
			0.58/0.25	F025/SS	2475	3	0.88	6530	6205	69/68	95/96
51404	QTP 4x32T8/UNV PSN-SC *Banded Pack*	120-277	0.99/0.41	F032/700	2800	4	0.88	9855	8870	118/113	83/87
51415	*10-Pack*		0.99/0.41	F032/XP	3000	4	0.88	10,560	10,030	118/113	90/94
51416	*Pallet Pack*		0.93/0.39	F030/SS	2850	4	0.88	10,030	9530	111/106	90/95
			0.88/0.36	**F028/SS**	**2725**	**4**	**0.88**	**9590**	**9110**	**104/99**	**92/97**
			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.

1: 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	Mean Lumens	Input Wattage (W)	System Efficacy (lm/W)
QUICKTRONIC® *HIGH EFFICIENCY* 32 T8 PROStart® UNIVERSAL VOLTAGE SYSTEMS											
HIGH BALLAST FACTOR (90°C Case Temperature – Parallel Operation)[1]											
49450 ❂	QHE2x32T8/UNV-PSH-HT	120-277	0.63/0.27	F032/700	2800	2	1.15	6440	5795	75/74	86/87
49459	*Banded Pack*		0.63/0.27	F032/XP	3000	2	1.15	6900	6555	75/74	92/93
	Pallet Pack		0.60/0.25	F030/SS	2830	2	1.15	6510	6185	70/69	93/94
			0.55/0.24	**F028/SS**	**2725**	**2**	**1.15**	**6270**	**5955**	**66/65**	**95/96**
			0.50/0.21	F025/SS	2475	2	1.15	5695	5410	59/58	96/98
49453 ❂	QHE3x32T8/UNV-PSH-HT	120-277	0.94/0.40	F032/700	2800	3	1.15	9660	8695	110/109	88/89
49460	*Banded Pack*		0.94/0.40	F032/XP	3000	3	1.15	10,350	9830	110/109	94/95
	Pallet Pack		0.88/0.38	F030/SS	2830	3	1.15	9765	9275	103/102	95/96
			0.82/0.35	**F028/SS**	**2725**	**3**	**1.15**	**9400**	**8930**	**96/95**	**98/99**
			0.73/0.31	F025/SS	2475	3	1.15	8540	8110	86/85	99/100
49455 ❂	QHE4x32T8/UNV-PSH-HT	120-277	1.24/0.53	F032/700	2800	4	1.15	12,880	11,590	146/144	88/89
49470	*Banded Pack*		1.24/0.53	F032/XP	3000	4	1.15	13,800	13,110	146/144	95/96
	Pallet Pack		1.16/0.50	F030/SS	2830	4	1.15	13,020	13,370	137/135	95/96
			1.09/0.46	**F028/SS**	**2725**	**4**	**1.15**	**12,535**	**11,910**	**128/126**	**98/99**
			0.97/0.41	F025/SS	2475	4	1.15	11,385	10,815	114/113	100/101
PROStart® QHE PSH models above also operate these lamps: FB032, FB031, FB030/SS (30W) & FB029/SS (29W)											
QUICKTRONIC *HIGH EFFICIENCY* 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS											
NORMAL BALLAST FACTOR - UL Type CC - Lamp Striation Control/LSC[1]											
49381	QHE1x32T8/UNV-ISN-SC-1	120-277	0.25/0.11	F032/700	2800	1	0.87	2435	2190	28	87
49382	*Banded Pack*		0.25/0.11	F032/XP	3000	1	0.87	2610	2480	28	93
	Pallet Pack		0.23/0.09	F030/SS	2850	1	0.87	2480	2355	27/26	92/95
			0.21/0.09	**F028/SS**	**2725**	**1**	**0.87**	**2370**	**2250**	**25/24**	**95/99**
			0.20/0.90	F025/SS	2475	1	0.87	2155	2045	23/22	94/98
49383	QHE2x32T8/UNV-ISN-SC-1	120-277	0.47/0.20	F032/700	2800	2	0.87	4870	4385	55	89
49384	*Banded Pack*		0.47/0.20	F032/XP	3000	2	0.87	5220	4960	55	95
	Pallet Pack		0.44/0.19	F030/SS	2850	2	0.87	4960	4710	52	95
			0.40/0.18	**F028/SS**	**2725**	**2**	**0.87**	**4740**	**4500**	**48/47**	**99/101**
			0.37/0.16	F025/SS	2475	2	0.87	4305	4090	44/43	98/100
49385	QHE3x32T8/UNV-ISN-SC-1	120-277	0.68/0.30	F032/700	2800	3	0.87	7305	6940	82/81	89/90
49386	*Banded Pack*		0.68/0.30	F032/XP	3000	3	0.87	7830	7440	82/81	96/97
	Pallet Pack		0.65/0.28	F030/SS	2850	3	0.87	7440	7070	77/76	97/98
			0.61/0.26	**F028/SS**	**2725**	**3**	**0.87**	**7110**	**6755**	**72/71**	**99/100**
			0.55/0.23	F025/SS	2475	3	0.87	6460	6135	65/64	99/101
49387	QHE4x32T8/UNV-ISN-SC-1	120-277	0.92/0.39	F032/700	2800	4	0.87	9745	9255	109/107	89/91
49388	*Banded Pack*		0.92/0.39	F032/XP	3000	4	0.87	10,440	9920	109/107	96/98
	Pallet Pack		0.86/0.37	F030/SS	2850	4	0.87	9920	9425	102	97
			0.80/0.35	**F028/SS**	**2725**	**4**	**0.87**	**9485**	**9010**	**95/94**	**100/101**
			0.74/0.31	F025/SS	2475	4	0.87	8615	8185	87/86	99/100
Instant Start QHE ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) & F040T8											
QUICKTRONIC *HIGH EFFICIENCY* 59 T8 (8 foot) INSTANT START UNIVERSAL VOLTAGE SYSTEMS											
LOW BALLAST FACTOR[2]											
50239*	QHE2x59T8/UNV-ISL-SC	120-277	0.80/0.34	F096T8/700 (59W)	5700	2	0.77	8780	7900	95/94	92/93
49869	*10-Pack*		0.80/0.34	F096T8/XP (59W)	6100	2	0.77	9380	8910	95/94	99/100
49870	*Pallet Pack*		**0.74/0.32**	**F096T8/XP/SS (55W)**	**5700**	**2**	**0.77**	**8780**	**8340**	**89/88**	**99/100**
NORMAL BALLAST FACTOR[2]											
50237*	QHE2x59T8/UNV-ISN-SC	120-277	0.92/0.40	F096T8/700 (59W)	5700	2	0.88	10,030	9025	109/107	92/94
49859	*10-Pack*		0.92/0.40	F096T8/XP (59W)	6100	2	0.88	10,735	10,200	109/107	98/100
49860	*Pallet Pack*		**0.84/0.36**	**F096T8/XP/SS (55W)**	**5700**	**2**	**0.88**	**10,030**	**9530**	**102/100**	**99/100**
HIGH BALLAST FACTOR[2]											
50238*	QHE2x59T8/UNV-ISH	120-277	1.20/0.52	F096T8/700 (59W)	5700	2	1.15	13,110	11,800	144/141	91/93
49879	*10-Pack*		1.20/0.52	F096T8/XP (59W)	6100	2	1.15	14,030	13,330	144/141	97/100
49880	*Pallet Pack*		**1.08/0.47**	**F096T8/XP/SS (55W)**	**5700**	**2**	**1.15**	**13,110**	**12,455**	**134/131**	**98/100**
QHE2x59T8-ISL-SC and QHE2x59T8-ISN-SC models also operate these lamps: F072T8 & F048T8											
QUICKTRONIC *PROFESSIONAL* 59 T8 (8 foot) INSTANT START UNIVERSAL VOLTAGE SYSTEMS											
NORMAL BALLAST FACTOR[2]											
49590*	QTP 2x59T8/UNV ISN-SC	120-277	0.93/0.40	F096T8/700 (59W)	5700	2	0.88	10,030	9027	112/110	90/91
49598	*10-Pack*		0.93/0.40	F096T8/XP (59W)	6100	2	0.88	10,735	10,200	112/110	96/98
49599	*Pallet Pack*			**F096T8/XP/SS (55W)**	**5700**	**2**	**0.88**	**10,030**	**9530**	**104/102**	**96/98**
Instant Start QTP ISN models above also operate these lamps: F072T8 & F048T8											
QUICKTRONIC *HIGH EFFICIENCY* 86 T8/HO (8 foot) PROStart UNIVERSAL VOLTAGE SYSTEMS											
NORMAL BALLAST FACTOR (90°C Case Temperature – Parallel Operation)[2]											
50304 ❂*	QHE 2x86T8HO/UNV-PSN-HT-SCL	120-277	❑	F096T8/700/HO	8000	2	❑	❑	❑	❑	❑
50305	*Pallet Pack*		❑	F096T8/800/HO	8200	2	❑	❑	❑	❑	❑
PROStart® QHE 2x86T8HO also operates these lamps: F72, F60T8HO & F48T8HO											

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.

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[1]	Input Wattage (W)	System Efficacy (lm/W)
QUICKTRONIC® *HIGH EFFICIENCY* 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA											
				LOW BALLAST FACTOR							
49471	QHE 1X32T8/347 ISL-SC	347	0.08	FO32/700	2800	1	0.78	2185	1965	25	87
			0.08	FO32/XP	3000	1	0.78	2340	2220	25	94
			0.07	FO30/SS	2850	1	0.78	2220	2110	24	93
			0.07	**FO28/SS**	**2725**	**1**	**0.78**	**2125**	**2020**	**22**	**97**
			0.06	FO25/SS	2475	1	0.78	1930	1835	20	97
49473	QHE 2X32T8/347 ISL-SC	347	0.14	FO32/700	2800	2	0.78	4370	3930	48	91
			0.14	FO32/XP	3000	2	0.78	4680	4445	48	98
			0.13	FO30/SS	2850	2	0.78	4445	4220	46	97
			0.12	**FO28/SS**	**2725**	**2**	**0.78**	**4250**	**4040**	**43**	**99**
			0.12	FO25/SS	2475	2	0.78	3860	3665	38	102
49475	QHE 3X32T8/347 ISL-SC	347	0.21	FO32/700	2800	3	0.78	6550	5895	71	92
			0.21	FO32/XP	3000	3	0.78	7020	6670	71	99
			0.20	FO30/SS	2850	3	0.78	6670	6340	67	100
			0.18	**FO28/SS**	**2725**	**3**	**0.78**	**6380**	**6060**	**62**	**103**
			0.17	FO25/SS	2475	3	0.78	5790	5500	55	105
49477	QHE 4X32T8/347 ISL-SC	347	0.28	FO32/700	2800	4	0.78	8735	7860	96	91
			0.28	FO32/XP	3000	4	0.78	9360	8890	96	98
			0.26	FO30/SS	2850	4	0.78	8890	8445	90	99
			0.25	**FO28/SS**	**2725**	**4**	**0.78**	**8500**	**8075**	**84**	**101**
			0.23	FO25/SS	2475	4	0.78	7720	7335	74	104
				NORMAL BALLAST FACTOR							
49461	QHE 1X32T8/347 ISN-SC	347	0.08	FO32/700	2800	1	0.88	2465	2220	28	88
			0.08	FO32/XP	3000	1	0.88	2640	2510	28	94
			0.08	FO30/SS	2850	1	0.88	2510	2385	27	93
			0.07	**FO28/SS**	**2725**	**1**	**0.88**	**2400**	**2280**	**25**	**96**
			0.07	FO25/SS	2475	1	0.88	2175	2065	22	99
49463	QHE 2X32T8/347 ISN-SC	347	0.16	FO32/700	2800	2	0.88	4925	4430	55	90
			0.16	FO32/XP	3000	2	0.88	5280	5015	55	96
			0.15	FO30/SS	2850	2	0.88	5015	4765	52	96
			0.14	**FO28/SS**	**2725**	**2**	**0.88**	**4800**	**4560**	**48**	**100**
			0.13	FO25/SS	2475	2	0.88	4355	4135	43	101
49465	QHE 3X32T8/347 ISN-SC	347	0.25	FO32/700	2800	3	0.88	7390	6650	83	89
			0.25	FO32/XP	3000	3	0.88	7920	7525	83	95
			0.24	FO30/SS	2850	3	0.88	7525	7150	78	96
			0.22	**FO28/SS**	**2725**	**3**	**0.88**	**7195**	**6835**	**74**	**97**
			0.20	FO25/SS	2475	3	0.88	6530	6205	66	99
49467	QHE 4X32T8/347 ISN-SC	347	0.33	FO32/700	2800	4	0.88	9855	8870	109	90
			0.33	FO32/XP	3000	4	0.88	10,560	10,030	109	97
			0.31	FO30/SS	2850	4	0.88	10,030	9530	103	97
			0.29	**FO28/SS**	**2725**	**4**	**0.88**	**9590**	**9110**	**97**	**99**
			0.26	FO25/SS	2475	4	0.88	8710	8275	87	100
Instant Start QHE ISL and ISN models above also operate these lamps: FB032, FB031, F025, FB024, F017, FB016, FB030/SS (30W), FB029/SS (29W) & F040T8											
QUICKTRONIC 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA											
				LOW BALLAST FACTOR							
49241	QT2X32T8/347 ISL-SC	347	0.15	FO32/XP	3000	2	0.77	4620	4390	51	91
49939	QT4X32T8/347 ISL-SC	347	0.28	FO32/XP	3000	4	0.77	9240	8775	98	94
QUICKTRONIC *PROFESSIONAL* 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA											
				NORMAL BALLAST FACTOR							
49711	QTP1X32T8/347 ISN-SC	347	0.089	FO32/XP	3000	1	0.88	2700	2565	31	90
49713	QTP2X32T8/347 ISN-SC	347	0.165	FO32/XP	3000	2	0.88	5280	5015	59	89
QUICKTRONIC 32 T8 INSTANT START 347 VOLT SYSTEMS – CANADA											
				NORMAL BALLAST FACTOR							
49993	QT3X32T8/347 ISN-SC	347	0.25	FO32/XP	3000	3	0.90	8100	7695	87	93
49994	QT4X32T8/347 ISN-SC	347	0.34	FO32/XP	3000	4	0.90	10,800	10,260	112	96
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) & F025/SS(25W)											
				HIGH BALLAST FACTOR							
49927	QT2X32T8/347 ISH-SC	347	0.23	FO32/XP	3000	2	1.2	7200	6840	78	92
Instant Start QT ISH model above also operates these lamps: F030/SS, F028/SS, F025/SS, FB032, FB031, FB030/SS & FB029/SS											
QUICKTRONIC 59 T8 (8 foot) INSTANT START 347 VOLT SYSTEMS – CANADA											
				NORMAL BALLAST FACTOR							
49217	QT2X59/347 IS	347	0.33	FO96T8 XP(59W)	6100	2	0.88	10,735	10,200	110	98
Instant Start QT IS model above also operates the F096/SS lamp (55W)											

1: Mean Lumens @ 8000 hours

❂ New Product. Contact OSRAM SYLVANIA for product availability.

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)
QUICKTRONIC® *PROFESSIONAL* T5HO PROStart® PSN UNIVERSAL VOLTAGE SYSTEMS										
				NORMAL BALLAST FACTOR[3]						
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.										
QUICKTRONIC *PROFESSIONAL* T5 PROStart PSN UNIVERSAL VOLTAGE SYSTEMS										
				NORMAL BALLAST FACTOR[3]						
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.*										
QUICKTRONIC *PROFESSIONAL* T5HO PROStart UNIVERSAL VOLTAGE HIGH AMBIENT TEMP. SYSTEMS										
				FIXED OUTPUT[3]						
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
				SWITCHABLE MODEL[3]						
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.*										
QUICKTRONIC *PROFESSIONAL* T5HO PROStart 347- 480V HIGH AMBIENT TEMP. SYSTEMS										
				NORMAL BALLAST FACTOR[3]						
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.*										
QUICKTRONIC *HIGH EFFICIENCY* INSTANT START DL40 UNIVERSAL VOLTAGE SYSTEMS[4]										
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
[4] Ballast factor based upon 225mA nominal lamp current for FT40DL lamp and 190mA nominal lamp current for FT40DL/28W/SS/IS lamp.										
QUICKTRONIC *PROFESSIONAL* PROStart DL40										
				NORMAL BALLAST FACTOR						
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

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)
QUICKTRONIC® *PROFESSIONAL* PROStart® COMPACT FLUORESCENT - UNIVERSAL VOLTAGE DUAL ENTRY[5,6]										
NORMAL BALLAST FACTOR										
51818 ✪	QTP 1/2x13CF/UNV	120-277	0.25/0.11	13W DD/E,T/E	900	1	1.00	900	16	56
51850 ✪	*QTP 1/2x13CF/UNV-KIT* ▲			13W DD/E,T/E	900	2	1.00	1800	29	62
51823 ✪	QTP 1/2x18CF/UNV	120-277	0.32/0.14	18W DD/E,T/E	1200	1	1.00	1200	20	60
51851 ✪	*QTP 1/2x18CF/UNV-KIT* ▲			18W DD/E,T/E	1200	2	1.00	2400	38	63
51833 ✪	QTP 2x26CF/UNV	120-277	0.50/0.22	26W DD/E,T/E	1800	1	1.00	1800	28	64
51852 ✪	*QTP 2x26CF/UNV-KIT* ▲			26W DD/E,T/E	1800	2	1.00	3600	54	67
51898	QTP 2x26CF/UNV PEM			32W DT/E	2400	1	0.98	2350	35	67
				42W DT/E	3200	1	1.00	3200	45	71
		120-277	0.90/0.40	26W DT/E	1800	2	1.02	3670	54	68
51843	QTP 2x26/32/42CF/UNV M			32W DT/E	2400	2	0.96	4600	69	67
51853 ✪	*QTP 2x26/32/42CF/UNV M-KIT* ▲		0.53/0.23	42W DT/E	3200	2	0.95	6080	94	65
51863	QTP 2x26/32/42CF/UNV M PEM		0.57/0.25	57W DT/E	4300	1	1.00	4300	62	69
				70W DT/E	5200	1	0.92	4780	71	67
Also operates: see Ballast Technology & Specification Guide for additional lamp types.								▲CF Kits include a ballast, screws, wire, mounting bracket, an instruction sheet and a wire removal tool.		
NORMAL BALLAST FACTOR - QTP CF models above replace shaded item numbers below										
51718	QTP 1/2x13CF/UNV BS	120-277	0.25/0.11	13W DD/E,T/E	900	1	1.00	900	16	56
51748	QTP 1/2x13CF/UNV TS			13W DD/E,T/E	900	2	1.00	1800	29	62
51723	QTP 1/2x18CF/UNV BS	120-277	0.32/0.14	18W DD/E,T/E	1200	1	1.00	1200	20	60
51753	QTP 1/2x18CF/UNV TS			18W DD/E,T/E	1200	2	1.00	2400	38	63
51733	QTP 2x26CF/UNV BS	120-277	0.50/0.22	26W DD/E,T/E	1800	1	1.00	1800	28	64
51763	QTP 2x26CF/UNV TS			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	QTP 1/2xCF/UNV BM	120-277	0.57/0.25	26W DD/E,T/E	1800	1	1.02	1830	28	65
51798	QTP 1/2xCF/UNV PM			26W DD/E,T/E	1800	2	1.02	3670	57	64
51768	QTP 1/2xCF/UNV TM			32W DT/E	2400	1	0.97	2330	36	65
				42W DT/E	3200	1	1.00	3200	46	70
51743	QTP 2x26/32/42CF/UNV BM	120-277	0.90/0.40	26W DT/E	1800	2	1.02	3670	54	68
51803	QTP 2x26/32/42CF/UNV PM			32W DT/E	2400	2	0.96	4600	69	67
51773	QTP 2x26/32/42CF/UNV TM		0.53/0.23	42W DT/E	3200	2	0.95	6080	94	65
	Also operates one 57W or 70W CFL lamps		0.57/0.25	57W DT/E	4300	1	1.00	4300	62	69
				70W DT/E	5200	1	0.92	4780	71	67
QUICKTRONIC *HIGH EFFICIENCY* POWERSENSE® 32 T8 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA										
Power-line control (2-wire) or 0-10Vdc control (4-wire) - 100-5% Dimming Range - <10% THD										
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
POWERSENSE™ QTP models above also operate these lamps: F025, F017 & FB032. POWERSENSE T8 replaces former Helios T8 dimming products.										
QUICKTRONIC *HIGH EFFICIENCY* HELIOS™ 32 T8 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA										
High Ballast Factor - "PLUS" High Light Output System - For 277V, 0-10Vdc Control Applications Only										
50718 ✪	QTP 4x32T8/277 DIM PLUS-TCL	277	0.53	F032XP	3000	4	1.20 0.05	14400 600	145 28	99
QUICKTRONIC *HIGH EFFICIENCY* POWERSENSE 28 T5 DIMMING SYSTEMS - A list of controllers is available from OSRAM SYLVANIA										
Power-line control (2-wire) or 0-10Vdc control (4-wire) - 100-1% Dimming Range - <10% THD										
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
POWERSENSE™ QTP model above also operate these lamps: FP35, FP21 & FP14										
QUICKTRONIC *PROFESSIONAL* HELIOS 54 T5 HO DIMMING SYSTEMS[3] - A list of controllers is available from OSRAM SYLVANIA										
(0-10Vdc control) - 100-1% Dimming Range - <10% THD										
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
HELIOS QT models above also operate these lamps: FT55DL & FPC55										

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.

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)
QUICKTRONIC® *PROFESSIONAL* DALI DIMMING SYSTEMS - 100-1% Dimming Range - <10% THD - For a list of DALI controllers, contact OSRAM SYLVANIA										
				T8						
51350	QTP 1x32T8/UNV DALI	120-277	0.31/0.13	FO32XP	3000	1	1.00 0.01	3000 30	36 6	83
51352	QTP 2x32T8/UNV DALI	120-277	0.61/0.26	FO32XP	3000	2	1.00 0.01	6000 60	72/70 12	83/86
DALI QTP models above also operate these lamps: FBO32										
				T5HO						
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
				T5						
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
QUICKTRONIC *PROFESSIONAL* DALI COMPACT FLUORESCENT DIMMING SYSTEMS - For a list of DALI controllers, contact OSRAM SYLVANIA										
				T4 and TT5 DALI - 100-3% Dimming Range - <10% THD						
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
QUICKTRONIC 96IS & 96HO										
				F96T12 Instant Start - Normal Ballast Factor- <20%THD						
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
QT IS models above also operate these lamps: F84T12, F72T12 & F60T12										
				F96T12 High Output- Normal Ballast Factor- <20%THD						
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
QT HO models above also operate these lamps: F84T12/HO, F72T12/HO, F60T12/HO, & F48T12/HO										

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)
QUICKTRONIC® *PROFESSIONAL* 40 T12 RAPID START										
NORMAL BALLAST FACTOR - <10%THD, (3 lamp <20%THD)										
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
QTP T12/RS models above also operate these lamps: F30T12 & F25T12										
QUICKTRONIC ICE										
ICETRON® Universal Voltage - <15% THD - *Contact OSRAM SYLVANIA for ICETRON® lamp information*										
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
QUICKTRONIC® FM – DEDICATED VOLTAGE (120V)										
Electronic T2 Fluorescent Subminiature Systems										
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
QUICKTRONIC *PROFESSIONAL* MH										
Electronic Metal Halide - Universal Voltage										
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									
QUICKTRONIC MH										
Electronic Metal Halide										
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
QUICKTRONIC *HIGH EFFICIENCY* MH										
Electronic Metal Halide - 208-277V										
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
Also operates: For all of the above Metal Halide Ballasts, see Ballast Technology & Specification Guide for additional lamp types										

☆ Preliminary Data – check with OSRAM SYLVANIA for detailed specifications.

❂ New Product. Contact OSRAM SYLVANIA for product availability.

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
OPTOTRONIC® Electronic DRAGON Power Supplies								
OSRAM Constant Current LED DRAGON Power Supplies (DC Output) - Contact OSRAM SYLVANIA for DRAGON™ LED module ordering information								
AC Input								
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
DC Input								
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 With OT9 Dim	Compatible With OT Dim	Compatible With OT RGB Controls	Location Rating
OPTOTRONIC Electronic LED Power Supplies												
OSRAM LED Power Supplies (DC Output) - 10.5 V DC - Contact OSRAM SYLVANIA for LED (Light Emitting Diodes) ordering information												
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
OSRAM LED Power Supplies (DC Output) - 24 V DC - Contact OSRAM SYLVANIA for LED (Light Emitting Diodes) ordering information												
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)
OPTOTRONIC Electronic LED Dim/Sequencer Modules								
OSRAM LED Dim/Sequencer Modules - OTRGB operates in conjunction with the LED power supplies listed above								
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)
OPTOTRONIC Electronic LED Dimming Modules						
OSRAM LED Dimming Modules - OTDIM operates in conjunction with the LED power supplies listed above						
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 www.sylvania.com.

