

KBW 240 (E5.1) - Plant growth chamber with optimal lighting conditions

Precision combined with maximum dynamics. KBW exceeds any requirements with respect to optimal lighting and temperature conditions for exactly defined culture processes. Extremely short reaction times keep all growth parameters in equilibrium - natural simulation as never before. Handling is truly enhanced by the integrated week program timer function in the controller.



► Performance features and equipment:

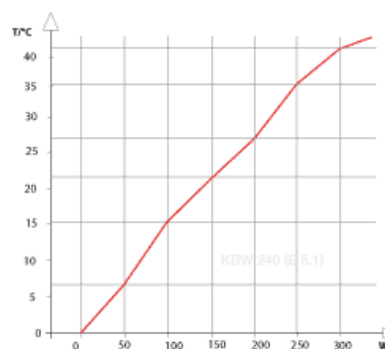
- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range without illumination: 0 °C up to 70 °C (32 °F up to 158 °F)
- Temperature range with illumination: 5 °C up to 60 °C (41 °F up to 140 °F)
- 2 variable positioned illumination cassettes with 5 daylight illumination tubes, each, in steps switchable
- The patented illumination system assures an unique homogeneous light distribution
- MP controller with 2 programs with 10 sections each, alternatively switchable to 1 program with 20 sections
- Features:
 - Integrated week program timer with real time function
 - Adjustable ramp functions via program editor
 - Digital temperature setting with an accuracy of a tenth of a degree
 - Adjustable fan speed
 - Elapsed time indicator
- Access port Ø 30 mm (1.18 inch), left side
- Inner glass door
- Independent adjustable temperature safety device class 3.1, providing full protection against chamber over-temperature, with visual and audible temperature alarm
- RS 422 interface for communication software APT-COM™ DataControlSystem, or switch over to printer output with RS 232 / RS 422 interface converter
- Adjustable intervals for printer
- 2 stainless steel racks included
- BINDER test certificate



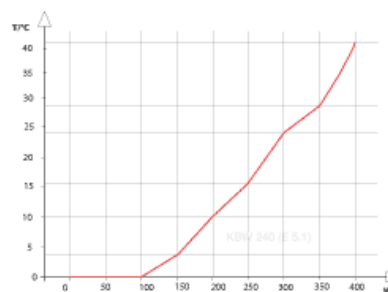
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Exterior dimensions	
Width (mm/inch)	925 / 36.4
Height (inclusive castors) (mm/inch)	1460 / 57.5
Depth (mm/inch)	800 / 31.5
Plus door handle, I-panel, connection (mm/inch)	50 / 2
Wall clearance side (mm/inch)	100 / 3.9
Wall clearance rear (mm/inch)	100 / 3.9
Steam space volume (l/cu.ft.)	348 / 12.3
Number of door(s) / inner glass door(s)	1 / 1
Interior dimensions	
Width (mm/inch)	650 / 25.6
Height (mm/inch)	785 / 30.9
Depth (mm/inch)	485 / 19.1
Interior volume (l/cu.ft.)	247 / 8.6
Load per rack (kg/lbs.)	30 / 66
Permitted total load (kg/lbs.)	100 / 221
Weight of the unit (empty) (kg/lbs.)	202 / 446
Racks (number standard/max.)	2 / 7
Flexible adjustable illumination cassettes	2
Temperature data without illumination	
Temperature range 1) (°C/°F)	0 - 70 / 32 - 158
Temperature variation (± K)	0.5
Temperature fluctuation (± K)	0.1
Max. Heat compensation up to 40 °C (W)	350
Temperature data with 100 % light intensity	
Temperature range 1) (°C/°F)	5 - 60 / 41 - 140
Temperature variation (± K)	0.5
Temperature fluctuation (± K)	0.1
Max. Heat compensation up to 40 °C (W)	250
Illumination data (for 1 illumination cassette)	
Daylight tubes 3) (Lux) / (W/m ²)	10.000 / 36
Fluora® growth lamps 3) (Lux) / (W/m ²)	6.500 / 34
Arabidopsis lamps 3) (Lux) / (W/m ²)	10.000 / 40
Electrical data	
Housing protection acc. to EN 60529	IP 20
Nominal voltage (±10 %) 50 / 60 Hz (V)	200-240 1N~
Nominal power (kW)	1.4
Energy consumption without illumination 4) at 0 °C / 32 °F (W)	360
Energy consumption with 100 % light intensity 4)	
at 4 °C (39.2 °F) (W)	520
at 25 °C (77 °F) (W)	495
at 37 °C (98.6 °F) (W)	525
Noise level (dB (A))	52

