Model KBF LQC 240 | Constant climate chambers with ICH-compliant light source and light dose control

The main advantage of the BINDER KBF LQC series is the patented light photometry for photostability tests. Two 3D spherical sensors control the light dosage of UV-A and visible light. Once the desired light dosage is achieved, the chamber switches off automatically.

**BENEFITS**

- Homogeneous climate conditions thanks to APT.line™ technology
- Automatic water and wastewater management
- Pressure humidification with fast response times
- Variable position and removable illumination cassettes
- ICH-compliant illumination for long-term stable test conditions
- Precise photometry with 3D ball-type sensors at the sample

**MAIN FEATURES**

- Temperature range: 0 °C to 70 °C
- Temperature range with light: 10 °C to 60 °C
- Humidity range: 10 % to 80 % RH
- 2 positionable illumination cassettes with ICH-compliant UV/Vis light source
- Independent light-dose control of UV-A and visible light with spherical sensors
- APT.line™ preheating chamber technology
- Humidity regulation with capacitive humidity sensor and vapor humidification
- Inner chamber made of stainless steel
- BINDER Multi Management Software APT-COM™ Basic Edition
- Intuitive touchscreen controller with time-segment and real-time programming
- Internal data logger, measured values can be read out in open format via USB
- Unit self-test for comprehensive status analysis
- Tight-sealing inner door made of safety glass (ESG)
- Avoidance of glass corrosion by special TIMELESS coating
- 2 stainless steel racks
- Access port with silicone plug, 30 mm, left
- 4 stable castors, two with brakes
- Class 3.1 independent temperature safety device (DIN 12880) with visual and audible temperature alarm
- Computer interface: Ethernet
- Door heating

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>247</td>
<td>200...230 V 1~ ph 50/60 Hz</td>
<td>Standard</td>
<td>KBFLQC240-230V</td>
<td>9020-0332</td>
</tr>
<tr>
<td></td>
<td>200...240 V 1~ ph 50/60 Hz</td>
<td>Standard</td>
<td>KBFLQC240UL-240V</td>
<td>9020-0333</td>
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</tbody>
</table>

BINDER Data Sheet | As of: 08.09.2020
Technical specifications are subject to change.
### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>KBFQC240-230V*</th>
<th>KBFQC240UL-240V*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Article Number</strong></td>
<td>9020-0332</td>
<td>9020-0333</td>
</tr>
<tr>
<td><strong>Performance Data Temperature</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range with 100% illumination [°C]</td>
<td>10…60</td>
<td>10…60</td>
</tr>
<tr>
<td>Temperature range without illumination cassettes [°C]</td>
<td>0…70</td>
<td>0…70</td>
</tr>
<tr>
<td>Max. heat compensation at 40 °C with illumination [W]</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td><strong>Performance Data Climate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range with 100% illumination [°C]</td>
<td>10…60</td>
<td>10…60</td>
</tr>
<tr>
<td>Temperature range without illumination cassettes [°C]</td>
<td>10…70</td>
<td>10…70</td>
</tr>
<tr>
<td>Temperature variation with illumination at 25 °C and 60 % RH [± K]</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Temperature variation with illumination at 40 °C and 75 % RH [± K]</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Temperature fluctuation with illumination at 25 °C and 60 % RH [± K]</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Temperature fluctuation with illumination at 40 °C and 75 % RH [± K]</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Humidity range with illumination cassettes, with illumination [% RH]</td>
<td>10…75</td>
<td>10…75</td>
</tr>
<tr>
<td>Humidity range without illumination [% RH]</td>
<td>10…80</td>
<td>10…80</td>
</tr>
<tr>
<td>Humidity fluctuation with illumination at 25 °C and 60 % RH [± % RH]</td>
<td>1.5</td>
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</tr>
<tr>
<td>Humidity fluctuation with illumination at 40 °C and 75 % RH [± % RH]</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Humidity recovery time after 30 s door open at 25 °C and 60 % RH with illumination [min]</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Humidity recovery time after 30 s door open at 40 °C and 75 % RH with illumination [min]</td>
<td>6</td>
<td>6</td>
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<tr>
<td><strong>Lightdata per Illumination Cassettes</strong></td>
<td></td>
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</tr>
<tr>
<td>ICH compliant illumination for photo stability testing [lx]**</td>
<td>7500</td>
<td>7500</td>
</tr>
<tr>
<td>ICH compliant illumination for photo stability testing [W/m²]**</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Electrical data</strong></td>
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</tr>
<tr>
<td>Rated Voltage [V]</td>
<td>200…230</td>
<td>200…240</td>
</tr>
<tr>
<td>Power frequency [Hz]</td>
<td>50/60</td>
<td>50/60</td>
</tr>
<tr>
<td>Nominal power [kW]</td>
<td>2.4</td>
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<tr>
<td>Unit fuse [A]</td>
<td>16</td>
<td>16</td>
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<tr>
<td>Phase (Nominal voltage)</td>
<td>1~</td>
<td>1~</td>
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<tr>
<td><strong>Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior volume [L]</td>
<td>247</td>
<td>247</td>
</tr>
<tr>
<td>Net weight of the unit (empty) [kg]</td>
<td>217</td>
<td>217</td>
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<tr>
<td>Permitted load [kg]</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Load per rack [kg]</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Wall clearance back [mm]</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Wall clearance sidewise [mm]</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Internal Dimensions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width [mm]</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td>Height [mm]</td>
<td>785</td>
<td>785</td>
</tr>
<tr>
<td>Depth [mm]</td>
<td>485</td>
<td>485</td>
</tr>
<tr>
<td><strong>Doors</strong></td>
<td></td>
<td></td>
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<tr>
<td>Inner doors</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unit doors</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

