

The choice is yours . . .  
Space for large test objects  
Walk-in temperature and climate test chambers type DU/SD

# The other dimension . . .



## If your standard test chamber is too small . . .

The function and durability of all products can be negatively influenced by various climate conditions.

Our DU and SD series are a range of temperature and climate test chambers especially developed for large test specimens that cannot normally be tested in a standard-sized test chamber.

## Some outstanding features . . .

- Size and design mean optimal loading of test specimens
- Modular construction, variable in size and equipment for customer-specific application
- Low costs for investment, operation and maintenance
- Environmental-friendly materials and refrigerants.



## The application . . .

The DU/SD series of temperature and climate test chambers enable reproducible climate and temperature testing in all fields of research, development, production and quality control.

The efficient and homogenous conditioning of the test chambers enables the best temperature and humidity constancy to be achieved, leading to reliable results regardless of the shape and nature of the test object.

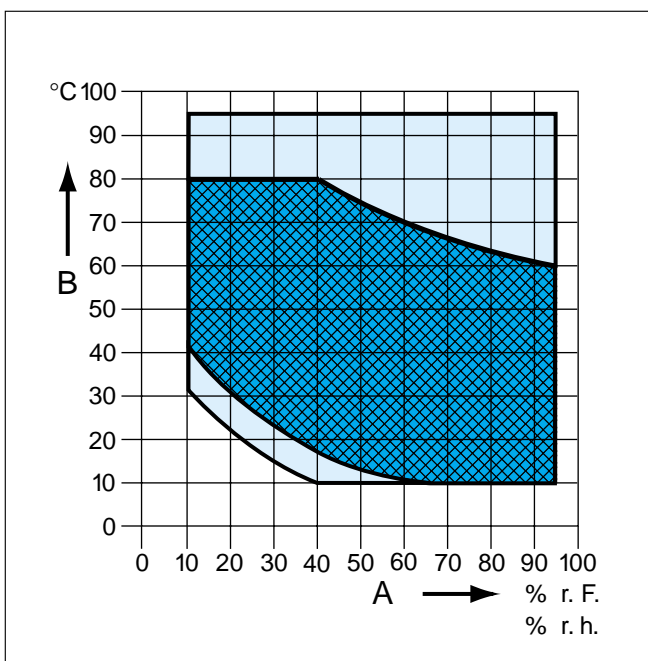
Temperature and climate working range have been designed to fulfil all relevant standards such as DIN, EN, ISO, MIL, IEC, DEF and ASTM.



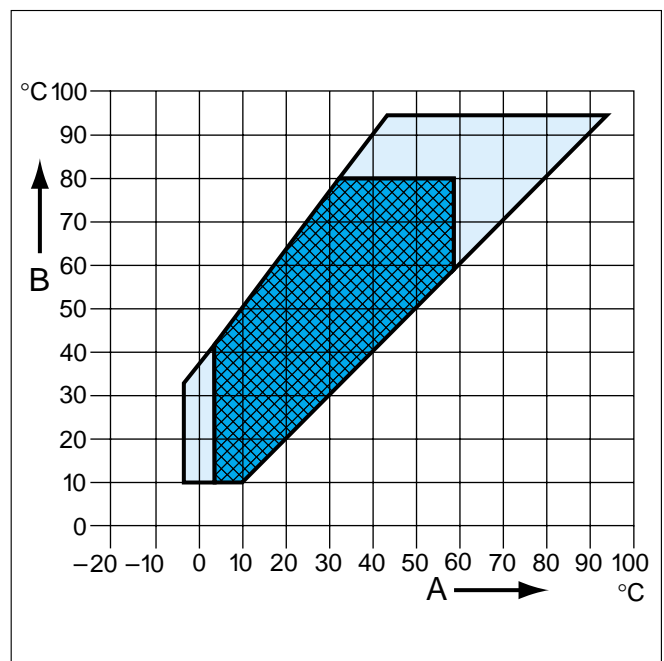
... with the XXL test chamber



### Climate working range



A = relative humidity [%]...B = test chamber temperature [°C]  
 ■ Standard working range    □ Extended working range



A = dew point temperature [°C]...B = test chamber temperature [°C]  
 ■ Standard working range    □ Extended working range

# Function and technique . . .

## Function

An air-stream conditioned to precisely the required temperature or climate set values flows constantly through the test chamber.

