PHILIPS

MasterColor®

METAL HALIDE LAMPS

Superior Color
Performance
In Metal Halide
Technology

Let's make things better.

PHILIPS

Let's make things better.

In 1994, Philips Lighting Company introduced revolutionary technology in the lighting industry. MasterColor® metal halide lamps surpass the color limitations of standard metal halide technology, combining consistent, white light with the efficiency of High Intensity Discharge lamps. Crisp, white light creates a pleasing visual environment, both indoors and out. MasterColor has in fact become the standard by which metal halide sources are judged.

Philips is the worldwide leader in lighting, acknowledged both for quality and innovation. Today, more than 25% of Philips Lighting Company's sales derive from products introduced in just the last five years. This brochure explains how you can use MasterColor lamps to improve the look and performance of your lighting system.

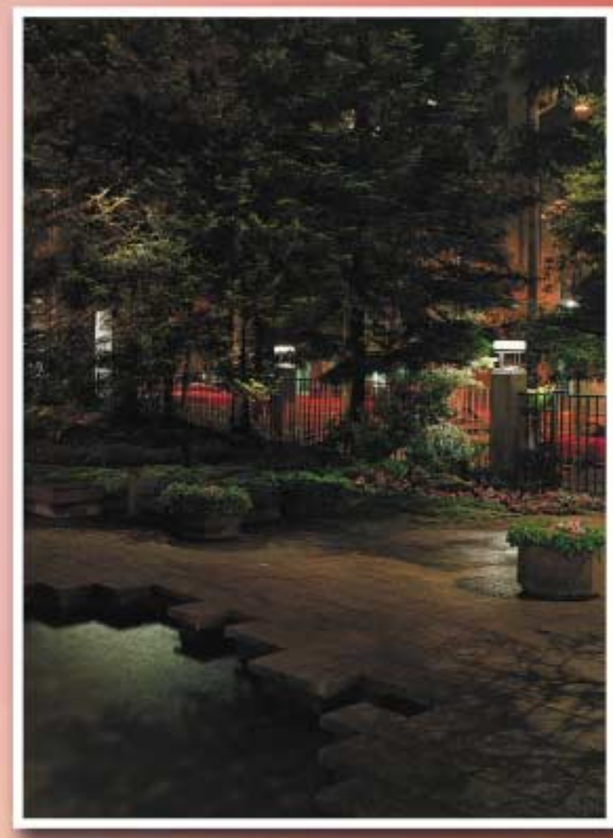
Patrick Kennedy, Photographer Quadrangle Architects Ltd., Architects H.H. Angus & Associates Ltd., Consulting Engineers

"Philips' MasterColor® lamps enhance the ambiance of our showroom and help our customers experience the design quality of our vehicles under a natural environment."

Christian Dubois, General Manager, BMW Experience Center, BMW Canada Inc., Whitby, Ontario

THE NEW STANDARD IN METAL HALIDE LAMPS

- MasterColor® metal halide lamps deliver consistent white light and higher color rendering than any standard metal halide source for architectural lighting.
- MasterColor operates at the highest energy efficiency among standard low-wattage metal halide lamps—up to 93 lumens per watt.
- MasterColor achieves 35% more maintained light output than standard low-wattage metal halide lamps.
- MasterColor reduces the cost of ownership—both initially and over the life of the system.
- MasterColor incorporates ALTO® Lamp Technology into some key versions for cost-effective, environmentally responsible lamp disposal.
- MasterColor features FadeBlock™ Technology to reduce UV fading risk.
- MasterColor offers a complete range of lamps for energy-efficient accent and general lighting.
- MasterColor "makes things better" by improving the visual environment.



"Philips MasterColor® gave us more control over the light and better appearance for the setting"

Tom Pokorski, Architect
Transamerica Redwood Park,
San Francisco, CA

CHOOSING THE RIGHT LIGHT SOURCE

No single light source works best for all applications. Choosing the right lamp usually begins with your specific lighting requirements. For example, accent lighting for retail displays needs well-controlled beams of light, as does downlighting from high ceilings. Wall washing of interior surfaces, floodlighting, and low-level exterior lighting all benefit from compact sources that can project light effectively.

Color plays an important role in the lighting decision. Interior commercial and institutional spaces require comfortable, white light, typically with a color temperature from 2700K to 4000K. Most retail spaces also demand good color rendering. Many designers prefer white light for exterior areas as well, particularly with building-mounted or landscape lighting. Exterior operations usually require light sources that perform well in cold weather.

