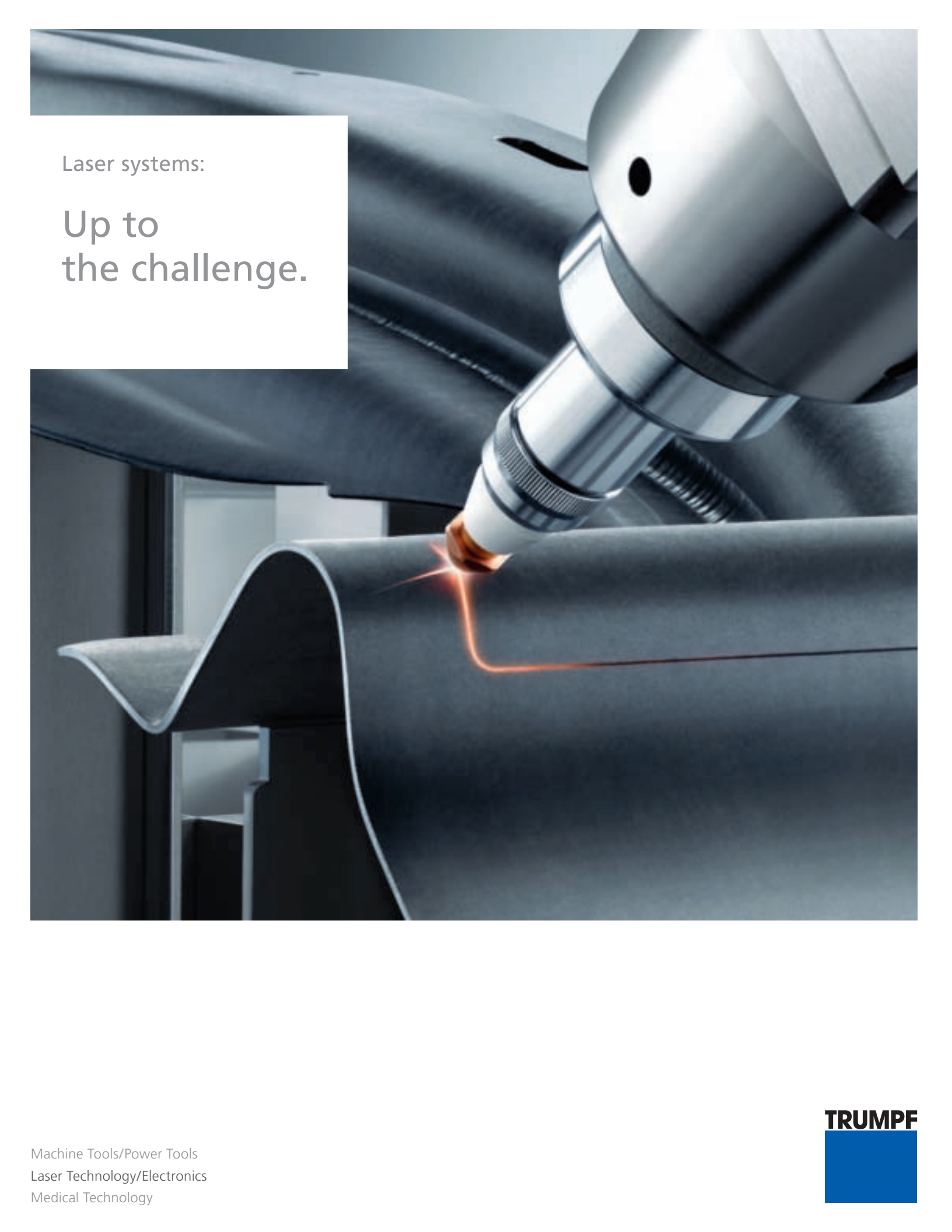




Laser systems:

Up to
the challenge.

Giving you the edge in laser technology.

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The TRUMPF Group ranks among the world’s leading manufacturers of laser and production technology. Our innovations set the standard – in lasers and laser systems, machine tools, power tools and medical technology.

Our customers have relied on the superior quality of our technical solutions since 1923. The first five-axis machine in 1986 and the combination of laser and robot technology in the 1990s were milestones in laser processing.

Today, TRUMPF is a global and technological leader in industrial lasers and laser systems. Through continuous research we build on this foundation for our customers.



TruLaser Cell Series 7000

High-end laser machines for cutting, welding and deposition welding of large 3D components with CO₂ or solid-state lasers.



TruLaser Robot Series 5000

Robot systems with solid-state lasers for welding, cutting and soldering of complex geometries for mass production as well as small batches.



TruLaser Cell Series 3000

Universal solid-state laser machines for cutting, welding, and creating detailed contours in small and medium-sized 2D and 3D components.



TruLaser Cell Series 1000

Variable beam guidance systems with CO₂ and solid-state lasers for continuous welding of coils, tubes or profiles – easy to integrate.



TruLaser Station

Ergonomic, compact laser welding workstations for manual or semi-automated production of small components and batches.

The most
versatile tool
in the world.



TRUMPF's laser technology is used in a wide variety of industries: For example, the processing of transmission and precision parts, exhaust components, sensors and regulator components, tailored blanks, tubes and profiles, and deep drawn parts or (hot) formed workpieces. In addition, our lasers repair and coat tools and molds. And, they mark everything from pacemakers to apples. Whether metal, plastic, glass, ceramics, wood, or paper – our products open up entirely new possibilities.



Countless applications, countless benefits.

