

Mobile Rebound Hardness Testing Device HARDMATIC HH-411

Equipment features

- The HH-411 hardness tester uses the rebound method and is used to test metals; it is particularly compact and easy and intuitive to operate. Hardness is measured in Leeb values.



810-298: HH-411

Wide range of detectors

In addition to the standard universal hydraulic impactor (type D), users can choose from a wide range of special hydraulic impactors for special measuring tasks.

- Type DC: For cramped spaces, e.g. measuring in pipes
- Type D+15: Narrow design for measuring in slots
- Type DL: For measurements in the tightest ranges, such as welded seams or gear wheels

With automatic alignment correction

When using rebound hardness testers, gravity influences the measurement result - depending on the orientation of the hydraulic impactor relative to the vertical when pressing against the sample surface.

Equipped with data storage function

Up to 1800 measuring results can be stored - the ideal device for on-site control measurements.

Free choice of hardness scale, depending on your individual measurement application

The HL hardness value (L value: acc. to ASTM A 956) can be converted into Vickers, Brinell, Rockwell C, Rockwell B and Shore hardness values and tensile strength. The conversion can be performed following the test resp. even during the test in conversion mode.

Extremely simple to operate

The hydraulic impactor is simply pressed against the sample surface and the button triggered (biro principle) - hardness testing does not get any easier than this.

Technical specifications

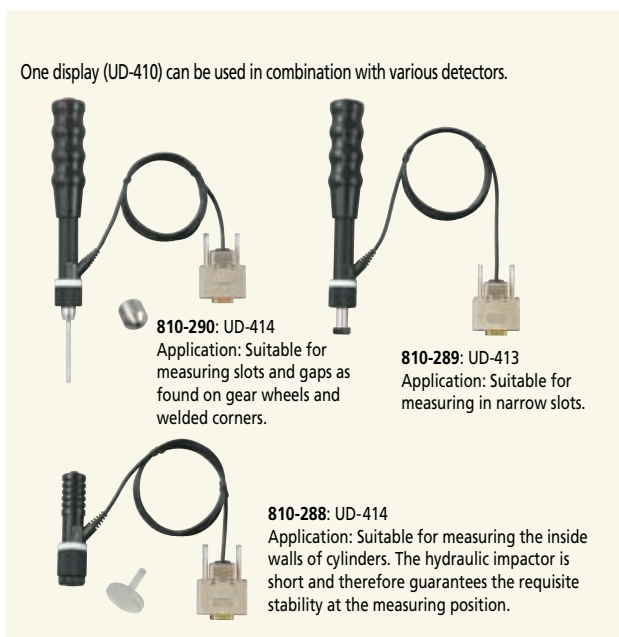
Code No.	810-298	
Model	HH-411	
Hydraulic impactor	Carbide ball on the tip of the impactor (Type D: ASTM A 956 specification)	
Display	7 segments, LED display	
Display range (varies, depending on the conversion table used)	Leeb hardness: 1 - 999HL	Digit increments 1HL
	Vickers hardness: 43 - 950HV	Digit increments 1HV
	Brinell hardness: 20 - 894HB	Digit increments 1HB
	Rockwell hardness (C scale): 19.3 - 68.2HRC	Digit increments 0.1HRC
	Rockwell hardness (B scale): 13.5 - 101.7HRB	Digit increments 0.1HRB
	Shore hardness: 13.2 - 99.3HRS	Digit increments 0.1HS
Function	Tensile strength: 499 - 1996 MPa	Digit increments 1MPa
	Automatic angle correction, mismatch; OK/Not OK evaluation	
	Data storage: 1800 test values; Conversion (see "display range" for details)	
	Statistical calculations (average, min./max., scatter range, standard deviation)	
Sample requirements	Auto-sleep; Display of Code No. of measurements	
	Min. sample thickness 5 mm, min. weight 5 kg (Samples weighing between 0.1 and 5 kg are securely fixed to a massive block weighing at least 5 kg for measuring purposes.) Test position: min. 5 mm from the edge of the sample, min. space between test points 3 mm Sample surface quality: within Ra 10 µm	
Output	RS-232C, SPC (DIGIMATIC)	
Power supply	Two LR 6 batteries, AC adapter (special accessory)	
Operating environment	Temperature: 0 - 40°C Air humidity: 95% (without condensation)	
Outer diameters and weight	Display: approx. 70 (W) x 110 (D) x 35 (H) mm, approx. 200g	
	Hydraulic impactor: approx. Ø 28 x 175 mm, approx. 120g	

