



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     | <ul style="list-style-type: none"> <li>Saves 7W per lamp</li> <li>97% lumen maintenance</li> <li>Up to 38,000 hours rated average life†; 42 month lamp warranty period**</li> </ul> | 23   |
|  32W 4ft T8    |  Energy Advantage T8 2XL 4ft 25W featuring ALTO II Technology | <ul style="list-style-type: none"> <li>Saves 7W per lamp</li> <li>96% lumen maintenance</li> <li>Up to 68,000 hours rated average life†; 60 month lamp warranty period**</li> </ul> | 21   |
|  54W 4ft T5 HO |  Energy Advantage T5 HO 44W featuring ALTO Lamp Technology    | <ul style="list-style-type: none"> <li>Saves 10W per lamp</li> <li>40,000 hours rated average life for an extended relamping cycle†</li> </ul>                                      | 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](http://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

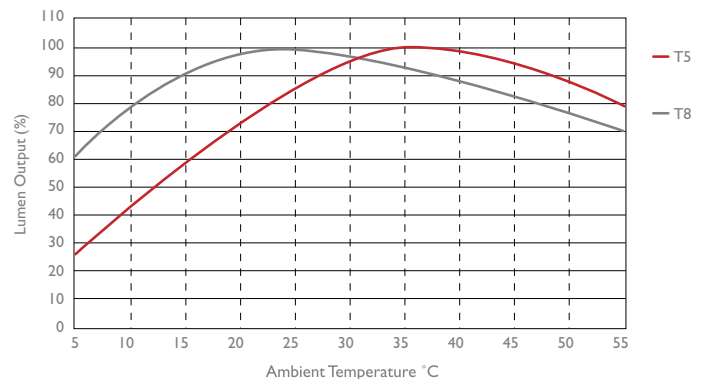
- 44W and 49W HO Energy Advantage version of 54W HO
- 49W HO also available in extreme temperature version
- T5HO offers superb high bay options
- Increased energy saving options for many applications
- Perfect for retail, industrial and warehouse applications
- New Extra Long Life T5HO lamps for extended 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 <sup>1</sup>          |              |
|------------------------------------------------------------------------------------------------------|----------------------------------------|--------------|
|                                                                                                      | Rated Average Life (Hrs.) <sup>2</sup> |              |
|                                                                                                      | 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       |

<sup>1</sup>) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 3 or 12 operating hours as noted.  
<sup>2</sup>) 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 Linear Fluorescent Lamps

| Watts | Product Number | Symbols, Footnotes | Ordering Code | Pkg. Qty. | Description | Nom. Length (In.) | Rated Average Life |                    | Approx. Initial Lumens (203,204) | Design Lumens (208) | CRI |
|-------|----------------|--------------------|---------------|-----------|-------------|-------------------|--------------------|--------------------|----------------------------------|---------------------|-----|
|       |                |                    |               |           |             |                   | 3 Hr. Start (202)  | 12 Hr. Start (241) |                                  |                     |     |

### Energy Advantage T5 Lamps—(4ft)

#### T5 Miniature Bipin; Programmed Start (226)

|    |         |       |                       |    |               |    |        |        |      |      |    |
|----|---------|-------|-----------------------|----|---------------|----|--------|--------|------|------|----|
| 25 | 40631-4 | ■ ● ⑤ | F28T5/835/EA/ALTO 25W | 40 | TL 835, 3500K | 46 | 35,000 | 40,000 | 2900 | 2750 | 85 |
|    | 40632-2 | ■ ● ⑤ | F28T5/841/EA/ALTO 25W | 40 | TL 841, 4100K | 46 | 35,000 | 40,000 | 2900 | 2750 | 85 |
|    | 41420-1 | ■ ● ⑤ | F28T5/850/EA/ALTO 25W | 40 | TL 850, 5000K | 46 | 35,000 | 40,000 | 2780 | 2640 | 82 |

### T5 High Efficiency Lamps—(2ft–5ft)

#### T5 Miniature Bipin; Programmed Start (226)

|    |         |     |                |    |               |    |        |        |      |      |    |
|----|---------|-----|----------------|----|---------------|----|--------|--------|------|------|----|
| 14 | 23077-1 | ●   | F14T5/830/ALTO | 40 | TL 830, 3000K | 22 | 25,000 | 35,000 | 1350 | 1275 | 85 |
|    | 23079-7 | ●   | F14T5/835/ALTO | 40 | TL 835, 3500K | 22 | 25,000 | 35,000 | 1350 | 1275 | 85 |
|    | 23080-5 | ●   | F14T5/841/ALTO | 40 | TL 841, 4100K | 22 | 25,000 | 35,000 | 1350 | 1275 | 85 |
| 21 | 23081-3 | ●   | F21T5/830/ALTO | 40 | TL 830, 3000K | 34 | 25,000 | 35,000 | 2100 | 2000 | 85 |
|    | 23082-1 | ●   | F21T5/835/ALTO | 40 | TL 835, 3500K | 34 | 25,000 | 35,000 | 2100 | 2000 | 85 |
|    | 23083-9 | ●   | F21T5/841/ALTO | 40 | TL 841, 4100K | 34 | 25,000 | 35,000 | 2100 | 2000 | 85 |
| 28 | 23084-7 | ● ⑤ | F28T5/830/ALTO | 40 | TL 830, 3000K | 46 | 25,000 | 35,000 | 2900 | 2750 | 85 |
|    | 23085-4 | ● ⑤ | F28T5/835/ALTO | 40 | TL 835, 3500K | 46 | 25,000 | 35,000 | 2900 | 2750 | 85 |
|    | 40485-3 | ● ⑤ | F28T5/835/ALTO | 6  | TL 835, 3500K | 46 | 25,000 | 35,000 | 2900 | 2750 | 85 |
|    | 23086-2 | ● ⑤ | F28T5/841/ALTO | 40 | TL 841, 4100K | 46 | 25,000 | 35,000 | 2900 | 2750 | 85 |
| 35 | 23088-8 | ●   | F35T5/830/ALTO | 40 | TL 830, 3000K | 58 | 25,000 | 35,000 | 3650 | 3450 | 85 |
|    | 23095-3 | ●   | F35T5/841/ALTO | 40 | TL 841, 4100K | 58 | 25,000 | 35,000 | 3650 | 3450 | 85 |

For the most current product information, go to the e-catalog on [www.philips.com](http://www.philips.com)  
Fluorescent symbols and footnotes located on page 42

### T5 Lumens at 35°C and 25°C



T5 Miniature Bipin

| Lamp Type | Approx. Initial Lumens at 35°C (203, 204) | Approx. Initial Lumens at 25°C (203, 204) |
|-----------|-------------------------------------------|-------------------------------------------|
| F14T5     | 1350                                      | 1175                                      |
| F21T5     | 2100                                      | 1800                                      |
| F28T5     | 2900                                      | 2625                                      |
| F35T5     | 3650                                      | 3275                                      |
| F24T5/HO  | 1950                                      | 1675                                      |
| F39T5/HO  | 3500                                      | 3100                                      |
| F54T5/HO  | 5000                                      | 4450                                      |