

Environmental Simulation



TIRA *Umweltsimulation*
Environmental Simulation

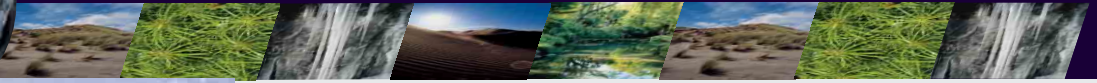


TIRA*vario*

Temperature- and Climatic Test Chambers
Standard Walk-In Chambers



Environmental Simulation



TIRA Environmental Simulation

The TIRA Environmental Simulation product line was founded with the objective to offer complete testing systems to our customers out of one hand.

The know-how of TIRA measuring and testing technology closely combined with highly-efficient environmental simulation systems offers complex solutions of testing jobs in research, development, production and quality assurance.

A comprehensive range of services including up-to-date software, control and interface equipment was completed by a product series of standardised vibration test chambers and walk-in test chambers in modular design *.

Reliability and high quality of products and developments from the TIRA company are ensured by persistent quality and functionality inspections. An established service team of experienced and competent service engineers realizes quick and reliable servicing of systems on-site as well as smooth and on-time erection and commissioning of our products.

TIRA Environmental Simulation GmbH is a reliable partner in the fields of research, development, environmental simulation and testing technology.

(*Please find information of standard test chambers 250- 2000 l on a special sheet)

TIRA GmbH

TIRA GmbH delivers measuring and testing systems world-wide for industry and research.

On several production locations we are developing and manufacturing up-to-date plant engineering equipment including application-related software to simulate environmental influences, to test material properties as well as to detect and eliminate unwanted vibrations.

In accordance with CE requirements and with regard to national and international standards, our products are subject to strict quality inspection. The same care is taken as regards preservation and modernization of our conventional TIRA testing and measuring technology proven over years.

We are dedicated to progress, efficiency and quality of TIRA products in close co-operation with our customers and invest into the future of this potential. This is documented by our quality management, certified as per DIN ISO 9001 since 1995 and, since June 2003, as per DIN EN ISO 9001:2000.

Numerous possible applications from one hand

The corporate structure of TIRA group, the interaction of vibration testing and environmental simulation product lines, the integral mechanical production center and materials testing and balancing technology branches opens-up maximum flexibility and ambitious vertical production ranges.

An existing archive containing design data collected in more than 50 years of tradition, experience and current knowledge of our branch features a solid basis for first-class technology and reliable services.

We offer customized and standardized system solutions from one hand. We also render competent assistance to our customers in the fields of concept and development via design and assembly up to commissioning and after-sales service.

TIRA machines and systems have stood the test in industry, colleges and institutes all over the world. In order to consult and advise users and prospective buyers all over the world, appointed sales and service companies represent the trademark and know-how of TIRA GmbH in over 60 countries of the world.

Demands made on your climatic and temperature test chamber

- power range in accordance with national and international test standards, CE and EMC regulations
- manufactured according to UNI EN ISO 9001: 2000 (EN 29001) Quality Standard and DN
- environment-friendly refrigerants and modern components
- variable temperature and humidity are quickly transferred onto the test loads
- easy and flexible operation, up-to-date control systems
- excellent documentation of test results
- wide range of standard and special accessories
- innovative design
- short delivery time for standard units

Please let us introduce to you the new generation of modular walk- in test chambers **TIRAvario**. Call on us.

Environmental Simulation



Environmental Simulation – Environmental Protection

With the development of trend-setting technologies for environmental simulation will be as well natural the application from environment- friendly refrigerants and isolation materials as an appropriate manufacturing.

The refrigerants R404 A, R23 we used are CFC- free and admitted after the convention by Montreal and the executions of London and Copenhagen. Also the polyurethane foam has been used for thermal isolation is CFC free and warranted a stable performance over time.

All connections and welding in the refrigeration system have been carefully checked by means of helium leak detectors (mass spectrometers) for absolute seal to bend forward against refrigerant losses, to ensure a perfect seal.

Special Systems

Specific product-oriented tests require maximum care and flexibility even when selecting the test system!

Testing technology and cycles should be matched with the requirements and environment to a maximum possible extent to ensure that investigations can be performed safely and efficiently in a long term.

