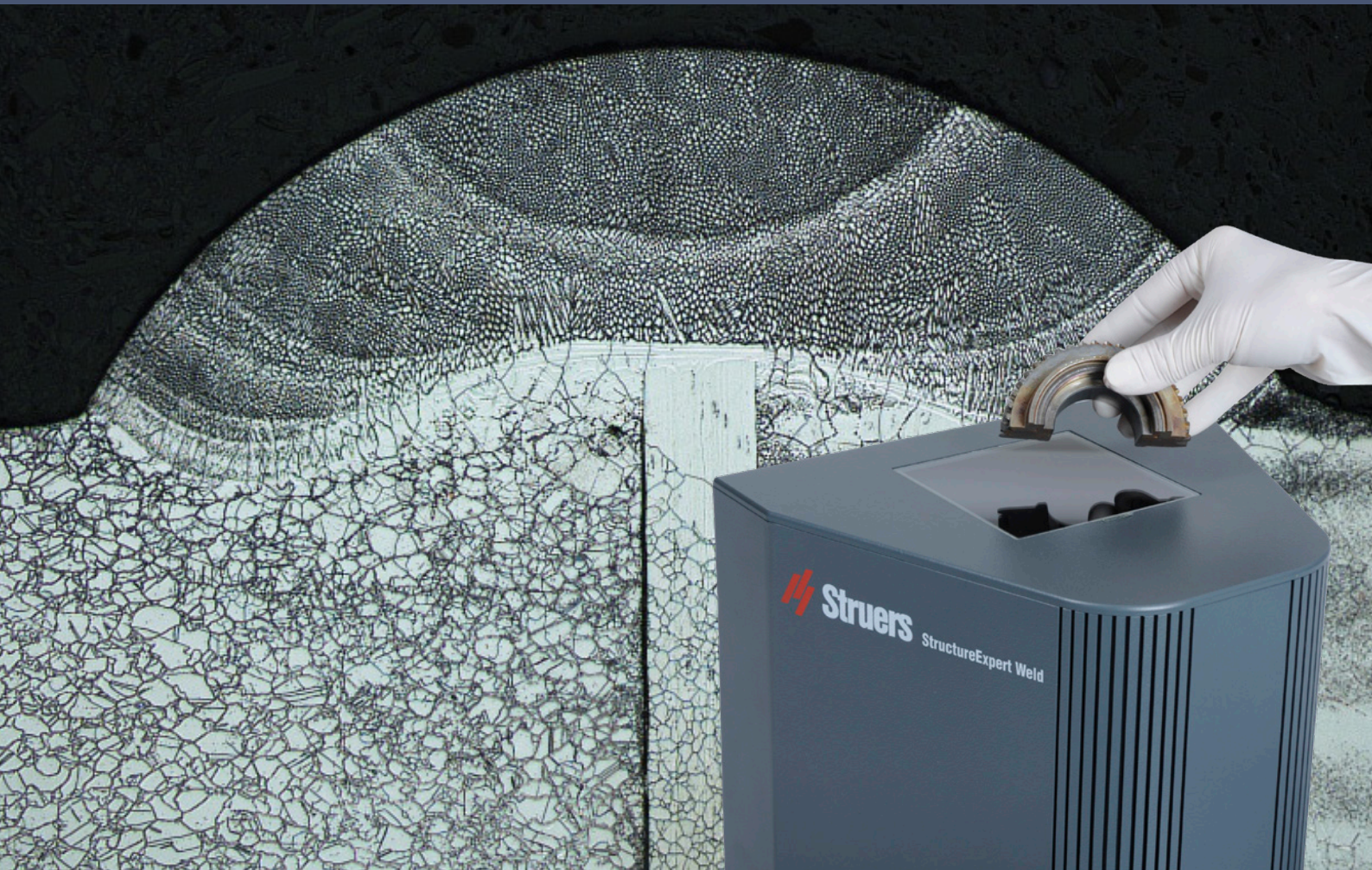


Struers Weld Verification Equipment

STRUCTURE EXPERTWELD

Reduce weld inspection time with AI weld control

- ✓ Up to 50 % time savings with AI
- ✓ The automatic calibration reduces human errors
- ✓ Integrated autofocus ensures accurate results



