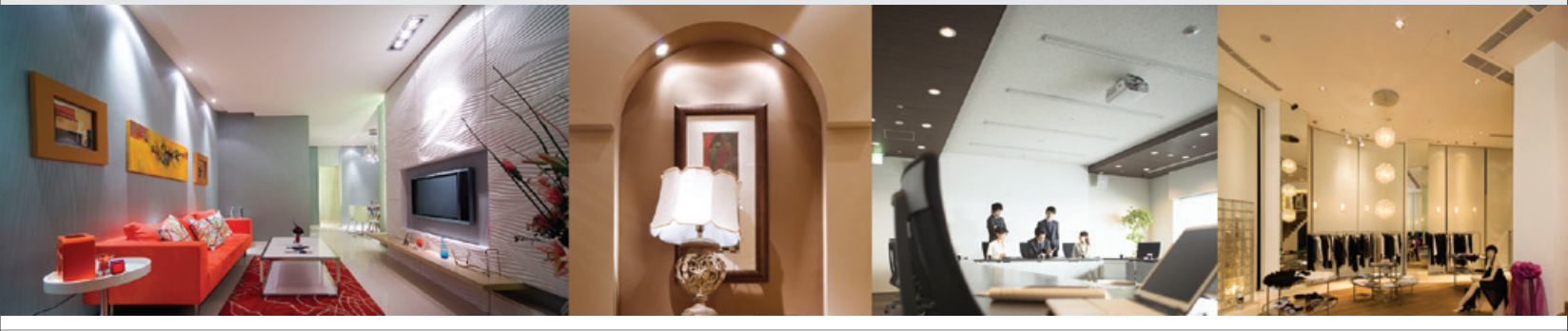
LED Lamps



Contents

how to read a table

Watts
Energy consumption during proper operation.

Base
The type of base.

Voltage
Indicates the product's design voltage of operation.

Equivalent to Incand.
The wattage that incandescent bulbs needed to produce the equivalent lumens.

Lumens
The lamp's average light output after the initial 100 hours of operation.

Spread
Type of lamp associated in relation to the beam angle.

Average Life
An average rating, in hours, indicating when 50% of a large group of lamps, operated at nominal lamp voltage and current, have failed.

CRI
An international system used to rate a lamp's ability to render object colors.

Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dia (in)	Approx Lumen (lm)	Beam Angle	Spread	Avg.Life (Hours)	Color Temp (K)	CRI	Manufacture Production Code
	High Lumen Output															
4	MR16	GU5.3	5530	LHO-MR16/4W1/SP/WW	12	10	25W	1.77	1.96	120	13°	Spot	40000	3000	82	E04016012301
			*5531	LHO-MR16/4W1/SP/CW	12	10	25W	1.77	1.96	130	13°	Spot	40000	4000	82	E04016012401
			5532	LHO-MR16/4W1/SP/NDL	12	10	25W	1.77	1.96	140	13°	Spot	40000	5000	82	E04016012501
			5508	LHO-MR16/4W1/NFL/WW	12	10	25W	1.77	1.96	120	22°	N. Flood	40000	3000	82	E04016012311
			*5533	LHO-MR16/4W1/NFL/CW	12	10	25W	1.77	1.96	130	22°	N. Flood	40000	4000	82	E04016012411
			5534	LHO-MR16/4W1/NFL/NDL	12	10	25W	1.77	1.96	140	22°	N. Flood	40000	5000	82	E04016012511
4.5	MR16	GU5.3	5548	LHO-4.5MR16/NFL/WW	12	10	35W	1.77	1.96	190	25°	N. Flood	40000	3000	85	E04516012301
			*5558	LHO-4.5MR16/NFL/CW	12	10	35W	1.77	1.96	210	25°	N. Flood	40000	4000	85	E04516012401
			5549	LHO-4.5MR16/NFL/NDL	12	10	35W	1.77	1.96	220	25°	N. Flood	40000	5000	85	E04516012501
		GU10	5551	LHO-4.5MR16/GU10/NFL/WW	120	10	25W	2.75	1.96	120	22°	N. Flood	40000	3000	82	E04510120302
		E26	5552	LHO-4.5MR16/E26/NFL/WW	120	10	25W	2.75	1.96	120	22°	N. Flood	40000	3000	82	E04526120302

Bulbs
Code for size and shape. Illustrations can be found on the bottom of each page and the beginning of each chapter.

