

Constant climate testing

KBF series

Proven superior: Constant climate chambers

- ▶ Proven precision
 - ▶ Double-sided horizontal air flow for maximum parameter uniformity
 - ▶ Automatic water and wastewater management
 - ▶ Responsive vapor pressure humidification
 - ▶ Powerful cooling system for safe operation up to 32 °C ambient temperature
 - ▶ Stability tests according to ICH guideline Q1A(R2)
- ▶ Proven documentation
 - ▶ Documentation in support of GMP/GLP compliance
 - ▶ FDA-compliant software APT-COM™
 - ▶ IQ, OQ, PQ validation documentation

The long-term constant temperature and humidity values of BINDER constant climate chambers are impressive. The KBF series is ideal for norm-compliant work according to ICH guidelines. As an inexpensive alternative to using multiple types of climate chambers, the BINDER constant climate chambers can be used for a number of applications.



Basic research



Pharmaceutical industry



Cosmetic industry

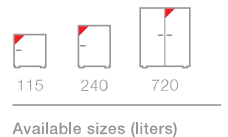
Constant climate chambers

KBF Series

The KBF is the specialist for reliable stability testing and precise maintenance of constant climatic conditions. From programming to documentation, it meets all important guidelines such as ICH, FDA, GMP and GLP. With its high capacity reserves, automatic water and wastewater management and many options, the BINDER KBF is well prepared for the future.



► KBF 240 model



► EQUIPMENT

- Temperature range from 0 °C to 70 °C (without humidity)
- Humidity range: 10 % to 80 % r. H.
- MCS controller which can store 25 programs of 100 sections each for a maximum of 500 program segments
- User-friendly LCD color screen
- Easy-to-read menu guidance
- 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 seal
- Independent temperature safety device class 3,1 (DIN 12880) with visual and audible alarm
- Access port with silicone plug Ø 30 mm, left side
- Complete safety connection kit for water supply and drainage, up to 1 m high
- Ethernet interface for communication software APT-COM™ DataControlSystem
- Two shelves, stainless steel



► KBF SERIES | BEST TEST RESULTS:



Precise climate conditions

- APT.line™ preheating chamber
 - Constant and gentle circulation of air through large-surface side walls even under a full load
 - Homogeneous climate conditions throughout test specimens



Flexible water management

- Sewage pump for discharges up to 1 m high
- Solutions independent of installation sight
- Water treatment with BINDER PURE AQUA SERVICE
- External water supply



Fast and precise humidification

- Vapor pressure humidification with fast response times
- Drift-free, capacitive humidity sensor
- Short recovery times after door opening
- Finely adjustable humidity control



Comprehensive additional services

- Data Logger Kits
- Years of experience with recognized validation materials and documents
- Customer-specific modifications



Norm-compliant work

- Meets all ICH-relevant requirements in accordance with ICH Q1A(R2)
- Documentation and software FDA compliant

► OPTIONS

- Access ports of various diameters with silicone plug
- Shelves, stainless steel
- Perforated shelf, stainless steel
- Reinforced rack, stainless steel
- Lockable controller keyboard
- Interior lighting
- Waterproof interior socket 230 V AC
- Additional PT 100 temperature sensor
- RS 422 interface
- External water supply set
- BINDER PURE AQUA SERVICE
- Calibration certificate and extension to calibration certificate
- Measurement of temperature accuracy according to DIN 12880
- Data Logger Kit and software
- Independent temperature safety device class 3,3 (DIN 12880)
- Analog outputs 4 – 20 mA for temperature and humidity measurements
- Isolated alarm outputs for temperature and humidity
- Door lock



Data Logger Kits



BINDER PURE AQUA SERVICE water treatment system



External water supply



Climate chamber with full-view glass door and manual access ports

► BINDER INDIVIDUAL
More information on page 133

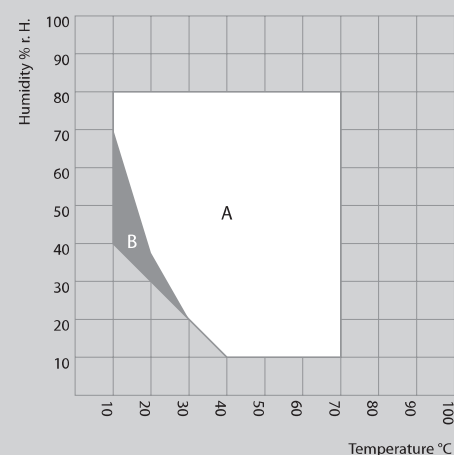
Technical data for your planning and installation

