MICRO IRHD LASER - SINGLE

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

gibitre INSTRUMENTS

Standards the instrument complies with:

ASTM D1415; FIAT 50408; ISO 48;

Overview

In case you test micro irhd hardness of small parts but you don't need automatic serial testing, you can profit from laser centering technology to improve the ease of testing and eliminate human influence in sample positioning.
This instrument permits to perform automatically the measure of the micro irhd hardness of one test piece which has been placed on the sample holder.

The instrument is supplied with laser centering device and motor-controlled sample holder for the displacement of the part to be measured.
The sample holder moves the test piece under the laser centering tool and then places the optimal test point of the part under the micro-irhd testing unit.
The positioning and hardness measuring is performed automatically without intervention of the operator.
This instrument is ideal to obtain quick and repeatable results when small parts are tested which are difficult to be centered manually.

Use of the Instrument

To perform the test you simply need to:
- place the part to be tested across the test line of the motor-controlled sample holder
- insert the identification of the product
- press start
- wait for the sample holder to moves back to the start position when the sample has been tested.
- remove the tested part and put the next one to be tested on the sample holder
- the results obtained can be printed and saved.

Characteristics of the instrument

The sliding sample-holding device of this instrument permits to test one single part and requires the manual replacement of the part at the end of the test.

Reference Standards

The instrument is conforming to ISO 48, ASTM 1415, DIN 53 519-1/2 standards.

Accredia Calibration of the instrument

The instrument is available with ACCREDIA calibration certificate. The certificate is issued by Gibitre ISO 17025 Accredited laboratory.

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAT N° 182

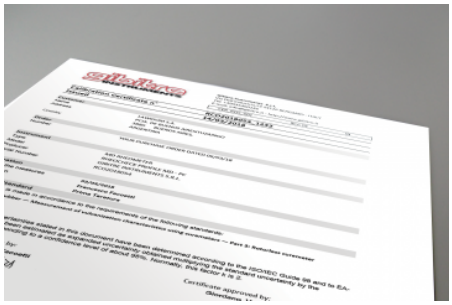
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

Membro degli accordi di Mutuo Riconoscimento EA, IAF e ILAC

Standard Calibration service for IRHD Hardness Tester

The calibration is performed with reference to the requirements of ISO 48 standard.
The service includes:

- Ordinaly maintenance of the instrument
- Visual inspection of the Indentor.
- Calibration of the Pre-Load, of the Main Load and of the weight of the Anular foot.
- Calibration of the force apllication time for Pre-Load and Main-Load (NEW)
- Calibration of the displacement of the indentor in correspondence with several IRHD Hardness readings
- Pre-calibration and Post-Calibration test of the instrument with reference test samples (NEW)
- Issue and e-mail shipment of the Calibration Certificate with traceability to primary standards.



Measure of micro-irhd hardness on pieces with non-symmetrical shape

The software for the control of the instrument includes a 'Scan' function which permits to record the laser reading of the profile of a piece and to define the position where the test has to be made.
The test setup for each product is stored and is automatically re-used when the same product is tested again.

Test results produced

The instrument calculates automatically:
- Micro-IRHD Hardness
- Thickness of the sample in the test point
- Angle coefficient of the hardness relaxation curve
- Hysteresis curve
- Corrected hardness (the hardness of test pieces with non-standard thickness is corrected according to the method described in UNI 7319 to estimate the expected hardness of a sample with 2 mm thickness)

Comparison with Tolerance limits and statistic analysis

The software for the control of the instrument permits to set tolerance limits for each product. The conformity of each result is automatically checked at the end of each test.
The statistic analysis of the ongoing tests includes: X-Chart, Gaussian Distribution , Max, Min, Mean, Standard Deviation, Cp and Cpk.

Storage and traceability of test results

The software permits to store all test results in a database with SQL structure.
For each test the following information is stored: Order, Lot, batch, sample, Customer, Product, ageing treatment, executor of the test, date, hour, serial number of the instrument, test procedure, numerical test results, test curve, conformity with tolerance limits.
The database management program permits to select the results in order to make comparisons, statistics and to produce customized test reports.

Test Report

The test report can be produced in one of the languages installed.
The report includes the test results and the test identification information. In addition it may include the test curves, tolerance limits, statistic analysis, a legend with the description of the calculated results, the signature of the software user and eventual notes.

Software Characteristics and connection to the PC

The software is compatible with Windows 7 and 8 (32 and 64 bits).
The connection of the instrument to the pc is made via USB cable (supplied with the instrument)
More instruments can be connected to the same PC and used at the same time.

Technology of Micro-IRHD device

The micro-irhd testing units produced by Gibitre measure the force applied to the sample using a load cell.
This technology, widely used for the hardness testers for metals, permits to eliminate the effect of friction in the application of the force and improves the test repeatability.

Modular Construction

The main parts of the instrument are: the measuring unit, the sample displacement system and the electronic card.
Those parts have been developed to permit quick and independent replacement in case of failure. This characteristic ensures short recovery time and low maintenance cost.

Safety devices

The instrument includes safety devices to eliminate potential risks during the automatic working.
- Test stops in case of incorrect sample centring
- Test stops in case of overload of the indentor
- Test stops in case of missing laser reading or sample positioning reading.

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.

Unit of measure	IRHD-M (micro)
Resolution	0.01 irhd point
Instrument Control	With Gibitre-Hardness software
Test modality	Serial automatic testing of the parts placed across the test line of the sample holding disk
Calculated Results	• IRHD Hardness • Thickness of the sample • Angle coefficient of hardness relaxation curve • Hysteresis (sample return after set time from load removal) • Correction of hardness according to the thickness of the sample
Data analysis	Mean, std. Dev., min, max, Cp, Cpk of test results. X-Chart and Gaussian distribution
Graphs	Rubber Relaxation curve (hardness versus test) time in linear and logarithmic axes
Tolerance verification	Comparison of test results with the tolerance limits set for the product
Results storage	Saving of results and curves in standard database
Laser Device	Class 2 laser sensor Resolution: 0.002 mm
Sample thickness	Between 1 and 20 mm
Calibration	Electronic calibration Report with traceability to primary references ACCREDIA calibration Certificate (optional)
Personal computer	Minimum Configuration: Intel Core I3 2 GB RAM. Compatible Operating Systems: Windows 7, 8 and 10; Connection to the instrument via USB Cable (included)
Software usage Languages	Italian, English, French, Spanish, German, Portuguese, Russian, Chinese, Japanese, Turkish, Polish, Czech

Power supply	110-240 V, 50/60 Hz, 15 W, single phase
Dimensions	(W x D x H) 470 x 350 x 600 mm
Weight	37 Kg

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