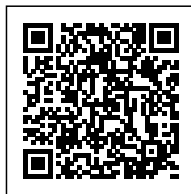


# ADVANTAGES OF THIN METAL LASER CUTTING

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Lasers can cut many types of thin metals, including metal sheets and foils, into complex shapes with high precision. Combining a focused high-energy laser spot with coaxial gas assist enables clean cuts without further processing.

Many industries can use laser cutting thin metal, such as automotive, electrical appliances, electronics, energy, medical equipment manufacturing, etc. Its advantages include:

Non-contact cutting, the laser does not need to sharpen and replace the cutting blade. They also eliminate extra forces on thin metals - preventing warping and other damage.

Precise control. Focused, localized laser energy enables very narrow cuts with small kerf widths: Lasers can also cut fine and intricate patterns into metal sheets and thin foils.

No consumables. Unlike other methods, lasers require no additional consumables. For example, plasma cutting requires a specific mixture of gases to cut metal, while waterjet cutting uses a mixture of water and an abrasive that must be replenished and disposed of properly. On the other hand, gas-assisted laser cutting uses only dry air or standard inert gases.

Laser wavelengths for thin metal cutting applications range from UV to NIR. High-speed fiber lasers (1064nm) can rapidly melt and ablate metals, while diode-pumped solid-state (DPSS) lasers are suitable for applications requiring higher precision.

Additionally, the UV laser enables precise, detailed cuts with minimal kerf width and low heat-affected zone. You can also use a UV laser if your application requires a clean cut edge. Finally, ultrafast femtosecond and picosecond lasers achieve the best cut quality and can be used to cut and coat metals.

The two most common laser cutting methods are:

Gas-Assisted Thin Metal Cutting: Gantry or motion table moves the laser head and metal sheet - in one pass for full cut: depth. Coaxial gas assist further reduces cut:head impact zone and oxidation while preventing backside dross.

Galvo-Controlled Thin Metal Cutting: Using a galvo to steer the beam is another way to laser cut thin

metal. Computer-controlled galvanometers enable high-speed cutting of: patterns, and the same pattern multiple times quickly, reducing thermally induced strain on the part.