Champ VMVL
LED lighting for hazardous areas

5 models from 3,000 to 11,000 lumens

EATON
Powering Business Worldwide
Champ VMVL LED


Featuring a broad range of LED luminaires for harsh, hazardous and industrial environments, Eaton’s Crouse-Hinds delivers lighting solutions that perform reliably in even the worst operating conditions. This reduces 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 127 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
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.

TOTAL COST OF OWNERSHIP 75%
ENERGY EFFICIENCY 77%
MAINTENANCE REDUCTION 100%

Why choose Champ VMVL?
Safe, reliable and efficient. VMVL LED luminaires are engineered to deliver high lumen output and maintenance-free long life in the toughest conditions.

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VMVL-7 vs. 175 watt HID

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<tr>
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<th>VMVL-7</th>
<th>175 watt HID</th>
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<tr>
<td>ENERGY EFFICIENCY</td>
<td>77%</td>
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<td>TOTAL COST OF OWNERSHIP</td>
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<tr>
<td>MAINTENANCE REDUCTION</td>
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Connected lighting
Flexible & intuitive software controls
Tune light output to meet safety and task needs – light where you need it

For more information go to:
Crouse-Hinds.com/LEDconnected

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
• Available with lever lock connectors and standard three-pole terminal block

Multiple lens options:
• Clear glass lens standard
• Optional lenses include diffused glass or clear polycarbonate

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 127 lumens per watt (7L model)

Shown with optional diffused lens

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• Type I, III and V optics designed to maximize light distribution and intensity*
  * Type V optics standard.

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• Up to 127 lumens per watt (7L model)
Three optical options to maximize light distribution and intensity

**TYPE I**
Long and rectangular for hallways, walkways, loading docks, catwalks.

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

**TYPE III**
Stanchion and wall mount light distribution, minimizing spillover on the wall.

Ideal for:
- Narrow crosswalks or passages with wall mounted fixtures
- Tunnels with wall mounts
- 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.
Case study: Type I optics

Catwalk/conveyor lighting

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

Comparison

Champ 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 VMVL 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 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
- Up to 77% energy savings over the life of the fixture

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

<table>
<thead>
<tr>
<th>Luminaire</th>
<th>Calc. type</th>
<th>Units</th>
<th>Avg.</th>
<th>Max.</th>
<th>Min.</th>
<th>Avg./min.</th>
<th>Max./min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Champ VMVL</td>
<td>Illuminance</td>
<td>Fc</td>
<td>26.91</td>
<td>36.9</td>
<td>17.4</td>
<td>1.55</td>
<td>2.12</td>
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<tr>
<td>175W MH</td>
<td>Illuminance</td>
<td>Fc</td>
<td>14.32</td>
<td>18.0</td>
<td>7.9</td>
<td>1.81</td>
<td>2.28</td>
</tr>
</tbody>
</table>

Champ VMVL with Type I optics

Broad coverage maximizes luminaire spacing and prevents dark spots.

Lighting layout & design services:

Let us help you design your next big project!

Contact Crouse-Hinds Customer Service
crousecustomercotr
@eaton.com
(866) 764-5454
Applications:

- For areas with mounting heights of up to 30 feet
- Oil and gas refineries, drilling rigs, petrochemical facilities, food and beverage facilities, platforms, loading docks, tunnels, indoor/outdoor spotlighting, outdoor wall and stanchion mounted general area lighting, and where flammable vapors, gases, ignitable dusts, fibers or flyings are present
- Locations requiring continuous and consistent light levels in extreme ambient temperatures
- Where extremely corrosive, wet, dusty, hot and/or cold conditions exist
- Classified and hazardous locations

Champ VMVL benefits:

- Instant illumination and restrike
- 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 77% 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
- Up to 60,000 hours lifetime at 55°C
- 5 year fixture warranty†

