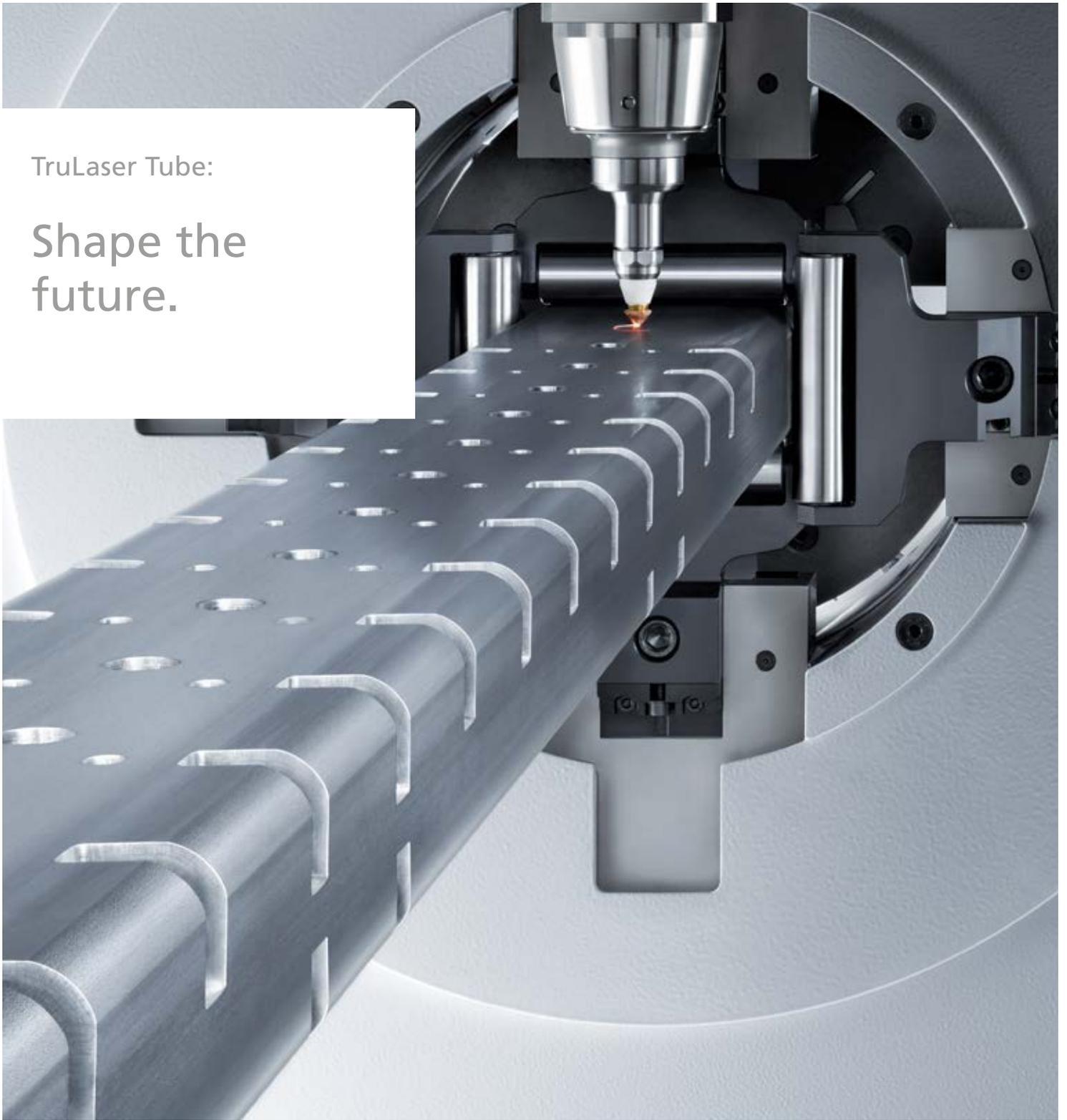


TruLaser Tube:

Shape the
future.



