



# Protected spaces

Philips TuffGuard Coated Lamps

**PHILIPS**

sense and simplicity



# Protect your customers, employees, and reputation.

Coated lighting is essential to ensure the welfare of your customers, employees, and operation. Philips TuffGuard offers a portfolio of shatter resistant coated lamps to meet your lighting needs. The portfolio includes incandescent and fluorescent lamps. In case of accidental breakage, these coated lamps will effectively contain shattered glass particles.

## Coated lighting can help you meet federal protective lighting requirements.

Philips TuffGuard Coated Lamps are ideal for the following applications.

- Food Service/Food Processing
- Beverage Plants
- Textile Plants
- Medical Facilities
- Packaging Manufacturing
- Museums
- Schools & Colleges
- Waste-Water Plants
- Pharmaceutical Manufacturing

## Protective Lighting Regulations

Protective lighting may help you meet the following lighting requirements by the federal government in food processing and food services areas.

Government Agency	Code
FDA Food Code Chapter 6, (Physical Facilities) Section 202.11	Except as (otherwise specified in the section) light bulbs shall be shielded, coated, or otherwise shatter-resistant in areas where there is exposed food; clean equipment, utensils, and linens; or unwrapped single-service and single-use articles.
FDA Plant Construction and Design 21CFR110.20	Plants and facilities must provide safety-type light bulbs, fixtures, skylights, or other glass suspended over exposed food in any step of preparation or otherwise protect against food contamination in case of glass breakage.
OSHA 29CFR1910.305(a)(2)(iii)(F) Wiring methods components and equipment for general use	Lamps for general illumination shall be protected from accidental contact or breakage. Protection shall be provided by elevation of at least 7 feet from normal working surface or by a suitable fixture or lamp holder with a guard.

# Philips TuffGuard Incandescent Coated Lamps

Philips TuffGuard Incandescent Coated Lamps make it easy to protect your customers, employees, and facility by simply switching out a lamp. The easy to clean, non-stick coating will not yellow, crack or fade, and will minimize glass shattering in the event a lamp is dropped or accidentally broken. With a variety of shapes, sizes, and wattages, you can find the incandescent lamp that best suits your application.



## Philips TuffGuard Incandescent Coated Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Watts	Volts	Pkg Qty	Bulb	Base	Rated Avg Life (Hrs.) <sup>†</sup>	Symbol/ Footnote	Availability
20178-0	25A/IF/TG 130V 24/2	25	130	24/2	A-19	Medium	2500	7	Made to Order
20179-8	25T10/TG 120/130V 24/1	25	120	24	T-10	Medium	1000	7	Made to Order
20181-4	30R20/TG 120V 12/1	30	120	12	R-20	Medium	2000	5, 7	Made to Order
20182-2	40A15/TG 120/130V 120/1	40	120	120	A-15	Medium	1000	7	Made to Order
20183-0	40A/CL/TG 120/130V 48/1	40	120	48	A-19	Medium	1500	7	Made to Order
20184-8	40T10/TG 120/130V 24/1	40	120	24	T-10	Medium	1000	7	Stocked
20187-1*	50R20/TG 120V 12/1	50	120	12	R-20	Medium	2000	5, 7	Made to Order
20188-9	60A19/35/TG 120V 48/1	60	120	48	A-19	Medium	3500		Made to Order
15925-1	60A/35/TG 130V 48/1	60	120	48	A-19	Medium	3500		Made to Order
20190-5	65BR30/FL55/TG 120V 12/1	65	120	12	BR-30	Medium	2000	5, 7	Made to Order
20191-3	65BR30/FL55/TG 130V 12/1	65	130	12	BR-30	Medium	2000	5, 7	Made to Order
20195-4	75A/TG 120V 48/1	75	120	48	A-19	Medium	750	7	Made to Order
15933-5	75A/TG 130V 48/1	75	120	48	A-19	Medium	750	7	Stocked
20018-8	75A/RH/TG 120/130V 12/1	75	120	12	A-21	Medium	1000	7	Stocked
15934-3	100A/TG 130V 48/1	100	130	48	A-19	Medium	750	7	Stocked
15927-7	100A/RS/VS/BR/TG 120/130V 60/1	100	120	60	A-21	Medium	1000		Stocked
15923-6	100PAR/1/CL/TG 130V 12/1	100	130	12	BR-38	Medium	2000	1, 2, 3	Stocked
20197-0	100A21/TG 120/130V 120/1	100	120	120	A-21	Medium	750	7	Made to Order
20198-8	100A21/99/TG 120/130V 60/1	100	120	60	A-21	Medium	2500	7	Made to Order
20199-6*	120BR/FL60/TG 130V 24/1	120	130	24	BR-40	Medium	2000	5, 7	Stocked
20200-2*	120BR/FL60/TG 120V 24/1	120	120	24	BR-40	Medium	2000	5, 7	Made to Order
15930-1*	125BR40/1/TG 120V 4/1	125	120	4	BR-40	Medium	5000	4, 5, 6	Stocked
15931-9	150A/35/RS/BR/TG 120/130V 60/1	150	120	60	A-21	Medium	3500		Stocked
20203-6*	150BR38/FL/TG 130V 6/1	150	130	6	BR-38	Medium	2000	1, 2, 3	Stocked
20204-4	200A/99/TG A23 120/130 60/1	200	120	60	A-23	Medium	2500	7	Made to Order
20472-7	200PS30/RS/IF/TG	200	120-130	60	PS-30	Medium	1000	7	Made to Order
15932-7	250R40/HR/TG 120V 4/1	250	120	4	R-40	Medium	5000	4, 5, 6	Stocked
20205-1	250BR40/1/TG 120V 4/1	250	120	4	BR-40	Medium	5000	4, 5	Stocked
20206-9	300M/99IF PS25 120V 60/1	300	120	60	PS-25	Medium	2500	7	Made to Order
20207-7	300M/PS30/IF/TG 120/130V 60/1	300	120	60	PS-30	Medium	750	7	Stocked
20474-3	300/IF/TG	300	120-130	12	PS-35	Mogul	1000	7	Made to Order

