TENSOR CHECK PROFILE - PC

FULLY PROGRAMMABLE TENSILE-TESTING SYSTEM WORKING IN TRACTION AND COMPRESSION SUITABLE FOR TESTING MECHANICAL CHARACTERISTICS OF MATERIALS LIKE RUBBERS, PLASTICS, COMPOSITES, ADHESIVES, LEATHER, ETC.

gibitre® INSTRUMENTS

Standards the instrument complies with:

AFERA 4015; AFERA 5001; AFERA 5004; ASTM F88; ASTM B557; ASTM D412; ASTM D429; ASTM D575; ASTM D624; ASTM D638; ASTM D751; ASTM D790; ASTM D882; ASTM F152; ASTM D1056; ASTM D1414; ASTM D1456; ASTM D1894; ASTM D2412; ASTM D3574; ASTM D3575; ASTM D3577; ASTM D4776; ASTM D4894; ASTM D6746; AS_NZS 4179; AS_NZS 1660_2_1; ATE N_553_59_25; DIN 281; DIN 53_291; DIN 53_530; DIN_VDE 0472-613; EN 1372; EN 1939; EN 12228; EN 12431; EN 13618; EN 455-2; EN 681-1; EN 10257-1; EN 60811-1-1; FIAT 50405; FIAT 50409; FIAT 50412; FIAT 9.02136/01; GFT 6004; ICEA T-27-581; IEC 60811_1_1 ; ISO 36; ISO 37; ISO 178; ISO 604; ISO 813; ISO 814; ISO 1421; ISO 1798; ISO 1827; ISO 2411; ISO 34-1; ISO 4587; ISO 5600; ISO 5893; ISO 6133; ISO 6914; ISO 7743; ISO 8033; ISO 8295; ISO 9026; ISO 10319; ISO 11339; ISO 12046; ISO 12236; ISO 15113; ISO 29862; ISO 527-1; ISO 527-2; ISO 527-3; ISO 527-4; ISO 527-5; ISO 2039-1; ISO 3384-1; ISO 3386-1; ISO 3386-2; ISO 6259-3; ISO 6916-1; ISO 6916-2; JIS K_6330-6; NEMA WC_53-2008; PSA D41 1315; PSTC 16; PV 3410; PV 3973; VDA 675-205;

Overview

Gibitre Tensor Check is a **fully programmable tensile-testing system** suitable for testing mechanical characteristics of materials including rubbers, plastics, composites, adhesives, leather, etc. The instrument permits to perform **traction, compression, hysteresis, peeling, flexural and shear tests** in conformity with **international standards**.

Why Choose TensorCheck ?

Base Characteristics:

- Construction conforming to ISO 5893 Standard
- Double screw structure with ball-bearings designed for working in traction and compression with forces up 20 kN.
- Auto-detection of the load cell in use.
- Measurement of the crosshead displacement with 0.0025 mm resolution.
- Displacement speed from 0.2 to 1000 mm/min.
- Safety limit switches
- Full license of TensorCheck_9 and full license of Datagest_10 software
- Storage of data and curves in standard Gibitre SQL database

CE Labelling

Applicable Devices

- Mechanical extensometer: 0.01 mm accuracy
- Micro extensometer: 0.0001 mm resolution
- Thickness meter integrated with the software for direct sample thickness acquisition
- Environmental Chamber with Cooling Refrigerator (-40 to 250°C) and internal extensometer
- Wide range of pneumatic and manual grips for Traction, Compression, Peeling, Friction, Bending, O-ring traction, Adhesion and more.

TensorCheck Software

The instrument is supplied with full license of TensorCheck_9 and full license of Datagest_10 software.
Features:

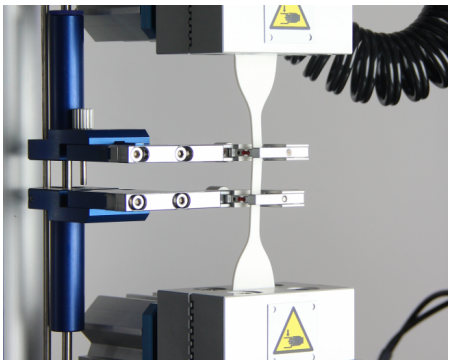
- Wide range of pre-installed test procedures in compliance with international standards
- Step-by-step wizard procedure for the preparation of fully customized test methods
- Data acquisition from thickness meter and automatic calculation of sample cross-section
- Direct control of the thermal cycle of the environmental chamber
- Comparison of results with tolerance limits and statistic analysis
- Storage of data and curves in standard Gibitre SQL database.