DISCONTINUED BALLASTS			NEAREST REPLACEMENT UNIVERSAL VOLTAGE BALLASTS	
	Item Number	OSRAM SYLVANIA Description	Item Number	OSRAM SYLVANIA Description
T8, 1-Lamp, Instant Start				
ISN	49911	QT1X32T8/120 ISN-SC	49941	QTP 1x32T8/UNV ISN-SC
	49912	QT1X32T8/277 ISN-SC		
	49951	QT1X32T8/120 ISN-SC-PAL	49942	QTP 1x32T8/UNV ISN-SC-PAL
	49952	QT1X32T8/277 ISN-SC-PAL		
	49811	QT1X32T8/120 ISN-SC SRNK	49905	QTP 1x32T8/UNV-ISN-SC-B
	49812	QT1X32T8/277 ISN-SC SRNK		
	49901	QTP 1x32T8/UNV ISN-SC SRNK		
ISL	49931	QT1X32T8/120 ISL-SC	49741	QTP 1x32T8/UNV ISL-SC
	49932	QT1X32T8/277 ISL-SC		
	49701	QTP1X32T8/UNV-ISL-SC-SRNK	49832	QTP 1x32T8/UNV-ISL-SC-B
T8, 2-Lamp, Instant Start				
ISN	49913	QT2X32T8/120 ISN-SC	49943	QTP 2x32T8/UNV ISN-SC
	49914	QT2X32T8/277 ISN-SC		
	49953	QT2X32T8/120 ISN-SC-PAL	49944	QTP 2x32T8/UNV ISN-SC-PAL
	49954	QT2X32T8/277 ISN-SC-PAL		
	49813	QT2X32T8/120 ISN-SC SRNK	49906	QTP 2x32T8/UNV-ISN-SC-B
	49814	QT2X32T8/277 ISN-SC SRNK		
	49902	QTP 2x32T8/UNV ISN-SC SRNK		
ISL	49933	QT2X32T8/120 ISL-SC	49743	QTP 2x32T8/UNV ISL-SC
	49934	QT2X32T8/277 ISL-SC		
	49823	QT2X32T8120ISLSCPAL	49744	QTP 2x32T8/UNV ISL-SC-PAL
	49803	QT2X32T8/120 ISL-SC SRNK	49834	QTP 2x32T8/UNV-ISL-SC-B
	49804	QT2X32T8/277 ISL-SC SRNK		
	49702	QTP 2x32T8/UNV-ISL-SC-SRNK		
ISH	49923	QT2X32T8/120 ISH-SC	49843	QTP 2x32T8/UNV ISH-SC
	49924	QT2X32T8/277 ISH-SC		
	49973	QT2X32T8/120 ISH-SC-PAL	49844	QTP 2x32T8/UNV ISH-SC-PAL
	49974	QT2X32T8/277 ISH-SC-PAL		
T8, 3-Lamp, Instant Start				
ISN	49915	QT3X32T8/120 ISN-SC	49945	QTP 3x32T8/UNV ISN-SC
	49916	QT3X32T8/277 ISN-SC		
	49955	QT3X32T8/120 ISN-SC-PAL	49946	QTP 3x32T8/UNV ISN-SC-PAL
	49956	QT3X32T8/277 ISN-SC-PAL		
	49815	QT3X32T8/120 ISN-SC SRNK	49907	QTP 3x32T8/UNV-ISN-SC-B
	49816	QT3X32T8/277 ISN-SC SRNK		
	49903	QTP 3x32T8/UNV-ISN-SC SRNK		
ISL	49935	QT3X32T8/120 ISL-SC	49745	QTP 3x32T8/UNV ISL-SC
	49936	QT3X32T8/277 ISL-SC		
	49825	QT3X32T8120T8ISLSCPAL	49746	QTP 3x32T8/UNV ISL-SC-PAL
	49805	QT3X32T8/120 ISL-SC SRNK	49835	QTP 3x32T8/UNV-ISL-SC-B
	49806	QT3X32T8/277 ISL-SC SRNK		
	49703	QTP 3x32T8/UNV-ISL-SC-SRNK		
ISH	49525	QT3x32/120 PLUS	49845	QTP 3x32T8/UNV ISH-SC
	49526	QT3x32/277 PLUS		
T8, 4-Lamp, Instant Start				
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	49948	QTP 4x32T8/UNV ISN-SC-PAL
	49958	QT4X32T8/277 ISN-SC-PAL		
	49557	QT4X32120-PAL		
	49817	QT4X32T8/120 ISN-SC SRNK	49908	QTP 4x32T8/UNV-ISN-SC-B
	49818	QT4X32T8/277 ISN-SC SRNK		
	49904	QTP4x32T8/UNV-ISN-SC SRNK		
ISL	49537	QT4X32/120 LP	49747	QTP 4x32T8/UNV ISL-SC
	49538	QT4X32/277 LP		
	49307	QT4X32/120 LP SRNK	49836	QTP 4x32T8/UNV-ISL-SC-B
	49308	QT4X32/277 LP SRNK		
	49704	QTP4x32T8/UNV-ISL-SC-SRNK		
ISH	49521	QHE4x32T8/277 ISH	49877	QHE 4X32T8/UNV ISH
	49522	QHE4x32T8/277 ISH-PAL	49878	QHE 4X32T8/UNV ISH-PAL
T8, 1-Lamp, Programmed Start				
PSN	50804	QTP1X32T8/120 PSN-TC	51400	QTP 1x32T8/UNV PSN-TC
	50806	QTP1X32T8/277 PSN-TC		
	50805	QTP1X32T8/120 PSN-TC-PAL	51401	QTP 1x32T8/UNV PSN-TC-PAL
	50807	QTP1X32T8/277 PSN-TC-PAL		
T8, 2-Lamp, Programmed Start				
PSN	50814	QTP2X32T8/120 PSN-SC	51405	QTP 2x32T8/UNV PSN-TC
	50824	QTP2X32T8/277 PSN-SC		
	50815	QTP2X32T8/120 PSN-SC-PAL	51406	QTP 2x32T8/UNV PSN-TC-PAL
	50825	QTP2X32T8/277 PSN-SC-PAL		

DISCONTINUED BALLASTS			NEAREST REPLACEMENT UNIVERSAL VOLTAGE BALLASTS	
	Item Number	OSRAM SYLVANIA Description	Item Number	OSRAM SYLVANIA Description
T8, 3-Lamp, Programmed Start				
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		
T8, 4-Lamp, Programmed Start				
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		
8' T8, 2-Lamp, Instant Start				
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-SRNK	49590	QTP 2x59T8/UNV-ISN-SC-B
	49588	QT2X59T8/277 IS-SRNK		
	49028	QT2X59T8/120 IS-SRNK-IN 4Pk		
	49597	QTP2x59T8/UNV ISN-SC-SRNK		
ISH	49583	QT2X59T8/120 PLUS	49879	QHE 2X59T8/UNV ISH
	49584	QT2X59T8/277 PLUS		
T5HO, 1-Lamp, Programmed Start				
	49121	QTP 1x54T5HO/UNV PSN	49131	QTP 2x54T5HO/UNV PSN
FT40T5, 1-Lamp, Instant Start				
ISN	49641	QT 1X40/120 DL	49428	QHE 1x40DL/UNV ISN-SC
	49642	QT 1X40/277 DL		
FT40T5, 2-Lamp, Instant Start				
ISN	49643	QT 2X40/120 DL	49429	QHE 2x40DL/UNV ISN-SC
	49644	QT 2X40/277 DL		
FT40T5, 3-Lamp, Instant Start				
ISN	49645	QT 3X40/120 DL	49430	QHE 3x40DL/UNV ISN-SC
	49646	QT 3X40/277 DL		
T4, 1 and 2-Lamp, Programmed Rapid Start				
	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
T8, 1-Lamp, Dimming Systems				
	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		
T8, 2-Lamp, Dimming Systems				
	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		
T8, 3-Lamp, Dimming Systems				
	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		
T8, 4-Lamp, Dimming Systems				
	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		
T2, 1 and 2-Lamp, Programmed Start			**(Replacement Ballasts are 120V, 1-Lamp)**	
	49734	QT-FM	49735	QT1X6-8FM/120 (120V, 1 LAMP ONLY)
			49736	QT1X11-13FM/120 (120V, 1 LAMP ONLY)
LED Power Supplies (DC Output), 10V DC				
	51500	OT6/100-240/10COS	51502	OT6/100-120/10CE
LED Power Supplies (DC Output), 24V DC				
	51501	OT6/100-240/24COS	51503	OT6/100-120/24CE

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	GE	Howard
QUICKTRONIC HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC PROFESSIONAL 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC 32 T8 PROStart® PSX UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC PROFESSIONAL 32 T8 PROStart PSN UNIVERSAL VOLTAGE SYSTEMS					
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

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	GE	Howard
QUICKTRONIC HIGH EFFICIENCY 32 T8 PROStart® UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC HIGH EFFICIENCY 32 T8 INSTANT START UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC HIGH EFFICIENCY 59 T8 & QUICKTRONIC PROFESSIONAL 8 FOOT UNIVERSAL VOLTAGE					
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
QUICKTRONIC HIGH EFFICIENCY 86 T8/HO (8 FOOT) PROSTART UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC HIGH EFFICIENCY, PROFESSIONAL & T8 INSTANT START 347 VOLT - CANADA					
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
QUICKTRONIC 59 T8 8 FOOT SYSTEM - 347 VOLT - CANADA					
59W F96 T8 Instant Start - Normal Ballast Factor - <20% THD					
49217	QT2x59/347IS	GEL-2P59	N/A	N/A	N/A

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	Howard
QUICKTRONIC PROFESSIONAL T5HO PROStart® UNIVERSAL VOLTAGE SYSTEMS				
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 (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B239PUNV-D (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 (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B224PUNV-C (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 (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B254PUNV-D (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 (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	ES4515K (16.65"L x 1.24"W x 1.0"H) (Mounting 16.3")	N/A
QUICKTRONIC PROFESSIONAL T5 PROStart UNIVERSAL VOLTAGE SYSTEMS				
28W T5 - Normal Ballast Factor - <10% THD - (Ballast Can Size varies between manufacturers - please refer to specifications for details)				
49181	QTP2x28T5/UNVPSN (1 Lamp)	ICN-2S28 (1 Lamp)	B228PUNV-C (1 Lamp)	N/A
49181	QTP2x28T5/UNVPSN (14.17"L x 1.18"W x 0.87"H) (Mounting 13.74")	ICN-2S28 (16.70"L x 1.18"W x 1.0"H) (Mounting 16.34")	B228PUNV-C (14.25"L x 1.18"W x 1.0"H) (Mounting 13.75")	N/A
QUICKTRONIC PROStart T5HO UNIVERSAL High Ambient Temp.				
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
QUICKTRONIC PROStart T5HO 347-480V High Ambient Temp.				
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

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	GE	Howard
QUICKTRONIC HIGH EFFICIENCY INSTANT START DL40 UNIVERSAL VOLTAGE SYSTEMS					
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
QUICKTRONIC PROFESSIONAL PROStart DL40					
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

Item Number	OSRAM SYLVANIA	Advance	U.L.T.	ESI (Energy Savings Inc is out of business)	Robertson
QUICKTRONIC PROFESSIONAL CF - UNIVERSAL VOLTAGE DUAL ENTRY					
CF T4 PROStart® - Programmed Rapid Start - Normal Ballast Factor - <10%THD[1] - 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	PSG242TRMVBS
CF T4 PROStart - Programmed Rapid Start - Normal Ballast Factor - <10%THD [1]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	PSG242TRMVBS
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

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)
QUICKTRONIC PROFESSIONAL 40T12			
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
QUICKTRONIC 8 foot T12 Systems			
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

Item Number	OSRAM SYLVANIA POWERSENSE® (2 wire Powerline & 0-10V) (120-277V)	Advance Mark 10 (2 wire) Powerline (Dedicated Voltage)	Advance Mark 7 (0-10V) (120-277V)	U.L.T. (formerly Magnetek) Universal Lighting Technologies Ballastar (0-10V) (Dedicated Voltage)	U.L.T. (formerly Magnetek) Universal Lighting Technologies Superdim (0-10V) (120-277V)	LUTRON Tu-wire (Powerline) Dedicated Voltage Models Only	LUTRON Eco-10 TVE (0-10V) Dedicated Voltage Models Only
QUICKTRONIC POWERSENSE T8 DIMMING UNIVERSAL VOLTAGE							
32 T8 Dimming Systems - High Efficiency							
50705	QTP 1x32T8/UNV DIM-TC	REZ-132-SC (120V) VEZ-132-SC (277V)	IZT- 132-SC	B132R120V5 B132R277V5	ES5821B ES5835K ES5833B ES5818K	2W-T832-120-1	TVE-T832-120-1 TVE-T825-120-1 TVE-T817-120-1 TVE-T832-277-1
50707	QTP 2x32T8/UNV DIM-TC	REZ-2S32-SC(120V) VEZ-2S32-SC (277V)	IZT-2S32-SC	B232SR120V5 B232SR277V5	ES5822B ES5836K ES5834B ES5817K	2W-T832-120-2	TVE-T832-120-2 TVE-T832-277-2
50714	QTP 3x32T8/UNV DIM-TCL	REZ-3S32-SC (120V) VEZ-3S32-SC (277V)	IZT-3S32-SC	B332SR120V5 B332SR277V5			TVE-T832-120-3 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 Mark 10 (2 wire) Powerline (Dedicated Voltage)	Advance Mark 7 (0-10V) (120-277V)	U.L.T. (formerly Magnetek) Universal Lighting Technologies Ballastar (0-10V) (Dedicated Voltage)	U.L.T. (formerly Magnetek) Universal Lighting Technologies Superdim (0-10V) (120-277V)	LUTRON Tu-wire (Powerline) Dedicated Voltage Models Only	LUTRON Eco-10 TVE (0-10V) Dedicated Voltage Models Only
QUICKTRONIC POWERSENSE T5 DIMMING UNIVERSAL VOLTAGE							
28 T5 Dimming Systems - High Efficiency							
50726	QTP 2x28T5/UNV DIM-TCL	N/A		N/A	ES5851K ES5861K ES5847K		E3 T514 C120 2 E3 T514 C 277 2 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. Universal Lighting Technologies (formerly Magnetek)	Lutron
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

QUICKTRONIC PROFESSIONAL MH⁘

METALARC® Metal Halide Universal Voltage - Operates Ceramic and Most Quartz MH Lamp

Item Number	OSRAM SYLVANIA	Advance	U.L.T. Universal Lighting Technologies (formerly Magnetek)	AROMAT	Hatch
51908	QTP1X20MH/UNV F	N/A	N/A	M2012-27CK-5EUF	MC20-1-F-UNIU
51909	QTP1X20MH/UNV J	N/A	N/A	M2012-27CK-5EUJ	MC20-1-J-UNIU
51968	QTP2X20MH/UNV F	N/A	N/A	N/A	MC20-2-F-UNNU
51969	QTP2X20MH/UNV J	N/A	N/A	N/A	MC20-2-J-UNNU
51910	QTP1X39MH/UNV F	IMH-50-A-LF	N/A	M3912-27CK-5EUF	MC39-1-F-UNIU
51911	QTP1X39MH/UNV J	IMH-50-A-BLS	N/A	M3912-27CK-5EUJ	MC39-1-J-UNIU
51970	QTP2X39MH/UNV F	IMH-239-A-LF	N/A	N/A	MC39-2-F-UNNU
51971	QTP2X39MH/UNV J	IMH-239-A-BLS	N/A	N/A	MC39-2-J-UNNU
51912	QTP1X70MH/UNV F	IMH-70-D-LF	EC70UNVSE	M7012-27CK-5EUF	MC70-1-F-UNIU
51913	QTP1X70MH/UNV J	IMH-70-D-BLS	EC70UNVBS	M7012-27CK-5EUJ	MC70-1-F-UNIU
51914	QTP1X100MH/UNV F	IMH-100-D-LF	EC100UNVSE	M10012-27CK-5EUF	MC100-1-F-UNIU
51915	QTP1X100MH/UNV J	IMH-100-D-BLS	EC100UNVBS	M10012-27CK-5EUJ	MC100-1-J-UNIU

QUICKTRONIC MH⁘

METALARC® Metal Halide

Item Number	OSRAM SYLVANIA	Advance	Universal Lighting Technologies (formerly Magnetek)	AROMAT	Hatch	GE	Metrolight	Delta Power
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

QUICKTRONIC HIGH EFFICIENCY MH⁘

Electronic Metal Halide - 208-277V

Item Number	OSRAM SYLVANIA	Advance	Universal Lighting Technologies (formerly Magnetek)	GE	Metrolight	Delta Power
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

⁘ Line voltage, case sizes, wiring diagrams and performance specifications may vary; please refer to manufacturer's specifications.

PLEASE NOTE:

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.

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.

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.

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.

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.

Table of Contents – Magnetic Ballasts

Magnetic Ballasts

Magnetic Fluorescent Ballasts for T8, T12, T10, T9 & T5 lamps

Magnetic HID Core & Coil Ballasts

Magnetic HID F-Can Ballasts

Magnetic HID Indoor Enclosed Ballasts

HID Magnetic Ballast Replacement Parts and *Lamp & Ballast Kits*

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*

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 (EPAct 2005) was signed. EPAct 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 EPAct 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 EPAct 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	EPAct 2005
Action	**2005 BEF Standards for Full-Wattage T12 Lamps (F40T12, F40T12/U, F96T12 and F96T12HO)**	**2009 BEF Standards for Energy-Saving T12 Lamps (F40T12, F40T12/U, F96T12 and F96T12HO)**
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

Click Below To Order

Interlight Specialty Bulbs
1-800-743-0005
www.interlight.biz

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 EPAct 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 EPAct 2005 is available in The Impact of EPAct 2005 brochure (SYLVANIA literature code: EPACT2005) and at 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.

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	No. of Lamps	Lamp Types	Input Power (Watts)[1]	Advance Catalog #[2]	Universal Lighting Technologies* Catalog #[2]	Valmont Catalog #[2]
T8 RAPID START								
F017T8 Rapid Start - High Power Factor								
48312	MB1x17/120RS	120	1	**F017T8**, FB016T8/U	31	R1P817TP	707TCP	8G4177W
F025T8 or F032T8 Rapid Start - High Power Factor								
48096	MB1x25/32/120RS-LW	120	1	**F032T8**, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	35	---	M132R120[4]	---
48240	MB1x25/32/120RS-SRNK	120	1	**F032T8**, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	44	R1P825TP[4] & R1P32TP Mark III[4]	727LTCP[4] & M132R120[4]	---
48241	MB1x25/32/277RS-SRNK	277	1	**F032T8**, FB032T8/U, FB031T8/U, F025T8, FB024T8/U, F040T8	43	V1P825TP[4] & V1P32TP Mark III[4]	728LTCP[4] & M132R277C[4]	---
48242	MB2x25/32/120RS-SRNK	120	2	**F032T8**, FB032T8/U, FB031T8/U, F025T8, FB024T8/U	74	R2P825TP[4] & R2P32TP Mark III[4]	731LTCP[4] & M232SR120C[4]	8G4126W18
48243	MB2x25/32/277RS-SRNK	277	2	**F032T8**, FB032T8/U, FB031T8/U, F025T8, FB024T8/U	75	V2P825TP[4] & V2P32TP Mark III[4]	732LTCP[4] & M232SR277C[4]	8G4136W18
T12 RAPID START								
F30T12 Rapid Start - High Power Factor								
48409	MB2x30/120RS-SRNK	120	2	**F30T12, F25T12/SS**	80, 70	R2SP30TP Mark III	573LTCP	8G3971W
48410	MB2x30/277RS-SRNK	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	---
F40T12 Rapid Start - High Power Factor								
48011 ▲	MB1x40/120RS-SRNK	120	1	**F40T12, F34T12†,** FB34T12/U, FB40T12/U, F40T10, F30T12	50, 44	R140TP Mark III	412LSLHTCP	8G1074W
48120 ▲	MB1x40/277RS-SRNK	277	1	**F40T12, F34T12†,** FB34T12/U, FB40T12/U, F40T10, F30T12	50, 44	V140TP Mark III	458LSLHTCP	8G1084W
48001 ▲	MB2x40/120RS-SRNK	120	2	**F40T12, F34T12,** FB34T12/U, FB40T12/U, F40T10	87, 73	R2S40TP Mark III	446LSLHTCP	8G1024W
48121 ▲	MB2x40/277RS-SRNK	277	2	**F40T12, F34T12,** FB34T12/U, FB40T12/U, F40T10	89, 77	V2S40TP Mark III	443LSLHTCP	8G1034W
F40T12 Rapid Start - Normal Power Factor - For Residential Use Only								
48210	MB1x40/120RES-SRNK	120	1	**F40T12,** F30T12, FC12T9, FC16T9	31	RL140TP	413CTCP	8G1075
T12/HO RAPID START								
F96T12/HO Rapid Start - High Power Factor								
48127	MB1x96/HO/120RS-SRNK	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-SRNK	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-SRNK	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-SRNK	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-SRNK/IN	120	1 or 2	**F48T12/HO,** F96T12/HO, F72T12/HO, F60T12/HO, F84T12/HO, F36T12/HO, F24T12/HO	154	RS110TP	490XLHTCP	---
T12/HO SIGN BALLASTS								
T12/HO Rapid Start								
48225	MSB-12-0412-TP	120	1-2	Any T12/HO, (800mA) lamp within quantity of lamp and lamp length requirements.[3]	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.[3]	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.[3]	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.[3]	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.[3]	466	ASB-1240-46-BL-TP	USB-2036-46	6G3787AWF
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.[3]	588	ASB-2448-46-BL-TP	USB-2048-46	6G3942AW

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	No. of Lamps	Lamp Types	Input Power (Watts)[1]	Advance Catalog #[2]	Universal Lighting Technologies* Catalog #[2]	Valmont Catalog #[2]
J-BOX COVER								
For Sign & F-Can Ballasts								
48275	JBox Cover					PC-875W	---	---
T12/VHO RAPID START								
F96T12/VHO Rapid Start - High Power Factor								
48129	MB1x96/VHO/120RS-SRNK	120	1	**F96T12/VHO, F96T12/VHO/SS(195W),** F72T12/VHO, F60T12/VHO, F48T12/VHO	218, 200	RC2S102TP[4]	951STCP	8G3927WF
48130	MB1x96/VHO/277RS-SRNK	277	1	**F96T12/VHO, F96T12/VHO/SS(195W),** F72T12/VHO, F60T12/VHO, F48T12/VHO	212, 192	VC2S102TP[4]	957STCP	8G3990WF
48131	MB2x96/VHO/120RS-SRNK	120	2	**F96T12/VHO, F96T12/VHO/SS(195W),** F72T12/VHO, F60T12/VHO, F48T12/VHO	452, 408	RS2S200TP	930KTCP	8G1201W
48132	MB2x96/VHO/277RS-SRNK	277	2	**F96T12/VHO, F96T12/VHO/SS(195W),** F72T12/VHO, F60T12/VHO, F48T12/VHO	423, 380	VS2S200TP	937KTCP	8G1211W
T9 CIRCLINE RAPID START								
FC8T9 Circline Rapid Start - Normal Power Factor								
48230	MB1x22/120CIRC-SRNK	120	1	**FC8T9**	29	RLQS122TPW	547RSWSTCP	8G1091G11
FC12T9 or FC16T9 Circline Rapid Start - Normal Power Factor								
48231	MB1x32/120CIRC-SRNK	120	1	**FC12T9,** FC16T9	31	RLCS140TPW	445RSWSTCP	8G1085G11
48210	MB1x40/120RES-SRNK	120	1	**FC12T9, FC16T9,** F40T12, F30T12	31, 32	RL140TP	---	---
FC12T9 & FC16T9 Circline Rapid Start - High Power Factor								
48397	MB2x30/40/120RS	120	2	**FC12T9 & FC16T9,** F40T10, F30T12, F25T12/SS	71	---	---	---
T12 INSTANT START SLIMLINE								
F48T12 Instant Start - High Power Factor								
48122	MB2x48/120IS-SRNK	120	2	**F48T12, F48T12/SS(32W)**	87, 78	SM2E40STP	213TCP	8G1600W
48123	MB2x48/277IS-SRNK	277	2	**F48T12, F48T12/SS(32W)**	88, 81	VSM2E40STP	532BRTCP	8G1710W
F96T12 Instant Start - High Power Factor								
48124	MB1x96/120IS-SRNK	120	1	**F96T12, F96T12/SS(60W),** F84T12, F72T12, F64T12, F60T12	101, 87	RSM175STP	822BRTCP	8G1762W
48125	MB1x96/277IS-SRNK	277	1	**F96T12, F96T12/SS(60W),** F84T12, F72T12, F64T12, F60T12	101, 86	VSM175STP	828BRTCP	8G1764W
48018 ▲	MB2x96/120IS-SRNK	120	2	**F96T12, F96T12/SS(60W),** F84T12, F72T12, F64T12, F60T12	160, 135	R2E75STP Mark III	806SLHTCP	8G1004W
48126 ▲	MB2x96/277IS-SRNK	277	2	**F96T12, F96T12/SS(60W),** F84T12, F72T12, F64T12, F60T12	162, 140	V2E75STP Mark III	827SLHTCP	8G1014W
T5, T8 and T12 PREHEAT START								
F8T5 Preheat Start - Normal Power Factor								
48475	MB1x8/120PH/TP/S-SRNK	120	1	**F8T5,** F4T5, F6T5	10	LSX113TP[4]	---	89G489
F20T12 Preheat Start - Normal Power Factor								
48201	MB1x20/120PH/TP	120	1	**F20T12,** F14T8, F14T12, F15T8, F15T12	22	LC1420CTP	200H2P	---
48202	MB1x20/120PH	120	1	**F20T12,** F14T8, F14T12, F15T8, F15T12	22	LC1420C	200H2	89G457
T8 and T12 TRIGGER START								
F15T12 Trigger Start - Normal Power Factor								
48200	MB1x15/120PH/TP-SRNK	120	1	**F15T12,** F14T8, F14T12, F15T8, F20T12	33	RLQ120TP	546BTCP	8G3560
F20T12 Trigger Start - Normal Power Factor								
48203	MB2x20/120PH/TP-SRNK	120	2	**F20T12,** F14T8, F14T12, F15T8, F15T12	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

SPECIFICATIONS:

Information is subject to change at anytime without prior notice.

