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a schunk company

Technical Brochure

Climate Test Chamber
ClimeEvent

Image similar (contains options)

weiss-technik.com

STANDARDS | ClimeEvent

Low-temperature tests
IEC 60068-2-1, Test A (LV 124 K-03)
ISO 16750-4, Low-temperature test
ETSI EN 300019-2-4, Test Ab/Ad
MIL-STD-810 G, Meth. 502.5
JESD22-A119

High-temperature tests
IEC 60068-2-2, Test B
ISO 16750-4, High-temperature test
ETSI EN 300019-2-4, Test Bb/Bd
MIL-STD-202 G, Meth. 108A
MIL-STD-810 G, Meth. 501.5
MIL-STD-883 J, Meth. 1008.2
JESD22-A103D

Alternating temperature tests
IEC 60068-2-14, Test Nb (LV 124 L-03)
ISO 16750-4, Temp. steps
ISO 16750-4, Temp. cycling
ETSI EN 300019-2-4, Test Nb
MIL-STD-331 C, Test C6
JESD22-A105C

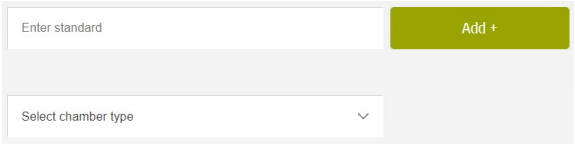
Constant climates
IEC 60068-2-67
IEC 60068-2-78 (LV 124 K-14)
ISO 16750-4, Damp heat steady
ETSI EN 300019-2-4, Test Cab
MIL-STD-202 G, Meth. 103B
JESD22-A101C

Alternating climates
IEC 60068-2-30, Test Db, Var. 1 (LV 124 K-08)
IEC 60068-2-30, Test Db, Var. 2
IEC 60068-2-38 LV 124 K-09)
ISO 16750-4, Damp heat cyclic
ISO 16750-4, Temp/Humid, cyclic
ETSI EN 300019-2-4, Test Db
VG 95210, Blatt 7, Meth. 106C
MIL-STD-202 G, Meth. 106D
MIL-STD-331 C, Test C1
MIL-STD-750-1, Change 3
MIL-STD-810 G, Meth. 507.5
MIL-STD-883 J, Meth. 1004.7
JESD22-A100D

OUR STANDARD FINDER

The right support for every test.
Various industry and factory standards are safely met. You can find a selection of test specifications and standards by using the specially developed standards finder on our website. The standards finder will help you find the right product to suit your needs.

Click here to find the right support:

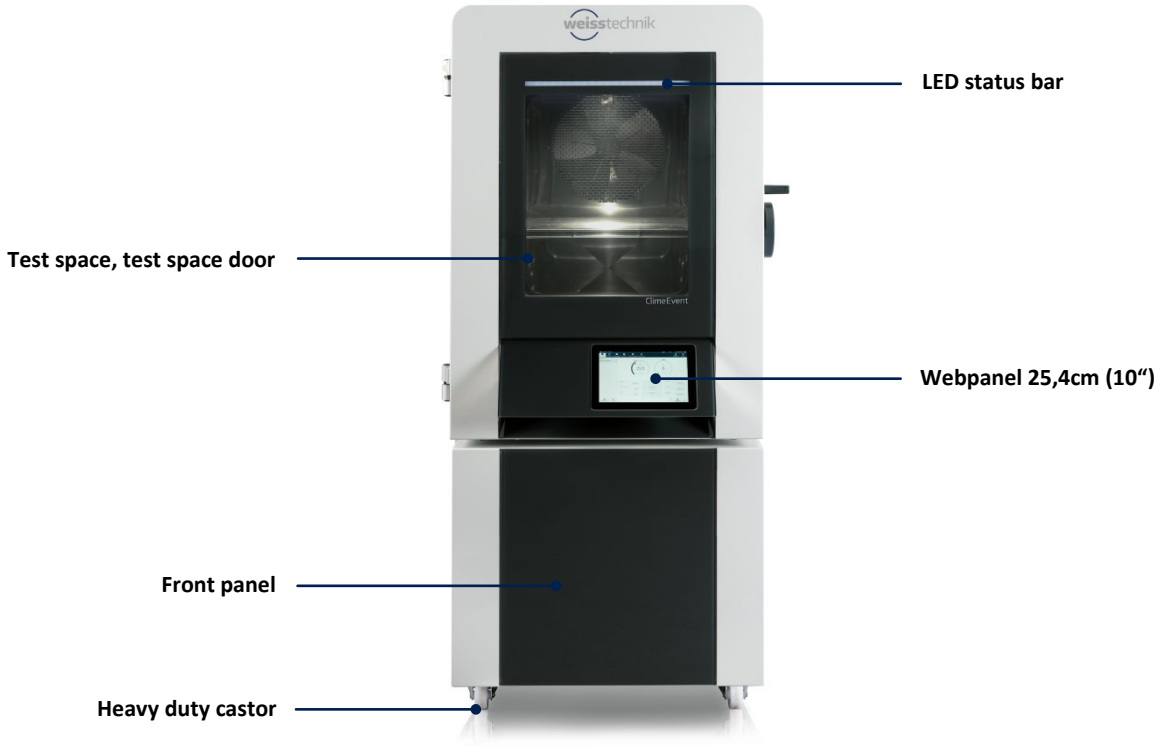


The temperature values specified in the standards (severity levels) are limited by the highest and lowest test space temperature. The choice of the appropriate test system depends on the temperature change rates during alternating tests. The requirements are met if the test system capacity is large enough to compensate for the influence of the specimen and its heat dissipation in the relevant capacity range. Please contact us to test the feasibility with your test specimen.

The reference point for test values and tolerance specifications is the middle of the test space. Verifying documentation for individual test values is optionally available at additional cost.

Do you not see your testing standard? Contact us!

