

Code•Master 2™ HID Factory Sealed Luminaires

Explosionproof, Dust-Ignitionproof

Integrally Ballasted. 50 W, 70 W, 100 W, 150 W, 250 W, 400 W HPS; 175 W, 250 W, 320 W, 350 W, 400 W PSMH; 175 W, 250 W, 400 W MH ^{UL}.

Mogul Base. For use with threaded metal conduit.

NEC:

Class I, Division 1 and 2, Groups C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
Marine Type Electric Fixtures
Outside Type (Salt Water)

CEC: ^{UL}

Class I, Division 1 and 2, Groups B, C, D
Class I, Zone 1 and 2; IIB, IIA
Class II, Division 1, Groups E, F, G
Class II, Division 2, Groups F, G
Class III

CSA Type 4X
Exd IIB, Zone 1

Applications

- Ideal for use in chemical and petrochemical plants, such as manufacturers of plastics, paints and thinners; in refineries; and in other process areas where ignitable vapors, dust, moisture and corrosive elements may be present.
- Suitable for use in wet locations.

Features

- Fixtures operate safely in high ambient temperatures. For example, in Class I areas the 150 W HPS fixture operates at a maximum temperature of 248 °F/120 °C in a 149 °F/65 °C ambient (212 °F/100 °C temperature in a 104 °F/40 °C ambient).
- Arrangement of heat-producing components results in more efficient heat dissipation for cooler fixture operation.
- Patented “wireless” design. Threading of fixture unit onto mounting hood makes electrical connection. Only wiring required is attaching two wires to connection block in mounting hood.
- Connection block is easily wired: (a) loosen two screws, (b) make wire connections and (c) re-position connection block.
- Safe, easy servicing without disconnecting any wiring. “Wireless” fixture unit easily threads off mounting hood for convenient servicing or for immediate replacement with a “stand-by” unit.
- Acme double-lead threads speed installation and fixture removal from mounting hood – only half as many turns are required as for single-lead threads. The threads do not stick or gall, eliminating the troublesome problems often encountered with single lead threads during fixture unit removal.
- All threaded joints are flame-tight.
- Integrally ballasted HID lighting fixtures; separate ballasts not required.
- Factory sealed. External seals not required.
- Strategic location of lamp socket in combination with the interior prism design of the glass globe provides optimum light distribution and control.
- Superior corrosion resistance, with epoxy powder coat finish.
- Porcelain socket with nickel-plated phosphor bronze screw shell. Assures long trouble-free operation in high ambient areas.
- Choice of mountings: pendant, ceiling, bracket and stanchion.
- Fiberglass-reinforced polyester reflectors, in standard dome, deep dome or 30° angle, are ideal in installations where luminaire is subject to exceptionally severe corrosive atmospheres. The high bay aluminum reflector is indicated in installations where mounting height from work plane ranges from 20 feet/6 meters and higher.
- Optional guards protect globes from damage. Secured to fixture with three screws.
- Light sources: high pressure sodium, pulse start metal halide or metal halide. HPS is excellent where long lamp life is required. HPS provides high lumens per watt and is less expensive to operate. PSMH/MH is desirable where colors of illuminated areas must be close to natural. PSMH/MH provides better color rendition, increased lumen output, longer lamp life, and faster restrike after momentary power interruption.
- A wide range of ballasts and voltages are available for both domestic and export applications.
- Ballasts operate at low temperatures – PSMH: -20 °F/-29 °C; HPS: -40 °F/-40 °C; MH: -31 °F/-35 °C.
- 50 W through 150 W high pressure sodium ballasts are high reactance, high power factor type.



Standard Materials

- Ballast bodies and guards: copperfree (4/10 of 1% max.) aluminum
- Pendant mounting hoods: diecast copperfree (4/10 of 1% max.) aluminum
- Ceiling, bracket and stanchion mounting hoods: sand cast copperfree (4/10 of 1% max.) aluminum
- Reflectors: aluminum or fiberglass reinforced polyester

Standard Finishes

- Ballast bodies, guards and mounting hoods: epoxy powder coat finish, electrostatically applied for complete, uniform corrosion protection

Options

- Fuses for field installation can be ordered by catalog number from fuse kit table.
- Quartz Auxiliary Emergency Lamp for PSMH/MH and HPS fixtures. Relay switch installed in fixture. Add suffix **-E** to fixture catalog number.
- Smart Hot Restrike Option available for 50 W through 150 W HPS only. Add suffix **-SR**.
- Hot Restrike Option available for 50 W through 150 W HPS only. Add suffix **-R**.
- Smart Starter Option available for 50 W through 400 W HPS and PSMH/MH. Add suffix **-S**.

