

A male singer with a beard and slicked-back hair is captured in a dynamic performance on stage. He is wearing a dark, textured blazer over a light-colored t-shirt and is singing passionately into a silver microphone. The stage is lit with dramatic purple and blue spotlights, creating a vibrant and energetic atmosphere. The background shows the silhouettes of stage equipment and a dark audience area.

PHILIPS

Entertainment
lamps

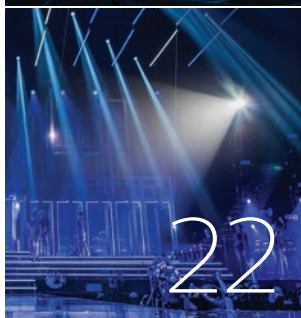
Philips Entertainment lamps catalogue 2018

Photo credits: Ralph Larmann

Content overview

Touring/Stage 6

| | |
|---------------------------|----|
| MSD Platinum | 8 |
| MSR Platinum | 11 |
| MSR Gold™ FastFit | 12 |
| MSR Gold™ MiniFastFit | 14 |
| MSR Gold™ SA Double Ended | 16 |
| MSR | 18 |
| MSR Short Arc | 20 |



22 DJ/Club

| | |
|----|-----------------------|
| 24 | MSD Platinum |
| 26 | MSR Gold™ MiniFastFit |
| 27 | MSD Gold™ MiniFastFit |
| 28 | MSD |
| 30 | PAR56 and PAR64 |
| 32 | Halogen Low Voltage |

Theater 34

| | |
|----------------------|----|
| MSR Platinum | 36 |
| MSR Gold MiniFastFit | 37 |
| MSR Gold FastFit | 38 |
| MSR Gold SA/DE | 39 |

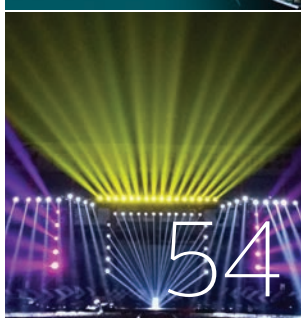


42 Film/Studio

| | |
|----|------------------|
| 43 | MSR Platinum |
| 44 | MSR Hot Restrike |

Architainment 48

| | |
|-------------------|----|
| Architainment MSA | 49 |
| Architainment MSD | 50 |
| CDM-SA/T | 52 |



54 Appendix

| | |
|----|--|
| 55 | Cross reference list Discharge lamps |
| 57 | Design-in overview |
| 60 | Lamp bases |
| 62 | Lamp bases names-Filament shapes - Fusing - Lamp life |
| 63 | List of manufacturers of ignitors or gear for MSR - MSD |
| 64 | Fundamentals of light and color |
| 70 | Sales organisations |
| 73 | 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.

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.

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



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



MSD Platinum 15 R, 16 R



MSD Platinum 11 R, 17 RA



MSD Platinum 20 R(B)



MSD Platinum 21 R

MSD Platinum – The power to light your creativity

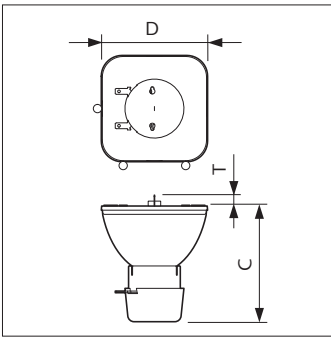
The MSD Platinum lamps open up new levels of creative freedom in entertainment lighting, with powerful, compact and brilliantly intense light. Their compact, lightweight design provides the freedom to create smaller, lighter luminaires – for use at any location on stage. And their short arc, high color 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

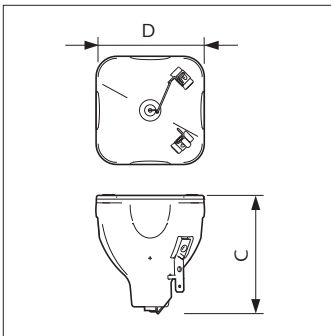
Product Benefits

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

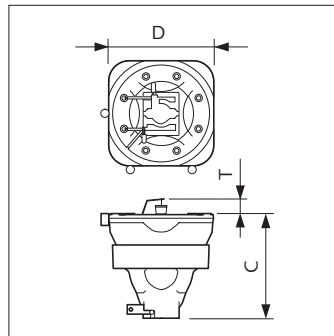


MSD Platinum 5 R, 14 R

| Type | C Max | D Max | T Max |
|-------------------|-------|-------|-------|
| MSD Platinum 5 R | 57.1 | 51.4 | 6.8 |
| MSD Platinum 14 R | 57.1 | 51.4 | 6.8 |



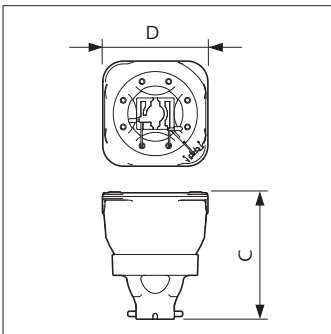
MSD Platinum 15 R, 16 R



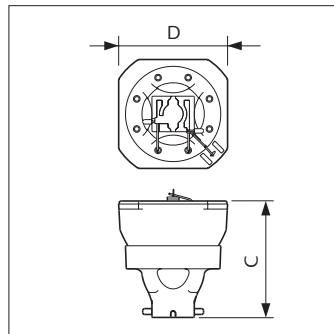
MSD Platinum 11 R, 17 RA

| Type | C Max | D Max |
|-------------------|-------|-------|
| MSD Platinum 15 R | 66.4 | 58.5 |
| MSD Platinum 16 R | 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 |



MSD Platinum 20 R(B)



MSD Platinum 21 R

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

| Type | C Max | D Max | T Max |
|-------------------|-------|-------|-------|
| MSD Platinum 21 R | 60 | 54 | - |

| 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 | 190 | 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 14 R | 280 | 0.8 | 12350 | 7800 | 80 | 2000 | any | 350 | 9281 961 05314 |
| Philips MSD Platinum 15 R | 300 | 1.3 | 13500 | 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 | >20000 | 7000 | 85 | 1500 | any | 350 | 9281 973 05314 |
| Philips MSD Platinum 20 R | 470 | 1.2 | >23000 | 8000 | 80 | 1500 | any | 400 | 9281 972 05314 |
| Philips MSD Platinum 20 RB | 470 | 1.2 | >23000 | 8000 | 80 | 1500 | any | 400 | 9284 952 05314 |
| Philips MSD Platinum 21 R | 470 | 1.2 | >23000 | 8000 | 80 | 1500 | any | 450 | 9281 978 05314 |



New MSD Platinum 200 Flex

MSD Platinum 200 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

| Type | Lamp Wattage (W) | Arc size | Lumen output (lm) | Color Temperature (K) | Color Rendering Index (Ra) | Max. allowable pinch temp (°C) | Average lamp life (h) | Working distance (mm) | Operating Position |
|-------------------------------|------------------|----------|-------------------|-----------------------|----------------------------|--------------------------------|-----------------------|-----------------------|--------------------|
| Philips MSD Platinum 200 Flex | 240-280** | 0.8 | 14000*** | 8000*** | 80*** | 350 | 2000-6000* | 42.4 | any |

* 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.

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

*** at 240W



MSR Platinum 35

MSR Platinum 35 – enhanced stage lighting

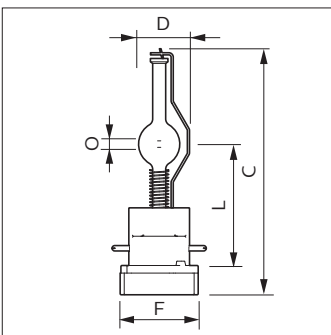
Today’s stage designs call for lighting solutions which deliver high brightness and high-contrast beams to avoid shadow creation, as well as more compact luminaire and fixture designs to improve creative choice and design flexibility. Addressing this need, we have developed an incredibly powerful, brilliant 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 | 70 | 7750 | 75 | 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, 2000, 2000/1, 2000/2, 2500/2 FastFit

MSR Gold™ FastFit – easy lamp replacement in seconds

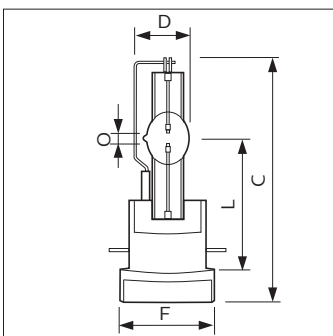
All lamps burn out eventually, but when this happens with single ended MSR Gold™ FastFit, it is replaced in seconds – thanks to the specially designed lamp base and lamp holder. This lamp provides a high beam intensity of pure, white light for a truly illuminating performance, while the gold-plated caps 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

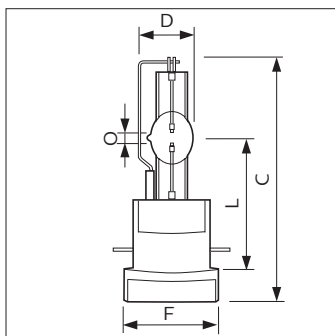
Product Benefits

- 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, 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™ 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 |

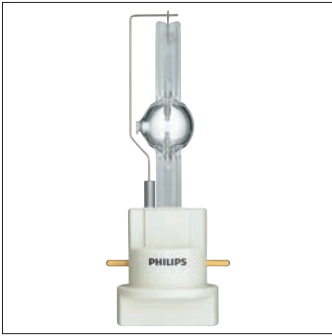


MSR Gold™ 700(/2), 1200 FastFit

| 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 | 50000 | 71 | 6000 | 80 | 750 | any |
| Philips MSR Gold™ 700/2 FastFit | 700 | PGJX50 | 50000 | 71 | 7500 | 75 | 750 | any |
| Philips MSR Gold™ 1200 FastFit | 1200 | PGJX50 | 95000 | 80 | 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™ 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 | 160000 | 80 | 7500 | 88 | 750 | any |
| Philips MSR Gold™ 2500/2 FastFit | 2500 | PGJX50 | 193000 | 77 | 7200 | 85 | 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™ 2000 FastFit | 15.2 | 9281 769 05114 |
| Philips MSR Gold™ 2000/1 FastFit | 18.2 | 9284 101 05114 |
| Philips MSR Gold™ 2000/2 FastFit | 15.4 | 9281 061 05114 |
| Philips MSR Gold™ 2500/2 FastFit | 19.53 | 9281 064 05115 |



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



MSR Gold™ 1000 MiniFastFit

MSR Gold™ MiniFastFit – lamp replacement in seconds

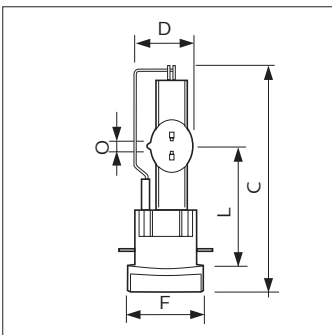
Thanks to the specially designed lamp base, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement 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

