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### **Local contact:**

We are a specialized supplier with 25 years of experience in the field of design and production of laboratory and process equipment, where we ensure our clients the best solutions.

We are certainly proud of the fact that we are selected by those companies that have specific needs and are looking for custom-made solutions.

### **Our products**

- Climatic Chambers
- Plant Growth Chambers
- Temperature Chambers
- Vacuum Dryers
- Freeze Dryers
- Shakers
- Pass-boxes
- VMAP Packaging Systems
- Tailored Solutions

# Laboratory & Process Equipment



# Climatic Chambers

- Temperature ranges: 5°C ... 95°C (any size), -40°C ... 180°C (LT – version), -75°C ... 180°C (ULT – version)
- Innovative system, which enables the uniform and stable temperature and Rh field throughout the entire working temperature range
- Process control through the user-friendly controller with an LCD display and programmable functions (10 programs, 10 steps, cycling, controlled passes-grades....)
- PID temperature and relative humidity controller
- Rh control with a 'dew-point' system
- 0.1°C temperature setting and display resolution
- 1% relative humidity setting and display resolution
- Double protection system against the high temperatures
- The interior chamber fully made of stainless steel AISI 304 highly polished
- The exterior made of aluminized sheet, powder coated (RAL 7035)
- Stainless steel wire shelves
- Simple temperature and Rh calibration
- Acoustic and visual alarm
- Wide selection of optional equipment

## S Size Climatic Chambers



**KK-105 CH**

**KK-190 CH**

Booth size available in LT and ULT version

## M Size Climatic Chambers



**KK-265 CH**

**KK-340 CH**

**KK-500 CH**

All available in LT and ULT version

## XL Size Climatic Chambers



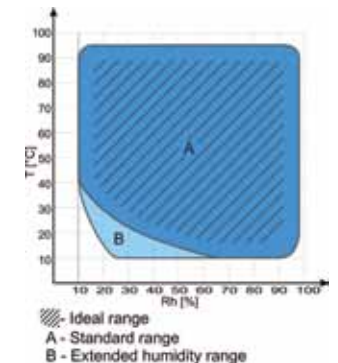
**KK-1000 CH**

**KK-1700 CH**

**KK-2700 CH**

**KK-4075 CH**

All available in LT and ULT version



# Plant Growth Chambers

- Temperature range 5°C ... 60°C (others available on demand)
- Day & Night simulation
- Forced air circulation with a fan
- Innovative system for providing a uniform and stable temperature and RH field throughout the entire working temperature range.
- Process control through a user-friendly controller with an LCD display with the programmable functions (day time, night time, day temperature, day humidity, night temperature, night humidity)
- PID temperature and relative humidity control
- Humidity control with 'dew-point' system
- 0.1°C temperature setting and display resolution
- 0.1% relative humidity setting and display resolution
- Double protection system against the high temperatures
- The interior casing made of stainless steel (AISI 304)
- The exterior made of aluminized sheet, powder coated (RAL 7035)
- Stainless steel wire shelves
- Acoustic and visual alarm
- Large selection of optional equipment