Standard series of construction do not always offer the optimal solution and realization of testing jobs. Products are very often tested and stressed insufficiently or excessively.

We develop and construct customized systems and individual special solutions for environment simulation.

TIRA full test system, Walk- In- Vibration- Chambers



front view with vertical- shaker system



internal view



lateral view with horizontal- shaker system/ sliding floor

Versatile and flexible product range:

✓ **Chambers to simulate environmental conditions**
(temperature, humidity, pressure, radiation, vibration)

✓ **Shock test chambers**
(air/air, liquid/liquid, horizontal, vertical)

✓ **Salt spray- and dust test chambers**
(from 600l up to walk- in- and drive- in chambers)

✓ **Walk- in and drive- in temperature- and climatic test chambers**
(vibration, sun simulation, wind simulation, Airbag test chambers, special chambers)

✓ **Test Systems and accessories for bioresearch**
(Bio- test chambers and walk- in test Chambers, Bio- light shelving systems and -racks, plant desks)

✓ **Combined vibration chamber systems**
(Vertical- and horizontal vibration systems)

✓ **Temperature- and climatic air conditioning units**
(internal, external to be integrated in existing test rooms or to be integrated in test- or production process)



Environmental Simulation



TIRAvario Series – Modular Test Chambers

With TIRAvario a series of walk-in test chambers was developed and optimised to meet your individual application and future environmental conditions.

Prefabricated sandwich elements* are geometrically adapted and joined together in modular construction to form a sturdy and thermally insulated test chamber housing and completed by functional modules to suit the respective requirements.

(* grid size 250mm)

Performance parameters TIRAvario		Deep temperature (T)	Basic (N)
Temperature range	°C	-70...	-40... .. +60 (+85) ... +120 (+180)
Temperature fluctuation	K	< +/- 0,5	
Temperature ranges for climatic tests	°C	+10... +60 (+95)	
Humidity range	% r.h.	10... 98	
Humidity fluctuation	% r.h.	< +/- 3,0	



TIRAvario Bio-walk-in chamber



TIRAvario drive-in test chamber, large



Walk-in vibration test chamber, backside

TIRAvario modules

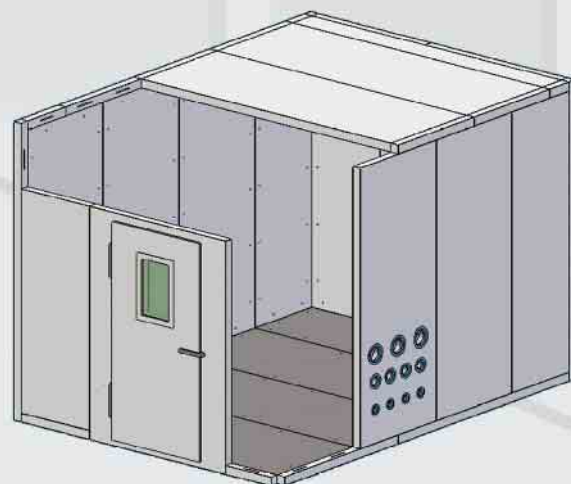
The basic structure generally consists of the test chamber housing with built-in useful space, the air-conditioning module as well as humidification module and electrical and control modules, complete with door and window cutouts.

Focused on the essential functions of the respective application you may renounce of one or the other module and/or add other components.

Complementary elements are for instance radiation modules, wind simulation components, equipment to meet the explosion protection directives and the like.

Based upon the modular construction TIRAvario test chambers can be adapted individually to your installation site and to the thermodynamically and mechanically required performance parameters.

So the TIRAvario series features a reliable and sophisticated implementation of simulated environment in walk-in chambers.



Environmental Simulation



Reliable - Convenient - Safe

Quality, reliability, comfort and safety of products are ambitious demands of the consumers.