KBF series



	KBF 115	KBF 240	KBF 720
Exterior dimensions			
Width (mm/inch)	885 / 34.84	930 / 36.61	1255 / 49.41
Height (including feet/castors) (mm/inch)	1050 / 41.34	1460 / 57.48	1925 / 75.79
Depth (mm/inch)	650 / 25.59	800 / 31.50	890 / 35.04
including door handle, I-triangle, connection (mm/inch)	730 / 28.74	880 / 34.65	970 / 38.19
Quantity of doors / Quantity of inner glass doors	1 / 1	1 / 1	2 / 2
Interior dimensions			
Width (mm/inch)	600 / 23.62	650 / 25.59	973 / 38.31
Height (mm/inch)	483 / 19.02	785 / 30.91	1250 / 49.21
Depth (mm/inch)	351 / 13.82	485 / 19.09	576 / 22.68
Interior volume (l/cu.ft.)	102 / 3.60	247 / 8.73	700 / 24.73
Quantity of racks (standard/max.)	2 / 5	2 / 9	2 / 15
Load per rack (kg/lbs.)	30 / 66	30 / 66	45 / 99
Permitted total load (kg/lbs.)	100 / 221	100 / 221	150 / 331
Weight (empty) (kg/lbs.)	129 / 285	184 / 406	309 / 682
Temperature data			
Temperature range ¹⁾ (°C/°F)	0 – 70 / 32 – 158	0 – 70 / 32 – 158	0 – 70 / 32 – 158
Temperature uniformity at 25 °C / 77 °F (±K)	0,2	0,2	0,2
Temperature fluctuation (±K)	0,1	0,1	0,1
Max. heat compensation up to 40 °C / 104 °F (W)	200	300	600
Climatic data			
Temperature range ¹⁾ (°C/°F)	10 – 70 / 50 – 158	10 – 70 / 50 – 158	10 – 70 / 50 – 158
Temperature uniformity at 25 °C / 77 °F and 60 % r. H. (±K)	0,2	0,3	0,2
Temperature fluctuation at 25 °C / 77 °F and 60 % r. H. (±K)	0,1	0,1	0,1
Humidity range (% r. H.)	10 – 80	10 – 80	10 – 80
Humidity fluctuation at 25 °C / 77 °F and 60 % r. H. (±% r. H.)	≤ 2	1,5	1,5
Recovery time after doors were open for 30 sec ²⁾ at 25 °C / 77 °F and 60 % r. H.	15	4	2
Electrical data			
Housing protection acc. to EN 60529	IP 20	IP 20	IP 20
Nominal voltage (±10 %) 50/60 Hz (V)	200 – 240 1N~	200 – 240 1N~	200 – 240 1N~
Nominal power at 240 V (kW)	2,0	2,1	3,1
Energy consumption ³⁾ at 40 °C / 104 °F / 75 % r. H. (Wh/h)	470	650	620
Model no.	9020-0139	9020-0150	9020-0108

► TEMPERATURE-HUMIDITY CHART



A: Guaranteed condensation-free range
B: Time-limited operation (max. 24 hours)

¹⁾ Lower values are valid up to an ambient temperature of max. 25 °C / 77 °F // ²⁾ to 98 % of the set value // ³⁾ Use this value for dimensioning air conditioning systems. /// All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. The temperature data are determined in accordance with factory standard following DIN 12880 respecting 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.

