

**California Title 20 Update :
New Regulations on Metal Halide Luminaires Manufactured On or After January 1, 2010**

Metal halide luminaires manufactured on or after January 1, 2010 and sold in the State of California are required to meet the requirements of the updated version of California Title 20. The updated version takes Title 20 beyond the requirements of the federal Energy Independence and Security Act of 2007 (EISA). Title 20 now is generally more restrictive. Luminaires that are EISA compliant may not comply with the new version of California Title 20.

We will be providing more information on this subject in the coming months. We urge you to read the attached excerpts completely and carefully. Should you have any questions or concerns, please feel free to contact Dale Simpson (800-477-8653 extension 806 or by e-mail: dale.simpson@philips.com.)

The applicable provisions of the new version of California Title 20 follow:

California Title 20, Excerpt from Section 1605.3(n)

(2) Energy Efficiency Standard for Metal Halide Luminaires. Metal halide luminaires rated at least partially within the range of 150 to 500 watts shall not have probe-start ballasts and shall comply with Section 1605.3(n)(2)(A) as applicable:

(A) The requirements for metal halide luminaires are as follows:

1. Indoor metal halide luminaires manufactured on or after January 1, 2010 shall comply with at least one compliance option of Section 1605.3(n)(2)(B).
2. Indoor metal halide luminaires manufactured on or after January 1, 2015 shall comply with Section 1605.3(n)(2)(B)4, and shall also comply with at least one other compliance option of Section 1605.3(n)(2)(B).
3. Outdoor metal halide luminaires manufactured on or after January 1, 2010, may comply with Section 1605.3(n)(2)(B)3, and shall comply with at least one other compliance option of Section 1605.3(n)(2)(B).

(B) Metal halide luminaires shall meet one of the following compliance options:

1. A minimum ballast efficiency of:
 - i. 90 percent for 150 to 250 watt lamps.
 - or
 - ii. 92 percent for 251 to 500 watt lamps.
2. A minimum ballast efficiency of 88 percent and an occupant sensor which is an integral control as defined in Section 1602(n) of this Article, shipped with the factory default setting to automatically reduce lamp power through dimming by a minimum of 40 percent within 30 minutes or less after the area has been vacated.
3. A minimum ballast efficiency of 88 percent and have an automatic daylight control which is an integral control as defined in Section 1602(n) of this Article, shipped with the factory default setting to automatically reduce lamp power through dimming by a minimum of 40 percent.

4. A minimum ballast efficiency of 88 percent and a relamping rated wattage within only one of the four wattage bins specified in subsections (i) through (iv) below. The luminaire shall be able to operate lamps within only one of the four wattage bins and shall not be rated for any lamp wattage outside of that wattage bin. The luminaire shall have a permanent, pre-printed factory-installed label that states the relamping rated wattage.

- i. 150-160 watts; or
- ii. 200-215 watts; or
- iii. 290-335 watts; or
- iv. 336-500 watts, provided that when a luminaire is able to operate 336 to 500 watt lamps, the luminaire shall be prepackaged and sold together with at least one lamp per socket, having a minimum lamp mean efficacy of 80 lumens per watt based on published mean lumens and rated lamp power (watts).

EXCEPTIONS to Sections 1605.3(n)(2)

The following metal halide lighting systems shall not have probe-start ballasts and are not required to meet the minimum ballast efficiency requirements:

1. Luminaires that use regulated lag ballasts;
2. Luminaires that use electronic ballasts which operate at 480 volts; or
3. Luminaires that meet all three of the following requirements:
 - a. Are rated for use only with 150 watt lamps, and
 - b. Are rated for use in wet locations, as specified by the National Electrical Code 2002, Section 410.4(A); and
 - c. Contain a ballast that is rated to operate at ambient air temperatures above 50 degrees C, as specified by UL 1029-2001.

