

Vibration

test chambers 



Angelantoni Test Technologies
stay ahead to meet the needs
of the Industry of the Future, where

Internet Technology,

Remote Connections,

Communication & Networking

are the keywords for success.



Vibration

test chambers

Besides their well-known key features - **remarkable basic configuration, flexibility, easy adaptation to any shaker** - these chambers are now equipped with **Weazy™** the new onboard HMI, providing an intuitive and responsive interface for our powerful Control System.

This line of chambers comes in both thermostatic (temperature only) and climatic (temperature and humidity) versions.

To make your life easier!

ACS vibration test chambers can be interfaced with many various types of shakers for vertical, horizontal and tri-axial vibrations. They are the easiest solution for combining any kind of shaker with an environmental test chamber, thanks to:

1

A very easy operating system

A worm screw type of lifting system allows the test cabinet to be adapted to the shaker's height. Adjustments can be set from the control panel on the chamber.

It is also possible to add horizontal movement as needed. This is especially useful if your shaker allows both vertical and horizontal movement or if you want to use more shakers with the same chamber.

2

Greater flexibility

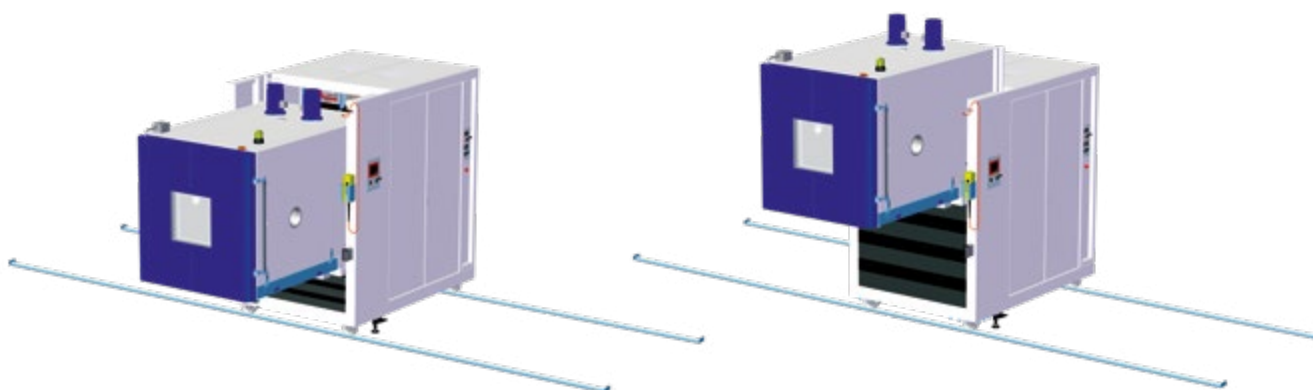
Different removable floors, for vertical and horizontal vibrations, can adapt the chamber to any existing standard shakers.

If the chamber must be used without the shaker in place, a blind floor plug is available.

3

A wide range of standard models

The available volumes in both thermostatic and climatic standard versions are 600, 1200 and 2200 l. Three choices of temperature change rate are available for the -70/+180°C models: 5, 10, or 15°C/min, while 5°C/min is the only available rate for the -40/+180°C models. For all the climatic models the humidity range is from 10% to 95% (in the temperature range of +10/+95°C).

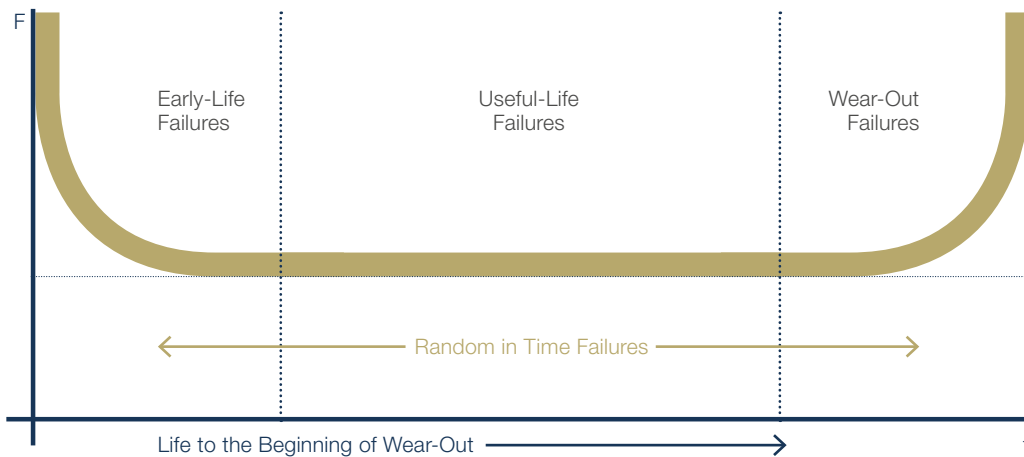


Be strict with your product: **expect the best!**

Vibration, temperature, humidity: the right mix

Environmental Stress Screening (ESS) is a process of exposing a product to stresses such as thermal cycling and vibration in order to force latent defects to manifest themselves. Stress screening ensures that defects, which normally arise during the useful life of a product, are discovered during testing prior to the pre-production phase.

