

# BINDER

## Product overview

2021-1



### Incubators

Drying and heating chambers

Climate chambers

Ultra low temperature freezers



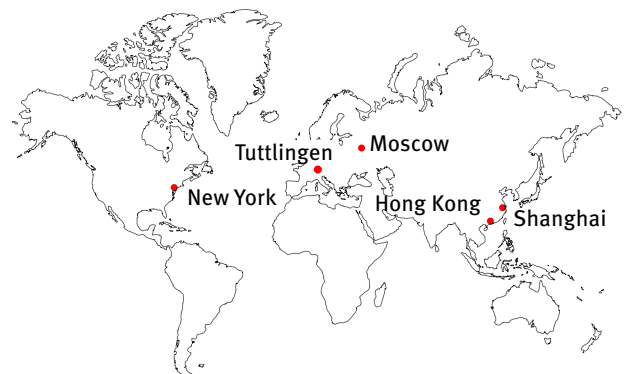
# On your doorstep – worldwide

## THE ULTIMATE in premium quality – produced in Germany

BINDER simulation chambers perform complex laboratory tasks with absolute reliability. They are developed and manufactured exclusively at the company site in Tuttlingen, southern Germany. We carry out all production stages in our factory – parts are punched, bent, and welded with precision; units are insulated and then finally assembled with care. By doing this, we can guarantee quality across the board. We supply around 22,000 premium units globally each year, with our intensive quality checks ensuring the excellent BINDER standard each time.

With our four subsidiaries and our international sales partners, we are never far away from global companies, institutes, and research facilities all over the world. In recent years, we have really increased our international presence and are now highly committed to our customers in Asia and America, as well as to our core markets in Europe. Our BINDER experts support and advise you on-site in everything from choosing your perfect unit and installation, right through to maintenance and reliable technical support.

### Right on your doorstep – in 135 countries around the world



## Perfection in every detail

### BINDER product portfolio and know-how – for all industries

Nearly all respected companies and research facilities rely on BINDER simulation chambers with the characteristic red triangle, whether they need them for cell or tissue cultivation, long-term storage, product testing, or material testing. We know what is important in laboratory practice and therefore work to ensure that we can fulfill our customers' requirements perfectly with excellent products and sophisticated equipment features. Our highly diversified BINDER product portfolio includes incubators, growth chambers, ultra low temperature freezers, drying and heating chambers, and climate chambers. It therefore covers the diverse requirements of the industries and markets in a first-class manner.

### Series production units and individual solutions – for all circumstances

Right from their manufacture at the factory, BINDER temperature, climate, and simulation chambers address the widest range of demands from scientific and industrial labs. Thanks to an extensive range of accessories and equipment options, our series production products can be set up in a more specific way on request for all standard application areas. If they are to be used for truly specialist laboratory tasks, the series production simulation chambers can be adapted further using individual extras from BINDER INDIVIDUAL.

### BINDER has the experience for every requirement

- Automotive
- Biotechnology
- Chemical industry
- Electronics/semiconductor industry
- Human diagnostics
- Pharmaceutical industry
- In vitro fertilization (IVF)
- Cosmetics industry
- Aerospace industry
- Food/beverage industry
- Medical research
- Biological safety cabinets



# Looking for the right climate chamber?

BINDER products fit the bill perfectly.

Every BINDER climate chamber is equipped with top-of-the-range technology made in Germany and makes it possible to precisely simulate biological, chemical, and physical environmental conditions. The wide range of products from the leading specialist addresses the various requirements in science and industry. It comprises temperature and climate chamber models, material testing and drying chambers, as well as environmental simulation chambers. You'll find the ideal unit for every application here!

		23/28 liters	53/56/60 liters	115 liters	170 Liter	220/240/260 liters	400/500 liters	700/720 liters	1,020 liters	Page
<b>GROWTH</b> from page 4	CB series	-	•	-	•	•	-	-	-	5
	CB-S series	-	-	-	•	•	-	-	-	5
	BD series	•	•	•	-	•	•	•	-	7
	BD-S series	-	•	•	-	-	-	-	-	7
	B series	•	-	-	-	-	-	-	-	8
	BF series	-	•	•	-	•	•	•	-	8
	KB series	•	•	•	-	•	•	•	-	9
	KT series	-	•	•	•	-	-	-	-	9
	KBW series	-	-	-	-	•	•	•	-	10
	KBWF series	-	-	-	-	•	-	•	-	10
<b>STORAGE</b> from page 12	UF V series	-	-	-	-	-	•	•	-	13
<b>DRYING AND TEMPERING</b> from page 14	ED series	•	•	•	-	•	•	•	-	15
	ED-S series	-	•	•	-	-	-	-	-	15
	E series	•	-	-	-	-	-	-	-	16
	FD/FED series	•	•	•	-	•	•	•	-	17
	FD-S series	-	•	•	-	-	-	-	-	17
	FP/M series	-	•	•	-	•	•	•	-	18
	FDL series	-	-	•	-	-	-	-	-	18
	VD series	•	•	•	-	-	-	-	-	19
	VDL series	•	•	•	-	-	-	-	-	19
<b>ENVIRONMENTAL SIMULATION</b> from page 22	KBF series	-	-	•	-	•	-	•	•	23
	KBF-S series	-	-	•	-	•	-	•	•	23
	KBF P series	-	-	-	-	•	-	•	-	24
	KBF LQC series	-	-	-	-	•	-	•	-	24
	KMF series	-	-	•	-	•	-	•	-	25
	MK/MKT series	-	•	•	-	•	-	•	-	26
	MKF/MKFT series	-	•	•	-	•	-	•	-	26
<b>BATTERY TEST CHAMBERS</b> from page 28	LIT MK series	-	-	-	-	•	-	•	-	29
<b>MULTI MANAGEMENT SOFTWARE</b> from page 32	APT-COM™ 4									33
<b>ACCESSORIES AND SERVICES</b> from page 34	Options and accessories									34
	Services									36
	BINDER INDIVIDUAL									38

# Growth

Precise regulation of temperature, humidity, CO<sub>2</sub> concentration, and O<sub>2</sub> concentration as physical parameters, plus reliable reproducibility of test conditions, are the most important requirements for incubators and climate chambers used in scientific laboratories that work with living organisms. BINDER is aware of these requirements and works continuously to provide you with the perfect CO<sub>2</sub> incubators, microbiological incubators, and plant growth chambers. They deliver innovative technical solutions and comprehensive equipment options as standard.