STRUCTURE | ClimeEvent



Front view

front/ lateral view

STRUCTURE | Main switch panel

Hardware test object protection

Main switch

Analog I/O[1]

Digital I/O (4 “in” and 4 “out“ standard)

Measuring sensor tempera-ture Pt 100

Ethernet

USB-interface

Error message potential-free contact

Temperature sensor, switchable as control sensor[1]

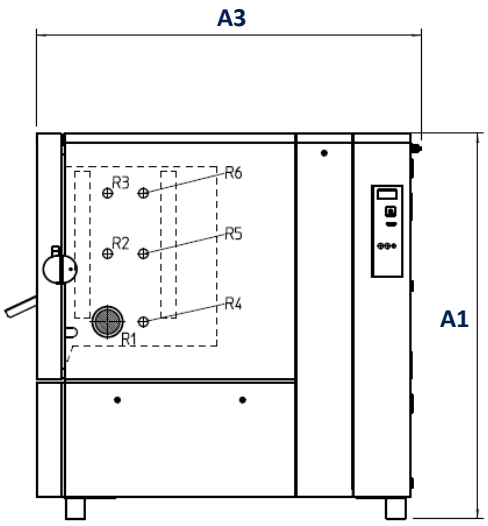
Power socket[1]

RS 485/RS 422[1]

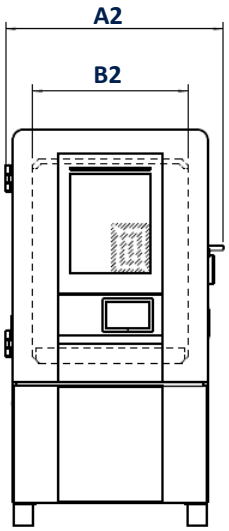
RS 232[1]

[1] Option/ Additional equipment

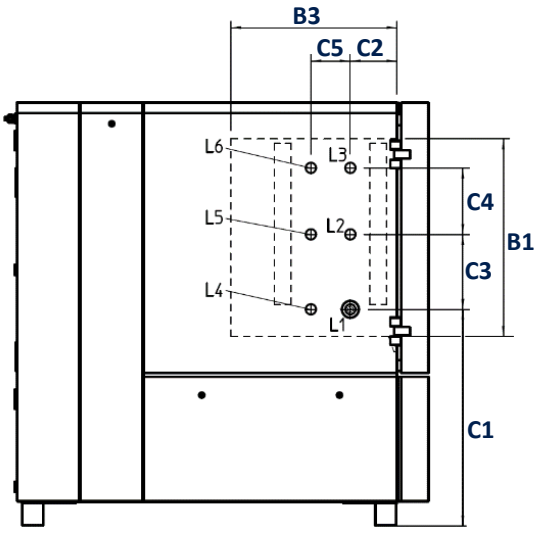
INSTALLATION DRAWINGS | ClimeEvent



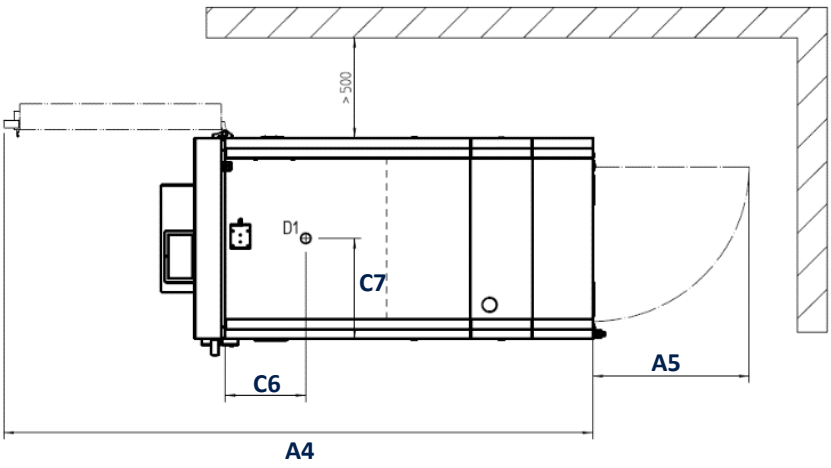
View from right



View from front



View from left



View from above

Standard access ports R & L	
R1	Installation position right Ø 125mm (standard)
L1	Installation position left Ø 50mm (standard)

	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	C5	C6	C7
	Test chamber[1]					Test space			Standard access ports R & L[2,3]						
Test space	Dimensions in mm														
180 Litres	1830	900	1575	2369	560	750	580	450	1030	225	250	250	-	230	390
340 Litres	1830	900	1890	2677	560	750	580	765	1030	225	250	250	170	380	390
600 Litres	2040	1120	1925	2939	777	950	800	800	1040	225	360	320	190	400	500
1000 Litres	2040	1420	2075	3275	777	950	1100	950	1040	225	360	320	320	480	650
1500 Litres	2040	1420	2600	3780	777	950	1100	1475	1040	225	360	320	425	740	650
2000 Litres	2040	1420	3275	4455	777	950	1100	2150	1040	225	360	320	675	1415	650

[1] Overall external dimensions when erected

[2] Only the standard access ports R1-R3 and L1-L3 are available for the 180 liter versions

[3] Additional feedthroughs are possible for the 1500 and 2000 litre variants.