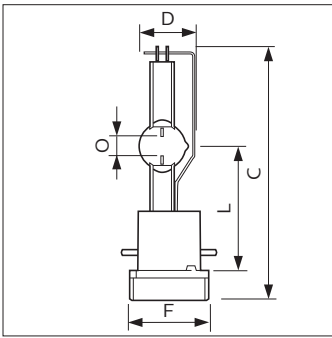
Product Benefits

- 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 |



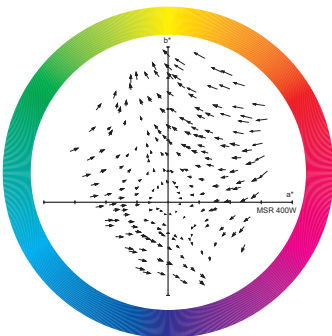
MSR Gold™ 1000 MiniFastFit

| 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 | 26000 | 65 | 6700 | 60 | 750 | any |
| Philips MSR Gold™ 575/2 MiniFastFit | 575 | PGJX28 | 38600 | 63 | 7500 | 70 | 750 | any |
| Philips MSR Gold™ 700 MiniFastFit | 700 | PGJX28 | 49000 | 70 | 6000 | 65 | 750 | any |
| Philips MSR Gold™ 700/1 MiniFastFit | 700 | PGJX28 | 53400 | 76.3 | 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 | 750 | 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 |

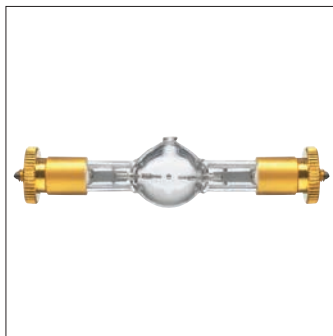
CRV diagram



MSR 400W types



MSR Gold™ SA(2) DE



MSR Gold™ 575 SA/2 DE

MSR Gold™ SA Double Ended – for extended performance

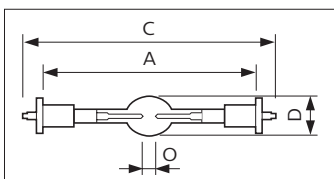
To optimize the total lifetime of the double ended MSR Gold™ SA Double Ended lamps, the caps are plated with gold. This provides superior heat protection and thereby minimizes premature failure of the lamp and lamp holder, as well as ensuring extended consistent performance. In addition, the highly innovative P3 technology, developed by Philips, allows the lamp to be used at higher temperatures, which further extends service life and consistency of high-quality light output.

Product Features

- Philips Pinch Protection
- MSR filling
- Gold plated lamp caps

Product Benefits

- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- Pure, white light; color point close to black body line. Consistent color impression over MSR Range
- Reduces early lamp or lamp holder failures



MSR Gold™ SA/DE

| Type | A Min | A Nom | A Max | C Max | D Max | O Nom |
|------------------------|-------|-------|-------|-------|-------|-------|
| MSR Gold™ 575 SA/2 DE | 69.6 | 70 | 70.4 | 92 | 18.5 | 5.0 |
| MSR Gold™ 700 SA/2 DE | 114.4 | 114.8 | 115.2 | 136 | 19 | 4.0 |
| MSR Gold™ 1200 SA/DE | 114.4 | 114.8 | 115.2 | 136 | 22 | 7.0 |
| MSR Gold™ 1200 SA/2 DE | 114.4 | 114.8 | 115.2 | 136 | 22 | 7.0 |
| MSR Gold™ 1510 SA/DE | 114.4 | 114.8 | 115.2 | 136 | 23 | 7.0 |
| MSR Gold™ 1510 SA/1 DE | 114.4 | 114.8 | 115.2 | 136 | 23 | 7.0 |



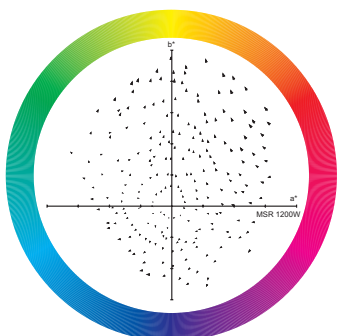
Philips Pinch Protection technology

- **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.

| Type | Lamp Wattage (W) | Cap-Base | Lumen output (lm) | Efficacy source (lm/W) | Color Temperature (K) | Color Rendering Index (Ra) | Color Temperature (K) | Operating Position |
|--------------------------------|----------------------------|----------|-----------------------------|----------------------------------|---------------------------------|-------------------------------------|---------------------------------|-----------------------|
| Philips MSR Gold™ 575 SA/2 DE | 575 | SFC-11 | 42000 | 73 | 7500 | 75 | 750 | any |
| Philips MSR Gold™ 700 SA/2 DE | 700 | SFC10-4 | 56000 | 80 | 7500 | 75 | 750 | any |
| Philips MSR Gold™ 1200 SA/DE | 1200 | SFC10-4 | 106000 | 91 | 6000 | 85 | 750 | any |
| Philips MSR Gold™ 1200 SA/2 DE | 1200 | SFC10-4 | 103000 | 86 | 7500 | 85 | 750 | any |
| Philips MSR Gold™ 1510 SA/DE | 1500 | SFC10-4 | 140000 | 93 | 6000 | 85 | 750 | any |
| Philips MSR Gold™ 1510 SA/1 DE | 1500 | SFC10-4 | 141000 | 94 | 5600 | >90 | 750 | any |

| Type | Lamp current (A) | Ordering number |
|--------------------------------|----------------------------|--------------------|
| Philips MSR Gold™ 575 SA/2 DE | 7 | 9281 751 05114 |
| Philips MSR Gold™ 700 SA/2 DE | 11.5 | 9281 747 05115 |
| Philips MSR Gold™ 1200 SA/DE | 13.6 | 9280 996 05115 |
| Philips MSR Gold™ 1200 SA/2 DE | 13.6 | 9281 753 05115 |
| Philips MSR Gold™ 1510 SA/DE | 13.5 | 9281 766 05115 |
| Philips MSR Gold™ 1510 SA/1 DE | 13.4 | 9284 100 05115 |

CRV diagram



MSR 1200W types



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



MSR 400, MSR 575/2

MSR – bright vivid colors, always

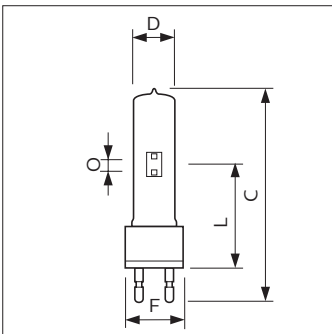
The high color rendering index of the single ended MSR series ensures that everyone in the audience can enjoy the true colors of the scenery, the stage props, the players and their costumes – in fact everything that is on stage can be made bright and vivid in daylight quality light. Also, thanks to the 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

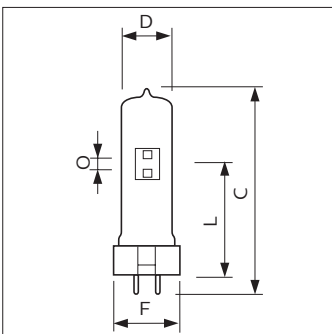
- Single ended lamp concept
- High CRI
- Daylight Color Temperatures

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 400 | 112 | 23 | 34 | 35 | 36 | 61 | 62 | 63 | 6.0 |
| 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 400 | 400 | GX9.5 | 32000 | 80 | 5900 | 95 | 1000 | any |
| Philips MSR 575/2 10H | 575 | GX9.5 | 49000 | 85 | 7200 | 70 | 1000 | any |
| Philips MSR 700 | 700 | G22 | 55000 | 80 | 5900 | 75 | 1000 | any |
| Philips MSR 700/2 | 700 | G22 | 55000 | 78 | 7200 | 80 | 1000 | any |
| Philips MSR 1200 | 1200 | G22 | 110000 | 91 | 5900 | 80 | 800 | any |
| Philips MSR 1200/2 | 1200 | G22 | 110000 | 91 | 7200 | 85 | 800 | any |

| Type | Lamp current (A) | Ordering number |
|-----------------------|----------------------------|--------------------|
| Philips MSR 400 | 6.9 | 9280 779 05114 |
| Philips MSR 575/2 10H | 6.95 | 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 400 SA, MSR 700 SA



MSR Gold™ 1200 SA/SE

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.

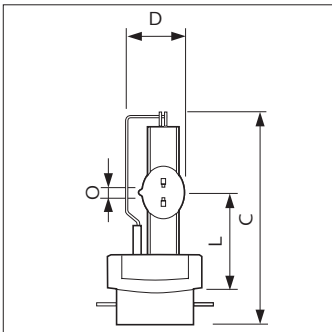
The highly innovative P3 technology, developed by Philips, allows MSR Short Arc lamps to be used at higher temperatures in any burning position. The result? Longer lifetime, fewer early failures and a highly consistent performance throughout the lamp's lifetime.

Product Features

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

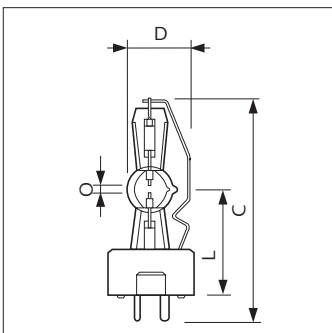
Product Benefits

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



MSR Gold SE

| Type | C Max | D Max | L Min | L Nom | L Max | O Nom |
|----------------------|-------|-------|-------|-------|-------|-------|
| MSR Gold™ 1200 SA/SE | 109 | 26.1 | 44 | 45 | 46 | 5.5 |



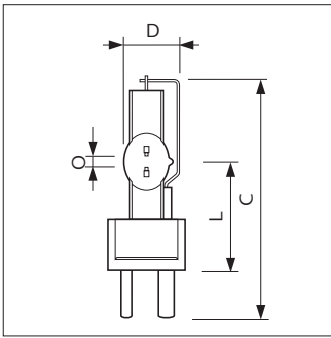
GY9.5

| Type | C Max | D Max | L Min | L Nom | L Max | O Nom |
|------------|-------|-------|-------|-------|-------|-------|
| MSR 400 SA | 80 | 23.5 | 36 | 36.5 | 37 | 3.0 |
| 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 (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 400 SA | 400 | GY9.5 | 30000 | 75 | 5600 | 75 | 750 | any |
| Philips MSR 700 SA | 700 | GY9.5 | 55000 | 80 | 5600 | 80 | 750 | any |
| Philips MSR 1200 SA | 1200 | GY22 | 96000 | 80 | 6000 | 80 | 750 | any |
| Philips MSR Gold™ 1200 SA/SE | 1200 | PGJ41 | 93000 | 78 | 6000 | 80 | 750 | any |
| Philips MSR 2000 SA | 1800 | GY22 | 174000 | 88 | 6000 | 89 | 750 | any |

| Type | Lamp current (A) | Ordering number |
|------------------------------|------------------------|--------------------|
| Philips MSR 400 SA | 8.4 | 9281 702 05114 |
| Philips MSR 700 SA | 11 | 9281 703 05115 |
| Philips MSR 1200 SA | 13.8 | 9281 709 05115 |
| Philips MSR Gold™ 1200 SA/SE | 15 | 9281 746 05114 |
| Philips MSR 2000 SA | 21.5 | 9281 732 05114 |

DJ/Club lighting

A blue-tinted photograph of a club interior. In the foreground, a DJ is visible behind a booth, illuminated by stage lights. The background shows a dark space with several spotlights mounted on a rig, casting beams of light across the room. The overall atmosphere is vibrant and energetic, typical of a nightclub setting.

