PRECISION PARAGON
EFFICIENCY, ECONOMY, SUSTAINABILITY.

www.P-2.com

(714) 386-5550 CA
(715) 381-2971 WI
(352) 692-5900 FL

HBD–High Lamp Count 24" Hi-Bay

Heavy Duty, Deep Body, Fully Ventilated for Extreme Applications

- The HBD is designed and thermally tested to handle up to eight T5HO or T8 lamps, while maintaining ballast case temperature below 70C up to 110F ambient and below 90C up to 140F ambient (Based on open/non-lensed fixture).
- This means longer life, higher relative light output, and better optics due to the full 24" wide by nearly 7" deep, fully ventilated aluminum housing.

Controls

- The HBDE extended body sensor compartment fully surrounds and protects the sensor from damage due to forklift strikes.
- The HBD can be supplied with end mount sensor and leveling box.

Lens Options

- A sturdy lens and frame assembly, with external cam-lock buckles, is provided with your specified lens or wireguard.

Our Experience

- We've been focused on nothing but supporting energy efficient re-lighting projects since 1992. Hit a dead end? Give our application support team a try.

HBD–High Lamp Count Full Body Hi-Bay

Application

- Hi-bay or Lo-bay for high lumen packages and environments where excellent thermal management control is required.
- Can be factory equipped with lens and occupancy sensor.
- HBD available in up to 8-lamp cross sections.
- See our HBT series for 10 and 12 lamp cross sections.

HBDE–2x4–8L–T5HO–UL2–MN–PSH–ST–EA–C8–SH8

HBDE	2x4	8L	T5HO	UL2	MN	PSH	ST	EA	C8	SH8		
Model	Fixt Size	Lamp Qty	Lamp Type	Voltage	Ballast Factor	Ballast Starting	Ballast Grade	Reflector Material	Cord Plug	Occ Sensor	Other	Other

Fixture Model
HBD = Standard Body
HBDE = Extended Sensor Body

Fixture Size
2x4 = 2x4 Nominal

Lamp Qty
xL = x Indicates quantity of lamps

Lamp Type
T5HO = Linear T5HO Lamps
T8 = Linear T8 Lamps

Voltage (1)
UHx = Universal 347-480
ULx = Universal 120-277

Ballast Factor (2)
MN = Neutral Power (.97–1.04)
HP = High Power (1.15–1.20)

Ballast Starting
IS = Instant Start
ISD = Instant Start Step Dimming
PS = Programmed Start
PSD = Program Start Step Dimming
PSH = Program Start Hi-Lo

Ballast Grade
ST = Standard Grade
UE = Ultra Efficient T8

Reflector Material
EA = Enhanced Aluminum 93-94%
MM = Micro Matte 91-93%
WA = White Aluminum Reflector 90-91%

Cord & Plug
C8 = 8' Cord, No Plug
C8/L715 = 8' Cord & Plug (L7-15P)
PQC15 = 15' Cord/Quick Connect

Occupancy Sensor(3)
SHx = Standard 360 View Hi-Bay
RHx = Rectangular Aisle View Hi-Bay
SLx = Standard 360 View Lo-Bay
RLx = Rectangular Aisle View Lo-Bay

Other (Sensor)
DR = Dual Relay, Dual Delay Sensor
DO = Daylight Over Occupancy Sensor
XT = Lo Temp / Wet Location Sensor
LB = Sensor Leveling Box (Required HBD)
PF = Partial/Full Switch

Other (Lens)
CA = Clear Acrylic
WG = Wireguard

Other
LF = Factory Lamps (Lamp spec elsewhere)
NVA = No Ventilation, All
NVE = No Ventilation, End
NVT = No Ventilation, Top

Numeric Footnotes
(1) Numeral indicates number of ballasts per fixture.
(2) Ballast factors outside ranges shown to be called out numerically.
(3) Numeral indicates number of lamps controlled.

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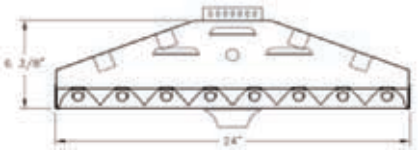
HBD–High Lamp Count 24" Hi-Bay

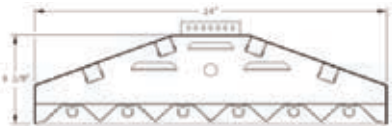
Fixture Construction

- Thermally tested to ensure component life in challenging high lamp count applications.
- Heavy duty white aluminum body dissipates heat at 4x the rate of steel.
- Fully ventilated body and endplates help reduce heat in ballast compartment for longer life.
- Environmentally friendly and labor saving bulk project packaging.
- Dedicated 2-point hanging brackets and V-hangers standard.
- External lens frame with cam-lock buckles optional.
- Made in the USA: Hudson WI, Gainesville FL, Orange County CA.

