

# BINDER

## Product catalog

Valid from 01.2017

Made in  
Germany

### Incubators

Drying and heating chambers

### Climate chambers

Ultralow temperature freezers

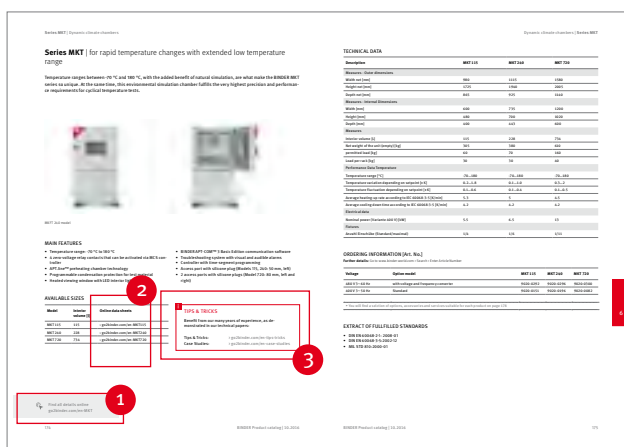


# Perfectly informed all over

The BINDER product world in the catalog and on the Internet

The product catalog gives you a clear and concise overview of every BINDER unit, extras, and service. If you would like to find out more about the BINDER product world and our latest developments, we

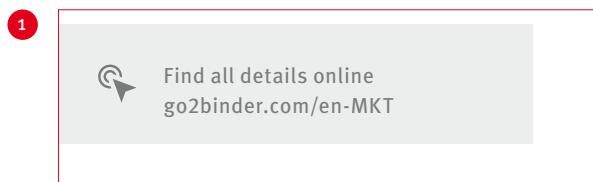
give you access to extensive online information about all of our series and models. To access this information, simply click on the special web addresses in the catalog.



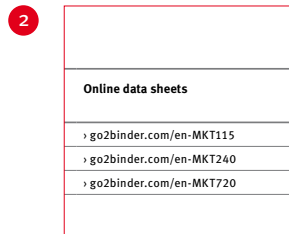
Product catalog



Website



Series information:  
General information on BINDER product series, e.g., [go2binder.com/en-MKT](https://go2binder.com/en-MKT)



Model information:  
Product information and technical data for individual models, e.g., [go2binder.com/en-MKT115](https://go2binder.com/en-MKT115)



Tips and tricks:  
Here you will find current technical papers and case studies on BINDER simulation chambers.

<b>BINDER</b>	The company		4
<hr/>			
<b>INCUBATORS</b> › Page 8	CO <sub>2</sub> incubators	Series C   CB	11
	Incubators Avantgarde.Line	Series BD   BF	23
	Incubators Classic.Line	Series B   BD   BF	33
	Cooling incubators	Series KT   KB	45
<hr/>			
<b>LIGHT CHAMBERS</b> › Page 54	Growth chambers	Series KBW   KBWF	57
	Constant climate chambers	Series KBF P   KBF LQC	69
<hr/>			
<b>FREEZERS</b> › Page 80	Ultralow temperature freezers	Series UF V	83
<hr/>			
<b>HEATING CHAMBERS</b> › Page 90	Drying and heating chambers Avantgarde.Line	Series ED   FD   FED	93
	Drying and heating chambers Classic.Line	Series E   ED   FD   FED   FP   M	107
	Safety drying chambers	Series FDL	127
	Vacuum drying chambers	Series VD   VDL	135
<hr/>			
<b>CLIMATE CHAMBERS</b> › Page 144	Constant climate chambers	Series KBF   KBF P   KBF LQC   KMF	147
	Dynamic climate chambers	Series MK   MKF   MKT   MKFT	165
<hr/>			
<b>ACCESSORIES &amp; SERVICES</b> › Page 182	Options & Accessories		184
	Services		186
	BINDER INDIVIDUAL		188
<hr/>			
<b>APPENDIX</b>	Model versions directory		190



# BINDER

The company

# 1

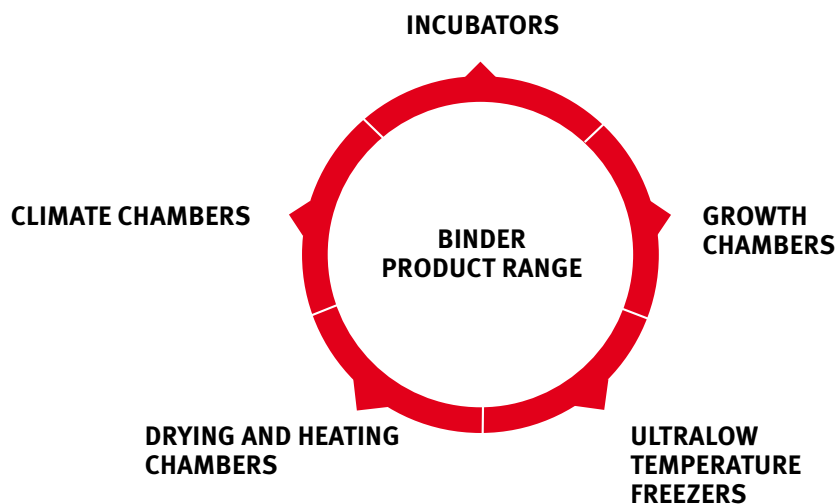


# BINDER makes all the difference

## Simulation chambers from the leading specialist

BINDER is the largest specialty manufacturer of simulation chambers. Our family company has solely focused on units that meet the most stringent requirements in scientific and industrial laboratories. In doing so, we have made it possible for our customers to simulate biological, chemical, and physical environmental conditions perfectly.

Nearly all respected companies and research facilities rely on BINDER simulation chambers, whether they need them for cell or tissue cultivation, long-term storage, product testing, or material testing. Every year, we supply over 22,000 units to a wide variety of industries. The three red triangles of our brand stand for superior products, the best service, and consulting – which means that we can guarantee the "best conditions for your success".



## BINDER product portfolio – for all industries

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

We know what is important in laboratory practice and fulfill our customer's requirements with excellent products and sophisticated equipment features. Thanks to a wide range of accessories and options, our series production products can be set up in a more specific way for all standard applications. Individual extras from BINDER INDIVIDUAL also make it possible to adapt the series production units to specific laboratory tasks. The comprehensive BINDER product range provides first-rate coverage of the diverse industry and market requirements.

#### Application areas:

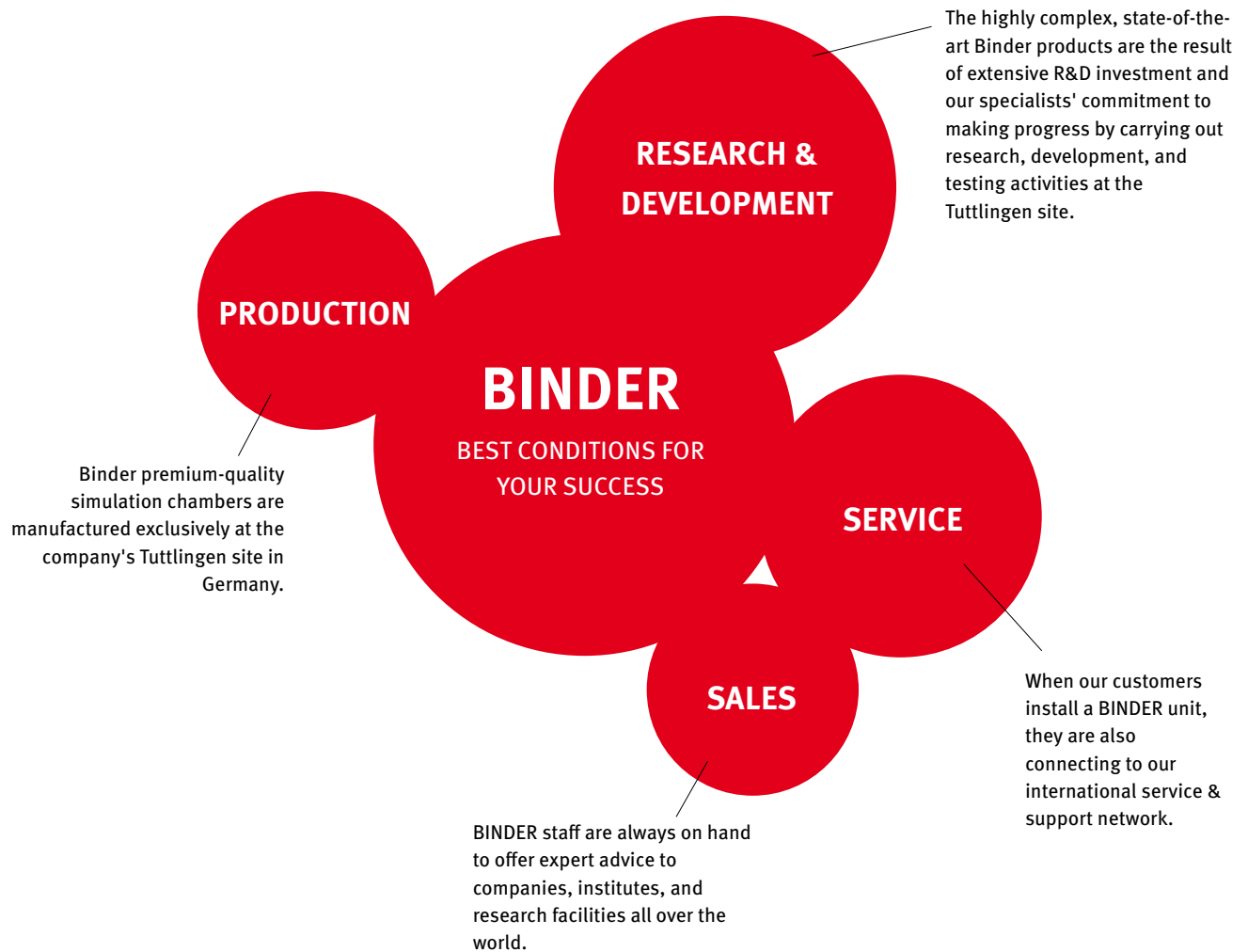
- Automotive
- Biotechnology
- Chemical industry
- Electronics and semiconductor industry
- Human diagnostics
- In vitro fertilization (IVF)
- Cosmetics industry
- Aerospace industry
- Food and beverage industry
- Medical research
- Pharmaceuticals

## Premium products from a technological leader

### Progress through innovations

Our promise to provide you with the "best conditions for your success" also drives us to give our customers exactly what they expect. That's why we at BINDER place great value on research and development – and invest heavily in this area. In the research and development center in Tuttlingen, we are continuously optimizing our simulation chambers and realizing innovative products that benefit

our customers. All of our climate chambers combine groundbreaking new developments, sophisticated, state-of-the-art technologies, premium "made in Germany" quality, and the options of an international sales network and comprehensive service offering.



# Around the corner, around the world

## Binder quality made in Germany – anywhere in the world

With the 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 continued to build our international presence and are 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.



### Headquarters

**BINDER GmbH**  
Tuttlingen, Germany

[info@binder-world.com](mailto:info@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

### Sales and service organizations

**BINDER Inc.**  
Bohemia, NY, USA  
[usa@binder-world.com](mailto:usa@binder-world.com)  
[www.binder-world.us](http://www.binder-world.us)

**BINDER Asia Pacific (Hong Kong) Ltd.**  
Kowloon, Hong Kong, P.R. China  
[asia@binder-world.com](mailto:asia@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

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[www.binder-world.ru](http://www.binder-world.ru)

**BINDER Environmental Testing**  
Equipment (Shanghai) Co., Ltd.  
Shanghai, P.R. China  
[china@binder-world.com](mailto:china@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

# Incubators

CO<sub>2</sub> incubators  
Incubators Avantgarde.Line  
Incubators Classic.Line  
Cooling incubators

2

## ALWAYS THE RIGHT CONDITIONS

Precise adherence to the pre-selected values for temperature, CO<sub>2</sub>, O<sub>2</sub>, as well as reliable reproducibility of growth conditions are the most important requirements for incubators used in scientific laboratories which work with live cultures. BINDER is aware of these requirements and works continuously to provide you with the perfect CO<sub>2</sub> incubators, microbiological incubators, and cooling incubators.

2

### CO<sub>2</sub> INCUBATORS

Page 11



with hot air sterilization	<b>Series C</b>	Page 14
with hot air sterilization and heat sterilizable CO <sub>2</sub> sensor	<b>Series CB</b>	Page 17

### INCUBATORS AVANTGARDE.LINE

Page 23



with natural convection	<b>Series BD</b>	Page 26
with forced convection	<b>Series BF</b>	Page 28

### INCUBATORS CLASSIC.LINE

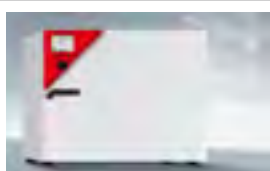
Page 33



with mechanical adjustment	<b>Series B</b>	Page 36
with natural convection	<b>Series BD</b>	Page 38
with forced convection	<b>Series BF</b>	Page 40

### COOLING INCUBATORS

Page 45



with thermoelectric cooling	<b>Series KT</b>	Page 48
with compressor technology	<b>Series KB</b>	Page 50



# CO<sub>2</sub> incubators

Series C	Page 14
Series CB	Page 17
Options and Accessories	Page 20

Every CO<sub>2</sub> incubator from BINDER guarantees optimum, reproducible growth conditions for cell cultures. The proven APT.line™ air jacket system and Permady technology eliminate the risk of condensation. Thanks to 180 °C hot-air sterilization, bacteria and spores are eliminated. The unique, seamless deep-drawn inner chamber without built-in obstructions makes cleaning very simple. These are important advantages for uniformly good cell and tissue cultivation, which BINDER Series C and CB CO<sub>2</sub> incubators offer as standard.

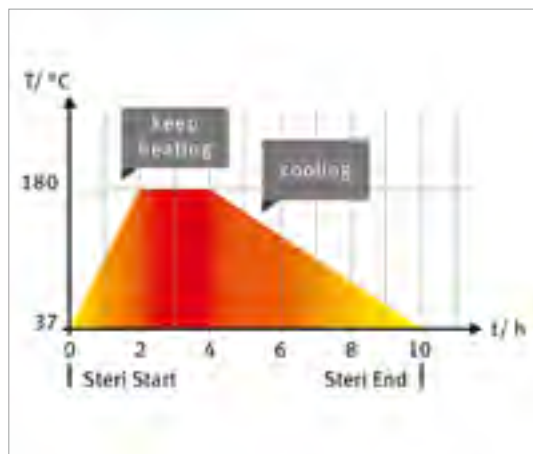
## PRODUCT SELECTION CO<sub>2</sub> INCUBATORS

Features	C	CB
	› Page 14	› Page 17
<b>Model</b>		
Model 60	–	•
Model 160	–	•
Model 170	•	–
Model 220	–	•
<b>General data</b>		
Temperature range 7 °C above ambient temperature to [°C]	50	60
Humidity range [% RH]	90...95	
Ethernet interface	–	•
USB interface	–	•
Plug-in system	Wire frame	Flanges
Humidification system	Water pan	Double shell
CO <sub>2</sub> sensor	IR, plug in	IR, can be sterilized
<b>Controller and timer functions</b>		
Controller display	LED	LCD color display
Class 3.1 independent temperature safety device	•	•
Temperature alarm, acoustic	•	•
Temperature alarm, visual	•	•

•Standard equipment



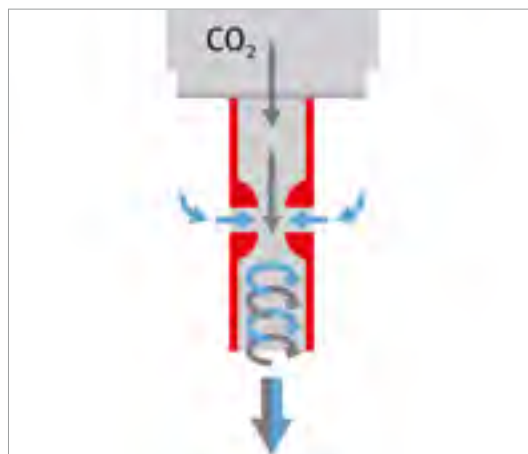
## ADVANTAGES AT A GLANCE



### MINIMAL RISK OF CONTAMINATION

Series C, CB

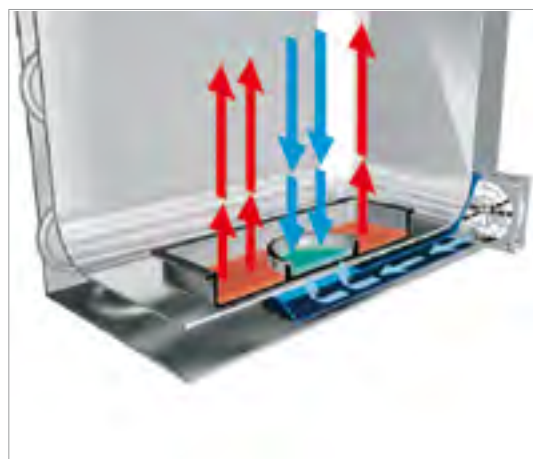
With 180 °C hot-air sterilization, complete sterilization of the entire interior is available at the push of a button. In the CB series, the CO<sub>2</sub> sensor is also sterilized.



### OPTIMUM CELL GROWTH

Series C, CB

Stable pH values are attained with drift-free CO<sub>2</sub> sensor technology and homogeneous CO<sub>2</sub> distribution using the BINDER gas mixing head according to the Venturi principle.



### PATENTED HUMIDITY MANAGEMENT

Series CB

Active humidity management provide high humidity values of 90% to 95% RH with minimal evaporation. The PERMADRY™ double wall humidity system ensures dry interior walls.



### THE "LESS IS MORE" INTERIOR CONCEPT

Series CB

Our interior ensure quick and easy cleaning due to the deep-drawn inner chamber created from a single piece of stainless steel without built-in obstructions. No consumables are required.

## Series C | with hot air sterilization

Series C incubators are suitable for routine cell cultivation applications: They are free from contamination due to 180 °C hot-air sterilization and reliable pH stability thanks to the drift-free infrared CO<sub>2</sub> measurement system.



C 170 model

### MAIN FEATURES

- Temperature range: room temperature plus 7 °C to 50 °C
- Humidity range: up to 95 % RH
- Auto-sterilization with hot air at 180 °C
- Humidification system with condensation protection
- CO<sub>2</sub> gas-mixing jet with Venturi effect
- CO<sub>2</sub> sensor with infrared technology
- Display with 3-digit, 7-segment LEDs
- Door hinged right or left
- Tightly-sealed inner door made of tempered safety glass
- Seamless, deep-drawn inner stainless steel chamber

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
C 170	168	› <a href="https://go2binder.com/en-C170">go2binder.com/en-C170</a>



Find all details online  
[go2binder.com/en-C](https://go2binder.com/en-C)

## TECHNICAL DATA

Description	C 170
<b>Measures - Outer dimensions</b>	
Width net [mm]	740
Height net [mm]	870
Depth net [mm]	715
<b>Measures - Internal Dimensions</b>	
Width [mm]	560
Height [mm]	600
Depth [mm]	500
<b>Measures</b>	
Interior volume [L]	168
Net weight of the unit (empty) [kg]	110
Load per rack [kg]	10
<b>Performance Data Temperature</b>	
Temperature range 7 °C above ambient temperature to [°C]	50
Temperature variation at 37 °C [± K]	0.3
Temperature fluctuation [± K]	0.1
Recovery time after 30 seconds door open at 5 Vol.-% CO <sub>2</sub> [min]	7
Recovery time after 30 seconds door open at 37 °C [min]	6
<b>Performance Data Climate</b>	
Humidity range [% RH]	90...95
<b>Gas Data - CO<sub>2</sub>-Data</b>	
CO <sub>2</sub> range [Vol.-% CO <sub>2</sub> ]	0...20
CO <sub>2</sub> measurement	IR
<b>Electrical data</b>	
Nominal power (Version 120 V) [kW]	1.1
Nominal power (Version 230 V) [kW]	1.1
<b>Fixtures</b>	
Number of shelves (std./max.)	3/8

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

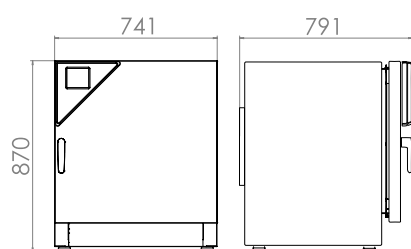
Voltage	Option model	C 170
230 V 1~ 50/60 Hz	Door hinged right	9040-0112
	Door hinged left	9040-0115
120 V 1~ 60 Hz	Door hinged right	9040-0113
	Door hinged left	9040-0116

► You will find a selection of options, accessories and services suitable for each product on page 20

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

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### C 170



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

The BINDER CB series CO<sub>2</sub> incubator is the premium class among the CO<sub>2</sub> incubators. It is suitable for all sensitive incubation applications and ensures optimal cell growth. A BINDER CB series CO<sub>2</sub> incubator can perform complex cultivation experiments as well as specific environmental conditions.



CB 160 model



### MAIN FEATURES

- Temperature range: room temperature plus 7 °C to 60 °C
- Humidity range: up to 95% RH
- Auto-sterilization with hot air at 180 °C
- 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 infrared technology
- Display via color LCD monitor
- Lockable door handle
- Tightly-sealed inner door made of tempered safety glass
- Seamless, deep-drawn inner stainless steel chamber

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
CB 60	53	› <a href="https://go2binder.com/en-CB60">go2binder.com/en-CB60</a>
CB 160	150	› <a href="https://go2binder.com/en-CB160">go2binder.com/en-CB160</a>
CB 220	210	› <a href="https://go2binder.com/en-CB220">go2binder.com/en-CB220</a>



### TIPS & TRICKS

Benefit from our many years of experience, as demonstrated in our technical papers:

Tips & Tricks: › [go2binder.com/en-tips-tricks](https://go2binder.com/en-tips-tricks)  
 Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-CB](https://go2binder.com/en-CB)

## TECHNICAL DATA

Description	CB 60	CB 160	CB 220
Measures - Outer dimensions			
Width net [mm]	580	680	740
Height net [mm]	720	920	1070
Depth net [mm]	545	715	715
Measures - Internal Dimensions			
Width [mm]	400	500	560
Height [mm]	400	600	750
Depth [mm]	330	500	500
Measures			
Interior volume [L]	53	150	210
Net weight of the unit (empty) [kg]	68	110	132
permitted load [kg]	30	30	30
Load per rack [kg]	10	10	10
Performance Data Temperature			
Temperature range 7 °C above ambient temperature to [°C]	60	60	60
Temperature variation at 37 °C [± K]	0.3	0.3	0.4
Temperature fluctuation at 37 °C [± K]	0.1	0.1	0.1
Recovery time after 30 seconds door open at 5 Vol.-% CO <sub>2</sub> [min]	5	5	5
Recovery time after 30 seconds door open at 37 °C [min]	4	5	5
Performance Data Climate			
Humidity range [% RH]	90...95	90...95	90...95
Gas Data - CO <sub>2</sub> -Data			
CO <sub>2</sub> range [Vol.-% CO <sub>2</sub> ]	0...20	0...20	0...20
CO <sub>2</sub> measurement	IR	IR	IR
Electrical data			
Nominal power (Version 120 V) [kW]	1	1.3	1.5
Nominal power (Version 230 V) [kW]	1	1.3	1.5
Fixtures			
Number of shelves (std./max.)	2/3	3/6	3/8

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	CB 60	CB 160	CB 220
200...240 V 1~ 50/60 Hz	Standard	9040-0088	9040-0092	9040-0096
	with 4x divided inner door	9040-0104	9040-0100	–
	with O <sub>2</sub> control	9040-0090	9040-0094	9040-0098
	with O <sub>2</sub> control and with 4x divided inner door	9040-0106	9040-0102	–
	with 6x divided inner door	–	–	9040-0108
	with O <sub>2</sub> control and with 6x divided inner door	–	–	9040-0110

Voltage	Option model	CB 60	CB 160	CB 220
100...120 V 1~ 50/60 Hz	Standard	9040-0089	9040-0093	9040-0097
	with 4x divided inner door	9040-0105	9040-0101	–
	with O <sub>2</sub> control	9040-0091	9040-0095	9040-0099
	with O <sub>2</sub> control and with 4x divided inner door	9040-0107	9040-0103	–
	with 6x divided inner door	–	–	9040-0109
	with O <sub>2</sub> control and with 6x divided inner door	–	–	9040-0111

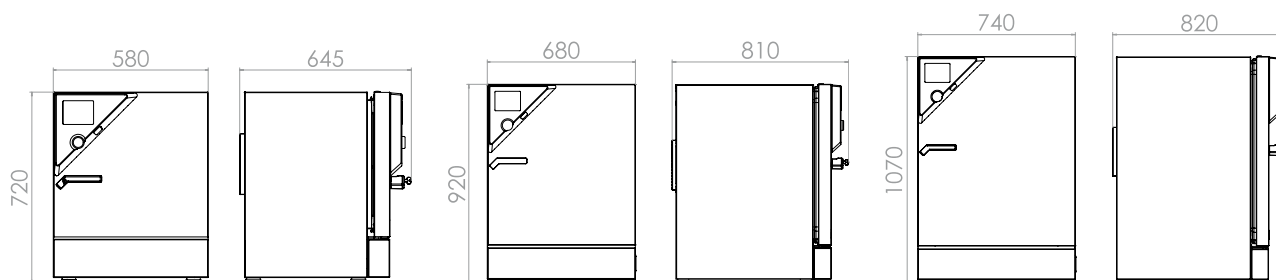
► You will find a selection of options, accessories and services suitable for each product on page 20

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

CB 60

CB 160

CB 220



## EXCERPT FROM OPTIONS AND ACCESSORIES

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### Stacking adapter

Stacking adapters support the safe positioning and stacking of BINDER CO<sub>2</sub> incubators.

Series C, CB

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### CO<sub>2</sub> gas tank changer

External, Binder Gas Supply Service, for connecting 2 gas tanks, with audible and visual alarms, as well as zero-voltage alarm output.

Series C, CB

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### Multiple-split inner door

Split glass doors and special corresponding shelf racks make it possible to divide the space for different experiments. The interior chamber atmosphere remains stable.

Series CB

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### Oxygen control

For hyperoxic conditions from 0.2% O<sub>2</sub> or for hyperoxic conditions up to 95% O<sub>2</sub>.

Series CB

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### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.

More information is available in the accessories and services chapter.

Series C, CB

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### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.

Series C, CB

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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

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Stacking adapter



CO<sub>2</sub> gas tank changer



Multiple-split inner door



CB with oxygen control







BINDER

37°C  
Lüfter 100%



# Incubators Avantgarde.Line

2

Series BD	Page 26
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Series BF	Page 28
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Options and Accessories	Page 30
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The completely redesigned Avantgarde.Line incubators with natural convection or forced convection are now the perfect solution when it comes to meeting growth and incubation requirements. With their exceptional efficiency and perfect temperature accuracy thanks to the very latest APT.line™ technology, this new generation of incubators has real appeal.

## PRODUCT SELECTION INCUBATORS AVANTGARDE.LINE

Features	BD	BF
	› Page 26	› Page 28
<b>Model</b>		
Model 56	•	•
Model 115	•	•
Model 260	•	•
<b>General data</b>		
Temperature range 5 °C above ambient temperature to [°C]	100	–
Temperature range 7-8 °C above ambient temperature to [°C]	–	100
USB interface	•	•
Natural convection	•	–
Forced convection	–	•
<b>Controller and timer functions</b>		
Controller display	LCD	
Ramp function	•	•
Time delayed OFF	•	•
Time delayed ON	–	•
Temperature dependent delayed OFF	–	•
Adjustable fan speed	–	•
Class 3.1 independent temperature safety device	•	•
Temperature alarm, visual	•	•

• Standard equipment

## ADVANTAGES AT A GLANCE



### **EASY DATA LOGGING**

Series BD, BF

A USB connector comes standard.



### **EASY, INTUITIVE HANDLING**

Series BD, BF

The state-of-the-art controller is equipped with an easy-to-read alphanumeric display with various functions facilitating dialog with the unit and the readability of data.



### **EXCELLENT ENERGY EFFICIENCY AND LOW INSTALLATION REQUIREMENTS**

Series BD, BF

Low heat dissipation and an optimized heating system make the unit energy efficient.



### **COMPLETELY HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series BF

This feature provides excellent spatial and temporal temperature accuracy with the all-new generation of APT.line™ technology.

## Series BD | with natural convection

The BD Avantgarde.Line series is specially designed for gentle incubation of organisms, as well as conditioning of heat-sensitive media. The new design of the units and the homogeneous temperature distribution ensure the very best results.