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

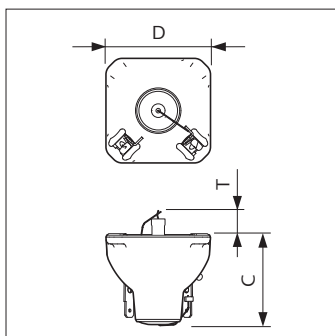
The MSD Platinum lamps open up new levels of creative freedom in entertainment lighting, with powerful, compact and brilliantly intense light. Their compact, lightweight design provides the freedom to create smaller, lighter luminaires – for use at any location on stage. And their short arc, high color 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

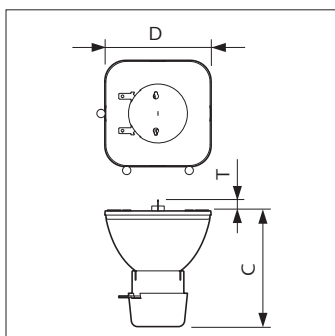
Product Benefits

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



MSD Platinum 2 R

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



MSD Platinum 5 R

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

| 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 2 R | 132 | 0.9 | 5150 | 8000 | 75 | 6000 | any | 350 | 9281 976 05314 |
| Philips MSD Platinum 5 R | 190 | 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

“

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

Photo credits: Ralph Larmann



MSR Gold™ 300/2 MiniFastFit

MSR Gold™ MiniFastFit – lamp replacement in seconds

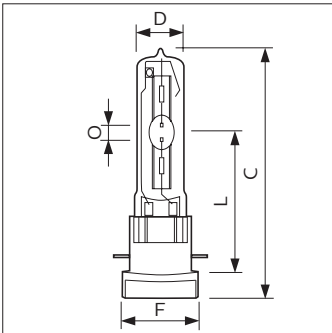
Thanks to the specially designed lamp base and lamp holder, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce 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 | C Max | D Max | L Min | L Nom | L Max | O Nom |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| MSR Gold™ 300/2 MiniFastFit | 126 | 23 | 65.8 | 66.8 | 67.8 | 5.0 |

| 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 Gold™ 300/2 MiniFastFit | 300 | PGJX28 | 23000 | 77 | 9300 | 80 | 750 | any |

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



MSD Gold™ MiniFastFit

MSD Gold™ MiniFastFit – replacement in seconds + longer life

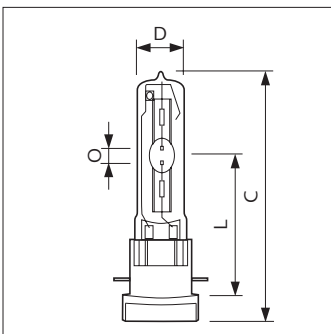
The specially designed lamp base of the MSD Gold™ MiniFastFit means that this lamp can be replaced in just seconds, helping to ensure non-stop entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp 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 | C Max | D Max | L Min | L Nom | L Max | O Nom |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| MSD Gold™ 300/2 MiniFastFit | 126 | 23 | 65.8 | 66.8 | 67.8 | 5.0 |

| 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 Gold™ 300/2 MiniFastFit | 300 | PGJX28 | 21000 | 70 | 8600 | 70 | 2000 | any |

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



MSD 150/2



MSD 200(/2), MSD 250(/2)

MSD – right light, stage bright

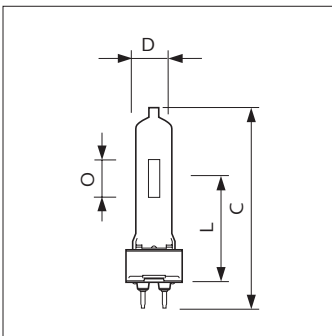
These single ended, compact lamps enable optimal light collection and accurate beam control, while they also provide true daylight color temperatures – all to create great stage brightness and vivid entertainment. And since they offer long lifetime usage they help minimize the cost of ownership via fewer lamp replacements and fewer maintenance man hour costs.

Product Features

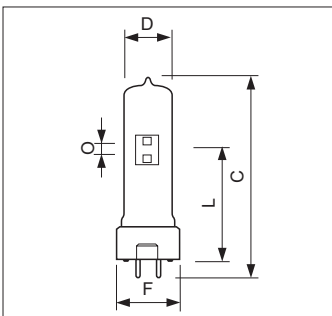
- Single ended lamp concept
- Long life
- Daylight color temperatures

Product Benefits

- Optimal light collection
- Low cost of ownership
- Brightness on stage



MSD 150/2



MSD 200(/2), MSD 250(/2)

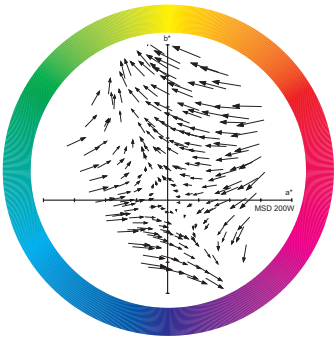
| Type | C Max | D Max | L Min | L Nom | L Max | O Nom |
|-----------|-------|-------|-------|-------|-------|-------|
| MSD 150/2 | 110 | 20 | 55 | 56 | 57 | 5.0 |

| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MSD 200 | 108 | 23 | 27 | 28 | 29 | 54 | 55 | 56 | 5.0 |
| MSD 200/2 | 108 | 23 | 27 | 28 | 29 | 54 | 55 | 56 | 5.0 |
| MSD 250 | 108 | 23 | 27 | 28 | 29 | 54 | 55 | 56 | 5.0 |
| MSD 250/2 30H | 108 | 23 | 27 | 28 | 29 | 54 | 55 | 56 | 5.0 |

| 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 150/2 | 150 | G12 | 10500 | 70 | 8500 | 62 | 3000 | any |
| Philips MSD 200 | 200 | GY9.5 | 13500 | 67 | 6000 | 80 | 2000 | any |
| Philips MSD 200/2 | 200 | GY9.5 | 13500 | 67 | 6700 | 70 | 3000 | any |
| Philips MSD 250 | 250 | GY9.5 | 18000 | 72 | 6700 | 75 | 3000 | any |
| Philips MSD 250/2 30H | 250 | GY9.5 | 18000 | 72 | 8500 | 70 | 3000 | any |

| Type | Lamp current (A) | Ordering number |
|-----------------------|----------------------------|--------------------|
| Philips MSD 150/2 | 1.85 | 9281 728 05114 |
| Philips MSD 200 | 3.4 | 9280 972 05114 |
| Philips MSD 200/2 | 3.4 | 9280 976 05114 |
| Philips MSD 250 | 3 | 9280 987 05114 |
| Philips MSD 250/2 30H | 3 | 9280 990 05115 |

CRV diagram



MSD 200(/2)



PAR56



PAR64

PAR56 and PAR64 – picking out the smallest of details

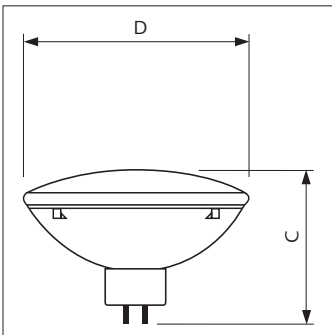
These self-contained spotlights are ideal for intensifying the visual experience in all kinds of clubs, that is because their accurate beam control picks out even the smallest of details even over long distances. This beam control makes the PAR56 and PAR64 excellent for long-range light projections. In addition, the universal burning feature provides complete flexibility of luminaires angle and position, while the front glass of the PAR56 provides thermal and physical protection. The result? Complete creative freedom to achieve the desired effect. Immediate re-strike also ensures instant resumption of entertainment after any power interruption.

Product Features

- Self-contained spotlight
- Front glass
- Universal burning
- Hot restrike

Product Benefits

- Allows details to be picked out over long distances with good beam control
- Excellent for long-range light projections
- Provides thermal and physical protection
- Allows fullest flexibility of luminaire angle and position to obtain the desired effect
- Immediate re-strike after any power interruption



PAR56 and PAR64

| Type | C Max | D Max |
|-----------------------|-------|-------|
| PAR56 300W 230V MFL | 127 | 178 |
| PAR56 300W 240V MFL | 127 | 178 |
| PAR56 300W 230V WFL | 127 | 178 |
| PAR56 300W 240V WFL | 127 | 178 |
| PAR64 250W 28V VNSP | 150 | 204 |
| PAR64 1000W 230V NSP | 150 | 204 |
| PAR64 1000W 240V NSP | 150 | 204 |
| PAR64 1000W 230V VNSP | 150 | 204 |
| PAR64 1000W 240V VNSP | 150 | 204 |
| PAR64 1000W 230V MFL | 150 | 204 |
| PAR64 1000W 240V MFL | 150 | 204 |

| Type | Lamp Wattage (W) | Cap-Base | ANSI Code | LIF Code | Color Temperature (K) | Average lamp life (h) | Operating Position | Ordering number |
|-------------------------------|----------------------------|--------------|--------------|-------------|---------------------------------|------------------------------------|-----------------------|--------------------|
| Philips PAR56 300W 230V MFL | 300 | GX16d | - | - | 3000 | 2000 | any | 9247 836 44204 |
| Philips PAR56 300W 240V MFL | 300 | GX16d | - | - | 3000 | 2000 | any | 9247 836 45504 |
| Philips PAR56 300W 230V WFL | 300 | GX16d | - | - | 3000 | 2000 | any | 9247 837 44204 |
| Philips PAR56 300W 240V WFL | 300 | GX16d | - | - | 2000 | 2000 | any | 9247 837 45504 |
| Philips PAR64 250W 28V VNSP | 250 | Multipurpose | - | - | 3200 | 50 | any | 9247 832 21704 |
| Philips PAR64 1000W 230V NSP | 1000 | GX16d | EXD | CP61 | 3200 | 300 | any | 9247 833 44204 |
| Philips PAR64 1000W 240V NSP | 1000 | GX16d | EXD | CP61 | 3200 | 300 | any | 9247 833 45504 |
| Philips PAR64 1000W 230V VNSP | 1000 | GX16d | EXC | CP60 | 3200 | 300 | any | 9247 832 44204 |
| Philips PAR64 1000W 240V VNSP | 1000 | GX16d | EXC | CP60 | 3200 | 300 | any | 9247 832 45504 |
| Philips PAR64 1000W 230V MFL | 1000 | GX16d | EXE | CP62 | 3200 | 300 | any | 9247 834 44204 |
| Philips PAR64 1000W 240V MFL | 1000 | GX16d | EXE | CP62 | 3200 | 300 | any | 9247 834 45504 |



GX5.3 smooth

Halogen Low Voltage – long life, low costs

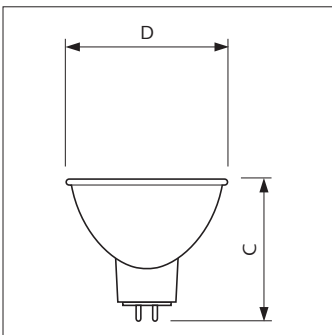
The long lifetime of most of the Halogen Low Voltage lamps is further extended by the unique P3 technology developed by Philips. This allows the lamp to be used at higher temperatures, thereby extending the lamp’s lifetime, reducing early failures, and resulting in fewer maintenance man hour costs. P3 also ensures consistency of high-quality light output, and allows the lamp to be used in any burning position, which enables more compact fixture designs. In addition, the compact filament produces a clean white light and high beam intensity for true natural colors on stage and without any hotspots.

