

Cutting AR500

Ground Zero Ballistics uses CNC Laser cutting in addition to our Water Jet, in the manufacturing process of our AR500 steel targets. Why, you might ask. Here is a quick explanation.

AR500 steel is an abrasion resistant steel often used in mining, material handling and other high wear applications. Due to its material properties AR500 steel also makes great rifle grade targets. The steel is actually quite different than the usual Cold Rolled and Hot Rolled varieties you may find at the hardware store. AR500 steel is specifically alloyed to yield the properties that make it so useful. In addition each sheet goes through a heat treatment process to bring the hardness up to 500BHN. Hot and Cold rolled steels are shipped as-rolled and are NOT heat treated.

When steel is cut heat is generated. Heat is the enemy of hardness. You are essentially annealing the edges of the plate when heated under cutting temperatures, this area is called the heat affected zone (HAZ). The less heat that is induced into the part the smaller the HAZ. Laser cutting uses a highly focused beam of energy to cut through the steel. This introduces very little heat into the part, creating a very small HAZ.

Laser cutting also has low setup costs, often making it more economical than waterjet cutting. Waterjet cutting is an acceptable method for cutting AR500 grade steel. The heat generated in waterjet cutting is minimal due to the large amounts of water flowing over the material.

You may also see other companies using water submerged plasma. This is an economical form of cutting designed for metals such as abrasion resistant steels. Water submerged plasma does generate a HAZ that is greater than any of the previously mentioned methods.

The cheapest and one of the worst ways to cut AR500 grade steel is Plasma. Plasma cutting generates large amounts of heat that is deposited into the target, softening its edges. The HAZ generated by plasma cutting is the largest out of the most commonly used methods for cutting abrasion resistant steel. You might ask why any shop would use Plasma cutting on AR500 grade steel. The #1 reason: COST Plasma cutters are cheap and relatively compact compared to other methods. CNC plasma cutters can be purchased for just a few thousand dollars.

Keep this in mind when shopping for AR500 steel targets. We cut our targets with the most favorable methods for a reason – to provide you with the finest steel targets available. Beware of companies that are plasma cutting targets, you are not getting the same quality.