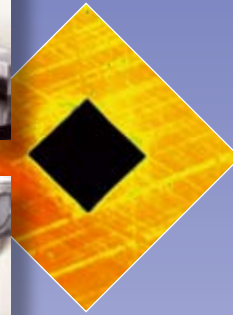


# Duramin-A2500E



**Universal hardness tester  
with load-cell technology  
for Vickers, Knoop,  
Brinell, Rockwell and  
plastics testing**



- 2nd camera (overview camera) for easy positioning of test points
- 5-position turret for easy exchange between multiple indenters and objective lenses (option)

## Automatic Measurement

Duramin-A2500E is a microprocessor controlled universal hardness tester designed specifically for the laboratory or QC station that is looking to eliminate operator influence during indentation measurement. The Duramin-A2500E is PC operated and uses state-of-the-art software algorithms to measure indents automatically. The fully automatic test cycle implies automatic exchange of lens and indenter, thus eliminating the number one cause of machine misalignment. By using the Duramin-A2500E, operator influence is removed thus assuring the highest repeatability.

## Wide Application Range

Duramin-A2500E incorporates the latest load cell technology. A combination of sensors combined with the "closed-loop" technology assures the highest accuracy and allows you to precisely monitor and control load application. With an extended test load range up to 250/750 kgf a single Duramin-A2500E is able to replace all of the following single task machines:

- Vickers (1-100 kgf)
- Brinell (HBW 1/2.5 kgf -HBW 250/750 kgf)

- Rockwell (60, 100 and 150 kgf)
- Superficial Rockwell (15, 30 and 45 kgf)
- Knoop (1 kgf)

## Large Electric XY Stage

A large automatic XY stage allows for automatic case depth (Eht), Rht, and nitrided depth (Nht) test runs. The XY stage has a size of 505x150 mm, and can be positioned 350 mm in the x-direction and 140 mm in the y-direction. Duramin-A2500E can be supplied with a plexi glass housing and safety closure (optional).

## Motorized Height Adjustment

With the electric XY stage, the maximum test height is up to 205 mm. (160 mm for DURER.) The motorized height adjustment can be used for automatic measurement of several points at different test heights on a workpiece. The XY stage simply moves up until the nose cone touches the workpiece.

## Overview Camera

The 2nd overview camera allows you to overview your entire specimen surface, and with a few mouse clicks you can easily select your test points. In addition a macro picture

from the 2nd camera can be included in your report for easy identification and overview.

## Automatic Case Depth Evaluation Software

Software for fully automatic image analysis, indentation measuring and case depth evaluation is included. The high degree of automation allows for unattended operation, which frees the technician for other tasks and eliminates operator influence. The ecos software can automatically calculate the spacing between indents according to norms (for instance 3 diagonal widths), ensuring perfectly spaced indents and a more precise projection of the CHD-curve. In addition, Duramin-A2500E can be programmed to stop a line automatically once a defined hardness has been reached. The ecos software includes a report editor enabling the generation of customisable reports including statistics and hardness case depth evaluation.

## Automatic 5-Position Turret

The automatic turret for Duramin-A2500ET has 5 positions (patent pending), enabling you to easily employ different test methods without having to change indenter and objective manually.

## Specifications

### Duramin-A2500E Duramin-A2500ET

Universal hardness tester with load-cell technology for Vickers, Knoop\*, Brinell, Rockwell and plastics testing. With extended load range 9.81 N - 2450 N or 29 N - 7350 N\*\*. CCD-camera, auto focus and 2nd CCD-camera with FOV 100x140 mm. Swivel or 5-position turret\*\* with automatic exchange of objective lens and indenter. Software for fully automatic measuring and case depth evaluation. Electric stage size 505x150 mm, stroke 350x140 mm. Electric height adjustment of XY stage.

Supplied on support table size: (h)465 mm x (w)750 mm x (d)700 mm. Objective lenses and indenters are ordered separately. Additional ecos software modules are optional. PC and monitor are necessary but not included.

