

The background of the cover is a high-angle, night-time photograph of a city, likely New York City, with its lights reflecting on a body of water. A large, dark silhouette of a human head in profile is superimposed on the right side of the image. The city lights are visible through the silhouette, suggesting that the city is part of the person's vision or thought. A network of thin white lines connects various points across the image, creating a grid-like pattern that symbolizes technology and innovation. The overall color palette is dominated by the blues and yellows of the city lights against the dark night sky.

PHILIPS

Lighting Catalog

Lamp Specification
Guide

Innovation
for today
and tomorrow

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Creating innovations **that matter to people**

Since the introduction of the first Philips light bulb more than 120 years ago, innovation and a people-centric approach have always been at the core of our company.

Our commitment is to deliver new lighting technologies that make a real difference to our customers, consumers and stakeholders across the globe. We believe that the best way for us to do this, is through deep understanding of people's needs and desires.

When we bring the two together – people and innovation – we create the next generation of technology and things that people truly want and need. These are meaningful innovations that help people to be healthy, live well and enjoy life. This sets us apart and makes us Philips.






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ALTO lamp technology with green endcaps has become synonymous with environmental responsibility and low mercury.

Reduce energy and maintenance costs

Philips linear fluorescent lamps offer the lowest mercury[‡] and longest life[§] lamps in the industry. These energy saving, low mercury lamps are ideal for office, healthcare and government applications.

Philips T5 lamps featuring ALTO technology are powerful, environmentally-responsible, ultra-slim lamps. Most Philips T5 lamps feature an industry-low[¥] 1.4 mg of mercury, making them the preferred choice when sustainability objectives must be met. They are intended for operation on programmed start ballasts, and no burn-in is required before dimming. Energy Advantage, high efficiency, high output and extreme temperature lamps are available.

Philips T8 lamps featuring ALTO II technology feature an industry-low[‡] 1.7 mg of mercury. Look for the green endcaps when you're looking for a sustainable fluorescent alternative. They require no burn-in before dimming and can contribute to LEED-EB certification (usgbc.org). These environmentally responsible lamps are available in Energy Advantage, Advantage, Long Life and Extra Long Life options.

Current Product	Philips Upgrade Product	Benefit	Page
 54W 4ft T5 HO	 Energy Advantage T5 HO 44W featuring ALTO Lamp Technology	<ul style="list-style-type: none"> • Saves 10W per lamp • 40,000 hours rated average life for an extended relamping cycle[†] 	8
 32W 4ft T8	 Energy Advantage T8 4ft 25W featuring ALTO II Technology	<ul style="list-style-type: none"> • Saves 7W per lamp • 97% lumen maintenance • Up to 38,000 hours rated average life[‡]; • 42 month limited warranty period^{**} 	13
 32W 4ft T8	 Energy Advantage T8 2XL 4ft 25W featuring ALTO II Technology	<ul style="list-style-type: none"> • Saves 7W per lamp • 96% lumen maintenance • Up to 68,000 hours rated average life[‡]; • 60 month limited warranty period^{**} 	13

[†] Average life under engineering data with lamps turned off and restarted once every 12 operating hours. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

^{**} Limitations and restrictions apply, go to www.philips.com/warranties for more information

[‡] Philips 800 series T8 lamps contain 1.7mg of mercury compared to OSI's 841/XV with 3.5mg and GE's SPP41 lamp with 2.95mg.

[§] Philips Twice the Life Energy Advantage T8 lamp has a rated average life of 90,000 hours when operated on program start ballast with 12 hours per start compared to OSI's XP/XL lamp and GE's SXL lamp rated at 84,000 hours operated on program start ballast with 12 hours per start.

[¥] Philips F54T5/HO lamp contains 1.4mg of mercury compared to OSI's FP54/HO lamp and GE's F54T5/HO lamp with 2.5mg of mercury.

Philips T5 lamps with ALTO technology



Energy Advantage T5 lamps are a low-wattage option that provides needed energy savings without compromising too much light output. High efficiency, high output, and extra energy savings are available.

High efficiency T5 lamps provide up to 116 lumens per watt and are also available in an Energy Advantage option for maximum energy savings. High output T5 lamps are ideal for high-bay retail, industrial and warehouse applications. The high output is also available in an Energy Advantage, extreme temperature and extra long life versions.

High output T5 lamps are ideal for high-bay retail, industrial and warehouse applications. The high output is also available in an Energy Advantage, extreme temperature and extra long life versions.

Extreme temperature T5 lamps provide maximum light output in temperatures up to 140°F.

Philips T5 Lamp Family—Life Ratings and Warranty Periods

Products	Programmed Start ¹		Limited Warranty period ³	
	Rated Average Life (Hrs.) ²		3 Hr. Start	12 Hr. Start
	3 Hr. Start	12 Hr. Start		
T5HE – 14W, 21W, 28W & 35W	25,000	35,000	30 Months	36 Months
T5HE – Energy Advantage F28T5/800/EA/ALTO 25W	35,000	40,000	36 Months	42 Months
T5HO – 24W, 39W & 54W	25,000	35,000	30 Months	36 Months
T5HO – Energy Advantage F54T5/800/HO/EA/ALTO 49W	35,000	40,000	36 Months	42 Months
T5HO – Extra Energy Advantage F54T5/800/HO/EA/ALTO 44W	35,000	40,000	42 Months	48 Months
T5HO - Extra Long Life	50,000	65,000	48 Months	72 Months

1) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 3 or 12 operating hours as noted.

2) Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

3) Conditions apply—Based on maximum annual burn hours of 5110. Please contact Philips for warranty conditions for use of other equipment, including sensors. Please visit our website at www.philips.com/warranties.

Fluorescent Lamps

T5 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life 3 Hr. Start (202)	12 Hr. Start (241)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T5 High Output (HO) Energy Advantage Lamps

T5 Miniature Bipin; Programmed Start (226)

44	41781-6	▼■●Ⓢ	F54T5/835/HO/XEW/ALTO 44W	40	TL 835, 3500K	46	35,000	40,000	4500	4275	84
	41782-4	▼■●Ⓢ	F54T5/841/HO/XEW/ALTO 44W	40	TL 841, 4100K	46	35,000	40,000	4500	4275	82
	41783-2	▼■●Ⓢ	F54T5/850/HO/XEW/ALTO 44W	40	TL 850, 5000K	46	35,000	40,000	4320	4100	82
49	22050-9	■●Ⓢ	F54T5/835/HO/EA/ALTO 49W	40	TL 835, 3500K	46	35,000	40,000	5000	4750	84
	22052-5	■●Ⓢ	F54T5/841/HO/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	5000	4750	84
	40649-6	■●Ⓢ	F54T5/850/HO/EA/ALTO 49W	40	TL 850, 5000K	46	35,000	40,000	4850	4625	82

T5 High Output (HO) Energy Advantage Lamps Extreme Temperature with Amalgam Technology

T5 Miniature Bipin; Programmed Start (226)

49	40730-4	●Ⓢ	F54T5/841/HO/A/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	5000	4750	82
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T5 High Output (HO) Lamps

T5 Miniature Bipin; Programmed Start (226)

24	29019-7	●	F24T5/830/HO/ALTO	40	TL 830, 3000K	22	25,000	35,000	1950	1850	85
	29020-5	●	F24T5/835/HO/ALTO	40	TL 835, 3500K	22	25,000	35,000	1950	1850	84
	29021-3	●	F24T5/841/HO/ALTO	40	TL 841, 4100K	22	25,000	35,000	1950	1850	82
39	29022-1	●	F39T5/830/HO/ALTO	40	TL 830, 3000K	34	25,000	35,000	3500	3325	85
	29023-9	●	F39T5/835/HO/ALTO	40	TL 835, 3500K	34	25,000	35,000	3500	3325	84
	29025-4	●	F39T5/841/HO/ALTO	40	TL 841, 4100K	34	25,000	35,000	3500	3325	82
54	29026-2	●Ⓢ	F54T5/830/HO/ALTO	40	TL 830, 3000K	46	25,000	35,000	5000	4750	85
	29028-8	●Ⓢ	F54T5/835/HO/ALTO	40	TL 835, 3500K	46	25,000	35,000	5000	4750	84
	29083-3	●Ⓢ	F54T5/841/HO/ALTO	40	TL 841, 4100K	46	25,000	35,000	5000	4750	82
	13510-3	●Ⓢ	F54T5/850/HO/ALTO	40	TL 850, 5000K	46	25,000	35,000	4800	4600	82
	14745-4	●Ⓢ	F54T5/865/HO/ALTO	40	TL 865, 6500K	46	25,000	35,000	4650	4415	82

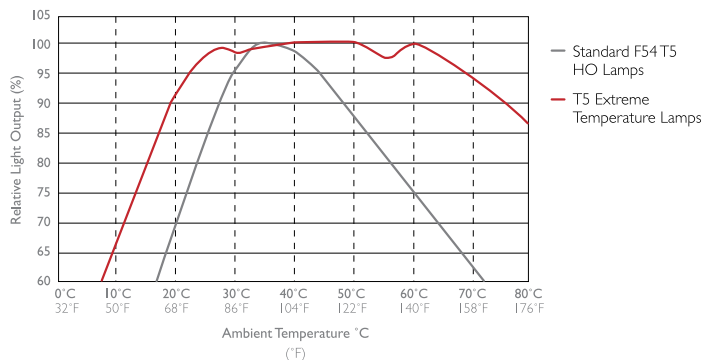
For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

Performance (Relative Light Output vs. Temperature)

Philips T5 Extreme Temperature Lamps vs. Standard F54T5 Lamps



T5 Miniature Bipin



Fluorescent Lamps

T5 Linear Fluorescent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

T5 High Efficiency Energy Advantage Lamps

T5 Miniature Bipin; Programmed Start (226)

25	40631-4	●●Ⓢ	F28T5/835/EA/ALTO 25W	40	TL 835, 3500K	46	35,000	40,000	2900	2750	84
	40632-2	●●Ⓢ	F28T5/841/EA/ALTO 25W	40	TL 841, 4100K	46	35,000	40,000	2900	2750	82
	41420-1	●●Ⓢ	F28T5/850/EA/ALTO 25W	40	TL 850, 5000K	46	35,000	40,000	2780	2640	82

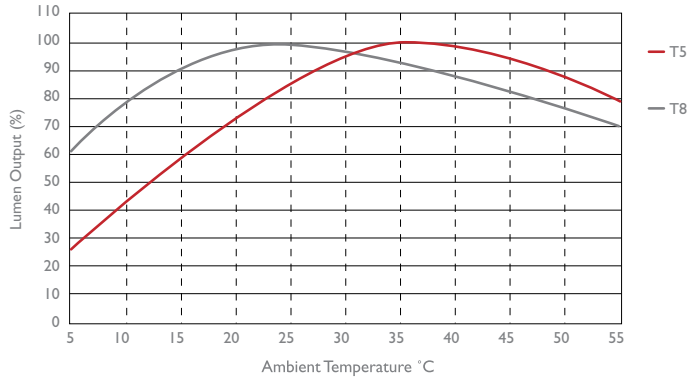
T5 High Efficiency Lamps

T5 Miniature Bipin; Programmed Start (226)

14	23077-1	●	F14T5/830/ALTO	40	TL 830, 3000K	22	25,000	35,000	1350	1275	85
	23079-7	●	F14T5/835/ALTO	40	TL 835, 3500K	22	25,000	35,000	1350	1275	84
	23080-5	●	F14T5/841/ALTO	40	TL 841, 4100K	22	25,000	35,000	1350	1275	82
21	23081-3	●	F21T5/830/ALTO	40	TL 830, 3000K	34	25,000	35,000	2100	2000	85
	23082-1	●	F21T5/835/ALTO	40	TL 835, 3500K	34	25,000	35,000	2100	2000	84
	23083-9	●	F21T5/841/ALTO	40	TL 841, 4100K	34	25,000	35,000	2100	2000	82
28	23084-7	●Ⓢ	F28T5/830/ALTO	40	TL 830, 3000K	46	25,000	35,000	2900	2750	85
	23085-4	●Ⓢ	F28T5/835/ALTO	40	TL 835, 3500K	46	25,000	35,000	2900	2750	84
	40485-3	●Ⓢ	F28T5/835/ALTO	6	TL 835, 3500K	46	25,000	35,000	2900	2750	84
	23086-2	●Ⓢ	F28T5/841/ALTO	40	TL 841, 4100K	46	25,000	35,000	2900	2750	82
35	23088-8	●	F35T5/830/ALTO	40	TL 830, 3000K	58	25,000	35,000	3650	3450	85
	23095-3	●	F35T5/841/ALTO	40	TL 841, 4100K	58	25,000	35,000	3650	3450	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

T5/T8 Lumens vs. Temperature



T5 Lumens at 35°C and 25°C

Lamp Type	Approx. Initial Lumens at 35°C (203, 204)	Approx. Initial Lumens at 25°C (203, 204)
F14T5	1350	1175
F21T5	2100	1800
F28T5	2900	2625
F35T5	3650	3275
F24T5/HO	1950	1675
F39T5/HO	3500	3100
F54T5/HO	5000	4450



T5 Miniature Bipin

Fluorescent Lamps

T5 Circular Lamps, Preheat Fluorescent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Av. Life (Hrs.)(202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T5 Circular Fluorescent Lamps

2GX13 Base; Programmed Start

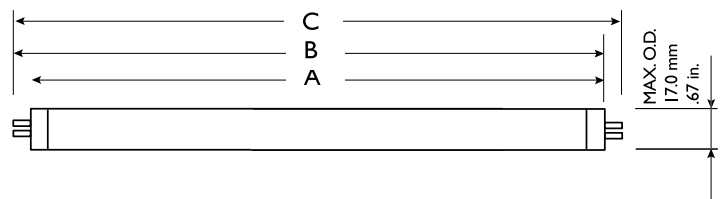
22	16601-7		TL5C 22W/830	10	Formerly FC9T5/830	9 OD	16,000	1800	1530	85
	16600-9		TL5C 22W/840	10	Formerly FC9T5/841	9 OD	16,000	1800	1530	85
40	14859-3		TL5C 40W/835	10	Formerly FC12T5/835	12 OD	16,000	3300	2805	85
55	16593-6		TL5C 55W/830	10	Formerly FC12T5/830/HO	12 OD	16,000	4200	3580	85
	16592-8		TL5C 55W/840	10	Formerly FC12T5/841/HO	12 OD	16,000	4200	3580	85

T5 Preheat Fluorescent Lamps

Miniature Bipin; Requires Use of Starters

4	33236-1		F4T5/CW	25	Cool White, 4100K	6	6000	135	95	59
6	33241-1		F6T5/CW	25	Cool White, 4100K	9	7500	295	230	59
8	33247-8		F8T5/CW	25	Cool White, 4100K	12	7500	400	300	59
13	33253-6		F13T5/CW	25	Cool White, 4100K	21	7500	820	655	59
	20703-5		F13T5/30U	25	Ultralume, 3000K	21	7500	1000	800	85

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T5 and T5 High Output Dimensions (226)

Type	A Max. (Width)		B Min. (Width)		B Max. (Width)		C Max. (Width)	
	inches	mm	inches	mm	inches	mm	inches	mm
T5 14W/24W	21.61	549.0	21.80	553.7	21.89	556.1	22.17	563.2
T5 21W/39W	33.42	849.0	33.61	853.7	33.70	856.1	33.98	863.2
T5 28W/54W	45.24	1149.0	45.42	1153.7	45.52	1156.1	45.80	1163.2
T5 35W/80W	57.05	1449.0	57.23	1453.7	57.33	1456.1	57.61	1463.2

Philips T8 lamps with ALTO II technology



Twice the life T8 lamps with ALTO II technology have the longest rated average life in the market[†] with up to 90,000 hours, and last up to 125% longer than an industry standard 4 foot T8 32W lamp*, and provide a cost saving solution that is better for the environment[§].

Energy Advantage T8 lamps with ALTO II technology offer different energy saving varieties so you can save up to 7 watts per lamp instantly when compared to a T8 32W lamp.

Advantage T8 lamps with ALTO II technology provide high lumen output in a low mercury option.

800 Series Plus T8 lamps with ALTO II technology offer energy savings and longer life[‡] at a very competitive price.

700 Series T8 lamps with ALTO II technology are a cost-effective choice when fluorescent lamps are needed.

Philips T8 Lamp Family—Rated Average Life and Limited Warranty Periods¹

Philips Lamp	Instant Start ²		Programmed Start ³		Instant Start Limited Warranty (3hr/12hr starts)	12 hours Programmed Start Limited Warranty (3hr/12hr starts)
	3 hours	12 hours	3 hours	12 hours		
HL700, 800, and High CRI (90) T8	24,000	30,000	30,000	36,000	30/30 Months	30/36 Months
Advantage T8 32W High Lumen	24,000	30,000	30,000	36,000	30/30 Months	36/36 Months
Plus T8 32W	30,000	36,000	36,000	44,000	36/42 Months	42/48 Months
T8 Energy Advantage & Value Energy Advantage 25W and 28W	32,000	38,000	38,000	44,000	36/42 Months	48/54 Months
Energy Advantage T8 25W XLL, 28W XLL & 32W Extra Long Life (XLL)	40,000	46,000	46,000	52,000	42/48 Months	48/60 Months
32W Twice the Life T8 (2XL)	46,000	52,000	60,000	70,000	42/48 Months	48/72 Months
Energy Advantage T8 25W 2XL & 28W 2XL Twice the Life (2XL)	60,000	68,000	80,000	90,000	48/60 Months	60/84 Months

1) Conditions apply—Based on maximum annual burn hours of 5110. Please contact Philips for warranty conditions for use of other equipment, including sensors.

2) Average life under engineering data on instant start ballast with lamps turned off and restarted once every 3 or 12 operating hours as indicated. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

3) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 3 or 12 operating hours as noted. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

* When replacing a standard 4' T8 32W lamp with 30,000 hours rated average life and 2850 lumens with a Philips Twice the Life Energy Advantage T8 32W with 68,000 hours rated average life and 2400 lumens. Rated average life based on 12 hours per start on an instant start ballast.

‡ Philips Twice the Life Energy Advantage T8 lamp has a rated average life of 90,000 hours when operated on program start ballast with 12 hours per start compared to OSI's XP/XL lamp and GE's SXL lamp rated at 84,000 hours operated on program start ballast with 12 hours per start.

§ Philips 800 series T8 lamps contain 1.7mg of mercury compared to OSI's 841/XV with 3.5mg and GE's SPP41 lamp with 2.95mg.

‡ Philips 800 Series Plus T8 lamps have rated average life of 36,000 hours when operated on instant start ballast with 12 hours per start versus Philips standard 800 series T8 lamps have rated average life of 30,000 hours when operated on instant start ballast with 12 hours per start.

Fluorescent Lamps

Twice the Life (2XL) T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)		CRI
							3 Hr. Start (202)	12 Hr. Start (241)		Lumens	CRI	

Twice the Life Energy Advantage 25 Watt T8 Fluorescent Lamp

T8 Medium Bipin Featuring ALTO II Technology

25	43395-2	Ⓢ ● ●	F32T8/ADV830/2XL/ALTO 25W	30	Advantage 830, 3000K	48	60,000	68,000	2400	2305	85
	43396-0	Ⓢ ● ●	F32T8/ADV835/2XL/ALTO 25W	30	Advantage 835, 3500K	48	60,000	68,000	2400	2305	84
	43397-8	Ⓢ ● ●	F32T8/ADV841/2XL/ALTO 25W	30	Advantage 841, 4100K	48	60,000	68,000	2400	2305	82
	43398-6	Ⓢ ● ●	F32T8/ADV850/2XL/ALTO 25W	30	Advantage 850, 5000K	48	60,000	68,000	2350	2255	82

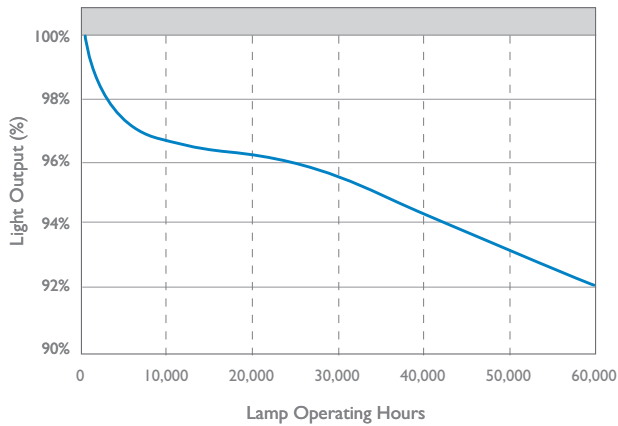
Twice the Life Energy Advantage 28 Watt T8 Fluorescent Lamp

T8 Medium Bipin Featuring ALTO II Technology

28	43401-9	Ⓢ ● ●	F32T8/ADV830/2XL/ALTO 28W	30	Advantage 830, 3000K	48	60,000	68,000	2650	2545	85
	43402-7	Ⓢ ● ●	F32T8/ADV835/2XL/ALTO 28W	30	Advantage 835, 3500K	48	60,000	68,000	2650	2545	84
	43403-5	Ⓢ ● ●	F32T8/ADV841/2XL/ALTO 28W	30	Advantage 841, 4100K	48	60,000	68,000	2650	2545	82
	43404-3	Ⓢ ● ●	F32T8/ADV850/2XL/ALTO 28W	30	Advantage 850, 5000K	48	60,000	68,000	2600	2595	82

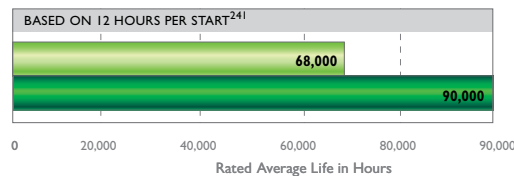
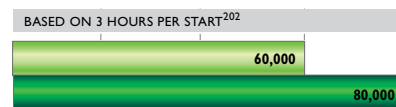
For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

96% Lumen Maintenance Energy Advantage T8 25W 2XL Lamps



Rated Average Life

Instant Start Ballast Programmed Start Ballast



Fluorescent Lamps

Extra Long Life (XLL) Energy Advantage T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Extra Long Life Energy Advantage 25 Watt T8 Fluorescent Lamp

T8 Medium Bipin Featuring ALTO II Technology

25	28122-0	Ⓢ ●	F32T8/ADV835/XLL/ALTO 25 Watt	30	Advantage 835, 3500K	48	40,000	46,000	2400	2330	84
	28123-8	Ⓢ ●	F32T8/ADV841/XLL/ALTO 25 Watt	30	Advantage 841, 4100K	48	40,000	46,000	2400	2330	82
	28125-3	Ⓢ ●	F32T8/ADV850/XLL/ALTO 25 Watt	30	Advantage 850, 5000K	48	40,000	46,000	2350	2280	82

Extra Long Life Energy Advantage 28 Watt T8 Fluorescent Lamp

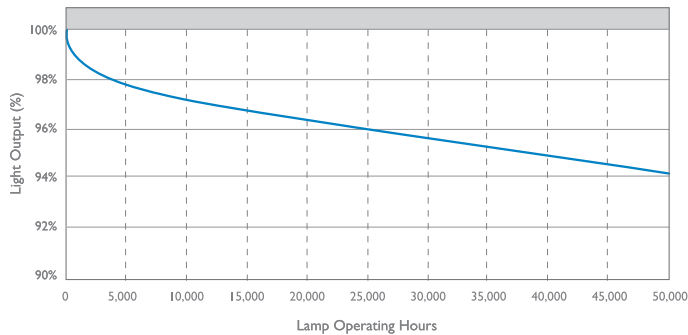
T8 Medium Bipin Featuring ALTO II Technology

28	28148-5	Ⓢ ●	F32T8/ADV835/XLL/ALTO 28 Watt	30	Advantage 835, 3500K	48	40,000	46,000	2675	2595	84
	28127-9	Ⓢ ●	F32T8/ADV841/XLL/ALTO 28 Watt	30	Advantage 841, 4100K	48	40,000	46,000	2675	2595	82
	28128-7	Ⓢ ●	F32T8/ADV850/XLL/ALTO 28 Watt	30	Advantage 850, 5000K	48	40,000	46,000	2625	2545	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

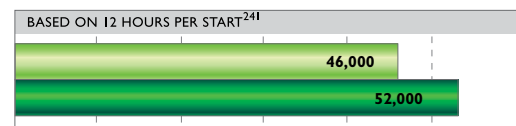
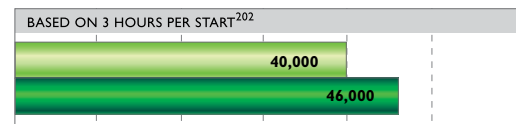
97% Lumen Maintenance

T8 Energy Advantage T8 25W and 28W XEW and XLL Lamps



Rated Average Life

Instant Start Ballast Programmed Start Ballast



T8 Medium Bipin

Rated Average Life in Hours

Fluorescent Lamps

Energy Advantage T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)		CRI
							3 Hr. Start (202)	12 Hr. Start (241)				

Energy Advantage T8 25 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

25	28204-6	Ⓢ ● ●	F32T8/ADV830/XEW/ALTO 25 Watt	30	Advantage 830, 3000K	48	32,000	38,000	2500	2450	85
	28209-5	Ⓢ ● ●	F32T8/ADV835/XEW/ALTO 25 Watt	30	Advantage 835, 3500K	48	32,000	38,000	2500	2450	84
	28078-4	Ⓢ ● ●	F32T8/ADV841/XEW/ALTO 25 Watt	30	Advantage 841, 4100K	48	32,000	38,000	2500	2450	82
	28079-2	Ⓢ ● ●	F32T8/ADV850/XEW/ALTO 25 Watt	30	Advantage 850, 5000K	48	32,000	38,000	2400	2350	82

Energy Advantage T8 28 Watt Fluorescent Lamps

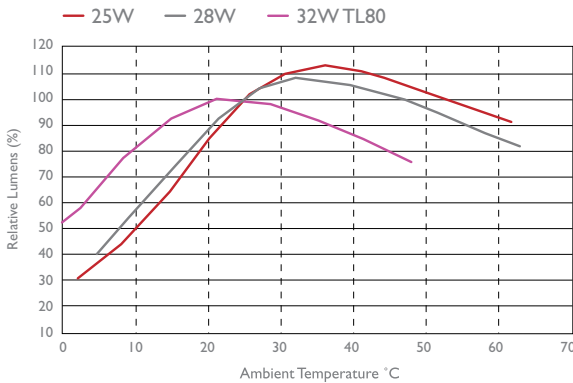
T8 Medium Bipin Featuring ALTO II Technology

28	28101-4	Ⓢ ● ●	F32T8/ADV830/EW/ALTO 28 Watt	30	Advantage 830, 3000K	48	32,000	38,000	2725	2645	85
	28102-2	Ⓢ ● ●	F32T8/ADV835/EW/ALTO 28 Watt	30	Advantage 835, 3500K	48	32,000	38,000	2725	2645	84
	28103-0	Ⓢ ● ●	F32T8/ADV841/EW/ALTO 28 Watt	30	Advantage 841, 4100K	48	32,000	38,000	2725	2645	82
	28105-5	Ⓢ ● ●	F32T8/ADV850/EW/ALTO 28 Watt	30	Advantage 850, 5000K	48	32,000	38,000	2675	2595	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

Relative Light Output vs. Ambient Temperature

4' T8 Lamps — 0.88 BF Ballast



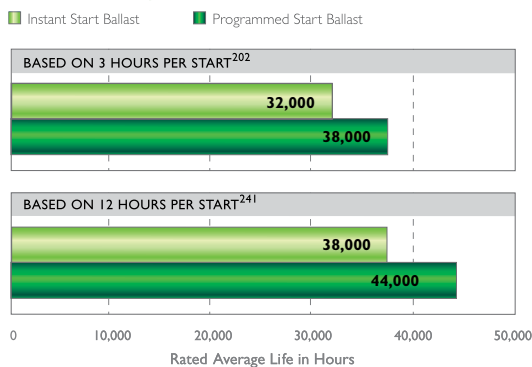
Relative light output with respect to 25°C rated temperature

Energy Advantage 25W T8 Savings

Save 7 Watts Instantly			
7 watts per lamp saved	Energy Savings Calculator		
	Annual Operating Hours**	Savings Over Lamp Life	
KWH Rate	4380	8760	38,000 hrs.
\$0.06	\$1.84	\$3.68	\$15.96
\$0.08	\$2.45	\$4.90	\$20.28
\$0.10	\$3.07	\$6.13	\$26.60
\$0.12	\$3.68	\$7.36	\$31.92
\$0.20	\$6.13	\$12.26	\$53.20

** 4380 hours are based on operating the lamps 12 hours per day/7 days per week.
8760 hours are based on operating the lamps 24 hours per day/7 days per week.

Rated Average Life



Cost of Ownership Savings

Energy Advantage T8 fluorescent lamps vs. standard T8 lamps.

Energy savings of 7 watts per lamp can be achieved instantly by simply changing the lamp.

Financial Impact

Energy Savings per Lamp	7 W
Operating Hours per Year	8760 hours, continuous burn
Cost per kWh	\$.10

Cost of Ownership Savings = \$6.13 per lamp per year

Fluorescent Lamps

Energy Advantage T8 Value Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Energy Advantage T8 Value 25 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

25	42420-0	© ■ ●	F32T8/VEA841/XEW/ALTO 25W	30	Value Energy Advantage 841, 4100K	48	32,000	38,000	2300	2250	82
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Energy Advantage T8 Value 28 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

28	42419-2	© ■ ●	F32T8/VEA841/EW/ALTO 28W	30	Value Energy Advantage 841, 4100K	48	32,000	38,000	2600	2550	82
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For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 Medium Bipin

Fluorescent Lamps

Advantage T8 High Lumen Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Advantage T8 High Lumen Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

Watts	Product Number	Symbol	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life 3 Hr. Start (202)	Rated Average Life 12 Hr. Start (241)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
32	28080-0	Ⓢ ●	F32T8/ADV830/ALTO	30	Advantage 830, 3000K	48	24,000	30,000	3100	3000	85
	28081-8	Ⓢ ●	F32T8/ADV835/ALTO	30	Advantage 835, 3500K	48	24,000	30,000	3100	3000	84
	28085-9	Ⓢ ●	F32T8/ADV841/ALTO	30	Advantage 841, 4100K	48	24,000	30,000	3100	3000	82
	28089-1	Ⓢ ●	F32T8/ADV850/ALTO	30	Advantage 850, 5000K	48	24,000	30,000	3000	2910	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

Energy Savings: Two Lamp vs. Two Lamp System

Electronic Ballast	Ballast Factor	No. of Lamps	Lamp Watts	Standard T8 Lumens	Advantage T8 Lumens	System Watts	Savings
Standard T8	0.87	2	32	2850	—	58	—
Reduced Light Output T8	0.75	2	32	—	3100	51	\$2.80/yr

Energy Savings: Two Lamp vs. Three Lamp System

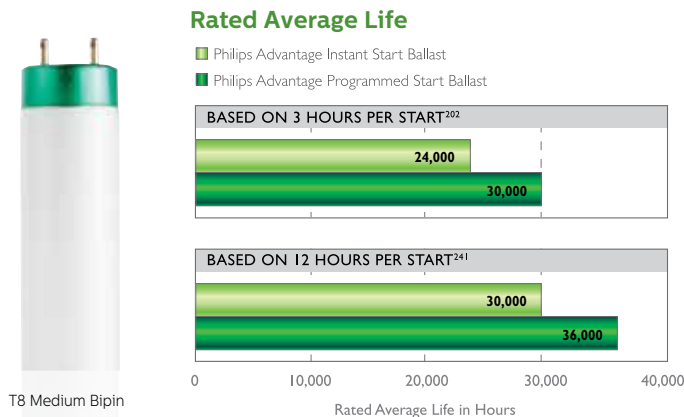
Electronic Ballast	Ballast Factor	No. of Lamps	Lamp Watts	Standard T8 Lumens	Advantage T8 Lumens	System Watts	Savings
Standard T8	0.87	3	32	2850	—	88	—
Increased Light Output T8	1.20	2	32	—	3100	78	\$4.00/yr

Combine Advantage T8 lamps with reduced light output electronic ballasts and get these results:

- Saves 7 system watts vs. standard T8 system
- Saves \$2.80 per fixture per year
- Energy savings based on 4000 hrs/yr @ \$.10 kw/hr

When you use Advantage T8 lamps with increased light output ballasts in a two lamp T8 system versus a three lamp standard T8 system, you will get the following results:

- Save 10 system watts
- Save \$4.00 per fixture per year
- Save energy based on 4000 hrs/yr @ \$.10 kw/hr
- Reduce lighting installation costs (lamps, ballasts, fixtures and labor)
- Operate on ballast with ballast factors up to 1.32 with limited warranty intact



Fluorescent Lamps

PLUS 800 Series T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

PLUS 800 Series Long Life T8 Fluorescent Lamps

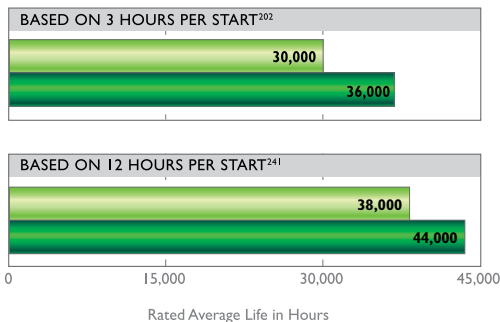
T8 Medium Bipin Featuring ALTO II Technology

17	28093-3	●	F17T8/TL830/PLUS/ALTO	30	TL 830, 3000K	24	30,000	36,000	1400	1330	85
	28094-1	●	F17T8/TL835/PLUS/ALTO	30	TL 835, 3500K	24	30,000	36,000	1400	1330	84
	28095-8	●	F17T8/TL841/PLUS/ALTO	30	TL 841, 4100K	24	30,000	36,000	1400	1330	82
	28096-6	●	F17T8/TL850/PLUS/ALTO	30	TL 850, 5000K	24	30,000	36,000	1325	1260	82
	28193-1	●	F17T8/TL865/PLUS/ALTO	30	TL 865, 6500K	24	30,000	36,000	1275	1210	82
25	28097-4	●	F25T8/TL830/PLUS/ALTO	30	TL 830, 3000K	36	30,000	36,000	2225	2115	85
	28098-2	●	F25T8/TL835/PLUS/ALTO	30	TL 835, 3500K	36	30,000	36,000	2225	2115	84
	28099-0	●	F25T8/TL841/PLUS/ALTO	30	TL 841, 4100K	36	30,000	36,000	2225	2115	82
32	28165-9	●	F32T8/TL830/PLUS/ALTO	30	TL 830, 3000K	48	30,000	36,000	3000	2850	85
	28167-5	Ⓢ ●	F32T8/TL835/PLUS/ALTO	30	TL 835, 3500K	48	30,000	36,000	3000	2850	84
	28179-0	Ⓢ ●	F32T8/TL841/PLUS/ALTO	30	TL 841, 4100K	48	30,000	36,000	3000	2850	82
	28181-6	Ⓢ ●	F32T8/TL850/PLUS/ALTO	30	TL 850, 5000K	48	30,000	36,000	2900	2735	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

Rated Average Life

- Philips PLUS Instant Start Ballast
- Philips PLUS Programmed Start Ballast



T8 Medium Bipin

Fluorescent Lamps

800 Series T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

800 Series T8 Fluorescent Lamps

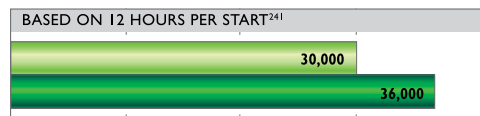
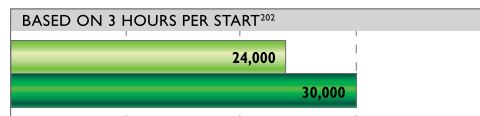
T8 Medium Bipin Featuring ALTO II Technology

17	28188-1	●	F17T8/TL835/ALTO	30	TL 835, 3500K	24	24,000	30,000	1350	1280	84
	28189-9	●	F17T8/TL841/ALTO	30	TL 841, 4100K	24	24,000	30,000	1350	1280	82
	28090-9	●	F17T8/TL850/ALTO	30	TL 850, 5000K	24	24,000	30,000	1300	1235	82
25	28190-7	●	F25T8/TL835/ALTO	30	TL 835, 3500K	36	24,000	30,000	2150	2040	84
	28191-5	●	F25T8/TL841/ALTO	30	TL 841, 4100K	36	24,000	30,000	2150	2040	82
	28092-5	●	F25T8/TL850/ALTO	30	TL 850, 5000K	36	24,000	30,000	2150	2040	82
40	36834-0	●	F40T8/TL835/ALTO	25	TL 835, 3500K	60	24,000	30,000	3725	3500	84
	36847-2	●	F40T8/TL841/ALTO	25	TL 841, 4100K	60	24,000	30,000	3725	3500	82

For the most current product information, go to the e-catalog on www.philips.com. Fluorescent symbols and footnotes located on page 53.

Rated Average Life

- Philips Universal Instant Start Ballast
- Philips Universal Programmed Start Ballast



0 10,000 20,000 30,000 40,000
Rated Average Life in Hours



T8 Medium Bipin

Fluorescent Lamps

High CRI (90) T8 Fluorescent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

High CRI (90) T8 Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

32	47959-2	●+	F32T8/TL930/ALTO 30PK	30	TL 930, 3000K	48	24,000	30,000	2775	2635	90
	47960-0	●+	F32T8/TL935/ALTO 30PK	30	TL 935, 3500K	48	24,000	30,000	2625	2500	90
	47962-6	●+	F32T8/TL941/ALTO 30PK	30	TL 941, 4100K	48	24,000	30,000	2600	2470	90
	47963-4	●+	F32T8/TL950/ALTO 30PK	30	TL 950, 5000K	48	24,000	30,000	2600	2470	90
	47964-2	●+	F32T8/TL965/ALTO 30PK	30	TL 965, 6500K	48	24,000	30,000	2600	2470	90

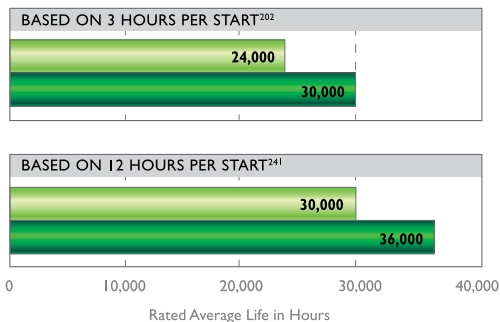
For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 Medium Bipin

Rated Average Life

- Philips Universal Instant Start Ballast
- Philips Universal Programmed Start Ballast



Fluorescent Lamps

T8 U-Bent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Energy Advantage U-Bent T8 Fluorescent Lamps

T8 Medium Bipin with 6" Wide Spacing (212)

25	20421-4	■●	FB32T8/ADV835/6/XEW/ALTO 25 WATT	20	TL 835, 3500K	22 ⁷ / ₁₆	24,000	30,000	2400	2330	84
	20423-0	■●	FB32T8/ADV841/6/XEW/ALTO 25 WATT	20	TL 841, 4100K	22 ⁷ / ₁₆	24,000	30,000	2400	2330	82
	20424-8	■●	FB32T8/ADV850/6/XEW/ALTO 25 WATT	20	TL 850, 5000K	22 ⁷ / ₁₆	24,000	30,000	2350	2280	82

800 Series U-Bent Rapid Start T8 Fluorescent Lamps

T8 Medium Bipin with 6" Wide Spacing (212)

32	37897-6	●	FB32T8/TL830/6/ALTO	20	TL 830, 3000K	22 ⁷ / ₁₆	24,000	30,000	2800	2535	85
	37900-8	●	FB32T8/TL835/6/ALTO	20	TL 835, 3500K	22 ⁷ / ₁₆	24,000	30,000	2800	2535	84
	37902-4	●	FB32T8/TL841/6/ALTO	20	TL 841, 4100K	22 ⁷ / ₁₆	24,000	30,000	2800	2535	82
	37880-2	●	FB32T8/TL850/6/ALTO	20	TL 850, 5000K	22 ⁷ / ₁₆	24,000	30,000	2700	2450	82

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Av. Life (Hrs.)(202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Energy Advantage U-Bent T8 Fluorescent Lamps

T8 Medium Bipin with 1⁵/₈" Wide Spacing (212)

29	22676-1	■●	FB29T8/TL835/EA/ALTO	15	TL 835, 3500K	22 ³ / ₈	24,000	2600	2470	84
	22677-9	■●	FB29T8/TL841/EA/ALTO	15	TL 841, 4100K	22 ³ / ₈	24,000	2600	2470	82

800 Series U-Bent T8 Fluorescent Lamps

T8 Medium Bipin with 1⁵/₈" Wide Spacing (212)

31	22671-2	●	FB31T8/TL830/ALTO	15	TL 830, 3000K	22 ³ / ₈	24,000	2775	2636	85
	22672-0	●	FB31T8/TL835/ALTO	15	TL 835, 3500K	22 ³ / ₈	24,000	2775	2636	84
	22674-6	●	FB31T8/TL841/ALTO	15	TL 841, 4100K	22 ³ / ₈	24,000	2775	2636	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 U-Bent Lamp
Medium Bipin



T8 1⁵/₈" U-Bent Lamp
Medium Bipin

Fluorescent Lamps

Rapid Start T8 Lamps, Preheat T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Rapid Start 98 CRI T8 Fluorescent Lamps

T8 Medium Bipin; High CRI

32	20905-6		F32T8/TL950 98CRI	25	TL 950, 5000K	48	20,000	20,000	2000	1860	98
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Preheat T8 Fluorescent Lamps

T8 Medium Bipin Linear Fluorescent Lamps; Requires Use of Starters (202)

15	40720-5		F15T8D	25	Daylight, 6500K	18	7500	–	750	660	73
	40719-7		F15T8/CW	25	Cool White, 4100K	18	7500	–	870	765	59
	39226-6		F15T8/PLANT	6	Plant Lite, Sleeved	18	7500	–	410	N/A	N/A
30	28147-7	●	F30T8/CW/ALTO	25	Cool White, 4100K	36	7500	–	2200	2000	59

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 Medium Bipin

Fluorescent Lamps

Energy Advantage Slimline and PLUS Slimline T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

PLUS Slimline T8 Fluorescent Lamps

T8 Single Pin; Featuring ALTO Lamp Technology; Instant Start

59	23684-4	Ⓢ ●	F96T8/TL835/PLUS/ALTO	25	TL 835, 3500K	96	24,000	30,000	5900	5490	84
	23685-1	Ⓢ ●	F96T8/TL841/PLUS/ALTO	25	TL 841, 4100K	96	24,000	30,000	5900	5490	82
	23686-9	Ⓢ ●	F96T8/TL850/PLUS/ALTO	25	TL 850, 5000K	96	24,000	30,000	5780	5375	82

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

PLUS Slimline T8 8-Ft Cost of Ownership Savings

PLUS Slimline 8-foot T8 Fluorescent Lamps vs. Standard 8-foot T8 Lamps

General Overview

PLUS Slimline 8-foot T8 fluorescent lamps may provide up to 60% longer life than standard 8-foot T8 products. With an incremental cost as little as \$1.00 per lamp*, benefits and financial impact can be significant.

Benefits

By using PLUS Slimline 8-foot T8 lamps, the lamp replacement and labor costs are extended by an extra 2 years on a facility that operates an average of 4000 hours per year. For example, a standard 8-foot T8 product, with a rated average life expectancy of 15,000 hours, will last nearly 4 years (15,000 hours rated average life / 4000 hours per year = 3¾ years).

Conversely, PLUS Slimline 8-foot T8 lamps will operate for 6 years due to their rated average life expectancy of 24,000 hours (24,000 hours rated average life / 4000 hours per year = 6 years).

Financial Impact

With the extended life expectancy of 2 years and the benefits of Philips exclusive TCLP-compliant low mercury technology, the positive financial impact of installing PLUS Slimline 8-foot T8 lamps may provide cost of ownership savings per lamp as follows:

Incremental Cost	\$ (1.00)
Material Cost Avoidance ^A	\$ 4.00
Labor Cost Avoidance ^B	\$ 3.72
Disposal Cost Avoidance ^C	\$ 0.72
Cost of Ownership Savings	\$ 7.44

A Material Cost Avoidance is the annualized acquisition cost per lamp (average cost per lamp of \$7.50 for standard 8-Foot T8 product / 3 3/4 years = \$2.00 per year). By installing PLUS Slimline 8-Foot T8 lamps, a material cost per lamp of \$4.00 is avoided due to the extra 2 years of life expectancy. Note that the average cost per lamp may vary.

B Labor Cost Avoidance is the annualized labor replacement cost per lamp (labor replacement cost per lamp of \$7.00 / 3 years = \$1.86 per year). By installing PLUS Slimline 8-Foot T8 lamps, a labor replacement cost per lamp of \$3.72 is avoided due to the extra 2 years life expectancy. Note that the labor replacement cost per lamp may vary.