Competitive benefits of tube processing.

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As the global market leader in laser manufacturing technology, TRUMPF offers the best and easiest entry to the world of laser tube cutting. We can provide everything you need: machines, lasers, automation, software and services. We offer a wide range of product choices for processing sheet metal and tubes, accompanied by the support of our extensive international service network.

Our innovative technology enables us to offer the most economic solution for every application. Using machines that are easy to operate, you can speed up cutting operations and still be assured of best-quality parts. At the same time you can benefit from the advantages of laser processing, specifically the ability to cut contours of any geometry in a wide variety of materials and wall thicknesses.

TruLaser Tube: Benefits at a glance.

- 1 Perfectly matched solutions from the world market leader: machines, lasers and software.
- 2 New design freedom based on innovative tube structures.
- 3 Flexible contour, wall thicknesses and profile geometry capability.
- 4 More economical than conventional manufacturing processes.
- 5 Significant market potential for laser cut tubes.



TruLaser Tube 5000

High-output standard machine.

The reliable and productive all-around machine replaces conventional manufacturing techniques and offers the ideal entry into tube processing.



TruLaser Tube 7000

Flexible high-end machine.

The machine is highly flexible and capable of processing a wide variety of parts, giving you access to new applications in the field of tube processing.

Reasons for choosing TruLaser Tube.

Our expertise – your success.

TRUMPF is the world's leading provider of laser manufacturing technology. To ensure your lasting success, TRUMPF consistently invests in research and development at a level well above the industry average. Our innovations frequently set new standards in laser processing. Our expertise accompanies you through all stages of the tube processing chain: welding and cutting tubes as well as joining cut tube sections.

The heart of your TruLaser Tube is our TruFlow laser which has proven itself a thousand times over in everyday manufacturing. Its thermally and mechanically stable design ensures the best results throughout its long service life. With its optimized beam quality and continuously variable output, this laser adapts to meet all of your requirements.



TruFlow laser resonator.

New design freedom.

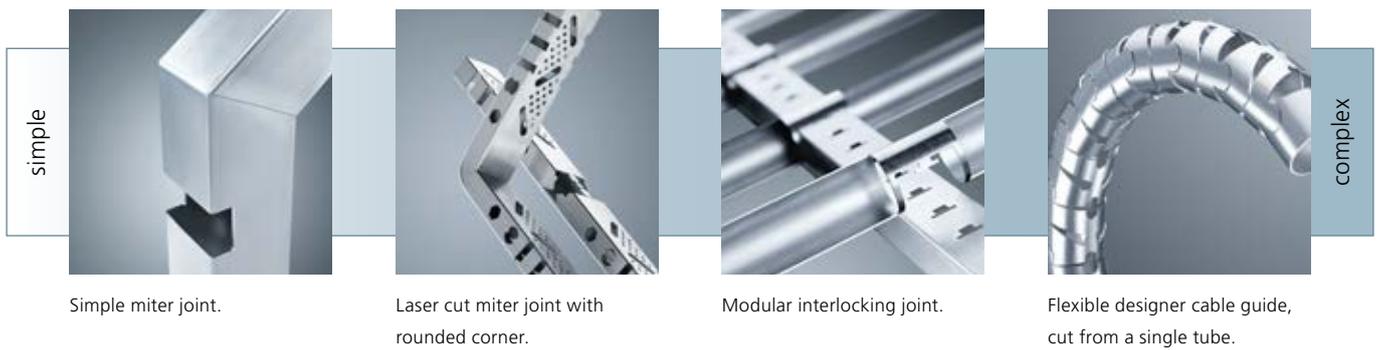
Laser tube cutting gives you the freedom to design new tube structures that would not be possible using conventional methods while reducing the number of downstream manufacturing steps. The use of laser technology enables you to simplify welding setup and reduce time and costs involved in welding operations. Positioning aids based on tabs and slots facilitate component assembly, and keyed parts prevent the risk of assembly errors.

Versatile tool.