## **Cell biology**

CO<sub>2</sub> incubators CB-S | CB



## **Microbiology**

Standard incubators B | BD | BD-S | BF  
Cooling incubators KB | KT



## **Plant biology**

Growth chambers KBW | KBWF

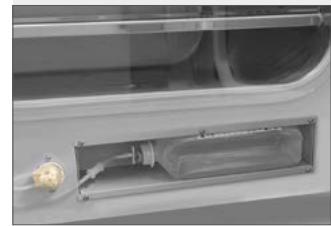
## CO<sub>2</sub> incubators with hot air sterilization and heat sterilizable CO<sub>2</sub> sensor | CB series



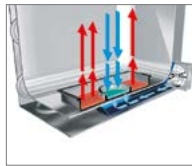
### Features:

- Temperature range: from +4°C above ambient temperature up to +60°C
- Humidity range: 90 to 95% RH
- CO<sub>2</sub> control range: 0 to 20 vol.% CO<sub>2</sub>
- Tried-and-tested anti-contamination concept with 180°C hot air sterilization
- Optimized double-pan humidification system with condensation protection
- CO<sub>2</sub> gas-mixing jet with Venturi effect
- Hot-air sterilizable CO<sub>2</sub> sensor with single-beam infrared technology

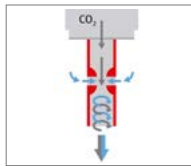
The CB series is also available with active humidification



Seamless, deep-drawn chamber with corrugated sides and no interfering fixtures



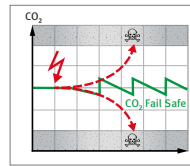
Permadyr™ humidification system with double pan



Sterilizable IR CO<sub>2</sub> sensor and Venturi gas-mixing nozzle



DuoDoor™ – outer and inner door open at the same time



CO<sub>2</sub> fail-safe for emergency control in the event of sensor failure

All details on the series  
[go2binder.com/en-CB](https://go2binder.com/en-CB)



Available sizes: CB 56 | CB 170 | CB 260 model

## CO<sub>2</sub> incubators with hot air sterilization | CB-S series

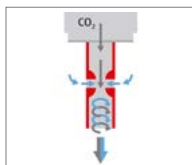


### Features:

- Temperature range: +6°C above ambient temperature to +50°C
- Humidity range: 90 to 95% RH
- CO<sub>2</sub> control range: 0 to 20 vol.% CO<sub>2</sub>
- Tried-and-tested anti-contamination concept with 180°C hot air sterilization
- Humidification system with condensation protection
- CO<sub>2</sub> gas-mixing jet with Venturi effect
- CO<sub>2</sub> sensor with single-beam infrared technology



Seamless, deep-drawn chamber with corrugated sides and no interfering fixtures



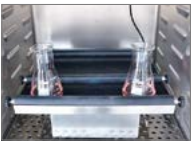

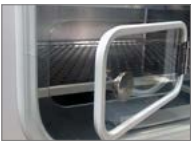


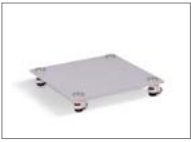


IR CO<sub>2</sub> sensor and Venturi gas-mixing nozzle

All details on the series  
[go2binder.com/en-CB-S](https://go2binder.com/en-CB-S)



Available sizes: CB-S 170 | CB-S 260 model

## ACCESSORIES AND CONFIGURATIONS

<b>CO<sub>2</sub> shaker</b>	<p>High-quality solution for the incubation of suspension cell cultures in CO<sub>2</sub> incubators. As only corrosion-resistant components are used in the stainless steel housing, the CO<sub>2</sub> shaker is ideal for gassed incubators with increased CO<sub>2</sub> concentrations and nearly saturated air humidity.</p> <p>Available as a Universal variant with ribbon cable for all BINDER CO<sub>2</sub> incubators with an interior of 150 liters or more and a Professional variant for CB models from 150 liters upwards with a LEMO socket as an electric access port.</p> <p>CB-S, CB series</p>	
<b>Active humidification</b>	<p>Humidity regulation from 50 to 95% RH with external water supply. Hot steam is used for the humidification process, while sterile, dry ambient air is supplied for dehumidification. The CO<sub>2</sub> incubator does not need a water pan.</p> <p>CB series</p>	
<b>Quick sample access</b>	<p>The additional glass window (13 cm x 25 cm) in the inner glass door allows quick access to samples with a short incubation time. This ensures that any disruption to the atmosphere is kept to a minimum and that recovery times are quick.</p> <p>CB series</p>	
<b>Multiple-split inner door</b>	<p>Split glass doors and special matching shelf racks make it possible to divide the space for different experiments. The interior chamber atmosphere remains stable.</p> <p>CB series</p>	
<b>Copper interior fittings</b>	<p>The kit consists of three copper shelves and a copper-plated water pan. The copper equipment reduces the time and effort required for cleaning the incubator while continuing to ensure a high level of resistance to contamination.</p> <p>CB-S, CB 170 series</p>	
<b><u>Stacking options:</u></b>		
<b>Base</b>	<p>The base equipped with casters is used to position and level BINDER CO<sub>2</sub> incubators securely.</p> <p>CB-S, CB series</p>	
<b>Stacking adapter</b>	<p>For stacking two BINDER CO<sub>2</sub> incubators in a thermally isolated manner.</p> <p>CB-S, CB series</p>	
<b>Stacking frame on casters</b>	<p>Stable, vibration-free stacking frame on casters with locking brake for stacking two CO<sub>2</sub> incubators safely.</p> <p>CB-S, CB series</p>	

## Standard incubators with natural convection | BD Avantgarde.Line series



### Features:

- Temperature range: ambient temperature +5°C to +100°C
- Excellent temporal and spatial temperature accuracy thanks to APT.line™ preheating chamber technology
- Transfer of heat through natural convection
- Up to 30% lower energy consumption compared to conventional units on the market
- Disinfection possible at +100°C
- Easy and intuitive to use thanks to modern control technology



Controller with LCD and numerous functions



Data recording via the USB port, which comes as standard



Inner door made of tempered safety glass

### Controller and timer functions

BD series	
Ramp function	•
Time delayed OFF	•
Time delayed ON	•
Temperature-dependent delayed OFF	•
Class 3.1 independent temperature safety device	•
Visual temperature alarm	•
Adjustable fan speed	–
Electromechanical control of the exhaust air flap	•

All details on the series  
[go2binder.com/en-BD](https://go2binder.com/en-BD)



Available sizes: BD 23 | BD 56 | BD 115 | BD 260 | BD 400 | BD 720 Model

## Standard incubators with natural convection | BD-S Solid.Line series



### Features:

- Temperature range: ambient temperature +5°C to +70°C
- High temperature accuracy
- Transfer of heat through natural convection
- Controller with timer function



Controller with 7-segment display



Manually adjustable exhaust air flap

### Controller and timer functions

BD-S series	
Ramp function	•
Time delayed OFF	•
Time delayed ON	–
Temperature-dependent delayed OFF	–
Class 3.1 independent temperature safety device	•
Visual temperature alarm	•
Adjustable fan speed	–
Electromechanical control of the exhaust air flap	–

All details on the series  
[go2binder.com/en-BD-S](https://go2binder.com/en-BD-S)



Available sizes: BD-S 56 | BD-S 115 model



Standard incubators with mechanical adjustment | B Classic.Line series



- Features:**
- Temperature range: +30°C to +70°C
  - Hydro-mechanical thermostat
  - Inner door made of tempered safety glass
  - 2 chrome-plated racks
  - Stackable



Stainless steel inner chamber



Glass pane with door gasket

Available sizes: B 28 model

All details on the series  
[go2binder.com/en-B](https://go2binder.com/en-B)



