ACS | TESTING FOR A BETTER PLANET

Angelantoni

discovery

Climatic and thermostatic chambers

acstestchambers.com

ACS | Angelantoni TECHNOLOGY FOR LIFE

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.

ACS is proud to announce their newest and most innovative chamber series yet - **Discovery My**. Discover the brilliant and innovative design of Discovery My chambers featuring a cutting edge Control System, which makes it possible to manage and monitor and assist the chamber from the on board panel and desktop/mobile devices. This line of chambers comes in both thermostatic (temperature only) and climatic (temperature and humidity) versions.

discovery

Climatic and thermostatic chambers

discovery is everywhere

Cutting-edge control software, allowing to **manage, monitor, assist the chamber** at any time in multiple ways (via Ethernet and mobile network).

discovery is everything

Full range of performances, matching all requirements from stability tests to the most severe stress screening applications.

discovery is versatile

Specific test outfits for the following applications: Battery Testing, Fast Cooling by LN2, Solar Simulation Test, Air Conditioning Unit.

discovery is eco-friendly

CO2 versions are available, combining innovation, efficiency, sustainability and safety.

ACS TESTING FOR A BETTER PLANET

discovery

weazy™ 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 the 10 inch display

Simple to use graphical interface

Clarity, consistency and efficiency of use

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, effiicient and secure remote activities, allowing Automatic Reporting and Preventive Maintenance.

weazy™
the new HMI for a unique user experience

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)

discovery

WinKratos

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.

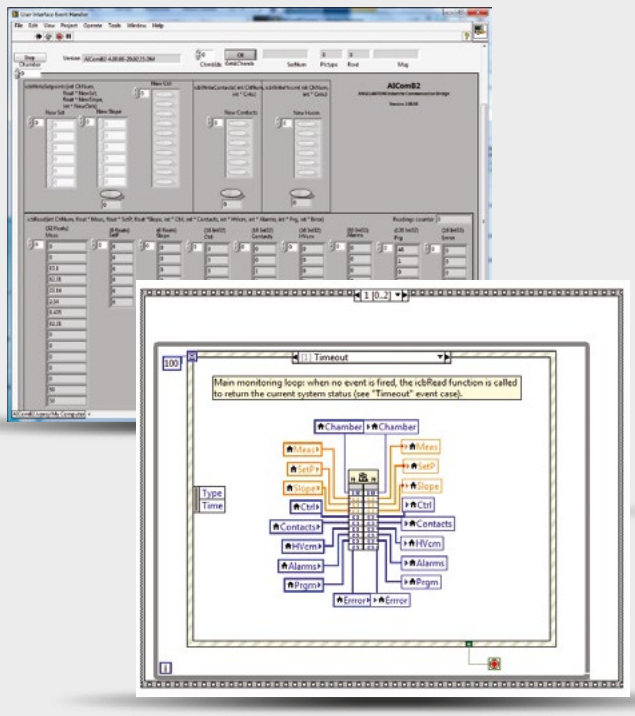
Additional S/W tools for an Easy Integration of Discovery My chambers in Test Labs

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 Discovery My 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