<sup>†</sup> 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.

\* Orders will be shipped until inventory is depleted; no longer manufactured.

### INSTRUCTIONS AND WARNINGS:

- Should not be used in equipment where the base temperature will exceed 500°F.
- Light output is maintained best when operated within 45° of vertically base up.
- The bulb, though made of heat resistant glass, may break if moisture falls on it. Not recommended for use in enclosed, close fitting housings.
- Average laboratory life in excess of 5000 hours. In-service life depends upon service conditions.
- 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.
- 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.
7. Aluminum Base.

### WARNINGS:

- Coating can withstand bulb-wall temperatures of up to 500°F.
- Lamps should not be used in enclosed fixtures or fixtures that do not allow heat dissipation.
- Lamps must be installed and operating in ambient temperature below 150°F.
- Under extreme conditions glass fragments may escape the coating.

Made to order requires 3 week lead time  
(No product returns on made to order lamps)

# Philips TuffGuard High Intensity Discharge Lamps

## Ceramic Metal Halide Lamps



### Philips TuffGuard High Intensity Discharge—Energy Advantage CDM with AllStart Technology Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Nom. Watts	Volts	Pkg Qty	Bulb	Base	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	Availability
40863-3	CDM205/U/O/4k TG	205	125	12	ED-28	Mogul	20,000	19,500	Stocked
40885-6	CDM205/C/U/O/4k TG	205	125	12	ED-28	Mogul	20,000	18,000	Stocked
40864-1	CDM330/U/O/4k TG	330	125	6	ED-37	Mogul	20,000	33,000	Stocked
40884-9	CDM330/C/U/O/4k TG	330	125	6	ED-37	Mogul	20,000	31,000	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.  
2) Protective coating may reduce actual lumens by up to 5%.

#### WARNINGS:

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
  - 1) Lamp must be installed and operated in ambient temperature below 150°F.
  - 2) Lamp is not used in fixture that does not allow heat dissipation.
- UV radiation emitted from metal halide lamps may deteriorate the coating over time.

- THE COATING IS NOT DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE.
- Under extreme conditions glass fragments may escape the coating.
- Only protective shrouded lamps are resistant to metal halide non-passive failure.
- Lamps must be burned based up only.

### WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Energy Advantage CDM with AllStart Technology

**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:21 CFR 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. 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 envelope is struck.**

**WARNING:** The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**These lamps are designed to retain all the glass particles should an arc tube rupture occur. The following operating instructions are recommended to minimize these occurrences.**

#### 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. This lamp contains an arc tube with a filling gas containing less than 65 nCi of KR-85, and is distributed by Philips Lighting Company, a division of Philips Electronics North America Corporation, Somerset, New Jersey, 08875.**

**CAUTION:** TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING **LAMP OPERATING INSTRUCTIONS** MUST BE FOLLOWED:

#### LAMP OPERATING INSTRUCTIONS:

1. 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.
2. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.

3. 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. 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.
  - D. All Pulse Start mogul based lamps require a socket rated to withstand a 4,000 volt pulse.
4. Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.
5. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
6. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
7. 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.
8. Lamps may require 10 to 15 minutes to re-light if there is a power interruption. Less than 10 minutes on pulse start ballasts.
9. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.

