

# Content overview

## Touring/Stage 6

MSD Platinum	8
MSD Platinum Flex	10
MSR Platinum 35	12
MSR Gold™ FastFit	14
MSR Gold™ MiniFastFit	16
MSR	18
MSR Short Arc	20



## 22 DJ/Club

24	MSD Platinum
26	MSR Gold™ MiniFastFit
27	MSD Gold™ MiniFastFit

## Theater 30

MSR Platinum	32
MSR Gold MiniFastFit	33
MSR Gold FastFit	34

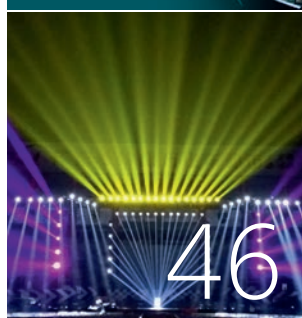


## 36 Film/Studio

39	MSR Platinum
44	MSR Hot Restrike

## Architainment 40

Architectural MSA	41
Architectural MSD	42
CDM-SA/T	44



## 46 Appendix

47	Cross reference list Discharge lamps
50	Design-in overview
52	Fundamentals of light and color
57	Lamp bases
59	Lamp bases names-Filament shapes - Fusing - Lamp life
60	List of manufacturers of ignitors or gear for MSR - MSD
61	Sales organisations
64	Philips type numbers





# General introduction

## Creating an unforgettable experience

Creating unforgettable experiences is the challenge that has inspired us to create the most exciting innovations in light. Our beams have become crisper and sharper. Our spotlights are brighter and whiter. Altogether incredibly compact light sources that ensure every performance has the maximum impact.

From MSR Gold to FastFit, MiniFastFit and Platinum Reflector lamps, our solutions have revolutionized the entertainment industry. And it's not just the major OEMs that use our lamps as the starting point for their fixtures. They're also the inspiration for many of the world's most talented lighting designers, not to mention the artists that live life in the spotlight.

But like all the best performers, we believe there's always room for improvement. It's the reason we work closely with leading fixture manufacturers to create lighting solutions that are more efficient, more powerful, more compact and easier to handle.

We've also established an 'On Stage' marketing platform to ensure that your lighting requirements take center stage in any new product development. Like the Philips P3 pinch protection and gold plated contacts that give our lamps the robust qualities that your industry demands. More than 2000 entertainment professionals have already subscribed to our On Stage Club. If you'd like to be on our VIP list to find out what's happening in the industry first, simply go to [www.philips.com/onstage](http://www.philips.com/onstage).

It's time to put our solutions in the spotlight. On the following pages you'll find our latest range of entertainment lamps. However, we're introducing new talented performers all the time. So to keep up to date with the latest innovations, make sure you contact your local Philips Representative or visit [www.philips.com/onstage](http://www.philips.com/onstage).

We'd like to thank our partners in business for their support and wish them a bright future,

The Philips entertainment lamps team.



# Touring/stage lighting

Lighting designers have a true passion for creating spectacular shows. To help bring out the best in their talents, we have developed the Platinum lamp system. Philips Platinum lamps are extremely compact and intense, allowing OEMs to design really small and flexible fixtures that rotate rapidly and highlight every angle on stage. The fixtures with Platinum inside bring the artists' performances to life, creating an experience that the audience will never forget!

#### \* Platinum technology

Philips MSD/MSR Platinum lamps are the original, brightest, and most compact short arc lamps on the market, enabling the design of small, flexible, and extremely efficient fixtures. The very short arc produces a sparkling, bright light that eliminates shadows and reproduces vivid colors perfectly. The Platinum system is compact and lightweight too, so it can be used anywhere. In short, more light output, more design possibilities, and less energy consumption. The new Platinum Flex lamp provides even more flexible options for your fixture.

#### \* Quality assured

Since Philips Platinum lamps are technologically advanced, close cooperation is required during the design-in to ensure optimum performance of the entertainment fixture. We therefore advise you to always replace end-of-life lamps with the original Philips Platinum types.

Many OEMs have already integrated Platinum lamps into their entertainment fixtures and our lamps have had the honor of lighting up many famous artists worldwide. For more information, please visit our website

[www.philips.com/onstage](http://www.philips.com/onstage)



FastFit lamp replacement

## Platinum lamps – The power to light your creativity

#### FastFit lamp base for easy lamp replacement

Another successful innovation that is well established in the market is the Philips FastFit concept, developed for single ended MSR Gold™ lamps. The rear load lamp base system enables easy lamp replacement and adjustments in a matter of seconds.

FastFit lamps are also available with a smaller lamp base, called MiniFastFit. These MiniFastFit lamps with a PGJX28 base allow OEMs to make smaller and lighter fixtures compared to the regular FastFit concept, with the PGJX50 lamp base.







MSD Platinum 5 R, 14 R, 12 R LL



MSD Platinum 15 R, 16 R, 18 R LL



MSD Platinum 11 R, 17 RA



MSD Platinum 20 R(B)



MSD Platinum 21 R



MSD Platinum 25 R



MSD Platinum 19 R LL

MSD Platinum – The power to light your creativity

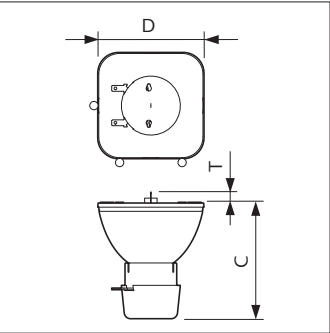
The MSD Platinum lamps open up new levels of creative freedom in entertainment lighting, with powerful, compact and brilliantly intense light. Their compact, lightweight design provides the freedom to create smaller, lighter luminaires – for use at any location on stage. And their short arc, high color temperature and innovative reflector produce a sparkling, high beam intensity for outstanding color reproduction. They also offer long and reliable lifetime, high efficacy and fast replacement times. It all adds up to an intensely exciting creative experience.

Product Features

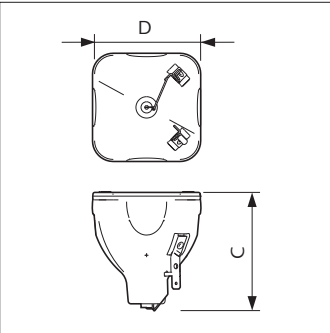
- Very short arc
- Compact system
- High correlated color temperature
- Philips Platinum technology

Product Benefits

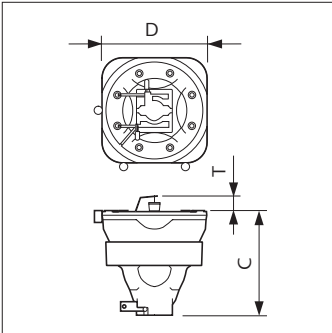
- High beam intensity
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- A long and reliable performance



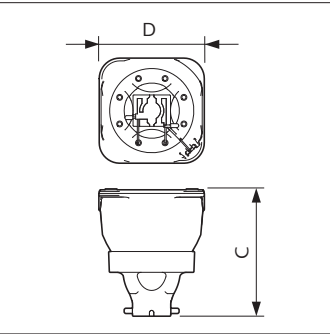
MSD Platinum 5 R, 12 R LL, 14 R



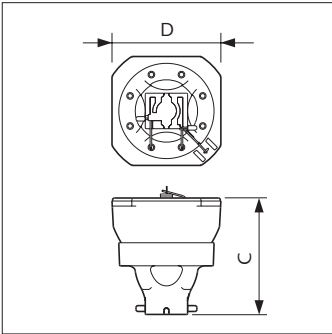
MSD Platinum 15 R, 16 R, 18 R LL



MSD Platinum 11 R, 17 RA



MSD Platinum 19 R LL, 20 R(B)



MSD Platinum 21 R, 25 R

Type	C Max	D Max	T Max
MSD Platinum 5 R	57.1	51.4	6.8
MSD Platinum 12 R LL	57.1	51.4	6.8
MSD Platinum 14 R	57.1	51.4	6.8

Type	C Max	D Max
MSD Platinum 15 R	66.4	58.5
MSD Platinum 16 R	66.4	58.5
MSD Platinum 18 R LL	66.4	58.5

Type	C Max	D Max	T Max
MSD Platinum 11 R	53	51.5	10.0
MSD Platinum 17 RA	53	51.5	10.0

Type	C Max	D Max	T Max
MSD Platinum 19 R LL	72	58.5	-
MSD Platinum 20 R(B)	72	58.5	-

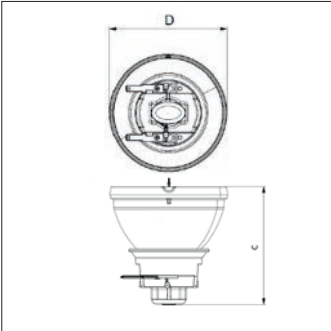
Type	C Max	D Max	T Max
MSD Platinum 21 R	60	54.5	8.0
MSD Platinum 25 R	60	54.5	8.0

Type	Lamp Wattage  (W)	Arc size  (mm)	Lumen output  (lm)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position	Pinch Temperature  (°C)	Ordering number
Philips MSD Platinum 5 R	189	1.0	7950	8000	75	3000	any	350	9281 908 05314
Philips MSD Platinum 11 R	250	1.0	12000	7800	80	2000	any	350	9281 917 05314
Philips MSD Platinum 12 R LL	260	1.0	14000	7800	80	2000 - 6000*	any	350	9284 967 05314
Philips MSD Platinum 14 R	280	1.0	12350	7800	80	2000	any	350	9281 961 05314
Philips MSD Platinum 15 R	300	1.3	14550	8000	75	2000	any	350	9281 916 05314
Philips MSD Platinum 16 R	330	1.3	16000	8000	75	1500	any	350	9281 952 05314
Philips MSD Platinum 17 RA	350	1.0	15250	7000	85	1500	any	350	9281 973 05314
Philips MSD Platinum 18 R LL	370	1.0	22000	8000	80	2000 - 6000*	any	350	9284 966 05314
Philips MSD Platinum 19 R LL	420	1.0	23000	8000	80	2000 - 4000**	any	350	9284 987 05314
Philips MSD Platinum 20 R	470	1.2	22400	8000	80	1500	any	400	9281 972 05314
Philips MSD Platinum 20 RB	470	1.2	22400	8000	80	1500	any	400	9284 952 05314
Philips MSD Platinum 21 R	470	1.2	23000	8000	80	1500	any	350	9281 978 05314
Philips MSD Platinum 25 R	550	1.4	26000	7800	81	1500	any	350	9284 959 05314

\* 2000h at nominal lamp power, 6000h in entertainment cycle  
\*\* 2000h at nominal lamp power, 4000h in entertainment cycle



MSD Platinum 200 Flex



MSD Platinum 200 Flex

**MSD Platinum Flex - The flexible solution for your fixture**

The new Platinum Flex lamp is designed with flexible options, enabling more functionalities for your fixture. The deep dimming option of the lamp –used when the shutter of the fixture is closed– makes it possible to have an extreme long lifetime and energy savings of 30 to 45%. The flexibility of the power levels makes it possible to have a real linear dimming effect from a beam moving head. Next to the excellent lumen output in different colors, the Platinum Flex platform enables the fixture to produce more color combinations and color corrections. Thanks to the intelligent driver scheme, the Platinum Flex platform supports more features, in addition to the renowned Platinum features.

Product Features

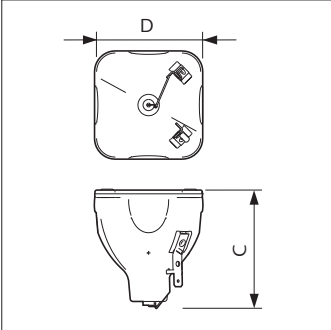
- Deep dimming when shutter closed
- Wide power range
- Flexible power levels
- Very short arc
- Compact system
- High correlated color temperature
- Philips Platinum technology

Product Benefits

- Extremely long lifetime, reduced power consumption by 30-45%
- Enhanced lumen output in different colors, more color combinations and color corrections
- Real linear dimming effect
- High beam intensity
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- A long and reliable performance



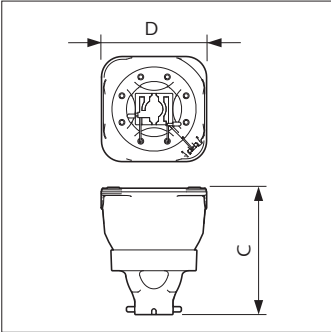
MSD Platinum 300S Flex



MSD Platinum 300S Flex



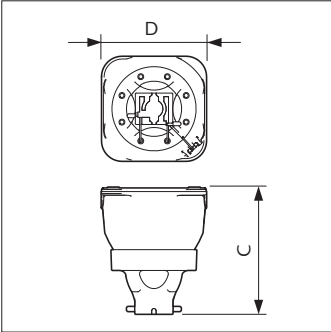
MSD Platinum 400L/500L Flex



MSD Platinum 400L/500L Flex



MSD Platinum 400S/500S Flex



MSD Platinum 400S/500S Flex

Type	C Max	D Max	T Max
MSD Platinum 200 Flex	60	56.5	-
MSD Platinum 300S Flex	66.4	58.5	-
MSD Platinum 400L Flex	60	54.5	8
MSD Platinum 400S Flex	72	58.5	-
MSD Platinum 500L Flex	60	54.5	8
MSD Platinum 500S Flex	72	58.5	-

Type	Lamp Wattage	Arc size	Lumen output	Color Temperature	Color Rendering Index (Ra)	Max. allowable pinch temp (°C)	Average lamp life (h)	Working distance (mm)	Operating Position	Ordering number
	(W)		(lm)	(K)						
Philips MSD Platinum 200 Flex	190-280 <sup>2</sup>	0.8	14000 <sup>3</sup>	8000 <sup>3</sup>	80 <sup>3</sup>	350	2000-6000 <sup>1</sup>	42.4	any	9284 957 05314
Philips MSD Platinum 300S Flex	330-380	1.0	22000	8000	80	350	2000-6000	31.4	any	9284 963 05314
Philips MSD Platinum 400L Flex	370-480 <sup>5</sup>	1.2	24000 <sup>6</sup>	8000 <sup>6</sup>	80 <sup>6</sup>	350	1500-6000 <sup>4</sup>	59	any	9284 964 05314
Philips MSD Platinum 400S Flex	370-480 <sup>5</sup>	1.2	24000 <sup>6</sup>	8000 <sup>6</sup>	80 <sup>6</sup>	350	1500-6000 <sup>4</sup>	31.4	any	9284 965 05314
Philips MSD Platinum 500L Flex	370-560	1.4	26000	8000	80	350	1500-4500	59.0	any	9284 981 05314
Philips MSD Platinum 500S Flex	370-560	1.4	33000	8000	80	350	1500-4500	31.4	any	9284 982 05314

1 At nominal lamp power: 2000h, In entertainment cycle: 6000h (all moving). Entertainment cycle is the lifetime cycle which is representative for use in the Touring/Stage segment. During 70% of the time the fixture is in idle mode (shutter closed) and during 30% in active mode (all moving, shutter open). In the active mode, a whole range of commonly used conditions in entertainment shows, are tested (color, dim, boost, white...) In the idle mode, the fixture will go into the deep dim level.

2 Nominal level 240W, Minimum dim level (active mode) 190W, Deep dim level (idle mode) 84W, Maximum boost level 280W

3 at 240W

4 At nominal lamp power: 1500h, In entertainment cycle: 4000h (all moving). Entertainment cycle is the lifetime cycle which is representative for use in the Touring/Stage segment. During 70% of the time the fixture is in idle mode (shutter closed) and during 30% in active mode (all moving, shutter open). In the active mode, a whole range of commonly used conditions in entertainment shows, are tested (color, dim, boost, white...) In the idle mode, the fixture will go into the deep dim level.

