

Technical description

ClimeEvent C2/180/50/3



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Notes

The performance data refers to +25 °C ambient temperature and +18 °C cooling water temperature, at given nominal voltage, without test specimen, without optional accessories and without heat compensation. These are average values of the basic equipment.

The test chamber is designed for installation inside dry and ventilated spaces with max. degree of contamination "2" according to EN 50178:1997. The permissible ambient temperature during operation is between +10 °C and +35 °C. The max. permissible humidity must not exceed 75% RH and the max. dew point must not exceed +20 °C.

Protect the system from sunlight and avoid proximity to heat sources.

The data in these technical descriptions are constantly being revised due to the short-term basis of the changes to the F-Gas regulation. Some of the values can only be simulated at the present time and are therefore based on assumptions and simulated values. We therefore specifically draw your attention to the reservation for technical changes. If you have any questions, please contact us and we will discuss your requirements with you.

Standards

Low-temperature tests

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

Constant climate tests

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

High-temperature tests

IEC 60068-2-2, Test B
JESD22-A103D
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
ISO 16750-4, High temperature

Alternating climate tests

VG 95210, sheet 7, Meth. 106C
ETSI EN 300019-2-4, Test Db
ISO 16750-4, Temp/Humid, cyclic
IEC 60068-2-38 (LV 124 K-09)
IEC 60068-2-30, Test Db, Var. 2
ISO 16750-4, Damp heat cyclic
MIL-STD-202 G, Meth. 106D
JESD22-A100D
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
IEC 60068-2-30, Test Db, Var. 1 (LV 124 K-08)

Alternating temperature tests

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

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 (without measurement uncertainty). Verifying documentation for individual test values is optionally available at additional cost.

Your standard is not listed? Contact us!

Highlights

→ Natural refrigerant with GWP 1

The test chamber contains CO₂ as a refrigerant. It does not fall under the F-Gas regulation. Test more environmentally friendly than ever before and help your company achieve its environmental goals.

→ Tests with lower energy consumption

CO₂ test chambers fulfill many common test standards that had to be performed with test chambers down to -70 °C and also consume less energy.

→ No changes to the infrastructure necessary

You do not need to make any changes to your laboratory infrastructure for the CO₂ test chambers from **weisstechnik**.

→ Quieter operating noise

Test chambers with CO₂ are quieter than previous test chambers down to -70 °C

→ Visual status bar

The operating status always in view: Boot process, ready for use, test progress and messages.

→ Homogeneous LED test space lighting

Optimal lighting conditions in the test space - even with the door open.

→ Smart privacy screen (optional)

To ensure that secrets remain secret, the opaque privacy screen becomes transparent at the touch of a button.

→ Flexible test space

Quick integration of test equipment with a rail system and mounting threads.

→ Integrated web panel

Foldable, 25.4 cm (10") touch display with **WEBSeason®** remote control software.

→ Precise absolute humidity control

Highest control accuracy for climate change tests and high temperature / humidity combinations.

→ Intelligent water management

The digital fill level and consumption display makes the filling of demineralised water plannable.

→ Extra-large water bath

For increased humidification and dehumidification performance, to meet the most demanding test standards.

→ Advanced connectivity

With our SimServ interface, you can access the chamber's test data and control the chamber via Ethernet. Alternatively, advanced architectures such as OPC-UA are available as an option.



Illustration is similar (contains additional equipment)

Highlights

Into the age of connectivity – with WEBSeason®

You can use the innovative user interface **WEBSeason** to program, control and monitor your tests at any time and anywhere, even from your tablet or smartphone. Settings, language and units can be set and saved to suit the individual user. **WEBSeason** provides a new dimension of flexibility and efficiency.

The ideal solution for your testing processes - S!MPATI®

With a new design, practical menu navigation and high-performance evaluation, **weisstechnik** presents the new version of its proven control software. The new **S!MPATI®** not only offers operating efficiency and performance, but also enables reliable operation of your systems thanks to integrated monitoring routines.