# Philips TuffGuard High Intensity Discharge Lamps

## Metal Halide Lamps



### Philips TuffGuard High Intensity Discharge—Metal Halide Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Nom. Watts	Volts	Pkg Qty	Bulb	Base	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	Availability
20211-9	MH175/U 12PK TG	175	132	12	ED-28	Mogul	10,000	14,700	Made to Order
20212-7	MH250/U 12PK TG	250	133	12	ED-28	Mogul	10,000	21,250	Made to Order
21147-4	MS360/BU/EW 6PK TG	360	120	6	ED-37	Mogul	20,000	36,000	Made to Order
20213-5	MH400/U 6PK TG	400	135	6	ED-37	Mogul	20,000	36,000	Made to Order

- 1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.  
 2) Protective coating may reduce actual lumens by up to 5%.

**Made to order requires 3 week lead time  
(No product returns on made to order lamps)**

**WARNINGS:**

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
  - Lamp must be installed and operated in ambient temperature below 150°F.
  - Lamp is not used in fixture that does not allow heat dissipation.
- UV radiation emitted from metal halide lamps may deteriorate the coating over time.

- THE COATING IS NOT DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE.
- Under extreme conditions glass fragments may escape the coating.
- Only protective shrouded lamps are resistant to metal halide non-passive failure.

**WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Standard Metal Halide Lamps  
(Enclosed Fixtures Only Unless Otherwise Noted)**

**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. 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 envelope is struck.**

**WARNING:** The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**Certain lamps that will retain all the glass particles should inner arc-tube rupture occur are commercially available from Philips Lighting Company.**

**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.**

**CAUTION:** TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED:

**LAMP OPERATING INSTRUCTIONS:**

- Turn off lamps at least once a week for at least 15 minutes in systems which are operating on a continuous basis (24 hours/day-7days/week). FAILURE TO TURN OFF LAMPS FOR THE MINIMUM RECOMMENDED TIME MAY INCREASE THE POSSIBILITY OF AN INNER ARC-TUBE RUPTURE.
- 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.
- Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
- Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
  - Operate lamp only within specified limits of operation.
  - For total supply load refer to ballast manufacturers electrical data.
- Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.

- If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
- Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
- 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.
- Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
- Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
- Do not use this lamp:
  - In a fixture that contains a Pulse Start metal halide ballast.
  - 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. If such a rupture were to happen, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

# Philips TuffGuard High Intensity Discharge Lamps

## Protected Metal Halide “O” Rated Lamps

Philips TuffGuard High Intensity Discharge Coated lamps are available as “O” rated lamps, for operation in open fixtures. Their protective quartz shroud provides an extra level of security. However, these lamps may not contain glass in the event of an arc-tube rupture.



## Philips TuffGuard High Intensity Discharge—Protected Metal Halide “O” Rated Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Nom. Watts	Volts	Pkg Qty	Bulb	Base	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	Availability
20214-3	MP175/BU 12PK TG	175	132	12	ED-28	Mogul	10,000	15,000	Made to Order
20215-0	MP250/BU 12PK TG	250	133	12	ED-28	Mogul	10,000	22,000	Made to Order
21148-2	MP360/BU/EV 6PK TG	360	120	6	ED-37	Mogul	20,000	34,200	Made to Order
20216-8	MP400/BU 6PK TG	400	135	6	ED-37	Mogul	20,000	38,000	Made to Order

- 1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.  
2) Protective coating may reduce actual lumens by up to 5%.

Made to order requires 3 week lead time  
(No product returns on made to order lamps)

### WARNINGS:

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
  - 1) Lamp must be installed and operated in ambient temperature below 150°F.
  - 2) Lamp is not used in fixture that does not allow heat dissipation.
- UV radiation emitted from metal halide lamps may deteriorate the coating over time.

- THE COATING IS NOT DESIGNED TO CONTAIN AN ARC-TUBE RUPTURE.
- Under extreme conditions glass fragments may escape the coating.
- Only protective shrouded lamps are resistant to metal halide non-passive failure.
- Lamps must be burned based up only.

## WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for Protected Metal Halide Lamps

(Base Up Operation ± 15° Unless Noted; Open or Enclosed Fixtures)

**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: 21 CFR 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. 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 envelope is struck.**

**WARNING:** The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

**These lamps are designed to retain all the glass particles should an arc tube rupture occur. The following operating instructions are recommended to minimize these occurrences. 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.**

**CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED:**

### LAMP OPERATING INSTRUCTIONS:

1. 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.
2. Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
3. 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.
4. Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.
5. If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.

6. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
7. 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.
8. Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
9. Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
- 10 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. If such a rupture were to happen, THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**



# Philips Energy Saver TuffGuard Compact Fluorescent Lamps<sup>†</sup>

## Compact Fluorescent Lamps

The Philips Energy Saver TuffGuard Compact Fluorescent lamps is an energy saving replacement for incandescent bulbs. The shatter resistant cover contains glass fragments in the event a lamp is dropped or accidentally broken. This lamp is UL approved for use in food processing applications and saves up to \$57 over the life of the lamp when you replace a 75W A19 incandescent lamp with an 18W energy saving TuffGuard lamp.\*

### Sustainable lighting solution

Philips TuffGuard Fluorescent lamps reduce the impact on the environment with low mercury, energy efficiency, and long life.

