TruLaser Tube

Shape the future
Go with growth

Whether you’re already in the business of conventional tube cutting or looking for new applications to tackle, the high growth rate of the market for laser-cut tubes offers exceptional opportunities for success.

Tubes and profiles are used in everything from machine and system construction to the furniture industry. The introduction of laser tube cutting has forged the way for a host of new design opportunities in this area, and designers are increasingly taking advantage of laser-cut tubes and profiles. As a result, demand for these products has increased significantly. Does your company stand to benefit from the competitive edge of laser tube cutting?
The future is the laser
4–5

The process of laser tube cutting requires fewer steps which saves money.

Flexibility and efficiency
6–7

Cutting with a laser requires less time and lowers cost per part.

The road to success
8–9

Lay the foundations for long-term success with laser tube cutting.

Solutions that move you forward
10–11

Real benefits every step of the way.

Our machines
12–19

The right machine for every job.

TruConnect – Your Smart Factory
20–21

Our TruConnect solutions will support you on your way to a Smart Factory.

Everything from one source
22–23

As a full service provider with individual advice and a large service network, we are always there for you.
The future is the laser

Pressure to manufacture products in shorter time periods and at lower costs is growing in conventional tube cutting. With the laser, entire process steps are no longer necessary, and this means immediate savings. You will expand your part variety and your range of customers at the same time. The laser’s versatility makes it possible to produce small lot sizes quickly and efficiently and offers the flexibility needed to tackle custom jobs. The broadened spectrum of design possibilities offered by laser cutting gives both manufacturers and their customers a clear competitive edge over conventional methods.

“Laser tube cutting offers new design options with which tube processors generate a lot of excitement in their customers. In addition, innovative designs make it possible to save a great deal of money.”

Norbert Beier, Head of Sales Laser Tube Cutting
Why a laser?

- Take advantage of true flexibility
- Efficient production
Flexibility and efficiency

Contouring freedom
The laser allows you to contour freely. The laser beam makes it easy to cut even the most complex shapes and its intuitive controls let you produce even small, high-quality lots quickly.

Cut down on tools
A laser is a single tool which allows you to process a variety of materials, wall thicknesses and profile geometries without ever having to touch the material. As opposed to working with other technologies, tool setup and tooling costs are significantly reduced.

Lower cost per part
Laser tube cutting lets you skip entire process steps such as sawing, drilling and milling. It also cuts down on storage and handling expenses. Compared to conventional tube processing, lasers significantly reduce the cost per part.

Minimize time investment
Innovative tube designs reduce the need for downstream work such as welding and mounting. Positioning aids with slots and tabs make assembly much easier. High edge quality makes reworking the material completely unnecessary in most cases.

New business opportunities
Impress customers with products and design variants which cannot be achieved, or are not economically feasible, with conventional methods.

A comparison of the production steps involved in laser tube cutting and conventional manufacturing

Conventional manufacturing

<table>
<thead>
<tr>
<th>Organization</th>
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<tbody>
<tr>
<td>Sawing</td>
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<tr>
<td>Storage + Handling</td>
</tr>
<tr>
<td>Drilling</td>
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<tr>
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<tr>
<td>Milling</td>
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<tr>
<td>Storage + Handling</td>
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<td>Deburring</td>
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<tr>
<td>Storage + Handling</td>
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<tr>
<td>Thread cutting</td>
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Laser tube cutting

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</table>

Flexible designer cable guide, cut from a single tube.
Simply efficient

Taking the example of a bending connection, laser tube cutting is 49% more time-efficient and 31% more cost efficient per part.

| Construction, programming, job | 47% |
| Processing | 33% |
| Intermediate handling, reworking | 100% |
| Hourly rates | +50% |
| Total time per part | -49% |
| Cost per part | -31% |

Laser tube cutting with TruLaser Tube

Conventional manufacturing (Sawing, milling, drilling)

Conventional welding of two separate parts.

