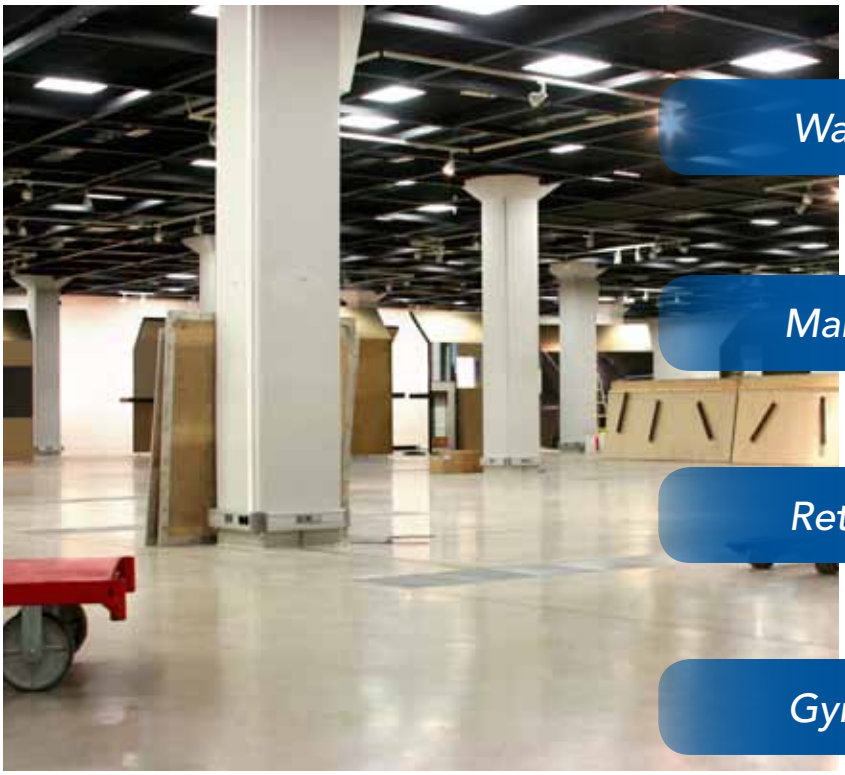
HOWARD™
LIGHTING PRODUCTS

Energy Saving Brochure



Warehouses

Manufacturing

Retail Stores

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Cafeterias

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And much more!

Visit us online at HowardLightingProducts.com or call us at 800.956.3456.

We are your one source for lighting needs .....

Howard has many lighting solutions to save you time, energy and money. Our LED roadway and track lighting systems are just two of the many LED solutions we offer. You will save time because the long LED life reducing maintenance needs. You will save energy because LEDs operate using almost half the energy than the system it is replacing. The benefits of saving time and money will also translate to you saving money! A reduction in maintenance costs, replacements costs, and energy costs over time will give you a payback that makes switching to LED lighting well worth the investment!

Howard also offers linear fluorescent lighting solutions that also will save you time, energy and money. Compared to HID lighting systems, linear fluorescent fixtures operate at reduced energy costs, longer life, which allows for reduced maintenance and upkeep costs. We offer several linear fluorescent options such as our highbay fluorescents, CEE listed High Efficiency Ballasts, and CEE listed F32T8 High Lumen linear fluorescent lamps. Additionally, our recently introduced retrofit strip kit will allow you to convert a old magnetic fluorescent strip to a newer electronic fluorescent T8 strip without having to replace the whole fixture. You simply add the retrofit kit over the existing system! We offer our retrofit kit strips in both four and eight foot options.

In addition we offer a full line of Induction lighting products. An induction lamp is an electrodless lamp that offers greater efficiency, longer life (up to 100K hours), and lower maintenance costs compared to HID lighting. With a smaller up front cost than LED, Induction lighting provides you with a middle road to energy efficiency and lower energy and maintenance costs.

We are a manufacturer that stands by our products. In addition to the products we offer, Howard can help you with lighting layouts. Go to our home page and click on the "Lighting Layout Request" link. If you need to create and test your own photometrics, we can provide IES files for our products. Want to know how much you can potentially save, go to our home page and click on the "Cost of Ownership Calculator". Let us be the solution to your lighting needs.

..... Lighting **for life**

• Specifications are subject to change without notice.

Table of Contents

We make ordering easy!

1 Order Direct
Contact the authorized representative that you have purchased from in the past.

2 Order by phone
You can also contact us at 800.956.3456 to discuss your needs or place an order.

3 Order by fax
Or if you prefer, you can reach us by fax at 601.422.1652.

• Specifications are subject to change without notice.

Experience the Howard Advantage

HOWARD™ LIGHTING PRODUCTS
www.Howard-Lighting.com 800.956.3456

Linear Fluorescent Fixtures from Howard are engineered to the last detail. We ensure our products meet customer and market expectations. In this guide, we have included detailed information, including ordering information, about our linear fluorescent, highbays, retrofit kits, strips, wraps and vaporproof highbays & strips. At the end of our Highbay Fluorescent section we have included some popular models with efficiency information.

It is estimated that over 4 million commercial buildings currently have older fluorescent and HID systems. And almost 1 billion inefficient T12 lamps should be replaced with T5 or T8 lamps.

By optimizing efficiency in our products, we provide fixtures that ensures the greatest energy and cost savings. You should not have to sacrifice energy savings or cost savings to get the most out of your investment. Let us be your solution for lighting efficiency.

Linear Fluorescent Model Configuration

Explanation of our Highbay Fluorescent model number configuration:

HFA# – E — # — 32 — A — SE — MV — 000 — 00 — I

- HFA# – Model Family
- E – Reflector Type *Page 33*
- # – Number Of Lamps
- 32 – Wattage *Page 34*
- A – CRI/CCT *Page 34*
- SE – Ballast Type *Page 34*
- MV – Input Voltage *Page 34*
- 000 – Factory Installed Options *Page 37*
- 00 – Cord Options *Pages 38-40*
- I – Packaging

Model Family

Each model family is named based on a prescribed design (4 lamps, louvered, tandem, etc).

Reflector Type

We offer three reflector types, enhanced specular aluminum, standard specular aluminum and white reflective.

Number of Lamps

Each model family offers a prescribed number of lamps. For example, HFA1 Series is a 6-lamp highbay and HFB3 Series is a 4-lamp highbay. Additionally, we offer models that are 8 lamps side-by-side (HFC1) and 8 or 12 lamps that are tandem mounted (HFC7 &HFE7).

Wattage

Wattage relates to the type of lamps you want to run in your fixture. This might be prescribed by a job or engineer. Our most common types are F32T8 and F54T5/HO.

Color Rendering Index(CRI)/Color Correlated Temperature (CCT)

This will be used when you want to have lamps installed at the time the fixture is built. We offer lamp installation with several of our models. We include a table to show our lamp offering.

Ballast Type/Input Voltage

The type of ballast required may also be prescribed by job specs. We offer standard and high efficiency ballasts in several configurations and ballast factors. Multi-volt is the most common voltage.

Factory Installed Options

We offer multiple factory installed options, such as occupancy sensors, emergency ballasts, doors and wire guards.

Cord Options

We offer several cordset options from a standard disconnect to multiple lengths and plug types. It is important to understand what each ordering code means to ensure you have the proper cord wired with your fixture.

Packaging

Packaging is important. We want to ensure you receive your fixtures the way you need them in the best shape possible. We offer individual packaging and bulk packaging. Bulk packaging offers less packaging to deal with when working with contractors to install multiple highbays for a job.

Highbay Fluorescent Model Families

Benefits include

- Energy saving compared to HID Systems
- Exceptional color rendering
- High system efficacy
- Long lamp life
- Instant on/Re-strike capability
- Howard ballast and lamps as a system is covered by Howard Industries warranty
- Quality lamp holders
- Computer designed reflectors
- Compliant with safety and performance standards

Features include

- 3 to 12 lamp options
- Flat or curved profile body
- T8 or T5
- Instant Start or Program Rapid Start Ballasts
- High Efficiency (CEE listed) Ballasts

Additional options+

- Occupancy Sensor
- Door
- Lens
- Wireguard
- Pendant Mount
- Chain Hanging Kits
- Emergency Ballast

HFA#-E-#-32-A-SE-MV-000-01-I

HIB Series
2-10 lamps
Various Reflector/ Disitrubition Options

HFLP Series
4 lamps T5
Low profile

HFA1 Series
6 lamp
Flat profile

HFA2 Series
4 lamp
Flat profile

HFA3 Series
6 lamp
Curved profile

HFB3 Series
4 lamp
Curved profile

HFC1 Series
8 lamp
Flat profile

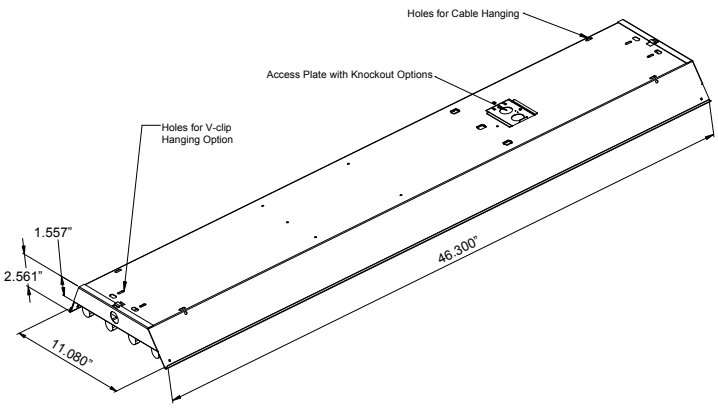
HFC7 Series
8 lamp
Curved profile-tandem

HFB9 Series
3 or 4 lamp
Louvered architectural

HFE7 Series
12 lamp
Curved profile-tandem

+ All options are not available on every model. Consult factory.
• Specifications are subject to change without notice.

HFLP Series - 4 lamp Low Profile Design (T5 only)



Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage(1)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	TBA	Pack.
HFLP	E	4	54	A	PS	MV	00A	07	0	I
HFLP	E: Enhanced Specular (95%) A: Spec. Al. (86%) W: White Refl (91%)	4	**T5 Lamps** 54: F54T5HO	A: No Lamps CRI CCT T5 F: 85 3000 X G: 85 3500 X H: 85 4100 X I: 85 5000 X J: 85 6500 X	PS: PRS T5	MV: 120-277v HV: 347-480v (T5HO)	000: No FIOs A: Occ Sensor(2)(3) I: Special Wiring Instructions	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 11: 16/3, no plug spec len 17: 18/3, no plug spec len *Other cordsets available, consult customer service.		I: Single B: Bulk(3)

(1) Lamp installation available. See pages 36-37 for more information.
(2) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life.
Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v).
For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(3) Bulk packaging is not available when occupancy sensor is ordered as a Factory Installed Option.

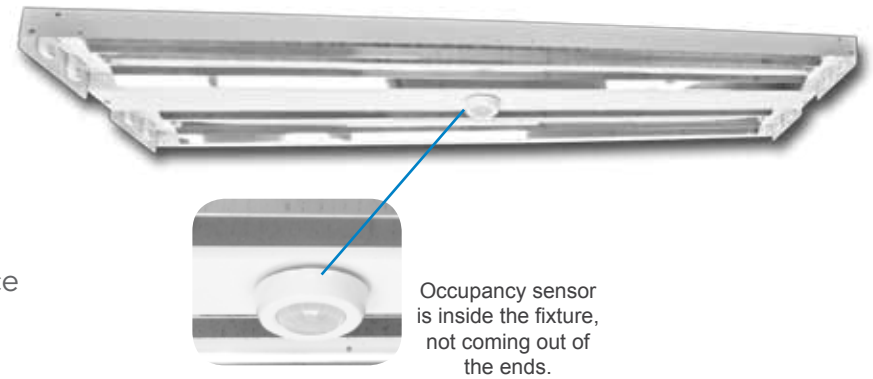
Sample Ordering Number:
HFLP E 4 54 A PS MV 00A 07 I
HFLP Series Highbay Fluorescent Low Profile
Enhanced Specular Aluminum Reflector
4-lamps (none installed)
F54T5 Program Rapid Start Ballast
Multi-volt (120-277v)
Occupancy Sensor Installed
Door with lens & safety cable installed
6' SJT 18/3; L7-15 twist lock 277v Cordset
Single Packaging

• Specifications are subject to change without notice.

Highbay Fluorescent HIB Series

Benefits include

- Energy saving compared to HID Systems
- Exceptional color rendering
- High system efficacy
- Long lamp life
- Instant on/Re-strike capability
- Quality lamp holders
- Computer designed reflectors
- Compliant with safety and performance standards



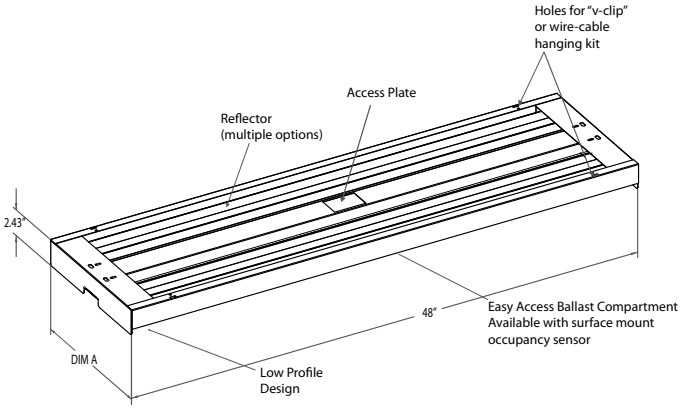
Occupancy sensor is inside the fixture, not coming out of the ends.

Features include

- 4 lamp (2 to 10 available 2Q2012)
- Heavy duty pre-painted steel construction
- Easy access to wiring compartments & ballast
- T8 or T5
- Instant Start or Program Rapid Start Ballasts
- High Efficiency (CEE listed) Ballasts

Additional options

- Standard or high efficiency designs
- 10% uplight available
- Integral Occupancy Sensor
- Emergency Ballast
- Wireguard
- Chain Hanging Kits
- Cord options



Dimension A (Width in inches)	
2 Lamps*	8.90"
4 Lamps	13.25"
6 Lamps	16.30"
8 Lamps*	24.10"
10 Lamps*	24.10"

• Specifications are subject to change without notice.

Highbay Fluorescent HIB Series

Model Family	Distribution/Reflector (see tables 1-5)		No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	Pack.
HIB	HA		4	54	A	PS	MV	00L	01	I
HIB	H: Highbay F: Highbay high eff. U: Highbay 10% uplight T: Highbay 10% uplight high eff. W: Wide distribution high eff. Y: Wide distribution 10% uplight high eff.	E: Enhanced Specular A: Spec. W: White	2* 4 6 8* 10* * Avail 2Q2012	**T8 Lamps** 28: F28T8 32: F32T8 **T5Lamps** 54: F54T5HO 49: F54T5HO/ES	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	**High Efficiency (CEE)** SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] P8: PRS T8[2] **T5 Program Rapid Start** PS: PRS T5	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs Integral Occupancy Sensor L: Lowbay (20ft MH) H: Highbay (40ft MH) B: Emergency Ballast[5] G: Wireguard I: Special Wiring Instructions T: Toggle switch bi-level lighting cont.[6]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 17: 18/3, no plug spec len 22: 6' 16/3, twist lock 277v 23: 6' 18/3, twist lock 240v	I: Single B: Bulk

(1) Lamp installation available. See page 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HIB HA 4 54 A PS MV 00L 01 I
HIB Series Highbay Fluorescent
Highbay Distribution & Specular Aluminum Reflector
4-lamps (none installed)
F54T5 Program Rapid Start Ballast
Multi-volt (120-277v)
Factory Installed Integral Occupancy Sensor - Lowbay (20ft Mounting Height)
6' 18/3 SJT cord, no plug
Single Packaging

Table 1: Fixture Efficiency — 2 LAMP

Dist	Type	A	E	W
H Highbay	NA	NA	NA	NA
	NA	NA	NA	NA
F Highbay High eff.	T8	86	91	84
	T5	88	93	87
U Highbay 10% uplight	T8	NA	NA	NA
	T5	NA	NA	NA
T Highbay High eff. 10% uplight	T8	88	93	88
	T5	90	95	89
W Wide Dist. High eff.	T8	78	86	83
	T5	81	88	85
Y Wide Dist. High eff. 10% uplight	T8	82	89	86
	T5	84	91	88

Standard Reflector Option

Table 2: Fixture Efficiency — 4 LAMP

Dist	Type	A	E	W
H Highbay	T8	85	90	85
	T5	86	91	85
F Highbay High eff.	T8	86	91	85
	T5	89	94	88
U Highbay 10% uplight	T8	88	93	89
	T5	90	99	91
T Highbay High eff. 10% uplight	T8	88	93	88
	T5	91	95	91
W Wide Dist. High eff.	T8	80	87	85
	T5	84	91	88
Y Wide Dist. High eff. 10% uplight	T8	84	89	87
	T5	86	92	89

Standard Reflector Option

Table 3: Fixture Efficiency — 6 LAMP

Dist	Type	A	E	W
H Highbay	T8	82	88	83
	T5	86	92	88
F Highbay High eff.	T8	84	89	83
	T5	88	93	87
U Highbay 10% uplight	T8	86	90	87
	T5	89	93	90
T Highbay High eff. 10% uplight	T8	87	91	87
	T5	91	95	90
W Wide Dist. High eff.	T8	79	85	83
	T5	83	89	87
Y Wide Dist. High eff. 10% uplight	T8	83	88	86
	T5	87	92	90

Standard Reflector Option

Table 4: Fixture Efficiency — 8 LAMP

Dist	Type	A	E	W
H Highbay	T8	83	88	84
	T5	86	92	88
F Highbay High eff.	T8	84	90	84
	T5	89	94	88
U Highbay 10% uplight	T8	86	90	87
	T5	89	93	91
T Highbay High eff. 10% uplight	T8	88	92	87
	T5	91	95	91
W Wide Dist. High eff.	T8	80	86	94
	T5	84	90	88
Y Wide Dist. High eff. 10% uplight	T8	84	89	87
	T5	87	92	90

Standard Reflector Option

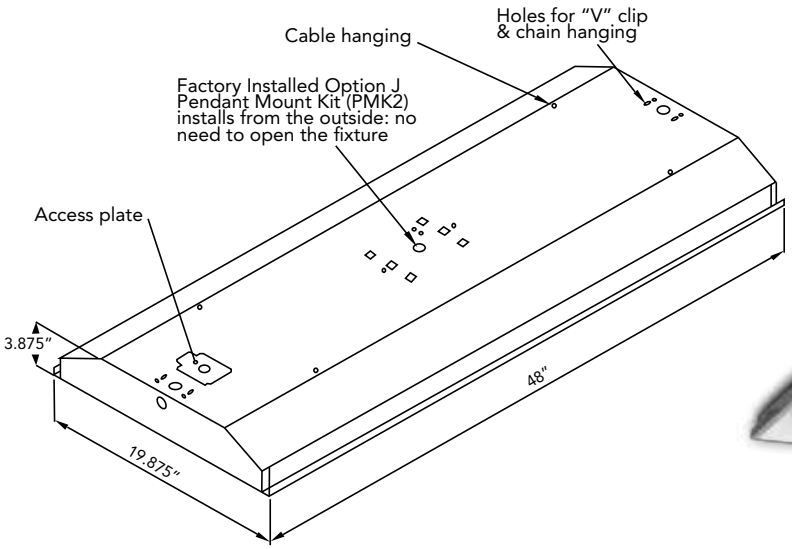
Table 5: Fixture Efficiency — 10 LAMP

Dist	Type	A	E	W
H Highbay	T8	78	84	81
	T5	84	90	87
F Highbay High eff.	T8	80	86	80
	T5	87	92	86
U Highbay 10% uplight	T8	82	87	84
	T5	87	92	89
T Highbay High eff. 10% uplight	T8	84	88	84
	T5	89	94	89
W Wide Dist. High eff.	T8	77	83	80
	T5	83	89	86
Y Wide Dist. High eff. 10% uplight	T8	81	85	84
	T5	86	90	88

Standard Reflector Option

• Specifications are subject to change without notice.

