# Model BD 720 | Standard-Incubators with natural convection

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

#### BENEFITS

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



Model 720

#### **IMPORTANT FEATURES**

- Temperature range: +5°C above ambient temperature to +100°C
- High temperature accuracy thanks to APT.line™ technology
- Natural convection
- Controller with LCD display
- Electromechanical control of the exhaust air flap
- Inner door made of tempered safety glass

- 2 chrome-plated racks
- 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 [L]	Power supply - unit fuse	Plug*	Version	Model version	ArtNo.
Model BD 720					
	230 V 1~ 50/60 Hz -16,0 A	CEE 7/7	Standard	BD720-230V	9010-0331
737	240 V 1~ 50/60 Hz -16,0 A	NEMA 6-20	Standard	BD720UL-240V	9010-0332



### TECHNICAL DATA

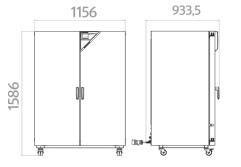
Attick Humber      9000 0331      9000 0332        Option rodel      Sandard      Sandard        Performace Data Temperature      Sandard      Sandard        Performance Data Temperature      Sandard      Sandard        Temperature range      Sandard      Sandard        Temperature uniformity at grX      Opti K      Sandard        Temperature uniformity at grX      Opti K      Sandard        Temperature functuation at sort%      Sandard      Sandard        Reading up time to sort%      Sandard      Sandard	Data		
Participant      Participant        Definition delay      Standad      Standad        Performance Data Temperature      Instructional Statu      Instructional Statu        Temperature Cargo      Instructional Statu      Instructional Statu      Instructional Statu        Reading up three Data Cargo      Instructional Statu      Instructional Statu      Instructional Statu        Reading up three Data Cargo      Instructional Statu      Instructional Statu      Instructional Statu        Reading Up three Statu      Instructional Statu      Instructional Statu      Instructional Statu        Reading Statu      Instructional Statu      Instructional Statu      Instructional Statu        Readinal Statu      I	Designation	BD720-230V	BD720UL-240V
Performance blat Temperature	Article Number	9010-0331	9010-0332
Interpretative orageis % classe ambient temperature to rom %is % classe ambient temperature to rom %Temperature uniformity at cod%0.2 + K0.2 + KTemperature uniformity at cod%0.3 + K0.1 + KTemperature fluctuation at cod%0.3 + K0.3 + KTemperature fluctuation at cod%0.3 + K0.3 + KTemperature fluctuation at cod%0.0 + IN0.3 + KTemperature fluctuation at cod%0.0 + IN0.3 + KTemperature fluctuation at cod%0.0 + IN0.0 + INTemperature fluctuation at cod%0.0 + IN0.0 + IN	Option model	Standard	Standard
Temperature uniformity at 37°C      0.7 ± K        Temperature uniformity at 37°C      0.0 ± K        Temperature uniformity at 20°C      0.1 ± K        Temperature function of 37°C      0.1 ± K        Temperature function of 37°C      0.3 ± K        Temperature function of 30°C	Performance Data Temperature		
Temperature uniformity at uon <sup>C</sup> 3 o t K3 o t KTemperature fluctuation at uon <sup>C</sup> 0 a t K0 a s KTemperature fluctuation at uon <sup>C</sup> 0 a j k0 a s KHeating up time to son <sup>C</sup> 0 or min0 or minHeating up time to son <sup>C</sup> 0 or min0 or minRecovery time able choor woo opened for g s at g w0 or min0 or minRecovery time able choor woo opened for g s at g w0 or min0 or minRecovery time able choor woo opened for g s at g w0 or min0 or minRecovery time able choor woo opened for g s at g w0 or min0 or minRecovery time able choor woo opened for g s at g w0 or min0 or minRecovery time able choor woo opened for g w0 or Min0 or MinRecovery time able choor woo opened for g w0 or Min0 or MinRecovery time able choor woo opened for g w0 or Min0 or MinRecover for g wood for g w0 or Min0 or MinNormal power0 or Min0 or Min	Temperature range	+5 °C above ambient temperature to 100 °C	+5 °C above ambient temperature to 100 °C