All components necessary for conditioning the air are contained in the circulation air channel installed on the test chamber rear wall.

The circulating air is extracted from the test chamber and passed over a dehumidifying heat exchanger. The air is then passed through a finned heat exchanger, where it can be cooled if required. A special control prevents condensation from forming on the heat exchanger during climate operation and guarantees optimum temperature and humidity constancy.

Humidification of the test chamber air is via a steam humidifier.

A heating element installed in the air flow after the heat exchanger is used to heat the air. The large fans on the test chamber rear wall transports the conditioned air back into the test space, providing intensive air circulation.

A platinum resistance thermometer Pt 100 (as per DIN IEC 751) measures the temperature and a capacitive humidity sensor measures the relative humidity in the test chamber.

## Design

The unit consists of the following assemblies:

- **Insulated test chamber** (sandwich elements, metal-coated on both sides)
- **Temperature/climate conditioning unit**
- **Machine compartment**
- **Switch cabinet**
- **SIMCON/32\* control system with touch panel.**

The wall elements are highly stable and absolutely vapour-tight.

The wall, floor and ceiling elements are CFC-free, free-standing and easy to assemble, the floor is of non-slip design.

The design and seal on the test chamber door ensure that the chamber is absolutely sealed, even under the most extreme climate conditions.

A special handle opens the door from the inside, thus fulfilling all safety regulations.



A heater prevents condensation from forming on the door frame.

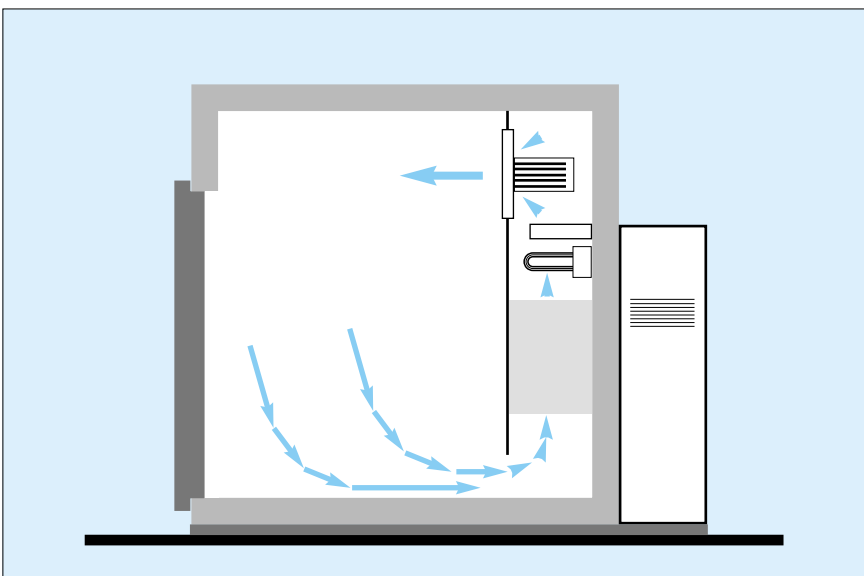
The test space is provided with lighting, an external switch is located next to the door.

All chambers are fitted with two access ports. These ports are located beside the test chamber door and can be used for inserting measuring and control cables, other power connections or auxiliary equipment.

The **climatisation system** is tailored to the test chamber size. Homogenous air circulation guarantees powerful and even climate conditioning throughout the chamber. All specimens are subjected to the same conditions, regardless of form or composition.

The **machine compartment** is mounted on a base frame next to the test chamber and consists of the refrigeration unit with condenser and steam generator.

The wiring conforms to accepted technical standards, the accident prevention regulation "Electrical Equipment and Means of Production" (VBG 4) and appropriate VDE regulations.

