Champ® Pro PVM

LED luminaires for harsh & heavy industrial areas

3,000 to 25,000 lumen LED high bay luminaires

F·T·N

Powering Business Worldwide

Champ® Pro PVM LED

Safe.
Reliable.
Efficient.

Featuring the industry's broadest range of LED luminaires for harsh, hazardous and industrial environments, Eaton's Crouse-Hinds can deliver a lighting solution that performs reliably in even the worst operating conditions. All the while reducing your energy, maintenance and manpower costs.

Why LED?

Useful life
Rated life is up to 60,000 hours of maintenance-free and safe operation

Energy efficiency
LED average energy consumption is significantly less than traditional fluorescent and HID fixtures

Start/restart time
Instant illumination versus 10 minute restrike time for HID

Light quality
Higher color rendering compared to fluorescent and HID

Environmental benefits
Mercury-free LED eliminates disposal costs and lower energy consumption for a smaller carbon footprint

Why Crouse-Hinds?

Rugged design
Built to withstand extreme temperatures, vibration, water and dust

High efficacy
Up to 124 lumens per watt (model dependent)

Thermal management
Effective heat sinking ensures longer life

Quality of light
Custom optics designed to maximize light distribution and intensity

Versatile mounting
LED fixtures are compatible with Crouse-Hinds' HID installed base

Why Champ Pro PVM LED?

Rugged mid to high bay solutions. Champ PVM series LED luminaires are engineered to provide maintenance-free performance while delivering long life and high lumen performance.

PVM3L - PVM11L

optimized for 8-30 foot mounting heights

Built to last:
- Type 4X rated
- Impact-resistant lens sealed from the outside environment provides ingress protection against water and dust
- Die cast aluminum LED housing provides efficient thermal path to heat sink assembly
- Vertical fin design facilitates air flow and dust shedding

Simple installation and replacement:
- Contractor-friendly design is ideal for both retrofit and new construction
- Easy to retrofit using existing HID Champ mounting module
- Compact modular design for easy component replacement and future upgrades
- Available with lever lock connectors and standard three-pole terminal block

PVM13L & PVM17L

PVM21L & PVM25L

optimized for 30-60 foot mounting heights

Custom optics:
- Type I, III and V optics designed to maximize light distribution and intensity*

* Type V optics standard

Increased efficiency and durability:
- Up to 124 lumens per watt
- Economic life: 7-20 years

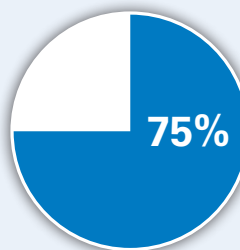## LED vs. HID savings at a glance

Why are so many facilities making the switch from HID to LED?

The numbers say it all.

PVM7L vs. 175 watt MH

64%
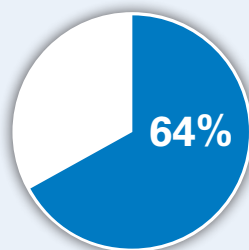
64% REDUCTION IN ENERGY COSTS

75%

75% LOWER TOTAL COST OF OWNERSHIP

100%

100% MAINTENANCE REDUCTION

Assumptions: Calculations based on overall life of the LED system. Energy cost of $.09 per kilowatt; 24 hour per day operation; labor rate of $75 each for 2 workers; average time for fixture maintenance of 1 hour.

Custom optics

Eaton's Crouse-Hinds continuously focuses on engineering product solutions tailored to our customers' unique needs and applications.

Champ Pro PVM LED luminaires feature custom optics designed to maximize light distribution and intensity, providing flexibility for retrofits or new installations throughout the site.

Type III optics minimize light spillover onto the walls and direct light to the ground.

Three optical options to maximize light distribution and intensity

PVM3L - PVM11L

Type I

Type III

Type V

TYPE I

Long and rectangular for hallways, walkways, loading docks, catwalks.

Ideal for:
- Mining conveyor belts
- Aisleways and hallways
- Catwalks and walkways
- Ramps and loading docks
- Tunnels with overhead mounts

TYPE III

Wall mount light distribution, minimizing spillover on the wall.

Ideal for:
- Narrow crosswalks or passages with wall mounted fixtures
- Tunnels with wall mount
- Wall or stanchion mount requiring 180° forward throw beam patterns

TYPE V

Regular circular distribution pattern for high/low bay indoor and outdoor ceiling or pendant mount lighting.

Ideal for:
- Pendant, ceiling or stanchion mount overhead building mounts
- Processing mills, industrial plants, large buildings, warehouses, etc.

Colored LED options:
- Available in green and amber*
- Reduction in light pollution for night space observation and sky glow due to isolating blue wavelength in red and amber colors
- Wildlife-friendly
- Improves visibility for telescopes in observatories during night sky space exploration

* Custom optics not available with colored LEDs. One model per color, see assignment sheet.

