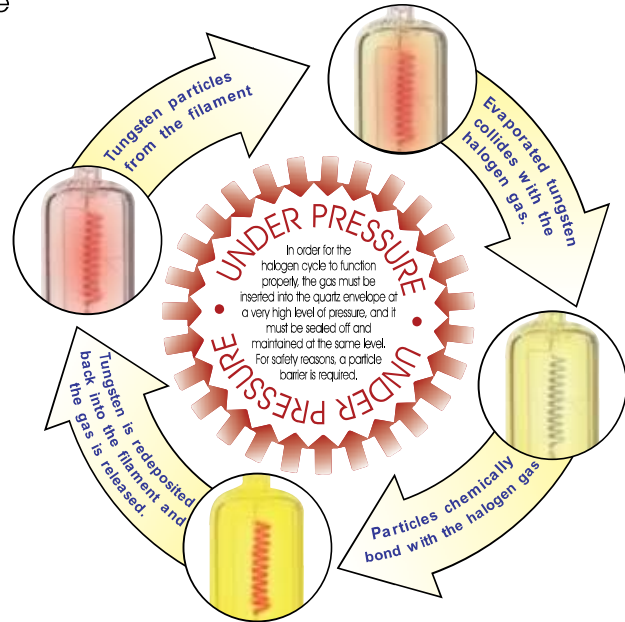


Halogen Basics

Halogen light bulbs operate on the same principle as standard incandescents heating the tungsten filament until it glows but from there, halogens improve upon the process.

HOW IT WORKS

Operation of halogen lamps is based on the "Halogen Cycle" (see right), Tungsten particles from the bulb's filament evaporate. The evaporated tungsten collides with the halogen gas. The particles chemically bond with the halogen gas. Tungsten is then redeposited back to the filament and the gas is re-released.

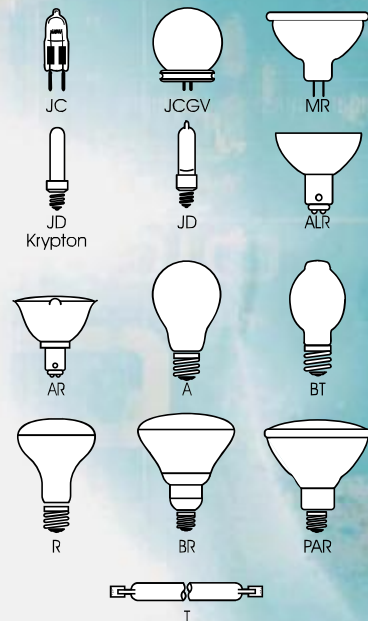


The operating temperature is a significant factor to ensure that the halogen cycle performs properly. The interior wall of the bulb must be above 250° C and less than 1,100° C. Additionally, the filament of the lamp must reach at least 2,000° C. To reach this temperature, the interior wall must be in close proximity to the tungsten filament.

Base Types



Bulb shapes



Big Benefits

Halogen lamps offer a combination of benefits that make them an appealing alternative to standard incandescents in many applications.

Brilliant, White Light:

Halogen lamps deliver a crisp, white light. Not only is the quantity of the light greater than a standard incandescent of comparable wattage, but the quality of the light creates a higher contrast for reading and other tasks. This also makes halogen perfect for display, accent and general lighting.

Color Temperature & Rendering:

Since halogens are incandescent lamps, their CRI of 100 will render colors accurately and will match the color temperature of other light sources in the 3000K range.

Long Life:

Standard incandescent lamps and halogen lamps both use tungsten filaments. However, the filament in the standard lamp evaporates over time, causing it to weaken and eventually break. The gasses inside halogen lamps allow the evaporated tungsten to find its way back to the filament and redeposit, ensuring a long life of 2,000 hours or more.

Lumen Maintenance:

Compared to standard incandescent lamps, halogens offer superior lumen performance throughout the life of the lamp.

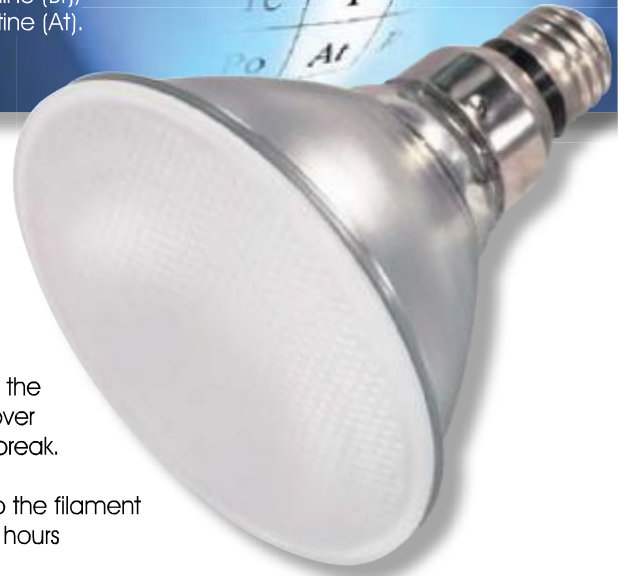
What Is a Halogen?

Halogens are five non-metallic elements found in Group 7 of the periodic table. The term "halogen" means "salt former" and compounds containing halogens are called "salts."

The halogens are: Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) and Astatine (At).



GA	7A	H
O	F	Ne
S	Cl	Ar
Se	Br	Kr
Te	I	X
Po	At	



HANDS OFF!

While conventional incandescent lamps can be handled with bare hands, halogen bulbs should not. Since the quartz envelope, or bulb, of the lamp reaches high temperatures, the oils and salts from skin will deteriorate and weaken the bulb.

If your hands should come in contact with the bulb, use a small amount of rubbing alcohol and a soft cloth to clean the lamp. Allow time for the bulb to dry before using.

DIMMING DYNAMICS

Halogen lamps can be dimmed using a conventional incandescent dimmer. However, using a dimmer actually has an adverse effect on the lamps.

Standard incandescents benefit from being used with a dimmer due to the reduced voltage being applied to the filament. Halogen lamp filaments need to be operated at higher temperatures (250 degrees Celsius or higher) for the lamp to function properly. When a halogen lamp is used on a dimmer, the filament will not reach this temperature and the halogen cycle will not work.



Halogen lamps that are dimmed to low levels for extended periods of time will begin to blacken on the inside wall of the bulb. This will reduce light output and life. It is possible to restore the bulb to a certain degree of its original state by running the lamp non-dimmed every so often. This allows the halogen cycle to clean the inside of the bulb.