

Brilliant image analysis – for simply precise test results



DuraVision

1-3000 kgf
Brinell
Vickers
Rockwell
Super Rockwell
Knoop
Plastic testing
Carbon testing
HBD, HVD



powered by
ecos Workflow

www.emcotest.com

EMCO-TEST
YOUR FACTOR OF SAFETY

A complete range of hardness testing.

Test load range from 1 kgf to 3000 kgf.



DuraVision 20
1–250 kgf



DuraVision 30
10–3000 kgf



DuraVision 40
3–750 kgf

HAND WHEEL

DuraVision Video
watch now!



DuraVision 200
1–250 kgf



DuraVision 300
10–3000 kgf



DuraVision 400
3–750 kgf

MOTORIZED TEST HEAD POSITIONING



Brinell

According to EN ISO 6506, ASTM E-10

1/1	1/2.5	1/5	1/10
1/30	2.5/6.25	2.5/15.6	2.5/31.25
2.5/62.5	2.5/187.5	5/25	5/62.5
5/125	5/250	5/750	10/100
10/250	10/500	10/1000	10/3000
HBT (nicht genormt)			



Rockwell

According to EN ISO 6508, ASTM E-18

HRA - HRV	HR15-N/T/W/X/Y
HR30-N/T/W/X/Y	HR45-N/T/W/X/Y

- Option 20/200 • 9.8–2450 N (1–250 kgf)
- Option 30/300 • 98–29430 N (10–3000 kgf)
- Option 40/400 • 29–7350 N (3–750 kgf)



Vickers

According to EN ISO 6507, ASTM E-384

HV 1	HV 2	HV 2.5	HV 3
HV 5	HV 10	HV 20	HV 30
HV 50	HV 60	HV 100	HV 120
HV 125	HV 150	HVD (non-standardised)	



Knoop

According to EN ISO 4545, ASTM E-384

HK 1	HK 2		
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Plastics

According to EN ISO 2039

49.03 N	132.9 N	357.9 N	961 N
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Carbon testing

According to DIN 51917

2.5/7	5/7	5/15	5/20
5/40	5/60	5/100	5/150
10/20	10/40	10/60	10/100
10/150			

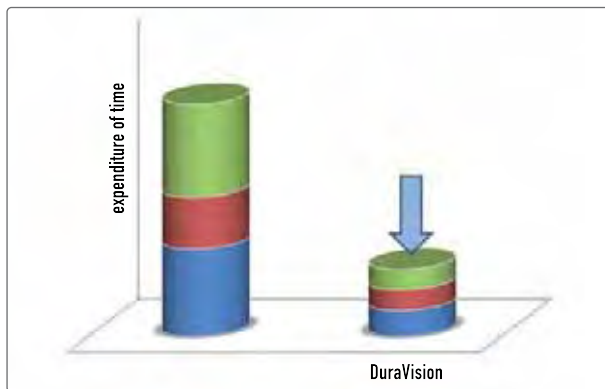
The DuraVision series

Makro hardness testing made easy.



The sure way of achieving precise results

Evaluation of test indentations is realised via fully automatic brightness regulation and rapid autofocus. Hence, the greatest possible degree of repetitive accuracy is guaranteed. Furthermore, the DuraVision series applies the test load using the tried and tested closed loop concept.



Saving time by fast test cycles

Fully automatic brightness regulation, optimised autofocus, rapid turret and swivel body movements, plus intuitive operation, all help to reduce test cycle durations. After test completion results and test reports can be exported straight into your company network. Especially when testing samples with different shapes or sizes, the intelligent design of the machine allows adaptations to be made very quickly, thus reducing re-equipping times.



Intuitive operator software: **ecos** Workflow

This ultramodern software technology paired with proven solutions for common hardness testing tasks is an unbeatable tool for saving time, optimising expenses and maximising performance! The **ecos** Workflow principle opens up a great range of possibilities - from simple single measurement to row and serial measurement through to permanent data recording and report generation. **ecos** Workflow software guides you through the entire process - minimum effort guaranteed!



Progressive design

The attractive, modern exterior of the DuraVision houses a number of clever features. The use of PLC components is a guarantee for the highest machine availability. The modular kit concept enables the DuraVision to be completely tailored to your requirements. The DuraVision is as equally effective in laboratory environment as it is in everyday manufacturing processes.