Even the most complex contours can be cut effortlessly with a laser beam. With just one versatile tool, the laser, you can process a wide variety of materials with different wall thicknesses and profile geometries without physical contact. In most cases, the cut quality is so high that no additional finishing work is required. In comparison with other methods, laser technology pares down processes to a minimum and eliminates time-consuming tool changes.



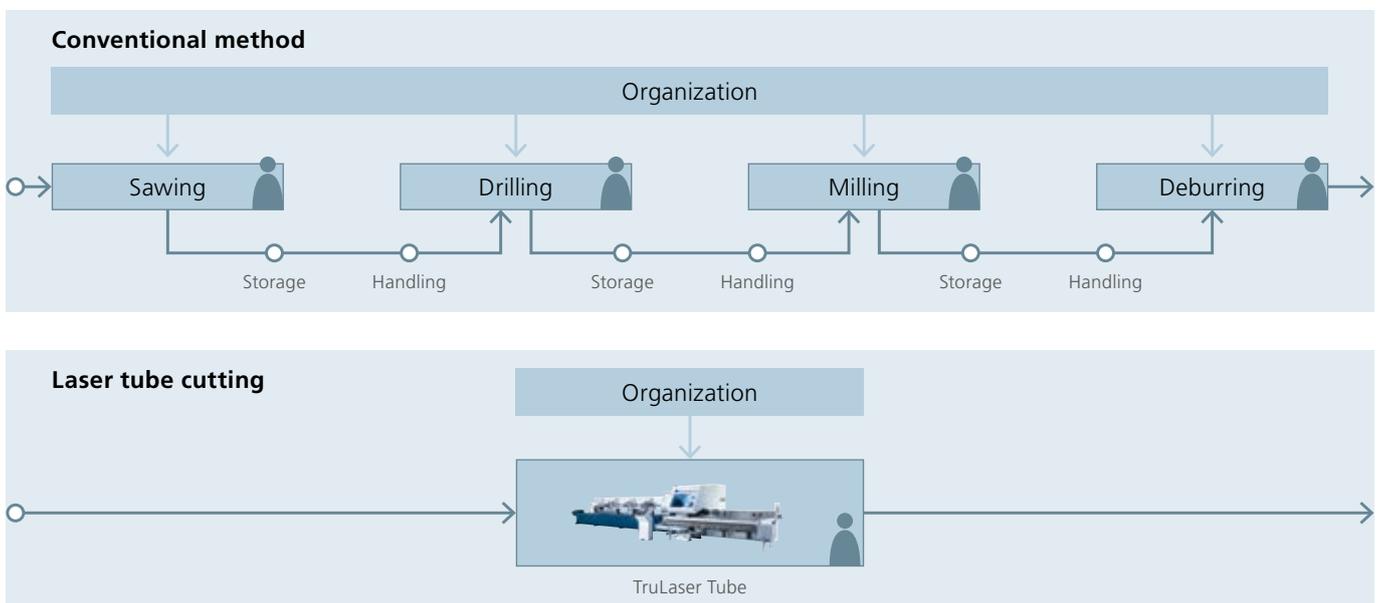
Flexible diameter and wall thickness options.



Manufacturing with greater cost efficiency.

The laser optimizes your manufacturing process in several ways. In a single operation you can create perforations and complex contours. In addition, tubes can be cut into sections. This enables innovative design solutions that minimize downstream tasks such as deburring, welding and assembly. The resources required for intermediate stages such as storage and part handling are also much lower. As a result, you can speed up your process and significantly reduce costs per part over production methods that use conventional tools for sawing, drilling and milling.

Comparison of operations required in laser tube cutting and conventional methods.



Reasons for choosing TruLaser Tube.

Economic analysis based on a typical case study.

For the part studied in our analysis, laser tube cutting reduces cycle time by 49% and costs per part by 31%



Conventional welded joint between two individually manufactured parts.



Laser cut miter joint with positioning aids for precise interlocking.

Send us a drawing of a tube part that is representative of your manufacturing activities and we will be glad to produce an economic analysis, with no further obligations on your part.