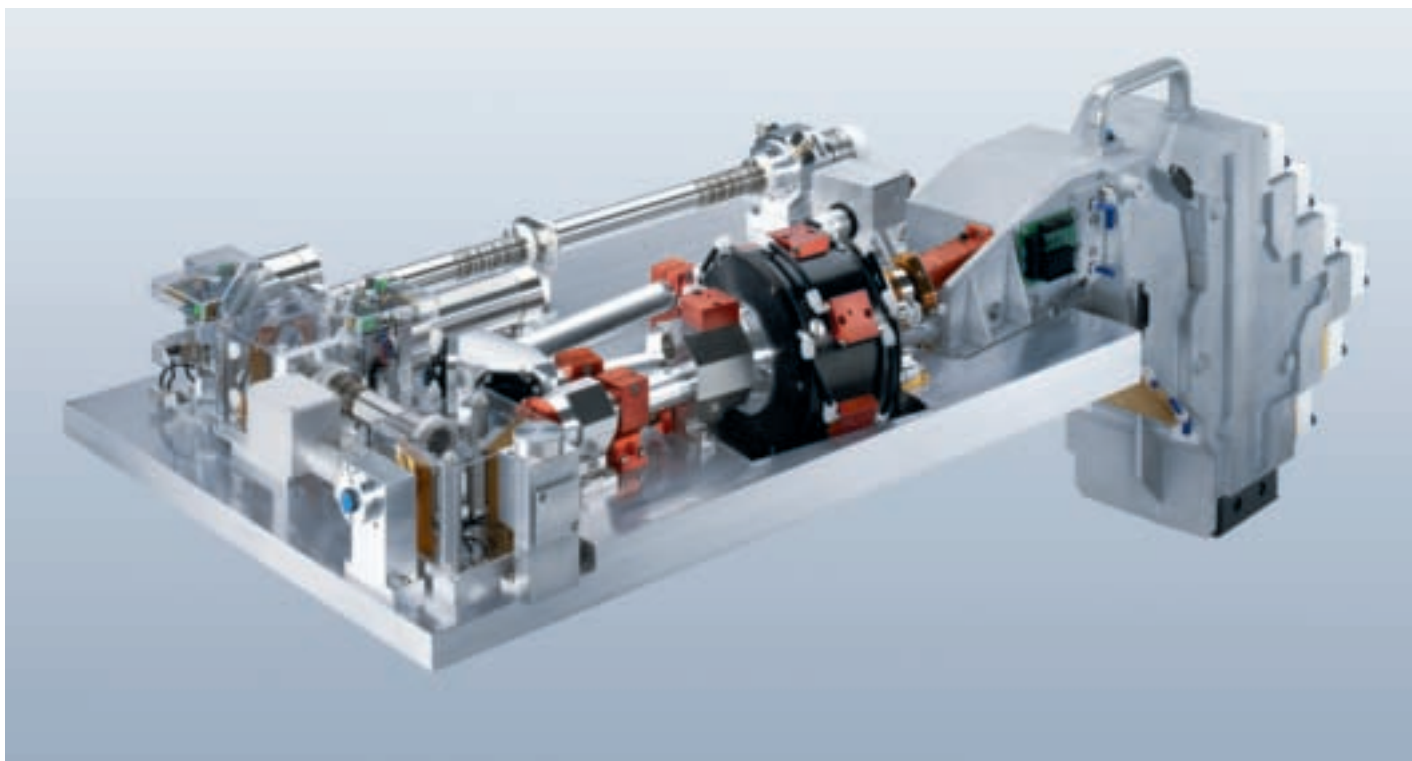
Laser cutting is economical because the results are so precise: Edges are burr-free with minimal gaps and a small heat-affected zone. You can also save on tool costs with the flexibility to cut 3D components. Also, the hardness of the base material has no impact on the cutting process.

Laser welding is usually faster and more efficient than alternative methods. This virtually eliminates finishing work during serial production. Distortion is minimal due to low thermal impact and virtually all types of seam geometries can be welded at high quality.

Surface processing with the laser serves a broad range of purposes. Applying wear-resistant layers, remelting of glass and ceramics, hardening, marking, engraving, or etching clearly delineated contours is fast and economical using TRUMPF lasers.

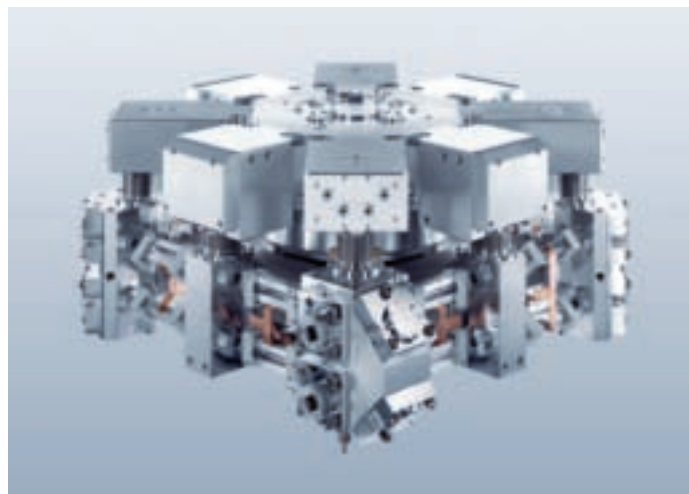
Regardless of what you do with them: TRUMPF lasers work in all applications with a high degree of process reliability and parameter stability. The non-contact and effortless processing eliminates wear and tear. Your automated production line will benefit from high system availability; and, when producing small batches, you will have the advantage of minimal tooling and programming times.

Why TRUMPF laser systems are captivating.



Reliable processes, high quality.

With TRUMPF, you benefit from decades of experience in all laser-related areas. As machine tool builders, we have extensive knowledge about integrating beam sources with systems – whether this involves complex laser processing centers or simple beam guidance systems. In addition to all of the hardware, we also develop the software for our laser systems. Everything works hand-in-hand and very smoothly.



Top photo: TruDisk solid-state laser.
Bottom photo: TruFlow CO₂ laser.

Always the right laser.

At TRUMPF, you will find the exact beam source that you need. From 20 watt solid-state lasers to 20 kW CO₂ units, fast flow or diffusion cooled, pulsed or not, for high-speed cutting, laser deposition welding or micro-processing. With so much to choose from, our experts can help you determine exactly what will best support your applications.

Perfect coordination of lasers and systems.

TRUMPF laser systems have a modular design so your machine is perfectly tailored to your applications. This feature and a broad array of focusing optics give you a wide processing scope.

The TRUMPF LaserNetwork offers special benefits. You can use it to intelligently network multiple solid-state lasers and several processing stations. This allows you to better utilize an individual laser and increase your machine capacity. The TRUMPF LaserNetwork's power-splitting or time-sharing function gives you greater flexibility even with CO₂ lasers.

Everything for automation.

Select a product that makes your work easier from our comprehensive range of automation components. You will find a variety of processing tables as linear or rotation changers for automated production and two-station modes for loading while processing.

The seam sensor system SeamLine detects workpiece tolerances and helps to compensate for them. And FocusLine automatically adjusts the focus position to the material type and thickness. In addition, you can equip most TRUMPF laser systems with the DepositionLine technology package for laser deposition welding. Just tell us your goals and we will help you determine the standard TRUMPF components required for your system's specific configuration.

TruLaser Cell Series 7000



The productive solution for cutting ultra high-strength steels.

With a flexible laser system from the TruLaser Cell Series 7000, you have everything you need – regardless of whether you want to process two or three dimensional components or tubes. This applies to manufacturing prototypes as well as high-volume serial production. You can cut or weld thin and thick metal components, or even specifically change surfaces with deposition welding. Virtually any type of metal can be processed including mild steel, galvanized sheet metal, aluminum, and even stainless steel.