Important features at a glance.

User-friendliness and efficiency are our top priority



One lens – two magnifications

Intelligent interaction between the optical system and the software with 2-step-zoom has made it possible to double the magnification spectrum provided by the lens - while maintaining the same high standard of image quality. The unique 2-step zoom is a standard feature of the entire DuraVision series, from basic through to high-end. This saves using additional lenses and thus reduces expenditure.



Clamped and unclamped measurements

Besides the ability to clamp the work piece according to the standards, the nose cone also provides ideal protection to lenses and indenters. If the two nose cone inserts are removed the lens and indenter are still protected, even without clamping, due to the automatic collision protection.

If dismantling of the nose cone is still necessary it can be removed quickly thanks to an intelligent fastening system similar to a “bayonet lock”. Depending on the geometry of the test piece the user can decide whether to use one or two nose cone inserts. Inserts can be changed in seconds – without the need to remove the entire nose cone.



Ring light

Optimal lighting for difficult surfaces: Particularly with Brinell tests on soft metals or poor test work-piece surfaces, the use of the powerful LED ring light ensures test indentations can be analysed ideally. Can be used with the lenses 2.5x, 4x and 10x.

Rapid mounting: The ring light can be mounted and removed in seconds. Mounting the light could not be simpler.

Innovative machine design

Ergonomical working: Not every operator is the same size. The touch display can be moved in all directions and adapted to the height and convenience of each individual operator. If required, the display can also be mounted on the left hand side of the machine (optional).

More space to test: The compact structure of the individual components results in an enlargement of the overall test space, thus opening up more options, particularly in terms of large test pieces.

At home in production areas and laboratories: Its robust build makes the DuraVision series ideal for industry environment but it also performs well in clean laboratories.



Create Sample



Load Sample



Create/load sample

The use of the sample mode reduces the effort for the operator and significantly increases safety and efficiency. All user-specific settings for hardness testing e.g. test method, lens, etc., are stored in the sample and can be loaded easily.

Create/read QR-Code

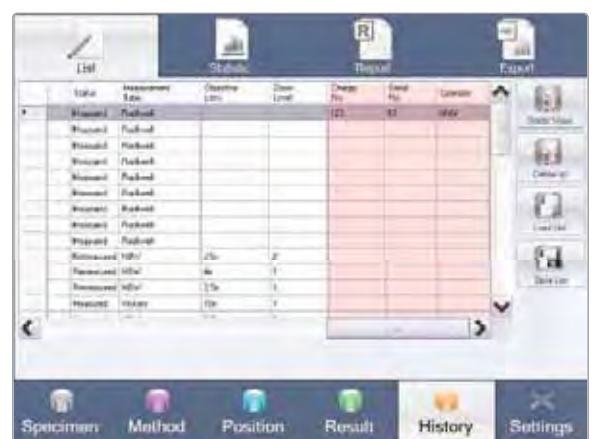
With this feature and help of a USB handheld scanner, users can create and read QR-codes with all relevant hardness test settings such as for example test method, lens, etc. Therefore the degree of automation, safety and efficiency of the hardness testing process considerably increases. Incorrect entries of hardness test settings belong to the past. Additionally the code can be printed directly on a docket or can be saved as an image file for the use in other programs.

Since the code generated by this function already contains all test-related data, a network connection is not required. For this feature, a handheld scanner including machine-specific holder is available as an accessory.



Individual test point information

To adapt the documentation of measured values even better to the needs of the operator, it is possible to add up to 3 information for each hardness measurement individually (eg, serial number, batch number, etc.). The entry can be made before or after the measurement. This allows a better analysis and traceability of test parts.



The new DuraVision 20/30/40.

Your window to the world of macro hardness testing.

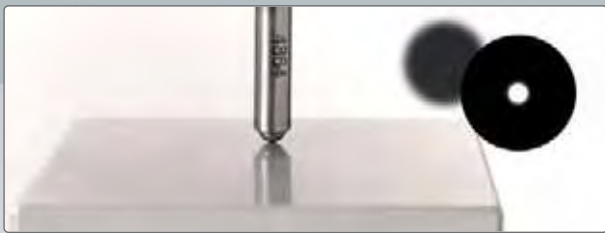
Fully automatic image evaluation

One important factor in ensuring the accuracy of test results is the measurement of the test indentation. Exact results can only be achieved with clearly distinguishable test indentations, optimal contrast settings and ideal brightness. The camera electronics regulate picture settings independently of the operator, thus maximising image recognition. Particularly when testing unpolished surfaces, this function is a prerequisite for automatic, operator-independent indentation recognition.



