BINDER
Best conditions for your success

Operating Manual

BD (E3) – Incubators with natural convection

BF (E3) – Incubators with forced convection

ED (E3) – Drying and heating ovens with natural convection

FD (E3) – Drying and heating ovens with forced convection

FED (E3) – Drying and heating ovens with forced convection

with microprocessor temperature controller

Model	Model version	Art. No.	Model	Model version	Art. No.
BD 56	BD056-230V	9010/ 9110-0323	FD 56	FD056-230V	9010/ 9110-0303
	BD056UL-120V	9010/ 9110-0324		FD056UL-120V	9010/ 9110-0304
BD 115	BD115-230V	9010/ 9110-0325	FD 115	FD115-230V	9010/ 9110-0305
	BD115UL-120V	9010/ 9110-0326		FD115UL-120V	9010/ 9110-0306
BD 260	BD260-230V	9010/ 9110-0329	FD 260	FD260-230V	9010/ 9110-0309
	BD260UL-120V	9010/ 9110-0330		FD260UL-240V	9010/ 9110-0310
BF 56	BF056-230V	9010/ 9110-0313	FED 56	FED056-230V	9010/ 9110-0295
	BF056UL-120V	9010/ 9110-0314		FED056UL-120V	9010/ 9110-0296
BF 115	BF115-230V	9010/ 9110-0315	FED 115	FED115-230V	9010/ 9110-0293
	BF115UL-120V	9010/ 9110-0316		FED115UL-120V	9010/ 9110-0294
BF 260	BF260-230V	9010/ 9110-0319	FED 260	FED260-230V	9010/ 9110-0299
	BF260UL-120V	9010/ 9110-0320		FED260UL-240V	9010/ 9110-0300
ED 56	ED056-230V	9010/ 9110-0333			
	ED056UL-120V	9010/ 9110-0334			
ED 115	ED115-230V	9010/ 9110-0335			
	ED115UL-120V	9010/ 9110-0336			
ED 260	ED260-230V	9010/ 9110-0339			
	ED260UL-240V	9010/ 9110-0340			

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Content

Dear customer,

For the correct operation of the incubators BD and BF and the drying and heating ovens with forced convection ED, FD and FED, it is important that you read this operating manual completely and carefully and observe all instructions as indicated. Failure to read, understand and follow the instructions may result in personal injury. It can also lead to damage to the unit and/or poor equipment performance

1. Safety

This operating manual is part of the components of delivery. Always keep it handy for reference. The device should only be operated by laboratory personnel especially trained for this purpose and familiar with all precautionary measures required for working in a laboratory. Observe the national regulations on minimum age of laboratory personnel To avoid injuries and damage observe the safety instructions of the operating manual.

WARNING

Failure to observe the safety instructions.

Serious injuries and unit damage.

- Observe the safety instructions in this operating manual
- Carefully read the complete operating instructions of the incubators BD and BF and the drying and heating ovens ED, FD, and FED

1.1 Legal considerations

This operating manual is for informational purposes only. It contains information for installing, start-up, operation and maintenance of the product. Note: the contents and the product described are subject to change without notice.

Understanding and observing the instructions in this operating manual are prerequisites for hazard-free use and safety during operation and maintenance. In no event shall BINDER be held liable for any damages, direct or incidental arising out of or related to the use of this manual.

This operating manual cannot cover all conceivable applications. If you would like additional information, or if special problems arise that are not sufficiently addressed in this manual, please ask your dealer or contact us directly by phone at the number located on page one of this manual

Furthermore, we emphasize that the contents of this operating manual are not part of an earlier or existing agreement, description, or legal relationship, nor do they modify such a relationship. All obligations on the part of BINDER derive from the respective purchase contract, which also contains the entire and exclusively valid statement of warranty administration. The statements in this manual neither augment nor restrict the contractual warranty provisions.

1.2 Structure of the safety instructions

In this operating manual, the following safety definitions and symbols indicate dangerous situations following the harmonization of ISO 3864-2 and ANSI Z535.6.

1.2.1 Signal word panel

Depending on the probability of serious consequences, potential dangers are identified with a signal word, the corresponding safety color, and if appropriate, the safety alert symbol.

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious (irreversible) injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious (irreversible) injury

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor (reversible) injury

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product and/or its functions or of a property in its proximity.

1.2.2 Safety alert symbol

Use of the safety alert symbol indicates a **risk of injury**.
Observe all measures that are marked with the safety alert symbol in order to avoid death or injury.

1.2.3 Pictograms

Warning signs			
 Electrical hazard	 Hot surface	 Explosive atmosphere	 Stability hazard
 Lifting hazard	 Risk of corrosion and / or chemical burns	 Harmful substances	 Biohazard
 Pollution Hazard			
Mandatory action signs			
 Mandatory regulation	 Read operating instructions	 Disconnect the power plug	 Lift with several persons
 Lift with mechanical assistance	 Environment protection	 Wear protective gloves	 Wear safety goggles

Prohibition signs			
 Do NOT touch	 Do NOT spray with water		

	**Information** to be observed in order to ensure optimum function of the product.

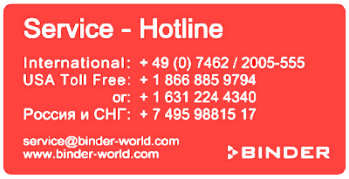
1.2.4 Word message panel structure

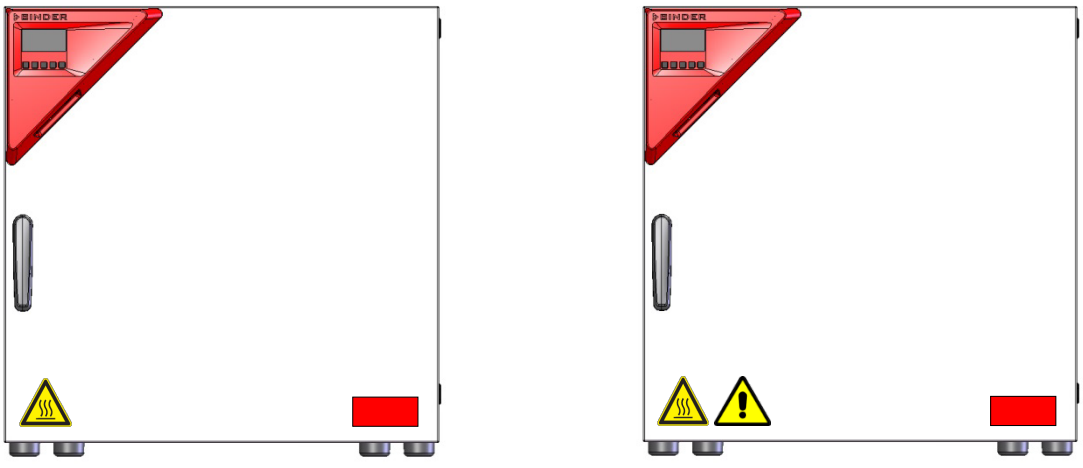
Type / cause of hazard.
Possible consequences.
∅ Instruction how to avoid the hazard: prohibition.
➢ Instruction how to avoid the hazard: mandatory action.

Observe all other notes and information not necessarily emphasized in the same way, in order to avoid disruptions that could result in direct or indirect injury or property damage.

1.3 Localization / position of safety labels on the unit

The following labels are located on the unit:

Pictograms (Warning signs)	Service label
 Hot surface • ED, FD, FED: outer unit door • BD, BF: on the glass door handle • On unit rear next to the exhaust duct	 Service - Hotline International: + 49 (0) 7462 / 2005-555 USA Toll Free: + 1 866 885 9794 or: + 1 631 224 4340 Россия и СНГ: + 7 495 98815 17 service@binder-world.com www.binder-world.com BINDER
 Read operating manual • UL units: outer unit door • BD, BF with optional interior socket: below the interior socket	



ED, FD, FED ED-UL, FD-UL, FED-UL

Figure 1: Position of labels on the unit on the front (example: ED, FD, FED)

	Keep safety labels complete and legible.

Replace safety labels that are no longer legible. Contact BINDER Service for these replacements.

1.4 Type plate

The type plate is located on the left-hand side of the unit, bottom right-hand.

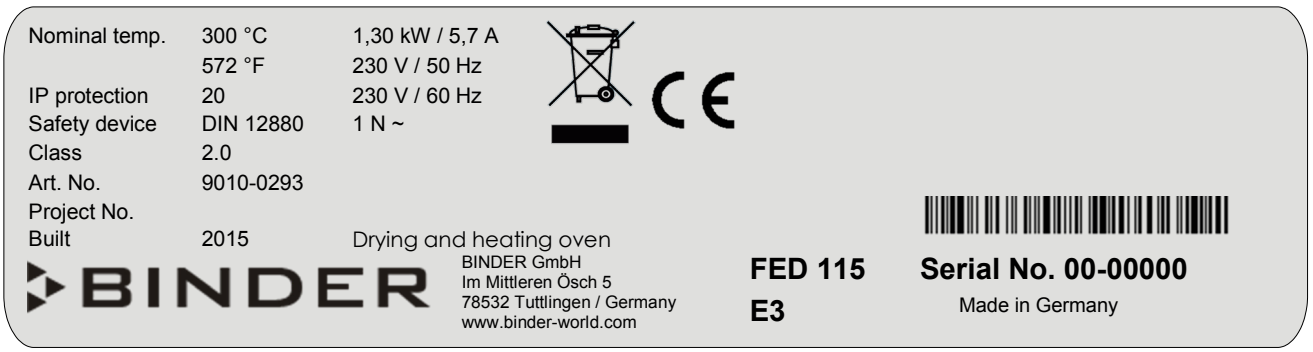


Figure 2: Type plate (example FED 115 regular unit)

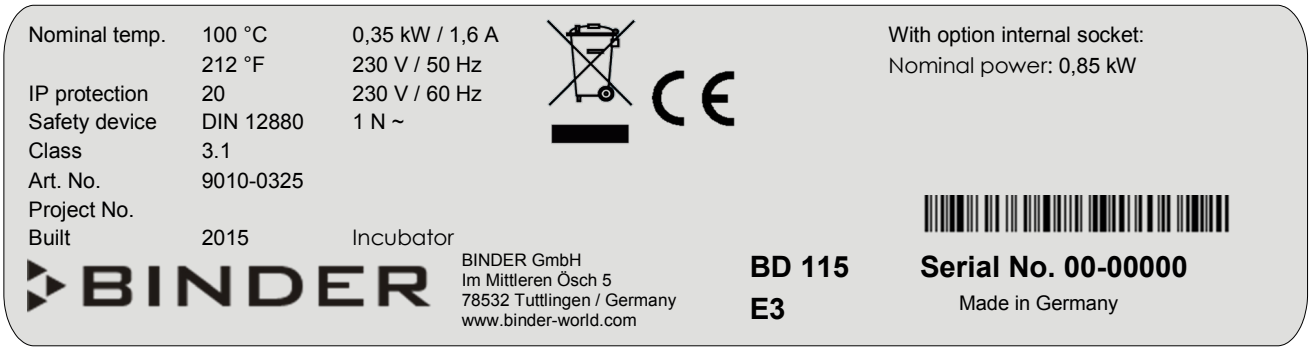


Figure 3: Type plate (example BD 115 optional unit)

Indications of the type plate (example)		Information
BINDER		Manufacturer: BINDER GmbH
BD 115		Model designation
Incubator		Device name: Incubator
Drying and heating oven		Device name: Drying and heating oven
Serial No.	00-00000	Serial No of the unit
Built	2015	Year of construction
Nominal temperature	100 °C 212 °F	Nominal temperature
IP protection	20	IP type of protection acc. to EN 60529
Temp. safety device	DIN 12880	Temperature safety device acc. to standard DIN 12880
Class	3.1	Class of temperature safety device
Art. No.	9110-0081	Art. no. of the unit
Project No.	---	Optional: Special application acc. to project no.
1,30 kW		Nominal power
5,7 A		Nominal current
230 V / 50 Hz		Nominal voltage ± 10% at the indicated power frequency
230 V / 60 Hz		
1 N ~		Current type
With option internal socket: Nominal power: 0,85 kW		With option internal socket: increased total nominal power

Symbol on the type plate	Information
CE	CE conformity marking
	Electrical and electronic equipment manufactured / placed on the market in the EC after 13 August 2005 and to be disposed of in a separate collection according to directive 2002/96/EC on waste electrical and electronic equipment (WEEE).
c UL us LISTED LABORATORY EQUIPMENT 43KM (UL units only)	The equipment is certified by Underwriters Laboratories Inc.® according to standards CAN/CSA-C22.2 No. 61010-1, 2nd Edition, 2004-07 (Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements); UL 61010-1, 2nd Edition, 2005-07-22 (Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements); IEC 61010-1:2001, 2nd Edition and IEC 61010-2-10 (Particular Requirements for Laboratory Equipment for the heating of materials).

1.5 General safety instructions on installing and operating the incubators BD and BF and drying and heating ovens ED, FD and FED

With regard to operating the chambers and to the installation location, please observe the guideline BGI/GUV-I 850-0 on safe working in laboratories (formerly BGR/GUV-R 120 or ZH 1/119 laboratory guidelines issued by the employers' liability insurance association) (for Germany).

BINDER GmbH is only responsible for the safety features of the unit provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to chamber safety are replaced in the event of failure with original spare parts.

To operate the chamber, use only original BINDER accessories or accessories from third-party suppliers authorized by BINDER. The user is responsible for any risk caused by using unauthorized accessories.

CAUTION

Danger of overheating.

Damage to the unit.

∅ Do NOT install the chamber in unventilated recesses.

➢ Ensure sufficient ventilation for dispersal of the heat.

Do not operate the chambers in hazardous locations.

DANGER

Explosion hazard.

Danger of death.

∅ Do NOT operate the unit in potentially explosive areas.

➢ KEEP explosive dust or air-solvent mixtures AWAY from the unit.

The chambers do not dispose of any measures of explosion protection.

DANGER

Explosion hazard.

Danger of death.

∅ Do NOT introduce any substance into the incubator / drying and heating oven which is combustible or explosive at working temperature.

∅ NO explosive dust or air-solvent mixture in the inner chamber.

Any solvent contained in the charging material must not be explosive or inflammable. I.e., irrespective of the solvent concentration in the steam room, NO explosive mixture with air must form. The temperature inside the chamber must lie below the flash point or below the sublimation point of the charging material. Familiarize yourself with the physical and chemical properties of the charging material, as well as the contained moisture constituent and its behavior with the addition of heat energy.

Familiarize yourself with any potential health risks caused by the charging material, the contained moisture constituent or by reaction products that may arise during the temperature process. Take adequate measures to exclude such risks prior to putting the unit into operation.

DANGER

Electrical hazard.

Danger of death.

∅ The unit must NOT become wet during operation or maintenance.

The chambers were produced in accordance with VDE regulations and were routinely tested in accordance to VDE 0411-1 (IEC 61010-1).

During and shortly after operation, the temperature of the inner surfaces almost equals the set-point.

CAUTION

The glass doors and glass door handles (BD, BF), inner chamber, exhaust duct, door window (option), and the door gaskets will become hot during operation.

Danger of burning.

∅ Do NOT touch the glass doors, inner surfaces, exhaust duct, door window, access ports, door gaskets, or the charging material during operation.

1.6 Intended use

The chambers are suitable for exact tempering of harmless materials and for drying and heat treatment of solid or pulverized charging material, as well as bulk material, using the supply of heat. They can be used to dry e.g. glassware.

Because of their precise temperature accuracy the incubators BD and BF are especially useful for incubation of cultures at a standard temperature of 37 °C / *98.6 °F*.

A solvent content must not be explosive or flammable. A mixture of any component of the charging material with air must NOT be explosive. The operating temperature must lie below the flash point or below the sublimation point of the charging material. Any component of the charging material must NOT be able to release toxic gases

Other applications are not approved.

The chambers are not classified as medical devices as defined by the Medical Device Directive 93/42/EEC.

Do NOT use the unit for drying processes when large quantities of vapor would form and result in condensation.

	Due to the special demands of the Medical Device Directive 93/42/EEC, these ovens are not qualified for sterilization of medical devices as defined by the directive.

	Observing the instructions in this operating manual and conducting regular maintenance work (chap. 11) is part of the intended use.

	WARNING: If customer should use a BINDER chamber running in non-supervised continuous operation, we strongly recommend in case of inclusion of irrecoverable specimen or samples to split such specimen or samples and store them in at least two chambers, if this is feasible.

	The charging material shall not contain any corrosive ingredients that may damage the machine components. Such ingredients include in particular acids and halides. Any corrosive damage caused by such ingredients is excluded from liability by BINDER GmbH.

The chambers do not dispose of any measures of explosion protection.

	**DANGER** **Explosion or implosion hazard.** **Danger of poisoning.** **Danger of death.** ∅ Do NOT introduce any substance combustible or explosive at working temperature into the chamber, in particular no energy sources such as batteries or lithium-ion batteries. ∅ NO explosive dust or air-solvent mixture in the inner chamber. ∅ Do NOT introduce any substance which could lead to release of toxic gases.

In case of foreseeable use of the device there is no risk for the user through the integration of the chamber into systems or by special environmental or operating conditions in the sense of EN 61010-1:2010. For this, the intended use of the chamber and all its connections must be observed.

2. Unit description

BINDER incubators BD and BF and drying and heating ovens ED, FD and FED are equipped with an electronic PID-controller with digital display.

	The incubators BD and BF indicate the temperature with an accuracy of a tenth of a degree. The drying and heating ovens ED, FD and FED indicate the temperature with an accuracy of one degree.

All units are heated electrically. Incubators BD and drying and heating ovens ED are ventilated naturally. Incubators BF and drying and heating ovens FD and FED are ventilated by fan-assisted, forced-air circulation.

The APT.line™ preheating chamber system guarantees high level of spatial and time-based temperature precision, thanks to the direct and distributed air circulation into the interior. With BF, FD and FED, the fan supports exact attainment and maintenance of the desired temperature accuracy.

The chambers are regularly equipped with an overtemperature safety device class 1 acc. to DIN12880:2007 and with an overtemperature safety controller (overtemperature temperature safety device class 2 or class 3.1 acc. to DIN12880:2007), see chap. 7).

The inner chamber, the pre-heating chamber and the inside of the doors are all made of stainless steel V2A (German material no. 1.4301, US equivalent AISI 304 and material no. 1.4016, US equivalent AISI 430). When operating the drying and heating ovens ED, FD and FED at temperatures above 150 °C / *302 °F*, the impact of the oxygen in the air may cause discoloration of the metallic surfaces (yellowish-brown or blue) by natural oxidation processes. These colorations are harmless and will in no way impair the function or quality of the unit. The housing is RAL 7035 powder-coated. All corners and edges are also completely coated.

All unit functions are easy and comfortable to use thanks to their clear arrangement. Major features are easy cleaning of all unit parts and avoidance of undesired contamination.

The chambers are regularly (FED) or optionally equipped with an Ethernet interface for computer communication, e.g. via the communication software APT-COM™ 3 DataControlSystem (option, chap. 10.1) and with a USB interface to read out the measured values in real time.

Temperature ranges see technical data (chap. 16.4 - 16.8).