TECHNICAL DATA | 180 Liter Test space volume

		C2/180/50/3	C2/180/70/3	C2/180/70/5
DIMENSIONS, LOAD, WEIGHT				
Refrigerant		R744	R449A	R449A
External dimensions (H x W x D)[1]	mm	1830 x 900 x 1575		
Test chamber dimensions (H x W x D)	mm	750 x 580 x 450		
Load, maximum	kg	130		
Load per grid	kg	30		
Maximum number of grid shelves	Pcs.	5		
Weight[2]	kg	525	575	600
PERFORMANCE DATA FOR TEMPERATURE TESTS				
Maximum temperature[9]	°C	180		
Minimum temperature[3, 9]	°C	-50	-70	-70
Temperature change rate[4], Cooling -70°C / -50°C / -40°C	K/min	- / 4 / 4,5	3,8 / - / -	7,5 / -/ -
Temperature change rate[4], Heating	K/min	4,5	3,5	8
Temperature deviation[5] over time	K	±0,1 to ±0,5		
Temperature homogeneity[6], spatial	K	±0,5 to ±1		
Temperature gradient[7]	K	≤ 2		
Heat compensation[8] max.	W	2750	2000	3000
PERFORMANCE DATA FOR CLIMATE TESTING				
Maximum temperature[9]	°C	+95		
Minimum temperature[3, 9]	°C	+10		
Dew point temperature range[10]	°C	-3 to +94		
Humidity range	% r. F.	10 to 98		
Humidity deviation[11], over time	% r. F	±1 to ±3		
Temperature deviation over time	K	±0,1 to ±0,3		
Temperature homogeneity, spatial	K	±0,5 to ±1		
Heat compensation max.	W	ca. 400		
CONSUMPTION AND CONNECTION DATA				
Supply voltage[12, 13]		3/N/PE AC 400 V ±10 % 50 Hz		
Nominal power	kW	4,8	5,3	8,6
Nominal current[14]	A	12	15	21
Sound pressure level[15]	dB(A)	49	57	57
Air-cooled/ water-cooled		✓/ optional	✓/ optional	optional / ✓
Permissible ambient temperature	°C	+10 °C to +35 °C	+10 °C to +35 °C	+10 °C to +35 °C
Permissible cooling water temperature (water-cooled systems only)	°C	+12 °C to +28°C	+12 °C to +28°C	+12 °C to +28°C
Water pressure	bar	2,5 to 6	2,5 to 6	2,5 to 6
System pressure difference (water-cooled systems only)	bar	≥2	≥2	≥2

Subject to technical changes.
All stated performance data refer to +25 °C ambient temperature, 400 V/50 Hz nominal voltage, without additional equipment.

TECHNICAL DATA | 340 Liter Test space volume

		C2/340/50/3	C2/340/70/3	C2/340/70/5
DIMENSIONS, LOAD, WEIGHT				
Refrigerant		R744	R449A	R449A
External dimensions (H x W x D)[1]	mm	1830 x 900 x 1890		
Test chamber dimensions (H x W x D)	mm	750 x 580 x 765		
Load, maximum	kg	140		
Load per grid	kg	30		
Maximum number of grid shelves	Pcs.	5		
Weight[2]	kg	575	650	650
PERFORMANCE DATA FOR TEMPERATURE TESTS				
Maximum temperature[9]	°C	180		
Minimum temperature[3, 9]	°C	-50	-70	-70
Temperature change rate[4], Cooling -70°C / -50°C / -40°C	K/min	- / 3,5 / 4	3,8 / - / -	6,7 / -/ -
Temperature change rate[4], Heating	K/min	4	3	7
Temperature deviation[5] over time	K	±0,1 to ±0,5		
Temperature homogeneity[6], spatial	K	±0,5 to ±1		
Temperature gradient[7]	K	≤ 2		
Heat compensation[8] max.	W	2300	2000	3000
PERFORMANCE DATA FOR CLIMATE TESTING				
Maximum temperature[9]	°C	+95		
Minimum temperature[3, 9]	°C	+10		
Dew point temperature range[10]	°C	-3 to +94		
Humidity range	% r. F.	10 to 98		
Humidity deviation[11], over time	% r. F	±1 to ±3		
Temperature deviation over time	K	±0,1 to ±0,3		
Temperature homogeneity, spatial	K	±0,5 to ±1		
Heat compensation max.	W	ca. 400		
CONSUMPTION AND CONNECTION DATA				
Supply voltage[12, 13]		3/N/PE AC 400 V ±10 % 50 Hz		
Nominal power	kW	4,8	5,3	8,6
Nominal current[14]	A	12	15	21
Sound pressure level[15]	dB(A)	52	57	57
Air-cooled/ water-cooled		✓/ optional	✓/ optional	optional / ✓
Permissible ambient temperature	°C	+10 °C to +35 °C	+10 °C to +35 °C	+10 °C to +35 °C
Permissible cooling water temperature (water-cooled systems only)	°C	+12 °C to +28°C	+12 °C to +28°C	+12 °C to +28°C
Water pressure	bar	2,5 to 6	2,5 to 6	2,5 to 6
System pressure difference (water-cooled systems only)	bar	≥2	≥2	≥2

Subject to technical changes.
All stated performance data refer to +25 °C ambient temperature, 400 V/50 Hz nominal voltage, without additional equipment.