Getting started in laser processing is easy and affordable with the TruLaser Cell Series 7000. The machine can be upgraded and adapted to new production conditions as your needs change. Your range of tasks defines the machine and laser configuration.

Highest productivity thanks to unique technology.

With the TruLaser Cell Series 7000, TRUMPF sets new standards in terms of dynamics and throughput. This is ensured by unique values in positioning speed and axis acceleration. High laser outputs of up to 6 kW for cutting and 15 kW for welding further reduces processing time. Piercing-on-the-fly when cutting with FastLine Cell reduces auxiliary times by up to 40 %. The dynamic cutting optic facilitates very high accelerations and a constant distance between the nozzle and the workpiece.

Highest availability integrated.

Stable processes and consistent optical conditions are ensured by cooling all mirrors with water. The magnetic coupling on the processing head shortens downtime. In the event of a collision contact between the optics and Z axis is cut and a safety stop is triggered. The processing head can be manually reattached. The LensLine function supervises the focusing lens and turns the laser off before the lens fractures. This prevents the beam guidance from getting dirty and increases availability.

The best processing quality.

Automated raw beam adjustment guarantees consistent processing results throughout the entire working range. Additionally, all of TRUMPF's laser expertise is stored in the technology tables so you can quickly modify your machines to different materials and sheet thicknesses for cutting and welding.

TruLaser Cell Series 7000: Benefits at a glance.

- 1 Highest productivity.
- 2 Highest availability.
- 3 The best processing quality.
- 4 Easy, ergonomic operation.
- 5 Modular design and individual retrofit options.

TruLaser Cell Series 7000

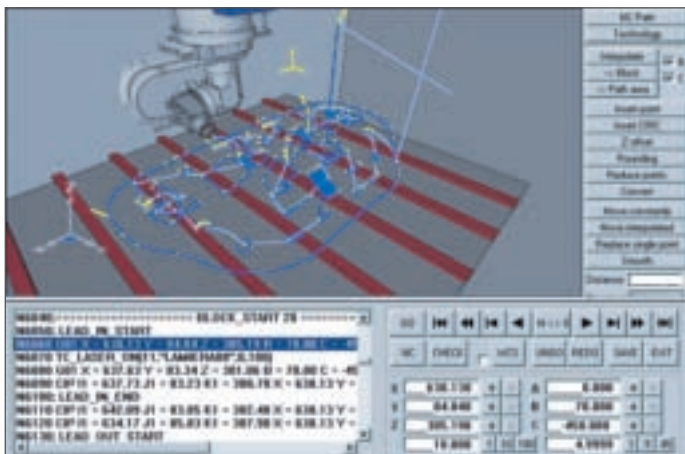
Easy, ergonomic operation.

A number of innovations make operating a TruLaser Cell Series 7000 extremely convenient. The ergonomic control panel is suspended from the machine enclosure saving space. It can be rotated, operated from the enclosure or, as an option, moved to the ideal position along the front side of the machine. The 6D mouse makes it easy to run-in, teach-in and move the axes quickly.

Using the TruTops Cell Basic software, programs can be adjusted quickly and easily directly on the machine – without making changes to the offline programming system. The control unit itself detects which processing optic is installed. The optics can be exchanged quickly and without errors.



Rapid run-in and teach-in using the 6D mouse.



Change programs on the machine using TruTops Cell Basic software.



Always in the right location: the movable control panel.

Modular design and individual retrofit options.

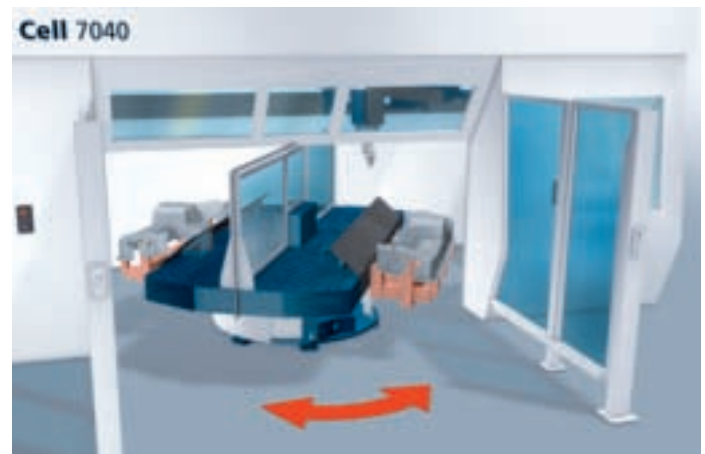
With many different options, the TruLaser Cell Series 7000 is assembled exactly to your needs. Different components can be combined according to a modular principle and easily upgraded when needed.

Your application determines, for example, whether a CO₂ or solid-state laser will be used. In addition, you can choose from different working ranges and adapt the modular welding optics to the widest variety of tasks.

Numerous automation modules increase productivity. To set up and produce at the same time, two-station operation with a partition that divides the workspace into two areas is the right choice. The linear changer's movable worktables make it easy to exchange parts. The rotary table is particularly well suited for high quantities and ensures simple component handling in the loading and unloading positions. If requested, robots can load and unload components.



Two-station operation: loading and unloading while processing.



Rotary table: for large quantities.



TruLaser Cell Series 7000

	TruLaser Cell 7040	TruLaser Cell 7020
Working range		
X axis	160 in.	80 in.
Y axis	60 in. / 80 in.	60 in. / 80 in.
Z axis	29.5 in.	29.5 in.
B axis	± 135°	± 135°
C axis	n x 360°	n x 360°
Dynamic cutting optics	± 0.4 in.	± 0.4 in.
	Speed	Acceleration
Simultaneous	6,811 in/min	1.6 g
X axis	3,937 in/min	0.9 g
Y axis	3,937 in/min	1.0 g
Z axis	3,937 in/min	1.0 g
B axis	90 min ⁻¹	200 rad/sec
C axis	90 min ⁻¹	100 rad/sec
Dynamic cutting optics		4 g



TRUMPF laser

Max. output of TruFlow CO ₂ laser	15,000 W
Max. output of TruDisk solid-state laser	6,600 W

Precision^[1]

Lowest programmable increment	0.00004 in.
Max. repeatability^[2]	
Linear axes X Y Z	0.001 in.
Rotation axes B C	0.005°
Max. position deviation^[2]	
Linear axes X Y Z	0.003 in.
Rotation axes B C	0.015°

