



The **Advanced Universal** Hardness Tester

For those of you who want the full spectrum within hardness testing

Fully Automatic | Micro and Macro | All Methods

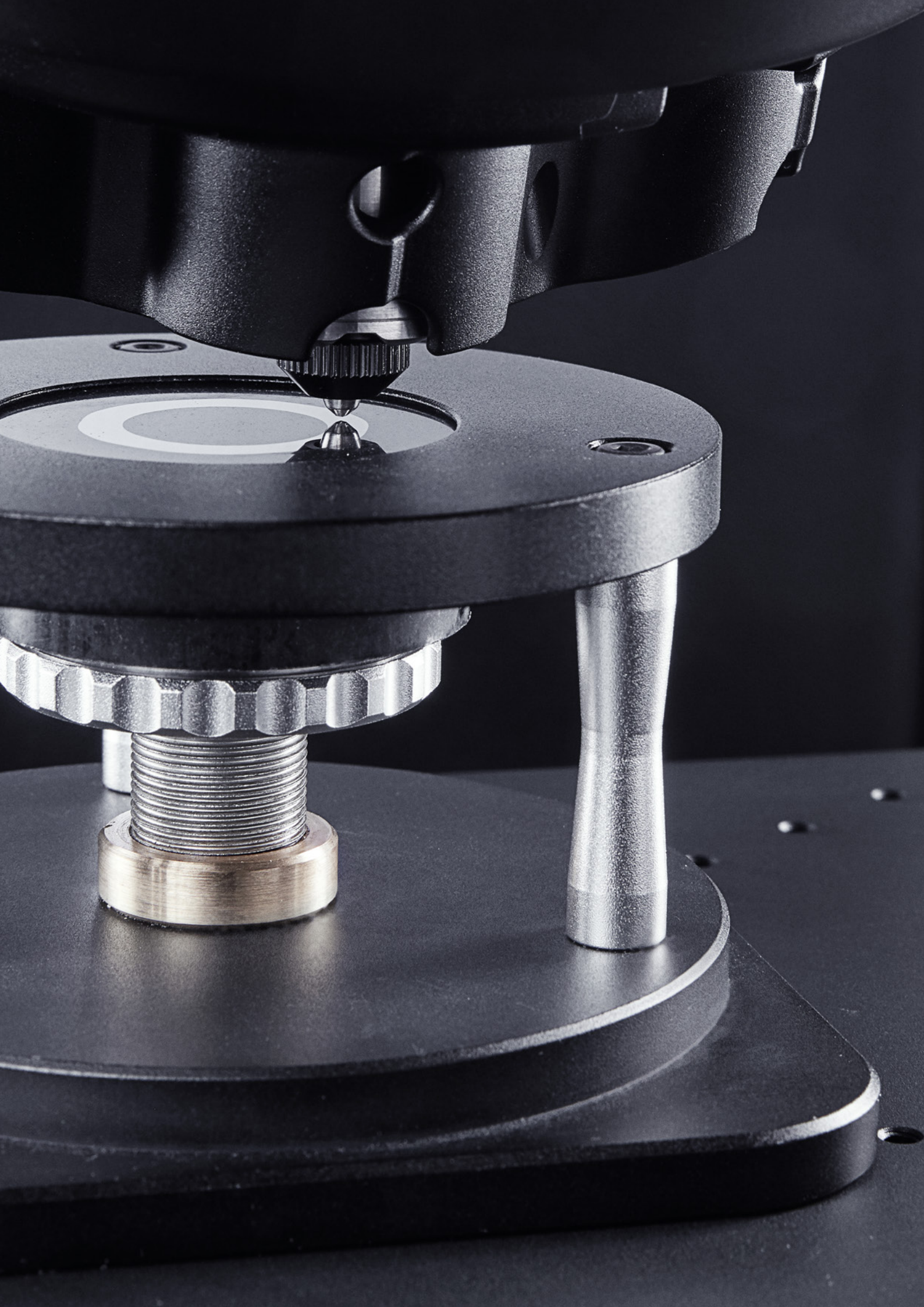
A close-up, black and white photograph of a Duramin hardness tester. The image shows a cylindrical indenter tip mounted on a circular base, which is part of a larger, dark-colored machine. The lighting is dramatic, highlighting the metallic textures and the precision of the components.

The Power of Repeatability

If you are reading this, you have probably realized something that most people haven't: you know that great repeatability saves you time, money, and frustration. That's why we have created the Duramin hardness testers, to exceed the standards.

