SYLVANIA

Special Applications

Lamps and Luminaires 2020

Light your world

Special Applications

Your global lighting partner

The right light in
the right place,
spectrum and output

SYLVANIA

Your Special Lighting Partner

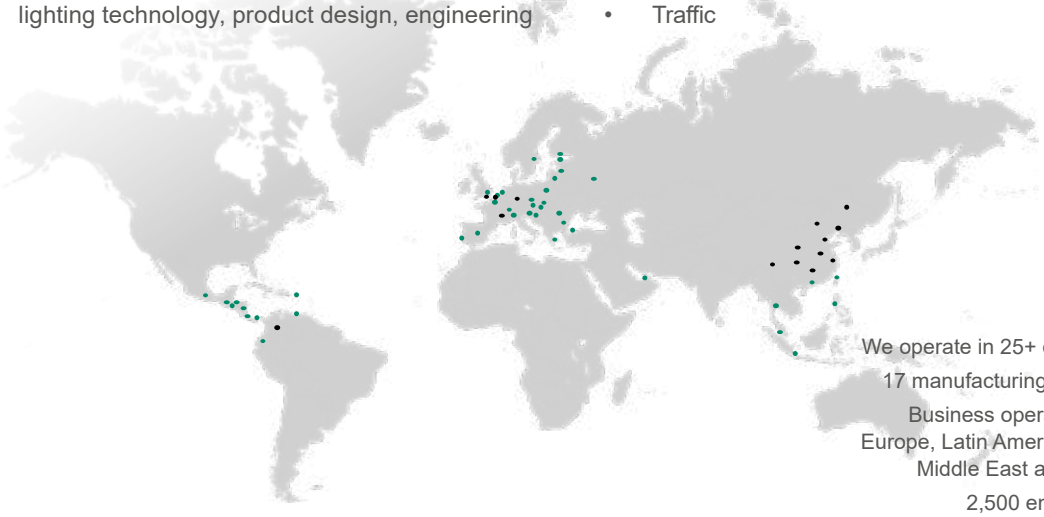
About Us

Everything we do starts by understanding the needs of our customers

As an innovation leader, we supply an extensive range of special lighting, luminaires and lighting control solutions for various professional lighting application areas.

Sylvania is one of the world's leading lighting specialists. For more than a century we have built on our exceptional reputation as an innovator and creator of high-efficiency, energy-saving, light sources and luminaires, by providing full spectrum lighting solutions tailored to your individual and local needs. Sylvania concentrates on its strengths in research and development, LED lighting technology, product design, engineering and production, honest application expertise, on their specialised areas of activity:

- Aquarium & Terrarium
- Aircraft
- Bodycare
- Fly Killing
- Food Display
- Germicidal
- Horticulture
- Infra Red
- Photo Optic
- Swimming Pool
- Traffic



We operate in 25+ countries

17 manufacturing facilities

Business operations in:
Europe, Latin America, Asia,
Middle East and Africa

2,500 employees

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SYLVANIA

AQUARIUM & TERRARIUM

Light your world

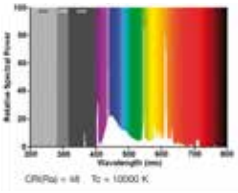
AQUASTAR T8

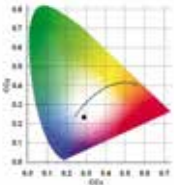
Features

- Light colour: 10,000 Kelvin (simulating the tropical light spectrum)
- Promotes the growth of coral and aquatic plants through natural red and blue sections of the light spectrum
- Excellent lighting performance

Applications

- For all biological organisms in fresh and marine water aquariums





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		L	D						
0002212	F14W/Aquastar	361	26	T8	14	10,000	525	G13	25
0002221	F18W/Aquastar	590	26	T8	18	10,000	900	G13	25
0002222	F36W/Aquastar	1,200	26	T8	36	10,000	2,200	G13	25
0002223	F58W/Aquastar	1,500	26	T8	58	10,000	3,550	G13	25
0002224	F15W/Aquastar	438	26	T8	15	10,000	650	G13	25
0002225	F30W/Aquastar	895	26	T8	30	10,000	1,700	G13	25
0002226	F25W/30 Aquastar	742	26	T8	25	10,000	1,500	G13	25
0000643	F15W/Aquastar Retail	438	26	T8	15	10,000	650	G13	10
0000644	F18W/Aquastar Retail	590	26	T8	18	10,000	900	G13	10
0000645	F25W/30 Aquastar Retail	742	26	T8	25	10,000	1,500	G13	10
0000646	F30W/Aquastar Retail	895	26	T8	30	10,000	1,700	G13	10
0000647	F36W/Aquastar Retail	1,200	26	T8	36	10,000	2,200	G13	10
0000648	F38W/Aquastar Retail	1,047	26	T8	38	10,000	2,100	G13	10
0000649	F58W/Aquastar Retail	1,500	26	T8	58	10,000	3,550	G13	10

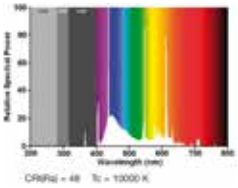
AQUASTAR T5

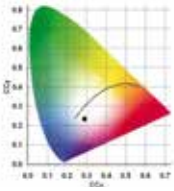
Features

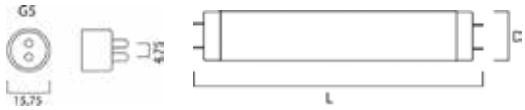
- Light colour: 10,000 Kelvin (simulating the tropical light spectrum)
- Promotes the growth of coral and aquatic plants through natural red and blue sections of the light spectrum
- Excellent lighting performance
- T5 - FHO: high output and lumen per watt in comparison to T8 versions
- T5 l8 : 50% more light output in comparison to the same length in T8. Ideal for the new generation of aquaria with T5 lamps, but in the length of T8 lamps. The ideal fit of the lamps in the aquarium results in a perfect illumination of the aquarium

Applications

- For all biological organisms in fresh and marine water aquariums
- Excellent results in combination with Daylightstar







Code	Item description	Comparable wattage in T8	Dimensions (mm)		Diameter	Watt (W)	Colour Temp. (K)	Light Output (lm)	Cap	Packaging Quantity
			L	D						
0002741	FHO24W/Aquastar	-	549	16	T5	24	10,000	1,120	G5	25
0002744	FHO39W/Aquastar	-	849	16	T5	39	10,000	1,960	G5	25
0002747	FHO54W/Aquastar	-	1,149	16	T5	54	10,000	2,800	G5	25
0002750	FHO80W/Aquastar	-	1,449	16	T5	80	10,000	3,500	G5	25
0002752	FHO24W/Aquastar Retail	-	549	16	T5	24	10,000	1,120	G5	10
0002753	FHO39W/Aquastar Retail	-	849	16	T5	39	10,000	1,960	G5	10
0002754	FHO54W/Aquastar Retail	-	1,149	16	T5	54	10,000	2,800	G5	10
0002820	F24W T5 l 8 Aquastar 438mm Retail	15	438	16	T5	24	10,000	900	G5	10
0002822	F28W T5 l 8 Aquastar 590mm Retail	18	590	16	T5	28	10,000	1,200	G5	10
0002824	F35W T5 l 8 Aquastar 742mm Retail	25	742	16	T5	35	10,000	1,700	G5	10
0002826	F45W T5 l 8 Aquastar 895mm Retail	30	895	16	T5	45	10,000	2,100	G5	10
0002828	F54W T5 l 8 Aquastar 1047mm Retail	38	1,047	16	T5	54	10,000	2,500	G5	10
0002830	F54W T5 l 8 Aquastar 1200mm Retail	36	1,200	16	T5	54	10,000	2,900	G5	10

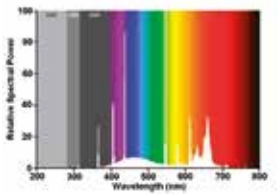
GRO-LUX® T8

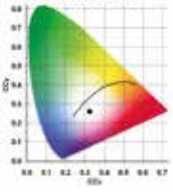
Features

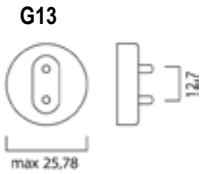
- High level of blue and red radiation helps promote healthy plant growth
- Strengthens the natural colours of aquatic plants and fish in aquariums
- Promotes the process of photo-synthesis in plants
- Oldest, but most optimal light colour for plants and aquaria

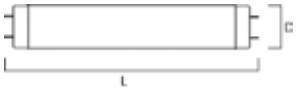
Applications

- For lighting of fresh water aquariums
- Complete or additional artificial lighting of plants
- Recommended for use in greenhouses, indoor gardens, flower shows and conservatories









Code	Item description	Dimensions (mm)		Diameter	Watt (W)	Light Colour	Cap	Packaging Quantity
		L	D					
0000043	F14W/Gro-Lux®	361	26	T8	14	Gro-Lux	G13	25
0000069	F15W/Gro-Lux®	438	26	T8	15	Gro-Lux	G13	25
0001523	F18W/Gro-Lux®	590	26	T8	18	Gro-Lux	G13	25
0001679	F25W/30 Gro-Lux®	742	26	T8	25	Gro-Lux	G13	25
0000150	F30W/Gro-Lux®	895	26	T8	30	Gro-Lux	G13	25
0001524	F36W/Gro-Lux®	1,200	26	T8	36	Gro-Lux	G13	25
0001525	F58W/Gro-Lux®	1,500	26	T8	58	Gro-Lux	G13	25
0000707	F14W/Gro-Lux® Retail	361	26	T8	14	Gro-Lux	G13	10
0000708	F15W/Gro-Lux® Retail	438	26	T8	15	Gro-Lux	G13	10
0000709	F18W/Gro-Lux® Retail	590	26	T8	18	Gro-Lux	G13	10
0000710	F25W/30 Gro-Lux® Retail	742	26	T8	25	Gro-Lux	G13	10
0000711	F30W/Gro-Lux® Retail	895	26	T8	30	Gro-Lux	G13	10
0000712	F36W/Gro-Lux® Retail	1,200	26	T8	36	Gro-Lux	G13	10
0000713	F38W/Gro-Lux® Retail	1,047	26	T8	38	Gro-Lux	G13	10
0000714	F58W/Gro-Lux® Retail	1,500	26	T8	58	Gro-Lux	G13	10

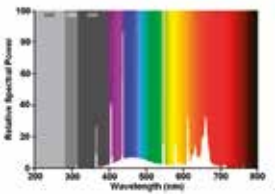
GRO-LUX® T5

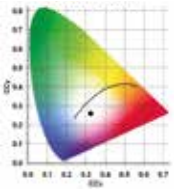
Features

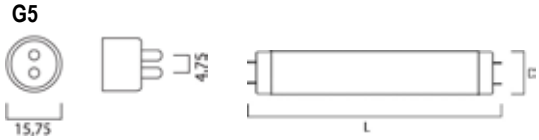
- High level of blue and red radiation helps promote healthy plant growth
- Strengthens the natural colours of aquatic plants and fish in aquariums
- Promotes the process of photo-synthesis in plants
- Oldest, but most optimal light colour for plants and aquaria
- T5 - FHO: high output and lumen per watt in comparison to T8 versions
- T5 l8 : 50% more light output in comparison to the same length in T8. Ideal for the new generation of aquaria with T5 lamps, but in the length of T8 lamps. The ideal fit of the lamps in the aquarium results in a perfect illumination of the aquarium

Applications

- For lighting of fresh water aquariums
- Complete or additional artificial lighting of plants
- Recommended also for use in greenhouses, indoor gardens, flower shows and conservatories







Code	Item description	Comp. wattage in T8	Dimensions (mm)		Diameter	Watt (W)	Light Colour	Cap	Packaging Quantity
			L	D					
0000026	F8W/T5/Gro-Lux®	-	288	16	T5	8	Gro-Lux	G5	25
0002740	FHO24W/Gro-Lux®	-	549	16	T5	24	Gro-Lux	G5	25
0002743	FHO39W/Gro-Lux®	-	849	16	T5	39	Gro-Lux	G5	25
0002746	FHO54W/Gro-Lux®	-	1,149	16	T5	54	Gro-Lux	G5	25
0002749	FHO80W/Gro-Lux®	-	1,449	16	T5	80	Gro-Lux	G5	25
0000728	FHO24W/Gro-Lux® Retail	-	549	16	T5	24	Gro-Lux	G5	10
0000729	FHO39W/Gro-Lux® Retail	-	849	16	T5	39	Gro-Lux	G5	10
0000730	FHO54W/Gro-Lux® Retail	-	1,149	16	T5	54	Gro-Lux	G5	10
0002821	F24W T5 l 8 Gro-Lux® 438mm Retail	15	438	16	T5	24	Gro-Lux	G5	10
0002823	F28W T5 l 8 Gro-Lux® 590mm Retail	18	590	16	T5	28	Gro-Lux	G5	10
0002825	F35W T5 l 8 Gro-Lux® 742mm Retail	25	742	16	T5	35	Gro-Lux	G5	10
0002827	F45W T5 l 8 Gro-Lux® 895mm Retail	30	895	16	T5	45	Gro-Lux	G5	10
0002829	F54W T5 l 8 Gro-Lux® 1047mm Retail	38	1,047	16	T5	54	Gro-Lux	G5	10
0002831	F54W T5 l 8 Gro-Lux® 1200mm Retail	36	1,200	16	T5	54	Gro-Lux	G5	10

If you need to replace natural light – whether for plants, aquariums or terrariums – Sylvania has an extensive collection of lighting solutions available. For example, Sylvania's GRO-LUX® is a world leader in plant illumination. Proper light and UV radiation is very important for fish and reptiles. Our lighting engineers have developed lamps with specific light spectra for the most diverse uses. Either independently or in combination, Sylvania Aquarium and Terrarium lamps deliver the best results for complex biological requirements. Whether for plants, fish, corals, reptiles, or the entire biotope of aquariums and terrariums - with Sylvania you'll find the appropriate lighting.