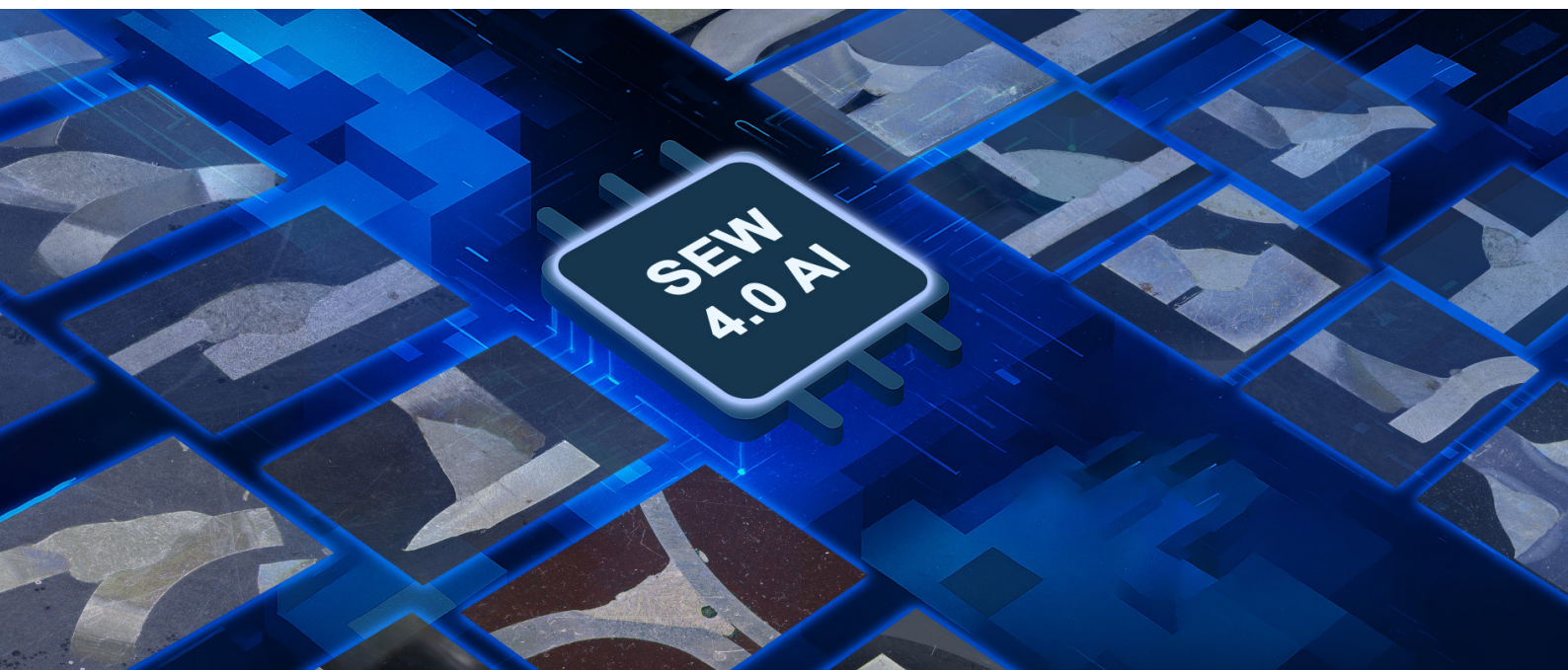
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FUTURE-PROOF YOUR LAB

As quality standards grow more demanding, future-ready labs must be efficient and consistent. Weld quality control is no exception, yet traditional inspections remain time-consuming, repetitive, and costly. To stay competitive, inspection solutions must scale with tomorrow's ambitions.

That's where Artificial Intelligence makes the difference. By integrating AI weld control, your lab gains a smarter, faster way to measure weld seams—eliminating manual variability while boosting productivity.

It's not just about meeting quality standards—it's about building a lab that drives innovation, supports business growth, and is ready for the future.



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UP TO 50 % TIME SAVINGS

Meet the new StructureExpert Weld—designed to deliver the speed, precision, and efficiency modern quality control labs demand. Powered by an advanced AI algorithm trained on thousands of real-life samples, it streamlines weld bead

measurement, significantly reducing processing time. The result? Faster, more reliable results and more time for your team to focus on other critical tasks.

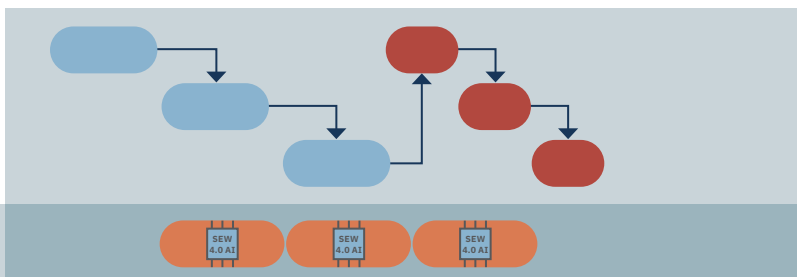
Traditional 3 sample Weld Inspection

MANUALLY
HANDED



AI supported 3 sample Weld Inspection with StructureExpert Weld

MANUALLY
HANDED



HANDLED BY
THE MACHINE

● CAPTURE ● MEASURE ● SAVE RESULT

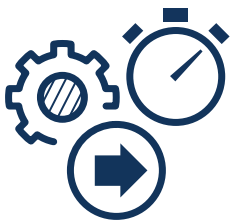
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The AI mode is incredibly fast – even outside Batch mode, it places measurement lines much quicker than I ever could, despite my years of experience.



WE UNDERSTAND YOUR CHALLENGES

Testing Capacity



Testings are bottlenecks. Avoid bottlenecks. Time-consuming yet essential, weld testing often becomes the choke point in your production flow. How often does everything wait on inspection results, delaying downstream processes and creating costly inefficiencies?

Your growth plans may also be constrained by limited weld inspection capacity—often tied to the availability of scarce, highly skilled personnel. When inspection can't keep up, your entire operation feels the impact.

Timely results matter



Weld testing involves multiple preparation steps—cutting, polishing, etching—before evaluation can even begin. Often, several welds per part must be examined, and once etched, the clock starts ticking. Corrosion can set in quickly, forcing a repeat of the polishing process.

Meanwhile, production is left waiting for the green light. Capturing weld microstructures in seconds is no longer a luxury—it's a necessity to keep production moving.

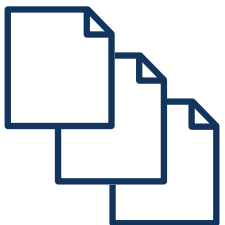
Fewer errors



Errors in weld inspection impact production efficiency and risk management. Unreliable results can cause unnecessary rework, delays, and increased costs, while also risking the acceptance of flawed welds that could fail in service.

Maintaining repeatable, error-minimized inspections helps manufacturers uphold strict quality standards, meet regulatory requirements, and retain customer trust by ensuring welds are evaluated consistently and accurately across all inspections.

Documentation



Documentation in weld inspections is a foundation for traceability, compliance, and long-term quality assurance. Without it, validating findings, reproducing results, or supporting decisions during audits or investigations becomes difficult and risky.

Reliable documentation also drives continuous improvement by revealing trends that help identify recurring issues, refine techniques, and enhance training—whether in small workshops or large-scale test labs.