Ultramodern autofocus technology

The autofocus function is based on the principle of direct pressure gauging by which the integrated weighing cell registers exactly when the indenter touches the surface. In this way the focussing can already be determined while testing.



The joy of making contact: The interfaces

DuraVision is equipped with all standard PC ports and interfaces. An ideal basis for important network usage and data export (USB 2.0, RJ45-Ethernet, RS232, VGA, PS/2).



310 mm test height



Wide range of applications



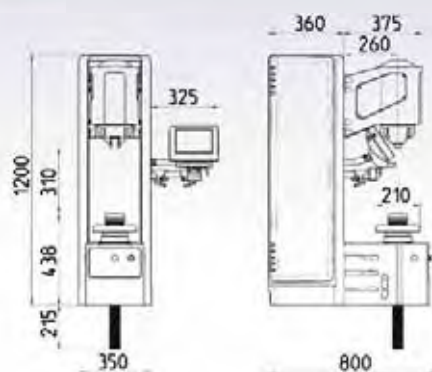
Users benefit from a wide range of selectable test methods and conversions according to DIN EN 50150, EN ISO 18265 and ASTM E-140 - all of which are part of the standard programming in the hardness tester.



The new geometry of the nose cone simplifies the access to less accessible test points.



The nose cone is composed of two parts. Each can be removed according to geometry of the sample.



The new DuraVision 200/300/400.

Rapid individual measurements in a fully automated test cycle.

Motorised test unit

The motorised test unit allows the test space to be enlarged while the operating height stays the same and the dimensions are compact. The resulting operator ergonomics are a significant step forward in terms of working conditions.

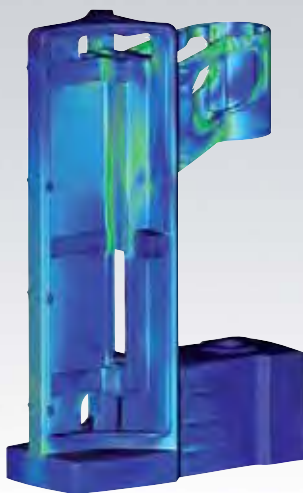
The operation of the vertical unit is steered by using a two-handed control unit. The test unit is attached to the device.



