

CO₂ Laser Cutting Systems



Automated Flat Sheet
Laser Cutting Machine

TRUMATIC L 2510

TRUMPF



Laser Cutting Machine with Integrated Automation Meets the Highest Demands

The TRUMATIC L 2510 from TRUMPF combines an integral load & unload device with a high-speed laser cutting machine, resulting in a compact and productive flexible manufacturing cell. This unique machine was engineered as an automated machine from the very start, and represents perfect synchronization of laser resonator, cutting machine and automated material handling.



Concept

Advantages of automation include:

- Unmanned operation
- Increased productivity
- Optimal use of resources
- Safe working environment
- Streamlined logistics

The TRUMATIC L 2510 utilizes its rapid in-line load & unload device for all material handling tasks, eliminating the need for the traditional pallet changer. The result is a more productive, fully automated machine, with a footprint similar to a simple pallet changer machine.

Machine Design

The flying optic design achieves high processing speeds and consistent accuracy independent

Information:



of material weight. Optimal cut consistency is achieved by integral mounting of the laser resonator on the machine frame.

Workflow concept

At the beginning of the production run the suction frame picks up a fresh sheet of material from the loading station and then moves into the work area, where it deposits the sheet on the stationary cutting table. The suction frame

then exits the work enclosure and prepares the next sheet for loading.

Part processing

The laser then processes the nest of parts as programmed. When cutting is completed, the unload device is driven into the work area where the entire nest of cut parts is lifted off the cutting table with unloading forks. Simultaneously, the next sheet of material is loaded.

Higher productivity through automation

The TRUMATIC L 2510 allows you to cut more parts per day. With material changeover times of less than one minute, the L 2510 offers maximum efficiency during manned operation. To further improve throughput, the L 2510's standard automatic load and unload system allows unmanned production.

The Laser: Powerful, Reliable and Economical

TRUMPF's continual investment in research and development has led to the introduction of our newest CO₂ resonator, the TRUMPF TCF 1.

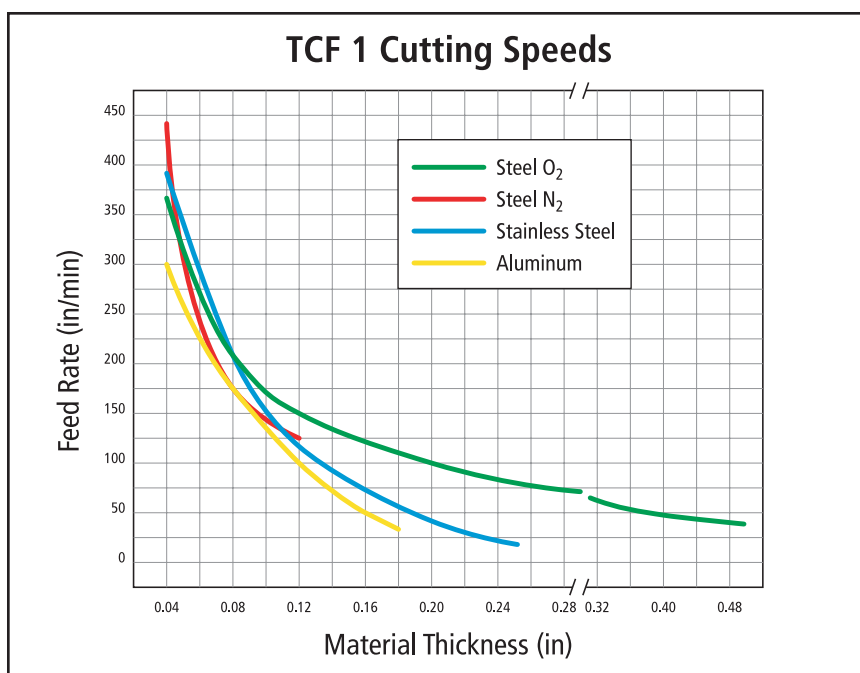
TRUMPF radio frequency excited lasers have proven themselves many times over in tough everyday industrial environments. The TCF 1 resonator combines our proven RF laser technology with innovative new concepts.

Diffusion cooled technology eliminates the need to circulate the lasing gas in order to cool it, resulting in fewer moving parts and a smaller enclosure.