Product Features

- Lifetime up to 1000 hours due to Philips Pinch Protection
- Compact filament
- White light
- Even light distribution

Product Benefits

- Lower lamp replacement costs
- High beam intensity
- Pure colors on stage
- Allows creative use without hotspots or shadows



GX5.3

| Type | C Max | D Max |
|------------------------|-------|-------|
| ELC/10H 250W GX5.3 24V | 44.45 | 50.67 |
| /5H 250W GX5.3 24V | 44.45 | 50.67 |

| Type | Lamp Wattage (W) | Lamp Voltage (V) | Cap-Base | ANSI Code | LIF Code | Lumen output (lm) | Color Temperature (K) | Average lamp life (h) |
|-------------------------------------|------------------|------------------|----------|-----------|------------|-------------------|-----------------------|-----------------------|
| Philips ELC/10H 250W GX5.3 24V | 250 | | GX5.3 | ELC/10H | A1/259-10H | - | 3400 | 1000 |
| Philips 13163 ELC/5H 250W GX5.3 24V | 250 | 24 | GX5.3 | ELC/5H | - | - | 3400 | 500 |

| Type | Operating Position | Pinch Temperature (°C) | Ordering number |
|-------------------------------------|--------------------|------------------------|-----------------|
| Philips ELC/10H 250W GX5.3 24V | any | 400 | 9249 132 20540 |
| Philips 13163 ELC/5H 250W GX5.3 24V | s90 | 400 | 9248 627 20540 |

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

“

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

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

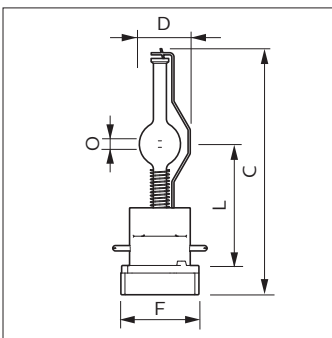
MSR Platinum 35 ST has been specially designed for the studio/theater world, where consistent high-quality light output, high brightness and excellent color rendering are important. This lightweight, compact system delivers intense, cool-white light for the most amazing light experience. It's a powerful 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 | 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 | 70 | 6000 | 80 | 750 | any |

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



MSR Gold™ 1000 MiniFastFit

MSR Gold™ MiniFastFit – lamp replacement in seconds

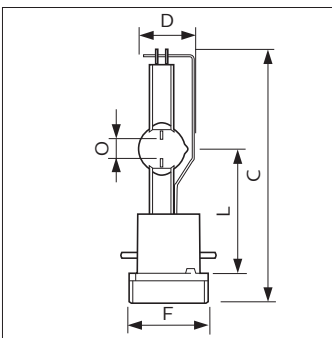
Thanks to the specially designed lamp base, the MSR Gold™ MiniFastFit takes just seconds to replace, to help ensure non-stop clubbing entertainment. In addition, the innovative gold plated pins ensure excellent current transfer to prolong lamp and lamp holder lifetimes and thereby reduce lamp replacement 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 (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™ 1000 MiniFastFit | 1000 | PGJX36 | 82000 | 82 | 6000 | 80 | 750 | any |

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

MSR Gold FastFit (Theater)



MSR Gold™ 1200 FastFit



MSR Gold™ 1500/1 FastFit

MSR Gold™ FastFit – easy lamp replacement in seconds

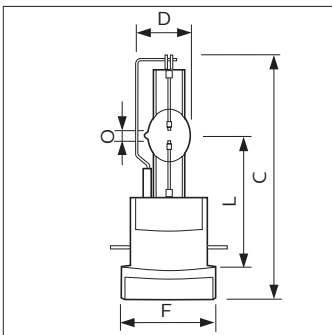
All lamps burn out eventually, but when this happens with single ended MSR Gold™ FastFit, it is replaced in seconds – thanks to the specially designed lamp base and lamp holder. This lamp provides a high beam intensity of pure, white light for a truly illuminating performance, while the gold-plated caps 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

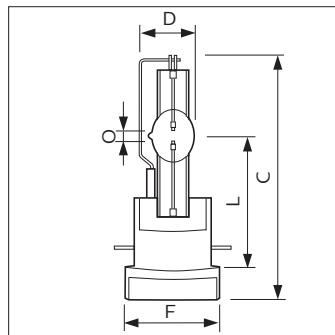
- Philips FastFit
- Very short arc
- Compact design
- Flexible power range
- Philips pinch protection
- Innovative gold plated pins
- MSR filling

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™ 1500/1 FastFit | 128 | 28 | 50 | 64 | 65 | 66 | 6.3 |

| 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™ 1200 FastFit | 1200 | PGJX50 | 95000 | 80 | 6000 | 80 | 750 | any |
| Philips MSR Gold™ 1500/1 FastFit | 1500 | PGJX50 | 127500 | 85 | 5700 | >94 | 750 | any |

| Type | Lamp current (A) | Ordering number |
|----------------------------------|------------------------|--------------------|
| Philips MSR Gold™ 1200 FastFit | 15 | 9281 750 05115 |
| Philips MSR Gold™ 1500/1 FastFit | 15.3 | 9281 089 05115 |



MSR Gold™ 1510 SA/1 DE

MSR Gold™ SA Double Ended – for extended performance

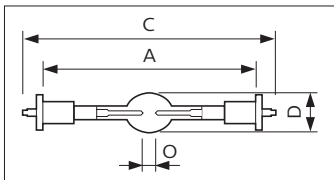
To optimize the total lifetime of the double ended MSR Gold™ SA Double Ended lamps, the caps are plated with gold. This provides superior heat protection and thereby minimizes premature failure of the lamp and lamp holder, as well as ensuring extended consistent performance. In addition, the highly innovative P3 technology, developed by Philips, allows the lamp to be used at higher temperatures, which further extends service life and consistency of high-quality light output.

Product Features

- Philips Pinch Protection
- MSR filling
- Gold plated lamp caps

Product Benefits

- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- Pure, white light; color point close to black body line. Consistent color impression over MSR Range
- Reduces early lamp or lamp holder failures



MSR Gold™ 1510 SA/1 DE

| Type | A Min | A Nom | A Max | C Max | D Max | O Nom |
|------------------------|-------|-------|-------|-------|-------|-------|
| MSR Gold™ 1510 SA/1 DE | 114.4 | 114.8 | 115.2 | 136 | 23 | 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 Gold™ 1510 SA/1 DE | 1500 | SFC10-4 | 141000 | 94 | 5600 | >90 | 750 | any |

| Type | Lamp current (A) | Ordering number |
|--------------------------------|------------------|-----------------|
| Philips MSR Gold™ 1510 SA/1 DE | 13.4 | 9284 100 05115 |



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





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

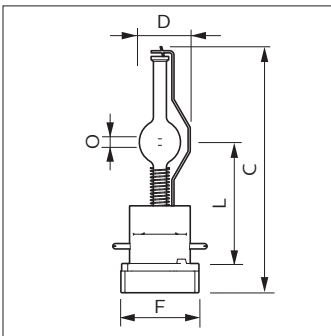
MSR Platinum 35 ST has been specially designed for the studio/theater world, where consistent high-quality light output, high brightness and excellent color rendering are important. This lightweight, compact system delivers intense, cool-white light for the most amazing light experience. It's a powerful 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 | 70 | 6000 | 80 | 750 | any |

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



MSR 575 HR



MSR 125 HR , MSR 200 HR ,
MSR 250 HR , MSR 400 HR



MSR 1200 HR



MSR 2500 HR, MSR 4000 HR

MSR Hot Restrike – instant daylight at any time

Thanks to an optimized color temperature and a high color rendering index, the MSR Hot Restrike creates perfect 'daylight' in any condition. Also, the single ended lamp design enables hot re-ignition, which ensures daylight lighting and superb color rendition is always instantly available. They also incorporate the innovative P3 technology, developed by Philips, which allows use at higher temperatures and therefore extends lifetime and consistency of high-quality light output.

Product Features

- Philips Pinch Protection
- MSR filling
- Optimal discharge tubes geometry
- High efficacy
- Single ended lamp concept
- Hot Restrike capability

Product Benefits

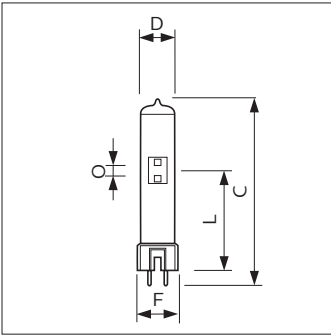
- Enables use at higher temperatures in any burning position. Longer lifetime, fewer early failures, consistent performance over time
- Perfect daylight color due to 6000K temperature with excellent color characteristics required for the set
- No arc movement
- High lumen output
- High beam intensity
- Hot re-ignition is possible ensuring the availability of the light at any time



Philips Pinch Protection technology

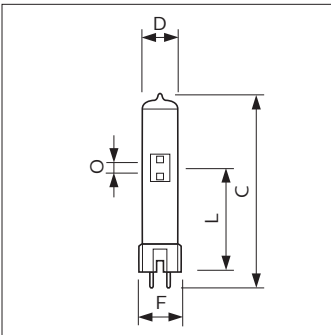
- **Reliability**, through longer lifetime and fewer early failures.
- **Quality**, through excellent storage characteristics and consistent performance over time.
- **Compactness**, allowing more compact design of fixtures and burning positions.

For 2500W and higher



MSR 125 HR

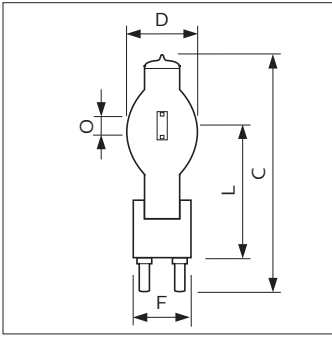
| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 125 HR | 77 | 17 | 23 | 23.5 | 24 | 38 | 39 | 40 | 4.0 |



MSR 400 HR

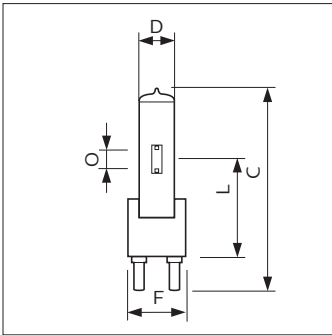
| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 400 HR | 110 | 23 | 23 | 23.5 | 24 | 59 | 60 | 61 | 6.0 |

MSR Hot Restrike (Film/Studio)



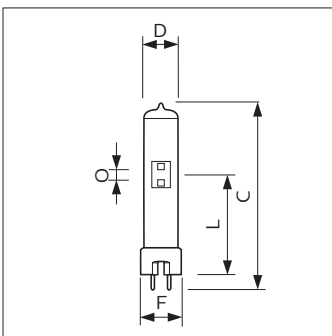
MSR 2500 HR, MSR 4000 HR

| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 2500 HR | 255 | 77 | 63 | 65 | 67 | 141 | 142 | 143 | 20.0 |
| MSR 2500 HR/J | 255 | 77 | 63 | 65 | 67 | 141 | 142 | 143 | 20.0 |
| MSR 4000 HR | 240 | 60 | 63 | 65 | 67 | 126 | 127 | 128 | 14.0 |
| MSR 4000 HR/J | 240 | 60 | 63 | 65 | 67 | 126 | 127 | 128 | 14.0 |



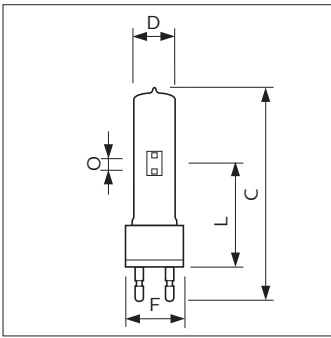
MSR 1200 HR

| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 1200 HR | 200 | 40 | 63 | 65 | 67 | 106 | 107 | 108 | 10.0 |