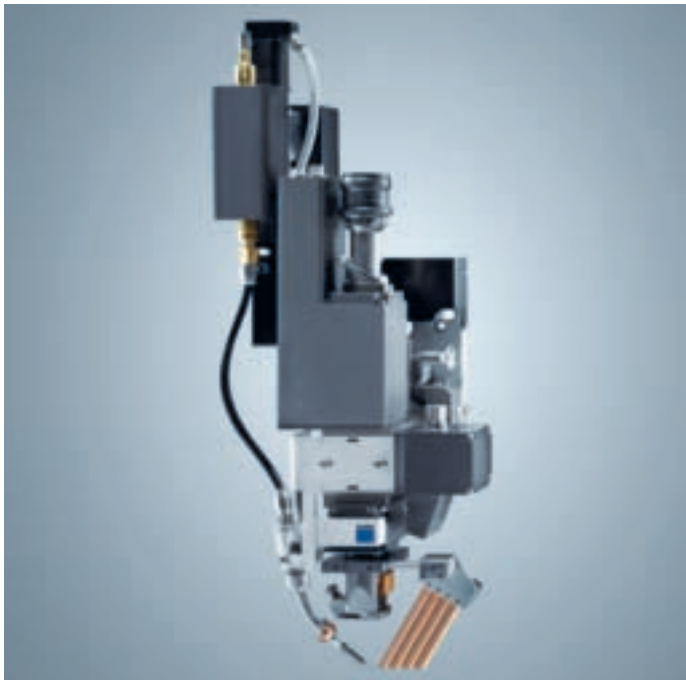
^[1] The achievable accuracy in the workpiece depends on the type of workpiece, its pretreatment, sheet size, material type, and position in the work area, among other things. Due to the modular program of the TruLaser Cell Series 7000, the technical data is based on a variety of components which result from the options selected.

^[2] Pure mechanical precision without control compensation, measured in accordance with VDI 3441 through the total length of axis travel.

TruLaser Robot Series 5000

TruLaser Robot Series 5000:
Benefits at a glance.

- 1 High flexibility.
- 2 Economical – even with small batch sizes.
- 3 Turnkey operation for highest availability.
- 4 Modular design from standard components.
- 5 User-friendly control unit and software.



Focusing optics with TeachLine, optical seam sensor system.

Works easily and with flexibility.

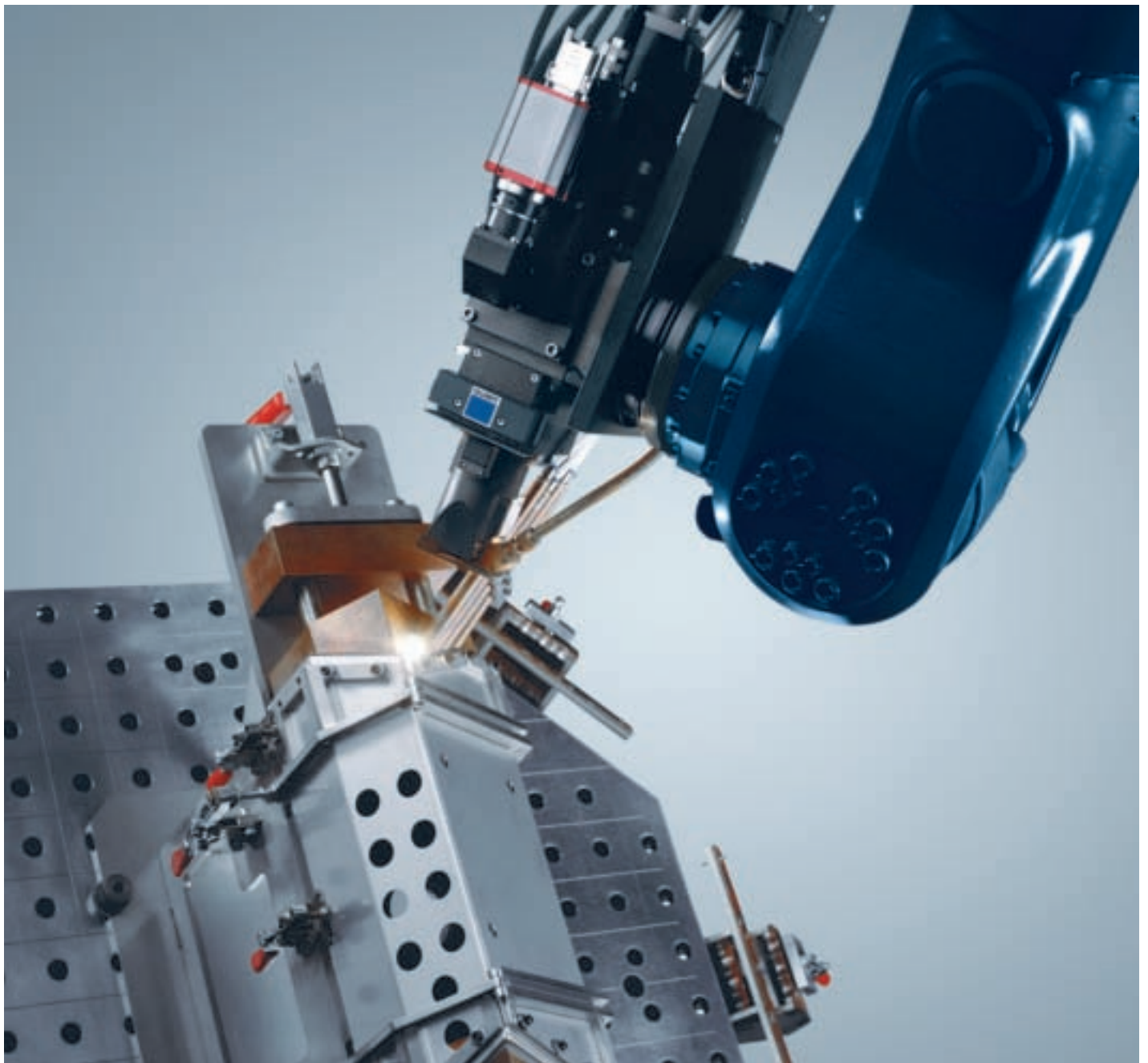
Whether you want to weld, cut or solder: A TruLaser Robot Series 5000 can handle any of these tasks. TRUMPF offers different technology packages for laser cutting, laser welding, deposition welding and remote welding that you can interchange quickly and easily.

Economical – even with small batch sizes.

The flexible laser robot system guarantees economical production, even of small quantities. It is also ideal for processing complex geometries.

An additional advantage: You can easily integrate the TruLaser Robot into a TRUMPF LaserNetwork and intelligently network with other systems to take advantage of the connected laser device.

Using the TeachLine option, you can considerably increase machine capacity. This optical seam sensor automatically corrects workpiece and fixture tolerances. This enables you to shorten programming times, reduce set-up costs and achieve better and more stable processes.