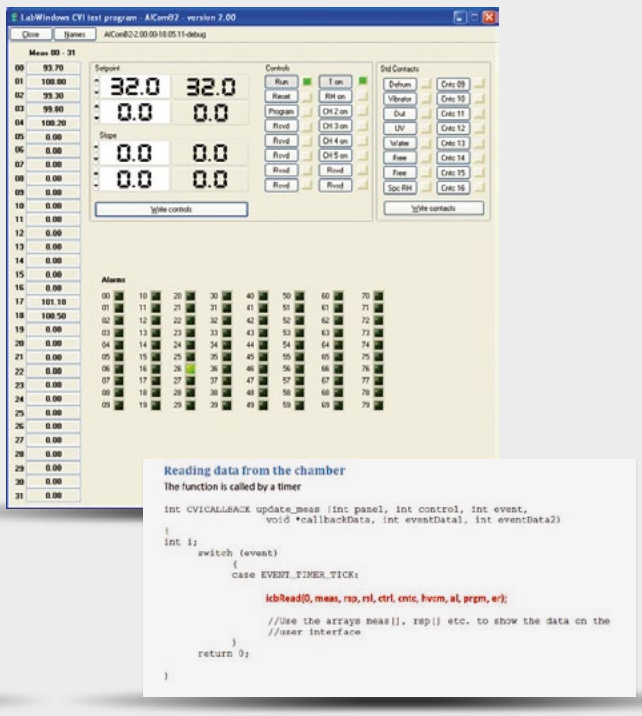
User interface



Development environment

Example program LabWINDOWS CVI

User interface



Development environment

ACS Advanced Services Platform

myangel 24
SUPPORT SAFETY & CARE

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

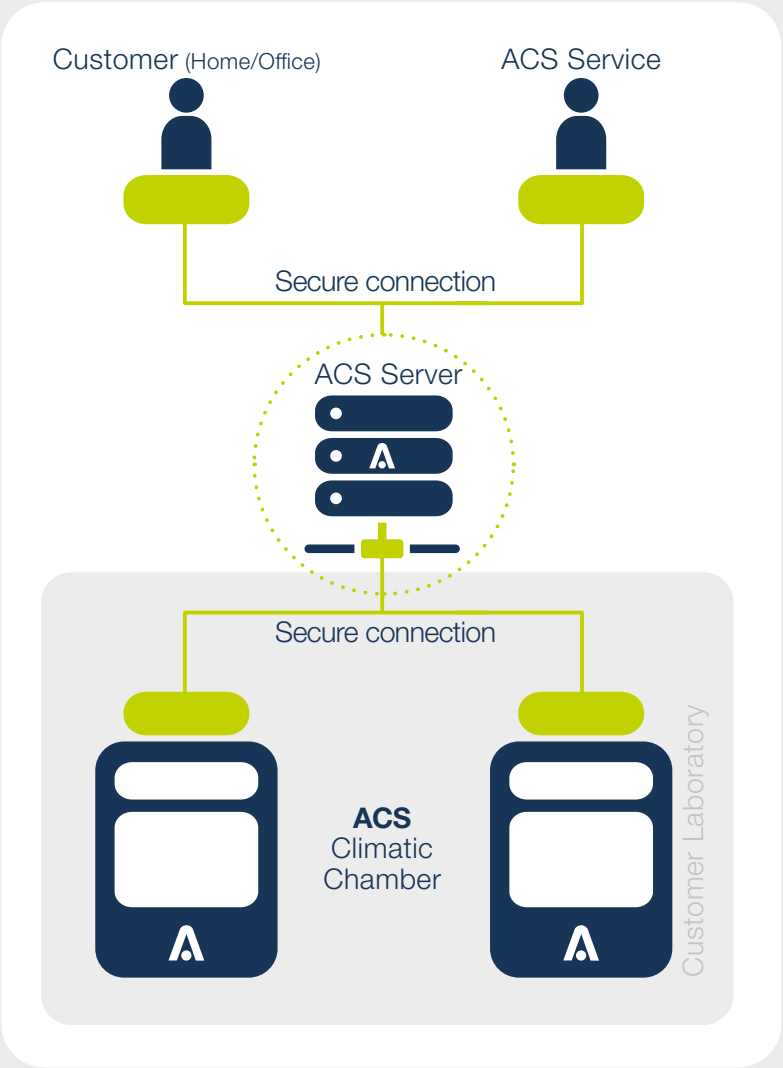
With **MyAngel24™**, the climatic chambers stay connected to the remote server 24 hours a day, monitoring running conditions in order to guarantee faster and more efficient service and maintenance activities.

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.



Customer Advantages

User Benefits

- **User-friendly**
  - easy to use, with a modern and attractive graphic appearance that provides the best user experience.
- **Less on-site intervention**
  - identification of problems with a remote test and examination of the recorded data.
- **Remote support**
  - PID parameters remote adjustment
  - remote PLC programs adjustments for chamber optimization.
- **Data Storage**
  - recording of all meaurements and operating chamber parameters up to 30 days.
- **Software Remote Update**
  - to implement new functions, it is possible to remotely update chamber software without on-site intervention.