The annular discharge and small laser cavity offer excellent beam quality, and low gas consumption. High beam quality leads to faster processing speeds. The extremely low gas consumption allows the small internal gas bottle to last a minimum of one year.



Powerful Yet Compact: High Beam Quality to Meet Your Needs



Our Know-How: Your Advantage in Laser Processing



Technologies specifically developed for TRUMPF machines guarantee optimal laser processing results:

- SprintLas: Reduces cycle times by optimizing piercing routines.
- Plasma Sensing System: Monitors and regulates the cutting process in stainless steel.
- Clean Cutting: High-pressure cutting provides oxide and burr free cut edges on stainless steel, aluminum alloys and thin carbon steel.
- Common Line Cutting: Optimizes processing time and material usage by defining common cuts.
- Microweld: Attaches parts to the sheet through spot welding.

Laser Processing: By Far the Best

Automatic Height Sensing System

The non-contact automatic height sensing system, APC, regulates the distance of the cutting nozzle and lens, from the workpiece. Optimal cutting results, even in uneven sheets, are a matter of course. APC detects the position of the sheet and transmits the data to the control. Subsequent manual repositioning is not required, resulting in a scratch-free finish.

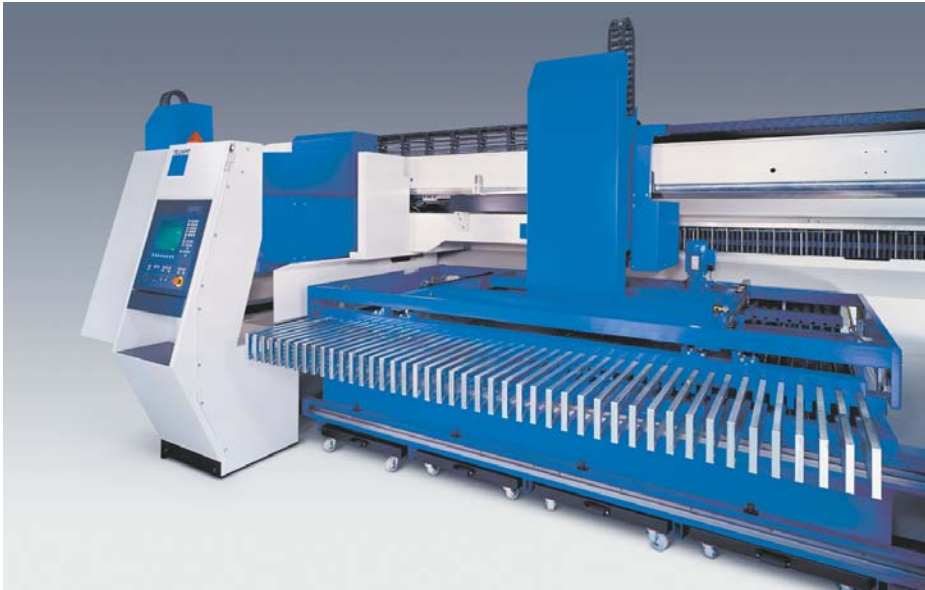
Automatic Focus Adjustment

AutoLas Plus programmable focus system guarantees rapid setup and optimal results in any material type or thickness.



Cutting with Advanced Process Control – APC.

Automation: Fully Integrated and Efficient



Unload device in the work area.

The load and unload devices of the TRUMATIC L 2510 are mounted directly to the machine frame and are tailored to match the cutting capabilities of the TCF 1 laser.

A suction frame is used to transport the sheet from the raw material stack into the cutting area.

The unloader, with a fork frame covering the entire working area, ensures that all parts and scrap skeletons are securely and quickly removed from the cutting area.

Operation: Laser Technology Made Easy

Modern controls ensure simple operation. The TRUMPF developed user interface is based on the well-known Windows environment.

- Status, faults and diagnostic information is given in plain English rather than coded text.
- Integrated online help answers questions immediately.
- Tele-Diagnostics provide the assurance of direct assistance via the standard phone modem.
- Integrated material database simplifies programming and setup.
- Includes ToPs lite, the shop floor edition of the ToPs programming system.



