

# Model BF 53 | Incubators with forced convection



## BENEFITS

- Safe and reproducible incubation even under high batch throughputs in long-term operation
- Disinfection routine at 100 °C
- Stable atmosphere by inner glass door



Model 53

## MAIN FEATURES

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

## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
Model BF 53				
53	230 V 1~ 50/60 Hz	Standard	BF053-230V	9010-0235
	120 V 1~ 60 Hz	Standard	BF053UL-120V	9010-0236

## TECHNICAL DATA

Description	BF053-230V	BF053UL-120V
<b>Article Number</b>	<b>9010-0235</b>	<b>9010-0236</b>
<b>Performance Data Temperature</b>		
Temperature range 5 °C above ambient temperature to [°C]	100	100
Temperature uniformity at 37 °C [± K]	0.4	0.4
Temperature uniformity at 50 °C [± K]	0.7	0.7
Temperature fluctuation at 37 °C [± K]	0.2	0.2
Temperature fluctuation at 50 °C [± K]	0.2	0.2
Heating-up time to 37 °C [min]	12	12
Heating-up time to 50 °C [min]	20	20
Recovery time after 30 seconds door open at 37 °C [min]	1	1
Recovery time after 30 seconds door open at 50 °C [min]	1.5	1.5

Description	BF053-230V	BF053UL-120V
<b>Article Number</b>	<b>9010-0235</b>	<b>9010-0236</b>
<b>Air change date</b>		
Air change (approx.) at 70 °C	59 x/h	59 x/h
<b>Electrical data</b>		
Rated Voltage [V]	230	120
Power frequency [Hz]	50/60	60
Nominal power [kW]	0.4	0.3
Nominal current [A]	1.8	2.6
Unit fuse [A]	12.5	12.5
Phase (Nominal voltage)	1~	1~
<b>Measures - Outer dimensions</b>		
Width net [mm]	635	635
Height net [mm]	620	620
Depth net [mm]	575	575
Wall clearance back [mm]	100	100
Wall clearance sidewise [mm]	160	160
Steam space volume [L]	70	70
<b>Measures - Doors</b>		
Unit doors	1	1
<b>Measures - Internal Dimensions</b>		
Width [mm]	400	400
Height [mm]	400	400
Depth [mm]	300	300
<b>Measures</b>		
Interior volume [L]	53	53
Net weight of the unit (empty) [kg]	43	43
Load per rack [kg]	15	15
<b>Environment-specific data</b>		
Energy consumption at 37 °C	11 Wh/h	11 Wh/h

## OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
<b>Access port with silicone plug</b>	10 mm, back	01	8012-0390
	10 mm, left	01	8012-0388
	10 mm, right	01	8012-0387
	10 mm, top	01	8012-0386
	30 mm, back	01	8012-0397
	30 mm, left	01	8012-0047
	30 mm, right	01	8012-0046
	30 mm, top	01	8012-0045
	50 mm, back	01	8012-0399
	50 mm, left	01	8012-0051
	50 mm, right	01	8012-0050
	50 mm, top	01	8012-0049
	100 mm, top	01, 10	8012-0053
	<b>Analog output, 4 – 20 mA</b>	for temperature values (output not adjustable)	–
<b>Calibration certificate, expanded</b>	each measurement at additional measuring point or testing temperature	–	8012-0022

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Calibration certificate, temperature</b>	for temperature, measurement in center of chamber at specified temperature	-	8012-0030
	temperature measurement incl. Certificate and 27 measuring points at specified temperature	-	8012-0921
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-0918
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-0915
<b>Cart</b>	stable cart, casters with locking brakes	-	9051-0018
<b>Data Logger Kit</b>	T 220: temperature logging from -90 °C to 220 °C	19	8012-0715
<b>Data Logger Kit, software</b>	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
<b>Door lock</b>	lockable door handle	-	8012-0318
<b>Interface converter, RS232/RS422 - 115V</b>	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit	-	8012-0557
	120 V, 60 Hz option model		
<b>Interface converter, RS232/RS422 - 230V</b>	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit	-	8012-0556
	230 V, 50/60 Hz option model		
<b>Interface converter, RS422 - 115V</b>	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit	-	8012-0405
	120 V, 60 Hz option model		
<b>Interface converter, RS422 - 230V</b>	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit	-	8012-0380
	230 V, 50/60 Hz option model		
<b>Interface converter, USB / RS422</b>	RS 422 cable set and RS 422 / USB interface converter for connection to 10-way plug distributor or for connection to a unit (USB-powered converter)	-	8012-0665
<b>Interior socket</b>	coverable, with associated LEMO connector (nominal voltage, max. 500 W, max. 90 °C, protection class IP67)	07	8012-0077
<b>Magnetic Pouch (A4)</b>	insert pouch with magnetic strip	-	1007-0065
<b>Overheating alarm</b>	audible, can be switched off, adjustable limit on the independent temperature safety device	-	8012-0470
	120 V, 208 V option model		
	230 V, 400 V option model		
<b>pH-neutral detergent</b>	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
<b>Pt 100 temperature sensor</b>	additional Pt 100, with flexible cable installed with external connection, incl. LEMO connector (3-pin)	-	8012-0115
<b>Rack</b>	chrome plated	-	6004-0002
	stainless steel	-	6004-0007
<b>RS 422 interface</b>	modular plug distributor for 10 RS 422 interfaces	-	8012-0295
<b>RS 422 interface, cable (15 m)</b>	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	-	5023-0036
<b>RS 422 interface, cable (50 m)</b>	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	-	5023-0117
<b>Rubber pads</b>	set of 4 anti-slip feet, for safe stacking of unit	10	8012-0001
<b>Shelf, perforated</b>	stainless steel	-	6004-0029
<b>Software</b>	APT-COM™ communications software	19	9053-0016
	version 2 to 3, GLP edition		
	version 3, BASIC edition		
	version 3, GLP edition		
	version 3, STANDARD edition		
	APT-COM™ communications software, price: for free		
version 3, GLP DEMO Edition	19	9053-0008	

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Instruction	unit function instructions for operation and programming of the controller	18	DL100400
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL200200
<b>Calibration services</b>			
Calibration temperature	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL300101
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL300118
Temperature measurement 27 measuring points	including certificate, 27 measuring points at specified temperature	14, 16, 17, 18	DL300127
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL300109
<b>Validation services</b>			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL400100
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL440500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0871
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18	8012-0959

\* Notes › See last page

## NOTES

- 01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
- 02 UL mark is not granted when this option is used.
- 03 Heat resistant only to max. 200 °C.
- 04 Only available on units rated for 230 V.
- 05 Attention: The pump is delivered separately. The electric connection for the pump (230 V/1~/50 Hz) must be carried out by an authorized electrician.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior.
- 08 The pump (packaged separately) is ready for connection.
- 09 Not in conjunction with the optional access port, door with window and interior lighting.
- 10 Not available on 23-liter units.
- 11 Not available on 23- or 53-liter units.
- 12 Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract (see the chapter on BINDER Service) to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- 16 Sensor calibration is performed in an accredited calibration laboratory.
- 17 Calibration is performed according to the BINDER factory standard.
- 18 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).
- 19 For additional accessories, refer to the Process documentation chapter.
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for both items.  
When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.
- 21 ATEX conformity:  
Pumping chamber (pumped gases): II 2G IIC T3 X  
Environment with inert purge gas: II 2G IIB T4 X  
Environment without inert purge gas: II 3G IIB T4 X  
Motor: II 2G Ex d IIB T4 Gb



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