5 Nominal level 470W, Minimum dim level (active mode) 370W, Deep dim level (idle mode) 190W, Maximum boost level 480W

6 at 470W



MSR Platinum 35

MSR Platinum 35 – enhanced stage lighting

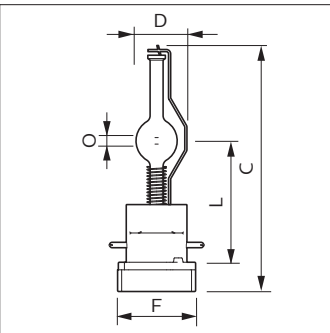
Today’s stage designs call for lighting solutions which deliver high brightness and high-contrast beams to avoid shadow creation, as well as more compact luminaire and fixture designs to improve creative choice and design flexibility. Addressing this need, we have developed an incredibly powerful, brilliant and lightweight, compact system for the most amazing light experience – MSR Platinum 35. This lamp system provides a powerful and innovative tool to create intense lighting and delivers the same good light quality as other MSR lamps. The exceptionally short arc generates sparkling, bright light and this ultra-compact design makes the lamp suitable for smaller stage lighting fixtures.

Product Features

- Very short arc
- Compact system
- High Correlated color temperature
- Philips FastFit technology
- Philips Platinum technology

Product Benefits

- High beam intensity, high brightness
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- Easy and fast lamp replacement
- A long and reliable lifetime



MSR Platinum 35

Type	C Max	D Max	L Min	L Nom	L Max	O Nom
MSR Platinum 35	116	23.5	55	56	57	3.0

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSR Platinum 35	800	PGJX36	57800	72	8500	73	1000	any

Type	Lamp current  (A)	Ordering number
Philips MSR Platinum 35	12.3	9281 909 05114



MSR Gold™ 700, 700/2, 1200 FastFit



MSR Gold™ 1500, 1500/1, 1500/2, 2000, 2000/1, 2000/2, 2500/2 FastFit

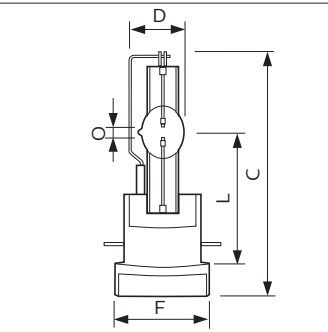
**MSR Gold™ FastFit – easy lamp replacement in seconds**  
All lamps burn out eventually, but when this happens with single ended MSR Gold™ FastFit, it is replaced in seconds – thanks to the specially designed lamp base and lamp holder. This lamp provides a high beam intensity of pure, white light for a truly illuminating performance, while the gold-plated caps provide superior heat protection and prevent premature failure. P3 technology allows use in any position and at higher temperatures, further extending lamp life and consistency of high-quality light output. Also, because the FastFit design is applied to Philips Halogen lamps, switching between lamp technologies can be done quickly and easily. The Philips MSR Gold™ 1200 FastFit can be operated in a lamp wattage range between 800W and 1400W.

Product Features

- Philips FastFit
- Very short arc
- Compact design
- Flexible power range
- Philips pinch protection
- Innovative gold plated pins
- MSR filling

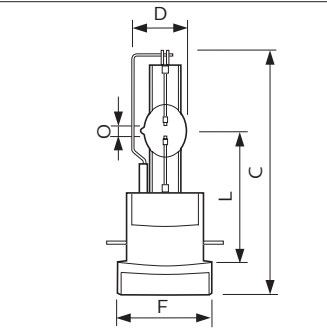
Product Benefits

- Lamp replacement in just seconds, exchangeable with halogen lamp
- High beam intensity
- Easy handling, smaller and lighter fixtures possible
- Boostable light levels
- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- Reduces early lamp or lamp holder failures. Excellent current transfer
- Pure, white light; color point close to black body line



MSR Gold™ 1500 (/1) (/2), 2000 (/1) (/2), 2500/2 FastFit

Type	C Max	D Max	F Nom	L Min	L Nom	L Max	O Nom
MSR Gold™ 1500 FastFit	128	28	50	64	65	66	6.3
MSR Gold™ 1500/1 FastFit	128	28	50	64	65	66	6.3
MSR Gold™ 1500/2 FastFit	128	28	50	64	65	66	6.3
MSR Gold™ 2000 FastFit	134	34	50	66	67	68	8.0
MSR Gold™ 2000/1 FastFit	133	34	50	66	67	68	7.0
MSR Gold™ 2000/2 FastFit	134	34	50	66	67	68	8.0
MSR Gold™ 2500/2 FastFit	153	35.5	50	73.9	74.9	75.9	9.5

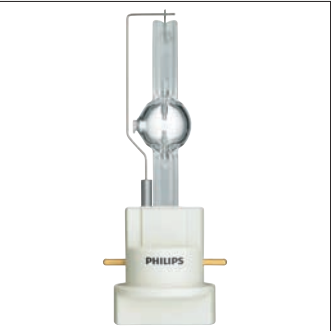


MSR Gold™ 700(/2), 1200 FastFit

Type	C Max	D Max	F Nom	L Min	L Nom	L Max	O Nom
MSR Gold™ 700 FastFit	112	23.2	50	64	65	66	3.8
MSR Gold™ 700/2 FastFit	112	23.2	50	64	65	66	3.8
MSR Gold™ 1200 FastFit	128	26.1	50	64	65	66	5.5

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSR Gold™ 700 FastFit	700	PGJX50	54000	76	6000	79	750	any
Philips MSR Gold™ 700/2 FastFit	700	PGJX50	48000	68	7300	73	750	any
Philips MSR Gold™ 1200 FastFit	1200	PGJX50	93000	78	6000	80	750	any
Philips MSR Gold™ 1500 FastFit	1500	PGJX50	120000	80	6000	80	750	any
Philips MSR Gold™ 1500/1 FastFit	1500	PGJX50	127500	85	5700	>94	750	any
Philips MSR Gold™ 1500/2 FastFit	1500	PGJX50	116000	77	7200	77	750	any
Philips MSR Gold™ 2000 FastFit	2000	PGJX50	162000	81	6050	91	750	any
Philips MSR Gold™ 2000/1 FastFit	2000	PGJX50	172000	86	5700	90	750	any
Philips MSR Gold™ 2000/2 FastFit	2000	PGJX50	157000	78	7800	88	750	any
Philips MSR Gold™ 2500/2 FastFit	2500	PGJX50	195500	78	7100	88	750	any

Type	Lamp current  (A)	Ordering number
Philips MSR Gold™ 700 FastFit	10.2	9281 060 05115
Philips MSR Gold™ 700/2 FastFit	10.2	9281 062 05114
Philips MSR Gold™ 1200 FastFit	15	9281 750 05115
Philips MSR Gold™ 1500 FastFit	15.3	9281 073 05115
Philips MSR Gold™ 1500/1 FastFit	15.3	9281 089 05115
Philips MSR Gold™ 1500/2 FastFit	16.1	9284 103 05115
Philips MSR Gold™ 2000 FastFit	15.2	9281 769 05114
Philips MSR Gold™ 2000/1 FastFit	18.2	9284 101 05114
Philips MSR Gold™ 2000/2 FastFit	19.5	9281 061 05114
Philips MSR Gold™ 2500/2 FastFit	19.5	9281 064 05115



MSR Gold™ 400, 575/2, 700(/1/2) MiniFastFit



MSR Gold™ 1000 MiniFastFit

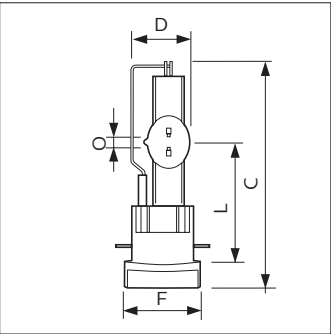
**MSR Gold™ MiniFastFit – lamp replacement in seconds**  
Thanks to the specially designed lamp base, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement costs. Easy handling and small compact fixture designs are allowed by the lamps compact size, while the very short arc provides a high perceived brightness and high beam intensity.

Product Features

- Philips MiniFastFit
- Compact design
- Innovative gold plated pins
- High color temperature
- Very short arc

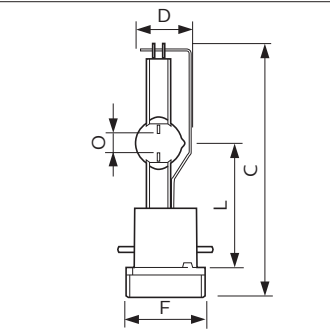
Product Benefits

- Lamp replacement in just seconds
- Easy handling, smaller and lighter fixtures
- Reduces early lamp or lamp holder failures. Excellent current transfer
- High perceived brightness
- High beam intensity



MSR Gold™ MiniFastFit

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSR Gold™ 400 MiniFastFit	111	23.2	35.3	36	36.5	55	56	57	3.0
MSR Gold™ 575/2 MiniFastFit	112	23.2	35.3	36	36.5	55	56	57	3.5
MSR Gold™ 700 MiniFastFit	116	23	35.3	36	36.5	55	56	57	3.5
MSR Gold™ 700/1 MiniFastFit	112	23.2	35.3	36	36.5	55	56	57	3.8
MSR Gold™ 700/2 MiniFastFit	112	23.2	35.3	36	36.5	55	56	57	3.8



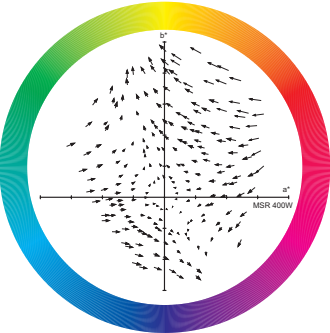
MSR Gold™ 1000 MiniFastFit

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSR Gold™ 1000 MiniFastFit	112	26	35.3	36	36.5	55	56	57	5.5

Type	Lamp Wattage (W)	Cap-Base	Lumen output (lm)	Efficacy source (lm/W)	Color Temperature (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSR Gold™ 400 MiniFastFit	400	PGJX28	28000	65	6400	60	750	any
Philips MSR Gold™ 575/2 MiniFastFit	575	PGJX28	36800	68	7700	70	750	any
Philips MSR Gold™ 700 MiniFastFit	700	PGJX28	49000	70	8850	65	750	any
Philips MSR Gold™ 700/1 MiniFastFit	700	PGJX28	53400	76	5700	73	750	any
Philips MSR Gold™ 700/2 MiniFastFit	700	PGJX28	47000	69	7200	75	750	any
Philips MSR Gold™ 1000 MiniFastFit	1000	PGJX36	82000	82	6000	80	900	any

Type	Lamp current (A)	Ordering number
Philips MSR Gold™ 400 MiniFastFit	7.2	9281 940 05114
Philips MSR Gold™ 575/2 MiniFastFit	10.2	9281 840 05115
Philips MSR Gold™ 700 MiniFastFit	10.8	9281 941 05114
Philips MSR Gold™ 700/1 MiniFastFit	10.2	9281 974 05115
Philips MSR Gold™ 700/2 MiniFastFit	10.2	9281 999 05115
Philips MSR Gold™ 1000 MiniFastFit	11.4	9281 714 05115

CRV diagram



MSR 400W types





MSR 700 (/2), MSR 1200 (/2)



MSR 575/2

**MSR – bright vivid colors, always**

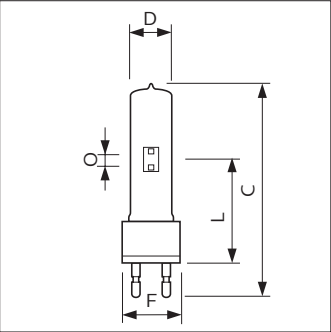
The high color rendering index of the single ended MSR series ensures that everyone in the audience can enjoy the true colors of the scenery, the stage props, the players and their costumes – in fact everything that is on stage can be made bright and vivid in daylight quality light. Also, thanks to the single ended lamp concept, the luminaire has optimal light collection and direction possibilities to help ensure brightness on stage exactly where and when it is needed. In addition, the MSR can be used in any burning position for easy set-up and convenience.

Product Features

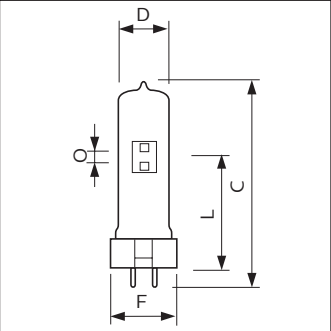
- Single ended lamp concept
- High CRI
- Daylight Color Temperatures

Product Benefits

- Optimal light collection
- Excellent color characteristics
- Brightness on stage



G22



GX9.5

Type	C Max	D Max	F Nom	L Min	L Nom	L Max	O Nom
MSR 700	152	30	42	74	75	76	8.0
MSR 700/2	152	30	42	74	75	76	8.0
MSR 1200	175	40	53	84	85	86	10.0
MSR 1200/2	175	40	53	84	85	86	10.0

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSR 575/2 10H	125	30	34	35	36	64	65	66	7.0

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSR 575/2 10H	575	GX9.5	47000	82	7000	73	1000	any
Philips MSR 700	700	G22	55000	80	5900	75	1000	any
Philips MSR 700/2	700	G22	55000	78	6700	80	1000	any
Philips MSR 1200	1200	G22	103000	88	5900	80	800	any
Philips MSR 1200/2	1200	G22	104000	87	6700	85	800	any

Type	Lamp current  (A)	Ordering number
Philips MSR 575/2 10H	7.0	9281 716 05115
Philips MSR 700	12	9280 780 05114
Philips MSR 700/2	11	9281 715 05114
Philips MSR 1200	13.8	9280 781 05114
Philips MSR 1200/2	13.8	9281 718 05114



MSR 1200 SA, MSR 2000 SA



MSR 700 SA

**MSR Short Arc – for longer life**

The lamp’s short arc and compact design helps enable a compact luminaire that provides high beam intensity, while the excellent color rendition characteristics help ensure optimal colors on stage.

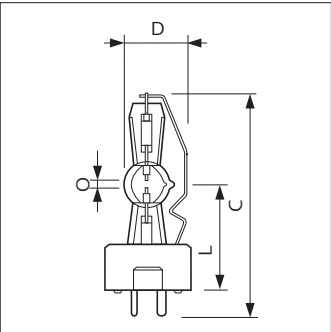
The highly innovative P3 technology, developed by Philips, allows MSR Short Arc lamps to be used at higher temperatures in any burning position. The result? Longer lifetime, fewer early failures and a highly consistent performance throughout the lamp’s lifetime.

Product Features

- Philips Pinch Protection
- Short arc
- Compact lamp design
- MSR filling

Product Benefits

- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- High beam intensity
- Compact design luminaries
- Excellent color characteristics, optimal colors on stage

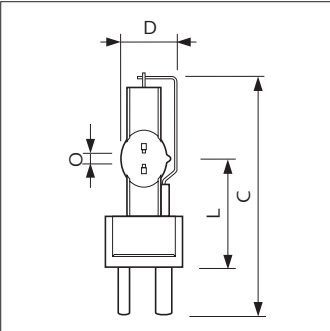


GY9.5

Type	C Max	D Max	L Min	L Nom	L Max	O Nom
MSR 700 SA	83	25	38	39	40	4.0

**Philips Pinch Protection technology**

- **Reliability**, through longer lifetime and fewer early failures.
- **Quality**, through excellent storage characteristics and consistent performance over time.
- **Compactness**, allowing more compact design of fixtures and burning positions.