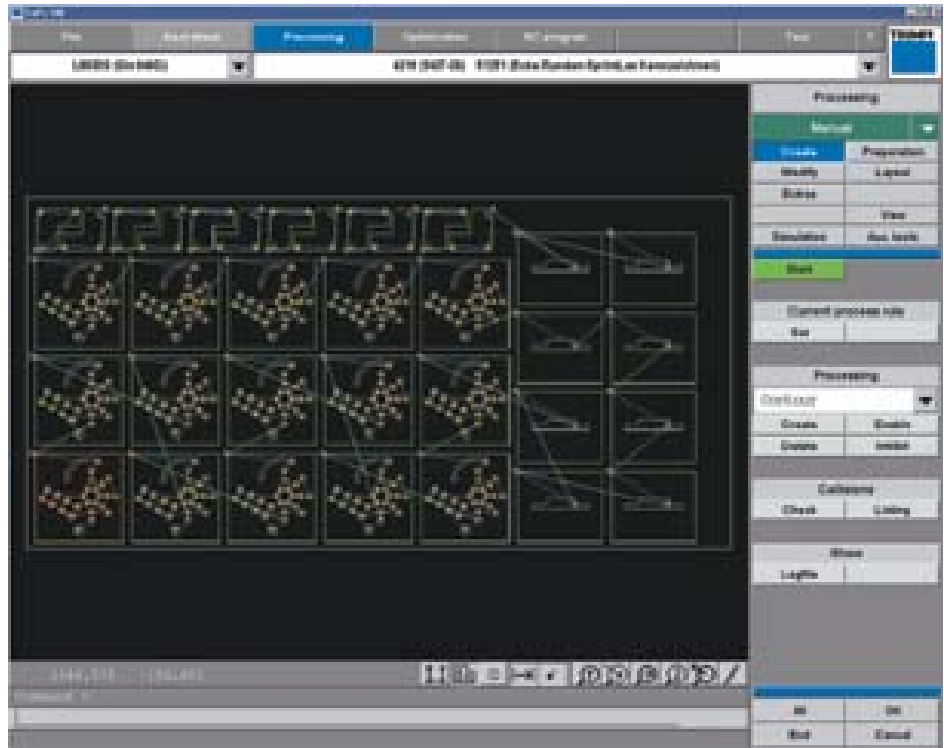
Operator panel in the machine frame.

The Programming System: Tailored Precisely to the Machine

ToPs 100 is a CAD/CAM solution developed by TRUMPF to optimally coordinate the programming system and machine.

- Drawings are imported from CAD systems, or drawn directly in ToPs 100, and are interchangeable with other ToPs packages.
- Nesting is job specific.
- Automatic processing of nested sheets at the touch of a button.

ToPs incorporates all of our technical know-how. All operational parameters and data are stored in technology tables and rule sets. ToPs "knows" the cutting parameters and techniques best suited for your material and application.



Automatic machining of entire sheets with ToPs 100.

Installation Requirements: Easy Integration to Your Production Floor



The TRUMATIC L 2510 offers simplified integration to your production floor, when compared to a traditional laser cutting machine.

- Reduced floor space requirements.
- Reduced gas delivery requirements.
- No external laser gases required.
- No special foundation necessary.
- Load and unload possible from three sides.
- Linear work flow concept.

The simple installation reduces the initial investment as well as the long term cost of ownership.

Technical Data

TRUMPF is certified to DIN ISO EN 9001 and VDA 6.4.

IDENT-No. 0361817-09-04 – Subject to change

Working Area

X axis	120 inches
Y axis	50 inches
Z axis	4.8 inches



Maximum Sheet Thickness

Mild Steel	1/2 inch
Stainless Steel	1/4 inch
Aluminum	3/16 inch

Maximum Axial Speeds

Axis parallel	4,725 in/min
Simultaneous, approx.	6,650 in/min

Accuracy¹

Smallest programmable increment	.0004 inch
Positioning Accuracy	.004 inch

Repeatability

.001 inch

Control

TRUMPF OEM Control	Siemens Sinumerik 840D
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Space Requirements

Length	528 inches
Width	221 inches
Height	107 inches

Electrical Requirements

Max. consumption	65 kva
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TRUMPF CO₂ Laser

TCF 1

Beam Mode

TEM 00

Laser Gas

He, N ₂ , CO ₂ Pre-Mixed Internal Bottle	1-Year Bottle Life Minimum
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¹ The achievable accuracy in the workpiece depends – among other things – on the material quality, pretreatment, sheet size, position in the working area and cutting parameters used.



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