



Philips T5 Fluorescent Lamps featuring ALTO Technology

Powerful, environmentally-responsible, ultra-slim lamps



- ✓ Industry low 1.4mg of mercury in all 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

- New 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

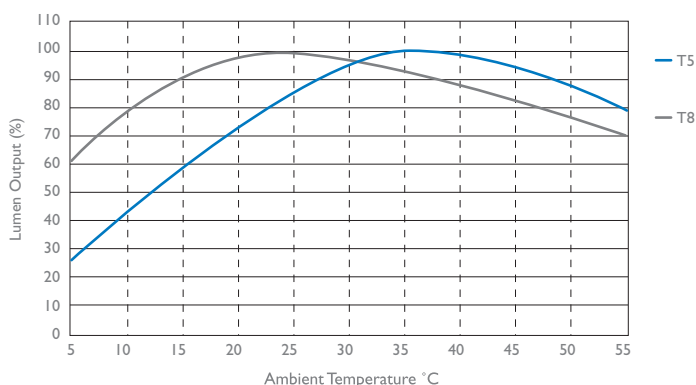
- New 49W HO Energy Advantage version of 54W HO
- 49W HO also available in extreme temperature version
- T5HO offers superb high bay options
- Increased energy saving options for many applications
- Perfect for retail, industrial and warehouse applications

Philips T5 Lamp Warranty Periods

Philips Lamp	Warranty period*	
	3 Hr. Start	12 Hr. Start
T5HE—14W, 21W, 28W and 35W	30 Months	36 Months
T5HE Energy Advantage F28T5/800/EA/ALTO 25W	36 Months	42 Months
T5HO—24W, 39W, 54W and 80W	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

* 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.)	
	3 Hr. Start	12 Hr. Start
T5HE—14W, 21W, 28W and 35W	25,000	35,000
T5HE Energy Advantage F28T5/800/EA/ALTO 25W	35,000	40,000
T5HO—24W, 39W, 54W and 80W	25,000	35,000
T5HO—Energy Advantage F54T5/800/HO/EA/ALTO 49W	35,000	40,000
T5HO—Extra Energy Advantage F54T5/800/HO/EA/ALTO 44W	35,000	40,000

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.



Fluorescent Lamps

T5 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)			

T5 High Output (HO) Energy Advantage Lamps

T5 Miniature Bipin; Programmed Start (226)

44	41781-6	\$ ⑥ ●	F54T5/835/HO/XEW/ALTO 44W	40	TL 835, 3500K	46	35,000	40,000	4500	4275	85
	41782-4	\$ ⑥ ●	F54T5/841/HO/XEW/ALTO 44W	40	TL 841, 4100K	46	35,000	40,000	4500	4275	85
	41783-2	\$ ⑥ ●	F54T5/850/HO/XEW/ALTO 44W	40	TL 850, 5000K	46	35,000	40,000	4320	4100	82
49	22049-1	\$ ⑥ ●	F54T5/830/HO/EA/ALTO 49W	40	TL 830, 3000K	46	35,000	40,000	5000	4750	85
	22050-9	\$ ⑥ ●	F54T5/835/HO/EA/ALTO 49W	40	TL 835, 3500K	46	35,000	40,000	5000	4750	85
	22052-5	\$ ⑥ ●	F54T5/841/HO/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	4800	4600	85
	40649-6	\$ 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	40729-6	\$ ⑥ ●	F54T5/835/HO/A/EA/ALTO 49W	40	TL 835, 3500K	46	35,000	40,000	5000	4750	85
	40730-4	\$ ⑥ ●	F54T5/841/HO/A/EA/ALTO 49W	40	TL 841, 4100K	46	35,000	40,000	5000	4750	85
	40752-8	\$ ⑥ ● †	F54T5/850/HO/A/EA/ALTO 49W	40	TL 850, 5000K	46	35,000	40,000	4800	4600	82

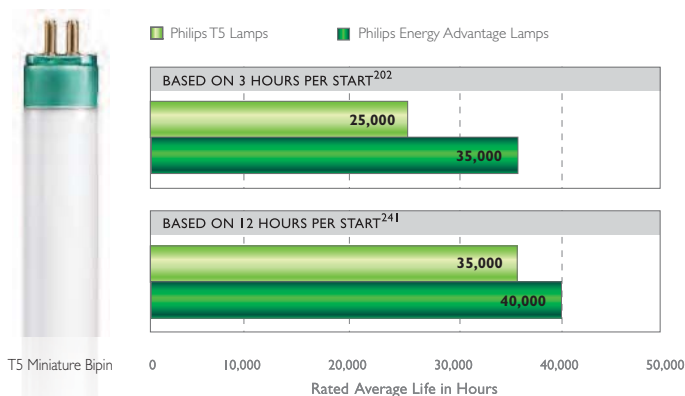
T5 High Output (HO) Lamps—(2ft–5ft)

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	
41277-5	41277-5	\$ ●	F24T5/850/HO/ALTO	40	TL 850, 5000K	22	25,000	35,000	1870	1775	82	
	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	
41435-9		\$ ●	F39T5/850/HO/ALTO	40	TL 850, 5000K	34	25,000	35,000	3360	3190	82	
54	29026-2	\$ ● ⑥	F54T5/830/HO/ALTO	40	TL 830, 3000K	46	25,000	35,000	5000	4750	85	
	29028-8	\$ ● ⑥	F54T5/835/HO/ALTO	40	TL 835, 3500K	46	25,000	35,000	5000	4750	85	
	29083-3	\$ ● ⑥	F54T5/841/HO/ALTO	40	TL 841, 4100K	46	25,000	35,000	5000	4750	85	
	13510-3	\$ ● ⑥	F54T5/850/HO/ALTO	40	TL 850, 5000K	46	25,000	35,000	4800	4600	82	
	14745-4	\$ ● ⑥	F54T5/865/HO/ALTO	40	TL 865, 6500K	46	25,000	35,000	4650	4415	82	

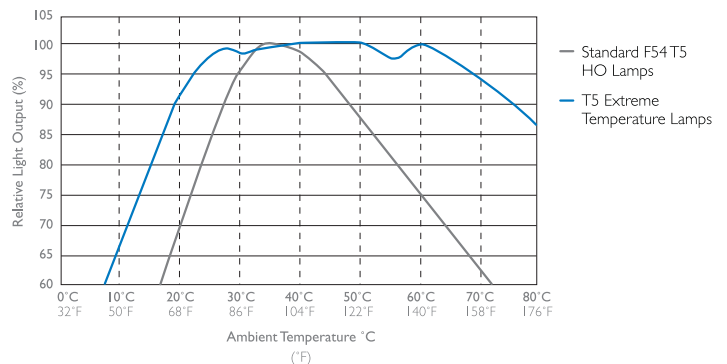
For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

Rated Average Life



Performance (Relative Light Output vs. Temperature)

Philips T5 Extreme Temperature Lamps vs. Standard F54T5 Lamps





Fluorescent Lamps

T5, Colored Linear Fluorescent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life 3 Hr. Start (202)	Rated Average Life 12 Hr. Start (241)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Energy Advantage T5 Lamps—(4ft)

T5 Miniature Bipin; Programmed Start (226)

25	40631-4	●	F28T5/835/EA/ALTO 25W	40	TL 835, 3500K	46	35,000	40,000	2900	2750	85
	40632-2	●	F28T5/841/EA/ALTO 25W	40	TL 841, 4100K	46	35,000	40,000	2900	2750	85
	41420-1	●	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	\$●Ⓢ	F28T5/830/ALTO	40	TL 830, 3000K	46	25,000	35,000	2900	2750	85
	23085-4	\$●Ⓢ	F28T5/835/ALTO	40	TL 835, 3500K	46	25,000	35,000	2900	2750	85
	40485-3	\$●Ⓢ	F28T5/835/ALTO	6	TL 835, 3500K	46	25,000	35,000	2900	2750	85
	23086-2	\$●Ⓢ	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

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Colored—Linear Fluorescent Lamps—T5 High Output (226)

24	27547-9	\$	F24T5/BLUE/HO	15	TL5HO Colored Pro 24W/180 Blue	22	12,000	550	440	N/A
54	27562-8	\$	F54T5/BLUE/HO	15	TL5HO Colored Pro 54W/180 Blue	46	12,000	1500	1200	N/A

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

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



Fluorescent Lamps

T5 Circular Lamps, Preheat Fluorescent Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T5 Circular Fluorescent Lamps

2GX13 Base; Programmed Start

22	16601-7	\$	TL5C 22W/830	10	Formerly FC9T5/830	9 OD	16,000	1800	1530	85
	16600-9	\$	TL5C 22W/840	10	Formerly FC9T5/841	9 OD	16,000	1800	1530	85
40	14859-3	\$	TL5C 40W/835	10	Formerly FC12T5/835	12 OD	16,000	3300	2805	85
55	16593-6	\$	TL5C 55W/830	10	Formerly FC12T5/830/HO	12 OD	16,000	4200	3580	85
	16592-8	\$	TL5C 55W/840	10	Formerly FC12T5/841/HO	12 OD	16,000	4200	3580	85

Preheat Fluorescent Lamps

T5 Miniature Bipin; Requires Use of Starters

4	33236-1		F4T5/CW	25	Cool White, 4100K	6	6000	135	95	59
6	33241-1		F6T5/CW	25	Cool White, 4100K	9	7500	295	230	59
8	33247-8		F8T5/CW	25	Cool White, 4100K	12	7500	400	300	59
13	33253-6		F13T5/CW	25	Cool White, 4100K	21	7500	820	655	59
	20703-5		F13T5/30U	25	Ultralume, 3000K	21	7500	1000	800	85

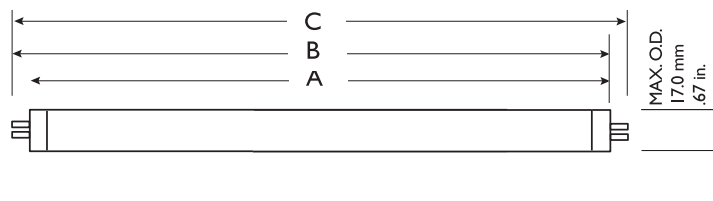
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T5 Circular



T5 Miniature Bipin



T5 and T5 High Output Dimensions (226)

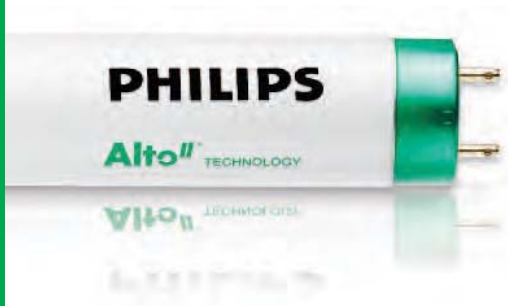
Type	A Max. (Width)		B Min. (Width)		B Max. (Width)		C Max. (Width)	
	inches	mm	inches	mm	inches	mm	inches	mm
T5 14W/24W	21.61	549.0	21.80	553.7	21.89	556.1	22.17	563.2
T5 21W/39W	33.42	849.0	33.61	853.7	33.70	856.1	33.98	863.2
T5 28W/54W	45.24	1149.0	45.42	1153.7	45.52	1156.1	45.80	1163.2
T5 35W/80W	57.05	1449.0	57.23	1453.7	57.33	1456.1	57.61	1463.2



Philips ALTO II Technology

Philips T8 Fluorescent Lamps featuring ALTO II Technology

Better for your business, better for the environment



ALTO lamps with green endcaps have become synonymous with environmental responsibility and low mercury. Since the launch of ALTO Lamp Technology in 1995, 2.0 billion Philips fluorescent lamps with ALTO Lamp Technology have been produced with over 20 tons less mercury than previous non-ALTO lamps¹.

