



Constant climate chambers

KBF | KBF P | KBF LQC | KMF



Always the right climate.

Research and quality assurance is solely focused on the optimization and monitoring of the performance standards, of functions and service life of materials, products and systems. It is expected from a climate chamber that it simulates the effects of temperature, humidity and light on the chemical, physical and biological behavior of the test material in a reproducible manner.

BINDER offers a range of 10 series of constant climate chambers specifically designed for these demanding requirements. They provide innovative technical solutions and comprehensive equipment options, with which specimens can be safely and reliably tested, whether actively or passively. For special technical requirements, users can also rely on the individually tailored solutions from BINDER INDIVIDUAL.



KBF
Constant climate testing



KBF P | KBF LQC
Constant climate testing with illumination



KMF
Dynamic constant climate testing

The complete solution: constant climate chambers from BINDER. KBF | KBF P | KBF LQC | KMF series

- ▶ BINDER has the optimum solution for every application
- ▶ Simple plug and play
- ▶ Exceptionally precise results, especially in long-term tests
- ▶ Fitting solutions for all kinds of installation locations
- ▶ Also perfectly suited for photostability tests, using removable illumination cassettes
- ▶ Homogeneous light conditions and realistic light measurement
- ▶ KBF constant climate chambers operate in accordance with ICH guideline standards
- ▶ KMF series offer a broad climatic range for reliable stress tests that is unique in this class
- ▶ A comprehensive offering of services, training and documentation



- 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



- 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



- 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



- 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



- Qualifications and service**
- ▶ FDA and GLP/GMP-compliant documentation
 - ▶ Maximum process reliability and support
 - ▶ Worldwide BINDER service network



- Comprehensive additional services**
- ▶ Data Logger Kits
 - ▶ Years of experience with recognized validation materials and documents
 - ▶ Customer-specific modifications

Constant climate chambers



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.

► EQUIPMENT:

- Electronically controlled APT.line™ pre-heating chamber technology
- MCS Controller with 25 storage programs, each with 100 segments, for a maximum of 500 program segments
- User-friendly LCD monitor
- Easy-to-use menu control
- Integrated electronic chart recorder
- Variety of options for graphic representation of process parameters
- Real-time clock
- Microprocessor controlled humidification and dehumidification system with a drift-free, capacitive humidity sensor
- Inner glass door with sealing
- Independent adjustable temperature safety device, class 3.1 (DIN 12880) with optical and acoustic alarm
- Access port with silicone plug Ø 30 mm, left side
- Complete safety connection kit for water supply up to 1 m height
- Ethernet interface for communication software APT-COM™ DataControlSystem
- 2 stainless steel racks
- BINDER test certificate

► OPTIONS:

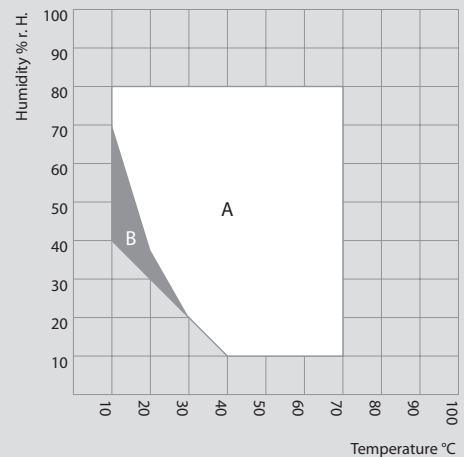
Various access ports, Data Logger Kits, BINDER PURE AQUA Service, external water supply kit, APT-COM™ DataControlSystem, qualification documentation package, etc.

► APPLICATIONS:

Testing of packaging, Shelf life tests, Long-term stability testing of drugs, Pharmaceutical manufacturing, Food testing



► CLIMATIC CHART



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



Constant climate chambers with light | KBF P | LQC 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.