Certifications and Compliances

- UL Standard: UL 1598, UL 844
- UL Listed: E10444
- CSA Standard: C22.2 No. 250, C22.2 No. 137
- CSA Certified: 025428

^{UL} CSA Certification only.

Code•Master 2™ HID Factory Sealed Luminaire Technical Data

Explosionproof, Dust-Ignitionproof

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Mogul Base. For use with threaded metal conduit.

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Class I, Division 1 and 2, Groups C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
Marine Type Electric Fixtures
Outside Type (Salt Water)

CEC: ¹

Class I, Division 1 and 2, Groups B, C, D
Class I, Zone 1 and 2; IIB, IIA
Class II, Division 1, Groups E, F, G
Class II, Division 2, Groups F, G
Class III

CSA Type 4X Exd IIB, Zone 1

Classified Area Suitability of Code•Master 2 Series HID Fixtures — Suitability includes use of reflector

| Lamp Type | Lamp Watts | Supply Wire (°F/°C) | Ambient Temp (°F/°C) | Class I, Division 1 & 2 With Globe or with Globe & Reflector UL/NEC/CEC Temp. Ident. No. | | | Class II, Division 1 & 2 With Globe or with Globe & Reflector UL/NEC/CEC Temp. Ident. No. ① | |
|---------------------------|------------|---------------------|----------------------|--|------------|-------------------------|---|---------|
| | | | | Nameplate Marking | NEC Groups | CEC ¹ Groups | Nameplate Marking | Groups |
| High Pressure Sodium | 50 | 122/60 | 104/40 | T6 | C,D | B, C, D | T4 | E,F,G |
| | 50 | 167/75 | 131/55 | T5 | C,D | B, C, D | — | — |
| | 50 | 185/85 | 149/65 | T5 | C,D | B, C, D | — | — |
| | 70 | 140/60 | 104/40 | T6 | C,D | B, C, D | T4 | E,F,G |
| | 70 | 167/75 | 131/55 | T5 | C,D | B, C, D | — | — |
| | 70 | 185/85 | 149/65 | T5 | C,D | B, C, D | — | — |
| | 100 | 122/60 | 104/40 | T5 | C,D | B, C, D | T4 | E,F,G |
| | 100 | 167/75 | 131/55 | T5 | C,D | B, C, D | — | — |
| | 100 | 185/85 | 149/65 | T4A | C,D | B, C, D | — | — |
| | 150 | 122/60 | 104/40 | T5 | C,D | B, C, D | T3A | E,F |
| | 150 | 167/75 | 131/55 | T4A | C,D | B, C, D | T3 | — |
| | 250 | 167/75 | 104/40 | T3C | C,D | B, C, D | — | — |
| | 250 | 167/75 | 131/55 | T3C | C,D | B, C, D | — | — |
| | 400 | 185/85 | 104/40 | T3C | C,D | B, C, D | — | — |
| Pulse Start Metal Halide | 175 | 167/75 | 104/40 | T4 | C,D | B, C, D | T3C | E,F,G |
| | 250 | 167/75 | 104/40 | T4 | C,D | B, C, D | T3A | E,F |
| | 320 | 167/75 | 104/40 | T3C | C,D | B, C, D | — | — |
| | 350 | 167/75 | 104/40 | T3C | C,D | B, C, D | — | — |
| | 400 | 167/75 | 104/40 | T3C | C,D | B, C, D | — | — |
| Metal Halide ¹ | 175 | 167/75 | 104/40 | T4 | — | B, C, D | T3C | E, F, G |
| | 250 | 167/75 | 104/40 | T4 | — | B, C, D | T3A | E, F |
| | 400 | 167/75 | 104/40 | T3C | — | B, C, D | — | — |

“T” Numbers Represent the Maximum Surface Temperature for Class I, Division 1 Locations and Maximum Surface Temperature Under Dust Blanket for Class II, Division 1 Locations.

| “T” Number | T1 | 350 | 325 | T2 | T2A | T2B | T2C | T2D | T3 | T3A | T3B | T3C | T4 | T4A | T5 | T6 |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|-----|
| Temp. Range (°F) | 664-842 | 619-662 | 574-617 | 538-572 | 502-536 | 448-500 | 421-446 | 394-419 | 358-392 | 331-356 | 322-329 | 277-320 | 250-275 | 214-248 | 187-12 | 185 |
| Temp. Range (°C) | 351-450 | 326-350 | 301-325 | 281-300 | 261-280 | 231-260 | 216-230 | 201-215 | 181-200 | 166-180 | 161-165 | 136-160 | 121-135 | 101-120 | 86-100 | 85 |

NOTE: The maximum operating temperature of the fixture must not exceed the ignition temperature of the gas, vapor or dust to be encountered per the National Electrical Code and the Canadian Electrical Code.

① Applies to Code•Master 2 only.

¹ CSA Certification only.

