

## KBF LQC 240 (E2) - Constant climate chamber with Light Quantum Control (LQC)

Genuine KBF equipment including lighting for compliance with standards, performance and functionality, with expanded photostability test features which we have patented. Two non-directional spherical sensors flexibly capture the available quantity of light at a specific sampling location more realistically than all other systems; in combination with BINDER's light integration, this is the only method that simulates chemical actinometry electronically in accordance with ICH Q1B.



### ► Performance features and equipment :

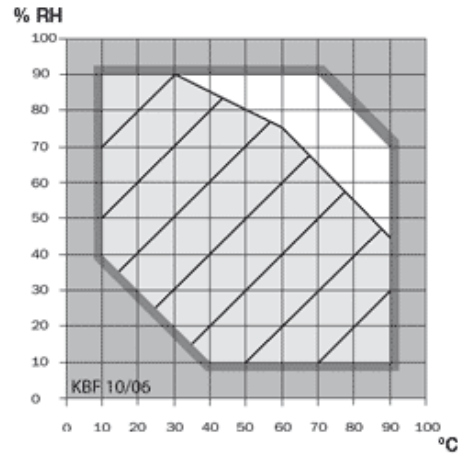
- Electronically controlled APT.line™ preheating chamber and refrigerating system assuring temperature accuracy and reproducible results
- Temperature range 0 °C (32 °F) up to 70 °C (158 °F) - without humidity
- Humidity range 10 % to 75 % RH (with illumination)
- Humidity range 10 % RH to 80 % RH (without illumination cassette)
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
- Features:
  - User friendly LCD screen
  - Easy-to-read menu guide
  - Integrated electronic chart recorder
  - Variety of options for the graphic display of process parameters
  - Real time clock
- Electronically controlled humidification and dehumidification system with capacitive humidity sensor suitable for stability tests according to ICH guideline Q1A (R2)
- Inner glass door with sealing
- Environmental friendly refrigerant R 134a
- Independent adjustable temperature safety device class 3.1 (DIN 12880), with visual and audible temperature alarm
- Access port with silicone plug Ø 30 mm (1.18 inch), left side
- Complete safety connection kit for water supply and drainage, including water hose, total length 6 m (19.7 ft.)
- Ethernet interface for APT-COM™ DataControlSystem software
- Light Quantum Control - Measurement, display and integration of illumination level and of UV-intensity for ICH-conform illumination equipment
- 2 stainless steel racks included
- 2 variable positioned illumination cassettes with 3 cool white fluorescent tubes and 2 BINDER Q1B Synergy Light fluorescent tubes for photo-stability testing in accordance with ICH guideline Q1B, Option 2
- BINDER test certificate



**KBF LQC 240 (E2)**

<b>Exterior dimensions</b>	
Width (mm/inch)	1034 / 40.7
Height (inclusive feet) (mm/inch)	1142 / 45.0
Depth (mm/inch)	746 / 29.4
Plus door handle, 1 - panel, connection (mm/inch)	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3
Steam space volume (l/cu.ft.)	308 / 10.9
Height of water connections ( $\pm 3$ mm / 0.12 inch)	84 / 3.3
Number of doors	2
Number of inner glass doors	2
<b>Interior dimensions</b>	
Width (mm/inch)	800 / 31.5
Height (mm/inch)	600 / 23.6
Depth (mm/inch)	500 / 19.7
Interior volume (l/cu.ft.)	240 / 8.5
Racks, chrome - plated (number standard/max.)	2 / 7
Load per rack (kg/lbs.)	30 / 66
Permitted total load (kg/lbs.)	70 / 155
Weight of the unit (empty) (kg/lbs.)	184 / 405.7
<b>Temperature data (without humidity)</b>	
Permissible ambient temperature range 5)	18 - 32 / 64.4 - 89.6
without humidity / without illumination ( $^{\circ}$ C/ $^{\circ}$ F)	-5 - 100 / 23 - 212
without humidity / with illumination ( $^{\circ}$ C/ $^{\circ}$ F)	5 - 100 / 41 - 212
with humidity / without illumination ( $^{\circ}$ C/ $^{\circ}$ F)	20 - 90 / 68 - 194
with humidity / with illumination ( $^{\circ}$ C/ $^{\circ}$ F)	20 - 90 / 68 - 194
Temperature variation without humidity	
at 10 $^{\circ}$ C (50 $^{\circ}$ F) ( $\pm$ $^{\circ}$ C)	0.4
at 37 $^{\circ}$ C (98.6 $^{\circ}$ F) ( $\pm$ $^{\circ}$ C)	0.4
Temperature variation with humidity 2) ( $\pm$ $^{\circ}$ C)	1
Temperature fluctuation from 5 $^{\circ}$ C (9 $^{\circ}$ F) above ambient temperature 2) ( $\pm$ $^{\circ}$ C)	0.1
Temperature fluctuation when refrigeration system is in operation ( $\pm$ $^{\circ}$ C)	0.5
Heating up time 1), 2)	
at 37 $^{\circ}$ C (98.6 $^{\circ}$ F) (Min.)	30
Cooling down time from room temp. 1), 2)	
at 10 $^{\circ}$ C (50 $^{\circ}$ F) (Min.)	10
Recovery time after doors were open for 30 sec. 1), 2)	
at 37 $^{\circ}$ C (98.6 $^{\circ}$ F) (Min.)	5
at 50 $^{\circ}$ C (122 $^{\circ}$ F) (Min.)	4
Humidity fluctuation 2), 4) ( $\pm$ % RH)	1.5
<b>Electrical data</b>	

## Temperature-humidity chart without light



The light area indicates the control range of temperature and relative humidity. The hatched area indicates the control range of temperature and relative humidity without condensation.

