

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

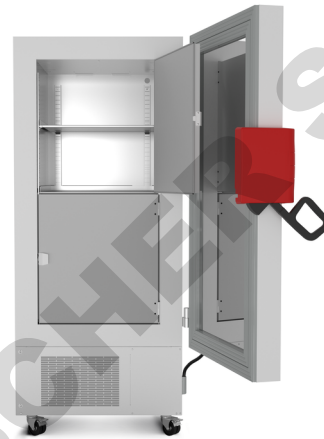
The BINDER ultra low temperature freezer ensures the safe storage of samples at -90 °C. It combines outstanding environmental friendliness with low energy consumption, convenient operation and an individual safety concept.

### BENEFITS

- Lowest energy consumption in its class
- Environmentally-friendly refrigerants R-290 and R-170
- Thermal insulation with unique long-life VIPs (vacuum insulation panels)
- Rust-proof interior made completely of stainless steel



Model UF V 500



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### IMPORTANT FEATURES

- Temperature range: -90 °C to -40 °C
- Lowest energy consumption in its class
- Powerful cascade compressor cooling unit
- Environmentally friendly refrigerants R-290 and R-170
- Thermal insulation with unique long-life VIPs (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
- Internal data logger, measured values can be read out in open format via USB
- Ethernet interface
- 2 access ports, Ø 28 mm, rear

### ORDERING INFORMATION

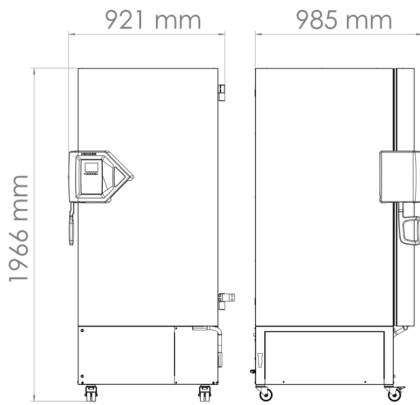
Designation	Option model	Interior volume	Rated Voltage	Power frequency	Article Number
UFV500-230V	Standard	477 L	230 V	50 Hz	9020-0347
UFV500-230V-W	Water cooling	477 L	230 V	50 Hz	9020-0349
UFV500UL-240V	Standard	477 L	208...230 V	60 Hz	9020-0353
UFV500UL-120V	Standard	477 L	115 V	60 Hz	9020-0351

## TECHNICAL DATA

Data				
Designation	UFV500-230V	UFV500-230V-W	UFV500UL-240V	UFV500UL-120V
Article Number	9020-0347	9020-0349	9020-0353	9020-0351
Option model	Standard	Water cooling	Standard	Standard
Performance Data Temperature				
Temperature range	-90...-40 °C	-90...-40 °C	-90...-40 °C	-90...-40 °C
Temperature uniformity at -80°C	2.5 ± K	2.5 ± K	2.5 ± K	2.5 ± K
Temperature fluctuation at -80°C	1.5 ± K	1.5 ± K	1.5 ± K	1.5 ± K
Cooling down time from 22°C to -80°C	360 min	360 min	360 min	360 min
Electrical data				
Rated Voltage	230 V	230 V	208...230 V	115 V
Power frequency	50 Hz	50 Hz	60 Hz	60 Hz
Nominal power	1,6 kW	1,6 kW	1,8 kW	1,4 kW
Unit fuse	10,0 A	10,0 A	10,0 A	15,0 A
Phase (Nominal voltage)	1~	1~	2~	1~
Measures				
Interior volume	477 L	477 L	477 L	477 L
Net weight of the unit (empty)	247 kg	247 kg	247 kg	247 kg
Permitted load	200 kg	200 kg	200 kg	200 kg
Permitted load of individual compartment	50 kg	50 kg	50 kg	50 kg
Wall clearance back	100 mm	100 mm	100 mm	100 mm
Wall clearance sidewise	250 mm	250 mm	250 mm	250 mm
Housing dimensions not incl. fittings and connections				
Width net	826 mm	826 mm	826 mm	826 mm
Height net	1,966 mm	1,966 mm	1,966 mm	1,966 mm
Depth net	938 mm	938 mm	938 mm	938 mm
Internal Dimensions				
Interior width	606 mm	606 mm	606 mm	606 mm
Interior height	1,300 mm	1,300 mm	1,300 mm	1,300 mm
Interior depth	605 mm	605 mm	605 mm	605 mm
Inner doors	2	2	2	2
Unit doors	1	1	1	1
Environment-specific data				
Sound-pressure level	47 dB(A)	47 dB(A)	47 dB(A)	47 dB(A)
Energieverbrauch bei Sollwert -80 °C und T <sub>u</sub> = 20 °C	7.9 kWh/d	7.9 kWh/d	7.9 kWh/d	7.9 kWh/d
Fixtures				
Number of shelves (std./max.)	3/11	3/11	3/11	3/11
Load-variants				
Freezer racks per compartment	4	4	4	4
Cryoboxes, 50 mm	352	352	352	352

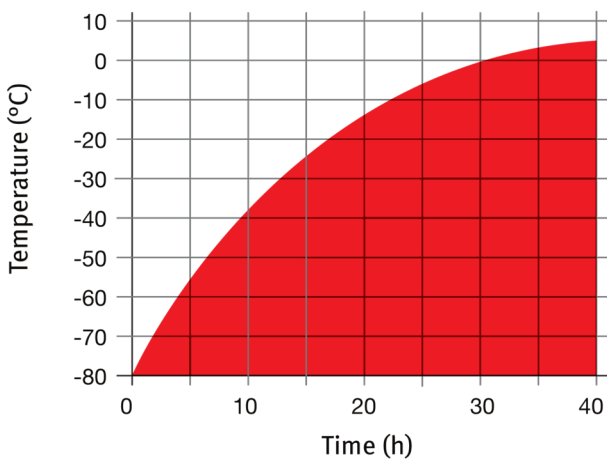
All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10%. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances 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]