Standard incubators with forced convection | BF Avantgarde.Line series



- Features:**
- Temperature range: +7°C to +8°C above ambient temperature up to +100°C
  - Excellent temporal and spatial temperature accuracy thanks to new APT.line™ technology
  - Transfer of heat through forced convection
  - Short temperature recovery times
  - Controller with LCD
  - Electromechanical control of the exhaust air flap



Controller with LCD and numerous functions



Data recording via the USB port, which comes as standard



Inner door made of tempered safety glass

Controller and timer functions

BF series	
Ramp function	•
Time delayed OFF	•
Time delayed ON	•
Temperature-dependent delayed OFF	•
Class 3.1 independent temperature safety device	•
Visual temperature alarm	•
Adjustable fan speed	•

All details on the series  
[go2binder.com/en-BF](https://go2binder.com/en-BF)



Available sizes: BF 56 | BF 115 | BF 260 | BF 400 | BF 720 model



## Cooling incubators with compressor technology | KB series



### Features:

- Temperature range: -10°C to 100°C
- Powerful cooling with compressor cooling unit
- Precise temperature control
- Disinfection possible at +100°C
- Up to 30% lower energy consumption compared to the previous model
- Adjustable fan speed



Controller with time-segment and real-time programming



Inner chamber made of corrosion-resistant stainless steel



Inner door made of tempered safety glass



White light LED modules providing flexible and simple placement (option)

Available sizes: KB 23 | KB 53 | KB 115 | KB 240 | KB 400 | KB 720 model

All details on the series  
[go2binder.com/en-KB](https://go2binder.com/en-KB)



## Cooling incubators with thermoelectric cooling | KT series



### Features:

- Temperature range: +4°C to +100°C
- Cooling with precision control thanks to thermoelectric cooling module
- Environmentally friendly and safe as there are no refrigerants
- Energy-efficient temperature control at ambient temperature
- Disinfection possible at +100°C
- Adjustable fan speed



Controller with time-segment and real-time programming



HIT insulation, direct foaming of the chamber with the housing



Inner door made of safety glass with gasket



White light LED modules providing flexible and simple placement (option)

Available sizes: KT 53 | KT 115 | KT 170 model

All details on the series  
[go2binder.com/en-KT](https://go2binder.com/en-KT)



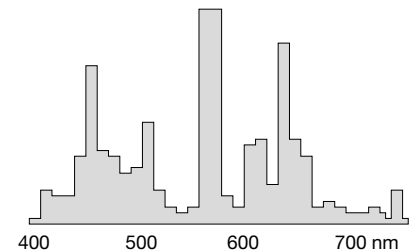
## Growth chambers with light | KBW series



### Features:

- Temperature range: 0°C to +70°C
- Homogeneous temperature distribution thanks to APT.line™ preheating chamber technology
- Cooling system for operation that is stable in the long term
- Illumination cassettes providing flexible placement, which ensure homogeneous illumination over the entire usable area
- Intuitive touchscreen controller with time-segment and real-time programming

**Type of illumination for the illumination cassettes: daylight fluorescent lamps, light color 865 (standard)**



Illumination cassettes with three light qualities: daylight, Arabidopsis, FLUORA

Inner door made of tempered safety glass

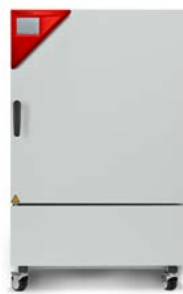
Intuitive touchscreen controller

Available sizes: KBW 240 | KBW 400 | KBW 720 model

All details on the series  
[go2binder.com/en-KBW](https://go2binder.com/en-KBW)



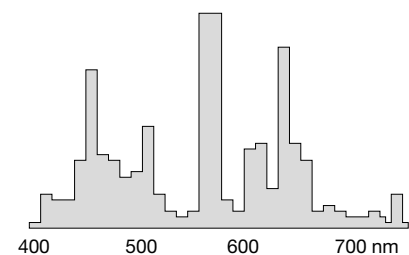
## Growth chambers with light and humidity | KBWF series



### Features:

- Temperature range: 0°C to +70°C
- Humidity range: 10% RH to 80% RH
- Homogeneous temperature distribution thanks to APT.line™ preheating chamber technology
- Illumination cassettes providing flexible placement, which ensure homogeneous illumination over the entire usable area
- Responsive long-life steam humidifying system
- Flexible water management at any location
- Intuitive touchscreen controller with time-segment and real-time programming

**Type of illumination for the illumination cassettes: daylight fluorescent lamps, light color 865 (standard)**



Illumination cassettes with three light qualities: daylight, Arabidopsis, FLUORA

Direct connection to ultrapure water pressure line

TIMELESS coating on inner door prevents glass corrosion



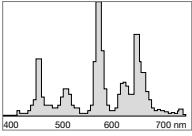
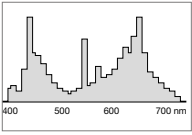
Intuitive touchscreen controller

Available sizes: KBWF 240 | KBWF 720 model

All details on the series  
[go2binder.com/en-KBWF](https://go2binder.com/en-KBWF)



# ACCESSORIES AND CONFIGURATIONS

<b>BINDER PURE AQUA SERVICE</b>	<p>System for preparation or complete desalination of tap water, complete set containing safety pressure container, single-use cartridge, measuring device, and all necessary connecting parts.</p> <p>KBWF series</p>	
<b>Water supply set</b>	<p>External, consisting of fresh and waste-water containers (20 liters each), cabling and external pump, for hanging from the back of the unit.</p> <p>KBWF series</p>	
<b>Arabidopsis illumination</b>	<p>Illumination cassettes equipped with Arabidopsis fluorescent tubes instead of daylight fluorescent tubes. Light color 842.</p> <p>KBW and KBWF series</p>	
<b>FLUORA® illumination</b>	<p>Illumination cassettes equipped with FLUORA® fluorescent tubes instead of daylight fluorescent tubes. Light color 77.</p> <p>KBW and KBWF series</p>	

# Storage

An ultra low temperature freezer must ensure reliable cooling to maintain the integrity of heat-sensitive samples. In addition to this vital requirement in the laboratory, it is important to establish a practical, user-oriented safety and operating concept – for example, by ensuring recording and traceability of the temperature profile over the entire period of storage, or the ability to open the chamber easily.

BINDER has developed an ultra low temperature freezer that seamlessly joins the ranks of proven BINDER products in terms of reliability for the scientific laboratory and sets new standards in environmental friendliness.