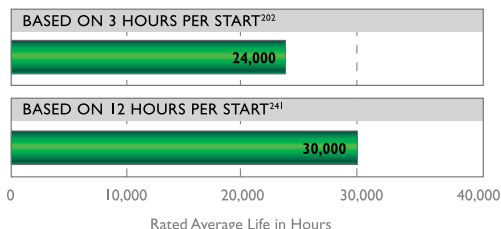
C Disposal Cost Avoidance is based on an average of \$.09 per foot for lamp recycling or \$.72 per 8-foot lamp. Philips Lighting Company encourages the recycling of all fluorescent lamps.



T8 Single Pin

Rated Average Life

■ Philips PLUS Slimline T8



* Sell price difference between standard lamp and PLUS lamp.

Fluorescent Lamps

Plus High Output and High Output T8 Lamps, U-Bent T12 Lamps, Rapid Start T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

PLUS High Output (HO) T8 Fluorescent Lamps

T8 Recessed D.C.; Featuring ALTO Lamp Technology, Use on proper Programmed Start Ballasts Only*

86	23687-7	Ⓢ ●	F96T8/TL835/HO/PLUS/ALTO	25	TL 835, 3500K	96	24,000	30,000	8200	7625	84
	23688-5	Ⓢ ●	F96T8/TL841/HO/PLUS/ALTO	25	TL 841, 4100K	96	24,000	30,000	8200	7625	82
	23689-3	Ⓢ ●	F96T8/TL850/HO/PLUS/ALTO	25	TL 850 5000K	96	24,000	30,000	8100	7550	82

* Per ANSI C78.81, this lamp is designed for programmed start operation with high frequency operating currents of 400mA (nominally) to achieve the rated lumens and life

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Av. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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High Output (HO) T8 Fluorescent Lamps

T8 Recessed D.C.; Featuring ALTO Lamp Technology, Use on proper Programmed Start Ballasts Only*

44	23679-4	●	F48T8/TL841/HO/ALTO	25	TL 841, 4100K	48	18,000	4000	3600	82
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* Per ANSI C78.81, this lamp is designed for programmed start operation with high frequency operating currents of 400mA (nominally) to achieve the rated lumens and life

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Av. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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U-Bent T12 Fluorescent Lamps

T12 Medium Bipin

40	42309-5		FB40/T12/NX/6	12	Neutral Deluxe, 3500K	22 $\frac{1}{8}$ "	18,000	2300	1955	90
	42308-7		FB40/T12/CWSupreme/6	12	Cool White Supreme, 4100K	22 $\frac{1}{8}$ "	18,000	2300	1955	90

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Av. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Rapid Start T12 Fluorescent Lamps

T12 Medium Bipin

30	37649-1	●	F30T12/D/RS/ALTO	30	Daylight, 6500K	36	18,000	1950	1700	73
	27242-7	●	F30T12/CW/RS/ALTO	30	Cool White, 4100K	36	18,000	2250	1900	59
	13221-7	●	F30T12/WW/RS/ALTO	30	Warm White, 3000K	36	18,000	2300	1950	49
40	42318-6		F40T12/NX/ALTO	30	Neutral Deluxe, 3500K	48	20,000	2550	2200	88
	42388-9		F40T12/CWSupreme/ALTO	30	Cool White Supreme, 4100K	48	20,000	2600	2250	89
	42312-9		F40T12/CWSupreme/PLUS/ALTO	30	Cool White Supreme, 4100K	48	24,000	2550	2220	89
	42389-7		F40T12/C50Supreme/ALTO	30	Color Tone 50 Supreme, 5000K	48	20,000	2500	2175	90
	27359-9		F40/DX/ALTO	30	Daylight Deluxe, 6500K	48	20,000	2325	2025	90

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 Recessed DC

T12 Medium Bipin

T12 U-Bent
Medium Bipin

Fluorescent Lamps

Preheat T12 Lamps, Slimline T12 Fluorescent Lamps, High Output T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Preheat T12 Fluorescent Lamps

T12 Medium Bipin Linear Fluorescent Lamps

15	14149-9		F15T12/CW 30PK	30	Cool White, 4100K	18	9000	800	695	62
20	27328-4	●	F20T12/D/ALTO	30	Daylight, 6500K	24	9000	960	960	73
	27332-6	●	F20T12/CW/ALTO	30	Cool White, 4100K	24	9000	1200	1050	59
	27349-0	●	F20T12/WW/ALTO	30	Warm White, 3000K	24	9000	1250	1100	49

Slimline T12 Fluorescent Lamps

T12 Single Pin Linear Fluorescent Lamps; Instant Start

39	36219-4	●	F48T12/D/ALTO	15	Daylight, 6500K	48	9000	2500	2220	73
	36321-8	●	F48T12/CW ALTO 15PK	15	Cool White, 4100K	48	9000	2950	2600	62
56	36985-0	●	F72T12/D/ALTO	15	Daylight, 6500K	72	12,000	3800	3350	73
	36989-2	●	F72T12/CW/ALTO	15	Cool White, 4100K	72	12,000	4450	3900	59
75	42305-3	●	F96T12/NX/ALTO	15	Neutral Deluxe, 3500K	96	12,000	5000	4250	88
	42319-4	●	F96T12/CWSupreme/ALTO	15	Cool White Supreme, 4100K	96	12,000	5000	4250	89
	42387-1	●	F96T12/C50Supreme/ALTO	15	Color Tone 50 Supreme, 5000K	96	12,000	5000	4350	90
	37282-1	●	F96T12/DX/ALTO	15	Daylight Deluxe, 6500K	96	12,000	4775	4200	90

High Output T12 Fluorescent Lamps (800ma)

T12 Recessed D.C. Linear Fluorescent Lamps (207, 214)

60	36984-3	●	F48T12/D/HO/ALTO	15	Daylight, 6500K	48	12,000	3400	3000	73
	36978-5	●	F48T12/CW/HO/ALTO	15	Cool White, 4100K	48	12,000	4050	3500	59
85	36653-4	●	F72T12/D/HO/ALTO	15	Daylight, 6500K	72	12,000	5350	4655	73
	36651-8	●	F72T12/CW/HO/ALTO	15	Cool White, 4100K	72	12,000	6350	5500	59
100	21489-0	●	F96T12/DX/HO	15	Daylight Deluxe, 6500K	96	12,000	6750	5800	90

High Output Outdoor Rated T12 Series Fluorescent Lamps (800ma)

T12 Recessed D.C. Linear Fluorescent Lamps; For Low Temperature Applications (223)

110	38177-4	●	F96T12/D/HO-O/ALTO	15	Daylight, 6500K	96	12,000	7600	6610	73
	38176-4	●	F96T12/CW/HO-O/ALTO	15	Cool White, 4100K	96	12,000	8600	7480	59

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T12 Medium Bipin

T12 Single Pin

T12 Recessed DC

Fluorescent Lamps

Very High Output T12, Gold Fluorescent, Appliance, T9 Circline Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life		Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Very High Output T12 Fluorescent Lamps (1500ma)

T12 Recessed D.C. Linear Fluorescent Lamps (214)

110	21819-8		F48T12/CW/VHO	15	Cool White, 4100K	48	12,000	12,000	7050	4950	59
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Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Circline Fluorescent Lamps

T9 4-Pin Circular Fluorescent Lamps

20	24982-1		FC6T9/COOL WHITE PLUS	12	Cool White, 4100K	6 1/2 OD	12,000	800	590	59
22	39222-5		FC8T9/BRIGHT WHITE	12	3000K	8 OD	12,000	1150	875	85
	39235-7		FC8T9/DAYLIGHT DELUXE	12	6500K	8 OD	12,000	910	675	79
	39116-9		FC8T9/COOL WHITE PLUS	12	Cool White, 4100K	8 OD	12,000	1050	775	59
32	39122-7		FC12T9/BRIGHT WHITE	12	3000K	12 OD	12,000	1900	1600	85
	26260-0		FC12T9/DAYLIGHT DELUXE	12	Daylight, 6500K	12 OD	12,000	1570	1300	73
	39117-7		FC12T9/COOL WHITE PLUS	12	Cool White, 4100K	12 OD	12,000	1800	1500	59
40	39118-5		FC16T9/COOL WHITE PLUS	12	Cool White, 4100K	16 OD	12,000	2500	1975	59

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T12 Recessed DC



T9 4-Pin Circular

Fluorescent Lamps

TuffGuard T5 and T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.)(241)	Approx. Initial Lumens (203,204)	CRI	Availability
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TuffGuard T5 Fluorescent Coated Lamps

T5 Miniature Bipin Linear Fluorescent Lamps

49	16961-5	■●	F54T5/841/HO/EA/ALTO 49W TG	40	4100	46	35,000	5000	82	Stocked
54	16298-2	●	F54T5/841/HO/ALTO TG	40	4100	46	35,000	5000	82	Stocked
	16686-8	●	F54T5/850/HO/ALTO TG	40	5000	46	35,000	4800	82	Stocked

TuffGuard T8 Fluorescent Coated Lamps

T8 Medium Bipin Linear Fluorescent Lamps

32	28339-0	●	F32T8/ADV841/ALTO TG	30	4100	48	30,000	3150	82	Stocked
	28329-1	●	F32T8/ADV850/ALTO TG	30	5000	48	30,000	3000	82	Made to Order
	28345-7	●	F32T8/TL835/PLUS/ALTO TG	30	3500	48	36,000	2950	84	Stocked
	28346-5	●	F32T8/TL841/PLUS/ALTO TG	30	4100	48	36,000	2950	82	Stocked
	28347-3	●+	F32T8/TL850/PLUS/ALTO TG	30	5000	48	36,000	2850	82	Stocked
	53649-0	●+	F32T8/TL935/ALTO TG 30PK	30	3500	48	30,000	2625	90	Stocked
	53650-8	●+	F32T8/TL941/ALTO TG 30PK	30	4100	48	30,000	2600	90	Made to Order
	53651-6	●+	F32T8/TL950/ALTO TG 30PK	30	5000	48	30,000	2600	90	Made to Order
	53648-2	●+	F32T8/TL965/ALTO TG 30PK	30	6500	48	30,000	2600	90	Made to Order
59	40909-4	●	F96T8/TL841/PLUS/ALTO TG	25	4100	96	30,000	5900	82	Made to Order
86	40912-8	●	F96T8/TL841/HO/PLUS/ALTO TG	25	4100	96	30,000	8200	82	Stocked

Note: Made to order products require a 3 week lead time.

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T5 Miniature Bipin



T8 Medium Bipin

Fluorescent Lamps

TuffGuard T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.)(202)	Approx. Initial Lumens (203,204)	CRI	Availability
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TuffGuard T12 Fluorescent Coated Lamps

40	42310-3	●	F40T12/NX/ALTO TG 30PK	30	3500	48	20,000	2550	88	Made To Order
	42400-2	●	F40T12/CWSUPREME/ALTO TG	30	4100	48	20,000	2600	89	Made To Order
	16299-0	●	F40DX/ALTO TG	30	6500	48	20,000	2325	90	Stocked
60	16296-6	●	F48T12/CW/HO/ALTO TG	15	4100	48	12,000	4050	59	Stocked
75	42316-0	●	F96T12/CWSUPREME/ALTO TG	15	4100	96	12,000	5000	89	Made To Order
	16297-4	●	F96T12/DX/ALTO/TG	15	6500	96	12,000	4500	90	Stocked
110	16301-4	●	F96T12/CW/HO-O/ALTO TG	15	4100	96	12,000	8600	59	Stocked

T5 Fluorescent Lamps

Linear Fluorescent Lamps; Miniature Bipin

4	39218-3		F4T5/SOFT WHITE	12/1	3000K	6	6000	150	120	85
6	39219-1		F6T5/SOFT WHITE	12/1	3000K	9	7500	325	260	85
8	39220-9	✘	F8T5/SOFT WHITE	12/1	3000K	12	7500	450	360	85
	54646-5		F8T5/BRIGHT WHITE 12/1	12/1	3000K Individual Sleeve	12	7500	450	360	85
	39114-4	✘	F8T5/COOL WHITE PLUS	12/1	4100K	12	7500	400	300	59
	54647-3		F8T5/COOL WHITE 12/1	12/1	4100K Individual Sleeve	12	7500	400	300	59
	15756-0		F8T5/BLB UPC	25/1	—	12	7500	—	—	—
13	39221-7	✘	F13T5/SOFT WHITE	12/1	3000K	21	7500	1000	800	85
	54648-1		F13T5/BRIGHT WHITE 12/1	12/1	3000K Individual Sleeve	21	7500	1000	800	85
	40974-8	✘	F13T5/Cool White	12/1	4100K	21	7500	820	660	59
	54649-9		F13T5/COOL WHITE 12/1	12/1	4100K Individual Sleeve	21	7500	820	660	59

T5 Fluorescent Lamps

21	22096-2	●	F21T5/TL830 UPC 12/1	12/1	TL830, 3000K	34	25,000	2100	2000	85
28	42917-5	●	F28T5/TL830 ALTO UPC 15/1	15/1	TL830, 3000K	46	25,000	2900	2750	85
	40963-1	●	F28T5/TL841 ALTO UPC 15/1	15/1	TL841, 4100K	46	25,000	2900	2750	82
54	41419-3	●	F54T5/TL841 ALTO UPC 15/1	15/1	TL841, 4100K	46	25,000	5000	4750	82
	45624-4	●	F54T5/TL841 ALTO UPC 15/1	15/1	TL850, 5000K	46	25,000	5000	4750	82

Note: Made to order products require a 3 week lead time.
For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T12 Medium Bipin



T12 Single Pin



T12 Recessed DC Bay



T5 Miniature Bipin

Fluorescent Lamps

Consumer T8 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T8 Fluorescent Lamps

Medium Bipin & Single Pin Linear Fluorescent Lamps

15	39212-6	●	F15T8/Bright White	6/1	3000K Individually Sleeved	18	7500	1000	900	85
	39207-6	●	F15T8/Cool White Plus	6/1	4100K Individually Sleeved	18	7500	870	765	59
	39108-6	●	F15T8/Cool White Plus	6/1	4100K Individually Sleeved	24	7500	1175	1035	59
	54514-5	†	F15T8/COOL WHITE PLUS/24 ALTO UPC 12/1	12/1	4100K UPC Stickered Lamp	24	7500	1175	1035	59
	39229-0		F15T8/NATURALSUNSHINE 6/1	6/1	5000K Individually Sleeved	18	7500	590	475	92
	54610-0	†	F15T8/Daylight Deluxe/18 ALTO 6PK	6/1	6500K Individually Sleeved	18	7500	750	660	73
17	28126-1	● ✘	F17T8/Soft White UPC	30	3000K 30 Pk Case	24	20,000	1400	1300	85
	54336-3	†	F17T8/Bright White/ALTO UPC 12/1	12/1	3000K UPC Stickered Lamp	24	20,000	1400	1300	85
	54515-0	†	F17T8/Daylight Deluxe/ALTO UPC 12/1	12/1	6500K UPC Stickered Lamp	24	24,000	1275	1210	82
30	39216-7	● ✘	F30T8/Soft White	6/1	3000K Individually Sleeved	36	7500	2500	2250	85
	54335-5		F30T8/Bright White/36 ALTO UPC 12/1	12/1	3000K UPC Stickered Lamp	36	7500	2500	2250	85
	28145-1	● ✘	F30T8/CW ALTO UPC	30	4100K Individually Sleeved	36	7500	2200	1760	59
	54516-0	†	F30T8/CoolWhite/ALTO UPC 12/1	12/1	4100K UPC Stickered Lamp	36	7500	2200	1760	59
32	42916-7	●	F32T8/Plant-Aquarium SLV 6PK	6/1	Individually Sleeved	48	24,000	2050	—	—
	47965-9	● + ✘	F32T8/Deluxe Softwhite/ALTO 36/2	36/2	3000K 2 Pk	48	24,000	2775	2635	90
	54328-0	†	F32T8/Bright White/ALTO 18/2	18/2	3000K 2PK	48	24,000	2775	2635	90
	47968-3	● +	F32T8/Deluxe Softwhite/ALTO 10PK	10	3000K 10 Pk Case	48	24,000	2775	2635	90
	47976-6	● +	F32T8/Deluxe Neutral White/ALTO 15/2	15/2	3500K 2 Pk	48	24,000	2625	2500	90
	47969-1	● +	F32T8/Deluxe Neutral White/ALTO 10PK	10	3500K 10 Pk Case	48	24,000	2625	2500	90
	47966-7	● + ✘	F32T8/Deluxe Cool White/ALTO 36/2	36/2	4100K 2 Pk	48	24,000	2600	2470	90
	54330-6	†	F32T8/Cool White/ALTO 18/2	18/2	4100K 2PK	48	24,000	2600	2470	90
	47970-9	● +	F32T8/Deluxe Cool White/ALTO 10PK	10	4100K 10 Pk Case	48	24,000	2600	2470	90
	47973-3	● +	F32T8/Deluxe Cool White/ALTO 30PK	30	4100K 30 Pk Case	48	24,000	2600	2470	90
	47977-4	● + ✘	F32T8/Deluxe Natural Light/ALTO 15/2	15/2	5000K 2 Pk	48	24,000	2600	2470	90
	54334-8	†	F32T8/Daylight/ALTO 30PK	30	5000K 30PK Case	48	24,000	2600	2470	90
	54331-4	†	F32T8/Daylight/ALTO 18/2	18/2	5000K 2PK	48	24,000	2600	2470	90
	47974-1	● +	F32T8/Daylight/ALTO 10PK	10	5000K 10 Pk Case	48	24,000	2600	2470	90
	47967-5	● + ✘	F32T8/Deluxe Daylight/ALTO 36/2	36/2	6500K 2 Pk	48	24,000	2600	2470	90
	54332-2	†	F32T8/Daylight Deluxe/ALTO 18/2	18/2	6500K 2PK	48	24,000	2600	2470	90
	47971-7	● +	F32T8/Deluxe Daylight/ALTO 10PK	10	6500K 10 Pk Case	48	24,000	2600	2470	90
47975-8	● +	F32T8/Deluxe Daylight/ALTO 30PK	30	6500K 30 Pk Case	48	24,000	2600	2470	90	

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.



T8 Medium Bipin

T8 Single Pin

Fluorescent Lamps

Consumer T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI	
14	14150-7		F14T12/SOFT WHITE	6/1	3000K Individually Sleeved	15	9000	700	560	85	
15	14146-5		F15T12/SOFT WHITE	6/1	3000K Individually Sleeved	18	9000	800	720	85	
20	39120-1	●✘	F20T12/SOFT WHITE	6/1	3000K Individually Sleeved	24	9000	1350	1215	85	
	54347-0		F20T12/BRIGHT WHITE/ALTO 12/1	12/1	Bright White (formerly Soft White) Individually Sleeved	24	9000	1350	1215	85	
	39230-8	✘	F20T12/NATURAL SUNSHINE	6/1	5000K Individually Sleeved	24	9000	850	755	92	
	54348-8		F20T12/DAYLIGHT/ALTO 12/1	12/1	Daylight (formerly Natural Light) Individually Sleeved	24	9000	850	755	92	
	20550-0	●✘	F20T12/CW/ALTO 15/2	15/2	4100K 2 Pk	24	9000	1200	1050	59	
	54327-2		F20T12/COOL WHITE/ALTO 12/1	12/1	Cool White 4100K Individually Sleeved	24	9000	1200	1050	59	
	20554-2	✘	F20T12/D/ALTO 15/2	15/2	6500K 2PK	24	9000	1075	960	73	
	54349-6		F20T12/DAYLIGHT DELUXE/ALTO 12/1	12/1	6500K Individually Sleeved	24	9000	1075	960	73	
	30	39215-9	●✘	F30T12/SOFT WHITE	6/1	3000K Individually Sleeved	36	18,000	2400	2160	85
		54344-7		F30T12/BRIGHT WHITE/ALTO 12/1	12/1	Bright White (formerly Soft White) Individually Sleeved	36	18,000	2400	2160	85
54346-2			F30T12/COOL WHITE/ALTO 12/1	12/1	Cool White 4100K Individually Sleeved	36	18,000	2250	1900	59	
40937-5		✘	F30T12/DAYLIGHT DELUXE/ALTO	6/1	6500K Individually Sleeved	36	18,000	1950	1700	79	
40	42276-6	●✘	F40T12/SOFT WHITE DX/ALTO 15/2	15/2	Soft White Deluxe, 3000K 2PK	48	20,000	2600	2260	88	
	54343-9		F40T12/BRIGHT WHITE/ALTO 18/2	18/2	Bright White (formerly Soft White), 3000K 2PK	48	20,000	2600	2260	88	
	42272-5	●	F40T12/NEUTRAL DX/ALTO 1/10	10	Neutral Deluxe, 3500K 10Pk Case	48	20,000	2600	2260	88	
	42274-1	●	F40T12/NEUTRAL DX/ALTO 15/2	15/2	Neutral Deluxe, 3500K, 2Pk	48	20,000	2550	2200	88	
	42267-5	●	F40T12/CWSUPREME/ALTO 1/10	10	Cool White Supreme, 4100K 10Pk Case	48	20,000	2600	2250	89	
	42270-9	●	F40T12/CWSUPREME/ALTO 1/30	30	Cool White Supreme, 4100K 30Pk Case	48	20,000	2600	2250	89	
	42281-6	●✘	F40T12/CWSUPREME/ALTO 36/2	36/2	Cool White Supreme, 4100K 2Pk	48	20,000	2600	2250	89	
	54342-1		F40T12/COOL WHITE/ALTO 18/2	18/2	COOL WHITE SUPREME, 4100K 2PK	48	20,000	2600	2250	89	
	42396-1	●	F40T12/DAYLIGHT/ALTO 1/10	10	Daylight (formerly Natural Light), 5000K 10PK CASE	48	20,000	2500	2250	92	
	42397-9	●✘	F40T12/C50 NATURAL SUPREME 15/2	15/2	Natural Light, 5000K 2Pk	48	20,000	2500	2250	92	
	54341-3		F40T12/DAYLIGHT/ALTO 18/2	18/2	Daylight (formerly Natural Light), 5000K 2PK	48	20,000	2500	2250	92	
	38752-2	●	F40T12/DAYLIGHT DX/ALTO 1/10	10	6500K 10 Pk Case	48	20,000	2325	2025	90	
	22683-7	●✘	F40T12/DAYLIGHT DX/ALTO 36/2	36/2	6500K 2 Pk	48	20,000	2325	2025	90	
	54340-5		F40T12/DAYLIGHT DELUXE/ALTO 18/2	18/2	DAYLIGHT DELUXE, 6500K 2PK	48	20,000	2325	2025	90	
40938-3	●	F40T12/DAYLIGHT DX/ALTO 1/30	30	6500K 30 Pk Case	48	20,000	2325	2025	90		
56	36999-1	●	F72T12/CW/ALTO UPC	15/1	4100K Individually Sleeved	72	12,000	4450	3900	59	
60	36982-7	●	F48T12/CW/HO/UPC	15/1	4100K Individually Sleeved	48	12,000	4050	3500	59	
75	37663-2	●	F96T12/DAYDLX/ ALTO 8/2PK	8/2	6500K 2 PK	96	12,000	4775	4200	90	
	42279-0	●	F96T12/NX/ALTO 8/2	8/2	Neutral Deluxe, 3500K 2Pk	96	12,000	5000	4250	88	
	42277-4	●✘	F96T12/CWSupreme/ALTO 1/15	15	Cool White Supreme, 4100K 15Pk Case	96	12,000	5000	4250	89	
	42278-2	●	F96T12/CWSupreme/ALTO 8/2	8/2	Cool White Supreme, 4100K 2Pk	96	12,000	5000	4250	89	
	42398-7	●	F96T12/Daylight/ALTO 8/2	8/2	Daylight (formerly Natural Light), 5000K 2PK	96	12,000	4800	4350	90	
110	20544-3	●	F96T12/CW/HO-O/ALTO	8/2	4100K 2 Pk	96	12,000	8600	7480	59	

For the most current product information, go to the e-catalog on www.philips.com.
Fluorescent symbols and footnotes located on page 53.

Fluorescent Lamps

Consumer T9, U-Bent T8, and Rapid Start U-Bent T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Circline Fluorescent Lamps

T9 Circular 4-Pin Fluorescent Lamps

22	39222-5		FC8T9/BRIGHT WHITE	12/1	Bright White (formerly Soft White) 3000K Individually Sleeved	8 OD	12,000	1150	875	85
	39116-9		FC8T9/COOL WHITE PLUS	12/1	4100K Individually Sleeved	8 OD	12,000	1050	775	59
	39235-7		FC8T9/DAYLIGHT DELUXE	12/1	6500K Individually Sleeved	8 OD	12,000	910	675	79
32	39122-7		FC12T9/BRIGHT WHITE	12/1	Bright White (formerly Soft White) 3000K Individually Sleeved	12 OD	12,000	1900	1600	85
	39117-7		FC12T9/COOL WHITE PLUS	12/1	4100K Individually Sleeved	12 OD	12,000	1800	1500	59
	26260-0		FC12T9/DAYLIGHT DELUXE	12/1	6500K Individually Sleeved	13 OD	12,000	1570	1300	79
40	39118-5		FC16T9/COOL WHITE PLUS	12/1	4100K Individually Sleeved	16 OD	12,000	2500	1975	59

U-Bent T8

T8 Medium Bipin

32	43452-2	● †	FB32T8/Bright White/6/ALTO UPC 10/110/1	10/1	Bright White (formerly Neutral Deluxe), 3500K	22 ⁷ / ₁₆	24,000	2800	2535	84
	43451-4	● †	FB32T8/Cool White/6/ALTO UPC 10/1	10/1	Cool White Supreme, 4100K	22 ⁷ / ₁₆	24,000	2800	2535	82

Rapid Start U-Bent T12

T12 Medium Bipin

40	42280-8		FB40/T12/CWSupreme/6 UPC 12/1	12/1	Cool White Supreme, 4100K	22 ⁷ / ₁₆	18,000	2300	1955	90
	42282-4		FB40/T12/Bright White/6 UPC 12/1	12/1	Bright White (formerly Neutral Deluxe), 3500K	22 ⁷ / ₁₆	18,000	2300	1955	90
	21993-1		FB40DX/6	12/1	Daylight Deluxe, 6500K	22 ⁷ / ₁₆	18,000	2250	1950	90

For the most current product information, go to the e-catalog on www.philips.com. Fluorescent symbols and footnotes located on page 53.



T9 4-Pin Circular

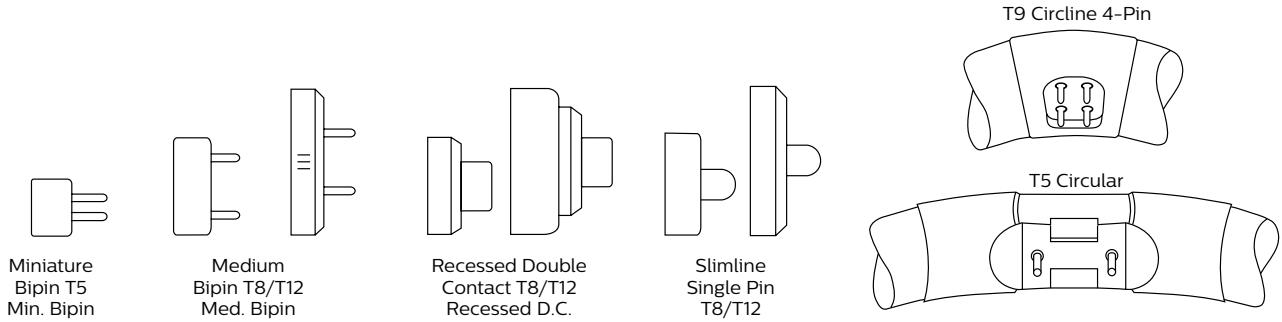
T8 U-Bent

T12 U-Bent Medium Bipin

Fluorescent Lamps

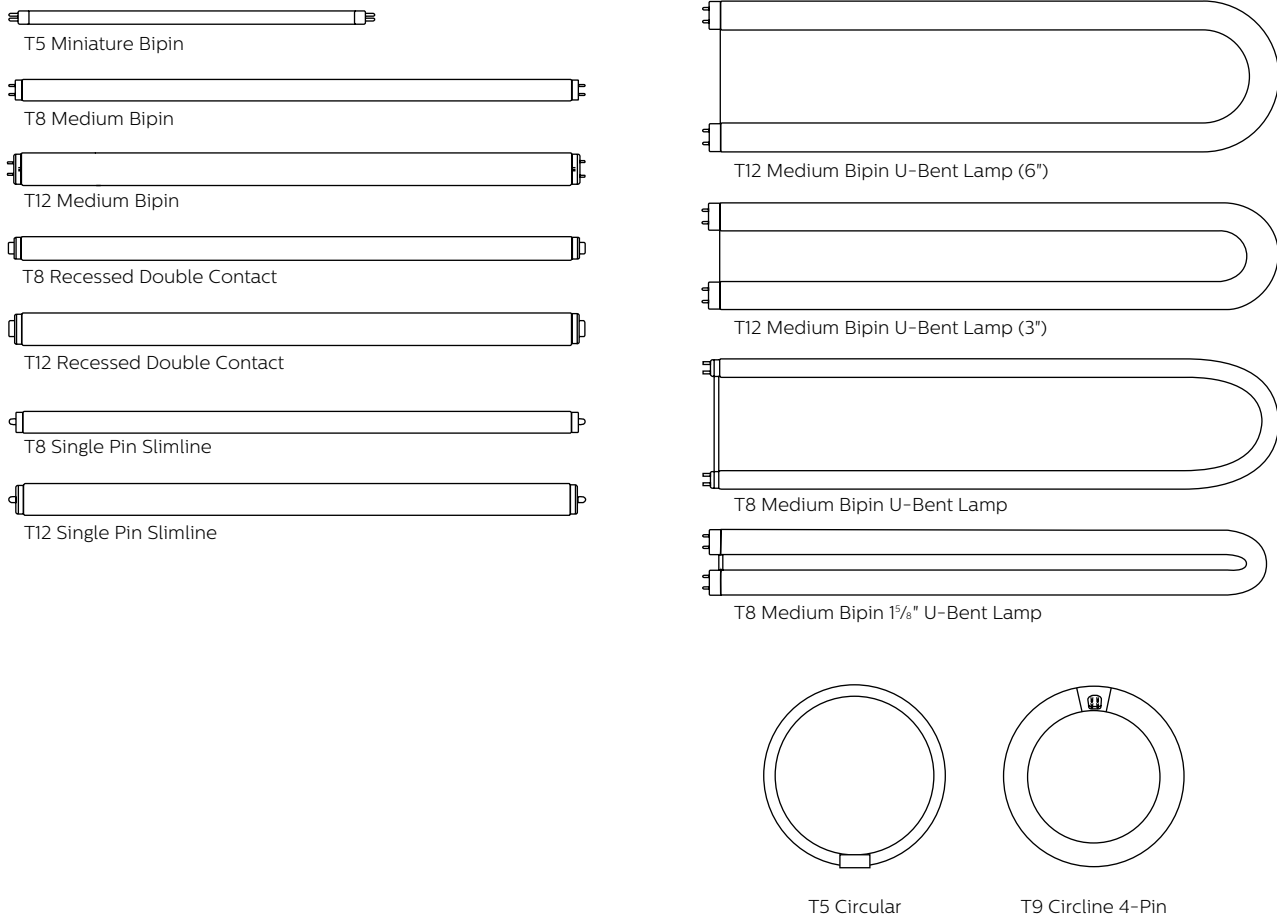
Base Types and Bulb Shapes

Base Types (Not Actual Sizes)



Bulb Shapes (Not Actual Sizes)

The size and shape of a bulb is designated by a letter or letters followed by a number. The letter indicates the shape of the bulb, while the number indicates the diameter of the bulb in eighths of an inch. For example, "T12" indicates a tubular shaped bulb having a diameter of $\frac{12}{8}$ or $1\frac{1}{2}$ inches. The following illustrations show some of the more popular bulb shapes and sizes.



For the most current product information, go to the e-catalog on www.philips.com

□ Exclusive to Signify North America Corporation

- This lamp is better for the environment because of its reduced mercury content. All Philips ALTO lamps give you end-of-life options, which can simplify and reduce your lamp disposal costs, depending on your state and local regulations. ALTO II Lamps have only 1.7mg of mercury.

© This Bulb Meets US Federal Minimum Efficiency Standard. Philips designs and manufactures fluorescent lamps to the following lighting industry standard: NEMA Standard LSD 26—Measurement Methods and Performance Tolerances for Verification Testing of General Purpose Incandescent and Fluorescent Lamps

† New since last printing

■ Energy Saving Product

✘ Product to be discontinued

(202) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

(203) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions.

(204) For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.

(207) Approximate initial lumens are for 800 ma. operation. For 1000 ma. operation, lumens are approximately 10% higher and watts approximately 15% higher.

(208) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.

(212) Nominal length measured from face of base to maximum distant outside point of U. Measurement does not include base pins. Leg spacing center to center approximately 6", for /6 and 3⁵/₈" for /3 lamps.







(214) Econ-o-watt lamps are only recommended for use on high power factor lead, indoor ballasts that meet ANSI standards. The lamps are not recommended for use in drafty areas, or locations where the ambient temperature is less than 60°F, except as noted. Also they should not be operated on low power factor ballasts, reduced light or reduced current ballasts, dimming ballasts or emergency system inverter ballasts.

(223) Meets the National Energy Policy Act of 1992 exemption for outdoor or cold temperature applications only.

(226) T5 nominal lamp lengths are shorter than standard sizes. See chart on page 27 for details.

(241) Average life under engineering data with lamps turned off and restarted once every 12 operating hours. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

Contents

	EnergySaver Twisters Page 34		PL-S Short Lamps Page 36		PL-C Cluster Lamps Page 36
	PL-T Triple Lamps Page 38		PL-L Long Lamps Page 39		PL Consumer Lamps Page 39







Compact fluorescent lamps can significantly lower energy consumption and operating costs.

Lower energy consumption and operating costs

Philips Energy Saver compact fluorescent lamps can help reduce your electric bill and save energy while helping you create a relaxing, inviting atmosphere. From table lamps and recessed lighting to decorative fixtures, compact fluorescents are available in the shapes and sizes you are accustomed to.

CFL lamps are available with an integrated ballast (CFLi) and without an integrated ballast (CFLni). Both types provide energy efficiency and long life. The integrated CFLi bulbs fit into most standard fixture and have a threaded screw base. The non-integrated CFLni bulbs offer versatility in configurations, size, and application possibilities.

Current Product	Philips Upgrade Product	Benefit	Page
 60W A19 Incandescent	 EnergySaver T2 Twister 13W	<ul style="list-style-type: none"> • Small size mini twister fits more fixtures • 10,000 hours rated average life² 	34
 40W PL-L	 Energy Advantage PL-L 25W	<ul style="list-style-type: none"> • 95% lumen maintenance • 20% energy savings (when compared to a PL-L 40W)* • Only 1.4mg of mercury 	39

Actual lumen values may vary

1) For compatible dimmers, please see: http://www.usa.lighting.philips.com/connect/tools_literature/compatibility.wpd

2) Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

* On Instant Start Ballast, a standard PL-L 40W only draws 32 Watts, so the actual savings is 7 Watts (32W - 25W = 7W). $40W - 32W = 8W / 40 = 20\%$

Compact Fluorescent Lamps

EnergySaver Twisters

Inc. Equiv. Watts	Watts	Bulb	Base	Product Number	Symbols, Footnotes	Description	Ordering Code	Pkg. Type	Case Qty.	MOL (In.)	Diam (In.)	Rated Avg. Life (Hrs.) (230)	CRI	Brightness (Lumens) (231)	Life (Yrs.) (446)	Energy Cost (445)	Light Appear. (CCT)
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EnergySaver T2 Mini Twister

FTC REQUIREMENTS ^Y

9	40	T2 Twister	Med.	41398-8	+	Mini Twister Soft White	EL/mdT TQS 9W T2	Box	6	3 ³ / ₈	1 ¹ / ₈	10,000	82	550	9.1	\$1.08	2700
				41706-3		Mini Twister Soft White	BC-EL/mdTQS 9W T2 4PK	Blister	6	3 ³ / ₈	1 ¹ / ₈	10,000	82	550	9.1	\$1.08	2700
13	60	T2 Twister	Med.	41399-6		Mini Twister Soft White	EL/mdTQS 13W T2	Box	6	4	2	10,000	82	900	9.1	\$1.57	2700
				45519-6		Mini Twister Soft White	SBC-EL/mdTQS 13W T2	Blister	6	4	2	10,000	82	900	9.1	\$1.57	2700
				41707-1		Mini Twister Soft White	BC-EL/mdTQS 13W T2 4PK	Blister	6	4	2	10,000	82	900	9.1	\$1.57	2700
				41403-7		Mini Twister Cool White	EL/mdTQS 13W T2 4.1K	Box	6	4	2	10,000	82	900	9.1	\$1.57	4100
				41404-5		Mini Twister Bright White	EL/mdTQS 13W T2 5K	Box	6	4	2	10,000	82	860	9.1	\$1.57	5000
				42009-1		Mini Twister Daylight	BC-EL/mdTQS 13W T2 6.5K 4PK	Blister	6	4	2	10,000	82	860	9.1	\$1.57	6500
				41807-9		Mini Twister Daylight	SBC-EL/mdTQS 13W T2 6.5K 3PK	Standing Blister	6	4	2	10,000	82	860	9.1	\$1.57	6500
18	75	T2 Twister	Med.	41708-9		Mini Twister Soft White	BC-EL/mdTQS 18W T2 4PK	Blister	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1250	9.1	\$2.17	2700
23	100	T2 Twister	Med.	41401-1		Mini Twister Soft White	EL/mdTQS 23W T2	Box	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	2700
				41709-7		Mini Twister Soft White	BC-EL/mdTQS 23W T2 4PK	Blister	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	2700
				41405-2		Mini Twister White Light	EL/mdTQS 23W T2 3.5K	Box	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	3500
				41406-0		Mini Twister Cool White	EL/mdTQS 23W T2 4.1K	Box	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	4100
				41407-8		Mini Twister Bright White	EL/mdTQS 23W T2 5K	Box	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	5000
				43355-7	+	Mini Twister Daylight Deluxe	BC-EL/mdTQS 23W T2 6.5K 4PK	Blister	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	6500
26	100	T2 Twister	Med.	41408-6		Mini Twister Cool White	EL/mdTQS 26W T2 4.1K	Box	6	4 ¹⁰ / ₈	2	10,000	82	1800	9.1	\$3.13	4100
				41409-4		Mini Twister Bright White	EL/mdTQS 26W T2 5K	Box	6	4 ¹⁰ / ₈	2	10,000	82	1700	9.1	\$3.13	5000

EnergySaver Twister GU24

13	60	Twist GU24	GU24	45419-9	+	Twister GU24 Soft White	EL/mdTQS 13W GU24	Box	6	4	2	10,000	82	900	9.1	\$1.57	2700
				45416-5	+	Twister GU24 Cool White	EL/mdTQS 13W GU24 4.1K	Box	6	4	2	10,000	82	900	9.1	\$1.57	4100
18	75	Twist GU24	GU24	45420-7	+	Twister GU24 Soft White	EL/mdTQS 18W GU24	Box	6	4 ⁷ / ₈	2 ¹ / ₈	10,000	82	1250	9.1	\$2.17	2700
23	100	Twist GU24	GU24	45421-5	+	Twister GU24 Soft White	EL/mdTQS 23W GU24	Box	6	4 ¹ / ₂	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	2700
				45418-1	+	Twister GU24 Cool White	EL/mdTQS 23W GU24 4.1K	Box	6	4 ¹ / ₂	2 ¹ / ₈	10,000	82	1600	9.1	\$2.77	4100

For the most current product information, go to the e-catalog on www.philips.com. Compact fluorescent symbols and footnotes located on page 63.



9W T2 Mini Twister Med.

13W T2 Mini Twister Med.

18W T2 Mini Twister Med.

23W T2 Mini Twister Med.

26W T2 Mini Twister Med.

GU24 Twister GU24

Compact Fluorescent Lamps

EnergySaver Base Types and Bulb Shapes

EnergySaver Compact Fluorescent Base Types (Not Actual Sizes)



Med.



GU24

EnergySaver Compact Fluorescent Bulb Shapes (Not Actual Sizes)



EL/mdT2
9W



EL/mdT2
13W



EL/mdT2
18W



EL/mdT2
23W



EL/mdT2
26W



EL/mdT
GU24

Compact Fluorescent Lamps

PL-S and PL-C Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Description	Generic Designation	Pkg Qty.	MOL (in.)	Rated Avg. Life (Hrs.)(230)	Design Lumens (208)	CRI	Brightness (Lumens) (231)	Life (Yrs.) (446)	Energy Cost (445)	Light Appear. (CCT)
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PL-S (Short) Fluorescent Lamps

FTC REQUIREMENTS ^Y

5	PL-S G23	14671-2	●	PL-S 5W/827/2P/ALTO	CFT5W/G23/827	10	4 ⁵ / ₃₂	10,000	210	82	250	9.1	\$0.60	2700
7	PL-S G23	14871-8	●	PL-S 7W/827/2P/ALTO	CFT7W/G23/827	10	5 ⁹ / ₃₂	10,000	360	82	400	9.1	\$0.84	2700
		14873-4	●	PL-S 7W/841/2P/ALTO	CFT7W/G23/841	10	5 ⁹ / ₃₂	10,000	360	82	400	9.1	\$0.84	4100
9	PL-S G23	14867-6	●	PL-S 9W/827/2P/ALTO	CFT9W/G23/827	10	6 ⁹ / ₃₂	10,000	540	82	600	9.1	\$1.08	2700
		14870-0	●	PL-S 9W/841/2P/ALTO	CFT9W/G23/841	10	6 ⁹ / ₃₂	10,000	540	82	600	9.1	\$1.08	4100
13	PL-S GX23	14681-1	●	PL-S 13W/827/2P/ALTO	CFT13W/GX23/827	10	7 ¹ / ₆₄	10,000	740	82	825	9.1	\$1.57	2700
		14684-5	●	PL-S 13W/835/2P/ALTO	CFT13W/GX23/835	10	7 ¹ / ₆₄	10,000	740	82	825	9.1	\$1.57	3500
		14685-2	●	PL-S 13W/841/2P/ALTO	CFT13W/GX23/841	10	7 ¹ / ₆₄	10,000	740	82	825	9.1	\$1.57	4100
		14687-8	●	PL-S 13W/850/2P/ALTO	CFT13W/GX23/850	10	7 ¹ / ₆₄	10,000	720	82	825	9.1	\$1.57	5000
		14688-6	●	PL-S 13W/850/2P/ALTO/BULK	CFT13W/GX23/850	50	7 ¹ / ₆₄	10,000	720	82	825	9.1	\$1.57	5000

PL-C (Cluster) 2-Pin—Energy Advantage

21	PL-C G24d-3	40977-1		PL-C 26W/835/XEW/ALTO 21W	CFQ26W/G24d/835	10	6 ⁹ / ₁₆	10,000	1375	82	1600	9.1	\$2.53	3500
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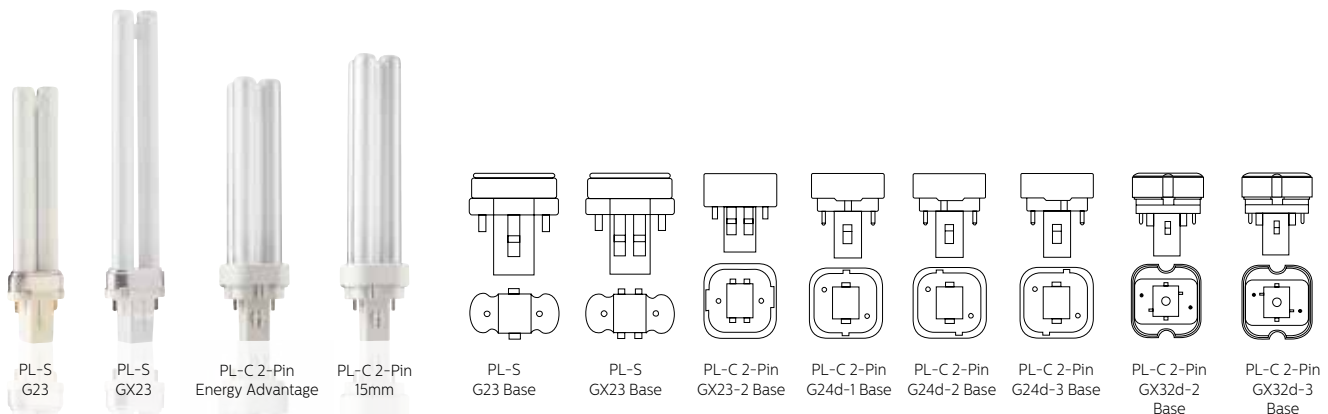
PL-C (Cluster) 2-Pin

13	PL-C GX23-2	38310-9	●	PL-C 13W/827/USA/ALTO	CFQ13W/GX23/827	10	4 ⁷ / ₁₆	10,000	735	82	860	9.1	\$1.57	2700
		38312-5	●	PL-C 13W/835/USA/ALTO	CFQ13W/GX23/835	10	4 ⁷ / ₁₆	10,000	735	82	860	9.1	\$1.57	3500
		38313-3	●	PL-C 13W/841/USA/ALTO	CFQ13W/GX23/841	10	4 ⁷ / ₁₆	10,000	735	82	860	9.1	\$1.57	4100
18	PL-C G24d-2	38316-6	●	PL-C 18W/827/ALTO	CFQ18W/G24d/827	10	6	10,000	1070	82	1250	9.1	\$2.17	2700
		38318-2	●	PL-C 18W/835/ALTO	CFQ18W/G24d/835	10	6	10,000	1070	82	1250	9.1	\$2.17	3500
		38319-0	●	PL-C 18W/841/ALTO	CFQ18W/G24d/841	10	6	10,000	1070	82	1250	9.1	\$2.17	4100
26	PL-C G24d-3	38321-6	●	PL-C 26W/827/ALTO	CFQ26W/G24d/827	10	6 ⁹ / ₁₆	10,000	1545	82	1800	9.1	\$3.13	2700
		38322-4	●	PL-C 26W/830/ALTO	CFQ26W/G24d/830	10	6 ⁹ / ₁₆	10,000	1545	82	1800	9.1	\$3.13	3000
		38323-2	●	PL-C 26W/835/ALTO	CFQ26W/G24d/835	10	6 ⁹ / ₁₆	10,000	1545	82	1800	9.1	\$3.13	3500
		38324-0	●	PL-C 26W/841/ALTO	CFQ26W/G24d/841	10	6 ⁹ / ₁₆	10,000	1545	82	1800	9.1	\$3.13	4100

PL-C (Cluster) 2-Pin, 15mm Tube Diameter

20	PL-C GX32d-2	24168-7		PL-C 15mm/22W/827	CFQ20W/GX32d/827	40	6	10,000	995	82	1200	9.1	\$2.41	2700
27	PL-C GX32d-3	24169-5		PL-C 15mm/28W/827	CFQ27W/GX32d/827	40	6 ⁹ / ₁₆	10,000	1325	82	1600	9.1	\$3.25	2700

For the most current product information, go to the e-catalog on www.philips.com. Compact fluorescent symbols and footnotes located on page 63.