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog #[8]	Universal Lighting Technologies* Catalog #[8]	Venture Lighting Catalog #[8]	Howard Industries Catalog #[8,9]
METALARC® METAL HALIDE CORE & COIL BALLAST KITS								
175W Metal Halide Lamp - ANSI Code M57								
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	---	---	---
250W Metal Halide Lamp - ANSI Code M58								
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
400W Metal Halide Lamp or 360W Metal Halide Lamp[10] - ANSI Code M59								
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	---	---	---	---
1000W Metal Halide Lamp - ANSI Code M47								
47427	M1000/SUPER5-KIT	120/208/ 240/277/480	CWA	1080	71A6552[6] & 71A6552-001[6]	M1000ML5AC5M & M1000ML5AC5M-500K	V90AM6514K	---
47744	M1000/MULTI-KIT	120/208/ 240/277	CWA	1080	71A6592[6] & 71A6572-001[6]	M1000MLTAC5M & M1000MLTAC5M-500K	V90D6514K	M0100071C212
47655	M1000/480-KIT	480	CWA	1080	71A6542[6] & 71A6542-001[6]	M1000480AC5M & M1000480AC5M-500K	---	M0100011C212
47432	M1000/480/120T-KIT	480/120TAP	CWA	1080	71A6542T[6]	M100048TAC5M & M100048TAC5M-500K	V90Y6514TK	---
1500W Metal Halide Lamp - ANSI Code M48								
46808	M1500/MULTI-KIT	120/208/ 240/277	CWA	1605	71A6792[6] & 71A6772-001[6]	M1500MLTAC5M & M1500MLTAC5M-500K	V90D6612K	M0150071C212
47095	M1500/480-KIT	480	CWA	1605	71A6742[6] & 71A6742-001[6]	M1500480AC5M & M1500480AC5M-500K	---	M0150011C212
47434	M1500/480/120T-KIT	480/120TAP	CWA	1605	---	M150048TAC5M & M150048TAC5M-500K	V90Y6612TK	---
METALARC METAL HALIDE PULSE START CORE & COIL BALLAST KITS								
35W Metal Halide Pulse Start Lamp - ANSI Code M130								
47001	M35/MULTI-HQ/CI-KIT	120/208/ 240/277	CWA	58	---	---	---	---
47203	M35/120/277-KIT	120/277	HX-HPF	54	71A5081	---	---	---
50W Metal Halide Pulse Start Lamp - ANSI Code M110								
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	---
70W Metal Halide Pulse Start Lamp - ANSI Code M98								
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	---
70W Metal Halide Pulse Start Lamp - ANSI Code M98 or M139 or M85								
47645	M70/MULTI-HQ/CI-KIT	120/208/ 240/277	CWA	95	---	---	V90D5810K	---
100W Metal Halide Pulse Start Lamp - ANSI Code M90								
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 #[8]	Universal Lighting Technologies* Catalog #[8]	Venture Lighting Catalog #[8]	Howard Industries Catalog #[8,9]
150W Metal Halide Pulse Start Lamp - ANSI Code M102								
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	---	---	---
150W Metal Halide Pulse Start Lamp - ANSI Code M102 or M142								
47640	M150/MULTI-PS-CWA-KIT	120/208/ 240/277	CWA	189	---	---	V90D7110K	---
150W Metal Halide Pulse Start Lamp - ANSI Code M81								
47229	M150/MULTI-KIT	120/208/ 240/277	HX-HPF	185	71A5490	M150MLTLC3D & M150MLTLC3D-500K	---	---
175W Metal Halide Pulse Start Lamp - ANSI Code M137 or M152								
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	---	---	---	---
200W Metal Halide Pulse Start Lamp - ANSI Code M136								
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
250W HQI Metal Halide Lamp - ANSI Code M80								
47273	M250/120/277-KIT	120/277	HX-HPF	290	71A5880	---	---	---
250W Metal Halide Pulse Start Lamp - ANSI Code M138 or M153								
47282	M250/SUPER5-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	---	---
320W Metal Halide Pulse Start Lamp - ANSI Code M132 or M154								
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	---
350W Metal Halide Pulse Start Lamp - ANSI Code M131								
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	---
400W Metal Halide Pulse Start Lamp - ANSI Code M155 or M135								
47400	M400/SUPER5-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
450W Metal Halide Pulse Start Lamp - ANSI Code M144								
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	---
750W Metal Halide Pulse Start Lamp - ANSI Code M149								
47717	M750/MULTI-PS-KIT	120/208/ 240/277	CWA	818	71A64E2[6,7]	P750MLTAC5M & P750MLTAC5M-500K	V90D7910K	---
47409	M750/120/277/347/480-PS-KIT	120/277/ 347/480	CWA	818	71A64F2T[6,7]	---	V90J7910K[7]	---
47718	M750/480-PS-KIT	480	CWA	818	---	---	---	---
1000W HQI® Metal Halide Lamp								
47089	M1000/120/277/347/480-HQI-RL	120/277/347/480	Reg. Lag	1150	---	---	---	---
1000W Metal Halide Pulse Start Lamp - ANSI Code M141								
47416	M1000/MULTI-PS-KIT	120/208/ 240/277	CWA	1080	71A6593[6]	P1000MLTAC5M & P1000MLTAC5M-500K	V90D7810K	---
47417	M1000/120/277/347/480-PS-KIT	120/277/347/480	CWA	1080	71A65F3T[6,7]	---	V90J7810K[7]	---
46805	M1000/480-PS-KIT	480	CWA	1080	---	---	---	---
2000W HQI® Metal Halide Lamp								
47090	M2000/277/347/480-HQI-RL	277/347/480	Reg. Lag	2200	---	---	---	---

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog #[8]	Universal Lighting Technologies* Catalog #[8]	Venture Lighting Catalog #[8]	Howard Industries Catalog #[8,9]
LUMALUX® HIGH PRESSURE SODIUM CORE & COIL REACTOR BALLASTS								
35W High Pressure Sodium Lamp - ANSI Code S76								
47269	LU35/120R	120	R-NPF	45	71A7707	1233-251U	---	---
47537	LU35/120R-INT[5]	120	R-NPF	45	71A7707B	---	---	---
50W High Pressure Sodium Lamp - ANSI Code S68								
47274	LU50/120R	120	R-NPF	60	71A7807	1233-35U	---	---
47548	LU50/120R-INT[5]	120	R-NPF	60	71A7807B	---	---	---
70W High Pressure Sodium Lamp - ANSI Code S62								
47284	LU70/120R	120	R-NPF	81	71A7907	1233-142U	---	---
47558	LU70/120R-INT[5]	120	R-NPF	81	71A7907B	---	---	---
100W High Pressure Sodium Lamp - ANSI Code S54								
47304	LU100/120R	120	R-NPF	120	71A8007	1233-10U	---	---
47585	LU100/120R-INT[5]	120	R-NPF	120	71A8007B	---	---	---
150W High Pressure Sodium Lamp - ANSI Code S55								
47319	LU150/120R	120	R-NPF	170	71A8107	1233-154U	---	---
47616	LU150/120R-INT[5]	120	R-NPF	170	71A8107B	---	---	---
LUMALUX HIGH PRESSURE SODIUM CORE & COIL BALLAST KITS								
35W High Pressure Sodium Lamp - ANSI Code S76								
47271	LU35/120/240-KIT	120/240	HX-HPF	47	---	---	---	---
50W High Pressure Sodium Lamp - ANSI Code S68								
47549	LU50/120/277-KIT	120/277	HX-HPF	66	71A7801 & 71A7801-001D	---	V90H1132K	S005023C511
70W High Pressure Sodium Lamp - ANSI Code S62								
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	---	---	---
100W High Pressure Sodium Lamp - ANSI Code S54								
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	---	---	---
150W High Pressure Sodium Lamp - ANSI Code S55								
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	---	---	---
200W High Pressure Sodium Lamp - ANSI Code S66								
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	---	---	---
250W High Pressure Sodium Lamp - ANSI Code S50								
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 #[8]	Universal Lighting Technologies* Catalog #[8]	Venture Lighting Catalog #[8]	Howard Industries Catalog #[8,9]
310W High Pressure Sodium Lamp - ANSI Code S67								
47643	LU310/MULTI-KIT	120/208/ 240/277	CWA	355	71A8391 & 71A8371-001D	---	V90D1810K	---
47644	LU310/480-KIT	480	CWA	355	71A8341	---	---	---
400W High Pressure Sodium Lamp - ANSI Code S51								
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	---	---	---	---
750W High Pressure Sodium Lamp - ANSI Code S111								
47712	LU750/MULTI-KIT	120/208/ 240/277	CWA	830	71A86E5[6,7]	---	---	---
47658	LU750/480-KIT	480	CWA	830	---	---	---	---
1000W High Pressure Sodium Lamp - ANSI Code S52								
47659	LU1000/SUPER5-KIT	120/208/ 240/277/480	CWA	1100	71A8753[6] & 71A8753-001[6]	S1000ML5AC5M & S1000ML5AC5M-500K	---	---
47389	LU1000/MULTI-KIT	120/208/ 240/277	CWA	1100	71A8793[6] & 71A8773-001[6]	S1000MLTAC5M & S1000MLTAC5M-500K	V90D2311K	S100071C211
47391	LU1000/480-KIT	480	CWA	1100	71A8743[6] & 71A8743-001[6]	---	---	S100011C211
METALARC® METAL HALIDE F-CAN HID BALLASTS								
175W Metal Halide Lamp - ANSI Code M57								
47743	M175/120/277/F-CAN	120/277	CWA	205	72C5581-NP & 72C5581-NP-001	1110-245SC-TC	---	---
250W Metal Halide Lamp - ANSI Code M58								
47751	M250/120/277/F-CAN	120/277	CWA	295	72C5782-NP & 72C5782-NP-001	1110-246C-TC[4]	---	---
400W Metal Halide Lamp or 360W Metal Halide Lamp[10] - ANSI Code M59								
47759	M400/120/277/F-CAN	120/277	CWA	460	72C6082-NP & 72C6082-NP-001	1110-247SC-TC	---	---
METALARC METAL HALIDE PULSE START F-CAN HID BALLASTS								
35W Metal Halide Pulse Start Lamp - ANSI Code M130								
47680	M35/120/277/F-CAN	120/277	HX-HPF	54	72C5081-NP	---	---	---
50W Metal Halide Pulse Start Lamp - ANSI Code M110								
47195	M50/120/277/F-CAN	120/277	HX-HPF	67	72C5181-NP & 72C5181-NP-001	11210-236C-TC	---	---
70W Metal Halide Pulse Start Lamp - ANSI Code M139								
47693	M70/120/277/F-CAN	120/277	HX-HPF	95	72C5281-NP	---	---	---
70W Metal Halide Pulse Start Lamp - ANSI Code M98 or M143								
47694	M70/120/277/F-CAN	120/277	HX-HPF	94	72C5282-NP & 72C5282-NP-001	11210-506C-TC	---	---
100W Metal Halide Pulse Start Lamp - ANSI Code M90								
47734	M100/120/277/F-CAN	120/277	HX-HPF	125	72C5381-NP & 72C5381-NP-001	11210-239C-TC	---	---
150W Metal Halide Pulse Start Lamp - ANSI Code M102 or M142								
47738	M150-PS/120/277/F-CAN	120/277	CWA	185	---	---	---	---
175W Metal Halide Pulse Start Lamp - ANSI Code M137 or M152								
47741	M175-PS/120/277/F-CAN	120/277	CWA	210	72C5582-NP & 72C5582-NP-001	---	---	---
200W Metal Halide Pulse Start Lamp - ANSI Code M136								
47747	M200-PS/120/277/F-CAN	120/277	CWA	240	---	---	---	---
250W Metal Halide Pulse Start Lamp - ANSI Code M138 or M153								
47749	M250-PS/120/277/F-CAN	120/277	CWA	295	72C5783-NP & 72C5783-NP-001	---	---	---
320W Metal Halide Pulse Start Lamp - ANSI Code M132 or M154								
47753	M320-PS/120/277/F-CAN	120/277	CWA	375	72C5882-NP & 72C5882-NP-001	P320277AFXM	---	---
400W Metal Halide Pulse Start Lamp - ANSI Code M155 or M135								
47757	M400-PS/120/277/F-CAN	120/277	CWA	465	72C6182-NP & 72C6182-NP-001	---	---	---

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	Advance Catalog #[8]	Universal Lighting Technologies* Catalog #[8]	Venture Lighting Catalog #[8]	Howard Industries Catalog #[8,9]
LUMALUX® HIGH PRESSURE SODIUM F-CAN HID BALLASTS								
35W High Pressure Sodium Lamp - ANSI Code S76								
47761	LU35/120/277/F-CAN	120/277	HX-HPF	47	---	12210-261C-TC	---	---
50W High Pressure Sodium Lamp - ANSI Code S68								
47762	LU50/120/277/F-CAN	120/277	HX-HPF	65	72C7884-NP & 72C7884-NP-001	12210-236C-TC	---	---
70W High Pressure Sodium Lamp - ANSI Code S62								
47763	LU70/120/277/F-CAN	120/277	HX-HPF	90	72C7984-NP & 72C7984-NP-001	12210-237C-TC	---	---
100W High Pressure Sodium Lamp - ANSI Code S54								
47764	LU100/120/277/F-CAN	120/277	HX-HPF	125	72C8084-NP & 72C8084-NP-001	12210-239C-TC	---	---
150W High Pressure Sodium Lamp - ANSI Code S55								
47765	LU150/120/277/F-CAN	120/277	HX-HPF	185	72C885-NP	12210-241C-TC	---	---
250W High Pressure Sodium Lamp - ANSI Code S50								
47777	LU250/120/277/F-CAN	120/277	CWA	298	---	1220-246C-TC	---	---
METALARC® METAL HALIDE INDOOR ENCLOSED HID BALLASTS								
175W Metal Halide Lamp - ANSI Code M57								
47153	M175/MULTI-I/D	120/208/240/277	CWA	210	78E5590-001	---	---	---
250W Metal Halide Lamp - ANSI Code M58								
47158	M250/MULTI-I/D	120/208/240/277	CWA	290	78E5790-001	---	---	---
400W Metal Halide Lamp or 360W Metal Halide Lamp[10] - ANSI Code M59								
47172	M400/MULTI-I/D	120/208/240/277	CWA	458	78E6091-001	---	---	---
1000W Metal Halide Lamp - ANSI Code M47								
47207	M1000/MULTI-I/D	120/208/240/277	CWA	1080	78E6592-001	---	---	---
EPAct 2005 has mandated that no Mercury Vapor Ballasts be manufactured in the US effective January 1, 2008.								
MERCURY CORE & COIL BALLAST KITS								
50W Mercury Lamp - ANSI Code H46								
46518	H50/MULTI-KIT	120/208/240/277	CWA	68	---	---	---	---
75W Mercury Lamp - ANSI Code H43								
46519	H75/MULTI-KIT	120/208/240/277	CWA	92	71A2080[7]	---	---	---
100W Mercury Lamp - ANSI Code H38 or H44								
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[7]	---	---	---
175W Mercury Lamp - ANSI Code H39								
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	---	---	---
250W Mercury Lamp - ANSI Code H37								
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	---	---
400W Mercury Lamp - ANSI Code H33								
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	---	---	---	---
1000W Mercury Lamp - ANSI Code H36								
47524	H1000/MULTI-KIT	120/208/240/277	CWA	1080	71A5070-001[6]	H1000MLTAC5M & H1000MLTAC5M-500K	---	---
47525	H1000/480-KIT	480	CWA	1080	71A5040-001[6]	---	---	---

Item Number	OSRAM SYLVANIA Description	Input Voltage (VAC)	Circuit Type	Input Power (Watts)	ANSI Code
METALARC® METAL HALIDE LAMP & BALLAST KITS					
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
LUMALUX® HIGH PRESSURE SODIUM LAMP & BALLAST KITS					
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

NOTES:

REPLACEMENT IGNITORS FOR SYLVANIA HID BALLASTS[11]:

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

REPLACEMENT CAPACITORS FOR SYLVANIA HID BALLASTS:

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

FOOTNOTES:

* Formerly MagneTek Lighting

4: NEAREST EQUIVALENT - Performance specifications may vary, please refer to manufacturers specifications.

5: R-INT = Reactor with Integral Ignitor

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.

7: Ballast Voltage may vary. Always check for required lamp and voltage.

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.

9: Replacement Kit is indicated by a K at the end of the catalog number.

10: A 360W Metal Halide lamp ANSI Code M59 operated on this ballast will result in approximately a 10% reduction in Input Power (Watts).

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.

HID Core & Coil Ballast Kits include ignitor where applicable, capacitor where applicable, mounting bracket, hardware and installation instructions.

More complete product information is available in the SYLVANIA Magnetic Ballast Catalog or at www.sylvania.com.

NOTES:

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.

Please refer to the OSRAM SYLVANIA Magnetic Ballast catalog for verification of product specifications appropriate for the application.

Please contact 1-800-LIGHTBULB or www.sylvania.com for additional information.

SPECIFICATIONS:

Information is subject to change at anytime without prior notice.

TRADEMARKS:

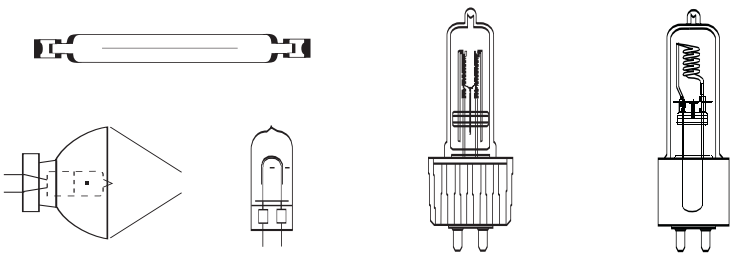
OSRAM BRAND
DISPLAY/OPTIC LIGHT SOURCES

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

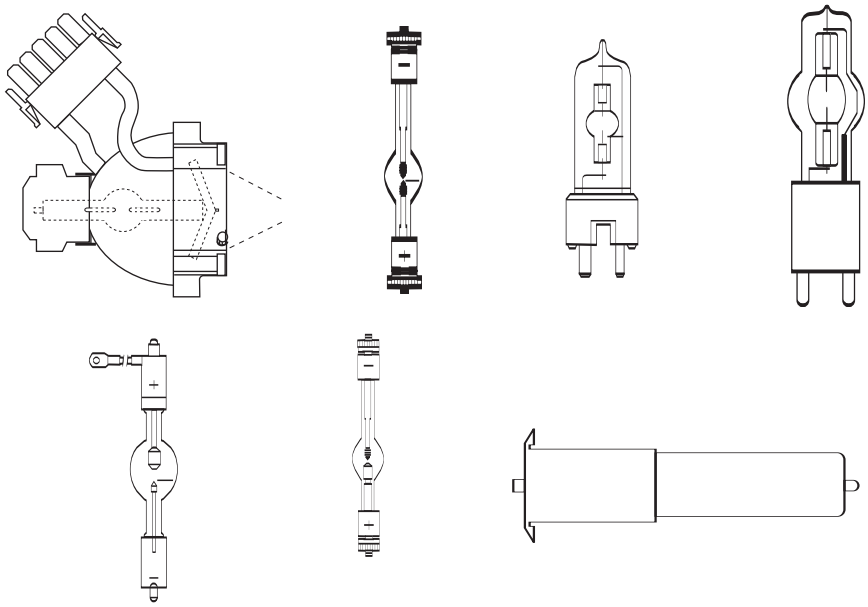
HALOGEN

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.

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[3]
EHJ 64655 HLX	EHJ 64655 HLX /7X	Increase life by 14 times[2]
EHJ 64655 HLX	EVC 64657 HLX	Increased life by 6 times[2]
ELC	ELC-HL	Increased brightness by 150 lumnes[4]
ENX	ENX-5	Double the life at 82V[3]
ENX	ENX-7	Increased life by 2.5 times at 82V[3]
ENX	FXL	Increased light
EVC 64657 HLX	FNT 64656PT HLX	Increased light by 10%[1]
EVD 64663 HLX	64664 HLX	Increased life by 3 times[2] at 36V
EVD 64663 HLX	64665 HLX	Increased life by 6 times[2] at 36V
EYB	EYB-5	Double the life at 82V[3]
EYB	EYB-7	Increased life by 2.5 times at 82V[3]
FCR 64625 HLX	EVA 64623 HLX	Increased life by 40 times[2]
FCS 64640 HLX	FDV 64642 HLX	Increased life by 6 times[2]
FXL or ENX	FXL-HL	Increased light[1]

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[4]
ELC 64653 HLX	54212	250	24	50	1	GX5.3	44.5	35	51	T3.5	800[4]
ELC-3/X	54841	250	24	300	1	GX5.3	44.8	31.7	51	T3.5	550[4]
ELC-7/X	54814	250	24	700	1	GX5.3	44.8	31.7	51	T3.5	475[4]
ELC-HL	54804	250	24	50	1	GX5.3	44.8	31.7	51	T3.5	950[4]
ENX	54984	360	82	75	1	GY5.3	45	299	51	T3.5	460[4]
ENX-5	54913	360	86	75	1	GY5.3	38.1	299	51	T3.5	540[4]
ENX-7	54916	360	87.5	75	1	GY5.3	38.1	299	51	T3.5	540[4]
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[4]
FXL-HL	54904	410	82	40	1	GY5.3	38.1	299	51	T3.5	850[4]

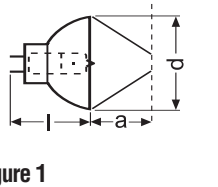


Figure 1

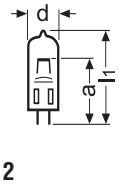


Figure 2

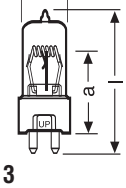


Figure 3

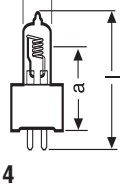


Figure 4

[1] Lamps designed for increased light output can have a reduced operating life

[2] Lamps designed with a longer operating life can produce fewer lumens

[3] 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%.