2.1 Chamber overview

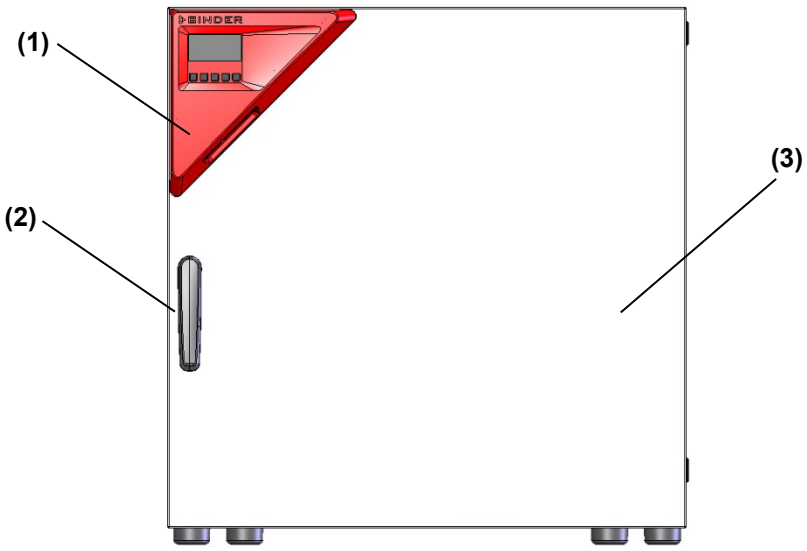


Figure 4: Overview, closed chamber

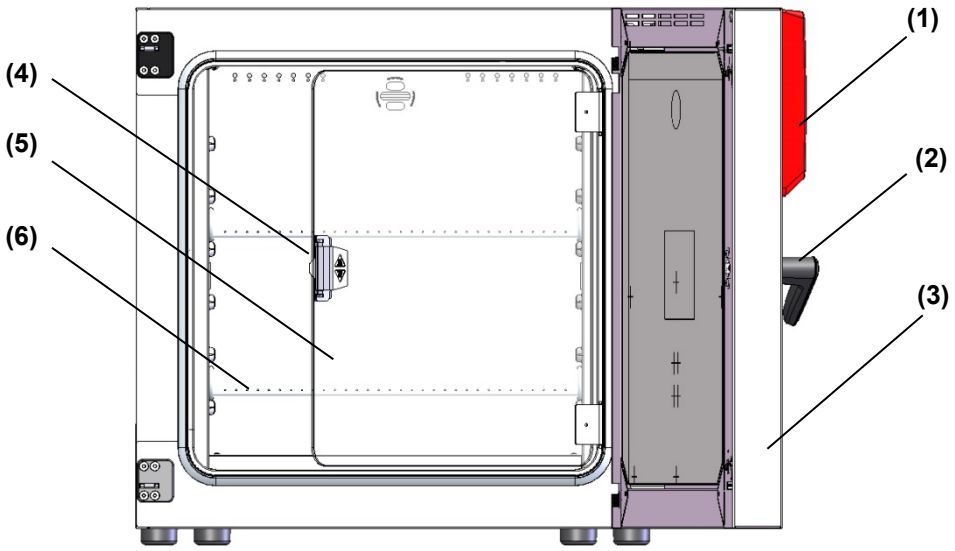


Figure 5: Overview, closed chamber with glass door (BD, BF)

(1) Triangular instrument panel with controller R4 and USB interface
(2) Door handle
(3) Outer door
(4) Glass door handle (BD and BF)
(5) Glass door (BD and BF)
(6) Shelf

2.2 Triangular instrument panel

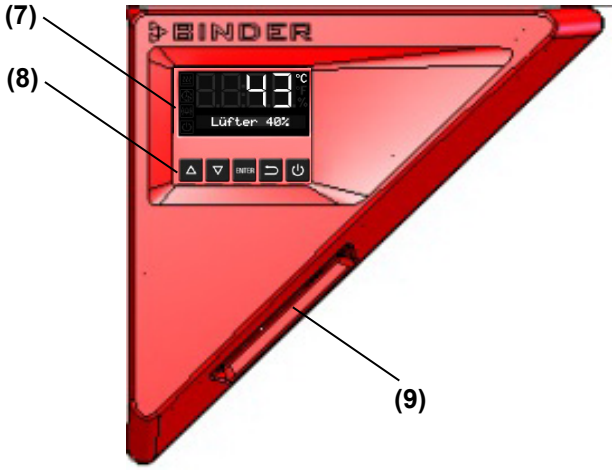


Figure 6: Triangular instrument panel

(7) Controller display
(8) Functional controller buttons
(9) USB interface

3. Completeness of delivery, transportation, storage, and installation

3.1 Unpacking, and checking equipment and completeness of delivery

After unpacking, please check the unit and its optional accessories, if any, based on the delivery receipt for completeness and for transportation damage. Inform the carrier immediately if transportation damage has occurred.

The final tests of the manufacturer may have caused traces of the racks on the inner surfaces. This has no impact on the function and performance of the unit.

Please remove any transportation protection devices and adhesives in/on the unit and on the doors and take out the operating manuals and accessory equipment.

CAUTION

Sliding or tilting of the unit.

Damage to the unit.

Risk of injury by lifting heavy loads.

∅ Do NOT lift or transport the unit using the door handle or the door.

➢ Lift the unit size 56 and 115 from the pallet at its four lower corners with the aid of 2 people, unit size 260 with the aid of 4 people.

If you need to return the unit, please use the original packing and observe the guidelines for safe lifting and transportation (chap. 3.2).

For disposal of the transport packing, see chap. 12.1.

Note on second-hand units (Ex-Demo-Units):

Second-hand units are units that have been used for a short time for tests or exhibitions. They are thoroughly tested before resale. BINDER ensures that the chamber is technically sound and will work flawlessly.

Second-hand units are marked with a sticker on the unit door. Please remove the sticker before commissioning the unit.

3.2 Guidelines for safe lifting and transportation

After operation please observe the guidelines for temporarily decommissioning the unit (chap. 12.2).

CAUTION

Sliding or tilting of the unit.

Damage to the unit.

Risk of injury by lifting heavy loads.

➢ Transport the unit only in its original packaging.

➢ Secure the unit with transport straps for transport.

∅ Do NOT lift or transport the unit using the door handle or the door.

➢ Lift unit size 56 and 115 at its four lower corners with the aid of 2 people, unit size 260 with the aid of 4 people, and place it on a transport pallet with wheels. Push the pallet to the desired site and then lift the unit from the pallet at its four lower corners.

- Permissible ambient temperature range during transport: -10 °C to +60 °C / *14 °F to 140 °F.*

You can order transport packing and pallets for transportation purposes from BINDER Service.

3.3 Storage

Intermediate storage of the unit is possible in a closed and dry room. Observe the guidelines for temporary decommissioning (chap. 12.2).

- Permissible ambient temperature range during storage: -10 °C to +60 °C / 14 °F to 140 °F.
- Permissible ambient humidity: max. 70 % r.H., non-condensing

When after storage in a cold location you transfer the unit to its warmer installation site, condensation may form. Before start-up, wait at least one hour until the unit has attained ambient temperature and is completely dry.

3.4 Location of installation and ambient conditions

Set up the chamber on an even and non-flammable surface, free from vibration and in a well-ventilated, dry location and align it using a spirit level. The site of installation must be capable of supporting the unit's weight (see technical data, chap. 14.4 to 14.7). The chambers are designed for setting up inside a building (indoor use).

CAUTION

Danger of overheating.

Damage to the unit.

∅ Do NOT set up units in non-ventilated recesses.

➢ Ensure sufficient ventilation for dispersal of the heat.

- Permissible ambient temperature range during operation: +18 °C up to +40 °C / *64.4 °F to 104 °F.* At elevated ambient temperature values, fluctuations in temperature can occur.

The ambient temperature should not be substantially higher than the indicated ambient temperature of +25 °C / *77 °F* to which the specified technical data relate. For other ambient conditions, deviations from the indicated data are possible.

- Permissible ambient humidity: 70 % r.H. max., non-condensing.
- Installation height: max. 2000 m / 6.6 ft. above sea level.

When placing several units of the same size side by side, maintain a minimum distance of 250 mm / *9.84 in* between each unit. Wall distances: rear 160 mm / *6.30 in*, sides 100 mm / *3.94 in*. Spacing above the unit of at least 100 mm / *3.94 in* must also be accounted for.

Two devices up to size 115 can be stacked on top of each other. For this purpose place rubber pads under all four feet of the upper unit to prevent the device from slipping.

CAUTION

Sliding or tilting of the upper unit.

Damage to the units.

➢ When stacking, place rubber pads under all four feet of the upper unit.

To completely separate the unit from the power supply, you must disconnect the power plug. Install the unit in a way that the power plug is easily accessible and can be easily pulled in case of danger.

Do not install or operate the unit in potentially explosive areas.

DANGER

Explosion hazard.

Danger of death.

∅ Do NOT operate the unit in potentially explosive areas.

➢ KEEP explosive dust or air-solvent mixtures AWAY from the vicinity of the unit.

4. Installation

4.1 Electrical connection

The incubators BD and BF and drying and heating ovens ED, FD and FED are supplied ready for connection they come with an IEC connector plug.

Model	Power plug of the power cable	Nominal voltage ± 10% at the indicated power frequency	Current type	Unit fuse
BD056-230V BF056-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	6,3 A
ED056-230V FD056-230V FED056-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	6,3 A
BD115-230V BF115-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	6,3 A
ED115-230V FD115-230V FED115-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	6,3 A
BD260-230V BF260-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	8,0 A
ED260-230V FD260-230V FED260-230V	Shockproof plug	230 V at 50 Hz 230 V at 60 Hz	1N~	12,5 A
BD056UL-120V BF056UL-120V	NEMA 5-15P	120 V at 50 Hz 120 V at 60 Hz	1N~	12,5 A
ED056UL-120V FD056UL-120V FED056UL-120V	NEMA 5-15P	120 V at 50 Hz 120 V at 60 Hz	1N~	12,5 A
BD115UL-120V BF115UL-120V	NEMA 5-15P	120 V at 50 Hz 120 V at 60 Hz	1N~	12,5 A
ED115UL-120V FD115UL-120V FD115UL-120V	NEMA 5-15P	120 V at 50 Hz 120 V at 60 Hz	1N~	12,5 A
BD260UL-120V BF260UL-120V	NEMA 5-15P	120 V at 50 Hz 120 V at 60 Hz	1N~	12,5 A
ED260-240V FD260-240V FED260-240V	NEMA 6-20P	240 V at 50 Hz 240 V at 60 Hz	2~	---

- The socket must also provide a protective conductor.
- Prior to connection and start-up, check the power supply voltage. Compare the values to the specified data located on the unit's type plate (left-hand side of the unit, chap. 1.4).
- When connecting, please observe the regulations specified by the local electricity supply company and as well as the VDE directives (for Germany)
- Pollution degree (acc. to IEC 61010-1): 2
- Over-voltage category (acc. to IEC 61010-1): II

CAUTION

Danger of incorrect power supply voltage.

Damage to the equipment.

- ➢ Check the power supply voltage before connection and start-up.
- ➢ Compare the power supply voltage with the data indicated on the type plate.

See also electrical data (chap. 14.4 to 14.7).

To completely separate the unit from the power supply, you must disconnect the power plug. Install the unit in a way that the power plug is easily accessible and can be easily pulled in case of danger.

4.2 Connection to a suction plant (optional)

When directly connecting a suction plant the spatial temperature exactitude, the heating-up and the re-covering times and the maximum temperature will be negatively influenced. So no suction plant should be directly connected to the exhaust duct.

Active suction from the chamber must only be effected together with extraneous air. Perforate the connecting piece to the suction device or place an exhaust funnel at some distance to the exhaust duct.

CAUTION

The exhaust duct will become hot during operation.

Danger of burning.

∅ Do NOT touch the exhaust duct during operation.

5. Start up

Insert the plug into a suitable socket (chap. 4.1).

If there is no other indication on the controller than the standby symbol, press the standby button  until the display lights up.

The controller now shows normal display (chap. 6.2). If a timer function was active prior to turning off the chamber, it is shown in the controller display.

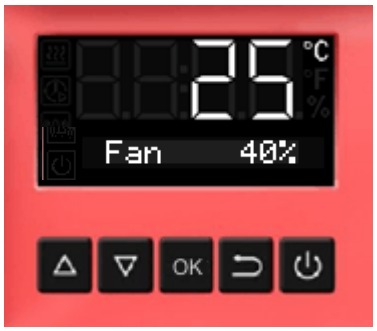
Warming chambers may release odors in the first few days after commissioning. This is not a quality defect. To reduce odors quickly we recommend heating up the chamber to its nominal temperature for one day and in a well-ventilated location.

5.1 Behavior when opening the door

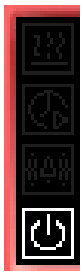
When opening the door, heating and fan (with BF, FD, FED) turn off as long as the door remains open.

6. Overview and general settings on the R4 controller

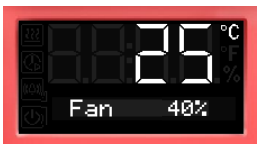
6.1 Controller overview



Buttons on the controller	
	The **arrow buttons** serve to navigate and to enter the values
	The **OK button** serves to select the parameters and to confirm the entered values
	The **Back button** serves to reach the preceding level
	If the **Standby button** is pressed down for approx. 3 seconds, the display changes to standby mode. To activate the display, press down the standby button again for approx. 3 seconds  Display in standby mode with standby symbol

Status symbols on the controller display			
 Heating active	 Timer operation	 Overtemperature alarm of the safety controller	 Standby mode

6.2 Normal display

	Normal display with units without fan (BD, ED) or with fixed fan speed (FD)
	Normal display with units with adjustable fan speed (BF, FED)

6.3 Setting the menu language

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
4 x 	with the arrow-up button to the **language setting** menu.
	The current menu language is shown.
	Press OK to select the menu language.
	The setting flashes.
	Select the setting with the arrow buttons
	and confirm with OK.
2x 	Back to Normal display.

There are the following options:

German:	English:	French:
		

6.4 Setting date and time

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
	The current date is shown.

	Press OK to **set the year**.
	The setting flashes.
	Enter the year with the arrow buttons (any setting)
	and confirm with OK.

	Press OK to **set the month**.
	The setting flashes.
	Enter the month with arrow buttons (1 to 12)
	and confirm with OK.

	Without the optional real time clock, these settings must be repeated when the power supply is interrupted..

	Press OK to **set the day**.
	The setting flashes.
	Enter the day with arrow buttons (1 to 31)
	and confirm with OK.

	Press OK to **set the hour**.
	The setting flashes.
	Enter the hour with arrow buttons (0 to 23)
	and confirm with OK.

	Press OK to **set the minute**.
	The setting flashes.
	Enter the minute with arrow buttons (0 to 59)
	and confirm with OK.

2x 	Back to Normal display.

6.5 Selecting the temperature unit

You can chose between degrees Celsius °C and degrees Fahrenheit °F.

If the unit is changed, the temperature set-point and limits are converted accordingly.

Also when specifying the ramp function (see chap. 9) this setting is accordingly taken as the basis.

	C = degrees Celsius 0 °C = 31°F F= degrees Fahrenheit 100 °C = 212°F	Conversion: [Value in °F] = [Value in °C] ∗ 1.8 + 32

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
	With the arrow-up button to the **temperature unit selection** menu.
	The current temperature unit is shown.
	Press OK to select the temperature unit.
	The setting flashes.
	Select the setting with arrow buttons
	and confirm with OK.
2x 	Back to Normal display.

6.6 Set-point entry for temperature and fan speed

	From Normal display with the arrow-up button to the **Set-point entry** menu.
	The current temperature set-point is displayed.
	Press OK to enter the temperature set-point.
	The temperature set-point flashes.
 	Enter the temperature set-point with arrow buttons with an accuracy of a tenth of a degree (BD, BF) or of one degree (ED, FD, FED) and confirm with OK.
 **or** 	Back to Normal display. with units with adjustable fan speed (BF, FED): go on to enter the fan speed.
	The fan speed set-point is displayed.
	Press OK to enter the fan speed
	The fan speed set-point flashes
 	Adjust the fan speed in steps of 10 % with arrow buttons and confirm with OK.
	Back to Normal display.

	Check and/or adjust the safety controller following any changes of the set-point (chap. 7).

6.7 Adjusting the air flap position

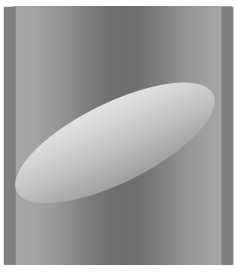
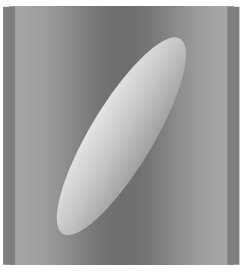
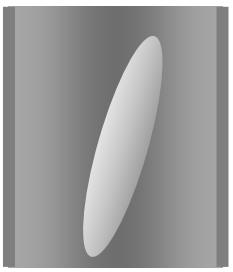
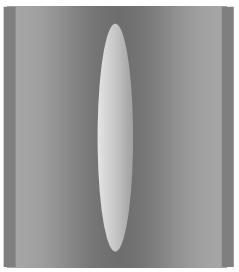
Opening the air flap in the exhaust duct serves to adjust the air change.

The position of the air flap in the exhaust duct serves to adjust the fresh air entry. With the open the air flap, fresh air can enter through the fresh air tube. For chambers with fan, fan operation will increase fresh air entry.

If the air flap is completely open, the spatial temperature accuracy can be negatively influenced.

without fan **2x** with fan **3x** 	From Normal display with the arrow-up button to the **Adjusting the air flap position** menu.
	The current air flap position is shown.
	Press OK to select the air flap position.
	The setting flashes.
	Select the position with arrow buttons
	and confirm with OK.
	Back to Normal display.

There are the following options:

Air flap closed	Air flap slightly opened	Air flap half opened	Air flap almost open	Air flap open
				
				

The setting can be done in steps of 15°.

6.8 Changing the user level password

In this menu you can change the password for access to the user menu.

Factory setting is 00 00.

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
2 x 	With the arrow-up button to the **password setting menu**.
	The current password is shown. The left two digits are flashing.
	Enter the desired numbers with arrow buttons,
	confirm with OK and go on.
	The right two digits of the password are flashing.
	Enter the desired numbers with arrow buttons
	and confirm with OK.
2x 	Back to Normal display.

	Keep in mind any modification of the password. There is no access to the user menu without the correct password

7. Overtemperature protection

7.1 Overtemperature protective device (class 1)

The chambers are regularly equipped with an overtemperature protective device (safety device class 1 acc. to DIN 12880:2007). It serves to protect the chamber, its environment and the contents against exceeding the maximum permissible temperature. When a defined temperature is reached, which is approx. by 20 °C to 30 °C above the chamber's nominal temperature, the overtemperature protective device turns off the heating.

Cut-off temperature:
BD, BF: 120 °C; ED, FD 56, FD 260, FED 56, FED 260: 330 °C; FD 115, FED 115: 350 °C

The message "Overtemperature" is displayed on the controller.

If the overtemperature protective device class 1 has turned off the heating, proceed as follows:

- Disconnect the chamber from the power supply for at least 10 seconds (pull the power plug).
- If appropriate, have an expert examine and rectify the cause of the fault.
- Let the chamber cool down
- Restart the chamber.

As soon as the inner chamber temperature after restart is below the defined cut-off temperature of the overtemperature protective device class 1, the alarm message is deleted automatically.

Reset temperature:
BD, BF: 80 °C; ED, FD 56, FD 260, FED 56, FED 260: 230 °C; FD 115, FED 115: 250 °C

7.2 Safety controller

The chambers are regularly equipped with an adjustable electronic safety controller. It serves to protect the chamber, its environment and the contents against exceeding the maximum permissible temperature. Please observe the guideline BGI/GUV-I 850-0 on safe working in laboratories (formerly BGR/GUV-R 120 or ZH 1/119 laboratory guidelines issued by the employers' liability insurance association) (for Germany).

Depending on the chamber type the safety controller acts as an over temperature safety device class 2 ("temperature limiter") or class 3.1 ("temperature protection") acc. to DIN 12880:2007.

	Check the setting regularly and adjust it following any changes of the set-point.

- **Safety controller class 2 ("temperature limiter") with ED, FD and FED**

  The safety controller class 2 limits the temperature inside the chamber to the entered safety controller set-point. In the event of a fault (if this maximum temperature is exceeded) the safety controller completely turns off the heating until manual reset. This status is reported visually by an alarm message and, in case of the option audible alarm with activated buzzer (chap. 7.5) additionally by the buzzer sounding.

  If the safety controller class 2 has turned off the heating, we recommend proceeding as follows:

  - Disconnect the chamber from the power supply.
  - Have an expert examine and rectify the cause of the fault.
  - Restart the chamber
  - Reset the alarm message

- **Safety controller class 3.1 (“temperature protection”) with BD and BF**

  The safety controller class 3.1 limits the temperature inside the chamber to the entered safety controller set-point. In the event of a fault (if this maximum temperature is exceeded), it takes over the control to this value. This status is reported visually by an alarm message and, in case of the option audible alarm with activated buzzer (chap. 7.5) additionally by the buzzer sounding.

  The safety controller keeps control of the chamber until the chamber temperature cools down below the safety controller set-point value.

  If the safety controller class 3.1 has taken over control, we recommend proceeding as follows:

  - Disconnect the chamber from the power supply.
  - Have an expert examine and rectify the cause of the fault.
  - Restart the chamber
  - Reset the alarm message

Function check:

Check the safety controller at appropriate intervals for its functionality. It is recommended that the authorized operating personnel should perform such a check, e.g., before starting a longer work procedure.

7.3 Setting the safety controller set-point

A limit temperature is entered as the safety controller set-point , i.e. the absolute maximum permitted temperature value.

Example: Temperature set-point 45 °C, safety controller set-point 50 °C.

	Regularly check the safety controller setting relating to the entered temperature set-point Set the safety controller set-point by approx. 2 °C to 5 °C above the desired temperature set-point.

without fan **4x** with fan **5x** 	From Normal display with the arrow-up button to the **Safety controller set-point setting** menu.
	The current safety controller set-point is shown (class 2 “temperature limiter” or class 3.1 “temperature protection” depending on the chamber type).
	Press OK to enter the safety controller set-point.
	The safety controller set-point flashes.
	Enter the safety controller set-point with arrow buttons: 10 °C up to 100 °C (with an accuracy of a tenth of a degree) with BD, BF 10 °C up to 300 °C (with an accuracy of one degree) with ED, FD, FED
	and confirm with OK.
	Back to Normal display.

