

# Model KBWF 720 | Growth chambers with light and humidity

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

## BENEFITS

- Patented lighting system ensures homogeneous light distribution
- Flexible positioning of illumination cassettes, three different light spectra, individually selectable
- Pressure humidification with fast response times



Model 720

## MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- positionable illumination cassettes, each with 5 fluorescent tubes
- APT.line™ preheating chamber technology
- Adjustable fan speed
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Intuitive touchscreen controller with time-segment and real-time programming
- Internal data logger, measured values can be read out in open format via USB
- Unit self-test for comprehensive status analysis
- Tight-sealing inner door made of safety glass (ESG)
- Avoidance of glass corrosion by special TIMELESS coating
- Display via color LCD monitor
- stainless steel racks
- Access port with silicone plug, 30 mm, left
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: Ethernet
- Door heating
- 60 Hz version on request

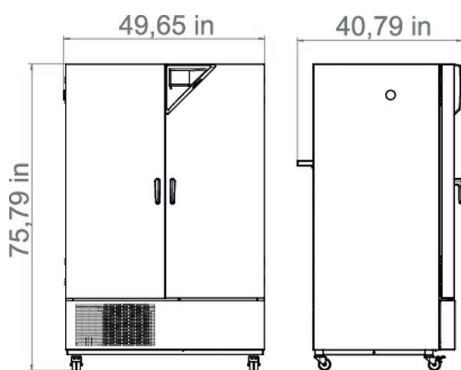
## ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
24.7	200...240 V 1~ 50 Hz	Standard	KBWF720-230V	9020-0337

**TECHNICAL DATA**

Description	KBWF720-230V <sup>1</sup>
<b>Article Number</b>	<b>9020-0337</b>
<b>Performance Data Temperature</b>	
Temperature range with 100% illumination [°C]	10...60
Temperature range without illumination cassettes [°C]	0...70
<b>Performance Data Climate</b>	
Temperature range with 100% illumination [°C]	20...60
Temperature range without illumination cassettes [°C]	10...70
Humidity range with illumination cassettes, with illumination [% RH]	10...75
Humidity range without illumination [% RH]	10...80
<b>Lightdata per Illumination Cassettes</b>	
Daylight tubes [W/m <sup>2</sup> ]* <sup>2</sup>	38
Daylight tubes [lx]* <sup>2</sup>	13000
Fluora® growth lamps [W/m <sup>2</sup> ]* <sup>2</sup>	36
Fluora® growth lamps [lx]* <sup>2</sup>	10500
Arabidopsis lamps [W/m <sup>2</sup> ]* <sup>2</sup>	43
Arabidopsis lamps [lx]* <sup>2</sup>	14000
<b>Electrical data</b>	
Rated Voltage [V]	200...240
Power frequency [Hz]	50
Nominal power [kW]	3.5
Unit fuse [A]	16
Phase (Nominal voltage)	1~
<b>Measures</b>	
Interior volume [cu.ft.]	24.7
Net weight of the unit (empty) [lbs]	825
Permitted load [lbs]	331
Load per rack [lbs]	99
Wall clearance back [in]	3.94
Wall clearance sidewise [in]	7.88
<b>Internal Dimensions</b>	
Width [in]	38.34
Height [in]	49.3
Depth [in]	22.69
<b>Doors</b>	
Inner doors	2
Unit doors	2
<b>Housing dimensions not incl. fittings and connections</b>	
Width net [in]	49.3
Height net [in]	75.8
Depth net [in]	35.07
<b>Environment-specific data</b>	
Sound-pressure level [dB(A)]	59
<b>Fixtures</b>	
Number of shelves (std./max.)	3/12
Number of illumination cassettes (std./max.)	3/3

- 1 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 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. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.
- 2 Average value, measured at 25 °C with a spherical sensor (±10 %) by 12 cm below the light cassette. The values given in W/m<sup>2</sup> refer to global radiation.