Because standards don't always cut it.

**Enjoy the power of repeatability
by Duramin-100.**



6

Stand-Out Details

Being the most advanced Struers hardness tester, Duramin-100 is a horn of plenty filled with powerful attributes. We have selected six attributes that we think you will find particularly interesting.

Minimize Your Footprint

with All Hardness Testers in One Machine

With Duramin-100 you get our most advanced hardness tester, embracing all hardness testing methods in one machine – Vickers, Knoop, Brinell, and Rockwell hardness testing. You will also benefit from the unique test load range, covering from 50 gf to 250 kgf, plus an optional load range from 10-49 gf. Therefore, with Duramin-100 you are fully covered within many different applications that usually require both a micro and a macro indentation hardness tester.

Get the Correct Measurement Every Time

with Superior Indent Recognition

No matter the surface preparation, Duramin-100 will recognize the indent due to a powerful and unique image recognition algorithm.

Ultimate Degree of Accuracy

Ensured by High Precision Load Cell Technology

Due to a load cell system where test loads are applied via a closed loop control unit with a load cell, a DC motor, and electronic measurement, Duramin-100 exceed the standards for repeatability. With the load cell system, we have eliminated the overshoot and undershoot that is common in deadweight systems, ensuring the maximum repeatability and reproducibility.

Reproducibility Taken to the Max

by Fully Automated Test Cycle

The entire test cycle of applying load and evaluating hardness is fully automated in Duramin-100. In addition, the sample height recognition automatically adjusts to the correct working height by moving the measurement turret down until it touches the sample. All in all, this minimizes operator influence and maximizes reproducibility.

Tests Irregular and Large Samples

with a Wide Range of Sample Holders

In addition to testing standard samples, the Duramin-100 is ideal for testing irregular or larger samples, as many different sample holders and vises are available. You can even do your testing without sample holders.

And for Those of You, Who Have a Soft Side...

You Know, It Is the Software That Makes the Difference

Duramin-100 is packed with powerful and intuitive software such as the CHD testing module and the report editor for customized test reports. Optional software, according to your needs, is also available with a weld measurement module, automatic contour scanning, and an automatic mapping module.

Software That Makes a Powerful Difference

Case Hardness Depth Testing Module

For those of you who work with hardened samples

In the case of the hardness depth (CHD) software module, Duramin-100 empowers you to perform fast and easy CHD measurements. The predefined settings for CHD, surface hardness depth (SHD), and nitriding hardness depth (NHD) speeds up your setup process and ensures that the method-specific acceptance criteria are always used. And, of course, you can always customize the setup to your liking.

Weld Measurement Module

For those of you who work with welds

This optional welding software module provides you with an easy, customizable template for performing hardness testing on all types of welded joints. Just specify the number of indents to perform in the base material, the heat-affected zone, and the weld zone, adjust the positions to fit the exact geometry of the weld – then lean back and let the Duramin-100 take care of the rest.

