

The climatic excellence

Excal

Hot Cold
Hot Cold Humidity
Environmental stress screening



Climats



Environmental Simulation

Manufacturing high quality chambers is our job

For more than 30 years, **Climats** has been developing climatic chambers enabling accurate and reproducible environments to be simulated.

Today, the climatic chamber **Excal** achieves to be a real concentrate of our knowledge and our expertise.

Strongly implanted in the sector of the embedded electronics, **Excal** benefits of numerous years of development in domains as varied as the automotive, the defence, the aeronautics, the space and the telecommunications.

Stemming from these dynamic environments, **Excal** is particularly dedicated to perform tests according to standards such as DIN, ISO, MIL or IEC.

Excal enables you to optimize your productivity while guaranteeing an outstanding level of performance and reliability.

As our new intuitive interface, **Spirale 3** allows you to approach the world of the environmental simulation as an "evidence". **Climats**, creator and inspirer of progress, especially in piloting, opens you the doors of our brand new system :

Endowed with cutting edge solutions (Real-time Intelligent Regulation), an amplified ergonomics (tactile piloting), multi-purpose and powerful utilities (User friendly, Easy Service, Full Communication) :

Spirale 3 naturally stands out as the reference piloting system.



Excal 140



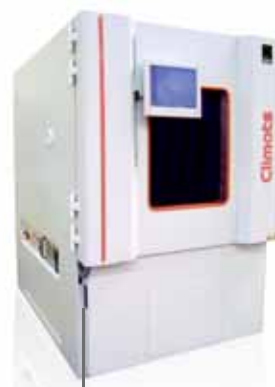
Excal 220



Excal 540



Excal 770



Excal 1400

to enhance your efficiency.

Ergonomy

- Adjustable height touch-screen
- 5 panes glass window
- Internal lighting
- Shelves and holders
- 2 technical portholes Ø80 mm with supple silicone bung
- Casters
- Centralized supplies connections

Technical expertise

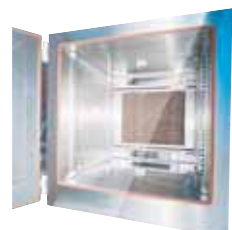
- Double air flow ventilation
- Adjustable air flow flaps
- Optimized homogeneity on load
- Optimized cooling unit
- Humidity trap
- Water or air condensing
- 9 probes for characterisation, 7 setpoints in dry mode, 9 setpoints in humid mode

Performances

- Accuracy and reliability
- Homogeneity and stability
- Reproductibility
- Auto-test
- Integrated maintenance management system

Piloting and communication

- 15" touch-screen
- Spirale3 software
- Industrial computer
- Network connection
- USB port
- RS 232
- Programmable logical inputs/outputs
- Safety socket
- Printer output

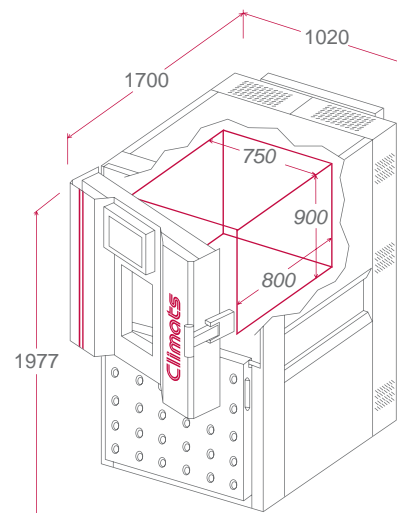


Perfectly sized, Excal offers :

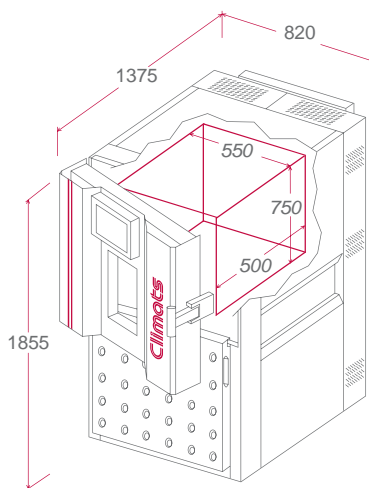
- Universal Test Volumes
- Extreme Temperature Range : from -90°C to +180°C (+200°C as an option)
- Climatic test : Relative Humidity from 10 % to 98 %
- The widest Standard Temperature variation rate : from 2°C/min to 20°C/min