Philips launched ALTO II Technology in 2007. ALTO II Technology has 50% less mercury than prior T8 lamps featuring ALTO Technology, making these lamps the most sustainable linear fluorescents available. Best of all, these lamps offer the same performance levels as ALTO lamps (life, energy, and light output).

Philips T8 Lamp Warranty Periods²

Philips Lamp	Instant Start Warranty (3hr/12hr starts)	Programmed Start Warranty (3hr/12hr starts)
T8 700 and 800 Series	30/30 Months	30/36 Months
Advantage T8 32W High Lumen	30/30 Months	36/36 Months
PLUST8 32W	36/42 Months	42/48 Months
Energy Advantage and Value Energy Advantage 25W and 32W	36/42 Months	48/54 Months
T8 32W Extra Long Life (XLL)	42/48 Months	48/60 Months
Energy Advantage T8 25W and 28W (XLL) Extra Long Life	42/48 Months	48/60 Months

Did you know?

- ALTO II T8 lamps have warranty periods ranging from 2½–4 years³
- ALTO II T8 lamps require no burn in before dimming
- ALTO II T8 lamps can contribute to LEED-EB certification. For more information, go to www.usgbc.org

Philips T8 Lamp Family—Life ratings

Philips Lamp	Instant Start ⁴		Programmed Start ⁵	
	3 hours	12 hours	3 hours	12 hours
T8 700 and 800 Series	24,000	30,000	30,000	36,000
Advantage T8 32W High Lumen	24,000	30,000	30,000	36,000
PLUST8 32W	30,000	36,000	38,000	44,000
Energy Advantage and Value Energy Advantage 25W and 32W	32,000	38,000	38,000	44,000
T8 32W Extra Long Life (XLL)	40,000	46,000	46,000	52,000
Energy Advantage T8 25W and 28W (XLL) Extra Long Life	40,000	46,000	46,000	52,000

1) [1994 industry average (22.8mg)—PLC average (4.0mg)] x 2 billion lamps. Convert to pounds by dividing by 464. Convert to tons by dividing by 2000.

2) Conditions apply—Based on maximum annual burn hours of 5110. Please contact Philips for warranty conditions for use of other equipment, including sensors.

3) Warranty Periods: 700 & 800 Series T8—30 months; Energy Advantage T8—36 months; PLUS T8—36 months; and Advantage T8—36 months; Extra Long Life T8—48 months; Energy Advantage Extra Long Life T8—48 months.

4) Average life under engineering data on instant start ballast with lamps turned off and restarted once every 3 or 12 operating hours as indicated.

5) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 3 or 12 operating hours as noted.



Fluorescent Lamps

Energy Advantage T8 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 T8 25 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

25	28204-6	\$ ④ ● †	F32T8/ADV830/XEW/ALTO 25 Watt	30	Advantage 830, 3000K	48	32,000	38,000	2500	2450	85
	28209-5	\$ ④ ● †	F32T8/ADV835/XEW/ALTO 25 Watt	30	Advantage 835, 3500K	48	32,000	38,000	2500	2450	84
	28078-4	\$ ④ ● †	F32T8/ADV841/XEW/ALTO 25 Watt	30	Advantage 841, 4100K	48	32,000	38,000	2500	2450	82
	15238-9	\$ ④ ●	F32T8/ADV841/XEW/ALTO 25 Watt	10	Advantage 841, 4100K, 10PK	48	32,000	38,000	2500	2450	82
	28079-2	\$ ④ ● †	F32T8/ADV850/XEW/ALTO 25 Watt	30	Advantage 850, 5000K	48	32,000	38,000	2400	2350	82

Energy Advantage T8 28 Watt Fluorescent Lamps

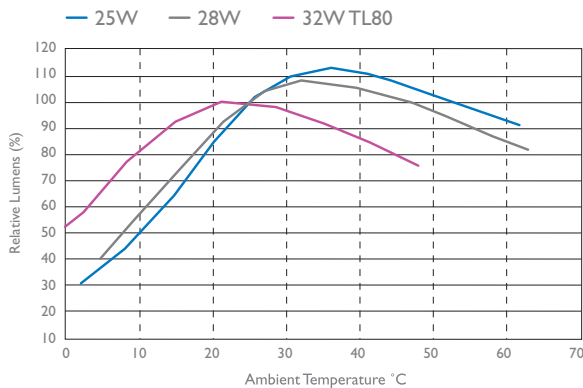
T8 Medium Bipin Featuring ALTO II Technology

28	28101-4	\$ ④ ● †	F32T8/ADV830/EW/ALTO 28 Watt	30	Advantage 830, 3000K	48	32,000	38,000	2725	2645	85
	28102-2	\$ ④ ● †	F32T8/ADV835/EW/ALTO 28 Watt	30	Advantage 835, 3500K	48	32,000	38,000	2725	2645	84
	28103-0	\$ ④ ● †	F32T8/ADV841/EW/ALTO 28 Watt	30	Advantage 841, 4100K	48	32,000	38,000	2725	2645	82
	28105-5	\$ ④ ● †	F32T8/ADV850/EW/ALTO 28 Watt	30	Advantage 850, 5000K	48	32,000	38,000	2675	2595	82

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

Relative Light Output vs. Ambient Temperature

4' T8 Lamps—0.88 BF Ballast



Relative light output with respect to 25°C rated temperature

Energy Advantage 25W T8 Savings

Save 7 Watts Instantly			
7 watts per lamp saved	Energy Savings Calculator		
	Annual Operating Hours**	Savings Over Lamp Life	
KWH Rate	4380	8760	38,000 hrs.
\$0.06	\$1.84	\$3.68	\$15.96
\$0.08	\$2.45	\$4.90	\$20.28
\$0.10	\$3.07	\$6.13	\$26.60
\$0.12	\$3.68	\$7.36	\$31.92
\$0.20	\$6.13	\$12.26	\$53.20

** 4380 hours are based on operating the lamps 12 hours per day/7 days per week.
8760 hours are based on operating the lamps 24 hours per day/7 days per week.

Cost of Ownership Savings

Energy Advantage T8 fluorescent lamps vs. standard T8 lamps.

General Overview

Energy Advantage 25WT8 fluorescent lamps provide energy savings of up to 25% versus standard 32WT8, so the benefits and financial impact can be significant.

Benefits

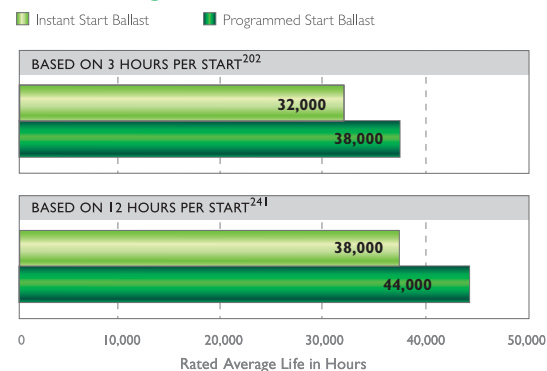
By using Energy Advantage 25WT8 lamps the energy savings of 7 watts per lamp can be achieved instantly by simply changing the lamp.

Financial Impact

Energy Savings per Lamp	7W
Operating Hours per Year	8760 hours, continuous burn
Cost per kWh	\$.10

Cost of Ownership Savings = \$6.13 per lamp per year

Rated Average Life



T8 Medium Bipin



Fluorescent Lamps

Value Energy Advantage T8 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, 239)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Energy Advantage T8 Value 25 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

25	42418-4	\$ @ ● †	F32T8/VEA835/XEW/ALTO 25W	30	Value Energy Advantage 835, 3500K	48	32,000	38,000	2300	2250	82
	42420-0	\$ @ ● †	F32T8/VEA841/XEW/ALTO 25W	30	Value Advantage 841, 4100K	48	32,000	38,000	2300	2250	82
	42422-6	\$ @ ● †	F32T8/VEA850/XEW/ALTO 25W	30	Value Advantage 850, 5000K	48	32,000	38,000	2300	2250	82

Energy Advantage T8 Value 28 Watt Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

28	42417-6	\$ @ ● †	F32T8/VEA835/EW/ALTO 28W	30	Value Energy Advantage 835, 3500K	48	32,000	38,000	2600	2550	82
	42419-2	\$ @ ● †	F32T8/VEA841/EW/ALTO 28W	30	Value Advantage 841, 4100K	48	32,000	38,000	2600	2550	82
	42421-8	\$ @ ● †	F32T8/VEA850/EW/ALTO 28W	30	Value Advantage 850, 5000K	48	32,000	38,000	2600	2550	82

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T8 Medium Bipin



Fluorescent Lamps

Extra Long Life (XLL) T8 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)			

Extra Long Life Energy Advantage 25 Watt T8 Fluorescent Lamp

T8 Medium Bipin Featuring ALTO II Technology

25	28121-2	\$ ● †	F32T8/ADV830/XLL/ALTO 25 Watt	30	Advantage 830, 3000K	48	40,000	46,000	2400	2330	85
	28122-0	\$ ● †	F32T8/ADV835/XLL/ALTO 25 Watt	30	Advantage 835, 3500K	48	40,000	46,000	2400	2330	84
	28123-8	\$ ● †	F32T8/ADV841/XLL/ALTO 25 Watt	30	Advantage 841, 4100K	48	40,000	46,000	2400	2330	82
	28125-3	\$ ● †	F32T8/ADV850/XLL/ALTO 25 Watt	30	Advantage 850, 5000K	48	40,000	46,000	2350	2280	82

Extra Long Life Energy Advantage 28 Watt T8 Fluorescent Lamp

T8 Medium Bipin Featuring ALTO II Technology

28	28146-9	● †	F32T8/ADV830/XLL/ALTO 28 Watt	30	Advantage 830, 3000K	48	40,000	46,000	2675	2595	85
	28148-5	● †	F32T8/ADV835/XLL/ALTO 28 Watt	30	Advantage 835, 3500K	48	40,000	46,000	2675	2595	84
	28127-9	● †	F32T8/ADV841/XLL/ALTO 28 Watt	30	Advantage 841, 4100K	48	40,000	46,000	2675	2595	82
	28128-7	● †	F32T8/ADV850/XLL/ALTO 28 Watt	30	Advantage 850, 5000K	48	40,000	46,000	2625	2545	82