MSR 200 HR, MSR 250 HR

| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 200 HR | 80 | 20 | 23 | 23.5 | 24 | 38 | 39 | 40 | 5.0 |
| MSR 250 HR | 110 | 23 | 23 | 23.5 | 24 | 58 | 59 | 60 | 5.0 |



G22

| Type | C Max | D Max | F Min | F Nom | F Max | L Min | L Nom | L Max | O Nom |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MSR 575 HR | 145 | 30 | 41 | 42 | 43 | 69 | 70 | 71 | 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 125 HR | 125 | GZX9.5 | 9400 | 75 | 6000 | 92 | 200 | any |
| Philips MSR 200 HR | 200 | GZY9.5 | 15000 | 75 | 6000 | 92 | 200 | any |
| Philips MSR 250 HR | 250 | GZY9.5 | 20000 | 80 | 6000 | 90 | 750 | any |
| Philips MSR 400 HR | 400 | GZZ9.5 | 32000 | 80 | 6000 | 92 | 1000 | any |
| Philips MSR 575 HR | 575 | G22 | 49000 | 85 | 6000 | 90 | 1000 | any |
| Philips MSR 1200 HR | 1200 | G38 | 110000 | 91 | 6000 | 95 | 1000 | any |
| Philips MSR 2500 HR | 2500 | G38 | 240000 | 96 | 6000 | 95 | 500 | any |
| Philips MSR 2500 HR/J | 2500 | G38 | 228000 | 91 | 6000 | 90 | 500 | any |
| Philips MSR 4000 HR | 4000 | G38 | 380000 | 95 | 7270 | 91 | 500 | any |
| Philips MSR 4000 HR/J | 4000 | G38 | 370000 | 93 | 6000 | 91 | 500 | any |

| Type | Lamp current (A) | Ordering number |
|-----------------------|----------------------------|--------------------|
| Philips MSR 125 HR | 1.9 | 9280 602 05114 |
| Philips MSR 200 HR | 3.3 | 9280 979 05114 |
| Philips MSR 250 HR | 2.6 | 9281 756 05114 |
| Philips MSR 400 HR | 6.9 | 9280 502 05114 |
| Philips MSR 575 HR | 6.95 | 9280 977 05114 |
| Philips MSR 1200 HR | 13.8 | 9281 050 05114 |
| Philips MSR 2500 HR | 25.6 | 9281 049 05114 |
| Philips MSR 2500 HR/J | 25.6 | 9281 742 05114 |
| Philips MSR 4000 HR | 27.5 | 9280 504 05114 |
| Philips MSR 4000 HR/J | 25 | 9281 738 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

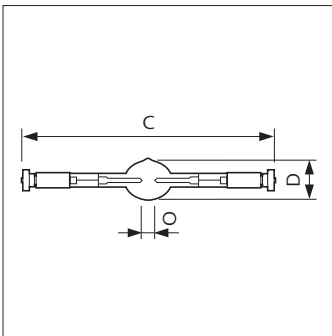
The high luminous efficacy and optimal lamp filling of the double ended Architectural MSA lamps create high beam intensity and excellent color rendering. While the compact arc of the lamp allows efficient beam control and high intensity. Ideal to illuminate architecture of all types at night.

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 | 90 | 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

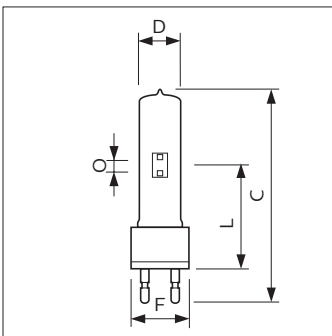
- High luminous efficacy
- Long life
- Optimal lamp filling

Product Benefits

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

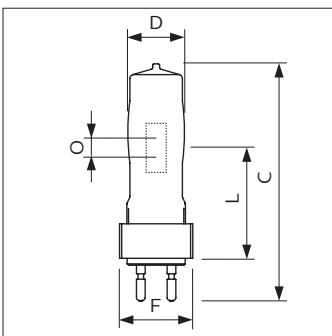


MSD 575



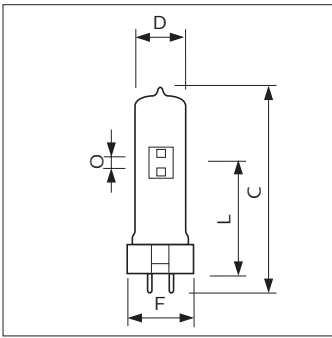
MSD 575 HR, MSD 700

| 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 | 75 | 3000 | any |
| Philips MSD 575 HR | 575 | G22 | 46000 | 80 | 6000 | 75 | 2000 | any |
| Philips MSD 700 | 700 | G22 | 50500 | 72 | 6000 | 75 | 3000 | any |
| Philips MSD 1200 | 1200 | G22 | 92000 | 77 | 6000 | 80 | 3000 | any |

| Type | Lamp current (A) | Ordering number |
|--------------------|----------------------------|--------------------|
| Philips MSD 575 | 6.95 | 9280 988 05114 |
| Philips MSD 575 HR | 6.95 | 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

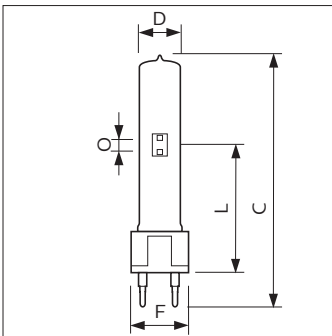
With a high luminous efficacy producing more lumens per watt than standard Architainment lamps, the CDM-SA/T is the greener alternative to light up the night. In addition, the optimal lamp filling and short arc of the lamp create a high beam intensity and excellent color rendering.

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 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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 | 14000 | 88 | 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

Photo credits: Ralph Larmann

Appendix

| | |
|---|-----|
| Cross reference list Discharge lamps | P53 |
| Design-in overview | P55 |
| Lamp bases | P58 |
| Lamp bases names-Filament shapes- Fusing, Lamp life | P60 |
| List of manufacturers of ignitors or gear for MSR - MSD | P61 |
| Fundamentals of light and color | P62 |
| Sales organisations | P68 |
| Philips type numbers | P71 |

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 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 20 R | | |
| MSD Platinum 20 RB | | |
| MSD Platinum 21 R | | |

Special HID lamps (Non Hot-Restrike lamps)

| Philips | Osram | SLI | Koto | GE | Ushio | Xenpow/Jenbo |
|--|-------------|-------------------|--------|-------------------------|----------------|--------------|
| Single-ended Metal Halide lamps with outer bulb | | | | | | |
| MSR 400 | HSR 400/60 | BA 400 SE NHR | | | | NSD 400 |
| | HSR 575/60 | BA 575 SE NHR | | | USR 575 | |
| 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 150/2 | HSD 150W/70 | BA 150 SE NHR | | | | |
| MSD 200 | HSD 200/60 | BA 200 SE D | | | USD-200 NHR | NSD 200 |
| MSD 200/2 | | | | | | |
| MSD 250 | HSD 250/60 | BA 250 SE D | | | USD-250 NHR | NSD 250 |
| MSD 250/2 | HSD 250/80 | BA 250/2 SE D8.5 | | CSD250/2 SE | USD-250/2 NHR | NSD 250/2 |
| MSD 575 | HSD 575/60 | BA 575 SE D | | | USD-575 NHR | NSD 575 |
| | HSD 575 | | | | | |
| MSD 700 | | | | | | |
| MSD 1200 | | | | | | NSD 1200 |

Cross reference list Discharge lamps

| 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 HTI 400W/60/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 | | | |
| 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™ 2000 FastFit | | | | |
| MSR Gold™ 2000/1 FastFit | | | | |
| MSR Gold™ 2000/2 FastFit | | | | |
| MSR Gold™ 2500/2 FastFit | | | | |
| MSR 400 SA | HTI 405 W/SE XS HTI 600 W/SE | | | NSK 400SA |
| 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 HTI 1800 W/SE | | CSR 1200 SA CSR 1500 SA | NSK 1200 SA |
| MSR 2000 SA | HTI 2500 W/SE | | | |

Note: All Philips lamps have pinch protection up to 500degr Celsius

Special HID lamps (Hot-Restrike lamps)

| Philips | Osram | SLI | Koto | ILC | GE | Wolfram | Ushio | Xenpow/Jenbo |
|--|---|------------------|------------------------|----------|-----------------------------------|---------|---------------|---------------|
| Double ended Metal Halide Lamps | | | | | | | | |
| MSR Gold™ 575 SA/2 DE | SharXS HTI 575 W/D4/75 | | | | CSR 575/S/DE | | | MHK 575/2 |
| MSR Gold™ 700 SA/2 DE | SharXS HTI 700 W/D4/75 | | | | CSR 700/S/DE | | | MHK 700/2 |
| MSR Gold™ 1200 SA/DE | SharXS HTI 1200 W/D7/60 HMI 1200 W/S | BA 1200 DE S 6.0 | DI-12/S | | CSR 1200/S/DE/60 | | UMI 1200 GS | MHK 1200 DX |
| MSR Gold™ 1200 SA/2 DE | SharXS HTI 1200 W/D7/75 | BA 1200 DE S 7.2 | | | CSR 1200/S/DE/72 | | 1200 HB | MHK 1200/2 DX |
| MSR Gold™ 1510 SA/DE | SharXS HTI 1500W/D7/60 | | | | CSR 1500/S/DE/60 | | | MHK 1500 DX |
| | HMI 200 | BA 200 | DI – 2 | DMI 200 | CSR 200/DE | | UMI 200 | |
| | HMD 300 | | | | | | | |
| MSR Gold™ 1510/1 SA/DE | SharXS HTI 1500W/D7/60 | | | | CSR 1500/S/DE/60 | | | MHK 1500 DX |
| Single-ended Metal Halide lamps with outer bulb | | | | | | | | |
| MSR 125 HR | | | | | CSR 125/SE/HR | | | |
| MSR 200 HR | HMI 200 W/SE | BA 200 SE HR | | | CSR 200/SE/HR | | | NSK 200HR |
| MSR 250 HR | HMI 250 W/SE | | | | | | | |
| MSR 400 HR | HMI 400 W/SE | BA 400 SE HR | | | CSR 400/SE/HR CSR 400/SE/HR/75 | | | NSK 400HR |
| MSR 575 HR | HMI 575 W/SEL | BA 575 SE HR | DIS – 6 H DIC – 6 H | | CSR 575/SE/HR | 575 | USR 575 BE SE | NSK 575HR |
| | | BA 800 SE HR | | | CSR 800/SE/HR | | | |
| MSR 1200 HR | HMI 1200 W/SE | BA 1200 SE NHR | DIS – 12 H | | CSR 1200/SE/HR | 1200 | USR 1200 SE | NSK 1200HR |
| MSR 2500 HR | HMI 2500 W/SE | BA 2500 SE HR | DIS – 25 H | DSE 2500 | CSR 2500/SE/HR | 2500 | USR 2500 | NSK 2500HR |
| MSR 4000 HR | HMI 4000 W/SE | BA 4000 SE HR | DIS – 40 H | DSE 4000 | CSR 4000/SE/HR | 4000 | USR 4000 | |

Also check the lamp replacement tool on www.philips.com/onstage

Fixture brand

High End Systems

Coemar

High End Systems

LDR

PR Lighting

Omarte

Fine Art

Golden Sea

GTD Lighting

Acme

Coemar

Fine Art

Golden Sea

Jolly Hongcai

Martin

Philips VariLite

PR Lighting

Robe

SGM Elettronica

Acme

Chauvet

Coef

Coemar

D.T.S.

