

# LASER CUTTING MACHINE PROCESSING EDGE BURNING SOLUTION

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## REDSAIL X1390C LASER ENGRAVING /CUTTING MACHINE

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Burning edge and slag problem caused by [laser cutting](#) and processing of sheet metal parts. Laser cutting and processing of sheet metal parts will generate a lot of heat. Under normal circumstances, the heat generated by cutting will diffuse along the kerf into the processed sheet metal to be fully cooled. cool down.

During the processing of small holes by metal laser cutting machines, the outer side of the hole can be fully cooled, but the small hole part inside the single hole has a small space for heat to diffuse, and the heat energy is too concentrated to cause overburning and slag formation. In addition, in thick plate cutting, the molten metal accumulated on the surface of the material and the accumulation of heat generated during perforation will disturb the auxiliary air flow and cause excessive heat input, which will cause overburning.

The solution to overburning during laser cutting carbon steel small hole cutting: In the carbon steel cutting with oxygen as the auxiliary gas, the key to solving the problem lies in how to suppress the generation of oxidation reaction heat. It can be used to assist oxygen during perforation, and then switch to auxiliary air or nitrogen to cut after a delay. This method can process small holes in 1/6 thick plates.

The pulse cutting condition of low frequency and high peak output power has the characteristics of reducing heat output, which is helpful for the optimization of cutting conditions. Setting the conditions as a single pulsed laser beam, high peak output with high energy intensity, and low frequency conditions can effectively reduce the accumulation of molten metal on the surface of the material during the perforation process and effectively suppress heat output.

The solution in laser cutting aluminum alloy and stainless steel cutting: In the processing of such materials, the auxiliary gas used is nitrogen, and edge burning will not occur during cutting. However, due to the high temperature of the material inside the small hole, the inside Hanging slag phenomenon will be more frequent.

The effective solution is to increase the pressure of the auxiliary gas, and set the conditions to high peak output and low frequency pulse conditions. When using air as the auxiliary gas, it is the same as when using nitrogen, and overburning will not occur, but it is easy to appear dross at the bottom. The conditions need to be set to high auxiliary gas pressure, high peak output, and low frequency pulse conditions.