► 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

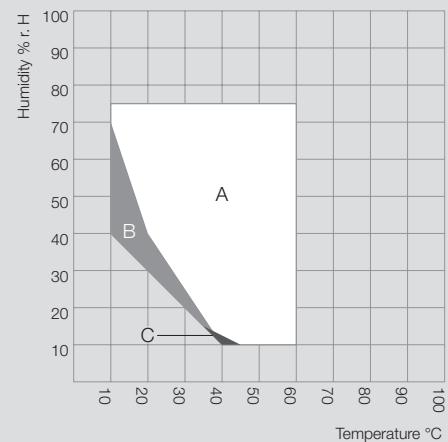
► OPTIONS:

Various access ports, Data Logger Kits, BINDER PURE AQUA Service, external water supply kit, APT-COM™ DataControlSystem, qualification documentation package, etc.

► APPLICATIONS:

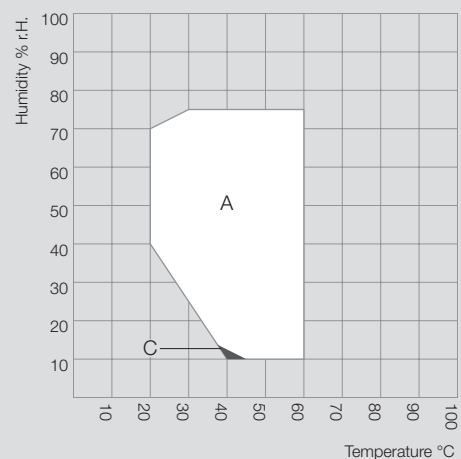
Drug tests according to ICH Q1A and Q1B guideline, Pharmaceutical manufacturing

► CLIMATIC CHART WITH LIGHT (KBF P/LQC 240)



- A: Guaranteed condensation free range
- B: Temporary usable operation (up to 24 h)
- C: In this range, condensation in the inner chamber is possible

CLIMATIC CHART WITH LIGHT (KBF P/LQC 720)



Climatic chart without light see KBF series

Constant climate chambers



Constant climate chambers | KMF series

The KMF is the specialist for unconditionally reliable stress testing and precise maintenance of constant test conditions. It has particularly large power reserves and an extremely broad climate range: from -10 °C to 100 °C. It works condensation-free up to 90% r. H. These features make the KMF unique in its class.

► EQUIPMENT:

- Temperature range from -10 °C to 100 °C
- Humidity range 10 % to 90 % 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 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
- Inner glass door
- 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 1m in height
- Ethernet interface for communication software APT-COM™ DataControlSystem
- Shelf, stainless steel
- Four casters, two with brakes (KMF 240/720)

► OPTIONS:

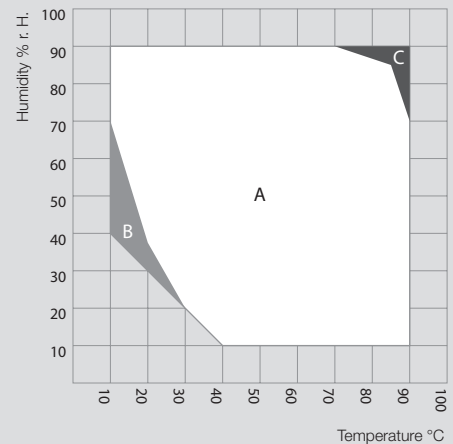
Various access ports, Data Logger Kits, BINDER PURE AQUA Service, external water supply kit, APT-COM™ DataControlSystem, qualification documentation package, etc.

