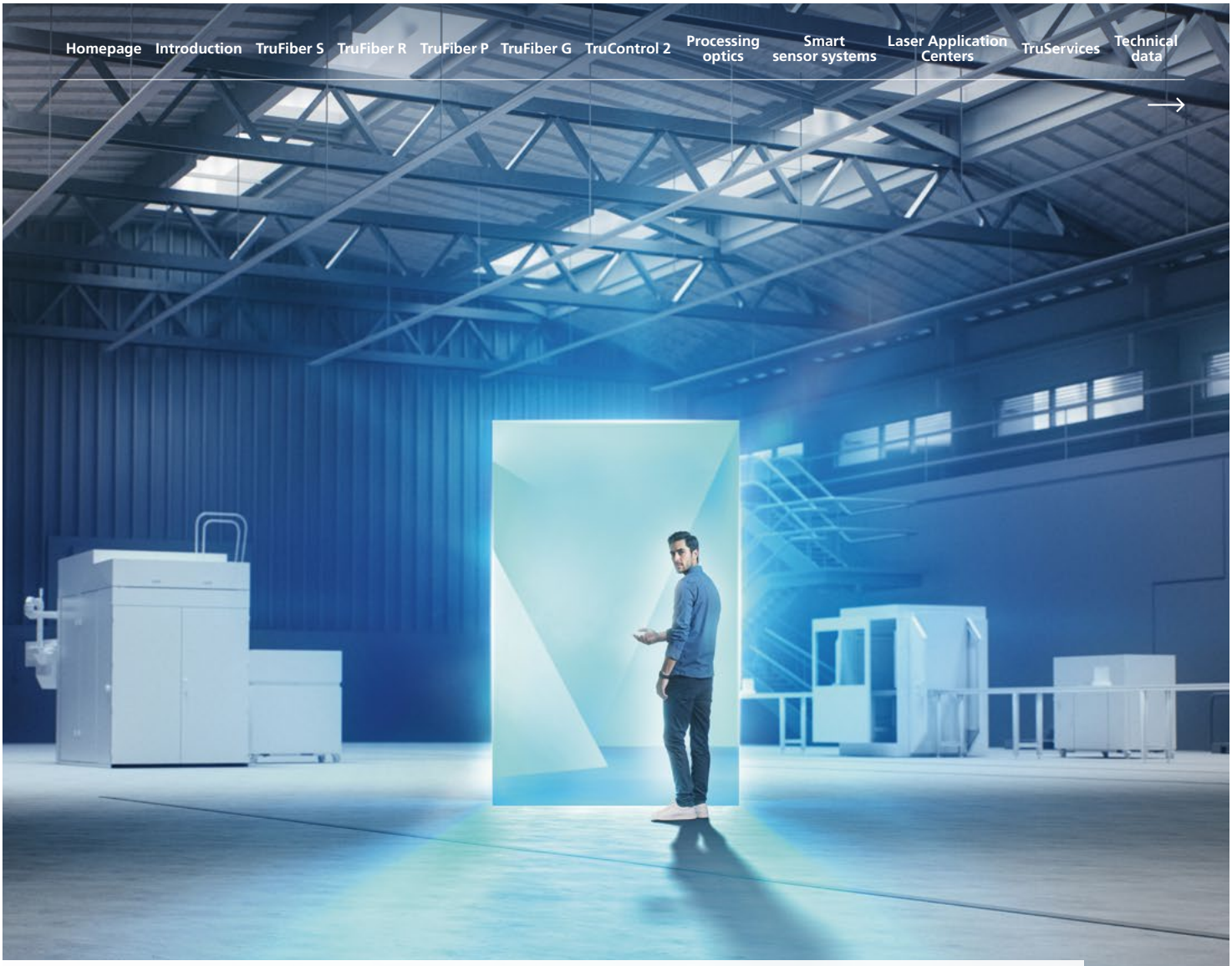
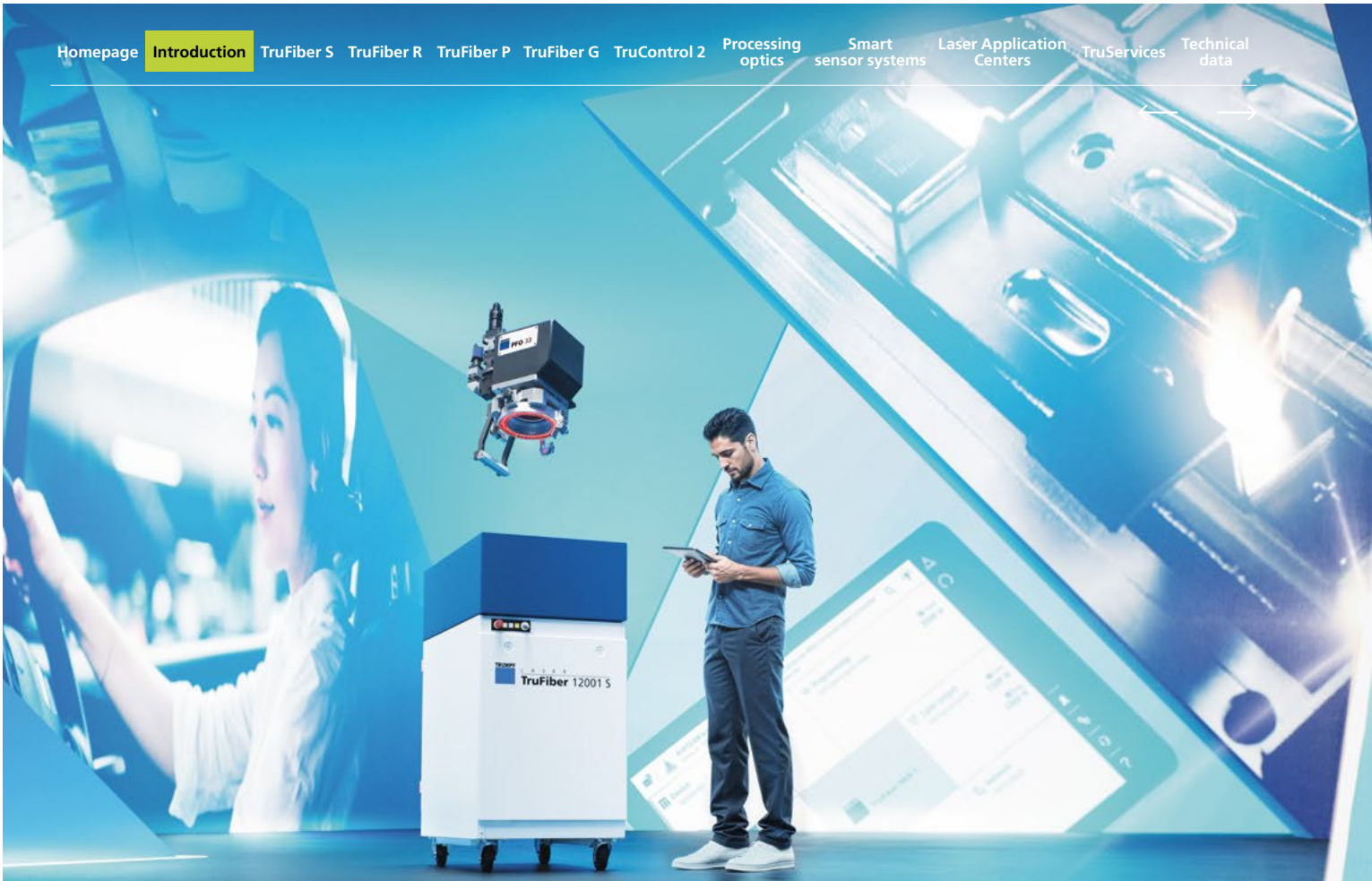


