Fluorescent lamps.

Fluorescent lamps produce 70% of artificial light throughout the world. Their excellent economy and eco-friendly characteristics make them the first choice for many applications. Fluorescent lamps combine high luminous efficacy with low power consumption. A LUMILUX® fluorescent lamp, for example, needs only around 15% of the electrical power that an ordinary light bulb needs. In terms of their lifespan they are also an excellent alternative. The average life of a LUMILUX® T5 HO is 24,000 hours, and that of a LUMILUX® T8 20,000 hours – compared with just 1000 hours for an ordinary light bulb.

Low power consumption and long life mean that fluorescent lamps are kind to the environment. Their recycling quota is another plus for the environment. More than 90% of the weight of an OSRAM fluorescent lamp can be reused for manufacturing lamps and 5 to 10% of the weight (e.g. metals) can be used in the manufacture of other products.

Contents.

First choice for durability.

The environmentally friendly LUMILUX® lamp.

LUMILUX® fluorescent lamps from OSRAM are increasingly kind to the environment. The T8 LUMILUX® lamps now contain only 3 mg of mercury, and the LUMILUX® T5 HE and HO lamps only 2.5 mg – so they fall far below the RoHS threshold of 5 mg. In systems with ECGs from OSRAM these lamps make an ideal contribution to environment protection – not only because of the very small quantities of hazardous substances but also because of their very high efficiency and long reliable life (with consequently lower consumption of resources). They are also perfect for combining with daylight dimmer systems and presence detectors. This leads to even greater energy savings.

How a fluorescent lamp works.

Fluorescent lamps are low-pressure gas discharge lamps. The glass tube is filled with an inert gas at low pressure and a small quantity of mercury. The glass wall is coated with a phosphor. At the ends of the glass tube are pasted electrodes. When an electrical charge is passed between them the mercury vapor emits UV radiation. When the UV radiation hits the phosphor the phosphor emits visible light. The color can be varied for different applications by selecting different phosphor mixes.

The long-life LUMILUX® XXT systems.

The new LUMILUX® XXT product family from OSRAM are the ideal solutions for all applications in which relamping is a difficult, time-consuming and therefore costly operation.

The service life of the XXT lamps on a preheat start ECG can remain in use for as long as 75,000 hours until they reach the recommended relamping time. Because of the low loss of light of LUMILUX® T8 fluorescent lamps, the service life of these lamps is defined as the time when 10% of the lamps have failed. OSRAM recommends replacing all the lamps at once at this time in order to save costs. Resources are also saved because a LUMILUX® XXT lasts so long that it replaces 4.1 LUMILUX® lamps.

The economical LUMILUX® T5 HE system.

HE stands for High Efficiency. With a tube diameter of only 16 mm, these lamps offer an extremely high luminous efficacy of up to 104 lm/W (at 35 °C). They are designed for ECG operation and are up to 20% more efficient than LUMILUX® T8 lamps. They also enable extremely slim and compact luminaires to be created because their volume is up to 50% less and their length 5 cm shorter than comparable T8 lamps.

The particularly bright LUMILUX® T5 HO system.

HO stands for High Output. This lamp system is particularly noted for its very high luminous flux, opening up new areas of application for the fluorescent lamp such as lighting for high-ceiling rooms. The T5 HO 80 W/840 for example has a luminous flux of up to 7000 lm (at 35 °C). HO lamps are designed for ECG operation and, like all LUMILUX® lamps from OSRAM, are ideal in systems with motion sensors and/or daylight dimmers to reduce energy consumption to a minimum.

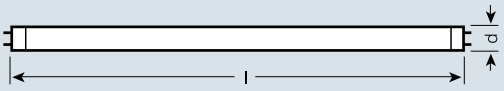
The universal T5 HO CONSTANT system.

HO CONSTANT is the first fluorescent lamp that has been optimized for a wider than usual temperature range. It is particularly suitable for cold applications (for example outdoors) and for hot luminaires (narrow recessed luminaires) because it provides more than 90% of its maximum luminous flux in an ambient temperature range of + 5 °C to + 70 °C, thereby extending the previous temperature range by 20 °C. Efficient energy-saving lighting is now possible in new areas of application.

MANUFACTURER'S LAMP CROSS REFERENCE

Osram	**Sylvania**	**Philips**	**GE**
Lumilux FH	T5 FHE Luxline Plus	TL5 HE	T5 Starcoat HE
Lumilux FQ	T5 FHO Luxline Plus	TL5 HO	T5 Starcoat HO
Basic T5	T5 STandard	TL-Mini Standard	T5 Miniature Standard
Lumilux T5	T5 Luxline Plus	TL-Mini Pro 80	T5 Miniature Polylux
Basic T8	T8 Elite	TL-D Standard	T8 Standard
Lumilux T8	T8 Premium extra	TL-D Super 80	T8 Polylux
Splinter Protection	T8 Luxline Plus Shatter-Resistant	TL-D Secura	T8 Cov-R-Guard Polylux
U-Shaped	T8 U-Shaped	TL-D U	Mod-U-Line
Circular	Circular	TL-E Standard	Circline
Biolux	Activa	-	-
Natura	Gourmet	TL-D Shoplight	-

LUMILUX® T5 HE HIGH EFFICIENCY, tubular, G5 base



Product reference	Product number	W	lm [1)2)]		Ra	TUBE d [mm]	l [mm]	[3)]
LUMILUX® T5 HE HIGH EFFICIENCY, tubular, G5 base								
FH 14 W/830 HE	4050300**591520**	14	1200	LUMILUX Warm White	80...89	16	549	20
FH 14 W/830 HE	4050300**464824**	14	1200	LUMILUX Warm White	80...89	16	549	40
FH 14 W/840 HE	4050300**591384**	14	1200	LUMILUX Cool White	80...89	16	549	20
FH 14 W/840 HE	4050300**464688**	14	1200	LUMILUX Cool White	80...89	16	549	40
FH 14 W/865 HE	4050300**591544**	14	1100	LUMILUX Cool Daylight	80...89	16	549	20
FH 21 W/830 HE	4050300**591506**	21	1900	LUMILUX Warm White	80...89	16	849	20
FH 21 W/830 HE	4050300**464800**	21	1900	LUMILUX Warm White	80...89	16	849	40
FH 21 W/840 HE	4050300**591407**	21	1900	LUMILUX Cool White	80...89	16	849	20
FH 21 W/865 HE	4050300**591322**	21	1750	LUMILUX Cool Daylight	80...89	16	849	20
FH 21 W/865 HE	4050300**464626**	21	1750	LUMILUX Cool Daylight	80...89	16	849	40
FH 28 W/830 HE	4050300**591483**	28	2600	LUMILUX Warm White	80...89	16	1149	20
FH 28 W/830 HE	4050300**464787**	28	2600	LUMILUX Warm White	80...89	16	1149	40
FH 28 W/840 HE	4050300**591421**	28	2600	LUMILUX Cool White	80...89	16	1149	20
FH 28 W/840 HE	4050300**464725**	28	2600	LUMILUX Cool White	80...89	16	1149	40
FH 28 W/865 HE	4050300**591346**	28	2400	LUMILUX Cool Daylight	80...89	16	1149	20
FH 35 W/830 HE	4050300**591469**	35	3300	LUMILUX Warm White	80...89	16	1449	20
FH 35 W/840 HE	4050300**591445**	35	3300	LUMILUX Cool White	80...89	16	1449	20
FH 35 W/840 HE	4050300**464749**	35	3300	LUMILUX Cool White	80...89	16	1449	40
FH 35 W/865 HE	4050300**591360**	35	3050	LUMILUX Cool Daylight	80...89	16	1449	20
FH 35 W/865 HE	4050300**464664**	35	3050	LUMILUX Cool Daylight	80...89	16	1449	40

The lamps are designed for internal luminaire temperatures of 30 to 40 °C; the optimum luminous flux is achieved at 35 °C.
Suitable for ECG operation only.

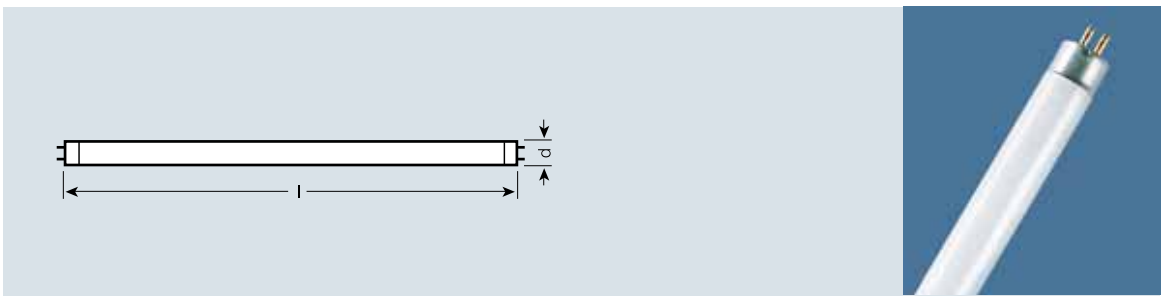
T5 HE LUMILUX® lamps (16 mm) offer excellent properties such as good luminous flux behavior, impressive economy and improved environmental friendliness. With Preheat Start ECGs, T5 HE lamps achieve an average life of 20,000 hours and a service life of 16,000 hours.

For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee.

1) These values are reached at 25 °C (acc. to IEC 60081 lumen values for fluorescent lamps must always be specified for 25 °C). These lamps offer even more luminous flux if they are operated within the luminaire at their optimum ambient temperature (see pages 4.23 to 4.32).

2) For data for reference measurements and lighting planning see pages 4.23 ff.
3) Can also be supplied in boxes of 20 with sleeves. Industrial boxes of 40 available for all lamps except LUMILUX SKYWHITE

LUMILUX® T5 HO HIGH OUTPUT, tubular, G5 base



Product reference	Product number	W	lm [1)2)]		Ra	TUBE d [mm]	l [mm]	
LUMILUX® T5 HO HIGH OUTPUT, tubular, G5 base								
FQ 24 W/830 HO	4050300**591667**	24	1750	LUMILUX Warm White	80...89	16	549	20
FQ 24 W/840 HO	4050300**591643**	24	1750	LUMILUX Cool White	80...89	16	549	20
FQ 24 W/840 HO	4050300**453477**	24	1750	LUMILUX Cool White	80...89	16	549	40
FQ 24 W/865 HO	4050300**591629**	24	1600	LUMILUX Cool Daylight	80...89	16	549	20
FQ 24 W/865 HO	4050300**453453**	24	1600	LUMILUX Cool Daylight	80...89	16	549	40
FQ 24 W/880 HO	4008321**081469**	24	1550	LUMILUX Skywhite	80...89	16	549	20
FQ 39 W/830 HO	4050300**591728**	39	3100	LUMILUX Warm White	80...89	16	849	20
FQ 39 W/840 HO	4050300**591704**	39	3100	LUMILUX Cool White	80...89	16	849	20
FQ 39 W/840 HO	4050300**453538**	39	3100	LUMILUX Cool White	80...89	16	849	40
FQ 39 W/865 HO	4050300**591681**	39	2850	LUMILUX Cool Daylight	80...89	16	849	20
FQ 39 W/865 HO	4050300**453514**	39	2850	LUMILUX Cool Daylight	80...89	16	849	40
FQ 49 W/827 HO	4050300**657172**	49	1750	LUMILUX Interna	80...89	16	549	40
FQ 49 W/830 HO	4050300**796758**	49	4300	LUMILUX Warm White	80...89	16	1449	20
FQ 49 W/840 HO	4050300**796710**	49	4300	LUMILUX Cool White	80...89	16	1449	20
FQ 49 W/865 HO	4050300**796628**	49	4100	LUMILUX Cool Daylight	80...89	16	1449	20

The lamps are designed for internal luminaire temperatures of 30 to 40 °C; the optimum luminous flux is achieved at 35 °C.
Suitable for ECG operation only.