Heat compensation with light



Heat compensation without light



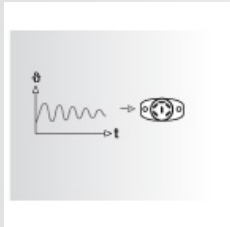
- 1) Lower values are valid up to an ambient temperature of max. 25 °C (77 °F)
- 2) up to 98 % of the set value
- 3) average value, measured with a spherical sensor 12 cm (4.7 inch) below the light cassette. The values given in W/m² refer to global radiation
- 4) these energy consumption values can be used upon calculation of air conditioning systems

All technical data is specified for units with standard equipment at an ambient temperature of 25 °C (77 °F) and a mains 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. Technical data refers to 100 % fan speed. We reserve the right to alter technical specifications at all times.



► Different illumination

Lighting can be selected based upon application and light intensity. For example: FLUORA® growth lamps set as replacement for the standard tubes



► Analog output

Analog temperature output, 4 - 20 mA, with 6 - pin DIN socket (output not adjustable)



► BINDER Data Logger kits

The new BINDER Data Logger kits for temperature and humidity can record temperature and humidity data of BINDER equipment. This finely tuned product solution also contains useful accessories for mounting the Logger on the BINDER unit, including cable bushings and a sensor mounting bracket

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Access port with silicone plugs, 30 mm (1.18 inch), 50 mm (1.97 inch), 100 mm (3.94 inch)	<input type="radio"/>
Securing elements for additional fastening of racks (1 set of 4 pieces)	<input type="radio"/>
Additional PT 100 temperature sensor, flexibly installed, with external connection, including DIN connector (6-pin)	<input type="radio"/>
Ethernet interface for communication software APT-COM™ DataControlSystem	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points) at 37 °C (98.6 °F) or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Factory calibration certificate. Measurement in center of chamber at 37 °C (98.6 °F) or at specified testing temperature	<input type="radio"/>
Extension to factory calibration certificate. Each additional measurement at an additional measuring point or temperature	<input type="radio"/>
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	<input type="radio"/>
Data Logger Software: Configuration und evaluation software for all BINDER Data Logger Kits, incl. data cable	<input type="radio"/>
Rack, stainless steel	<input type="radio"/>
Shelf, perforated, stainless steel	<input type="radio"/>
Reinforced rack, stainless steel, with 1 set of securing elements (1 set of 4 pieces), max. load 70 kg (154 lbs.)	<input type="radio"/>
Vibration compatible shelf / platform (positioned at bottom level) to be mounted inside the chamber for shaker / spinner / roller operation (> 500 rpm to be supported)	<input type="radio"/>
Temperature safety device, class 3.3 (DIN 12880) with visual alarm	<input type="radio"/>
Analog temperature output, 4-20 mA, with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Zero-voltage relay outputs accessible via 6-pin DIN socket. Additional module for controlling 2 relay outputs via 2 of the programmable controller's controller contacts. Outputs can be switched on and off either automatically, or also manually	<input type="radio"/>
FLUORA® growth lamps set as replacement for the standard tubes	<input type="radio"/>
Arabidopsis fluorescent tubes set as replacement for the standard tubes	<input type="radio"/>
Replacement set of standard daylight illumination tubes for one illumination cassette	<input type="radio"/>
Replacement set of FLUORA® illumination tubes for one illumination cassette	<input type="radio"/>
Replacement set of Arabidopsis illumination tubes for one illumination cassette	<input type="radio"/>
Door lock	<input type="radio"/>