Extra Long Life 32 Watt T8 Fluorescent Lamps

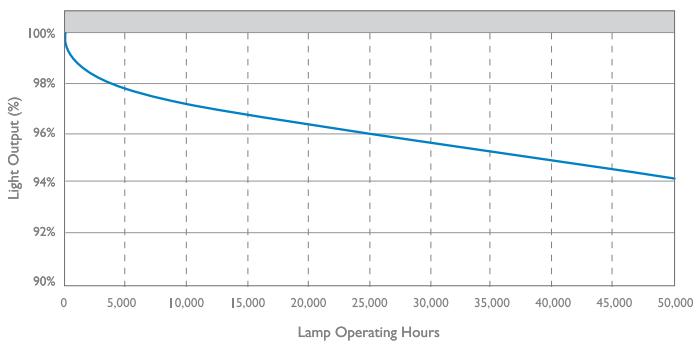
T8 Medium Bipin Featuring ALTO II Technology

32	28115-4	\$ ● †	F32T8/TL835/XLL/ALTO	30	TL 835, 3500K	48	40,000	46,000	2950	2800	84
	28116-2	\$ ● †	F32T8/TL841/XLL/ALTO	30	TL 841, 4100K	48	40,000	46,000	2950	2800	82
	28120-4	\$ ● †	F32T8/TL850/XLL/ALTO	30	TL 850, 5000K	48	40,000	46,000	2850	2700	82

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

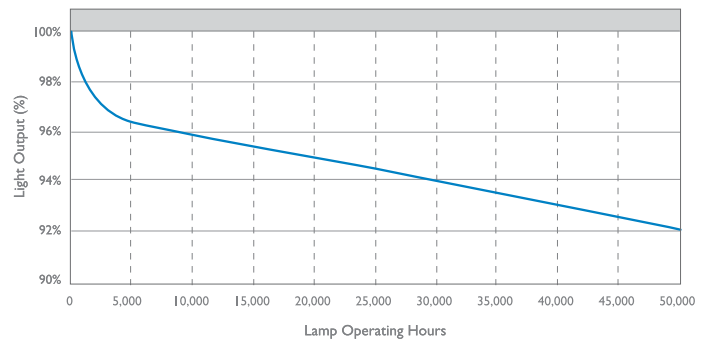
97% Lumen Maintenance

Philips Energy Advantage T8 25W and 28W XEW and XLL Lamps



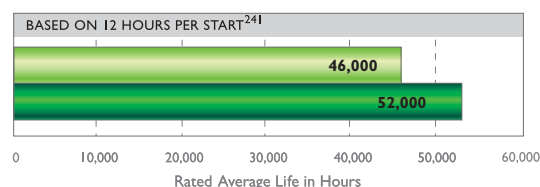
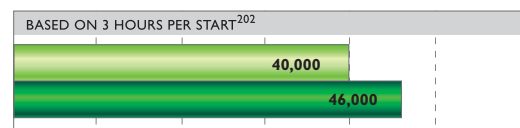
95% Lumen Maintenance

Philips T8 32W XLL Lamps



Rated Average Life

Instant Start Ballast Programmed Start Ballast





Fluorescent Lamps

Advantage T8 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, 239)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

Advantage T8 High Lumen Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

17	28130-3	\$ @ ● †	F17T8/ADV830/ALTO	30	Advantage 830, 3000K	24	24,000	30,000	1500	1450	85
	28131-1	\$ @ ● †	F17T8/ADV835/ALTO	30	Advantage 835, 3500K	24	24,000	30,000	1500	1450	84
	28132-9	\$ @ ● †	F17T8/ADV841/ALTO	30	Advantage 841, 4100K	24	24,000	30,000	1500	1450	82
25	28140-2	\$ @ ● †	F25T8/ADV835/ALTO	30	Advantage 835, 3500K	36	24,000	30,000	2380	2300	84
	28142-8	\$ @ ● †	F25T8/ADV841/ALTO	30	Advantage 841, 4100K	36	24,000	30,000	2380	2300	82
32	28080-0	□ \$ @ ● †	F32T8/ADV830/ALTO	30	Advantage 830, 3000K	48	24,000	30,000	3100	3000	85
	28081-8	□ \$ @ ● †	F32T8/ADV835/ALTO	30	Advantage 835, 3500K	48	24,000	30,000	3100	3000	84
	28085-9	□ \$ @ ● †	F32T8/ADV841/ALTO	30	Advantage 841, 4100K	48	24,000	30,000	3100	3000	82
	28089-1	□ \$ @ ● †	F32T8/ADV850/ALTO	30	Advantage 850, 5000K	48	24,000	30,000	3000	2910	82

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

Energy Savings: Two Lamp vs. Two Lamp System

Electronic Ballast	Ballast Factor	No. of Lamps	Lamp Watts	Standard T8 Lumens	Advantage T8 Lumens	System Watts	Savings
Standard T8	0.87	2	32	2850	—	58	—
Reduced Light Output T8	0.75	2	32	—	3100	51	\$2.80/yr

Energy Savings: Two Lamp vs. Three Lamp System

Electronic Ballast	Ballast Factor	No. of Lamps	Lamp Watts	Standard T8 Lumens	Advantage T8 Lumens	System Watts	Savings
Standard T8	0.87	3	32	2850	—	88	—
Increased Light Output T8	1.20	2	32	—	3100	78	\$4.00/yr

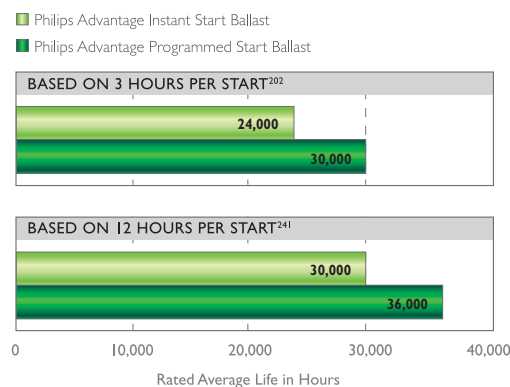
Combine Advantage T8 lamps with reduced light output electronic ballasts, with these results:

- Saves 7 system watts vs. standard T8 system
- Saves \$2.80 per fixture per year
- Energy savings based on 4000 hrs/yr @ \$.10 kw/hr

Combine advantage T8 lamps with increased light output ballasts. A two lamp advantage T8 system vs. a three lamp standard T8 system will:

- Save 10 system watts
- Save \$4.00 per fixture per year
- Save energy based on 4000 hrs/yr @ \$.10 kw/hr
- Reduce lighting installation costs (lamps, ballasts, fixtures and labor)
- Operate on ballast with ballast factors up to 1.32 with warranty intact

Rated Average Life





Fluorescent Lamps

PLUS 800 Series T8 Lamps, PLUS 700 Series T8 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, 239)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

PLUS 800 Series Long Life T8 Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

17	29093-3	\$ ④ ● †	F17T8/TL830/PLUS/ALTO	30	TL 830, 3000K	24	30,000	36,000	1400	1330	85
	28094-1	\$ ④ ● †	F17T8/TL835/PLUS/ALTO	30	TL 835, 3500K	24	30,000	36,000	1400	1330	85
	28095-8	\$ ④ ● †	F17T8/TL841/PLUS/ALTO	30	TL 841, 4100K	24	30,000	36,000	1400	1330	85
	28096-6	\$ ④ ● †	F17T8/TL850/PLUS/ALTO	30	TL 850, 5000K	24	30,000	36,000	1325	1260	82
	28193-1	\$ ④ ● †	F17T8/TL865/PLUS/ALTO	30	TL 865, 6500K	24	30,000	36,000	1275	1210	82
25	28097-4	\$ ④ ● †	F25T8/TL830/PLUS/ALTO	30	TL 830, 3000K	36	30,000	36,000	2225	2115	85
	28098-2	\$ ④ ● †	F25T8/TL835/PLUS/ALTO	30	TL 835, 3500K	36	30,000	36,000	2225	2115	85
	28099-0	\$ ④ ● †	F25T8/TL841/PLUS/ALTO	30	TL 841, 4100K	36	30,000	36,000	2225	2115	85
32	28165-9	\$ ④ ● †	F32T8/TL830/PLUS/ALTO	30	TL 830, 3000K	48	30,000	36,000	2950	2800	85
	28167-5	\$ ④ ● †	F32T8/TL835/PLUS/ALTO	30	TL 835, 3500K	48	30,000	36,000	2950	2800	85
	28179-0	\$ ④ ● †	F32T8/TL841/PLUS/ALTO	30	TL 841, 4100K	48	30,000	36,000	2950	2800	85
	20277-0	\$ ④ ●	F32T8/TL841/PLUS/ALTO	10	TL 841, 4100K, 10 PK	48	30,000	36,000	2950	2800	85
	28181-6	\$ ④ ● †	F32T8/TL850/PLUS/ALTO	30	TL 850, 5000K	48	30,000	36,000	2850	2710	82

PLUS 700 Series Long Life T8 Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

32	28182-4	\$ ④ ● †	F32T8/TL730/PLUS/ALTO	30	TL 730, 3000K	48	30,000	36,000	2800	2660	78
	28183-2	\$ ④ ● †	F32T8/TL735/PLUS/ALTO	30	TL 735, 3500K	48	30,000	36,000	2800	2660	78
	28184-0	\$ ④ ● †	F32T8/TL741/PLUS/ALTO	30	TL 741, 4100K	48	30,000	36,000	2800	2660	78
	28185-7	\$ ④ ● †	F32T8/TL750/PLUS/ALTO	30	TL 750, 5000K	48	30,000	36,000	2700	2550	78
	42306-1	\$ ④ ● †	F32T8/TL765/PLUS/ALTO	30	TL 765, 6500K	48	30,000	36,000	2750	2610	78

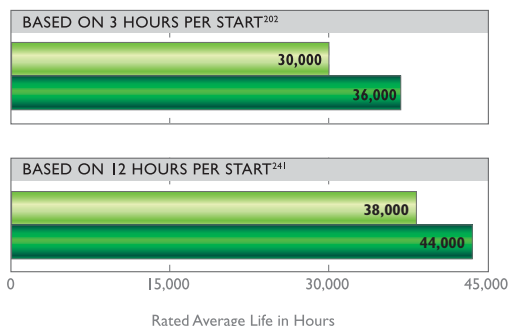
For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T8 Medium Bipin

Rated Average Life

- Philips PLUS Instant Start Ballast
- Philips PLUS Programmed Start Ballast





Fluorescent Lamps

800 Series T8 Lamps, 700 Series T8 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, 239)	CRI
							3 Hr. Start (202)	12 Hr. Start (241)			