T model : Hot Cold
H model : Hot Cold Humidity

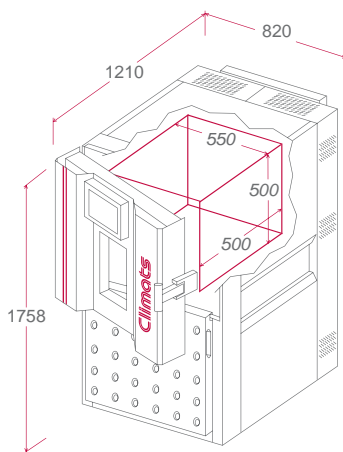
Excal 540 Multipurpose 540 litres



Excal 220 Small footprint 206 litres



Excal 140 Easy moving 138 litres



Reference	Minimum Working Temp (°C) ⁽¹⁾	Rate Down (°C/h) ⁽¹⁾	Rate Up (°C/h) ⁽¹⁾	Condensing Type ⁽¹⁾	Weight (kg)	Admissible dissipation kW/2 ⁽²⁾
Excal 1411-T/H	-40	4,5	9	water/air	400	1,5
Excal 1421-T/H	-70	7	9	water/air	430	1,5

Reference	Minimum Working Temp (°C) ⁽¹⁾	Rate Down (°C/h) ⁽¹⁾	Rate Up (°C/h) ⁽¹⁾	Condensing Type ⁽¹⁾	Weight (kg)	Admissible dissipation kW/2 ⁽²⁾
Excal 2211-T/H	-30	3,5	6	water/air	425	1,5
Excal 2213-T/H	-45	7	15	water/air	460	2,5
Excal 2221-T/H	-70	5	6	water/air	460	1,5

Reference	Minimum Working Temp (°C) ⁽¹⁾	Rate Down (°C/h) ⁽¹⁾	Rate Up (°C/h) ⁽¹⁾	Condensing Type ⁽¹⁾	Weight (kg)	Admissible dissipation kW/2 ⁽²⁾
Excal 5411-T/H	-30	2	10	water/air	540	1,5
Excal 5413-T/H	-42	4	10	water/air	570	3
Excal 5414-T/H	-50	9	12	water/air	645	4
Excal 5421-T/H	-65	2,5	10	water/air	585	1,5
Excal 5423-T/H	-75	7	10	water/air	635	3

Environmental Stress Screening						
Excal 2223-T/H	-80	12	15	water/air	525	2,5
Excal 2214-T/H	-50	10	15	water	530	3

Environmental Stress Screening						
Excal 5415-T/H	-50	11	15	water	715	6
Excal 5417-T/H	-55	12	15	water	780	7
Excal 5424-T/H	-80	11	12	water	775	5
Excal 5425-T/H	-85	18	15	water	910	7

T model : Hot Cold / H model : Hot Cold Humidity

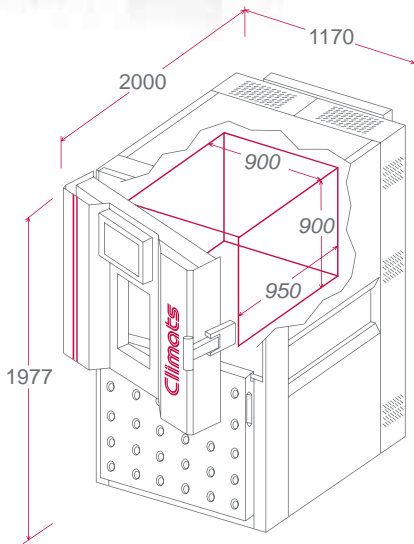


⁽¹⁾ Temperature rate and minimum temperature are given for water condensing units. Air condensing units performances can be slightly different, please refer to quotation or contact us.
⁽²⁾ Maximum calorific dissipation for temperature setpoint at +25°C and water temperature at +18°C. ⁽³⁾ Contact us.