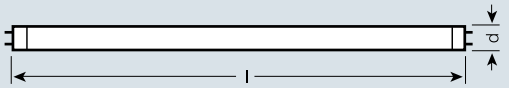
As in the case of T5 HE lamps, T5 HO fluorescent lamps produce their maximum luminous flux at 35 °C, compared with 25 °C for T8 fluorescent lamps with a tube diameter of 26 mm. Since the temperatures in the luminaire are higher than the ambient temperature of, say, 20 to 25 °C, the efficiency is at least 5% higher than for T8 fluorescent lamps. The small tube diameter of 16 mm also leads to an increase in the efficiency of the luminaire. With Preheat Start ECGs, T5 HO lamps achieve an average life of 24,000 hours and a service life of 18,000 hours.

For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee.

1) These values are reached at 25 °C (acc. to IEC 60081 lumen values for fluorescent lamps must always be specified for 25 °C). These lamps offer even more luminous flux if they are operated within the luminaire at their optimum ambient temperature (see pages 4.23 to 4.32).

2) For data for reference measurements and lighting planning see pages 4.23 ff.
3) Can also be supplied in boxes of 20 with sleeves. Industrial boxes of 40 available for all lamps except LUMILUX SKYWHITE and FQ 39 W/835 HO

LUMILUX® T5 HO HIGH OUTPUT, tubular, G5 base



Product reference	Product number	W	lm [1)2)]		Ra	TUBE d [mm]	l [mm]	[3)]
LUMILUX® T5 HO HIGH OUTPUT, tubular, G5 base								
FQ 54 W/830 HO	4050300**591605**	54	4450	LUMILUX Warm White	80...89	16	1149	20x1
FQ 54 W/830 HO	4050300**453415**	54	4450	LUMILUX Warm White	80...89	16	1149	40
FQ 54 W/840 HO	4050300**591582**	54	4450	LUMILUX Cool White	80...89	16	1149	20x1
FQ 54 W/840 HO	4050300**453392**	54	4450	LUMILUX Cool White	80...89	16	1149	40
FQ 54 W/865 HO	4050300**591568**	54	4100	LUMILUX Cool Daylight	80...89	16	1149	20x1
FQ 54 W/865 HO	4050300**453378**	54	4100	LUMILUX Cool Daylight	80...89	16	1149	40
FQ 54 W/880 HO	4008321**070425**	54	4000	LUMILUX Skywhite	80...89	16	1149	20x1
FQ 80 W/830 HO	4050300**591827**	80	6150	LUMILUX Warm White	80...89	16	1449	20x1
FQ 80 W/840 HO	4050300**591841**	80	6150	LUMILUX Cool White	80...89	16	1449	20x1
FQ 80 W/865 HO	4050300**591803**	80	5700	LUMILUX Cool Daylight	80...89	16	1449	20x1
FQ 80 W/865 HO	4050300**515113**	80	5700	LUMILUX Cool Daylight	80...89	16	1449	40

The lamps are designed for internal luminaire temperatures of 30 to 40 °C; the optimum luminous flux is achieved at 35 °C.
Suitable for ECG operation only.

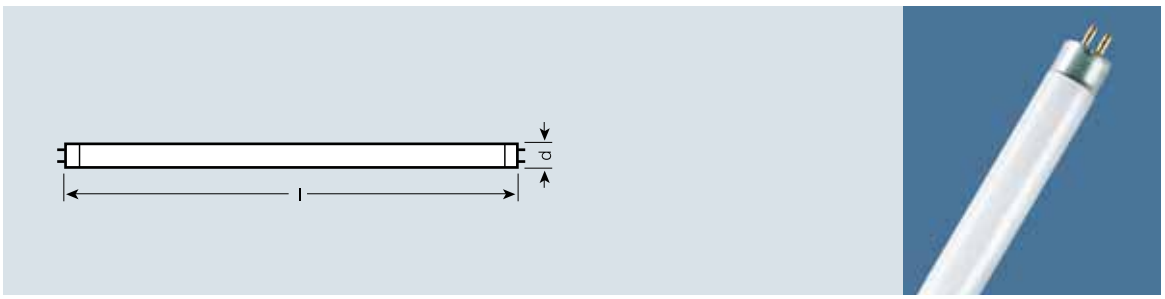
As in the case of T5 HE lamps, T5 HO fluorescent lamps produce their maximum luminous flux at 35 °C, compared with 25 °C for T8 fluorescent lamps with a tube diameter of 26 mm. Since the temperatures in the luminaire are higher than the ambient temperature of, say, 20 to 25 °C, the efficiency is at least 5% higher than for T8 fluorescent lamps. The small tube diameter of 16 mm also leads to an increase in the efficiency of the luminaire.
With Preheat Start ECGs, T5 HO lamps achieve an average life of 24,000 hours and a service life of 18,000 hours.

For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee.

1) These values are reached at 25 °C (acc. to IEC 60081 lumen values for fluorescent lamps must always be specified for 25 °C). These lamps offer even more luminous flux if they are operated within the luminaire at their optimum ambient temperature (see pages 4.23 to 4.32).

2) For data for reference measurements and lighting planning see pages 4.23 ff.
3) Can also be supplied in boxes of 20 with sleeves. Industrial boxes of 40 available for all lamps except LUMILUX SKYWHITE and FQ 39 W/835 HO

LUMILUX® T5 HO CONSTANT, tubular, G5 base



Product reference	Product number	W	lm [1)2)]		Ra	TUBE d [mm]	l [mm]	
LUMILUX® T5 HO CONSTANT, tubular, G5 base								
FQ 24 W/830 HO CONSTANT	4008321**074911**	24	1950	LUMILUX Warm White	80...89	16	549	20
FQ 24 W/840 HO CONSTANT	4008321**075451**	24	1950	LUMILUX Cool White	80...89	16	549	20
FQ 24 W/865 HO CONSTANT	4008321**075475**	24	1850	LUMILUX Cool Daylight	80...89	16	549	20
FQ 39 W/830 HO CONSTANT	4008321**075512**	39	3400	LUMILUX Warm White	80...89	16	849	20
FQ 39 W/840 HO CONSTANT	4008321**075550**	39	3400	LUMILUX Cool White	80...89	16	849	20
FQ 39 W/865 HO CONSTANT	4008321**075574**	39	3200	LUMILUX Cool Daylight	80...89	16	849	20
FQ 54 W/830 HO CONSTANT	4008321**075611**	54	4850	LUMILUX Warm White	80...89	16	1149	20
FQ 54 W/840 HO CONSTANT	4008321**075659**	54	4850	LUMILUX Cool White	80...89	16	1149	20
FQ 54 W/865 HO CONSTANT	4008321**075673**	54	4600	LUMILUX Cool Daylight	80...89	16	1149	20
FQ 80 W/830 HO CONSTANT	4008321**075819**	80	6800	LUMILUX Warm White	80...89	16	1449	20
FQ 80 W/840 HO CONSTANT	4008321**080042**	80	6800	LUMILUX Cool White	80...89	16	1449	20
FQ 80 W/865 HO CONSTANT	4008321**080066**	80	6450	LUMILUX Cool Daylight	80...89	16	1449	20

The lamps are optimized for internal luminaire temperatures of 5 °C to 70 °C; over this entire temperature range they achieve more than 90% of their optimum luminous flux, and more than 95% in the 15 °C to 60 °C range.
Suitable for ECG operation only.

T5 HO CONSTANT uses new high-temperature amalgam technology. This enables the lamps to operate with a luminous flux greater than 90% in a temperature range from +5 °C to +70 °C. This compares favorably with conventional T5 lamps (> 90% between 25 °C and 50 °C). This means that for the first time T5 technology can be used for outdoor lighting applications and in compact luminaires where temperatures can get really high. With the new optimized QTi DIM units from OSRAM the T5 HO CONSTANT lamps are approved for dimming down to 1%. For information on our dimmers see Section 9; for the latest on dimming of HO CONSTANT lamps go to www.osram.com/hoconstant.

For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee.

1) These values are reached at 25 °C (acc. to IEC 60081 lumen values for fluorescent lamps must always be specified for 25 °C). These lamps offer even more luminous flux if they are operated within the luminaire at their optimum ambient temperature (see pages 4.23 to 4.32).

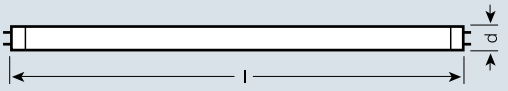
2) For data for reference measurements and lighting planning see pages 4.23 ff.

LUMILUX® T5 DE LUXE HO HIGH OUTPUT, tubular, G5 base
T5 short, tubular, G5 base

Product reference	Product number	W	lm [1)2)]		Ra	TUBE d [mm]	l [mm]	
LUMILUX® T5 DE LUXE HO HIGH OUTPUT, tubular, G5 base								
FQ 24 W/940 HO	4050300**823751**	24	1400	LUMILUX DE LUXE Cool White	› 90	16	549	15
FQ 24 W/965 HO	4050300**823775**	24	1400	LUMILUX DE LUXE Cool Daylight	› 90	16	549	15
FQ 49 W/940 HO	4050300**823874**	49	3700	LUMILUX DE LUXE Cool White	› 90	16	1449	15
FQ 49 W/965 HO	4050300**823898**	49	3700	LUMILUX DE LUXE Cool Daylight	› 90	16	1449	15
FQ 54 W/940 HO	4008321**233929**	54	3800	LUMILUX DE LUXE Cool White	› 90	16	1149	10
FQ 54 W/965 HO	4008321**233943**	54	3800	LUMILUX DE LUXE Cool Daylight	› 90	16	1149	10

Suitable for ECG operation only.

The combination of a small tube diameter of 16 mm and excellent color rendering of R_a > 90 makes this lamp ideal solution for attractive lighting tasks, for example general lighting applications in museums, public buildings and shops.



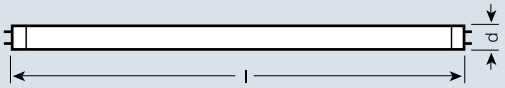
Product reference	Product number	W	lm CCG		Ra	TUBE d [mm]	l [mm]	
ENERGY SAVER (Basic) T5 short, tubular, G5 base								
L 4 W/640	4050300**008875**	4	140	Cool White	60...69	16	136	25
L 6 W/640	4050300**008899**	6	270	Cool White	60...69	16	212	25
L 8 W/640	4050300**008912**	8	385	Cool White	60...69	16	288	25
L 8 W/827	4050300**008943**	8	450	LUMILUX Interna	80...89	16	288	25
L 13 W/640	4050300**008974**	13	830	Cool White	60...69	16	517	25
L 13 W/827	4050300**008967**	13	1000	LUMILUX Interna	80...89	16	517	25
L 13 W/840	4050300**241647**	13	950	LUMILUX Cool White	80...89	16	517	25

For electronic control gear see Section 9.
For further technical data see pages 4.23 to 4.32.

1) These values are reached at 25 °C (acc. to IEC 60081 lumen values for fluorescent lamps must always be specified for 25 °C). These lamps offer even more luminous flux if they are operated within the luminaire at their optimum ambient temperature (see pages 4.23 to 4.32).

2) For data for reference measurements and lighting planning see pages 4.23 ff.