Code•Master 2™ HID Factory Sealed Luminaire Mounting Hoods and Fixture Units

Explosionproof, Dust-Ignitionproof

Integrally Ballasted. 50 W, 70 W, 100 W, 150 W, 250 W, 400 W HPS; 175 W, 250 W, 320 W, 350 W, 400 W PSMH; 175 W, 250 W, 400 W MH ¹ ².

Mogul Base. For use with threaded metal conduit.

NEC:






Class I, Division 1 and 2, Groups C, D ♦
Class II, Division 1 and 2, Groups E, F, G
Class III
Marine Type Electric Fixtures
Outside Type (Salt Water)

CEC:

Class I, Division 1 and 2, Groups B, C, D ♦
Class I, Zone 1 and 2; IIB, IIA
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Class II, Division 2, Groups F, G
Class III

CSA Type 4X
Exd IIB, Zone 1

Mounting Hoods

| | Hub Size (Inches) | Catalog Number |
|---|---|----------------|
| Pendant — One Hub | | |
|  | 3/4 | CAP-75 |
| | 1 | CAP-100 |
| Ceiling — Four Hubs, Three Close-Up Plugs | | |
|  | 3/4 | CAC-75 |
| | 1 | CAC-100 |
| Bracket — Four Hubs, Three Close-Up Plugs | | |
|  | 3/4 | CALB-75 |
| | 1 | CALB-100 |
| 25° Stanchion — One Hub | | |
|  | 1-1/4 or 1-1/2 ① | CAS-150 |
| Mounting Adapter with Connection Block | | |
|  | Permits use of existing A-51 mounting hoods (AAC Ceiling or AALB Bracket) with the new Code•Master 2 Fixture Unit. After removing existing fixture unit and adapter, screw in the new CMAD-1 Adapter. Then thread new fixture unit into the CMAD-1. | CMAD-1 |

Fixture Units

Ballast body with globe. Indicate voltage desired by adding voltage suffix to fixture unit catalog number listed below.

| Type | Lamp Watts | Fixture Unit Number | Add Voltage Suffixes | | |
|---|------------|---------------------|----------------------|--|-------|
| | | | 120/208/240/277 | 120/277/347 ¹ ² ³ ⁴ ⁵ ⁶ ⁷ | 480 V |
| High Pressure Sodium High Power Factor (Min. P.F. 90%) | 50 | CMBL50 | MT | TTCN | — |
| | 70 | CMBL70 | MT | TTCN | 48 |
| | 100 | CMBL100 | MT | TTCN | 48 |
| | 150 | CMBL150 | MT | TTCN | 48 |
| | 250 | CMBL250 | MT | TTCN | 48 |
| Pulse Start Metal Halide Constant Wattage (Min. P.F. 90%) | 400 | CMBL400 | MT | TTCN | 48 |
| | 175 | CMBP175 | MT | TTCN | 48 |
| | 250 | CMBP250 | MT | TTCN | 48 |
| | 320 | CMBP320 | MT | TTCN | 48 |
| Metal Halide ¹ ² Constant Wattage (Min. P.F. 90%) | 350 | CMBP350 | MT | TTCN | 48 |
| | 400 | CMBP400 | MT | TTCN | 48 |
| | 175 | CMBH175 | MT | TT | C6 |
| Metal Halide ¹ ² Constant Wattage (Min. P.F. 90%) | 250 | CMBH250 | MT | TT | C6 |
| | 400 | CMBH400 | MT | TT | C6 |

① 1-1/2" Tapped hub furnished with 1-1/2" to 1-1/4" reducer.

② Add suffix **-R** for "Hot Restrike" and **-S** for "Smart Starter" options.

③ Change voltage suffix **-TTCN** to **-MTCN** for 120/208/240/277 V, **-C2** for 208 V, **-C3** for 240 V, **-C6** for 480 V, or **-C7** for 600 V, ¹ ².

¹ ² CSA Certification only.

♦ Shaded items are suitable for Class I, Group D ONLY.

Code•Master 2™ HID Factory Sealed Luminaire Ballast and Fuse Data

Explosionproof, Dust-Ignitionproof

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Mogul Base. For use with threaded metal conduit.