TRUMPF

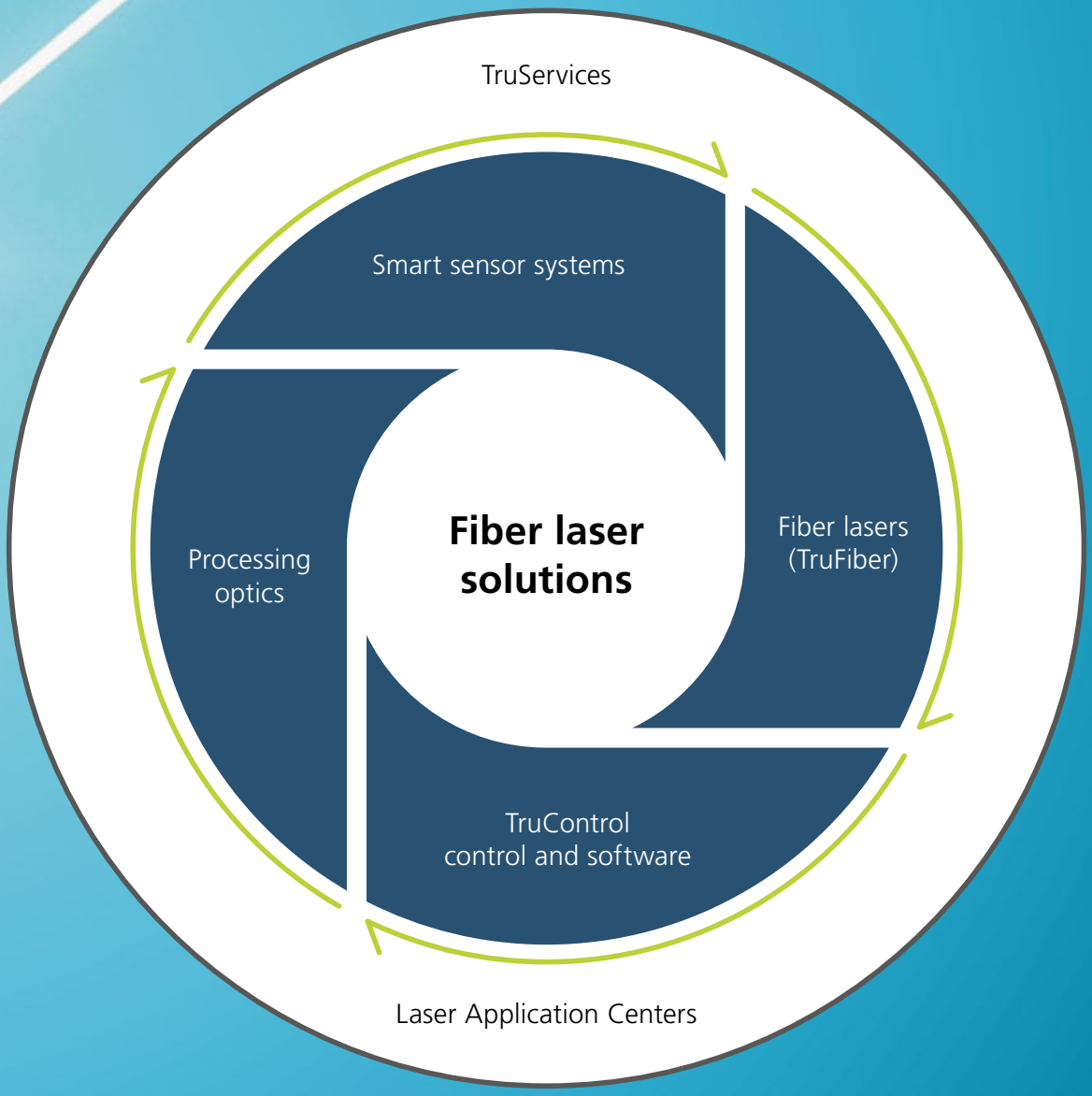
Imagine beyond imagination

The smartest fiber lasers. Ultimate solutions.



Experience unsurpassed performance with TRUMPF fiber laser solutions – tailored to your specific requirements for precision and reliability

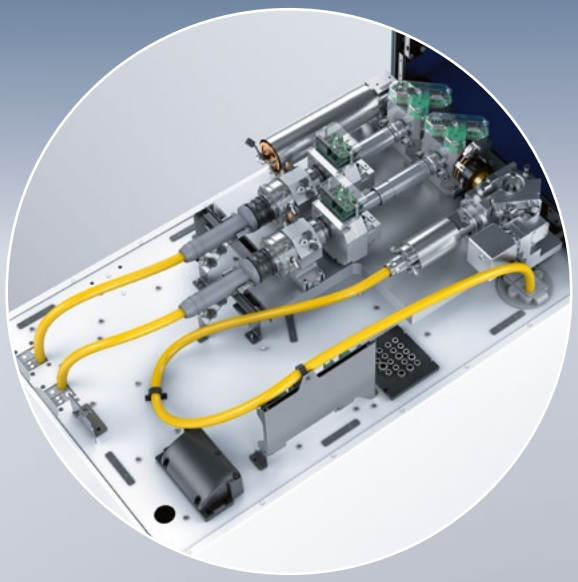
With our portfolio of fiber lasers, you are ready for a wide range of laser applications. TRUMPF lasers have proven their strengths across a wide range of industrial applications, showing themselves to be effective, innovative and eco-friendly. At TRUMPF, we supply you with everything from a single source: lasers, sensors, optics, controls and services. Whatever your project or process – we will do everything to find the right solution for your needs.



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TruFiber S





High-end fiber lasers for flexible use

The multimode fiber lasers of the TruFiber S Series are our all-rounders in the power range from 1 to 12 kW. A variable beam guidance system is integrated in the compact laser housing. The utilization of the lasers can be optimized by using several laser outputs. Our proven BrightLine Weld technology, in combination with a wide selection of pluggable laser light cables (LLK), ensures high-quality results at maximum welding speeds.

Key features

