KBF LQC series

Environmental simulation chambers for constant climatic conditions with light

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.

Leistungsmerkmale/Ausstattung:

- Electronically controlled APT.line™ preheating chamber technology
- Temperature range: -10 °C to 100 °C (14 °F to 212 °F) (without humidity)
- Humidity range: 10 % - 90 % RH
- MCS controller with 25 storable programs of 100 sections each for a maximum of 500 program segments
- 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 in accordance with the ICH guideline Q1A
- Automatic defrosting device for long-term operation
- Inner glass door
- Environmentally friendly refrigerant R 134a
- Collecting pan for condensate on the door
- Independent adjustable temperature safety device, Class 3.1 (DIN 12880) with optical and acoustic alarm
- Access port with silicone plug, Ø 30 mm (1.2 inch), right side
- Complete safety connection kit for water supply incl. water hose and drain (total length 6 m / 19.7 ft)
- RS 422 interface for communication software APT-COM™ DataControlSystem
- 2 stainless steel racks
- ICH-compliant illumination in the doors for photostability tests in accordance with the ICH guideline Q1B, Option 2
- Vertically positioned illumination in both doors (10 light tubes)
- Fulfils all criteria of the ICH guideline for the visible and the ultraviolet part of the light spectrum.
- Light Quantum Control - LQC
- BINDER test certificate

	KBF LQC 240	KBF LQC 720
Exterior dimensions		
Width (mm/inch)	1034 / 40.7	1234 / 48.6
Height (inclusive feet/castors) (mm/inch)	1142 / 45.0	1816 / 71.5
Depth (mm/inch)	746 / 29.4	867 / 34.1
Plus door handle, I-panel, connection (mm/inch)	100 / 3.9	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3	160 / 6.3
Steam space volume (l/cu.ft.)	308 / 10.9	855 / 30.2
Height of water connections (± 3 mm / 0.12 inch)	84 / 3.3	190 / 7.5
Number of doors	2	2
Number of inner glass doors	2	2
Interior dimensions		
Width (mm/inch)	800 / 31.5	1000 / 39.4
Height (mm/inch)	600 / 23.6	1168 / 46.0
Depth (mm/inch)	500 / 19.7	600 / 23.6
Interior volume (l/cu.ft.)	240 / 8.5	700 / 24.7
Racks, chrome-plated (number standard/max.)	2/7	2/14
Load per rack (kg/lbs.)	30 / 66	45 / 99
Permitted total load (kg/lbs.)	70 / 155	120 / 265
Weight of the unit (empty) (kg/lbs.)	184 / 405.7	345 / 762
Temperature data		
Permissible ambient temperature range 5)	18-32/64.4-89.6	18-32/64.4-89.6
without humidity / without illumin. (°C/°F)	-5-100 / 23-212	-5-100 / 23-212
without humidity / with illumination (°C/°F)	5-100 / 41-212	5-100 / 41-212
with humidity / without illumin. (°C/°F)	20-90 / 68-194	20-90 / 68-194
with humidity / with illumin. (°C/°F)	20-90 / 68-194	20-90 / 68-194
KBF LQC ICH with humidity / with/without illumin. (°C/°F)	20-90 / 68-194	20-90 / 68-194
Temperature variation without humidity		
at 10 °C (50 °F) (± °C)	0,4	0,4
at 37 °C (98.6 °F) (± °C)	0,4	0,4
Temperature variation with humidity 2) (± °C)	1	1
Temperature fluctuation from 5 °C (9 °F) above ambient		
temperature 2) (± °C)	0,1	0,1
Temperature fluctuation when refrigeration system		
is in operation (± °C)	0,5	0,5
Heating up time 1), 2)		
at 37 °C (98.6 °F) (Min.)	30	28
Cooling down time from room temp. 1), 2)		
at 10 °C (50 °F) (Min.)	35	35
Recovery time after doors were open for 30 sec. 1), 2)		
at 37 °C (98.6 °F) (Min.)	5	5
at 50 °C (122 °F) (Min.)	4	4
Humidity fluctuation 2), 4) (± RH%)	1,5	1,5
Electrical data		
Housing protection acc. to EN 60529	IP 20	IP 20
Nominal voltage (±10 %) 50/60 Hz (V)	230	230
Nominal power (W)	2250	2760
Energy consumption 4) at 37 °C (W)	730	970