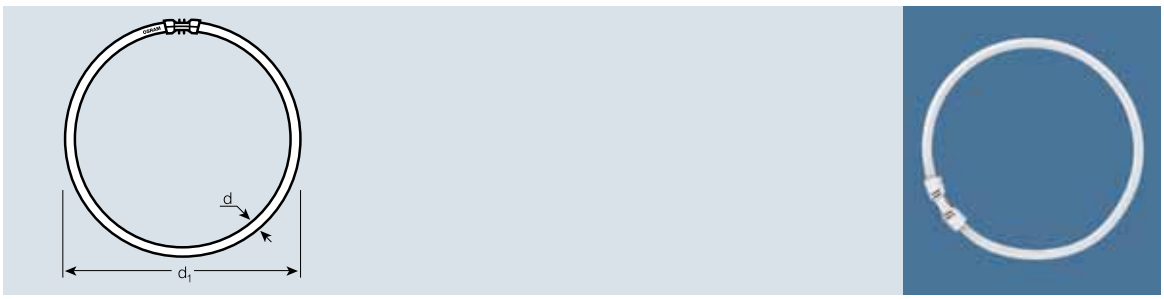
Colored T5 HE HIGH EFFICIENCY, tubular, G5 base
Colored T5 HO HIGH OUTPUT, tubular, G5 base



Product reference	Product number	W	lm		TUBE d [mm]	l [mm]	
Colored T5 HE HIGH EFFICIENCY, tubular, G5 base							
FH 14 W/60 HE	4008321**170705**	14	930	Red	16	549	10
FH 14 W/66 HE	4008321**170729**	14	1550	Green	16	549	10
FH 14 W/67 HE	4008321**170781**	14	300	Blue	16	549	10
FH 21 W/60 HE	4008321**170682**	21	1500	Red	16	849	10
FH 21 W/66 HE	4008321**170743**	21	2500	Green	16	849	10
FH 21 W/67 HE	4008321**170804**	21	500	Blue	16	849	10
FH 28 W/60 HE	4008321**161840**	28	2100	Red	16	1149	10
FH 28 W/66 HE	4008321**161864**	28	3500	Green	16	1149	10
FH 28 W/67 HE	4008321**161888**	28	700	Blue	16	1149	10
FH 35 W/60 HE	4008321**133458**	35	2650	Red	16	1449	10
FH 35 W/66 HE	4008321**161925**	35	4450	Green	16	1449	10
FH 35 W/67 HE	4008321**161949**	35	875	Blue	16	1449	10
Colored T5 HO HIGH OUTPUT, tubular, G5 base							
FQ 24 W/60 HO	4008321**171009**	24	1500	Red	16	549	10
FQ 24 W/66 HO	4008321**170941**	24	2500	Green	16	549	10
FQ 24 W/67 HO	4008321**170880**	24	525	Blue	16	549	10
FQ 39 W/60 HO	4008321**170989**	39	2450	Red	16	849	10
FQ 39 W/66 HO	4008321**170927**	39	4100	Green	16	849	10
FQ 39 W/67 HO	4008321**170866**	39	850	Blue	16	849	10
FQ 54 W/60 HO	4008321**170965**	54	3450	Red	16	1149	10
FQ 54 W/66 HO	4008321**170903**	54	6300	Green	16	1149	10
FQ 54 W/67 HO	4008321**170842**	54	1200	Blue	16	1149	10
FQ 80 W/60 HO	4008321**161963**	80	4525	Red	16	1449	10
FQ 80 W/66 HO	4008321**161987**	80	7650	Green	16	1449	10
FQ 80 W/67 HO	4008321**162007**	80	1550	Blue	16	1449	10

Suitable for ECG operation only.

LUMILUX® T5 FC® FLUORESCENT CIRCLINE, 2Gx13 base



Product reference	Product number	W	lm		Ra	⌀d1 [mm]	TUBE d [mm]	
LUMILUX® T5 FC® FLUORESCENT CIRCLINE, 2Gx13 base								
FC 22 W/830	4050300**528489**	22	1800	LUMILUX Warm White	80...89	225	16	12
FC 22 W/840	4050300**528465**	22	1800	LUMILUX Cool White	80...89	225	16	12
FC 40 W/830	4050300**528540**	40	3200	LUMILUX Warm White	80...89	300	16	12
FC 40 W/840	4050300**528526**	40	3200	LUMILUX Cool White	80...89	300	16	12
FC 55 W/830	4050300**528601**	55	4200	LUMILUX Warm White	80...89	300	16	12
FC 55 W/840	4050300**528588**	55	4200	LUMILUX Cool White	80...89	300	16	12

Suitable for ECG operation only.

Designers and architects are looking for suitable alternatives to standard strip lighting. They appreciate round luminaires that will blend in perfectly with their surroundings. OSRAM has therefore taken its super bright LUMILUX® T5 HO lamps and developed the circular LUMILUX® T5 FC® fluorescent lamp ("Fluorescent Circline") in two diameters.

An all-round solution whichever way you look at it

The innovative solution for all lighting designers and architects who want to get away from the restrictions of strip lighting and rectangular grid systems. The circular LUMILUX® T5 FC® system paves the way for unconventional high-intensity circular luminaires with so many different uses for the FC 22 W, 40 W and 55 W lamps. The circular shape of the LUMILUX® T5 FC® fluorescent lamp enables designers to create round luminaires that emit light in all directions.

Slim lamp, low-profile luminaire

The tube diameter is just 16 mm so the luminaires can be unusually shallow and compact and offer high levels of efficiency. Many manufacturers have taken up the idea of circular lighting with the LUMILUX® T5 FC® system from OSRAM and launched a wide variety of innovative luminaires with unconventional designs and optimum efficiency on the market.

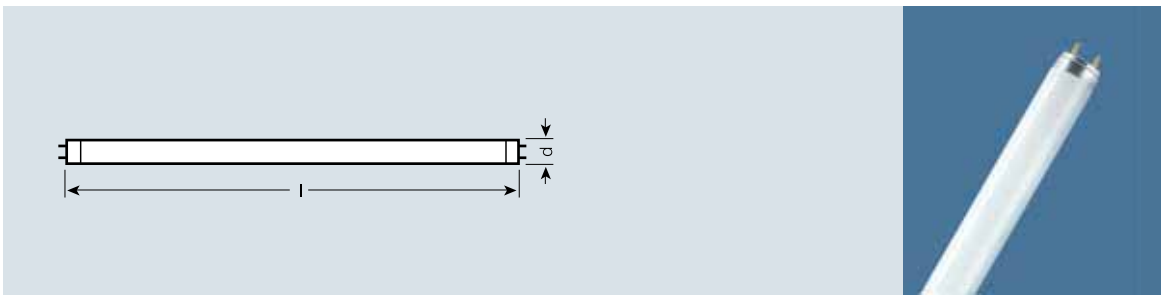
LUMILUX® T8, tubular, G13 base

Product reference	Product number	W	lm		Ra	TUBE d [mm]	l [mm]	
LUMILUX® T8, tubular, G13 base								
L 10 W/640	4050300**179346**	10	330	Cool White	60...69	26	470	25
L 15 W/10 (765)	4050300**179384**	15	740	LUMILUX Cool Daylight	70...79	26	437	25
L 15 W/20 (640)	4050300**179407**	15	850	LUMILUX Cool White	60...69	26	437	25
L 15 W/830	4008321**446028**	15	950	LUMILUX Warm White	80...89	26	438	25
L 15 W/840	4050300**446004**	15	950	LUMILUX Cool White	80...89	26	438	25
L 16 W/827	4050300**446080**	16	1250	LUMILUX Interna	80...89	26	720	25
L 16 W/840	4050300**446066**	16	1250	LUMILUX Cool White	80...89	26	720	25
L 18 W/830	4008321**012036**	18	1350	LUMILUX Warm White	80...89	26	590	25
L 18 W/835	4050300**447964**	18	1350	LUMILUX White	80...89	26	590	25
L 18 W/840	4008321**056801**	18	1350	LUMILUX Cool White	80...89	26	590	25
L 18 W/850	4008321**164933**	18	1350	LUMILUX Daylight	80...89	26	590	25
L 18 W/865	4050300**794501**	18	1300	LUMILUX Cool Daylight	80...89	26	590	25
L 18 W/880	4008321**027962**	18	1300	LUMILUX Skywhite	80...89	26	590	25
L 23 W/840	4050300**446240**	23	1900	LUMILUX Cool White	80...89	26	970	25
L 30 W/830	4050300**518053**	30	2400	LUMILUX Warm White	80...89	26	895	25
L 30 W/840	4008321**013743**	30	2400	LUMILUX Cool White	80...89	26	895	25
L 30 W/865	4008321**013767**	30	2350	LUMILUX Cool Daylight	80...89	26	895	25
L 36 W/827[1)]	4050300**517919**	36	3350	LUMILUX INTERNA	80...89	26	1200	25
L 36 W/830[1)]	4008321**012098**	36	3350	LUMILUX Warm White	80...89	26	1200	25
L 36 W/835	4050300**447988**	36	3350	LUMILUX White	80...89	26	1200	25
L 36 W/840	4050300**795133**	36	3350	LUMILUX Cool White	80...89	26	1200	25
L 36 W/840-1	4050300**518091**	36	3100	LUMILUX Cool White	80...89	26	970	25
L 36 W/865	4008321**013446**	36	3250	LUMILUX Cool Daylight	80...89	26	1200	25
L 36 W/880	4008321**002976**	36	2900	LUMILUX SKYWHITE	80...89	26	1200	25
L 58 W/827	4008321**013781**	58	5200	LUMILUX INTERNA	80...89	26	1500	25
L 58 W/830	4008321**013804**	58	5200	LUMILUX Warm White	80...89	26	1500	25
L 58 W/840	4008321**013828**	58	5200	LUMILUX Cool White	80...89	26	1500	25
L 58 W/850	4008321**164971**	58	5100	LUMILUX Daylight	80...89	26	1500	25
L 58 W/865	4008321**013842**	58	5000	LUMILUX Cool Daylight	80...89	26	1500	25
L 58 W/880	4008321**002990**	58	4900	LUMILUX SKYWHITE	80...89	26	1500	25

Fluorescent lamps in LUMILUX® and BASIC light colors offer up to 10% energy savings compared with previous fluorescent lamps with a 38 mm tube diameter. They are designed to operate with conventional control gear and starters or with QUICKTRONIC® electronic control gear. If used in starter circuits, these lamps can operate with standard control gear and recommended compensation capacitors.

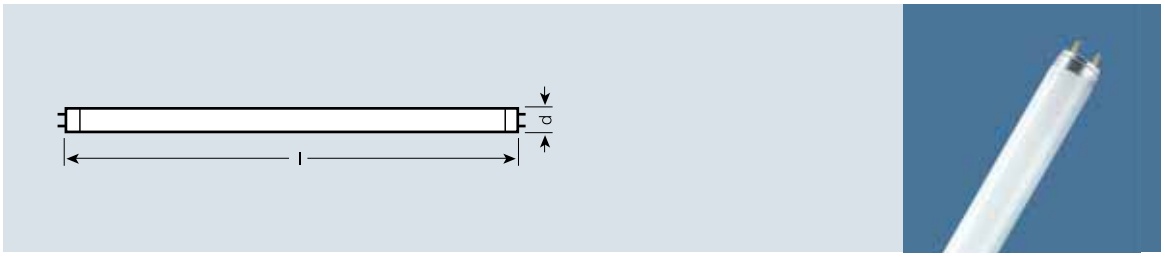
1) Also available in industrial packs (… IVP) for bulk orders. Contains 30 lamps

LUMILUX® XXT T8, tubular, G13 base
LUMILUX® DE LUXE T8, tubular, G13 base



Product reference	Product number	W	lm		Ra	TUBE d [mm]	l [mm]	
LUMILUX® XXT T8, tubular, G13 base								
L 18 W/830 XXT	4008321**923646**	18	1350	LUMILUX Warm White	80...89	26	590	25
L 18 W/840 XXT	4008321**923660**	18	1350	LUMILUX Cool White	80...89	26	590	25
L 18 W/865 XXT	4008321**923684**	18	1250	LUMILUX Cool Daylight	80...89	26	590	25
L 36 W/830 XXT	4008321**923707**	36	3250	LUMILUX Warm White	80...89	26	1200	25
L 36 W/840 XXT	4008321**923721**	36	3250	LUMILUX Cool White	80...89	26	1200	25
L 36 W/865 XXT	4008321**923745**	36	3150	LUMILUX Cool Daylight	80...89	26	1200	25
L 58 W/830 XXT	4008321**923769**	58	5150	LUMILUX Warm White	80...89	26	1500	25
L 58 W/840 XXT	4008321**923783**	58	5150	LUMILUX Cool White	80...89	26	1500	25
L 58 W/865 XXT	4008321**923806**	58	5000	LUMILUX Cool Daylight	80...89	26	1500	25

OSRAM now offers the new LUMILUX® T8 XXT for lighting systems with extreme relamping demands. These lamps provide maximum reliability and a service life* of up to 75,000 hours, extending the maintenance cycle even further**. Replacement costs are reduced to a minimum, and the use of resources is cut even more because the service life* of a LUMILUX® T8 XXT is 4.1 times greater than that of a normal LUMILUX®.
For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee.