7.4 Alarm message and proceeding in case of an alarm

The alarm icon flashes in the display. In case of the option audible alarm with activated buzzer (chap. 7.5) the buzzer sounds.

- Safety controller class 2 (“temperature limiter”)

The alarm icon flashes in the display. In case of the option audible alarm with activated buzzer (chap. 7.5) the buzzer sounds.

The heating turns off.

Resetting the alarm:

With option audible alarm with activated buzzer: Mute the buzzer pressing the OK button.

As soon as the inner chamber temperature has cooled down below the safety controller set-point, the alarm icon is lit permanently. You can reset the alarm message on the controller. To do this, reset the alarm message in the safety controller menu with the OK button. The heating is released and temperature control is resumed by the controller.

- **Safety controller class 3.1 (“temperature protection”)**

The alarm icon flashes in the display. In case of the option audible alarm with activated buzzer (chap. 7.5) the buzzer sounds.

The heating turns off.

Resetting the alarm:

With option audible alarm with activated buzzer: Mute the buzzer pressing the OK button.

As soon as the inner chamber temperature has cooled down below the safety controller set-point, You can reset the alarm message in the safety controller menu with the OK button, The heating is released and temperature control is resumed by the controller.

Note:

When the safety controller class 2 or class 3.1 had been activated, you should disconnect the chamber from the power supply and have an expert examine and rectify the cause of the fault.

7.5 Function check

Check the temperature safety device class 2 or class 3.1 at appropriate intervals for its functionality. It is recommended that the authorized operating personnel should perform such a check, e.g., before starting a longer work procedure

7.6 Disconnectable audible over-temperature alarm (option)

This option permits activating an audible signal:

If the buzzer is activated, an audible signal sounds when the limit temperature set at the safety controller is exceeded. This happens in addition to the alarm message on the controller display.

	Turning off the audible alarm does not influence the safety controller's function.

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
5 x 	With the arrow-up button to the **alarm buzzer setting** menu
	The current setting is shown.
	Press OK to select the alarm buzzer setting
	The setting flashes.
	Select the setting with arrow buttons
	and confirm with OK.
	Back to Normal display.

There are the following options

Alarm buzzer On	Alarm buzzer Off
	

8. Timer functions

8.1 Selecting the timer function

There are up to three 3 timer functions:

	**Timer function “Delayed Off”** The selected timer run-time immediately starts running down. When the timer expires the heating turns off. Units with fan: The fan may continue working according to the selections made.
	**Timer function “Temperature dependent Delayed Off”** The selected timer run-time only starts running down, when the actual value reached or exceeds the selected set-point. When the timer expires the heating turns off. Units with fan: The fan may continue working according to the selections made.
	**Timer function “Delayed On”** The selected timer run-time immediately starts running down, the heating turns off. Units with fan: The fan may be working according to the selections made. When the timer expires the heating turns on and remains in continuous operation.

The chambers BD, ED and FD offer the timer function “Delayed Off”

The chambers BF and FED offer all the three timer functions.

Stage	Heating	Fan (Unit with fixed fan speed: FD)	Fan (Units with adjustable fan speed: BF, FED)
Timer function “Delayed Off”			
Timer running	Control to the temperature set-point	On (100 %)	Rotation speed according to fan speed set-point
After the timer expired	Off	On (100 %) or Off (0 %) acc. to selection	Rotation speed according to setting of timer function
Timer function “Temperature dependent Delayed Off”			
Possibly heating-up phase until the temperature set-point is reached	Control to the temperature set-point	---	Rotation speed according to fan speed set-point
Timer running	Control to the temperature set-point	---	Rotation speed according to fan speed set-point
After the timer expired	Off	---	Rotation speed according to setting of timer function
Timer function “Delayed On”			
Timer running	Off	---	Rotation speed according to setting of timer function
After the timer expired	Control to the temperature set-point	---	Rotation speed according to fan speed set-point

General information on the setting:

In the setting menus of the timer functions, it is always required to confirm ***all*** parameters with OK, otherwise all entries made will be lost.

Timer run-time is set in days, hours, and minutes. If days have been entered, they are shown in the controller display preceded by an underscore:

	Setting: 0 days (not shown), 10 hours, 30 minutes
	Setting: 2 days, 10 hours (minutes not shown)

8.2 Timer function “Delayed Off”

8.2.1 Entry and activation of the timer run-time and fan setting

	From Normal display with the arrow-down button to the **Timer function “Delayed Off”** menu (with connected USB device: press the arrow-down button twice)
	Current Timer function “Delayed Off”
	Confirm with OK and go on to enter the **days of the timer run-time**.
	The current timer run-time (days) is shown. The day value flashes.
	Enter the days of the timer run-time (0 up to 9)
	confirm with OK and go on to enter the **hours of the timer run-time**
	The hour value flashes.
	Enter the hours of the timer run-time (0 up to 23)
	confirm with OK and go on to enter the **minutes of the timer run-time**

	The minute value flashes.
	Enter the minutes of the timer run-time (0 up to 59)
	and confirm with OK.

Unit without fan (BD, ED):	
	The timer function “Delayed Off” is activated
	Back to Normal display.

Unit with fixed fan speed (FD): Select whether the fan shall operate or not after the timer has expired	
	The current setting of the fan operation is shown
	Select fan operation: On (100 %) or Off (0 %)
	and confirm with OK.
	The timer function “Delayed Off” is activated
	Back to Normal display.

Unit with adjustable fan speed (BF, FED): Enter the fan speed set-point valid for the time after the timer has expired.	
	The current fan speed set-point is shown
	Enter the fan speed in steps of 10 % 0 % and 40 % up to 100 %
	and confirm with OK.
	The timer function “Delayed Off” is activated
	Back to Normal display.

Normal display during timer operation with timer function „Delayed Off“

	The timer run-time until turning off the heating is running down.

Normal display after the timer has expired:

	**Unit without fan (BD, ED):** Timer function “Delayed Off”. The timer has expired. The heating is off.
	**Unit with fixed fan speed (FD):** Timer function “Delayed Off”. The timer has expired. The heating is off. The fan is operating (On) or not (Off), as selected
	**Unit with adjustable fan speed (BF, FED):** Timer function “Temperature dependent Delayed Off”. The timer has expired. The heating is off. The fan operates with the selected fan speed.

When the timer has expired, the heating is off. The chamber cools down to ambient temperature.

To restart the chamber you need to turn off the timer function (chap. 8.2.2)

8.2.2 Turning off the timer function or changing the settings

To turn off the timer function “Delayed Off” during the time when it is still running, set all time values (days, hours, minutes) to zero in the according menu (terminating the timer function). As long as the timer is running, the timer function settings can be subsequently modified in this menu.

After the timer expired you can turn off the timer function by pressing the OK button. Alternatively you can also set the time to zero in the according menu.

Turning off the timer function when the timer has expired

In Normal display press the OK button.

Alternatively you can set the time to zero:

	From Normal display with the arrow-down button to the **Timer function "Delayed Off"** menu (with connected USB device: press the arrow-down button twice)
 or  or 	**Unit without fan (BD, ED):** Timer function "Delayed Off", the timer has expired. The heating is off. **Unit with fixed fan speed (FD):** Timer function "Delayed Off", the timer has expired. The heating is off. The fan is operating (On) or not (Off), as selected **Unit with adjustable fan speed (BF, FED):** Timer function "Delayed Off", the timer has expired. The heating is off. The fan operates with the selected fan speed.
	Confirm the timer function "Delayed Off" with OK
see chap. 8.2.1	Set all time values to zero
2x 	Back to Normal display.

Changing or terminating the timer function when the timer is running:

	From Normal display with the arrow-down button to the **Timer function "Delayed Off"** menu (with connected USB device: press the arrow-down button twice)
 or  or 	**Unit without fan (BD, ED):** Timer function „Delayed Off", the timer is running. **Unit with fixed fan speed (FD):** Timer function "Delayed Off", the timer is running. **Unit with adjustable fan speed (BF, FED):** Timer function "Delayed Off", the timer is running.
	Confirm the timer function "Delayed Off" with OK
see chap. 8.2.1	Modify the time values or set them to zero to terminate the timer function
2x 	Back to Normal display.

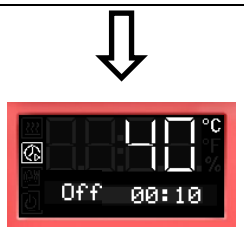
8.3 Timer function “Temperature dependent Delayed Off” (BF, FED)

8.3.1 Entry and activation of the timer run-time, fan setting and set-point entry

3 x ▽	From Normal display with the arrow-down button to the **Timer function “Temperature dependent Delayed Off”** menu (with connected USB device: press the arrow-down button 4 times)
	Current Timer function “Temperature dependent Delayed Off”
OK	Confirm with OK and go on to enter the **days of the timer run-time**.
	The current timer run-time (days) is shown. The day value flashes.
△ ▽	Enter the days of the timer run-time (0 up to 9)
OK	confirm with OK and go on to enter the **hours of the timer run-time**
	The hour value flashes.
△ ▽	Enter the hours of the timer run-time (0 up to 23)
OK	confirm with OK and go on to enter the **minutes of the timer run-time**
	The minute value flashes.
△ ▽	Enter the minutes of the timer run-time (0 up to 59)
OK	confirm with OK and go on to enter the **temperature set-point**

	The temperature set-point flashes. When the set-point is reached, the timer starts running down.
	Enter the temperature set-point,
	confirm with OK and go on to enter the fan speed set-point valid for the time after the timer has expired
	The current fan speed is shown
	Enter the fan speed in steps of 10 % 0 % and 40 % up to 100 %
	and confirm with OK.
	The timer function “Temperature dependent Delayed Off” is activated
	Back to Normal display.

Normal display during timer operation with timer function „Temperature dependent Delayed Off“

	Normal display while the timer is running If the entered set-point exceeds the current actual value, the unit heats up.
	As soon as the set-point is reached or exceeded, the timer starts running down Normal display during the timer run-time. The timer run-time until turning off the heating (and possibly the fan) is running.

Normal display after the timer has expired:

	Timer function “Temperature dependent Delayed Off”. The timer has expired. The heating is off. The fan operates with the selected fan speed.

When the timer has expired, the heating is off. The chamber cools down to ambient temperature.

To restart the chamber you need to turn off the timer function (chap. 8.3.2).

8.3.2 Turning off the timer function or changing the settings

To turn off the timer function “Temperature dependent Delayed Off” during the time when it is still running, set all time values (days, hours, minutes) to zero in the according menu (terminating the timer function). As long as the timer is running, the timer function settings can be subsequently modified in this menu.

After the timer expired you can turn off the timer function by pressing the OK button. Alternatively you can also set the time to zero in the according menu.

Turning off the timer function when the timer has expired

3 x 	From Normal display with the arrow-down button to the **Timer function “Temperature dependent Delayed Off”** menu (with connected USB device: press the arrow-down button 4 times)
	Timer function “Temperature dependent Delayed Off”, the timer has expired
	Confirm the timer function “Temperature dependent Delayed Off” with OK
see chap. 8.3.1	Set all time values to zero
	Back to Normal display

Changing or terminating the timer function when the timer is running:

3 x 	From Normal display with the arrow-down button to the **Timer function “Temperature dependent Delayed Off”** menu (with connected USB device: press the arrow-down button 4 times)
	Timer function “Temperature dependent Delayed Off”, the timer is running
	Confirm the timer function “Temperature dependent Delayed Off” with OK
see chap. 8.3.1	Modify the time values or set all time values to zero to terminate the timer function
	Back to Normal display

8.4 Timer function “Delayed On” (BF, FED)

8.4.1 Entry and activation of the timer run-time and fan setting

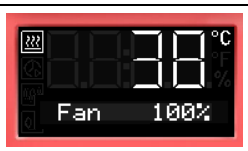
2 x 	From Normal display with the arrow-down button to the **Timer function “Delayed On”** menu (with connected USB device: press the arrow-down button 3 times)
	Current timer function “Delayed On”
	Confirm with OK and go on to enter the **fan speed set-point** valid during the time the timer is running
	The current fan speed set-point is shown
	Enter the fan speed in steps of 10 % 0 % and 40 % up to 100 %
	Confirm with OK and go on to enter the **days of the timer run-time**.
	The current timer run-time (days) is shown. The day value flashes.
	Enter the days of the timer run-time (0 up to 9)
	confirm with OK and go on to enter the **hours of the timer run-time**
	The hour value flashes.
	Enter the hours of the timer run-time (0 up to 23),
	confirm with OK and go on to enter the **minutes of the timer run-time**

	The minute value flashes.
	Enter the minutes of the timer run-time (0 up to 59)
	confirm with OK and go on to **enter the temperature set-point**
	The temperature set-point flashes.
	Enter the temperature set-point,
	confirm with OK and go on to enter the fan speed set-point valid for the time after the timer has expired
	The current fan speed set-point is shown
	Enter the fan speed in steps of 10 % - 0 % and 40 % up to 100 %
	and confirm with OK.
	The timer function “Delayed On” is activated
2x 	Back to Normal display.

Normal display during timer operation with timer function “Delayed On”

	The Timer run-time until turning on the heating is running. Timer function “Delayed On”. The heating is off, temperature approximates ambient temperature.

Normal display after the timer has expired:

	The timer has expired. The time function is off. The heating is active to equilibrate the temperature set-point. The fan operates with the selected fan speed.

8.4.2 Changing the settings

After the timer expired, the timer function „Delayed On“ deactivates, therefore turning the function off is not required.

As long as the timer is still running, the timer function settings can be subsequently modified in this menu.

To terminate the timer function, all time values (days, hours, minutes) must be set to zero in the according menu.

Changing or terminating the timer function when the timer is running:

 **2 x** 	From Normal display during timer operation with the arrow-down button to the **Timer function “Delayed On”** menu. (with connected USB device: press the arrow-down button 3 times)
	Timer function “Delayed On”, the timer is running. The fan operates with the selected fan speed.
	Confirm the timer function “Delayed On” with OK
see chap. 8.4.1	Modify the time values or set all time values to zero to terminate the timer function
2x 	Back to Normal display.

8.5 Temperature programming example (BF, FED)

The unit shall heat up to a temperature of 50 °C, maintain this temperature for three hours and then turn off.

Proceeding: Select timer function “Temperature dependent Delayed Off“ (chap. 8.3) and perform the following settings:

- Enter a timer run-time of 3 hours
- Enter the set point 50 °C
- Specify the fan speed after the timer expires

9. Ramp function

9.1 General information

You can program temperature ramps in order to extend heating up times. This may be necessary in some cases to prevent temperature stress in the material during the heating up phase. Temperature ramps should only be used if required. Using them may result in considerably slowing down the heating up times. When the ramp function is turned off, the unit will heat up with its maximum heating capacity.

The entry means the nominal value gradient and limits the maximum temperature increase to this value. Due to the heat and evaporation energy assumed by the drying material, smaller temperature gradients may also result.

A ramp proceeds from a previously entered set-point to a new, higher one. The temperature must be equilibrated to the start set-point. Perform the setting in the following 3 steps:

1. Enter the temperature set-point as **start ramp set-point** and let the temperature equilibrate to this value
2. Define the temperature increase (**ramp gradient**) in °C/min or in °F/min in the setting menu “Ramp function”

   You can select a gradient from „0.0“ up to „1.0“ or from „1“ up to „10“ according to the chamber type.

   When setting the gradient to „0.0“ or „0“, ramp function is turned off. The unit will then heat up with its maximum heating capacity.

   The chamber will try to heat up according to the entered gradient, i.e. with a speed of xx degree per minute. A heating-up rate of 0.4 °C/min for the incubators BD and BF resp. 4 °C/min for the heating and drying ovens ED, FD and FED can be regarded as a realistic maximum.
3. Enter the **target ramp set-point** in the “ramp function” setting menu.

As soon as the entries have been adopted, the ramp function is activated. The chamber heats up with the entered gradient, if the set ramp target value lies above the actual temperature value.

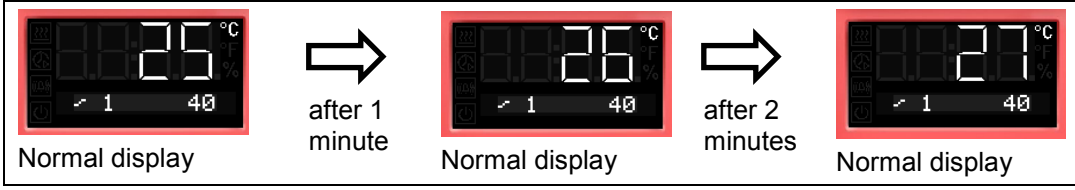
During ramp operation the **effective ramp set-point** continually rises in accordance to the entered gradient from the previously entered set-point to the new one. The actual value follows this continually changing effective ramp set-point. As soon as the ramp target value is reached, this temperature is maintained constant.

The actual temperature value, the selected gradient, and the target value are shown in Normal display.
The effective ramp set-point can be seen through the temperature set-point function.

9.2 Setting and displaying the ramp function

without fan **3x** with fan **4x** 	From Normal display with the arrow-up button to the **Ramp function** menu.
	Ramp function (not programmed)
	Press OK to enter the **gradient** in degree per minute.
	The gradient flashes.
	Enter the gradient (0 up to 9)
	confirm with OK and go on toenter the **target ramp set-point**
	The target ramp set-point value flashes.
	Enter the target ramp set-point
	and confirm with OK.
	Selected ramp with gradient 1 and target ramp set-point 40 °C (example)
	Back to Normal display.
	Normal display showing the actual temperature, the gradient and the target ramp set-point (example: 40 °C)

Temperature course with ramp function



9.3 Displaying the effective ramp set-point and changing the target ramp set-point

 	From Normal display showing the actual temperature (example: 27 °C), the gradient (example: 1) and the target ramp set-point (example: 40 °C) to the display of the effective ramp set-point
	The effective ramp set-point is displayed
	Press OK to set the target ramp set-point
	The target ramp set-point value flashes.
 	Enter the target ramp set-point and confirm with OK.
	The effective ramp set-point is displayed
2x 	Back to Normal display.
	Normal display showing the actual temperature, the gradient and the modified target ramp set-point (example: 50 °C)

9.4 Turning off the ramp function

To turn off the ramp function, the gradient must be set to zero in the according menu. The set-point can be entered as desired.

without fan **3x** with fan **4x** 	From Normal display with the arrow-up button to the **Ramp function** menu
	Ramp function with programmed gradient and target ramp set-point
	Press OK to enter the gradient in degree per minute.
	The gradient flashes.
	Enter the gradient zero (turning off the ramp function)
	confirm with OK and go on to the ramp target value
	The target ramp set-point value flashes.
	Enter the target ramp set-point
	and confirm with OK.
	Ramp function (not programmed)
	Back to Normal display.
	Normal display showing the actual temperature, the gradient and the target ramp set-point (example: 40 °C)
2x 	Back to Normal display.

Instead of turning off the ramp function (gradient = 0), you can also modify the settings of the gradient and target ramp set-point in this menu.

10. Data recording via USB interface

The USB interface located in the triangular instrument panel serves to read out the measured values, which are put out in real time. Following data is recorded: Timer, actual temperature value, temperature set-point, Object temperature sensor (units with option Object temperature display), Fan (units with fan), air flap position, safety controller, analog output (option), heating regulation ratio.

Data are stored directly on the USB medium. They are issued in the selected language as a spreadsheet with the file extension ".csv" and can be further processed in the desired program.

10.1 Starting data recording

Connect the USB medium to the interface located in the triangular instrument panel.

	From Normal display with the arrow-down button to the **USB** menu
	Current state of data recording: stopped
	Confirm with OK.

Units without the real time clock option do not save date and time after shut-down. To make sure that recorded data is provided with the correct date and time, with these units it is required to enter date and time first :

	The current date is displayed. For setting, proceed as described in chap. 6.4.

After entry of the minute and confirmation with OK, further setting in the USB menu continues.

	The data recording interval flashes.
	Enter the interval in minutes
	and confirm with OK.
	The current state of data recording (stopped) flashes.
	Change to start data recording.

	The current state of data recording (started) flashes
	Confirm with OK.
	Data recording is running.
	Back to Normal display.

Data recording continues also during stand-by mode of the chamber. Disconnecting the power supply interrupts data recording, which continues after the power returns. To terminate data recording, stop it via the menu (chap. 10.2).

10.2 Terminating data recording

	From Normal display with the arrow-down button to the **USB** menu
	Current state of data recording: running
	Confirm with OK.
	The current state of data recording (running) flashes
	Change to stop data recording
	The current state of data recording (stopped) flashes
	Confirm with OK.
	Data recording is stopped.
	Back to Normal display.