GY22

Type	C Max	D Max	L Min	L Nom	L Max	O Nom
MSR 1200 SA	135	34	58	59	60	7.0
MSR 2000 SA	135	34	58	59	60	7.0

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
	(W)		(lm)	(lm/W)	(K)			
Philips MSR 700 SA	700	GY9.5	55000	79	5500	80	750	any
Philips MSR 1200 SA	1200	GY22	96000	80	6100	80	750	any
Philips MSR 2000 SA	1800	GY22	174000	87	6000	85	750	any

Type	Lamp current	Ordering number
	(A)	
Philips MSR 700 SA	11	9281 703 05115
Philips MSR 1200 SA	13.8	9281 709 05115
Philips MSR 2000 SA	21.5	9281 732 05114



# DJ/Club lighting



## **MSD Platinum - High end reflector lamps**

In clubs it is vital to create the right mood with impactful and fast moving lighting effects. Philips Platinum lamps do just that. Their very short arc produces a sparkling, bright light that eliminates shadows and perfectly reproduces brilliant and vivid colors. Moreover, the system is so compact that smaller, lightweight fixtures can be developed, that can be used anywhere and can rotate rapidly around the room. More design possibilities, more impact and less energy consumption.

## **A range of lamps for every event**

The Philips DJ/club range also features PAR 56 and PAR 64 lamps. An efficient lighting package with high quality Philips components, all optically aligned and sealed into a robust lamp. In line with the renowned Philips Entertainment Lighting standards, Philips PAR lamps offer the very best quality, reliability and lowest cost of ownership available today.





MSD Platinum 2 R



MSD Platinum 5 R

**MSD Platinum – The power to light your creativity**

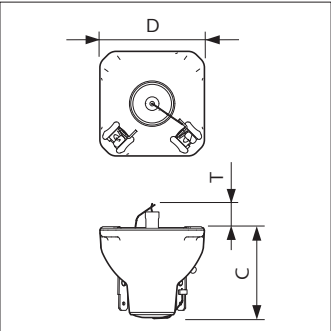
The MSD Platinum lamps open up new levels of creative freedom in entertainment lighting, with powerful, compact and brilliantly intense light. Their compact, lightweight design provides the freedom to create smaller, lighter luminaires – for use at any location on stage. And their short arc, high color temperature and innovative reflector produce a sparkling, high beam intensity for outstanding color reproduction. They also offer long and reliable lifetime, high efficacy and fast replacement times. It all adds up to an intensely exciting creative experience.

**Product Features**

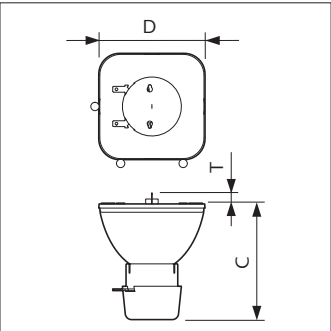
- Very short arc
- Compact system
- High correlated color temperature
- Philips Platinum technology

**Product Benefits**

- High beam intensity
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- A long and reliable performance



MSD Platinum 2 R



MSD Platinum 5 R

Type	C Max	D Max	T Max
MSD Platinum 2 R	43.5	46.5	13.5

Type	C Max	D Max	T Max
MSD Platinum 5 R	57.1	51.4	6.8

Type	Lamp Wattage	Arc size	Lumen output	Color Temperature	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position	Pinch Temperature	Ordering number
	(W)	(mm)	(lm)	(K)				(°C)	
Philips MSD Platinum 2 R	132	0.9	5150	8000	75	6000	any	350	9281 976 05314
Philips MSD Platinum 5 R	189	1.0	7950	8000	75	3000	any	350	9281 908 05314

# On Stage with Peter Morse

THE ONE Grand Show - Berlin



For more inspiration check the hall of fame on [www.philips.com/onstage](http://www.philips.com/onstage)

“THE ONE Grand Show was two years in the making and every lighting state and transition has become an integral part of the story telling process. Each look creates the mood, emotion, atmosphere and physical context of each scene.”

Peter Morse, Lighting Designer  
[www.petermorse.com](http://www.petermorse.com)

Photo credits: Ralph Larmann





MSR Gold™ 300/2 MiniFastFit

MSR Gold™ MiniFastFit – lamp replacement in seconds

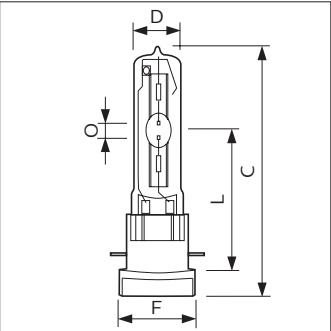
Thanks to the specially designed lamp base and lamp holder, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement costs. Easy handling and small compact fixture designs are allowed by the lamps compact size, while the very short arc provides a high perceived brightness and high beam intensity.

Product Features

- Philips MiniFastFit
- Compact design
- Innovative gold plated pins
- Color temperature >8000K
- Very short arc

Product Benefits

- Lamp replacement in just seconds
- Easy handling, smaller and lighter fixtures
- Reduces early lamp or lamp holder failures.
- Excellent current transfer
- High perceived brightness
- High beam intensity



MSR Gold™ 300/2 MiniFastFit

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index	Average lamp life	Operating Position
	(W)		(lm)	(lm/W)	(K)	(Ra)	(h)	
Philips MSR Gold™ 300/2 MiniFastFit	300	PGJX28	22700	75	7750	78	750	any

Type	Lamp current	Ordering number
	(A)	
Philips MSR Gold™ 300/2 MiniFastFit	3.8	9281 771 05115



MSD Gold™ MiniFastFit

MSD Gold™ MiniFastFit – replacement in seconds + longer life

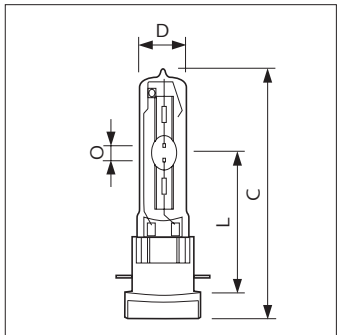
The specially designed lamp base of the MSD Gold™ MiniFastFit means that this lamp can be replaced in just seconds, helping to ensure non-stop entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement costs. The lamp’s compact size allows for easy handling and compact fixture designs, while the very short arc provides a high perceived brightness and high beam intensity. What’s more, the MSD Gold™ MiniFastFit has an extended lifetime, which further reduces lamp replacement costs.

Product Features

- Philips MiniFastFit
- Compact design
- Innovative gold plated pins
- Color temperature >8000K
- Very short arc
- Long lifetime (2000hrs)

Product Benefits

- Lamp replacement in just seconds
- Easy handling, smaller and lighter fixtures
- Reduces early lamp or lamp holder failures.
- Excellent current transfer
- High perceived brightness
- High beam intensity
- Less lamp replacement



MSD Gold™ MiniFastFit

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index	Average lamp life	Operating Position
	(W)		(lm)	(lm/W)	(K)	(Ra)	(h)	
Philips MSD Gold™ 300/2 MiniFastFit	300	PGJX28	21000	70	7650	64	2000	any

Type	Lamp current	Ordering number
	(A)	
Philips MSD Gold™ 300/2 MiniFastFit	3.8	9281 998 05114

# On Stage with Nick Whitehouse

Justin Timberlake's 20/20 Experience tour



For more inspiration check the hall of fame on [www.philips.com/onstage](http://www.philips.com/onstage)

“I love music; seeing how lighting and staging and everything I do enhances an artist's ability to entertain, is priceless. I love being a part of that; it's an unbelievable feeling to hear 20,000 fans scream because of a gig you have helped design and put together!”

Nick Whitehouse, Lighting Designer  
[www.fireplay.com](http://www.fireplay.com)

Photo credits: Ralph Larmann



# Theater lighting

The lighting experiences you create have the power to captivate audiences and turn a performance into something magical. To bring out the best in your talents, you need fixtures that maximise your scene-setting capabilities and recreate them perfectly.

**Exactly the lighting experience you intended**





MSR Platinum 35 ST

MSR Platinum 35 ST – The best choice for studio/theater lighting

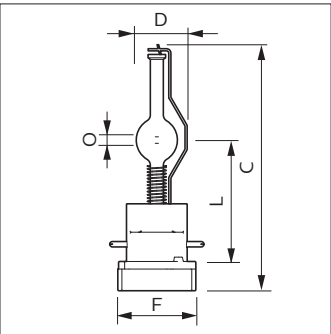
MSR Platinum 35 ST has been specially designed for the studio/theater world, where consistent high-quality light output, high brightness and excellent color rendering are important. This lightweight, compact system delivers intense, cool-white light for the most amazing light experience. It’s a powerful and innovative tool, giving lighting designers far greater freedom and delivering the same good light quality as other MSR lamps. The exceptionally short arc generates sparkling, bright light, and the lamp’s ultra-compact design makes it suitable for smaller lighting fixtures. The MSR Platinum 35 ST lamp has a balanced spectrum with extra red content for enhanced color rendering.

Product Features

- Very short arc
- Compact system
- High Correlated color temperature
- Philips FastFit technology
- Philips Platinum technology

Product Benefits

- High beam intensity, high brightness
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- Easy and fast lamp replacement
- A long and reliable lifetime



MSR Platinum 35 ST

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
	(W)		(lm)	(lm/W)	(K)			
Philips MSR Platinum 35 ST	800	PGJX36	57800	72	5500	75	750	any

Type	Lamp current	Ordering number
	(A)	
Philips MSR Platinum 35 ST	10.9	9281 945 05114



MSR Gold™ 1000 MiniFastFit

MSR Gold™ MiniFastFit – lamp replacement in seconds

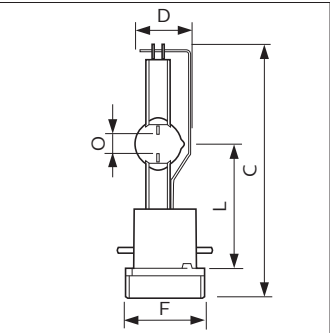
Thanks to the specially designed lamp base, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement costs. Easy handling and small compact fixture designs are allowed by the lamps compact size, while the very short arc provides a high perceived brightness and high beam intensity.

Product Features

- Philips MiniFastFit
- Compact design
- Innovative gold plated pins
- High color temperature
- Very short arc

Product Benefits

- Lamp replacement in just seconds
- Easy handling, smaller and lighter fixtures
- Reduces early lamp or lamp holder failures.
- Excellent current transfer
- High perceived brightness
- High beam intensity



MSR Gold™ 1000 MiniFastFit

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSR Gold™ 1000 MiniFastFit	112	26	35.3	36	36.5	55	56	57	5.5

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
	(W)		(lm)	(lm/W)	(K)			
Philips MSR Gold™ 1000 MiniFastFit	1000	PGJX36	82000	82	6000	80	900	any

Type	Lamp current	Ordering number
	(A)	
Philips MSR Gold™ 1000 MiniFastFit	11.4	9281 714 05115





MSR Gold™ 1200 FastFit



MSR Gold™ 1500/1 FastFit

**MSR Gold™ FastFit – easy lamp replacement in seconds**

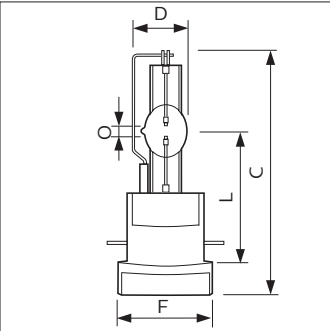
All lamps burn out eventually, but when this happens with single ended MSR Gold™ FastFit, it is replaced in seconds – thanks to the specially designed lamp base and lamp holder. This lamp provides a high beam intensity of pure, white light for a truly illuminating performance, while the gold-plated caps provide superior heat protection and prevent premature failure. P3 technology allows use in any position and at higher temperatures, further extending lamp life and consistency of high-quality light output. Also, because the FastFit design is applied to Philips Halogen lamps, switching between lamp technologies can be done quickly and easily. The Philips MSR Gold™ 1200 FastFit can be operated in a lamp wattage range between 800W and 1400W.

Product Features

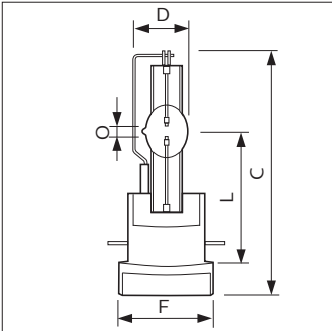
- Philips FastFit
- Very short arc
- Compact design
- Flexible power range
- Philips pinch protection
- Innovative gold plated pins
- MSR filling

Product Benefits

- Lamp replacement in just seconds, exchangeable with halogen lamp
- High beam intensity
- Easy handling, smaller and lighter fixtures possible
- Boostable light levels
- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- Reduces early lamp or lamp holder failures. Excellent current transfer
- Pure, white light; color point close to black body line



MSR Gold™ 1200 FastFit



MSR Gold™ 1500/1 FastFit

Type	C Max	D Max	F Nom	L Min	L Nom	L Max	O Nom
MSR Gold™ 1200 FastFit	128	26.1	50	64	65	66	5.5
MSR Gold™ 1500 FastFit	128	28	50	64	65	66	6.3
MSR Gold™ 1500/1 FastFit	128	28	50	64	65	66	6.3
MSR Gold™ 1500/2 FastFit	128	28	50	64	65	66	6.3

Type	Lamp Wattage	Cap-Base	Lumen output	Efficacy source	Color Temperature	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
	(W)		(lm)	(lm/W)	(K)			
Philips MSR Gold™ 1200 FastFit	1200	PGJX50	100000	83	6000	80	750	any
Philips MSR Gold™ 1500 FastFit	1500	PGJX50	119550	80	6000	80	750	any
Philips MSR Gold™ 1500/1 FastFit	1500	PGJX50	127500	85	5700	95	750	any
Philips MSR Gold™ 1500/2 FastFit	1500	PGJX50	116000	77	7200	77	750	any

Type	Lamp current	Ordering number
	(A)	
Philips MSR Gold™ 1200 FastFit	15	9281 750 05115
Philips MSR Gold™ 1500 FastFit	15.3	9281 073 05115
Philips MSR Gold™ 1500/1 FastFit	15.3	9281 089 05115
Philips MSR Gold™ 1500/2 FastFit	16.1	9284 103 05115



A large, ornate stage set with a dark, gothic-inspired architecture. The stage is lit with a mix of red, blue, and white spotlights. In the center, a group of performers in elaborate, colorful costumes are dancing. A large, red, flowing curtain hangs from the ceiling on the left. A staircase leads up to a platform in the background. The audience is visible in the foreground, silhouetted against the stage lights.

# On Stage Entertainment in the spotlight

## The Philips On Stage Club

Philips On Stage is an integrated loyalty platform for real artists in the entertainment industry; the go-to web page for exclusive access to the latest industry news, interviews and innovations. It also puts talented individuals in the spotlight with the chance to showcase their latest work through inspirational videos, backstage photos and personal insight interviews.

Like the incredible lighting show that Lighting Designer Peter Morse and Programmer Benny Kirkham created for THE ONE Grand Show in Berlin. We followed THE ONE lighting design process from concept to concert, with a guided tour of the venue, exclusive backstage images and a personal photo report from Peter's home in Los Angeles.

The feature culminated in a video of the impressive event at the Friedrichstadt-Palast featuring 500 costumes designed by Jean-Paul Gaultier. A breath-taking production that was brought to life using Philips Platinum and MSR Gold™ lamps. Exceptional solutions with the power to light Peter's creativity – and yours.