- **Multimode fiber laser with laser powers of 1 to 12 kW**
- **Variable beam shaping with up to 2 laser outputs**
- **BrightLine Weld for high-quality weld seams and virtually spatter-free laser welding**
- **Highest beam quality up to 12 kW laser power and plug-in laser light cable**
- **With TruControl – the fastest and most intelligent laser control**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-s/

TruFiber S



up to
50 kW

Ultra high-power laser

The high-performance variants of our TruFiber S Series have a power range of 18 to 50 kW and represent state-of-the-art technology. These variants offer unprecedented gains in productivity and process capabilities for welding and cutting applications. The high beam quality and proven BrightLine Weld technology produce precise cut edges and high-quality weld seams. In addition, the lasers deliver unparalleled performance in high-speed laser metal deposition, while maintaining maximum efficiency.

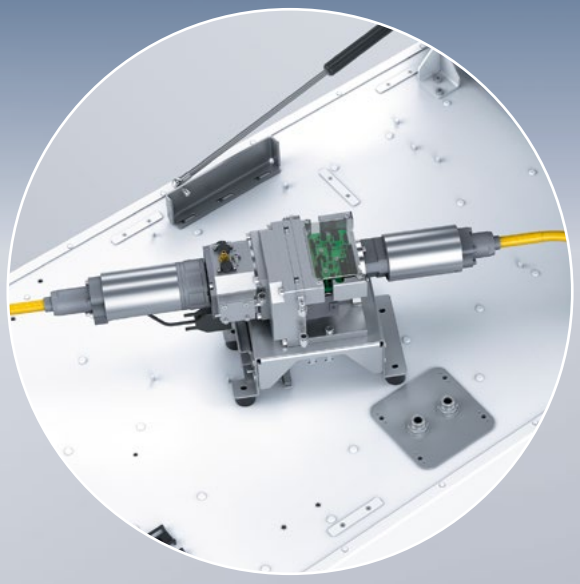
Key features

- **Multimode fiber laser with laser powers of 18 to 50 kW**
- **BrightLine Weld for virtually spatter-free laser welding**
- **Highest beam quality up to 50 kW laser power and plug-in laser light cable**
- **With TruControl – the fastest and most intelligent laser control**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-s/

