



Halogen lamps.

The brilliant light of halogen lamps has a much higher luminous intensity than that of ordinary light bulbs. Things simply look better in it.

They give surfaces a scintillating shine and provide an enchanting effect as the spectral colors shimmer in the reflectors. No wonder that halogen lamps are so popular among interior designers. Because the lamps are so compact and because there is such a wide variety, from narrow spotlights to wall washers, they offer enormous scope for creative lighting. They also last up to five times as long as conventional incandescent lamps.

Halogen lamps are moving into more and more applications. They are regularly in use for example at trade fairs and exhibitions, in shops, offices and hotels and of course throughout the home.

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Halogen lamps – innovative light for a clear view of things.

Halogen lamps.

Bright natural looking light, long life and greatly reduced electricity costs are the strengths of our modern halogen lamps. You can use them to brighten up your entire home, business or restaurant, both inside and outside, with everything from small reading lights to large spotlights. We particularly recommend our innovative ENERGY SAVER halogen lamps. By saving on CO₂ emissions they help reduce the greenhouse effect.

Halogen lamps from OSRAM provide feel-good light that has a similar effect to natural light. All our halogen lamps are fully dimmable, so depending on your mood you can have them as bright as daylight or as cozy as you like.

OSRAM halogen lamps not only look good, they perform a wide range of functions. They provide light in furniture, display cabinets and small luminaires, and can transform entire rooms. Thanks to their internationally standardized bases, halogen lamps can now be used in almost any luminaire. Obviously we offer halogen lamps for applications that require direct ac power supplies and applications that require transformers. The HALOGEN ENERGY SAVER lamps from OSRAM with screw bases are particularly practical as they are simple direct replacements for ordinary light bulbs.

The bulb on a halogen lamp always remains clear so the output remains constant throughout the life of the lamp. This is thanks to the halogen in the filler gas which prevents the vaporized tungsten from being deposited on the bulb by combining with it and flowing back to the hot filament. The tungsten is then deposited back on the filament and the halogen released in the process returns to the cycle.

OSRAM ENERGY SAVER lamps offer energy savings of up to 30%. This is achieved through two different principles.



Reduction in losses through thermal radiation (IRC).

Special bulb geometry and a high-quality coating on the bulb that reflects the thermal radiation (infrared) ensure that the heat emitted by the filament is directed back to the filament. This means that the filament is heated further, and less electrical energy is therefore needed. This technology is used for all the ENERGY SAVER low-voltage lamps (12 V) because of the optimum geometrical conditions.

Reduction in heat losses via the filler gas (xenon).

The thermal conductivity of the filler gas decreases in proportion to the size of the gas atoms (mass and diameter). By selecting the right filler gas it is possible to reduce the heat lost from the tungsten filament via the gas. This also means that less electrical energy is needed to heat the filament. By using a filler gas with atoms that are as heavy as possible the vaporization of the tungsten atoms from the filament can also be slowed down. The life of the lamp is extended as a result. Of all the inert gases, xenon best meets these requirements. Despite the high costs involved we therefore use xenon as the filler gas for all high-voltage ENERGY SAVER lamps from OSRAM.

Other effects.

If we take into consideration the lower costs for air conditioning and also the lower costs for relamping thanks to the longer life of ENERGY SAVER lamps the cost savings compared to standard lamps such as the DECOSTAR® ES may be as high as 65% depending on the electricity price.

Benefits of ENERGY SAVER technology:



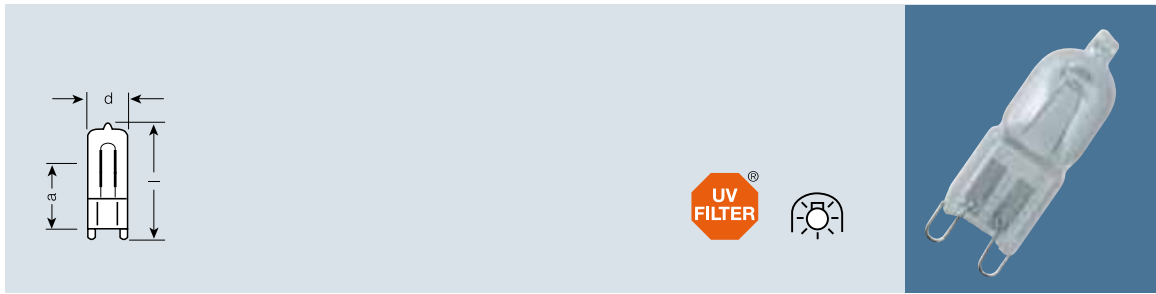
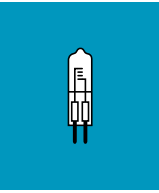
- Up to 30% cost savings
- Twice the average life for low-voltage halogen lamps and line-voltage halogen lamps with screw bases compared with equivalent standard lamps
- The luminous flux, luminous intensity and color perception remain constant throughout the life of the lamp
- Higher luminous efficacy
- Lower thermal output
- Lower power consumption

MANUFACTURER'S LAMP CROSS REFERENCE

Osram	Sylvania	Philips	GE
HALOSTAR	Low Pressure Capsule	CAPSULEline PRO	QUARTZ HALOGEN
DECOSTAR	Dichroic 50	HALOTONE	STANDARD MR16/MR11
DECOSTAR TITAN	Superia 35/50	BRILLIANTline PRO	PRECISE MR16/MR11
DECOSTAR 51 IRC	Coolfit 50	MASTERLINE	-
HAOSPOT 111	SA 111	ALUline PRO 111	-
HALOPIN	Hi-Pin	-	-
HALOPAR 16	Hi-Spot Superia ES50/ESD50	TWISTLINE PRO	MR16 TAL
HALOPAR 16	Hi-Spot Home ES50	TWISTLINE	MR16 TAL
HALOPAR 16	Hi-Spot 50	PAR 16 HalogenA	HALOGEN PAR 16
HALOPAR 20	Hi-Spot 63	PAR 20 HalogenA	HALOGEN PAR 20
HALOPAR 30	Hi-Spot 95	PAR 30S HalogenA	HALOGEN PAR 30
HALOLUX T	DLX-T	HalogenA PRO T 32	-
HALOLINE	Linear Double Ended	HALOTONE	QUARTZLINE

HALOPIN® ENERGY SAVER

HALOPIN®



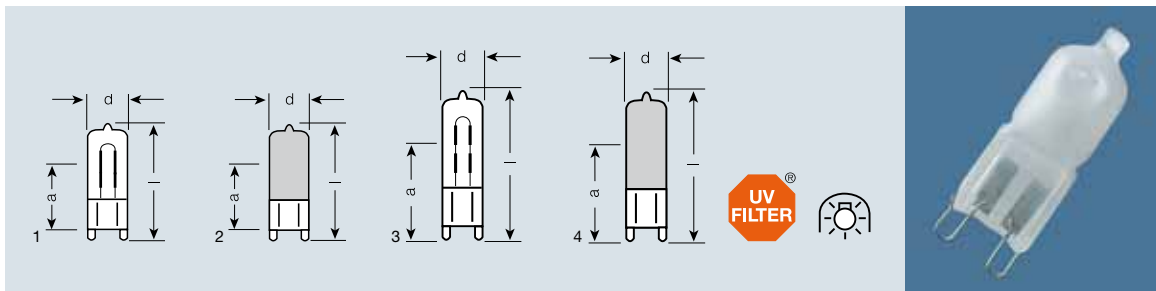
Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l max. [mm]	a	
HALOPIN® ENERGY SAVER										
66733 ES	4008321226327	33	240	460	2000	G9	14	43	22	10xBLI1



HALOPIN® ENERGY SAVER lamps from OSRAM are direct replacements for standard 40 W HALOPIN® lamps. Not only do they provide light that is at least as brilliant, they save up to 20% energy and CO₂.

- Up to 20% energy savings
- Robust filament design thanks to innovative, unique bulb pinch technology
- Complies with IEC 60432-3 thanks to integrated fuse function, the lamp shuts down reliably

- Approved for use in open luminaires to IEC 60598-1
- No transformer required
- Simple handling thanks to G9 plug-in base/holder system
- Color temperature approx. 2900 K
- Average life of 2000 hours
- Dimmable
- Extremely compact dimensions



Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l max. [mm]	a		No.
HALOPIN® CLEAR											
66725	4050300791814	25	240	260	2000	G9	14	43	22	20	1
66740	4050300791852	40	240	490	2000	G9	14	43	22	20	1
66660	4050300622965	60	240	820	2000	G9	14	51	26,5	20	3
66675	4050300623009	75	240	1100	2000	G9	14	51	26,5	20	3
HALOPIN® FROSTED											
66725 AM	4050300791838	25	240	230	2000	G9	14	43	22	20	2
66740 AM	4050300791876	40	240	460	2000	G9	14	43	22	20	2
66660 AM	4050300622989	60	240	790	2000	G9	14	51	26,5	20	4
66675 AM	4050300623023	75	240	1050	2000	G9	14	51	26,5	20	4

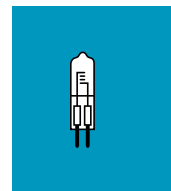
As a mini line voltage halogen lamp, HALOPIN® is ideal for modern luminaires in living rooms.

- Extremely compact dimensions
- Robust filament design thanks to innovative, unique bulb pinch technology

- Approved for use in open luminaires to IEC 60598-1
- No transformer required
- Color temperature approx. 2900 K
- Average life of 2000 hours
- UV-FILTER
- Dimmable

OSRAM HALOPAR® 16 ENERGY SAVER

OSRAM HALOPAR® 16



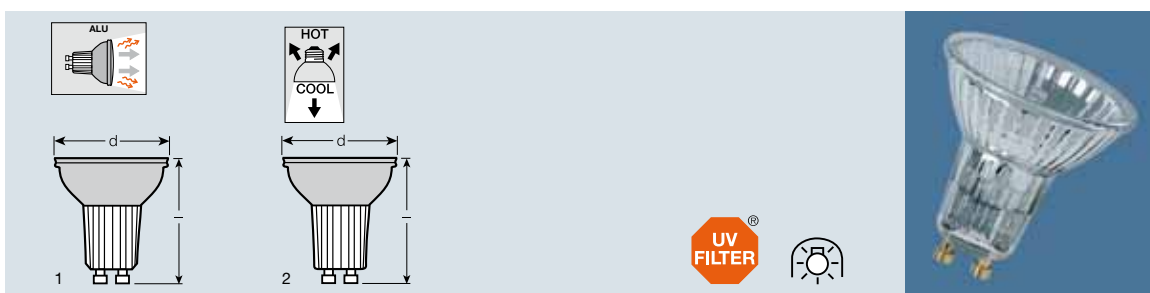
Product reference	Product number	W	V	cd ¹⁾		\varnothing max. [mm]	l max. [mm]	
OSRAM HALOPAR® 16 ENERGY SAVER								
64823 ES FL	4008321918901	40	240	900	GU10	51	55	10xBL11



HALOPAR ENERGY SAVER lamps from OSRAM are direct replacements for standard 50 W HALOPAR 16 lamps. Not only do they provide light that is as brilliant, they save up to 20% energy and CO₂.

- Up to 20% energy savings
- Average life of 2000 hours
- With whole glass reflector for bright lighting effects

- Innovative bulb pinch technology for the burner and with integrated fuse function; complies with the safety requirements of IEC 60432-3
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Color temperature approx. 2900 K
- Dimmable



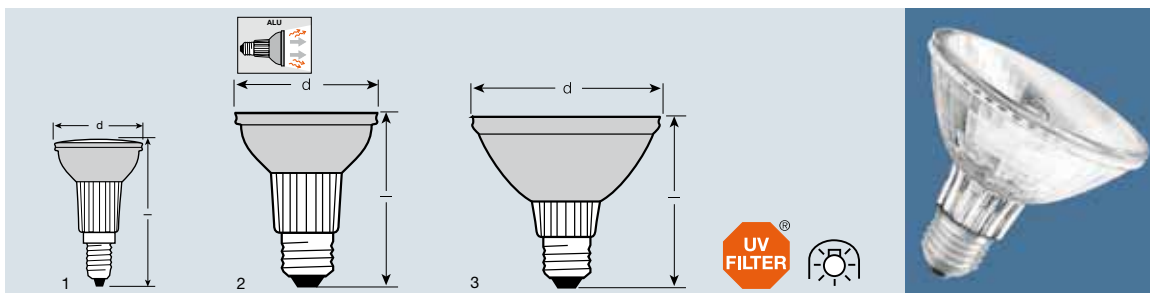
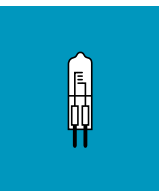
Product reference	Product number	W	V	cd ¹⁾	t [h]	\angle	\varnothing max. [mm]	l max. [mm]		No.	
OSRAM HALOPAR® 16											
64824 FL	4050300580159	50	240	950	2000	35	GU10	51	55	20	1

With its OSRAM HALOPAR® line voltage halogen lamps, OSRAM offers a real alternative to low-voltage reflector lamps. They do not require a transformer but still provide brilliant white halogen light. They are available in various wattages and with different beam angles, making them ideal for revitalizing rooms and providing accent lighting. OSRAM HALOPAR® 16 is ideal for modern small and stylish halogen luminaires and is the halogen line-voltage counterpart of the DECOSTAR®. It is available with an aluminum or dichroic reflector.