Temperature fluctuation at 3r <sup>C</sup> Co.1 ± Ko.1 ± KTemperature fluctuation at sooPCo.3 ± Ko.3 ± KHeating up time to sooPCpo minporninHeating up time to sooPCpo minporninRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minporninRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minporninRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minpo minRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minpo minRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minpo minRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minpo minRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo minpo minRecovery sime after door was opened for go at 3r <sup>C</sup> Cpo for for for for for for for for for fo	Temperature uniformity at 37°C	0.7 ± K	0.7 ± K
Temperature fluctuation at sor0.3 + KTemperature fluctuation at sor0.3 + KHeating up fine to cor9 minHating up fine to cor9 minRecovery fine after door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minBatch door was opened for go s at gr3 minPower frequency3 op 64Power frequency6 op 64Nominal power6 op 64Power forquency6 op 64Power forquency6 op 64Not go gr6 op 64Not go gr6 op 64Power forquency6 op 67Power forq	Temperature uniformity at 100°C	3.0 ± K	3.0 ± K
Heating up time to soo <sup>2</sup> Cgo mingo minHeating up time to soo <sup>2</sup> Cyo minyo minHeating up time to soo <sup>2</sup> Cyo minyo minRecovery time after door was opened for so st soo <sup>2</sup> Cyo minyo minBectrical datayo Wyo WPower frequencygol6o H2yo WPower frequency6,66 Wyo KoNorninal power6,66 Wyo KoPhase (Norninal voltage)1-0yo KoPhase (Norninal voltage)yo Koyo KoPretor volume73 Lyo KoNardight of the unit (emptry)6,64 Ryo KoLoad per rack19 kgyo KoValid charance sidewiseyo Koyo KoWall charance sidewiseio minyo KoWall charance sidewiseio minyo KoWalt met to solar charance sidewiseio minyo KoWalt met solar charance sidewiseio Sig Mayo KoWalt met solar charance sidewiseio minyo KoWalt met solar charance sidewiseio minyo KoWalt met solar charance sidewiseio Sig Mayo KoWalt met solar charance sidew	Temperature fluctuation at 37°C	0.1 ± K	0.1 ± K
Heating up lime to 37°C70 min70 minRecovery time after door was opened for 30 st 37°C3 min3 minReturnal data30 V40 VPower frequency30 fo B250 fo B2Nominal power6.0 fo B250 fo B2Nominal power6.0 A5.0 fo B2Data for Manage10.0 A5.0 fo B2Pose (Nominal voltage)6.0 A5.0 ADirectors and weights10.0 A5.0 APose (Nominal voltage)71 A5.0 ANetweight of the unit (empty)6.9 kg6.9 kgIndependency6.9 kg6.9 kgPortified load1.9 kg6.9 kgVal clearance back6.0 min6.9 kgWalt clearance back6.0 min6.0 minWalt clearance sidewise6.0 min6.0 min </td <td>Temperature fluctuation at 100°C</td> <td>0.3 ± K</td> <td>0.3 ± K</td>	Temperature fluctuation at 100°C	0.3 ± K	0.3 ± K
Recovery time after door was opened for so s at syncspainBeckweid takaspainspainExercised dataspainspainBeded VoltagespainspainspainPower frequencyspainspainspainNormal powerspainspainspainNormal powersp	Heating up time to 100°C	90 min	90 min
Electrical data      Rated Voltage    290 V    240 V      Power frequency    50/60 Hz    50/60 Hz      Nominal power    50/60 Hz    50/60 Hz      Number of the second s	Heating up time to 37°C	70 min	70 min