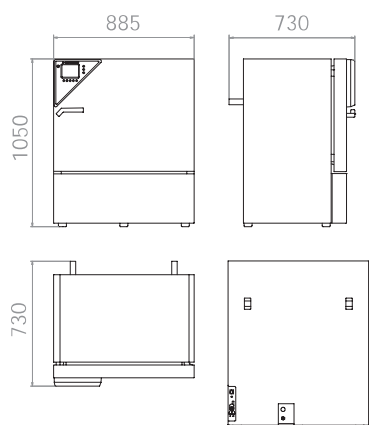


Current information and values are available at:
www.binder-world.com

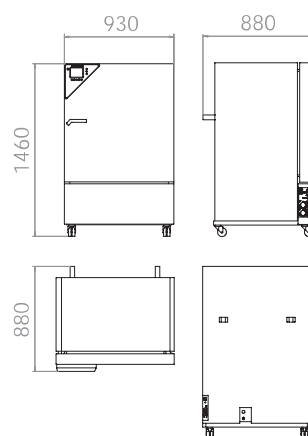


► DIMENSIONS

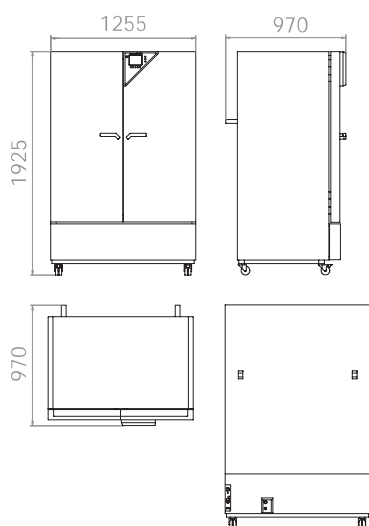
KBF 115



KBF 240



KBF 720



► INSTALLATION REQUIREMENTS

	KBF 115	KBF 240	KBF 720
Nominal voltage ($\pm 10\%$) 50/60 Hz (V)	200 – 240 1N~	200 – 240 1N~	200 – 240 1N~
Nominal power at 240 V (kW)	2,0	2,1	3,1



Constant climate testing with illumination

KBF P | KBF LQC series

Consistently better: Constant climate chambers with illumination

- ▶ Consistently better with illumination
 - ▶ Compliance with ICH guideline Q1B, Option 2.
 - ▶ Height-adjustable illumination cassettes
 - ▶ Homogeneous light distribution with the patented Synergy Light™
- ▶ Consistently better with Light Quantum Control
 - ▶ Spherical ball-type sensors for omnidirectional measurement of light intensity
 - ▶ Accurate light valuation directly at the sample location
 - ▶ Automatic shutdown of the light source upon reaching the programmed light dosage

BINDER's constant climate chambers with ICH-compliant illumination provide impressive long-term constant climate and illumination values. With the patented Light Quantum Control (LQC), they offer complete reliable solution for photostability testing in one chamber.



Pharmaceutical industry



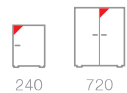
Food / Beverage

Constant climate chambers with ICH-compliant illumination KBF P series

Our expert for photostability testing. In terms of standards compliance, performance and functionality, the KBF P is a true KBF and is also equipped with ICH-compliant illumination. This provides clear and meaningful test results according to ICH guideline Q1B, Option 2. The variable position illumination cassettes with the unique BINDER Q1B Synergy Light™ ensure homogeneous lighting conditions over the entire usable area.



► KBF P 720 model



Available sizes (liters)

► EQUIPMENT

- Temperature range 0 °C to 70 °C (without illumination and humidity)
- Temperature range 10 °C/20 °C with 60 °C (with illumination and humidity)
- Humidity range 10 % to 75% r. H. (with illumination)
- Humidity range 10 % to 80% r. H. (without illumination)
- Variable position illumination cassettes with BINDER Q1B Synergy Light™
- MCS controller which can store 25 programs of 100 sections each for a maximum of 500 program segments
- User-friendly LCD color 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) and Q1B Option 2
- Inner glass door with seal
- Independent temperature safety device class 3,1 (DIN 12880) with visual and audible alarm
- Access port with silicone plug Ø 30 mm, left side
- Complete safety connection kit for water supply and drainage, up to 1 m high
- Ethernet interface for communication software APT-COM™ DataControlSystem
- Shelves, stainless steel