Item
Use this code when placing an order.

Description
The lamp's identification code.

Case Qty.
Number of product units packed in a case.

MOL
Maximum overall length in inches.

Dia
Indicates maximum overall diameter in inches.

Beam Angle
The total angle of the directed beam to where the intensity of the beam falls to 50% of the maximum value.

Color Temp.
Light temperature measured in Kelvin. The higher the temperature, the cooler the appearance of the light, and vice versa.

Manufacture Production Code
Production code during the manufacturing process.

LED LAMPS

Why LED?

LED (Light Emitting Diode) is considered a technology breakthrough in current lighting revolution. LED bulbs use up to 90% less electricity than standard bulbs. They have an excellent even spectrum of light and have a lifespan beyond 30,000hrs. LED's provide us the most efficient way to save energy and conserve our natural resources. If LED's were implemented right now universally, we would not need to build another power plants. LED does not contain Mercury, UV, and Lead. They can be recycled as they do not contain hazardous substances and are manufactured without hazardous substances.
LED light bulbs emit much less heat than the incandescent bulbs. It is an excellent solution to minimize heat caused by lighting thus reducing the global warming. Having lower operating temperature also has immediate benefits in reducing cooling bills in the summer months where we are paying for our AC to cool our homes and offices.

LED Technology

LEDs differ from traditional light sources in the way they produce light. In an incandescent lamp, electric current heats a tungsten filament until it glows or emits light. In a fluorescent lamp, an electric arc excites mercury atoms, which emit ultraviolet (UV) radiation. After striking the phosphor coating on the inside of glass tubes, the UV radiation is converted and emitted as visible light.
An LED, in contrast, is a semiconductor diode. It consists of a chip of semiconducting material treated to create a structure called a p-n (positive-negative) junction. When connected to a power source, current flows from the p-side or anode to the n-side, or cathode, but not in the reverse direction. Charge-carriers (electrons and electron holes) flow into the junction from electrodes. When an electron meets a hole, it falls into a lower energy level, and release energy in the form of a photon (light).

Unique LED characteristics:

Directional light emission - directing light where it is needed.
Size advantage - can be very compact and low-profile.
Cool temperature operation - performance improves in the cold.
Instant on - require no "warm up" time.
Rapid cycling capability - lifetime not affected by frequent switching.
Controllability - compatible with electronic controls to change light levels and color characteristics.
No IR or UV emissions - LEDs intended for lighting do not emit infrared or ultraviolet radiation.
(Source: U.S. Department of Energy - Solid State Lighting)

Our LED bulbs, built based on the most advanced LED technology today, presents the best and the most obvious choice for the replacement of the incandescent/halogen light bulbs.
Eco-friendly
Energy efficient
Recyclable
Long life
Has no UV radiation
Do not produce hazardous waste.
LED creates the perfect lighting atmosphere, ideal as general lighting for home and commercial application.

For more information:
ENERGY STAR
Web site: www.energystar.gov
Phone: 1-888-STAR-YES (1-888-782-79370
US Department of Energy (DOE) - Solid-State Lighting (SSL)
Web site: www.ssl.energy.gov
Phone: 1-202-586-5000
American National Standards Institute (ANSI)
Web site: www.ansi.org
Phone: 1-202-293-8020
Lighting Facts
Web site: www.lightingfacts.com