NEC:

Class I, Division 1 and 2, Groups C, D ♦
 Class II, Division 1 and 2, Groups E, F, G
 Class III
 Marine Type Electric Fixtures
 Outside Type (Salt Water)

CEC: [Ⓢ]

Class I, Division 1 and 2, Groups B, C, D ♦
 Class I, Zone 1 and 2; IIB, IIA
 Class II, Division 1, Groups E, F, G
 Class II, Division 2, Groups F, G
 Class III

CSA Type 4X

Exd IIB, Zone 1

| Lamp | High Pressure Sodium [Ⓢ] | | Ballast Amps Pulse Start Metal Halide Super CWA | | Metal Halide CWA | | Fuse Quantity Required | Fuse Kit Catalog Number | | | | |
|------|-----------------------------------|-------|---|-----------|------------------|-----------|------------------------|-------------------------|-------|-----------------|-------|-------|
| | Watts | Volts | Start | Operating | Start | Operating | | HPS | PSMH | MH [Ⓢ] | | |
| 50 | 120 | | 0.58 | 0.58 | — | — | — | 1 | CF-5 | — | — | |
| | 208 | | 0.35 | 0.33 | — | — | — | 2 | CF-3 | — | — | |
| | 240 | | 0.31 | 0.29 | — | — | — | 2 | CF-3 | — | — | |
| | 277 | | 0.25 | 0.25 | — | — | — | 1 | CF-2 | — | — | |
| | 347 | | — | — | — | — | — | — | — | — | — | |
| | 480 | | — | — | — | — | — | — | — | — | — | |
| 70 | 120 | | 0.90 | 0.82 | — | — | — | 1 | CF-5 | — | — | |
| | 208 | | 0.50 | 0.48 | — | — | — | 2 | CF-3 | — | — | |
| | 240 | | 0.44 | 0.44 | — | — | — | 2 | CF-3 | — | — | |
| | 277 | | 0.35 | 0.36 | — | — | — | 1 | CF-2 | — | — | |
| | 347 | | 0.30 | 0.30 | — | — | — | 1 | CF-2 | — | — | |
| | 480 | | 0.21 | 0.21 | — | — | — | 2 | CF-2 | — | — | |
| 100 | 120 | | 1.30 | 1.15 | — | — | — | 1 | CF-8 | — | — | |
| | 208 | | 0.76 | 0.67 | — | — | — | 2 | CF-5 | — | — | |
| | 240 | | 0.66 | 0.58 | — | — | — | 2 | CF-5 | — | — | |
| | 277 | | 0.60 | 0.50 | — | — | — | 1 | CF-3 | — | — | |
| | 347 | | 0.45 | 0.39 | — | — | — | 1 | CF-3 | — | — | |
| | 480 | | 0.33 | 0.29 | — | — | — | 2 | CF-3 | — | — | |
| 150 | 120 | | 2.00 | 1.66 | — | — | — | 1 | CF-10 | — | — | |
| | 208 | | 1.16 | 0.96 | — | — | — | 2 | CF-5 | — | — | |
| | 240 | | 1.00 | 0.83 | — | — | — | 2 | CF-5 | — | — | |
| | 277 | | 0.88 | 0.75 | — | — | — | 1 | CF-5 | — | — | |
| | 347 | | 0.52 | 0.56 | — | — | — | 1 | CF-5 | — | — | |
| | 480 | | 0.50 | 0.44 | — | — | — | 2 | CF-3 | — | — | |
| 175 | 120 | | — | — | 1.10 | 1.86 | 1.30 | 1.80 | 1 | — | CF-5 | CF-5 |
| | 208 | | — | — | 0.75 | 1.23 | 0.75 | 1.10 | 2 | — | CF-3 | CF-3 |
| | 240 | | — | — | 0.65 | 0.98 | 0.65 | 0.90 | 2 | — | CF-3 | CF-3 |
| | 277 | | — | — | 0.55 | 0.87 | 0.55 | 0.80 | 1 | — | CF-2 | CF-2 |
| | 347 | | — | — | 0.25 | 0.65 | 0.50 | 0.65 | 1 | — | CF-2 | CF-2 |
| | 480 | | — | — | 0.25 | 0.50 | — | — | 2 | — | CF-2 | — |
| 250 | 120 | | 1.75 | 2.70 | 1.96 | 2.50 | 1.20 | 2.60 | 1 | CF-8 | CF-8 | CF-8 |
| | 208 | | 1.00 | 1.50 | 1.13 | 1.45 | 0.65 | 1.50 | 2 | CF-5 | CF-5 | CF-5 |
| | 240 | | 0.85 | 1.30 | 0.98 | 1.25 | 0.60 | 1.30 | 2 | CF-5 | CF-5 | CF-5 |
| | 277 | | 0.75 | 1.15 | 0.85 | 1.10 | 0.50 | 1.12 | 1 | CF-5 | CF-3 | CF-3 |
| | 347 | | 0.60 | 0.93 | 0.62 | 0.90 | 0.80 | 0.90 | 1 | CF-5 | CF-3 | CF-3 |
| | 480 | | 0.40 | 0.65 | 0.32 | 0.67 | — | — | 2 | CF-2 | CF-2 | — |
| 320 | 120 | | — | — | 3.30 | 3.25 | — | — | 1 | — | CF-8 | — |
| | 208 | | — | — | 1.90 | 1.90 | — | — | 2 | — | CF-6 | — |
| | 240 | | — | — | 1.60 | 1.65 | — | — | 2 | — | CF-5 | — |
| | 277 | | — | — | 1.40 | 1.40 | — | — | 1 | — | CF-5 | — |
| | 347 | | — | — | 0.70 | 1.10 | — | — | 1 | — | CF-5 | — |
| | 480 | | — | — | 0.45 | 0.85 | — | — | 2 | — | CF-3 | — |
| 350 | 120 | | — | — | 3.60 | 3.70 | — | — | 1 | — | CF-10 | — |
| | 208 | | — | — | 2.10 | 2.10 | — | — | 2 | — | CF-8 | — |
| | 240 | | — | — | 1.80 | 1.80 | — | — | 2 | — | CF-5 | — |
| | 277 | | — | — | 1.60 | 1.60 | — | — | 1 | — | CF-5 | — |
| | 347 | | — | — | 0.70 | 1.01 | — | — | 1 | — | CF-5 | — |
| | 480 | | — | — | 0.60 | 0.90 | — | — | 2 | — | CF-3 | — |
| 400 | 120 | | 3.10 | 3.90 | 3.50 | 4.00 | 3.25 | 4.00 | 1 | CF-15 | CF-10 | CF-10 |
| | 208 | | 1.80 | 2.25 | 2.00 | 2.30 | 1.90 | 2.30 | 2 | CF-8 | CF-8 | CF-8 |
| | 240 | | 1.60 | 1.95 | 1.75 | 2.00 | 1.65 | 2.00 | 2 | CF-5 | CF-5 | CF-5 |
| | 277 | | 1.35 | 1.70 | 1.50 | 1.75 | 1.40 | 1.75 | 1 | CF-5 | CF-5 | CF-5 |
| | 347 | | 1.00 | 1.32 | 1.10 | 1.35 | 1.20 | 1.40 | 1 | CF-5 | CF-5 | CF-5 |
| | 480 | | 0.80 | 1.00 | 0.75 | 1.00 | — | — | 2 | CF-5 | CF-3 | — |

