

Constant climate chambers

The BINDER KBF is the specialist for unconditionally reliable stability testing and precise maintenance of constant climatic conditions. From programming to documentation, it meets all critical requirements.



Advantages:

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

Areas of application:



Cosmetics Industry



Food / Beverage



Pharmaceuticals
Industry



Packaging Industry

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
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 (89.6 °F) • 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 (1.2 inch) • Casters from 240 l (8.6 cu.ft.) 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

- Electronically controlled APT.line™ preheating chamber and refrigerating system assuring temperature accuracy and reproducible results
- Temperature range 0 °C to 70 °C (32 °F to 158 °F) (without humidity)
- Temperature range 10 °C to 70 °C (50 °F to 158 °F) (with humidity)
- Humidity range 10 % to 80 % 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 according to ICH guideline Q1A (R2)
- Inner glass door with sealing
- 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
- Safety connection kit for water supply and drainage, including water hose up to 1 m (3.3 ft.) Height
- Ethernet interface for GLP/GMP and the FDA guideline 21 CFR Part 11 compliant APT-COM™ DataControl-System software
- 2 stainless steel racks
- BINDER technical specification conformance certificate

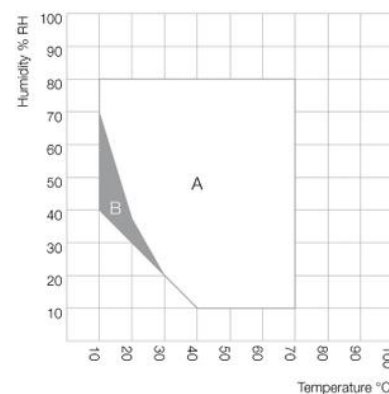
KBF 115 (E5.2)

Exterior dimensions	
Width (mm/inch)	885 / 34.8
Height (incl. feet) (mm/inch)	1050 / 41.3
Depth (incl. door handle, I-triangle, connection 80 mm (3.15 inch)) (mm/inch)	650 / 25.6
Wall clearance, rear (mm/inch)	100 / 3.9
Wall clearance, side (mm/inch)	100 / 3.9
Steam space volume (l/cu.ft.)	156 / 5.5
Number of doors (ea.)	1
Inner glass door(s) (ea.)	1

Interior dimensions	
Width (mm/inch)	600 / 23.6
Height (mm/inch)	483 / 19.0
Depth (mm/inch)	351 / 13.8
Interior volume (l/cu.ft.)	102 / 3.6
Racks (number standard/max.)	2 / 5
Load per rack (kg/lbs.)	30 / 66.1
Permitted total load (kg/lbs.)	100 / 220.5
Weight (empty) (kg/lbs.)	129 / 284.4

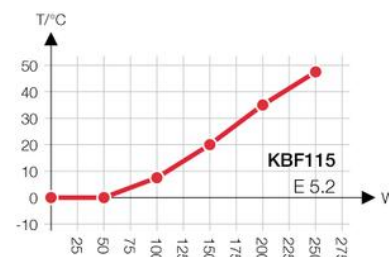
Temperature data (without humidity)	
Temperature range (°C/°F)	0 - 70 / 32 - 158
Temperature variation at 25 °C (77 °F) (± K)	0.2
Temperature variation at 40 °C (104 °F) (± K)	0.2
Temperature fluctuation (± K)	0.1
Max. heat compensation up to 40 °C (104 °F) (W)	200

Temperature-humidity chart



A: Guaranteed condensation free range / B: Temporary usable operation (up to 24 h)

Heat compensation



KBF 115 (E5.2)