800 Series T8 Fluorescent Lamps

T8 Medium Bipin Featuring ALTO II Technology

17	28188-1	\$ ● †	F17T8/TL835/ALTO	30	TL 835, 3500K	24	24,000	30,000	1350	1280	84
	28189-9	\$ ● †	F17T8/TL841/ALTO	30	TL 841, 4100K	24	24,000	30,000	1350	1280	82
	28090-9	\$ ● †	F17T8/TL850/ALTO	30	TL 850, 5000K	24	24,000	30,000	1300	1235	82
25	28190-7	\$ ● †	F25T8/TL835/ALTO	30	TL 835, 3500K	36	24,000	30,000	2150	2040	85
	28191-5	\$ ● †	F25T8/TL841/ALTO	30	TL 841, 4100K	36	24,000	30,000	2150	2040	84
	28092-5	\$ ● †	F25T8/TL850/ALTO	30	TL 850, 5000K	36	24,000	30,000	2150	2040	82
32	28151-9	\$ ● © †	F32T8/TL830/ALTO	30	TL 830, 3000K	48	24,000	30,000	2850	2710	85
	28153-5	\$ ● © †	F32T8/TL835/ALTO	30	TL 835, 3500K	48	24,000	30,000	2850	2710	84
	28155-0	\$ ● © †	F32T8/TL841/ALTO	30	TL 841, 4100K	48	24,000	30,000	2850	2710	82
	27235-1	\$ ● © †	F32T8/TL841/ALTO PLZ	1350	TL 841, 4100K	48	24,000	30,000	2850	2710	82
	28156-8	\$ ● © †	F32T8/TL850/ALTO	30	TL 850, 5000K	48	24,000	30,000	2850	2710	82
40	36834-0	\$ ● †	F40T8/TL835/ALTO	25	TL 835, 3500K	60	24,000	30,000	3725	3500	84
	36847-2	\$ ● †	F40T8/TL841/ALTO	25	TL 841, 4100K	60	24,000	30,000	3725	3500	82

700 Series T8 Fluorescent Lamps

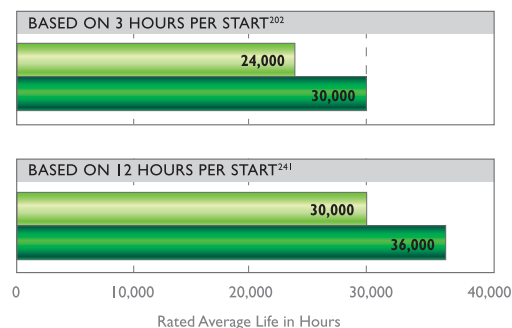
T8 Medium Bipin Featuring ALTO II Technology

32	28162-6	\$ ● © †	F32T8/TL730 ALTO	30	TL 730, 3000K	48	24,000	30,000	2700	2565	78
	28161-8	\$ ● © †	F32T8/TL735/ALTO	30	TL 735, 3500K	48	24,000	30,000	2700	2565	78
	27259-1	\$ ● © †	F32T8/TL735/ALTO PLZ	1350	TL 735, 3500K	48	24,000	30,000	2700	2565	78
	28157-6	\$ ● © †	F32T8/TL741/ALTO	30	TL 741, 4100K	48	24,000	30,000	2700	2565	78
	38351-3	\$ ● © †	F32T8/TL741/ALTO	10	TL 741, 4100K, 10PK	48	24,000	30,000	2700	2565	78
	27255-9	\$ ● © †	F32T8/TL741/ALTO PLZ	1350	TL 741, 4100K	48	24,000	30,000	2700	2565	78
	28163-4	\$ ● © †	F32T8/TL750/ALTO	30	TL 750, 5000K	48	24,000	30,000	2600	2470	78

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

Rated Average Life

- Philips Universal Instant Start Ballast
- Philips Universal Programmed Start Ballast





Fluorescent Lamps

T8 U-Bent 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 U-Bent 6" T8 Fluorescent Lamps

T8 Medium Bipin with 6" Wide Spacing (212)

25	20420-6	\$ ●	FB32T8/ADV830/6/XEW/ALTO 25 WATT	20	TL 830, 3000K	22 $\frac{1}{2}$	24,000	30,000	2400	2330	85
	20421-4	\$ ●	FB32T8/ADV835/6/XEW/ALTO 25 WATT	20	TL 835, 3500K	22 $\frac{1}{2}$	24,000	30,000	2400	2330	85
	20423-0	\$ ●	FB32T8/ADV841/6/XEW/ALTO 25 WATT	20	TL 841, 4100K	22 $\frac{1}{2}$	24,000	30,000	2400	2330	85
	20424-8	\$ ●	FB32T8/ADV850/6/XEW/ALTO 25 WATT	20	TL 850, 5000K	22 $\frac{1}{2}$	24,000	30,000	2350	2280	82

800 Series U-Bent Rapid Start T8 Fluorescent Lamps

T8 Medium Bipin with 6" Wide Spacing (212)

32	37897-6	\$ ●	FB32T8/TL830/6/ALTO	20	TL 830, 3000K	22 $\frac{1}{2}$	24,000	30,000	2800	2535	85
	37900-8	\$ ●	FB32T8/TL835/6/ALTO	20	TL 835, 3500K	22 $\frac{1}{2}$	24,000	30,000	2800	2535	85
	37902-4	\$ ●	FB32T8/TL841/6/ALTO	20	TL 841, 4100K	22 $\frac{1}{2}$	24,000	30,000	2800	2535	85
	37880-2	\$ ●	FB32T8/TL850/6/ALTO	20	TL 850, 5000K	22 $\frac{1}{2}$	24,000	30,000	2700	2450	82

700 Series U-Bent Rapid Start T8 Fluorescent Lamps

T8 Medium Bipin with 6" Wide Spacing (212)

32	37892-7	\$ ●	FB32T8/TL730/6/ALTO	20	TL 730, 3000K	22 $\frac{1}{2}$	20,000	24,000	2650	2370	78
	37893-5	\$ ●	FB32T8/TL735/6/ALTO	20	TL 735, 3500K	22 $\frac{1}{2}$	20,000	24,000	2650	2370	78
	37894-3	\$ ●	FB32T8/TL741/6/ALTO	20	TL 741, 4100K	22 $\frac{1}{2}$	20,000	24,000	2650	2370	78
	37882-8	\$ ●	FB32T8/TL750/6/ALTO	20	TL 750, 5000K	22 $\frac{1}{2}$	20,000	24,000	2600	2325	78

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Energy Advantage U-Bent 1 $\frac{1}{8}$ " T8 Fluorescent Lamps

T8 Medium Bipin with 1 $\frac{1}{8}$ " Wide Spacing (212)

29	22675-3	●	FB29T8/TL830/EA/ALTO	15	TL 830, 3000K	22 $\frac{1}{2}$	24,000	2600	2470	85
	22676-1	●	FB29T8/TL835/EA/ALTO	15	TL 835, 3500K	22 $\frac{1}{2}$	24,000	2600	2470	85
	22677-9	●	FB29T8/TL841/EA/ALTO	15	TL 841, 4100K	22 $\frac{1}{2}$	24,000	2600	2470	85

800 Series U-Bent 1 $\frac{1}{8}$ " T8 Fluorescent Lamps

T8 Medium Bipin with 1 $\frac{1}{8}$ " Wide Spacing (212)

31	22671-2	●	FB31T8/TL830/ALTO	15	TL 830, 3000K	22 $\frac{1}{2}$	24,000	2775	2636	85
	22672-0	●	FB31T8/TL835/ALTO	15	TL 835, 3500K	22 $\frac{1}{2}$	24,000	2775	2636	85
	22674-6	●	FB31T8/TL841/ALTO	15	TL 841, 4100K	22 $\frac{1}{2}$	24,000	2775	2636	85

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T8 U-Bent Lamp
Medium Bipin



T8 1 $\frac{1}{8}$ " U-Bent Lamp
Medium Bipin

**Philips Standard and
1 $\frac{1}{8}$ " U-Bent T8**
Warranty Period: 24 months*

**Philips Energy
Advantage U-Bent T8**
Warranty Period: 36 months*

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



Fluorescent Lamps

Rapid Start T8 Lamps, Preheat T8 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)			

Rapid Start T8 Fluorescent Lamps

T8 Medium Bipin; High CRI

17	20905-6	\$	F32T8/TL950	25	TL 950, 5000K	48	20,000	20,000	2000	1860	98
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TL-D Rapid Start T8 Fluorescent Lamps—for Operation on European Ballast

T8 Medium Bipin; High CRI

36	29189-8		TLD36W/840NG	25	TL840, 4000K	48	20,000	—	3350	3100	82
58	29184-9		TLD58W/840NG	25	TL840, 4000K	60	20,000	—	5200	4300	82
70	29186-4		TLD70W/840NG	25	TL840, 4000K	72	20,000	—	6200	5100	82

Preheat T8 Fluorescent Lamps

T8 Medium Bipin Linear Fluorescent Lamps; Requires Use of Starters (202)

15	40720-5		F15T8D	25	Daylight, 6500K	18	7500	—	750	660	73
	40719-7		F15T8/CW	25	Cool White, 4100K	18	7500	—	870	765	59
	36436-4		F15T8/CW BULK	96	Cool White, 4100K	18	7500	—	850	750	59
	39226-6		F15T8/PLANT	6	Plant Lite, Sleeved	18	7500	—	410	N/A	N/A
30	28147-7	• †	F30T8/CW/ALTO	25	Cool White, 4100K	36	7500	—	2200	2000	59

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T8 Medium Bipin



Fluorescent Lamps

Slimline T8 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 T8 Slimline 8-Ft Fluorescent Lamps

T8 Single Pin; Featuring ALTO Lamp Technology; Instant Start

51	16321-2	☐ \$ ④ ●	F96T8/ADV835/XEW/ALTO 51W	25	TL 835, 3500K	96	24,000	30,000	5300	4940	85
	16331-1	☐ \$ ④ ●	F96T8/ADV841/XEW/ALTO 51W	25	TL 841, 4100K	96	24,000	30,000	5300	4940	85
	16457-4	☐ \$ ④ ●	F96T8/ADV850/XEW/ALTO 51W	25	TL 850, 5000K	96	24,000	30,000	5200	4840	82

PLUS Slimline T8 8-Ft Fluorescent Lamps

T8 Single Pin; Featuring ALTO Lamp Technology; Instant Start

59	23684-4	☐ \$ ④ ●	F96T8/TL835/PLUS/ALTO	25	TL 835, 3500K	96	24,000	30,000	5900	5490	85
	23685-1	☐ \$ ④ ●	F96T8/TL841/PLUS/ALTO	25	TL 841, 4100K	96	24,000	30,000	5900	5490	85
	23686-9	☐ \$ ④ ●	F96T8/TL850/PLUS/ALTO	25	TL 850, 5000K	96	24,000	30,000	5780	5375	82
	23681-0	☐ \$ ④ ●	F96T8/TL735/PLUS/ALTO	25	TL 735, 3500K	96	24,000	30,000	5700	5190	78
	23682-8	☐ \$ ④ ●	F96T8/TL741/PLUS/ALTO	25	TL 741, 4100K	96	24,000	30,000	5700	5190	78

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40

Philips XEW Slimline T8

Warranty Period: 30 months*

Philips PLUS Slimline T8

Warranty Period: 24 months*

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

PLUS Slimline T8 8-Ft Cost of Ownership Savings

PLUS Slimline 8-foot T8 Fluorescent Lamps vs. Standard 8-foot T8 Lamps

General Overview

PLUS Slimline 8-foot T8 fluorescent lamps may provide up to 60% longer life than standard 8-foot T8 products. With an incremental cost as little as \$1.00 per lamp, benefits and financial impact can be significant.

Benefits

By using PLUS Slimline 8-foot T8 lamps, the lamp replacement and labor costs are extended by an extra 2 years on a facility that operates an average of 4000 hours per year. For example, a standard 8-foot T8 product, with a rated average life expectancy of 15,000 hours, will last nearly 4 years (15,000 hours rated average life/4000 hours per year = 3¾ years).

