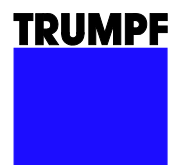


TRUMPF CNC Sheet Metal Machining Center



Complete Processing
through Laser Cutting,
Punching, Forming

TRUMATIC 6000 L



One for All

With the TRUMATIC 6000 LASERPRESS, TRUMPF has set new standards in its combination machines. It represents no less than a machine concept that enables the combination processing of complex contours, conforms to the strictest of safety requirements, and is easy to operate, yet works economically however small the batch size. And naturally it also features the high quality and reliability you have come to expect from TRUMPF.



The successful use of »combination« technology over the past few years has confirmed that numerous parts can be fabricated most effectively on a machine that not only punches and forms but can also machine workpieces by means of the laser. And TRUMPF combination machines have always been reliable companions.

TRUMPF now presents its new TRUMATIC 6000 LASERPRESS – a machine that has made decisive progress not only in the field of punching but also in laser technology. Valuable experience gained from both sectors have now merged together to form a perfect interplay of the two technologies.



Increased Productivity

The TRUMATIC 6000 LASERPRESS has a new punching head that achieves a stroke rate of 900 strokes per minute during punching and 2800 strokes a minute during marking.

It also features numerous additional machining possibilities such as contouring with tapping, or the creation of rim holes or small bends.

With its even more powerful lasers and a further process optimization during laser cutting, the TRUMATIC 6000 LASERPRESS represents a powerful step ahead in productivity.

The TRUMATIC 6000 LASERPRESS can also be equipped with the automatic focus adjustment feature *AutoLas Plus* (optional). This is especially beneficial when the machine works un-attended within an automated production cell.

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Boost Your Productivity in the Future – by Profiting Today from the Superior Technology of the TRUMATIC 6000 LASERPRESS.

The Way: Two Stations – One Objective



The Parts Spectrum: Variations in Sheet Metal



The multifunctionality of the TRUMATIC 6000 LASERPRESS opens up a vast number of new possibilities where productivity and flexibility are concerned.

- **Start-to-finish machining**
The workpiece is machined from start to finish in a single clamping. This means that you can machine a part using several different methods without having to switch machines midway.
- **Minimal dead area**
The two machining stations are arranged in such a way that they can machine the workpiece with almost no dead area.
- **Proven technology**
The TRUMATIC 6000 LASERPRESS is the result of consistent further development of TRUMPF's proven punching and laser technology.
- **Part Ejection**
A sophisticated system of fixed and movable chutes ensures that parts are ejected quickly and safely. Sensors monitor the ejection process at both punching and laser stations.
- **Accessibility**
The C-frame of the machine makes the working area easily accessible from three sides.
- **Automation**
For automation of the machine, you have the complete range of TRUMPF automation components at your disposal.

The most sophisticated production jobs can be quickly and precisely mastered with the TRUMATIC 6000 LASERPRESS, because different technologies can be combined intelligently during machining of a single part.

- **Punching of standard contours** (e.g. round or rectangular holes) with one stroke.
- **Laser cutting of filigree inner and outer contours** with smooth, burr-free cut edge.
- **Tapping**
Forming of all kinds (e.g. beading, penetrations).
- **Indelible identification** with the embossing and marking tool.

Laser Processing: The Best by Far

Integrated into the machine frame of the TRUMATIC 6000 LASERPRESS is a TRUMPF laser of the latest generation – an extremely space-saving design. TRUMPF lasers have proven their beam quality and reliability thousands of times over in tough everyday use.