## **Sample storage**

Ultra low temperature freezers UFV

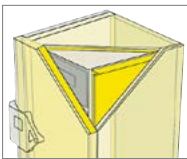
Ultra low temperature freezers with climate-neutral refrigerants | UF V series



Features:

- Range of temperature controller: -90°C to -40°C
- Lowest energy consumption in its class
- Efficient thermal insulation with vacuum insulation panels
- Environmentally friendly refrigerants R-290 and R-170
- Minimum buildup of ice thanks to the innovative door concept; inner doors can be removed for deicing
- Rust-proof interior made completely of stainless steel
- Can be equipped with air or water cooling

Environmentally friendly refrigerant



Patented VIP insulation for ultimate energy efficiency



Inner chamber, shelves, and inner doors made entirely from stainless steel



Door latch handle for easy opening and closing



Water cooling for connecting to a building cooling water system

Available sizes: UF V 500 | UF V 700 model

All details on the series  
[go2binder.com/en-UFV](https://go2binder.com/en-UFV)



ACCESSORIES AND CONFIGURATIONS

Racks and boxes

Large selection of racks made of aluminum or stainless steel in different variants.  
Cryobox set consisting of 36 cardboard boxes with sample dividers.  
UF V series



Door access system

Door access system consisting of electromechanical door locking mechanism and electronic access control via NumPad.  
UF V series



Alarm system

Battery-backed alarm system for maintaining temperature display, alarm messages, and communication.  
UF V series



# Drying & tempering

The requirements for a drying chamber in the area of temperature stress testing reach far beyond temperature accuracy, heat distribution, and residue-free drying. A chamber used to dry flammable materials has to meet certain safety standards.

BINDER masters these requirements like no other and offers a wide range of drying and heating chambers, material test chambers, and chambers for safety drying or gentle vacuum drying of heat-sensitive samples.



## **Drying & tempering**

Drying and heating chambers

ED | ED-S | E | FD | FED | FD-S | FP | M



## **Safety drying**

Safety drying chambers FDL



## **Vacuum drying**

Vacuum drying chambers VD | VDL

## Drying and heating chambers with natural convection | ED Avantgarde.Line series

**Features:**

- Temperature range: ambient temperature +5°C to +300°C
- Excellent temporal and spatial temperature accuracy thanks to new APT.line™ technology
- Transfer of heat through natural convection
- Up to 30% lower energy consumption compared to conventional units on the market
- Easy and intuitive to use thanks to modern control technology, USB interface
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm



Controller with LCD and numerous functions



Data recording via the USB port, which comes as standard

**Controller and timer functions**

ED series	
Ramp function	•
Time delayed OFF	•
Time delayed ON	•
Temperature-dependent delayed OFF	•
Class 2 independent adjustable temperature safety device	•
Visual temperature alarm	•
Adjustable fan speed	–
Electromechanical control of the exhaust air flap	•

All details on the series  
[go2binder.com/en-ED](https://go2binder.com/en-ED)



Available sizes: ED 23 | ED 56 | ED 115 | ED 260 | ED 400 | ED 720 model

## Drying and heating chambers with natural convection | ED-S Solid.Line series

**Features:**

- Temperature range: ambient temperature +7°C to +250°C
- High temperature accuracy thanks to APT.line™ preheating chamber technology
- Transfer of heat through natural convection
- Controller with timer function
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm



Controller with 7-segment display



Manually adjustable exhaust air flap

**Controller and timer functions**

ED-S series	
Ramp function	•
Time delayed OFF	•
Time delayed ON	–
Temperature-dependent delayed OFF	–
Class 2 independent adjustable temperature safety device	•
Visual temperature alarm	•
Adjustable fan speed	–
Electromechanical control of the exhaust air flap	–

All details on the series  
[go2binder.com/en-ED-S](https://go2binder.com/en-ED-S)



Available sizes: ED-S 56 | ED-S 115 model



## Drying and heating chambers with mechanical adjustment | E Classic.Line series



### Features:

- Temperature range: +60°C to +230°C
- Adjustable exhaust air flap
- Hydro-mechanical thermostat
- Class 1 temperature safety device
- Timer 0 – 120 min



Stainless steel  
inner chamber

Available sizes: E 28 model

All details on the series  
[go2binder.com/en-E](https://go2binder.com/en-E)



## Drying and heating chambers with forced convection | FD/FED Avantgarde.Line series



### Features:

- Temperature range: ambient temperature +10°C to +300°C
- Excellent temporal and spatial temperature accuracy thanks to new APT.line™ technology
- Transfer of heat through forced convection
- Up to 30% lower energy consumption compared to conventional units on the market
- Easy and intuitive to use thanks to modern control technology
- Ethernet interface
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm



Controller with LCD and numerous functions



Data recording via the USB port, which comes as standard

### Controller and timer functions

	FD series	FED series
Ramp function	•	•
Time delayed OFF	•	•
Time delayed ON	•	•
Temperature-dependent delayed OFF	•	•
Class 2 independent adjustable temperature safety device	•	•
Temperature alarm, visual	•	•
Adjustable fan speed	–	•
Advanced timing functions	–	•

All details on the series  
[go2binder.com/en-FD](https://go2binder.com/en-FD)  
[go2binder.com/en-FED](https://go2binder.com/en-FED)



Available sizes: FD 23 | FD/FED 56 | FD/FED 115 | FD/FED 260 | FED 400 | FD/FED 720 model

## Drying and heating chambers with forced convection | FD-S Solid.Line series



### Features:

- Temperature range: ambient temperature +10°C to +250°C
- Homogeneous temperature distribution thanks to APT.line™ preheating chamber technology
- Transfer of heat through forced convection
- Controller with timer function
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm



Controller with 7-segment display



Manually adjustable exhaust air flap

### Controller and timer functions

	FD-S series
Ramp function	•
Time delayed OFF	•
Time delayed ON	–
Temperature-dependent delayed OFF	–
Class 2 independent adjustable temperature safety device	•
Temperature alarm, visual	•
Adjustable fan speed	–

All details on the series  
[go2binder.com/en-FD-S](https://go2binder.com/en-FD-S)



Available sizes: FD-S 56 | FD-S 115 model

## Drying and heating chambers with forced convection and program functions | FP/M Classic.Line series

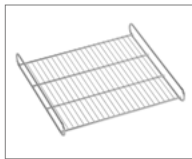


## Features

- Temperature range: ambient temperature +5°C to +300°C
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with time-segment and real-time programming
- Computer interface: RS 422



Controller with LED display (FP)



2 chrome-plated racks included with the standard unit



LCD color monitor (M)

## Controller and timer functions

	FP series	M series
Programming option	•	•
Weekly programming option	•	–
Real-time clock	–	•
Class 2 temperature limiter	•	•
Temperature alarm, visual	•	•
Adjustable fan speed	•	–
High-performance fan for fast heating up time	–	•

Available sizes: FP/M 53 | FP/M 115 | FP/M 240 | FP/M 400 | FP/M 720 model

All details on the series  
[go2binder.com/en-FP](https://go2binder.com/en-FP)  
[go2binder.com/en-M](https://go2binder.com/en-M)



## Safety drying chambers for limited quantities of solvent | FDL series



## Features

- Temperature range: ambient temperature +10°C to +300°C
- Meets all EN 1539:2015 requirements
- Controller with time-segment and real-time programming
- Fresh-air monitoring with audible and visual alarm and automatic deactivation of heating
- Replaceable fresh-air filter cartridge, Class M6 according to DIN EN 779:2012
- Computer interface: RS 422



Replaceable fresh-air filter cartridge



Interior and shelves made of stainless steel

## Calculate your personal solvent curve

[go2binder.com/en-Solvent-curve](https://go2binder.com/en-Solvent-curve)