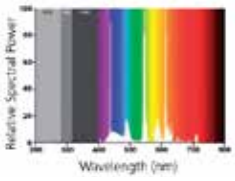
DAYLIGHTSTAR T8

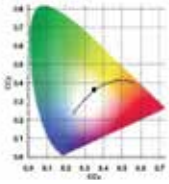
Features

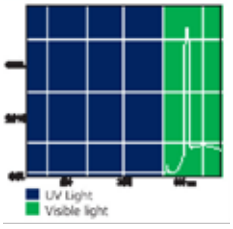
- Reduces algae growth through a special UV-STOP protective sleeve
- Allows fish and plants to be seen in their true colours (high colour rendition)
- 5,000K tri-phosphor lamp with a daylight character
- High colour rendition
- Long life

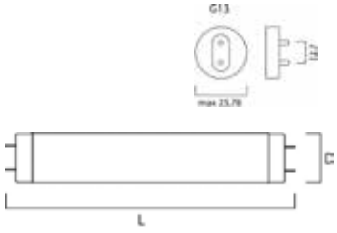
Applications

- For use in fresh water aquariums
- In combination with Gro-Lux® it produces a well balanced and optimal aquarium life









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0000715	F15W/Daylightstar Retail	438	26	T8	15	Daylightstar	G13	10
0000716	F18W/Daylightstar Retail	590	26	T8	18	Daylightstar	G13	10
0000717	F30W/Daylightstar Retail	895	26	T8	30	Daylightstar	G13	10
0000718	F36W/Daylightstar Retail	1,200	26	T8	36	Daylightstar	G13	10

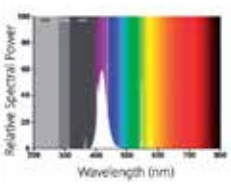
CORALSTAR T5

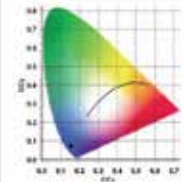
Features

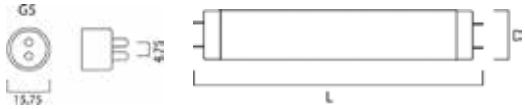
- Reproduces light conditions found at coral reefs through actinic blue light
- Promotes the growth of coral and invertebrates by supporting the growth of zooxanthellae
- See coral in its true colour(s)
- T5 - FHO: high output and lumen per watt in comparison to T8 versions
- T5 l8 : 50% more light output in comparison to the same length in T8. Ideal for the new generation of aquaria with T5 lamps, but in the length of T8 lamps. The ideal fit of the lamps in the aquarium results in a perfect illumination of the aquarium

Applications

- Lighting to promote growth of coral and invertebrates in marine water aquariums







Code	Item description	Dimensions (mm)		Diameter	Watt (W)	Light Colour	Cap	Packaging Quantity
		L	D					
0002742	FHO24W/Coralstar	549	16	T5	24	Actinic	G5	25
0002745	FHO39W/Coralstar	849	16	T5	39	Actinic	G5	25
0002748	FHO54W/Coralstar	1,149	16	T5	54	Actinic	G5	25
0000735	FHO24W/Coralstar Retail	549	16	T5	24	Actinic	G5	10
0002755	FHO39W/Coralstar Retail	849	16	T5	39	Actinic	G5	10

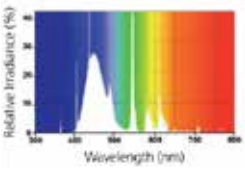
MARINESTAR T5

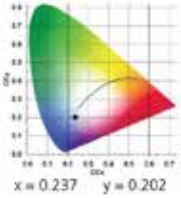
Features

- Ideal lamp for marine lighting.
- High colour rendering of the marine aquatic environment
- High colour temperature: 15,000K
- Reproduces light conditions found at coral reefs through radiation in the 420-510 nm wavelength.
- Promotes the growth of coral and invertebrates by supporting the growth of zooxanthellae.

Applications

- Lighting of marine water aquaria





Code	Item description	Dimensions (mm)		Diameter	Watt (W)	Colour Temp. (K)	Cap	Packaging Quantity
		L	D					
0002720	FHO24W/Marinestar	549	16	T5	24	15,000	G5	25
0002721	FHO39W/Marinestar	849	16	T5	39	15,000	G5	25
0002722	FHO54W/Marinestar	1,149	16	T5	54	15,000	G5	25
0002725	FHO24W/Marinestar Retail	549	16	T5	24	15,000	G5	10

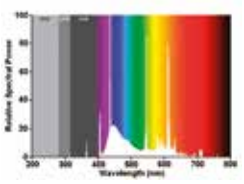
AQUACLASSIC T8 / T5

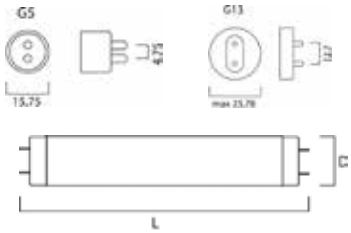
Features

- Ideal lamp for aquatic starters
- Proven Sylvania tri-phosphor technology
- Light colour: 5,000 Kelvin
- Excellent light output
- Available in the most common T8 and T5 wattages
- Operates on standard ballasts

Applications

- Recommended as an entry level lamp for fresh water aquaria





Code	Item description	Dimensions (mm)		Diameter	Watt (W)	Colour Temp. (K)	Light Output (lm)	Light Output Nominal @ 25°C (lm)	Light Output Maximum @ 34-38°C (lm)	Cap	Packaging Quantity
		L	D								
AquaClassic T8											
0002301	F15W/AquaClassic	438	26	T8	15	5,000	900	-	-	G13	25
0002302	F18W/AquaClassic	590	26	T8	18	5,000	1,300	-	-	G13	25
0002312	F14W/AquaClassic Retail	361	26	T8	14	5,000	800	-	-	G13	10
0002313	F15W/AquaClassic Retail	438	26	T8	15	5,000	900	-	-	G13	10
0002314	F18W/AquaClassic Retail	590	26	T8	18	5,000	1,300	-	-	G13	10
0002316	F30W/AquaClassic Retail	895	26	T8	30	5,000	2,300	-	-	G13	10
AquaClassic T5											
0002306	FHO24W/AquaClassic	549	16	T5	24	5,000	-	1,570	1,850	G5	25
0002307	FHO39W/AquaClassic	849	16	T5	39	5,000	-	2,990	3,250	G5	25
0002309	FHO24W/AquaClassic Retail	549	16	T5	24	5,000	-	1,570	1,850	G5	10
0002310	FHO39W/AquaClassic Retail	849	16	T5	39	5,000	-	2,990	3,250	G5	10
0002311	FHO54W/AquaClassic Retail	1,149	16	T5	54	5,000	-	4,050	4,450	G5	10

REPTISTAR T8

Features

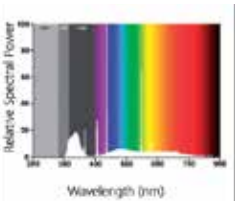
- Promotes vitamin D3 production which aids good health, growth and the general well-being of reptiles in terrariums through a high content of UVB (5% and 10%) and UVA (up to 30%)
- This full spectrum (6,500 K) lamp improves the natural appearance of reptiles
- Shows reptiles in their true colours

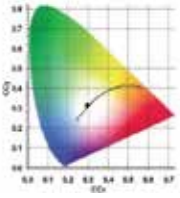
Applications

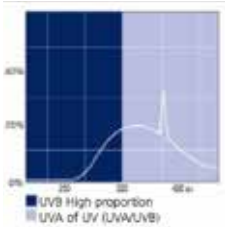
- For the artificial lighting of reptiles in terrariums

DIRECTIONS FOR USE

- This lamp emits UV-radiation. Avoid exposure to skin and eyes







Code	Item description	Dimensions (mm)		Diameter	Watt (W)	Light Colour	Cap	Light Output (lm)	Packaging Quantity
		L	D						
0000731	F15W/Reptistar UV-B 5% Retail	438	26	T8	15	UV-B 5%	G13	300	10
0000732	F18W/Reptistar UV-B 5% Retail	590	26	T8	18	UV-B 5%	G13	450	10
0000733	F30W/Reptistar UV-B 5% Retail	895	26	T8	30	UV-B 5%	G13	700	10
0000741	F15W/Reptistar UV-B 10% Retail	438	26	T8	15	UV-B 10%	G13	300	10
0000742	F18W/Reptistar UV-B 10% Retail	590	26	T8	18	UV-B 10%	G13	450	10
0000743	F30W/Reptistar UV-B 10% Retail	895	26	T8	30	UV-B 10%	G13	700	10
0000744	F36W/Reptistar UV-B 10% Retail	1,200	26	T8	36	UV-B 10%	G13	1,000	10

REPTISTAR INFRARED REFLECTOR

Features

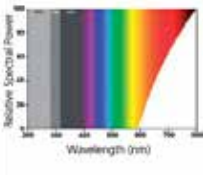
- Converts electric current into infrared radiation

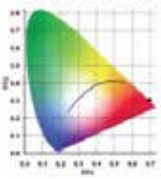
Applications

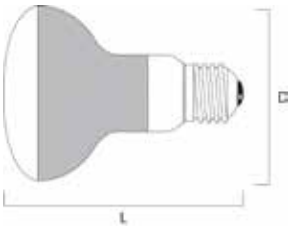
- Provides the necessary infrared radiation for reptiles in terrariums and for other pets like hamsters, mice etc.

DIRECTIONS FOR USE

- Not suitable for household room illumination







Code	Item description		Dimensions (mm)		Watt (W)	Volt (V)	Cap	Packaging Quantity
			L	D				
0033005	IR R63 50W	Infra Red	103	63	50	230	E27	10
0033007	IR R80 100W	Infra Red	110	80	100	230	E27	10

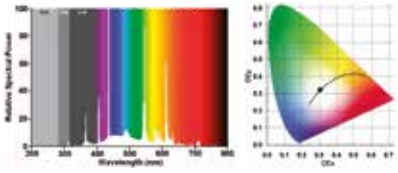
ACTIVA T8 / T5

Features

- Full spectrum lamp including UVA
- Radiation reproduces sunlight most closely
- Excellent colour rendering (Ra98/ Class 1A)
- Colour temperature: 6,500K

Applications

- Well-being of animals in captivity is improved
- The spectrum contains nonvisible radiation (UVA) which is a source of vitality for the animals
- The exceptional high colour rendering (Ra 98) will makeanimals look bright and attractive



Code	Item description	Dimensions (mm)		Watt (W)	Voltage (V)	Current (mA)	CRI	Cap	Colour Temp. (K)	Light Output (lm)	Packaging Quantity
		L	D								
Activa T8											
0002218	F18W/T8/Activa	590	26	18	57	370	1A	G13	6,500	1,000	25
0002219	F36W/T8/Activa	1,200	26	36	103	430	1A	G13	6,500	2,300	25
0002220	F58W/T8/Activa	1,500	26	58	110	670	1A	G13	6,500	3,700	25
0002188	F70W/T8/Activa	1,764	26	70	128	128	1A	G13	6,500	4,600	25
0002232	Activa T8 15W - Retail	438	26	15	55	310	1A	G13	6,500	700	10
0002233	Activa T8 18W - Retail	590	26	18	57	370	1A	G13	6,500	1,000	10
Activa T5											
0002234	FHE 14W T5 Activa - Retail	549	16	14	82	170	1A	G5	6,500	920	10
0002235	FHE 28W T5 Activa - Retail	1,149	16	28	166	170	1A	G5	6,500	2,400	10
0002236	FHE 35W T5 Activa - Retail	1,449	16	35	205	175	1A	G5	6,500	2,740	10
0002237	FHO 54W T5 Activa - Retail	1,149	16	54	120	455	1A	G5	6,500	3,780	10
0002241	FHE 28W/T5/Activa	1,149	16	28	166	170	1A	G5	6,500	2,400	25
0002243	FHO 54W/T5/Activa	1,149	16	54	120	455	1A	G5	6,500	4,300	25

SYLVANIA

AIRCRAFT

Light your world

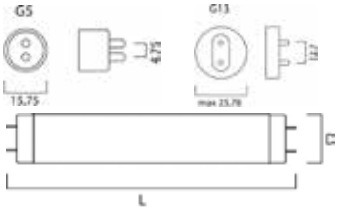
T8 / T5 LUXLINE PLUS

Our strength

- DIN EN ISO 9001 + 14001 + 50001 certified lamp production
- Lamps “made in Germany” - Erlangen
- Comply with the requirements of Airbus Standard Manual ABS1238-002 to 004
- Operation only with aviation ballast unit

Applications

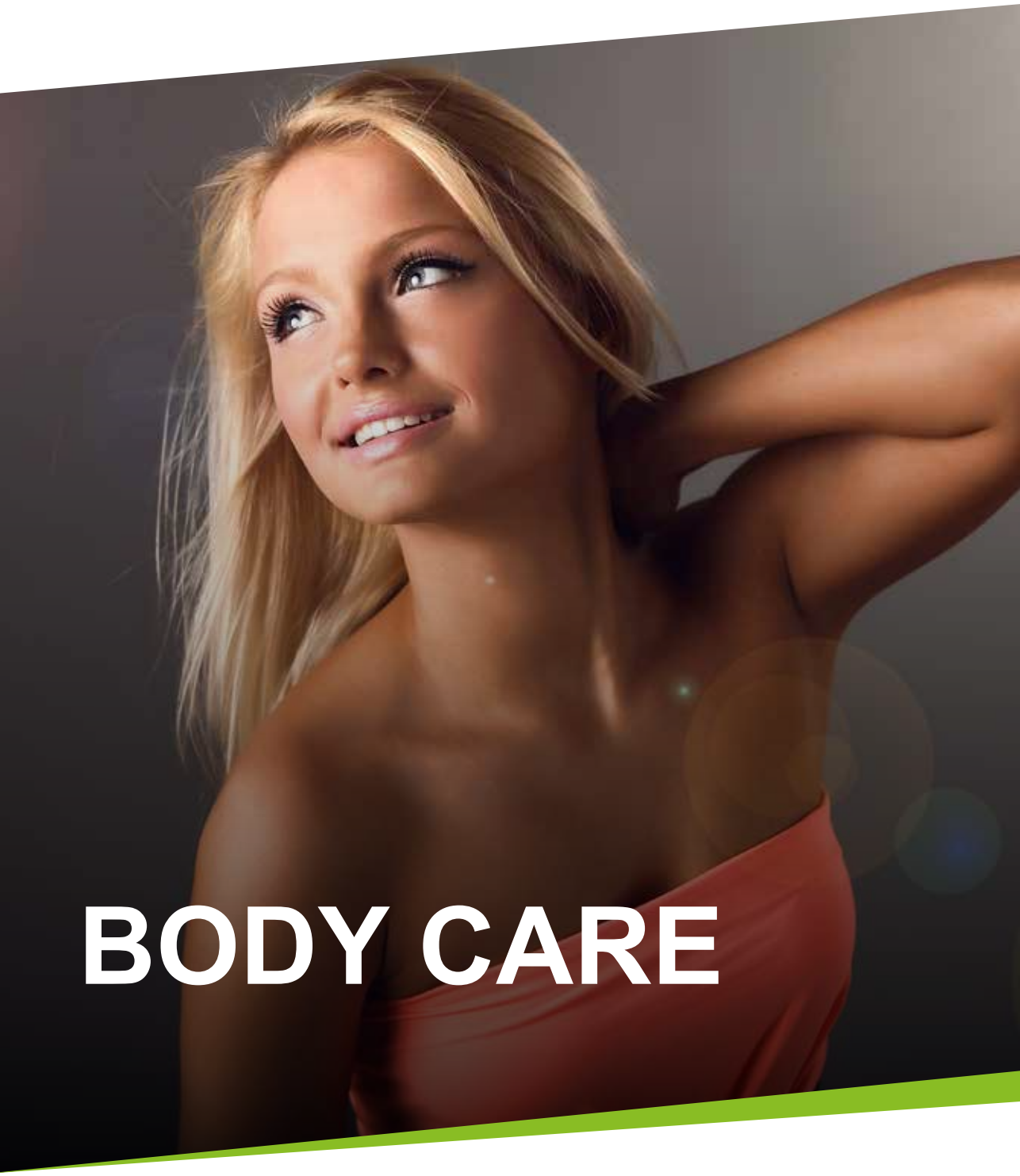
- Cabin Light



Code	Item description	Standard Part No.	Dimensions (mm)		Watt (W)	Voltage (V)	Cap	Colour Temp. (K)	Light Output (lm)	Packaging Quantity
			L	D						
T8										
0002944	F15WT8-840	ABS1238-26-15B	437	26	15	55	G13	4,000	950	25
0001096	F30WT8-840	ABS1238-26-30B	894	26	30	96	G13	4,000	2,400	25
0001097	F30WT8-840AIRLL*	ABS1238-26-30BP	894	26	30	96	G13	4,000	2,400	25
T5										
0000047	F13WT5-830	ABS1238-16-13A	517	16	13	95	G5	3,000	1,000	25
0000046	F13WT5-840	ABS1238-16-13B	517	16	13	95	G5	4,000	1,000	25
0002940	FHE14WT5-830	ABS1238-16-14A	549	16	14	82	G5	3,000	1,200	25
0002941	FHE14WT5-840	ABS1238-16-14B	549	16	14	82	G5	4,000	1,200	25
0002942	FHE21WT5-830	ABS1238-16-21A	849	16	21	126	G5	3,000	1,900	25
0002943	FHE21WT5-840	ABS1238-16-21B	849	16	21	126	G5	4,000	1,900	25
0001099	FHE28WT5-830	ABS1238-16-28A	1,149	16	28	167	G5	3,000	2,900	25
0001100	FHE28WT5-840	ABS1238-16-28B	1,149	16	28	167	G5	4,000	2,900	25
0001102	FHE28WT5-840AIRLL*	ABS1238-16-28BP	1,149	16	28	167	G5	4,000	2,600	25