Once the visual lighting requirements are met, you can then evaluate light sources in terms of initial and operating cost, energy consumption, and environmental impact. Incandescent sources offer optical control and warm color but carry very high energy and maintenance costs. Fluorescent is economical but lacks punch.

Standard metal halide lamps provide an energy-efficient, compact source of white light that operates well both indoors and out. But MasterColor® metal halide lamps deliver high CRI and the consistent color needed for retail applications and most offices. And MasterColor offers the complete range of light distribution needed for accent, architectural, and outdoor lighting. Further, when compared to conventional metal halide sources, MasterColor significantly lowers the cost of ownership, saves energy, and—with ALTO® Lamp Technology—supports environmentally responsible lamp disposal.

CONSISTENT COLOR

MasterColor® metal halide lamps offer the best color performance of any metal halide lamp today. With consistent color properties, MasterColor lamps provide outstanding performance for the numerous interior and exterior applications where the *quality of light* is paramount.

The color of a lamp is judged by both the apparent color of the source (measured by the color temperature) and by its color rendering ability (as measured by the color rendering index, or CRI).

Available in both warm (3000K) and cool (4000K) white tones, MasterColor maintains a consistent appearance throughout its life. Its color temperature varies less than 200K from lamp to lamp and over average rated life. This remarkable stability contrasts with standard metal halide lamps, which vary as much as 600K over life, and may require early replacement to avoid an array of colors. MasterColor metal halide lamps provide consistent, stable color throughout life.

MasterColor also provides exceptional color rendering. The CRI of MasterColor 3000K lamps is 81–85, and for 4000K lamps, 92–93. MasterColor renders the colors of people and merchandise so accurately that it has become the lamp of choice for energy-efficient display lighting.

ENERGY EFFICIENCY

MasterColor® metal halide lamps are more energy-efficient than standard low-wattage metal halide lamps (measured in lumens of light output per watt). Attaining up to 93 lumens per watt, MasterColor lamps are 10–20% more energy efficient than other metal lamps of similar wattage, offering significant energy savings. Compared to incandescent lamps, MasterColor is four to five times as efficient. MasterColor also outperforms compact fluorescent lamps, offering lighting performance comparable to linear fluorescent systems.

MAINTAINED LIGHT OUTPUT

All light sources are rated according to their initial lumen output, but light output decreases as they age. MasterColor delivers the highest light output among low-wattage metal halide lamps—both initially and throughout lamp life. MasterColor starts with 10–20% higher initial lumens. More importantly, MasterColor maintains more of this light output over lamp life. Lumen maintenance for MasterColor lamps is about 80% at mean life, compared to 60–65% for ordinary metal halide lamps, whose output diminishes rapidly over time. The combination of higher initial light output and superior lumen maintenance gives MasterColor a 35% advantage in maintained light output, when compared to standard metal halide systems.

COST OF OWNERSHIP

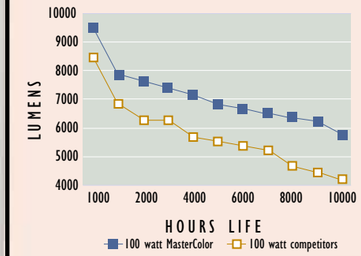
Lighting cost of ownership includes both initial and operating costs. MasterColor reduces costs in both areas. Compared to other metal halide systems, 35% higher maintained lumens means that you need fewer MasterColor lamps to maintain the same level of illumination. The savings in initial costs are considerable because one third fewer luminaires and less installation labor are required. And, over the life of the installation, MasterColor saves about 35% on energy and lamp replacement costs!

Compared to incandescent systems, the savings in operating costs are even more significant.

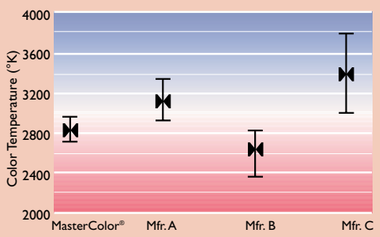
LIGHT SOURCE
Energy Efficiency Comparison

Lamp Type	Efficacy (lumens per watt)
Incandescent	10–22
Self-Ballasted Mercury Vapor	20–25
Mercury Vapor	30–63
Fluorescent	55–100
100W Std. Metal Halide	**78**
100W MasterColor® Metal Halide	**93**
1000W Std. Metal	**Up to 125**
High Pressure Sodium	65–140
Low Pressure Sodium	Up to 180

