



**Bringing Test Innovation to you** 

# Datasheet

This product datasheet has been provided by John Godrich & SJ Electronics in Partnership with BINDER





## Model BF 56 | Incubators Avantgarde.Line with forced convection

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

#### **BENEFITS**

- · Excellent temporal and spatial temperature accuracy
- · High process reliability
- · 100 °C disinfection routine



Model 56





- Temperature range: ambient temperature plus 7 °C to 100 °C
- High temperature accuracy thanks to APT.line™ technology
- Forced convection
- · Controller with LCD display
- · Electromechanical control of the exhaust air flap
- Inner door made of tempered safety glass



Model 56

- · 2 chrome-plated racks
- Stackable
- Class 3.1 integrated independent temperature safety device (DIN 12880) with visual alarm
- · Ergonomic handle design
- · USB port for recording data

#### ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	ArtNo.
Model BF 56				
2.1	230 V 1 ph 50/60 Hz	Standard	BF056-230V	9010-0313
	120 V 1 ph 60 Hz	Standard	BF056UL-120V	9010-0314



#### **TECHNICAL DATA**

Article Number         9010-0313         9010-0314           Performance Data Temperature         Vertourne Count of 100           Temperature range 7°C above ambient temperature to [°C]         100         100           Temperature functuration at 37°C [k K]         0.2         0.2           Heating-up time to 37°C [k K]         0.1         0.2           Recovery time after 30 seconds door open at 37°C [min]         6.0         0.2           Recovery time after 30 seconds door open at 37°C [min]         200         0.2           Place (Voltage [Y]         200         0.2           Power frequency [Hz]         600         0.0           Power frequency [Hz]         600         0.0           Power frequency [Hz]         600         0.0           Voltage [Y]         600         0.0           Power frequency [Hz]         600         0.0           Unit do [M]         600         0.0           Power frequency [Hz]         600         0.0           Unit do [M]         600         0.0           Power frequency [Hz]         600         0.0           Use of [Min]         600         0.0           Use of [Min]         600         0.0           Use of [Min]         600	Description	BF056-230V <sup>1</sup>	BF056UL-120V <sup>1</sup>
Temperature range 7 "C above ambient temperature to ("C)         100         100           Temperature variation at 37 "C [k ]         0.2         0.2           Temperature fluctuation at 37 "C [k ]         0.1         0.1           Rescovery time after 30 seconds door open at 37 "C [min]         3         3           Rescovery time after 30 seconds door open at 37 "C [min]         30         3           Reted Voltage [V]         230         120           Power frequency [ktz]         5000         60           Nominal power [kW]         0.4         0.4           Unit fuse [A]         5.3         12.5           Phase (Nominal voltage) [ph]         6.3         12.5           User dimensions         560         560           User dimensions         625         625           Depth net [mm]         650         56           Wall clearance back [mm]         100         10           Wall clearance back [mm]         100         10           Door         1         1           Valid clearance sidewise [mm]         400         40           Height [mm]         400         40           Height [mm]         400         40           Height [mm]         400         40<	Article Number	9010-0313	9010-0314
Temperature variation at 37 °C [x k]         0.2         0.2           Temperature fluctuation at 37 °C [x k]         0.1         0.1           Heating-up time to 37 °C [mi]         6         6           Recovery time after 30 seconds door open at 37 °C [min]         3         3           Electrical data	Performance Data Temperature		
Penipreture fluctuation at 37 °C [s k]   Heating-up time to 37 °C [min]   Recovery time after 30 seconds door open at 37 °C [min]   Recovery time after 30 seconds door open at 37 °C [min]   Recovery time after 30 seconds door open at 37 °C [min]   Electrical data   Functional dat	Temperature range 7 °C above ambient temperature to [°C]	100	100
Betailing-up time to 37 °C (min)         6         6           Recovery time after 30 seconds door open at 37 °C (min)         3         3           Electrical data         30         120           Rated Voltage [V]         500         60           Power frequency [Hz]         500         60           Nominal power [kW]         0.4         0.4           Unit tixe [A]         5         1.2           Phase (Nominal voltage) [ph]         6         1.2           Phase (Nominal voltage) [ph]         66         60           Outer dimensions         ************************************	Temperature variation at 37 °C [± K]	0.2	0.2