■ Process control

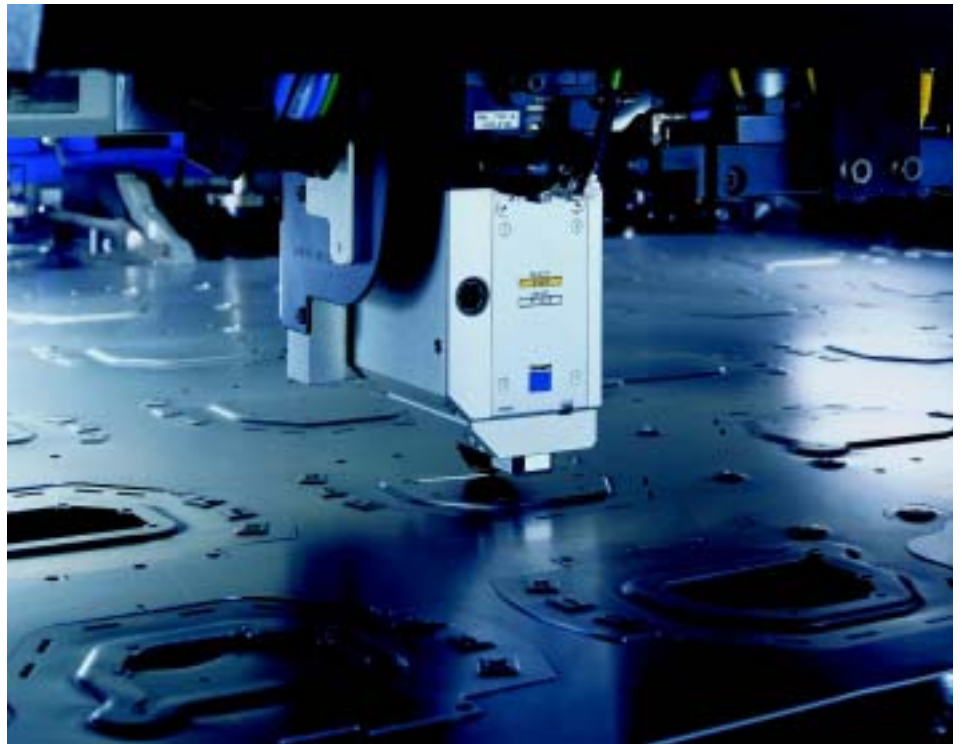
Application-specific adjustments such as cutting speed, laser power or gas pressure are automatically activated by the NC program via technology tables.

■ Laser head

The contactless automatic height adjustment DIAS maintains a constant distance between the cutting nozzle and the work-piece. This enables the laser to cut even on pre-formed components. The quick-change system enables the cutting head to be exchanged in a matter of seconds.

■ Vacuum extraction

Effective vacuum extraction and the efficient filter system mean that cutting residue is always safely removed.



Punching and Forming: Intelligent Control at the Highest of Speeds

■ New punching head

The radically optimized punching head enables the TRUMATIC 6000 LASERPRESS to attain punching stroke rates of up to 900 strokes per minute, and 1800 strokes per minute during marking.

■ Quick Forming

Beading almost at punching speed – this has now become a reality thanks to the closed hydraulic loop of the TRUMATIC 6000 LASERPRESS. A variable forming height enables formed components to be machined with minimal ram travel.

■ ASC: Advanced Stripper Control

Want to machine materials with sensitive surfaces and avoid any marks? The new Advanced Stripper Control (optional) varies the press-down force from stroke to stroke – adjusting itself continuously to the machining scenario.



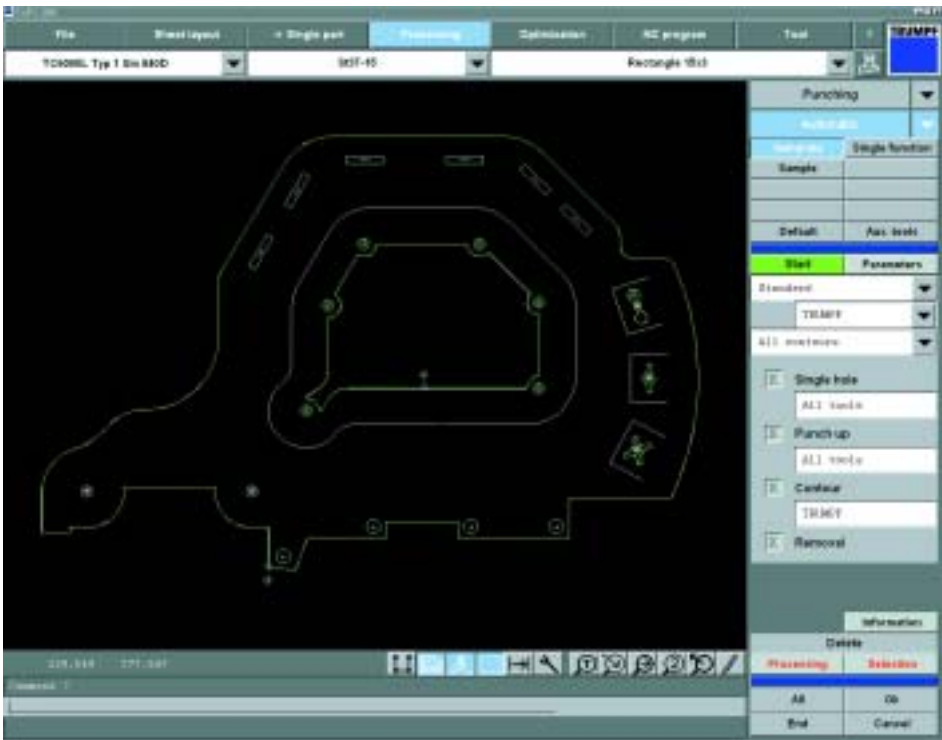
Operation: Open Control for More Comfort



The open control on the TRUMATIC 6000 LASERPRESS guarantees ease of operation. From the control panel, all operations can be monitored at a glance. The comfortable user interface is a TRUMPF development and has many typical features in common with the Windows interface.