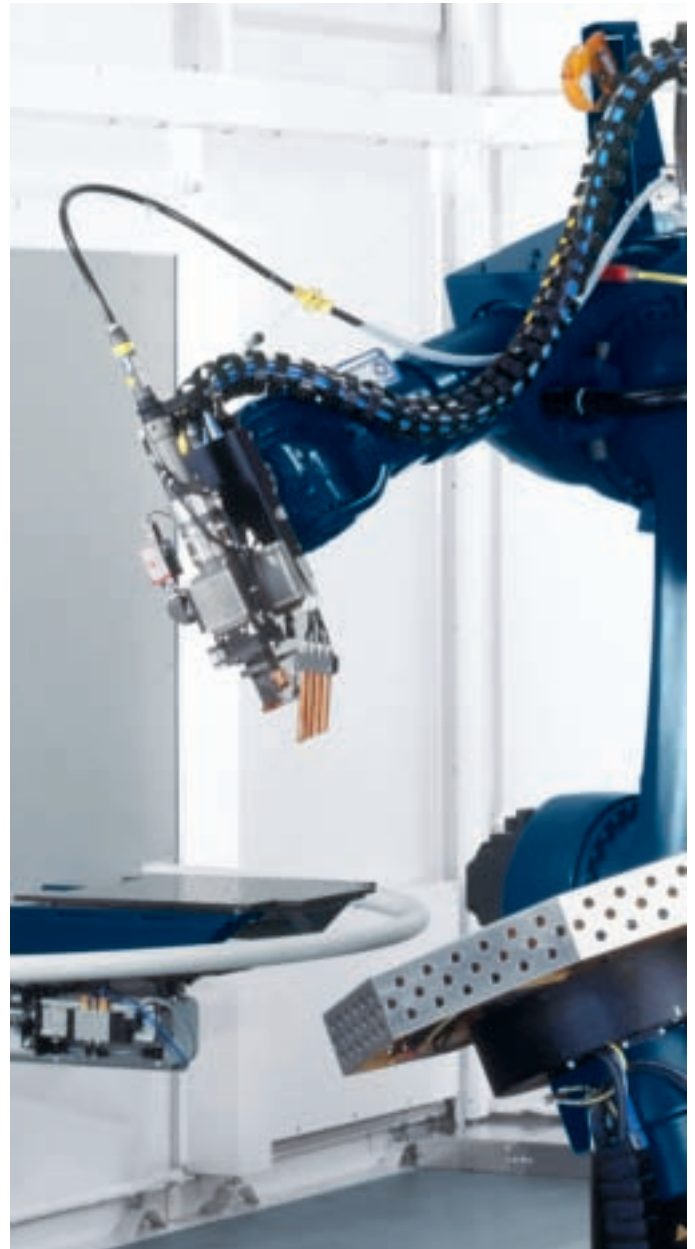
Laser welding: the perfect solution to complete the sheet metal processing chain.

TruLaser Robot Series 5000

Turnkey and modular.

With the TruLaser Robot Series 5000, you get a modular turnkey system from a single source. The main components are the robot, laser, processing optics, safety enclosure, and positioning units. The machine is individually assembled from sophisticated standard components according to your requirements to help you achieve optimal results. Your system is equipped with the appropriate laser - TruDisk, TruDiode or TruPulse.

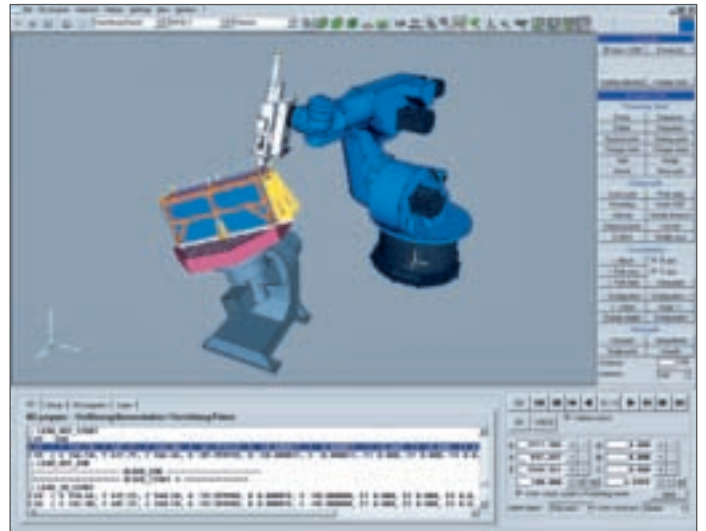
A camera system with cross hairs, TeachLine sensor, collision protection, motorized focusing, and the shielding gas nozzle are available as options. Take advantage of our long-term experience with lasers and laser systems to ensure the highest availability throughout your entire system.



TruLaser Robot with manual rotary table.

User-friendly control unit and software.

The robot in the TruLaser Robot has a standard control that we have upgraded with user-friendly software components. The robot, positioning unit, laser and processing optics can be controlled using a manual control unit or computer. The control unit for the safety circuit is also integrated. If requested, our TruTops Cell programming system provides support, enabling you to import and work with traditional 3D CAD data and automatically generate robot programs.



External programming with TruTops Cell.



Laser welded blower wheel.



Laser welded bar of an operating room table.



TruLaser Robot 5020	
Workpiece positioner	
Rotate/tip positioner	
Number of axes	2
Rotating axis	$\pm 190^\circ$
Tipping axis	$\pm 90^\circ$
Operating mode	automatic
Working height	33.5 in.
Load	882 lbs
Repetition accuracy with radius of 20 in.	± 0.004 in.
Manual rotary table	
Number of axes	1
Rotation range	$\pm 178^\circ$
Working height	31.5 in.
Load per side	551 lbs.
Operating mode	manual, pneumatic support
Max. component dimensions	
Width	55 in.
Height	31.5 in.
Depth	47 in.
Robot	
Number of axes	6
Repeat accuracy	± 0.004 in.
Bearing load	66 lbs.

TruLaser Cell Series 3000

TruLaser Cell Series 3000:
Benefits at a glance.

- 1 Customized to meet your individual needs.
- 2 Dynamic and precise.
- 3 Universal control and operation.
- 4 Rapid retrofitting due to uniform interfaces.
- 5 Compact and accessible.



The focusing optics can be quickly interchanged on the swivel axis.

Customized to meet your individual needs.

The TruLaser Cell Series 3000 enables you to weld and cut small and medium-sized 2D and 3D components with flexibility, from prototype to serial production. Typical application fields include medical technology, precision engineering and the electronics industry – wherever the highest precision, quality and reliability are required. Choose from individual machine types with a variety of processing optics and axes. Tell us what you need and we will configure the perfect machine for you. And, we will equip it with the best laser for your application - TruDisk, TruFiber, TruDiode, or TruPulse.



