A BRIEF HISTORY OF LIGHT UNDERSTANDING TRADITIONAL LIGHT SOURCES AND HOW THEY OPERATE Dave Inman **Director of Specifications** Lighting Unlimited Scottsdale, Arizona



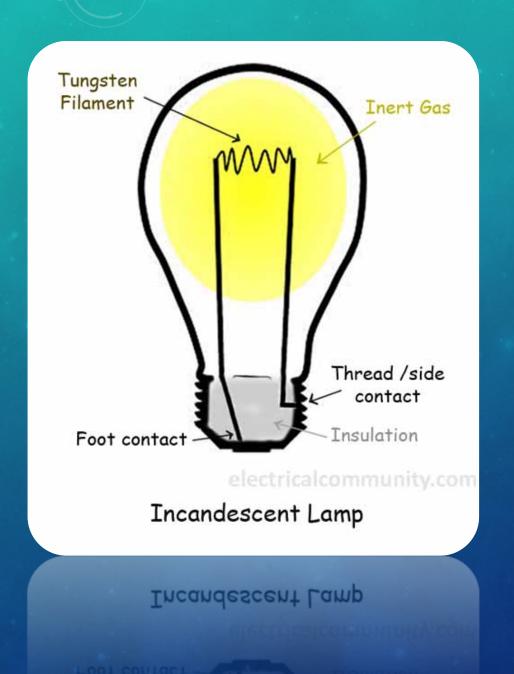


FILAMENT LAMPS





HOW IT WORKS



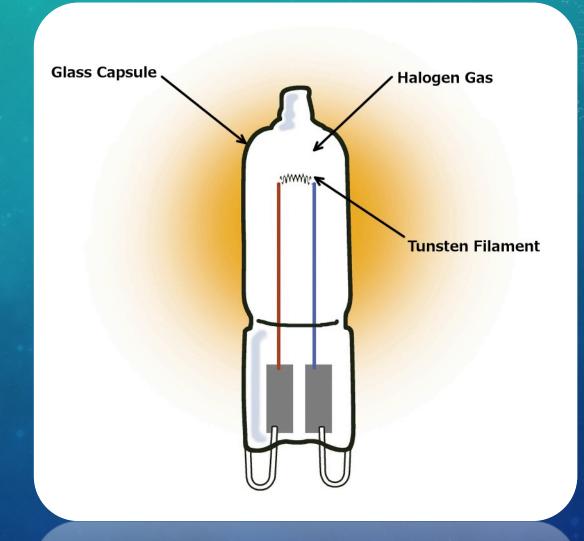


HALOGEN LAMPS

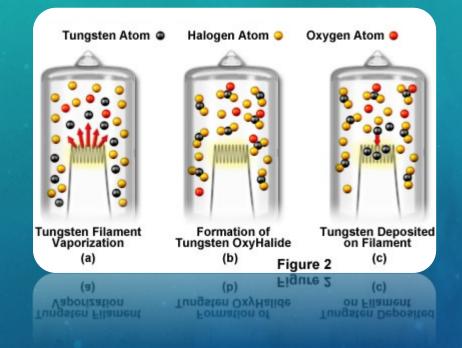


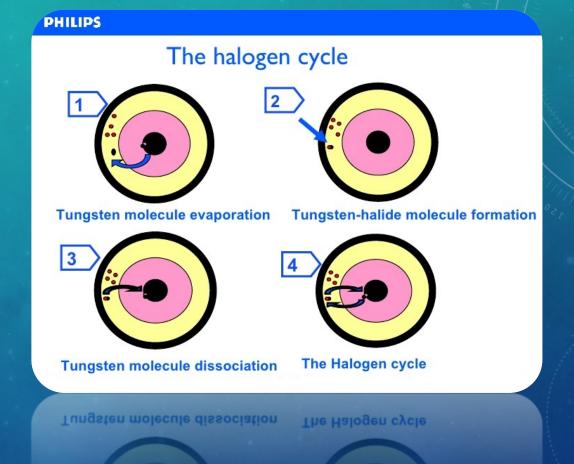


THE HALOGEN CYCLE



HOW IT WORKS







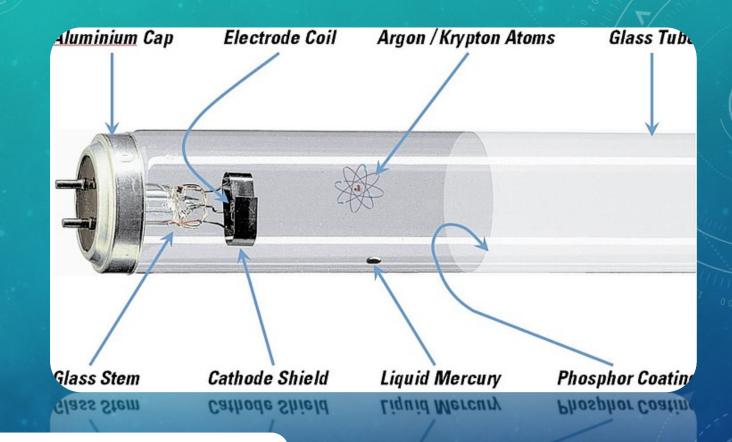
FLUORESCENT



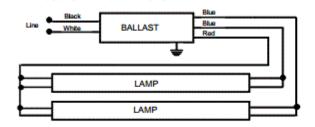


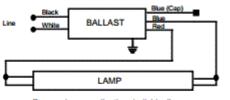


WHAT'S INSIDE?



