

01

Fully integrated

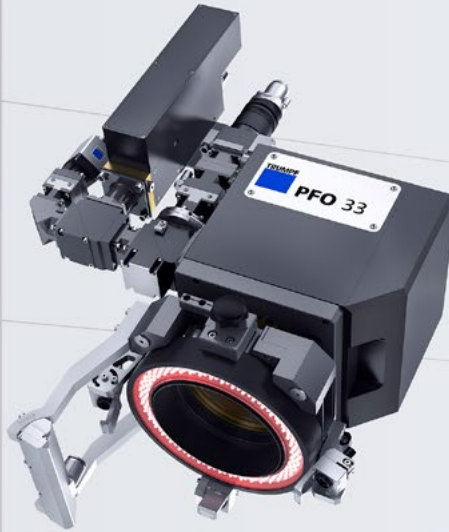
02

Quick

03

Transparent and traceable

.NEW



VisionLine OCT Check

Welding depth monitoring and seam geometry measurement

04

Easy to use

05

Robust



The VisionLine OCT Check process sensor system uses optical coherence tomography (OCT) to measure the depth of the keyhole during the deep penetration welding process. An additional OCT scan screens the solidified weld seam and can thus measure features of its surface.

01

Fully integrated

VisionLine OCT Check is fully integrated into the TRUMPF solution portfolio. This means that the OCT functions can be optimally used throughout the entire work area of the PFO, and no interfaces other than the familiar fieldbus interfaces are required. In addition, the OCT is integrated into the laser's safety circuit, and control is automatic via TruControl. Separate triggers for the measurement are also not required, and the adjustment of the OCT and the laser beam is fully automated and without consumables, increasing user-friendliness and reducing maintenance.

02

Quick

VisionLine OCT Check offers a fast, process-synchronous and efficient solution for weld inspection. You receive the results directly after a weld seam, e.g. via fieldbus. This allows you to evaluate components or individual seams immediately after welding. The high measuring frequency ensures fast and accurate results and makes the device an ideal tool for production lines with high volumes and time-critical processes. Thanks to the speed of VisionLine OCT Check, the shortest cycle times can be realized, and simultaneously quality measurement values can be generated, which immediately increases your productivity.

03

Transparent and traceable

With VisionLine OCT Check, you can reduce destructive testing by eliminating the need to remove and time-consumingly

evaluate components for metallography on the fly. Every component is inspected, giving you complete transparency, control, and traceability at the weld and component level. This is because VisionLine OCT Check monitors both weld depth and geometry after the weld bead, providing accurate data that enables real-time decision-making. With the ODS 2.0 quality storage, you can store the VisionLine OCT Check data in the desired location, reuse it at any time, or save it for the long term.

04

Easy to use

The user-friendly interface and the programming wizard guide you as user through the programming process and make it easy to set up and get started with the system. The information relevant to production is clearly displayed so that you have all the data you need in one place. With the online help you can access via the user interface, we support you in finding the context-specific correct parameters for your sensor system so that you always get reliable results.

05

Robust

Using a sophisticated OCT design, a thermally robust interferometer measurement technique is realized to provide accurate and reliable results even under fluctuating environmental conditions. Temperature management is seamlessly integrated into the optics cooling system, further enhancing the system's robustness. The hardware, including the industrial-grade IPCs, is designed to withstand harsh conditions, allowing the system to operate effectively in industrial environments. The included VisionLine OCT Detect software also enables the determination of the working distance, providing a comprehensive solution for quality assurance tasks in laser welding.

Technical data

Available lasers	TruDisk (1030 nm), TruFiber (1075 nm, Multi Mode)	
Available optics and focal lengths ^[1]	PFO 33 ^[2] , f = 265 mm, 345 mm; 450 mm	
Incident light illumination of the camera	LED, $\lambda = 625 \text{ nm}$	
Wavelength range OCT (laser class)	$\lambda = 820\text{--}860 \text{ nm}$ (class 3B)	
Measurement rate OCT	250 kHz	
Axial/lateral measuring range	$\pm 5 \text{ mm}$	$\varnothing 15\text{--}25 \text{ mm}$ (depending on focal length)
Axial/lateral resolution	12 μm	10 μm (depending on set parameters)
Typical measuring range welding depth measurement	0.5 mm to 5 mm	

^[1]Further focal lengths and lenses on request.

^[2]Only available with PFO 33 Generation 3.

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