Advantages of S!MPATI® at a glance:

- Maintain test chambers
- Record data and analyze it with a powerful evaluation tool
- Full compatibility with Windows 11 and Windows Server 2022
- Suitable for all current **weisstechnik** devices
- Downwards compatible with almost all models up to 1987
- Integration of third-party systems possible
- Support of the OPC-UA communication standard for Industry 4.0 applications

Test the new version of our **S!MPATI®** software free of charge for 6 months with up to 5 systems.

Performance data

Temperature tests

Design	Air cooled (standard)	Water cooled (option)
Maximum temperature	+180 °C	+180 °C
Minimum temperature ¹	-50 °C	-50 °C
Rate of temperature change ^{2,3} , cooling in range of +180 °C to -50 °C	4 K/min	3.5 K/min
Rate of temperature change ^{2,3} , cooling in range of +180 °C to -40 °C	4.5 K/min	4 K/min
Rate of temperature change ^{2,3} heating	4.5 K/min	4.5 K/min
Temperature deviation ⁴ , in time	±0.1 K to ±0.5 K	
Temperature homogeneity ⁵ , in space	±0.5 K to ±1 K	
Temperature gradient ⁶	≤ 2 K	
Heat compensation, max. at +20 °C	2750 W	2300 W
Heat compensation, max. at -20 °C	1500 W	1500 W
Factory calibration values ⁷	+80 °C and -25 °C	

¹ Temperatures >+5 °C are permitted in continuous operation; temperatures <+5 °C are permitted discontinuously or with the additional equipment "compressed air dryer".

² Simulated value; real value may deviate ±1 K/min.

³ According to IEC 60068-3-5, average, measured in the supply air / According to IEC 60068-3-6, average, measured in the supply air at climate tests.

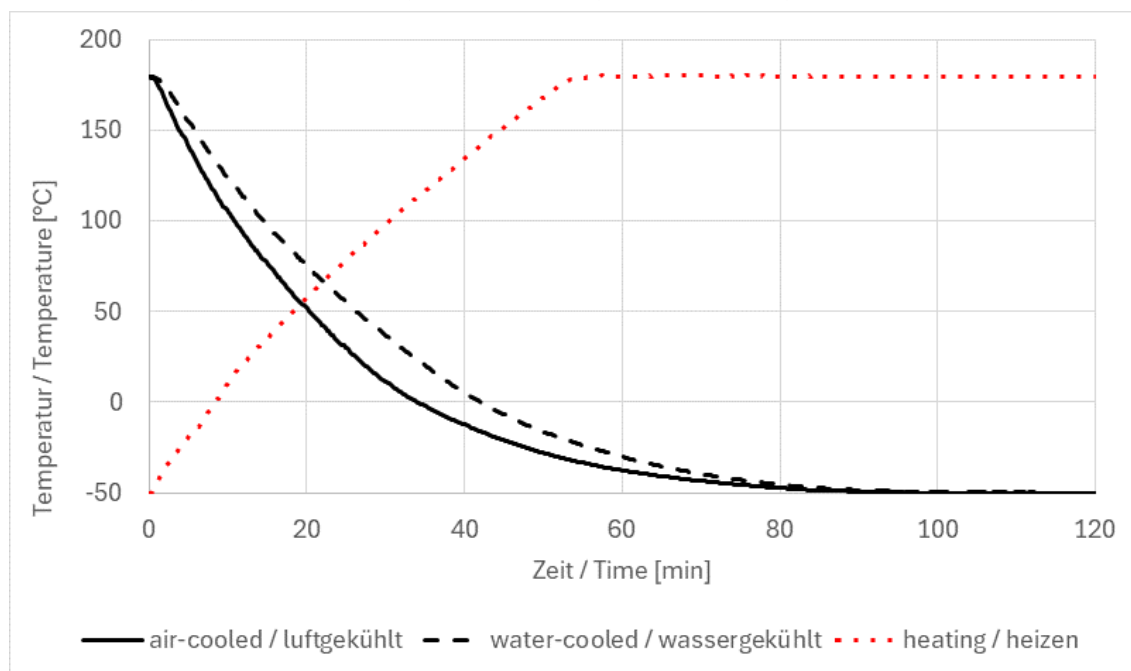
⁴ In the middle of the test space when it is empty and at steady state, without specimen, without heat radiation and without additional equipment, depending on temperature.

