

LASER REVOLUTION HARDNESS CHECK- DRIVE

MICRO-IRHD HARDNESS TESTER WITH LASER CENTRING DEVICE AND ROTATING
SAMPLE HOLDER FOR THE AUTOMATIC SERIAL MEASURE OF O-RING AND SMALL RUBBER PARTS

gibitre
INSTRUMENTS



LASER REVOLUTION HARDNESS CHECK- DRIVE

MICRO-IRHD HARDNESS TESTER WITH LASER CENTRING DEVICE AND ROTATING
SAMPLE HOLDER FOR THE AUTOMATIC SERIAL MEASURE OF O-RING AND SMALL RUBBER PARTS

gibitre
INSTRUMENTS

State of art technology for hardness testing

This Micro-IRHD hardness tester with laser centering system is the most advanced solution for the automatic measurement of the hardness of small pieces.

To carry out the test you only need to:

- Enter the identification of the pieces to be measured
- Place the parts to be measured on the specimen holder disc
- Press start

The specimen holder disc starts rotating, the laser centering device finds the perfect testing point and the hardness tester performs the test in the target positions. The positioning and measurement process is repeated, without operator intervention, for all the pieces positioned on the measurement line.

The results of the measurements are compared with the tolerance limits and automatically saved in the database.



LASER REVOLUTION HARDNESS CHECK-DRIVE

SERIAL HARDNESS TESTING OF STANDARD SAMPLES



The instrument permits to perform multi-point hardness test on each sample placed across the test line of the sample holder. The position of the sample is automatically detected by the laser system. You can set the number of tests to be performed on each sample.

Usable Units

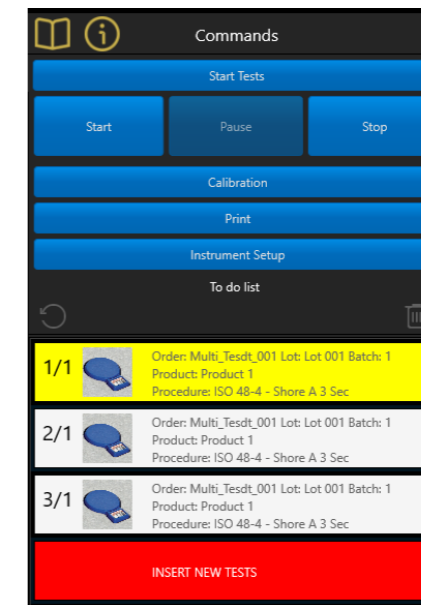
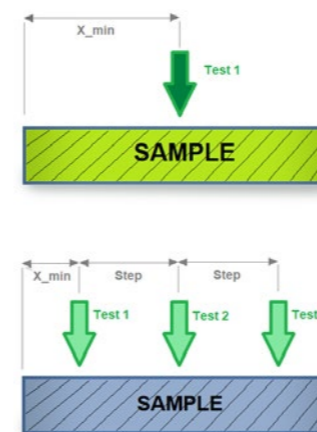
All Shore and IRHD units

Applications

- Product approval or Quality Control tests
- Process capability analysis

Multiple Test on the sample

According to international standards, the hardness measurement must be carried out at several points on the specimen. You can set the software to perform the desired number of tests on each sample, defining the distance from the edge of the first measurement and the spacing between successive measurements.



Traceability of the results

Set your ToDo List to define the sequence of products to be tested and let the instrument do the rest.

The laser will find the position of each sample, perform the requested number of tests, check the conformity with the limits, store the results, prepare labels or reports, prepare statistics.

Product Details

Specimen selected in product

Sample Type

Full part Archive Save New Type

double click on image to edit

Vertical Scan Parameters

Start Reading at Y [um]

Stop Reading at Y [um]

Sample thickness [um]:

Test distribution parameters

Tests per sample

Distance between tests [um]:

Horizontal scanning parameters

Start test at X [um]

Sample width [um]

Search mode

Find Tip

Disc speed [% max] :



SERIAL HARDNESS TESTING OF O-RING AND TECHNICAL ARTICLES



The extreme accuracy of the laser and of the positioning system of the instrument permits to perform automatically the serial measure of hardness of O-rings and small parts with dimension between 1 and 12 mm. The laser centring system totally eliminates the human influence in the sample positioning.