11. Network configuration for chambers with Ethernet interface

The settings of this submenu are used for networking chambers with an Ethernet interface, e.g. to connect them with BINDER's communication software APT-COM™ 3 DataControlSystem (option, chap. 12.1).

This menu subsequently offers the following settings:

- Display of the chamber's **MAC address**
- Switching on and off the **DHCP state**
- Entering the **IP address**
- Entering the **subnet** mask number
- Entering the **gateway** number

without fan **5x** with fan **6x** 	From Normal display with the arrow-up button to the user menu
	Confirm with OK.
	Enter the password (factory setting: 00 00) and confirm each entry with OK.
5 x 	with the arrow-up button to the **Ethernet** menu.
	Confirm with OK.
	The first digits of the **MAC address** are shown.
	Continue with OK. The middle digits of the **MAC address** are shown.
	Continue with OK. The last digits of the **MAC address** are shown.

Displaying the chamber's MAC address serves to identify the chamber in the Ethernet network.

Example: **00-0F-67-0F-42-40**

00-0F	67-0F	42-40
		

	Continue with OK to **switching on and off the DHCP state**
	The current DHCP state is displayed (on). The setting flashes.
	Select the setting with the arrow buttons.

There are the following options:

DHCP switched on:	DHCP switched off:
	

To configure the network settings, the DHCP state must be switched off. Otherwise, the DHCP-server would assign the network configuration..

	Confirm with OK and go on to enter the **IP address**.
	The first digits of the current IP address are shown. The setting flashes.
	Enter the desired values with the arrow buttons
	and confirm with OK. The next digits of the IP address are shown. Enter the desired values accordingly.

Example value: 0.0.0.0

0	0	0	0
			

OK	Confirm with OK and go on to enter the **subnet mask**.
	The first digits of the current subnet mask are shown. The setting flashes.
△ ▽	Enter the desired values with the arrow buttons
OK	and confirm with OK. The next digits of the subnet mask are shown. Enter the desired values accordingly.

Example value: 255.255.255.0

255	255	255	0
			
Subnet_HH	Subnet_H	Subnet_L	Subnet_LL

OK	Confirm with OK and go on to enter the **gateway**.
	The first digits of the current gateway are shown. The setting flashes.
△ ▽	Enter the desired values with the arrow buttons
OK	and confirm with OK. The next digits of the gateway are shown. Enter the desired values accordingly.

Example value: 0.0.0.0

0	0	0	0
			
GatWay_HH	GatWay_H	GatWay_L	GatWay_LL

OK	Confirm with OK.
2x	Back to Normal display.

12. Options

12.1 Communication software APT-COM™ 3 DataControlSystem (option)

The chamber is regularly (FED) or optionally equipped with an Ethernet interface on the unit rear that can connect the BINDER communication software APT-COM™ 3 DataControlSystem. The actual temperature value is given at adjustable intervals. Programming can be performed graphically via PC. Up to 30 chambers can be cross-linked. The MAC Address is indicated in the **Ethernet** menu (chap. 11). For further information, please refer to the operating manual of the BINDER communication software APT-COM™ 3.

To establish a connection via the chamber's Ethernet interface, the chamber must be turned off.

12.2 Data logger kits (option)

BINDER Data Logger Kits offer an independent long-term measuring system for temperature. They are equipped with a keyboard and a large LCD display, alarm functions and a real-time function. Measurement data are recorded in the Data Logger and can be read out after the measurement via the RS232 interface of the Data Logger. It offers a programmable measuring interval and permits storing up to 64000 measuring values. Reading out is done with the Data Logger evaluation software. You can give out a combined alarm and status protocol directly to a serial printer.

For BD/BF: Data Logger Kit T 220: Temperature range -90 °C / *-130 °F* up to +220 °C / *428 °F*

For ED/FD/FED: Data Logger Kit T 350: Temperature range 0 °C / 32 *°F* up to +350 °C / 662 *°F*

	For detailed information on installation and operation of the BINDER Data Logger, please refer to the mounting instructions Art. No. 7001-0204 and to the original user manual of the manufacturer, supplied with the data logger.

12.3 Object temperature display with additional Pt100 temperature sensor (option)

With this option an additional flexible temperature sensor Pt100 measures the chamber temperature or the temperature of the charging material which is shown on the controller. The sensor-top protective tube of the flexible Pt100 can be immersed into liquid substances.

The object temperature display enables the determination of the actual temperature of the charging material during the whole process. The object temperature is displayed in the controller in Normal Display.

	Unit with option object temperature display: Actual temperature value and actual der object temperature value

Technical data of thePt100 sensor:

- Three-wire technique
- Class B (DIN EN 60751)
- Temperature range up to 320 °C / *608 °F*
- Stainless steel protective tube 45 mm length, material no. 1.4501

12.4 Analog output for temperature (option)

With this option the chamber is equipped with an analog output 4-20 mA for temperature. This output permits transmitting data to external data registration systems or devices.

The connection is carried out as a DIN socket at the rear of the chamber as follows:

ANALOG OUTPUT 4-20 mA DC

PIN 1: Temperature –
PIN 2: Temperature +

Temperature range:

BD, BF: 0 °C / *32 °F* to +100 °C / *212 °F*
ED, FD, FED: 0 °C / *32 °F* to +300 °C / *572 °F*
A suitable DIN plug is enclosed.

Figure 7: Pin allocation of DIN socket for option analog outputs

12.5 Water protected internal socket (option BD, BF)

You can turn on or off the disconnectable water protected internal socket by the switch in the triangular instrument panel, independent of the incubator operating or not. Thus, devices operated inside the incubator can be started or stopped without any need to open the chamber doors.

The internal socket is splash proof.

IP system of protection 67 230 V 1N ~ 50-60 Hz. Charge max. 500 W

Maximum permitted operating temperature with this option: 90 °C / *194 °F*.

	**WARNING** **Exceeding of the permitted maximum temperature.** **Electrical hazard.** **Danger of death.** **Damage to the internal socket.** ∅ Do NOT exceed the temperature set-point of 90 °C / *194 °F.* ➢ Set the safety controller class 3.1 to 90 °C / *194 °F.*

	Heat emission of electrical devices connected inside the chamber may modify the temperature range.

	**CAUTION** **Risk of short circuit.** **Damage to the unit.** ➢ Use the delivered plug only (IP protection type 66). Plug-in the plug and turn it to secure. ➢ If the socket is not used, close the lift-up lid and turn it for securing.

Controller shutdown by the standby button has no effect on the internal socket.

	**WARNING** **Internal socket switched on even though controller is shut down.** **Electrical hazard.** ➢ Turn off the internal socket separately, when not in use, by the switch in the triangular instrument panel

13. Maintenance, cleaning, and service

13.1 Maintenance intervals, service

DANGER

Electrical hazard.

Danger of death.

∅ The unit must NOT become wet during operation or maintenance work.

∅ Do NOT remove the rear panel of the unit.

➢ Disconnect the unit before conducting maintenance work. Disconnect the power plug.

➢ Ensure all maintenance work is conducted by licensed electricians or experts authorized by BINDER.

Ensure regular maintenance work is performed at least once a year.

The warranty becomes void if maintenance work is conducted by non-authorized personnel..

Replace the door gasket only when cold. Otherwise, the door gasket may become damaged.

We recommend taking out a maintenance agreement. Please consult BINDER Service.

BINDER telephone hotline:	+49 (0) 7462 2005 555
BINDER fax hotline:	+49 (0) 7462 2005 93555
BINDER e-mail hotline:	service@binder-world.com
BINDER service hotline USA:	+1 866 885 9794 or +1 631 224 4340 x3 (toll-free in the USA)
BINDER service hotline Asia Pacific:	+852 390 705 04 or +852 390 705 03
BINDER service hotline Russia and CIS	+7 495 988 15 16
BINDER Internet website	http://www.binder-world.com
BINDER address	BINDER GmbH, post office box 102, D-78502 Tuttlingen

International customers, please contact your local BINDER distributor.

13.2 Cleaning and decontamination

Clean the unit after each use to avoid potential corrosion damage by ingredients of the test material.

DANGER

Electrical hazard.

Danger of death.

∅ Do NOT spill water or cleaning agents over the inner and outer surfaces.

➢ Disconnect the unit before cleaning. Disconnect the power plug.

➢ Completely dry the appliance before turning it on again.

13.2.1 Cleaning

Disconnect the chamber from the power supply before cleaning. Disconnect the power plug.

	The interior of the unit must be kept clean. Thoroughly remove any residues of the charging material

Wipe the surfaces with a moistened towel. In addition, you can use the following cleaning agents:

Exterior surfaces inner chamber racks door gaskets	Standard commercial cleaning detergents free from acid or halides. Alcohol-based solutions. We recommend using the neutral cleaning agent Art. No. 1002-0016.
Instrument panel	Standard commercial cleaning detergents free from acid or halides. We recommend using the neutral cleaning agent Art. No. 1002-0016.
Zinc coated hinge parts rear unit wall	Standard commercial cleaning detergents free from acid or halides. Do NOT use a neutral cleaning agent on zinc coated surfaces.

Do not use cleaning agents that may cause a hazard due to reaction with components of the device or the charging material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

	We recommend using the neutral cleaning agent Art. No. 1002-0016 for a thorough cleaning. Any corrosive damage that may arise following use of other cleaning agents is excluded from liability by BINDER GmbH. Any corrosive damage caused by a lack of cleaning, is excluded from liability by BINDER GmbH.

	**CAUTION** **Danger of corrosion.** **Damage to the unit.** ∅ Do NOT use acidic or chlorine cleaning detergents. ∅ Do NOT use a neutral cleaning agent on other kind of surfaces e.g., the zinc coated hinge parts or the rear unit wall.

	For surface protection, perform cleaning as quickly as possible. After cleaning completely remove cleaning agents from the surfaces with a moistened towel. Let the unit dry.

	Soapsuds may contain chlorides and must therefore NOT be used for cleaning.

	With every decontamination method, always use adequate personal safety controls.

Following cleaning, leave the unit door open or remove the access port plugs.

	The neutral cleaning agent may cause health problems in contact with skin and if ingested. Follow the operating instructions and safety hints labeled on the bottle of the neutral cleaning agent.

Recommended precautions: To protect the eyes use sealed protective goggles. Suitable protective gloves with full contact: butyl or nitrile rubber, penetration time >480 minutes.

CAUTION

Contact with skin, ingestion.

Skin and eye damage due to chemical burns.

∅ Do not ingest. Keep away from food and beverages.

∅ Do NOT empty into drains.

➢ Wear protective gloves and goggles.

➢ Avoid skin contact.

13.2.2 Decontamination

The operator must ensure that proper decontamination is performed in case a contamination of the chamber by hazardous substances has occurred.

Disconnect the chamber from the power supply prior to decontamination. Pull the power plug.

Do not use decontamination agents that may cause a hazard due to reaction with components of the device or the charging material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

You can use the following disinfectants:

Inner chamber	Standard commercial surface disinfectants free from acid or halides. Alcohol-based solutions. We recommend using the disinfectant spray Art. No. 1002-0022.

For chemical disinfection, we recommend using the disinfectant spray Art. No. 1002-0022.
Any corrosive damage that may arise following use of other disinfectants is excluded from liability by BINDER GmbH.

With every decontamination method, always use adequate personal safety controls.

In case of impurity of the interior with biological or chemical hazardous material, there are three possible procedures depending on the type of contamination and of the charging material.

1. The drying and heating ovens ED, FD and FED can be hot air sterilized at 190 °C / *374 °F* for at least 30 minutes. All inflammable goods must be removed from the interior before. With the incubators BD and BF it is possible to perform a hot-air disinfection at 100 °C / *212 °F*.
2. Spray the inner chamber with an appropriate disinfectant.

   Before start-up, the unit must be absolute dry and ventilated, because explosive gases may form during the decontamination process.
3. If necessary, have strongly contaminated inner chamber parts removed by an engineer for cleaning, or have them exchanged. Sterilize the inner chamber parts in a sterilizer or autoclave.

In case of eye contact, the disinfectant spray may cause eye damage due to chemical burns. Follow the operating instructions and safety hints labeled on the bottle of the disinfectant spray.

Recommended precautions: To protect the eyes use sealed protective goggles.

CAUTION

Eye contact.
Eye damage due to chemical burns.
∅ Do NOT empty into drains.
➢ Wear protective goggles.

After using the disinfectant spray, allow the unit to dry thoroughly, and aerate it sufficiently.

13.3 Sending the unit back to BINDER GmbH

If you return a BINDER product to us for repair or any other reason, we will only accept the product upon presentation of an **authorization number** (RMA number) that has previously been issued to you. An authorization number will be issued after receiving your complaint either in writing or by telephone **prior** to your sending the BINDER product back to us. The authorization number will be issued following receipt of the information below:

- BINDER product type and serial number
- Date of purchase
- Name and address of the dealer from which you bought the BINDER product
- Exact description of the defect or fault
- Complete address, contact person and availability of that person
- Exact location of the BINDER product in your facility
- A contamination clearance certificate (chap. 17) must be faxed in advance

The authorization number must be applied to the packaging in such a way that it can be easily recognized or be recorded clearly in the delivery documents.

For safety reasons we cannot accept a unit delivery if it does not carry an authorization number.

Return address:

BINDER GmbH
Abteilung Service

Gänsäcker 16
78502 Tuttlingen
Germany

14. Disposal

14.1 Disposal of the transport packing

Packing element	Material	Disposal
Straps to fix packing on pallet	Plastic	Plastic recycling
Wooden transport box (option)	Non-wood (compressed match-wood, IPPC standard)	Wood recycling
with metal screws	Metal	Metal recycling
Pallet (from size 115 on)	Solid wood (IPPC standard)	Wood recycling
Transport box with metal clamps	Cardboard	Paper recycling
	Metal	Metal recycling
Edge protection	Styropor® or PE foam	Plastic recycling
Protection of doors and racks	PE foam	Plastic recycling
Bag for operating manual	PE foil	Plastic recycling
Insulating air cushion foil (packing of optional accessories)	PE foil	Plastic recycling

If recycling is not possible, all packing parts can also be disposed of with normal waste.

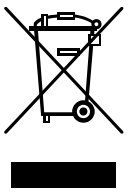
14.2 Decommissioning

Disconnect the unit from the power supply (pull the power plug).

- Temporal decommissioning: See indications for appropriate storage, chap. 3.3.
- Final decommissioning: Dispose of the unit as described in chap. 12.3 to 12.5.

14.3 Disposal of the unit in the Federal Republic of Germany

According to directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as “monitoring and control instruments” (category 9) only intended for professional use“. They must not be disposed of at public collecting points.



The chambers bear the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EC after 13 August 2005 and be disposed of in separate collection according to the directive 2002/96/EC on waste electrical and electronic equipment (WEEE) and German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG). WEEE marking: crossed-out wheeled bin with solid bar under. A significant part of the materials must be recycled in order to protect the environment.

At the end of the device’s service life, have the device disposed of according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG) from 23 March 2005, BGBl. I p. 762 or contact BINDER Service who will organize taking back and disposal of the unit according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG) from 23 March 2005, BGBl. I p. 762.

CAUTION

Violation against existing law.

∅ Do NOT dispose of BINDER devices at public collecting points.

➢ Have the device disposed of professionally at a recycling company that is certified according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG) from 23 March 2005, BGBl. I p. 762.

or

➢ Instruct BINDER Service to dispose of the device. The general terms of payment and delivery of BINDER GmbH apply, which were valid at the time of purchasing the unit.

Certified companies disassemble waste BINDER equipment in primary substances for recycling according to directive 2002/96/EC by. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

Prior to handing the unit over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.

- Prior to disposal, clean all introduced or residual toxic substances from the unit.
- Prior to disposal, disinfect the unit from all sources of infection. Be aware of the fact that sources of infection may also be located outside the inner chamber.
- If you cannot safely remove all toxic substances and sources of infection from the unit, dispose of it as "special" waste according to national law.
- Fill out the contamination clearance certificate (chap. 17) and enclose it with the unit.

WARNING

Contamination of the device with toxic, infectious or radioactive substances.

Danger of intoxication.

Danger of infection.

∅ NEVER take a unit contaminated with toxic substances or sources of infection for recycling according to directive 2002/96/EC.

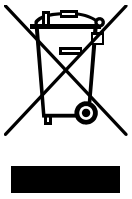
➢ Prior to disposal, remove all toxic substances and sources of infection from the unit.

➢ Dispose of a unit from which all toxic substances or sources of infection cannot be safely removed as special waste according to national law.

14.4 Disposal of the unit in the member states of the EC except for the Federal Republic of Germany

According to directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as "monitoring and control instruments" (category 9) only intended for professional use". They must not be disposed of at public collecting points.

The chambers bear the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EC after 13 August 2005 and be disposed of in separate collection according to the directive 2002/96/EC on waste electrical and electronic equipment (WEEE). WEEE marking: crossed-out wheeled bin with solid bar under.



At the end of the device's service life, notify the distributor who sold you the device, who will take back and dispose of the unit according to the directive 2002/96/EC of 27 January 2003 on waste electrical and electronic equipment (WEEE).

CAUTION

Violation against existing law.

∅ Do NOT dispose of BINDER devices at public collecting points.

➢ Have the device disposed of professionally at a recycling company that is certified according to conversion of the directive 2002/96/EC into national law.

or

➢ Instruct the distributor who sold you the device to dispose of it. The agreements apply that were reached with the distributor when purchasing the unit (e.g. his general terms of payment and delivery).

➢ If your distributor is not able to take back and dispose of the unit, please contact BINDER service.

Certified companies disassemble waste BINDER equipment in primary substances for recycling according to directive 2002/96/EC. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

Prior to handing the unit over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.

- Prior to disposal, clean all introduced or residual toxic substances from the unit.
- Prior to disposal, disinfect the unit from all sources of infection. Be aware of the fact that sources of infection may also be located outside the inner chamber.
- If you cannot safely remove all sources of infection and toxic substances from the unit, dispose of it as "special" waste according to national law.
- Fill out the contamination clearance certificate (chap. 17) and enclose it with the unit.

WARNING

Contamination of the device with toxic, infectious or radioactive substances.

Danger of intoxication.

Danger of infection.

∅ NEVER take a unit contaminated with toxic substances or sources of infection for recycling according to directive 2002/96/EC.

➢ Prior to disposal, remove all toxic substances and sources of infection from the unit.

➢ Dispose of a unit from which all toxic substances or sources of infection cannot be safely removed as "special" waste according to national law.

14.5 Disposal of the unit in non-member states of the EC

CAUTION

Alteration of the environment.

➢ For final decommissioning and disposal of the chamber, please contact BINDER Service.

➢ Follow the statutory regulations for appropriate, environmentally friendly disposal.

15. Troubleshooting

Fault description	Possible cause	Required measures
Temperature		
Set-point temperature is not reached after specified time.	Unit door not properly closed.	Completely close unit door.
	Door gasket defective.	Replace door gasket,
	Controller not adjusted.	Calibrate and adjust controller.
	Wrong voltage.	Check the power supply for correct voltage (chap. 4.1).
BF, FD, FED: The fan doesn't turn or turns too slowly.	*BF, FED:* Fan speed set too low	*BF, FED:* Set fan speed to 100%
	Fan defective.	Contact BINDER service.
Chamber heating permanently, set-point not held.	Controller defective.	Contact BINDER service.
	Pt 100 sensor defective.	
	Semiconductor relay defective	
	Controller not adjusted.	Calibrate and adjust controller.
Chamber doesn't heat up. Heating icon is displayed.	Heating element defective.	Contact BINDER service.
	Semiconductor relay defective.	
Chamber doesn't heat up. No heating icon in the display. Controller display working.	Timer run off.	Re-program the timer or turn it off.
	Semiconductor relay defective.	Contact BINDER service.
	Controller defective.	
Unit without function, the standby icon is displayed.	Unit in standby mode.	Press down the standby button until the display lights up.
BD, BF: Alarm message "!TProt" is displayed	Safety device class 3.1 has responded.	Check the settings of the temperature set-point and of the safety device class 3.1 (chap. 7.2).
ED, FD, FED: Unit without function. Alarm message "!TLim" is displayed	Safety device class 2 has turned off the chamber.	Let cool down the chamber. Check the settings of the temperature set-point and of the safety device class 2 (chap. 7.2). If appropriate, select suitable limit value.
	Safety device class 2 defective.	Contact BINDER service.
Unit without any function.	No power supply.	Check connection to power supply.
	Overtemperature protective device class 1 has turned off the chamber.	Disconnect the chamber from the power supply for at least 10 seconds and let it cool down. If the device responds again, contact BINDER service
	Controller defective.	Contact BINDER service.
Deviations from the indicated heating-up times.	Chamber fully loaded.	Load the chamber less or consider longer heating-up times.
Controller		
Message „1999" in the controller display	Sensor rupture between sensor and controller.	Contact BINDER service.