LUMEN MAINTENANCE
3K MasterColor® vs. Competitive 3K Metal Halide Lamps



SUPERIOR COLOR STABILITY
3K MasterColor® vs. Competitive 3K Metal Halide Lamps



Graph depicts test data showing actual range of lamp color temperatures versus published values (for 100-watt lamps)

COLOR RENDERING INDEX
MasterColor® vs. Competitive Metal Halide Lamps

3K MasterColor®	**80–82**
Mfr. A	70
Mfr. B	75
Mfr. C	65
4K MasterColor®	**92–93**
Other Manufacturers	65–70

EXCEPTIONAL COLOR RENDERING

MasterColor® Metal Halide

CRI 85

Competitive 3K Metal Halide Lamp

CRI 70

(untouched photography)

ENERGY SAVINGS UPGRADES*
(For Reduced Cost of Ownership)

Existing System
PAR 38 Standard Metal Halide (20 fixtures)

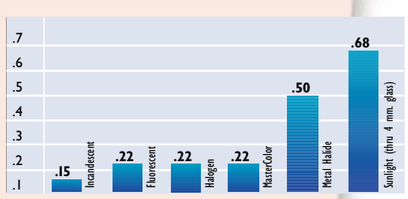
New System
PAR 38 MasterColor® Metal Halide (10 fixtures)

Annual Energy Savings
$516

Energy Savings Over Life
$1290

*Accent lighting application, 4000 operating hours/year, $0.10/KWH.

RELATIVE UV FADING RISK
MasterColor® vs. Conventional General Lighting Sources



Light Source
Damage Factor: Relative factor to compare different light sources for the damage they can cause on the illuminated materials, such as fading or bleaching.

Photo courtesy of Candela, Denise Fong, LC Designer & Megan Strawn, LC Designer
Photography by Steve Hall © Hedrich-Blessing

"MasterColor® lamps create the feeling that the sun is shining in the room."

Denise Fong
Principal,
Candela

FADEBLOCK™ FOR UV CONTROL

All light sources, particularly sunlight, emit ultraviolet (UV) radiation. Conventional metal halide lamps rank highest among popular lamps with respect to UV emissions. To control the health effects of UV radiation, metal halide lamps either incorporate an integral hard-glass enclosure or require protective glass in the luminaire.

To control the fading risk caused by UV radiation, MasterColor® metal halide PAR and T-6 lamps feature FadeBlock™, a Philips exclusive. Fading risk depends on many factors, including the composition of the material being illuminated and the amount and nature of the illumination. The fading risk posed by different light sources can be evaluated by comparing the Damage Factor of each lamp. FadeBlock reduces the Damage Factor of MasterColor lamps to the level of fluorescent and halogen. This reduced risk of fading enhances the use of MasterColor in retail and other applications with light-sensitive materials.

Saks Fifth Avenue © Hedrich-Blessing

"MasterColor® fills a market niche by fulfilling several retail industry demands, including strong color rendering and energy efficiency."

Cynthia Turner,
Lighting Director
FRCH Design Worldwide

Photo courtesy of Candela,
Denise Fong, LC Designer & Megan Strawn, LC Designer
Photography by Steve Hall © Hedrich-Blessing

ALTO® LAMP TECHNOLOGY

Philips Lighting Company believes that true environmental responsibility begins at the source. Most MasterColor® metal halide lamps are manufactured using Philips ALTO® Lamp Technology, which reduces the amount of mercury without affecting lamp performance. ALTO Lamp Technology provides a precisely dosed amount of mercury (necessary for lamp operation) and eliminates or minimizes other metals, particularly lead. ALTO lamps pass the Environmental Protection Agency's TCLP (Toxic Characteristic Leachate Procedure) test, which most states use to classify hazardous and non-hazardous waste. ALTO lamps are also the only lamps which pass the more stringent TTLC (Total Threshold Limit Concentration) test used by the state of California.

As non-hazardous waste, ALTO lamps are safer and easier to transport and dispose of than lamps classified as hazardous waste. Philips Lighting encourages recycling of spent lamps. However, if recycling is too costly, users have the option of disposing of ALTO lamps by conventional means (refer to local and state regulations), without the expensive treatment and administration required of hazardous non-TCLP compliant lamps.

Introduced by Philips in 1995, ALTO Lamp Technology truly represents an environmentally responsible approach to product design and manufacture. Today, over 85% of Philips fluorescent lamps sold feature ALTO Lamp Technology; use in HID lamps, compact fluorescents and halogen types is increasing. You can distinguish ALTO fluorescent lamps by their distinctive Green End Caps®. ALTO MasterColor lamps have a visible green dimple at the end of the bulb.

