

Pack Nature in a  
**BIG BOX**



**MCS Temperature and Climatic  
Walk-in Chambers**

## MCS Concept

**THE CHALLENGE.** Ever shorter time-to-market demands at unprecedented quality levels challenge not only manufacturers of small but also large sized products such as displays, automotive components, and photo-voltaic panels. Furthermore, technical as well as economical demands for higher testing throughput naturally relates to larger test space capacities.

**MODULAR DESIGN.** MCS stands for **Modular Construction System**



and reflects a break-through in the area of standardized walk-in chambers. Years of experience in building standardized small/medium-sized cabinets could be successfully transferred to the MCS jigsaw-like walk-in chamber concept.

**YOUR CHOICE.** The MCS concept offers a total of 48 standardized off-the-shelf solutions meeting various customer requirements in regard to

- temperature/humidity control
- test space volume
- cooling rate
- heating rate

**YOUR BENEFITS.** Developing and manufacturing environmental testing chambers has been our passion for more than 75 years relating to

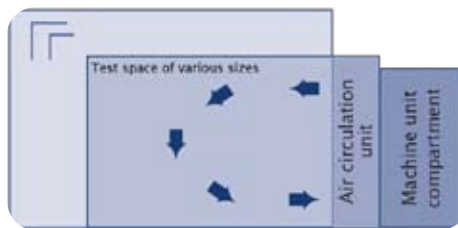
- standard and field-proven off-the-shelf modules
- short delivery times
- favorable pricing
- fast and easy at-site installation and commissioning
- great flexibility

**TESTED.** The functional modules are tested at the factory prior to the at-site installation and final connection to the test chamber.

## MCS Technology

**MODULAR CONCEPT.** A MCS standardized walk-in test chamber comes in four clearly defined modules:

- air-conditioning compartment
- machine unit
- switch cabinet with controller
- test space



**AIR-CONDITIONING COMPARTMENT.** This module includes control sensors, air-blowers, as well as the cooling/heating and humidification technology (C-version only).

**MACHINE UNIT.** The machine unit comprises all mechanical cooling components being clearly visible and easily accessible for maintenance. The machine unit is positioned behind the chamber's air-conditioning compartment on a stable base frame fully pre-assembled and tested at the factory.

**SWITCH CABINET.** In the CE compliant switch cabinet beats the heart of the test system: the SIMCON/32.NET controller--the finest controller for environmental testing chambers on the market. A color touch panel, various interfaces, and a sophisticated protection system assure highest user comfort at unbeaten control accuracy and system safety.

**TEST SPACE.** The insulated test chamber is made of pre-fabricated sandwich wall elements. The solid wall, floor and ceiling panels are self-supporting and easy to install with foamed-in speed-lock joining mechanisms. The test chamber is available in 5 standard sizes (8, 12, 16, 21, and 28 m<sup>3</sup>). Thanks

to a well-defined interface, the MCS systems allows the easy at-site connection to cell elements of various suppliers.

**NOMENCLATURE.** The test chambers' characteristics are clearly identifiable by the nomenclature of the test system.

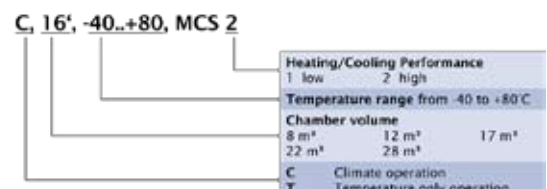
**INSULATION.** An excellent mechanical rigidity and highly efficient thermal insulation are ensured by a pressurized Polyurethane foamed layer sandwiched by sheet metal plates from two sides.

**SAFETY.** A pressure compensation system is fitted to the chamber wall to prevent excess pressure and low pressure in the chamber.

**DOOR ACCESS.** The door is constructed and insulated in the same way as the walls. A door frame heating system prevents icing and condensation at the door frame. A multiple-glazed and frame-heated window (600\*450 mm) is installed in the door (1900\*900 mm) at eye-level.

### STANDARD FEATURES.

- Door (1900\*900 mm)
- Window (600\*450 mm)
- Test space lighting (IP 65)
- Stainless steel floor (30,000 N/m<sup>2</sup>)
- Two access ports (ø50 and ø125 mm)
- SIMCON/32.NET controller with color touch panel
- Steam humidifier (C-version only)
- Water-cooled condenser
- Test specimen protection



## MCS Control System

**USER INTERFACE.** A color touch panel represents the interface between the operator and the walk-in chamber's SIMCON/32.NET controller. Self-explanatory graphic symbols create an intuitive user environment making the operation of the test chamber a breeze.

**CONTROL SYSTEM.** SIMCON/32.NET is a self-monitoring, digital



32-bit measuring and control system specially designed for use in environmental test chambers. The control system handles all functions required to achieve utmost accuracy, reproducibility as well as specimen protection.

