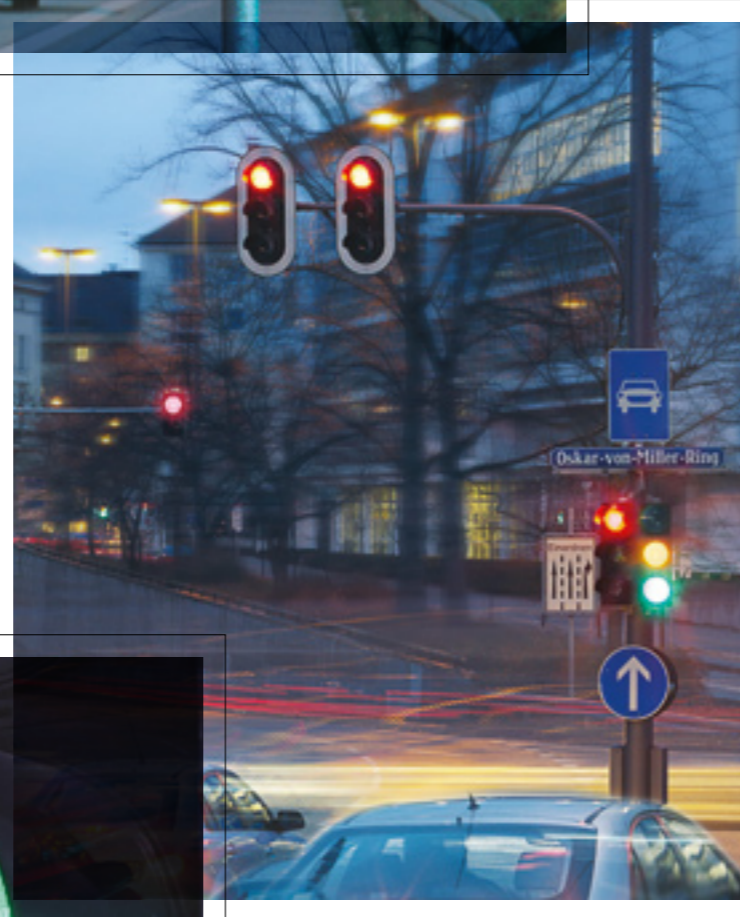




Display and signal lamps for traffic light installation.

Light attracts attention. Light is better than any other medium for providing quick and meaningful messages, for giving warnings and for activating. The demands placed on display and signal lamps in terms of reliability and service life are very high indeed.

The best lamps for such applications are signal lamps in modern halogen technology that offer luminous flux that is constant throughout their lives, white light and low power consumption.



Contents.

| | |
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| What you need to know about display and signal lamps | 7.02 |
| MINIWATT® lamps T5 | 7.04 |
| MINIWATT® lamps T10 | 7.05 |
| XENON MINIWATT® halogen lamps for flashlights | 7.06 |
| MINIWATT® halogen lamps for flashlights | 7.06 |
| MINIWATT® halogen lamps | 7.07 |
| Lamps for road traffic signaling equipment | 7.08 – 7.14 |
| Lamps for rail traffic signaling equipment | 7.15 – 7.16 |
| Bases | 7.17 |

For further information see our brochures entitled "Lamps for flashlights" and "Lamps for traffic light installations".



Lamps that signal quality.

Reliability counts.

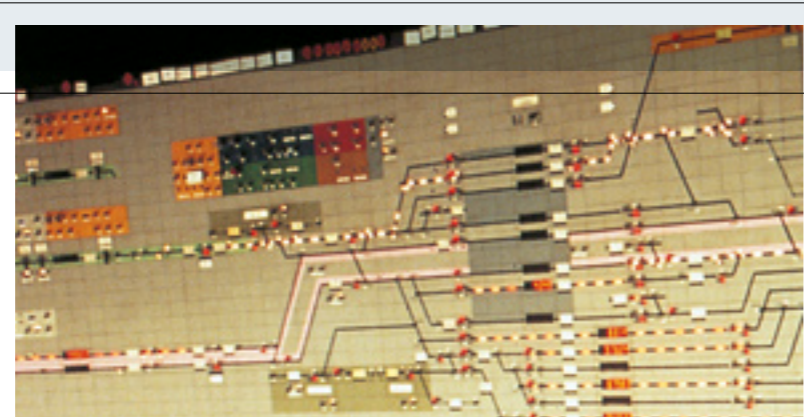
Road and rail traffic light installations are crucial to safety, which is why the lamps used in these installations have to meet such high demands, including the following:

- High luminous flux for good signaling effect and high recognition even in difficult weather conditions
- Precise filament alignment and shape for correct luminous intensity distribution
- Standardized high-quality bases that enable lamps to be replaced without the need for realignment even after many hours of operation
- Long lamp life and high luminous efficacy for economical operation thanks to low power consumption and low maintenance requirements

Krypton lamps for main voltage.

Many traffic light installations throughout mainland Europe are still operated on line voltage of between 220 and 240 V. Right from the start, the rugged construction of the line voltage signal lamps has proved its worth. Krypton lamps and Longlife Krypton lamps represent significant improvements in line voltage signal lamps. They offer:

- greater luminous efficacy
- greater axial signal luminous intensity thanks to the reduction in the size of the filament cradle
- improved economy
- extremely long life



Low-voltage high-pressure lamps.

The increased gas pressure and the compact filament mean that low-voltage high-pressure signal lamps achieve better performance than the high-voltage signal lamps.

They offer:

- much higher luminous efficacy
- improved economy – because of the higher luminous efficacy, low-voltage high-pressure lamps with much lower power consumption can be used
- exceptionally high resistance to shocks and vibrations
- longlife versions with extra long life

All these benefits can also be put to use in existing 230 V signaling installations. This is because the mains voltage systems can be converted to 10 V technology. For this, the lamp and reflector have to be replaced and a transformer installed.