Conversely, PLUS Slimline 8-foot T8 lamps will operate for 6 years due to their rated average life expectancy of 24,000 hours (24,000 hours rated average life/4000 hours per year = 6 years).

Financial Impact

With the extended life expectancy of 2 years and the benefits of Philips exclusive TCLP-compliant low mercury technology, the positive financial impact of installing PLUS Slimline 8-foot T8 lamps may provide cost of ownership savings per lamp as follows:

Incremental Cost	\$ (1.00)
Material Cost Avoidance ^A	\$ 4.00
Labor Cost Avoidance ^B	\$ 3.72
Disposal Cost Avoidance ^C	\$ 0.72
Cost of Ownership Savings	\$ 7.44

A Material Cost Avoidance is the annualized acquisition cost per lamp (average cost per lamp of \$7.50 for standard 8-Foot T8 product / 3 3/4 years = \$2.00 per year). By installing PLUS Slimline 8-Foot T8 lamps, a material cost per lamp of \$4.00 is avoided due to the extra 2 years of life expectancy. Note that the average cost per lamp may vary.

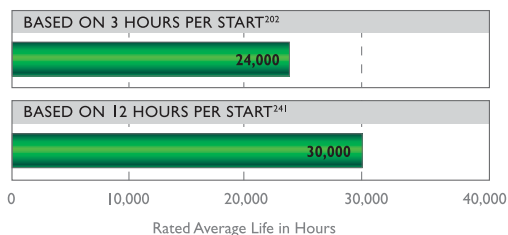
B Labor Cost Avoidance is the annualized labor replacement cost per lamp (labor replacement cost per lamp of \$7.00 / 3 years = \$1.86 per year). By installing PLUS Slimline 8-Foot T8 lamps, a labor replacement cost per lamp of \$3.72 is avoided due to the extra 2 years life expectancy. Note that the labor replacement cost per lamp may vary.

C Disposal Cost Avoidance is based on an average of \$.09 per foot for lamp recycling or \$.72 per 8-foot lamp. Philips Lighting Company encourages the recycling of all fluorescent lamps.



Rated Average Life

■ Philips PLUS Slimline T8





Fluorescent Lamps

High Output T8 Lamps, U-Bent T12 Lamps, Rapid Start T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Average Life 3 Hr. Start (202)	Rated Average Life 12 Hr. Start (241)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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PLUS High Output (HO) T8 8-Foot Fluorescent Lamps

T8 Recessed D.C.; Featuring ALTO Lamp Technology, Use on proper Programmed Start Ballasts Only*

86	23687-7	□ \$ ◎ ●	F96T8/TL835/HO/PLUS/ALTO	25	TL 835, 3500K	96	24,000	30,000	8200	7625	85
	23688-5	□ \$ ◎ ●	F96T8/TL841/HO/PLUS/ALTO	25	TL 841, 4100K	96	24,000	30,000	8200	7625	85
	23689-3	□ \$ ◎ ●	F96T8/TL850/HO/PLUS/ALTO	25	TL 850, 5000K	96	24,000	30,000	8100	7550	82

* Per ANSI C78.81, this lamp is designed for programmed start operation with high frequency operating currents of 400mA (nominally) to achieve the rated lumens and life

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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High Output (HO) T8 Fluorescent Lamps—4 foot

T8 Recessed D.C.; Featuring ALTO Lamp Technology, Use on proper Programmed Start Ballasts Only*

44	23679-4	□ \$ ●	F48T8/TL841/HO/ALTO	25	TL 841, 4100K	48	18,000	4000	3600	85
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* Per ANSI C78.81, this lamp is designed for programmed start operation with high frequency operating currents of 400mA (nominally) to achieve the rated lumens and life

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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U-Bent T12 Fluorescent Lamps

T12 Medium Bipin

40	42309-5		FB40/T12/NX/6	12	Neutral Deluxe, 3500K	22½	18,000	2300	1955	90
	42308-7		FB40/T12/CWSupreme/6	12	Cool White Supreme, 4100K	22½	18,000	2300	1955	90
	21993-1		FB40/DX/6	12	Daylight Deluxe, 6500K	22½	18,000	2250	1950	90

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Rapid Start T12 Fluorescent Lamps

T12 Medium Bipin

30	37649-1	●	F30T12/D/RS/ALTO	30	Daylight, 6500K	36	18,000	1950	1700	73
	27242-7	●	F30T12/CW/RS/ALTO	30	Cool White, 4100K	36	18,000	2250	1900	59
	13221-7	●	F30T12/WW/RS/ALTO	30	Warm White, 3000K	36	18,000	2300	1950	49
40	42318-6		F40T12/NX/ALTO	30	Neutral Deluxe, 3500K	48	20,000	2550	2200	88
	42389-9		F40T12/CWSupreme/ALTO	30	Cool White Supreme, 4100K	48	20,000	2600	2250	89
	42312-9		F40T12/CWSupreme/PLUS/ALTO	30	Cool White Supreme, 4100K	48	24,000	2550	2220	89
	42389-7		F40T12/C50Supreme/ALTO	30	Color Tone 50 Supreme, 5000K	48	20,000	2500	2175	90
	27359-9		F40/DX/ALTO	30	Daylight Deluxe, 6500K	48	20,000	2325	2025	90
	39228-2		F40/PLANT	6	Plant Light, Sleeved	48	20,000	1600	1360	—

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40





Fluorescent Lamps

Preheat T12 Lamps, Slimline T12 Lamps, High Output T12 Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Preheat T12 Fluorescent Lamps

T12 Medium Bipin Linear Fluorescent Lamps

14	14151-5		F14T12/CW	30	Cool White, 4100K	15	9000	710	590	59
15	14149-9		F15T12/CW 30PK	30	Cool White, 4100K	18	9000	800	695	62
20	27328-4	●	F20T12/D/ALTO	30	Daylight, 6500K	24	9000	960	960	73
	27332-6	●	F20T12/CW/ALTO	30	Cool White, 4100K	24	9000	1200	1050	59
	27349-0	●	F20T12/WW/ALTO	30	Warm White, 3000K	24	9000	1250	1100	49
	39227-4		F20T12/PLANT	6	Plant Lite, Sleeved	24	9000	600	500	—

Slimline T12 Fluorescent Lamps

T12 Single Pin Linear Fluorescent Lamps; Instant Start

39	36219-4	●	F48T12/D/ALTO	15	Daylight, 6500K	48	9000	2500	2220	73
	36321-8		F48T12/CW ALTO 15PK	15	Cool White, 4100K	48	9000	2950	2600	62
56	36985-0	●	F72T12/D/ALTO	15	Daylight, 6500K	72	12,000	3800	3350	73
	36989-2	●	F72T12/CW/ALTO	15	Cool White, 4100K	72	12,000	4450	3900	59
75	42305-3		F96T12/NX/ALTO	15	Neutral Deluxe, 3500K	96	12,000	5000	4250	88
	42319-4		F96T12/CWSupreme/ALTO	15	Cool White Supreme, 4100K	96	12,000	5000	4250	89
	42387-1		F96T12/C50Supreme/ALTO	15	Color Tone 50 Supreme, 5000K	96	12,000	5000	4350	90
	37282-1	●	F96T12/DX/ALTO	15	Daylight Deluxe, 6500K	96	12,000	4775	4200	90

High Output T12 Fluorescent Lamps (800ma)

T12 Recessed D.C. Linear Fluorescent Lamps (207, 214)

35	14145-7		F24T12/CW/HO	30	Cool White, 4100K	24	9000	1650	1390	59
40	14142-4		F30T12/CW/HO	30	Cool White, 4100K	30	9000	2290	1900	59
50	14138-2		F36T12/D/HO	30	Daylight, 6500K	36	9000	2500	2150	73
	14139-0		F36T12/CW/HO	30	Cool White, 4100K	36	9000	2800	2450	59
55	14137-4		F42T12/CW/HO	30	Cool White, 4100K	42	9000	3400	2950	59
60	36984-3	●	F48T12/D/HO/ALTO	15	Daylight, 6500K	48	12,000	3400	3000	73
	36978-5	●	F48T12/CW/HO/ALTO	15	Cool White, 4100K	48	12,000	4050	3500	59
80	35578-4		F64T12/CW/HO	15	Cool White, 4100K	64	12,000	5600	4850	62
85	36653-4	●	F72T12/D/HO/ALTO	15	Daylight, 6500K	72	12,000	5600	4850	73
	36651-8	●	F72T12/CW/HO/ALTO	15	Cool White, 4100K	72	12,000	6350	5500	59

High Output T12 Fluorescent Lamps (800ma)

T12 Recessed D.C. Linear Fluorescent Lamps (207, 214)

110	21489-0	●	F96T12/DX/HO	15	Daylight Deluxe, 6500K	96	12,000	6750	5800	90
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High Output T12 800 Series Fluorescent Lamps (800ma)

T12 Recessed D.C. Linear Fluorescent Lamps; For Low Temperature Applications (223)

110	38177-4	●	F96T12/D/HO-O/ALTO	15	Daylight, 6500K	96	12,000	7800	6800	73
	38176-4	●	F96T12/CW/HO-O/ALTO	15	Cool White, 4100K	96	12,000	8800	7650	59

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T12 Medium Bipin



T12 Single Pin



T12 Recessed DC



Fluorescent Lamps

Very High Output T12, Gold Fluorescent, Appliance, T9 Circline 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)			

Very High Output T12 Fluorescent Lamps (1500ma)

T12 Recessed D.C. Linear Fluorescent Lamps (214)

110	21819-8		F48T12/CW/MHO	15	Cool White, 4100K	48	12,000	12,000	7050	4950	59
185	34232-9	\$	F96T12/CW/MHO/EW	15	Cool White, 4100K	96	12,000	12,000	13,000	9000	59
215	34234-5		F96T12/CW/MHO	15	Cool White, 4100K	96	12,000	12,000	15,200	10,700	59

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Gold Fluorescent Lamps

Blocks UV Emissions

32	42531-4		F32T8/GOLD PLUS	30	Gold Sleeved	48	24,000	1750	1480	—
40	14750-4		F40T12/GOLD	30	Gold Sleeved	48	20,000	1700	1465	—

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Appliance Fluorescent Lamps

T8 Medium Bipin Linear Fluorescent Lamps; For use with Starters

18	23690-1	†	F18T8/CW/24	24	Cool White, 4100K	24	7500	1175	940	59
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Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Circline Fluorescent Lamps

T9 4-Pin Circular Fluorescent Lamps

20	24982-1		FC6T9/COOL WHITE PLUS	12	Cool White, 4100K	6½ OD	12,000	800	590	59
22	39222-5		FC8T9/SOFT WHITE	12	3000K	8 OD	12,000	1150	875	85
	39235-7		FC8T9/DAYDLX	12	6500K	8 OD	12,000	910	675	79
	39116-9		FC8T9/COOL WHITE PLUS	12	Cool White, 4100K	8 OD	12,000	1050	775	59
32	39122-7		FC12T9/SOFT WHITE	12	3000K	12 OD	12,000	1900	1600	85
	26260-0		FC12T9/D	12	Daylight, 6500K	12 OD	12,000	1570	1300	73
	39117-7		FC12T9/COOL WHITE PLUS	12	Cool White, 4100K	12 OD	12,000	1800	1500	59
40	39118-5		FC16T9/COOL WHITE PLUS	12	Cool White, 4100K	16 OD	12,000	2500	1975	59