Absolute safety

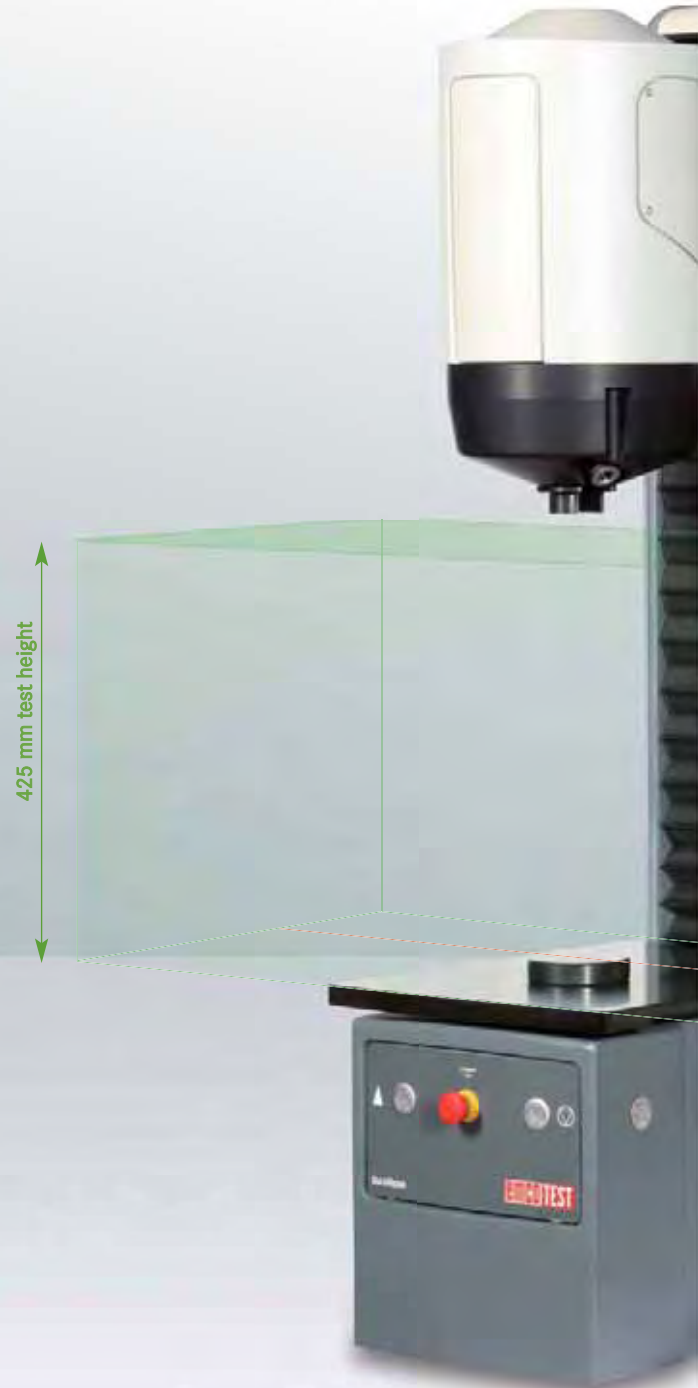
As a European manufacturer we welcome our obligation to comply with CE conformity guidelines and the DuraVision corresponds with the highest international standards. By using quality components and materials we are also able to comply with North American safety standards (control unit 'UL-listed' for the highest standards of fire resistance for plastic covers).

425 mm test height



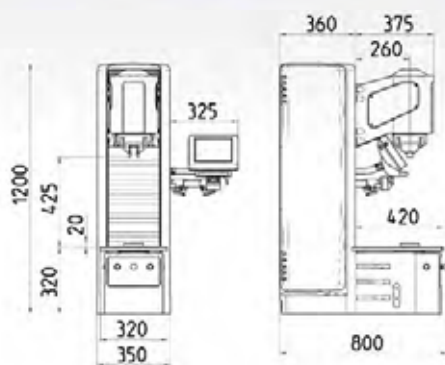
Material and technology

Whether subjected to a 1 kgf or 3000 kgf test load, the rigid cast iron stand guarantees absolute test stability for the entire range of loads.





255 mm test width



Wide range of applications



The standardised diameter correction system integrated into the device makes the testing of cylindrical and conical surfaces much easier.

Fully automatic test cycles

The measuring process begins immediately after the work piece has been clamped. After measurement the test unit is removed automatically. This is particularly important for serial testing as immense time savings can be made.



The optional purchase of an extendable table ensures stability for heavy parts. A bigger sample surface is accessible for testing.

Hardness testing software that shows the way.

 **ecos** Workflow TM Touch for DuraVision.

Workflow in five steps

Specimen, method, position, result and history are the five steps of the intuitive operator software **ecos** Workflow. Logic, transparency and simple operation are the cornerstones of the workflow. Available in 5 standard languages (DE/EN/IT/FR/SP/CS/HU/JA/PL/RU/VI/TR).



1 Specimen

Select a type of test out of single measurement, series measurement, CHD-, Rht- and Nht- runs or load a sample respectively read a QR code.



2 Method

Select a measurement type, lens, test method, use of ring light and zoom level; and if required conversions, hardness limits and standardised device corrections.



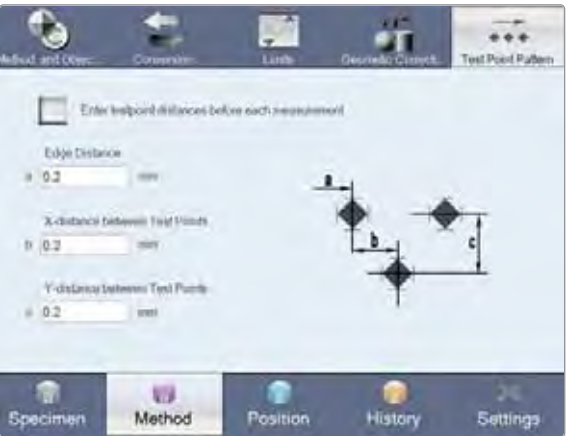
3 Position

Position your test point on the work piece. Using the tools provided it's child's play. Then start the test.



