Model FP 56 | Drying and heating chambers with forced convection and program functions

A BINDER material test chamber with mechanical convection of the FP series provides reliably short drying times and particularly fast heating - even for chambers under full loads.

BENEFITS

- Uniform drying conditions thanks to APT.line™ technology
- Identical test conditions throughout the chamber interior independent of sample size and quantity
- · Outstanding thermal insulation saves operation costs
- · Advanced programming options



Model 56



Model 56

MAIN FEATURES

- Temperature range: +10 °C above ambient temperature up to +300 °C
- High temperature accuracy thanks to APT.line™ technology
- · Adjustable fan speed
- · Controller with interval and real-time programming
- Electromechanical control of the exhaust air flap
- 2 chrome-plated racks

- Units up to 115 liters are stackable
- Class 2 independent adjustable temperature safety device (DIN 12880) and class 3.1 independent temperature safety device (DIN 12880) with visual/acoustic alarm available for selection on the controller
- Ergonomic handle design
- · Computer interface: Ethernet
- Internal data logger, measured values can be read out in open format via USB

ORDERING INFORMATION

Interior volume [L]	Voltage	Option model	Version	ArtNo.
60	230 V 1~ ph 50/60 Hz	Standard	FP056-230V	9010-0363
	120 V 1~ ph 60 Hz	Standard	FP056UL-120V	9010-0367

