

**Dedicated structure
verification in 30 seconds!**



- Fast – short time to verification
- Robust – long lifetime
- Easy and reliable – minimum training



The new way to fast and reliable structure verification

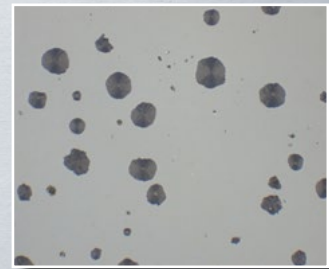
Designed for both the production and lab environments, StructureExpert is an all-in-one solution dedicated to your particular application. Challenging conventional technology, StructureExpert does away with time consuming positioning and adjustments, enabling reliable verification of a specimen within 30 seconds and delivering critical quality control data in line with production tact.

Dedicated software

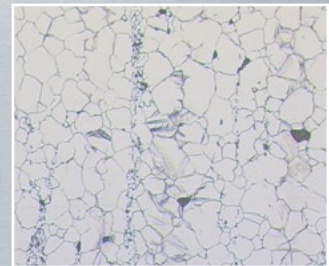
At each step in the process, dedicated and workflow-oriented application software makes sure the operator has access only to functions that are relevant for the specific application. This means a faster and simpler process that can be performed by virtually anyone.

Current range:

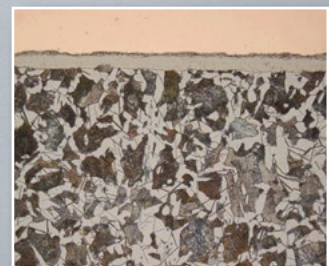
- ▶ StructureExpert Grain
- ▶ StructureExpert Cast Iron
- ▶ StructureExpert Decarb
- ▶ StructureExpert Coating
- ▶ StructureExpert Phase



Cast iron - evaluate form, distribution and size of graphite particles in cast iron, according to standard.



Grain - determine number of grains per mm^2 / inch^2 and/or average grain size and/or largest grain, according to standard.



Coating - measure thickness of coatings on metals, according to standard.

DEDICATED



Fast

You can verify a prepared specimen in just 30 seconds based on a magnified, crystal clear and hi-res digital image. Save even more time by locating the StructureExpert close to your QC function – if necessary, right beside the production line.

Robust

You can use StructureExpert in virtually any production environment. The optical equipment is completely protected by a robust and dustproof housing, letting you save time by performing verifications right where you need it.

Easy and reliable

A straightforward user interface and an automated step-by-step process mean rapid familiarisation and consistent repeatability.



On location:
Simply place the specimen
– no adjustment needed.



Follow the step-by-step guide.



Analyse and verify!



StructureExpert challenges conventional structure verification technology with time-saving automated functions

Auto-illumination

Perfect specimen inspection conditions

Specimen illumination and contrast is automatically adjusted to ensure perfect conditions for the given application and the surface conditions detected by the system. This eliminates the need for tedious light and filter adjustments and significantly simplifies the analysis.

Auto-focus

Optimal and constant measurement conditions

The zoom system offers the operator maximum flexibility in selecting a perfect field of view for all measurements without the need to select and switch between objective lenses. Automatic focus on the specimen surface eliminates the need for manual adjustments. This means unmatched ease of use and optimized repeatability.

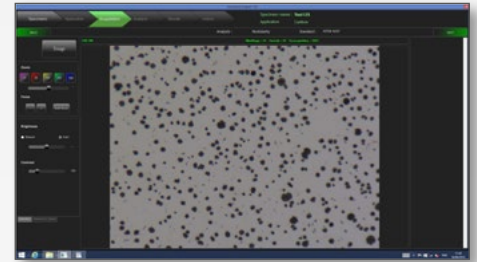
Auto-calibration

Maximum repeatability and reproducibility

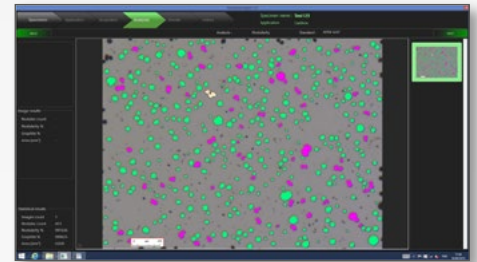
Contrary to conventional manual verification technology, the specimen surface is always at the same distance from the camera. This does away with time-consuming, continuous height adjustments and calibrations, thus significantly reducing operator time, while maximizing image quality.



Specimen - general specimen information, e.g. name, batch, etc.



Acquisition - positioning of specimen and acquisition of image(s).



Analysis - carrying out and adjusting the analysis/measurement.



Results - reviewing the results, generating report, exporting data.

StructureExpert Workflow

Dedicated software provides everything the operator needs to ensure a fast and reliable workflow.