Bathtub curve



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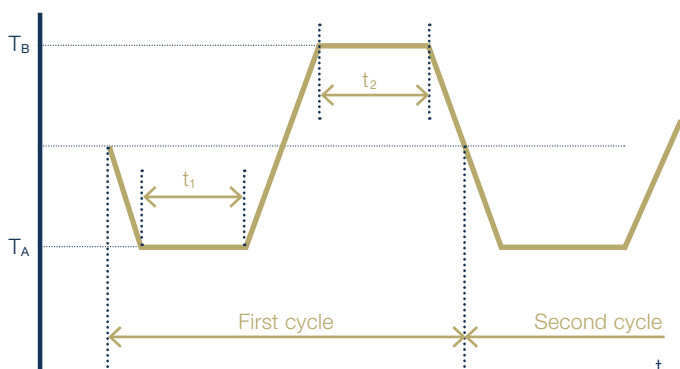
Improved quality and reliability by applying:

Vibration stress

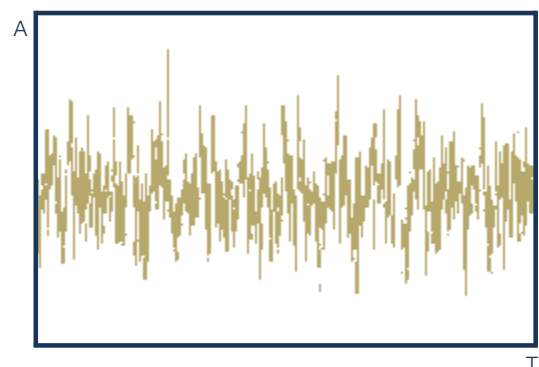
Thermal stress with quickly changing rate

Humidity

Thermal cycle stress IEC 60068-2-14, test Nb



Vibration stress



A remarkable basic configuration

Basic Configuration

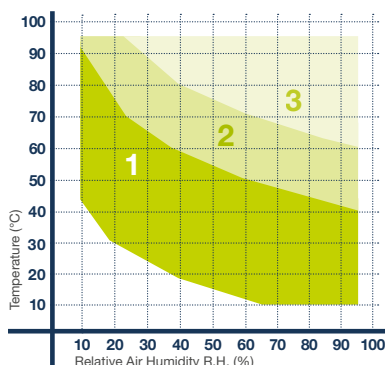
- **Weazy™**
- **Inspection window**
multiple-crystal, with double heated transparent film, 450 X 450 mm size
- **Internal lighting**
- **Feet**
- **Lifting system**
for a positioning in height of the chamber continuously and precisely on the shaker
- **Closing**
mechanical, with large handle
- **Thermostat**
max./min. digital thermostat with independent probe
- **Removable floor**
the floor for vertical vibrations has a hole equipped with a plug to permit tests even without the shaker
- **Silicone portholes**
80 mm (left side) and 150 mm diameter (right side) fitted with rubber cap. They allow internal-external electrical, mechanical or hydraulic connections
- **Auxiliary contacts**
(specimens, alarms, run shaker)
- **Interface**
Ethernet port for remote control system connection
- **Water condenser**

Options

- **Additional portholes**
80 and 150 mm, see drawing for available positions
- **Handling port holes**
no. 2 max, 125 mm of diameter, they are positioned on the door under the inspection window, allowing the handling of specimens inside the chamber
- **Set of no. 4 analogic inputs**
4÷20 mA for user's data acquisition (no. 1 set max)
- **Set of no. 4 PT100 inputs** (no. 1 set max)
- **Set of no. 8 auxiliary contacts** (no. 1 set max)
- **No break power unit for PLC**
- **Floor for horizontal vibrations**
with fixed square opening depending on model (no closing plug provided)
- **Compressed air dehumidification** for continuous tests with low temperature
- **Manual or automatic horizontal movement**
manual or automatic track translation system, to simplify the operations of positioning the chamber on the shaker
- **Specimen switching off in case of chamber alarm** (on request)
- **Remote air condenser**
- **MyAngel24™**
- **WinKratos**

Humidity diagram

1+2+3 area: from +4°C to +94°C for tests with blind floor and thermal insulated head extender.
1+2 area: from +4°C to +59°C for tests with vertical vibration.
1 area: from +4°C to +40°C for tests with slip table.