Available sizes: FDL 115 model

All details on the series  
[go2binder.com/en-FDL](https://go2binder.com/en-FDL)



## Vacuum drying chambers for non-flammable solvents | VD series



### Features:

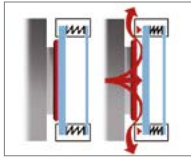
- Temperature range: ambient temperature +9°C to +220°C
- Controller with digital display of pressure and temperature
- Program-controlled drying monitoring with automatic ventilation at end of process
- Internal data logger, measured values can be read out in open format via USB
- 1 aluminum expansion rack, can be custom-positioned
- Universal ventilation, can be used for inert gas or ambient air
- Universal access port, DN 16



Optimized thermal transfer through expansion racks



Optional equipment: pump chamber with pump



Shatterproof, spring-mounted safety glass plane



Optional LED strip light

Available sizes: VD 23 | VD 56 | VD 115 model

All details on the series  
[go2binder.com/en-VD](https://go2binder.com/en-VD)

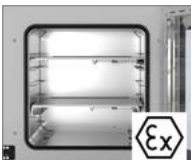


## Vacuum drying chambers for flammable solvents | VDL series



### Features:

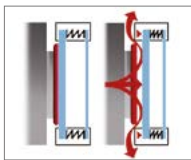
- Temperature range: ambient temperature +9°C to +110°C
- Unique worldwide: ATEX conformity for units: EX II 2/3/- G IIB T3 Gb/Gc/- X
- Intuitive touchscreen controller with graphical pressure and temperature display
- Program-controlled drying monitoring with automatic ventilation at end of process
- Internal data logger, measured values can be read out in open format via USB



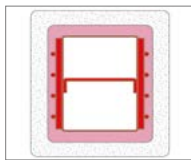
Explosion-protected interior



Optional equipment: pump chamber with pump



Shatterproof, spring-mounted safety glass plane









Jacket heating with optimized thermal transfer to expansion racks

Available sizes: VDL 23 | VDL 56 | VDL 115 model

All details on the series  
[go2binder.com/en-VDL](https://go2binder.com/en-VDL)



## ACCESSORIES AND CONFIGURATIONS

<b>Vacuum pumps</b>	BINDER vacuum drying chambers are available with perfectly matched vacuum pumps in a separate pump chamber. The pumps are available in different option models. They boast an excellent pumping speed and a long service life.	
<b>Chemical membrane pump VPA 1</b>	Chemical membrane pump with a nominal air flow of 2.0 m³/hour, final pressure 7 mbar. VD series	
<b>Chemical membrane pump VPA 2</b>	Chemical membrane pump with a nominal air flow of 4.0 m³/hour, final pressure 1.8 mbar. VD series	
<b>Chemical membrane pump EX-proof VP 4</b>	ATEX-compliant chemical membrane pump with a nominal air flow of 1.9 m³/hour, final pressure 12 mbar. VDL series	
<b>Pump chamber with vacuum pump</b>	The pump chamber places your vacuum oven at the ideal working height, significantly reduces noise from the vacuum pump, and protects the pump and glass material against mechanical damage. The pump can be switched on and off by means of the vacuum oven control system using a switchable power socket. VD series	
<b>Temperature measurement of the specimen</b>	Pt 100 sensor with flexible cable for performing measurements directly on the sample. VD and VDL series	
<b>Electric access port</b>	Vacuum-tight access port for transmitting electrical currents, voltages, or signals. VD and VDL series	
<b>Universal access port, DN 40</b>	Additional access port. A DN 16 universal access port is already included in the standard equipment. VD and VDL series	



# Environmental simulation

Product development and quality assurance are primarily focused on complying with and monitoring performance specifications. Endurance tests and functional tests of materials, products, and systems are essential elements in this. A climate chamber is expected to simulate the effects of temperature, humidity, and light on the test specimen.

With these specific requirements in mind, BINDER offers a range of constant climate chambers that are ideal for performing precise tests with long-term stability. In cases where dynamic climate changes are required, our dynamic climate chambers offer innovative technical solutions and extensive equipment options. They are perfectly aligned with standards or individual requirements, and ensure that either active or passive test specimens can be tested reliably.



## Stability tests

Constant climate chambers

KBF | KBF P | KBF LQC | KBF-S | KMF



## Material tests

Dynamic climate chambers MK | MKT | MKF | MKFT



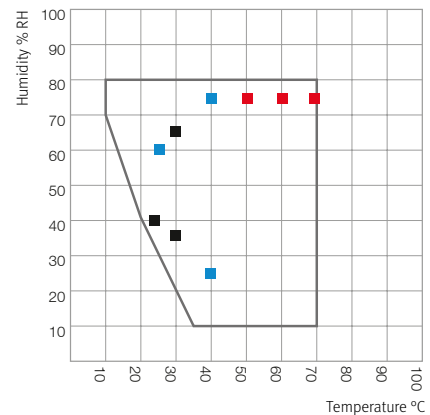
## Constant climate chambers with large temperature / humidity range | KBF series



### Features:

- Temperature range: 0°C to +70°C
- Humidity range: 10% to 80% RH
- Test conditions that are stable in the long term for tests in line with the ICH Q1A guideline
- Responsive long-life steam humidifying system
- Flexible water management at any location
- Intuitive touchscreen controller
- High-quality stainless steel inner chamber

### Temperature-humidity chart with ICH testing points



Homogeneous climate conditions thanks to APT.line™ preheating chamber technology



TFT color display with resistive touchscreen



Direct connection to ultrapure water pressure line



Inner chamber and all fixtures made of stainless steel

All details on the series  
[go2binder.com/en-KBF](https://go2binder.com/en-KBF)



Available sizes: KBF 115 | KBF 240 | KBF 720 | KBF 1020 model

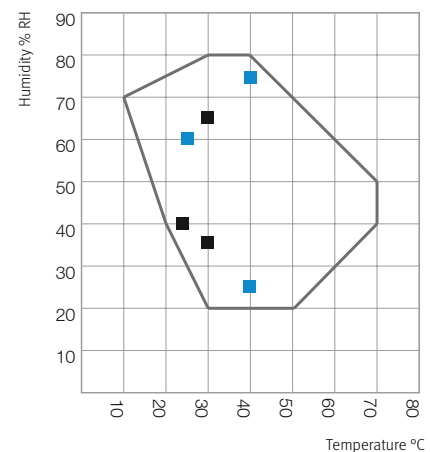
## Constant climate chambers with large temperature / humidity range | KBF-S Solid.Line series



### Features:

- Temperature range: 0°C to +70°C
- Humidity range: 20% to 80% RH
- Suitable for long-term tests and accelerated stability tests in line with ICH Q1A
- Humidity regulation with capacitive humidity sensor and steam humidification
- Inner chamber made completely of stainless steel
- Independent water supply

### Temperature-humidity chart with ICH testing points



Homogeneous climate conditions thanks to APT.line™ preheating chamber technology



Precise humidification



Inner chamber and all fixtures made of stainless steel



Water supply via tank

All details on the series  
[go2binder.com/en-KBF-S](https://go2binder.com/en-KBF-S)