Mechanical Differential Strain Gauge

The differential extensometer is needed for the measurement of the elongation of the linear part of the specimen according international standards (see ISO 37, ISO 527, ASTM D 412, ASTM D 638)

The mechanical extensometer produced by Gibitre has been **specifically developed for testing Rubber**, Elastomers and Plastic samples and optimized to:

- **measure high elongation** that can be reached by rubber and thermoplastic specimens
- **absorb the energy** transmitted to the device at specimen break
- **easily change** the distance between the clamps (**Reference Length**) according to the type of specimen
- **adjust the closing force of the tweezers** at the base to the type of material to be tested.

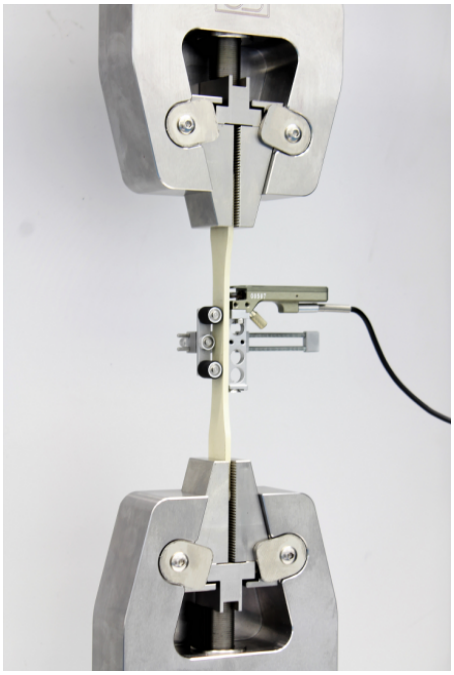


Micro-Extensometer

This device is used to perform the **Elastic Modulus measurements in compliance with the requirements of ISO 527 1-2-3 and ASTM D 638.**
The device has the following characteristics:

- 0.1 Micron resolution
- Distance between terminals settable: 50 mm (other sizes available in option)
- Closing force of the tweezers adjustable
- Travel in traction direction: 2 mm
- Working temperature from + 1 ° C to + 60 ° C
- Applicable specimen thickness: between 0 and 10 mm.

Note: this device, useful for the characterization of the modulus of elasticity of the initial stretch of the stress-deformation curve of thermoplastic products, does not replace the differential strain gauges which allow to analyze the curve until the specimen breaks.



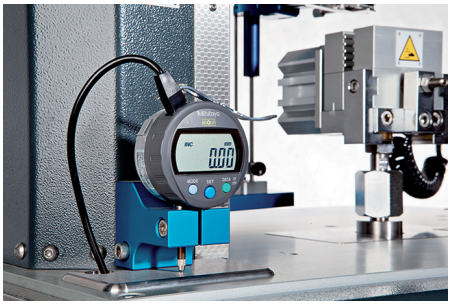
Environmental chamber

Test Chamber for the performance of tests with controlled temperature (between -40°C and +250°C).
The environmental chamber can be manually displaced from the test area to the back of the instrument for testing with or without temperature control. Differential extensometer to be installed inside the chamber is available.
The cooling of the cahmber is produced using a Refrigeration Unit to ensure perfect temperature control

Integrated Thickness meter

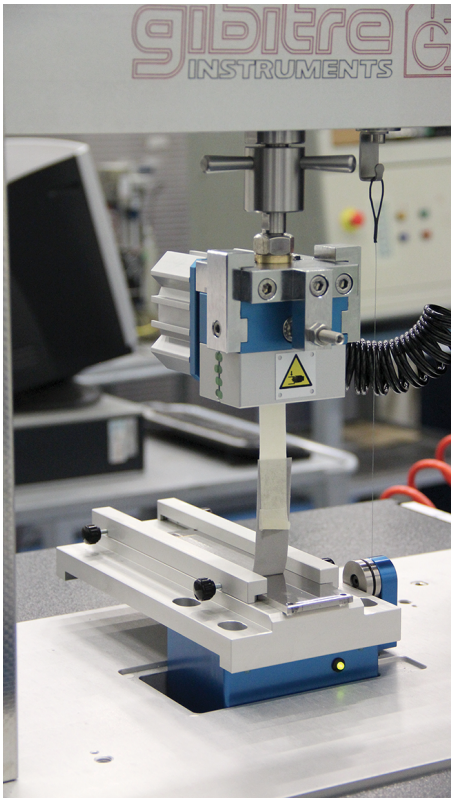
Thickness meter for direct acquisition of sample thickness in compliance with ISO 23529 and ASTM D 3767 standards.