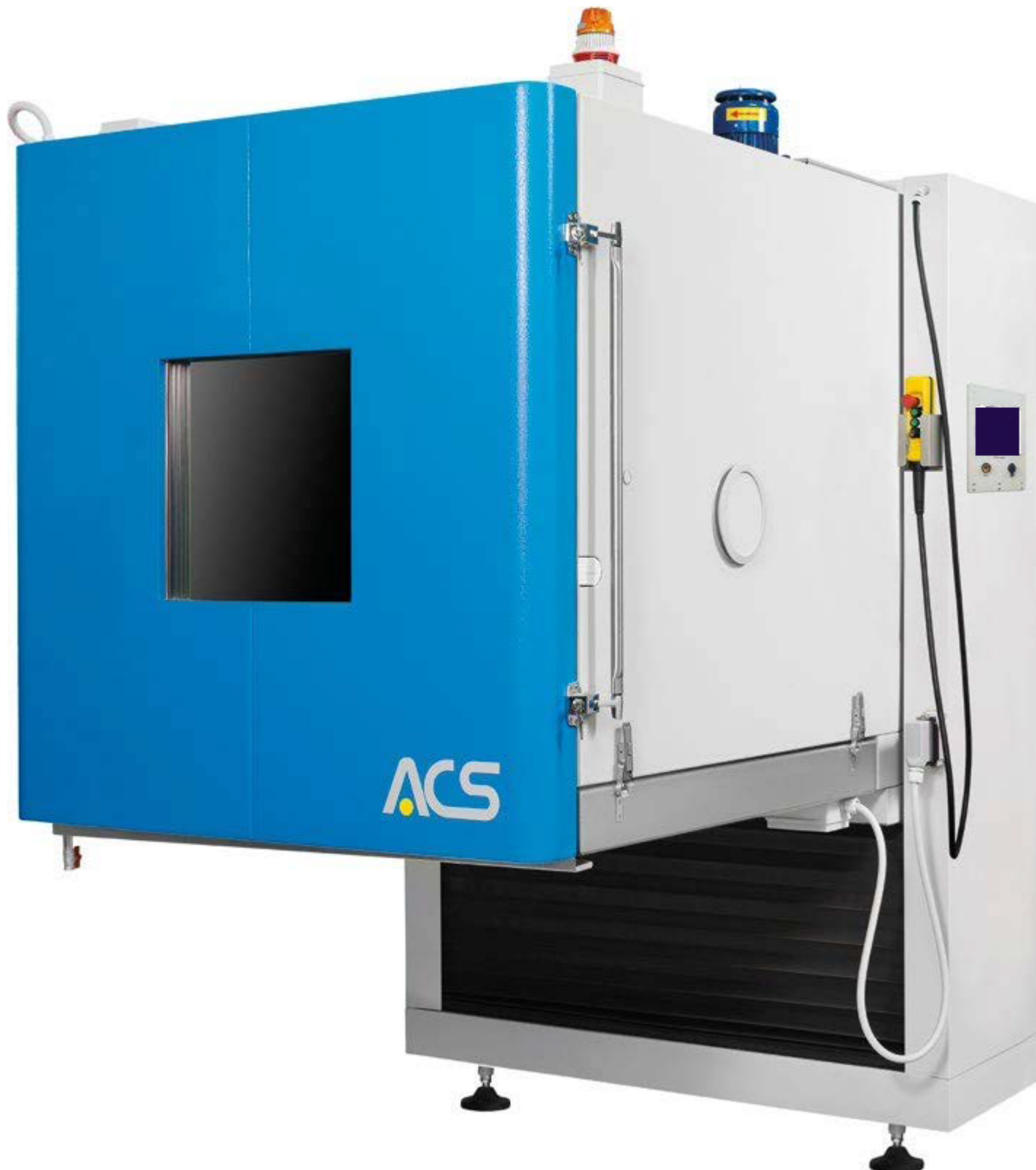


Vibration test chambers / Technical features

	MODEL ¹	AV600 (C) 5	AV600 C 10	AV600 C 15	AV1200 (C) 5	AV1200 C 10	AV1200 C 15	AV2200 (C) 5	AV2200 C 10	AV2200 C 15
Useful capacity (l)		610	610	610	1220	1220	1220	2187	2187	2187
Internal dimensions approx. (mm)	WIDTH	850	850	850	1000	1000	1000	1350	1350	1350
	DEPTH	740	740	740	1130	1130	1130	1350	1350	1350
	HEIGHT	970	970	970	1080	1080	1080	1200	1200	1200
External dimensions approx. (mm)	WIDTH	1340	1340	1340	1490	1490	1490	2058	2058	2058
	DEPTH	3005	3005	3005	3580	3580	3580	3895	3895	4295
	HEIGHT	2274	2274	2274	2274	2274	2274	2392	2392	2392
Max external height (mm) ⁷		2950	2950	2950	3050	3050	3050	3170	3170	3170
Distance between the bottom of the test space and the floor (mm)		650±1430	650...1430	650...1430	650...1430	650...1430	650...1430	680...1430	680...1430	680...1430
Temperature Range (°C)	Basic	-40...+180	NA	NA	-40...+180	NA	NA	-40...+180	NA	NA
	C model	-75...+180	-75...+180	-75...+180	-75...+180	-75...+180	-75...+180	-75...+180	-75...+180	-75...+180
Temperature fluctuation (K)		±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8	±0,1...±0,8
Temp. changing rate Heating ⁴⁺⁵ (K/min)	Basic -40/+180°C	5	NA	NA	5	NA	NA	5	NA	NA
	C model -70/+180°C	5	10	15	5	10	15	5	10	15
Temp. changing rate Cooling ⁴⁺⁵ (K/min)	BASIC +180/-40°C	5	NA	NA	5	NA	NA	5	NA	NA
	C MODEL +180/-70°C	5	10	15	5	10	15	5	10	15
Humidity range (%) (t=-3/+94°C) ²		10...95	10...95	10...95	10...95	10...95	10...95	10...95	10...95	10...95
Temp. range for climatic test (°C)		10...95	10...95	10...95	10...95	10...95	10...95	10...95	10...95	10...95
Humidity fluctuation (%)		±3...±5	±3...±5	±3...±5	±3...±5	±3...±5	±3...±5	±3...±5	±3...±5	±3...±5
Maximum thermal Load (W) ⁵	Basic T=+25°C	5500	NA	NA	5500	NA	NA	5500	NA	NA
	C model T=+25°C	5500	8500	8500	5500	8500	8500	5500	8500	8500
Rated power (kW)	Basic	15	NA	NA	21	NA	NA	28	NA	NA
	C model	18	27	34	33	33	47	34	48	68
Rated current absorption (A)	Basic	27	NA	NA	37	NA	NA	47	NA	NA
	C model	34	48	61	57	57	86	57	86	124
Weight (without packing) (kg)	Basic	1750	NA	NA	2250	NA	NA	2900	NA	NA
	C model	1950	2200	2200	2550	2550	2900	3300	3350	4200
Sound pressure level dB(A) ³	Basic	68	NA	NA	72	NA	NA	72	NA	NA