Compact Fluorescent Lamps

PL-C Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Description	Generic Designation	Pkg. Qty.	MOL (In.)	Rated Avg. Life (Hrs.) (230)	Design Lumens (208)	CRI	Brightness (Lumens) (231)	Life (Yrs.) (446)	Energy Cost (445)	Light Appear. (CCT)
PL-C (Cluster) 4-Pin, Energy Advantage											FTC REQUIREMENTS †			
14	PL-C G24q-2	22040-0	●	PL-C 18W/835/XEW/4P/ALTO 14W	CFQ18W/G24q/835	10	5 ³ / ₁₆	12,000	1010	82	1100	11	\$1.69	3500
		22041-8	●	PL-C 18W/841/XEW/4P/ALTO 14W	CFQ18W/G24q/841	10	5 ³ / ₁₆	12,000	1010	82	1100	11	\$1.69	4100
21	PL-C G24q-3	22047-5	●	PL-C 26W/835/XEW/4P/ALTO 21W	CFQ26W/G24q/835	10	6 ¹ / ₂	12,000	1400	82	1525	11	\$2.53	3500
		22048-3	●	PL-C 26W/841/XEW/4P/ALTO 21W	CFQ26W/G24q/841	10	6 ¹ / ₂	12,000	1400	82	1525	11	\$2.53	4100

PL-C (Cluster) 4-Pin														
13	PL-C G24q-1	38325-7	●	PL-C 13W/827/4P/ALTO	CFQ13W/G24q/827	10	5 ³ / ₁₆	12,000	775	82	900	11	\$1.57	2700
		38326-5	●	PL-C 13W/830/4P/ALTO	CFQ13W/G24q/830	10	5 ³ / ₁₆	12,000	775	82	900	11	\$1.57	3000
		38327-3	●	PL-C 13W/835/4P/ALTO	CFQ13W/G24q/835	10	5 ³ / ₁₆	12,000	775	82	900	11	\$1.57	3500
		38328-1	●	PL-C 13W/841/4P/ALTO	CFQ13W/G24q/841	10	5 ³ / ₁₆	12,000	775	82	900	11	\$1.57	4100
18	PL-C G24q-2	38329-9	●	PL-C 18W/827/4P/ALTO	CFQ18W/G24q/827	10	5 ³ / ₁₆	12,000	1075	82	1250	11	\$2.17	2700
		38330-7	●	PL-C 18W/830/4P/ALTO	CFQ18W/G24q/830	10	5 ³ / ₁₆	12,000	1075	82	1250	11	\$2.17	3000
		38332-3	●	PL-C 18W/835/4P/ALTO	CFQ18W/G24q/835	10	5 ³ / ₁₆	12,000	1075	82	1250	11	\$2.17	3500
		38333-1	●	PL-C 18W/841/4P/ALTO	CFQ18W/G24q/841	10	5 ³ / ₁₆	12,000	1075	82	1250	11	\$2.17	4100
26	PL-C G24q-3	38334-9	●	PL-C 26W/827/4P/ALTO	CFQ26W/G24q/827	10	6 ¹ / ₂	12,000	1550	82	1800	11	\$3.13	2700
		38335-6	●	PL-C 26W/830/4P/ALTO	CFQ26W/G24q/830	10	6 ¹ / ₂	12,000	1550	82	1800	11	\$3.13	3000
		38336-4	●	PL-C 26W/835/4P/ALTO	CFQ26W/G24q/835	10	6 ¹ / ₂	12,000	1550	82	1800	11	\$3.13	3500
		38337-2	●	PL-C 26W/841/4P/ALTO	CFQ26W/G24q/841	10	6 ¹ / ₂	12,000	1550	82	1800	11	\$3.13	4100

For the most current product information, go to the e-catalog on www.philips.com.
Compact fluorescent symbols and footnotes located on page 63.



PL-C 4-Pin



PL-C 4-Pin G24q-1 Base



PL-C 4-Pin G24q-2 Base



PL-C 4-Pin G24q-3 Base

Compact Fluorescent Lamps

PL-T Lamps

Watts	Bulb	Base	Product Number	Symbols, Footnotes	Description	Generic Designation	Pkg. Qty.	MOL (In.)	Rated Avg. Life (Hrs.) (230)	Design Lumens (208)	CRI	Brightness (Lumens) (231)	Life (Yrs.) (446)	Energy Cost (445)	Light Appear. (CCT)
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PL-T (Triple) 4-Pin Amalgam, Energy Advantage

FTC REQUIREMENTS ^Y

21	PL-T	GX24q-3	40779-1	●	PL-T 26W/830/XEW/A/4P/ALTO 21W	CFTR26W/GX24q/830	10	5	16,000	1235	82	1400	14.6	\$2.53	3000
27	PL-T	GX24q-3	22021-0	●	PL-T 32W/830/XEW/A/4P/ALTO 27W	CFTR32W/GX24q/830	10	5½	16,000	1725	82	1875	14.6	\$3.25	3000
			22022-8	●	PL-T 32W/835/XEW/A/4P/ALTO 27W	CFTR32W/GX24q/835	10	5½	16,000	1725	82	1875	14.6	\$3.25	3500
33	PL-T	GX24q-4	22028-5	●	PL-T 42W/835/XEW/A/4P/ALTO 33W	CFTR42W/GX24q/835	10	6¾	16,000	2400	82	2615	14.6	\$3.97	3500

PL-T (Triple) 4-Pin Amalgam

18	PL-T	GX24q-2	45819-0	●	PL-T 18W/827/A/4P/ALTO	CFTR18W/GX24q/827	10	4¾	16,000	1020	82	1200	14.6	\$2.17	2700
			45821-6	●	PL-T 18W/830/A/4P/ALTO	CFTR18W/GX24q/830	10	4¾	16,000	1020	82	1200	14.6	\$2.17	3000
			45822-4	●	PL-T 18W/835/A/4P/ALTO	CFTR18W/GX24q/835	10	4¾	16,000	1020	82	1200	14.6	\$2.17	3500
			45823-2	●	PL-T 18W/841/A/4P/ALTO	CFTR18W/GX24q/841	10	4¾	16,000	1020	82	1200	14.6	\$2.17	4100
26	PL-T	GX24q-3	45824-0	●	PL-T 26W/827/A/4P/ALTO	CFTR26W/GX24q/827	10	5	16,000	1530	82	1800	14.6	\$3.13	2700
			45825-7	●	PL-T 26W/830/A/4P/ALTO	CFTR26W/GX24q/830	10	5	16,000	1530	82	1800	14.6	\$3.13	3000
			45826-5	●	PL-T 26W/835/A/4P/ALTO	CFTR26W/GX24q/835	10	5	16,000	1530	82	1800	14.6	\$3.13	3500
			45827-3	●	PL-T 26W/841/A/4P/ALTO	CFTR26W/GX24q/841	10	5	16,000	1530	82	1800	14.6	\$3.13	4100
32	PL-T	GX24q-3	45828-1	●	PL-T 32W/827/A/4P/ALTO	CFTR32W/GX24q/827	10	5½	16,000	2040	82	2400	14.6	\$3.85	2700
			45829-9	●	PL-T 32W/830/A/4P/ALTO	CFTR32W/GX24q/830	10	5½	16,000	2040	82	2400	14.6	\$3.85	3000
			45830-7	●	PL-T 32W/835/A/4P/ALTO	CFTR32W/GX24q/835	10	5½	16,000	2040	82	2400	14.6	\$3.85	3500
			45831-5	●	PL-T 32W/841/A/4P/ALTO	CFTR32W/GX24q/841	10	5½	16,000	2040	82	2400	14.6	\$3.85	4100
42	PL-T	GX24q-4	14900-5	●	PL-T 42W/827/A/4P/ALTO	CFTR42W/GX24q/827	10	6¾	16,000	2720	82	3200	14.6	\$5.06	2700
			14901-3	●	PL-T 42W/830/A/4P/ALTO	CFTR42W/GX24q/830	10	6¾	16,000	2720	82	3200	14.6	\$5.06	3000
			14903-9	●	PL-T 42W/841/A/4P/ALTO	CFTR42W/GX24q/841	10	6¾	16,000	2720	82	3200	14.6	\$5.06	4100
57	PL-T	GX24q-5	14632-4	●	PL-T 57W/835/A/4P	CFTR57W/GX24q/835	10	7¾	16,000	3741	82	4300	14.6	\$6.87	3500
			14633-2	●	PL-T 57W/841/A/4P	CFTR57W/GX24q/841	10	7¾	16,000	3741	82	4300	14.6	\$6.87	4100

PL-L (Long) Energy Advantage

25	PL-L	2G11	20913-0	●	PL-L 40W/830/XEW/4P/IS 25W	FT40W/2G11/RS/830	25	22½	24,000	2470	82	2600	21.9	\$3.01	3000
			20914-8	●	PL-L 40W/835/XEW/4P/IS 25W	FT40W/2G11/RS/835	25	22½	24,000	2470	82	2600	21.9	\$3.01	3500
			20915-5	●	PL-L 40W/841/XEW/4P/IS 25W	FT40W/2G11/RS/841	25	22½	24,000	2470	82	2600	21.9	\$3.01	4100

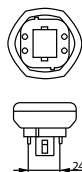
For the most current product information, go to the e-catalog on www.philips.com.
Compact fluorescent symbols and footnotes located on page 63.



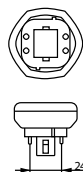
PL-T 4-Pin
Energy Advantage



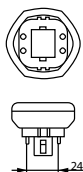
PL-T 4-Pin



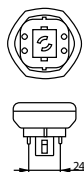
PL-T 4-Pin
GX24q-2 Base



PL-T 4-Pin
GX24q-3 Base



PL-T 4-Pin
GX24q-4 Base



PL-T 4-Pin
GX24q-5 Base

Compact Fluorescent Lamps

Consumer Lamps

Watts	Bulb	Base	Product Number	Symbols, Footnotes	Description	Generic Designation	Pkg Qty.	MOL (In.)	Rated Avg. Life (Hrs.) (230)	Design Lumens (208)	CRI	Brightness (Lumens) (231)	Life (Yrs.) (446)	Energy Cost (445)	Light Appear. (CCT)
PL-L (Long)															
FTC REQUIREMENTS [▼]															
18	PL-L	2G11	34500-9		PL-L 18W/830/4P	FT18W/2G11/830	25	8 ⁵ / ₁₆	15,000	1125	82	1250	13.7	\$2.17	3000
			35932-3		PL-L 18W/835/4P	FT18W/2G11/835	25	8 ⁵ / ₁₆	15,000	1125	82	1250	13.7	\$2.17	3500
			34501-7		PL-L 18W/841/4P	FT18W/2G11/841	25	8 ⁵ / ₁₆	15,000	1125	82	1250	13.7	\$2.17	4100
24	PL-L	2G11	34505-8		PL-L 24W/830/4P	FT24W/2G11/830	25	12 ¹ / ₁₆	15,000	1620	82	1800	13.7	\$2.89	3000
			35933-1		PL-L 24W/835/4P	FT24W/2G11/835	25	12 ¹ / ₁₆	15,000	1620	82	1800	13.7	\$2.89	3500
			34508-2		PL-L 24W/841/4P	FT24W/2G11/841	25	12 ¹ / ₁₆	15,000	1620	82	1800	13.7	\$2.89	4100
36	PL-L	2G11	34511-6		PL-L 36W/830/4P	FT36W/2G11/830	25	16 ¹ / ₁₆	15,000	2610	82	2900	13.7	\$4.34	3000
			34942-3		PL-L 36W/835/4P	FT36W/2G11/835	25	16 ¹ / ₁₆	15,000	2610	82	2900	13.7	\$4.34	3500
			34513-2		PL-L 36W/841/4P	FT36W/2G11/841	25	16 ¹ / ₁₆	15,000	2610	82	2900	13.7	\$4.34	4100
40	PL-L	2G11	30042-6		PL-L 40W/830/4P/RS/IS	FT40W/2G11/RS/830	25	22 ¹ / ₂	20,000	2970	82	3300	18.3	\$4.82	3000
			30043-4		PL-L 40W/835/4P/RS/IS	FT40W/2G11/RS/835	25	22 ¹ / ₂	20,000	2970	82	3300	18.3	\$4.82	3500
			30044-2		PL-L 40W/841/4P/RS/IS	FT40W/2G11/RS/841	25	22 ¹ / ₂	20,000	2970	82	3300	18.3	\$4.82	4100
50	PL-L	2G11	34753-4		PL-L 50W/835/4P/RS	FT50W/2G11/RS/835	25	22 ¹ / ₂	20,000	3870	82	4300	18.3	\$6.02	3500
			34770-8		PL-L 50W/841/4P/RS	FT50W/2G11/RS/841	25	22 ¹ / ₂	20,000	3870	82	4300	18.3	\$6.02	4100

PL-Q Square Shape—4 Pin

38	PL-Q	GRI0q	15941-8		PL-Q 38W/827/4P	CFS38W/GRI0q/827	10	8 ¹ / ₂	10,000	2395	82	2850	9.1	\$4.58	2700
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Consumer Lamps

7	PL-S	G23	23022-7	●	PL-S 7W/827/2P/ALTO	14871-8	6	5 ¹ / ₃₂	10,000	340	80	400	9.1	\$0.84	2700
9	PL-S	G23	23032-6	●	PL-S 9W/827/2P/ALTO	14867-6	6	6 ⁹ / ₃₂	10,000	510	80	600	9.1	\$1.08	2700
13	PL-S	GX23	23010-2	●	PL-S 13W/827/2P/ALTO	14681-1	6	7 ¹ / ₆₄	10,000	675	80	800	9.1	\$1.57	2700
	PL-C	GX23-2	23039-1	●	PL-C 13W/827/2P USA	38310-9	6	4 ⁵ / ₈	10,000	730	80	860	9.1	\$1.57	2700
			23040-9	●	PL-C 13W/841/2P USA	38313-3	6	4 ⁵ / ₈	10,000	730	80	860	9.1	\$1.57	4100
	PL-C	G24q-1	23035-9	●	PL-C 13W/827/4P	38325-7	6	5 ¹ / ₁₆	10,000	665	80	780	9.1	\$1.57	2700
			43469-6	●	PL-C 13W/841/4P	38328-1	6	5 ¹ / ₁₆	10,000	665	80	780	9.1	\$1.57	4100
18	PL-T	GX24q-2	45844-8	●	PL-T 18W/827/A/4P/ALTO	45819-0	6	4 ¹ / ₈	12,000	1020	80	1200	9.1	\$2.17	2700
26	PL-C	G24q-3	23042-5	●	PL-C 26W/827/4P	38334-9	6	6 ⁹ / ₁₆	10,000	1470	80	1710	9.1	\$3.13	2700
			43471-2	●	PL-C 26W/835/4P	38336-4	6	6 ⁹ / ₁₆	10,000	1470	80	1710	9.1	\$3.13	3500
	PL-T	GX24q-3	45845-5	●	PL-T 26W/827/A/4P/ALTO	45824-0	6	5	12,000	1530	80	1800	11.0	\$3.13	2700
			45846-3	●	PL-T 26W/841/A/4P/ALTO	45827-3	6	5	12,000	1530	80	1800	11.0	\$3.13	4100
			46592-2	●	PL-T 32W/835/A/4P/ALTO	45830-7	6	5	12,000	1530	80	1800	11.0	\$3.13	4100

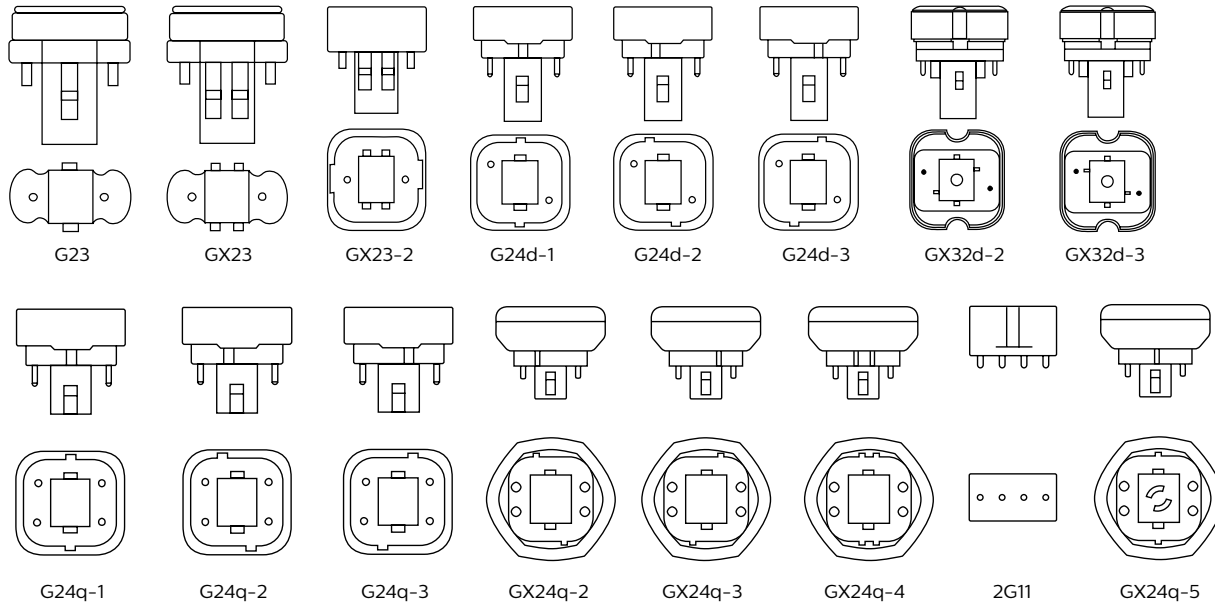
For the most current product information, go to the e-catalog on www.philips.com. Compact fluorescent symbols and footnotes located on page 63.



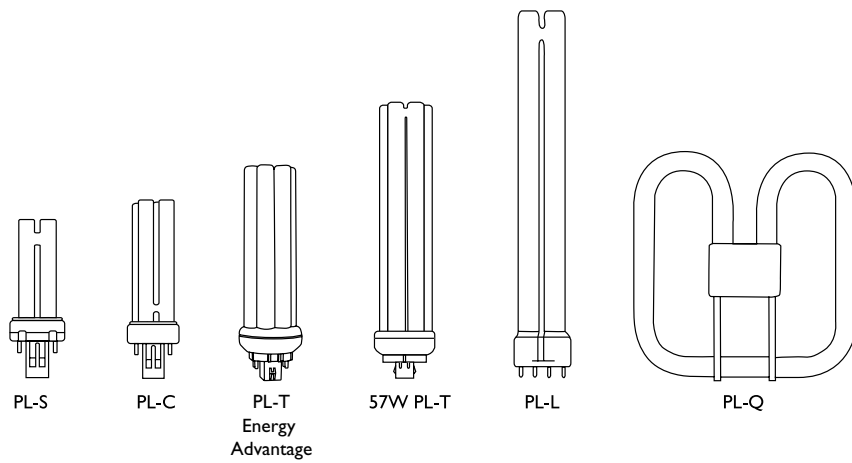
Compact Fluorescent Lamps

PL Base Types and Bulb Shapes

PL Base Types (Not Actual Sizes)



PL Bulb Shapes (Not Actual Sizes)



Compact Fluorescent Lamps

Symbols and Footnotes

For the most current product information, go to the e-catalog on www.philips.com

□ Exclusive to Signify North America Corporation

● This lamp is better for the environment because of its reduced mercury content. All Philips ALTO lamps give you end-of-life options, which can simplify and reduce your lamp disposal costs, depending on your state and local regulations

✕ Orders will be shipped until inventory is depleted; no longer manufactured

© This Bulb Meets US Federal Minimum Efficiency Standard

◇ Designed for instant start operation

¥ For more information about FTC requirements please see rule 16 CFR part 305 @ www.ftc.gov/02/2000/02/16cfr305

* Performs more optimally under air flow conditions and horizontal burning operation, compared to Philips PL-T amalgam containing lamps. First choice for short switching cycles, emergency lighting and deep dimming applications.

(208) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.

(230) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

(231) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life under standard laboratory conditions.

(445) Estimated energy cost is based on 3 hrs/day, 7 days/wk, 11¢/kWh. Cost depends on rates and use.

(446) Life in years is based on 3 hrs/day, 7 days/wk.

Compact Fluorescent Lamps

Cross Reference Guide

Philips	Generic Designation	GE	OSI
PL-S			
PL-S 5W/827	CFT5W/G23/827	F5BX/SPX27	CF5DS/827
PL-S 7W/827	CFT7W/G23/827	F7BX/SPX27	CF7DS/827
PL-S 7W/835	CFT7W/G23/835	F7BX/SPX35	CF7DS/835
PL-S 7W/841	CFT7W/G23/841	F7BX/SPX41	CF7DS/841
PL-S 7W/850	CFT7W/G23/850	F7BX/SPX50	CF7DS/850
PL-S 9W/827	CFT9W/G23/827	F9BX/SPX27	CF9DS/827
PL-S 9W/835	CFT9W/G23/835	F9BX/SPX35	CF9DS/835
PL-S 9W/841	CFT9W/G23/841	F9BX/SPX41	CF9DS/841
PL-S 9W/850	CFT9W/G23/850	F9BX/SPX50	CF9DS/850
PL-S 13W/827	CFT13W/GX23/827	F13BX/SPX27	CF13DS/827
PL-S 13W/830	CFT13W/GX23/830	F13BX/SPX30	CF13DS/830
PL-S 13W/835	CFT13W/GX23/835	F13BX/SPX35	CF13DS/835
PL-S 13W/841	CFT13W/GX23/841	F13BX/SPX41	CF13DS/841
PL-S 13W/850	CFT13W/GX23/850	F13BX/SPX50	CF13DS/850

PL-C 2-PIN			
PL-C 13W/827/USA/ALTO	CFQ13W/GX23/827	F13DBX23T4/SPX27	CF13DD/827
PL-C 13W/830/USA/ALTO	CFQ13W/GX23/830	F13DBX23T4/SPX30	CF13DD/830
PL-C 13W/835/USA/ALTO	CFQ13W/GX23/835	F13DBX23T4/SPX35	CF13DD/835
PL-C 13W/841/USA/ALTO	CFQ13W/GX23/841	F13DBX23T4/SPX41	CF13DD/841
PL-C 13W/827/ALTO	CFQ13W/G24d/827	F13DBXT4/SPX27	—
PL-C 13W/830/ALTO	CFQ13W/G24d/830	F13DBXT4/SPX30	—
PL-C 18W/827/ALTO	CFQ18W/G24d/827	F18DBXT4/SPX27	CF18DD/827
PL-C 18W/830/ALTO	CFQ18W/G24d/830	F18DBXT4/SPX30	CF18DD/830
PL-C 18W/835/ALTO	CFQ18W/G24d/835	F18DBXT4/SPX35	CF18DD/835
PL-C 18W/841/ALTO	CFQ18W/G24d/841	F18DBXT4/SPX41	CF18DD/841
PL-C 26W/827/ALTO	CFQ26W/G24d/827	F26DBXT4/SPX27	CF26DD/827
PL-C 26W/830/ALTO	CFQ26W/G24d/830	F26DBXT4/SPX30	CF26DD/830
PL-C 26W/835/ALTO	CFQ26W/G24d/835	F26DBXT4/SPX35	CF26DD/835
PL-C 26W/841/ALTO	CFQ26W/G24d/841	F26DBXT4/SPX41	CF26DD/841

PL-C 2-PIN 15MM			
PL-C 15MM/22W/827	CFQ20W/GX32d/827	—	—
PL-C 15MM/28W/827	CFQ27W/GX32d/827	—	—

PL-C 4-PIN			
PL-C 13W/827/4P/ALTO	CFQ13W/G24q/827	F13DBX/SPX27/4P	CF13DD/E/827
PL-C 13W/830/4P/ALTO	CFQ13W/G24q/830	F13DBX/SPX30/4P	CF13DD/E/830
PL-C 13W/835/4P/ALTO	CFQ13W/G24q/835	F13DBX/SPX35/4P	CF13DD/E/835
PL-C 13W/841/4P/ALTO	CFQ13W/G24q/841	F13DBX/SPX41/4P	CF13DD/E/841
PL-C 18W/827/4P/ALTO	CFQ18W/G24q/827	F18DBX/SPX27/4P	CF18DD/E/827
PL-C 18W/830/4P/ALTO	CFQ18W/G24q/830	F18DBX/SPX30/4P	CF18DD/E/830
PL-C 18W/835/4P/ALTO	CFQ18W/G24q/835	F18DBX/SPX35/4P	CF18DD/E/835
PL-C 18W/841/4P/ALTO	CFQ18W/G24q/841	F18DBX/SPX41/4P	CF18DD/E/841
PL-C 26W/827/4P/ALTO	CFQ26W/G24q/827	F26DBX/SPX27/4P	CF26DD/E/827
PL-C 26W/830/4P/ALTO	CFQ26W/G24q/830	F26DBX/SPX30/4P	CF26DD/E/830
PL-C 26W/835/4P/ALTO	CFQ26W/G24q/835	F26DBX/SPX35/4P	CF26DD/E/835
PL-C 26W/841/4P/ALTO	CFQ26W/G24q/841	F26DBX/SPX41/4P	CF26DD/E/841

Compact Fluorescent Lamps


















Cross Reference Guide

Philips	Generic Designation	GE	OSI
PL-L			
PL-L 18W/830	FT18W/2G11/830	F18BX/SPX30	FT18DL/830
PL-L 18W/835	FT18W/2G11/835	F18BX/SPX35	FT18DL/835
PL-L 18W/841	FT18W/2G11/841	F18BX/SPX41	FT18DL/841
PL-L 18W/830	FT18W/2G11/RS/830	F18BX/SPX30/RS	FT18DL/830/RS
PL-L 18W/835	FT18W/2G11/RS/835	F18BX/SPX35/RS	FT18DL/835/RS
PL-L 18W/841	FT18W/2G11/RS/841	F18BX/SPX41/RS	FT18DL/841/RS
PL-L 24W/830	FT24W/2G11/830	F27/24BX/SPX30	FT24DL/830
PL-L 24W/835	FT24W/2G11/835	F27/24BX/SPX35	FT24DL/835
PL-L 24W/841	FT24W/2G11/841	F27/24BX/SPX41	FT24DL/841
PL-L 36W/830	FT36W/2G11/830	F39/36BX/SPX30	FT36DL/830
PL-L 36W/835	FT36W/2G11/835	F39/36BX/SPX35	FT36DL/835
PL-L 36W/841	FT36W/2G11/841	F39/36BX/SPX41	FT36DL/841
PL-L 40W/830/RS/IS	FT40W/2G11/RS/830	F40/30BX/SPX30	FT40DL/830/RS
PL-L 40W/835/RS/IS	FT40W/2G11/RS/835	F40/30BX/SPX35	FT40DL/835/RS
PL-L 40W/841/RS/IS	FT40W/2G11/RS/841	F40/30BX/SPX41	FT40DL/841/RS
PL-L 50W/830/RS	FT50W/2G11/RS/830	F50BX/SPX30/RS	—
PL-L 50W/835/RS	FT50W/2G11/RS/835	F50BX/SPX35/RS	—
PL-L 50W/841/RS	FT50W/2G11/RS/841	F50BX/SPX41/RS	—
PL-L 55W/950	FT55W/2G11/RS/950	—	FT80DL/830
PL-L 80W/830	FT80W/2G11/830	—	FT80DL/835
PL-L 80W/835	FT80W/2G11/835	—	—

PL-T 4-PIN			
PL-T 18W/827/4P/ALTO	CFTR18W/GX24q/827	F18TBX/SPX27/A/4P	CF18DT/E/IN/827
PL-T 18W/830/4P/ALTO	CFTR18W/GX24q/830	F18TBX/SPX30/A/4P	CF18DT/E/IN/830
PL-T 18W/835/4P/ALTO	CFTR18W/GX24q/835	F18TBX/SPX35/A/4P	CF18DT/E/IN/835

EL			
EL/mdT 5W	—	—	—
EL/mdT 9W T2	—	FLE10HT3/2/827	—
EL/mdT 11W	—	—	—
EL/mdT2 13W	—	FLE13HT2/2/827	CF13EL/MINI/827
EL/mdT2 13W 3.5K	—	—	CF13EL/MINI/830
EL/mdT2 13W 4.1K	—	—	CF13EL/MINI/841
EL/mdT2 13W 5K	—	—	CF13EL/MINI/850/BL
EL/mdT2 18W	—	FLE20HT3/2/827	CF19EL/MINI/827
EL/mdT2 23W	—	FLE23HT3/2/XL827	CF23EL/MINI/827
EL/mdT 27W	—	—	—
EL/mdT 27W 4K	—	—	—
EL/mdT 27W 5K	—	—	—
EL/mdT2 26W	—	FLE26HT3/2/XL827	—
EL/mdT2 26W 4.1K	—	FLE26HT3/2/841	—
EL/mdT2 26W 5k	—	FLE26HT3/2/6STP	—
EL/mdT 32W	—	FLE29HLX/2XL/827	CF30EL/TWIST/827
EL/mdT 32W 3K	—	—	CF30EL/MINI/835/DAY/B
EL/mdT 13W GU24	—	FLE15HT3/2GU24CD	CF13EL/GU24/827/BL
EL/mdT 13W GU24 4.1K	—	—	—
EL/mdT 18W GU24	—	FLE20HT3/2GU24CD	—
EL/mdT 18W GU24 4.1K	—	—	—
EL/mdT 23W GU24	—	FLE26HT3/2GU24CD	CF23EL/GU24/827/BL
EL/mdT 23W GU24 4.1K	—	—	—

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Upgrade to a better white light—Philips High Intensity Discharge lighting solutions.







Transform the look of an outdoor space

Whether you are looking to create a unique identity for your city, add a sense of security to an outdoor space, or light a local sports stadium, Philips has a solution for you.

MasterColor CDM Elite MW lamps combine high efficacy with excellent quality white light and long, stable lifetime performance. This lamp is designed with a new socket allowing for more flexible use and enhanced optical efficiency.

Energy Advantage CDM with AllStart technology is a high-efficiency CDM lighting retrofit solution for existing quartz metal halide systems that provides energy savings without compromising light quality.

MasterColor Elite Ceramic Metal Halide Tubular T6 100W lamps give a unique combination of unbeatable light quality and consistent performance over lifetime. This is a compact, energy efficient lamp that provides crisp, sparkling white light.

Current Product	Philips Upgrade Product	Benefit	Page
 <p>400W Metal Halide (Quartz Probe Start) (450W System)</p>	 <p>MasterColor CDM Elite MW 210W (225W System)</p>	<ul style="list-style-type: none"> • Approximately 50% in total system energy savings[*] • 50% longer rated average life (30K hours versus 20K hours)[¥] • Better CRI than standard quartz metal halide[‡] 	47
 <p>175W/250W/400W Metal Halide (Quartz Probe or Pulse Start) Lamp</p>	 <p>145W/205W/330W Energy Advantage CDM with AllStart Technology Lamp</p>	<ul style="list-style-type: none"> • Up to 18% energy savings with a simple lamp change^{**} • Longer rated average life[◇] • Excellent CRI and color consistency 	51
 <p>150W MasterColor Ceramic Metal Halide Tubular T6 Lamp</p>	 <p>MasterColor Elite Ceramic Metal Halide Tubular T6 Lamp 100W</p>	<ul style="list-style-type: none"> • Approximately 33% in total system energy savings[†] • 25% longer rated average life (20K hours versus 12K hours) • Excellent lumen maintenance with 90 CRI 	46

* 450W - 225W = 225W ; 225W / 450W = 50%

** 145W CDM lamp with AllStart Technology compared to 175W QMH, 205W CDM with AllStart Technology compared to 250W QMH, 330W CDM with AllStart Technology compared to 400W QMH

¥ Avg. Hrs. Life 30,000 hr.

‡ Color Rendering Index 87 (min), 90 (nom) Ra8 vs. Color Rendering Index (Nom) 65.

◇ 10,000 hours longer in vertical position and 12,500 hours longer in horizontal position for 145W and 205W lamps compared to 175W and 250W standard Probe Start QMH lamps, 4000 hours more for the 330W compared to 400W standard Probe Start QMH lamps. Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

† 100W vs. 150W

High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Ordering Footnotes Code	ANSI Code Ballast Ref.	Pkg. Qty. ‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Mini MasterColor ELITE Ceramic Metal Halide Tubular Single-Ended GU6.5 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

20	T4	GU6.5	40850-0 ★	CDM20/TM/830/ GU6.5 ELITE	C156/E	12	G, Clear, FadeBlock	1 1/8	2 1/4	20,000	1800	1550	85 3000
39	T4	GU6.5	41879-8 ★†	CDM35/TM/930/ GU6.5 ELITE	C130/E	12	G, Clear, FadeBlock	1 1/8	2 1/4	20,000	3900	3300	90 3000

Mini MasterColor Ceramic Metal Halide Tubular Single-Ended T3.5 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

22	T3.5	PGJ5	14040-0 ★	CDM20/TM/830	C175/E	12	G, Clear, FadeBlock	7/8	1 1/4	12,000	1650	1155	85 3000
39	T3.5	PGJ5	21139-1 ★	CDM35/TM/930	C179/E	12	G, Clear, FadeBlock	7/8	1 1/4	12,000	3000	2400	90 3000

MasterColor Elite Ceramic Metal Halide Tubular Single-Ended T4 Lamps (391, 392, 396, 397)†

20	T4	G8.5	41046-4 ★	CDM Elite 20/TC/830	C156/E	12	G, Clear, FadeBlock	2	3 1/32	20,000	1800	1550	85 3000
39	T4	G8.5	40916-9 ★	CDM Elite 35/TC/930	C130/E	12	G, Clear, FadeBlock	2	3 1/32	20,000	4000	3500	90 3000
70	T4	G8.5	40917-7 ★	CDM Elite 70/TC/930	C139/E	12	G, Clear, FadeBlock	2	3 1/32	20,000	7650	6700	90 3000

MasterColor Ceramic Metal Halide Tubular Single-Ended T4 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

39	T4	G8.5	37372-0 ★	CDM35/TC/830	C130/E	12	G, Clear, FadeBlock	2	3 1/32	12,000	3300	2300	81 3000
			20883-5 ★	CDM35/TC/842	C130/E	12	G, Clear, FadeBlock	2	3 1/32	12,000	3300	2640	85 4200
70	T4	G8.5	37373-8 ★	CDM70/TC/830	C139/E	12	G, Clear, FadeBlock	2	3 1/32	12,000	6400	4500	83 3000

MasterColor Elite Ceramic Metal Halide Tubular Single-Ended T6 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

20	T6	G12	41047-2 ★	CDM Elite 20/T6/830	C156/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	20,000	1800	1550	85 3000
39	T6	G12	40914-4 ★	CDM Elite 35/T6/930	C130/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	20,000	4000	3500	90 3000
70	T6	G12	40915-1 ★	CDM Elite 70/T6/930	C139/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	20,000	7650	6700	90 3000

MasterColor Ceramic Metal Halide Tubular Single-Ended T6 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

39	T6	G12	22328-9 ★	CDM35/T6/830	C130/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	12,000	3300	2600	81 3000
70	T6	G12	22337-0 ★	CDM70/T6/830	C139/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	12,000	6600	4950	81 3000
			28137-8 ★	CDM70/T6/942	C139/E	12	G, Clear, FadeBlock	2 1/32	3 5/16	12,000	6600	4620	92 4200
150	T6	G12	23272-8 ★	CDM150/T6/830	C142/E	12	G, Clear, FadeBlock, also ANSI M102	2 1/32	4 1/32	12,000	14,000	9800	85 3000
			37369-6 ★	CDM150/T6/942	C142/E	12	G, Clear, FadeBlock, also ANSI M102	2 1/32	4 1/32	12,000	12,700	8900	96 4200

For the most current product information, go to the e-catalog on www.philips.com.
HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code	Ballast Ref. or MBCP®	Pkg. Qty.±	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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MasterColor CDM Elite MW (Medium Watt) Ceramic Metal Halide Tubular Single-Ended T9 Lamps (391, 392, 396, 397)

Enclosed luminaires only

210	T9	PGZ18	22062-4	¥★	CDM EliteMW 210/T9/930/U/E	C183/E	12	G, Clear, Fadeblock	3½	7½	30,000	24,200	21,735	90	3000
			22063-2	¥★	CDM EliteMW 210/T9/942/U/E	C183/E	12	G, Clear, Fadeblock	3½	7½	30,000	23,000	20,470	92	4200
315	T9	PGZ18	21831-3	¥★	CDM EliteMW 315/T9/930/U/E	C182/E	12	G, Clear, Fadeblock	3½	7½	30,000	38,700	34,400	90	3000
			22064-0	¥★	CDM EliteMW 315/T9/942/U/E	C182/E	12	G, Clear, Fadeblock	3½	7½	30,000	35,500	31,150	93	4200

MasterColor CDM Elite MW (Medium Watt) Ceramic Metal Halide Tubular Single-Ended T12 Lamps (391, 392, 396, 397)

Open or Enclosed luminaires; lifetime color stability within ±200K²

210	T12	PGZX18	23808-9	¥★	CDM EliteMW 210/T12/942/U/O	C183/O	12	G, Clear, Fadeblock	3½	7½	30,000	22,800	20,500	92	4200
315	T12	PGZX18	23807-1	¥★	CDM EliteMW 315/T12/930/U/O	C182/O	12	G, Clear, Fadeblock	3½	7½	30,000	36,200	31,500	90	3000
			23809-7	¥★	CDM EliteMW 315/T12/942/U/O	C182/O	12	G, Clear, Fadeblock	3½	7½	30,000	34,300	30,780	90	4200

MasterColor Ceramic Metal Halide Tubular Double-Ended Lamps (374, 391, 392, 396)

Double-Ended TD6 & TD7 Style; enclosed luminaires only; lifetime color stability within ±200K

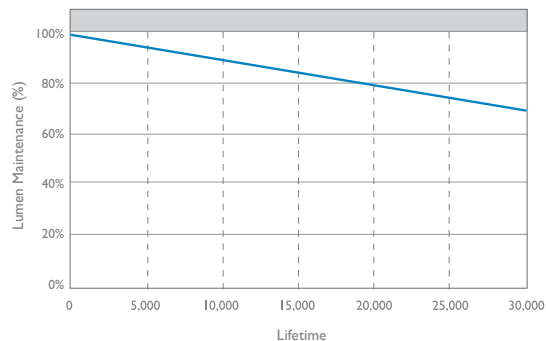
70	TD6	RX7s	23160-5	★	CDM70/TD/830	C139/C85/E	12	G, Clear, FadeBlock, Hor. ± 45°	2¼	4⅞	15,000	6500	5200	82	3000
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HID symbols and footnotes located on page 83.