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal lumens*</th>
<th>Watts</th>
<th>Efficacy</th>
<th>Equivalent HID luminaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMVL-3</td>
<td>3,250</td>
<td>26</td>
<td>123 lm/W</td>
<td>70W</td>
</tr>
<tr>
<td>VMVL-5</td>
<td>5,537</td>
<td>43</td>
<td>127 lm/W</td>
<td>100W</td>
</tr>
<tr>
<td>VMVL-7</td>
<td>7,442</td>
<td>59</td>
<td>127 lm/W</td>
<td>175W</td>
</tr>
<tr>
<td>VMVL-9</td>
<td>9,234</td>
<td>73</td>
<td>126 lm/W</td>
<td>250W</td>
</tr>
<tr>
<td>VMVL-11</td>
<td>11,114</td>
<td>91</td>
<td>122 lm/W</td>
<td>320W</td>
</tr>
</tbody>
</table>

*Nominal lumens based on Type V optics, 5000K CCT with clear glass lens. Wattage measured at 120 VAC.

Colored LED options:

- Available in green or amber*
- Reduction in light polution 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.

Rugged solutions for complex environments.

Champ VMVL LED luminaires are engineered to provide maintenance-free illumination in the most demanding hazardous rated environments.

The Champ VMVL features a compact, high-efficacy design with custom optics to ensure maximum efficiency and mounting flexibility, including the ability to retrofit the Crouse-Hinds installed base to service both LED upgrades and new projects.

Connected lighting highlights:

**Advanced scheduling control** allows for improving energy efficiency during non-operational hours. Easy software control lets a user set up schedules for lights to be on and off at pre-defined times, removing the challenges of manual management.

**Daylight harvesting** allows for use of the daylight and adjusts the light level of luminaire to maintain the desired light levels. It is best suited for outdoor environments or indoor areas where daylight is present during operational hours of a facility.

**Fixture grouping** is an added benefit that maximizes control in a defined area. By grouping light fixtures, same control settings can be applied to them to increase efficiency and response time.

**Occupancy sensing** is best used in areas that see infrequent traffic, such as storage areas of warehouses. Innovative occupancy sensor controls can automatically illuminate the area once presence is sensed in an area and also turn it back off when sensors stop sensing the presence.

**Advanced dimming controls** help reduce the energy consumptions by setting dimming levels. Dimming controls could be used in conjunction with other control features, such as scheduling and occupancy sensing, to improve energy savings.

**Flexible & intuitive software controls**

Tune light output to meet safety and task needs – light where you need it

[For more information go to: Crouse-Hinds.com/LEDconnected]
### Electrical ratings:

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*IEC voltage: 100-240 VAC @ 50/60 Hz
**For VMVL-3: PF>0.9 from 100-255 VAC

EMC / CE compliance:
If the dimming interface of the LED driver is connected to an external dimmer which is not
provided with the luminaire, a ferrite core must be used on the input and dimming lines.
Approved ferrite cores are: Fair-Rite P/N 0431167281.

### 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:
- High intensity discrete power emitters
- Standard: cool white (5000K, 70 CRI); optional: warm white, (3000K, 80 CRI) or neutral white (4000K, 70 CRI)
- Custom Type I, III and V optics available

### Qualifications and compliances:
- DesignLights Consortium® Qualified (pending)*

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

### Temperature codes, UNV1 driver:

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Ordering information
(For UNV34 models, see VMV ordering information on page 11)

Part number example: VMVL-3-N-2A-R1-G-UNV1-S831-S891

Champ VMVL, 3,000 lumens, 4000K neutral white, ¾” pendant mount, Type I optics, wire guard, 100-277 VAC driver, safety cable, diffused glass lens

VMVL - 3 - N - 2A - R1 - G - UNV1 - S831 - S891

Light source/intensity†
3 3,250 nominal lumens
5 5,537 nominal lumens
7 7,442 nominal lumens
9 9,234 nominal lumens
11 11,114 nominal lumens

Color temperature
BLANK 5000K, 70 CRI (cool white)
N* 4000K, 70 CRI (neutral white)
W 3000K, 80 CRI (warm white)

*Consult factory for lead time
**5700K and 6500K are available upon request; consult factory.

