



ALTO lamp technology with green endcaps has become synonymous with environmental responsibility and low mercury.

Reduce your energy and maintenance costs

The Philips Linear Fluorescent lamp portfolio offers some of the lowest mercury and longest life lamps in the industry.

Philips Energy Advantage T8 25W featuring ALTO II Technology offers high energy savings in an environmentally responsible lamp. Save 7 watts per lamp instantly when compared to a T8 32W lamp.

Philips Twice the Life Energy Advantage T8 2XL 25W featuring ALTO II Technology will last 125% longer than an industry standard 4' T8 32W lamp* (12hrs per start on an instant start ballast), and provide a cost saving solution that is better for the environment.

Philips Energy Advantage T5 HO 49W featuring ALTO Lamp Technology is the only energy saving T5 lamp that saves you 5W by just changing a lamp (compared to a T5 54W lamp) with no sacrifice to performance.

Current Product	Philips Upgrade Product	Benefit	Page
 32W 4ft T8	 Energy Advantage T8 4ft 25W featuring ALTO II Technology	- Saves 7W per lamp 97% lumen maintenance - Up to 38,000 hours rated average life†; 42 month lamp warranty period**	23
 32W 4ft T8	 Energy Advantage T8 2XL 4ft 25W featuring ALTO II Technology	- Saves 7W per lamp 96% lumen maintenance - Up to 68,000 hours rated average life†; 60 month lamp warranty period**	21
 54W 4ft T5 HO	 Energy Advantage T5 HO 44W featuring ALTO Lamp Technology	- Saves 10W per lamp 40,000 hours rated average life for an extended relamping cycle†	17

† Average life under engineering data with lamps turned off and restarted once every 12 operating hours.

* When replacing a standard 4' T8 32W lamp with 30,000 hours rated average life and 2850 lumens with a Philips Twice the Life Energy Advantage T8 32W with 68,000 hours rated average life and 2400 lumens.

Rated average life based on 12 hours per start on an instant start ballast.

**Limitations and restrictions apply, go to www.philips.com/warranties for more information

Philips T5 Fluorescent Lamps featuring ALTO Technology

Powerful, environmentally-responsible, ultra-slim lamps



- ✓ Industry low 1.4mg of mercury in most Philips T5 and T5HO lamps
- ✓ No burn in required before dimming Philips T5 and T5HO lamps
- ✓ Operate on programmed start ballast only to maintain warranty
- ✓ Lumen output ratings at 35°C, lumens at 25°C, average 10% lower

T5 High Efficiency

- 25W Energy Advantage version of 28W
- Up to 116 lumens per watt
- 5000 kelvin being added to all sizes
- Slim profile lamp and ballast
- Perfect for office, healthcare and government applications

T5 High Output

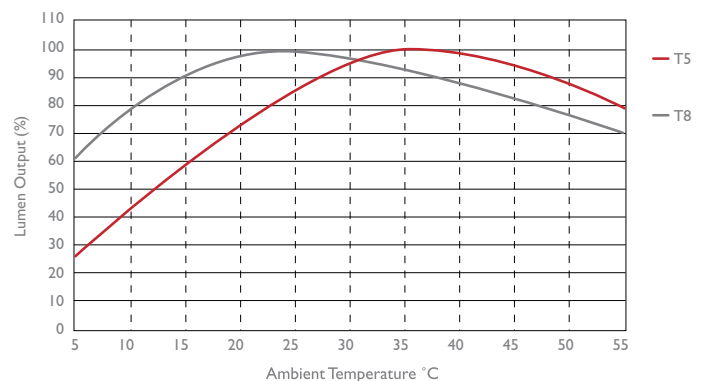
- 44W and 49W HO Energy Advantage version of 54W HO
- 49W HO also available in extreme temperature version
- T5HO offers superb high bay options
- Increased energy saving options for many applications
- Perfect for retail, industrial and warehouse applications
- New Extra Long Life T5HO lamps for extended relamp cycles

Philips T5 Lamp Warranty Periods

Philips Lamp	Warranty period*	
	3 Hr. Start	12 Hr. Start
T5HE – 14W, 21W, 28W & 35W	30 Months	36 Months
T5HE – Energy Advantage F28T5/800/EA/ALTO 25W	36 Months	42 Months
T5HO – 24W, 39W & 54W	30 Months	36 Months
T5HO – Energy Advantage F54T5/800/HO/EA/ALTO 49W	36 Months	42 Months
T5HO – Extra Energy Advantage F54T5/800/HO/EA/ALTO 44W	42 Months	48 Months
T5HO - Extra Long Life	48 Months	72 Months

* Certain limitations and conditions apply. See Philips for further warranty details.

T5/T8 Lumens vs. Temperature



Philips T5 Lamp Family—Life Ratings

Products	Programmed Start ¹	
	Rated Average Life (Hrs.) ²	
	3 Hr. Start	12 Hr. Start
T5HE – 14W, 21W, 28W & 35W	25,000	35,000
T5HE – Energy Advantage F28T5/800/EA/ALTO 25W	35,000	40,000
T5HO – 24W, 39W & 54W	25,000	35,000
T5HO – Energy Advantage F54T5/800/HO/EA/ALTO 49W and Extra Energy Advantage F54T5/800/HO/EA/ALTO 44W	35,000	40,000
T5HO - Extra Long Life	50,000	65,000

¹ Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 3 or 12 operating hours as noted.
² Rated Average Life is the length of operation (in hours) at which point 50% of a large sample of lamps will still be operational and 50% will not.