HFA1 Series - 6 lamp Flat Profile Design



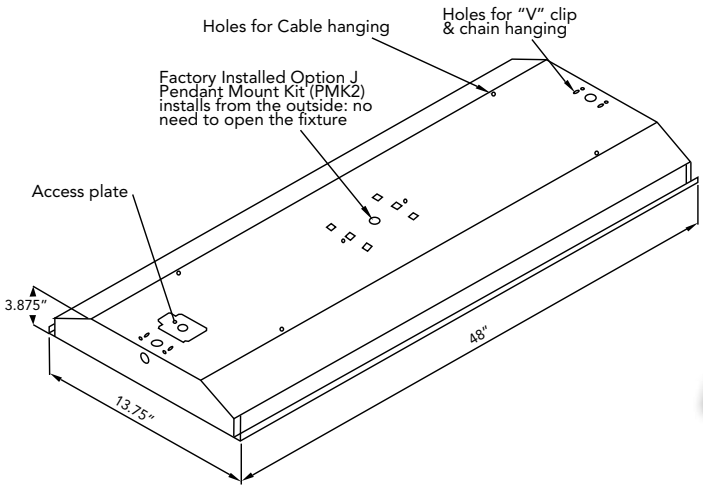
Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFA1	E	6	32	A	SE	MV	000	00	0	I
HFA1	E: Enhanced Specular A: Spec. W: White	6	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] C: Door W/Lens & Safety Cable[6] D: Door W/Lens[6] G: Wireguard I: Special Wiring Instructions J: J-box config.[7] T: Toggle switch bi-level lighting cont.[8]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.
(8) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFA1 E 6 32 A SE MV 000 00 I
HFA1 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
6-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

HFA2 Series - 4 lamp Flat Profile Design



Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFA2	E	4	54	A	PS	MV	0AC	07	0	I
HFA2	E: Enhanced Specular A: Spec. W: White	4	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] C: Door W/Lens & Safety Cable[6] D: Door W/Lens[6] G: Wireguard I: Special Wiring Instructions J: J-box config.[7] T: Toggle switch bi-level lighting cont.[8]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life.
Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v).
For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request.
See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.
(8) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch.
Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFA2 E 4 54 A PS MV 0AC 07 I
HFA2 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
4-lamps (none installed)
F54T5 Program Rapid Start Ballast
Multi-volt (120-277v)
Occupancy Sensor Installed
Door with lens & safety cable installed
6' SJT 18/3; L7-15 twist lock 277v Cordset
Single Packaging

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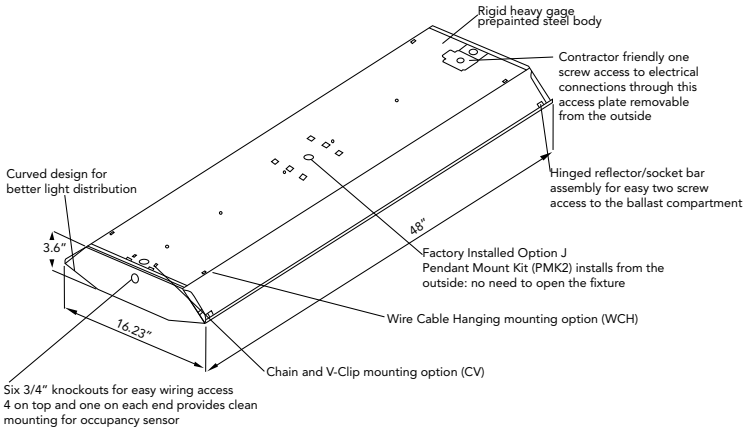
• Specifications are subject to change without notice.

HFA3 Series - 6 lamp Curved Profile Design



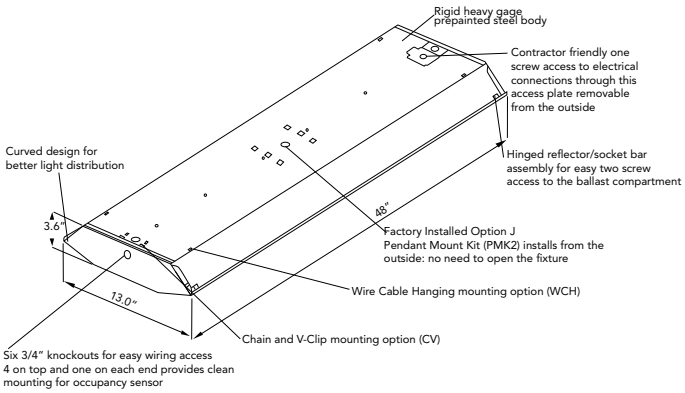
Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFA3	E	6	32	A	HE	MV	00D	07	0	I
HFA3	E: Enhanced Specular A: Spec. W: White	6	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] D: Wrap Lens[6] I: Special Wiring Instructions J: J-box config.[7] T: Toggle switch bi-level lighting cont.[8]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.
(8) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFA3 E 6 32 A HE MV 00D 07 I
HFA3 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
6-lamps (none installed)
F32T8 High Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
Factory Installed Wrap Lens
6' SJT 18/3; L7-15 twist lock 277v Cordset
Single Packaging

• Specifications are subject to change without notice.

HFB3 Series - 4 lamp Curved Profile Design



Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage(1) (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFB3	E	4	32	A	P8	MV	00A	07	0	I
HFB3	E: Enhanced Specular A: Spec. W: White	4	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff(2) HE: HBF High Eff(2) LE: LBF High Eff(2) PS: PRS T5 P8: PRS T8(2)	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277(3)	000: No FIOs A: Occ Sensor(4) B: Emergency Ballast(5) D: Wrap Lens(6) I: Special Wiring Instructions J: J-box config.(7) T: Toggle switch bi-level lighting cont.(8)	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

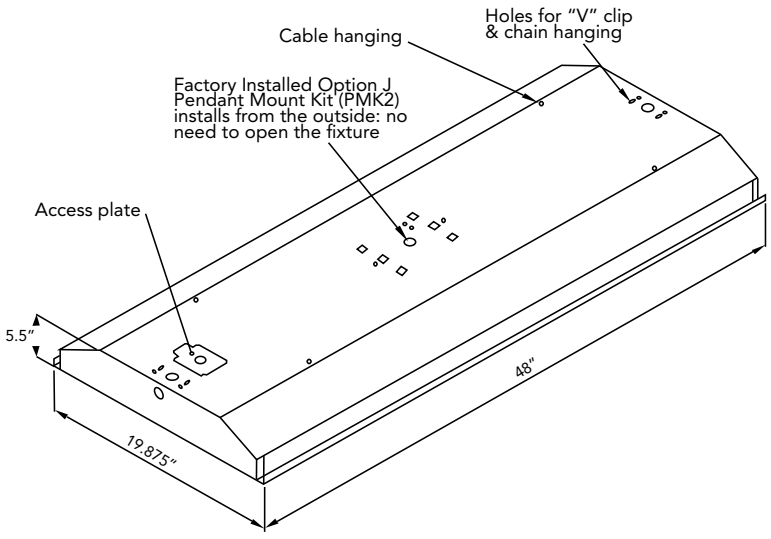
(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.
(8) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFB3 E 4 32 A PS MV 00A 07 I
HFB3 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
4-lamps (none installed)
F32T8 Program Rapid Start High Efficiency Ballast
Multi-volt (120-277v)
Occupancy Sensor Installed
6' SJT 18/3; L7-15 twist lock 277v Cordset
Single Packaging

c UL us

• Specifications are subject to change without notice.

HFC1 Series - 8 lamp Flat Profile Design



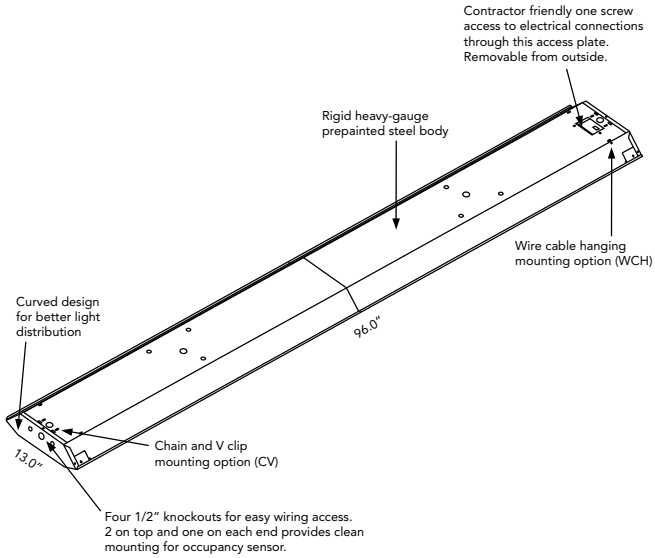
Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFC1	E	8	32	A	SE	MV	OCJ	01	0	I
HFC1	E: Enhanced Specular A: Spec. W: White	8	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] C: Door W/Lens & Safety Cable[6] D: Door W/Lens[6] G: Wireguard I: Special Wiring Instructions J: J-box config.[7] T: Toggle switch bi-level lighting cont.[8]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Unless otherwise specified, fixture will include field installed J-box. Supply wires will exit the center of the fixture, not the access plate. J-box can be installed without entering the fixture.
(8) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFC1 E 8 32 A SE MV 0CJ 01 I
HFC1 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
8-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
Factory Installed Door with lens and safety cable
Factory Installed J-box mounting plate
6' SJT 18/3; no plug Cordset
Single Packaging

• Specifications are subject to change without notice.

HFC7 Series - 8 lamp (tandem) Curved Profile Design



Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFC7	E	8	32	A	SE	MV	OBD	01	0	I
HFC7	E: Enhanced Specular A: Spec. W: White	8	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] D: Wrap Lens[6] I: Special Wiring Instructions T: Toggle switch bi-level lighting cont.[7]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

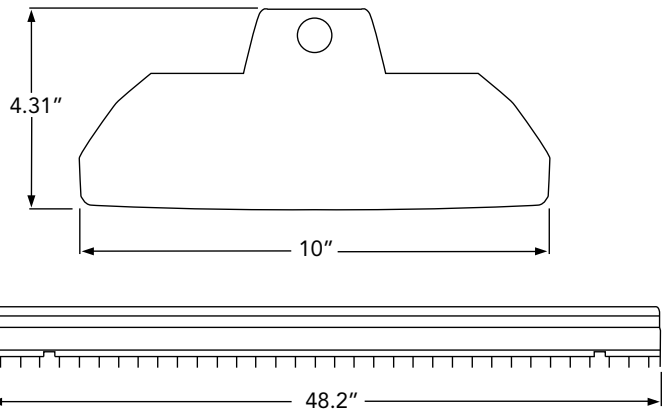
(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFC7 E 8 32 A SE MV 0BD 01 I
HFC7 Series Highbay Fluorescent
Enhanced Specular Aluminum Reflector
8-lamps (none installed)
F32T8 Standard Ballast Factory High Efficiency Ballast
Multi-volt (120-277v)
Factory Installed Emergency Ballast
Factory Installed Wrap Lens
6' SJT 18/3; no plug Cordset
Single Packaging

c UL us

• Specifications are subject to change without notice.

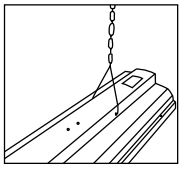
HFB9 Series - 3 or 4 lamp Louvered Architectural Design



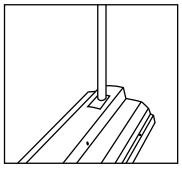
Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	T B A	Pack.
HFB9	E	4	54A	PS	MV	00L	00	I
HFB9	E: MIRO-4	3 4	32A: F32T8 54A: F54T5HO	SE: SBF High Eff HE: HBF High Eff LE: LBF High Eff PS: PRS T5 P8: PRS T8	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277(2)	000: No FIOs L: With Louvers		I: Single B: Bulk

(1) Lamps not included. See page 36 for lamp ordering information.
(2) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.

Sample Ordering Number:
HFB9 E 4 54 A PS MV 0L 00 I
HFB9 Series Highbay Fluorescent
MIRO-4 Reflector
4-lamps (none installed)
F54T5HO Program Rapid Start Ballast
Multi-volt (120-277v)
Factory Installed Louvers
Single Packaging



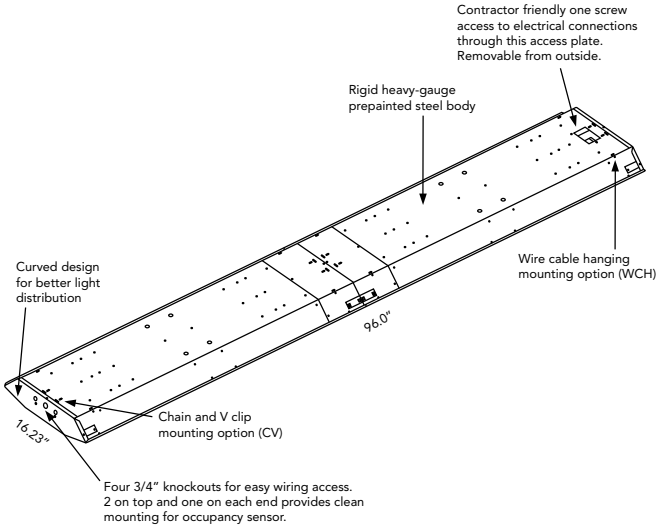
Chain mount option



Pendant mount option

• Specifications are subject to change without notice.

HFE7 Series - 12 lamp (tandem) Curved Profile Design



Model Family	Reflector (p35)	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p3)	Factory Installed Options (p39)	Cordset Options (p40)	T B A	Pack.
HFE7	E	12	54	A	PS	MV	000	00	0	I
HFE7	E: Enhanced Specular A: Spec. W: White	12	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X (CRI, CCT, High Lumen, T8, T5)	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] B: Emergency Ballast[5] D: Wrap Lens[6] I: Special Wiring Instructions T: Toggle switch bi-level lighting cont.[7]	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life. Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v). For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.
(6) Standard acrylic prismatic, pattern 12, 0.100" thick. Call for options.
(7) Allows for separate control of two ballasts through simple "toggling" of a standard wall switch. Recommend use of programmed rapid start ballast with this control.

Sample Ordering Number:
HFE7 E 12 32 A SE MV 000 00 0 I
HFE7 Series Highbay Fluorescent
MIRO-4 Reflector
12-lamps (none installed)
F54T5 Program Rapid Start Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

c UL us

• Specifications are subject to change without notice.

Highbay Fluorescent - Linear Fluorescent

*Quick Reference+ - These fixtures listed come with CEE** listed high efficiency ballast & lamps and an enhanced specular aluminum reflector.*

Model Number	CEE Listed Ballast & Lamps	Luminaire Efficiency	Ballast		Lamps			Approx. Luminaire Light Output	Lighting System Efficacy LPW
			Ballast Factor	Fixture Input Watts	Lamp Type	Initial Lumens	# of Lamps		
HFA1 Series - 6 lamps - flat profile design									
HFA1E632MSEMV000000I	Yes	0.91	0.88	166	F32T8/841/HL/ECO/IC	3100	6	14895	90
HFA1E654HPSMV000000I	No	0.94	1.00	360	F54T5/841/HO	5400	6	30456	85
HFA2 Series - 4 lamps - flat profile design									
HFA2E432MSEMV000000I	Yes	0.91	0.88	108	F32T8/841/HL/ECO/IC	3100	4	9930	92
HFA2E454HPSMV000000I	No	0.94	1.00	240	F54T5/841/HO	5400	4	20304	85
HFA3 Series - 6 lamps - curved profile design									
HFA3E632MSEMV000000I	Yes	0.88	0.88	166	F32T8/841/HL/ECO/IC	3100	6	14404	87
HFA3E654HPSMV000000I	No	0.92	1.00	360	F54T5/841/HO	5400	6	29808	83
HFB3 Series - 4 lamps - curved profile design									
HFB3E432MSEMV000000I	Yes	0.9	0.88	108	F32T8/841/HL/ECO/IC	3100	4	9821	91
HFB3E454HPSMV000000I	No	0.93	1.00	240	F54T5/841/HO	5400	4	20088	84
HFC1 Series - 8 lamps - flat profile design									
HFC1E832MSEMV000000I	Yes	0.84	0.88	216	F32T8/841/HL/ECO/IC	3100	8	18332	85
HFC1E854HPSMV000000I	No	0.89	1.00	480	F54T5/841/HO	5400	8	38448	80
HFC7 Series - 8 lamps (tandem) - curved profile design									
HFC7E832MSEMV000000I	Yes	0.9	0.88	216	F32T8/841/HL/ECO/IC	3100	8	19642	91
HFC7E854HPSMV000000I	No	0.93	1.00	480	F54T5/841/HO	5400	8	40176	84
HFE7 Series - 12 lamps (tandem) - curved profile design									
HFE7E1232MSEMV00000I	Yes	0.88	0.88	324	F32T8/841/HL/ECO/IC	3100	12	28808	89
HFE7E1254HPSMV00000I	No	0.92	1.00	720	F54T5/841/HO	5400	12	59616	83
HFB9 Series - 4 lamps - louvered									
HFB9E432MSEMV000000I	Yes	0.96	0.88	108	F32T8/841/HL/ECO/IC	3100	4	10476	97
HFB9E454HPSMV000000I	No	0.95	1.00	240	F54T5/841/HO	5400	4	20520	86

* Subject to change without notice. Actual ballast model may differ from that shown in table. Consult factory before ordering.
** T5 ballast and lamps are not CEE listed, but will meet certain efficiency standards required by utility rebates. Consult factory and rebate organizations for more information.

+ Other configurations available
• Specifications are subject to change without notice.

Strip & Troffer Retrofit Kits

HUGE ENERGY REDUCTION WITH BRIGHTER LIGHT AND LESS HEAT!

Benefits include

- Lower cost of ownership through energy savings
- Modern look
- Modern efficient lamp and ballast technology
- Utility rebates
- Reduced cost and waste relative to installing new fixtures

Features include

- Code gauge steel
- 1 to 4 lamp options
- High quality lamp holders
- Designed for trouble-free installation
- T8 or T5
- Instant Start or Program Rapid Start Ballasts
- High Efficiency (CEE listed) Ballasts

Additional options+

- Reflector options
- Emergency Ballast

Reflector sold separately! See page 23

FSR4 Series
1 or 2 lamp
4' Strip Channel Retrofit

FSR8 Series
2 or 4 lamp
8' Strip Channel Retrofit

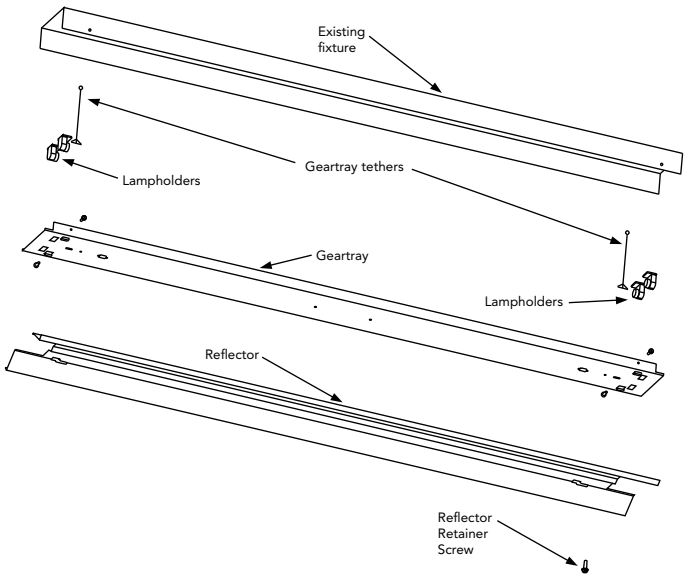
FTR1 Series
2 or 4 foot
2 Lamp T5 Troffer Retrofit
Direct or Indirect

Did You Know?

NEW US DEPT. OF ENERGY REGULATIONS AS OF JULY 14, 2012:
ALL 75W F96T12 & 110W F96T12HO, AND MOST 60W F96T12/ES LAMPS WILL NO LONGER BE MANUFACTURED.

• Specifications are subject to change without notice.

FSR4 Series - 4 Foot Fluorescent Strip Retrofit



Reflector sold separately! See page 23

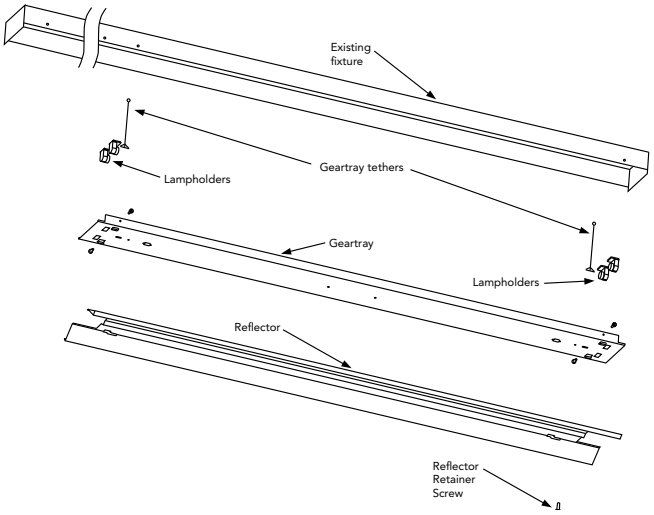
Model Family	Fixture Length	Width	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
FSR	4	4	2	32A	SE	MV	000	00	0	I
FSR	4: Four Foot	4: 4.25" 5: 5" O: Other (Specify Width)	1 2	32A: F32T8 28A:F28T5 54A: F54T5HO	SE: SBF High Eff(2) HE: HBF High Eff(2) LE: LBF High Eff(2) PS: PRS T5 P8: PRS T8(2)	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277(3)	000: No FIOs	00: Standard Disconnect		I: Single

(1) Lamps not included. Please use "PS" Ballast Ordering Options for T5 lamp type. See page 36 for lamp ordering information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.