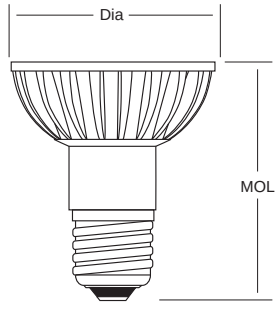
STANDARD LED LAMPS

- High efficacy
- Exceptional life
- Indoor and outdoor usage

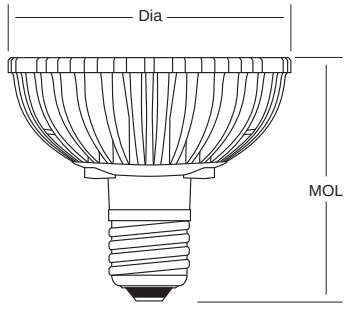
Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dimension Dia (in)	Approx Lumen (lm)	Beam Angle	Spread	Color Avg.Life (Hours)	Color Temp (K)	Color CRI	Manufacture Production Code
	Standard															
2	PAR20	E26	5503	LHO-PAR20/36/NFL/WW	120	10	10W	3.23	2.48	65	25°	N. Flood	50000	3300	80	E02772120302
			*5513	LHO-PAR20/36/NFL/CW	120	10	10W	3.23	2.48	72	25°	N. Flood	50000	6000	75	E02772120602
3	PAR30	E26	*5514	LHO-PAR30/70/FL/WW	120	10	15W	3.58	3.75	126	35°	Flood	50000	3300	80	E03773120302
			*5515	LHO-PAR30/70/FL/CW	120	10	15W	3.58	3.75	140	35°	Flood	50000	6000	75	E03773120602
	PAR30 LN	E26	5504	LHO-PAR30LN/70/FL/WW	120	10	15W	4.80	3.75	126	35°	Flood	50000	3300	80	E03773120312
			*5516	LHO-PAR30LN/70/FL/CW	120	10	15W	4.80	3.75	140	35°	Flood	50000	6000	75	E03773120612
6	PAR38	E26	5505	LHO-PAR38/120/FL/WW	120	10	35W	5.24	4.80	216	35°	Flood	50000	3300	80	E06778120302
			*5517	LHO-PAR38/120/FL/CW	120	10	35W	5.24	4.80	240	35°	Flood	50000	6000	75	E06778120602

* Items only available for special orders

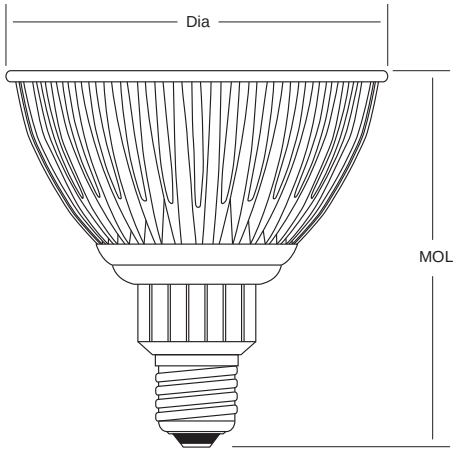
All measurements are shown in inches unless noted



PAR20
E26 Base



PAR30
E26 Base



PAR38
E26 Base

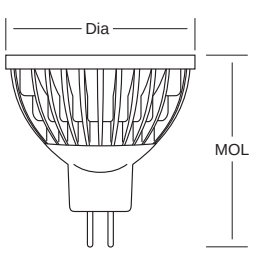
HIGH OUTPUT LED LAMPS

- High lumen maintenance • Exceptional life
- High CRI • Direct replacement
- High output • 12V and 120V operation

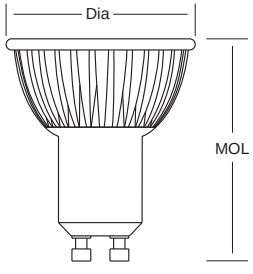
Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dimension Dia (in)	Approx Lumen (lm)	Beam Angle	Spread	Color Avg.Life (Hours)	Color Temp (K)	Color CRI	Manufacture Production Code
	High Lumen Output															
4	MR16	GU5.3	5530	LHO-MR16/4W1/SP/WW	12	10	25W	1.77	1.96	120	13°	Spot	40000	3000	82	E04016012301
			*5531	LHO-MR16/4W1/SP/CW	12	10	25W	1.77	1.96	130	13°	Spot	40000	4000	82	E04016012401
			5532	LHO-MR16/4W1/SP/NDL	12	10	25W	1.77	1.96	140	13°	Spot	40000	5000	82	E04016012501
			5508	LHO-MR16/4W1/NFL/WW	12	10	25W	1.77	1.96	120	22°	N. Flood	40000	3000	82	E04016012311
			*5533	LHO-MR16/4W1/NFL/CW	12	10	25W	1.77	1.96	130	22°	N. Flood	40000	4000	82	E04016012411
			5534	LHO-MR16/4W1/NFL/NDL	12	10	25W	1.77	1.96	140	22°	N. Flood	40000	5000	82	E04016012511
4.5	MR16	GU5.3	5548	LHO-4.5MR16/NFL/WW	12	10	35W	1.77	1.96	190	25°	N. Flood	40000	3000	85	E04516012301
			*5558	LHO-4.5MR16/NFL/CW	12	10	35W	1.77	1.96	210	25°	N. Flood	40000	4000	85	E04516012401
			5549	LHO-4.5MR16/NFL/NDL	12	10	35W	1.77	1.96	220	25°	N. Flood	40000	5000	85	E04516012501
		GU10	5551	LHO-4.5MR16/GU10/NFL/WW	120	10	25W	2.75	1.96	120	22°	N. Flood	40000	3000	82	E04510120302
		E26	5552	LHO-4.5MR16/E26/NFL/WW	120	10	25W	2.75	1.96	120	22°	N. Flood	40000	3000	82	E04526120302