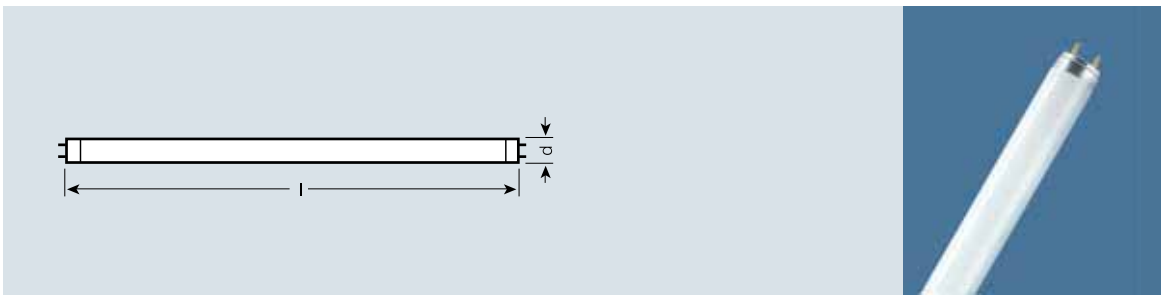


Product reference	Product number	W	lm		Ra	TUBE d [mm]	l [mm]	
LUMILUX® DE LUXE T8, tubular, G13 base								
L 18 W/940	4050300**011257**	18	1200	LUMILUX DE LUXE Cool White	› 90	26	590	25
L 36 W/930	4050300**011318**	36	2700	LUMILUX DE LUXE Warm White	› 90	26	1200	25
L 36 W/940	4050300**011301**	36	2900	LUMILUX DE LUXE Cool White	› 90	26	1200	25
L 36 W/954	4050300**018263**	36	2850	LUMILUX DE LUXE Daylight	› 90	26	1200	25
L 58 W/940	4050300**011356**	58	4600	LUMILUX DE LUXE Cool White	› 90	26	1500	25

LUMILUX® DE LUXE lamps from OSRAM offer excellent color rendering of more than 90 and are extremely efficient. They are ideal for all applications in which color rendering plays an important role and high luminous flux is needed, such as in schools, offices, training rooms and retail outlets.

* Because of the low loss of light of XXT lamps the service life of these lamps is defined as the time when 10% of the lamps have failed.
** Please note however that the luminaire must be cleaned regularly to avoid loss of luminous flux.

BIOLUX® T8, tubular, G13 base
FLUORA® T8, tubular, G13 base



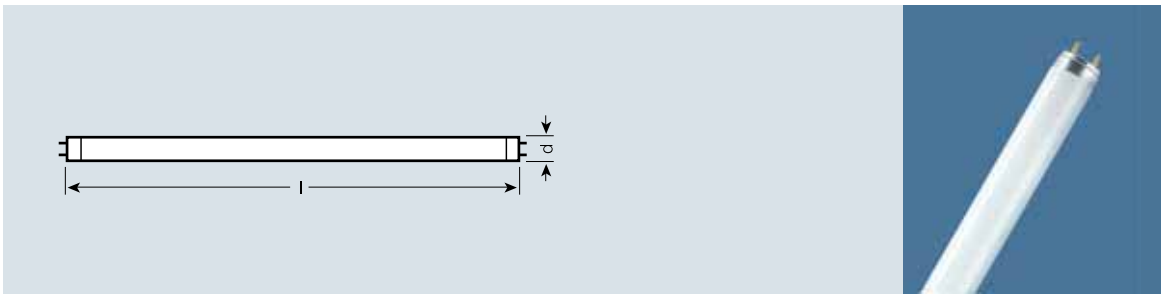
Product reference	Product number	W	lm		Ra	TUBE d [mm]	l [mm]	
BIOLUX® T8, tubular, G13 base								
L 36 W/965	4050300**270821**	36	2300	Biolux	› 90	26	1200	10

For QUICKTRONIC® electronic control gear see Section 9.

BIOLUX® – light that gives your animals a feeling of well-being

BIOLUX® fluorescent lamps from OSRAM emit a daylight white light that gives your animals a sense of natural sunlight. Reptiles, tortoises and the like in particular need a daylight spectrum to remain healthy where there is little natural daylight.

Because of its spectral distribution, the light from BIOLUX® lamps is therefore excellent for raising small animals (birds, fish, etc.). For special light colors see page 4.32.



Product reference	Product number	W	lm		TUBE d [mm]	l [mm]	
FLUORA® T8, tubular, G13 base							
L 18 W/77	4050300**004235**	18	550	FLUORA	26	590	10
L 36 W/77	4050300**003184**	36	1400	FLUORA	26	1200	10

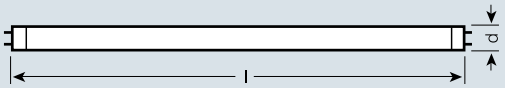
For QUICKTRONIC® electronic control gear see Section 9.

FLUORA® – light for healthier plants and for aquariums

The light from FLUORA® fluorescent lamps has an emphasis at the blue and red ends of the spectrum so it is ideal for promoting photo-biological processes in plants. The result is healthier plants.

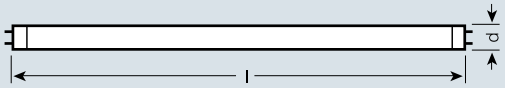
FLUORA® lamps are used wherever plants do not receive enough natural daylight, for example over feature planting in shopping centers, offices, hotels and the home, and also for florists' shops and greenhouses.

Colored T8, tubular, G13 base
OSRAM NATURA® T8, tubular, G13 base



Product reference	Product number	W	lm		TUBE d [mm]	l [mm]	
Colored T8, tubular, G13 base							
L 18 W/60	4050300**024219**	18	900	Red	26	590	10
L 18 W/62	4008321**232700**	18	970	Yellow	26	590	12
L 18 W/66	4050300**024226**	18	1800	Green	26	590	10
L 18 W/67	4050300**024233**	18	400	Blue	26	590	10
L 30 W/67	4050300**366920**	30	600	Blue	26	895	10
L 36 W/60	4050300**024240**	36	2400	Red	26	1200	10
L 36 W/62	4008321**232724**	36	2300	Yellow	26	1200	12
L 36 W/66	4050300**024257**	36	4400	Green	26	1200	10
L 36 W/67	4050300**024264**	36	900	Blue	26	1200	10
L 58 W/67	4050300**024295**	58	1600	Blue	26	1500	10

For QUICKTRONIC® electronic control gear see Section 9.

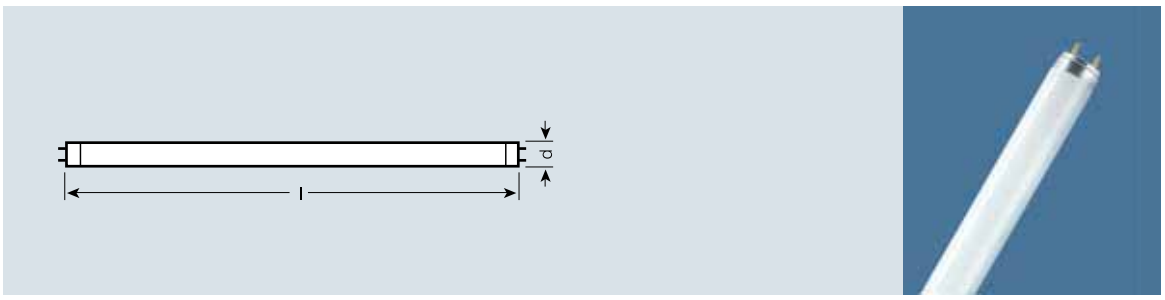


Product reference	Product number	W	lm		TUBE d [mm]	l [mm]	
OSRAM NATURA® T8, tubular, G13 base							
L 15 W/76	4050300**108287**	15	500	NATURA	26	438	10
L 18 W/76	4050300**010519**	18	750	NATURA	26	590	10
L 30 W/76	4050300**010540**	30	1300	NATURA	26	895	10
L 36 W/76	4050300**010526**	36	1800	NATURA	26	1200	10
L 36 W/76-1	4050300**010557**	36	1600	NATURA	26	970	10
L 58 W/76	4050300**010533**	58	2850	NATURA	26	1500	10

For QUICKTRONIC® electronic control gear see Section 9.

OSRAM NATURA® – good shop light for butchers, bakers and even candlestick makers
According to DIN 10504, the light color of OSRAM NATURA® is particularly suitable for the food sector. The specially tailored spectral distribution of the lamp ensures that food is presented in an appetizing light. Thanks to their specially matched spectrum, fluorescent lamps with light color 76 make meat, sausages, bread, cakes and other foods look fresh and appealing without disguising poor produce.

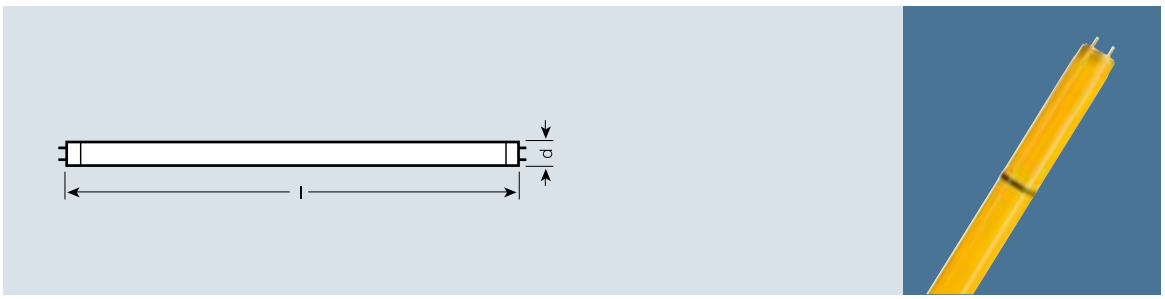
LUMILUX® COLOR control T8, tubular, G13 base
LUMILUX® CHIP control® T8, tubular, G13 base



Product reference	Product number	W	lm		Ra	TUBE d [mm]	l [mm]	
LUMILUX® COLOR control T8, tubular, G13 base								
L 18 W/940 UVS	4008321**050014**	18	1150	Cool White	› 90	26	590	12
L 36 W/940 UVS	4008321**050038**	36	2750	Cool White	› 90	26	1200	12
L 58 W/940 UVS	4008321**050090**	58	4350	Cool White	› 90	26	1500	12

LUMILUX® COLOR control:
The excellent color rendering of these lamps makes them ideal for lighting systems in museums, exhibitions, art galleries, trade fairs and retail outlets. UV radiation can lead to bleaching, which would be a particular problem in these applications.