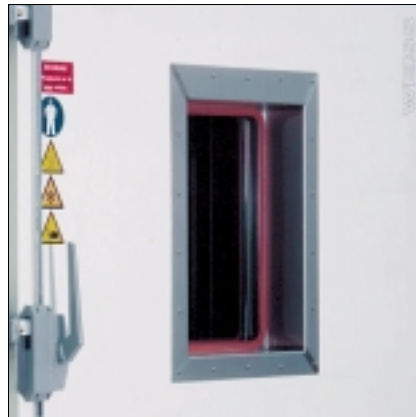




# Detailed equipment data . . .

## Standard model

- Special conditioning system in climate working range for high temperature and humidity constancy
- 2 access ports, 50 mm located beside the door
- Adjustable upper and lower temperature safety cutout as per EN 60 519-2 (1993) with separate sensor, thermic safety class 2
- Contactless switching of heater
- Switch cabinet light with safety socket for servicing
- Water-cooled condenser
- Environmental-friendly refrigerant with relative ozone depletion potential = 0
- Programme control system **SIMCON/32\***
- Touch panel with simple, menu-controlled operation (no programming knowledge required)
- 32 bit processor.



## Options

- Observation window 600 x 400 mm, surface heated
- Demineralisation unit for humidifier water
- Freely adjustable air circulation fan speed
- Emergency alarm
- Safety sockets 230 V or 400 V
- Other voltages and frequencies
- Additional Pt 100 sensor
- Registration of temperature and humidity via printer
- **SIMPATI\*** software package
- Interface adapter for IEEE 488/RS 485
- Data cable for max. 1000 m distance from PC to test chamber, using RS 485 interface
- Digital I/O
  - 4 inputs and 4 outputs (24 VDC) potential-free contact, wired to terminal strip, for free application within programmes or in manual operation
  - a potential-free contact for malfunction signals and operation
- Temperature range extension to +180 °C
- Dewpoint temperature range extension to –3 °C
- Psychrometric humidity measuring system
- Air-cooled condenser
- Additional access ports 50 and 100 mm, other sizes on request
- Machine with self-monitoring system, extended operation circuitry for lifetime optimisation of refrigeration compressors.

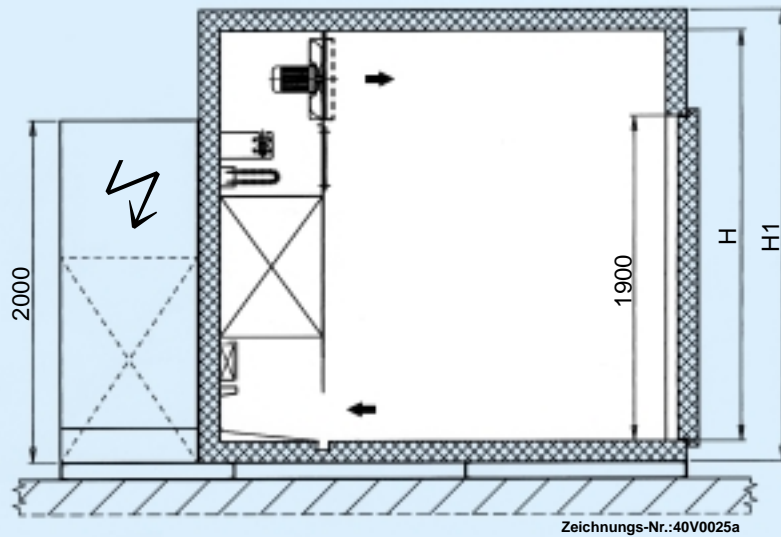
## Technical data

Standard model Temperature test chambers	DU...'/+5	DU...'/40	DU...'/60
Temperature working range			
Max. temperature <sup>1)</sup>	←	+80 °C (+95 °C)	→
Min. temperature <sup>1)</sup>	+5°C	–40 °C	–60 °C
Temperature constancy, in time	←	≤ ±1 K	→
Climate test chambers	SD...'/+5	SD...'/40	SD...'/60
Temperature working range			
Max. temperature <sup>1)</sup>	←	+80 °C (+95 °C)	→
Min. temperature <sup>1)</sup>	+5°C	–40 °C	–60 °C
Temperature constancy, in time	←	≤ ±1 K	→
Climate working range			
Max. temperature <sup>1)</sup>	←	+80 °C (+95 °C)	→
Min. temperature	←	+10 °C	→
Dewpoint temperature range			
Max. temperature	←	+59 °C (+94 °C) <sup>2)</sup>	→
Min. temperature	←	+4 °C	→
Humidity range			
Humidity range	←	10 ... 95 % r. h.	→
Humidity constancy, in time	←	≤ ±5 % r. h.	→
Electrical connection for DU and SD	← 400 V/3 PH + N + PE/50 Hz →		