► **KBF P SERIES | BEST TEST RESULTS:**



Homogeneous light distribution

- Unique lighting concept
 - ICH-Q1 B Option 2 compliant light spectrum with BINDER Synergy Light™
 - Variable position and removable illumination cassettes
 - Homogeneous light over the entire usable space



Flexible water management

- Sewage pump for discharges up to 1m in height
- Solutions independent of installation sight
- Water treatment with BINDER PURE AQUA SERVICE
- External water supply



Precise climate conditions

- BINDER APT.line™ preheating chamber
 - Constant and gentle circulation of air through large-surface side walls even under a full load
 - Homogeneous climate conditions throughout test specimens



Norm-compliant work

- Meets all ICH-relevant requirements in accordance with ICH Q1A(R2), ICH Q1B, Option 2
- Documentation and software ensure FDA and GMP/GLP compliance



Fast and precise humidification

- Vapor pressure humidification with fast response times
- Drift-free, capacitive humidity sensor
- Short recovery times after door opening
- Finely adjustable humidity control

► **OPTIONS**

- Access ports of various diameters with silicone plug
- Shelves, stainless steel
- Perforated shelf, stainless steel
- Reinforced rack, stainless steel
- Lockable controller keyboard
- Additional PT 100 temperature sensor
- RS 422 interface
- Replacement fluorescent tube set for one illumination cassette
- External water supply set
- BINDER PURE AQUA SERVICE
- Calibration certificate and extension to calibration certificate
- Measurement of temperature accuracy according to DIN 12880
- Data Logger Kit and software
- Independent temperature safety device class 3.3 (DIN 12880)
- Analog outputs 4 – 20 mA for temperature and humidity measurements
- Isolated alarm outputs for temperature and humidity
- Door lock



APT-COM™ DataControlSystem
GLP Edition



Data Logger Kits



BINDER PURE AQUA SERVICE
water treatment system



Climate chamber with dimmable
illumination cassettes

► **BINDER
INDIVIDUAL**
More information
on page 133

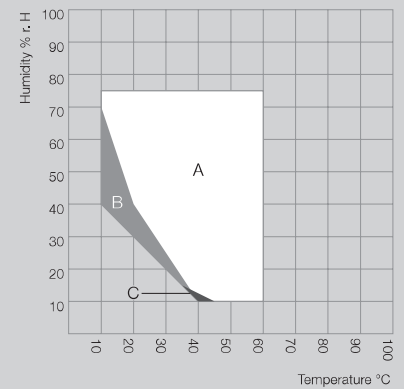
Technical data for your planning and installation