*Long Life types exclusively by Sylvania

SYLVANIA



BODY CARE

Light your world

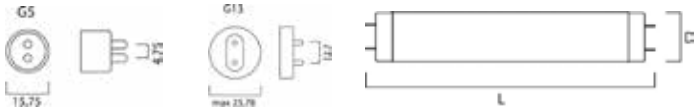
PURESUN - HOT

Features

- Long-lasting premium products that produce considerable amounts of UVA and UVB
- Strong enough to reach very short session times in any tanning equipment
- Designed to give your customers immediate colour using higher UVA and UVB levels
- With higher output, universal results and true 1,000 hour life make it a major advancement in the tanning
- Proprietary phosphors give a superlative tanning experience and quick results

Applications

- Short intense tanning sessions



Code	Item description	Mount design	Watt (W)	Length (mm)	Typ. radiation strength (mW/cm2)	UVB (%)	UVA (W)	Sun/Ery Factor (Fse)	Tanning Time ST3 (min)	UV-code	Packaging Quantity
T5											
0073014	PureSun 25W 1.5%		25	52	16	1.5	5.5	0.07	14	25-O-20/6.5	25
T12											
0071264	PureSun 160W 1.6% R Peak	Short	160	176	20	1.6	38	0.21	10	160-R-56/5.8	25
0071223	PureSun 160W 2.6% R	Short	160	176	23	2.6	38	0.27	6	160-R-103/8.2	25
0071284	PureSun 160W 3.6% R	Short	160	176	23	3.6	38	0.34	3	60-R-132/11.0	25
0071307	PureSun 160W 3.6% R	Long	160	176	28	3.6	46	0.46	3	160-R-148/11.3	25
0071245	PureSun 180W 3.3% R 1.9m	Short	180-200	190	23	3.3	41	0.32	4	180-R-125/10.4	25
0071237	PureSun 180W 2.6% R 2m	Short	180-200	200	23	2.6	42	0.27	6	180-R-103/8.2	25
0071285	PureSun 180W 3.6% R 2m	Short	180-200	200	23	3.6	41	0.35	3	180-R-137/11.0	25
0071318	PureSun 180/250W 3.0% R 2m	Long	180-250	200	32	3.0	53	0.41	4	180-R-125/10.0	25
0071319	PureSun 180/250W 3.6% R 2m	Long	180-250	200	32	3.6	53	0.47	3	180-R-148/11,3	25

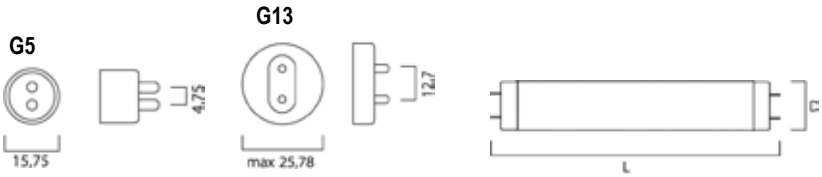
PURESUN - GENTLE

Features

- Designed to tan gently, within the limits set by EU regulations governing all types of tanning equipment
- long-lasting UV stability guarantees constant session times even after hundreds of hours
- Operates at the precise spectrum of wavelengths required for maximum tanning effect, but with reduced irradiance
- Offers exactly the right balance for reliable, even and gentle tanning
- Based on scientific research, these limit photo-biological irradiance values to 0.3 W/m2, which is equivalent to the summer sun at midday in the Mediterranean

Applications

- Short intense tanning sessions



Code	Item description	Mount design	Length (mm)	Typ. radiation strength (mW/cm2)	UVB (%)	UVA (W)	Sun/Ery Factor (Fse)	Tanning Time ST3 (min)	UV-code	Packaging Quantity
T5										
0073012	PureSun 15W 1.0%		288	16	1.0	2.8	0.03	21	15-O-7/3.8 for EU	25
0073009	PureSun 25W 1.0%		520	16	1.0	5.5	0.03	20	25-O-7/3.8 For EU	25
T12										
0071181	PureSun 100W 1.3%	Short	1,760	17	1.3	27	0.06	20	100-O-17/3.0 For EU	25
0071182	PureSun 100W 2.0%	Short	1,760	17	2.0	27	0.10	12	100-O-17/3.9 For EU	25
0071201	PureSun 100W 1.0% R	Short	1,760	20	1.0	30	0.10	19	100-R-35/4.1 For EU	25
0071301	PureSun 100W 1.3% R	Short	1,760	18	1.3	26	0.10	18	100-R-32/4.2 For EU	25
0071217	PureSun 160W 0.7% R	Short	1,760	21	0.7	33	0.08	22	160-R-31/2.1 For EU	25
0071281	PureSun 160W 0.8% R Peak	Short	1,760	25	0.8	38	0.09	17	160-R-34/3.1 For EU	25
0071214	PureSun 160W 1.0% R	Short	1,760	21	1.0	33	0.10	18	160-R-38/2.9 For EU	25
0071234	PureSun 160W 1.0% R Peak	Short	1,760	25	1.0	38	0.13	14	160-R-45/3.8 For EU	25
0071275	PureSun 160W 0.7% R Peak	Long	1,760	28	0.7	46	0.12	17	160-R-36/3.0 For EU	25
0071302	PureSun 180/200W 0.7% R 1.9m	Short	1,900	23	0.7	41	0.08	22	180-R-30/2.0 For EU	25
0071299	PureSun 180/200W 0.7% R 2m	Short	2,000	23	0.7	41	0.08	22	180-R-31/2.0 For EU	25
0071274	PureSun 180/250W R 0.5% Peak 2m	Long	2,000	28	0.5	51	0.08	23	180-R-27/2.0 For EU	25

PureSun™

100W 1.0% R

100-R-34/3.9 FOR EU

Sunlamp DANGER. Ultraviolet radiation.
Follow instructions. Use ONLY in fixture equipped with a timer.
Made in Germany
www.sylvania-lighting.com

100 - R - 34 / 3.9 FOR EU

1 2 3 4 5

1 WATTAGE CODE

Nominal wattage of the recommended ballast which is used for the measurement. It can be different than the ballast in the application.

2 REFLECTOR CODE

- O for non-reflector lamps
- B for lamps with broad reflector angle >230°
- N for lamps with narrow reflector angle <200°
- R for lamps with regular reflector 200°≤ ≤230°

3 X CODE

E_{er} [mW/m2] Total erythema irradiance over range 250nm-400nm

4 Y CODE

$E_{NMSC<320nm}$ / $E_{NMSC>320nm}$ ratio of the NMSC effective.

5 EU CODE

Shows that the lamp suitable for 0.3 regulation with high probability.

Wellness, sun tanning and body care in general are more and more part of modern life. Our Pure Sun range of sun tanning low-pressure tubes and high-pressure lamps leave barely any wish unfulfilled. Open and closed glass, 2-meter and miniature tubes, with and without reflectors, standard or long life versions, Pure Sun provides a matching solution for practically every requirement.

SYLVANIA

FLY KILLING

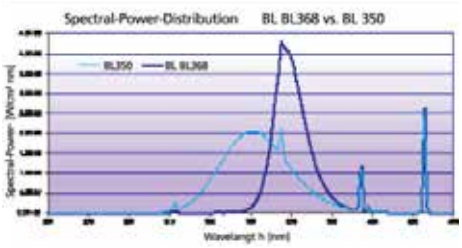
Light your world

FLY KILLING

BLACKLIGHT BL368

Major improvements:

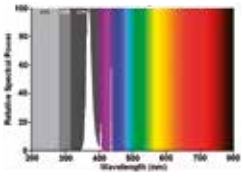
- The energy distribution of the BL368 lamp is a much narrower band concentrated around the spectral peak at 368nm. This is widely accepted as the most important frequency for the attraction of flying insects. The radiation at 368nm is twice as powerful as from BL350 tubes, and because of this the lamp attracts many more insects.
- Furthermore, the depreciation of UV-A output over time is significantly reduced. After 5000 hours of operation, the lamp maintains 80% of its original 100% output. The result is that it performs longer and better throughout the season. The lamps exist in linear, circline and compact versions. They are electrically and dimensionally equivalent to other fluorescent lamps of similar ratings.
  Besides insect trapping they also enjoy widespread applications in diazo printing machines, chemical processing, photo polymerisation and mineral detection.
  A new application, mostly for compact lamps, is nail curing devices. Sylvania's compact BL-lamps guarantee hat the drying process does not last longer than 2 minutes. The result is naturally shining and strong nails.

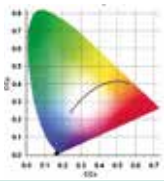


DIRECTIONS FOR USE

- Maximum exposure limits are set by EN60335-2-59:1997 at an effective 1,0 milliWatt per metre squared (1,0 mW/m2) measured at a distance of 1 metre – originally based on the recommendations of the National Radiological Protection Board in the UK. The irradiance value for a single BL368-lamp measured without reflector and/or fixture, in free air at 25 celsius, is varying between 0,2 and 0,4 mW/m2 depending on the wattage.

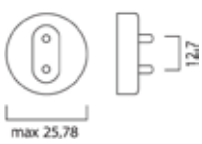
BLACKLIGHT BL368



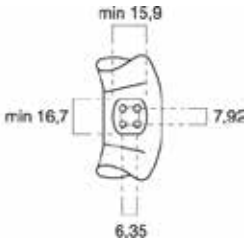


G5

G13



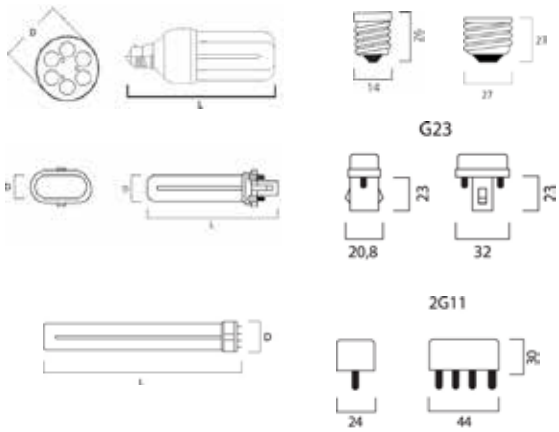
G10q

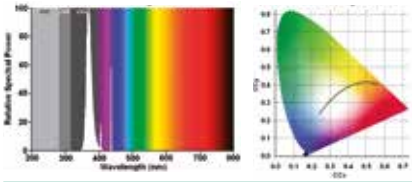


Code	Item description	Watt (W)	Volt (V)	Current (A)	Light Colour	Cap	Packaging Quantity
T5							
0000088	F6W T5 BL368	6	42	0.160	BL368	G5	25
0000089	F8W T5 BL368	8	56	0.145	BL368	G5	25
0000097	F11W T5 BL368	11	34	0.350	BL368	G5	25
0000090	F15W T5 BL368	15	44	0.310	BL368	G5	25
T8							
0000082	F15 T8 BL368	15	55	0.310	BL368	G13	25
0000091	F18W T8 BL368 24"	18	59	0.360	BL368	G13	25
0000092	F36W T8 BL368 24 "	36	50	0.850	BL368	G13	25
0000093	F 36 W T8 BL 368 48"	36	103	0.430	BL368	G13	25
0000094	F 58 W T8 BL 368 60"	58	110	0,670	BL368	G13	25
0000098	F30 T8 BL368	30	96	0.365	BL368	G13	25
0002166	F25 T8 BL368 18"	25	38	0.600	BL368	G13	25
T12							
0000361	F20 T12 BL368 24"	20	57	0.370	BL368	G13	25
0001638	F40 T12 BL368 24"	40	47	0.880	BL368	G13	25
0000099	F40 T12 BL368 48"	40	103	0.430	BL368	G13	25
T9							
0000456	FC22 T9 BL368 8"	22	62	0.400	BL368	G10q	12
0000100	FC32 T9 BL 368 8"	32	57	0.480	BL368	G10q	12

UV-A = 315-400nm UV-B = 280-315nm

BLACKLIGHT BL368 - COMPACT



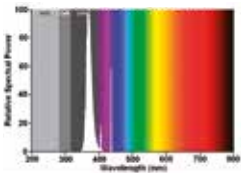


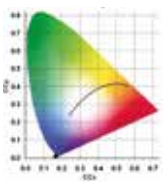
Code	Item description	Watt (W)	Volt (V)	Current (A)	Light Colour	Cap	Packaging Quantity
0025411	Lynx-S 9W BL368	9	60	0.170	BL368	G23	50
0025412	Lynx-S 11W BL 368	11	91	0.155	BL368	G23	50
0025268	Lynx-L 18W BL368	18	58	0.375	BL368	2G11	10
0025710	Lynx-L 36W BL368	36	106	0.435	BL368	2G11	10
0025716	MiniLynx 18W BL368	18	230	0.160	BL368	E14	10
0025706	MiniLynx 20W BL368	20	230	0.160	BL368	E27	20

UV-A = 315-400nm UV-B = 280-315nm

Airborne insects such as the common house fly, wasps, midges, etc. can each carry up to 4 million bacteria. The potential for contamination occurs wherever they land, and their presence is absolutely unacceptable in areas of hygiene. Sylvania manufactures a powerful arsenal of UV-A lamps to attract these insects so that they can either be destroyed, or decontaminated in a humane fashion. The product range includes numerous shapes, sizes and different spectra to suit every application. UV-A lamps enjoy numerous spin-off applications in other industries as well. One of the most important is to be found in the cosmetics business, where UV-A tubes are employed in the gel method of professional finger nail curing.