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DISCOVER STRUCTURE EXPERT WELD

Durable Screen Choices

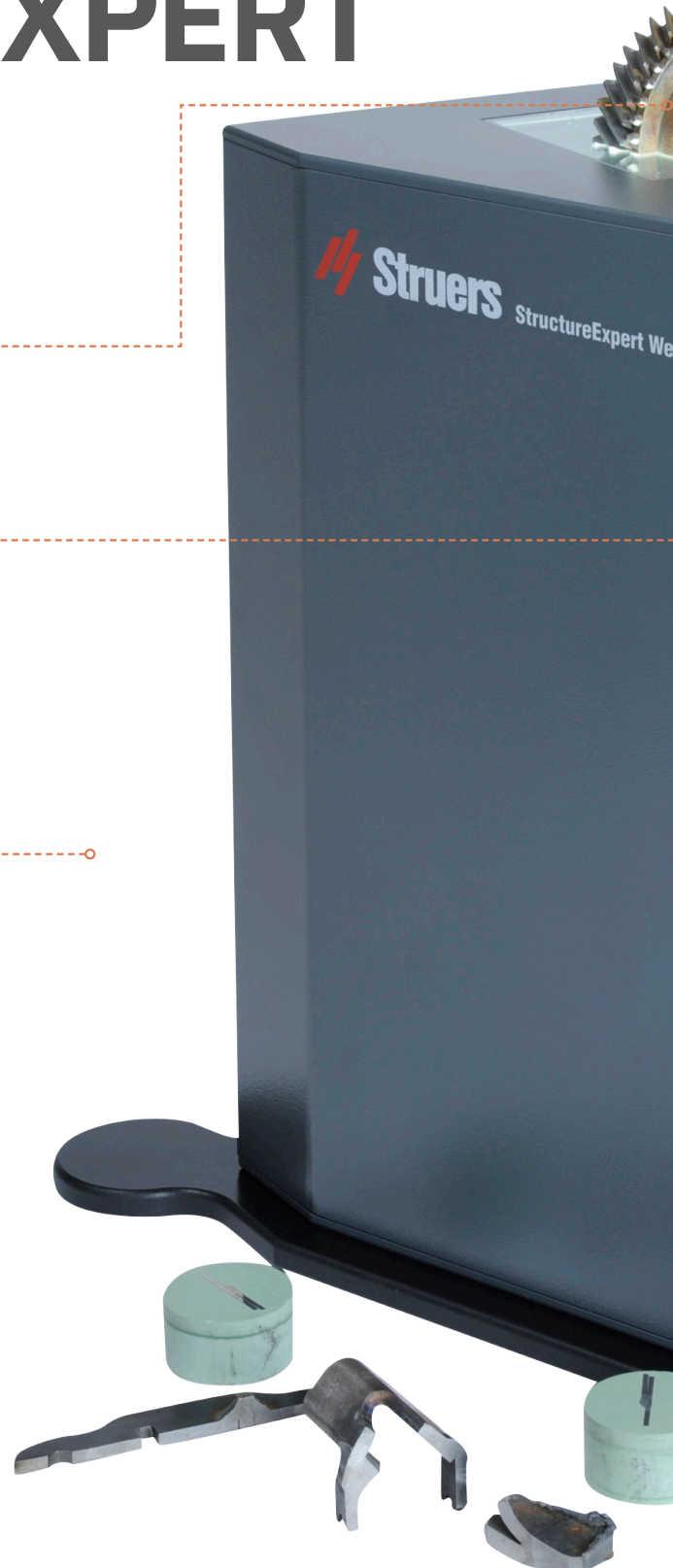
Select from regular glass, hardened glass, or sapphire glass for maximum scratch resistance. Quick screen exchange and included light cover ensure optimal contrast and minimal stray light.

Fewer Errors

The intelligent automatic calibration feature eliminates the need for manual calibration, reducing the risk of user error and ensuring repeatable, high-accuracy measurements every time. Maintain reliability and confidence in your weld inspection process.

Motorized Zoom

The motorized zoom delivers sharp, detailed imaging for large industrial welds or ultra-fine seams.





Automatic Calibration – One-Click Simplicity

Place the included stage micrometer on the glass plate and start calibration with a single click. The system automatically performs all required adjustments and generates a calibration report. A built-in scheduler enables automatic periodic recalibration.

Effortless Positioning

Optimized for standard industrial welding applications such as MIG and MAG. Simply place the weld bead on the designated platform of the inverted microscope, and the system provides instant focus – no manual adjustments required.

Precision Lighting

The integrated four-segment LED lighting system delivers optimal illumination with individually adjustable light zones. An advanced anti-glare coating minimizes reflections, even on polished or ground surfaces, ensuring clear and accurate imaging.