Usable Units
IRHD-M or Shore-M

- Applications**
- Testing of small parts difficult to be centered manually
 - Statistical control of finished parts
 - Mold approval tests

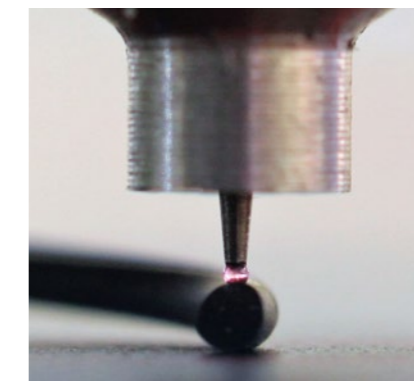
Tests on non-symmetric pieces

The software allows you to scan your pieces and define and store the correct measuring point for each product.

Ruby indenter

Gibitre is the only world manufacturer of which uses a Ruby ball indenter for Micro-irhd durometers to ensure:

- perfect sphericity
- perfect surface finish
- very low wear of the ball over time



Product Details


Specimen selected in product

Product Details

Specimen selected in product

Sample Type

Full part Archive Save New Type



double click on image to edit

Vertical Scan Parameters

Start Reading at Y [um]

Stop Reading at Y [um]

Sample thickness [um]:

Horizontal scanning parameters

Start test at X [um]

Sample width [um]

Test distribution parameters

Tests per sample

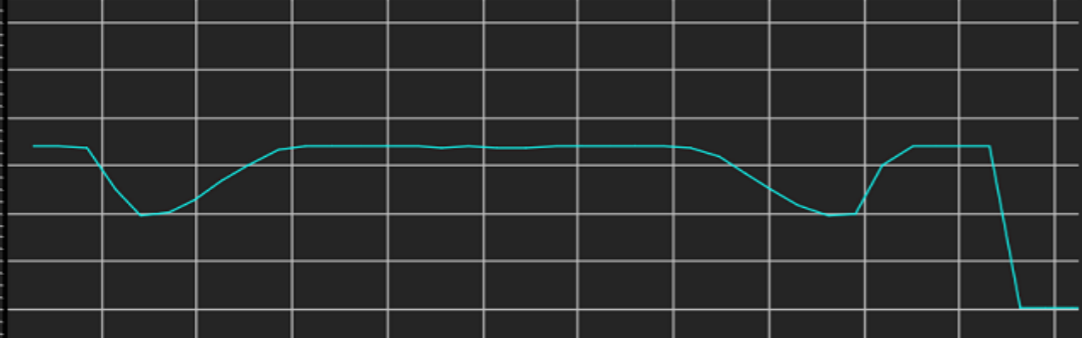
Distance between tests [um]:

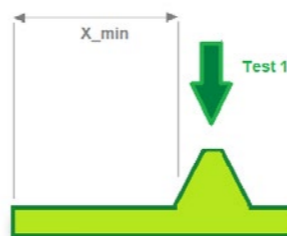
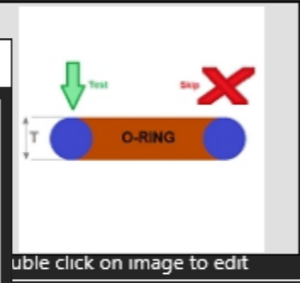
Search mode

Find Tip

Disc speed [% max] :

Scanned Sample Profile





LASER REVOLUTION HARDNESS CHECK-DRIVE



Accredia Calibration of the instrument

The instrument can be supplied with an ACCREDIA Calibration Certificate issued by the Accredia laboratory of Gibitre instruments.

The calibration is carried out according to the Technical Procedure approved by Accredia and in compliance with the

requirements of the ISO 48-2 (IRHD), ISO 48-4 (Shore A) and ISO 868 (Shore D) standards.