[4] 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

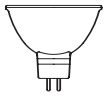
Applications

- Stage, Studio, Film
- Concert/Disco lighting touring
- Architectural lighting

2006 IES PROGRESS Report SELECTION

ECOLOGIC®

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


MR11, MR13, MR16


A21, A23


Bi-Pin

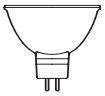

Med 2-pin


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	**BAA**	Projector	75	28	GX5.3		2000	MR16	24	
BBA	11619	**BBA 118V**	Photoflood No.1/Enlarger & Printer	250	120	Med	8700	4	A21	12	
BRJ/EVB	54250	**BRJ/EVB 64633 HLX**	Projector, Microfilm, Microscope, Studio	150	15	G6.35	5600	50	T3.25	40	58
BRL	54249	**BRL 64610 HLX**	Projector, Microfilm, Microscope, Studio	50	12	G6.35	1600	50	T3	40	58
BRN	54698	**BRN**	Projector	1200	120	G17t		20	T7	24	13,58
BVE	54812	**BVE**	Projector, Microfilm, Stage & Studio	625	120	GY9.5		50	T6	24	58
CAX	58831	**CAX**	Projector, Microfilm, Microscope, Studio	50	120	DC Bayonet	750	250	T4	24	
DDL	54660	**DDL**	Projector - Microfilm	150	20	GX5.3		500	MR16	24	117
DDM	54737	**DDM**	Projector - Slide	80	19	GX5.3	400	50	MR16	24	117
DDS	54944	**DDS**	Projector - Microfilm	80	21	GX5.3		1000	MR16	24	117
DED	54726	**DED**	Projector - Microfilm	85	13.8	GX5.3	150	1000	MR16	24	60,117
DNE	54409	**DNE**	Projector	150	120	G7.9	100	15	TB16	24	60,117
DNF	54411	**DNF**	Projector - 8mm	150	21	GX7.9	300	25	MR18	24	60,117
DYH	54561	**DYH**	Projector, Stage & Studio	600	120	G5.3	17000	75	T6	24	
DZE/FDS	54755	**DZE/FDS**	Projector, Microfilm, Stage & Studio	150	24	GZ9.5	4000	100	T4	24	
EBV	11558	**EBV 118V**	Super Photoflood/ No.2	500	120	Med	17800	8	PS25	24	
ECA	13365	**ECA 120V**	Super Photoflood	250	120	Med Brass	6500	20	A23	24	
ECT	11560	**ECT 120V**	Photoflood	500	120	Med	13650	60	PS25/5	24	
EFM	54123	**EFM 64607**	Projector - 8mm	50	8	GZ6.35		50	MR16	20	60,117
EFN	54126	**EFN 64615 HLX**	Projector - 8mm	75	12	GZ6.35		50	MR16	20	60,117
EFP	54189	**EFP 64627 HLX**	Projector - 8mm	100	12	GZ6.35		50	MR16	20	60,117
EFP/X	54192	**EFP/X 64629 HLX**	Projector - 8mm	100	12	GZ6.35		600	MR16	20	60,117
EFR	54210	**EFR 64634 HLX**	Projector - 8mm	150	15	GZ6.35		50	MR16	20	60,117
EFR-5/X	54211	**EFR-5/X 64620 HLX**	Projector - 8mm	150	15	GY6.35		500	MR16	20	60,117
EHA	54585	**EHA**	Projector, Microfilm, Stage & Studio	500	120	GY9.5		50	T6	24	13
EHE	54038	**EHE 64626 HLX**	Projector	100	12	PG22	3600	50	T4	30	58
EHJ	54254	**EHJ 64655 HLX**	Projector, Microfilm, Microscope, Studio	250	24	G6.35	10000	50	T4	40	58
EHJ	54231☼	**EHJ 64655 HLX BULK**	Projector, Microfilm, Microscope, Studio	250	24	G6.35	10000	50	T4	250	
EHJ	54272☼	**EHJ 64655 HLX/7X**	Projector, Microfilm, Microscope, Studio	250	24	G6.35	8000	700	T4	24	58
EJA	54753	**EJA**	Projector - Fiber-optics	150	21	GX5.3	354	40	MR16	24	117
EJL	54730	**EJL**	Projector - 16mm Color printer	200	24	GX5.3	725	50	MR16	24	117
EJM	54747	**EJM**	Projector - 8mm	150	21	GX5.3	170	40	MR16	24	117
EJV	54732	**EJV**	Projector - 8mm, Printer	150	21	GX5.3	270	100	MR16	24	117



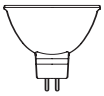
MR11, MR13, MR16

Bi-Pin

AUDIOVISUAL

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EKE	54842	**EKE**	Projector - 8mm, Fiber-Optics	150	21	GX5.3	160	200	MR16	24	117
EKE/X	58771	**EKE/X**	Projector - 8mm, Fiber-Optics	150	21	GX5.3	80	1000	MR16	24	117
EKP/ENA	54734	**EKP/ENA**	Projector - 8mm	80	30	GX5.3	115	25	MR16	24	117
ELC	54840	**ELC**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	800	50	MR16	24	117
	54804	**ELC-HL**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	950	50	MR16	24	117
	54212	**ELC 64653 HLX**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	900	50	MR16	20	60,117
	54841	**ELC-3/X**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	550	300	MR16	24	117
	54814	**ELC-7/X**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	475	700	MR16	24	117
	54811	**ELC-7/X BULK**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	475	700	MR16	100	117
	54366☼	**ELC-10 64659 HLX**	Overhead projection, fiber-optic, entertainment	250	24	GX5.3	400	1000	MR16	20	117
ELD	54745	**ELD**	Projector - Microfilm	150	21	GX5.3	350	40	MR16	24	117
ELH	54776	**ELH**	Projector - Overhead	300	120	GY5.3	525	35	MR16	24	58,117
ENG	54957	**ENG**	Projector	300	120	GY5.3	690	15	MR16	24	58,117
ENH	54986	**ENH**	Projector - Slide	250	120	GY5.3	340	175	MR16	24	58,117
ENH	55002☼	**ENH SPOT**	Projector - Slide	250	120	GY5.3	340	175	MR16	24	58,117
ENH-5	54988	**ENH-5**	Projector - Overhead	250	125	GY5.3	340	175	MR16	24	58,117
ENL	58786	**ENL**	Projector - Display, Fiber-Optics	50	12	GX5.3	85	4000	MR16	24	117
ENX	54984	**ENX**	Projector - Overhead	360	82	GY5.3	460	75	MR16	24	58,117
ENX-5	54913	**ENX-5**	Projector - Overhead	360	86	GY5.3	540	75	MR16	24	117
ENX-7	54916	**ENX-7**	Projector - Overhead	360	87.5	GY5.3	540	75	MR16	24	117
EPT	58782	**EPT**	Projector - Fiber-Optics	42	10.8	GX5.3		8000	MR16	24	
EPX	54927	**EPX**	Projector - Microfilm	90	14.5	GX5.3	43	500	MR16	24	60,117
EPZ	54743	**EPZ**	Projector - Microfilm	50	13.8	GX5.3	80	3000	MR16	24	60,117
ESA/FHD	54260	**ESA/FHD 64225**	Projector	10	6	G4	200	100	T3	40	
ESB	54261	**ESB 64250 HLX**	Projector	20	6	G4	480	100	T3.5	40	
ETJ	54928	**ETJ**	Projector	250	120	GY5.3	600	175	MR16	24	58,117
EVA	54251	**EVA 64623 HLX**	Projector, Microfilm, Microscope, Studio	100	12	GY6.35	2800	2000	T4	40	58
EVC	54255	**EVC 64657 HLX**	Projector, Microfilm, Microscope, Studio	250	24	G6.35	9000	300	T4	40	58
EVD	54259	**EVD 64663 HLX**	Projector, Microfilm, Studio	400	36	GX6.35	16000	50	T6	40	58
EVW	54723	**EVW**	Projector	250	82	GY5.3	390	50	MR16	24	58,117
EXR	54392	**EXR**	Projector - Slide	300	82	GX5.3	925	35	MR13	24	58,117
EXW	54388	**EXW**	Projector - Slide	300	82	GX5.3	1050	15	MR13	24	58,117
EXY	54394	**EXY**	Projector - Slide	250	82	GX5.3	400	200	MR13	24	58,117


Bi-Pin


MR11, MR13, MR16


Med 2-pin


GZ9.5

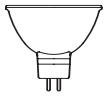

B15d


E14

AUDIOVISUAL

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EYB	54446	**EYB**	Projector, Stage & Studio	360	82	G5.3	10000	75	T3.5	24	58
EYB-5	54448	**EYB-5**	Projector, Microfilm, Stage & Studio	360	85.5	G5.3	10000	75	T3.5	24	58
EYB-7	54455	**EYB-7**	Projector, Microfilm, Stage & Studio	360	87.5	G5.3	10000	75	T3.5	24	58
EZE	54386	**EZE**	Projector, Stage & Studio	150	82	GX5.3	350	150	MR13	24	58,117
FCR	54248	**FCR 64625 HLX**	Projector, Microfilm, Microscope, Studio	100	12	GY6.35	3600	50	T3.5	40	58
FCS	54263	**FCS 64640 HLX**	Projector	150	24	G6.35	6000	50	T4	40	58
FDS/DZE	54277☼	**FDS/DZE 64643**	Projector, Microfilm, Microscope, Studio	150	24	GY9.5	5000	100	T5	12	58
FDT	54276☼	**FDT 64628**	Projector, Stage & Studio	100	12	GY9.5	3000	50	T4	12	58
FDV	54264	**FDV 64642 HLX**	Projector, Microfilm, Microscope, Studio	150	24	G6.35	5000	300	T4	40	58
FHS	54979	**FHS**	Projector - Slide	300	82	GX5.3	650	70	MR16	24	58,117
FKT/EYH	54547	**FKT/EYH**	Projector - Video Camera	250	120	G5.3	5400	200	T6	24	
FLE	54383	**FLE**	Projector	360	82	GY5.3	1250	75	MR16	24	9,117
FNS	58849☼	**FNS 64512**	Projector, Stage & Studio	300	120	GX6.35	9300	15	T6	12	58
FNT	54044	**FNT 64656 HLX**	Projector, Microfilm, Microscope, Studio	275	24	G6.35	10000	75	T4	100	58
FNT	54253	**FNT 64656 HLX**	Projector, Microfilm, Microscope, Studio	275	24	G6.35	10000	75	T4	40	58
FSX	54897	**FSX/230**	Projector	400	230	GY9.5		75	T6	24	13,58
FSY	54898	**FSY**	Projector	400	240	GY9.5		75	T6	24	13,58
FXL	54912	**FXL**	Projector - Overhead	410	82	GY5.3	640	75	MR16	24	58,117
FXL-HL	54904	**FXL-HL**	Projector - Overhead	410	82	GY5.3	850	40	MR16	24	58,117
GCB	54430	**GCB**	Projector, Stage & Studio, Video	200	30	G5.3	5300	200	T3	24	
	54246	**14V/35W/M/GZ4**	Medical Overhead Projection	35	14	GZ4		50	MR11	20	58,117
	58729	**60T4QCL**	Medical Overhead Illumination	60	24	DC Bayonet	1280	500	T4	12	
	54400	**85T3/RM**	Projector	85	82	GX5.3		40	MR16	24	117
	54466	**120/T4/SPECIAL**	Projector	120	24	Special	2750	500	T4	24	
	58939	**220T4Q/2PPF**	Medical Overhead Illumination	220	22	GY9.35	6200	200	T4	12	
	58941	**235T4Q/2PPF**	Medical Overhead Illumination	235	33	GZ9.5	5800	200	T4	12	
	76311	**8013**	Projector	10	6	BA15d		200		100	59
	76313	**8017**	Projector	15	6	B15d		1000		100	
	76314	**8018**	Projector	15	6	B15d		100		100	34,59
	76321	**8100**	Projector		5	E14		600		100	58
	54256	**62138 HLX**	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	


Med 2-pin


A21, A23

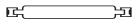

GZ9.5


Bi-Pin


P28s


P40s


PAR36


R7s, RX7s


G22


Med Bi-pin

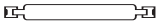
AUDIOVISUAL

ANSI Code	Product Number	Ordering Abbreviation	Application	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	76302	**70335 BULK**	Special Purpose	27	6	Special				200	
	54793☼	**JCP 650W/100V**	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	**BCA 118V**	4800	250	120	Medium	8912	12	A21	12	
BHC/DYS/DYV	54836	**BHC/DYS/DYV**		600	120	GZ9.5	17500	75	T6	24	58
BHC/DYS/DYV-5	54835	**BHC/DYS/DYV-5**		600	125	GZ9.5	17500	75	T6	24	16,58
BCM	54694	**BCM**	3200	20000	230	G38	580000	350	T32	1	58
BTL	54685	**BTL**	3050	500	120	P28s	11000	750	T6	12	
BTM	54686	**BTM**	3200	500	120	P28s	13000	100	T6	12	58
BTN	54687	**BTN**	3200	750	120	P28s	17000	500	T7	12	58
BTP	54688	**BTP**	3200	750	120	P28s	20000	200	T7	12	
BTR	54689	**BTR**	3200	1000	120	P28s	27500	250	T6	12	58
BVM	58827☼	**BVM 64540**	3400	650	230	GZ6.35	20000	15	T8	12	11
BVT	54690	**BVT**	3050	1000	120	P40s	23000	500	T7	6	
BVV	54691	**BVV**	3200	1000	120	P40s	27500	200	T6	6	
BVW	54692	**BVW**	3200	2000	120	P40s	59000	280	T9.5	6	
CXZ	54717	**CXZ**	3200	1500	120	G38	38500	325	T8	6	
CYV	54706	**CYV**	3200	1000	120	G38	27500	200	T7	6	
CYX	54613	**CYX**	3200	2000	120	G38	55000	300	T11	6	58
DNS/FMC	54655	**DNS/FMC**	3050	500	120	P28s	11000	500	T6	24	
DPY	54647	**DPY**	3200	5000	120	G38	143000	500	T17	1	58
DTA	54716	**DTA**	3200	1500	120	P40s	39000	100	T8	6	
DTY	54696	**DTY**	3200	10000	120	G38	290500	350	T24	1	58
DWE	54500	**DWE**	3200	650	120	G53	24000	100	PAR36	1	
DWT	58937	**DWT**	3000	1000	120	RX7s	22000	2000	T6	12	
DXW	53997	**DXW**	3200	1000	120	R7s	28000	150	T5	12	101
	58497	**DYS/300**	3200	300	120	GZ9.5	7500	100	T4	24	
ECR	54702☼	**ECR 64815 CP/83 230V**	3200	10000	230	G38	280000	400	T22	6	58
EFX	54787	**EFX**	3000	500	120	G22	10000	2000	T5	12	
EGE	54648	**EGE**	3000	500	120	P28s	10000	2000	T5	12	
EGG	54652	**EGG**	3000	750	120	P28s	15000	2000	T5	12	
EGJ	54654	**EGJ**	3200	1000	120	P28s	25500	400	T6	12	
EGK	54656	**EGK**	3200	1000	120	P28s	24500	400	T6	12	
EGN	54659	**EGN**	3200	500	120	G22	13000	100	T6	12	58
EGR	54662	**EGR**	3200	750	120	G22	20000	200	T7	12	58
EGT	54664	**EGT**	3200	1000	120	G22	27500	250	T6	12	58
EGW	58510☼	**EGW 64535**	3400	650	120	GY6.35	20000	15	T8	12	
EHC/EHB	54506	**EHC/EHB**	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

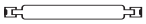
ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
EHD	54508	**EHD**	3000	500	120	G9.5	10600	2000	T4	12	
EHF	54510	**EHF**	3300	750	120	G9.5	20400	300	T5	12	
EHG	54512	**EHG**	3000	750	120	G9.5	15400	2000	T5	12	
EHP	58942	**EHP**	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


Med Bi-pin


Bi-Pin


S11


S14


R7s, RX7s


PAR36


A21, A23


HPL

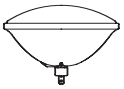

G22

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	**GLC 575/115/300**	3250	575	115	G9.5	15500	300	T6	12	18,20
GLD	54522☼	**GLD 750/115/300**	3250	750	115	G9.5	19000	300	T6	12	18
GLE	54523☼	**GLE 750/115/1500**	3050	750	115	G9.5	17400	1500	T6	12	
GLF	54460	**GLF**	3100	235	230	G5.3	5100	100	T4	24	
	11624	**111A**	2900	75	120	SC Bayonet	1120	15	S11	24	
	11625	**140**	2900	75	120	Medium	1150	35	S14	24	
	58930	**150/25T4**	2700	150	25	R7s	2700	3000	T4	25	
	55052	**20PAR/36/CAP/WFL**		20	12	G53		4000	PAR36	12	
	11657	**211 118V**	3200	75	120	Medium	1215	200	A21	12	
	11656	**212 118V**	3050	150	120	Medium	2700	200	A21	12	
	54499	**4515 PAR36 30W**		30	6	G53	67000	100	PAR36	12	
	54001	**64501**	3400	150	120	GX6.35	4500	25	T4	25	
	58639	**64573**	3400	1000	120	GX6.35	33000	15	T8	25	
	58958☼	**64573**	3400	1000	120	GZ6.35	33000	15	T8	12	
	58525☼	**64575**	3400	1000	230	GX6.35	33000	15	T8	12	
	54232	**64614**		75	12	G5.3-4.8		25	T2.5	20	60
	54701☼	**64805 CP/85 (CP/29)**	3200	5000	230	G38	135000	400	T19	1	58
	58497☼	**DYS/300**	3200	300	115	GZ9.5	7500	100	T6	24	
	54625	**HPL 375/115 (UCF)**	3200	375	115	Sp Med Bipin	10540	300	T6	12	26
	54649	**HPL 375/115/X (UCF)**	2950	375	115	Sp Med Bipin	8000	1000	T8	12	26
	54623	**HPL 550/77 (UCF)**	3265	550	77	Sp Med Bipin	16170	300	T6	12	26
	54604	**HPL 550/77/X (UCF)**	3065	550	77	Sp Med Bipin	12160	1500	T6	12	26
	54622	**HPL 575/115 (UCF)**	3265	575	115	Sp Med Bipin	16520	300	T6	12	26
	54807	**HPL 575/115/X (UCF)**	3065	575	115	Sp Med Bipin	12360	1500	T6	12	26
	54817	**HPL 575/120 (UCF)**	3265	575	120	Sp Med Bipin	16460	300	T6	12	26
	54815	**HPL 575/120/X (UCF)**	3050	575	120	Sp Med Bipin	12360	1500	T6	12	26
	54618	**HPL 575/230 (UCF)**	3200	575	230	Sp Med Bipin	14900	400	T6	12	26
	54665☼	**HPL 575/230/X (UCF)**	3050	575	230	Sp Med Bipin	11780	1500	T6	12	26
	54619	**HPL 575/240 (UCF)**	3200	575	240	Sp Med Bipin	14900	400	T6	12	26
	54703☼	**HPL 575/240/X (UCF)**	3050	575	240	Sp Med Bipin	11780	1500	T6	12	26
	54602	**HPL 750/115 (UCF)**	3265	750	115	Sp Med Bipin	21900	300	T6	12	26
	54611	**HPL 750/115/X (UCF)**	3050	750	115	Sp Med Bipin	16400	1500	T6	12	26
	54605	**HPL 750/120 (UCF)**	3250	750	120	Sp Med Bipin	21900	300	T6	12	26
	54653	**HPL 750/120/X (UCF)**	3065	750	120	Sp Med Bipin	16400	1500	T6	12	26
	54603	**HPL 750/230 (UCF)**	3200	750	230	Sp Med Bipin	19750	300	T6	12	26
	54670☼	**HPL 750/230/X (UCF)**	3050	750	230	Sp Med Bipin	15600	1500	T6	12	26
	54614	**HPL 750/240 (UCF)**	3200	750	240	Sp Med Bipin	19750	300	T6	12	26
	54704☼	**HPL 750/240/X (UCF)**	3050	750	240	Sp Med Bipin	15600	1500	T6	12	26
	54825	**HPL 750/77 (UCF)**	3265	750	77	Sp Med Bipin	22950	300	T6	12	26
	54798☼	**HWHV 1200W/220V**	3200	1200	220	GX9.5	33500	300	T7	12	207
	54799☼	**HWLV 1200W/80V**	3200	1200	80	G22	37500	300	T7	12	207
	54796☼	**HWMV 1200W/115V**	3200	1200	115	GX9.5	37000	300	T7	12	207


QXL


STUDIOLINE


PAR 56, 64

STUDIO,THEATRE, TV & VIDEO

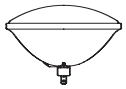
ANSI Code	Product Number	Ordering Abbreviation	Color Temp (K)	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	54882	**QXL 750/77**	3250	750	77	QXL	22950	300	T6	12	178,180,181,184
	54883	**QXL 750/77/X**	3050	750	77	QXL	18000	1500	T6	12	178,180,181,184
	20607	**STUDIOLINE 55W/3200**	3200	55		2G11	3800	8000	T5	10	
	20608	**STUDIOLINE 55W/5600**	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☼	**aluPAR 56/NSP/300W/120V**	68000	300	120	GX16d	2950	2000	PAR56	6	30,198,199
	56004☼	**aluPAR 56/MFL/300W/120V**	24000	300	120	GX16d	2950	2000	PAR56	6	29,198,199
	56005☼	**aluPAR 56/WFL/300W/120V**	11000	300	120	GX16d	2950	2000	PAR56	6	31,198,199
	56000☼	**aluPAR 56/NSP/300W/230V**	70000	300	230	GX16d	2950	2000	PAR56	6	30,198,199
	56001☼	**aluPAR 56/MFL/300W/230V**	30000	300	230	GX16d	2950	2000	PAR56	6	29,198,199
	56002☼	**aluPAR 56/WFL/300W/230V**	10000	300	230	GX16d	2950	2000	PAR56	6	31,198,199
	56086☼	**aluPAR 56/NSP/500W/120V**	96000	500	120	GX16d	2950	4000	PAR56	6	30,198,199
	56213☼	**aluPAR 56/MFL/500W/120V**	45000	500	120	GX16d	2950	4000	PAR56	6	29,198,199
	56006☼	**aluPAR 56/WFL/500W/120V**	21000	500	120	GX16d	2950	4000	PAR56	6	31,198,199
	56007☼	**aluPAR 64/NSP/500W/120V**	110000	500	120	GX16d	2950	2000	PAR64	6	30,198,199
	56008☼	**aluPAR 64/MFL/500W/120V**	37000	500	120	GX16d	2950	2000	PAR64	6	29,198,199
	56009☼	**aluPAR 64/WFL/500W/120V**	13000	500	120	GX16d	2950	2000	PAR64	6	31,198,199
	56018☼	**aluPAR 64/NSP/500W/230V**	140000	500	230	GX16d	3200	300	PAR64	6	30,198,199
	56019☼	**aluPAR 64/MFL/500W/230V**	65000	500	230	GX16d	3200	300	PAR64	6	29,198,199
	56017☼	**aluPAR 64/VNSP/1000W/120V**	400000	1000	120	GX16d	3200	800	PAR64	6	32,198,199
	56010☼	**aluPAR 64/NSP/1000W/120V**	330000	1000	120	GX16d	3200	800	PAR64	6	30,198,199
	56011☼	**aluPAR 64/MFL/1000W/120V**	12000	1000	120	GX16d	3200	800	PAR64	6	29,198,199
	56012☼	**aluPAR 64/WFL/1000W/120V**	40000	1000	120	GX16d	3200	300	PAR64	6	31,198,199
	56014☼	**aluPAR 64/NSP/1000W/230V**	297000	1000	230	GX16d	3200	300	PAR64	6	30,198,199
	56015☼	**aluPAR 64/MFL/1000W/230V**	138000	1000	230	GX16d	3200	300	PAR64	6	29,198,199
	56016☼	**aluPAR 64/WFL/1000W/230V**	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	**EXC/230**	320000	1000	230	GX16d	3200	300	PAR64	6	27,30
EXC	56232	**EXC/240**	320000	1000	240	GX16d	3200	300	PAR64	6	27,30
EXD	56281	**EXD/230**	270000	1000	230	GX16d	3200	300	PAR64	6	27
EXD	56233	**EXD/240**	270000	1000	240	GX16d	3200	300	PAR64	6	27
EXE	56283	**EXE/230**	125000	1000	230	GX16d	3200	300	PAR64	6	27
EXE	56234	**EXE/240**	125000	1000	240	GX16d	3200	300	PAR64	6	27
FFN	56214	**FFN**	400000	1000	120	GX16d	3200	800	PAR64	6	27,32
FFP	56215	**FFP**	330000	1000	120	GX16d	3200	800	PAR64	6	27,30
FFR	56217	**FFR**	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

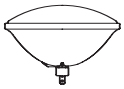
ANSI Code	Product Number	Ordering Abbreviation	Watts	Volts	Base	Lumens	Avg Rated Life(hrs)	Bulb	Pkg Qty	Footnotes
	59850	**500T3Q/IR 120V**	500	120	Flex Nick Leads		5000	T3	12	139
	59822	**500T3Q/IR/7 120V**	500	120	RSC		5000	T3	12	139
	54555☼	**1000Q/T6/RTP/C**	1000	120	G9.5	27500	300	T6	12	121
	54584	**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

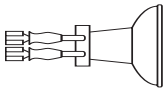
Ordering Abbreviation	Product Number	Watts	Volts	Base	Operating Position	Avg Rated Life(hrs)	Pkg Qty	Footnotes
8013	76311	10	6	BA15d	h 105	200	100	59
8017	76313	15	6	BA15d	Any	1000	100	
8018	76314	15	6	BA15d	h 30	100	100	34,59
8100	76321		6	E14	s 105	600	100	58
70314 (390153)	76304	25	6	P47d			100	
70335 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