Elation

Futurelight

Golden Sea

iSolution

Jolly Hongcai

Philips VariLite

PR Lighting

PRG

Robe

Robert Juliat

SGM Elettronica

Siluj

Goboservice

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

Fixture type

Showbeam 2.5 / Showgun 2.5

Infinity Multiray

Showgun

Canto 2000

PR 6000 Wash/FS / PR 6000 Framing / PR 6000 Spot

2000W Followspot

Fine 1500E PERF / Fine 1500E Wash / Fine 1500E Spot

V1500T / V2500S Spot / V2000W Wash

GTD-1500 II Profile / GTD-1500 II Spot / GTD-1500 II Wash

Xperior 1500 WZ Wash / Xperior 1500SZ Spot

Infinity Spot XL

Fine II 1500E Beam / Fine II 1500E Wash / Fine II Performance / Fine III 1500E Spot

V3000P / V3000S

Color Beam 1500PF / Color Spot 1500PF / Color Wash 1500PF / Color Wash 1200PF

MAC III

VL6000 Beam

PR-5000 Beam / PR-5000 Spot

ColorBeam 2500E AT / ColorSpot 2500E AT / ColorWash 2500E AT

Giotto Beam 1500 / Giotto Digital 1500 / Giotto Profile 1500 / Giotto Spot 1500 / Giotto Wash 1500

Xperior 1200SZ Spot / Xperior 1200SZA Spot / Xperior 1200WZ Wash / Xperior 1200WZA Wash

LEGEND 1200E Spot / LEGEND 1200E Wash

XP 1200

Infinity Wash XL

XR1200 Wash / XR3000 Beam CMY / XR3000 Spot CMY

DESIGN Spot 1400 / DESIGN Wash 1400

PHS-1400E

Terbly V1400S-E / Terbly V1400W-E

XP-1200beam / XP-1200SZ / XP-1200WZ

Color Spot 1200EF

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

Golux 1000

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

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 and MSR Gold 1510 SA/1 DE

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

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

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 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 FastFit

MSR Gold 700/2 FastFit

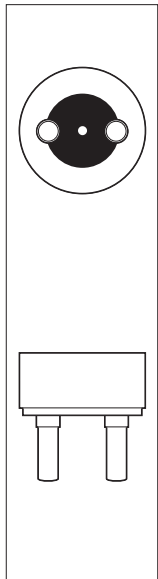
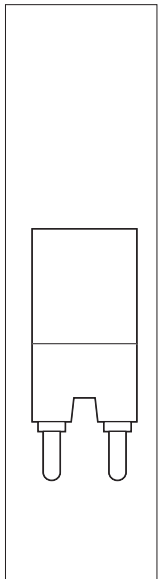
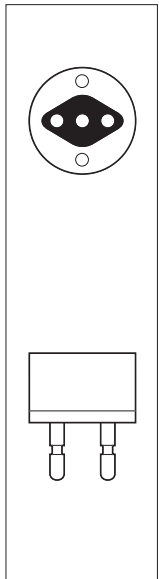
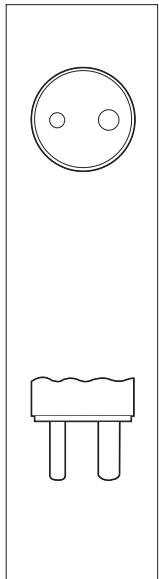
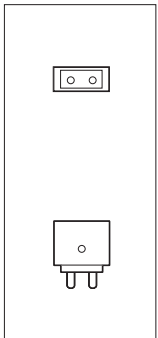
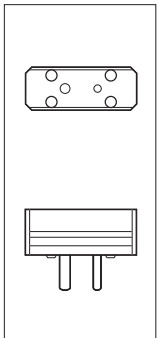
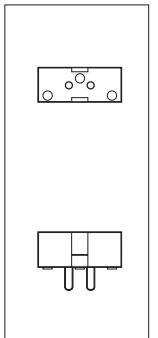
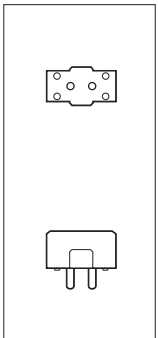
MSR Gold 700/2 FastFit

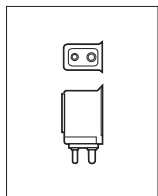
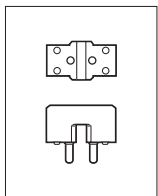
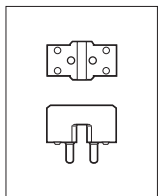
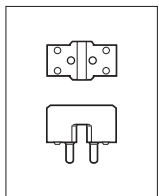
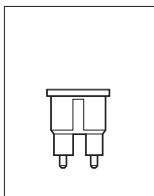
MSR Gold 700/2 FastFit

MSR Gold 700/2 FastFit

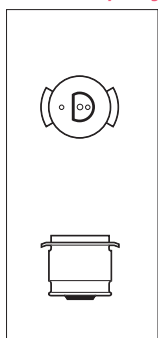
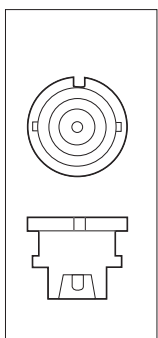
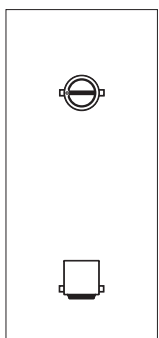
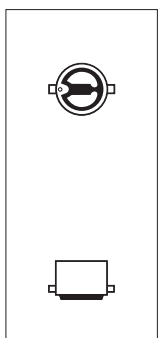
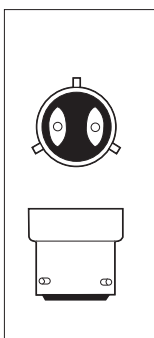
MSR Gold 700/1 MiniFastFit

Bipost/Bipin

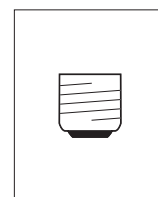
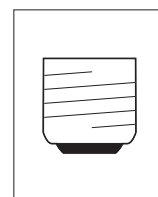
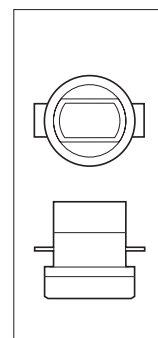
| | | | | | | | |
|--|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |  |
| <p>G38 IEC: 7004-76 ANSI: Mogul bipost</p> | <p>GY38</p> | <p>G22 IEC: 7004-70-1 ANSI: Medium bipost</p> | <p>GY22</p> | <p>G9.5 IEC: 7004-70-1 ANSI: Medium 2-pin</p> | <p>GY16 IEC: 7004-74</p> | <p>GX9.5 DIN: 49638 IEC: 7004-70A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

| | | | | |
|--|---|---|---|---|
|  |  |  |  |  |
| <p>GX7.9</p> | <p>GZX9.5 IEC: 7004-70B ANSI: Two-pin ceramic</p> | <p>GZY9.5 IEC: 7004-70B ANSI: Two-pin ceramic</p> | <p>GZZ9.5 IEC: 7004-70B ANSI: Two-pin ceramic</p> | <p>Not standardised</p> |

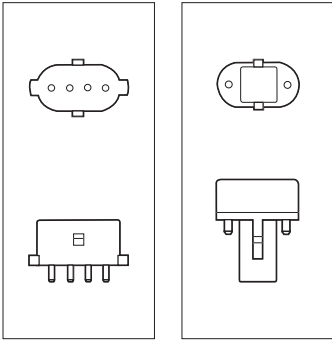
Prefocus/Bayonet

| | | | | |
|---|---|--|---|---|
|  |  |  |  |  |
| <p>P28s DIN: 49728 IEC: 7004-42 ANSI: Medium prefocus base C 81-30-1976 sheet 1-5-1</p> | <p>P32d</p> | <p>BA15d DIN:49720 IEC: 7004-11A ANSI: Candelabra bayonet base double contact C 81-30-1976 sheet 1-3-1</p> | <p>B22d/22 IEC: 7004-10</p> | <p>B22d3</p> |

FastFit

| | | |
|--|---|---|
|  |  |  |
| <p>E27 DIN: 49620 IEC: 7004-21 Edison screw</p> | <p>E40 DIN: 49625 IEC: 7004-24 ANSI: Mogul screw base C 81-10-1976 sheet 1-17-1</p> | <p>PGJX50</p> |

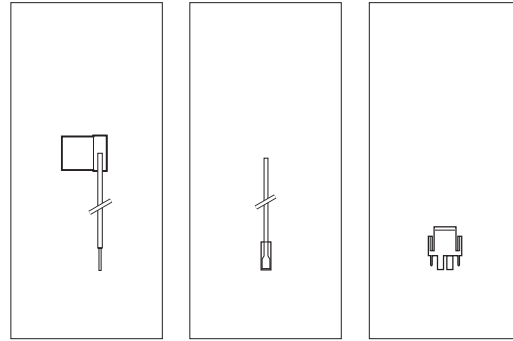
For fluorescent lamps



2G7

G23

Cable/Connector

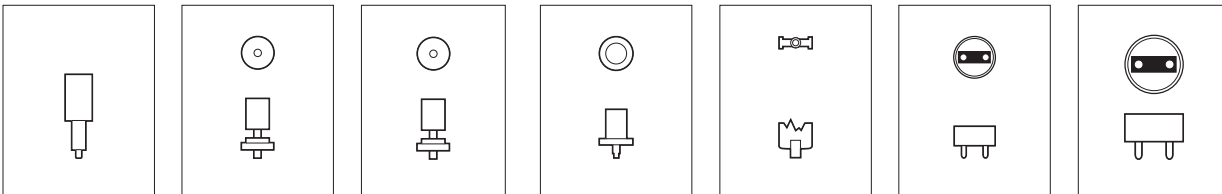


Cap 15.8/14.7
cable

Cable

AMP connector

For double-ended lamps



SFA21-12

SFC10-4

SFC11

SFC15.6-6

R7s, DIN:49750

G5

G13

DIN: 49759

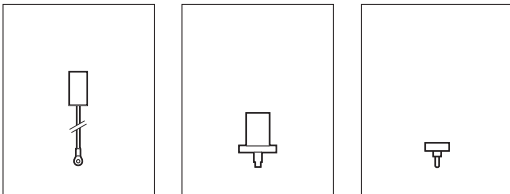
DIN: 49759

DIN: 49759

DIN: 49759

IEC: 7004-92

ANSI: Recessed
single contact
base



SFA7-5-2

SFC18-5-6

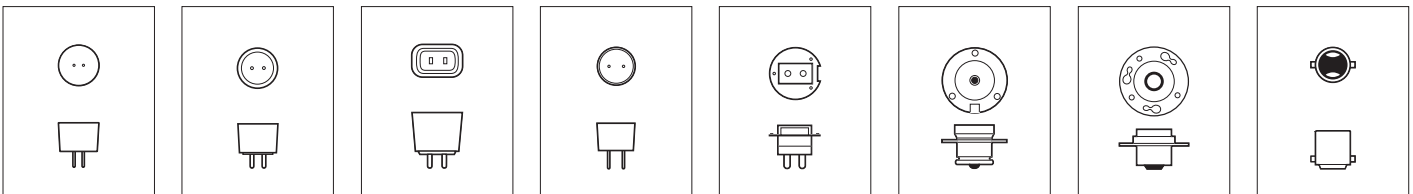
Fa4

S30x70

(P) SFC

IEC: 7004-58-1

For low-voltage lamps



GZ4

GX5.3

GY5.3

GZ6.35

PG22-6.35

PX28s

P30s

BA15s,

(Round pin)