TruFiber R





High-end fiber lasers for efficient welding applications

The multimode fiber lasers of the TruFiber R Series cover a power range from 3 to 12 kW. They feature a pluggable LLK laser output and a large selection of laser light cables. Thanks to BrightLine Weld's robust beam shaping, the laser can be flexibly adapted to application requirements, consistently achieving high-quality process results.

Key features

- **Multimode fiber laser with laser powers of 3 to 12 kW**
- **1 laser output with pluggable laser light cable**
- **BrightLine Weld beam shaping for nearly spatter-free laser welding and maximum weld seam quality**
- **Reliable process stability and availability**
- **With TruControl – the fastest and most intelligent laser control**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-s/

TruFiber P





Customized fiber laser with a wide range of configuration options

Flexible, powerful and precise: The TruFiber P Series can be configured to meet a wide range of production requirements. For the greatest precision, select the singlemode version, rated at up to 3 kW. For greater welding depth and speed, select the multimode version, capable of delivering up to 9 kW. The optional BrightLine Mode singlemode beam shaping allows you to achieve excellent welding results when processing copper. Thanks to TRUMPF's versatile laser technology, all variants can be combined and supplemented with a wide range of services.

Key features

- **Power range singlemode up to 3 kW, multimode from 0.5 to 9 kW**
- **1 laser output with spliced laser light cable**
- **Beam shaping with BrightLine Mode in singlemode operation**
- **Reliable process stability and availability**
- **With TruControl – the fastest and most intelligent laser control**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-p/

TruFiber G



Our economical laser source for integrators

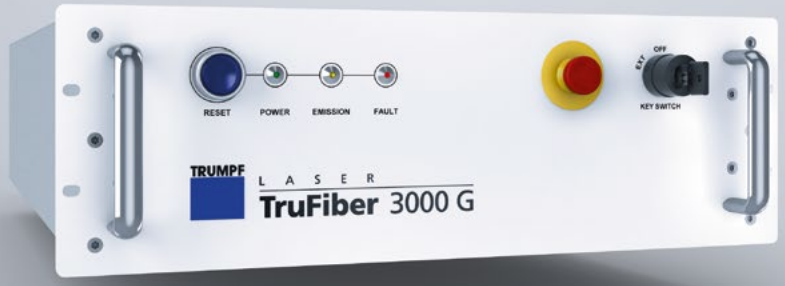
The ideal solution for companies that are looking for a reliable laser as opposed to a complete package: The TruFiber G Series provides machine and plant manufacturers with all they need for precise cutting and welding – compact, cost-efficient and reliable. You can easily integrate the laser into your existing cutting and welding machines, relying on TRUMPF's proven quality. TRUMPF also uses the TruFiber G in its TruLaser Series 1000 2D laser cutting machines.

Key features

- **Excellent performance at an attractive price**
- **Beam shaping in BrightLine Mode for low-spatter welding**
- **Compatible with TRUMPF fixed optics**
- **User-friendly, web-based control software Laser MC II**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-g/

TruFiber G



Compact powerhouse

The compact version of the TruFiber G Series can be easily integrated into any 19" rack cabinet on your production line and offers singlemode beam quality in the 1 to 3 kW power range.

Key features

- **Excellent performance at an attractive price**
- **Singlemode beam quality in the 1 to 3 kW power range**
- **User-friendly, web-based control software Laser MC II**
- **Compatible with TRUMPF fixed optics**

For more information:
www.trumpf.com/en_INT/products/lasers/beam-sources/cw-laser/trufiber-g/

TruControl 2

TruControl 2 is the most modern, intelligent and comprehensive laser control on the market. It was developed to optimally utilize the power of fiber lasers in every process step. From commissioning and setting up the system to programming the processes and monitoring operation. TruControl 2 offers extensive additional functions and can be used directly on the panel PC or remotely via a network connection.