Automatic Contour Scanning

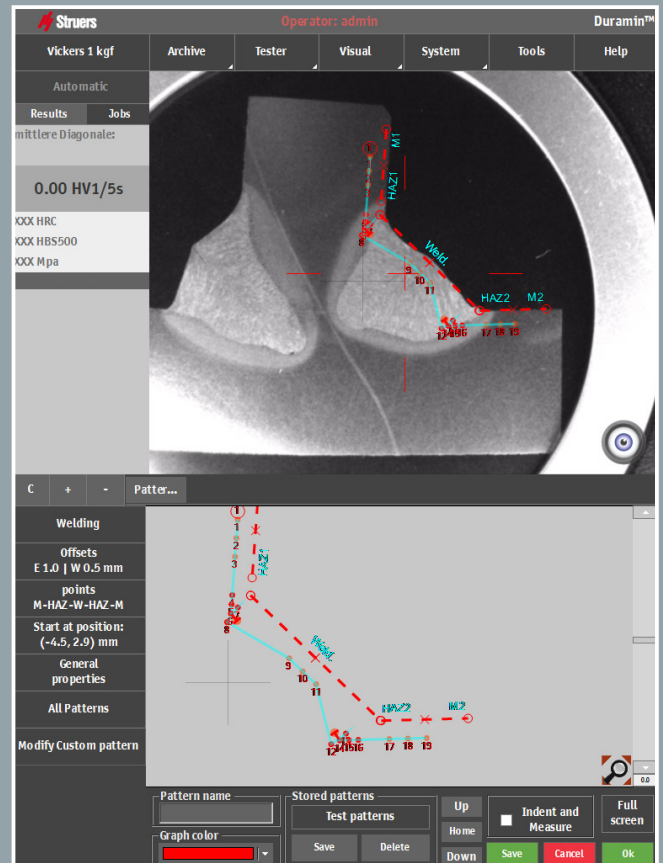
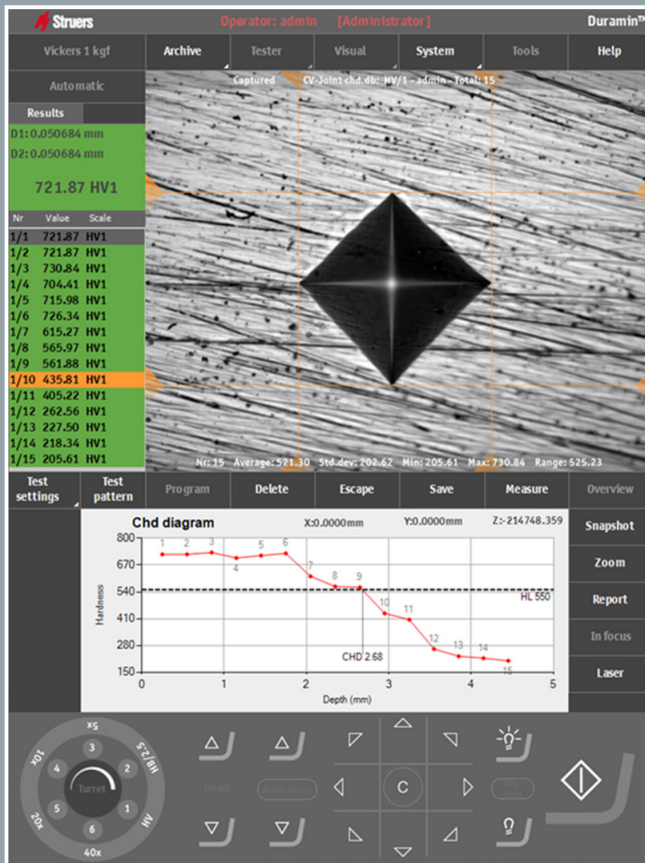
For those of you who work with complicated geometries

This is an optional timesaving software module that allows you to measure the surface hardness around the sample or position the measurement points according to the geometry. With the automatic contour scanning module, the Duramin-100 will remember the sample shape and position the measurement points according to this for repeating tests. Just place an identical part on the Duramin-100, scan the shape, and fit it to the stored shape.

Automatic Mapping Module

For those of you who generate 2D and 3D hardness maps

Would you like to map areas or even entire samples to generate 2D or 3D hardness maps of the sample? Then the optional automatic mapping module is just what you need. This enables you to distribute indents over areas or scanned contours and create heat maps of the hardness variations in the sample. The method is especially useful for hardened samples to investigate fluctuations in the hardness.



Test Report Module

For those of you who like your data clear and manageable

Duramin-100 can easily generate complete reports with results, statistics, and customized comments. Export your data in various formats via the network or a USB stick. All generated data is always accessible for review. As an optional feature, Duramin-100 is also compatible with Q-DAS software for those of you who use that.

Jominy testing

For those of you who determine the hardenability of steel

Duramin-100 is the ideal solution for performing Jominy testing. The combination of the automatic stage, dedicated Jominy sample holders, and Rockwell capability enables the user to make fully automatic Jominy testing. For repeated operations, just fix the sample in the sample holder and press "start." The automation level provided by the Duramin-100 ensures consistent and fast testing.

Right picture:
Test pattern of a weld designed according to EN ISO 9015-1 / -2 standards.
The weld test pattern shows the number of indents to perform in the base material, the heat-affected zone, and the weld zone.

Left picture:
Overview screen with main menu, test results, objective view, additional CHD diagram, and dashboard controls.

You Get the Complete Solution

If You Want It

An effective production plan does not include a lot of fitting time to enable your accessories to cooperate with your machine. At Struers, we have ensured that you can get exactly the accessories you need for your Duramin hardness tester, always guaranteeing a perfect fit

for your machine. You will find a broad selection of indenters, test blocks, sample holders, anvils, and much more. And if you need a customized accessory, we will build it for you.

Accessories

Choose from a wide range of accessories for your hardness test.