A rapidly expanding market.

Metal tubes and profiles can be found in industrial products of all kinds, from fitness equipment to furniture and to agricultural machinery. Designers have been quick to recognize the advantages of tube structures in a wealth of different applications, and are now increasingly turning to laser cutting technology for the advantages it offers. The interest in laser cut tubes has increased to such an extent that demand is growing faster than the available production capacity.

To date, only a limited number of suppliers have adopted laser tube cutting, but those that have are remarkably successful. TRUMPF customers report that they have significantly boosted sales of laser cut tubes and profiles by emphasizing the advantages of this new method of fabrication in their marketing activities. Many of them soon find themselves operating two shifts, and are investing in a second laser tube cutting machine within a couple of years.



Fitness equipment



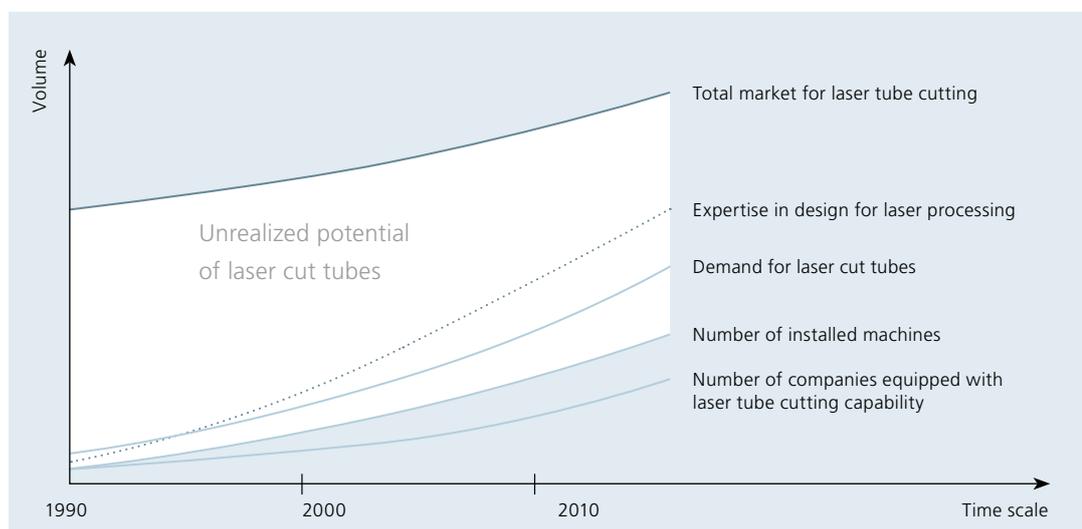
Furniture



Agricultural machinery

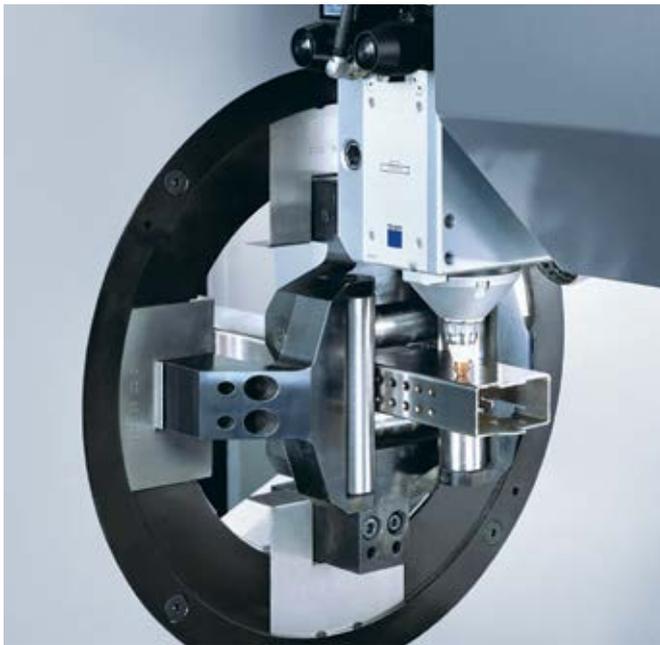
Tubes and profiles are so common, we hardly notice them.

