

Climate chambers with illumination and humidity The BINDER KBWF series shines with its homogeneous light distribution with natural illumination from above. It creates consistent climate conditions – even with illumination.



Advantages:

- Homogeneous light distribution
- Natural growth conditions
- Temperature, humidity & light in one unit

Areas of application:



Cosmetics Industry



Plant / Insect Growth



Packaging 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 • No drying out of specimens 	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 all specimens
Light	<ul style="list-style-type: none"> • Up to 20% greater usable space • Light sources adjustable to specimen sizes • Same irradiation results throughout the chamber interior 	<ul style="list-style-type: none"> • Flexible positioning and fully removeable illumination cassettes • Excellent light uniformity for all specimens on the entire shelf • Different light spectra can be used
Cooling system	<ul style="list-style-type: none"> • Reliable testing independent of ambient conditions 	<ul style="list-style-type: none"> • Powerful compressor cooling system with large power reserves for lighting applications • No freezing thanks to double evaporator plate • Carefully measured cooling
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 • Back Pack System
Humidification system	<ul style="list-style-type: none"> • Very accurately measured values • Minimal maintenance requirements • Safe, reproducible attainment of 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
Standard equipment	<ul style="list-style-type: none"> • No extra costs • Chamber is easily moved on casters 	Comprehensive standards <ul style="list-style-type: none"> • Communication interface • Access port diameter 30 mm • BINDER test certificate • Casters • Inner glass door and double outer door seal • Door heated against condensation
Unit design	<ul style="list-style-type: none"> • Minimum space requirements • Easy assembly • Large chamber interior volume • Easy cleaning 	<ul style="list-style-type: none"> • Optimal ratio of usable space and footprint • Large access area thanks to wide design • Chamber interior made out of high-quality stainless steel • Closed illumination cassettes • No permanent fixtures
Accessories and Services	<ul style="list-style-type: none"> • Complete solution • Everything from one source • BINDER Service is always nearby 	Comprehensive product portfolio <ul style="list-style-type: none"> • Various options: BINDER Data Logger Kits, access ports in various sizes and positions, control and documentation software APT-COM™ • Years of proven and recognized validation and documentation materials • Worldwide service network

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- Electronically controlled APT.line™ preheating chamber with cooling system assuring temperature accuracy and reproducible results
- Temperature range 0 °C to 70 °C (without humidity and illumination)
- Temperature range 10 °C to 60 °C (with humidity and illumination)
- Humidity range 10% to 80% RH (without illumination)
- Humidity range 10% to 75% RH (with illumination)
- 2 variable position illumination cassettes each with 5 daylight fluorescent illumination tubes
- 2 racks, stainless steel
- Patented light system for unique homogeneous light distribution over the entire usable area
- MCS controller for temperature, humidity, and lighting control with 25 storable programs of 100 sections each for a maximum of 500 program segments, for programming of day/night cycles
- Integrated electronic chart recorder
 - Variety of options for the graphic display of process parameters
 - Real-time clock
- Controlled humidification and dehumidification system with capacitive humidity sensor
- 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
- Inner glass door
- Complete safety connection kit for water supply and drainage, including water hose, (total length 6 m)
- RS 422 interface for communication software APT-COM™ DataControlSystem
- BINDER test certificate

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KBWF 240 (E5.2)

▶ Exterior dimensions	
Width (mm)	925
Height (incl. casters) (mm)	1460
Depth (plus 50 mm door handle, I-triangle, connection) (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(s) (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)	214
Variable position illumination cassettes	2

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

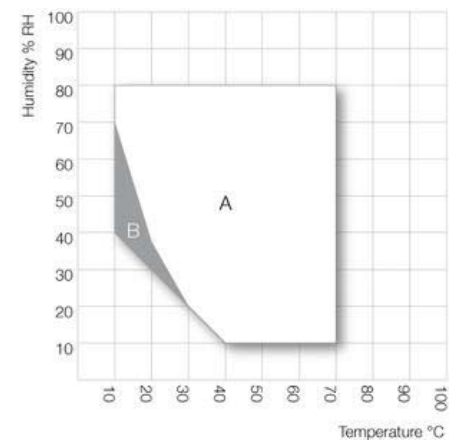
▶ Climate data (with humidity)	
Temperature range without illumination cassettes (°C)	10 - 70
Temperature range with illumination cassettes with illumination (°C)	10 - 60
Temperature variation with illumination (± K)	0,5 - 1,0
Temperature fluctuation with illumination (± K)	0,1 - 0,5
Humidity range without illumination cassettes (% RH)	10 - 80
Humidity range with illumination cassettes, with illumination (% RH)	10 - 75
Humidity fluctuation with illumination (± % RH)	2