Case study: Type I optics

Catwalk/conveyor lighting

Utilizing Eaton's Crouse-Hinds lighting layout services, Champ Pro PVM luminaires with Type I optics and HID luminaires are shown installed on a catwalk to compare photometrics.

Comparison

Champ Pro Type I LEDs have a wider linear pattern than equivalent HID luminaires and provide more efficient light dispersion, which fully illuminates the catwalk.

Results

Champ Pro PVM LED with Type I optics provides superior illumination along the conveyor and walkway safely. With no gaps in illumination, the optical pattern allows for increased spacing of fixtures and a safer conveyor system.

Savings realized

- **Champ Pro Type I pattern allows for greater fixture spacing** along the catwalk or conveyor system
- Increased visibility with no dark spots results in safer conditions for workers
- LED system provides between 7 to 20 years of maintenance free operation
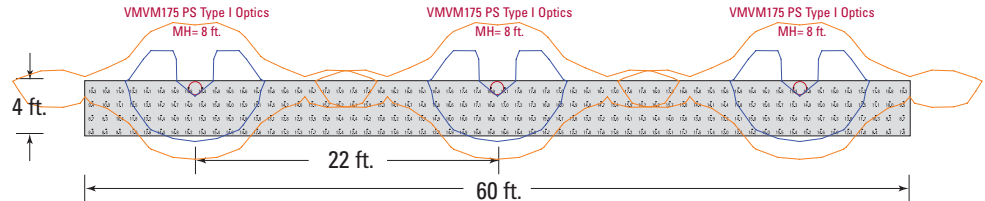- Up to 64% energy savings over the life of the fixture

Champ Pro PVM w/ Type I Optics

PVM7L Type I Optics MH=8 ft.

4 ft.

22 ft.

60 ft.
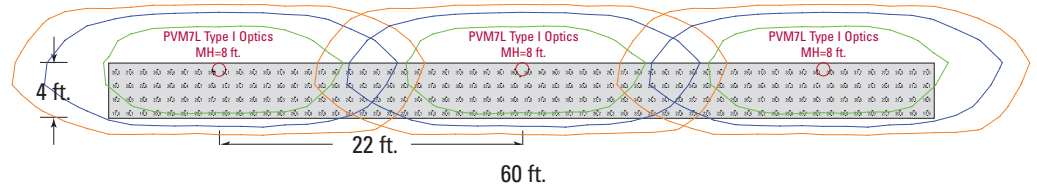
175W Metal Halide w/ Type I Optics

VMVM175 PS Type I Optics MH= 8 ft.

4 ft.

22 ft.

60 ft.

Champ Pro PVM	Illuminance	Fc	26.91	36.9	17.4	1.55	2.12
175W MH	Illuminance	Fc	14.32	18.0	7.9	1.81	2.28

Champ Pro has broader coverage area, higher delivered footcandles and uniformity for a typical catwalk or conveyor application.

Champ Pro PVM with Type I optics
Broad coverage maximizes luminaire spacing and prevents dark spots

175W HID with Type I optics
Lack of coverage results in dark spots
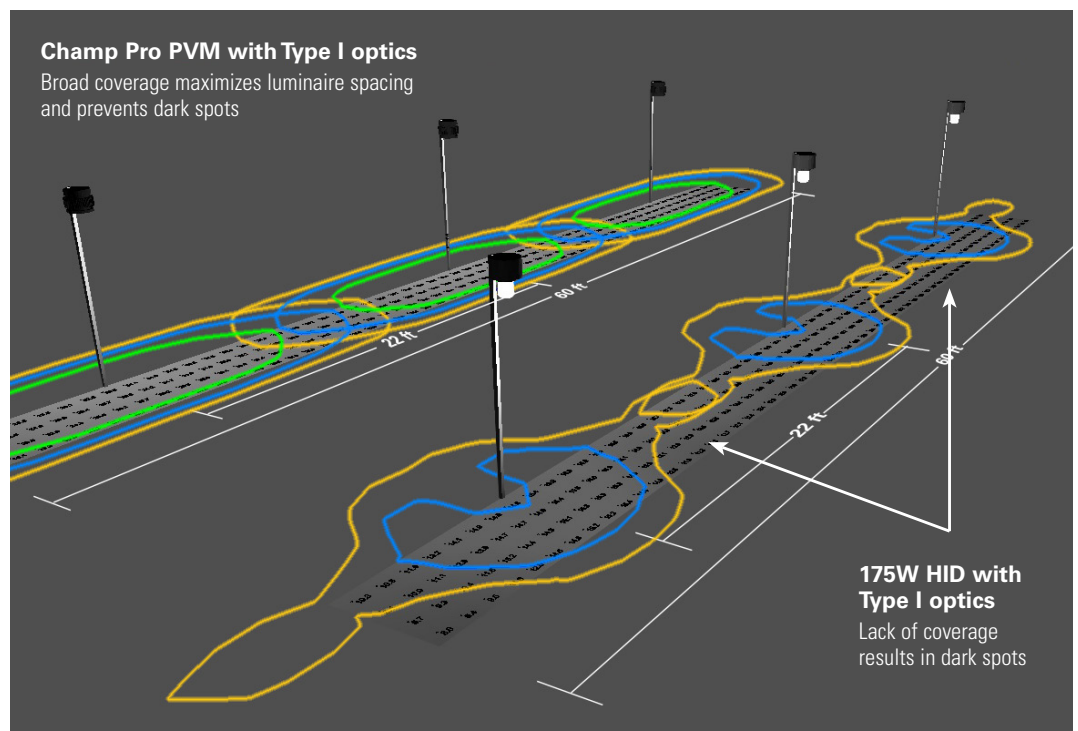
Champ Pro PVM series LED luminaires