Serial measurement

A test point wizard is available for serial, CHD, Nht or Rht testing. The wizard supports you at the creation of test point patterns when carrying out standardised serial tests (EN ISO 2639, 10328, 50190).



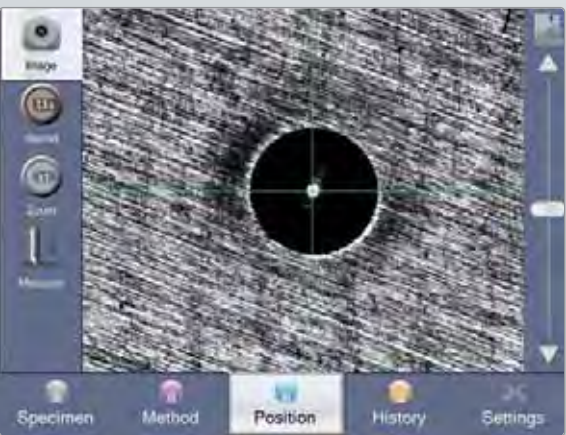
Intuitive operation

The software informs the operator for example which lens and indenter are currently in position. The lens and indenter can be swiveled into position by clicking the touch display.



Autofocus

Automatic specimen height recognition produces automatic focussing.



Statistics and graphs

All test results are presented as clear figures, tables or diagrams.



4 Result

The result is displayed clearly and is available for further uses. If necessary there is also the option of re-measuring either automatically or manually.



5 History

All results are stored permanently in a clear form. The data can be archived in your network, in other systems and used to print out a report with any installed printer.

No.	Operator	Material	Result	Result	Result	Unit	Other	Area
10	100	1001	10.100	10.100	10.100	100	100	10000
11	100	1001	10.100	10.100	10.100	100	100	10000
12	100	1001	10.100	10.100	10.100	100	100	10000
13	100	1001	10.100	10.100	10.100	100	100	10000
14	100	1001	10.100	10.100	10.100	100	100	10000
15	100	1001	10.100	10.100	10.100	100	100	10000
16	100	1001	10.100	10.100	10.100	100	100	10000
17	100	1001	10.100	10.100	10.100	100	100	10000
18	100	1001	10.100	10.100	10.100	100	100	10000
19	100	1001	10.100	10.100	10.100	100	100	10000
20	100	1001	10.100	10.100	10.100	100	100	10000
21	100	1001	10.100	10.100	10.100	100	100	10000
22	100	1001	10.100	10.100	10.100	100	100	10000
23	100	1001	10.100	10.100	10.100	100	100	10000
24	100	1001	10.100	10.100	10.100	100	100	10000
25	100	1001	10.100	10.100	10.100	100	100	10000
26	100	1001	10.100	10.100	10.100	100	100	10000
27	100	1001	10.100	10.100	10.100	100	100	10000
28	100	1001	10.100	10.100	10.100	100	100	10000
29	100	1001	10.100	10.100	10.100	100	100	10000
30	100	1001	10.100	10.100	10.100	100	100	10000



Modern data management with ecos Workflow.

Simple and secure handling of data.



Efficient data management

The vast number of measured values created during the course of comprehensive quality assurance demands highest levels of precision and availability from computerised QA systems.

In order to guarantee continuous documentation and reliable allocation of measured data to the respective workpiece, all DuraScan G5 models offer extensive possibilities for data output and backup.

In addition to storing of the test results directly at the hardness tester, all the data collected during the test can also be saved as files in .pdf, .xls (Excel) or .xml format. The output in .xml file format allows simple interfacing to Q-DAS systems. The integrated **Export Editor** offers extensive adaptation possibilities. In addition to the scope and sequence of the exported measurement data, a new file can also be generated automatically after each measurement, thus significantly simplifying the automatic further processing.



ecos Workflow xCHANGE

The xChange interface forms part of the standard configuration of all hardness testers of the DuraScan and DuraVision Series. This facilitates implementation of practically all customer-specific requirements for connecting the hardness tester to databases and data input devices, as well as fully automatic or unmanned operation. Since ecos Workflow xCHANGE is based on the established XML format, interaction with it is simple and structured.



