

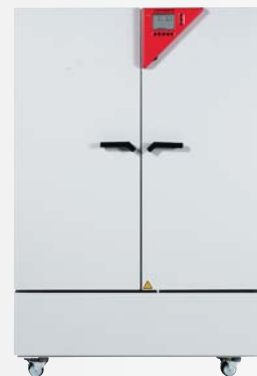
KBF series: Environmental simulation chambers for constant climatic conditions

The KBF series was particularly designed for absolutely reliable stability tests and precise maintenance of constant climatic conditions. It naturally also complies with all applicable guidelines such as ICH, FDA, GMP and GLP, with respect to programming and documentation requirements; with its large reserve capacity and many optional features, it is designed to meet future challenges for many years to come.



► Performance features and equipment:

- Electronically controlled APT.line™ preheating chamber technology with DCT™ refrigeration system
- Temperature range: -10 °C to 100 °C (14 °F to 212 °F) (without humidity)
- Humidity range: 10 % RH to 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 SPH sensor technology
- 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
- BINDER test certificate

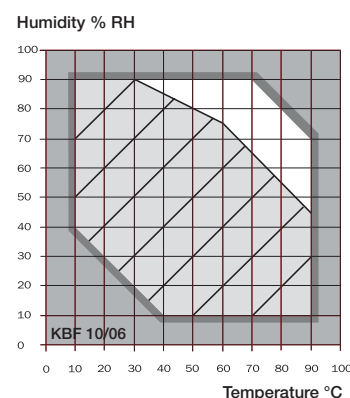


Technical specification KBF series



	KBF 115	KBF 240	KBF 720
▶ Exterior dimensions			
Width (mm/inch)	834 / 32.8	1034 / 40.7	1234 / 48.6
Height (incl. feet/roller) (mm/inch)	1022 / 40.2	1142 / 45.0	1816 / 71.5
Depth (mm/inch)	646 / 25.4	746 / 29.4	867 / 34.1
Plus door handle, I-panel, connection (mm/inch)	100 / 3.9	100 / 3.9	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9	100 / 3.9	100 / 3.9
Wall clearance side (mm/inch)	160 / 6.3	160 / 6.3	160 / 6.3
Steam space volume (l/cu.ft.)	158 / 5.6	308 / 10.9	855 / 30.2
Height of water connections (± 3 mm)	84 / 3.3	84 / 3.3	190 / 7.5
Number of doors	1	2	2
Number of inner glass doors	1	2	2
▶ Interior dimensions			
Width (mm/inch)	600 / 23.6	800 / 31.5	1000 / 39.4
Height (mm/inch)	480 / 18.9	600 / 23.6	1145 / 45.1
Depth (mm/inch)	400 / 15.8	500 / 19.7	600 / 23.6
Interior volume (l/cu.ft.)	115 / 4.1	240 / 8.6	700 / 25.1
Shelves (number standard/max.)	2 / 5	2 / 7	2 / 14
Load per shelf (kg/lbs.)	20 / 44	30 / 66	45 / 99
Permitted total load (kg/lbs.)	50 / 110	70 / 155	120 / 265
Weight (empty) (kg/lbs.)	115 / 254	160 / 353	278 / 614
▶ Temperature data			
Permissible ambient temperature range (°C/°F) ⁵⁾	18-32/64.4-89.6	18-32/64.4-89.6	18-32/64.4-89.6
KBF without humidity (°C/°F)	-10-100/14-212	-10-100/14-212	-10-100/14-212
KBF with humidity (°C/°F)	10-90 / 50-194	10-90 / 50-194	10-90 / 50-194
Temperature variation without humidity			
at 10 °C (50 °F) (± °C)	0.4	0.4	0.4
at 37 °C (98.6 °F) (± °C)	0.3	0.4	0.4
Temperature variation with humidity ²⁾ (± °C)	1	1	1
Temperature fluctuation from 5 °C (9 °F) above ambient temperature ²⁾ (± °C)	0.1	0.1	0.1
Temperature fluctuation when refrigeration system is in operation (± °C)	0.5	0.5	0.5
Heating up time ^{1), 2)}			
at 37 °C (98.6 °F) (Min.)	23	30	28
Cooling down time from room temp. ^{1), 2)}			
at 10 °C (50 °F) (Min.)	35	35	35
Recovery time after doors were open for 30 sec. ^{1), 2)}			
at 37 °C (98.6 °F) (Min.)	5	5	5
at 50 °C (122 °F) (Min.)	4	4	4
Humidity fluctuation ^{1), 2) 3)} (± RH%)	1.5	1.5	1.5
▶ Electrical data			
Housing protection acc. to EN 60529	IP 20	IP 20	IP 20
Nominal voltage (± 10 %) 50 / 60 Hz (V)	230	230	230
Nominal power (W)	1700	2250	2760
Energy consumption ⁴⁾ at 37 °C (98.6 °F) (W)	530	550	610

Temperature-humidity chart



The light area indicates the control range of temperature and relative humidity. The hatched area indicates the control range of temperature and relative humidity without condensation.

- 1) up to 98 % of the set value
- 2) value without illumin.
- 3) upon door opening or water exchange in humidity cylinder: > ± 1.5 RH %, 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

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, total hardness 4°–8° dH, content of chloride < 100mg/l)** 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 technical data are specified for units with standard equipment at an ambient temperature of 20 °C (68 °F) and a voltage fluctuation of ± 10 %. The temperature data are determined in accordance to factory standard following DIN 12880, part 2 respecting the recommended wall clearances of 10 % of the height, width and depth of the inner chamber. All indications are average values, typical for units produced in series. We reserve the right to alter technical specifications at all times.