The unrealized potential of laser tube cutting.



The demand for laser cut tubes is rising steadily in conjunction with process expertise. Meanwhile, conventional techniques account for a declining share of the market.

TruLaser Tube 5000



Wide tension rollers guide the workpiece with utmost precision to the cutting head.



Finished parts are gently ejected onto the conveyor table.

TruLaser Tube 5000: Benefits at a glance.

- 1 High productivity guaranteed by perfectly matched components.
- 2 High precision due to self-centering clamping system.
- 3 Ergonomic unloading table with workpiece buffer.
- 4 Minimum gas consumption due to extremely fine nozzles.
- 5 Ideal accessibility due to open machine design.

High-output standard machine.

This reliable all-around machine replaces conventional, separate manufacturing operations such as sawing, drilling, milling and punching, and enables the ideal entry into the laser tube processing industry. It owes its high productivity to the perfectly coordinated operation of its components, from the laser unit and its beam guidance system to the clamping units and system control software as well as the tube and profile handling modules.

Precise and ergonomic.

The chucks on the TruLaser Tube 5000 are equipped with self-centering synchronized clamping units that ensure results of the highest accuracy and consistent quality. Individual tubes can be aligned on the transport tracks or clamped into the chuck manually. The machine discharges finished parts gently onto a conveyor table that also serves as a workpiece buffer. Small parts measuring up to 300 mm in length can also be unloaded into a container. With its advanced ergonomic features

and open design, the TruLaser Tube 5000 is very user-friendly and offers uncomplicated access. Single tubes can be loaded manually at any time – an advantage when you want to interrupt a production run to produce a one-off part.

Higher earnings through automation.

Automated machines work reliably around the clock, enabling you to amortize your investment that much quicker. Automation also eliminates the risk of operating errors, resulting in higher-quality workpieces. It allows you to continue operations during idle hours or operate additional shifts.

The TRUMPF LoadMaster Tube loading system provides you with an automation solution for your TruLaser Tube 5000 that helps minimize setup time. The practical bundle magazine enables the raw material to be fed into the machine automatically. Once tube lengths have been measured, they are fed to a gripper system that transfers them to the machine.



LoadMaster Tube for the TruLaser Tube 5000.



Technical data

Max. outer circle diameter	150 mm
Max. length of raw material	6500 mm
Max. length of finished part	3000/6000 ¹⁾ mm
Max. workpiece weight	20 kg/m (120 kg total)

Laser data	TruFlow 2000	TruFlow 2700	TruFlow 3200
Maximum output	2000 W	2700 W	3200 W
Power consumption	21–40 kW/h	25–51 kW/h	27–53 kW/h

Maximum material thickness

Mild steel	6.4 mm	6.4 mm	6.4 mm
Stainless steel	4 mm	5 mm	5 mm
Aluminum	3 mm	4 mm	4 mm

¹⁾ Second figure applies to larger model (optional).

Subject to alteration. Only specifications in our offer and order confirmation are binding.



TruLaser Tube 7000

The flexible high-end machine.

The TruLaser Tube 7000 allows you to process a wide range of parts and gives you access to new applications in the field of laser tube cutting. Whatever your requirements, this machine offers all the capabilities you need: be it processing tubes with a rectangular, round or oval cross-section, cutting thin-walled or large, heavy tubes, or incorporating complex contours and cutouts. Without loss of productivity, this machine is capable of cutting tubes and profiles measuring up to 250 mm in diameter with a wall thickness of up to 8 mm (mild steel).

Minimal non-productive time.