MyAngel24™ Services

- **Automatic Reporting**
  - **MyAngel24™** periodically and automatically sends to the customer the report of chamber activities.
- **Preventive Maintenance**
  - **MyAngel24™** shows via the interface the use status (life-cycle stage) of the main chamber components. This allows the customer to schedule in advance any maintenance activities regarding the component in question.
- **Backup**
  - Backup guaranteed by **MyAngel24™** platform infrastructure.

MyAngel24™ Services

✓ Automatic Reporting ✓ Preventive Maintenance ✓ Backup Guaranteed

discovery
e-**very**where with you


ACS
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ACS
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discovery
is everything.

Universal Use

	MODEL[1]	DM340 C	DM600 C	DM1200 C	DM1600 C
Useful capacity (l)		337	553	1076	1439
Internal dimensions approx. (mm)	Width	601	850	1000	1000
	Depth	810	730	1130	1510
	Height	694	892	953	953
External dimensions approx. (mm)	Width	875	1124	1278	1278
	Depth	1786	1768	2222	2600
	Height	1765	2049	2111	2111
Temperature range (°C)		-75…+180	-75…+180	-75…+180	-75…+180
Temperature fluctuation (K)		±0.1...±0.3	±0.1...±0.3	±0.1...±0.3	±0.1...±0.3
Temperature changing rate Heating [4+5]	(-70/+180°C)	4,5K/min	4,5K/min	4,5K/min	3,5K/min
Temperature changing rate Cooling [4+5]	(+180/-70°C)	2,3K/min	4K/min	2,3K/min	2K/min
Humidity range (%) (τ=-3/+94°C) [2]		10...98	10...98	10...98	10...98
Temperature range for climatic test (°C)		10...95	10...95	10...95	10...95
Humidity fluctuation (%)		±1...±3	±1...±3	±1...±3	±1...±3
Maximum thermal Load (W) [5]	T=+25°C	1500	3000	3000	3000
Rated power (kW)		8	13	15	15
Rated current absorption (A)		13	25	28	28
Weight (kg)		720	990	1170	1300
Sound pressure level dB(A) [3]		60	63	63	63
Supply voltage (Vac)		400V ±10%/50Hz/3 + N + G			

1. for Temperature only version add the suffix T
2. τ= +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.

CO2 Transcritical cooling

	MODEL[1]	DM340 CO2 TRC	DM600 CO2 TRC	DM1200 CO2 TRC	DM1350 CO2 TRC	DM1600 CO2 TRC
Useful capacity (l)		337	553	1076	1356	1439
Internal dimensions approx. (mm)	Width	601	850	1000	1000	1000
	Depth	810	730	1130	1130	1510
	Height	694	892	953	1200	953
External dimensions approx. (mm)	Width	875	1124	1278	1278	1278
	Depth	1786	1768	2222	2222	2600
	Height	1765	2049	2111	2222	2111
Temperature range (°C)		-48…+180	-48…+180	-48…+180	-48…+180	-48…+180
Temperature fluctuation (K)		±0.1...±0.3	±0.1...±0.3	±0.1...±0.3	±0.1...±0.3	±0.1...±0.3
Temperature changing rate Heating [4+5]	(-40/+180°C)	4,5K/min	4,5K/min	4,5K/min	4,0K/min	3,5K/min
Temperature changing rate Cooling [4+5]	(+180/-40°C)	3,0K/min	4,5K/min	3,3K/min	3,0K/min	2,7K/min
Humidity range (%) (τ=-3/+94°C) [2]		10...98	10...98	10...98	10...98	10...98
Temperature range for climatic test (°C)		10...95	10...95	10...95	10...95	10...95
Humidity fluctuation (%)		±1...±3	±1...±3	±1...±3	±1...±3	±1...±3
Maximum thermal Load (W) [5]	T=+25°C	2300	4500	4500	4500	4500
Rated power (kW) [6]		6,6	9,9	12,5	12,5	12,5
Rated current absorption (A)		12,6	17,4	21,1	21,1	21,1
Weight (kg)		665	875	1070	1170	1200
Sound pressure level dB(A) [3]		55	57	56	56	56
Supply voltage (Vac)		400V ±10%/50Hz/3 + N + G				

1. for Temperature only version add the suffix T
2. τ= +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. value calculated according to the principle of equivalent thermal current and average power over a cycle at maximum load.

