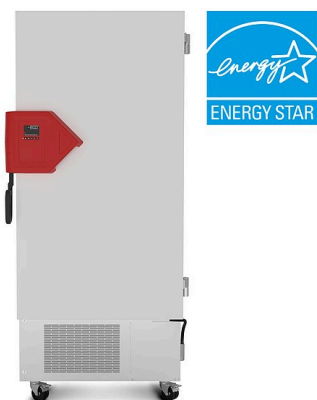


Model UF V 500 | Ultra-low temperature freezers with climate-neutral refrigerants

The BINDER ultra low temperature freezer ensures the safe storage of samples at -90 °C. It combines outstanding environmental friendliness with low energy consumption, convenient operation and an individual safety concept.

BENEFITS

- Lowest energy consumption in its class
- Environmentally-friendly refrigerants R-290 and R-170
- Efficient thermal insulation with vacuum insulation panels
- Rust-proof interior made completely of stainless steel



Model UF V 500



Model UF V 500

MAIN FEATURES

- Range of temperature controller: -90 °C to -40 °C
- Lowest energy consumption in its class
- Energy Star certified
- Powerful cascade compressor cooling unit
- Environmentally friendly refrigerants R-290 and R-170
- Efficient thermal insulation with vacuum insulation panels
- Innovative door gasket concept reduces buildup of ice
- Ergonomic door handle
- Rust-proof interior made completely of stainless steel
- Detachable inner doors made of stainless steel
- 3 stainless-steel shelves providing flexible placement
- Water cooling (depending on version)
- Zero-voltage alarm contact for in-house alarm system
- Ethernet interface
- Elapsed time indicator
- 2 access ports, Ø 28 mm, rear

ORDERING INFORMATION

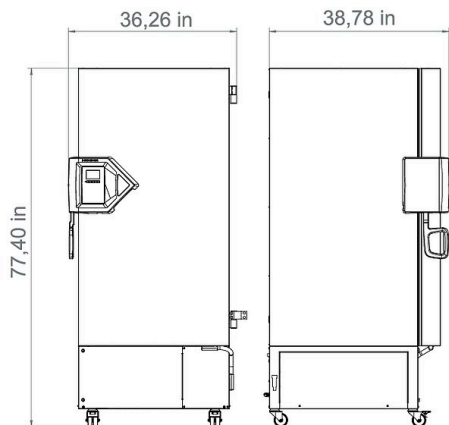
| Interior volume [cu.ft.] | Voltage | Option model | Version | Art.-No. |
|--------------------------|----------------|---------------|---------------|-----------|
| 16.8 | 230 V 1~ 50 Hz | Standard | UFV500-230V | 9020-0347 |
| | | Water cooling | UFV500-230V-W | 9020-0349 |
| | 120 V 1~ 60 Hz | Standard | UFV500UL-120V | 9020-0351 |
| | | Standard | UFV500UL-240V | 9020-0353 |

TECHNICAL DATA

| Description | UFV500-230V ¹ | UFV500-230V-W ¹ | UFV500UL-120V ¹ | UFV500UL-240V ¹ |
|--|--------------------------|----------------------------|----------------------------|----------------------------|
| Article Number | 9020-0347 | 9020-0349 | 9020-0351 | 9020-0353 |
| Performance Data Temperature | | | | |
| Temperature range | -90...-40 | -90...-40 | -90...-40 | -90...-40 |
| Temperature variation at -80 °C [± K] | 2.5 | 2.5 | 2.5 | 2.5 |
| Temperature fluctuation at -80 °C [± K] | 1.5 | 1.5 | 1.5 | 1.5 |
| Cooling down time from 22 °C to -80 °C [min] | 360 | 360 | 360 | 360 |
| Warm-up time during power failure from -80 °C / -122 °F to -60 °C / -76 °F [min] | 230 | 230 | 230 | 230 |
| Electrical data | | | | |
| Rated Voltage [V] | 230 | 230 | 120 | 240 |
| Power frequency [Hz] | 50 | 50 | 60 | 60 |
| Nominal power [kW] | 1.6 | 1.6 | 1.4 | 1.6 |
| Unit fuse [A] | 10 | 10 | 13 | 10 |
| Phase (Nominal voltage) | 1~ | 1~ | 1~ | 1~ |
| Measures | | | | |
| Interior volume [cu.ft.] | 16.8 | 16.8 | 16.8 | 16.8 |
| Net weight of the unit (empty) [lbs] | 545 | 545 | 545 | 545 |
| Permitted load [lbs] | 441 | 441 | 441 | 441 |
| Permitted load of individual compartment [lbs] | 110 | 110 | 110 | 110 |
| Wall clearance back [in] | 3.94 | 3.94 | 3.94 | 3.94 |
| Wall clearance sidewise [in] | 9.85 | 9.85 | 9.85 | 9.85 |
| Internal Dimensions | | | | |
| Width [in] | 23.88 | 23.88 | 23.88 | 23.88 |
| Height [in] | 51.2 | 51.2 | 51.2 | 51.2 |
| Depth [in] | 23.84 | 23.84 | 23.84 | 23.84 |
| Doors | | | | |
| Unit doors | 1 | 1 | 1 | 1 |
| Housing dimensions not incl. fittings and connections | | | | |
| Width net [in] | 32.54 | 32.54 | 32.54 | 32.54 |
| Height net [in] | 77.5 | 77.5 | 77.5 | 77.5 |
| Depth net [in] | 36.96 | 36.96 | 36.96 | 36.96 |
| Environment-specific data | | | | |
| Energy consumption at set-point -80 °C and ambient temperature = 21 °C [kWh/d] | 7.9 | 7.9 | 7.9 | 7.9 |
| Sound-pressure level [dB(A)] | 47 | 47 | 47 | 47 |
| Fixtures | | | | |
| Number of shelves (std./max.) | 3/13 | 3/13 | 3/13 | 3/13 |
| Load-variants | | | | |
| Freezer racks per compartment | 4 | 4 | 4 | 4 |
| Cryoboxes, 50 mm | 352 | 352 | 352 | 352 |