But also the work of other lighting designers is put in the spotlight. Like the amazing AC/DC show by Patrick Woodroffe, Justin Timberlake's 20/20 by Nick Whitehouse and the Eurovision Songcontest by Kasper Lange.

If you'd like to be the first to get access to these exclusive interviews, like to stay up to date with the latest in entertainment lighting, and get the chance to feature in our next On Stage exclusive, sign up for free by scanning the QR code below.

## On Stage lighting solutions

Philips develops the most exciting innovations in light so you can create unforgettable experiences.

Our entertainment solutions cover:

- Touring and Stage
- DJ and Club
- Theater
- Film and Studio
- Architainment

Sign up for free -  
Join Philips On Stage  
[www.philips.com/onstage](http://www.philips.com/onstage)







# Film/Studio lighting

As every stage director knows, color purity and evenly distributed light are essential ingredients for any production. This is especially true for accurate reproduction of skin tones.

Philips Platinum 35 ST lamps have been specially developed for Studio/Theater lighting fixtures to ensure consistent high quality light output with the right level of brightness, color rendering and color temperature in any lighting position. The result is attractive and accurately exposed pictures for film and video.

In addition to MSR Platinum 35 ST lamps, the range also includes MSR Hot Restrike lamps. The lamps create perfect daylight under any condition. They give excellent quality and the right amount of light, constantly on tap. Furthermore they are stable and reliable ensuring perfect performance conditions, and their compact Single Ended Lamp technology enables hot re-ignition while maintaining superb color characteristics.

“In fact it’s early evening... I make it high noon.”



MSR Platinum 35 ST

### MSR Platinum 35 ST – The best choice for studio/theater lighting

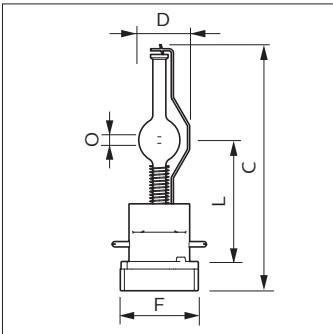
MSR Platinum 35 ST has been specially designed for the studio/theater world, where consistent high-quality light output, high brightness and excellent color rendering are important. This lightweight, compact system delivers intense, cool-white light for the most amazing light experience. It’s a powerful and innovative tool, giving lighting designers far greater freedom and delivering the same good light quality as other MSR lamps. The exceptionally short arc generates sparkling, bright light, and the lamp’s ultra-compact design makes it suitable for smaller lighting fixtures. The MSR Platinum 35 ST lamp has a balanced spectrum with extra red content for enhanced color rendering.

#### Product Features

- Very short arc
- Compact system
- High Correlated color temperature
- Philips FastFit technology
- Philips Platinum technology

#### Product Benefits

- High beam intensity, high brightness
- Freedom to create smaller and lighter fixtures
- High perceived brightness
- Easy and fast lamp replacement
- A long and reliable lifetime



MSR Platinum 35 ST

Type	C Max	D Max	F Nom	L Min	L Nom	L Max	O Nom
MSR Platinum 35 ST	116	24	36	55	56	57	3.0

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSR Platinum 35 ST	800	PGJX36	57800	72	5500	75	750	any

Type	Lamp current  (A)	Ordering number
Philips MSR Platinum 35 ST	10.9	9281 945 05114

# Architainment lighting

Architainment aims to transform architectural, retail, and themed environments through lighting. Philips Architainment lamps offer excellent colors, a strong beam and long life for amazing creativity and flexibility in architectural lighting. The high color temperature makes them especially suitable for architainment applications. Philips Architainment lamps can bring any object into the limelight and give it the charisma it deserves.

Giving objects and environments the charisma they deserve.

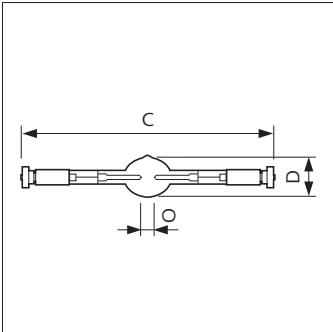


MSA 2500 DE

**Architectural MSA – double ended night colors**  
The high luminous efficacy and optimal lamp filling of the double ended Architectural MSA lamps create high beam intensity and excellent color rendering. While the compact arc of the lamp allows efficient beam control and high intensity. Ideal to illuminate architecture of all types at night.

- Product Features**
- High luminous efficacy
  - Compact arc
  - Optimal lamp filling

- Product Benefits**
- High lumen output
  - High beam intensity
  - Excellent colors



MSA 2500 DE

Type	C Max	D Max	O Nom
MSA 2500 DE	364	41	25

Type	Lamp Wattage  (W)	Cap-Base  (P)SFC	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSA 2500 DE	2500	(P)SFC	250000	100	5600	88	2500	p15

Type	Lamp current  (A)	Ordering number
Philips MSA 2500 DE	22.5	9280 994 05103





MSD 700, MSD 1200



MSD 575 HR

**Architectural MSD – single ended night colors**  
The high luminous efficacy and optimal lamp filling of the single ended Architectural MSD lamps create high beam intensity and excellent color rendering. While the compact arc of the lamp allows efficient beam control and high intensity. Ideal to illuminate architecture of all types at night.

**Product Features**

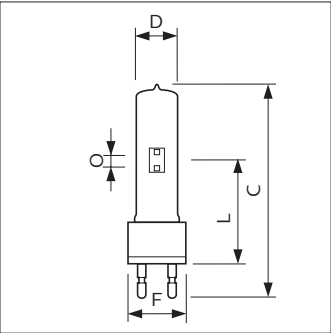
- High luminous efficacy
- Long life
- Optimal lamp filling

**Product Benefits**

- High lumen output
- Low cost of ownership
- Excellent colors

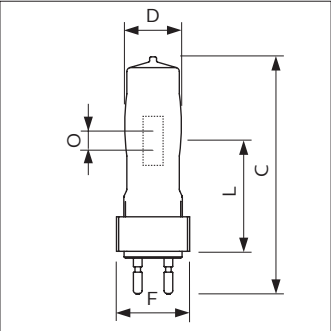


MSD 575



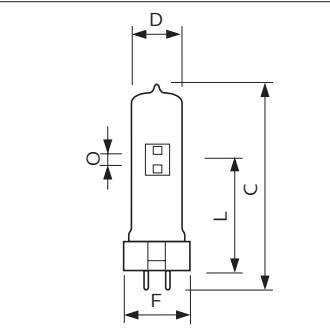
MSD 575 HR, MSD 700

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSD 575 HR	145	30	41	42	43	69	70	71	8.0
MSD 700	175	40	52	53	54	84	85	86	10.0



MSD 1200

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSD 1200	183	42.5	52	53	54	84	85	86	14.0



GX9.5

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
MSD 575	125	30	34	35	36	64	65	66	8.0

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips MSD 575	575	GX9.5	43000	75	6000	72	3000	any
Philips MSD 575 HR	575	G22	47000	81	5700	75	2000	any
Philips MSD 700	700	G22	49000	70	5900	75	3000	any
Philips MSD 1200	1200	G22	92000	79	6300	73	2000	any

Type	Lamp current  (A)	Ordering number
Philips MSD 575	7.0	9280 988 05114
Philips MSD 575 HR	7.0	9280 989 05114
Philips MSD 700	11	9281 704 05114
Philips MSD 1200	13.8	9281 720 05114



CDM-SA/T 150W

CDM-SA/T – the greener way to light up the night

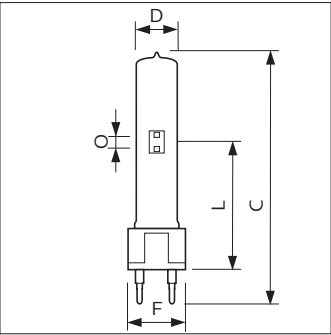
With a high luminous efficacy producing more lumens per watt than standard Architainment lamps, the CDM-SA/T is the greener alternative to light up the night. In addition, the optimal lamp filling and short arc of the lamp create a high beam intensity and excellent color rendering.

Product Features

- High luminous efficacy
- Compact arc
- Optimal lamp filling

Product Benefits

- High lumen output
- High beam intensity
- Excellent colors



CDM-SA/T G12

Type	C Max	D Max	F Min	F Nom	F Max	L Min	L Nom	L Max	O Nom
Philips CDM-SA/T 150W/942	110	20	29	30	31	55	56	57	6

Type	Lamp Wattage  (W)	Cap-Base	Lumen output  (lm)	Efficacy source  (lm/W)	Color Temperature  (K)	Color Rendering Index (Ra)	Average lamp life (h)	Operating Position
Philips CDM-SA/T 150W/942	150	G12	13000	84	4200	95	9000	any

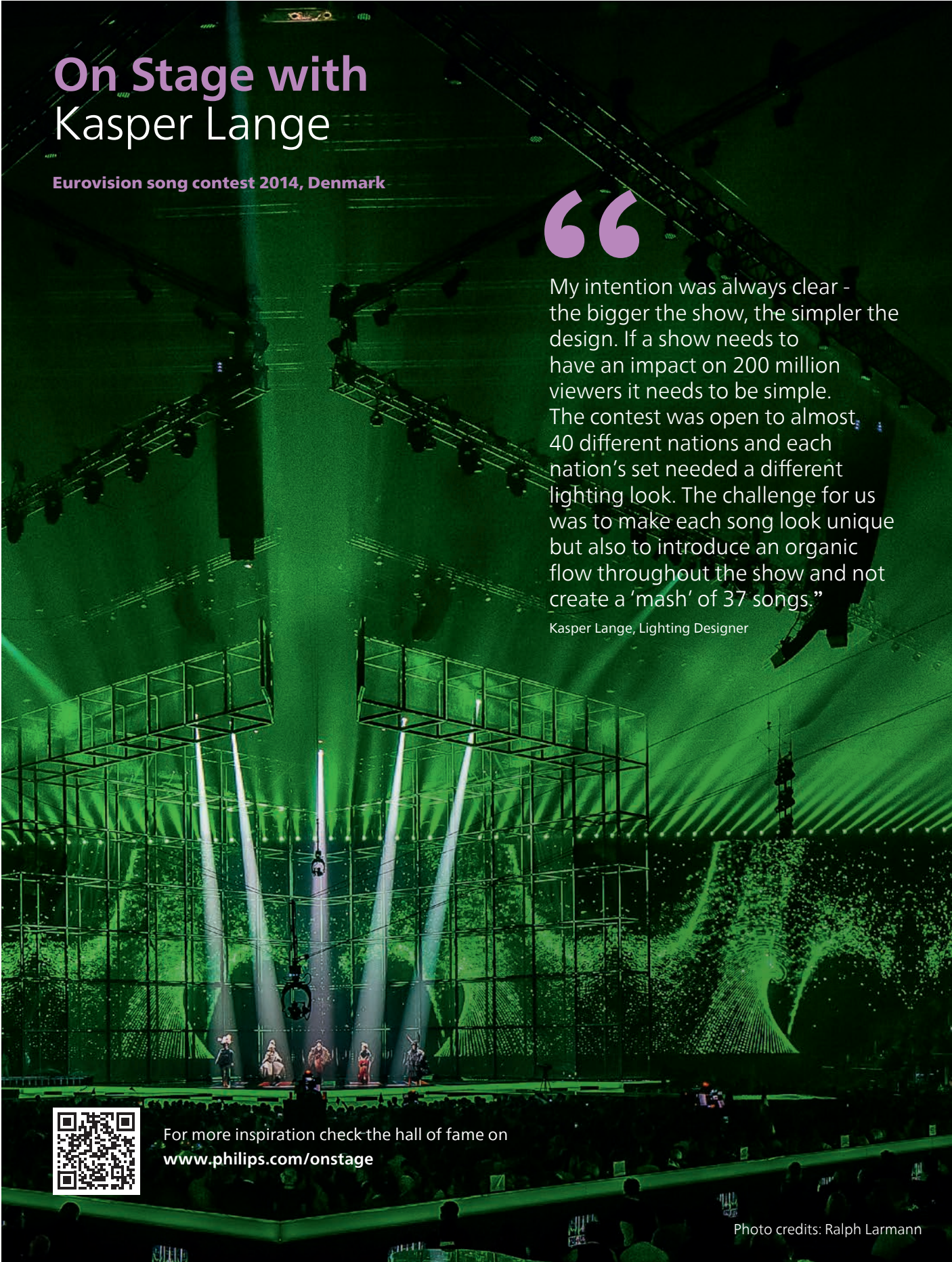
Type	Lamp Current  (A)	Ordering number
Philips CDM-SA/T 150W/942	1.8	9280 866 05103

# On Stage with Kasper Lange

Eurovision song contest 2014, Denmark

“My intention was always clear - the bigger the show, the simpler the design. If a show needs to have an impact on 200 million viewers it needs to be simple. The contest was open to almost 40 different nations and each nation’s set needed a different lighting look. The challenge for us was to make each song look unique but also to introduce an organic flow throughout the show and not create a ‘mash’ of 37 songs.”

Kasper Lange, Lighting Designer



For more inspiration check the hall of fame on [www.philips.com/onstage](http://www.philips.com/onstage)




Photo credits: Ralph Larmann



# Appendix

Cross reference list Discharge lamps	P47
Design-in overview	P48
Fundamentals of light and color	P52
Lamp bases	P57
Lamp bases names-Filament shapes- Fusing, Lamp life	P59
List of manufacturers of ignitors or gear for MSR - MSD	P60
Sales organisations	P61
Philips type numbers	P64

Photo credits: Jolly lighting

Special HID lamps (Non Hot-Restrike lamps)

Philips	Osram	Yodn
MSD Platinum 2 R	SIRIUS HRI 132W	MSD 132R2
MSD Platinum 5 R	SIRIUS HRI 190W	MSD 200R5
MSD Platinum 11 R		
MSD Platinum 12 R LL		
MSD Platinum 14 R	SIRIUS HRI 280W	MSD 280R10
MSD Platinum 15 R		MSD 300R15
MSD Platinum 16 R	SIRIUS HRI 330W	MSD 330S16
MSD Platinum 17 RA		
MSD Platinum 18 R LL		
MSD Platinum 19 R LL		
MSD Platinum 20 R		
MSD Platinum 20 RB		
MSD Platinum 21 R		
MSD Platinum 25 R	SIRIUS HRI 550W	
MSD Platinum 200 Flex		
MSD Platinum 300S Flex		
MSD Platinum 400L Flex		
MSD Platinum 400S Flex		
MSD Platinum 500L Flex		
MSD Platinum 500S Flex		

Special HID lamps (Non Hot-Restrike lamps)

Philips	Osram	SLI	Koto	GE	Ushio	Xenpow/Jenbo
Single-ended Metal Halide lamps with outer bulb						
MSR 575/2	HSR 575/72	BA 575 SE NHR 7.2	DIS-7	CSR 575/2/SE	USD 5.75/2 NHR	NSK 575/2
				CSR 575/2/T/SE (8000 K)		
MSR 700		BA 700 SE NHR	DIS-7		USR 700 NHR	NSK 700
MSR 700/2				CSR 700/2/SE		NSK 700/2
MSR 1200	HSR 1200/60	BA 1200 SE NHR	DIS-12		USR 1200 SE	NSK 1200
MSR 1200/2				CSR 1200/2/SE		NSK 1200/2
MSD 575	HSD 575/60	BA 575 SE D			USD-575 NHR	NSD 575
MSD 700						
MSD 1200						NSD 1200