Increasingly, organizations are seeking sustainable designs in their facilities.

Sustainability is defined “as meeting the needs of the present generation without compromising the ability of future generations to meet their needs.”

The Philips Sustainability Policy is a core element for the operations of the entire Philips organization and influences the design, manufacture and distribution of its products worldwide.

Visit [www.philips.com](http://www.philips.com) for more information on Philips and sustainability.

## Philips Energy Saver TuffGuard Compact Fluorescent Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Volts	Nom. Watts	Approx. Incan. Equiv.	Base	Color Temp.	CRI	Approx. Initial Lumens <sup>1</sup>	MOL (In.)	Diam. (In.)	Rated Avg. Life (Hrs.) <sup>2</sup>	Min. Starting Temp. <sup>3</sup>	Max. Ambient Temp. <sup>3</sup>	Availability
13578-0	EL/O 18W	120	18	75T20	Med.	2700	82	1100	6	2 <sup>3</sup> / <sub>5</sub>	10,000	-4°F/-20°C	122°F/50°C	Stocked

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

2) Rated average life is the life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Use in recessed cans or enclosed fixtures could result in reduced lamp life.

3) The minimum and maximum starting temperatures are the temperatures at which the lamp will reliably start.

\* Energy savings based on wattage saved x replacement lamp rated average life (10000 hours) / 1000 x 0.10 kWh rate.

### WARNINGS & CAUTIONS:

Do not use with dimmers or with emergency exit fixtures or lights. Some electronic timer and photosensor switches contain dimming circuitry, so before using such a switch, check with its manufacturer to ensure compatibility with electronic CFL bulbs. Outdoor use requires a weather-protected fixture. Use in recessed cans or enclosed fixtures may reduce lamp life. Turn off power before changing bulb. This device complies with Part 18 of the FCC Rules.

**Note:** This product may cause interference with radios, televisions, telephones, or remote controls. If interference occurs, move this product away from device or plug into another outlet.

<sup>†</sup> Energy Star<sup>®</sup> Bulb: As an Energy Star Partner<sup>®</sup>, Philips has determined that this product meets the Energy Star<sup>®</sup> guidelines for energy efficiency.



# Philips TuffGuard Fluorescent Coated Lamps

## T5, T8, and T12 Linear Fluorescents

When you select a Philips TuffGuard Fluorescent lamp with ALTO or ALTO II lamp technology, you are reducing the impact on the environment, while the coating helps to protect your customers, employees, and reputation. Philips TuffGuard fluorescent lamps meet sustainability requirements because they reduce the impact on the environment with low mercury, energy efficiency and long life. The patented green endcaps mean you're using ALTO low-mercury technology. The 16 mils thick coating on TuffGuard fluorescent lamps forms a protective seal from end to end and is guaranteed to last the rated average life of the lamp under specific conditions.



**In 2007, Philips introduced ALTO II Technology.** These lamps have 50% less mercury than the original ALTO, making them the most sustainable linear fluorescent lamps available. Best of all, these lamps offer the same superior performance levels as before. That means you don't have to sacrifice lamp life, light quality, or energy to help your company be more sustainable.

### Philips TuffGuard T5 Fluorescent Coated Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Ordering Code	Watts	Pkg Qty	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	CRI	Availability
16691-8	F8T5/CW PH TG	8	25	4100	12	10,000	400	62	Made to Order
16757-7	F13T5/CW PH TG	13	25	4100	21	10,000	820	62	Made to Order
• 16690-0	F14T5/830/ALTO TG	14	40	3000	22	35,000	1350	85	Made to Order
• 16726-2	F14T5/841/ALTO TG	14	40	4100	22	35,000	1350	85	Made to Order
• 16455-8	F21T5/830/ALTO TG	21	40	3000	34	35,000	2100	85	Stocked
• 16856-7	F21T5/835/ALTO TG	21	40	3500	34	35,000	2100	85	Made to Order
• 16669-4	F21T5/841/ALTO TG	21	40	4100	34	35,000	2100	85	Made to Order
• 16913-6	F24T5/835/HO/ALTO TG*	24	40	3500	22	35,000	2000	85	Made to Order
• 41377-3	F28T5/835/EA/ALTO 25W TG	25	40	3500	46	25000	2900	85	Made to Order
• 41378-1	F28T5/841/EA/ALTO 25W TG	25	40	4100	46	25000	2900	85	Made to Order
• 16775-9	F28T5/830/ALTO TG	28	40	3000	46	35,000	2900	85	Made to Order
• 16417-8	F28T5/835/ALTO TG	28	40	3000	46	35,000	2900	85	Stocked
• 16674-4	F28T5/841/ALTO TG	28	40	4100	46	35,000	2900	85	Stocked
• 16733-8	F35T5/841/ALTO TG	35	40	4100	58	35,000	3650	85	Made to Order
16960-7	F54T5/835/HO/EA/ALTO 49W TG	49	40	3000	46	35,000	5000	85	Stocked
16961-5	F54T5/841/HO/EA/ALTO 49W TG	49	40	3500	46	35,000	5000	85	Stocked
16967-2	F54T5/830/HO/EA/ALTO 49W TG	49	40	4100	46	35,000	5000	85	Stocked
40900-3	F54T5/850/HO/EA/ALTO 49W TG	49	40	5000	46	35,000	4850	82	Stocked
41055-5	F54T5/835/A/EA/ALTO 49W TG	49	40	3000	46	35,000	5000	85	Stocked
41056-3	F54T5/841/A/EA/ALTO 49W TG	49	40	3500	46	35,000	5000	85	Stocked
41057-1	F54T5/850/A/EA/ALTO 49W TG	49	40	4100	46	35,000	4850	82	Stocked
• 16861-7	F54T5/830/HO/ALTO TG*	54	40	3000	46	35,000	5000	85	Made to Order
• 16672-8	F54T5/835/HO/ALTO TG*	54	40	3500	46	35,000	5000	85	Stocked
• 16298-2	F54T5/841/HO/ALTO TG*	54	40	4100	46	35,000	5000	85	Stocked
• 16686-8	F54T5/850/HO/ALTO TG*	54	40	5000	46	35,000	5000	85	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours on a Programmed Start ballast.