Fuse Kit includes fuse, fuse holder and necessary hardware for field installation. Mounts easily in ballast body with one screw. Order one fuse for 120 and 277 V, and 2 fuses for 208, 240 and 480 V. CF-2 = 2 amp; CF-3 = 3 amp; CF-5 = 5 amp; CF-6 = 6 amp; CF-8 = 8 amp; CF-10 = 10 amp

Ⓢ 50 through 150 W HPS have H.P.F. High Reactance ballasts; 250 W and 400 W HPS have CWA ballasts.

Ⓢ CSA Certification only.

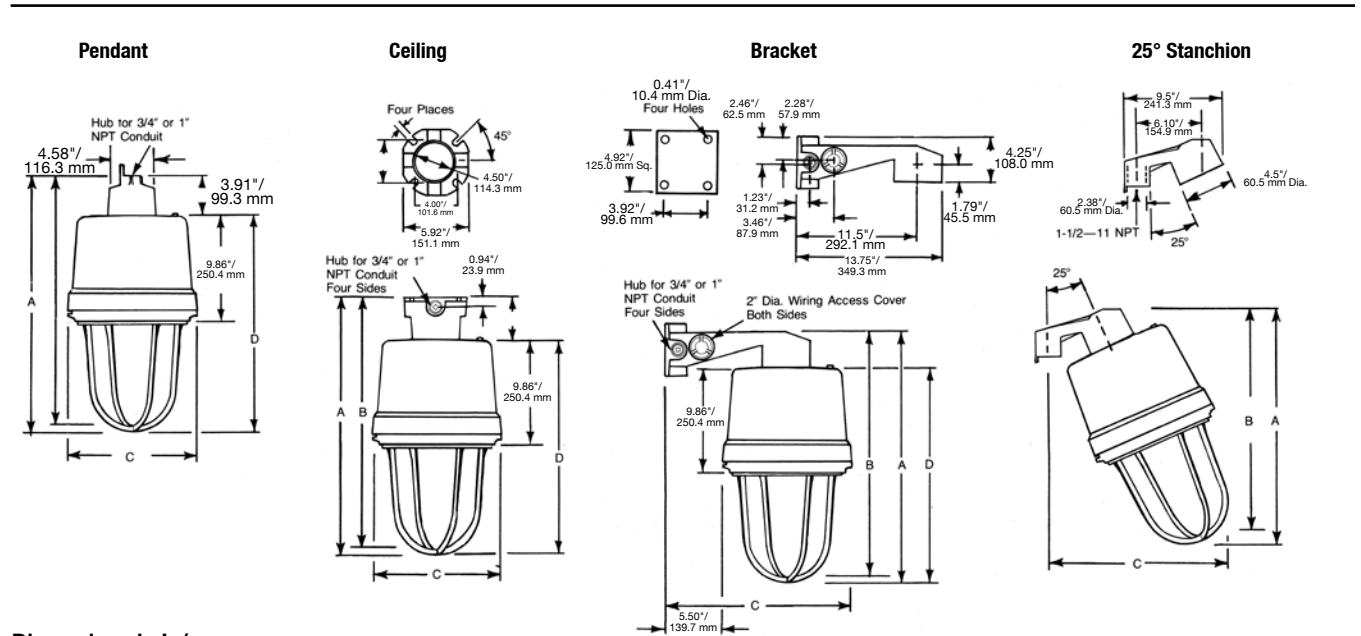
LIGHTING: EXPLOSIONPROOF — AREA — HID

Lighting

Code•Master 2™ HID Factory Sealed Luminaire Dimensions

Explosionproof, Dust-Ignitionproof

Integrally Ballasted. 50 W, 70 W, 100 W, 150 W, 250 W, 400 W HPS; 175 W, 250 W, 320 W, 350 W, 400 W PSMH; 175 W, 250 W, 400 W MH $\frac{1}{2}$ Mogul Base. For use with threaded metal conduit.



Dimensions in In/mm

| | Pendant | | | | Ceiling | | | | Bracket | | | 25° Stanchion | | | |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | A | B | C | D | A | B | C | D | A | B | C | D | A | B | C |
| 50–250 W ① | 21.50/ 546.1 | 20.50/ 520.7 | 12.00/ 304.8 | 17.61/ 447.3 | 21.61/ 548.9 | 20.61/ 523.5 | 12.00/ 304.8 | 17.61/ 447.3 | 21.86/ 555.2 | 20.86/ 529.8 | 17.50/ 444.5 | 17.61/ 447.3 | 19.50/ 495.3 | 18.70/ 475.0 | 16.00/ 406.4 |