## S size Plant Growth Chambers

**RK -265CH**

**RK- 340 CH**

Compact design  
Front light source  
Available with CO2 control



## M size Plant Growth Chambers

**RK-500 CH**

**RK-700 CH**

Reduced depth  
Small footprint  
Front light source



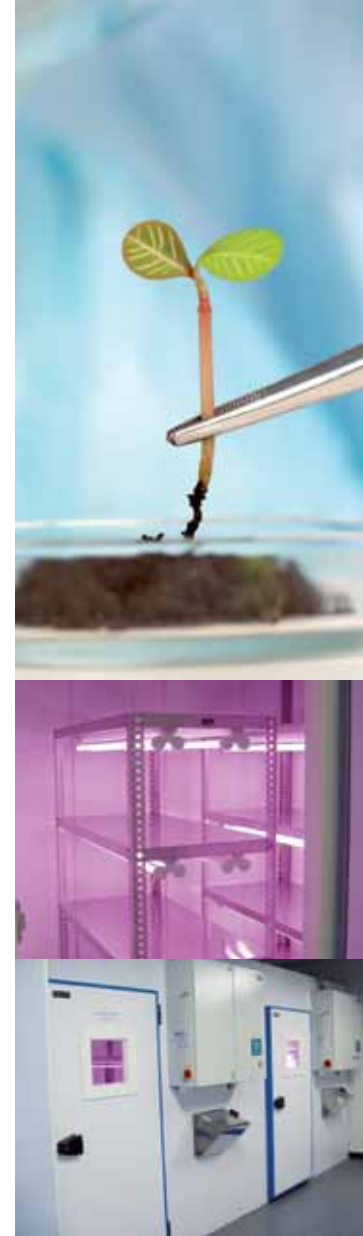
## L size Plant Growth Chamber

**RK-900 CH**

Reduced depth  
Front & back light source  
3 level light intensity control

## Walk In Models

Volume capacity: 10 ... 35 m<sup>3</sup>  
Built to fit



# Temperature Chambers

- Variety of temperature chamber for general and focused purposes
- Temperature ranges all together covering range -75°C ... 180°C / 300°C
- Forced or natural air circulation
- Innovative system for providing a uniform and stable temperature field throughout the entire working temperature range.
- Process control through a user-friendly controller with an LCD display
- PID temperature control
- 0.1°C temperature setting and display resolution
- Double protection system against the high temperatures
- The interior casing made of stainless steel (AISI 304)
- The exterior made of aluminized sheet, powder coated (RAL 7035)
- Stainless steel wire shelves
- Acoustic and visual alarm
- Wide volume range from 25L ... 5 m<sup>3</sup>
- Large selection of optional equipment

## Temperature Chambers with Heating only Function

Natural or forced Air circulation  
Standard temperature range  
 $T_{\text{ambient}} + 5^{\circ}\text{C} \dots 300^{\circ}\text{C} (500^{\circ}\text{C})$   
Basic or advanced programmable controllers

Commonly used for:

- Drying
- Sample / material conditioning
- Stress tests
- Dry heat sterilization



## Temperature Chambers with Heating and Cooling Function

Forced Air circulation  
Standard temperature range:  
-10°C ... 100°C, -40°C ... 180°C,  
- 75°C ... 180°C

Advanced programmable controllers

Commonly used for:

- Stability testing
- Stress testing
- Sample / material conditioning
- Cold Storage
- Low or environment temperature incubation



# Vacuum Dryers

- Temperature range  $T_{\text{ambient}} +5^{\circ}\text{C} \dots 200^{\circ}\text{C}$
- Programmable microprocessor controller with an LCD display
- Start-up operation delay (start-up at a specified time and day)
- Material temperature monitoring
- $0.1^{\circ}\text{C}$  temperature resolution
- $\pm 0.1^{\circ}\text{C}$  temperature stability
- Simple temperature calibration
- RS 232 communication port
- Inert gas purging
- Additional free port NW-40 (for calibrations)
- Glass door with over pressure release function
- Over temperature shut-off
- Two-stage silicon seal
- Radiused chamber made of stainless steel AISI 304 (optional AISI 316)
- Exterior made of aluminized sheet, powder coated (RAL 7035) (optional AISI 304)
- Shelf temperature display (SC label at the end of the type)
- Heated shelves (independent PID controller for each shelf) (...SC models)
- Vacuum control & digital display (...SC models)
- Qualification documentation available
- Available with different vacuum pumps
- Large selection of optional equipment

## Table Top Models



**VS-25 C**

**VS-25 SC**

2 heated shelves  
Vacuum control



**VS-50 C**

**VS-50 SC**

2 heated shelves  
Vacuum control



**VS-130 SC**

5 heated shelves  
Vacuum control

All commonly used for:

- Vacuum drying
- Dry mass determination
- Food & Drug QA labs

## Industrial Vacuum Dryers



Capacity:  $1\text{m}^2 \dots 10\text{m}^2$

Heating / Cooling: fluid circulation through shelves, walls and doors

Condenser:  $1 \dots 5\text{m}^2$  ( $-75^{\circ}\text{C}$  available)

Standard installation or according to ATEX

Commonly used for:

- Pharma vacuum drying

# Freeze Dryers

In research – The unit is used for various drying procedures. The products can be dried in different containers. This unit is typically used at universities and research laboratories.

Pilot systems – Freeze drying R&D, optimization of product and drying cycle. This unit is typically used in the pharmaceutical industry as well as in research and development laboratories.

Production – Small batch quantities with capacity up to 3.2m<sup>2</sup>. The prime considerations are: low costs per surface area, endurance and simple use. This unit is typically used by small companies engaged in the field of biotechnology.



## Table Top Models

### Lio-5P

Condenser temperature down to -55°C



### Lio-5 PLT

Condenser temperature down to -100°C



## Stand Alone Models

### Lio-10P

0,1m<sup>2</sup> compact unit

### Lio-1000

0,1m<sup>2</sup> unit

### Lio-2000

0,2m<sup>2</sup> unit

### Lio-4000

0,45m<sup>2</sup> unit

### Lio-8000

0,9m<sup>2</sup> unit

Featuring separate chamber for drying and condenser

Temperature controlled shelf / shelves

Built in vacuum pump

Advanced programmable controller...

available with condenser down to -95°C



# Shakers

This shakers are the result of users needs and discoveries of many years in static incubation. We produce incubators with independent thermo stated cabinet with an incorporated shaker or as shakers that can be installed in the conditioned environment.