Efficient production of bend connections and positioning aids using a laser.
The road to success

With laser tube cutting, you will lay the foundation for long-term success. Get yourself the right partner to achieve this: As the global market leader in laser technology and machine tool building, we set the pace for innovation in the market, and as such we offer you ideal solutions for the world of laser tube cutting.

Complete service
With TRUMPF there's no need to buy additional components. We are your single source for everything you need: machine, laser, automation, software and the support of our international service network.

Know-how comes standard
Hit the ground running with our turnkey solution: complete with an industrial-quality machine, simple controls, and technology and cutting data.

Set yourself up for future success
To secure your long-term success, we invest more than average in the development of tube cutting technology.
Why TRUMPF?

- The right laser for your application
- Highest productivity
- Innovative features such as bevel cutting
- Comprehensive technology and cutting data
- Open and ergonomic machine design

For tube enthusiasts
Learn more about innovative construction options and intelligent machine functions to set yourself apart from the competition in the long run.
www.trumpf.com/s/world-of-tubes
Solutions that move you forward

Our functional features and integrated know-how support your tubes and profiles every step of the way through the machine. Each component is designed to achieve optimal results: Real benefits every step of the way.

Loading

Automation
The LoadMaster Tube reduces setup time. Its tube magazines can hold up to four tons of raw material and loaded tubes are automatically verified before being fed for cutting.

Flexibility
The open and ergonomic machine concept even makes it easy to load individual tubes.

Smart features
Smart Profile Detection allows you to automatically load profiles with geometries that could previously only be loaded manually. This allows you to tap into new fields of application.

SeamLine Tube identifies weld seams and markings to guarantee that each tube is properly aligned in the machine. This feature also provides the option of scanning the inside of the tube.

Perfect clamping
Collet chucks position the tube and hold it in place while protecting the material. The self-centering clamping method with constant sensor monitoring adjusts to fit any tube geometry. The advantage is clear: precise results and consistent high quality.

Software

TruTops Tube
The TruTops Tube programming software lends a helping hand with more complex constructions. The 3D construction module makes it easy to perform complicated tube intersections.

TruTops Monitor
TruTops Monitor reduces idle times by gathering and analyzing machine data to inform you of any problems with the machine.

TruTops Fab
Take control of the entire production process with TruTops Fab. Handle quotations and invoicing, plan production, and monitor and operate your machines.
Cutting

Sturdy laser
At the core of the TruLaser Tube is a high-powered TRUMPF laser. Choose between a TruFlow CO₂ laser or a TruDisk solid-state laser (SSL).

Intelligent cutting head
The one-cutting-head strategy reduces downtimes. The slim nozzle even allows you to process profiles with internal edges. A magnetic coupling protects the cutting unit during collisions.

Concentrated expertise
The machine includes a complete set of high-quality cutting data. TRUMPF technology guarantees quick results and the best possible cutting quality right from the start.

Optimal focal position
FocusLine automatically adjusts the focal position of your laser in accordance with material type and thickness.

Controlled piercing
Need to quickly make small, precise piercing holes without damaging the material? PierceLine is the perfect feature for you.

Bevel cutting up to 45°
The bevel cut option with patented TRUMPF technology* opens up a whole new world of possibilities for designers. Expand your range of parts with high-quality bevel cuts up to 45°.

Unloading

Ergonomic design
The conveyor tables sit at an ergonomic height to make unloading much more comfortable. These also serve as a useful material buffer.

Gentle with material
Finished parts are discharged from the machine onto the conveyor table in a material-friendly way.

Smart
Your machine thinks along with you. Sensors detect whether a part has been properly removed or not – a real plus for your process reliability.

* US9108271; US9149889; US8781269.
TruLaser Tube 5000 fiber

Solid-state laser technology means fast and flexible processing. The TruLaser Tube 5000 fiber is built on these strengths like no other laser tube cutting machine.

01
Highly productive
with solid-state laser and RapidCut

Thanks to RapidCut, the solid-state laser’s high feed rate is noticeable even for small contours. This represents a huge plus for productivity when processing thin sheet material.