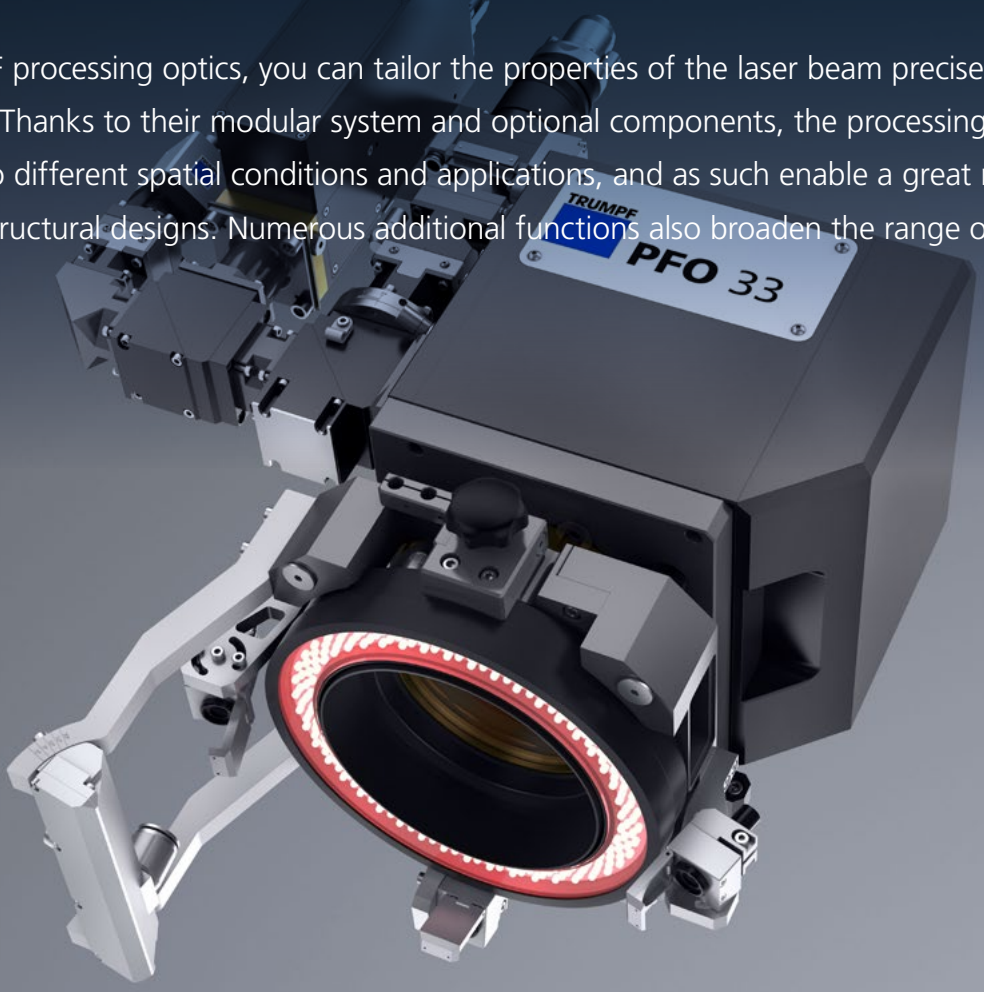


Key features

- **Easy operation and setup of the complete system**
- **Wide range of interface options: Fieldbus, Ethernet, Digital I/O, Analog/digital real-time interface, OPC UA**
- **High availability and productivity**
- **Important process parameters at a glance**
- **Supports the user actively through fast and efficient diagnostics**
- **Any changes made to the system can be tracked and reversed in TruControl 2 at any time**
- **Perfect support in the event of malfunctions, Remote Support via TRUMPF Service**

Processing optics

With TRUMPF processing optics, you can tailor the properties of the laser beam precisely to your task at hand. Thanks to their modular system and optional components, the processing optics can be adapted to different spatial conditions and applications, and as such enable a great number of different structural designs. Numerous additional functions also broaden the range of industrial applications.



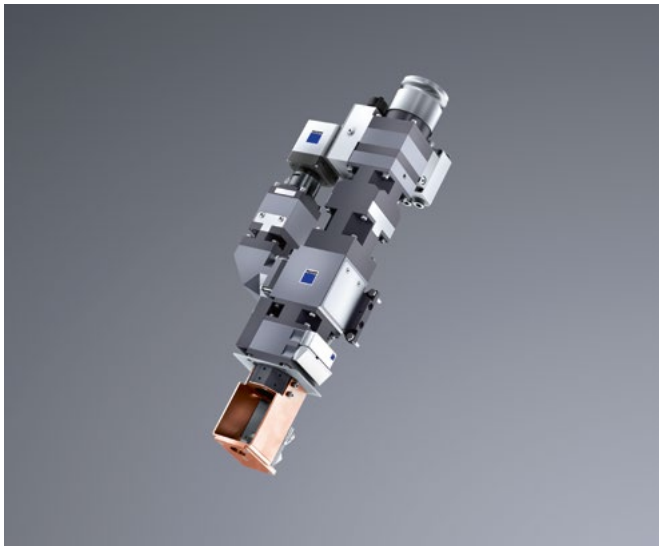
Focusing optics



BEO D70-2

The BEO D70 was specially developed for laser welding at greater working distances and with a small focal diameter. With the optional Multifocus element, gas-tight weld seams can also be produced. Smart monitoring functions deliver enhanced reliability and process stability.

- **Laser power: max. 24 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P**
- **Laser mode: singlemode, multimode**



BEO D50

Robust and compact, the BEO D50 features an enhanced crossjet function. It also boasts additional options such as shielding gas supply through a variety of nozzles and protective glass monitoring unit, making it the ideal processing optics solution for challenging manufacturing jobs.