2) 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. Protective coating may reduce initial lumens by 1–2%.

• This product utilizes ALTO Lamp Technology.

\* All HO lamps recommended for use only in open fixtures.

#### WARNING:

Coating will not yellow, crack, or otherwise fail, subject to the following conditions:

- The lamps must be installed and operating in ambient temperatures below 120°F.
- The lamps cannot be used in fixtures employing defective ballasts, ballasts that have been used longer than their rated life or ballasts that are improperly wired.
- The lamps cannot be used in fixtures where poor pin contact occurs.
- Lamp types and ballast types must be compatible (Rapid start lamps with rapid start ballast, etc.).
- Lamps are recommended for open fixtures.

Made to order requires 3 week lead time  
(No product returns on made to order lamps)



† 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.





## Philips TuffGuard T8 Fluorescent Coated Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Ordering Code	Watts	Pkg Qty	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	CRI	Availability
41312-1	F15T8/CW TG	15	25	4100	18	10,000	870	62	Stocked
41316-1	F17T8/TL830/PLUS/ALTO TG	17	25	3000	48	36,000	1400	85	Stocked
16731-2	F17T8/TL835/ALTO TG	17	25	3500	24	30,000	1400	85	Made to Order
16898-9	F17T8/TL841/ALTO TG	17	25	4100	24	30,000	1400	85	Made to Order
16316-2	F25T8/TL830/PLUS/ALTO TG	25	25	3000	36	36,000	2225	85	Stocked
16306-3	F25T8/TL835/PLUS/ALTO TG	25	25	3500	36	36,000	2225	85	Stocked
16305-5	F25T8/TL841/PLUS/ALTO TG	25	25	4100	36	36,000	2225	85	Stocked
16670-2	F25T8/TL835/ALTO TG	25	25	3500	36	30,000	2225	85	Made to Order
16787-4	F25T8/TL841/ALTO TG	25	25	4100	36	30,000	2225	85	Made to Order
16975-5	F32T8/ADV841/XLL/ALTO TG 25W	25	25	4100	48	40,000	2400	85	Stocked
16294-1	F32T8/ADV835/XEW/ALTO TG 25W	25	25	3500	48	36,000	2500	85	Stocked
16293-3	F32T8/ADV841/XEW/ALTO TG 25W	25	25	4100	48	36,000	2500	85	Stocked
16966-4	F32T8/ADV830/EW/ALTO 28W TG	28	25	3000	48	36,000	2725	85	Stocked
16958-1	F32T8/ADV835/EW/ALTO 28W TG	28	25	3500	48	36,000	2725	85	Stocked
16959-9	F32T8/ADV841/EW/ALTO 28W TG	28	25	4100	48	36,000	2725	85	Stocked
16965-6	F32T8/ADV850/EW/ALTO 28W TG	28	25	5000	48	36,000	2675	85	Stocked
16863-3	F32T8/ADV830/ALTO TG	32	25	3000	48	30,000	3150	85	Made to Order
16502-7	F32T8/ADV850/ALTO TG	32	25	5000	48	30,000	3050	85	Made to Order
16682-7	F32T8/ADV850/XEW/ALTO TG	32	25	5000	48	30,000	2425	85	Made to Order
16894-8	F32T8/TL950 TG	32	25	5000	48	30,000	2000	98	Made to Order
16508-4	F32T8/TL730/ALTO TG	32	25	3000	48	30,000	2800	78	Made to Order
20428-9	F32T8/TL735/ALTO TG	32	25	3500	48	30,000	2800	78	Stocked
16484-8	F32T8/TL741/ALTO TG	32	25	4100	48	30,000	2800	78	Stocked
16619-9	F32T8/TL750/ALTO TG	32	25	5000	48	30,000	2700	78	Made to Order