	C model	70	74	74	74	74	80	74	80	84
Max water consumption (m3/h) ⁶	Basic	2,6	NA	NA	4,7	NA	NA	4,7	NA	NA
	C model	3,2	6,7	6,7	5,8	5,8	8,7	5,8	8,7	12,8
Supply voltage (Vac)		400V ±10%/50Hz/3 + N + G								

1. For Temperature only version add T to the suffix - 2. t=+4°C/+94°C for continuous test - 3. Measured at 1 m distance in front of the unit in 1,6 m height, free field measurement - 4. According to IEC 60068-3-5 and IEC 60068-3-6 - 5. The performance data refer to +22°C ambient temperature, 400V nominal voltage, without specimen - 6. With water at T +29°C and temperature difference at 5°C (water temperature range +12÷+29°C) - 7. With test cabinet in the highest position.

Vibration test chambers



Customized vibration test chambers

A wide range of solutions are available for any customer requirements. Our company has extensive experience in supplying equipment for applications in such diverse fields as electronics, aerospace, aeronautics, automotive and defence.

Walk in temperature, humidity and vibration test chamber (180 m³)



Vibration chamber (capacity 6000 lt approx.) to simulate combined stress (temperature, humidity, vertical and horizontal vibration) on vehicle devices



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ESS and vertical/horizontal vibration test chamber (two vibration systems) for big dimension specimens



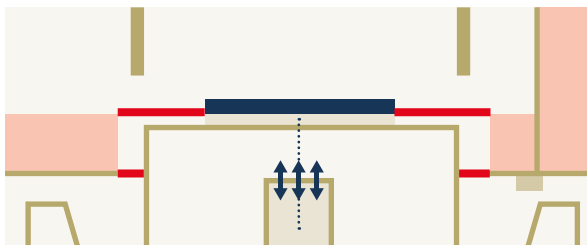
Vibration, temperature humidity and altitude test chamber



Maximum flexibility

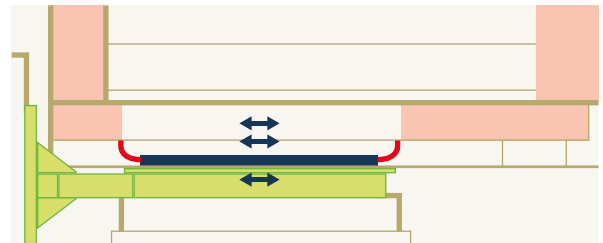
Thanks to the collaboration with different shaker manufacturers and to the realization of standard and customized project for first-class clients in every application field, ACS has acquired over the years an extensive experience in chamber-shaker coupling systems.

Without Head Extender



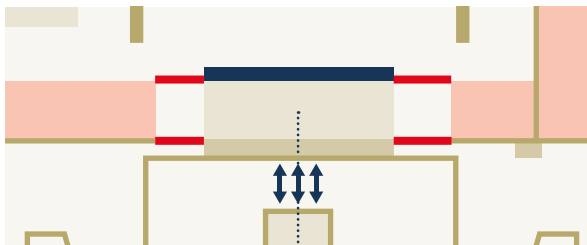
Thermal insulation is ensured thanks to the thermal barrier and two silicon gaskets, one fixed on the thermal barrier and the other around the shaker body

Standard solution with the horizontal configuration floor (optional)



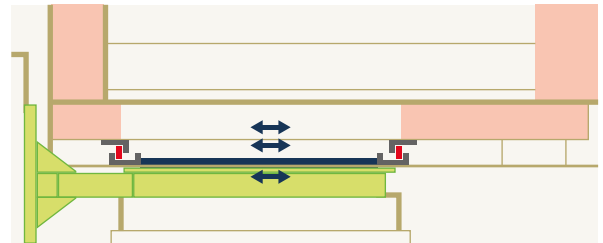
The optional floor is equipped with one silicon gasket fixed under the floor and the thermal barrier.