BD 56 model

### MAIN FEATURES

- Temperature range: ambient temperature plus 5 °C to 100 °C
- High temperature accuracy thanks to APT.line™ technology
- Natural convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- Inner door made of tempered safety glass
- 2 chrome-plated racks
- Units up to 115 L are stackable
- Class 3.1 integrated independent temperature safety device (DIN 12880) with visual alarm
- Ergonomic handle design

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
BD 56	57	› <a href="https://go2binder.com/en-BD56">go2binder.com/en-BD56</a>
BD 115	112	› <a href="https://go2binder.com/en-BD115">go2binder.com/en-BD115</a>
BD 260	253	› <a href="https://go2binder.com/en-BD260">go2binder.com/en-BD260</a>

› Other Classic.Line models › page 33



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Find all details online  
[go2binder.com/en-BD-a](https://go2binder.com/en-BD-a)

## TECHNICAL DATA

Description	BD 56	BD 115	BD 260
<b>Measures - Outer dimensions</b>			
Width net [mm]	560	710	810
Height net [mm]	625	735	965
Depth net [mm]	565	605	760
<b>Measures - Internal Dimensions</b>			
Width [mm]	360	510	610
Height [mm]	420	530	760
Depth [mm]	380	420	545
<b>Measures</b>			
Interior volume [L]	57	112	253
Net weight of the unit (empty) [kg]	39	54	85
permitted load [kg]	70	150	270
Load per rack [kg]	30	30	40
<b>Performance Data Temperature</b>			
Temperature range 5 °C above ambient temperature to [°C]	100	100	100
Temperature variation at 37 °C [± K]	0.4	0.4	0.4
Temperature fluctuation at 37 °C [± K]	0.2	0.1	0.2
Heating-up time to 37 °C [min]	45	55	65
Recovery time after 30 seconds door open at 37 °C [min]	16	16	19
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.3	0.35	0.95
Nominal power (Version 230 V) [kW]	0.3	0.35	0.85
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/5	2/8

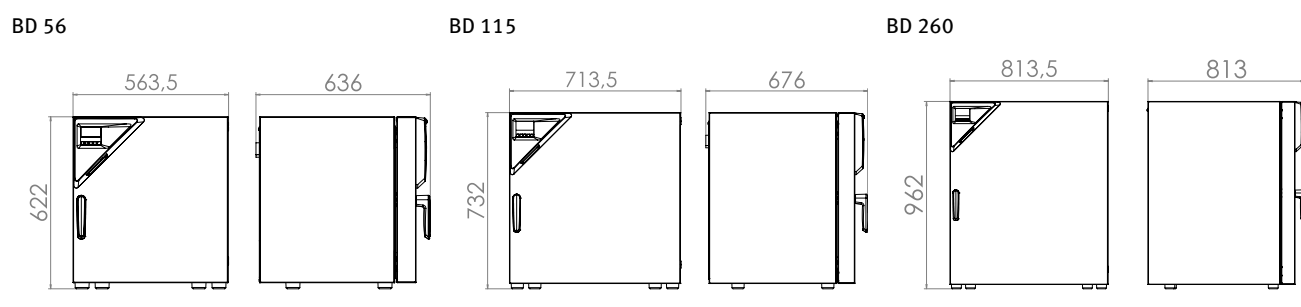
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	BD 56	BD 115	BD 260
230 V 1~ 50/60 Hz	Standard	9010-0323	9010-0325	9010-0329
120 V 1~ 50/60 Hz	Standard	9010-0324	9010-0326	9010-0330

► You will find a selection of options, accessories and services suitable for each product on page 30

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



## Series BF | with forced convection

The BINDER incubator of the BF Avantgarde.Line series with forced convection is suitable for all gentle incubation applications, particularly under a full load and large batch throughputs. This incubator is extremely homogeneous and has quick recovery times.



BF 115 model

### MAIN FEATURES

- Temperature range (model 56 | 260):  
ambient temperature plus 7 °C to 100 °C
- Temperature range (model 115):  
ambient temperature plus 8 °C to 100 °C
- High temperature accuracy thanks to APT.line™ technology
- Forced convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- Inner door made of tempered safety glass
- 2 chrome-plated racks
- Units up to 115 L are stackable
- Class 3.1 integrated independent temperature safety device (DIN 12880) with visual alarm

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
BF 56	59	› <a href="https://go2binder.com/en-BF56">go2binder.com/en-BF56</a>
BF 115	114	› <a href="https://go2binder.com/en-BF115">go2binder.com/en-BF115</a>
BF 260	257	› <a href="https://go2binder.com/en-BF260">go2binder.com/en-BF260</a>

› Other Classic.Line models › page 33



### TIPS & TRICKS

Benefit from our many years of experience, as demonstrated in our technical papers:

Tips & Tricks: › [go2binder.com/en-tips-tricks](https://go2binder.com/en-tips-tricks)  
Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-BF-a](https://go2binder.com/en-BF-a)



## TECHNICAL DATA

Description	BF 56	BF 115	BF 260
<b>Measures - Outer dimensions</b>			
Width net [mm]	560	710	810
Height net [mm]	625	735	965
Depth net [mm]	565	605	760
<b>Measures - Internal Dimensions</b>			
Width [mm]	400	550	650
Height [mm]	440	550	780
Depth [mm]	340	380	510
<b>Measures</b>			
Interior volume [L]	59	114	257
Net weight of the unit (empty) [kg]	39	54	85
permitted load [kg]	70	150	270
Load per rack [kg]	30	30	40
<b>Performance Data Temperature</b>			
Temperature range 7-8 °C above ambient temperature to [°C]	100	100	100
Temperature variation at 37 °C [± K]	0.3	0.3	0.3
Temperature fluctuation at 37 °C [± K]	0.1	0.1	0.1
Heating-up time to 37 °C [min]	8	8	8
Recovery time after 30 seconds door open at 37 °C [min]	3	4	4
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.4	0.4	1
Nominal power (Version 230 V) [kW]	0.4	0.4	0.9
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/5	2/8

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	BF 56	BF 115	BF 260
230 V 1~ 50/60 Hz	Standard	9010-0313	9010-0315	9010-0319
120 V 1~ 60 Hz	Standard	9010-0314	9010-0316	9010-0320

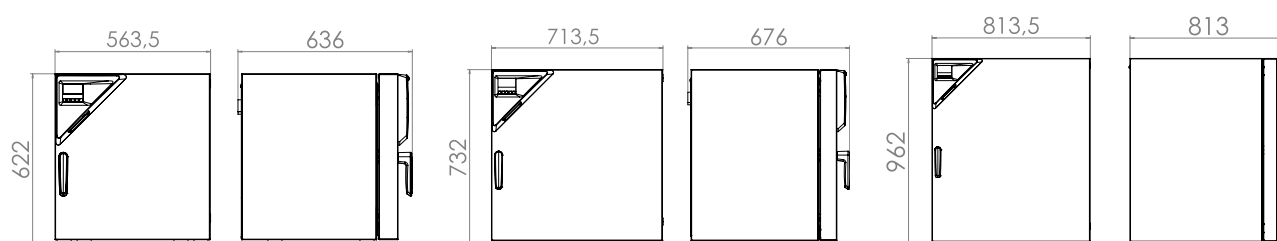
► You will find a selection of options, accessories and services suitable for each product on page 30

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

BF 56

BF 115

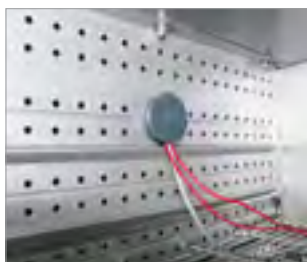
BF 260



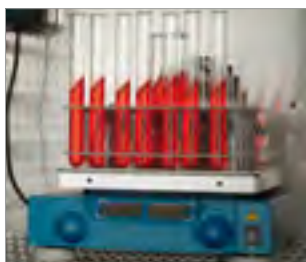
## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series BD, BF
<b>Interior socket</b>	Waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, coverable, with cover and corresponding plug (nominal voltage; max. 500 W; max. 90 °C; protection class IP67) Series BD, BF
<b>Door lock</b>	Lockable door handle prevents unauthorized access. Series BD, BF
<b>Shelf racks</b>	Perforated shelves or shelf racks, chrome-plated or made from stainless steel. Series BD, BF
<b>Data Logger Kit T</b>	Independent temperature data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings. Series BD, BF
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series BD, BF
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series BD, BF

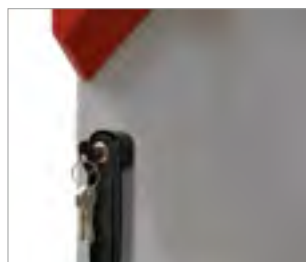
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Access port with silicone plug



Shaker operation in the chamber



Door lock



Shelf





# Incubators Classic.Line

Series B	Page 36
Series BD	Page 38
Series BF	Page 40
Options and Accessories	Page 42

An incubator from BINDER is the perfect solution for stable incubation processes. With their excellent technical profiles, a BINDER incubator produces reliable incubation of microbiological cultures and guarantee reproducible results in every routine test in the laboratory – even under high batch throughputs in long-term operation.

A BD Series incubator functions with natural convection; in a BF Series incubator, convection ensures rapid temperature equalization and quick recovery times.

## PRODUCT SELECTION INCUBATORS CLASSIC.LINE

Features	<b>B</b> › Page 36	<b>BD</b> › Page 38	<b>BF</b> › Page 40
<b>Model</b>			
Model 23	–	•	–
Model 28	•	–	–
Model 400	–	•	•
Model 720	–	•	•
<b>General data</b>			
Temperature range [°C]	30...70	–	–
Temperature range 5 °C above ambient temperature to [°C]	–	100	100
RS 422 interface	–	•	•
Natural convection	•	•	–
Forced convection	–	–	•
<b>Controller and timer functions</b>			
Controller display	Analog	LED	LED
Ramp function	–	•	•
Time delayed OFF	–	•	•
Time delayed ON	–	–	•
Temperature dependent delayed OFF	–	–	•
Adjustable fan speed	–	–	•
Class 3.1 independent temperature safety device	–	•	•
Temperature alarm, visual	–	•	•

•Standard equipment

## ADVANTAGES AT A GLANCE



### CONVENIENT WORK ENVIRONMENT

Series B, BD, BF

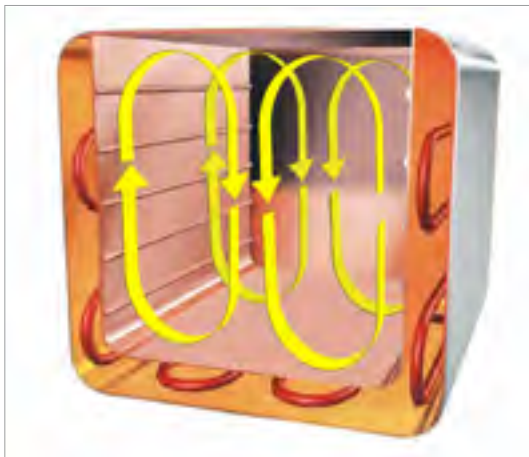
The BINDER interior concept of less is more, highlights rack with tilt protection, no permanent fixtures and stainless-steel inner chamber.



### RELIABLE DECONTAMINATION

Series BD, BF

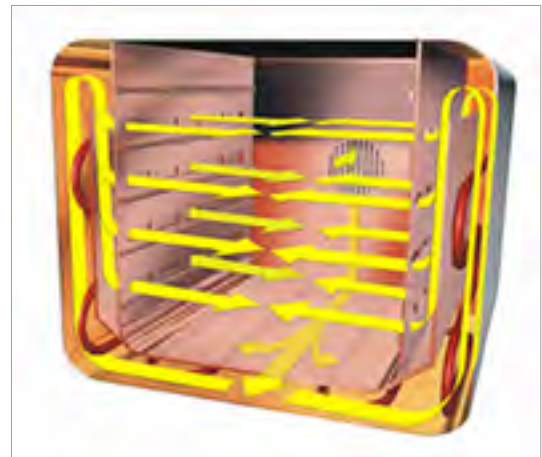
Decontamination is provided by our disinfection routine at 100° C.



### HOMOGENEOUS TEMPERATURE CONDITIONS WITH NATURAL CONVECTION

Series BD

Gentle temperature distribution provided by the APT.line™ preheating chamber technology.



### HOMOGENEOUS TEMPERATURE CONDITIONS WITH FORCED CONVECTION

Series BF

Long-term operational stability even under full load from the APT.line™ preheating chamber technology.

Series B | with mechanical adjustment

With the B series incubator, you get a reliable and powerful unit in a solid configuration at a very attractive price.



B 28 model

MAIN FEATURES

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

AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
B 28	28	› <a href="https://go2binder.com/en-B28">go2binder.com/en-B28</a>



Find all details online  
[go2binder.com/en-B-c](https://go2binder.com/en-B-c)



## TECHNICAL DATA

Description	B 28
<b>Measures - Outer dimensions</b>	
Width net [mm]	580
Height net [mm]	405
Depth net [mm]	425
<b>Measures - Internal Dimensions</b>	
Width [mm]	400
Height [mm]	280
Depth [mm]	250
<b>Measures</b>	
Interior volume [L]	28
Net weight of the unit (empty) [kg]	23
permitted load [kg]	25
Load per rack [kg]	10
<b>Performance Data Temperature</b>	
Temperature range [°C]	30...70
Temperature variation at 37 °C [± K]	1.5
Temperature fluctuation at 37 °C [± K]	1
Heating-up time to 37 °C [min]	95
<b>Electrical data</b>	
Nominal power (Version 120 V) [kW]	0.25
Nominal power (Version 230 V) [kW]	0.25
<b>Fixtures</b>	
Number of shelves (std./max.)	2/4

## ORDERING INFORMATION [Art. No.]

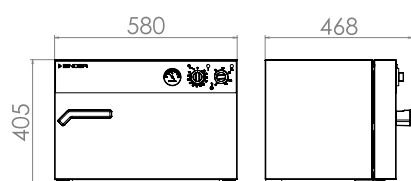
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	B 28
230 V 1~ 50/60 Hz	Standard	9010-0002
	with TB class 1	9010-0004
120 V 1~ 60 Hz	Standard	9010-0067

► You will find a selection of options, accessories and services suitable for each product on page 42

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

B 28



## Series BD | with natural convection

The BINDER incubator of the BD series with natural convection is the specialist in long-term and stable continuous operation. This incubator is specially designed for gentle incubation of organisms, as well as conditioning of heat-sensitive media or microbiological heating.



BD 400 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 100 °C
- APT.line™ preheating chamber technology
- natural convection
- Adjustable exhaust air flap
- Controller with timer functions
- Inner door made of tempered safety glass
- 2 chrome-plated racks
- Units up to 115 liters are stackable
- Class 3.1 independent temperature safety device (DIN 12880) with visual temperature alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
BD 23	20	› <a href="https://go2binder.com/en-BD23">go2binder.com/en-BD23</a>
BD 400	400	› <a href="https://go2binder.com/en-BD400">go2binder.com/en-BD400</a>
BD 720	720	› <a href="https://go2binder.com/en-BD720">go2binder.com/en-BD720</a>

› Other Avantgarde.Line models › page 23



Find all details online  
[go2binder.com/en-BD-c](https://go2binder.com/en-BD-c)

## TECHNICAL DATA

Description	BD 23	BD 400	BD 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	435	1235	1235
Height net [mm]	495	1025	1530
Depth net [mm]	520	765	865
<b>Measures - Internal Dimensions</b>			
Width [mm]	222	1000	1000
Height [mm]	330	800	1200
Depth [mm]	277	500	600
<b>Measures</b>			
Interior volume [L]	20	400	720
Net weight of the unit (empty) [kg]	27	135	191
permitted load [kg]	25	90	120
Load per rack [kg]	12	35	45
<b>Performance Data Temperature</b>			
Temperature range 5 °C above ambient temperature to [°C]	100	100	100
Temperature variation at 37 °C [± K]	0.5	0.5	0.5
Temperature fluctuation at 37 °C [± K]	0.2	0.1	0.1
Heating-up time to 37 °C [min]	59	120	110
Recovery time after 30 seconds door open at 37 °C [min]	20	10	15
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.2	1.25	0.2
Nominal power (Version 230 V) [kW]	0.2	1.25	0.2
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/9	2/15

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	BD 23	BD 400	BD 720
230 V 1~ 50/60 Hz	Standard	9010-0187	9010-0073	9010-0074
120 V 1~ 60 Hz	Standard	9010-0189	9010-0176	9010-0177

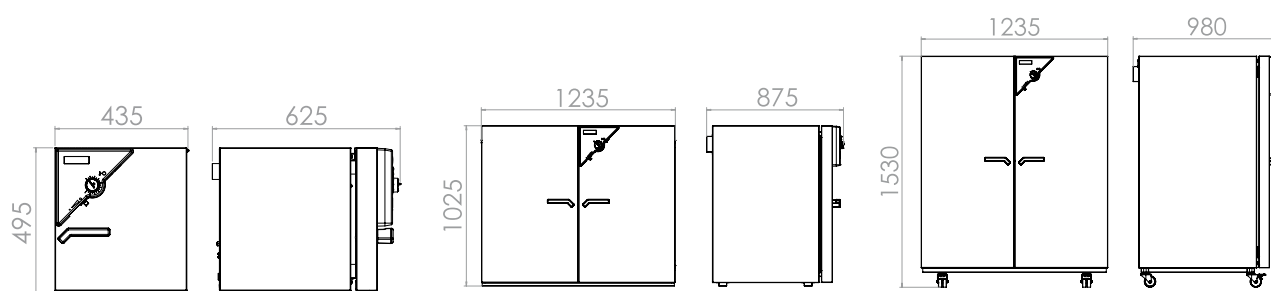
► You will find a selection of options, accessories and services suitable for each product on page 42

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

BD 23

BD 400

BD 720



## Series BF | with forced convection

The BINDER incubator of the BF series with mechanical convection is suitable for all gentle incubation applications, particularly under a full load and large batch throughputs. This incubator is extremely homogeneous and has quick recovery times.



BF 400 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 100 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with timer functions
- Inner door made of tempered safety glass
- 2 chrome-plated racks
- Units up to 115 liters are stackable
- Class 3.1 independent temperature safety device (DIN 12880) with visual temperature alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
BF 400	400	› <a href="https://go2binder.com/en-BF400">go2binder.com/en-BF400</a>
BF 720	720	› <a href="https://go2binder.com/en-BF720">go2binder.com/en-BF720</a>

› Other Avantgarde.Line models › page 23



Find all details online  
[go2binder.com/en-BF-c](https://go2binder.com/en-BF-c)

## TECHNICAL DATA

Description	BF 400	BF 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	1235	1235
Height net [mm]	1025	1530
Depth net [mm]	765	865
<b>Measures - Internal Dimensions</b>		
Width [mm]	1000	1000
Height [mm]	800	1200
Depth [mm]	500	600
<b>Measures</b>		
Interior volume [L]	400	720
Net weight of the unit (empty) [kg]	145	180
permitted load [kg]	90	120
Load per rack [kg]	35	45
<b>Performance Data Temperature</b>		
Temperature range 5 °C above ambient temperature to [°C]	100	100
Temperature variation at 37 °C [± K]	0.4	0.4
Temperature fluctuation at 37 °C [± K]	0.1	0.1
Heating-up time to 37 °C [min]	12	17
Recovery time after 30 seconds door open at 37 °C [min]	5	4
<b>Electrical data</b>		
Nominal power (Version 120 V) [kW]	0.85	1.25
Nominal power (Version 230 V) [kW]	0.85	1.25
<b>Fixtures</b>		
Number of shelves (std./max.)	2/9	2/15

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

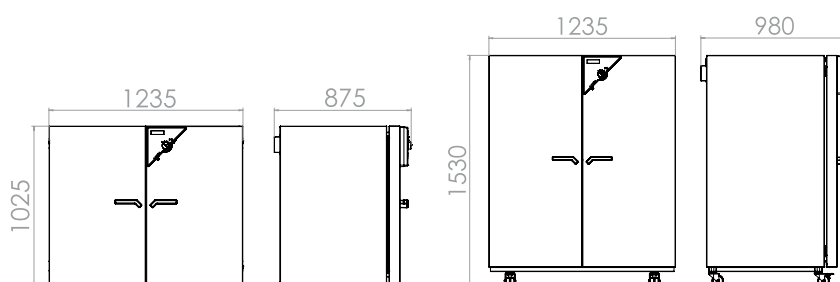
Voltage	Option model	BF 400	BF 720
230 V 1~ 50/60 Hz	Standard	9010-0241	9010-0243
120 V 1~ 60 Hz	Standard	9010-0242	9010-0244

► You will find a selection of options, accessories and services suitable for each product on page 42

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

BF 400

BF 720

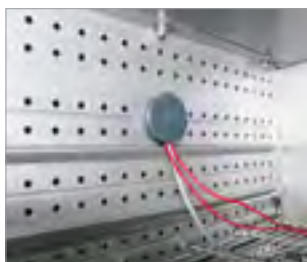


## EXCERPT FROM OPTIONS AND ACCESSORIES

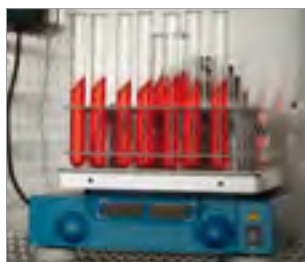
<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series BD, BF
<b>Interior socket</b>	Waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, coverable, with cover and corresponding plug (nominal voltage; max. 500 W; max. 90 °C; protection class IP67) Series BD, BF
<b>Door lock</b>	Lockable door handle prevents unauthorized access. Series BD, BF
<b>Shelf racks</b>	Perforated shelves or shelf racks, chrome-plated or made from stainless steel. Series B, BD, BF
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series B, BD, BF
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series B, BD, BF

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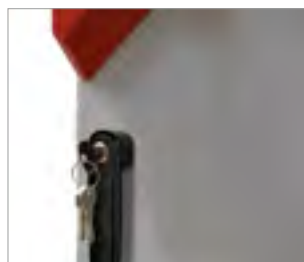
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Access port with silicone plug



Shaker operation in the chamber



Door lock



Shelf







# Cooling incubators

Series KT	Page 48
Series KB	Page 50
Options and Accessories	Page 53

BINDER cooling incubators are gentle on samples and provide high-quality performance. Every KB Series cooling incubator thus makes safe, reproducible incubation possible, even at high ambient temperatures. Together with the efficient weekly program function, a cooling incubator from BINDER is truly versatile in laboratory work with microorganisms. The KT Series combines exceptional performance with low energy consumption. Additionally, every BINDER cooling incubator offers true added value with its exemplary environmental sustainability.

# PRODUCT SELECTION COOLING INCUBATORS

Features	KT › Page 48	KB › Page 50
<b>Model</b>		
Model 23	–	•
Model 53	•	•
Model 115	•	•
Model 170	•	–
Model 240	–	•
Model 400	–	•
Model 720	–	•
<b>General data</b>		
Temperature range [°C]	4...100	-5...100
Ethernet interface	•	–
RS 422 interface	–	•
USB interface	•	–
Cooling technology	Thermoelectric cooling	Compressor
<b>Controller and timer functions</b>		
Controller display	LCD	LED/LCD
Programming option	•	•
Weekly program function	•	•
Adjustable fan speed	•	•
Real-time clock	•	•
Class 1 temperature safety device	•	•
Class 3.1 independent temperature safety device	•	•
Temperature alarm, acoustic	•	•
Temperature alarm, visual	•	•
•Standard equipment		

## ADVANTAGES AT A GLANCE



### **HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series KT, KB

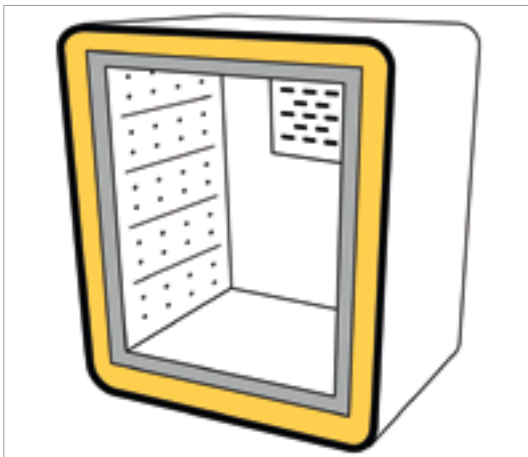
BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### **EASY DECONTAMINATION**

Series KT, KB

The disinfection routine at 100 °C and high quality stainless-steel inner chamber makes it easy to clean.



### **EXTREMELY ROBUST AND LONG-LASTING QUALITY**

Series KT

HIT insulation provides a layer of foam between the boiler and the housing. This guarantees maximum stability and particle-free thermal insulation with no thermal bridges.



### **FLEXIBLE, MIXED STACKING OPTIONS**

Series KT

Both units have identical footprints in sizes KT 115 and KT 170

## Series KT | with thermoelectric cooling

The KT series combines outstanding performance with impressive energy efficiency and environmental friendliness. The cooled incubators of the KT series are state-of-the-art in application and protect the samples.



KT 115 model

### MAIN FEATURES

- Temperature range: 4 °C to 100 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Electric cooling with Peltier module
- Controller with time-segment and real-time programming
- Display via LCD monitor
- Input via pushbutton/rotary knob
- Inner door made of tempered safety glass
- 2 stainless steel racks
- Units up to 115 liters are stackable

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KT 53	53	› <a href="https://go2binder.com/en-KT53">go2binder.com/en-KT53</a>
KT 115	102	› <a href="https://go2binder.com/en-KT115">go2binder.com/en-KT115</a>
KT 170	163	› <a href="https://go2binder.com/en-KT170">go2binder.com/en-KT170</a>



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 Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-KT](https://go2binder.com/en-KT)

## TECHNICAL DATA

Description	KT 53	KT 115	KT 170
<b>Measures - Outer dimensions</b>			
Width net [mm]	660	860	860
Height net [mm]	635	715	1025
Depth net [mm]	630	655	655
<b>Measures - Internal Dimensions</b>			
Width [mm]	400	600	600
Height [mm]	400	455	765
Depth [mm]	334	355	355
<b>Measures</b>			
Interior volume [L]	53	102	163
Net weight of the unit (empty) [kg]	63	83	102
permitted load [kg]	40	100	120
Load per rack [kg]	15	30	30
<b>Performance Data Temperature</b>			
Temperature range [°C]	4...100	4...100	4...100
Temperature variation at 37 °C [± K]	0.3	0.3	0.4
Temperature fluctuation [± K]	0.1	0.1	0.1
Recovery time after 30 seconds door open at 37 °C [min]	2	3	3
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.4	0.7	0.8
Nominal power (Version 230 V) [kW]	0.4	0.7	0.8
<b>Fixtures</b>			
Number of shelves (std./max.)	2/5	2/6	2/10

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KT 53	KT 115	KT 170
200...240 V 1~ 50/60 Hz	Standard	9020-0311	9020-0313	9020-0289
100...120 V 1~ 50/60 Hz	Standard	9020-0312	9020-0314	9020-0310

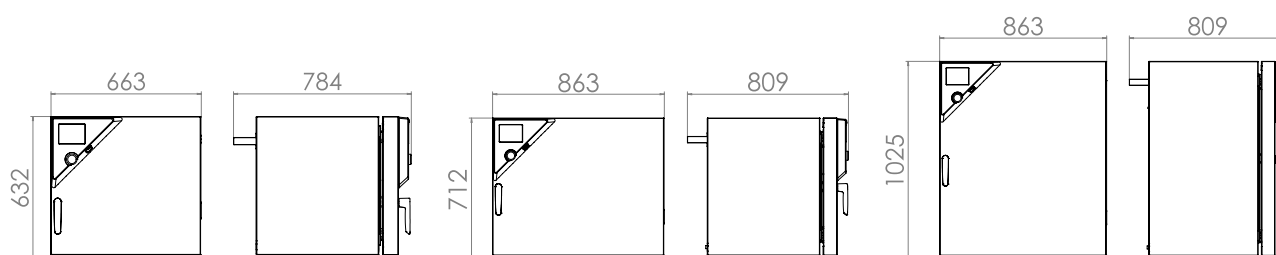
► You will find a selection of options, accessories and services suitable for each product on page 53

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

KT 53

KT 115

KT 170



## Series KB | with compressor technology

The most versatile among the cooled incubators for microorganisms: The BINDER KB series cooled incubator controls temperature ranges of -5 °C to 100 °C. With its comprehensive program functions, this cooled incubator offers a wide range of capabilities and delivers reproducible test results.