KBF P series

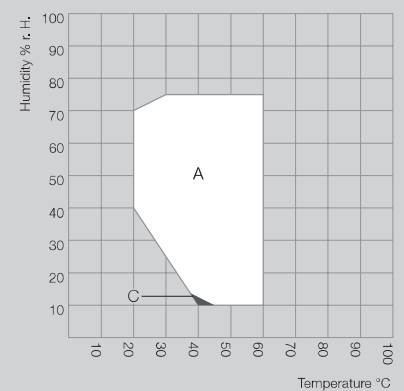


	KBF P 240	KBF P 720
Exterior dimensions		
Width	930 / 36.61	1255 / 49.41
Height (including feet/casters) (mm/inch)	1460 / 57.48	1925 / 75.79
Depth (mm/inch) including door handle, I-triangle, connection (mm/inch)	880 / 34.65	970 / 38.19
Interior dimensions		
Width / Height / Depth (mm)	650 / 785 / 485	973 / 1250 / 576
Width / Height / Depth (inch)	25.59 / 30.91 / 19.09	38.31 / 49.21 / 22.68
Interior volume (l/cu.ft.)	247 / 8.73	700 / 24.73
Number of light cassettes	2	3
Number of racks (standard/max.)	2 / 9	3 / 12
Weight (empty) (kg/lbs.)	213 / 470	374 / 826
Temperature data		
Temperature range ¹⁾ (°C/°F)	0 – 70 / 32 – 158	0 – 70 / 32 – 158
Temperature range without light cassettes ¹⁾ (°C/°F)	0 – 70 / 32 – 158	0 – 70 / 32 – 158
Temperature range with light cassettes, with illumination ¹⁾ (°C/°F)	10 – 60 / 50 – 140	10 – 60 / 50 – 140
Temperature uniformity at 25 °C / 77 °F (±K)	0.2	0.2
Temperature fluctuation (±K)	0.1	0.1
Max. heat compensation up to 40 °C / 104 °F (W)	400	1000
Climatic data		
Temperature range with light cassettes, with illumination ¹⁾ (°C/°F)	10 – 60 / 50 – 140	20 – 60 / 68 – 140
Temperature uniformity with illumination at 25 °C / 77 °F and 60 % r. H. (±K)	0.6	1.2
Temperature fluctuation with illumination at 25 °C / 77 °F and 60 % r. H. (±K)	0.2	0.2
Humidity range with light cassettes, with illumination ¹⁾ (% r. H.)	10 – 75	10 – 75
Humidity fluctuation at 25 °C / 77 °F and 60 % r. H. with illumination (±% r. H.)	1.5	2
Recovery time after doors were open for 30 sec ²⁾ at 25 °C / 77 °F and 60 % r. H. with illumination (min)	3	1
Illumination data per light cassette		
ICH compliant illumination for photostability testing ³⁾ (Lux / UVA W/m ²)	7500 / 1.4	9900 / 2.1
Electrical data		
Housing protection acc. to EN 60529	IP 20	IP 20
Energy consumption ⁴⁾ at 40 °C / 104 °F / 75 % r. H. (Wh/h)	600	2350
Model no.		
	9020-0160	9020-0143

► **TEMPERATURE-HUMIDITY CHART WITH ILLUMINATION KBF P 240**



► **TEMPERATURE-HUMIDITY CHART WITH ILLUMINATION KBF P 720**



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

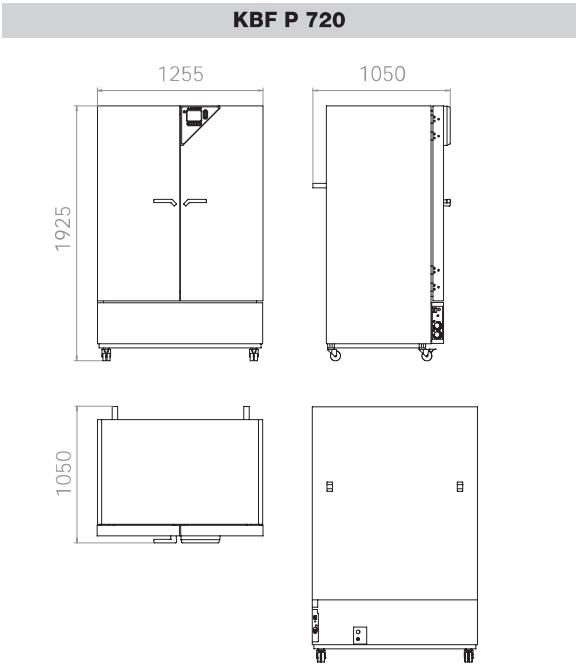
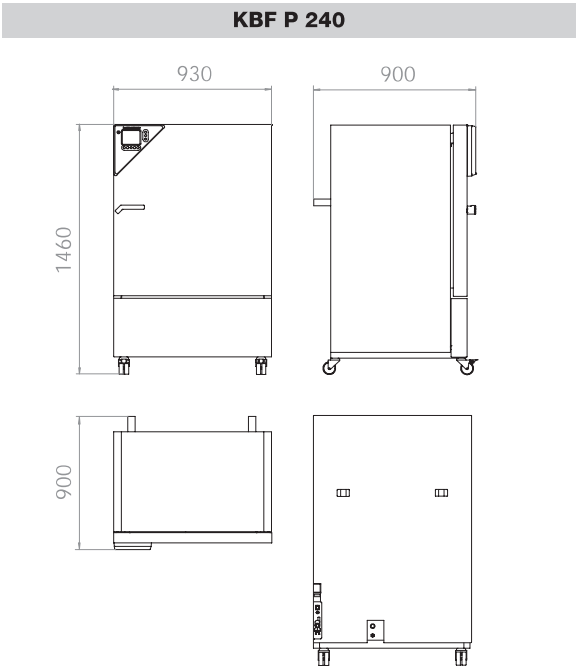
¹⁾ Lower values are valid up to an ambient temperature of max. 25 °C / 77 °F. // ²⁾ to 98 % of the set value // ³⁾ Average value, measured with a spherical sensor (±10 %) by 12 cm / 4.7 in below the light cassette // ⁴⁾ Use this value for dimensioning air conditioning systems. // All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. The temperature data are determined in accordance with factory standard following DIN 12880 respecting 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.