TruLaser Cell 3010

The universal laser machine for 3D processing. With up to six axes it is ideal for processing medium-sized workpieces. Cuts or welds prototypes as well as small and medium batches economically and precisely.



TruLaser Cell 3008

The laser machine with multiple expansion options. Tailor-made for 2D and 3D processing of tall workpieces. Thanks to the extension arm design, automation components, like the transfer system, can be integrated.



TruLaser Cell 3004

The compact laser machine for small workpieces. Rapid 2D processing using up to four axes for small and rotation-symmetrical components.



TruLaser Cell 3309

The laser machine with integrated rotary changer. Ideal for semi-automatic production. While the workpieces are being processed inside of the machine, the other side is open and accessible for loading and unloading.

TruLaser Cell Series 3000

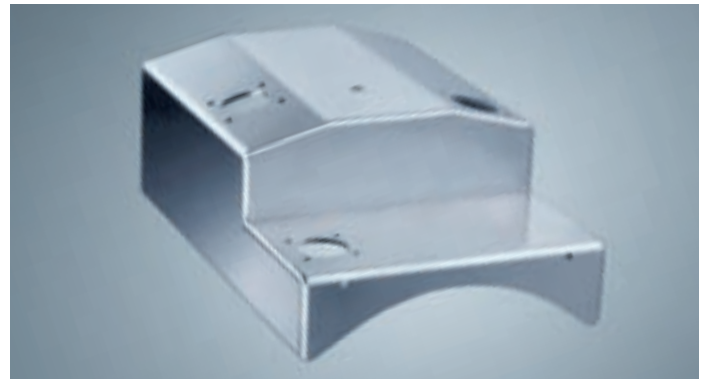
Dynamic and highly precise.

The best-tuned drive technology and the direct path measurement systems make your machine highly dynamic and precise while providing the best contour accuracy.

The axis drive uses maintenance-free, digitally coupled servo motors that guarantee a high level of path accuracy. Glass scales in the axes make it possible to produce absolutely precise contours. With up to six axes, you can create complicated workpiece geometries. Thanks to the stable parameters, processing tasks can be reproduced at any time.

Universal control, operation and rapid retrofitting.

You can control the machine and the laser using one computer and our user-friendly TruTops Cell programming software. A video system with CCD camera for positioning, teach-in, process observation, and results checking is part of the standard delivery. Individual workpieces can be produced without a previous sample. All processing data is stored in the machine and can be retrieved at any time.



Top photo: Highly precise: laser cut stator sheet.

Center photo: Laser welded junction box.

Bottom photo: 3D laser cutting on the head of a bone reamer.

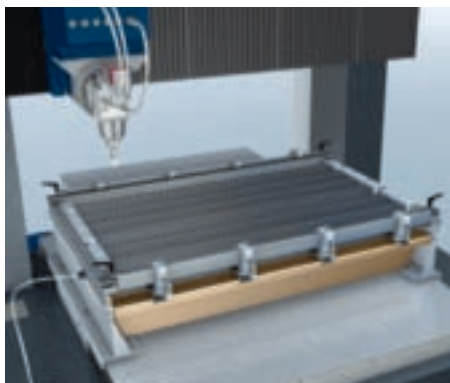


Compact and very accessible.

The TruLaser Cell has a compact design. If necessary, machine and laser can be set up separately. The machines can be integrated into the TRUMPF LaserNetwork and can share a laser with other laser systems. Excellent accessibility makes set-up easy for the user, all machines can be easily loaded using the large work door.

Many options, many benefits.

Numerous functions can be retrofitted at any time on your TruLaser Cell Series 3000. These include interchangeable processing optics, some of which are swivel-mounted, as well as rotary or swivel axes for the workpiece. Pneumatic and manual clamping systems are just as easy to integrate as simple clamping functions. Prototypes or small batch runs of precision punch parts can be cut on a cutting device quickly and easily.



Top photo: Optics with swivel axis.
Center photo: Vertical rotating axis.
Bottom photo: Cutting device.



TruLaser Cell Series 3000		
	TruLaser Cell 3010	TruLaser Cell 3008
Working range		
X axis	40 in.	32 in.
Y axis	20 in.	20 in.
Z axis	15.5 in.	15.5 in.
B swivel axis optics	± 135°	± 120°
C rotating axis	n x 360°	n x 360°
Position tolerance Tp ^[1] X Y	0.0006 in.	0.001 in.
Max. axis speed X Y Z	1968 1968 1968 in/min	1181 1181 1181 in/min
Max. rotation speed B C C2	120 700 96 min ⁻¹	120 700 96 min ⁻¹
Dimensions^[2]		
Width	154 in.	146 in.
Depth	110 in.	146 in.
Height	95 in.	95 in.
TRUMPF laser		
Max. laser output ^[3]	6,600 W	6,600 W