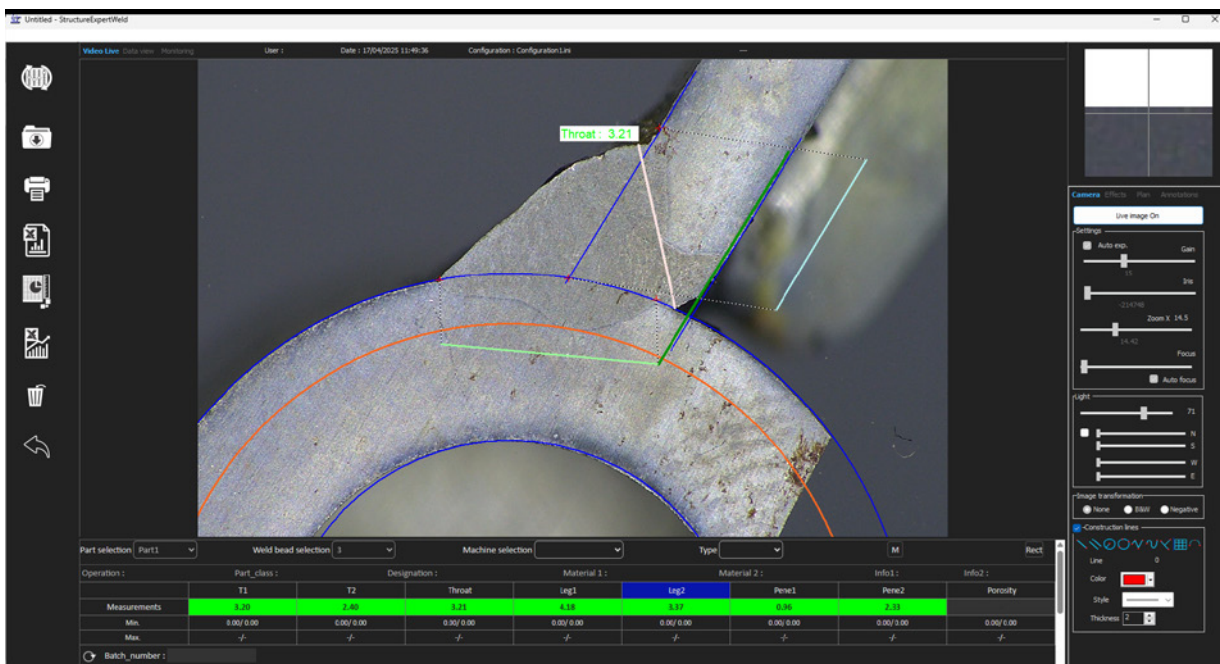
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DEDICATED FOR WELD INSPECTION

StructureExpert Weld-6

Optimized for standard industrial welding applications such as MIG and MAG, the StructureExpert Weld-6 delivers reliable and accurate inspection results.

- ✓ Versatile field of view from 82 mm to 1.8 mm (~3.2" to ~0.07") with 2.5x–120x magnification.
- ✓ Measurement resolution down to 1 µm for detailed inspections.
- ✓ Space-saving design with built-in LED lighting.
- ✓ Full HD 1080P camera with motorized zoom and autofocus.
- ✓ Dedicated software for accurate measurement and easy reporting.



StructureExpert Weld-12

Designed specifically for high-precision inspection of laser welds and small seam measurements, the StructureExpert Weld-12 is ideal for laser and electron beam welding applications.

- ✓ Versatile field of view from 7.7 mm to 0.71 mm (~0,3" - 0,03") with 20x–240x magnification.
- ✓ Measurement resolution down to 0.34 μm .
- ✓ Space-saving design with built-in LED lighting.
- ✓ 3.3. MP digital camera with motorized zoom and autofocus.
- ✓ Dedicated software for accurate measurement and easy reporting.
- ✓ Optional Coaxial Illumination enhances image clarity for complex weld inspections.

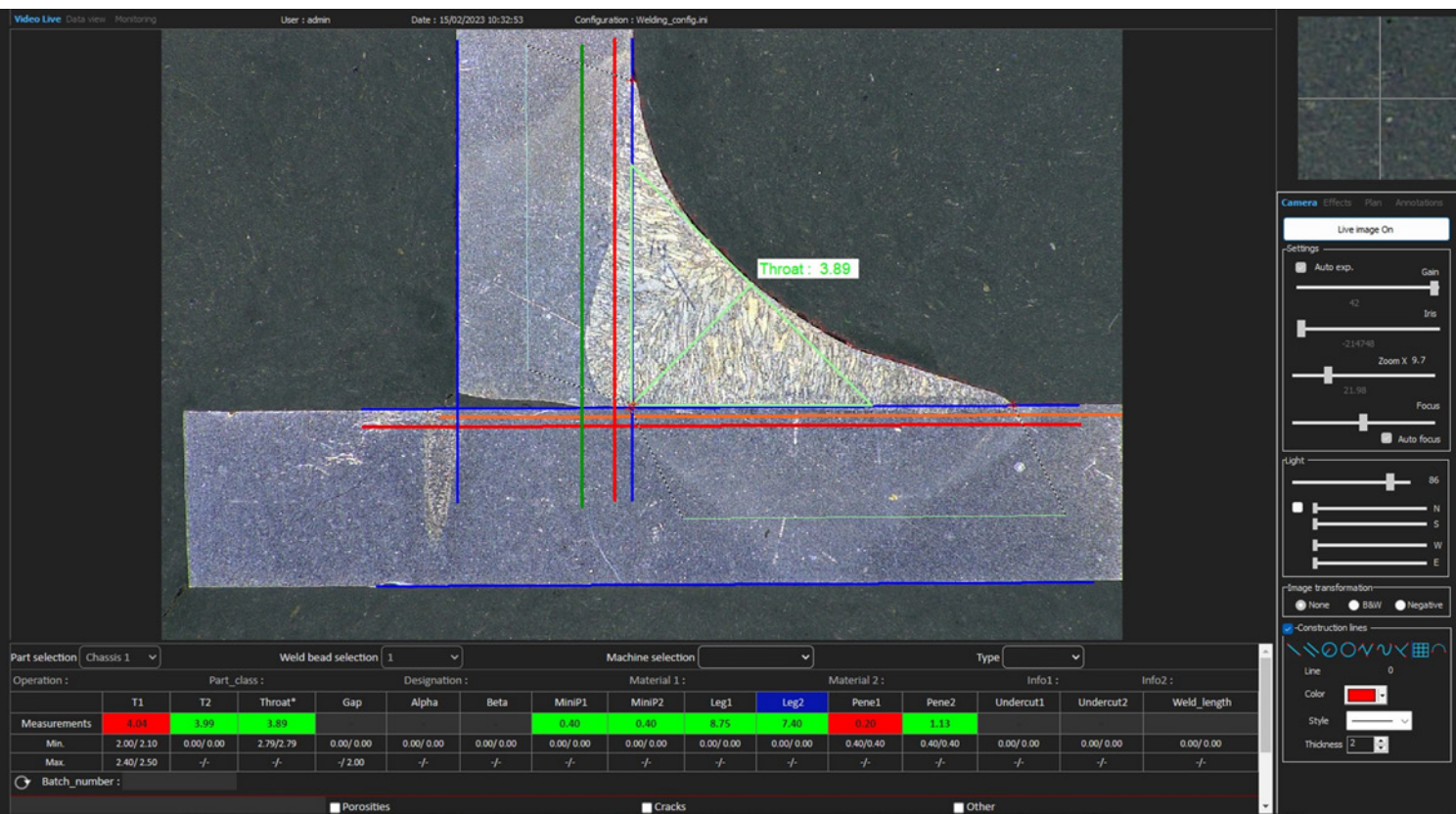
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**The image sharpness
is incredible – I can
clearly distinguish
the weld and the
heat-affected zone
without any effort.**