Sample Ordering Number:
FSR 4 4 2 32A SE MV 000 00 0 I
FSR4 Fluorescent Strip Retrofit Kit
4-foot 4.25" Wide Cover
2-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

FSR8 Series - 8 Foot Fluorescent Strip Retofit



Reflector sold separately! See page 23

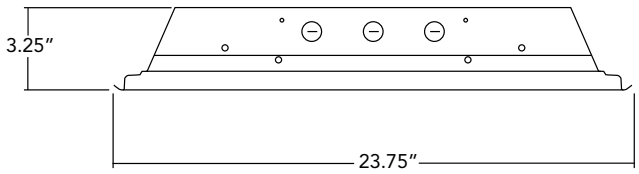
Model Family	Fixture Length	Width	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	TBA	Pack.
FSR	84	4	4	32A	SE	MV	000	00	0	I
FSR	8: Four Foot	4: 4.25" 5: 5" O: Other (Specify Width)	2 4	32A: F32T8 28A:F28T5 54A: F54T5HO	SE: SBF High Eff(2) HE: HBF High Eff(2) LE: LBF High Eff(2) PS: PRS T5 P8: PRS T8(2)	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277(3)	000: No FIOs	00: Standard Disconnect		I: Single

(1) Lamps not included. Please use "PS" Ballast Ordering Options for T5 lamp type. See page 36 for lamp ordering information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.

Sample Ordering Number:
FSR 8 4 4 32A SE MV 000 00 0 I
FSR8 Fluorescent Strip Retrofit Kit
8-foot 4.25" Wide Cover
4-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

FTR1 Series - Fluorescent Troffer Retrofit



Minimum Required Width & Depth

Model Family	Fixture Length	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Body Material	Pack.
FTR1	4	2	28A	PS	MV	000	0	I
FTR1	2: 2′ x 2′	2	14A: F14T5	PS: Program Rapid Start T5	MV: 120-277v HV: 347-480v (T5HO)	000: No FIOs B: Emergency Ballast(2)	0: White Steel	I: Single
	4: 2′ x 4′	2	28A: F28T5 54A: F54T5HO					

(1) Lamps not included. Please use "PS" Ballast Ordering Options for T5 lamp type.
See page 36 for lamp ordering information.
(2) Please specify Emergency Ballast lumen requirements at time of request. See page 51 for more information.

Sample Ordering Number:
FTR1 4 2 28A PS MV 000 0 I
FTR1 Fluorescent Troffer Retrofit Kit
2ft by 4ft
2-lamps (none installed)
F28T5 Program Rapid Start Ballast
Multi-volt (120-277v)
No Factory Installed Options
White Steel Body
Single Packaging

• Specifications are subject to change without notice.

Strip and Troffer Retrofit Kits

Quick Reference+

Model #	Description
FSR4 Series	
FSR44232AHEMV000000I	FSR4 Fluor. Retrofit Strip, 4-ft, 4.25 Wide, 2 Lamp 32W T8 (1 4' Retrofit Cover), Instant Start Ballast, High Ballast Factor, High Efficiency, Multi-Volt
FSR44232ASEMV000000I	FSR4 Fluor. Retrofit Strip, 4-ft, 4.25 Wide, 2 Lamp 32W T8 (1 4' Retrofit Cover), Instant Start Ballast, Standard Ballast Factor, High Efficiency, Multi-Volt
FSR44254APSMV000000I	FSR4 Fluor. Retrofit Strip, 4-ft, 4.25 Wide, 2 Lamp 54W T5 (1 4' Retrofit Cover), (1) Program Start Multi-Volt Ballast
FSR8 Series	
FSR84432AHEMV000000I	FSR8 Fluor. Retrofit Strip, 8-ft, 4.25 Wide, 4 Lamp 32W T8 (2 4' Retrofit Covers, High Ballast Factor High Efficiency Multi Volt Ballast
FSR84432ASEMV000000I	FSR8 Fluor. Retrofit Strip, 8-ft, 4.25 Wide, 4 Lamp 32W T8 (2 4' Retrofit Covers, Instant Start Standard Ballast Factor, High Efficiency, Multi-Volt
FSR84454APSMV000000I	FSR8 Fluor. Retrofit Strip, 8-ft, 4.25 Wide, 4 Lamp 54W T5 (2 4' Retrofit Covers, (2) Program Start Multi-Volt Ballast
FTR1 Series	
FTR12214APSMV0000I	FTR1 Direct/Indirect Fluorescent Troffer Retrofit Kit, 2'x2', Steel, 2 Lamp 14W T5, Programmed Rapid Start, Multi-Volt
FTR14228APSMV0000I	FTR1 Direct/Indirect Fluorescent Troffer Retrofit Kit, 2'x4', Steel, 2 Lamp 28W T5, Programmed Rapid Start, Multi-Volt
FTR14254APSMV0000I	FTR1 Direct/Indirect Fluorescent Troffer Retrofit Kit, 2'x4', Steel, 2 Lamp 54W T5, Programmed Rapid Start, Multi-Volt

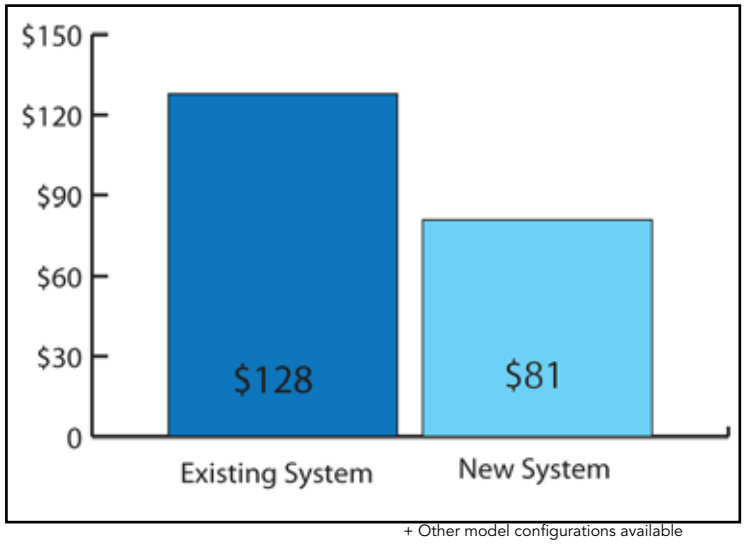
Field Installed Reflectors

Model #	Description
FSR4-A	FSR4 Retrofit Kit Specular Aluminum Reflector (86%)
FSR4-E	FSR4 Retrofit Kit Enhanced Specular Aluminum Reflector (95%)
FSR4-W	FSR4 Retrofit Kit White Aluminum Reflector (91%)
FSR8-A	FSR8 Retrofit Kit Specular Aluminum Reflector (86%)
FSR8-E	FSR8 Retrofit Kit Enhanced Specular Aluminum Reflector (95%)
FSR8-W	FSR8 Retrofit Kit White Aluminum Reflector (91%)

Experience the savings!

Below is an example of the potential money saved in energy costs for 1 year by retrofitting a T12 Magnetic Fluorescent Fixtures for an eight foot Retrofit Strip. With energy saving costs like this, the fixtures will pay for themselves! Also, if you act now, there are rebate incentives with local utilities when you purchase lamps!

Energy Cost Estimator					
		Existing System		New System	
		2x 110W T12HO		FSR84432AHI High Ballast Factor Fluorescent Strip Retrofit	
Hours burned per year	4368	Number of Fixtures	1	Number of Fixtures	1
Cost per kWh$	0.12	Watts per Fixture (existing system)	244	Watts per Fixture (new system)	154
Energy Cost Estimation		Energy used per year (existing system)	$128	Energy used per year (new system)	$81
		Energy saving per year (per fixture)		$47.00	



+ Other model configurations available

• Specifications are subject to change without notice.

Vaporproof Highbay and Strips

Benefits include

- High corrosion resistance
- Low dirt depreciation
- Easy maintenance
- Resists abuse
- Durable construction
- Long service life

Features include

- One piece upper body; no seams to crack, break or leak
- Reinforced fiberglass body is corrosion resistant
- Latches for positive lens retention
- Stainless steel hardware for maximum durability
- High gloss, baked enamel reflective front
- High gasket compression recovery ensures a solid seal over life of fixture
- Frosted ends and lineal prisms on sides reduce glare

VHA1 Series
3 to 6 lamps
Vaporproof Highbay

VSA4 Series
1, 2 or 3 lamps
4' Vaporproof Strip

VSA8 Series
1, 2, 4 or 6 lamps
8' Vaporproof Strip

Strips and Wraps

Applications

- Great for area lighting, display cases, shops, sheds, task lighting, storage areas, hallways and corridors, schools and offices

Features include

- Die-formed code gauge steel
- High gloss baked enamel finish
- NEC compliant luminaire power disconnect
- Shipped fully wired
- Shipped fully assembled (wrap only)
- Tool Free Snap together assembly
- High quality lamp holders
- Numerous knockouts on side, back and ends

FSA4 Series
4' foot Strip
1 or 2 lamps

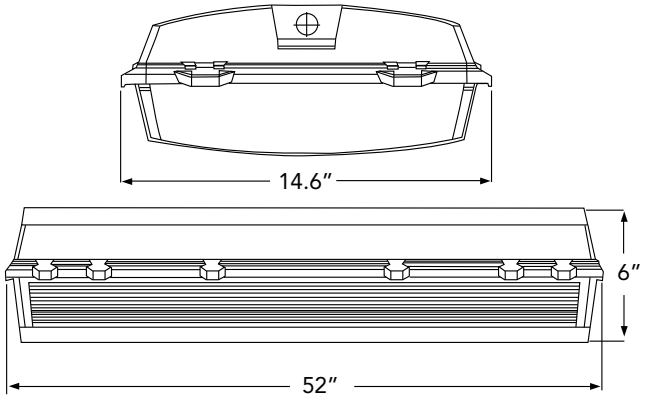
FSA8 Series
8' foot Strip
2 or 4 lamps

FW24 Series
2' x 4' Wrap
2 lamps

FW44 Series
4' x 4' Wrap
4 lamps

• Specifications are subject to change without notice.

VHA1 Series - 3 - 6 lamp Vaporproof Highbay



Note: VHA1 comes standard with 2 versatile V-hook mounting brackets.
OR Optional Wire Hanging Kit (FIO option W)

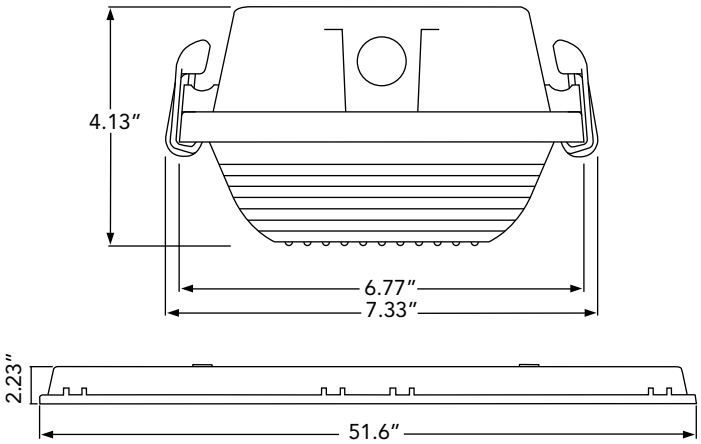
Model Family	Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
VHA1	A	6	32	A	SE	MV	00C	01	0	I
VHA1	A: Impact resistant acrylic P: UV stabilized polycarb.	3 4 5 6	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff[2] HE: HBF High Eff[2] LE: LBF High Eff[2] PS: PRS T5 P8: PRS T8[2]	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277[3]	000: No FIOs A: Occ Sensor[4] C: Lens Tether Safety Cable[5] E: Enhanced Specular Reflector[5] M: End Mount Bracket R: Rough Service Lampholders (6LT5) W: Wire Cable Hanging Kit	00: Standard Disconnect 01: 6′, no plug 02: 10′, no plug 03: 6′, twist lock 120v 04: 10′ twist lock 120v 05: 6′ non twist lock 120v 06: 10′ non twist lock 120v 07: 6′ twist lock 277v 08: 10′ twist lock 277v 09: 6′ non twist lock 277v 10: 10′ non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16′, non twist lock 277v 17: 18/3, no plug spec len 18: 6′, twist lock 480v 19: 10′, twist lock 480v 20: 16′, twist lock 120v 21: 16′, twist lock 277v Y1: Yellow 6′ STOW, no plug		I: Single

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Occupancy Sensors should be used with programmed rapid start ballasts for maximum lamp life.
Standard Occupancy Sensor requires neutral wired fixtures (ex. -120v or -277v).
For phase-to-phase voltage applications (240v) advise Customer Service at time of request.
(5) Consult factory when ordering 3 or 5 lamp reflector.

Sample Ordering Number:
VHA1 A 6 32 A SE MV 00C 01 I
VHA1 Series Vaporproof Highbay Fluorescent
Impact Resistant Acrylic Lens
6-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
Factory Installed Lens Tether Safety Cable
6 foot 18/3 SJT cord
Single Packaging

• Specifications are subject to change without notice.

VSA4 Series - 4 Foot Vaporproof Strip



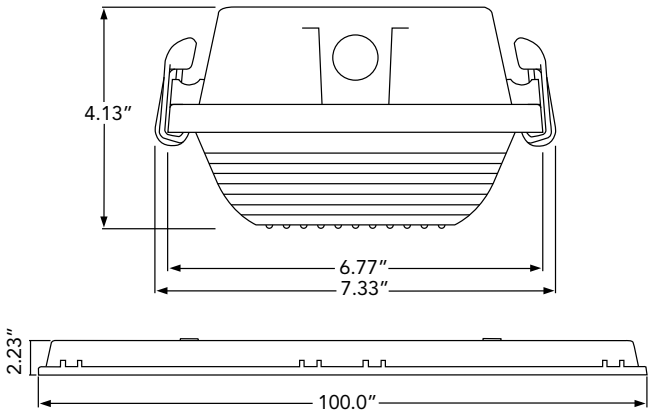
Model Family	Lens	No. of Lamps	Lamp Type/ Wattage(1) (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
VSA4	A	2	32	A	SE	MV	000	00	0	I
VSA4	A: Impact resistant acrylic P: UV stabilized polycarb. F: Deep impact resistant frosted acrylic	1 2 3	28: F28T8 32: F32T8 28:F28T5 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	SE: SBF High Eff(2) HE: HBF High Eff(2) LE: LBF High Eff(2) PS: PRS T5 P8: PRS T8(2)	MV: 120-277v HV: 347-480v (T5HO) AX: 480-277(3)	000: No FIOs E: Enhanced specular aluminum reflector H: Chain hanging bracket I: Special Wiring Instructions S: Stainless steel latches W: Wide distribution reflector(4)	00: Standard Disconnect 01: 6′, no plug 02: 10′, no plug 03: 6′, twist lock 120v 04: 10′ twist lock 120v 05: 6′ non twist lock 120v 06: 10′ non twist lock 120v 07: 6′ twist lock 277v 08: 10′ twist lock 277v 09: 6′ non twist lock 277v 10: 10′ non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16′, non twist lock 277v 17: 18/3, no plug spec len 18: 6′, twist lock 480v 19: 10′, twist lock 480v 20: 16′, twist lock 120v 21: 16′, twist lock 277v		I: Single

(1) Lamp installation available. See pages 36 & 37 for more information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(3) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.
(4) Wide distribution reflector available with lens option F (frosted acrylic)

Sample Ordering Number:
VSA4 A 2 32A SE MV 000 00 I
VSA4 Series 4-Foot Vaporproof Strip
Impact resistant acrylic lens
2-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

VSA8 Series - 8 Foot Vaporproof Strip



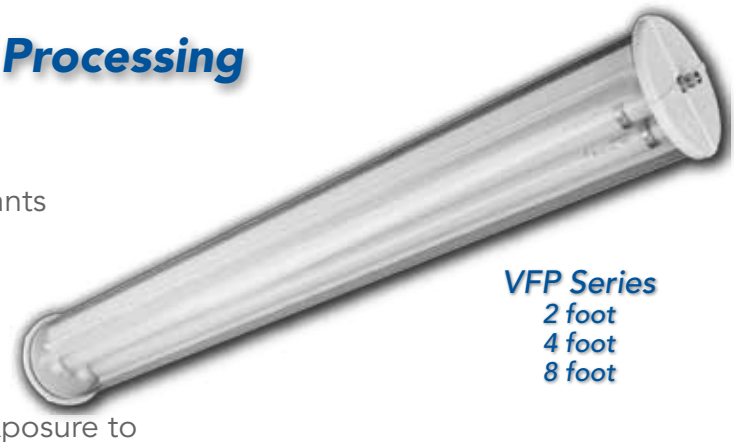
Model Family	Lens	No. of Lamps	Lamp Type/ Wattage[3] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
VSA8	A	2	59	A	SI	MV	000	00	0	I
VSA8	A: Impact resistant acrylic	8-Foot Lamps 1[1] 2 4-Foot Lamps 4[2] 6[2]	28: F28T8 30: F30T8 32: F32T8 28: F28T5 54: F54T5HO 59: F96T8 (8′)[4] 9S: F96T12 (8′)[4] 9H: F96T12HO (8′)[4]	CRI CCT High Lumen T8 T5 A: No Lamps B: 75 3000 X C: 75 3500 X D: 75 4100 X E: 75 5000 X F: 85 3000 X X G: 85 3500 X X H: 85 4100 X X I: 85 5000 X X J: 85 6500 X K: 85 3000 Yes X L: 85 3500 Yes X M: 85 4100 Yes X N: 85 5000 Yes X	8-Foot Lamps RS: 8-ft T12 HO SBF Rapid Start SI: 8-ft T8/T12 SBF Instant Start 4-Foot Lamps SE: SBF High Eff[5] HE: HBF High Eff[5] LE: LBF High Eff[5] PS: PRS T5 P8: PRS T8[5]	MV: 120-277v AX: 480-277[6]	000: No FIOs E: Enhanced specular aluminum reflector H: Chain hanging bracket I: Special Wiring Instructions S: Stainless steel latches	00: Standard Disconnect 01: 6′, no plug 02: 10′, no plug 03: 6′, twist lock 120v 04: 10′ twist lock 120v 05: 6′ non twist lock 120v 06: 10′ non twist lock 120v 07: 6′ twist lock 277v 08: 10′ twist lock 277v 09: 6′ non twist lock 277v 10: 10′ non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16′, non twist lock 277v 17: 18/3, no plug spec len 18: 6′, twist lock 480v 19: 10′, twist lock 480v 20: 16′, twist lock 120v 21: 16′, twist lock 277v		I: Single B: Bulk

(1) Fixture is designed to accept two 8′ lamps. In one-lamp installation, the lamp is offset to one side, not in the center of the fixture.
(2) Tandem 4′ lamps
(3) Lamp installation available. See pages 36 & 37 for more information.
(4) Consult factory for availability of 8′ T8 and T12 lamps. Two lamp maximum.
(5) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.
(6) Step-down autotransformer. Allows hook-up of standard MV ballast to 480v.

