

Is laser technology profitable even for small quantities?

Compact stand-alone systems for metal cutting and marking



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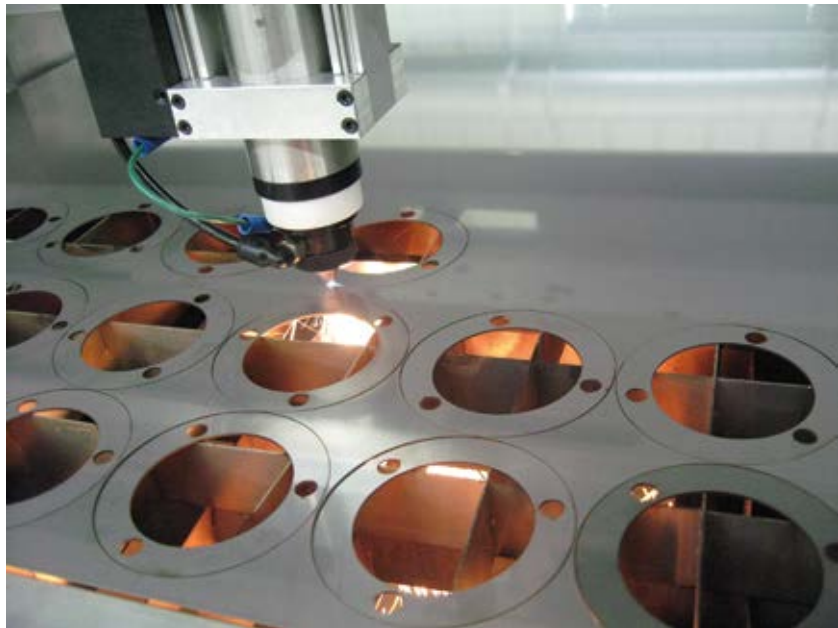
Relying on laser technology for metal cutting or marking has many advantages in practice. The processes work without contact. This protects the processed material and the tool, because a light beam does not wear out. Also, no other processing method is as flexible in terms of shaping. Tools do not have to be changed and the workpieces do not have to be clamped in time-consuming preparation. Until now however, the high purchase prices were an obstacle to using laser technology – especially for cutting – even for smaller quantities or prototype production. But in the meantime, there are also affordable systems suitable for such applications.

Laser systems have become established in series production to cut metal (Fig. 1). The technology scores with high precision and quality as well as speed – even the smallest cuts can be made quickly and easily. The technology is also significantly more efficient than CNC milling: with laser cutting, for example, deburring takes place automatically in the same work step. Even complex shapes or designs are no problem for the laser. No swarf is produced so there is no contamination at the workstation, and the

material around the interface remains undamaged. In addition, handling the workpieces is simple as mechanical devices and time-consuming clamping are not necessary. However, the technology often has a decisive disadvantage: the usual laser cutting systems are often too inflexible for small series or prototype production away from the inline production line. Mass production would have to be stopped for small series or prototypes, which is not justifiable for economic reasons.

Fig. 1 Relying on laser technology for metal cutting, even for smaller quantities or prototype production, has many advantages in practice.

Fig. 2 The stand-alone laser cutter is particularly suitable for the production of prototypes or small batches.



An innovative stand-alone laser cutter

JustLaser has a practical solution in its program especially for applications that need flexible laser systems to cut metal and to be used as stand-alone devices outside of series production: the Just-Cut (Fig. 2) is a compact fiber laser system with a laser power of up to 3 kW for processing thin sheets up to 6 mm thick. It can cut a wide range of metals, such as V2A and V4A stainless steel, steel, aluminum, brass, or copper. With an optional round engraving device, it is also possible to process rounded and cylindrical workpieces such as pipes with diameters of up to 153 mm. The high-power fiber laser offers high operational reliability and beam quality as well as long-term tested reflection protection.

The laser cutter is housed in a compact enclosure, so it consumes little floor space. Thanks to its class 2 safety rating, it does not require a protective room and can be used in high-traffic areas such as busy factory floors. Two convenient sliding doors at either end of the machine provide good accessibility. Sliding access windows are also installed on both sides. The processing area inside is 1320 × 1270 mm. Powerful CNC laser software is available as an option to increase system efficiency and machine throughput, for example, using nesting and NC functions such as common line, ridge and bridge cutting, and lead-in functions. Another option is the k-vision package, a sophisticated hardware and software solution that allows printed material to be cut to a precise fit. This means that today, thanks to the

comparatively low investment, there is nothing to stop laser technology being used for smaller quantities or in prototype production, even away from automated production.

Laser marking: efficient, flexible and fast

Laser technology can also show its advantages in product marking. Permanent markings or engravings for workpiece or product identification are in demand in many sectors today (Fig. 3): in the automotive industry or machine tool manufacturing as well as in medical technology, electronics manufacturing, jewelry, watches or the design of advertising materials. Cross-industry buzzwords in this context are traceability, quality control, branding, individualization or personalization of certain



Fig. 3 Permanent markings or engravings for workpiece or product identification are in demand in many sectors today.

Company

JustLaser

JustLaser GmbH specializes in laser machines that engrave, cut or mark a wide variety of materials such as metals, wood, acrylics, plastics, textiles and many more. The company, located in the Wels area of Upper Austria, employs an experienced team of experts with an average of over ten years of industry experience. JustLaser's precise laser cutters, engravers or markers are simple but effective tools for industrial and commercial companies. In addition to the headquarters in Thalheim near Wels in Upper Austria, there are currently six showrooms and service centers in Germany, a training center in Vienna and branches in Italy and France, plus two cooperation sites in Switzerland.

www.justlaser.com



Fig. 4 Two compact system solutions for laser marking and cutting

products. With the JustMark galvo lasers (Fig. 4), the company has two compact systems in its product range that are suitable for both marking and engraving and can therefore be used very flexibly in commercial or industrial operations. They can be used quickly and easily in a wide variety of production areas and are equally suitable for individual pieces or for small to medium quantities. In comparison to other systems, the purchase is low-risk due to the optimum price/performance ratio. Technically, the compact lasers also have a lot to offer: a special feature in this price class, for example, is the autofocus that always guarantees accurate focus and thus avoids scrap.

Since the Z axis can be controlled, stepped workpieces can also be marked and engraved. The machining area is

large and freely accessible despite the compact system dimensions of 610 × 382 mm or 335 × 239 mm. The beam path is virtually dust-tight, and two air cooling systems controlled by temperature sensors on the laser source and in the housing prevent overheating. In a potentially damaging situation, the laser is switched off in good time before critical temperature buildups occur, which increases the system service life.

In practice, however, marking is usually not enough – files have to be imported for this purpose and completed jobs have to be logged, and the software supplied with the system offers all the prerequisites for this. All common vector and raster formats can be imported, as well as text or Excel files. Serial and batch numbers can be gen-

erated automatically and barcodes in various formats can be created. Processed laser jobs can be logged with a time stamp. The user can then process this data as required and then knows, for example, which serial number was processed at what time.

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