

APPLICATION OF MEDIUM TO HIGH POWER (200-1600W) CO2 LASER CUTTING MACHINE

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Application of medium to high power (200-1600W) CO₂ laser cutting machine



CO₂ laser cutting machine

Medium to high power lasers, due to their relatively low cost, are currently the mainstream of CO₂ laser processing equipment, mainly used for sheet metal processing. There are also a few machines used by factories for their own production. At present, nearly one-third of such laser machines are newly developed, indicating that CO₂ lasers of this power are in a rapid growth stage. The medium and high power CO₂ laser equipment has a wide range of applications, the most important of which is for sheet metal cutting. There are many types of processing, and the following are some examples that have many or special applications.

2.1 Wooden knife mold industry

CO₂ laser is used to cut various complex and repetitive grooves with a width of about 0.6mm on wooden boards, and then sharp blades are installed to make rolling cutters. This is an important part of the production process of cutting all packaging paper boxes, plastic injection molding, Polylon appliances, and soft circuit boards, with promising application prospects.

2.2 Cutting of various machine components

The various components of a machine, with a certain thickness or complex shape, can actually be replaced by traditional processing methods with laser processing. Although the processing cost may be higher (some may not be certain), it can save a lot of manpower and improve product quality.

2.3 Sheet Metal Cutting of Computer and Electrical Enclosures

The sheet metal cutting of computer casings, as well as the sheet metal cutting of various machine control boxes and casings, are the main processing objects. Especially for some products with limited production, complex shapes, short product life cycles, and uneconomical sheet metal cutting, such as electric toy casings, vending machine casings, distribution boards, etc. Some have already been molded, but after changing the design of the product, modifications must be made to the formed sheet metal.

2.4 Automotive Sheet Metal Cutting

The automotive sheet metal formed by mold rolling is in a three-dimensional shape, which is generally difficult to reprocess. If a five axis CO₂ laser processing machine is used for edge cutting and internal hole excavation, the advantages of laser processing can be fully demonstrated. At present, there are several factories specializing in producing sheet metal for automotive repair in China, and imported five axis CO₂ laser processing machines are engaged in this field of processing. But this type of machine is still in the high price stage, and if prices can be lowered in the future, many domestic manufacturers will introduce this type of processing machine.

2.5 Special material cutting

Due to the non-contact cutting capability of lasers, which have narrow cutting seams and do not affect peripheral materials, they are widely used in advertising and construction industries for the cutting and processing of mirror stainless steel or general stainless steel plates that require extremely smooth surface of workpieces, such as signs, sculptures, elevator control panels, kitchen utensils, circular saw blades, acrylic, spring washers, copper plates for electronic components below 2mm, some metal mesh plates, steel pipes, tinned iron plates, etc Lead plated steel plate, phosphor bronze, electric board, thin aluminum alloy, quartz glass, silicone rubber, aluminum oxide ceramic chips less than 1mm, titanium alloy used in space industry, etc. With the evolution of industrial form, the objects of sheet metal processing are becoming increasingly complex and diverse. Traditional punching machines can no longer meet the requirements, and the wire cutting speed is too slow. The processing function of CO₂ laser just makes up for their shortcomings. This is also the main reason for the continuous and rapid increase in the introduction speed of CO₂ laser processing machines in recent years.