Recovery time after 30 seconds door open at 37 °C (min)         3         3           Electrical data         Cover frequency [V]         230         120           Power frequency [Vz]         50160         60           Morninal power [kW]         0.4         0.4           Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           Outer dimensions         Width net [mm]         560         560           Width net [mm]         625         560         560           Plaght net [mm]         626         565         565           Wall clearance back [mm]         100         100         100           Valid floarance sidewise [mm]         100         100         100           Doors         Unit doors         1 <td>Temperature fluctuation at 37 °C [± K]</td> <td>0.1</td> <td>0.1</td>	Temperature fluctuation at 37 °C [± K]	0.1	0.1
Electrical data           Rated Voltage [V]         230         120           Power frequency [Hz]         50/60         60           Nominal power [kW]         0.4         0.4           Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           Outer dimensions         ************************************	Heating-up time to 37 °C [min]	6	6
Rated Voltage [V]         230         120           Power frequency [Hz]         50/60         60           Nominal power [kW]         0.4         0.4           Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           Outer dimensions         ************************************	Recovery time after 30 seconds door open at 37 °C [min]	3	3
Power frequency [Hz]         50600         60           Nominal power [kW]         0.4         0.4           Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           User dimensions         ************************************	Electrical data		
Nominal power [kW]         0.4         0.4           Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           Outer dimensions         ************************************	Rated Voltage [V]	230	120
Unit fuse [A]         6.3         12.5           Phase (Nominal voltage) [ph]         1         1           Outer dimensions         ****         ****           Width net [mm]         560         560           Height net [mm]         625         625           Depth net [mm]         566         565           Wall clearance back [mm]         100         100           Wall clearance sidewise [mm]         100         100           Woll clearance sidewise [mm]         400         400           Internal Dimensions         ***         ***           Width [mm]         400         400           Height [mm]         400         400           Depth [mm]         340         400           Measures         ***         59         59           Net weight of the unit (empty) [kg]         38         38         38           Net weight of the unit (empty) [kg]         70         20         20           Enrigy consumption at 37 °C [Whh]         55         55         50           Sound-pressure level [dB(A)]         43         43         43	Power frequency [Hz]	50/60	60
Phase (Nominal voltage) [ph]         1         1           Outer dimensions         560         560           Width net [mm]         560         562           Depth net [mm]         566         565           Wall clearance back [mm]         160         160           Wall clearance sidewise [mm]         100         100           Unit doors         1         1           Width [mm]         400         400           Height [mm]         400         400           Height [mm]         400         400           Measures         59         59           Net weight of the unit (empty) [kg]         59         59           Net weight of the unit (empty) [kg]         70         30           Load per rack [kg]         30         30           Energy consumption at 37 °C [Wh/h]         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures	Nominal power [kW]	0.4	0.4
Outer dimensions           Width net [mm]         560         560           Height net [mm]         625         625           Depth net [mm]         565         565           Wall clearance back [mm]         160         160           Wall clearance sidewise [mm]         100         100           Doors         Unit doors         1         1           Uniteral Dimensions         Width [mm]         400         400           Height [mm]         440         440           Depth [mm]         340         40           Measures         Interior volume [L]         59         59           Net weight of the unit (empty) [kg]         38         38           permitted load [kg]         70         70           Load per rack [kg]         30         30           Energy consumption at 37 °C [Wh/h]         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures	Unit fuse [A]	6.3	12.5
Width net [mm]         560         560           Height net [mm]         625         625           Depth net [mm]         565         565           Wall clearance back [mm]         160         100           Wall clearance sidewise [mm]         100         100           Doors         """"""""""""""""""""""""""""""""""""	Phase (Nominal voltage) [ph]	1	1
Height net [mm]         625           Depth net [mm]         565           Wall clearance back [mm]         160           Wall clearance sidewise [mm]         100           Doors         ************************************	Outer dimensions		