⁵ Relative to the selected set point in the temperature range from the minimum temperature up to +150 °C and/or at humidity >20 % RH (without measuring uncertainty).

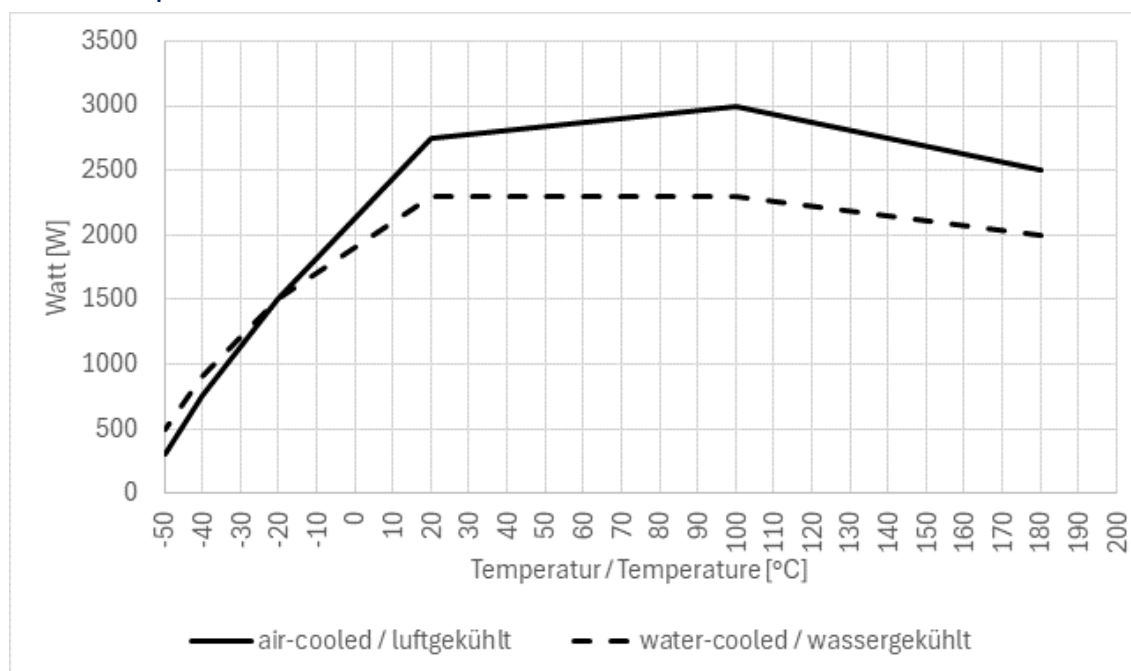
⁶ Up to +150 °C according to IEC 60068-3-5:2001 and/or JJF 1101-2003.

⁷ The factory calibration of the temperature and humidity values is carried out with DAkkS-calibrated measuring equipment in the middle of the test space and documented with a certificate. A DAkkS calibration, as well as a spatial factory or a spatial DAkkS calibration, can be provided on request.

Rate of temperature change for cooling and heating⁸



Heat compensation⁹



⁸ Without test specimen, without heat radiation, measured at the control sensor in the supply air.

⁹ Temperature measured at the control sensor in the supply air at steady state.