* Items only available for special orders

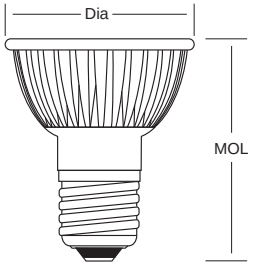
All measurements are shown in inches unless noted



MR16
GU5.3 Base



MR16
GU10 Base



MR16
E26 Base

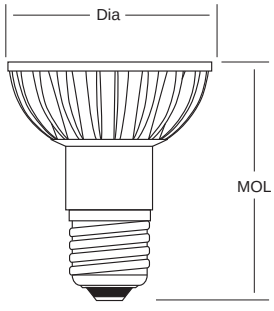
HIGH OUTPUT LED LAMPS

- High lumen maintenance • Exceptional life
- High CRI • Direct replacement
- High output • 120V operation

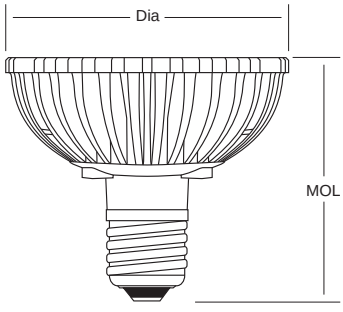
Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dia (in)	Approx Lumen (lm)	Beam Angle	Spread	Color Avg.Life (Hours)	Temp (K)	CRI	Manufacture Production Code
	High Lumen Output															
6	PAR20	E26	5510	LHO-PAR20/2W3/NFL/WW	120	10	35W	2.74	2.48	230	30°	N. Flood	50000	3300	80	E06772120302
			*5518	LHO-PAR20/2W3/NFL/CW	120	10	35W	2.74	2.48	270	30°	N. Flood	50000	6500	75	E06772120602
			5519	LHO-PAR20/2W3/FL/WW	120	10	35W	2.74	2.48	230	60°	Flood	50000	3300	80	E06772120312
			*5520	LHO-PAR20/2W3/FL/CW	120	10	35W	2.74	2.48	270	60°	Flood	50000	6500	75	E06772120612
7	PAR30	E26	5521	LHO-PAR30/1W7/NFL/WW	120	10	40W	3.19	3.74	420	30°	N. Flood	50000	3300	80	E07773120302
			*5522	LHO-PAR30/1W7/NFL/CW	120	10	40W	3.19	3.74	490	30°	N. Flood	50000	6500	75	E07773120602
			5511	LHO-PAR30/1W7/FL/WW	120	10	40W	3.19	3.74	420	60°	Flood	50000	3300	80	E07773120312
			*5523	LHO-PAR30/1W7/FL/CW	120	10	40W	3.19	3.74	490	60°	Flood	50000	6500	75	E07773120612
20	PAR38	E26	5524	LHO-PAR38/2W10/NFL/WW	120	10	65W	5.47	4.72	770	30°	N. Flood	50000	3300	80	E20778120302
			*5525	LHO-PAR38/2W10/NFL/CW	120	10	65W	5.47	4.72	900	30°	N. Flood	50000	6500	75	E20778120602
			5512	LHO-PAR38/2W10/FL/WW	120	10	65W	5.47	4.72	770	60°	Flood	50000	3300	80	E20778120312
			*5526	LHO-PAR38/2W10/FL/CW	120	10	65W	5.47	4.72	900	60°	Flood	50000	6500	75	E20778120612

