

## T12 Plastic-Coated, Shatter-Resistant Fluorescent Lamps

### Energy-Saving High Output (800ma) T12 Fluorescent Lamps Recessed Double Contact (RDC)

PFA/Shat-R-Kote® Combination (HO/TSC)

RECOMMENDED FOR OPEN FIXTURES ONLY

Nominal Lamp Watts	UPC/ Catalog Order#	Ordering Description	Std. Pkg. Qty.	Lamp Description	Nominal Length (Inches)	Avg. Life (Hours)	Mean Lumens
95	Ⓔ \$ 62015	F96T12/CW/HO/ES/TSC	15	COOL WHITE	96	12,000	6,950
	Ⓔ \$ 62017	F96T12/CW/HO/ES/ALTO/TSC	15	COOL WHITE	96	12,000	6,950
	\$ 62025	F96T12/DX/HO/ES/TSC	15	DAYLIGHT DELUXE	96	12,000	5,000

**PFA/Shat-R-Kote® Combination (HO/TSC)** - HO/TSC lamps combine the high heat-resistant properties of PFA with the strength and cost-effectiveness of Shat-R-Kote®. These lamps can be used anywhere high output (800ma) lamps are normally used, however, **HO/TSC lamps are recommended for open fixtures only.** HO/TSC lamps may not operate efficiently in refrigerated areas. For refrigerator applications below 45°F, see our HO/R lamp category.

### High Output (800ma) T12 Fluorescent Lamps Recessed Double Contact (RDC)

For Refrigerated Areas Only (HO/R)

Nominal Lamp Watts	UPC/ Catalog Order#	Ordering Description	Std. Pkg. Qty.	Lamp Description	Nominal Length (Inches)	Avg. Life (Hours)	Mean Lumens
60	57016	F48T12/CW/HO/ALTO/R	30	COOL WHITE	48	12,000	3,500
	57022	F48T12/D/HO/R	30	DAYLIGHT	48	12,000	3,000
75	58012	F60T12/CW/HO/R	15	COOL WHITE	60	12,000	4,500
	58022	F60T12/D/HO/R	15	DAYLIGHT	60	12,000	4,050
85	60012	F72T12/CW/HO/ALTO/R	15	COOL WHITE	72	12,000	5,500
	60022	F72T12/D/HO/ALTO/R	15	DAYLIGHT	72	12,000	4,850
110	62012	F96T12/CW/HO/R	15	COOL WHITE	96	12,000	7,650
	62042	F96T12/CWX/HO/R	15	COOL WHITE DELUXE	96	12,000	5,500
	62026	F96T12/D/HO/ALTO/R	15	DAYLIGHT	96	12,000	6,800

### Energy-Saving High Output (800ma) T12 Fluorescent Lamps Recessed Double Contact (RDC)

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	\$ 62024	F96T12/DX/HO/ES/R	15	DAYLIGHT DELUXE	96	12,000	5,000

**For Refrigerated Areas Only (HO/R)** - Due to the high heat created at the cathode ends, any use of these lamps in conditions above 45°F may cause deterioration of the protective Shat-R-Kote® coating. **HO/R lamps are for use in refrigerated areas where ambient temperatures do not exceed 45°F.** Conversely, HO/R lamps used in freezing temperatures will not operate efficiently, coated or uncoated. Because Shat-R-Shield has no control over the temperature range in the areas in which the lamps are operated, their performance cannot be guaranteed. However, HO/R lamps are being used with apparent success and should be expected to perform as well as other Shat-R-Shield lamps.

\$ - Energy-Saving Product

Ⓔ - This bulb meets U.S. Federal minimum efficiency standards.

ALTO® - Reduced Mercury Lamps

■ - Features ALTO® Lamp Technology

Footnotes located on page 28

**NOTE** - Energy-Saving lamps are not intended for use in ambient temperatures below 60°F, in drafty locations, on low power factor ballasts, reduced current and light output ballasts, dimming ballasts, or on inventor powered emergency lighting systems. (3)



Shat-R-Shield Fluorescents  
Performance  
Plus Protection



## Fluorescent Lamps

**S**hat-R-Shield fluorescent lamps are coated from end-to-end with our exclusive, patented plastic coating. If a Shat-R-Shield lamp is dropped or broken, virtually all glass, phosphors and mercury are safely contained within the coating. Our coating reduces light output by less than 1% and is a minimum of 16 mils thick. Shat-R-Shield lamps are UL & NSF Certified, USDA approved, and meet FDA and OSHA standards. Lamps should not be installed in areas where ambient temperatures exceed 120°F. Shat-R-Shield linear fluorescent lamps are available in various wattages, colors and Kelvin temperatures, including T5, T8 & T12 sizes. Shat-R-Shield also offers many fluorescent lamps in ultraviolet (UV) blocking versions.