The Calibration refers to:

- Dimensions of the Indentor and Annular foot
- Forces applied by the indenter and the annular foot
- Displacement of the indenter
- Duration of the test

Many instruments in one

The solid quick coupling system allows the head to be replaced in seconds while ensuring its perfect perpendicularity with respect to the support base.

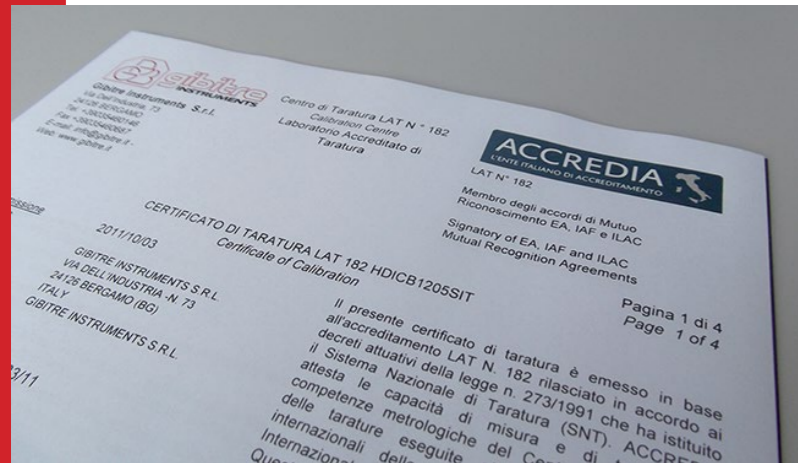
To replace the measuring head:

- Remove the connecting cable
- Unscrew the locking screw

- Replace the head with the desired one
- Screw the locking screw
- Insert the connection cable

The instrument automatically recognizes the applied head and is immediately ready for testing

DO YOU NEED THE STANDARD VERSION?



LASER REVOLUTION HARDNESS CHECK-DRIVE

Your testing needs

Do you need to test different products according to a specific hardness scale? Do you need to evaluate incoming compounds and finished parts across multiple scales? Do you require the flexibility to switch between various hardness scales without notice? Whatever your needs, we offer the ideal setup to meet your requirements.

Versatility in one instrument

The Universal Support for Automatic Hardness Testers in the Drive version accommodates all available Shore, IRHD, and VLRH hardness units. Swapping measuring heads offers a versatile solution for research centers that require measurements across various scales, as well as for companies that primarily use one scale but need occasional checks against others.

Complete hardness testing for simultaneous use

For companies conducting systematic production checks using different measurement scales (e.g., Shore A and Micro-IRHD), dedicated hardness units for each required scale are essential. The optimal setup, based on our experience, involves installing independent hardness testers connected to the same PC. This configuration allows multiple operators to use the instruments simultaneously without any interruptions.