Champ Pro PVM series LEDs are designed to provide full-spectrum, crisp, white light with custom IES Type I, III and V distribution.

Model	Typical lumens (Type V)*	Wattage	Lumens per watt	Equivalent HID luminaire	Typical energy savings / lifetime
PVM3L	3,531	29	122	70W-100W	Up to 77%
PVM5L	5,335	43	124	100W-150W	Up to 67%
PVM7L	7,195	62	116	150W-175W	Up to 67%
PVM9L	9,266	85	109	250W-320W	Up to 74%
PVM11L	11,440	113	101	320W-400W	Up to 74%
PVM13L	13,226	130	102	400W	Up to 68%
PVM17L	18,793	168	112	400W-600W	Up to 72%
PVM21L	22,110	196	113	600W-750W	Up to 74%
PVM25L	26,531	232	114	750W-1000W	Up to 77%

* Tolerance +/- 10%.

Applications:

- Ordinary non-hazardous locations with mounting heights up to 60 feet

- Heavy industrial, mine site processing areas, platforms, loading docks, tunnels, indoor/outdoor spotlighting, outdoor wall, stanchion mounted general area lighting and areas requiring frequent on-and-off of lights

- Locations requiring continuous and consistent light levels in extreme ambient temperatures

- Where extremely corrosive, wet, dusty, hot and/or cold conditions exist

- Type 4X, marine, wet locations and hose-down environments

Champ Pro PVM benefits:

- Instant illumination and restrike

- Better visibility with crisp, white light

- Cold temperature operation / no warm-up required

- Option for redundancy in drivers with multiple series circuits connected to each driver to avoid complete loss of illumination

- Easy installation - compact modular fixture attaches onto existing Champ mounting module

- Energy-efficient technology - up to 64% energy savings over HID fixtures

- Contains no mercury or other hazardous substances

- Shock- and vibration-resistant solid-state luminaires have no filaments or glass components that could break - greatly reduces the risk of premature failure

- Operating ambient: -40°C to 65°C (PVM3L-PVM11L models); -40°C to 55°C (PVM13L-PVM25L models)

- Full cut-off with no wasted light above the fixture

- 5 year fixture warranty†

† Refer to page 2 of the D-0914 authorized distributor price book for Crouse-Hinds standard Terms and Conditions.

Standard materials:

- Lamp housing and adapter - die cast aluminum with Corro-free™ epoxy powder coat
- Lens - heat- and impact-resistant glass
- Gaskets - silicone
- External hardware - stainless steel
- Factory-sealed, no external seals required

LED system lifetime rated versus economic life:
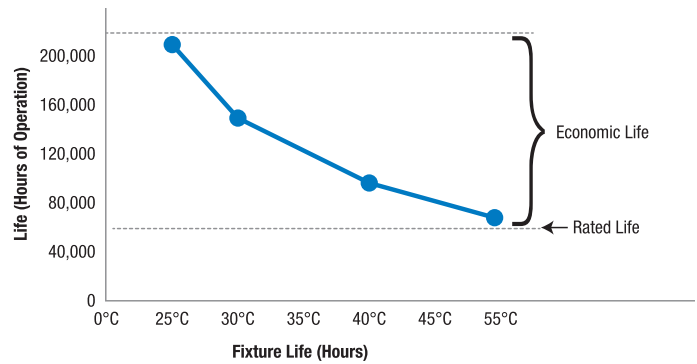
Economic life can range anywhere between 64,000 to 200,000 hours, or 7 to 20 years of maintenance-free operation.