► Climate data (with humidity)	
Temperature range (°C/°F)	10 - 70 / 50 - 158
Temperature variation	
at 25 °C (77 °F) / 60 % RH (± K)	0.2
at 40 °C (104 °F) / 75 % RH (± K)	0.2
Temperature fluctuation	
at 25 °C (77 °F) / 60 % RH (± K)	0.1
at 40 °C (104 °F) / 75 % RH (± K)	0.1
Humidity range (% RH)	10 - 80
Humidity fluctuation	
at 25 °C (77 °F) / 60 % RH (± % RH)	≤ 2
at 40 °C (104 °F) / 75 % RH (± % RH)	≤ 2
Recovery time after door was opened for 30 sec	
at 25 °C (77 °F) / 60 % RH (min.)	15
at 40 °C (104 °F) / 75 % RH (min.)	8

► Electrical data	
Voltage (± 10 %) 50 / 60 Hz (V)	200 - 240, 1 N ~
Nominal power (kW)	2.0
Energy consumption 40 °C (104 °F) / 75 % RH (W) 1)	470
Noise level approx. (dB (A))	52

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 (77 °F) 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.



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



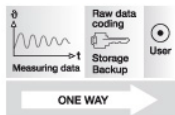
BINDER Data Logger Kits

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



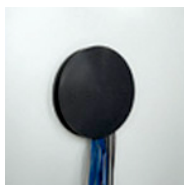
External water supply set

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



APT-COM™ DataControlSystem GLP Edition

Software for GLP-compliant control, programming and documentation. Allows networking of up to 30 devices or controllers. Meets FDA 21 CFR Part 11 requirements



Access port

With silicone plugs for introducing external measuring instruments into the chamber, access ports with 30, 50 or 100 mm (1.18, 1.97, 3.94 inch) diameters



Calibration certificate & validation

BINDER can significantly reduce the workload in qualifying and validating devices. Nobody knows our devices as well and has as much experience in certifications as we do



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

KBF 115 (E5.2)

Access ports with silicone plug 30, 50, 100 mm (1.18, 1.97, 3.94 inch)	O
Securing elements for additional fastening of racks (1 set of 4 pieces)	O
Keyboard lock	O
Additional PT 100 temperature sensor, flexibly installed, with external connection, including DIN connector (6-pin)	O
RS 422 interface for communication software APT-COM™ DataControlSystem	O
External fresh water supply set consists of fresh and waste water tank with 20 l (0.7 cu.ft.) each, cabling and pump	O
BINDER PURE AQUA SERVICE consisting of disposable cartridge, hose set and measuring unit	O
Disposable cartridge for BINDER PURE AQUA SERVICE	O
Factory calibration certificate for temperature and humidity. Measurement in center of chamber at 25 °C (77 °F) / 60 % RH or at specified values	O
Extension to factory calibration certificate for temperature and humidity. Each additional measurement at an additional measuring point or set of values	O
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	O
External chart recorder for temperature and humidity	O
Data Logger Kit TH 70: For the continuous temperature and humidity recording of -40 °C (-40 °F) to 70 °C (158 °F) / 0 % to 100 % RH. Kit includes 1 data logger, 1 attachable combined humidity/temperature sensor with 2 m extension cable and 1 fixture for the connection at the BINDER unit	O
Data Logger Kit TH 70/70: With two attachable combined sensors. One for the continuous temperature and humidity recording of -40 °C (-40 °F) to 70 °C (158 °F) / 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 with 2 m extension cable and 1 fixture for the connection at the BINDER unit	O
Data Logger Kit T 220: For the continuous temperature recording of -90 °C (-130 °F) to 220 °C (428 °F). Kit includes 1 data logger, PT 100 sensor with 2 m Teflon extension cable and 1 fixture for the connection at the BINDER unit	O
Data Logger converter cable RS 232 to USB 2.0	O
Data Logger Software: Configuration und evaluation software for all BINDER Data Logger Kits, incl. data cable (RS 232)	O
Rack, stainless steel	O
Shelf, perforated, stainless steel	O
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	O
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	O
Zero-voltage relay alarm outputs for temperature (± 2 °C) and humidity (± 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)	O
Waterproof interior socket 230 V AC (max. 200 W), IP65 protected, with corresponding plug. Max. allowed operating temperature 50 °C (122 °F)	O
Locking door handle with key	O
Interior lighting (15 W)	O