16541-5	F32T8/TL830/ALTO TG	32	25	3000	48	30,000	2950	85	Stocked
16488-9	F32T8/TL835/ALTO TG	32	25	3500	48	30,000	2950	85	Stocked
16487-1	F32T8/TL841/ALTO TG	32	25	4100	48	30,000	2950	85	Made to Order
16503-5	F32T8/TL850/ALTO TG	32	25	5000	48	30,000	2850	85	Made to Order
16791-6	F32T8/TL865/PLUS/ALTO TG	32	25	6500	48	36,000	2750	85	Made to Order
16308-9	F32T8/ADV841/ALTO TG	32	25	4100	48	30,000	3150	85	Stocked
16246-1	F32T8/TL730/PLUS/ALTO TG	32	25	3000	48	36,000	2800	78	Stocked
16239-6	F32T8/TL735/PLUS/ALTO TG	32	25	3500	48	36,000	2800	78	Stocked
16078-8	F32T8/TL741/PLUS/ALTO TG	32	25	4100	48	36,000	2800	78	Stocked
16318-8	F32T8/TL750/PLUS/ALTO TG	32	25	5000	48	36,000	2700	78	Stocked
16275-0	F32T8/TL830/PLUS/ALTO TG	32	25	3000	48	36,000	2950	85	Stocked
16238-8	F32T8/TL835/PLUS/ALTO TG	32	25	3500	48	36,000	2950	85	Stocked
16295-8	F32T8/TL841/XLL/ALTO TG	32	25	4100	48	40,000	2950	85	Stocked
16274-3	F32T8/TL841/PLUS/ALTO TG	32	25	4100	48	36,000	2950	85	Stocked
16292-5	F32T8/TL850/PLUS/ALTO TG	32	25	5000	48	36,000	2850	85	Stocked
16323-8	F40T8/TL835/ALTO TG	40	25	3500	60	36,000	3775	85	Stocked
16439-2	F40T8/TL841/ALTO TG	40	25	4100	60	36,000	3775	85	Stocked
40905-2	F48T8/TL841/HO/ALTO TG <sup>†</sup>	44	25	4100	48	24,000	4000	85	Made to Order
40906-0	F96T8/TL735/PLUS/ALTO TG	54	25	3500	96	30,000	5700	78	Stocked
40907-8	F96T8/TL741/PLUS/ALTO TG	54	25	4100	96	30,000	5700	78	Made to Order
40908-6	F96T8/TL835/PLUS/ALTO TG	54	25	3500	96	30,000	5900	85	Made to Order
40909-4	F96T8/TL841/PLUS/ALTO TG	54	25	4100	96	30,000	5900	85	Made to Order
40910-2	F96T8/TL850/PLUS/ALTO TG	54	25	5000	96	30,000	5780	85	Stocked
40911-0	F96T8/TL835/HO/PLUS/ALTO TG <sup>†</sup>	86	25	3500	96	30,000	8200	85	Made to Order
40912-8	F96T8/TL841/HO/PLUS/ALTO TG <sup>†</sup>	86	25	4100	96	30,000	8200	85	Stocked
40913-6	F96T8/TL850/HO/PLUS/ALTO	86	25	5000	96	30,000	8100	85	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours on an Instant Start Ballast.

2) 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. Protective coating may reduce initial lumens by 1–2%.

● This product utilizes ALTO Lamp Technology.

† All HO lamps recommended for use only in open fixtures.

Made to order requires 3 week lead time  
(No product returns on made to order lamps)

### WARNING:

Coating will not yellow, crack, or otherwise fail, subject to the following conditions:

- The lamps must be installed and operating in ambient temperatures below 120°F.
- The lamps cannot be used in fixtures employing defective ballasts, ballasts that have been used longer than their rated life or ballasts that are improperly wired.
- The lamps cannot be used in fixtures where poor pin contact occurs.
- Lamp types and ballast types must be compatible (Rapid start lamps with rapid start ballast, etc.).
- Lamps are recommended for open fixtures.