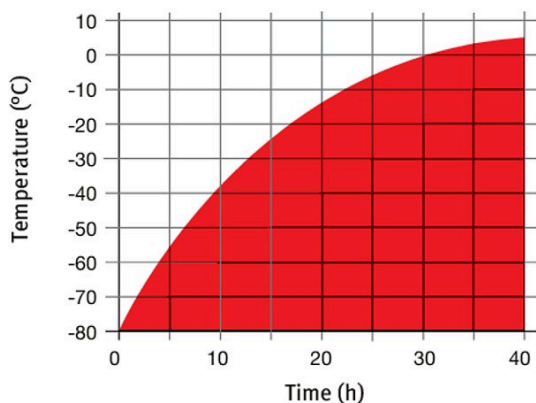
¹ All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10%. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances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

DIMENSIONS INCL. FITTINGS AND CONNECTIONS [MM]



CHARTS

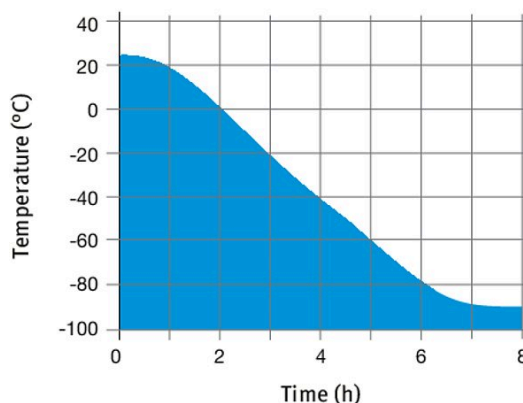
Pull-up time during power failure



Ambient temperature 22 °C, no load

Heating up rate

Pull-down time



Ambient temperature 25 °C, no load

Cooling down rate

OPTIONS

| Designation | Description | * | Art.-No. |
|---|--|---|-----------|
| Alarm system, battery-backed | for maintaining temperature display, alarm messages, and communication | - | 8012-1910 |
| Analog output 4-20 mA | for temperature values (output not adjustable) | - | 8012-1898 |
| Buck-boost converter | automatic voltage compensation | - | 8012-1897 |
| Calibration certificate, expanded | for temperature; for extending the measurement in center of chamber to include another test temperature | - | 8012-1126 |
| Calibration certificate, temperature | for temperature, measurement in center of chamber at specified temperature | - | 8012-0031 |
| | temperature measurement incl. certificate, 20 measuring points at specified temperature | - | 8012-0925 |
| Compartment doors | Foam-filled compartment doors with gasket | - | 8012-1893 |
| CO₂ backup cooling | factory installed (allow for increased depth of UF V: 1085 mm), includes the option of a battery-backed alarm system | - | 8012-1891 |
| Door access system | consisting of electromechanical door locking mechanism and electronic access control via NumPad | - | 8012-1899 |
| Door lock | lockable door handle | - | 8012-1911 |
| Shipping pallet | with unloading ramp for installing unit without forklift | - | 8012-1906 |
| Switch cover | Lockable main switch cover | - | 8012-1980 |