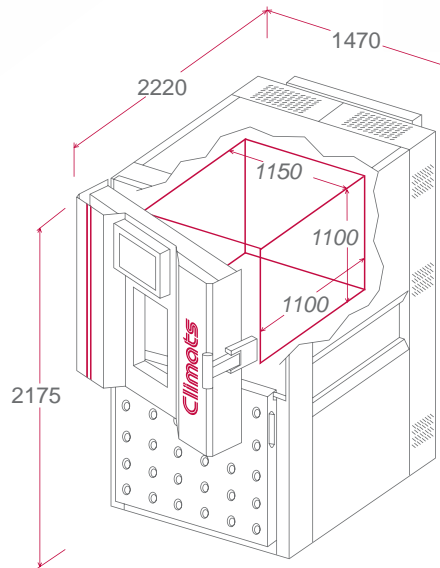
Excal 770

High-performance
770 litres



Excal 1400

Powerful
1416 litres



Reference	Minimum Working Temp (°C/h)	Rate Down (°C/h)	Rate Up (°C/h)	Condensing Type (l)	Weight (kg)	Admissible dissipation kW/h ²
Excal 7713-T/H	-40	3	6	water/air	605	2,5
Excal 7714-T/H	-45	7	8	water/air	710	4
Excal 7715-T/H	-50	8	15	water	790	6
Excal 7723-T/H	-70	5	6	water/air	700	3
Excal 7724-T/H	-75	8	8	water	840	5
Environmental Stress Screening						
Excal 7717-T/H	-50	10	15	water	845	7
Excal 7718-T/H	-50	15	20	water	875	>10 ⁽³⁾
Excal 7725-T/H	-80	15	15	water	980	7
Excal 7727-T/H	-85	17	15	water	1090	8
Excal 7728-T/H	-90	20	20	water	1140	>10 ⁽³⁾

Reference	Minimum Working Temp (°C/h)	Rate Down (°C/h)	Rate Up (°C/h)	Condensing Type (l)	Weight (kg)	Admissible dissipation kW/h ²
Excal 14013-T/H	-35	2	3,5	water/air	920	2,5
Excal 14014-T/H	-45	4	5	water/air	990	4
Excal 14015-T/H	-45	6	7	water	1070	6
Excal 14017-T/H	-50	8	7	water	1130	7
Excal 14023-T/H	-70	2	3,5	water/air	985	2,5
Excal 14024-T/H	-75	4,5	5	water/air	1125	4
Excal 14025-T/H	-75	7	7	water	1250	7
Excal 14027-T/H	-85	8	7	water	1375	8

Environmental Stress Screening						
Excal 14028-T/H	-85	10	10	water	1425	>10 ⁽³⁾
Excal 14018-T/H	-50	10	10	water	1175	>10 ⁽³⁾
Excal 14019-T/H	-55	14	15	water	1335	>10 ⁽³⁾
Excal 14029-T/H	-85	17	15	water	1665	>10 ⁽³⁾

T model : Hot Cold / H model : Hot Cold Humidity

Measurement accuracy allows to reach very high regulation stability : from +/-0,1°C to +/-0,3°C.

Homogeneity in test space, according to IEC EN 60068-3-5, is from +/- 0,5°C to +/- 1,8°C .

Hygrometry produced with water bath regulated at dew point temperature : No maintenance, Reliability, Accuracy, Regulation Stability between +/- 1% to +/- 3%.

Relative Humidity from 10% to 98% in temperature range from +10°C to +90°C

Nominal tests conditions : empty chamber without options. Water condensing type ("HE" or "TE"), clean cooling water at temperature of +18°C with a flow and pressure rate (2,5 bars mini) matching the technical specifications of the chamber.

Main power supply of 400V triphase 50 Hz.

The average temperature rate is given in K/min from +125 °C to -25°C on the sensor located in the air flow.

Temperature rates are given at +/- 2°C from the setpoint.

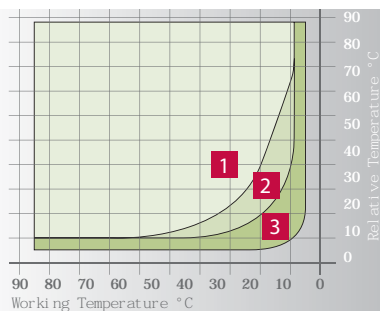
Calibration values factory made : 7 setpoints in dry mode, 9 setpoints in humid mode.