Technical Specifications	Duramin-A2500E	Duramin-A2500ET
<b>Test load range</b>	9.81N (1 kg) to 2450 N (250 kg)	29 N (3kg) to 7350 N (750 kg)
<b>Preloads (Rockwell)</b>	29 N (3 kg)	98 N (10 kg)
<b>Indenter options</b>	Vickers, Brinell (1, 2.5 and 5 mm), Rockwell, Knoop*	
<b>Objective lenses options</b>	40x, 70x, 130x, 320x, 640x, 1200x total magnification	
<b>Light source</b>	Adjustable LED	
<b>Test height</b>	205 mm (8.07")	160 mm (6.30")
<b>Throat depth</b>	190 mm (7.48")	
<b>Stage dimensions XY</b>	505 mm (19.88") x 150 mm (5.91")	
<b>Stroke XY</b>	350 mm (13.78") x 140 mm (5.51")	
<b>Maximum specimen weight</b>	20 kg (44.48 lb.)	
<b>Power supply</b>	1 x 110-230 V, 50-60 Hz	
<b>Power consumption</b>	Max. 600 W	
<b>Dimensions: H x W x D incl. support table</b>	1520 x 750 x 720 mm (59.84" x 29.53" x 28.35")	
<b>Weight incl. support table</b>	Approx. 200 kg (444.0 lb.)	
<b>Conforms with standards</b>	<b>Vickers:</b> DIN EN 6507, ASTM E92, (HV 1 / HV 3 - HV 100), JIS Z 2251 <b>Brinell:</b> DIN EN ISO 6506, ASTM E10 (HBW 1 - HBW 250 / HBW 5 - HBW 750) <b>Rockwell:</b> DIN EN ISO 6508, ASTM E18 <b>Knoop:</b> DIN EN ISO 4545, ASTM E384 (HK 1)* <b>Plastics:</b> ISO 2039-1 (DIN 53456)	

\*Only DUREE \*\* Only DURER

Code	Cat. No
DUREE	E5636419
DURER	E5636619



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## Accessories

### Indenters

Brinell indenter with 1 mm carbide ball, with MPA-certificate.  
Brinell indenter with 2.5 mm carbide ball, with MPA-certificate.  
Brinell indenter with 5 mm carbide ball, with MPA-certificate.  
Knoop diamond indenter with MPA-certificate.  
Rockwell diamond indenter with MPA-certificate.  
Rockwell indenter with 1/16" carbide ball with MPA-certificate.  
Rockwell indenter with 1/8" carbide ball.  
Rockwell indenter with 1/4" carbide ball.  
Rockwell indenter with 1/2" carbide ball.  
Vickers diamond indenter for >HV0.01 with MPA-certificate.  
Vickers diamond indenter for >HV5 with MPA-certificate.

### Objective Lenses

40x, lens including LED lightning. For use with swivelling body. (For HBW 5/62.5-750.)  
70x, lens including LED lightning. For use with swivelling body. (For HV 50-100, HBW 2.5/15.62-187.5)  
130x, lens excluding LED lightning. (For HV 20-100, HBW 1/2.5-30.)  
320x, lens excluding LED lightning. (For HV 3-20.)  
640x, lens excluding LED lightning. (For HV 1-3.)  
1280x, lens excluding LED lightning. (For HV 1.)  
50x, lens. For use with automatic turret. (For HBW 5/62.5-750.)  
69x, lens. For use with automatic turret. (For HV 50-100, HBW 2.5/15.62-187.5.)  
LED lightning, for lenses HOVIA, HOVIB, HOVIC, HOVID.

### Specimen Holders

For plane parallel levelling of specimens.  
For clamping of one specimen of 30 mm / 1 1/4" dia.  
For clamping of one specimen of 40 mm / 1 1/2" dia.  
For clamping of one specimen of 50 mm / 2" dia.  
For clamping of 6 specimens of 30 mm / 1 1/4" dia.  
For clamping of 6 specimens of 40 mm / 1 1/2" dia.  
For clamping of 4 specimens of 50 mm / 2" dia.  
Standard Vice, opening 36 mm, width 42 mm  
Universal Vice, can be turned and tilted. Levelling stage (HARLE) is required.  
Levelling Device for universal vice.  
Clamping Device for Jominy Test

### Additional Software Modules

ecos Jominy software module for determination of JOMINY testing processes according to DIN 50191/ISO 642.  
ecos Jominy Multiple Specimens. Additional software module to ecos JOMINY for evaluation of up to six JOMINY test specimens.

### Code Cat.no.

HABON	05646904
HABTO	05646905
HABFI	05646911
HAKNE	05646903
HAROC	05646906
HAROB	05646907
HAROE	05646924
HAROL	05646925
HAROR	05646926
HAVIL	05646913
HAVIH	05646914
HOTIA	05836901
HOTIB	05836902
HOVIA	05636903
HOVIB	05636904
HOVIC	05636905
HOVID	05636906
HOTID	05836904
HOTIE	05836905
HOLED	05636937
HAIQU	05656981
HAIAF	05656982
HAITO	05656983
HAMQU	05656985
HAMAF	05656986
HAMTO	05656987
HARST	05656909
HARUN	05656910
HARLE	05656911
HAJOM	05636943
DUSJI	05636108
DUSMI	05636109

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