KB 53 model



### MAIN FEATURES

- Temperature range (Model 23):  
0 °C to 100 °C
- Temperature range (Models 53, 115, 240, 400, 720):  
-5 °C to 100 °C
- APT.line™ preheating chamber technology
- Cooling with compressor cooling unit
- Door heating system from 240 liters
- Adjustable fan speed
- Controller with time-segment and real-time programming
- Elapsed time indicator
- Inner door made of tempered safety glass
- 2 stainless steel racks

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KB 23	20	› <a href="https://go2binder.com/en-KB23">go2binder.com/en-KB23</a>
KB 53	53	› <a href="https://go2binder.com/en-KB53">go2binder.com/en-KB53</a>
KB 115	115	› <a href="https://go2binder.com/en-KB115">go2binder.com/en-KB115</a>
KB 240	247	› <a href="https://go2binder.com/en-KB240">go2binder.com/en-KB240</a>
KB 400	400	› <a href="https://go2binder.com/en-KB400">go2binder.com/en-KB400</a>
KB 720	698	› <a href="https://go2binder.com/en-KB720">go2binder.com/en-KB720</a>



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

## TECHNICAL DATA

Description	KB 23	KB 53	KB 115	KB 240	KB 400	KB 720
Measures - Outer dimensions						
Width net [mm]	435	635	835	925	925	1250
Height net [mm]	620	835	1025	1465	1950	1925
Depth net [mm]	520	580	650	800	805	885
Measures - Internal Dimensions						
Width [mm]	222	400	600	650	650	970
Height [mm]	330	400	480	785	1270	1250
Depth [mm]	277	330	400	485	485	576
Measures						
Interior volume [L]	20	53	115	247	400	698
Net weight of the unit (empty) [kg]	44	72	105	170	220	309
permitted load [kg]	25	40	50	100	120	150
Load per rack [kg]	10	15	20	30	30	45
Performance Data Temperature						
Temperature range [°C]	0...100	-5...100	-5...100	-5...100	-5...100	-5...100
Temperature variation at 37 °C [± K]	0.3	0.3	0.2	0.2	0.3	0.2
Temperature fluctuation at 37 °C [± K]	0.1	0.1	0.1	0.1	0.1	0.1
Recovery time after 30 seconds door open at 37 °C [min]	2	1	1	1	3	2
Electrical data						
Nominal power (Version 120 V) [kW]	0.3	0.5	0.5	1.2	1.4	–
Nominal power (Version 230 V) [kW]	0.3	0.5	0.5	1.2	1.4	2.3
Nominal power (Version 240 V) [kW]	–	–	–	–	–	2.3
Fixtures						
Number of shelves (std./max.)	2/3	2/4	2/5	2/9	2/15	2/15

## ORDERING INFORMATION [Art. No.]

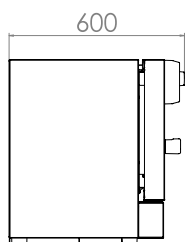
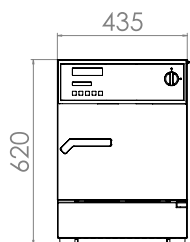
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KB 23	KB 53	KB 115	KB 240	KB 400	KB 720
230 V 1~ 50/60 Hz	Standard	9020-0112	9020-0243	9020-0242	–	–	–
200...240 V 1~ 50 Hz	Standard	–	–	–	9020-0241	9020-0178	9020-0111 9020-0167
120 V 1~ 60 Hz	Standard	9020-0113	9020-0252	9020-0253	–	–	–
100...120 V 1~ 60 Hz	Standard	–	–	–	9020-0254	9020-0179	–

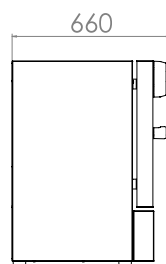
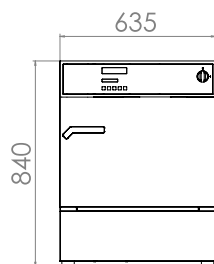
► You will find a selection of options, accessories and services suitable for each product on page 53

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

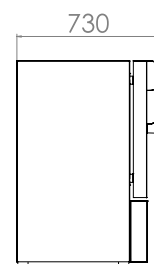
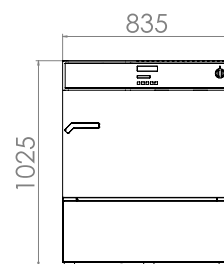
KB 23



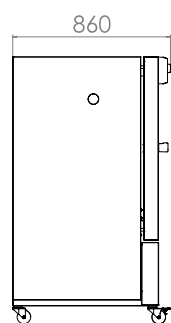
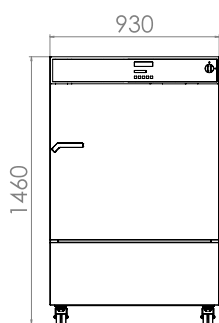
KB 53



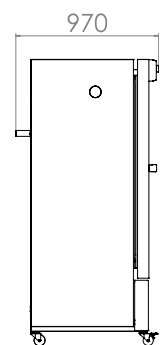
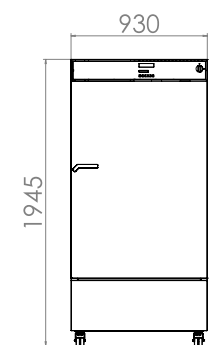
KB 115



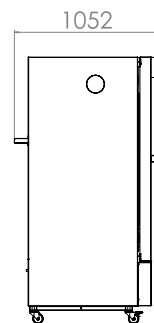
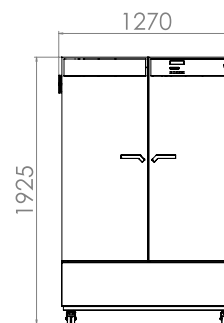
KB 240



KB 400



KB 720





## EXCERPT FROM OPTIONS AND ACCESSORIES

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)

Series KT, KB

### Interior socket

Socket with cover, with associated LEMO connector, nominal voltage, max. 500 W, max. 90 °C, and protection class IP67. For installing external units in the interior.

Series KT, KB

### Door lock

Lockable door handle prevents unauthorized access.

Series KT, KB

### Data Logger Kit T

Independent temperature data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings.

Series KT, KB

### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.

More information is available in the accessories and services chapter.

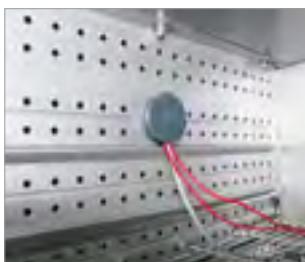
Series KT, KB

### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.

Series KT, KB

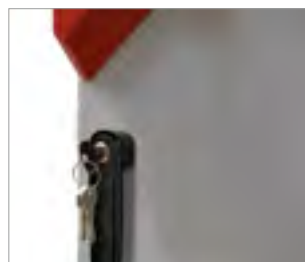
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Access port with silicone plug



Shaker operation in the chamber



Door lock



Data Logger for temperature

# Light chambers

Growth chambers  
Constant climate chambers

3

## OPTIMUM GROWTH FOR IN VIVO AND IN VITRO CULTURES

Homogeneous temperature, humidity, and lighting conditions are the outstanding features of the BINDER growth and constant climate chambers for the reproduction of various growth levels. You can ensure long-term stability and reliability for test series. For example, the growth chambers are superbly suited for plant cultivation, while the constant climate chambers with ICH-compliant light sources are the specialists for photostability tests.

3

### GROWTH CHAMBERS

Page 57



with light

**Series KBW**

Page 60

with light and humidity

**Series KBWF**

Page 63

### CONSTANT CLIMATE CHAMBERS

Page 69



with ICH-compliant light source

**Series KBF P**

Page 72

with ICH-compliant light source and light dose control

**Series KBF LQC**

Page 75



# Growth chambers

Series KBW	Page 60
Series KBWF	Page 63
Options and Accessories	Page 66

Homogeneous light in combination with a constant temperature and humidity is necessary to achieve ideal growth in plants or other organisms. A BINDER humidity chamber offers all this. This is how KBW Series growth chambers create ideal conditions for the culture using light and temperature. The KBF series also offers a system for humidity regulation. The APT.line™ preheating chamber from BINDER, in connection with fast-reacting humidity regulation, highly effective cooling and uniform light distribution, ensures natural growth conditions.

# PRODUCT SELECTION GROWTH CHAMBERS

Features	KBW	KBWF
	› Page 60	› Page 63
Model		
Model 240	•	•
Model 400	•	–
Model 720	•	•
General data		
Temperature range without illumination cassettes [°C]	0...70	
Temperature range with 100% illumination [°C]	5...60	10...60
Humidity range [% RH]	–	10...80
Ethernet interface	–	•
RS 422 interface	•	–
Forced convection	•	•
Controller and timer functions		
Controller display	LED/LCD	LCD color display
Ramp function	•	•
Time delayed OFF	•	•
Time delayed ON	•	•
Temperature dependent delayed OFF	•	•
Programming option	•	•
Weekly program function	•	•
Adjustable fan speed	•	•
Real-time clock	•	•
Class 3.1 independent temperature safety device	•	•
Temperature alarm, acoustic	•	•
Temperature alarm, visual	•	•

• Standard equipment

## ADVANTAGES AT A GLANCE



### **HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series KBW, KBWF

BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### **FAST AND PRECISE HUMIDIFICATION**

Series KBWF

The patented long-life steam humidification system and the capacitive humidity sensor ensure on target humidity values.

3



### **NATURE-EMULATING GROWTH CONDITIONS**

Series KBW, KBWF

Using illumination cassettes provides flexible placement options which ensures homogeneous light distribution over the entire usable area. The light qualities are individually selectable.

## Series KBW | with light

The BINDER climate chamber with illumination of the KBW series achieves homogeneous light distribution with its natural illumination. That allows this growth chamber to create constant lighting and temperature conditions.



KBW 400 model



### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 5 °C to 60 °C
- Positionable illumination cassettes, each with 5 fluorescent tubes
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Controller with time-segment and real-time programming
- Stainless steel racks
- Access port with silicone plug, 30 mm, left
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBW 240	247	› <a href="https://go2binder.com/en-KBW240">go2binder.com/en-KBW240</a>
KBW 400	400	› <a href="https://go2binder.com/en-KBW400">go2binder.com/en-KBW400</a>
KBW 720	698	› <a href="https://go2binder.com/en-KBW720">go2binder.com/en-KBW720</a>



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Find all details online  
[go2binder.com/en-KBW](https://go2binder.com/en-KBW)



## TECHNICAL DATA

Description	KBW 240	KBW 400	KBW 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	925	925	1250
Height net [mm]	1465	1950	1925
Depth net [mm]	800	805	890
<b>Measures - Internal Dimensions</b>			
Width [mm]	650	650	970
Height [mm]	785	1270	1250
Depth [mm]	485	485	576
<b>Measures</b>			
Interior volume [L]	247	400	698
Net weight of the unit (empty) [kg]	202	267	377
permitted load [kg]	100	120	150
Load per rack [kg]	30	30	45
<b>Performance Data Temperature</b>			
Temperature range with 100% illumination [°C]	5...60	5...60	5...60
Temperature range without illumination cassettes [°C]	0...70	0...70	0...70
Temperature variation with 100% illumination [± K]	0.5	1.5	1.0
Temperature variation without illumination cassettes [± K]	0.5	0.5	0.5
Temperature fluctuation with 100% illumination [± K]	0.1	0.1	0.1
Temperature fluctuation without illumination cassettes [± K]	0.1	0.1	0.1
<b>Lightdata per Illumination Cassettes</b>			
Daylight tubes [W/m²]	24	24	38
Daylight tubes [lx]	9000	9000	13000
Fluora® growth lamps [W/m²]	23	23	36
Fluora® growth lamps [lx]	7500	7500	10500
Arabidopsis lamps [W/m²]	32	32	43
Arabidopsis lamps [lx]	11000	11000	14000
<b>Electrical data</b>			
Nominal power (Version 230 V) [kW]	1.4	1.6	2.7
<b>Fixtures</b>			
Number of shelves (std./max.)	2/7	3/12	3/12
Number of illumination cassettes (std./max.)	2/2	3/3	3/3

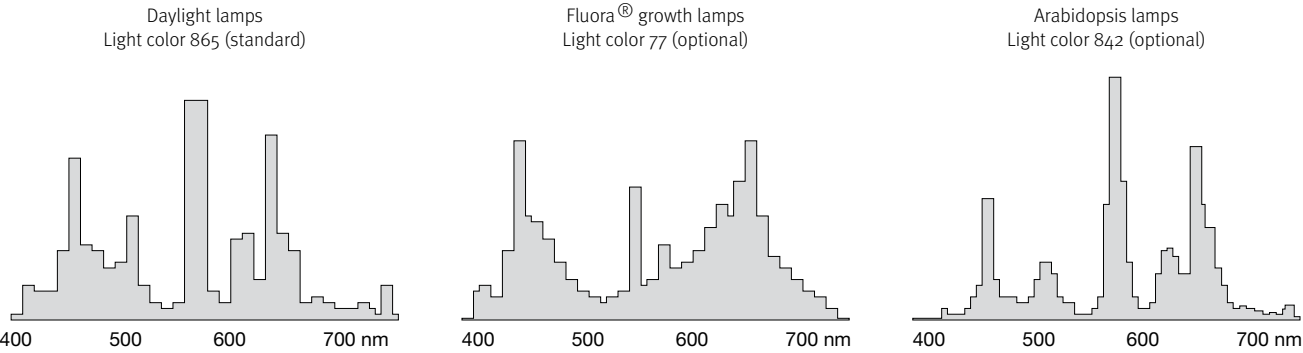
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

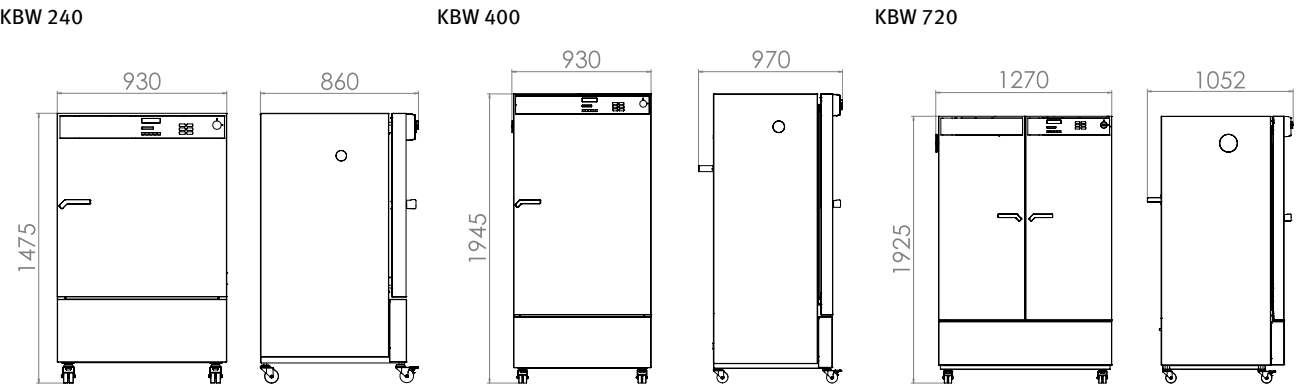
Voltage	Option model	KBW 240	KBW 400	KBW 720
200...240 V 1~ 50 Hz	Standard	9020-0256	9020-0180	9020-0172

► You will find a selection of options, accessories and services suitable for each product on page 66

LIGHT SPECTRA



DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



## Series KBWF | with light and humidity

The BINDER climate chamber with illumination of the KBW series achieves homogeneous light distribution with its natural illumination. That allows this climate chamber to create constant lighting and temperature conditions.



KBWF 240 model

### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes, each with 5 fluorescent tubes
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Controller with time-segment programming
- Display via color LCD monitor
- Tightly-sealed inner door made of tempered safety glass

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBWF 240	247	› <a href="https://go2binder.com/en-KBWF240">go2binder.com/en-KBWF240</a>
KBWF 720	700	› <a href="https://go2binder.com/en-KBWF720">go2binder.com/en-KBWF720</a>



Find all details online  
[go2binder.com/en-KBWF](https://go2binder.com/en-KBWF)

## TECHNICAL DATA

Description	KBWF 240	KBWF 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	925	1250
Height net [mm]	1465	1925
Depth net [mm]	800	890
<b>Measures - Internal Dimensions</b>		
Width [mm]	650	973
Height [mm]	785	1250
Depth [mm]	485	576
<b>Measures</b>		
Interior volume [L]	247	700
Net weight of the unit (empty) [kg]	214	374
permitted load [kg]	100	150
Load per rack [kg]	30	45
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	10...70
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	10...70
Temperature range without illumination cassettes [°C]	10...70	0...70
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
<b>Lightdata per Illumination Cassettes</b>		
Daylight tubes [W/m²]	24	38
Daylight tubes [lx]	9000	13000
Fluora® growth lamps [W/m²]	23	36
Fluora® growth lamps [lx]	7500	10500
Arabidopsis lamps [W/m²]	32	43
Arabidopsis lamps [lx]	11000	14000
<b>Electrical data</b>		
Nominal power (Version 230 V) [kW]	2.4	3.5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/7	3/12
Number of illumination cassettes (std./max.)	2/2	3/3

## ORDERING INFORMATION [Art. No.]

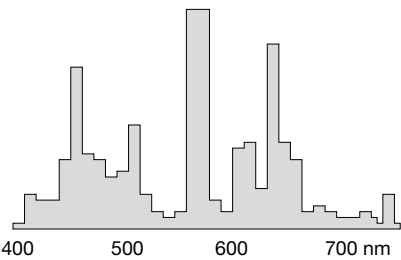
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KBWF 240	KBWF 720
200...240 V 1~ 50 Hz	Standard	9020-0281	9020-0282

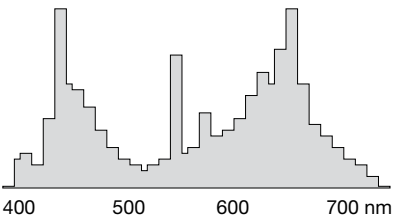
► You will find a selection of options, accessories and services suitable for each product on page 66

LIGHT SPECTRA

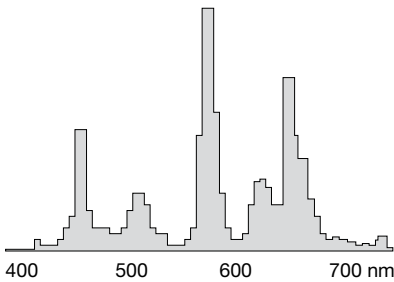
Daylight lamps  
Light color 865 (standard)



Fluora® growth lamps  
Light color 77 (optional)

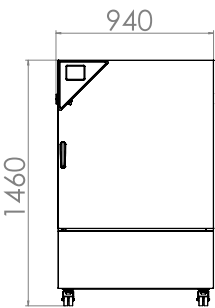


Arabidopsis lamps  
Light color 842 (optional)

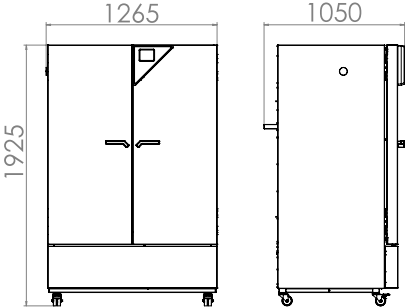


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

KBWF 240

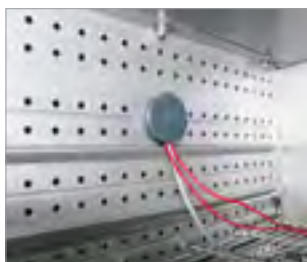


KBWF 720



## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series KBW, KBWF
<b>Data Logger Kit TH</b>	Independent temperature and humidity data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings. Series KBW, KBWF
<b>Interior socket</b>	waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, with cover and corresponding plug, (nominal voltage; max. 500 W; max. 90 °C; protection class IP67) Series KBW, KBWF
<b>Illumination</b>	Illumination cassettes equipped with FLUORA®, Arabidopsis, or daylight fluorescent tubes. Series KBW, KBWF
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series KBW, KBWF
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series KBW, KBWF
► All extras online <a href="http://go2binder.com/en-options">go2binder.com/en-options</a>	



Access port with silicone plug



Data Logger



Shaker operation in the chamber



Illumination







# Constant climate chambers

Series KBF P	Page 72
Series KBF LQC	Page 75
Options and Accessories	Page 78

BINDER climatic chambers stand out when testing material behaviors under constant temperature and humidity conditions. A climatic chamber of the KBF P and KBF LQC Series also offers ICH-compliant illumination for standard-compliant long-term tests. In combination with the innovative Light Quantum Control (LQC), they offer a complete reliable solution for photostability testing in one chamber.

# PRODUCT SELECTION CONSTANT CLIMATE CHAMBERS

Features	KBF P › Page 72	KBF LQC › Page 75
<b>Model</b>		
Model 240	•	•
Model 720	•	•
<b>General data</b>		
Temperature range without illumination cassettes [°C]		0...70
Temperature range with 100% illumination [°C]		10...60
Humidity range [% RH]		10...80
Ethernet interface	•	•
Forced convection	•	•
<b>Controller and timer functions</b>		
Controller display		LCD color display
Programming option	•	•
Adjustable fan speed	•	•
Real-time clock	•	•
Class 3.1 independent temperature safety device	•	•
Temperature alarm, acoustic	•	•
Temperature alarm, visual	•	•
•Standard equipment		

## ADVANTAGES AT A GLANCE



### **HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series KBF P, KBF LQC

BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### **FAST AND PRECISE HUMIDIFICATION**

Series KBF P, KBF LQC

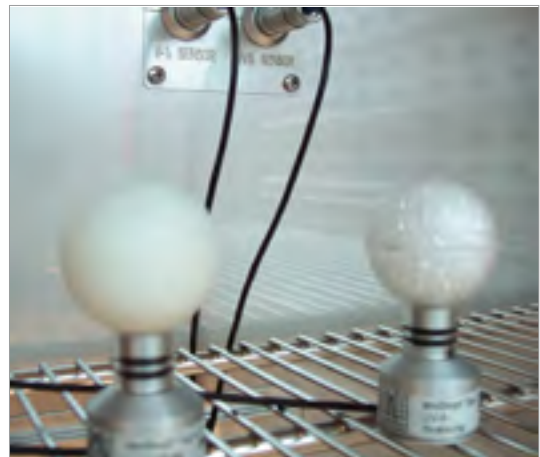
The patented long-life steam humidification system and the capacitive humidity sensor ensure on target humidity values.



### **HOMOGENEOUS LIGHT DISTRIBUTION**

Series KBF P, KBF LQC

Illumination cassettes with ICH-Q1B-compliant light sources provide flexible placement for photostability tests.



### **INDEPENDENT LIGHT-DOSE CONTROL**

Series KBF LQC

Using 3D spherical sensors which can be placed where required. These capture the light quality and switch off automatically after reaching the required light dosage.

## Series KBF P | with ICH-compliant light source

The KBF P constant climate chamber, equipped with ICH-compliant light source, is an expert when it comes to photostability tests and ensures clear test results in accordance with ICH Guideline Q1B. At the same time, the variable-position illumination cassettes offer homogeneous lighting conditions.



KBF P 240 model

### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes with ICH-compliant UV/Vis light source
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Controller with time-segment programming
- Tightly-sealed inner door made of tempered safety glass
- Stainless steel racks

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBF P 240	247	› <a href="https://go2binder.com/en-KBFP240">go2binder.com/en-KBFP240</a>
KBF P 720	700	› <a href="https://go2binder.com/en-KBFP720">go2binder.com/en-KBFP720</a>



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## TECHNICAL DATA

Description	KBF P 240	KBF P 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	925	1250
Height net [mm]	1460	1925
Depth net [mm]	800	890
<b>Measures - Internal Dimensions</b>		
Width [mm]	650	973
Height [mm]	785	1250
Depth [mm]	485	576
<b>Measures</b>		
Interior volume [L]	247	700
Net weight of the unit (empty) [kg]	213	374
permitted load [kg]	100	150
Load per rack [kg]	30	45
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	0...70
Recovery time after 30 seconds door open at 40 °C and 75 % RH with illumination [min]	4	5
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	20...60
Temperature range without illumination cassettes [°C]	10...70	10...70
Temperature variation with illumination at 40 °C and 75 % RH [± K]	0.6	1.2
Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]	0.2	0.2
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]	2	2
<b>Lightdata per Illumination Cassettes</b>		
ICH compliant illumination for photo stability testing [lx]	7500	8750
ICH compliant illumination for photo stability testing [W/m²]	1.1	1.6
<b>Electrical data</b>		
Nominal power (Version 230 V) [kW]	2.4	3.5
Nominal power (Version 240 V) [kW]	2.4	3.5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/7	3/12
Number of illumination cassettes (std./max.)	2/2	3/3

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KBF P 240	KBF P 720
200...230 V 1~ 50 Hz	Standard	9020-0273	9020-0275
200...240 V 1~ 50/60 Hz	Standard	9020-0274	9020-0276

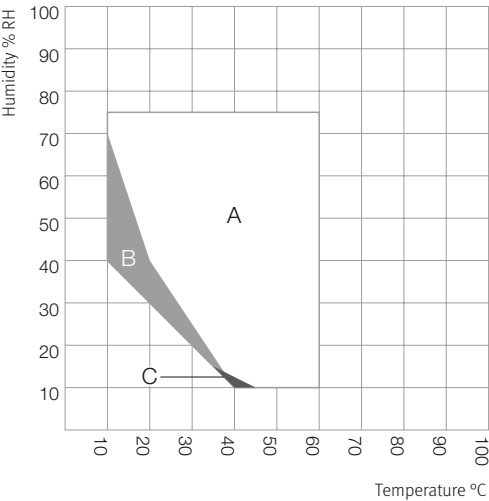
► You will find a selection of options, accessories and services suitable for each product on page 78

EXTRACT OF FULLFILLED STANDARDS

- ICH Q1A(R2)
- ICH Q1B

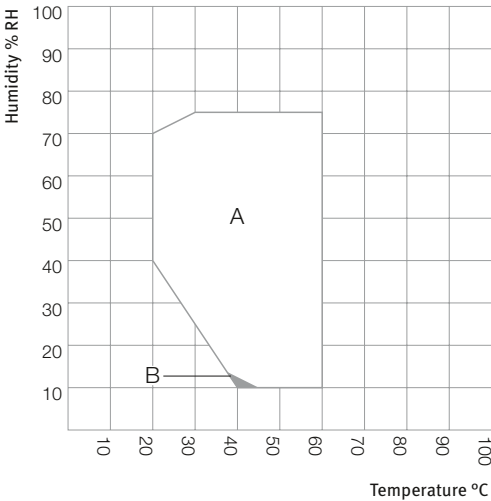
TEMPERATURE-HUMIDITY CHART

KBF P 240



A: Guaranteed condensation-free range  
B: Time-limited operation (max. 24 hours)  
C: Deviations of technical data may be possible

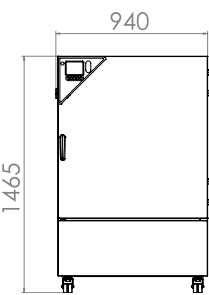
KBF P 720



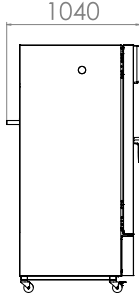
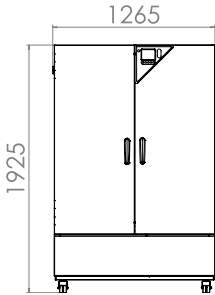
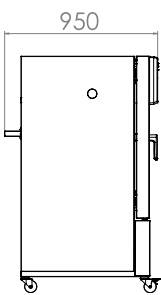
A: Guaranteed condensation-free range  
B: Deviations of technical data may be possible

DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

KBF P 240



KBF P 720



## Series KBF LQC | with ICH-compliant light source and light dose control

The main advantage of the BINDER KBF LQC series is the patented light photometry for photostability tests. Two 3D spherical sensors control the light dosage of UV-A and visible light. Once the desired light dosage is achieved, the chamber switches off automatically.



KBF LQC 240 model

### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes with ICH-compliant UV/Vis light source
- Independent light-dose control of UV-A and visible light with spherical sensors
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Controller with time-segment programming
- Tightly-sealed inner door made of tempered safety glass

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBF LQC 240	247	› <a href="https://go2binder.com/en-KBFLQC240">go2binder.com/en-KBFLQC240</a>
KBF LQC 720	700	› <a href="https://go2binder.com/en-KBFLQC720">go2binder.com/en-KBFLQC720</a>



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Find all details online  
[go2binder.com/en-KBFLQC](https://go2binder.com/en-KBFLQC)

## TECHNICAL DATA

Description	KBF LQC 240	KBF LQC 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	925	1250
Height net [mm]	1460	1925
Depth net [mm]	800	890
<b>Measures - Internal Dimensions</b>		
Width [mm]	650	973
Height [mm]	785	1250
Depth [mm]	485	576
<b>Measures</b>		
Interior volume [L]	247	700
Net weight of the unit (empty) [kg]	213	374
permitted load [kg]	100	150
Load per rack [kg]	30	45
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	0...70
Recovery time after 30 seconds door open at 40 °C and 75 % RH with illumination [min]	4	5
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	20...60
Temperature range without illumination cassettes [°C]	10...70	10...70
Temperature variation with illumination at 40 °C and 75 % RH [± K]	0.6	1.2
Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]	0.2	0.2
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]	2	2
<b>Lightdata per Illumination Cassettes</b>		
ICH compliant illumination for photo stability testing [lx]	7500	8750
ICH compliant illumination for photo stability testing [W/m²]	1.1	1.6
<b>Electrical data</b>		
Nominal power (Version 230 V) [kW]	2.4	3.5
Nominal power (Version 240 V) [kW]	2.4	3.5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/7	3/12
Number of illumination cassettes (std./max.)	2/2	3/3

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KBF LQC 240	KBF LQC 720
200...230 V 1~ 50 Hz	Standard	9020-0277	9020-0279
200...240 V 1~ 50/60 Hz	Standard	9020-0278	9020-0280

► You will find a selection of options, accessories and services suitable for each product on page 78

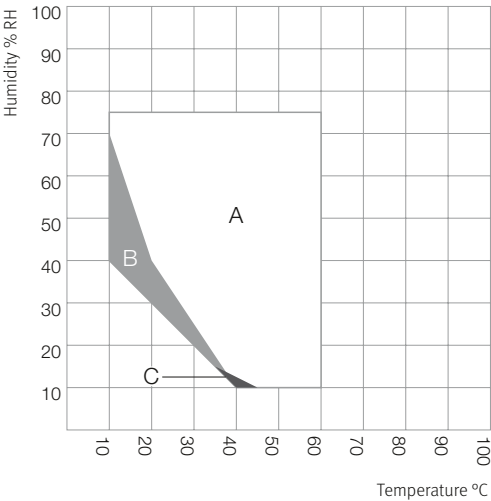


EXTRACT OF FULLFILLED STANDARDS

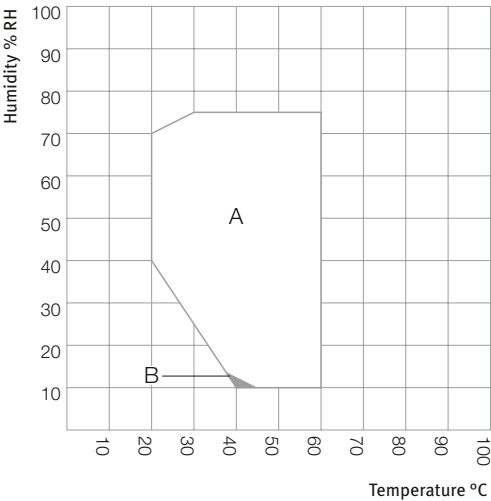
- ICH Q1A(R2)
- ICH Q1B

TEMPERATURE-HUMIDITY CHART

KBF LQC 240

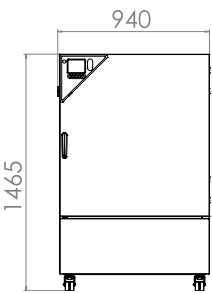


KBF LQC 720

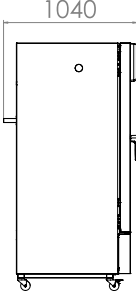
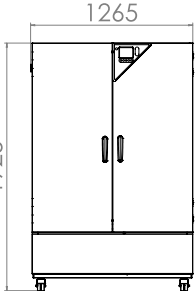
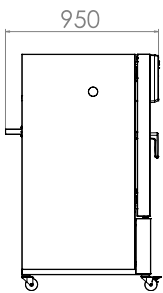


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

KBF LQC 240



KBF LQC 720



## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>BINDER PURE AQUA Service</b>	System for preparation or complete desalination of tap water, containing single-use cartridge, hoses and measuring device. Series KBF P, KBF LQC
<b>External water supply set</b>	Flexible water and waste water supply if there are no domestic water connections on site. The set consists of fresh and waste-water containers (20 liters each). Series KBF P, KBF LQC
<b>Data Logger Kit TH</b>	Independent temperature and humidity data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings. Series KBF P, KBF LQC
<b>IQ/OQ qualification folder</b>	Supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001. Series KBF P, KBF LQC
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series KBF P, KBF LQC
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series KBF P, KBF LQC

► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



BINDER PURE AQUA Service



External water supply set



Data Logger



IQ/OQ qualification folder



# Freezers

Ultralow temperature freezers

4

# ALWAYS THE RIGHT DESIGN

An ultralow temperature freezer must ensure reliable cooling to maintain the value of the samples. This most important requirement in the laboratory is added to by the importance of a practical, user-oriented safety and operating concept, e.g., traceability of the temperature profile over the entire period of storage or opening the chamber without any great effort. BINDER has accepted this challenge by developing a revolutionary ultralow temperature freezer that seamlessly joins the ranks of proven BINDER products in terms of reliability for the scientific laboratory and sets new standards in safety.