Fixture life and years of maintenance-free operation

Ambient temperature	Fixture life (hours)	No. of years at 24 hours usage	No. of years at 12 hours usage
25°C	201,008	23	46
30°C	153,445	17	35
40°C	94,949	11	22
55°C	64,286	7	15

* 50,000 hours of life at 65°C ambient for PVM3L-PVM11L/UNV1 models.

Fixture life:

- Rated life of 60,000 hours @ 55°C operating ambient and 24/7 continuous operation for 365 days
- Economic life of 200,000 hours @ 25°C ambient
- L70 >300,000 hours @ 55°C

Certifications and compliances:

- DesignLights Consortium® Qualified (some models are not DLC qualified)*

NEC and CEC
- Wet Locations, NEMA 4X, IP66

UL Standards
- UL1598 Luminaires, UL1598A Marine

CSA Standard
- cUL Listed to CSA Standard CSA C22.2 No. 250

IEC Standard
- CE

* Approved models include: PVM3L/UNV1; PVM5L/UNV1; PVM7L/UNV1; PVM9L/UNV1; PVM11L/UNV1; PVM13L/UNV1; PVM17L/UNV1; PVM21L/UNV1; PVM25L/UNV1; PVM3L/UNV34; PVM5L/UNV34; PVM7L/UNV34; PVM9L/UNV34; PVM11L/UNV34;

Refer to www.designlights.org Qualified Products List under family models for full listing details. Not all models are approved for all application categories.

LED system:

- High intensity discrete power emitters

- Standard: cool white (5000K, 70 CRI) Optional: warm white, (3000K, 80 CRI) Optional: neutral white, (4000K, 70 CRI)

- Custom Type I, III and V optics available

- Optics clocking in field to align Type I and Type III light patterns to illumination path for PVM13L-PVM25L

Electrical ratings:

	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Voltage range, VAC	120-277	120-277	120-277	120-277	120-277
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Input power (watts)	29	43	62	85	113
Input amps at 120-277 VAC	0.24-0.11	0.35-0.16	0.52-0.23	0.71-0.31	0.95-0.41
Voltage range, VDC	108-250	108-250	108-250	108-250	108-250
Power factor	>0.90	>0.90	>0.90	>0.90	>0.90
Total harmonic distortion (THD)	<20%	<20%	<20%	<20%	<20%
Nominal lumens† (Type V)	3,531	5,335	7,195	9,226	11,440

	PVM13L	PVM17L	PVM21L	PVM25L
Voltage range, VAC	120-277	120-277	120-277	120-277
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Input power (watts)	131	168	196	232
Input amps at 120-277 VAC	1.08-0.48	1.40-0.62	1.64-0.73	1.94-0.87
Voltage range, VDC	108-250	108-250	108-250	108-250
Power factor	>0.90	>0.90	>0.90	>0.90
Total harmonic distortion (THD)	<20%	<20%	<20%	<20%
Nominal lumens† (Type V)	13,226	18,793	22,110	26,531

† Tolerance +/- 10%.

Drivers:

Option	PVM3L-PVM25L (0-10V dimming)
/UNV1	120-277 VAC, 50/60 Hz;108-250 VDC, 50/60 Hz
/UNV34	347-480 VAC, 50/60 Hz

Weights:

Luminaire	lbs.	kg.
PVM3L-PVM11L	21.80	8.07
PVM13L & PVM17L	36.00	16.32
PVM21L & PVM25L	44.00	19.95

Mounting module	lbs.	kg.
Pendant	1.25	0.57
Cone pendant	4.00	1.81
Flexible pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angled stanchion*	3.50	1.59
Straight stanchion	4.50	2.04

* Angled stanchion for PVM3L-PVM11L models only.
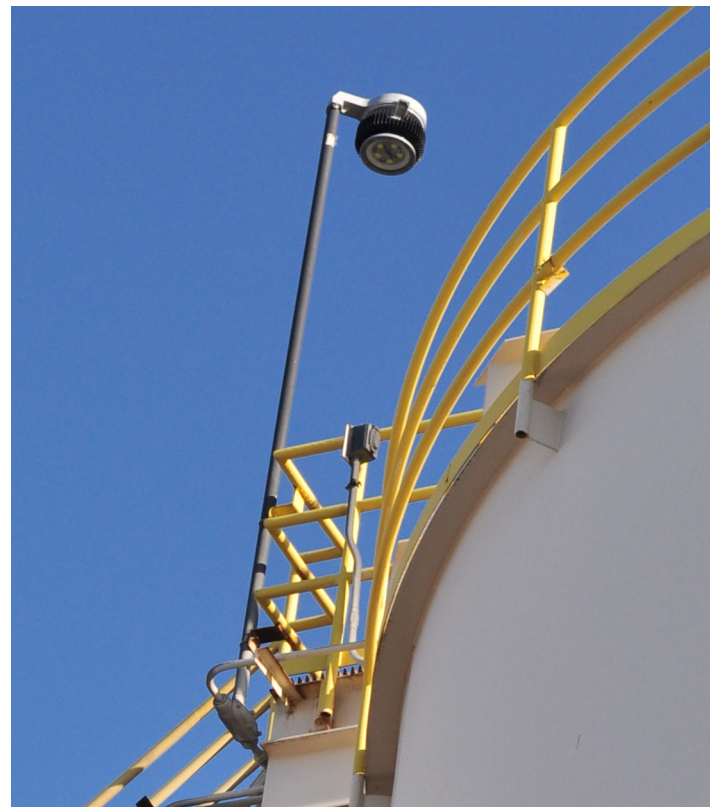
Options:

