digiChamber – Temperature-Controlled Hardness Tester

Standards: ASTM D1415, ASTM D2240, DIN ISO 48, DIN ISO 48-2, DIN ISO 48-4

- ULTIMATE USER-FRIENDLINESS
- LEADING DEPENDABILITY AND RELIABILITY
- STRICT COMPLIANCE WITH INDUSTRY STANDARDS
- STOCKED CONSUMABLES AND SPARES
- TRUSTED AFTER SALES TECHNICAL SUPPORT
- LIFETIME PRODUCT SUPPORT ADVANTAGE



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Description

Designed and developed by Bareiss, **digiChamber** is an advanced environmental chamber rubber-hardness tester. This automatic testing device has been designed to analyze the hardness of rubber under extreme conditions using Shore hardness A or IRHD N testing methods. The device plays a critical role in the automotive and tire industries, where rubber parts need to withstand harsh temperature variations.

digiChamber is a temperature-controlled hardness tester that can carry out multiple tests in sequence, providing accurate and reproducible results. The device features a 7" touch screen panel, a user-friendly interface and digiCenter software, making it more convenient to operate. Users can manage the testing sequence and criteria, and generate customized test reports.

TEMPERATURE RANGE **-70 °C to 180 °C**	**TEST VOLUME** **Approx. 52.8 gal (200 litres)**	**TEST LOAD** **Up to 276 lbs (125 kg)**
AUTOMATIC TRAY **25 samples**	**HARDNESS SCALES** **Shore A and IRHD N**	**SCREEN** **7" touch panel**

Features and Benefits

The chamber, the tray and the console are what separate this instrument from a bench durometer: the specimen is measured at temperature, without being taken out.

Large display	digiChamber has a 7" display and a touch screen panel that supports many languages.
User friendly	The user-friendly interface minimizes training time.
Refrigeration	Consists of an air-cooled refrigeration unit with SIMPAC's continuously variable power adjustment and a chloride-free refrigeration cycle.
Test volume	A spacious 200-litre test volume with polished stainless-steel walls for a test load of up to 276 lbs (125 kg).
Control	Controlling the hardness system is simple with an electronic display and digital I/O.
Automatic tray	The automatic tray can hold up to 25 samples, and the user can choose a test sequence by selecting several measurements on a sample as well as the appropriate temperature.
Temperature	Rubber hardens in extreme cold temperatures, and this may be simulated in an environment as cold as -70 °C with digiChamber. Rubber may be analyzed under high heat conditions of up to +180 °C.

digiCenter software	digiCenter includes a user-friendly graphic user interface for all data logging and analysis, allowing users to navigate through the software and quickly become familiar with it.

Hardness Systems

The instrument is defined by the hardness scale fitted to it. Shore A is standard and IRHD N is optional; each has its own load, presser foot and indenter.

Shore A hardness system	Value
Standards	DIN ISO 48-4, ASTM D 2240
Spring force	8050 mN
Force on the presser foot	2.2 lbs (1 kg)
Presser foot size	Ø 18 mm
Indenter	35°
Penetration	2.5 mm

The optional IRHD N system, for the same specimens measured to a different method:

IRHD N hardness system (optional)	Value
Standards	DIN ISO 48-2, ASTM D 1415
Initial load	0.3 N
Primary load	5.7 N
Force on the presser foot	8.3 N
Presser foot size	Ø 20 mm

IRHD N hardness system (optional)	Value
Indenter	Ø 2.5 mm
Penetration	1.8 mm

Chamber, Supply and Specimens

The climate the chamber holds, and what it needs to hold it.

Temperature chamber	Value
Temperature range	-70 °C to 180 °C
Recommended max temperature	150 °C
Temperature rate of change	±0.2 K to ±0.5 K
Temperature homogeneity	±0.5 K to ±1.5 K
Test volume	Approximately 52.8 gal (200 litres)
Heat compensation	800 W
Noise level	56 dB(A)
Refrigerant	Chloride-free R449A

Electrical supply, interfaces and compressed air:

Electrical and interfaces	Value
Voltage	100-240 VAC, 50/60 Hz, 12 A
Power	Approx. 1.8 kW

Electrical and interfaces	Value
Protection class	IP 54
USB	3.0 (1 port)
Ethernet	100/10 megabit
Compressed air pressure	4 to 12 bar
Compressed air consumption	Max. 6 m³/h
Coupling type	DN 7.2

Specimen geometry covers O-rings, sheet material, shaped parts and thin specimens:

Sample geometry	Value
Type	Plate shape samples
Standard	Ø 38 mm / 50 mm, others on request

Basic Equipment

Hardness scales interchangeable between Shore A and IRHD N, a 7" touch screen, an electronic console, a large testing chamber having a capacity up to 52.8 gal (200 litres) and an air-cooled refrigeration unit.

The testing device consists of an air-cooled refrigeration unit with continuously variable power adjustment by SIMPAC and a chloride-free refrigeration cycle. The large test volume of 52.8 gal (200 litres) with polished stainless-steel walls can handle a test load of up to 276 lbs (125 kg). The automatic tray can carry up to 25 samples, and the user can select a test sequence by choosing multiple measurements on a sample along with the desired temperature.

With digiChamber you can simulate extreme cold temperatures as low as -70 °C and analyze rubber under extreme heat conditions of up to +180 °C. The device comes with digiCenter software, a user-friendly graphic user interface for data logging and analysis.

The drawing below gives the weight and the dimensions of the instrument.



digiChamber weight and dimensions.

Have Questions or Need to Confirm a Detail?

If you need to confirm whether Shore A or IRHD N suits your specimen, or which temperature profile your parts are qualified to, send us a quick request online. Tell us the material, the method you report to and the specimen shape, and we will confirm the hardness system and the options you need.

For Laboratories

Need Additional Quality Control Equipment to Build Your Laboratory?

Hardness testing is only one part of a complete quality control laboratory. NextGen can help you equip your entire lab with rheometers and viscometers, abrasion and flex testers, ageing and salt spray chambers, hardness and rebound testers, specimen cutting presses, and other supporting solutions, all coordinated as one complete project.

- One partner to equip your complete laboratory
- Installation, training, calibration
- Support for the life of the equipment

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