BLACKLIGHT THOUGHCOAT™





What are Toughcoat™ lamps?

Toughcoat™ lamps are shatter resistant blacklight lamps ensuring excellent fragment retention in the event of breakage. The tubes are coated with Teflon FEP (fluorinated ethylene propylene). This coating differs from conventional PET (PolyEthylene Terphthalate) polymers in that it transmits 97% of the UV-radiation so as to maintain maximum insect attraction. FEP is also a much tougher material which will not become brittle as it ages.

Why use Toughcoat™ lamps?

For many companies, especially those operating in the food area (also restaurants), the risk of glass and mercury contamination is real. Toughcoat lamps pay dividends in avoiding injury, contamination and loss of production time in case a lamp should be broken. Within the EU, Health and Safety regulations carry heavy penalties for avoidable injury of employees, making these lamps an especially sound investment, to meet the HACCP guidelines.depending on the wattage or about one-fifth of the limit.

DIRECTIONS FOR USE

- Maximum exposure limits are set by EN60335-2-59:1997 at an effective1,0 milliWatt per metre squared (1,0 mW/ m2) measured at a distance of 1 metre – originally based on the recommendations of the National Radiological Protection Board in the UK. The irradiance value for a single BL or BL368-lamp measured without reflector and/or fixture, in free air at 25 celsius, is varying between 0,2 and 0,4 mW/m2

Code	Item description	Watt (W)	Volt (V)	Current (A)	Light Colour	Cap	Packaging Quantity
T5							
0001648	F8W T5 BL368 Toughcoat™	8	56	0.145	BL368	G5	25
0001650	F15W T5 BL368 Toughcoat™	15	44	0.310	BL368	G5	25
T8							
0000124	F15W T8 BL 368 Toughcoat™	15	55	0.310	BL368	G13	25
0001651	F25W T8 BL 368 Toughcoat™ 18"	25	38	0.600	BL368	G13	25
0001652	F30W T8 BL 368 Toughcoat™ 24"	30	96	0.365	BL368	G13	25
0001664	F18W T8 BL368 Toughcoat 24"	18	57	0.370	BL368	G13	25
0001665	F36W T8 BL368 Toughcoat 24"	36	103	0.430	BL368	G13	25
T12							
0000125	F20W T12 BL 368 Toughcoat™ 24"	20	57	0.370	BL368	G13	25
0000126	F40W T12 BL 368 Toughcoat™ 24"	40	47	0.880	BL368	G13	25
0001630	F40W T12 BL 368 Toughcoat™ 48"	40	103	0.430	BL368	G13	25

UV-A = 315-400nm UV-B = 280-315nm

SYLVANIA

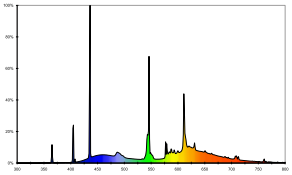
FOOD DISPLAY

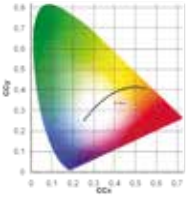
Light your world

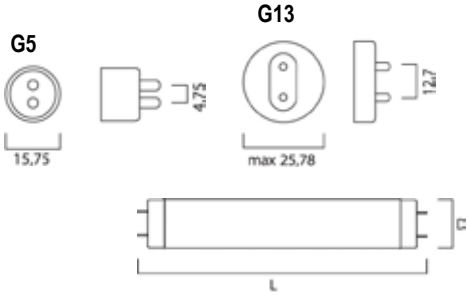
foodstar MEAT

Features

- Features a specially tailored spectrum that complements the natural colours of meats.
- Illuminates meat and charcuterie in their optimum colours for an irresistible presentation.
- The truthful colour rendering does not disturb the natural colours of the products
- Manufactured in compliance with the DIN 10504 standard
- Available in Toughcoat–version (shatter proof). The protective FEP coating meets the IEC600682-75 pendulum hammer test (5 Joule) and 4m drop test demonstrating excellent glass retention in the event of accidental lamp breakage





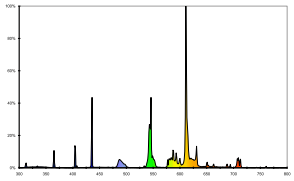


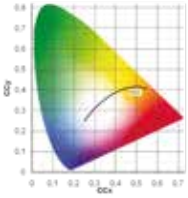
Code	Item description	Watt (W)	Volt (V)	Current (A)	Lenght (mm)	CRI	Cap	Colour Temp. (K)	Light Output (lm)	Packaging Quantity
FoodStar Meat - T5 Fluorescent										
0001854	FHE 14W T5 176 FoodStar Meat	14	86	0.165	549	2A	G5	3,000	650	25
0001819	FHE 21W T5 176 FoodStar Meat	21	126	0.165	549	2A	G5	3,000	1,050	25
0001820	FHE 28W T5 176 FoodStar Meat	28	166	0.170	1,149	2A	G5	3,000	1,500	25
0001821	FHE 35W T5 176 FoodStar Meat	35	205	0.175	1,449	2A	G5	3,000	1,850	25
FoodStar Meat - T8 Fluorescent										
0001855	F18W T8 176 FoodStar Meat	18	57	0.370	590	2A	G13	3,000	700	25
0001856	F30W T8 176 FoodStar Meat	30	96	0.365	895	2A	G13	3,000	1,250	25
0001817	F36W T8 1M 176 FoodStar Meat	36	80	0.560	970	2A	G13	3,000	1,600	25
0001816	F36W T8 176 FoodStar Meat	36	103	0.430	1,200	2A	G13	3,000	1,800	25
0001818	F58W T8 176 FoodStar Meat	58	110	0.670	1,500	2A	G13	3,000	2,850	25
0001857	F70W T8 176 FoodStar Meat	70	128	0.700	1,764	2A	G13	3,000	3,250	25
FoodStar Meat - T8 Fluorescent Toughcoat™										
0001793	F36W T8 176 FoodStar Meat TC	36	103	0.430	1,200	2A	G13	3,000	1,800	25

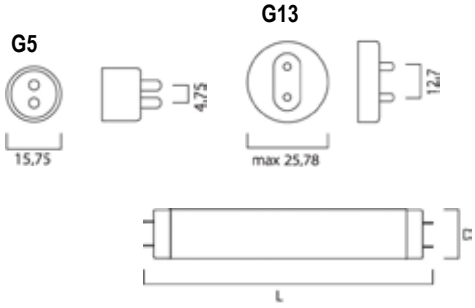
foodstar BREAD

Features

- FoodStar bread lamps have a radiation concentrated in the yellowish part of the spectrum
- Truthful colour rendering does not disturb the natural colours of the products
- Reduced warm up of the goods illuminated





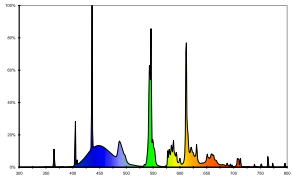


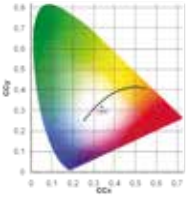
Code	Item description	Watt (W)	Volt (V)	Current (A)	Lenght (mm)	CRI	Cap	Colour Temp. (K)	Light Output (lm)	Packaging Quantity
FoodStar Bread - T5 Fluorescent										
0001858	FHE 21W T5 FoodStar Bread	21	126	0.165	849	2A	G5	2,300	1,650	25
0001859	FHE 28W T5 FoodStar Bread	28	166	0.170	1,149	2A	G5	2,300	2,250	25
0001860	FHE 35W T5 FoodStar Bread	35	205	0.175	1,449	2A	G5	2,300	2,850	25
FoodStar Bread - T8 Fluorescent										
0001862	F30W T8 FoodStar Bread	30	96	0.365	895	2A	G13	2,300	2,100	25
0001863	F36W T8 FoodStar Bread	36	103	0.430	1,200	2A	G13	2,300	3,000	25

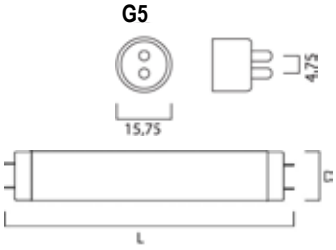
foodstar FRESH

Features

- Fruit and vegetables should reflect freshness. They need a higher colour temperature and cooler light and the display of fish needs it even more
- Truthful colour rendering does not disturb the natural colours of the products
- Reduced warm up of the goods illuminated







Code	Item description	Diameter	Watt (W)	Volt (V)	Current (A)	Lenght (mm)	CRI	Cap	Colour Temp. (K)	Light Output (lm)	Packaging Quantity
0001865	FHE 21W T5 FoodStar Fresh	T5	21	126	0.165	849	2A	G5	6,400	1,250	25
0001866	FHE 28W T5 FoodStar Fresh	T5	28	166	0.170	1,149	2A	G5	6,400	1,700	25
0001867	FHE 35W T5 FoodStar Fresh	T5	35	205	0.175	1,449	2A	G5	6,400	2,150	25

With a specially modified spectrum, food display lamps are the perfect lighting for butchers, bakeries and supermarkets. In particular, meat products can be displayed very attractively using this form of specialist lamp. Food display lamps have an excellent colour rendering and are direct retrofit for conventional linear fluorescent lamps. Toughcoat lamps are shatter resistant lamps ensuring excellent fragment retention in the event of breakage.

SYLVANIA

GERMICIDAL

Light your world

THE GERMICIDAL ACTION OF UV-C RADIATION

AIR PURIFICATION

The Germicidal Action Spectrum diagram reveals that the optimal wavelength for the destruction of DNA is 265nm. An electrical discharge through mercury vapour produces intense radiation very near to this peak, at 253.7nm, wheren the Germicidal efficiency is about 85% of the theoretical maximum. UV-C mercury lamps are thus extremely effective in killing micro-organisms.

Low Pressure lamps

are the most efficient and are manufactured in the form of linear or compact fluorescent lamps, but without any fluorescent coating and a special UV-C transmitting glass tube. Peak performance is attained when the bulb temperature is around 40°C, which corresponds to an ambient temperature of 25°C. Lower or higher temperatures will both result in falling UV-C levels. In case the lamp is exposed to an air flow which may have a cooling effect, it is desirable to use HO (High Output) types which are loaded at higher wattage than normal, to maintain optimal bulb temperatures even in colder environments.

High Pressure lamps

are slightly less efficient but have the advantage of producing extremely intense radiation over a small area. For instance, typical high pressure lamps are loaded above 100 Watts per centimetre of discharge length whereas low pressure versions achieve less than 1 W/cm. The total UV-C output of a lamp is specified in Watts (W) and the irradiation density is expressed in μW/cm². A certain dose level is needed to kill each kind of micro-organism, this dose being a function of time (seconds) and power (Watts). For instance, a low UV power over a long period of time can have the same effect as a higher power for a shorter duration. The unit of energy is the Joule (J), which is equivalent to Watts per Second. 100J could be delivered by 1W for 100 seconds, or 100W for 1 second, or even 20W for 5 seconds, etc. Dose levels needed to kill a particular micro-organism are expressed in Joules per square metre (J/m²). Some are tougher than others and require more UV-C to kill them. The table on Page 6-7 indicates the dose level needed to destroy 90% of the population.

AIR PURIFICATION

Air is easy to purify because it is quite transparent to UV-C, allowing it to penetrate and kill floating bacteria which are responsible for many airborne infections. Direct irradiation methods can be based on ceiling mounted lamps which are energised whilst the room is unoccupied, upward radiation mounted safely above eye height, or concealed downward radiation to sterilise floors. Alternatively, Germicidal lamps may be mounted within air ducts of the ventilation system which has an advantage that high UV doses can be given, because the lamps are out of view. Portable stand-alone units which draw in air, purify it and then expel back into the room are becoming increasingly popular.

WATER/LIQUID PURIFICATION

Liquids are more challenging to purify because they tend to absorb some of the UV-C themselves. To design suitable equipment the absorption coefficient needs to be known, as well as the flow rate and dose. Some examples of absorption coefficient for various liquids are given in the table.

Drinking Water:

Germicidal sterilisation is increasingly being sed in municipal water installations to circumvent the ecological impact of chlorine, and because filters cannot catch all micro-organisms. It is also employed in smaller scale residential installations, and in many water cooler-dispensers.

Swimming Pools:

The use of a UV-C purification unit can realise significant cost savings, by reducing the use of chlorine by up to 50%.

Ponds & Aquaria:

A closed-loop system which circulates the water over a germicidal lamp a few times per day not only reduces parasites, but substantially reduces the build-up of algae.

SURFACE PURIFICATION

Requires high intensities, so lamps should be mounted as close as possible to the surface for disinfection. A high
uniformity of irradiance is essential, ensured by a professional optical system for distribution of the radiation, so that no areas are left untreated.

GERMICIDAL

GERMICIDAL LINEAR

Features

- These lamps consist of a tubular glass envelope and emit more than 85% of their energy in the UV-C ultraviolet radiation with a peak at 253.7nm for germicidal action
- Shape, electrical characteristics and lighting circuits are similar to general fluorescent lamps
- The majority of germicidal lamps operate most efficiently in still air at an ambient temperature of 25°
- All lamps are Ozone free
- A protective coating on the inside of the lamp limits the depreciation of the UV-C output

Applications

- Residential drinking water units
- Stand alone air purifiers
- Wall mounted air purification units
- Ponds & Aquaria

Directions for use

- The radiation from these lamps is very harmful to eyes and skin. Always protect your eyes and skin against radiation.
- Germicidal lamps must only be used in appropriate equipment and applications.
- When using UV-C emitting lamps, the official reference guides and the current industrial safety guideline must be followed.
- Maximum Permissible Exposure Time (MPET) can be established for a given range of wavelengths.
- For example: 1 minute/day at a distance of 30cm.
- Germicidal lamps emit UV-C radiation and must not be used for general lighting purposes.

Code	Item description	Watt (W)	Volt (V)	Current (A)	UV-C output (W) at 25°C	UV µW/cm² at 1m	Cap	Length (mm)	Diameter (mm)	Packaging Quantity
T5										
0002328	G4W T5	4	30	0.162	0.8	8.3	G5	136	16	50
0002216	G6W T5	6	44	0.147	1.7	17.7	G5	212	16	50
0000501	G8W T5	8	56	0.170	2.5	26	G5	288	16	24
T8										
0000517	G15W T8	15	55	0.310	4.9	50.5	G13	437	26	25
0000518	G30W T8	30	96	0.365	13.4	135	G13	894	26	25
9000526	G25W T8	25	46	0.600	6.9	71.8	G13	437	26	24
0002208	G55W T8	55	83	0.770	18	194	G13	894	26	24
0002217	G58W T8	58	100	0.670	20	202	G13	1,500	26	12

GERMICIDAL

GERMICIDAL COMPACT

Features

- These lamps have all the benefits of linear germicidal lamps, but have also a very compact design. This allows for compact fixture design. As they are single ended, replacement is very easy
- The HO (High Output) lamps are most efficient in air purification installations, as they are wind chill corrected
- Shape, electrical characteristics and lighting circuits are similar to general lighting compact fluorescent lamps
- The majority of germicidal lamps operate most efficiently in still air at an ambient temperature of 25°
- All lamps are Ozone free
- A protective coating on the inside of the lamp limits the depreciation of the UV-C output

Applications

- Residential drinking water
- Pond water
- Induct air treatment units
- Stand alone air purifiers

Directions for use

- The radiation from these lamps is very harmful to eyes and skin. Always protect your eyes and
- skin against radiation.
- Germicidal lamps must only be used in appropriate equipment and applications.
- When using UV-C emitting lamps, the official reference guides and the current industrial safety guideline must be followed.
- Maximum Permissible Exposure Time (MPET) can be established for a given range of wavelengths.
- For example: 1 minute/day at a distance of 30cm.
- Germicidal lamps emit UV-C radiation and must not be used for general lighting purposes.