DIN: 49754

DIN: 49751

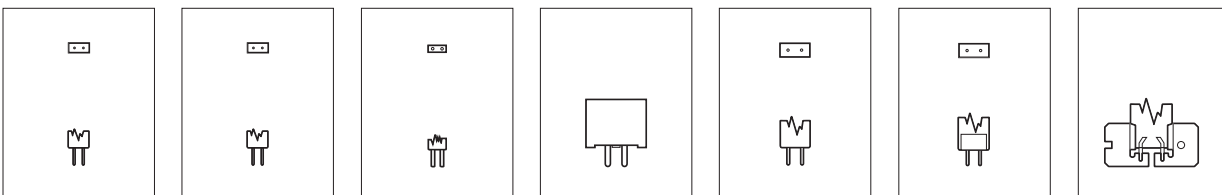
IEC: 7004-44

DIN: 49720

IEC: 7004-59A

IEC: 7004-48

IEC: 7004-11A



G3.9

G4

GU4

G5.3

G6.35, GY6.35

B15d

A26/14

IEC: 7004-72

IEC: 7004-72

IEC: 7004-73-2

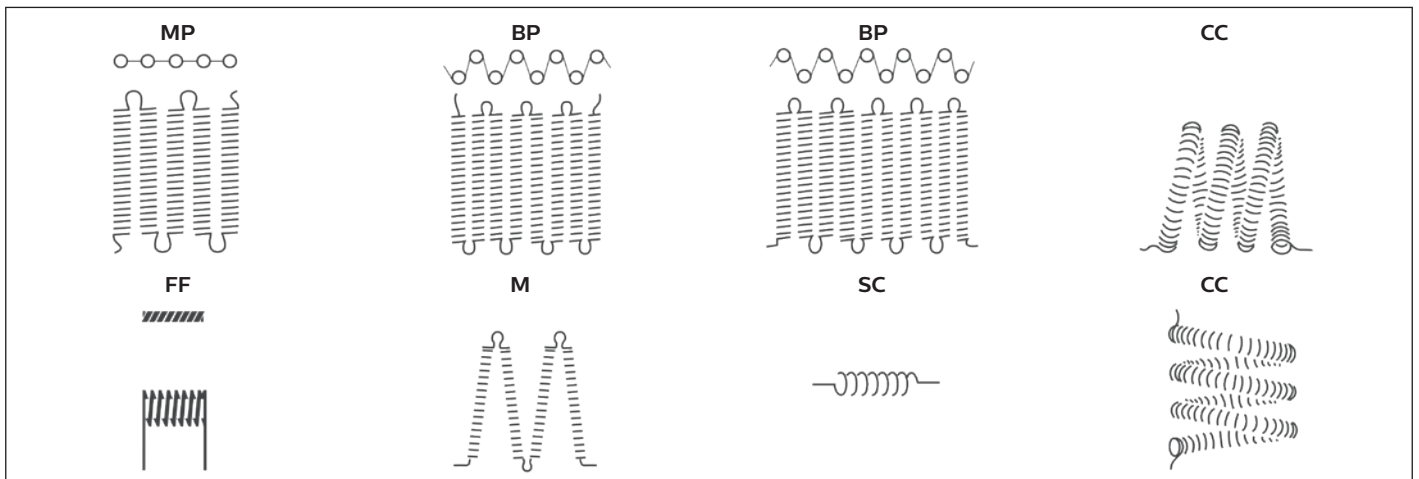
GX6.35,

DIN: 49721

Lamp bases and their names

| | | | | | | |
|-----------------------------|---------|----------------------|---------------------|-----------------------------|--------------|--------------------------|
| Bi-pin cap | G38 | Prefocus cap | P28s | Recessed single contact cap | Prefocus cap | PX28s |
| | GY38 | Bayonet/Prefocus cap | GY38 | and end of lamp | R7s | P30s |
| Bi-pin cap and base | G22 | Bayonet cap | P23d | Bi-pin cap | G5 | BA15s |
| Bi-pin cap | GY22 | Bayonet cap | BA15d | Bi-pin cap | G13 | G3.9 |
| Bi-pin cap | G9.5 | Bayonet cap | B22d3 | | SFA1-5-6 | Bi-pin lamp base |
| Bi-pin cap | GY16 | Screw cap | E27 | | SFc18-5-6 | Bi-pin lamp base |
| Bi-pin cap | GX9.5 | Screw cap | E40 | Single-pin cap and | | Bi-pin cap |
| Bi-pin cap on finished lamp | GY9.5 | Cap | 2G7 | end of tubular lamp | Fa4 | Bi-pin lamp base for use |
| Bi-pin cap on finished lamp | GZ9.6 | Bi-pin cap | G23 | Bi-pin lamp base | GZ4 | Bayonet cap |
| | GX7.9 | | Cap 15.8/14.7 cable | Bi-pin base | GX5.3 | G6.35 |
| | GZX9.5 | | Cable | Bi-pin base | GY5.3 | B15d |
| | GZY9.5 | | AMP connector | Bi-pin lamp base | GZ6.35 | A26/14 |
| | GZZ9.5 | | SFa21-12 | Prefocus cap | PG22 | GZY |
| | Special | | SFc10-4 | | | FastFit cap |
| | | | SFc15.6-6 | | | PGJX50 |

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.

| Wattage W | Voltage V | Fuse A | Wattage W | Voltage V | Fuse A |
|--------------|--------------|-----------|--------------|--------------|-----------|
| 500 | 55 | 16 | 1200 | 100-130 | 16 |
| 300 | 100-130 | 4 | 1200 | 220-250 | 10 |
| 300 | 220-250 | 2 | 2000 | 100-130 | 25 |
| 500 | 100-130 | 6.3 | 2000 | 220-250- | 10 |
| 500 | 220-250 | 4 | 2500 | 100 | 35 |
| 650 | 100 | 10 | 2500 | 115-130 | 25 |
| 650 | 115-130 | 6.3 | 2500 | 220-250 | 16 |
| 650 | 220-250 | 4 | 3250 | 220-230 | 16 |
| 750/800 | 115-130 | 10 | 3250 | 240-250 | 16 |
| 750/800 | 220-230 | 6.3 | 5000 | 115-130 | 50 |
| 900 | 220-230 | 6.3 | 5000 | 220-250 | 25 |
| 1000 | 100 | 16 | | | |
| 1000 | 115-130 | 10 | | | |
| 1000 | 220-250 | 6.3 | | | |

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!

| | | | |
|--|---|---|---|
| BAG electronics GmbH Kleinbahnstrasse 27 D-59759 Arnsberg, Germany E-mail: info@BAGelectronics.com Internet: www.BAGelectronics.com | Tel: + 49 2932 475973 Fax: + 49 2932 4759796 | Power Gems Limited Cleararc House 15 Wharfside Business Park Irlam Wharf Road Irlam, ManchesterM44 5PN, UK Internet: www.powergems.com | Tel: + 44 161 776 7030 Fax: + 44 161 776 7039 |
| B & S Elektronische Geräte GmbH Aussigstrasse 5A D-38114 Braunschweig, Germany E-mail: mail@bs-ballasts.com Internet: www.bs-ballasts.com | Tel: + 49 531 590980 Fax: + 49 531 5909830 | ROTEC GmbH Sandweg 42 D64385 Reichelsheim E-mail: ralf@rotec-gmbh.com Internet: www.rotec-gmbh.com | Tel: +49 61 64 50 18 51 Fax: +49 61 64 50 18 52 |
| CCI Power Supplies 100 Industrial Parkway Pardeeville, WI 53954, US E-mail: info@ccips.com Internet: www.ccips.com | Tel: + 1 (608) 429 3000 Fax: + 1 (608) 42 9241 | SCHIEDERWERK MBZ Telekommunikation GmbH & Co. KG Neuburger Straße 40 D-90451 Nürnberg, Germany E-mail: info@schiederwerk.de Internet: www.schiederwerk.de | Tel: + 49 911 96 36 5 Fax: + 49 911 96 36 600 |
| IREM S.p.A. Via Abegg, 75 10050 Borgone (Torino), Italy E-mail: irem@irem.it Internet: www.irem.it | Tel: + 39 011 9648211 Fax: + 39 011 9648222 | Vossloh-Schwabe Deutschland GmbH Postfach 28 69 58478 Lüdenscheid, Germany E-mail: info.vsv@vsv.vossloh-schwabe.com Internet: www.vossloh-schwabe.com | Tel: + 49 (0) 23 51 10 10 Fax: + 49 (0) 23 51 10 12 17 |
| Mitronic P. Miller GmbH Hans-Urmiller-Ring 13 D-82515 Wolfratshausen, Germany E-mail: info@mitronic.com Internet: www.mitronic.com | Tel: + 49 8171 34 489 39 Fax: + 49 8171 7 6037 | Optima German Barbarastrasse 22 D-63801 Kleinostheim E-mail: OptimaGerman@t-online.de | Tel: +49 60 27/69 00 Fax: +49 60 27/46 56 10 |

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) = 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.

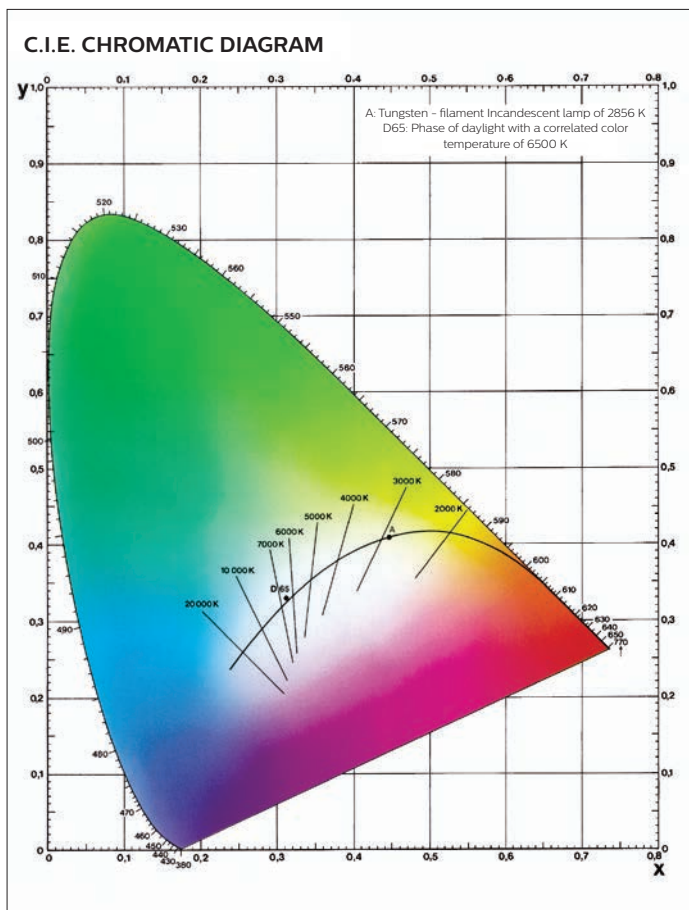
The spectral energy distribution of a black body is, according to Planck's law, a function of wavelength and absolute temperature. Not only does the radiant energy increase rapidly with operating temperature, but the wavelength at which the maximum occurs becomes shorter. Radiation of this form is called 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

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_{cr} , 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 direction 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:

Hue: the direction and magnitude of the shift in color.