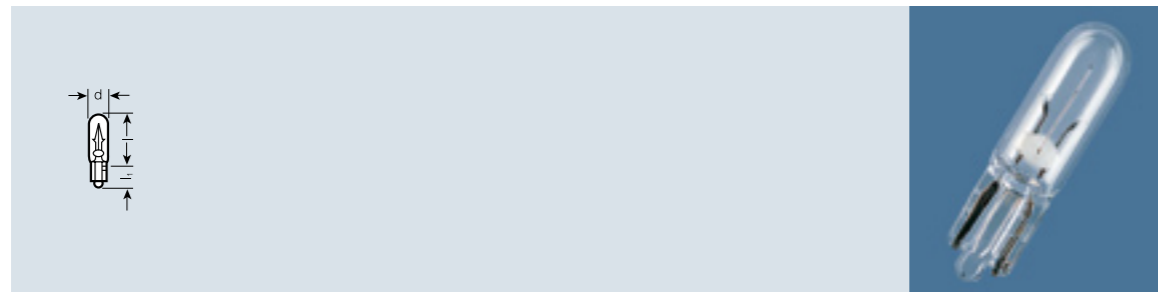
Low-voltage halogen lamps.



The benefits of halogen technology are now available in 10 V signaling installations. Low voltage halogen lamps have an even higher luminous flux and almost no loss of luminous flux over their entire life. Longer life and virtually constant luminous flux means much longer relamping intervals – an important factor in reducing maintenance costs.

Lamps for fiber-optic signaling installations.

OSRAM has developed SIRIUS® dichroic reflector lamps specifically for use in fiber-optic matrix displays for variable traffic control. A major benefit of these lamps is the optimum fixed adjustment of the halogen tube with regard to the reflector. This results in very high axial luminous intensity. Other benefits of this series of lamps include long life and a high-quality coating on the reflector.

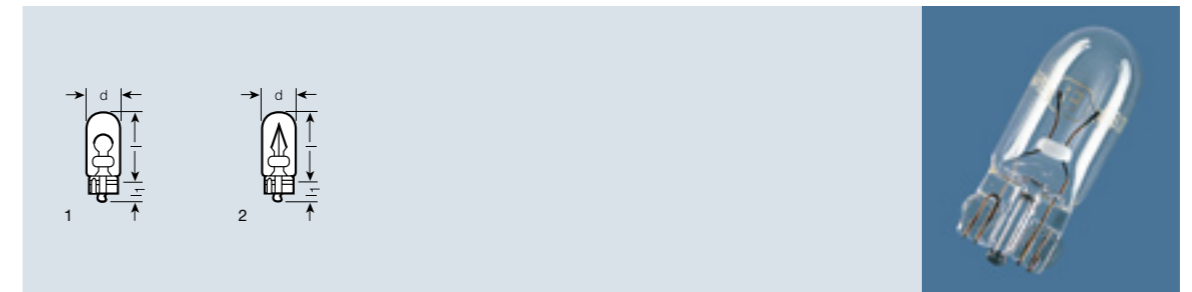
MINIWATT® lamps T5





| Product reference | Product number Single pack | V | W |  | Product number Standard pack |  |
|---------------------------|----------------------------|----|-----|---|------------------------------|---|
| MINIWATT® lamps T5 | | | | | | |
| 2721 | 4050300838540 | 12 | 1,2 | W2x4.6d | 4008321094797 | 50 |
| 2722 | 4008321094803 | 12 | 2 | W2x4.6d | 4008321094827 | 50 |
| 2723 | 4008321094834 | 12 | 2,3 | W2x4.6d | 4008321094858 | 50 |
| 2741 | 4050300838519 | 24 | 1,2 | W2x4.6d | 4008321094889 | 50 |

Internationally standardized base and holder dimensions ensure that they can be used as direct replacements for similar lamps.

MINIWATT® lamps T10



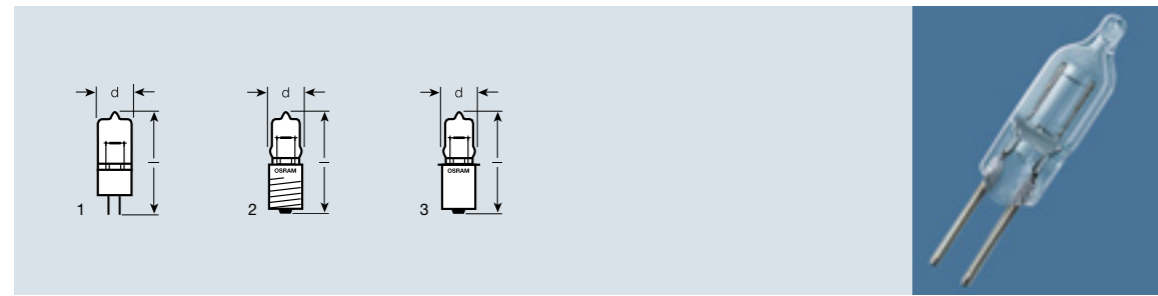
| Product reference | Product number Single pack | V | W |  | Product number Standard pack |  | No. |
|----------------------------|----------------------------|----|---|---|------------------------------|---|-----|
| MINIWATT® lamps T10 | | | | | | | |
| 2820 | 4008321094094 | 12 | 2 | W2.1x9.5d | 4008321094117 | 50 | 2 |
| 2821 | 4050300838663 | 12 | 3 | W2.1x9.5d | 4008321094438 | 50 | 2 |
| 2825 | 4050300838632 | 12 | 5 | W2.1x9.5d | 4008321094469 | 50 | 1 |
| 2886X | 4008321094667 | 12 | 6 | W2.1x9.5d | 4008321094681 | 50 | 1 |
| 2840 | 4008321094698 | 24 | 2 | W2.1x9.5d | 4008321094711 | 50 | 2 |
| 2841 | 4008321094728 | 24 | 3 | W2.1x9.5d | 4008321094742 | 50 | 2 |
| 2845 | 4050300891552 | 24 | 5 | W2.1x9.5d | 4008321094773 | 50 | 2 |

With their larger bulb, they offer the following advantages:

- Good fit in standard holders, good electrical contact
- Close LCL tolerances; important for use in light guide systems
- Long life and high luminous flux

Internationally standardized base and holder dimensions ensure that they can be used as direct replacements for similar lamps.

