

Constant climate chambers with Light Quantum Control The special advantage of BINDER KBF LQC series: the patented photometry for photostability testing. Two spherical 3D ball-type sensors capture visible light intensity and UV light intensity – if the desired light dosage is achieved, it switches off automatically.



Advantages:

- Long-term stable test conditions
- Independent of the water supply
- one-stop solution: Temperature/humidity/light simulation in one chamber

Areas of application:



Pharmaceuticals
Industry

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Features	Customer benefits	Characteristics
APT.line™ climate technology	<ul style="list-style-type: none"> • Same test conditions throughout the chamber interior • Independent of specimen size and quantity 	APT.line™ <ul style="list-style-type: none"> • Constant and gentle circulation of air through large-surface side walls even under a full load • Homogeneous climate conditions throughout test specimens
Photostability tests	<ul style="list-style-type: none"> • Light uniformity for all specimens on the entire shelf • Flexible use for Q1A and/or Q1B • Automatic photostability tests under consistent conditions 	Realistic light photometry in 3D <ul style="list-style-type: none"> • ICH-compliant illumination with BINDER Q1B Synergy Light™ • Removable illumination cassettes • Spherical 3D ball-type sensors
Water supply	<ul style="list-style-type: none"> • Flexible solution independent of water supply and installation site • Easy plug-and-play handling 	Suitable for any water quality <ul style="list-style-type: none"> • Direct connection to the domestic water system • Convenient water treatment with BINDER PURE AQUA SERVICE • Sewage pump for discharges up to 1 m in height
Humidification system	<ul style="list-style-type: none"> • Very accurately measured values • Minimal maintenance requirements • FDA-compliant test results 	<ul style="list-style-type: none"> • Vapor pressure humidification for fast response times • Drift-free, capacitive humidity sensor • Short recovery time after door opening
Cooling system	<ul style="list-style-type: none"> • Reliable test results even under extreme climate and site conditions • Stable, long-term tests according to GLP/GMP • Large power reserves, e.g. for lighting applications 	<ul style="list-style-type: none"> • Powerful compressor cooling system for ambient temperatures up to 32 °C • No freezing thanks to double evaporator plate
Standard equipment	<ul style="list-style-type: none"> • No extra costs • Chamber is easily moved on casters • Condensation-free glass door for clear viewing and constant climate 	Comprehensive standards <ul style="list-style-type: none"> • Ethernet interface • Access port diameter 30 mm • Casters from 240 l volume • Inner glass door with seal and double outer door seal • Door heated against condensation
Controller	<ul style="list-style-type: none"> • All measured values read at a glance • Convenient documentation • Easy operation • Convenient HMI (Human Machine Interface) 	MCS screen controller <ul style="list-style-type: none"> • 25 program memory • Digital continuous-line recorder for monitoring limits • Alarm function
Qualification	<ul style="list-style-type: none"> • FDA- and GLP/GMP-compliant documentation • Maximum process stability • FDA approved for several years 	More than 10 years of experience with: <ul style="list-style-type: none"> • GLP/GMP, IQ, OQ, PQ, DQ • FDA-compliant software APT-COM™ • Years of proven and recognized validation and documentation materials
Accessories and Services	<ul style="list-style-type: none"> • Complete solution • Everything from one source • BINDER Service is always nearby 	<ul style="list-style-type: none"> • Various options: BINDER Data Logger Kits, GLP compliance, access ports in various sizes and positions, object temperature measurement • Worldwide service network

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- Electronically controlled APT.line™ preheating chamber with cooling system assuring temperature accuracy and reproducible results
- 2 variable position illumination cassettes with BINDER Q1B Synergy Light™ for unique homogeneous light distribution over the entire usable area
- Illumination is suitable for stability in accordance with ICH guideline Q1B, option 2
- Light Quantum Control LQC, precise light intensity measurement, directly at the sample location using ball-type sensors
- Temperature range 0 °C to 70 °C (without illumination and humidity)
- Temperature range 10 °C to 60 °C (with illumination and humidity)
- Humidity range 10% to 80% RH (without illumination)
- Humidity range 10% to 75% RH (with illumination)
- 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 according to ICH guideline Q1A (R2)
- Inner glass door with seal
- Independent temperature safety device class 3.1 (DIN 12880) with optical and audible temperature alarm
- Access port with silicone plug Ø 30 mm, left side
- Complete safety connection kit for water supply and drainage, including water hose, (total length 6 m)
- Ethernet interface for communication software APT-COM™ DataControlSystem
- 2 shelves, stainless steel
- BINDER test certificate