- Average life of 2000 hours
- With whole glass reflector for brilliant lighting effects
- Innovative bulb pinch technology for the burner and with integrated fuse function; complies with the safety requirements of IEC 60432-3
- Approved for use in open luminaires (to IEC 60598-1)
- No transformer required
- UV-FILTER
- Color temperature approx. 2900 K
- Dimmable

1) For luminous intensity distribution see page 2.33

OSRAM HALOPAR® 16/20/30



Product reference	Product number	W	V	cd ¹⁾	t [h]	°		d max. [mm]	l max. [mm]		No.
OSRAM HALOPAR® 16											
64822 FL	4050300772080	40	240	650	2000	35	E14	51	75	20	1
OSRAM HALOPAR® 20											
64832 SP	4050300435268	50	240	3000	2000	10	E27	64,5	91	15	2
64832 SST FL	4008321286895	50	240	1000	2000	30	E27	64,5	91	15	2
64836 FL	4050300435329	50	240	1100	2000	30	E27	64,5	91	15	2
OSRAM HALOPAR® 30											
64841 SST SP	4008321286505	75	240	6900	2000	10	E27	97	90,5	15	3
64841 SST FL	4008321286369	75	240	2200	2000	30	E27	97	90,5	15	3
64845 SP	4050300435381	75	240	7500	2000	10	E27	97	90,5	15	3
64845 FL	4050300435404	75	240	2400	2000	30	E27	97	90,5	15	3

With its OSRAM HALOPAR® line voltage halogen lamps, OSRAM offers a brilliant and modern alternative to conventional reflector lamps. With their standard E14 and E27 screw bases they are quick and easy to install instead of ordinary light bulbs; they provide more light and last twice as long.

- More light than conventional reflector lamps
- Average life of 2000 hours
- With whole glass reflector for brilliant lighting effects
- Complies with the requirements of IEC 60432-3
- Approved for use in open luminaires (to IEC 60598-1)
- UV-FILTER
- Color temperature approx. 2900 K
- Dimmable

HALOGEN ENERGY SAVER CLASSIC A CLEAR/FROSTED

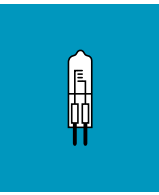


Product reference	Product number	W	V	lm	t [h]							No.
HALOGEN ENERGY SAVER CLASSIC A- Classic Shape, CLEAR												
64541 A ES CL B22d 18W	4008321 934239	18	240	220	2000	B22d	56	96	73	20	1	
64542 A ES CL B22d 28W	4008321 918949	28	240	345	2000	B22d	56	96	72	20	1	
64542 A ES CL E27 28W	4008321 229267	28	240	345	2000	E27	56	96	73	20	1	
64543 A ES CL B22d 42W	4008321 919083	42	240	630	2000	B22d	56	96	72	20	1	
64543 A ES CL E27 42W	4008321 229281	42	240	630	2000	E27	56	96	73	20	1	
64544 A ES CL B22d 52W ¹⁾	4008321 403346	52	240	840	2000	B22d	56	96	72	20	1	
64544 A ES CL E27 52W ¹⁾	4008321 403322	52	240	840	2000	E27	56	96	73	20	1	
64547 A ES CL B22d 70W ¹⁾	4008321 403360	70	240	1240	2000	B22d	56	96	72	20	1	
64547 A ES CL E27 70W ¹⁾	4008321 936059	70	240	1240	2000	E27	56	96	73	20	1	
64548 A ES CL B22d 105W ¹⁾	4008321 403407	105	240	1900	2000	B22d	56	96	72	20	1	
64548 A ES CL E27 105W ¹⁾	4008321 403384	105	240	1900	2000	E27	56	96	73	20	1	
HALOGEN ENERGY SAVER CLASSIC A- Classic Shape, FROSTED												
64541 A ES FR B22d 18W	4008321 934246	18	240	220	2000	B22d	56	96	73	20	1	
64542 A ES FR B22d 28W	4008321 277220	28	240	345	2000	B22d	56	96	73	20	1	
64542 A ES FR E27 28W	4008321 229366	28	240	345	2000	E27	56	96	73	20	1	
64543 A ES FR B22d 42W	4008321 277244	42	240	630	2000	B22d	56	96	73	20	1	
64543 A ES FR E27 42W	4008321 229380	42	240	630	2000	E27	56	96	73	20	1	
64544 A ES FR B22d 52W ¹⁾	-	52	240	840	2000	B22d	56	96	72	20	1	
64544 A ES FR E27 52W	4008321 934253	52	240	840	2000	E27	56	96	73	20	1	
64547 A ES FR B22d 70W	4008321 934260	70	240	1240	2000	B22d	56	96	72	20	1	
64547 A ES FR E27 70W	4008321 934277	70	240	1240	2000	E27	56	96	73	20	1	
64548 A ES FR B22d 105W	4008321 934284	105	240	1900	2000	B22d	56	96	72	20	1	
64548 A ES FR E27 105W ¹⁾	-	105	240	1900	2000	E27	56	96	73	20	1	



1) In preparation

HALOGEN ENERGY SAVER CLASSIC A



HALOGEN ENERGY SAVER:
30% energy savings and direct replacement for ordinary light bulbs.

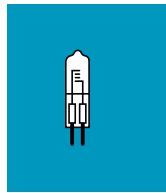
HALOGEN ENERGY SAVER lamps are available in the classic shapes of bulb, candle and spot. Ordinary light bulbs can therefore be replaced, like for like, in no time at all. HALOGEN ENERGY SAVER lamps provide light that is as attractive as that from an ordinary light bulb. They also save up to 30% energy and last twice as long as an ordinary light bulb.

- Familiar bulb shape
- Up to 30% energy savings
- Average life: 2000 hours
- Bright white halogen light

- Simple operation on line voltage without a transformer
- Dimmable
- Color temperature approx. 2900 K

Ordinary light bulb A, B, P, R50, R63		HALOGEN ENERGY SAVER A, B, P, R50, R63
25 W	→	18 W
40 W	→	28 W
60 W	→	42 W
75 W	→	52 W
100 W	→	70 W
150 W	→	105 W

HALOGEN ENERGY SAVER CLASSIC B



Product reference	Product number	W	V	lm	t [h]		d max. [mm]	I max. [mm]			No.
HALOGEN ENERGY SAVER CLASSIC B - Candle Shape, CLEAR											
64542 B ES E14 28W	4008321 229304	28	240	345	2000	E14	35	104	67	20	1
64542 B ES B22d 28W	4008321 229182	28	240	345	2000	B22d	36	104	64	10	1
64542 B ES E14 28W	4008321 228802	28	240	345	2000	E14	35	104	67	10	1
64543 B ES B22d 42W	4008321 934789	42	240	630	2000	B22d	35	104	67	10	1
64543 B ES E14 42W	4008321 934796	42	240	630	2000	E14	35	104	67	10	1
64543 B ES B22d 42W ¹⁾	-	42	240	630	2000	B22d	36	104	64	20	1
64543 B ES E14 42W ¹⁾	-	42	240	630	2000	E14	35	104	67	20	1
HALOGEN ENERGY SAVER CLASSIC B - Candle Shape, FROSTED											
64542 B ES FR B22d 28W	4008321 229243	28	240	345	2000	B22d	35	104	67	10	1
64542 B ES FR E14 28W	4008321 228864	28	240	345	2000	E14	35	104	67	10	1
64542 B ES FR B22d 28W ¹⁾	-	28	240	345	2000	B22d	36	104	64	20	1
64542 B ES FR E14 28W ¹⁾	-	28	240	345	2000	E14	35	104	67	20	1
64543 B ES FR B22d 42W ¹⁾	-	42	240	630	2000	B22d	36	104	64	20	1
64543 B ES FR E14 42W ¹⁾	-	42	240	630	2000	E14	35	104	67	20	1

HALOGEN ENERGY SAVER: 30% energy savings and direct replacement for ordinary light bulbs.

HALOGEN ENERGY SAVER lamps are available in the classic shapes of bulb, candle and spot. Ordinary light bulbs can therefore be replaced, like for like, in no time at all. HALOGEN ENERGY SAVER lamps provide light that is as attractive as that from an ordinary light bulb. They also save up to 30% energy and last twice as long as an ordinary light bulb.

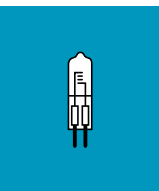
- Familiar bulb shape
- Up to 30% energy savings
- Average life: 2000 hours
- Bright white halogen light
- Simple operation on line voltage without a transformer
- Dimmable
- Color temperature approx. 2900 K

Ordinary light bulb A, B, P, R50, R63	HALOGEN ENERGY SAVER A, B, P, R50, R63
40 W →	28 W
60 W →	42 W



1) In preparation

HALOGEN ENERGY SAVER CLASSIC P



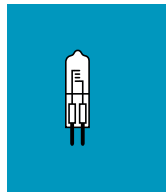
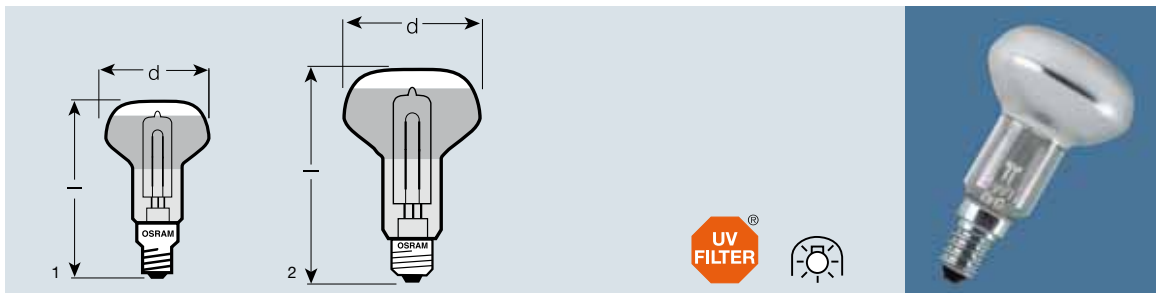
Product reference	Product number	W	lm	t [h]						No.
HALOGEN ENERGY SAVER CLASSIC P¹⁾ - CLEAR										
64541 P ES CLR E14 18W		18	220	2000	E14	45	80	20	1	
64542 P ES CLR E14 28W		28	345	2000	E14	45	80	20	1	
64543 P ES CLR E14 42W		42	630	2000	E14	45	80	20	1	
64541 P ES CLR E27 18W		18	220	2000	E27	45	74	20	2	
64542 P ES CLR E27 28W		28	345	2000	E27	45	74	20	2	
64543 P ES CLR E27 42W		42	630	2000	E27	45	74	20	2	
64541 P ES CLR B22d 18W		18	220	2000	B22d	45	74	20	-	
64542 P ES CLR B22d 28W		28	345	2000	B22d	45	74	20	-	
64543 P ES CLR B22d 42W		42	630	2000	B22d	45	74	20	-	
HALOGEN ENERGY SAVER CLASSIC P¹⁾ - FROSTED										
64541 P ES FR E14 18W		18	220	2000	E14	45	80	20	1	
64542 P ES FR E14 28W		28	345	2000	E14	45	80	20	1	
64543 P ES FR E14 42W		42	630	2000	E14	45	80	20	1	
64541 P ES FR E27 18W		18	220	2000	E27	45	74	20	2	
64542 P ES FR E27 28W		28	345	2000	E27	45	74	20	2	
64543 P ES FR E27 42W		42	630	2000	E27	45	74	20	2	
64541 P ES FR B22d 18W		18	220	2000	B22d	45	74	20	-	
64542 P ES FR B22d 28W		28	345	2000	B22d	45	74	20	-	
64543 P ES FR B22d 42W		42	630	2000	B22d	45	74	20	-	



HALOGEN ENERGY SAVER Classic BW and P offer energy savings of up to 30% compared with ordinary light bulbs and provide a pleasant attractive light. They are the perfect alternatives to ordinary light bulbs as they provide the following benefits:

- Familiar bulb shape
- Up to 30% energy savings
- Average life: 2000 hours
- Attractive white halogen light
- Simple operation on line voltage without a transformer
- Dimmable
- Color temperature approx. 2900 K

HALOGEN ENERGY SAVER SPOT R50/R63



Product reference	Product number	W	V	cd	t [h]	°		d max. [mm]	l max. [mm]		No.
HALOGEN ENERGY SAVER SPOT R50											
64545 R50 ES E14 28W	4008321 229328	28	240	430	2000	30	E14	51	87	20	1
HALOGEN ENERGY SAVER SPOT R63											
64546 R63 ES E27 42W	4008321 229342	42	240	960	2000	30	E27	64	105	20	2



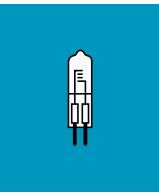
HALOGEN ENERGY SAVER: less energy. More light.

The clever alternative to ordinary light bulbs. With its new HALOGEN ENERGY SAVER lamps, OSRAM can offer a large range of attractive lamps with screw bases for replacement of less efficient light bulbs. And of course they bring with them the familiar impressive benefits of halogen lamps such as twice the life and pure bright halogen light.

