

WHY SHOULD THE LASER CUTTING MACHINE BE EQUIPPED WITH AUTOMATIC FOCUSING FUNCTION

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Initially, in the application of laser cutting, focusing mainly relied on manual. However, with the continuous development of laser technology, manual focusing will eventually be eliminated and replaced by automatic focusing. For example, [high-power laser cutting machines](#) have efficient and fully automatic focusing functions. However, some people will say that the optical path is all integrated in the cutting head, can't we simply change the height of the cutting head? When the cutting head goes up, the focus position is high, and when the cutting head goes down, the focus position is low. However, it turns out that this is not as simple as everyone imagined.

There is a nozzle at the bottom of the cutting head. During the cutting process, the distance between the nozzle and the workpiece (nozzle height) is about 0.5-1.5 mm, which can be regarded as a fixed value, so it is impossible to adjust the focus by lifting the laser head.

The focal length of the focusing mirror is constant, so it is unrealistic to adjust the focus by changing the focal length.

Changing the position of the focusing mirror will change the focus position accordingly: if the focusing mirror is down, the focus will be down; if the focusing mirror is up, the focus will be up. This is indeed a focusing method, using a motor to drive the focusing mirror to move up and down, which can realize automatic focusing

Another method of automatic focusing is: place a variable-curvature mirror (or adjustable mirror) before the beam enters the focusing mirror, and change the divergence angle and focus position of the reflected beam by changing the curvature of the mirror.

It has an automatic focus function. When processing workpieces of different materials and thicknesses, the machine can automatically and quickly adjust the focus to a suitable position through numerical control. Therefore, the processing efficiency of the laser cutting machine can be significantly improved, and the perforation time of thick plates can also be greatly reduced.

Therefore, the automatic focusing function is an indispensable and important function of laser cutting machine tools.