1. All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

2. Average value, measured at 25 °C with a spherical sensor (±10 %) by 12 cm below the light cassette. The values given in W/m² refer to global radiation.
Description

<table>
<thead>
<tr>
<th>Article Number</th>
<th>KBFLQC240-230V</th>
<th>KBFLQC240UL-240V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing dimensions not incl. fittings and connections</td>
<td></td>
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</tr>
<tr>
<td>Width net (mm)</td>
<td>925</td>
<td>925</td>
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<tr>
<td>Height net (mm)</td>
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<td>Depth net (mm)</td>
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<tr>
<td>Environment-specific data</td>
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<tr>
<td>Energy consumption at 40 °C and 75 % RH [Wh/h]</td>
<td>760</td>
<td>760</td>
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<tr>
<td>Sound-pressure level [dB(A)]</td>
<td>53</td>
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<tr>
<td>Fixtures</td>
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</tr>
<tr>
<td>Number of shelves (std./max.)</td>
<td>2/7</td>
<td>2/7</td>
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<tr>
<td>Number of illumination cassettes (std./max.)</td>
<td>2/2</td>
<td>2/2</td>
</tr>
</tbody>
</table>

1 All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

2 Average value, measured at 25 °C with a spherical sensor (±10 %) by 12 cm below the light cassette. The values given in W/m² refer to global radiation.

DIMENSIONS incl. fittings and connections [mm]