With Head Extender



Two silicon gaskets fixed on the basis and on the top of the shaker head extender for full temperature range application, $-75^{\circ}\text{C}/+180^{\circ}\text{C}$ (continuous test)

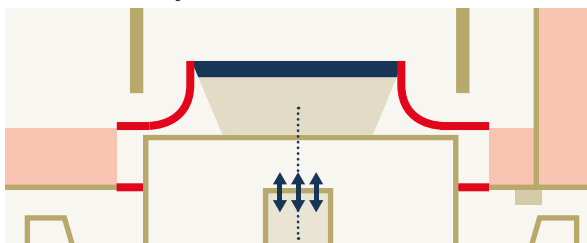
Customized solution with the horizontal configuration floor (optional)



Quotations can be requested for:

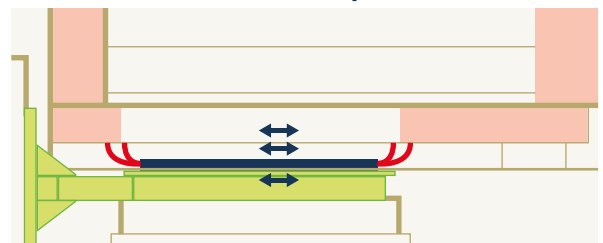
- Customized design
- Tray and gasket kit

With Head Expander



Thermal insulation is ensured thanks to the thermal barrier and two silicon gaskets, one fixed on the thermal barrier and the other around the shaker body

Customized solution with special floor



Quotations can be requested for:

- Customized design
- Set of two Kevlar gaskets
- Dry air system with dual function: isolation between gaskets and chamber drying (if any)



a lightweight, responsive and unique HMI for ACS chambers

Weazy™ is the onboard HMI, providing an intuitive and responsive interface for our powerful Control System, designed for use across an extensive range of our chambers.

Available on 10 inch display

Simple to use graphical interface

Clarity, consistency and efficiency of use

Fully Modular and User-Configurable Control System

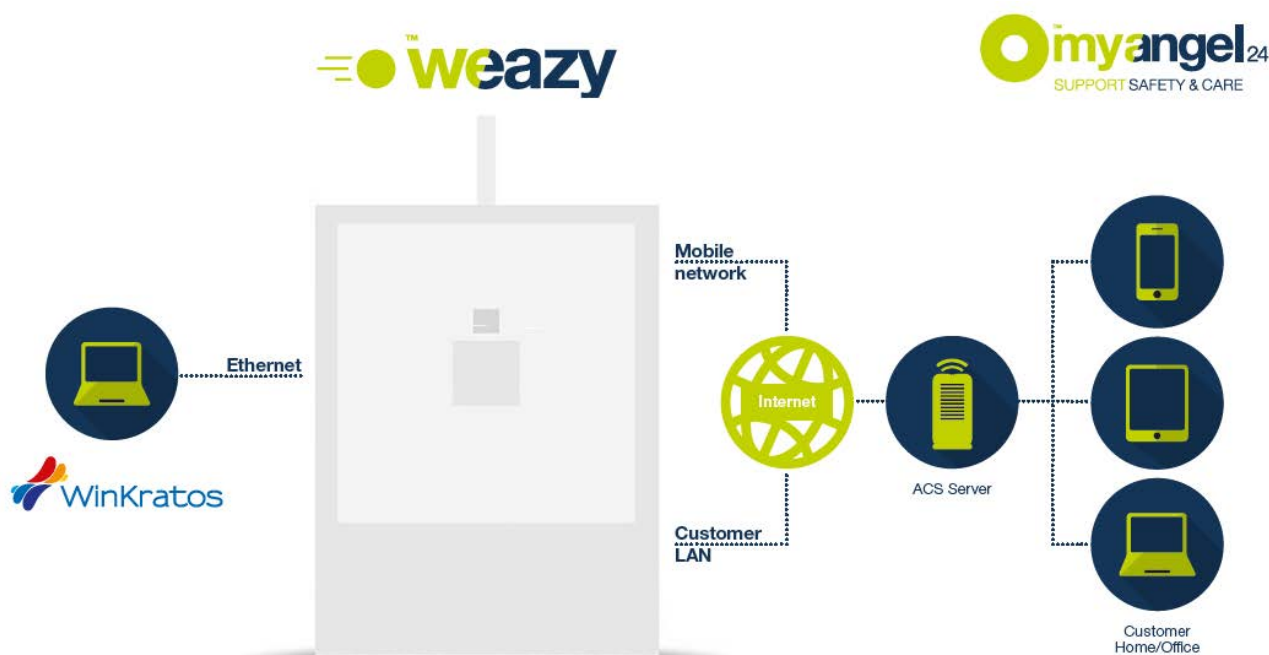
The chamber is equipped with a **PLC** (Programmable Logic Controller) for managing all the chamber's functions and safety interlocks.