- **Laser power: max. 8 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P, TruFiber G**
- **Laser mode: singlemode, multimode**

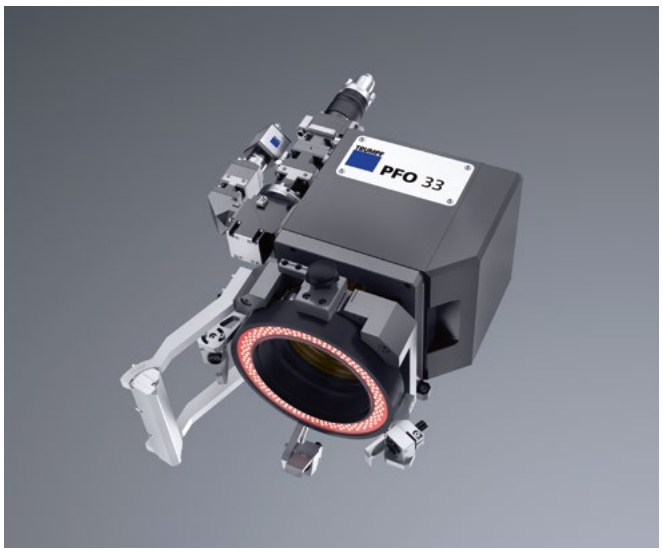
BEO D35

The BEO D35 is the most compact fixed-focus optical system in the BEO portfolio. Thanks to its robust design, it is suitable for a wide range of welding and cutting applications up to 4 kW.

- **Laser power: max. 4 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P, TruFiber G**
- **Laser mode: singlemode, multimode**



Programmable focusing optics (PFO)



PFO 33 up to 12 kW

Thanks to lightweight mirrors and an innovative drive architecture, the PFO 33 offers maximum productivity and an extremely dynamic performance. Perfect integration of all the various mechanical and optical assemblies has resulted in a highly robust optics. Options such as the protective glass monitoring unit and real-time contour check make it an extremely reliable manufacturing tool.

- **Laser power: max. 12 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P**
- **Laser mode: singlemode, multimode**



PFO 33 up to 6 kW

Thanks to digital galvanometers and the new drive architecture, this variant of the PFO 33 reliably and cost-effectively provides precise positioning and welding results. The compact and lightweight design simplifies integration into machines and robot systems, ensuring greater mobility and shorter cycle times. At the same time, the robust design can withstand the demands of continuous operation.

- **Laser power: max. 6 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P**
- **Laser mode: singlemode, multimode**

PFO SF 20/33

The small-field scanner features lightweight mirrors and an innovative galvo architecture that enables high-frequency mirror movements. The remote control unit makes the small-field scanner compact and allows it to be flexibly adapted to a wide range of applications.

- **Laser power: max. 12 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P**
- **Laser mode: singlemode, multimode**





