



Energy Smart Services



Technology Fact Sheet

solutions & incentives for business

T5HO Fluorescent Lighting

Technology Profile

Benefits of T5HO Lighting:

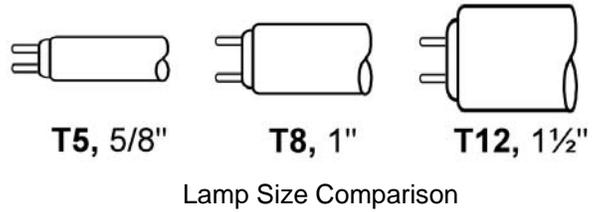
Compared to T8s:

- Half as many lamps
- Less mercury for disposal
- Brighter light source - good for high ceilings

Compared to Metal Halide:

- Instant-on compatibility with occupancy sensors
- Better color
- Better lumen maintenance as lamps age.
- 30% less energy

High Output T5 lamps (T5HOs) are a form of 4-foot fluorescent lamp whose time has come. Though narrower in diameter than T8s, T5HOs give off roughly twice the light output, reducing the number of required lamps in half. Fewer and smaller lamps translate into huge reductions in the amount of mercury to be managed - a key environmental concern.



All T5HO lamps require use of T5HO ballasts and fixtures.

Commercial Applications

T5s offer the same range of energy efficiency, high color quality, controllability, and lumen maintenance as a standard T8 lamp. The high light output of T5HO lamps makes them well suited to high-ceiling applications, although they are equally adept at indirect lighting on walls and low ceilings and can be incorporated into t-grid ceilings with the appropriate fixtures

Industrial Applications & Commercial High-Bays

The intense brightness of the T5HO lamp is ideal for industrial applications as a replacement for Metal Halide or any other HID lighting source (HID = high-intensity discharge: high-pressure sodium, metal halide, & mercury vapor). Suitable for all but the highest mounting heights, T5HOs offer increased energy efficiency, higher quality color, better controllability, and better lumen maintenance.

Lumen maintenance defines the extent to which the full light output of a lamp is retained over the life of the lamp. After one year of continuous burn, the output of a standard Metal Halide lamp will have declined to 65% of full light output. A T5HO lamp with the same burn time will have retained 95% of full light output, giving the user more useful light for the energy spent.

HID lamps can take several minutes to "re-strike" or come up to full brightness once energized. As such, they do not lend themselves to control by occupancy sensors or other on/off controls. Fluorescent lighting is instant re-strike, allowing use of daylighting and occupancy-based controls, which can enhance energy and cost savings.



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	T5HO	T8	Metal Halide
Lighting Efficiency (mean)	80 lumens/watt	80 lumens/watt	55 lumens/watt*
Lumen Maintenance (at 40% of life)	95%	92%	65%
Rated Life	20,000 hrs	20,000 hrs	20,000 hrs
Color Rendering (Sunlight = 100)	85 CRI	85 CRI	65 CRI
Optimum height for direct lighting	Greater than 15 ft	Less than 20 ft	Any
Re-strike time	None	None	2 minutes

* Std 400W



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Project Highlights

Trident Seafoods

Removed:

- 400W Metal Halide

Installed:

- 4-lamp T5HO
- Occupancy Controls

Savings:

- 48% of lighting energy
- 445,437 kWh/yr
- \$26,000 / yr

Payback:

- 2.0 yr

T5 lighting yields energy savings and better light quality for a local seafood processor.

Trident Seafoods

Early in 2005, Trident Seafoods completed a site-wide lighting upgrade. Part of the project included a one-for-one replacement of over two hundred 400W metal halide fixtures with 4-lamp T5 high-output fixtures throughout the freezers, production areas, and dry goods storage.

Trident then went a step further and took advantage of the instant-on properties of fluorescent lighting by equipping a third of the new T5 fixtures with occupancy sensors that shut off half of the lamps in the fixture during unoccupied periods. Combined, these strategies contributed towards a 48% reduction in lighting power.

Added Benefits

The existing fixtures were well into their service lives and therefore operating at substantially reduced light output. The new T5 fixtures roughly doubled the foot candle readings in most areas. Since T5 technology has relatively little lumen depreciation when compared to the old metal halide it replaces, these elevated light levels will persist.



Clockwise from Top: Dry Goods before, Dry Goods after, Production after, Production before



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