The chamber basic control is supplied by **Weazy™**, a very flexible HMI accessible on the 10 inch on board display.

WinKratos (optional) allows the complete management of the chamber functions: from manual control to the creation (through the graphic editor) of test profiles, including monitoring and recording, processing, graphical representation and analysis of data.

MyAngel24™ (optional) is the Advanced Services Platform developed by ACS to offer fast, efficient and secure remote activities, allowing Automatic Reporting and Preventive Maintenance.

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Vibration test chambers

Weazy™ HMI makes it possible to manage and monitor the chamber via the 10" on-board panel.

Main features

- Ethernet connection to the chamber
- Visualization of measures and recordings
- High configurability of chamber parameters
- Program and Manual chamber operation modes
- Delayed start of a program
- Automatic notifications of events and alarms
- 7 days data storage
- System available in several languages

Test program editor

- Possibilities for storing cycles of 370 segments delaying their execution
- Internal repetitions of 10 groups of segments up to 999 times each
- Possibility to upload, edit, export, and delete already existing cycles
- Numeric profile parameters data entry

Graphic functions (Graphic viewer)

- Live data update of measures on the charts
- Graphic charts or numeric table representation views on the monitor
- Enable/disable of chart display
- Zoom in, zoom out and scroll functions

Export function to convert the Weazy™ log file into ASCII format (usable in Excel or other applications)

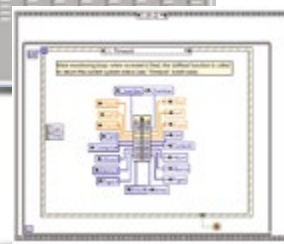


Additional S/W tools for an Easy Integration of ACS test chambers in Test Labs

Communication drivers for an easy integration into customer-developed Serial or Ethernet based applications, (LabVIEW, LabWindows CVI, Microsoft.NET, Visual Basic 6, etc...) can be supplied on request. The drivers come with a set of examples written in Visual Basic 6, LabView, LabWindows CVI, VB.NET, and permit total interaction with ACS test chambers, for both reading and writing.

Our communication protocol - ModBUS RTU for serial or Fetch/write for Ethernet communication, can be supplied to allow any chamber connection using the customer's own programming languages and operating systems.

Example program LabVIEW
User interface



Development environment



MyAngel24™ is the Advanced Services Platform developed by ACS for its customers. The system offers services designed to satisfy and anticipate customer needs, such as automatic reporting, remote chamber control, and monitoring of the main components status for preventive maintenance. The chamber can be connected to Angelantoni servers through SIM card via mobile network or, through LAN connection via Ethernet.

Diagnostics

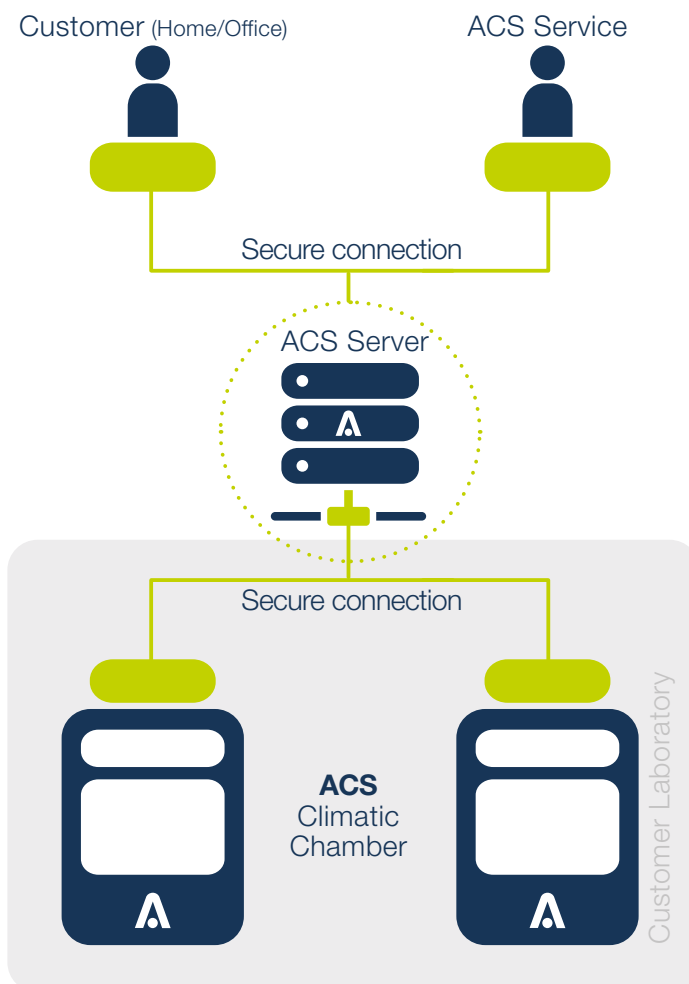
With **MyAngel24™**, the climatic chambers stay connected to the remote server 24 hours a day, monitoring running conditions in order to guarantee faster and more efficient service and activities

Accessibility

With **MyAngel24™**, you can stay in contact with the climatic chamber whenever you want and wherever you are, accessing its control panel from any web browser.