- Familiar bulb shape
- Up to 30% energy savings
- Cost-effective halogen alternative for direct replacement of conventional spotlight lamps
- E14 (R50) and E27 (R63) screw bases
- Average life of 2000 hours
- Significantly lower CO₂ emissions
- Lower thermal output
- Color temperature approx. 2800 K
- Fully dimmable



HALOLUX® BT HALOLUX CERAM®



Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l max. [mm]	a		No.
HALOLUX® BT SILICATED											
64478 BT SIL	4050300872209	150	240	2100	2000	E27	48	117	75	10	1

HALOLUX® BT is the decorative halogen substitute for ordinary light bulbs and will make even simple luminaires look more attractive:

- Original decorative bulb shape
- Up to 20% more light than ordinary light bulbs
- Twice the life¹⁾
- Brilliant halogen light
- Color temperature of approx. 2900 K
- Dimmable
- UV-FILTER



Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l max. [mm]	a		No.
HALOLUX CERAM® CLEAR											
clear											
64478 AX CLEAR	4008321036094	150	240	2500	2000	E27	32	105	75	12	1
64480 UVS	4008321036254	230	240	4350	2000	E27	32	105	75	12	1
HALOLUX CERAM® FROSTED											
frosted (FR)											
64474 AX FR	4008321035639	75	240	1050	2000	E27	32	105	75	12	2
64476 AX FR	4008321035912	100	240	1470	2000	E27	32	105	75	12	2
64478 AX FR	4008321036117	150	240	2400	2000	E27	32	105	75	12	2
64480 AX FR UVS	4008321036230	230	240	4210	2000	E27	32	105	75	12	2

- More compact dimensions than ordinary light bulbs
- Up to 20% more light than an ordinary light bulb
- Twice the life¹⁾
- Available in a higher wattages up to 240 W
- Innovative bulb pinch technology for the burner

- With integrated fuse function; meets the requirements of IEC 60432-2
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Color temperature approx. 2900 K
- Dimmable

HALOLUX CERAM®

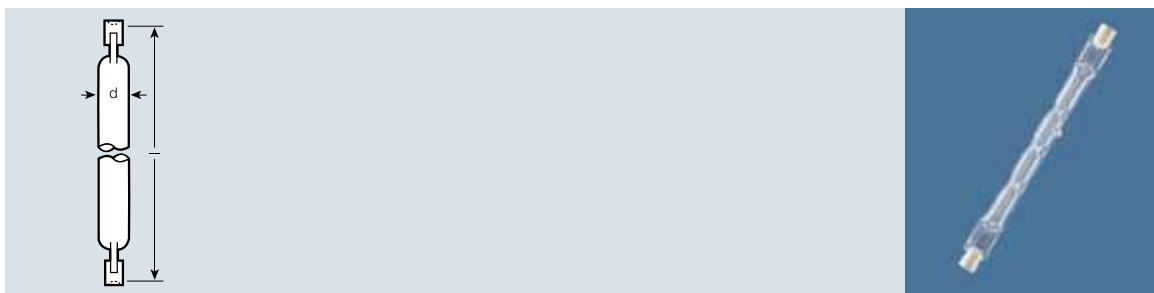
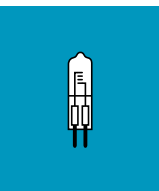




Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l max. [mm]	a [mm]		No.
HALOLUX CERAM® CLEAR											
clear											
64475 AX	4008321035936	100	240	1500	2000	B15d	12,4	86	55	12	1
HALOLUX CERAM® FROSTED											
outside frosted (AM)											
64473 AM	4008321035677	75	240	1050	2000	B15d	12,4	86	55	12	2
64475 AM	4008321035950	100	240	1470	2000	B15d	12,4	86	55	12	2
64477 AM	4008321036131	150	240	2400	2000	B15d	12,4	86	67	12	2

HALOLUX CERAM® with a B15d base is so slim it is perfect for narrow compact luminaires. It is available in wattages from 75 W to 100 W and does not require a transformer, making it the ideal lamp for modern stylish luminaires.

- Innovative bulb pinch technology for the burner
- With integrated fuse function; meets the requirements of IEC 60432-2
- Approved for use in open luminaires to IEC 60598-1
- No transformer required
- UV-FILTER
- Color temperature approx. 2900 K
- Dimmable

HALOLINE® ENERGY SAVER



Product reference	Product number	W	V	lm ³⁾	t [h]		d max. [mm]	l [mm]	A	
HALOLINE® ENERGY SAVER										
64690 ES	4008321 325396	80	240	1500	2000	R7s	12	74,9	2	20
64695 ES	4008321 325419	120	240	2450	2000	R7s	12	74,9	2	20
64701 ES	4008321 227966	230	240	5060	2000	R7s	12	114,2	2	10xBLI1
64702 ES	4008321 227980	400	240	9200	2000	R7s	12	114,2	2	10xBLI1



Enclosed luminaires must be used with these halogen floodlight lamps for both indoor and outdoor applications. (In accordance with IEC 60598).

Fuse protection with the indicated values is recommended on the luminaire side (as per IEC 60357).



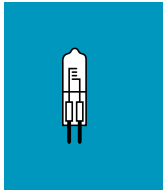
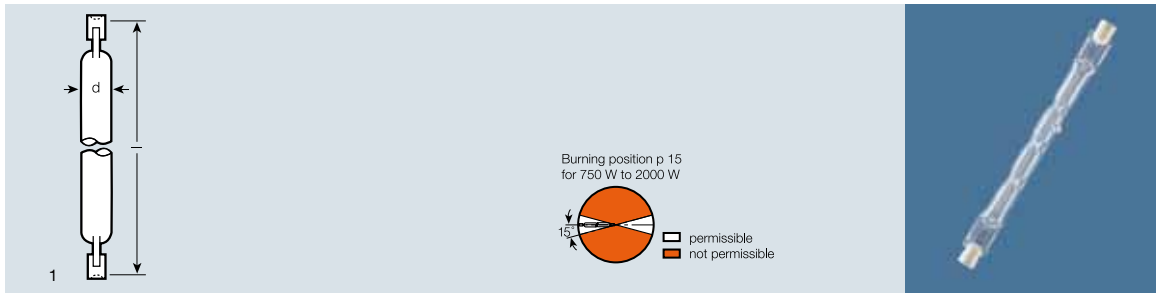
HALOLINE® ENERGY SAVER:

With its HALOLINE® ENERGY SAVER series OSRAM gives you a simple way of saving energy and protecting the environment at the same time. And you do not have to forego the excellent quality of light that brilliant halogen lamps provide. By replacing 500 W lamps with 400 W Energy Saver lamps you will save 100 W each time. That soon adds up. Just replace the lamps to start saving immediately and enjoy the pleasant atmosphere of halogen light. The range of applications for HALOLINE® ENERGY SAVER lamps is just as wide as it is for our HALOLINE Standard series. Whatever the application and whatever the burning position, HALOLINE® ENERGY SAVER lamps also help improve the efficiency with which valuable energy resources are used. This is made possible by using the highest quality materials and most advanced technologies to manufacture the lamps.

- Up to 20% energy savings
- Brilliant halogen light
- Ideal for emphasizing and accentuating the structure of a room
- 100% dimmable for a variable atmosphere
- Can be plugged in anywhere
- Color temperature approx. 3000 K
- Universal burning position
- Average life of 2000 hours
- Can be operated simply on line voltage without the need for a transformer

Standard HALOLINE		HALOLINE® ENERGY SAVER
100 W	→	80 W
150 W	→	120 W
300 W	→	230 W
500 W	→	400 W

HALOLINE® for line voltage



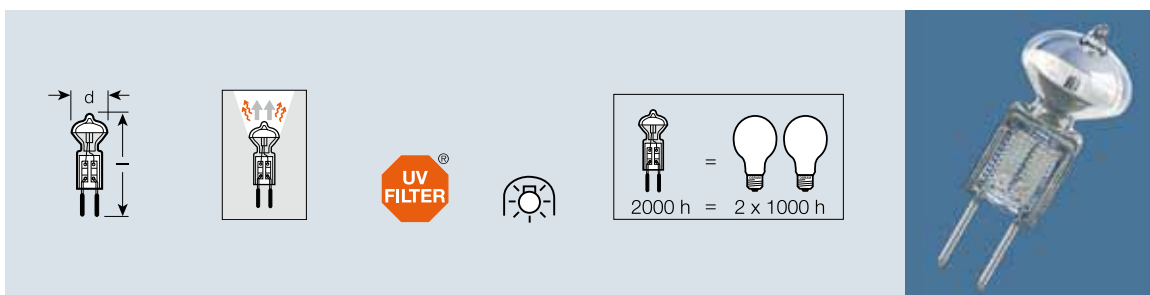
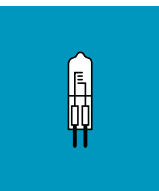
Product reference	Product number	W	V	lm	t [h]		d max. [mm]	l [mm]	A		No.
HALOLINE® for line voltage											
Universal burning position											
64690	4050300 944388	100	240	1600	2000	R7s	12	74,9	2	20	1
64693	4050300 198361	150	220-240	2500	1000	R7s	12	74,9	2	12	1
64695	4050300 944401	150	240	2500	2000	R7s	12	74,9	2	20	1
64698	4050300 271415	200	240	3500	2000	R7s	12	114,2	2	20	1
64701	4050300 583525	300	240	5300	2000	R7s	12	114,2	2	20	1
64702	4050300 571768	500	240	9500	2000	R7s	12	114,2	4	20	1
64705	4050300 198385	300	220-240	5300	1000	R7s	12	114,2	2	12	1
64706	4050300 198408	500	220-240	9500	1000	R7s	12	114,2	4	12	1
Burning position horizontal p 15											
64740	4050300 209906	1000	240	22000	2000	R7s	12	185,7	6.3	12	1
64760	4050300 209920	1500	240	36000	2000	R7s	12	250,7	10	12	1
	Enclosed luminaires must be used with these halogen floodlight lamps for both indoor and outdoor applications. (In accordance with IEC 60598). Fuse protection with the indicated values is recommended on the luminaire side (as per IEC 60357).										

HALOLINE® can be used universally and is suitable for a wide range of applications. It is the classic lamp for small outdoor systems for floodlighting buildings and sports arenas and for security lighting. It is experiencing a renaissance in the home, where it is being used above all for indirect lighting to emphasize and accentuate the structure of rooms. HALOLINE® is also re-conquering classic applications, providing wide-area lighting from pendant luminaires in a wide range of new and exciting designs.

- Brilliant halogen light
- Ideal for emphasizing and accentuating the structure of a room
- 100% dimmable for a variable atmosphere
- Can be plugged in anywhere
- Color temperature approx. 3000 K
- Universal burning position up to and including 500 W
- Average life of 2000 hours
- Can be operated simply on line voltage without the need for a transformer

MINISTAR® Axial Reflector

MINISTAR® Side Reflector

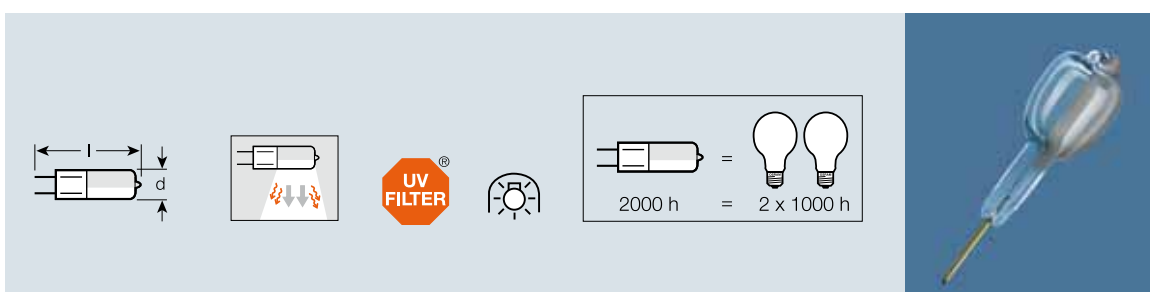


Product reference	Product number	W	V	cd	t [h]	°		d max. [mm]	l max. [mm]	
MINISTAR®, axial reflector, Ø 16 mm										
50020 MINISTAR AXIAL	4050300987217	20	12	800	2000	20	GY6.35	16	44	40
50035 MINISTAR AXIAL	4050300987224	35	12	1000	2000	30	GY6.35	16	44	40
50050 MINISTAR AXIAL	4050300987231	50	12	1400	2000	30	GY6.35	16	44	40

MINISTAR® follows the trend towards miniaturization in luminaires and opens up new horizons for impressive revolutionary luminaire designs.

The versions with the **axial reflector** can perform all the functions of modern spotlighting in a form that is more compact than ever before; available with GY6.35 and G4 bases. Recessed ceiling luminaires and flexible lighting systems are just two examples in which the benefits of these products really shine through.

- The smallest halogen axial reflector lamp in the world
- Extra long average life of 2000 hours
- Special coating for reduced thermal load in the luminaire
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K



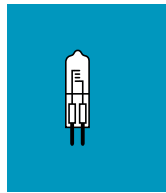
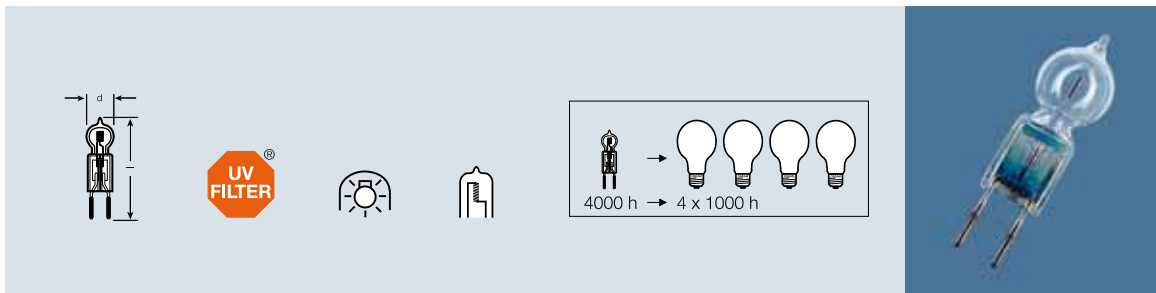
Product reference	Product number	W	V	cd	t [h]	°		d max. [mm]	l max. [mm]	
MINISTAR® Side Reflector										
50110 MINISTAR SIDE	4050300987248	10	12	80	2000	35 / 60	G4	10	33	40
50120 MINISTAR SIDE	4050300987255	20	12	120	2000	35 / 60	G4	10	33	40

The versions with the **side reflector** give designers the freedom to create completely new furniture luminaires, desktop luminaires and so on.