- Indenters, available for different methods
- Objective lenses
- Vises, available in different sizes
- Anvils, available in different sizes
- Automatic XY-stage, large
- Sample holders
- Base cabinets
- Test blocks

Indenters

With accredited certificates according to ASTM & ISO.



Cat. no.:
06709121

Vickers
indenter

Cat. no.:
06709102

Rockwell
indenter

Cat. no.:
06709110

Brinell
indenter

Cat. no.:
06709130

Knoop
indenter



Cat. no.:
06709007

Objective lens. 100x
Recommended for HV0.01-HV0.1

Cat. no.:
056484702

Test Block Vickers HV1 - 100
Will be supplied within ± 25 HV of the nominal value. Block Size: $\varnothing 30$ mm diameter x 10 mm

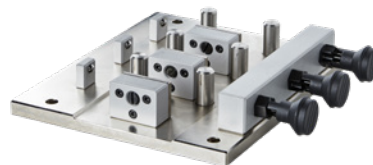


Cat. no.:
06709302



Specimen holder, 4 x 50 mm / 2"
For plane parallel leveling of mounted specimens. Size 170 x 125 mm, with positioning holes.
The holder can be fitted with adapter rings to accommodate other specimen sizes, see 06709350-57.

Cat. no.:
06709312



Jominy sample holder
Holds up to three samples.

Cat. no.:
06709304



Small parts vise
For clamping of small workpieces. Width 55 mm, max. opening 50 mm. Size 100 x 100 mm, with positioning holes. Total height 35 mm workpiece clamp height 20 mm. Max. test load 62.5 kgf.

Duramin-100

High precision load cell
Delivers even higher precision than required by standards.

Automatic test area illumination
Provides a clear view of the sample.

Automatic height adjustment
Adjusts quickly to the correct working height for faster and easier setup.

Anti-collision system
Automatic operation stop in the event of any unexpected vibration or movement.

Overview camera
The overview camera provides a view of the entire sample, allowing fast and easy navigation and positioning across the sample.

Ergonomic, motorized XY-stage
Frees you from manual adjustment to enhance a healthy working environment.



Three load ranges

Choose between: 50 gf – 62.5 kgf, 50 gf – 120 kgf, 50 gf – 250 kgf, plus optional 10 gf – 49 gf for all variants.

Embedded PC

Operated by mouse or touchscreen.

Laser positioning system

The laser positioning system points out the exact position for the test.

Automatic six-position turret

Enables you to configure the Duramin-100, with up to two indenters and up to four lenses.

Powerful software packet

CHD testing and test report manager, optional weld measurement, contour scanning, and automatic mapping.



More Than 140 Years Fine-Tuned Service

Don't hesitate to use it.

When you choose a hardness tester from Struers, you also choose some of the best specialists in the world and a wide range of support at your fingertips.

This includes:

- Access to our global support hotline
- Specialist counseling on how to optimize your individual processes
- All critical spare parts available for immediate shipping
- An annual service review
- Online manuals

Specialist counseling

You can always, and at no expense, contact Struers' experienced application specialists with any questions you might have regarding your Struers equipment, best practice testing, or your specific testing situation. That is a natural part of your Struers equipment purchase. Just go to [struers.com/contact](https://www.struers.com/contact) or contact your local specialist.



Extra Services



ServiceGuard

Which Service Is Right for You?

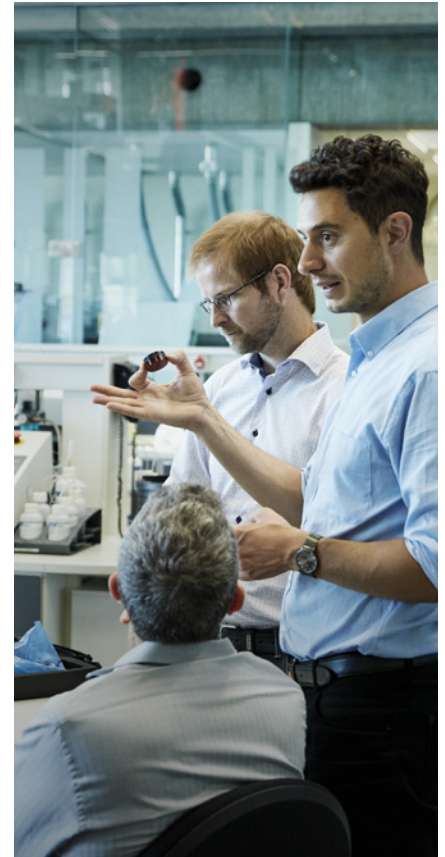
Struers ServiceGuard covers a comprehensive range of technical services and training including service plans, service packages, single services, and spare parts. Our global network of technical service engineers will work with you to determine the service level best suited to your requirements. See more at: [struers.com/service](https://www.struers.com/service)