ENVIRONMENTAL CONCERNS

Environmental concerns relate both to the emission of greenhouse gases and to hazardous material pollution and disposal.

The generation of electricity through the burning of fossil fuels creates the greenhouse gases that damage the ozone layer of the atmosphere: carbon dioxide, nitrous oxide, and sulfur dioxide. Energy efficient lighting directly and significantly reduces electricity usage and so preserves the environment, which is why the US government supports energy saving design and retrofits through programs such as EPACT, EPA Green Lights, and the EPA Energy Star Buildings Program.

Conventional fluorescent and metal halide lamps contain enough mercury to be characterized as hazardous materials. As such, they typically require special, costly handling and administrative record keeping when disposed of at end of life. Philips ALTO® Lamp Technology solves this problem by precisely minimizing mercury content without compromising lamp performance. Fluorescent, high pressure sodium, metal halide, halogen and compact fluorescent lamps with ALTO Lamp Technology pass the EPA's TCLP test for non-hazardous waste disposal.

In June 1999, the EPA passed the Universal Waste Rule, which determines how lamps which fail the TCLP test (hazardous waste) will be handled. Philips Lighting Company was the first lamp manufacturer to support this legislation over four years ago. Philips would like to congratulate the EPA, Congress and the White House, along with other groups, for their support of the Universal Waste Rule. We now challenge Corporate America to make sound business decisions to lower the level of mercury at the source by using lowest-mercury, non-hazardous lamps—Philips' ALTO low mercury lamps.

Alto®
Lamp Technology

THE MASTERCOLOR® METAL HALIDE ADVANTAGE

MasterColor® metal halide outperforms other metal halide because it uses advanced arc tube technology. In all metal halide lamps, an electrical arc causes the chemicals in the arc tube, which are contained under high pressure, to discharge light. The color and quantity of the light depend on the mix of chemicals, which, in turn, depends on the arc tube.

The key to the MasterColor arc tube is polycrystalline alumina. Polycrystalline alumina (PCA) is a ceramic material, which affords three advantages over the quartz tubes used in other metal halide lamps.

- **PCA permits the lamp to operate at higher internal temperatures, which increases output and efficiency.**
- **PCA resists interaction with the chemicals inside the tube, stabilizing the chemical mix over the life of the lamp. This improves color consistency and lumen maintenance.**
- **The PCA tube is smaller, which prevents the chemical mix from dispersing and so improves color consistency.**

Like other low-wattage metal halide lamps, MasterColor utilizes pulse start ballasts, which improves cold weather ignition. Electronic ballasts, available for 35W, 70W , 100W, and 150W MasterColor lamps, further improve performance.

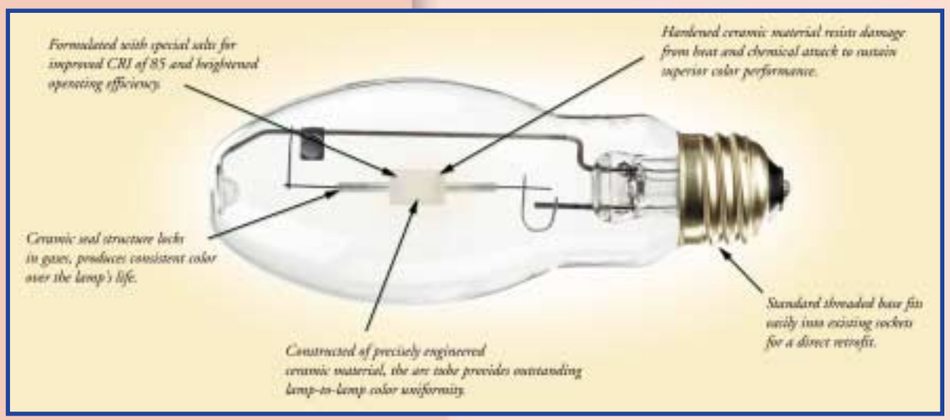
Philips Lighting first developed and perfected PCA technology with high pressure sodium lamps before introducing it to metal halide with MasterColor lamps in 1994. Since that time, designers and end users have recognized MasterColor as the leading energy-efficient white light source. In 1995, LightFair International named MasterColor its "Best New Product of the Year". And with the continued expansion of the MasterColor family, Philips won the same award from Lighting Dimensions International in 1998.