Applicable Definitions from Section 1602(n)

“Automatic daylight control” is a control that automatically reduces lighting in response to available daylight. This control typically uses photosensors to detect changes in daylight illumination and then change the electric lighting level in response to the daylight changes.

“Integral control” means an fully functional occupancy sensor or automatic daylight control system for which all required components for an integral control, including control devices, sensors, and wiring, are factory installed, packaged and sold with each individual luminaire, and are integrated into each individual luminaire at the factory in one of the following three methods:

- (1) Is integrated directly into the luminaire housing and hardwired to the lighting system; or
- (2) Is pre-wired to allow proper functionality between the control and luminaire, and to allow remote mounting of the control. One end of the wiring shall be pre-wired to the luminaire, and the other end shall be prewired to the control. The wiring may be either a metal or fiber conductor. The wiring may allow temporary disconnection in the field to allow remote mounting of the control; or
- (3) Is pre-wired with a wireless radio controlled sensor to allow proper functionality between the control and luminaire, and to allow interaction with the wireless control signal in the lighting system.

Note: Information on the updated version of California Title 20 is provided as a courtesy by Philips Gardco. It should not be considered definitive. Agent Representatives, Specifiers, Owners, Users and other interested parties are responsible for securing definitive information on California Title 20, as well as other legislation or regulations that may apply.

Impact of California Title 20 Changes Effective January 1, 2010

AFFECTS OUTDOOR METAL HALIDE LUMINAIRES MANUFACTURED AFTER DECEMBER 31, 2009 AND SOLD IN CALIFORNIA.

Outdoor Metal Halide Luminaires less than 150 Watt

These are not impacted by the regulations, including all CosmoPolis™ Systems.

Outdoor Metal Halide Luminaires 150 Watt through 500 Watt

Impact varies by system, see the table below.

Green type indicates compliant.

Light green shading indicates most energy efficient choices.

Red type indicates potential compliance issues.

Source	Description	Ballast Type	Compliance / Issues	Reference
150MH	150W Pulse Start MH	Magnetic	Compliant by exception.	EXCEPTIONS TO 1605.3(n)(2), 3.
	Suggest : 90CMPE 90W CosmoPolis™	Electronic	Not Regulated.	
150CMHE	150W Ceramic MH	Electronic	Compliant.	1605.3(n)(2)(B)1i
T150CMHE	150W Ceramic MH - T6 Lamp	Electronic	Compliant.	1605.3(n)(2)(B)1i
175PSMH	175W Pulse Start MH	Magnetic	NOT Compliant UNLESS shipped with a Demand Response System with Motion Sensor control.	1605.3(n)(2)(B)2
	Suggest : 90CMPE 90W or 140CMPE 140W CosmoPolis™	Electronic	Not Regulated.	
200MH	200W Pulse Start MH	Magnetic	Compliant.	1605.3(n)(2)(B)4ii
200PSE	200W Pulse Start MH	Electronic	Compliant.	1605.3(n)(2)(B)4ii
210MCE	210W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1i
250PSMH	250W Pulse Start MH	Magnetic	NOT Compliant UNLESS shipped with a Demand Response System with Motion Sensor control.	1605.3(n)(2)(B)2
	Suggest : 140CMPE 140W CosmoPolis™	Electronic	Not Regulated.	
	Suggest : 210MCE 210W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1i
250PSE	250W Pulse Start MH	Electronic	Compliant.	1605.3(n)(2)(B)1i
315MCE	315W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1ii
320PSMH	320W Pulse Start MH	Magnetic	Compliant.	1605.3(n)(2)(B)4iii
320PSE	320W Pulse Start MH	Electronic	Compliant.	1605.3(n)(2)(B)1ii
350PSMH	350W Pulse Start MH	Magnetic	NOT Compliant UNLESS shipped with a Demand Response System with Motion Sensor control.	1605.3(n)(2)(B)2
	Suggest : 210MCE 210W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1i
	Suggest : 315MCE 315W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1ii
350PSE	350W Pulse Start MH	Electronic	Compliant.	1605.3(n)(2)(B)1ii
400PSMH	400W Pulse Start MH	Magnetic	Compliant ONLY if: a) shipped with a Demand Response System with Motion Sensor control, or: b) shipped with a lamp that meets 80 mean lumens per watt minimum. Specific lamp list available.	1605.3(n)(2)(B)2 1605.3(n)(2)(B)4iv.
	Suggest : 315MCE 315W MasterColor® Elite	Electronic	Compliant.	1605.3(n)(2)(B)1
400PSE	400W Pulse Start MH	Electronic	Compliant.	1605.3(n)(2)(B)1
450PSMH	450W Pulse Start MH	Magnetic	Compliant ONLY if shipped with a lamp that meets 80 mean lumens per watt minimum. Specific lamp list available.	1605.3(n)(2)(B)4iv