Available sizes: KBF S 115 | KBF S 240 | KBF S 720 | KBF S 1020 model

## Constant climate chambers with ICH-compliant light source | KBF P series



### Features:

- Temperature range: 0°C to +70°C
- Humidity range: 10% to 80% RH
- Conditions that are stable in the long term for stability tests in line with the ICH Q1A and ICH Q1B guidelines
- Humidity regulation with capacitive humidity sensor and steam humidification
- Illumination cassettes with ICH-compliant UV/Vis light source
- Intuitive touchscreen controller



Homogeneous climate conditions thanks to APT.line™ preheating chamber technology

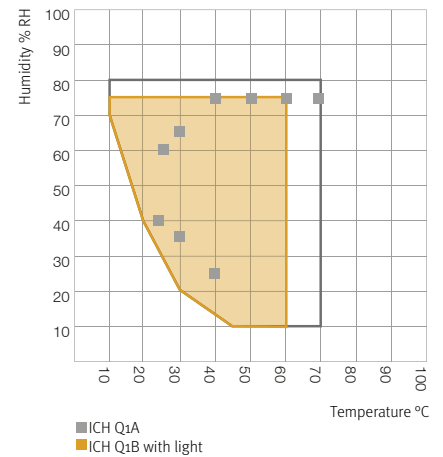


Direct connection to ultrapure water pressure line



Variable positionable and removable illumination cassettes

### Temperature-humidity chart KBF P / LQC 240 model

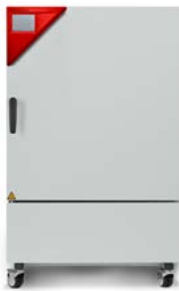


Available sizes: KBF P 240 | KBF P 720 model

All details on the series  
[go2binder.com/en-KBFP](https://go2binder.com/en-KBFP)



## Constant climate chambers with ICH-compliant light source and light-dose control | KBF LQC series



### Features:

- Temperature range: 0°C to +70°C
- Humidity range: 10% RH to 80% RH
- Conditions that are stable in the long term for stability tests in line with the ICH Q1A and ICH Q1B guidelines
- Humidity regulation with capacitive humidity sensor and steam humidification
- Illumination cassettes with ICH-compliant UV/Vis light source
- Independent light-dose control using spherical sensors
- Intuitive touchscreen controller



Homogeneous climate conditions thanks to APT.line™ preheating chamber technology



Direct connection to ultrapure water pressure line

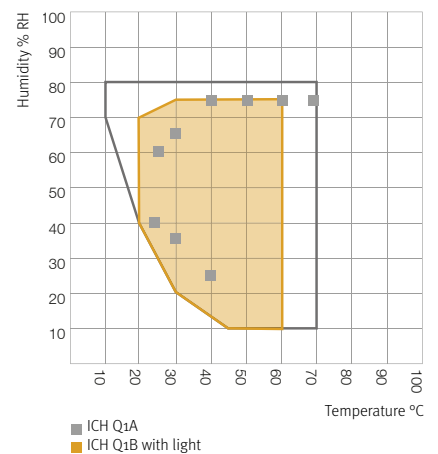


Variable positionable and removable illumination cassettes



LQC light-dose control with spherical sensors

### Temperature-humidity chart KBF P / LQC 720 model



Available sizes: KBF LQC 240 | KBF LQC 720 model

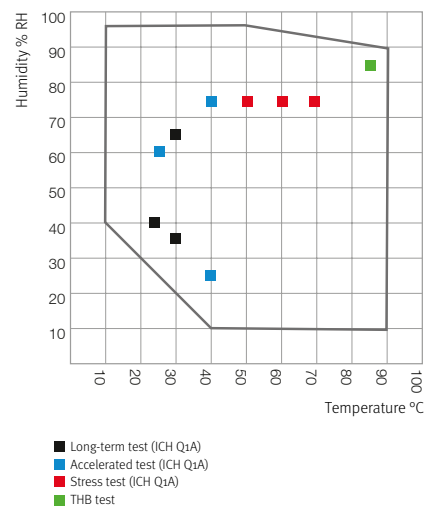
All details on the series  
[go2binder.com/en-KBFLQC](https://go2binder.com/en-KBFLQC)



## Constant climate chambers with extended temperature / humidity range | KMF series

**Features:**

- Temperature range: -10°C to 100°C
- Humidity range: 10% to 98% RH
- Stable test conditions, including for THB testing (85/85)
- Responsive long-life steam humidifying system
- Flexible water management at any location
- Intuitive touchscreen controller
- High-quality stainless steel inner chamber

**Temperature-humidity chart with ICH testing points**

Homogeneous climate conditions thanks to APT.line™ preheating chamber technology



TFT color display with resistive touchscreen



Direct connection to ultrapure water pressure line



Inner chamber and all fixtures made of stainless steel

Available sizes: KMF 115 | KMF 240 | KMF 720 model

All details on the series  
[go2binder.com/en-KMF](https://go2binder.com/en-KMF)



## ACCESSORIES AND CONFIGURATIONS

**BINDER PURE AQUA SYSTEM**

System for preparation or complete desalination of tap water, complete set containing safety pressure container, single-use cartridge, measuring device, and all necessary connecting parts

KBF | KBF P | KBF LQC | KMF series

**Water supply set**

External, consisting of fresh and waste-water containers (20 liters each), cabling and external pump, for hanging from the back of the unit

KBF | KBF P | KBF LQC | KMF series

**White light LED strip lights**

Suitable for illuminating the interior with low light intensities, easy to install, and provide flexible placement

KMF series



## Dynamic climate chambers for rapid temperature changes | MK/MKT series



### Features:

- Temperature range: -40°C to +180°C (MK)
- Temperature range: -70°C to +180°C (MKT)
- Programmable condensation protection for test material
- Viewing window with interior lighting
- Intuitive touchscreen controller with time-segment and real-time programming
- Portable and freely movable thanks to unit casters
- CFC-free refrigerants R452-A/R23
- Alternating speeds of 5 K/min



Homogeneous temperature conditions thanks to APT.line™ preheating chamber technology



Large heated viewing window with LED interior lighting



TFT color display with resistive touchscreen, internal data logger that can be read via USB

Available sizes: MK 56 | MK/MKT 115 | MK/MKT 240 | MK/MKT 720 model

All details on the series  
[go2binder.com/en-MK](https://go2binder.com/en-MK)  
[go2binder.com/en-MKT](https://go2binder.com/en-MKT)



## Dynamic climate chambers with humidity regulation | MKF/MKFT series



### Features:

- Temperature range: -40°C to +180°C (MKF)
- Temperature range: -70°C to +180°C (MKFT)
- Humidity range: 10% to 98% RH
- Humidity regulation with capacitive humidity sensor and steam humidification
- Viewing window with interior lighting
- Intuitive touchscreen controller with time-segment and real-time programming
- CFC-free refrigerants R452-A/R23
- Alternating speeds of 5 K/min