## Philips TuffGuard T12 Fluorescent Coated Lamps

Electrical and Technical Data (Subject to change without notice)

Product Number	Ordering Code	Watts	Pkg Qty	Color Temp (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.) <sup>1</sup>	Approx. Initial Lumens <sup>2</sup>	CRI	Availability
I6792-4	F14T12/CW TG	14	30	4100	15	9000	710	62	Made to Order
I6687-6	F15T12/CW TG	15	30	4100	18	9000	800	62	Made to Order
I6919-3	F20T12/D/ALTO TG	20	30	6500	24	9000	1075	79	Made to Order
I6300-6	F20T12/CW/ALTO TG	20	30	4100	24	9000	1200	62	Stocked
I6729-6	F25T12/CW TG	25	30	4100	36	7500	1900	62	Made to Order
I6893-0	F30T12/D/RS/ALTO TG	30	30	6500	36	24,000	1950	79	Made to Order
I6310-5	F30T12/CW/RS/ALTO TG	30	30	4100	36	24,000	2250	62	Stocked
I6742-9	F48T12/CW/EW/ALTO TG	30	15	4100	48	9000	2400	62	Made to Order
I6032-5	F34/CW/RS/EW/LL/ALTO TG	34	30	4100	48	24,000	2650	62	Stocked
I6060-6	F34T12/CW/RS/EW/ALTO TG	34	30	4100	48	24,000	2650	62	Stocked
I6315-4	F34T12/VW/RS/EW/ALTO TG	34	30	3000	48	24,000	2700	53	Stocked
I6759-3	F34T12/835/EW/ALTO TG	34	30	3500	48	24,000	2800	82	Made to Order
I6764-3	F34T12/841/EW/ALTO TG	34	30	4100	48	24,000	2800	82	Made to Order
I6743-7	F34T12/ADV850/EW/ALTO TG	34	30	5000	48	24,000	2950	85	Made to Order
I6693-4	F34T12/DX/RS/EW/ALTO TG	34	30	6500	48	24,000	2025	84	Made to Order
I6309-7	F48T12/CW/ALTO TG	39	30	4100	48	9000	2950	62	Stocked
I6307-1	F48T12/D/ALTO TG	39	15	6500	48	9000	2500	79	Stocked
I6736-1	F40T12/830/ALTO TG	40	30	3000	48	24,000	3200	82	Made to Order
I6314-7	F40C50 TG	40	30	5000	48	24,000	2200	92	Stocked
I6299-0	F40DX/ALTO TG	40	30	6500	48	24,000	2325	84	Stocked
I6311-3	F40T12/835/ALTO TG	40	30	3500	48	24,000	3200	82	Stocked
I6322-0	F40T12/841/ALTO TG	40	30	4100	48	24,000	3200	82	Stocked
I6744-5	F40T12/ADV835/ALTO TG	40	30	3500	48	24,000	3600	85	Made to Order
I6918-5	F40T12/ADV841/ALTO TG	40	30	4100	48	24,000	3600	85	Made to Order
I6886-4	F40T12/ADV850/ALTO TG	40	30	5000	48	24,000	3600	85	Made to Order
I6890-6	F40T12/C75 TG	40	30	7500	48	24,000	2000	95	Made to Order
I20427-1	F40T12/CW/ALTO TG	40	30	4100	48	24,000	2650	62	Stocked
I6677-7	F40T12/CWX/ALTO TG	40	30	4200	48	24,000	2200	89	Made to Order
I6689-2	F72T12/CW/ALTO TG	56	15	4100	72	18,000	4450	62	Made to Order
I6924-3	F72T12/D/ALTO TG	56	15	6500	72	18,000	3800	79	Made to Order
I6296-6	F48T12/CW/HO/ALTO TG†	60	15	4100	48	18,000	4050	62	Stocked
I6762-7	F48T12/D/HO/ALTO TG†	60	15	6500	48	18,000	3400	79	Made to Order
I6124-0	F96T12/CW/EW/ALTO TG	60	15	4100	96	18,000	5400	62	Stocked
I6324-6	F96T12/DX/EW/ALTO TG	60	15	6500	96	18,000	4200	84	Stocked
I6836-9	F96T12/830/EW/ALTO TG	60	15	3000	96	18,000	5900	85	Made to Order
I6777-5	F96T12/841/ALTO TG	60	15	4100	96	18,000	6425	85	Made to Order
I6883-1	F96T12/841/EW/ALTO TG	60	15	4100	96	18,000	5900	85	Made to Order
I6855-9	F96T12/VW/EW/ALTO TG	60	15	3000	96	18,000	5500	53	Made to Order
I6974-8	F96T12/CW/EW/LL/ALTO TG	60	15	4100	96	24,000	5400	62	Made to Order
I6728-8	F60T12/CW/HO TG†	75	15	4100	60	18,000	5150	62	Made to Order
I6319-6	F96T12/835/ALTO TG	75	15	3500	96	18,000	6425	85	Stocked
I6123-2	F96T12/CW/ALTO TG	75	15	4100	96	18,000	6100	62	Stocked
I6297-4	F96T12/D/ALTO TG	75	15	6500	96	18,000	4500	79	Stocked
I6783-3	F96T12/850/ALTO TG	75	15	5000	96	18,000	6300	85	Made to Order
I6312-1	F72T12/CW/HO/ALTO TG†	85	15	4100	72	18,000	6350	62	Stocked
I6216-4	F96T12/CW/HO/EW/ALTO TG†	95	15	4100	96	18,000	8000	62	Stocked
I6725-4	F96T12/841/HO/EW/ALTO TG†	95	15	4100	96	18,000	8500	85	Made to Order
I6694-2	F96T12/DX/HO/EW TG†	95	15	6500	96	18,000	5850	84	Stocked
I6817-9	F84T12/CW/HO TG†	100	15	4100	84	18,000	7800	62	Made to Order
I6320-4	F96T12/C50/HO TG†	110	15	5000	96	18,000	6300	92	Stocked
I6301-4	F96T12/CW/HO-O/ALTO TG†	110	15	4100	96	18,000	8800	62	Stocked
I6302-2	F96T12/D/HO-O/ALTO TG†	110	15	6500	96	18,000	7800	79	Stocked
I6730-4	F96T12/841/HO/ALTO TG†	110	15	4100	96	18,000	9500	85	Made to Order
I6582-9	F96T12/CWX/HO TG†	110	15	4200	96	18,000	6600	89	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours on a Rapid Start ballast.  
 2) 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. Protective coating may reduce initial lumens by 1–2%.  
 ● This product utilizes ALTO Lamp Technology.  
 † All HO lamps recommended for use only in open fixtures.