Outdoor Metal Halide Luminaires Greater Than 500 Watt

These are not impacted by the regulations.



Product Specification Bulletin

400 Watt

PULSE START

UNI-FORM[®]
PULSE START SYSTEM

Clear - 4K
Mogul - Enclosed Luminaire
Reduced Outer Jacket



VERTICAL ± 15°

MS 400W/V/ED28/PS/740 **Product Number** **85260**

Lamp Type SINGLE ENDED METAL HALIDE

ANSI Designation M135, M155/E

Performance Data	
<i>Light Output (Lumens @ 100 Hrs.)</i>	44000
<i>Lamp Lumens Per Watt</i>	110
<i>Mean Output (Lumens)</i>	35000
<i>Rated Life (Hrs. @ 10 Hr. / Start)</i>	20000+
<i>Correlated Color Temperature K</i>	4000
<i>Chromaticity (CIE -X,Y)</i>	.385 .390
<i>Color Rendering Index (CRI)</i>	68
<i>Typical Warm Up Time (Minutes)</i>	2-3
<i>Typical Hot Restart Time (Minutes)</i>	4-6
<i>Burning Position</i>	VERTICAL ± 15°

Physical Data / Requirements	
<i>Base Designation</i>	MOGUL (E39)
<i>Bulb Designation</i>	ED28
<i>Bulb Diameter</i>	3.5" (90mm)
<i>Max. Overall Length (MOL)</i>	8.3" (211mm)
<i>Light Center Length (LCL)</i>	5.0" (127mm)
<i>Effective Arc Length</i>	43.9 mm
<i>Max. Base Temperature (°C)</i>	230
<i>Max. Bulb Temperature (°C)</i>	450
<i>Luminaire Type</i>	ENCLOSED
<i>Socket Pulse Rating (KV)</i>	4
<i>Socket Style</i>	ENCLOSED RATED E39

Electrical Data / Requirements	
<i>Lamp Wattage</i>	400
<i>Operating Voltage (Nominal)</i>	135
<i>Operating Current (Amps)</i>	3.2
<i>Min. Open Circuit Voltage (RMS)</i>	254
<i>Min. -Max. Starting Pulse (Peak V)</i>	3000-4000
<i>Min. Pulse Width At 2700 Volts (u sec)</i>	1
<i>Min. Pulse Rate Per 1/2 Cycle</i>	1
<i>Pulse Position (Min. % OCV Peak)</i>	90

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- Notes**
- ▶ Lamps are not warranted for rated life when operated on M135 ballasts with less than the 270V sustaining voltage (Vss) required in ANSI specifications.
 - ▶ Minimum Starting Temperature: -40°C/°F

Lamps

THIS LAMP CONFORMS TO FEDERAL STANDARD 21 CFR 1040.30
Warning: This lamp can cause skin burn and eye inflammation from shortwave 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. Lamps that will automatically extinguish when outer envelope is broken or punctured are commercially available.