### **FG/B2/E2 -**

In full wattage, energy-saving, preheat, rapid start & instant start linear versions.

### **6756 CHGDHG (6C) -**

Shat-R-Shield HO fluorescent lamps for non-refrigerated areas combine the heat-resistant properties of PFA with the strength of our highly-specialized coating (Refrigerated & Non-Refrigerated Areas).

### **13EL 6756 CHGDHG(16 C) -**

Shat-R-Shield's plastics can reliably withstand the extreme temperatures emitted by a VHO fluorescent lamp (Refrigerated, Non-Refrigerated & Freezer Areas).

### **H-F6/ D32 -**

The safest choice for 2' x 2' luminaries. These lamps can provide the same light output as a linear lamp of twice the length.

### **E32H13 2 A 3E1 HEL :/ ADF -**

With the lowest mercury content on the market, these lamps are manufactured to meet the Toxic Characteristic Leaching Procedure (TCLP) standards established by the U.S. EPA.

### **0:/ 18 :7 56 G & 0:/18 :756G 0:H3 -**

Shat-R-Shield's black light coating utilizes ultraviolet stabilizers to prevent degradation of the coating while also allowing critical ultra-wavelengths to pass through for maximum insect control.

### **5C:2 :/A DF -**

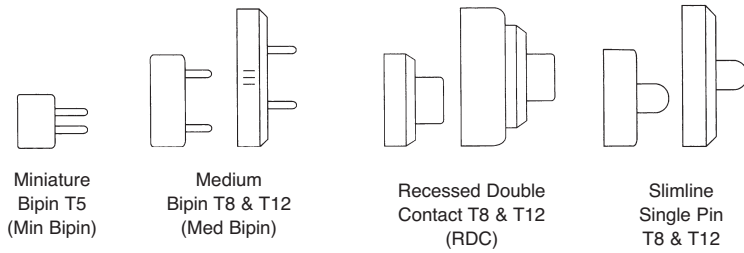
These lamps block all ultraviolet and plus light emissions up to 530 nms. They are ideal for use in cleanroom environments, microchip production and all other photosensitive applications.

### **HI .53EA 712/: :/A DF -**

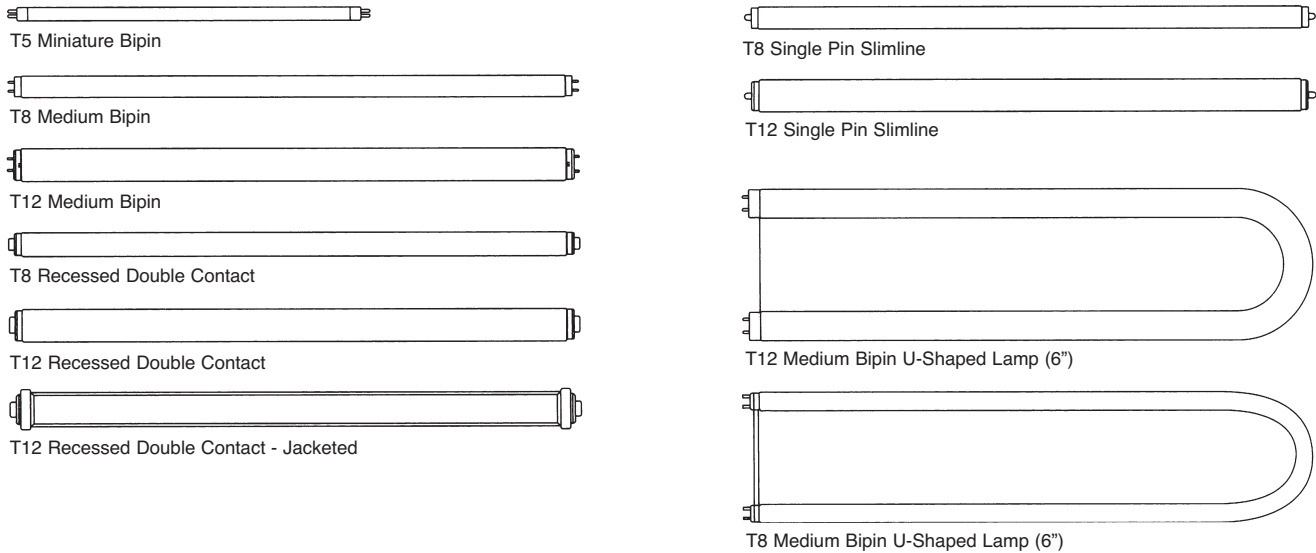
These lamps destroy microbes such as bacteria, viruses, molds and spores with high-output ultraviolet (UV-C) radiation. Germicidal lamps are perfect for use in HVAC and water treatment systems. This popular and effective method of decontamination is a physical process eliminating the need for toxic chemicals.