4

## ULTRALOW TEMPERATURE FREEZERS

Page 83



with VIP insulation and electromechanical door lock

Series UFV

Page 86



# Ultralow temperature freezers

Series UF V	Page 86
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Options and Accessories	Page 89
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Safety is of paramount importance with the BINDER ULTRA.GUARD™ ultra low freezer. A number of innovative technologies make it possible. Every unit employs a multi-level safety concept and is electronically protected from unauthorized access. Exceptionally user friendly, it supports efficient work processes. A BINDER ultra low freezer offers the maximum in process reliability at the touch of a button.

With unit sizes appropriate to practices and well-conceived accessories, everything required for reliable long-term storage of highly sensitive samples is available.

# PRODUCT SELECTION ULTRALOW TEMPERATURE FREEZERS

Features	UF V
	› Page 86
Model	
Model 500	•
Model 700	•
General data	
Temperature range [°C]	-86...-40
Cooling technology	Cascades
•Standard equipment	



## ADVANTAGES AT A GLANCE



### EASY INTEGRATION IN THE SECURITY INFRASTRUCTURE

Series UF V

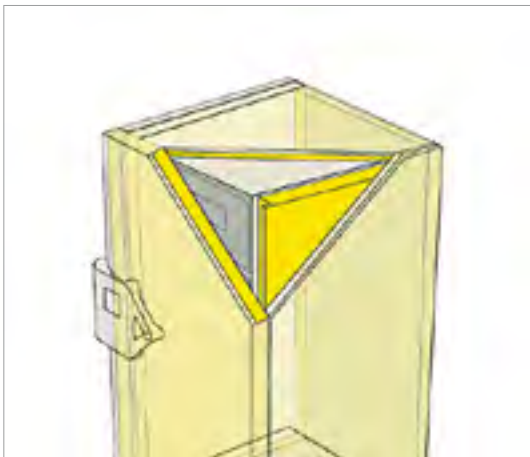
Standard interfaces allow integration into external monitoring or computer network connections. The alarm functions for 72 h in the event of a power outage.



### ELECTROMECHANICAL DOOR MECHANISM

Series UF V

Allows the door to be opened quickly and easily by pressing a button.



### LOW ENERGY CONSUMPTION

Series UF V

Thanks to large vacuum thermal insulation (VIP) for optimum insulation with a small footprint.



### PERSONALIZED ACCESS CONTROL

Series UF V

With RFID key card. The integrated log memory seamlessly documents every opening.

## Series UF V | with VIP insulation and electromechanical door lock

The BINDER ultralow temperature freezer ensures safe long-term storage of samples at a temperature of -86 °C. It is based on a multi-stage security concept, which offers everything from reliable operation to ease of use and system integration.



UUF 500 model



### MAIN FEATURES

- Temperature range: -40 °C to -86 °C
- Cooling with cascade compressor cooling unit
- CFC-free safety refrigerants R-404A and R-508B
- Door hinged right or left
- RFID controlled Access (depending on version)
- Data Logger USB (depending on version)
- Water cooling (depending on version)
- Electromechanical door latch
- 4 compartment doors made of ABS plastic
- Inner chamber made of stainless steel

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
UF V 500	483	<a href="https://go2binder.com/en-UFV500">go2binder.com/en-UFV500</a>
UF V 700	711	<a href="https://go2binder.com/en-UFV700">go2binder.com/en-UFV700</a>



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Find all details online  
[go2binder.com/en-UFV](https://go2binder.com/en-UFV)

## TECHNICAL DATA

Description	UF V 500	UF V 700
<b>Measures - Outer dimensions</b>		
Width net [mm]	830	1120
Height net [mm]	1985	1985
Depth net [mm]	885	885
<b>Measures - Internal Dimensions</b>		
Width [mm]	619	911
Height [mm]	1300	1300
Depth [mm]	600	600
<b>Measures</b>		
Interior volume [L]	483	711
Net weight of the unit (empty) [kg]	320	360
permitted load [kg]	200	200
Load per rack [kg]	50	50
<b>Performance Data Temperature</b>		
Temperature range [°C]	-86...-40	-86...-40
Temperature variation at -80 °C [± K]	2.5	2.5
Warm-up time during power failure from -80 °C / -122 °F to -60 °C / -76 °F [min]	150	150
<b>Electrical data</b>		
Nominal power (Version 120 V) [kW]	1.1	1.1
Nominal power (Version 230 V) [kW]	1.1	1.1
Nominal power (Version 240 V) [kW]	1.1	1.1
<b>Fixtures</b>		
Number of shelves (std./max.)	3/7	3/7

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

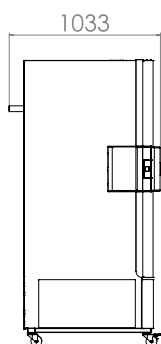
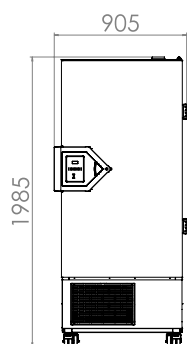
Voltage	Option model	UF V 500	UF V 700
230 V 1~ 50 Hz	Door hinged right, RFID system	9020-0236	9020-0233
	Door hinged left, RFID system	9020-0213	9020-0237
	Door hinged right, Water cooling, RFID system	9020-0259	9020-0261
	Door hinged left, Water cooling, RFID system	9020-0260	9020-0262
208...240 V 1~ 60 Hz	Door hinged right, data logger USB	9020-0234	9020-0238
	Door hinged left, data logger USB	9020-0220	9020-0216
120 V 1~ 60 Hz	Door hinged right, data logger USB	9020-0235	9020-0239
	Door hinged left, data logger USB	9020-0222	9020-0218

► You will find a selection of options, accessories and services suitable for each product on page 89

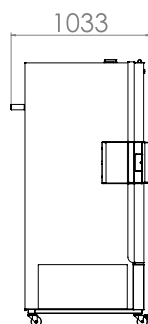
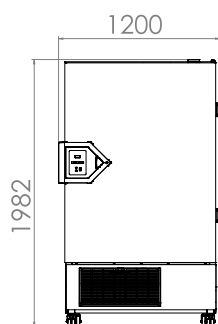
## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

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UFV 500



UFV 700



## EXCERPT FROM OPTIONS AND ACCESSORIES

### Defrosting kit

Simple defrosting thanks to easy-to-install defrosting tray.  
Series UF V

### Data Logger with USB

For easy temperature logging and data reading.  
Series UF V

### RFID system

Personalized access control using RFID technology.  
Series UF V

### Chamber racks

Large selection of racks made of aluminum or stainless steel, as well as cryoboxes.  
Series UF V

### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.  
More information is available in the accessories and services chapter.  
Series UF V

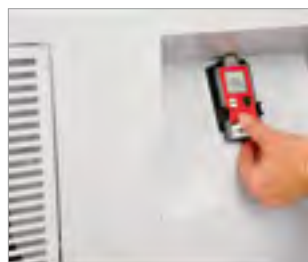
### BINDER INDIVIDUAL

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Series UF V

► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



Defrosting kit



Data Logger with USB connection



Controlled access using RFID.



Selection of racks and boxes

# Heating chambers

Drying and heating chambers  
Avantgarde.Line  
Drying and heating chambers  
Classic.Line  
Safety drying chambers  
Vacuum drying chambers

5

## ALWAYS THE RIGHT TEMPERATURE

The requirements for a laboratory test chamber in the field of temperature stress testing reach far beyond temperature accuracy, heat distribution, and drying. This is the case with a chamber used to dry flammable materials that must meet safety standards.

BINDER masters these requirements like no other and offers a wide range of drying and heating chambers.

### DRYING AND HEATING CHAMBERS AVANTGARDE.LINE

Page 93



with natural convection	<b>Series ED</b>	Page 96
with forced convection	<b>Series FD</b>	Page 99
with forced convection and enhanced timer functions	<b>Series FED</b>	Page 102

### DRYING AND HEATING CHAMBERS CLASSIC.LINE

Page 107



with mechanical adjustment	<b>Series E</b>	Page 110
with natural convection	<b>Series ED</b>	Page 112
with forced convection	<b>Series FD</b>	Page 115
with forced convection and enhanced timer functions	<b>Series FED</b>	Page 117
with forced convection and program functions	<b>Series FP</b>	Page 119
with forced convection and advanced program functions	<b>Series M</b>	Page 122

### SAFETY DRYING CHAMBERS

Page 127



for limited quantities of solvent	<b>Series FDL</b>	Page 130
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### VACUUM DRYING CHAMBERS

Page 135



for non-flammable solvents	<b>Series VD</b>	Page 138
for flammable solvents	<b>Series VDL</b>	Page 140





# Drying and heating chambers Avantgarde.Line

Series ED	Page 96
Series FD	Page 99
Series FED	Page 102
Options and Accessories	Page 105

BINDER drying chambers with natural convection or forced convection are renowned for their high quality and reliability. Thanks to their extensive redevelopment, these all-rounders are now even more firmly focused on addressing the requirements involved in drying or heating samples. What's more, in addition to the new design, convenient operation, and efficiency of these units, the latest APT.line™ technology offers outstanding temperature accuracy to give this new generation of incubators real appeal.

# PRODUCT SELECTION DRYING AND HEATING CHAMBERS AVANTGARDE.LINE

Features	ED › Page 96	FD › Page 99	FED › Page 102
<b>Model</b>			
Model 56	•	•	•
Model 115	•	•	•
Model 260	•	•	•
<b>General data</b>			
Temperature range 5-6 °C above ambient temperature to [°C]	300	–	–
Temperature range 10 °C above ambient temperature to [°C]	–	300	300
Ethernet interface	–	–	•
USB interface	•	•	•
Natural convection	•	–	–
Forced convection	–	•	•
<b>Controller and timer functions</b>			
Controller display		LCD	
Ramp function	•	•	•
Time delayed OFF	•	•	•
Time delayed ON	–	–	•
Temperature dependent delayed OFF	–	–	•
Adjustable fan speed	–	–	•
Class 2 independent adjustable temperature safety device	•	•	•
Temperature alarm, visual	•	•	•

•Standard equipment

## ADVANTAGES AT A GLANCE



### EASY DATA LOGGING

Series ED, FD, FED

Via the USB connector which comes as standard and via Ethernet, which is available as standard for FED and as an option for ED and FD.



### EXCELLENT ENERGY EFFICIENCY AND LOW INSTALLATION REQUIREMENTS

Series ED, FD, FED

Low heat dissipation and an optimized heating system provide energy efficiency.



### EASY, INTUITIVE HANDLING

Series ED, FD, FED

Thanks to state-of-the-art controller with LCD display, excellent readability, alphanumeric display, and various functions. Choice of languages as standard: English, German, and French.



### COMPLETELY HOMOGENEOUS TEMPERATURE DISTRIBUTION

Series FD, FED

With excellent spatial and temporal temperature accuracy thanks to the all-new generation of APT.line™ technology.

## Series ED | with natural convection

The strengths of a BINDER ED series drying chamber include routine drying and sterilization tasks up to 300 °C. Thanks to the natural convection, all thermal processes which use this drying chamber are highly efficient. The ED series ensures fast, uniform drying.



ED 56 model



### MAIN FEATURES

- Temperature range (model 56; model 260): ambient temperature plus 5 °C to 300 °C
- Temperature range (model 115): ambient temperature plus 6 °C to 300 °C
- High temperature accuracy thanks to APT.line™ technology
- Natural convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 L are stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
ED 56	57	› <a href="https://go2binder.com/en-ED56">go2binder.com/en-ED56</a>
ED 115	114	› <a href="https://go2binder.com/en-ED115">go2binder.com/en-ED115</a>
ED 260	255	› <a href="https://go2binder.com/en-ED260">go2binder.com/en-ED260</a>

› Other Classic.Line models › page 107



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Find all details online  
[go2binder.com/en-ED-a](https://go2binder.com/en-ED-a)

## TECHNICAL DATA

Description	ED 56	ED 115	ED 260
Measures - Outer dimensions			
Width net [mm]	560	710	810
Height net [mm]	625	735	965
Depth net [mm]	565	605	760
Measures - Internal Dimensions			
Width [mm]	360	510	610
Height [mm]	420	530	760
Depth [mm]	380	425	550
Measures			
Interior volume [L]	57	114	255
Net weight of the unit (empty) [kg]	39	54	85
permitted load [kg]	70	150	270
Load per rack [kg]	30	30	40
Performance Data Temperature			
Temperature range 5-6 °C above ambient temperature to [°C]	300	300	300
Temperature variation at 150 °C [± K]	2.5	2.0	2.0
Temperature fluctuation at 150 °C [± K]	0.5	0.4	1.0
Heating-up time to 150 °C [min]	55	45	55
Recovery time after 30 seconds door open at 150 °C [min]	20	16	20
Electrical data			
Nominal power (Version 120 V) [kW]	1.15	1.35	–
Nominal power (Version 230 V) [kW]	1.05	1.25	2.25
Nominal power (Version 240 V) [kW]	–	–	2.45
Fixtures			
Number of shelves (std./max.)	2/4	2/5	2/8

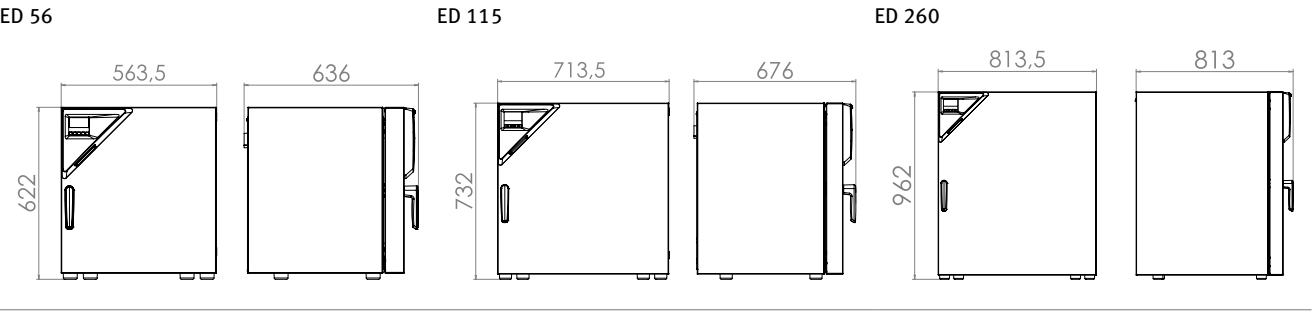
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	ED 56	ED 115	ED 260
240 V 1~ 60 Hz	Standard	–	–	9010-0340
230 V 1~ 50/60 Hz	Standard	9010-0333	9010-0335	9010-0339
120 V 1~ 60 Hz	Standard	9010-0334	9010-0336	–

► You will find a selection of options, accessories and services suitable for each product on page 105

DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



## Series FD | with forced convection

A BINDER FD series Avantgarde.Line heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.



FD 56 model



### MAIN FEATURES

- Temperature range: ambient temperature plus 10 °C to 300 °C
- High temperature accuracy thanks to APT.line™ technology
- Forced convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 L are stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design
- USB port for recording data

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FD 56	60	› <a href="https://go2binder.com/en-FD56">go2binder.com/en-FD56</a>
FD 115	116	› <a href="https://go2binder.com/en-FD115">go2binder.com/en-FD115</a>
FD 260	259	› <a href="https://go2binder.com/en-FD260">go2binder.com/en-FD260</a>

› Other Classic.Line models › page 107



### TIPS & TRICKS

Benefit from our many years of experience, as demonstrated in our technical papers:

Tips & Tricks: › [go2binder.com/en-tips-tricks](https://go2binder.com/en-tips-tricks)  
 Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-FD-a](https://go2binder.com/en-FD-a)

## TECHNICAL DATA

Description	FD 56	FD 115	FD 260
Measures - Outer dimensions			
Width net [mm]	560	710	810
Height net [mm]	625	735	965
Depth net [mm]	565	605	760
Measures - Internal Dimensions			
Width [mm]	400	550	650
Height [mm]	440	550	780
Depth [mm]	345	385	515
Measures			
Interior volume [L]	60	116	259
Net weight of the unit (empty) [kg]	39	54	85
permitted load [kg]	70	150	270
Load per rack [kg]	30	30	40
Performance Data Temperature			
Temperature range 10 °C above ambient temperature to [°C]	300	300	300
Temperature variation at 150 °C [± K]	1.7	1.7	1.9
Temperature fluctuation at 150 °C [± K]	0.3	0.3	0.5
Heating-up time to 150 °C [min]	15	19	20
Recovery time after 30 seconds door open at 150 °C [min]	4	5	6
Electrical data			
Nominal power (Version 120 V) [kW]	1.2	1.4	–
Nominal power (Version 230 V) [kW]	1.1	1.3	2.3
Nominal power (Version 240 V) [kW]	–	–	2.5
Fixtures			
Number of shelves (std./max.)	2/4	2/5	2/8

## ORDERING INFORMATION [Art. No.]

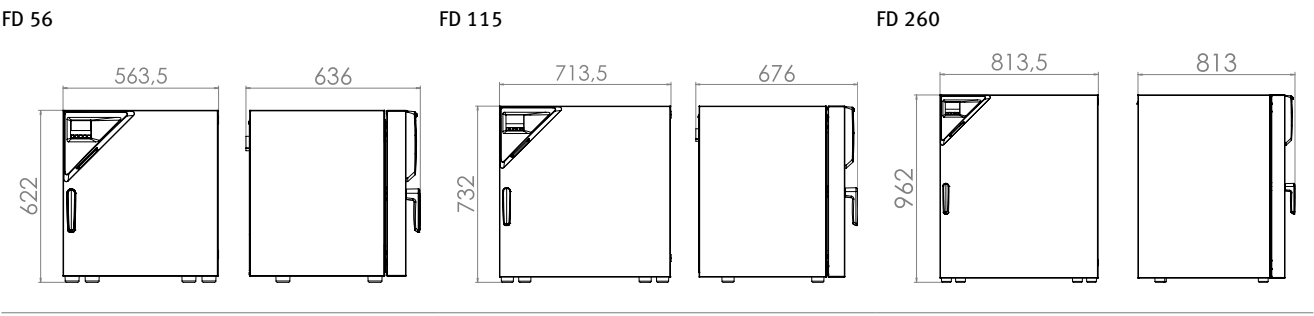
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

Voltage	Option model	FD 56	FD 115	FD 260
240 V 1~ 60 Hz	Standard	–	–	9010-0310
230 V 1~ 50/60 Hz	Standard	9010-0303	9010-0305	9010-0309
120 V 1~ 60 Hz	Standard	9010-0304	9010-0306	–

► You will find a selection of options, accessories and services suitable for each product on page 105



**DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]**



## Series FED | with forced convection and enhanced timer functions

BINDER heating chambers of the FED Avantgarde.Line series provide almost unlimited capacity and are particularly adaptable. With advanced timing functions and a controllable fan, temperature and convection conditions are easily controlled.



FED 56 model



### MAIN FEATURES

- Temperature range: ambient temperature plus 10 °C to 300 °C
- High temperature accuracy thanks to APT.line™ technology
- Adjustable fan speed
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks
- Units up to 115 L are stackable
- Class 2 independent temperature safety device (DIN 12880) with visual temperature alarm
- Ergonomic handle design
- Ethernet interface

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FED 56	60	› <a href="https://go2binder.com/en-FED56">go2binder.com/en-FED56</a>
FED 115	116	› <a href="https://go2binder.com/en-FED115">go2binder.com/en-FED115</a>
FED 260	259	› <a href="https://go2binder.com/en-FED260">go2binder.com/en-FED260</a>

› Other Classic.Line models › page 107



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Find all details online  
[go2binder.com/en-FED-a](https://go2binder.com/en-FED-a)

## TECHNICAL DATA

Description	FED 56	FED 115	FED 260
<b>Measures - Outer dimensions</b>			
Width net [mm]	560	710	810
Height net [mm]	625	735	965
Depth net [mm]	565	605	760
<b>Measures - Internal Dimensions</b>			
Width [mm]	400	550	650
Height [mm]	440	550	780
Depth [mm]	345	385	515
<b>Measures</b>			
Interior volume [L]	60	116	259
Net weight of the unit (empty) [kg]	39	54	85
permitted load [kg]	70	150	270
Load per rack [kg]	30	30	40
<b>Performance Data Temperature</b>			
Temperature range 10 °C above ambient temperature to [°C]	300	300	300
Temperature variation at 150 °C [± K]	1.4	1.2	1.6
Temperature fluctuation at 150 °C [± K]	0.3	0.3	0.5
Heating-up time to 150 °C [min]	15	19	20
Recovery time after 30 seconds door open at 150 °C [min]	4	5	6
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	1.2	1.4	–
Nominal power (Version 230 V) [kW]	1.1	1.3	2.3
Nominal power (Version 240 V) [kW]	–	–	2.5
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/5	2/8

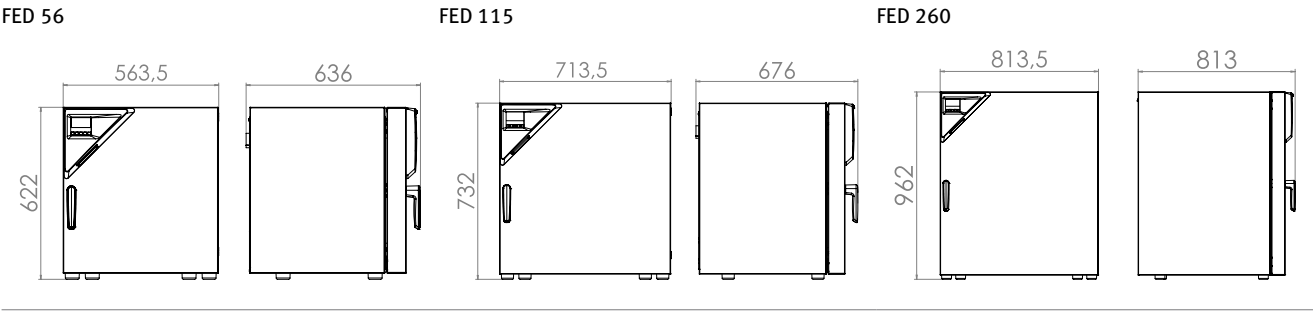
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	FED 56	FED 115	FED 260
240 V 1~ 60 Hz	Standard	–	–	9010-0300
230 V 1~ 50/60 Hz	Standard	9010-0295	9010-0293	9010-0299
120 V 1~ 60 Hz	Standard	9010-0296	9010-0294	–

► You will find a selection of options, accessories and services suitable for each product on page 105

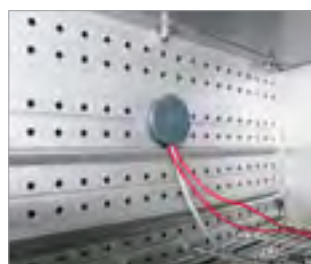
DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series ED, FD, FED
<b>Data Logger Kit T</b>	Independent temperature data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings. Series ED, FD, FED
<b>Viewing window and interior lighting</b>	Viewing window in the door with a triple-glazed insulating glass and interior lighting for easy visibility of the samples. Series ED, FD, FED
<b>Shelf racks</b>	Perforated shelves or shelf racks, chrome-plated or made from stainless steel. Series ED, FD, FED
<b>HEPA air filter</b>	Particle filter on fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm). Series ED, FD, FED
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series ED, FD, FED
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series ED, FD, FED

► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



Access port with silicone plug



Data Logger for temperature



Viewing window in the door



Shelf



# Drying and heating chambers Classic.Line

Series E	Page 110
Series ED	Page 112
Series FD	Page 115
Series FED	Page 117
Series FP	Page 119
Series M	Page 122
Options and Accessories	Page 125

With natural or forced convection, all BINDER drying and heating chambers offer first-rate quality and process reliability. With its wide temperature range from 5 °C above ambient temperature to 300 °C, the heating chamber can be used in all applications. Short heating-up times and large power reserves are ideal for applications in science, research, and industry. The excellent thermal insulation also reduces operating costs. In its FP and M series, BINDER offers material test chambers with forced convection and customized programming.

# PRODUCT SELECTION DRYING AND HEATING CHAMBERS CLASSIC.LINE

Features	<b>E</b> › Page 110	<b>ED</b> › Page 112	<b>FD</b> › Page 115	<b>FED</b> › Page 117	<b>FP</b> › Page 119	<b>M</b> › Page 122
<b>Model</b>						
Model 23	–	•	•	–	–	–
Model 28	•	–	–	–	–	–
Model 53	–	–	–	–	•	•
Model 115	–	–	–	–	•	•
Model 240	–	–	–	–	•	•
Model 400	–	•	–	•	•	•
Model 720	–	•	–	•	•	•
<b>General data</b>						
Temperature range [°C]	60...230	–	–	–	–	–
Temperature range 5 °C above ambient temperature to [°C]	–	300	300	300	300	300
RS 422 interface	–	–	•	•	•	•
Natural convection	•	•	–	–	–	–
Forced convection	–	–	•	•	•	•
<b>Controller and timer functions</b>						
Controller display	LED	LED	LED	LED	LED	LCD color display
Ramp function	–	•	•	•	•	•
Time delayed OFF	–	•	•	•	•	–
Time delayed ON	–	–	–	•	•	•
Temperature dependent delayed OFF	–	–	–	•	•	–
Programming option	–	–	–	–	•	•
Weekly program function	–	–	–	–	•	•
Adjustable fan speed	–	–	–	•	•	•
Real-time clock	–	–	–	–	•	•
Class 2 independent adjustable temperature safety device	–	•	•	•	•	•
Temperature alarm, acoustic	–	–	–	–	–	•
Temperature alarm, visual	–	•	•	•	•	•

•Standard equipment



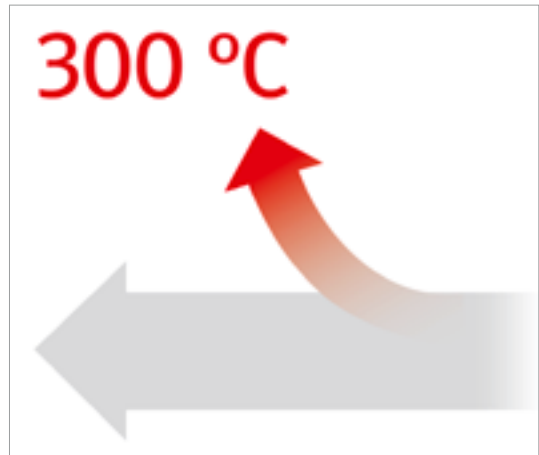
## ADVANTAGES AT A GLANCE



### CONVENIENT WORK ENVIRONMENT

Series E, FD, FED, FP, M

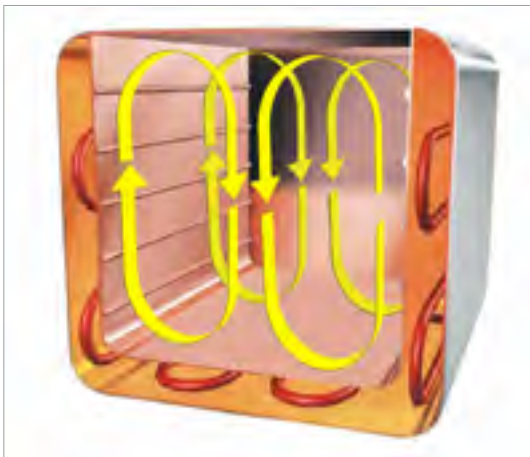
BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### BROAD RANGE OF APPLICATIONS

Series ED, FD, FED, FP, M

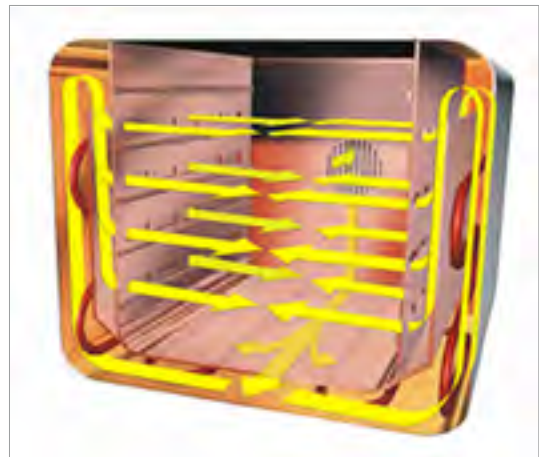
Many different applications can take advantage of the wide temperature range from 5 °C above ambient temperature to 300 °C. The FP and M series also impress with their adjustable air change rates and large power reserves.