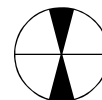
Product Specification Bulletin

400 Watt

PULSE START

UNI-FORM[®]
PULSE START SYSTEM

Clear - 4K



Mogul - Enclosed Luminaire HORIZONTAL ± 75°

MS 400W/H75/ED28/PS/740

Product Number 40124

Lamp Type

SINGLE ENDED METAL HALIDE

ANSI Designation

M135, M155/E

Performance Data

<i>Light Output (Lumens @ 100 Hrs.)</i>	40000
<i>Lamp Lumens Per Watt</i>	100
<i>Mean Output (Lumens)</i>	32000
<i>Rated Life (Hrs. @ 10 Hr. / Start)</i>	20000+
<i>Correlated Color Temperature K</i>	4000
<i>Chromaticity (CIE -X,Y)</i>	.385 .390
<i>Color Rendering Index (CRI)</i>	68
<i>Typical Warm Up Time (Minutes)</i>	2-3
<i>Typical Hot Restart Time (Minutes)</i>	4-6
<i>Burning Position</i>	HORIZONTAL ± 75°

Physical Data / Requirements

<i>Base Designation</i>	MOGUL (E39)
<i>Bulb Designation</i>	ED28
<i>Bulb Diameter</i>	3.5" (90mm)
<i>Max. Overall Length (MOL)</i>	8.3" (211mm)
<i>Light Center Length (LCL)</i>	5.0" (127mm)
<i>Effective Arc Length</i>	43.9 mm
<i>Max. Base Temperature (°C)</i>	230
<i>Max. Bulb Temperature (°C)</i>	450
<i>Luminaire Type</i>	ENCLOSED
<i>Socket Pulse Rating (KV)</i>	4
<i>Socket Style</i>	ENCLOSED RATED E39

Electrical Data / Requirements

<i>Lamp Wattage</i>	400
<i>Operating Voltage (Nominal)</i>	135
<i>Operating Current (Amps)</i>	3.2
<i>Min. Open Circuit Voltage (RMS)</i>	254
<i>Min. -Max. Starting Pulse (Peak V)</i>	3000-4000
<i>Min. Pulse Width At 2700 Volts (u sec)</i>	1
<i>Min. Pulse Rate Per 1/2 Cycle</i>	1
<i>Pulse Position (Min. % OCV Peak)</i>	90

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Notes

- ▶ Nominal color temperature is based on horizontal operation of the lamp. Off-horizontal positions will result in warmer color temperatures.
- ▶ Lamps are not warranted for rated life when operated on M135 ballasts with less than the 270V sustaining voltage (Vss) required in ANSI specifications.
- ▶ Minimum Starting Temperature: -40°C/°F

Lamps

THIS LAMP CONFORMS TO FEDERAL STANDARD 21 CFR 1040.30

Warning: This lamp can cause skin burn and eye inflammation from shortwave 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. Lamps that will automatically extinguish when outer envelope is broken or punctured are commercially available.