## Base Types (Not Actual Sizes)



## Bulb Shapes (Not Actual Sizes - Letters indicate the bulb shape while numbers indicate the diameter of the bulb in eighths of an inch.)



## *DbYdROdUYX 4bYW HVdbMfUYVRd (HI) :USTd*

Antioxidants and ultraviolet stabilizers are present in the exclusive, clear plastic coating to block UV emissions from 180 to 390 nanometers. These additives also prevent the coating from yellowing, cracking or flaking. UV light causes the loss of vitamins and riboflavin which can negatively effect the taste of food and adds to food discoloration. UV can also cause the fading of colors or pigments in fabric and paper. Shat-R-Shield lamps are ideally suited for use in environments such as offices, retail/grocery stores, museums, galleries, computer chip industry and libraries.

## *FTMd-E-FTURVP 4VeYbRcORXd :MWZ JMbbMXdg*

The plastic coating on a Shat-R-Shield fluorescent is guaranteed to last for the rated-life of the lamp and will not turn yellow, crack or otherwise fail during that time, subject to the following conditions:

- The lamps can be installed in open or enclosed fixtures.
- T8 and T12 fluorescent lamps must be installed and operating in ambient temperatures below 150°F (400°F for T5HO lamps).
- The lamps cannot be used in fixtures employing defective ballasts, ballasts that have been used longer than their rated-life or ballasts that are improperly wired.
- The lamps cannot be used in fixtures where poor pin contact occurs.
- Lamp types and ballast types must be compatible (Rapid Start lamps with Rapid Start ballast, etc.).
- Shat-R-Shield, Inc. reserves the right to have an employee or agent inspect the fixture, ballast and/or location where a lamp with a failed coating was installed.
- Additional warranty coverage is provided by Osram/Sylvania® Quick 60+ and Philips Advantage® Plus 90 programs -- call Shat-R-Shield for details.

Shat-R-Shield, Inc. fluorescent lamps sold for use in refrigerated areas only are designated as such by a label on the lamp stating "REFRIGERATION USE ONLY" and are not covered by this guarantee. Because Shat-R-Shield has no control over the temperature range in the areas where lamps are operated, their performance cannot be guaranteed. Note that if used in temperatures below 45°F, the coating should be expected to last for the rated-life of the lamp.

## Glossary of Terms

### Average Life (Hours)

Under specified test conditions with lamps turned off and on no more often than once every three burning hours. Lamp life is appreciably longer if lamps are started less frequently.

### Color Temperature (CT)

The overall color appearance of the light itself. Lamps range from 2100-7500 Kelvin. Lower color temperature (3000K) represents "warm" light, higher (4100K) represents "cool" light.

### Color Rendering Index (CRI)

Color rendering is the ability of a light source to produce color in objects. The CRI is expressed on a scale from 0-100, where 100 is best in producing more natural color in objects.

### Initial Lumens

Lumen value at 100 hours of burn time.

### Instant Start

A circuit used to start specially-designed fluorescent lamps without the aid of a starter. This circuit is used today in slim-line and cold cathode lamps.

### Light

The energy that allows us to see. Professionally, light can be expressed in four terms: 1) Intensity (candela), 2) Flux (lumen), 3) Luminance (candela/sq. ft.) and 4) Exitance (lumen/sq. ft.).

### Lumen

The unit of measure for the light energy which flows in air. The total light output from electric sources is expressed in lumens.

### Lumen Maintenance

The decrease of the lumen output of a light source over time.

### Mean Lumens

Mean lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life.

### Nominal Length

A measurement of fluorescent lamp length based on the length of the lamp plus the proper allowance for standard lamp holders.

### Preheat

A circuit used in fluorescent lamps where in the electrodes are heated or warmed to a glow stage by an auxilliary switch or starter before the lamps are lighted. This system was used on the original fluorescent lamps and is still in use today.