### HOMOGENEOUS TEMPERATURE CONDITIONS WITH NATURAL CONVECTION

Series E, ED

Gentle temperature distribution with APT.line™ preheating chamber technology.



### HOMOGENEOUS TEMPERATURE CONDITIONS WITH FORCED CONVECTION

Series FD, FED, FP, M

Long-term operational stability even under full load using APT.line™ preheating chamber technology.

## Series E | with mechanical adjustment

With a BINDER E series heating oven, you obtain a reliable and powerful unit in a solid configuration at a very attractive price. This heating oven is preferred for tasks in basic research, as well as in human and veterinary medicine.



E 28 model

### MAIN FEATURES

- Temperature range: 60 °C to 230 °C
- Adjustable exhaust air flap
- Hydro-mechanical thermostat
- Class 1 temperature limitation device (Model E028-230V-T)
- Timer 0 – 120 min
- 2 chrome-plated racks

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
E 28	28	› <a href="https://go2binder.com/en-E28">go2binder.com/en-E28</a>



Find all details online  
[go2binder.com/en-E-c](https://go2binder.com/en-E-c)

## TECHNICAL DATA

Description	E 28
<b>Measures - Outer dimensions</b>	
Width net [mm]	580
Height net [mm]	405
Depth net [mm]	425
<b>Measures - Internal Dimensions</b>	
Width [mm]	400
Height [mm]	280
Depth [mm]	250
<b>Measures</b>	
Interior volume [L]	28
Net weight of the unit (empty) [kg]	22
permitted load [kg]	25
Load per rack [kg]	10
<b>Performance Data Temperature</b>	
Temperature range [°C]	60...230
Heating-up time to 150 °C [min]	36
Recovery time after 30 seconds door open at 150 °C [min]	19
<b>Electrical data</b>	
Nominal power (Version 120 V) [kW]	0.8
Nominal power (Version 230 V) [kW]	0.8
<b>Fixtures</b>	
Number of shelves (std./max.)	2/4

## ORDERING INFORMATION [Art. No.]

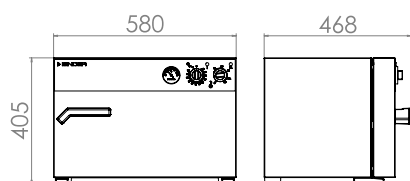
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	E 28
230 V 1~ 50/60 Hz	Standard	9010-0001
	with TB class 1	9010-0003
120 V 1~ 60 Hz	Standard	9010-0106

► You will find a selection of options, accessories and services suitable for each product on page 125

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

E 28



## Series ED | with natural convection

The strengths of a BINDER ED series drying chamber include routine drying and sterilization tasks up to 300 °C. Thanks to the natural convection, all thermal processes which use this drying chamber are highly efficient. The ED series ensures fast, uniform drying.



ED 720 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Free convection
- Adjustable exhaust air flap
- Controller with timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
ED 23	20	› <a href="https://go2binder.com/en-ED23">go2binder.com/en-ED23</a>
ED 400	400	› <a href="https://go2binder.com/en-ED400">go2binder.com/en-ED400</a>
ED 720	720	› <a href="https://go2binder.com/en-ED720">go2binder.com/en-ED720</a>

› Other Avantgarde.Line models › page 93



Find all details online  
[go2binder.com/en-ED-c](https://go2binder.com/en-ED-c)

## TECHNICAL DATA

Description	ED 23	ED 400	ED 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	435	1235	1235
Height net [mm]	495	1025	1530
Depth net [mm]	520	765	865
<b>Measures - Internal Dimensions</b>			
Width [mm]	222	1000	1000
Height [mm]	330	800	1200
Depth [mm]	300	520	620
<b>Measures</b>			
Interior volume [L]	20	400	720
Net weight of the unit (empty) [kg]	27	125	174
permitted load [kg]	25	90	120
Load per rack [kg]	12	35	45
<b>Performance Data Temperature</b>			
Temperature range 5 °C above ambient temperature to [°C]	300	300	300
Temperature variation at 150 °C [± K]	2.8	3	3.6
Temperature fluctuation at 150 °C [± K]	0.5	0.5	0.5
Heating-up time to 150 °C [min]	28	71	84
Recovery time after 30 seconds door open at 150 °C [min]	28	31	34
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.8	–	–
Nominal power (Version 208 V) [kW]	–	3.4	5
Nominal power (Version 230 V) [kW]	0.8	–	–
Nominal power (Version 400 V) [kW]	–	3.4	5
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/10	2/16

## ORDERING INFORMATION [Art. No.]

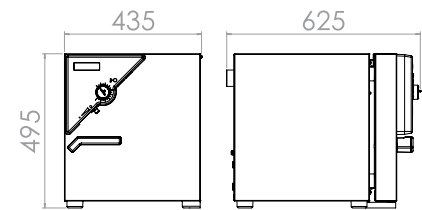
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

Voltage	Option model	ED 23	ED 400	ED 720
400 V 3~ 50/60 Hz	with RS 422	–	9010-0075	9010-0076
	Standard	9010-0190	–	–
230 V 1~ 50/60 Hz	with RS 422	9010-0191	–	–
	Standard	–	9010-0168	9010-0169
208 V 3~ 60 Hz	with RS 422	–	–	–
	Standard	9010-0192	–	–
120 V 1~ 60 Hz	with RS 422	9010-0193	–	–
	Standard	–	–	–

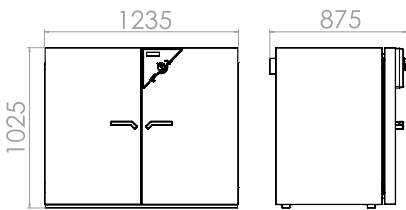
► You will find a selection of options, accessories and services suitable for each product on page 125

DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

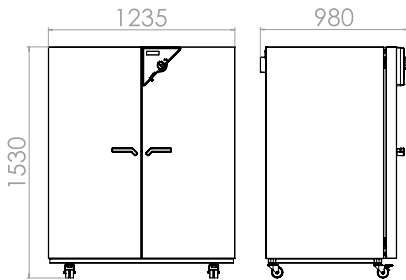
ED 23



ED 400



ED 720



## Series FD | with forced convection

A BINDER FD series heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.



FD 23 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Forced convection
- Adjustable exhaust air flap
- Controller with timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FD 23	20	› <a href="https://go2binder.com/en-FD23">go2binder.com/en-FD23</a>

› Other Avantgarde.Line models › page 93



Find all details online  
[go2binder.com/en-FD-c](https://go2binder.com/en-FD-c)

## TECHNICAL DATA

Description	FD 23
<b>Measures - Outer dimensions</b>	
Width net [mm]	435
Height net [mm]	495
Depth net [mm]	520
<b>Measures - Internal Dimensions</b>	
Width [mm]	222
Height [mm]	330
Depth [mm]	300
<b>Measures</b>	
Interior volume [L]	20
Net weight of the unit (empty) [kg]	27
permitted load [kg]	25
Load per rack [kg]	12
<b>Performance Data Temperature</b>	
Temperature range 5 °C above ambient temperature to [°C]	300
Temperature variation at 150 °C [± K]	2.5
Temperature fluctuation at 150 °C [± K]	0.3
Heating-up time to 150 °C [min]	25
Recovery time after 30 seconds door open at 150 °C [min]	6
<b>Electrical data</b>	
Nominal power (Version 120 V) [kW]	0.8
Nominal power (Version 230 V) [kW]	0.8
<b>Fixtures</b>	
Number of shelves (std./max.)	2/4

## ORDERING INFORMATION [Art. No.]

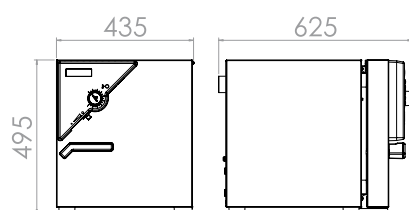
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	FD 23
230 V 1~ 50/60 Hz	Standard	9010-0194
120 V 1~ 60 Hz	Standard	9010-0196

► You will find a selection of options, accessories and services suitable for each product on page 125

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

FD 23





## Series FED | with forced convection and enhanced timer functions

BINDER heating chambers of the FED series provide almost unlimited capacity and are particularly adaptable. With advanced timing functions and a adjustable fan, temperature and convection conditions are easily controlled.



FED 720 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with expanded timer functions
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FED 400	400	› <a href="https://go2binder.com/en-FED400">go2binder.com/en-FED400</a>
FED 720	720	› <a href="https://go2binder.com/en-FED720">go2binder.com/en-FED720</a>

› Other Avantgarde.Line models › page 93



Find all details online  
[go2binder.com/en-FED-c](https://go2binder.com/en-FED-c)

## TECHNICAL DATA

Description	FED 400	FED 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	1235	1235
Height net [mm]	1025	1530
Depth net [mm]	765	865
<b>Measures - Internal Dimensions</b>		
Width [mm]	1000	1000
Height [mm]	800	1200
Depth [mm]	510	610
<b>Measures</b>		
Interior volume [L]	400	720
Net weight of the unit (empty) [kg]	145	195
permitted load [kg]	90	120
Load per rack [kg]	35	45
<b>Performance Data Temperature</b>		
Temperature range 5 °C above ambient temperature to [°C]	300	300
Temperature variation at 150 °C [± K]	3.8	3
Temperature fluctuation at 150 °C [± K]	0.7	0.3
Heating-up time to 150 °C [min]	29	29
Recovery time after 30 seconds door open at 150 °C [min]	6	8
<b>Electrical data</b>		
Nominal power (Version 208 V) [kW]	3.4	5
Nominal power (Version 400 V) [kW]	3.4	5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/10	2/16

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

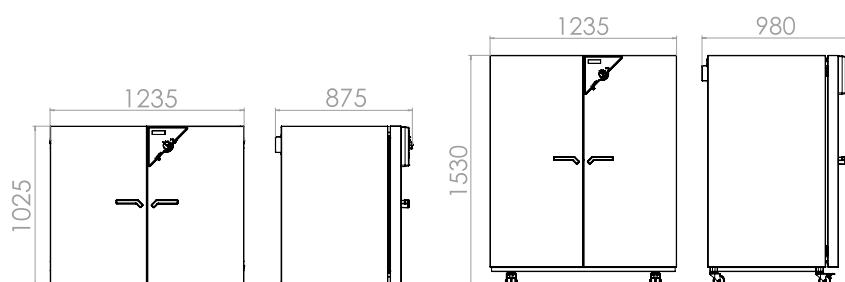
Voltage	Option model	FED 400	FED 720
400 V 3~ 50/60 Hz	Standard	9010-0216	9010-0218
208 V 3~ 60 Hz	Standard	9010-0217	9010-0219

► You will find a selection of options, accessories and services suitable for each product on page 125

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

FED 400

FED 720



## Series FP | with forced convection and program functions

A BINDER material test chamber with mechanical convection of the FP series provides reliably short drying times and particularly fast heating – even for chambers under full loads.



FP 115 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Adjustable exhaust air flap
- Controller with time-segment and real-time programming
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FP 53	53	› <a href="http://go2binder.com/en-FP53">go2binder.com/en-FP53</a>
FP 115	115	› <a href="http://go2binder.com/en-FP115">go2binder.com/en-FP115</a>
FP 240	240	› <a href="http://go2binder.com/en-FP240">go2binder.com/en-FP240</a>
FP 400	400	› <a href="http://go2binder.com/en-FP400">go2binder.com/en-FP400</a>
FP 720	720	› <a href="http://go2binder.com/en-FP720">go2binder.com/en-FP720</a>

› Other Avantgarde.Line models › page 93



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Find all details online  
[go2binder.com/en-FP-c](http://go2binder.com/en-FP-c)

## TECHNICAL DATA

Description	FP 53	FP 115	FP 240	FP 400	FP 720
Measures - Outer dimensions					
Width net [mm]	635	835	1035	1235	1235
Height net [mm]	620	705	825	1025	1530
Depth net [mm]	575	645	745	765	865
Measures - Internal Dimensions					
Width [mm]	400	600	800	1000	1000
Height [mm]	400	480	600	800	1200
Depth [mm]	340	410	510	510	610
Measures					
Interior volume [L]	53	115	240	400	720
Net weight of the unit (empty) [kg]	44	62	96	145	194
permitted load [kg]	40	50	70	90	120
Load per rack [kg]	15	20	30	35	45
Performance Data Temperature					
Temperature range 5 °C above ambient temperature to [°C]	300	300	300	300	300
Temperature variation at 150 °C [± K]	2	1.8	2	2.5	2
Temperature fluctuation at 150 °C [± K]	0.3	0.3	0.3	0.3	0.3
Heating-up time to 150 °C [min]	24	30	27	35	39
Recovery time after 30 seconds door open at 150 °C [min]	5	8	10	17	20
Electrical data					
Nominal power (Version 120 V) [kW]	1.2	1.6	–	–	–
Nominal power (Version 208 V) [kW]	–	–	2.7	3.4	5
Nominal power (Version 230 V) [kW]	1.2	1.6	2.7	–	–
Nominal power (Version 400 V) [kW]	–	–	–	3.4	5
Fixtures					
Number of shelves (std./max.)	2/5	2/6	2/7	2/10	2/16

## ORDERING INFORMATION [Art. No.]

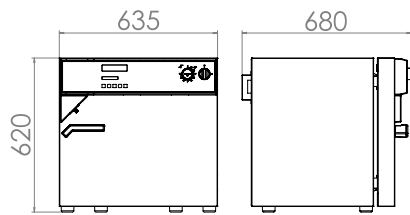
**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	FP 53	FP 115	FP 240	FP 400	FP 720
400 V 3~ 50/60 Hz	Standard	–	–	–	9010-0265	9010-0267
230 V 1~ 50/60 Hz	Standard	9010-0153	9010-0255	9010-0263	–	–
208 V 1~ 60 Hz	Standard	–	–	9010-0264	9010-0266	9010-0268
120 V 1~ 60 Hz	Standard	9010-0175	9010-0262	–	–	–

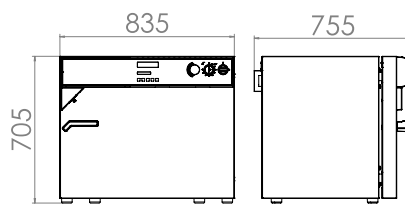
► You will find a selection of options, accessories and services suitable for each product on page 125

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

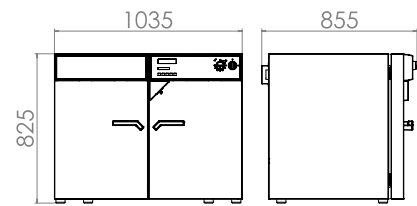
FP 53



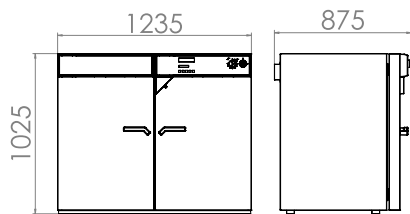
FP 115



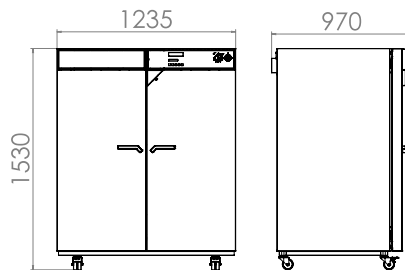
FP 240



FP 400



FP 720



## Series M | with forced convection and advanced program functions

With a maximum of 300 °C and various programming options the M series material test chambers are ideal for material and aging tests. With a high air flow, the powerful fans ensure rapid heating.



M 53 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Program-controlled ventilation flap
- Color LCD controller with time-segment programming
- 2 chrome-plated racks
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
M 53	53	› <a href="http://go2binder.com/en-M53">go2binder.com/en-M53</a>
M 115	115	› <a href="http://go2binder.com/en-M115">go2binder.com/en-M115</a>
M 240	240	› <a href="http://go2binder.com/en-M240">go2binder.com/en-M240</a>
M 400	400	› <a href="http://go2binder.com/en-M400">go2binder.com/en-M400</a>
M 720	720	› <a href="http://go2binder.com/en-M720">go2binder.com/en-M720</a>

› Other Avantgarde.Line models › page 93

### i

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Find all details online  
[go2binder.com/en-M-c](http://go2binder.com/en-M-c)

## TECHNICAL DATA

Description	M 53	M 115	M 240	M 400	M 720
Measures - Outer dimensions					
Width net [mm]	635	835	1035	1235	1235
Height net [mm]	780	865	985	1190	1690
Depth net [mm]	575	645	745	795	865
Measures - Internal Dimensions					
Width [mm]	400	600	800	1000	1000
Height [mm]	400	480	600	800	1200
Depth [mm]	340	410	510	510	610
Measures					
Interior volume [L]	53	115	240	400	720
Net weight of the unit (empty) [kg]	61	89	131	173	203
permitted load [kg]	40	50	70	90	120
Load per rack [kg]	15	20	30	35	45
Performance Data Temperature					
Temperature range 5 °C above ambient temperature to [°C]	300	300	300	300	300
Temperature variation at 150 °C [± K]	1.3	1.5	1.5	1.5	1.9
Temperature fluctuation at 150 °C [± K]	0.3	0.3	0.3	0.3	0.3
Heating-up time to 150 °C [min]	15	16	19	18	21
Recovery time after 30 seconds door open at 150 °C [min]	3	3	3	3	3
Electrical data					
Nominal power (Version 230 V) [kW]	1.2	1.6	2.7	–	–
Nominal power (Version 400 V) [kW]	–	–	–	3.4	5
Fixtures					
Number of shelves (std./max.)	2/5	2/6	2/7	2/10	2/16

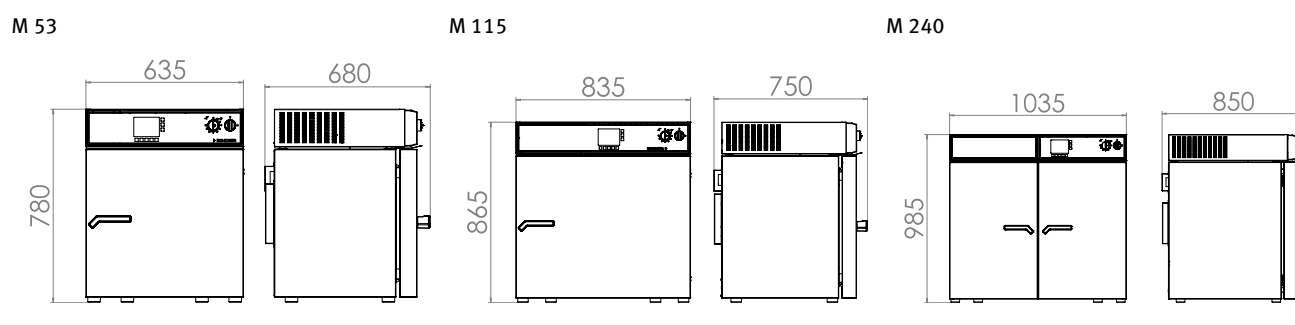
## ORDERING INFORMATION [Art. No.]

Further details: Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

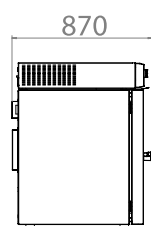
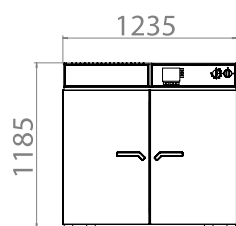
Voltage	Option model	M 53	M 115	M 240	M 400	M 720
400 V 3~ 50/60 Hz	Standard	–	–	–	9010-0204	9010-0205
230 V 1~ 50/60 Hz	Standard	9010-0201	9010-0202	9010-0203	–	–

► You will find a selection of options, accessories and services suitable for each product on page 125

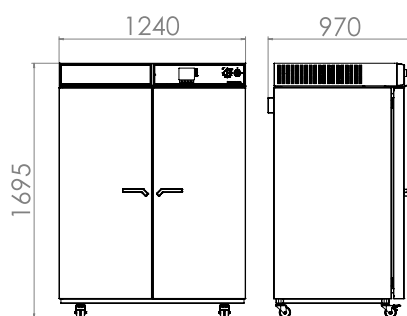
## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



M 400



M 720





## EXCERPT FROM OPTIONS AND ACCESSORIES

### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)  
Series ED, FD, FED, FP, M

### Viewing window and interior lighting

Viewing window in the door with interior lighting for easy samples viewing.  
Series ED, FD, FED, FP, M

### Shelf racks

Perforated shelves or shelf racks, chrome-plated or made from stainless steel.  
Series E, ED, FD, FED, FP, M

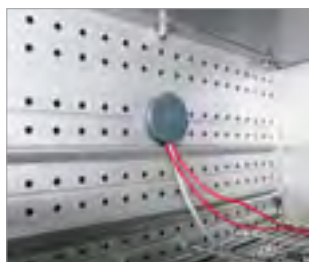
### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.  
More information is available in the accessories and services chapter.  
Series E, ED, FD, FED, FP, M

### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.  
Series E, ED, FD, FED, FP, M

► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



Access port with silicone plug



Viewing window in the door



Shelf



Services



# Safety drying chambers

Series FDL	Page 130
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Options and Accessories	Page 132
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A BINDER heating oven with a silicone- and dust-free inner chamber and a symmetrical air flow provides the perfect environment for standard-compliant drying of paints and coating materials containing solvents.

The FDL Series guarantees short drying time with high temperature accuracy and defined ventilation. Every BINDER heating oven thus represents the basis for the highest-quality results and reproducible tests in the fields of chemistry and surface technology. The replaceable fresh air cartridges are easy to change and ensure constant fresh air quality.

The safety concept meets the DIN EN 1539-2015 standard.

## PRODUCT SELECTION SAFETY DRYING CHAMBERS

Features	FDL
	› Page 130
<b>Model</b>	
Model 115	•
<b>General data</b>	
Temperature range 10 °C above ambient temperature to [°C]	300
RS 422 interface	•
Forced convection	•
<b>Controller and timer functions</b>	
Controller display	LED
Ramp function	•
Time delayed OFF	•
Time delayed ON	•
Temperature dependent delayed OFF	•
Programming option	•
Weekly program function	•
Real-time clock	•
Class 2 independent adjustable temperature safety device	•
Temperature alarm, visual	•
•Standard equipment	

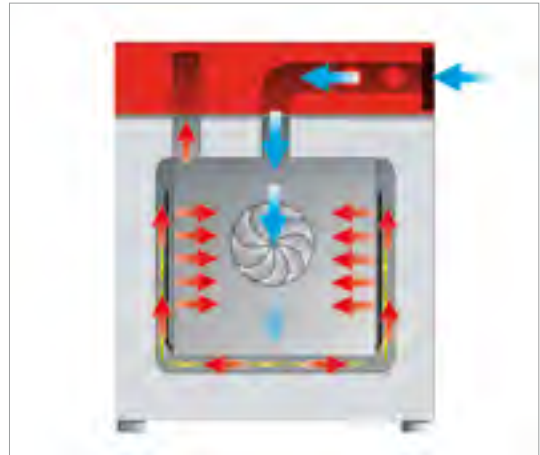
## ADVANTAGES AT A GLANCE



### FULFILLS THE SAFETY REQUIREMENTS OF EN 1539:2015

Series FDL

Fresh-air monitoring with automatic deactivation of the heating and replaceable Class M6 filter cartridge fulfills the DIN EN 779:2012.



### PRECISE TEST CONDITIONS

Series FDL

BINDER APT.line™ preheating chamber technology provides symmetrical airflow and defined flow speeds.



### CONVENIENT WORK ENVIRONMENT

Series FDL

The interior concept includes rack with tilt protection, no permanent fixtures and stainless steel interior.

## Series FDL | for limited quantities of solvent

The BINDER FDL 115 with silicone and dust-free inner chamber, as well as symmetric airflow dries specimens containing solvents and thus this safety drying oven meets all EN 1539 requirements.



FDL 115 model

### MAIN FEATURES

- Temperature range: room temperature plus 5 °C to 300 °C
- APT.line™ preheating chamber technology
- Controller with time-segment and real-time programming
- 2 chrome-plated racks
- Fresh-air monitoring with audible and visual alarm and automatic deactivation of heating
- Replaceable filter cartridge, Class M6
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
FDL 115	115	› <a href="https://go2binder.com/en-FDL115">go2binder.com/en-FDL115</a>



Find all details online  
[go2binder.com/en-FDL](https://go2binder.com/en-FDL)

## TECHNICAL DATA

Description	FDL 115
<b>Measures - Outer dimensions</b>	
Width net [mm]	830
Height net [mm]	805
Depth net [mm]	685
<b>Measures - Internal Dimensions</b>	
Width [mm]	600
Height [mm]	435
Depth [mm]	435
<b>Measures</b>	
Interior volume [L]	115
Net weight of the unit (empty) [kg]	90
permitted load [kg]	60
Load per rack [kg]	30
<b>Performance Data Temperature</b>	
Temperature range 10 °C above ambient temperature to [°C]	300
Temperature variation at 150 °C [± K]	2.5
Temperature fluctuation [± K]	0.8
Heating-up time to 150 °C [min]	20
Recovery time after 30 seconds door open at 150 °C [min]	12
<b>Electrical data</b>	
Nominal power (Version 230 V) [kW]	2.9
<b>Fixtures</b>	
Number of shelves (std./max.)	2/5

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	FDL 115
230 V 1~ 50/60 Hz	Standard	9010-0292

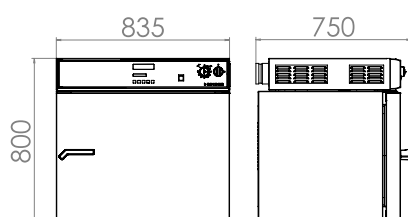
► You will find a selection of options, accessories and services suitable for each product on page 132

## EXTRACT OF FULLFILLED STANDARDS

- DIN EN 1539:2015

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

FDL 115



## EXCERPT FROM OPTIONS AND ACCESSORIES

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### Access port with silicone plug

For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top)

Series FDL

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### Door gasket

Door gasket made of high-temperature-resistant silicone for operating temperatures > 200 °C.

Series FDL

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### Coil coating door flap

Flap in the door, ideal for coil coating tests.

Series FDL

---

### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.

More information is available in the accessories and services chapter.

Series FDL

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### BINDER INDIVIDUAL

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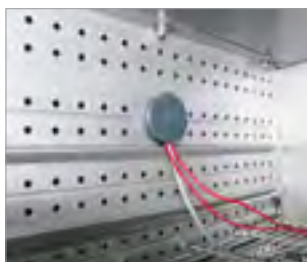
Series FDL

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Access port with silicone plug



Door gasket



Coil coating door flap



Services







# Vacuum drying chambers

Series VD	Page 138
Series VDL	Page 140
Options and Accessories	Page 142

Both BINDER vacuum drying chamber models enable effective drying without residue or damaging the material being dried. With their proven technological features, they excellently address the strict requirements of industrial and scientific laboratories.

Samples and similar materials incorporating flammable and non-flammable solvents can be dried, depending on the individual use. The chambers use a unique safety design that, together with accustomed outstanding performance, sets the bar in terms of quality and safety.