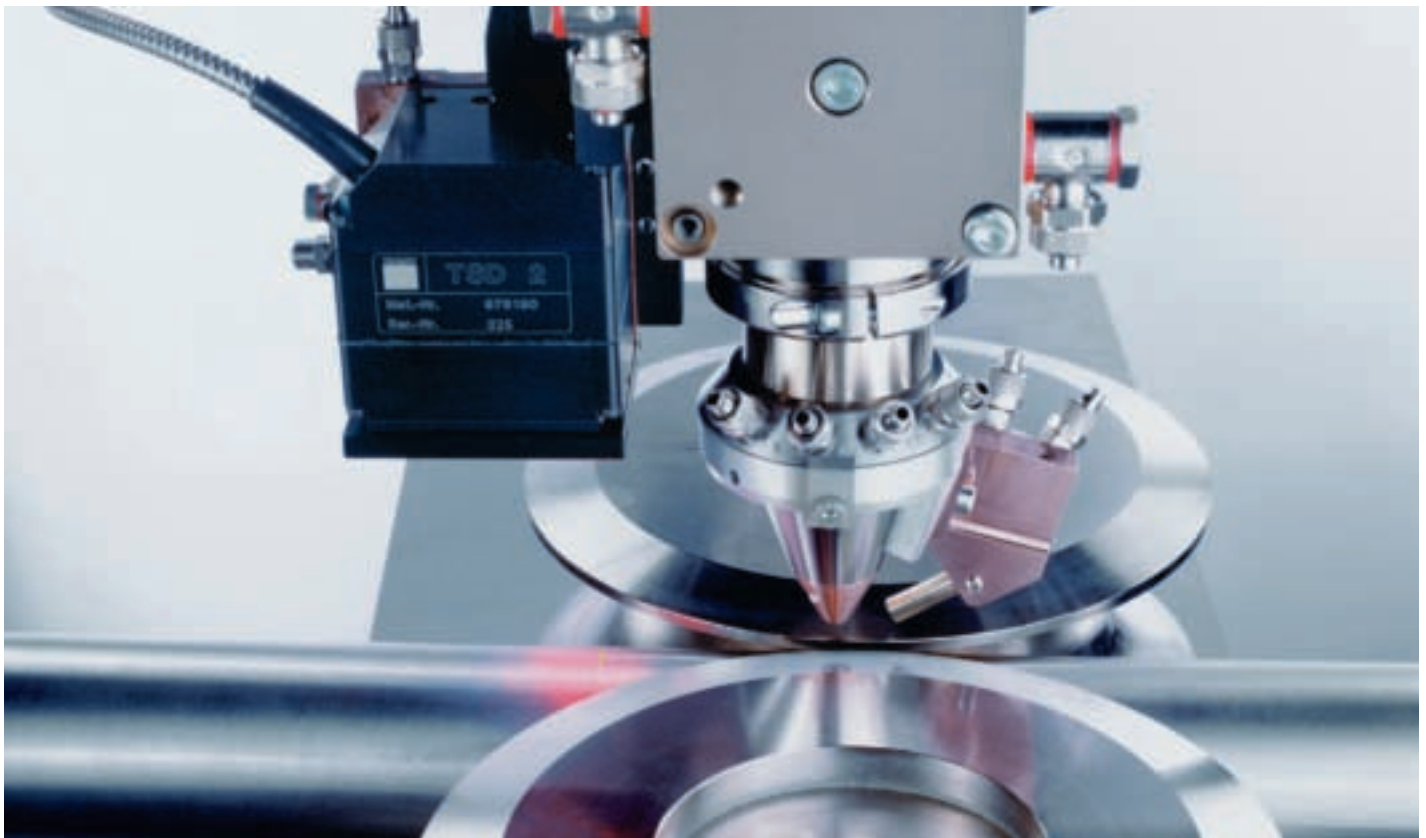
	TruLaser Cell 3004	TruLaser Cell 3309
Working range		
X axis	16 in.	20 in.
Y axis	16 in.	32 in.
Z axis	12 in.	16 in.
B swivel axis optics	± 120°	± 120°
C rotating axis	n x 360°	n x 360°
Rotation changer	–	Ø 900 mm
Position tolerance Tp ^[1] X Y	0.0008 in.	0.001 in.
Max. axis speed X Y Z	1181 1181 1181 in/min	1181 1181 1181 in/min
Max. rotation speed B C C2	120 700 96 min ⁻¹	120 700 96 min ⁻¹
Dimensions^[2]		
Width	126 in.	118 in.
Depth	99 in.	146 in.
Height	91 in.	110 in.
TRUMPF laser		
Max. laser output ^[3]	2,000 W	6,600 W

^[1] Precision according to VDI/DGQ 3441.

^[2] Without filter device, without laser.

^[3] With partially active safety enclosure, beam time limit and aspect ratio < 2:1.

TruLaser Cell Series 1000



Continuous welding of tubes and profiles.

Perfect for coils, tubes and profiles.

The TruLaser Cell Series 1000 comes with universal beam guidance systems that can be easily integrated into a production line. They are designed to continuously weld tubes, profiles and coils. In addition, they are ideal for laser processing in separate units. Thanks to the encapsulated beam guidance and the water-cooled copper mirror, the systems are particularly robust and reliable.

TruLaser Cell Series 1000: Benefits at a glance.

- 1 Robust and easy to integrate.
- 2 Can be configured to meet individual needs.
- 3 Twice as economical with two processing heads.



TruLaser Cell 1004.

Customized.

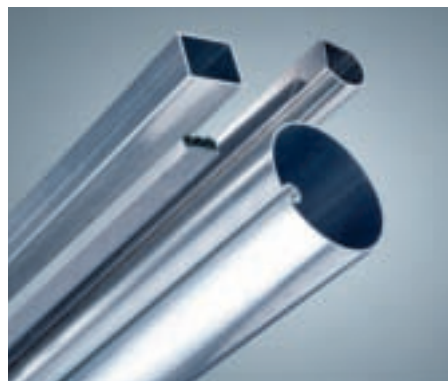
The system is individually configured to meet your requirements. The beam can be positioned either parallel or perpendicular to the processing direction, depending on the application. The specific application is optimized with additional adjustable axes for the optics.

Twice as economical.

The system with two processing optics is particularly flexible. In conjunction with power-splitting or time-sharing beam management, you can weld two seams at the same time. The seams are continuous with the power-splitting function, whereas the seams are stitched with the time-sharing function. In this case one beam source serves several workstations – you can't get any more economical.



Weld line for continuous profiles.



A wide variety of profiles can be continuously welded.



Laser welded short profiles.



TruLaser Cell Series 1000		
	TruLaser Cell 1100 ^[1]	TruLaser Cell 1004
Dimensions		
Length	approx. 106 in.	91 in.
Width	approx. 47 in.	51 in.
Height	approx. 110 in.	106 in.
Axis travel		
X axis	± 4 in.	± 8 in.
Y axis	± 1 in.	± 1 in.
Z axis	4 in.	4 in.
Z axis, lifting stroke	4– 8 in.	4–8 in.
Positioning accuracy		
X axis	0.004 in.	0.004 in.
Y axis	0.002 in.	–
Z axis	0.004 in.	0.004 in.
Control	Predefined interfaces for easy integration of the TruLaser Cell Series 1000 with lasers and production system	

^[1] Technical data version Compact Tube.

TruLaser Station



TruLaser Station 3002.

The flexible laser workstation.

For the repair of individual workpieces in tool and mold construction, manual 3D processing in medical technology or semi-automatic production in electronics. When small batch runs require flexible handling, a TruLaser Station is the right choice. It gives you everything you need for a wide variety of tasks – in welding as well as laser metal deposition. The operating concept is simple and can be learned quickly. You work efficiently right from the first part.

For small batches and quick changes.

The TruLaser Station 3002 is ideal if you want to produce frequently changing small production batches. Thanks to an automatic sliding door, it is easy to operate, parts can be rapidly loaded and unloaded – all of which keeps non-productive time to a minimum. Three linear axes ensure precise results and a programmable focusing optics reduces processing time considerably. With the dial table option and programmable focusing optics for scanner welding, the TruLaser Station 3002 is also ideal for larger quantities.