THE MASTERCOLOR® RANGE OF LAMPS

MasterColor® is available in three types, representing the full range of low-wattage metal halide lamps:

- PAR lamps—produce a concentrated beam of light.
- Tubular T-6 lamps—are used with high-performance spot and flood optics.
- ED-17 lamps—produce a general light distribution.

The wide choice of MasterColor lamps (over 30 models, in all) supports lighting designed for the specific needs of many diverse applications. All MasterColor lamps deliver consistent color and energy efficiency.



MASTERCOLOR® METAL HALIDE PAR LAMPS

MasterColor® metal halide PAR lamps deliver superior, energy-efficient accent lighting. They create the concentrated beams that are ideal for retail and architectural applications. As with all MasterColor lamps, these PAR's provide consistent, outstanding color required for display lighting.

PAR lamps incorporate their own reflectors, eliminating the need for large and costly luminaire optics. Each relamping renews the optical system. MasterColor PAR lamps feature Philips patented WISO reflectors, which intensify the main beam of light. MasterColor offers three sizes and three popular beam spreads—spot, flood, and wide flood.

In accent lighting applications, MasterColor is the energy-efficient alternative to halogen lamps. For equivalent illumination, MasterColor saves two thirds of the energy consumed by halogen; fewer lamps (and fixtures) are required; and MasterColor lamps last three-to-four times as long. MasterColor reduces air conditioning load as well. Alternatively, MasterColor can increase the display illumination three-to-four times, without additional power. And, with FadeBlock™, MasterColor presents no greater fading risk than halogen.

Numerous manufacturers offer fixtures for MasterColor PAR lamps. MasterColor PAR's operate in any orientation and can be fully rotated and tilted in adjustable fixtures. Recessed accent lights with apertures as small as 5" conceal the light source and blend in with recessed downlights. Track-mounted accent lights provide maximum aiming flexibility and can retrofit onto previously installed track. Because MasterColor PAR lamps are the same diameter as incandescent PAR lamps, they can be fitted with the wide variety of beam-modifying lenses, louvers, and filters that are readily available.

PAR 38 lamps currently feature ALTO® Lamp Technology, passing the EPA's TCLP test for non-hazardous waste. Additional ALTO PAR versions will be available in the future.

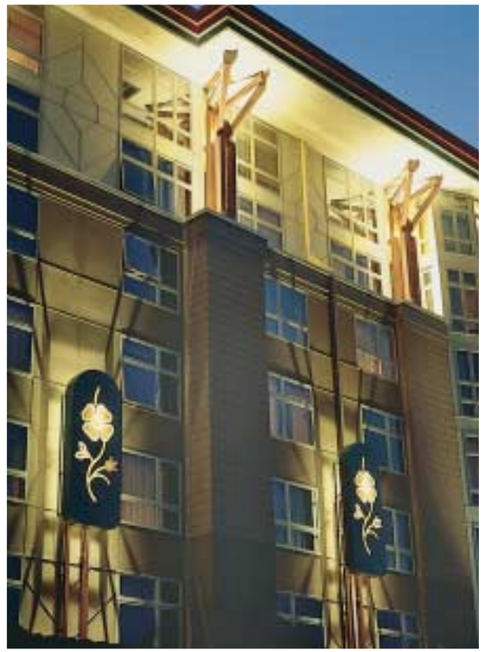


Photo courtesy of Litelab Corp., NY; BusRun® busway-lighting, power and support.

MasterColor® metal halide PAR lamps are ideal for accent lighting applications in furniture showrooms.

"We definitely got the look we wanted—nice warm colors, great color rendering that picks up the subtle shading of the acrylic, great efficacy and, of coarse, extended life."

Gary Steffy, LC, FIALD
Gary Steffy Lighting Design, Inc.
Soaring Eagle Resort Hotel
Mount Pleasant, MI

MASTERCOLOR® METAL HALIDE ED-17 LAMPS

MasterColor® metal halide ED-17 lamps provide general lighting, downlighting, and floodlighting for interior and exterior applications. They offer an energy-efficient, compact white light source of excellent color quality. The wide assortment of compatible fixtures includes downlights, pendants floodlights, wall-mounted uplights, wall packs, bollards, and post top luminaires.

Unlike fluorescent sources, MasterColor lamps can create well-defined beams of light suitable for use in high ceilings. With approximately four times as much light output as the most powerful compact fluorescent lamps, MasterColor works well to light large areas, indoors and out. Unlike most fluorescent systems, however, MasterColor operates effectively in low temperatures. And throughout its life, MasterColor offers the outstanding color quality that makes people and objects look great.