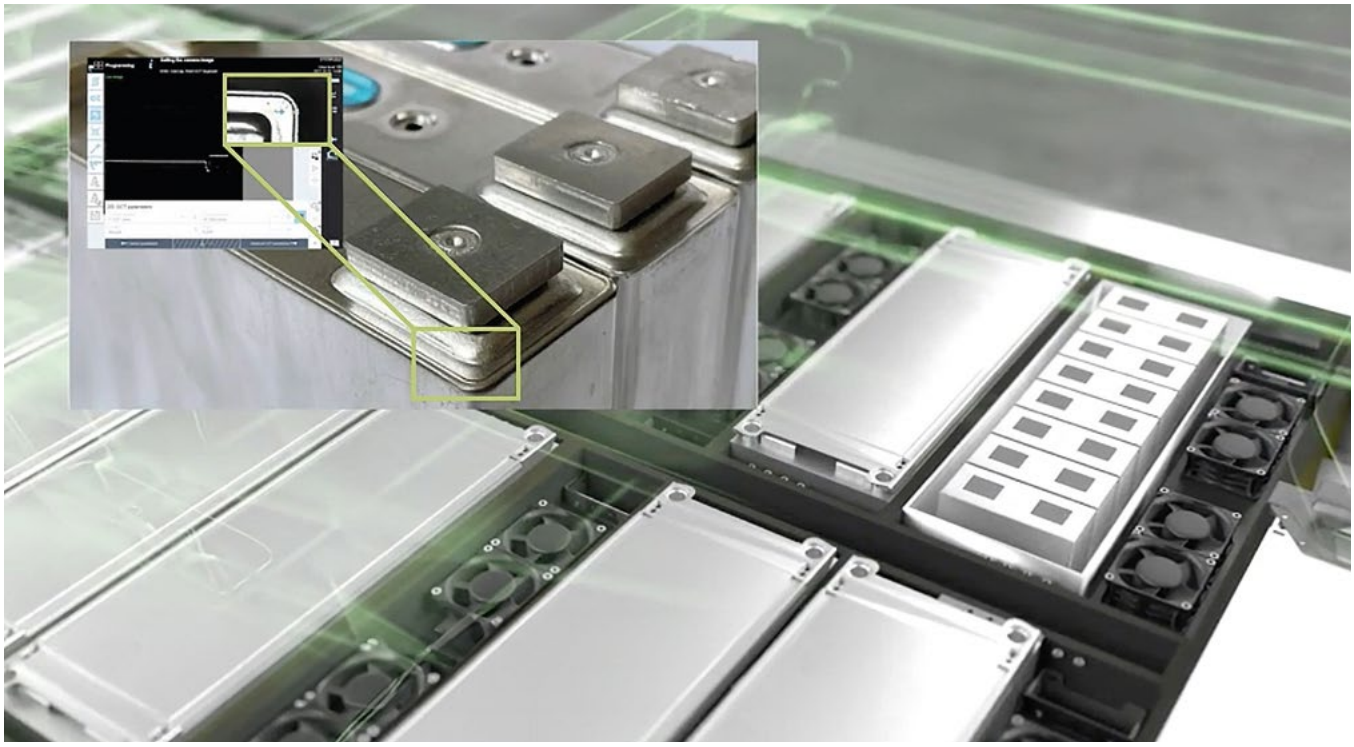
PFO 20

With up to 6 kW of laser power and a 100% work cycle, the PFO 20 sets the benchmark in the 20-mm aperture class. The scanner optics uses the same digital drive architecture as all the third-generation PFOs and therefore converts the full laser power into productivity, whether for surface processing or difficult welding jobs.

- **Laser power: max. 6 kW**
- **Laser: TruFiber S, TruFiber R, TruFiber P**
- **Laser mode: singlemode, multimode**

Smart sensor systems

Smart process sensor systems from TRUMPF monitor the quality of your operation, providing you continuously with data and controlling the process according to your specifications. Easily integrable in your optics, lasers or systems, our sensors help save you money by stabilizing production processes, preventing rejects and avoiding the unnecessary use of excess laser power.



VisionLine OCT Detect

VisionLine OCT Detect from TRUMPF is a camera-based image-processing system for use with cutting and welding applications. It combines a camera and optical coherence tomography (OCT) within a single unit. This generates 3D data that can be used for positioning and for checking the features of your component, irrespective of how it is illuminated or clamped. Using this data, the working distance to the component or to the clamping fixture can be measured, as well as any height differences in the component – to determine, for example, whether hairpins in an electric motor are of a different height. Suitable distinguishing features can be selected from a template library for use in a great variety of applications. This enables you to get the best out of your process and thereby the best for your component.





VisionLine Detect with AI Filter

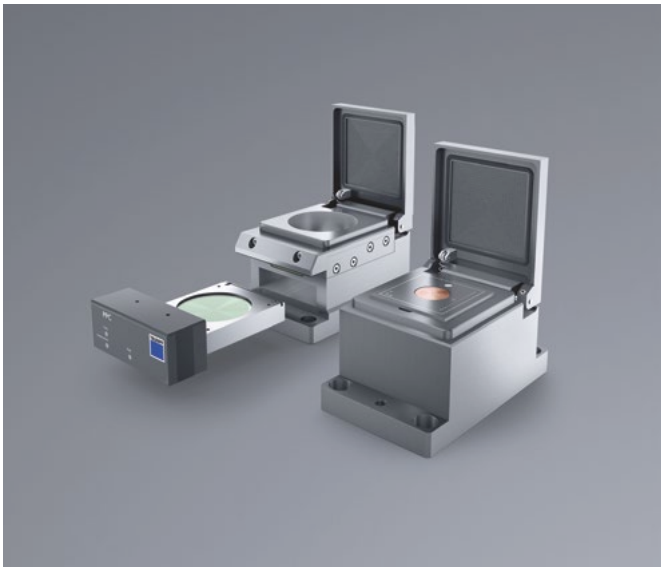
By combining VisionLine Detect and the EasyModel AI training tool, you can optimize your production with AI. This improves feature detection and makes your process less susceptible to external influences such as dirt on the fixture, reflections from the component, difficult lighting conditions or fluctuations in upstream processes.

EasyModel AI is a cloud-based AI training platform that makes it easy to label data, even without programming knowledge. Powerful AI models can be created using just a small amount of training data. These can be used with the AI Filter option with VisionLine Detect.

VisionLine OCT Check

VisionLine OCT Check ensures the precise and reliable monitoring of welding depth. The use of optical coherence tomography (OCT) enables you to perform a process synchronous Quality Assurance – e.g., the measurement of vapor capillary depth during deep penetration welding. On the basis of this real-time data, you can then make informed decisions regarding process control. The geometry of the solidified weld seam is measured using an additional OCT scan.





CalibrationLine Power|Focus

CalibrationLine checks at regular, individually definable intervals whether the laser power and the focus position on the workpiece correspond to the actual laser control settings. If required, CalibrationLine realigns the program, using the TruControl software to correct the laser power and the focus position in the X, Y and Z axes. This ensures highly reproducible results.



Laser Application Centers

In our Laser Application Centers around the world, we provide advice on all the issues relating to processes, materials, fixtures and design. Thanks to our extensive laser portfolio, we can test your applications directly on a wide range of laser processing systems and find the best solution for your needs. Visit our Laser Application Centers to discover the latest lasers, laser machines and innovations from TRUMPF laser technology.

Draw inspiration from our product demonstrations – either live in the Laser Application Center or in a digital presentation. Our application experts are on hand to provide detailed advice and develop solutions tailored to your needs.

Our Laser Application Centers offer much more besides: as powerful R&D centers, they will work together with you and your ideas to develop new products and technologies.