Useful dimensions do not include the thickness of shelves rack (25mm on each side).

Standard Range **1**

Standard Range for short time tests **2**

Standard range with air dryer **1 + 2 + 3**



+ Over 100 options available, customize your system

→ Equipment

Technical portholes from 80 to 200 mm with silicone bungs
Cabinet side notched porthole
Reinforced shelves
Customer painting colour
Right or left Hinges
Gloves port door

→ Performances extension

PT100 sensor for product temperature regulation
Onboard and controlled air dryer system
N2 inerting with or without flowmeter
Minimum temperature extension to -90°C with LN2 injection
Maximum temperature to +200°C
Air flow variator

→ Additional acquisition system

Remote Industrial Computer
Humidity capacitive sensor for measurement or regulation
Additional measurement channels card (24 sensors PT100 / 16 thermocouples / data acquisition system HP 20 channels, 16 input/output contacts)
Digital communication IEEE 488 type
Digital communication RS422/485 type
Supervision

→ Safeties

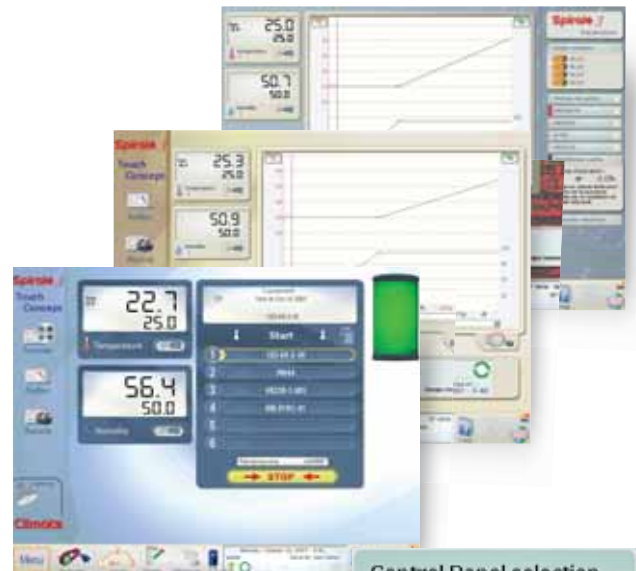
Emergency stop
Additional thermal fuse
Door opening alarm
Safety socket 220 mono 10/16 A
Min/Max temperature electronical safety independent of regulation

→ Complementary services

Water chiller
Demineralized water tank
Remote Air condenser with fan variator
Remote control through internet for diagnosis and support
Installation

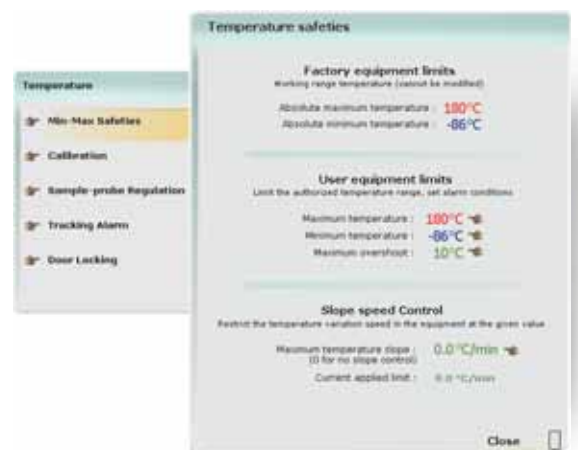
ExcAl range is supplied with the latest generation of our piloting software **Spirale 3**

Your control panel as well as all the components (tests manager, program editor) benefits from a remarkable ergonomics : new user interface, simplicity of use, concern for detail and optimized design for the use of the touch-screen.



3 user levels control board

You choose the most convenient interface : production, laboratory, advanced tests



New Program Editor : Access and commands management with 8 password protected levels.

