

# WHAT IS THE CAUSE OF DUST IN NON-METAL LASER CUTTING? HOW TO SOLVE

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Relying on high efficiency, flexibility, high production capacity, and in modern industry, laser cutting has the advantages of fast cutting speed. In particular, laser cutting of non-metallic materials plays an important role in traditional manufacturing, and many non-metallic plastic products, laser cutting plays an irreplaceable role in the processing of multi-layer composite materials.

We all know that the principle of laser cutting is to irradiate the cutting material with a laser beam of corresponding power density, so that the cutting point of the material is immediately heated to the evaporation temperature, and then evaporates to form a processing gap to achieve the purpose of processing. During this process, extremely complex physical and chemical changes have taken place in the deep layer or surface material of the workpiece. Simply speaking, physical changes are the evaporation of dust and particles; chemical changes will produce odor, stickiness, and specific processing materials themselves, depending on the specific processing materials themselves.

#### Cause analysis of dust generated by non-metallic laser cutting.

1. The dust generated by laser cutting of non-metallic materials is a physical change. In the process of processing, professional laser dedusting devices can be used for dedusting, such as the standard configuration of needle felt composite membrane filter bags and membrane filters, which can basically filter and purify more than 90% of dust;
2. Odor and stickiness caused by laser cutting of non-metallic materials. Because oily substances and sticky substances are easy to block the filter, oily substances belong to the category of dust that is difficult to handle. Activated carbon adsorption and purification is the traditional method of melting odor treatment to achieve the purification effect;
3. Non-metal laser cutting dust has a physical and chemical mixture, that is, the dust contains odor and viscosity particles. The purification equipment needs to have dust purification ability and odor purification ability. It is necessary to estimate and judge the nature of the dust in advance and configure the correct purification device.

#### Design and functional requirements of laser cutting non-metallic dust treatment purifiers.

1. For the laser cutting dust treatment of non-metallic materials, the dust purification equipment first has an efficient filtering function, strong oil resistance and anti-sticking property;

2. For the treatment of odorous dust, laser dust removal equipment must have effective treatment of activated carbon dust;
3. Considering that the dust after laser cutting may also be complicated due to factors such as different materials, density, temperature, and space characteristics, it is required to reserve a process backup design for additional accessories when installing dust removal equipment.