TruServices. Your Partner in Performance

To ensure you continue to benefit from your lasers over the long term, we also offer a comprehensive range of services. We can help you create the optimal setup for your manufacturing process, get the very best out of your TRUMPF laser and adapt it in line with changing requirements. Whatever the process – together, we will find ways to maximize your added value on a lasting basis.

OPC UA interface

The bidirectional OPC UA interface gives you the option of connecting your own software to your laser. Using this standardized interface, you can access process and device data in real time and also control the laser. In addition, the laser can also be controlled using the OPC UA interface.

Smart View

Easy-to-read dashboards give you an overview of the current status of your laser. This enables you to independently monitor system status and any occurrences, and in so doing generate greater process transparency.

Condition Monitoring

Let TRUMPF experts and algorithms monitor your laser. At the first sign of anything abnormal, we contact you proactively. This helps avoid unscheduled downtimes in your production operation.

Quality Data Storage

Process-synchronous data storage and visualization of individually selectable data generated by your lasers, connected optics and process sensors. This data remains exclusively in your possession.

Technical data

TruFiber S

		TruFiber 1000 S	TruFiber 2000 S	TruFiber 300x S	TruFiber 400x S	TruFiber 500x S	TruFiber 600x S	TruFiber 800x S	TruFiber 900x S	TruFiber 1200x S
Laser power	W	1000	2000	3000	4000	5000	6000	8000	9000	12000
Typical power stability	%	±1								
Adjustable power range	%	2–100								
Typical beam quality	mm·mrad	2								
Available LLK diameter	µm	≥ 50								
Wavelength	nm	1080								
LLK length	m	up to 50								
Dimensions (W × H × D)	mm	600 × 1245 × 950								
Cooling water temperature	°C	25 ±2								
Ambient temperature during operation	°C	5–45								

		TruFiber 1800x S	TruFiber 2400x S	TruFiber 3000x S	TruFiber 5000x S
Laser power	W	18000	24000	30000	50000
Typical power stability	%	±1			
Adjustable power range	%	360–18000	360–24000	360–30000	360–50000
Typical beam quality	mm·mrad	4			6
Available LLK diameter	µm	≥ 100			≥ 150
Wavelength	nm	1080			
LLK length	m	40 (longer on request)			
Dimensions (W × H × D)	mm	1200 × 1505 × 1140			1800 × 1565 × 1140
Cooling water temperature	°C	25 ±2			
Ambient temperature during operation	°C	5–45			

TruFiber R

		TruFiber 300x R	TruFiber 400x R	TruFiber 500x R	TruFiber 600x R	TruFiber 8001 R	TruFiber 9001 R	TruFiber 12001 R
Laser power	W	3000	4000	5000	6000	8000	9000	12000
Typical power stability	%	±1						
Adjustable power range	%	2–100						
Typical beam quality	mm·mrad	2 | 4				4		
Available LLK diameter	µm	≥ 50				≥ 100		
Wavelength	nm	1080						
LLK length	m	up to 30						
Dimensions (W × H × D)	mm	600 × 1245 × 950						
Cooling water temperature	°C	25 ±2						
Ambient temperature during operation	°C	5–45						

TruFiber P

		TruFiber 300x P	TruFiber 400x P	TruFiber 600x P	TruFiber 900x P	TruFiber 50x–200x P
Laser power	W	3000	4000	6000	9000	500–2000
Typical power stability	%	±1				
Adjustable power range	%	2–100				
Typical beam quality	mm·mrad	Singlemode: 0.5 Multimode: 4	BrightLine Mode: 0.5 Multimode: 4		BrightLine Mode: 0.5	Singlemode: 0.3 Multimode: 2
Available LLK diameter	µm	Singlemode: 25 Multimode: 100	BrightLine Mode: 25/100 Multimode: 100		BrightLine Mode: 25/100	Singlemode: 25 Multimode: 50–100
Wavelength	nm	1080				1071
LLK length	m	up to 30				
Dimensions (W × H × D)	mm	600 × 1040 × 950				448 × 520 × 970
Cooling water temperature	°C	25 ±2				18–30
Ambient temperature during operation	°C	5–45				

TruFiber G

		TruFiber 3001 G	TruFiber 6001 G	TruFiber 12001 G	TruFiber G 2-in-1 (4001–6001)
Laser power	W	3000	6000	12000	4000–6000
Typical power stability	%	±1			
Adjustable power range	%	2–100			
Typical beam quality	mm·mrad	4			
Available LLK diameter	µm	100			100 (core) | 600 (ring)
Wavelength	nm	1080 ±5			
LLK length	m	20			
Dimensions (W × H × D)	mm	600 × 895 × 1150			
Cooling water temperature	°C	25 ±2			
Ambient temperature during operation	°C	5–45			

		TruFiber 1000 G	TruFiber 2000 G	TruFiber 3000 G
Laser power	W	1000	2000	3000
Typical power stability	%	±1		
Adjustable power range	%	10–100		
Typical beam quality	mm·mrad	0.38		0.45
Available LLK diameter	µm	14		20
Wavelength	nm	1080 ±5		
LLK length	m	15		10
Dimensions (W × H × D)	mm	448 × 156 × 810		
Cooling water temperature	°C	25 ±2		
Ambient temperature during operation	°C	5–45		