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 500

Model 500

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
- 3 access ports, Ø 28 mm, rear

ORDERING INFORMATION

Interior volume [L]	Power supply - unit fuse	Plug*	Version	Model version	Art.-No.
Model UF V 500					
501	230 V 1~ 50 Hz -10,0 A	CEE 7/7	Standard	UFV500-230V	9020-0347
			Water cooling	UFV500-230V-W	9020-0349
	115 V 1~ 60 Hz -15,0 A	NEMA 5-15	Standard	UFV500UL-120V	9020-0351
	208...230 V 2~ 60 Hz -10,0 A	NEMA 6-15	Standard	UFV500UL-240V	9020-0353

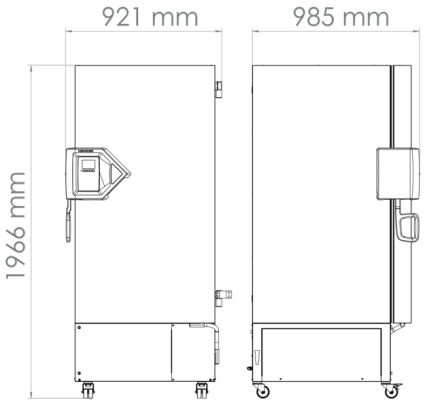
TECHNICAL DATA

Data				
Article Number	9020-0347	9020-0349	9020-0353	9020-0351
Designation	UFV500-230V	UFV500-230V-W	UFV500UL-240V	UFV500UL-120V
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~
Dimensions and weights				
Interior volume	501 L	501 L	501 L	501 L
Net weight of the unit (empty)	247 kg	247 kg	247 kg	247 kg
Permitted load of individual compartment	50 kg	50 kg	50 kg	50 kg
Permitted load	200 kg	200 kg	200 kg	200 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

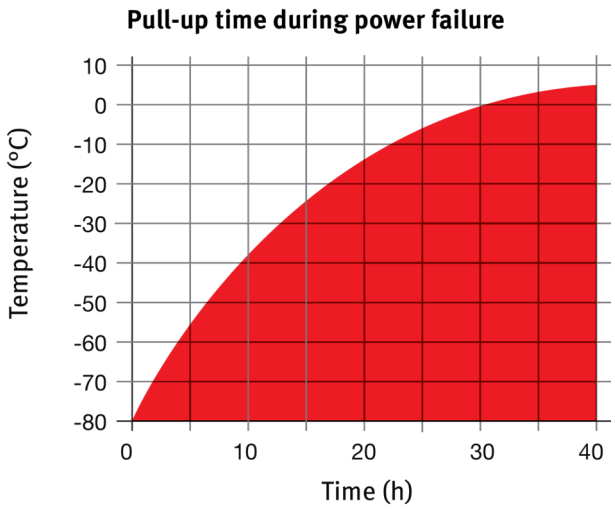
Interior depth	636 mm	636 mm	636 mm	636 mm
Inner doors	2	2	2	2
Unit doors	1	1	1	1
Environment-specific data				
Sound-pressure level	47 dB(A)	47 dB(A)	47 dB(A)	47 dB(A)
Average heat compensation at set value -80°C and Ta = 21°C	330 W	330 W	330 W	330 W
Energieverbrauch bei Sollwert -80 °C und T_u = 20 °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]

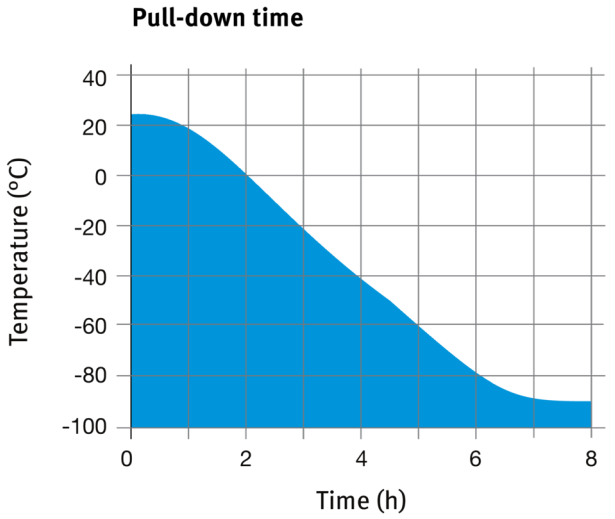


DIAGRAMS



Ambient temperature 22 °C, no load

Heating up rate



Ambient temperature 25 °C, no load

Cooling down rate

OPTIONS

Designation	Description	UF V 500	*	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
CO_2 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

ACCESSORIES

Designation	Description	UF V 500	*	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
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
	for 5x4 standard boxes (50 mm), dimensions: H 278 x W 139 x D 561 mm			
	Set of 4	•	-	8012-2350

Designation	Description	UF V 500	*	Art.-No.
	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	
	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
Chamber rack with drawer, stainless steel	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
	for 6x4 standard boxes (50 mm) incl. boxes, dimensions: H 334 x W 140 x D 562 mm			
	Set of 3	•	-	8012-2367
	Set of 4	•	-	8012-2368
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
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	•	-	8012-2250
Qualification documents	IQ/OQ/PQ documents – supporting documents for validation performed by customers, according to customer requirements, PQ section added to			

Designation	Description	UF V 500	*	Art.-No.
	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
	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
Shelf	Incl. shelf supports			
	stainless steel	•	-	8012-1901

SERVICES

Designation	Description	*	Art.-No.
Calibration services			
Calibration certificate, temperature	Calibration of one (1) test temperature specified by the user in center of chamber, including certificate	05	DL30-0190
Temperature measurement, 20 measuring points	Temperature measurement with 20 measuring points with a set value specified by the user, including certificate	05	DL30-0620
Installation services			
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)	05	DL10-0170
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0540
Maintenance contracts			
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	DL20-0720
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	DL20-0955
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	DL20-0855
Maintenance services			
Maintenance	One-off maintenance service in accordance with maintenance schedule. Visual inspection of mechanical and electrical components, testing of all key	05	DL20-0603

Designation	Description	*	Art.-No.
	functions. Calibration of a test temperature specified by the user in center of usable space without certificate		
Validation services			
Execution of IQ/OQ	Execution of IQ/OQ in accordance with qualification folder	05	DL41-0210
Execution of IQ/OQ/PQ	Execution of IQ/OQ/PQ in accordance with qualification folder	05	DL44-0500

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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