XENON MINIWATT® halogen lamps for torches



| Product reference | Product number Single pack | V | I [mA] | | d max. [mm] | I max. [mm] | Product number Standard pack | | | No. |
|--|----------------------------|-----|--------|---------|-------------|-------------|------------------------------|-------|---|-----|
| XENON MINIWATT® halogen lamps for torches | | | | | | | | | | |
| 64091 | 4008321037558 | 2,4 | 500 | G2.5 | 5,5 | 23 | 4050300716534 | 10000 | 1 | |
| 64092 | 4008321037565 | 2,7 | 800 | G2.5 | 5,5 | 23 | 4050300716541 | 10000 | 1 | |
| 64095 | 4008321037572 | 4,0 | 600 | G2.5 | 5,5 | 23 | 4050300795454 | 10000 | 1 | |
| 64096 | 4008321037589 | 4,0 | 830 | G2.5 | 5,5 | 23 | 4050300795461 | 10000 | 1 | |
| 64098 | 4008321051752 | 5,2 | 865 | G2.5 | 5,5 | 23 | 4008321051769 | 10000 | 1 | |
| MINIWATT® halogen lamps for torches | | | | | | | | | | |
| 6405210 | 4008321037688 | 2,8 | 500 | P13.5s | 9,3 | 31 | 4050300559254 | 2400 | 3 | |
| 6405310 | 4008321178848 | 2,8 | 850 | P13.5s | 9,3 | 31 | 4008321178862 | 50 | 3 | |
| 6405310 | 4008321037596 | 2,8 | 850 | P13.5s | 9,3 | 31 | 4050300235738 | 2400 | 3 | |
| 6405710 | 4008321037602 | 4,0 | 500 | P13.5s | 9,3 | 31 | 4050300233529 | 2400 | 3 | |
| 6405730 | 4008321178909 | 4,0 | 500 | E10 | 9,3 | 31 | 4008321178923 | 50 | 2 | |
| 6405910 | 4008321178817 | 4,0 | 850 | P13.5s | 9,3 | 31 | 4008321178831 | 50 | 3 | |
| 6405910 | 4008321037619 | 4,0 | 850 | P13.5s | 9,3 | 31 | 4050300235691 | 2400 | 3 | |
| 6405930 | 4008321178961 | 4,0 | 850 | E10 | 9,3 | 31 | 4008321178985 | 50 | 2 | |
| 6406110 | 4008321037671 | 4,8 | 500 | P13.5s | 9,3 | 31 | 4050300278858 | 2400 | 3 | |
| 6406310 | 4008321178640 | 5,2 | 500 | P13.5s | 9,3 | 31 | 4008321178664 | 50 | 3 | |
| 6406310 | 4008321037626 | 5,2 | 500 | P13.5s | 9,3 | 31 | 4050300233604 | 2400 | 3 | |
| 6406330 | 4008321178930 | 5,2 | 500 | E10 | 9,3 | 31 | 4008321178954 | 50 | 2 | |
| 6406330 | 4008321037633 | 5,2 | 500 | E10 | 9,3 | 31 | 4050300235998 | 2400 | 2 | |
| 6406510 | 4008321178671 | 5,2 | 850 | P13.5s | 9,3 | 31 | 4008321178695 | 50 | 3 | |
| 6406510 | 4008321037640 | 5,2 | 850 | P13.5s | 9,3 | 31 | 4050300234236 | 2400 | 3 | |
| 6406530 | 4008321178879 | 5,2 | 850 | E10 | 9,3 | 31 | 4008321178893 | 50 | 2 | |
| 6406530 | 4008321037657 | 5,2 | 850 | E10 | 9,3 | 31 | 4050300234663 | 2400 | 2 | |
| 6404110 ¹⁾ | 4008321037534 | 4,0 | 1000 | PX13.5s | 9,3 | 31 | 4050300238685 | 2400 | 3 | |
| 6404210 ¹⁾ | 4008321037541 | 4,0 | 750 | PX13.5s | 9,3 | 31 | 4050300250458 | 2400 | 3 | |

XENON MINIWATT® tungsten-halogen lamps

The new star in the MINIWATT® series. This lamp represents a further improvement in the quality of light:

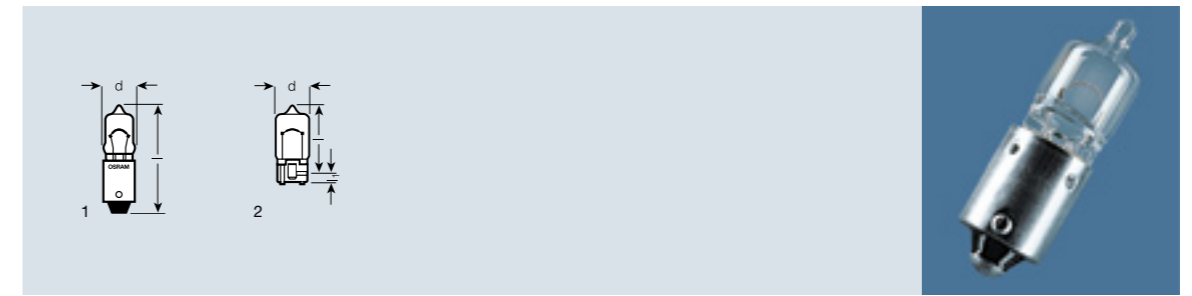
- Brilliant white xenon light
- Color temperature greater than 3000 K
- Maximum light thanks to xenon gas
- Constant light thanks to added halogens
- Small bulb → optimum reflector adaptation

MINIWATT® tungsten-halogen lamps

in hard-glass technology with added halogens offer the following advantages over conventional lamps:

- Constant light throughout their lives
- More light for the same wattage
- High color temperature
- Long life

MINIWATT® halogen lamps



| Product reference | Product number Single pack | V | W | | Product number Standard pack | | | No. |
|--------------------------------|----------------------------|----|----|-----------|------------------------------|------|---|-----|
| MINIWATT® halogen lamps | | | | | | | | |
| 64111 | 4008321095015 | 12 | 5 | BA9s | 4008321095039 | 50 | 1 | |
| 64113 | 4008321095046 | 12 | 10 | BA9s | 4008321095060 | 50 | 1 | |
| 64115 | 4008321095077 | 12 | 20 | BA9s | 4008321095091 | 50 | 1 | |
| 6411150 SCHP | 4050300273792 | 12 | 5 | W2.1x9.5d | 4050300273808 | 2000 | 2 | |
| 6411350 SCHP | 4050300237008 | 12 | 10 | W2.1x9.5d | 4050300237015 | 2000 | 2 | |

MINIWATT® tungsten-halogen lamps

These lamps feature hard-glass technology. They offer the following advantages:

- High luminous flux, constant throughout the life of the lamp
- Low power consumption
- High color temperature, i.e. white light
- Stable mounting, close tolerances
- Dimmable

Internationally standardized base and holder dimensions ensure that they can be used as direct replacements for similar lamps.

