Nature in Laboratories

Climatic systems for biological research
BioClim 1100 Vario

Fitotron

schunk Group

Weiss Umwelttechnik GmbH
Simulationsanlagen • Messtechnik

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Our Experience – your Security

Weiss Umwelttechnik GmbH is a leading global manufacturer of standard testing systems and special testing systems for environmental simulation technology.

The product range comprises systems for weather, temperature shock, corrosion and long-term testing for research, development, quality assurance in numerous industries, as well as stability testing for the pharmaceutical industry and devices and systems for plant research.

This extensive know-how forms the basis for the development of the **BioClim 1100 Vario,** for biological research.

. . . also in the Field of Biological Research

All plant biological growth processes are subject to numerous influences, dependent on both the genetic make-up of the biological goods as well as environmental conditions.

The systematic research of such influences requires precisely-defined, reproducible environmental conditions such as:

Temperature, humidity, light intensity, light spectrum, day and night cycles and defined air circulation that is not detrimental to the plants.

Depending on application, it may prove necessary to support this through increased CO_2 concentrations, irrigation or precipitation.

The systems must be capable of accurately controlling a range of these factors and maintaining them over an extended period. Disturbances caused by the test product, such as the transpiration of significant water quantities and radiation of heat from the lighting in the test space, must be able to be ruled out.

As a consequence, control behaviour, control, monitoring and registration opportunities are highly important. Only systems that are capable of fulfilling these underlying requirements enable informative, reproducible, reliable biological investigations to be performed and secure utilisable results.

The **BioClim 1100 Vario** places the focal point on the key characteristic of versatility, numerous options mean that it is individually adaptable for various applications.

The number of illumination modules and therefore growth heights can also be varied on site by the user at a later stage.

Fitotron BioClim 1100 Vario . . .

The **BioClim 1100 Vario** is a test product for constant temperatures with a temperature range of between −2 °C and +50 °C. The characteristics of this device have been optimised for conditioning applications.
The corrosion-resistant, stainless steel interior and coated steel housing are indicative of the high-quality design.

The **BioClim 1100 Vario** is equipped with ten wire shelves, offering a generous storage space of 4.5 m², ideal for the following fields:

- **Product testing under constant climatic conditions**
- **Conditioning applications.**

In addition, the **BioClim 1100 Vario** can also be adapted for further applications, such as:

- Plant cultivation
- Seed storage
- Tissue culture
- Arabidopsis

A range of options is available for this, including various illumination modules, wire shelves and humidity control.
In addition, it is also possible to adapt requested height retroactively by the addition or removal of lighting modules.

The Advantages

- Flexible for numerous applications
- Cost-effective and user-friendly
- Compact design – minimal installation surface, resulting in greater effective surface
- Flexible shelves with a working range of up to 5.6 m²
- Easily interchangeable lamps, shelf lighting individually adjustable 10 – 100 %
- Independent safety thermostats for min. and max. temperature
- Technology placed on top of device for space saving and ease of maintenance
- Adjustable audio/visual alarm
- Potential-free alarm output

Technical data for BioClim 1100 Vario

Chamber			mobile
Test space dimensions	WxDxH	mm	1300 x 690 x 1480
External dimensions	WxDxH	mm	1420 x 800 x 1980
Volume		litre	1100 nominal
Double wing door	WxH	mm	705 x 1600
Temperature range		°C	−2 to +50, without light
		°C	+10 to +35, with light
Temperature deviation in time		°C	+/−0.3
Humidity range (optional)		%	60 to 80 RH
Humidity measuring			Capacitive sensor

Irradiation			Number of lamps per shelf	Max. intensity µmol/m²s*)	Possible growing height (mm)
One insert lighting shelf			12	550	1300
Two insert lighting shelves			6	270	623
Three insert lighting shelves			4	170	400
Four insert lighting shelves			3	140	250
Five insert lighting shelves			2	100	174
Electrical connection			1/N/PE AC 230 V ±10%, 50 Hz		
Water requirements			Demineralised water (humidity option only)		
Housing inside / outside			Corrosion-resistant stainless steel / finish RAL 9002		
Weight		kg	275		
Safety			Safety thermostats for min. and max. temperature Audio / visual alarm		
Subject to alteration.					

*) 150 mm below the lamps (36 W) at 25 °C

Plant Growth

Available with a range of shelving and lighting options, the **BioClim 1100 Vario** can provide a shelf space of 3.25 m².

Lighting can also be altered to suit individual requirements, ranging from 550 µmol/m²s for plants studies to 100 µmol/m²s for tissue culture applications. The flexibility of the system enables growth heights of 174 mm to 1300 mm to be achieved, emphasising the versatility of the unit.

Lighting is available in a number of options, as is the shelving.

The lighting on each shelf is controllable by the user. An optional humidifier capable of providing up to 80% relative humidity is also available, further widening the range of capabilities that the system can provide, and giving an impressive array of options.

Important option:
Illumination module 1–5

Further Applications . . .