Current information and values are available at:
www.binder-world.com



► DIMENSIONS



► INSTALLATION REQUIREMENTS

	KB F P 240	KB F P 720
Wall clearance rear (mm/inch)	100 / 3.94	100 / 3.94
Wall clearance side (mm/inch)	100 / 3.94	200 / 7.87
Nominal voltage (±10 %) 50/60 Hz (V)	200 – 240 1N~	200 – 240 1N~
Nominal power at 240 V (kW)	2.4	3.5

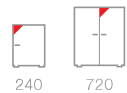
Constant climate chambers with Light Quantum Control

KBF LQC series

The special advantage of the KBF LQC series is the photometry, one of our patented enhancements for photostability testing. Two spherical 3D ball-type sensors capture the visible light intensity and UV light intensity at the sample more realistically than any other systems. If the desired light dosage is achieved, the light sources switch off automatically. This convenient solution provides absolute standards compliance.



► KBF LQC 240 model



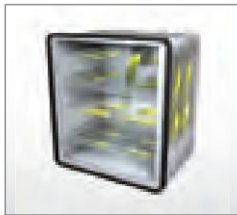
240 720

Available sizes (liters)

► EQUIPMENT

- Temperature range 0 °C to 70 °C (without illumination and humidity)
- Temperature range 10 °C/20 °C with 60 °C (with illumination and humidity)
- Humidity range 10 % to 75 % r. H. (with illumination)
- Humidity range 10 % to 80 % r. H. (without illumination)
- Light Quantum Control (LQC), realistic measurement and integration of the light intensity and the UV light intensity at the sample location
- Variable position illumination cassettes with BINDER Q1B Synergy Light™
- MCS controller which can store 25 programs of 100 sections each for a maximum of 500 program segments (User-friendly LCD color 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) and Q1B Option 2
- Inner glass door with seal
- Independent temperature safety device class 3.1 (DIN 12880) with visual and audible alarm
- Access port with silicone plug Ø 30 mm, left side
- Complete safety connection kit for water supply and drainage, up to 1 m high
- Ethernet interface for communication software APT-COM™ DataControlSystem
- Shelves, stainless steel

► KBF LQC SERIES | BEST TEST RESULTS:



Precise climate conditions

- BINDER APT.line™ preheating chamber
- Constant and gentle circulation of air through large-surface side walls even under a full load
- Homogeneous climate conditions throughout test specimens



Precise photometry

- LQC - Light Quantum Control
- 3D ball-type sensors capture light true light intensity, can be flexibly placed on the sample material
- Automatically switched off after required light intensity



Homogeneous light distribution

- Unique lighting concept
- ICH-Q1 B Option 2 compliant light spectrum with BINDER Synergy Light™
- Variable position and removable illumination cassettes
- Homogeneous light over the entire usable space



Flexible water management

- Sewage pump for discharges up to 1m in height
- Solutions independent of installation sight
- Water treatment with BINDER PURE AQUA SERVICE
- External water supply



Fast and precise humidification

- Vapor pressure humidification with fast response times
- Drift-free, capacitive humidity sensor
- Short recovery times after door opening
- Finely adjustable humidity control



Norm-compliant work

- Meets all ICH-relevant requirements in accordance with ICH Q1A(R2), ICH Q1B, Option 2
- Documentation and software ensure FDA and GMP/GLP compliance

