

OZONE CHECK - UV

SOFTWARE CONTROLLED OZONE CABINET FOR THE EVALUATION OF OZONE RESISTANCE OF RUBBER SAMPLES



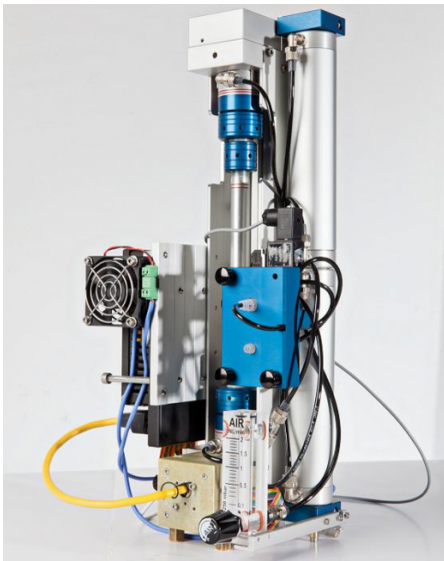
gibitre[®]
INSTRUMENTS

Standards the instrument complies with:

ASTM D1056; ASTM D1149; ASTM D1171; ASTM D4575; DIN 53_509-I; EN 681-I; FIAT 50417;
ISO 3011; ISO 7326; ISO 7840; ISO 12046; ISO 1431-I; ISO 1431-3; ISO 6916-I; ISO 6916-2;
JIS K_6259; SAE J1401;

Overview

The instrument Ozone Check - UV is a complete ozone cabinet conforming to ISO 1431 and ASTM D1149 for the measurement of the resistance to cracking under static or dynamic tensile strain of rubber samples or technical articles. The instrument permits to set the test conditions in order to comply with international standard methods.



Test Conditions

The Instruments permits the regulation of:

- Ozone Concentration, between 10 and 500 pphm (UV absorption detector);
- Test temperature, between ambient +5°C and +70°C;
- Air Flow in the Test Chamber, between 1 and 3 air changes/minute.

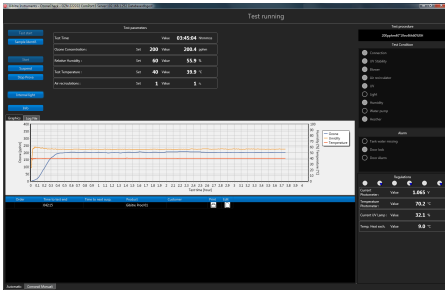
Key Features

- Automatic regulation of Ozone Concentration, Temperature and Air Flow.
- Performance of Static or Dynamic tests
- UV-absorption Ozone detector
- Stainless steel cylindrical test chamber for homogeneous ozone distribution
- Generation and shooting down of the Ozone in closed circuit (no exhaust evacuation needed)
- CE labelling

OzoneCheck_10 Software

The program allows you to:

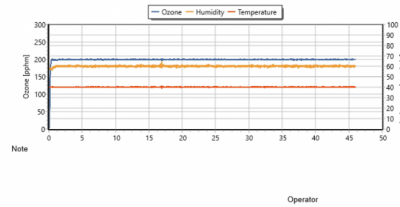
- Prepare customized test procedures by defining the test parameters (ozone concentration, temperature, number of air changes, duration of the test, concentration of humidity).
- Automatically adjust the instrument according to the parameters of the selected test procedure
- Display the Curves of the ozone concentration, humidity and temperature over time.
- Save test curves and images imported into Gibitre's SQL database.



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.

OzoneCheck Test					
Identification		Settings		Conditions	
Job	(Generic)	Client	DHRNT	Test Temperature	40
Order	Drd 01	Client Code		Ozone Conc.	200
Product	Lot 01	Product	Gibitre Prod 01	Test Time	45
Lot	1	Product	GB301	Air	1
Batch	OZN 111117			Relative Humidity	60
Date	20/03/2017				
Standard Description		Test Type	Dinamica	Percentage	20
N° of	0	Planetaio	False		



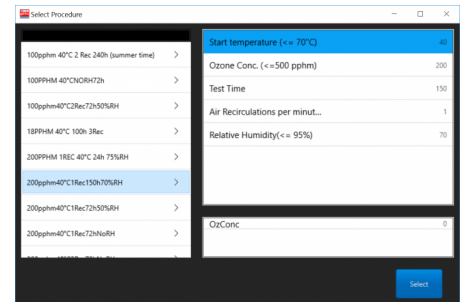
Test Procedures

The Test procedures define the test conditions relating to:

- Ozone concentration
- Test temperature
- Air flow rate
- Duration of the test
- Relative humidity concentration (optional)

When a test procedure is selected, the instrument adjustment is done completely automatically.

