

Reproducible Climate ...

Vötsch
Industrietechnik



... the new standard in test technology
Temperature and Climatic Test Chambers VT³ & VC³

Reliable test results ...

Your adviser for environmental test technology ...

Characteristics, function and service life of systems or components are influenced by varying thermal and climatic conditions during transport, storage or use.

Tests in temperature and climatic test cabinets are the method of optimising and securing quality and reliability of your products.



Founded in Berlin in 1929, Vötsch has been manufacturing at its present location in Balingen-Frommern since 1944.

This is where we plan, design and construct the test systems and plants. These assure the quality and reliability of the final products in various industrial branches.

Since 1995 Vötsch is a member of the Schunk Group. Combined know-how is the basis for trailblazing developments.



... by trend-setting technology

Test chambers with extraordinary performance ...

Extraordinary features at a glance ...

- Modern design
- PC terminal with 12" colour touch and software **SIMCONTROL*** with easy menu-guided operation
- Remote control and remote monitoring via intranet or internet
- Auto-adaptive control system with continuous self-optimization
- Integrated measuring system
- **CONTROLPAD*** easy-to-read in the door
- Increased humidification performance
- Reliable also at high ambient temperatures
- Improved spatial temperature distribution with optimized air circulation
- Supply connections and water reservoir easily accessible
- USB and ethernet interface
- Low noise level



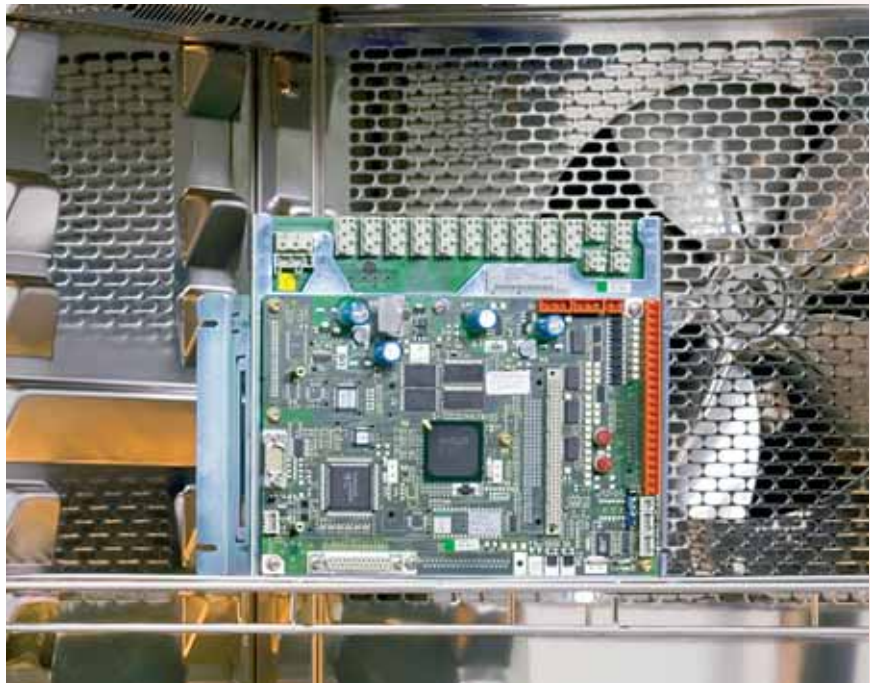
Function takes shape ...

When you need perfection in precision of temperature and climatic tests, we have the solution!

The impressive, intelligent technological simplicity of the VT³/VC³ series has led to convincing results. Additional features are an integral part of the overall solution to the problem.

Together with user-oriented options, the well thought out features of our high-tech systems constitute user-specific test systems of extraordinary quality.

Your system, a one-time assembly of optimized, tested basic modules, adapted to your specific test problem, yet with the advantages of precisely dimensioned series components.



Safe and reliable!

Based on the experience of a market leader, we have uncompromisingly implemented our TQM concept.

The test space of all test cabinets of the new series is easily accessible at laboratory table height and can be clearly observed through the optional large observation window.

Optimum air flow ensures an excellent spatial temperature distribution.

Direct temperature conditioning and climatic systems®, with their high effectiveness, make sure that energy is completely transformed into power.

The high-gloss polished stainless steel test space is welded vapour tight, has rounded edges and moulded shelf supports. It remains impervious to corrosion and is easy to clean.