- The smallest halogen side reflector lamp in the world
- Average life of 2000 hours
- Special coating for reduced thermal load in the luminaire

- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K

HALOSTAR® ENERGY SAVER



Product reference	Product number	W	V	lm	t [h]					
HALOSTAR® ENERGY SAVER										
64432 ES	4050300615905	35	12	900	4000	GY6.35	12	44	30	40
64440 ES	4050300615936	50	12	1250	4000	GY6.35	12	44	30	40
64447 ES	4050300785400	65	12	1700	4000	GY6.35	12	44	30	40



Straight to the point.

With HALOSTAR® lamps, it is possible for light sources in “starlight ceilings”, furniture luminaires and chandeliers for example to be on open display without the need for protective shields.

Thanks to IRC technology the HALOSTAR® ES needs much less energy to produce the same amount of light.

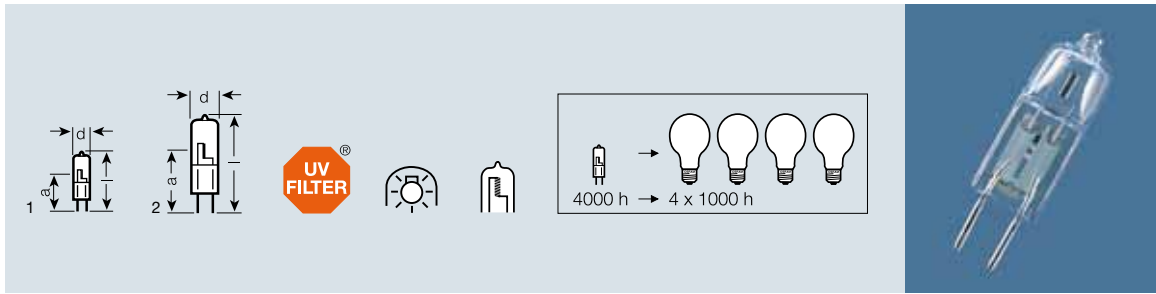
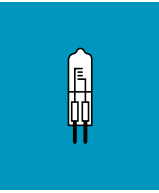
Standard pin-base lamp	HALOSTAR® ES
50 W →	35 W ES
75 W →	50 W ES
90 W →	65 W ES



- Up to 60% cost savings¹⁾
- Long average life of 4000 hours
- High luminous efficacy of up to 26 lm/W
- Significantly lower CO₂ emissions due to energy savings
- Approved for use in open luminaires to IEC 60598-1
- Dimmable
- Color temperature of 3000 K
- Low thermal output
- Axial filament for optimum directional light
- Special pins for corrosion protection
- UV-FILTER

1) Compared with HALOSTAR® STANDARD

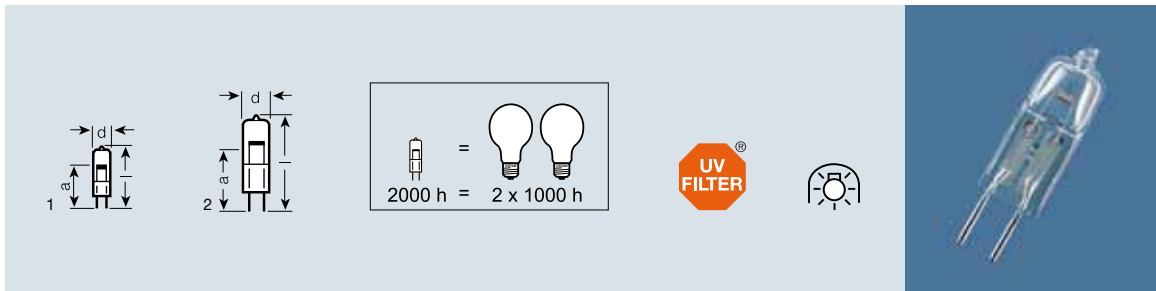
HALOSTAR STARLITE® 6-12V HALOSTAR STANDARD 12V



Product reference	Product number	W	V	lm	t[h]		d max. [mm]	l max. [mm]	a		No.
HALOSTAR STARLITE® 6-12V SERIES											
64405 S ¹⁾	4050300335032	5	12	60	4000	G4	10	33	22	40	1
64410 S	4050300335131	10	6	110	4000	G4	10	33	22	40	1
64415 S	4050300335087	10	12	130	4000	G4	10	33	22	40	1
64425 S	4050300335162	20	12	300	4000	G4	10	33	22	40	1
64427 S	4050300328171	20	12	300	4000	GY6.35	12	44	30	40	2
64432 S	4050300017426	35	12	600	4000	GY6.35	12	44	30	40	2
64440 S	4050300328201	50	12	910	4000	GY6.35	12	44	30	40	2
64450 S	4050300490151	75	12	1450	4000	GY6.35	12	44	30	40	2
64458 S	4050300490182	90	12	1800	4000	GY6.35	12	44	30	40	2

HALOSTAR STARLITE® lamps may be used in free-burning applications without a shield on the luminaire. They are made from UV-reducing quartz and comply with the strictest UV protection thresholds (to IEC 60432).

- Long average life of 4000 hours
- Axial filament for optimum directional light
- Special pins for corrosion protection
- Approved for use in open luminaires to IEC 60598-1
- Dimmable
- Color temperature of 3000 K

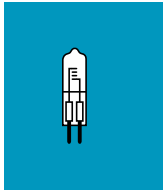
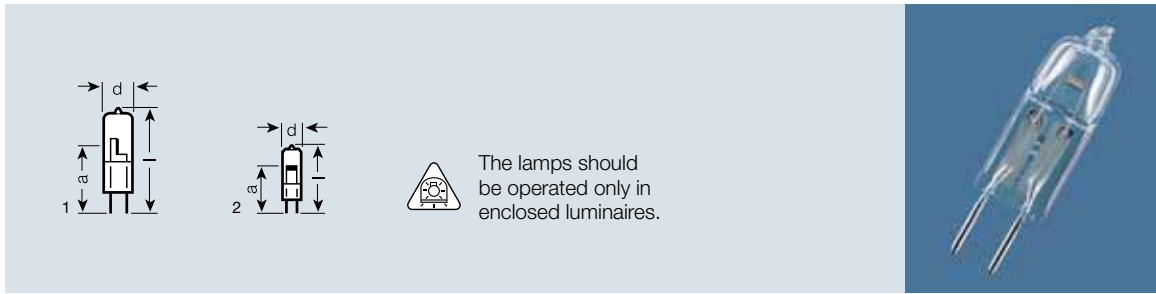




Product reference	Product number	W	V	lm	t[h]		d max. [mm]	l max. [mm]	a		No.
HALOSTAR® STANDARD 12V											
64415 STD UVS	4050300010717	10	12	140	2000	G4	10	33	22	40	1
64425 STD UVS	4050300003924	20	12	320	2000	G4	10	33	22	40	1
64425 STD UVS TWIN	4008321201836	20	12	320	2000	G4	10	33	22	10x BLI2	1
64440 STD UVS	4050300324432	50	12	910	2000	GY6.35	12	44	30	40	2
64440 STD UVS TWIN	4008321202161	50	12	910	2000	GY6.35	12	44	30	10x BLI2	2

Free-burning halogen lamps such as HALOSTAR® STANDARD, have given lighting designers new freedom thanks to their brilliant, highly focused and decorative light.

- Average life 2000 hours
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K

HALOSTAR® 24 V



Product reference	Product number	W	V	lm	t [h]		d_{max} [mm]	l_{max} [mm]	a [mm]		No.	
HALOSTAR® 24 V series												
64435 U AX	4050300335513	20	24	320	1000	G4	9,5	33	22	40	2	
64445 U AX	4050300335544	50	24	900	2000	GY6.35	12	44	30	40	1	
64460 U AX	4050300335667	100	24	2200	2000	GY6.35	12	44	30	40	1	
64465 U AX	4050300335698	150	24	3200	2000	GY6.35	16	50	32	40	1	

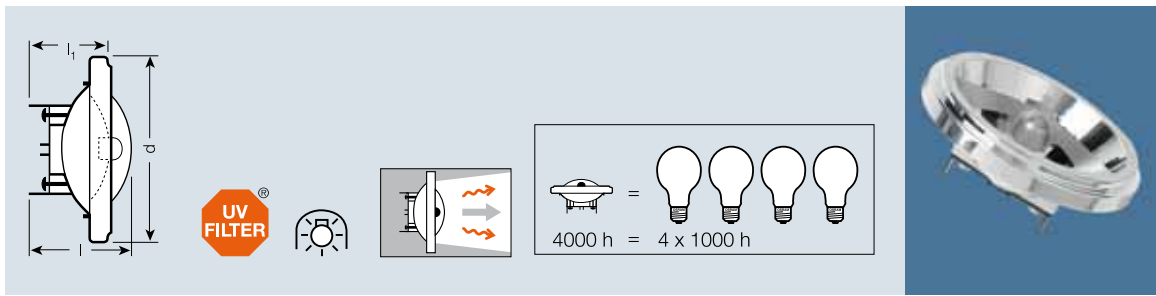
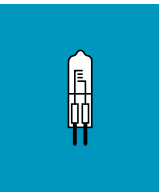
HALOSTAR® 24 V

UV-reducing quartz suppresses unwanted UV radiation. The UV-related bleaching effect as defined by IEC has therefore been reduced by up to 80% compared with conventional pin-base lamps. Complies with the strictest UV protection thresholds (IEC 60432).

- The base pins are tempered to protect against corrosion
- The axial filament ensures optimum directional light
- High illuminance level

1) Average life at room temperature
These values may be lower at higher ambient temperatures

HALOSPOT® 111 ENERGY SAVER



Product reference	Product number	W	V	cd	t[h]	°		d max. [mm]	l max. [mm]		
HALOSPOT® 111 ENERGY SAVER											
48832 ES SP	4050300656823	35	12	22500	4000	8		G53 ¹⁾	111	67	6
48832 ES FL	4050300656847	35	12	4500	4000	24		G53 ¹⁾	111	67	6
48835 ES SP	4050300656861	50	12	33000	4000	8		G53 ¹⁾	111	67	6
48835 ES FL	4050300656885	50	12	5800	4000	24		G53 ¹⁾	111	67	6
48835 ES WFL	4008321909237	50	12	2000	4000	45		G53 ¹⁾	111	67	6
48837 ES SP	4050300786070	65	12	45000	4000	8		G53 ¹⁾	111	67	6
48837 ES FL	4050300786094	65	12	8500	4000	24		G53 ¹⁾	111	67	6
48837 ES WFL	4008321909251	65	12	2800	4000	45		G53 ¹⁾	111	67	6

HALOGEN ENERGY SAVER lamps from OSRAM have been designed for commercial applications. They combine impressive economy and luminous intensity with excellent quality of light. In combination with the revolutionary HighTech reflector the result is outstanding brightness.

- Up to 48% cost savings with IRC technology²⁾
- Long average life of 4000 hours
- New HighTech reflector for
 - optimum illumination
 - less scattered light
- The powerful light for professional applications
- Approved for use in open luminaires to IEC 60598-1
- Cap for reduced glare and ease of handling
- UV-FILTER
- Dimmable
- Significantly lower CO₂ emissions due to energy savings
- Color temperature of 3000 K

Applications:

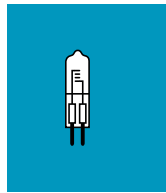
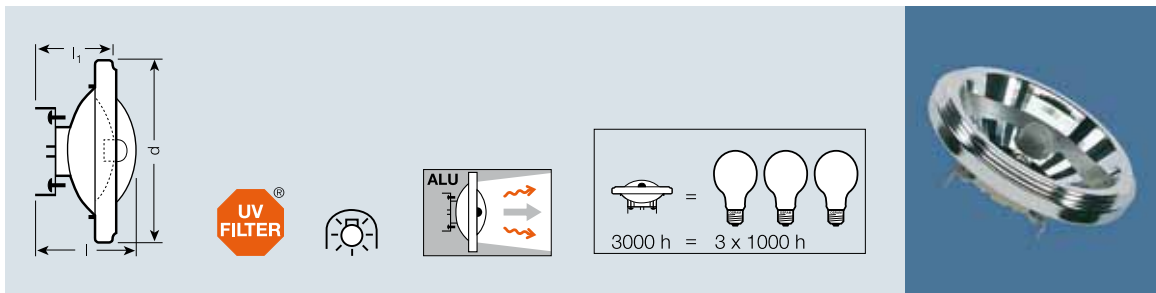
Shoplighting, restaurants, hotels, art galleries, high-ceiling rooms, etc.