Create customised test reports.

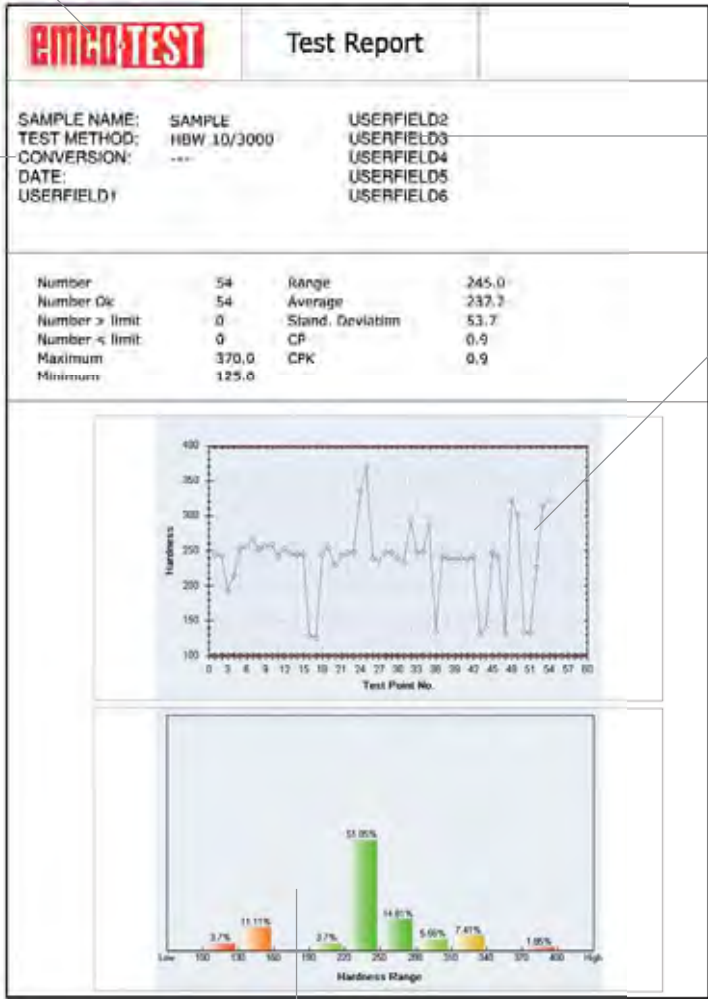
Whether using standardised forms of **ecos** Workflow or company-specific test reports, the flexible and extremely convenient form and report generator enables you to generate your own documents and test reports.

Add your corporate logo to the test report

Separate fields for specimen descriptions and test parameters

Other freely definable fields

Bar charts, statistics, line graphs etc.



Space for test reading tables, statistical information etc.

Pulse	Rate	Pulsewidth	Wave	Methods	Distance	Estimated rate
Pulse 1	Rate 1	1	750	100%	40	0.000
		2	400	100%	40	0.000
		3	300	100%	40	0.000
		4	200	100%	40	0.000
		5	150	100%	40	0.000
		6	100	100%	40	0.000
		7	75	100%	40	0.000
		8	50	100%	40	0.000
		9	25	100%	40	0.000
		10	10	100%	40	0.000

Options.

Adapt the DuraVision to suit your needs.



6-fold turret

A true all-rounder. The turret can be used freely with various indenters and lenses depending on requirements making the DuraVision a true all-rounder. Hence, you can cover the full range of test methods with just a single machine. Not only does the 6-fold turret rotate at a great speed, it also recognises the shortest rotation way to the selected position.

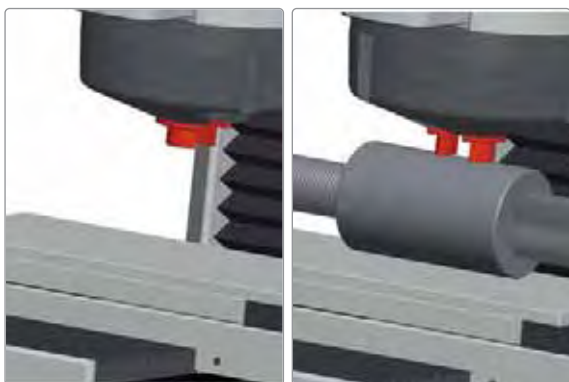
Significant ease of use is provided by the integrated function “automatic lens selection”. Thereby the hardness testing machine uses automatically the optimal lens, for evaluation of an indent.