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T12 Recessed DC



GOLD Lamp



T8 Medium Bipin



T9 4-Pin Circular



Fluorescent Lamps

TuffGuard Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.)(241)	Approx. Initial Lumens (203,204)	CRI	Availability
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TuffGuard T5 Fluorescent Coated Lamps

T5 Miniature Bipin Linear Fluorescent Lamps

14	16690-0	●	F14T5/830/ALTO TG	40	3000	22	35,000	1350	85	Made to Order
21	16669-4	●	F21T5/841/ALTO TG	40	4100	34	35,000	2100	85	Made to Order
28	16417-8	●	F28T5/835/ALTO TG	40	3500	46	35,000	2900	85	Stocked
	16674-4	●	F28T5/841/ALTO TG	40	4100	46	35,000	2900	85	Stocked
44	42060-4	\$ ④ ● †	F54T5/835/HO/XEW/ALTO 44W TG	40	3500	46	35,000	4520	85	Made to Order
	42058-8	\$ ④ ● †	F54T5/841/HO/XEW/ALTO 44W TG	40	4100	46	35,000	4520	85	Made to Order
	42059-6	\$ ④ ● †	F54T5/850/HO/XEW/ALTO 44W TG	40	5000	46	35,000	4400	82	Made to Order
49	16961-5	● †	F54T5/841/HO/EA/ALTO 49W TG	40	4100	46	35,000	5000	85	Stocked
	40900-3	● †	F54T5/850/HO/EA/ALTO 49W TG	40	5000	46	35,000	4850	82	Stocked
54	16672-8	●	F54T5/835/HO/ALTO TG	40	3500	46	35,000	5000	85	Stocked
	16298-2	●	F54T5/841/HO/ALTO TG	40	4100	46	35,000	5000	85	Stocked
	16686-8	●	F54T5/850/HO/ALTO TG	40	5000	46	35,000	5000	82	Stocked

TuffGuard T8 Fluorescent Coated Lamps

T8 Medium Bipin Linear Fluorescent Lamps

25	28290-5	● †	F25T8/TL830/PLUS/ALTO TG	30	3000	36	36,000	2225	85	Stocked
	28301-0	● †	F25T8/TL835/PLUS/ALTO TG	30	3500	36	36,000	2225	85	Stocked
	28308-5	● †	F25T8/TL841/PLUS/ALTO TG	30	4100	36	36,000	2225	85	Stocked
28	28319-2	● †	F32T8/ADV830/EW/ALTO 28W TG	30	3000	48	36,000	2725	85	Stocked
32	28329-1	● †	F32T8/ADV850/ALTO TG	30	5000	48	30,000	3000	82	Made to Order
	28312-7	● †	F32T8/ADV850/XEW/ALTO TG	30	5000	48	30,000	2400	82	Made to Order
	28330-9	● †	F32T8/TL730/ALTO TG	30	3,000	48	30,000	2700	78	Made to Order
	28331-7	● †	F32T8/TL735/ALTO TG	30	3500	48	30,000	2700	78	Stocked
	28332-5	● †	F32T8/TL741/ALTO TG	30	4100	48	30,000	2700	78	Stocked
	28333-3	● †	F32T8/TL750/ALTO TG	30	5000	48	30,000	2600	78	Made to Order
	28335-8	● †	F32T8/TL835/ALTO TG	30	3500	48	30,000	2850	85	Stocked
	28336-6	● †	F32T8/TL841/ALTO TG	30	4100	48	30,000	2850	85	Made to Order
	28337-4	● †	F32T8/TL850/ALTO TG	30	5000	48	30,000	2850	82	Made to Order
	28339-0	● †	F32T8/ADV841/ALTO TG	30	4100	48	30,000	3150	85	Stocked
	28342-4	● †	F32T8/TL741/PLUS/ALTO TG	30	4100	48	36,000	2800	78	Stocked
	28343-2	● †	F32T8/TL750/PLUS/ALTO TG	30	5000	48	36,000	2700	78	Stocked
	28345-7	● †	F32T8/TL835/PLUS/ALTO TG	30	3500	48	36,000	2950	85	Stocked
	28303-6	● †	F32T8/TL841/XLL/ALTO TG	30	4100	48	40,000	2950	85	Stocked
	28346-5	● †	F32T8/TL841/PLUS/ALTO TG	30	4100	48	36,000	2950	85	Stocked
28347-3	● †	F32T8/TL850/PLUS/ALTO TG	30	5000	48	36,000	2850	82	Stocked	
42304-6	● †	F32T8/TL765/PLUS/ALTO TG	30	6500	48	36,000	2750	78	Made To Order	
44	40905-2	● †	F48T8/TL841/HO/ALTO TG	25	4100	48	18,000	4000	85	Made to Order
59	40907-8	● †	F96T8/TL741/PLUS/ALTO TG	25	4100	96	30,000	5700	78	Made to Order
	40909-4	● †	F96T8/TL841/PLUS/ALTO TG	25	4100	96	30,000	5900	85	Made to Order
86	40912-8	● †	F96T8/TL841/HO/PLUS/ALTO TG	25	4100	96	30,000	8200	85	Stocked

Note: Made to order products require a 3 week lead time.
For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T5 Miniature Bipin



T8 Medium Bipin



Fluorescent Lamps

TuffGuard Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Color Temp. (K)	Nom. Length (In.)	Rated Avg. Life (Hrs.)(202)	Approx. Initial Lumens (203,204)	CRI	Availability
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TuffGuard T12 Fluorescent Coated Lamps

39	I6307-1	●	F48T12/D/ALTO TG	15	6500	48	9000	2500	73	Stocked
40	42310-3	● †	F40T12/NX/ALTO TG	30	3500	48	20,000	2550	88	Made To Order
	42400-2	● †	F40T12/CWSUPREME/ALTO TG	30	4100	48	20,000	2600	89	Made To Order
	42399-5	● †	F40T12/C50 SUPREME/ALTO/TG	30	5000	48	20,000	2500	90	Made To Order
	I6299-0	●	F40DX/ALTO TG	30	6500	48	20,000	2325	90	Stocked
60	I6296-6	●	F48T12/CW/HO/ALTO TG	15	4100	48	12,000	4050	59	Stocked
75	42317-8	● †	F96T12/NX/ALTO TG	15	3500	96	12,000	5000	88	Made To Order
	42316-0	● †	F96T12/CWSUPREME/ALTO TG	15	4100	96	12,000	5000	89	Made To Order
	42401-0	● †	F96T12/C50 SUPREME/ALTO/TG	15	5000	96	12,000	5000	90	Made To Order
	I6297-4	●	F96T12/DX/ALTO/TG	15	6500	96	12,000	4500	90	Stocked
110	I6301-4	●	F96T12/CW/HO-O/ALTO TG	15	4100	96	12,000	8800	59	Stocked
	I6302-2	●	F96T12/D/HO-O/ALTO TG	15	6500	96	12,000	7800	73	Stocked

Note: Made to order products require a 3 week lead time.

For the most current product information, go to the e-catalog on www.philips.com

Fluorescent symbols and footnotes located on page 40



T12 Medium Bipin

T12 Single Pin

T12 Recessed DC Bay



Fluorescent Lamps

Consumer Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T5 Fluorescent Lamps

Blister-Carded Linear Fluorescent Lamps; Miniature Bipin

4	39218-3		F4T5/SOFT WHITE	12/1	3000K	6	6000	150	120	85
6	39219-1		F6T5/SOFT WHITE	12/1	3000K	9	7500	325	260	85
8	39220-9		F8T5/SOFT WHITE	12/1	3000K	12	7500	450	360	85
	39114-4		F8T5/COOL WHITE PLUS	12/1	4100K	12	7500	400	300	59
	15756-0		F8T5/BLB UPC	25/1	—	12	7500	—	—	—
13	39221-7		F13T5/SOFT WHITE	12/1	3000K	21	7500	1000	800	85
	40974-8		F13T5/Cool White	12/1	4100K	21	7500	820	660	59

T5 Fluorescent Lamps

28	20613-6	●	F28T5/TL835 ALTO UPC 15/I	15	TL835, 3500K	46	20,000	2900	2750	85
	40963-1	●	F28T5/TL841 ALTO UPC 15/I	15	TL841, 4100K	46	25,000	2900	2750	85

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T5 Miniature Bipin



Fluorescent Lamps

Consumer Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
15	39212-6	●	F15T8/Soft White	1	3000K Individually Sleeved	18	7500	1000	900	85
	39207-6	●	F15T8/Cool White Plus	1	4100K Individually Sleeved	18	7500	870	765	59
	39108-6	●	F15T8/Cool White Plus	1	4100K Individually Sleeved	24	7500	1175	1035	59
	39226-6		F15T8/Plant	1	Individually Sleeved	18	7500	410	—	—
	15760-2		F15T8/Blacklight	6/1	Individually Sleeved	18	7500	—	—	—
17	28126-1	● †	F17T8/Soft White UPC	30	3000K 30 Pk Case	24	20,000	1400	1300	85
30	39216-7	●	F30T8/Soft White	6/1	3000K Individually Sleeved	36	7500	2500	2250	85
	28145-1	● †	F30T8/CW ALTO UPC	30	4100K Individually Sleeved	36	7500	2200	1760	59
32	40943-3	●	F32T8/SOFT WHITE ALTO	10	3000K 10 Pk Case	48	24,000	2950	2800	85
	40986-0	●	F32T8/TL735/ALTO 15/2	15/2	3500K 2 Pk	48	24,000	2700	2565	78
	20545-0	●	F32T8/TL735 ALTO 10PK	10	3500K 10 Pk Case	48	24,000	2700	2565	78
	40944-1	●	F32T8/TL741/ALTO TG	10	Safety Coated 4100K 10 Pk	48	24,000	2700	2565	78
	38351-3	●	F32T8/TL741 ALTO 10PK	10	4100K 10 Pk Case	48	24,000	2700	2565	78
	15238-9	●	F32T8/ADV841/XEW/ALTO 25W	10	4100K 10 Pk Case	48	30,000	2500	2425	85
	20278-8	●	F32T8/TL841/XLL/ALTO 10PK	10	4100K 10 Pk Case	48	36,000	2950	2800	85
	20504-7	●	F32T8/TL850 ALTO 10PK	10	5000K 10 Pk Case	48	24,000	2850	2710	82
	42294-9	● †	F32T8/Daylight Deluxe/ALTO 1/10	10	6500K 10 Pk Case	48	30,000	2750	2600	78
	28200-4	● †	F32T8/TL735/ALTO	30	3500K 30 Pk Case	48	24,000	2700	2565	78
	28197-2	● †	F32T8/TL741/ALTO	30	4100K 30 Pk Case	48	24,000	2700	2565	78
	28199-8	● †	F32T8/TL850/ALTO	30	5000K 30 Pk Case	48	24,000	2850	2710	82
	42295-5	● †	F32T8/Daylight Deluxe/ALTO 1/30	30	6500K 30 Pk Case	48	30,000	2750	2600	78
	40966-4	●	F32T8/TL850/ALTO	15/2	5000K 2 Pk	48	24,000	2850	2710	82
	75	22682-9	●	F32T8/SOFT WHITE /ALTO 36/2	36/2	3000K 2 Pk	48	24,000	2950	2800
22679-5			F32T8/COOL WHITE PLUS 36/2	36/2	4100K 2 Pk	48	24,000	2800	2660	78
42296-3		● †	F32T8/Daylight Deluxe/ALTO 36/2	36/2	6500K 2 Pk	48	30,000	2750	2600	78
42279-0		● †	F96T12/NX/ALTO 8/2	8/2	Neutral Deluxe, 3500K	96	12,000	5000	4250	88
	42277-4	● †	F96T12/CWSupreme/ALTO 1/15	1/15	Cool White Supreme, 4100K	96	12,000	5000	4250	89
	42278-2	● †	F96T12/CWSupreme/ALTO 8/2	8/2	Cool White Supreme, 4100K	96	12,000	5000	4250	89
	42398-7	● †	F96T12/C50 Natural Supreme 8/2	8/2	Natural Light, 5000K	96	12,000	4800	4350	90