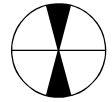
Product Specification Bulletin

400 Watt

PULSE START

UNI-FORM[®]
PULSE START SYSTEM

Clear - 4K



Mogul - Enclosed Luminaire HORIZONTAL ± 75°

MS 400W/H75/PS/740	Product Number	58788
Lamp Type	SINGLE ENDED METAL HALIDE	
ANSI Designation	M135, M155/E	
Performance Data		
<i>Light Output (Lumens @ 100 Hrs.)</i>	40000	
<i>Lamp Lumens Per Watt</i>	100	
<i>Mean Output (Lumens)</i>	32000	
<i>Rated Life (Hrs. @ 10 Hr. / Start)</i>	20000+	
<i>Correlated Color Temperature K</i>	4000	
<i>Chromaticity (CIE -X,Y)</i>	.385 .390	
<i>Color Rendering Index (CRI)</i>	68	
<i>Typical Warm Up Time (Minutes)</i>	2-3	
<i>Typical Hot Restart Time (Minutes)</i>	4-6	
<i>Burning Position</i>	HORIZONTAL ± 75°	
Physical Data / Requirements		
<i>Base Designation</i>	MOGUL (E39)	
<i>Bulb Designation</i>	ED37	
<i>Bulb Diameter</i>	4.6" (120mm)	
<i>Max. Overall Length (MOL)</i>	11.5" (292mm)	
<i>Light Center Length (LCL)</i>	7.0" (178mm)	
<i>Effective Arc Length</i>	43.9 mm	
<i>Max. Base Temperature (°C)</i>	210	
<i>Max. Bulb Temperature (°C)</i>	400	
<i>Luminaire Type</i>	ENCLOSED	
<i>Socket Pulse Rating (KV)</i>	4	
<i>Socket Style</i>	ENCLOSED RATED E39	
Electrical Data / Requirements		
<i>Lamp Wattage</i>	400	
<i>Operating Voltage (Nominal)</i>	135	
<i>Operating Current (Amps)</i>	3.2	
<i>Min. Open Circuit Voltage (RMS)</i>	254	
<i>Min. -Max. Starting Pulse (Peak V)</i>	3000-4000	
<i>Min. Pulse Width At 2700 Volts (u sec)</i>	1	
<i>Min. Pulse Rate Per 1/2 Cycle</i>	1	
<i>Pulse Position (Min. % OCV Peak)</i>	90	
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Notes		
<ul style="list-style-type: none"> ▶ Nominal color temperature is based on horizontal operation of the lamp. Off-horizontal positions will result in warmer color temperatures. ▶ Lamps are not warranted for rated life when operated on M135 ballasts with less than the 270V sustaining voltage (Vss) required in ANSI specifications. ▶ Minimum Starting Temperature: -40°C/°F 		
Lamps	THIS LAMP CONFORMS TO FEDERAL STANDARD 21 CFR 1040.30	
	Warning: This lamp can cause skin burn and eye inflammation from shortwave 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. Lamps that will automatically extinguish when outer envelope is broken or punctured are commercially available.	



Product Specification Bulletin

400 Watt

PULSE START

UNI-FORM[®]
PULSE START SYSTEM

Clear - 4K



VERTICAL ± 15°

Mogul - Enclosed Luminaire

MS 400W/V/PS/740	Product Number	73531
Lamp Type	SINGLE ENDED METAL HALIDE	
ANSI Designation	M135, M155/E	
Performance Data		
<i>Light Output (Lumens @ 100 Hrs.)</i>	44000	
<i>Lamp Lumens Per Watt</i>	110	
<i>Mean Output (Lumens)</i>	35000	
<i>Rated Life (Hrs. @ 10 Hr. / Start)</i>	20000+	
<i>Correlated Color Temperature K</i>	4000	
<i>Chromaticity (CIE -X,Y)</i>	.385 .390	
<i>Color Rendering Index (CRI)</i>	68	
<i>Typical Warm Up Time (Minutes)</i>	2-3	
<i>Typical Hot Restart Time (Minutes)</i>	4-6	
<i>Burning Position</i>	VERTICAL ± 15°	
Physical Data / Requirements		
<i>Base Designation</i>	MOGUL (E39)	
<i>Bulb Designation</i>	ED37	
<i>Bulb Diameter</i>	4.6" (120mm)	
<i>Max. Overall Length (MOL)</i>	11.5" (292mm)	
<i>Light Center Length (LCL)</i>	7.0" (178mm)	
<i>Effective Arc Length</i>	43.9 mm	
<i>Max. Base Temperature (°C)</i>	210	
<i>Max. Bulb Temperature (°C)</i>	400	
<i>Luminaire Type</i>	ENCLOSED	
<i>Socket Pulse Rating (KV)</i>	4	
<i>Socket Style</i>	ENCLOSED RATED E39	
Electrical Data / Requirements		
<i>Lamp Wattage</i>	400	
<i>Operating Voltage (Nominal)</i>	135	
<i>Operating Current (Amps)</i>	3.2	
<i>Min. Open Circuit Voltage (RMS)</i>	254	
<i>Min. -Max. Starting Pulse (Peak V)</i>	3000-4000	
<i>Min. Pulse Width At 2700 Volts (u sec)</i>	1	
<i>Min. Pulse Rate Per 1/2 Cycle</i>	1	
<i>Pulse Position (Min. % OCV Peak)</i>	90	
Revision:	9/19/2008	1794 - 8
Notes		
<ul style="list-style-type: none"> ▶ At 120 or more hours/start, lamp life is rated at 30,000 hours. ▶ Lamps are not warranted for rated life when operated on M135 ballasts with less than the 270V sustaining voltage (Vss) required in ANSI specifications. ▶ Minimum Starting Temperature: -40°C/°F 		
Lamps	THIS LAMP CONFORMS TO FEDERAL STANDARD 21 CFR 1040.30	
	Warning: This lamp can cause skin burn and eye inflammation from shortwave 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. Lamps that will automatically extinguish when outer envelope is broken or punctured are commercially available.	