Maintenance Curve

Philips MasterColor Elite MW 315W Lamps



High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb	Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code Ballast Ref. or MBCP®	Pkg. Qty.‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Protected MasterColor Ceramic Metal Halide R111 Lamps (391, 392, 396, 397)

Open or Enclosed luminaires; lifetime color stability within ±200K

39	R111	GX8.5	43072-8	Y★	MASTERC CDM-R111 Elite 35W/930 10D	C130/O MBCP=36,000	6	G, R111, Spot 10°	–	3¼	12,000	1450	1200	90	3000
			43073-6	Y★	MASTERC CDM-R111 Elite 35W/930 24D	C130/O MBCP=8500	6	G, R111, N. Flood 24°	–	3¼	12,000	1800	1500	90	3000
			43074-4	Y★	MASTERC CDM-R111 Elite 35W/930 40D	C130/O MBCP=4500	6	G, R111, Flood 40°	–	3¼	12,000	1800	1500	90	3000
70	R111	GX8.5	43076-9	Y★	MASTERC CDM-R111 Elite 70W/930 24D	C139/O MBCP=16,000	6	G, R111, N. Flood 24°	–	3¼	12,000	3700	3100	92	3000

Protected MasterColor Elite Ceramic Metal Halide MR16 Lamps (391, 392, 396, 397)

Open or Enclosed luminaires; lifetime color stability within ±200K

20	MR16	GX10	42165-1	★	CDM-MR16/20W/830/10D ELITE	C156/O MBCP=13,500	12	G, MR16 Spot 10°	–	2⅝	15,000	1050	880	85	3000
			42166-9	★	CDM-MR16/20W/830/25D ELITE	C156/O MBCP=4500	12	G, MR16 Flood 25°	–	2⅝	15,000	1050	880	85	3000
			42167-7	★	CDM-MR16/20W/830/40D ELITE	C156/O MBCP=2100	12	G, MR16 W. Flood 40°	–	2⅝	15,000	1050	880	85	3000
39	MR16	GX10	41893-9	★	CDM-MR16/35W/930/10D ELITE	C130/O MBCP=18,000	12	G, MR16 Spot 10°	–	2⅝	15,000	2400	2200	90	3000
			41894-7	★	CDM-MR16/35W/930/25D ELITE	C130/O MBCP=8000	12	G, MR16 Flood 25°	–	2⅝	15,000	2400	2200	90	3000

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High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code Ballast Ref.	Pkg. Qty.†	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Protected MasterColor Ceramic Metal Halide PAR Lamps (391, 392, 396)

Open or enclosed luminaires; lifetime color stability within ±200K

22	PAR20 Med.	21152-4	★●	CDM20/PAR20/M/FL/3K/ALTO	C156/C175/O MBBCP=2800	12	G, PAR WISO Flood 30° (397)	—	3 3/4	9000	980	615	81	3000
	PAR30L Med.	21140-9	★●	CDM20/PAR30L/M/FL/3K/ALTO	C156/C175/O MBBCP=4625	6	G, PAR WISO Flood 25° (397)	—	4 1/4	9000	1200	750	81	3000
39	PAR20 Med.	43418-3	★●	CDM-R Elite 35W/930 E26/24 PAR20 10D	C130/O MBBCP=26,000	6	G, PAR WISO Spot 10° (397)	—	3 3/4	15,000	2160	2040	91	3000
		43419-1	★●	CDM-R Elite PAR20 35W 930 E26 30DG	C130/O MBBCP=5800	6	G, PAR WISO Flood 30° (397)	—	3 3/4	15,000	2160	2040	91	3000
	PAR30L Med.	42645-2	★●	CDM-R Elite PAR30L 35W/930 E26 10DG	C130/O MBBCP=44,000	6	G, PAR WISO Spot 10° (397)	—	4 1/4	15,000	2700	2300	91	3000
		42648-6	★●	CDM-R Elite PAR30L 35W/930 E26 30DG	C130/O MBBCP=7700	6	G, PAR WISO Flood 25° (397)	—	4 1/4	15,000	2700	2300	91	3000
70	PAR30L Med.	42652-8	★●	CDM-R Elite PAR30L 70W/930 E26 10DG	C98/O MBBCP=66,000	6	G, PAR WISO Spot 10°	—	4 1/4	15,000	5310	4510	92	3000
		42654-4	★●	CDM-R Elite PAR30L 70W/930 E26 40DG	C98/O MBBCP=10,000	6	G, PAR WISO Flood 40°	—	4 1/4	15,000	5310	4510	92	3000
	PAR38 Med.	15143-1	★●	CDM70/PAR30L/M/FL/4K/ALTO	C139/O MBBCP=9000	6	G, PAR WISO Flood 40°	—	4 1/4	12,000	4300	3010	94	4000
		45647-5	★●	CDM70/PAR38/FL/3K/ALTO ELITE	C98/O MBBCP=15,000	12	G, PAR WISO Flood 25° (399)	—	5 1/8	16,000	4800	3840	87	3000
100	PAR38 Med.	45649-1	Y★●	CDM70/PAR38/FL/4K/ALTO ELITE	C98/O MBBCP=15,000	12	G, PAR WISO Flood 25° (399)	—	5 1/8	16,000	4600	3680	90	4200
		45650-9	★●	CDM100/PAR38/SP/3K/ALTO ELITE	C90/O MBBCP=50,000	12	G, PAR WISO Spot 15° (399)	—	5 1/8	16,000	6600	5280	92	3000
	PAR38 Med.	45651-7	★●	CDM100/PAR38/FL/3K/ALTO ELITE	C90/O MBBCP=20,000	12	G, PAR WISO Flood 25° (399)	—	5 1/8	16,000	6800	5440	92	3000
		45652-5	Y★●	CDM100/PAR38/SP/4K/ALTO ELITE	C90/O MBBCP=50,000	12	G, PAR WISO Spot 15° (399)	—	5 1/8	16,000	5500	4400	90	4200
		45653-3	Y★●	CDM100/PAR38/FL/4K/ALTO ELITE	C90/O MBBCP=20,000	12	G, PAR WISO Flood 25° (399)	—	5 1/8	16,000	6400	5120	92	4200

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High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb	Base	Product Number	Symbols, Ordering Footnotes Code	ANSI Code Ballast Ref.	Pkg. Qty. ‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Protected MasterColor Ceramic Metal Halide Lamps (391, 392, 396, 399)

ED17P sleeved arc tube; open or enclosed luminaires; lifetime color stability within ±200K; pulse start

50	ED17P	Med.	42368-1	★†	MHC50/U/MP/3K ELITE	C110/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	5100	4080	90	3000
			42994-4	★†	MHC50/U/MP/4K/ELITE	C110/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	4800	3840	90	4000
70	ED17P	Med.	42370-7	★†	MHC70/U/MP/3K ELITE	C98/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	6700	5360	90	3000
			42369-9	★†	MHC70/C/U/MP/3K ELITE	C98/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	20,000	6100	4880	90	3000
			42995-0	★†	MHC70/U/MP/4K/ELITE	C98/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	6500	5200	90	4000
			42997-6	★†	MHC70/C/U/MP/4K/ELITE	C98/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	20,000	5900	4720	90	4000
100	ED17P	Med.	42367-3	★†	MHC100/U/MP/3K ELITE	C90/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	10,000	8000	90	3000
			42371-5	★†	MHC100/C/U/MP/3K ELITE	C90/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	20,000	9200	7360	90	3000
			42993-6	★†	MHC100/U/MP/4K/ELITE	C90/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	9400	7520	90	4000
			42996-8	★†	MHC100/C/U/MP/4K/ELITE	C90/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	20,000	8700	7000	90	4000
150	ED17P	Med.	13463-5	★	MHC150/U/MP/3K	C142/C102/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	16,000	12,900	9000	83	3000
			13464-3	★	MHC150/C/U/MP/3K	C142/C102/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	16,000	11,900	8800	83	3000
			37724-2	★	MHC150/U/MP/4K	C142/C102/O	12	G, Clear, FadeBlock	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	12,000	8400	90	4000
			37726-7	Y★	MHC150/C/U/MP/4K	C142/C102/O	12	G, Coated, FadeBlock	—	5 ⁷ / ₁₆	20,000	11,000	7700	90	4000

MasterColor Ceramic Metal Halide ED17, ED28 Lamps (391, 392, 399)

Enclosed luminaires only; lifetime color stability within ±200K; pulse start

50	ED17	Med.	42992-8	★†	MHC50/U/M/4K ELITE	C110/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	5000	4000	88	4000
70	ED17	Med.	41947-3	★†	MHC70/U/M/3K ELITE	C98/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	7400	5920	88	3000
			42990-2	★†	MHC70/U/M/4K ELITE	C98/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	6800	5300	88	4000
			42991-0	★†	MHC70/C/U/M/4K ELITE	C98/E	12	G, Coated	—	5 ⁷ / ₁₆	20,000	6200	4960	88	4000
100	ED17	Med.	41951-5	★†	MHC100/U/M/3K ELITE	C90/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	11,000	8800	90	3000
			41952-3	★†	MHC100/C/U/M/3K ELITE	C90/E	12	G, Coated	—	5 ⁷ / ₁₆	20,000	10,200	8160	90	3000
			42988-6	★†	MHC100/U/M/4K ELITE	C90/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	10,000	8000	90	4000
			42989-4	★†	MHC100/C/U/M/3K ELITE	C90/E	12	G, Coated	—	5 ⁷ / ₁₆	20,000	9500	7600	90	4000
	ED28	Mog.	43070-2	Y★	MHC100/U/ED28/HR/4K ELITE	C90/E	12	G, Clear (378)	5	8 ⁷ / ₁₆	20,000	10,000	8000	90	4100
150	ED17	Med.	13022-9	★	MHC150/U/M/3K	C142/C102/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	16,000	14,000	9800	85	3000
			37720-0	★	MHC150/C/U/M/4K	C142/C102/E	12	G, Clear	3 ⁷ / ₁₆	5 ⁷ / ₁₆	20,000	13,000	9100	90	4000
			37721-8	★	MHC150/U/M/4K	C142/C102/E	12	G, Coated	—	5 ⁷ / ₁₆	20,000	12,000	8400	90	4000

For the most current product information, go to the e-catalog on www.philips.com. HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide, CosmoWhite, Energy Advantage Ceramic Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code Ballast Ref.	Pkg. Qty.†	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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MasterColor Ceramic Metal Halide Pulse Start ED23.5 Lamps (391, 392, 399)

Enclosed luminaires only; lifetime color stability within ±200K; pulse start

100	ED23½ Mog.	43068-6	¥■●	CDM100/U/PS/4K ELITE	C90/E	12	G, Clear	5	7¼	20,000	10,400	7920	90	4200
150	ED23½ Mog.	15494-8	¥■●	CDM150/U/PS/4K ALTO	C142/C102/E	12	G, Clear	5	7¼	24,000	13,000	9360	90	4000

CosmoWhite (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K (HOR = Horizontal Operation ± 15°)

60	T6	PGZ12	15731-3	★ ¥	CPO-T WHITE 60W/728	C187/E	12	G, Clear, FadeBlock, Horiz. ±15°	2½	5½	30,000*	7200	6400	70	2800
90	T6	PGZ12	40604-1	★ ¥	CPO-T WHITE 90W/728	C188/E	12	G, Clear, FadeBlock, Horiz. ±15°	2½	5½	30,000*	10,450	8800	70	2800
140	T6	PGZ12	15732-1	★ ¥	CPO-T WHITE 140W/728	C189/E	12	G, Clear, FadeBlock, Horiz. ±15°	2½	5½	30,000*	16,500	14,520	70	2800

Energy Advantage CDM with AllStart Technology ED17 Lamps (391, 392, 396, 397)

Enclosed luminaires only; lifetime color stability within ±200K

145	ED17 Med.	41106-6	★ ¥ †	CDM145/U/M/4K/ED17 EA AllStart	C192/E**	12	G, Clear, Fadeblock	3⅞	5⅞	20,000	13,920	11,140	81	4300
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For the most current product information, go to the e-catalog on www.philips.com.

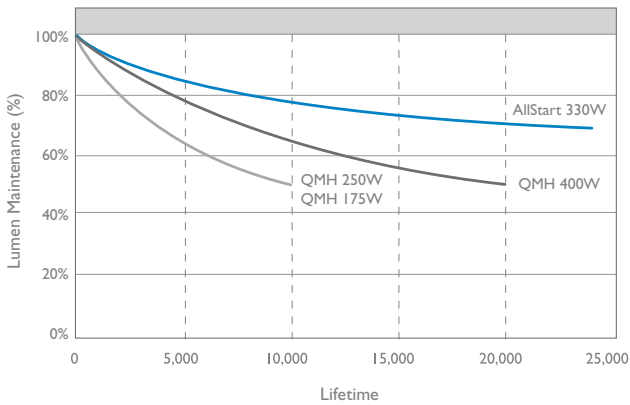
HID symbols and footnotes located on page 83.

* 30,000 horizontal application but 20,000 vertical application.

** 145W compatible with M57 probe start ballast. Also compatible with M152 pulse start ballasts.

Maintenance Curve

Philips Energy Advantage CDM 330W Lamps with AllStart Technology



Energy Advantage Lamp Comparisons

Philips Energy Advantage CDM Lamp with AllStart Technology	Standard Metal Halide Lamp Replacement
145W Energy Advantage CDM Lamp	175W Standard Metal Halide Lamp
205W Energy Advantage CDM Lamp	250W Standard Metal Halide Lamp
330W Energy Advantage CDM Lamp	400W Standard Metal Halide Lamp



ED23½ Mog.



CosmoWhite T6 PGZ12



ED17 Med.

High Intensity Discharge Lamps

Energy Advantage Ceramic Metal Halide Lamps

Watts	Bulb	Base	Product Number	Symbols, Ordering Footnotes Code	ANSI Code Ballast Ref.	Pkg. Qty. ‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽³⁵⁾	Approx. Initial Lumens ⁽³⁵²⁾	Approx. Mean Lumens ⁽³⁵³⁾	CRI	CCT (K)
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Energy Advantage CDM with AllStart Technology (391, 392, 396, 397)[‡]

Open or Enclosed luminaires; lifetime color stability within ±200K

145	ED28	EX39	41107-4	★ ▼ ■ ■ ■	CDM145/U/O/4K/ (411)	C192/O ¹	12	G, Clear, Fadeblock	5	8 ⁵ / ₁₆	20,000	13,775	11,020	87	4000
			Excl. Mog.			ED28 EA AllStart									
205	ED28	EX39	23256-1	★ ▼ ■ ■ ■	CDM205/U/O/4K (412)	C184/O ²	12	G, Clear, Fadeblock	5	8 ⁵ / ₁₆	20,000	19,500	15,600	84	4100
			Excl. Mog.			EA AllStart									
			23692-7	★ ▼ ■ ■ ■	CDM205/C/U/O/4K (412)	C184/O ²	12	G, Coated, Fadeblock	—	8 ⁵ / ₁₆	20,000	18,000	14,400	84	4100
			Excl. Mog.			EA AllStart									
260	ED28	EX39	41937-4	★ ▼ ■ ■ ■	CDM260/U/O/4K (431)	C195/O ⁴	12	G, Clear, Fadeblock	5	8 ⁵ / ₁₆	20,000	26,800	21,400	90	4000
			Excl. Mog.			EA AllStart									
330	ED28	EX39	41105-8	★ ▼ ■ ■ ■	CDM330/U/O/4K/ED28 (413)	C185/O ³	12	G, Clear, Fadeblock	5	8 ⁵ / ₁₆	20,000	33,000	26,400	87	4000
			Excl. Mog.			EA AllStart									
	ED37	EX39	23259-5	★ ▼ ■ ■ ■	CDM330/U/O/4K (413)	C185/O ³	6	G, Clear, Fadeblock	7	11 ¹ / ₂	24,000	33,000	24,750	86	4000
			Excl. Mog.			EA AllStart									
			23693-5	★ ▼ ■ ■ ■	CDM330/C/U/O/4K (413)	C185/O ³	6	G, Coated, Fadeblock	—	11 ¹ / ₂	24,000	31,000	23,250	86	4000
			Excl. Mog.			EA AllStart									

Protected Pulse Start Metal Halide "O" Rated Lamps (372, 374, 391)

Open or enclosed luminaires; pulse start metal halide is designed for operation on only specified ANSI compatible ballasts with metal halide pulse ignitors[‡]

250	ED28	EX39	20756-3	■ ■ ★	MP250/BU/PS	M153/ M138/O	12	G, Clear, Base Up ± 15° Pulse Start	5	8 ⁵ / ₁₆	14,000	23,000	16,100	62	3800
			Excl. Mog.												
320	ED37	EX39	13039-3	■ ■ ★	MP320/BU/PS	M154/ M132/O	6	G, Clear, Base Up ± 15° Pulse Start	7	11 ¹ / ₂	20,000	29,500	20,650	65	3800
			Excl. Mog.												
350	ED37	EX39	39101-1	■ ■ ★	MP350/BU/PS	M131/O	6	G, Clear, Base Up ± 15° Pulse Start	7	11 ¹ / ₂	20,000	34,000	23,800	64	4000
			Excl. Mog.												
400	ED37	EX39	13334-8	■ ■ ★	MP400/BU/PS	M155/M128/ M135/O	6	G, Clear, Base Up ± 15° Pulse Start	7	11 ¹ / ₂	20,000	40,000	28,000	65	3800
			Excl. Mog.												

- 1) 145W compatible with M57 probe start ballast. Also compatible with M152 pulse start ballasts.
 2) 205W compatible with M58 probe start ballast. Also compatible with M138 and M153 pulse start ballasts.
 3) 330W compatible with M59 probe start ballast. Also compatible with M128, M135, M155, and M172 pulse start ballasts.
 4) 260W compatible with M154 and M132 pulse start ballasts.
 5) 860W compatible with M47 probe start ballast. Also compatible with M141 pulse start ballast.

For the most current product information, go to the e-catalog on www.philips.com.
 HID symbols and footnotes located on page 83.



ED28
EX-39

ED28
EX-39

ED37
EX-39

ED37
EX-39

High Intensity Discharge Lamps

Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code Ballast Ref.	Pkg. Qty.±	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽³⁵⁾	Approx. Initial Lumens ⁽³⁵²⁾	Approx. Mean Lumens ⁽³⁵³⁾	CRI	CCT (K)
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Pulse Start Metal Halide Lamps (372, 374, 391)

Enclosed luminaires only unless otherwise noted; base up operation ± 15° unless otherwise noted.

Pulse start metal halide is designed for operation on only specified ANSI compatible ballasts with metal halide pulse ignitors.

175	ED28	Mog.	27662-6	■ ★	MS175/BU/PS	M152/M137/E	12	G, Base Up ±15°	5	8 ⁵ / ₁₆	15,000	16,000	11,200	62	3700
250	ED28	Mog.	23280-1	■ ★	MS250/U/PS	M153/M138/E	12	G, Clear, Universal, Pulse Start (385)	5	8 ⁵ / ₁₆	12,000	22,000	15,400	62	3800
			27661-8	■ ★	MS250/BU/PS	M153/M138/E	12	G, Clear, Base Up ±15°, Pulse Start	5	8 ⁵ / ₁₆	15,000	23,750	16,625	65	4300
320	ED28	Mog.	38381-0	■ ★	MS320/U/PS	M153/M183/E	12	G, Clear, Pulse Start (385)	5	8 ⁵ / ₁₆	20,000	30,000	21,000	62	4100
350	ED37	Mog.	38387-7	■ ★	MS350/BU/PS	M131/E	6	G, Clear, Base Up ± 15°, Pulse Start	7	11 ¹ / ₂	20,000	36,000	25,200	62	4000
400	ED28	Mog.	23252-0	■ ★	MS400/BU/ED28/PS	M155/M128/M135/E	12	G, Base Up ±15°, Pulse Start	5	8 ⁵ / ₁₆	20,000	44,000	30,800	68	4000
			23253-8	■ ★	MS400/HOR/ED28/PS	M155/M128/M135/E	12	G, Clear, Horizontal, Pulse Start	5	8 ⁵ / ₁₆	20,000	40,000	28,000	68	4000
	ED37	Mog.	23283-5	■ ★	MS400/U/PS	M155/M135/M128/E	6	G, Clear, Universal, Pulse Start (385)	7	11 ¹ / ₂	15,000	40,000	28,000	62	3800
750	BT37	Mog.	13540-0	■ ★	MS750/BU/BT37/PS	M149/E	6	G, Clear, Base Up ± 15°, Pulse Start	7	11 ¹ / ₂	16,000	82,000	61,500	65	4000
1000	BT37	Mog.	36019-8	■ ★	MS1000/BU/BT37/PS	M141/E	6	G, Clear, Base Up ± 15°, Pulse Start	7	11 ¹ / ₂	15,000	120,000	96,000	65	3700

Protected Metal Halide "O" Rated Lamps (372, 374, 377):

Open or enclosed luminaires

175	ED28	EX39 Excl.Mog.	28119-6	■ ★	MP175/BU	M57/O	12	G, Clear, Base Up ±15°	5	8 ⁵ / ₁₆	10,000	15,000	12,000	65	3800
250	ED28	EX39 Excl.Mog.	28124-6	■ ★	MP250/BU	M58/O	12	G, Clear, Base Up ±15°	5	8 ⁵ / ₁₆	10,000	22,000	16,500	62	3800
			13067-4	■ ★	MP360BU/EW	M165/M59/O	6	G, Clear, Base Up ±15°	7	11 ¹ / ₂	20,000	34,200	23,940	65	4000
400	ED37	EX39 Excl.Mog.	13332-2	■ ★	MP400/BU	M59/O	6	G, Clear, Base Up ±15°	7	11 ¹ / ₂	20,000	38,000	26,600	65	4000
1000	BT56	EX39 Excl.Mog.	28118-8	■ ★	MP1000/BU	M47/O	6	G, Clear, Base Up ±15°	9 ¹ / ₂	15 ⁵ / ₁₆	12,000	107,000	75,000	65	3900

For the most current product information, go to the e-catalog on www.philips.com.
HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

Metal Halide Lamps

Watts	Bulb	Base	Product Number	Symbols, Ordering Footnotes Code	ANSI Code Ballast Ref.	Pkg. Qty. ‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Metal Halide Lamps (372)

Enclosed luminaires only

150	BD17	Med.	35462-1	★	MH150/U/M	M107/E	12	G, Clear (385, 400)	3 ⁷ / ₁₆	5 ¹ / ₁₆	10,000	12,500	8500	65	3700
175	BD17	Med.	31358-5	■★	MH175/U/M	M57/E	12	G, Clear (377, 385, 393)	3 ⁷ / ₁₆	5 ¹ / ₁₆	10,000	13,500	9100	65	4000
			31359-3	■★	MH175/C/U/M	M57/E	12	G, Coated (377, 385)	–	5 ¹ / ₁₆	10,000	13,000	8380	65	3700
	ED28	Mog.	28733-4	■★	MH175/U	M57/E	12	G, S, Clear (377, 385, 393)	5	8 ¹ / ₁₆	10,000	13,500	8775	65	4000
			28728-4	■★	MH175/C/U	M57/E	12	G, S, Coated (374, 377, 385)	–	8 ¹ / ₁₆	10,000	13,000	8200	70	3700
250	ED28	Mog.	27484-5	■★	MH250/U	M58/E	12	G, S, Clear (377, 385, 393)	5	8 ¹ / ₁₆	10,000	20,500	13,500	65	4000
			29169-0	■★	MH250/C/U	M58/E	12	G, S, Coated (377, 385, 393)	–	8 ¹ / ₁₆	10,000	19,475	12,500	70	3700
400	ED28	Mog.	42602-3	★	MH400/U/ED28	M59/E	12	G, Clear (377, 385, 393)	5	8 ¹ / ₁₆	20,000	36,000	24,000	57	4000
	ED37	Mog.	27449-8	★	MH400/U	M59/E	6	G, S, Clear (377, 385, 393)	7	11 ¹ / ₂	20,000	39,000	25,350	65	3900
			43230-2	★	MH400/C/U	M59/E	6	G, S, Coated (377, 385, 393)	–	11 ¹ / ₂	20,000	34,000	22,100	65	3700
1000	BT37	Mog.	32150-5	■★	MH1000/U/BT37	M47/E	6	G, Clear (359, 377, 385, 393)	7	11 ¹ / ₂	10,000	110,000	71,500	65	3700
	BT56	Mog.	41522-4	■★	MH1000/U	M47/E	6	G, S, Clear (377, 385, 393)	9 ¹ / ₂	15 ¹ / ₁₆	12,000	114,000	79,800	65	3900
1500	BT56	Mog.	13162-3	★	MH1500/U	M48/E	6	G, S, Clear (359, 374, 375, 377, 402)	9 ¹ / ₂	15 ¹ / ₁₆	6000	172,000	137,600	60	4000

For the most current product information, go to the e-catalog on www.philips.com.
HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

MasterColor Ceramic Metal Halide Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	ANSI Code	Pkg. Qty.†	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽³⁵¹⁾	Approx. Initial Lumens ⁽³⁵²⁾	Approx. Mean Lumens ⁽³⁵³⁾	CRI	CCT (K)
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Ceramalux High Pressure Sodium Lamps (360, 373)

Featuring ALTO Lamp Technology

35	BD17 Med.	46729-0	■ +	C35S76/M	S76	12	G (376)	3 ⁷ / ₁₆	5 ⁷ / ₁₆	24,000+	2250	2025	21	2100
50	BD17 Med.	46730-8	■ +	C50S68/M	S68	12	G (376)	3 ⁷ / ₁₆	5 ⁷ / ₁₆	24,000+	4000	3600	21	2100
	ED23 ¹ / ₂ Mog.	46726-6	■ +	C50S68/ALTO	S68	12	G, S (376)	5	7 ⁷ / ₁₆	24,000+	4000	3600	21	2100
70	BD17 Med.	46728-2	■	C70S62/M	S62	12	G (376)	3 ⁷ / ₁₆	5 ⁷ / ₁₆	24,000+	6300	5850	21	2100
	ED23 ¹ / ₂ Mog.	46725-8	■ ●	C70S62/ALTO	S62	12	G, S (376)	5	7 ⁷ / ₁₆	24,000+	6500	5670	21	2100
100	BD17 Med.	46727-4	■	C100S54/M	S54S	12	G (376)	3 ¹ / ₂	5 ⁷ / ₁₆	24,000+	9500	8550	21	2100
	ED23 ¹ / ₂ Mog.	46724-1	■ ●	C100S54/ALTO	S54	12	G, S (376)	5	7 ⁷ / ₁₆	24,000+	9400	8460	21	2100
		33227-0	■ ●	C100S54/D/ALTO	S54	12	G, S (376)	—	7 ⁷ / ₁₆	24,000+	8610	7750	21	2100
150	BD17 Med.	46731-6	■	C150S55/M	S55	12	G (376)	3 ¹ / ₂	5 ⁷ / ₁₆	24,000+	16,000	14,400	21	2100
	ED23 ¹ / ₂ Mog.	46723-3	■ ●	C150S55/ALTO	S55	12	G, S (370, 376)	5	7 ³ / ₄	24,000+	15,800	14,220	21	2100
200	ED18 Mog.	46722-5	■ ●	C200S66/ALTO	S56	12	G, S (376)	5 ³ / ₄	9 ³ / ₄	24,000+	21,400	19,260	21	2100
250	ED18 Mog.	46721-7	■ ●	C250S50/ALTO	S50	12	G, S (376)	5 ³ / ₄	9 ³ / ₄	24,000+	27,000	24,300	21	2100
400	ED18 Mog.	46737-3	■ ●	C400S51/ALTO	S51	12	G, S (376)	5 ³ / ₄	9 ³ / ₄	24,000+	50,000	45,000	21	2100
1000	ED25 Mog.	36883-7	■ ●	C1000S52/ALTO	S56	6	G, S (359, 362, 376)	8 ³ / ₄	15 ⁷ / ₁₆	24,000	140,000	126,000	21	2100
	ED37 Mog.	32386-5	■	C1000S52/ED37	S52	6	G, S (376)	7	11 ¹ / ₂	24,000	125,000	112,000	21	2100

For the most current product information, go to the e-catalog on www.philips.com.
HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

High Pressure Sodium Lamps

Watts	Bulb Base	Product Number	Symbols, Ordering Footnotes Code	ANSI Code Ballast Ref.	Pkg. Qty. ‡	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Ceramalux High Pressure Sodium Non-Cycling Lamps (360, 373, 376)

Featuring ALTO Lamp Technology

70	ED23½ Mog.	46732-4	★ ● ■	C70S62/ALTO NC HPS	S62	12	G, S	5	7¼	40,000	6300	5610	21	2100
100	ED23½ Mog.	46735-7	★ ● ■	C100S54/ALTO NC HPS	S54	12	G, S	5	7¼	40,000	10,000	9000	21	2100
150	ED23½ Mog.	46733-2	★ ● ■	C150S55/ALTO NC HPS	S55	12	G, S	5	7¼	40,000	16,000	14,400	21	2100
250	ED18 Mog.	46734-0	★ ● ■	C250S50/ALTO NC HPS	S50	12	G, S	5¼	9¼	40,000	26,100	25,650	21	2100
400	ED18 Mog.	46736-5	★ ● ■	C400S51/ALTO NC HPS	S51	12	G, S	5¼	9¼	40,000	50,000	45,000	21	2100

Ceramalux High Pressure Sodium Instant Restrike Lamps (360, 373, 376)

100	ED23½ Mog.	26560-3	■	C100S54/2	S54	12	G, S	5	7¼	24,000+	9100	8190	21	2100
150	ED23½ Mog.	26561-1	■	C150S55/2	S55	12	G, S	5	7¼	24,000+	15,600	14,000	21	2100
250	ED18 Mog.	37717-6	■	C250S50/2	S50	12	G, S	5¼	9¼	24,000+	27,500	24,750	21	2100
400	ED18 Mog.	37688-9	■	C400S51/2	S51	12	G, S	5¼	9¼	24,000+	49,000	44,000	21	2100

High Pressure Sodium—Horticulture Lamps (360, 373)

- Enhanced spectrum Xtreme grow lamp
- Excellent lumen maintenance at 97% (405) • Features ALTO Lamp Technology, environmentally responsible lamps

Note: Best practice suggests grow lamps to be replaced at maximum 40% of their rated average life in order to maintain same level of growth-light on plants over time

1000	ED25 Mog.	14064-0	■ ★	C1000S52/AGROLITE XT	S52	6	AGRO (359, 362, 376)	8¼	15⅞	15,000	146,000	135,780	1850	2100
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For the most current product information, go to the e-catalog on www.philips.com. HID symbols and footnotes located on page 83.



High Intensity Discharge Lamps

Low Pressure Sodium and Mercury Vapor Lamps

Watts	Bulb Base	Product Number	Product Symbols, Footnotes	Ordering Code	ANSI Code Ballast Ref.	Pkg. Qty.†	Description(401,407)	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(351)	Approx. Initial Lumens(352)	Approx. Mean Lumens(353)	CRI	CCT (K)
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Low Pressure Sodium Lamps—SOX

18	T17	D.C. Bay	23404-7	✱	SOX-E18	L69	12	Clear Base Up ± 110°	5½	8½	18,000	1800	1530	-	1700
35	T17	D.C. Bay	32781-7	✱	SOX35	L70	12	Clear Base Up ± 110°	-	12¾	18,000	4550	3870	-	1700
55	T17	D.C. Bay	32151-3	✱	SOX55	L71	12	Clear Base Up ± 110°	9½	16¼	18,000	7800	6630	-	1700
90	T21	D.C. Bay	32152-1	✱	SOX90	L72	12	Clear Horizontal ± 20°	-	20¼	18,000	14,300	12,155	-	1700
135	T21	D.C. Bay	32153-9	✱	SOX135	L73	12	Clear Horizontal ± 20°	-	30½	18,000	22,600	19,210	-	1700
180	T21	D.C. Bay	15116-7	✱	SOX180	L74	6	Clear Horizontal ± 20°	-	44½	18,000	32,000	22,400	-	1700

Mercury Vapor Lamps

100	A23	Med.	35658-4	★	H38MP-100/DX	H38	24	G (379)	-	5½	24,000+	4300	3700	45	3700
	ED23½	Mog.	33713-9	★	H38JA-100/DX	H38	12	G, S (379)	-	7½	24,000+	4400	3400	45	3700
175	ED28	Mog.	31965-7	★	H39KB-175	H39	12	G, S (355)	5	8½	24,000+	7900	7400	20	6800
	ED28	Mog.	24805-4	★	H39KC-175/DX	H39	12	G, S (379)	-	8½	24,000+	7900	7600	45	3700
250	ED28	Mog.	24814-6	★	H37KC-250/DX	H37	12	G, S (379)	-	8½	24,000+	13,000	10,700	45	3700
400	ED37	Mog.	24842-7	★	H33GL-400/DX	H33	6	G, S (379)	-	11½	24,000+	23,000	19,100	45	3700

For the most current product information, go to the e-catalog on www.philips.com.
HID symbols and footnotes located on page 83.



T17
DC Bay

T21
DC Bay

A23
Med.

ED23½
Mog.

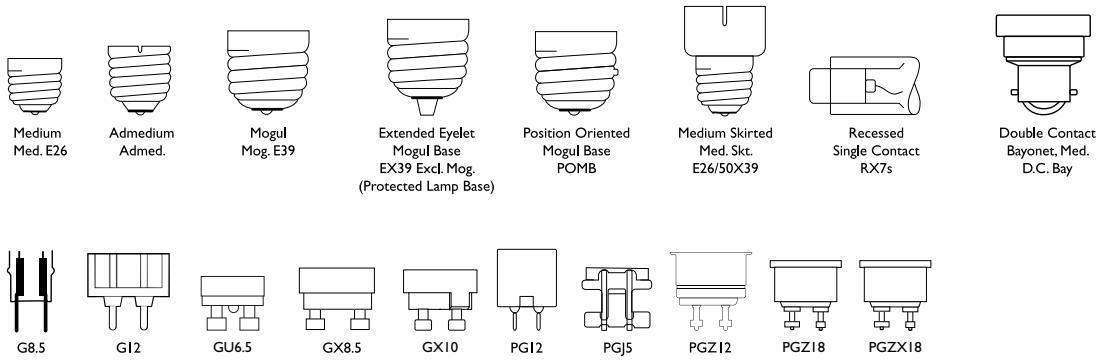
ED28
Mog.

ED37
Mog.

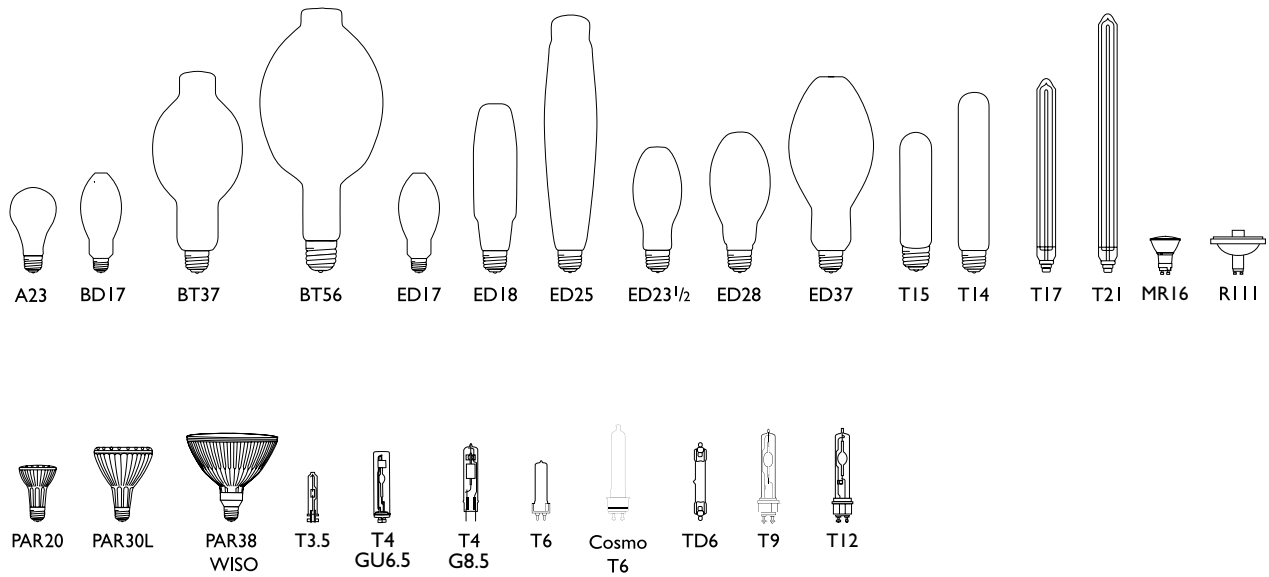
High Intensity Discharge Lamps

Base Types and Bulb Shapes

Base Types (Not Actual Sizes)



Bulb Shapes (Not Actual Sizes)



High Intensity Discharge Lamps

Symbols and Footnotes

For the most current product information, go to the e-catalog on www.philips.com

□ Exclusive to Signify North America Corporation

■ Nickel plated brass base

▲ Aluminum base

★ Heat resisting glass bulb

● This lamp is better for the environment because of its reduced mercury content. All Philips ALTO lamps give you end-of-life options which can simplify and reduce your lamp disposal costs depending on your state and local regulations

X Orders will be shipped until inventory is depleted; no longer manufactured

© This Bulb Meets US Federal Minimum Efficiency Standard

† New since last printing

◇ Designed for instant start operation.

‡ Quantity shown is minimum shipping container—refer to Net Price Schedule for number of lamps to qualify as a standard case

G = General Lighting

S = Street Lighting

▼ PAR38 (one piece)

⌘ Satisfies the 2005 NEC for use in open luminaires. The 2005 NEC states that luminaires that use a metal halide lamp shall be provided with either a containment barrier that encloses the lamp (historically referred to as an enclosed luminaire) or shall be provided with a means, typically a special lampholder, that will only accept ANSI Type-O metal halide lamp. (Exception—this requirement will not apply to open luminaires with thick-glass parabolic reflector PAR lamps.) For more information regarding use of Type-O, S, and E metal halide systems, please refer to the NEMA white paper on this subject that is freely available at www.nema.org

✱ Operate only on thermally electronic protected ballasts

■ Energy Saving Product

✱ Product to be discontinued

(351) Rated average life is the life obtained, on average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps, and allows for individual lamps or groups of lamps to vary considerably from the average. For HPS lamps, life is based on survival of 67% of the lamps

(352) Measured at 100 hrs. life. Approximate lumen values listed are for vertical operation of the lamp.

(353) Approximate lumen output at 40% of lamp rated average life.

(355) Separate filter is required for black light application.

(359) Electrically insulated support for bulb may be required, especially in horizontal and nearly horizontal operating positions.

(360) Follow fixture manufacturer' recommendations regarding proximity of ballast to bulb.

(362) This lamp should be shielded from moisture to prevent breakage.

(370) C150S55 and C150S56 lamps are not electrically interchangeable. Different ballasts are required for the proper operation of each lamp type. ANSI type S55 ballast is for the 55-volt (normal) lamp and the ANSI type S56 ballast is for the 100 volt (nominal) lamp.

(372) Color characteristics may vary somewhat from one lamp type to another. Time should be allowed for the lamp to stabilize in color when it is turned on for the first time or if for any reason its operating position is changed. This may require several hours' operation, with more than one start. Lamp color and output may change temporarily if the lamp is subjected to excess vibration or shock. Lamp color characteristics may change after long accumulate operating time.

(373) Fixtures should be designed so that sockets and wiring withstand starting pulse up to 5000 volts for 1000 watts and WHITE SON types and 4000 volts for other sizes.

(374) Performance may not be satisfactory unless operated within specified operating positions.

(375) If specified operating position is base up or base down to horizontal, this permits 15° beyond the horizontal.

(376) For use in fixtures which do not redirect a substantial portion of the energy toward the arc tube; otherwise very early failure is anticipated.

(377) Requires a ballast specified or approved for Philips metal halide lamps, or one that is designed to operate all popular brands of metal halide lamps. 1000W types will operate from H36 conventional lag type ballast for Mercury Vapor lamps at ambient temperatures of 50°F or higher. 1000W types must not be operated at 1500W.

(378) Requires auxiliary 10KV pulse ignitor for instant restrike.

(379) It is a characteristic of phosphor-coated vapor lamps to require a few hundred hours of operation to gradually reach normal characteristic color. New lamps may have a slight pink appearance during this initial operating period.

(385) Rated average life: vertical ±15°. Other positions 75% of vertical life.

(387) This lamp can cause serious skin burns and eye inflammation from shortwave ultraviolet radiation and must be fully enclosed in a fixture with an appropriate UV filter. To protect against possible risk of property damage or personal injury due to an arc tube rupture, the fixture enclosure must be capable of withstanding particles of glass having temperatures up to 1000°C. **DO NOT USE THIS LAMP IF THE UV FILTER IS MISSING.**

(391) Requires a ballast specified or approved for Philips Metal Halide lamp or one designed to the indicated ANSI Standard. A pulse ignitor is required. Sockets and wiring must withstand starting pulse.

(392) Supply volts must be +5% of rated ballast line volts for reactor type and ±10% for CWA or electronic ballasts.

(393) Vertical lumens. Horizontal lumens 6%–10% lower.

(396) UV filtered design (FadeBlock).

(397) Operate only on thermally protected ballasts.

(399) This product utilizes ALTO Lamp Technology. ALTO products pass the US EPA's Toxicity Characteristic Leaching Procedure (TCLP) for non-hazardous waste status.

(401) MasterColor Metal Halide Lamps are not recommended for use on dimmers and are not warranted if used on dimmer systems.

(402) Primarily used for sports-lighting applications. Life, initial and mean lumens are for horizontal operation. In vertical position and at 10 or more hours per start, lamp life is extended to 6000 hours, initial lumens are 170,000 and mean lumens are 136,000.

(405) 97% Lumen maintenance at 10% of rated average life. 93% lumen maintenance at 40% of rated average life.

(406) CAUTION: Beware of inadvertent circuit overload in new construction. Because of power factor of 0.57 in the ballast of the lamp, the lamp uses 0.36 amps.

(407) Operating Position is Universal, unless otherwise indicated. See Warnings, Cautions and Operating Instructions for further information.

(410) 30,000 horizontal application but 20,000 vertical application.

(411) 145W compatible with M57 probe start ballast. Also compatible with M152 pulse start ballasts.

(412) 205W compatible with M58 probe start ballast. Also compatible with M138 and M153 pulse start ballasts.

(413) 330W compatible with M59 probe start ballast. Also compatible with M128, M135, M155, and M172 pulse start ballasts.

High Intensity Discharge Lamps

Warnings

WARNINGS for Protected Ceramic Metal Halide Lamps (Open or Enclosed Fixtures): MasterColor CDM Elite Medium Watt Ceramic Metal Halide T12, Energy Advantage Ceramic Metal Halide lamps with AllStart technology (Except ED 17 lamps), MasterColor Ceramic Metal Halide lamps ED17P, CDM R111, CDM PAR lamps.

I. RISK OF FIRE FROM RUPTURE OF ARC TUBE.

This metal halide lamp contains an outer glass bulb and an internal arc-tube. The arc-tube operates under very high pressure and at very high temperatures that exceed 2192°F (1200°C). Because of the high internal operating pressure of the arc-tube, there is the potential for the arc-tube to rupture unexpectedly. If the arc-tube ruptures, the outer bulb may break and pieces of extremely hot glass can be discharged into the surrounding environment. If this rupture occurs, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE. THIS RISK INCREASES WHEN A LAMP IS BURNED PAST ITS RATED LIFE AND, ACCORDINGLY, ALL OF THE OPERATING INSTRUCTIONS BELOW SHOULD BE CAREFULLY FOLLOWED TO MINIMIZE THESE RISKS.

TO REDUCE THE RISKS ASSOCIATED WITH A RUPTURED ARC TUBE:

1. Do not use these lamps near flammable or combustible material. Materials that can ignite should not be stored underneath the lamps. For example, in warehouse locations, locate luminaires containing these lamps over the center of aisles, not over products.
2. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
3. Do not use the lamp past its rated life. (See packaging or catalogue for rated life). Allowing lamps to operate until they fail is not safe and will increase the possibility of inner arc-tube rupture.
4. Relamp fixtures at or before the end of rated life. Lamps should be replaced as a group, not individually.
5. Periodically inspect the outer envelope of the lamp. Replace any lamps that show scratches, cracks or damage. Do not operate the lamp if it is broken or cracked.
6. Operate the lamp only with a compatible ballast and fixture. You should use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by the ballast manufacturer, and operate the lamp only within specified limits of operation.
7. Operate the lamp only in the designated operating position.
8. Do not expose the lamp, its base or its socket to moisture.
9. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is

broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

IF THE OUTER BULB IS BROKEN OR PUNCTURED, TURN OFF AT ONCE AND REPLACE THE LAMP TO AVOID POSSIBLE INJURY FROM HAZARDOUS SHORT WAVE ULTRAVIOLET RADIATION.

III. ELECTRICAL SHOCK AND BURN HAZARD. Do not remove or install the lamp while the power is on. Allow the lamp and fixture to cool before removing the lamp.

IV. BROKEN ARC TUBE. Take care in handling and disposing of lamps. If an arc-tube is broken, avoid skin contact with any of the contents or fragments.

WARNINGS for Ceramic Metal Halide Lamps (Enclosed Fixtures Only): Single Ended CDM-T G12, CDM-TC G8.5, CDM-Tm GU6.5, CDM-Tm PGJ5, CDM-TD RX7, CDM Elite Medium Wattage Ceramic Metal Halide T9 lamps, Energy Advantage Ceramic Metal Halide Lamps with AllStart Technology ED17 lamps, MasterColor Ceramic Metal Halide Lamps, ED17, ED23.5 and ED28, CosmoWhite Lamps

I. RISK OF FIRE FROM RUPTURE OF ARC TUBE.

This metal halide lamp contains an outer glass bulb and an internal arc-tube. The arc-tube operates under very high pressure and at very high temperatures that exceed 2192°F (1200°C). Because of the high internal operating pressure of the arc-tube, there is the potential for the arc-tube to rupture unexpectedly. If the arc-tube ruptures, the outer bulb may break and pieces of extremely hot glass can be discharged into the surrounding environment. If this rupture occurs, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE. THIS RISK INCREASES WHEN A LAMP IS BURNED PAST ITS RATED LIFE AND, ACCORDINGLY, ALL OF THE OPERATING INSTRUCTIONS BELOW SHOULD BE CAREFULLY FOLLOWED TO MINIMIZE THESE RISKS.

TO REDUCE THE RISKS ASSOCIATED WITH A RUPTURED ARC TUBE:

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments in the event of an arc tube rupture. If you are uncertain, contact your fixture manufacturer.
2. Do not use these lamps near flammable or combustible material. Materials that can ignite should not be stored underneath the lamps. For example, in warehouse locations, locate luminaires containing these lamps over the center of aisles, not over products.
3. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
4. Do not use the lamp past its rated life. (See packaging or catalogue for rated life). Allowing lamps to operate until they fail is not safe and will increase the possibility of inner arc-tube rupture.
5. Relamp fixtures at or before the end of rated life. Lamps should be replaced as a group, not individually.
6. Cycle the lamps by turning them off at least once a week for at least 15 minutes. Failure to turn off the lamps for the minimum recommended period can increase the possibility of an arc-tube rupture. Turning off the lamps for this period helps to cause lamps near the end-of-life to fail benignly.
7. Periodically inspect the outer envelope of the lamp. Replace any lamps that show scratches, cracks or damage. Do not operate the lamp if it is broken or cracked.
8. Operate the lamp only with a compatible ballast and fixture. You should use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by the ballast manufacturer, and operate the lamp only within specified limits of operation.
9. Operate the lamp only in the designated operating position.
10. Do not expose the lamp, its base or its socket to moisture.
11. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.

IN ORDER TO ACHIEVE AN ADDITIONAL MEASURE OF PROTECTION, LAMPS THAT ARE DESIGNED TO CONTAIN ALL THE GLASS PARTICLES FROM AN ARC TUBE RUPTURE ARE COMMERCIALY AVAILABLE FROM PHILIPS LIGHTING NORTH AMERICA CORPORATION.

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

IF THE OUTER BULB IS BROKEN OR PUNCTURED, TURN OFF AT ONCE AND REPLACE THE LAMP TO AVOID POSSIBLE INJURY FROM HAZARDOUS SHORT WAVE ULTRAVIOLET RADIATION.