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T8 Medium Bipin

T8 Single Pin



Fluorescent Lamps

Consumer Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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T12 Fluorescent Lamps

Medium Bipin, Single Pin and High Output

14	14150-7		F14T12/SOFT WHITE	6/1	3000K Individually Sleeved	15	9000	700	560	85
15	14146-5		F15T12/SOFT WHITE	6/1	3000K Individually Sleeved	18	9000	800	720	85
20	39120-1	●	F20T12/SOFT WHITE	6/1	3000K Individually Sleeved	24	9000	1350	1215	85
	39230-8		F20T12/NATURAL SUNSHINE	6/1	5000K Individually Sleeved	24	9000	850	755	92
	39227-4		F20T12/PLANT	6/1	Individually Sleeved	24	9000	600	—	—
	15761-0		F20T12/BLACKLIGHT	6/1	Individually Sleeved	24	9000	—	—	—
	40945-8	●	F20T12/CW/ALTO	10	4100K 10 Pk Case	24	9000	1200	1050	59
	38693-8	●	F20T12/SPEC 35 UPC	30	3500K 30 Pk Case	24	9000	1200	1050	75
	20550-0	●	F20T12/CW/ALTO 15/2	15/2	4100K 2 Pk	24	9000	1200	1050	59
	20554-2	●	F20T12/D/ALTO 15/2	15/2	6500K 2 Pk	24	9000	1075	960	73
30	39215-9	●	F30T12/SOFT WHITE	6/1	3000K Individually Sleeved	36	18,000	2400	2160	85
	40937-5	●	F30T12/DAYLIGHT DELUXE/ALTO	6/1	6500K Individually Sleeved	36	18,000	1950	1700	90
	38694-6	●	F30T12/SPEC 35 UPC	30	3500K 30 Pk Case	36	18,000	2350	2080	73
40	39228-2		F40T12/PLANT	6/1	Individually Sleeved	48	20,000	1600	—	—
	15762-8	●	F40T12/BLACKLIGHT	6/1	Individually Sleeved	48	20,000	—	—	—
	42275-8	●†	F40T12/SOFT WHITE DX/ALTO 1/10	1/10	Soft White Deluxe, 3000K	48	20,000	2600	2260	88
	42276-6	●†	F40T12/SOFT WHITE DX/ALTO 15/2	15/2	Soft White Deluxe, 3000K	48	20,000	2850	2710	88
	42272-5	●†	F40T12/NEUTRAL DX/ALTO 1/10	1/10	Neutral Deluxe, 3500K	48	20,000	2550	2200	88
	42273-3	●†	F40T12/NEUTRAL DX/ALTO 1/30	1/30	Neutral Deluxe, 3500K	48	20,000	2550	2200	88
	42274-1	●†	F40T12/NEUTRAL DX/ALTO 15/2	15/2	Neutral Deluxe, 3500K	48	20,000	2550	2200	88
	42267-5	●†	F40T12/CWSUPREME/ALTO 1/10	1/10	Cool White Supreme, 4100K	48	20,000	2600	2250	89
	42270-9	●†	F40T12/CWSUPREME/ALTO 1/30	1/30	Cool White Supreme, 4100K	48	20,000	2600	2250	89
	42281-6	●†	F40T12/CWSUPREME/ALTO 36/2	36/2	Cool White Supreme, 4100K	48	20,000	2600	2250	89
	42283-2	●†	F40T12/CWSUPREME/PLUS/ALTO 1/10	1/10	Cool White Supreme, 4100K	48	24,000	2600	2250	89
	42285-7	●†	F40T12/CWSUPREME/PLUS/ALTO 15/2	15/2	Cool White Supreme, 4100K	48	24,000	2600	2250	89
	42396-1	●†	F40T12/C50 NATURAL SUPREME 1/10	10	Natural Light, 5000K	48	20,000	2500	2250	92
	42395-3	●†	F40T12/C50 NATURAL SUPREME 1/30	30	Natural Light, 5000K	48	20,000	2500	2250	92
	42397-9	●†	F40T12/C50 NATURAL SUPREME 15/2	15/2	Natural Light, 5000K	48	20,000	2500	2250	92
	38752-2	●	F40T12/DAYDLX	10	6500K 10 Pk	48	20,000	2325	2025	90
22683-7	●	F40T12/DAYDELUX ALTO 36/2PK	36/2	6500K 2 Pk	48	20,000	2325	2025	90	
40938-3	●	F40T12/DAYLIGHT DELUXE/ALTO	30	6500K 30 Pk Case	48	20,000	2325	2025	90	
56	36999-1	●	F72T12/CW/ALTO UPC	15	4100K 15 Pk Case	72	12,000	4450	3900	59
60	36982-7	●	F48T12/CW/HO/UPC	15	4100K 15 Pk Case	48	12,000	4050	3500	59
75	37663-2	●	F96T12/DAYDLX/ ALTO 8/2PK	8/2	6500K 2 Pk	96	12,000	4775	4200	90
110	38176-4	●	F96T12/CW/HO-O/ALTO	15	Cool White, 4100K 15 Pk	96	12,000	8800	7650	59
	20544-3	●	F96T12/CW/HO-O/ALTO	8/2	4100K 2 Pk	96	12,000	8800	7650	59

For the most current product information, go to the e-catalog on www.philips.com
Fluorescent symbols and footnotes located on page 40



T12 Medium Bipin



T12 Single Pin



T12 Recessed DC



Fluorescent Lamps

Consumer Lamps

Watts	Product Number	Symbols, Footnotes	Ordering Code	Pkg. Qty.	Description	Nom. Length (In.)	Rated Avg. Life (Hrs.) (202)	Approx. Initial Lumens (203,204)	Design Lumens (208)	CRI
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Circline Fluorescent Lamps

T9 Circular 4-Pin Fluorescent Lamps

22	39222-5		FC8T9/SOFT WHITE	6/1	3000K Individually Sleeved	8 OD	12,000	1150	875	85
	39116-9		FC8T9/COOL WHITE PLUS	6/1	4100K Individually Sleeved	8 OD	12,000	1050	775	59
	39235-7		FC8T9/DAYDLX	6/1	6500K Individually Sleeved	8 OD	12,000	910	675	79
32	39122-7		FC12T9/SOFT WHITE	6/1	3000K Individually Sleeved	12 OD	12,000	1900	1600	85
	39117-7		FC12T9/COOL WHITE PLUS	6/1	4100K Individually Sleeved	12 OD	12,000	1800	1500	59
	26260-0		FC12T9/DAYLIGHT DELUXE	6/2	6500K Individually Sleeved	13 OD	12,000	1570	1300	79
40	39118-5		FC16T9/COOL WHITE PLUS	6/1	4100K Individually Sleeved	16 OD	12,000	2500	1975	59

U-Bent T8

T8 Medium Bipin

32	20549-2	●	FB32T8/TL735/6/ALTO UPC 10/1	1	TL70, 3500K Individually Sleeved	22%	20,000	2650	2370	78
	20548-4	●	FB32T8/TL741/6/ALTO UPC 10/1	1	TL70, 4100K Individually Sleeved	22%	20,000	2650	2370	78

Rapid Start U-Bent T12

T12 Medium Bipin

40	42280-8	†	FB40/T12/CWSupreme/6 UPC 12/1	12/1	Cool White Supreme, 4100K	22%	18,000	2300	1955	90
	42282-4	†	FB40/T12/Neutral DX/6 UPC 12/1	12/1	Neutral Deluxe, 3500K	22%	18,000	2300	1955	90
	21993-1		FB40DX/6	12	Daylight Deluxe, 6500K	22%	18,000	2250	1950	90

For the most current product information, go to the e-catalog on www.philips.com

Fluorescent symbols and footnotes located on page 40



T9 4-Pin Circular



T8 U-Bent



T12 U-Bent
Medium Bipin



Fluorescent Lamps

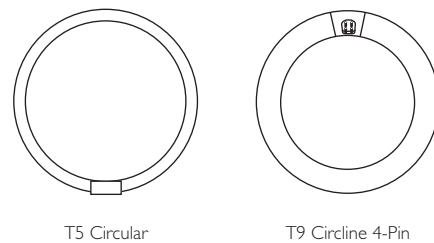
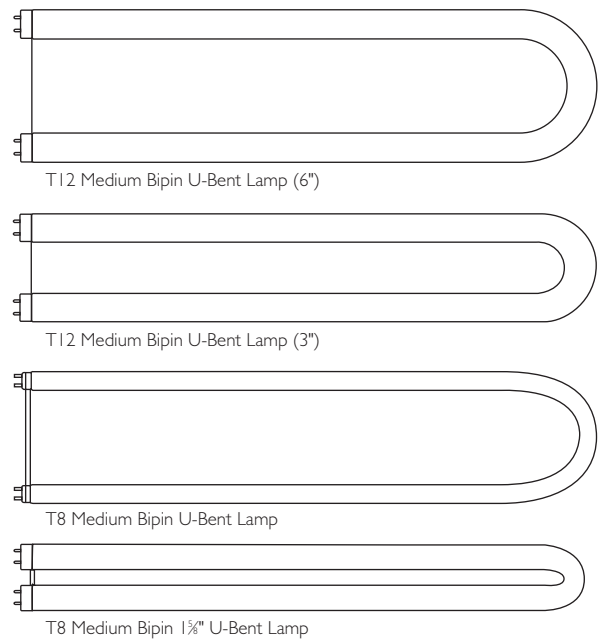
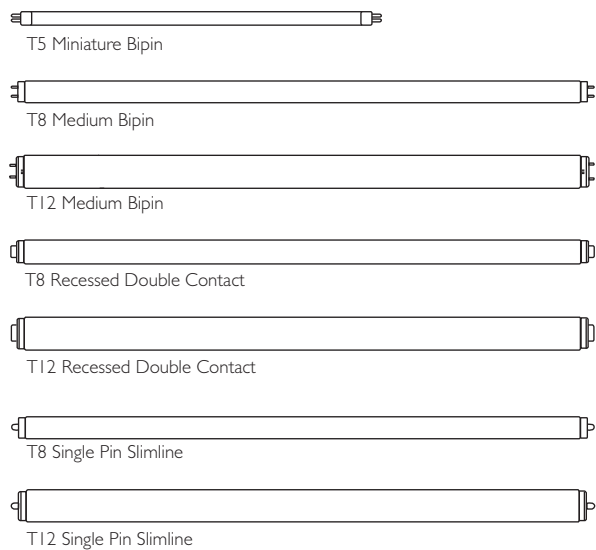
Base Types and Bulb Shapes

Base Types (Not Actual Sizes)



Bulb Shapes (Not Actual Sizes)

The size and shape of a bulb is designated by a letter or letters followed by a number. The letter indicates the shape of the bulb, while the number indicates the diameter of the bulb in eighths of an inch. For example, "T12" indicates a tubular shaped bulb having a diameter of $1\frac{1}{2}$ inches. The following illustrations show some of the more popular bulb shapes and sizes.