Illumination data		
ICH compliant illumination in the doors in acc. Lux	4000	4000
with ICH guideline Q1B Option 2 UVA (W/m2) 5)	1.7	1.7
ICH compliant illumination underneath the ceiling in acc. Lux	4000	4000
with ICH guideline Q1B Option 2 UVA (W/m2) 5)	1.7	1.7

1) up to 98 % of the set value
2) value without illumin.
3) upon door opening or water exchange in humidity cylinder: > ± 1.5 r.H.%, recovery time approx. 20 min
4) these energy consumption values can be used upon calculation of air conditioning systems
5) Recommended ambient temperature 20 °C (68 °F)

By introducing in a humidity source to the inner chamber the minimal humidity range is affected. A water tap (1–10 bar/14.5–145 psi) with normal tap water (approx. 200–500 µS/cm tolerance + 300–150 µS/cm) is necessary for the installation of the humidifying and dehumidifying system. Furthermore, a 40 mm (1.6 inch) water drain with descending gradient is required.

All specified technical data apply for standard equipment operating at an ambient temperature of + 20 °C (68 °F), with line voltage fluctuations of ± 10%. These typical average values for series equipment were determined in accordance with the BINDER factory standard. They are based upon the recommended distances from the inner chamber walls, namely 10% of height, width and depth. Differing ambient temperatures or variances in the design of individual equipment may produce different performance data.

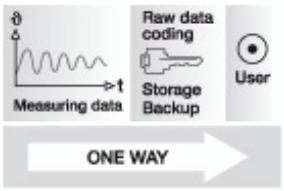
We therefore recommend that equipment be calibrated and/or validated on a case-by-case basis when working at the extremes of the permissible ambient temperature range.

Illumination below the working space ceiling

ICH-compliant illumination below the working space ceiling with thermal decoupling and ventilation, for photostability tests in accordance with ICH guidelines Q1B, Option 2.

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.

	KBF LQC ICH 240	KBF LQC ICH 720
Access port with silicone plug	O	O
Rack, stainless steel	O	O
Shelf, perforated, stainless steel	O	O
Reinforced rack, stainless steel, with 1 set of rack securings (max. 70 kg / 154 lbs.)	O	O
Independent adjustable temperature safety device, Class 3.3 (DIN 12880)	O	O
Analog output, 4-20 mA for temperature and humidity with 6-pin DIN socket (Outputs are adjusted automatically as the controller is adjusted)	O	O
Potential free alarm outputs for temperature and humidity, accessible via 6-pin DIN socket, with acustic signal that can be switched off (maximum power 24 V AC/DC, 2.5 A)	O	O
Interior lighting	30	30
Lockable door	O	O
ICH-compliant illumination according ICH guideline Q1B, Option 2 under the chamber celling	O	O
Light integration: Measurement, display and integration of illuminance and UV-light intensity for ICH-compliant illumination. Optional documentation of light intergration data in APT-COM™ software possible	O	O
Light qualification for ICH-compliant illumination	O	O
Waterproof interior socket 230 V (maximum 500 W)	O	O
Safety kit for water connection. Pre-mounted assembly of reflux prevention device and hose burst protection device	O	O
Locking of controller keyboard	O	O
Temperature measurement according to DIN 12880-2 or with 9 measuring points with measurement log and certificate	O	O
Calibration certificate for temperature and humidity	O	O
Extension for calibration certificate (additional values)	O	O
Fanfold chart paper	O	O
1 set fibre pens	O	O
Stable table on castors with locking brakes	O	-

BINDER GmbH Postfach 102 D-78502 Tuttlingen **Direction:** Im Mittleren Ösch 5 D-78532 Tuttlingen
Contact: Phone: +49 (0) 74 62/2005-0 | Fax: +49 (0) 74 62/2005-100 | info@binder-world.com | www.binder-world.com