Climate tests

Maximum temperature	+95 °C
Minimum temperature	+10 °C
Temperature deviation ⁴ , in time	±0.1 K to ±0.3 K
Temperature homogeneity ⁵ , in space	±0.5 K to ±1 K
Dew point temperature range ¹⁰	-3 °C to +94 °C
Humidity range	10 % RH to 98 % RH
Humidity deviation ¹¹ , in time	±1 % RH to ±3 % RH
Humidification water consumption ¹² , for every 24 h	2 l
Heat compensation ¹³ , max.	approx. 400 W
Factory calibration values ⁷	+23 °C/50 % RH; +55 °C/93 % RH; +90 °C/90 % RH

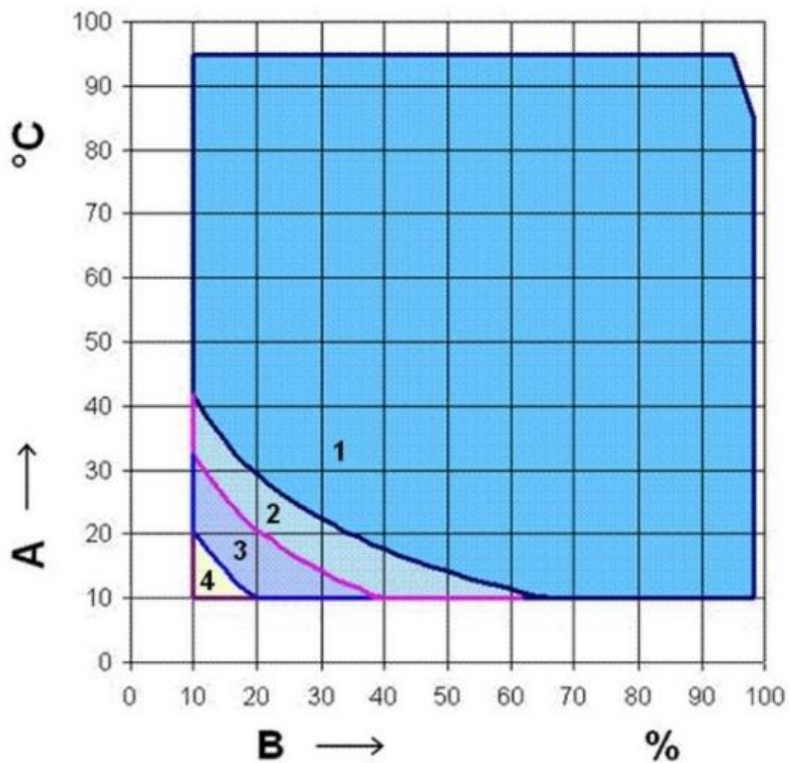
¹⁰ Discontinuous operation (+4 °C to -3 °C).

¹¹ In the middle of the test space when it is empty and at steady state, without specimen, without heat radiation and without additional equipment, depending on climate value.

¹² At +40 °C and 92 % RH

¹³ In the range from +25 °C to +95 °C at a relative humidity up to 90% RH for climate tests.

Climate chart



A Test space temperature in °C

B Relative humidity in %

1 Standard climate range for continuous operation

2 Standard climate range for discontinuous operation only (dew points ranging from +4 °C to -3 °C)

3 Extended climate range with dew point temperatures controlled up to -12 °C using dried compressed air (optional)

4 Extended climate range with dew point temperatures controlled up to -20 °C using dried compressed air (optional) and capacitive humidity measuring system (optional)

Technical data

Dimensions

Test space volume	190 l
Test space dimensions (H x W x D)	750 mm x 580 mm x 450 mm
Useable width	540 mm
Exterior housing dimensions (H x W x D)	1830 mm x 900 mm x 1575 mm
Minimum exterior housing dimensions ¹⁴ (H x W x D)	1730 mm x 800 mm x 1400 mm
Load of the test space floor ¹⁵	50 kg
Load per insertion shelf ¹⁵	30 kg
Load per insertion shelf support, max.	80 kg
Loading, max.	130 kg
Total weight ¹⁶	approx. 525 kg

Electrical data

Voltage rating ¹⁷	3/N/PE AC 400 V ± 10 % 50 Hz
Power rating, max. ¹⁸	4.8 kW
Current rating ¹⁹	12 A
Power supply ²⁰	CEE-Connector, 16 A
Power supply cable	3.5 m
Fuse protection ^{21, 22}	16 A gG, RCD 30 mA not possible, RCD $\geq$ 300 mA necessary
Protection class of switchgear cabinet and control unit ²³	IP 54
Sound pressure level ²⁴	≤ 49 dB(A)

¹⁴ For transport and move-in. Parts can be removed at additional expenses.