Rated Voltage230 V240 VPower frequency50/60 Hz50/60 HzNominal power6.6 kW1.75 kWUnit fuse6.0 A16.0 APhase (Nominal voltage)1-Dimesions and weights737 L737 LNet weight of the unit (empty)6.9 kg6.9 kgLad per rack6.9 kg6.9 kgPermitted load1.5 kg315 kgWall clearance sidewise6.0 mm100 mmWall clearance sidewise100 mm100 mmHutter to the time tempty1.0 mm1.0 mmWalt net tempty1.0 mm1.0 mmWalt net tempty1.0 mm1.0 mmHutter tempty1.0 mm1.0 mmWalt dearance sidewise1.0 mm1.0 mmHutter tempty1.0 mm1.0 mm <trr>Hutter</trr>	Recovery time after door was opened for 30 s at 37°C	23 min	23 min
Power frequencyso/60 Hzso/60 HzNominal poweri.65 KWi.75 KWNominal poweri.60 Ai.60 AUnit fusei.60 Ai.60 APhase (Nominal voltage)i.1i.1Dimensions and weightsi.1i.1Interior volumej.71 Lj.71 LInterior volumei.69 kgi.60 kgIod per racki.69 kgi.60 kgVerifield loadj.51 kgj.51 kgWill clearance backi.60 mni.60 mnVall clearance sidewisei.00 mni.00 mnUnith the time side montenetteri.60 mni.60 mnWild henti.60 mni.60 mnHouse side wisei.60 mni.60 mnHouse side wise s	Electrical data		
Nominal power.65 kW.75 kWUnit fuse160 A16.0 APhase (Nominal voltage)Dimesions and weightsInterior volume737 L737 LNew leight of the unit (empty)69 kg69 kgLoad per rack45 kg315 kgPermitted load315 kg160 mmWall clearance back100 mm160 mmUt did meters is diversion160 mm160 mmHouse ot the unit (fings and connections)161 mm160 mmWidth net165 mm165 mmWidth net165 mm165 mm	Rated Voltage	230 V	240 V
Unit fusei6.0 Ai6.0 APhase (Nominal Voltage)1~1~Dimensions and weights5771Interior volume72 A72 ANa weight of the unit (empty)69 kg69 kgI dad per rack45 kg52 kgPermitted load51 kg51 kgWill clearance back100 mm100 mmWill clearance sidewise100 mm100 mmWild hert1.65 mm1.65 mmWith net1.65 mm1.65 mm	Power frequency	50/60 Hz	50/60 Hz
Phase (Nominal voltage)1-1Dimensions and weights737 L737 LInterior volume737 L69 kgNet weight of the unit (empty)69 kg69 kgLoad per rack45 kg45 kgPermitted load315 kg315 kgWalt clearance back160 mm60 mmWalt clearance sidewise100 mm100 mmHusing dimensions not int. If trings and connections1,65 mm1,65 mm	Nominal power	1,65 kW	1,75 kW
Dimensions and weightsInterior volume737 LNet weight of the unit (empty)169 kgLoad per rack45 kgPermitted load315 kgVall clearance back60 mmWall clearance sidewise100 mmUommHorizont Liftings and connectionsWidth net1,165 mmLiftings and connections	Unit fuse	16,0 A	16,0 A
Interior volume737 L737 LNet weight of the unit (empty)169 kg169 kgLoad per rack45 kg45 kgPermitted load315 kg315 kgWall clearance back160 mm160 mmWall clearance sidewise100 mm100 mmHousing dimensions not incl. fittings and connectionsWidth net1,165 mm1,165 mm	Phase (Nominal voltage)	1~	1~
Net weight of the unit (empty)169 kg169 kgLoad per rack45 kg45 kgPermitted load315 kg315 kgWall clearance back160 mm160 mmWall clearance sidewise100 mm100 mmHousing dimensions not incl. fittings and connectionsWidth net1,165 mm1,165 mm	Dimensions and weights		
Load per rack45 kg45 kgPermitted load315 kg315 kgWall clearance back160 mm160 mmWall clearance sidewise100 mm100 mmHousing dimensions not incl. fittings and connectionsWidth net1,165 mm1,165 mm	Interior volume	737 L	737 L
Permitted load315 kg315 kgWall clearance back160 mm160 mmWall clearance sidewise100 mm100 mmHusing dimensions not incl. fittings and connectionsWidth net1,165 mm1,165 mm	Net weight of the unit (empty)	169 kg	169 kg
Wall clearance back160 mm160 mmWall clearance sidewise100 mm00 mmHousing dimensions not incl. fittings and connectionsWidth net1,165 mm1,165 mm	Load per rack	45 kg	45 kg
Wall clearance sidewise  100 mm    Housing dimensions not incl. fittings and connections	Permitted load	315 kg	315 kg
Housing dimensions not incl. fittings and connections      Width net    1,165 mm      1,165 mm	Wall clearance back	160 mm	160 mm
Width net 1,165 mm 1,165 mm	Wall clearance sidewise	100 mm	100 mm
	Housing dimensions not incl. fittings and connections		
Height net 1,590 mm 1,590 mm	Width net	1,165 mm	1,165 mm
	Height net	1,590 mm	1,590 mm