- Wire guard with captive mounting hardware
- Trunnion mount with redundant pin locking mechanism (ceiling mount required)
- Quick Clip for quick installation
- Diffused lens for glare reduction
- Redundant driver for prevention of total loss of illumination
- Teflon coating on lens for additional shatter protection
- Polycarbonate lens for areas where glass is prohibited
- Six-pole terminal block

Accessories (ordered separately):

- Photocell, 120V, 50/60 Hz
- Photocell, 208-277V
- Occupancy sensor with photocell, 120/277 VAC
- Trunnion mount kit with redundant pin locking mechanism (ceiling mount required)
- Remote control for customizing occupancy sensor performance

ORDC/UNV1   REMOTE CONTROL 1

Occupancy sensor and remote (ordered separately)

Ordering information

| PVM | 17L | W | 2A | R1 | G | /UNV1 | S890 |

Lamp/function

3L	3,531 lumen LED
5L	5,335 lumen LED
7L	7,195 lumen LED
9L	9,226 lumen LED
11L	11,440 lumen LED
13L	13,226 lumen LED
17L	18,793 lumen LED
21L	22,110 lumen LED
25L	26,531 lumen LED
GL*	Green (4,300 lumen LED)
AL*	Amber (5,000 lumen LED)

* Custom optics not available with colored LEDs.

Color temperature

BLANK	Cool (5000K) or colored
N	Neutral (4000K)
W	Warm (3000K)

Mounting style

BLANK	No cover	**2C**	¾" ceiling
J*	1-½" stanchion, 25° angled	**3C**	1" ceiling
P	1-½" stanchion, straight	**20C**	20mm ceiling
2A	¾" pendant	**25C**	25mm ceiling
3A	1" pendant	**2HA**	¾" flexible pendant
20A	20mm pendant	**2TW**	¾" wall
25A	25mm pendant	**3TW**	1" wall
2B	¾" cone pendant	**20TW**	20mm wall
3B	1" cone pendant	**25TW**	25mm wall

* For PVM3L-PVM11L only.

Accessories (ordered separately)

D2S20	Photocell, 120V, 50/60 Hz
D2S208 277	Photocell, 208-277V
VMVL S812 K1*	Trunnion mount kit with pin

* Order with ceiling mount only.

Suffixes

S812*	Trunnion mount kit with pin
S831	Safety cable
S890	Quick clip
S891	Diffused lens
S892**	Redundant driver
S896	Teflon coated lens
S903	Polycarbonate lens
TB6	Six-pole terminal block

* Order with ceiling mount only.

** Available for 5L & 7L only. Redundant driver standard on 9L - 25L models. 7L = 6,616 lumens with S892 suffix.

Voltage

/UNV1	120-277 VAC, 50/60 Hz; 108-250 VDC, 50/60 Hz
/UNV34	347-480 VAC, 50/60 Hz

Guard

BLANK	No guard
G	P3001 wire guard

Optics

BLANK	Type V optic standard *(All mounts)*
R1	Type I optic *(all mounts minus ceiling for 3L-11L, available with mounts for 13L-25L models)*
R1A*	Type I Optic *(ceiling with conduit 45° counterclockwise or 135° clockwise from hinge)*
R1B*	Type I Optic *(ceiling with conduit 45° clockwise or 135° counterclockwise from hinge)*
R3	Type III Optic *(all mounts minus ceiling)*
R3AP*	Type III Optic *(select when using Appleton® top hat adapter with Champ fixture)*
R3A1*	Type III Optic *(ceiling with conduit 45° counterclockwise from top hat hinge)*
R3A2*	Type III Optic *(ceiling with conduit 135° clockwise from top hat hinge)*
R3B1*	Type III Optic *(ceiling with conduit 45° clockwise from top hat hinge)*
R3B2*	Type III Optic *(Ceiling with conduit 135° counterclockwise from top hat hinge)*

* For PVM3L-PVM11L only.