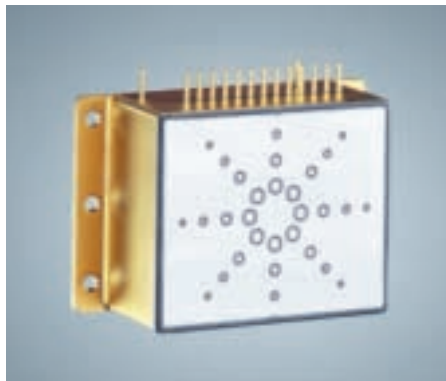
TruLaser Station: Benefits at a glance.

- 1 Ideal for a wide variety of tasks.
- 2 Ergonomic and compact.
- 3 Simple to operate.

Efficient for small and large parts.

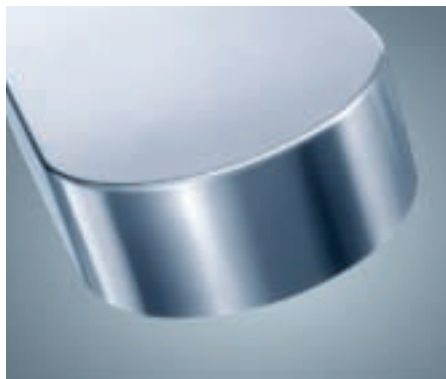
The TruLaser Station 5004 is an exceedingly ergonomic laser workstation. It is easily accessible and can be loaded manually with a fork lift or using a crane. To prevent fatigue while working, you can adjust the stereo microscope as well as the arm support to match your height and your preferred position, regardless of the workpiece size.

Sitting comfortably enables you to weld more precisely because the workpiece remains still and you can move the laser beam very accurately. Lasers up to 150 watts, the cooling system, and an exhaust system are integrated, and you also have the option of including a rotating axis



Left photo: Laser welded CCD endocam.

Right photo: Opto-electric housing, laser welded.



Left photo: Deposition laser welding on aluminum.

Right photo: Laser welded, clean visible edge.



TruLaser Station		
	TruLaser Station 5004	TruLaser Station 3002 ^[1]
Working range		
X axis	18 in.	10 in.
Y axis	12 in.	10 in.
Z axis	12 in.	12 in.
B swivel axis optics	manual $\pm 45^\circ$	–
C rotating axis	n x 360°	n x 360°
Max. axis speed X Y Z	118 in/min	394 in/min
Max. rotation speed C	80 min ⁻¹	750 min ⁻¹
Max. controllable servo axes	4 ^[2]	3
Dimensions		
Width	39 in.	59 in.
Depth	57 in.	63 in.
Height	69 in.	87 in.

^[1] Including the programmable focus optics (PFO), X and Y axis are not necessary.

^[2] Stepping motor axes.

TruServices:

We are there
for you.



Service from the very start.

Our around-the-clock service ranges from planning your configuration to optimizing your workflow. And, it begins even before you decide on a TRUMPF laser system. We have established our Laser Application Centers in all major world markets where we test the feasibility of your desired applications and show you what our laser systems can do for your production process.

Let's go.

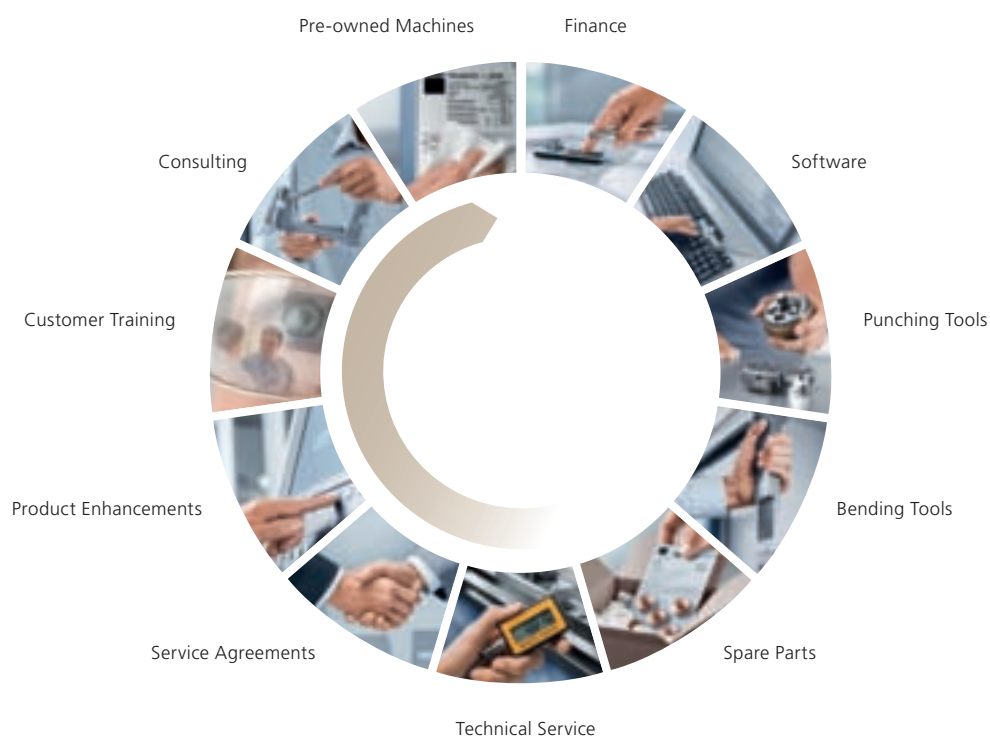
Your laser system is ready for operation almost immediately upon delivery. There are no interface problems because the laser, beam guidance, processing optics, programming, control, and automation components are all developed by TRUMPF.

Support around the clock.

We will support you during the entire life cycle of your system with our customized services. We will maintain the machine and upgrade it with the options you choose. Training is provided for you and your employees so that you can use your laser system to its fullest potential. Our service even includes optimizing the parameters of your machines on site.

We keep downtime and service calls to a minimum because our specialists, with your approval, can access your system online by using remote diagnostics through our Telepresence. Even the award-winning TRUMPF spare parts and logistics are available to you around the clock. Parts are usually delivered to you within 24 hours.

Throughout the life cycle of your system.



Regardless of the TRUMPF technology you use, you will always get the best service. TRUMPF Finance offers you individual financing solutions quickly and without a lot of paperwork. A service agreement is the ideal way of ensuring the best availability of your laser system. Should your requirements

change, we have flexible upgrade options and technical innovations that will make your system even better. Our broad range of training courses with experienced trainers and hands on practice will give you a head start in understanding and operating your system.

TRUMPF is certified according to ISO 9001:2008
(for further information see www.trumpf.com/en/quality)

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