02
Setup time
is virtually eliminated

Setup is now a thing of the past, thanks to the TruLaser Tube 5000 fiber’s clamping method. Tubes can be processed across the entire clamping range without the need for modifications.

With RapidCut, you can reduce part times for material thicknesses of up to 0.12 in.
Easy access thanks to the intelligent beam guard

Tube processing with a solid-state laser can also be done without a complete housing – the TruLaser Tube 5000 fiber’s open machine concept guarantees easy access. Individual tubes can be quickly and easily loaded and unloaded from the front.

Easily expandable for follow-up processes such as tapping

Simply integrate additional processes: With the technology package for tapping you can carry out machining processes such as flow drilling, tapping, and twist drilling. In the laser network, you can operate several TRUMPF machines with one laser.

Technical details

<table>
<thead>
<tr>
<th></th>
<th>TruDisk 2001</th>
<th>TruDisk 3001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. outside diameter of round tubes (in.)</td>
<td>6*</td>
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<tr>
<td>Max. outer circle diameter of rectangular tubes (in.)</td>
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<td></td>
</tr>
<tr>
<td>Max. raw material length for automatic loading (ft.)</td>
<td>21/26**</td>
<td></td>
</tr>
<tr>
<td>Max. finished part length (ft.)</td>
<td>10/15**/21**/26**</td>
<td></td>
</tr>
<tr>
<td>Max. weight of workpiece lbs/ft.</td>
<td>13 (287/353** lbs in total)</td>
<td></td>
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</table>

Laser details

<table>
<thead>
<tr>
<th></th>
<th>Max. output (kW)</th>
<th>Average power consumption in production (kW)</th>
<th>Max. material thickness (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild steel</td>
<td>0.3</td>
<td></td>
<td></td>
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<tr>
<td>Stainless steel</td>
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<td></td>
<td>0.3</td>
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<tr>
<td>Aluminum</td>
<td>0.08</td>
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<tr>
<td>Copper/brass</td>
<td>0.12</td>
<td></td>
<td>0.16</td>
</tr>
</tbody>
</table>

* Manual loading of round tubes with outside diameter of 6 – 6.7 in. optionally possible.  ** Figure applies to larger model (optional). Subject to alteration. Only specifications in our offer and order confirmation are binding.

The innovative clamping method virtually removes the need for setup.
TruLaser Tube 5000

Open and modular down to the last detail. The machine concept has proven its worth worldwide, through the course of day-to-day industrial production – it is an ideal choice for entry into laser tube processing.

01 Open machine design
Keeping an eye on everything, at all times

02 Modular installation
customized to your requirements

Due to the machine’s open design, the operator can keep an eye on the entire process at all times. The exceptional accessibility makes it possible for individual tubes to be loaded and unloaded quickly.

Install your TruLaser Tube in line with your requirements. Here, you can place the LoadMaster Tube either in front of or behind the machine, as desired. You can set up conveyor tables, wire mesh boxes, and containers on the unloading side.

Due to the innovative clamping system, you can produce with virtually no setup.
### Technical details

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<td>6.0*</td>
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<td>in.</td>
<td>6.7</td>
</tr>
<tr>
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<td>ft.</td>
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<td>ft.</td>
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<td>lbs/ft.</td>
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<table>
<thead>
<tr>
<th>Laser details</th>
<th>TruFlow 2000</th>
<th>TruFlow 2700</th>
<th>TruFlow 3200</th>
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<tr>
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<td>kW</td>
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<td>2.7</td>
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<tr>
<td>Average power consumption in production</td>
<td>kW</td>
<td>17</td>
<td>20</td>
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### Laser details

<table>
<thead>
<tr>
<th>Max. material thickness</th>
<th>Mild steel</th>
<th>Stainless steel</th>
<th>Aluminum</th>
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</thead>
<tbody>
<tr>
<td>in.</td>
<td>0.3</td>
<td>0.4***</td>
<td>0.4***</td>
</tr>
<tr>
<td>in.</td>
<td>0.16</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>in.</td>
<td>0.12</td>
<td>0.16</td>
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### Minimum idle states

with a clamping system that does not require setup

Setting up means increased expense – especially for small lot sizes. Thanks to the innovative clamping system of your TruLaser Tube 5000, you can produce tubes in the entire clamping range with virtually no setup.

