

PROPER USE OF METAL HALIDE LAMPS

It is imperative that users adhere to specified luminaire and lamp operating positions and requirements. The operation of lamps in positions other than those specified can result in severe reductions in lamp performance, including lamp life, light output and color. Incorrect operating positions can also create the possibility of an early failure.

Refer to each lamp's technical data specification sheet to determine correct operating position and luminaire requirements. Also, refer to the diagram in this section to determine allowable operating positions.

Correct Operation and Warnings For High Intensity Discharge Lamps:

High intensity discharge (HID) lamps require auxiliary equipment (ballasts, capacitors, ignitors or power supplies) to provide the correct electrical values for starting and operating. This auxiliary equipment must meet all electrical specifications outlined by the American National Standards Institute (ANSI). Precision Lighting™ will not be responsible for poor performance, personal injury, property damage, burns or fire from lamps operating on unapproved auxiliary equipment or from lamps being operated in a manner inconsistent with their design.

Power should always be turned off and preferably locked out in accordance with OSHA guidelines whenever installation, removal or maintenance is performed on lighting systems. Safety glasses and gloves should be used when installing or removing HID lamps. Lamps should be installed firmly into appropriate lamp sockets, without over tightening, to avoid loosening from vibration.

HID lamps and their arc tubes operate at extremely high temperatures and may shatter as a result of misapplication, system failure or other factors. Scratches on the outer bulb, direct contact with water or excessive installation pressure can also cause the lamps to break. Breakage may release extremely hot glass and lamp parts into the surrounding environment and raise the risk of fire, personal injury or property damage. Injury may also be caused by ultraviolet energy from an unjacketed HID lamp. If the outer jacket should break, immediately turn the power off. Do not remove a lamp until it has completely cooled; then replace it with a new

Precision Lighting™ lamp. In areas susceptible to contamination by flying glass, where flammable materials are present or where there is a possibility of personal injury, users should seek additional protective measures by using open fixture (O-rated) lamps and enclosed luminaires.

Federal Compliance - Metal Halide

Precision Lighting™ lamps comply with USA Federal Standard 21 CFR 1040.30 and Canada Standard SOR/80-381.

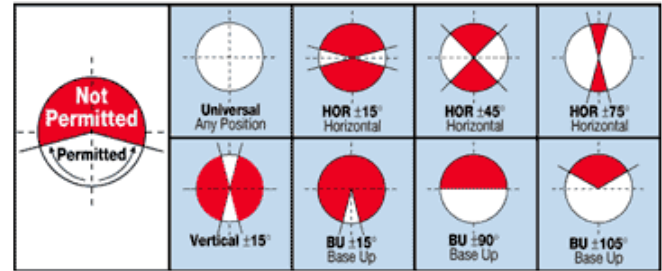
"WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured and the arc tube continues to operate. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available."

Careful adherence to the precautions mentioned above may not eliminate all possible risks associated with the use of metal halide lamps, but will reduce the likelihood of personal injury or property damage.

End-of-Life and Reduction of Risk

At end-of-life, the vast majority of metal halide lamps will fail simply by not reigniting. On rare occasions, metal halide lamps may fail in a violent manner. The possibility of this failure is significantly reduced by group relamping at or before the rated end of life. In any application where lamps are operated continuously (24 hrs/day, seven days/week), the lamps should always be turned off for a period of at least 15 minutes once a

Positions of Operation



week, a precaution that can reduce the possibility of violent failures. This procedure is not required when Precision Lighting's open rated, shrouded lamps are used. These lamps are easily identified by the "MP" or "MPI" in the order code.

Starting and Restarting Characteristics

Probe start metal halide lamps will start at an ambient temperature of -30°C (-22°F) or higher. Full light output does not occur immediately when power is applied to any metal halide lamp; there is a time delay of at least two to four minutes after starting before lamps reach full light output. After lamps have started, a power interruption of 1/4 cycle (1/240th of a second) or more may cause the lamps to extinguish. Several minutes are required before an arc can be re-established by the ballast and full light output achieved. The exact time is dependent on a number of factors including lamp wattage, ballast and ignitor characteristics, ambient temperature, fixture dimensions and supply voltage. The time needed to establish full light output can be as short as three minutes and as long as 15 to 20 minutes. In general, pulse start technology dramatically decreases the time for hot restart. Precision Lighting's exclusive Uni-Form pulse start formed body arc tube provides warm-up and hot restrike in up to 60% less time and allows better starting, even down to -40°C (-40°F).