Sample Ordering Number:
VSA8 A 2 59A SI MV 000 00 I
VSA8 Series 8-Foot Vaporproof Strip
Impact resistant acrylic lens
2-lamps (none installed)
F96T8 59W Standard Ballast Factor Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

Vaporproof Strip for Food Processing



VFP Series
2 foot
4 foot
8 foot

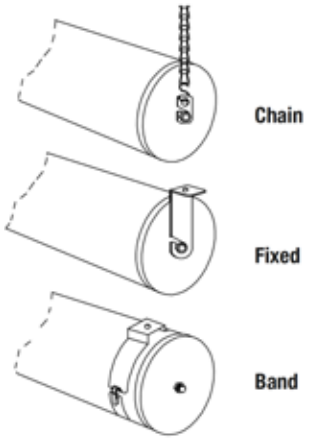
Applications

- Meat or prepared food processing plants
- Carwashes
- Bottling plants
- Canning plants
- Pharmaceutical plants
- Any industrial application requiring exposure to heave hose-down and caustic cleaning chemicals

Features include

- Clear acrylic tube with smooth water shed design
- Water resistant seal
- Fully gasketed endcaps
- Stainless steel hardware
- Heavy duty steel channel is corrosion and rust resistant

Mounting Options



Options

ixed Mounting Bracket

End Caps -
White & Stainless Steel

Stainless Steel
Chain Mount

Mini Receptacle
Mini Connector

Quick Reference+

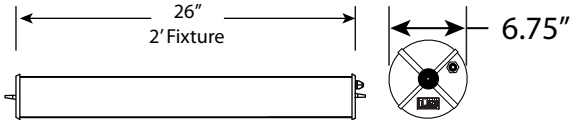
Model #	Description
VFP2 Series	
VFP2A217ASEMV000110I	Vaporproof Food Processing - 2-foot, Acrylic Lens, 2 lamp (not included) F17T8 Standard BF Electronic Instant Start HE Ballast Multi-Volt, 6ft cord
VFP2A224APSMV000110I	Vaporproof Food Processing - 2-foot, Acrylic Lens, 2 lamp (not included) F24T5HO Program Rapid Start Ballast Multi-Volt, 6ft cord
VFP4 Series	
VFP4A232ASEMV000110I	Vaporproof Food Processing - 4-foot, Acrylic Lens, 2 lamp (not included) F32T8 Standard BF Electronic Instant Start HE Ballast Multi-Volt, 6ft cord
VFP4A254APSMV000110I	Vaporproof Food Processing - 4-foot, Acrylic Lens, 2 lamp (not included) F54T5HO Program Rapid Start Ballast Multi-Volt, 6ft cord
VFP8 Series	
VFP8A432ASEMV000110I	Vaporproof Food Processing - 8-foot, Acrylic Lens, 4 lamp (not included) F32T8 Standard BF Electronic Instant Start HE Ballast Multi-Volt, 6ft cord
VFP8A654APSMV000110I	Vaporproof Food Processing - 8-foot, Acrylic Lens, 6 lamp (not included) F54T5HO Program Rapid Start Ballast Multi-Volt, 6ft cord

+ Other model configurations available
• Specifications are subject to change without notice.

VFP2 - 2 foot

Model Family	Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options	T B A	Pack.
VFP2	A	2	17	A	SE	MV	000	11	0	I
VFP2	A: Acrylic	2 3	24: F24T5HO 17: F17T8	CRI CCT High Lumen T8 T5 A: No Lamps G: 85 3500 No X X H: 85 4100 No X X	SE: SBF High Eff[2] PS: PRS T5	MV: 120-277v HV: 347-480v (T5HO)	000: No FIOs S: Stainless Steel Endcaps F: Stainless Steel Fixed Mounting B: Stainless Steel Band Mounting	11: 6ft 16AWG 3-cond STOW cable 3R: 3-wire mini-receptacle male 4R: 4-wire mini-receptacle male 3S: 3-wire mini connector 6ft 4S: 4-wire mini connector 6ft		I: Single

(1) Lamp Installation Available. See pages 36 & 37 for information.
(2) High Efficiency ballasts are CEE Listed. See pages 37 & 38 for more information.

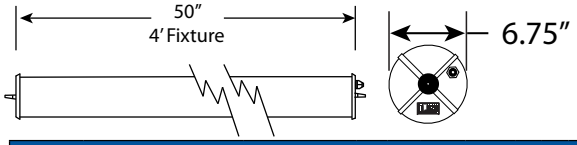


Sample Ordering Number:
VFP2 A 2 17 A SE MV 000 11 I
VFP2 Series Vaporproof Strip for Food Processing
2 foot with acrylic lens
2-lamps (none installed)
F17T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Option
18/3 SJT cord
Single Packaging

VFP4 - 4 foot

Model Family	Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options	T B A	Pack.
VFP4	A	2	32	A	SE	MV	000	11	0	I
VFP4	A: Acrylic	2 3	32: F32T8 54: F54T5HO	CRI CCT High Lumen T8 T5 A: No Lamps G: 85 3500 No X X H: 85 4100 No X X L: 85 3500 Yes X M: 85 4100 Yes X	SE: SBF High Eff[2] PS: PRS T5	MV: 120-277v HV: 347-480v (T5HO) HL: High Lumen Ballast (T8)	000: No FIOs S: Stainless Steel Endcaps F: Stainless Steel Fixed Mounting B: Stainless Steel Band Mounting	11: 6ft 16AWG 3-cond STOW cable 3R: 3-wire mini-receptacle male 4R: 4-wire mini-receptacle male 3S: 3-wire mini connector 6ft 4S: 4-wire mini connector 6ft		I: Single

(1) Lamp Installation Available. See pages 36 & 37 for information.
(2) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.

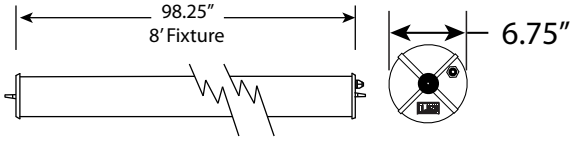


Sample Ordering Number:
VFP4 A 2 32 A SE MV 000 11 I
VFP4 Series Vaporproof Strip for Food Processing
4 foot with acrylic lens
2-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Option
18/3 SJT cord
Single Packaging

VFP8 - 8 foot

Model Family	Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	CRI/CCT (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options	T B A	Pack.
VFP8	A	4	32	A	SE	MV	000	11	0	I
VFP8	A: Acrylic	4[1] 6[1] 2	32: F32T8 54: F54T5HO F54T5HO 59: F96T8 86: F86T8	CRI CCT High Lumen T8 T5 A: No Lamps G: 85 3500 No X X H: 85 4100 No X X L: 85 3500 Yes X M: 85 4100 Yes X	SE: SBF High Eff[3] PS: PRS T5	MV: 120-277v HV: 347-480v (T5HO) HL: High Lumen Ballast (T8)	000: No FIOs S: Stainless Steel Endcaps F: Stainless Steel Fixed Mounting B: Stainless Steel Band Mounting	11: 6ft 16AWG 3-cond STOW cable 3R: 3-wire mini-receptacle male 4R: 4-wire mini-receptacle male 3S: 3-wire mini connector 6ft 4S: 4-wire mini connector 6ft		I: Single

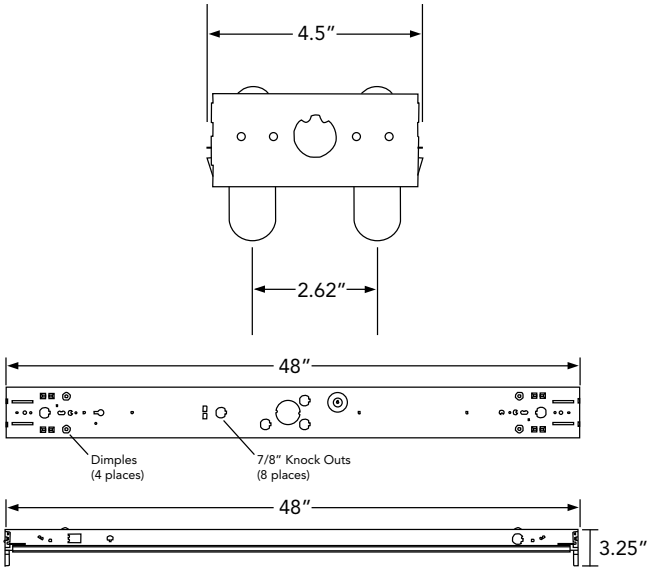
(1) 4′ lamps are tandem mounted.
(2) Lamp Installation Available. See pages 36 & 37 for information.
(3) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.



Sample Ordering Number:
VFP8 A 4 32 A SE MV 000 11 I
VFP8 Series Vaporproof Strip for Food Processing
8 foot with acrylic lens
4-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Option
18/3 SJT cord
Single Packaging

• Specifications are subject to change without notice.

FSA4 Series - 4 Foot Fluorescent Strip



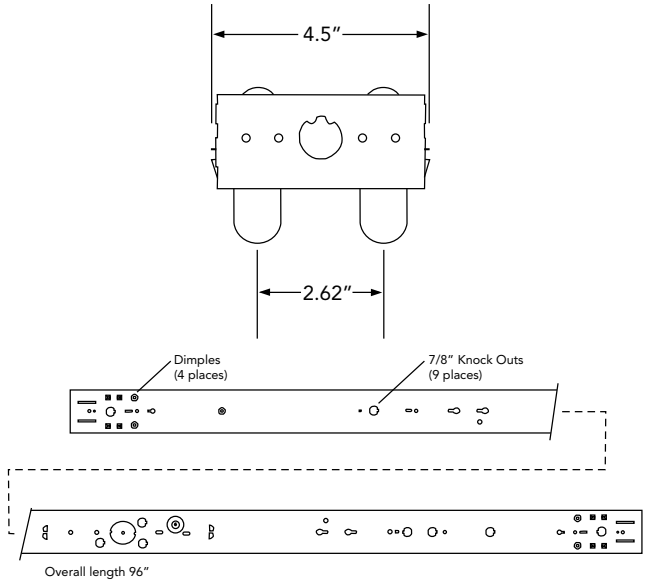
Model Family	Reflector/Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
FSA4	0	2	32	SE	MV	000	00	0	I
FSA4	0: Reflective White Front (86%)	1 2	32A: F32T8[2]	SE: SBF High Eff[3] HE: HBF High Eff[3] LE: LBF High Eff[3] SI: SBF HI: HBF LI: LBF	MV: 120-277v	000: No FIOs B: Emergency Ballast[4]	00: Standard Disconnect 01: 6′, no plug 02: 10′, no plug 03: 6′, twist lock 120v 04: 10′ twist lock 120v 05: 6′ non twist lock 120v 06: 10′ non twist lock 120v 07: 6′ twist lock 277v 08: 10′ twist lock 277v 09: 6′ non twist lock 277v 10: 10′ non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16′, non twist lock 277v 17: 18/3, no plug spec len 18: 6′, twist lock 480v 19: 10′, twist lock 480v 20: 16′, twist lock 120v 21: 16′, twist lock 277v		I: Single B: Bulk

(1) Lamp installation not available. See pages 36 & 37 for more information about ordering lamps.
(2) 32A Option will also run 30 & 28W T8 Energy Saving lamps, but the actual ballast will be the same.
(3) High Efficiency ballasts are CEE Listed. See pages 36 & 37 for more information.
(4) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.

Sample Ordering Number:
FSA4 0 2 32A SE MV 000 00 0 I
FSA4 Series 4-Foot Fluorescent Strip
Reflective White Front
2-lamps (none installed)
F32T8 Standard Ballast Factor High Efficiency Ballast
Multi-volt (120-277v)
No Factory Installed Options
No Cordset
Single Packaging

• Specifications are subject to change without notice.

FSA8 Series - 8 Foot Fluorescent Strip



Model Family	Reflector/Lens	No. of Lamps	Lamp Type/ Wattage[1] (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
FSA8	0	2	96H	SI	MV	00B	00	0	I
FSA8	0: Reflective White Front (86%)	2 4[1]	32A: F32T8[1][3] 59A: F98T8	SI: Stand. BF Electronic T8	MV: 120-277v	000: No FIOs B: Emergency Ballast[4] I: Special Wiring Instructions	00: Standard Disconnect 01: 6′, no plug 02: 10′, no plug 03: 6′, twist lock 120v 04: 10′ twist lock 120v 05: 6′ non twist lock 120v 06: 10′ non twist lock 120v 07: 6′ twist lock 277v 08: 10′ twist lock 277v 09: 6′ non twist lock 277v 10: 10′ non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16′, non twist lock 277v 17: 18/3, no plug spec len 18: 6′, twist lock 480v 19: 10′, twist lock 480v 20: 16′, twist lock 120v 21: 16′, twist lock 277v		I: Single B: Bulk
			96S: F96T12 Slimline	SI: Electronic Instant Start T12					
			96H: F96T12HO	RS: Electronic Rapid Start T12					

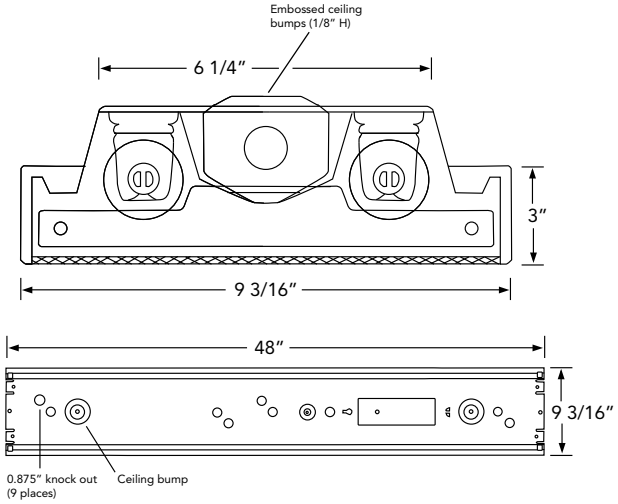
(1) Tandem 4′ T8 only
(2) Lamp installation not available. See pages 36 & 37 for more information about ordering lamps.
(3) 32A Option will also run 30 & 28W T8 Energy Saving lamps, but the actual ballast will be the same.
(4) Please specify Emergency Ballast lumen requirements at time of request. See page 51 for more information.

Sample Ordering Number:
FSA8 0 2 96H SI MV 00B 00 0 I
FSA8 Series 8-Foot Fluorescent Strip
Reflective White Front
2-lamps (none installed)
F96T12HO Electronic Rapid Start Ballast
Multi-volt (120-277v)
Factory Installed Emergency Ballast
No Cordset
Single Packaging

c UL us

• Specifications are subject to change without notice.

FW24 Series - 2 Lamp 4 Foot Fluorescent Wrap



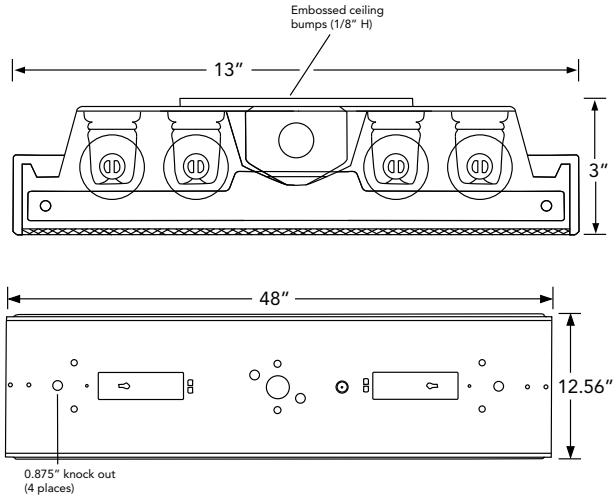
Model Family	Reflector/Lens	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
FW24	0	2	32	SI	MV	000	01	0	I
FW24	0: Reflective White Front (86%)	2	32A: F32T8(2)	SE: SBF High Eff(3) HE: HBF High Eff(3) LE: LBF High Eff(3) SI: SBF HI: HBF LI: LBF	MV: 120-277v	000: No FIOs	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation not available. See pages 36 & 37 for more information about ordering lamps.
(2) 32A Option will also run 30 & 28W T8 Energy Saving lamps, but the actual ballast will be the same.
(3) High Efficiency ballasts are CEE Listed. See pages 36 & 38 for more information.

Sample Ordering Number:
FW24 0 2 32A SI MV 000 01 0 I
FW24 Series 4-Foot Fluorescent Strip
Reflective White Front
2-lamps (none installed)
F32T8 Standard Ballast Factor Ballast
Multi-volt (120-277v)
No Factory Installed Options
6' SJT 18/3 cord, no plug
Single Packaging

• Specifications are subject to change without notice.

FW44 Series - 4 Lamp 4 Foot Fluorescent Wrap



Model Family	Reflector/Lens	No. of Lamps	Lamp Type/ Wattage(1) (p36)	Ballast (p36)	Input Volts (p36)	Factory Installed Options	Cordset Options (p40)	T B A	Pack.
FW44	0	4	32	SI	MV	00B	01	0	I
FW44	0: Reflective White Front (86%)	4	32A: F32T8(2)	SE: SBF High Eff(3) HE: HBF High Eff(3) LE: LBF High Eff(3) SI: SBF HI: HBF LI: LBF	MV: 120-277v	000: No FIOs B: Emergency Ballast(4)	00: Standard Disconnect 01: 6', no plug 02: 10', no plug 03: 6', twist lock 120v 04: 10' twist lock 120v 05: 6' non twist lock 120v 06: 10' non twist lock 120v 07: 6' twist lock 277v 08: 10' twist lock 277v 09: 6' non twist lock 277v 10: 10' non twist lock 277v 11: 16/3, no plug spec len 12: 16/4, no plug spec len 16: 16', non twist lock 277v 17: 18/3, no plug spec len 18: 6', twist lock 480v 19: 10', twist lock 480v 20: 16', twist lock 120v 21: 16', twist lock 277v		I: Single B: Bulk

(1) Lamp installation not available. See pages 36 & 37 for more information about ordering lamps.
(2) 32A Option will also run 30 & 28W T8 Energy Saving lamps, but the actual ballast will be the same.
(3) High Efficiency ballasts are CEE Listed. See pages 36 & 37 for more information.
(4) Please specify Emergency Ballast (120-277v only) lumen requirements at time of request. See page 51 for more information.

Sample Ordering Number:
FW44 0 2 32A SI MV 00B 01 0 I
FW44 Series 4-Foot Fluorescent Strip
Reflective White Front
4-lamps (none installed)
F32T8 Standard Ballast Factor Ballast
Multi-volt (120-277v)
Factory Installed Emergency Ballast
6' SJT 18/3 cord, no plug
Single Packaging

• Specifications are subject to change without notice.

Linear Fluorescent Strips & Wraps

Quick Reference+

Model #	Description
FSA4 Series	
FSA40232ASIMV000000I	FSA4 Fluorescent Strip, 4-foot,NA, 2-Lamp 32w T8, Standard BF Instant Start Ballast Multi-Volt
FSA40232ASIMV00B000I	FSA4 Fluorescent Strip, 4-foot,NA, 2-Lamp 32w T8, Standard BF Instant Start Ballast Multi-Volt, w/ Emergency Ballast (specify lumens)
FSA8 Series	
FSA80432AHEMV000000I	FSA8 Fluorescent Strip, 8-foot,NA, 4 Lamp 32W T8, High BF Instant Start Ballast, High Efficiency Multi-Volt
FSA80432ALEMV000000I	FSA8 Fluorescent Strip, 8-foot,NA, 4 Lamp 32W T8,Low BF Instant Start Ballast, High Efficiency Multi-Volt
FSA80432ASIMV000000I	FSA8 Fluorescent Strip, 8-foot,NA, 4 Lamp 32W T8, Standard BF Instant Start Ballast Multi-Volt
FW24 & FW44 Series	
FW240232ASIMV000000I	FW24 Fluorescent Wrap 4-Ft, 2-Lamp 32w T8, Standard BF Instant Start Ballast Multi-Volt
FW440432ASIMV000000I	FW44 Fluorescent Wrap 4-Ft, 4 Lamp 32W T8, Standard BF Instant Start Ballast Multi-Volt

Linear Fluorescent Vaporproof Highbays and Strips

Quick Reference+

Model #	Description
VHA1 Series	
VHA1A432AHIMV000000I	VHA1 Vaporproof Fluorescent Highbay, Impact Resistant Acrylic Lens, 4 Lamp 32W T8, High BF Instant Start Ballast Multi-Volt,V-hook, Individual Carton
VHA1A454APSMV000000I	VHA1 Vaporproof Fluorescent Highbay, Impact Resistant Acrylic Lens, 4 Lamp 54W T5, Program Start Ballast Multi-Volt, V-hook, Individual Carton
VHA1A632AHIMV000000I	VHA1 Vaporproof Fluorescent Highbay, Impact Resistant Acrylic Lens, 6 Lamp 32W T8, High BF Instant Start Ballast Multi-Volt, V-hook, Individual Carton
VHA1A654APSMV000000I	VHA1 Vaporproof Fluorescent Highbay, Impact Resistant Acrylic Lens, 6 Lamp 54W T5, Program Start Ballast Multi-Volt, V-hook, Individual Carton
VSA4 Series	
VSA4A154APSMV000000I	VSA4 Vaporproof Strip Fluorescent Fixture, Impact Resistant Acrylic Lens, 1 Lamp 54W T5, Program Start Ballast Multi-Volt, Mounting straps included, Individual Carton
VSA4A232ASEMV000000I	VSA4 Vaporproof Strip Fluorescent Fixture, Impact Resistant Acrylic Lens, 2-Lamp 32w T8,Standard BF Instant Start Ballast, High Efficiency Multi-Volt, Mounting straps included, Individual Carton
VSA4A254APSMV000000I	VSA4 Vaporproof Strip Fluorescent Fixture, Impact Resistant Acrylic Lens, 2 Lamp 54W T5, Program Start Ballast Multi-Volt, Mounting straps included, Individual Carton
VSA8 Series	
VSA8A432ASIMV000000I	VSA8 Vaporproof Strip Fluorescent Fixture, Impact Resistant Acrylic Lens, 4 Lamp 32W T8, Standard BF Instant Start Ballast Multi-Volt, Mounting straps included, Individual Carton

+ Other model configurations available
• Specifications are subject to change without notice.