LUMILUX® COLOR control is therefore enclosed in a plastic sleeve specially developed for OSRAM that reduces UV emissions from the lamp by 99%. This complies with the requirements of EN 12464-1 of course.



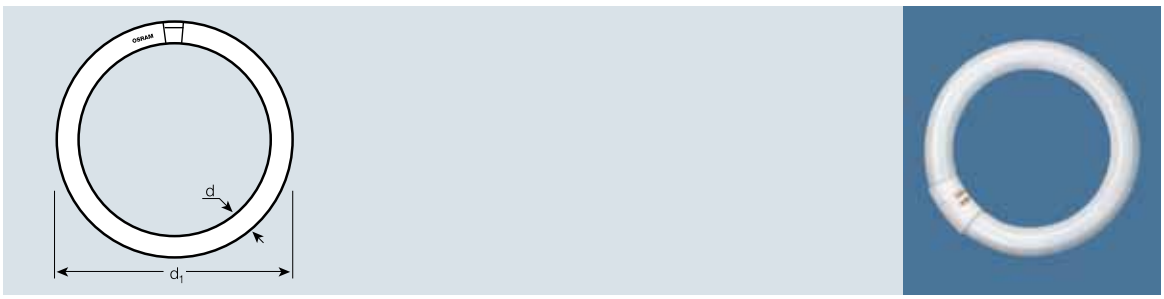
Product reference	Product number	W	lm		TUBE d [mm]	l [mm]	
LUMILUX® CHIP control® T8, tubular, G13 base							
L 18 W/62	4008321**232700**	18	970	Yellow	26	590	12
L 36 W/62	4008321**232724**	36	2300	Yellow	26	1200	12
L 58 W/62	4008321**232748**	58	4080	Yellow	26	1500	12

Approved for use in enclosed luminaires.

LUMILUX® CHIP control®: ideal for semiconductor fabrication plants and areas where UV radiation and light from the blue end of the spectrum must be reduced to the absolute minimum. For example, in print shops during the exposure of printing plates and also for lighting systems in which splinter protection and good color effects are required.

NEW: Compared with earlier versions of these lamps, the sleeve material is even more heat-resistant and can therefore be used in thermally critical luminaires with high wattages. We recommend replacing lamps with protective sleeves when they reach their average life. The new version of CHIP control is identified by a green marker ring. CHIP control lamps are available immediately also as T5 HE and T5 HO

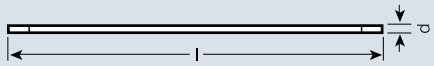
T9 C circular, G10Q base



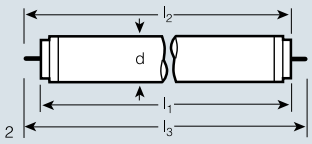
Product reference	Product number	W	lm CCG		R_a	d_1 [mm]	TUBE d [mm]	
T9 C circular, G10Q base								
LUMILUX version								
L 22 W/840 C	4050300**150691**	22	1250	LUMILUX Cool White	80…89	216	29	12
L 32 W/840 C	4008321**150639**	32	2100	LUMILUX Cool White	80…89	305	29	12
L 40 W/840 C	4050300**014845**	40	2800	LUMILUX Cool White	80…89	406	29	12
BASIC version								
L 22 W/640 C	4050300**175706**	22	1100	Cool White	60…69.	216	29	12
L 22 W/765 C	4050300**207407**	22	1000	Cool Daylight	70…79	216	29	12
L 32 W/640 C	4050300**175669**	32	1900	Cool White	60…69	305	29	12
L 32 W/765 C	4050300**175645**	32	1600	Cool Daylight	70…79	305	29	12
L 40 W/640 C	4008321**201355**	40	2450	Cool White	60…69	406	29	12
L 40 W/765 C	4008321**201331**	40	2200	Cool Daylight	70…79	406	29	12

Because of their shape, these fluorescent lamps provide omni lighting. Ideal for use in round and rectangular luminaires.

LUMILUX® T2 FM, tubular W4.3 x 8.5d base
XL T12, tubular, Fa6 base



Product reference	Product number	W	lm ECG [1)]		Ra	TUBE d [mm]	l [mm]	
LUMILUX® T2 FM, tubular W4.3 x 8.5d base								
FM 6 W/730	4008321**157546**	6	330	Warm White	70...79	<7	218,3	20
FM 6 W/740	4008321**157577**	6	330	Cool White	70...79	<7	218,3	20
FM 6 W/760	4008321**157607**	6	310	Cool Daylight	70...79	<7	218,3	20
FM 8 W/730	4008321**157638**	8	540	Warm White	70...79	<7	319,9	20
FM 8 W/740	4008321**157669**	8	540	Cool White	70...79	<7	319,9	20
FM 8 W/760	4008321**157690**	8	500	Cool Daylight	70...79	<7	319,9	20
FM 11 W/730	4008321**157720**	11	750	Warm White	70...79	<7	421,5	20
FM 11 W/740	4008321**157751**	11	750	Cool White	70...79	<7	421,5	20
FM 11 W/760	4008321**157782**	11	680	Cool Daylight	70...79	<7	421,5	20
FM 13 W/730	4008321**157836**	13	930	Warm White	70...79	<7	523,1	20
FM 13 W/740	4008321**157867**	13	930	Cool White	70...79	<7	523,1	20
FM 13 W/760	4008321**157898**	13	860	Cool Daylight	70...79	<7	523,1	20

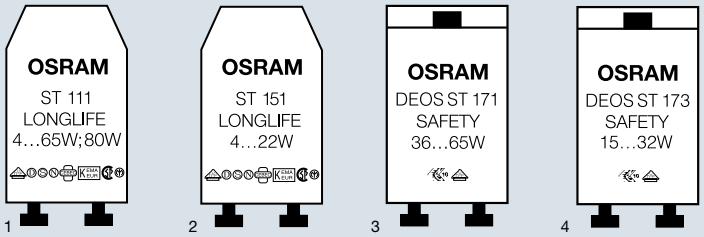


Product reference	Product number	W	lm CCG		Ra	TUBE d [mm]	l [mm]	
XL-type T12, tubular, Fa6 base								
L 20 W/640 XL	4050300**014630**	20	940	Cool White	60...69	38	574	25
L 40 W/640 XL	4050300**014654**	40	2300	Cool White	60...69	38	1184	25
L 65 W/640 XL	4050300**014616**	65	4400	Cool White	60...69	38	1484	25

For long-life explosion-proof luminaires in type of protection “increased safety”.

1) Max. at 33 °C ± 2 °C

Starters



Product reference	Product number	For fluorescent lamps 4 6 8 W	10 13 W	15 16 W	18 20 W	22 W	30 32 W	38 W	36 40 W	58 65 80 W	100 115 140 W	For OSRAM DULUX® L 18 24 W	36 W	l [mm]	No.	
For single operation on 240 V ac																
ST 111 LONGLIFE[5]	4050300**854045**	X	X	X	X	X	X	X	X	X		X	X	40,3	1	25/400
ST 111 LONGLIFE BLI2[5]	4050300**064000**	X	X	X	X	X	X	X	X	X		X	X	40,3	1	10xBLI2
For series operation on 240 V ac																
ST 111 /FG-4P/ 220-240 UNV1[3) 5)]	4008321**002273**	X	X	X	X	X	X	X	X	X		X	X	21	1	10x200
ST 151 longlife	4050300**092638**	X[2)]		X[2)]	X[2)]	X[2)]						X[2)4)]		40,3	2	10xBLI2
ST 171 SAFETY/ 220-240 UNV1[1)]	4050300**854106**							X	X	X[1)]			X	40,3	3	25/200
ST 173/ 220-240 UNV1	4050300**854120**			X	X	X	X					X		40,3	4	25/200

OSRAM high-quality starters ST 111 LONGLIFE, ST 151 LONGLIFE, ST 171 SAFETY and ST 173 SAFETY.

OSRAM starters ignite every time, reliably and quickly. And they are gentle on lamps. Each starter is subjected to strict manufacturing and quality control tests.

All starters have a self-extinguishing insulated casing made of Makrolon and meet the conditions laid down for protection class II.

They are equipped with a special compensating capacitor (foil winding capacitor), are VDE approved and carry the and CE marks.

To ensure reliable ignition we recommend that you also replace the starter when you replace the lamp – except in the case of DEOS® SAFETY.

- Switching life from ≥10,000 switching operations to ≥ 60,000 switching operations in inductive mode.
- 20% longer life with fluorescent lamps.

Features and benefits of DEOS® ST 171 SAFETY and DEOS® ST 173 SAFETY:

- DEOS® ST 171 SAFETY and DEOS® ST 173 SAFETY are safety starters.
- DEOS® ST 171 SAFETY and DEOS® ST 173 SAFETY are designed to operate with conventional control gear (CCG) and low-loss gear (LLG).
- They reliably disconnect burnt-out or faulty lamps under inductive or capacitive operating conditions.
- They are instantly ready for operation when the red button is pressed in (there must be an audible click).
- The automatic cut-out circuit protects the choke and the starter itself.
- Their service life is four times that of conventional starters.
- To ensure reliable ignition and operation the DEOS® ST should be replaced after every four lamp replacements.
- Temperature range for reliable cut-out: –20 °C to +80 °C.

1) Except L 65 W/… UK 570 mm L 80 W/…
2) Also for single operation on 110/127 V ac
3) Temperature range -20 °C to +100 °C
4) Not suitable for OSRAM DULUX L and F 24 W in series operation
5) Not suitable for L 70 W

Fluorescent lamps
Which light color for which application?

Area of application	SKY WHITE 880 8000 K	Cool Daylight 865 6500 K	Cool Daylight 965 6500 K	Daylight 954 5400 K	Cool White 840 4000 K	Cool White 940 4000 K	White 835 3500 K	Warm White 830 3000 K	Warm White 930 3000 K	INTERNA® 827 2700 K
Offices and administrative buildings										
Offices, corridors	●				●		●	●		
Meeting rooms	●						●	●		●
Industry, trade and commerce										
Electrical industry		●			●					
Textile industry		●	●	●						
Woodworking industry		●	◉	◉	●					
Graphics industry, laboratories		◉	●	●	◉					
Color matching			●	●		●				
Warehouses, transport depots					●					
Schools and lecture rooms										
Auditoriums, classrooms, kindergartens	●		◉		●		●	●		●
Libraries, reading rooms					◉		●	●		●
Retail premises										
Food, general		◉			●		●	●		●
Bread and cakes										●
Refrigerated counters and deepfreezers		●								
Dairy goods, fruit, vegetables										●
Fish										●
Meat, sausages			◉							
Textiles, leather goods		●	●	●	◉	●	◉	●	●	●
Furniture, carpets							●	●	●	●
Sporting goods, toys, stationery					●	◉	●	●	◉	
Photo, watches, jewellery		◉	◉	◉	●	◉	●	●	◉	
Cosmetics, hairdressers					◉	●	◉	◉	●	◉
Flowers		◉	◉	◉	●	●			●	◉
Department stores, supermarkets	●	◉	●		◉	●		◉	●	●
Public buildings										
Restaurants, inns, hotels					●		●	●		●
Theatres, concert halls, foyers										●
Exhibition rooms										
Exhibition halls and trade fairs	●				●			●		
Sports and multi-purpose halls	●				●		●	●		
Art galleries, museums		◉		●	◉	●			●	
Hospital and surgeries										
Consulting and treatment rooms	●	◉	●	●		●				
Hospital wards, waiting rooms	●		●			●			●	
Homes										
Living rooms										●
Kitchens, bathrooms, hobby rooms, cellars		●			●				●	●
Outdoor lighting, streets, paths, pedestrian zones					●			●		

● Recommended ◉ Optional as required

Light colors and color rendering properties of fluorescent lamps to EN 12464-1

Kelvin	Name	R_a 60…69	R_a 70…79	R_a 80…89	R_a 90…99
2700 K	INTERNA			827	
3000 K	Warm White			830	930
3500 K	White			835	
4000 K	Cool White	640		840	940
5400 K	Daylight				954/950
6500 K	Cool Daylight		765	865	965
8000 K	SKYWHITE			880	

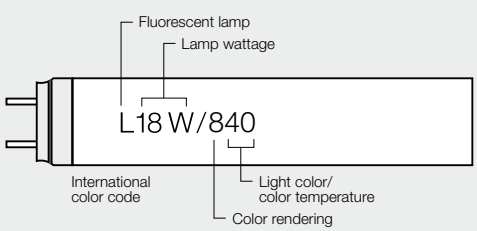
Type designation.