Occupancy sensor
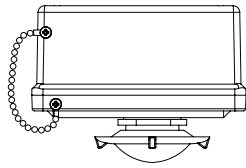
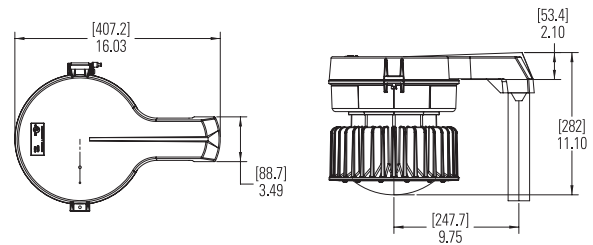| Occupancy sensors	
ORDC/UNV1	3/4" NPT entry, 100-277 VAC
347/480 K1	Step down transformer for 347-480 VAC applicaitons

Occupancy sensor accessories (ordered separately)	
CABLE KIT ORD 1	TECK armored cable (5ft) with TECK glands (¾")
CABLE KIT ORD 2	P Type non armored cable (5ft) with ADE1F glands (3/4")
CABLE KIT ORD 3	Metal-clad armored cable (5ft) with TMC glands (3/4")
CABLE KIT ORD 4	SO cable (5ft) with ADE1F glands (3/4")
ORDC WKIT	Wall mount kit
ORDC PKIT	Pendant mount kit
ORDC SKIT	Stanchion mount kit
REMOTE CONTROL 1	Remote control for programming sensor

Mounting options and dimensions 3L–11L

Stanchion - 25° Angled
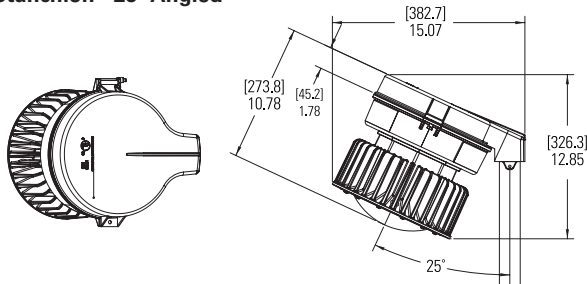
Stanchion - Straight

Pendant
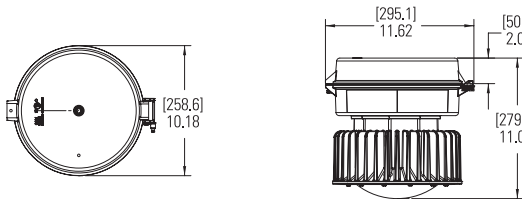
Ceiling
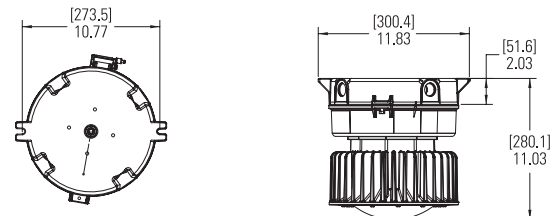
Wall
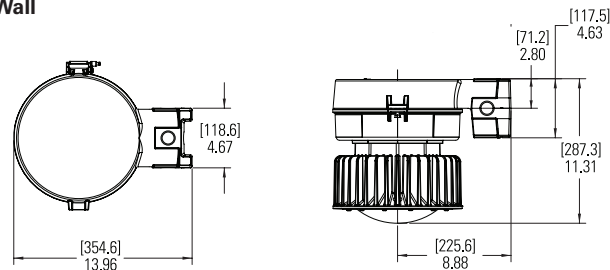
Cone Pendant
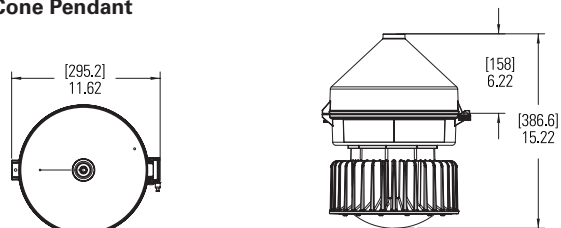
Trunnion

Mounting module series

Pendant	Cone	Ceiling	Wall	Stanchion	
APM2	BPM2	CM2	TWM2	JM5	PM5
APM3	BPM3	CM3	TWM3		
HPM2					