Excal Spirale 3

advantages

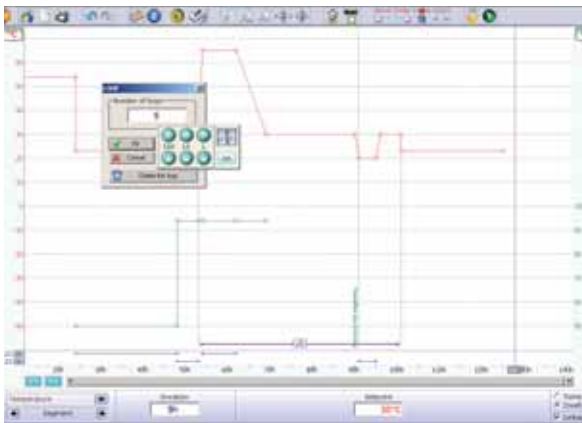
AutoTest

Excal offers you this exclusive feature: check / test refrigerating unit components, compressors performances, gas load status, etc... This autotest is possible thanks to the technology of Spirale3 and the numerous sensors installed on the unit.



Traceability with VisuWin.

VisuWin, the most friendly and complete tests manager offers you an easy and accurate traceability. Editing Statistics, Exporting data, Analysing tests (temperature rate on specific range, stability on stage) become quick and easy applications.



In this new version for Spirale 3, our program Editor ProgWin benefits of numerous improvements, from a modernized user interface, including the touch-screen: "draw your profiles with a finger or with a stylus".

ProgWin is the only program editor offering features as **powerful** as :

- "Run" mode profile display (loops operation)
- Asynchronous channels programming
- Up to 64 programmable channels
- Editor Assistant
- Profiles Models management
- Wait-For function
- Live comments
- On-Off on logical outputs
- "undo" function

Visit our new website and enjoy all other technical innovations of Spirale 3
www.climats-tec.com

Preventive maintenance

Every component is individually watched (electrovalves, compressors) by action or duration counters. A global synthesis table allows to plan the preventive maintenance operations.

Go beyond with Spirale 3

User Script

Script is the basic language of Spirale 3. It manages the numerous functions available with your climatic chamber. This powerful tool offers an integrated help enabling you to write your own development. You can create your own specific automatisms, safeties, or make of your climatic chamber a fully integrated test bench.

Additional measurements

Your chamber can be connected to data acquisition systems, to RS232/modBus/IEEE488 equipments. We offer a complete range of peripherals and additional inputs/outputs for those applications.

Network connection

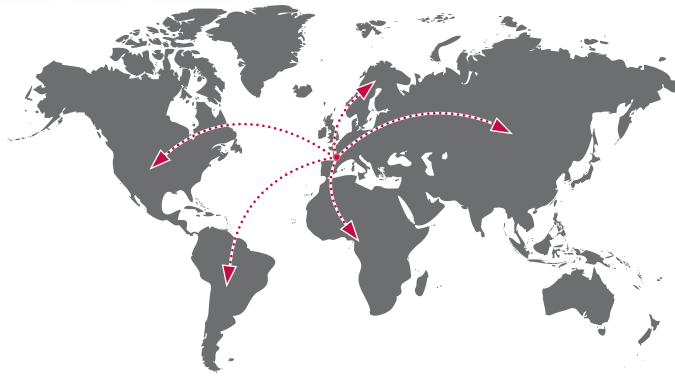
One more exclusive Spirale 3 feature : Excal Remote control is as easy as creating a shortcut on Windows desktop. More friendly : You don't need to install any software on your PC to control the chamber.

Supervision

Manage all your climatic equipment, new or old, from only one workstation : watching tools, profile edition, test reports edition, sms/emails alarms and many other utilities will be accessible on all your tests chambers. Ask us !



International network



EUROPE ASIA AMERICA AFRICA

As our key development strategy, Export relies on an overseas representatives network. Our partners market and service Climats equipment all over the world ; they are fully skilled in our technology and involved in long term relationship.



Climats

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A complete range of climatic test equipments



- 1 - Ovens from 25 to 15000 litres
- 2 - Benchtops from 34 to 150 litres
- 3 - Stress screening chamber
- 4 - Thermal shocks from 65 to 500 litres
- 5 - Chambers combining climatic and vibrations tests
- 6 - Walk-in Chambers
- 7 - Customized equipments upon specifications