TECHNICAL DATA

Article Mumber 6900-0963 900-0960 Performance Data Temperature 300 300 Temperature rape on "Cabone ambient temperature (PCI) 300 300 Temperature variation at 50° CE kII 4.4 4.4 Temperature fluctuation at 150° CE kIII 55 4.0 Recovery time after 30 seconds door open at 50° C[min] 4.2 4.0 Recovery time after 30 seconds door open at 50° C[min] 80 80 Tobeller ************************************	Description	FP056-230V1	FP056UL-120V ¹
Temperature range +10 °C above ambient temperature (r°C) 300 300 Temperature variation at spo °C [κ K] 4.4 1.4 Temperature liuctuation at spo °C [κ K] 5. 6.0 Recovery time after 30 seconds door open at spo °C [min] 4 4 Tabeller 8.0 8.0 Electrical dator 8.0 8.0 Reted Voltage [V] 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 1.2 1.2 Unit fuse [A] 10 6 Phase (Nominal voltage) 1- 1- Phase (Nominal voltage) 60 6 Phase (Nominal voltage) 1- 1- Measures 1 1- 1- Interior volume [L] 60 60 60 New weight of the unit (empty) [kg] 41 4 Permitted load [kg] 70 70 Vall clearance back [mm] 400 400 Vall clearance back [mm] 400 400 Interior width [mm] <td>Article Number</td> <td>9010-0363</td> <td>9010-0367</td>	Article Number	9010-0363	9010-0367
Temperature variation at 150 °C [e K] 1.4 1.4 Temperature fluctuation at 150 °C [e K] 0.4 0.4 Heating-up time to 150 °C [min] 15 15 Recovery time after 30 seconds door open at 350 °C [min] 4 4 Tabellen 3 80 80 Electrical data 50 220 120 Power frequency [ktz] 50/60 60 60 Nominal power [kW] 1.2 1.2 1.2 Interior volume [L] 6 60 60 Phase (Nominal voltage) 1-0 1- 1- Phase (Weight of the unit (empty) [kg] 41 4 1- Reasures 70 70 70 Load per rack [kg] 30 30 30 Wall clearance back [mm] 60 60 60 Wall clearance sidewise [mm] 60 400 400 Interior width [mm] 400 400 400 Interior height [mm] 440 400 400 Interior height	Performance Data Temperature		
Temperature fluctuation at 150 °C [c K] 0.4 0.4 15 15 15 15 15 15 15 1	Temperature range +10 °C above ambient temperature to [°C]	300	300
Heating-up time to 150 °C [min]	Temperature variation at 150 °C [± K]	1.4	1.4
Recovery time after 30 seconds door open at 150 °C [min] 4 4 Tabellen Tabellen 80 80 Air change (approx.) at 100 °C [x/h] 80 80 Electrical data Telescerical data Telescerical data Rated Voltage [V] 230 120 Power frequency [Hz] 50/60 60 Nominal power [LW] 1.2 1.2 Unit fuse [A] 10 16 Phase (Nominal voltage) 1- 1- Measures Telephase (Nominal voltage) 1- 1- Interior volume [L] 60 60 60 Net weight of the unit (empty) [kg] 41 41 41 Permitted load [kg] 70 70 70 Load per rack [kg] 30 30 30 Wall clearance back [mm] 160 160 40 Wall clearance sidewise [mm] 400 400 40 Interior width [mm] 400 40 40 Interior beight [mm] 400 40 40	Temperature fluctuation at 150 °C [± K]	0.4	0.4
Tabellen Air change (approx.) at 100 °C (x/h) 80 80 Electrical data Telectrical dat	Heating-up time to 150 °C [min]	15	15
Air change (approx.) at 100 °C (x/h] 80 80 Electrical data Control (approx.) (approx.) (black) 230 120 Power frequency (l/tz) 50/60 60 Nominal power [kW] 1.2 1.2 Unit fuse [A] 10 16 Phase (Nominal voltage) 1- Measures The control (approx.) (appro	Recovery time after 30 seconds door open at 150 °C [min]	4	4
Electrical data Rated Voltage [V] 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 1.2 1.2 Unit fuse [A] 10 16 Phase (Nominal voltage) 1- 1- Measures Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior width [mm] 440 400 Interior width [mm] 440 40 Interior height [mm] 32 32 Boors 1 Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 622 622 Leight net	Tabellen		
Rated Voltage [V] 230 120 Power frequency [Hz] 50/60 60 Nominal power [kW] 1.2 1.2 Unit fuse [A] 10 16 Phase (Nominal voltage) 1- Measures Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Walt clearance back [mm] 160 100 Walt clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior width [mm] 400 400 Interior width [mm] 40 40 Interior depth [mm] 50 50 Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 Width net [mm] 560 560 Height net [mm] 560 560 Epth net [mm] 560 560	Air change (approx.) at 100 °C [x/h]	80	80
Power frequency [Hz]	Electrical data		
Nominal power [kW] 1.2 1.2 Unit fuse [A] 10 16 Phase (Nominal voltage) 1- 1- Measures Interior voltame [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior depth [mm] 342 342 Doors Unit doors 1 1 Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 596 Environment-specific data 343 43	Rated Voltage [V]	230	120
Unit fuse [A] 10 16 Phase (Nominal voltage) 1- 1- Measures Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior width [mm] 342 342 Doors Unit doors 1 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 560 Height net [mm] 596 596 596 Environment-specific data 596 596 Environment-specific data 50 43 43 Fixtures 7 7 70 70 70 70 70 70 70 70 70 70 70 70 70	Power frequency [Hz]	50/60	60
Phase (Nominal voltage) 1~ 1~ Measures Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior width [mm] 440 440 Interior depth [mm] 342 32 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 596 596 Environment-specific data 43 43 Fixtures	Nominal power [kW]	1.2	1.2
Measures Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior sidewise [mm] 400 400 Interior width [mm] 440 440 Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 50und-pressure level [dB(A)] 43 43 Fixtures	Unit fuse [A]	10	16
Interior volume [L] 60 60 Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior width [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 596 596 Environment-specific data 596 596 Environment-specific data 43 43 Fixtures	Phase (Nominal voltage)	1~	1~
Net weight of the unit (empty) [kg] 41 41 Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior width [mm] 400 400 Interior height [mm] 342 342 Doors 1 1 Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 596 596 Environment-specific data 43 43 Fixtures 560 560	Measures		
Permitted load [kg] 70 70 Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Interior devide [mm] 400 400 Interior width [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 596 596 Environment-specific data 596 596 Environment-specific data 50und-pressure level [dB(A)] 43 43 Fixtures 560 560 560 560	Interior volume [L]	60	60
Load per rack [kg] 30 30 Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions Interior width [mm] 400 400 Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 43 43 Fixtures	Net weight of the unit (empty) [kg]	41	41
Wall clearance back [mm] 160 160 Wall clearance sidewise [mm] 100 100 Internal Dimensions Interior width [mm] 400 400 Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures Fixtures	Permitted load [kg]	70	70
Wall clearance sidewise [mm] 100 100 Internal Dimensions 400 400 Interior width [mm] 440 440 Interior depth [mm] 342 342 Doors 1 1 Unit doors 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 596 596 Sound-pressure level [dB(A)] 43 43 Fixtures	Load per rack [kg]	30	30
Internal Dimensions Interior width [mm] 400 400 Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 43 43 Fixtures Fixtures 43	Wall clearance back [mm]	160	160
Interior width [mm] 400 400 Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures	Wall clearance sidewise [mm]	100	100
Interior height [mm] 440 440 Interior depth [mm] 342 342 Doors Unit doors 1 1 Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures Fixtures	Internal Dimensions		
Interior depth [mm] 342 342 Doors 1 1 Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 596 43 Sound-pressure level [dB(A)] 43 43 Fixtures Fixtures 622 622	Interior width [mm]	400	400
Doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 50und-pressure level [dB(A)] 43 43 Fixtures Fixtures Fixtures Fixtures	Interior height [mm]	440	440
Unit doors 1 1 Housing dimensions not incl. fittings and connections 560 560 Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 50und-pressure level [dB(A)] 43 43 Fixtures Fixtures Fixtures 43 43	Interior depth [mm]	342	342
Housing dimensions not incl. fittings and connections Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures Fixtures	Doors		
Width net [mm] 560 560 Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 50und-pressure level [dB(A)] 43 43 Fixtures Fixtures	Unit doors	1	1
Height net [mm] 622 622 Depth net [mm] 596 596 Environment-specific data 43 43 Fixtures Fixtures Fixtures	Housing dimensions not incl. fittings and connections		
Depth net [mm] 596 596 Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures	Width net [mm]	560	560
Environment-specific data Sound-pressure level [dB(A)] 43 43 Fixtures	Height net [mm]	622	622
Sound-pressure level [dB(A)] 43 43 Fixtures	Depth net [mm]	596	596
Fixtures	Environment-specific data		
	Sound-pressure level [dB(A)]	43	43
Number of shelves (std./max.) 2/4 2/4	Fixtures		
	Number of shelves (std./max.)	2/4	2/4