PVM*L
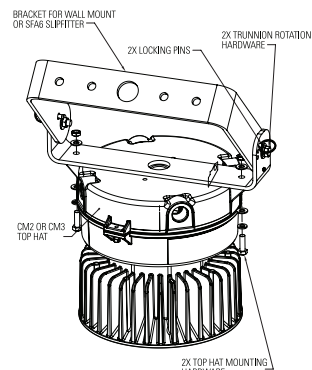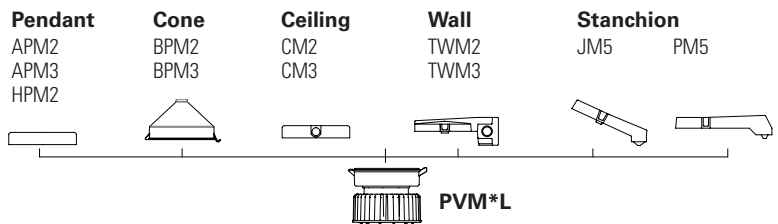
Mounting options and dimensions: 13L–25L

Ceiling

Top view: 13L-25L
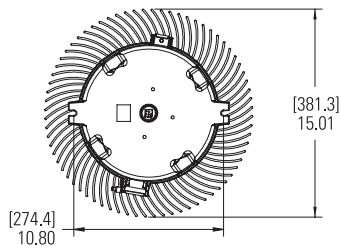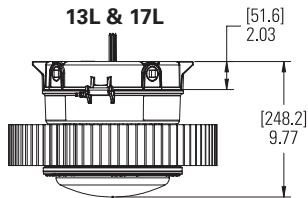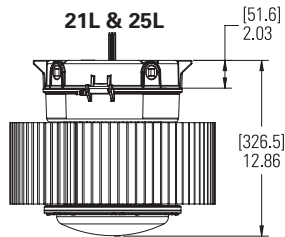
[381.3]
15.01

[274.4]
10.80

13L & 17L

[51.6]
2.03

[248.2]
9.77

21L & 25L

[51.6]
2.03

[326.5]
12.86

Pendant

Top view: 13L-25L

[381.3]
15.01

13L & 17L

[51.6]
2.03

[247.5]
9.74

21L & 25L

[51.6]
2.03

[324.9]
12.79

Cone pendant

Top view: 13L-25L

[381.3]
15.01

13L & 17L

[158.0]
6.22

[354.6]
13.96

21L & 25L

[158.0]
6.22

[432.0]
17.01
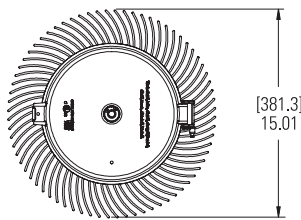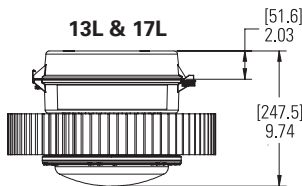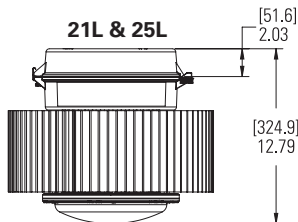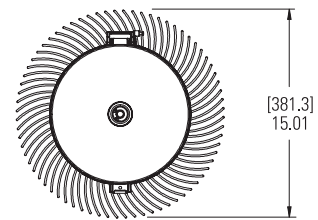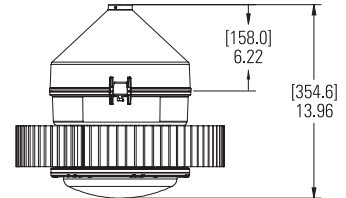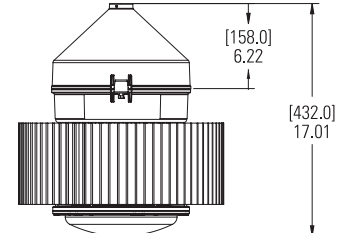
Stanchion