The temperature conditioning systems provide rapid temperature changing rates in the range of -75 °C to +180 °C. High circulating air rates ensure even distribution of temperature and humidity in the test space. It goes without saying, that it complies with the most common temperature and climatic test standards.



... really great in little things



An essential element of the climatic system of the chambers is the humidification bath. This technology guarantees economical consumption of water, quick reaction times and long-term tests.

The measuring system required for the humidity has been considerably improved by the use of an continuously wetted humidity sensor. This type of wetting effects the self-cleaning procedure of the sensor and vastly increases the service life. Other humidity measuring systems are available as options.



More features ...

- Highly efficient 32 bit control and monitoring system **SIMPAC***
- Safety device for test specimens with independent temperature measurement t_{min}/t_{max}
- Continuously wetted, self-cleaning humidity sensor
- Large window (option) with optimized test space illumination
- Optimum air flow
- Cyclic water exchange guarantees constant quality of humidification water
- Suitable for long-term tests (damp heat 85 °C/85 % RH)
- The practical door handle is used as fixture of the terminal
- Easily accessible supply connections
- The position of the electrical compartment facilitates access during maintenance
- Adjustable and vibration-absorbing feet

Environmental aspects in the production set standards

- Solvent-free powder coating
- Asbestos- and CFC-free mineral fibre insulation
- Chloride-free refrigerant
- Guaranteed recycling system

CONTROLPAD* in the door indicating

- Actual values of temperature and humidity
- Start/stop
- On/off of the illumination
- Fault indication



Operation and documentation ...

Computer Integrated Control

Our test chambers are equipped with an integrated industrial computer system **S!MPAC*** with a 12" colour touch screen monitor to facilitate operation, monitoring and documentation.

The Windows **S!MCONTROL*** software package provides maximum user comfort, transforming the test chamber into a communication wizard.

Simulation programs and test results are saved on the hard disk and can be exchanged via USB interface. Complete test information is given with the user's fingertips and the function is explained in an easily understanding manner on the integrated process visualisation system. The interaction between compressors, heating systems and valves is clearly illustrated. Programming of tests is realised with a graphic editor.

Control is governed by the 32bit I/O system with integrated soft PLC. A web server can place test and diagnosis information in the intranet via Ethernet if desired.

Online service

The units have an online service function, enabling our specialists to establish an online data link to the unit via internet or mobile telephone. The online link provides our experts with all the data they require.

Remote control and monitoring

Units can be reached and controlled from practically anywhere in the world by simply accessing the unit webserver in the intranet via the network or enabling in the internet.



Networking

Compatible with **S!MPATI*** software package

Technical data

- Industrial PC
- Windows XP embedded
- Touch screen 800 x 600 pixel
- Multilingual software

Interfaces

- Ethernet 100/10 megabit
- RS 232
- USB for stick or printer

Customer inputs/outputs

- 4 potential-free outputs for test specimen control
- 4 inputs (24 V DC)

Options

Additional measuring technology

- Pt100
- Analog inputs 0-10 V, 4-20 mA
- Analog outputs 0-10 V

PC software

- **S!MPATI*** software package for networking and central control and evaluation of test results

USB stick

- For external saving of programs and measuring data
- Adapter for integration into WLAN