Philips	Osram	SLI	GE	Xenpow/Jenbo
Single-ended Metal Halide lamps without outer bulb				
MSR Gold™ 300/2 MiniFastFit			CSR 300/2/TAL	NSK G 300/2 mini
MSD Gold™ 300/2 MiniFastFit	HSD 300W/80/P28		CSR 300/2/TAL	
MSR Gold™ 400 MiniFastFit	HTI 400W/60/P28			
MSR Gold™ 700/2 MiniFastFit	HTI 700W/75/P28		CSR 700/TAL/60/PGJX28	NSK G 700/2 mini
MSR Gold™ 700 FastFit			CSR 700/TAL/60/PGJX50	NSK G 700
MSR Gold™ 700/2 FastFit	HTI 700W/75/P50		CSR 700/TAL	NSK G 700/2
MSR Gold™ 1000 MiniFastFit	Lok-it! 1000/PS Lok-it! 1000/PS Brilliant			
MSR Gold™ 1200 FastFit				NSK G 1200
MSR Gold™ 1500 FastFit	HTI 1500W/60/P50		CSR 1500/TAL/60	
MSR Gold™ 1500/1 FastFit	HTI 1500W/60/P50		CSR 1500/TAL/60	
MSR Gold™ 1500/2 FastFit				
MSR Gold™ 2000 FastFit	HTI 2000W/60/P50			
MSR Gold™ 2000/1 FastFit				
MSR Gold™ 2000/2 FastFit	HTI 2000W/75/P50			
MSR Gold™ 2500/2 FastFit				
MSR 700 SA	HTI 705 W/SE XS	BA 700 SE SA5.6	CSR 700 SA  CSR 700 SA/72	NSK 700SA
MSR 1200 SA	HTI 1200 W/SE XS		CSR 1200 SA  CSR 1500 SA	NSK 1200 SA
MSR 2000 SA				
Note: All Philips lamps have pinch protection up to 500degr Celsius				

# Design-in overview Platinum

Also check the lamp replacement tool on [www.philips.com/onstage](http://www.philips.com/onstage)

Fixture brand	Fixture model
Acme	AE-275B / AE-275R / AE-710Beam
ADJ	Vizi Roller Beam 2R / Vizi Beam Hybrid 2R
Elation	Rayzor Beam 2 R / Sniper 2 R
Jolly	X-SMART BEAM
Terbly	LS-2R / LBM-2R / VDH-2R / PDH-2R / PTB-2R
Triton Blue	2R-BEAM
Acme	XP-5R BEAM / XP-5R BEAM II
ADJ	Vizi Beam 5R / Vizi Spot 5R
Clay Paky	Sharpy
DTS	Jack
Ehrgeiz	Cobalt Plus 5R / Cobalt Plus Beam 5R / Cobalt Plus Spot 5R
Elation	Platinum Beam 5 R / Platinum Beam 5 R Extreme / Platinum Spot 5 R Pro
Futurelight	PLB-5R / PLS-5R
Jolly	X-BEAM 5R / X-SPOT 5R
PR Lighting	XR 200 Beam
Terbly	PT160 Pro / JT160-E / JT160B / PT160B / PT160B Pro / PT 189B
Triton Blue	5R-BEAM / 5R-SPOT / 5R-BEAM-PRO
Martin Professional	RUSH MH7 Hybrid
PR Lighting	PR-2206
Acme	XP-320 BEAM - XP 320 BEAM IP
ADJ	VIZI BEAM 12 RX - HYDRO BEAM X12

## Philips lamp type

Philips MSD Platinum 2 R
Philips MSD Platinum 2 R
Philips MSD Platinum 2 R
Philips MSD Platinum 2 R
Philips MSD Platinum 2 R
Philips MSD Platinum 2 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 5 R
Philips MSD Platinum 11 R
Philips MSD Platinum 11 R
Philips MSD Platinum 12 R LL
Philips MSD Platinum 12 R LL

Also check the lamp replacement tool on [www.philips.com/onstage](http://www.philips.com/onstage)

## Fixture brand

Acme
ADJ
DaGe
Elation
PRG
Terbly
Acme
Ehrgeiz
Elation
Fine Art
Futurelight
GRIVEN
Jolly
PR Lighting
Terbly
Triton Blue
Acme
Clay Paky
DTS
Elation
Fine Art
Jolly
Terbly
Elation
Fine Art
Philips Varilite
PR Lighting
Terbly
Triton Blue
Acme
Martin Professional
Acme
Acme
Clay Paky
DeSheng
Elation
Fine Art
Jolly
Terbly
Elation
Fine ART
GTD
PRG
Terbly
Acme
ClayPaky
DLW
Fine Art
GTD
Philips Varilite
PR lighting
Terbly
Clay Paky
Elation
Fine Art
PR Lighting
Robe
Terbly

## Fixture model

XP-280 BS
VIZI BEAM 14RX
AX-2882
Platinum HFX / Proteus Beam V14B IP / Sniper Pro
Icon BEAM
G14B-IP / G9 Hybrid/ G9B
XP-15R SPOT
Cobalt X-Beam 15R
Platinum Spot 15R / Platinum Spot 15R Pro / Platinum Beam 15R
Fine 300 beam / Fine 300 wash
PLB-15R / PLS-15R
Graphite 2000
X-BEAM 15R
XR 300 Beam
Pt 320S spot / PT322S spot basic/ Pt 320B beam / F5300M Follow-Spot
15R SPOT / 15R BEAM / 15R Follow-Spot
XP-16R BSW II/ XP-16R BSW PRO / XP-16R Beam II XP-16R BSW / XP-16R Spot / XP-16R Beam
Sharpy Wash 330
Max / Max L
Platinum Wash 16 R Pro
Fine 330 wash / Fine 330 spot
X-SUPER BEAM
PT330W
Platinum BX / Platinum SBX
Fine 350BSW
SL Hydrus 350
PR2362 BWS
G10B Beam / G10 Hybrid
Mega Beam G10 / HYBRID-G10 Beam-Spot-Wash
XP-380 BSW / XP-380 BSW Pro
ERA 500 Hybrid IP
XP 500 BEAM
XP-20R BEAM / XP-20R BSW
Supersharpy / Mythos
MH-470BWS IP / MH-470B IP
Platinum FLX
Fine 470BSW / Fine 470 BEAM
X-5 Couple
G12WB Beam & Wash / G12 Hybrid
Proteus Hybrid
Fine 470BEAM / Fine 470BSW
GTD-470 BSW / GTD-470 Beam / GTD-480 BSW / GTD-480 Beam
Icon EDGE
G20 Hybrid IP/ G21 Hybrid / G12 WB
XP 550 BSW II / XP-550 BEAM IP / XP 550 BSW IP
SHARPY X FRAMA/FD
DLW 550 BEAM / DLW 550 BSW / DLW 550 Wash
Fine 550 BSW / Fine 550 Wash / Fine 550 BeamWash
GTD F5 II Beam / GTD F5 II BSW / GTD-550 II BSW / Philips MSD
VL10 Beamwash
PR-2569 (Beam)/ PR-2597 (BSW)/ PR-2552 (BSW) / PR-2554 (Beam)
G25 Hybrid / G25 Hybrid IP / G25B IP / G25B NOVA IP
Alpha Profile 800 ST / Alpha Spot QWO ST
Platinum Profile 35 Pro / Platinum Spot 35 Pro
Fine 800SF
XR 800 Spot
MMX Spot / MMX Wash Beam
F5800M Follow Spot

## Philips lamp type

Philips MSD Platinum 14 R
Philips MSD Platinum 14 R
Philips MSD Platinum 14 R
Philips MSD Platinum 14 R
Philips MSD Platinum 14 R
Philips MSD Platinum 14 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 15 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 16 R
Philips MSD Platinum 17 RA
Philips MSD Platinum 17 RA
Philips MSD Platinum 17 RA
Philips MSD Platinum 17 RA
Philips MSD Platinum 17 RA
Philips MSD Platinum 17 RA
Philips MSD Platinum 18 R LL
Philips MSD Platinum 18 R LL
Philips MSD Platinum 19 R LL
Philips MSD Platinum 20 R
Philips MSD Platinum 20 R(B)
Philips MSD Platinum 20 RB
Philips MSD Platinum 20 R
Philips MSD Platinum 20 R
Philips MSD Platinum 20 R
Philips MSD Platinum 20 R
Philips MSD Platinum 21 R
Philips MSD Platinum 21 R
Philips MSD Platinum 21 R
Philips MSD Platinum 21 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSD Platinum 25 R
Philips MSR Platinum 35 + Philips MSR Platinum 35 ST
Philips MSR Platinum 35 + Philips MSR Platinum 35 ST
Philips MSR Platinum 35 ST
Philips MSR Platinum 35 + Philips MSR Platinum 35 ST
Philips MSR Platinum 35 + Philips MSR Platinum 35 ST
Philips MSR Platinum 35 ST



Also check the lamp replacement tool on [www.philips.com/onstage](http://www.philips.com/onstage)

Fixture brand	Fixture model
Terbly	PT800S / PT800P
Triton Blue	35R-SPOT
Elation	Smarty Hybrid
Terbly	G6H NOVA
DLW	DLW-380 Beam / DLW-380 BSW
Fine Art	Fine 380 LL Beam
GTD	GTD-380 N6 BEAM / GTD-380 II BEAM / GTD F3 BEAM / GTD F3 N BEAM / GTD F3 II BSW
Jolly	X4-GT / X4 Beam
PR Lighting	PR2369 / PR2393 / PR2366 / PR2345
Terbly	G7B NOVA / G7H NOVA / G7B NOVA IP / G7H NOVA IP
Acme	XP-20R BSW II
DLW	DLW 480 Beam
Elation	Smarty Max
Terbly	G22 H Nova / G22 H Nova IP
Acme	XP 550 BSW II / XP-550 BEAM IP / XP 550 BSW IP
Elation	PROTEUS EXCALIBUR
GTD	GTD F5 II Beam / GTD F5 II BSW / GTD-550 II BSW
PR	PR-2569 Beam / PR-2597 BSW / PR-2552 BSW / PR-2554 Beam
Terbly	S550H / S550H IP / G550B IP / S550B IP
Desheng	MH-682BP

Philips lamp type

Philips MSR Platinum 35 + Philips MSR Platinum 35 ST
Philips MSR Platinum 35
Philips MSD Platinum 200 Flex
Philips MSD Platinum 200 Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 300S Flex
Philips MSD Platinum 400 S Flex
Philips MSD Platinum 400 L Flex
Philips MSD Platinum 400L Flex
Philips MSD Platinum 400L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 L Flex
Philips MSD Platinum 500 S Flex

Design-in overview MSR Gold FastFit/MiniFastFit

Also check the lamp replacement tool on [www.philips.com/onstage](http://www.philips.com/onstage)

Fixture brand	Fixture model
High End Systems	Showbeam 2.5 / Showgun 2.5
Coemar	Infinity Multiray
High End Systems	Showgun
LDR	Canto 2000
PR Lighting	PR 6000 Wash/FS / PR 6000 Framing / PR 6000 Spot / Fine 1500E Beam
Omarte	Topower 2000
Fine Art	Fine 1500E PERF / Fine 1500E Wash / Fine 1500E Spot
Golden Sea	V2500S Spot / V2000W Wash
Philips VariLite	VL3015 Spot / VL3015LT Spot / VL3500 Wash / VL3500 Wash FX / VL3515 Spot
Acme	Xperior 1500 WZ Wash / Xperior 1500SZ Spot
Coemar	Infinity Spot XL
Fine Art	Fine II 1500E Beam / Fine II 1500E Wash / Fine II Performance / Fine III 1500E Spot
Golden Sea	V3000P
Jolly Hongcai	Color Beam 1500PF / Color Spot 1500PF / Color Wash 1500PF / Color Wash 1200PF
Martin	MAC III
Philips VariLite	VL6000 Beam
PR Lighting	PR-5000 Beam / PR-5000 Spot
Robe	ColorBeam 2500E AT / ColorSpot 2500E AT / ColorWash 2500E AT
SGM Elettronica	Giotto Beam 1500 / Giotto Digital 1500 / Giotto Profile 1500 / Giotto Spot 1500 / Giotto Wash 1500
Acme	Xperior 1200SZ Spot / Xperior 1200SZA Spot / Xperior 1200WZ Wash / Xperior 1200WZA Wash
Chauvet	LEGEND 1200E Spot / LEGEND 1200E Wash
Coef	XP 1200
Coemar	Infinity Wash XL
D.T.S.	XR1200 Wash / XR3000 Beam CMY / XR3000 Spot CMY
Elation	DESIGN Spot 1400 / DESIGN Wash 1400
Futurelight	PHS-1400E
Golden Sea	Terbly V1400S-E / Terbly V1400W-E
iSolution	XP-1200beam / XP-1200SZ / XP-1200WZ
Jolly Hongcai	Color Spot 1200EF
Philips Selecon	Rua

Philips lamp type

MSR Gold 2500/2 FastFit
MSR Gold 2000/2 FastFit
MSR Gold 2000/2 FastFit
MSR Gold 2000/2 FastFit
MSR Gold 2000/1 FastFit
MSR Gold 2000 FastFit
MSR Gold 1510/1 SA/DE
MSR Gold 1510 SA/DE and MSR Gold 1510 SA/1 DE
MSR Gold 1510 SA/DE
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit and MSR Gold 1500/1 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit and MSR Gold 1500/2 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit
MSR Gold 1500 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit

Also check the lamp replacement tool on [www.philips.com/onstage](http://www.philips.com/onstage)

Fixture brand

Philips Selecon
Philips Selecon
Philips VariLite
PR Lighting
PRG
Robe
Robert Juliat
SGM Elettronica
Siluj
Golden Sea
Jolly Hong Cai
Martin

Acme
Chauvet
Clay Paky

Coemar
D.T.S.
Fine Art
iSolution
Jolly Hongcai
PROEL
SGM Elettronica

Acme
High End Systems
D.T.S.
PROEL
Clay Paky
Philips VariLite
Feiying
iSolution
Jolly Hongcai
Qmaxz
Robe
SGM Elettronica

Coemar
High End Systems
Robe
Siluj
Philips VariLite
Elation
Jolly Hongcai
PROEL
Siluj
Spotlight

Acme
Chauvet
Clay Paky
Coemar
D.T.S.
Elation
Futurelight
Golden Sea
iSolution
PR Lighting
Robe

SGM Elettronica
-----------------

Fixture model

Tahi
TORU
VL4000 BeamWash / VL4000 Spot
PR3000 / XL1800
Bad Boy CMY Spot
ColorSpot 2500E AT / ColorWash 2500E AT
Topaze / Manon
Giotto Beam 1500 / Giotto digital 1500 / Giotto Profile 1500 / Giotto Spot 1500 / Giotto Wash 1500
Triton Blue V-1201 / Triton blue V-1202
V1000LT Profile / V1000P Profile
X-1000 Spot / X-1000 Spot Profile
Mac Viper AirFX / Mac Viper Beam / Mac Viper Performance / Mac Viper Profile / Mac Viper Quadray / Mac Viper Wash / Mac Viper Wash DX

Xperior 700A Beam / Xperior 700SZ Spot
LEGEND 700E Beam / LEGEND 700E Spot
ALPHA BEAM 700 / ALPHA PROFILE 700 / ALPHA SPOT HPE 700 / ALPHA WASH 700 / ALPHA WASH 700 Grand

Infinity ACL SM / Infinity Spot M / Infinity Wash M
XR750 Wash
Fine I 700E Beam / Fine I 700E Performance / Fine I 700E Spot / Fine I 700E Wash
XP-700beam MN / XP-700SZ MN / XP-700WZ MN
FL-700 Beam PF / FL-700 Spot PF / MH-700 BEAM / MH-700 SPOT
Arrow Compact 700 Beam / Arrow Compact 700 Spot
G700 Beam / G700 Spot / G700 Wash / Synthesis 700 Spot / Synthesis 700 Wash