* Items only available for special orders

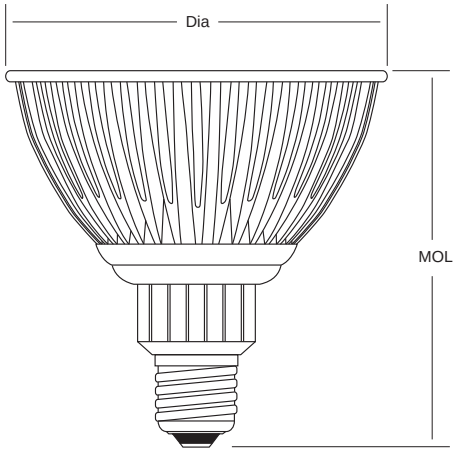
All measurements are shown in inches unless noted



PAR20
E26 Base



PAR30
E26 Base



PAR38
E26 Base

HIGH OUTPUT LED A19 DIMMABLE LAMPS

- Exceptional life • High lumen maintenance
- Work with most dimmers
- High CRI • Direct replacement

Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dimension Dia (in)	Approx Lumen (lm)	Avg.Life (Hours)	Color Temp (K)	CRI	Manufacture Production Code
	High Lumen Output													
7	A19	E26	*5573	LHO-7A19/DIM/27K	120	10	35W	4.23	2.28	310	40000	2700	85	E07019120202
			5550	LHO-7A19/DIM/WW	120	10	35W	4.23	2.28	310	40000	3000	85	E07019120302
			*5570	LHO-7A19/DIM/CW	120	10	35W	4.23	2.28	330	40000	4000	85	E07019120402
			5565	LHO-7A19/DIM/NDL	120	10	35W	4.23	2.28	350	40000	5000	85	E07019120502

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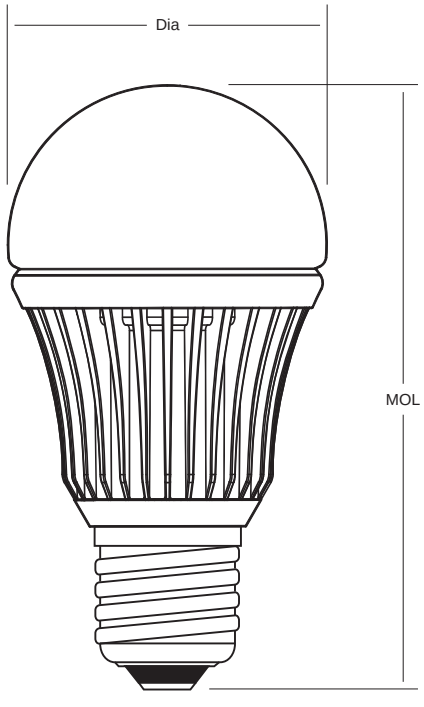
All measurements are shown in inches unless noted



A19
E26 Base

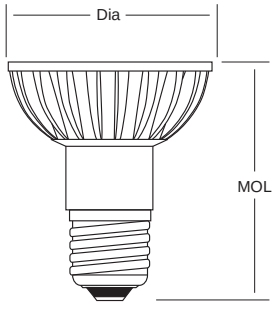
HIGH OUTPUT LED PAR DIMMABLE LAMPS

• Exceptional life • High lumen maintenance
• Work with most dimmers
• High CRI • Direct replacement