The device allows you to directly enter in the software the thickness, measured in several points, of the individual specimens and automatically calculate the Cross Section (average or minimum) to be used for calculating the results.
The calculation of the section is carried out on the basis of the calculation formula defined for the type of specimen in use.
The dial gauge tips are interchangeable according to the type of product.



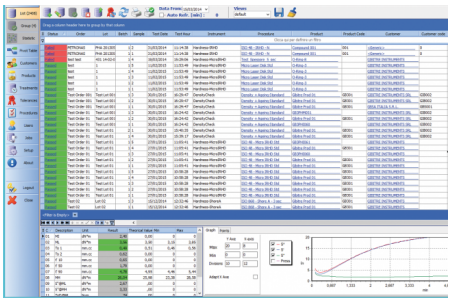
Grips

Wide range of grips for traction, compression, peeling, stress relaxation tests for standard or customer-defined tests.



Datagest program : total Traceability

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**



Gibitre Standard SQL Database

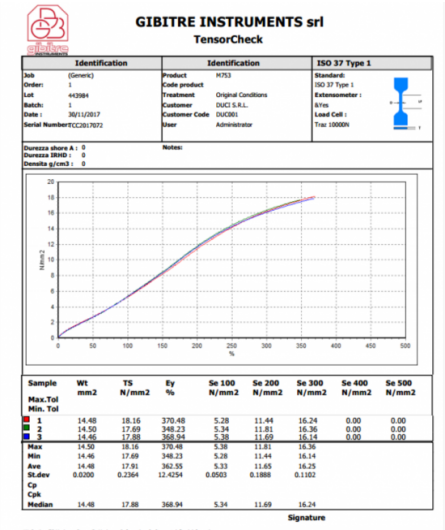
All the Gibitre programs use a database with SQL structure for saving the results.
The database can be installed inside an SQL instance present on the company server or it can be installed on a PC connected to a measuring instrument.
The installation of the Microsoft SQL service (Express version) is included in the delivery.

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.

Test report

Can be printed or saved to pdf in one of the available languages. The format of the Test Report can be customized by the user.



GIBITRE INSTRUMENTS srl
TensorCheck

Identification	Identification	ISO 37 Type 1
Job (Generic)	Product H753	Standard:
Order: 1	Code product	ISO 37 Type 1
Lot 443984	Treatment Original Conditions	Extensometer :
Batch: 1	Customer DUCI S.R.L.	&Yes
Date : 30/11/2017	Customer Code DUCI001	Load Cell :
Serial NumberTCC2017072	User Administrator	Trac 10000N

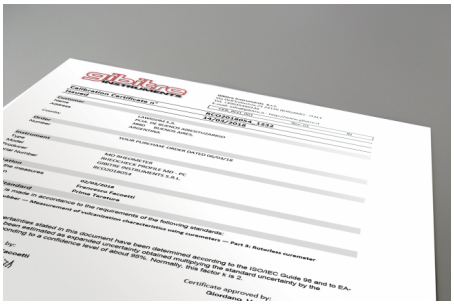
Durezza shore A : 0
Durezza IRHD : 0
Densita g/cm3 : 0
Notes:

Sample	Wt mm2	TS N/mm2	Ey %	Se 100 N/mm2	Se 200 N/mm2	Se 300 N/mm2	Se 400 N/mm2	Se 500 N/mm2
Max.Tol								
Min. Tol								
1	14.48	18.16	370.48	5.28	11.44	16.24	0.00	0.00
2	14.50	17.69	348.23	5.34	11.81	16.36	0.00	0.00
3	14.46	17.88	368.94	5.38	11.69	16.14	0.00	0.00
Max	14.50	18.16	370.48	5.38	11.81	16.36		
Min	14.46	17.69	348.23	5.28	11.44	16.14		
Ave	14.48	17.91	362.55	5.33	11.65	16.25		
St.dev	0.0200	0.2364	12.4254	0.0503	0.1888	0.1102		
Cp								
Cpk								
Median	14.48	17.88	368.94	5.34	11.69	16.24		

Signature

Standard Calibration of Tensile Tester

The calibration is performed with reference to the requirements of ISO 5893 standard (see detail below)
The service includes:
• Ordinary maintenance of the instrument
• Calibration of the differential Extensometer (25mm and 100 mm) according to ISO 5893
• Calibration of the Reference Length (L0) according to ISO 5893
• Calibration of N° 1 Load Cell (10 points testing) according to ISO 7500-1
• Calibration of Crosshead Displacement according to ISO 5893
• Calibration of Crosshead Speed according to ISO 5893
• Calibration of the thickness meter according to ISO 23529
• Calibration of the temperature inside the Environmental chamber
• Verification of the extensometer inside the Environmental chamber
• Issue and e-mail shipment of the Calibration Certificate with traceability to primary standards.