	Only qualified service personnel authorized by BINDER must perform repair. Repaired units must comply with the BINDER quality standards.

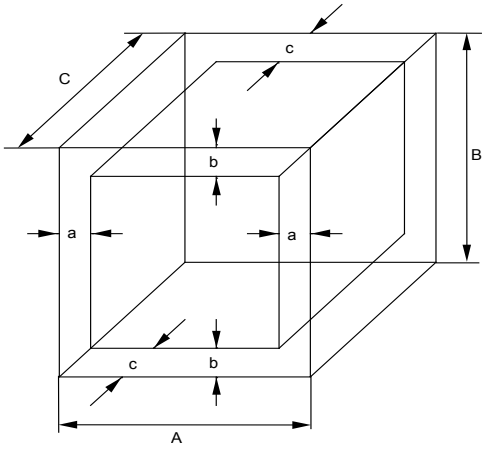
16. Technical description

16.1 Factory calibration and adjustment

This unit was calibrated and adjusted in the factory. Calibration and adjustment were performed using standardized test instructions, according to the QM DIN EN ISO 9001 system applied by BINDER (certified since December 1996 by TÜV CERT). All test equipment used is subject to the administration of measurement and test equipment that is also constituent part of the BINDER QM DIN EN ISO 9001 systems. They are controlled and calibrated to a DKD-Standard at regular intervals.

16.2 Definition of usable volume

The usable volume illustrated below is calculated as follows:



A, B, C = Internal dimensions (W, H, D)
a, b, c = Wall clearances

a = 0.1 x A
b = 0.1x B
c = 0.1 x C

V_{USE} = (A - 2a) x (B - 2b) x (C - 2c)

Figure 8: Determination of the useable volume

The technical data refers to the defined usable volume.

	Do NOT place samples outside this usable volume. Do NOT load this volume by more than half to enable sufficient airflow inside the chamber. Do NOT divide the usable volume into separate parts with large area samples. Do NOT place samples too close to each other in order to permit circulation between them and thus obtain a homogenous distribution of temperature.

16.3 Over current protection

Single-phase devices are protected by one (UL units) or two miniature fuses against over current, accessible from the outside. The miniature fuses are located at the rear of the chamber below the strain relief of the power cord. Each fuse holder is equipped with a fuse clip 5mm x 20 mm (cUL-Version 6,3x32 mm). A fuse may be replaced only with a substitute of the same ratings. Refer to the technical data of the respective device type.

Two-phase devices are equipped with a resettable miniature circuit breaker (combination element).

16.4 BD technical data

Unit size			BD 56	BD 115	BD 260
Exterior dimensions					
Width		mm / *inch*	560 / *22.01*	710 / *27.95*	815 / *32.09*
Height (incl. feet)		mm / *inch*	625 / *24.60*	735 / *28.94*	965 / *37.99*
Depth		mm / *inch*	565 / *22.24*	605 / *23.82*	760 / *29.92*
Depth incl. door handle and exhaust duct		mm / *inch*	640 / *25.20*	680 / *26.77*	815 / *32.09*
Wall clearance rear		mm / *inch*	160 / *6.30*	160 / *6.30*	160 / *6.30*
Wall clearance side		mm / *inch*	100 / *3.94*	100 / *3.94*	100 / *3.94*
Exhaust duct, outer diameter		mm / *inch*	*52* / *2.05*	*52* / *2.05*	*52* / *2.05*
Steam space volume		l / *cu.ft.*	63 / *2.22*	127 / *4.49*	279 / *9.85*
Number of door(s)			1	1	1
Interior dimensions					
Width		mm / *inch*	360 / *14.17*	510 / *20.08*	610 / *24.02*
Height		mm / *inch*	420 / *16.54*	530 / *20.87*	760 / *29.92*
Depth		mm / *inch*	380 / *14.96*	420 / *16.53*	550 / *21.65*
Interior volume		l / *cu.ft.*	*57* / *2.01*	112 / *3.96*	*255* / *9.01*
Quantity of racks (regular / max.)			2/***	2/***	2/***
Load per rack		Kg / *lbs*	***	***	***
Permitted total load		Kg / *lbs*	***	***	***
Temperature data					
Temperature range	from … degrees above ambient	°C / *°F*	5 / *9*	5 / *9*	***
	up to	°C / *°F*	100 / *212*	100 / *212*	100 / *212*
Temperature fluctuation at 37 °C / *98.6 °F*		± K	0.2	0.1	***
Temperature uniformity (variation) at 37 °C / *98.6 °F*		± K	0.5	0.4	***
Heating up time to 37 °C / *98.6 °F*		minutes	45	55	***
Recovery time after door was opened for 30 sec at 37 °C / *98.6 °F*		minutes	14	***	***
Electrical data (model versions BD056-230V, BD115-230V, BD260-230V					
IP system of protection acc. to EN 60529		IP	20	20	20
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	230	230	230
	at 60 Hz power frequency	V	230	230	230
Current type			1N~	1N~	1N~
Nominal power		kW	***	0,35	***
Power plug of the power cable			shock proof plug	shock proof plug	shock proof plug
Energy consumption at 37°C / *98.6°F*		Wh/h	20	25	***
Unit fuse 5x20 mm / 250V / time-lag (T)		A	6,3 external	6,3 external	8,0 external
Overtemperature protective device class 1		°C	120	120	120
Installation category acc. to IEC 61010-1			II	II	II
Pollution degree acc. to IEC 61010-1			2	2	2

Unit size			BD 56	BD 115	BD 260
Different electrical data for BD-UL constructed for the USA and Canada (model versions BD056-120V, BD115-120V, BD260-120V)					
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	120	120	120
	at 60 Hz power frequency	V	120	120	120
Power plug of the power cable		NEMA	5-15P	5-15P	5-15P
Unit fuse 5x20 mm / 250V / time-lag (T)		A	12.5 external	12.5 external	12.5 external
Further information					
Weight (empty)		Kg / *lbs*	***	***	***
Noise level (mean value)		dB (A)	***	***	***

*** Data not yet determined

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C +/- 3°C / *71.6 °F ± 5.4 °F* and a power supply voltage fluctuation of ±10. Technical data is determined in accordance to BINDER Factory Standard Part 2:2015 and DIN 12880:2007.

All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

	If the cabinet is fully loaded, the specified heating up times may vary according to the load.

	With option interior socket: If electrical devices are connected and operating inside the chamber, the temperature range may be modified due to heat emission.

16.5 BF technical data

Unit size		BF 56	BF 115	BF 260
Exterior dimensions				
Width	mm /inch	560 / *22.01*	710 / *27.95*	815 / *32.09*
Height (incl. feet)	mm /inch	625 / *24.60*	735 / *28.94*	965 / *37.99*
Depth	mm /inch	565 / *22.24*	605 / *23.82*	760 / *29.92*
Depth incl. door handle and exhaust duct	mm /inch	640 / *25.20*	680 / *26.77*	815 / *32.09*
Wall clearance rear	mm /inch	160 / *6.30*	160 / *6.30*	160 / *6.30*
Wall clearance side	mm /inch	100 / *3.94*	100 / *3.94*	100 / *3.94*
Exhaust duct, outer diameter	mm /inch	52 / *2.05*	52 / *2.05*	52 / *2.05*
Steam space volume	l / cu.ft.	66 / *2.33*	127 / *4.49*	279 / *9.85*
Number of door(s)		1	1	1
Interior dimensions				
Width	mm /inch	400 / *15.75*	550 / *21.65*	650 / *25.59*
Height	mm /inch	440 / *17.32*	550 / *21.65*	780 / *30.71*
Depth	mm /inch	340 / *13.39*	380 / *14.96*	510 / *20.08*
Interior volume	l / cu.ft.	59 / *2.08*	114 / *4.03*	257 / *9.08*
Quantity of racks (regular / max.)		2/***	2/***	2/***
Load per rack	Kg / *lbs*	***	***	***
Permitted total load	Kg / *lbs*	***	***	***

Unit size			BF 56	BF 115	BF 260
Temperature data					
Temperature range	from … degrees above ambient	°C / *°F*	*7 / 12.6*	*5 / 9*	***
	up to	°C / *°F*	100 / *212*	100 / *212*	100 / *212*
Temperature fluctuation at 37 °C / *98.6 °F*		± K	0.1	0.1	***
Temperature uniformity (variation) at 37 °C / *98.6 °F*		± K	0.3	0.3	***
Heating up time to 37 °C / *98.6 °F*		minutes	8	8	***
Recovery time after door was opened for 30 sec at 37 °C / *98.6 °F*		minutes	5	5	***
Ventilation data					
Air change at 37 °C / *98.6 °F*		x/h	***	***	***
Electrical data (model versions BF056-230V, BF115-230V, BF260-230V					
IP system of protection acc. to EN 60529		IP	20	20	20
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	230	230	230
	at 60 Hz power frequency	V	230	230	230
Current type			1N~	1N~	1N~
Nominal power		kW	0.40	0.40	***
Power plug of the power cable			shock proof plug	shock proof plug	shock proof plug
Energy consumption at 37°C / *98.6 °F*		Wh/h	60	60	***
Unit fuse 5x20 mm / 250V / time-lag (T)		A	6.3 external	6.3 external	8.0 external
Overtemperature protective device class 1		°C	120	120	120
Installation category acc. to IEC 61010-1			II	II	II
Pollution degree acc. to IEC 61010-1			2	2	2
Different electrical data for BF-UL constructed for the USA and Canada (model versions BF056-120V, BF115-120V, BF260-120V)					
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	120	120	120
	at 60 Hz power frequency	V	120	120	120
Power plug of the power cable		NEMA	5-15P	5-15P	5-15P
Unit fuse 5x20 mm / 250V / time-lag (T)		A	12.5 external	12.5 external	12.5 external
Further information					
Weight (empty)		Kg / *lbs*	***	***	***
Noise level (mean value)		dB (A)	***	***	***

*** Data not yet determined

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C +/- 3°C / *71.6 °F ± 5.4 °F* and a power supply voltage fluctuation of ±10. Technical data is determined in accordance to BINDER Factory Standard Part 2:2015 and DIN 12880:2007.

All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

	If the cabinet is fully loaded, the specified heating up times may vary according to the load.

	With option interior socket: If electrical devices are connected and operating inside the chamber, the temperature range may be modified due to heat emission.

16.6 ED technical data

Unit size			ED 56	ED 115	ED 260
Exterior dimensions					
Width		mm /inch	560 / *22.01*	710 / *27.95*	815 / *32.09*
Height (incl. feet)		mm /inch	625 / *24.60*	735 / *28.94*	965 / *37.99*
Depth		mm /inch	565 / *22.24*	605 / *23.82*	760 / *29.92*
incl. door handle and exhaust duct		mm /inch	640 / *25.20*	680 / *26.77*	815 / *32.09*
Wall clearance rear		mm /inch	160 / *6.30*	160 / *6.30*	160 / *6.30*
Wall clearance side		mm /inch	100 / *3.94*	100 / *3.94*	100 / *3.94*
Exhaust duct, outer diameter		mm /inch	*52* / *2.05*	*52* / *2.05*	*52* / *2.05*
Steam space volume		l / cu.ft.	63	127 / *4.49*	*273* / *9.64*
Number of door(s)			1	1	1
Interior dimensions					
Width		mm /inch	360 / *14.17*	510 / *20.08*	610 / *24.02*
Height		mm /inch	420 / *16.54*	530 / *20.87*	760 / *29.92*
Depth		mm /inch	380 / *14.96*	*425* / *16.73*	*550* / *21.65*
Interior volume		l / cu.ft.	*57* / *2.01*	114 / *4.03*	*255* / *9.01*
Quantity of racks (regular / max.)			2/***	2/***	2/***
Load per rack		Kg / *lbs*	***	***	***
Permitted total load		Kg / *lbs*	***	***	***
Temperature data					
Temperature range	from … degrees above ambient	°C / *°F*	15 / *27*	8 / *14.4*	***
	up to	°C / *°F*	300 / *572*	300 / *572*	300 / *572*
Temperature fluctuation at 150 °C / *302 °F*		± K	0,5	0,4	***
Temperature uniformity (variation) at 150 °C / *302 °F*		± K	2,8	2,0	***
Heating up time to 150 °C / *302 °F*		minutes	45	60	***
Recovery time after door was opened for 30 sec at 150 °C / *302 °F*		minutes	25	20	***
Electrical data (model versions ED056-230V, ED115-230V, ED260-230V					
IP system of protection acc. to EN 60529		IP	20	20	20
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	230	230	230
	at 60 Hz power frequency	V	230	230	230
Current type			1N~	1N~	1N~
Nominal power		kW	1.05	1.25	***
Power plug of the power cable			shock proof plug	shock proof plug	shock proof plug
Energy consumption at 150 °C / *302 °F*		Wh/h	180	250	***
Unit fuse 5x20 mm / 250V / time-lag (T)		A	6.3 external	6.3 external	12.5 external
Overtemperature protective device class 1		°C	330	330	330
Installation category acc. to IEC 61010-1			II	II	II
Pollution degree acc. to IEC 61010-1			2	2	2

Unit size			ED 56	ED 115	ED 260
Different electrical data for ED-UL constructed for the USA and Canada (model versions ED056-120V, ED115-120V, ED260-120V)					
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	120	120	240
	at 60 Hz power frequency	V	120	120	240
Current type			1N~	1N~	2~
Power plug of the power cable		NEMA	5-15P	5-15P	6-20P
Unit fuse 5x20 mm / 250V / time-lag (T)		A	12.5 external	12.5 external	---
Miniature circuit breaker (combination element)		A	---	---	16 extern
Further information					
Weight (empty)		Kg / *lbs*	***	***	***
Noise level (mean value)		dB (A)	***	***	***

*** Data not yet determined

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C +/- 3°C / *71.6 °F ± 5.4 °F* and a power supply voltage fluctuation of ±10. Technical data is determined in accordance to BINDER Factory Standard Part 2:2015 and DIN 12880:2007.

All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

	If the cabinet is fully loaded, the specified heating up times may vary according to the load.

16.7 FD technical data

Unit size		FD 56	FD 115	FD 260
Exterior dimensions				
Width	mm /inch	560 / *22.01*	710 / *27.95*	815 / *32.09*
Height (incl. feet)	mm /inch	625 / *24.60*	735 / *28.94*	965 / *37.99*
Depth	mm /inch	565 / *22.24*	605 / *23.82*	760 / *29.92*
incl. door handle and exhaust duct	mm /inch	640 / *25.20*	680 / *26.77*	815 / *32.09*
Wall clearance rear	mm /inch	160 / *6.30*	160 / *6.30*	160 / *6.30*
Wall clearance side	mm /inch	100 / *3.94*	100 / *3.94*	100 / *3.94*
Exhaust duct, outer diameter	mm /inch	52 / *2.05*	52 / *2.05*	52 / *2.05*
Steam space volume	l / cu.ft.	67 / *2.37*	127 / *4.49*	279 / *9.85*
Number of door(s)		1	1	1
Interior dimensions				
Width	mm / *inch*	400 / *15.75*	550 / *21.65*	650 / *25.59*
Height	mm / *inch*	440 / *17.32*	550 / *21.65*	780 / *30.71*
Depth	mm / *inch*	345 / *13.58*	385 / *15.16*	510 / *20.08*
Interior volume	l / cu.ft.	60 / *2.12*	116 / *4.10*	*257* / *9.08*
Quantity of racks (regular / max.)		2/***	2/***	2/***
Load per rack	Kg / *lbs*	***	***	***
Permitted total load	Kg / *lbs*	***	***	***

Unit size			FD 56	FD 115	FD 260
Temperature data					
Temperature range	from … degrees above ambient	°C / *°F*	10 / *18*	10 / *18*	***
	up to	°C / *°F*	300 / *572*	300 / *572*	300 / *572*
Temperature fluctuation at 150 °C / *302 °F*		± K	0.3	0.3	***
Temperature uniformity (variation) at 150 °C / *302 °F*		± K	1.7	1.7	***
Heating up time to 150 °C / *302 °F*		minutes	15	20	***
Recovery time after door was opened for 30 sec at 150 °C / *302 °F*		minutes	5	5	***
Ventilation data					
Air change	at 150 °C / *302 °F*	x/h	***	***	***
	at 300 °C / *572 °F*	x/h	***	***	***
Electrical data (model versions FD056-230V, FD115-230V, FD260-230V					
IP system of protection acc. to EN 60529		IP	20	20	20
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	230	230	230
	at 60 Hz power frequency	V	230	230	230
Current type			1N~	1N~	1N~
Nominal power		kW	1.10	1.30	***
Power plug of the power cable			shock proof plug	shock proof plug	shock proof plug
Energy consumption at 150 °C / *302 °F*		Wh/h	290	340	***
Unit fuse 5x20 mm / 250V / time-lag (T)		A	6.3 external	6.3 external	12.5 external
Overtemperature protective device class 1		°C	330	350	330
Installation category acc. to IEC 61010-1			II	II	II
Pollution degree acc. to IEC 61010-1			2	2	2
Different electrical data for FD-UL constructed for the USA and Canada (model versions FD056-120V, FD115-120V, FD260-120V)					
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	120	120	240
	at 60 Hz power frequency	V	120	120	240
Current type			1N~	1N~	2~
Power plug of the power cable		NEMA	5-15P	5-15P	6-20P
Unit fuse 5x20 mm / 250V / time-lag (T)		A	12.5 (external)	12.5 (external)	---
Miniature circuit breaker (combination element)		A	---	---	16 extern
Further information					
Weight (empty)		Kg / *lbs*	***	***	***
Noise level (mean value)		dB (A)	***	***	***

*** Data not yet determined

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C +/- 3°C / *71.6 °F ± 5.4 °F* and a power supply voltage fluctuation of ±10. Technical data is determined in accordance to BINDER Factory Standard Part 2:2015 and DIN 12880:2007.

All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

	If the cabinet is fully loaded, the specified heating up times may vary according to the load.

16.8 FED technical data

Unit size			FED 56	FED 115	FED 260
Exterior dimensions					
Width		mm /inch	560 / *22.01*	710 / *27.95*	815 / *32.09*
Height (incl. feet/castors)		mm /inch	625 / *24.60*	735 / *28.94*	965 / *37.99*
Depth		mm /inch	565 / *22.24*	605 / *23.82*	760 / *29.92*
Depth incl. door handle, and exhaust duct		mm /inch	640 / *25.20*	680 / *26.77*	815 / *32.09*
Wall clearance rear		mm /inch	160 / *6.30*	160 / *6.30*	160 / *6.30*
Wall clearance side		mm /inch	100 / *3.94*	100 / *3.94*	100 / *3.94*
Exhaust duct, outer diameter		mm /inch	*52 / 2.05*	*52 / 2.05*	*52 / 2.05*
Steam space volume		l / cu.ft.	67 / *2.37*	127 / *4.49*	279 / *9.85*
Number of door(s)			1	1	1
Interior dimensions					
Width		mm /inch	400 / *15.75*	550 / *21.65*	650 / *25.59*
Height		mm /inch	440 / *17.32*	550 / *21.65*	780 / *30.71*
Depth		mm /inch	345 / *13.58*	385 / *15.16*	510 / *20.08*
Interior volume		l / cu.ft.	60 / *2.12*	116 / *4.10*	*257 / 9.08*
Number of racks, regular / max.			2/***	2/***	2/***
Load per rack		Kg / *lbs*	***	***	***
Permitted total load		Kg / *lbs*	***	***	***
Temperature data					
Temperature range	from … degrees above ambient	°C / *°F*	10 / *18*	10 / *18*	***
	up to	°C / *°F*	300 / *572*	300 / *572*	300 / *572*
Temperature fluctuation at 150 °C / *302 °F*		± K	0.3	0.3	***
Temperature uniformity (variation) at 150 °C / *302 °F*		± K	1.5	1.2	***
Heating up time to 150 °C / *302 °F*		minutes	15	20	***
Recovery time after door was opened for 30 sec at 150 °C / *302 °F*		minutes	5	5	***
Ventilation data					
Air change	at 150 °C / *302 °F*	x/h	***	***	***
	at 300 °C / *572 °F*	x/h	***	***	***
Electrical data (model versions FED056-230V, FED115-230V, FED260-230V					
IP system of protection acc. to EN 60529		IP	20	20	20
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	230	230	230
	at 60 Hz power frequency	V	230	230	230
Current type			1N~	1N~	1N~
Nominal power		kW	1.10	1.30	***
Power plug of the power cable			shock proof plug	shock proof plug	shock proof plug
Energy consumption at 150 °C / *302 °F*		Wh/h	290	340	***
Unit fuse 5x20 mm / 250V / time-lag (T)		A	6.3 external	6.3 external	12.5 external
Overtemperature protective device class 1		°C	330	350	330
Installation category acc. to IEC 61010-1			II	II	II
Pollution degree acc. to IEC 61010-1			2	2	2

Unit size			FED 56	FED 115	FED 260
Different electrical data for FED-UL constructed for the USA and Canada (model versions FED056-120V, FED115-120V, FED260-120V)					
Nominal voltage (+/-10%)	at 50 Hz power frequency	V	120	120	240
	at 60 Hz power frequency	V	120	120	240
Current type			1N~	1N~	2~
Power plug of the power cable		NEMA	5-15P	5-15P	6-20P
Unit fuse 5x20 mm / 250V / time-lag (T)		A	12.5 (external)	12.5 (external)	---
Miniature circuit breaker (combination element)		A	---	---	16 extern
Further information					
Weight (empty)		Kg / *lbs*	***	***	***
Noise level (mean value)		dB (A)	***	***	***

*** Data not yet determined

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C +/- 3°C / *71.6 °F ± 5.4 °F* and a power supply voltage fluctuation of ±10. Technical data is determined in accordance to BINDER Factory Standard Part 2:2015 and DIN 12880:2007.