LONGLIFE halogen signal lamps in 10 V technology for road traffic equipment



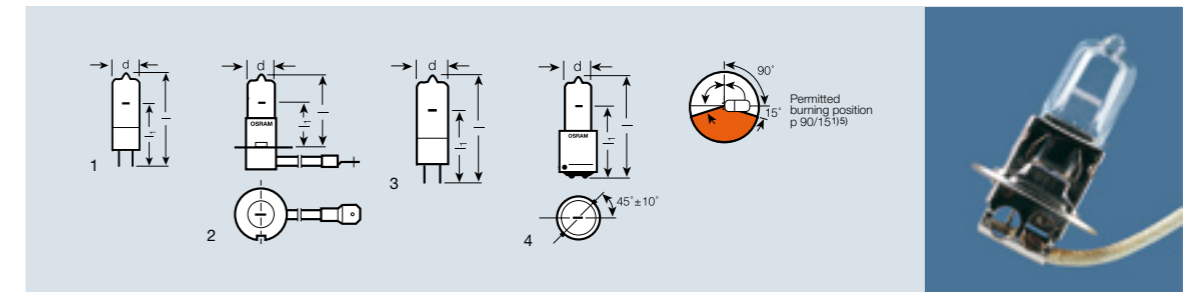
| Product reference | Product number Single pack | V TEST | W | lm | | d max. [mm] | l max. [mm] | h ²⁾ [mm] | Product number Standard pack | |
|--|----------------------------|--------|----|-----|-------|-------------|-------------|----------------------|------------------------------|-----|
| LONGLIFE halogen signal lamps in 10 V technology for road traffic equipment | | | | | | | | | | |
| SIG 64032 | 4008321037725 | 10,5 | 20 | 270 | BA20s | 12,5 | 65 | 31 | 4050300422770 | 200 |
| SIG 64033 | 4008321037732 | 10,5 | 30 | 400 | BA20s | 12,5 | 65 | 31 | 4050300422787 | 200 |

Thanks to continual improvements, low-voltage halogen lamps from OSRAM now offer an excellent set of properties. Superior technology and high production quality combine to enable the lamps to be replaced on a two-year cycle (system operating time of around 16,000 hours), for a maximum premature failure rate of 2%³⁾. This contributes greatly to reducing the maintenance costs of the signal installations. Their geometry, luminous flux and electrical data comply with existing standards (DIN 49842-1, DIN 49842-3 and DIN 67527-1), which means these lamps can be used in existing standard-compliant installations without the need for upgrades or adjustments.

Operating instructions:

All halogen signal lamps operate at high temperature and pressure. They may therefore only be operated in signal equipment/luminaires specially designed for the purpose. Make sure that the lamps are protected against moisture during operation and in particular during relamping. When installing a new lamp, handle it by its protective cardboard sleeve.

Low-voltage halogen lamps for road traffic equipment



| Product reference | Product number Single pack | V TEST | W | lm | t [h] ⁶⁾ | |
|---|----------------------------|--------|----|-----|---------------------|--------|
| Low-voltage halogen lamps for road traffic equipment | | | | | | |
| PA 62165 ³⁾ | 4008321037718 | 10 | 50 | 820 | 2000 | BA15d |
| SIG 64016 | 4050300837741 | 12 | 50 | 900 | 4000 | GY6.35 |
| SIG 64014 ⁴⁾ | 4050300222509 | 10 | 50 | 950 | 2000 | PKX22s |
| SIG 64015 | 4050300217543 | 10 | 50 | 750 | 8000 | PKX22s |
| SIG 64012/1 | 4008321033260 | 12 | 20 | 320 | 2000 | G4 |

| Product reference | d max. [mm] | l max. [mm] | h ²⁾ [mm] | Product number Standard pack | | |
|---|-------------|-------------|----------------------|------------------------------|-----|---|
| Low-voltage halogen lamps for road traffic equipment | | | | | | |
| PA 62165 ³⁾ | 11,5 | 50 | 26 | 4050300224046 | 100 | 4 |
| SIG 64016 | 12,0 | 44 | 30 | 4050300345048 | 100 | 3 |
| SIG 64014 ⁴⁾ | 11,5 | 32 | 18 | 4050300222523 | 100 | 2 |
| SIG 64015 | 11,5 | 32 | 18 | 4050300217567 | 100 | 2 |
| SIG 64012/1 | 9,0 | 31 | 19,5 | 4008321033277 | 40 | 1 |

The benefits of halogen signal lamps are as follows:

- Particularly high luminous flux
- Almost point-like light source for optimum focusing
- Virtually constant luminous flux throughout the life of the lamp
- Long life

Operating instructions:

All halogen signal lamps operate at high temperature and pressure. They may therefore only be operated in signal equipment/luminaires specially designed for the purpose. Make sure that the lamps are protected against moisture during operation and in particular during relamping. When installing a new lamp, handle it by its protective cardboard sleeve.