Xperior 700SZA Spot / Xperior 700WZA Wash
Technobeam II Extreme / Technobeam II Supreme
XR 700 / XR2000 Beam / XR2000 Spot / XR2000 Spot CMY / XR700 Spot / XR700 Wash
Arrow 700 Wash
Alpha Profile 700

VL770 Spot
YW-0805 color 700
XP-700beam / XP-700SZ / XP-700WZ
Color Spot 700 PF
QME 700P
ColorBeam 700E AT / ColorSpot 700E AT / ColorWash 700E AT
Giotto 700 spot

Infinity ACL SM / Infinity Spot M / Infinity Wash M
Technospot
Robin 600E Beam / Robin 600E Spot / Robin 600E Wash
SCANNER VIVA 575

VL400 / VL440
300 Spot / 300 Wash
MH-300 BEAM / MH-300 SPOT

Arrow Compact 300 Beam / Arrow Compact 300 Spot
Triton Blue V300 Beam
MIDI PR CST CRM

Xperior 300A Beam / Xperior 300SZ Spot
LEGEND 300E Beam / LEGEND 300E Spot
ALPHA BEAM 300 / ALPHA SPOT 300 / ALPHA SPOT HPE 300 / ALPHA WASH 300
Infinity ACL S / Infinity Spot S / Infinity Wash S / TECHNOBEAM II
TECHNOBEAM II / XR300 BEAM
DESIGN Beam 300 / DESIGN Spot 300 E / DESIGN Spot 300 Pro / DESIGN Wash 300E

PHB-300E / PHS-300E / PHW-300E
Terbly V300B-E / Terbly V300S-E / Terbly V300SP-E / Terbly V300W-E
XP-300beam / XP-300SZ
XL beam 300 / XS 300
Robin 300 Beam Classic / Robin 300 Spot Classic / Robin 300 Wash Classic / Robin 300E Beam / Robin 300E Spot / Robin 300E Wash

Idea 300 Beam / Idea 300 Spot
-------------------------------

Philips lamp type

MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1200 FastFit
MSR Gold 1000 MiniFastFit

MSR Gold 1000 MiniFastFit
MSR Gold 1000 MiniFastFit

MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit

MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit
MSR Gold 700/2 MiniFastFit

MSR Gold 700/2 FastFit
MSR Gold 700/2 FastFit
MSR Gold 700/2 FastFit
MSR Gold 700/2 FastFit
MSR Gold 700/1 MiniFastFit

MSR Gold 700 MiniFastFit
MSR Gold 700 FastFit
MSR Gold 700 FastFit
MSR Gold 700 FastFit
MSR Gold 700 FastFit
MSR Gold 700 FastFit

MSR Gold 575/2 MiniFastFit
MSR Gold 575/2 MiniFastFit
MSR Gold 575/2 MiniFastFit
MSR Gold 575/2 MiniFastFit
MSR Gold 400 MiniFastFit
MSR Gold 300/2 MiniFastFit
MSR Gold 300/2 MiniFastFit
MSR Gold 300/2 MiniFastFit
MSR Gold 300/2 MiniFastFit
MSR Gold 300/2 MiniFastFit

MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit
MSD Gold 300/2 MiniFastFit

MSD Gold 300/2 MiniFastFit
----------------------------

Fundamentals of Light and color

Radiation

Radiation is emission or transfer of energy in the form of electromagnetic waves. These electromagnetic waves travel through a vacuum with a velocity close to 300 000 km/s. Interactions between matter and radiation are explained with the quantum theory of radiation. It states that energy is emitted and absorbed in discrete quanta (photons). Examples of these interactions are photoelectric, chemical, and biological effects of radiation.

Optical Radiation (UV Light IR)

Light may be defined as any radiation capable of causing a visual sensation directly. Light waves occupy only a very small part of the spectrum of electromagnetic waves. The limits of visible radiation are not well defined and vary according to the individual – the lower limit is generally taken as being 380 nm and the upper limit 780 nm (1 nanometre (nm) l = 10-9 m). The visible spectrum can be divided into a number of approximate wavelength ranges, each of which makes a certain color impression on the human eye:

- 380 - 435 nm violet
- 435 - 500 nm blue
- 500 - 566 nm green
- 565 - 600 nm yellow
- 600 - 630 nm orange
- 630 - 780 nm red

Ultraviolet and Infrared Radiation

Electromagnetic radiation with wavelengths just beyond the violet and red ends of the visible spectrum are known as ultraviolet and infrared radiation respectively.

Ultraviolet radiation

A study of the effects obtained with ultraviolet radiation of different wavelengths has led to the following classification by the CIE into three wavebands:

UV-A	(long-wave)	315-400 nm
UV-B	(medium-wave)	280-315 nm
UV-C	(short-wave)	100-280 nm

This classification is based upon a small number of well-investigated processes - principally the effects on the human skin - and by no means implies that all practical applications of UV are confined to a distinct waveband. Some processes respond to a wide ultraviolet spectrum and others overlap into the visible spectrum as well.

Infrared radiation

As with ultraviolet radiation, infrared radiation occupies three wavebands:

IR-A		
(short-wave)	800 - 1400 nm	
IR-B		
(medium-wave)	1400 - 3000 nm	
IR-C		
(long-wave)	3000 - 10000 nm	

Vision

The eye has a lens, which focuses an image on a light-sensitive surface, the retina. The retina consists of a delicate layer of nerve tissue in which there are two types of nerve fibre endings in the form of light-sensitive cells, called cones and rods. The concentration of cones and rods varies over the retinal area. On the optical axis the centre of the retina (the fovea) only contains cones. Outside the fovea area, the rods and cones are mixed, the proportion of cones decreasing towards the periphery of the retina.

Central vision

The cones in the fovea produce a very sharp image showing the greatest detail of which the eye is capable.

Peripheral vision

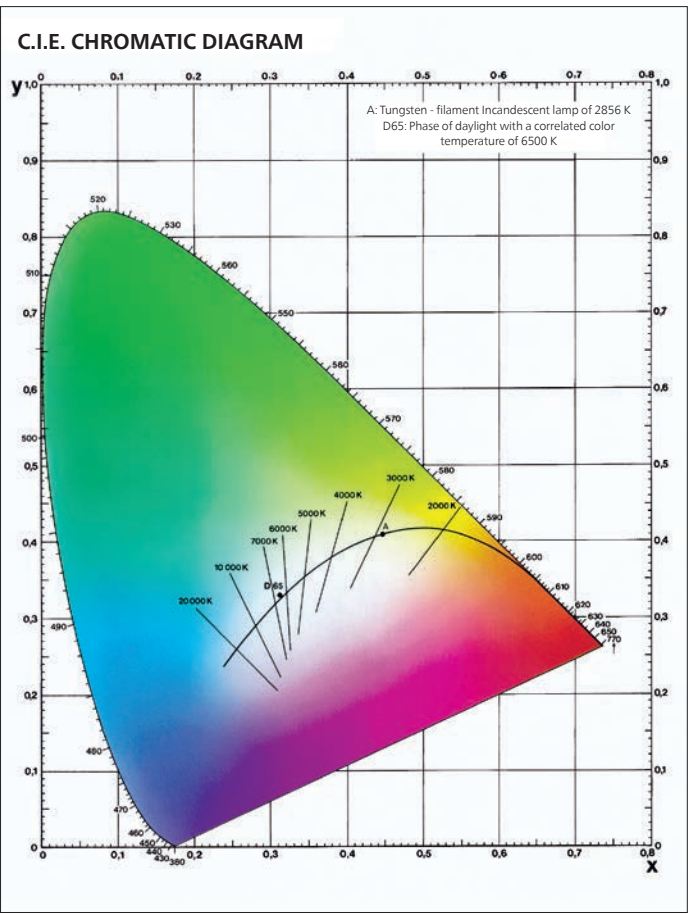
The periphery of the retina, which is composed chiefly of rods, does not produce sharp vision, and objects seen by this area appear as fuzzy silhouettes. The periphery is, however, highly sensitive to movement and flicker.

Adaptation

Adaptation, the process whereby the eye is able to function over a wide range of illuminance levels, involves (amongst other things) a change in the pupillary opening along with photochemical changes in the retina.

Color Vision

The cones enable us to distinguish color. This is possible because there are in fact three types of cones, with pigments sensitive to the red, green and blue parts of the spectrum, respectively. The brain interprets the relative stimulation of the three color receptors as the color impression. Persons who miss one type of cone are partially color blind.



Spectral Sensitivity of the Eye

Within the visible range of the electromagnetic spectrum the eye sensitivity varies strongly with different wavelengths of the same energy content. For example, under conditions of photopic vision the eye is about twenty times more sensitive to light with a wavelength of 555 nm (yellow-green) than it is to wavelengths of 700 nm (deep red) or 450 nm (violet-blue). The peak sensitivity for scotopic vision lies about 50 nm nearer to the blue end of the spectrum than the maximum sensitivity for photopic vision. As early as 1924, the Commission Internationale de L'Eclairage (CIE) laid down a standard spectral eye sensitivity curve for photopic vision, The curves give the relative photopic eye sensitivity (V) as a function of the wavelength (l), and are therefore generally called V(l) curve having its maximum at 555 nm.

Black body radiator

The black body, or full radiator, is a body that absorbs all radiation falling upon it, transmitting none and reflecting none. The radiation characteristics of such bodies are accurately known and can be very precisely calculated at all wavelengths and temperatures. The spectral energy distribution of a black body is, according to Planck's law, a function of wavelength and absolute temperature. Not only does the radiant energy increase rapidly with operating temperature, but the wavelength at which the maximum occurs becomes shorter. Radiation of this form is called thermal radiation, or black-body radiation. And because all wavelengths are present in the spectrum of a thermal radiator, such a spectrum is called a continuous spectrum. The black-body radiator is often used as a primary reference standard when describing the light from practical light sources.

Systems of color Specification

CIE System

The chromaticity diagram, or color triangle, adopted by the CIE in 1931 permits the mathematically exact specification of any color of light in terms of two chromaticity co-ordinates, x and y. These co-ordinates are calculated from a knowledge of the lamp's spectral energy distribution and the response of a CIE standard colorimetric observer related to the three types of light sensitive cones in the human eye. The most saturated light color are found along the sides of the triangle, these gradually diluting into 'white light' toward the centre.



In this diagram the boundaries are formed by the spectral locus which is composed of the color points of monochromatic radiation ranging from blue in the left corner towards green in the top and finally red in the bottom right corner.

*Color Temperature*

Color temperature is a term used to describe the color of a light source by comparing it with the color of a black body radiator, or full radiator. The temperature of the black body, in Kelvin, at which a color match is obtained, is said to be the color temperature of the source. The curve formed on the CIE chromaticity diagram by plotting the chromaticities of a black body radiator at various temperatures, is known as the Planckian locus. Any source that has a chromaticity on this locus may be specified by a color temperature. A source not on the Planckian focus can be described by means of its correlated color temperature, that is, the temperature of the black body at which its color resembles most closely that of the source; provided, that is, that it is not too far from the Planckian focus.

**Color Rendering**

*The CIE General Color Rendering Index  $R_a$*

In order to be able to compare the color characteristics of various types of light source, the concept of a color rendering index, based on the appearance of a number of test color under different illuminants, was introduced by the CIE. The average of the chromaticity shifts occurring when the test color are alternately illuminated, first by the lamp under test and then by a reference source of the same color temperature, provides a good measure of the color rendering properties of the test source. The reference light source used for sources with a correlated color temperature of 5000 K and below is a full (or black-body) radiator of the nearest color temperature. Above 5000 K, the reference source used provides simulated or ‘reconstituted’ daylight of the appropriate color temperature. In the CIE test color method recommended for international use in 1965, eight Munsell test color of medium saturation were used for measuring and specifying these color rendering properties. Nowadays, fourteen test color are often employed, saturated red, yellow, green and blue, and color approximating the human skin and green foliage having been added.

The general color rendering index, or  $R_a$ , of a source has a maximum value of 100, which occurs when the spectral distributions of the test source and the reference source are identical. Incandescent lamps have a spectral energy distribution almost identical to that of the standard source, and therefore give excellent color rendering. The efficacy of these lamps, however, is rather low. In discharge lamps which have a much higher efficacy a large variety in spectral composition hence color rendition is found, ranging from light sources like Fluorescent super 80 and 90 lamps and CDM metal Halide lamps with good or excellent color rendition while still having a high efficacy on one hand and ultra high efficacy lamps like SOX with a very moderate color rendition.

*Limitations of the  $R_a$  System*

Two serious limitations of the  $R_a$  system should be mentioned. In the first place, it should be remembered that the  $R_a$  of a lamp is an average value based on the examination of only eight test color. Secondly, a low value for a particular color can mean either that the color will be poorly (weakly) - rendered, or that it will be exaggerated, perhaps even with a flattering effect as will be explained in the new CRV system. Thus, a source may be found to have a seemingly acceptable  $R_a$  value, despite the fact that it is incapable of faithfully reproducing a particular test color.

**The New CRV system: precise definition of color quality**

**The right light**

Color rendering is an important aspect of artificial lighting. In some situations color should be represented as naturally as possible under daylight conditions yet in other cases lighting should highlight individual color or create a specific atmosphere. However, there are various lighting situations where it is not so much a precise natural color rendering that matters most but where light level and efficiency are of greater importance. Whether your requirement is for medium quality color rendering, natural color rendering or highlighting of special color, there is the right kind of lamp for each and every application. In the past, finding the right quality color rendering and tailoring it to your precise requirement was a complex task. It called for special skills acquired through long – and often costly – experience. Now, however, the new CRV diagram (Color Rendering Vector) means you can get the results you need – without first going through a costly learning curve!

The Color Rendering Vectors (CRV) system provides a completely new and more sophisticated way of defining color quality, making it a valuable tool for lighting professionals involved in the specification of light sources and the design of lighting installations.

**Up to 215 measuring points**

Instead of being limited to just the eight color of the Color Rendering Index (CRI) method, CRV uses a much larger number of color as fixed measured points. In fact, 215 color points have been selected from a multitude of practical situations, and include color which are widely used in textiles, paints and many other products, as well as those which are most commonly found in nature. The color rendering ability of the light source under investigation is tested at each point of these 215 color points, and compared with that of a reference light source.

**Separate analysis of deviations**

Another important improvement is that the color deviations are analysed separately for each of the 215 color points. There is no averaging, so the rendering of each individual color is assessed and registered separately.

**The CRV diagram**

These deviations are represented by a CRV diagram, a circle showing all the color of the spectrum around its circumference, and containing two axes serving as references to show the deviation in the rendering of each color. The deviations are indicated by a vector pointing from the natural color (viewed, under a reference or full-spectrum light source) to the perceived color (viewed under the test light).

**Three aspects of color quality**

Each one of the up to 215 vectors is an arrow which shows three aspects of color quality:

- The director of the vector shows the direction of the color deviation. A shift towards the circumference of the circle indicates an increase in color saturation (more intense), while a shift towards the centre means a decrease in saturation (less intense).
- The start and end points of the vector show the true color (under the reference light source) and the perceived color (under the test light source), respectively.
- The length of the vector shows the magnitude of the color deviation.

**Two main parameters**

Thanks to its accurate representation of color quality for up to 215 measuring points the CRV method gives a very precise impression of the color rendering characteristics of a light source. In describing color quality, two parameters are particularly important:

- |                |   |
|----------------|---|
| <b>Hue:</b>    | the direction and magnitude of the shift in color.      |
| <b>Chroma:</b> | the direction and magnitude of the shift in saturation. |

A third parameter, the color value or ‘lightness’, refers to the amount of light reflected from a coloured surface, and can vary for color of the same hue and chroma. In practise, color shifts are almost always a combination of shifts in hue and chroma, and the lightness will not be considered further here.