Fluorescent Lamps

T5 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life 3 Hr. Start (202)	12 Hr. Start (241)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T5 High Output (HO) Extra Long Life Lamps

T5 Miniature Bipin; Programmed Start (226)

54	45396-8	Ⓢ†	F54T5/830/HO/XLL	40	TL 830, 3000K	46	50000	65000	5000	4700	85
	45397-6	Ⓢ†	F54T5/841/HO/XLL	40	TL 841, 4100K	46	50000	65000	5000	4700	85
	45398-4	Ⓢ†	F54T5/850/HO/XLL	40	TL 850, 5000K	46	50000	65000	4800	4510	82

T5 High Output (HO) Energy Advantage Lamps

T5 Miniature Bipin; Programmed Start (226)

44	41781-6	□■●Ⓢ	F54T5/835/HO/XEW/ALTO 44W	40	TL 835, 3500K	46	35,000	40,000	4500	4275	85
	41782-4	□■●Ⓢ	F54T5/841/HO/XEW/ALTO 44W	40	TL 841, 4100K	46	35,000	40,000	4500	4275	85
	41783-2	□■●Ⓢ	F54T5/850/HO/XEW/ALTO 44W	40	TL 850, 5000K	46	35,000	40,000	4320	4100	82
49	22049-1	■●Ⓢ	F54T5/830/HO/EA/ALTO 49W	40	TL 830, 3000K	46	35,000	40,000	5000	4750	85
	22050-9	■●Ⓢ	F54T5/835/HO/EA/ALTO 49W	40	TL 835, 3500K	46	35,000	40,000	5000	4750	85
	22052-5	■●Ⓢ	F54T5/841/HO/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	4800	4600	85
	40649-6	■●Ⓢ	F54T5/850/HO/EA/ALTO 49W	40	TL 850, 5000K	46	35,000	40,000	4850	4625	82

T5 High Output (HO) Energy Advantage Lamps “Extreme Temperature” with Amalgam Technology

T5 Miniature Bipin; Programmed Start (226)

49	40730-4	●Ⓢ	F54T5/841/HO/A/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	5000	4750	85
	40752-8	●Ⓢ	F54T5/850/HO/A/EA/ALTO 49W	40	TL 850, 5000K	46	35,000	40,000	4800	4600	82

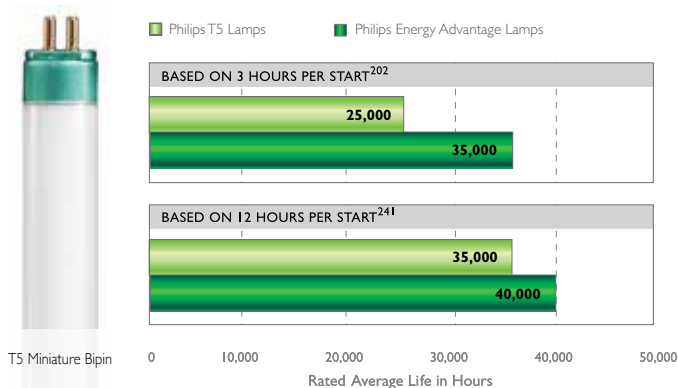
T5 High Output (HO) Lamps—(2ft–4ft)

T5 Miniature Bipin; Programmed Start (226)

24	29019-7	●	F24T5/830/HO/ALTO	40	TL 830, 3000K	22	25,000	35,000	1950	1850	85
	29020-5	●	F24T5/835/HO/ALTO	40	TL 835, 3500K	22	25,000	35,000	1950	1850	85
	29021-3	●	F24T5/841/HO/ALTO	40	TL 841, 4100K	22	25,000	35,000	1950	1850	85
39	29022-1	●	F39T5/830/HO/ALTO	40	TL 830, 3000K	34	25,000	35,000	3500	3325	85
	29023-9	●	F39T5/835/HO/ALTO	40	TL 835, 3500K	34	25,000	35,000	3500	3325	85
	29025-4	●	F39T5/841/HO/ALTO	40	TL 841, 4100K	34	25,000	35,000	3500	3325	85
54	29026-2	●Ⓢ	F54T5/830/HO/ALTO	40	TL 830, 3000K	46	25,000	35,000	5000	4750	85
	29028-8	●Ⓢ	F54T5/835/HO/ALTO	40	TL 835, 3500K	46	25,000	35,000	5000	4750	85
	29083-3	●Ⓢ	F54T5/841/HO/ALTO	40	TL 841, 4100K	46	25,000	35,000	5000	4750	85
	13510-3	●Ⓢ	F54T5/850/HO/ALTO	40	TL 850, 5000K	46	25,000	35,000	4800	4600	82
	14745-4	●Ⓢ	F54T5/865/HO/ALTO	40	TL 865, 6500K	46	25,000	35,000	4650	4415	82

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 42

Rated Average Life



Performance

(Relative Light Output vs. Temperature)

Philips T5 Extreme Temperature Lamps vs. Standard F54T5 Lamps

