



**Global Simulator**  
for Temperature and Humidity Reliability Testing

## Chamber Design

**RESISTIBLE.** The external bodywork is a single shell construction in zinc-coated steel with a powder-coated finish providing utmost protection against ambient conditions prevailing in factory but also laboratory environments.

**ENCLOSED.** The test chamber comprises a vapour tight welded stainless steel inner test space container. Numerous supports allow the insertion of shelves at various heights for an optimum utilization of the available test space. Double emission-free silicone gaskets combined with a self-tensing lock mechanism provide an effective seal between test space and door.



**FLEXIBLE.** As the control and air conditioning compartment are located in the back of the chamber, entry ports are possible from 4 sides: left/right side wall, door, and ceiling. All temperature and humidity chambers feature one 50 mm port on the left and one 125 mm port on the right hand side wall of the test space as standard.

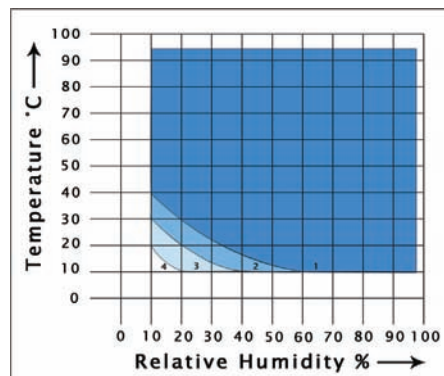
**INSULATED.** Minimum heat loss is achieved by compacted mineral wool insulation within the chamber wall cavity.

## Temperature and Humidity System

**TEMPERED.** The air-handling compartment at the rear of the test chamber takes care on highly accurate air conditioning. The circulating air is cooled while flowing over a patented heat exchanger and heated by electrical resistance heaters in order to achieve the desired set values in the shortest possible time. An intelligent air flow system guarantees utmost spatial as well as temporal accuracies even with the test space loaded.

**HUMIDIFIED.** The innovative humidification water bath humidifies the air stream assuring rapid and aerosol-free humidity control while adopting the dehumidifying function as well. A proprietary psychrometric measurement system allows high accuracy over a long operational lifetime. The water bath technology combined with the innovative sensor assures a highly accurate climatic control in an extensive climatic range.

**TROUBLE FREE.** The built-in humidification water reservoir comes with a low water level alarm as well as an automatic water replenishment feature.



### HUMIDITY GRAPHS.

1. Standard range
2. Dewpoint range +4°C to -3°C discontinuously
3. Dewpoint extension from -3°C to -12°C controlled (option: compressed air dryer)
4. Dewpoint extension to -20°C controlled (options: compressed air dryer + capacitive system)

## Operation and Control

**TOUCH ME.** A colour touch panel represents the interface between the operator and the test chamber's SIMPAC\* controller. Self-explanatory graphic symbols create an intuitive user environment making the manual as well as automatic operation of the test chamber a breeze. Even complex test profiles can be defined with ease. A selection of international testing standards is pre-programmed and readily available.



**ACCURATE.** The SIMPAC\* control system is an in-house development and guarantees precise control processes even under varying test space loads.

**SAFE.** The SIMPAC\* not only supervises the highly accurate control of set values for temperature and humidity but also monitors all internal functions of the test chamber during operation. Whenever necessary, the SIMPAC\* takes protective action in favour of the operator, test chamber, and even the test specimen.

**COMMUNICATIVE.** The SIMPAC\* is a communication wonder hardly found elsewhere: TCP/IP, ASCII-Interface, RS 232, RS 485, IEEE (optional), Digital-I/Os, ... as well as USB interface for stick or printer.

## Controller Highlights

- Storage for 100 programs with a total of 1000 program steps
- Loop and Call functions
- Digital-I/Os
- Remote monitoring
- Multi-languages: Chinese, German, English, French, Italian as well as Korean

## Test Specimen Access

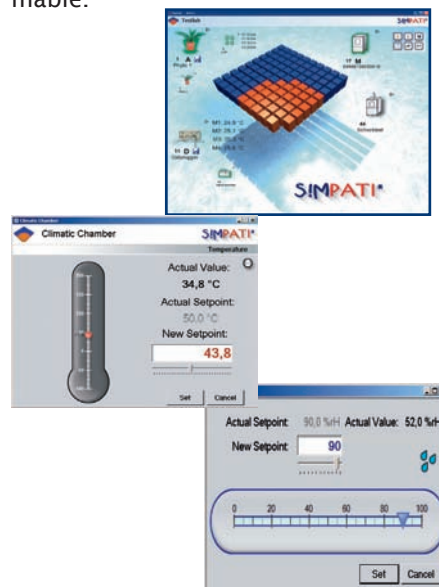
**ACCESSIBLE.** The single-handed operated door, hinged on the left hand side, provides full access to the test space. A multilayered heated window combined with an internal test space illumination allows great visual access to the devices under test at any time. Entry ports come with thermal breaks and stoppers for optimum sealing.