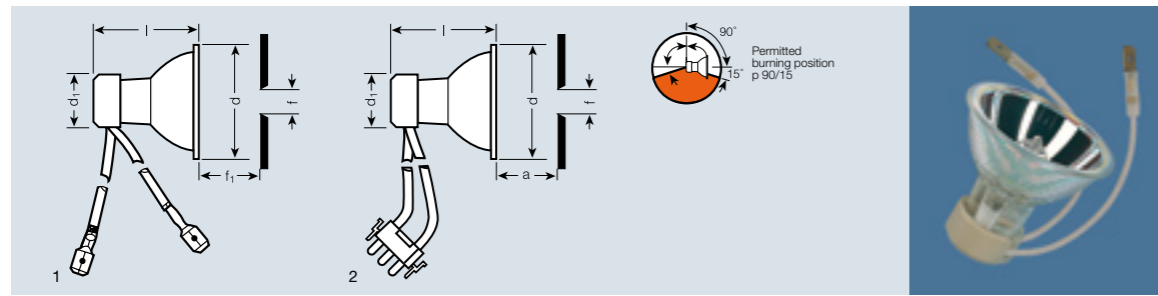
1) Only the permissible burning positions may be used otherwise the lamp will fail prematurely
2) LCL = light center length (distance from the coil to top of base)

3) The premature failure rate is restricted to cases that are due to lamp faults and not to external influences

1) Only the permissible burning positions may be used otherwise the lamp will fail prematurely
2) LCL = light center length (distance from the coil to top of base)
3) Supplied on request

4) Particularly suitable for use in fiber-optic traffic signals
5) Lamps with transverse filaments should only be inclined perpendicular to the filament plane
6) Average life

SIRIUS® low-voltage halogen lamps with reflector for matrix displays



| Product reference | Product number Single pack | V TEST | W | Im ²⁾ | t [h] ³⁾ | | |
|---|----------------------------|--------|-------|------------------|---------------------|-------|----|
| SIRIUS® low-voltage halogen lamps with reflector for matrix displays | | | | | | | |
| SIG 64002 | 4050300246505 | 12 | 20 | 120 | 2000 | K23d | 51 |
| SIG 64002B ¹⁾ | 4050300324562 | 12 | 1,67A | 120 | 2000 | KX23d | 51 |
| SIG 64004 | 4050300245225 | 10 | 50 | 350 | 2000 | K23d | 51 |
| SIG 64005 | 4050300282060 | 10 | 50 | 250 | 6000 | K23d | 51 |

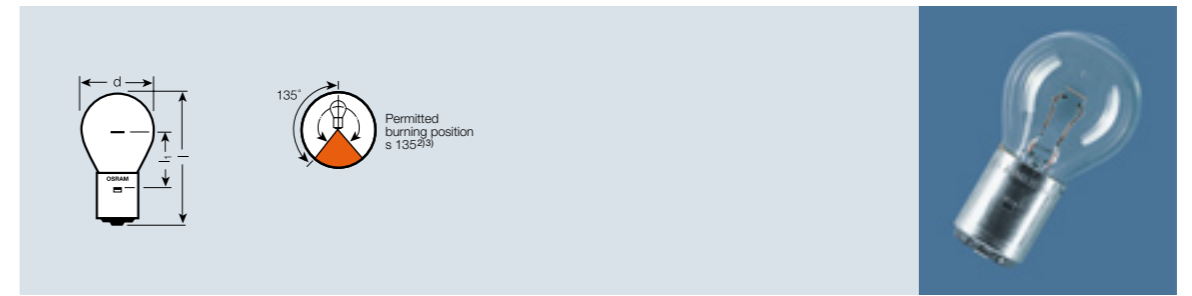
| Product reference | | | | | Product number Standard pack | | |
|---|-------|------|------|----|------------------------------|----|---|
| SIRIUS® low-voltage halogen lamps with reflector for matrix displays | | | | | | | |
| SIG 64002 | 46,50 | 24,5 | 10,2 | 42 | 4050300246512 | 10 | 1 |
| SIG 64002B ¹⁾ | 46,50 | 24,5 | 10,2 | 42 | 4050300324579 | 10 | 2 |
| SIG 64004 | 46,50 | 24,5 | 10,2 | 42 | 4050300245232 | 10 | 1 |
| SIG 64005 | 46,50 | 24,5 | 10,2 | 42 | 4050300282077 | 10 | 1 |

A major benefit of the SIRIUS® dichroic reflector lamps is the optimum fixed adjustment of the halogen tube with regard to the reflector. This results in very high axial luminous intensity. Other benefits of this series of lamps include long life and a high-quality coating on the reflector. The connecting cables are equipped with contacts and insulation that are highly resistant to corrosion and heat.

Operating instructions:

All halogen signal lamps operate at high temperature and pressure. They may therefore only be operated in signal equipment/luminaires specially designed for the purpose. Make sure that the lamps are protected against moisture during operation and in particular during relamping.

LV high-pressure lamps in 10 V technology for road traffic LV LONGLIFE lamps in 10 V technology for road traffic



| Product reference | Product number Single pack | V TEST | W | Im | | | | | Product number Standard pack | |
|--|----------------------------|--------|----|-----|-------|----|----|----|------------------------------|-----|
| Low-voltage high-pressure lamps in 10 V technology for road traffic | | | | | | | | | | |
| SIG 1227 | 4008321903990 | 10,5 | 22 | 270 | BA20s | 36 | 67 | 31 | 4050300235028 | 200 |
| SIG 1238 | 4008321904003 | 10,5 | 30 | 400 | BA20s | 36 | 67 | 31 | 4050300253091 | 200 |
| SIG 1259 | 4050300831770 | 10,5 | 45 | 600 | BA20s | 36 | 67 | 31 | 4050300253633 | 100 |

Low-voltage high-pressure signal lamps have a much higher luminous efficacy than high-voltage signal lamps. This is due to the higher gas pressure and the inert filler gas. The larger diameter of the tungsten wire of the low-voltage filament also helps increase efficiency. This means that low-voltage high-pressure lamps with significantly lower wattages can often be used, with a resultant reduction in the power consumption of the signaling equipment. The filament wire is more stable than in

the HV lamp, which means that resistance to shocks and vibration is particularly high. The failure rate for standard 10 V low-voltage high-pressure lamps is less than 2% within the first 4400 hours of operation¹⁾. These benefits can also be put to use in existing 230 V signaling installations as it is possible to convert line voltage installations to 10 V technology. For this, the lamp and reflector have to be replaced and a transformer installed.