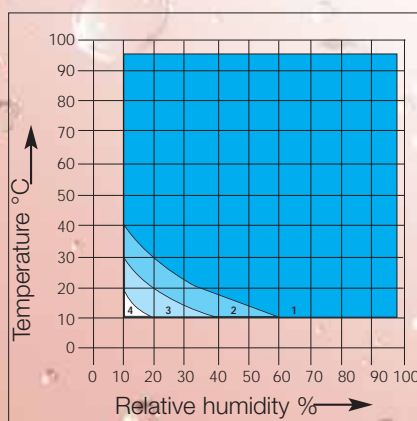
Technical data series VT³ & VC³

Temperature Test Chambers		Type	VT ³	VT ³	VT ³	VT ³	VT ³	VT ³	VT ³	VT ³	VT ³	
Climatic Test Chambers		Type	VC ³	VC ³	VC ³	VC ³	VC ³	VC ³	VC ³	VC ³	VC ³	
			4018	7018	4034	7034	4060	7060	4100	7100	4150	7150
Test space volume	litres		190	190	335	335	600	600	990	990	1540	1540
Performance for temperature tests												
Temperature range	°C		-42	-72	-42	-72	-45	-75	-45	-75	-45	-75
			+180	+180	+180	+180	+180	+180	+180	+180	+180	+180
Temperature deviation in time	K		±0.1 to ±0.5									
Temperature deviation in space	K		±0.5 to ±1.5									
Temperature gradient ¹⁾	K		1 to 3									
Temperature rate of change ¹⁾	Cooling	K/min	4.0	3.0	4.0	3.0	3.0	2.5	3.0	2.5	2.5	2.3
	Heating	K/min	4.0	4.0	3.2	3.0	4.0	4.0	4.0	4.0	3.5	3.5
Heat compensation max.	W		2800	1500	2800	1500	2500	2500	4500	3000	4200	3000
Temperature calibration values			+23 °C and +80 °C									
Performance for climatic tests - only VC³			(see diagram)									
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									
Temperature gradient ¹⁾	K		1 to 2									
Humidity range	%		10 to 98									
Dew point temperature range	°C		+4 (-3 °C ⁴⁾) to +94									
Humidity deviation in time	%		±1 to ±3									
Heat compensation max. ³⁾	W		400	400	400	400	500	500	500	500	500	500
Climatic calibration values			+23 °C / 50 % RH and +95 °C / 50 % RH									
Test space dimensions	Width	mm	580	580	580	580	800	800	1100	1100	1100	1100
	Depth	mm	450	450	765	765	800	800	950	950	1475	1475
	Height	mm	750	750	750	750	950	950	950	950	950	950
Overall dimensions (Can be reduced by dismounting of components)	Width	mm	870	870	870	870	1090	1090	1390	1390	1390	1390
	Depth	mm	1550	1550	1860	1860	1960	1960	2155	2155	2680	2680
	Height	mm	1800	1800	1800	1800	1995	1995	1995	1995	1995	1995
Electrical connection			3/N/PE AC, 400 V ±10 %, 50 Hz - other special voltages as option									
Rated power	kW		4.1	5.5	4.1	5.5	7.8	9.1	11.5	13.8	11.5	13.8
Noise level ²⁾	dB(A)		56	57	56	57	61	62	62	63	62	63
Weight	kg		470	540	515	585	620	680	840	955	1020	1130

The performance values refer to +25 °C ambient temperature.

¹⁾ In accordance with IEC 60068-3-5. ²⁾ Free field, 1 m distance from the front, as per DIN 45635, part 1, accuracy class 2.

³⁾ In the range of +25 °C to +95 °C and to max. 90 % RH. ⁴⁾ Discontinuous operation.



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 (Option compressed air dryer and capacitive system)

Equipment and options ...

Standard equipment

- PC terminal with 12" colour touch and software **SIMCONTROL*** for comfortable operation
- **CONTROLPAD*** for temperature, humidity*) start/stop etc. in the door
- Digital I/O
- Potential-free contact for switching-off of test specimens
- RS 232
- USB and ethernet interface
- Adjustable software temperature limiter min./max.
- Independent adjustable temperature limiter t_{min}/t_{max}
- Dehumidification during heating cycle
- Psychrometer, continuously wetted and self-cleaning*)
- Connection for automatic water supply*)
- Cyclic water exchange guarantees constant quality of humidification water*)
- Entry ports 1 x 50 NW, 1 x 125 NW with slotted plugs made of silicone foam
- 1 stainless steel shelf
- Air-cooled refrigeration unit
- Calibration of 2 temperature and/or 2 climatic*) values

Options

- Software **SIMPATI***
- Interface RS 232/485 or RS 232/IEEE 488
- Interface RS 485/422
- Analog transducer card I/O (for 4 Pt100-sensors)
- Additional digital I/O
- Temperature measuring on test specimen
- Independent sensors for temperature and/or humidity measuring*)
- Humidity control via capacitive humidity measuring system*)
- Adjustable circulating air quantity (adjustable fan speed)
- Fresh air for keeping the air clean
- Door with large window with optimized test space illumination
- Mobile design
- Additional entry ports (50 NW, 80 NW, 125 NW)
- Additional shelves
- Lead-through pad or notch
- Water-cooled refrigeration unit
- Printer
- Deep dehumidification for negative dew points*)
- Demineralization unit*)
- Special voltages
- Spatial calibration

*) only Climatic chambers VC³

Special designs ...

We plan and manufacture tailor-made solutions to meet all requirements.

We are your competent partner in environmental test technology.



We reserve the right of changes in construction resulting from technical progress.

Some of the illustrated systems contain optional extras.

Vötsch

Industrietechnik

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Umweltsimulation · Wärmetechnik

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