Compared to conventional ED-17 metal halide lamps, MasterColor offers superior color performance, energy efficiency and lumen maintenance. MasterColor lamps vary less than 200K in color over life; conventional metal halide sources typically vary by 600K or more. MasterColor provides a 35% higher maintained light output with no additional energy consumption. This permits the use of fewer fixtures, with significant savings in ownership costs.

MasterColor ED-17 lamps run off the same ballasts as other metal halide lamps of comparable wattage. Thus, they can upgrade an existing metal halide installation to improve the color and increase the light level.

All current ED-17 versions feature ALTO® Lamp Technology for reduced disposal costs, and overall cost of ownership.

"The advantage of MasterColor® is that it has excellent color rendering, which flatters the appearance, with all the benefits of a long life source."

Larry French, Auerbach + Glasow
Fisherman's Wharf, San Francisco, CA

"We did a mock up of various light sources for the owners (Disney Co. and Anaheim Angels) to show them the effect. After viewing HPS and standard metal halide, we showed them MasterColor®. There was no question—they all agreed to MasterColor for its superior color rendering. For the same reasons, we used the lamps at the concession areas as both food and people looked wonderful."

Andrew A. Powell,
Senior Designer, Lighting Design Alliance
Edison International Field, Anaheim, CA

Courtesy of Andrew A. Powell, Lighting Design Alliance

MASTERCOLOR® METAL HALIDE TUBULAR T-6 AND T-7 LAMPS

For the ultimate in optical control, designers often look to tubular lamps. These compact sources permit the use of high-performance reflectors that project light in the most precise spot, wash, and flood distributions. Typical applications include indirect lighting, wall washing, and display lighting. MasterColor® metal halide Tubular T-6 and T-7 lamps bring energy efficiency and outstanding color to these applications.

MasterColor lamps can replace high wattage halogen sources, while saving two thirds of the energy and lasting three times as long. MasterColor Tubular lamps are available in a warm 3000K color temperature that remains consistent within 200K over the life of the lamp. The CRI is 81–82. These lamps also feature FadeBlock™ Technology to reduce the fading risk.

Using specially designed reflectors, MasterColor 70W T-6 lamps can generate twice as much vertical illumination as a 20–40W compact fluorescent floodlight. What's more, the illumination is remarkably even from top to bottom.

MasterColor Tubular lamps require enclosed luminaires. A double-ended T-7 model offers the longest lamp life but should only be operated in a horizontal orientation. A single-ended T-6 model suits a wide variety of luminaires, including projectors, wall washers, sconces, and torchieres.

MasterColor Tubular T-6 lamps featuring ALTO® Lamp Technology will be available in the future.

Ron Schramm Photography

"In addition to long lamp life and high color rendering, MasterColor® gave us the ability to find a family of light fixtures that were small enough to integrate into the structure and be barely visible during the day."

Jim Baney, Schuler & Shook, Inc.
Water Tower, Chicago, IL

Courtesy of Buhl Industries, Inc-NJ

QVC®

"Less power, longer life 12,000 hrs., and less heat, equates to savings and added comfort to our hosts and guests. As QVC grows I look forward to the next step in Philips lamp technology."

Douglas Rae, Lighting Supervisor
QVC Network

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Scarborough, Ontario M1B 1M8
A Division of Philips Electronics Limited