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KBF LQC 240 (E5.2)

▶ Exterior dimensions	
Width (mm)	925
Height (incl. castors) (mm)	1460
Depth (plus door handle, I-panel, connection 50 mm) (mm)	800
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Steam space volume (l)	348
Number of doors (ea.)	1
Inner glass door (ea.)	1

▶ Interior dimensions	
Width (mm)	650
Height (mm)	785
Depth (mm)	485
Interior volume (l)	247
Racks (number standard/max.)	2 / 7
Load per rack (kg)	30
Permitted total load (kg)	100
Weight (empty) (kg)	213

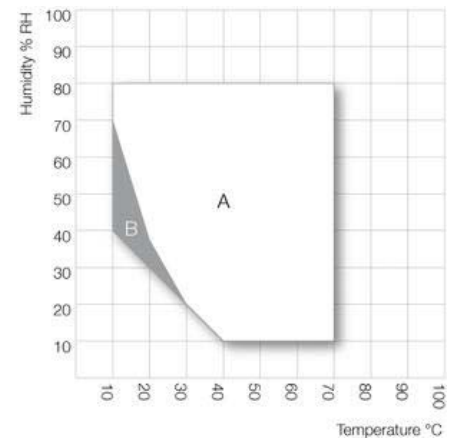
▶ Temperature data (without humidity)	
without illumination cassettes (°C) 1)	0 - 70
with illumination cassettes, with illumination (°C) 1)	10 - 60
Max. heat compensation up to 40 °C with illumination (W)	400

BINDER Light Quantum Control (LQC)



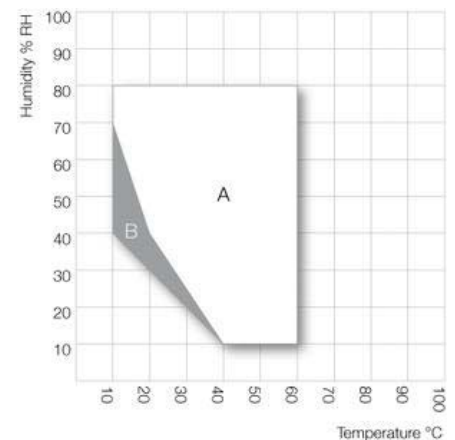
2 spherical sensors for non-directional measurement, directly at the sample location

Temperature-humidity chart without illumination



A: Standard Climate range / B: Discontinuous range

Temperature-humidity chart with illumination



A: Standard Climate range / B: Discontinuous range

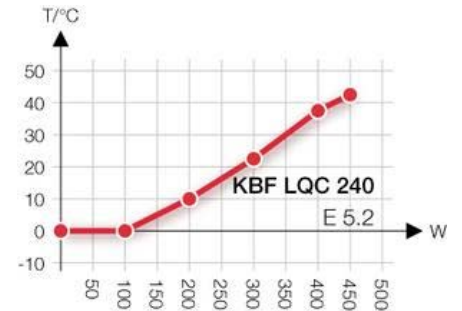
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KBF LQC 240 (E5.2)

▶ Climate data (with humidity)	
Temperature range without illumination cassettes (°C) 1)	10 - 70
Temperature range with illumination cassettes with illumination (°C) 1)	10 - 60
Temperature variation with illumination	
at 25 °C and 60% RH (± K)	0,6
at 40 °C and 75% RH (± K)	0,6
Temperature fluctuation with illumination	
at 25 °C and 60% RH (± K)	0,2
at 40 °C and 75% RH (± K)	0,2
Humidity range without illumination cassettes (% RH)	
Humidity range with illumination cassettes, with illumination 1) (°C)	10 - 80
Humidity fluctuation with illumination	
at 25 °C and 60% RH (± % RH)	1,5
at 40 °C and 75% RH (± % RH)	2
Recovery time after doors were open for 30 sec.	
at 25 °C and 60% RH with illumination (min.)	3
at 40 °C and 75% RH with illumination (min.)	4
Illumination data per light cassette	
ICH-compliant illumination device for photostability testing (Lux) / (UVA W/m ²)	7500 / 1,4

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage (± 10%) 50 / 60 Hz (V)	200-240 1N~
Nominal power at 240 V (kW)	2,4
Energy consumption at 40 °C / 75% RH 1) (W)	600
Noise level approx. (dB (A))	52

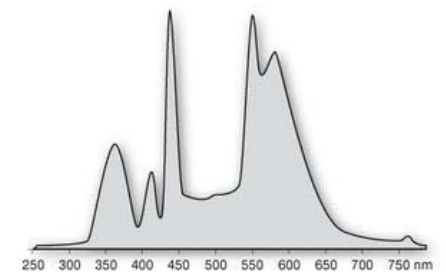
Heat compensation without illumination



Heat compensation with illumination



Light spectrum



1) These values can be used for dimensioning air condition systems.