TECHNICAL DATA | 600 Liter Test space volume

		C2/600/50/4	C2/600/70/3	C2/600/70/5
DIMENSIONS, LOAD, WEIGHT				
Refrigerant		R744	R449A	R449A
External dimensions (H x W x D)[1]	mm	2040 x 1120 x 1925		
Test chamber dimensions (H x W x D)	mm	950 x 800 x 800		
Load, maximum	kg	160		
Load per grid	kg	40		
Maximum number of grid shelves	Pcs.	7		
Weight[2]	kg	725	775	800
PERFORMANCE DATA FOR TEMPERATURE TESTS				
Maximum temperature[9]	°C	180		
Minimum temperature[3, 9]	°C	-50	-70	-70
Temperature change rate[4], Cooling -70°C / -50°C / -40°C	K/min	- / 4 / 4,5	3,5 / - / -	6 / -/ -
Temperature change rate[4], Heating	K/min	4,5	4	6
Temperature deviation[5] over time	K	±0,1 to ±0,5		
Temperature homogeneity[6], spatial	K	±0,5 to ±1		
Temperature gradient[7]	K	≤ 2		
Heat compensation[8] max.	W	3000	3000	5000
PERFORMANCE DATA FOR CLIMATE TESTING				
Maximum temperature[9]	°C	+95		
Minimum temperature[3, 9]	°C	+10		
Dew point temperature range[10]	°C	-3 to +94		
Humidity range	% r. F.	10 to 98		
Humidity deviation[11], over time	% r. F	±1 to ±3		
Temperature deviation over time	K	±0,1 to ±0,3		
Temperature homogeneity, spatial	K	±0,5 to ±1		
Heat compensation max.	W	ca. 500		
CONSUMPTION AND CONNECTION DATA				
Supply voltage[12, 13]		3/N/PE AC 400 V ±10 % 50 Hz		
Nominal power	kW	7,2	9	13
Nominal current[14]	A	20	20	23
Sound pressure level[15]	dB(A)	Value available soon	60	60
Air-cooled/ water-cooled		✓/ optional	✓/ optional	optional / ✓
Permissible ambient temperature	°C	+10 °C to +35 °C	+10 °C to +35 °C	+10 °C to +35 °C
Permissible cooling water temperature (water-cooled systems only)	°C	+12 °C to +28°C	+12 °C to +28°C	+12 °C to +28°C
Water pressure	bar	2,5 to 6	2,5 to 6	2,5 to 6
System pressure difference (water-cooled systems only)	bar	≥2	≥2	≥2

Subject to technical changes.
All stated performance data refer to +25 °C ambient temperature, 400 V/50 Hz nominal voltage, without additional equipment.

TECHNICAL DATA | 1000 Liter Test space volume

		C2/1000/50/10	C2/1000/70/3	C2/1000/70/5
DIMENSIONS, LOAD, WEIGHT				
Refrigerant		R744	R449A	R449A
External dimensions (H x W x D)[1]	mm	2040 x 1420 x 2075		
Test chamber dimensions (H x W x D)	mm	950 x 1100 x 950		
Load, maximum	kg	250		
Load per grid	kg	50		
Maximum number of grid shelves	Pcs.	7		
Weight[2]	kg	Value available soon	1010	1175
PERFORMANCE DATA FOR TEMPERATURE TESTS				
Maximum temperature[9]	°C	180		
Minimum temperature[3, 9]	°C	-50	-70	-70
Temperature change rate[4], Cooling -70°C / -50°C / -40°C	K/min	Value available soon	2,8 / - / -	6 / -/ -
Temperature change rate[4], Heating	K/min	10	4	8
Temperature deviation[5] over time	K	±0,1 to ±0,5		
Temperature homogeneity[6], spatial	K	±0,5 to ±1		
Temperature gradient[7]	K	≤ 2		
Heat compensation[8] max.	W	Value available soon	3000	5000
PERFORMANCE DATA FOR CLIMATE TESTING				
Maximum temperature[9]	°C	+95		
Minimum temperature[3, 9]	°C	+10		
Dew point temperature range[10]	°C	-3 to +94		
Humidity range	% r. F.	10 to 98		
Humidity deviation[11], over time	% r. F	±1 to ±3		
Temperature deviation over time	K	±0,1 to ±0,3		
Temperature homogeneity, spatial	K	±0,5 to ±1		
Heat compensation max.	W	ca. 500		
CONSUMPTION AND CONNECTION DATA				
Supply voltage[12, 13]		3/N/PE AC 400 V ±10 % 50 Hz		
Nominal power	kW	18	12	23
Nominal current[14]	A	33	22	37
Sound pressure level[15]	dB(A)	Value available soon	60	62
Air-cooled/ water-cooled		✓/ -	✓/ optional	optional / ✓
Permissible ambient temperature	°C	+10 °C to +35 °C	+10 °C to +35 °C	+10 °C to +35 °C
Permissible cooling water temperature (water-cooled systems only)	°C	+12 °C to +28°C	+12 °C to +28°C	+12 °C to +28°C
Water pressure	bar	2,5 to 6	2,5 to 6	2,5 to 6
System pressure difference (water-cooled systems only)	bar	≥2	≥2	≥2

Subject to technical changes.
All stated performance data refer to +25 °C ambient temperature, 400 V/50 Hz nominal voltage, without additional equipment.

TECHNICAL DATA | 1500 Liter Test space volume

		C2/1500/50/7	C2/1500/70/3	C2/1500/70/5
DIMENSIONS, LOAD, WEIGHT				
Refrigerant		R744	R449A	R449A
External dimensions (H x W x D)[1]	mm	2040 x 1420 x 2600		
Test chamber dimensions (H x W x D)	mm	950 x 1100 x 1475		
Load, maximum	kg	250		
Load per grid	kg	50		
Maximum number of grid shelves	Pcs.	7		
Weight[2]	kg	Value available soon	1125	1300
PERFORMANCE DATA FOR TEMPERATURE TESTS				
Maximum temperature[9]	°C	180		
Minimum temperature[3, 9]	°C	-50	-70	-70
Temperature change rate[4], Cooling -70°C / -50°C / -40°C	K/min	Value available soon	2,7 / - / -	5 / -/ -
Temperature change rate[4], Heating	K/min	8	3,5	7
Temperature deviation[5] over time	K	±0,1 to ±0,5		
Temperature homogeneity[6], spatial	K	±0,5 to ±1		
Temperature gradient[7]	K	≤ 2		
Heat compensation[8] max.	W	Value available soon	3000	5000
PERFORMANCE DATA FOR CLIMATE TESTING				
Maximum temperature[9]	°C	+95		
Minimum temperature[3, 9]	°C	+10		
Dew point temperature range[10]	°C	-3 to +94		
Humidity range	% r. F.	10 to 98		
Humidity deviation[11], over time	% r. F	±1 to ±3		
Temperature deviation over time	K	±0,1 to ±0,3		
Temperature homogeneity, spatial	K	±0,5 to ±1		
Heat compensation max.	W	ca. 500		
CONSUMPTION AND CONNECTION DATA				
Supply voltage[12, 13]		3/N/PE AC 400 V ±10 % 50 Hz		
Nominal power	kW	18	12,2	23
Nominal current[14]	A	33	22	37
Sound pressure level[15]	dB(A)	Value available soon	60	62
Air-cooled/ water-cooled		-/ optional	✓/ optional	optional / ✓
Permissible ambient temperature	°C	+10 °C to +35 °C	+10 °C to +35 °C	+10 °C to +35 °C
Permissible cooling water temperature (water-cooled systems only)	°C	+12 °C to +28°C	+12 °C to +28°C	+12 °C to +28°C
Water pressure	bar	2,5 to 6	2,5 to 6	2,5 to 6
System pressure difference (water-cooled systems only)	bar	≥2	≥2	≥2

