HOW ARE LASER CUTTING MACHINES CLASSIFIED ACCORDING TO THEIR STRUCTURE?

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Usually we classify laser cutting machines according to the type of laser. So if according to the structure of the laser cutting machine itself, how can it be classified?

According to the relative movement of the cutting head and the worktable, the CNC laser cutting machine can be divided into three types: the beam fixed form is the fixed optical path, the beam moving form is the flying optical path, and the semi-fixed and semi-moving mixed form of the hybrid optical path. In addition, there is a fixed optical path flying beam transmission form with hinged movable arms, which is called constant flying optical path, or constant optical path for short.

For the cutting machine with flying optical path, only the cutting head moves along the X and Y directions during the cutting process, and the position of the worktable is fixed. The plates processed by this type of cutting machine are large in scale and high in quality; the equipment occupies a small area, the workpiece does not need to be clamped, and it is convenient to load and unload the material; the machine has good acceleration performance and high positioning accuracy. Therefore, it is highly praised by the market and is called the mainstream model in the international market.

Several typical structures common to modern laser cutting machines mainly include gantry frame mobile flying light path structure, beam moving flying light path, beam upside down mobile flying light path, cantilever mobile flying light path structure, fixed beam gantry type semi-flying light path, Fixed optical path with mobile cross table, constant optical path with gantry type and cantilever type, robotic structure and large-format airborne hybrid optical path, laser flexible processing system, etc.

As far as the structure of the cutting equipment is concerned, the materials for the large parts of the bed include casting structures, welded structures, and marble structures. The beams are made of aluminum alloy castings or welded parts and their profiles. Other components include engineering plastics, glass steel and Application of materials such as stainless steel, etc.

The lasers configured by the equipment should be selected according to the user's processing performance, processing materials, shape, size, etc. The available lasers are co2 axis fast flow lasers, radio frequency board debugging lasers, swirl lasers, solid state lasers, etc. lasers and fiber lasers, etc.

From the drive mode of the equipment, there are X and Y axes that use unilateral servo motors to

configure corresponding reducers, and use high-precision rack and pinion drive structures; High-precision rack and pinion drive structure, with dual gears to eliminate backlash; servo motors are equipped with high-precision ball screws for direct drive, and disc-type large inertia motors are used for direct gear and rack drive; linear motors are also used Direct drive structure.

The guide rails usually configured by CNC laser cutting machines are mainly high-precision linear guide rails, and are equipped with automatic lubrication devices. The single-sided linear guide rail as the main guide rail with roller structure is a typical structure with good cost performance, economical application, and convenient adjustment; It is more convenient and the accuracy is easy to guarantee, but the cost is a little higher.