

APPLICATION OF LOW POWER (LESS THAN 200 WATTS) CO2 LASER CUTTING MACHINE

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The early imported and manufactured CO2 laser machines were all low-power lasers with a power output of less than 200 watts. Mainly used in the electronic industry (such as resistance manufacturing, IC marking), non-metallic processing industry (such as bamboo and wood carving, clothing, shoe making, jewelry manufacturing, etc.), and some medical and research institutions. Passing a CO2 laser beam through a mask and focusing it on an IC or semiconductor component as a marker, this type of CO2 laser is mainly TEA pulse type. But with the increasing demand for faster processing speed, higher processing quality, and the rapid development of solid-state lasers, the recently introduced laser for logo processing has gradually been replaced by solid-state YAG lasers. Cover the non-metallic material to be carved with a hollow copper mold, and then use a CO2 laser beam to quickly scan the copper mold to carve complex patterns on the material. The carving objects are wood, acrylic, leather, and paper, and can also be applied to unique handicrafts such as bamboo carving, cork relief, shell relief, etc. In recent years, we have transitioned to using sealed CO2 lasers, directly using scanning galvanometers for small and varied gift carving, in order to increase the added value of our products.



CO2 laser cutting machine

The clothing and footwear industry has led the trend for more than a decade, and is also a successful example of introducing low-power CO2 laser processing from abroad or using domestically produced low-power CO2 laser processing earlier. It mainly uses a 50 watt laser to cut clothing marker plates and shoe templates, which are only used for development or a small amount of diverse production, so the quantity is limited. There are also a few CO2 lasers with a power output of around 150 watts that are directly used for the production of leather clothing, leather goods, and other products. In addition, the computer embroidery industry uses laser and CCD sampling to directly cut off numerous patterns embroidered on a large sheet. However, with the relocation and contraction of the two industries, the application of CO2 lasers in this area has not increased. The use of low-power CO2 lasers to cut thin bark for decoration on furniture or accessories continues to grow, mainly in combination with styling design and later production, with high added value.

Due to the rapid development of CO2 lasers abroad, low-power CO2 lasers are of sealed structure, and their quality is getting better and better. Therefore, in addition to the above processing industries, there are many CO2 lasers in other imported application systems, which are used in perforation, printing industry engraving, rapid prototyping, marking on lenses, and processing of ceramic substrates. Their application potential is not small. CO2 lasers with an output of less than 200 watts are more than sufficient for cutting some non-metallic thin materials. In addition to the commonly used ones mentioned above, there are still many special materials in the industry that

can be considered to be replaced by laser processing, such as acrylic model production in the construction industry and hard plate patterns on wedding album covers. Although they are small and complex, they can all be cut using CO2 fabric laser cutting machines. The cutting of mica sheet, the cutting of fiber cloth in bulletproof vest, the cutting of nylon safety belt, and the cutting of other special materials such as FRP, ABS, Teflon, asbestos and rubber have all been precedents of laser processing in foreign countries, but it is necessary to pay special attention to the emission of gas generated during cutting.