External machine control via hardware interface (only for DV200/300/400)

This additional interface gives the possibility to integrate the DuraVision into an automated manufacturing plant and thus perform 100%-inspections without removing specimen from the production process.

Another possibility is to connect the available foot switch to the interface in order to execute the clamping movement for fixing a work piece. In contrast to the two-hand operation this makes the handling of large work pieces significantly easier.



Schematic depiction of nose cone inserts in red.

Installation position of swivel body/turret rotated 90°

To increase clamping flexibility, the nose cone also can be delivered rotated by 90°. This can be useful when testing cylindrical parts.

What you also need.

The right indenters and lenses for your needs.

Indenters

EMCO-TEST offers a whole range of indenters. All certified indenters comply with international standards according to EN ISO or ASTM. Select the correct indenter for your tests.



Lenses

Principally, the smaller the test load required - the greater the degree of magnification. A wide range of lenses you can find in our accessories catalogue.



Set-up assistant

The set-up assistant helps to configure your hardness tester. It guides you through the most important settings such as upgrades, add-ons and exchange of lenses and indenters.



The complete accessories catalogue at www.emcotest.com

Go to www.emcotest.com for the entire range of accessories for the DuraVision hardness testing machine, including the complete range of indenters (incl. certificate acc. to EN ISO/ASTM), special test anvils, adapters for additional indenters, lenses, etc.



Test blocks



Nose cone inserts



Base/tool cabinet



Test anvils

360° FULL SERVICE COMPETENCE

Competence and experience — hand-in-hand.



Our strategy

With the vision of building machines that don't simply do everything, but do everything simply, Ernst Alexander Maier developed EMCO-TEST from the inheritance of his father and company founder into the world technology leader in the field of hardness testing. Today we are the largest manufacturer of hardness testing machines with the most modern and most efficient technologies in Europe. True to our mission of making everything to do with hardness testing

simpler, we offer comprehensive solutions for all these tasks from a single source: Development, production, calibration, consultation and supplementary services — complete coverage of all important issues. This means competence in all aspects of hardness testing:
360° FULL SERVICE COMPETENCE.

Accredited calibration laboratory to ISO 17025

In order to comply with international standards, for reproducibility of measurement results and for comprehensive documentation of the test cycles, EMCO-TEST offers accredited calibration in accordance with EN ISO / IEC 17025:2007. Our accredited calibration laboratory ensures that the services offered always represent the state-of-the-art of the standards and technology.

Premium quality with certified quality promise (ISO 9001)

In order to ensure that only perfect quality is supplied to you, every EMCO-TEST testing machine is thoroughly and stringently tested before delivery. The ease of service is taken into consideration right from the beginning in the design phase. The results are menu-driven fault detection, integrated self-diagnosis and modular exchange of electronic components that ensure the remedying of faults in a minimum of time. Software updates that take into consideration changes in standards or optimise future processes ensure high investment security for you.

Service App

With the EMCO-TEST Service app, you can quickly and easily send a service message around the clock and from anywhere in the world. The app guides you step-by-step in easily creating your service message. This ensures that our service technicians receive all the relevant data on the machine and can quickly provide assistance in an emergency. These and many other functions await you in our EMCO-TEST Service app.

Remote Support



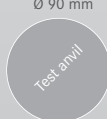















The TeamViewer Client integrated as standard can be started directly from ecos Workflow and offers the optimum basis for perfect online support worldwide. This software allows remote maintenance as well as the sharing of the screen contents with other computers, e.g. for training purposes (internet connection required).



Find the right option.