Homogeneous climate conditions thanks to APT.line™ preheating chamber technology



Large heated viewing window with LED interior lighting

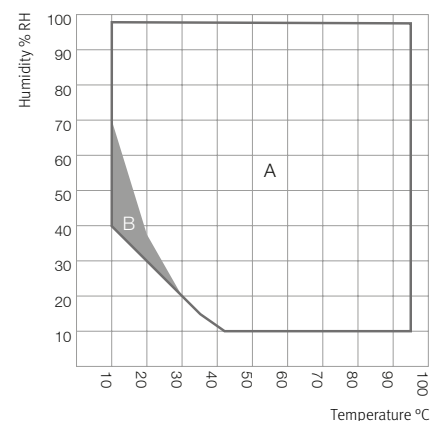


TFT color display with resistive touchscreen, internal data logger that can be read via USB



Integrated 20 L water-storage tank ensures a flexible water supply

### Temperature-humidity chart MKFT






A: Standard climate range  
 B: Time-limited operation (max. 24 hours)

Available sizes: MKF 56 | MKF/T 115 | MKF/T 240 | MKF/T 720 model

All details on the series  
[go2binder.com/en-MKF](https://go2binder.com/en-MKF)  
[go2binder.com/en-MKFT](https://go2binder.com/en-MKFT)



# ACCESSORIES AND CONFIGURATIONS

<b>Dry-air purge</b>	<p>Suitable for simulating a dry, cold climate. In the MKF and MKFT series, the temperature-humidity chart is significantly expanded, while the option of simulating current automotive industry standards, such as PV 1200 and PR 308.2, is also available.</p> <p>MK, MKF, MKT, and MKFT series</p>	
<b>BINDER PURE AQUA SERVICE</b>	<p>System for preparation or complete desalination of tap water, complete set containing safety pressure container, single-use cartridge, measuring device, and all necessary connecting parts.</p> <p>MK, MKF, MKT, and MKFT series</p>	
<b>Water cooling</b>	<p>For connecting to a building cooling water system, for reduced heat loss to ambient air.</p> <p>MK, MKF, MKT, and MKFT series</p>	

# Battery test chambers

Battery test chambers from BINDER are suitable for tests performed on lithium-ion cells and modules. Handling lithium-ion batteries can present a variety of potential hazards. System operators need to evaluate the level of risk and counteract it using an appropriate safety concept.

The LIT MK series of temperature test chambers from BINDER provides a controllable temperature range of  $-40^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ . The units come with extensive safety equipment as standard so that tests on lithium-ion cells can be performed at an anticipated EUCAR hazard level of 6.



## **Battery test chambers**

Lithium-ion test chamber LIT MK

Safety packages for aging,  
performance, and stress tests

Package A | Package P | Package P Plus | Package S

## Battery test chambers with safety equipment for rapid temperature changes | LIT MK series



### Features:

- Temperature range: -40°C to +110°C
- Class 2 independent temperature safety device when temperature is set to +120°C
- Reversible pressure relief flap made of stainless steel installed in the middle on top of the unit
- Enhanced door-locking mechanism with reinforced brackets
- Monitoring of CO, H<sub>2</sub>, O<sub>2</sub>, and temperature in testing area atmosphere
- Inertization equipment



CO<sub>2</sub> fire suppression equipment



Reversible pressure relief flap



Equipment for inertization of the testing area



CO, H<sub>2</sub>, and O<sub>2</sub> are detected and monitored in the testing area atmosphere

All details on the series  
[go2binder.com/QR-en-LIT-MK](https://go2binder.com/QR-en-LIT-MK)

QR code

Available sizes: 240 model | 720 model

## ACCESSORIES AND CONFIGURATIONS

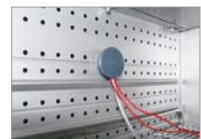
### Electromechanical door-locking mechanism

Electromechanical door-locking mechanism controlled in a time program or manually.



### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions



### Notch-type access port in door

Notch-type access port in the door, 100 x 35 mm, makes it easy to guide measuring devices to the test object.





## ACCESSORIES AND CONFIGURATIONS

### **BINDER safety packages for battery test chambers.**

Battery test chambers from BINDER are ideal for aging, performance, and stress testing in quality assurance and battery production. Battery test chambers from BINDER are suitable for tests performed on lithium-ion cells and modules. Handling lithium-ion batteries can present a variety of potential hazards. System operators need to evaluate the level of risk and counteract it using an appropriate safety concept.

### **Package A for aging tests**

These involve testing at a certain temperature without the battery load cycle. They are performed within a safe temperature range for the battery.

BINDER solution: package A

MK | MKF | MKT | MKFT | KB | KBF | KMF series



### **Package P for performance tests**

Various battery-specific parameters, such as the load state, are tested with overlapping temperature ranges. These tests are performed within a safe temperature range for the battery.

BINDER solution: package P

MK | MKF | MKT | MKFT | KB | KBF | KMF series



### **Package P Plus for extended performance tests**

Various battery-specific parameters, such as the load state, are tested with overlapping temperature ranges. These tests are performed within a safe temperature range for the battery.

BINDER solution: package P Plus

MK | MKF | MKT | MKFT | KB | KBF | KMF series



### **Package S for stress tests**

Various battery-specific parameters, such as the load state, are tested with overlapping temperature ranges. These tests are performed at the limit of the safe temperature range for the battery. This category also includes tests with higher charging and discharging currents overlapping with constant or dynamic temperatures.

BINDER solution: package S

MK | MKF | MKT | MKFT | KB | KBF | KMF series





# Multi Management Software

BINDER's new Multi Management Software provides management, recording, programming, control, and documentation options, and much more. With features ranging from GLP-compliant recording to convenient program creation and management of up to 100 units, the APT-COM™ 4 can be used in all industries and makes complex work processes much easier.



## **APT-COM™ 4**

Multi Management Software Basic | Professional |  
GLP

## Multi Management Software for recording, controlling, and monitoring | APT-COM™ 4

**Features:**

- Easy, intuitive operation
- Overview of units at a glance with the room plan function
- Choice of 5 menu languages: DE, EN, FR, IT, ES
- Easy and quick programming options with graphical interface

**BASIC EDITION**

For simple recording and documentation requirements with up to 5 networked units.

**PROFESSIONAL EDITION**

Convenient unit and user management which builds on the BASIC edition. Suitable for networking up to 100 units.

**GLP EDITION**

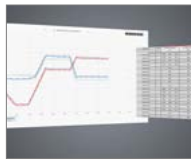
For working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11.



Unit overview and control at a glance



Room plan can be created easily using drag & drop



Simple programming and presentation of measured data



Tamper-proof and GLP-compliant data retention

All details on the software  
[go2binder.com/en-APT-COM4](https://go2binder.com/en-APT-COM4)



Available editions: Basic | Professional | GLP

## ACCESSORIES

### Alarm kit

The Alarm Center software enables ongoing recordings to be monitored independently of APT-COM™ 4 (e.g., on a second PC). The Alarm Center software monitors when unit parameter tolerances are exceeded in the recording, as well as the communication between APT-COM™ 4 and the connected units.

