

# Model KBF LQC 240 | Constant climate chambers with ICH-compliant light source and light dose control

The main advantage of the BINDER KBF LQC series is the patented light photometry for photostability tests. Two 3D spherical sensors control the light dosage of UV-A and visible light. Once the desired light dosage is achieved, the chamber switches off automatically.

## BENEFITS

- Homogeneous climate conditions thanks to APT.line™ technology
- Automatic water and wastewater management
- Pressure humidification with fast response times
- Variable position and removable illumination cassettes
- ICH-compliant illumination for long-term stable test conditions
- Precise photometry with 3D ball-type sensors at the sample



Model 240



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## MAIN FEATURES

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- 2 positionable illumination cassettes with ICH-compliant UV/Vis light source
- Independent light-dose control of UV-A and visible light with spherical sensors
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- Intuitive touchscreen controller with time-segment and real-time programming with internal data recording
- Tight-sealing inner door made of safety glass (ESG) with special TIMELESS coating
- 2 stainless steel racks
- Access port with silicone plug, 30 mm, left
- 4 stable castors, two with brakes
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: Ethernet
- Door heating

## ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	Art.-No.
Model KBF LQC 240				
8.7	200...230 V 1 ph 50/60 Hz	Standard	KBFLQC240-230V	9020-0332
	200...240 V 1 ph 50/60 Hz	Standard	KBFLQC240UL-240V	9020-0333

## TECHNICAL DATA

Description	KBFLQC240-230V <sup>1</sup>	KBFLQC240UL-240V <sup>1</sup>
Article Number	9020-0332	9020-0333
<b>Performance Data Temperature</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	0...70	0...70
Max. heat compensation at 40 °C with illumination [W]	400	400
<b>Performance Data Climate</b>		
Temperature range with 100% illumination [°C]	10...60	10...60
Temperature range without illumination cassettes [°C]	10...70	10...70
Temperature variation with illumination at 25 °C and 60 % RH [± K]	0.6	0.6
Temperature variation with illumination at 40 °C and 75 % RH [± K]	0.6	0.6
Temperature fluctuation with illumination at 25 °C and 60 % RH [± K]	0.2	0.2
Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]	0.2	0.2
Humidity range with illumination cassettes, with illumination [% RH]	10...75	10...75
Humidity range without illumination [% RH]	10...80	10...80
Humidity fluctuation with illumination at 25 °C and 60 % RH [± % RH]	1.5	1.5
Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]	2	2
Humidity recovery time after 30 s door open at 25 °C and 60 % RH with illumination [min]	4	4
Humidity recovery time after 30 s door open at 40 °C and 75 % RH with illumination [min]	6	6
<b>Lightdata per Illumination Cassettes</b>		
ICH compliant illumination for photo stability testing [lx] <sup>*2</sup>	7500	7500
ICH compliant illumination for photo stability testing [W/m <sup>2</sup> ] <sup>*2</sup>	1.1	1.1
<b>Electrical data</b>		
Rated Voltage [V]	200...230	200...240
Power frequency [Hz]	50/60	50/60
Nominal power [kW]	2.4	2.4
Unit fuse [A]	16	16
Phase (Nominal voltage) [ph]	1	1
<b>Outer dimensions</b>		
Width net [mm]	925	925
Height net [mm]	1460	1460
Depth net [mm]	800	800
Wall clearance back [mm]	100	100
Wall clearance sidewise [mm]	100	100
<b>Doors</b>		
Inner doors	1	1
Unit doors	1	1
<b>Internal Dimensions</b>		
Width [mm]	650	650
Height [mm]	785	785
Depth [mm]	485	485
<b>Measures</b>		
Interior volume [L]	247	247
Net weight of the unit (empty) [kg]	213	213
permitted load [kg]	100	100
Load per rack [kg]	30	30

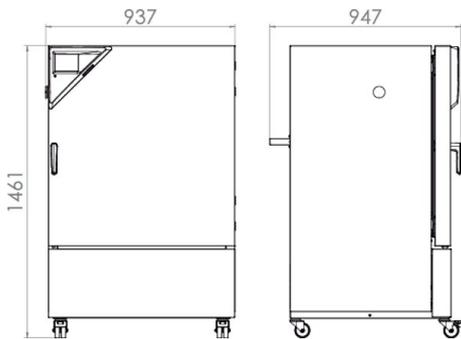
<sup>1</sup> All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended 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.

<sup>2</sup> 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.

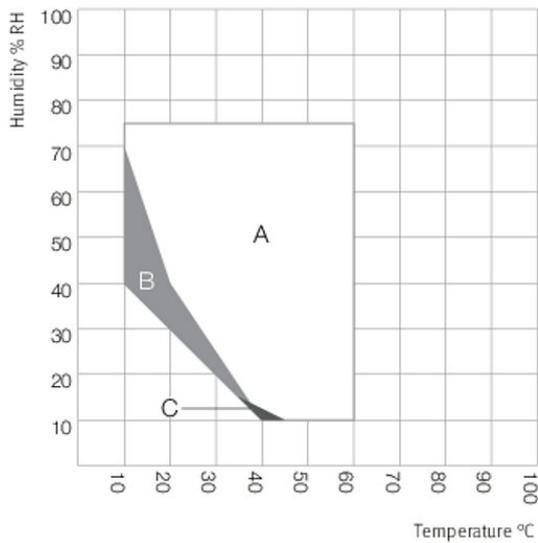
Description	KBFLQC240-230V <sup>1</sup>	KBFLQC240UL-240V <sup>1</sup>
Article Number	9020-0332	9020-0333
Environment-specific data		
Energy consumption at 40 °C and 75 % RH [Wh/h]	760	760
Sound-pressure level [dB(A)]	53	53
Fixtures		
Number of shelves (std./max.)	2/7	2/7
Number of illumination cassettes (std./max.)	2/2	2/2

- 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.
- Average value, measured at 25 °C with a spherical sensor (±10 %) by 12 cm below the light cassette. The values given in W/m2 refer to global radiation.