International color code:
The first digit stands for color rendering
9 = color rendering R_a 90 to 100
8 = color rendering R_a 80 to 89
7 = color rendering R_a 70 to 79
6 = color rendering R_a 60 to 69

The next digits stand for the light color/ color temperature, e.g. for LUMILUX®
27 = LUMILUX INTERNA® (2700 K)
30 = LUMILUX® Warm White (3000 K)
35 = LUMILUX® White (3500 K)
40 = LUMILUX® Cool White (4000 K)
54 = LUMILUX® Daylight (5400 K)
65 = LUMILUX® Cool Daylight (6500 K)
80 = LUMILUX SKYWHITE® (8000 K)

"Old" light color codes in the OSRAM range

Old		New	R_a	K
10	Cool Daylight	765	70…79	6500
11	Cool Daylight	865	80…89	6500
12	Daylight	954	> 90	5400
20	Cool White	640	60…69	4000
21	Cool White	840	80…89	4000
22	Cool White	940	> 90	4000
26	White	835	80…89	3500
31	Warm White	830	80…89	3000
32	Warm White	930	> 90	3000
41	INTERNA	827	80…89	2700



Light colors

LUMILUX®
Color 880 LUMILUX SKYWHITE®
Color 865 LUMILUX® Cool Daylight
Color 840 LUMILUX® Cool White
Color 835 LUMILUX® White
Color 830 LUMILUX® Warm White
Color 827 LUMILUX INTERNA®

LUMILUX® colors combine very good color rendering and high luminous efficacy in a single lamp.
Major benefits:
- Reduced power consumption
- Luminous efficacy up to 104 lm/W (T5 HE)
- Excellent color rendering to EN 12464 (R_a 80 to 89).

For LUMILUX® light colors it is best to use electronic control gear as this is the best way to make economic use of the minimal drop in luminous flux. This also applies to LUMILUX® DE LUXE.

T5 LUMILUX® FH, FQ and FC lamps can only be operated on ECGs.

Color 880 SKYWHITE contains an increased blue component which is particularly energizing. Ideal for offices and public buildings.

LUMILUX® DE LUXE
Color 965 LUMILUX® DE LUXE Cool Daylight
Color 954 LUMILUX® DE LUXE Daylight
Color 940 LUMILUX® DE LUXE Cool White
Color 930 LUMILUX® DE LUXE Warm White

The LUMILUX® DE LUXE light colors meet the highest demands with regard to natural color rendering (R_a > 90) and offer good luminous efficacy at the same time.

The daylight color 954 is ideal for print shops, dental surgeries, dental laboratories, slide presentations and clothing stores.

Special light colors
The red component of 76 NATURA is closely matched to other color components. This results in natural color rendering and makes items such as meat, sausages, delicatessen products, vegetables and flowers appear fresh and natural.

77 FLUORA® has been specially designed for plants and aquariums. Its light has an emphasis at the blue and red ends of the spectrum. It is therefore particularly good at promoting photo-biological processes.

965 BIOLUX®
Because of its spectral distribution, the light from OSRAM BIOLUX® lamps is also excellent for raising small animals (birds, fish, reptiles, etc.).

Colors 60 red, 66 green and 67 blue are ideal for creating decorative effects and special moods.

LUMILUX CHIP control (color 62) contains only a very small proportion of UV-A radiation. This light color is therefore suitable for clean-room production facilities, chip fabrication and general UV-free lighting.

For spectral power distributions see pages 4.31 and 4.32.

COLOR control lamps with the codes UVS after the light color have only a very small UV-A content (no UV-B or UV-C).

Luminous flux and power consumption
to IEC 60081.
The minimum luminous flux of a single lamp is 92% of the rated luminous flux at 25 °C; the average is 95% of the rated luminous flux.

Lamp life. The average and service life-times of LUMILUX® fluorescent lamps are listed in the table below. Operating the lamps above or below their rated power will reduce their service life.

Burning position. Universal for 26 and 38 mm diameters. When T5 HE and T5 HO lamps are installed in the vertical burning positions the stamp must be at the bottom; when T5 FC® lamps are installed in the vertical position the 2GX13 base must be at the bottom. In multi-lamp luminaires, T5 HE or T5 HO lamps must be positioned with the stamps next to one another. The recommended minimum spacing between two T5 lamps is 32 mm for optimum operation (maintenance of the luminous flux/temperature curve).

Lamp life in accordance with DIN IEC 60081:

(IEC switching cycle) 165 min on, 15 min off	T8 BASIC	T8 LUMILUX	T8 LLX DE LUXE	T5 FH (HE)	T5 FQ (HO)	T5 FC LUMILUX	T5 LLX DE LUXE
Service life on CCG/LLG	5.000	–	–	–	–	–	–
Average life on CCG/LLG	13.000	–	–	–	–	–	–
Service life on hot restart ECG	–	18.000	16.000	16.000	18.000	9.000	16.000
Average life on hot restart ECG	–	20.000	20.000	20.000	24.000	16.000	20.000

Service life is defined as the time when 10% of the lamps have failed.

Maximum luminous flux values for T5 fluorescent lamps (16 mm), FH® and FQ® fluorescent lamps

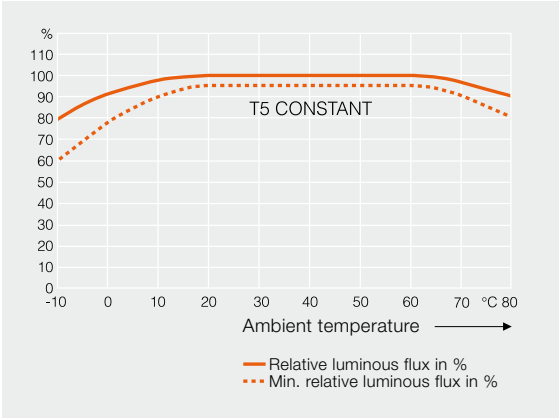
	880 SKYWHITE	865 Cool Daylight	840 Cool White	835 White	830 Warm White	827 INTERNA
FH 14 W HE	1.250	1.300	1.350	1.350	1.350	1.350
FH 21 W HE	1.900	2.000	2.100	2.100	2.100	2.100
FH 28 W HE	2.700	2.750	2.900	2.900	2.900	2.900
FH 35 W HE	3.450	3.500	3.650	3.650	3.650	3.650
FQ 24 W HO	1.850	1.900	2.000	2.000	2.000	2.000
FQ 39 W HO	3.225	3.325	3.500	3.500	3.500	3.500
FQ 49 W HO	4.600	4.700	4.900	4.900	4.900	4.900
FQ 54 W HO	4.650	4.750	5.000	5.000	5.000	5.000
FQ 80 W HO	6.550	6.650	7.000	7.000	7.000	7.000
FQ 24 W HO CONSTANT	–	1.900	2.000	2.000	2.000	2.000
FQ 39 W HO CONSTANT	–	3.325	3.500	3.500	3.500	3.500
FQ 54 W HO CONSTANT	–	4.750	5.000	5.000	5.000	5.000
FQ 80 W HO CONSTANT	–	6.650	7.000	7.000	7.000	7.000

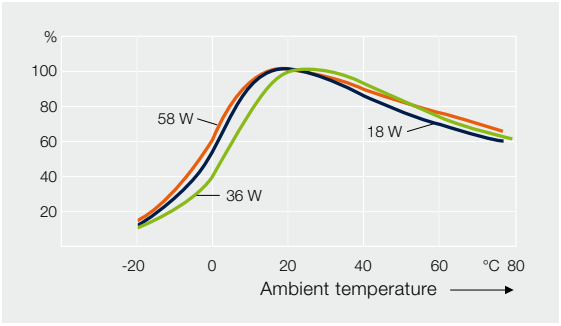
All values for HE, HO at 35 °C;
for HO CONSTANT the maximum luminous flux is not defined for a particular temperature.

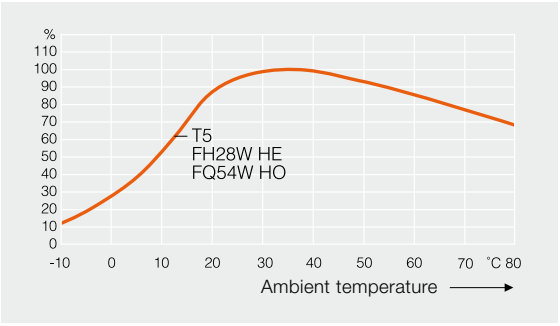
As with all fluorescent lamps, the luminaire efficiency of T5 (16 mm) lamps is calculated at an ambient temperature of 25 °C. In other words, the luminous flux of the lamp measured at 25 °C and the luminous flux of the luminaire measured at 25 °C are used as the basis for calculating the luminaire efficiency. Note that if measurements are taken with gonio-photometers with moving lamps the high-speed air currents may cause the cool spot to shift from the stamp end of the lamp. Before the illuminance levels from T5 HE, T5 HO and especially FC® lamps are measured in lighting systems, these lamps must be allowed to stabilize for at least 100 hours. If two lamps are to be operated next to one another, make sure that the stamped ends are on the same side so that the cold spot is not heated.

Technical data

Temperature dependence
As with fluorescent lamps in general, the rated luminous flux for T5 HE and TE HO fluorescent lamps is specified at 25 °C, and T5 HE and T5 HO achieve their maximum luminous flux at temperatures between 34 and 38 °C. One of the advantages of T5 lamps is therefore an increased luminaire efficiency. T5 FC® circular fluorescent lamps achieve their maximum luminous flux between 25 and 30 °C. The luminous flux of a T5 HO CONSTANT at 25 °C is on average 97% of the maximum luminous flux. 90% of the maximum luminous flux is achieved in a temperature range from +5 °C to +70 °C.







Control gear. In order to operate, each lamp needs control gear appropriate to its wattage. The control gear not only starts the lamp but also limits the current in the discharge phase. Please note: fluorescent lamps are guaranteed only if they are operated with approved control gear or with control gear declared to be suitable. Control gear must comply with EN standards. Modern control gear, such as QUICKTRONIC®, enables energy saving fluorescent lamps to be operated with optimum economy and lighting comfort, see Section 9. Control gear for sale in the European Union must carry the ENEC mark (tested to IEC 60081). This safeguards the warranty for the lamps under normal conditions.

See circuit diagrams on pages 4.29 and 4.30 and Section 9.

Power supply. Generally 230 V AC. Until 2008, the permissible temporary voltage fluctuations for ac voltage is -10% +6%, i.e. 207 to 244 V. From 2009, ±10% is permitted, i.e. 207 to 253 V. Electronic control gear is considerably less affected by fluctuations in the supply voltage than conventional control gear. DC operation for emergency lighting systems in accordance with DIN VDE 0108 is indicated in the specifications for the electronic control gear.

Accessories. Control gear and holders are available from electrical suppliers. OSRAM compact fluorescent lamps and fluorescent lamps are cadmium-free.