It is possible to copy and modify the predefined Test Procedures or prepare completely customized ones through the Datagest program (installed together with the OzoneCheck program).



UV Ozone Detector

The Ozone concentration measurement device via UV sensor is conforming to ISO 1431-3 and ASTM D4575 standards.

The device:

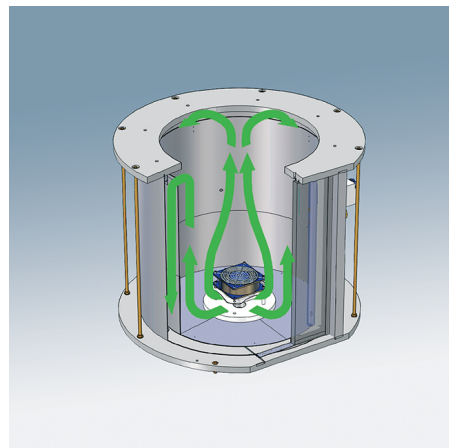
- Continuously detects the concentration of ozone inside the test chamber
- Performs a **self-calibration every 30 seconds** by comparing the measurement of the ozonated air with pure air
- **Regulates the generation of ozone in the test chamber by means of a PID control** ensuring that the test conditions are reached within the times established by the standard and minimizing oscillations.

The device can be supplied with an **official calibration certificate** issued by an accredited laboratory.



Test Chamber

Gibitre Ozone Tester is the only instrument with a cylindrical test chamber with symmetrical air extraction by means of a double-chamber. This unique feature ensures a homogeneous distribution of ozonized air inside the chamber that could not be obtained with a cubic chamber. The chamber is made of stainless steel. The instrument has an inspection windows in the front with two lights on the sides which permit to inspect the samples during the test without need of stopping the test and removing the samples from the chamber.



Support for Static test in traction

- Sample holder for the static strain of 2-4 samples with adjustable distance of the grips.
- Static test piece holder with planetary effect, in compliance with ISO 1431-1 standard. It moves the test pieces over the whole volume of the chamber for a more homogeneous ozone atmosphere exposition.

Up to 64 samples (with 10 mm width) can be tested at the same time with the device.



Support for Static test in traction of Rubber Hoses

Sample holders for tests on rubber hoses according to ISO 7326-method 1 and 2



Support for dynamic test

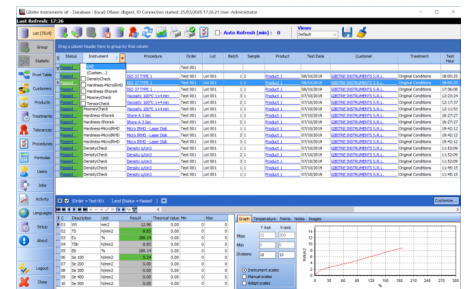
In compliance with ISO 1431, ASTM D1149 and SAE J1401. To be inserted into test chamber for the study of ozone resistance of cured rubber under dynamic conditions (from 3 to 30 cycles/min - 0.05 to 0.5 Hz). Up to 10 samples can be tested at the same time



Management of Test Results

The results and test curves of all the tests carried out are saved in the Gibitre SQL database and are available through the Datagest program.

Datagest is the Laboratory Information Management System (LIMS) which is always installed in combination with all Gibitre instrument-control programs. The program is the collector for all the test result produced with the instruments connected and permits to manage the common Archives used by the instruments (Product List, Customer List, Tolerance limits, Order List, etc)



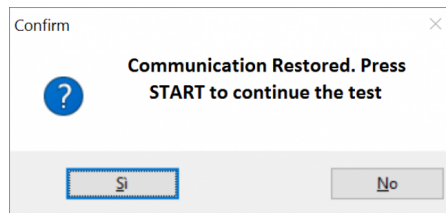
Industry 4.0 integration

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 to 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.



Continuation of the Test after unwanted interruption

The instrument continuously stores the working conditions. After an electrical black out, the user can restart the program and continue the interrupted test.

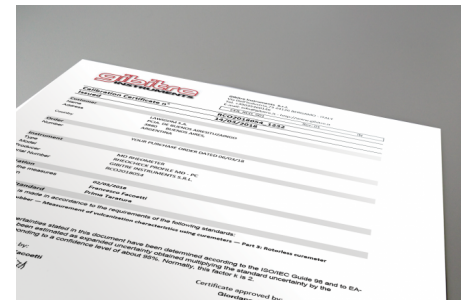


Standard Calibration service for Ozone Cabinet

The calibration is performed with reference to the requirements of ISO 1431 standard.