III. ELECTRICAL SHOCK AND BURN HAZARD. Do not remove or install the lamp while the power is on. Allow the lamp and fixture to cool before removing the lamp.

IV. BROKEN ARC TUBE. Take care in handling and disposing of lamps. If an arc-tube is broken, avoid skin contact with any of the contents or fragments.

WARNINGS for All Quartz Metal Halide Protected Lamps (Open or Enclosed Fixtures): Protected Standard and Pulse Start Quartz Metal Halide Lamps

I. RISK OF FIRE FROM RUPTURE OF ARC TUBE.

This metal halide lamp contains an outer glass bulb and an internal arc-tube. The arc-tube operates under very high pressure and at very high temperatures that exceed 2012°F (1100°C). Because of the high internal operating pressure of the arc-tube, there is the potential for the arc-tube to rupture unexpectedly. If the arc-tube ruptures, the outer bulb may break and pieces of extremely hot glass can be discharged into the surrounding environment. If this rupture occurs, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE. THIS RISK INCREASES WHEN A LAMP IS BURNED PAST ITS RATED LIFE AND, ACCORDINGLY, ALL OF THE OPERATING INSTRUCTIONS BELOW SHOULD BE CAREFULLY FOLLOWED TO MINIMIZE THESE RISKS.

TO REDUCE THE RISKS ASSOCIATED WITH A RUPTURED ARC TUBE:

1. Do not use these lamps near flammable or combustible material. Materials that can ignite should not be stored underneath the lamps. For example, in warehouse locations, locate luminaries containing these lamps over the center of aisles, not over products.
2. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
3. Do not use the lamp past its rated life. (See packaging or catalogue for rated life). Allowing lamps to operate until they fail is not safe and will increase the possibility of inner arc-tube rupture.
4. Relamp fixtures at or before the end of rated life. Lamps should be replaced as a group, not individually.
5. Periodically inspect the outer envelope of the lamp. Replace any lamps that show scratches, cracks or damage. Do not operate the lamp if it is broken or cracked.
6. Operate the lamp only with a compatible ballast and fixture. You should use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by the ballast manufacturer, and operate the lamp only within specified limits of operation.
7. Operate the lamp only in the designated operating position.
8. Do not expose the lamp, its base or its socket to moisture.
9. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will

remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

IF THE OUTER BULB IS BROKEN OR PUNCTURED, TURN OFF AT ONCE AND REPLACE THE LAMP TO AVOID POSSIBLE INJURY FROM HAZARDOUS SHORT WAVE ULTRAVIOLET RADIATION.

III. ELECTRICAL SHOCK AND BURN

HAZARD. Do not remove or install the lamp while the power is on. Allow the lamp and fixture to cool before removing the lamp.

IV. BROKEN ARC TUBE. Take care in handling and disposing of lamps. If an arc-tube is broken, avoid skin contact with any of the contents or fragments.

WARNINGS for Quartz Metal Halide Lamps (Enclosed fixtures only): Standard and Pulse Start Metal Halide Lamps

I. RISK OF FIRE FROM RUPTURE OF ARC TUBE.

This metal halide lamp contains an outer glass bulb and an internal arc-tube. The arc-tube operates under very high pressure and at very high temperatures that exceed 2012°F (1100°C). Because of the high internal operating pressure of the arc-tube, there is the potential for the arc-tube to rupture unexpectedly. If the arc-tube ruptures, the outer bulb may break and pieces of extremely hot glass can be discharged into the surrounding environment. If this rupture occurs, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE. THIS RISK INCREASES WHEN A LAMP IS BURNED PAST ITS RATED LIFE AND, ACCORDINGLY, ALL OF THE OPERATING INSTRUCTIONS BELOW SHOULD BE CAREFULLY FOLLOWED TO MINIMIZE THESE RISKS.

TO REDUCE THE RISKS ASSOCIATED WITH A RUPTURED ARC TUBE:

1. Only operate lamp in an enclosed fixture with a lens/diffuser material able to contain hot lamp fragments in the event of an arc tube rupture. If you are uncertain, contact your fixture manufacturer.
2. Do not use these lamps near flammable or combustible material. Materials that can ignite should not be stored underneath the lamps. For example, in warehouse locations, locate luminaries containing these lamps over the center of aisles, not over products.
3. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
4. Do not use the lamp past its rated life. (See packaging or catalogue for rated life). Allowing lamps to operate until they fail is not safe and will increase the possibility of inner arc-tube rupture.
5. Relamp fixtures at or before the end of rated life. Lamps should be replaced as a group, not individually.
6. Cycle the lamps by turning them off at least once a week for at least 15 minutes. Failure to turn off the lamps for the minimum recommended period can increase the possibility of an arc-tube rupture. Turning off the lamps for this period helps to cause lamps near the end-of-life to fail benignly.
7. Periodically inspect the outer envelope of the lamp. Replace any lamps that show scratches, cracks or damage. Do not operate the lamp if it is broken or cracked.
8. Operate the lamp only with a compatible ballast and fixture. You should use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by the ballast manufacturer, and operate the lamp only within specified limits of operation.
9. Operate the lamp only in the designated operating position.
10. Do not expose the lamp, its base or its socket to moisture.
11. Electrically insulate any metal support in contact with the outer bulb to avoid glass decomposition.

IN ORDER TO ACHIEVE AN ADDITIONAL MEASURE OF PROTECTION, LAMPS THAT ARE DESIGNED TO CONTAIN ALL THE GLASS PARTICLES FROM AN ARC TUBE RUPTURE ARE COMMERCIALY AVAILABLE FROM PHILIPS LIGHTING NORTH AMERICA CORPORATION.

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

IF THE OUTER BULB IS BROKEN OR PUNCTURED, TURN OFF AT ONCE AND REPLACE THE LAMP TO AVOID POSSIBLE INJURY FROM HAZARDOUS SHORT WAVE ULTRAVIOLET RADIATION.

III. ELECTRICAL SHOCK AND BURN

HAZARD. Do not remove or install the lamp while the power is on. Allow the lamp and fixture to cool before removing the lamp.

IV. BROKEN ARC TUBE. Take care in handling and disposing of lamps. If an arc-tube is broken, avoid skin contact with any of the contents or fragments.

High Intensity Discharge Lamps

Operating Instructions

OPERATING INSTRUCTIONS for MasterColor (Elite) Ceramic Metal Halide Lamps: Single Ended CDM-T G12, CDM-TC G8.5, CDM-Tm GU6.5 and CDM-Tm PGJ5 (Universal); Double-Ended CDM-TD RX7 (Horizontal $\pm 45^\circ$, Enclosed Fixtures Only)

LAMP OPERATING INSTRUCTIONS:

1. Use only in fully enclosed fixtures capable of withstanding particles of glass having temperatures up to 1000°C. Lens/diffuser material must be heat resistant. Consult fixture manufacturer regarding the suitability of the fixture for this lamp.
2. Do not operate a fixture with a missing or broken lens/diffuser. At high lighting levels or when illuminating light-sensitive materials the use of an extra UV filter is recommended.
3. Operate lamp only within specified limits of operating position. When inserting a new CDM-Tm lamp, twist the lamp 45° clockwise in the holder to ensure proper electrical and mechanical connection.
4. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturer's electrical data.
 - C. Operate CDM-T (G12 base) lamps only on thermally protected ballasts.**
 - D. Operate CDM-TC lamps (G8.5 base) and CDM-Tm (PGJ5 and GU6.5 base) only on thermally protected electronic ballasts.**
 - E. Operate CDM-T (G12 base) 39W/842 and CDM-T (G12 base) Elite only on thermally protected electronic ballasts.**
5. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
6. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
7. Lamps may require 4–8 minutes (10–15 minutes for CDM-Tm) to re-light if there is a power interruption.
8. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.

OPERATING INSTRUCTIONS for MasterColor CDM Elite Medium Watt Ceramic Metal Halide Tubular Single-Ended T9 and T12 Lamps

LAMP OPERATING INSTRUCTIONS:

1. If the lamp is marked on the base with /E, use only in enclosed fixture capable of withstanding particles of glass having temperatures up to 2192°F (1200°C). Lens/diffuser material must be heat resistant. Consult fixture manufacturer regarding the suitability of the fixture for this lamp.
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer:
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturer's electrical data.
 - C. All Pulse Start lamps require a socket rated to withstand a 4,000 volt pulse.
3. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
4. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
5. Lamps may require 10 minutes to re-light if there is a power interruption.
6. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
7. Use this lamp only in fixtures that contain an electronic ballast designed specifically to operate the CDM Elite Medium Watt T9 or T12 lamp.
8. If a lamp is shipped individually by itself, please pack the lamp with sufficient cushioning materials to prevent damage to the internal structure of the lamp. Failure to pack an individual lamp properly could lead to short life and early failure.

Until the lamp has achieved at least 10 hours of operation, the lamp should never be turned OFF sooner than 2 minutes including during installation test. In case that this has happened, you have to wait 1 hour before switching on again. Failure to comply with this requirement may lead to ignition problems.

This lamp contains Kr-85 and is distributed by Philips Lighting Company, a division of Philips Electronics North America Corporation, Somerset, New Jersey, 08873.

High Intensity Discharge Lamps

Operating Instructions

OPERATING INSTRUCTIONS for Energy Advantage Ceramic Metal Halide lamps with AllStart Technology, ED17 Lamps (Enclosed Fixtures); Energy Advantage CMH lamps with AllStart Technology (Open or Enclosed Fixtures); Energy Advantage CDM Long Life Lamp with AllStart Technology (Open or Enclosed Fixtures)

This lamp contains a Kr-85 and is distributed by Philips Lighting Company, a division of Philips Electronics North America Corporation, Somerset, New Jersey, 08873.

LAMP OPERATING INSTRUCTIONS:

1. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
2. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
3. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
4. Lamps may require 10 to 15 minutes to re-light if there is a power interruption. Less than 10 minutes on pulse start ballasts.
5. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.

C. These lamps can be used in both Probe Start and Pulse Start Magnetic ballast. Reference the technical data sheet for proper ANSI ballast code compatibility. Do not operate lamps on electronic ballasts.

D. All Pulse Start mogul based lamps require a socket rated to withstand a 4000 volt pulse.

OPERATING INSTRUCTIONS for Protected MasterColor Ceramic Metal Halide PAR, MasterColor Ceramic Metal Halide MR16 Elite, and CDM-R111 Lamps (Open or Enclosed Fixtures)

LAMP OPERATING INSTRUCTIONS:

1. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
2. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
3. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
4. Lamps may require up to 10 minutes (4–8 minutes for CDM-R111) to re-light if there is a power interruption.
5. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
6. For proper installation and removal, lamp should be handled by the sides of the reflector and not by the aluminum front anti-glare cap.

F. Operate CDM-R111 lamps only on thermally protected electronic ballast.

G. Operate CDM PAR30L Elite and CDM MR16 Elite lamps only on thermally protected electronic ballast.

C. Operate PAR20 3000K and PAR30L 3000K lamps only on thermally protected ballast.

D. Operate 20W PAR20 3000K and 20W PAR30L 3000K lamps only on thermally protected electronic ballast.

E. Operate PAR20 4000K and PAR30L 4000K lamps only on thermally protected electronic ballast.

OPERATING INSTRUCTIONS for MasterColor Ceramic Metal Halide Lamps ED17 and ED28(Enclosed Fixtures); Protected MasterColor Ceramic Metal Halide Lamps ED17P (Open or Enclosed Fixtures)

LAMP OPERATING INSTRUCTIONS:

1. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
2. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
3. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
4. Lamps may require 4 to 8 minutes to re-light if there is a power interruption.
5. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.

High Intensity Discharge Lamps

Operating Instructions

OPERATING INSTRUCTIONS for Philips MasterColor Ceramic Metal Halide Pulse Start ED 23½ Lamps featuring ALTO Lamp Technology (For Enclosed Fixtures Only)

LAMP OPERATING INSTRUCTIONS:

1. Use only in an enclosed fixture capable of withstanding particles of glass having temperatures up to 2192°F (1200°C).
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
 - C. All Pulse Start lamps require a socket rated to withstand a 4000 Volt pulse.
3. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
4. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
5. Lamps may require 10 to 15 minutes to re-light if there is a power interruption.
6. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
7. Use this lamp only in a fixture that contains a Pulse Start metal halide ballast and is specifically designed for use with Pulse Start metal halide lamps.

OPERATING INSTRUCTIONS CosmoWhite Lamp (For Enclosed Fixtures Only)

LAMP OPERATING INSTRUCTIONS:

1. Use only in an enclosed fixture capable of withstanding particles of glass having temperatures up to 2192°F (1200°C).
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturer's electrical data.
 - C. All CosmoWhite lamps require a PGZ12 socket rated to withstand a 5000 Volt pulse.
3. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
4. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock, and color appearance may vary between individual lamps.
5. Lamps may require 10 to 15 minutes to re-light if there is a power interruption.
6. Take care in handling and disposing of lamps. Don't break the outer bulb of an end of life lamp. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
7. Use this lamp only in a fixture that contains an Advance CosmoWhite electronic low frequency square wave ballast.
8. When inserting a new lamp, hold it by the quartz bulb, not by the metal lamp base; twist the lamp 45° clockwise in the lamp holder to ensure proper electrical and mechanical connection.
9. Store the lamps in cool and dry conditions to prevent the oxidation of the exterior metal parts.

OPERATING INSTRUCTIONS for Pulse Start Metal Halide Lamps (Base Up Operation ±15° Unless Otherwise Noted; Enclosed Fixtures Only)

LAMP OPERATING INSTRUCTIONS:

1. Use only in an enclosed fixture capable of withstanding particles of glass having temperatures up to 1000°C, unless otherwise noted.
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
 - C. All Pulse Start mogul based lamps require a socket rated to withstand a 4000 volt pulse.
3. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
4. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
5. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
6. Lamps may require 2 to 4 minutes to re-light if there is a power interruption.
7. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
8. Use this lamp only in fixtures that contain a Pulse Start metal halide ballast and are specifically designed for use with Pulse Start metal halide lamps.

OPERATING INSTRUCTIONS for Protected Pulse Start Metal Halide Lamps (Base Up Operation ±15° Unless Noted; Open or Enclosed Fixtures)

LAMP OPERATING INSTRUCTIONS:

1. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
 - C. All Pulse Start mogul based lamps require a socket rated to withstand a 4000 volt pulse.
2. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
3. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
4. Lamps may require 2 to 4 minutes to re-light if there is a power interruption.
5. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
6. Use this lamp only in fixtures that contain a Pulse Start metal halide ballast and are specifically designed for use with Pulse Start metal halide lamps.

High Intensity Discharge Lamps

Operating Instructions

OPERATING INSTRUCTIONS for Protected Metal Halide Lamps (Base Up Operation $\pm 15^\circ$ Unless Noted; Open or Enclosed Fixtures)

LAMP OPERATING INSTRUCTIONS:

1. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
2. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
3. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
4. Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
5. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
6. Do not use this lamp:
 - A. In a fixture that contains a Pulse Start metal halide ballast.
 - B. In a fixture that is specifically designed for use with Pulse Start metal halide lamps. **Operation of these lamps on Pulse Start Metal Halide systems may increase the chance of an outer bulb rupture and pieces of extremely hot glass might be discharged into the surrounding environment.**

OPERATING INSTRUCTIONS for Standard Metal Halide Lamps (Enclosed Fixtures Only)

LAMP OPERATING INSTRUCTIONS:

1. **Use only in an enclosed fixture capable of withstanding particles of glass having temperatures up to 2012°F (1100°C).**
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
3. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
4. Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
5. Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
6. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
7. Do not use this lamp:
 - A. In a fixture that contains a Pulse Start metal halide ballast.
 - B. In a fixture that is specifically designed for use with Pulse Start metal halide lamps. **Operation of these lamps on Pulse Start Metal Halide systems may increase the chance of an outer bulb rupture and pieces of extremely hot glass might be discharged into the surrounding environment.**

High Intensity Discharge Lamps

Warnings, Cautions and Operating Instructions

WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Ceramalux High Pressure Sodium Lamps

Warnings, Cautions and Operating Instructions

WARNING: These lamps must be operated in fixtures designed for use with High Pressure Sodium lamps. The fixture wattage rating must match the wattage indicated on the outer glass bulb. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the glass is struck.

CAUTION: Operating the lamp improperly may result in **PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

1. If the outer glass bulb is broken, shut off power immediately and remove the lamp after it has cooled.

2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.

A. Operate lamp only within specified limits of operation.

B. For total supply load refer to ballast manufacturers electrical data.

3. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.

4. Replace the lamp if the outer glass bulb has been scratched, cracked or damaged in any way.

5. If a lamp bulb support is used, be sure to insulate the support electrically so as to avoid possible decomposition of the bulb glass.

6. Do not use this lamp in a fixture which redirects a substantial portion of the energy toward the arc tube and its immediate vicinity, as this may lead to very early lamp failure.

7. Take care in handling and disposing of lamps. If arc tube is broken, avoid skin contact with any of the contents or fragments.

8. The arc tube of this lamp contains sodium and mercury. Dispose of in accordance with federal, state and local requirements.

WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Low Pressure Sodium Lamps—SOX

Warnings, Cautions and Operating Instructions

WARNING: These lamps must be operated in fixtures designed for use with Low Pressure Sodium lamps. The fixture wattage rating must match the wattage indicated on the outer glass bulb. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter.

CAUTION: Operating the lamp improperly and not following operating instructions may result in **PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

1. If the outer glass bulb is broken, shut off power immediately and remove the lamp after it has cooled.

2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.

A. Operate lamp only within specified limits of operation.

B. For total supply load refer to ballast manufacturers electrical data.

3. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.

4. Replace the lamp if the outer glass bulb has been scratched, cracked or damaged in any way.

5. Take care in handling and disposing of lamps. If arc tube is broken, avoid skin contact with any of the contents or fragments.

6. The arc tube of this lamp contains sodium. Sodium can generate a high degree of heat when exposed to water. Dispose of in accordance with federal, state and local requirements.

WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Mercury Vapor Lamps

Warnings, Cautions and Operating Instructions

R **WARNING:** This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available." This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada:SOR/DORS/80-381)

WARNING: The following **GOOD LAMP PRACTICES** are recommended to reduce the possibility of an arc tube rupture and the associated risk of property damage or personal injury.

GOOD LAMP PRACTICES:

1. **TURN LAMPS OFF AT LEAST ONCE PER WEEK FOR AT LEAST 15 MINUTES**, in systems which are otherwise operating on a continuous basis (24 hours/day-7 days/week).

2. **RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.** Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.

3. **OPERATE LAMP WITH PROPER CIRCUITS AND AUXILIARY EQUIPMENT.**

CAUTION: Electric discharge lamp—use only with proper circuits and auxiliary equipment designed to produce established electrical values for this lamp. Operating the lamp improperly may result in damage to equipment or personal injury, for which the lamp manufacturer does not assume any responsibility.

If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass. Do not scratch the bulb or subject it to pressure, as it could fail violently. If the outer bulb is broken, turn off the lamp and replace it promptly.

Do not use this lamp in a fixture which redirects a substantial portion of the energy toward the arc tube and its immediate vicinity, as this may lead to very early lamp failure.

NOTICE: For total supply load, add auxiliary (ballast) watts to lamp watts.

High Intensity Discharge Lamps

Cross Reference Guide

Philips		OSI		GE	
Ordering Code	ANSI Code	Order Code	ANSI	Description	ANSI
CDM20/TM/830/GU6.5 ELITE	C156/E	MC20TF/U/GU6.5/830	C156/E	CMH20T/U830GU6.5	C156/M156/E
CDM35/TM/930/GU6.5 ELITE	C130/E	MC39TF/U/GU6.5/830	C130/E	CMH39ULR930GU6.5	C130/M130/E
CDM50/TM/930/GU6.5 ELITE	C193/E				
CDM20/TM/830	C175/E				
CDM35/TM/930	C179/E				
CDM Elite 20/TC/830	C156/E	MC20TC/U/G8.5/830PB	C156/E	CMH20TCU830/G8.5	C156/M156/E
CDM Elite 35/TC/930	C130/E			CMH39/930G8.5ULR	C130/M130/E
CDM Elite35/TC/842	C130/E				
CDM Elite 50/TC/930	C193/E				
CDM Elite 70/TC/930	C139/E			CMH70U930G8.5ULR	C139/M139/E
CDM Elite70/TC/942	C139/E				
CDM35/TC/830	C130/E	MC39TC/U/G8.5/830PB	C130/E	CMH39TCU830/G8.5	C130/M130/E
CDM35/TC/842	C130/E			CMH39TCU942/G8.5	C130/M130/E
CDM70/TC/830	C139/E	MC70TC/U/G8.5/930PB	C139/E	CMH70TCU830G8.5	C139/M139/E
CDM/70/TC/942	C139/E			CMH70TCU942/G8.5	C139/M139/E
CDM Elite 20/T6/830	C156/E				
CDM Elite 35/T6/930	C130/E	MC39T6/U/G12/930	C130/E	CMH39U930G12ULR	C130/M130/E
CDM Elite35/T6/842	C130/E				
CDM Elite 50/T6/930	C193/E				
CDM Elite50/T6/942	C193/E				
CDM Elite 70/T6/930	C139/E	MC70T6/U/G12/930PB	C139/E	CMH70U930G12ULR	C139/M139/E
CDM Elite70/T6/942	C139/E				
CDM Elite 100/T6/930	C191/E	MC100T6/U/G12/830	C191/E		
CDM35/T6/830	C130/E	MC39T6/U/G12/830PB	C130/E	CMH39TUVU830G12	C130/M130/E
CDM35/T6/842	C130/E	MC39T6/U/G12/940PB	C130/E	CMH39T/U/942/G12	C130/M130/E
CDM70/T6/830	C139/E	MC70T6/U/G12/830PB	C139/E	CMH70TU/830/G12	C139/M139/E
CDM70/T6/942	C139/E	MC70T6/U/G12/940PB	C139/E	CMH70TU/942/G12	C139/M139/E
CDM150/T6/830	C142/E	MC150T7.5/U/G12/830	C142/E	CMH150TU/830/G12	C142/M102/E
CDM150/T6/942	C142/E	MC150T7.5/U/G12/940PB	C142/E	CMH150TU/942/G12	C142/M102/E
CDM70/TD/830	C139/C85/E	MC70T6/DE/830PB	C139/E	CMH70/TD/830RX7S	M85/M139/E
CDM150/TD/830	C142/C102/C81E	MC150T7.5/DE/830PB	C102/E	CMH150TD830RX7S	M81/M142/E
CDM EliteMW/210/T9/930/U/E	C183/E				
CDM EliteMW/210/T9/942/U/E	C183/E				
CDM EliteMW/315/T9/930/U/E	C182/E				
CDM EliteMW/315/T9/942/U/E	C182/E				
CDM EliteMW 210/T12/930/U/O	C183/O				
CDM EliteMW 210/T12/942/U/O	C183/O				
CDM EliteMW 315/T12/930/U/O	C182/O				
CDM EliteMW 315/T12/942/U/O	C182/O				
CPO-T WHITE 45W/728					
CPO-T WHITE 60W/728	C187/E				
CPO-T WHITE 90W/728	C188/E				
CPO-T WHITE 140W/728	C189/E				
CPO-T WHITE 60W/840	C187/E				
CPO-T WHITE 90W/840	C188/E				
CPO-T WHITE 140W/840	C189/E				
CDM-i25W/830/PAR38/10/ALTO		MCP24EL/PAR38/U/830/SPI0/ECO		CMHi23P38SP/ECO	
CDM-i25W/830/PAR38/25/ALTO		MCP24EL/PAR38/U/830/NFL25/ECO		CMHi23P38FL/ECO	
CDM-i25W/830/PAR38/40/ALTO		MCP24EL/PAR38/U/830/FL40/ECO		CMHi23P38WFL/ECO	
CDM-R111/20W/830 10DG	C175/O				
CDM-R111/35W/830 10DG	C130/O				
CDM-R111/35W/830 24DG	C130/O				
CDM-R111/35W/830 40DG	C130/O				
CDM-R111/70W/830 10DG	C139/O				
CDM-R111/70W/830 24DG	C139/O				
CDM-R111/70W/830 40DG	C139/O				

High Intensity Discharge Lamps

Cross Reference Guide

Philips		OSI		GE	
Ordering Code	ANSI Code	Order Code	ANSI	Description	
CDM-MR16/20W/830/10D ELITE	C156/O			CMH20MR16/830/SP	C156/M156/O
CDM-MR16/20W/830/25D ELITE	C156/O			CMH20MR16/830/FL	C156/M156/O
CDM-MR16/20W/830/40D ELITE	C156/O			CMH20MR16/830WFL	C156/M156/O
CDM-MR16/35W/930/10D ELITE	C130/O			CMH39MR16UL93/SP	C130/M130/O
CDM-MR16/35W/930/25D ELITE	C130/O			CMH39MR16UL93/FL	C130/M130/O
CDM-MR16/35W/930/40D ELITE	C130/O			CMH39MR16UL93/WFL	C130/M130/O
CDM-MR16/35W/930/10D ELITE	C130/O			CMH39MR16/930/SP	C130/M130/O
CDM-MR16/35W/930/25D ELITE	C130/O			CMH39MR16/930/FL	C130/M130/O
CDM-MR16/35W/930/40D ELITE	C130/O			CMH39MR16/930WFL	C130/M130/O
CDM-MR16/50W/930/25D ELITE	C193/O				
CDM-MR16/50W/930/40D ELITE	C193/O				
CDM20/PAR20/M/SP/3K/ALTO	C156/C175/O	MCP20PAR20/U/830/SP10/ECO PB	M156/O	CMH20PAR20/SP	C156/M156/O
CDM20/PAR20/M/FL/3K/ALTO	C156/C175/O	MCP20PAR20/U/830/FL/ECO PB	M156/O	CMH20PAR20/FL	C156/M156/O
CDM20/PAR30L/M/SP/3K/ALTO	C156/C175/O	MCP20PAR30LN/U/830/SP/ECOPB	M156/O	CMH20PAR30/SP10	C156/M156/O
CDM20/PAR30L/M/FL/3K/ALTO	C156/C175/O	MCP20PAR30LN/U/830/FL/ECOPB	M156/O	CMH20PAR30/FL25	C156/M156/O
CDM35/PAR20/M/SP/3K/ALTO	C130/O	MCP39PAR20/U/830/SPPB	M130/O	CMH39UPAR20SP10	C130/M130/O
CDM35/PAR20/M/FL/3K/ALTO	C130/O	MCP39PAR20/U/830/FLPB	M130/O	CMH39UPAR20FL25	C130/M130/O
CDM35/PAR20/M/SP/4K/ALTO	C130/O	MCP39PAR20/U/940/SP	M130/O	CMH39PAR20/NSP4K	C130/M130/O
CDM35/PAR20/M/FL/4K/ALTO	C130/O	MCP39PAR20/U/940/FL	M130/O	CMH39PAR20/FL4K	C130/M130/O
CDM35/PAR30L/M/SP/3K/ALTO	C130/O	MCP39PAR30LN/U/830/SP/ECOPB	M130/O	CMH39/PAR30LSPI0	C130/M130/O
CDM35/PAR30L/M/FL/3K/ALTO	C130/O	MCP39PAR30LN/U/830/FL/ECOPB	M130/O	CMH39PAR30L/FL25	C130/M130/O
CDM70/PAR30L/M/SP/3K/ALTO	M143/M98/O	MCP70PAR30LN/U/930/SP/ECOPB	M139/O	CMH70PAR30L830SP	C139/M98/O
CDM70/PAR30L/M/FL/3K/ALTO	M143/M98/O	MCP70PAR30LN/U/930/FL/ECOPB	M139/O	CMH70PAR30L830FL	C139/M98/O
CDM70/PAR30L/M/SP/4K/ALTO	C139/O	MCP70PAR30LN/U/940/SP/ECO	M139/O		
CDM70/PAR30L/M/FL/4K/ALTO	C139/O	MCP70PAR30LN/U/940/FL/ECO	M139/O		
CDM70/PAR38/SP/3K/ALTO	M143/M98/O	MCP70PAR38/U/830/SP/ECOPB	M139/O	CMH70PAR38SP/ECO	C98/M139/M143/O
CDM70/PAR38/FL/3K/ALTO	M143/M98/O	MCP70PAR38/U/830/FL/ECOPB	M139/O	CMH70PAR38FL/ECO	C98/M139/M143/O
CDM70/PAR38/SP/4K/ALTO	M143/M98/O				
CDM70/PAR38/FL/4K/ALTO	M143/M98/O				
CDM100/PAR38/SP/3K/ALTO	M140/M90/O	MCP100PAR38/U/830/SP/ECOPB	M90/O	CMH100PAR38SPECO	C90/M90/M140/O
CDM100/PAR38/FL/3K/ALTO	M140/M90/O	MCP100PAR38/U/830/FL/ECOPB	M90/O	CMH100PAR38FLECO	C90/M90/M140/O
CDM100/PAR38/SP/4K/ALTO	M140/M90/O				
CDM100/PAR38/FL/4K/ALTO	M140/M90/O				
MHC50/U/MP/3K ELITE	M148/M110/O	MCP50/U/MED/830PB	C110/O		
MHC50/U/MP/4K/ALTO	M148/M110/O				
MHC70/U/MP/3K ELITE	M143/M98/O	MCP70/U/MED/830PB	C98/O	CMH70U830MED/O	M143/M98/C98/O
MHC70/C/U/MP/3K ELITE	M143/M98/O	MCP70/C/U/MED/830PB	C98/O	CMH70CU830MED/O	M143/M98/C98/O
MHC70/U/MP/4K/ALTO	M143/M98/O	MCP70/U/MED/940PB	C98/O	CMH70U942MED/O	M143/M98/C98/O
MHC70/C/U/MP/4K/ALTO	M143/M98/O	MCP70/C/U/MED/940PB	C98/O	CMH70CU942MED/O	M143/M98/C98/O
MHC100/U/MP/3K ELITE	M140/M90/O	MCP100/U/MED/830PB	C90/O		
MHC100/C/U/MP/3K ELITE	M140/M90/O	MCP100/C/U/MED/830PB	C90/O		
MHC100/U/MP/4K/ALTO	M140/M90/O	MCP100/U/MED/940PB	C90/O		
MHC100/C/U/MP/4K/ALTO	M140/M90/O	MCP100/C/U/MED/940PB	C90/O		
MHC150/U/MP/3K/ALTO	M142/M102/O	MCP150/U/MED/830PB	C102/O	CMH150U830MED/O	C102/M142/O
MHC150/C/U/MP/3K/ALTO	M142/M102/O	MCP150/C/U/MED/830PB	C102/O	CMH150CU830MED/O	C102/M142/O
MHC150/U/MP/4K/ALTO	M142/M102/O			CMH150U942MED/O	C102/M142/O
MHC150/C/U/MP/4K/ALTO	M142/M102/O			CMH150CU942MED/O	C102/M142/O
MHC50/U/M/3K ELITE	C148/C110/E				
MHC50/C/U/M/3K ELITE	C148/C110/E				
MHC50/U/M/4K/ALTO	M148/M110/E				
MHC50/C/U/M/4K/ALTO	M148/M110/E				
MHC70/U/M/3K ELITE	C143/C98/E	MC70/U/MED/830	C98/E	CMH70/U/830/MED	M139/M98/C98/E
MHC70/C/U/M/3K ELITE	C143/C98/E	MC70/C/U/MED/830	C98/E	CMH70/C/U/830MED	M139/M98/C98/E
MHC70/U/M/4K/ALTO	M143/M98/E	MC70/U/MED/940	C98/E		
MHC70/C/U/M/4K/ALTO	M143/M98/E	MC70/C/U/MED/940	C98/E		
MHC100/U/M/3K ELITE	C140/C90/E	MC100/U/MED/830	C90/E	CMH100/U/830/MED	C90/M90/M140/E

High Intensity Discharge Lamps

Cross Reference Guide

Philips		OSI		GE	
Ordering Code	ANSI Code	Order Code	ANSI	Description	
MHC100/C/U/M/3K ELITE	C140/C90/E	MC100/C/U/MED/830	C90/E	CMH100/C/U830MED	C90/M90/M140/E
MHC100/U/M/4K/ALTO	M140/M90/E	MC100/U/MED/940	C90/E		
MHC100/C/U/M/4K/ALTO	M140/M90/E	MC100/C/U/MED/940	C90/E		
MHC100/U/ED28/HR/4K	M140/M90/E				
MHC150/U/M/3K/ALTO	M142/M102/E	MC150/U/MED/830	C102/E		
MHC150/C/U/3K/ALTO	M142/M102/E	MC150/C/U/MED/830	C102/E		
MHC150/U/M/4K/ALTO	M142/M102/E	MC150/U/MED/940	C102/E		
MHC150/C/U/M/4K/ALTO	M142/M102/E	MC150/C/U/MED/940	C102/E		
CDM70/U/PS/4K ALTO	M143/M98/E				
CDM100/U/PS/4K ALTO	M140/M90/E	MC100/U/ET23.5/942	C90/E		
CDM150/U/PS/4K ALTO	M142/M102/E	MC150/U/ET23.5/942	C102/E		
CDM145/U/M/4K/ED17 EA AllStart	C192/E				
CDM145/C/U/M/4K/ED17 EA AllStart	C192/E				
CDM145/U/O/4K/ED28 EA AllStart	C192/O				
CDM145/C/U/O/4K/ED28 EA AllStart	C192/O				
CDM205/U/O/4K EA AllStart	C184/O				
CDM205/C/U/O/4K EA AllStart	C184/O				
CDM260/U/O/4K EA AllStart	C195/O				
CDM260/C/U/O/4K EA AllStart	C195/O				
CDM330/U/O/4K/ED28 EA AllStart	C185/O				
CDM330/U/O/4K EA AllStart	C185/O				
CDM330/C/U/O/4K EA AllStart	C185/O				
CDM860/V/O/4K/EA BT37	C194/O				
CDM860/V/O/4K/EA BT56	C194/O				
CDM330/V/O/4K EA AllStart XL	C185/O				
MP175/BU/PS	M152/M137/O			MPR175/VBU/PA/O	M137/O
MP250/BU/PS	M153/M138/O	MP250/PS/BU-ONLY	M153/O	MPR250/VBU/PA/O	M138/O
MP320/BU/PS	M154/M132/O			MPR320/VBU/XHOPA	M132/M154/O
MP320/C/BU/PS	M154/M132/O			MPR320C/VBUXHOPA	M132/M154/O
MP350/BU/PS	M131/O	MP350/400/PS/BU-ONLY	M131/O	MPR350/VBU/PA	M131/O
MP400/BU/PS	M155/M128/M135/O	MP350/400/PS/BU-ONLY	M155/O	MPR400/VBU/XHOPA	M135/M155/O
MP400/C/BU/PS	M155/M128/M135/O	MP350/400/C/PS/BU-ONLY	M155/O	MPR400C/VBUXHOPA	M135/M155/O
MP750/BU/PS	M149/O				
MH70/U/M/PS	M98/E	M70/U/MED	M98/E	MVR70/U/MED	M98/E
MH100/U/M/PS	M90/E	M100/U/MED	M90/E	MVR100/U/MED	M90/E
MH150/U/M/PS	M102/E	M150/U/MED	M102/E	MVR150/U/MED	M102/E
MS175/M/BU/PS	M152/M137/E	MS175/PS/BU-ONLY/MED	M152/E	MVR175/VBU/MEDPA	M137/M152/E
MS175/BU/PS	M152/M137/E	MS175/PS/BU-ONLY	M152/E	MVR175/VBU/PA	M137/M152/E
MS175/HOR/PS	M152/M137/E				
MS200/BU/PS	M136/E	MS200/PS/BU-ONLY/BT28	M136/E		
MS250/U/PS	M153/M138/E	M250/PS/U	M153/E	MVR250/U/PA	M138/M153/E
MS250/BU/PS	M153/M138/E	MS250/PS/BU-ONLY	M153/E	MVR250/VBU/PA	M138/M153/E
MS320/U/PS	M154/M132/E	MS320/PS/BU-HOR	M154/E	MVR320/VBU/HO/PA	M132/M154/E
MS350/BU/PS	M131/E			MVR350/VBUXHOPA/E	M131/E
MS400/BU/ED28/PS	M155/M128/M135/E	MS400/PS/BU-ONLY/BT28	M155/E	MVR400/VBUE28PA	M135/M155/E
MS400/HOR/ED28/PS	M155/M128/M135/E			MVR400/HOR/ED28/PA	M135/M155/E
MS400/U/PS	M155/M135/M128/E			MVR400/HOR/PA	M135/M155/E
MS750/BU/BT37/PS	M149/E	MS750/PS/BU-HOR/BT37	M149/E	MVR750/VBU/PA	M149/E
MS750/HOR/BT37/PS	M149/E	MS750/PS/BU-HOR/BT37	M149/E		
MS1000/BU/BT37/PS	M141/E	M1000/PS/U/BT37	M141/E	MVR1000U/BT37/PA	M141/E

High Intensity Discharge Lamps

Cross Reference Guide












Philips		OSI		GE	
Ordering Code	ANSI Code	Order Code	ANSI	Description	
MP175/BU	M57/O	MP175/BU-ONLY	M57/O	MPR175/VBU/O	M57/O
MP250/BU	M58/O	MP250/BU-ONLY	M58/O	MPR250/VBU/O	M58/O
MP360BU/EW	M165/M59/O	MSP360/SS/BU-ONLY	M59/O	MPR360VBUMW/HO/O	M59/O
MP360/C/BU/EW	M165/M59/O	MSP360/C/SS/BU-ONLY	M59/O	MPR360CVBUMW/HO/O	M59/O
MP400/BU	M59/O	MP400/BU-ONLY	M59/O	MPR400/VBU/HO/O	M59/O
MP400/C/BU	M59/O	MP400/C/BU-ONLY	M59/O	MPR400C/VBU/HO/O	M59/O
MP1000/BU	M47/O	MP1000/BU-ONLY	M47/O	MPR1000/VBU/HO/O	M47/O
MH150/U/M	M107/E				
MH150/C/U/M	M107/E				
MH175/U/M	M57/E	M175/U/MED	M57/E	MVR175/U/MED	M57/E
MH175/C/U/M	M57/E	M175/C/U/MED	M57/E	MVR175/C/U/MED	M57/E
MH175/U	M57/E	M175/U	M57/E	MVR175/U	M57/E
MH175/C/U	M57/E	M175/C/U	M57/E	MVR175/C/U	M57/E
MH250/U	M58/E	M250/U	M58/E	MVR250/U	M58/E
MH250/C/U	M58/E	M250/C/U	M58/E	MVR250/C/U	M58/E
MH400/U/ED28	M59/E	M400/U/BT28	M59/E	MVR400/U/ED28	M59/E
MH400/U	M59/E	M400/U	M59/S	MVR400/U	M59/S
MH400/C/U	M59/E	M400/C/U	M59/S	MVR400/C/U	M59/S
MH1000/U/BT37	M47/E	M1000/U/BT37	M47/E	MVR1000/U/BT37	M47/E
MH1000/U	M47/E	M1000/U	M47/S	MVR1000/U	M47/S
MH1000/C/U	M47/E	M1000/C/U	M47/S	MVR1000/C/U	M47/S
MH1500/U	M48/E			MVR1500/U/SPORTS	M48/E
CDM-T FRESH 70W/740	C139/E				
CDM-T Warm 70W/925	C139/E				
SDW-T 100W/LV	S105				
SDW-TG 100W/T6/825	S167				
C35S76/M	S76	LU35/MED	S76	LU35/MED/ECO	S76/O
C50S68/M	S68	LU50/MED	S68	LU50/MED/ECO	S68/O
C50S68/ALTO	S68	LU50/ECO	S68	LU50/H/ECO	S68/O
C70S62/M	S62	LU70/MED	S62	LU70/MED/ECO	S62/O
C70S62/D/M	S62	LU70/D/MED	S62	LU70/D/MED/ECO	S62/O
C70S62/ALTO	S62	LU70/ECO	S62	LU70/H/ECO	S62/O
C100S54/M	S54S	LU100/MED	S54	LU100/MED/ECO	S54/O
C100S54/D/M	S54S	LU100/D/MED	S54	LU100/D/MED/ECO	S54/O
C100S54/ALTO	S54	LU100/ECO	S54	LU100/H/ECO	S54/O
C100S54/D/ALTO	S54	LU100/D	S54	LU100/D/H/ECO	S54/O
C150S55/M	S55	LU150/55/MED	S55	LU150/MED/ECO	S55/O
C150S55/D/M	S55	LU150/55/D/MED	S55	LU150/D/MED/ECO	S55/O
C150S55/ALTO	S55	LU150/55/ECO	S55	LU150/55/H/ECO	S55/O
C150S56/ALTO	S56	LU150/100	S56	LU150/100(ED28)	S56/O
C200S66/ALTO	S66MN-200	LU200/ECO	S66	LU200/H/ECO	S66/O
C250S50/ALTO	S50	LU250/ECO	S50	LU250/H/ECO	S50/O
C400S51/ALTO	S51	LU400/ECO	S51	LU400/H/ECO	S51/O
C600S106	S106	LU600 SUPER	S106	LU600/T	S106/O
C1000S52/ALTO	S52XB-1000	LU1000/ECO	S52	LU1000/ECO	S52/O
C1000S52/ED37	S52				
C70S62/ALTO NC HPS	S62	LU70/PLUS/ECO	S62	LU70/ECO/NC	S62/O
C100S54/ALTO NC HPS	S54	LU100/PLUS/ECO	S54	LU100/ECO/NC	S54/O
C150S55/ALTO NC HPS	S55	LU150/55/PLUS/ECO	S55	LU150/55/ECO/NC	S55/O
C200S66/ALTO NC HPS	S66	LU200/PLUS/ECO	S66	LU200/ECO/NC	S66/O
C250S50/ALTO NC HPS	S50	LU250/PLUS/ECO	S50	LU250/ECO/NC	S50/O
C400S51/ALTO NC HPS	S51	LU400/PLUS/ECO	S51	LU400/ECO/NC	S51/O
C1000S52/ALTO NC HPS	S52	LU1000/PLUS	S52		

High Intensity Discharge Lamps

Cross Reference Guide

Philips		OSI		GE	
Ordering Code	ANSI Code	Order Code	ANSI	Description	
C50S68/2	S68				
C70S62/2	S62	LU70/SBY	S62	LU70/SBY/XL	S62/O
C100S54/2	S54	LU100/SBY	S54	LU100/SBY/XL	S54/O
C150S55/2	S55	LU150/55/SBY	S55	LU150/55/SBY/XL	S55/O
C250S50/2	S50	LU250/SBY	S50	LU250/SBY/XL	S50/O
C400S51/2	S51	LU400/SBY	S51	LU400/SBY/XL	S51/O
C1000S52/2	S52	LU1000/SBY	S52	LU1000/SBY/XL	S52/O
SON AGRO 430W	S145/S51				
SON-T PIA Grn Pw/400W	S51	400W PLANTASTAR	S51	LU400/XOPSL/T/40	
SON-T PIA Grn Pw/600W/230V	S106	600W PLANTASTAR	S106	LU600/XOPSL/T/40	
SON-T PIA Grn Pw/600W/347V	S106				
SON-T PIA Grn Pw/600W/480V	S106				
C1000S52/AGROLITE XT	S52	LU1000/PLANTASTAR	S52		
GreenPower CDM-TP 315/T12/930/U/O	C182/O				
SOX-E18	L69	SOX18	L69		
SOX35	L70	SOX35	L70		
SOX55	L71	SOX55	L71		
SOX90	L72	SOX90	L72		
SOX135	L73	SOX135	L73		
SOX180	L74	SOX180	L74RF		
H38JA-100/DX	H38	H38JA-100/DX	H38	HR100DX38	
H38MP-100/DX	H38				
H39KB-175	H39	H39KB-175	H39	HR175A39	
H39KC-175/DX	H39	H39KC-175/DX	H39	HR175DX39	
H37KC-250/DX	H37	H37KC-250/DX	H37	HR250DX37	
H33GL-400/DX	H33	H33GL-400/DX	H33	HR400DX33	

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	Halogen Energy Advantage Lamps Page 76		Halogen MR Lamps Page 76		ALR Lamps Page 77
	ALUline Pro III Lamps Page 77		Twistline GU10 Lamps Page 77		Single-Ended Linear Lamps Page 78
	Double-Ended Linear Lamps Page 78		Capsule Lamps Page 78		



Philips Halogen Lamps are designed to provide visual appeal, highlight merchandise and save on energy costs.





Put people and merchandise in the best light

The Philips Halogen lamp family is perfect for retail lighting. Halogen lamps provide bright, white light and help save on energy and maintenance costs.

Halogen Energy Advantage IR Plus lamps provide the most enhanced features of our halogen lamp line. The double-ended burner with an IR coating optimizes lumen output. Therefore, you can use a lower wattage lamp to achieve energy savings and also get a longer rated average life than standard halogen equivalents.