Variable position illumination cassette



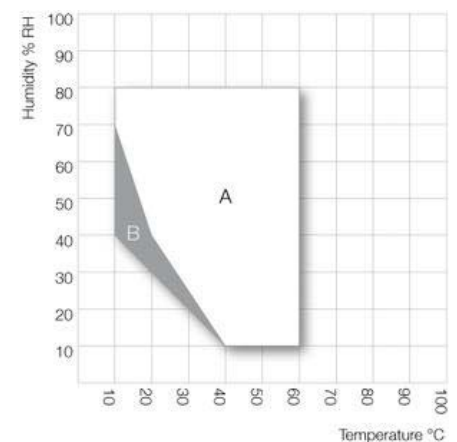
Illumination with 3 bright white and 2 BINDER Synergie Light fluorescent tubes

Temperature-humidity chart without illumination



A: Standard Climate range / B: Discontinuous range

Temperature-humidity chart with illumination



A: Standard Climate range / B: Discontinuous range

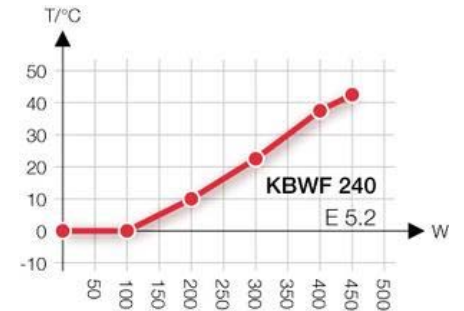
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KBWF 240 (E5.2)

Illumination data per light cassette	
Daylight tubes (Lux)	10000
Daylight tubes (W/m ²)	36
Fluora® growth lamps (Lux)	6500
Fluora® growth lamps (W/m ²)	34
Arabidopsis tubes (Lux)	10000
Arabidopsis tubes (W/m ²)	40

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 37 °C / 75 % RH 1) (W)	600
Noise level approx. (dB (A))	52

Heat compensation without illumination

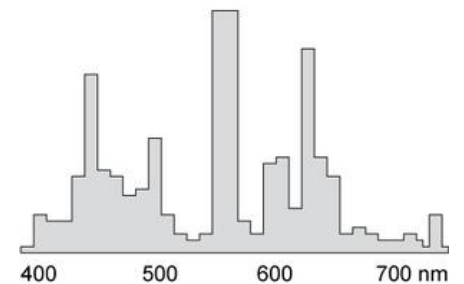


Heat compensation with illumination



Light spectrum

Day light tubes
Light colour 865 (standard)



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.



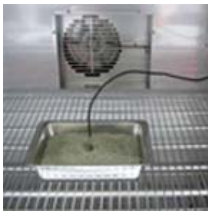
BINDER Pure Aqua Service

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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KBWF 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"/>
Ethernet interface for communication software APT-COM™ DataControlSystem	<input type="checkbox"/>
External water supply set including fresh and waste water containers (20 liters each), 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"/>
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"/>
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. Each additional measurement at an additional measuring point or set of values	<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 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"/>
Perforated shelf, stainless steel	<input type="checkbox"/>
Reinforced rack, stainless steel, with 1 set of fasteners (1 set of 4), max. load 70 kg	<input type="checkbox"/>
Stable shelf (positioned at bottom shelf level) with additional mounting for shaker operation. Other positions possible on request	<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"/>
FLUORA® growth fluorescent tube set for replacing the daylight fluorescent tubes	<input type="checkbox"/>
Arabidopsis fluorescent tube set for replacing the daylight fluorescent tubes	<input type="checkbox"/>
Replacement fluorescent tube set for one illumination cassette	<input type="checkbox"/>
Replacement FLUORA® illumination tube set for one illumination cassette	<input type="checkbox"/>
Replacement Arabidopsis lamp set for one illumination cassette	<input type="checkbox"/>
Door lock	<input type="checkbox"/>
Independent temperature safety device class 3.3 (DIN 12880) with optical alarm	<input type="checkbox"/>

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