Housing protection acc. to EN 60529	IP 20
Nominal voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	230
Nominal power (kW)	2.42
Energy consumption 5) at 37 °C (W)	730
<b>illumination data</b>	
ICH compliant illumination in the doors in acc. Lux	4000
with ICH guideline Q1B Option 2 UVA (W/m <sup>2</sup> ) 5)	1.7
ICH compliant illumination underneath the ceiling in acc. Lux	4000
with ICH guideline Q1B Option 2 UVA (W/m <sup>2</sup> ) 5)	1.7

1) up to 98 % of the set value

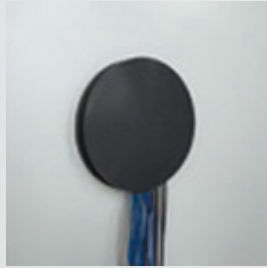
2) value without illumin.

3) Upon door opening or water exchange in humidity cylinder:  $> \pm 1.5\%$  RH, recovery time approx. 20 min

4) These energy consumption values can be used upon calculation of air conditioning systems.

5) Maximal value, measured in center of usable volume

By bringing in a humidity source to the inner chamber the minimal humidity range is affected. A water tap (1 – 6 bar) with normal tap water (approx. 200 – 500  $\mu\text{S}$ /tolerance +300 – 150  $\mu\text{S}$ , total hardness appr. 4-8°dH) is necessary for the installation of the "humidifying and dehumidifying system". Furthermore, a 40 mm water drain with descending gradient is required. All technical data are specified for units with standard equipment at an ambient temperature of 20 °C and a voltage fluctuation of  $\pm 10\%$ . The temperature data are determined in accordance to factory standard following DIN 12880 respecting 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 alter technical specifications at all times.



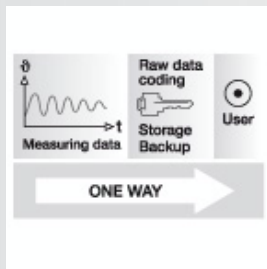
## ▶ Access ports

With silicon plugs for inserting external measuring devices into the chamber. Access ports with 10, 30, 50 and 100 mm diameter.



## ▶ Calibration certificates and validation

BINDER can significantly reduce the time and effort needed for equipment qualification and validation. We draw on unparalleled knowledge of our equipment applications and years of experience in certification.



## ▶ APT-COM™ DataControlSystem GLP Edition

Software for GLP compliant control, programming, and documentation. Permits networks of up to 30 units and/or controllers. Meets the requirements of FDA 21 CFR Part 11.

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Access port with silicone plugs, 10 mm (0.39 inch), 30 mm (1.18 inch), 50 mm (1.97 inch), 100 mm (3.94 inch)	<input type="radio"/>
Safety device, Class 3.3 (DIN 12880) with optical alarm	<input type="radio"/>
4 - 20 mA analog output for temperature and humidity measurements (e.g. chart recorder connection), with 6 - pin DIN socket. Outputs are adjusted automatically as the controller is adjusted	<input type="radio"/>
Zero - voltage relay alarm outputs for temperature ( $\pm 2$ °C) and humidity ( $\pm 5$ % RH), accessible via 6 - pin DIN socket, with acoustic signal that can be switched off (maximum power rating 24 V AC / DC, 2.5 A)	<input type="radio"/>
Switchable waterproof interior socket 230 V AC (max. 500 W), IP 65 protected, with corresponding plug (IP 66 protected)	<input type="radio"/>
Locking of controller keyboard	<input type="radio"/>
Certificate Light Measurement with ICH - compliant illumination. Radiometric measurements in the visible and UV - A spectral ranges with definition and documentation at 25 positions in 3 measurement levels	<input type="radio"/>
Temperature precision measurement according to DIN 12880 and 9-point humidity measurement / factory standard with measurement log and certificate, measured at 25 °C (77 °F) / 60% RH or at specified values	<input type="radio"/>
Extension to factory calibration certificate for temperature and humidity. Each additional measurement at an additional measuring point or set of values	<input type="radio"/>
Factory calibration certificate for temperature and humidity. Measurement in center of chamber at 25 °C (77 °F) / 60% RH or at specified values	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of securing elements (4 count) (max. load 70 kg / 154 lbs.)	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4)	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Lockable door	<input type="radio"/>



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.