Code	Item description	Watt (W)	Volt (V)	Current (A)	UV-C output (W) at 25°C	UV µW/cm² at 1m	Cap	Length (mm)	Diameter (mm)	Packaging Quantity
0025015	G90W Lynx-L HO	90	115	0,800	27,0	250	2G11	533	40	1
0025047	G13W Lynx-S	13	59	0.285	3.6	49.3	GX23	170	28	1
0025048	G36W Lynx-L	36	106	0,435	12,0	164,5	2G11	415	40	1

SYLVANIA

HORTICULTURE

Light your world

HORTICULTURE

GRO-LUX® HORTICULTURE SOLUTIONS

The demand for horticulture products has never been higher with growing populations, rising food prices and the desire for fresh, organic all year-round crops.

The rapidly exponential growth of horticultural indoor farming is due to increased modern requirements and demands. It gives growers control of year-round crops that are not affected by weather conditions and changeable, and at times, extreme temperatures. Food crops are just one of the many applications as the demand for out-of-season flowers and medicinal plants rises.

Light is the energy that is needed by plants to produce food and other nutrients required for growth and flowering. Plants are unique in that they are the only organisms that can convert light into food. The process is called photosynthesis.

Gro-Lux® is a plant growth lamp

A plant growth lamp is a lamp that produces the proper balance of blue and red energy needed for plant growth, and has its major output in these two regions. It is designed to provide this energy for plants, and for no other purpose.

Colour or quality of light used

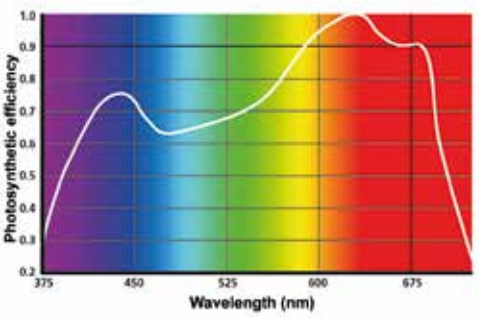
The leaf of the plant is the 'factory' where the energy from light is absorbed and converted to food. Leaves are green because the chlorophyll, which is the light absorbing pigment, is of green colour. We are able to see this green colour because the leaves reject the green light by reflection. At the same time chlorophyll is rejecting green light, it is absorbing light in the blue and red areas of the spectrum. The requirement for red light is generally greater than that for blue, so it is essential to have a correct balance of energy in red and blue portions of the spectrum.

For normal growth, plants require a balance of blue and red energy in a light source. Red light provides energy for both photosynthesis and chlorophyll synthesis. Red energy tends to promote seed germination, seedling and flowering.

Quantity or intensity of light

In addition to requiring the proper light colour, plants also require different quantities or intensities of light. Plants which normally grow in full sun light require higher intensities of light than plants that normally grow in shade or semi shade. The light intensity is described in terms of a spectral power distribution (SPD), which measure the power per unit area per unit wavelength of an illumination.

In 1972, the contribution of Dr. McCree on photosynthesis in crop plants which put in light the spectrum of plant as a function of light energy to the different wavelength of light. This is commonly named as the McCree curve.

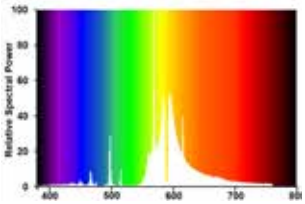


SHP-TS GRO-LUX®

Sylvania Gro-Lux® lamps are among the world's most powerful plant growth lamps with the best photosynthetic efficacy. The patented burner enables SHP Gro-Lux® lamps to efficiently convert electrical energy into photosynthetically active radiation. Due to the specially developed Gro-Lux® spectrum, the lamps are particularly suitable for all stages of plant growth

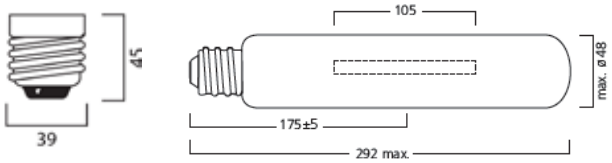
Features

- Delivers high photosynthetic efficiency
- The light spectrum of Gro-Lux® maximizes red output essential for plant growth
- Suitable for a plethora of applications related to plant growth
- Optimized for high phytolumens and PAR output



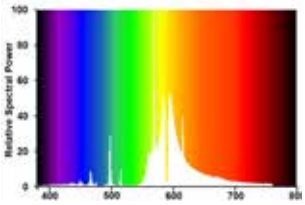
Applications

- Greenhouses
- Flower Plant Houses
- Domestic plant growth facilities



Code	Item description	Watt (W)	Volt (V)	Amp (A)	Mains Voltage (V)	PAR (µmol/s)	Visible lumens (lm)	Phyto-lumens	Efficiency (PAR/W)	Packaging Quantity
0020819	SHP-TS Gro-Lux® E40 250W KL	265	115	2.6	230	425	34,000	75,500	1.68	12
0020807	SHP-TS Gro-Lux® E40 400W KL	425	120	4.0	230	713	58,000	128,000	1.68	12
0020808	SHP-TS Gro-Lux® E40 600W KL	615	125	5.5	230	1,100	90,000	200,000	1.79	12
0020809	SHP-TS Gro-Lux® E40 600W 400V KL	620	200	3.5	400	1,180	88,000	215,000	1.90	12

SHP-T GROXPRESS



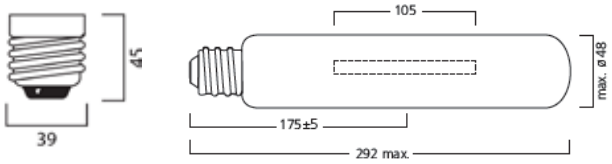
Sylvania's GroXpress is an ideal solution for small and medium scale greenhouses and domestic plant growth facilities for flowering plants and vegetables. It also provides an opportunity for out of season crops. SHP-T GroXpress is optimized for high Phytolumens and its light spectrum maximizes red output which is essential for plant growth.

Features

- Delivers high photosynthetic efficiency
- GroXpress light spectrum maximizes red output essential for plant growth
- Suitable for a plethora of applications related to plant growth
- Optimized for high phytolumens or PAR output

Applications

- Greenhouses
- Flower Plant Houses
- Domestic plant growth facilities



Code	Item description	Watt (W)	Volt (V)	Colour Temp. (K)	PAR (µmol/s)	Light Output (lm)	Phyto-lumens	Efficiency (PAR/W)	Packaging Quantity
0020816	SHP-T GroXpress E40 250W KL	250	100	2,000	370	33,000	66,000	1.48	12
0020817	SHP-T GroXpress E40 400W KL	400	100	2,000	640	55,000	115,000	1.60	12
0020818	SHP-T GroXpress E40 600W KL	600	115	2,050	950	90,000	165,000	1.58	12

GRO-LUX® LED LINEAR

AN INTELLIGENT LIGHTING SYSTEM FOR PLANTS

With Gro-Lux® LED Linear luminaire, Sylvania offers a well thought- out solution for all phases of plant growth for each type of lighting in commerical horticulutre.

GRO-LUX® LED MODULAR SYSTEM

Plant growers need flexibility from their horticulture lighting systems to meet plant growth needs and to maximise yields. For any type of installation, from small greenhouse facilities to large scale installations or for indoor farming projects, the modularity of the Gro-Lux® LED Linear is the solution for you. The Gro-Lux® LED modules can be used on their own, or fixed to the Gro-Lux® LED frames for a maximum output on top lighting installations.

FIRST CLASS PERFORMANCE

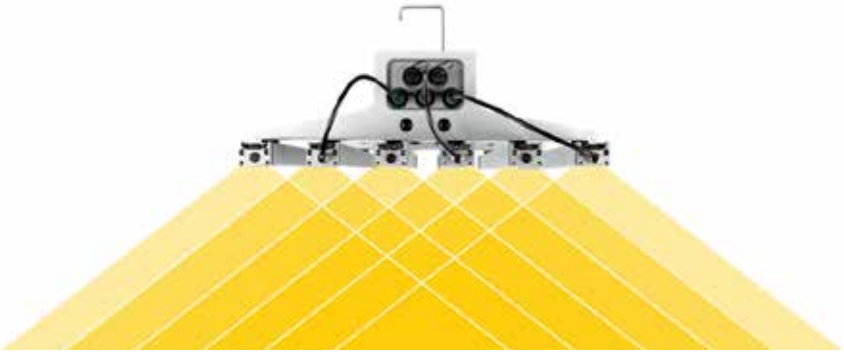
Higher light pentration due to serval overlapping light sources with minimal shadows can also reach lower leaves, which leads to a positive total effect on plant growth
30% energy saving with 396W luminaire replaces a 600W 400V EL greenhouse lamp tih up to 1080µmol
Uniform light distribution per module with 120°

A LUMINARE FOR HIGHEST DEMANDS

LED modules and luminaire are *available seperatly*
Operation of individual modules on an LED ballast for *“vertical farming” solutions*
Use of different modules - universal spectrum or in mix for High Red / High Blue
Different variants possible due to the flexible modules
Optimization and expandability through future available modules ensure an *optimal investment security*

QUALITY FROM THE BEGINNING

Long service life due to use of aluminium, heat-resistant cables and metal hanger
Protection class IP66 - Dust, jet and water vapour protected
Glass with anti reflection coating for an optimal light output
Goretex plugs for waterproof ventilation, protection against corrosion, increases service life
Wieland connectors ensure long life and high quality
Made in UK



GRO-LUX® LED LINEAR

Features

- Dimmable with separate controller
- Connection of up to 6 luminaires in series possible
- Easy installation with the push-and-click system due to simple electrical and mechanical interfaces
- Passive cooling minimizes heat generation
- Glass lenses - easy cleaning and no aging
- Life at TA=25oC (hrs): 50,000 L_{90}

Applications

- Greenhouses
- Flower plant houses
- Domestic plant growth facilities

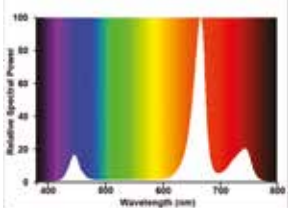
Vegetative Spectrum

Narrow spectrum Red/Blue (85%/15%). Optimised for maximum efficacy vegetative growth, only for supplementary lighting with natural sunlight.

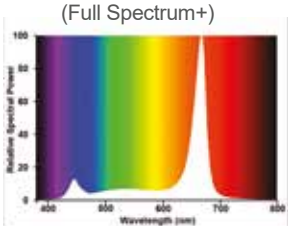
Universal Spectrum (Full Spectrum+)

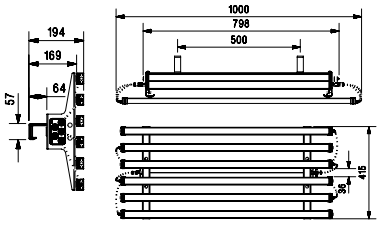
Wide Spectrum Red/Blue/White/Far Red. A Universal light source for all stages of plant growth, optimised for applications without natural sunlight.

Gro-Lux® LED Vegetative



Gro-Lux® LED Universal (Full Spectrum+)





Code	Item description	Spectrum	Watt (W)	Volt (V)	Phytosyn. Flux – PF (phytolumen)	PAR (µmol/s)	Biologically Active Photon Efficacy (µmol/J)	Lifetime at Ta 25°C (hrs)	Packaging Quantity
Gro-Lux® LED Linear Modules									
0020913	Gro-Lux® LED linear vegetative	Red/Blue (85%/15%)	59	42	34,000	180	3.06	50,000	1
0020914	Gro-Lux® LED linear universal	Universal Red/Blue/ White/Far Red	66	47	27,000	150	2.51	50,000	1
Gro-Lux® LED Linear Frames									
0020909	Gro-Lux® LED linear frame 4x	-	-	-	-	-	-	-	1
0020910	Gro-Lux® LED linear frame 6x	-	-	-	-	-	-	-	1

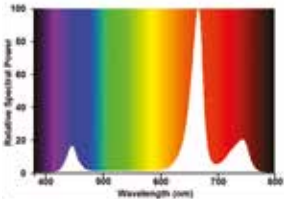
GRO-LUX® LED E27

The Gro-Lux® LED E27 series offers a complete range of lamps for horticulture. With two main spectrum for vegetative and flowering applications, Sylvania horticulture LED lamps have one of the highest PPF values on the market with up to 38.9µmol/s and an efficacy up to 2.25 µmol/J.