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### Reduced part costs

due to integration of follow-up processes

By integrating upstream and downstream processes into the TruLaser Tube 5000, you save time and money. For example with the technology package for tapping, you can produce threads even in thin materials, due to flow drilling. You avoid having to travel from one machine to the next and in doing so, reduce part costs and the risk of errors.

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The technology package for tapping makes flow drilling easily viable.
TruLaser Tube 7000

Our flexible high-end machine for XXL laser tube cutting.

Highly flexible
for tubes up to 10 in.

Sorting included
via flexible part-removal station

The TruLaser Tube 7000 is the choice for XXL laser tube cutting. Process tubes and profiles with diameters up to 10 in. and wall thicknesses of up to 0.4 in. on mild steel. The perfect machine for all jobs: process small, rectangular, round and oval tubes.

The flexible part-removal station sorts the finished parts onto a movable conveyor table, into wire cages or into transport containers, as desired. All components can be placed freely.

With Central Link, the interface for Industry 4.0

Suitable for thick, thin, small, and large tubes.
Carry out follow-up processes on your machine with ease: With the optional technology package for tapping, for example, you can carry out machining processes such as flow drilling, tapping, and twist drilling—automatically. Upon request, the spatter protection device protects the insides of your tubes against slag, and in doing so reduces the need for reworking.

**Efficient**
from lot size 1 due to open machine design

**Integration**
of follow-up processes

<table>
<thead>
<tr>
<th>Technical details</th>
<th>in.</th>
<th>ft.</th>
<th>lbs/ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. outside diameter of round tubes</td>
<td>8 / 10*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. outer circle diameter of rectangular tubes</td>
<td>8 / 10*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. raw material length for automatic loading</td>
<td>21 / 30*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. finished part length</td>
<td>10 / 15/ 20 / 21 / 26*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. weight of workpiece</td>
<td>17 (331 lbs in total) / 25 ** (496 lbs in total)***</td>
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</table>

<table>
<thead>
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<th>TruFlow 2000</th>
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<th>TruFlow 3600</th>
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<tbody>
<tr>
<td>Max. output kW</td>
<td>2</td>
<td>2.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Average power consumption in production kW</td>
<td>20</td>
<td>23</td>
<td>26</td>
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* Figure applies to larger model (optional). ** Figure applies to model with 10 in. max. outer circle diameter (optional). *** With PierceLine (optional).
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TruLaser Tube
7000 fiber

Highest level of productivity – even for XXL tubes.

Dynamic and productive
with solid-state laser and RapidCut

The superimposed movement of the tube axis and cutting head increases the dynamics of your machine by more than four times. Due to RapidCut, the high feed rates of your solid-state laser make an impact even with smaller contours. Above all, this means an enormous plus for productivity in thin material.

XXL
Tubes up to 10 in. diameter

With RapidCut, you accelerate your production by up to four times.

Whether large or small, thick or thin: With your TruLaser Tube 7000 fiber you can cut a broad spectrum of parts. This includes even extra-large tubes and profiles with diameters up to 10 in., and wall thicknesses of up to 0.4 in. for mild steel.
### Technical details

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<td>ft.</td>
<td>21/30*</td>
</tr>
<tr>
<td>Max. finished part length</td>
<td>ft.</td>
<td>15/20*</td>
</tr>
<tr>
<td>Max. weight of workpiece</td>
<td>lbs/ft.</td>
<td>27 (496 lbs in total)**</td>
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<tr>
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* Figure applies to larger model (optional). ** Max. total weight of 27 lbs/ft. for manual loading.