Seed Storage

Based on the **BioClim 1100 Vario** constant temperature chamber, the Seed Storage Chamber is ideal for simulating the cool and dry conditions that are required.

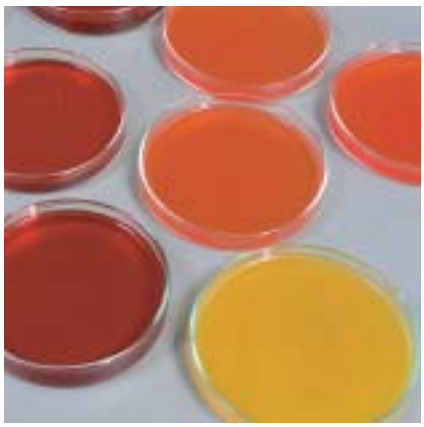
The Seed Storage Chamber is supplied with ten shelves giving a growing area of 4.5 m^2.

Temperature is adjustable between 4 °C to +35 °C emphasising the versatility of the unit. An air drying system is provided to remove humidity to a level of 15 % RH at 4 °C.

The **BioClim 1100 Vario** offers a "future proof" solution with outstanding control performance to cope with changing demands of seed storage and provides an affordable solution with outstanding control performance and reassurance of the integrity of the results of testing.

- 10 wire shelves giving a growing area of 4.5 m^2
- Additional shelving available up to further 2.6 m^2
- Low humidity option 15 % r.h. at 4 °C.

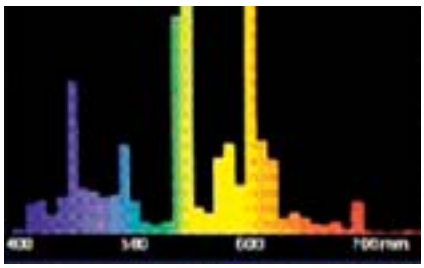
Tissue Culture



Building upon the foundations of the **BioClim 1100 Vario** is the Tissue Culture Chamber.
This includes a second set point timer enabling a second temperature to be simulated throughout a 24 h cycle.

Also available with this variant is a shelving and lighting system which offers users the option of having up to five illuminated shelves. The temperature range is from −2 °C to 50 °C with the lights OFF and 10 °C to 35 °C with the lights ON.

- Standard shelving gives 2.6 m^2 area
- Illumination individually controllable
- Interchangeable lamps including UV
- Additional lamps available, which are reaching an area of 3.25 m^2.



Arapidopsis

Providing the space for growing Arabidopsis to maturity under controllable light, temperature and humidity conditions, the **BioClim 1100 Vario** is available with a range of shelving and lighting options.

The standard shelving configuration provides a growing area of 1.9 m^2 and lighting can be altered to suit individual requirements. Additional illuminated shelf units can be added by users to provide additional growth area as required.

The optimal design of the interior facilitates access to the plants and leaves, for example in order to perform measurements.

The temperature is adjustable between −2 °C to 50 °C (10 °C to +35 °C with full lighting) and an optional humidifier capable of providing up to 80 % relative humidity is also available.

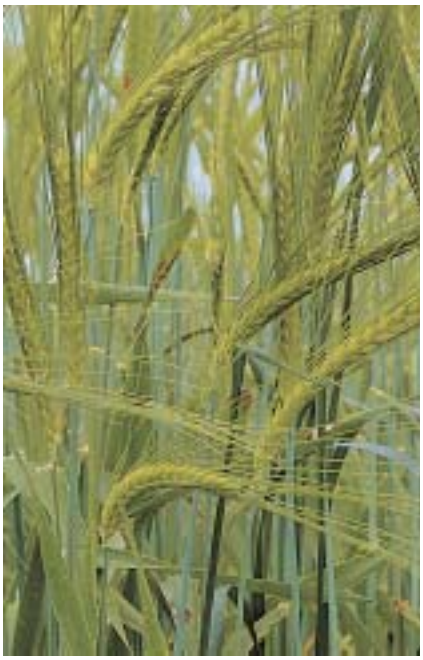
With its flexible modular form, the **BioClim 1100 Vario** offers a long-term solution that can also be adapted retroactively to meet changing requirements.

Walk-in Plant Cultivation Systems

Our BioClim series also includes walk-in plant cultivation systems that can be equipped to simulate temperature, humidity and light, as well as offering the options of increased CO_2 concentration or irrigation. A modular chamber system is available for this, enabling adjustment to meet individual requirements.

Light intensity of up to 1200 µmol/m² is possible, as is the fitting of numerous light levels and various light spectrums.

The performance data are tailored individually to the respective requirements.



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A complete product range for temperature and climate testing is available, with test space volumes of approx. 34 litres to 2160 litres and working ranges of –75 ... +180 °C and 10 ... 98 % r.h.
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As one of the leading manufacturers of simulation systems worldwide, Weiss Umwelttechnik offers the entire range of high-quality test equipment: from economical series devices to walk-in systems process-integrated systems built to customer specification.

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