This solution from Struers integrates imaging, segmentation, data connectivity, and analysis for seamless, precise results. Its user-friendly interface simplifies complex analyses, while predefined workflows boost efficiency and accuracy.

- ✓ **Capture and Segment:** AI-powered imaging identifies and isolates weld seams.
- ✓ **Automate Detection:** Automatically measures welds and detects defects with speed and consistency.
- ✓ **Meet Any Standard:** Configurable to align with standards such as ISO 5817, GMW14058, B13 1540, PV 6728 and many more.
- ✓ **Integrate Easily:** Export or connect results directly to your quality system.
- ✓ **With automated reporting via your enterprise cloud,** operates independently from the cloud — keeping your data yours



POWER BI FOR ADVANCED INSIGHTS

The Power BI Industry 4.0 module, enables seamless integration of processed measurement results into customizable Power BI dashboards. Data is automatically saved as XML files on Microsoft SharePoint and made instantly available in the cloud or locally in your network organization.

This real-time access allows you to share data, reduce inspection costs, identify trends early, and optimize your processes, thereby gaining powerful insights to enhance productivity and drive continuous improvement.

Weld bead	OptionComments1 (*)	Image	URL	Measurement	Value	Min
21	99			Leg2	4.07	0.00
				Pene1	1.11	0.00
				Pene2	1.26	0.00
				Porosities	○	
				Cracks	○	
				Other	○	
				Conformity	Conform	
59				T1	2.70	0.00
				T2	2.07	0.00
				Throat	2.49	0.00
				Leg1	5.56	0.00
				Pene1	1.25	0.00
				Porosities	○	

✓ SharePoint Integration

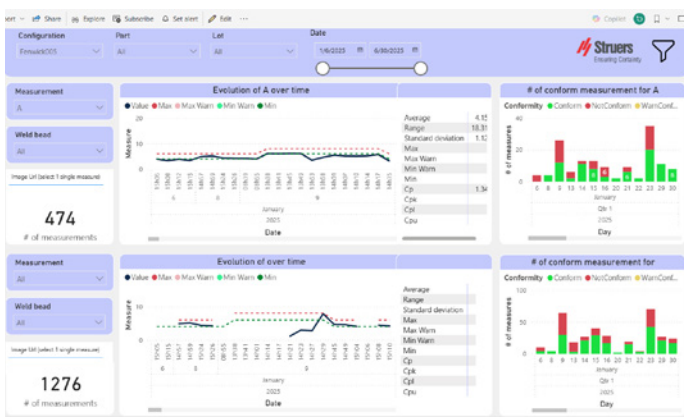
Data saved as XML on your SharePoint, instantly accessible from anywhere.

✓ Real-Time Insights

Share data instantly, reduce inspection costs, and identify trends early.

✓ Automated Reporting

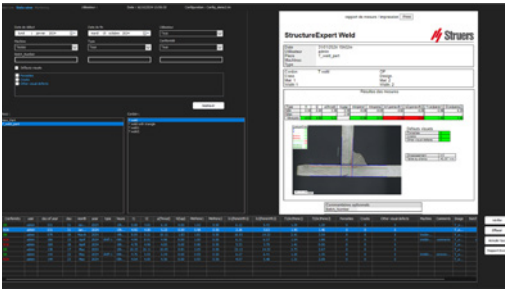
Custom dashboards deliver actionable insights for process optimization



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SOFTWARE MODULES

Data View Module



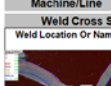
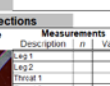
Data View Module enables daily tracking of measurements. Results can be filtered by date, part, user, or compliance level (OK/NOK) allows editing of measurements to correct errors.

Min & Max Action Limit Module



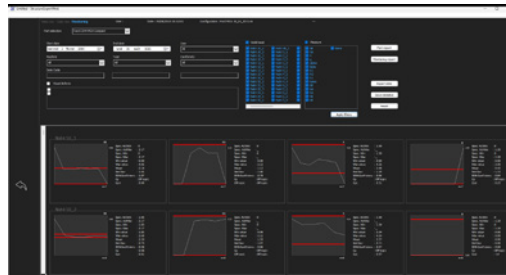
To set extra minimum/maximum warning limits beyond standard acceptance criteria. Includes additional report templates, allowing proactive response to welding process issues before NOK results occur.

Report Generator

Weld Measurement Data Report							
Plant		Date		July 12, 2024			
Prepared By							
Part Name		Part Number		Sample Part			
Customer							
Description							
Machine/Line		Magnification					
Weld Cross Sections		Measurements			Measurements		
Weld Location Or Name	Description	n	Value	Weld Location Or Name	Description	n	Value
	Leg 1				Leg 1		
	Leg 2				Leg 2		
	Throat 1		5.08		Throat 1		2.30
	Throat 2				Throat 2		
	Penetration		0.50		Penetration		1.60
	Gap				Gap		0.50
	Mat Thickness 1		1.73		Mat Thickness 1		5.15
	Mat Thickness 2		1.50		Mat Thickness 2		
	Face Width				Face Width		

The Report Generator module lets you quickly create custom Excel reports. With a few clicks, images, measurements, tolerances, etc. are integrated to Excel without any complex tools.