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.

OPTIONS

Designation	Description	*	ArtNo.
	left		
	10 mm	01	8012-2198
	30 mm	01	8012-2210
	50 mm	01	8012-2213
	right		
	10 mm	01	8012-2206
Access port with silicone blug	30 mm	01	8012-2212
5	50 mm	01	8012-2215
	top		
	10 mm	01	8012-2199
	30 mm	01	8012-2211
	50 mm	01	8012-221/
	100 mm	01	8012-220
Analog output 4-20 mA	for temperature values (output not adjustable)	02	8012-218
Calibration certificate, expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-223
	for temperature, measurement in center of chamber at specified temperature	-	8012-222
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-222
emperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-222
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-2230
Door gasket	made of FKM, silicone-free	-	8012-223
Door lock	lockable door handle	-	8012-223
Gas-tight option model	Incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	-	8012-2216
HEPA air filter	On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 µm); not in conjunction with reinforced heating output, reinforced fan	-	8012-2219
nert gas connection	With gas inlet and outlet, Ø 10 mm, incl. additional measures for the greatest possible impermeability to gas; not in conjunction with access port or interior lighting option	-	8012-219
nner chamber, reinforced	max. total load 85 kg	-	8012-222
Measurement of air exchange rate	in accordance with ASTM D5374, definition and protocol according to ambient temperature	-	8012-223
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-219
Notes > See last page			

^{*} Notes > See last page

ACCESSORIES

Designation	Description	*	ArtNo.
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
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	-	8012-2250

^{*} Notes > See last page

Designation	Description	*	ArtNo.
	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
Qualification documents	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	-	7007-000
Daak	chrome plated	-	8012-2038
Rack	stainless steel	-	8012-208
Rack accessories	fasteners (1 set of 4) for additional security of racks	-	8012-0531
Rubber pads	set anti-slip feet	-	8012-2030
Shelf, perforated	Stainless steel	-	8012-2175
Table on castors	stable cart, casters with locking brakes, dimensions: W 1,000 x D 800 x H 780 mm	_	9051-0018

^{*} Notes > See last page

SERVICES

Designation	Description	*	ArtNo.
Maintenance contracts			
Installation services			
Maintenance services			
Calibration services			
Validation services			
Warranty service			
1-year warranty extension	The warranty is extended by 1 year from the delivery date, wear parts are excluded	-	DL50-0010
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
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
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	03, 04, 05	DL33-0000
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, 18 measuring points	Temperature measurement with 18 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0118

^{*} Notes > See last page

Data Sheet Model FP 56

Designation	Description	*	ArtNo.
Temperature measurement, 27 measuring points	Temperature measurement with 27 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0127
Temperature measurement, 9 measuring points	Temperature measurement with 9 measuring points with a set value specified by the user, including certificate	03, 04, 05	DL30-0109
Connect the unit to the customer-side connections (electricity, water, wastewater, gas), basic functions Unit commissioning check, brief operating instructions. (excl.: unpacking, setup, controller instructions, programming, installation work)		05	DL10-0100
Unit instructions	Instruction regarding operating principle and basic functions of the unit, operation of the control electronics including programming	05	DL10-0500

^{*} Notes > See last page

NOTES

- Condensation may occur in the area around the access port. Access ports may be placed in custom locations for an additional charge. UL mark is not granted when this option is used.
- 02
- Sensor calibration is performed in an accredited calibration laboratory. 03
- Calibration is performed according to the BINDER factory standard.
- 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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