The fully automated machine parameter setting enables your TruLaser Tube 7000 to operate with minimal non-productive time. The stepped rollers that support and guide the tubes adjust automatically to the diameter of each workpiece. Even the large waste bin used to remove cutting residue is emptied automatically. The FocusLine mechanism sets the laser focus and automatically adjusts it to suit the type and thickness of material being processed. The machine software selects the appropriate laser parameters for the type of tube to be cut. Self-centering chuck jaws adjust to each tube's geometry. You can always be assured of consistently high quality and low costs, even when manufacturing short-run batches.

TruLaser Tube 7000: Benefits at a glance.

- 1 Also cutting XXL tubes.
- 2 Flexible part-removal station with integrated parts sorter.
- 3 High laser output for high cutting speeds.
- 4 Small-batch manufacturing with minimal non-productive time.
- 5 Minimum gas consumption due to extremely fine nozzles.



Ideal for thin-walled
and thick-walled...



...tubes of large and
small diameters.

New freedom thanks to bevel cut.

The bevel cut as an option for the TruLaser Tube 7000 opens new possibilities for designers. Perform quality bevel cuts up to 45 degrees and expand your range of parts - and not only in mild steel but also for many applications in stainless steel and aluminum. The high cutting speed generates high productivity, and with the programming system TruTops Tube you can easily create miter, bevel and angled intersections.



The bevel cut opens up new production possibilities.

Integrated part sorter.

The flexible part-removal station sorts the finished parts onto a conveyor table, into wire cages or into containers, as required. Each of these components can be placed at any position, as needed.



Maximum flexibility thanks to bevel cut and part sorting.

A strong team.

The LoadMaster Tube loading system enables you to automate your production. The tube magazine can accommodate up to four metric tons of raw material. The LoadMaster Tube gripper system adapts automatically to the measured tube lengths. You always have the option of loading individual tubes manually, even if you have an automatic loading system. The transport tracks can be simply swiveled into place in order to feed single tubes into the machine.



The swivel-action conveyor segment can be used for small batches and custom profiles.

Technical data

Max. outer circle diameter	200/250 ^[1] mm
Max. length of raw material	6500/9200 ^[1] mm
Max. length of finished part	3000/4500 ^[1] /6500 ^[1] /8000 ^[1] mm
Max. workpiece weight	25 kg/m (150 kg total) / 37.5 kg/m ^[2] (225 kg total) ^[2]

Laser data	TruFlow 2000	TruFlow 2700	TruFlow 3600
Maximum output	2000 W	2700 W	3600 W
Power consumption	21–40 kW/h	25–51 kW/h	29–55 kW/h

Maximum material thickness

Mild steel	8 mm	8 mm	8 mm
Stainless steel	4 mm	5 mm	6 mm
Aluminum	3 mm	4 mm	5 mm

^[1] Figure applies to larger models (optional).

^[2] Figure applies to model with 250 mm max. outer circle diameter (optional).

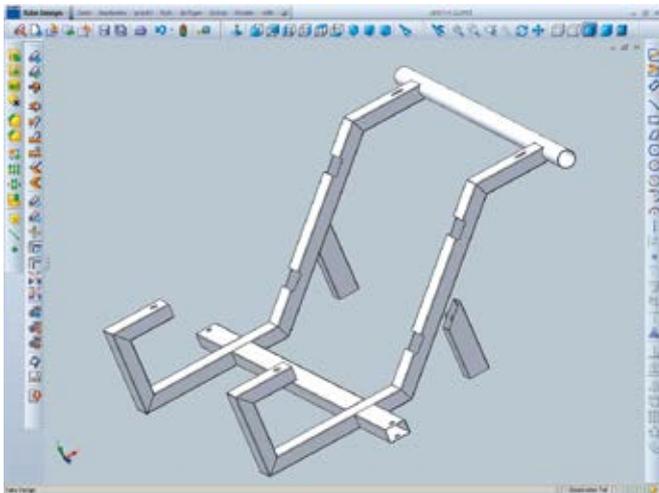
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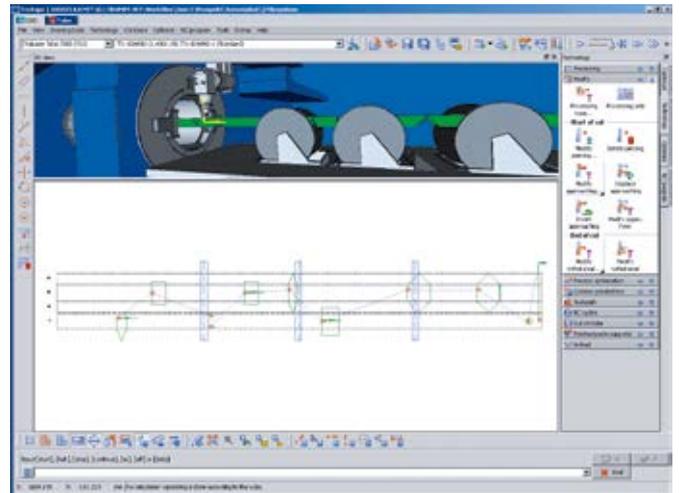