- A machining job is started in just a few easy steps. An integrated online help function answers all questions as and when they arise.
- The diagnostics concept displays faults in pictorial form. The measures to eliminate them are not provided in coded messages but in clear and explanatory text. The machine is of course also equipped with Teleservice, especially useful wherever diagnosis and analysis of the hydraulic system is concerned.
- There is a clear emphasis throughout on the activities and functions the operator wants to carry out, rather than on machine functions.

Programming: Simply Automatic



With the programming system ToPs 300, TRUMPF offers you a comprehensive concept for flexible production. ToPs 300 and the TRUMATIC 6000 LASERPRESS are designed to enhance one another one hundred percent.

- Three steps lead to the NC program:
Generation and import of drawings. Sheet layout and automatic definition of the processing in hand.
The integrated nesting processor calculates the sheet layout that will use up the least material. Then ToPs 300 automatically defines the fastest machining sequence for the sheet.
Automatic generation of NC program.
- The heart of ToPs 300 is the database. It contains concentrated technological know-how from TRUMPF, such as the parameters for automatic definition of machining jobs.

Technical Data

Machine Data

TRUMATIC 6000 L - 1300

TRUMATIC 6000 L - 1600

Working Range (X x Y)¹

Combined punching/laser mode	2585 x 1280 mm	2585 x 1650 mm
Punching operation	3085 x 1370 mm	3085 x 1740 mm
Laser operation	3085 x 1280 mm	3085 x 1650 mm

Performance

Laser power	2000 W / 2700 W / 3200 W	2000 W / 2700 W / 3200 W
Max. sheet thickness	8 mm	8 mm
Max. punching force ²	220 kN	220 kN
Active presser foot (programmable in steps)	4.5 - 20 kN	4.5 - 20 kN
Max. workpiece weight	200 kg	230 kg

Speeds

Max. positioning speed		
X-axis	90 m/min	100 m/min
Y-axis	60 m/min	60 m/min
Simultaneous (X and Y)	108 m/min	116 m/min
C-axis		
punching	60 revolutions/min	60 revolutions/min
tapping	180 revolutions/min	180 revolutions/min
Max. stroke rate		
punching (E=1)	900 1/min	900 1/min
marking (approx.)	2800 1/min	2800 1/min

Tools

Linear magazine	19 tools with 2 clamps	18 tools with 3 clamps
No. of tools if using Multitool	19 - 190 tools	18 - 180 tools
Multitool	5 / 10	5 / 10

Tool changing time

1.5 - 5 s	1.5 - 5 s
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Accuracy³

Positioning accuracy	± 0.10 mm	± 0.10 mm
Repeatability	± 0.03 mm	± 0.03 mm

Programmable chutes

for punch and laser parts (max.)	500 x 500 mm	500 x 500 mm
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Control TRUMPF CNC

based on Siemens Sinumerik 840D	based on Siemens Sinumerik 840D
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Dimensions and weights (approx.)⁴

Space requirement (width x length)	7500 x 8100 mm	7900 x 9100 mm
Height	2400 mm	2400 mm
Weight	16000 kg	22500 kg

Laser Data

TRUMPF Laser TLF 2000

TRUMPF Laser TLF 2700

TRUMPF Laser TLF 3200

Guaranteed max. laser output	2000 W	2700 W	3200 W
Adjustable power range in 1% steps	100 - 2000 W	140 - 2700 W	160 - 3200 W
Wave length	10.6 µm	10.6 µm	10.6 µm
Beam mode	TEM ₀₀	TEM ₀₀	TEM ₀₀
Pulse frequency	100 Hz - 10 kHz	100 Hz - 10 kHz	100 Hz - 10 kHz
Consumption values laser gas			
CO ₂	1 l/h	1 l/h	1 l/h
N ₂	6 l/h	6 l/h	6 l/h
He	13 l/h	13 l/h	13 l/h
Electrical values	65 kVA	73 kVA	76 kVA

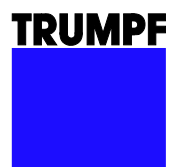
¹ Always before repositioning.

² Incl. 20 kN presser foot force.

³ The achievable accuracy in the workpiece depends - among other things - on the kind of workpiece, its pre-treatment, sheet size and location in the work area. According to VDI/DGQ 3441. Measuring length 1 m.

⁴ Approximate values. The exact values can be found in each specific installation plan.

TRUMPF is certified according to German standard DIN ISO 9001



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