Standard-HALOSPOT 111		HALOSPOT® 111 ES
50 W	→	35 W ES
75 W	→	50 W ES
100 W	→	65 W ES

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



HALOSPOT® 111



Product reference	Product number	W	V	cd	t [h]	°		d max. [mm]	l max. [mm]	
HALOSPOT® 111										
41830 SSP	40503000 11141	35	6	30000	3000	4	G53 ¹⁾	111	67	6
41832 SSP	4050300 335728	35	12	35000	3000	4	G53 ¹⁾	111	67	6
41832 FL	4050300 335766	35	12	2500	3000	24	G53 ¹⁾	111	67	6
41835 SSP	40503000 11165	50	12	40000	3000	4	G53 ¹⁾	111	67	6
41835 SP	40503000 11752	50	12	20000	3000	8	G53 ¹⁾	111	67	6
41835 FL	40503000 11769	50	12	4000	3000	24	G53 ¹⁾	111	67	6
41840 SP	40503000 11776	75	12	30000	3000	8	G53 ¹⁾	111	67	6
41840 FL	40503000 11783	75	12	5300	3000	24	G53 ¹⁾	111	67	6
41840 WFL	40503000 11790	75	12	2000	3000	45	G53 ¹⁾	111	67	6
41850 SP	4050300 358604	100	12	48000	3000	8	G53 ¹⁾	111	67	6
41850 FL	4050300 358628	100	12	8500	3000	24	G53 ¹⁾	111	67	6
41850 WFL	4050300 358642	100	12	2800	3000	45	G53 ¹⁾	111	67	6

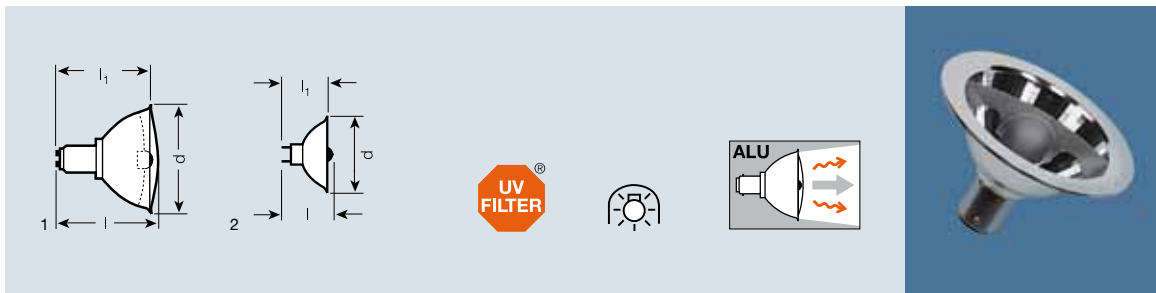
HALOSPOT® 111 lamps have reflectors with excellent focusing properties and extremely tight beam angles of as little as 4° for enormous luminous intensity so that objects can be highlighted even in bright surroundings.

- Long average life of 3000 hours
- Powerful light
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Cap for reduced glare and ease of handling
- Dimmable
- Color temperature of 3000 K

1) If connection elements are used, an additional support is needed on the edge of the reflector

HALOSPOT® 70

HALOSPOT® 48

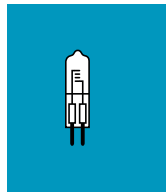
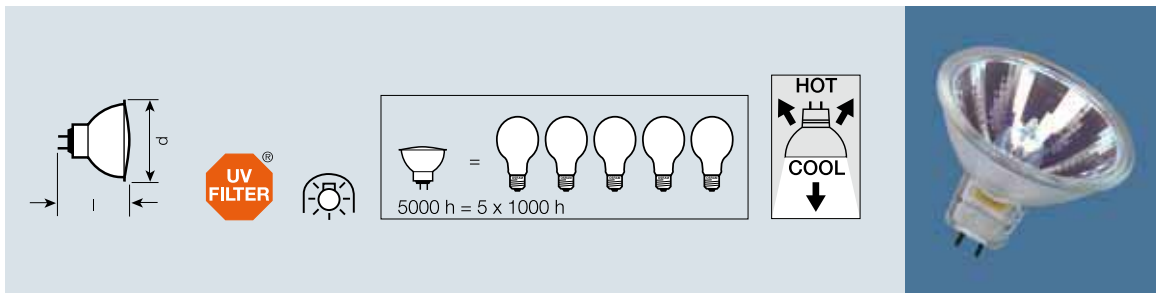


Product reference	Product number	W	V	cd	t [h]			d max. [mm]	l max. [mm]		No.
HALOSPOT® 70											
41970 SP	4050300010656	20	12	7700	3000	8	BA15d	70,5	50	10	1
41970 FL UVS	4050300011110	20	12	900	3000	24	BA15d	70,5	50	10	1
41990 SP UVS	4050300011158	50	12	12500	3000	8	BA15d	70,5	50	10	1
41990 FL UVS	4050300004020	50	12	2600	3000	24	BA15d	70,5	50	10	1
HALOSPOT® 48											
41900 SP	4050300003962	20	12	3100	2000	8	GY4	48	38	10	2
41930 SP ^{1) 2)}	4050300003979	20	24	2600	1000	8	GY4	48	38	10	2

The faceted reflector ensures the light is evenly distributed. The lamps are equipped with cap for reduced glare and ease of handling.

- UV-reducing quartz is used for the integral lamp. The lamp therefore complies with the strictest UV threshold values (as per IEC 60432) and their UV-related bleaching effect is reduced by up to 80%.
- 12 V versions in low-pressure design. The lamps may be used in free-burning applications without a shield on the luminaire in accordance with IEC 60598
- The high-pressure 24 V version requires a shield
- HALOSPOT® 70 lamps are dimmable
- UV-FILTER
- Color temperature of 3000 K

DECOSTAR® 51 ENERGY SAVER



Product reference	ANSI	Product number	W	V	cd	t [h]	°			d max. [mm]	l max. [mm]	
DECOSTAR® 51 ENERGY SAVER												
48860 ES SP	ESX	4050300620169	20	12	6000	5000	10	GU5.3	51	46	20	
48860 ES FL	-	4050300620183	20	12	2300	5000	24	GU5.3	51	46	20	
48860 ES WFL	BAB	4050300620206	20	12	1000	5000	36	GU5.3	51	46	20	
48860 ES VWFL	-	4050300620220	20	12	450	5000	60	GU5.3	51	46	20	
48865 ES SP	FRB	4050300516592	35	12	12500	5000	10	GU5.3	51	46	20	
48865 ES FL	FRA	4050300516615	35	12	4400	5000	24	GU5.3	51	46	20	
48865 ES WFL	FMW	4050300516639	35	12	2200	5000	36	GU5.3	51	46	20	
48865 ES VWFL	-	4050300516653	35	12	1100	5000	60	GU5.3	51	46	20	
48870 ES SP	EXT	4050300516677	50	12	15000	5000	10	GU5.3	51	46	20	
48870 ES FL	EXZ	4050300516691	50	12	5700	5000	24	GU5.3	51	46	20	
48870 ES WFL	EXN	4050300516714	50	12	2850	5000	36	GU5.3	51	46	20	
48870 ES VWFL	FNV	4050300516738	50	12	1450	5000	60	GU5.3	51	46	20	



The energy and money-saving lamp: DECOSTAR® ES.

Energy Saver lamps combine economy, luminous intensity and quality. What's more, these new lamps last up to 5000 hours.

The Longlife coating of the reflector ensures constant luminous intensity and color location. Thanks to innovative technology and the IRC infrared coating on these lamps you save a large amount of electricity and up to 30% in costs compared with standard halogen lamps. And the environment benefits too.

- Up to 30% cost savings through IRC technology¹⁾
- Extra long average life of 5000 hours
- Significantly lower CO₂ emissions due to energy savings
- Constant luminous intensity and color location throughout their life
- UV-FILTER
- Dimmable
- Color temperature of 3000 K
- Constant bluish appearance of the light escaping at the back of the reflector
- Dichroic reflector reduces the heat in the light beam by up to 66%
- Approved for use in open luminaires to IEC 60598-1



Standard dichroic reflector lamp	DECOSTAR® ES
35 W →	20 W ES
50 W →	35 W ES
65 W →	50 W ES

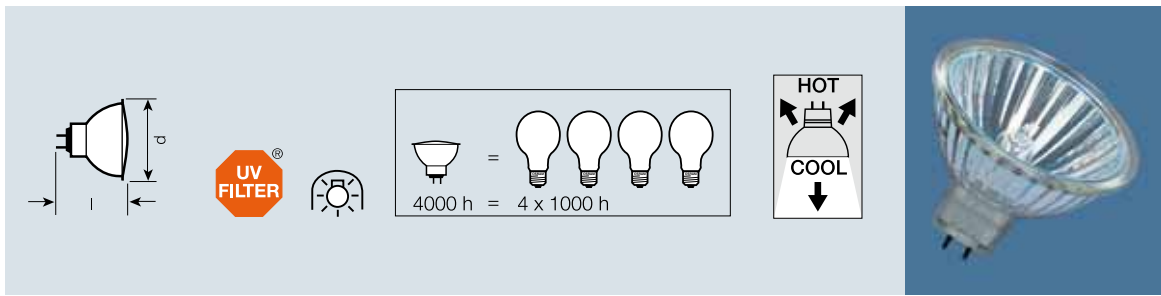


For more information on the system guarantee and the terms and conditions of the guarantee go to www.osram.com/system-guarantee

¹⁾ Cost savings of up to 30% compared with standard halogen lamps (depending on the price of electricity)

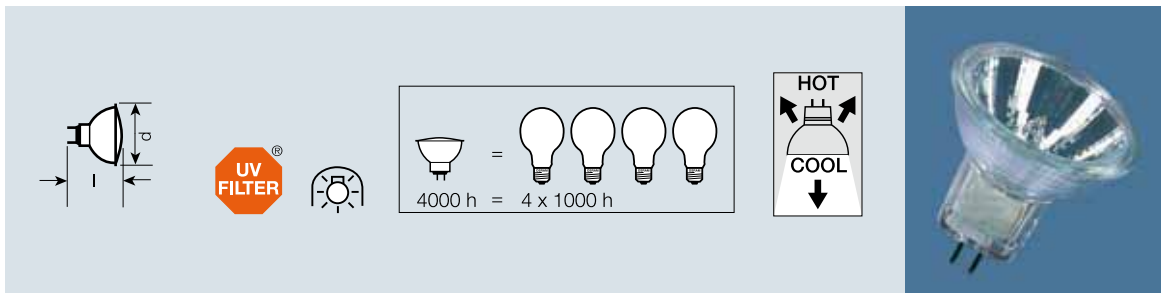
DECOSTAR® 51 TITAN

DECOSTAR® 35 TITAN



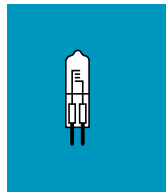
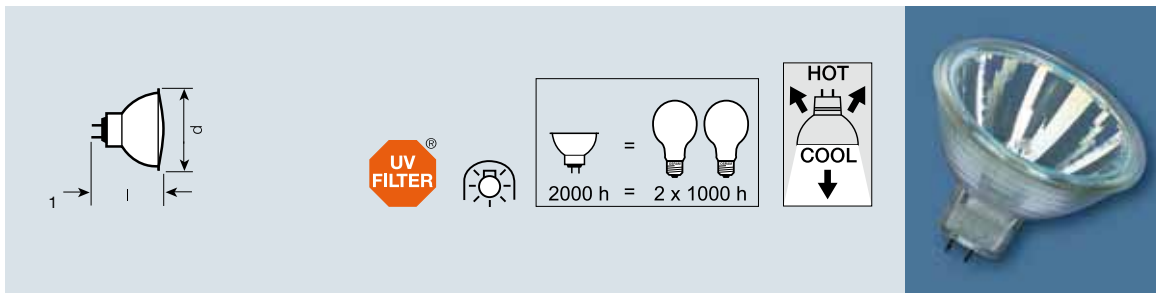
Product reference	ANSI	Product number	W	V	cd	t[h]	\angle		d max. [mm]	l max. [mm]	
DECOSTAR® 51 TITAN											
46860 SP	ESX	4050300 428635	20	12	5000	4000	10	GU5.3	51	46	20
46860 WFL	BAB	4050300 428659	20	12	780	4000	36	GU5.3	51	46	20
46860 VWFL	-	4050300 428673	20	12	350	4000	60	GU5.3	51	46	20
46865 SP	FRD	4050300 428697	35	12	8000	4000	10	GU5.3	51	46	20
46865 FL	FRA	4050300 476414	35	12	3100	4000	24	GU5.3	51	46	20
46865 WFL	FMW	4050300 428710	35	12	1500	4000	36	GU5.3	51	46	20
46865 VWFL	-	4050300 428734	35	12	700	4000	60	GU5.3	51	46	20
46870 SP	EXT	4050300 428758	50	12	12500	4000	10	GU5.3	51	46	20
46870 FL	EXZ	4050300 465708	50	12	4400	4000	24	GU5.3	51	46	20
46870 WFL	EXN	4050300 428772	50	12	2200	4000	36	GU5.3	51	46	20
46870 VWFL	FNV	4050300 428796	50	12	1200	4000	60	GU5.3	51	46	20

- Long average life of 4000 hours
- High luminous intensity
- Constant luminous intensity and color location throughout their life
- Constant bluish appearance of the light escaping at the back of the reflector
- Dichroic reflector reduces the heat in the light beam by up to 66%
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K



Product reference	ANSI	Product number	W	V	cd	t[h]	\angle		d max. [mm]	l max. [mm]	
DECOSTAR® 35 TITAN											
46890 SP	ESX	4050300 529301	20	12	4000	4000	10	GU4	35	40	10
46890 WFL	BAB	4050300 529325	20	12	700	4000	36	GU4	35	40	10
46892 SP	FRB	4050300 529349	35	12	6200	4000	10	GU4	35	40	10
46892 WFL	FMW	4050300 529363	35	12	1400	4000	36	GU4	35	40	10

