

# Model UF V 350 | 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 350



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## MAIN 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
- 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

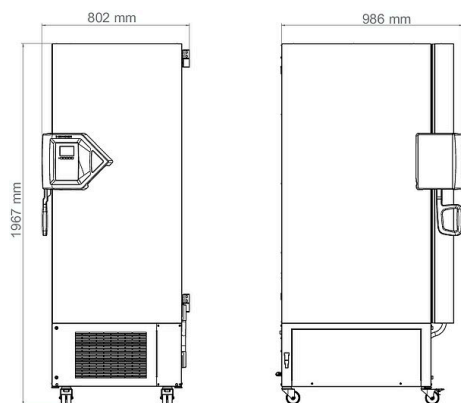
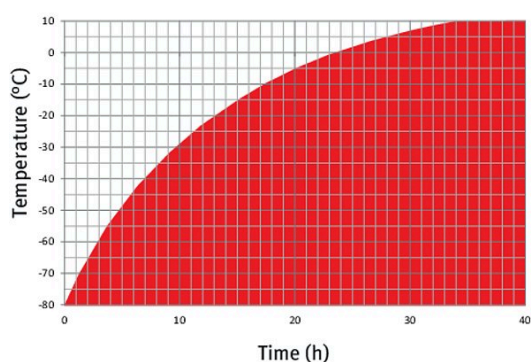
## ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	Art.-No.
382	230 V 1~ ph 50 Hz	Standard	UFV350-230V	9020-0453
	120 V 1~ ph 60 Hz	Standard	UFV350UL-120V	9020-0454
	240 V 1~ ph 60 Hz	Standard	UFV350UL-240V	9020-0455

## TECHNICAL DATA

Description	UFV350-230V <sup>1</sup>	UFV350UL-120V <sup>1</sup>	UFV350UL-240V <sup>1</sup>
<b>Article Number</b>	<b>9020-0453</b>	<b>9020-0454</b>	<b>9020-0455</b>
<b>Performance Data Temperature</b>			
Temperature range [°C]	-90...-40	-90...-40	-90...-40
Temperature variation at -80 °C [± K]	3.5	3.5	3.5
Temperature fluctuation at -80 °C [± K]	3.5	3.5	3.5
Cooling down time from 22 °C to -80 °C [min]	150	150	150
<b>Aufwärmzeit bei Stromausfall</b>			
Warm-up time during power failure from -80 °C / -122 °F to -60 °C / -76 °F [min]	170	170	170
<b>Electrical data</b>			
Rated Voltage [V]	230	120	240
Power frequency [Hz]	50	60	60
Nominal power [kW]	1.6	1.4	1.6
Unit fuse [A]	10	13	10
Phase (Nominal voltage)	1~	1~	1~
<b>Measures</b>			
Interior volume [L]	382	382	382
Net weight of the unit (empty) [kg]	226	226	226
Permitted load [kg]	160	160	160
Permitted load of individual compartment [kg]	40	40	40
Wall clearance back [mm]	100	100	100
Wall clearance sidewise [mm]	250	250	250
<b>Internal Dimensions</b>			
Interior width [mm]	486	486	486
Interior height [mm]	1300	1300	1300
Interior depth [mm]	605	605	605
<b>Doors</b>			
Inner doors	2	2	2
Unit doors	1	1	1
<b>Housing dimensions not incl. fittings and connections</b>			
Width net [mm]	706	706	706
Height net [mm]	1966	1966	1966
Depth net [mm]	938	938	938
<b>Environment-specific data</b>			
Energy consumption at set-point -80 °C and ambient temperature = 20 °C [kWh/d]	7.9	7.9	7.9
Average heat dissipation at set-point -80 °C and ambient temperature = 20 °C [W]	330	330	330
Sound-pressure level [dB(A)]	47	47	47
<b>Fixtures</b>			
Number of shelves (std./max.)	3/13	3/13	3/13
<b>Load-variants</b>			
Freezer racks per compartment	3	3	3
Cryoboxes, 50 mm	264	264	264

<sup>1</sup> 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**

Cooling down rate

Heating up rate

Ambient temperature 22 °C, no load

**OPTIONS**

Designation	Description	*	Art.-No.
<b>Alarm system, battery-backed</b>	for maintaining temperature display, alarm messages, and communication	-	8012-2279
<b>Analog output 4-20 mA</b>	for temperature values (output not adjustable)	-	8012-1898
<b>Calibration certificate, expanded</b>	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-1126
<b>Calibration certificate, temperature</b>	for temperature, measurement in center of chamber at specified temperature	-	8012-0031
	temperature measurement incl. certificate, 20 measuring points at specified temperature	-	8012-0925
<b>Compartment doors</b>	Foam-filled compartment doors with gasket	-	8012-2274
<b>CO<sub>2</sub> backup cooling</b>	factory installed (allow for increased depth of UF V: 1085 mm), includes the option of a battery-backed alarm system	-	8012-2278
<b>Door lock</b>	lockable door handle	-	8012-1911
<b>Shipping pallet</b>	with unloading ramp for installing unit without forklift	-	8012-2277
<b>Switch cover</b>	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
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 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
	for 6x4 standard boxes (50 mm), dimensions: H 340 x W 140 x D 560 mm	-	6017-0051
Chamber rack, aluminum	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
	for 6x4 standard boxes (50 mm), dimensions: H 331 x W 139 x D 558 mm	-	6017-0047
Chamber rack, stainless steel	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
	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
Deicing kit	consisting of de-icing tray, wiper and scraper	-	8012-2275
Grid shelf	For temperature range -40 °C to -60 °C, 3 provided in set, including shelf supports stainless steel	-	8012-2246
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	8012-2250
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 <sub>2</sub> , O <sub>2</sub> , 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 <sub>2</sub> , O <sub>2</sub> – or pressure, depending on unit		
	Digital in PDF format	-	7057-0005
	Hard copy inside folder	-	7007-0005
Shelf	Incl. shelf supports stainless steel	-	8012-2276
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 positioned in locations without an on-site Ethernet connection. In secured networks, installation and configuration must be performed by the customer's IT service.	-	8012-2262

\* Notes › See last page

## SERVICES

Designation	Description	*	Art.-No.
Maintenance contracts			
Installation services			
Maintenance services			
Calibration services			
Validation 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
Calibration certificate, temperature	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
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
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
Installation of CO <sub>2</sub> backup cooling	Installation of CO <sub>2</sub> backup cooling on unit	05	DL02-8002
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
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
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	DL10-0300
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0700

\* 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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