Printed on Recycled Paper

3000 Kelvin Family

Luminaire	Product Number	Watts	Bulb	Ordering Code	ANSI Code (Ballast Ref.)	Avg. Life (Hours)	Max Beam Candle Power	Initial Lumens	Mean Lumens	CRI	CCT Kelvin	Description
ENCLOSED	22328-9	39	T-6	CDM35/T6/830	M130	10000	N/A	3400	2600	81	3000	CLEAR
OPEN/ENCLOSED	23365-0	39	PAR 20	CDM35/PAR20/M/SP/3K	M130	9000	23000	2000	1600	81	3000	PAR WISO SP 10°
OPEN/ENCLOSED	23364-3	39	PAR 20	CDM35/PAR20L/M/FL/3K	M130	9000	5000	2000	1600	81	3000	PAR WISO FL 30°
OPEN/ENCLOSED	22329-7	39	PAR 30L	CDM35/PAR30L/M/SP/3K	M130	9000	44000	2000	1600	81	3000	PAR WISO SP 10°
OPEN/ENCLOSED	22330-5	39	PAR 30L	CDM35/PAR30L/M/FL/3K	M130	9000	7400	2200	1760	81	3000	PAR WISO FL 30°
ENCLOSED	36020-6	50	ED-17	MHC50/U/M/3K	M148/M110	10000	N/A	4250	3200	82	3000	CLEAR
ENCLOSED	36022-2	50	ED-17	MHC50/C/U/M/3K	M148/M110	10000	N/A	4000	3000	82	3000	COATED
OPEN/ENCLOSED	36891-0	50	ED-17P	MHC50/U/MP/3K	M148/M110	10000	NA	4000	3000	82	3000	CLEAR
ENCLOSED	22337-0	70	T-6	CDM70/T6/830	M139	10000	N/A	6600	5200	82	3000	CLEAR
ENCLOSED	23160-5	70	T-6	CDM70/TD/830	M139	12000	N/A	6500	5200	85	3000	CLEAR
OPEN/ENCLOSED	23224-9	70	PAR 30L	CDM70/PAR30L/M/SP	M143/M98	9000	68000	4850	3880	82	3000	PAR WISO SP 10°
OPEN/ENCLOSED	23221-5	70	PAR 30L	CDM70/PAR30L/M/FL	M143/M98	9000	10000	4850	3880	82	3000	PAR WISO FL 40°
OPEN/ENCLOSED	22250-5	70	PAR 38	CDM70/PAR38/SP/3K	M143/M98	10000	50000	4800	3840	82	3000	PAR WISO SP 15°
OPEN/ENCLOSED	22249-7	70	PAR 38	CDM70/PAR38/FL/3K	M143/M98	10000	18000	4800	3840	82	3000	PAR WISO FL 25°
OPEN/ENCLOSED	23216-5	70	PAR 38	CDM70/PAR38/WFL/3K	M143/M98	10000	5000	4800	3840	82	3000	PAR WFL 60°
ENCLOSED	20884-3	70	ED-17	MHC70/U/M/3K	M143/M98	10000	N/A	6200	4960	82	3000	CLEAR*
ENCLOSED	20887-6	70	ED-17	MHC70/C/U/M/3K	M143/M98	10000	N/A	6000	4800	82	3000	COATED*
OPEN/ENCLOSED	23366-8	70	ED-17P	MHC70/U/MP/3K	M143/M98	10000	N/A	5900	4700	82	3000	CLEAR
OPEN/ENCLOSED	23367-6	70	ED-17P	MHC70/C/U/MP/3K	M143/M98	10000	N/A	5700	4600	82	3000	COATED*
OPEN/ENCLOSED	24477-2	100	PAR 38	CDM100PAR38/SP/3K	M140/M90	12500	70000	6800	5440	85	3000	PAR SP 15°
OPEN/ENCLOSED	24476-4	100	PAR 38	CDM100PAR38/FL/3K	M140/M90	12500	25000	6800	5440	85	3000	PAR FL 25°
OPEN/ENCLOSED	24478-0	100	PAR 38	CDM100PAR38/WFL/3K	M140/M90	12500	7000	6800	5440	85	3000	PAR WFL 60°
ENCLOSED	20888-4	100	ED-17	MHC100/U/M/3K	M140/M90	12500	N/A	9300	7500	85	3000	CLEAR*
ENCLOSED	20889-2	100	ED-17	MHC100/C/U/M/3K	M140/M90	12500	N/A	9000	7200	85	3000	COATED*
OPEN/ENCLOSED	23368-4	100	ED-17P	MHC100/U/MP/3K	M140/M90	12500	N/A	8800	7000	85	3000	CLEAR
OPEN/ENCLOSED	23444-3	100	ED-17P	MHC100/C/U/MP/3K	M140/M90	12500	N/A	8500	6800	85	3000	COATED*
ENCLOSED	23272-8	150	T-6	CDM150/T6/830	M142	10000	N/A	14000	10800	85	3000	CLEAR
ENCLOSED	23167-0	150	T-7	CDM150/TD/830	M142	12000	N/A	13500	10800	85	3000	CLEAR