**Selection of lighting on color quality**

Key factors in the selection of lighting for specific application include the type of activity carried out in the area, the general environment, the desired ambience and the products being sold. Three basic levels color quality can be defined: high, good and average.

**High color quality**

An incandescent lamp, with its low efficacy of 12 lumen per watt, possesses a well balanced color spectrum. Application of the CRV method therefore shows no deviation at all. The discharge lamps with the best color rendering properties are the fluorescent ‘TL’ lamps of the /90 series. The diagram for these lamps (see next column) indicates hardly any deviation, thereby demonstrating the excellent color rendering characteristics of this light source. In the home, up-market shops, showrooms and museums, high color quality is essential to ensure that people, products and displayed objects have a natural color appearance.

**Good color quality**

Fluorescent ‘TL’ lamps of the /80 series have good color rendering characteristics. The diagram shows only a limited color shift. These fluorescent lamps are therefore very widely used in many applications where good color rendering is important. In offices, department stores and light industrial premises, good color quality is a major consideration. In these cases it is not acceptable for color to deviate substantially from their natural appearance.

Average color quality

Fluorescent lamps of color /33 cause appreciable deviations in color rendering, as the CRV diagram shows. As a result, lamps of this color quality are suitable only for use in situations where color rendering is of little importance. In railway stations and car parks, efficiency takes priority over color rendering. Here, the light source will not be selected primarily for its color quality. However, when people are working in these areas, at least average color quality is recommended.

Philips, recycling and the environment

We are not just concerned about great product innovation. A great deal of effort has gone into making our products environmentally friendly. The company is committed to the Environmental Management System (ISO 14001) in its European factories – this is annually audited – and has implemented eco-design programmes to make sure that, in the product creation process, environmental issues are dealt with correctly. For customers, the Philips standard of quality is a clear indication that the products meet or surpass the declared specifications. What is more, the products are delivered as agreed upon and the service meets the customer’s expectations. During the past years we have successfully reduced environmentally unfriendly substances in our lamps. For example Philips took the lead in the reduction of mercury in our TL-D Super 80 Fluorescent lamps and elimination of mercury in SON PIA lamps. However, Philips has also started to investigate how we can intelligently recycle our products. The first generation of recycling (also called downward recycling) focused on reusing lamp components in whatever application possible (e.g. through reuse in building materials).

Most manufacturers doing so reached 100 % recycling, which although it seemed promising at first, was still based upon the use of highly valuable natural resources (e.g. fluorescent powders) in less valuable applications (e.g. road construction materials). The second generation of recycling focused upon the re-use of those resources in the same applications as where they were initially used. This ‘upward recycling’ ensures we (re) use our natural resources to their fullest potential. However, the most valuable resource consumed by light sources, is however the energy in the form of electricity it consumes. Therefore, the most energy efficient light sources are also the most environmental friendly. Philips has therefore focused its second generation recycling efforts on its Master products. Combining the most efficient use of energy

and the highest possible percentage of reuse, we call this SMART ECOLOGIES. To help our customers, to identify these products easily, we have given these special ranges of Master products an easily recognisable Green Cap. A symbol of the highest quality, combined with the best environmental friendly alternative.

Philips Quality Standards


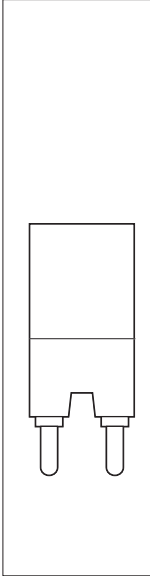
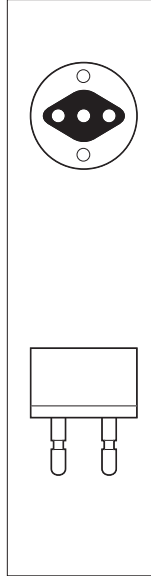
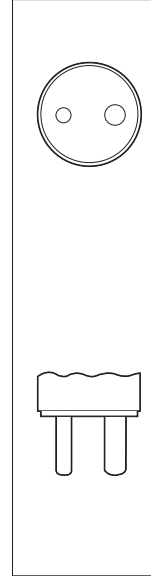
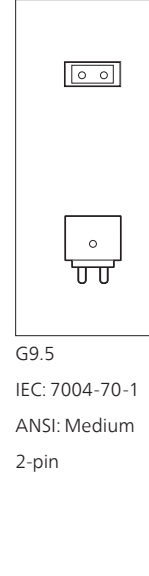
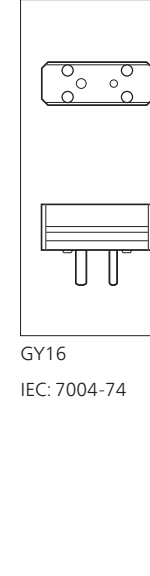
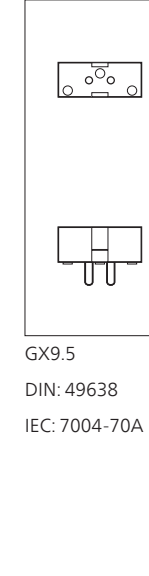
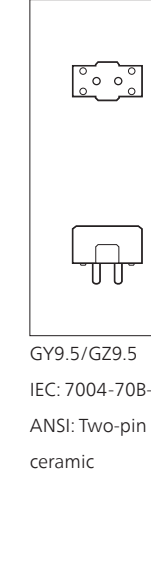
In striving for optimum quality levels, the internationally recognised ISO 9001 system for quality assurance, and the newer QS 9000 standard, have been implemented and rigidly enforced in Philips factories. Almost all phases of development and production are involved in a process of continual improvement within the framework of Total Quality Management (TQM) and achieving so-called ‘world class’ levels of quality. But quality is not just a piece of paper or a set of good intentions. It is about making products with zero defects and good lifetime reliability for ease of mind. It is about supplying our customers with their goods at the right time, and it is about developing the best lighting products in the world and communicating the benefits in the most effective way. It is about handling questions and queries in the most helpful and speedy manner. In short it is about making us easy and rewarding to do business with. And with our company wide quality improvement program BEST (Business Excellence through Speed and Teamwork) we are confident we will also in this new millennium be capable of continuously ‘Making things better’.

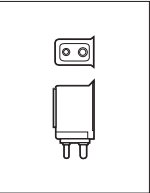
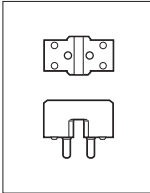
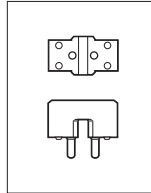
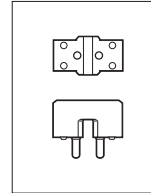
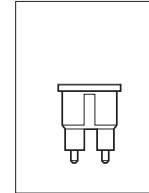
International standards and approvals for control gear

In this publication the specification of Philips control gear satisfies the standards for safety, performance and reliability quoted in the numerous IEC publications for ballasts (electronic and electromagnetic), ignition devices, etc. As for Electro-Magnetic Interference, Philips products conform to the relevant European and/or IEC regulations. On many occasions, formal approval will amount to supervised manufacturing test procedures or testing at the manufacturer’s premises (SMT), meaning that these tests are then performed by Philips own engineers, under official supervision. As soon as approval is given, these may be shown on the product labelling (e.g. ENEC).

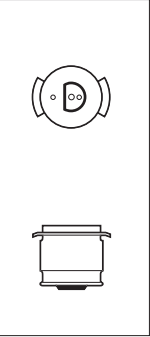
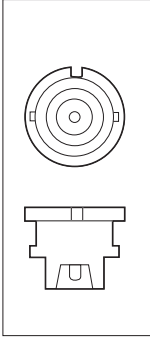
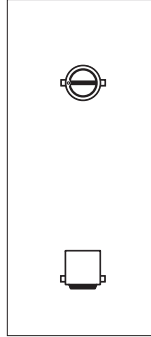
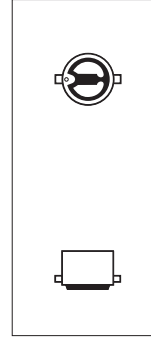
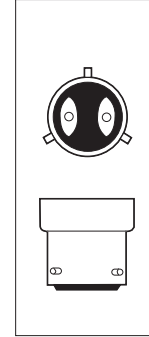
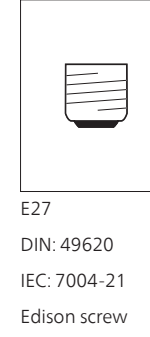
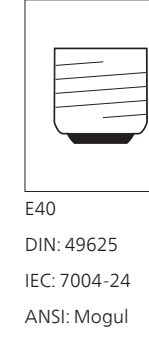
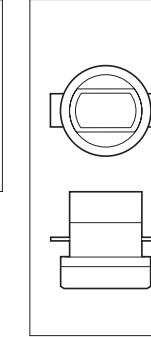
Lamp bases

Bipost/Bipin

							
G38 IEC: 7004-76 ANSI: Mogul bipost	GY38	G22 IEC: 7004-70-1 ANSI: Medium bipost	GY22	G9.5 IEC: 7004-70-1 ANSI: Medium 2-pin	GY16 IEC: 7004-74	GX9.5 DIN: 49638 IEC: 7004-70A	GY9.5/GZ9.5 IEC: 7004-70B-2 ANSI: Two-pin ceramic

				
GX7.9	GZX9.5 IEC: 7004-70B ANSI: Two-pin ceramic	GZY9.5 IEC: 7004-70B ANSI: Two-pin ceramic	GZZ9.5 IEC: 7004-70B ANSI: Two-pin ceramic	Not standardised

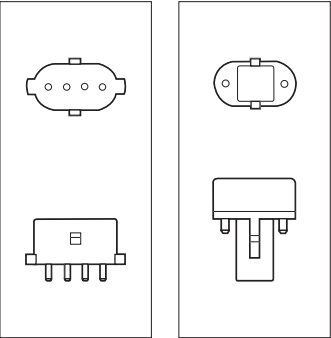
Prefocus/Bayonet

							
P28s DIN: 49728 IEC: 7004-42 ANSI: Medium prefocus base C 81-30-1976 sheet 1-5-1	P32d	BA15d DIN:49720 IEC: 7004-11A ANSI: Candelabra bayonet base double contact C 81-30-1976 sheet 1-3-1	B22d/22 IEC: 7004-10	B22d3	E27 DIN: 49620 IEC: 7004-21 Edison screw	E40 DIN: 49625 IEC: 7004-24 ANSI: Mogul screw base C 81-10-1976 sheet 1-17-1	PGJX50

FastFit



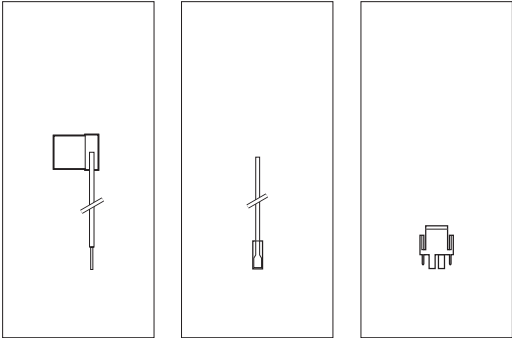
For fluorescent lamps



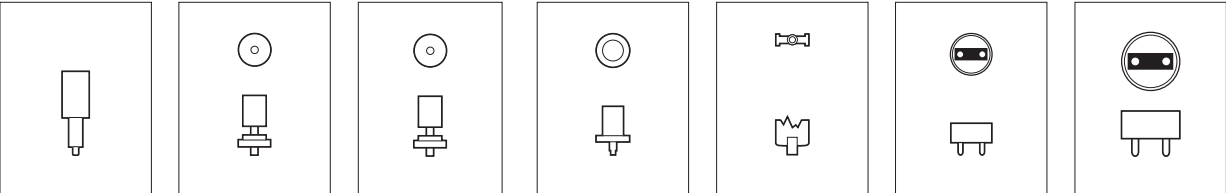
2G7 G23

Cap 15.8/14.7 cable AMP connector

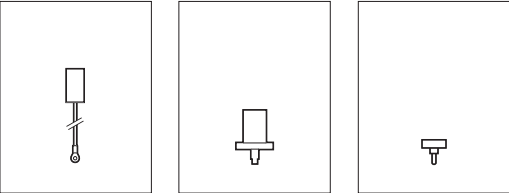
Cable/Connector



For double-ended lamps

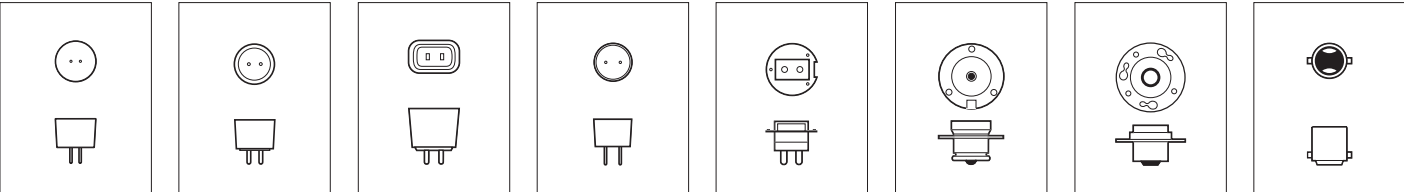


SFa21-12 DIN: 49759 SFc10-4 DIN: 49759 SFc11 DIN: 49759 SFc15.6-6 DIN: 49759 R7s, DIN:49750 IEC: 7004-92 ANSI: Recessed single contact base G5 G13

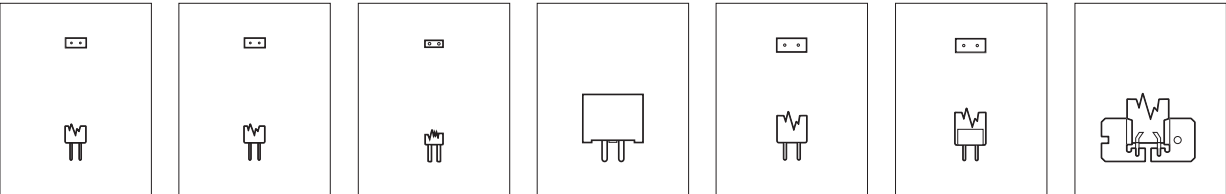


SFa7-5-2 S30x70 SFc18-5-6 (P) SFc Fa4 IEC: 7004-58-1

For low-voltage lamps



GZ4 GX5.3 (Round pin) GY5.3 GZ6.35 DIN: 49754 IEC: 7004-59A PG22-6.35 DIN: 49751 IEC: 7004-48 PX28s P30s IEC: 7004-44 BA15s, DIN: 49720 IEC: 7004-11A