Security

MyAngel24™ uses the highest security standards available for authentication, secure connection, and storage. Moreover, you can suspend or limit the data sent to the central server for security reasons during one or more test sessions.



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Control and Supervision Software for ACS Environmental Test Chambers

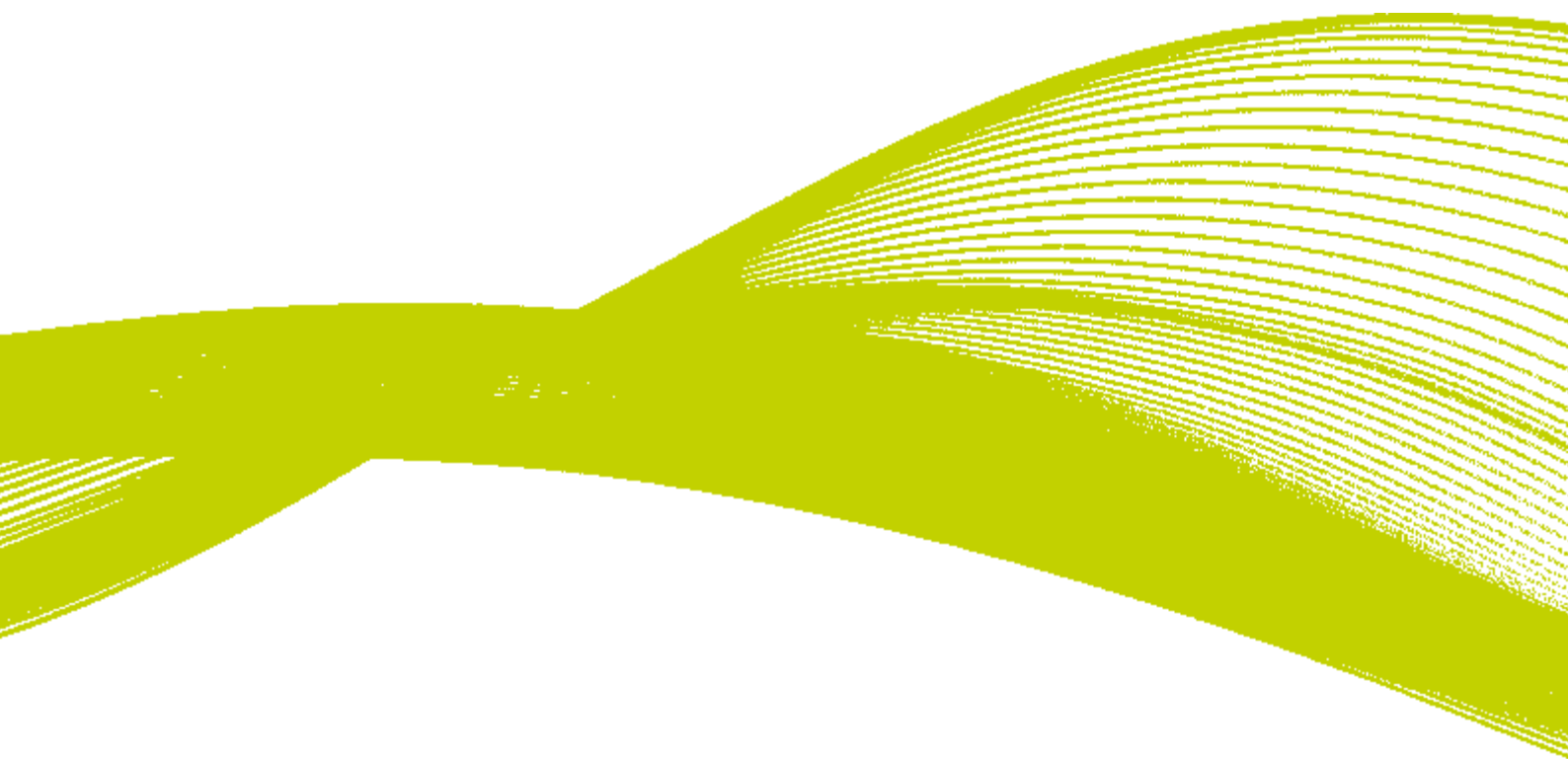
WinKratos is the Advanced Software developed by Angelantoni Test Technologies for the control and supervision of ACS environmental test chambers. Designed for comprehensive and intuitive management, the software enables full control of chamber functions, from manual operation to the creation of customized test profiles via a graphical editor.