Chroma: 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).

Sales organisation

The Netherlands

Philips Lighting B.V. Headquarters
High Tech Campus 44
5656 AE Eindhoven
speciallighting@philips.com

Argentina

Philips Lighting
Vedia 3892
Buenos Aires C1430DAL,
Argentina
T: +54 11 4546-7777

Australia

Philips Lighting
Ground Floor
65 Epping Road
North Ryde NSW 2113
Australia
T: +61 2 9850 0000
F: +61 2 9850 0097

Austria

Philips Lighting Austria GmbH
Euro Plaza
A-1120 Wien
Austria
T: +43 810 001 098
www.lighting.philips.at

Benelux

Philips Lighting B.V.
Postbus 80062
5600 KA Eindhoven
T: +31 40 2784672
T: +32 25257630

Brazil

Philips Lighting Iluminação Ltda.
Av. Marcos Penteado de Ulhoa Rodrigues, 939
4º andar, Sala R10 Tamboré (Alphaville)
Barueri/SP 06460-040
Brazil
T: 0800 979 1925

Canada

Philips Lighting Canada Ltd.
281 Hillmount Road
Markham, ON
Canada L6C 2S3
T: +1 800-668-9008

Sales organisation

China

Philips (China) Investment Co. Ltd.
Philips Special Lighting
12F, Building No. 1
No. 1535 Hongmei Road, Minghang District
200233 Shanghai
People's Republic of China
T: +86 21 5389 8231
F: +86 21 5915 4112

Colombia

Philips Lighting Colombiana S.A.S.
Calle 93 No 11A -11, Piso 7
Bogotá
Colombia
T: +57 1 422 26 00

Czech Republic

Philips Česká republika s.r.o.
divize Lighting
Safrankova 1
155 00 Praha 5
Česká Republika
T: +420 233 099 282
F: +420 233 099 325

Denmark

Frederikskaj 6
2450 Copenhagen SV
Denmark
T: +45 3329 3755
Lighting.dk@philips.com

Estonia

Contact via Poland

Finland

Knarrarnäsgatan 7
164 40 Kista
Sweden
T: +358 (0) 207 809 410
Lighting.fi@philips.com

France

Philips Lighting France
OEM / Special Lighting
33 rue de Verdun
92156 Suresnes Cedex
France
T: +33 (0) 1 57 32 82 97
F: +33 (0) 1 57 32 83 06

Germany

Philips Lighting GmbH
Röntgenstraße 22
D-22335 Hamburg
Germany
T: +49 800 7445 4775
www.lighting.philips.de

Sales organisation**Greece**

Contact via Italy

Hong Kong

Philips Lighting Hong Kong Limited
20th Floor, Tower 2, Enterprise Square
No.9 Sheung Yuet Road
Kowloon Bay
Hong Kong
T: +852 2360 1628
F: +852 2861 0568

Hungary

Philips Magyarország Kft.
Fehérvári út 84/A
H-1117 Budapest, Aliz u. 1
Hungary
T: +36 30 924 6744
F: +36 1 382 1851

India

Philips Lighting India Limited
9th Floor, 9-B DLF Cyber city
Phase-3 Gurgaon-122002
India
T: +91 124 460 6782

Indonesia

Contact via Singapore

Ireland

Contact via United Kingdom

Italy

Philips Lighting Italy S.P.A.
Via G. Casati 23
20052 Monza (MI)
Italy
T: +39 039 203 1
F: +39 039 203 6127

Korea

Philips Lighting Korea Ltd.
Sowol-Ro 272
Yongsan-Gu
Seoul
Republic of Korea
T: +82 2 591 0223
F: +82 2 709 1350

Latvia

Contact via Poland

Lithuania

Contact via Poland

Malaysia

Contact via Singapore

Sales organisation**Mexico**

Philips Mexicana S.A de C.V.
Av. La Palma no. 6 Col. San Fernando La Herradura
Huixquilucan, Estado de México
México ZC 52784
T: + 55 52699347

New Zealand

Philips Lighting Level 3,
123 Carlton Gore Road
Newmarket, Auckland 1023
New Zealand
T: +64 800 454 448

Norway

Frederikskaj 6
2450 Copenhagen SV
Denmark
T: +47 2274 8202
Lighting.no@philips.com

Philippines

Contact via Singapore

Poland

Philips Lighting Poland sp. z o.o.
ul. Kossaka 150
64-920 Piła
Poland
T: +48 67 352 45 72

Portugal

Contact via Spain

Russia

Philips Lighting
25 Leningradskaya Street
Khimki 141400
Russia
T: +7 495 937 93 30

Singapore

Philips Lighting Singapore Pte Ltd
Philips APAC HQ
622 Lorong 1 Toa Payoh, Level 4
Singapore 319763
T: +65 9111 8403

Spain

Philips Iberica S.A.
Division Comercial Alumbrado
Maria de Portugal 1
28050 Madrid
Spain
T: +34 91 566 9764
F: +34 91 566 9242

Sales organisation

Sweden

Knarrarnäsgatan 7
164 40 Kista
Sweden
T: +46 (0) 200777200
Lighting.se@philips.com

Switzerland

Philips Lighting Switzerland AG
Allmendstrasse 140
Postfach
8027 Zürich
Switzerland
T: +41 (0)44 206 4949
www.lighting.philips.ch

Taiwan

Philips Lighting Taiwan Ltd.
15F, No. 3-1, Yuan Qu Street
Nan Gang District
Taipei 115
Taiwan R.O.C.
T: +886 2 3789 2534
F: +886 2 3789 2525

Thailand

Contact via Singapore

Turkey

Philips Lighting Aydınlatma Ticaret A.S.
Saray Mahallesi
Dr. Adnan Buyukdeniz Caddesi No: 13
Umraniye, Istanbul
Turkey 34768
T: +90 216 522 1900
F: +90 216 630 2071

Ukraine

Contact via Poland

United Arab Emirates

Philips Lighting Middle East & Turkey
Dubai Knowledge Village, Al-Sufouh 2
P.O. Box 7785
Dubai
United Arab Emirates
T: +971 4 4461100

United Kingdom

Philips Centre
Guildford Business Park
Guildford, Surrey, GU2 8XG
United Kingdom
T: +44 (0)7774 122735

Sales organisation

United States of America

Philips Lighting Company
200 Franklin Square Drive
Somerset, N.J. 08873
United States of America
T: +1 732 563 3287

Vietnam

Contact via Singapore

| Philips type number | page | Philips type number | page |
|-----------------------------|-------|------------------------------|--------|
| 13163 ELC/5H 250W GX5.3 24V | 32 | MSR 2500 HR | 44 |
| CDM-SA/T 150W/942 | 52 | MSR 2500 HR/J | 44 |
| ELC/10H 250W GX5.3 24V | 32 | MSR 4000 HR | 44 |
| MSA 2500 DE | 49 | MSR 4000 HR/J | 46 |
| MSD 150/2 | 28 | MSR Gold™ 300/2 MiniFastFit | 26 |
| MSD 200 | 28 | MSR Gold™ 400 MiniFastFit | 14 |
| MSD 200/2 | 28 | MSR Gold™ 575 SA/2 DE | 16 |
| MSD 250 | 28 | MSR Gold™ 575/2 MiniFastFit | 14 |
| MSD 250/2 30H | 28 | MSR Gold™ 700 FastFit | 12 |
| MSD 575 | 50 | MSR Gold™ 700 MiniFastFit | 14 |
| MSD 575 HR | 50 | MSR Gold™ 700 SA/2 DE | 16 |
| MSD 700 | 50 | MSR Gold™ 700/1 MiniFastFit | 14 |
| MSD 1200 | 50 | MSR Gold™ 700/2 FastFit | 12 |
| MSD Gold™ 300/2 MiniFastFit | 25 | MSR Gold™ 700/2 MiniFastFit | 14 |
| MSD Platinum 2 R | 22 | MSR Gold™ 1000 MiniFastFit | 14, 37 |
| MSD Platinum 5 R | 8, 22 | MSR Gold™ 1200 FastFit | 12, 38 |
| MSD Platinum 11 R | 8 | MSR Gold™ 1200 SA/2 DE | 16 |
| MSD Platinum 14 R | 8 | MSR Gold™ 1200 SA/DE | 16 |
| MSD Platinum 15 R | 8 | MSR Gold™ 1200 SA/SE | 20 |
| MSD Platinum 16 R | 8 | MSR Gold™ 1500 FastFit | 12 |
| MSD Platinum 17 RA | 8 | MSR Gold™ 1500/1 FastFit | 12, 38 |
| MSD Platinum 20 R | 8 | MSR Gold™ 1510 SA/DE | 16 |
| MSD Platinum 20 R(B) | 8 | MSR Gold™ 1510 SA/1 DE | 16, 39 |
| MSD Platinum 21 R | 8 | MSR Gold™ 2000 FastFit | 12 |
| MSD Platinum 200 Flex | 10 | MSR Gold™ 2000/1 FastFit | 12 |
| MSR 125 HR | 44 | MSR Gold™ 2000/2 FastFit | 12 |
| MSR 200 HR | 44 | MSR Gold™ 2500/2 FastFit | 12 |
| MSR 250 HR | 44 | MSR Platinum 35 | 73 |
| MSR 400 | 18 | MSR Platinum 35 ST (Theater) | 36 |
| MSR 400 HR | 44 | MSR Platinum 35 ST (Studio) | 43 |
| MSR 400 SA | 20 | PAR56 300W 230V MFL | 30 |
| MSR 575 HR | 44 | PAR56 300W 230V WFL | 30 |
| MSR 575/2 10H | 18 | PAR56 300W 240V MFL | 30 |
| MSR 700 | 18 | PAR56 300W 240V WFL | 30 |
| MSR 700 SA | 20 | PAR64 250W 28V VNSP | 30 |
| MSR 700/2 | 18 | PAR64 1000W 230V MFL | 30 |
| MSR 1200 | 18 | PAR64 1000W 230V NSP | 30 |
| MSR 1200 HR | 44 | PAR64 1000W 230V VNSP | 30 |
| MSR 1200 SA | 20 | PAR64 1000W 240V MFL | 30 |
| MSR 1200/2 | 18 | PAR64 1000W 240V NSP | 30 |
| MSR 2000 SA | 20 | PAR64 1000W 240V VNSP | 30 |



Visit the Entertainment lamps website: www.philips.com/onstage

©2018 Philips Lighting Holding B.V. All rights reserved. This document contains information relating to Philips Lighting product portfolio. Note that the information provided is subject to change. Philips Lighting does not give any representation or warranty as to the accuracy or completeness of the information included herein and shall not be liable for any action in reliance thereon. The information presented in this document is not intended as any commercial offer and does not form part of any quotation or contract. Trademarks are the property of Koninklijke Philips N.V., Philips Lighting Holding B.V. or their respective owners.

3222 635 71402 * MARCH 2018

www.philips.com/onstage