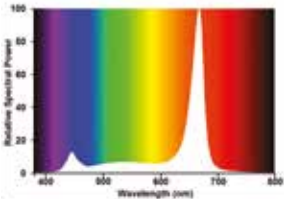
Features

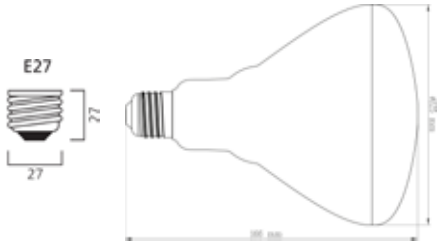
- E27 base / 120–240V
- IP44 rated
- 17W for both spectrum
- Photosynthetic efficacy up to 2.3µmol/J
- 25,000hrs L70B50 flux maintenance

Gro-Lux® LED Vegetative



Gro-Lux® LED Flowering





Code	Item description	Spectrum	Watt (W)	Volt (V)	Beam angle (°)	PAR (µmol/s)	Photosyn. Efficacy (µmol/J)	Photosyn. Photon Flux Density – PPFD at 1m (µmol/s/m2)	Lifetime at Ta 25°C (hrs)	Packaging Quantity
0020965	Gro-Lux® LED E27 Vegetative	White and Deep Red	17	120-240	115	39	2.3	13	25,000	1
0020966	Gro-Lux® LED E27 Flowering	White, Blue, Deep Red and Far Red	17	120-240	115	31	1.8	10	25,000	1

SYLVANIA

INFRA RED

Light your world

INFRA RED CLEAR QUARTZ HALOGEN LAMPS

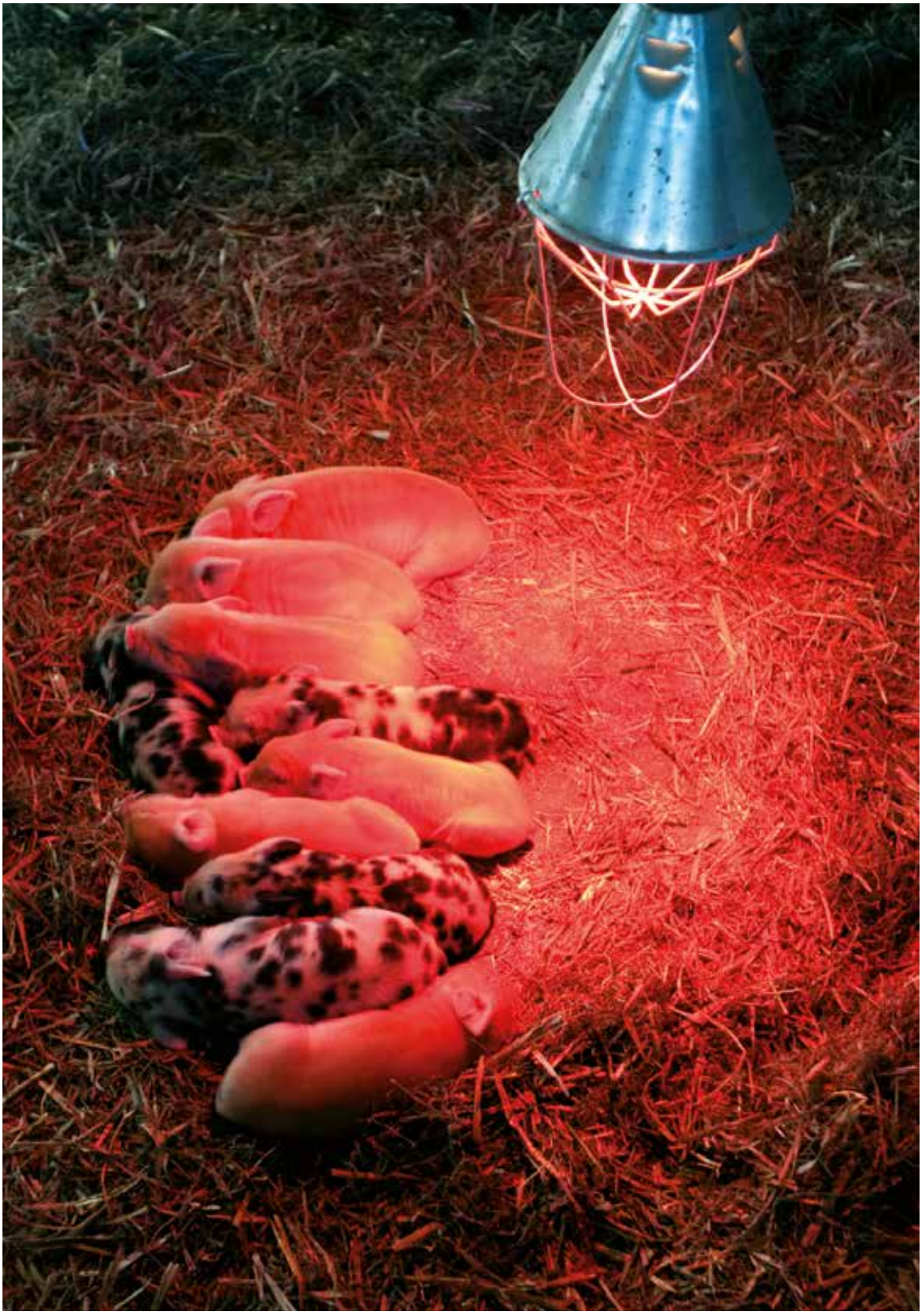
Features

- Tubular envelope made from transparent clear quartz
- Transmits the full spectrum of visible and infrared radiation
- Clear lamps are the most efficient for transmitting infrared energy
- Instant on-off capability

Applications

- The glare from the visible light component restricts these to industrial applications, e.g.:
  - Drying of paints in tunnels and automotive body shops
  - Heating of plastics for PET bottle blowing
  - High speed drying in paper production mills
  - Drying of lacquers and printing inks
  - Baking and curing of powder coatings
  - Thermal sterilisation

Code	Item description	Watt (W)	Volt (V)	Cap	Total Lamp Length A (mm)	Heating Length B (mm)	Diameter C (mm)	Finish	Burning Position	Colour Temp. (K)	Packaging Quantity
0033021	IR 300W CL R7s 230V	300	230	R7s	117.6	60	10.5	Clear	Horizontal	2,550	1



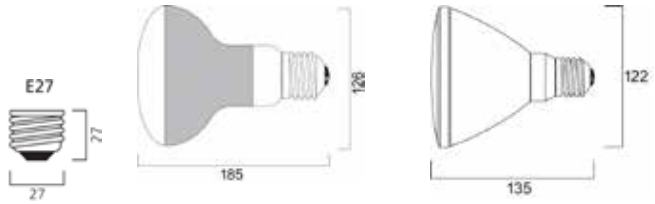
INFRA RED REFLECTOR INCANDESCENT LAMPS

Features

- Integral reflector facilitates simple and economical installations
- Pre-focussed optics deliver intensely controlled radiation
- PAR38 lamps have a pressed hard glass bulb with precision-optical lens
- R125 and R95 lamps have a blown hard glass bulb for low cost applications
- E27 cap allows use in almost any suitable lampholder
- Instant heat after switch-on
- All R125-lamps have a mechanically fitted base in order to avoid lose base problems

Applications

- Animal husbandry and other agricultural uses
- Food heating in the catering trade
- Wellness and medical applications for muscle relaxation
- Creates a pleasant warmth in bathroom drying areas
- Various industrial uses for drying, heating, vulcanizing, distilling, softening, melting, pasteurizing, polymerizing, evaporating, gelatinizing etc



Code	Item description	Watt (W)	Volt (V)	Cap	Total Lamp Length A (mm)	Diameter C (mm)	Finish	Burning Position	Packaging Quantity
0033002	IR R125 150W	150	240	E27	185	126	Ruby	Universal	12
0033011	IR R125 250W	250	240	E27	185	126	Ruby	Universal	12
0033014	IR PAR38 150W	150	240	E27	135	122	Ruby	Universal	12
0033015	IR PAR38 175W	175	240	E27	135	122	Ruby	Universal	12

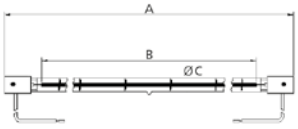
INFRA RED GOLD FILTER HALOGEN LAMPS

Features

- Tubular quartz envelope with gold dichroic coating
- Blocks more light than Ruby quartz types, for lower glare
- Advanced vacuum-sputtered coating won't crack or peel
- Coating extends right over the tip-off area – no light leaks

Applications

- Gradually replacing ruby quartz types where reduced glare is desirable
- Creates comfort zones in the outdoor cold, ideal for patios, restaurants and cafés
- Efficient spaceheating in large buildings e.g. churches, halls, warehouses, garages, stadiums, exhibition halls etc
- Glare free de-icing of pedestrian walkways



Code	Item description	Watt (W)	Volt (V)	Cap	Total Lamp Length A (mm)	Heating Length B (mm)	Diameter C (mm)	Finish	Burning Position	Packaging Quantity
0033048	IR 1500W GOLD SK15 235V Short Cable	1,500	235	SK15	353	280	12	Gold plated	Horizontal	1

SYLVANIA

PHOTO OPTIC

Light your world

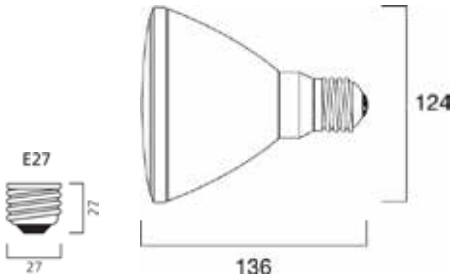
PAR38 COLOURED

Features

- Parabolic-shaped reflector made from hard glass
- Coloured front lens
- Choice of three colours: Blue, Red, and Yellow
- E27 cap

Applications

- Mainly used in commercial accent lighting
- To create special effects in bars, clubs and discos and in shop window displays



Code	Item description	Watt (W)	Volt (V)	Cap	Dimensions (mm)		Packaging Quantity
					L	D	
0019650	PAR38 240V 80W E27 BLUE	80	240	E27	136	124	10
0019652	PAR38 240V 80W E27 RED	80	240	E27	136	124	10
0019653	PAR38 240V 80W E27 YELLOW	80	240	E27	136	124	10

DICHROIC REFLECTOR 42/50MM

Features

- Compact filament
- Perfect alignment of the burner
- Highly efficient reflector/lamp combination
- Dichroic reflector, which radiates 75% of the heat backwards
- Long life versions for disco lighting
- Excellent lumen maintenance over life
-

Applications

- Discos and clubs – long life types
- Medical equipment
- Microfilm readers
- Fibre optic applications
- Enlargers
- Overhead projectors
- Slide projectors

Directions to use

- No dimming by more than 10% of their rated voltage. This will reduce life considerably
- Forced cooling necessary

Code	Item description	Watt (W)	Volt (V)	Cap	ANSI	Dimensions (mm)		Filament Type	Colour Temp. (K)	Reflector Surface	Packaging Quantity
						L	D				
0061743	ELC 24V 250W 1000H	250	24	GX5.3	ELC/10H	44.5	50.7	CC-6	3,300	Smooth	1
9060943	EKE 21V 150W	150	21	GX5.3	EKE	44.5	50.7	CC-6	3,250	Smooth	1

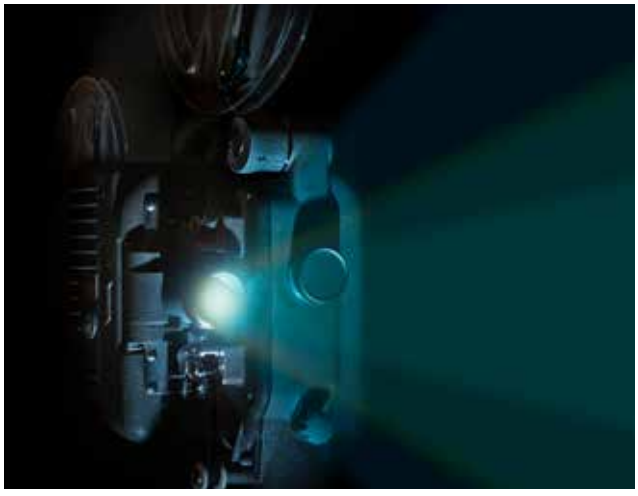


PHOTO OPTIC

STUDIO/FILM DOUBLE ENDED

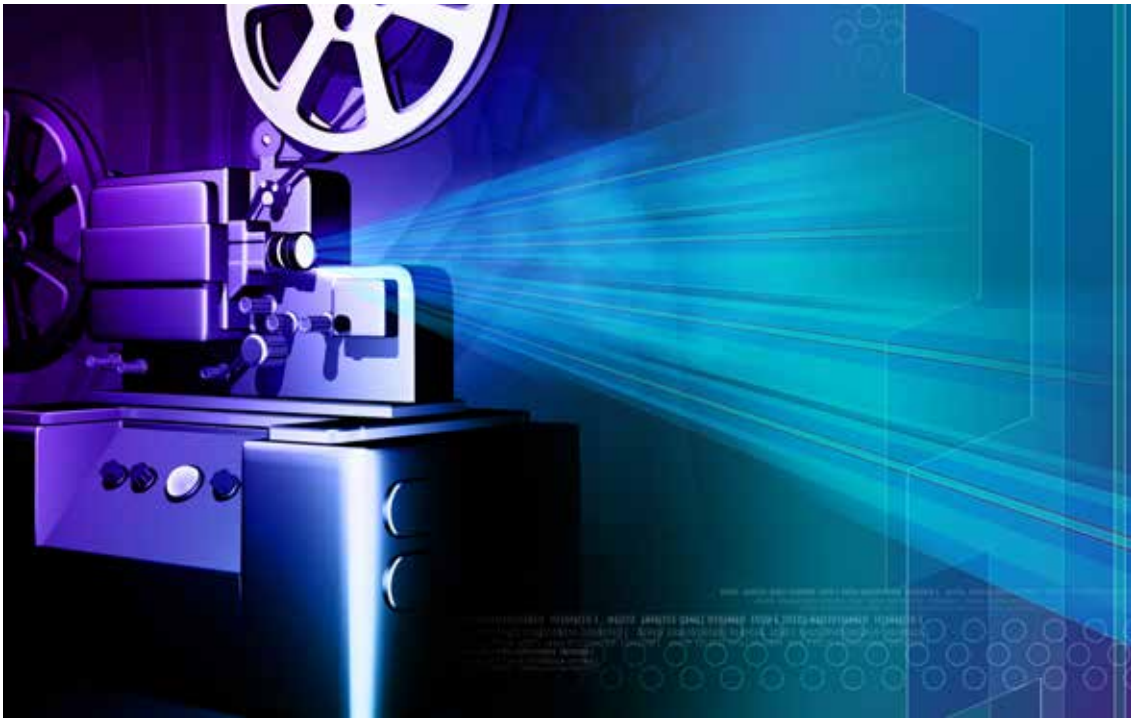
Features

- High constant light output
- High colour temperature

Applications

- Electronic News Gathering (ENG)
- Studio lighting
- Film lighting
- Overhead projectors (FAD type)

Code	Item description	Watt (W)	Volt (V)	Cap	ANSI	Dimensions (mm)		Filament Type	Colour Temp. (K)	Lumen Output (lm)	Packaging Quantity
						L	D				
0061321	DXX P2/13 L1115 240V 800W	800	240	R7s	DXX	80.3	14	CC-8	3,200	20,000	1



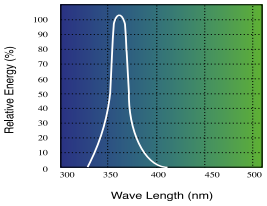
BLACKLIGHT BLUE LAMPS

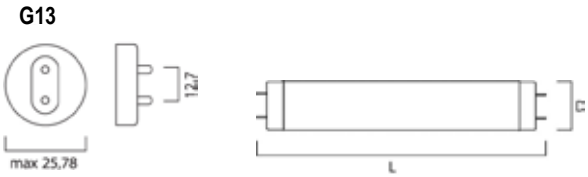
Features

- The lamps efficiently emit near ultraviolet radiation at 315nm-400nm with strong photochemical and fluorescent effects
- The special deep blue filter glass absorbs visible rays
- and transmits near (UV-A) ultraviolet rays only
- Shape, electrical characteristics and lighting circuits similar to general fluorescent lamps

Applications

- Special effects
- Counterfeit detection in philately, bank notes, papers, etc.
- Leak and crack detection
- Excitation of fluorescent paints in dark rooms
- Revealing fluorescence of drawings on textiles
- Geological investigation of stones and rocks





Code	Item description	Watt (W)	Volt (V)	Current (A)	Spectral Peak (nm)	UV-A Irradiance at 1 meter µW/ cm^2	Cap	Dimensions (mm) L	Dimensions (mm) D	Packaging Quantity
0000698	F18 T8 BLB	18	57	0.370	365	≥ 34.5	G13	597	26	25
0000699	F36 T8 BLB	36	103	0.430	365	≥ 70	G13	1,207	26	25
0000700	F58 T8 BLB	58	110	0.670	365	≥ 110	G13	1,507	26	25
0000696	F18W/BLB RETAIL	18	57	0.370	365	≥ 34.5	G13	597	26	10
0000697	F36W/BLB RETAIL	36	103	0.430	365	≥ 70	G13	1,207	26	10

Blacklight Blue lamps differ from standard fluorescent lamps only in the type and composition of phosphor used. The bulb is made of special darkblue filter glass that absorbs practically all of the visible light, yet freely transmits the ultraviolet radiation. Fixture requirements are simple since the lamp is a completely self-contained blacklight unit.