SEE THE VIDEO PRESENTATION



SHORE Type AM



SHORE Type D



SHORE Type 00



SHORE Type A



IRHD Method M



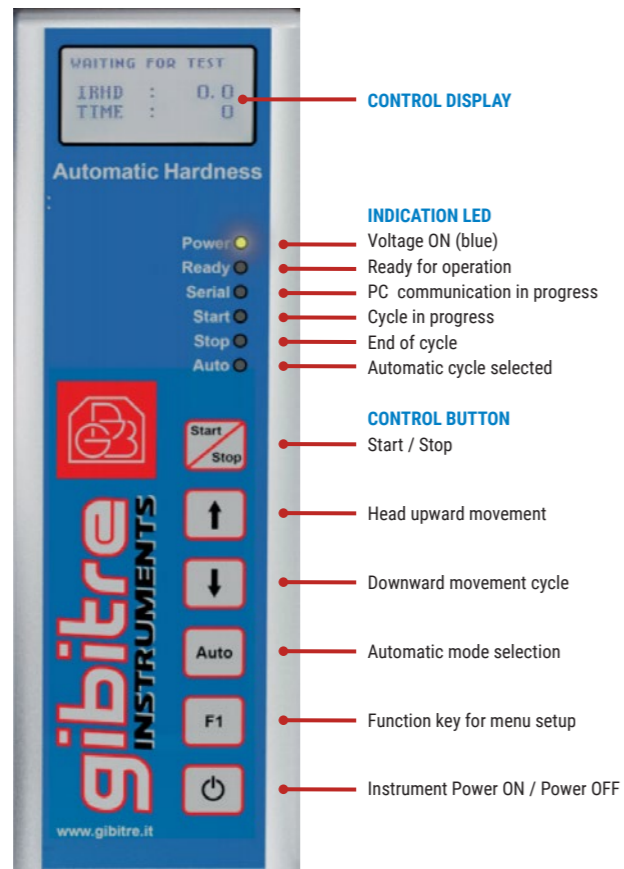
IRHD Method H

LASER REVOLUTION HARDNESS CHECK-DRIVE



LCD display

The Display shows the hardness of the test being performed. And the keypad located in the front permits to control the status of the instrument and to perform basic operations (Start, Stop, up and down displacement of hardness unit, instrument setups, etc).



Software Gibitre-Hardness

The automatic durometer control through the Software Hardness-Check allows to exploit all the potential of the instruments:

- Perform multiple tests automatically on the specimen
- Save all test results in the SQL database
- Compare the results with the tolerance limits
- Produce test reports