1. Specimen

Place your specimen on the plate

2. Application

Choose the application and standard

3. Acquisition

The image appears on the monitor

4. Analysis

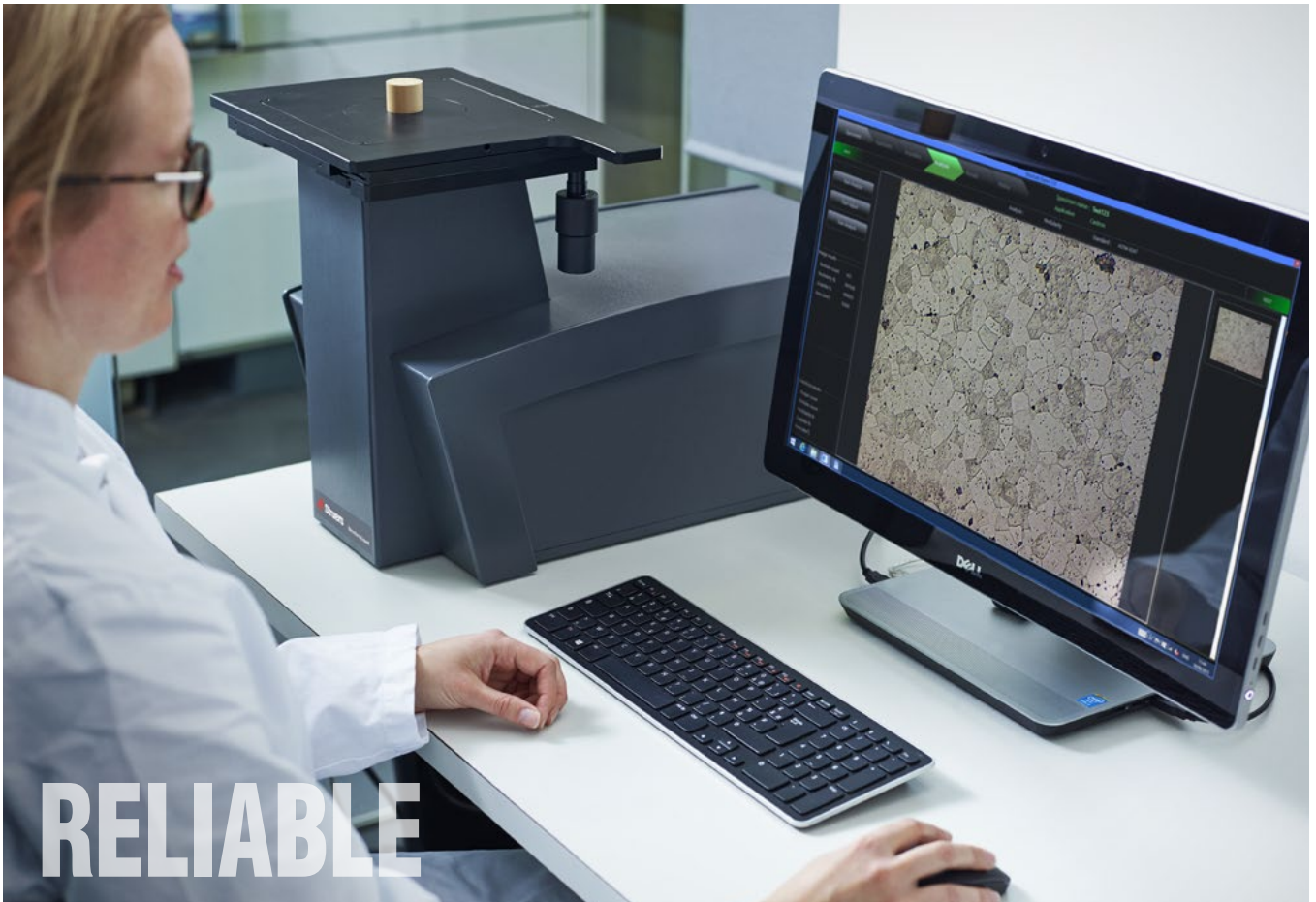
Inspect the image and verify

5. Reporting

Save the result on the PC

StructureExpert in the lab:

StructureExpert relieves busy lab technicians by replacing manual chores with automated functions, letting you keep up with production tact with less effort. Dedicated software provides a choice of workflows for many common applications that you can switch between in seconds. Auto-calibration and focus together with automatic specimen illumination do away with time-consuming manual settings while ensuring quality and repeatability. All workflows and images are recorded and can be retrieved at any time to ensure full traceability.



RELIABLE

- You can place the Struers StructureExpert wherever it best suits you – in the lab or even right next to the production line.
- Simply select the dedicated software package for your particular application.
- Use automated functions that do away with tedious and time-consuming manual settings.
- Workflow-based software dedicated to the application you choose means a straightforward and fast process.
- You can inspect and verify specimens immediately using a high-resolution monitor.
- Leave automatic storage of workflows and images to the software to ensure traceability at any time.
- Get the most out of simplicity and ease of use requiring a minimum of training.