### Rapid Start

A circuit designed to start lamps by continuously heating or preheating the electrodes. This circuit is a modern version of the trigger start system and requires lamps designed for this circuit. Except for slimline lamps, all modern fixtures using 40-watt and higher lamps are equipped with rapid start ballasts.

### Rated Average Life

The operating life (hours) at which 50% of the lamps are still operating. Where a (+) is used in stating the life, survival rate is 67% at the stated time.

### Watt

Unit used to measure power consumption of lamp.

## Footnotes

- (1) The pins of these lamps are short circuited inside the end caps and lamp will not operate on preheat or rapid start ballast circuits.
  - (2) Designed for service other than illumination.
  - (3) Energy-saving lamps are only recommended for use on high power factor lead, indoor ballasts that meet ANSI standards. The lamps are not recommended for use in drafty areas, or locations where the ambient temperature is less than 60°F, except as noted. They should not be operated on low power factor ballasts, reduced light or reduced current ballasts, dimming ballasts or emergency system inverter ballasts.
  - (4) These lamps do not use PFA to seal the cathode ends as T-8 lamps with the PFA/Shat-R-Kote Combination. While less expensive, these lamps IF NOT USED ON ELECTRONIC BALLAST MUST BE USED IN REFRIGERATED AREAS WHERE AMBIENT TEMPERATURES DO NOT EXCEED 45°F. Due to the high heat generated at the cathode ends, any use of these lamps in conditions above 45°F may cause deterioration of the protective coating. Conversely, T-8 lamps used in freezing temperatures will not operate efficiently, coated or uncoated. Because Shat-R-Shield, Inc. has no control over the temperature range in the areas where lamps are operated, their performance cannot be guaranteed. However, T-8 lamps for refrigerated areas are being used in refrigerated areas with apparent success and can be expected to perform as well as other Shat-R-Shield lamps.
  - (5) When used in insect electrocutors, we recommend replacement of lamps after 7,000 hours of use because the black light in a coated or uncoated lamp deteriorates at a predictable rate. After 7,000 hours, the lamp's ability to attract insects is ineffective.
  - (6) Appliance lamp – for use with starters.
  - (7) To be operated on electronic ballasts.
- Ⓔ – These lamps comply with United States federal energy efficiency requirements.

## T12 Plastic-Coated, Shatter-Resistant Fluorescent Lamps

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## Fluorescent Lamps

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### **FG/B2/E2 -**

In full wattage, energy-saving, preheat, rapid start & instant start linear versions.

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The safest choice for 2' x 2' luminaries. These lamps can provide the same light output as a linear lamp of twice the length.

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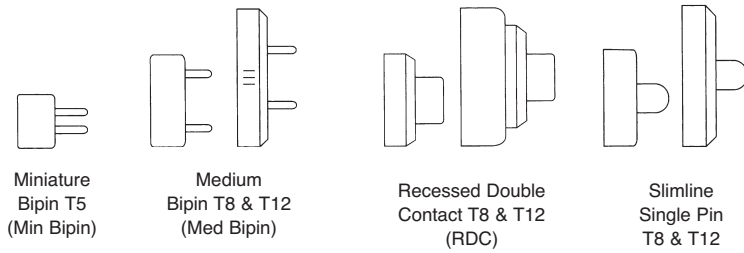
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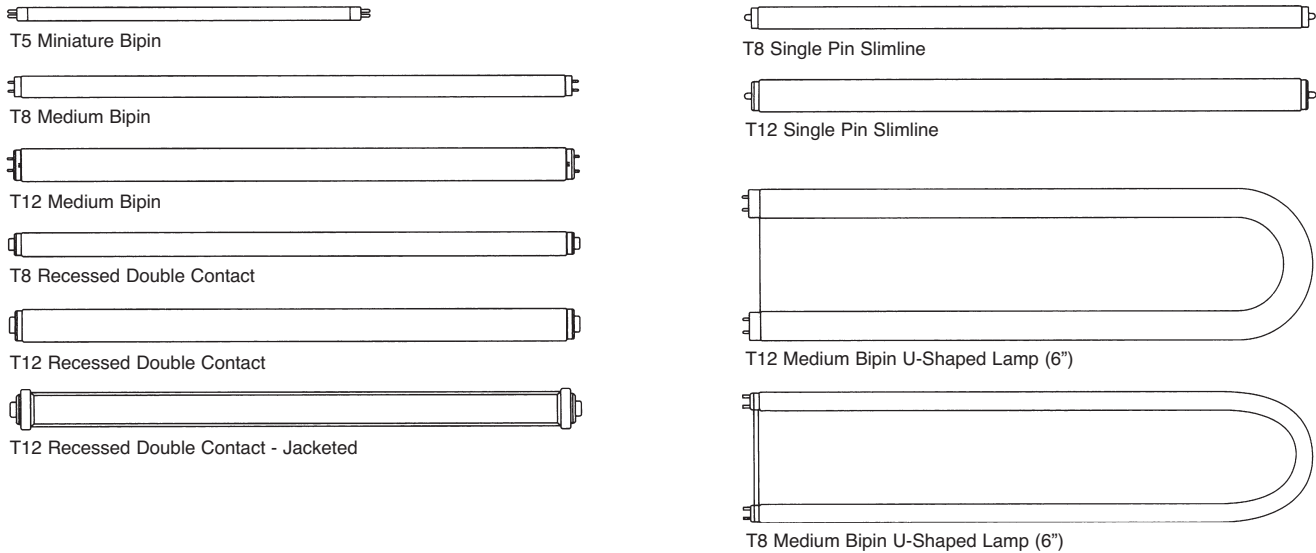
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## Base Types (Not Actual Sizes)