DECOSTAR® 51S LONGLIFE

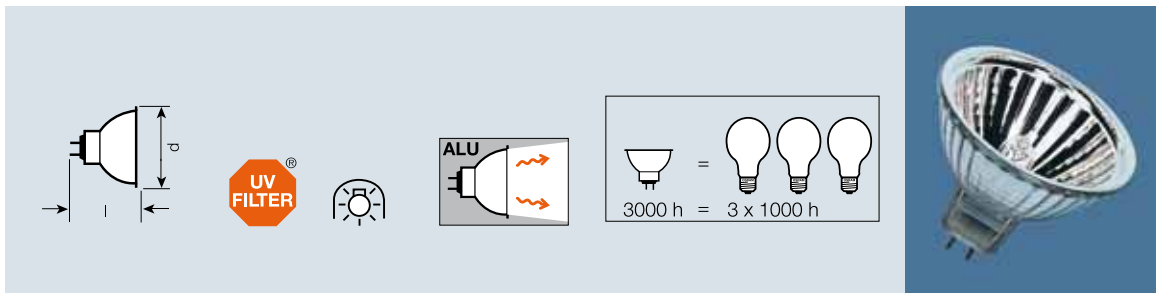


Product reference	ANSI	Product number	W	V	cd	t[h]	°		d max. [mm]	l max. [mm]		No.
DECOSTAR® 51S LONGLIFE												
45860 SP	ESX	4050300857633	20	12	3000	4000	10	GU 5.3	51	46	20	1
45860 WFL	BAB	4050300857596	20	12	480	4000	38	GU 5.3	51	46	20	1
45865 SP	FRB	4050300857664	35	12	6000	4000	10	GU 5.3	51	46	20	1
45865 WFL	FMW	4050300857572	35	12	1000	4000	38	GU 5.3	51	46	20	1
45870 SP	EXT	4050300857688	50	12	7800	4000	10	GU 5.3	51	46	20	1
45870 VWFL	EXN	4008321024565	50	12	1450	4000	38	GU 5.3	51	46	20	1
45870 WFL	FNV	4050300857619	50	12	600	4000	60	GU 5.3	51	46	20	1

- Average life of 2000 hours
- Dichroic reflector reduces the heat in the light beam by up to 66%
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K

DECOSTAR® 51 ALU

DECOSTAR® 51 COOL BLUE®

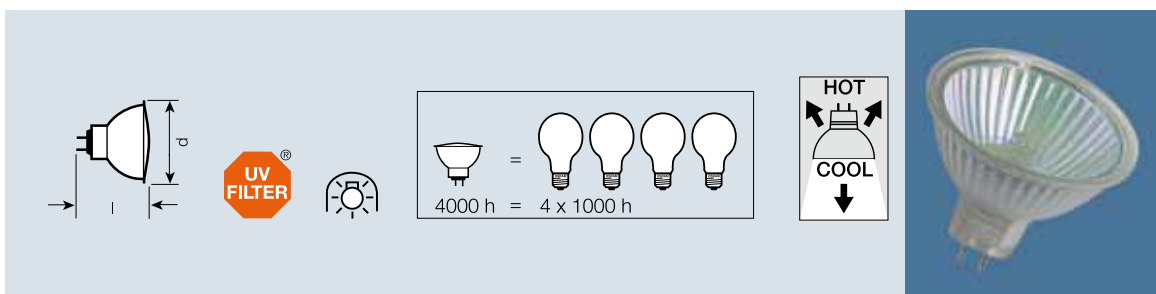


Product reference	ANSI	Product number	W	V	cd	t [h]	°	GU5.3	d max. [mm]	l max. [mm]	Icons
DECOSTAR® 51 ALU											
41861 WFL	BAB	4050300428819	20	12	700	3000	36	GU5.3	51	46	20
41866 WFL	FMW	4050300428833	35	12	1100	3000	36	GU5.3	51	46	20
41871 WFL	EXN	4050300428857	50	12	1800	3000	36	GU5.3	51	46	20

DECOSTAR® ALU

The aluminum-coated reflector without a shield reduces the thermal load in the luminaire by around 60% compared with aluminum-coated reflectors with a shield and by about 80% compared with dichroic reflectors with a shield. The dimmable lamp with UV-reducing quartz (as per IEC 60432) offers a neutral light throughout the life of the lamp.

- Long average life of 3000 hours
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K

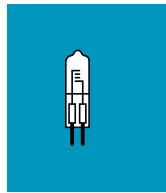
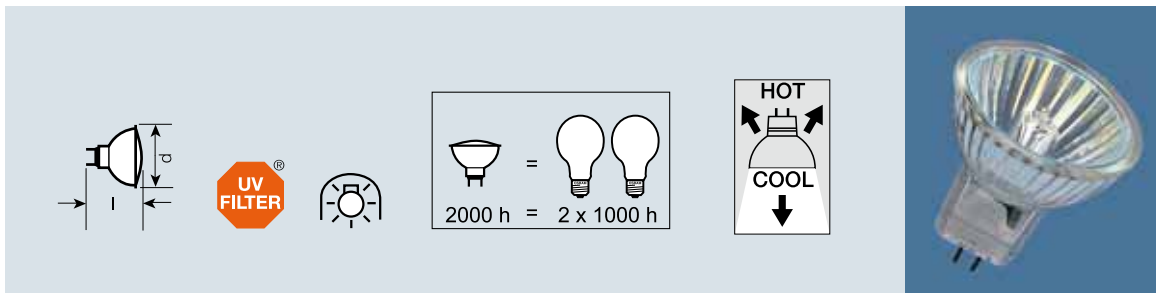




Product reference	ANSI	Product number	W	V	cd	t [h]	°	GU5.3	d max. [mm]	l max. [mm]	Icons
DECOSTAR® 51 COOL BLUE®											
46871 WFL	EXN	4050300816661	50	12	1200	4000	36	GU5.3	51	46	20

DECOSTAR® COOL BLUE® is ideal for jewellers, art galleries and anyone who prefers cold light colors.

- Particularly cool light at 4500 K
- Long average life of 4000 hours
- Dichroic reflector reduces the heat in the light beam by up to 66%
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable

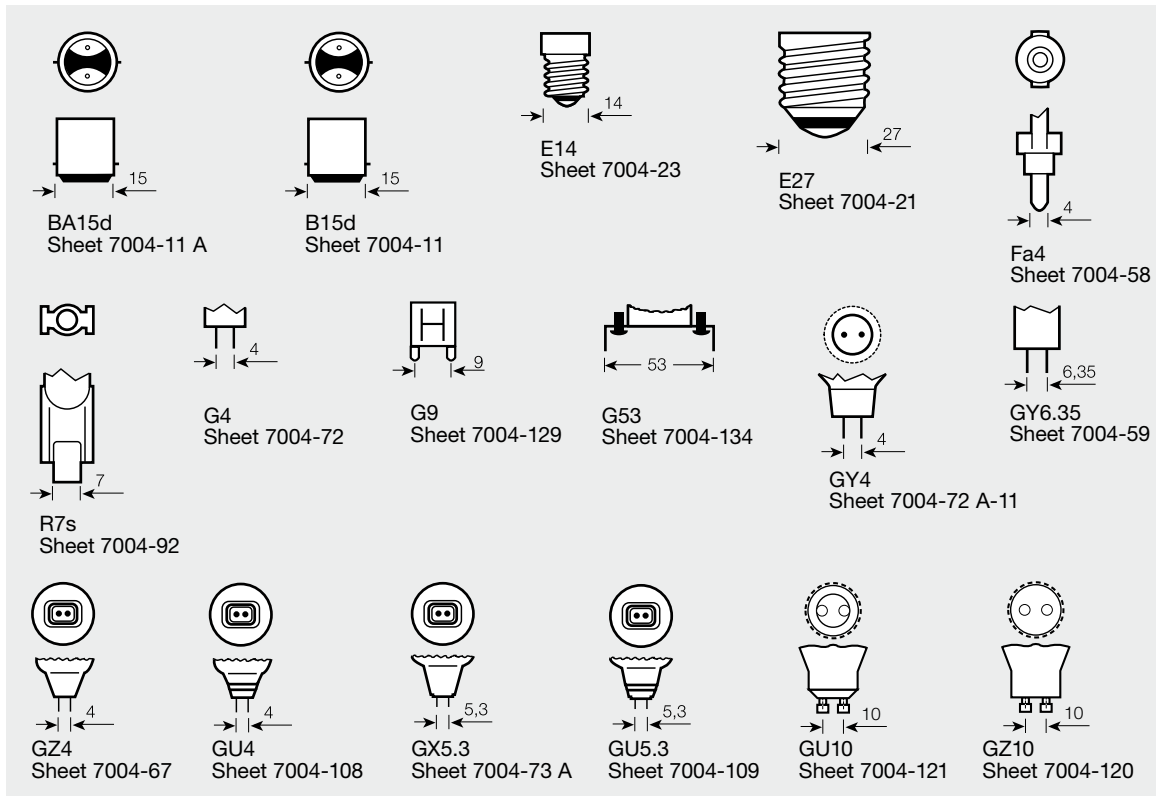
DECOSTAR® 35



Product reference	ANSI	Product number	W	V	cd	t [h]	°		d max. [mm]	l max. [mm]	
DECOSTAR® 35											
44888 WFL	-	4050300 443935	10	12	300	2000	36	GU4	35	40	10
44890 WFL	FTD	4050300 346168	20	12	500	2000	36	GU4	35	40	10
44892 SP	FTE	4050300 346182	35	12	5000	2000	10	GU4	35	40	10
44892 WFL	FTH	4050300 346229	35	12	1000	2000	36	GU4	35	40	10

- Average life of 2000 hours
- Dichroic reflector reduces the heat in the light beam by up to 66%
- Approved for use in open luminaires to IEC 60598-1
- UV-FILTER
- Dimmable
- Color temperature of 3000 K

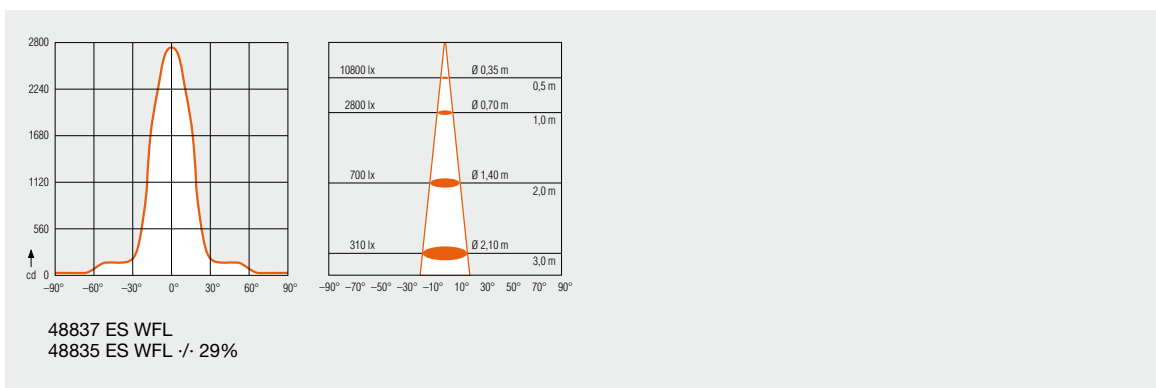
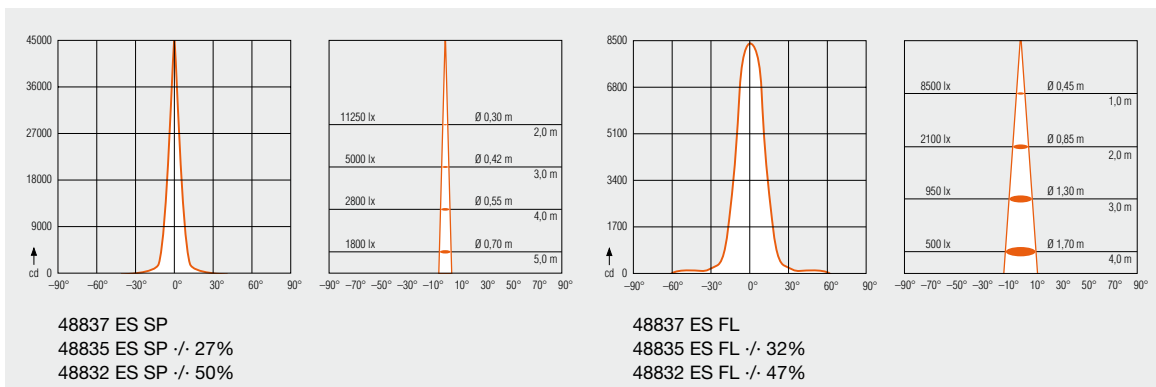
Bases IEC/EN 60061-1