BLACKLIGHT MERCURY LAMPS

Features

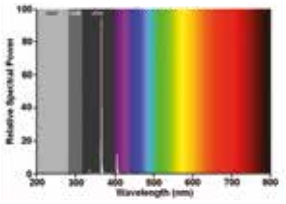
- Outer bulb in Wood's Glass
- Powerful, compact source of UV-A
- 15% UV depreciation per thousand hours
- Operates on conventional mercury ballast
- 160W version requires no ballast

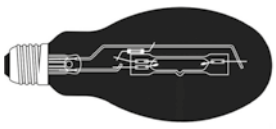
Applications

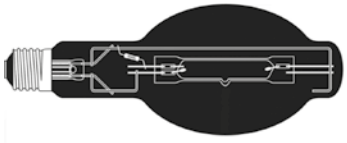
- Effect lighting
- Theatrical and stage lighting
- Leak and crack detection
- Advertisements and sign boards
- Geological investigation of stones and rocks
- Textile and Food Industries

Directions for use

- Burning position for 125W and 400W: universal
- Burning position for 160W: Vertical ± 30°
- 160W is a self ballasted lamp







Code	Item description	Watt (W)	Volt (V)	Current (A)	Bulb	UV-A@1m mW/m2	Circuit	Max. Diameter (mm)	Packaging Quantity
0023970	HSW 125W E27	125	125	1.15	ED75	400	External ballast	76	10
0023972	HSW 400W E40	400	135	3.25	BT1120	1,200	External ballast	122	10
0023973	HSBW 160W 230V E27	160	230/240	0.8	ED75	150	Self-ballasted	76	10

Thanks to a special bulb made from nickel-doped Wood's Glass, these mercury lamps represent a powerful source of blacklight at 365nm. The dark coloured envelope filters out virtually all visible light and dangerous short-wave UV rays, while allowing the deep violet and near UV-A to escape.
This produces brilliant fluorescence effects with many materials. The compact source allows a powerful beam to be projected with the use of a polished aluminium reflector.

PULSED XENON

Features

- Near continuous spectrum
- ranging from 200-1,000nm
- Colour temperature: 5,400K
- Xenon spectrum, similar to daylight
- Instant ignition, no warming up time
- Can be dimmed

Applications

- Strobe lights in discos

Directions for use

- Operate on a semi resonant ballast
- Ignitor providing a starting pulse of 10kV required
- Forced –air cooling needed
- Due to the high starting voltage, use only insulated lampholders
- The UV radiation must be cut out with a filter glass

Code	Item description	Watt (W)	Current (A)	Cap	Max. Pinch Temp. (°C)	Max. Bulb Temp. (°C)	Dimensions (mm)		Packaging Quantity
							L	D	
9023475	XP 1500W	1,500	10.7	Cable 15.8/14.7	350	650	398	12	10

SYLVANIA

SWIMMING POOL

Light your world

PAR56 12V SWIMMING POOL

Features

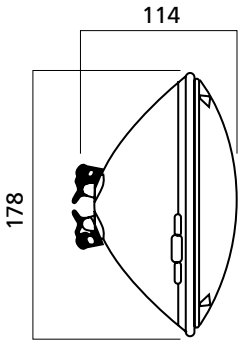
- Low voltage (12V) for safety reasons
- Heat resistant glass
- Sturdily constructed lamp absorbs mechanical shocks
- Wide beam

Applications

- Swimming Pools
- Fountains

Directions for use

- High running current (25A)



Code	Item description	Watt (W)	Volt (V)	Approx. Beam Spread Hor. x Vert. (°)	Base	Dimensions (mm) D	MOL	Peak Intensity (cd)	Colour Temp. (K)	Packaging Quantity
9061532	PAR56 12V 300W Swimming Pool	300	12	50 x 25	Screw	178	114	12,000	2,850	12

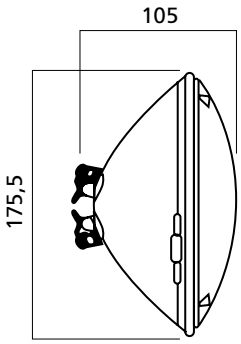
The Sylvania PAR56 LED represents a top class professional development for underwater illumination of swimming pools, fountains etc. By combining high power LEDs of red, green, blue & fixed white colours together with an internal microprocessor, it is capable of generating the full spectrum of colours. The lamp can be operated in a mode of continuous colour changing, or fixed at any desired colour by briefly switching off and back on again. An internal flash memory remembers this choice even after the lamp is switched off. This is facilitated by the optional Sylvania remote control and receiver.

PAR56 12V LED SWIMMING POOL

Features

- Choice between RGB colour changing or fixed white version
- Full PPS (Polyphenylsulphide) plastic body, very resistant material for use in plastic and metal fixtures against corrosion by chlorinated water
- Optimised colour control program facilitates setting of desired light colour
- Internal memory can be programmed to remember last chosen colour
- Perfect retrofit solution, to replace all incandescent PAR56 lamps
- Unique single-point light source for improved visual appearance, with advanced fresnel lens optics deliver impressive light and colour uniformity

- European production delivers outstanding performance and quality
- Unique sealing method, guarantees IP 68 water-tightness
- Low heat generation
- Long life 25,000 hours (when immersed in water < 30°C)



Applications

- Swimming Pools
- Fountains

Directions for use

- Only for use with magnetic (non electronic) transformer.
- The remote control is an optional accessory; lamps also function with ordinary switches.

Code	Item description	Watt (W)	Voltage	Current (A)	Total Lumen (lm)	Beam Angle (°)	Bulb	Base	Packaging Quantity
0060540	PAR56 LED RGB	12	12V AC 50/60Hz	1.67	R-G-B	40	PAR56	Screw Lugs	1
0060541	PAR56 LED WHITE	18	12V AC 50/60 Hz	2.50	1,000	40	PAR56	Screw Lugs	1
0060646	PAR56 LED WHITE SUPERIA	28	12V AC 50/60 Hz	3.89	2,000	40	PAR56	Screw Lugs	1
Optional Remote Control Unit									
0060542	PAR56 LED RECEIVER	600 VA (max.)	AC110/240V	3 (max.)	-	-	-	Screw terminals	1
0060543	PAR56 LED REMOTE CONTROL	-	2x3V battery	-	-	-	-	-	1

PAR56 LED Receiver PAR56 LED Remote Control

SYLVANIA

TRAFFIC

Light your world

AIRFIELD LYNX-L

Features

- Lamps with very specific colour point (CCx: 0,319, CCy: 0,369 after 100h) and colour temperature: 6,000K
- Colour point responds to the International Airfield Standard
- Very long reliable through life performance
- High colour rendering: Ra85

Applications

- Used in guidance signs to mark direction, destination and boundary

DIRECTIONS FOR USE

- Lamp ambient temperature should not be lower than -30°C
- Burning position: any

Code	Item description	Dimensions (mm)		Watt (W)	Current (mA)	Operating Voltage	Cap	Colour Temp. (K)	CCx	CCy	Light Output (lm)	Average Life (h)	Packaging Quantity
		L	D										
0025682	CF-L 24W/860 Airfield	320	40	24	345	50	2G11	6,000	0,319	0,369	1,700	15,000	10

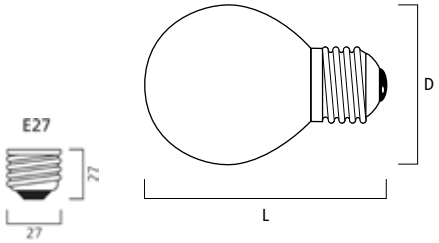
TRAFFIC SIGNAL INCANDESCENT BALL

Features

- Round (45mm) envelope
- Robust construction: the filament is held by extra supports to resist vibration
- Average rated life: 8,000 hours
- Available in E27 base

Applications

- Traffic lights and signs
- Private parkings
- Tramway traffic lights
- Industrial sites



Code	Item description	Dimensions (mm)		Watt (W)	Voltage (V)	Cap	Shape	Finish	Rated Lumens (lm)	Packaging Quantity
		L	D							
0009873	Signal ball 25W 230V E27	71	45	25	230	E27	Ball	Clear	150	10
0009893	Signal ball 40W 230V E27	71	45	40	230	E27	Ball	Clear	320	10

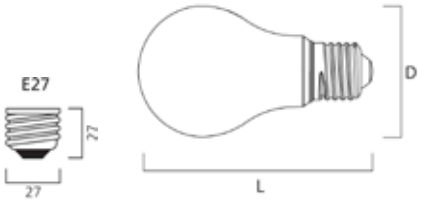
TRAFFIC SIGNAL INCANDESCENT GLS

Features

- GLS shaped envelope
- Robust construction: the filament is held by extra supports to resist vibration
- Average rated life: 8,000 hours
- Available in E27 base

Applications

- Traffic lights and signs
- Private parkings
- Tramway traffic lights
- Industrial sites



Code	Item description	Dimensions (mm)		Watt (W)	Voltage (V)	Cap	Shape	Finish	Rated Lumens (lm)	Packaging Quantity
		L	D							
0009754	Signal ball 100W 230V E27	104	61	100	230	E27	GLS	Clear	1,030	20

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0000047	F13WT5-830	19
0000069	F15W/Gro-Lux® Retail	8
0000082	F15 T8 BL368	26
0000088	F6W T5 BL368	26
0000089	F8W T5 BL368	26
0000090	F15W T5 BL368	26
0000091	F18W T8 BL368 24"	26
0000092	F36W T8 BL368 24 "	26
0000093	F 36 W T8 BL 368 48"	26
0000094	F 58 W T8 BL 368 60"	26
0000097	F11W T5 BL368	26
0000098	F30 T8 BL368	26
0000099	F40 T12 BL368 48"	26
0000100	FC32 T9 BL 368 8”	26
0000124	F15W T8 BL 368 Toughcoat™	28
0000125	F20W T12 BL 368 Toughcoat™ 24"	28
0000126	F40W T12 BL 368 Toughcoat™ 24"	28
0000150	F30W/Gro-Lux® Retail	8
0000361	F20 T12 BL368 24"	26
0000456	FC22 T9 BL368 8"	26
0000501	G8W T5	36
0000517	G15W T8	36
0000518	G30W T8	36
0000643	F15W/Aquastar Retail	6
0000644	F18W/Aquastar Retail	6
0000645	F25W/30 Aquastar Retail	6
0000646	F30W/Aquastar Retail	6
0000647	F36W/Aquastar Retail	6
0000648	F38W/Aquastar Retail	6
0000649	F58W/Aquastar Retail	6
0000696	F18W/BLB SYL-RETAIL	54
0000697	F36W/BLB SYL-RETAIL	54
0000698	F18 T8 BLB	54
0000699	F36 T8 BLB	54
0000700	F58 T8 BLB	54
0000707	F14W/Gro-Lux®	8
0000708	F15W/Gro-Lux®	8
0000709	F18W/Gro-Lux®	8
0000710	F25W/30 Gro-Lux®	8
0000711	F30W/Gro-Lux®	8

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0000713	F38W/Gro-Lux®	8
0000714	F58W/Gro-Lux®	8
0000715	F15W/Daylightstar Retail	11
0000716	F18W/Daylightstar Retail	11
0000717	F30W/Daylightstar Retail	11
0000718	F36W/Daylightstar Retail	11
0000728	FHO24W/Gro-Lux® Retail	9
0000729	FHO39W/Gro-Lux® Retail	9
0000730	FHO54W/Gro-Lux® Retail	9
0000731	F15W/Reptistar UV-B 5%	15
0000732	F18W/Reptistar UV-B 5%	15
0000733	F30W/Reptistar UV-B 5%	15
0000735	FHO24W/Coralstar Retail	12
0000741	F15W/Reptistar UV-B 10%	15
0000742	F18W/Reptistar UV-B 10%	15
0000743	F30W/Reptistar UV-B 10%	15
0000744	F36W/Reptistar UV-B 10%	15
0001096	F30WT8-840	19
0001097	F30WT8-840AIRLL	19
0001099	FHE28WT5-830	19
0001100	FHE28WT5-840	19
0001102	FHE28WT5-840AIRLL	19
0001523	F18W/Gro-Lux® Retail	8
0001524	F36W/Gro-Lux® Retail	8
0001525	F58W/Gro-Lux® Retail	8
0001630	F40W T12 BL 368 Toughcoat™ 48"	28
0001638	F40 T12 BL368 24"	26
0001648	F8W T5 BL368 Toughcoat™	28
0001650	F15W T5 BL368 Toughcoat™	28
0001651	F25W T8 BL 368 Toughcoat™ 18"	28
0001652	F30W T8 BL 368 Toughcoat™ 24"	28
0001664	F18W T8 BL368 Toughcoat 24"	28
0001665	F36W T8 BL368 Toughcoat 24"	28
0001679	F25W/30 Gro-Lux® Retail	8
0001793	F36W T8 176 FoodStar Meat TC	30
0001816	F36W T8 176 FoodStar Meat	30
0001817	F36W T8 1M 176 FoodStar Meat	30
0001818	F58W T8 176 FoodStar Meat	30
0001819	FHE 21W T5 176 FoodStar Meat	30
0001820	FHE 28W T5 176 FoodStar Meat	30
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0002216	G6W T5	36
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0002218	F18W/T8/Activa	17
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0002241	FHE 28W/T5/Activa	17
0002243	FHO 54W/T5/Activa	17
0002301	F15W/AquaClassic	14
0002302	F18W/AquaClassic	14
0002306	FHO24W/AquaClassic	14
0002307	FHO39W/AquaClassic	14
0002309	FHO24W/AquaClassic Retail	14
0002310	FHO39W/AquaClassic Retail	14
0002311	FHO54W/AquaClassic Retail	14
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0002313	F15W/AquaClassic Retail	14
0002314	F18W/AquaClassic Retail	14
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0002720	FHO24W/Marinestar	13
0002721	FHO39W/Marinestar	13
0002722	FHO54W/Marinestar	13
0002725	FHO24W/Marinestar Retail	13
0002740	FHO24W/Gro-Lux®	9
0002741	FHO24W/Aquastar	7
0002742	FHO24W/Coralstar	12
0002743	FHO39W/Gro-Lux®	9
0002744	FHO39W/Aquastar	7
0002745	FHO39W/Coralstar	12
0002746	FHO54W/Gro-Lux®	9
0002747	FHO54W/Aquastar	7
0002748	FHO54W/Coralstar	12
0002749	FHO80W/Gro-Lux®	9
0002750	FHO80W/Aquastar	7
0002752	FHO24W/Aquastar Retail	7
0002753	FHO39W/Aquastar Retail	7
0002754	FHO54W/Aquastar Retail	7
0002755	FHO39W/Coralstar Retail	12
0002820	F24W T5 I 8 Aquastar 438mm Retail	7
0002821	F24W T5 I 8 Gro-Lux® 438mm Retail	9
0002822	F28W T5 I 8 Aquastar 590mm Retail	7
0002823	F28W T5 I 8 Gro-Lux® 590mm Retail	9
0002824	F35W T5 I 8 Aquastar 742mm Retail	7
0002825	F35W T5 I 8 Gro-Lux® 742mm Retail	9
0002826	F45W T5 I 8 Aquastar 895mm Retail	7
0002827	F45W T5 I 8 Gro-Lux® 895mm Retail	9
0002828	F54W T5 I 8 Aquastar 1047mm Retail	7
0002829	F54W T5 I 8 Gro-Lux® 1047mm Retail	9
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0020816	SHP-T GroXpress E40 250W KL	41
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0071234	PureSun 160W 1.0% R Peak	22
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0071245	PureSun 180W 3.3% R 1.9m	21
0071264	PureSun 160W 1.6% R Peak	21
0071274	PureSun 180/250W R 0.5% Peak 2m	22
0071275	PureSun 160W 0.7% R Peak	22
0071281	PureSun 160W 0.8% R Peak	22
0071284	PureSun 160W 3.6% R	21
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0071299	PureSun 180/200W 0.7% R 2m	22
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0071307	PureSun 160W 3.6% R	21
0071318	PureSun 180/250W 3.0% R 2m	21
0071319	PureSun 180/250W 3.6% R 2m	21
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TERMS & CONDITIONS

I. Purchase order

1. Our offers are subject to change without notice.
2. Any purchase order and orders placed either orally or by telephone including any side agreements will not become legally valid until they have been confirmed in written form or executed by us.
3. All our deliveries will be carried out exclusively under our terms and conditions of delivery and payment. These terms and conditions will also be applicable to any future business relations. Deviations from our terms and conditions of delivery and payment will become legally valid only after written confirmation.