Product Specification Bulletin

450 Watt

PULSE START

UNI-FORM[®]
PULSE START SYSTEM

Clear - 4K



VERTICAL ± 15°

Mogul - Enclosed Luminaire

MS 450W/V/PS/740	Product Number	10079
Lamp Type	SINGLE ENDED METAL HALIDE	
ANSI Designation	M144/E	
Performance Data		
<i>Light Output (Lumens @ 100 Hrs.)</i>	50000	
<i>Lamp Lumens Per Watt</i>	111	
<i>Mean Output (Lumens)</i>	40000	
<i>Rated Life (Hrs. @ 10 Hr. / Start)</i>	20000+	
<i>Correlated Color Temperature K</i>	4000	
<i>Chromaticity (CIE -X,Y)</i>	.385 .390	
<i>Color Rendering Index (CRI)</i>	68	
<i>Typical Warm Up Time (Minutes)</i>	2-3	
<i>Typical Hot Restart Time (Minutes)</i>	4-6	
<i>Burning Position</i>	VERTICAL ± 15°	
Physical Data / Requirements		
<i>Base Designation</i>	MOGUL (E39)	
<i>Bulb Designation</i>	ED37	
<i>Bulb Diameter</i>	4.6" (120mm)	
<i>Max. Overall Length (MOL)</i>	11.5" (292mm)	
<i>Light Center Length (LCL)</i>	7.0" (178mm)	
<i>Effective Arc Length</i>	41.6 mm	
<i>Max. Base Temperature (°C)</i>	230	
<i>Max. Bulb Temperature (°C)</i>	450	
<i>Luminaire Type</i>	ENCLOSED	
<i>Socket Pulse Rating (KV)</i>	4	
<i>Socket Style</i>	ENCLOSED RATED E39	
Electrical Data / Requirements		
<i>Lamp Wattage</i>	450	
<i>Operating Voltage (Nominal)</i>	135	
<i>Operating Current (Amps)</i>	3.7	
<i>Min. Open Circuit Voltage (RMS)</i>	254	
<i>Min. -Max. Starting Pulse (Peak V)</i>	3000-4000	
<i>Min. Pulse Width At 2700 Volts (u sec)</i>	1	
<i>Min. Pulse Rate Per 1/2 Cycle</i>	1	
<i>Pulse Position (Min. % OCV Peak)</i>	90	
Revision:	6/4/2008	1945 - 15
Notes		
<ul style="list-style-type: none"> ▶ Requires an ignitor for starting. ▶ Minimum Starting Temperature: -40°C/°F 		
Lamps	<p>THIS LAMP CONFORMS TO FEDERAL STANDARD 21 CFR 1040.30</p> <p>Warning: This lamp can cause skin burn and eye inflammation from shortwave 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. Lamps that will automatically extinguish when outer envelope is broken or punctured are commercially available.</p>	