Software:

Programmed
for success.



3-D design for tube structures.



Workflow simulation.

TruTops Tube:
Benefits at a glance.

- 1 Productive and process-reliable programming.
- 2 3-D design engineering.
- 3 Productivity-enhancing functions.
- 4 Efficient thanks to automated functions.
- 5 Intelligent support.

More efficient programming.

The TruTops Tube programming software makes it easy to produce complex construction drawings and process-reliable NC programs for your TruLaser Tube machine. The production-ready programs can be transferred to your machine via the network. And the part removal strategy can also be easily defined with only a few clicks.

3-D design engineering.

The 3-D tube design module enables you to produce even the most complex tube structures with a minimum of effort. An integrated library of standard cases helps you to generate data for a wide range of tube connections. The parametric design principles implemented in the software simplify the task of modifying existing designs or creating new variants.

Productivity-enhancing functions.

The Interface 3-D Tube function enables you to import customer data directly into the NC program. This eliminates the need for time-consuming design modifications and can advance from the customer's file to the finished NC program in a few clicks. There is a special function for creating angled joints between tubes that allows tubular frameworks to be constructed from a single length of tube. And, to guarantee precise part alignment in subsequent manufacturing steps, you can add tabs and hooks using the special positioning aid function.

In TruTops Tube, the TubeNest function optimizes your use of tubes or profiles. Different parts can be nested and produced together on one tube – easily and quickly. And you will know how much time and materials are required before you even start.

Efficient thanks to automated functions.

The TruTops Tube programming system incorporates all of the laser and other reference tables you need to operate your tube cutting machine to maximum efficiency. Therefore, you will benefit from the knowledge and experience that TRUMPF has built up over the years.

Intelligent support.

TruTops Tube is perfectly matched to the TruLaser Tube family of machines. The order in which different contours are processed is defined and calculated accordingly. The workflow simulation function allows the programmer to test the NC program in advance on a PC and optimize it where necessary



More information can be found at:
www.trumpf-machines.com/en/services

TruServices:

Technical Service and Consulting.

Technical Service. You can count on us.

Regardless of whether your production site is in Stuttgart, Seattle or Shanghai – our worldwide service network ensures that our Technical Service teams are always within reach when you need them. If you have an urgent problem, our specialists are there to help. After discussing your needs, they will decide with you whether to dispatch one of our more than 1,000 service technicians to provide on-site support or whether the problem is best dealt with by providing remote assistance. This approach reduces downtime and keeps local service appointments to a minimum – saving you time and money. Our highly qualified service technicians attend regular training courses that enable them to provide prompt and competent support at all times, not only while your machine is being installed and throughout its operational life, but also in special cases such as relocation.