II. Value of minimum purchase

Minimum order value is 100€. Orders above 500€ are shipped free of charge in Germany and Austria. For orders below 500€ we charge 35€ freight fee. Only full packaging units are shipped. For partial packaging units a handling fee of 5€ for each item will be charged.

III. Prices

Our prices are exclusive of legal sales taxes ex works or distributing warehouse. Packaging and all cost caused by or in connection with the transformation of the WEEE-Directive on old electrical and electronical waste into national law shall be charged separately.

IV. Terms and conditions of payment

1. Invoices are payable in net amount within 14 days after date of invoice. In the case of a collection order for the customer's bank ac-count, we grant a 3% cash discount. The cash discount can only be granted if the customer has not previously defaulted on payments to us. Bills of exchange shall not be accepted.
2. In the event of delay in payments, interest on defaulted payment in the amount of 8% above the basic interest rate will be charged pro-vided damage at a higher amount has not been proven.
3. All our receivables shall be due with immediate effect if the customer does not adhere to the terms and conditions of payment, in particular if the customer delays his/her payments or if after closing of the con-tract conditions occur or become known to us, which demonstrate a decrease in credit worthiness of the customer. In these cases, fur-ther delivery and services shall only be carried out against advance payment.
4. The customer will only be able to offset receivables which are uncon-tested or have been approved in a legally effective manner. The same shall apply to the assertion of the right to retention.

V. Delivery and delay in delivery

1. Delivery dates and terms are only binding if they have been con-firmed by us in written form.
2. In the event that documents from the customer are needed or that down payments have been agreed upon for the execution of the or-der, the term of delivery will commence with the reception of the documents or the agreed-upon down payment, respectively. In the event that alterations in construction, shape, implementation, scope of delivery, etc. are agreed upon retrospectively, the term of delivery will be prolonged by the period of time required for the implementa-tion of the changes.
3. Even if terms and dates have been agreed upon by us in a binding man-ner, we shall not be held responsible for delays of deliveries caused by force majeure and by events which render the delivery significantly more difficult or impossible, in particular strikes, lock-outs, orders by authorities, etc., including those that occur with our suppliers or their upstream sup-pliers. The terms shall be prolonged by the amount of time of the duration of the obstacles plus an ade-quate start-in period.
4. In the event of a delay in delivery, the customer shall be entitled to damages for each completed week of delay in 0.5%, the total, how-ever, being of no more than 5% of the price of that part of the deliv-ery which the customer was not able to use in a purposeful manner due to the delay. This stipulation shall only apply if and when the customer is able to prove that he/she experienced a loss due to the delay.
5. Reasonable partial deliveries shall be permissible.
6. Any claim for damages, either by the customer due to either a delay in delivery or damages as a compensation for services, which go be-yond the limits stated in no. 4, shall be excluded in any case of de-lay in delivery, including after expiration of a term, if any, given to the seller for the delivery. This stipulation shall not be applicable in the case of legally-required liability due to intent, gross negligence, or harm to life, body, or health. The customer shall only be entitled to cancel a contract within the framework of the statutory provisions, if and when we can be held responsible for the delay in delivery. Changes to the burden of proof to the disadvantage of the customer shall not be connected with the aforementioned regulations.

VI. Impossibility of performance; Adjustment of contract

1. So far as delivery becomes impossible, the customer shall be entitled to claim for damages provided that we can be held responsible for the impossibility. The customer's claim for damages shall, however, be limited to 10% of the value of the part of the delivery the customer was not able to take into its purposeful operation due to the occurred impossibility. This limitation shall not be applicable in the case of le-gally-required liability due to intent, gross negligence, or harm to life, body, or health. Changes to the burden of proof to the disadvantage of the customer shall not be connected herewith. The customer's right to cancel the contract shall remain unaffected thereof.
2. So far as unforeseeable events pursuant to article V no. 3 consider-ably change the economic purpose or the contents of the delivery or have considerable influence on our business operation, the contract shall be adjusted adequately under observation of good faith. So far as this cannot be implemented for reasons of economic efficiency, we reserve the right to cancel the contract. In the event that we wish to make use of this right, we shall be obligated to immediately inform the consumer of this matter after insight of the scope of the event. This is applicable even in the event that a prolongation of the term of delivery was initially agreed upon with the customer.

VII. Passage of risk

1. Risk shall be transferred to the customer as soon as the goods have been handed over to the person carrying out the transport or as soon as the goods have left our warehouse for shipping purposes. This shall also be applicable in the event that the seller has assumed fur-ther services such as transport and installation or in the event that we have agreed to bear the cost of transport.
2. In the event that shipping is delayed due to reasons we cannot be held responsible for, risk shall be transferred to the customer starting from the date on which goods are ready for shipping.

VIII. Acceptance

Delivered items are to be accepted by the customer in any event, regard-less of whether they are faulty. Should this be the case, we are to be infor-med immediately. The goods shall be made available for examination by us or an authorized person for a reasonable peri-od of time. In the event of damage during transport or breakage of goods, X shall be applicable.

IX. Warranty and duty of complaint

1. Claims on defects shall only be brought forward within a one-year period upon delivery of the goods, so far as the defects are not in buildings or an object, respectively, which was used in accordance to its usual utilization for a building and which caused the building's de-fects and/or provided §§ 479 and 634a I no. 2 BGB (German Civil Code) do not provide for longer terms.
2. In terms of claims on defects, the customer shall initially only be entitled to demand subsequent fulfilment within a reasonable period of time (as long as the purchase was not sale of consumer goods).
3. In the event that the said subsequent fulfilment fails, the customer shall be entitled to cancel the contract or to demand a reduction in the purchase price.
4. Warranty shall not cover immaterial deviations or those defects which oc-curred with the customer due to natural wear and tear, im-proper handling or third party influence (e.g., improper installation, over-use, excess-voltage or frequency oscillations as well as chemi-cal influences).
5. The customer shall inspect the goods immediately upon delivery and shall immediately inform us of any defects in written form. Non-detectable defects shall be communicated to us in written form im-mediately after their detection. §§377 and 378 HGB (German Com-mercial Code) shall be applicable in individual cases for the duty of examination and complaint.
6. Cost for replacement (removing and installation) in the case of recti-fication of defects and/or replacement goods shall be borne by the

customer as long as the purchase is not sale of consumer goods. In this case, the statutory right of recourse by the customer vis-à-vis our company shall become applicable. This right shall be limited so far as the customer did not meet any agreements with his/her customer which go beyond the statutory claims on defects. As regards the scope, claims on replacement due to subsequent fulfilment cost by the customer shall be excluded so long as the cost are increased due to this fact, that the purchased goods were transferred after sale to a different location than the customer's premises, provided the de-livery is not in accordance with the latter's purposeful use.

7. In the event of notice of defects, payments may be withheld by the customer only in an amount which is in reasonable relation to the occurred defects. The customer may withhold payments only if an undisputed notice of defects is brought forward. In the event that the notice of defects was brought forward unreasonably, we reserve the right to request the customer to reimburse us with the cost incurred with us.
8. So far as the customer is entitled to claims for damages pursuant to this article IX, these shall be time-barred upon expiration of the period of limitation applicable to claims for defects pursuant to article IX no. 1. In the case of claims for damages pursuant to the product liability provision, the statutory provisions for limitations shall be applicable.

X. Transport and breakage damage

1. In the event that at the moment of delivery defects in the delivered goods are noticeable, the receiver shall note these defects by stating general details on the loss or the damage in an acknowledgement of receipt to be signed by both parties involved. The receiver shall immediately inform the delivering hauling compa-ny in written form of any non-detectable damage, at the latest on the sixth day after delivery.
2. In the event that the receiver violates a duty he has to adhere to pursuant to the aforementioned regulation, the damage shall be treated as if occurred after delivery.
3. Replacement deliveries shall only be carried out after examination of the complete documents and only within the framework of our deliv-ery possibilities.

XI. Exchange and return delivery

Any exchange of ordered goods shall be excluded. We shall not ac-cept return deliveries. In the event that the customer wishes to ex-change or return the goods due to special reasons in individual cas-es, this shall only be possible upon separate written agreement and only in the case of readily salable goods on stock. In this case, a service fee of a minimum of 20% of the order value shall be due.

XII. Acceptance and duty of recycling of packaging

For the fulfilment of the duties of manufacturers and sellers pursuant to the packaging regulation (Verpack V) we cooperate with third par-ties. Thus, packaging material delivered within the region of the Fed-eral Republic of Germany may be used anew or recycled beyond public waste disposal.

XIII. Reservation of ownership

1. We reserve the right to ownership of the goods up to the fulfilment of all receivables from all deliveries of goods.
2. The customer shall be entitled to sell the goods within his/her proper business operation. The customer shall be entitled to process the goods, re-shape, connect them with other objects or consume them. The custo-mer shall not be entitled to pawn the goods or any prod-ucts or to assign them as security. In the event that the goods are processed, re-shaped, or connected with other objects, manufactur-ing will be carried out for us. In the event that the goods are pro-cessed or re-shaped with objects which we do not have ownership of, we shall acquire co-ownership of the new objects in relation of the value of the conditional commodity to the other processed or re-shaped objects. Furthermore, the customer shall at this moment as-sign his/her receivables vis-à-vis his/her customers from the sale of the unchanged, processed, or re-shaped goods as well as from the goods manufactured with the use of such goods. If the goods are sold by the customer in connection with other goods which we do not have owner-ship of, the assignment of the purchase price receivable shall only be up to the amount of the value of the conditional com-modity. The same shall apply in the event of the sale of the goods after processing or re-shapin-gand in the event of a delivery due to a manufacturer's contract or another. We shall authorize the customer - until cancelled - to collect the assigned receivables in his/her name as trustee on our behalf.
3. In the event that the value of the securities pursuant to no. 1 and 2 ex-ceeds the secured receivables by more than 20%, we shall be ob-ligated to partial release upon customer's demand. We reserve the right to determine type and scope of these securities to be released.
4. In the event that the customer defaults on payments, or conditions appear or become known to us retrospectively which considerably decrease the customer's credit worthiness, in particular in regard to the discontinuance of payments, petitions for bankruptcy or for the initiation of composition proceedings, attachments in the form of lev-ies upon property, etc., the customer shall be obligated to release the conditional commodity. He shall lose his/her right to sell, pro-cess, re-shape the conditional commodity, to connect it with other objects, or to consume it. Moreover, the customer shall lose his/her right to collect receivables vis-à-vis third parties assigned pursuant to no. 2. In addition, the customer shall be obligated to disclose any in-formation for the purpose of the collection of the assigned claims and for the execution of the other security rights. Assignments pursuant to no. 2 are to be immediately communicated to third-party debtors.
5. The buyer shall be obligated to provide us with a list of the goods under reservation of ownership on his/her premises at any time and to inform us of any receivables and claims arising from resale, pro-cessing, and instal-lation under exact disclosure of all data required, in particular the complete address for pick-up of the respective cus-tomers as well as information on the goods these customers have purchased.
6. The customer shall be obligated to keep the conditional commodity and the volume of receivables from access by his/her creditors at his/her own cost and to protect them from influence by third parties. Furthermore, the customer shall immediately inform us in writing in the event of any imminent or implemented execution measures.

XIV. Liability

1. Irrespective of the legal grounds, we shall only be held liable for damage if and when we, our legal representative, or our vicarious agent cause the damage intentionally, or by gross negligence, or if and when fundamental stipulations of the contract are violated. Any claims for damages beyond the aforementioned shall be excluded. This shall particularly apply to da-mage arising during retouch works and to loss as consequence of defects.
2. The aforementioned shall not be applicable to damage caused by harm to life, body, or health, as long as it was caused by intentional violation of duties by us, or intentional, or grossly negligent violation of duty by our legal representatives or vicarious agents. In the event of a violation of duty – including the violation of funda-mental duties – we shall be liable for damages, in any case, howev-er, up to a maximum amount of 30 000 euros. Moreover, damages shall not exceed the overall loss, which we pre-dicted at the time of closure of the contract as possible consequence of the violation of duty or under consideration of the conditions known to us or the conditions we should have known or should have predicted. In regard to the term of liability, article VIII no. 1 shall be applicable.

XV. Place of performance, place of jurisdiction, and applicable law

Nuremberg, Germany, shall be the exclusive place of performance for any claims arising from the execution of the contract, its imple-mentation, and its termination. Nuremberg shall be the exclusive place of jurisdiction, so long as the customer is a fully-qualified mer-chant. Exclusively German law shall apply to any legal relations in connec-tion with this contract and its execution; the UN Convention on Con-tracts of the International Sale of Goods (CISG) shall be excluded.

XVI. Invalidity of individual provisions

The invalidity of any clause of these terms and conditions of delivery and payment shall not result in the invalidity of the other provisions.

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SYLVANIA

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Although every effort has been made to ensure accuracy in the compilation of the technical detail within this publication, specifications and performance data are constantly changing. Current details should therefore be checked with www.sylvania-lighting.com

Feilo Sylvania Germany GmbH
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