| 250–400 W ② | 24.50/ 522.3 | 23.50/ 596.9 | 12.00/ 304.8 | 20.36/ 507.1 | 24.36/ 618.7 | 23.36/ 507.1 | 12.00/ 304.8 | 20.36/ 507.1 | 24.61/ 625.1 | 23.61/ 599.7 | 17.50/ 444.5 | 20.36/ 507.1 | 22.20/ 563.9 | 21.20/ 538.5 | 17.50/ 444.5 |

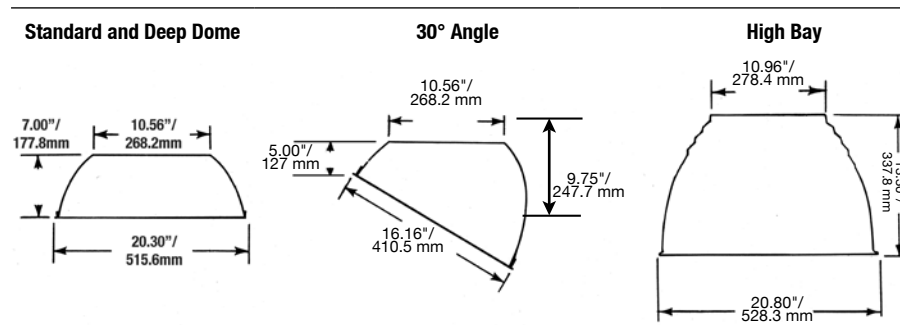
Fixture and Accessory Weights lbs/kgs

| Fixture Size | Fixture Weight | Reflector Weight | Guard Weight |
|---------------------------------------|----------------|------------------|--------------|
| 50 W through 175 W | 32/14.5 | 3/1.4 | 1/5 |
| 250 W PSMH/MH | 37/16.9 | 3/1.4 | 1/5 |
| 250 W HPS | 40/18.1 | 3/1.4 | 2/9 |
| 320 W, 350 W and 400 W PSMH, 400 W MH | 45/20.4 | 3/1.4 | 2/9 |

Mounting Hood Weights lbs/kgs

| Pendant | Ceiling | Bracket | Stanchion |
|---------|---------|---------|-----------|
| 2/0.9 | 4/1.8 | 6/2.7 | 2/0.9 |

Reflector Dimensions in In/mm



- ① 50, 70, 100 and 150 W HPS; 175 W PSMH; 175 and 250 W MH.
- ② 250 and 400 W HPS; 250, 320, 350 and 400 W PSMH; 400 W MH.

Code•Master 2™ HID Factory Sealed Luminaire Photometric Data

Explosionproof, Dust-Ignitionproof

Integrally Ballasted. 50 W, 70 W, 100 W, 150 W, 250 W, 400 W HPS; 175 W, 250 W, 320 W, 350 W, 400 W PSMH; 175 W, 250 W, 400 W MH $\frac{1}{2}$.