Manufactured in North America





For one lamp application, individually cap blue leads, insulate to 600 volts

Ballast must be grounded in accordance with national and local electrical codes.





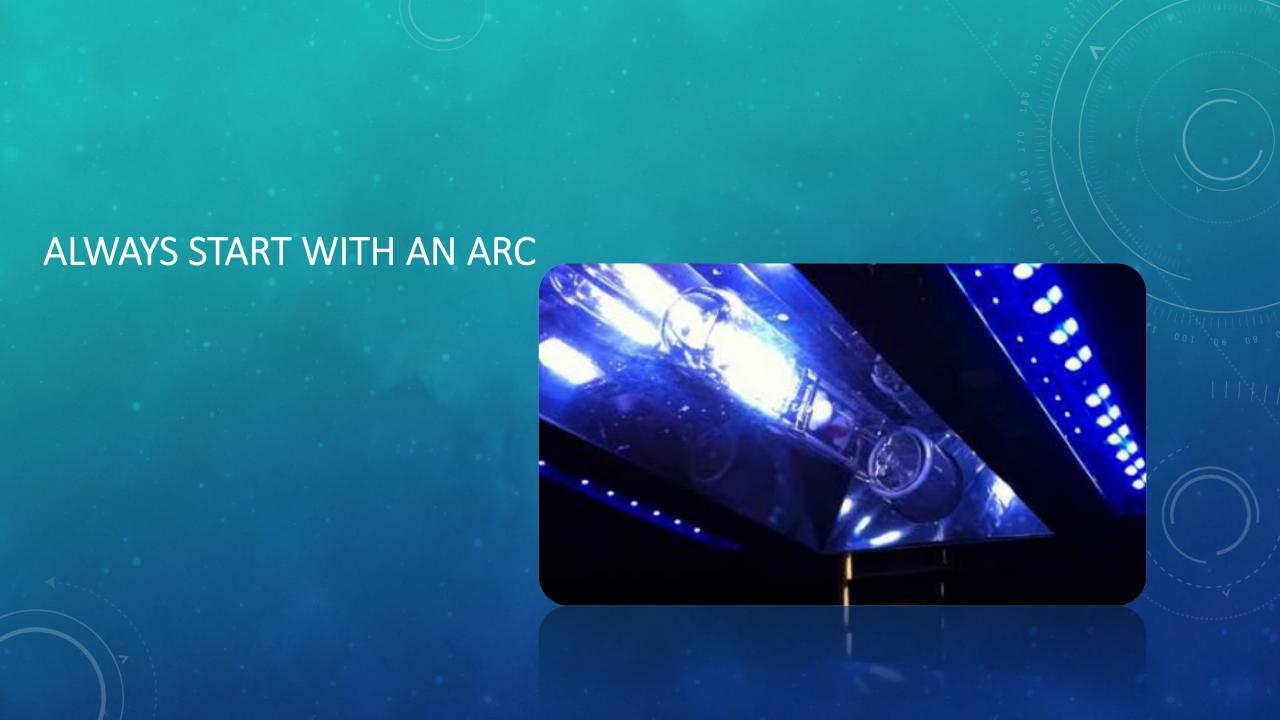






HIGH INTENSITY DISCHARGE LAMP





HOW IT WORKS

rc Tube contains a gas which is initially non-conducting Gas breaks down and becomes conductive on applying voltage. An electric current to flow in the conductive gas. The flow of electric current makes the electrodes hot and an arc strikes between the main electrodes.

mercury, sodium or metal halides enter the main arc and radiate an intense light

At full running temperature

arc tube components of

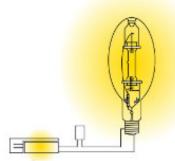
At switch off, pressure and temperature are still high and prevent starting under normal conditions. Lamps can take upto 15 minutes before restarting

Mercury in the arc tube evaporates and controls lamp voltage.



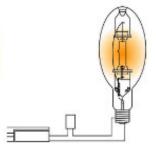
Ignition

Ignitor starts the lamp



Warm up/Operation

 Dose takes time to become involved in discharge



Switch off

 Lamp needs time to cool down before starting again

Light comes from a discharge between electrodes.