Highbay Fluorescent Reflector Material/Luminaire Efficiency*

Reflector Options: E - Enhanced Specular Aluminum, A - Standard Specular Aluminum, W - White Reflective

HFA#-E-#-32-A-SE-MV-000-01-I

Series/Reflector Type		T8	T5
HFA1	Enhanced Specular	91%	94%
	Specular	85%	89%
	White	86%	89%

Series/Reflector Type		T8	T5
HFA2	Enhanced Specular	91%	94%
	Specular	86%	89%
	White	86%	89%

Series/Reflector Type		T8	T5
HFA3	Enhanced Specular	88%	93%
	Specular	83%	87%
	White	83%	87%

Series/Reflector Type		T8	T5
HFB3	Enhanced Specular	90%	93%
	Specular	84%	88%
	White	85%	88%

Series/Reflector Type		T8	T5
HFC1	Enhanced Specular	84%	89%
	Specular	79%	83%
	White	74%	79%

Series/Reflector Type		T8	T5
HFC7	Enhanced Specular	90%	93%
	Specular	84%	88%
	White	85%	88%

Series/Reflector Type		T8	T5
HFE7	Enhanced Specular	88%	92%
	Specular	83%	87%
	White	83%	87%

Series/Reflector Type		T8	T5
HFB9	Enhanced Specular	96%	95%

Series/Reflector Type		T5
HFLP	Enhanced Specular	94%
	Specular	89%
	White	89%

*Luminaire efficiency is the ratio of light output emitted by the luminaire to the light output emitted by its lamps.

• Specifications are subject to change without notice.

Linear Fluorescent Lamps & Ballast

Each highbay fluorescent model family has a dedicated number of lamps. Our convenient ordering allows customers to custom order fixtures with or without lamps.

Number of lamps | Lamp wattage | CRI/CCT

6-32-N

HFA#-E-6-32-A-SE-MV-000-01-I

Ballast | Input Volts

SE-MV

HFA#-E-#-32-A-SE-MV-000-01-I

Color Rendering Index/Correlated Color Temperature					
Order Code*	CRI	CCT	High Lumen	T8	T5
A	NO LAMPS INSTALLED				
B	75	3000	No	x	
C	75	3500	No	x	
D	75	4100	No	x	
E	75	5000	No	x	
F	85	3000	No	x	x
G	85	3500	No	x	x
H	85	4100	No	x	x
I	85	5000	No	x	x
J	85	6500	No		x
K	85	3000	Yes	x	
L	85	3500	Yes	x	
M	85	4100	Yes	x	
N	85	5000	Yes	x	

Ballast Type	
HE	T8 High Ballast Factor Instant Start High Efficiency (CEE)
LE	T8 Low Ballast Factor Instant Start High Efficiency (CEE)
SE	T8 Standard Ballast Factor Instant Start High Efficiency (CEE)
HI	T8 High Ballast Factor Instant Start
LI	T8 Low Ballast Factor Instant Start
SI	T8 Standard Ballast Factor Instant Start
PS	T5 Program Rapid Start
P8	T8 Program Rapid Start (CEE)(1)

Input Volts	
MV	120-277v Universal
HV	347-480v Universal (T5HO only)
HX	480-277 Step-down autotransformer (allows hookup of standard MV ballast to 480v)

(1) T8 Program Rapid Start Ballast is recommended in cases of frequent switching (as with an occupancy sensor). Instant Start T8 is appropriate for most ordinary applications.
(CEE) Howard High Efficiency Ballasts are Consortium for Energy Efficiency listed.
Visit www.CEE1.org for more information.

+ All options are not available on every model. Consult factory.

• Specifications are subject to change without notice.

T8 Linear Fluorescent Lamps

Watts	Bulb	Nom. Length (in)	MOL (in)	Base	Model #	Lumens Initial (lm)	Lumens Mean (lm)	Avg. Life (hours)	CRI	Color Temperature (K)					Pkg. Qty.	Footnotes
										3000	3500	4100	5000	6500		
T8 Fluorescent Low Mercury																
25	T8	48	47.78	Med Bipin	F25T8/8xx/ES/ECO*	2500	2425	24000	85	X	X	X	X		25	1,2,3, E ,ECO
25	T8	48	47.78	Med Bipin	F25T8/8xx/ES/ECO/IC*	2500	2425	24000	85	X	X	X	X		25	1,2,3, E ,ECO
28	T8	48	47.78	Med Bipin	F28T8/8xx/ES/ECO*	2725	2560	24000	85	X	X	X	X		25	1,2,3, E ,ECO
28	T8	48	47.78	Med Bipin	F28T8/8xx/ES/ECO/IC*	2725	2560	24000	85	X		X	X		25	1,2,3, E ,ECO
30	T8	48	47.78	Med Bipin	F30T8/8xx/ES/ECO*	2850	2680	24000	85	X	X	X			25	1,2,3, E ,ECO
32	T8	48	47.78	Med Bipin	F32T8/8xx/HL/ECO*	3100	2950	24000	85	X	X	X	X		25	1,2,3, E ,ECO
32	T8	48	47.78	Med Bipin	F32T8/8xx/HL/ECO/IC*	3100	2950	24000	85	X	X	X	X	X	25	1,2,3, E ,ECO
17	T8	24	23.61	Med Bipin	F17T8/7xx	1350	1200	24000	75	X	X	X			25	1,2,3, E ,ECO
17	T8	24	23.61	Med Bipin	F17T8/8xx	1400	1275	24000	83	X	X	X		X	25	1,2,3, E ,ECO
25	T8	36	35.42	Med Bipin	F25T8/7xx	2150	1925	24000	75	X	X	X			25	1,2,3, E ,ECO
25	T8	36	35.42	Med Bipin	F25T8/8xx	2225	2050	24000	83	X	X	X		X	25	1,2,3, E ,ECO
32	T8	48	47.22	Med Bipin	F32T8/7xx	2850	2710	24000	75	X	X	X	X		25	1,2,3, E ,ECO
32	T8	48	47.22	Med Bipin	F32T8/8xx	3050	2800	24000	83	X	X	X	X	X	25	1,2,3, E ,ECO
32	T8	48	47.22	Med Bipin	F32T8/7xx/ECO/IC*	2850	2710	24000	75	X	X	X	X		25	1,2,3, E ,ECO
32	T8	48	47.22	Med Bipin	F32T8/8xx/ECO/IC*	3050	2800	24000	83		X	X	X	X	25	1,2,3, E ,ECO

T5 Linear Fluorescent Lamps

Watts	Bulb	Nom. Length (in)	MOL (in)	Base	Model #	Lumens Initial (lm)	Lumens Mean (lm)	Avg. Life (hours)	CRI	Color Temperature (K)					Pkg. Qty.	Footnotes
										3000	3500	4100	5000	6500		
T5 Standard																
14	T5	24	21.89	Med Bipin (G5)	F14T5/8xx	1350	1250	20000	85	X	X	X		X	25	1,2,3,4,5,6,7
21	T5	36	33.70	Med Bipin (G5)	F21T5/8xx	2250	2050	20000	85	X	X	X	X	X	25	1,2,3,4,5,6,7
28	T5	48	45.52	Med Bipin (G5)	F28T5/8xx	2900	2700	20000	85	X	X	X		X	25	1,2,3,4,5,6,7
T5 High Output																
24	T5	24	21.89	Med Bipin (G5)	F24T5/8xx/HO	2000	1900	20000	85	X	X	X	X	X	25	1,2,3,4,5,6,7
39	T5	36	33.70	Med Bipin (G5)	F39T5/8xx/HO	3500	3300	20000	85	X	X	X	X	X	25	1,2,3,4,5,6,7
54	T5	48	45.52	Med Bipin (G5)	F54T5/8xx/HO	5400	4950	20000	85	X	X	X	X	X	25	1,2,3,4,5,6,7

T8 Footnote Legend:
1. Average-rated life is based on 3 hours per start
2. Average-rated life at 12 hours per start will increase life by approximately 25% (e.g. lamps rated at 24000 would go to 30000)
3. Lumen ratings, CRI and average-rated lamp life subject to change

E. This lamp meets Federal Minimum Efficiency standards

ECO. Low-Mercury fluorescent lamps pass the Federal TCLP for hazardous waste. Disposal regulations may vary; check local and state regulations

* Meets Consortium of Energy Efficiency (CEE) Standards. Visit www.CEE1.org for more information.

T5 Footnote Legend:
1. Average-rated life is based on 3 hours per start.
2. Average-rated life at 12 hours per start will increase life by approximately 25% (e.g., lamps rated at 20000 would go to 25000).
3. Lumen ratings, CRI and average-rated lamp life subject to change.
4. NEMA recommends that ballasts for this lamp have end-of-life shutdown circuitry which will safely shut the system down in the event of an abnormal end-of-life failure mode. See www.NEMA.org for details.
5. Minimum start temperature is a function of the ballast; consult the ballast manufacturer.
6. The nominal length of linear fluorescent lamps is typically measured from back of lampholder to back of lampholder. T5 and T5HO linear lamps are exceptions. The nominal length given for T5 and T5HO linear lamps is the closest familiar nominal length.
7. Call for availability.

• Specifications are subject to change without notice.

Linear Fluorescent Ballasts

T8 Electronic Fluorescent Ballasts

Starting	Ballast Factor	CEE Listed	Model #	Number of Lamps	Input Voltage	F32T8**			F32T8/ES (30W)			F32T8/ES (28W)			F32T8/ES (25W)		
						Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor
INSTANT START	Standard		E2/32IS-120MC	2	120V	0.85	59	1.44	0.87	54	1.61						
		CEE	EP2/32IS/MV/MC	2	Multi-volt 120	0.89	59	1.51	0.89	55	1.62	0.89	49	1.82	0.89	47	1.89
					Multi-volt 277	0.89	57	1.56	0.89	54	1.65	0.89	48	1.85	0.89	46	1.93
		CEE	EP2/32IS/MV/MC/HE	2	Multi-volt 120	0.89	55	1.59	0.89	51	1.74	0.89	49	1.82	0.89	46	1.92
					Multi-volt 277	0.89	54	1.60	0.89	51	1.70	0.89	47	1.89	0.89	45	1.95
		CEE	EP3/32IS/MV/MC/HE	3	Multi-volt 120	0.88	84	1.05	0.88	79	1.11	0.88	72	1.22	0.90	68	1.32
					Multi-volt 277	0.88	83	1.06	0.88	77	1.14	0.88	70	1.25	0.90	68	1.32
		CEE	EP4/32IS/MV/MC/HE	4	Multi-volt 120	0.88	110	0.80	0.88	101	0.87	0.88	94	0.94	0.88	88	1.00
					Multi-volt 277	0.88	108	0.81	0.88	100	0.88	0.88	94	0.94	0.88	88	1.00
	Low	CEE	EPL2/32IS/MV/MC/HE	2	Multi-volt 120	0.78	48	1.59	0.78	45	1.59	0.78	41	1.90	0.78	39	2.00
					Multi-volt 277	0.78	48	1.60	0.78	46	1.60	0.78	41	1.90	0.78	38	2.00
		CEE	EPL3/32IS/MV/SC/HE	3	Multi-volt 120	0.78	75	1.04	0.81	71	1.14	0.81	64	1.26	0.85	63	1.34
					Multi-volt 277	0.78	74	1.05	0.81	70	1.15	0.81	63	1.28	0.85	61	1.39
		CEE	EPL4/32IS/MV/MC/HE	4	Multi-volt 120	0.77	98	0.79	0.77	90	0.85	0.77	84	0.91	0.78	82	0.95
					Multi-volt 277	0.77	96	0.80	0.77	98	0.86	0.77	84	0.91	0.78	81	0.96
	High	CEE	EPH2/32IS/MV/MC/HE	2	Multi-volt 120	1.18	74	1.59	1.18	69	1.71	1.18	64	1.84	1.18	63	1.87
					Multi-volt 277	1.18	73	1.61	1.18	69	1.71	1.18	63	1.87	1.18	62	1.90
		CEE	EPH3/32IS/MV/MC/HE	3	Multi-volt 120	1.18	109	1.06	1.18	99	1.18	1.18	93	1.25	1.20	86	1.37
					Multi-volt 277	1.18	107	1.08	1.18	99	1.19	1.18	92	1.27	1.20	85	1.40
		CEE	EPH4/32IS/MV/SC/HE	4	Multi-volt 120	1.16	145	0.80	1.16	120	0.97	1.16	116	1.00	1.16	108	1.07
					Multi-volt 277	1.16	144	0.81	1.16	120	0.97	1.16	115	1.01	1.16	109	1.06
PROGRAM RAID START	Standard		EP2/32PRS/MV/MC/HE	2	Multi-volt 120	0.88	57	1.54	0.90	53	1.67	0.90	52	1.73	1.00	50	2.00
					Multi-volt 277	0.88	56	1.56	0.90	52	1.70	0.90	51	1.76	1.00	49	2.04
			EP2/32PPRS/MV/MC/HE	2	Multi-volt 120	0.88	60	1.47	0.88	56	1.57	0.90	54	1.67	0.92	50	1.84
					Multi-volt 277	0.88	60	1.47	0.88	56	1.57	0.90	54	1.67	0.92	50	1.84
			EP4/32PPRS/MV/SC/HE	4	Multi-volt 120	0.86	114	0.75	0.83	104	0.80	0.85	100	0.85	0.89	93	0.96
					Multi-volt 277	0.86	114	0.76	0.84	104	0.80	0.86	100	0.86	0.89	93	0.96

T5 Electronic Fluorescent Ballasts

Starting	Ballast Factor	Model #	Number of Lamps	Input Voltage	F54T5HO**			F39T5/HO**			F28T5**			FC12T5/HO		
					Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballvast Efficacy Factor
PROGRAM RAID START	Standard	EP2/54HO/PRS/MV/90C/W	2	Multi-volt 120	1.00	120	0.83							0.85	106	0.80
				Multi-volt 277	1.00	117	0.85							0.85	103	0.83
		EP2/54HO/PRS/MV/W/SC	2	Multi-volt 120	1.00	120	0.83							0.85	104	0.82
				Multi-volt 277	1.00	120	0.83							0.85	104	0.82
		EP2/39HO/PRS/MV	2	Multi-volt 120				1.00	90	1.11						
				Multi-volt 277				1.00	89	1.12						
		EP2/28T5/PRS/MV	2	Multi-volt 120							1.05	67	1.57			
				Multi-volt 277							1.05	67	1.57			

CEE: Meets Consortium of Energy Efficiency Standards

** This is the primary lamp for this ballast. See specs sheets on our web for other lamps run by this ballast.

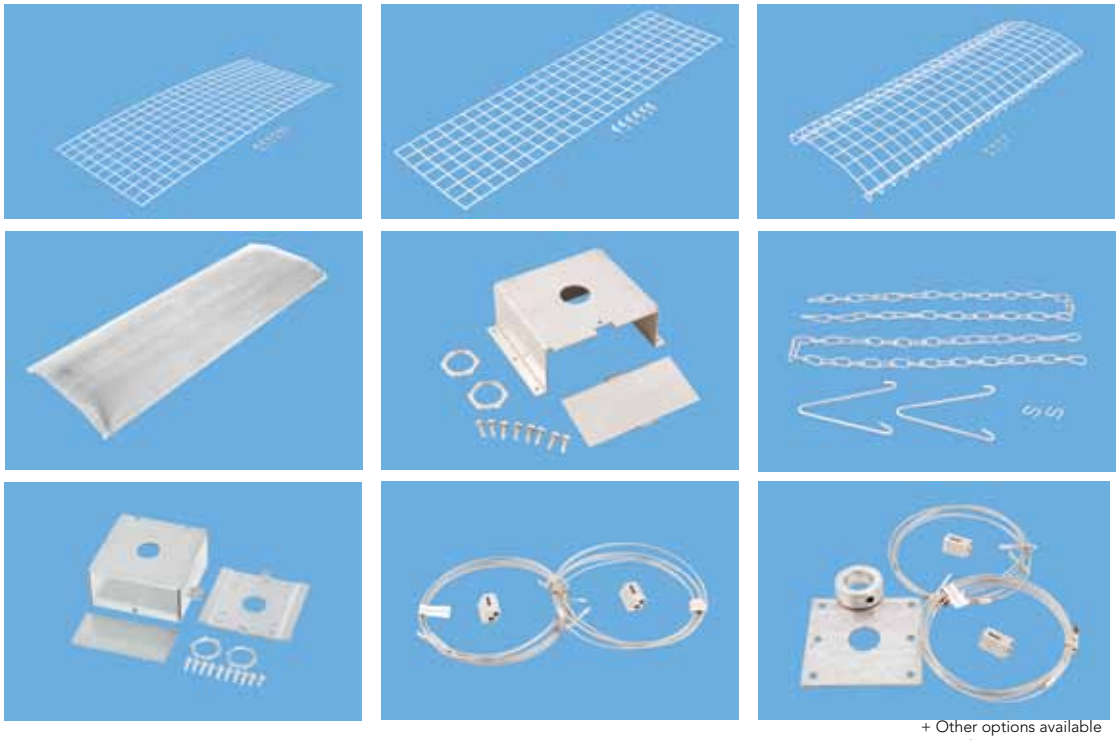
• Specifications are subject to change without notice.

Linear Fluorescent Fixture Accessories & Options

Options and accessories noted on this page do not apply to every linear fluorescent model available. Also, this is not a complete list of our offering, just the most popular. Please visit our website (www.Howard-Lighting.com) or call our factory for more information about our accessory offering.

Quick Reference+

Model #	Description
HF 2CV	2' hanging chain & v-clips
HF 3CV	3' hanging chain & v-clips
HF-OS1	120-277 Occ Sensor (Factory Install option A)
HF-PMK1	Pendant mount kit: Cover, box, anchor plate, screws and lock nuts
HF-PMK2	Pendant mount kit: Cover, J-box, screws and lock nuts (Factory Install Option J)
HF-SK1	Stabilizer kit: Hub, collar and wire cable
HF-WCH	Wire cable hanging kit (2 pcs. Per kit)
HFA1-WG	Wire Guard (Factory Install Option G)
HFA2-WG	Wire Guard (Factory Install Option G)
HFA3-WG	Wire Guard (slide on/off; lens or no lens)
HFA3-WL	HFA3 Series Wrap Lens
HFB3-WG	Wire Guard
HFC7-WL	HFC7 Series Wrap Lens
HFE7-WG	Wire Guard
HFE7-WL	HFE7 Series Wrap Lens



+ Other options available
• Specifications are subject to change without notice.

Linear Fluorescent Standard Cord Options

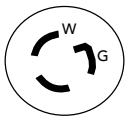
Catalog Option #00	
	Standard Luminaire Power Disconnect Plug (actual style may vary)

Cord, No Plug		
	Catalog Option #01	Catalog Option #11
	6-foot SJT (300v) 18/3 cord, NO PLUG	STW (600v) 16/3 cord, specify length NO PLUG
	Catalog Option #02	Catalog Option #12
	10-foot SJT (300v) 18/3 cord, NO PLUG	6- foot STW (600v) 16/4 cord NO PLUG
	Catalog Option #17	Catalog Option #29
	SJT (300v) 18/3 cord, specify length NO PLUG	STW (600v) 14/3 cord, specify length NO PLUG

120 volt NEMA 5-15 Non Twist Lock Plug			
		5 - 15P	Catalog Option #05
			6-foot SJT (300v) 18/3 cord with NEMA 5-15 non twist lock plug (120v)
			Catalog Option #06
			10-foot SJT (300v) 18/3 cord with NEMA 5-15 non twist lock plug (120v)

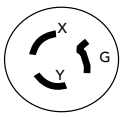
120 volt NEMA L5-15 Twist Lock Plug			
		L5 - 15P	Catalog Option #03
			6-foot SJT (300v) 18/3 cord with NEMA L5-15 twist lock plug (120v)
			Catalog Option #04
			10-foot SJT (300v) 18/3 cord with NEMA L5-15 twist lock plug (120v)
			Catalog Option #20
			16-foot SJT (300v) 18/3 cord with NEMA L5-15 twist lock plug (120v)

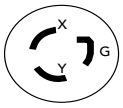
120 volt NEMA L5-20 Twist Lock Plug			
		L5 - 20P	Catalog Option #32
			6-foot SJTW (300v) 16/3 cord with NEMA L5-20 twist lock plug (120v)
			Catalog Option #44
			10-foot SJTW (300v) 16/3 cord with NEMA L5-20 twist lock plug (120v)

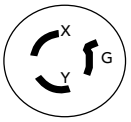
277 volt NEMA L7-15 Twist Lock Plug			
		L7 - 15P	Catalog Option #07
			6-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)
			Catalog Option #08
			10-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)
			Catalog Option #21
			16-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)

277 volt NEMA 7-15 Non Twist Lock Plug			
		7 - 15P	Catalog Option #09
			6-foot SJTW (300v) 18/3 cord with NEMA 7-15 non twist lock plug (277v)
			Catalog Option #10
			10-foot SJTW (300v) 18/3 cord with NEMA 7-15 non twist lock plug (277v)
			Catalog Option #16
			16-foot SJTW (300v) 18/3 cord with NEMA 7-15 non twist lock plug (277v)

277 volt NEMA L7-20 Twist Lock Plug			
		L7 - 20P	Catalog Option #22
			6-foot SJTW (300v) 16/3 cord with NEMA L7-20 twist lock plug (277v)
			Catalog Option #31
			10-foot SJTW (300v) 16/3 cord with NEMA L7-20 twist lock plug (277v)

240 volt NEMA L6-15 Twist Lock Plug			
		L6 - 15P	Catalog Option #23
			6-foot SJTW (300v) 18/3 cord with NEMA L6-15 twist lock plug (240v)
			Catalog Option #30
			10-foot SJTW (300v) 18/3 cord with NEMA L6-15 twist lock plug (240v)

240 volt NEMA L6-20 Twist Lock Plug			
		L6 - 20P	Catalog Option #26
			6-foot SJTW (300v) 16/3 cord with NEMA L6-20 twist lock plug (240v)
			Catalog Option #27
			10-foot SJTW (300v) 16/3 cord with NEMA L6-20 twist lock plug (240v)

480 volt NEMA L8-20 Twist Lock Plug			
		L8 - 20P	Catalog Option #18
			6-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)
			Catalog Option #19
			10-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)
			Catalog Option #25
			16-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)
			Catalog Option #28
			16-foot SJTW (300v) 18/3 cord with NEMA L7-15 twist lock plug (277v)

For use with Howard Lighting linear fluorescent luminaires. For more information, please see spec sheets for our products on our website at www.Howard-Lighting.com

• Specifications are subject to change without notice.