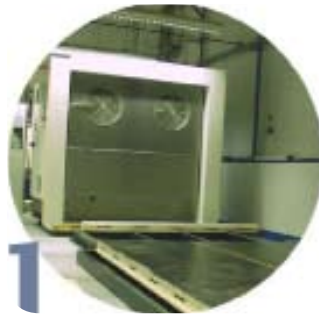
**FUNCTIONALITY.** The SIMCON/32.NET controller together with the color touch panel offers a comprehensive list of outstanding features:

- Touch panel, adjustable in height
- Program memory for up to 100 programs with a total of 1000 program steps, 250 loops and 9999 program cycles
- Potential-free digital I/O channels for customized control integrations
- Integrated threshold value monitoring system for temperature and humidity

**INTERFACING.** The system comes with serial RS 232 C interface as well as a TCP/IP interface for connecting to a computer monitoring system. RS485, IEEE 488 present optional solutions.

## Installation & Commissioning

**STEP 1.** The air-conditioning unit is aligned with the floor elements.



**STEP 2.** Mounting of wall panels.



**STEP 3.** Completion of electrical connections.



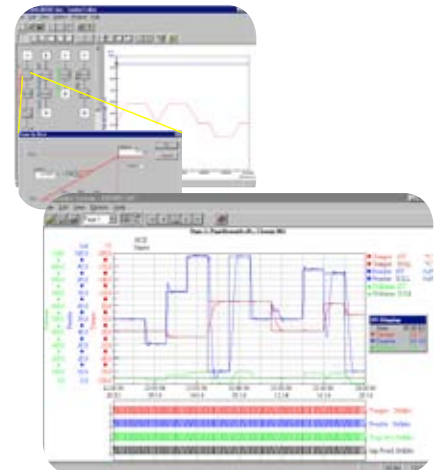
**STEP 4.** Finally assembly and commissioning.



## SIMPATI® Networking

**NETWORKING AND CONTROL.** Optionally, test chambers can be networked and controlled with the innovative SIMPATI® software package running on a common Windows operating system. Programs created in graphical editors are transferred to the measuring and control system SIMCON/32.NET of the test chamber via serial or TCP/IP communication interfaces.

**MONITORING.** Extensive monitoring, data logging, and documentation features assist the user in compiling comprehensive test reports with ease.



## Options

**CUSTOMIZE IT.** A set of standardized options is available for convenient tailoring with neglectable impact on the system's delivery time.

- Air-cooled condenser
- SIMPATI networking software
- TCP/IP, RS485, IEE 488 interfaces
- Demineralizing unit for humidification water
- Additional entry ports
- Multiple sensor readings
- Independent data logger
- Sound-proofed machine unit
- Controllable fan-speed
- Additional observation window
- Access ramps
- Non-standard door designs

MODELS		T 40008 C 40008	T 40012 C 40012	T 40017 C 40017	T 40022 C 40022	T 40028 C 40028					
<b>Chamber Design</b>											
Volume	m <sup>3</sup>	8	12	17	22	28					
Test space dimensions	Height	2,000	2,000	2,250	2,250	2,250					
	Width	2,000	2,000	2,500	2,500	2,500					
	Depth	2,056	3,040	3,032	4,016	5,000					
External dimensions (including machine unit and base frame)	Height	2,240	2,240	2,490	2,490	2,490					
	Width	2,240	2,240	2,740	2,740	2,740					
	Depth	3,800	4,780	4,900	5,880	6,860					
Floor load	N/m <sup>2</sup>	30,000									
Wheel load	N/4 m <sup>2</sup>	1,500									
<b>Test Parameters (without thermal load)</b>											
Temperature	°C	-40 to +80									
Humidity	% r.h.	15 to 95 (at +10 to +60 °C)									
Dew point	°C	+4 to +59									
<b>Cooling-down   Heating-up Rates (according IEC 60068-3-5)</b>											
Vario 1	K/min	4.5	4.5	3.7	3.7	2.7	2.7	2.1	2.1	1.7	1.7
Vario 2	K/min	5.5	5.5	4.5	4.5	3.2	3.2	2.6	2.6	2.0	2.0
<b>Deviations in Time and in Space (according to IEC 60068-3-5)</b>											
Temperature (in time)	K	±0.1 to ±0.5									
Temperature (in space)	K	±0.5 to ±1.0									
Humidity (in time)	% r.h.	±1.0 to ±5.0									
<b>Mains Supply</b>											
Nominal Voltage		3/N/PE AC 380/400 V ±10%, 50 Hz									
<b>Rated Power (C/T), Rated Current (C/T), Fuse Protection</b>											
Vario 1	kW	33/29									
	A	57/52									
	A (fuse)	63 (slow blow)									
Vario 2	kW	45/41									
	A	79/74									
	A (fuse)	100 (slow blow)									
<b>Cooling Water Requirements</b>											
Vario 1	m <sup>3</sup> /h	max. 6.5									
	m <sup>3</sup> /h	avg. 3.0									
	°C	max. +27									
Vario 2	m <sup>3</sup> /h	max. 10.5									
	m <sup>3</sup> /h	avg. 4.5									
	°C	max. +27									
<b>Sound Pressure Levels (with optional reduction kit)</b>											
Vario 1	dB(A)	69 (62)									
Vario 2	dB(A)	72 (65)									

- Temperature and humidity performance data is taken at the control sensor with an empty test space
- Fluctuations are measured after stabilization at set values
- Special voltages upon request
- Gradients are evaluated according to IEC 60068-3-5

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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