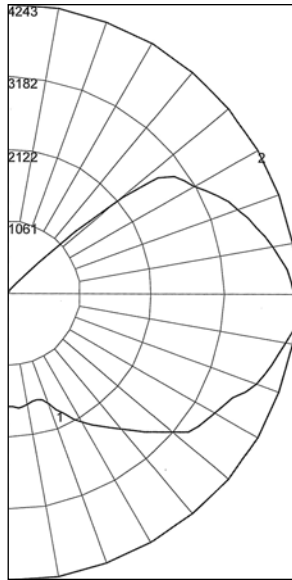
Mogul Base. For use with threaded metal conduit.

* Photometric data is based on a 400-watt clear Pulse Start Metal Halide lamp (34,000 lumens). For candlepower values of fixtures with other lamps, use the following multipliers: 400 W HPS - 1.13 (50,000 lumens); and 250 W HPS - 0.68 (30,000 lumens).

Total Luminaire Efficiency = 81.9%

CIE Type - General Diffuse

| Zone | Lumens |
|---------|---------|
| 0-10 | 161.29 |
| 10-20 | 470.38 |
| 20-30 | 918.96 |
| 30-40 | 1511.24 |
| 40-50 | 2242.10 |
| 50-60 | 3052.29 |
| 60-70 | 3653.41 |
| 70-80 | 4255.87 |
| 80-90 | 4603.15 |
| 90-100 | 4476.83 |
| 100-110 | 4007.91 |
| 110-120 | 3380.83 |
| 120-130 | 2599.55 |
| 130-140 | 672.85 |
| 140-150 | 18.11 |
| 150-160 | 2.59 |
| 160-170 | 1.21 |
| 170-180 | 0.65 |



REPORT NUMBER: **CP40G**

Lamps: 400 W Pulse Start Metal Halide with Globe only

Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

| % Ceiling % Walls | Rcc Rw | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | | 89 | 89 | 89 | 89 | 83 | 83 | 83 | 83 | 72 | 72 | 72 | 61 | 61 | 61 | 52 | 52 | 52 | 47 |
| 1 | | 76 | 70 | 65 | 60 | 70 | 65 | 60 | 56 | 55 | 51 | 48 | 46 | 43 | 40 | 38 | 35 | 33 | 29 |
| 2 | | 67 | 59 | 51 | 45 | 62 | 54 | 48 | 42 | 45 | 40 | 36 | 37 | 33 | 30 | 30 | 27 | 24 | 20 |
| 3 | | 60 | 50 | 42 | 36 | 55 | 46 | 39 | 33 | 39 | 33 | 28 | 32 | 27 | 23 | 25 | 22 | 19 | 15 |
| 4 | | 55 | 43 | 35 | 29 | 50 | 40 | 32 | 27 | 33 | 27 | 23 | 27 | 22 | 19 | 22 | 18 | 15 | 12 |
| 5 | | 50 | 38 | 30 | 24 | 45 | 35 | 28 | 22 | 29 | 23 | 19 | 24 | 19 | 15 | 19 | 15 | 12 | 9 |
| 6 | | 45 | 34 | 26 | 20 | 41 | 31 | 24 | 18 | 26 | 20 | 16 | 21 | 16 | 13 | 17 | 13 | 10 | 8 |
| 7 | | 42 | 30 | 22 | 17 | 38 | 28 | 21 | 16 | 23 | 18 | 13 | 19 | 14 | 11 | 15 | 11 | 9 | 6 |
| 8 | | 39 | 27 | 20 | 15 | 35 | 25 | 18 | 14 | 21 | 15 | 12 | 17 | 13 | 9 | 14 | 10 | 7 | 5 |
| 9 | | 36 | 25 | 18 | 13 | 33 | 23 | 16 | 12 | 19 | 14 | 10 | 16 | 11 | 8 | 13 | 9 | 6 | 5 |
| 10 | | 33 | 22 | 16 | 11 | 31 | 21 | 15 | 10 | 18 | 12 | 9 | 15 | 10 | 7 | 12 | 8 | 6 | 4 |

