

Selecting & handling a ballast resistor

For use with Helium Neon gas lasers

What is a ballast resistor?

A ballast resistor is a mechanism placed in series with a HeNe gas laser anode. The unit works to promote a stable electrical discharge and to prevent the laser from oscillating. The rating of the ballast resistor must be high enough to stop the oscillation, yet low enough to prevent unnecessary heat generation and avoid wasted electrical power.

Choosing/handling a ballast resistor

A 5W ballast resistor is typically the most reliable choice, although a lower Wattage resistor may be appropriate for smaller lasers running at less current. Because selecting a ballast resistor with the appropriate voltage and power rating is crucial, please consult one of our sales engineers if you have any questions.

Due to the high temperatures and voltage pulses that a ballast resistor must endure, wire wound resistors are the most reliable. To protect your ballast resistor and keep your HeNe system in working order, we recommend derating the resistor wattage by 50% or more, as well as insulating the ballast properly when connecting it to the laser tube.

Always place your ballast at the anode end. Most tube manufacturers recommend mounting the ballast less than three inches from the anode to help reduce stray capacitance between the anode and cathode. Stray capacitance may cause the system to begin oscillating.