Depth net [rmm]         565         565           Wall clearance back [rmm]         160         160           Wall clearance sidewise [rmm]         100         100           Doors         ************************************	Width net [mm]	560	560
Wall clearance back [mm]       160       160         Wall clearance sidewise [mm]       100       100         Doors       ************************************	Height net [mm]	625	625
Wall clearance sidewise [mm]         100         100           Doors         1         1           Unit doors         1         4           Internal Dimensions         Vidth [mm]         400         400           Height [mm]         440         440           Depth [mm]         340         340           Measures         59         59           Net weight of the unit (empty) [kg]         38         38           permitted load [kg]         70         70           Load per rack [kg]         30         30           Environment-specific data         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures         50         50	Depth net [mm]	565	565
Doors           Unit doors         1 </td <td>Wall clearance back [mm]</td> <td>160</td> <td>160</td>	Wall clearance back [mm]	160	160
Unit doors         1         1           Internal Dimensions         Vidth [mm]         400         400           Height [mm]         440         440         440           Depth [mm]         340         340         400           Measures         Very colume [L]         59         59         59           Net weight of the unit (empty) [kg]         38         38         38           permitted load [kg]         70         70         20 </td <td>Wall clearance sidewise [mm]</td> <td>100</td> <td>100</td>	Wall clearance sidewise [mm]	100	100
Internal Dimensions           Width [mm]         400         400           Height [mm]         440         440           Depth [mm]         340         340           Measures         Interior volume [L]         59         59           Net weight of the unit (empty) [kg]         38         38           permitted load [kg]         70         70           Load per rack [kg]         30         30           Environment-specific data         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures	Doors		
Width [mm]       400       400         Height [mm]       440       440         Depth [mm]       340       340         Measures       ************************************	Unit doors	1	1
Height [mm]       440       440         Depth [mm]       340       340         Measures       Interior volume [L]       59       59         Net weight of the unit (empty) [kg]       38       38         permitted load [kg]       70       70         Load per rack [kg]       30       30         Environment-specific data       55       55         Sound-pressure level [dB(A)]       43       43         Fixtures       440       440	Internal Dimensions		
Depth [mm]         340         340           Measures         ************************************	Width [mm]	400	400
Measures         Interior volume [L]       59       59         Net weight of the unit (empty) [kg]       38       38         permitted load [kg]       70       70         Load per rack [kg]       30       30         Environment-specific data       ***         Energy consumption at 37 °C [Wh/h]       55       55         Sound-pressure level [dB(A)]       43       43         Fixtures	Height [mm]	440	440
Interior volume [L]         59         59           Net weight of the unit (empty) [kg]         38         38           permitted load [kg]         70         70           Load per rack [kg]         30         30           Environment-specific data         ***           Energy consumption at 37 °C [Wh/h]         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures         ***         ***	Depth [mm]	340	340
Net weight of the unit (empty) [kg]       38       38         permitted load [kg]       70       70         Load per rack [kg]       30       30         Environment-specific data       S5       55         Sound-pressure level [dB(A)]       43       43         Fixtures       Fixtures       43	Measures		
permitted load [kg]         70         70           Load per rack [kg]         30         30           Environment-specific data         55         55           Sound-pressure level [dB(A)]         43         43           Fixtures         Fixtures         Fixtures	Interior volume [L]	59	59
Load per rack [kg]       30       30         Environment-specific data          Energy consumption at 37 °C [Wh/h]         55         55          Sound-pressure level [dB(A)]       43       43         Fixtures	Net weight of the unit (empty) [kg]	38	38
Environment-specific data  Energy consumption at 37 °C [Wh/h] 55 55  Sound-pressure level [dB(A)] 43 43  Fixtures	permitted load [kg]	70	70
Energy consumption at 37 °C [Wh/h] 55 55 Sound-pressure level [dB(A)] 43 43 Fixtures	Load per rack [kg]	30	30
Sound-pressure level [dB(A)] 43 43  Fixtures	Environment-specific data		
Fixtures	Energy consumption at 37 °C [Wh/h]	55	55
	Sound-pressure level [dB(A)]	43	43
Number of shelves (std./max.) 2/4 2/4	Fixtures		
	Number of shelves (std./max.)	2/4	2/4

<sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10%. The temperature data is determined to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.



### **OPTIONS AND ACCESSORIES**

Designation	Description	*	ArtNo.
	left		
	10 mm	01	8012-1274
	30 mm	01	8012-1156
	50 mm	01	8012-1164
	right		
	10 mm	01	8012-1267
Access port with silicone plug	30 mm	01	8012-1153
3	50 mm	01	8012-1162
	top		
	10 mm	01	8012-1261
	30 mm	01	8012-1150
	50 mm	01	8012-1159
	100 mm	01, 10	8012-1166
Analog output, 4 – 20 mA	for temperature values (output not adjustable)	02	8012-1622
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1111
	for temperature, measurement in center of chamber at specified temperature	-	8012-1130
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1590
emperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1569
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1548
Cart	Cart – stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm	-	9051-0018
Clock	battery-backed	-	8012-1639
Data Logger Kit	T 220: For continuous temperature logging from -90 °C to 220 °C. The kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit	19	8012-0715
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
Door lock	lockable door handle	-	8012-1663
Ethernet interface	for communication software	-	8012-0990
Gas-tight option model	Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	09	8012-1044
Inert gas connection	With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	-	8012-1047
	with 15 W light bulb		
nterior lighting	120 V option model	-	8012-097
	230 V option model	-	8012-1626
Interior socket	Waterproof, switched flush-mounting box (CA3GD) for nominal voltage in unit interior, with cover and corresponding plug (nominal voltage; max. 500 W; max. 90 °C; protection class IP67)	07	8012-1638
Overheating alarm	audible, can be switched off, adjustable limit on the independent temperature safety device	_	8012-1634
oH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1618
	chrome plated	-	6004-0166
Rack	stainless steel	_	6004-0150
Rack, heavy load	Stainless steel (1.4301/AISI 304), max. load per rack 50 kg, max. total load 70 kg	_	6004-0198
	. , , , , , , , , , , , , , , , , , , ,		
Rubber pads	set of 4 anti-slip feet, for safe stacking of unit	10	8012-0001

<sup>\*</sup> Notes > See last page



Designation	Description	*	ArtNo.
Software	APT-COM™ communications software		
	version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free		
	version 3, GLP DEMO Edition	19	9053-0008

<sup>\*</sup> Notes > See last page

### **SERVICES**

Designation	Description	*	ArtNo.
Installation services			
Data Logger Kit installation service	unit function instructions for operation and programming of the controller	18	DL100400
Preventive maintenance			
Preventive maintenance	Execution of equipment inspection according to maintenance plan	14, 18	DL200200
Calibration services			
Data Logger Kit calibration service	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
Validation services			
Data Logger Kit validation service	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
Warranty service			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL017041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	DL017042

<sup>\*</sup> Notes > See last page



#### **NOTES**

- Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge. 01 02
- UL mark is not granted when this option is used. Heat resistant only to max. 200 °C.
- 03
- Only available on units rated for 230 V.
- Heating-up time may increase as a result of the lower heat conductivity.
- The additional heat input may affect the temperature behavior.
- Not in conjunction with the optional access port, door with window and interior lighting. 09
- Not available on 23-liter units.
- Not available on 23- or 53-liter units.
- 10 11 12 Only available on units rated for 230 V or 400 V.
- Installation and connections take place at unit location; transport within the company only upon consultation.
- We recommend a BINDER service contract (see the chapter on BINDER Service) to cover unit inspections, calibrations and validations
- OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- Sensor calibration is performed in an accredited calibration laboratory.
- 17
- Calibration is performed in an accordance cannot about activity.

  Calibration is performed according to the BINDER factory standard.

  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).
- For additional accessories, refer to the Process documentation chapter.
- 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.





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