The service includes:

- Ordinary maintenance of the instrument
- Complete cleaning of the Ozone Detector with replacement of the internal filters.
- Calibration of the temperature inside the test chamber (40°C).
- Calibration of the Ozone Concentration inside the test chamber (at 50 pphm, 100 pphm, 150 pphm, 200 pphm).
- Calibration of the time for reaching ozone concentration set (NEW)
- Calibration of the relative Humidity inside the chamber at 50% and 75% (Only for instruments with humidity control)
- Final check of the correct working of the instrument.
- Issue and e-mail shipment of the Calibration Certificate with traceability to primary standards.



Safety Devices

- The instrument automatically locks the opening of the instrument when the ozone concentration exceeds 10 pphm to prevent undesired contact with ozonized air.
- The generation and shooting down of the Ozonized airflow is made in closed circuit in order to meet safety requirements and to render an aspiration system unnecessary.
- Safety sensors protect the instrument from excessive temperature and humidity due to incorrect set.
- Safety Push-button
- The instrument is supplied with CE Labelling



Hardware requirements

- Programs can be installed on standard PCs with WINDOWS 10 OPERATING SYSTEM.
- The CONNECTION between the instruments and the PC is made using the USB CABLE supplied with the instrument.
- The programs are COMPATIBLE WITH ANTIVIRUS, and other programs installed on the PC.



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

Test chamber Cylindrical Stainless Steel test chamber with internal illumination and inspection window. Ø 550 mm; H 550 mm. Volume 155 Litres

Control of Ozone Concentration Automatic between 10 and 500 PPHM (50.5 to 505 mPa). UV Absorption Analyzer according to ISO 1431-3 and ASTM D4575 with $\pm 3\%$ accuracy

Temperature control (standard instrument) From Room Temperature +5°C to 70°C. Accuracy: 0.1°C.

Air flow Adjustable from 1 to 3 changes/min (air change speed between 10 and 30 mm/sec) Internal fan according to ISO 1431.

Ozone circuit type Closed circuit with continuous ozone production and shooting down through self regenerating active carbon filter.

Sample holders

Static Sample Holders

- Static strain and planetary displacement according to ISO 1431-1 standard (32 to 64 samples)
- Tests on rubber hoses according to ISO 7326

Sample holder for dynamic test Frequency: 3 to 30 cycles/min (0.05 to 0.5 Hz). Holder for 10 samples

Software

Results storage The test result and the curves are stored in the SQL Gibitre database which is installed in combination with the software

Test Data produced Ozone concentration, temperature and Humidity level (only with Humidity control option) during test time

Data Printout Test identification data, test parameters, sample characteristics, curves of ozone concentration, temperature, relative humidity, notes about results, images uploaded during the test.

Software usage Languages Italian, English, French, Spanish, German, Portuguese, Russian, Chinese, Japanese, Turkish, Polish, Czech

Safety Devices

Safety Devices	Safety Pushbutton. Safety Lock of the door of the instrument if ozone concentration is higher than 10 pphm. Safety thermostat for overheating
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Labelling	CE Labelling
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Calibration

Calibration Report	Calibration report with traceability to primary standards in conformity with the Calibration requirements specified in ISO 1431-1 standard
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Calibrated parameters	The certificate includes the calibration of: <ul style="list-style-type: none">- Temperature (40°C).- Ozone Concentration (at 50 pphm, 100 pphm, 150 pphm, 200 pphm)- Time for reaching ozone concentration set- Relative Humidity (at 50% and 75%)
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Construction Characteristics

Power supply	220 VAC, 50/60 Hz, 2.5 kW, single phase, (110 VAC, 60 Hz on request)
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Sample holders Elevator	Lifting gear for up and down movement to help in inspection of the different sample holders
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Dimensions	(W x D x H) 1060 x 1000 x 1080 mm (2390 mm with lifting system)
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Weight	370 Kg
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Refrigeration unit (for the version of the instrument with Humidity Control)	<ul style="list-style-type: none">• Dimensions: (W, D, H): 350 x 550 x 650 mm• Noise Level: < 70 dB (A);• Weight: 50 kg
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Personal computer	Minimum Configuration: Intel Core i5 4 GB RAM. Compatible Operating Systems: Windows 10; Connection to the instrument via USB Cable (included)
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