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

Designation	Description	*	Art.-No.
<b>Calibration certificate, temperature</b>	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1607
	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1749
	Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™	-	8012-1745
	for temperature ( $\pm 2$ °C) and humidity ( $\pm 5$ % RH), accessible via 6-pin DIN socket (max. 24 V - 2.5 A), with audible signal that can be switched off	-	8012-1764
	for temperature and humidity values (output not adjustable)	-	8012-1740
	for temperature and humidity; for extending the measurement in center of chamber to include another test value	-	8012-1192
	Illumination cassettes equipped with Arabidopsis fluorescent tubes instead of daylight fluorescent tubes	-	8012-1499
	Illumination cassettes equipped with FLUORA® fluorescent tubes instead of daylight fluorescent tubes	-	8012-1498
	including certificate, illumination and irradiance for visible light and UV-A, 25 measuring points on 3 measurement levels, as well as spectral distribution (250 – 785 nm)	-	8012-1547
	left		
30 mm	01	8012-1447	
50 mm	01	8012-1477	
lockable door handle	-	8012-1779	
<b>Options/Accessories</b>	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	-	8012-1186
	positioned at bottom level, max. load 45 kg, with additional attachment for operation of shaking device, stirring device or roller bottle system	-	8012-1494
	right		
	30 mm	01	8012-1441
	50 mm	01	8012-1471
	temperature (according to DIN12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values	-	8012-1613
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1587
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1566
	top		
	30 mm	01	8012-1453
50 mm	01	8012-1459	
100 mm	01	8012-1465	
with visual alarm (DIN 12880)	-	8012-1756	

\* Notes › See last page

**ACCESSORIES**

Designation	Description	*	Art.-No.
<b>Multi Management Software</b>	Multi Management Software APT-COM™		
	version 4, BASIC edition	19	9053-0039
	version 4, GLP edition	19	9053-0042
	version 4, PROFESSIONAL edition	19	9053-0040
<b>Options/Accessories</b>	Stainless steel	-	8009-0486
	stainless steel	-	6004-0106
	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
	consisting of fresh- and waste-water containers (20 liters each), cabling and pump		
	external, for hanging from the back of the device	-	8012-0643
	external, free-standing	-	8012-1846
	fasteners (1 set of 4) for additional security of racks	-	8012-0620
	IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, humidity, and light values		
	Digital in PDF format	-	7057-0003
	Hard copy inside folder	-	7007-0003
	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, humidity, and light values		
	Digital in PDF format	-	7057-0007
	Hard copy inside folder	-	7007-0007
	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-0821
	RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor		
	115 V option model	-	8012-0599
	230 V option model	-	8012-0589
	Single-use, replacement cartridge for BINDER PURE AQUA System	-	6011-0165
	stainless steel, with fasteners (1 set of 4)	-	8012-0674
System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts	-	8012-0759	
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	
TH 70/70: For continuous temperature and humidity logging from -40 °C to 70 °C / 0% to 100% RH and additional logging of ambient conditions. Kit includes 1 data logger, 2 attachable combined humidity/temperature sensors, 2 m extension cable and 1 fixture for mounting to the BINDER unit	19	8012-0717	
TH 70: For continuous temperature and humidity logging from -40 °C to 70 °C; 0% to 100% RH. Kit includes 1 data logger, Pt 100 sensor with 2 m extension cable, and 1 magnetic fixture for mounting to the BINDER unit	19	8012-0716	

\* Notes › See last page

**SERVICES**

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Services	Unit function instructions for operation and programming of the controller	18	DL10-0700
	Unpacking and setting up of unit, connecting to existing connections, and checking function	13, 18	DL10-0300
<b>Preventive maintenance</b>			
Services	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0400

\* Notes › See last page

Designation	Description	*	Art.-No.
<b>Calibration services</b>			
	Expansion – including certificate, each additional measuring point in center of chamber at 25 °C / 60% RH or at specified values	14, 16, 17, 18	DL30-0302
	Radiometric measurement in the visible spectrum with determination and documentation of intensity distribution from an illumination cassette on 3 measurement levels, including certificate	14, 16, 17, 18	DL31-0000
	Temperature and humidity calibration with 1 measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0301
<b>Services</b>	Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate	14, 16, 17, 18	DL30-0427
	Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0318
	Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate	14, 16, 17, 18	DL30-0327
	Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate	14, 16, 17, 18	DL30-0309
<b>Validation services</b>			
<b>Services</b>	Execution of IQ/OQ including light photometry in accordance with qualification folder	15, 18	DL43-0400
	Execution of IQ/OQ/PQ in accordance with qualification folder	15, 18	DL44-0500
<b>Warranty service</b>			
<b>Services</b>	The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded	–	DL02-3041
	The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded	–	DL02-3042

\* 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.
- 07 The additional heat input may affect the temperature behavior.
- 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 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.

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