Top view: 13L-25L

[88.7]
3.49

[381.3]
15.01

[468.8]
18.46

13L & 17L

[247.7]
9.75

[51.9]
2.04

[250.0]
9.84

21L & 25L

[247.7]
9.75

[51.9]
2.04

[327.5]
12.89

Wall

Top view: 13L-25L

[118.6]
4.67

[381.3]
15.01

[416.2]
16.39

13L & 17L

[117.5]
4.63

[255.3]
10.05

[225.6]
8.88

21L & 25L

[117.5]
4.63

[332.8]
13.10

[225.6]
8.88

Trunnion

13L & 17L

Bracket for wall mount or SFA6 slipfitter

2X trunnion rotation hardware

2X locking pins

2X top hat mounting hardware

CM2, CM3, CM20 or CM25 top hat

21L & 25L

Bracket for wall mount or SFA6 slipfitter

2X trunnion rotation hardware

2X locking pins

2X top hat mounting hardware

CM2, CM3, CM20 or CM25 top hat

Photometric comparison at 15 ft. mounting height

175W PSMH - Type I

PVM7L - Type I
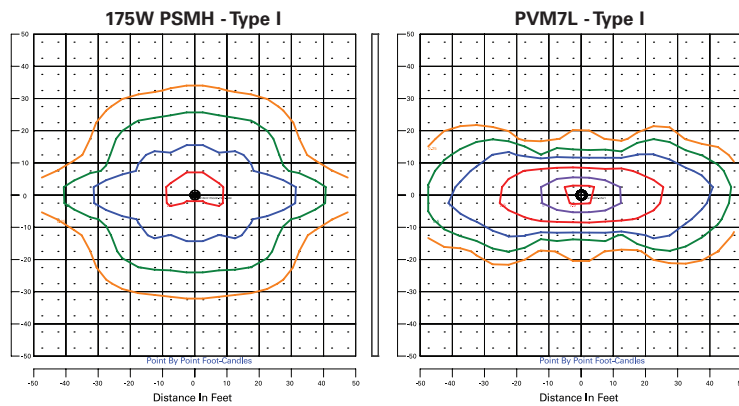
Type I optical pattern

🟧	🟩	🟦	🟥	🟪
0.25	0.50	1.0	2.5	5.0

Calculation summary

Label	Calc. type (in Fc)	Avg.	Max.	Min.
VMV 175W MH Grid	Illuminance	0.49	3.0	0.0
PVM LED Grid	Illuminance	0.56	7.1	0.0

175W PSMH - Type III

PVM7L - Type III
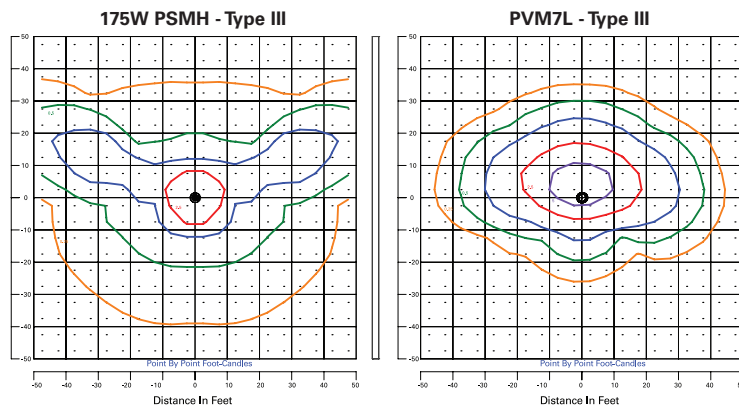
Type III optical pattern

🟧	🟩	🟦	🟥	🟪
0.25	0.50	1.0	2.5	5.0

Calculation summary

Label	Calc. type (in Fc)	Avg.	Max.	Min.
VMV 175W MH Grid	Illuminance	0.59	4.5	0.1
PVM LED Grid	Illuminance	0.54	6.8	0.0

175W PSMH - Type V

PVM7L - Type V
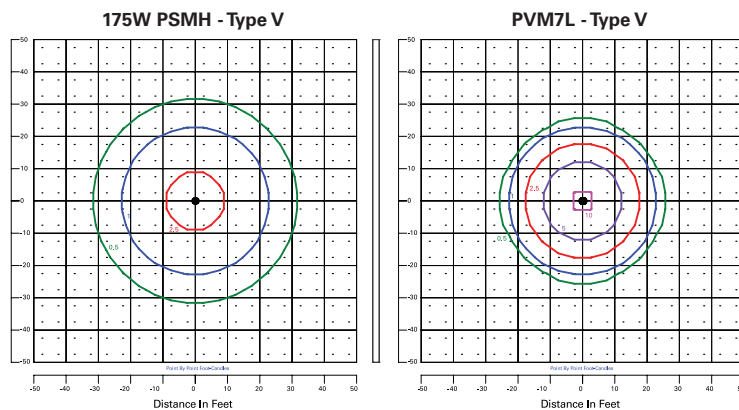
Type V optical pattern

🟩	🟦	🟥	🟪	🟪
0.50	1.0	2.5	5.0	10.0
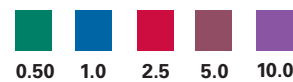
Calculation summary

Label	Calc. type (in Fc)	Avg.	Max.	Min.
VMV 175W MH Grid	Illuminance	0.51	2.8	0.1
PVM LED Grid	Illuminance	0.60	9.1	0.0

Higher average footcandles, uniformity and distribution coverage with less than half the lumens and energy consumption compared to 175W metal halide

Actual lumens (nominal†)	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Type I	3,360	5,045	6,844	8,823	10,730
Type III	3,309	4,468	6,741	8,618	10,660
Type V	3,531	5,335	7,195	9,266	11,440

Actual lumens (nominal†)	PVM13L	PVM17L	PVM21L	PVM25L
Type I	12,842	18,194	21,404	25,685
Type III	12,493	17,699	20,822	24,987
Type V	13,266	18,793	22,110	26,531

† Tolerance +/- 10%.

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