**TIGHT AND SAVE.** The door lock mechanism is a small innovation: an even pressure is maintained on the door seal while still conforming to all current safety standards.



## SIMPATI\*

**PROGRAM-DOCUMENT-ARCHIVE.** Interfacing with Excel and various word processors, SIMPATI\* significantly eases the compilation of sophisticated test reports. This applies for multiple chambers as SIMPATI\* allows the monitoring of up to 99 test chambers via a RS 485 or TCP/IP network. Graphical program editors make even complex profiles easily programmable.



**INSTALLABLE.** The SIMPATI\* networking software runs on all recent MS Windows-OS including Vista and comes with every PRO version as standard.

## Standard Chamber Features

- Observation Window with size of (W) 450mm X (H) 600mm
- Ethernet Interface
- Serial RS 232 C interface
- 4 Potential-free digital I/O channels
- Solid state heater relays
- 2 Soft silicon plugs
- 1 year warranty period
- 2 Port holes of 50 mm and 125 mm diameter on the left and right hand side, respectively
- 1 Shelf
- Movable Design
- Adjustable specimen protection device with separate sensor (specimen protection according to EN 60519-2, 1993)
- Dehumidifier coil to prevent forming of condensation on test specimens
- SIMPAC\* equipped with a high performance CPU and threshold monitoring system
- Patented psychrometric humidity measurement system (C series)
- Water shortage indicator (C series)
- Special temperature conditioning system at climatic operation for best temperature and humidity constancies (C series)

## Options

- SIMPATI\* Software
- Additional potential-free digital and analog I/O channels
- Data logger
- Additional shelves
- Additional port holes of 50 mm, 80 mm, and 125 mm diameter
- Compressed air dryer
- Water bath cleaning device
- Nitrogen purging system
- Water-cooled refrigeration system
- Pair of hand holes with silicon gloves
- 85°C/85% r.h. long time testing
- Spare parts package
- Extend Warranty Period
- After-Sales Service Contract



Model		T/C 180, -40	T/C 340, -40 T/C 340, -70		T/C 600, -40 T/C 600, -70		T/C 1000, -40 T/C 1000, -70		T/C 1500, -40 T/C 1500, -70	
<b>Chamber Design</b>										
Test Space Volume	Litres	190	335		600		990		1540	
Test Space Dimensions	Height (h)	750	750		950		950		950	
	Width (b)	580	580		800		1100		1100	
	Depth (t)	450	765		800		950		1475	
Chamber Dimensions	Height (H)	1796	1796		2048		2048		2048	
	Width (B)	870	870		1090		1390		1390	
	Depth (T)	1475	1790		1845		1995		2520	
<b>Test Parameter Temperature (T and C Series)</b>										
Min. Temperature	°C	-40	-40	-70	-40	-70	-40	-70	-40	-70
Max. Temperature	°C	+180								
Temperature changeing rate heating	K/min	4.0	3.2	3.0	4.0	4.0	4.0	4.0	3.5	3.5
Temperature changeing rate cooling	K/min	3.5	3.5	2.7	3.0	2.5	3.0	2.5	2.5	2.3
Temperature Deviation in time	K	±0.1 to ±0.5								
Temperature Deviation in Space	K	±0.5 to ±2.0								
Max. Heat Compensation	W	2000	2000	1500	2500	2000	2500	2500	2500	2500
Calibrated Values	°C	+23 and +80								
<b>Test Parameter Humidity (C Series only)</b>										
Temperature Range	°C	+10 to +95								
Temperature Deviation in time	K	±0.1 to ±0.3								
Temperature Deviation in Space	K	±0.5 to ±1.0								
Humidity Range	% r.h.	10 to 98								
Dew Point Temperature Range	°C	-3 to +94								
Humidity Deviation in time	% r.h.	±1 to ±3								
Max. Heat Compensation	W	400								
Calibrated Values	°C/% r.h.	23/50 and 95/50								
<b>Supplies and Connections</b>										
Nominal Voltage	V	3/N/PE AC 380/400V ±10% 50Hz								
Max. Nominal Power	kW	3.5	3.5	4.4	7.8	9.1	11.5	13.8	11.5	13.8
Max. Nominal Current	A	12	12	12	15	19	22	29	22	29
Acoustic Pressure Level	dB(A)	58	58	60	66	66	66	70	66	70
Chamber Weight	kg	~425	~475	~520	~610	~675	~850	~950	~930	~1110
Condenser		air-cooled (water-cooled as option)								

**Remarks:**

- Temperature and humidity performance data is taken at the control sensor with an empty test space
- Temperature Deviation in time are measured after stabilization at set values
- Special voltages upon request
- Temperature changeing rates are evaluated according to IEC 60068-3-5
- Test space dimensions in h\*w\*d in mm
- Chamber dimensions in H\*W\*D in mm (incl. touch panel)
- The performance values refer to +25°C ambient temperature

This literature is for general guidance only. It does not constitute recommendations, representations or advice and nor is it part of any contract. Our policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.

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