Process Tracking Module

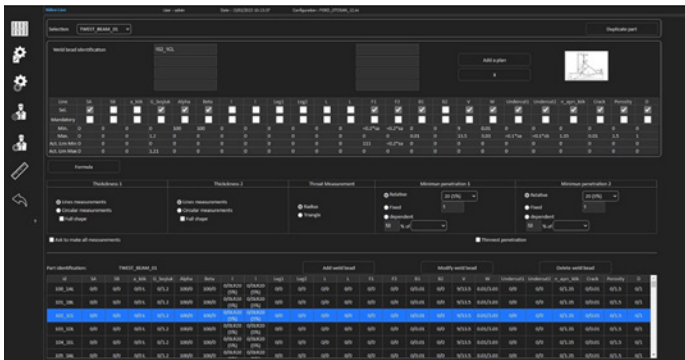


To track trends over a period. Data can be sorted by date, user, machine, type, conformity, batch number, or visual defect. Includes Cp, Cpk, CpU, Cpl metrics.

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STAY IN CONTROL

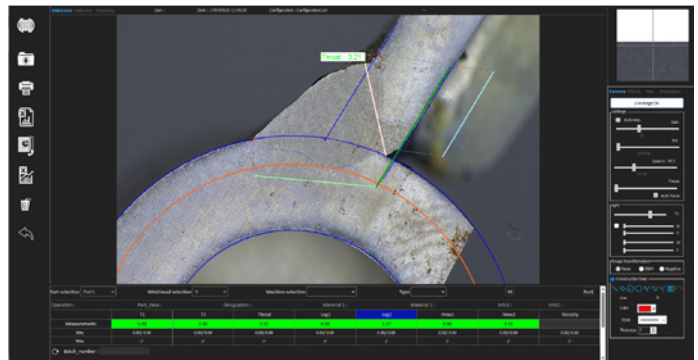
Administrator Mode



The ‘Administrator’ mode in StructureExpert Weld software is the central hub for system configuration and control. Fully customizable, it allows users to tailor the software to meet any weld inspection or quality control standard.

The software also supports terminology from international standards as well as manufacturer-specific language and abbreviations, enabling seamless integration into your existing workflow and documentation practices.

Measurement Mode



Through the StructureExpert Weld software, the operator has access to all parts configured by the system administrator.

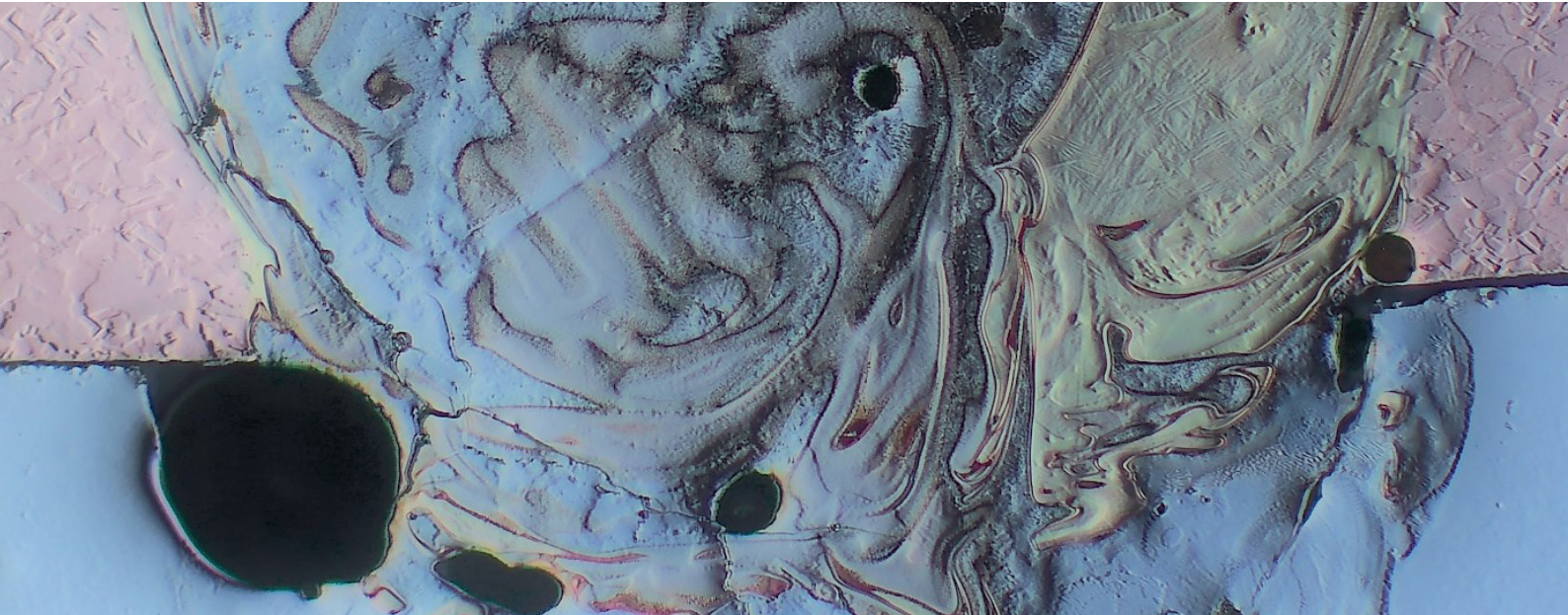
The user simply selects the part to inspect, chooses the weld seam, and all related parameters—such as required measurements, tolerances, and the measurement plan—are automatically loaded.

In just a few clicks, measurements are performed, compared against tolerances, and automatically saved—ready for generating a quick measurement summary or a full part report.