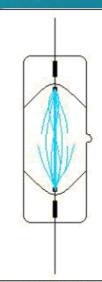
Ighitor starts the lamp

involved in discharge

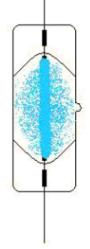
Dose takes time to become

down before starting again

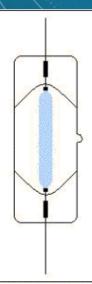
Switch off



This is when power is first applied to the lamp. The ignitor provides a starting voltage around 4000volts to start the arc between the main electrodes.



* Now the arc is starting to stabilize and mercury and metals are starting to vaporize. The ballast can now operate the bulb without the aid of the ignitor.

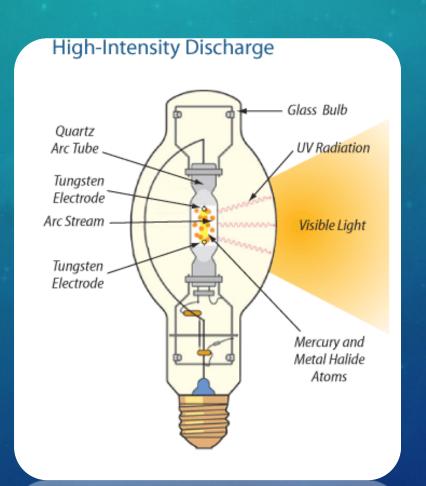


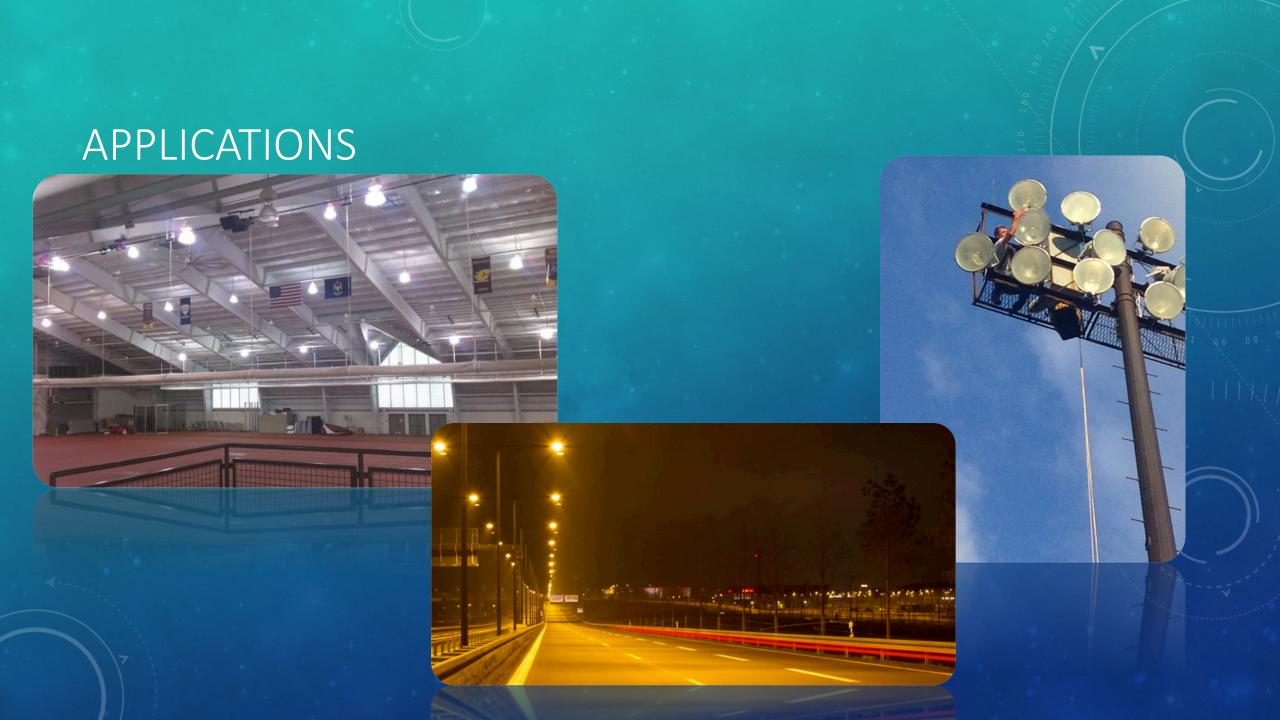
Now the arc has reached proper operating temperature and has stabilized.

ignitor provides a starting voltage around 4000volts to start the arc between the main electrodes. metals are starting to vaporiz The ballast can now operate the bulb without the aid of the ignitor.

and has stabilized.

A CLOSER LOOK





GOOD BYE LIGHT BULB WE'LL MISS YOU