Mounting
BLANK No mounting module
J 1-½” stanchion, 25° angled
P 1-½” stanchion, straight
2A ¾” pendant
3A 1” pendant
20A 20mm pendant

Accessories (ordered separately)

Accessories & options†
S812 Trunnion mount kit with pin
S831 Safety cable
S890 Quick clip
TB6* Six-pole terminal block
†Ordered with fixture or available separately.
*For NEC/CEC only.

Voltage†
UNV1 100-277 VAC, 50/60 Hz; 127-250 VDC
IEC voltage; 100-240 VAC at 50/60 Hz
†Refer to Champ VMV ordering information on page 11 for UNV34 voltage ranges and redundant drivers.

Lens guard
BLANK No guard
G Wire guard

Options
BLANK Type V optic standard
R1 Type I optic
R3 Type III optic (all mounts except ceiling)
R3AP* Type III optic (select when using Appleton® top hat adapter with Champ fixture)
R3A1* Type III optic (ceiling with conduit 45° clockwise 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° clockwise from top hat hinge)

Optics
*Available with ceiling mounted modules only.

Part number example:
VMVL-3-N-2A-R1-G-UNV1-S831-S891

Mounting & hardware
VMVL S812 K1 Trunnion mount kit with pin*
VMVL S812 K1 DDB PVC coated trunnion mount kit with pin*
VMVL S831 K1 Safety cable
VMVL S890 K1 Quick clip
CHMM1 Top hat adapter (mounts to Appleton Mercmaster III top hats)

Replacement driver kit
VMVL3-5-7L-UNV1-DRIVER KIT Replacement driver kit for VMVL-3, -5 and -7 models
VMVL9-11L-UNV1-DRIVER KIT Replacement driver kit for VMVL-9 and -11 models

Lens guard
P3001 Wire guard

*For NEC/CEC only.
Mounting options and dimensions

Stanchion - 25° angled

Stanchion - straight

Pendant

Ceiling

Wall

Cone pendant

Trunnion

Bracket for wall mount or SAFB splitter
2X locking pins
2X trunnion rotation hardware
CM2 or CM1 top hat
2X top hat mounting hardware

Mounting module series

<table>
<thead>
<tr>
<th>Pendant</th>
<th>Cone</th>
<th>Ceiling</th>
<th>Wall</th>
<th>Stanchion</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM2</td>
<td>BPM2</td>
<td>CM2</td>
<td>TWM2</td>
<td>JM5</td>
</tr>
<tr>
<td>APM3</td>
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</table>

VMVL-*
Photometric comparison at 15 ft. mounting height

**Type I optical pattern**

<table>
<thead>
<tr>
<th>Label</th>
<th>Calc. type (in Fc)</th>
<th>Avg.</th>
<th>Max.</th>
<th>Min.</th>
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</thead>
<tbody>
<tr>
<td>VMV 175W MH Grid</td>
<td>Illuminance</td>
<td>0.45</td>
<td>2.8</td>
<td>0.0</td>
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<tr>
<td>VMV LED Grid</td>
<td>Illuminance</td>
<td>0.62</td>
<td>8.0</td>
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</tbody>
</table>

**Calculation summary**

**Type III optical pattern**

<table>
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<tr>
<th>Label</th>
<th>Calc. type (in Fc)</th>
<th>Avg.</th>
<th>Max.</th>
<th>Min.</th>
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<tbody>
<tr>
<td>VMV 175W MH Grid</td>
<td>Illuminance</td>
<td>0.53</td>
<td>3.2</td>
<td>0.1</td>
</tr>
<tr>
<td>VMV LED Grid</td>
<td>Illuminance</td>
<td>0.61</td>
<td>7.5</td>
<td>0.0</td>
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</tbody>
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**Calculation summary**