¹⁵ Max. load as surface load.

¹⁶ Without loading and additional equipment.

¹⁷ The test chamber can also be operated at 3/N/PE AC 380 V ± 10 % 50 Hz. In this case, the heating rate is reduced by approximately 10 %.

¹⁸ The power rating quoted describes the maximum power consumption during operation at full load, thus no conclusions can be drawn about the average energy consumption.

¹⁹ Neutral conductor under load.

²⁰ For fixed connection, the connection must be made by qualified personnel on the side of the customer.

²¹ Provided by the customer.

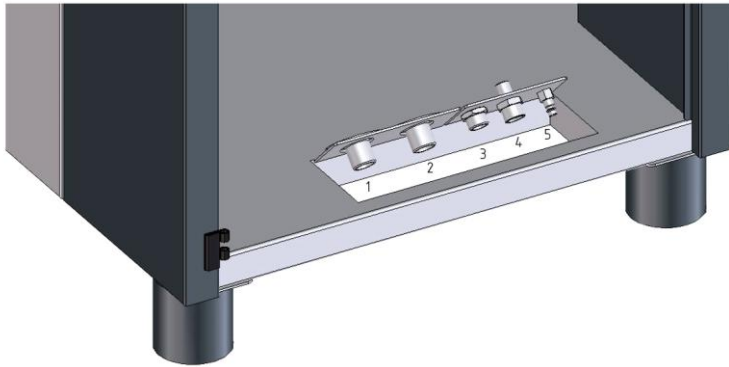
²² If you wish to connect an RCD, please note that a connection to an RCD < 300 mA cannot be made.

²³ EMC tests and information about emitted interference according to 61000-6-8 / EN 61000-6-4. Interference immunity is in accordance with EN 61000-6-2.

²⁴ Determined at a distance of 1 m according to DIN EN ISO 11203 (enveloping surface method).

Connections

The Test Chamber is delivered ready for connection. The exterior housing is self-supporting. The supply and disposal connections are located on the rear side at the bottom.