Technical data

Fluorescent lamp	Ø	Rated lamp current (CCG operation) uncorrected	Lamp voltage UL after ignition (±10%)	Resistance/ impedance Z (on CCG)	Pre-heating current IEC 81	Lumi-nance Color LF 840, 830, 827	PFC capacitor[1] Power factor ≈ 1 for CCG operation	Series capacitor for CCG Lead-lag circuit[2]
(Wattage)	(mm)	(A)	(V)	( )	(mA)[4]	(cd/cm²)	(µF)	(µF/Vc)
4	16	0,17	29	170	220	–	2,0	–
6	16	0,16	42	260	220	–	2,0	–
8	16	0,145	56	385	220	–	2,0	–
10	26	0,17	64	375	220	–	2,0	–
13	16	0,165	95	590	220	–	2,0	–
15	26	0,33	55	165	440	1,0	4,5	–
16	26	0,20	90	450	260	0,8	2,5	–
18	26	0,37	57	155	550	1,0	4,5	2,7/480
18/… U	26	0,37	60	165	550	–	–	–
20	38	0,37	57	155	550	–	4,5	2,7/480
20/… XL	38	0,38	57	155	–	–	4,5	–
22 C	29	0,37	62	165	600	–	5,0	3,0/480
30	26	0,365	96	265	550	1,2	4,5	2,9/450
32 C	29	0,425	81	190	675	0,9	5,0	3,4/450
36	26	0,43	103	240	650	1,2	4,5	3,4/450
36/… U	26	0,43	108	250	650	–	–	–
36-1	26	0,556	81	145	730	1,3	6,0	4,3/480
38[3]	26	0,43	104	240	650	–	4,5	3,4/450
40	38	0,43	103	240	650	–	4,5	3,4/450
40 C	29	0,415	108	260	630	–	–	–
40/… SA	38	0,43	103	240	650	–	–	–
40/… DS®	38	0,43	103	240	650	0,7	–	–
40/… XL	38	0,415	103	240	–	–	4,5	–
40/… K	38	0,88	52					
58	26	0,67	110	165	1000	1,5	7,0	5,3/450
58/… U	26	0,67	115	170	1000	–	–	–
60 C	29	0,750	90	260	630	–	–	–
65	38	0,67	110	165	1000	–	7,0	5,3/450
65/… SA	38	0,67	110	165	1000	–	–	–
65/… DS®	38	0,67	110	165	1000	0,8	–	–
65/… XL	38	0,67	110	165	–	–	–	–

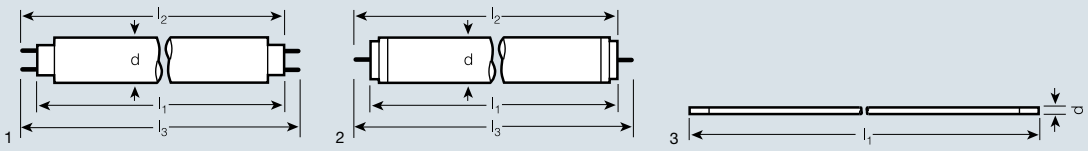
1) For parallel compensation in circuit diagrams 1 and 2 see page 4.30
2) Lead-lag circuit as per circuit diagram 3 on page 4.30
3) With 40 W control gear
4) Preheating currents are maximum values for a preheat time of 2 s

Technical data

Fluorescent lamp (Wattage)	Ø (mm)	Rated lamp current (ECG operation) (±10 %)[1] (A)	Lamp voltage UL after ignition[1] (V)	System wattage with control gear (W)	Pre-heating current IEC 81 (mA)	Luminance Color LF 840 (cd/cm²)
14 (FH HE)	16	0,165	86	16,0[6]	210	1,7
21 (FH HE)	16	0,165	126	23,5[6]	210	1,7
28 (FH HE)	16	0,170	166	30,5[6]	210	1,7
35 (FH HE)	16	0,175	205	38,5[6]	210	1,7
24 (FQ HO)	16	0,295	77	27,0[7]	440	2,5
39 (FQ HO)	16	0,325	118	45,5[7]	440	2,8
49 (FQ HO)	16	0,245	191[4]	55[7]		2,3
54 (FQ HO)	16	0,455	120	61,0[7]	720	2,9
80 (FQ HO)	16	0,530	152	85,0[7]	765	3,2
24 (FQ HO CONSTANT)	16	0,295	77	27,0[7]	440	2,5
39 (FQ HO CONSTANT)	16	0,325	118	45,5[7]	440	2,8
54 (FQ HO CONSTANT)	16	0,455	120	61,0[7]	720	2,9
80 (FQ HO CONSTANT)	16	0,530	152	85,0[7]	765	3,2
22 (FC)	16	0,30	70	24,5[8]	440	1,7
40 (FC)	16	0,32	126	46,5[8]	440	2,1
55 (FC)	16	0,55	101	62,0[8]	765	2,6
6 (FM)	7	0,10	51	7,5[2]	120[5]	2,5
8 (FM)	7	0,10	79	11,0[2]	120[5]	2,5
11 (FM)	7	0,10	110	13,0[3]	120[5]	2,5
13 (FM)	7	0,10	136	16,0[3]	120[5]	2,5

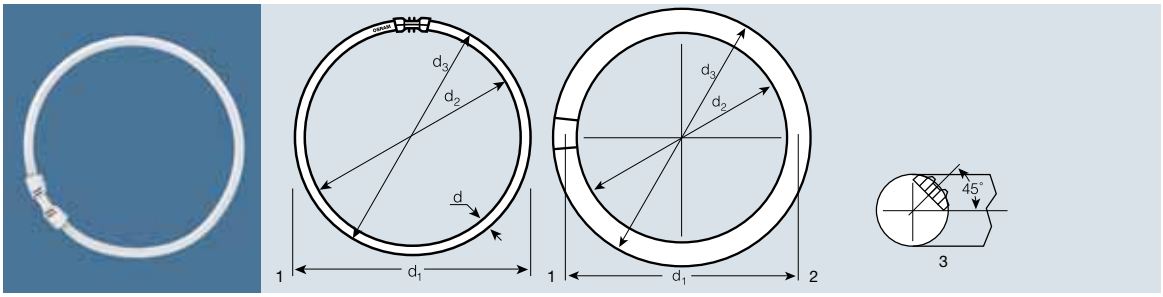
1) Values at 25 °C on the reference control gear
2) For system wattage with QT-ECO FM 1x6-8/220-240, see Section 9
3) For system wattage with QT-ECO FM 1x11-13/220-240, see Section 9
4) Values for 35 °C; current is approx. 10 mA lower for 25 °C
5) With reservation
6) System wattage on QT-FH
7) System wattage on QT-FQ
8) System wattage on QT-M or QT-FC

Dimensions for tubular fluorescent lamps with tolerances



W		l_1 [mm]	l_2 [mm]	l_3 [mm]	IEC d [mm]	No.
Tubular fluorescent lamps						
7, 16, 26 and 38 mm Ø, G5 base, G13 base, W4,3 x 8,5d base						
6 (FM)	W4,3x8,5d	218,3 ±1,0	–	–	max. 7	3
8 (FM)	W4,3x8,5d	319,9 ±1,0	–	–	max. 7	3
11 (FM)	W4,3x8,5d	421,5 ±1,0	–	–	max. 7	3
13 (FM)	W4,3x8,5d	523,1 ±1,0	–	–	max. 7	3
4	G5/11x15	135,7	141,7 ±1,2	150,0	max. 16	1
6	G5/11x15	211,9	217,9 ±1,2	226,2	max. 16	1
8	G5/11x15	288,1	294,1 ±1,2	302,4	max. 16	1
13	G5/11x15	516,9	522,8 ±1,2	531,1	max. 16	1
14 (FH HE)	G5/11x15	549,0	554,9 ±1,2	563,2	max. 16	1
21 (FH HE)	G5/11x15	849,0	854,9 ±1,2	863,2	max. 16	1
24 (FQ HO)	G5/11x15	549,0	554,9 ±1,2	563,2	max. 16	1
28 (FH HE)	G5/11x15	1149,0	1154,9 ±1,2	1163,2	max. 16	1
35 (FH HE)	G5/11x15	1449,0	1454,9 ±1,2	1463,2	max. 16	1
39 (FQ HO)	G5/11x15	849,0	854,9 ±1,2	863,2	max. 16	1
49 (FQ HO)	G5/11x15	1449,0	1454,9 ±1,2	1463,2	max. 16	1
54 (FQ HO)	G5/11x15	1149,0	1154,9 ±1,2	1163,2	max. 16	1
80 (FQ HO)	G5/11x15	1449,0	1454,9 ±1,2	1463,2	max. 16	1
10	G13	470,0	475,9 ±1,2	484,2	max. 28	1
15	G13	437,4	443,3 ±1,2	451,6	max. 28	1
16	G13	720,0	725,9 ±1,2	734,2	max. 28	1
18	G13	589,8	595,7 ±1,2	604,0	max. 28	1
23	G13	970,0	975,9 ±1,2	984,2	max. 28	1
30	G13	894,6	900,5 ±1,2	908,8	max. 28	1
36	G13	1199,4	1205,3 ±1,2	1213,6	max. 28	1
36-1	G13	970,0	975,9 ±1,2	984,2	max. 28	1
38	G13	1047,0	1052,8 ±1,2	1061,2	max. 28	1
58	G13	1500,0	1505,9 ±1,2	1514,2	max. 28	1
20	G13	589,8	595,7 ±1,2	604,0	max. 40,5	1
40	G13	1199,4	1205,3 ±1,2	1213,6	max. 40,5	1
40 K	G13	589,8	595,7 ±1,2	604,0	max. 40,5	1
65	G13	1500,0	1505,9 ±1,2	1514,2	max. 40,5	1
80	G13	1500,0	1505,9 ±1,2	1514,2	max. 40,5	1
100	G13	1763,8	1769,7 ±1,2	1778,0	max. 40,5	1
Fluorescent lamps for starterless operation, 38 mm tube diameter X lamps. Fa6 base						
20/… XL	Fa6	574,0	590,8 ±1,2	611,0	max. 40,5	2
40/… XL	Fa6	1183,5	1200,3 ±1,2	1220,5	max. 40,5	2
65/… XL	Fa6	1484	1500,9 ±1,2	1521,1	max. 40,5	2

Dimensions for circular and U-shaped fluorescent lamps with tolerances



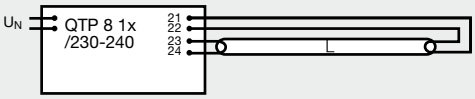
Circular T5 FC® fluorescent lamps with 16 mm tube diameter

W		d2 max. [mm]	d3 max. [mm]	TUBE d [mm]	No.
2GX13 base					
22	2GX13	192 ±5	225 ±5	16,0	1
40	2GX13	266 ±6	299 ±6	16,0	1
55	2GX13	266 ±6	299 ±6	16,0	1

Ring-shaped fluorescent lamps

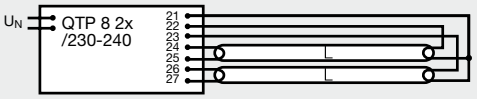
W		d1 max. [mm]	d2 max. [mm]	d3 max. [mm]	TUBE d [mm]	No.
G10q base						
22	G10q	157,2	155,6	215,9	29 ±2	2
32	G10q	246,1	246,1	304,8	29 ±2	2
40	G10q	347,7	347,7	406,4	29 ±2	2
60	G10q	347,7	347,7	406,4	29 ±2	2

Circuit diagrams for fluorescent lamps for HF operation (see also ECG section)



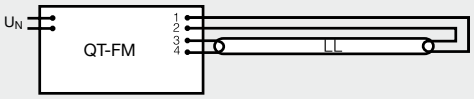
Grounding as per IEC 60598

Fig. 6
QUICKTRONIC® PROFESSIONAL for connecting
one LUMILUX® 18 W, 36 W or 58 W fluorescent lamp