EcoVantage lamps are an elegant, energy saving alternative to ordinary household incandescent light. EcoVantage lamps are fully dimmable and meet the requirement of EISA 2007* legislation.

* Complies with the Energy Independence and Security Act of 2007 (Public Law 110-140), Section 321—Efficient Light Bulbs.

Current Product	Philips Upgrade Product	Benefit	Page
 60W PAR38 Halogen	 Energy Advantage Halogen PAR38 IR Plus 39W	<ul style="list-style-type: none"> • High quality light brings out colors and textures • High performance IR coating on a double-ended quartz burner • Increased uniform beam intensity without hot spots 	76
 60W A19 Incandescent	 43W A19 Natural Light	<ul style="list-style-type: none"> • Provides light similar to natural daylight • Saves 28% in energy costs when replacing a 60W incandescent[∧] • Complies with EISA 2007 (Energy Independence and Security Act of 2007) efficiency standards for 2012–2014 	74

A19 rated at 570 lumens provides 47% energy savings.

[∧] 60W - 43W = 17W / 60W = 28%. When compared to a 60-Watt standard incandescent A19 rated at 680 lumens, the 43-Watt Natural Light A19 rated at 630 lumens provides 28% energy savings.

Halogen Lamps

A-Shape and Decorative Lamps

Watts	Bulb	Base	Product Symbols, Number Footnotes	Ordering Code	Volts	Pkg. Qty. ‡	Description	Class Filament	MOL (In.)	Rated Avg. Life (Hrs.) ⁽⁹³⁾	Approx. MBCP®	Lumens	Life Years ⁽⁴⁴⁶⁾	Energy Cost ⁽⁴⁴⁵⁾	Color Temp. (K)
EcoVantage A-Shape (97, 103)															
FTC REQUIREMENTS †															
29	A19	Med.	40983-9 ■	29A19/EV	120	24	White	C, CC-8	4 ⁷ / ₁₆	1000	—	380	0.9	\$3.49	2810
			41050-6 ■	29A19/EV/CL	120	24	Clear	C, CC-8	4 ⁷ / ₁₆	1000	—	380	0.9	\$3.49	2790
			45738-2 ■	29A19/EV/LL/MS 120V 6/4 TP	120	24	White, Twice the Life	C, CC-8	4 ⁷ / ₁₆	2000	—	300	1.8	\$3.49	2610
43	A19	Med.	40984-7 ■	43A19/EV	120	24	White	C, CC-8	4 ⁷ / ₁₆	1000	—	750	0.9	\$5.18	2920
			41049-8 ■	43A19/EV/CL	120	24	Clear	C, CC-8	4 ⁷ / ₁₆	1000	—	750	0.9	\$5.18	2920
			47587-1 ■	43A19/EV/NTL 120V 12/2	120	24	Natural Light	C, CC-8	4 ⁷ / ₁₆	1000	—	790	1.0	\$5.18	2930
			45734-1 ■+	43A19/EV/LL	120	24	White, Twice the Life	C, CC-8	4 ⁷ / ₁₆	2000	—	580	1.8	\$5.18	2720
53	A19	Med.	47433-8 ■	53A19/EV/NTL 120V 12/2	120	24	White	C, CC-8	4 ⁷ / ₁₆	1000	—	790	1.0	\$6.38	2960
			45801-8 ■	53A19/EV/LL/MS 120V 6/4 TP	120	24	White, Twice the Life	C, CC-8	4 ⁷ / ₁₆	2000	—	790	1.8	\$6.38	2750
72	A19	Med.	40982-1 ■	72A19/EV	120	24	White	C, CC-8	4 ⁷ / ₁₆	1000	—	1490	0.9	\$8.67	3000
			42924-1 ■	72A19/EV/CL	120	24	Clear	C, CC-8	4 ⁷ / ₁₆	1000	—	1490	0.9	\$8.67	2990
			22699-3 ■	72A19/EV/NTL	120	24	Natural Light	C, CC-8	4 ⁷ / ₁₆	1100	—	1170	1.0	\$8.67	3070
			45736-6 ■	72A19/EV/LL/MS	120	24	White, Twice the Life	C, CC-8	47/16	2000	—	1120	1.8	\$8.67	2780
EcoVantage Decorative Blister-Carded															
40	B11	Cand.	41920-0 (97)* ■	BC40B11/E12/EV/CL	120	12	Clear, Blister Card	C, CC-8	3 ⁹ / ₁₆	2500	—	540	2.3	\$4.82	2900
		Med.	42428-3 (97)* ■	BC40B11/E26/EV/CL	120	12	Clear, Blister Card	C, CC-8	3 ⁹ / ₁₆	2500	—	540	2.3	\$4.82	2900
	BA11	Med.	42426-7 (97)* ■	BC40BA11/E26/EV/CL	120	12	Clear, Blister Card	C, CC-8	3 ⁹ / ₁₆	2500	—	540	2.3	\$4.82	2900
43	F15	Med.	474346 (97)* ■	BC43F15/EV/CL 20V 4/1 TP	120	4	Clear, Blister Card	C, CC-8	4 ⁷ / ₈	1000	—	750	0.9	\$5.18	2920

For the most current product information, go to the e-catalog on www.philips.com. Halogen symbols and footnotes located on page 106.



Halogen Lamps

Decorative, Pro PAR20, Pro PAR30S, Pro PAR30L, Pro PAR38 Lamps

Watts	Bulb	Base	Product Symbols, Number Footnotes	Ordering Code	Volts	Pkg. Qty. #	Description	Class Filament	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)	
EcoVantage Decorative Boxed (97)													FTC REQUIREMENTS †			
40	G25	Med.	42084-4 ■	40G25/EV/CL	120	12	Clear	C, CC-8	4 ¹ / ₁₆	2500	–	550	2.3	\$4.82	2800	
			42085-1 ■	40G25/EV/W	120	12	White	C, CC-8	4 ¹ / ₁₆	2500	–	500	2.3	\$4.82	2800	
EcoVantage Pro PAR20 Lamps (82, 86)																
39	PAR20	Med.	42512-4 ■	39PAR20/EVP/SPI0	120	15	Spot 10°	C, CC-8	3 ³ / ₁₆	1100	3840	480	1.0	\$4.70	2900	
			42520-7 ■	39PAR20/EVP/FL25	120	15	Flood 25°	C, CC-8	3 ³ / ₁₆	1100	865	480	1.0	\$4.70	2900	
EcoVantage Pro PAR30S Lamps (82, 86)																
39	PAR30S	Med.	42896-0 ■	39PAR30S/EVP/FL25	120	15	Flood 25°	C, CC-8	3 ³ / ₁₆	1100	1870	500	1.0	\$4.70	2900	
53	PAR30S	Med.	42890-4 ■ ©(104)	53PAR30S/EVP/FL25	120	15	Flood 25°	C, CC-8	3 ³ / ₁₆	1100	3100	920	1.0	\$6.38	2860	
			42898-6 ■ ©(104)	53PAR30S/EVP/WFL40	120	15	Wide Flood 40°	C, CC-8	3 ³ / ₁₆	1100	1400	920	1.0	\$6.38	2860	
EcoVantage Pro PAR30L Lamps (82, 86)																
39	PAR30L	Med.	42887-0 ■ ©(104)	39PAR30L/EVP/FL25	120	15	Flood 25°	C, CC-8	4 ¹ / ₂	1100	1870	500	1.0	\$4.70	2900	
53	PAR30L	Med.	42892-0 ■ ©(104)	53PAR30L/EVP/FL25	120	15	Flood 25°	C, CC-8	4 ¹ / ₂	1100	3100	920	1.0	\$6.38	2860	
			42895-2 ■ ©(104)	53PAR30L/EVP/WFL40	120	15	Wide Flood 40°	C, CC-8	4 ¹ / ₂	1100	1400	920	1.0	\$6.38	2860	
EcoVantage Pro PAR38 Lamps (82, 86)																
39	PAR38	Med.Skt.	419432 ■ ©(104)	39PAR38/EV/SPI0 120V 6/1 TP	120	6	Flood 25°	C, CC-8	5 ⁵ / ₁₆	1100	7000	540	1.0	\$4.70	2900	
53	PAR38	Med.Skt. DiOptic Reflector	42885-4 ■ ©(104)	53PAR38/EVP/FL25	120	12	Flood 25°	C, CC-8	5 ⁵ / ₁₆	1100	3250	920	1.0	\$6.38	2860	
72	PAR38	Med.Skt. DiOptic Reflector	42893-8 ■ ©(104)	72PAR38/EVP/FL25	120	12	Flood 25°	C, CC-8	5 ⁵ / ₁₆	1100	4500	1350	1.0	\$8.67	2880	

For the most current product information, go to the e-catalog on www.philips.com.
Halogen symbols and footnotes located on page 106.



Halogen Lamps

Energy Advantage, PAR, PAR36 and Mini Reflector Lamps

Watts	Bulb	Base	Product Symbols, Number Footnotes	Ordering Code	Volts	Pkg. Qty. ‡	Description	Class Filament	MOL (In.)	Rated Avg. Life (Hrs.) (93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
Halogen PAR16 Lamps (86)													FTC REQUIREMENTS †		
45	PAR16	Med.	53193-9	45PAR16/HAL/FL27	120	15	Flood 27°	C, CC-8	3/16	2500	1275	420	2.3	\$5.42	2900
60	PAR16	Med.	46653-2	BC60PAR16/EV/FL25 120V 6/1 TP	120	6	Flood 25°	C, CC-8	3/8	2500	1900	580	2.3	\$7.23	2950
Energy Advantage IR Plus (IRC+) Halogen PAR30 Short Neck Lamps (86)															
55	PAR30S	Med.	23856-8	55PAR30S/IRC+/FL25	120	15	Flood 25°	C, CC-8	3/8	4400	3300	1050	4.0	\$6.62	2760
			23857-6	55PAR30S/IRC+/ WFL40	120	15	Wide Flood 40°	C, CC-8	3/8	4400	1500	1050	4.0	\$6.62	2760
Halogen PAR36 Lamps (86)															
36	PAR36	MP	41525-7	36PAR36Q/FL30	12	6	PAR, Flood	C, C-6	2 3/4	4000	—	450	3.7	\$4.34	3000
Halogen MRC11 Blister-Carded (92)															
20	MRC11	GU4	41930-9	BC20MRC11/FL30 FTD	12	12	Blister Card, Flood 30°	C, CC-8	1 1/8	2000	500	215	1.8	\$2.41	2800
Halogen MRC11 Landscape (92)															
10	MRC11	GU4	41722-0	10MRC11/FL30/LAND/TP	12	6	Flood 30°	C, CC-8	1 1/8	2000	230	90	1.8	\$1.20	2750
Halogen MRC16 Display Lamps Blister-Carded (Formerly AccentLine) Dichroic Reflector With Lens (92)															
20	MRC16	GU5.3	41931-7	BC20MRC16/FL36 BAB	12	12	Blister Card, Flood 36°	C, C-8	1 1/8	3000	500	240	2.7	\$2.41	3000
			41568-7	BC20MRC16/FL36	12	18	Blister Card, Flood 36°	C, C-8	1 1/8	3000	500	240	2.7	\$2.41	3000
35	MRC16	GU5.3	41932-5	BC35MRC16/FL36 FMW	12	12	Blister Card, Flood 36°	C, C-8	1 1/8	3000	1000	540	2.7	\$4.22	3000
50	MRC16	GU5.3	41563-8	BC50MRC16/SPIO EXT	12	12	Blister Card, Spot 10°	C, C-8	1 1/8	3000	6200	700	2.7	\$6.02	3000
			41933-3	BC50MRC16/FL36 EXN	12	12	Blister Card, Flood 36°	C, C-8	1 1/8	3000	1600	850	2.7	\$6.02	3000
			41580-2	BC50MRC16/FL	12	18	Blister Card, Flood 36°	C, C-8	1 1/8	2000	1200	400	1.8	\$6.02	2800
Halogen MR (Formerly AccentLine) (91)															
20	MR16	GU5.3	37803-4	20MR16/FL36 BAB	12	50	Flood 36°	C, C-8	1 1/8	3000	500	240	2.7	\$2.41	3100
35	MR16	GU5.3	14056-6	35MR16/FL36	12	50	Flood 36°	C, C-8	1 1/8	3000	1000	540	2.7	\$4.22	3000
50	MR16	GU5.3	37807-5	50MR16/NFL24 EXZ	12	50	Narrow Flood 24°	C, C-8	1 1/8	3000	2100	740	2.7	\$6.02	3100
			37805-9	50MR16/FL36 EXN	12	50	Flood 36°	C, C-8	1 1/8	3000	1600	850	2.7	\$6.02	3100
Halogen MR Long Life (Formerly BrilliantLine Pro and Continuum Color)															
20	MRC16	GU5.3	37815-8 (92)	20MRC16/FL36 BAB	12	50	Flood 36°	C, C-8	1 1/8	6000	780	320	5.5	\$2.41	3100
35	MRC16	GU5.3	14052-5 (92)	35MRC16/NFL24	12	50	Narrow Flood 24°	C, C-8	1 1/8	6000	3100	690	5.5	\$4.22	3100
50	MRC16	GU5.3	37817-4 (92)	50MRC16/NFL24 EXZ	12	50	Narrow Flood 24°	C, C-8	1 1/8	6000	4400	960	5.5	\$6.02	3100

For the most current product information, go to the e-catalog on www.philips.com. Halogen symbols and footnotes located on page 106.



Halogen Lamps

Mini Reflector, ALR, ALUline PRO III, Twistline and Linear Lamps

Watts	Bulb	Base	Product Symbols, Number Footnotes	Ordering Code	Volts	Pkg. Qty. #	Description	Class Filament	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)	
Halogen MR Energy Advantage IR (Formerly MasterLine ES IRC) (89, 92)													FTC REQUIREMENTS †			
20	MRC16	GU5.3	20259-8 ■	20MRC16/IRC/ALU/FL36	12	20	Flood 36°	C, C-8	1 7/8	5000	925	325	4.6	\$2.41	3100	
35	MRC16	GU5.3	20263-0 ■	35MRC16/IRC/ALU/SP8	12	20	Spot 8°	C, C-8	1 7/8	5000	12,500	720	4.6	\$4.22	3100	
			20268-9 ■	35MRC16/IRC/ALU/FL36	12	20	Flood 36°	C, C-8	1 7/8	5000	2000	740	4.6	\$4.22	3000	
Closed Aluminum Reflector (ALR) Lamps Aluminum Reflector With Lens (92)																
20	37mm	BA15d	34003-4	20ALR12/FL32 GBF Frost	12	50	Frost, Flood 32°	C, C-8	1 1/2	2000	750	250	1.8	\$2.41	3000	
ALUline PRO 111																
50	Pro III		13397-4	ALU111MM 50W G53 12V 24D	12	6	Flood 24°	C, C-8	2 3/4	3000	4000	950	2.7	\$6.02	3000	
Twistline GU10 Blister-Carded (98)																
25	Twistline	GU10	41693-3	BC25TWISTLINE GU10/FL25	120	6	Blister Card, Flood 25°	C, C-6	2	2000	345	160	1.8	\$3.01	2700	
35	Twistline	GU10	41573-7	BC35TWISTLINE GU10/FL25	120	6	Blister Card, Flood 25°	C, C-6	2	2000	480	265	1.8	\$4.22	2750	
50	Twistline	GU10	41579-4	BC50GU10/HAL/TL	120	6	Blister Card, Flood 25°	C, C-6	2	2000	700	430	1.8	\$6.02	2800	
			41574-5	BC50TWISTLINE GU10/FL25	120	6	Blister Card, Flood 25°	C, C-6	2	2000	700	430	1.8	\$6.02	2800	
Halogen Single-Ended Linear Lamps Blister-Carded (95)																
50	T4	Mini-Can	41555-4	BC50Q/CL	120	12	Blister Card	C, CC-8	2 3/4	1000	—	500	0.9	\$6.02	2700	
75	T4	Mini-Can	41556-2	BC75Q/CL	120	12	Blister Card	C, CC-8	3	1000	—	1050	0.9	\$9.03	2700	
100	T4	Mini-Can	41633-9	BC100Q/CL ESN	120	12	Blister Card	C, CC-8	2 3/4	1000	—	1600	0.9	\$12.05	2700	
150	T4	Mini-Can	41634-7	BC150Q/CL ETG	120	12	Blister Card	C, CC-8	3	1000	—	2800	0.9	\$18.07	2700	

For the most current product information, go to the e-catalog on www.philips.com. Halogen symbols and footnotes located on page 106.



Halogen Lamps

Linear and Capsule Lamps

Watts	Bulb	Base	Product Symbols, Number Footnotes	Ordering Code	Volts	Pkg. Qty. ‡	Description	Class Filament	MOL (In.)	Rated Avg. Life (Hrs.) (93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
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Halogen Single-Ended Linear Lamps (95)

FTC REQUIREMENTS †

100	T4	D.C. Bay	44278-0	100Q/CL/DC ESR	120	12	Clear	C, C-8	2 1/8	1000	–	1600	0.9	\$12.05	2700
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Halogen Double-Ended Linear Lamp Blister-Carded (99)

100	T3	RSC	41560-4	BC100T3Q/CL	120	12	Blister Card	C, C-8	3 1/8	2000	–	1600	1.8	\$12.05	2900
150	T3	RSC	41561-2	BC150T3Q/CL	120	12	Blister Card	C, C-8	3 1/8	2000	–	2400	1.8	\$18.07	2900
			41575-2	BC150T3Q/CL LONG	120	12	Blister Card	C, C-8	4 1/8	1500	–	2400	1.4	\$18.07	2900
300	T3	RSC	41571-1	BC300T3Q/CL/TP	120	12	Blister Card	C, C-8	4 1/8	2000	–	5200	1.8	\$36.14	2900
500	T3	RSC	41572-9	BC500T3Q/CL/TP	120	12	Blister Card	C, C-8	4 1/8	2000	–	9500	1.8	\$60.23	2900

Halogen Double-Ended Linear Lamp (99)

300	T3	RSC	39282-9	300T3Q/CL EHM	120	12	Clear	C, C-8	4 1/8	2000	–	5200	1.8	\$36.14	2900
500	T3	RSC	41570-3	BC500T3Q/CL 130V 6/2	130	12	Clear	C, C-8	4 1/8	2000	–	9500	1.8	\$60.23	2900
			20010-5	500T3Q/CL FCL	120	12	Clear	C, C-8	4 1/8	2000	–	9500	1.8	\$60.23	2900

Halogen Mains-Voltage Capsule Lamp Blister-Carded (95)

35	T4	GY8.6	41632-1	BC35W/T4/120V/CAPSULE	120	12	Blister Card	C, CC2V	1 1/8	2500	–	400	2.3	\$4.22	3000
50	T4	GY8.6	41631-3	BC50W/T4/120V/CAPSULE	120	12	Blister Card	C, C-8	2 1/4	2500	–	600	2.3	\$6.02	3000
75	T4	GY8.6	41667-7	BC75W/T4/120V/CAPSULE	120	12	Blister Card	C, C-8	2 1/4	2000	–	1200	1.8	\$9.03	3000
100	T4	GY8.6	41668-5	BC100W/T4/120V/CAPSULE	120	12	Blister Card	C, C-8	2 1/4	2500	–	1650	2.3	\$12.05	3000

Halogen Low-Voltage Capsule Lamp Blister-Carded (95)

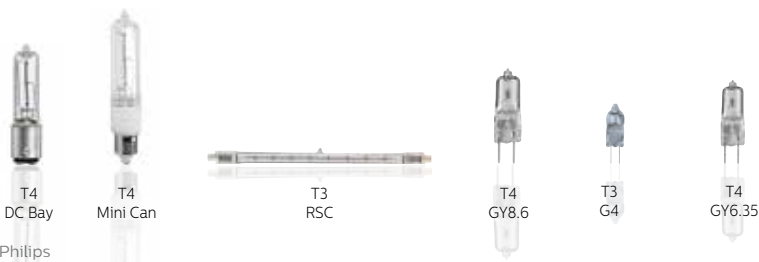
10	T3	G4	41567-9	BC10W/T3/12V	12	12	Blister Card	C, C-8	1 1/4	2000	–	100	1.8	\$1.20	3000
20	T3	G4	41566-1	BC20W/T3/12V	12	12	Blister Card	C, C-8	1 1/4	2000	–	250	1.8	\$2.41	3000
50	T4	GY6.35	41559-6	BC50W/T4/12V	12	12	Blister Card	C, C-8	1 3/4	2000	–	700	1.8	\$6.02	3000
75	T4	GY6.35	41558-8	BC75W/T4/12V	12	12	Blister Card	C, C-8	1 3/4	2000	–	1100	1.8	\$9.03	2800

Halogen Low-Voltage Capsule Lamp

All Lamps Contain UV Block and are Low Pressure (95)

50	T4	GY6.35	41710-5	BC50W/T4/12V	12	48	Blister Card	C, C-8	1 1/4	2000	–	465	1.8	\$6.02	2800
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For the most current product information, go to the e-catalog on www.philips.com.
Halogen symbols and footnotes located on page 106.

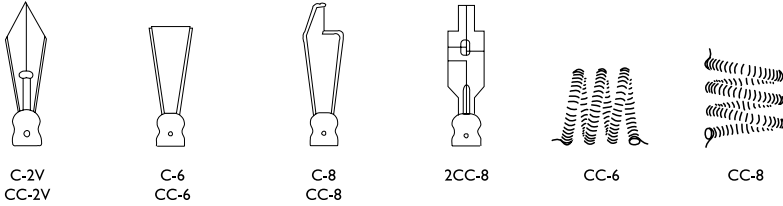


Halogen Lamps

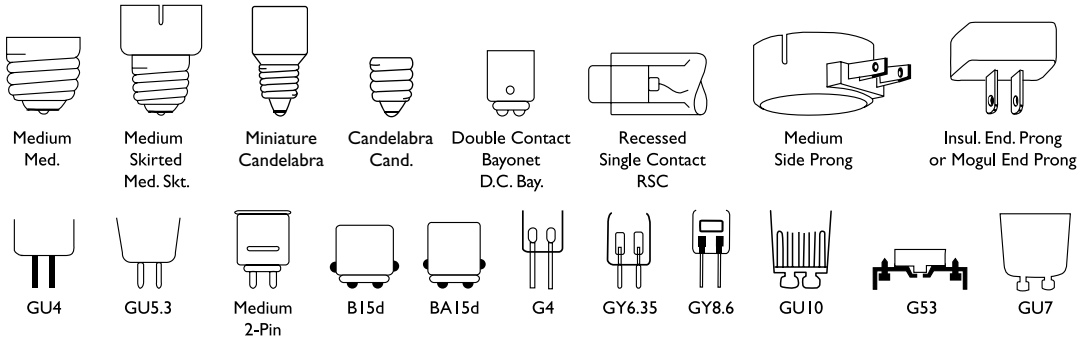
Filament Designations, Base Types and Bulb Shapes

Filament Designations (Not Actual Sizes)

Filament Designations consist of a letter or letters to indicate how the wire is coiled and an arbitrary number sometimes followed by a letter to indicate the arrangement of the filament on the supports. Prefix letters include C (coil) — wire is wound into a helical coil or it may be deeply fluted; CC (coiled coil) — wire is wound into a helical coil and this coiled wire again wound into a helical coil. Some of the more commonly used types of filament arrangements are illustrated.

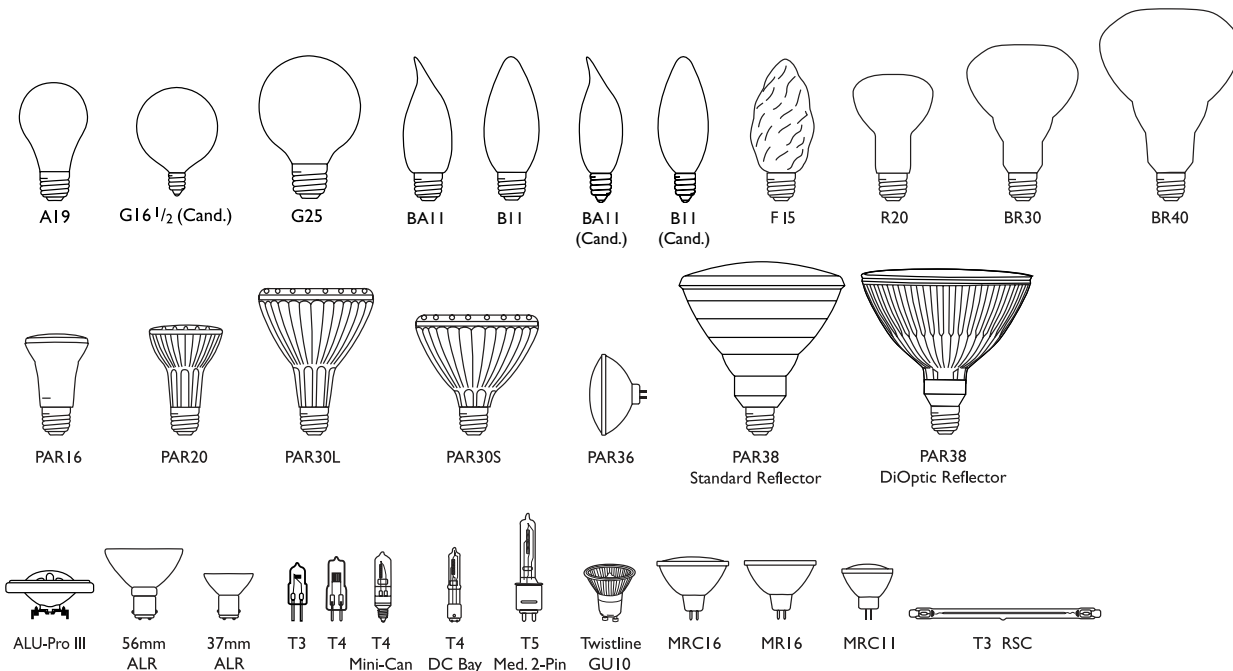


Base Types (Not Actual Sizes)



Bulb Shapes (Not Actual Sizes)

The size and shape of a bulb is designated by a letter or letters followed by a number. The letter indicates the shape of the bulb while the number indicates the diameter of the bulb in eighths of an inch. For example, "T10" indicates a tubular shaped bulb having a diameter of $\frac{10}{8}$ or $\frac{1}{4}$ inches. The following illustrations show some of the more popular bulb shapes and sizes.



Halogen Lamps

Symbols and Footnotes

For the most current product information, go to the e-catalog on www.philips.com

☐ Exclusive to Signify North America Corporation

☐ Maximum Beam Candlepower

© This Bulb Meets US Federal Minimum Efficiency Standards

† New since last printing

* Two Lamp Carded Pack

‡ Quantity shown is minimum shipping container—refer to Net Price Schedule for number of lamps to qualify as a standard case

¥ For more information about FTC requirements please see rule 16 CFR part 305 @ www.ftc/os/2000/02/16cfr305

■ Energy Saving Product

(86) PAR Halogen Caution Notice: Before using bulb, see operating instructions on inside flap. Adherence to the operating instructions will reduce the risk of personal injury or fire. The filament capsule contained inside this glass bulb is pressurized, operates at high temperature and could unexpectedly shatter. Should the outer bulb break, particles of extremely hot glass could be discharged into the fixture and/or the surrounding environment, thereby creating a risk of personal injury or fire. **Operating Instructions:** Before replacing, turn off power and let lamp cool to avoid electrical shock or burn.

- For indoor or outdoor use. A weather-protected fixture is recommended for wet locations.
- Suitable for use in open fixtures.
- Do not exceed the maximum wattage rating of the fixture.
- Do not use if outer glass is scratched or broken since it may break during operation or removal.
- If outer glass breaks the lamp may continue to light, however, immediately discontinue use.
- Due to the heat that radiates from the bulb, do not use in close proximity to combustible materials or objects susceptible to drying or fading.
- Manage in accord with disposal laws.

(88) OPERATING INSTRUCTIONS: Before replacing, turn off power and let lamp cool to avoid electrical shock or burn. Do not allow hot bulb to come in contact with liquid or metal parts of the fixture as glass may shatter. Suitable for use in open indoor fixtures and enclosed outdoor fixtures. Do not exceed the maximum wattage rating of the fixture. Do not use if outer glass is scratched or broken since it may break during operation or removal. If outer glass breaks the lamp may continue to light, however, immediately discontinue use. Due to the heat that radiates from the bulb, do not use in close proximity to combustible materials or objects susceptible to drying or fading. Do not use bulbs in ceiling fans or any application exposed to vibrating conditions. Manage in accord with disposal laws.

CAUTION: Before using bulb, see operating instructions. Adherence to the operating instructions will reduce the risk of personal injury or fire. The filament capsule contained inside this glass bulb is pressurized, operates at high temperature and could unexpectedly shatter. Should the outer bulb break, particles of extremely hot glass could be discharged into the fixture and/or the surrounding environment, thereby creating a risk of personal injury or fire.

(89) CAUTION: THIS LAMP IS PRESSURIZED AND COULD SHATTER so to avoid injury and to avoid exposure to ultraviolet radiation, this lamp should be used in a fixture that provides a protective shield of tempered glass. Should the outer bulb break, particles of extremely hot glass could be discharged into the fixture and/or the surrounding environment, thereby creating a risk of personal injury or fire. Provide adequate ventilation to ensure that seal temperature does not exceed 350° C and use only in fixtures rated for the wattage stated on this package. To avoid risks of burns or other injury, turn power off and allow lamp to fully cool before attempting to replace. Socket condition may affect lamp life. Inspect and replace socket if deterioration has occurred.

(91) CAUTION: Do not touch inner capsule with bare hands. Fingerprints may result in shorter life. Remove fingerprints with alcohol. **THIS LAMP IS PRESSURIZED AND COULD SHATTER** so to avoid injury and to avoid exposure to ultraviolet radiation, use only in fixtures that provide a protective shield of tempered glass. Provide adequate ventilation to ensure that seal temperature does not exceed 350° C and use only in fixtures rated for the wattage stated on this package. To avoid risks of burns or other injury, turn power off and allow lamp to fully cool before attempting to replace. Socket condition may affect lamp life. Inspect and replace socket if deterioration has occurred.

(92) CAUTION: THIS LAMP IS PRESSURIZED AND COULD SHATTER. Should the outer bulb break, particles of extremely hot glass could be discharged into the fixture and/or the surrounding environment, thereby creating a risk of personal injury or fire. Provide adequate ventilation to ensure that seal temperature does not exceed 350° C and use only in fixtures rated for the wattage stated on this package. To avoid risks of burns or other injury, turn power off and allow lamp to fully cool before attempting to replace. Socket condition may affect lamp life. Inspect and replace socket if deterioration has occurred.

(93) Rated average life is the length of operation (in hours) at which point an average of 50% of the lamps will still be operational and 50% will not.

(95) NOTICE: Do not touch bulb with bare hands. Fingerprints may result in shorter life. Remove fingerprints with alcohol.

CAUTION: THIS LAMP IS PRESSURIZED AND COULD SHATTER so to avoid injury and to avoid exposure to ultraviolet radiation, use only in fixtures that provide a protective shield of tempered glass. Provide adequate ventilation to ensure that seal temperature does not exceed 350° C and use only in fixtures rated for the wattage stated on this package. To avoid risks of burns or other injury, turn power off and allow lamp to fully cool before attempting to replace. Socket condition may affect lamp life. Inspect and replace socket if deterioration has occurred.

(96) Operating Instructions: Do not use lamp in close proximity to combustible materials. If used outdoors, use in an enclosed fixture only. If used indoors, no additional shield is required. Can be operated in all positions.

CAUTION: Read operating instructions before use. If outer glass breaks, turn power off immediately and avoid touching any metal components. To avoid potential burn and electrical shock during lamp replacement, always turn power off and let lamp cool before replacing bulb.

(97) Operating Instructions: Before replacing, turn off power and let lamp cool to avoid electrical shock or burn. For indoor use only. Do not allow hot bulb to come in contact with liquid or metal parts of the fixture as glass may shatter. Suitable for use in open fixtures. Do not exceed the maximum wattage rating of the fixture. Do not use if outer glass is scratched or broken since it may break during operation or removal. If outer glass breaks the lamp may continue to light, however, immediately discontinue use. Due to the heat that radiates from the bulb, do not use in close proximity to combustible materials or objects susceptible to drying or fading. Do not use bulbs in ceiling fans or any application exposed to vibrating conditions. Manage in accord with disposal laws.

CAUTION: Adherence to the operating instructions will reduce the risk of personal injury or fire. The filament capsule contained inside this glass bulb is pressurized, operates at high temperature and could unexpectedly shatter. Should the outer bulb break, particles of extremely hot glass could be discharged into the fixture and/or the surrounding environment, thereby creating a risk of personal injury or fire.

(98) NOTICE: This twistline has a GU10 base and may be used in fixtures that have either GU10 or GZ10 sockets. **Operating Instructions:** Do not use in close proximity to combustible materials or objects adversely affected by drying or fading. Can be operated in all positions.

CAUTION: THIS LAMP IS PRESSURIZED AND COULD SHATTER so to avoid injury and to avoid exposure to ultraviolet radiation, this lamp should be used in a fixture that provides a protective shield of tempered glass. If outer glass breaks, immediately discontinue use. Always turn power off and let lamp cool before removal to avoid potential burn or electric shock.

(99) **WARNING: BULB OPERATES AT VERY HIGH TEMPERATURES AND MUST BE USED PROPERLY TO AVOID/REDUCE RISK OF FIRE.** Do not use bulbs greater than 300 watts in indoor residential fixtures. Use only in fixtures specifying this bulb type and that meet revised UL 153 standard for tungsten-halogen torchiere lamps. Bulb is pressurized and could shatter and should only be used in fixtures that provide a protective shield of tempered glass. To avoid exposure to ultraviolet radiation which could cause skin and eye irritation use only in fixtures that provide a protective shield of tempered glass. **NOTICE:** Do not touch bulb with bare hands. Fingerprints may result in reduced performance unless they are removed with alcohol. When operating, bulb is hot. To avoid risks of burns or injury, turn power off and allow bulb to cool before replacing. Socket conditions may affect bulb life. Inspect and replace socket if deterioration has occurred. Provide adequate ventilation to ensure that seal temperature does not exceed 350°C. **TO AVOID/REDUCE RISK OF FIRE, DO NOT USE NEAR COMBUSTIBLE MATERIALS.**

(102) Complies with CEC-140-2008-001, Part 1605.2 State Standards for Federally Regulated Appliances, Table K-3. For more information go to www.energy.ca.gov/siting/title20/.

(103) Complies with the Energy Independence and Security Act of 2007 (Public Law 110-140), Section 321—Efficient Light Bulbs.

(104) Complies with the Energy Independence and Security Act of 2007 (Public Law 110-140), Section 322—Incandescent Reflector Lamp Efficiency Standards.

(445) Estimated energy cost is based on 3 hrs/day, 7 days/wk., 11¢/kWh. Cost depends on rates and use.

(446) Life in years is based on 3 hrs/day, 7 days/wk.

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	TuffGuard Coated Lamps Page 91				



Create a **brighter standard**

Dramatically changing the look of a room can be as easy as changing a light bulb.

Natural Light lamps have a distinctive blue coating that provides light similar to natural daylight.

DuraMax Long Life lamps reduce the hassle of replacing light bulbs every few months, since all DuraMax products last longer than standard incandescent light bulbs.

Specialty Incandescents provide the perfect light for accent and display lighting as well as general lighting in a variety of applications. From tubular shapes and appliance bulbs, this family of lamps is ideal for professional and consumer applications.

Incandescent Lamps

DuraMax Long Life

Watts	Bulb Base	Product Number	Symbols Footnotes	Ordering Code	Volts	Pkg. Qty.†	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP® Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
DuraMax Long Life Soft White															
FTC REQUIREMENTS															
15	A15	Med.	16860-9	s	15A/WL 12/2	120	24	Soft White Long Life	B, C-9	3/2	3000		115	2.7	\$1.81 2700
25	A19	Med.	16868-2	s	25A/WL 12/2	120	24	Soft White Long Life	C, CC-6	4 7/16	3000		235	2.7	\$3.01 2700
30	A21	3 Ct. Med.	47597-9	(8)s	30/100A/WL 120V 2/6/1	120	12	Soft White Long Life 3-Way	C, 2CC-8	5 7/16	1750		270	1.6	\$3.61 2600
70													840		\$8.43 2710
100													1110		\$12.00 2680
50	A21	3 Ct. Med.	47602-8	(8)s	50/150A/WL 120V 2/6/1	120	12	Soft White Long Life 3-Way	C, 2CC-8	5 7/16	1750		465	1.6	\$6.02 2720
100													1165		\$12.05 2810
150													1665		\$18.07 2780
50	A21	3 Ct. Med.	47596-1		50/250A/WL	120	12	Soft White Long Life	C, 2CC-8	55/16	1750		465	1.6	\$6.02 2720
200													1165		\$12.05 2810
250													1665		\$18.07 2780
200	A21	Med.	16867-4	s	200A/WL 6/1	120	6	Soft White Long Life	C, CC-8	5 7/16	1500		3100	1.4	\$24.09 2700

DuraMax Long Life Globes

25	G25	Med.	16748-6	s	25G25/W/LL 12/1	120	12	White Long Life Globe	C, CC-6	4 7/16	2000		210	1.8	\$3.01 2600
			16887-2	s	25G25/CL/LL 12/1	120	12	Clear Long Life Globe	C, CC-6	47/16	2000		235	1.8	\$3.01 2500
40	G25	Med.	16903-7	s	40G25/CL/LL 4/3	120	12	Clear Long Life Globe	C, CC-6	4 7/16	2000		460	1.8	\$4.82 2620
			16904-5	s	40G25/W/LL 4/3	120	12	White Long Life Globe	C, CC-6	4 7/16	2000		415	1.8	\$4.82 2600
			16746-0	s	40G25/W/LL 12/1	120	12	White Long Life Globe	C, CC-6	4 7/16	2000		415	1.8	\$4.82 2600
			16747-8	s	40G25/CL/LL 12/1	120	12	Clear Long Life Globe	C, CC-6	4 7/16	2000		460	1.8	\$4.82 2620
60	G40	Med.	16851-8	s	60G40/W/LL 6/1	120	6	White Long Life Globe	C, C-9	6 7/16	3000		595	2.7	\$7.23 2550
			16852-6	s	60G40/CL/LL 6/1	120	6	Clear Long Life Globe	C, C-9	6 7/16	3000		665	2.7	\$7.23 2550

DuraMax Long Life Reflectors (87)

30	R20	Med.	16753-6	s	30R20/LL 12/1	120	12	Frost Long Life Reflector	C, CC-6	3 7/16	2500	350	205	2.3	\$3.61 2550
45	R20	Med.	47595-3	s	45R20/LL 120V 2/6/1	120	12	Long Life Reflector Flood	C, CC-6	3 7/16	2500		385	2.3	\$5.42 2600
	BR30	Med.	22303-2		45BR30/FL55/LL	120	12	Long Life Reflector Flood	C, CC-6	53/8	2500		330	2.3	\$5.42 2600
65	BR30	Med.	47593-9	s	65BR30/FL/55/LL 120V 2/6/1	120	12	Long Life Reflector Flood	C, CC-6	5 7/16	2500	510	610	2.3	\$7.83 2690
			47594-7	s	65BR30/SP20/LL 120V 2/6/1 TP	120	12	Long Life Reflector Spot	C, CC-6	5 7/16	2500	530	620	2.3	\$7.83 2710
	BR40	Med.	53360-4		65BR/FL60/LL 120V 3/2 TP	120	8	Long Life Reflector Spot	C, CC-6	61/2	2500	500	625	2.3	\$7.83 2740

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Incandescent Lamps

DuraMax Long Life

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Volts	Qty.†	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
DuraMax Long Life Fan Lights													FTC REQUIREMENTS			
40	A15 Med.	53606-0	s *	BC40A15/FAN/CL/LL 6/1	120	12	Clear Long Life Fan	C, C-9	3/2	2000			395	1.8	\$4.82	2700
		53604-5	s *	BC40A15/FAN/W/LL 120V 6/1	120	12	White Long Life Fan	C, C-9	3/2	2000			365	1.8	\$4.82	2700

DuraMax Long Life Decoratives (12)

15	BA9 Cand.	16811-2	s *	BC15BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	B, C-7A	4 ³ / ₁₆	2200			110	2.0	\$1.81	2700
25	BA9 Cand.	16719-7	s	BC25BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			150	2.0	\$3.01	2700
		16806-2	s *	BC25BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	43/16	2200			150	2.0	\$3.01	2700
	BA9 ¹ / ₂ Med.	16819-5	s *	BC25BA9 ¹ / ₂ /CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ¹ / ₁₆	2200			150	2.0	\$3.01	2700
	B10 ¹ / ₂ Cand.	16824-5	s *	BC25B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, C-7A	4 ¹ / ₁₆	2200			150	2.0	\$3.01	2700
	G16 ¹ / ₂ Cand.	16845-0	s *	BC25G16 ¹ / ₂ /C/CL/LL 6/2120	120	12	Clear Long Life Globe	B, C-7A	3	2000			200	1.8	\$3.01	2500
40	BA9 Cand.	16720-5	s	BC40BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			300	2.0	\$4.82	2700
		16807-0	s *	BC40BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			300	2.0	\$4.82	2700
		16809-6	s *	BC40BA9C/F/LL 6/2	120	12	Frost Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			295	2.0	\$4.82	2700
	BA9 ¹ / ₂ Med.	16760-1	s	BC40BA9 ¹ / ₂ /CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ¹ / ₁₆	2200			300	2.0	\$4.82	2700
		16820-3	s *	BC40BA9 ¹ / ₂ /CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ¹ / ₁₆	2200			300	2.0	\$4.82	2700
	B10 ¹ / ₂ Cand.	16825-2	s *	BC40B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, CC-2V	4 ¹ / ₁₆	2200			300	2.0	\$4.82	2700
	B13 Med.	16828-6	s *	BC40B13/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, C-7A	4 ¹ / ₁₆	2200			300	2.0	\$4.82	2700
	F15 Med.	16835-1	s *	BC40F15/CL/LL 6/2	120	12	Clear Long Life Flame	C, C-9	4 ¹ / ₂	2200			385	2.0	\$4.82	2700
		16837-7	s *	BC40F15/IR/LL 6/2	120	12	Iridescent Long Life Flame	C, C-9	4 ¹ / ₂	2200			370	2.0	\$4.82	2700
	G16 ¹ / ₂ Cand.	16846-8	s *	BC40G16 ¹ / ₂ /C/CL/LL 6/2120	120	12	Clear Long Life Globe	C, CC-2V, C-7A	23/4	2000			300	1.8	\$4.82	2550
	Med.	13537-6	s *	BC40G16 ¹ / ₂ /CL/LL 6/2	120	12	Clear Long Life Globe	C, CC-2V	2 ³ / ₄	2200			300	2.0	\$4.82	2550
60	BA9 Cand.	16808-8	s *	BC60BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			550	2.0	\$7.23	2700
		16721-3	s	BC60BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	43/16	2200			550	2.0	\$7.23	2700
	B10 ¹ / ₂ Cand.	16826-0	s *	BC60B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, CC-2V	4 ¹ / ₁₆	2200			550	2.0	\$7.23	2700
	G16 ¹ / ₂ Cand.	16699-0	s *	BC60G16 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Globe	C, CC-2V	2 ³ / ₄	2000			540	1.8	\$7.23	2700

For the most current product information, go to the e-catalog on www.philips.com. Incandescent symbols and footnotes located on page 123.



Incandescent Lamps

DuraMax Long Life

Watts	Bulb Base	Product Number	Symbols Footnotes	Ordering Code	Volts	Pkg. Qty.†	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
Natural Light 3-Way														FTC REQUIREMENTS		
50	A21	3 Ct. Med.	47602-8	(8)s	50/150A/NTL 120V	120	12	Natural Light 3-Way	C, 2CC-6	5 ⁵ / ₁₆	1200		395	1.1	\$6.02	2590
100													1250		\$12.05	3100
150													1740		\$18.07	3050

Natural Light Fan																
40	A15	Med.	53607-8	s *	BC40A15/FAN/NTL	120	12	Natural Light Fan	C, C-9	3 ¹ / ₂	1500		340	1.4	\$4.82	3200

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Incandescent symbols and footnotes located on page 123.