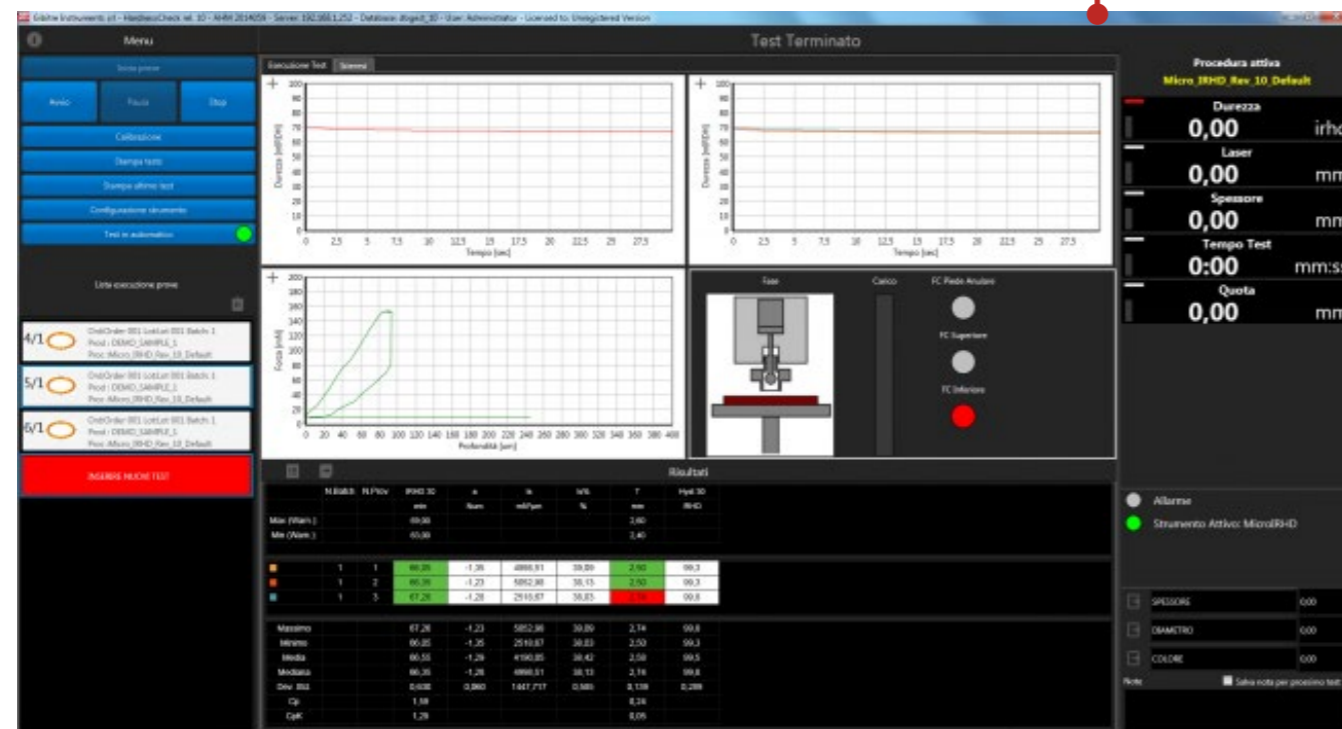
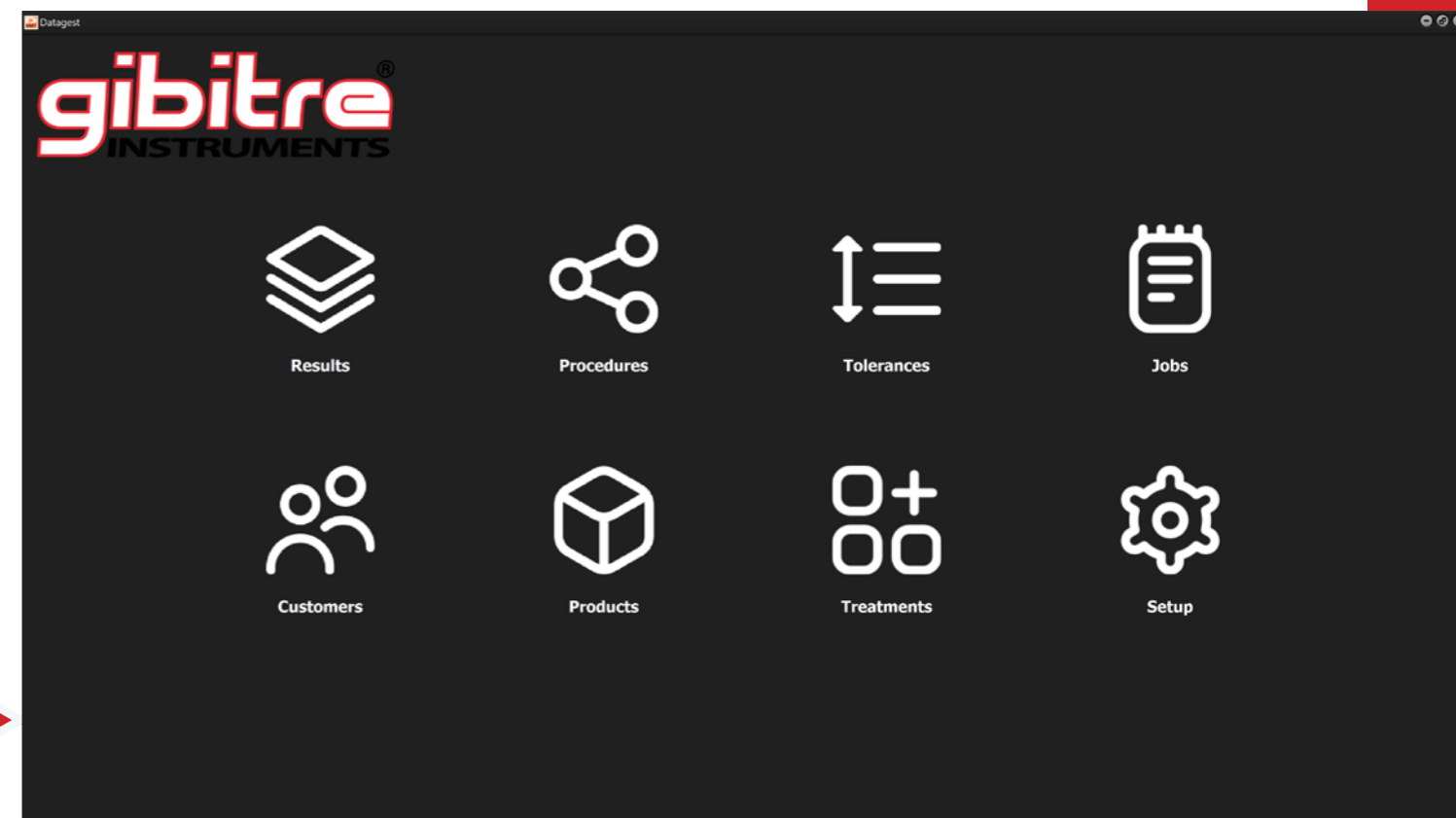
The PC control software allows multiple instruments to be used simultaneously. Each instrument is connected to the PC via the supplied USB cable.