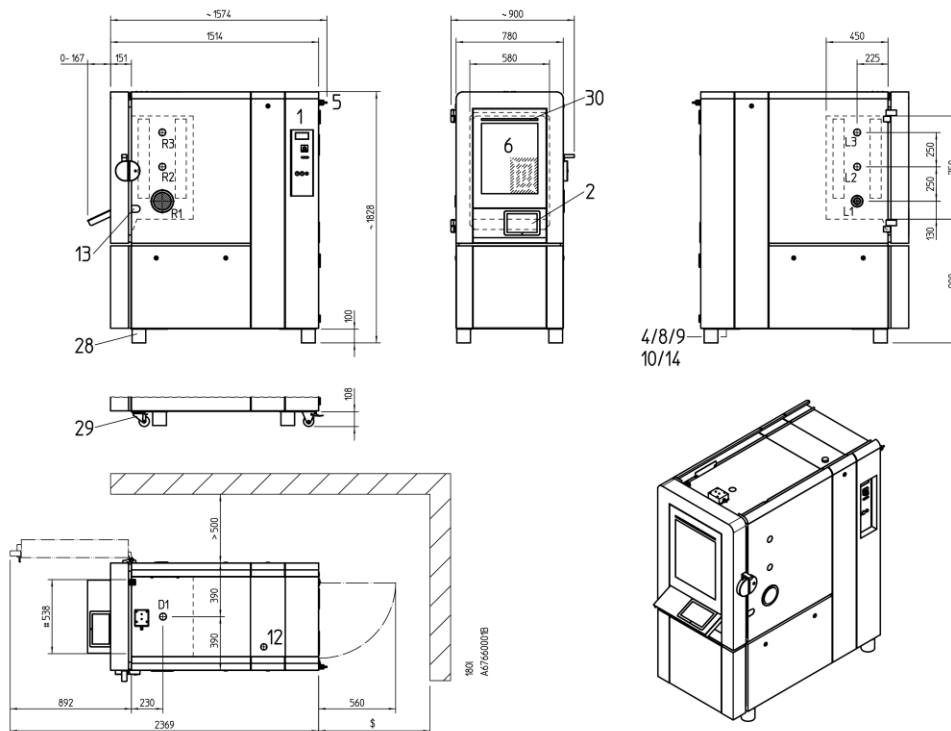


These are the following connections:

- 1 Cooling water inlet²⁵, female thread Rp 3/4"
- 2 Cooling water outlet²⁵, female thread Rp 3/4"
- 3 Overflow/condensate drain backpressure-free, G 3/4" male thread resp. hose connection Ø 12 mm
- 4 Demineralized water supply, R 3/4"
- 5 GN₂/Compressed air, DN 7.2, max. 10 bar (optional)

²⁵ Only for water-cooled version.

Installation drawing



Access ports

- R1 Installation position right $\varnothing$ 125 mm
- L1 Installation position left $\varnothing$ 50 mm
- R2-R3 Additional installation positions right (optional)
- L2-L3 Additional installation positions left (optional)
- D1 Additional installation position ceiling (optional)

Equipment

- 1 Main switch
- 2 Webpanel
- 4 Connection for overflow and condensate drain
- 5 Electrical connection
- 6 Test space door (with optional window)
- 8 Cooling water inlet²⁷
- 9 Cooling water outlet²⁷

Additional information

- ~ Transport dimensions
- # Useable width
- \$ Escape route²⁶

- 10 Connection for demineralized water
- 12 Pressure compensation opening
- 13 Notch port or flat notch port (optional)
- 14 Compressed-air connection/GN₂ (optional)
- 28 Adjustable feet, vibration-absorbing
- 29 Mobile design (optional)²⁸
- 30 LED status bar

²⁶ According to IEC 60364-7-729 (VDE 100 part 729), min. 200 mm, a wall clearance of at least 700 mm is required for service work.

²⁷ Only for water-cooled version.

²⁸ The test chamber height increases. The exact values are stated in the option description or in the installation drawing.

Refrigeration unit

Standard design	air-cooled				
Refrigerant ²⁹	Stage	Refrigerant	GWP	Fill quantity	CO ₂ -equivalent
Air-cooled (standard)	Main cooling	R744	1	1.7 kg	0 t
Water-cooled (optional)	Main cooling	R744	1	0.8 kg	0 t

Air-cooled design (standard)

Heat dissipation to the installation room, max.³² 6.7 kW

Heat dissipation to air-cooled condenser, max.³² -

Water cooled design³⁰ (optional)

Connection data	Water pressure 1 to 6 bar, differential pressure ≥ 1 bar, Water temperature +12 °C to +28 °C
Cooling water consumption, max.	0.39 m ³ /h at Δt 10 K at $T_{in} + 18^\circ\text{C}$; 1.05 m ³ /h at Δt 5 K at $T_{in} + 28^\circ\text{C}$
Cooling water quality ³¹	No pollutants (max. particle size <100 μm , ph value 7.5 to 9)
Heat dissipation to the installation room, max. ³²	0.6 kW
Heat dissipation to cooling water, max. ³²	6.1 kW

²⁹ In accordance with DIN EN 378-4, stationary refrigeration and air-conditioning units with a filling capacity of between 3 and 30 kg must be checked for leaks at least once a year; there is no obligation to check systems with a filling quantity of less than 3 kg, but we recommend checking them as a part of maintenance.

³⁰ Optionally possible.

³¹ For operation with well, pond or river water special measures must be taken.

³² Based on calculated values; may deviate from actual value.