Calibration Services

Internationally Accredited or Struers Certified

Choose the service that meets your restrictions in accreditation. Both services are designed to ensure that your hardness tester meets the required standards. A Struers technician performs the calibration, including indirect or direct verification of a chosen number of methods.



Application Assessment

Identify Your Optimization Opportunities

A Struers application specialist visits your facility to perform an in-depth assessment of your use of Struers equipment, metallographic processes, and workflows. The specialist identifies quality and optimization opportunities and provides you with practical tips.

Service | Guard 

Want to know more? Go to [struers.com/duramin](https://www.struers.com/duramin)

Technical Data

Models

Three different configurations are available for Duramin-100. A semi-automatic model, a fully automatic model, and a fully automatic model with an overview camera.

	Duramin-100 M1	Duramin-100 A2	Duramin-100 AC3
Load range (main loads)			
10 gf - 49 gf	Optional	Optional	Optional
50 gf - 62.5 kgf	X	Optional	Optional
50 gf - 120 kgf	-	X	Optional
50 gf - 250 kgf	-	-	X
Anvil, stage, and turret			
Rockwell capability (ISO 6508 and ASTM E18)	No	No	Yes
HVT/HBT	No	No	Yes
XY-stage or anvil	Anvil	Automatic XY-stage	Automatic XY-stage
XY-stage or anvil size (mm)	Ø 200	337 x 187	337 x 187
XY-stage stroke, max (mm)	-	200 x 100	200 x 100
Vertical capacity (mm)	126	136	136
Throat depth (mm)	230	230	230
Motorized Z-axis	Yes	Yes	Yes
Turret positions	6	6	6
Max. sample weight	50 kg	200 kg	200 kg
Camera and optics			
Overview camera	Optional	Optional	Yes
Overview camera FOV (mm)	130 x 105	138 x 108	138 x 108
Overview camera resolution (MP)	18	18	18
Evaluation camera resolution (MP)	18	18	18
Auto illumination	Yes	Yes	Yes
Stage illumination	Yes	Yes	Yes
Laser guide	Yes	Yes	Yes
Dual view	No	Optional	Optional
Delivered with 5x, 10x, 20x, 40x objective lenses	Yes	Yes	Yes

	Duramin-100 M1	Duramin-100 A2	Duramin-100 AC3
Software and modules			
CHD module	Optional	Yes	Yes
Edge detection	No	Optional	Optional
Mapping	No	Optional	Optional
Welding module	No	Optional	Optional
K _{1c} fracture measurement	Yes	Yes	Yes
Report editor	Yes	Yes	Yes
Data export	Yes	Yes	Yes
Interfaces and connectivity			
Operation	Embedded windows 10 PC with 15" touchscreen. Mouse and keyboard operation is optional.		
Communication Ports	HDMI, RJ45, WLAN, USB		
Bluetooth	Optional	Optional	Optional
Supply			
Voltage / frequency	100-240 Vac, 50/60 Hz	100-240 Vac, 50/60 Hz	100-240 Vac, 50/60 Hz
Power, idle	60 W	60 W	60 W
Power, max.	156 W	156 W	156 W
Safety	E-stop, PL=C , Cat. 1	E-stop, PL=C , Cat. 1	E-stop, PL=C , Cat. 1
Dimensions			
Height	110 cm	110 cm	110 cm
Width	31.5 cm	35.5 cm	35.5 cm
Depth	61.5 cm	61.5 cm	61.5 cm
Machine weight (kg)	280 kg	292 kg	292 kg

Ensuring certainty

Materialographic preparation and testing demands consistent, reproducible results. These come not only from your laboratory process, operators and equipment, but from your supply chain and your partner. We call this ensuring certainty. And as the global market leader in materialographic solutions, Struers is committed to ensuring certainty by helping you meet every one of these needs.

High quality design and engineering of equipment and consumables are only part of the story. As a Struers customer you can also ensure certainty through our unique knowledge base, robust global supply chain, and expert service and applications support – where and when you need it.

www.struers.com