ITEM OVERVIEW

STRUCTUREEXPERT WELD	Item number
StructureExpert Weld-6 Dedicated imaging system for weld bead measurement. Consists of compact housing, integrated LED lighting system, Full HD 1080P digital camera with motorized zoom & autofocus and dedicated SewSoft software for measurement and reporting. Field of view from ~ 82 to 1.8 mm (~3.2” to ~ 0.07”). Includes 5 glass windows (CLSET001), Light cover (CLWEL005), 2 protection covers, calibration plate (CLCAL001) and necessary cables. PC and monitor are required, but not included.	CLWEL016
StructureExpert Weld-12 Dedicated imaging system for weld bead measurement. Consists of compact housing, integrated LED lighting system, 3.3MP digital camera with motorized zoom and dedicated SewSoft software for measurement and reporting. Field of view from ~ 7.7 to ~ 0.71 mm (~0.30” to ~ 0.03”). Includes 5 glass windows (CLSET001), Light cover (CLWEL005), 2 protection covers, calibration plate (CLCAL003) and necessary cables. PC and monitor are required, but not included.	CLSYS012
SewSoft AI plan - 12 months With a SewSoft AI plan, you gain access to the latest software version along with a tailored number of automated AI measurements designed to optimize your specific application—ensuring you get the most value from your investment. SewSoftAI-Expert also include integrated Power BI dashboards, providing valuable insights into your process performance for smarter, data-driven decisions.	CLAIL042
SewSoft AI plan – 24 months With a SewSoft AI plan, you gain access to the latest software version along with a tailored number of automated AI measurements designed to optimize your specific application—ensuring you get the most value from your investment. SewSoftAI-Expert also include integrated Power BI dashboards, providing valuable insights into your process performance for smarter, data-driven decisions.	CLAIL044





ACCESSORIES

ACCESSORIES		Item number
Glass Windows	Glass windows for StructureExpert Weld, 5 pcs.	CLSET001
Glass Windows, hardened	Hardened glass windows for StructureExpert Weld, 5 pcs.	CLWEL003
Sapphire Window	Consists of a 85mm sapphire window mounted into a 100mm*100mm mounting bracket. Compatible with all versions of WeldingExpert/StructureExpert weld systems.	CLFEN001
Plastic Covers	Plastic covers for prevention of water and dirt entering the camera chamber. With mounting bracket. 100 pcs.	CLSET002
Light cover	Cover to eliminate stray lights and improve sample contrast. Compatible with all versions of WeldingExpert/StructureExpert weld systems.	CLWEL005
Coaxial illumination	Illumination system for improved structural analysis. For StructureExpert Weld-12.	CLWE0020
SYSTEM CALIBRATION TOOLS		Item number
Calibration Plate	Calibration plate for calibration of StructureExpert Weld-6 software. 50 mm.	CLCAL001
Calibration Plate	Calibration plate for calibration of StructureExpert Weld-12 software. 10 mm.	CLCAL003
Calibration Plate UKAS	Calibration plate with accredited certificate for calibration of StructureExpert Weld-6 software. 50 mm.	CLCAL001C
Calibration Plate UKAS	Calibration plate with accredited certificate for calibration of StructureExpert Weld-12 software. 10 mm.	CLCAL003C
UKAS Certificate for Calibration Plate	Accredited certificate (UKAS) for calibration plate CLCAL001. 10 points calibration.	CLUKA001
UKAS Certificate for Calibration Plate	Accredited certificate (UKAS) for calibration plate CLCAL003. 10 points calibration.	CLUKA002
OPTIONAL SOFTWARE MODULES		Item number
Data View Module	Software module for extended display of old measurement data and for edition of old measurement results. Data sorting : OK, NOK welds, batch number, etc.	CLDAT002
Min & Max Action Limit Module	Software module for definition of additional min./max. action limits (in addition to the standard min./max. acceptance criteria limits.) Includes additional report templates.	CLOUT003
Report Generator Module	Software module for creation and editing of customized Excel report templates.	CLREP002
Process Tracking Module	Software module for process tracking of measurement evolution over a specific time period.	CLOUT002
Q-DAS module	The module allows to save SEW data into Q-DAS ASCII Transfer format. A tool is provided to adapt the Q-DAS ASCII Transfer format to the customer requirements.	CLQDAS001

Measurement camera resolution	StructureExpert Weld-6	1700*1080 px
	StructureExpert Weld-12	2056*1542 px
Field of view	StructureExpert Weld-6	From ~ 82 to 1.8 mm (~3.2" to ~ 0.07")
	StructureExpert Weld-12	View from ~ 7.7 to ~ 0.71 mm (~0.30" to ~ 0.03")
Zoom range	StructureExpert Weld-6	~ 2.5x-~ 120x optical. Optical zoom / digital zoom combination
	StructureExpert Weld-12	~ 20x-~ 240x. Optical zoom
Measurement resolution	StructureExpert Weld-6	From 48µm (lower magnification) up to 1µm (higher magnification)
	StructureExpert Weld-12	From 3.5 µm (lower magnification) up to 0.34µm (higher magnification)
PC recommendations (required, but not included)	Operating software	Windows 10/11, 64 bits
	PC	Intel Core CPU (I3/I5/I7), 16 GB RAM. 1920 x 1080 graphics, Min. 3 x USB 2.0 ports, Min. 1 x USB 3.0 port, Excel 2003 Pro Edition or higher
	Monitor	Minimal 22" Full HD monitor (1920 x 1080)
Data output		CSV, PDF (with virtual printer) Q-DAS export (optional) XML (optional)
Sample weight		Max. 2 kg (4.41 lbs)
Safety standards		CE labelled according to EU directives
Dimensions	StructureExpert Weld-6 (H x W x D)	35 x 24.5 x 22 cm (13.8 x 9.6 x 8.7")
	StructureExpert Weld-12 (H x W x D)	42.5 x 24.8 x 22 cm (16.7 x 9.8 x 8.7")
Weight	StructureExpert Weld-6	4 Kg (9 lbs)
	StructureExpert Weld-12	6 Kg (13 lbs)
Operating environment	Surrounding temperature	-5-40°C (23-104°F)
	Humidity	10%-90% RH non-condensing
Electrical data	Power supply	100 V AC – 240 V AC, 50/60Hz, single phase
	Power consumption Max. load	< 40W
	Idle	< 1W

CHOOSE A PARTNER, NOT JUST A SUPPLIER

Ensure certainty with a complete solutions partner

With Struers, you'll never need to spend time and cost managing multiple suppliers. We provide all necessary consumables and accessories, specifically designed to work flawlessly with our equipment at every stage of the process, which means you always get the right preparation result and the best value from your investment.