Subject to technical changes.
All stated performance data refer to +25 °C ambient temperature, 400 V/50 Hz nominal voltage, without additional equipment.

TECHNICAL DATA | Explanation of Notes

[1] Overall dimensions when installed. Deviating delivery dimensions; components for delivery can be dismantled (service performance).

[2] Basic device, excluding additional equipment

[3] Temperatures >+5 °C can be run in continuous operation, temperatures <+5 °C can be run intermittently or with addi-tional equipment in the form of a compressed air dryer.

[4] According to IEC 60068-3-5.

[5] In the center of the test chamber in a steady condition, without test specimen, without irradiation and without additional equipment, de-pending on the temperature.

[6] Related to the adjusted setpoint in the temperature range from minimum temperature to +150 °C or at humidities >20 % r.F.

[7] Up to +150 °C according to IEC 60068-3-5:2001 or JJF 1101-2003.

[8] At +20 °C for temperature tests / In the range from +25 °C to +95 °C at a relative humidity of up to 90 % RH for climatic tests.

[9] The factory calibration of the temperature and humidity values is carried out with DAkkS-calibrated measuring equipment in the center of the test room and documented with a factory calibration certificate. Optionally, a DAkkS calibration and a spatial factory or DAkkS calibration can be carried out. Factory calibration temperature: +80 °C and -25 °C (devices down to -42 °C --> single-stage) and +80 °C and -40 ° (devices down to -70 °C --> cascade); factory calibration climate: +23 °C/50 % r.h. and +55 °C/93 % r.h. and +90 °C/90 % r.h.

[10] Intermittent operation (+4 °C to -3 °C).

[11] In the center of the utility room under steady-state conditions, depending on the climate value.

[12] Other voltages and frequencies optional

[13] If you wish to connect an RCD residual current circuit breaker (RCD), please note that a connection to an RCD residual current circuit breaker < 300 mA cannot be made.

[14] Neutral conductor burdened

[15] Measured at 1.6 m height and 1 m away from front; free-field measurement in accordance with DIN EN ISO 11201.

BASIC EQUIPMENT | ClimeEvent

EXTERIOR HOUSING

Material	Galvanized steel sheet
Paint	Light gray (RAL 7035) & anthracite gray (RAL 7016); solvent-free; powder-coated.
Door	Single-hand operation, lockable, door hinge left, with LED status bar
Adjustable feet	Adjustable, vibration absorbing (optional mobile version available)

AIR CONDITIONING SYSTEM

Humidifying water	Water storage tank (approx. 25 l), pre-installed device for automatic water replenishment (standard), low water warning, water consumption display
Humidifying water quality	pH value 6-7, demineralized, conductivity 5 to 20 µs/cm
Humidification system	Robust and energy-saving system with regular cyclical water exchange for consistently high humidification water quality. No compressed air connection required at the installation site for almost all climate zones (only with optional extended climate zone).
Drain for condensate and cleaning water	Back pressure-free, G 3/4” external thread or 12 mm hose connection

TEST CHAMBER CONTAINER

Material Floor	Stainless steel 1.4404, surface II B matt. *(For increased corrosion resistance in the event of leakage of liquids and outgassing from the test material).*
Material Walls	Stainless steel 1.4301, surface III D glossy
Second ceiling panel	Air flows around a second ceiling panel to prevent dripping onto the test material from the ceiling at high dew points
Insert system	Stainless steel rail system for easy changing of grille positions incl. M5 internal thread for mounting test set-ups (one insertion grille included).
Access ports	1 piece on the right, made of stainless steel, internal dimension2: 125 mm Ø (position R1) 1 piece on the left, made of stainless steel, internal dimension2: 50 mm Ø (position L1)
Silicone plug	1 piece per stainless steel feed-through (Ø 125 mm and 50 mm) (if the feed-through is not used)
Foam silicone plug	1 piece per stainless steel bushing (ø 125 mm and 50 mm) (for feeding through cables and pipes)

MEASURING SENSORS

Temperature	Platinum temperature sensor Pt 100 (4 channels)
Climate	Psychrometric humidity measurement with force-wetted self-cleaning wet temperature sensor (optional capacitive measuring system also available).

COMMUNICATION

Interfaces	Ethernet interface 10/100/1000 megabit USB interface[3]
Switch outputs	4 potential-free outputs for activation of the customer’s own equipment, max. load 24 V-DC; 0.5 A.
Switch inputs	4 digital inputs for responses from the customer’s own equipment, max. load 24 V-DC; approx. 30 mA.