All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

	If the cabinet is fully loaded, the specified heating up times may vary according to the load.

16.9 Equipment and Options (extract)

	To operate the chamber, use only original BINDER accessories or accessories / components from third-party suppliers authorized by BINDER. The user is responsible for any risk arising from using unauthorized accessories.

	BD	BF	ED	FD	FED
Standard equipment					
Microprocessor temperature controller	√	√	√	√	√
Timer functions: Delayed On, Delayed Off and Temperature dependent Delayed Off		√			√
Adjustable ramp function	√	√	√	√	√
Temperature safety controller class 3.1 acc. to DIN 12880:2007	√	√			
Temperature safety controller class 2 acc. to DIN 12880:2007			√	√	√
Inner glass door	√	√			
USB interface to read out the measured values	√	√	√	√	√
Communication interface Ethernet					√
Exhaust duct, internal diameter 50 mm / *1.97 inches*, with adjustable ventilation slide	√	√	√	√	√
Adjustable air change by means of rear exhaust duct (50 mm)	√	√	√	√	√
2 racks, chrome-plated	√	√	√	√	√
Options / accessories					
Rack, chrome-plated or stainless steel	√	√	√	√	√
Perforated rack, stainless steel	√	√	√	√	√
Access ports with various diameters, with silicone plug	√	√	√	√	√
Door with window			√	√	√
Interior lightning	√	√	√	√	√
Communication interface Ethernet	√	√	√	√	
Battery backed real-time clock	√	√	√	√	√
Rubber pads for safe stacking (4 pieces)	√	√	√	√	√
Object temperature display with additional Pt100 temperature sensor	√	√	√	√	√
Water-proof interior socket, IP type of protection 67, 230 V 1N ~ 50-60 Hz. Max. load 500 W	√	√			
Analog output 4-20 mA for temperature with 6 pole DIN socket, DIN plug included	√	√	√	√	√
Disconnectable audible over-temperature alarm	√	√	√	√	√
FKM door gasket (temperature resistant up to 200 °C / *392 °F* max.)			√	√	√
Data Logger Kit T 220	√	√			
Data Logger Kit T 350			√	√	√
Measurement of air change rate acc. to ASTM D5374		√		√	√
Factory calibration certificate	√	√	√	√	√
Extension to factory calibration certificate (additional values)	√	√	√	√	√
Measuring protocol acc. to DIN 12880:2007	√	√	√	√	√
Qualification folder	√	√	√	√	√
Neutral cleaning agent (liquid concentrate)	√	√	√	√	√
Stable table on wheels with castors and locking brakes	√	√	√	√	√

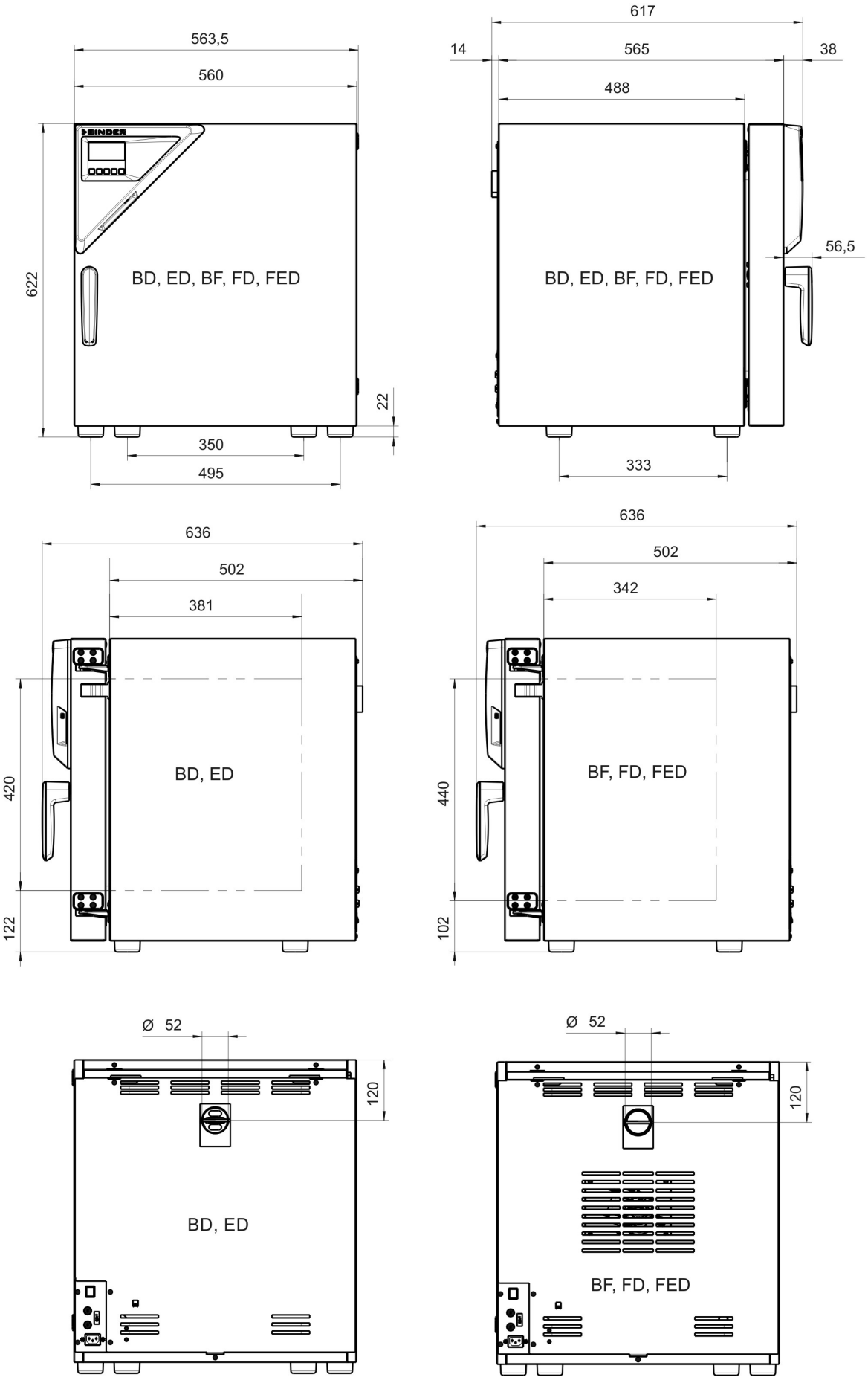
16.10 Accessories and spare parts

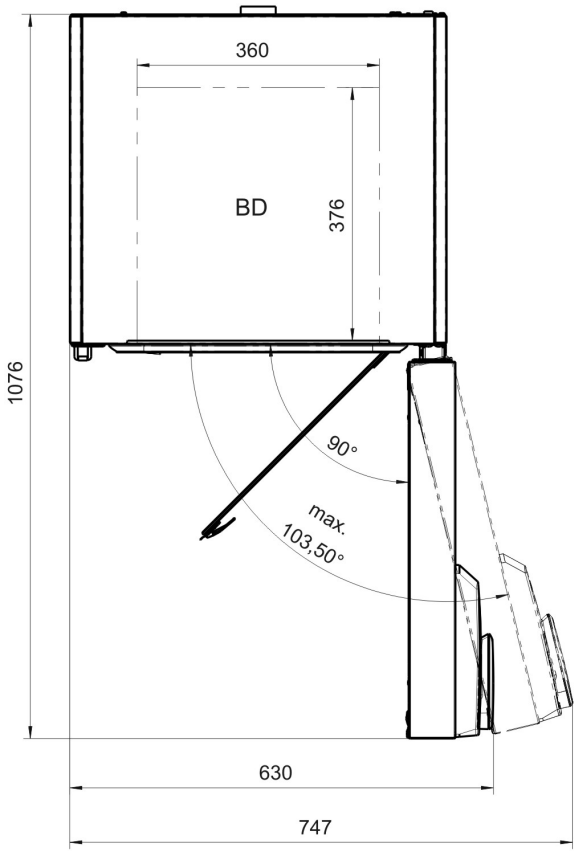
	BINDER GmbH is responsible for the safety features of the unit only, provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to chamber safety are replaced in the event of failure with original spare parts. The user is responsible for any risks arising from using unauthorized accessories/components.

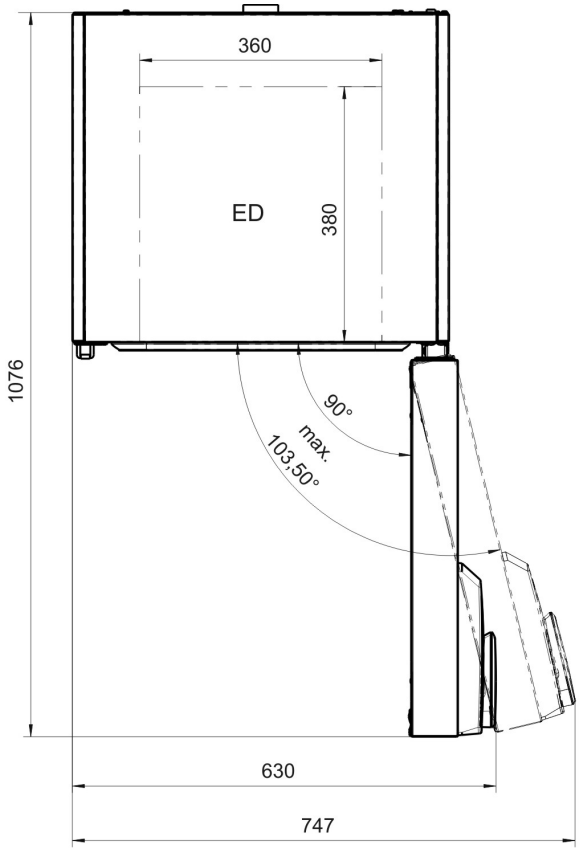
Unit size	**56**	**115**	**260**
Description	**Art. No.**		
Rack, chrome-plated BD, ED	6004-0174	6004-0175	6004-0177
Rack, chrome-plated BF, FD, FED	6004-0166	6004-0167	6004-0169
Rack, stainless steel	***	***	***
Perforated rack, stainless steel	***	***	***
Reinforced rack stainless steel, with 1 set rack lockings	***	***	***
Door gasket silicone	6005-0254	6005-0255	6005-0258
Door gasket made of FKM (temperature resistant up to 200 °C / *392 °F* max.)	***	***	***
Stable table on wheels with castors and locking brakes	***	***	***
Unit fuse 5x20mm 250V 6,3 A time lag (T)	5006-0092	5006-0092	---
Unit fuse 5x20mm 250V 8,0 A time lag (T)	---	---	5006-0093
Unit fuse 5x20mm 250V 12,5 A time lag (T)	5006-0096	5006-0096	5006-0096
Miniature circuit breaker (combination element) with IEC-plug socket 16 A	---	---	5024-0283
Rubber pads for safe stacking (4 pieces)	***	***	***

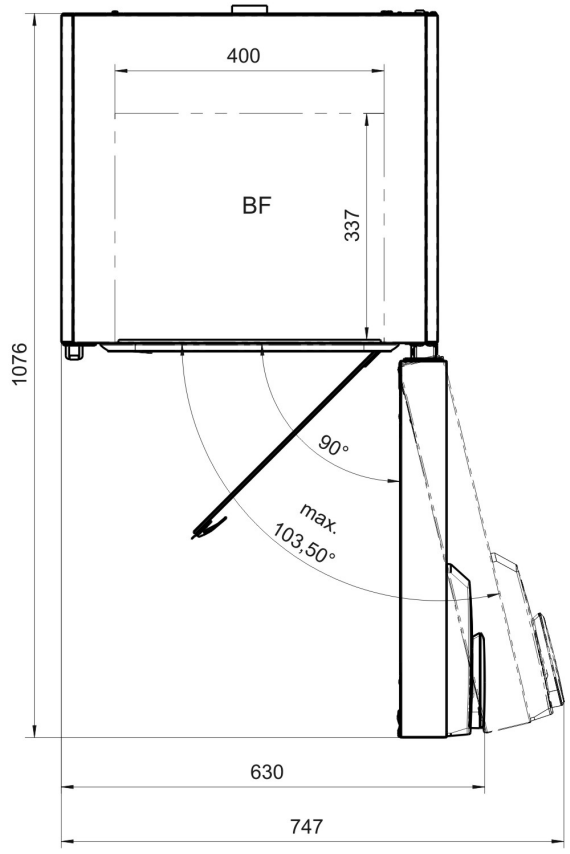
Description	**Art. No.**
R4 controller without relay (BD, ED)	5014-0190
R4 controller without relay, with Ethernet (BD with option Ethernet, ED with option Ethernet)	5014-0191
R4 controller with relay (FD)	5014-0192
R4 controller with relay and Ethernet (FD with option Ethernet)	5014-0193
R4 controller with adjustable fan speed (BF)	5014-0194
R4 controller with adjustable fan speed and Ethernet (FD with option Ethernet, FED)	5014-0195
Bimetallic switch 120 °C (Overtemperature protective device BD, BF)	5006-0095
Bimetallic switch 330 °C (Overtemperature protective device FD 115, FED 115)	5006-0097
Bimetallic switch 330 °C (Overtemperature protective device ED, FD, FED)	5006-0097
Temperature sensor Pt 100 bend-off	5002-0049
Door contact switch	5019-0064
Data Logger kit T 220	8012-0715
Data Logger kit T 350	8012-0714
Data Logger software	8012-0821
Calibration of temperature including certificate	***
Spatial temperature measurement including certificate (2-5 measuring points)	***
Spatial temperature measurement including certificate (6-9 measuring points)	***
Spatial temperature measurement including certificate (10-18 measuring points)	***
Spatial temperature measurement acc. to DIN 12880 including certificate (27 measuring points)	***
Measurement of air ventilation acc. to ASTM D 5374, including certificate	***
Qualification folder	***
Neutral cleaning agent, 1 kg	1002-0016