Stress Screening

	MODEL[1]	DM340 C ES	DM600 C ES	DM1200 C ES
Useful capacity (l)		337	553	1076
Internal dimensions approx. (mm)	Width	601	850	1000
	Depth	810	730	1130
	Height	694	892	953
External dimensions approx. (mm)	Width	875	1124	1278
	Depth	1786	1768	2222
	Height	1765	2049	2111
Temperature range (°C)		-75…+180	-75…+180	-75…+180
Temperature fluctuation (K)		±0.1...±0.5	±0.1...±0.3	±0.1...±0.3
Temperature changing rate Heating [4+5]		8K/min	6K/min	6K/min
Temperature changing rate Cooling [4+5]		5,5K/min	5,5K/min	5K/min
Humidity range (%) (τ=-3/+94°C) [2]		10...98	10...98	10...98
Temperature range for climatic test (°C)		10...95	10...95	10...95
Humidity fluctuation (%)		±1...±3	±1...±3	±1...±3
Maximum thermal Load (W) [5]	T=+25°C	3000	3000	3000
Rated power (kW)		12	14,3	20,9
Rated current absorption (A)		21	29,2	41
Weight (kg)		755	1090	1280
Sound pressure level dB(A) [3]		63	66	68
Supply voltage (Vac)		400V ±10%/50Hz/3 + N + G		

1. for Temperature only version add the suffix T
2. τ= +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.

Severe Stress Screening

	MODEL[1]	DM250 C10 (15) ESS	DM500 C10 (15) ESS	DM1000 C10 (15) ESS	DM1400 C10 (15) ESS
Useful capacity (l)		255	438	1040	1368
Internal dimensions approx. (mm)	Width	601	850	1000	1000
	Depth	615	580	1020	1342
	Height	692	890	1020	1020
External dimensions approx. (mm)	Width	883	1137	1287	1287
	Depth	2080	2058	2512	2891
	Height	1767	2050	2180	2180
Temperature range (°C)		-75…+180	-75…+180	-75…+180	-75…+180
Temperature fluctuation (K)		±0.1...±0.5	±0.1...±0.5	±0.1...±0.5	±0.1...±0.5
Temperature changing rate Heating [4+5]	C 10 ESS (-70/+180°C)	10K/min	10K/min	10K/min	10K/min
	C 15 ESS (-70/+180°C)	15K/min	15K/min	15K/min	15K/min
Temperature changing rate Cooling [4+5]	C 10 ESS (+180/-70°C)	10K/min	10K/min	10K/min	10K/min
	C 15 ESS (+180/-70°C)	15K/min	15K/min	15K/min	15K/min
Humidity range (%) (τ=-3/+94°C) [2]		10...98	10...98	10...98	10...98
Temperature range for climatic test (°C)		10...95	10...95	10...95	10...95
Humidity fluctuation (%)		±1...±3	±1...±3	±1...±3	±1...±3
Maximum thermal Load (W) [5]	C 10 ESS T=+25°C	6000	7000	8000	8000
	C 15 ESS T=+25°C	8000	8000	9000	9000
Rated power (kW)		21,2	30,5	45,3	57,1
Rated current absorption (A)		40,6	52	85	104
Weight (kg)		1070	1225	1800	1900
Sound pressure level dB(A) [3]		69	74	76	76
Supply voltage (Vac)		400V ±10%/50Hz/3 + N + G			

1. for Temperature only version add the suffix T
2. τ= +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.

discovery with transcritical CO2 Cooling System

A revolutionary product that combines innovation, efficiency, sustainability and safety.

Lower temperatures: minimum temperatures down to -50°C, depending on the model.

Improved cooling gradients: faster below -20°C, ensuring higher efficiency in cooling processes.

Energy efficiency: reduced energy consumption up to 15% average, depending on the type of test.

Safety: CO2 is non-flammable, eliminating the need for risk analysis or installation site adaptations required for flammable or slightly flammable refrigerants.