Datagest Program

The Datagest program is the database management tool always installed in combination with all Gibitre instrument-control programs.

The program permits to:

- Select, filter, print, export and analyse the test results stored with all the instruments connected.
- Prepare test procedures by defining the test conditions and the results to be produced.
- Set tolerance limits for each product by manual insertion or using the statistical analysis (mean and standard deviation) of saved results.
- Prepare multi-instrument test reports.



Industry 4.0 integration

The instrument and the software have been specifically developed to optimize integration with other environments. The database in SQL format and the Gibitre_Company_Connect program

allows you synchronize your company management software with Gibitre database and to speed up the identification of the tests and to use bar-code readers or similar devices. The automatic logging service permits

to send alarm information to the cloud-service platform of Gibitre Instruments in order to optimize the reaction times of the Service Support.

LASER REVOLUTION HARDNESS CHECK-DRIVE - TECHNICAL DETAILS

INSTRUMENT CHARACTERISTICS

Standards the instrument complies with	FIAT 50408; ASTM D1414; ISO 48-2; ISO 48-3; ISO 48-4; ASTM D1415; ASTM D2240;
Test modality	Serial automatic testing of the parts placed across the test line of the sample holding disk
Resolution	0.01 irhd point
Sample thickness	Between 1 and 15 mm
Unit of measure	IRHD-M (micro)
Laser device	Class 2 laser sensor Resolution: 0.005 mm
Instrument control	With Gibitre-Hardness software

SOFTWARE

Tolerance verification	Comparison of test results with the tolerance limits set for the product
Graphs	Rubber Relaxation curve (hardness versus test) time in linear and logarithmic axes
Calculated results	<ul style="list-style-type: none"> • IRHD Hardness • Angle coefficient of hardness relaxation curve • Hysteresis (sample return after load removal) • Correction of hardness according to the thickness of the sample
Results storage	Test Results and curves are saved in the SQL database which is installed together with the software.
Data analysis	Mean, std. Dev., min, max, Cp, Cpk of test results. X-Chart and Gaussian distribution
Software usage languages	Italian, English, French, Spanish, German, Portuguese, Russian, Chinese, Japanese, Turkish, Polish, Czech

CONTROL OF THE INSTRUMENT WITH DIGITAL DISPLAY

Display Characteristics	The Touch-screen display permit to start and stop the automatic execution of the test and to display the hardness reading
-------------------------	---

SAFETY DEVICES

Labelling	CE Labelling
-----------	--------------

CALIBRATION

Accredited Calibration (optional)	ACCREDIA calibration Certificate issued by Gibitre Instruments ISO 17025-Accredited Laboratory
Standard Calibration	Calibration Report conforming to ISO 48-2 (IRHD units) or ISO 48-4 (Shore Units) with traceability to primary references

TECHNICAL SPECIFICATIONS

Power supply	110-240 V, 50/60 Hz, 15 W, single phase
Dimensions	(W x D x H) 340 x 500 x 400 mm
Weight	35 Kg

PERSONAL COMPUTER (OPTIONAL)

Personal Computer (optional)	Minimum Configuration: Intel Core i5 4 GB RAM. Compatible Operating Systems: Windows 10 and 11; Connection to the instrument via USB Cable (included)
------------------------------	---