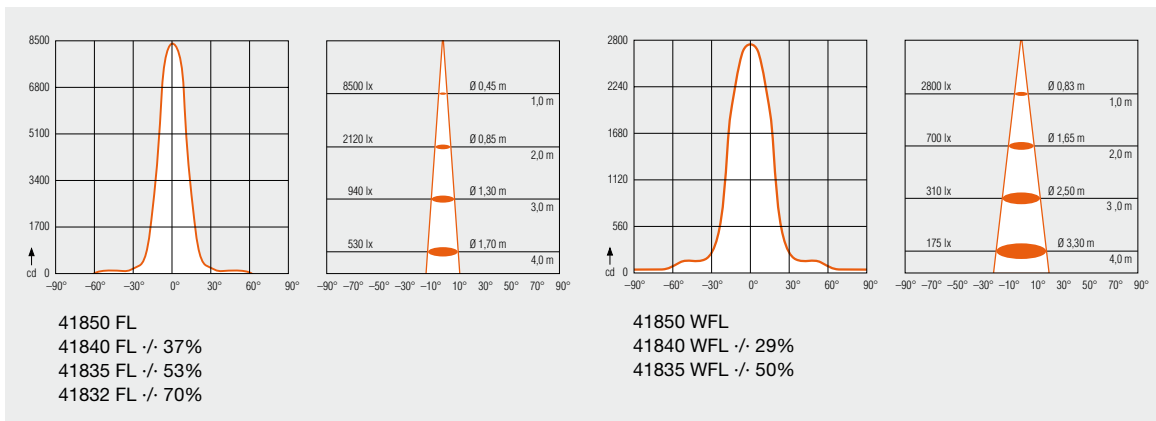
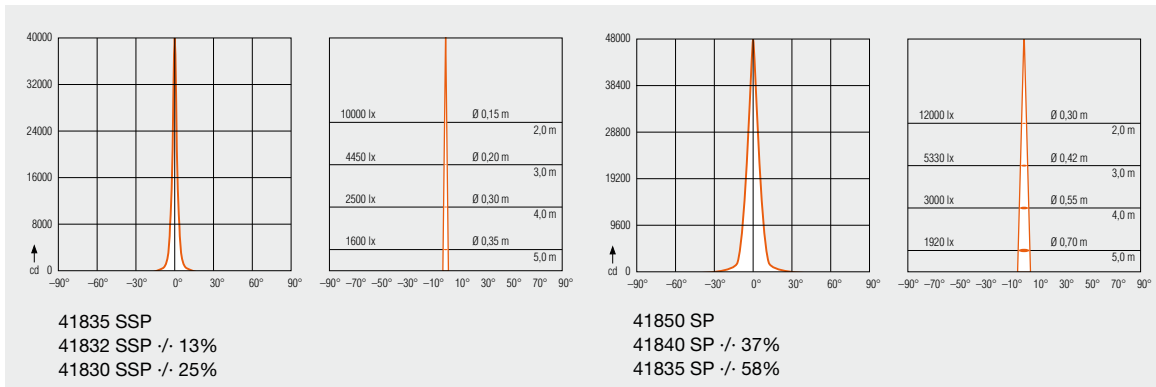
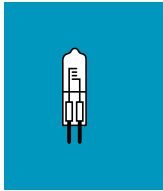
Note:

Operate halogen lamps for outdoor applications and damp locations only in luminaires approved for the purpose.

Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾ HALOSPOT® 111 ES



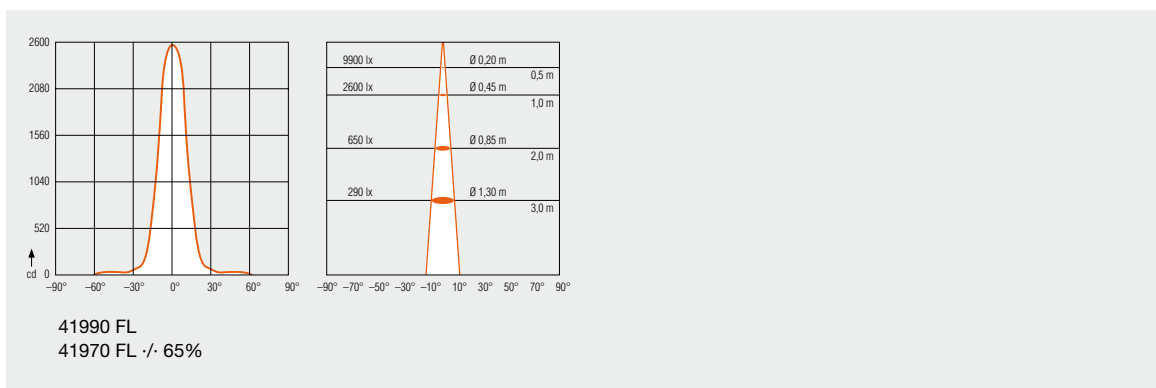
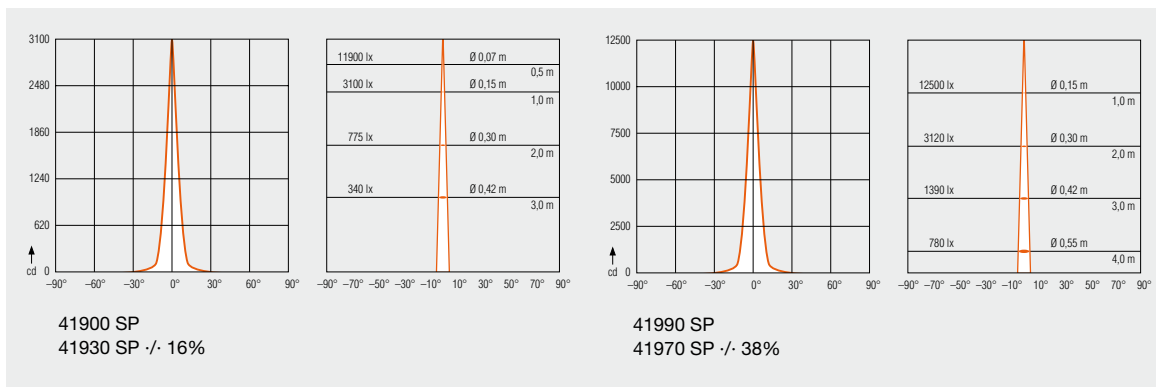
HALOSPOT® 111



— HWW = Half-peak angle

Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾

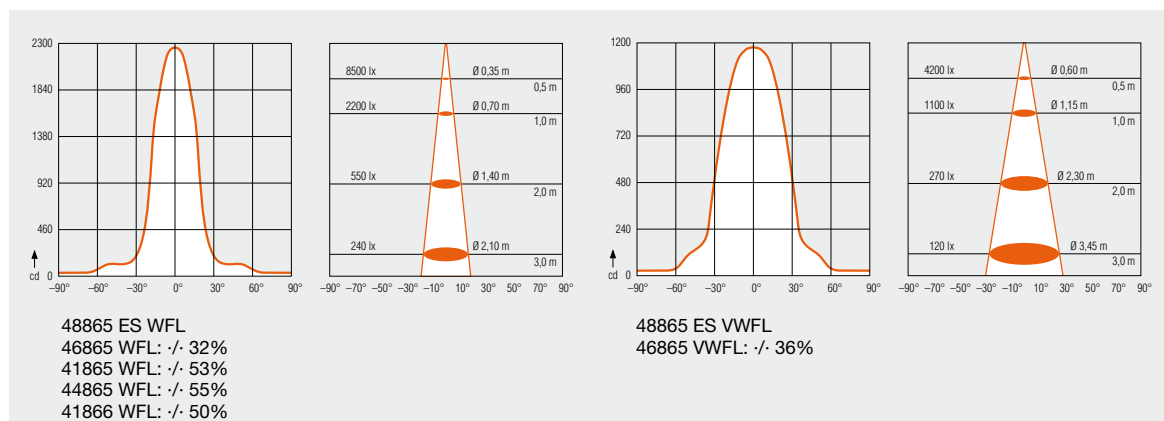
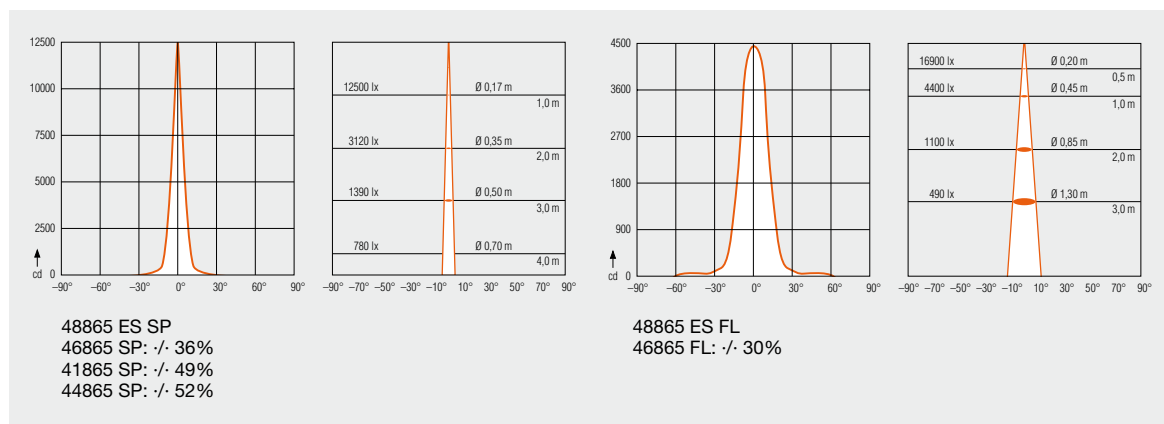
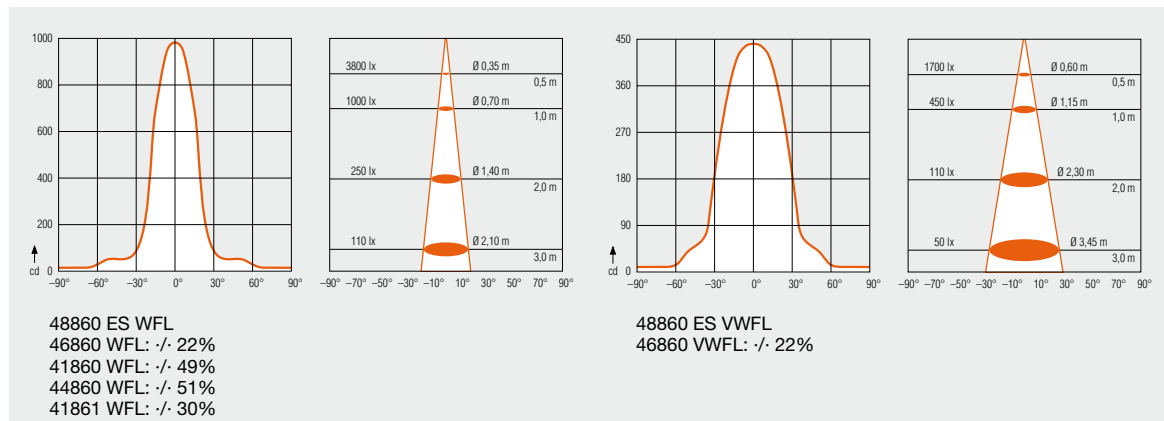
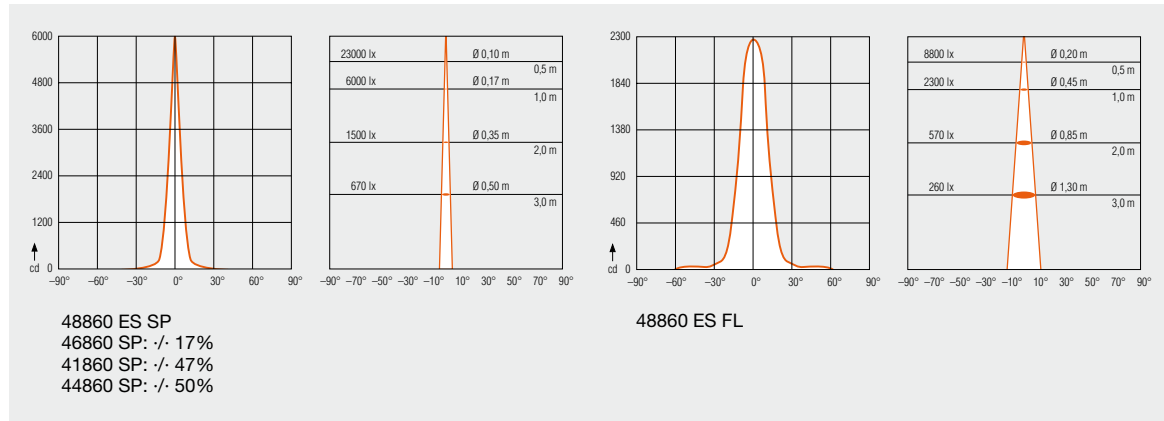
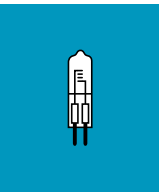
HALOSPOT® 48/70



1) The graphics show the basic distribution of light. They are not suitable for the purposes of planning a lighting system. Please ask for Eulumdat files or you can obtain them from www.myosram.com.

Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾

DECOSTAR®

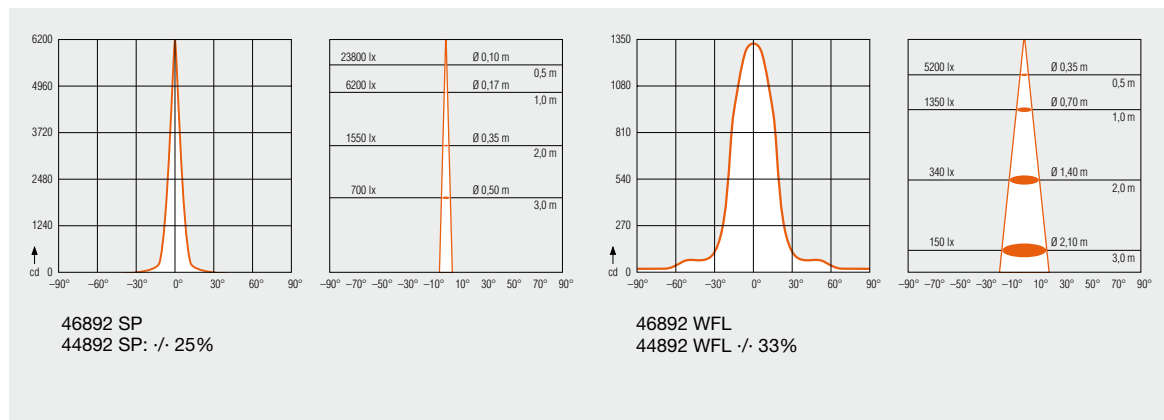
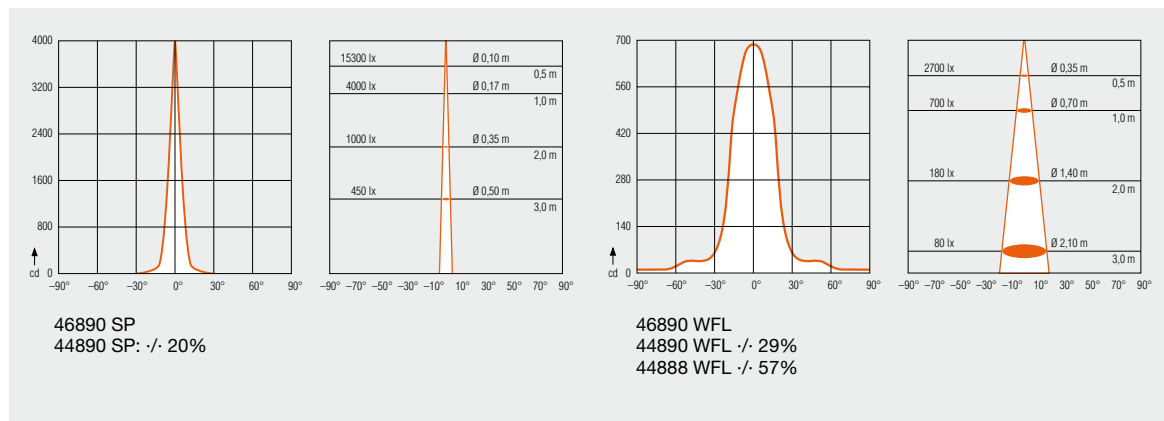
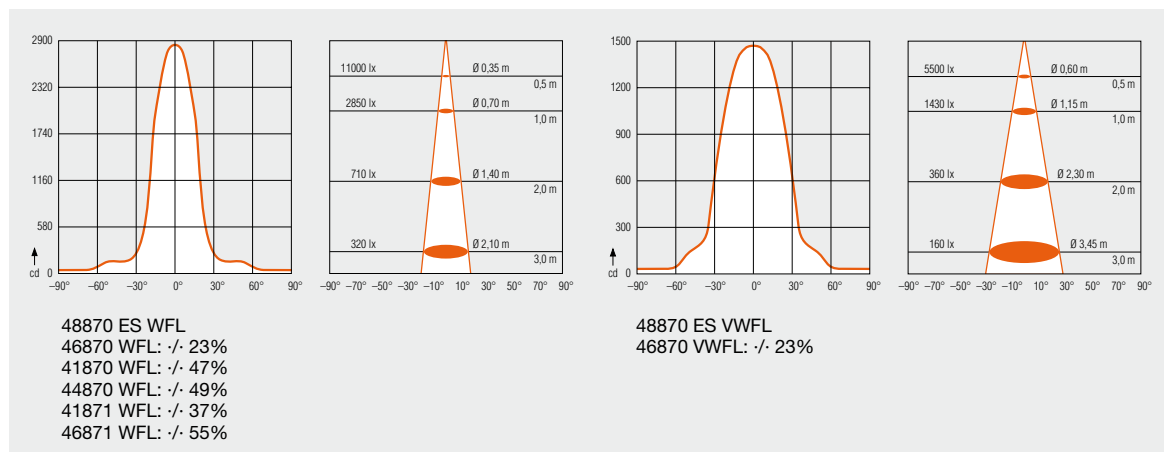
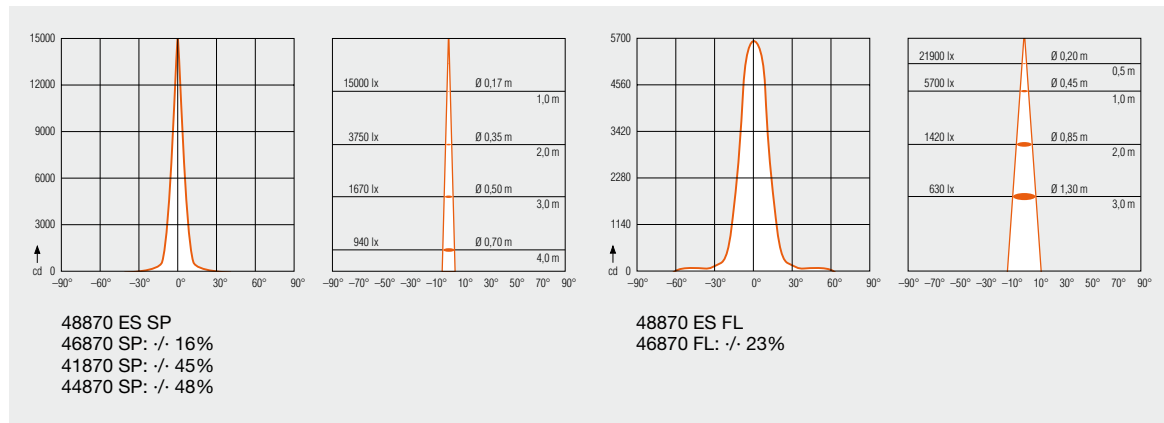
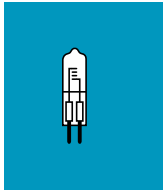


— HWW = Half-peak angle

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Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾

DECOSTAR®

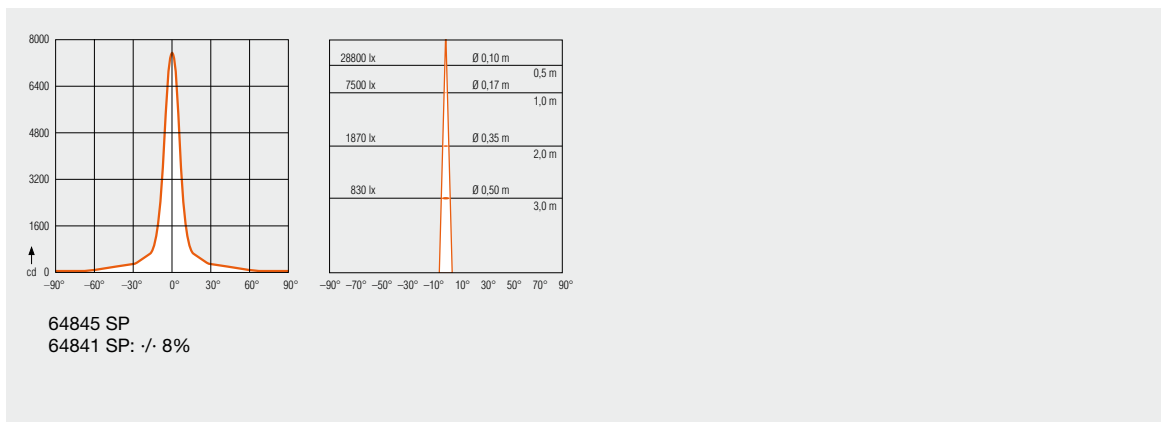
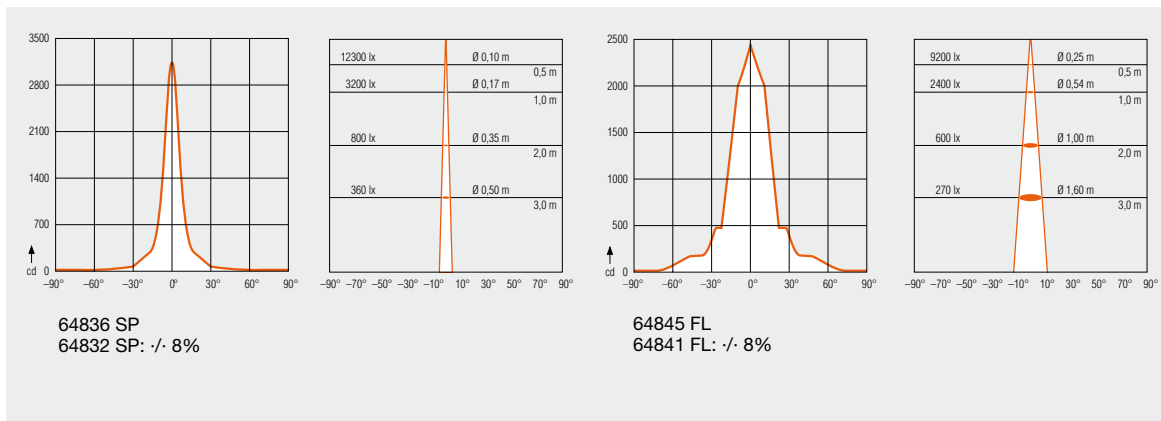
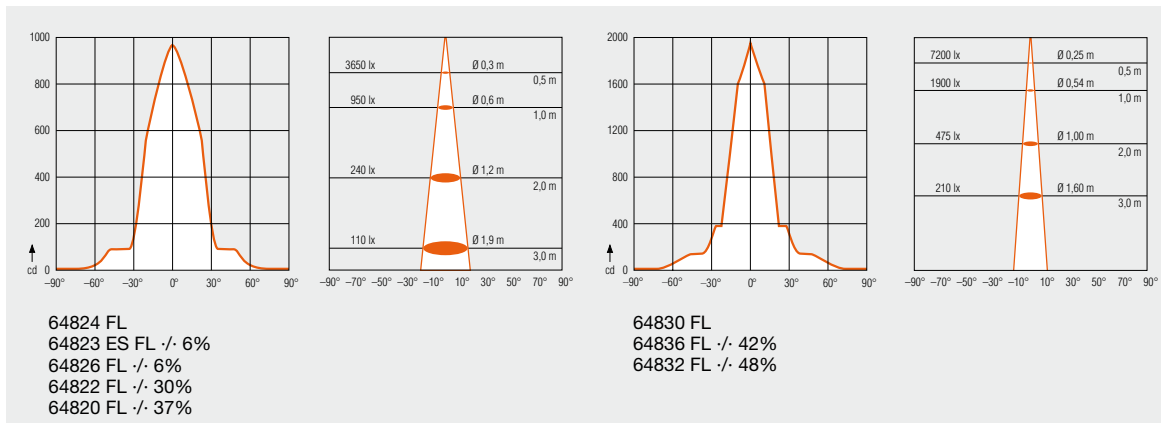
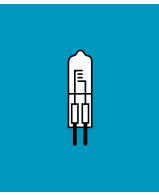


— HWW = Half-peak angle

1) The graphics show the basic distribution of light. They are not suitable for the purposes of planning a lighting system. Please ask for Eulumdat files or you can obtain them from www.mynosram.com.

Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾

OSRAM HALOPAR®

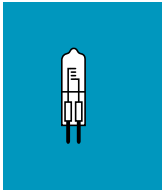
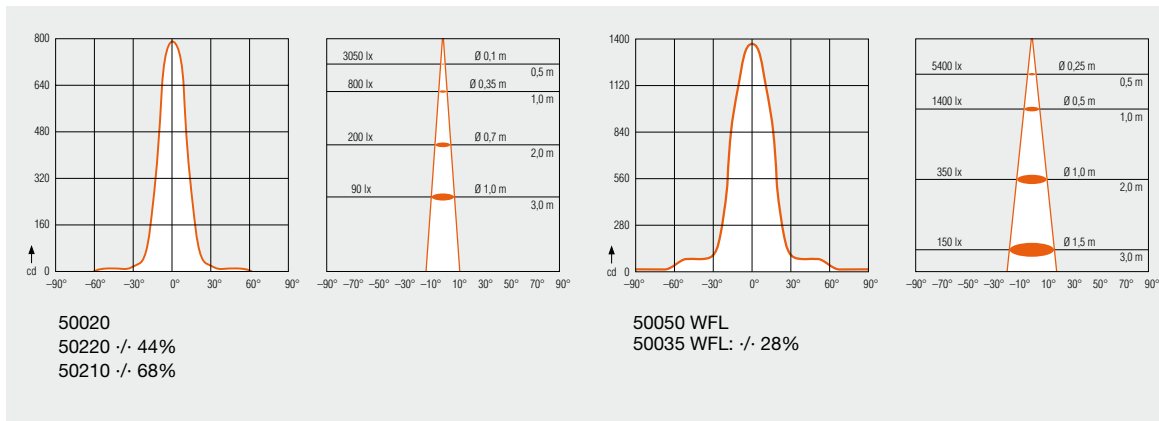


— HWW = Half-peak angle

¹⁾ The graphics show the basic distribution of light. They are not suitable for the purposes of planning a lighting system. Please ask for Eulumdat files or you can obtain them from www.mysosram.com.

Tungsten-halogen lamps with reflectors | Luminous intensity distribution¹⁾

MINISTAR®



— HWW = Half-peak angle

1) The graphics show the basic distribution of light. They are not suitable for the purposes of planning a lighting system. Please ask for Eulumdat files or you can obtain them from www.mynosram.com.