**Type V optical pattern**

<table>
<thead>
<tr>
<th>Label</th>
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<td>VMV 175W MH Grid</td>
<td>Illuminance</td>
<td>0.51</td>
<td>2.8</td>
<td>0.1</td>
</tr>
<tr>
<td>VMV LED Grid</td>
<td>Illuminance</td>
<td>0.69</td>
<td>10.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Actual lumens (nominal†)</th>
<th>VMVL-3</th>
<th>VMVL-5</th>
<th>VMVL-7</th>
<th>VMVL-9</th>
<th>VMVL-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>3,360</td>
<td>5,045</td>
<td>6,844</td>
<td>8,823</td>
<td>10,730</td>
</tr>
<tr>
<td>Type III</td>
<td>3,309</td>
<td>4,468</td>
<td>6,741</td>
<td>8,618</td>
<td>10,660</td>
</tr>
<tr>
<td>Type V</td>
<td>3,250</td>
<td>5,537</td>
<td>7,442</td>
<td>9,234</td>
<td>11,114</td>
</tr>
</tbody>
</table>

† Tolerance +/- 10%.
EATON’S CROUSE-HINDS SERIES

Ordering information
(For 3-11-UNV1, see VMVL ordering information on page 8)

Part number example
VMV17LW2AR1G/UNV1 S890

**Lamp/function**

<table>
<thead>
<tr>
<th>VMV</th>
<th>17L</th>
<th>W</th>
<th>2A</th>
<th>R1</th>
<th>G</th>
<th>/UNV1</th>
<th>S890</th>
</tr>
</thead>
<tbody>
<tr>
<td>3L</td>
<td>3,309 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5L</td>
<td>4,468 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7L</td>
<td>6,741 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9L</td>
<td>8,618 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1L</td>
<td>10,660 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13L</td>
<td>13,226 lumen LED</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>17L</td>
<td>18,783 lumen LED</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>21L</td>
<td>22,110 lumen LED</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>25L</td>
<td>26,531 lumen LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GL*</td>
<td>Green (4,300 lumen LED)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL*</td>
<td>Amber (5,000 lumen LED)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Custom optics not available with colored LEDs.

**Color temperature**

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

*Consult with factory for additional color temperature options.

**Mounted style**

| BLANK | No Cover |
| J*    | 1-½” stanchion, 25° angled |
| P     | 1-½” stanchion, straight |
| 2A    | ¾” pendant |
| 3A    | 1” pendant |
| 20A   | 20mm pendant |
| 25A   | 25mm pendant |
| 2B    | ¾” cone pendant |
| 3B    | 1” cone pendant |

* For VMV3L-VMV11L 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.
**Not available for IEC.
***Available for 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 |

*For 3-11 UNV1 models, see page 8.

**Guard**

| BLANK | No guard |
| G     | P3001 wire guard (3L-11L) |
|       | P3002 wire guard (13L-25L) |

**Optics†**

| BLANK | Type V optic (3L-11L/UNV34 only; 13L-21L/UNV1 & /UNV34) |
| R1    | Type I optic (3L-11L/UNV34 only; 13L-21L/UNV1 & /UNV34) |
| R3    | Type III optic (all mounts minus ceiling; all models 3L-21L) |
| R3AP* | Type III optic (select when using Appleton® top hat adapter with Champ fixture) |
| R3A1* | Type III optic (ceiling with conduit 45° clockwise from top hat hinge) |
| R3A2* | Type III optic (ceiling with conduit 135° counterclockwise 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 VMV3L-VMV11L /UNV34 only.
†For 3-11 UNV1 products with Type I or Type V optics, refer to page 8 for ordering information.

**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.

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**Connected lighting**

Flexible & intuitive software controls
Tune light output to meet safety and task needs – light where you need it

For more information go to: Crouse-Hinds.com/LEDconnected