Our basic equipment

Exterior housing

Material	Galvanized steel sheet
Finish	RAL 7035 light grey, design elements in RAL 7016 anthracite, solvent-free, powder coated
Door	Hinged on the left side, lockable, one-handed operation with LED status bar
Base	Adjustable feet, vibration-absorbing

Humidification system

Humidification water	Water reservoir (approx. 25 l), pre-installed equipment for automatic water supply with warning in case of water shortage
Humidification water quality	pH value 6-7, demineralised, conductivity 5 to 20 µs/cm
Corrosion protection humidifying bath (Purge device)	The high quality of the humidification water is guaranteed by periodic water exchange
Overflow / condensate drain	Backpressure-free, G 3/4" male thread resp. hose connection Ø 12 mm

Test space³³

Material test space floor	Stainless steel 1.4404, surface II B matt
Material test space walls	Stainless steel 1.4301, surface III D polished
Test space illumination	The LED lighting (12 W) integrated into the test space illuminates the chamber evenly from above and facilitates to bring in and prepare the test specimen setup. The lighting can be switched on and off via the WEBSeason® control software
Insertion system	Rail system allowing shelf positions to be easily changed with 10 possible positions.
Insertion shelf	1 pc., stainless steel, max. number of insertion shelves: 5
Equipment access port right side ³⁴	1 pc., approx. 125 mm Ø stainless steel, incl. closed silicone plug and slotted silicone plug
Equipment access port left side ³⁴	1 pc., approx. 50 mm Ø stainless steel, incl. closed silicone plug and slotted silicone plug

Measurement sensors

Temperature	Pt 100 platinum temperature sensor
Climate	Psychrometric humidity measurement with automatically wetted wet bulb temperature sensor Pt 100

³³ The use of tempered silicone parts means that the test space produces only low emissions. If the test space has to be emissions-free, this requires technical clarification; please contact us to request an offer.

³⁴ Production-related tolerances of up to ±3 mm are possible.

Regulation and control

SIMPAC® 2.0

Digital measuring and control system with I/O unit and **WEBSeason®**-Software, remote controllable through integration into network.

Operating/programming and monitoring unit with 25.4 cm (10 ") webpanel, integrated in the door, which can be folded forward by up to 60°.

This test chamber is equipped with our new, future-oriented **SIMPAC® 2.0** control system. To meet the future IT security requirements of our customers, a new Linux-based controller is installed. To be able to connect this to **SIMPATI®**, **SIMPATI®** version 4.80.2 or higher must be used. Please contact us for an update. Please also note that port 62542 must be released by your IT department for **SIMPATI® 4.80.2**.

In the past, port 2049 was used for networking via ASCII I and II. With **SIMPAC® 2.0**, the following changes were necessary from a technical point of view:

ASCII I new: 2050/tcp

ASCII II new: 2051/tcp

There are no changes for users of our SimServ protocol. This continues to work via port 2049.

Please note these changes prior to delivery of the systems.

You can find our FAQ on the new control system at



<https://www.weiss-technik.com/environmental-simulation/de/detailpages/software/simpac-2.0>

Communication

Communication e.g. with the test specimen via digital inputs/outputs

4 digital outputs for control of customer-provided devices by means of potential-free contacts, max. load 24 V DC, 0.5 A

4 digital inputs for feedback of customer provided devices, max. load 24 V DC, 30 mA

Network

1 Ethernet interface (100/1000 megabits) for integration in a network

USB

1 USB interface for recording of measuring data on a flash drive³⁵

Customer protocols

SimServ text protocol for data recording and control of the test chamber via Ethernet interface using external applications

OPC-UA, Profi Bus, Profi NET or EtherCAT on request.

Safety

Test specimen protection

Independent adjustable temperature limiter t_{min}/t_{max} , separate sensor installed in the test space.

Software temperature limiter t_{min}/t_{max} , individually adjustable fixed value

Test chamber protection

Temperature limiter for protection against overtemperature in the test chamber

Specimen switch-off

Potential-free contact specifically for test specimens that emit heat, on female connector, max. load 24 V, 0.5 A

³⁵ Flash drive is not included in the scope of delivery.

Additional options