The Alarm Kit hardware is designed to forward alarm messages triggered by the Alarm Center software on to the customer's alarm systems.

APT-COM™ 4



### TIPS AND TRICKS

Highlights of APT-COM™ 4 can be found here:

Video: > [go2binder.com/en-APT-COM4](https://go2binder.com/en-APT-COM4)

# Options and accessories

We offer our customers a comprehensive selection of options and accessories for BINDER temperature, climate, and environmental simulation chambers. You will find all options and accessories suitable for each of our products on our website [www.binder-world.com](http://www.binder-world.com)



## TIPS AND TRICKS

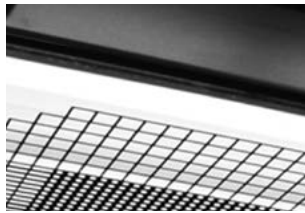
You can find our complete range of options and accessories at: > [go2binder.com/en-options](http://go2binder.com/en-options)



## The ideal complement for the BINDER chamber



Access ports, various positions and sizes



Fluorescent tubes for illumination cassettes



Qualification folder for validation



Various shelves

PURE AQUA Service water treatment system

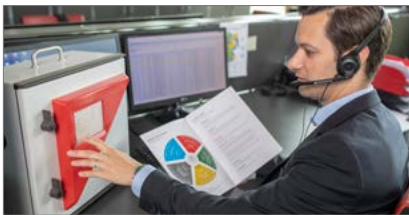


Interfaces



# Services

The outstanding performance of BINDER simulation chambers is not just a result of our groundbreaking, German-engineered technologies but also of our first-class range of services. Vital services including unit maintenance, calibration, and qualification, as well as fulfillment of spare parts requests, are available to our customers all over the world. Customers can access these services either individually or through a highly cost-effective and convenient maintenance contract.



## TIPS AND TRICKS

You can find more information at:  
> [go2binder.com/en-service](https://go2binder.com/en-service)





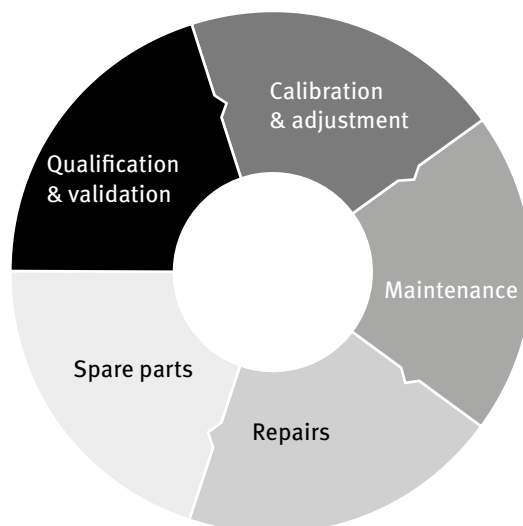
## Services

### Another plus for BINDER simulation chambers

BINDER units offer clear benefits for laboratory practice. Their outstanding performance is the result of both our groundbreaking technologies that are made in Germany and our bespoke service.

Our comprehensive service packages are available to our customers all over the world. You have the option of choosing a highly cost-effective, convenient service contract or you can opt for our services on an individual basis.

#### Our service wheel



## Service contracts

### Regular service – maximum performance

With the durable BINDER simulation chambers, consistently high levels of productivity and availability are part of the package right as soon as they leave the factory. What's more, our preventive inspection and maintenance guarantee maximum performance over the entire service life of the unit.

#### A service contract gives you more security and has a number of particularly impressive benefits:

- Maximum productivity
- Planning security: all-round check on fixed dates
- Calibration and adjustment of BINDER units
- Discount on BINDER original spare parts
- Software updates (APT-COM™)
- Implementation by qualified and authorized specialists
- Extended warranty
- Discounted charge rate for service technicians
- Fixed-price annual maintenance for 3 years

## Training courses & seminars

### Know-how and training – knowledge creates a competitive edge

Along with our leading product portfolio, here at BINDER we also offer a training program aimed at both users and our service employees and partners.

Our BINDER experts, with their many years of experience, carry out the training and give the participants exclusive access to the latest technical topics from our product range.

# BINDER INDIVIDUAL

BINDER INDIVIDUAL units are based on BINDER simulation chambers, which consistently offer outstanding quality made in Germany.

In our BINDER INDIVIDUAL department at the Tuttlingen plant, we turn your unique requirements into reality. Whether this involves stainless steel housing, special access ports, O<sub>2</sub> regulation, or much more, we use a proven series production product to create your customized solution. This solution is developed by our experts and manufactured as a single unit or in small series production.



# BINDER INDIVIDUAL

## Individual extras for your simulation chamber

Even though the BINDER product range contains an incredibly wide variety of products and equipment options, some highly specific customer requirements still cannot be met by a unit manufactured in series production. We can, however, adapt these units to fit individual requirements profiles. Our BINDER INDIVIDUAL units are based on BINDER simulation chambers, which consistently offer outstanding quality made in Germany.

In our BINDER INDIVIDUAL department at the Tuttlingen plant, we turn every unique requirement into reality. Whether this involves stainless steel housing, special access ports, O<sub>2</sub> regulation, or much more, we use a proven series production product to create a perfectly customized solution. This solution is developed by our experts and manufactured as a single unit or in small series production before being tested, certified, and provided with a full functional guarantee and warranty.

### BINDER series production unit

Series production products offer guaranteed premium quality.



Series production heating chamber

### BINDER series production unit & optional series production equipment

With accessories and equipment options, series production products can be optimized for popular requirements profiles.



Heating chamber with viewing window option and Pt 100 sensor

### BINDER INDIVIDUAL

Highly specialized individual solutions are the result of the custom modifications and enhancements made to series production units.



Heating chamber with stainless steel housing

**Made in Germany**

#### ► Benefits across the board

- **TIME-SAVING** – individual solutions are based on BINDER series production units that are kept in stock
- **ECONOMICAL** – consulting, costing, and proposals for solutions are free of charge
- **INNOVATIVE** – integrated solutions thanks to individual technical consultations
- **IMPRESSIVE** – execution of individual requirements is simple and affordable
- **RELIABLE** – thanks to BINDER's premium German-made quality
- **COMPLETELY STRESS-FREE** – full warranty for the unit including all enhancements
- **FAST** – unit delivered about 4–8 weeks after order is placed



#### TIPS AND TRICKS

More information about BINDER INDIVIDUAL is available > [go2binder.com/en-BINDER-INDIVIDUAL](https://go2binder.com/en-BINDER-INDIVIDUAL)



## BINDER product range

CO<sub>2</sub> incubators

Incubators

Cooling incubators

Growth chambers

Ultra low temperature freezers

Drying and heating chambers

Safety drying chambers

Vacuum drying chambers

Constant climate chambers

Dynamic climate chambers

Battery test chambers

Multi Management Software



Don't miss out on our latest products –  
Stay up to date with our BINDER newsletter

[Subscribe now](#)

[go2binder.com/en-newsletter-subscription](https://go2binder.com/en-newsletter-subscription)



Best conditions for your success

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