4000 Kelvin Family

Luminaire	Product Number	Watts	Bulb	Ordering Code	ANSI Code (Ballast Ref.)	Avg. Life (Hours)	Max Beam Candle Power	Initial Lumens	Mean Lumens	CRI	CCT Kelvin	Description
ENCLOSED	28137-8	70	T-6	CDM70/T6/942	M139	12000	N/A	6600	5280	92	4000	CLEAR
ENCLOSED	37370-4	70	T-6	CDM70/TD/942	M139	12000	N/A	6600	4800	92	4000	CLEAR
OPEN/ENCLOSED	28872-0	70	PAR 38	CDM70PAR38/SP/4K	M143/M98	10000	42000	4200	3360	92	4000	PAR SP 15°
OPEN/ENCLOSED	28873-8	70	PAR 38	CDM70PAR38/FL/4K	M143/M98	10000	16000	4200	3360	92	4000	PAR FL 25°
OPEN/ENCLOSED	28874-6	70	PAR 38	CDM70PAR38/WFL/4K	M143/M98	10000	4000	4200	3360	92	4000	PAR WFL 60°
ENCLOSED	36023-0	50	ED-17	MHC50/U/M/4K	M148/M110	15000	N/A	3750	2800	90	4000	CLEAR
ENCLOSED	36024-8	50	ED-17	MHC50/C/U/M/4K	M148/M110	15000	N/A	3500	2600	90	4000	COATED
OPEN/ENCLOSED	36893-6	50	ED-17P	MHC50/U/MP/4K	M148/M110	10000	NA	3560	2640	82	4000	CLEAR
ENCLOSED	28129-5	70	ED-17	MHC70/U/M/4K	M143/M98	15000	N/A	6000	4800	92	4000	CLEAR*
ENCLOSED	28133-7	70	ED-17	MHC70/C/U/M/4K	M143/M98	15000	N/A	5800	4680	92	3900	COATED*
OPEN/ENCLOSED	36057-8	70	ED-17P	MHC70/U/MP/4K	M143/M98	10000	N/A	5600	4750	82	4000	CLEAR
OPEN/ENCLOSED	36059-4	70	ED-17P	MHC70/C/U/MP/4K	M143/M98	10000	N/A	5100	4350	82	4000	COATED
OPEN/ENCLOSED	28876-1	100	PAR 38	CDM100/PAR38/SP/4K	M140/M90	12500	54000	6000	4800	93	4000	PAR SP 15°
OPEN/ENCLOSED	28878-7	100	PAR 38	CDM100/PAR38/FL/4K	M140/M90	12500	20000	6000	4800	93	4000	PAR FL 25°
OPEN/ENCLOSED	28880-3	100	PAR 38	CDM100/PAR38/WFL/4K	M140/M90	12500	5000	6000	4800	93	4000	PAR WFL 60°
ENCLOSED	28135-2	100	ED-17	MHC100/U/M/4K	M140/M90	15000	N/A	9000	7200	93	4000	CLEAR*
ENCLOSED	28136-0	100	ED-17	MHC100/C/U/M/4K	M140/M90	15000	N/A	8700	6960	93	3900	COATED*
OPEN/ENCLOSED	36060-2	100	ED-17P	MHC100/U/MP/4K	M142/M90	12500	N/A	8000	6800	85	4000	CLEAR
OPEN/ENCLOSED	36061-0	100	ED-17P	MHC100/C/U/MP/4K	M142/M90	12500	N/A	7500	6375	85	4000	COATED
ENCLOSED	37720-0	150	ED-17	MHC150/U/M/4K	M142/M102	9000	N/A	13500	9450	93	4200	CLEAR
ENCLOSED	37721-8	150	ED-17	MHC150/C/U/M/4K	M142/M102	9000	N/A	12500	8750	93	3900	COATED
OPEN/ENCLOSED	37724-2	150	ED-17P	MHC150/U/MP/4K	M142/M102	9000	N/A	12400	9920	93	4000	CLEAR
OPEN/ENCLOSED	37726-7	150	ED-17P	MHC150/C/U/MP/4K	M142/M102	9000	N/A	11500	9200	92	4000	COATED
ENCLOSED	37369-6	150	T-6	CDM150/T6/942	M142	6000	N/A	12700	10160	95	4000	CLEAR
ENCLOSED	37371-2	150	T-7	CDM150/TD/942	M142	6000	N/A	14200	11360	96	4000	CLEAR

NOTES:

PAR—Parabolic Aluminized Reflector Lamp
SP—Spot beam pattern
FL—Flood beam pattern
Beam Spread—10°, 15°, 25°, 30°, 40°, 60°— Total beam angle @ 50% Max Beam Candlepower

CRI—Color Rendering Index
CCT—Correlated Color Temperature in Kelvin scale (±200K over life)
COATED—Phosphor coated outer bulb
WISO—With Industry Superior Optics

Operating Position—Universal unless otherwise noted
Line Voltage—±5% for optimum color performance

*Do not feature UV FadeBlock™

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PHILIPS