## Bulb Shapes (Not Actual Sizes - Letters indicate the bulb shape while numbers indicate the diameter of the bulb in eighths of an inch.)



## *DbYdROdUYX 4bYW HVdbMfUYVRd (HI) :USTd*

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## *FTMd-E-FTURVP 4VeYbRcORXd :MWZ JMbbMXdg*

The plastic coating on a Shat-R-Shield fluorescent is guaranteed to last for the rated-life of the lamp and will not turn yellow, crack or otherwise fail during that time, subject to the following conditions:

- The lamps can be installed in open or enclosed fixtures.
- T8 and T12 fluorescent lamps must be installed and operating in ambient temperatures below 150°F (400°F for T5HO lamps).
- The lamps cannot be used in fixtures employing defective ballasts, ballasts that have been used longer than their rated-life or ballasts that are improperly wired.
- The lamps cannot be used in fixtures where poor pin contact occurs.
- Lamp types and ballast types must be compatible (Rapid Start lamps with Rapid Start ballast, etc.).
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### Initial Lumens

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### Instant Start

A circuit used to start specially-designed fluorescent lamps without the aid of a starter. This circuit is used today in slim-line and cold cathode lamps.

### Light

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The decrease of the lumen output of a light source over time.

### Mean Lumens

Mean lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life.

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A measurement of fluorescent lamp length based on the length of the lamp plus the proper allowance for standard lamp holders.

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A circuit designed to start lamps by continuously heating or preheating the electrodes. This circuit is a modern version of the trigger start system and requires lamps designed for this circuit. Except for slimline lamps, all modern fixtures using 40-watt and higher lamps are equipped with rapid start ballasts.

### Rated Average Life

The operating life (hours) at which 50% of the lamps are still operating. Where a (+) is used in stating the life, survival rate is 67% at the stated time.

### Watt

Unit used to measure power consumption of lamp.

## Footnotes

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- (1) The pins of these lamps are short circuited inside the end caps and lamp will not operate on preheat or rapid start ballast circuits.
  - (2) Designed for service other than illumination.
  - (3) Energy-saving lamps are only recommended for use on high power factor lead, indoor ballasts that meet ANSI standards. The lamps are not recommended for use in drafty areas, or locations where the ambient temperature is less than 60°F, except as noted. They should not be operated on low power factor ballasts, reduced light or reduced current ballasts, dimming ballasts or emergency system inverter ballasts.
  - (4) These lamps do not use PFA to seal the cathode ends as T-8 lamps with the PFA/Shat-R-Kote Combination. While less expensive, these lamps IF NOT USED ON ELECTRONIC BALLAST MUST BE USED IN REFRIGERATED AREAS WHERE AMBIENT TEMPERATURES DO NOT EXCEED 45°F. Due to the high heat generated at the cathode ends, any use of these lamps in conditions above 45°F may cause deterioration of the protective coating. Conversely, T-8 lamps used in freezing temperatures will not operate efficiently, coated or uncoated. Because Shat-R-Shield, Inc. has no control over the temperature range in the areas where lamps are operated, their performance cannot be guaranteed. However, T-8 lamps for refrigerated areas are being used in refrigerated areas with apparent success and can be expected to perform as well as other Shat-R-Shield lamps.
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