# PRODUCT SELECTION VACUUM DRYING CHAMBERS

Features	VD	VDL
	› Page 138	› Page 140
Model		
Model 23	•	•
Model 53	•	•
Model 115	•	•
General data		
Temperature range 15 °C above ambient temperature to [°C]		200
RS 422 interface	•	•
Controller and timer functions		
Controller display		LED
Ramp function	•	•
Time delayed OFF	•	•
Time delayed ON	•	•
Temperature dependent delayed OFF	•	•
Programming option	•	•
Weekly program function	•	•
Real-time clock	•	•
Class 2 independent adjustable temperature safety device	•	•
Temperature alarm, visual	•	•
•Standard equipment		

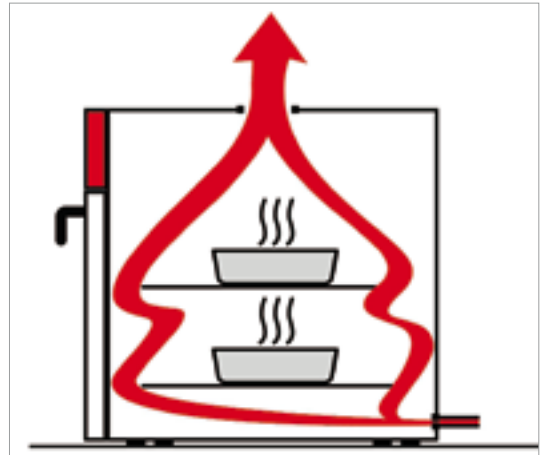
## ADVANTAGES AT A GLANCE



### UNIQUE SAFETY CONCEPT

Series VDL

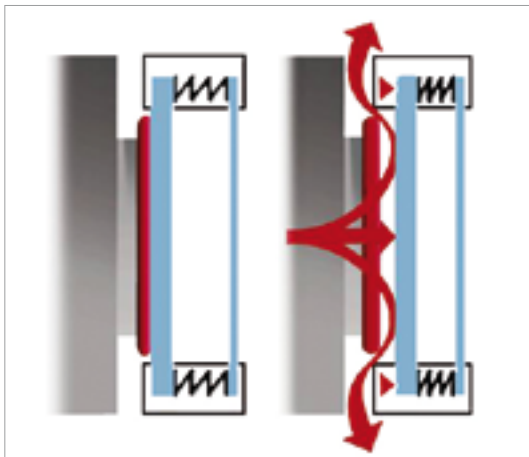
The safety concept provides flame protection gasket, pressure control device for heating activation, and the ATEX-tested interior EX II -/3G c IIB T3-T1 Gc X



### INERT GAS CONNECTION

Series VD, VDL

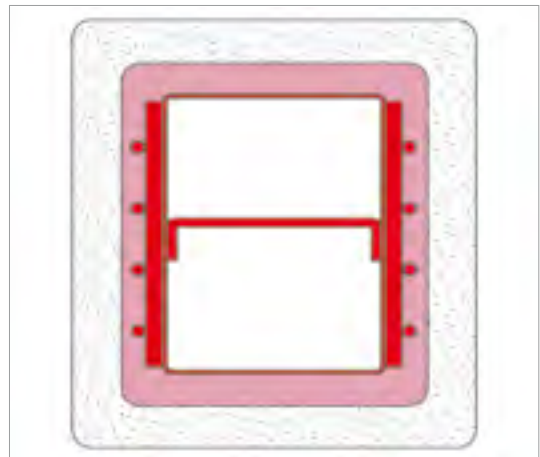
Cross Flow Technology provides even flow throughout the interior from bottom to top.



### TESTED SAFETY

Series VD, VDL

Shatterproof, spring-mounted safety glass panel, inert gas connection for interior flushing, and electronic components decoupled from the interior provide safety for users.



### DIRECT HEAT TRANSFER

Series VD, VDL

Patented expansion racks provide flexible placement for homogeneous temperature distribution.

## Series VD | for non-flammable solvents

A BINDER vacuum drying oven VD series gently dries materials with homogeneous temperature distribution. The patented expansion shelf technology from BINDER ensures optimal heat transfer. The shelves are easy to position where required and the inner chamber of the vacuum drying oven is easy to clean.



VD 53 model

### MAIN FEATURES

- Temperature range: room temperature plus 15 °C to 200 °C
- APT.line™ preheating chamber technology
- Controller with time-segment and real-time programming
- 2 aluminum expansion racks
- Inert gas connection
- Shatterproof, spring-mounted safety glass panel
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Computer interface: RS 422
- 2 relay outputs, 24 V DC (max. 0.4 A)

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
VD 23	23	› <a href="https://go2binder.com/en-VD23">go2binder.com/en-VD23</a>
VD 53	53	› <a href="https://go2binder.com/en-VD53">go2binder.com/en-VD53</a>
VD 115	115	› <a href="https://go2binder.com/en-VD115">go2binder.com/en-VD115</a>



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Find all details online  
[go2binder.com/en-VD](https://go2binder.com/en-VD)

## TECHNICAL DATA

Description	VD 23	VD 53	VD 115
<b>Measures - Outer dimensions</b>			
Width net [mm]	515	635	740
Height net [mm]	665	775	900
Depth net [mm]	500	550	670
<b>Measures - Internal Dimensions</b>			
Width [mm]	285	400	506
Height [mm]	285	400	506
Depth [mm]	295	340	460
<b>Measures</b>			
Interior volume [L]	23	53	115
Net weight of the unit (empty) [kg]	63	95	153
permitted load [kg]	35	45	65
Load per rack [kg]	20	20	20
<b>Performance Data Temperature</b>			
Temperature range 15 °C above ambient temperature to [°C]	200	200	200
Temperature variation at 100 °C [± K]	1.5	2	3.5
Temperature fluctuation [± K]	0.1	0.1	0.1
Heating-up time to 100 °C [min]	65	80	95
<b>Electrical data</b>			
Nominal power (Version 120 V) [kW]	0.8	1.2	1.7
Nominal power (Version 230 V) [kW]	0.8	1.2	1.7
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/5	2/6

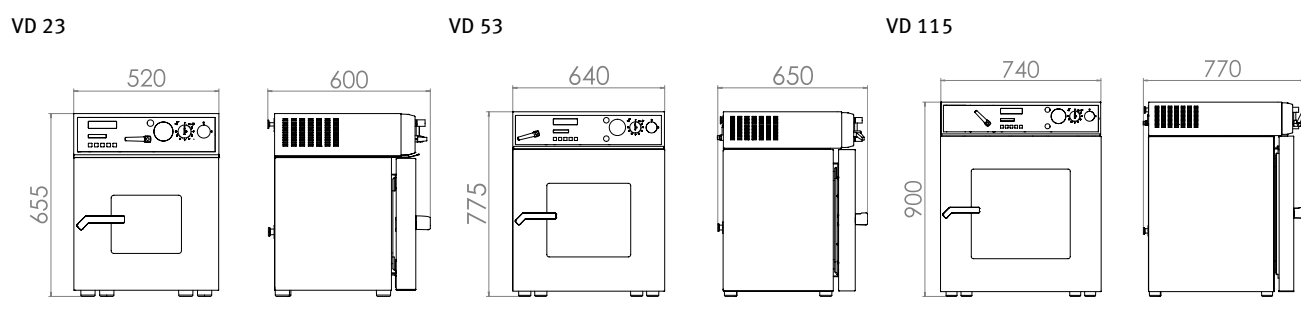
## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	VD 23	VD 53	VD 115
230 V 1~ 50/60 Hz	Standard	9030-0029	9030-0030	9030-0031
120 V 1~ 60 Hz	Standard	9030-0035	9030-0036	9030-0037

► You will find a selection of options, accessories and services suitable for each product on page 142

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



## Series VDL | for flammable solvents

A BINDER safety vacuum drying oven of the VDL series ensures maximum safety when drying organic solvents standard with TÜV/GS. The inner chamber of the VDL safety vacuum drying oven is designed according to ATEX guidelines 2014/34/EU Ex II -/3G c IIB T3-T1 Gc X.



VDL 115 model

### MAIN FEATURES

- Temperature range: room temperature plus 15 °C to 200 °C
- ATEX compliance chamber's interior: Ex II -/3G c IIB T3-T1 Gc X
- APT.line™ preheating chamber technology
- Controller with time-segment and real-time programming
- 2 aluminum expansion racks
- Inert gas connection
- Shatterproof, spring-mounted safety glass panel
- Pressurized instrument panel with compressed air connection
- Pressure control device for heating activated < 125 mbar
- Flame protection gasket

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
VDL 23	23	› <a href="https://go2binder.com/en-VDL23">go2binder.com/en-VDL23</a>
VDL 53	53	› <a href="https://go2binder.com/en-VDL53">go2binder.com/en-VDL53</a>
VDL 115	115	› <a href="https://go2binder.com/en-VDL115">go2binder.com/en-VDL115</a>



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Find all details online  
[go2binder.com/en-VDL](https://go2binder.com/en-VDL)



## TECHNICAL DATA

Description	VDL 23	VDL 53	VDL 115
<b>Measures - Outer dimensions</b>			
Width net [mm]	515	635	740
Height net [mm]	655	775	900
Depth net [mm]	500	545	670
<b>Measures - Internal Dimensions</b>			
Width [mm]	285	400	506
Height [mm]	285	400	506
Depth [mm]	295	340	460
<b>Measures</b>			
Interior volume [L]	23	53	115
Net weight of the unit (empty) [kg]	63	95	153
permitted load [kg]	35	45	65
Load per rack [kg]	20	20	20
<b>Performance Data Temperature</b>			
Temperature range 15 °C above ambient temperature to [°C]	200	200	200
Temperature variation at 100 °C [± K]	1.5	2	3.5
Temperature fluctuation [± K]	0.1	0.1	0.1
Heating-up time to 100 °C [min]	65	80	95
<b>Electrical data</b>			
Nominal power (Version 230 V) [kW]	0.8	1.2	1.9
<b>Fixtures</b>			
Number of shelves (std./max.)	2/4	2/5	2/6

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	VDL 23	VDL 53	VDL 115
230 V 1~ 50/60 Hz	Standard	9030-0038	9030-0039	9030-0040

► You will find a selection of options, accessories and services suitable for each product on page 142

## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

VDL 23	VDL 53	VDL 115

## EXCERPT FROM OPTIONS AND ACCESSORIES

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### Vacuum module

For receiving vacuum pumps, with switchable power socket.

Series VD, VDL

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### Vacuum module with vacuum pump

Consists of module and vacuum pump. The module allows the pump to be installed below the vacuum chamber. This reduces the noise level by 50% and makes it considerably easier to access the vacuum chamber. Our range of membrane pumps, chemical membrane pumps, or speed-controlled chemical membrane pumps are perfectly matched to the BINDER vacuum chambers in question.

Series VD, VDL

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### Pt 100 temperature sensor

Additional sensor with flexible cable for performing measurements directly on the sample.

Series VD, VDL

---

### Electric access port

For vacuum-tight access port for measuring lines.

Series VD, VDL

---

### Services

You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us.

More information is available in the accessories and services chapter.

Series VD, VDL

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### BINDER INDIVIDUAL

Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter.

Series VD, VDL

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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)

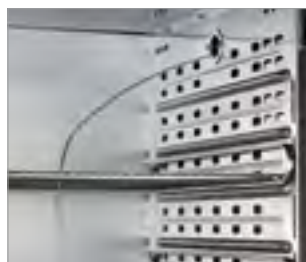
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Vacuum module



Vacuum module with vacuum pump



Pt 100 temperature sensor



Electric access port



# Climate chambers

Constant climate chambers  
Dynamic climate chambers

6

## PERFECTLY MATCHED TO TESTING STANDARDS

Research and quality assurance is primarily focused on the optimization and monitoring of the performance standards as well as the functions and service life of materials, products, and systems. Climate chambers are expected to be perfectly matched to the standards or individual requirements of quality assurance and development. Whether these are EN, IEC, or MIL standards or an individual requirement, BINDER offers a range of constant and dynamic climate chambers with innovative technical solutions and comprehensive equipment options with which specimens can be safely and reliably tested, whether actively or passively. For special technical requirements, users can also rely on the individually tailored solutions from BINDER INDIVIDUAL.

### CONSTANT CLIMATE CHAMBERS

Page 147



with large temperature / humidity range	<b>Series KBF</b>	Page 150
with ICH-compliant light source	<b>Series KBF P</b>	Page 153
with ICH-compliant light source and light dose control	<b>Series KBF LQC</b>	Page 156
with expanded temperature / humidity range	<b>Series KMF</b>	Page 159

### DYNAMIC CLIMATE CHAMBERS

Page 165



for rapid temperature changes	<b>Series MK</b>	Page 168
for rapid temperature changes with humidity control	<b>Series MKF</b>	Page 171
for rapid temperature changes with extended low temperature range	<b>Series MKT</b>	Page 174
for rapid temperature changes with humidity control and extended low temperature range	<b>Series MKFT</b>	Page 177



# Constant climate chambers

Series KBF	Page 150
Series KBF P	Page 153
Series KBF LQC	Page 156
Series KMF	Page 159
Options and Accessories	Page 162

BINDER climatic chambers stand out when testing material behaviors under constant temperature and humidity conditions. A climatic chamber of the KBF P and KBF LQC Series also offers ICH-compliant illumination for standard-compliant long-term tests. In combination with the innovative Light Quantum Control (LQC), they offer a complete reliable solution for photostability testing in one chamber.

Wide temperature and humidity ranges can be achieved with KMF Series chambers—ideal for complex stress tests at, for instance, 85 °C and 85 % RH.

# PRODUCT SELECTION CONSTANT CLIMATE CHAMBERS

Features	KBF › Page 150	KBF P › Page 153	KBF LQC › Page 156	KMF › Page 159
<b>Model</b>				
Model 115	•	–	–	•
Model 240	•	•	•	•
Model 720	•	•	•	•
Model 1020	•	–	–	–
<b>General data</b>				
Temperature range [°C]	0...70	–	–	-10...100
Temperature range without illumination cassettes [°C]	–	0...70	0...70	–
Temperature range with 100% illumination [°C]	–	10...60	10...60	–
Humidity range [% RH]	10...80	10...80	10...80	10...98
Ethernet interface	•	•	•	•
USB interface	•	–	–	•
Forced convection	•	•	•	•
<b>Controller and timer functions</b>				
Controller display	TFT touch	LCD color display	LCD color display	TFT touch
Ramp function	•	–	–	•
Time delayed ON	•	–	–	•
Programming option	•	•	•	•
Weekly program function	•	–	–	•
Adjustable fan speed	•	•	•	•
Real-time clock	•	•	•	•
Class 3.1 independent temperature safety device	•	•	•	•
Temperature alarm, acoustic	•	•	•	•
Temperature alarm, visual	•	•	•	•

• Standard equipment



## ADVANTAGES AT A GLANCE



### HOMOGENEOUS TEMPERATURE DISTRIBUTION

Series KBF, KBF P, KBF LQC, KMF

BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### INTUITIVE TOUCHSCREEN CONTROLLER

Series KBF, KMF

State-of-the-art controller technology with time-segment and real-time programming with internal data recording.



### HOMOGENEOUS LIGHT DISTRIBUTION

Series KBF P, KBF LQC

thanks to illumination cassettes with ICH-Q1B-compliant light sources, providing flexible placement, for photostability tests.



### FLEXIBLE WATER AND WASTE WATER MANAGEMENT AT ANY LOCATION

Series KBF, KMF

using the connection to the domestic water supply or an optional external water supply set (Fig.).

## Series KBF | with large temperature / humidity range

The BINDER KBF is the specialist for unconditionally reliable stability testing and precise maintenance of constant climate conditions. From programming to documentation, this constant climate chamber meets all critical requirements.



KBF 240 model



### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Humidity range: 10 % to 80 % RH
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording
- Tightly-sealed inner door made of tempered safety glass
- 2 stainless steel racks
- Access port with silicone plug, 30 mm, left
- 4 stable castors, two with brakes, from 240 liters

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBF 115	102	› <a href="https://go2binder.com/en-KBF115">go2binder.com/en-KBF115</a>
KBF 240	247	› <a href="https://go2binder.com/en-KBF240">go2binder.com/en-KBF240</a>
KBF 720	700	› <a href="https://go2binder.com/en-KBF720">go2binder.com/en-KBF720</a>
KBF 1020	1020	› <a href="https://go2binder.com/en-KBF1020">go2binder.com/en-KBF1020</a>



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Find all details online  
[go2binder.com/en-KBF](https://go2binder.com/en-KBF)

## TECHNICAL DATA

Description	KBF 115	KBF 240	KBF 720	KBF 1020
<b>Measures - Outer dimensions</b>				
Width net [mm]	880	925	1250	1250
Height net [mm]	1050	1460	1925	1925
Depth net [mm]	650	800	890	1145
<b>Measures - Internal Dimensions</b>				
Width [mm]	600	650	973	976
Height [mm]	483	785	1250	1250
Depth [mm]	351	485	576	836
<b>Measures</b>				
Interior volume [L]	102	247	700	1020
Net weight of the unit (empty) [kg]	129	184	309	365
permitted load [kg]	100	100	150	150
Load per rack [kg]	30	30	45	45
<b>Performance Data Temperature</b>				
Temperature range [°C]	0...70	0...70	0...70	0...70
Temperature variation at 40 °C [± K]	0.2	0.3	0.2	0.2
Temperature fluctuation [± K]	0.1	0.1	0.1	0.5
Recovery time after 30 seconds door open at 40 °C and 75 % RH [min]	7	11	11	12
<b>Performance Data Climate</b>				
Temperature range [°C]	10...70	10...70	10...70	10...70
Temperature variation at 40 °C and 75 % RH [± K]	0.2	0.3	0.2	0.2
Temperature fluctuation at 40 °C and 75 % RH [± K]	0.1	0.1	0.1	0.1
Humidity range [% RH]	10...80	10...80	10...80	10...80
Humidity fluctuation at 40 °C and 75 % RH [± % RH]	≤2	1,5	1,5	1,5
<b>Electrical data</b>				
Nominal power (version 230 V) [kW]	2	2.1	3.1	3.1
Nominal power (version 240 V) [kW]	2	2.1	3.1	3.1
<b>Fixtures</b>				
Number of shelves (std./max.)	2/5	2/9	2/15	2/15

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KBF 115	KBF 240	KBF 720	KBF 1020
200...230 V 1~ 50/60 Hz	Standard	9020-0320	9020-0322	9020-0324	9020-0326
200...240 V 1~ 50/60 Hz	Standard	9020-0321	9020-0323	9020-0325	9020-0327

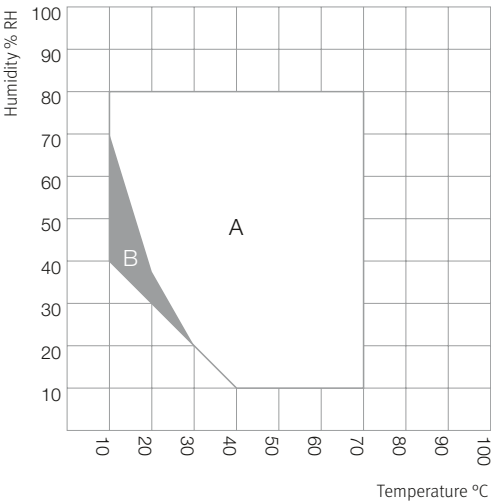
► You will find a selection of options, accessories and services suitable for each product on page 162

## EXTRACT OF FULLFILLED STANDARDS

- ICH Q1A(R2)

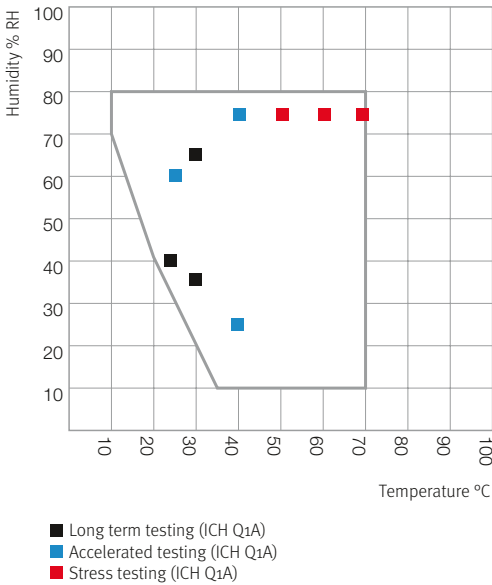
TEMPERATURE-HUMIDITY CHART

KBF 115, KBF 240, KBF 720, KBF 1020



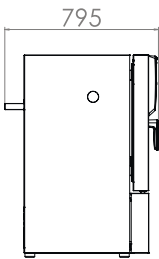
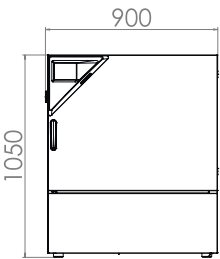
TEMPERATURE-HUMIDITY CHART WITH ICH CHECKPOINTS

KBF 115, KBF 240, KBF 720, KBF 1020

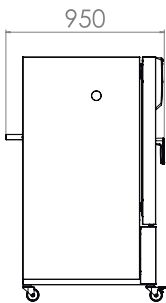
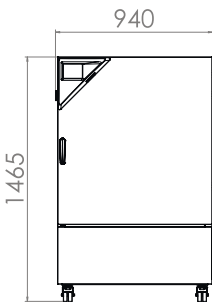


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

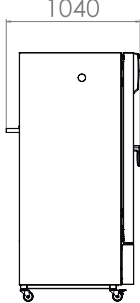
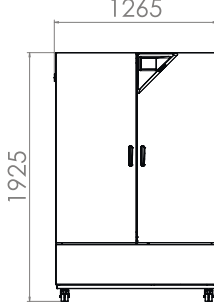
KBF 115



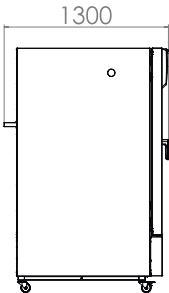
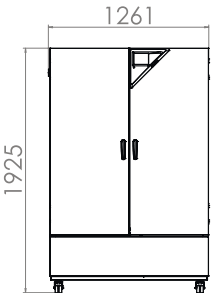
KBF 240



KBF 720



KBF 1020



## Series KBF P | with ICH-compliant light source

The KBF P constant climate chamber, equipped with ICH-compliant light source, is an expert when it comes to photostability tests and ensures clear test results in accordance with ICH Guideline Q1B. At the same time, the variable-position illumination cassettes offer homogeneous lighting conditions.



KBF P 240 model



### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes with ICH-compliant UV/Vis light source
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Controller with time-segment programming
- Tightly-sealed inner door made of tempered safety glass
- Stainless steel racks

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBFP 240	247	› <a href="https://go2binder.com/en-KBFP240">go2binder.com/en-KBFP240</a>
KBFP 720	700	› <a href="https://go2binder.com/en-KBFP720">go2binder.com/en-KBFP720</a>



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Find all details online  
[go2binder.com/en-KBFP](https://go2binder.com/en-KBFP)

## TECHNICAL DATA

Description	KBF P 240	KBF P 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	925	1250
Height net [mm]	1460	1925
Depth net [mm]	800	890
<b>Measures - Internal Dimensions</b>		
Width [mm]	650	973
Height [mm]	785	1250
Depth [mm]	485	576
<b>Measures</b>		
Interior volume [L]	247	700
Net weight of the unit (empty) [kg]	213	374
permitted load [kg]	100	150
Load per rack [kg]	30	45
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	0...70
Recovery time after 30 seconds door open at 40 °C and 75 % RH with illumination [min]	4	5
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	20...60
Temperature range without illumination cassettes [°C]	10...70	10...70
Temperature variation with illumination at 40 °C and 75 % RH [± K]	0.6	1.2
Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]	0.2	0.2
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]	2	2
<b>Lightdata per Illumination Cassettes</b>		
ICH compliant illumination for photo stability testing [lx]	7500	8750
ICH compliant illumination for photo stability testing [W/m²]	1.1	1.6
<b>Electrical data</b>		
Nominal power (version 230 V) [kW]	2.4	3.5
Nominal power (version 240 V) [kW]	2.4	3.5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/7	3/12
Number of illumination cassettes (std./max.)	2/2	3/3

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

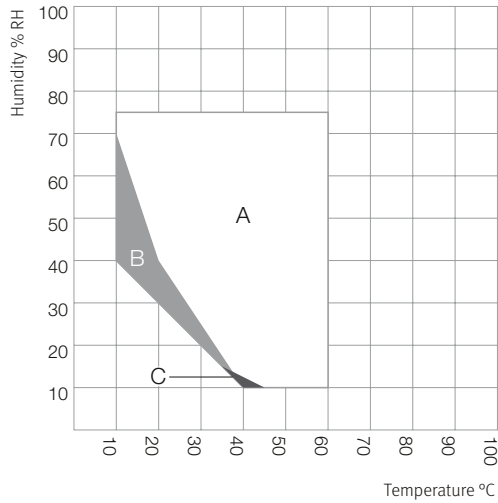
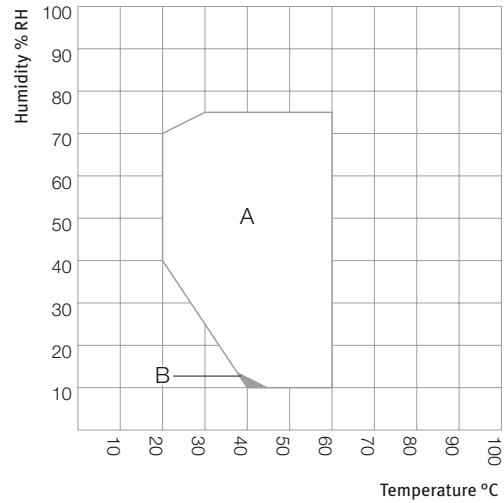
Voltage	Option model	KBF P 240	KBF P 720
200...230 V 1~ 50 Hz	Standard	9020-0273	9020-0275
200...240 V 1~ 50/60 Hz	Standard	9020-0274	9020-0276

► You will find a selection of options, accessories and services suitable for each product on page 162

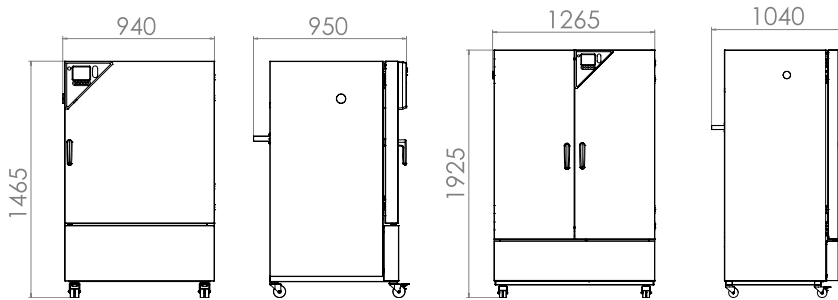
## EXTRACT OF FULLFILLED STANDARDS

- ICH Q1A(R2)
- ICH Q1B

## TEMPERATURE-HUMIDITY CHART

**KBFP 240**

**KBFP 720**


## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

**KBFP 240**
**KBFP 720**


## Series KBF LQC | with ICH-compliant light source and light dose control

The main advantage of the BINDER KBF LQC series is the patented light photometry for photostability tests. Two 3D spherical sensors control the light dosage of UV-A and visible light. Once the desired light dosage is achieved, the chamber switches off automatically.



KBF LQC 240 model



### MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes with ICH-compliant UV/Vis light source
- Independent light-dose control of UV-A and visible light with spherical sensors
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Controller with time-segment programming
- Tightly-sealed inner door made of tempered safety glass

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KBF LQC 240	247	› <a href="https://go2binder.com/en-KBFLQC240">go2binder.com/en-KBFLQC240</a>
KBF LQC 720	700	› <a href="https://go2binder.com/en-KBFLQC720">go2binder.com/en-KBFLQC720</a>



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Find all details online  
[go2binder.com/en-KBFLQC](https://go2binder.com/en-KBFLQC)



## TECHNICAL DATA

Description	KBF LQC 240	KBF LQC 720
<b>Measures - Outer dimensions</b>		
Width net [mm]	925	1250
Height net [mm]	1460	1925
Depth net [mm]	800	890
<b>Measures - Internal Dimensions</b>		
Width [mm]	650	973
Height [mm]	785	1250
Depth [mm]	485	576
<b>Measures</b>		
Interior volume [L]	247	700
Net weight of the unit (empty) [kg]	213	374
permitted load [kg]	100	150
Load per rack [kg]	30	45
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	0...70
Recovery time after 30 seconds door open at 40 °C and 75 % RH with illumination [min]	4	5
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	20...60
Temperature range without illumination cassettes [°C]	10...70	10...70
Temperature variation with illumination at 40 °C and 75 % RH [± K]	0.6	1.2
Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]	0.2	0.2
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]	2	2
<b>Lightdata per Illumination Cassettes</b>		
ICH compliant illumination for photo stability testing [lx]	7500	8750
ICH compliant illumination for photo stability testing [W/m²]	1.1	1.6
<b>Electrical data</b>		
Nominal power (version 230 V) [kW]	2.4	3.5
Nominal power (version 240 V) [kW]	2.4	3.5
<b>Fixtures</b>		
Number of shelves (std./max.)	2/7	3/12
Number of illumination cassettes (std./max.)	2/2	3/3

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	KBF LQC 240	KBF LQC 720
200...230 V 1~ 50 Hz	Standard	9020-0277	9020-0279
200...240 V 1~ 50/60 Hz	Standard	9020-0278	9020-0280

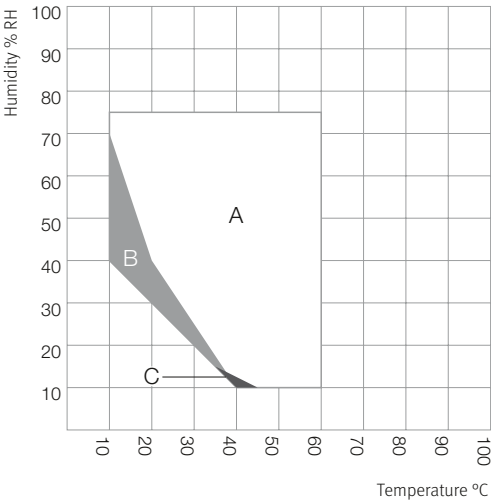
► You will find a selection of options, accessories and services suitable for each product on page 162

EXTRACT OF FULLFILLED STANDARDS

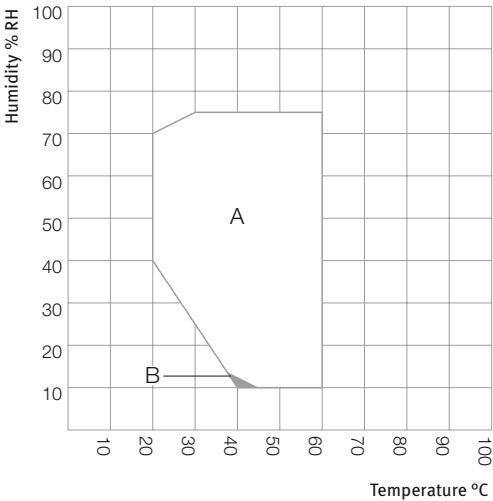
- ICH Q1A(R2)
- ICH Q1B

TEMPERATURE-HUMIDITY CHART

KBF LQC 240

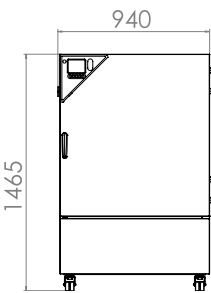


KBF LQC 720

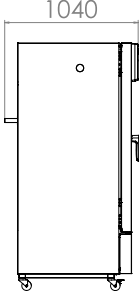
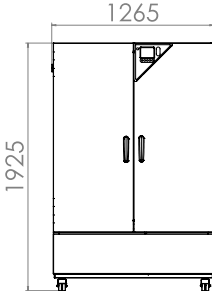


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

KBF LQC 240



KBF LQC 720



## Series KMF | with expanded temperature / humidity range

The BINDER KMF ensures absolutely constant test conditions throughout the testing area. A big advantage of this constant climate chamber is its low space requirement and flexibility in terms of water supply. The wide temperature and humidity range make this constant climate chamber ideally suited for stress testing series.