Natural Light
A21 3-Way



Natural Light
A15

Incandescent Lamps

Natural Light

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.†	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽⁹³⁾	Approx. MBCP [®]	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
Incandescent Lamps by Wattage															
FTC REQUIREMENTS															
1.5	T3	Cand.	41666-9	s*	BC15T3	4.5 24	Clear Flashlight	B, C-6	2	30		17	0.0	\$0.18	2700
4	C7	Cand.	25706-3	s*	BC4C7 12/2	120 24	Clear Night Light	B, C-7A	2 1/8	3000		16	2.7	\$0.48	2700
			24741-1	s	BC4C7/4 12/4	120 48	Clear Night Light	B, C-7A	2 1/8	3000		16	2.7	\$0.48	2700
			25708-9	s*	BC4C7/W 12/2	120 24	White Night Light	B, C-7A	2 1/8	3000		14	2.7	\$0.48	2700
			41542-2	s	BC4C7/4	120 48	Clear Night Light	B, C-7A	2 1/8	3000		16	2.7	\$0.48	2700
6	S6	Cand.	24835-1		6S6	120-130 48	Clear Indicator	B, C-7A	1 1/8	1500		39	1.4	\$0.72	2700
			41609-9	s	BC6S6	12 24	Clear Indicator Light	B, C-2V	2	1500		50	1.4	\$0.72	2700
			41669-3	s	BC6S6	120 24	Clear Indicator Light	B, C-7A	2	1500		40	1.4	\$0.72	2700
7	C7	Cand.	41546-3	s	BC7C7/4	120 96	Clear Night Light	B, C-7A	2 1/8	3000		45	2.7	\$0.84	2700
			41547-1	s	BC7C7/W	120 48	White Night Light	B, C-7A	2 1/8	3000		35	2.7	\$0.84	2700
7.5	S11	Med.	41544-8	s	BC7-1/2S11	120-130 12	Clear Night Light	B, C-7A	2 1/4	1400		45	1.3	\$0.90	2700
			41545-5	s	BC7-1/2S11	120 6	White Night Light	B, C-7A	2 1/4	1400		35	1.3	\$0.90	2700
10	S11	Inter.	41529-9	s	BC10S11N	120 12	Clear Appliance	B, C-7A/ CC-2V	3	1500		1.4	\$1.20	2700	
11	S14	Med.	41672-7		BC11S14/F130V 6/IPK	130 6		B, C-9	3 1/2	3000		70	2.7	\$1.32	2700
			41664-4		BC11S14/CL 130V 6/IPK	130 6	Clear Sign	B, C-9	3 1/2	3000		75	2.7	\$1.32	2700
13	S8	S.C. Bay	41671-9	*	BC93 12V 12/2	12 24	Clear Miniature	B, C-6	2	700		0.6	\$1.57	2700	
15	A15	Med.	16860-9	s	15A/WL 12/2	120 24	Soft White Long Life	B, C-9	3 1/2	3000		115	2.7	\$1.81	2700
			T6	Cand.	24815-3	(63)s	15T6	140-150 24	Clear Switchboard	B, C-7A	3 1/8	2000		100	1.8
	41610-7	(63)s			BC15T6	140-150 24	Exit Sign	B, C-7A	3 1/8	2000		100	1.8	\$1.81	2700
	41611-5	s			BC15T6C/TP	120 12	Clear Showcase	B, C-7A	3	1500		110	1.4	\$1.81	2700
	T7	Cand.	41612-3	(4)	BC15T7C	120 6	Clear Showcase	B, C-7A	2 1/4	1000		110	0.9	\$1.81	2700
			Inter.	41613-1	(4)s	BC15T7N 120V	120 6	Clear Appliance	B, C-7A	2 1/4	1000		100	0.9	\$1.81
	T10	Med.	41584-4	s	BC15T10 6/1	120 6	Clear Showcase	B, C-9	5 1/8	2500		120			2700
20	T6 1/2	Inter.	24853-4		20T6 1/2 IF	120 24	Frost Exit Sign	B, C-8	5 1/2	3000		150	4.6	\$2.41	2700
			41626-3		BC20T6 1/2 N/CL	120 6	Clear Exist Sign	B, C-8	5 1/2	3000		160	2.7	\$2.41	2700
25	A15	Med.	41533-1	s	BC25A15/IF 12/1	120 12	Frost Appliance	B, C-9	3 1/2	1000		210	0.9	\$3.01	2700
	R14	Inter.	41537-2	n	BC25R14N	120 6	Mini Refl. Lt. Fr.	C, CC-2V	3 1/2	1500		150	1.4	\$3.01	2800
	S11	Inter.	41670-1		BC25S11N	120 12	Clear Appliance	B, C-7A	2	500		220	0.5	\$3.01	2700
	T6 1/2	Inter.	41628-9		BC25T6 1/2	120-130 6	Clear Appliance	B, C-8	6	1000		220	0.9	\$3.01	2700
			41627-1		BC25T7N	120 6	Clear Appliance	B, C-7A	2 1/4	1000		200	0.9	\$3.01	2700
T10	Med.	41585-1	s	BC25T10/TP 6/1	120 6	Clear Showcase	B, C-8	5 1/8	1000		250	0.9	\$3.01	2700	

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Incandescent Lamps

Watts	Bulb Base	Product Number	Symbols Footnotes	Ordering Code	Pkg. Qty. ‡	Volts	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)
Incandescent Lamps by Wattage (Continued)																
FTC REQUIREMENTS																
30	R20 Med.	16753-6	(87)s	30R20/LL 12/1	120	12	Frost Long Life Reflector	C, CC-6		3 5/16	2500	335	205	2.3	\$3.61	2700
40	A15 Med.	29999-0	s	BC40A15/CL/LL	120	12	Clear Long Life Appliance	C, C-9		3 1/2	1750		400	1.6	\$4.82	2700
		41676-8	s	BC40A15/LL	120	60	Clear Long Life Appliance	C, C-9		3 1/2	1750		400	1.6	\$4.82	2700
	A19 Med.	53608-6		BC40A/FR/GDO 120V 6/IPK TP	120	6	Garage Door Opener	C, C-9		4 7/16	3500		320	3.2	\$4.82	2700
R14	Inter. Med.	41539-8		BC40R14N 6/1	120	6	Light Fr. Mini. Refl.	C, CC-2V		2 5/8	1500		250	1.4	\$4.82	2700
		41538-0		BC-40R14/SP	120	6	Surge Proof Light Mini. Refl.	C, CC-2V		2 5/8	1500		250	1.4	\$4.82	2700
R16	Med.	41540-6		BC40R16/SP 6/1	120	6	Surge Proof Light Mini. Refl.	C, CC-2V		3 5/8	1500		250	1.4	\$4.82	2700
S11	Inter.	41541-4	s	BC40S11/N TP 16/1	120	16	Clear High Intensity	C, CC-2V		2 1/4	500		440	0.5	\$4.82	2700
T6 1/2	Inter.	41629-7		BC40T6-1/2	120	6	Clear Appliance	B, C-8		5 1/2	1000		350	0.9	\$4.82	2700
T8	Inter.	41625-5		BC40T8N	130	6	Clear Appliance	C, C-7A		2 1/4	1000		400	0.9	\$4.82	2700
T10	Med.	41673-5	s	BC40T10/IF/TP 6/1	120	6	Frost Showcase	B, C-8		5 5/8	1000		250	0.9	\$4.82	2700
		41586-9	s	BC40T10/TP 6/1	120	6	Clear Showcase	B, C-8		5 5/8	1000		435	0.9	\$4.82	2700
R20	Med.	20322-4	(87)s	45R20 12/1	130	12	Reflector Flood	C, CC-6		3 5/8	2000		380	1.8	\$5.42	2700
50	A19 Med.	41526-5		50A/RV	120	6	Marine	C, C-6		4 1/4	1000		875	0.9	\$6.02	2700
		41531-5	(19,87)s†	50R20/Agro 12/1	120	12	Agro-Lite Plant Light	C, CC-6		3 5/8	2000			1.8	\$6.02	2700
60	A19 Med.	14979-9	(66)s	60A/TF	120	120	Frost Silicone Coated	C, CC-6		4 7/16	1000			0.9	\$7.23	2700
65	BR30 Med.	24876-5	(87)s4	65BR30/FL55 12/1	120	12	Reflector Flood	C, CC-6		5 3/8	2000		620	1.8	\$7.83	2710
		24884-9	(87)s 4	65BR30/FL55	130	12	Reflector Flood	C, CC-6		5 3/8	2000		450	1.8	\$7.83	2660
		14007-9	(87)	65BR30/FL 12/1 PRO	130	12	ProPack Reflector	C, CC-6		5 3/8	2000		605	1.8	\$7.83	2640
BR40	Med.	22537-5	(87)s	65BR/FL60	130	24	Reflector Flood	C, CC-6		6 1/2	2000		565	1.8	\$7.83	2710
		14008-7	(87)	65BR40/FL 12/1 PRO	130	12	ProPack Reflector	C, CC-6		6 1/2	2000		565	1.8	\$7.83	2710
		38913-0	(87)s	65BR/FL60 24/1	120	24	Long Life Reflector Flood	C, CC-6		6 1/2	2000	500	620	1.8	\$7.83	2710
75	A21 Med.	41527-3	(66)s†	75A/RH/TF 12/1	120-130	12	Frost Silicone Coated Tough Bulb	C, RC-9		5 5/8	1000		750	0.9	\$9.03	2800
BR30	Med.	41528-1	(87)s†	75BR30/AGRO 6/1	120	6	Agro-Lite Plant Light	C, CC-6		5 3/8	2000		700	1.8	\$9.03	2700
		24902-9	(87)s	75BR30/PK 8/1	120	8	Pink	C, CC-6		5 3/8	2000		555	1.8	\$9.03	2120
100	A21 Med.	14971-6	(66)s	100A/RS/TF	120-130	60	Frost Silicone Coated Rough Service	C, RC-9		5 5/8	1000		1347	0.9	\$12.05	2740
		27550-3	s	100A/RS	250	60	Frost Rough Service	C, RC-9		5 5/8	1000		1030	0.9	\$12.05	2740
PAR38	Med. Skt.	14550-8	(29, 82)	100PAR38/HEAT/CL	120	12	Clear PAR Infrared	C, C-9		5 5/16	5000		4.6	\$12.05		

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Incandescent Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.†	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽⁹³⁾	Approx. MBCP [®]	Life Years ⁽⁴⁴⁶⁾	Energy Cost ⁽⁴⁴⁵⁾	Color Temp. (K)
Incandescent Lamps by Wattage (Continued)														
FTC REQUIREMENTS														
116	A21 Med.+	22483-2	(12)	116A21/TS	120	Traffic Signal Clear	C, C-9	2 7/16	4 7/16	8000		1180	7.3	\$13.97
		22485-7	(12)	116A21/TS	130	Traffic Signal Clear	C, C-9	2 7/16	4 7/16	8000		1180	7.3	\$13.97
120	BR40 Med.	41530-7	(87)s†	120BR/Agro 6/1	120	Agro-Lite Plant Light	C, CC-6		6 1/2	2000		1.8	\$14.45	
125	BR40 Med.	15930-1	(27,87,89)s	125BR40/1/TG 4/1	120	TuffGuard Coated Clear Reflector Infrared	C, C-9		6 1/2	5000		4.6	\$15.06	
		41675-0	(27,87,89)s†	125BR40/1	120	Clear Infrared	C, C-9		6 1/2	5000		4.6	\$15.06	
150	A21 Med.	27003-3	s4	150A	120	Frost	C, C-9		5 1/16	750		2620	0.7	\$18.07
		43163-5		150/RS/TF 120-130V 8/1 PK	120	Frost Industrial Rough Service	C, RC-9	3 3/4	5 1/16	3500		1640	3.2	\$18.07
					130	Ratings @120V=141W				5900		1425	5.4	\$16.98
175	PAR38 Med. Skt.	14551-6	(27,89)	175PAR38/HEAT/CL	120	Clear Infrared	C, C-9		5 1/16	5000		4.6	\$21.08	
200	A21 Med.	16867-4	s	200A/WL 6/1	120	Soft White Long Life	C, CC-2V		5 1/16	1500		3100	1.4	\$24.09
250	BR40 Med.	41674-3	(27,87)s†	250BR40/1 4/1	120	Clear Reflector Infrared	C, C-9		6 1/2	5000		4.6	\$30.11	2700
		20205-1	(27,87)s	250BR40/1/TG 4/1	120	TuffGuard Coated Clr. Ref. Infrared	C, C-9		6 1/2	5000		4.6	\$30.11	
	PAR38 Med. Skt.	37432-2	(53, 82)Y	K250PAR38/FL	120-130	PAR Floodlight (Krypton)	C, CC-6		5 1/16	4000	5000	3100	3.7	\$30.11
	R40 Med.	41583-6	(27,87,89)s†	250R40/HR 4/1	120	Red Bowl Heat Ray	C, C-9		6 1/8	5000		4.6	\$30.11	
		15932-7	(27,87,89)s	250R40/HR/TG 4/1	120	TuffGuard Ctd. Red Bowl Heat Ray	C, C-9		6 1/8	5000		4.6	\$30.11	
300	BR40 Med.	14343-8	(87)s	300BR/FL 130	120-130	Reflector Flood	C, CC-11		6 1/2	2000		3182	1.8	\$36.14
	PS25 Med.	13391-8	s	300M	120-130	Clear Ratings @120V=265W	C, CC-8	5 1/4	6 3/16	750		6280	0.7	\$36.14
										2120		4625	1.9	\$31.92

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Incandescent Lamps

Watts	Bulb Base	Product Number	Symbols Footnotes	Ordering Code	Pkg. Qty.±	Volts	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.)(93)	Approx. MBCP®	Lumens	Life Years (446)	Energy Cost (445)	Color Temp. (K)	
Decoratives, Blister-Carded (12)														FTC REQUIREMENTS			
15	BA9	Cand.	16811-2	s	BC15BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	B, CC-2V, C-7A	4 ³ / ₁₆	2200		110	2.0	\$1.81	2700	
25	BA9	Cand.	16719-7	s	BC25BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		150	2.0	\$3.01	2700	
			16806-2	s	BC25BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		150	2.0	\$3.01	2700	
			13823-0	s	BC25BA9C/CL 6/1 TP	120	6	Clear Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200			2.0	\$3.01	2700	
	BA9 ¹ / ₂	Med.	16819-5	s	BC25BA9 ¹ / ₂ /CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		150	2.0	\$3.01	2700	
	B10 ¹ / ₂	Cand.	16824-5	s	BC25B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		150	2.0	\$3.01	2700	
	G16 ¹ / ₂	Cand.	16845-0	s	BC25G16 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Globe	B, C-7A	3	2000		200	1.8	\$3.01	2500	
40	BA9	Cand.	16720-5	s	BC40BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
			16807-0	s	BC40BA9C/CL/LL 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
			16809-6	s	BC40BA9C/F/LL 6/2	120	12	Frost Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		295	2.0	\$4.82	2700	
	BA9 ¹ / ₂	Med.	16760-1	s	BC40BA9 ¹ / ₂ /CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
			16820-3	s	BC40BA9 ¹ / ₂ /CL/LL	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
	B10 ¹ / ₂	Cand.	16825-2	s	BC40B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, CC-2V	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
40	B13	Med.	16828-6	s	BC40B13/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, C-7A	4 ³ / ₁₆	2200		300	2.0	\$4.82	2700	
	F15	Med.	16835-1	s	BC40F15/CL/LL 6/2	120	12	Clear Long Life Flame	C, C-9	4 ¹ / ₂	2200		385	2.0	\$4.82	2700	
			16837-7	s	BC40F15/IR/LL 6/2	120	12	Iridescent Long Life Flame	C, C-9	4 ¹ / ₂	2200		370	2.0	\$4.82	2700	
	G16 ¹ / ₂	Cand.	16846-8	s	BC40G16 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Globe	C, CC-2V, C-7A	3	2000		300	1.8	\$4.82	2550	
			Med.	13537-6	s	BC40G16 ¹ / ₂ /CL/LL 6/2	120	12	Clear Long Life Globe	C, CC-2V, C-7A	2 ³ / ₄	2000		300	1.8	\$4.82	2550
60	BA9	Cand.	16808-8	s	BC60BA9C/CL/ 6/2	120	12	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		550	2.0	\$7.23	2700	
			16721-3	s	BC60BA9C/CL/LL 6/4	120	24	Clear Long Life Bent Tip	C, CC-2V, C-7A	4 ³ / ₁₆	2200		550	2.0	\$7.23	2700	
			B10 ¹ / ₂	Cand.	16826-0	s	BC60B10 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Blunt Tip	C, CC-2V	4 ³ / ₁₆	2200		550	2.0	\$7.23
	G16 ¹ / ₂	Cand.	16699-0	s	BC60G16 ¹ / ₂ /C/CL/LL 6/2	120	12	Clear Long Life Globe	C, CC-2V	3	2000		540	1.8	\$7.23	2700	

For the most current product information, go to the e-catalog on www.philips.com. Incandescent symbols and footnotes located on page 123.



Incandescent Lamps

Watts	Bulb Base	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Volts	Qty.±	Description	Class Filament	LCL (In.)	MOL (In.)	Rated Avg. Life (Hrs.) ⁽⁹³⁾	Approx. MBCP [®]	Lumens	Life Years ⁽⁴⁴⁶⁾	Energy Cost ⁽⁴⁴⁵⁾	Color Temp. (K)	
Decoratives, All Others														FTC REQUIREMENTS			
25	G25 Med.	16887-2	s	25G25/CL/LL 12/1	120	12	Clear Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			235	1.8	\$3.01	2500	
		16748-6	s	25G25/W/LL 12/1	120	12	White Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			210	1.8	\$3.01	2600	
40	G25 Med.	16747-8	s	40G25/CL/LL 12/1	120	12	Clear Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			460	1.8	\$4.82	2550	
		16746-0	s	40G25/W/LL 12/1	120	12	White Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			415	1.8	\$4.82	2600	
		16903-7	s	40G25/CL/LL 4/3	120	12	Clear Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			460	1.8	\$4.82	2550	
		16904-5	s	40G25/W/LL 4/3	120	12	White Long Life Globe	C, CC-6	4 ⁷ / ₁₆	2000			415	1.8	\$4.82	2600	
60	G40 Med.	16851-8	s	60G40/W/LL 6/1	120	6	White Long Life Globe	C, C-9	6 ⁵ / ₁₆	3000			595	2.7	\$7.23	2550	
		16852-6	s	60G40/CL/LL 6/1	120	6	Clear Long Life Globe	C, C-9	6 ⁵ / ₁₆	3000			665	2.7	\$7.23	2550	

TuffGuard Incandescent Coated Lamps

125	BR40 Med.	15930-1	(27,87,89)	125BR40/1/TG 120V 4/1			120	4	5000	Stocked				4.6	\$15.06	
250	R40 Med.	15932-7	(27,87,89)	250R40/HR/TG 120V 4/1			120	4	5000	Stocked				4.6	\$30.11	
	BR40 Med.	20205-1	(27,87)	250BR40/1/TG 120V 4/1			120	4	5000	Stocked				4.6	\$30.11	

For the most current product information, go to the e-catalog on www.philips.com. Incandescent symbols and footnotes located on page 123.

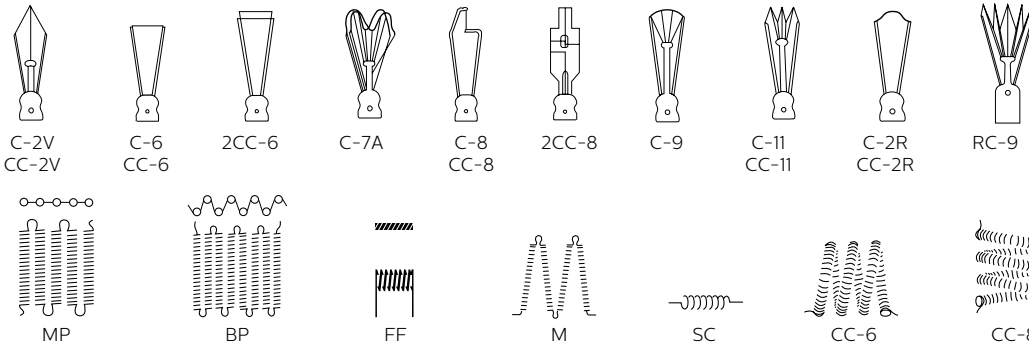


Incandescent Lamps

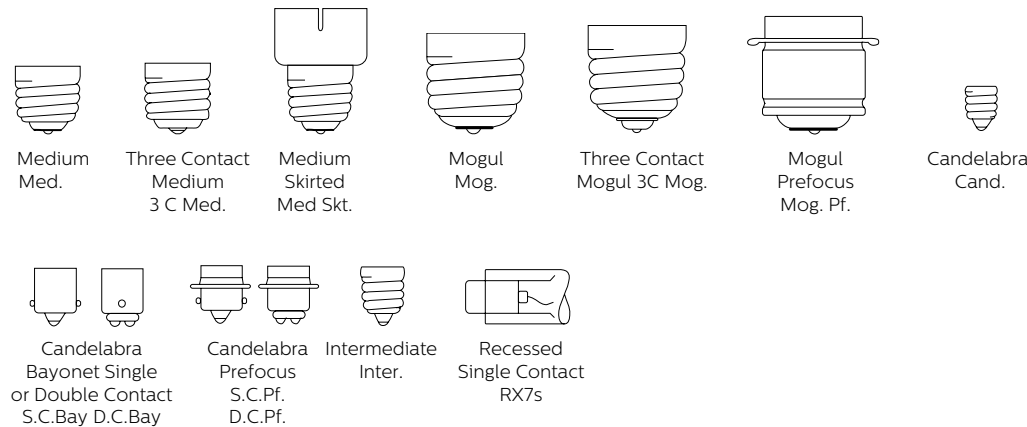
Filament Designations, Base Types and Bulb Shapes

Filament Designations (Not Actual Sizes)

Filament designations consist of a letter or letters to indicate how the wire is coiled and an arbitrary number sometimes followed by a letter to indicate the arrangement of the filament on the supports. Prefix letters include C (coil)—wire is wound into a helical coil or it may be deeply fluted; CC (coiled coil)—wire is wound into a helical coil and this coiled wire again wound into a helical coil. Some of the more commonly used types of filament arrangements are illustrated.

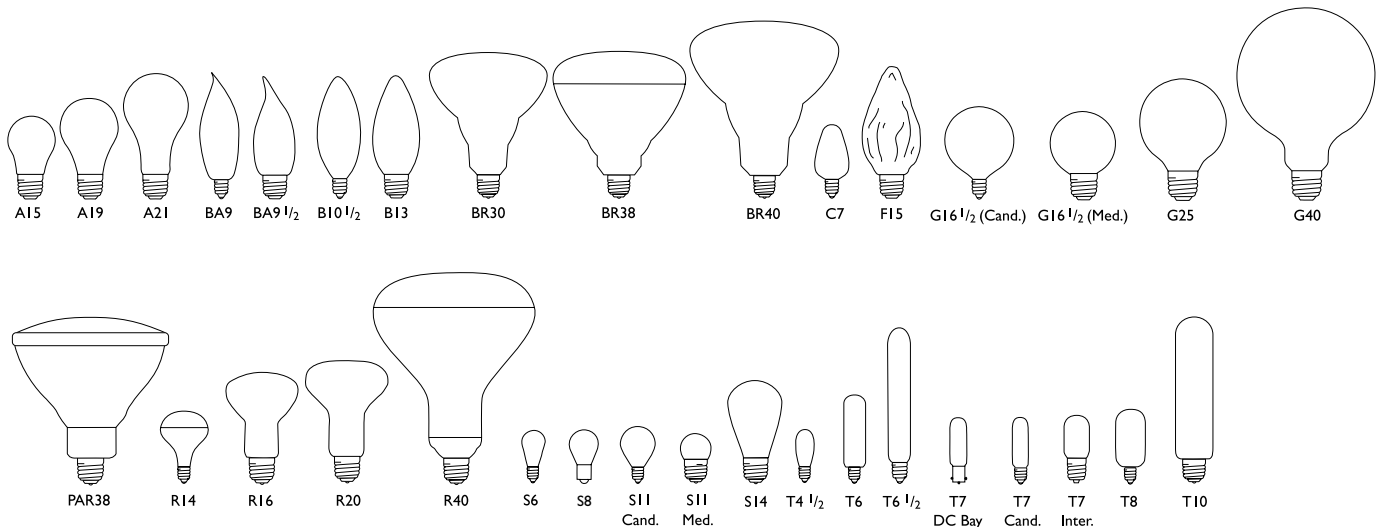


Base Types (Not Actual Sizes)



Bulb Shapes (Not Actual Sizes)

The size and shape of a bulb is designated by a letter or letters followed by a number. The letter indicates the shape of the bulb while the number indicates the diameter of the bulb in eighths of an inch. For example, "T10" indicates a tubular shaped bulb having a diameter of $\frac{10}{8}$ or $\frac{1}{4}$ inches. The following illustrations show some of the more popular bulb shapes and sizes.



For the most current product information, go to the e-catalog on www.philips.com

□ Exclusive to Signify North America Corporation

■ Nickel plated brass base

▲ Aluminum base

★ Heat resisting glass bulb

□ Maximum Beam Candlepower

© This Bulb Meets US Federal Minimum Efficiency Standard

† New since last printing

* Two Lamp Carded Pack

‡ Quantity shown is minimum shipping container—refer to Net Price Schedule for number of lamps to qualify as a standard case.

✓ Consider the compact fluorescent lamps listed on pages 52–69 or the energy saving halogen listed on pages 102–105 for energy savings

G = General Lighting

S = Street Lighting

▼ PAR38 (one piece)

¥ For more information about FTC requirements please see rule 16 CFR part 305 @ www.ftc/os/2000/02/16cfr305.

+ Pursuant to California law, these incandescent lamps cannot be used or offered for sale for use in traffic signals in the State of California.

++ Pursuant to California law, these incandescent lamps cannot be used or offered for sale in the State of California.

(4) Average laboratory life is 200 hours for vacuum cleaner and 600 hours for sewing machine service. Design life 1000 hours.

(8) Operate base down.

(12) Operate base down to horizontal.

(14) Operate base up.

(18) Base is medium left hand thread.

(19) May not give satisfactory performance if any accessory equipment is attached to or touches the glass bulb.

(27) Average laboratory life in excess of 5000 hours. In-service life depends upon service conditions.

(29) Suitable for indoor and outdoor service.

(31) Operate only in porcelain sockets.

(37) Should not be used in equipment where the base temperature will exceed 500°F.

(43) Unless otherwise noted, may be operated in any position, but lumen maintenance is best when operated vertically base up.

(46) Stippled, rounded cover.

(51) Light output is maintained best when operated within 45° of vertically base up.

(53) The bulb, though made of heat-resistant glass, may break if moisture falls on it. Not recommended for use in enclosed, close-fitting housings.

(63) Design volts 145.

(64) For use only in equipment specially designed to maintain bulb and base temperature within safe limits.

(66) Silicone Coating reduces lumen output from Standard Values less than 3%.

(82) **CAUTION:** To avoid deterioration of lampholder by heat, use only heat resistant lampholders or fixtures listed by a nationally recognized electrical testing organization for use with reflector or PAR lamps.

(87) Do not allow hot bulb to come in contact with liquid or metal parts of the fixture, as glass may shatter. Do not use outdoors. Do not operate in close proximity to flammable materials or those adversely affected by heat or drying. Operate only in heat resistant sockets.

(89) **CAUTION:** Do not operate in close proximity to flammable materials or those adversely affected by heat or drying. Operate only in heat resistant sockets.

WARNING: Use carefully. May cause serious burns. Do not use over insensitive skin areas or in the presence of poor circulation. The unattended use of infrared heat by children or incapacitated persons may be dangerous.

–Lamp should not be placed closer than 18" to the surface being irradiated.

–Do not use for therapeutic or topical applications unless recommended by a physician.

–For food warming, use only lamps with heat resisting glass.















(93) Rated average life is the length of operation (in hours) at which point an average of 50% of the lamps will still be operational and 50% will not.

WARNING: For indoor use only.

(445) Estimated energy cost is based on 3 hrs/day, 7 days/wk., 11¢/kWh. Cost depends on rates and use.

(446) Life in years is based on 3 hrs/day, 7 days/wk.

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	<p>MSR Lamps</p> <p>Page 134</p>		<p>MSD Lamps</p> <p>Page 135</p>		<p>MSI Lamps</p> <p>Page 135</p>
	<p>Fast Fit Lamps</p> <p>Page 136</p>		<p>Platinum Lamps</p> <p>Page 136</p>		<p>Short Arc Lamps</p> <p>Page 137</p>
	<p>Fluorescent Lamps with Super Actinic Radiation</p> <p>Page 137</p>		<p>Black Light Blue Lamps</p> <p>Page 137</p>		<p>UVA 365nm Peak Lamps</p> <p>Page 138</p>
	<p>Germicidal Sterilamp 254nm Lamps</p> <p>Page 139</p>		<p>TUV T5</p> <p>Page 140</p>		



Philips FastFit Lamps feature a rear loading base system which enables easy lamp replacement.

Reliable, high quality lamps provide **ultimate performance**

Philips HPL+ Lamps with P3 technology enable flexible burning positions to ensure accurate aiming and supply of light wherever it is needed. HPL+ lamps are now designed to last longer, making them ideal for theater, studio and event lighting.

Philips FastFit is a new lamp concept for Single Ended MSR Gold and Halogen Hi-Brite lamp types. The rear load base system enables easy lamp replacement and adjustments in seconds in difficult stage conditions. The overall lamp length is reduced making more compact and lighter fixture designs possible.

Philips Germicidal T5 Sterilamp uses UV technology, which allows for the emission of UVC energy to disinfect water, therefore the Philips Germicidal T5 Sterilamp is a cost effective and environmentally responsible disinfection alternative to chemical treatment of waste water.

† UVC is a band of ultraviolet radiation with wavelengths shorter than 280 nanometers.



HPL+ Lamps



MSR Hot Restrike Lamps



FastFit Lamps



TUV Amalgam XPT System



Germicidal T5 Sterilamp

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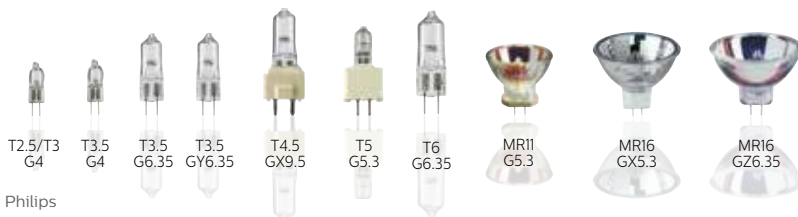
Specialty Lamps

Photo Projection Lamps

ANSI Code	Product Number	Pkg. Qty.	Volts	Avg. Watts (Amps)	Bulb	Base	Rated Avg. Life (Hrs.)*	Coil Type	LCL (In.)	LCL (mm.)	MOL (In.)	MOL (mm.)	Rated Approx. Lumens	Color Temp (K)	Operating Position
BRL	31627-3	24	12	50	T3.5	G6.35	50	C-6	1 ⁹ / ₅₀	30	1 ³ / ₄	44	1500	3400	BDTH
DDL	31509-3	24	20	150	MR16	GX5.3	500	CC-6	—	—	1 ³ / ₄	45	—	3150	BDTH
DZA	28117-0	100	10.8	30	T5	G5.3	1000	—	—	—	1 ⁷ / ₈	47	570	3100	BDTH
EFN	31502-8	50	12	75	MR16	GZ6.35	50	C-6	—	—	1 ⁵ / ₈	42	—	3350	BDTH
EFP	31488-0	50	12	100	MR16	GZ6.35	50	C-6	—	—	1 ⁵ / ₈	42	—	3350	BDTH
EFR	31490-6	50	15	150	MR16	GZ6.35	50	C-6	—	—	1 ⁵ / ₈	42	—	3350	BDTH
EFP/5H	13163-1	50	12	100	MR16	GZ6.35	500	—	—	—	1 ⁵ / ₈	42	580	3400	ANY
EFR/5H	13656-4	50	15	150	MR16	GZ6.35	500	—	—	—	1 ⁵ / ₈	42	720	3400	ANY
EHJ-X	23175-3	200	24	250	T4	G6.35	50	C-6F	1 ³ / ₁₀	33	2 ¹ / ₂	55	10,000	3400	BD
EJA	44142-8	24	21	150	MR16	GX5.3	40	CC-6	—	—	1 ³ / ₄	45	—	3350	BDTH
EJL	31508-5	24	24	200	MR16	GX5.3	50	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
EJM	23942-6	24	21	150	MR16	GX5.3	40	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
EKE	31592-9	24	21	150	MR16	GX5.3	200	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
ELC	50709-5	50	24	250	R50	GX5.3	35	—	—	—	1 ³ / ₄	45	—	3400	BDTH
ELC/FA	23103-5	24	24	250	MR16	GX5.3	50	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
ELC/5H	38166-5	24	24	250	MR16	GX5.3	500	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
ELC/10H	13658-0	24	24	250	MR16	GX5.3	1000	CC-6	—	—	1 ³ / ₄	45	—	3400	BDTH
ELD	31618-2	24	21	150	MR16	GX5.3	40	CC-6	—	—	1 ³ / ₄	45	—	3350	BDTH
ELH	31619-0	24	120	300	MR16	GY5.3	35	CC-8	—	—	1 ³ / ₄	45	—	3350	BDTH
ENH	31621-6	24	120	250	MR16	GV5.3	175	CC-8	—	—	1 ³ / ₄	45	—	3250	BDTH
EPZ/DJT	31496-3	50	13.8	50	MR16	GX5.3	1000	—	—	—	1 ³ / ₄	45	—	3150	BDTH
ESA/FHD	26126-3	100	6	10	T2.5	G4	100	C-6	7 ⁹ / ₉	19.6	1 ¹ / ₂	30	200	3200	ANY
ESB	25678-4	100	6	20	T3	G4	100	C-6	7 ⁹ / ₉	19.5	1 ¹ / ₂	31	420	3200	ANY
EVA	25676-8	100	12	100	T3.5	GY6.35	1000	C-6F	1 ⁹ / ₅₀	30	1 ³ / ₄	44	2500	3200	ANY
EVC/FGX	79576-5	100	24	250	T5	G6.35	300	C-6F	1 ³ / ₁₀	33	2 ¹ / ₄	57	8400	3400	ANY
EVD-X	23177-9	24	36	400	T6	G6.35	50	C-6F	1 ² / ₅₀	36.1	1 ³ / ₈	60	16,625	3400	BDTH
EYB	23257-9	24	82	360	T5	G5.3	75	CC-8	1 ¹ / ₄	31	2 ¹ / ₄	57	10,000	3250	BDTH
FCR	26101-6	100	12	100	T3.5	GY6.35	50	C-6F	1 ⁹ / ₅₀	30	1 ³ / ₄	44	3400	3400	BDTH
FCS	20607-8	200	24	150	T4	G6.35	50	C-6F	1 ⁹ / ₅₀	30	2	51	5200	3400	BDTH
FCS-X	23174-6	100	24	150	T4	G6.35	50	C-6F	1 ⁹ / ₅₀	30	2	51	6000	3400	BDTH
FLW	20492-5	24	24	300	T6	GY6.3	50	C-6F	1 ³ / ₁₀	33	2 ¹ / ₂	55	10,450	3400	BD±15°
JCR	24923-5	24	15	150	MR16	GZ6.35	500	C-8	—	—	1 ⁵ / ₈	42	—	—	BDTH
5761	25713-9	100	6	30	T3.5	G4	100	C-6F	7 ⁹ / ₉	19.6	1 ¹ / ₂	31	765	3200	ANY
6605	25684-2	100	6	10	T3	G4	2000	C-6	7 ⁹ / ₉	19.5	1 ¹ / ₂	30	150	2700	ANY
13117	37614-5	50	17	150	MR16	GX5.3	1000	CC-6	—	—	1 ⁷ / ₈	47	—	3200	ANY
13165	44295-4	50	14	35	MR11	GZ4	50	—	—	—	1 ¹ / ₂	38	—	3400	BD±130°
13298	16094-5	50	10	52	MR11	GZ4	20	CC-8	—	—	1 ³ / ₄	45	—	3400	Horiz.±40°
13528	31504-4	360	6	15	MR11	GZ4	500	C-6	—	—	1 ¹ / ₂	38	—	2900	BD±105°
13865	26423-4	50	12	75	MR11	G5.3	50	—	—	—	1 ¹ / ₂	40	—	3400	BD±105°
14552	16110-9	50	12	75	MR11	GZ4	50	—	—	—	1 ⁵ / ₈	41	—	—	BD±105°
14623	15881-6	100	17	95	T4	GY6.35	2000	C-8	—	—	2	50	2150	3000	ANY
6834/25H FO	30079-8	50	12	100	R50	GZ6.35	2,500	—	—	—	1 ⁵ / ₈	42	—	3400	ANY

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

Stage/Studio/TV Lamps

ANSI Code	Product Number	Watts	Description	Volts	Base	MOL (In.)	LCL (In.)	Mean Lumens	Rated Avg. Life (Hrs.)*	Filament	Color Temp (K)	Envelope Finish
BTL	31891-5	500	6800C	120	P28s	4½	2 ⁹ / ₅₀	11,000	500	C-13D	3050	Clear
FRK	14952-6	650	6638P	120	GY9.5	1 ⁷ / ₈		17,500	200	C-13D	3200	Clear
GKV	36372-1	600	6986P	230	G9.5	4½	2 ³ / ₈	15,000	400	C-13D	3200	Clear
GKV	27287-2	600	6986P	240	G9.5	3 ⁹ / ₁₀	2 ³ / ₈	15,000	300	Bi-Plane	3200	Clear
GLA	29432-2	575	6992P	115	G9.5	4	2 ³ / ₈	13,000	1500	C-13D	3100	Clear
GLB	36373-9	575	6991P	230	G9.5	4	2 ³ / ₈	13,000	1500	C-13D	3100	Clear
GLB	27289-8	600	6991P	240	G9.5	4	2 ³ / ₈	13,000	1500	Bi-Plane	3100	Clear
GLC	28739-1	575	6989P	115	G9.5	4	2 ³ / ₈	15,500	400	C-13D	3200	Clear
GLD	13420-5	750	6981P	115	G9.5	4	2 ³ / ₈	20,500	300	C-13D	3200	Clear
6980Z	38296-0	1200	6980Z	80	G22	5½	2½	37,500	200	C-13D	3250	Clear
7002Y	38297-8	1000	7002Y 115V	115	G22	6	2½	29,000	250	Bi-Plane	3200	Clear
7015 TXO	15179-5	750	7015 TXO	100	GX9.5	3¾	1½	18,600	300	C-13	3200	Clear

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

High Volt SSTV Halogen Lamps

ANSI Code	Product Number	Watts	Description	Volts	Base	MOL (In.)	LCL (In.)	Mean Lumens	Rated Avg. Life (Hrs.)*	Filament	Color Temp (K)	Burning Position	Pkg. Qty.	Monoplane Equiv. LIF	LIF
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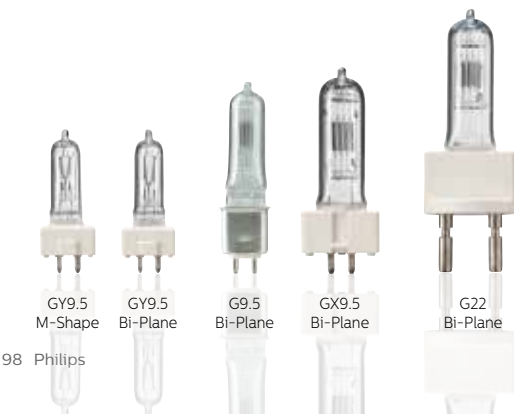
High Volt SSTV Halogen Lamps

Single-Ended

GCV/GVH	25796-4	500	6820P	230	GY9.5	3 1/2	1 5/8	11,000	360	Bi-Plane	3000	BDTH	10	T/25	T/18
7389	14104-4	500	7389	230	GY9.5	3	1 5/32	14,000	75	Bi-Plane	3200	BDTH	10	A1/224	
GKV	36372-1	600	6986P	230	G9.5	4	2 3/8	15,000	300	Bi-Plane	3200	ANY	10		
6998P	14103-6	650	6998P	230	GX9.5	4 3/8	2 1/8	13,000	750	Bi-Plane	3000	ANY	10	T 21	
GCK/GCT	25794-9	650	6823P	230	GY9.5	3 1/2	3 5/8	14,500	600	Bi-Plane	3050	BDTH	10	T/27	T/26
FKH	25820-2	650	6993Z	230	G22	5 1/2	2 1/2	16,500	120	Bi-Plane	3200	BDTH	10	CP/68	CP/39
6982P	13421-3	800	6982P	230	G9.5	4 1/8	2 3/8	20,000	200	Bi-Plane	3200	ANY	10		
6982P	27284-9	800	6982P	240	G9.5	4	2 3/8	20,000	200	Bi-Plane	3200	ANY	10		
FVA	14108-5	1000	6995P	230	GX9.5	4 1/3	2 1/8	25,000	240	Bi-Plane	3200	BDTH	10	CP/70	CP/24
FKD	25803-8	1000	6996C	230	P28s	5	2 1/8	21,000	900	Bi-Plane	3050	BDTH	10	T/20	T/14
7002Y	13041-9	1000	7002Y	230	G22	5 1/2	2 1/2	29,000	250	Bi-Plane	3200	ANY	10		
FKJ	14247-1	1000	6995Z	230	G22	5 1/2	2 1/8	25,000	240	Bi-Plane	3200	ANY	10	T/20	
FWP	25804-6	1000	6996P	230	GX9.5	4	2 1/8	21,000	900	Bi-Plane	3050	ANY	10	T/19	
FWR	27336-7	1000	6996P	240	GX9.5	4	2 1/8	21,000	900	Bi-Plane	3050	ANY	10	T/19	
FWS	14105-1	1200	6897P	230	GX9.5	4 3/4	2 5/8	27,600	400	Bi-Plane	3000	ANY	10	T/29	
FWT	27275-7	1,200	6897P	240	GX9.5	4 3/4	2 5/8	27,600	480	Bi-Plane	3000	ANY	10		T/29
6800C	27250-0	500	6800C	240	P28s	5 1/8	2 1/5	9500	900	Bi-Plane	2950	ANY	10	T/24	T17
7009Z	22399-0	1200	7009Z	80	G22	6	7 1/2	36,000	200	Bi-Plane	3250	BDTH	10	—	—
6984P	27286-4	1000	6984P	230	GX9.5	4 3/10	2 1/5	22,500	180	Bi-Plane	3200		10	CP/63	
6895P	27223-7	1200	6895P	230	GX9.5	4 7/10	2 3/5	30,000	240	Bi-Plane	3200		10	CP/90	
FVC	27290-6	650	6993P	230	GX9.5	4 3/10	2 1/5	16,500	120	Bi-Plane	3200		10	CP/67	CP/23
FRL	27245-0	650	6638P	230	GY9.5	3 5/9	1 5/8	16,500	180	Bi-Plane	3200	ANY	10	CP/89	
FRM	27246-8	650	6638P	240	GY9.5	3 1/2	1 5/8	16,500	180	Bi-Plane	3200	ANY	10	CP/89	
FVB	27307-8	1000	6995P	240	GX9.5	4 7/8	2 1/8	25,000	240	Bi-Plane	3200	ANY	10	CP/70	CP/24
FKJ	27333-4	1000	6995Z	240	G22	5 1/2	2 1/2	25,000	240	Bi-Plane	3200	ANY	10	CP/71	CP/40
GAB	27303-7	1000	6995I/BP	230	GY9.5	3 5/7	1 5/8	25,000	250	Bi-Plane	3200		10		
GCV/GCJ	27254-2	500	3820P	240	GY9.5	3 1/2	1 5/8	11,000	360	Bi-Plane	3000	ANY	10	T/25	T/18
6874P	27263-3	300	6874P	240	GY9.5	3 1/8	1 5/8	5100	2000		2950	ANY	10	M/38	
6877P	27266-6	500	6877P	240	GY9.5	3 7/8	1 5/8	10,000	2000		2950	ANY	10	M/40	
6975Z	27281-5	2000	6975Z	240	G22	6 8/9	3 1/2	50,000	400	Bi-Plane	3200		10	CP/92	
GAD	27304-5	1000	6995I/BP	240	GY9.5	3 5/7	1 5/8	25,000	250	Bi-Plane	3200		10		
7002Y	15620-8	1000	7002Y	240	G22	5 1/2	2 1/2	29,000	250	Bi-Plane	3200	ANY	10	T19	

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

HPL SSTV Lamps

ANSI Code	Product Number	Watts	Description	Volts	Base	MOL (In.)	LCL (In.)	Mean Lumens	Rated Avg. Life (Hrs.)*	Filament	Color Temp (K)	Envelope Finish
HPL SSTV Lamps												
HPL												
HPL 575 115V	39170-6	575	7007	115	Heat Sink	4	2 ³ / ₈	16,520	300	Bi-Plane	3250	Clear
HPL 575 230V	14564-9	575	7007	230	Heat Sink	4	2 ³ / ₈	14,900	400	Bi-Plane	3200	Clear
HPL 575 240V	27343-3	575	7007	240	Heat Sink	4	2 ³ / ₈	14,900	400	Bi-Plane	3200	Clear
HPL 575LL 115V	39167-2	575	7007 LL	115	Heat Sink	4	2 ³ / ₈	12,360	2000	Bi-Plane	3050	Clear
HPL 575LL 230V	14565-6	575	7007 LL	230	Heat Sink	4	2 ³ / ₈	11,760	1500	Bi-Plane	3050	Clear
HPL 575LL 240V	27345-8	575	7007 LL	240	Heat Sink	4	2 ³ / ₈	11,760	1500	Bi-Plane	3050	Clear
HPL 750 115V	39171-4	750	7008	115	Heat Sink	4	2 ³ / ₈	21,900	300	Bi-Plane	3250	Clear
HPL 750 230V	14566-4	750	7008	230	Heat Sink	4	2 ³ / ₈	19,750	300	Bi-Plane	3200	Clear
HPL 750 240V	27346-6	750	7008	240	Heat Sink	4	2 ³ / ₈	19,750	300	Bi-Plane	3200	Clear

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

MSR Lamps

Description	Product Number	Watts	Volts	Lamp Current (Amps)	Initial Lumens	Rated Avg. Life (Hrs.)*	Arc Length (mm)	CRI	Color Temp (K)	Base
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MSR Lamps Single-Ended Gas Discharge

Hot Restrike^(1,2)

MSR 125 HR	26135-4	125	80	1.90	9400	200	4	92	6000	GZX9.5
MSR 200 HR	26136-2	200	70	3.30	15,000	200	5	92	6000	GZY9.5
MSR 250 HR	26137-0	250	96	2.60	20,000	750	5	90	6000	GZY9.5
MSR 400 HR	28726-8	400	70	6.90	32,000	1000	6	92	6000	GZZ9.5
MSR 575 HR	28727-6	575	95	6.95	49,000	1000	7	90	6000	G22
MSR 1200 HR	24582-9	1200	100	13.80	110,000	1000	10	95	6000	G38
MSR 2500 HR	24581-1	2500	115	25.60	240,000	500	14	95	6000	G38
MSR 4000 HR	24589-4	4000	200	27.50	380,000	500	20	91	6000	G38
MSR 6000 HR	36042-0	6000	125	55.00	570,000	300	24	95	6000	GY38
MSR 12,000 HR	39071-6	12,000	160	84.00	1,200,000	300	30	95	6000	GY38
MSR 18,000 HR	21823-0	18,000	225	77.60	1,650,000	300	35	90	6000	GX51

Standard⁽¹⁾

MSR 400	26138-8	400	70	6.90	32,000	1000	6	95	5900	GX9.5
MSR 575/2 10H	28707-8	575	95	6.95	49,000	1000	7	70	7200	GX9.5
MSR 700	24542-3	700	72	12.00	55,000	1000	7	75	5900	G22
MSR 700/2	24543-1	700	72	11.00	55,000	1000	8	80	7200	G22
MSR 1200	24551-4	1200	100	13.80	110,000	800	10	80	5900	G22
MSR 1200/2	24556-3	1200	90	13.80	110,000	800	10	85	7200	G22

Short Arc⁽¹⁾

MSR 400 SA	24500-1	400	54	8.40	30,000	750	3	75	5600	GY9.5
MSR 700 SA	28712-8	700	72	11.00	55,000	750	4	80	5600	GY9.5
MSR 1200 SA	28687-2	1200	100	13.80	96,000	750	7	80	6000	GY22

MSR Lamps Double-Ended Gas Discharge ⁽¹⁾

MSR 1800 DE	22058-2	1800		20.00	145,000	750	10	85	6000	SFC 15.5-6
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1) Based on cycle 3.5 hours on/0.5 hour off, nominal wattage. Shorter life at short cycle operation.