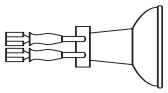
Watts	Bulb	Volts	Base	Product Number	Ordering Abbreviation	Application	Beam Type	CBCP	Filament	Avg Rated Life(hrs)	MOL (mm)	Pkg Qty	Footnotes
250	PAR46	28	G53	15399	**4551**	Aircraft Taxiing	VNSP	75000	CC-6	25	95.25	12	32
450	PAR46	28	G53	56229	**Q4681**	Aircraft Landing / Taxiway	VNSP	310000	CC-6	50	63.5	12	27,32
600	PAR64	28	G53	14936	**4559**	Aircraft Landing / Taxiway	VNSP	600000	CC-8	25	101.6	6	32
				56222	**Q4559**	Aircraft Landing / Taxiway	VNSP	600000	CC-8	100	101.6	6	27,32
				56223	**Q4559X**	Aircraft Landing / Taxiway	VNSP	765000	CC-8	100	101.6	6	27,32
1000	PAR64	28	G53	14988	**4557**	Aircraft Landing/Taxiway	VNSP	540000	CC-8	25	101.6	6	32
				14994	**5557**	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☼	**6.6A/30MR16/64331A/FL**	Airfield / Airport	6.6			1000		45.6	20	205
			58506⏏	**6.6A/30MR16/64331A/SP**	Airfield/Airport	6.6			1000		45.6	20	205
		Leads-A/C	58730⏏	**6.6A/30MR16/64331AC/FL**	Airfield / Airport	6.6			1000		45.6	10	138
			58938☼	**6.6A/30MR16/64331AC/FL**	Airfield / Airport	6.6			1000		45.6	20	138
	T3.5	GZ9.5	58850☼	**6.6A/30T3.5/64322/EXL/DL**	Airfield/Airport	6.6	400	C-8	2000	25.4	44.5	12	
			58893☼	**6.6A/30T3.5/EXL**	Airfield/Airport	6.6	600	C-8	1000	25.4	44.5	12	
	T10	Med Prefocus	17980	**6.6A/30T10/1P**	Airfield/Airport	6.6	400	C-2V	1000	38.1	100	60	
40	MR11	Leads-A	58899☼	**6.6A/40MR11/64333A**	Airfield / Airport	6.6			1500		37	20	205
		Leads-B	58787⏏	**6.6A/40MR11/64333B**	Airfield / Airport	6.6			1500		37	10	208
			58889☼	**6.6A/40MR11/64333B**	Airfield / Airport	6.6			1500		37	20	208
45	MR16	Leads-A	58545	**6.6A/45MR16/64337A 45-15**	Airfield / Airport	6.6			1500		45.6	10	205
			58907☼	**6.6A/45MR16/64337A 45-15**	Airfield / Airport	6.6			1500		45.6	20	205
		Leads-B	58758⏏	**6.6A/45MR16/64337B 45-15**	Airfield / Airport	6.6			1500		45.6	10	208
			58908☼	**6.6A/45MR16/64337B 45-15**	Airfield / Airport	6.6			1500		45.6	20	208
	T3	R7s	58704	**6.6A/45T3/CL/64315**	Airfield/Airport	6.6	750	C-8	1000	23	47.5	25	
	T3.5	G6.35	59928☼	**6.6A/45T3.5Q/64321**	Airfield / Airport	6.6	840	C-8	1200	33	45	40	58,60
			58813⏏	**6.6A/45T3.5Q/64321**	Airfield / Airport	6.6	840	C-8	1200	33	45	100	58,60
		GZ9.5	58846☼	**6.6A/45T3.5/64320/EXM**	Airfield/Airport	6.6	875	C-8	1000	25.4	44.5	12	58,60
			58892☼	**6.6A/45T3.5/EXM**	Airfield/Airport	6.6	875	C-8	1000	25.4	44.5	12	58,60
	T4	PK30d-A	58697	**6.6A/45T4/64319 FEMALE**	Airfield/Airport	6.6	800	C-8	1000	20	53	100	58,120,205,271
			58877	**6.6A/45T4CL/64318**	Airfield/Airport	6.6	800	C-8	1000	16	58	100	58,205,271
		PK30d-C	58705	**6.6A/45T4/CL/64317**	Airfield/Airport	6.6	800	C-8	1000	16	58	100	58,209
			58722	**6.6A/45T4/64319Z**	Airfield/Airport	6.6	800	C-8	1000	20	53	100	58,121,209,268
	T10	Med Prefocus	17981	**6.6A/45T10/P**	Airfield/Airport	6.6	675	C-2V	1000	38.1	100	60	
48	MR16	Leads-A	58891☼	**6.6A/48MR16/64337A 48-15**	Airfield/Airport	6.6			1500		45.6	20	205,271
			58905☼	**6.6A/48MR16/64337A LL IRC**	Airfield/Airport	6.6			3000		45.6	20	205,271
		Leads-A/C	58894☼	**6.6A/48W/MR16/64338AC**	Airfield / Airport	6.6			1000		45.6	20	58

Symbols/Footnotes on page 275-281


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☼	**6.6A/48MR16/64337B LL IRC**	Airfield/Airport	6.6			3000		45.6	20	208,271
		Leads-C	58952☼	**6.6A/48MR16/64337C LL IRC**	Airfield/Airport	6.6			3000		45.6	20	209
62	MR16	Leads-A	58493	**6.6A/62W/MR16/64336A**	Airfield/Airport	6.6			1500		44	20	205
65	T4	PK30d-C	58726	**6.6A/65T4/64328Z/HLX**	Airfield/Airport	6.6	1450	C Bar 6	1000	20	53	100	58,123,209,268
100	T4	PK30d-A	58709	**6.6A/100T4/64341/HLX**	Airfield/Airport	6.6		C Bar 6	1000	20	55	100	58,205,271
		PK30d-C	58703	**6.6A/100T4/64341Z/HLX**	Airfield/Airport	6.6	2700	C Bar 6	1000	20	55	100	125,209,268
			58706	**6.6A/100T4/64342/HLX**	Airfield/Airport	6.6	2700	C Bar 6	1000	20	58	100	58,209
105	MR16	Leads-A	58953☼	**6.6A/105MR16/64339A**	Airfield / Airport	6.6			1000		45.6	20	205,271
		Leads-A/C	58960☼	**6.6A/105MR16/64339AC**	Airfield/Airport	6.6			1000		45.6	20	138
		Leads-B	58759⛆	**6.6A/105MR16/64339B**	Airfield/Airport	6.6			1000		45.6	10	208
			58961☼	**6.6A/105MR16/64339B**	Airfield/Airport	6.6			1000		45.6	20	208
		Leads-C	58963☼	**6.6A/105MR16/64339C**	Airfield / Airport	6.6			1000		45.6	20	209,268
115	T4	GY9.5	58854☼	**6.6A/115T4Q/58798/2PPF/EVV**	Airfield/Airport	6.6	2900	C Bar 6	1000	39.1	57	12	140
150	T4	GY9.5	58855☼	**6.6A/150T4Q/64354/EWR/DL**	Airfield/Airport	6.6	4000	C Bar 6	1500	39.1	56.5	12	140
			58777⛆	**6.6A/150T4Q/64354/EWR/DL**	Airfield/Airport	6.6	4000	C Bar 6	1500	39.1	56.5	30	58,140
		PK30d-A	58717	**6.6A/150T4/64361/HLX**	Airfield/Airport	6.6	3600	C Bar 6	1000	20	58	100	58,205,271,274
		PK30d-C	58724	**6.6A/150T4Q/64361Z/HLX**	Airfield/Airport	6.6	3600	C Bar 6	1000	20	58	100	58,209,268
200	PAR64	GX16d	56220⛆	**6.6A/200PAR64Q/2P**	Airfield/Airport	6.6		CC-6	2000		114.3	6	27,278
	T4	G6.35	59078☼	**6.6A/200T4Q/64386**	Airfield / Airport	6.6	4700	C Bar 6	1200	33	47	40	58,60
			58815	**6.6A/200T4Q/64386**	Airfield / Airport	6.6	4700	C Bar 6	1200	33	47	100	58
		GY9.5	58851☼	**6.6A/200T4Q/2PPF/58750/EZL/DL**	Airfield/Airport	6.6	5200	CC-6	1000	39.1	65	12	140
		P30d	58821	**6.6A/200T4Q/CL/DCR/58746/DL**	Airfield/Airport	6.6	5000	CC-6	1000	27	80.9	100	58,60
		PK30d-A	58649	**6.6A/200T4/64382A/HLX**	Airfield/Airport	6.6	4800	CC-6	1000	20	64	100	58,205
		PK30d-C	58708	**6.6A/200T4/64382C/HLX**	Airfield/Airport	6.6	4800	CC-6	1000	20	64	100	58,209,273
	T5	R7s	58707	**6.6A/200T5/CL/64380**	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
For Architainment eXtreme Seal

XS

Optimized lamp seal technology to withstand interior base temperatures up to 450 °C.

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:

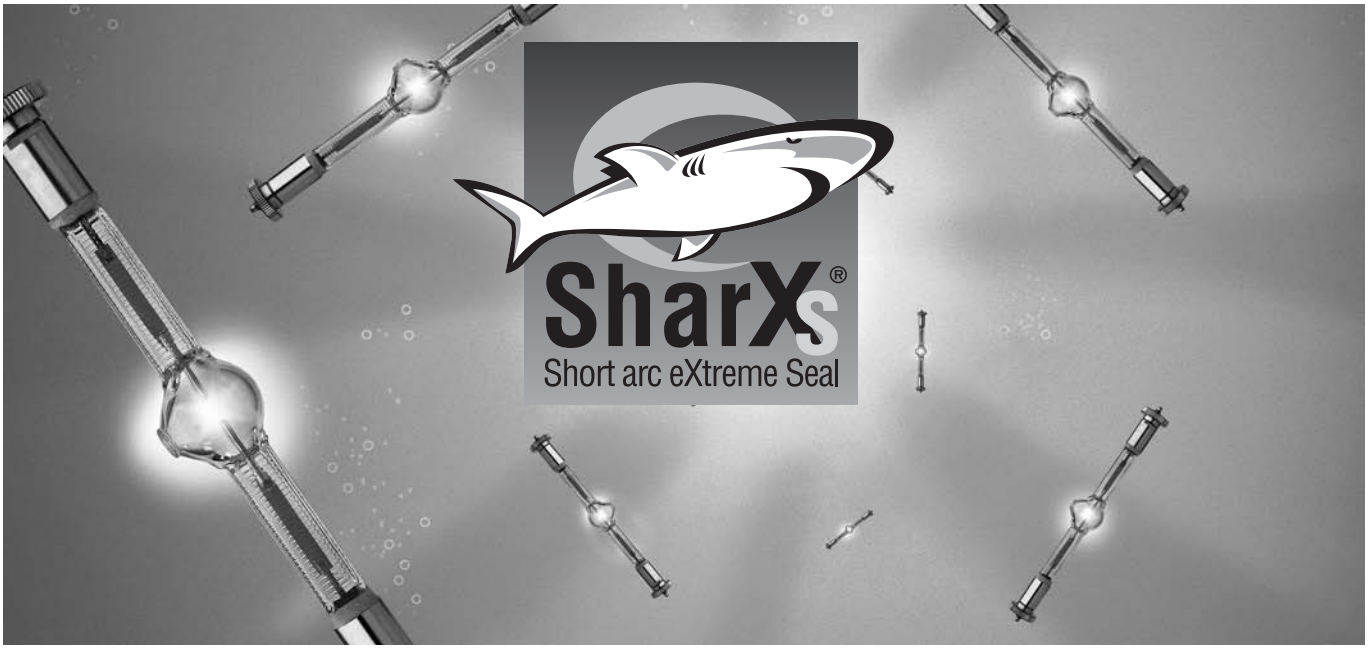
- Architectural lighting
- Projected advertising
- Nightclub lighting
- TV shows, concerts, musicals and theatre

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

eXtreme-Seal (XS) Technology

Optimized lamp seal technology to withstand interior base temperatures up to 450 °C.

Ideal for intelligent luminaires

- Moving heads
- Scanners
- Projectors
- Color changers

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.

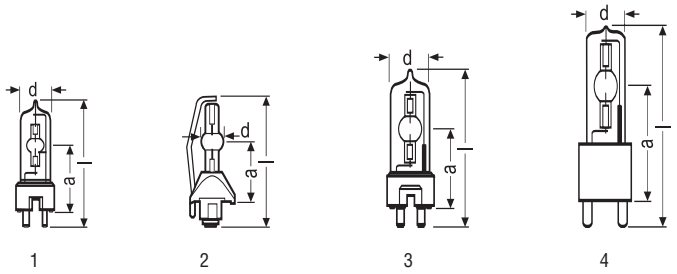
- Short 5mm arc for greater efficiency
- eXtreme Seal(XS) technology for improved thermal loading
- Modular design with the same dimensions for all wattages

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 luminarirs be easier to handle but more of them will fit on a lighting rig.

NOTES:

HMI® METAL HALIDE



1 2 3 4

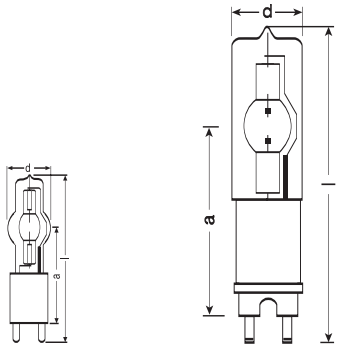
HMI® SINGLE-ENDED

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



1 2

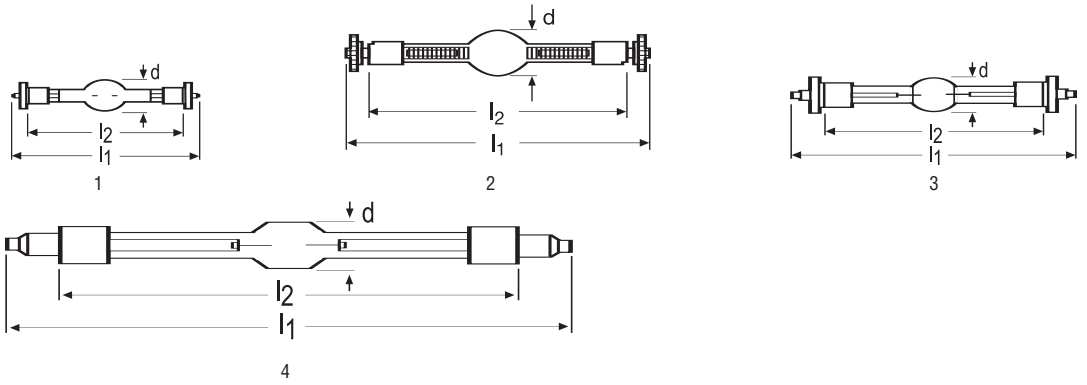
HMI® SINGLE-ENDED

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



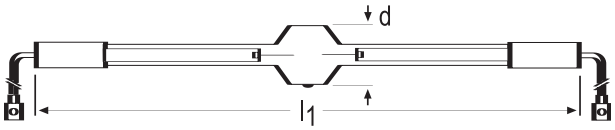
HMI® DOUBLE-ENDED

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	55139	54066	54088
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	54068	54071	54314
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

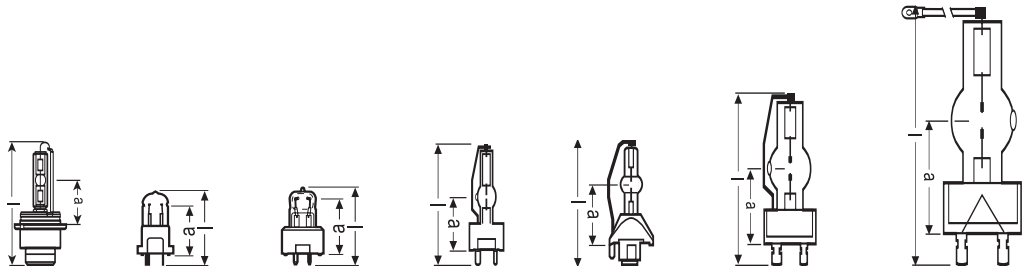
HMI® DOUBLE-ENDED

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



1 2 3 4 5 6 7

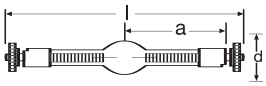
HTI® SINGLE-ENDED

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/cm2)	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/cm2)			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

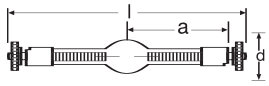
HTI® SHARXS® DOUBLE-ENDED

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/cm2)	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/cm2)	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

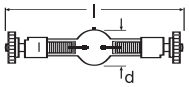
HTI® SHARXS® DOUBLE-ENDED

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/cm2)	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/cm2)	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



1

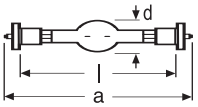
HTI® BABY SHARXS® DOUBLE-ENDED

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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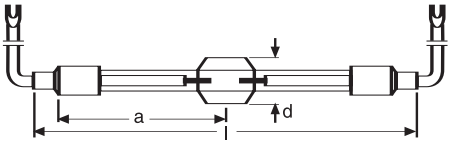

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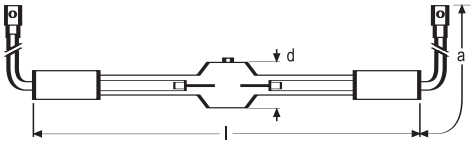
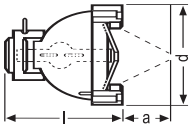


3

HTI® DOUBLE-ENDED - OTHER

Ordering Abbreviation	HTI 300 W/DX	HTI 2500 W/DEL	HTI 4000 W/DE
Product Number	54143	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/cm2)	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



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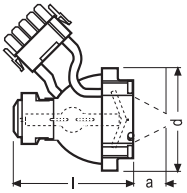
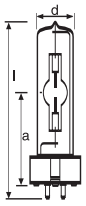


2

HTI® WITH DICHROIC 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



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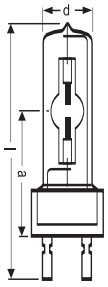
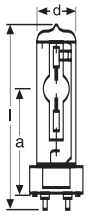


2

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/cm2)	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



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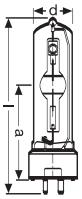

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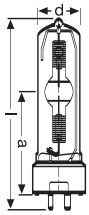


3

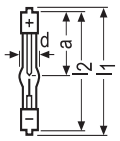
HSD® 4ARXS METAL HALIDE

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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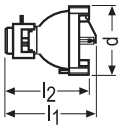

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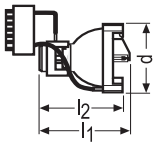
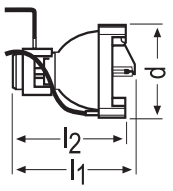


3

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/cm2)	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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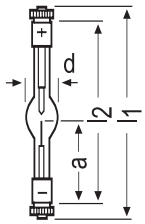
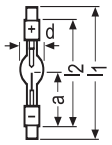


2

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/cm2)		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

Symbols/Footnotes on page 275-281

XBO®<=450W XENON SHORT ARC



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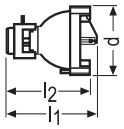

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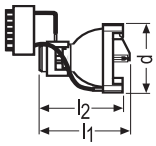

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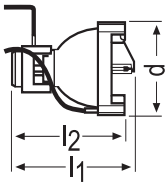

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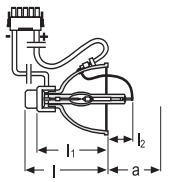
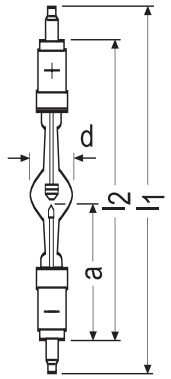


5

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/cm2)	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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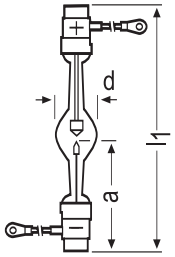
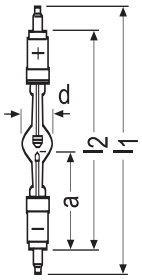


2

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/cm2)	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



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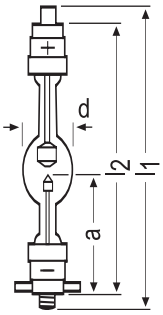

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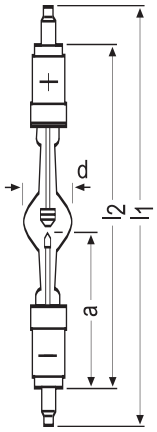

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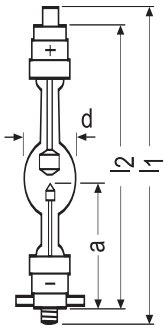

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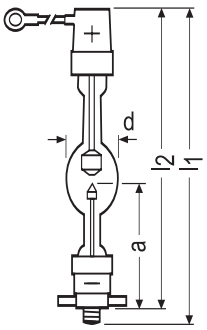
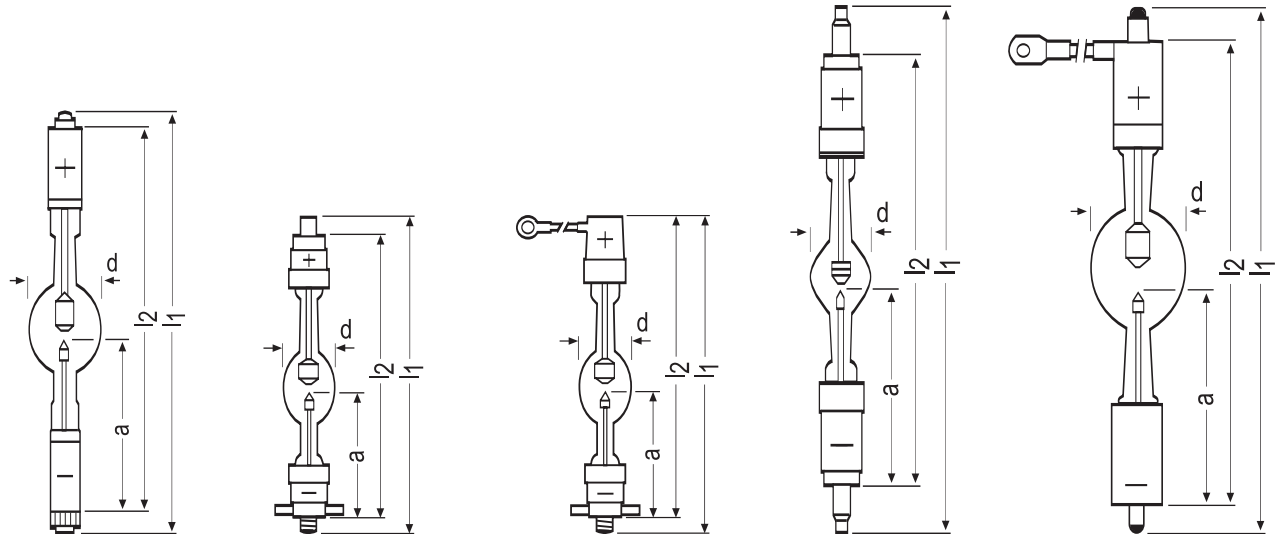


5

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/cm2)	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

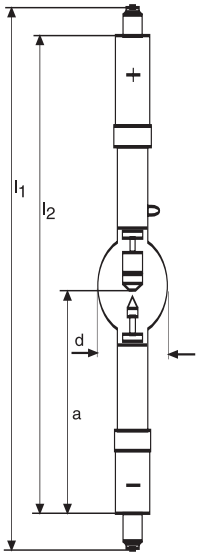
XBO®>450W XENON SHORT ARC CINEMA FILM PROJECTION



1 2 3 4 5

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/cm2)	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 l1 max (mm)	330	235	236	370	370
Length l2 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



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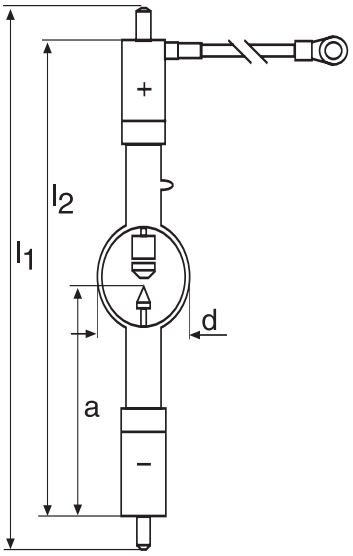

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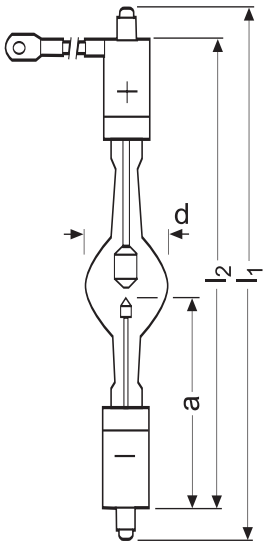

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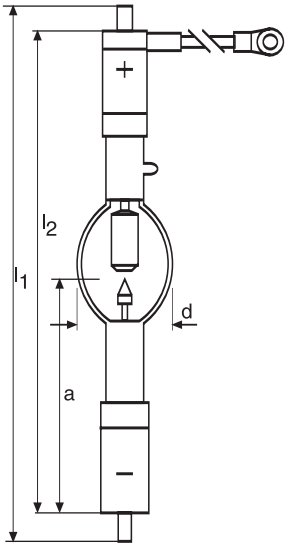
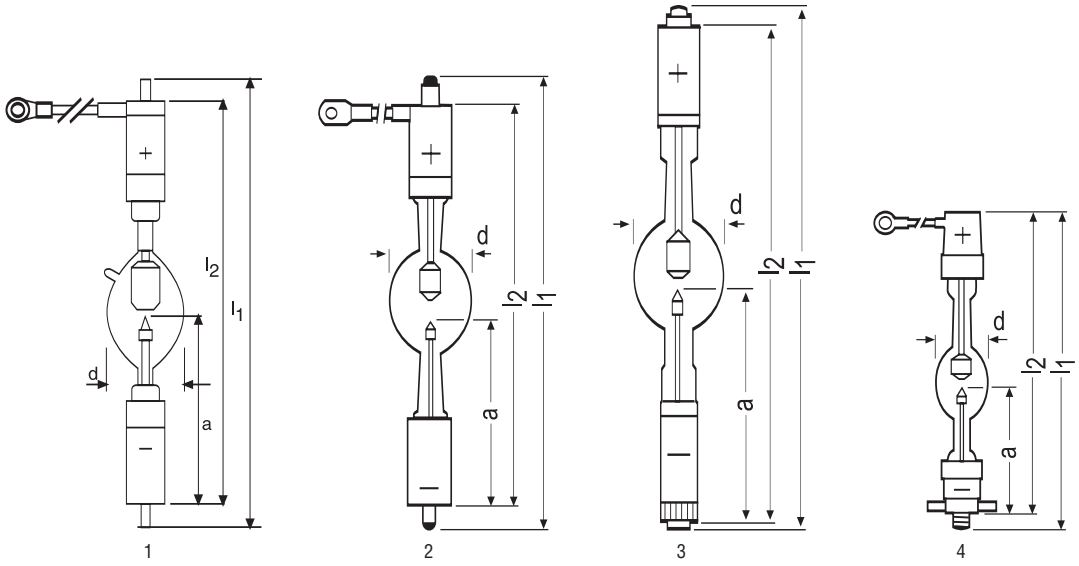