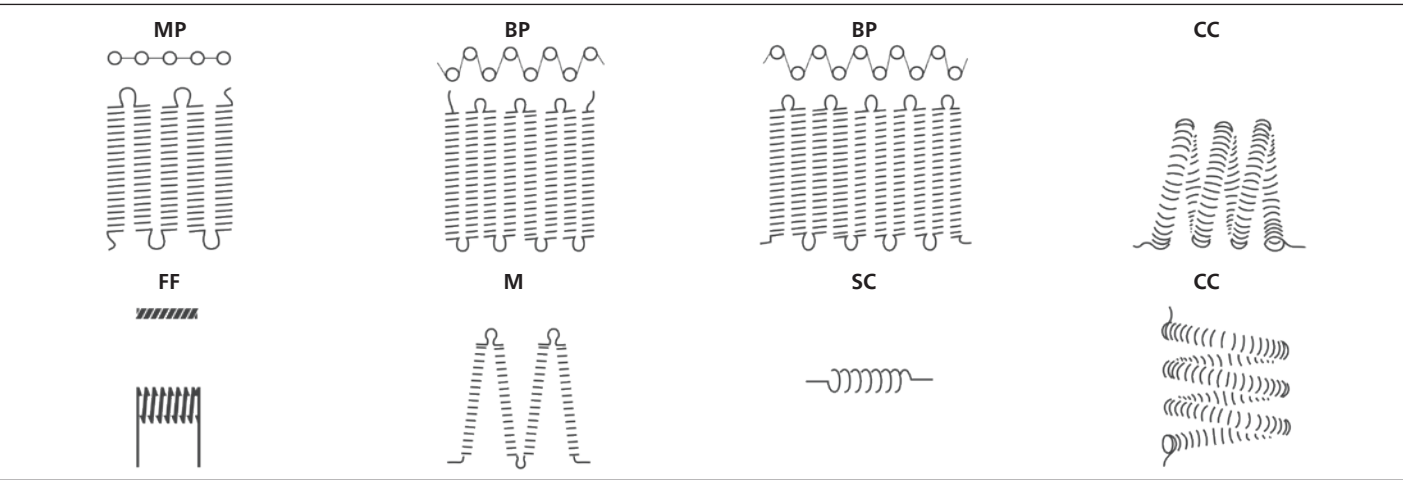


G3.9 G4 IEC: 7004-72 GU4 IEC: 7004-72 G5.3 IEC: 7004-73-2 ANSI: Miniature 2-pin G6.35, GY6.35 GX6.35, IEC: 7004-59 ANSI: C 8140-1972 B15d DIN: 49721 IEC: 7004-11a A26/14

Lamp bases and their names

Bi-pin cap	G38	Prefocus cap	P28s	Recessed single contact cap and end of lamp	R7s	Prefocus cap	PX28s
Bi-pin cap and base	G22	Bayonet/Prefocus cap	GY38	Bi-pin cap	G5	Prefocus cap	P30s
Bi-pin cap	GY22	Bayonet cap	P23d	Bi-pin cap	G13	Bayonet cap	BA15s
Bi-pin cap	G9.5	Bayonet cap	BA15d	Bi-pin cap	SFA1-5-6	Bi-pin lamp base	G3.9
Bi-pin cap	GY16	Bayonet cap	B22d3		SFc18-5-6	Bi-pin lamp base	G4
Bi-pin cap	GX9.5	Screw cap	E27	Single-pin cap and end of tubular lamp		Bi-pin cap	G5.3
Bi-pin cap on finished lamp	GY9.5	Screw cap	E40	Bi-pin lamp base	Fa4	Bi-pin lamp base for use	
Bi-pin cap on finished lamp	GZ9.6	Cap	2G7	Bi-pin base	GZ4	Bayonet cap	G6.35
	GX7.9	Bi-pin cap	G23	Bi-pin base	GX5.3		B15d
	GZX9.5	Cap 15.8/14.7 cable		Bi-pin base	GY5.3		A26/14
	GZY9.5	Cable		Bi-pin lamp base	GZ6.35		GZY
	GZZ9.5	AMP connector		Prefocus cap	PG22	FastFit cap	PGJX50
	Special	SFA21-12					
		SFc10-4					
		SFc15.6-6					

Filament shapes



- FF = Flat filament

CC = Coiled coil

M = M shape
- MP = Monoplane

BP = Biplane

SC = Single coil

Fusing

All mains voltage filament lamps (halogen and non-halogen) must be fused to reduce the risk of shattering at end-of-life. The table gives the appropriate value.

Lamp Life

Indication of lamp life can be a confusing matter. The lamps in this catalogue (unless indicated differently) have a lamp life indicated by “Average life” or “Life 50%”. This means at least 50% of the population is still working at the indicated number of hours.

In other words:

- average lamp life 1000 hours
  - batch size 100 pieces
- then:
- at reaching 1000 hours
  - at least 50 pieces are still working.

Realise that certain types in special applications have degraded so much that although they still burn they are unfit to fulfill their given task!

<b>BAG electronics GmbH</b> Kleinbahnstrasse 27 D-59759 Arnsberg, Germany E-mail: info@BAGelectronics.com Internet: www.BAGelectronics.com		<b>Power Gems Limited</b> Cleararc House 15 Wharfside Business Park Irlam Wharf Road Irlam, ManchesterM44 5PN, UK Internet: www.powergems.com	
<b>B &amp; S Elektronische Geräte GmbH</b> Aussigstrasse 5A D-38114 Braunschweig, Germany E-mail: mail@bs-ballasts.com Internet: www.bs-ballasts.com		<b>ROTEC GmbH</b> Sandweg 42 D64385 Reichelsheim E-mail: ralf@rotec-gmbh.com Internet: www.rotec-gmbh.com	
<b>CCI Power Supplies</b> 100 Industrial Parkway Pardeeville, WI 53954, US E-mail: info@ccips.com Internet: www.ccips.com		<b>SCHIEDERWERK MBZ Telekommunikation</b>  <b>GmbH &amp; Co. KG</b> Neuburger Straße 40 D-90451 Nürnberg, Germany E-mail: info@schiederwerk.de Internet: www.schiederwerk.de	
<b>IREM S.p.A.</b> Via Abegg, 75 10050 Borgone (Torino), Italy E-mail: irem@irem.it Internet: www.irem.it		<b>Vossloh-Schwabe Deutschland GmbH</b> Postfach 28 69 58478 Lüdenscheid, Germany E-mail: info.vsv@vsv.vossloh-schwabe.com Internet: www.vossloh-schwabe.com	
<b>Mitronic P. Miller GmbH</b> Hans-Urmiller-Ring 13 D-82515 Wolfratshausen, Germany E-mail: info@mitronic.com Internet: www.mitronic.com		<b>Optima German</b> Barbarastrasse 22 D-63801 Kleinostheim E-mail: OptimaGerman@t-online.de	

Sales organisations

Sales organisation

<b>The Netherlands</b> High Tech Campus 44 5656 AE Eindhoven speciallighting@philips.com	<b>Argentina</b> Signify Argentina S.A. Dr. Nicolas Repetto 3656 Piso 4, Olivos 1636, Buenos Aires, Argentina T: 0800-333-0324	<b>Australia</b> Contact us   Philips Lighting <a href="http://www.lighting.philips.com.au/support/connect/contact-us">www.lighting.philips.com.au/support/connect/contact-us</a>	<b>Austria</b> Signify Austria GmbH Euro Plaza A-1120 Wien Austria T: 00800/7447 4775	<b>Belgium</b> Philips Belgium NV Z1 Researchpark 210 1731 Zellik Belgium T: +32 25257630	<b>Benelux</b> Signify Netherlands B.V. High Tech Campus 48 5656 AE Eindhoven The Netherlands  Postbus 80062 5600 KA Eindhoven The Netherlands  T: +31 40 275 00 00 (companies) T: 00800 744 547 75 (consumers)	<b>Brazil</b> Signify Iluminação Brasil Ltda. Rua Werner Von Siemens, 111 – Torre A - 2º Andar Lapa de Baixo – São Paulo – SP – 05069-010 Brazil T: 0800 979 1925	<b>Canada</b> Signify Canada 281 Hillmount Road Markham, ON L6C 2S3 Canada T: +1 800-668-9008
---	---	---	--	--	--	--	--

Sales organisation

<b>China</b> Signify (China) Investment Co. Ltd. Signify Special Lighting Building 1, No. 2555 Hechuan Road, Minhang District Shanghai, 200233 People’s Republic of China T: +86 21 3414 7300	<b>Colombia</b> Signify Colombiana S.A.S. Calle 93 No 11A-11, Piso 7 Bogotá Colombia T: +57 1 422 26 00	<b>Czech Republic</b> Contact via Poland	<b>Denmark</b> Arne Jacobsens Allé 15, level 9 DK-2300 Copenhagen S Denmark T: + 45 3329 3750 lighting.dk@philips.com	<b>Estonia</b> Contact via Poland	<b>Finland</b> Teknobulevardi 3-5 01530 Vantaa Suomi T: +358 (0) 207 809 410 lighting.fi@philips.com	<b>France</b> Signify France 33 rue de Verdun - CS60019 92156 Suresnes Cedex France T: +33 (0) 157 32 82 00 contact.france@signify.com	<b>Germany</b> Signify GmbH Röntgenstraße 22 D-22335 Hamburg Germany T: 00800/7447 4775 <a href="http://www.lighting.philips.de">www.lighting.philips.de</a>	<b>Greece</b> Contact via Italy
---	--	---	--	--------------------------------------	---	--	--	------------------------------------



Sales organisation	Sales organisation
<b>Hong Kong</b> Signify Hong Kong Limitd 20th Floor, Tower 2, Enterprise Square No.9 Sheung Yuet Road Kowloon Bay Hong Kong T: +852 2360 1626 F: +852 2861 0568	<b>Latvia</b> Contact via Poland
<b>Hungary</b> Signify Hungary Kft. 1117 Budapest, Aliz utca 4. Hungary T: 00 800 7445 4775	<b>Lithuania</b> Contact via Poland
<b>India</b> Signify Innovations India Limited 9th Floor, 9-B DLF Cyber city Phase-2 Gurgaon-122002 India T: +91 124 460 6792	<b>Malaysia</b> Contact via Singapore
<b>Indonesia</b> Contact via Singapore	<b>Mexico</b> Signify México S.A. de C.V. Av. La Palma no. 6 Col. San Fernando La Herradura Huixquilucan, Estado de México ZC 52784 México T: +800 508 9000
<b>Ireland</b> Contact via United Kingdom	<b>New Zealand</b> Contact us   Philips Lighting <a href="http://www.lighting.philips.co.nz/support/connect/contact-us">www.lighting.philips.co.nz/support/connect/contact-us</a>
<b>Italy</b> Signify Italy Viale Sarca 235 Milano, MI 20126 Italy T: +39 02.91946.1 Contact Center 800687109 <a href="http://www.signify.com/it-it/contact">www.signify.com/it-it/contact</a>	<b>NL</b> Signify Netherlands B.V. High Tech Campus 7 5656 AE Eindhoven The Netherlands
<b>Japan G.K.</b> Signify Japan G.K. 7-9-5 Nishigotanda, Shinagawa-ku Tokyo 141-0031 Japan T: +81-3-6478-2395	<b>Norway</b> Karvesringen 5 0579 Oslo Norway +47 2274 8202 <a href="mailto:lighting.no@signify.com">lighting.no@signify.com</a>
<b>Korea</b> Signify Korea 13F, west Gate Tower, 70 Chungjeong-ro, Seodaemun-gu 03738, Seoul Republic of Korea T: +82 1670 6147	<b>Philippines</b> Contact via Singapore
	<b>Poland</b> Signify Poland Sp. z o.o. ul. Kossaka 150 64-920 Piła Polska T: +48 665 557 569
	<b>Portugal</b> Contact via Spain
	<b>Rumania</b> Contact via Poland
	<b>Russia</b> LLC Signify Dvintsev Business Center Dvintsev Str., 12, Bld. 1. Moscow, 127018 Russia T: +7 495 937 93 30

Sales organisation	Sales organisation
<b>Singapore</b> Signify Singapore Pte Ltd Philips APAC HQ, Lighting 622 Lorong 1, Toa Payoh, Level 4 Singapore 319763 Singapore T: +65 9710-6643	<b>Thailand</b> Signify Commercial (Thailand) Ltd. 1768, 26th floor, Thai Summit Tower 10310, Bangkok Thailand T: +66 2 089 0050
<b>Slovakia</b> Contact via Poland	<b>Turkey</b> Signify Aydınlatma Ticaret A.Ş. Atatürk Mahallesi, Ataşehir Bulvarı, Metropol İstanbul Kompleksi C2 Blok Kat:4 34758 Ataşehir - İstanbul Turkey T: +90 216 522 1900 F: +90 216 630 2071
<b>South Africa</b> Signify Commercial South Africa (Pty) Ltd. Woodmead North Office Park, 54 Maxwell Drive Woodmead Johannesburg, 2191 South Africa  P.O. Box 58088 Newville 2114 South Africa T: +27 11 844 8900	<b>Ukraine</b> Signify Ukraine 4 Mykoly Grinchenka st., Horizon Park Business Center Building #2, Floor 3, 03038 Kyiv Ukraine T: +38 (044) 499 59 75 ukraine.office@signify.com
<b>Spain</b> Signify Iberia S.L. Maria de Portugal 1 28050 Madrid Spain T: +34 661 783 820	<b>United Arab Emirates</b> Signify International B.V. Dubai Knowledge Village, Al-Sufouh 2 P.O. Box 5653 Dubai United Arab Emirates T: +971 4 4461100
<b>Sweden</b> Kistagången 20B 164 40 Stockholm Sweden T: + 46 (0) 200 777 200 lighting.se@signify.com	<b>United Kingdom</b> Guildford Business Park Guildford, Surrey, GU2 8XG United Kingdom T; +44 (0)7774 122735
<b>Switzerland</b> Signify Switzerland AG Allmendstrasse 140 Postfach 8027 Zürich Switzerland T: 00800/7447 4775 www.lighting.philips.ch	<b>United States of America</b> Signify North America Corporation 400 Crossing Blvd Suite 600 Bridgewater, NJ 08807 USA T: +1 732 563 3000
<b>Taiwan</b> 15F-1, No.3-1, Yuan Qu St. Nan Gang District(Bldg. G) Taipei 115 Taiwan R.O.C. T: +886 2 37892826	<b>Vietnam</b> Contact via Singapore

Philips type number	page
CDM-SA/T 150W/942	44
MSA 2500 DE	41
MSD 575	42
MSD 575 HR	42
MSD 700	42
MSD 1200	42
MSD Gold™ 300/2 MiniFastFit	28
MSD Platinum 2 R	24
MSD Platinum 5 R	8, 24
MSD Platinum 11 R	8
MSD Platinum 14 R	8
MSD Platinum 15 R	8
MSD Platinum 16 R	8
MSD Platinum 17 RA	8
MSD Platinum 20 R(B)	8
MSD Platinum 21 R	8
MSD Platinum 25 R	8
MSD Platinum 200 Flex	10
MSD Platinum 400L Flex	10
MSD Platinum 400S Flex	10
MSR 400	18
MSR 575/2 10H	18
MSR 700	19
MSR 700 SA	21
MSR 700/2	19
MSR 1200	19
MSR 1200 SA	21
MSR 1200/2	19
MSR 2000 SA	21
MSR Gold™ 300/2 MiniFastFit	26
MSR Gold™ 400 MiniFastFit	14
MSR Gold™ 575/2 MiniFastFit	17
MSR Gold™ 700 FastFit	15
MSR Gold™ 700 MiniFastFit	17
MSR Gold™ 700/1 MiniFastFit	17
MSR Gold™ 700/2 FastFit	15
MSR Gold™ 700/2 MiniFastFit	17
MSR Gold™ 1000 MiniFastFit	17, 33
MSR Gold™ 1200 FastFit	14, 34
MSR Gold™ 1500 FastFit	14

Philips type number	page
MSR Gold™ 1500/1 FastFit	14, 34
MSR Gold™ 1500/2 FastFit	15, 35
MSR Gold™ 2000 FastFit	15
MSR Gold™ 2000/1 FastFit	15
MSR Gold™ 2000/2 FastFit	15
MSR Gold™ 2500/2 FastFit	15
MSR Platinum 35	12
MSR Platinum 35 ST (Theater)	32
MSR Platinum 35 ST (Studio)	39



