Tips & Technology

For Bosch business partners

Current topics for successful workshops No. 01/2010

Electrics /Electronics

BOSCH
Invented for life

Xenon lights

Brief outline of the technology

Gas-discharge light sources are gaining in importance particularly with regard to modern lighting systems.

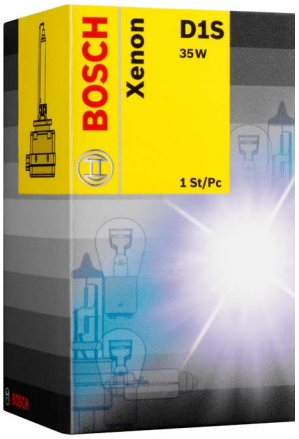
Gas discharge refers to the phenomenon of electric discharge when a current passes through a gas, with rays being emitted in the process.

When the 10…20 kV starting voltage generated in an electronic ballast is applied, the gas between the electrodes starts to conduct and an arc is formed. The controlled input of alternating current causes the metallic substance to vaporize as the temperature increases and light is emitted.

The lamp does not attain full brightness until all the particles have been ionized. To accelerate this process, a higher starting current flows up to this point. As soon as the full light output has been reached, the lamp current is limited and a voltage of just 85 V is sufficient to maintain the arc for operation.

A noble gas lights up the world

You can never have too much light when driving at night. Xenon or bi-xenon headlamps offer a whole range of features of crucial importance to safety and economy. That is why lighting systems of this type from Bosch are fitted as original equipment in any number of medium and top class modern vehicles.



Outstanding benefits of xenon light:

- More than twice the light efficiency of halogen lamps
- Brighter, broader illumination of the road surface
- The light from a xenon source is comparable to daylight, so that night-time driving is less tiring
- Earlier recognition of hazards at the edge of the road and obstacles ahead
- Sharper contrast for better color vision
- Enhanced three-dimensional vision in poor weather conditions
- Reduced energy consumption
- Long service life as there is no vaporization of solid metal and the lamp is therefore not subject to mechanical wear
- The technology is suitable for the design of compact headlamps for shallow-fronted cars

Bosch can supply a wide range of high-quality replacement parts for defective lighting elements.

Good professional advice

There are a few minor but important aspects to be noted when replacing lighting elements:

- Switch off the ignition, as otherwise the xenon control unit will still be supplied with standby current.
- Interrupt the power supply immediately if the glass is broken.
- Make sure the lamp is fully installed before switching on.
- Always hold by the base, never grasp hold of the glass tube.
- Wipe off any fingerprints with pure alcohol.
- Whenever possible, replace lamps in pairs. The "ramp-up curve" changes over the course of the service life. In other words, the light color of a xenon lamp changes during its operating time. On replacing a defective lamp, there may be a noticeable difference in light color between the new lamp and the intact one. If this is unacceptable to customers, there is no alternative but to replace both lamps (including the intact one).
- Always take care to re-fasten the headlamp caps afterwards, as otherwise moisture and dirt could ingress into the headlamp.
- If applicable, read out the fault memory of the central control unit and erase the old fault message.
- Never attempt to replace D1 with D3 or D2 with D4.
- Always heed the instructions provided and the car owner's manual.