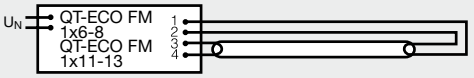
Grounding as per IEC 60598

Fig. 7
QUICKTRONIC® PROFESSIONAL for connecting
two LUMILUX® 18 W, 36 W or 58 W fluorescent lamps



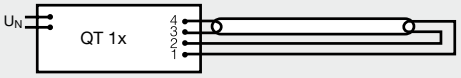
Grounding as per IEC 60598

Fig. 8
QUICKTRONIC® FM for connecting
one FM® 6 W, 8 W, 11 W or 13 W lamp



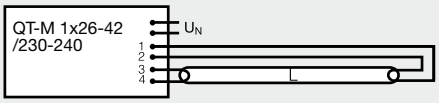
Grounding as per IEC 60598

Fig. 8 a
QUICKTRONIC® QT-ECO FM for connecting
one 6 W, 8 W, 11 W or 16 W FM® lamp



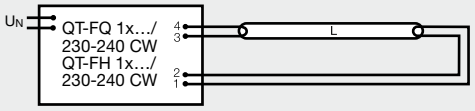
Cables 3 and 4 should be kept as short as possible

Fig. 9
QUICKTRONIC® for connecting
one 16 mm dia. L 6 W to L 13 W



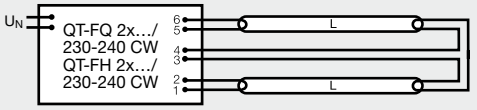
Grounding as per IEC 60598

Fig. 9 a
QUICKTRONIC® QT-M for connecting
one LUMILUX 18 W or 36 W fluorescent lamp



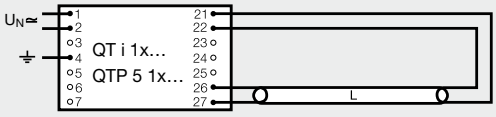
Grounding as per IEC 60598

Fig. 10
QUICKTRONIC® FH or FQ for connecting
one FH® 14 W, 28 W, 35 W lamp or one
FQ® 24 W, 39 W, 54 W or 80 W lamp



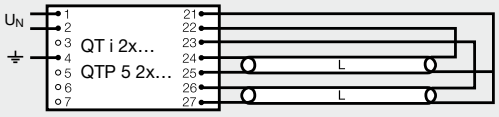
Grounding as per IEC 60598

Fig. 11
QUICKTRONIC® FQ for connecting
two FM® 24 W, 39 W, 49 W or 54 W lamps



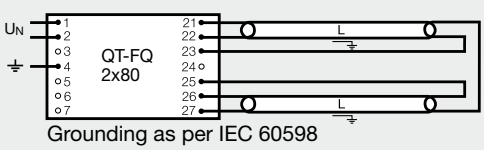
Grounding as per IEC 60598

Fig. 12
QUICKTRONIC® INTELLIGENT for connecting
one FH® 14 W, 21 W, 28 W, 35 W lamp or one
FQ® 24 W, 39 W, 49 W, 54 W or 80 W lamp



Grounding as per IEC 60598

Fig. 13
QUICKTRONIC® INTELLIGENT for connecting
two FH® 14 W, 21 W, 28 W, 35 W lamps or
two FQ® 24 W, 39 W, 49 W or 54 W lamps



Grounding as per IEC 60598

Fig. 14
QUICKTRONIC® for connecting
two 80 W FQ® lamps

Circuit diagrams for fluorescent lamps
Bases

CIRCUIT DIAGRAMS, STARTER OPERATION

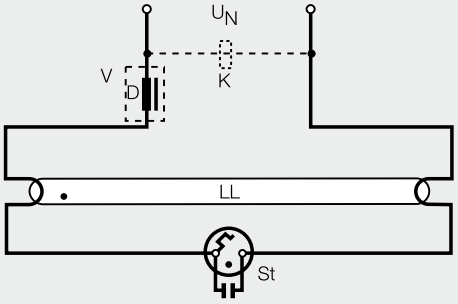


Fig. 1
Single lamp

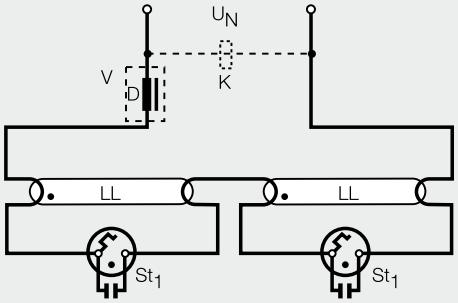


Fig. 2
Series connection for two lamps
4W, 6W, 8W, 15W, 18W, 20W/S
and 22W to 220Vac only with starter
ST 151 + ST 172 (see page 4.32 f.)

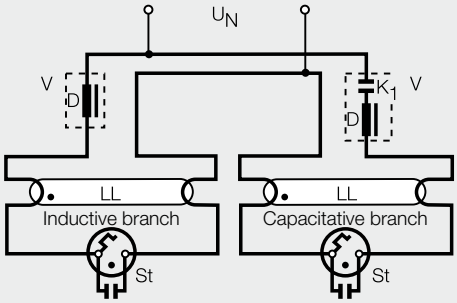


Fig. 3
Lead-lag circuit

STARTERLESS OPERATION

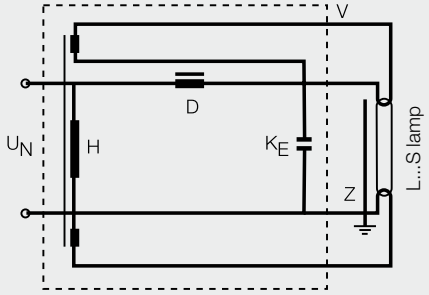


Fig. 4
Quick-start circuit, inductive

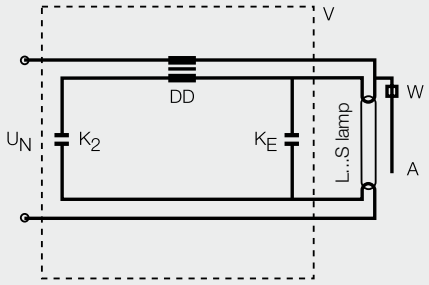
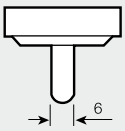


Fig. 5
Semi-resonant circuit

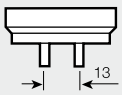
A = External starting strip
D = Choke
DD = Double choke
H = Heating transformer
K = Compensation capacitor (if required)
K_1 = Series capacitor
K_2 = Capacitor
K_E = Radio interference capacitor 10 nF
LL = Fluorescent lamp
St = Starter
St_1 = Starter[1)]
U_N = Supply voltage
V = Control gear
W = High ohmic resistor (built into lamp base)
Z = Capacitor starting aid

1) Prolonged ignition times, especially at low voltage, can be shortened by rotating one of the starters through 180°

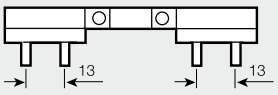
BASES IEC/EN 60061-1



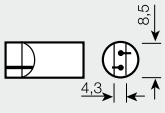
Fa6
Sheet 7004-55



G13
Sheet 7004-51

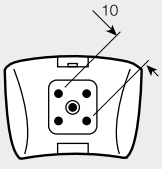


2G13
Sheet 7004-33

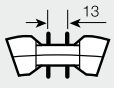


W 4,3 x 8,5d
Sheet 7004-115

G5
Sheet 7004-52



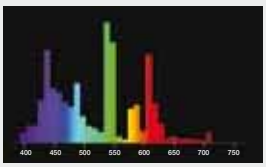
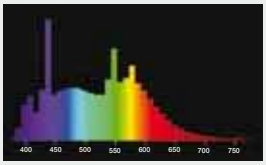
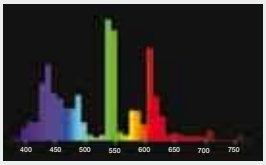
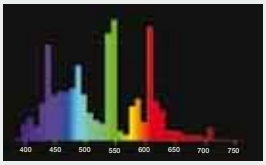
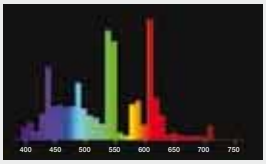
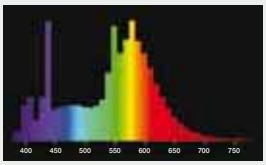
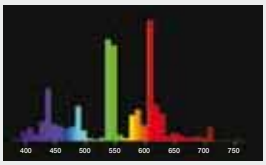
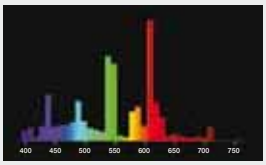
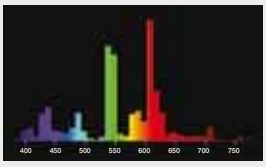
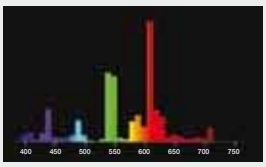
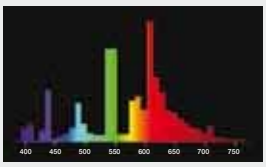
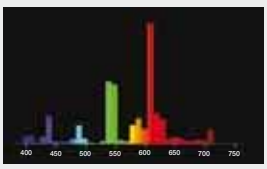
G10q
Sheet 7004-54



2GX13
Sheet 7004-125

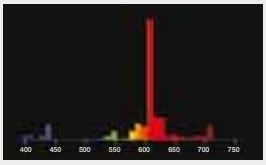
Spectral power distribution of fluorescent lamps (white light)

Visible range from 380 to 780 nm, relative spectral emission per 10 nm.

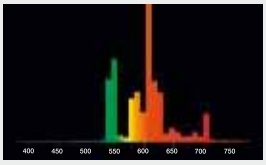
BASIC	LUMILUX®	LUMILUX® DE LUXE
	 Light color 880 LUMILUX® SKYWHITE	
 Light color 765 BASIC Cool Daylight	 Light color 865 LUMILUX® Cool Daylight	 Light color 965 LUMILUX® DE LUXE Cool Daylight
		 Light color 954 LUMILUX® DE LUXE Daylight
 Light color 640 BASIC Cool White	 Light color 840 LUMILUX® Cool White	 Light color 940 LUMILUX® DE LUXE Cool White
	 Light color 835 LUMILUX® White	
	 Light color 830 LUMILUX® Warm White	 Light color 930 LUMILUX® DE LUXE Warm White
	 Light color 827 LUMILUX® INTERNA	

Note: These color graphs do not show the color distributions in great detail. The color printing process is not able to provide an accurate match between the colors shown and the colors defined for the individual color locations.

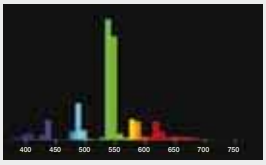
Spectral power distribution of fluorescent lamps (other colors)



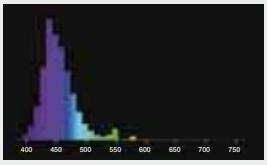
Light color 60
Red



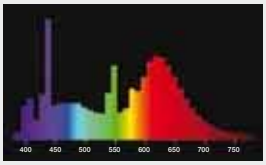
Light color 62
Yellow



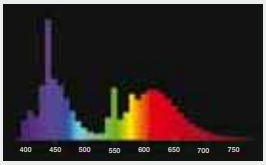
Light color 66
Green



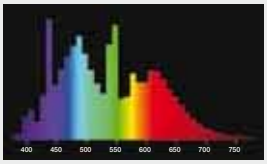
Light color 67
Blue



Light color 76 NATURA



Light color 77 FLUORA®



Light color BIOLUX®

Note: These color graphs do not show the color distributions in great detail. The color printing process is not able to provide an accurate match between the colors shown and the colors defined for the individual color locations.