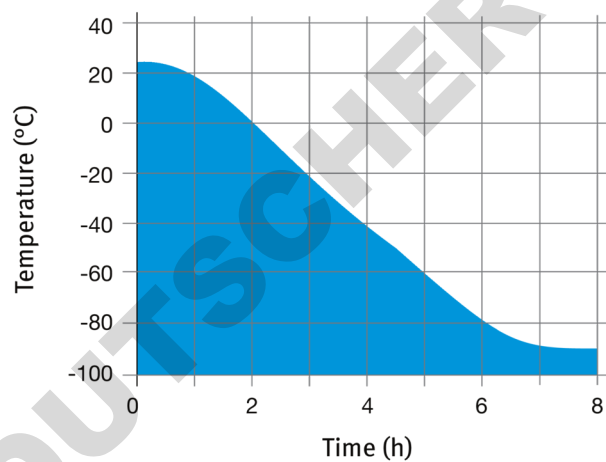
## DIAGRAMS

Pull-up time during power failure



Ambient temperature 22 °C, no load

Pull-down time



Ambient temperature 25 °C, no load

Heating up rate

Cooling  
down rate

## OPTIONS

Designation	Description	*	Article Number
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
CO <sub>2</sub> backup cooling	factory installed (allow for increased depth of UF V: 1085 mm), includes the option of a battery-backed alarm system		8012-1891
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	o	8012-0031
	temperature measurement incl. certificate, 20 measuring points at specified temperature		8012-0925
Compartment doors	Foam-filled compartment doors with gasket		8012-1893
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

Designation	Description	*	Article Number
Switch cover	Lockable main switch cover		8012-1980

## ACCESSORIES

Designation	Description	Option model	* Article Number	
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	
APT-COM™ 4 BASIC-Edition	for simple logging and documentation requirements with up to 5 networked units.	version 4, BASIC edition	9053-0039	
APT-COM™ 4 GLP-Edition	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 4, GLP edition	9053-0042	
APT-COM™ 4 PROFESSIONAL-Edition	convenient unit and user management built on the BASIC edition. Suitable for networking up to 100 units.	version 4, PROFESSIONAL edition	9053-0040	
Chamber rack, aluminum	for 5x4 standard boxes (50 mm), dimensions: H 278 x W 139 x D 564 mm	Set of 3	8012-2345	
		Set of 4	8012-2346	
	for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 278 x W 139 x D 564 mm	Set of 3	8012-2347	
		Set of 4	8012-2348	
	for 6x4 standard boxes (50 mm), dimensions: H 334 x W 139 x D 564 mm	Set of 3	8012-2357	
		Set of 4	8012-2358	
	for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 334 x W 139 x D 564 mm	Set of 3	8012-2359	
		Set of 4	8012-2360	
	Chamber rack, stainless steel	for 5x4 standard boxes (50 mm), dimensions: H 278 x W 139 x D 561 mm	Set of 3	8012-2349
			Set of 4	8012-2350
		for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 278 x W 139 x D 561 mm	Set of 3	8012-2351
			Set of 4	8012-2352
for 6x4 standard boxes (50 mm), dimensions: H 334 x W 139 x D 561 mm		Set of 3	8012-2361	
		Set of 4	8012-2362	
for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 334 x W 139 x D 561 mm		Set of 3	8012-2363	
		Set of 4	8012-2364	
Chamber rack with drawer, stainless steel		for 5x4 standard boxes (50 mm), dimensions: H 278 x W 140 x D 562 mm	Set of 3	8012-2353
			Set of 4	8012-2354
		for 5x4 standard boxes (50 mm) incl. boxes, dimensions: H 278 x W 140 x D 562 mm	Set of 3	8012-2355
			Set of 4	8012-2356
	for 6x4 standard boxes (50 mm), dimensions: H 334 x W 140 x D 562 mm	Set of 3	8012-2365	
		Set of 4	8012-2366	
Cryoboxes	set consisting of 36 cardboard boxes with sample dividers		8012-2369	
Deicing kit	consisting of de-icing tray, wiper and scraper		8012-1900	
Grid shelf	For temperature range -40 °C to -60 °C, 3 provided in set, including shelf supports	stainless steel	8012-1903	
Qualification documents	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 <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit	Digital in PDF format	7057-0005	
		Hard copy inside folder	7007-0005	
	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 <sub>2</sub> , O <sub>2</sub> , pressure, depending on unit	Digital in PDF format	7057-0001	
		Hard copy inside folder	7007-0001	
Shelf	Incl. shelf supports	stainless steel	8012-1901	
WLAN kit	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		8012-2262	

Designation	Description	Option model	* Article Number
	positioned in locations without an on-site Ethernet connection. In secured networks, installation and configuration must be performed by the customer's IT service.		
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg		8012-2250

## SERVICES

Designation	Description	* Article Number
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	DL20-0710
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	DL30-0101
	Extension of calibration of one (1) additional test temperature specified by the user in the center of the usable space, including certificate	DL30-0102
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	DL41-0210
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	DL44-0500
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	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	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	DL20-0810
Temperature measurement, 20 measuring points	Temperature measurement with 20 measuring points with a set value specified by the user, including certificate	DL30-0620
Unit commissioning	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)	DL10-0300
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05 DL10-0700

**NOTES**

- 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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