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### Easily accessible

Easily accessible during loading and unloading

The open machine concept makes your TruLaser Tube 7000 fiber optimally accessible. This allows you to load individual XXL tubes – for example by crane – quickly and efficiently. For small lot sizes and special profiles you can use the swivel-mounted conveyor system.

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### Minimum nonproductive time

with setup-free tube supports

Due to fully automatic machine settings, your TruLaser Tube 7000 fiber produces with minimum nonproductive time. The tube supports guide tubes and automatically adjust according to the respective diameter of the workpiece. Setup? Not necessary.

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Ideal for lot sizes of 1: crane loading also possible for heavier tubes.
TruConnect –
Your Smart Factory

80%
Indirect processes make up 80% of your production time – this represents the greatest potential for savings.

Discover the potential networked production could unlock for you with these two example scenarios: www.trumpf.com/s/smart-factory
Gain more freedom with digital networking: You see more, know more, and get the most out of your laser systems and your overall production. With TruConnect, the synonym for Industry 4.0 at TRUMPF, you can design your Smart Factory step by step. The pragmatic solutions from TRUMPF support you on your path towards networked production, helping you make your entire process more transparent, more flexible, and above all more efficient.

**For companies big and small**

*From the simple product solution right through to fully networked production.*

- **Getting started** with machines that are equipped for networking as standard
- **Improving gradually** with automated machines or autonomous processing cells embedded in a production solution
- **Entirely connected** with a continuous production solution, from order to delivery

**Smart functions and Industry 4.0**

With the MobileControl app you can operate and monitor your machine easily and flexibly: It transfers the standard control panel interface to the touchscreen of your tablet. Thanks to the Central Link interface, your TruLaser machine is ready for Industry 4.0.

You can monitor and control your machine in the machine environment with the MobileControl app.

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You can find more information about networked production here:
www.trumpf.com/s/smart-factory
Perfect interaction for your success

From the machine to the laser and the optical system, to the technology data: Intelligent machine functions are based on the interaction between different components. This is why we develop and manufacture them ourselves. The result? Consistent solutions down to the details – the ideal basis for your success.

The result

You receive a production system that is always available, comprised of components with perfect interplay.

TruServices

With comprehensive services and a global service network, we are always there for you.

Software

You optimize your production processes with software solutions from TRUMPF. The TruTops Tube programming system is optimally designed for your machine.

Automation

Many automation components are available for your TruLaser Tube machine, for example, the LoadMaster Tube for loading your tubes.

Process expertise

Every machine contains updated technology data checked by TRUMPF for laser tube cutting – so you can get started right away.

Optical system

We develop lasers, fiber optic laser cables and cutting heads for each specific set of requirements and for every series. The benefit to you: You can make the best possible use of your equipment.

Machine

All TruLaser Tube machines are developed and produced by TRUMPF – they are a robust solution for your day-to-day industrial applications.
Commitment is what drives us

Whether manufacturing and production technology, laser technology or material processing: We develop highly innovative products and services for you that are industry standard and completely reliable. In order to offer you persuasive competitive advantages, we give it our all: Expertise, experience and plenty of commitment.

Lasers for production technology
Whether macro, micro or nano: We have the right laser and the right technology for any industrial application, allowing you to manufacture in an innovative yet cost-efficient manner. As well as the technology, we will also support you with system solutions, knowledge of applications and advice.

Power supplies for high-tech processes
From semi-conductor production to manufacturing solar cells: Our high- and medium-frequency generators give electricity for induction heating, plasma and laser excitation a defined form based on frequency and demand – highly reliable and with repeat accuracy.

Machine tools for flexible sheet and raw processing
Laser cutting, punching, bending, laser welding: For all processes in flexible sheet production, we offer you custom-fit machines and automation solutions, including consultancy, software, and services – enabling you to produce your products reliably and in high quality.

Industry 4.0
The TruConnect range of solutions connects man and machine through information. It covers all steps of the production process – from offer to shipping your parts.