Energy Saving Utility/Roadway & Security Lighting

Cobraheads

USC-LED Series
55, 80 or 100 watts
100-250W equivalent

USC2-LED Series
2in arm casting
w/Wildlife Shield
48 watts
150W HPS & 100W MH Replacement

USC2V-LED Series
2in arm casting
w/Wildlife Shield
Vented LED engine
81 watts
250W HPS & 175W MH equivalent

HLC-LED Series
50, 90 or 120 watts
100-250W equivalent

PowerLite™250-LED Series
Replacement for
250W HPS & MH

SecureLite™250-LED Series
41W or 62W
Replacement for
100W or 150W HPS,
& 175W MV

UIC - Induction
40 - 250 watts
Replacement for
100-400w HPS
70 - 400w MH

NEMA Head

UNH - Induction
40 watts

Floodlight

ULF-LED Series
40LEDs (98 watts)
80LEDs (196 watts)

Area Lighter

ALM2 - Area Lighter
Shoebox
100-400w Replacement

LED Lighting

Applications

- For parking facilities, entry ways, perimeter/pathway lighting, underpasses, residential exteriors, storage areas, building facades, displays, signs or general security lighting

Features include

- Die-cast housing
- Glass or polycarbonate lens
- High quality long-life LEDs
- Lumens per LED: 90-95
- UL listed

MWP Series
Medium Wallpack
LED / 20 or 30 watts

MSWP2 Series
Medium Semi-Cutoff Wallpack
LED / 20 or 30 watts

MCWP2 Series
Medium Cutoff Wallpack
LED / 48 watts

SSWP Series
Small Semi-Cutoff Wallpack
LED / 10 watts

MINIWPP Series
Mini Wallpack
Polycarbonate Lens
LED / 10 watts

MAW Series
Mini Architectural Wallpack
LED / 20 watts

CWP2 Series
Cutoff Wallpack
LED / 48 watts

CWPO Series
Cutoff Wallpack-Oval Shape
LED / 30 or 48 watts

LC12 Series
12" Canopy
LED / 20, 40 or 60 watts

SFL Series
Small Floodlight
LED / 20 watts

HFL2 Series
Horizontal Floodlight
LED / 40 watts

RGL Series
Round Garage Lighter
LED / 36 watts

• Specifications are subject to change without notice.

Induction Lighting

Applications

- For walkways, driveways, tennis courts, malls shopping centers, commercial and industrial complexes, residential areas, park lighting, signs, and other general lighting.

Features include

- Die-cast housing
- High quality powdercoat finish
- Long-life electrodeless induction lamps
- UL Listed

ALA1 Series
Area Light Architectural
IND / 80, 120 or 150 watts

ALL Series
Area Light - Large
IND / 200 watts

ALM1 Series
Area Light - Medium
IND / 80 or 120 watts

ARSBF Series
Area Light Shoebox
IND / 200 or 300 watts

HFL2 Series
Horizontal Floodlight
IND / 40 watts

RGL Series
Round Garage Lighter
IND / 40 or 80 watts

C19 Series
Large Canopy
IND / 80, 120, or 200 watts

C12 Series
Medium Canopy
IND / 40 or 80 watts

C08 Series
Small Canopy
IND / 15 or 23 watts

MWP Series
Medium Wallpack
IND / 40 or 60 watts

CWP Series
Cut-off Wallpack
IND / 15, 23 or 40 watts

GHAC16 Series
16" Highbay Acrylic
IND / 120 or 150 watts

GHAC22 Series
22" Highbay Acrylic
IND / 200, or 300 watts

LDWP2 Series
Large Deep Wallpack
IND / 80, 120 or 150 watts

LWP2 Series
Large Wallpack
IND / 80 watts

• Specifications are subject to change without notice.

12" LED Canopy

Description

LED fixtures are extremely durable, providing quality, efficient maintenance-free illumination for twelve years. The fixtures can be mounted to a recessed outlet box or be surface-mounted. With various distribution patters, the canopy can utilized for optimal lighting without wasting light.

Features

- Environmentally friendly
- Cost-effective
- Maintenance-free alternative to traditional lighting.
- Uses up to 75% less energy
- Contain no mercury

Applications

Whether you are lighting exteriors, entry ways, breezeways, walkways, perimeters, parking garages, storage areas, or industrial/commercial spaces, the Howard Canopy LED fixture is the perfect lighting solutions.

Distribution

- Aisle Distribution only lights two sides and the bottom for aisle lighting.
- Corner Distribution only lights two sides and bottom for lighting from a corner spot.
- Full Distribution lights all sides and bottom for all around lighting. This is best used in the center of a room.
- Horizontal Distribution lights all sides but not the bottom, this has light output in four directions for great security lighting.
- Perimeter Distribution is best used around a perimeter where it is desirable to not light one wall or area.
- Down Distribution with two light engines is a low cost option. Used for the middle of the room to light the floor.
- Down Distribution with four light engines points downward to below parking area or walkway. It is used for the middle of a room to light one area.

Ordering Information

Fixture Model Family	Lens Option	# of LEDs/ Output Watts	CCT	Light Distribution	Input Voltage	Housing Color[2]	Options	Packaging	Reserved for Factory Use
LC12	P	4041	60	D	U	B	00	I	000
12 inch LED Canopy	P: Prismatic Polycarbonate Lens	2021: 20LED/21W 2031: 20LED/31W 4041: 40LED/41W 4060: 40LED/60W 6061: 60LED/61W 6088: 60LED/88W	60: 6000K[1]	A: Aisle F: Full C: Corner H: Horizontal P: Perimeter D: Down	U: 120-277v Electronic Driver 1: 120v Electronic Driver 2: 277v Electronic Driver	B: Bronze W: White F: Special	00: No options V: Surge Protection	I: Single X: Special	TBA

1: 6000 is standard color. Other colors available depending on quantity and lead time. Call factory for options.
2: Bronze is standard color. Other colors available depending on quantity and lead time. Call factory for options.

• Specifications are subject to change without notice.

LED Canopy Technical Data						
Model Configuration	LC12P2021	LC12P2031	LC12P4041	LC12P4060	LC12P6061	LC12P6088
Total System Watts (Input)	24W	36W	46W	67W	68W	98W
Light Distribution	D	D	A,C,H,P,D	A,C,H,P,D	F	F
Initial Lumens @ 25C Ambient[1]	1447 @350mA	2114 @500mA	2893 @350mA	3886 @500mA	4300 @350mA	5390 @500mA
Lumens per Watt @ 25C Ambient	60	57	63	58	63	55
Initial Lumens @ 40C Ambient[2]	1401 @350mA	2045 @500mA	2801 @350mA	3762 @500mA	4164 @350mA	5218 @500mA
Initial Lumens @ 50C Ambient[2]	1370 @350mA	2000 @500mA	2740 @350mA	3680 @500mA	4073 @350mA	5104 @500mA
Lighting Facts Label[a]	No*	No*	Yes, except D	No*	Yes	No*
Tj @ 25C Ambient[b]	62	79	79	102	89	116
Safety Margin[c]	50%	36%	37%	18%	29%	7%
HID Photometric Equivalent[d]	70w HPS	50w MH or 100w HPS	70w MH or 150w HPS	100w MH or 150w HPS	100w MH or 150w HPS	150w HPS or 200w HPS

1. Based on average performance.
2. Calculation based on Philips LumiLEDs Datasheet.

a. Light facts can be seen at www.lightingfacts.com. A program of the US Department of Energy.
b. Tj is the Junction Temperature of the LED; maximum 125°C for Philips Rebel LED.
c. Safety margin is the percent margin at which Tj is below maximum of 125°C.
d. Photometric Equivalency based upon Scotopic/Photopic ratios. See Wattage Cross Reference document for detailed information.

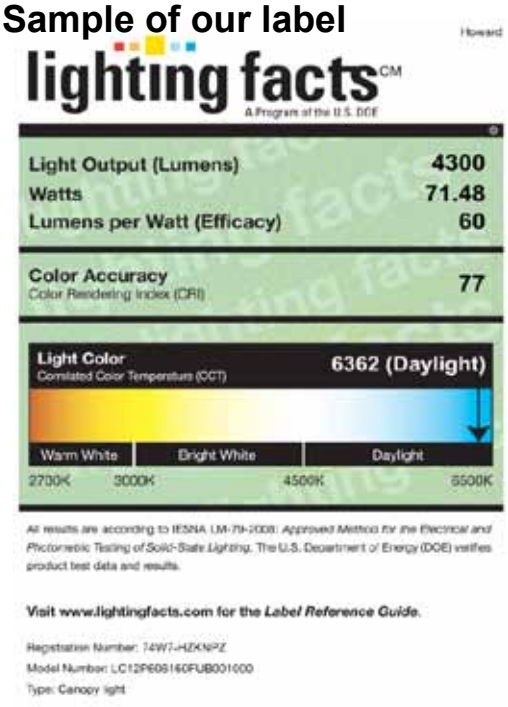
Lighting Facts

Lighting Facts® showcases LED luminaire manufacturers who commit to testing products and reporting performance results according to industry standards. For lighting buyers, designers, and energy efficiency programs, the Lighting Facts label provides information essential to evaluating products and identifying the best options.

Howard currently has several models that meet the Lighting Facts requirements. We label each product sold with this label to clearly identify that our product that our product is part of the program.

You can get more information at:
www.lightingfacts.com

Sample of our label



• Specifications are subject to change without notice.

HID to LED Wattage Cross-Reference

SCOTOPIC/PHOTOPIC MULTIPLIER METHOD*									
HID Fixture Info				LED drive current = 350mA @25°C			LED drive current = 500mA @25°C		
HID Lamp	Lamp Mean Lumens	Visually Effective Lumens Exiting Fixture (Mean)**	System Input Watts	LED Equivalent Input Wattage	Visually Effective Lumens Exiting Fixture**	Energy Savings	LED Equivalent Input Wattage	Visually Effective Lumens Exiting Fixture**	Energy Savings
70W PSMH	4,400	4,589	85	36	4,538	58%	40	4,554	53%
100W PSMH	5,800	6,049	129	48	6,050	63%	53	6,034	59%
150W PSMH	10,000	10,430	186	83	10,462	55%	92	10,474	51%
175W MH	10,800	11,264	210	89	11,218	58%	99	11,271	53%
200W PSMH	16,800	17,522	234	139	17,520	41%	154	17,533	34%
250W MH	17,000	17,731	292	141	17,772	52%	156	17,760	47%
250W PSMH	19,000	19,817	288	157	19,789	45%	174	19,810	40%
320W PSMH	21,000	21,903	364	174	21,932	52%	192	21,859	47%
350W PSMH	27,000	28,161	400	223	28,108	44%	247	28,120	38%
400W MH	23,500	24,511	460	194	24,453	58%	215	24,477	53%
400W PSMH	31,000	32,333	456	257	32,394	44%	284	32,333	38%
70W HPS	5,350	2,322	91	18	2,269	80%	20	2,277	78%
100W HPS	8,550	3,711	129	29	3,655	78%	33	3,757	74%
150W HPS	14,400	6,250	185	50	6,302	73%	55	6,262	70%
250W HPS	27,000	11,718	295	93	11,722	68%	103	11,726	65%
400W HPS	45,000	19,530	464	155	19,537	67%	172	19,582	63%

PHOTOPIC METHOD									
HID Fixture Info				LED drive current = 350mA @25°C			LED drive current = 500mA @25°C		
HID Lamp	Lamp Mean Lumens	Lumens Exiting Fixture (mean)**	System Watts	LED Equivalent Input Wattage	Lumens Exiting Fixture	Energy Savings	LED Equivalent Input Wattage	Lumens Exiting Fixture	Energy Savings
70W PSMH	4,400	3,080	85	52	3,063	39%	58	3,248	32%
100W PSMH	5,800	4,060	129	69	4,064	47%	76	4,256	41%
150W PSMH	10,000	7,000	186	119	7,009	36%	132	7,392	29%
175W MH	10,800	7,560	210	128	7,539	39%	142	7,952	32%
200W PSMH	16,800	11,760	234	200	11,780	15%	221	12,376	6%
250W MH	17,000	11,900	292	202	11,898	31%	224	12,544	23%
250W PSMH	19,000	13,300	288	226	13,311	22%	250	14,000	13%
320W PSMH	21,000	14,700	364	250	14,725	31%	276	15,456	24%
350W PSMH	27,000	18,900	400	321	18,907	20%	355	19,880	11%
400W MH	23,500	16,450	460	279	16,433	39%	309	17,304	33%
400W PSMH	31,000	21,700	456	368	21,675	19%	408	22,848	11%
70W HPS	5,350	3,745	91	64	3,770	30%	70	3,920	23%
100W HPS	8,550	5,985	129	102	6,008	21%	113	6,328	12%
150W HPS	14,400	10,080	185	171	10,072	8%	189	10,584	-2%
250W HPS	27,000	18,900	295	321	18,907	-9%	355	19,880	-20%
400W HPS	45,000	31,500	464	535	31,512	-15%	592	33,152	-28%

*Scotopic refers to visual perception in low light , photopic refers to color perception in normal light . The ratio of Scotopic light vs. Photopic light is called the S/P ratio. This ratio determines the apparent visual brightness of a light source. Higher S/P ratios appear brighter to the human eye. See:
"Energy Efficiency Consequences of Scotopic Sensitivity", Dr. Sam Berman, Journal of the IES, Vol 21 No.1, Dec. 1992
"The Coming Revolution in Lighting Practice", Dr. Sam Berman, http://www.lightenergysource.com/ScotopicTechnical.htm
**Scotopic/Photopic ratios used: MH/PSMH = 1.49, HPS = 0.62, LED (6500K) = 2.14. HID fixtures assumed to be 70% optically efficient., actual efficiency will vary. Mean lumens of 95% used for LED.

The HI Lighting Calculator is provided to assist users in making lighting decisions based on various assumptions, factors. and methods. Efforts have been made to ensure accurate assumptions in developing this tool, however, HOWARD INDUSTRIES DOES NOT WARRANT OR GUARANTEE, EITHER EXPRESS OR IMPLIED, THAT THE RESULTS OBTAINED HEREIN WILL BE OBTAINABLE UNDER ACTUAL USE CONDITIONS. HOWARD INDUSTRIES IS NOT RESPONSIBLE FOR ANY LOSS RESULTING FROM THE USE OF THIS TOOL.

• Specifications are subject to change without notice.

HID to Induction Wattage Cross-Reference

SCOTOPIC/PHOTOPIC MULTIPLIER METHOD*						
HID Fixture Info				Induction Lamp, 6500K		
HID Lamp	Lamp Mean Lumens	Visually Effective Lumens Exiting Fixture (Mean)**	System Input Watts	Induction Equivalent Input Wattage	Visually Effective Lumens Exiting Fixture (mean)**	Energy Savings
70W PSMH	4,400	4,589	85	55	4,614	35%
100W PSMH	5,800	6,049	129	72	6,040	44%
150W PSMH	10,000	10,430	186	124	10,402	33%
175W MH	10,800	11,264	210	134	11,241	36%
200W PSMH	16,800	17,522	234	209	17,533	11%
250W MH	17,000	17,731	292	211	17,700	28%
250W PSMH	19,000	19,817	288	236	19,798	18%
320W PSMH	21,000	21,903	364	261	21,895	28%
350W PSMH	27,000	28,161	400	336	28,186	16%
400W MH	23,500	24,511	460	292	24,495	37%
400W PSMH	31,000	32,333	456	385	32,297	16%
70W HPS	5,350	2,322	91	28	2,349	69%
100W HPS	8,550	3,711	129	44	3,691	66%
150W HPS	14,400	6,250	185	74	6,208	60%
250W HPS	27,000	11,718	295	140	11,744	53%
400W HPS	45,000	19,530	464	233	19,546	50%

PHOTOPIC METHOD						
HID Fixture Info				Induction Lamp, 6500K		
HID Lamp	Lamp Mean Lumens	Lumens Exiting Fixture (mean)**	System Watts	Induction Equivalent Input Wattage	Lumens Exiting Fixture (mean)	Energy Savings
70W PSMH	4,400	3,080	85	79	3,097	7%
100W PSMH	5,800	4,060	129	104	4,077	19%
150W PSMH	10,000	7,000	186	179	7,017	4%
175W MH	10,800	7,560	210	193	7,566	8%
200W PSMH	16,800	11,760	234	300	11,760	-28%
250W MH	17,000	11,900	292	304	11,917	-4%
250W PSMH	19,000	13,300	288	339	13,289	-18%
320W PSMH	21,000	14,700	364	375	14,700	-3%
350W PSMH	27,000	18,900	400	482	18,894	-21%
400W MH	23,500	16,450	460	420	16,464	9%
400W PSMH	31,000	21,700	456	554	21,717	-21%
70W HPS	5,350	3,745	91	96	3,763	-5%
100W HPS	8,550	5,985	129	153	5,998	-19%
150W HPS	14,400	10,080	185	257	10,074	-39%
250W HPS	27,000	18,900	295	482	18,894	-63%
400W HPS	45,000	31,500	464	804	31,517	-73%

*Scotopic refers to visual perception in low light , photopic refers to color perception in normal light . The ratio of Scotopic light vs. Photopic light is called the S/P ratio. This ratio determines the apparent visual brightness of a light source. Higher S/P ratios appear brighter to the human eye. See:
"Energy Efficiency Consequences of Scotopic Sensitivity", Dr. Sam Berman, Journal of the IES, Vol 21 No.1, Dec. 1992
"The Coming Revolution in Lighting Practice", Dr. Sam Berman, http://www.lightenergysource.com/ScotopicTechnical.htm
**Scotopic/Photopic ratios used: MH/PSMH = 1.49, Induction = 2.14. Both HID & induction fixtures assumed to be 70% optically efficient., actual efficiency will vary. Mean lumens of 80% used for induction.

The HI Lighting Calculator is provided to assist users in making lighting decisions based on various assumptions, factors. and methods. Efforts have been made to ensure accurate assumptions in developing this tool, however, HOWARD INDUSTRIES DOES NOT WARRANT OR GUARANTEE, EITHER EXPRESS OR IMPLIED, THAT THE RESULTS OBTAINED HEREIN WILL BE OBTAINABLE UNDER ACTUAL USE CONDITIONS. HOWARD INDUSTRIES IS NOT RESPONSIBLE FOR ANY LOSS RESULTING FROM THE USE OF THIS TOOL.

Exit Signs and Combo Units

Features include

- Self contained
- Snap-fit faceplates
- Universal mounting
- Universal voltage
- Battery backup (some models)
- Remote capabilities (some models)
- Self diagnostics (some models)
- UL listed

HL0201 Series
Slimline Thermoplastic LED Exit Sign

HL0301 Series
Slimline Thermoplastic LED Exit Sign

HL0210 Series
Die-Cast Aluminum LED Exit Sign

HL0203 Series
Edge Lite LED Exit Sign Remote or Surface Mount

HL0205 Series
Steel Exit Signs

HLSLXTU Series
Tritium Self Luminous

HL0409 Series
Thermoplastic LED Exit/Emergency Combo

HL0214 Series
Thermoplastic LED Exit/Emergency Combo

HL0226 Series
Wet Location Exit Sign

HL0228 Series
Wet Location Exit/Emergency Combo

HL0311 Series
LED "Lightpipe" Exit/Emergency Combo

HL0211 Series
Low Profile Die-Cast Aluminum LED Exit Sign

HL0203NY Series
City of New York Edge Lite LED Exit Sign Remote or Surface Mount

HL0210NY Series
City of New York Die-Cast Aluminum LED Exit Sign

HL0204 Series
City of Chicago Exit Sign

HL0245NY Series
City of New York Exit/Emergency Combo Unit

• Specifications are subject to change without notice.