Quietness: a considerable improvement has been achieved in terms of noise reduction and improved acoustic comfort in laboratories.

No need for chilled water: like previous F-GAS versions with an air condenser, the DM CO2 TRC also features a local air condenser, enabling operation in ambient temperatures up to +35°.

Interchangeability: the new models are completely exchangeable with their F-GAS predecessors, maintaining the same dimensions.

discovery is versatile

A made-to-measure outfit for every test.

Air Conditioning Unit kit

The chamber can be used either stand-alone or for conditioning an external test box connected by means of flexible pipes.

Solar Simulation Kit

A special lamp array located on the top of the chamber makes it possible to meet the main solar simulation standards, such as DIN 75220, IEC 60068-2-5, ISO 9022-9, VDA 230-219.

Fast cooling Kit by LN2

Permits accelerating the rate of cooling down to the lowest temperature limits, increasing the severity of the test.

Battery Testing

A set of dedicated options is now available for this specific market. Gas detection, protection system and overpressure valves: all devices have been optimized in accordance with the EUCAR Hazard Levels so as to create a standard for safety analyses.

discovery Basic configuration

Discovery chambers come
with a wide range of included accessories

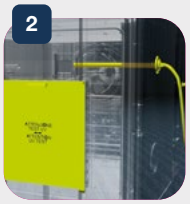
- **Weazy™**
- Inspection window
- Self-pivoting wheels and feet
- Air/water condenser
- Internal light
- Self feeding system
- No. 1 internal grid shelf
- Humidification water recycling system
- Min/max digital thermostat with independent probe
- Silicone portholes
- Auxiliary free contacts
- Ethernet port

Options

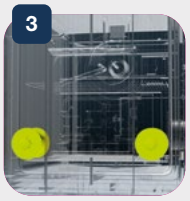
New Refrigerant Gas R472B
the "green" refrigerant gas by ACS with the lowest GWP value available on the market. Designed for U.L.T. applications, it allows to meet the requirements of the most common standards used by worldwide testing laboratories.

- **MyAngel24™**
- **WinKratos S/W**
- Additional portholes 1
- UV lamp 2
- Handling port hole (available for models from 500 litres up) 3
- Internal shelves
- Water condenser 4
- Reinforced floor 5
- Capacitive probe
- Notch 6
- Set of no. 4 analogic inputs
- Set of no. 4 PT100 inputs
- Set of no. 4 PT100 probes
- Set of no. 8 auxiliary contacts
- No break power unit for PLC
- Temperature extension to +200°C
- Air fan motor speed adjustment
- Air flow booster
- Specimen switching off in case of chamber alarm
- Compressed air dehumidification kit 7
- T e RH analogic retransmission
- Surface cleaning set

Through holes
Ø 80 and 150mm. For electrical, mechanical, and hydraulic connections inside and outside the chamber.

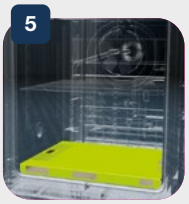


UV lamp
For ageing tests on painted, plastic, rubber, and other surfaces.

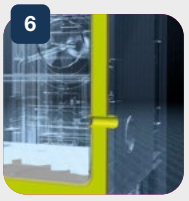


Handling hole
Ø 125mm. Located on the door, it allows the samples handling.

Water cooled condenser
Ideal for test areas without air conditioning.



Reinforced floor
Withstands samples up to 500 kg.

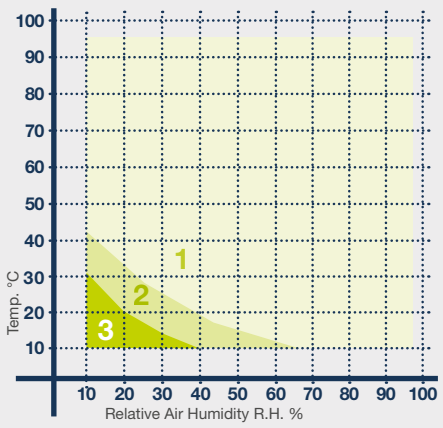


Notch
70x50(h) mm. Ideal for complex connections to the sample.