4

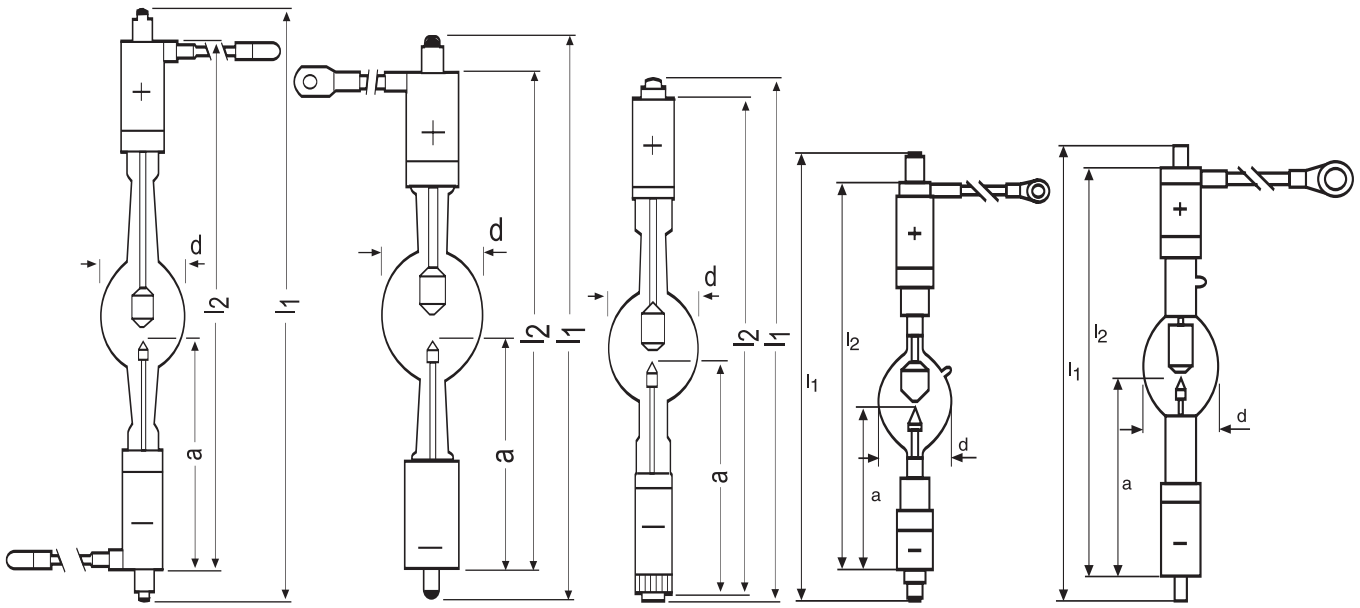
Ordering Abbreviation	XBO 2000 W/DTP OFR	XBO 2000 W/H CL OFR	XBO 2000 W/H OFR	XBO 2000 W/H XL OFR	XBO 2000 W/HCC OFR
Product Number	69155☼	69470☼	69385☼	69477☼	69384☼
Watts (W)	2000	2000	2000	2000	2000
Volts (V)	25	28	28	27	28
Type of Current	DC	DC	DC	DC	DC
Current (A)	80	70	70	70	70
Current Control 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/cm2)	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



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/cm2)	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



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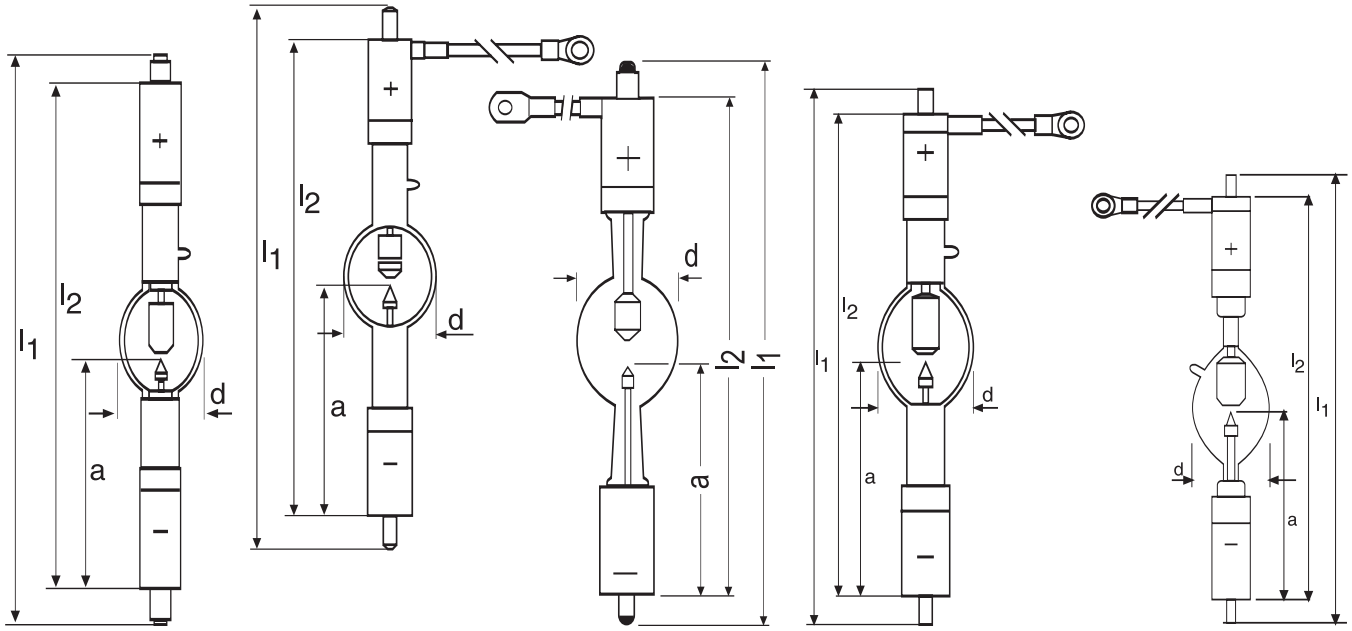
Ordering Abbreviation	XBO 2500 W OFR	XBO 2500 W/HS OFR	XBO 2500 W/HTP OFR	XBO 3000 W/DHP OFR	XBO 3000 W/DHS OFR
Product Number	69248	69249	69160☼	69480☼	69462☼
Watts (W)	2500	2500	2500	2600	3000
Volts (V)	29	28	28	29	29
Type of Current	DC	DC	DC	DC	DC
Current (A)	85	90	90	90	110
Current Control Range (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/cm2)	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

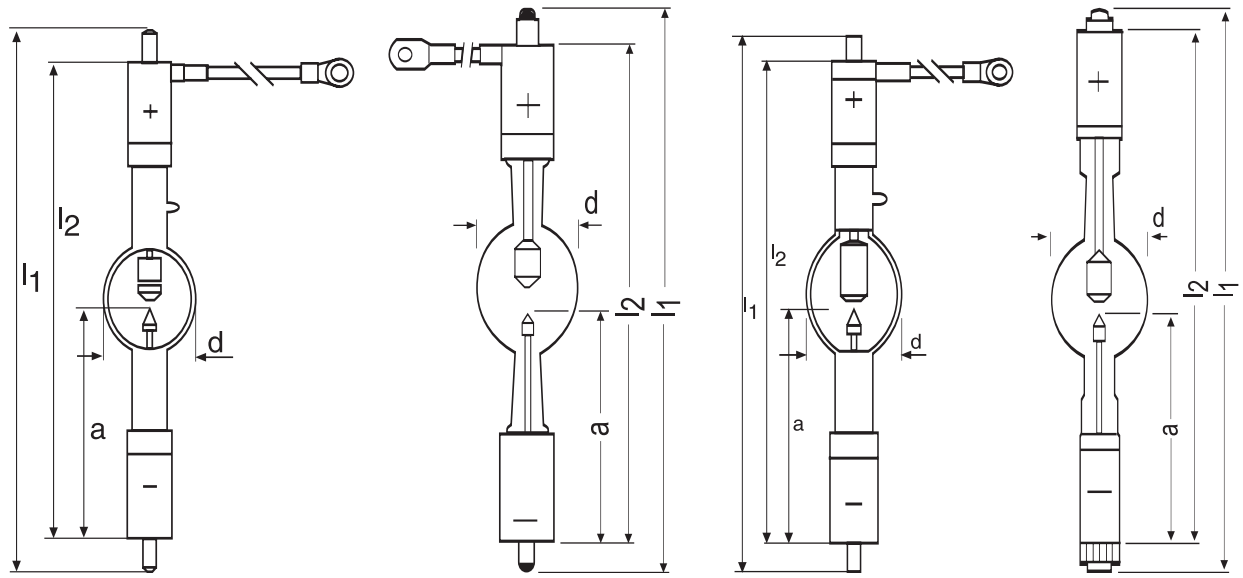
XBO®>450W XENON SHORT ARC CINEMA FILM PROJECTION



1 2 3 4 5

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/cm2)	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 l1 max (mm)	403	428	428	423	332
Length l2 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



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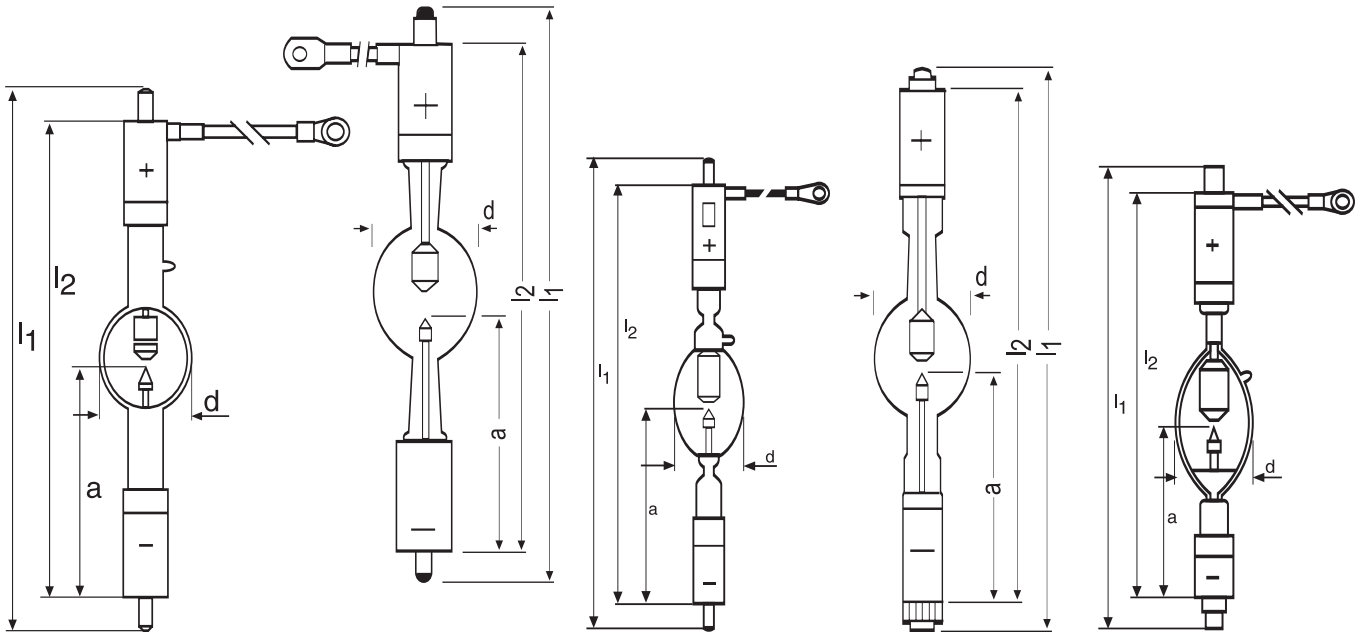
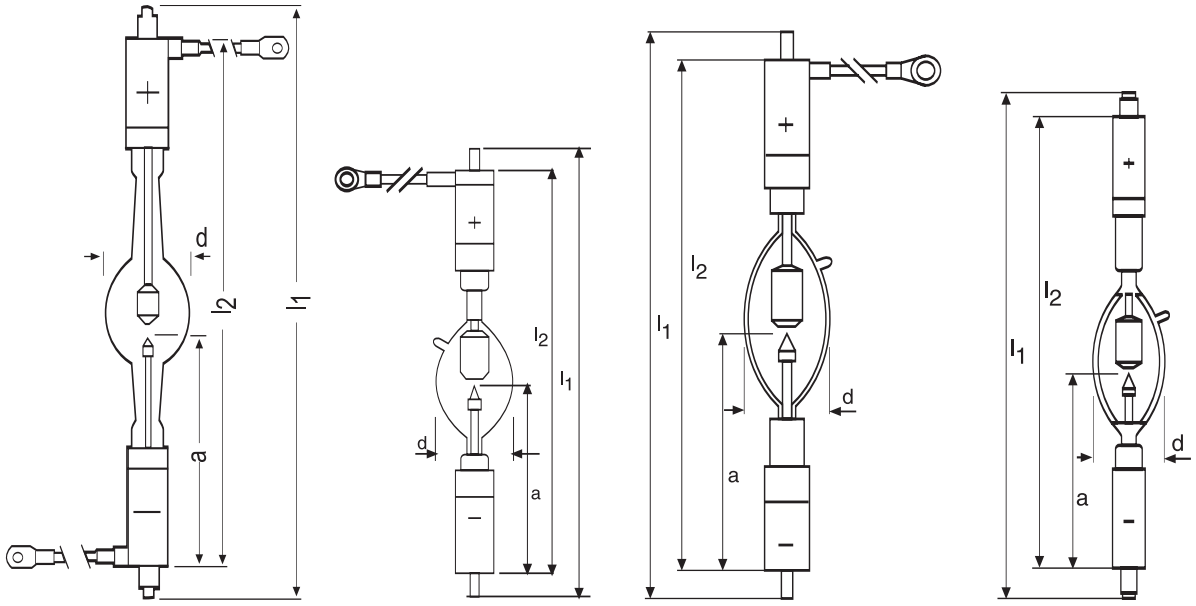
Ordering Abbreviation	XBO 3000 W/HS CL OFR	XBO 3000 W/HS OFR	XBO 3000 W/HS XL OFR	XBO 3000 W/HSLA OFR	XBO 3000 W/HTP OFR
Product Number	69153☼	69250	69479☼	69390☼	69252
Watts (W)	3000	3000	3000	3000	3000
Volts (V)	29	29	30	29	29
Type of Current	DC	DC	DC	DC	DC
Current (A)	100	100	100	110	100
Current Control 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/cm2)	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



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/cm2)	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



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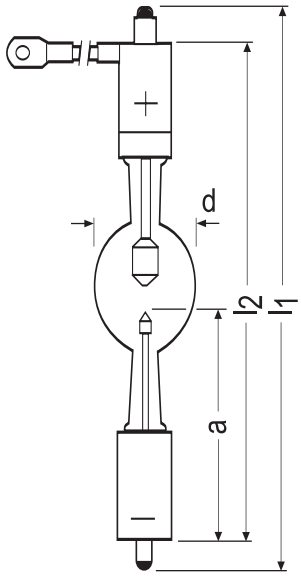
Ordering Abbreviation	XBO 4200 W/CA OFR	XBO 4200 W/GS OFR	XBO 4200 W/HPS OFR	XBO 4500 W/DHP OFR	XBO 4500 W/DTP OFR
Product Number	69294	69350	69488☼	69463☼	69459☼
Watts (W)	4200	4200	4200	4500	4500
Volts (V)	29	29	35	30	32
Type of Current	DC	DC	DC	DC	DC
Current (A)	140	140	120	145	145
Current Control 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/cm2)	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



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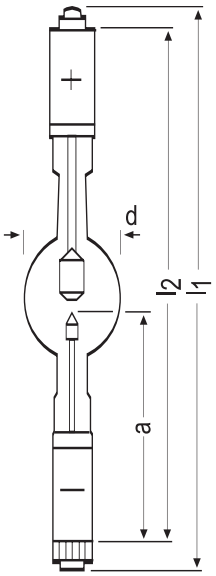

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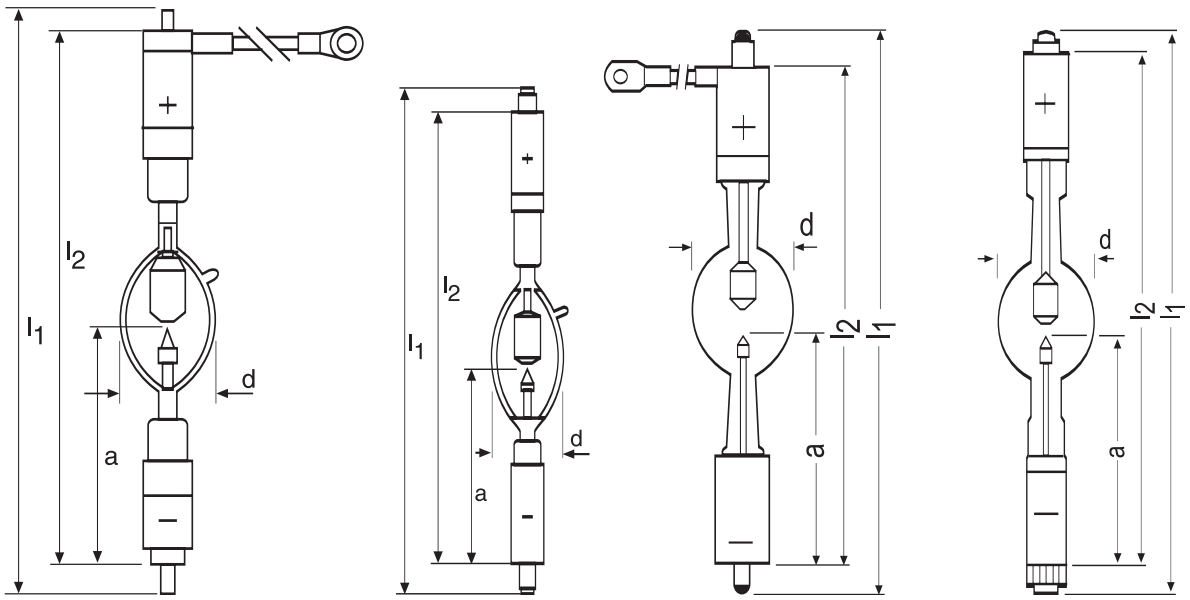
Ordering Abbreviation	XBO 4500 W/HS OFR	XBO 4500 W/HSLA OFR	XBO 4500 W/HTP OFR	XBO 5000 W/H OFR	XBO 5000 W/HTP OFR
Product Number	69359	69389☼	69360	69315	69336
Watts (W)	4500	4500	4500	5000	5000
Volts (V)	32	30	32	35	34
Type of Current	DC	DC	DC	DC	DC
Current (A)	135	145	135	140	140
Current Control Range (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/cm2)	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

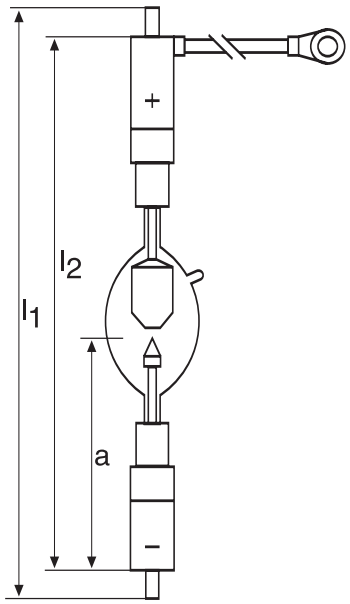
XBO®>450W XENON SHORT ARC CINEMA FILM PROJECTION



1 2 3 4

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/cm2)	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



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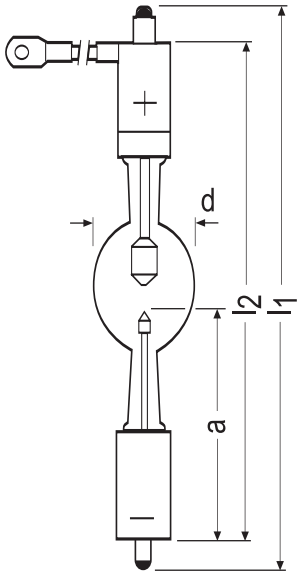

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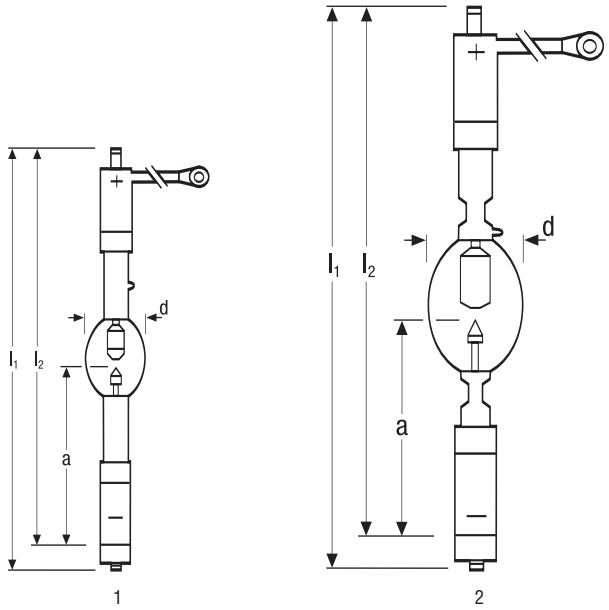
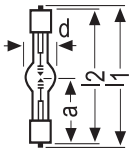
Ordering Abbreviation	XBO 6500 W/DHP OFR	XBO 6500 W/HSLA OFR	XBO 7000 W/HS OFR	XBO 8000 W/HS OFR
Product Number	69461☼	69489☼	69295	69351
Watts (W)	6500	6500	7000	8000
Volts (V)	38	38	42	45
Type of Current	DC	DC	DC	DC
Current (A)	170	170	160	175
Current Control Range (A)	140-175	140-175	110-165	150-180
Lumens (lm)	300000	300000	350000	400000
Luminous Intensity (cd)	32000	32000	35000	40000
Average Luminance (cd/cm2)	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/cm2)	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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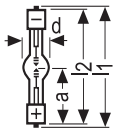

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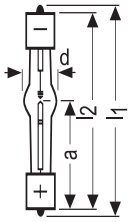
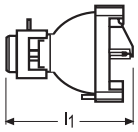


3

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/cm2)	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



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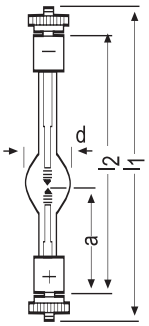
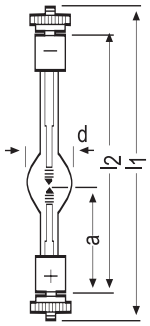


2

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/cm2)		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

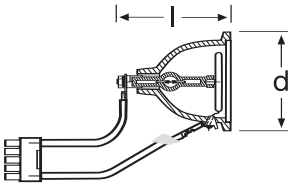
HBO® MERCURY SHORT ARC



1

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/cm2)	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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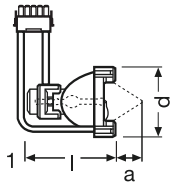
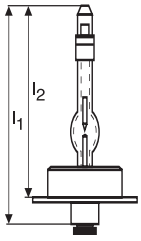


2

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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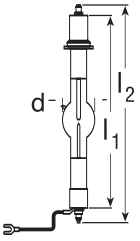

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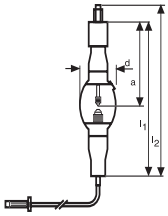

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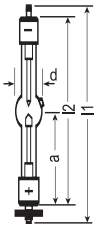

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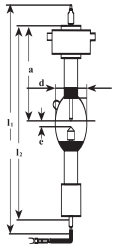
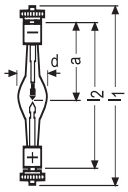


5

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



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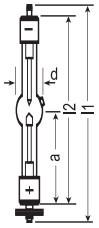

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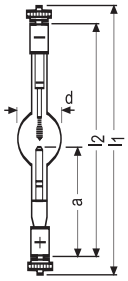

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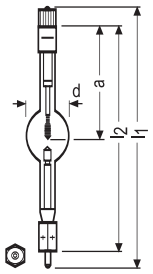
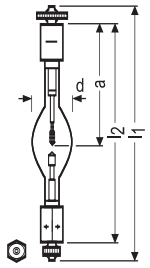


4

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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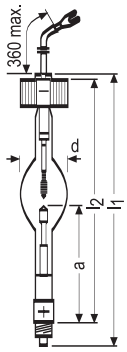

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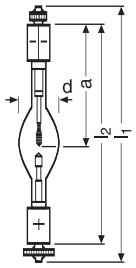

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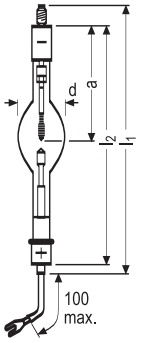

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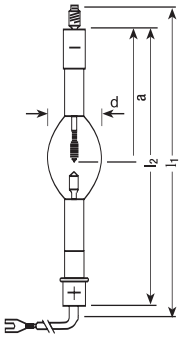
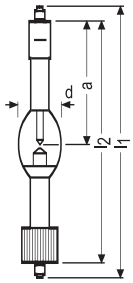


5

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



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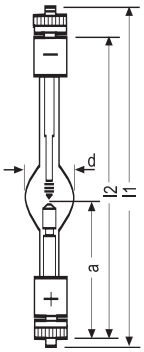