To make things easier shakers are usually equipped with different clamps or holding devices. That can even be customized to specific volumes, shapes or materials.



## Table Top Model

### IS-190

Temperature control  $T_{\text{ambient}}$   
+5°C...70°C

Linear movement with  
amplitude 44 mm  
Shaking plate size  
490 x 450 mm



## Stand Alone Model

### IS-200K

Temperature control  
10°C ... 70°C (refrigerated)

Circular movement with  
amplitude 50 mm  
Shaking plate size  
800 x 660 mm



# Pass-boxes

Pass boxes are most commonly used to allow safe transfer of material, equipment, documents or samples between Clean rooms or rooms in different grade or/and pressure. Usage of pass boxes minimizes the risk of airborne cross contamination. Further add on function such as air circulation and filtration, UV lights, etc. to the base model will make transfers of your material even safer and cleaner.

- Stainless steel interior & exterior housing with mirror finish
- Power supply free innovative interlock as standard
- Single-handed operation
- Large radius corners making it perfectly cleanable & sealable
- Tempered 12 mm thick glass doors
- Installation parts included as standard (booth side frame, support bracket/legs, screws)
- More than 500 installations world wide

## Characterization



- / Mechanical interlock
  - EL** Electrical interlocks
  - LUX** Floor version
  - UV** UV C sterilization light
  - H** Internal air circulation through HEPA Filter
  - AIR** Air supply from / to HVAC system
  - H2O2** H<sub>2</sub>O<sub>2</sub> ports for sterilization
  - 90°** Corner version
  - LUX** Floor installation
- Different combinations available!

## Most Frequent Dimensions / Models

	Interior			Exterior			Equipment	View
	W	H	D	W	H	D		
<b>PB 4/4/4</b>	400	400	400	500	500	450	/	
<b>PB 5/5/5</b>	500	500	500	600	600	550	/	
<b>PB 6/6/6</b>	600	600	600	700	700	650	/	
<b>PB 8/8/8</b>	800	800	800	900	900	850	/	
<b>PB 6/6/6 UV</b>	600	600	600	700	850	750	UV - C surface sterilization	
<b>PB 6/6/6 HUV</b>	600	600	600	750	970	750	Internal air circulation through HEPA filter sterilization	
<b>PB 6/6/6 AIR</b>	600	600	600	700	700	750	Air shower with supply from HVAC system	
<b>PB 6/6/6 EL</b>	600	600	600	700	750	750	Electrical interlock	
<b>PB 8/10/8 LUX</b>	800	1000	800	1000	1150	950	Floor installation	
<b>PB 6/6/6 90°</b>	600	600	600	*	*	*	Corner installation	

All other dimensions available on demand!



# VMAP Packaging Systems

The presented solution is a result of decades-long experience in the field of design and manufacture of customized and specialized laboratory and process equipment. It is the latest development of the so-called Vacuum Modified Atmosphere Packaging technology. Its sole purpose is packaging pharmaceutical goods in an atmosphere which keeps oxygen level below 0.3%.

- Packaging in oxygen free atmosphere
- Oxygen atmosphere analysis for each cycle packet
- Packaging in Alu or PVC bags
- Isolation of container
- Capacity range from 0.7 m<sup>3</sup> up to 8 m<sup>3</sup>
- Clean room installation



**VKN-440**

440 L  
1 x 600 mm bag sealer



**VKN-770**

770 L  
1 x 600 mm bag sealer



**VKN-1000**

1000 L  
2 x 600 mm bag sealer



**VKN-3780**

3780 L  
2 x 1200 mm bag sealer  
Container isolation



**VKN-8000**

8000 L  
Bag sealer available on demand  
Container isolation

Control system based on Siemens S7-300 platform  
Including profi-bus / Ethernet and application for digital report on SCADA system  
Including CFR 21 part 11 guidelines on electronic records and electronic signatures  
Tailored size and control systems available!

# Tailored Solutions

Over 200 tailored projects for known clients and applications.  
Designed, manufactured and tested all under the same roof!

- Temperature control
- Pressure control
- Vacuum control
- Relative humidity control
- CO<sub>2</sub> control
- O<sub>2</sub> control
- Fluid level control



## Tailored Climatic Chambers

Extreme temperature ranges  
Extended Rh control ranges  
Extreme size



## Tailored Water or Oil Baths

World class metrology performances  
Extreme temperature ranges  
Calibration purposes  
R&D support  
Material conditioning



## Tailored Process Equipment

Drying  
Continues heating  
IR Flash heating  
Heat modification  
Testing according to EN standards requirements