REGULATION & CONTROL

S!MPAC®	Digital measuring and control system with I/O unit and **WEB**Season® control software, can be controlled remotely through integration into a network. Operating/programming and monitoring unit with 25.4 cm (10") web panel integrated in the door, can be folded forward up to 60°.
Connectivity	Control via browser possible, control and data recording possible using our S!MPATI® software. Further options: SimServ interface, LabView, OPC-UA, ProfiBus, ProfiNET or EtherCAT)

SAFETY

Test specimen safety	Hardware test gas protection incl. independent platinum temperature sensor Pt 100. Independent, adjustable temperature limiter tmin / tmax, sensor installed in the test chamber, individually adjustable fixed value. Independent, adjustable temperature limiter t_{min} / $t_{max,}$ sensor installed in test space, individually adjustable fixed value
Test chamber fuse **Test specimen shutdown**	Safety temperature limiter STB for protection against excessive temperature in the test chamber. Potential-free contact specifically for heat-emitting test specimen, connected to socket, max. load 24 V, 0.5 A.

[1] Due to the use of annealed silicone parts, the test space is low in emissions. If the test space is to be emission-free, this will require technical clarification which can be offered on request.

[2] Production-related tolerances of up to ± 3 mm are possible.

[3] Only possible for devices with a temperature range of -70°C to 180°C.

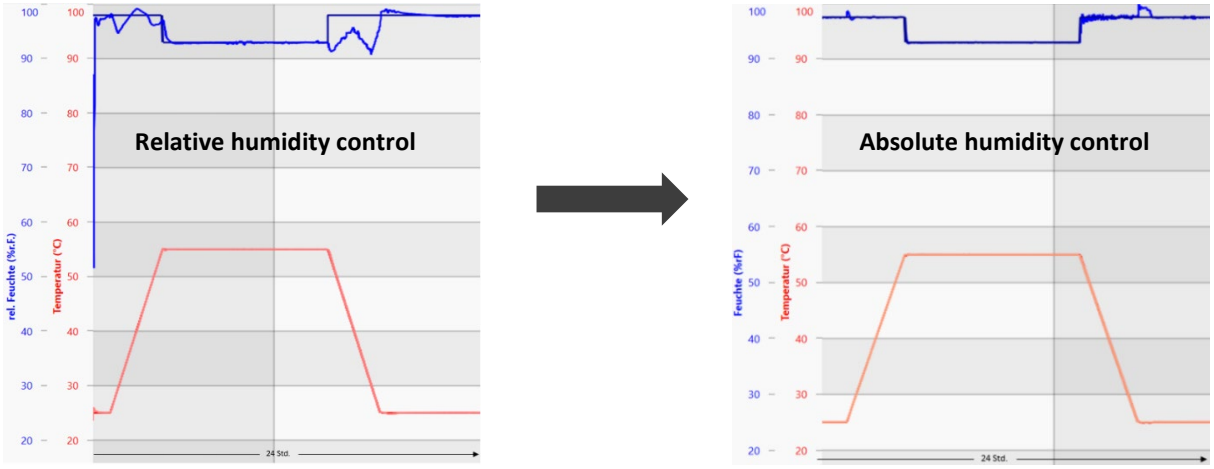
Subject to technical changes!

ABSOLUTE HUMIDITY CONTROL

The aim is to adapt the humidity control for the climate test chambers from **weiss**technik in such a way that a qualitative improvement in humidity accuracy and transient response is achieved. Theoretically, both temperature and relative humidity can be used as control variables.

The idea: Control via the absolute water content in the test chamber.

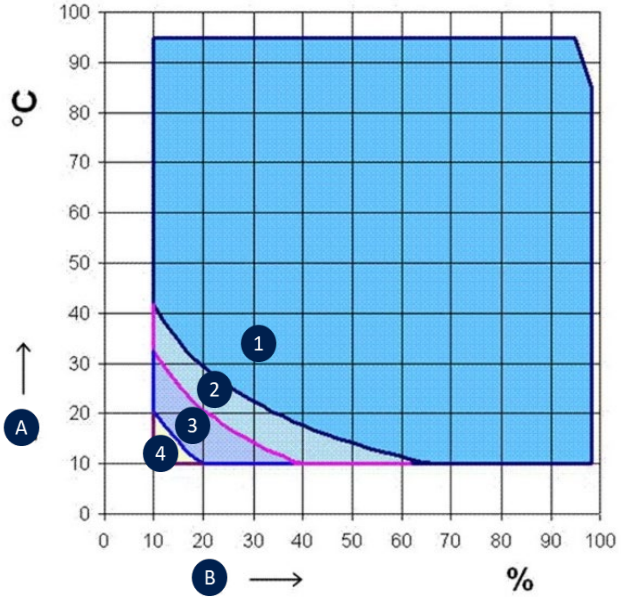
The figure below shows a direct comparison of the two types of control. With absolute humidity control, the control accuracy is significantly increased and the transient amplitudes are almost completely eliminated. In the future, this innovation will ensure even more accurate and reproducible test results with the climate test chambers from **weiss**technik.



Comparison between relative humidity control and absolute humidity control

Further technical information on absolute humidity control can be found here:

HUMIDITY DIAGRAM



1. Test space temperature
2. Relative humidity
3. Standard humidity range for continuous operation
4. Standard humidity range with intermittent operation, dew point 3 °C to +4 °C

A. Extended humidity range with compressed air dryer (optional), dew point regulated down to -12 °C

B. Extended humidity range with compressed air dryer (optional) and capacitive humidity measurement system (optional), dew point regulated down to -20°C

OPTIONS | ClimeEvent

BASE

Mobile version

Mobile base with swivel castors and lockable fixed castors.

Vibration damping feet

Reducing the transmission of vibrations to the floor.

STORAGE PACKAGE

Storage package, small

Two hooks and a magnetic holding rail to store and stow the grid shelves and small test equipment.

Storage package, large

Two hooks and a magnetic holding rail. Additional alternative side panel for the outer housing including a document tray, a tray table and a support rail.