CHARTS

Climate chart

A: Guaranteed condensation-free range
B: Time-limited operation (max. 24 hours)
C: Deviations of technical data may be possible
## OPTIONS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>*</th>
<th>Art.-No.</th>
</tr>
</thead>
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<tr>
<td>30 mm</td>
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<td>01</td>
<td>8012-1443</td>
</tr>
<tr>
<td>50 mm</td>
<td></td>
<td>01</td>
<td>8012-1473</td>
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<tr>
<td>100 mm</td>
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<td>01</td>
<td>8012-1340</td>
</tr>
<tr>
<td>right</td>
<td></td>
<td></td>
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<tr>
<td>30 mm</td>
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<td>01</td>
<td>8012-1437</td>
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<tr>
<td>50 mm</td>
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<td>01</td>
<td>8012-1467</td>
</tr>
<tr>
<td>100 mm</td>
<td></td>
<td>01</td>
<td>8012-1337</td>
</tr>
<tr>
<td>top</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 mm</td>
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<td>01</td>
<td>8012-1449</td>
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<tr>
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<tr>
<td>100 mm</td>
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<td>01</td>
<td>8012-1337</td>
</tr>
<tr>
<td>Access port with silicone plug</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>left</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>30 mm</td>
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<td>01</td>
<td>8012-1337</td>
</tr>
<tr>
<td>top</td>
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<td></td>
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<tr>
<td>30 mm</td>
<td></td>
<td>01</td>
<td>8012-1449</td>
</tr>
<tr>
<td>50 mm</td>
<td></td>
<td>01</td>
<td>8012-1455</td>
</tr>
<tr>
<td>100 mm</td>
<td></td>
<td>01</td>
<td>8012-1337</td>
</tr>
<tr>
<td>Alarm output, zero-voltage</td>
<td>for temperature (±2 °C) and humidity (±5 % RH), accessible via 6-pin DIN socket (max. 24 V - 2.5 A), with audible signal that can be switched off</td>
<td>-</td>
<td>8012-1759</td>
</tr>
<tr>
<td>Analog output 4-20 mA</td>
<td>for temperature and humidity values (output not adjustable)</td>
<td>-</td>
<td>8012-1734</td>
</tr>
<tr>
<td>Calibration certificate, expanded</td>
<td>for temperature and humidity; for extending the measurement in center of chamber to include another test value</td>
<td>-</td>
<td>8012-1189</td>
</tr>
<tr>
<td>Calibration certificate, temperature</td>
<td>temperature measurement incl. certificate and 27 measuring points at specified temperature</td>
<td>-</td>
<td>8012-1604</td>
</tr>
<tr>
<td>Calibration certificate, temperature</td>
<td>temperature measurement incl. certificate, 15-18 measuring points at specified temperature</td>
<td>-</td>
<td>8012-1584</td>
</tr>
<tr>
<td>Calibration certificate, temperature and humidity</td>
<td>temperature measurement incl. certificate, 9 measuring points at specified temperature</td>
<td>-</td>
<td>8012-1563</td>
</tr>
<tr>
<td>Class 3.3 independent temperature safety device</td>
<td>measurement in center of chamber at 25 °C / 60% RH or at specified test values</td>
<td>-</td>
<td>8012-1183</td>
</tr>
<tr>
<td>Class 3.3 independent temperature safety device</td>
<td>temperature (according to DIN 12880) and humidity measurement incl. certificate, 27 temperature measuring points and 1 humidity measuring point, at 25 °C / 60% RH or at specified values</td>
<td>-</td>
<td>8012-1610</td>
</tr>
<tr>
<td>Converter, voltage</td>
<td>with visual alarm (DIN 12880)</td>
<td>-</td>
<td>8012-1752</td>
</tr>
<tr>
<td>Converter, voltage</td>
<td>to operate the device at a nominal voltage of 120 V 1 ph 60 Hz</td>
<td>-</td>
<td>809-0892</td>
</tr>
<tr>
<td>Door lock</td>
<td>lockable door handle</td>
<td>-</td>
<td>8012-1658</td>
</tr>
<tr>
<td>Light photometry</td>
<td>including certificate, illumination and irradiance for visible light, 25 measuring points on 3 measurement levels, as well as spectral distribution (385 – 785 nm)</td>
<td>-</td>
<td>8012-0909</td>
</tr>
<tr>
<td>Pt 100 temperature sensor</td>
<td>additional flexible Pt 100, interior, for displaying the temperature on the unit display</td>
<td>-</td>
<td>8012-1748</td>
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<tr>
<td>RS 485 interface, 2-wire</td>
<td>Additional serial interface can be used parallel to Ethernet, for Multi Management Software APT-COM™</td>
<td>-</td>
<td>8012-1744</td>
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</tbody>
</table>

* Notes › See last page

## ACCESSORIES

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>*</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>APT-COM™ 4 BASIC-Edition</td>
<td>for simple logging and documentation requirements with up to 5 networked units. version A, BASIC edition</td>
<td>19</td>
<td>9053-0039</td>
</tr>
<tr>
<td>APT-COM™ 4 GLP-Edition</td>
<td>for working under GLP-compliant conditions. Measured values are documented in a tamper-proof way in line with the requirements of FDA Regulation 21 CFR 11. version A, GLP edition</td>
<td>19</td>
<td>9053-0042</td>
</tr>
<tr>
<td>APT-COM™ 4 PROFESSIONAL Edition</td>
<td>convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units. version A, PROFESSIONAL edition</td>
<td>19</td>
<td>9053-0040</td>
</tr>
<tr>
<td>BINDER PURE AQUA SERVICE</td>
<td>System for preparation or complete desalination of tap water, complete set containing PURE AQUA 300 single-use cartridge, measuring device, and all necessary connecting parts</td>
<td>-</td>
<td>8012-0759</td>
</tr>
<tr>
<td>BINDER PURE AQUA SERVICE, accessories</td>
<td>Single-use, replacement cartridge for BINDER PURE AQUA System</td>
<td>-</td>
<td>6011-0165</td>
</tr>
</tbody>
</table>

* Notes › See last page
**Data Sheet Model KBF LQC 240**

**Designation** | **Description** | **Art.-No.**
--- | --- | ---
T 220: | For continuous temperature logging from -90 °C to 220 °C. The kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit | 19 8012-0715

**Data Logger Kit**

TH 70/70: | For continuous temperature and humidity logging from -40 °C to 70 °C / 0% to 100% RH and additional logging of ambient conditions. Kit includes 1 data logger, 2 attachable combined humidity/temperature sensors, 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit | 19 8012-0717

TH 70: | For continuous temperature and humidity logging from -40 °C to 70 °C; 0% to 100% RH. Kit includes 1 data logger, Pt 100 sensor with 2 m extension cable, and 1 magnetic fixture for mounting to the BINDER unit | 19 8012-0716