Optimize your entire process with expert guidance

Our materialographic experts can optimize your end-to-end process through Value Stream Mapping. As your partner, we share our extensive know-how via tailored services that make your specimen preparation faster, safer, and more cost-effective. This is what we call ensuring certainty—and it is the reason why thousands of materialographic professionals worldwide choose Struers.

Take a systematic approach

Based on extensive academic training and hands-on experience, our materialographic experts have developed optimized methods for any material. Simply tell us your preparation goal, and we will customize our standard method to your equipment, requirements, and operator capabilities, whether your focus is on quality, safety, speed, or efficiency.

Maximize uptime with consumables on delivery

We'll also help you to reduce your risk and keep inventory costs down with our robust global supply chain. For fast, reliable delivery, we have distribution centers across the U.S., Japan, China, Germany, and Denmark.

Our ISO 9001-certified LEAN production and strict quality control ensure all consumables perform as promised and contribute to a safer workplace.

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**98% of consumables
are shipped within**

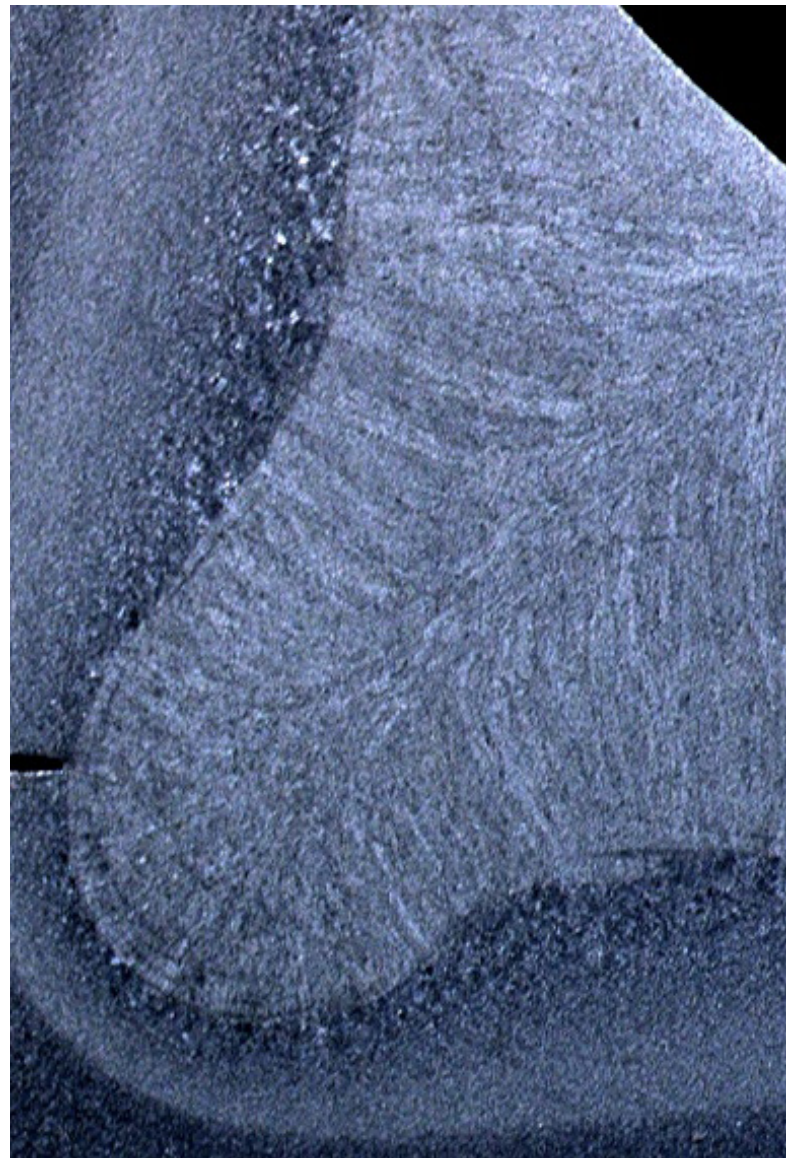
48 hrs



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ALL THE SUPPORT YOU NEED

- ✓ **Application notes** find out how to perform materialographic analysis quickly and accurately on different materials in our available material application notes.
[struers.com/materials](https://www.struers.com/materials) ➤
- ✓ **A method for any material** learn more and see optimized methods for your material on our website. We have over 500+ predefined and proven methods.
[struers.com/Library#methods](https://www.struers.com/Library#methods) ➤
- ✓ **Webinars & Courses** gain valuable insights into the latest applications and preparation methods via knowledge sharing. Refresh your knowledge or learn new techniques with our application experts.
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- ✓ **Struers ServiceGuard** gives you a complete solution for ensuring certainty at every stage, including a comprehensive annual service review and access to spare parts for ten years.
[struers.com/technical-service](https://www.struers.com/technical-service) ➤





Explore our full range of verification solutions and learn how they provide the speed, consistency, and quality you need, whatever your requirements or lab setup.