ACCESS PORTS

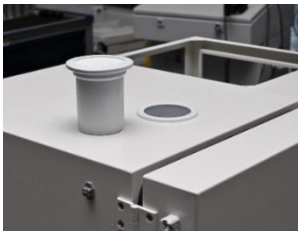
Stainless steel access port with silicone plug

Standard (see installation drawing):
- ¬ Ø 125 mm at position R1
- ¬ Ø 50 mm at position L1

Additional access ports: Ø 50 mm; Ø 80 mm; Ø 125 mm

Notched access port welded

A welded notch bushing measuring approx. 50 mm x 50 mm is fitted in the housing cover on the right for inserting cables. This allows test material to be inserted without having to remove cables and lines.



Access port in the ceiling

Possible access ports:
- ¬ Ø 50 mm
- ¬ Ø 80 mm
- ¬ Ø125 mm

Flat notched port

To feed through individual cables, an insertion piece is inserted into the housing cover, which can be used to feed several cables into the test chamber.

DOOR

Window in the door

Multi-insulated, heated viewing window in the door.
Format: 520 mm x 418 mm.

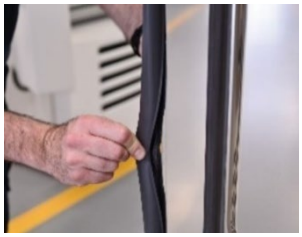
Door stop right

Version of the device door with door hinge on the right side. The notched port option is not possible. The flat notch port option is possible at the top left.

Test specimen privacy screen

Would you like to conveniently protect your test material from prying eyes? The window pane of the test chamber can be made opaque via the light switch using a digital switching channel.

Note: Only in conjunction with "window in Door" option.



Door seals replaceable for tests with hydraulic oil

Hydraulic oil places special demands on the seals. They need to be replaced more frequently. The seals are mounted on the door so that they can be replaced more easily.

WEBPANEL

Image similar

Web panel under the door lock

The operating/programming and monitoring unit with 25.4cm (10") web panel is mounted under the door latch.

Web panel in any position on the side

The operating/programming and monitoring unit with 25.4cm (10") web panel can be mounted anywhere on the side panel.

Note: The exact positioning must be specified when ordering.

TEST MATERIAL REQUIREMENTS

Drawer on telescopic rails (stainless steel)

Drawer on telescopic rails, can be extended by about 80%. A total of 5 drawers are possible.

Maximum load per drawer: 30 kg

Heavy duty grid shelf

Heavy test material? A stainless steel grid placed on the heavy-duty rails.

Note: Permissible test area load up to 500 kg as a surface load

Additional grid shelf

Additional insert grid including support rail for placing test specimens. A grid shelf is included as standard.

Reinforced shelf

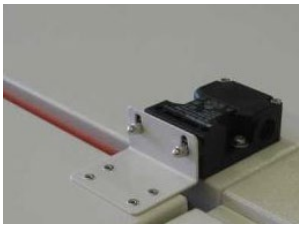
Reinforced shelf, loadable up to 200 kg surface load. The load on the test space as a whole is limited to 280 kg.

Heavy duty rails

The mass of the test specimen is transferred from the test chamber to the instrument frame via special heavy-duty rails.

Note: Permissible floor load up to 500 kg as surface load

TEST SPACE INSTALLATIONS



Fan shutdown via digital switching channel

If the digital switching channel is activated, the fan and the temperature control are switched off immediately.

Stainless steel test space reservoir 1.4404 with stainless steel aluminum evaporator

Highly corrosive test material, such as leather, requires a more resistant test chamber. For increased corrosion protection, the entire test chamber container is made of high-alloy stainless steel 1.4404 matt. A special corrosion-resistant evaporator is used.

Note: This design results in a power loss of approx. 10 % - 15 %, not available for test chambers with R744 (CO2) for the time being.

Test space low in silicone

For specific tests to reduce the amount of silicone in the test space. Furthermore, the inner door seal is replaced by a Viton seal.

Fan switch-off via digital switching channel

If the digital switching channel is activated, the fan and temperature control are switched off immediately.

DEHUMIDIFICATION

Compressed air dryer regulated for dew points down to -12 °C and -20 °C

For climatic test cabinets, regulated operation down to a dew point of -12 °C is possible. Dehumidification device for climatic test chambers incl. capacitive humidity meas-uring system for condensation points down to -20 °C with regulated operation.

GN² / Compressed air connection

For operation with a customer-supplied compressed air dryer or for feeding an inert gas into the test space.

Air conditioning extension with on-site compressed air

Dehumidification device to prevent condensation on the test material in regulated operation for dew points down to -12 °C. In combination with a capacitive humidity measurement system, regulated operation down to -20 °C is possible.

DEMINERALIZATION

Activated carbon filter for demineralized water

Filter housing with activated carbon insert to reduce the chlorine content in demineralized water (additional replacement cartridge available).

Demineralization unit

If no demineralized water is available from the customer, a demineralization unit can be connected upstream.

Note: Replacement cartridge available.

CALIBRATION / STANDARDS

DAkkS calibration

Calibration according to DAkkS requirements for specific temperature and climate values.

Additional factory calibration

Calibration according to specific temperature and climate values.

Pharma package

- Qualification documentation (IQ/OQ)
- Door contact switch for registration of door openings
- Tolerance band monitoring for stability tests according to ICH-Q1A
- Alarm system according to GAMP

VW 2005 / VW PV 1200 / BMW PR 308.2

Compressed air connection is set up, compressed air dryer with adsorption dryer included. The humidity measurement system is capacitive. Test programs are stored on the control unit. Functional test in accordance with the factory standard.

Note: BMW PR 303.5 is fulfilled by the standard unit without additional equipment..

Automotive standard LV 124 K-15/ Condensation test

VW 80000
BMW-GS 95011-4 (2010-06)
Daimler-MBN

The air conditioning system of the installation is extended for this above test specification. Test programs are stored in the control unit.

RECIRCULATED AIR

Recirculating air volume adjustable

To reduce the amount of recirculated air, the speed of the recirculation fan can be adjusted from 30% to 100%.