Zonal Lumen Summary

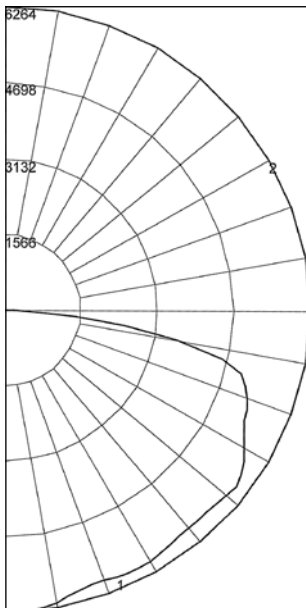
| Zone | Lumens | % Lamp | % Fixture | Zone | Lumens | % Lamp | % Fixture |
|------|----------|--------|-----------|--------|----------|--------|-----------|
| 0-30 | 1550.63 | 3.5 | 4.3 | 90-120 | 11865.57 | 27.0 | 32.9 |
| 0-40 | 3061.87 | 7.0 | 8.5 | 90-130 | 14465.12 | 32.9 | 40.1 |
| 0-60 | 8356.25 | 19.0 | 23.2 | 90-150 | 15156.08 | 34.4 | 40.1 |
| 0-90 | 20868.68 | 47.4 | 57.9 | 90-180 | 15160.53 | 34.5 | 42.1 |
| | | | | 0-180 | 36029.22 | 81.9 | 100.0 |

Total Luminaire Efficiency = 70.4%

CIE Type - Direct

| Plane | Spacing Criteria |
|----------|------------------|
| 0-180 | 1.46 |
| 90-270 | 1.46 |
| Diagonal | 1.70 |

| Zone | Lumens |
|---------|---------|
| 0-10 | 595.04 |
| 10-20 | 1709.44 |
| 20-30 | 2776.90 |
| 30-40 | 3730.18 |
| 40-50 | 4573.20 |
| 50-60 | 5290.95 |
| 60-70 | 5418.07 |
| 70-80 | 5086.12 |
| 80-90 | 1757.09 |
| 90-100 | 33.71 |
| 100-110 | 0.00 |
| 110-120 | 0.00 |
| 120-130 | 0.00 |
| 130-140 | 0.00 |
| 140-150 | 0.00 |
| 150-160 | 0.00 |
| 160-170 | 0.00 |
| 170-180 | 0.00 |



REPORT NUMBER: **CP40ST**

Lamps: 400 W Pulse Start Metal Halide with Standard Dome Reflector

Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

| % Ceiling % Walls | Rcc Rw | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | | 84 | 84 | 84 | 84 | 82 | 82 | 82 | 82 | 78 | 78 | 78 | 75 | 75 | 75 | 72 | 72 | 72 | 70 |
| 1 | | 74 | 69 | 65 | 62 | 72 | 68 | 64 | 60 | 64 | 61 | 58 | 62 | 59 | 57 | 59 | 57 | 55 | 53 |
| 2 | | 65 | 58 | 52 | 47 | 63 | 57 | 51 | 46 | 54 | 49 | 45 | 51 | 47 | 44 | 49 | 46 | 43 | 41 |
| 3 | | 58 | 49 | 42 | 37 | 57 | 48 | 42 | 36 | 46 | 40 | 36 | 44 | 39 | 35 | 42 | 38 | 34 | 32 |
| 4 | | 53 | 43 | 35 | 30 | 51 | 42 | 35 | 30 | 40 | 34 | 29 | 38 | 33 | 29 | 36 | 32 | 28 | 26 |
| 5 | | 48 | 38 | 30 | 25 | 46 | 37 | 30 | 25 | 35 | 29 | 24 | 34 | 28 | 24 | 32 | 27 | 24 | 22 |
| 6 | | 44 | 33 | 26 | 21 | 43 | 33 | 26 | 21 | 31 | 25 | 21 | 30 | 25 | 21 | 29 | 24 | 20 | 19 |
| 7 | | 41 | 30 | 23 | 18 | 39 | 29 | 23 | 18 | 28 | 22 | 18 | 27 | 22 | 18 | 26 | 21 | 18 | 16 |
| 8 | | 38 | 27 | 21 | 16 | 37 | 27 | 20 | 16 | 26 | 20 | 16 | 25 | 19 | 16 | 24 | 19 | 15 | 14 |
| 9 | | 35 | 25 | 18 | 14 | 34 | 24 | 18 | 14 | 23 | 18 | 14 | 23 | 18 | 14 | 22 | 17 | 14 | 12 |
| 10 | | 33 | 23 | 17 | 13 | 32 | 22 | 17 | 13 | 22 | 16 | 13 | 21 | 16 | 12 | 20 | 16 | 12 | 11 |

Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixture | Zone | Lumens | % Lamp | % Fixture |
|------|----------|--------|-----------|--------|---------|--------|-----------|
| 0-30 | 5081.38 | 11.5 | 16.4 | 90-120 | 33.71 | 0.1 | 0.1 |
| 0-40 | 8811.56 | 20.0 | 28.5 | 90-130 | 33.71 | 0.1 | 0.1 |
| 0-60 | 18675.71 | 42.4 | 60.3 | 90-150 | 33.71 | 0.1 | 0.1 |
| 0-90 | 30936.99 | 70.3 | 99.9 | 90-180 | 33.71 | 0.1 | 0.1 |
| | | | | 0-180 | 30970.7 | 70.4 | 100.0 |