HAND WHEEL

	DuraVision 20	DuraVision 30	DuraVision 40
Test load range	9.8–2450 N (1–250 kgf)	98–29430 N (10–3000 kgf)	29–7350 N (3–750 kgf)
Test anvil	Height adjustment via hand wheel 	Height adjustment via hand wheel 	Height adjustment via hand wheel 
Max. work piece weight	200 kg	200 kg	200 kg
Dimensions (W x H x L)	280 x 1200 x 760 (mm)	280 x 1200 x 760 (mm)	280 x 1200 x 760 (mm)
Space required (W x L)	1050 x 1530 (mm)	1050 x 1530 (mm)	1050 x 1530 (mm)
Basic machine weight	approx. 400 kg	approx. 400 kg	approx. 400 kg
Test height	310 mm	310 mm	310 mm
Test unit switch speed.	-	-	-
Max. power feed	120 W	120 W	120 W
Included Software modules	   	   	   
Optional software modules			

General technical details:

2-position swivel body	Motor-driven
Image evaluation	Manual/automatic
Brightness regulation	Automatic
Zoom	2-step, 14-fold zoom (optional)
Focussing	Automatic
Measuring camera	CMOS 1.3 Mpix
Interface ports	2x USB, 1x RS232, 1x RJ45 (Ethernet), 1x VGA, 1x PS/2
Illumination	Power LED
Load application	Load cell, closed loop system
Depth gauging system	High-definition length gauge 0.05 µm
Reading range storage	0–9999

Lens & indenter protector
Nose cone contact surface
Display
Operator software
Operator software languages
Room temperature (according to ISO/ASTM)
Humidity
Voltage (V)
Max. voltage variance
Main fuse (110–230 V)
IP code EN 60529



MOTORISED TEST HEAD POSITIONING

DuraVision 200	DuraVision 300	DuraVision 400
9.8–2450 N (1–250 kgf)	98–29430 N (10–3000 kgf)	29–7350 N (3–750 kgf)
Motor-driven test unit adjustment	Motor-driven test unit adjustment	Motor-driven test unit adjustment
<div> <div>Ø 90 mm</div> <div>415 mm</div> <div>320 mm</div> <div>Test anvil</div> <div>+</div> <div>Test anvil</div> </div>	<div> <div>Ø 90 mm</div> <div>415 mm</div> <div>320 mm</div> <div>Test anvil</div> <div>+</div> <div>Test anvil</div> </div>	<div> <div>Ø 90 mm</div> <div>415 mm</div> <div>320 mm</div> <div>Test anvil</div> <div>+</div> <div>Test anvil</div> </div>
depending on base frame	depending on base frame	depending on base frame
320 x 1200 x 760 (mm)	320 x 1200 x 760 (mm)	320 x 1200 x 760 (mm)
1050 x 1530 (mm)	1050 x 1530 (mm)	1050 x 1530 (mm)
approx. 420 kg	approx. 420 kg	approx. 420 kg
425 mm	425 mm	425 mm
9.2 mm/s	9.2 mm/s	9.2 mm/s
240 W	240 W	240 W
<div>ecos</div> <div>ecos</div> <div>ecos</div> <div>ecos</div>	<div>ecos</div> <div>ecos</div> <div>ecos</div> <div>ecos</div>	<div>ecos</div> <div>ecos</div> <div>ecos</div> <div>ecos</div>
<div>ecos</div>	<div>ecos</div>	<div>ecos</div>

ecos Workflow software modules:

Nose cone
0–50 mm (nose cone inserts)
8.4" touch display
ecos Workflow
DE/EN/FR/IT/SP/CS/HU/JA/PL/RU/FI/TR
+5 °C/+40 °C
Up to 90% (no condensation)
110/230~1/N/PE, 50–60 Hz
±10%
T6.3A
IP20



ecos Workflow IMAGE facilitates the fully automatic image evaluation using integrated autofocus.



ecos Workflow CHD MANUAL facilitates the generation of CHD, Nht and Rht test runs (manual X-Y cross slide).



ecos Workflow RING LIGHT enables Brinell tests to be made on rough surfaces and non-ferrous metals.



ecos Workflow EXPORT EDITOR software module for individual amendment of export data. Including automatic data- and image- export from the hardness tester to an external PC (Image: .jpg, data: .txt, .csv, .xls, .xlsx)



ecos Workflow xCHANGE is a program interface which allows the access to all relevant functions and data of the hardness tester. Thus, an easy integration of the hardness tester in existing solutions for data management or automation systems is possible.

Benefit from our global sales and service network!

With qualified sales and service partners in over 40 countries, we guarantee top level support for you and your machine. You can find your local dealer on our website www.emcotest.com.



- Austrian head office
- Sales and distribution partners



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