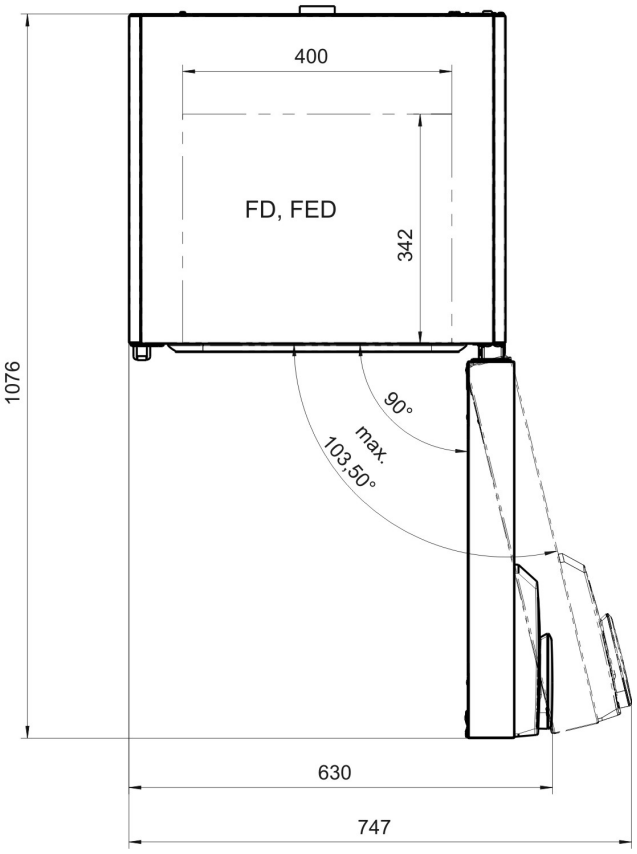
16.11 Dimensions size 56



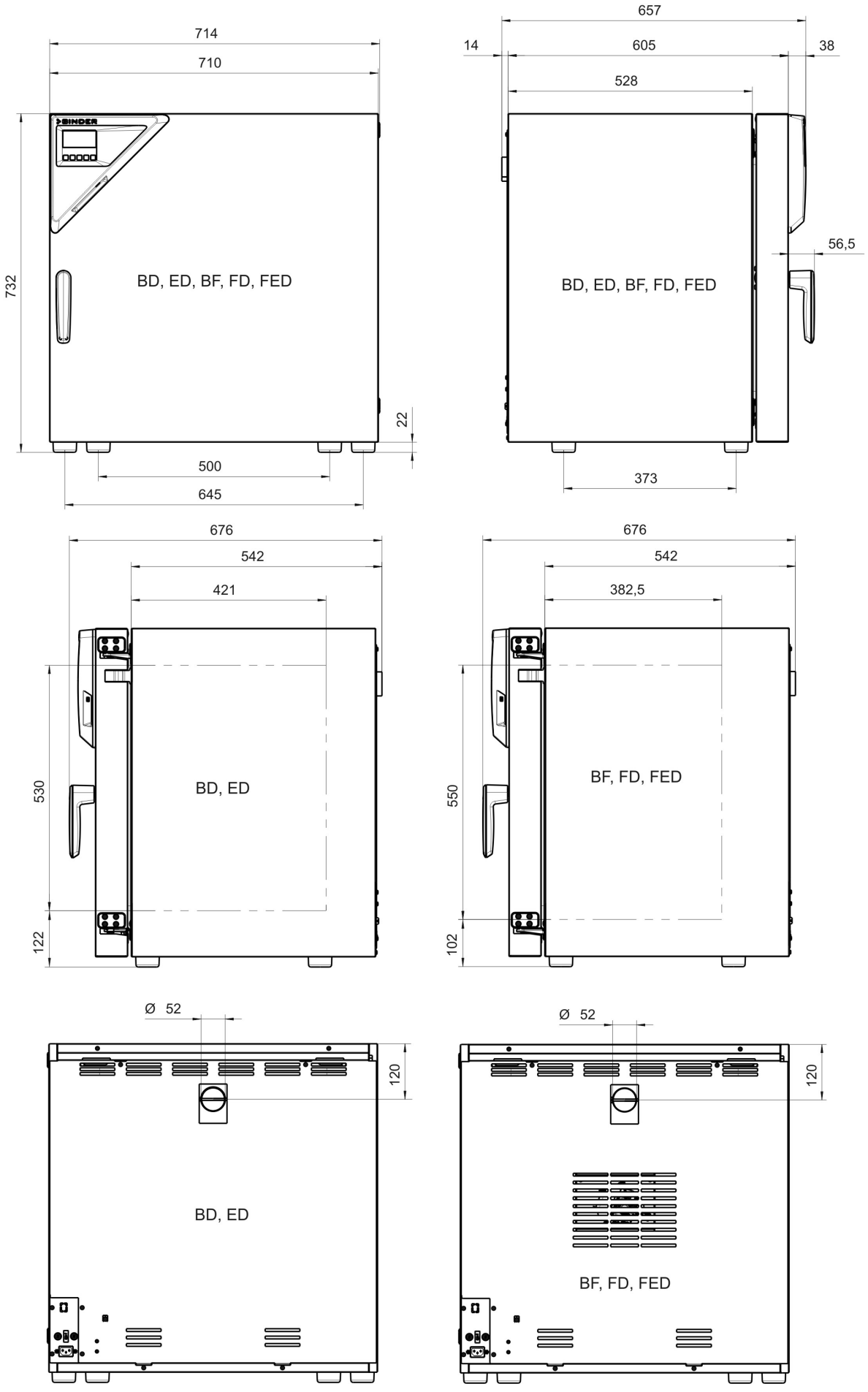

360
BD
376
1076
90°
max.
103,50°
630
747

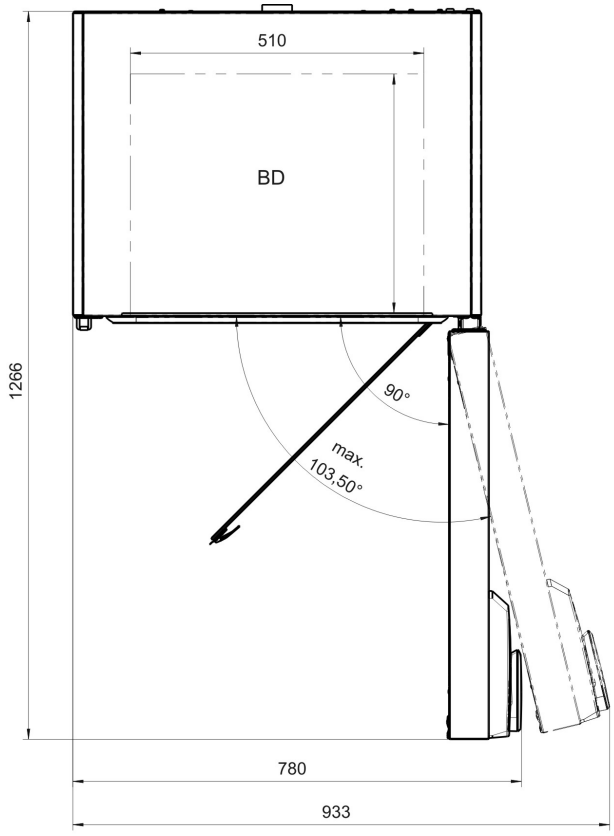

360
ED
380
1076
90°
max.
103,50°
630
747

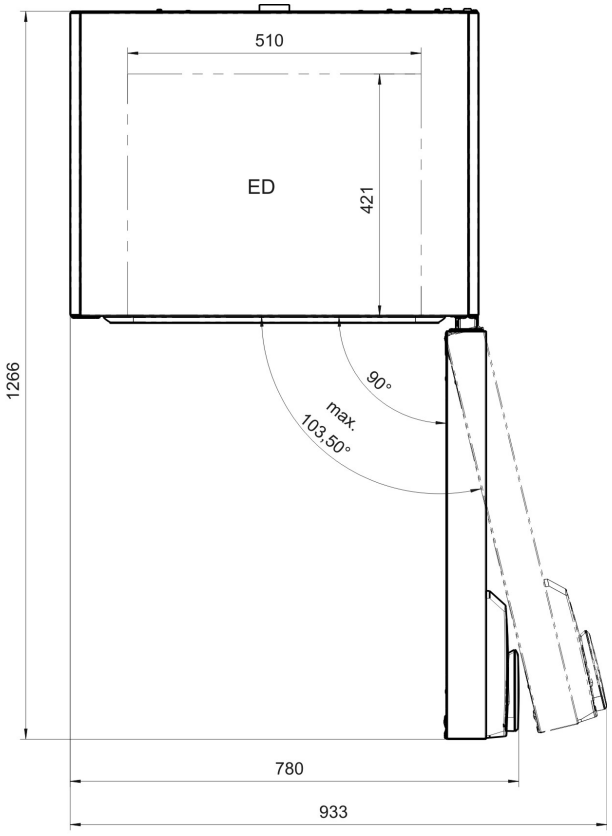

400
BF
337
1076
90°
max.
103,50°
630
747

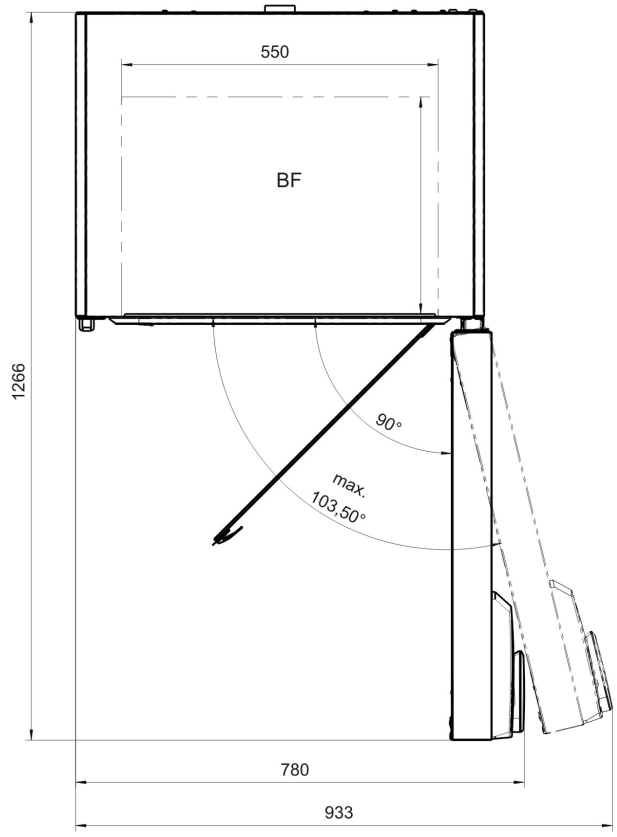

400
FD, FED
342
1076
90°
max.
103,50°
630
747

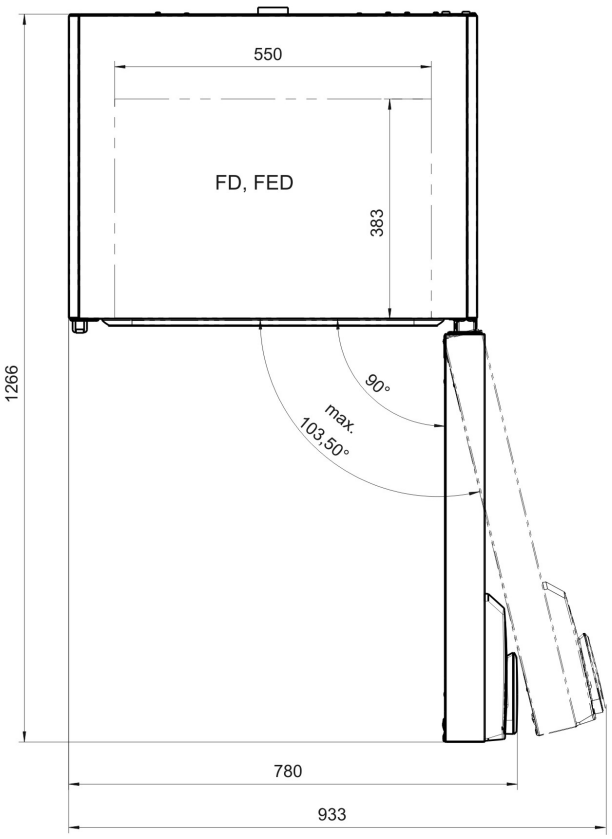
16.12 Dimensions size 115



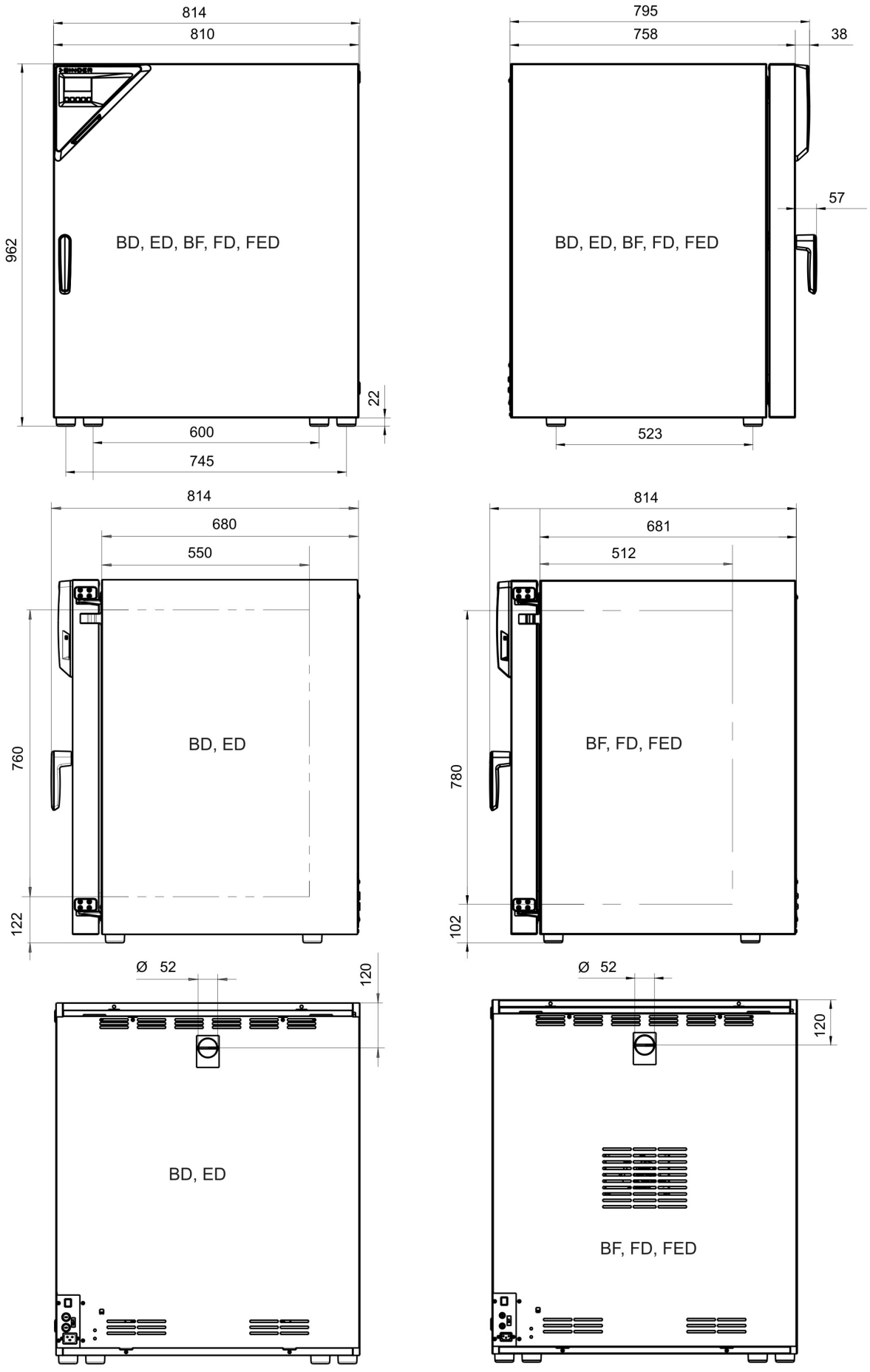

510
BD
1266
90°
max.
103,50°
780
933

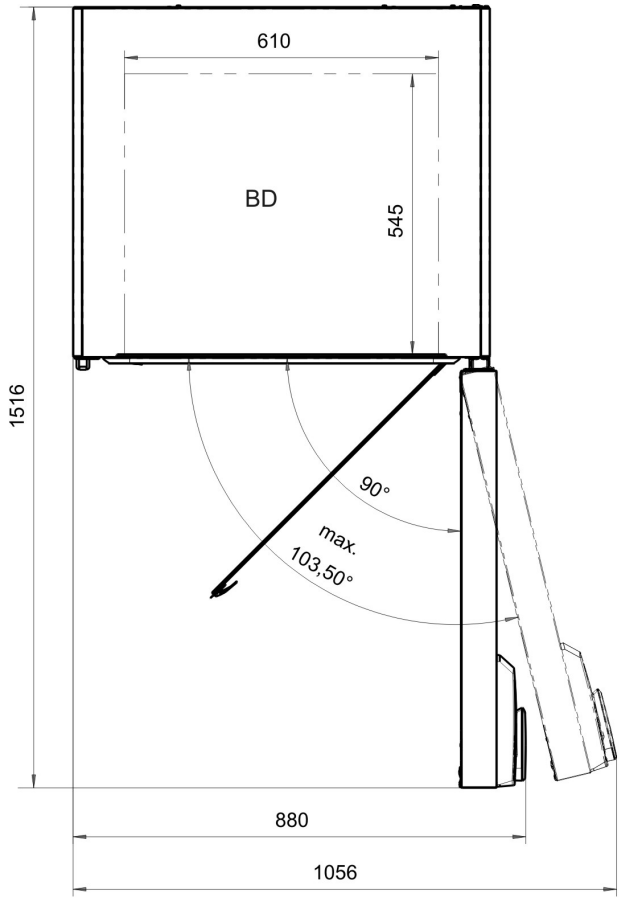

510
ED
421
1266
90°
max.
103,50°
780
933

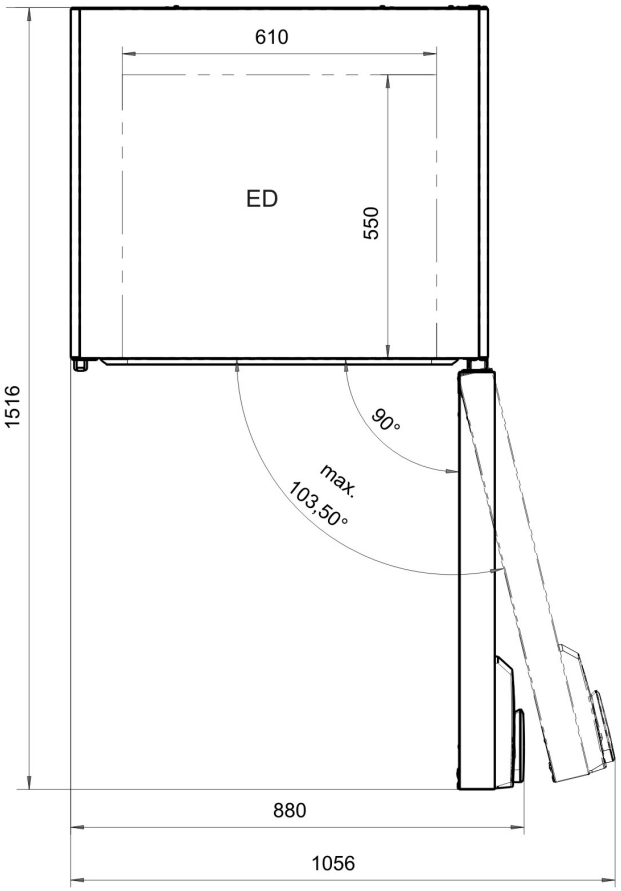

550
BF
1266
90°
max.
103,50°
780
933

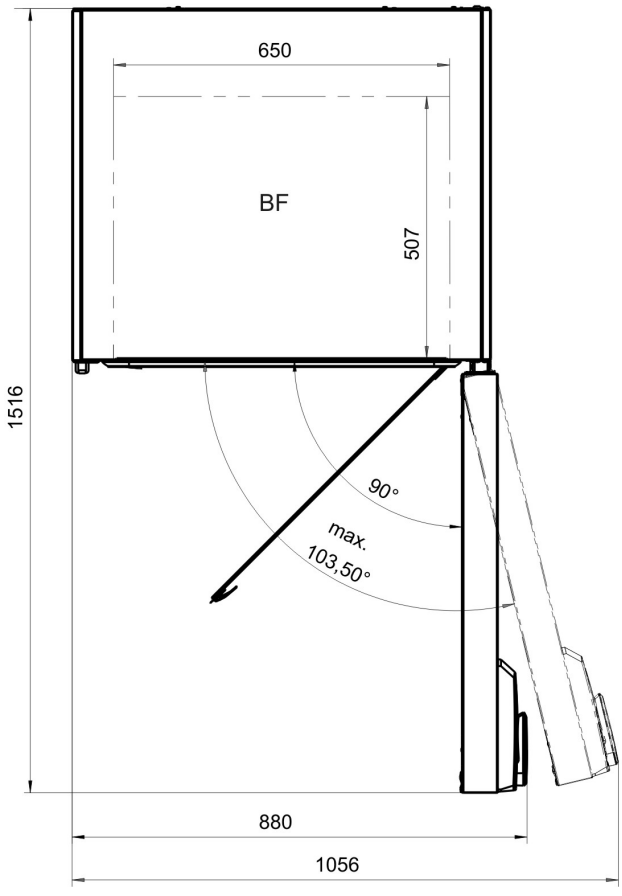

550
FD, FED
383
1266
90°
max.
103,50°
780
933

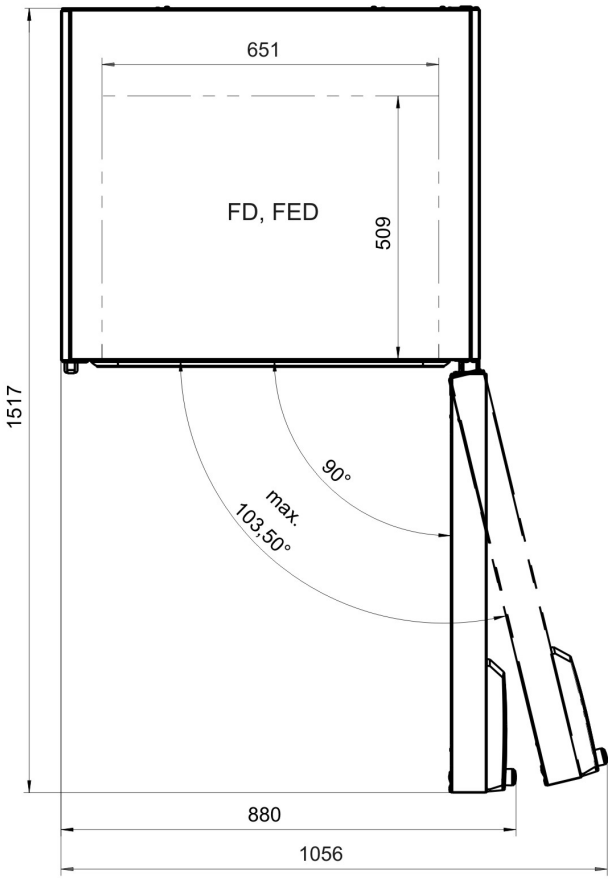
16.13 Dimensions size 260




610
BD
545
1516
90°
max.
103,50°
880
1056


610
ED
550
1516
90°
max.
103,50°
880
1056


650
BF
507
1516
90°
max.
103,50°
880
1056


651
FD, FED
509
1517
90°
max.
103,50°
880
1056

17. Certificates

17.1 EC Declaration of Conformity for BD

BINDER
Best conditions for your success

EG-Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité CE / Declaración de conformidad CE / Dichiarazione di conformità CE / Декларация соответствия ЕС

Hersteller / Manufacturer / Fabricant / Fabricante / Fabricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Inkubatoren mit freier Konvektion Incubators with natural convection Incubateurs à convection naturelle Incubadoras de convección natural Incubatori a convezione naturale Инкубаторы с естественной конвекцией
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	BD 56, BD 115, BD 260

Die oben beschriebenen Produkte sind konform mit folgenden EG-Richtlinien:

The products described above are in conformity with the following EC guidelines:

Les produits décrits ci-dessus sont conformes aux directives CE suivantes:

Los productos descritos arriba cumplen con las siguientes directivas de la CE:

I prodotti sopra descritti sono conformi alle seguenti direttive CE:

Продукты, указанные выше, полностью соответствуют следующим ЕС руководствам:

- **2006/95/EC**

  Niederspannungsrichtlinie 2006/95/EG / Low voltage directive 2006/95/EC / Directive basse tension 2006/95/CE / Directiva sobre baja tensión 2006/95/CE / Direttiva Bassa tensione 2006/95/CE / Директива по низкому напряжению 2006/95/CE

- **2004/108/EC**

  EMV-Richtlinie 2004/108/EG / EMC Directive 2004/108/EC / Directive CEM 2004/108/CE / Directiva CEM 2004/108/CE / Direttiva EMC 2004/108/CE / Директива ЭМС 2004/108/EC

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.

The products described above, corresponding to this, bear the CE-mark.

Les produits décrits ci-dessus, en correspondance, portent l'indication CE.

Los productos descritos arriba, en conformidad, llevan la indicación CE.

I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.

Данные продукты в соответствии с изложенным выше маркированы знаком CE.

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BINDER GmbH Postfach 102 D-78502 Tuttlingen **Hausanschrift:** BINDER GmbH Im Mittleren Ösch 5 D-78532 Tuttlingen
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Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 385 Tu. | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

BINDER
Best conditions for your success

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
• **EN 61010-1:2010**
• **EN 61010-2-010:2003**
EMV / EMC / CEM / CEM / EMC / ЭМС
• **EN 61326-1:2013**

78532 Tuttlingen, 10.07.2015
BINDER GmbH

P. M. Binder
Geschäftsführender Gesellschafter
Managing Director
Directeur général
Director general
Direttore Generale
Директор

J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

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Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 385 Tu | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

17.2 EC Declaration of Conformity for BF

BINDER
Best conditions for your success

CE EG-Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité CE / Declaración de conformidad CE / Dichiarazione di conformità CE / Декларация соответствия ЕС

Hersteller / Manufacturer / Fabricant / Fabricante / Fabricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Inkubatoren mit Umluft Incubators with forced convection Incubateurs à convection forcée Incubadoras de convección forzada Incubatori a convezione forzata Инкубаторы с принудительной циркуляцией воздуха
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	BF 56, BF 115, BF 260

Die oben beschriebenen Produkte sind konform mit folgenden EG-Richtlinien:

The products described above are in conformity with the following EC guidelines:

Les produits décrits ci-dessus sont conformes aux directives CE suivantes:

Los productos descritos arriba cumplen con las siguientes directivas de la CE:

I prodotti sopra descritti sono conformi alle seguenti direttive CE:

Продукты, указанные выше, полностью соответствуют следующим ЕС руководствам:

- **2006/95/EC**

  Niederspannungsrichtlinie 2006/95/EG / Low voltage directive 2006/95/EC / Directive basse tension 2006/95/CE / Directiva sobre baja tensión 2006/95/CE / Direttiva Bassa tensione 2006/95/CE / Директива по низкому напряжению 2006/95/CE

- **2004/108/EC**

  EMV-Richtlinie 2004/108/EG / EMC Directive 2004/108/EC / Directive CEM 2004/108/CE / Directiva CEM 2004/108/CE / Direttiva EMC 2004/108/CE / Директива ЭМС 2004/108/EC

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.

