

# HIGH INTENSITY DISCHARGE HEADLAMP SYSTEMS

## About MVLC

The Motor Vehicle Lighting Council is the industry's first coordinated effort to inform the public about the proper use and benefits of new lighting technologies such as HID (High Intensity Discharge), AFS (Advanced Forward Lighting System) and L.E.D (Light Emitting Diode).

## HID Technology

Unlike halogen incandescent light sources, the HID light source does not have a filament.



Instead, it creates light from an electrical discharge between two electrodes in a micro-environment of xenon gas, mercury, and metal halide salts that are hermetically sealed in a tiny quartz capsule. The arc tube is encased in a glass jacket to filter ultraviolet rays. The light is emitted by an electrically energized gas -- a plasma discharge -- formed and sustained between two electrodes.

## HID System Components



Two lamp types are offered: D1 lamps with an integrated igniter, and D2 lamps with a plain plastic base. In each series, there is an S-type for projector optics and an R-type with a supplemental black stripe for reflector optic systems.

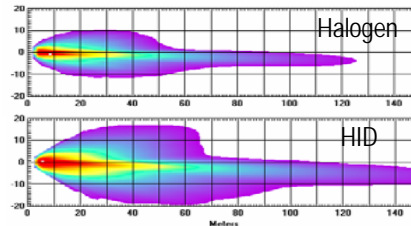


The HID system includes an electronic ballast that controls the arc ignition process and sustains the arc in normal operation. The ballast is designed to accept input voltages from 9-16VDC and condition this to a steady state 35W continuous power during operation based on the light source operating voltage of 85V.

## System Features / Benefits

### Increased Light Output

At least 70% more light than standard halogen headlight sources.



This additional light output is most often used to make wider beam patterns with more even light distribution.

### Illumination

Blue-white HID light is closer to natural daylight than halogen. Color temperature is 4200° K compared to 3200°K for halogen.



### Lower Wattage

Less power draw for more light. XENARC™ produces 3200 lumens (D1S) from 42 system watts, compared to 1000 lumens for a 55w 9006 halogen light source.

### Light Source Life

Very long product life

$B_3 = 1500 \text{ hours} / T_c = 3000 \text{ hours}$

### Durability

Lack of coil in light source provides increased durability and resistance to shock and vibration.

### Component Replacement

Light source, ballast, and cable can be replaced separately.

## HID Market Acceptance

HID has been accepted as the technology of choice for high performance forward lighting systems. It is now commonly found on luxury and high performance models around the world. More than 15% of the new vehicles sold in Europe and Japan are sold with HID lighting. In North America, the HID new car application rate is 6%, and nearly 1 million vehicles will be sold with HID in 2003.

HID is still concentrated in the luxury segments in North America, as illustrated below. By 2007, however, it is expected that HID will have started to show up in segments outside the luxury market.



[www.mvlc.info](http://www.mvlc.info)

# FAQS ABOUT HIGH INTENSITY DISCHARGE HEADLAMP SYSTEMS

## Does HID produce more glare?

HID does not produce more glare than a halogen system. Federal requirements, which limit the amount of headlamp glare, are identical for HID & halogen headlamp systems. The AAA study on glare (see [www.mvlic.info](http://www.mvlic.info)) clearly outlines root causes for glare.

## Are All blue headlamps HID systems?

There are blue coated (halogen) bulbs available which try to mimic HID color/appearance Click here to read the difference between HID and blue coated bulbs.

The blue color of HID is not due to a bulb coating. The bluish color is a result of the [high voltage arc and discharge of internal gases](#).

## How do I know my HID System is legal?

The outer lens of a headlamp is required to be marked with the light source used. If your car is equipped with an HID system, the markings "D1S", "D1R", "D2S" or "D2R" (depending on type of lamp design), should be displayed on the lens. The letters "DOT" should also appear on the lens to indicate compliance to the U.S. Department of Transportation regulations. If the product is labeled with the disclaimer "for off-road use only", it is not legal for highway use.

## How is HID different from HID look-alike bulbs?

It is somewhat difficult for an on-coming driver to determine if a vehicle is equipped with an HID system or halogen bulbs that are designed to mimic the appearance of HID. This is due to the fact that current versions of HID look-alike halogen bulbs closely parallel the color temperature of HID systems. However, a vehicle equipped with an HID system can usually be differentiated from an HID look-alike halogen system by the significant increase in foreground and side lighting resulting in better roadway illumination for the driver.

## How do I know my vehicle is equipped with an HID system?

HID headlamps are easily recognizable because of their brilliant bluish white appearance versus a more yellowish appearance of standard halogen systems. Headlights equipped with HID put more light on the road than standard halogen systems.

HID systems "flash" blue and change color during the first few seconds of startup.

## Why is HID blue?

HID is blue because of light energy distribution produced by gases inside of the bulb. The radiation output of HID bulb has a line spectrum with some of the peaks in the visible blue region.

## Can I replace my halogen bulb with an HID bulb?

A full HID lighting system consists of the following components:

- HID Light source
- Ballast
- Igniter
- Reflector
- Lens

All of these components are designed together to work as a system and meet Federal regulations. Simply substituting a HID bulb for any other light source does not provide a legal headlamp beam pattern.

## Can I upgrade my Halogen System to a HID system?

Certain vehicles are designed with an optional HID system. Visit [www.mvlic.info](http://www.mvlic.info) to see the vehicles equipped with an OEM HID system. There are some aftermarket HID lighting systems made by reputable lighting companies that meet all legal requirements required by Federal regulations. These lighting companies are often the suppliers to the OEM vehicle manufacturers as well.

**For more details on HID technology, please visit our website @ [www.mvlic.info](http://www.mvlic.info)**