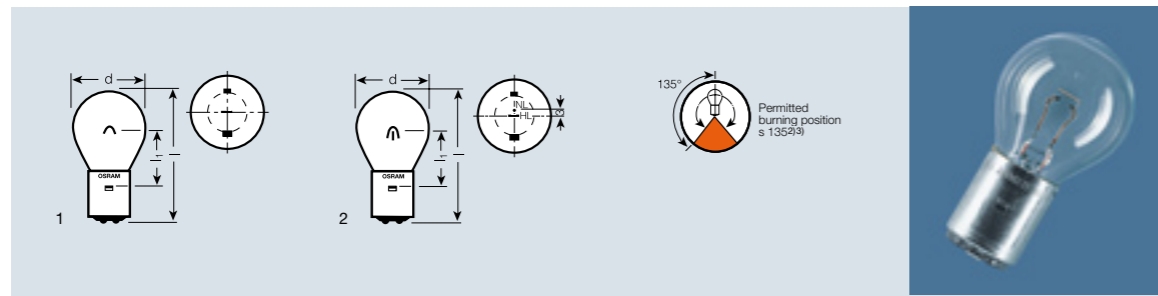


| Product reference | Product number Single pack | V TEST | W | Im | | | | | Product number Standard pack | |
|---|----------------------------|--------|----|-----|-------|----|----|----|------------------------------|-----|
| Low-voltage LONGLIFE lamps in 10 V technology for road traffic equipment | | | | | | | | | | |
| SIG 1227 LL | 4008321037695 | 10,5 | 22 | 270 | BA20s | 36 | 67 | 31 | 4050300900179 | 200 |
| SIG 1238 LL | 4008321037701 | 10,5 | 30 | 400 | BA20s | 36 | 67 | 31 | 4050300790503 | 200 |

The existing low-voltage high-pressure signal lamp has been further developed into a LONGLIFE lamp. For these LONGLIFE versions (LL) the 2% premature failure threshold¹⁾ has been raised to 8000 hours. Maintenance intervals of up to one year are therefore possible (depending on the system).

These lamps can of course be used as direct replacements for low-voltage high-pressure lamps with no need for any adjustments. The same procedure as for low-voltage high-pressure lamps is also used for upgrading high-voltage systems.

LV high-pressure lamp for 40 V systems, single-coil, for road traffic equipment
LV high-pressure lamp for 40 V systems, dual-coil, for road traffic equipment



| Product reference | Product number Single pack | V TEST | W | Im | | d max. [mm] | l max. [mm] | l1 [mm] ⁴⁾ | Product number Standard pack | | | No. |
|---|----------------------------|--------|-------|-----|-------|-------------|-------------|-----------------------|------------------------------|-----|---|-----|
| Low-voltage high-pressure lamp for 40 V systems, single-coil, for road traffic equipment | | | | | | | | | | | | |
| SIG 1455 | 4050300832364 | 40 | 25 | 250 | BA20d | 36 | 67 | 31 | 4050300218328 | 100 | 1 | |
| SIG 1462 | 4050300832326 | 40 | 40 | 500 | BA20d | 36 | 67 | 31 | 4050300218366 | 100 | 1 | |
| SIG 1470 | 4050300832289 | 40 | 60 | 800 | BA20d | 36 | 67 | 31 | 4050300218403 | 100 | 1 | |
| Low-voltage high-pressure lamp for 40 V systems, dual-coil, for road traffic equipment | | | | | | | | | | | | |
| SIG 1456 | 4050300832340 | 40 | 25/25 | 250 | BA20d | 36 | 67 | 31 | 4050300218342 | 100 | 2 | |
| SIG 1463 | 4050300832302 | 40 | 40/40 | 500 | BA20d | 36 | 67 | 31 | 4050300218380 | 100 | 2 | |
| SIG 1471 | 4050300832265 | 40 | 60/60 | 800 | BA20d | 36 | 67 | 31 | 4050300218427 | 100 | 2 | |

Low-voltage signal lamps for 40 V systems are used in signaling equipment in France and Benelux. They are available as single-coil and dual-coil lamps. The operational reliability of dual-coil lamps is much higher than that of single-coil lamps. If the main filament fails, it is possible to switch to the secondary filament. Availability of the installation is therefore significantly increased. For safety reasons, however, it is recommended that the lamp be replaced as soon as possible.

The average life of these lamps is 8000 hours (for dual-coil lamps this applies only to the main coil). The failure rate is less than 2% within the first 3000 hours of operation¹⁾. In other words, maintenance intervals of around four months are possible (depending on the installation). The lamps comply with DIN 49842-1 and DIN 49842-3.

1) The premature failure rate is restricted to cases that are due to lamp faults and not to external influences
 2) Lamps with transverse filaments should only be inclined perpendicular to the filament plane

3) Only the permissible burning positions may be used otherwise the lamp will fail prematurely
 4) LCL = light center length (distance from the coil to top of base)

HV krypton lamps for road traffic equipment
HV Longlife krypton lamps for road traffic equipment



| Product reference | Product number Single pack | V TEST | W | Im | | d max. [mm] | l max. [mm] | l1 [mm] ³⁾ | Product number Standard pack | | No. |
|--|----------------------------|--------|-----|-----|-----|-------------|-------------|-----------------------|------------------------------|-----|-----|
| High-voltage krypton lamps for road traffic equipment | | | | | | | | | | | |
| SIG 1541 | 4008321044273 | 235 | 60 | 420 | E27 | 62 | 91 | 69 | 4050300405070 | 100 | |
| SIG 1543 | 4008321044365 | 235 | 75 | 600 | E27 | 62 | 91 | 69 | 4050300032443 | 100 | |
| SIG 1546 | 4008321044372 | 235 | 100 | 840 | E27 | 62 | 101 | 79 | 4050300284101 | 100 | |

Many traffic light installations throughout mainland Europe are still operated on line voltage of between 220 and 240 V. Right from the start, the rugged construction of the line voltage signal lamps has proved its worth. These lamps also meet the high photometric requirements demanded by the signal optics used. High-voltage signal lamps are designed for an average life of 8000 hours. For meaningful economic and safety comparisons and for working out maintenance intervals the "individual lamp life" or premature failure rate is a better yardstick. In the case of these high-voltage signal lamps, the failure rate in the first 3000 hours of operation is no more than 2%. This premature failure rate¹⁾ allows maintenance intervals of around 4 months (depending on the system).