**DIMENSIONS incl. fittings and connections [mm]**



**CHARTS**



- A: Guaranteed condensation-free range
- B: Time-limited operation (max. 24 hours)
- C: Deviations of technical data may be possible

**Climate chart**

## OPTIONS AND ACCESSORIES

Designation	Description	*	Art.-No.
Access port with silicone plug	left		
	30 mm	01	8012-1443
	50 mm	01	8012-1473
	100 mm	01	8012-1340
	right		
	30 mm	01	8012-1437
	50 mm	01	8012-1467
	100 mm	01	8012-1337
	top		
	30 mm	01	8012-1449
	50 mm	01	8012-1455
	100 mm	01	8012-1461
Alarm output, zero-voltage	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	-	8012-1759
Analog output 4-20 mA	for temperature and humidity values (output not adjustable)	-	8012-1734
Calibration certificate, expanded	for temperature and humidity; for extending the measurement in center of chamber to include another test value	-	8012-1189
Calibration certificate, temperature	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-1604
	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-1584
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-1563
Calibration certificate, temperature and humidity	Measurement in center of chamber at 25 °C / 60% RH or at specified test values	-	8012-1183
	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	-	8012-1610
Class 3.3 independent temperature safety device	with visual alarm (DIN 12880)		
	230 V option model	-	8012-1752
Converter, voltage	to operate the device at a nominal voltage of 120 V 1 ph 60 Hz		
	240 V option model	-	8009-0892
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
	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
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	-	8012-1658
Interface converter	RS 422 cable set and RS 232 / RS 422 interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0557
	230 V, 50/60 Hz option model	-	8012-0556
	RS 422 cable set and RS 422 / Ethernet interface converter for connection to 10-way plug distributor or for connection to a unit		
	120 V, 60 Hz option model	-	8012-0405
	230 V, 50/60 Hz option model	-	8012-0380
Interface converter, USB / RS422	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
Light photometry	including certificate, illumination and irradiance for visible light, 25 measuring points on 3 measurement levels, as well as spectral distribution (385 – 785 nm)	-	8012-0909
Lockable controller keyboard	Lockable controller keyboard with key-operated switch	-	8012-0609
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	1002-0016
Pt 100 temperature sensor	additional Pt 100, with flexible cable installed with external connection, incl. 6-pin DIN socket	-	8012-1748

\* Notes › See last page

Designation	Description	*	Art.-No.
Rack	stainless steel	-	6004-0101
Rack accessories	Rack accessories – fasteners (1 set of 4) for additional security of racks	-	8012-0620
Rack, reinforced	stainless steel, with 1 set of 4 fasteners, max. load 70 kg	-	8012-0638
RS 422 interface	modular plug distributor for 10 RS 422 interfaces	-	8012-0295
RS 422 interface, cable (15 m)	RS 422 connection cable (15 m) between plug distributor and RS 422 interface	-	5023-0036
RS 422 interface, cable (50 m)	RS 422 extension cable (50 m) between interface converter and unit or RS 232 / RS 422 plug distributor	-	5023-0117
RS 485, 2-wire	Additional serial interface can be used parallel to Ethernet, for communication software	-	8012-1744
Shelf, perforated	Stainless steel	-	6004-0040
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
Water supply set	external, consisting of fresh- and waste-water containers (20 liters each), cabling and pump	-	8012-0643

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
<b>Installation services</b>			
Data Logger Kit installation service	unit function instructions for operation and programming of the controller	18	DL10-0700
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL10-0300
<b>Preventive maintenance</b>			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0400
<b>Calibration services</b>			
Calibration temperature and humidity	including certificate, one measuring point in center of chamber at 25 °C / 60 % RH or at specified values	14, 16, 17, 18	DL30-0301
Light photometry	including certificate, 25 measuring points on 3 measurement levels, intensity measurements for visible light and UVA, as well as spectral distribution (qualitative spectral measurements 250 – 785 nm)	14, 16, 17, 18	DL30-0525
Temperature and humidity measurement according to DIN12880	including certificate (27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60 % RH or at specified values)	14, 16, 17, 18	DL30-0427
Temperature measurement 18 temperature measuring points and 1 humidity measuring point	including certificate, 18 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values	14, 16, 17, 18	DL30-0318
Temperature measurement 27 temperature measuring points and 1 humidity measuring point	including certificate, 27 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values	14, 16, 17, 18	DL30-0327
Temperature measurement 9 temperature measuring points and 1 humidity measuring point	including certificate, 9 temperature measuring points and 1 humidity measuring point in center of chamber, at 25 °C / 60 % RH or at specified values	14, 16, 17, 18	DL30-0309
<b>Validation services</b>			
Execution of IQ/OQ incl. light measurement	including light measurement, in accordance with qualification folder	15, 18, 20	DL43-0400
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL44-0500
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	8012-0869

\* Notes › See last page

Designation	Description	*	Art.-No.
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	8012-0957
<b>Warranty service</b>			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL02-6041
Extension of the warranty from 2 to 5 years	beginning with the date of delivery, wearing parts are not included	-	DL02-6042

\* 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.
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 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.
- 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.