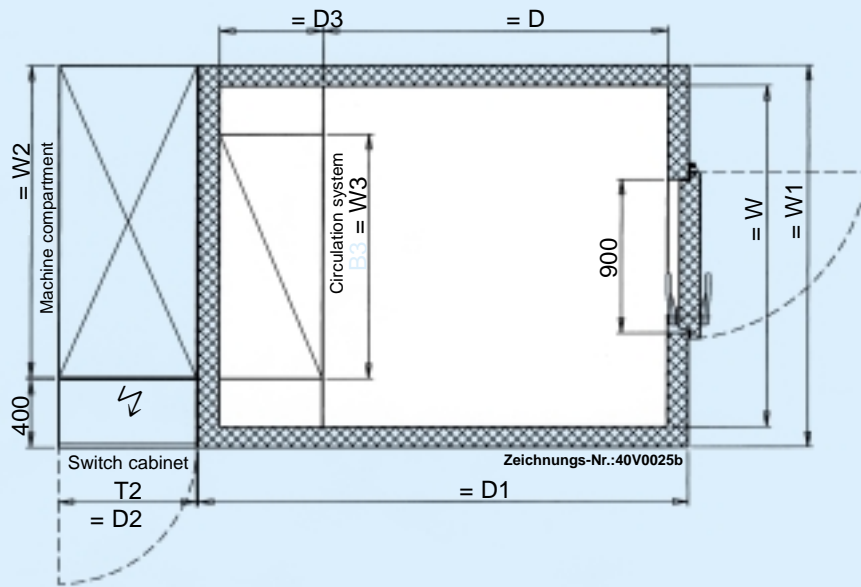
<sup>1)</sup> depending on test requirements ...<sup>2)</sup> only if climate working range is extended to +95 °C  
We reserve the right to make alterations.

... for variable sizes

SIDE VIEW



TOP VIEW



## Dimensions

Typ			DU/SD/8'/'...		DU/SD/12'/'...		DU/SD/16'/'...		DU/SD/21'/'...		
			to -40 °C	lower -40 °C	to -40 °C	lower -40 °C	to -40 °C	lower -40 °C	to -40 °C	lower -40 °C	
<b>Test space dimensions</b>	W	Width	mm, approx.	2000	2000	2000	2000	2400	2400	2400	2400
	D	Depth	mm, approx.	2000	2000	3000	3000	3000	3000	4000	4000
	H	Height	mm, approx.	2000	2000	2000	2000	2200	2200	2200	2200
<b>External dimensions*</b>	W1	Width	mm, approx.	2240	2400	2240	2400	2640	2800	2640	2800
	D1	Depth	mm, approx.	2840	3000	3840	4000	3840	4000	4840	5000
	H1 <sup>1)</sup>	Height	mm, approx.	2240	2400	2240	2400	2440	2400	2440	2400
<b>Machine compartment</b>	W2	Width	mm, approx.	1840	2000	1840	2000	2240	2400	2240	2400
	D2	Depth	mm, approx.	800	800	800	800	1200	1200	1200	1200
<b>Circulation system</b>	W3	Width	mm, approx.	1600		1600		2000		2000	
	D3	Depth	mm, approx.	600		600		600		600	
<b>Fans</b>		Quantity		2	2	2	2	3	3	3	3

\* Insulation value 120 mm at temperatures above -40 °C, 200 mm at temperatures below -40 °C. <sup>1)</sup> plus 100 mm for base frame. Right to alterations reserved.

# Test systems for professionals. Test the best . . .



A complete line of systems is available offering test space volumes ranging from approx. 60 l to 1500 litres, a working range from  $-75 \dots +180^{\circ}\text{C}$  and relative humidity values ranging from 10 ... 98 % r.h.

We also offer an extensive line of field-proven test systems specially for simulating exposure to weather, temperature shock, corrosion and long-time tests for application in research, development, quality control and production.

Of course, Weiss – as one of the leading producers of environmental simulation systems world-wide – offers the entire spectrum of high-tech test systems starting from a series of cost-effective test systems up to customized walk-in chambers and in-line systems.

If it's know-how, service and reliability that you are looking for – contact Weiss Umwelttechnik.



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D-Nr. KP 3.1.1E/511023