The advantages of high-voltage krypton lamps are as follows:

- Excellent optical efficiency thanks to a small cradle diameter
- High luminous efficacy from krypton as the filler gas
- High resistance to shock and vibrations thanks to the nine supports for the filament
- Corrosion-resistant bases

The krypton inert-gas lamps conform to the specifications of DIN 49842-2 and DIN 49842-3. This means that in modern signal lights the luminous intensity values laid down in DIN 67527-1 and DIN EN 12368 are met.

| Product reference | Product number Single pack | V TEST | W | Im | | d max. [mm] | l max. [mm] | l1 [mm] ³⁾ | Product number Standard pack | | No. |
|---|----------------------------|--------|-----|-----|-----|-------------|-------------|-----------------------|------------------------------|-----|-----|
| High-voltage Longlife krypton lamps for road traffic equipment | | | | | | | | | | | |
| SIG 1541 LL | 4008321044327 | 235 | 60 | 380 | E27 | 62 | 91 | 69 | 4050300613642 | 100 | |
| SIG 1543 LL | 4008321044389 | 235 | 75 | 540 | E27 | 62 | 91 | 69 | 4050300613666 | 100 | |
| SIG 1546 LL | 4008321044358 | 235 | 100 | 780 | E27 | 62 | 101 | 79 | 4050300613680 | 100 | |

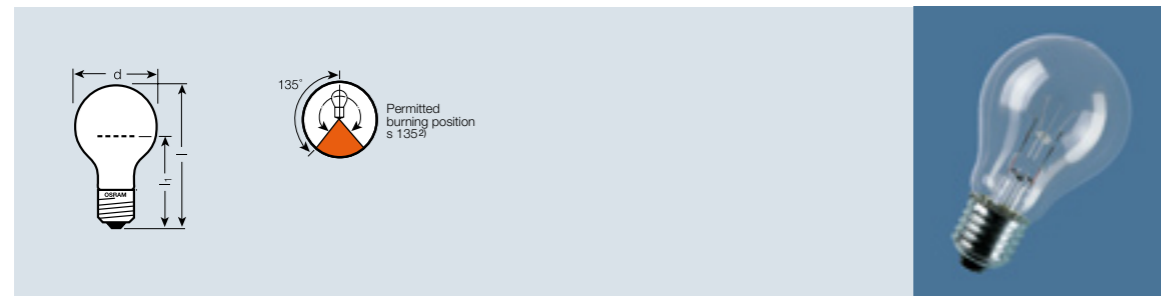
OSRAM has managed to improve the tried and trusted high-voltage lamp technology even further. Maintenance cycles are longer with the new Longlife signal lamps. Depending on the system, these cycles may be up to one year. Average life is 14,000 hours. Within the first 6,000 hours of operation there are no more than 2% lamp failures¹⁾.

The rated luminous intensities defined in EN 12 368 are achieved at all wattage levels. Longlife lamps correspond completely to the successful standard series in their technical design, E27 base and unchanged light center length. They can therefore be used in existing high-voltage signals without the need for upgrades or adjustments.

1) The premature failure rate is restricted to cases that are due to lamp faults and not to external influences
 2) Only the permissible burning positions may be used otherwise the lamp will fail prematurely

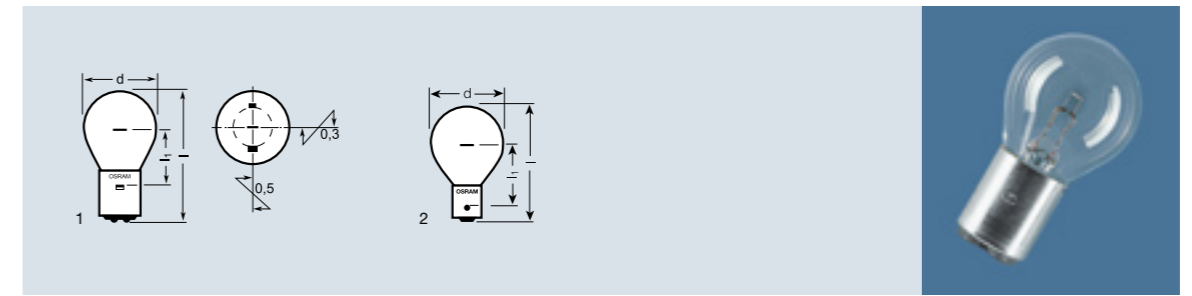
3) LCL = light center length

HV standard lamps for road traffic equipment HV Longlife standard lamps for road traffic equipment



| Product reference | Product number Single pack | V TEST | W | lm | | d max. [mm] | l max. [mm] | l ₁ ³⁾ [mm] | Product number Standard pack | |
|--|-------------------------------|-----------|----|-----|-----|----------------|----------------|--------------------------------------|---------------------------------|-----|
| HV standard lamps for road traffic equipment | | | | | | | | | | |
| SIG 1534 ¹⁾ | 4050300984339 | 235 | 40 | 230 | E27 | 62 | 110 | 69 | 4050300032474 | 100 |
| HV Longlife standard lamps for road traffic equipment | | | | | | | | | | |
| SIG 1534 LL ¹⁾ | 4008321044396 | 235 | 40 | 200 | E27 | 62 | 110 | 69 | 4050300613703 | 100 |

LV high-pressure single-coil lamp for rail traffic equipment



| Product reference | Product number Single pack | V TEST | W | lm | t [h] ⁴⁾ | | |
|--|-------------------------------|----------------|----------------|--------------------------------------|---------------------------------|----------|---------------------|
| Low-voltage high-pressure single-coil lamp for rail traffic equipment | | | | | | | |
| SIG 1206 ¹⁾³⁾ | 4050300832869 | 12 | 6 | 55 | 600 | beliebig | BA20d ²⁾ |
| SIG 1220 ¹⁾³⁾ | 4050300831596 | 12 | 20 | 290 | 2000 | beliebig | BA20d |
| SIG 1260 ¹⁾³⁾ | 4050300832036 | 10 | 20 | 240 | 6000 | beliebig | BA15s |
| Product reference | | d max. [mm] | l max. [mm] | l ₁ ⁵⁾ [mm] | Product number Standard pack | | |
| Low-voltage high-pressure single-coil lamp for rail traffic equipment | | | | | | | |
| SIG 1206 ¹⁾³⁾ | 36 | 67 | 29,6 | 4050300203065 | 100 | 1 | |
| SIG 1220 ¹⁾³⁾ | 36 | 65 | 30,0 | 4050300440064 | 100 | 1 | |
| SIG 1260 ¹⁾³⁾ | 36 | 62 | 33,5 | 4050300233086 | 100 | 2 | |

Note: Lamps with transverse filaments should only be inclined perpendicular to the filament plane.