**Made to order requires 3 week lead time  
(No product returns on made to order lamps)**

# TuffGuard Upgrade Products

INDUSTRY STANDARD CURRENT PRODUCT	PHILIPS COATED UPGRADE PRODUCT	BENEFIT OF UPGRADING
5' T5	T5 with ALTO Lamp Technology F35T5/8_/ALTO TG	
4' T5	T5 with ALTO Lamp Technology F28T5/8_/EA/ALTO 25W TG	
4' T5 HO	Energy Advantage T5 HO with ALTO Lamp Technology F54T5/8_/HO EA ALTO 49W TG	
3' T5	T5 with ALTO Lamp Technology F21T5/8_/ALTO TG	
2' T5	T5 with ALTO Lamp Technology F14T5/8_/ALTO TG	
2' T5 HO	T5 HO with ALTO Lamp Technology F24T5/8_/HO/ALTO TG	
8' T8	PLUS T8 with ALTO Lamp Technology F96T8/TL7_/PLUS/ALTO TG PLUS T8 with ALTO Lamp Technology F96T8/TL8_/PLUS/ALTO TG	
8' T8 HO	PLUS T8 HO with ALTO Lamp Technology F96T8/TL7_/HO/PLUS/ALTO TG PLUS T8 HO with ALTO Lamp Technology F96T8/TL8_/HO/PLUS/ALTO TG	
5' T8	T8 with ALTO Lamp Technology F40T8/TL8_/ALTO TG	
4' T8	T8 with ALTO II Technology F32T8/TL7_/ALTO TG	
	T8 with ALTO II Technology F32T8/TL8_/ALTO TG	
	Advantage T8 with ALTO II Technology F32T8/ADV8_/ALTO TG	
	Energy Advantage T8 with ALTO II Technology F32T8/ADV8_/XEW/ALTO TG 25W	
	Plus T8 with ALTO II Technology F32T8/TL7_/PLUS/ALTO TG Plus T8 with ALTO II Technology F32T8/TL8_/PLUS/ALTO TG	
4' T8	Energy Advantage T8 XLL with ALTO II™ Technology F32T8/ADV8_/XLL/ALTO TG 25W	
	T8 XLL with ALTO II Technology F32T8/TL8_/XLL/ALTO TG	
4' T8 HO	T8 HO with ALTO Lamp Technology F48T8/TL8_/HO/ALTO TG	
3' T8	PLUS T8 with ALTO Lamp Technology F25T8/TL_/PLUS/ALTO TG	
	T8 with ALTO Lamp Technology F25T8/TL8_/ALTO TG	
2' T8	T8 with ALTO Lamp Technology F17T8/TL8_/ALTO TG	
250W Metal Halide	Energy Advantage CDM with AllStart Technology CDM205/U/O/4k TG	
360W Metal Halide	Energy Advantage CDM with AllStart Technology CDM330/U/O/4k TG	
400W Metal Halide	Metal Halide 360W MS360/BU/EW TG 6PK	
	Metal Halide 360W Protected MP360/BU/EW TG 6PK	
	Energy Advantage CDM with AllStart Technology CDM330/U/O/4k TG	

## BENEFIT OF UPGRADING KEY

- Energy Savings** for a greener, brighter future
- Low Mercury** to help meet LEED requirements
- High Lumen Output** for maximum light output
- Long Life** to assist with lowering your maintenance costs and reducing waste
- Color Rendering Index (CRI)** for improved color appearance

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Printed in USA 8/10

P5833-E