► APPLICATIONS:

Pharmaceutical manufacturing, Testing of packaging, Material testing up to 85 °C/85 % r.H., Electronic testing, Solar panel testing, Surface coating tests



► CLIMATIC CHART



- A: Guaranteed condensation free range
- B: Temporary usable range (up to 24 h)
- C: In this range, condensation in the inner chamber is possible

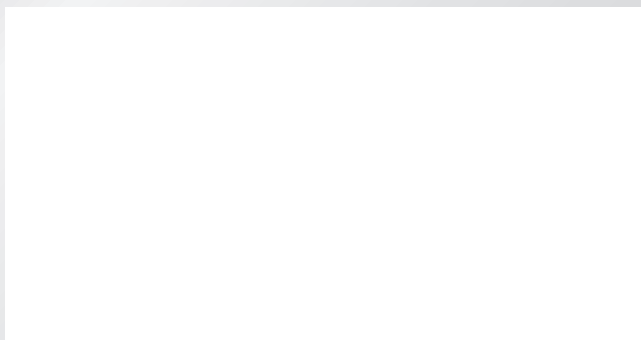
Technical specifications at a glance



| | KBF 115 | KBF 240 | KBF 720 | KBF P LQC 240 | KBF P LQC 720 | KMF 115 | KMF 240 | KMF 720 |
|--|----------------|----------------|----------------|--------------------------------|--------------------------------|----------------|----------------|----------------|
| Exterior dimensions (mm) | | | | | | | | |
| Width | 885 | 930 | 1255 | 930 | 1255 | 885 | 930 | 1255 |
| Height | 1050 | 1460 | 1925 | 1460 | 1925 | 1050 | 1460 | 1925 |
| Depth (plus 50 mm connections) | 730 | 880 | 970 | 880 | 970 | 730 | 880 | 970 |
| Interior dimensions (mm) | | | | | | | | |
| Width | 600 | 650 | 973 | 650 | 973 | 600 | 650 | 973 |
| Height | 483 | 785 | 1250 | 785 | 1250 | 483 | 785 | 1250 |
| Depth | 351 | 485 | 576 | 485 | 576 | 351 | 485 | 576 |
| Inner chamber volume (l) | 102 | 247 | 700 | 247 | 700 | 102 | 247 | 700 |
| Temperature data/ Climatic data | | | | | | | | |
| Temperature range without humidity, without light (°C) | 0–70 | 0–70 | 0–70 | 0–70 | 0–70 | –10–100 | –10–100 | –10–100 |
| Temperature range with humidity, without light (°C) | 10–70 | 10–70 | 10–70 | 10–70 | 10–70 | 10–90 | 10–90 | 10–90 |
| Temperature range with humidity, with light (°C) | – | – | – | 10–60 | 20–60 | – | – | – |
| Humidity data | | | | | | | | |
| Humidity range without light % r.H. | 10–80 | 10–80 | 10–80 | 10–80 | 10–80 | 10–90 | 10–90 | 10–90 |
| Humidity range with light % r.H. | – | – | – | 10–75 | 10–75 | – | – | – |
| Electrical data | | | | | | | | |
| Nominal voltage (±10 %) 50/60 Hz (V) | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ | 200–240 1N~ |
| Nominal power (kW) | 2.0 | 2.1 | 3.1 | 2.4 | 3.5 | 2.0 | 2.1 | 3.1 |
| Model no. | 9020-0139 | 9020-0150 | 9020-0108 | P: 9020-0244 LQC: 9020-0248 | P: 9020-0246 LQC: 9020-0249 | 9020-0187 | 9020-0219 | 9020-0245 |

BINDER Product Program:

- ▶ Drying ovens E | ED | FD
- ▶ Heating chambers FED
- ▶ Temperature test chambers FP | M
- ▶ Safety drying ovens FDL | MDL
- ▶ Vacuum drying ovens VD | VDL
- ▶ Incubators B | BD | BF | KB
- ▶ CO₂-incubators C | CB
- ▶ Constant climate chambers KBF | KBF P | KBF LQC | KMF
- ▶ Climatic test chamber with light KBW | KBWF
- ▶ Ultra low temperature freezers UF V
- ▶ Environmental test chambers MK
- ▶ Climatic test chamber MKF
- ▶ Low temperature test chambers MKT | MKFT



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