KMF 240 model



### MAIN FEATURES

- Temperature range: -10 °C to 100 °C
- Humidity range: 10 % RH to 98 % RH
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- BINDER APT-COM™ 3 Basic Edition communication software
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording
- Tightly-sealed inner door made of tempered safety glass
- 1 stainless steel rack
- Access port with silicone plug, 30 mm, left

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
KMF 115	102	› <a href="https://go2binder.com/en-KMF115">go2binder.com/en-KMF115</a>
KMF 240	247	› <a href="https://go2binder.com/en-KMF240">go2binder.com/en-KMF240</a>
KMF 720	700	› <a href="https://go2binder.com/en-KMF720">go2binder.com/en-KMF720</a>



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Find all details online  
[go2binder.com/en-KMF](https://go2binder.com/en-KMF)

## TECHNICAL DATA

Description	KMF 115	KMF 240	KMF 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	880	930	1250
Height net [mm]	1050	1465	1925
Depth net [mm]	650	800	890
<b>Measures - Internal Dimensions</b>			
Width [mm]	600	650	973
Height [mm]	483	785	1250
Depth [mm]	351	485	576
<b>Measures</b>			
Interior volume [L]	102	247	700
Net weight of the unit (empty) [kg]	127	179	295
permitted load [kg]	100	100	150
Load per rack [kg]	30	30	45
<b>Performance Data Temperature</b>			
Temperature range [°C]	-10...100	-10...100	-10...100
Average heating-up rate according to IEC 60068-3-5 [K/min]	1.3	0.8	0.7
Average cooling down time according to IEC 60068-3-5 [K/min]	0.5	0.4	0.4
<b>Performance Data Climate</b>			
Temperature range [°C]	10...90	10...90	10...90
Temperature variation depending on setpoint [± K]	0.2...1	0.1...1	0.1...1
Temperature fluctuation depending on setpoint [± K]	0.1...0.3	0.1...0.3	0.1...0.5
Humidity range [% RH]	10...98	10...98	10...98
Humidity fluctuation depending on setpoint [± % RH]	≤2,5	≤2	≤2
<b>Electrical data</b>			
Nominal power (version 230 V) [kW]	2	2.1	3.1
Nominal power (version 240 V) [kW]	2	2.1	3.1
<b>Fixtures</b>			
Number of shelves (std./max.)	1/5	1/9	1/15

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

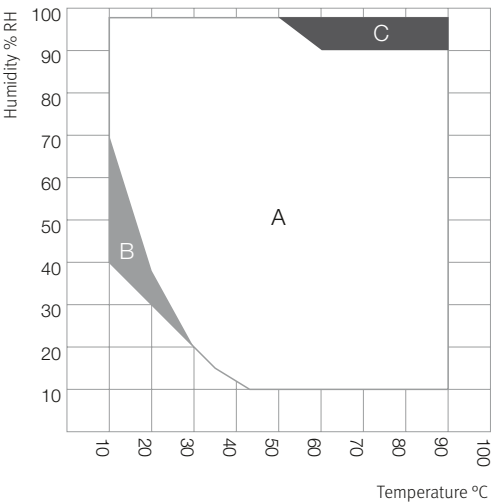
Voltage	Option model	KMF 115	KMF 240	KMF 720
200...230 V 1~ 50/60 Hz	Standard	9020-0341	9020-0343	9020-0345
200...240 V 1~ 50/60 Hz	Standard	9020-0342	9020-0344	9020-0346

► You will find a selection of options, accessories and services suitable for each product on page 162

## EXTRACT OF FULLFILLED STANDARDS

- ICH Q1A(R2)

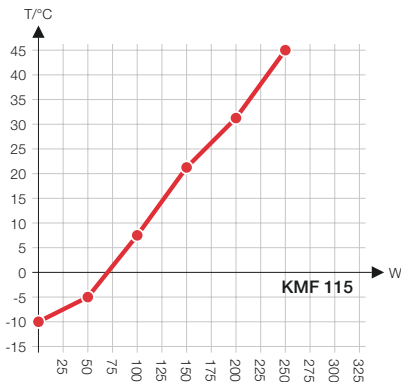
TEMPERATURE-HUMIDITY CHART



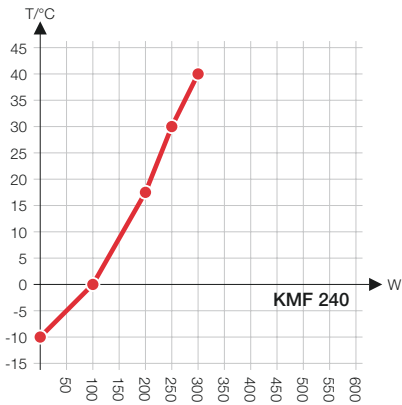
A: Guaranteed condensation-free range  
B: Time-limited operation (max. 24 hours)  
C: Condensation in the inner chamber may be possible

HEAT COMPENSATION

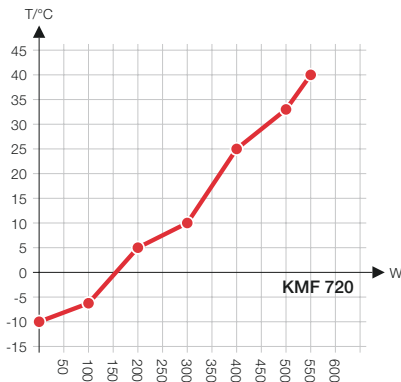
KMF 115



KMF 240

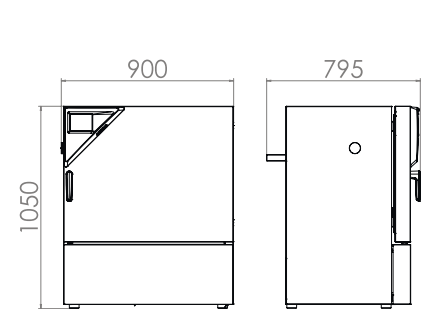


KMF 720

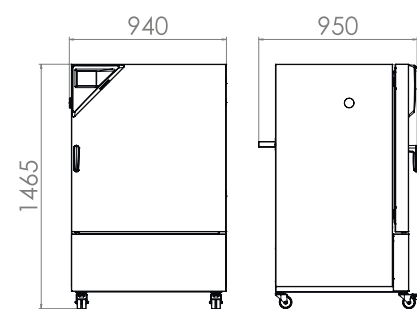


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

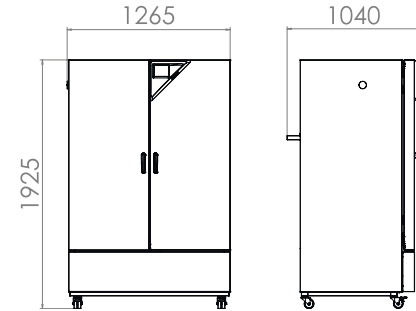
KMF 115



KMF 240



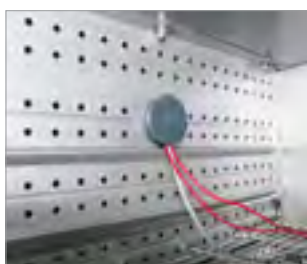
KMF 720



## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series KBF, KBF P, KBF LQC, KMF
<b>BINDER PURE AQUA Service</b>	System for preparation or complete desalination of tap water, containing single-use cartridge, hoses and measuring device. Series KBF, KBF P, KBF LQC, KMF
<b>Data Logger Kit</b>	Independent temperature and humidity data logging. The tailored product solution contains helpful accessories: From the magnetic mounting of the data logger to the BINDER unit and securing sensor cable for accurate readings. Series KBF, KBF P, KBF LQC, KMF
<b>External water supply set</b>	Flexible water and waste water supply if there are no domestic water connections on site. The set consists of fresh and waste-water containers (20 liters each). Series KBF, KBF P, KBF LQC, KMF
<b>Reinforced shelf racks</b>	Shelves or racks to ensure safe and stable storage of heavy test specimens. Series KBF, KBF P, KBF LQC, KMF
<b>IQ/OQ qualification folder</b>	Supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001. Series KBF, KBF P, KBF LQC, KMF
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series KBF, KBF P, KBF LQC, KMF
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series KBF, KBF P, KBF LQC, KMF

► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



Access port with silicone plug



BINDER PURE AQUA Service



Data Logger



External water supply set







# Dynamic climate chambers

Series MK	Page 168
Series MKF	Page 171
Series MKT	Page 174
Series MKFT	Page 177
Options and Accessories	Page 180

BINDER environmental chambers are perfectly suited to material testing under dynamic conditions. The standard rapid alternation speeds of around 5 K/min make standard-compliant testing possible. An environmental simulation chamber of the MK and MKT Series is suitable for complex temperature profiles in the range of -40 °C or -70 °C to 180 °C. MKF and MKFT Series of dynamic climate chambers not only make material testing in this temperature range possible, but can also regulate humidity in the range of 10 % to 98 % RH.

# PRODUCT SELECTION DYNAMIC CLIMATE CHAMBERS

Features	MK › Page 168	MKF › Page 171	MKT › Page 174	MKFT › Page 177
Model				
Model 53	•	–	–	–
Model 115	•	•	•	•
Model 240	•	•	•	•
Model 720	•	•	•	•
General data				
Temperature range [°C]	-40...180	-40...180	-70...180	-70...180
Humidity range [% RH]	–	10...98	–	10...98
Ethernet interface	•	•	•	•
Forced convection	•	•	•	•
Controller and timer functions				
Controller display	LCD color display			
Ramp function	•	•	•	•
Time delayed ON	•	•	•	•
Programming option	•	•	•	•
Real-time clock	•	•	•	•
Class 1 temperature safety device	•	•	•	•
Class 2 independent adjustable temperature safety device	•	•	•	•
Temperature alarm, acoustic	•	•	•	•
Temperature alarm, visual	•	•	•	•

•Standard equipment

## ADVANTAGES AT A GLANCE



### **HOMOGENEOUS TEMPERATURE DISTRIBUTION**

Series MK, MKF, MKT, MKFT

BINDER APT.line™ preheating chamber technology ensures long-term operational stability even under full load.



### **FLEXIBLE WATER SUPPLY**

Series MKF, MKFT

The flexible water supply is easy to handle and can be operated independently of the water supply and water quality.



### **PROGRAMMING AND DATA COLLECTION**

Series MK, MKF, MKT, MKFT

Data collection and programming can be created via the program controller featuring an LCD color display and our APT.COM™ software for remotely through a PC.



### **CONVENIENT WORK ENVIRONMENT**

Series MK, MKF, MKT, MKFT

With our high level of standard equipment, such as the heated viewing window with LED illumination and a large access area for easy assembly a convenient work environment can be established.

## Series MK | for rapid temperature changes

The BINDER MK series chamber is suitable for all heat and cold tests between -40 °C and 180 °C. The MK is a clever alternative to complex individual solutions for cyclical temperature tests.



MK 240 model



### MAIN FEATURES

- Temperature range: -40 °C to 180 °C
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- BINDER APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Controller with time-segment programming
- Access port with silicone plug (Model 53), 80 mm, top
- Access port with silicone plug (Models 115, 240), 50 mm, left
- 2 access ports with silicone plugs (Model 720), 80 mm, left and right

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
MK 53	53	› <a href="https://go2binder.com/en-MK53">go2binder.com/en-MK53</a>
MK 115	115	› <a href="https://go2binder.com/en-MK115">go2binder.com/en-MK115</a>
MK 240	228	› <a href="https://go2binder.com/en-MK240">go2binder.com/en-MK240</a>
MK 720	734	› <a href="https://go2binder.com/en-MK720">go2binder.com/en-MK720</a>



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Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-MK](https://go2binder.com/en-MK)

## TECHNICAL DATA

Description	MK 53	MK 115	MK 240	MK 720
Measures - Outer dimensions				
Width net [mm]	740	980	1115	1580
Height net [mm]	1225	1725	1715	2005
Depth net [mm]	740	865	925	1140
Measures - Internal Dimensions				
Width [mm]	402	600	735	1200
Height [mm]	402	480	700	1020
Depth [mm]	330	400	443	600
Measures				
Interior volume [L]	53	115	228	734
Net weight of the unit (empty) [kg]	150	260	340	570
permitted load [kg]	40	60	70	160
Load per rack [kg]	15	30	30	40
Performance Data Temperature				
Temperature range [°C]	-40...180	-40...180	-40...180	-40...180
Temperature variation depending on setpoint [± K]	0.4...2	0.1...2	0.1...1.2	0.3...2
Temperature fluctuation depending on setpoint [± K]	0.1...0.5	0.1...0.5	0.1...0.5	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	–	5.3	5	4
Average heating-up rate according to factory standard [K/min]	4.6	–	–	–
Average cooling down time according to IEC 60068-3-5 [K/min]	–	5	4.5	4.5
Average cooling down time according to factory standard [K/min]	4.1	–	–	–
Electrical data				
Nominal power (Version 230 V) [kW]	2.6	–	–	–
Nominal power (Version 400 V) [kW]	–	3.5	4.2	7.2
Fixtures				
Number of shelves (std./max.)	1/5	1/4	1/6	1/11

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	MK 53	MK 115	MK 240	MK 720
480 V 3~ 60 Hz	with voltage and frequency converter	–	9020-0290	9020-0294	9020-0298
400 V 3~ 50 Hz	Standard	–	9020-0175	9020-0181	9020-0197
230 V 1~ 50 Hz	Standard	9020-0006	–	–	–

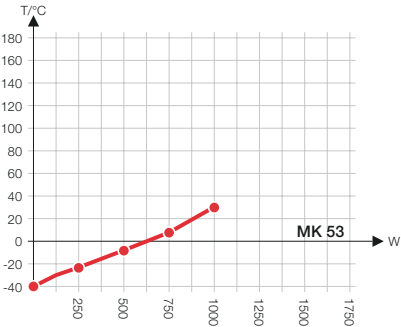
► You will find a selection of options, accessories and services suitable for each product on page 180

## EXTRACT OF FULLFILLED STANDARDS

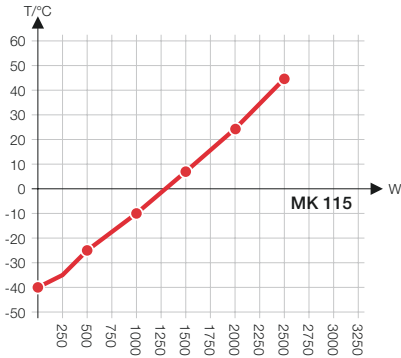
- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01

HEAT COMPENSATION

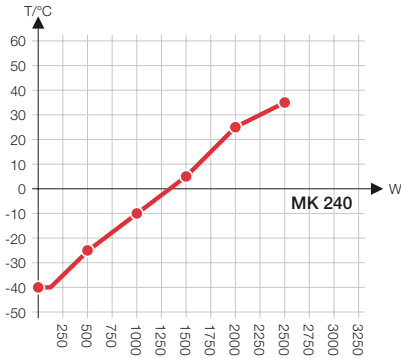
MK 53



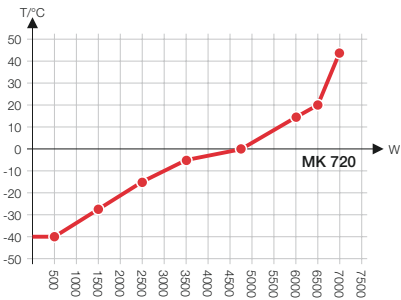
MK 115



MK 240

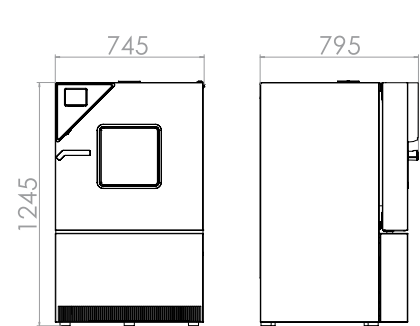


MK 720

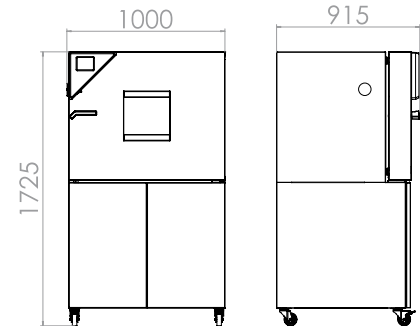


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

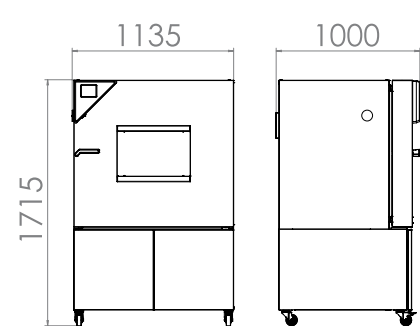
MK 53



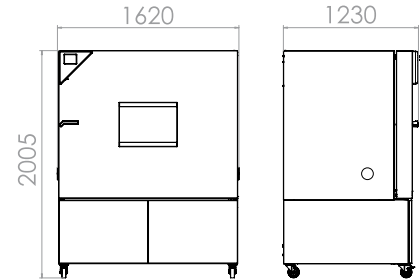
MK 115



MK 240



MK 720



## Series MKF | for rapid temperature changes with humidity control

A BINDER MKF series environmental simulation chamber is ideally suited for any cold and heat testing based on current temperature and climate testing methods according to DIN and IEC standards. The comprehensive standard equipment for this environmental simulation chamber ensures ease of operation.



MKF 240 model



### MAIN FEATURES

- Temperature range: -40 °C to 180 °C
- Humidity range: 10 % to 98 % RH
- Integrated water-storage tank, 20 liters
- 4 zero-voltage relay contacts that can be activated via MCS controller
- 1 stainless steel rack
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification
- BINDER APT-COM™ 3 Basic Edition communication software

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
MKF 115	115	› <a href="https://go2binder.com/en-MKF115">go2binder.com/en-MKF115</a>
MKF 240	228	› <a href="https://go2binder.com/en-MKF240">go2binder.com/en-MKF240</a>
MKF 720	734	› <a href="https://go2binder.com/en-MKF720">go2binder.com/en-MKF720</a>



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Find all details online  
[go2binder.com/en-MKF](https://go2binder.com/en-MKF)

## TECHNICAL DATA

Description	MKF 115	MKF 240	MKF 720
Measures - Outer dimensions			
Width net [mm]	980	1115	1580
Height net [mm]	1725	1715	2005
Depth net [mm]	865	925	1140
Measures - Internal Dimensions			
Width [mm]	600	735	1200
Height [mm]	480	700	1020
Depth [mm]	400	443	600
Measures			
Interior volume [L]	115	228	734
Net weight of the unit (empty) [kg]	280	360	590
permitted load [kg]	60	70	160
Load per rack [kg]	30	30	40
Performance Data Temperature			
Temperature range [°C]	-40...180	-40...180	-40...180
Temperature variation depending on setpoint [± K]	0.1...1.3	0.1...1.5	0.1...1.8
Temperature fluctuation depending on setpoint [± K]	0.1...0.6	0.1...0.5	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.5	5	4.8
Average cooling down time according to IEC 60068-3-5 [K/min]	4.5	5	4.8
Performance Data Climate			
Temperature range [°C]	10...95	10...95	10...95
Temperature fluctuation depending on setpoint [± K]	0.1...1.3	0.1...1.3	0.2...1.5
Humidity range [% RH]	10...98	10...98	10...98
Humidity fluctuation depending on setpoint [± % RH]	≤2,5	≤2,5	≤2,5
Electrical data			
Nominal power (Version 400 V) [kW]	4.8	6.8	11
Fixtures			
Number of shelves (std./max.)	1/4	1/6	1/11

## ORDERING INFORMATION [Art. No.]

Further details: Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

Voltage	Option model	MKF 115	MKF 240	MKF 720
480 V 3~ 60 Hz	with voltage and frequency converter	9020-0291	9020-0295	9020-0299
400 V 3~ 50 Hz	Standard	9020-0283	9020-0285	9020-0287

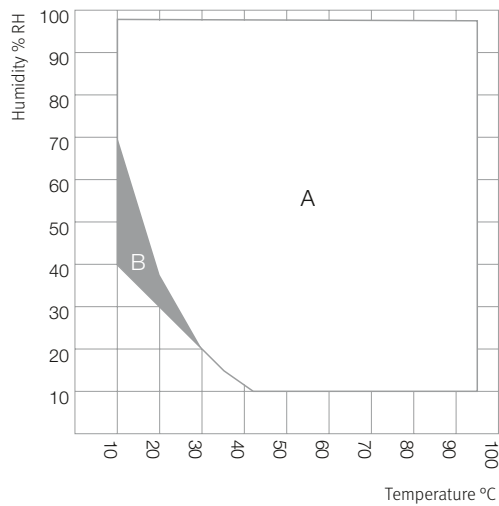
► You will find a selection of options, accessories and services suitable for each product on page 180

## EXTRACT OF FULLFILLED STANDARDS

- DIN EN 60068-2-30: 2006-06
- DIN EN 60068-2-38: 2010-06
- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01



## TEMPERATURE-HUMIDITY CHART

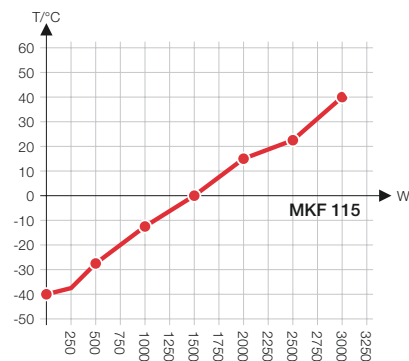


A: Standard Climate range

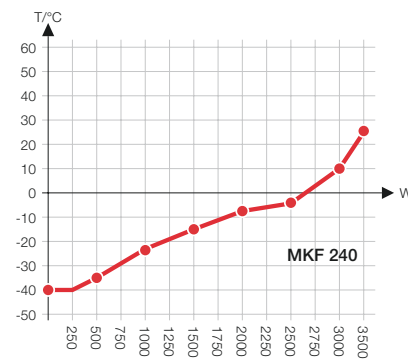
B: Time-limited operation (max. 24 hours)

## HEAT COMPENSATION

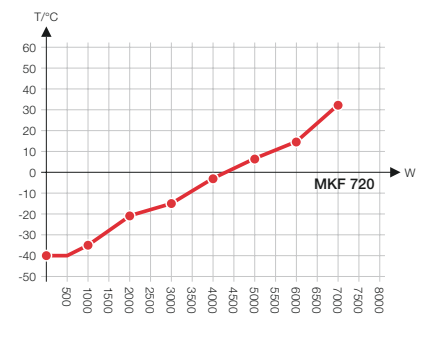
MKF 115



MKF 240

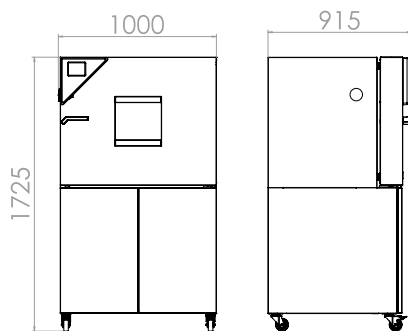


MKF 720

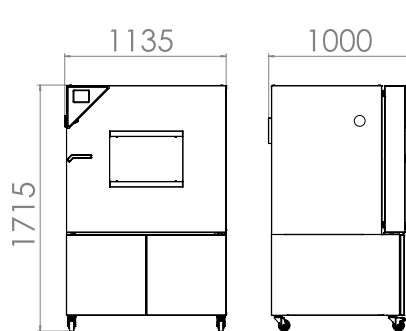


## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

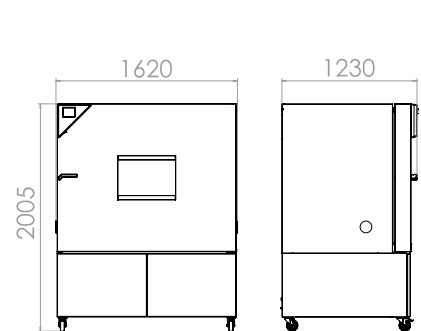
MKF 115



MKF 240



MKF 720



## Series MKT | for rapid temperature changes with extended low temperature range

Temperature ranges between -70 °C and 180 °C, with the added benefit of natural simulation, are what make the BINDER MKT series so unique. At the same time, this environmental simulation chamber fulfills the very highest precision and performance requirements for cyclical temperature tests.



MKFT 240 model

### MAIN FEATURES

- Temperature range: -70 °C to 180 °C
- 4 zero-voltage relay contacts that can be activated via MCS controller
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- BINDER APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Controller with time-segment programming
- Access port with silicone plug (Models 115, 240: 50 mm, left)
- 2 access ports with silicone plugs (Model 720: 80 mm, left and right)

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
MKT 115	115	› <a href="https://go2binder.com/en-MKT115">go2binder.com/en-MKT115</a>
MKT 240	228	› <a href="https://go2binder.com/en-MKT240">go2binder.com/en-MKT240</a>
MKT 720	734	› <a href="https://go2binder.com/en-MKT720">go2binder.com/en-MKT720</a>



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Find all details online  
[go2binder.com/en-MKT](https://go2binder.com/en-MKT)

## TECHNICAL DATA

Description	MKT 115	MKT 240	MKT 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	980	1115	1580
Height net [mm]	1725	1940	2005
Depth net [mm]	865	925	1140
<b>Measures - Internal Dimensions</b>			
Width [mm]	600	735	1200
Height [mm]	480	700	1020
Depth [mm]	400	443	600
<b>Measures</b>			
Interior volume [L]	115	228	734
Net weight of the unit (empty) [kg]	305	380	610
permitted load [kg]	60	70	160
Load per rack [kg]	30	30	40
<b>Performance Data Temperature</b>			
Temperature range [°C]	-70...180	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0.2...1.8	0.1...1.0	0.3...2
Temperature fluctuation depending on setpoint [± K]	0.1...0.6	0.1...0.4	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.3	5	4.5
Average cooling down time according to IEC 60068-3-5 [K/min]	4.2	4.2	4.2
<b>Electrical data</b>			
Nominal power (Version 400 V) [kW]	5.5	6.5	13
<b>Fixtures</b>			
Number of shelves (std./max.)	1/4	1/6	1/11

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) > Search > Enter Article Number

Voltage	Option model	MKT 115	MKT 240	MKT 720
480 V 3~ 60 Hz	with voltage and frequency converter	9020-0292	9020-0296	9020-0300
400 V 3~ 50 Hz	Standard	9020-0151	9020-0196	9020-0082

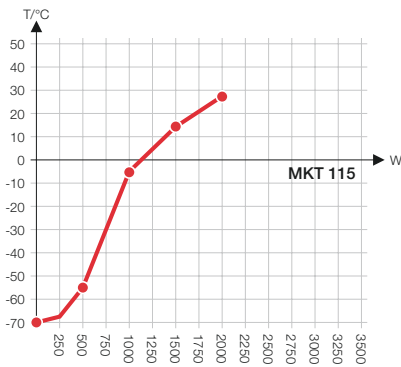
► You will find a selection of options, accessories and services suitable for each product on page 180

## EXTRACT OF FULLFILLED STANDARDS

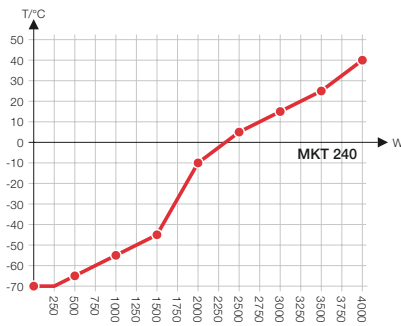
- DIN EN 60068-2-1: 2008-01
- DIN EN 60068-3-5:2002-12
- MIL STD 810:2000-01

HEAT COMPENSATION

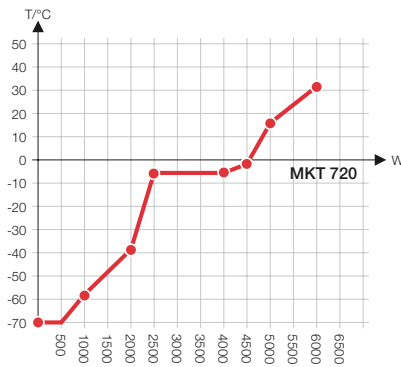
MKT 115



MKT 240

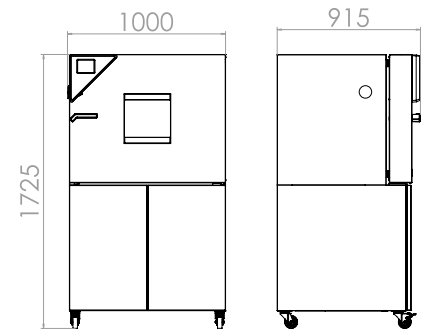


MKT 720

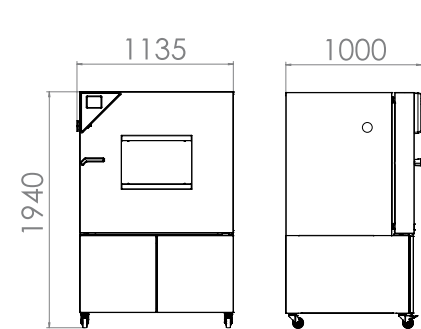


DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

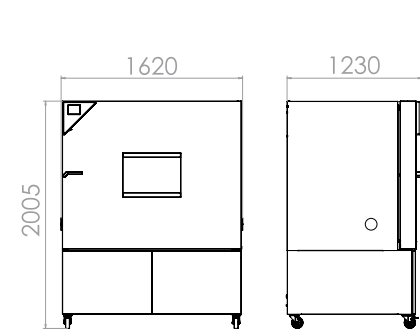
MKT 115



MKT 240



MKT 720



## Series MKFT | for rapid temperature changes with humidity control and extended low temperature range

The BINDER MKFT series environmental simulation chamber for low temperature alternating climate profiles is the specialist for dynamic alternating climate change between -70 °C and 180 °C. Large performance reserves and rapid cooling make the MKFT environmental simulation chamber the high-end product for complex standards-based climate tests.