The products described above, corresponding to this, bear the CE-mark.

Les produits décrits ci-dessus, en correspondance, portent l'indication CE.

Los productos descritos arriba, en conformidad, llevan la indicación CE.

I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.

Данные продукты в соответствии с изложенным выше маркированы знаком CE.

1 / 2

BINDER GmbH Postfach 102 D-78502 Tuttlingen **Hausanschrift:** BINDER GmbH Im Mittleren Ösch 5 D-78532 Tuttlingen
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Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 385 Tu. | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

BINDER
Best conditions for your success

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
• **EN 61010-1:2010**
• **EN 61010-2-010:2003**
EMV / EMC / CEM / CEM / EMC / ЭМС
• **EN 61326-1:2013**

78532 Tuttlingen, 10.07.2015
BINDER GmbH

P. M. Binder
Geschäftsführender Gesellschafter
Managing Director
Directeur général
Director general
Direttore Generale
Директор

J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

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Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

17.3 EC Declaration of Conformity for ED

BINDER
Best conditions for your success

CE EG-Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité CE / Declaración de conformidad CE / Dichiarazione di conformità CE / Декларация соответствия ЕС

Hersteller / Manufacturer / Fabricant / Fabricante / Fabricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Trocken- und Wärmeschränke mit freier Konvektion Drying and heating ovens with natural convection Etuves de chauffage et de séchage à convection naturelle Estufas de secado y calentamiento de convección natural Stufe per essiccazione e riscaldamento a convezione naturale Сушильные и сухожаровые шкафы с естественной конвекцией
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	ED 56, ED 115, ED 260

Die oben beschriebenen Produkte sind konform mit folgenden EG-Richtlinien:

The products described above are in conformity with the following EC guidelines:

Les produits décrits ci-dessus sont conformes aux directives CE suivantes:

Los productos descritos arriba cumplen con las siguientes directivas de la CE:

I prodotti sopra descritti sono conformi alle seguenti direttive CE:

Продукты, указанные выше, полностью соответствуют следующим ЕС руководствам:

- **2006/95/EC**

  Niederspannungsrichtlinie 2006/95/EG / Low voltage directive 2006/95/EC / Directive basse tension 2006/95/CE / Directiva sobre baja tensión 2006/95/CE / Direttiva Bassa tensione 2006/95/CE / Директива по низкому напряжению 2006/95/CE

- **2004/108/EC**

  EMV-Richtlinie 2004/108/EG / EMC Directive 2004/108/EC / Directive CEM 2004/108/CE / Directiva CEM 2004/108/CE / Direttiva EMC 2004/108/CE / Директива ЭМС 2004/108/EC

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.

The products described above, corresponding to this, bear the CE-mark.

Les produits décrits ci-dessus, en correspondance, portent l'indication CE.

Los productos descritos arriba, en conformidad, llevan la indicación CE.

I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.

Данные продукты в соответствии с изложенным выше маркированы знаком CE.

BINDER GmbH Postfach 102 D-78502 Tuttlingen **Hausanschrift:** BINDER GmbH Im Mittleren Ösch 5 D-78532 Tuttlingen
Kontakt: Telefon: +49 (0) 74 62 / 20 05 - 0 | Telefax: +49 (0) 74 62 / 20 05 - 100 | info@binder-world.com | www.binder-world.com
Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 385 Tu. | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

BINDER
Best conditions for your success

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
• **EN 61010-1:2010**
• **EN 61010-2-010:2003**
EMV / EMC / CEM / CEM / EMC / ЭМС
• **EN 61326-1:2013**

78532 Tuttlingen, 10.07.2015
BINDER GmbH

P. M. Binder
Geschäftsführender Gesellschafter
Managing Director
Directeur général
Director general
Direttore Generale
Директор

J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

BINDER GmbH Postfach 102 D-78502 Tuttlingen **Hausanschrift:** BINDER GmbH Im Mittleren Ösch 5 D-78532 Tuttlingen
Kontakt: Telefon: +49 (0) 74 62 / 20 05 - 0 | Telefax: +49 (0) 74 62 / 20 05 - 100 | info@binder-world.com | www.binder-world.com
Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 385 Tu. | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

17.4 EC Declaration of Conformity for FD

BINDER
Best conditions for your success

CE EG-Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité CE / Declaración de conformidad CE / Dichiarazione di conformità CE / Декларация соответствия ЕС

Hersteller / Manufacturer / Fabricant / Fabricante / Fabricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Trocken- und Wärmeschränke mit Umluft Drying and heating ovens with forced convection Etuves de chauffage et de séchage à convection forcée Estufas de secado y calentamiento de convección forzada Stufe per essiccazione e riscaldamento a convezione forzata Сушильные и сухожаровые шкафы с принудительной конвекцией
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	FD 56, FD 115, FD 260

Die oben beschriebenen Produkte sind konform mit folgenden EG-Richtlinien:

The products described above are in conformity with the following EC guidelines:

Les produits décrits ci-dessus sont conformes aux directives CE suivantes:

Los productos descritos arriba cumplen con las siguientes directivas de la CE:

I prodotti sopra descritti sono conformi alle seguenti direttive CE:

Продукты, указанные выше, полностью соответствуют следующим ЕС руководствам:

- **2006/95/EC**

  Niederspannungsrichtlinie 2006/95/EG / Low voltage directive 2006/95/EC / Directive basse tension 2006/95/CE / Directiva sobre baja tensión 2006/95/CE / Direttiva Bassa tensione 2006/95/CE / Директива по низкому напряжению 2006/95/CE

- **2004/108/EC**

  EMV-Richtlinie 2004/108/EG / EMC Directive 2004/108/EC / Directive CEM 2004/108/CE / Directiva CEM 2004/108/CE / Direttiva EMC 2004/108/CE / Директива ЭМС 2004/108/EC

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.

The products described above, corresponding to this, bear the CE-mark.

Les produits décrits ci-dessus, en correspondance, portent l'indication CE.

Los productos descritos arriba, en conformidad, llevan la indicación CE.

I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.

Данные продукты в соответствии с изложенным выше маркированы знаком CE.

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Geschäftsführung: Dipl.-Ing. Peter M. Binder | Amtsgericht Tuttlingen, HRB 388 Tu. | Sitz der Gesellschaft: Tuttlingen
Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2266 BLZ: 643 500 70 | IBAN-Code: DE06643 500700 000002266 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

BINDER
Best conditions for your success

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
• **EN 61010-1:2010**
• **EN 61010-2-010:2003**
EMV / EMC / CEM / CEM / EMC / ЭМС
• **EN 61326-1:2013**

78532 Tuttlingen, 10.07.2015
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Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE59653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

17.5 EC Declaration of Conformity for FED

BINDER
Best conditions for your success

EG-Konformitätserklärung / EC Declaration of Conformity / Déclaration de conformité CE / Declaración de conformidad CE / Dichiarazione di conformità CE / Декларация соответствия ЕС

Hersteller / Manufacturer / Fabricant / Fabricante / Fabricante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	Trocken- und Wärmeschränke mit Umluft Drying and heating ovens with forced convection Etuves de chauffage et de séchage à convection forcée Estufas de secado y calentamiento de convección forzada Stufe per essiccazione e riscaldamento a convezione forzata Сушильные и сухожаровые шкафы с принудительной конвекцией
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	FED 56, FED 115, FED 260

Die oben beschriebenen Produkte sind konform mit folgenden EG-Richtlinien:

The products described above are in conformity with the following EC guidelines:

Les produits décrits ci-dessus sont conformes aux directives CE suivantes:

Los productos descritos arriba cumplen con las siguientes directivas de la CE:

I prodotti sopra descritti sono conformi alle seguenti direttive CE:

Продукты, указанные выше, полностью соответствуют следующим ЕС руководствам:

- **2006/95/EC**

  Niederspannungsrichtlinie 2006/95/EG / Low voltage directive 2006/95/EC / Directive basse tension 2006/95/CE / Directiva sobre baja tensión 2006/95/CE / Direttiva Bassa tensione 2006/95/CE / Директива по низкому напряжению 2006/95/CE

- **2004/108/EC**

  EMV-Richtlinie 2004/108/EG / EMC Directive 2004/108/EC / Directive CEM 2004/108/CE / Directiva CEM 2004/108/CE / Direttiva EMC 2004/108/CE / Директива ЭМС 2004/108/EC

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.

The products described above, corresponding to this, bear the CE-mark.

Les produits décrits ci-dessus, en correspondance, portent l'indication CE.

Los productos descritos arriba, en conformidad, llevan la indicación CE.

I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.

Данные продукты в соответствии с изложенным выше маркированы знаком CE.

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Bankverbindung: Kreissparkasse Tuttlingen Konto-Nr.: 2268 BLZ: 643 500 70 | IBAN-Code: DE05643 500700 000002268 | SWIFT-Code: SOLA DE S1TUT
Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE56653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

BINDER
Best conditions for your success

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

Sicherheit / Safety / Sécurité / Seguridad / Sicurezza / Нормативы по безопасности
• **EN 61010-1:2010**
• **EN 61010-2-010:2003**
EMV / EMC / CEM / CEM / EMC / ЭМС
• **EN 61326-1:2013**

78532 Tuttlingen, 10.07.2015
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Deutsche Bank Tuttlingen Konto-Nr.: 2 138 709 BLZ: 653 700 75 | IBAN-Code: DE58653 70075 0213870900 | SWIFT-Code: DEUT DE SS603

18. Product registration

Online Product Registration

Register your BINDER now!

www.binder-world.com/register

The registration is free and takes just a few seconds

Advantages:

- Short response times if service is needed
- Fair prices when relocating or installing equipment
- Calibration as required at no charge in case of recalls
- Free information on news, product upgrades and accessories

Easy registered in 3 steps:

1. List serial number here: ☐☐-☐☐☐☐☐
2. Go online: www.binder-world.com/register
3. Register serial number

19. Contamination clearance certificate

19.1 For units located outside North America and Central America

Declaration with regard to safety and health

Erklärung zur Sicherheit und gesundheitlichen Unbedenklichkeit

The German Ordinance on Hazardous Substances (GefStofV), and the regulations regarding safety at the workplace, require that this form be filled out for all products that are returned to us, so that the safety and health of our employees can be warranted.

Die Sicherheit und Gesundheit unserer Mitarbeiter, die Gefahrstoffverordnung GefStofV und die Vorschriften zur Sicherheit am Arbeitsplatz machen es erforderlich, dass dieses Formblatt für alle Produkte, die an uns zurückgeschickt wird.

	In the absence of a completely filled out form, a repair is not possible. Ohne Vorliegen des vollständig ausgefüllten Formblattes ist eine Reparatur nicht möglich.

- A completely filled out form should be transmitted by Fax (+49 (0) 7462 2005 93555) or by letter in advance to us, so that this information is available before the equipment/component part arrives. A second copy of this form should accompany the equipment/component part. Eventually the carrier should be informed.

  Eine vollständig ausgefüllte Kopie dieses Formblattes soll per Telefax (Nr. +49 (0) 7462 2005 93555) oder Brief vorab an uns gesandt werden, so dass die Information vorliegt, bevor das Gerät/Bauteil eintrifft. Eine weitere Kopie soll dem Gerät/Bauteil beigefügt sein. Ggf. ist auch die Spedition zu informieren.

- Incomplete information or non-conformity with this procedure will inevitably lead to substantial delays in processing. We hope you will have understanding for this measure, which lies outside of our area of influence, and that you will help us to speed up this procedure.

  Unvollständige Angaben oder Nichteinhalten dieses Ablaufs führen zwangsläufig zu beträchtlichen Verzögerungen in der Abwicklung. Bitte haben Sie Verständnis für Maßnahmen, die außerhalb unserer Einflussmöglichkeiten liegen und helfen Sie mit, den Ablauf beschleunigen.

- **Please fill out this form completely.**

  Bitte unbedingt vollständig ausfüllen!

1.	**Unit/ component part / type:** / **Gerät / Bauteil / Typ:**
2.	**Serial No./ Serien-Nr.:**
3.	**Details about utilized substances / biological substances** / **Einzelheiten über die eingesetzten Substanzen/biologische Materialien:**
3.1	**Designations** / **Bezeichnungen:**
a)	_____
b)	_____
c)	_____
3.2	**Safety measures required for handling these substances** / **Vorsichtsmaßnahmen beim Umgang mit diesen Stoffen:**
a)	_____
b)	_____
c)	_____

3.3 Measures to be taken in case of skin contact or release into the atmosphere / Maßnahmen bei Personenkontakt oder Freisetzung:

a) _____

b) _____

c) _____

d) _____

3.4 Other important information that must be taken into account / Weitere zu beachtende und wichtige Informationen:

a) _____

b) _____

c) _____

4. Declaration on the risk of these substances (please checkmark the applicable items) / Erklärung zur Gefährlichkeit der Stoffe (bitte Zutreffendes ankreuzen) :

❑ **4.1 For non toxic, non radioactive, biologically harmless materials / für nicht giftige, nicht radioaktive, biologisch ungefährliche Stoffe:**

We herewith guarantee that the above-mentioned unit / component part… / Wir versichern, dass o.g. Gerät/Bauteil...

❑ Has not been exposed to or contains any toxic or otherwise hazardous substances / weder giftige noch sonstige gefährliche Stoffe enthält oder solche anhaften.

❑ That eventually generated reaction products are non-toxic and also do not represent a hazard / auch evtl. entstandene Reaktionsprodukte weder giftig sind noch sonst eine Gefährdung darstellen.

❑ Eventual residues of hazardous substances have been removed / evtl. Rückstände von Gefahrstoffen entfernt wurden.

❑ **4.2 For toxic, radioactive, biologically harmful or hazardous substances, or any other hazardous materials / für giftige, radioaktive, biologisch bedenkliche bzw. gefährliche Stoffe oder anderweitig gefährliche Stoffe.**

We herewith guarantee that … / Wir versichern, dass …

❑ The hazardous substances, which have come into contact with the above-mentioned equipment/component part, have been completely listed under item 3.1 and that all information in this regard is complete / die gefährlichen Stoffe, die mit dem o.g. Gerät/Bauteil in Kontakt kamen, in 3.1 aufgelistet sind und alle Angaben vollständig sind.

❑ That the unit /component part has not been in contact with radioactivity / das Gerät/Bauteil nicht mit Radioaktivität in Berührung kam

5. Kind of transport / transporter / Transportweg/Spediteur:

Transport by (means and name of transport company, etc.) Versendung durch (Name Spediteur o.ä.)

_____

Date of dispatch to BINDER GmbH / Tag der Absendung an BINDER GmbH:

_____

We herewith declare that the following measures have been taken / Wir erklären, dass folgende Maßnahmen getroffen wurden:

❑ Hazardous substances were removed from the unit / component part, so that no hazard exists for corresponding persons in the handling or repair of these items / das Gerät/Bauteil wurde von Gefahrstoffen befreit, so dass bei Handhabung/Reparaturen für die betreffenden Person keinerlei Gefährdung besteht

❑ The unit was securely packaged and properly identified / das Gerät wurde sicher verpackt und vollständig gekennzeichnet.

❑ Information about the hazardousness of the shipment (if required) has been provided to the transporter / der Spediteur wurde (falls vorgeschrieben) über die Gefährlichkeit der Sendung informiert.

We herewith commit ourselves and guarantee that we will indemnify BINDER GmbH for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will exempt BINDER GmbH from eventual damage claims by third parties./ Wir versichern, dass wir gegenüber BINDER für jeden Schaden, der durch unvollständige und unrichtige Angaben entsteht, haften und BINDER gegen eventuell entstehende Schadenansprüche Dritter freistellen.

We are aware that, in accordance with Article 823 of the German Civil Code (BGB), we are directly liable with regard to third parties, in this instance especially the employees of BINDER GmbH, who have been entrusted with the handling / repair of the unit / component. / Es ist uns bekannt, dass wir gegenüber Dritten – hier insbesondere mit der Handhabung/Reparatur des Geräts/des Bauteils betraute Mitarbeiter der Firma BINDER - gemäß §823 BGB direkt haften

Name: _____

Position: _____

Date / Datum: _____

Signature / Unterschrift: _____

Company stamp / Firmenstempel:

Equipment that is returned to the factory for repair must be accompanied by a completely filled out contamination clearance certificate. For service and maintenance works on site, such a contamination clearance certificate must be submitted to the service technician before the start of the works. No repair or maintenance of the equipment is possible, without a properly filled out contamination clearance certificate.

19.2 For units in North America and Central America

Product Return Authorization Request

Please complete this form and the Customer Decontamination Declaration (next 2 pages) and attach the required pictures. E-mail to: IDL_SalesOrderProcessing_USA@binder-world.com

After we have received and reviewed the complete information we will decide on the issue of a RMA number. Please be aware that size specifications, voltage specifications as well as performance specifications are available on the internet at www.binder-world.us at any time.

Take notice of shipping laws and regulations.

	Please fill:	
Reason for return request	○ Duplicate order	
	○ Duplicate shipment	
	○ Demo	*Page one completed by sales*
	○ Power Plug / Voltage	115V / 230 V / 208 V / 240V
	○ Size does not fit space	
	○ Transport Damage	Shock watch tripped? *(pictures)*
	○ Other (specify below)	
	_____	
Is there a replacement PO?	○ Yes ○ No	
If yes -> PO #		
If yes -> Date PO placed		
Purchase order number		
BINDER model number		
BINDER serial number		
Date unit was received		
Was the unit unboxed?	○ Yes ○ No	
Was the unit plugged in?	○ Yes ○ No	
Was the unit in operation?	○ Yes ○ No	
Pictures of unit attached? *Pictures of Packaging attached?*	○ Yes ○ No ○ Yes ○ No	Pictures have to be attached!

	Customer Contact Information	Distributor Contact Information
Name		
Company		
Address		
Phone		
E-mail		

Customer (End User) Decontamination Declaration

Health and Hazard Safety declaration

To protect the health of our employees and the safety at the workplace, we require that this form is completed by the user for all products and parts that are returned to us. (Distributors or Service Organizations cannot sign this form)

	NO RMA number will be issued without a completed form. Products or parts returned to our NY warehouse without a RMA number will be refused at the dock.

A second copy of the completed form must be attached to the outside of the shipping box.

1.	**Unit/ component part / type**:
2.	**Serial No.**
3.	**List any exposure to hazardous liquids, gasses or substances and radioactive material**
3.1	**List with MSDS sheets attached where available or needed (if there is not enough space available below, please attach a page):** a) _____ b) _____ c) _____
3.2	**Safety measures required for handling the list under 3.1** a) _____ b) _____ c) _____
3.3	**Measures to be taken in case of skin contact or release into the atmosphere**: a) _____ b) _____ c) _____ d) _____
3.4	**Other important information that must be considered**: a) _____ b) _____ c) _____

4. Declaration of Decontamination

For toxic, radioactive, biologically and chemically harmful or hazardous substances, or any other hazardous materials.

We hereby guarantee that

4.1 Any hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete.

4.2 That the unit /component part has not been in contact with radioactivity

4.3 Any Hazardous substances were removed from the unit / component part, so that no hazard exists for a persons in the shipping, handling or repair of these returned unit

4.4 The unit was securely packaged in the original undamaged packaging and properly identified on the outside of the packaging material with the unit designation, the RMA number and a copy of this declaration.

4.5 Shipping laws and regulations have not been violated.

I hereby commit and guarantee that we will indemnify BINDER Inc for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will indemnify and hold harmless BINDER Inc. from eventual damage claims by third parties.

Name: _____

Position: _____

Company: _____

Address: _____

Phone #: _____

Email: _____

Date: _____

Signature: _____

Equipment returned to the NY warehouse for repair must be accompanied by a completed customer decontamination declaration. For service and maintenance works on site, such a customer decontamination declaration must be submitted to the service technician before the start of work. No repair or maintenance of the equipment is possible without a completed form.