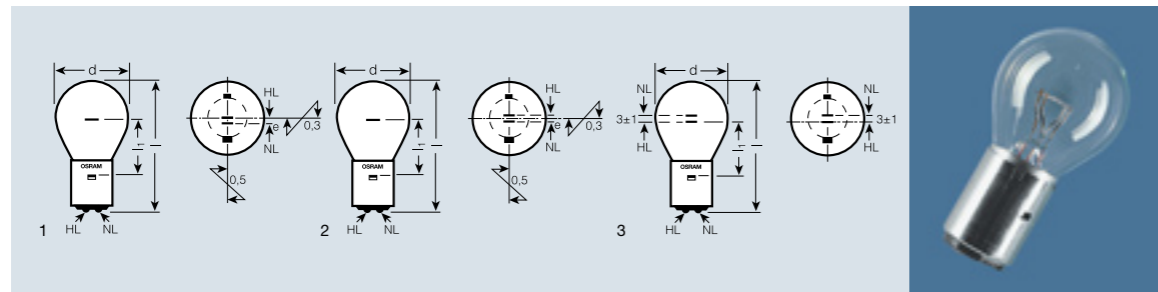
Single-coil lamps

Safety on the railways calls for reliable signaling equipment. Defective lamps pose a serious risk, cause expensive delays to train schedules and lead to costly and time-consuming maintenance work because of the large distances between signals. OSRAM has played a major role over many years in ensuring that railways have operated at high levels of safety and efficiency. The advantages of OSRAM lamps are as follows:

- Narrow tolerances
- Exact light center
- Long life
- High reliability

Extremely strict quality controls ensure compliance with tight geometrical tolerances, photometric values and specified life.

LV high-pressure dual-coil lamp for rail traffic equipment



| Product reference | Product number Single pack | V TEST | W | Im | t [h] ³⁾ | | |
|--|-------------------------------|-----------|-------|-----|---------------------|-----------|-------|
| Low-voltage high-pressure dual-coil lamp for rail traffic equipment | | | | | | | |
| SIG 1810 ¹⁾²⁾ | 4050300832142 | 12 | 10/10 | 137 | 600 | universal | BA20d |
| SIG 1210 ¹⁾²⁾ | 4050300832173 | 12 | 10/10 | 137 | 600 | universal | BA20d |
| SIG 1820 ¹⁾ | 4050300832234 | 12 | 20/20 | 350 | 600 | universal | BA20d |
| SIG 1230 ¹⁾ | 4050300832203 | 12 | 30/30 | 520 | 600 | universal | BA20d |
| SIG 2460 ¹⁾²⁾ | 4050300831756 | 24 | 60/60 | 700 | 8000 | s135 | BA20d |
| SIG 3015 ¹⁾ | 4050300832111 | 30 | 15/15 | 213 | 600 | universal | BA20d |

| Product reference | d max. [mm] | l max. [mm] | h ⁴⁾ [mm] | Product number Standard pack | | No. |
|--|----------------|----------------|-------------------------|---------------------------------|-----|-----|
| Low-voltage high-pressure dual-coil lamp for rail traffic equipment | | | | | | |
| SIG 1810 ¹⁾²⁾ | 36 | 67 | 29,6 | 4050300219608 | 100 | 2 |
| SIG 1210 ¹⁾²⁾ | 36 | 67 | 29,6 | 4050300218182 | 100 | 1 |
| SIG 1820 ¹⁾ | 36 | 67 | 29,6 | 4050300221014 | 100 | 1 |
| SIG 1230 ¹⁾ | 36 | 67 | 29,6 | 4050300218205 | 100 | 1 |
| SIG 2460 ¹⁾²⁾ | 36 | 67 | 31,0 | 4050300278346 | 100 | 3 |
| SIG 3015 ¹⁾ | 36 | 67 | 29,6 | 4050300218229 | 100 | 1 |

Note: Lamps with transverse filaments should only be inclined perpendicular to the filament plane.

Dual-coil lamps are the intelligent way to increase the availability and reliability of rail signaling systems significantly. The second filament takes over from the main filament if the main filament fails. Change-over to the second filament may be manual or automatic. The safety of rail traffic is ensured until the lamp is next changed but it is recommended that the lamp be replaced as soon as possible. These low-voltage signal lamps are now only manufactured as high-pressure lamps as this technology is much more efficient. The various wattages are matched to the specific needs of the relevant optical systems.

Bases IEC/EN 60061-1

| | | | |
|-----------------------------------|----------------------------|----------------------------|----------------------------|
| | | | |
| BA9s Sheet 7004-14 | B15d Sheet 7004-11 | BA20d Sheet 7004-12 | BA20s Sheet 7004-12 |
| Holder standard: Sheet 7005-12 | | Sheet 7005-16 | |
| | | | |
| BA15d Sheet 7004-11A | BA15s Sheet 7004-11A | E10 Sheet 7004-22 | EP10 Sheet 7004-30 |
| Holder standard: Sheet 7005-13 | | Sheet 7005-13 | |
| | | | |
| E14 Sheet 7004-23 | E27 Sheet 7004-21 | P13.5s Sheet 7004-40 | PX13.5s Sheet 7004-35 |
| Holder standard: Sheet 7005-20 | | Sheet 7005-20 | |
| | | | |
| G4 Sheet 7004-72 | GY6.35-15 Sheet 7004-59 | W2x4.6d Sheet 7004-94 | W2.1x9.5d Sheet 7004-91 |
| Holder standard: Sheet 7005-72 | | Sheet 7005-59 | |
| | | | |
| PK22s Sheet 7004-47 | W2x4.6d Sheet 7004-94 | W2.1x9.5d Sheet 7004-91 | |
| Holder standard: Sheet 7005-47 | | Sheet 7005-94 | |