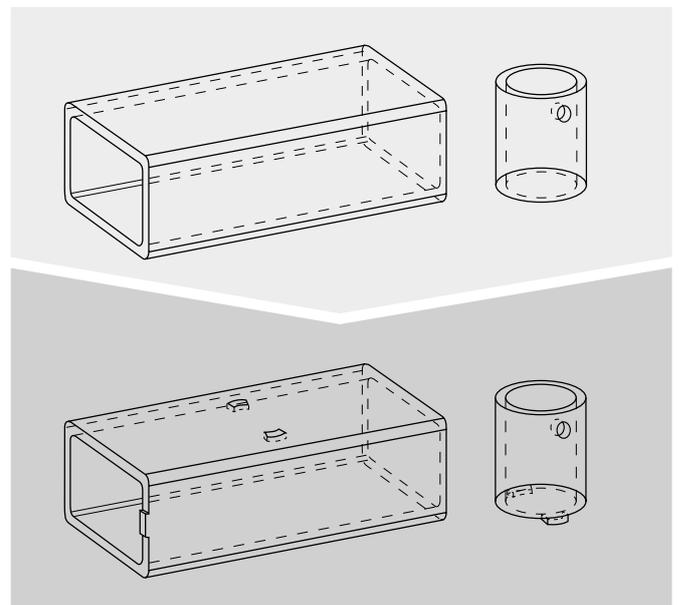
Competent support via telephone.

Professional advice for tube designers. Rethink and save money.

Our extensive experience enables us to provide you with professional advice on your specific applications. You can obtain numerous practical tips at our hands-on design workshops that will enable you to develop new, creative ideas and efficient solutions for your tube products. We can provide application examples using laser cut tubes and use them to help you optimize the assemblies you produce in your facilities. Our overriding goal is to reduce your costs, simplify production processes, and improve component functionality. Our workshop instructors provide individual advice to participants.

For more information:

www.trumpf-machines.com/en/services/consulting

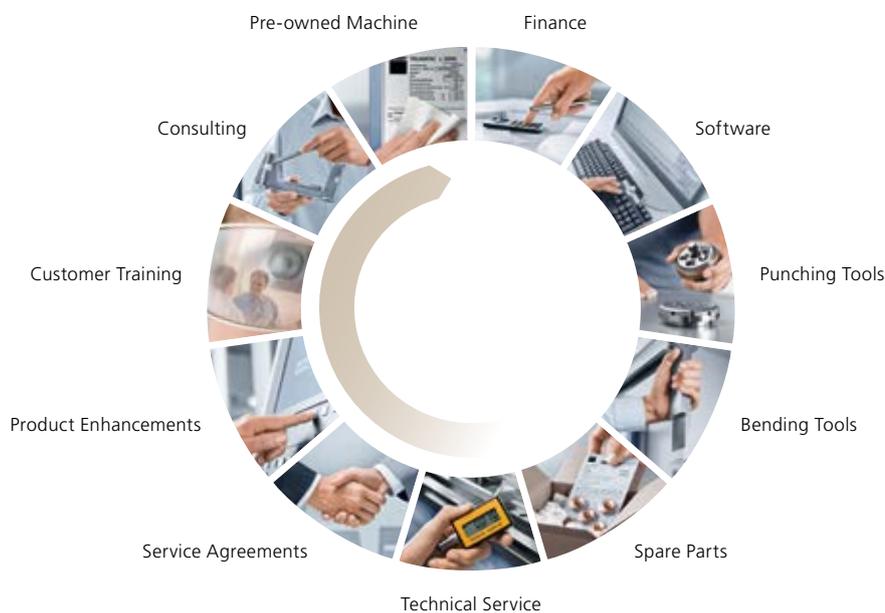


Clever design for laser processing – our workshop shows you how.

TruServices:

Service like
no other.

Throughout the lifecycle of your machine.



Regardless of the TRUMPF technology you use, you will always get the best service. And, thanks to TRUMPF's award-winning spare parts logistics, all parts can be shipped to you in the shortest time possible. TRUMPF Leasing offers you individual financing solutions quickly and without a lot of paperwork. Our service technicians are highly trained and always available when you need them. A Service Agreement is the ideal way of ensuring the best usability of your machine.

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



You can find out more about our services at www.trumpf-machines.com/services

TRUMPF is certified according to ISO 9001:2008
(for more details, see www.trumpf.com/quality)

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