MKFT 240 model

### MAIN FEATURES

- Temperature range: -70 °C to 180 °C
- Humidity range: 10 % to 98 % RH
- Integrated water-storage tank, 20 liters
- 4 zero-voltage relay contacts that can be activated via MCS controller
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Heated viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification
- BINDER APT-COM™ 3 Basic Edition communication software
- Troubleshooting system with visual and audible alarms

### AVAILABLE SIZES

Model	Interior volume [L]	Online data sheets
MKFT 115	115	› <a href="https://go2binder.com/en-MKFT115">go2binder.com/en-MKFT115</a>
MKFT 240	228	› <a href="https://go2binder.com/en-MKFT240">go2binder.com/en-MKFT240</a>
MKFT 720	734	› <a href="https://go2binder.com/en-MKFT720">go2binder.com/en-MKFT720</a>



### TIPS & TRICKS

Benefit from our many years of experience, as demonstrated in our technical papers:

Tips & Tricks: › [go2binder.com/en-tips-tricks](https://go2binder.com/en-tips-tricks)  
 Case Studies: › [go2binder.com/en-case-studies](https://go2binder.com/en-case-studies)



Find all details online  
[go2binder.com/en-MKFT](https://go2binder.com/en-MKFT)

## TECHNICAL DATA

Description	MKFT 115	MKFT 240	MKFT 720
<b>Measures - Outer dimensions</b>			
Width net [mm]	980	1115	1580
Height net [mm]	1725	1940	2005
Depth net [mm]	865	925	1140
<b>Measures - Internal Dimensions</b>			
Width [mm]	600	735	1200
Height [mm]	480	700	1020
Depth [mm]	400	443	600
<b>Measures</b>			
Interior volume [L]	115	228	734
Net weight of the unit (empty) [kg]	330	415	635
permitted load [kg]	60	70	160
Load per rack [kg]	30	30	40
<b>Performance Data Temperature</b>			
Temperature range [°C]	-70...180	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0.1...1.3	0.2...1.8	0.3...2
Temperature fluctuation depending on setpoint [± K]	0.1...0.5	0.1...0.5	0.1...0.5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5.5	5	4.8
Average cooling down time according to IEC 60068-3-5 [K/min]	4.2	4.2	4
<b>Performance Data Climate</b>			
Temperature range [°C]	10...95	10...95	10...95
Temperature fluctuation depending on setpoint [± K]	0.1...1	0.1...1.5	0.1...1
Humidity range [% RH]	10...98	10...98	10...98
Humidity fluctuation depending on setpoint [± % RH]	≤2,5	≤2,5	≤2,5
<b>Electrical data</b>			
Nominal power (Version 400 V) [kW]	5.5	6.5	13
<b>Fixtures</b>			
Number of shelves (std./max.)	1/4	1/6	1/11

## ORDERING INFORMATION [Art. No.]

**Further details:** Go to [www.binder-world.com](http://www.binder-world.com) › Search › Enter Article Number

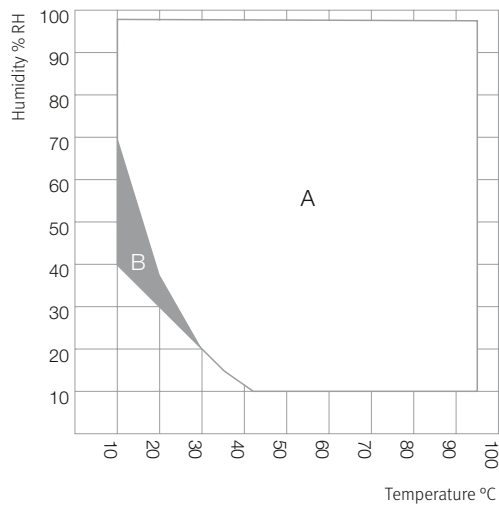
Voltage	Option model	MKFT 115	MKFT 240	MKFT 720
480 V 3~ 60 Hz	with voltage and frequency converter	9020-0293	9020-0297	9020-0301
400 V 3~ 50 Hz	Standard	9020-0284	9020-0286	9020-0288

► You will find a selection of options, accessories and services suitable for each product on page 180

## EXTRACT OF FULLFILLED STANDARDS

- DIN EN 60068-2-30: 2006-06
- DIN EN 60068-2-38: 2010-06
- DIN EN 60068-2-1: 2008-01
- DIN EN 60068-3-5:2002-12
- MIL STD 331:2005-01
- MIL STD 810:2000-01

## TEMPERATURE-HUMIDITY CHART

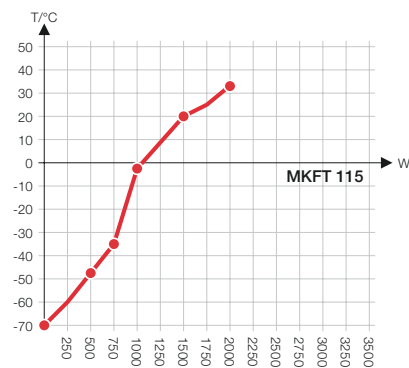


A: Standard Climate range

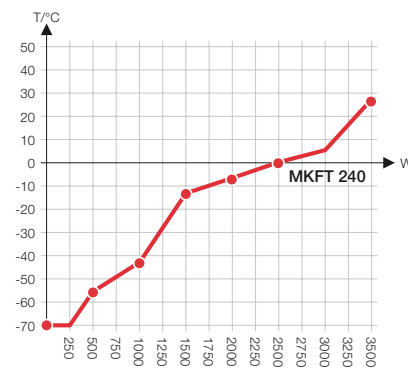
B: Time-limited operation (max. 24 hours)

## HEAT COMPENSATION

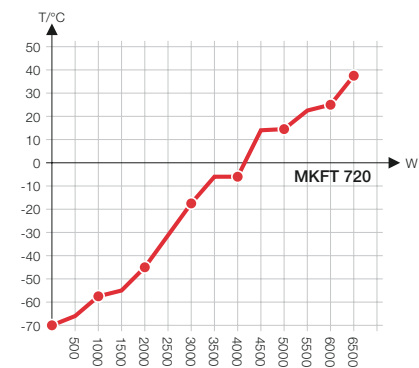
MKFT 115



MKFT 240

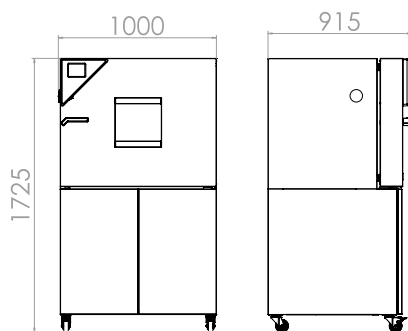


MKFT 720

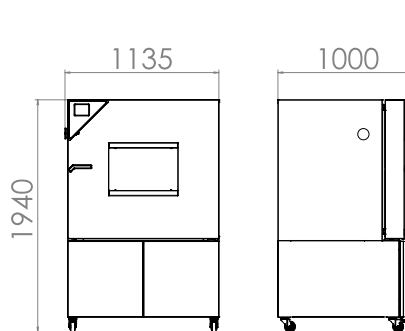


## DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]

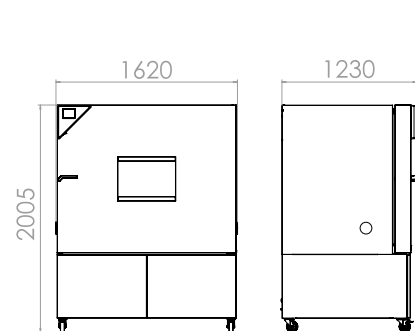
MKFT 115



MKFT 240



MKFT 720

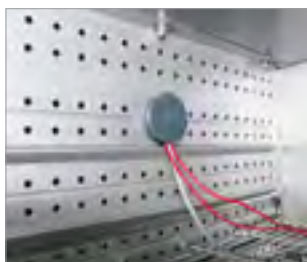


## EXCERPT FROM OPTIONS AND ACCESSORIES

<b>Access port with silicone plug</b>	For introducing external measuring instruments. Large selection of different diameters and positions (left, right, or top) Series MK, MKF, MKT, MKFT
<b>BINDER PURE AQUA Service</b>	System for preparation or complete desalination of tap water, containing single-use cartridge, hoses and measuring device. Series MK, MKF, MKT, MKFT
<b>Dry-air purge</b>	Suitable for simulating a dry, cold climate. In the MKF and MKFT series with controlled humidity, the temperature-humidity chart is significantly expanded, while the option of simulating current automobile industry standards, such as PV 2005; PV 1200; PR 308.2, is also available. Series MK, MKF, MKT, MKFT
<b>Water cooling</b>	For reduced heat loss to ambient air. Series MK, MKF, MKT, MKFT
<b>Services</b>	You can access our installation, maintenance, calibration, validation, or warranty services by taking out a Maintenance Service Agreement or by simply getting in touch when you need us. More information is available in the accessories and services chapter. Series MK, MKF, MKT, MKFT
<b>BINDER INDIVIDUAL</b>	Using a BINDER series production product as a basis, we develop individual solutions as a single unit or in small batches. All products are tested, certified, and supplied with a full functional guarantee and warranty. More information is available in the accessories and services chapter. Series MK, MKF, MKT, MKFT

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► All extras online [go2binder.com/en-options](https://go2binder.com/en-options)



Access port with silicone plug



BINDER PURE AQUA Service



Dry-air purge



Water cooling





# Accessories & services

Options & Accessories  
Services  
BINDER INDIVIDUAL

7

## ALL YOU NEED TO KNOW ABOUT BINDER SIMULATION CHAMBERS

In addition to our standard product range, we offer our customers options and accessories, BINDER INDIVIDUAL, custom solutions, as well as various services. The extensive selection of options and accessories provide a huge range of possibilities for equipping BINDER units for special requirements. BINDER INDIVIDUAL uses series production products as a basis to go beyond special requests – and these products include a certificate, guarantee, and warranty. The service package covers everything from calibration and validation, right through to global maintenance, repair, or spare parts services. This is available on request.

### ACCESSORIES & SERVICES

7

Options and accessories	Page 184
Services	Page 186
BINDER INDIVIDUAL	Page 188

## Options & accessories

### The ideal complement for the BINDER chamber

What are your requirements? We give our customers a comprehensive selection of options and accessories for all BINDER temperature, climate, and environmental simulation chambers.

In this section, we introduce a few products that can be used in every BINDER unit. You will find the complete and current list of all options and accessories for individual models on our website.

#### APT-COM™ SOFTWARE

The BINDER software for controlling, programming, and recording measured data can be connected to up to 30 units and is available in three versions: BASIC, STANDARD, and GLP. It offers all the features required for everything from the simplest of measuring tasks through to regulation-compliant working – with process and data security compliant with regulation 21 CFR 11.

The course of the seamless thermal or climate process monitoring can be viewed on any PCs on the intranet or Internet. The measurement data can be printed out automatically – for regulation-compliant documentation without additional effort.



##### BASIC

For simple control and documentation requirements with only one unit connected.

##### STANDARD

For networking multiple units with automated documentation options.

##### GLP

For GLP-compliant control, programming, and documentation – with up to 30 networked units or controllers. Meets FDA 21 CFR Part 11 requirements.

#### DATA LOGGER KITS

Data Logger Kits make independent recording of temperature and/or humidity data in BINDER units possible. The tailored product solution includes accessories as well as configuration and evaluation software.



##### TIPS AND TRICKS

You will find the complete range of options and accessories at › [go2binder.com/en-options](https://go2binder.com/en-options)

## Our extras for your climate 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



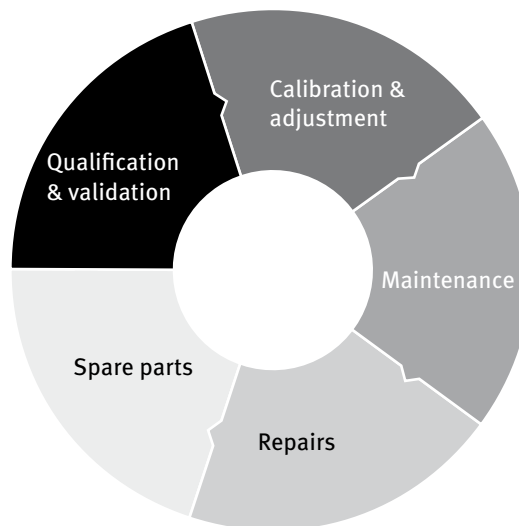
## Services

### Another plus for BINDER simulation chambers

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

The comprehensive service package is 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



#### QUALIFICATION & VALIDATION

Qualifying and validating a BINDER simulation chamber ensures that production and testing processes run smoothly and that product quality is always high. You can either carry out the steps required for this yourself with the help of a validation package or you can simply include it in your purchase. It is even safer and easier with BINDER Service, which qualifies and validates the unit.

#### MAINTENANCE

BINDER simulation chambers, with their extremely reliable heating, cooling, and humidification systems, guarantee a long productive life. To ensure that the unit is constantly available over its entire service life, we recommend regular servicing. Our top tip: You can ensure this particularly easily and cost-effectively with a service contract. During this maintenance work, all mechanical, electrical, and electronic components undergo a visual and functional test and are replaced if necessary.

#### CALIBRATION & ADJUSTMENT

BINDER Service calibrates the unit according to our factory standard with the help of certified and calibrated measuring devices in accordance with the DAkkS (German accreditation body) guidelines. After identifying any deviations, the unit is adjusted. In doing this, we eliminate the identified deviation between the actual and target values and restore the specific operating data.

#### SPARE PARTS SERVICE

Only BINDER original spare parts ensure full and satisfactory performance of the simulation chamber and a complete, unrestricted warranty from us as a manufacturer. For this reason, we produce spare parts of the famous BINDER premium quality for each product series and make sure that these are available both from us and our suppliers. The BINDER Service Points and our partners in 135 countries around the world ensure a quick delivery service.

#### REPAIRS

In the event of a problem, you can completely rely on the global BINDER Repair Service. Our technical experts know the entire product range like the back of their hand and can help quickly and competently.

## Service contracts

### Regular service – maximum performance

With the durable BINDER simulation chambers, we provide 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 & 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.



## Service points

### With you in a flash – anywhere in the world

Our comprehensive Service & Support options are available to our customers all over the world. With service technicians and over 50 service partners around the world, BINDER Service is there to help with requests from global companies, institutes, and research facilities.

Our BINDER experts provide personal support and advice for everything from the installation of your simulation chamber right through to the technical support.



#### TIPS AND TRICKS

Additional information about our products and services is available at:

Services: [go2binder.com/en-service](https://go2binder.com/en-service)

## 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 "made in Germany" quality.

In our BINDER INDIVIDUAL department at the Tuttlingen plant, we turn every unique requirement into reality. Be it 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 "made in Germany" 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 at > [go2binder.com/en-BINDER-INDIVIDUAL](https://go2binder.com/en-BINDER-INDIVIDUAL)



## Special units – without special circumstances

### Impressive solutions for your requirements

An individual simulation chamber is born in personal conversations between the BINDER INDIVIDUAL experts and our customers. Technical advisors, application specialists, and engineers work together intensively on every aspect of modifying the series production unit. This allows us to develop and produce a high-tech, cost-effective product within a very short period of time – completely tailored to the special requirements and with proven BINDER premium quality.

- + OPTIMIZATION OF HEAT, REFRIGERATION, HUMIDITY, LIGHT, AIR, CO<sub>2</sub> OR O<sub>2</sub> SUPPLY**
- + MEASUREMENT, MANAGEMENT, CONTROL, AND SWITCHING BASED ON SPECIFIC REQUIREMENTS**
- + INTEGRATION INTO SYSTEMS**
- + CONNECTIONS, OUTPUTS, AND ACCESS PORTS**
- + REDESIGN OF SPECIFIC PARAMETERS, E.G. REINFORCED INNER CHAMBER**
- + INTEGRATION OF SPECIAL PARTS**

#### EXAMPLES OF PROVEN BINDER INDIVIDUAL SOLUTIONS

- Pull-out units for loading without opening the door
- Front panel for additional protection against gas leakage
- Electromagnetic door locking to secure the door when program is in operation
- Stainless-steel versions to meet the hygiene standards of the food industry
- Divided inner glass doors for individual loading or removal of the sample objects
- Warning lights for indicating the status of the program operation
- Inert gas connections for various applications
- Illumination cassettes with special lamps
- O<sub>2</sub> and/or CO<sub>2</sub> regulation in refrigerated incubators or climate chambers
- Doors and access ports for connections to various measuring instruments
- Interior UV lamps for special UV-resistance tests
- Increased heating power up to 350 °C
- Reinforcement of inner chamber or shelves for particularly heavy sample objects
- Glass door or viewing windows of different sizes for viewing the sample objects



Multiple-split cover



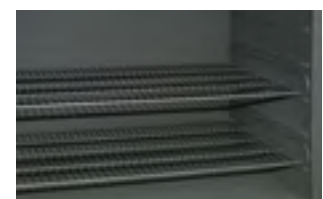
Hand access ports



Access ports for pipes



Alarm lights



Light dimming in the chamber

# Model versions directory

8

## INDEX OF VERSIONS

Version	Art.-No.	Page	Version	Art.-No.	Page	Version	Art.-No.	Page
B028-120V	9010-0067	37	CB220-230V-GO	9040-0110	18	FP240-230V	9010-0263	120
B028-230V	9010-0002	37	CB220-230V-O	9040-0098	18	FP240UL-208V	9010-0264	120
B028-230V-T	9010-0004	37	CB220UL-120V	9040-0097	19	FP400-400V	9010-0265	120
BD023-230V	9010-0187	39	CB220UL-120V-G	9040-0109	19	FP400UL-208V	9010-0266	120
BD023UL-120V	9010-0189	39	CB220UL-120V-GO	9040-0111	19	FP720-400V	9010-0267	120
BD056-230V	9010-0323	27	CB220UL-120V-O	9040-0099	19	FP720UL-208V	9010-0268	120
BD056UL-120V	9010-0324	27	E028-120V	9010-0106	111	KB023-230V	9020-0112	51
BD115-230V	9010-0325	27	E028-230V	9010-0001	111	KB023UL-120V	9020-0113	51
BD115UL-120V	9010-0326	27	E028-230V-T	9010-0003	111	KB053-230V	9020-0243	51
BD260-230V	9010-0329	27	ED023-230V	9010-0190	113	KB053UL-120V	9020-0252	51
BD260UL-120V	9010-0330	27	ED023-230V-I	9010-0191	113	KB115-230V	9020-0242	51
BD400-230V	9010-0073	39	ED023UL-120V	9010-0192	113	KB115UL-120V	9020-0253	51
BD400UL-120V	9010-0176	39	ED023UL-120V-I	9010-0193	113	KB240-230V	9020-0241	51
BD720-230V	9010-0074	39	ED056-230V	9010-0333	97	KB240UL-120V	9020-0254	51
BD720UL-120V	9010-0177	39	ED056UL-120V	9010-0334	97	KB400-230V	9020-0178	51
BF056-230V	9010-0313	29	ED115-230V	9010-0335	97	KB400UL-120V	9020-0179	51
BF056UL-120V	9010-0314	29	ED115UL-120V	9010-0336	97	KB720-230V	9020-0111	51
BF115-230V	9010-0315	29	ED260-230V	9010-0339	97	KB720UL-240V	9020-0167	51
BF115UL-120V	9010-0316	29	ED260UL-240V	9010-0340	97	KBF1020-230V	9020-0326	151
BF260-230V	9010-0319	29	ED400-400V-I	9010-0075	113	KBF1020-240V	9020-0327	151
BF260UL-120V	9010-0320	29	ED400UL-208V-I	9010-0168	113	KBF115-230V	9020-0320	151
BF400-230V	9010-0241	41	ED720-400V-I	9010-0076	113	KBF115UL-240V	9020-0321	151
BF400UL-120V	9010-0242	41	ED720UL-208V-I	9010-0169	113	KBF240-230V	9020-0322	151
BF720-230V	9010-0243	41	FD023-230V	9010-0194	116	KBF240UL-240V	9020-0323	151
BF720UL-120V	9010-0244	41	FD023UL-120V	9010-0196	116	KBF720-230V	9020-0324	151
C170-230V-L	9040-0115	15	FD056-230V	9010-0303	100	KBF720UL-240V	9020-0325	151
C170-230V-R	9040-0112	15	FD056UL-120V	9010-0304	100	KBFLQC240-230V	9020-0277	157
C170UL-120V-L	9040-0116	15	FD115-230V	9010-0305	100	KBFLQC240-230V	9020-0277	157
C170UL-120V-R	9040-0113	15	FD115UL-120V	9010-0306	100	KBFLQC240UL-240V	9020-0278	157
CB060-230V	9040-0088	18	FD260-230V	9010-0309	100	KBFLQC240UL-240V	9020-0278	157
CB060-230V-G	9040-0104	18	FD260UL-240V	9010-0310	100	KBFLQC720-230V	9020-0279	157
CB060-230V-GO	9040-0106	18	FDL115-230V	9010-0292	131	KBFLQC720-230V	9020-0279	157
CB060-230V-O	9040-0090	18	FED056-230V	9010-0295	103	KBFLQC720UL-240V	9020-0280	157
CB060UL-120V	9040-0089	19	FED056UL-120V	9010-0296	103	KBFLQC720UL-240V	9020-0280	157
CB060UL-120V-G	9040-0105	19	FED115-230V	9010-0293	103	KBFP240-230V	9020-0273	154
CB060UL-120V-GO	9040-0107	19	FED115UL-120V	9010-0294	103	KBFP240-230V	9020-0273	154
CB060UL-120V-O	9040-0091	19	FED260-230V	9010-0299	103	KBFP240UL-240V	9020-0274	154
CB160-230V	9040-0092	18	FED260UL-240V	9010-0300	103	KBFP240UL-240V	9020-0274	154
CB160-230V-G	9040-0100	18	FED400-400V	9010-0216	118	KBFP720-230V	9020-0275	154
CB160-230V-GO	9040-0102	18	FED400UL-208V	9010-0217	118	KBFP720-230V	9020-0275	154
CB160-230V-O	9040-0094	18	FED720-400V	9010-0218	118	KBFP720UL-240V	9020-0276	154
CB160UL-120V	9040-0093	19	FED720UL-208V	9010-0219	118	KBFP720UL-240V	9020-0276	154
CB160UL-120V-G	9040-0101	19	FP053-230V	9010-0153	120	KBW240-230V	9020-0256	61
CB160UL-120V-GO	9040-0103	19	FP053UL-120V	9010-0175	120	KBW400-230V	9020-0180	61
CB160UL-120V-O	9040-0095	19	FP115-230V	9010-0255	120	KBW720-230V	9020-0172	61
CB220-230V	9040-0096	18	FP115UL-120V	9010-0262	120	KBWF240-230V	9020-0281	64
CB220-230V-G	9040-0108	18						

Version	Art.-No.	Page
KBWF720-230V	9020-0282	64
KMF115-230V	9020-0341	160
KMF115-230V	9020-0342	160
KMF240-230V	9020-0343	160
KMF240-240V	9020-0344	160
KMF720-230V	9020-0345	160
KMF720-240V	9020-0346	160
KT053-230V	9020-0311	49
KT053UL-120V	9020-0312	49
KT115-230V	9020-0313	49
KT115UL-120V	9020-0314	49
KT170-230V	9020-0289	49
KT170UL-120V	9020-0310	49
M053-230V	9010-0201	123
M115-230V	9010-0202	123
M240-230V	9010-0203	123
M400-400V	9010-0204	123
M720-400V	9010-0205	123
MK053-230V	9020-0006	169
MK115-400V	9020-0175	169
MK115-400V-C	9020-0290	169
MK240-400V	9020-0181	169
MK240-400V-C	9020-0294	169

Version	Art.-No.	Page
MK720-400V	9020-0197	169
MK720-400V-C	9020-0298	169
MKF115-400V	9020-0283	172
MKF115-400V-C	9020-0291	172
MKF240-400V	9020-0285	172
MKF240-400V-C	9020-0295	172
MKF720-400V	9020-0287	172
MKF720-400V-C	9020-0299	172
MKFT115-400V	9020-0284	178
MKFT115-400V-C	9020-0293	178
MKFT240-400V	9020-0286	178
MKFT240-400V-C	9020-0297	178
MKFT720-400V	9020-0288	178
MKFT720-400V-C	9020-0301	178
MKT115-400V	9020-0151	175
MKT115-400V-C	9020-0292	175
MKT240-400V	9020-0196	175
MKT240-400V-C	9020-0296	175
MKT720-400V	9020-0082	175
MKT720-400V-C	9020-0300	175
UFV500-230V-L	9020-0213	87
UFV500-230V-LW	9020-0260	87
UFV500-230V-R	9020-0236	87

Version	Art.-No.	Page
UFV500-230V-RW	9020-0259	87
UFV500UL-120V-L	9020-0222	87
UFV500UL-120V-R	9020-0235	87
UFV500UL-240V-L	9020-0220	87
UFV500UL-240V-R	9020-0234	87
UFV700-230V-L	9020-0237	87
UFV700-230V-LW	9020-0262	87
UFV700-230V-R	9020-0233	87
UFV700-230V-RW	9020-0261	87
UFV700UL-120V-L	9020-0218	87
UFV700UL-120V-R	9020-0239	87
UFV700UL-240V-L	9020-0216	87
UFV700UL-240V-R	9020-0238	87
VD023-230V	9030-0029	139
VD023UL-120V	9030-0035	139
VD053-230V	9030-0030	139
VD053UL-120V	9030-0036	139
VD115-230V	9030-0031	139
VD115UL-120V	9030-0037	139
VDL023-230V	9030-0038	141
VDL053-230V	9030-0039	141
VDL115-230V	9030-0040	141





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## **BINDER GmbH**

Tuttlingen, Germany

Tel +49 7462 2005 0  
Fax +49 7462 2005 100  
[info@binder-world.com](mailto:info@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

## **BINDER Asia Pacific (Hong Kong) Ltd.**

Kowloon, Hong Kong, P.R. China

Tel +852 39070500  
Fax +852 39070507  
[asia@binder-world.com](mailto:asia@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

## **BINDER Environmental Testing Equipment (Shanghai) Co., Ltd.**

Shanghai, P.R.China

Tel +86 21 685 808 25  
Fax +86 21 685 808 29  
[china@binder-world.com](mailto:china@binder-world.com)  
[www.binder-world.com](http://www.binder-world.com)

## **Representative Office for CIS**

Moscow, Russia

Tel +7 495 988 15 16  
Fax +7 495 988 15 17  
[russia@binder-world.com](mailto:russia@binder-world.com)  
[www.binder-world.ru](http://www.binder-world.ru)

## **BINDER Inc.**

Bohemia, NY, USA

Tel +1 631 224 4340  
Fax +1 631 224 4354  
[usa@binder-world.com](mailto:usa@binder-world.com)  
[www.binder-world.us](http://www.binder-world.us)