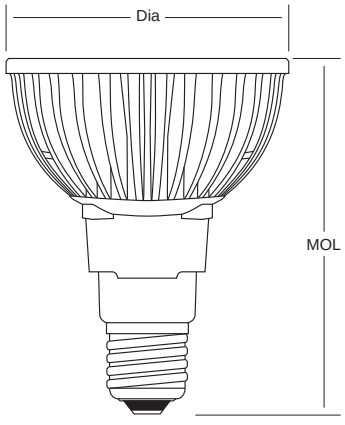
Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dia (in)	Approx Lumen (lm)	Beam Angle	Spread	Color Avg.Life (Hours)	Temp (K)	CRI	Manufacture Production Code
High Lumen Output																
8	PAR20	E26	5575	LHO-8PAR20/DIM/NFL/WW	120	10	50W	3.36	2.50	310	25°	N. Flood	40000	3000	85	E08772120302
			5576	LHO-8PAR20/DIM/NFL/CW	120	10	50W	3.36	2.50	325	25°	N. Flood	40000	4000	85	E08772120402
			5577	LHO-8PAR20/DIM/NFL/NDL	120	10	50W	3.36	2.50	325	25°	N. Flood	40000	5000	85	E08772120502
12	PAR30 LN	E26	*5566	LHO-12PAR30L/DIM/NFL/27K	120	10	60W	4.72	3.74	450	25°	N. Flood	40000	2700	82	E12773120202
			5553	LHO-12PAR30L/DIM/NFL/WW	120	10	60W	4.72	3.74	450	25°	N. Flood	40000	3000	82	E12773120302
			*5571	LHO-12PAR30L/DIM/NFL/CW	120	10	60W	4.72	3.74	495	25°	N. Flood	40000	4000	82	E12773120402
			5564	LHO-12PAR30L/DIM/NFL/NDL	120	10	60W	4.72	3.74	530	25°	N. Flood	40000	5000	82	E12773120502
			*5567	LHO-12PAR30L/DIM/FL/27K	120	10	60W	4.72	3.74	470	45°	Flood	40000	2700	82	E12773120212
			5554	LHO-12PAR30L/DIM/FL/WW	120	10	60W	4.72	3.74	470	45°	Flood	40000	3000	82	E12773120312
			*5572	LHO-12PAR30L/DIM/FL/CW	120	10	60W	4.72	3.74	510	45°	Flood	40000	4000	82	E12773120412
			5555	LHO-12PAR30L/DIM/FL/NDL	120	10	60W	4.72	3.74	540	45°	Flood	40000	5000	82	E12773120512

* Items only available for special orders

All measurements are shown in inches unless noted



PAR20
E26 Base



PAR30 LN
E26 Base

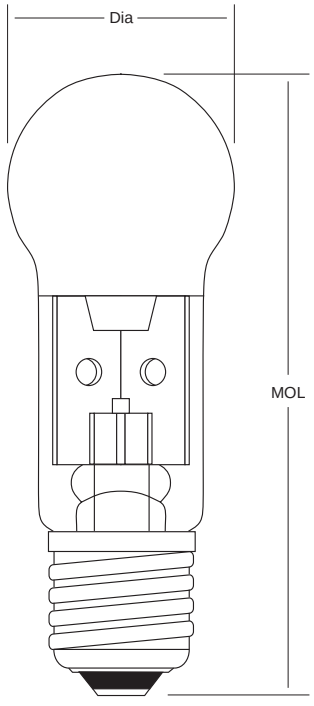
HIGH OUTPUT AC LED LAMPS

- High efficacy • Unique cooling system
- Advanced AC LED technology • Indoor and outdoor usage
- Contains non-toxic components

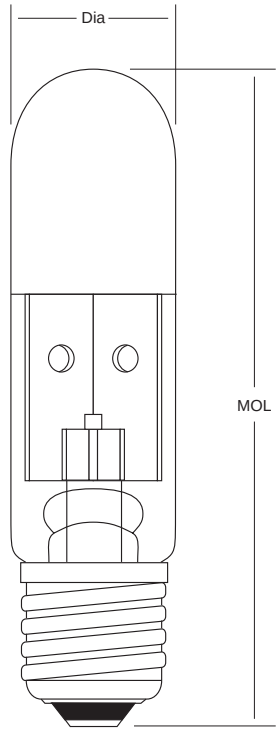
Watts	Bulb	Base	Item#	Description	Voltage (V)	Case Qty.	Equivalent to Incand.	Dimension MOL (in)	Dimension Dia (in)	Approx Lumen (lm)	Avg.Life (Hours)	Color Temp (K)	CRI	Manufacture Production Code
	High Lumen Output													
4	Liquid	E26	5546	LHO-4G12/WW	120	10	25W	4.20	1.60	190	30000	3300	75	E04012120302
			5547	LHO-4G12/CDL	120	10	25W	4.20	1.60	210	30000	6600	70	E04012120602
			5556	LHO-4T9/WW	120	10	25W	4.20	1.10	190	30000	3300	75	E04009120302
			5557	LHO-4T9/CDL	120	10	25W	4.20	1.10	210	30000	6600	70	E04009120602

* Items only available for special orders

All measurements are shown in inches unless noted



G12
E26 Base



T9
E26 Base