

Philips MasterColor
CDM Evolution 3000K
Tubular Single-Ended
T6 Lamps

*Ideal for retail display
lighting, general and indi-
rect lighting, wall washing
and fiber-optic systems*

MasterColor CDM Evolution



A compact solution for retail

Philips MasterColor CDM Evolution 3000K Tubular Single-Ended T6 Lamp is the *next evolution* of MasterColor.

Excellent color

- 90 CRI (color rendering index)
- Color stability over life within $\pm 200\text{K}$
- Lamp-to-lamp color consistency over life

Total cost of ownership benefits

- High lamp efficacy (up to 112 LPW)
- 20,000 hours rated average life*
- Up to 80% lumen maintenance at 15,000 hours
- Up to 33% better initial efficacy than existing MasterColor T6 lamps†

Application versatility

- Universal burning position
- Dimensions, base and light center length are same as MasterColor and MasterColor Elite T6 lamps
- Features FadeBlock—an integrated UV blocking medium for reduced fading of fabrics and paintings
- Available in new 20W and 39W Evolution lamps

PHILIPS

(* , † See back page for footnotes)

Ordering Data (Subject to change without notice)

Product Number	Ordering Code	Pkg. Qty.	Norm. Watt.	ANSI Ballast Code	Rated Avg. Life	Approx. Initial Lumens ¹	Approx. Mean Lumens ²	CRI
42878-9	CDM Evolution20/T6/930	12	20	C156/E	20,000	2050	1640	90
42791-4	CDM Evolution35/T6/930	12	39	C130/E	20,000	4400	3520	90

Electrical and Technical Data

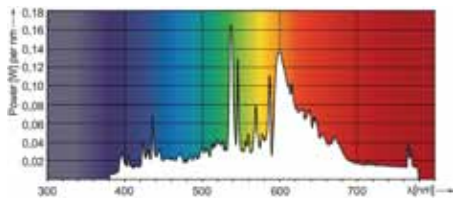
Lamp Operating Volt. (rms)(Nom.)³ _____ 105
 Initial Lamp Volt. Range (rms)⁴ _____ 100-110 (20W)
 _____ 97-107 (35W)

Lamp Operating Current (Amps) Nominal (rms) _____ 0.19 (20W)
 _____ 0.38 (35W)

Current (Amps) Nominal (rms) _____ 0.215 (20W)
 _____ 0.42 (35W)

Lamp Current Crest Factor (Maximum) _____ 1.8
 Warm-up to 80% Full Brightness _____ < 1 minutes
 Restrike Time for Hot Lamps _____ 4-8 minutes
 Ballast Open Circuit Voltage _____ 250 RMS Min. (20W)
 _____ 198 RMS Min. (35W)

Pulse Peak Volts _____ 3000-4000
 Pulse Width @ 90% Peak _____ 2 Micro Sec. Minimum
 Pulse Repetition Rate (Minimum)⁵ _____ 2 per Half Cycle
 Minimum Operating Temp. _____ -30°C (-22°F)



Physical Characteristics

Bulb Size _____ T6
 Bulb Finish _____ Clear
 Base _____ G-12
 Max. Overall Length (MOL) _____ 103mm
 Light Center Length (LCL) _____ 56mm
 Arc Length _____ 0.142" (3.6mm)(20W)
 _____ 0.216" (5.5mm)(35W)

Max. Bulb Temp. _____ 250°C (482°F)(20W)
 _____ 500°C (932°F)(35W)

Max. Pinch Temp. _____ 320°C (608°F)(20W)
 _____ 350°C (662°F)(35W)

Arc Tube Material _____ Polycrystalline Alumina
 Max. Arc Tube to Base Eccentricity _____ 3°

Operating Characteristics

Rated Avg. Life, Hrs.⁶ _____ 20,000
 Correlated Color Temp. (CCT)² _____ 3000K
 CIE Chromaticity Approx.² _____ x-.435, y-.396 (20W)
 _____ x-.433, y-.390 (35W)

Efficacy (lpw) _____ 102 (20W)
 _____ 112 (35W)

Operating Position

Universal
 Enclosed luminaires only.

NOTE: Use on thermally protected electronic ballast only.

WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS for MasterColor Ceramic Metal Halide Lamps: Single-Ended CDM-T G12 and CDM-TC G8.5 (Universal); Double-Ended CDM-TD RX7 (Horizontal ± 45°, Enclosed Fixtures Only)

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:

- 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.
- 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.
- Do not operate a fixture with a missing or broken lens/diffuser.
- Operate lamp only within specified limits of operating position.
- 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.
- C. Operate CDM-T4 Evolution lamps (G8.5 base) and CDM-T6 (G12 base) Evolution lamps only on thermally protected electronic ballasts**
- 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 4 to 8 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.

1) Measured at 100 hrs. life. Approximate lumen values listed are for vertical operation of the lamp.
 2) Approximate lumen output at 40% of lamp rated average life.
 3) Measured at rated lamp watts on a linear reactor. LPW does not include ballast losses.
 4) Measured with the lamp operating at rated watts.
 5) Option-Pulse Width @ 90% Peak, 1 micro second minimum with 2 pulses per half cycle.
 6) Rated average life is the life obtained, on the 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.

Footnotes from front page:

* Rated average life is the life obtained, on the 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.

† Based on a MasterColor Evolution 3000K Tubular Single-Ended T6 39W lamp with 4400 initial lumens vs. a CDM T6 39W lamp with 3,300 initial lumens.



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www.philips.com/lighting

Philips Lighting Company
 200 Franklin Square Drive
 Somerset, NJ 08873
 1-800-555-0050

Philips Lighting
 281 Hillmount Road
 Markham, Ontario
 Canada L6C 2S3
 1-800-555-0050
 A Division of Philips Electronics Ltd.