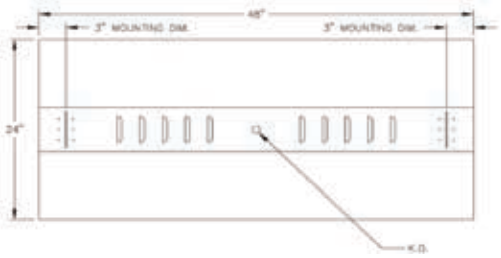
8-Lamp Cross Section, No Sensor



6-Lamp Cross Section, No Sensor



HBD - Plan view shown at 48" length.
HBDE - Extended Sensor body is 54" in length.



Existing System

Existing Hi-Bay System	Lamp Qty & Type	Initial Lamp Lumens	Lumen Maintenance	EOL(1) Lumens All Lamps	Total Fixture Lumens	Ballast Factor	Fixture Efficiency	EOL(1) Lumens Per Fixt	S/P (2) Ratio	Net (3) EOL Lumens	Fixt Input Watts
MH400	1 Std MH400	38,000	58%	22,040	22,040	1.00	0.75	16,530	1.49	22,561	458
HPS400	1 Std HPS400	50,000	70%	35,000	35,000	1.00	0.75	26,250	0.62	18,080	464
MH1000 (16k Hours)	1 MH1000/U	110,000	26%	28,600	28,600	1.00	0.75	21,450	1.49	29,276	1080
MH1000 (12k Hours)	1 MH1000/U	110,000	37%	40,700	40,700	1.00	0.75	30,525	1.49	41,662	1080
MH1000 (8k Hours)	1 MH1000/U	110,000	50%	55,000	55,000	1.00	0.75	41,250	1.49	56,300	1080
MH1000 (4k Hours)	1 MH1000/U	110,000	72%	79,200	79,200	1.00	0.75	59,400	1.49	81,072	1080

Re-Lighting Options

Proposed Hi-Bay System	Lamp Qty & Type	Initial Lamp Lumens	Lumen Maintenance	EOL(1) Lumens All Lamps	Total Fixture Lumens	Ballast Factor	Fixture Efficiency	EOL(1) Lumens Per Fixt	S/P (2) Ratio	Net (3) EOL Lumens	Fixt Input Watts
6L-T8 Plus	6 F32T8/841	2,950	90%	2,655	15,930	1.18	0.90	16,918	1.62	24,647	218
8L-T8 Plus	8 F32T8/841	2,950	90%	2,655	21,240	1.14	0.90	21,792	1.62	31,749	294
6L-T5HO	6 FP54T5HO	5,000	93%	4,650	27,900	1.00	0.92	25,668	1.62	37,395	351
8L-T5HO	8 FP54T5HO	5,000	93%	4,650	37,200	1.00	0.92	34,224	1.62	49,860	468

(1) EOL = End of Life (2) S/P Ratio = Scotopic to Photopic Lumens (3) Net EOL Lumens = EOL Lumens Per Fixture x (S/P).78 [.78 exponent]

General Notes

- Lamp/ballast system values shown are a general reference intended to supply a quick comparison of several common lamp/ballast systems, the associated energy consumption, and net lumen output.
- Values shown are based on normal operating temperatures (25c T8 and 35c T5) and at 277 volts.
- Fixture efficiency percentages are generally representative of each system type, actual values will vary.
- There are many operating variables that affect system output, in addition to rating variances from brand to brand.
- All T8 electronic ballast values shown are based on Ultra Efficient (aka 3rd Generation) T8 ballasts.
- All T5 and T8 lamp values shown are for basic grade lamps. Extended life and higher lumen lamps types are available.
- In addition to those shown there are a wide variety of systems to choose from, each with distinct features and cost points.
- Please consult the lamp/ballast manufacturer's catalogs for the detailed information required to model your system.
- Lumen maintenance percentages shown are at EOL (End of Life), except MH1000, which are at 4,000, 8,000, 12,000, or 16,000 hours of operation as noted in parentheses.