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a line voltage fluctuation of ±10%. The temperature data is 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 figures are typical average values for series devices. We reserve the right to alter technical specifications at any time.

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BINDER Data Logger Kits

The new BINDER Data Logger Kits – Makes independent recording of temperature and humidity data in the BINDER device possible. The tailored product solution contains helpful accessories: from mounting the logger to the BINDER device to cable access assistance to the sensor mount.



BINDER Pure Aqua Service

This convenient and flexible water treatment system extends maintenance intervals and is easily implemented independent of water quality.
The specific advantage: Point-of-use system with water quality display and replaceable filter cartridge.



External water supply set

External water supply set from fresh and waste water container, wiring and pump



Temperature measurement of the specimen

Additional PT 100 temperature sensor for accurate temperature measurement of the specimen and digital display of measured values. Recording of measured data via Ethernet or RS 422 interface optional.

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KBF LQC 240 (E5.2)

Access ports with silicone plug, 30, 50, 100 mm	<input type="checkbox"/>
Fasteners for additional security for racks (1 set of 4)	<input type="checkbox"/>
Lockable controller keyboard	<input type="checkbox"/>
RS 422 interface for communication software APT-COM™ DataControlSystem	<input type="checkbox"/>
Additional PT 100 temperature sensor, flexibly installed with external connection, includes LEMO connector (3-pin)	<input type="checkbox"/>
Calibration certificate for temperature and humidity for all models. Measurement in center of chamber at 25 °C / 60% RH or at specified values	<input type="checkbox"/>
Extension to calibration certificate for temperature and humidity for all models. Each additional measurement at an additional measuring point or set of values	<input type="checkbox"/>
Temperature precision measurement according to DIN 12880 and 9-point humidity measurement / factory standard with measurement log and certificate, measured at 25 °C / 60% RH or at specified values	<input type="checkbox"/>
External water supply set including fresh and waste water containers, cabling, and pump	<input type="checkbox"/>
BINDER PURE AQUA SERVICE containing single-use cartridge, cabling and measuring device	<input type="checkbox"/>
Single-use cartridge for BINDER PURE AQUA SERVICE	<input type="checkbox"/>
Data Logger Kit TH 70: For continuous temperature and humidity recording of -40 °C to 70 °C / 0% to 100% RH. Kit includes 1 data logger, 1 attachable combined humidity/temperature sensor, 2 m extension cable and 1 fixture for mounting to the BINDER unit	<input type="checkbox"/>
Data Logger Kit TH 70/70: With two attachable combined sensors. One for the continuous temperature and humidity recording of -40 °C to 70 °C / 0% to 100 % RH. Second one at the data logger for recording the environmental 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	<input type="checkbox"/>
Data Logger Kit T 220: For continuous temperature recording of -90 °C to 220 °C. Kit includes 1 data logger, PT 100 sensor with 2 m Teflon extension cable and 1 fixture for mounting to the BINDER unit	<input type="checkbox"/>
Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable	<input type="checkbox"/>
Rack, stainless steel	<input type="checkbox"/>
Reinforced rack, stainless steel, with 1 set of securings (4 pieces), max. load 70 kg	<input type="checkbox"/>
Perforated shelf, stainless steel	<input type="checkbox"/>
Independent temperature safety device class 3.3 (DIN 12880) with optical alarm	<input type="checkbox"/>
4 - 20 mA analog outputs for temperature and humidity measurements (e.g. chart recorder connection) with 6-pin DIN socket. Outputs are adjusted automatically when adjusting the controller.	<input type="checkbox"/>
Zero-voltage relay alarm outputs for temperature (± 2 °C) and humidity ($\pm 5\%$ RH), accessible via 6-pin DIN socket, with audible signal that can be switched off (maximum power rating 24 V AC/DC, 2.5 A)	<input type="checkbox"/>
Switchable waterproof interior socket 230 V AC (max. 500 W), protection class IP 65, with corresponding plug. Protection class IP 65, with corresponding plug (protection class IP 66). Max. permissible operating temperature 50 °C	<input type="checkbox"/>
Door lock	<input type="checkbox"/>
Replacement set of fluorescent tubes for one illumination cassette, contains 3 fluorescent tubes, bright white and 2 BINDER Q1B Synergy Light™ fluorescent tubes	<input type="checkbox"/>

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