**Data Logger Software**

LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable) | 19 8012-0821

**ph-neutral detergent**

Concentrated, for gentle removal of residual contaminants; 1 kg | – 1002-0016

**Qualification documents**

IQ/OQ documents – supporting documents for validation performed by customers, consisting of: IQ/OQ checklists incl. calibration guide and comprehensive unit documentation; parameters: temperature, humidity, and light values | – 7057-0003

- Digital in PDF format | – 7057-0003

- Hard copy inside folder | – 7007-0003

**Rack**

Stainless steel | – 6004-0101

**Rack accessories**

Fasteners (set of 4) for additional security of racks | – 8012-0620

**Rack, reinforced**

Stainless steel, with fasteners (set of 4) | – 8012-0638

**RS 485 / RS 422 interface converter**

RS 422 cable set and RS 485 / RS 422 interface converter for connection to 10-way plug distributor | – 8012-0589

- 230 V option model | – 8012-0589

- 115 V option model | – 8012-0599

**Shelf, perforated**

Stainless steel | – 6004-0040

**Water supply set**

Consisting of fresh- and waste-water containers (20 liters each), cabling and pump

- External, for hanging from the back of the device | – 8012-0643

- External, free-standing | – 8012-1846

**SERVICES**

**Designation** | **Description** | **Art.-No.**
--- | --- | ---
Installation services

Unit installation | Unpacking and setting up of unit, connecting to existing connections, and checking function | 13, 18 DL10-0300

Unit instructions | Unit function instructions for operation and programming of the controller | 18 DL10-0700

Preventive maintenance

Maintenance | Functional testing of all electrical and mechanical components, short calibration, documentation in the maintenance schedule | 14, 18 DL20-0400

Calibration services

Light photometry | Including certificate, 25 measuring points on 3 measurement levels, intensity measurements for visible light and UVA, as well as spectral distribution (qualitative spectral measurements 250 – 785 nm) | 14, 16, 17, 18 DL30-0525

Temperature and humidity calibration | Expansion – including certificate, each additional measuring point in center of chamber at 25 °C / 60% RH or at specified values | 14, 16, 17, 18 DL30-0302

Temperature measurement in accordance with DIN 12880, 27 temperature measuring points and 1 humidity measuring point | Temperature measurement in accordance with DIN 12880 with 27 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate | 14, 16, 17, 18 DL30-0427

Temperature measurement, 18 temperature measuring points and 1 humidity measuring point | Temperature measurement with 18 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate | 14, 16, 17, 18 DL30-0318

Temperature measurement, 27 temperature measuring points and 1 humidity measuring point | Temperature measurement with 27 temperature measuring points and 1 humidity measuring point in center of chamber with 1 specified pair of values, including certificate | 14, 16, 17, 18 DL30-0327

* Notes › See last page
<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature measurement, 9 temperature measuring points and 1 humidity measuring point</strong></td>
<td>Temperature measurement with 9 temperature measuring points and 1 humidity measuring point in center of chamber at specified values, including certificate</td>
<td>14, 16, 17, 18</td>
</tr>
<tr>
<td><strong>Validation services</strong></td>
<td>Execution of IQ/OQ incl. light photometry in accordance with qualification folder</td>
<td>15, 18</td>
</tr>
<tr>
<td><strong>Execution of IQ/OQ/PQ</strong></td>
<td>Execution of IQ/OQ/PQ in accordance with qualification folder</td>
<td>15, 18</td>
</tr>
<tr>
<td><strong>Warranty service</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Warranty extension from 2 to 3 years</strong></td>
<td>The warranty is extended from 2 to 3 years from the delivery date, wear parts are excluded</td>
<td>–</td>
</tr>
<tr>
<td><strong>Warranty extension from 2 to 5 years</strong></td>
<td>The warranty is extended from 2 to 5 years from the delivery date, wear parts are excluded</td>
<td>–</td>
</tr>
</tbody>
</table>

* Notes › See last page

Technical specifications are subject to change.
NOTES

01 Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge.
02 UL mark is not granted when this option is used.
03 Heat resistant only to max. 200 °C.
04 Only available on units rated for 230 V.
07 The additional heat input may affect the temperature behavior.
09 Not in conjunction with the optional access port, door with window and interior lighting.
10 Not available on 23-liter units.
11 Not available on 23- or 53-liter units.
12 Only available on units rated for 230 V or 400 V.
13 Installation and connections take place at unit location; transport within the company only upon consultation.
14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
16 Sensor calibration is performed in an accredited calibration laboratory.
17 Calibration is performed according to the BINDER factory standard.
18 Quoted prices do not include travel costs. Please refer to the chapter on BINDER Service for travel costs for your region. Quoted prices for services performed in Switzerland do not include a country-specific added fee (available on request).
19 For additional accessories, refer to the Process documentation chapter.