TYPE OF HARDNESS UNITS

SHORE UNITS		IRHD UNITS	
Shore A	Standards: ISO 48-4, ASTM D2240 Application: Soft Rubber, Plastics, Elastomers Sample standard thickness: 6 mm	IRHD-M (MICRO)	Standards: ISO 48-2, ASTM D1415 Application: Small Technical Articles, O-rings Sample thickness: 1-5 mm
	Indentor Force: 8.05 N (at 100 Shore) Contact force: 1000 g Indentation: 2.5 mm Measurement Range: 0-100 Shore Resolution: 0.01 Shore		Pre-Load: 8.3 mN Total Load: 153.3 mN Anular Foot: 235 mN Indentation: 0.3 mm Measurement Range: 30-100 irhd Resolution: 0.01 irhd
Shore D	Standards: ISO 48-4, ASTM D2240, ISO 868 Application: Hard Rubber, Thermoplastics Sample standard thickness: 6 mm	IRHD-N (NORMAL)	Standards: ISO 48-2, ASTM D1415 Application: Rubber Parts with Hardness >30 irhd Sample thickness: 8-10 mm
	Indentor Force: 44.5 N (at 100 Shore) Contact force: 5000 g Indentation: 2.5 mm Measurement Range: 0-100 Shore Resolution: 0.01 Shore		Indentor Diameter: 2.5 mm Pre-Load: 0.3 N Total Load: 5.7 N Anular Foot: 8.3 N Indentation: 1.8 mm Measurement Range: 30-85 irhd Resolution: 0.01 irhd
Shore A0	Standards: ISO 48-4 Application: Light Foams, Sponge Rubber, Gels, Human Tissue Sample thickness: 6 mm	IRHD-H (HIGH HARDNESS)	Standards: ISO 48-2, ASTM D1415 Application: Hard Rubber Parts with Hardness >85 irhd Sample thickness: 8-10 mm
	Indentor Force: 8.05 N (at 100 Shore) Contact force: 1000 g Indentation: 2.5 mm Measurement Range: 0-100 Shore Resolution: 0.01 Shore		Indentor Diameter: 1.0 mm Pre-Load: 0.3 N Total Load: 5.7 N Anular Foot: 8.3 N Indentation: 0.44 mm Measurement Range: 85-100 irhd Resolution: 0.01 irhd
Shore 00	Standards: ASTM D2240 Application: Light Foams, Sponge Rubber, Gels, Human Tissue Sample thickness: 6 mm	IRHD-L (LOW HARDNESS)	Standards: ISO 48-2, ASTM D1415 Application: Soft Rubber Parts with Hardness <35 irhd Sample thickness: 8-10 mm
	Indentor Force: 1.111 N (at 100 Shore) Contact force: 400 g Indentation: 2.5 mm Measurement Range: 0-100 Shore Resolution: 0.01 Shore		Indentor Diameter: 1.0 mm Pre-Load: 0.3 N Total Load: 5.7 N Anular Foot: 8.3 N Indentation: 0.09-1.1 mm Measurement Range: 10-35 irhd Resolution: 0.01 irhd
Shore AM	Standards: ISO 48-4, ASTM D2240 Application: Small Technical Articles, O-rings Sample thickness: 1.5-6 mm	VLRH UNITS	VLRH (VERY LOW RUBBER HARDNESS)
	Standards: ISO 48-4, ASTM D2240 Application: Small Technical Articles, O-rings Sample thickness: 1.5-6 mm		
Shore AM	Standards: ISO 48-4, ASTM D2240 Application: Small Technical Articles, O-rings Sample thickness: 1.5-6 mm	VLRH (VERY LOW RUBBER HARDNESS)	Standards: ISO 48-3 Application: Soft Rubber. Parts with Hardness < 35 IRHD Sample Thickness: 6 mm
	Indentor Force: 0.76 N (at 100 Shore) Contact force: 250 g Indentation: 1.25 mm Measurement Range: 0-100 Shore Resolution: 0.01 Shore		Indentor Diameter: 2.5 mm Pre-Load: 8.3 mN Total Load: 100 mN Anular Foot: 235 mN Indentation: 1000 µm Measurement Range: 0-100 VLRH Resolution: 0.01 VLRH



gibitre
INSTRUMENTS

Gibitre Instruments s.r.l.
Via dell'Industria, 73
24126 Bergamo - Italy

Tel.: +39.035.460146
Fax: +39.035.460687
customer.service@gibitre.it

We reserve the right to make
changes in design and speci-
fications without further notice

WWW.GIBITRE.IT

AHR_10/24_EN