Specifications

StructureExpert Standard

Dedicated imaging system for verification of microstructures and dimensional measurements. Based on a workflow oriented user interface for easy and repeatable operation. Includes software for basic manual measurements and reporting. Dedicated application oriented modules are ordered separately (CLSTR040-081). Consists of compact housing, LED lighting system and motorized zoom camera. With auto-focus and automatic illumination adjustment. Field of view 6.24 mm to 294 µm, equivalent to 25x - 500x magnification. Measurement resolution 0.11 µm. Includes manual xy-stage capable of supporting 3 kg, e.g. large specimen holders. Includes calibration plate (CLCAL003) and necessary cables. Accredited certificate (CLUKA002) for calibration plate is optional. PC and monitor are required, but not included. See CLSTR030.

Accessories

StructureExpert Grain

StructureExpert module for grain size analysis of metals, steels as well as largest grain (ALA). Conforms to standards ASTM E1382, ASTM E112, ASTM E930, EN ISO 643. Only works in combination with CLSTR002

StructureExpert Cast Iron

Module for analysis of graphite in cast iron, including nodularity evaluation and ferrite/pearlite ratio. Conforms to standards ASTM A247, EN ISO 945. Only works in combination with CLSTR002.

StructureExpert Coating

Module for measurement of metal and oxide coatings. Conforms to standards ASTM B487, EN ISO 1463. Only works in combination with CLSTR002.

StructureExpert Decarb

Module for decarburisation depth measurement of steels. Conforms to standards ASTM E1077, EN ISO 3887. Only works in combination with CLSTR002.

StructureExpert Phase

Module for volume fraction and phase percent measurement. Conforms to standards ASTM E562. Only works in combination with CLSTR002.

StructureExpert Measure

Module for dimensional measurements and checks. Based on freely definable measurement templates, typically based an internal inspection standard. With 3 sets of min-max limits (quality levels) and G-NG warnings in green-red. Includes all measurement tools, e.g. length, free-hand, parallel, perpendicular, circular, radius, angle etc. Only works in combination with CLSTR002.

Report editor for StructureExpert

Software module for creation and editing of Excel report templates. Only works in combination with CLSTR002.

UKAS Certificate for Calibration Plate

Accredited certificate (UKAS) for calibration plate CLCAL003. Can only be ordered in combination with CLCAL003 or CLSTR002.

All-in-one PC system with 23" touch screen monitor

Compact PC system with full HD multi touch screen monitor. Windows 8. Ordered software pre-installed.

Cat. no:

CLSTR002

Cat. no:

CLSTR040

CLSTR050

CLSTR071

CLSTR072

CLSTR081

CLSTR060

CLSTR090

CLUKA002

CLSTR030

General Data

Field of View (FOV)

0.294 - 6.24 mm

Optical magnification

Comparable to 25x-500x on regular microscopes

Camera resolution

18 MP CMOS

XY Stage

XY stage, with a completely flat surface, supplied both with glass plate and holed metal plate. Capable of supporting at least 3 kg and a Ø160 mm dia. Struers specimen holder.

Approximate dimensions

Height 300 x Width 200 x Depth 500 mm

Minimum PC specifications

Windows 8 / Windows 10, 64 bit
Intel Core I7 - 4 x 2.5 GHz CPU / 8 GB RAM
1 x USB 3.0, 3 x USB 2.0
Graphic card 1920 x 1080
Screen resolution 1920 x 1080 (full HD)
20" LCD monitor
Excel Pro 2007 or higher

Conforms to standards

Grain sizing: ASTM E1382, ASTM E112, ASTM E930, EN ISO 643
Cast iron analysis: ASTM A247, EN ISO 945
Coating thickness: ASTM B487, EN ISO 1463
Decarburisation depth: ASTM E1077, EN ISO 3887
Phase analysis: ASTM E562

Struers' equipment is in conformity with the provisions of the applicable International Directives and their appurtenant Standards. (Please contact your local supplier for details)

Struers' products are subject to constant product development. Therefore, we reserve the right to introduce changes in our products without notice.

Structure verification in 30 seconds?
See for yourself at
www.StructureExpert.com

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Ensuring Certainty

With offices and affiliates in 24 countries and a presence in more than 50 countries worldwide, Struers is the world's leading materialographic solution supplier. We are dedicated to enabling our customers to ensure certainty in all aspects of materialographic preparation and testing as well as material hardness testing - wherever they are in the world. Struers offers a complete range of equipment, consumables, service and training programmes – all supported by the most comprehensive knowledge base, global applications support and a certified global service set-up.

Learn more

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