2) Lamps must be used in fixtures designed for hot restrike.

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



MSR 125 HR, MSR 200 HR
MSR 250 HR, MSR 400 HR

MSR 575 HR

MSR 1200 HR

MSR 2500 HR
MSR 4000 HR

MSR 6000 HR
MSR 12,000 HR

MSR 18,000 HR

MSR 400 SA
MSR 700 SA

MSR 1200 SA
MSR 2000 SA

MSR 1800DE

Specialty Lamps

MSR, MSD and MSI Lamps

Description	Product Number	Watts	Volts	Lamp Current (Amps)	Initial Lumens	Rated Avg. Life (Hrs.)*	Arc Length (mm.)	CRI	Color Temp (K)	Base	MOL (mm)
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MSR SA/DE Gold (Double-Ended) Lamps

MSR Gold 575 SA/2 DE	24501-9	575	94	7.1	42,000	750	5	75	7500	SFC 11	92
MSR Gold 700 SA/2 DE	28713-6	700	70	11.5	56,000	750	4	75	7500	SFC 10-4	136
MSR Gold 1200 SA/DE	28714-4	1200	100	13.6	110,000	750	7	85	6000	SFC 10-4	136
MSR Gold 1200 SA/2 DE	28725-0	1200	207	13.6	103,000	750	7	85	7500	SFC 10-4	136
MSR Gold 1510 SA/DE	28716-9	1500	207	13.5	140,000	750	7	88	6000	SFC 10-4	136

MSD Lamps ⁽¹⁾

MSD 150/2	26139-6	150	96	1.85	10,500	3000	5	62	8500	G12	–
MSD 200	24511-8	200	70	3.40	13,500	2000	5	80	6000	GY9.5	–
MSD 250	26142-0	250	90	3.00	18,000	3000	5	75	6700	GY9.5	–
MSD 250/2 30H	28703-7	250	90	3.00	18,000	3000	5	70	8500	GY9.5	–
MSD 575	24519-1	575	95	6.95	43,000	3000	8	75	6000	GX9.5	–
MSD 575 HR ⁽²⁾	24547-2	575	95	6.95	46,000	2000	8	75	6000	G22	–
MSD 700	24553-0	700	72	11.00	50,500	3000	10	75	6000	G22	–
MSD 1200	24558-9	1200	115	13.80	92,000	3000	14	80	6000	G22	–

MSI Lamps

MSI 575 HR	39072-4	575	–	7.00	49,000	750	7	80	6000	SFC10-4	138
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1) These lamp types must be operated with a separate rapid acting High Breaking-Capacity fuse, either 415V AC or 500V DC working in accordance with the supply in use as per end of table.

2) C.C.=coiled coil, S.C.=single.

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

FastFit and Platinum Lamps

Description	Product Number	Watts	Volts	Lamp Current (Amps)	Initial Lumens	Rated Avg. Life (Hrs.)*	Arc Length (mm.)	CRI	Color Temp (K)	Base	MOL (mm)
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FastFit Lamps

Gas Discharge

MSR Gold 300/2 Mini FastFit	28717-7	300	96	3.80	23,000	750	5.0	80	8300	PGJX28	126.0
MSD Gold 300/2 MiniFastFit	24538-1	300	96	3.80	21,000	2000	5.0	70	8600	PGJX28	126.0
MSR Gold 400 MiniFastFit	24896-3	400	55	7.20	26,000	750	3.0	60	6700	PGJX28	111.0
MSR Gold 575/2 Mini FastFit	28720-1	575	57	10.20	38,600	750	3.5	70	7500	PGJX28	112.0
MSR Gold 700/2 Mini FastFit	28692-2	700	69	10.20	47,000	750	5.0	75	7200	PGJX28	112.0
MSR Gold 700/1 MiniFastFit	29256-5	700	69	10.20	54,000	750	4	75	5600	PGJX28	112.0
MSR Gold 700 Mini FastFit	27709-5	700	69	10.80	50,000	750	4.0	73	6000	PGJX28	116.0
MSR Gold 1000 Mini FastFit	26047-1	1,000	88	11.1	83,000	750	5.5	81	6000	PGJX36	112.0
MSR Gold 700 FastFit	28691-4	700	72	10.2	50,000	750	4	80	6000	PGJX50	111.0
MSR Gold 700/2 FastFit	24562-1	700	72	10.20	50,000	750	4.0	75	7500	PGJX50	111.0
MSR Gold 1200 FastFit	28688-0	1200	207	15.00	95,000	750	5.0	80	6000	PGJX50	128.0
MSR Gold 1500 FastFit	28697-1	1500	198	15.30	120,000	750	6.0	80	6000	PGJX50	128.0
MSR Gold 1500/1 FastFit	26049-7	1,500	198	15.3	127,500	750	6	85	5700	PGJX50	128.0
MSR Gold 2000/2 FastFit	24560-5	2000	110	19.00	160,000	750	8.0	88	7500	PGJX50	134.0
MSR Gold 2000 SA FastFit	24573-8	2000	110	19.00	165,000	750	8.0	80	6000	PGJX50	134.0
MSR Gold 2500/2 FastFit	28701-1	2500	135	19.53	193,000	750	9.5	85	7200	PGJX50	153.0

Fast Fit Hi-Brite Halogen

Hi-Brite 750 FastFit	20161-6	750	80	9.50	22,500	300		100	3250	PGJX50	125.0
Hi-Brite 1200 FastFit	20162-4	1200	80	15.00	36,000	200		100	3250	PGJX50	140.0
7019G 750W PGJ X50	22907-0	750	115	6.52	20,500	300	9.5 x 9.0	100	3200	PGJX50	140.0
7018G 800W PGJ X50	22909-6	800	230	3.48	20,000	200	9.0 x 12.5	100	3200	PGJX50	140.0
7021G/LL 575W/115	27166-8	575	115	5.11	12,400	1500	9.0 x 9.5	100	3000	PGJX50	140.0

Platinum Lamps

MSD Platinum 2R	25652-9	132			5150	6000	1.2	75	8000		57.1
MSD Platinum 5R	24988-8	189			7950	3000	1.0	75	8000		57.1
MSD Platinum 14R	26150-3	280			12,000	2000	0.8	80	7800		57.1
MSD Platinum 15R	27608-9	300			13,500	2000	1.3	75	8000		66.4
MSD Platinum 16R	29305-0	330			16,000	1500	1.3	75	8000		66.4
MSD Platinum 17RA	25917-6	350			>20,000	1500	1	85	7000		63.0
MSD Platinum 20R	25918-4	470			>23,000	1500	1.2	80	8000		72.0
MSR Platinum 35	24597-7	800	67		57,800	1000	3.0	73	7750	PGJX36	116.0
MSR Platinum 35 ST	29315-9	800	74		57,800	750	3.0	80	6000	PGJX36	116.0

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

Sealed Beam, Short Arc, Fluorescent Lamps with Super Actinic Radiation and Black Light Blue Lamps

Product Number	Watts	Description	Volts	Base	Diam. (In.)	Diam. (mm)	MOL (In.)	MOL (mm)	Lumens	Rated Avg. Life (Hrs.)*	Color Temp. (K)	Burning Position	Beam Shape
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Sealed Beam

27356-5	300	300PAR56/MFL	240	Mog. End	7	240	5	127		2000	3000	Universal	Med. Flood
27358-1	300	300PAR56/WFL	240	Mog. End	7	240	5	127		2000	3000	Universal	Wide Flood
27360-7	1000	1000PAR64/VNSP	240	Mog. End	8	240	6	150		300	3200	Universal	Narrow Spot
27361-5	1000	1000PAR64/NSP	240	Mog. End	8	240	6	150		300	3200	Universal	Narrow Spot
27362-3	1000	1000PAR64/MFL	240	Mog. End	8	240	6	150		300	3200	Universal	Med. Flood

Product Number	Description	Technical Lamp Watts	Volts	Lumens	Base	LCL (In.)	MOL (In.)
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Short Arc Lamps

38278-8	CDM-SA/R 150W/942	152	96	2750	G12	2.2	4
36039-6	CDM-SA/T 150W/942	153	96	14,000	G12	2.2	4

Product Number	Description	Technical Lamp Watts	Current Amps	Bulb	Nom. Length (mm)	(In.)
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Fluorescent Lamps with Super Actinic Radiation—Medium BiPin Base

30808-0	TL140W/03	142	1.46	T12	1514	60
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Product Number	Description	Watts	Rated Avg. Life (Hrs.)	Nom. Length (In.)	Pkg Qty
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Black Light Blue Lamps

15760-2	F15T8/Blacklight	15	7500	18	6/1	Individually Sleeved
15762-8	F40T12/Blacklight	40	20,000	48	6/1	Individually Sleeved

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For the most current product information, go to the e-catalog on www.philips.com.



PAR56
Mog. End Base

TL

BLB

Specialty Lamps

UVA 365nm Peak Lamps

Product Number	Ordering Code	Technical Lamp Watts	Description	Nom. Length (In.)	Bulb	Base	Rated Avg. Life (Hrs.)*	UVA Watts
15765-1	PL-S 9W/10/2P (Lead Free)	8.6	UVA Lamp	6½	PL-S	G23	2000	
13034-4	PL-L 18W/10	18	UVA Lamp	9	PL-L	2G11	5000	3.5
23293-4	PL-L 36W/10/4P	36	UVA Lamp	16½	PL-L	2G11	2000	
28504-9	PL-L 36W/10/4P SECURA	36	UVA Lamp		PL-L		2000	
24675-1	TLK 40W/10R	40.5	UVA Reflector Lamp	24	T12	Med. Bipin	2000	
26169-3	TL 60W/10R	62	UVA Reflector Lamp	48	T12	Med. Bipin	1000	15.8
26885-4	TL 80W/10R	80	UVA Reflector Lamp	60	T12	Med. Bipin	1000	20.5
24694-2	TL 100W/10R	100	UVA Reflector Lamp	70	T12	Med. Bipin	1000	26.0
25895-4	Actinic BL 6W/10	6	UVA Lamp	9	T5	Min. Bipin	10,000	1.4
21513-7	Actinic BL 8W/10	7.1	UVA Lamp	12	T5	Min. Bipin	5000	
21517-8	Actinic BL 30W/10	30	UVA Lamp	18	T8	Med. Bipin	2000	6.6
39153-2	Actinic BL 40W/10	39	UVA Lamp	48	T12	Med. Bipin	9000	10.0
21518-6	Actinic BL 15W/10 SECURA	15	UVA Lamp	18	T8	G13	8000	3.2
13036-9	Actinic BL TL-D 15W/10	15	UVA Lamp	18	T8	Med. Bipin	8000	3.5
28670-8	Actinic BL TL-D 18W/10	18	UVA Lamp	24	T8	G13	13,000	5.0
28671-6	MASTER Actinic BL TL-D 18W/10	18	UVA Lamp	24	T8	G13	13,000	5.1
28386-1	MASTER Actinic BL TL-D 15W/10	15.9	UVA Lamp	18	T8	G13	15,000	4.0
28578-3	MASTER Actinic BL TL-D 15W/10 Secura	15.5	UVA Lamp	18	T8	G13	15,000	3.15
28672-4	Actinic BL TL-DK 36W/10	36	UVA Lamp	24	T8	G13	9000	8.8

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

1) For graphic arts, lacquer curing and insect trap applications.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

Germicidal Sterilamp 254nm Lamps

Product Number	Description	Technical Lamp Watts(1)	UV-C Watts(2)(4)	Bulb	Base	Rated Avg. Life (Hrs.)*	Nom. Length (In.)	Volts
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Germicidal Sterilamp 254nm Lamps

Hot Cathode

36371-3	TUV 4T5	4.0	0.9	T5 ⁽³⁾	Min. Bipin	6000	6	
24485-5	TUV 6T5	6.0	1.7	T5 ⁽³⁾	Min. Bipin	9000	9	
29930-5	TUV 8T5	8.0	2.4	T5 ⁽³⁾	Min. Bipin	11,000	12 ⁽³⁾	
30864-3	TUV 15T8	15.9	4.9	T8	Med. Bipin	9000	18 ⁽³⁾	
11250-8	TUV 16T5	15.0	4.0	T5 ⁽³⁾	Med. Bipin	11,000	12	
13340-5	TUV 17T8	16.7	4.5	T8	Med. Bipin	9000	24 ⁽³⁾	
29268-0	TUV 25T8	25.5	7.0	T8	Med. Bipin	9000	18 ⁽³⁾	
36016-4	TUV 30T8	30.0	12.0	T8	Med. Bipin	9000	36 ⁽³⁾	
26269-1	TUV 36W	36.0	15.0	T8	Med. Bipin	9000	48 ⁽³⁾	
37634-3	TUV 55W HO	54.0	17.5	T8	Med. Bipin	9000	36 ⁽³⁾	
29090-8	TUV 75W HO	75.0	25.5	T8	Med. Bipin	9000	48 ⁽³⁾	

Amalgam XPT Lamps

24262-8	TUV 130W XPT	140	46.0 ⁽⁵⁾	T6	4PSE	12,000	33.15	67
24261-0	TUV 180W XPT	180	61.0 ⁽⁵⁾	T6	4PSE	12,000	40.63	90
24260-2	TUV 200W XPT	200	66.0 ⁽⁵⁾	T6	4PSE	12,000	45.16	94
24258-6	TUV 325W XPT HO	305	115.0 ⁽⁵⁾	T6	4PSE	12,000	62.28	160

Amalgam XPT Lamp Driver

24266-9	TUV 130W XPTdriver							
24264-4	TUV 200W XPTdriver							
24263-6	TUV 325W XPT HO driver							

Amalgam Dynapower Lamps

21256-3	TUV 230W XPT	240	78.0	T8	4-Pin	16,000		
15792-5	TUV 260W XPT DIM	220	93.0	T10	4-Pin	16,000		
30066-5	TUV 260W XPT DIM HO	240		T10	4-Pin	16,000		
21258-9	TUV 335W XPT	230	80.0	T10	4-Pin	16,000		
30064-0	TUV 335W XPT SE HO	315		T10	4-Pin	16,000		
30062-4	TUV 335W WP XPT SE HO	315		T10	4-Pin	16,000		

Dynapower Driver

27885-3	Philips Dynapower							
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* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

1) Wattages shown are for operation from a transformer or ballast, currently standard, under specified test conditions.

2) 100 Hour.

3) Approximate overall length including two standard lamp holders.

4) UVC 100 Hour on HF gear.

For the most current product information, go to the e-catalog on www.philips.com.



Specialty Lamps

Germicidal Sterilamp 254nm Lamps

Product Number	Description	Technical Lamp Watts(1)	UV-C Watts(2)(3)	Bulb	Base	Rated Avg. Life (Hrs.)*	Nom. Length (In.)	Volts
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Germicidal Sterilamp 254nm Lamps

Twin Tube PL-S / PL-L Hot Cathode

38186-3	PL-S 5W/TUV	5.5	1.0	PL-S	G23	9000	4	
32512-6	PL-S 9W/TUV	9.0	2.3	PL-S	G23	9000	6½	
21064-1	PL-L 18W/TUV	18.0	5.5	PL-L	2G11	9000	8 ¹⁵ / ₁₆	
13726-5	PL-L 35W/TUV	35.0	11.0	PL-L	2G11	9000	8 ¹⁵ / ₁₆	
26585-0	PL-L 36W/TUV	36.0	12.0	PL-L	2G11	9000	16 ⁷ / ₁₆	
29464-5	PL-L 55W/TUV	55.0	17.0	PL-L	2G11	9000	22½	
13035-1	PL-L 60W/TUV	65.0	19.0	PL-L	2G11	9000	16 ⁷ / ₁₆	
13725-7	PL-L 95W/TUV	90.0	27.0	PL-L	2G11	9000	22½	
28566-8	TUV PL-S 9W/4P	9.0	2.3	PL-S	2G7	9000	6 ³ / ₅	
28565-0	TUV PL-S 11W/2P	11.0	3.2	PL-S	G23	9000	9 ³ / ₁₀	
13502-0	TUV PL-S 13W/2P	13.0	3.4	PL-S	GX23	9000	7	
15127-1	TUV PL-L 24W/4P	24.0	7.1	PL-L	2G11	9000	12 ³ / ₅	

Product Number	Description	Technical Lamp Watts(1)	UV-C Watts(2)(3)	Bulb	Base	Rated Avg. Life (Hrs.)*	Nom. Length (In.)
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TUV T5

38542-7	TUV 11W 4P SE	11	2.6	T5	4-Pin	9000	10
38541-9	TUV 16W 4P SE	15	4.0	T5	4-Pin	9000	13
23061-5	TUV 20W 4P SE	20	6.0	T5	4-Pin	11,000	17
13341-3	TUV 25W 4P SE	23	8.0	T5	4-Pin	9000	20
29267-2	TUV 36T5 SP	40 ⁽⁴⁾	15.0	T5	Single Pin	9000	34
36209-5	TUV 36T5 4P SE	40 ⁽⁴⁾	15.0	T5	4-Pin	9000	34
13389-2	TUV 36T5 HO 4P SE	75	25.0	T5	4-Pin	9000	34
29269-8	TUV 64T5 SP	75	31.0	T5	Single Pin	9000	62
38303-4	TUV 64T5 4P SE IS	75	31.0	T5	4-Pin	9000	62
36217-8	TUV 64T5 4P SE	75	31.0	T5	4-Pin	9000	62
39200-1	TUV 64T5 HO 4P SE	145	48.0	T5	4-Pin	9000	62

* Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

1) Wattages shown are for operation from a transformer or ballast, currently standard, under specified test conditions.

2) 100 Hour.

3) UVC 100 Hour on HF gear.

4) Wattage shown is for lamp operating current of 420 ma. Wattage will vary at other operating currents as follows: 120 ma. — 17 watts; 200 ma. — 25 watts; 300 ma. — 32 watts.

For the most current product information, go to the e-catalog on www.philips.com.



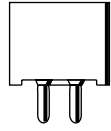
Base Types and Bulb Shapes (Not Actual Sizes)



PG22-6.35
DIN: 4975 I
iec: 7004-48



RX7s
DIN: 49750
IEC: 7004-92
ANSI: Recessed
single contact base
C81.61-1990
sheet I-770-1



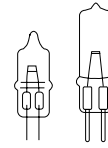
G5.3
IEC: 7004-73-2
ANSI: Miniature
2-pin
C81.61-1990
sheet I-20-1



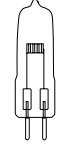
BA 15s
DIN: 49720
IEC: 7004-1 I A
ANSI: Single contact
candelabra
bayonet base
C81.61-1990
sheet I-20-1



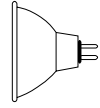
BA15d
DIN: 49720
IEC: 7004-1 I A
ANSI: Candelabra
bayonet base
double contact
C81.61-1990
sheet I-20-1



T-2.5
T-3
T-3.5
T-4
T-4.5



T-5
T-6



MR-11
MR-13
MR-16



B15d
DIN: 49721
IEC: 7004-1 I



B22d/22
IEC: 7004-10



G3.9
ANSI:
C81.61-1990
sheet I-300-1



G4
IEC: 7004-72



GX5.3
(Round pin)
IEC: 7004-73
ANSI:
C61.61-1990
sheet I-321-1



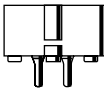
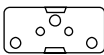
G6.35
GX6.35
GY6.35
IEC: 7004-59
ANSI: C81.61-1990
sheet I-340-1



GZ6.35
DIN: 49754
IEC: 7004-59A



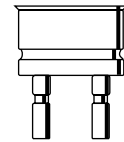
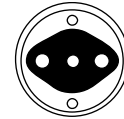
GZ4
IEC: 7004-67



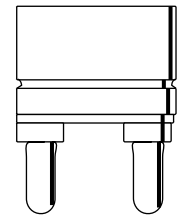
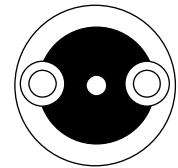
GX9.5
DIN: 49638
IEC: 7004-70A



GY9.5
IEC: 7004-70B
ANSI: C81.61-1990
sheet I-369-1

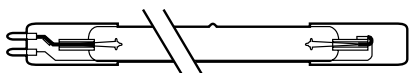


G22
IEC: 7004-75
ANSI: Medium
bipost
C81.61-1990
sheet I-466-1



G38
IEC: 7004-76
ANSI: Mogul
bipost
C81.61-1990
sheet I-519-1

XPT



Xtra



Specialty Lamps

Base Types and Bulb Shapes

Base Types and Bulb Shapes (Not Actual Sizes)



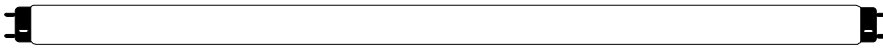
T12 Medium Bipin



T8 Medium Bipin



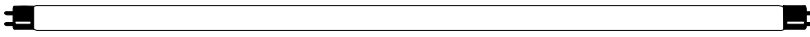
T5 Miniature Bipin



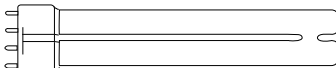
Hot Cathode Sterilamp



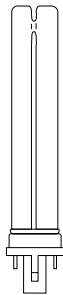
Cold Cathode and Slimline Sterilamp



Slimline Sterilamp

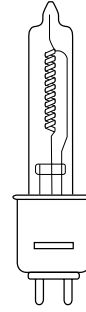


PL-L



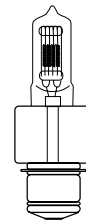
PL-S

Medium 2-Pin
Tungsten Halogen Lamps (G9.5)

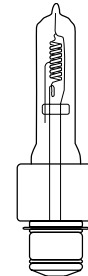


GLA

Medium Prefocus Lamps with 2³/₁₆" L.C.L. (P28s)
Medium Prefocus Lamps with 3¹/₂" L.C.L. (P28s)

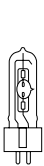


BTL

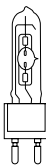


6800C
FKD

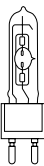
MSR Lamps
(Medium Source Rare Earth Lamps)



MSR
400



MSR
700

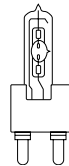


MSR 1200

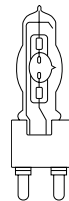
MSR/HR Lamps (Medium Source Rare
Earth Lamps Hot Restrike Version)



MSR
575/HR

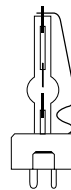


MSR
1200/HR



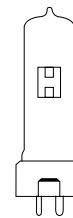
MSR
2500/HR

MSR Short
Arc Lamps



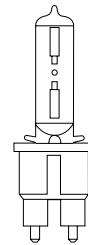
MSR
400W SA

MSD Lamps

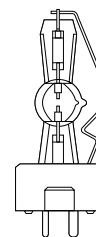


MSD
200W/2

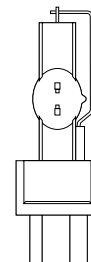
MHD Lamps



MHD
1800



MSR 400 SA/MSR
700 SA



MSR 1200 SA/MSR 2000
SA

Accent Lighting

Concentrated light on a subject which highlights it and causes it to stand out from its surrounding. Depending on degree of drama desired, accent light should minimally be 10x the general light or ambient light.

Accommodation

The involuntary muscular process by which the eye changes focus from one distance to another.

Adaptation

The involuntary process by which the visual system changes its sensitivity, depending on the ratios of luminance prevailing in the visual field. The process involves both the iris and the light sensitive cells of the retina.

AllnGaP

LED (Light Emitting Diode) chip chemistry/technology containing Aluminum, Indium, Gallium, and Phosphorus to produce red, orange and amber-colors.

ALTO Lamp Technology

Philips ALTO Lamp Technology is widely recognized as a leading low-mercury solution for fluorescent lighting. This technology uses capsule dosing to precisely control the amount of mercury in each ALTO lamp. Long-life ALTO lamps further reduce the need to replace lamps and, as a result, decrease the amount of mercury used over life of any lighting installation.

Ballast

The ballast is an electrical device that performs two basic functions: 1) provides the starting voltage and 2) limits the current to sustain lamp operation.

Ballast types for fluorescent lamps:

Instant Start: Instant start (IS) electronic ballasts are the most popular type of electronic ballast today because they provide maximum energy savings and they start lamps without delay or flashing. Since they do not provide lamp electrode heating, instant start ballasts consume less energy than comparable rapid start, program rapid start or programmed start ballasts. As a result, they provide the most energy efficient solution to fluorescent lamp ballasting. The instant start ballast uses 1.5 to 2 watts less energy per lamp than the rapid start alternative.

Instant-start electronic ballasts provide a high initial voltage (typically 600V for F32T8 lamps) to start the lamp. This high voltage is required to initiate discharge between the unheated electrodes of the lamp. However, the cold electrodes of lamps operated by an instant start ballast may deteriorate more quickly than the warmed electrodes of lamps operated by a rapid start, program rapid start or programmed start ballast. Lamps operated by instant start ballasts will typically withstand 10–15K

switch cycles. Instant start ballasts are typically wired in parallel. This means that if one lamp fails, the other lamps in the circuit will remain lighted.

Rapid Start: Rapid start (RS) ballasts have a separate set of windings which provide a low voltage (approx. 3.5 volts) to the electrodes for one second prior to lamp ignition. A starting voltage somewhat lower than that of instant ballast (typically 450–550V for F32T8 lamps) is applied, striking an electrical arc inside the lamp. Most rapid start electronic ballasts continue to heat the electrode even after the lamp has started, which results in a power loss of 1.5 to 2 watts per lamp. Lamps operated by a rapid start electronic ballast will typically withstand 15–20K switch cycles. Rapid start ballasts are typically wired in series. This means that if one lamp fails, all other lamps in the circuit will extinguish.

Programmed Start: Programmed start (PS) electronic ballasts provide maximum lamp life in frequent starting conditions (up to 50,000 starts). PS ballasts use a custom integrated circuit (IC) which monitors lamp and ballast conditions to ensure optimal system lighting performance. Like Program rapid start ballasts, PS ballasts also precisely heat the lamp cathodes. However, PS ballasts heat the lamp cathodes to 700°C prior to lamp ignition. This puts the least amount of stress on the lamp electrodes, resulting in maximum lamp life regardless of the number of lamp starts. Programmed start ballasts are typically wired in series.

Ballast types for HID lamps:

Reactor: Single coil, very efficient, but poor voltage regulation to the lamp.

Constant Wattage Autotransformer (CWA): Employing two coils, the ballast is less efficient than reactor types, but have better voltage regulation. Most popular type in use.

Magnetically Regulated (Mag Reg) or Regulated Lag (Reg Lag): Three coils make for very effective voltage regulation but also not very efficient.

Electronic: Allows for both high efficiency and the best voltage regulation.

Beam Angle

The beam angle defines the light pattern around the beam's central axis for which the luminous intensity is half that of the maximum luminous intensity.

Bin

In LEDs, the systematic dividing of distribution of performance parameters (Flux, Color or CCT, and Vf) in to smaller groups that meet aesthetic requirements of the assembly.

Binning

The separation of LEDs subsequent to a production run for full manufactured, distribution in terms of color, flux and forward voltage.

Candela (cd) (Luminous Intensity)

The base unit for light intensity. Intensity is the luminous flux emitted from a point per unit solid angle into a particular direction, regardless of distance. Candela is the unit of measure used to classify the directional qualities of light from a lamp or luminaires.

Candlepower (cp)

Outdated unit of measure for luminous intensity replaced by candela.

Chip

A very small square of semi-conducting material. Also known as a die, it is the active light-emitting component of an LED.

Color Rendering Index (CRI)

A method for describing the effect of a light source on the color appearance of objects, compared to a reference source of the same color temperature (CCT). The highest CRI attainable is 100. CRI is a rating of color fidelity (comparison) originally based on eight standardized color samples, later extended to fourteen colors. A higher CRI generally corresponds to a perceived richness, vibrance or saturation of color in an environment.

Color Temperature or Correlated Color Temperature (CCT)

The color temperature of a light emitter refers to the temperature to which one would have to heat a "blackbody" source (Planckian radiator) to produce light of similar overall appearance (whiteness) or chromaticity. A low color temperature implies warmer color (more yellow/red) light while high color temperature implies a cooler light (more blue). The standard unit for color temperature measurement is expressed in Kelvin (K).

Die (see Chip)

The active light-emitting component of an LED.

Diode

A two-electrode device with an anode and a cathode that passes current in only one direction. It may be designed as an electron tube or as a semiconductor device.

Driver

Electronics used to condition electricity to power illumination sources, particularly LEDs.

Field Angle

The field angle defines the light pattern around the beam's central axis for which the luminous intensity is 10% that of the maximum luminous intensity.

Additional Information

Glossary

Footcandle

The unit of measure for the density of light on a surface unique to the USA. One footcandle is equal to one lumen per square foot (lm/ft²). One footcandle = 10.764 lux.

General Lighting (Ambient Lighting)

Lighting designed to deliver a predominately uniform level of light throughout an area.

Glare

Glare is an interference with visual perception caused by an uncomfortably bright light source or reflection within one's field of view; a form of visual noise. In its simplest form, glare (unwanted light) is a consequence of the human eye to adapt to different light levels. In the case of glare, the eye adapts to the high level of the glare source, which makes it difficult to perceive details in the now too dark work area.

Direct Glare: Glare resulting from high luminances in the visual environment that are directly visible from a viewers position; such as an insufficiently shielded luminaire.

Reflected Glare or Veiling Reflection: A reflection of incident light that partially or totally obscures the details to be seen on a surface by reducing the contrast.

Discomfort Glare: Glare which is distracting or uncomfortable (subjective), which interferes with the perception of visual information, but which does not significantly reduce visual performance.

Disability Glare: The effect of light which significantly reduces visual performance and perception; such as car high beams in your direct view on a dark country road.

Illuminance

The total density of visible light—from all directions—illuminating, falling on or incident to, a surface. Standard units of measure for illuminance is Footcandle (fc) or Lux (lx) which is lumens per unit of area (lm/ft² or lm/m²). See [Footcandle](#).

InGaN

LED (Light Emitting Diode) chemistry/technology containing Indium, Gallium, and Nitrogen to produce green, blue LED light sources.

Initial vs. Mean Lumens

The measured luminous output of a new light source versus the output at 40% of lamp life.

Inverse Square Law

This law says that the measured flux density from a light source decreases along any line from the source. It falls off in proportion to the square of the relative distance traversed. Thus the illuminance measurement 2 feet from the light source will be 1/4 of the measurement 1 foot from the source—not 1/2.

Kelvin

Unit of measure for temperature. In lighting, Kelvin is the unit of measure for Color Temperature used to indicate the overall color appearance (whiteness) of the light produced from a source. See [Color Temperature](#).

Kilowatt Hour (kWh)

The measure of electrical energy from which electricity billing is determined. For example, at the rate of \$0.11 per kWh, a 100 watt lamp operating for 2000 hours will cost \$22.00 (100 x 2000/1000 = 200 kWh x .11 = \$22.00)

LED Driver

See 'Driver'

Light

Radiant energy that stimulates the sense of sight. The "visible" part of the electromagnetic spectrum from 380–760 nm. Light is the energy which enables us to see.

Light Emitting Diode (LED)

A solid-state semiconductor device that converts electrical energy directly into light. On its most basic level, the semiconductor is comprised of two regions. The p-region contains positive electrical charges while the n-region contains negative electrical charges. When voltage is applied and current begins to flow, the electrons move across the n region into the p region through a chemical layer. See [AlInGaP](#) and [InGaN](#). The process of an electron moving through the p-n junction releases energy. The dispersion of this energy produces photons with visible wavelengths.

Lumen (lm)

SI unit of luminous flux. Photometrically, it is the luminous flux emitted within a unit solid angle (steradian) by a point source having a uniform luminous intensity of 1 cd. A lumen in the unit of measure of light flow commonly used to classify the total light output of lamps and luminaires.

Luminaire (light fixture)

A complete lighting unit which consists of lamp(s), ballast/driver/transformer—if applicable—as well as mechanism for light distribution, lamp protection and alignment and connection to power.

Luminaire Efficacy

The ratio of luminous flux emitted by the fixture to that emitted by the lamp(s) within the fixture. Expressed as a percentage.

Luminance (The physical measure of brightness)

uminance is the amount of visible light leaving a point on a surface in a given direction. The light leaving the surface can be due to reflection, transmission and/or emission. Standard unit of luminance is candela per square meter (cd/m²).

Luminance classifies the light off a surface as a function of both reflectance and specularly of the surface.

Luminous Efficacy

The expression of lumens per watt (lpw or lm/w) often in reference to a source or system as a measure of efficiency in converting power (watts) into light (lumens).

Luminous Exitance

Refers to the total amount of visible light leaving a surface in all directions. Unit for luminous exitance is lumens per square area (lm/ft² or lm/m²) equal to illuminance (fc) x reflectance (p).

Packaged LED

Consists of the die, a lead frame, which houses the die, the encapsulation epoxy that protectively surrounds the die, and also disperses the light.

Parallel (LED)

Electrical condition where LEDs operate under the same voltage being provided by a driver.

Photocell

A transducer used to detect and measure light and other radiations.

Photometry

Photometry is the science of measuring visible light in units that are weighted according to the sensitivity of the human eye known as the Visual Wavelength (Vλ) factor. Photometric theory does not address how we perceive colors.

Radiometry

Radiometry is the science of quantifying the phenomena of electromagnetic radiation. In our context, we are interested in light, the limited range of electromagnetic radiation that is visible to the human eye, sometimes extended to the areas of infrared and ultraviolet.

Rated Average Life

The length of operation (in hours) at which point an average of 50% of a large sample of lamps will still be operational and 50% will not.

Series (LED)

Electrical condition where LEDs operate under the same current being provided by a driver.

Task Lighting

Lighting designed for a specific visible operation which requires higher light levels; most often characterized by proximity to that task.

Transformer

An electrical device by which alternating current of one voltage is changed to another voltage.

Additional Information

Technical Descriptions

Voltage

A measure of electromotive force or simply said, the pressure of electricity. This is analogous to pressure in a water line. In this catalog, voltage refers to supply voltage required by the lamp (incandescent) or operating voltage required by the arc tube (discharge lamps).

Watt

Unit used to measure electric power consumed by a lamp or any electrical device.

Lamp Listing Sequence

Lamps are listed in wattage sequence except for special groupings such as Street Lighting, Tungsten Halogen, High Intensity and Sili- cone Coated Lamps.

Ordering Code

The complete information shown in the ordering code column together with the voltage, if applicable, should be used when placing orders. In a number of instances a lamp type may be available in different kinds of packaging such as 2 or 4 lamp wrappers. Some small lamp types which are generally multiple packed on a platform with an overwrap are also packaged as a blister-carded item for the retail market. Each of these items is shown as a separate listing. To identify them, additional information is included with the ordering code. The following examples illustrate this:

Ordering Code	C-7T7/W 12/2
Pkg. Qty.*	12cds
Explanation	Carded pack—2 lamps per card. The number shown under “Pkg. Qty” is the number of cards per min. shipping case.
Ordering Code	60T/SW 12/4
Pkg. Qty.	48
Explanation	12-4 lamp wrappers = 48 lamps per min. shipping case.
Ordering Code	50/150T/WL/TP 96/1
Pkg. Qty.	96
Explanation	96-1 lamp wrappers = 96 lamps per min. shipping case.

* Quantity shown is minimum shipping container. Refer to Net Price Schedule for number of lamps required for qualification as a standard case.

Voltage

Lamps listed are available only in the voltage shown. Lamps listed in range voltages such as 115–125 or 230–250 are intended for use on circuits normally varying within these voltage limits and are designed for an average voltage suitable for operation on such circuits. Lamps intended for operation in range voltages have a design

volt center as follows, unless otherwise noted by a footnote:

Range Voltage	Design Voltage
115–125	120
120–125	120
120–130	125
125–130	130
230–250	240

Class of Lamp

Incandescent lamps are classified as type B or type C. The type B lamp is one in which the filament operates in a vacuum. The type C lamp is one in which the filament operates in an atmosphere of inert gas. For gas-filled lamps which can be operated in any position, the lumen maintenance is best when lamps are operated base up. For the vacuum type lamps which have no restrictions on operating position, the lumen maintenance is the same in all operating positions.

Lamp Dimensions

Bulb designations consist of a letter or letters to indicate shape and a number to indicate the approximate diameter in eighths of an inch.

Maximum Overall Length (MOL)

Maximum Overall Length is measured from the top of the bulb to bottom of the base.

Nominal Length

A measurement of fluorescent lamp length based on the length of the lamp plus the proper allowance for standard lamp holders.

Light Center Length (LCL)

Light Center Length is the distance from a reference point on a lamp base (usually the eyelet) to the center of the light source. For many lamps, it is the distance from the center of the filament or center of the arc to the point shown below for the base indicated.

All Screw Bases: Bottom base contact

Medium and Mogul Prefocus: Top of base pin

Medium Bipost: Bottom of bulb

Bayonet Candelabra and Medium Bayonet: Top of base pins

SC or DC Prefocus: Plane of locating bosses of prefocusing collar

Mini-Can: Intersection of 45° taper with max. diameter of base

to the plane of the filament, unless otherwise indicated.

SC or DC Prefocus Based Lamps

The plane containing the base axis and the major locking eyelet, which is the eyelet equidistant from the two other eyelets, will be at right angles to the plane of the filament or lead wires unless otherwise indicated. The letter (A) shown in the Base column after SC or DC Pref. based lamps indicates that the distance from the bottom of base contact or contacts to the bottom of the collar is .406". In the case of DC Pref. based lamps, the letter (A) also indicates that the plane containing the base axis and contacts is at right angles to the plane containing the base axis and the major locking eyelet.

Inches to Metric Conversion

To calculate the metric equivalent of inches in millimeters (mm) use the following formula: inches x 25.4001 = millimeters

Operating Position

Lamps may be operated in any position unless otherwise indicated.

Base Pin Position for Bayonet Candelabra-Based Lamps

When lamps are based with a bayonet candelabra base, the plane of the base pins will be approximately at right angles

Additional Information

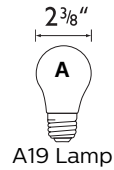
Measuring Lamps and Understanding Ordering Codes

Measuring Incandescent, Halogen, CFL and HID Lamps

Letters designate the shape of the glass bulb and numbers indicate the diameter of the bulb in eighths of an inch.

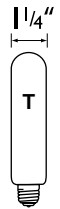
For example:

“A19” indicates a standard bulb having a diameter of $\frac{19}{8}$ or $2\frac{3}{8}$ inches.



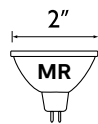
A19 Lamp

“T10” indicates a tubular shaped having a diameter of $\frac{10}{8}$ or $1\frac{1}{4}$ inches.



T10 Lamp

“MR16” indicates mini reflector having a diameter of $\frac{16}{8}$ or 2 inches.



MR16 Lamp
4 5/8"

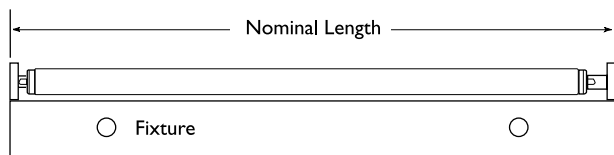
“ED37” indicates a large HID bulb having a diameter of $\frac{37}{8}$ or $4\frac{5}{8}$ inches.



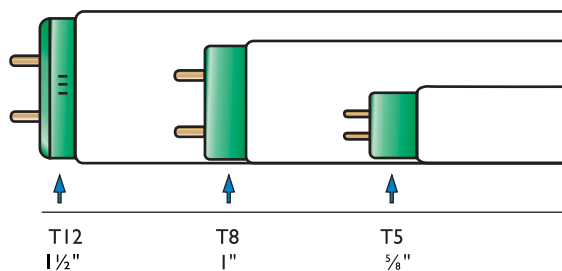
ED37 Lamp

Measuring Fluorescent Lamps

To determine the length of a fluorescent lamp, you do not measure the bulb. The Nominal Length of the bulb is the measurement from back of socket to back of socket on the fixture.



To determine the type of lamp you need, measure the endcap and use the illustration below as a guide.



Understanding Ordering Codes

Typical ordering codes can be understood with the examples below:

Incandescent ordering code: BC15BA9C/CL/LL

- BC = Blister Carded Package
- 15 = Lamp Wattage
- BA9 = Lamp Type
- C = Candelabra Base (Blank = Medium)
- CL = Clear (W = White, etc.)
- LL = Long Life (Blank = Standard)

Halogen ordering code: 45PAR38/HAL/SP10

- 45 = Lamp Wattage
- PAR38 = Lamp Type
- Hal = Halogen
- SP = Spot Lamp
- 10 = Beam Spread in Degrees

CFL ordering code: PL-C 13W/827/4P/ALTO

- PL-C = Lamp Type
- 13W = Lamp Wattage
- 827 = Lamp Color
- 4P = Base has 4-Pins
- ALTO = Low Mercury Content

Fluorescent ordering code: F32T8/ADV841/ALTO

- F = Fluorescent
- 32 = Nominal Lamp Wattage
- T8 = 1" Diameter Tube
- ADV = Advantage
- 841 = CRI of 80+ and Color Temp. of 4100K
- ALTO = Low Mercury Content

HID ordering code: MS320/C/U/PS

- MS = High Output Arc Tube
- 320 = Lamp Wattage
- C = Coated
- U = Universal Burning Position
- PS = Pulse Start



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Signify North America
Corporation
200 Franklin Square Drive
Somerset, NJ 08873
Tel. 855-486-2216

Signify Canada Ltd.
281 Hillmount Rd,
Markham, ON,
Canada L6C 2S3
Tel. 800-668-9008