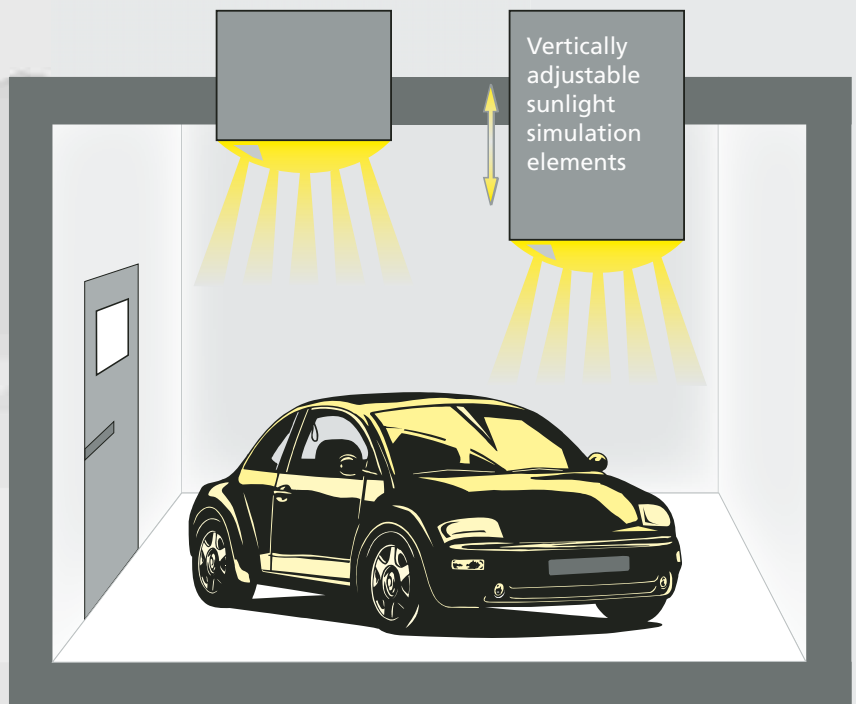
The ever increasing demands and expectations of surrounding technology, electronics and design are decisive criteria in today's industry and economy. Sub-assemblies and accessories of apparatus and products become increasingly more complex and their loadability under partially tough environmental conditions is supposed ever more.

Good reputation of a brand is dependent on tested quality and governs development up to the finished product.

Controlled production processes and a sound quality management are of particular importance for automotive industry and automotive sub-suppliers. Permanent testing and optimising of individual components of a vehicle, from carbody, driving equipment, safety equipment, communication up to comfort, are relevant to sustain safe operation and to safeguard competitive leads and trademarks.

Factory-standardised cycles and test specifications define the constructive design of environmental testing systems, in particular, of combined test equipment.

By means of the modular TIRAvario series and in close co-operation with renowned manufacturers of light equipment, noxious gases and the like, TIRA builds large-space systems with integrated sunlight simulation and other complete systems for use in automotive industry.



Walk-in and drive-in test chamber with integrated sunlight simulation for environmental tests in automotive industry

(e.g. paints, lining, interior trim, instruments, seats,...)



Simulated Environment In Walk- In Chambers - Applications

- Automotive industry and automotive sub-suppliers
- Electronic / electrical industries
- Aeronautics and aerospace industries
- Plastics industry
- Surface treatment industry
- Biologic/ Pharmaceutical industry
- Foodstuff industry
- Chemical industry
- Research sectors
- Construction industry
- Architectural conservation, and others

Environmental Simulation



Siemens Simatic S7 Control System

Basic performance

- Operation panel with LCD Display
- Key board with 8 function keys
- Alphanumeric keyboard with huge display
- SPC (storage program control) Simatic S 7 in a modular upgradable performance

Performance

- Data acquisition via WINKRATOS® (optionally)
- Graphical measurements evaluation via WINKRATOS® (optionally)
- Service- and help functions
- Industrial data communication (optionally)
- Intranet- and internet communication (optionally)
- Documentation and data logging via WINKRATOS® (optionally)
- Open for customised solutions (optionally)
- World wide service support
- Soft- and hardware upgrading



Switch cabinet with Siemens Simatic S7

WINKRATOS® Software

WINKRATOS® is the new generation control and management system running under WINDOWS 95/ 98/ 2000/ ME/ XP/ NT. The powerful and flexible WINKRATOS® offers many innovative features and opens up a wide range of new possibilities.