Depth net	870 mm	870 mm
Internal Dimensions		
Interior width	960 mm	960 mm
Interior height	1,280 mm	1,280 mm
Interior depth	600 mm	600 mm
Inner doors	2	2
Unit doors	2	2
Environment-specific data		
Energy consumption at 100°C	480 Wh/h	480 Wh/h
Energy consumption at 37°C	78 Wh/h	78 Wh/h
Fixtures		
Number of shelves (std./max.)	2/16	2/16

All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C  $\pm 3$  °C and a power supply voltage fluctuation of  $\pm 10\%$ . The temperature data is determined in accordance 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.

#### DIMENSIONS Incl. fittings and connections [mm]



#### OPTIONS

Designation	Description	BD 720	*	ArtNo.
	back			
	10 mm	•	01	8012-0390
Access port with silicone plug	30 mm	•	01	8012-0397
	50 mm	•	01	8012-0399
	left			
	10 mm	•	01	8012-0388
	30 mm	•	01	8012-0047

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Designation	Description	BD 720	*	ArtNo.
	50 mm	•	01	8012-0051
	right			
	10 mm		01	8012-0387
			01	8012-0046
			01	8012-0050
	top			
	10 mm	•	01	8012-0386
	30 mm	•	01	8012-0045
	50 mm	•	01	8012-0049
	100 mm	•	01	8012-0053
larm function for overheating	Switchable acoustic alarm, with adjustable limit value on the independent temperature safety device	•	-	8012-0979
nalog output 4-20 mA	for temperature values (output not adjustable)	•	02	8012-0941
alibration certificate, xpanded	for temperature; for extending the measurement in center of chamber to include another test temperature	•	-	8012-1110
	for temperature, measurement in center of chamber at specified temperature	•	-	8012-1129
alibration certificate,	temperature measurement incl. certificate, 9 measuring points at specified temperature	•	-	8012-0915
emperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	•	-	8012-0918
	temperature measurement incl. certificate and 27 measuring points at specified temperature	•	-	8012-0921
Clock	battery-backed	•	-	8012-0981
Door lock	lockable door handle	•	-	8012-1026
thernet interface	for Multi Management Software APT-COM™	•	-	8012-0987
nner chamber, reinforced	max. total load 350 kg	•	-	8012-1828
t 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	•	-	8012-0940

### ACCESSORIES

Designation	Description	BD 720	*	ArtNo.
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units.			
	version 4, BASIC edition	•	_	9053-0039

BINDER Best conditions for your success

Designation	Description	BD 720	*	ArtNo.
APT-COM™ 4 GLP-Edition	for working under GLP-compliant conditions. Measured values are documented in a tamper- proof way in line with the requirements of FDA Regulation 21 CFR 11.			
	version 4, GLP edition	•	-	9053-0042
APT-COM™ 4 PROFESSIONAL-	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.			
	version 4, PROFESSIONAL edition	•	-	9053-0040
oH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
	IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, $CO_2$ , $O_2$ – or pressure, depending on unit			
	- Digital in PDF format	•	-	7057-0005
	- Hard copy inside folder 	•	-	7007-0005
Qualification documents	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, $CO_2$ , $O_2$ , pressure, depending on unit			
	- Digital in PDF format	•	-	7057-0001
	- Hard copy inside folder	•	-	7007-0001
	max. load per rack 45 kg			
Rack	chrome plated	•	-	8012-2045
	stainless steel	•	-	8012-2174
	max. load per rack 70 kg			
ack, heavy load	Stainless steel	•	-	8012-2186
helf, perforated	max. load per rack 40 kg			
neu, penorateu	Stainless steel	•	-	8012-2182

### SERVICES

Designation	Description	*	ArtNo.		
Calibration services					
	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	-	DL30-0110		
Calibration certificate, temperature	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	_	DL30-0102		
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	_	DL30-0109		

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Designation	Description	*	ArtNo.
Temperature measurement, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	_	DL30-0118
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	_	DL30-0127
Installation services			
Unit commissioning	Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)	_	DL10-0100
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	_	DL10-0500
Maintenance contracts			
BRONZE 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts	_	DL20-0720
GOLD 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate	_	DL20-0915
SILVER 3-year maintenance contract	Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate	_	DL20-0815
Maintenance services			
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate	_	DL20-0601
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	_	DL40-0100
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	-	DL44-0500
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	_	DL50-0010

### NOTES

- 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.

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## **BINDER Environmental Testing**

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