* Notes › See last page

ACCESSORIES

| Designation | Description | * | Art.-No. |
|--|--|---|-----------|
| 5 m power cable | C 13 refrigerator connection cable with BS 1363 British plug | - | 5023-0285 |
| | C 13 refrigerator connection cable with CEE 7/7 European plug | - | 5023-0283 |
| | C 13 refrigerator connection cable with type 13 Swiss plug | - | 5023-0284 |
| Chamber rack with drawer, stainless steel | for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 285 x W 140 x D 560 mm | - | 6017-0046 |
| | for 5x4 standard boxes (50 mm), dimensions: H 285 x W 140 x D 560 mm | - | 6017-0045 |
| | for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 340 x W 140 x D 560 mm | - | 6017-0052 |
| Chamber rack, aluminum | for 6x4 standard boxes (50 mm), dimensions: H 340 x W 140 x D 560 mm | - | 6017-0051 |
| | for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 276 x W 139 x D 558 mm | - | 6017-0042 |
| | for 5x4 standard boxes (50 mm), dimensions: H 276 x W 139 x D 558 mm | - | 6017-0041 |
| | for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 331 x W 139 x D 558 mm | - | 6017-0048 |
| Chamber rack, stainless steel | for 6x4 standard boxes (50 mm), dimensions: H 331 x W 139 x D 558 mm | - | 6017-0047 |
| | for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 276 x W 139 x D 558 mm | - | 6017-0044 |
| | for 5x4 standard boxes (50 mm), dimensions: H 276 x W 139 x D 558 mm | - | 6017-0043 |
| Chamber rack, stainless steel | for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 331 x W 139 x D 558 mm | - | 6017-0050 |
| | for 6x4 standard boxes (50 mm), dimensions: H 331 x W 139 x D 558 mm | - | 6017-0049 |
| Cryoboxes | set consisting of 36 cardboard boxes with sample dividers | - | 6017-0053 |
| Data Logger Kit | 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 | - | 8012-0715 |
| Deicing kit | consisting of de-icing tray, wiper and scraper | - | 8012-1900 |
| Multi Management Software | Multi Management Software APT-COM™ | | |
| | version 4, BASIC edition | - | 9053-0039 |
| | version 4, GLP edition | - | 9053-0042 |
| | version 4, PROFESSIONAL edition | - | 9053-0040 |
| Options/Accessories | The kit contains a client bridge that establishes a wireless connection between BINDER units and APT-COM4, LIMS, or customer-specific software via an Ethernet interface. It provides an alternative solution in situations where units need to be positioned in locations without an on-site Ethernet connection. In secured networks, installation and configuration must be performed by the customer's IT service. | - | 8500-0164 |
| pH-neutral detergent | concentrated, for gentle remove 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, CO ₂ , O ₂ , pressure, depending on unit | | |
| | Digital in PDF format | - | 7057-0001 |
| | Hard copy inside folder | - | 7007-0001 |
| | IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to qualification folder IQ/OQ; parameters: temperature, CO ₂ , O ₂ – or pressure, depending on unit | | |
| | Digital in PDF format | - | 7057-0005 |
| | Hard copy inside folder | - | 7007-0005 |
| Shelf | Incl. shelf supports | | |
| | stainless steel | - | 8012-1901 |

* Notes › See last page

SERVICES

| Designation | Description | * | Art.-No. |
|--|---|---------------|-----------|
| Installation services | | | |
| Installation of CO ₂ backup cooling | Installation of CO ₂ backup cooling on unit | 05 | DL02-8002 |
| Unit installation | Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work) | 05 | DL10-0300 |
| Unit instructions | Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming | 05 | DL10-0700 |
| Maintenance services | | | |
| BRONZE 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts | 05 | DL20-0710 |
| GOLD 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, replacement of wear parts, calibration of one test temperature specified by the user in the center of the usable space, including certificate | 05 | DL20-0910 |
| Maintenance | One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key functions. Calibration of a test temperature specified by the user in center of usable space without certificate | 05 | DL20-0200 |
| SILVER 3-year maintenance contract | Maintenance service as contractually agreed, visual inspection of mechanical and electrical components, check of control response, 20% discount on spare parts, testing of all key functions, calibration of one test temperature specified by the user in the center of the usable space, without certificate | 05 | DL20-0810 |
| Calibration services | | | |
| Temperature calibration | Calibration of one (1) test temperature specified by the user in center of chamber, including certificate | 03, 04, 05 | DL30-0101 |
| | Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate | 03, 04, 05 | DL30-0102 |
| Temperature measurement, 20 measuring points | Temperature measurement with 20 measuring points with a set value specified by the user, including certificate | 03, 04, 05 | DL30-0620 |
| Validation services | | | |
| Execution of IQ/OQ | Execution of IQ/OQ in accordance with qualification folder | 05 | DL41-0200 |
| Execution of IQ/OQ/PQ | Execution of IQ/OQ/PQ in accordance with qualification folder | 05 | DL44-0500 |

* Notes › See last page

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 Sensor calibration is performed in an accredited calibration laboratory.
- 04 Calibration is performed according to the BINDER factory standard.
- 05 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).

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