Note: The rebound testing device cannot be used for measuring the hardness of elastic materials - such as rubber. The rigidity of the sample affects the measuring result. Thin sheets, in particular, may not be tested using this device.

Standard accessories

Code No.	Designation	Technical specifications	Quantity
19BAA450-01	UD-410 display	—	1
—	LR 6 battery	—	2
—	Operators' manual	—	1
—	Belt	—	1
810-287	UD-41 hydraulic impactor1	Type D approx. Ø 28 x 175mm, approx. 120 g (stop cap Ø 22 mm)	1
—	Impactor	—	1
19BAA457	Carbide ball	in the impactor	1
19BAA459	Wrench	For replacing the carbide ball	1
19BAA460	Hydraulic impactor cable	—	1
19BAA451	Stop cap	Ø 22 mm	1
19BAA452	Stop cap (small)	Ø 14 mm	1
—	Test machine storage and transport container	Display and hydraulic impactor storage and transport container	1
19BAA265	Hardness comparison block	corresponds to 800HLD	1
—	Hardness comparison block storage and transport container	—	1

Special Accessories



Special Accessories

Code No.		Technical specifications	Quantity
264-504-5D	Digimatic Mini Processor DP1-VR	For printing measurement data, various statistics, etc.	1
937387	Signal line	For connecting DP-1VR and display (1 m)	1
09EAA069D	Printing roll	For DP-1VR (1 roll)	1
19BAA238	Signal line	For connecting PC and display RS-232C (for DOS/V PC)	1
526688D	AC adapter		1
19BAA243	Hardness test block	880HLD (Ø 115 mm, t33 mm, 3.7 kg)	1
19BAA244	Hardness test block	830HLD (Ø 115 mm, t33 mm, 3.7 kg)	1
19BAA245	Hardness test block	730HLD (Ø 115 mm, t33 mm, 3.7 kg)	1
19BAA246	Hardness test block	620HLD (Ø 115 mm, t33 mm, 3.7 kg)	1
19BAA247	Hardness test block	520HLD (Ø 115 mm, t33 mm, 3.7 kg)	1
19BAA248	Stop capcylinder (3)	For measuring convex cylindrical surfaces (R10 to 20 mm): for types D and DC	1
19BAA249	Stop caphollow cylinder (4)	For measuring concave cylindrical surfaces (R14 to 20 mm): for types D and DC	1
19BAA250	Stop cap ball (5)	For measuring convex spherical surfaces (R10 to 27.5 mm): for types D and DC	1
19BAA251	Stop cap hollow ball (6)	For measuring concave spherical surfaces (R13.5 to 20 mm): for types D and DC	1
19BAA457	Carbide ball	For types D, DC and D+15	1
19BAA458	Impactor	For type DL	1
810-287	UD-411 detector	Type D approx. Ø 28 x 175 mm, approx. 120 g (stop cap Ø 22 mm)	1
810-288	UD-412 detector	Type DC approx. Ø 22 x 85 mm, approx. 50 g (stop cap Ø 22 mm)	1
810-289	UD-413 detector	Type D+15 approx. Ø 28 x 190 mm, approx. 130 g (stop cap Ø 11 mm)	1
810-290	UD-414 detector	Type DL approx. Ø 28 x 230 mm, approx. 140 g (stop cap Ø 4 mm)	1

Application Examples



810-289



810-290



810-288