

Philips MasterColor[®] Ceramic Metal Halide HPS-Retro White[™] featuring ALTO[®] Lamp Technology

Replace yellow light with crisp, bright white light with just a simple twist!



Photo courtesy of Boeing.



Photo courtesy of Jeff MacWright.

**Ideal for indoor and outdoor
applications of industrial facilities
and warehouses**

- ▶ **Operates on standard HPS ballasts**
- ▶ **Rated Average Life of 20,000 Hours^{1,2} for both Vertical (250W & 400W) and Horizontal (250W) operation**
- ▶ **Excellent Color Stability, CRI, and 80% Lumen Maintenance**
Stays brighter, longer
- ▶ **No Shut Off Required**
Ideal for 24-hour a day, 7-day a week operations (relamp fixtures at or before the end of rated life)
- ▶ **Patented Coil Design Offers Protection for Open Fixture Rating**
- ▶ **Uses ALTO[®] Lamp Technology to Pass EPA's TCLP³ Test**

1) 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.

2) The 400W Horizontal Operation Lamp which has a Rated Average Life of 15,000 hours.

3) The TCLP is the US EPA's Toxicity Characteristic Leaching Procedure.

† 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

Indoor facilities have made the switch!

...from yellow to MasterColor® HPS-Retro White™



Now outdoor lighting can make the switch!

...from yellow to MasterColor® HPS-Retro White™

- ▶ **Uses ALTO® Lamp Technology**
 - Passes the EPA’s Toxicity Characteristic Leaching Procedure (TCLP) test. Some jurisdictions consider these lamps as hazardous waste. Please check with local and state regulations regarding disposal.
- ▶ **Rated for Horizontal Operation**
 - Patented frame design allows the lamp to be operated horizontally
 - Can be used in horizontally lamped shoebox type fixtures^{1,2}

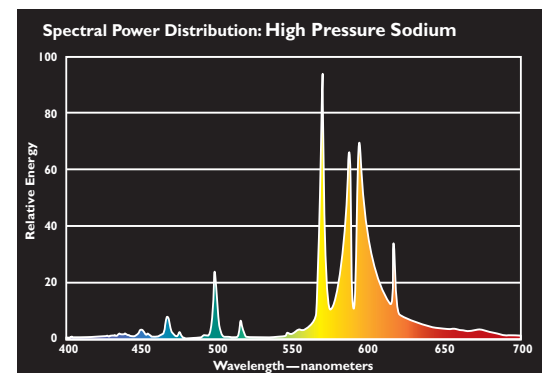
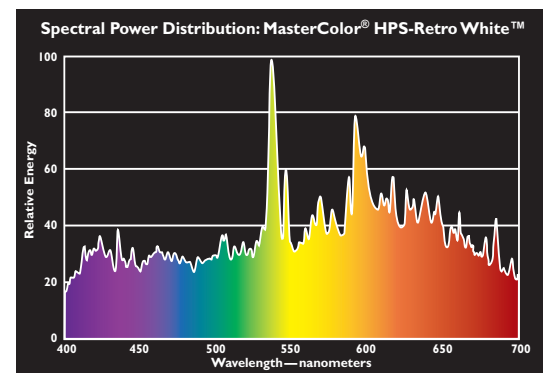
Compare the type of costs

for the white light alternatives

New Metal Halide Fixture		Lamp/Ballast Retrofit		MasterColor® HPS-Retro White™	
– Labor	– Disposal	– Labor	– Ballast	– Labor	– Disposal
– Lamp	– Fixture	– Lamp	– Disposal	– Lamp	
– Ballast					

Compare spectral output

the MasterColor® HPS-Retro White™ lamp provides light across the full spectrum.



Colors are brighter and more vivid under MasterColor® HPS-Retro White™ than they appear under standard High Pressure Sodium lamps.

- ▶ **The Ceramic Discharge Arc Tube is More Robust than the Traditional Quartz Arc Tube**
 - Superior lumen maintenance
 - Crisp, bright white light with superior color rendering
 - Superior color stability over time and lamp to lamp color consistency

- ▶ **Patented “Coil Design”**
 - Rated for open fixture use
 - Ability to operate 24/7 without shut off³

1) Not to be used in compact Wall Pack or Flood Light type fixtures. Maximum temperature limit of outer bulb may be exceeded in these applications and can lead to premature lamp failure.
 2) Luminaire photometric distributions may be impacted due to difference in arc length vs. HPS lamp arc length.
 3) Relamp fixtures at or before end of rated life.



Philips MasterColor® HPS-Retro White™ featuring ALTO® Lamp Technology

Electrical, Technical and Ordering Data (Subject to change without notice)

Product Number	Ordering Code	Nom. Watts	Bulb	Base	Std. Pkg. Qty.	ANSI Ballast Code	LCL (In)	MOL (In)	Color Temp. (Kelvin)	CRI	Rated Avg. Life (Hrs) ¹	Approx. Initial Lumens ^{2,3}	Approx. Mean Lumens ^{2,3}
HPS-Retro White Lamps Rated for Vertical Operation Only													
13093-0	CDM250S50/H/O/4K/ALTO*	250	ED18	Mog.	12	S50/M168/O	5.75	9.75	4000K	85	20,000	20,500	16,400
13094-8	CDM400S51/H/O/4K/ALTO*	400	ED18	Mog.	12	S51/M169/O	5.75	9.75	4000K	85	20,000	34,800	27,840
HPS-Retro White Lamps Rated for Horizontal Operation Only													
14649-8	CDM250S50/HOR/4K/ALTO*	250	ED18	Mog.	12	S50/M168/O	5.75	9.75	4000K	85	20,000	20,500	16,400
14650-6	CDM400S51/HOR/4K/ALTO*	400	ED18	Mog.	12	S51/M169/O	5.75	9.75	4000K	85	15,000	34,800	29,600

1) 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.
2) Approximate lumen values listed are for vertical or horizontal operation of lamp, respectively, as indicated in chart.
3) Approximate lumen output at 40% of lamp rated average life.
4) Not for use in compact "wall pack" or "flood light" type fixtures. Maximum temperature limit of outer bulb may be exceeded in these applications and can lead to premature lamp failure.
V = Vertical operation ± 15°. Do not operate in horizontal position.
HOR = Horizontal operation ± 15°. Do not operate in a vertical position.
ANSI Code: O = Open Fixture Rated

RECOMMENDED WARNINGS, CAUTIONS, AND OPERATING INSTRUCTIONS

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.**

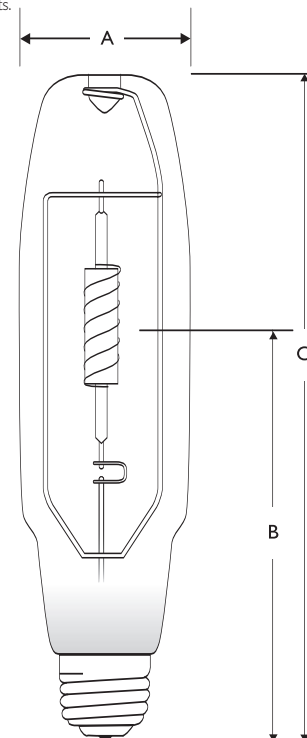
These lamps are designed to retain all the glass particles should an arc tube rupture occur. The following operating instructions are recommended to minimize these occurrences.

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 25 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:

- 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.



Dimensions (mm/in)

A = 57/2.25

B (LCL) = 146/5.75

C (MOL) = 248/9.75

LCL = Light Center Length

MOL = Maximum Overall Length