► OPTIONS

- Access ports of various diameters with silicone plug
- Shelves, stainless steel
- Perforated shelf, stainless steel
- Reinforced rack, stainless steel
- Lockable controller keyboard
- Additional PT 100 temperature sensor
- RS 422 interface
- Replacement fluorescent tube set for one illumination cassette
- External water supply set
- BINDER PURE AQUA SERVICE
- Calibration certificate and extension to calibration certificate
- Measurement of temperature accuracy according to DIN 12880
- Data Logger Kit and software
- Independent temperature safety device class 3.3 (DIN 12880)
- Analog outputs 4 – 20 mA for temperature and humidity measurements
- Isolated alarm outputs for temperature and humidity
- Door lock



Data Logger Kits



Validations and calibrations



External water supply set



Climate chamber with various access ports

► BINDER
INDIVIDUAL
More information
on page 133

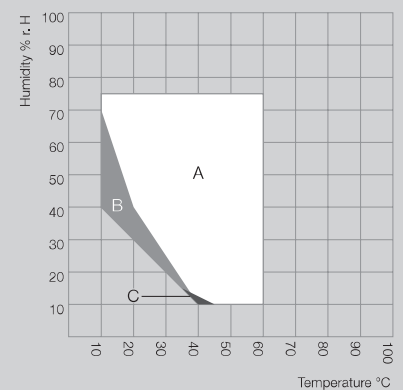
Technical data for your planning and installation

KBF LQC series

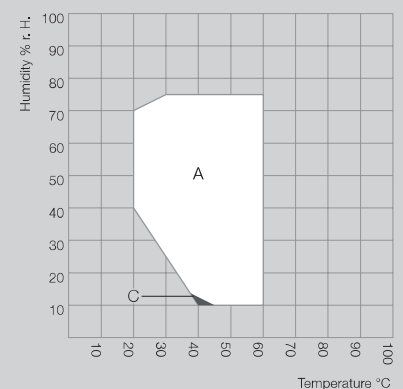


	KBF LQC 240	KBF LQC 720
Exterior dimensions		
Width	930 / 36.61	1255 / 49.41
Height (including feet/casters) (mm/inch)	1460 / 57.48	1925 / 75.79
Depth (mm/inch) including door handle, I-triangle, connection (mm/inch)	880 / 34.65	970 / 38.19
Interior dimensions		
Width / Height / Depth (mm)	650 / 785 / 485	973 / 1250 / 576
Width / Height / Depth (inch)	25.59 / 30.91 / 19.09	38.31 / 49.21 / 22.68
Interior volume (l/cu.ft.)	247 / 8.73	700 / 24.73
Number of light cassettes	2	3
Number of racks (standard/max.)	2 / 9	3 / 12
Weight (empty) (kg/lbs.)	213 / 470	374 / 826
Temperature data		
Temperature range ¹⁾ (°C/°F)	0 – 70 / 32 – 158	0 – 70 / 32 – 158
Temperature range without light cassettes ¹⁾ (°C/°F)	0 – 70 / 32 – 158	0 – 70 / 32 – 158
Temperature range with light cassettes, with illumination ¹⁾ (°C/°F)	10 – 60 / 50 – 140	10 – 60 / 50 – 140
Temperature uniformity at 25 °C / 77 °F (±K)	0.2	0.2
Temperature fluctuation (±K)	0.1	0.1
Max. heat compensation up to 40 °C / 104 °F (W)	400	1000
Climatic data		
Temperature range with light cassettes, with illumination ¹⁾ (°C/°F)	10 – 60 / 50 – 140	20 – 60 / 68 – 140
Temperature uniformity with illumination at 25 °C / 77 °F and 60 % r. H. (±K)	0.6	1.2
Temperature fluctuation with illumination at 25 °C / 77 °F and 60 % r. H. (±K)	0.2	0.2
Humidity range with light cassettes, with illumination ¹⁾ (% r. H.)	10 – 75	10 – 75
Humidity fluctuation at 25 °C / 77 °F and 60 % r. H. with illumination (±% r. H.)	1.5	2
Recovery time after doors were open for 30 sec ²⁾ at 25 °C / 77 °F and 60 % r. H. with illumination (min)	3	1
Illumination data per light cassette		
ICH compliant illumination for photostability testing ³⁾ (Lux / UVA W/m ²)	7500 / 1.4	9900 / 2.1
Electrical data		
Housing protection acc. to EN 60529	IP 20	IP 20
Nominal voltage (±10 %) 50/60 Hz (V) / Nominal power at 240 V (kW)	200 – 240 1N~ / 2.4	200 – 240 1N~ / 3.5
Energy consumption ⁴⁾ at 40 °C / 104 °F / 75 % r. H. (Wh/h)	600	2350
Model no.	9020-0177	9020-0171