Main features

- Connection to Siemens Simatic S 7 through RS 232 serial interface for one- chamber connection to PC (PC at a max. distance of 15 m)
- Connection to Siemens Simatic S 7 through RS 422 serial interface for multi- chamber connection to PC
- (up to 16 chambers; PC at a max. distance of 1000 m)
- Colour printing on any compatible printer
- Multiple access password levels

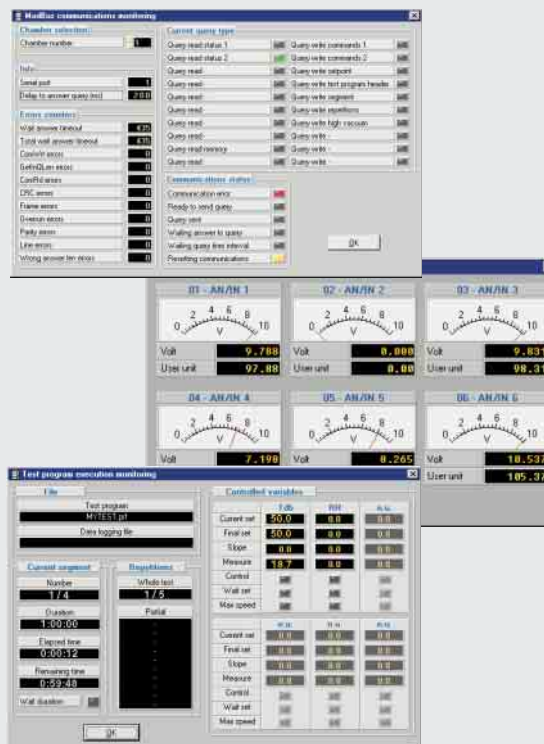
Graphic functions

- Fully- configurable layout of acquired measures' charts
- Display of several charts on the monitor
- Several colours to be chosen at one's choice for the display of different parameters' curves
- Enable/ disable of chart display and grids
- Real- time update of acquired measures' charts

Acquisition functions

- Real- time measurement of test parameters by means of graphic cursors
- Max. flexibility for cycles to be set
- Storage of occurred events such as alarms, commands, ect.

WINKRATOS® may be installed on PC supplied by TIRA or belonging to the customer and may be connected to any TIRA test cabinets and walk- in chambers.





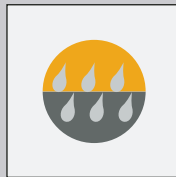
REFERENCES TIRA GmbH

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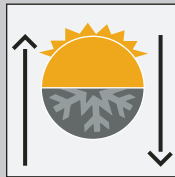
Test chambers for:



Heat and cold



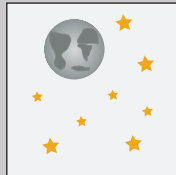
Heat, cold and humidity



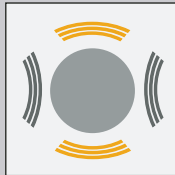
Thermal shock



Sunlight test



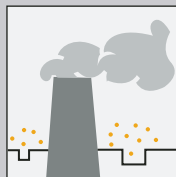
Space simulation



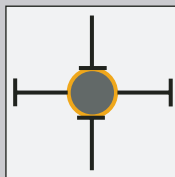
Vibration test



Wind and rain



Corrosion and industrial atmosphere



Traction and compression

TIRA Umweltsimulation GmbH

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- AUDI AG, Ingolstadt
- Valeo, Ungarn
- AL-KO, Österreich
- Eleetronica GmbH, Meckenheim
- EXCOR Korrosionsforschung, Dresden
- Delphi Automotiv Systems, Wuppertal
- EADS Dornier, Friedrichshafen
- VW AG, Puebla Mexico (Volkswagen)
- IMA Materialforschung, Dresden
- Thyssen Krupp Automotive, Essen
- Bosch Rexrot Intramat, Lohr am Main
- Continental AG
- DaimlerChrysler AG
- HTWS Hochschule für Technik, Zittau
- Fraunhofer Gesellschaft
- Porsche AG
- TAKATA-PETRI AG, Ulm
- VTH Versuchsanstalt, Darmstadt
- Robert Bosch GmbH
- Küster, Ehringshausen
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- Volkswagen AG, Wolfsburg
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(extract)

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