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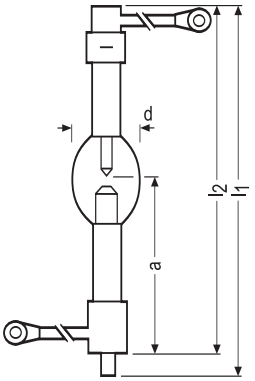
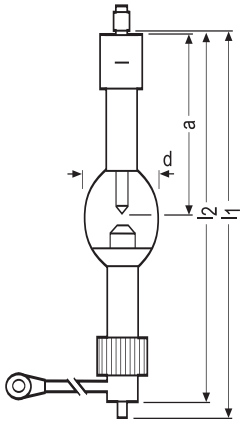


3

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

HBO® MERCURY SHORT ARC FOR MICROLITHOGRAPHY



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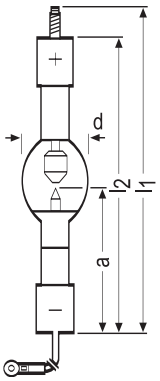

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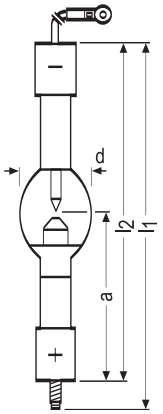
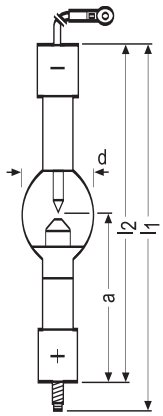


3

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



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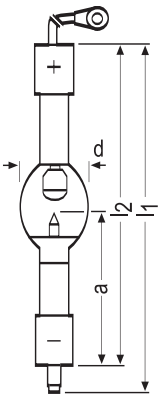

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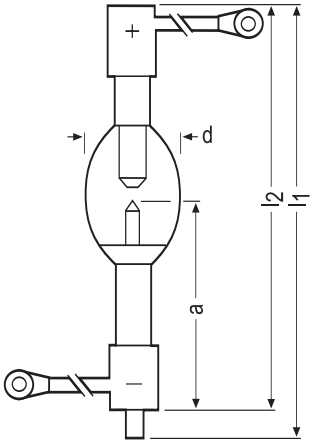

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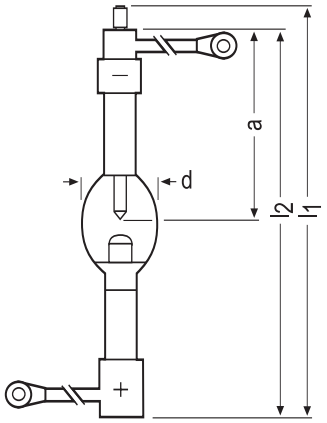
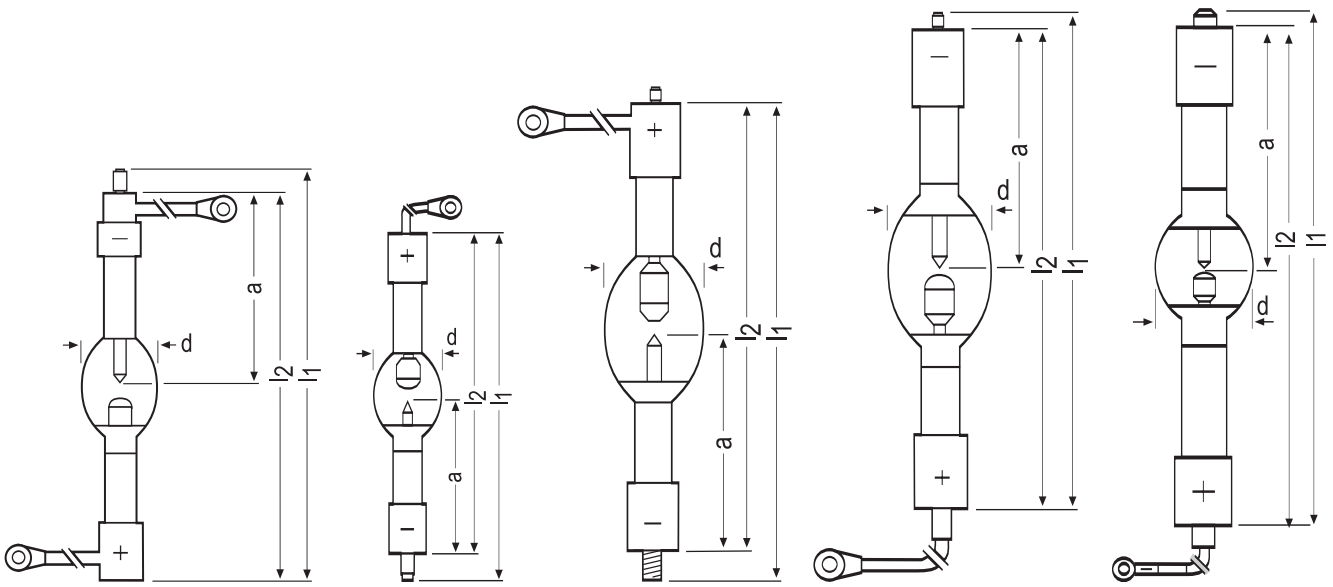


4

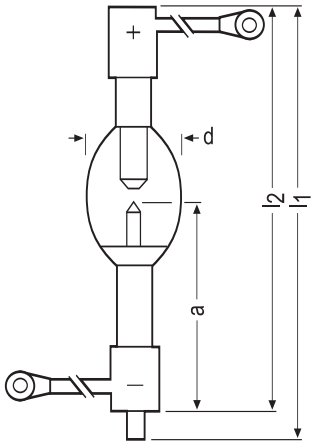
Ordering Abbreviation	HBO 2001 W/NIL	HBO 2002 W/NIL	HBO 2001 W/CIEL	HBO 2001 W/CIL	HBO 2002 W/MA
Product Number	69292	69287	69166	69189	69199
Watts (W)	1750	1750	2000	2000	2000
Volts (V)	26	24	26	26	37
Type of Current	DC	DC	DC	DC	DC
Current (A)	67.0	67.0	77.0	77.0	54.0
Radiant Intensity 350..450 nm (mW/sr)					
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



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



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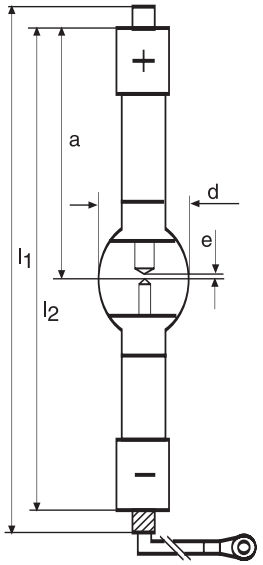

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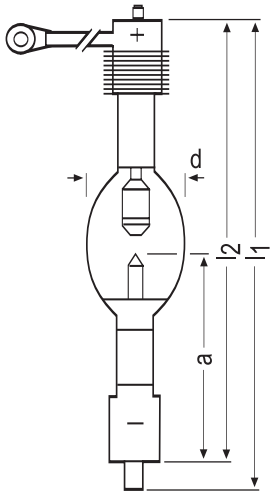
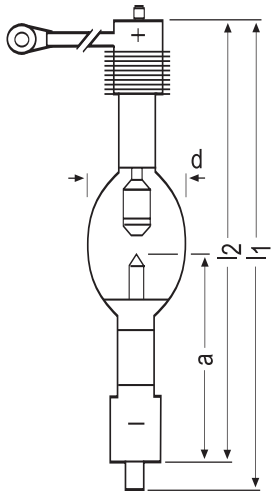


3

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



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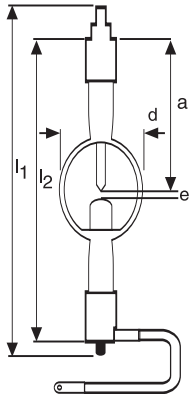

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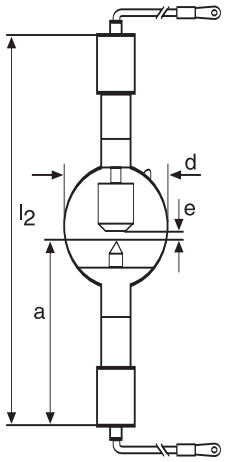

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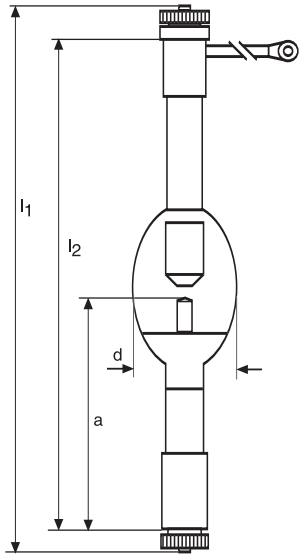
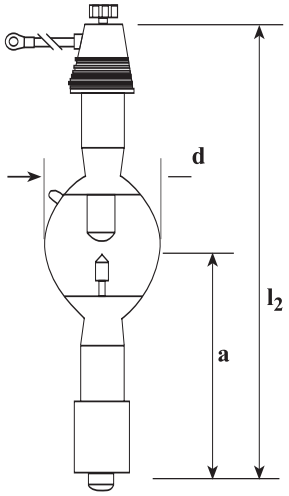


4

Ordering Abbreviation	HBO 3501 W/PIL	HBO 3500 W/HK	HBO 4500 W/CIL	HBO 5000 W/TA	HBO 5001 W/UF
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



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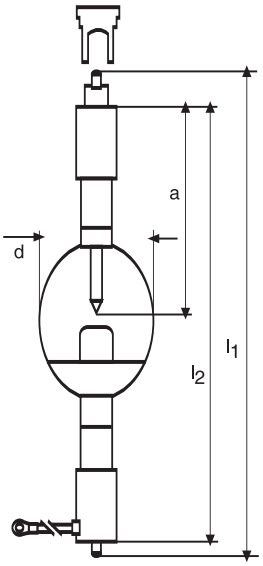
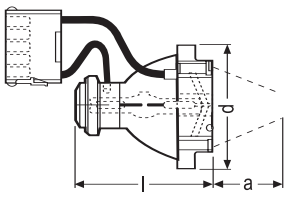


2

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

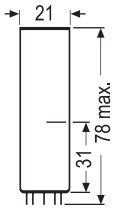
VIP® VIDEO AND DATA PROJECTION



1

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/cm2)	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



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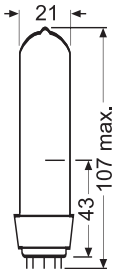
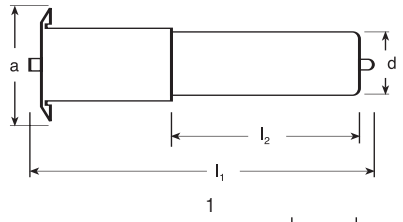


2

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



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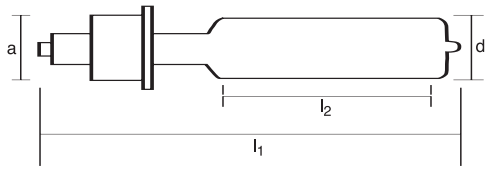

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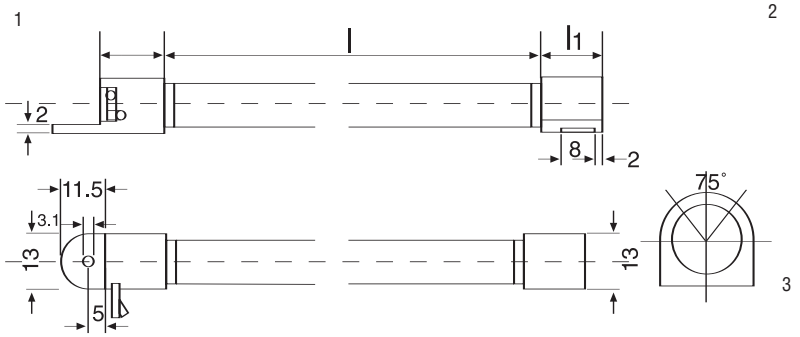


3

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

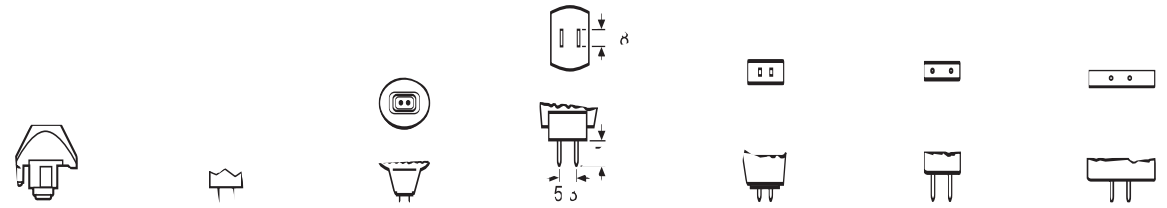
BA20d
IEC 7004-12
DIN 49730

E10
IEC 7004-22
DIN 49610
miniature
Edison

E14
IEC 7004-23
DIN 49615
small
Edison

E27/E26
IEC 7004-21
DIN 49620
E26-NA
E27-EURO

E40/E39
IEC 7004-21
DIN 49625
E39-NA
E40-EURO



FaX1.5-3x1

G4
IEC 7004-72
DIN 49757
2-pin

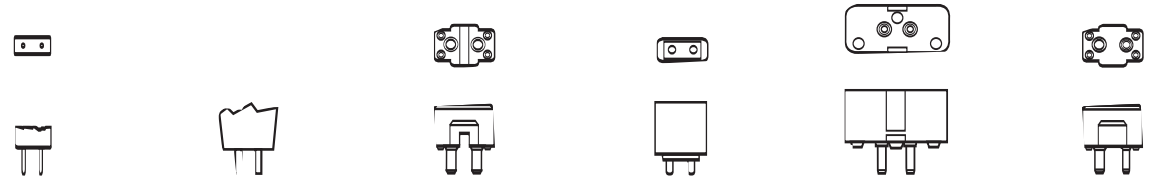
GX5.3
IEC 7004-61
DIN 49640
2-pin

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

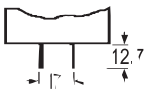
GZX9.5
GZZ9.5
IEC 7004-70 B
DIN 49756
2-pin
pre-focus

G9.5
IEC 7004-70
medium
2-pin

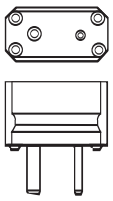
GX9.5
DIN 49638
IEC 7004-70 A
2-pin
pre-focus

GY9.5
GZ9.5
DIN 49756
IEC 7004-70 B
2-pin
pre-focus

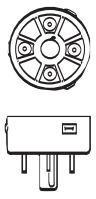
LAMP BASES



GX16d
2-pin



GY16
DIN 49758
IEC 7004-45
2-pin



GY17q
DIN 49758
IEC 7004-74
4-pin

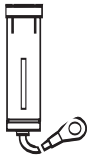
GY17t
DIN 49665
IEC 7004-45
4-pin

G22
IEC 7004-75
medium
Bipost

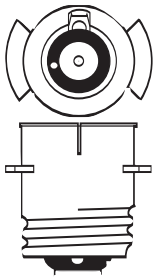
GY22
2-pin

G38
IEC 7004-76
MOGUL
Bipost

GX38q



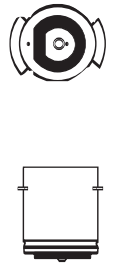
K24s
Length of cable
250 mm
Hole of cable lug
ø 8.4 mm
DIN 49748



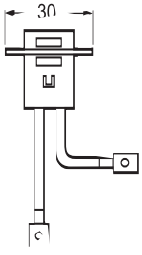
P40s
DIN 49728
IEC 7004-43
medium
pre-focus

Pico9
DIN 41539

PG22-6.35
DIN 49751
IEC 7004-48

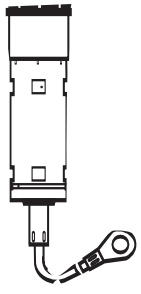


P28s
DIN 49728
IEC 7004-42
MOGUL
pre-focus

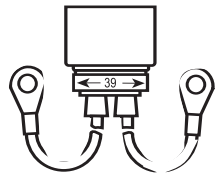


PK30d

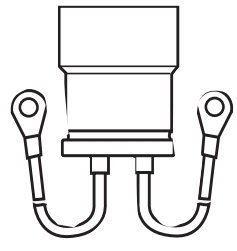
R7s
RX7s
DIN 49750
IEC 7004-92



K30 s
Length of cable
275 mm
Hole of cable lug
dia 8.4 mm
DIN 49748

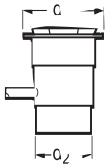


K39 d
with flexible Siaf cable
Length of cable 300 mm.
Hole of cable lug dia. 8.4 mm

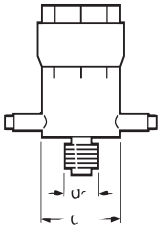


K59 d
with flexible Siaf cable
Length of cable 350 mm.
Hole of cable lug dia. 8.4 mm
DIN 49732

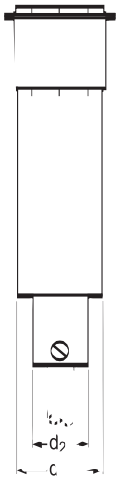
LAMP BASES



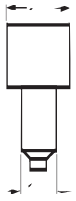
SK27-50



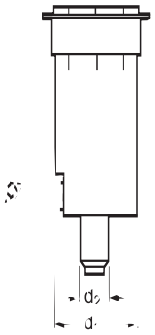
SFcX27-8
(5/16-18UNC-2 A)



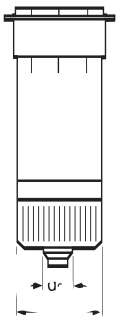
SFa15-10
SFa16-8
SFa16-10
SFa20-8
SFa20-10
SFa25-10
SFa27-8
SFa27-10
SFa27-11
SFa27-12
SFa27-14
SFa28-18



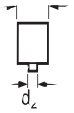
SFa21-12
DIN 49759



SFaX27-10
SFaX27-9.5
SFaX27-12
SFaX27-13
SFaX27-14
SFaX30-9.5
SFaX30-16



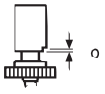
SFc25-14 (M 14x1.5)
SFc27-14 (M 14x1.5)



SFa5-2
SFa6-2
SFa7.5-2
SFa8-2
SFa9-2
SFa12-11
SFa21-5

SFcX12-4
(with M4 thread and centering collar)

SFcX 13-4
SFcX 15-4 (with US inch thread 8-32 UNC-3A and centering collar)



SFc10-4 M4-thread
SFc6-3 M3-thread
SFc12-4 M4-thread
SFc13-4 M4-thread

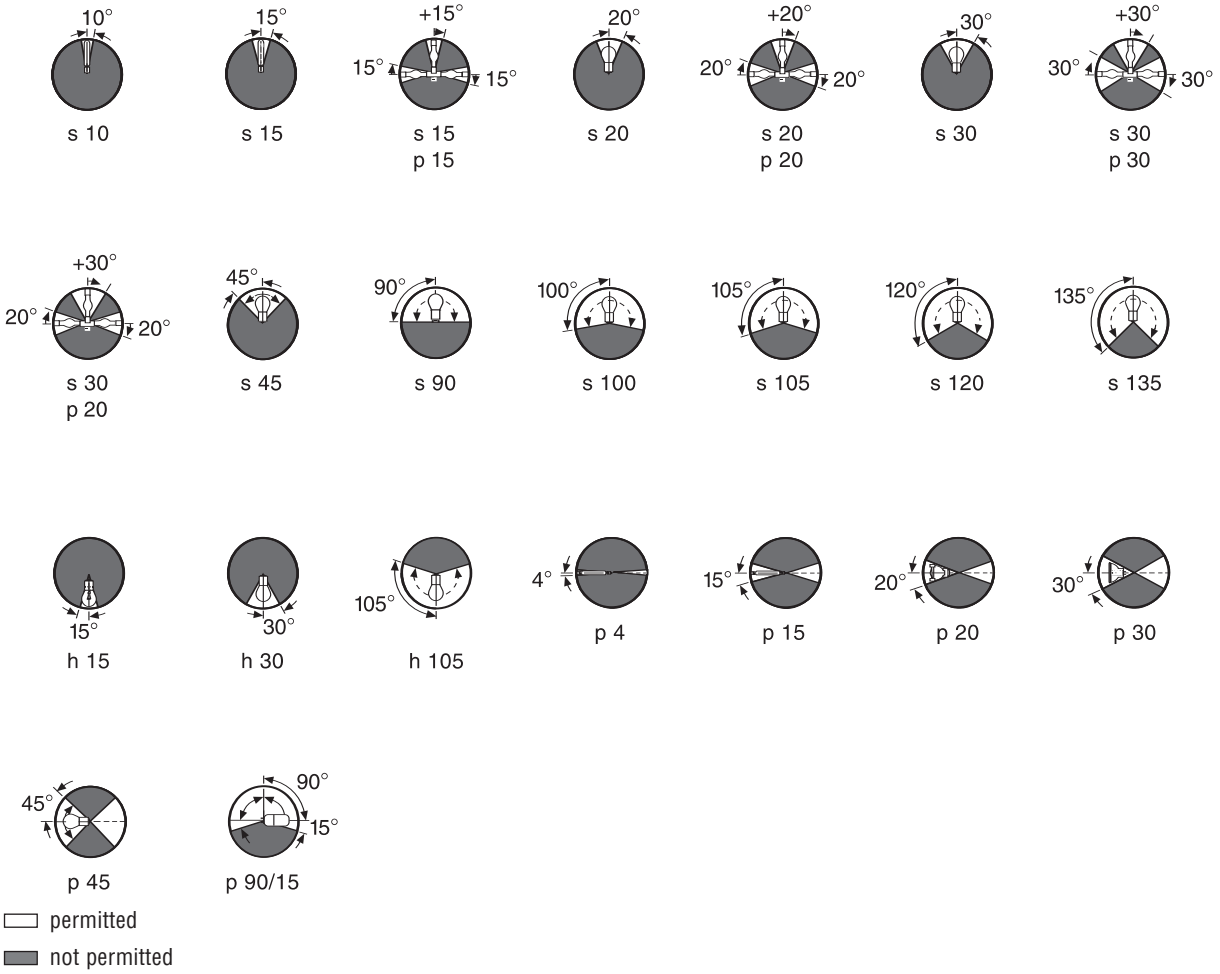
SX15s

X515
DIN 49613

DISPLAY OPTIC REFERENCE

OPERATING POSITIONS

Schematic diagrams



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 BELLAPHOTŌ (Product Number 54163).
8	Lamp also available in BELLAPHOTŌ (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 (O2) surrounding the lamp into ozone (O3). 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^-3 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^-3 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

Index by Ordering Abreviation

Index by Ordering Abreviation (cont.)

Index by Product Number

Index by Product Number (continued)

Index by Product Number (continued)

Index by ANSI Code

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.

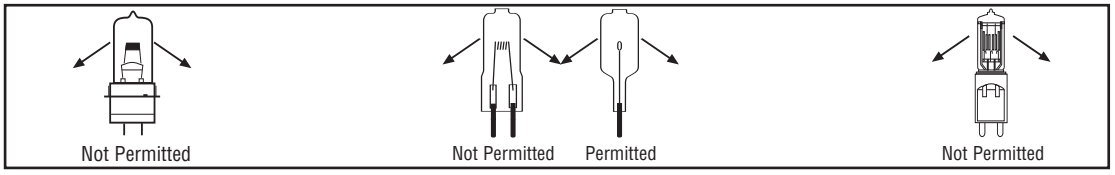
Read and understand this warning before using this bulb!

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 recrystalize. 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.

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®, HMI®, HMD®, HMP®, HSD®, HSR®, HTI®]

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®, HMI®, HMD®, HMP®, HSD®, HSR®, HTI®] (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 cur-rent 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_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)
- 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. 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®, HMI®, HMD®, HMP®, HSD®, HSR®, HTI®] (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^3 @ 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^3 @ 20°C / 68°F
29.6 mg/m^3 @ 30°C / 86°F
62.7 mg/m^3 @ 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.

Hg Lamp Contains Mercury

Manage in accordance with disposal laws
See 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^3 @ 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/m³ @ 20°C / 68°F
  29.6 mg/m³ @ 30°C / 86°F
  62.7 mg/m³ @ 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 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_3). 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 (recrystalization, 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_3) is generated by the conversion of oxygen (O_2) 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[1] into steel drum[2] 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.

   [1] The lamps should not exceed the half-full point in the drums. Adjust the maximum number of lamps accordingly.

   [2] 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

PROPERTIES OF MERCURY:

- Chemical symbol: Hg
- Atomic number: 80
- Molecular Weight: 200.59
- Density: 13.6 g/cm^3 @ 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^3 @ 20°C / 68°F
  29.6 mg/m^3 @ 30°C / 86°F
  62.7 mg/m^3 @ 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.

Hg Lamp Contains Mercury
Manage in accordance with disposal laws
See www.lamprecycle.org or 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.

Hg Lamp Contains Mercury
Manage in accordance with disposal laws
See www.lamprecycle.org or 1-866-666-6850

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.

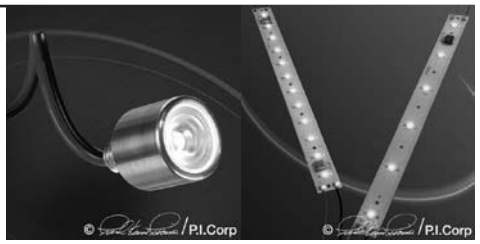
Consult Ballast section, page 185 for listings of OPTOTRONIC LED power supplies and controls.