Safety devices

The instrument is equipped with:
• Safety Push-button
• Double Limit switches for the control of the displacement of the crosshead.
• CE Labelling

Development and production

The instrument is totally developed and produced in the plant of Gibitre Instruments in Italy.
All the mechanical parts are produced in the **company workshop using modern CNC machines**.
Components and sensors from well-known brands are selected in order to ensure the maximum reliability in the measures
Internal trained personnel takes care of all the production stages: **assembly, start-up, calibration, packing, shipment and installation**.

Instrument Characteristics	
Structure	2-column structure for application of forces up to 20 kN
Testing procedure	Tension and Compression
Crosshead displacement	Reading Resolution: 0.0025 mm Speed: 0.2 to 1000 mm/min Stroke: 1244 mm (without grips)
Load Transducers	Mode: traction and compression Base Scale: up to 20 kN Accuracy: Class 05 (ISO 7500-1) from 1% of Scale Base Resolution: Scale Base/50000. Automatic detection of the cell installed
Type of tests achievable	Traction, Compression, Tear, Hysteresis, Peeling, Relaxation, Flexure
Applicable devices	
Mechanical differential Extensometer	• Accuracy: ISO 5893 - Class E • Resolution: 0.01 mm • Distance between terminals can be set with calibrated spacers (10, 20, 25, 50 mm) • Total stroke 900 mm • Adjustable tweezers closing force • Electronic linearization • Rotating support
Micro-Extensometer	• 0.1 Micron resolution • Distance between terminals: 50mm (other optional) • Closure Force of Tweezers: adjustable • Measurement principle by full bridge strain gauge • Stroke: 2mm • Working temperature: +1°C to +60°C • Max specimen thickness 10mm
Thickness meter for direct sample thickness acquisition	Compliant with standards: ISO 23529 and ASTM D3767 Resolution: 0.01mm (0.001mm optional) Applied force: between 0.2N and 0.5N Tips: flat Ø 5 or 7 mm, Spherical Ø 3mm
Software	
Description	The software allows to automatically execute the archived test methods and to save the curves and the numerical results obtained in an SQL database
Database for test methods	The software is provided with complete database including standard test methods for traction, compression, tear, peeling hysteresis
Selection of units for graph representation of tests	Y axis: force, force/cross sec., force/thickness X axis: Differential elongation, absolute elongation, time

Measurement units	N, N/mm, N/mm2 (Mpa), Kgf, Kgf/mm, Kgf/mm2 , PSI
Data analysis	Checking of whether results comply with tolerance limits and relative statistical elaboration (Mean, Median, St.dev., Max, Min, Cp, Cpk)
Software usage Languages	Italian, English, French, Spanish, German, Portuguese, Russian, Chinese, Japanese, Turkish, Polish, Czech
Safety Devices	
Safety devices	Safety Pushbutton Safety limit switches
Labelling	CE Labelling
Calibration	
Calibration	Calibration certificate conforming to ISO 5893, with reference to primary standards
Technical specifications	
Power supply	220 VAC ±10%,50 Hz ±3,4 A, single phase - 500 W - 110 VAC ±10%, 60 Hz ±3 on request
Air Pressure (for optional pneumatic grips)	6 bar
Dimensions	(W x D x H) 750 x 700 x 1900 mm
Weight	170 kg
Personal computer	
Personal computer	Minimum Configuration: Intel Core i5 4 GB RAM. Compatible Operating Systems: Windows 10; Connection to the instrument via USB Cable (included)
Environmental Chamber	
Temperature (with environmental chamber)	between -40°C and +250°C
Temperature (without refrigeration unit)	Temperature: between room temperature and +250°C
Environmental Chamber: Mechanical Extensometer	Resolution: 0.01 mm Accuracy: Conforming with ISO 5893 Standard - Class E
Cooling for enviromental chamber (option)	Refrigeration Unit
Environmental Chamber: Internal Dimensions	W 240 x D 230 x H 600 mm.
Environmental Chamber: Noise level	Noise level, with cooling unit, 65 dB (A)

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