Emergency Lights

Features include

- Injection molded design
- High impact
- Universal voltage
- Remote capabilities (some models)
- Self diagnostics (some models)
- UL listed

HL202 Series
Adjustable Optics
Emergency Light

HL223W Series
Fixed Optics
Emergency Light

HL0242 & HL0244 Series
50W High Wattage
Emergency Light

HL0243 & HL0245 Series
100W High Wattage
Emergency Light

HLTFX-2 Series
Wet Location
Emergency Light

HLEMRL-1 Series
Recessed
Emergency Light

HLR16 Series
Halogen
Emergency Light

HLRMR Series
Halogen
Emergency Light

HLR-7 Series
Recessed
Emergency Light

HLCA26S10 Series
City of Chicago
Emergency Light

Remote Lamp Heads

HLRH16 Series
Remote Heads
1 or 2 heads
Square

HLRHR Series
Remote Heads
1 or 2 heads
Round heads

Weather Proof Heads
Remote Heads
HLRH1WP (1 head)
HLRH2WP (2 heads)

HLRH Series
Remote Heads
1 or 2 heads
Square heads

• Specifications are subject to change without notice.

Exit/Emergency

Quick Reference+

Model #	Description
	Exit Signs
HL02012GW	Exit Sign - Thermoplastic LED, White Case/Housing, Green Letters, AC only
HL02012RW	Exit Sign - Thermoplastic LED, White Case/Housing, Red Letters, AC only
HL0201B2GW	Exit Sign - Thermoplastic LED, White Case/Housing, Green Letters, Battery Backup
HL0301B2GW	Exit Sign - Thermoplastic LED, White Case/Housing, Green Letters, Battery Backup
HL0301B2RW	Exit Sign - Thermoplastic LED, White Case/Housing, Red Letters, Battery Backup
HL0203RB1GA	Exit Sign - Edge Lite LED, Recessed Mount Case/Housing, Green on Clear, Battery Backup
HL0203RB1RA	Exit Sign - Edge Lite LED, Recessed Mount Case/Housing, Red on Clear, Battery Backup
HL0203SB1GA	Exit Sign - Edge Lite LED, Surface Mount Case/Housing, Green on Clear, Battery Backup
HL0203SB1RA	Exit Sign - Edge Lite LED, Surface Mount Case/Housing, Red on Clear, Battery Backup
HL0203SB2GA	Exit Sign - Edge Lite LED, Surface Mount Case/Housing, Green on Clear, Battery Backup
HL0203SB2RA	Exit Sign - Edge Lite LED, Surface Mount Case/Housing, Red on Clear, Battery Backup
HL02101RBA	Exit Sign - Die Cast Aluminum LED, Brushed Aluminum Case/Housing, Red Letters, AC only
HL0210B1RBA	Exit Sign - Die Cast Aluminum LED, Brushed Aluminum Case/Housing, Red Letters, Battery Backup
HL0226BG	Exit Sign - Wet Location LED, White Case/Housing, Green Letters, Battery Backup
HL0226BR	Exit Sign - Wet Location LED, White Case/Housing, Red Letters, Battery Backup
	Combo Exit Signs/Emergency Lights
HL0228BG	Combo Exit/Emergency - Light Wet Location LED, White Case/Housing, Green Letters, Battery Backup
HL0228BR	Combo Exit/Emergency - Light Wet Location LED, White Case/Housing, Red Letters, Battery Backup
HL04093GW	Combo Exit/Emergency Light LED, White Case/Housing, Green Letters, Battery Backup
HL04093RW	Combo Exit/Emergency Light LED, White Case/Housing, Red Letters, Battery Backup
HL02143GW	Combo Exit/Emergency Light LED, White Case/Housing, Green Letters, Battery Backup
HL02143GWRC	Combo Exit/Emergency Light LED, White Case/Housing, Green Letters, Battery Backup, Remote Capable
HL02143RW	Combo Exit/Emergency Light LED, White Case/Housing, Red Letters, Battery Backup
HL02143RWRC	Combo Exit/Emergency Light LED, White Case/Housing, Red Letters, Battery Backup, Remote Capable
	Emergency Lights
HL0202SW	Emergency Light, White Case/Housing, Adjustable Optics
HL0202RCW	Emergency Light, White Case/Housing, Adjustable Optics, Remote Capable
HL0223W	Emergency Light, White Case/Housing, Fixed Optics, Battery (Lead)
HL0242	Emergency Light, White Case/Housing, Adjustable Optics, 6V, 50w max
HL0243	Emergency Light, White Case/Housing, Adjustable Optics, 6V, 100w max
HL0244	Emergency Light, White Case/Housing, Adjustable Optics, 12V, 50w max
HL0245	Emergency Light, White Case/Housing, Adjustable Optics, 12V, 100w max
HLTFX-2	Emergency Light,White Case/Housing,Adjustable Optics,,Wet Location
	Remote Lamp Heads
HLRH1-6V5	Remote Lamp Head, White Case/Housing, Remote Lamp Head for HL0202
HLRH1-6V9	Remote Lamp Head, White Case/Housing, Remote Lamp Head for HL0202
HLRH16-1	Remote Lamp Head, White Case/Housing, Remote Lamp Head for HL0202
HLRH2-6V5	Remote Lamp Head, White Case/Housing, Remote Lamp Head for HL0202
HLRH2-6V9	Remote Lamp Head, White Case/Housing, Remote Lamp Head for HL0202
HLRH1WP-2	Remote Lamp Head-Round Weatherproof, Remote Lamp Head for HL0243
HLRH2-WP-6V7	Remote Lamp Head-Round Weatherproof, Remote Lamp Head for HL0243

+ Other configurations available

• Specifications are subject to change without notice.

Emergency Ballast

Howard Lighting fluorescent emergency ballasts can be used for both normal and emergency operations. In the event of a power failure, the unit switches to emergency mode and operates the existing lamps for a minimum of 90 minutes. Each ballast includes a battery pack, battery charger, and inverter circuit, and can be top-mounted on the fixture or in the fixture wiring compartment. All ballasts comply with the latest codes and standards including UL924.

BAL500
T8 Lamp operation

BAL650C-2
CFL Lamp operation

BAL650C-4
CFL/T8/T10/T12 Lamp operation

BAL700
T8/T10/T12 Lamp operation

BAL1400
T8/T9/T10/T12/CFL Lamp operation

BAL3000
T8/T9/T10/T12 Lamp operation

BALT5-500
T5/T8 Lamp operation

BALT5-800
T5/T8/CFL Lamp operation

BALT5-1300
T5/T8/CFL Lamp operation

Quick Reference

Model #	Description
BAL500	Emergency Ballast 350-500 Lumens; operates 1 lamp (min. 90 minutes)
BAL700	Emergency Ballast 600-700 Lumens; operates 1 or 2 lamps (min. 90 minutes)
BAL1400	Emergency Ballast 1100-1400 Lumens; operates 1 or 2 lamps (min. 90 minutes)
BAL3000	Emergency Ballast 1450-3000 Lumens; operates 1 or 2 lamps (min. 90 minutes)
BAL650C-2	Emergency Ballast 300-650 Lumens; 2-pin; operates 1 lamp (min. 90 minutes)
BAL650C-4	Emergency Ballast 300-750 Lumens; 4-pin; operates 1 or 2 lamps (min. 90 minutes)
BALT5-500	Emergency Ballast 450-500 Lumens; operates 1 lamp (min. 90 minutes)
BALT5-800	Emergency Ballast 800 Lumen; operates 1 lamp operates (min. 90 minutes)
BALT5-1300	Emergency Ballast 1300 Lumens; operates 1 or 2 lamps (min. 90 minutes)

• Specifications are subject to change without notice.

Compact Fluorescent Ballast

Quick Reference

Electronic Compact Fluorescent															
Starting				CF13DE**			CF18DE**			CF26DE**			CF42TE**		
	Model #	Number of Lamps	Input Voltage	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor	Ballast Factor	Input Watts	Ballast Efficacy Factor
PROGRAM START	EP2/13CF/MV/K2	2	Multi-volt 120	1.00	29	3.45									
			Multi-volt 277	1.00	29	3.45									
	EP2/18CF/MV/K	2	Multi-volt 120				1.08	44	2.48						
			Multi-volt 277				1.08	42	2.54						
	EP2/26CF/MV/K2	2	Multi-volt 120							1.00	51	1.96			
			Multi-volt 277							1.00	51	1.96			
	EP2/42CF/MV/K2	2	Multi-volt 120										1.00	94	1.14
			Multi-volt 277										1.00	93	1.08

Electronic Compact Fluorescent						
Starting				FT40W/2G11**		
	Model #	Number of Lamps	Input Voltage	Ballast Factor	Input Watts	Ballast Efficacy Factor
INSTANT START	EP2/40IS-TT/MV/SC	2	Multi-volt 120	0.84	67	1.25
			Multi-volt 277	0.84	65	1.29
	EP3/40IS-TT/MV/SC	3	Multi-volt 120	0.84	97	0.87
			Multi-volt 277	0.84	95	0.88

Compact Fluorescent Fixtures

Quick Reference

Model#	Description
8x8C-26-CF-120	Small Canopy 26W CFL 120v
12x12C-52-CF-MV	Medium Canopy 52W CFL Multi-volt

Model#	Description
MSWF-52-CF-MV	Mid-Size Wide Flood 52W CFL Multi-volt

Model#	Description
MINIWPP-26-CF-MV	Mini Wallpack Polycarbonate Lens 26W CFL Multi-volt

Model#	Description
MWP-84-CF-MV	Medium Wallpack 84W CFL Multi-volt

• Specifications are subject to change without notice.

Compact Fluorescent Lamps

Quick Reference

Watts	Model #	Base	Lumens Initial (lm)	Lumens Mean (lm)	MOL (mm)	Avg. Life (hours)	Color Temperature (K)				Pkg. Qty.
							2700	3000	3500	4100	
Single Tube (2-Pin G23 Base)											
5	CF5S/827	G23	250	230	110	10000	X			X	50
7	CF7S/827	G23	400	360	139	10000	X		X	X	50
9	CF9S/827	G23	600	540	170	10000	X		X	X	50
Single Tube (2-Pin GX23 Base)											
13	CF13S/830	GX23	800	720	182	10000		X	X	X	50
Single Tube (4-Pin 2G7 Base for Electronic Ballast-Dimmable)											
5	CF5SE/827	2G7	250	230	87	10000	X			X	50
7	CF7SE/827	2G7	400	360	116	10000	X			X	50
9	CF9SE/827	2G7	600	540	146	10000	X			X	50
Single Tube (4-Pin 2GX7 Base for Electronic Ballast-Dimmable)											
13	CF13SE/827	2GX7	800	720	162	10000	X		X	X	50
Double Tube (2-Pin G23-2 Base)											
9	CF9D/827	G23-2	525	475	110	10000	X		X	X	50
Double Tube (2-Pin GX23-2 Base)											
13	CF13D/827	GX23-2	780	700	120	10000	X		X	X	50
Double Tube (2-Pin G24d-2 Base)											
18	CF18D/827	G24d-2	1200	1080	154	10000	X	X	X	X	50
26	CF26D/827	G24d-3	1800	1620	175	10000	X	X	X	X	50
Double Tube (4-Pin G24q-1 Base for Electronic Ballast)											
13	CF13DE/827	G24q-1	900	810	134	10000	X		X	X	50
Double Tube (4-Pin G24q-2 Base for Electronic Ballast)											
18	CF18DE/827	G24q-2	1200	1080	149	10000	X	X	X	X	50
Double Tube (4-Pin G24q-3 Base for Electronic Ballast)											
26	CF26DE/827	G24q-3	1800	1620	167	10000	X	X	X	X	50
Triple Tube (2-Pin GX24d-2 Base)											
18	CF18T/827	GX24d-2	1200	1080	123	10000	X				50
Triple Tube (2-Pin GX24d-3 Base)											
26	CF26T/827	GX24d-3	1800	1620	139	10000	X				50
Triple Tube (4-Pin GX24q-1 Base for Electronic Ballast)											
13	CF13TE/827	GX24q-1	900	810	113	10000	X	X	X	X	50
Triple Tube (4-Pin GX24q-3 Base for Electronic Ballast)											
26	CF26TE/827	G24q-3	1800	1620	175	10000	X	X	X	X	50
32	CF32TE/827	GX24q-3	2400	2160	149	10000	X	X	X	X	50
Triple Tube (4-Pin GX24q-4 Base for Electronic Ballast)											
42	CF42TE/827	GX24q-4	3200	2880	172	10000	X	X	X	X	50

Single Tube

Double Tube

Triple Tube

• Specifications are subject to change without notice.

HID

High Intensity Discharge Lamps & Ballasts

Quick Reference

Watts	Model #	Bulb	Base	ANSI	Burning Position	Lumens Initial (lm)	Lumens Mean (lm)	MOL (in)	LCL (in)	Avg. Life (hours)	Color Temp (K)	CRI	Lamp Finish	Pkg. Qty
Pulse Start Metal Halide														
200	MH200/BU/ED28/PS	ED28	MOG	M136/E	Base Up	21000	16800	8.31	5	15000	4200	60	Clear	12
200	MH200/C/BU/ED28/PS	ED28	MOG	M136/E	Base Up	20000	16000	8.31	5	15000	4000	65	Coated	12
250	MH250/U/ED28/PS	ED28	MOG	M138/ M157/E	Universal	21000V 18900H	15750	8.3	5	20000V 15000H	4000	65	Clear	12
250	MH250/BU/ED28/PS	ED28	MOG	M138/E	Base Up	25000	20000	8.31	5	15000	4200	70	Clear	12
250	MH250/C/BU/ED28/PS	ED28	MOG	M138/E	Base Up	23000	19000	8.31	5	15000	4000	75	Coated	12
320	MH320/BU/ED28/PS	ED28	MOG	M132/E	Base Up	34000	27200	8.31	5	15000	4200	70	Clear	12
320	MH320/C/BU/ED28/PS	ED28	MOG	M132/E	Base Up	32300	24500	8.31	5	20000	4000	75	Coated	12
350	MH350/BU/ED28/PS	ED28	MOG	M131/E	Base Up	37000	29600	8.31	5	20000	4200	70	Clear	12
350	MH350/C/BU/ED28/PS	ED28	MOG	M132/E	Base Up	35200	28200	8.31	5	20000	4000	75	Coated	12
400	MH400/U/ED28/PS	ED28	MOG	M135/M	Universal	36000V 15000H	27000	11.5	7	20000V 15000H	4000	65	Clear	12
400	MH400/BU/ED37/PS	ED37	MOG	M135/E	Base Up	44000	35200	11.5	7	20000	4200	70	Clear	12
400	MH400/C/BU/ED37/PS	ED37	MOG	M135/E	Base Up	4200	33600	11.5	7	20000	4000	75	Coated	12
400	MH400/HOR/ED28/PS	ED28	MOG	M135/E	Base Up	40000	32000	8.31	5	20000	4000	65	Clear	12
750	MH750/BU/BT37/PS	BT37	MOG	M149/E	Base Up	80000	60000	11.5	7	16000	4000	60	Clear	12
750	MH750/C/BU/BT37/PS	BT37	MOG	M149/E	Base Up	75000	56000	11.5	7	16000	4000	60	Coated	12
1000	MH1000/BU/BT37/PS	BT37	MOG	M141/E	Base Up	110000	96000	11.5	7	10000+	4200	60	Clear	12
200	MP200/BU/ED28/PS	ED28	MOG (EX39)	M136/O	Base Up	20000	16000	8.31	5	15000	4200	60	Clear	12
200	MP200/C/BU/ED28/PS	ED28	MOG (EX39)	M136/O	Base Up	19000	15200	8.31	5	15000	4000	65	Clear	12
250	MP250/BU/ED28/PS	ED28	MOG (EX39)	M138/O	Base Up	23800	19000	8.31	5	15000	4200	70	Clear	12
250	MP250/C/BU/ED28/PS	ED28	MOG (EX39)	M138/O	Base Up	22600	18100	8.31	5	15000	4000	75	Coated	12
320	MP320/BU/ED28/PS	ED28	MOG (EX39)	M132/O	Base Up	32300	25800	8.31	5	20000+	4200	70	Clear	12
320	MP320/C/BU/ED28/PS	ED28	MOG (EX39)	M132/O	Base Up	30600	24500	8.31	5	20000+	4000	75	Coated	12
350	MP350/BU/ED28/PS	ED28	MOG (EX39)	M131/O	Base Up	35200	28200	8.31	5	20000+	4200	70	Clear	12
350	MP350/C/BU/ED28/PS	ED28	MOG (EX39)	M131/O	Base Up	33400	26700	8.31	5	20000+	4000	75	Coated	12
400	MP400/BU/ED37/PS	ED37	MOG (EX39)	M135/O	Base Up	42000	33600	11.5	7	20000+	4200	70	Clear	12
400	MP400/C/BU/ED37/PS	ED37	MOG (EX39)	M135/O	Base Up	40000	32000	11.5	7	20000+	4000	75	Coated	12

Pulse Start Metal Halide Ballasts	
Model #	Description
M0320-71C-6E4-CK	PSMH Ballast, 320w, M132/M154, Quad, PS-CWA, Alum, Circle E, Oil Kit
M0320-71C-6E4-DK	PSMH Ballast, 320w, M132/M154, Quad, PS-CWA, Alum, Circle E, Dry Kit
M0350-71C-6E4-CK	PSMH Ballast, 350w, M131, Quad, PS-CWA, Circle E, Oil Kit
M0350-71C-6E4-DK	PSMH Ballast, 350w, M131, Quad, PS-CWA, Circle E, Oil Kit
M0400-71C-6E3-CK	PSMH Ballast, 400w, M128/M135/M155, Quad, PS-CWA, Alum, Circle E, Oil Kit
M0400-71C-6E3-DK	PSMH Ballast, 400w, M135/M155 Quad, PS-CWA, Circle E, Dry Kit
M0750-71C-612-CK	PSMH Ballast, 750w, M149, Quad, PS-CWA, Alum, Oil Kit
M1000-71C-613-CK	PSMH Ballast, 1000w, M141, Quad, PS-CWA, Aluminum Secondary, Oil Kit

Note:
Quad (71C) = 120, 208, 240, 277
5-Tap (81C) = 120, 208, 240, 277, 480
PS-CWA = Pulse Start Constant Wattage Autotransformer

[1] WARNING: This lamp can cause serious skin burn and eye inflammation from short-wave 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 the outer envelope is broken or punctured are commercially available.

• Specifications are subject to change without notice.