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

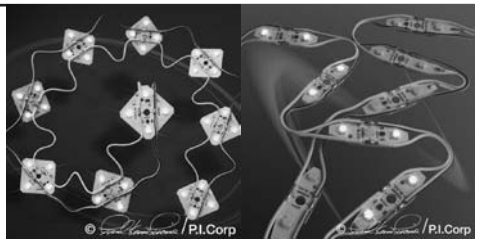
Hi-flux (HF) systems

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.



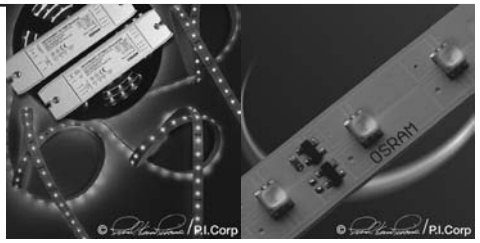
BACKlight Systems

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.

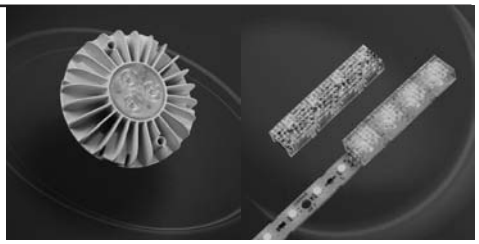


OSRAM SYLVANIA

For all module dimensions see sylvania.com/led

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

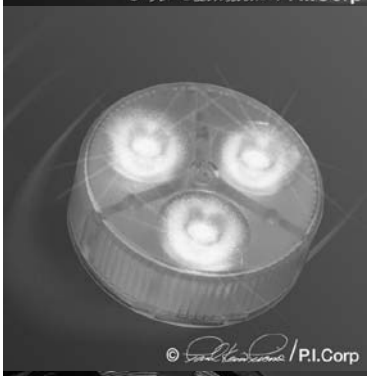
Accessories to LED modules aid in a complete system solution. Connector systems are designed to simplify the installation process by eliminating the need to solder wires. Optic accessories provide light intensification and mechanical protection. Thermal solutions supply proper thermal management allowing 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



For all module dimensions see sylvania.com/led

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) 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.

For all module dimensions see sylvania.com/led

SPOT/FLOOD PRODUCTS

HF²Eye

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

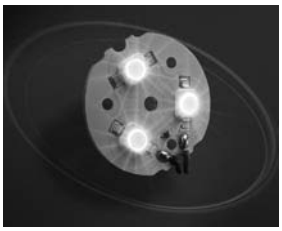
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Beam Angle (Degrees)	Luminous Intensity (cd)
70107	**DRAGONPUCK/OS/DP3/W2-854**	1	16	White	5400	3	Constant Current	.35	3.6	20	285
70108	**DRAGONPUCK/OS/DP3/W2-865**	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

For all module dimensions see sylvania.com/led

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	**HFDisk/3/W2-733**	10	100	White	3300K	3	Constant Current	.35	3.6	120	60
70204	**HFDisk/3/W2-847**	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, Solor 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	**HF2X/120/W3-854**	6	120	White	5400K	Constant Current	.35	1.2	120	15
70191	**HF2X/60/W3-854**	6	120	White	5400K	Constant Current	.35	1.2	60	33
70201	**HF2X/12/W3-854**	6	120	White	5400K	Constant Current	.35	1.2	12	675
70202	**HF2X/30/W3-854**	6	120	White	5400K	Constant Current	.35	1.2	30	110
70164	**HF2X/120/W3-733**	6	120	White	3300K	Constant Current	.35	1.2	120	10
70192	**HF2X/12/W3-733**	6	120	White	3300K	Constant Current	.35	1.2	12	45
70193	**HF2X/30/W3-733**	6	120	White	3300K	Constant Current	.35	1.2	30	75
70190	**HF2X/120/W3-847**	6	120	White	4700K	Constant Current	.35	1.2	120	*
70189	**HF2X/60/W3-847**	6	120	White	4700K	Constant Current	.35	1.2	60	*
70174	**HF2X/12/W3-847**	6	120	White	4700K	Constant Current	.35	1.2	12	*
70176	**HF2X/30/W3-847**	6	120	White	4700K	Constant Current	.35	1.2	30	*
70194	**HF2X/60/W3-733**	6	120	White	3300K	Constant Current	.35	1.2	60	22

For all module dimensions see sylvania.com/led

HF²Flood

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/CO06A/W3-733**	1	20	White	3300K	24 Vdc	.50	12	25	700
70243	**HF2Flood/25/CO06A/W3-847**	1	20	White	4700K	24 Vdc	.50	12	25	700
70242	**HF2Flood/25/CO06A/W3-854**	1	20	White	5400K	24 Vdc	.50	12	25	700
70241	**HF2Flood/25/CO06A/W3-865**	1	20	White	6500K	24 Vdc	.50	12	25	600
70255	**HF2Flood/38/CO06A/W3-733**	1	20	White	3300K	24 Vdc	.50	12	38	***
70256	**HF2Flood/38/CO06A/W3-847**	1	20	White	4700K	24 Vdc	.50	12	38	***
70257	**HF2Flood/38/CO06A/W3-854**	1	20	White	5400K	24 Vdc	.50	12	38	***
70258	**HF2Flood/38/CO06A/W3-865**	1	20	White	6500K	24 Vdc	.50	12	38	***

LINEAR PRODUCTS

HF²Stick

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

HF²Linear

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

For all module dimensions see sylvania.com/led

HF²Stick 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

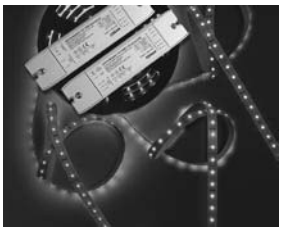
Shelf Lighting, Under cabinet lighting, Refrigerator and freezer lighting, Display case lighting

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



For all module dimensions see sylvania.com/led

LINEARlight Flex Top Colormix

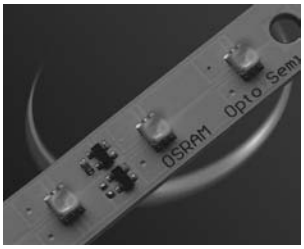
Edge lighting, Accent lighting, Cove lighting, Color mixing, Controlled color sequencing, Custom color applications

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	**LNRFLXTPLM10LB8RGB213.1FT**	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	**LNRCLRMX/LM01M/RGB 1.48 FT**	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	**LLMULTIFLX/THN/W3-880-3.2 FT**	1	10	White	8800K	96	24 Vdc	0.25	6	45	88	28
70205	**LLMULTIFLX/THN/W3-827-3.2 FT**	1	8	White	2700K	96	24 Vdc	0.25	6	45	83	26
70182	**LLMULTIFLX/THN/W3-865-3.2 FT**	1	8	White	6500K	96	24 Vdc	0.25	6	45	180	56

For all module dimensions see sylvania.com/led

LINEARlight

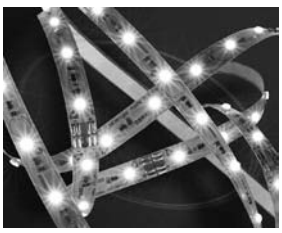
Escape route marker, Border marker, Walkways, Outlines

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	**LNRPWRFLX/LM10P/W3-847 9FT**	1	8	White	4700K	120	24 Vdc	3	72	120	1400	152
70098	**LNRPWRFLX/LM10P/W3-854 9FT**	1	8	White	5400K	120	24 Vdc	3	72	120	1400	152
70138	**LNRPWRFLX/LM10P/W3-865 9FT**	1	8	White	6500K	120	24 Vdc	3	72	120	1400	152
70267	**LNRPWRFLX/LM10P/W3-733 9FT**	1	1	White	3300K	120	24 Vdc	3	72	120	1300	144
70268	**LNRPWRFLX/LM10P/W3-727 9FT**	1	1	White	2700K	120	24 Vdc	3	72	120	1300	144



For all module dimensions see sylvania.com/led

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

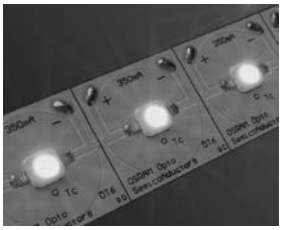
Cove lighting, Edge lighting, Border marking, Commercial signs, Emergency and rescue signs, Path and contour marking, Backlighting complex contours, Refrigeration cases, Display shelves, Recessed lighting

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

HF²Chain

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

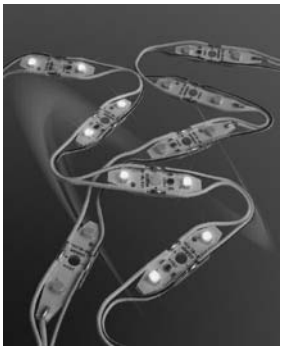
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70165	**HF2Chain/36/W3-865**	1	10	White	6500K	36	24 Vdc	2.2	52	120	1320	110

For all module dimensions see sylvania.com/led

BACKlight 2G BL02

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

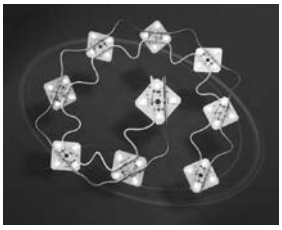
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70235	**B2G/633/BL02ST/S1 31.5FT**	1	5	Super Red	633nm	240	10 Vdc	3.6	38	120	490	16
70175	**B2G/617/BL02ST/A2 31.5FT**	1	5	Amber Red	617nm	240	10 Vdc	3.6	38	120	1180	37.5
70236	**B2G/606/BL02ST/O1 31.5FT**	1	5	Orange	606nm	240	10 Vdc	3.6	38	120	980	31
70237	**B2G/587/BL02ST/Y2 31.5FT**	1	5	Yellow	587nm	240	10 Vdc	3.6	38	120	980	31
70238	**B2G/525/BL02ST/T2 31.5FT**	1	5	Green	525nm	240	10 Vdc	3	32	120	430	14
70239	**B2G/470/BL02ST/B1 31.5FT**	1	5	Blue	470nm	240	10 Vdc	3	32	120	100	3
70144	**B2G/BL02ST/W2-865 31.5FT**	1	5	White	6500K	240	10 Vdc	3.6	38	120	520	17
70271	**B2G/BL02S/W3-854 31.5FT**	1	5	White	5400K	240	10 Vdc	4.2	44	120	880	28
70272	**B2G/BL02S/W3-865 31.5FT**	1	5	White	6500K	240	10 Vdc	4.2	44	120	880	28



BACKlight 2G BL04

Backlighting advertising panels, Signs, Channel letters and displays, General lighting

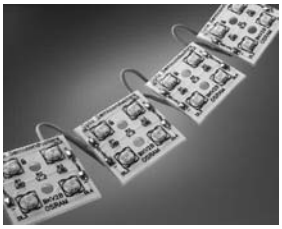
Product Number	Ordering Description	Pkg Qty	Case Qty	Color	Wavelength /(CCT °K)	LEDs/ Module	OPTOTRONIC Power Supply	Load Current (Amps)	Load Wattage	Viewing Angle (Degrees)	Luminous Flux (Lumens)	Lumens /foot
70173**	**B2G/BL04ST/W2-865 15.75FT**	1	5 reels	White	6500K	240	10 Vdc	3.6	38	120	520	33
70172**	**B2G/525/BL04ST/T2 15.75FT**	1	5 reels	Green	525nm	240	10 Vdc	3	32	120	430	27
70171**	**B2G/470/BL04ST/B1**	1	5 reels	Blue	470nm	240	10 Vdc	3	32	120	100	6
70274	**B2G/BL04S/W3-865**	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	**BACKLITE/633/LM03A/S 1.8FT**	1	20	Super Red	633nm	32	10.5 Vdc	0.4	4.2	120	54	30
70011	**BACKLITE/615/LM03A/A 1.8FT**	1	20	Amber Red	617nm	32	10.5 Vdc	0.4	4.2	120	54	30
70071	**BACKLITE/610/LM03A/O 1.8FT**	1	20	Orange	606nm	32	10.5 Vdc	0.4	4.2	120	86	48
70012	**BACKLITE/587/LM03A/Y 1.8FT**	1	20	Yellow	587nm	32	10.5 Vdc	0.4	4.2	120	69	38
70013	**BACKLITE/525/LM03A/T 1.8FT**	1	20	True Green	525nm	32	10.5 Vdc	0.4	4.2	120	57	31
70014	**BACKLITE/470/LM03A/B 1.8FT**	1	20	Blue	470nm	32	10.5 Vdc	0.4	4.2	120	9	5
70102	**BACKLITE/LM03A/W2-854 1.8FT**	1	20	White	5400K	32	10.5 Vdc	0.5	5.3	120	69	38
70103	**BACKLITE/LM03A/W2-865 1.8FT**	1	20	White	6500K	32	10.5 Vdc	0.5	5.3	120	69	38

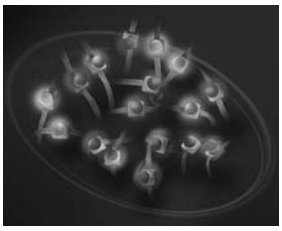


LINEARlight Colorpod

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	**LINEARlight Colorpod/Clear-36 FT**	1	12	RGB	Clear	50	7.5 Vdc	25
70211	**LINEARlight Colorpod/Frosted- 36 FT**	1	12	RGB	Frosted	50	7.5 Vdc	25

* To be used only with OTCP power supplies and controls.

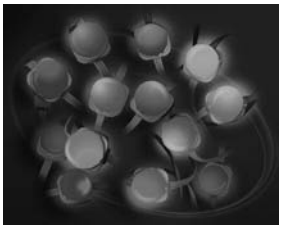


LINEARlight Colorpod XB

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	**LINEARlight Colorpod XB/Frosted- 67 FT**	1	6	RGB	Frosted	50	12 Vdc	50
70209	**LINEARlight Colorpod XB/Clear- 67 FT**	1	6	RGB	Clear	50	12 Vdc	50

*To be used only with OTCP power supplies and controls.



For all module dimensions see sylvania.com/led

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

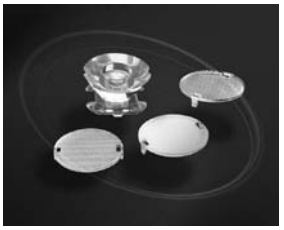
Compatible with HF2Stick and HF2Linear modules

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

HF²Stick XB Connector

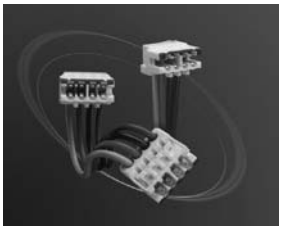
Accessory to HF2Stick XB modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70197	**HF2StickXB Connector/input conn**	10	500	.57 (14.5)	.28 (7)	.34 (8.7	12 (305)
70196	**HF2StickXB Connector/conn**	10	500	.57 (14.5)	.28 (7)	.34 (8.7)	1.77 (45)
70195	**HF2StickXB Connector/conn-12**	10	500	.57 (14.5)	.28 (7)	.34 (8.7)	11.9 (303)

Colormix Connector System

Accesory to Colormix Rigid module

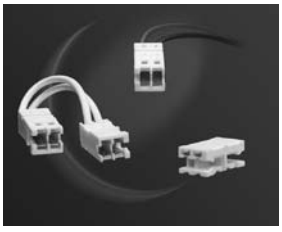
Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70114	**CLRMXCONN/LM4PIN/Feeder**	10	500	0.29(7.3)	0.49(12.5)	0.43(11)	19.7 (500)
70110	**CLRMXCONN/LMConn45**	10	1000	2.35(59.6)	0.49(12.5)	0.43(11)	1.77 (45)



LINEARlight Rigid Connector Systems

Accesory 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)

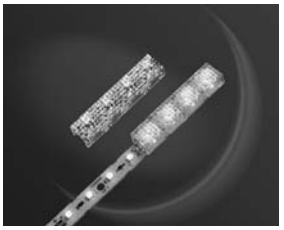


For all module dimensions see sylvania.com/led

LINEARlight Optics

Accessory to LINEARlight modules

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Viewing Angle (Degrees)
70072	**LINEARLT Optics OS-OP4X1-20 + OS-LM01A**	1	80	2.20(56)	0.47(12)	20/25



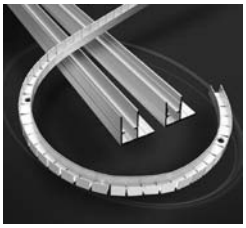
LINEARlight MULTI FLEX Mounting Accessories

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	**LLMULTIFLX/INSTALL-SCREWS**	20	100					
70207	**LLMULTIFLX/INSTALLL-TOOL**	1	10					
70206	**LLMULTIFLX/STR-CHANNEL - 3.2 FT****	5	5	1000	10.5	18.5	8	20
70187	**LLMULTIFLX/THN/FLX-CHANNEL - 3.2 FT***	20	20	1000	9	9	7	7
70188	**LLMULTIFLX/THN/STR-CHANNEL - 3.2 FT****	5	5	1000	10	16.5	8	20

* Flex channel only used with 70181

**70206 and 70188 can be used with 70205 and 70182



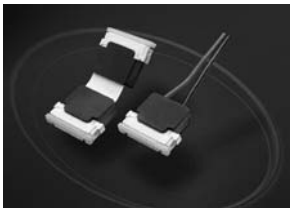
LINEARlight FLEX Top Colormix Connector System

Product Number	Ordering Description	Pkg Qty	Case Qty	Length in (mm)	Width in (mm)	Height in (mm)	Wire Length in (mm)
70183	**LM4PINFLEXCONNBPS**	10	1000	0.48 (12.25)	0.65 (16.5)	0.2 (5)	19.69 (500)
70263	**LM2CONN5FLEXCONNBB**	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	**LM2PINFLEXCONN**	10	1000	0.48 (12.25)	0.65 (16.5)	0.2 (5)	19.69 (500)
70263	**LM2CONN5FLEXCONNBB**	10	2000	1.4 (34.5)	0.65 (16.5)	0.2 (5)	0.39 (10)



ACCESSORIES FOR CHAIN PRODUCTS

BACKlight Connector

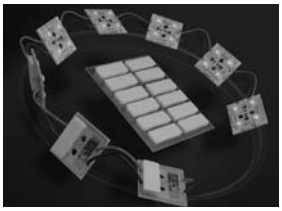
Compatible with BACKlight, BACKlight B2G BL02, and BACKlight B2G BL04

Product Number	Ordering Description	Pkg Qty	Case Qty	Height in (mm)	Width in (mm)	Depth in (mm)	Strip Length in (mm)
70126	**BACKLITECONN/LM03A/CONN**	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	**BACKlite Tape/OS/LM03A**	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	**LINEARLlight Colorpod/Track- 4ft (Mounting track - 4ft)**	1	50	4 ft
70217	**LINEARlight Colorpod/Clip (Mounting Clip)**	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	**LINEARLlight Colorpod XB/Track- 4ft (Mounting track - 4ft)**	1	50	4 ft
70219	**LINEARlight Colorpod XB/Clip (Mounting Clip)**	50	1000	-

For all module dimensions see sylvania.com/led

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 LED TECHNOLOGY
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 MOSAIC™ LED TECHNOLOGY
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 LED TECHNOLOGY
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.

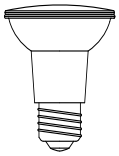
SYLVANIA LED Light Chains LED TECHNOLOGY
can make so many applications more festive and unique everyday. Party on, outdoors on the patio or deck, with Light Chains. Give one to your favorite student for their dorm room. Light up your landscape. Highlight treasured items in a cabinet or display case. 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 or contact your local SYLVANIA Sales Representative for the most up-to-date listings of our Consumer Luminaires products

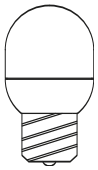
LED RETROFIT LAMPS

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.

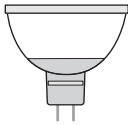
Contact your local SYLVANIA Sales Representative of the most up-to-date lists of LED Retrofit products.



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.	CAUTIONS • This lamp is not intended for use in emergency light fixtures or exit lights • Not for use with dimmers • No user serviceable parts inside. To avoid electrical shock, do not disassemble lamp • Risk of electrical shock – do not use where directly exposed to water
2.	Please contact your local SYLVANIA Sales Representative for a most updated product list on LED Retrofit Lamps
3.	To avoid electrical shock and early lamp failure, this lamp must only be used indoors and in dry locations • No user serviceable parts inside. To avoid electrical shock, do not disassemble lamp • This lamp is not intended for use in emergency light fixtures or exit signs • LED MR16 lamps will not dim. The lamps will extinguish at lower dimmer settings. Dimming circuits will not harm the lamps • LED MR fits most standard, low voltage MR16 lighting fixtures including: track, strips for case lighting, adjustable downlighting, landscape lighting and recessed lighting • LED MR16 lamps are not compatible with integral electronic transformers; LED MR16 lamps can run on magnetic transformers only • Please contact your local SYLVANIA Sales Representative for most updated product lists on LED Retrofit Lamps

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+®
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® 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[3,4]	Lamp	Ballast Warranty Period*[8]	Lamp Warranty Period*
QUICKTRONIC® T8[1]	OCTRON XPS®, XP & XP/SS[2, 3]	60 mos.	36 mos.
QUICKTRONIC T8[1]	OCTRON family	60 mos.	30 mos.
QUICKTRONIC T8 High Ambient[1, 9]	OCTRON XP, XP/SS[2, 3]	36/60mos.@<90°/70°C	36 mos.
QUICKTRONIC 59	OCTRON FO96/XP, FO96/XP/SS	60 mos.	30 mos.
QUICKTRONIC 59	OCTRON FO96	60 mos.	24 mos.
QUICKTRONIC 86/T8HO High Ambient[1]	OCTRON FO96HO	36/60mos.@<90°/70°C	30 mos.
QUICKTRONIC 96IS/96HO & 40T12	N/A	60 mos.	N/A
QUICKTRONIC T5[1], T5/HO[1]	PENTRON® Family	60 mos.	24 mos.
QUICKTRONIC 54T5HO[1] High Ambient	PENTRON® FP54/HO, FP54/C/HO	36/60 mos.@<90°/70°C	36 mos.
QUICKTRONIC 54T5/HO[1]	PENTRON® FP54/HO, FP54/C/HO	60 mos.	36 mos.
QUICKTRONIC 54PHO & DL40	DULUX® FT55DL, FT40DL & FT40/28SS	60 mos.	12 mos.
QUICKTRONIC CF[1]	DULUX® D/E, T/E, T/E/IN, T/E/C	60 mos.	12 mos.
QUICKTRONIC FM	FM	24 mos.	6 mos.
QUICKTRONIC ICE[1, 5]	ICETRON®	60 mos.	60 mos.
QUICKTRONIC MH[7]	METALARC® Family[6] (7K-12K hrs. avg. rated life)	36/60 mos.	6 mos.
QUICKTRONIC MH[7]	METALARC® Family[6] (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® and with QUICKTRONIC ICE ballasts.

2 OCTRON SUPERSAVER® 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® 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, 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.

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® ballast systems. Also available, is our on-line version which you may find by visiting our web site at 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
e.g. QTP2X32T8/UNV ISN-TC	*49943*	*800*	*FO32/830/XP/ECO*	*21759*	*1600*	

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

Or Complete and Fax To:
OSRAM SYLVANIA
Fax #: 866/632-9674

OSRAM SYLVANIA National Customer Service and Sales Center
www.sylvania.com

the system solution®

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[4]	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

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 MERCHANTABILTY 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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INCANDESCENT LAMPS

TUNGSTEN HALOGEN LAMPS

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HIGH INTENSITY DISCHARGE LAMPS

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FLUORESCENT LAMPS

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SYSTEM WARRANTIES

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. Click on State Product Regulations.

United States
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Danvers, MA 01923 USA
1-800-LIGHTBULB
www.sylvania.com

Canada
OSRAM SYLVANIA LTD./LTÉE
Headquarters
2001 Drew Road
Mississauga, Ontario L5S 1S4
1-800-LIGHTBULB
www.sylvania.com

Mexico
OSRAM MEXICO
Headquarters
Tultitlan/Edo DeMexico
011-52-55-58-99-18-50
www.sylvania.com

For Orders and General Information in the United States:

OSRAM SYLVANIA
National Customer Service and Sales Center
18725 N. Union Street
Westfield, IN 46074

OEM/Special Markets
Phone: 800-762-7191
Fax: 800-762-7192

National Accounts
Phone: 800-562-4671
Fax: 800-562-4674

Industrial Commercial
Phone: 800-255-5042
Fax: 800-255-5043

Consumer Products
Phone: 800-842-7010
Fax: 800-842-7011

Display/Optic
Phone: 888-677-2627
Fax: 800-762-7192

SYLVANIA LIGHTING SERVICES:
Phone: 800-323-0572
Fax: 978-750-2784

For Orders and General Information in Canada:

OSRAM SYLVANIA LTD./LTÉE
2001 Drew Road
Mississauga, Ontario L5S 1S4

OEM/Special Markets
Phone: 800-265-2852
Fax: 800-667-6772

Industrial Commercial
Phone: 800-263-2852
Fax: 800-667-6772

Consumer Markets
Phone: 800-720-2852
Fax: 800-667-6772

Display/Optic
Phone: 800-265-2852
Fax: 800-667-6772

SYLVANIA LIGHTING SERVICES:
Phone: 800-663-4268
Fax: 866-239-1278

CATALOG08

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