Fluorescent Lamps

Symbols and Footnotes

For the most current product information, go to the e-catalog on www.philips.com

□ Exclusive to Philips Lighting Company

⌘ Energy Saving Product

- This lamp is better for the environment because of its reduced mercury content. All Philips ALTO lamps give you end-of-life options, which can simplify and reduce your lamp disposal costs, depending on your state and local regulations. ALTO II Lamps have only 1.7mg of mercury.
- Ⓢ This Bulb Meets US Federal Minimum Efficiency Standard. Philips designs and manufactures fluorescent lamps to the following lighting industry standard: NEMA Standard LSD 26—Measurement Methods and Performance Tolerances for Verification Testing of General Purpose Incandescent and Fluorescent Lamps

† New since last printing

(202) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently.

(203) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions.

(204) For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.

(207) Approximate initial lumens are for 800 ma. operation. For 1000 ma. operation, lumens are approximately 10% higher and watts approximately 15% higher.

(208) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.

(212) Nominal length measured from face of base to maximum distant outside point of U. Measurement does not include base pins. Leg spacing center to center approximately 6", for /6 and 3 3/8" for /3 lamps.

(214) Econ-o-watt 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. Also they should not be operated on low power factor ballasts, reduced light or reduced current ballasts, dimming ballasts or emergency system inverter ballasts.

(223) Meets the National Energy Policy Act of 1992 exemption for outdoor or cold temperature applications only.

(226) T5 nominal lamp lengths are shorter than standard sizes. See chart on page 27 for details.

(239) Design lumens rated at 3 hours per start on Instant Start ballast.

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



Fluorescent Lamps

Cross Reference Guide

Philips	GE	OSI
F15T8/CW/24/ALTO	F24"T8/CW/4	F18T8/CW/K/24
F16T8/CW/26	F26"T8/CW/4	F18T8/CW/K/26
F17T8/CW/28	F28"T8/CW/4	F18T8/CW/K/28
F18T8/CW/30	F30"T8/CW/4	F18T8/CW/K/30
F20T12/CW/ALTO (6PK)	F20T12/CW (6 Pack)	F20T12/CW/6
F25T12/CW	F25T12/CW/33	F25T12/CW/33
F30T12/CW/RS/EW/ALTO	F30T12/CW/RS/WM	F30T12/CW/RS/SS

TL 70	Trimline	Octron
F17T8/TL741/ALTO	F17T8/SP41/RS	FO17/741
F25T8/TL741/ALTO	F25T8/SP41/RS	FO25/741
F32T8/TL741/ALTO	F32T8/SP41/RS	FO32/741
F40T8/TL741/ALTO	F40T8/SP41/RS	FO40/741
F96T8/TL741/ALTO	F96T8/SP41	FO96T8/741
FB32T8/TL741/ALTO	F32T8/SP41/U/6	FB032/741/6

TL 80		
F17T8/TL841/ALTO	F17T8/SPX41	FO17/841
F25T8/TL841/ALTO	F25T8/SPX41	FO25/841
F32T8/TL841/ALTO	F32T8/SPX41	FO32/841
F40T8/TL841/ALTO	F40T8/SPX41	FO40/841
F96T8/TL841/ALTO	F96T8/SPX41	FO96/841
FB32T8/TL841/ALTO	F32T8/SPX41/U/6	FBO32/841/6

Long Life	XL EXTRA-LIFE	XP
F17T8/TL841/PLUS/ALTO	F17T8/XL/SPX41/ECO	FO17/841/XP/ECO
F25T8/TL841/PLUS/ALTO	F25T8/XL/SPX41/ECO	FO25/841/XP/ECO
F32T8/TL841/PLUS/ALTO	F32T8/XL/SPX41/ECO	FO32/841/XP/ECO

Energy Savings	WATTMISER/ULTRAMAX	SS
F32T8/ADV841/EW/ALTO 30 Watt	F32T8/XL/SP41/WM/ECO	FO30/841/XP/SS/ECO
F32T8/ADV841/EW/ALTO 28 Watt	F28T8/XL/SP41/WM/ECO	FO28/841/XP/SS/ECO
F32T8/ADV841/XEW/ALTO 25 Watt	NA	NA
F40CW/RS/EW/ALTO	F40CW/RS/WM	F40CW/RS/SS
F40LW/RS/EW/ALTO	F40LW/RS/WM	F40LW/RS/SS
F40T12/841/ALTO	F40/SP41	F40/D41
F40T12/ADV41/ALTO	F40/SPX41	F40/D841
F96T12/CW/EW/ALTO	F96T12/CW/WM	F96T12/CW/SS
F96T12/CW/HO/EW/ALTO	F96T12/CW/HO/WM	F96T12/CW/HO/SS
F96T12/CW/HO-O/ALTO	F96T12/CW/HO/CT	F96T12/CW/HO/COLD TEMP
F96T12/CW/VHO/EW/ALTO	F96PG17/CW/WM	F96T12/CW/VHO/SS
FB40CW/6/EW/ALTO	F40CW/U/6/WM	FB40CW/6/SS
F48T12/CW/VHO	F48T12/CW/1500	F48T12/CW/VHO
F72T12/CW/VHO	F72T12/CW/1500	F72T12/CW/VHO
F96T12/CW/VHO	F96T12/CW/1500	F96T12/CW/VHO
F48T12/CW/VHO-O	F48T12/CW/1500/0	F48T12/CW/VHO/LT
F60T12/CW/VHO-O	F60T10/CW	—
F72T12/CW/VHO-O	F72T12/CW/1500/0	F72T12/CW/VHO/LT
F96T12/CW/VHO-O	F96T12/CW/1500/0	F96T12/CW/VHO/LT



Fluorescent Lamps

Cross Reference Guide

Color Cross Reference Guide

Philips	GE	OSI
SPEC		
SPEC 30 or 730	SP 30	D 30
SPEC 35 or 735	SP 35	D 35
SPEC 41 or 741	SP 41	D 41

Ultralume	Designer 800	
27 or 27U	SPX 27	27K
30U or 830	SPX 30	D 830
35U or 835	SPX 35	D 835
41U or 841	SPX 41	D 841
C50	C50	DSGN50

Light Source Color Chart

Fluorescent Color	Color Abbreviation	Atmosphere	Light Output (%) In 4' Lamp	CCT	CRI	CIE Color Coordinates	
						X	Y
Cool White	CW	Cool	100	4100K	62	0.38	0.38
Deluxe Cool White	CWX	Cool	72	4100K	89	0.376	0.367
Daylight	D	Cool Daylight	85	6500K	79	0.313	0.337
Daylight Deluxe	DX	Cool Daylight	76	6500K	84	0.314	0.341
Lite White	LW	Cool	104	4200K	51	0.376	0.386
Natural	N	Neutral	69	3700K	90	0.384	0.357
3000K, SPEC30	SPEC30	Warm	105	3000K	70	0.444	0.409
3500K, SPEC35	SPEC35	Neutral	105	3500K	73	0.41	0.395
4100K, SPEC41	SPEC41	Cool	105	4100K	70	0.382	0.385
Advantage T12 30	ADV30	Warm	118	3000K	82	0.444	0.409
Advantage T12 35	ADV35	Neutral	118	3500K	82	0.41	0.395
Advantage T12 41	ADV41	Cool	118	4100K	82	0.382	0.385
Advantage T12 50	ADV50	Daylight	118	5000K	82	0.346	0.36
Warm White	WW	Warm	102	3000K	53	0.44	0.403
Colortone 50	C50	Daylight	72	5000K	92	0.345	0.359
Colortone 75	C75	Daylight Plus	66	7500K	95	0.299	0.316
3000K, Ultralume	30U	Warm	108	3000K	85	0.444	0.409
3500K, Ultralume	35U	Neutral	108	3500K	85	0.413	0.395
4100K, Ultralume	41U	Cool	108	4100K	85	0.382	0.385
5000K, Ultralume	50U	Daylight	93	5000K	85	0.346	0.356
3000K, TL 70	TL730	Warm	93	3000K	78	0.439	0.402
3500K, TL 70	TL735	Neutral	93	3500K	78	0.41	0.395
4100K, TL 70	TL741	Cool	93	4100K	78	0.382	0.385
5000K, TL 70	TL750	Daylight	90	5000K	76	0.346	0.356
3000K, TL 80	TL830	Warm	98	3000K	86	0.439	0.402
3500K, TL 80	TL835	Neutral	98	3500K	86	0.41	0.395
4100K, TL 80	TL841	Cool	98	4100K	86	0.382	0.385
5000K, TL 80	TL850	Daylight	97	5000K	86	0.346	0.356
3000K, TL 90	TL930	Warm	66	3000K	95	0.438	0.399
5000K, TL 90	TL950	Daylight	66	5000K	98	0.344	0.355
Advantage T8 830	ADV830	Warm	105	3000K	86	0.444	0.409
Advantage T8 835	ADV835	Neutral	105	3500K	86	0.41	0.395
Advantage T8 841	ADV841	Cool	105	4100K	86	0.382	0.385
Advantage T8 850	ADV850	Daylight	105	5000K	86	0.346	0.36



Residential Applications Light Source Color Chart

Fluorescent Color	Light Output Atmosphere	Light Output (%) In 4' Lamp	CCT	CRI	Lighted Appearance CIE Color Coordinates	
					X	Y
Cool White Plus	Cool	105	4100K	62-70	0.382	0.385
Natural Sunshine	Daylight	72	5000K	92	0.345	0.359
Soft White	Warm	108	3000K	85	0.444	0.409

Correlated Color Temperature, CCT, describes the apparent color, or chromaticity, of a light source. Fluorescent light sources of 3000K, for example, Warm White or 3000K Ultralume, have a warm chromaticity, while 5000K lamps such as Colortone® 50 or 5000K Ultralume have a higher blue content and are considered to be cooler in color.

Color Rendering Index, CRI, is a relative value that indicates the color rendering quality of illumination provided by a light source. The higher the index number, the better the quality of illumination. While one lamp may have the same apparent color in CCT as another, its ability to render colors properly may be more or less than another light source. For example, Warm White 3000K 53 CRI lamps will not render colors of objects in an illuminated space as well as 3000K Ultralume 85 CRI lamps.

Both CCT and CRI should be cited together when properly describing light source color attributes.