► **TEMPERATURE-HUMIDITY CHART WITH ILLUMINATION KBF LQC 240**



► **TEMPERATURE-HUMIDITY CHART WITH ILLUMINATION KBF LQC 720**



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

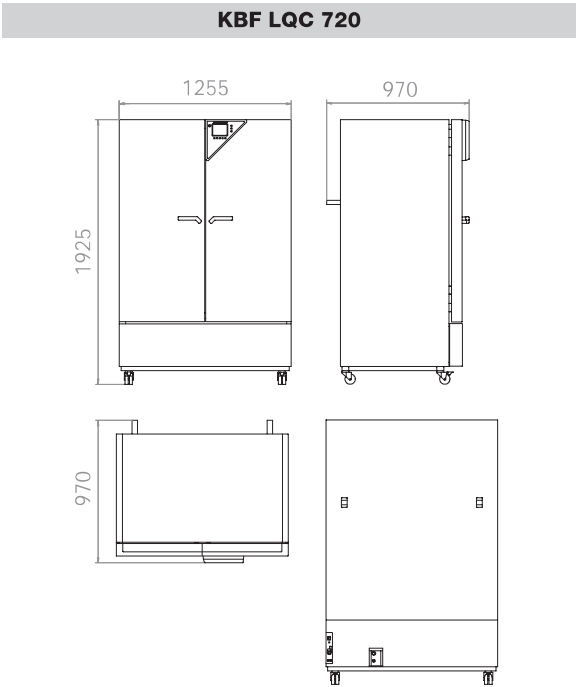
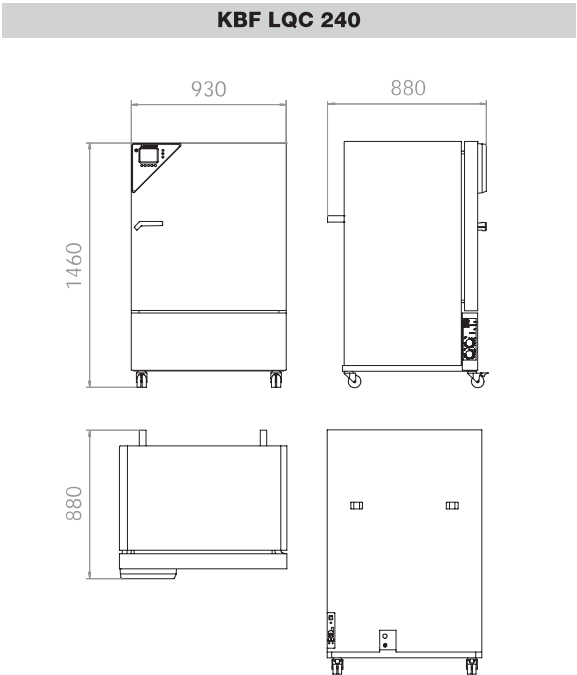
¹⁾ Lower values are valid up to an ambient temperature of max. 25 °C / 77 °F. // ²⁾ to 98 % of the set value // ³⁾ Average value, measured with a spherical sensor (±10 %) by 12 cm / 4.7 in below the light cassette // ⁴⁾ Use this value for dimensioning air conditioning systems. /// All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a voltage fluctuation of ±10 %. The temperature data are determined in accordance with factory standard following DIN 12880 respecting 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.



Current information and values are available at:
www.binder-world.com



► DIMENSIONS



► INSTALLATION REQUIREMENTS

	KBF LQC 240	KBF LQC 720
Wall clearance rear (mm/inch)	100 / 3.94	100 / 3.94
Wall clearance side (mm/inch)	100 / 3.94	200 / 7.87
Nominal voltage (±10 %) 50/60 Hz (V)	200 – 240 1N~	200 – 240 1N~
Nominal power at 240 V (kW)	2,4	3,5