Self Ballasted Compact Fluorescent Lamps

Quick Reference

Watts	Bulb	Base	Model #	Incandescent Equivalent (Watts)	Lumens Initial (lm)	MOL (in)	Dia. (in)	Avg. Life (hours)	Color Temp. (K)	CRI	Power Factor	Pkg. Qty.
Mini Spiral Self Ballasted Compact Fluorescent												
9	Mini Spiral	MED	CF9MS/827	40	500	3.58	1.65	10,000	2700	>80	>0.5	48
13	Mini Spiral	MED	CF13MS/827	60	900	4.41	1.97	10,000	2700	>80	>0.5	48
13	Mini Spiral	MED	CF13MS/841	60	900	4.41	1.97	10,000	4100	>80	>0.5	48
14	Mini Spiral	MED	CF14MS/865	60	900	4.06	1.65	10,000	6500	>80	>0.5	48
19	Mini Spiral	MED	CF19MS/841	75	1200	4.33	2.05	10,000	4100	>80	>0.5	48
20	Mini Spiral	MED	CF20MS/827	75	1250	5.24	2.05	10,000	2700	>80	>0.5	48
23	Mini Spiral	MED	CF23MS/827	100	1600	5.04	2.36	10,000	2700	>80	>0.5	48
23	Mini Spiral	MED	CF23MS/841	100	1600	4.33	2.44	10,000	4100	>80	>0.5	48
23	Mini Spiral	MED	CF23MS/865	100	1600	4.33	2.44	10,000	6500	>80	>0.5	48
30	Mini Spiral	MED	CF30MS/827	120	1800	5.60	2.32	10,000	2700	>80	>0.5	48
30	Mini Spiral	MED	CF30MS/841	120	1800	5.60	2.32	10,000	4100	>80	>0.5	48
Decorative Self Ballasted Compact Fluorescent												
5	Torpedo	E12	CF5TC/M/827	15	160	4.41	1.60	8,000	2700	>80	>0.5	12/48
7	Torpedo	E12	CF7TC/M/827	25	350	4.41	1.60	8,000	2700	>80	>0.5	12/48
Globe Self Ballasted Compact Fluorescent												
11	Globe (G25)	MED	CF11G25/827	45	600	4.29	4.33	8,000	2700	>80	>0.5	12/48
15	Globe (G30)	MED	CF15G30/827	60	800	5.04	3.74	8,000	2700	>80	>0.5	12/48
Reflector Self Ballasted Compact Fluorescent												
15	R30	MED	CF15R30/841	65	750	5.47	3.70	8,000	4100	>80	>0.5	12
15	R30	MED	CF15R30/865	65	750	5.47	3.70	8,000	6500	>80	>0.5	12
15	R30	MED	CF15R30/850	65	750	5.47	3.70	8,000	5000	>80	>0.5	12
16	R30	MED	CF16R30/827	65	750	5.47	3.70	8,000	2700	>80	>0.5	12
20	R40	MED	CF20R40/827	70	900	5.91	4.69	8,000	2700	>80	>0.5	12
20	R40	MED	CF20R40/841	70	900	5.91	4.69	8,000	4100	>80	>0.5	12
20	R40	MED	CF20R40/850	70	900	5.91	4.69	8,000	5000	>80	>0.5	12
23	PAR38	MED	CF23PAR38/827	85	1050	5.50	4.80	8,000	2700	>80	>0.5	12
23	PAR38	MED	CF23PAR38/841	85	1050	5.50	4.80	8,000	4100	>80	>0.5	12
23	PAR38	MED	CF23PAR38/865	85	1050	5.50	4.80	8,000	6500	>80	>0.5	12
23	PAR38	MED	CF23PAR38/850	85	1050	5.50	4.80	8,000	5000	>80	>0.5	12

Mini Spiral

Decorative

Globe

Reflector

Did you know?

Energy Independence and Security Act of 2007
Incandescent phase out will begin in 2012 and continue as follows:
100w Incandescent - 1/1/2012
75w Incandescent - 1/1/2013
60w & 40w - 1/1/2014

• Specifications are subject to change without notice.

Rebate Information

With a push towards energy efficiency various utilities and government organizations offer rebates to its customers when they switch to energy efficient products. Many of our products meet these standards and would qualify for these products. Below you will find a list of websites that offer databases for each state.

Database of State Incentives for Renewables and Efficiency

DSIRE is a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council.
Website: www.dsireusa.org

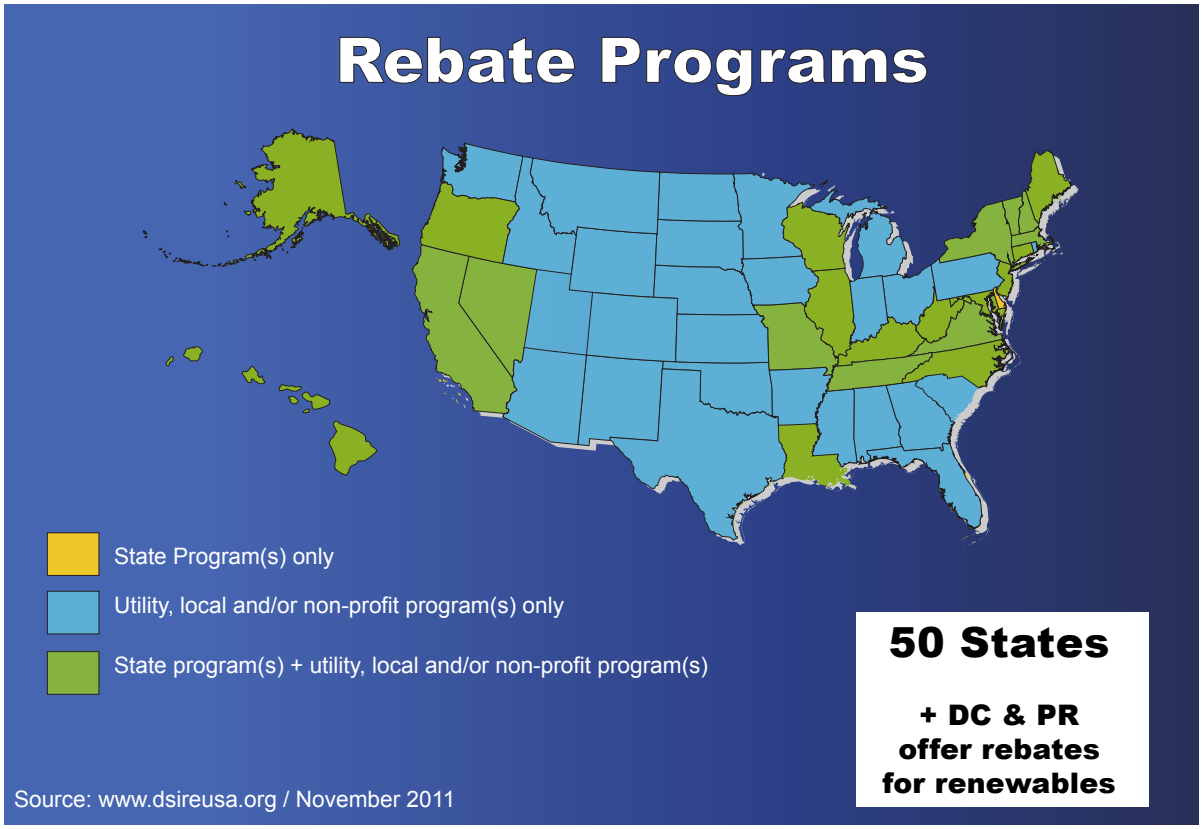
SpiraxSarco (Database)

State & Utility Energy Efficiency Incentive Programs & Rebates
Website: www.spiraxsarco.com

Howard Lighting Products has several lines that meet standards for energy efficiency rebates when you switch from lighting systems that require more energy.

- Linear Fluorescent Highbays
- Fluorescent Strip Retrofit kits
- Linear Fluorescent Strips
- Linear Fluorescent Wraps
- LED Roadway Cobraheads
- LED Area Lighters
- LED Canopy
- Induction Lighting
- Energy Saving T8 Lamps
- Self-Ballasted Compact Fluorescent Lamps
- High Efficiency Ballasts
- And more...

Rebate Information



Rebates are offered by various states and utility companies. You can receive a rebate per unit installed, plus additional savings throughout the year from energy savings.

Howard wants all of our customers to have opportunities to find out more about what their states offer. We are constantly expanding our product offering and updating it, to ensure you have access to products that will meet rebate requirements.

For more information visit: www.dsireusa.org

Howard Lighting Products offers a full line of fixtures, ballasts and lamps to meet our customers' needs.

Fixtures

High Intensity Discharge	Linear Fluorescent	LED
Canopy Fixtures	Highbays	Area Lighter
Construction Lights	Retrofit Strips	Canopy
Dusk-to-Dawn	Vaporproof Highbays	Cobraheads
Flood Lights	Vaporproof Strips	Exit/Emergency Lighting
Garage Lights	Strips	Induction
Inline Highbays	Wraps	Roadway Lighting
Inline Lowbays	Incandescent	Flood Lighting
Roadway Lighting	Motion Sensor Lighting	Canopy Lighting
Sports Lighters	Quartz Flood	Wallpacks
Wallpacks		Garage Lighter

• Specifications are subject to change without notice.

Lighting solutions for every need...

Lamps

High Intensity Discharge
Metal Halide
High Pressure Sodium
Standby HPS
Mercury Vapor
Halogen
PAR
MR11 & MR16
JD, J, JC, & JCD Series
Circline Fluorescent
T9 Rapid Start
T5 Programmed Start
Compact Fluorescent
Single Tube (2 & 4 pin)
Double Tube (2 & 4 pin)
Triple Tube (2 & 4 pin)

Linear Fluorescent
T8 (17, 25, 32 & 40 watts)
T8 32 watt High Lumens
T8 Energy Saving (25, 28, & 30 watts)
T5 (14, 21, & 28 watts)
T5 High Output (24, 39, & 54 watts)
Self Ballasted Compact Fluorescent
Mini Spiral (9-30 watts)
Torpedo (5 & 7 watts)
Globe (11 & 15 watts)
"A" Shape
Reflector (15 & 20 watts; CF23PAR38)

Ballasts

Electronic Ballasts
F32T8 High Efficiency
2, 3, or 4 lamp (CEE listed)
Instant Start
Standard, Low, High BF
F32T8 Program Rapid Start (CEE Listed)
T5 Program Rapid Start
F96T8 Instant Start
T12 Rapid Start Slimline & High Output

Compact fluorescent
HID Ballast
Metal Halide
Pulse Start (Circle E)
High Pressure Sodium
Magnetic Fluorescent
Sign Ballasts
Emergency Ballasts

• Specifications are subject to change without notice.

Combination Lamp/Ballast System Warranty "Security Plus"

Howard Industries, Inc. – Lighting Products Division warrants lamps installed on Howard electronic ballast to be free from defects in material and workmanship and to operate from the date of installation (or date of manufacture if installation date is not known or available) for the time periods and subject to the terms and conditions specified in the table below. If lamps fail to operate for the warranty period, Howard Lighting Products will provide a free replacement lamp (no labor allowance). If a Howard electronic ballast fails to operate within the warranty period, Howard Lighting Products will provide a free replacement ballast and labor allowance in accordance with our ballast warranty guide.

Electronic Ballast	Lamp	Ballast Warranty	Lamp Warranty
Standard Power	F17T8/xxx/ECO, F25T8/xxx/ECO, F30T8/8xx/ES/ECO, F32T8/xxx/ECO, F32T8/8xx/HL/ECO, FB32T8/xxx/6/ECO	60 months	36 months[1]
Low Power	F17T8/xxx/ECO, F25T8/xxx/ECO, F30T8/8xx/ES/ECO, F32T8/xxx/ECO, F32T8/8xx/HL/ECO, FB32T8/xxx/6/ECO	60 months	36 months[1]
High Power	F17T8/xxx/ECO, F25T8/xxx/ECO, F30T8/8xx/ES/ECO, F32T8/xxx/ECO, F32T8/8xx/HL/ECO, FB32T8/xxx/6/ECO	60 months	36 months[1]
HE Standard Power	F17T8/xxx/ECO, F25T8/xxx/ECO, F28T8/8xx/ES/ECO, F30T8/8xx/ES/ECO, F32T8/xxx/ECO, F32T8/8xx/HL/ECO, FB28T8/8xx/ES/ECO, FB32T8/xxx/6/ECO	60 months	36 months[1]
HE Low Power	F17T8/xxx/ECO, F25T8/xxx/ECO, F28T8/8xx/ES/ECO, F30T8/8xx/ES/ECO, F32T8/xxx/ECO, F32T8/8xx/HL/ECO, FB28T8/8xx/ES/ECO, FB32T8/xxx/6/ECO	60 months	36 months[1]
T5HO	F54T5/8xx/HO	36 months @ <90°C case	36 months[1]
		60 months @ <75°C case	36 months[1]

Note: Fluorescent lamp warranty periods are based on a 3 hour minimum cycle, unless otherwise noted, with a maximum of 4,000 hours per year. Other operating cycles may affect the warranty period. The Howard lamp warranty can renew when the installation is group relamped. For more details contact Howard Lighting Products.

1. Occupancy sensor application, 15 minute/start minimum, allowed with program start ballast
2. Maximum case temperature <70°C, for normal environmental operating conditions (40°C max., ambient) unless noted

Terms and Conditions

1. HOWARD Industries warrants the lamps to be free from defects in material and workmanship, and warrants its ballasts as provided in HOWARD's current published ballast warranty, hereby made part of this warranty.
2. Howard lamps and electronic ballast must be installed together as a system. Lamps must be operated on ballasts indicated, within the electrical values noted on HOWARD ballast labels, and with all lamp and lighting equipment instructions and be operated within the normal specified operating range of environmental conditions for the systems. Ballasts and lamps must be installed and operated in accordance with the latest National Electric Code, UL, and ANSI specifications. Ballasts and lamps operated in any system, which has been subjected to abnormal stresses, but not limited to, excess temperatures or under or over voltage conditions are excluded from coverage under this Warranty.
3. The installation must be registered with HOWARD Industries within thirty (30) days from date of completion. HOWARD's combination T8 Lamp/Ballast System Warranty (Security Plus) Registration Form must be completed per instructions and installation acknowledged by HOWARD Industries.
4. Replacement of Howard lamps with lamps from other manufacturers will void the lamp portion of this warranty.
5. Replacement of Howard electronic ballast with any other ballast manufacturer will void the entire warranty.
6. For ballast refer to HOWARD Industries current published ballast warranty. HOWARD Industries will replace in-warranty failures by furnishing lamps in kind.
7. Howard Industries reserves the right to examine all failed ballasts and/or lamps and reserves the right to be the sole judge as to whether any ballasts and/or lamps are defective and covered under this warranty.
8. This Warranty shall be the sole remedy of the Customer and the sole liability of HOWARD Industries to Customer. NO IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. HOWARD Industries will not under any circumstances whether as a result of breach of contract, breach of warranty, tort, strict liability or otherwise be liable for consequential, incidental, special or exemplary damages including, but not limited to, loss of profits or revenues, loss of use of ballasts or any other goods or associated equipment or damages to any associated equipment, cost of capital, cost of substitute products, facilities or services, down time costs, or claims of claimant's customers.
9. After contacting Howard Lighting Products and receiving a return authorization number, the user/customer shall promptly return the product at the user/customer's expense to Howard Lighting Products after receiving instructions as to when and where to ship product. Failure to follow this procedure shall void this warranty.
10. Refer to HOWARD Industries Ballast Limited Warranty for other terms and conditions and limitations not otherwise superseded in the foregoing HOWARD Lighting Products Combination T8 Lamp/Ballast System Warranty (Security Plus).
11. Subject to change without notice.

• Specifications are subject to change without notice.

HID Lamp Limited Warranty

Howard Industries, Inc. – Lighting Products Division ("Howard Lighting Products") warrants HID lamps to be free from defects in material and workmanship. Howard Lighting Products' HID lamps with greater than 12,000 hours average rated life are warranted for a period of one year from date of purchase based on max operation of 6,000 hours per year (minimum 10 hr/start for lamp). If lamps fail to operate for the warranty period, Howard Lighting Products' sole warranty obligation is to provide a free replacement lamp (no labor allowance).

Terms and Conditions

1. Howard Lighting Products warrants the lamps to be free from defects in material and workmanship.
2. Howard Lighting Products' HID lamps must be operated on ballasts designed to operate the lamps. The ballast should be marked with the same ANSI lamp code designation as the lamp. The electrical values depicted on the HID ballast label, as well as the lamp and lighting equipment instructions must be adhered to. The lamp must be operated within the normal specified operating range, orientation, and environmental conditions for the HID system. Lamps operated in any system that has been subjected to abnormal stresses, such as, but not limited to, excess temperatures, mechanical stresses, excessive switching cycles or under or over voltage conditions or on ballasts, control gear, or electrical systems that are outside of the defined ANSI parameters in the appropriate ANSI standards are excluded from coverage under this Warranty.
3. This warranty excludes any product damaged from misuse, faulty installation, inadequate maintenance, damage, negligence, accident, or tampering.
4. Howard Lighting Products reserves the right to examine all failed lamps and reserves the right to be the sole judge as to whether lamps are defective and covered under this warranty.
5. This Warranty shall be the sole remedy of the Customer and the sole liability of Howard Lighting Products to Customer. NO IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. Howard Lighting Products will not under any circumstances whether as a result of breach of contract, breach of warranty, tort, strict liability or otherwise be liable for consequential, incidental, special or exemplary damages including, but not limited to, loss of profits or revenues, loss of use of lamps or any other goods or associated equipment or damages to any associated equipment, cost of capital, cost of substitute products, facilities or services, down time costs, or claims of claimant's customers.
6. After contacting Howard Lighting Products and receiving a return authorization number, the user/customer shall promptly return the product at the user/customer's expense to Howard Lighting Products after receiving instructions as to when and where to ship product. Failure to follow this procedure shall void this warranty.
7. Howard Lighting Products reserves the right to change the warranty period without notice.
8. Lamps and applications that have average rated life of 12,000 hours or less will be warranted for 6 months from date of purchase based on max operation of 4000 hours per year (minimum 10hr/start for lamp). Lamps and applications with rated average life of less than 7,000 hours are excluded from this warranty.

• Specifications are subject to change without notice.

Fixture Limited Warranty

To the original purchaser, Howard Industries, Inc. – Lighting Products Division (hereinafter "Howard Lighting") warrants its HID and fluorescent fixtures to be free from manufacturing defects for the period of one (1) year from the shipment date from Howard Lighting's factory or an authorized representative's warehouse. If at any time during the warranty period the HID or fluorescent fixture exhibits the appearance of defect in material or workmanship, the purchaser must notify Howard Lighting's customer support via telephone, fax, or mail as noted below to qualify for a refund, repair, or replacement.

Howard Industries, Inc. – Lighting Products Division
P.O. Box 1590
Laurel, MS 39441
800.956.3456 or 601.422.0033
601.422.1652 (fax)

This limited warranty is null and void if the Howard Lighting HID and fluorescent fixtures have not been properly stored, installed, operated, and maintained in accordance with the following:

- The National Electric Code (NEC)
- The Standards for Safety of Underwriters Laboratories, Inc. (UL)
- The Standards for the American National Standards Institute (ANSI)
- The specific instructions provided by Howard Lighting for the installation of the product(s)
- Accepted industry practices

Under the terms of this limited warranty, purchaser also agrees to make defective lighting products available (upon request) to Howard Lighting or an authorized representative of Howard Lighting for review, inspection, and/or analysis with the express understanding of the following:

- Refunds, repairs, or replacement will be at the sole discretion of Howard Lighting.
- Reimbursement for any field labor and/or service charges must be pre-approved in writing by Howard Lighting.
- The purchaser must obtain written approval from Howard Lighting prior to returning any defective product. With this approval, the purchaser will be reimbursed for any reasonable shipping costs.
- Certain lamps having a published rated life of less than one (1) year will not be covered under this limited warranty.
- Damage or defects arising from acts of God, fire, vandalism, civil disturbances, or war are not covered.

The warranties set forth herein are in lieu of any and all other warranties expressed or implied including the warranties of merchantability and fitness for a particular purpose. In no case shall Howard Lighting or Howard Industries, Inc. be obligated or liable for any indirect, consequential, or incidental damages for breach of this or any other warranty, expressed or implied, whatsoever.

• Specifications are subject to change without notice.

Howard Corporate Headquarters

Howard Industries' corporate headquarters and computer and medical cart manufacturing facilities are nestled within the 504-acre Howard Technology Park.

Building highlights:
- 60,000 sq ft of office space
- 72,000 sq ft of manufacturing space
- 3,200 sq ft bridge way connecting offices to manufacturing facility

Power Solutions

Howard Power Solutions, originally known as Howard Industries, was founded in 1968 by Billy W. Howard, Sr. Over the past four decades, this company has grown to be the nation's leading manufacturer of distribution transformers, with over 7 million transformers in service throughout the United States and abroad. Located in Laurel, MS, this facility has 2 million square feet, making it the largest transformer plant in the world. Our newest transformer division, Howard Substation Transformers, located near corporate headquarters, began manufacturing operations in April 2005 producing power transformers with higher KVA and voltage ratings.

Technology Solutions

Our new Corporate Headquarters is also home to our technology division, Howard Technology Solutions, and its medical division, Howard Medical. These 2 divisions bring to market cutting-edge, high-quality technology and medical equipment. Whether selling Howard-manufactured products such as desktops, notebooks, servers, and medical carts or partnering with other industry-leading companies to provide over 190,000 products, one can be sure when you buy from Howard, the needed equipment is available at affordable prices.

Lighting Products

Howard Lighting Products markets a vast portfolio including electronic fluorescent ballasts, magnetic HID ballasts, as well as T5/T8 and compact fluorescent lamps, HID lamps and halogen lamps; as well as a full line of HID, linear fluorescent, LED, and Induction fixtures. This division continually updates their product lines to meet the ever-changing demands of the market.

Transportation

Howard Transportation, a wholly-owned subsidiary of Howard Industries, Inc., operates a full-load, long-haul, flat-bed common carrier truck line and brokerage firm that transports commodities and industrial goods throughout the continental United States. Initially started to transport Howard Power Solutions' raw materials and finished products, this division today consists of over 200 trucks with regional terminal facilities also located in West Virginia and North Carolina.

HOWARD™
LIGHTING PRODUCTS

A Division of Howard Industries, Inc.

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800.956.3456 general • 601.422.0033 • 601.422.1652 fax
www.HowardLightingProducts.com

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