

UNIVERSAL HARDNESS TESTER ADL-DU110

for controlling the hardness of metal products

The hardness tester ADL-DU110 combines two methods of hardness measurement: ultrasonic and dynamic. This makes this device the most versatile and effective solution for incoming, in-process, and outgoing quality control of materials.

The universal hardness tester is used for various tasks, including the measurement of carbon and structural steels, surface-hardened products, heat-resistant, corrosion-resistant, stainless steels, galvanized coatings, welds, aluminum and copper alloys, products of complex configuration, thin-walled, and compact products.

The ADL-DU110 provides an accessible and reliable solution for addressing challenges in situations where discrepancies exist between departments or subcontractors regarding the obtained results of hardness measurements during the acceptance of components (materials). This is achieved by allowing measurements with an accuracy closely approaching that of stationary hardness testers.

In addition to laboratory use, the hardness tester can be employed in manufacturing workshops and open-air field conditions. The device is equipped with a protective casing featuring rubber inserts and a dust-resistant cover. It is also furnished with a vibrant colored 3.5" LCD TFT display and a user-friendly menu interface.



DYNAMIC SENSOR

The sensor is designed for measuring the hardness of large and massive objects.

To ensure optimal measurement conditions on various objects, additional dynamic sensors with different sizes and spring stiffness, providing varying impact energy of the indenter, can be utilized.

ULTRASONIC SENSOR

The ultrasonic sensor is effective in tackling tasks involving hardness measurement in grooves, surfaces with a small radius, hard-to-reach areas, complex-shaped products, and small details. It is well-suited for measuring the hardness of mirror surfaces on shaft necks, blades, gear teeth, as it has a small indenter footprint. Especially when using the UCI-S type sensor.

Features of the ADL-DU110 Hardness Tester:

- Dust and moisture-resistant casing.
- Intuitive interface organized on the principle of 'TURN ON AND WORK'.
- Color display with backlighting clearly presents measurement results in bright sunlight and low light conditions.
- Notification of measurement result output within established limits.
- Unique system for statistical data processing designed for prompt analysis of measurement results.
- Single-point calibration function.
- Large memory capacity - enables input and storage of over 100 user scales and viewing the history of all conducted measurements after completing the operation.
- Self-programming of additional scales.
- Saving all measurement results by date and time. Viewing results in the form of tables and graphs for detailed analysis of obtained values.
- Stable operation of the device in challenging climatic conditions.

ADL-DU110 – is a universal hardness tester that, with high precision, can address virtually all tasks related to express hardness control!

TECHNICAL SPECIFICATIONS

Parameter	Value		
Measurement range for the main scales:			
Rockwell	20-70 HRC*		
Brinell	20-650 HB*		
Vickers	230-940 HV*		
*The hardness tester can be recalibrated across a broader and individual range of scales when reference samples with corresponding hardness values are available.			
Measurement error :	*Subject to following recommendations	Requirements of ISO and ASTM standards	
Rockwell	± 0,2 HRC	± 2 HRC	
Brinell, in the range	90-150 HB	± 10 HB	
	150-300 HB	± 15 HB	
	300-450 HB	± 20 HB	
Vickers , in the range	240-500 HV	± 15 HV	
	500-800 HV	± 20 HV	
	800-940 HV	± 25 HV	
* To achieve maximum accuracy and repeatability in measurements, it is necessary to:			
- Adhere to the requirements for the roughness of the gauge or product;			
- Improve operator skills; Follow the measurement guidelines outlined in the user manual;			
- For precise positioning in UCI measurements, it is recommended to use a stand.			
Recommended roughness:			
For the dynamic sensor:			
Type "D"	3.2 Ra		
Type "G"	7.2 Ra		
For the ultrasonic sensor	1.6 Ra		
Diameter of the surface for installing the sensor:			
For the ultrasonic sensor	- from 1 mm on the plane - from 5 mm/0.197" in a blind hole (groove)		
For the dynamic sensor	from 14 mm/0.551" on the plane		
Materials	Ultrasonic sensor (UCI) - pre-calibrated for steel Dynamic sensor - pre-calibrated for steel, cast iron, stainless steel, aluminum, bronze, brass, and copper Additional user materials for calibration		
Calculations	Average value for 1-20 measurements Minimum, maximum, average values; Algorithm for rejecting incorrect measurements		
Algorithm of false values	Yes		
Scale conversion	Conversion of measured hardness into different scales		
Programmable scales	Additional scales beyond 100		
Construction of graphs	All points from the series that were considered in the calculation of the mean value		
Language	Ukrainian, English, Russian		
Memory capacity	128Mb (Possibility of saving more than 1000 measurements)		
Device body	Impact-resistant plastic casing with a rubber bumper (fall protection)		
Display	LCD TFT 3.5" 320x480 px		
PC connection	USB, results processing, report generation		
Power supply	Rechargeable, Li-Pol, 3.7V 3000mAh		
Work without recharging	9 hours		
Operating temperature	-10...+45 °C, no condensation		
Overall dimensions	185x98x42 mm (including rubber inserts)		
Weight	0.35 kg		

ADDITIONAL EQUIPMENT:

The device can be equipped with special attachments for positioning, allowing hardness measurement on radiused surfaces. To improve convergence of results and reduce errors, it is possible to supply a tripod for working with the ultrasonic contact impedance sensor of UCI type. In addition to standard sensors, it is possible to supply additional dynamic («E», «G» type) and

ultrasonic (UCI-S, UCI-R, UCI-L, UCI-P) sensors for various tasks. The company can supply hardness testing blocks according to the Libu, Rockwell, Brinell, and Vickers scales, as well as certified standard hardness blocks of the enterprise. To prepare the surface, the device can be equipped with a grinding machine and a set of consumables.