WinKratos integrates advanced tools for monitoring, data recording, processing, and analysis, providing detailed graphical representations for optimal test management. Reliable and field-proven, the software supports the simultaneous management of multiple ACS chambers, offering exceptional flexibility to meet the specific testing requirements of each customer

Installed on a dedicated PC, WinKratos allows centralized control of multiple chambers from a single workstation.

The desktop-style graphical interface is designed for quick and intuitive access to all functions, simplifying system operation.

Additionally, the integration with a PC ensures scalable performance and expandable data storage capacity to meet operational needs.

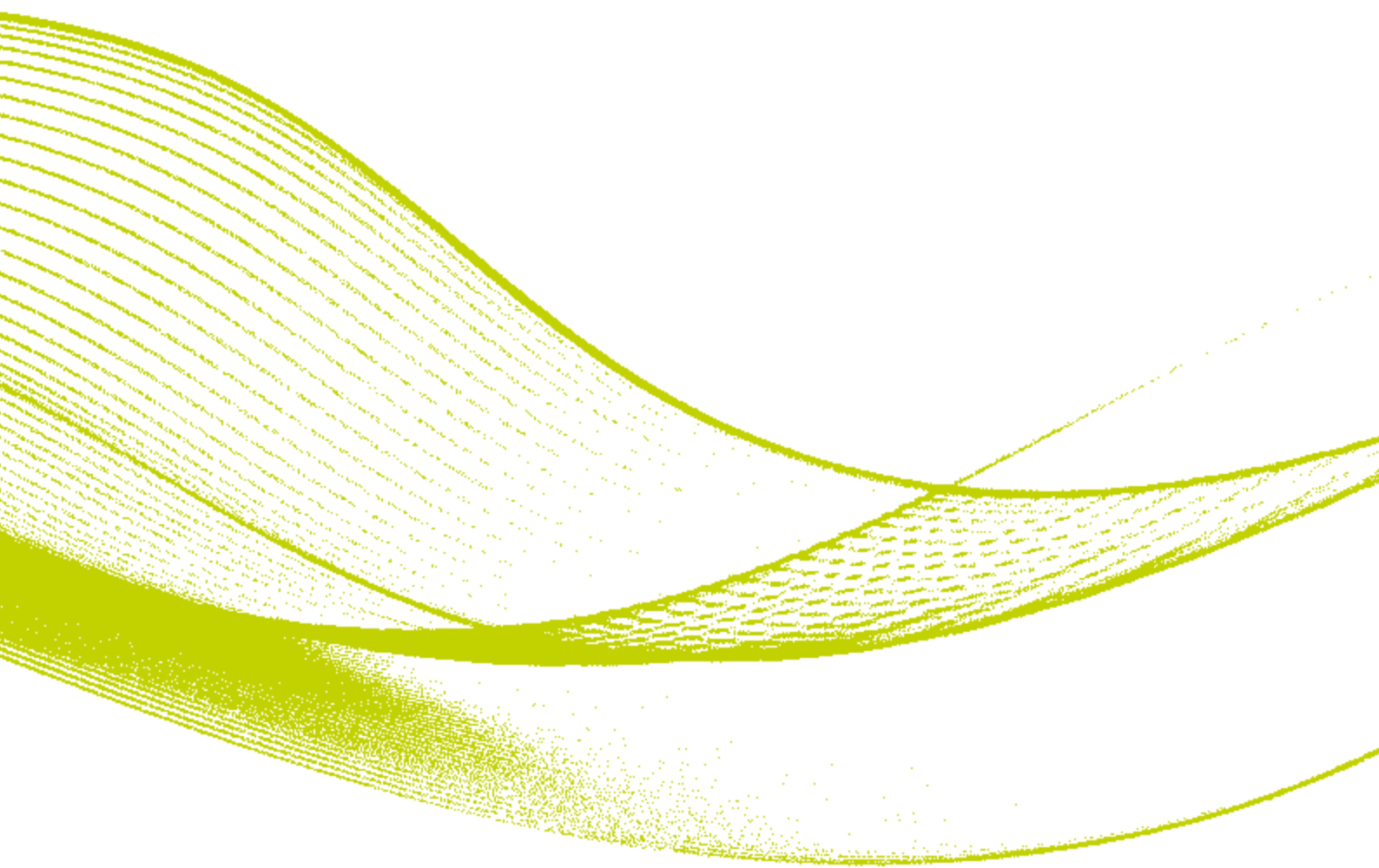


Angelantoni Test Technologies, owned by the **Angelantoni Group**, is the only company capable of offering a comprehensive range of environmental test chambers - **ACS** branded - for a great variety of applications, thanks to the expertise and technical know-how of its teams of experts. Innovation, flexibility and organization have always been the keys to success for ACS, world-famous since 1952 also for its high-tech test equipment such as Thermal High Vacuum Chambers for Aerospace applications and Calorimeters.



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