SENSORS

Temperature measurement on the test specimen

Movable temperature sensor Pt 100 with flexible cable for temperature measurement at any point in the test room or on the test object.
Pt 100 version (4-wire, minimum accuracy class <0°C class B, 0°C..+100°C class AA, >100°C class B). The measured value is displayed in °C in the control unit and can be called up via the interfaces or the free analog outputs of the measured value card. The sensor is inserted into the test chamber through the standard built-in feed-through. Up to 4 additional sensors are available.

Note: The analog measurement card I/O option is require

Temperature measurement on the test specimen can be switched over to a control sensor

Switching is performed via a digital switching channel. The measured value can be retrieved via the interfaces or displayed on the control panel.

Humidity control with capacitive sensor

In addition to the psychrometric measuring device of the basic version, a capacitive humidity measuring system is also installed. This humidity sensor or the psychrometric measuring device can be used for humidity control.

CONTROL SYSTEM

Energy meter

Professional energy analysis with a calibrated energy meter. Also in connection with data acquisition via the optional S!MPATI® software. For all units with > 63 A.

Note: For all devices with > 63 A.

Temperature range extension up to +200 °C

The test chamber is extended for a temperature range up to +200°C.

Note: Currently not available for test chambers with R744 (CO2)

Flexible operation when the program is paused

Function for flexible operation of the test chamber when interrupting the program.

- ¬ Digital switching channels can be switched off or on.
- ¬ Setpoints can be changed.

SAFETY EQUIPMENT

2-color signal lamp

The two-color signal light on the test chamber indicates the operating status.

Function indicator:

- green = operating
- red = fault

Emergency stop switch on the test space housing

The emergency stop switch is located on the outside of the test chamber. When pressed, the test is stopped.

Test chamber release via digital input

The test can only be started if the digital input has a voltage signal or if the adapter plug is plugged into the D-Sub socket Digital I/O.

Door contact switch to indicate that the door is open on the control panel / S!MPATI®

The components of the door contact switch are mounted on the test chamber and on the test chamber door. When the test chamber door is opened, the message "Door open" appears on the control panel.

Electric door tumbler, normally open

The components of the electric door locking device are mounted on the test chamber and the test chamber door. When the test chamber door is opened, the message "Door open" appears on the control panel. The test space door is unlocked at the end of a test, when a test is stopped, in the event of a power failure and when the main switch is turned off.

Elektrische Türzuhaltung, stromlos geschlossen

The components of the electric door locking device are mounted on the test chamber and the test chamber door. The test space door cannot be opened during a test, during a power failure and when the main switch is turned off.

Fault signal on potential-free switching contact

If a fault occurs in the test chamber, a potential-free switching contact is actuated.

SPECIAL VOLTAGE

Special voltage on request

Various special voltages are available.

COOLING

Water cooling

For air-cooled test chambers, a water-cooled unit is installed instead of the air-cooled cooling unit. A cooling water regulator ensures the lowest possible water consumption.

Note: Special measures are required for operation with well or pond water, please enquire.

Pump system in the absence of a floor drain

The integrated pumping system pumps the water in the system (condensate, humidification water, cleaning water) against the gradient into a drain provided by the customer

Hose set for cooling water network

Two flexible hoses are supplied for connection to a cooling water network.

Insulation of the water inlet pipe

Pipes carrying cooling water in the test chamber are additionally insulated for the water inlet temperature. This is relevant if the cooling water is < 12°C, as otherwise condensation may form on the pipes. Among other things, this represents a safety risk.

Electronic cooling water controller

By using an electronically controlled valve, the adaptation to different flow temperatures and pressure differences can take place within certain limits (standard for water-cooled appliances with CO2 (R744) as refrigerant) The option does not have to be selected here.

Air cooled condenser

Line length approx. 1.5 m, can be extended to a maximum of 5 m.
Waste heat routed to external condenser.
The condenser is located on the same level behind the test chamber, horizontal block position with vertical air routing.

Note: >5 m pipe length, fixed piping is required.

SPECIAL APPLICATIONS | Customized equipment for every test.

ATEX | Explosion protection for environmental simulation chambers

For some tests, it is not possible to test without equipment. If these are flammable, additional safety measures and monitoring must be taken into account. An individual risk assessment is necessary here, as many factors have an influence on the risk. Benefit from our experience in countless ATEX projects and the expertise of our specialists. We will be happy to support you.

BATTERY TESTS UP TO HAZARD LEVEL 7 | Always test safely

Batteries are installed in many products. Testing batteries is not without risk. To ensure that nothing happens, our chambers for such tests can be supplied with safety equipment depending on the individual risk. We are guided by the Eucar Hazard Level. Benefit from our experience in countless projects in this area and from the expertise of our specialists. We will be happy to support you.

FURTHER SPECIAL APPLICATIONS | The right solution for every application

ESD: Some test items are very sensitive to electrostatic charging. In order to prevent this from happening in the test chamber, for example through air movement, the test chambers can be equipped accordingly. From the earthing point to the shielding of all installed components.

EMC: The test chambers must be specially shielded to ensure that no signals are emitted from the test object into the environment or affect your test object. We have many years of experience in the design of test chambers for EMC tests.

Corrosive gases: PCBs and plug connections in particular must be tested under conditions with corrosive gases. Appropriate equipment is also available for this purpose.

THE PRODUCT CONFIGURATOR | Your digital advisor

Configure your desired model to fit your application.

Simply test it:

Would you like to customize your new chamber? This can be done quickly and easily with our product configurator. The online tool guides you through the configuration in just a few steps. Select and combine the options to suit your requirements. Please contact us for more information without obligation or send us your configuration for a quotation.

DEVICES AVAILABLE AT SHORT NOTICE | Request today - test next week

Extensive pool of stock and rental equipment

Click here for the devices:

These include temperature and climatic test chambers as well as stability test chambers, corrosion test chambers and thermal shock test chambers. Take a look around - the right device for you is just a few clicks away.

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