7

Humidity diagram

1. Standard working range
2. For limited periods
3. Dew point extension -40°C (Optional)



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.

ENVIROMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

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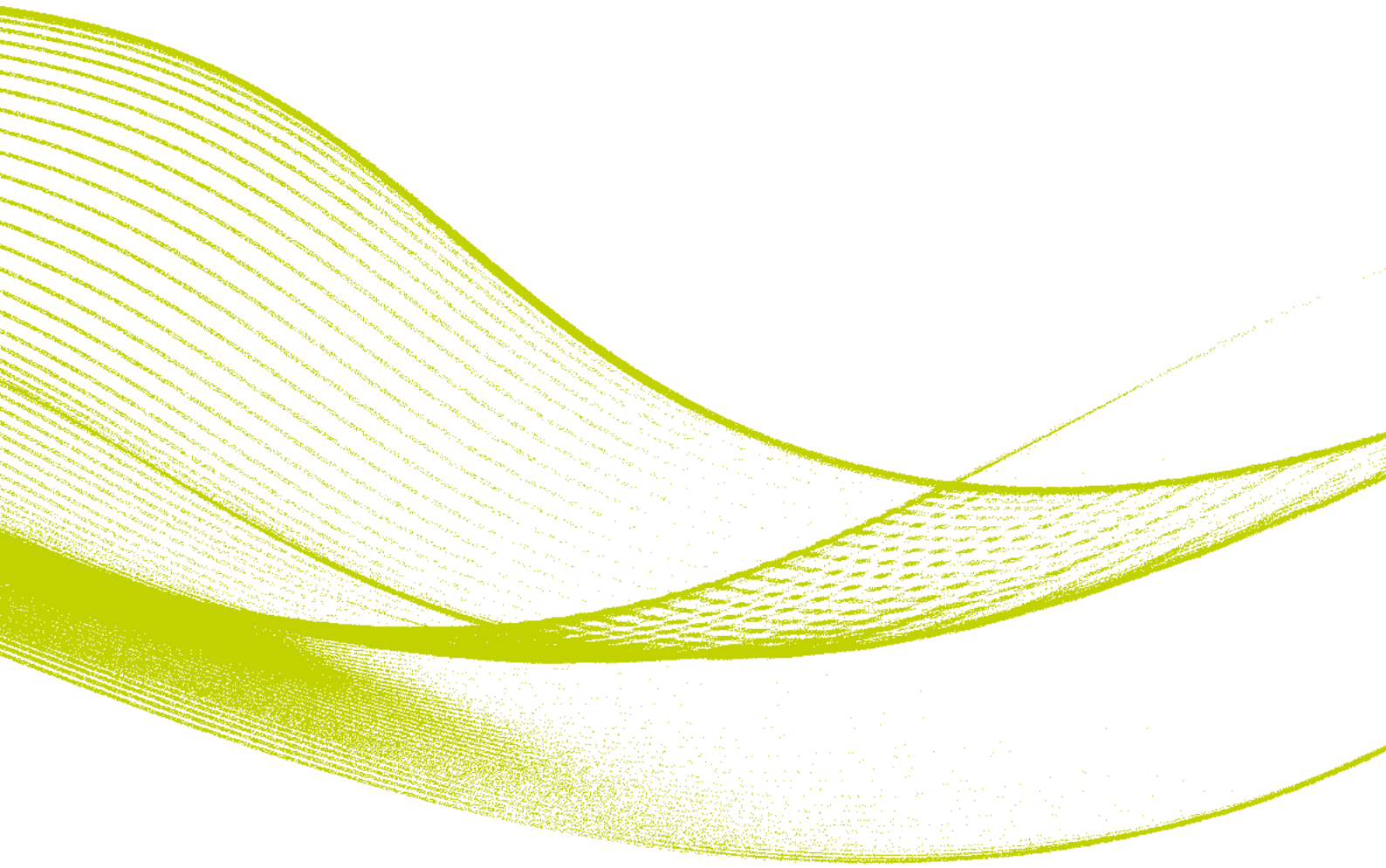

EN

Angelantoni
TECHNOLOGY FOR LIFE

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