

Model FD 720 | Drying and heating chambers with forced convection

A BINDER FD series Avantgarde.Line heating oven is always used when fast drying and sterilization is required. Thanks to its fully homogeneous temperature distribution, quick dynamics and powerful fan, this heating oven saves valuable time.

BENEFITS

- · Best energy efficiency on the market
- · Excellent temporal and spatial temperature accuracy
- USB connection for recording data
- Temperature range up to 300 °C



Model 720

MAIN FEATURES

- Temperature range: ambient temperature plus 12 °C to 300 °C
- Up to 30% lower energy consumption compared to conventional units on the market
- High temperature accuracy thanks to APT.line[™] technology
- Forced convection
- · Controller with LCD display
- · Electromechanical control of the exhaust air flap

- · 2 chrome-plated racks
- Class 2 integrated independent adjustable temperature safety device (DIN 12880) with visual alarm
- Ergonomic handle design
- · USB port for recording data

ORDERING INFORMATION

Interior volume [cu.ft.]	Voltage	Option model	Version	ArtNo.
Model FD 720				
26.2	400 V 3 ph 50/60 Hz	Standard	FD720-400V	9010-0311

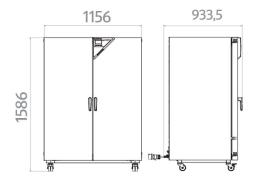


TECHNICAL DATA

Recovery time after 30 seconds door open at 150 °C (min)6Electrical data400Rated Voltage [V]400Power frequency [Hz]50/60Nominal power [KW]4.5Unit fuse [A]3 x 16Phase (Nominal voltage [ph]3Outer dimensions1165Height net [rmn]1590Depth net [rmn]60Vall clearance back [rmn]160Vall clearance sidewise [rmn]100Dors1100Unit doors2Unit doors1300Depth net [rmn]1300Depth [rmn]1300Depth [rmn]1300Depth [rmn]1300Depth [rmn]1300Depth [rmn]1300Depth [rmn]1300Depth [rmn]670Height [rmn]1300Depth [rmn]130	Description	FD720-400V ¹
Temperature range 12 °C above ambient temperature [rC]900Temperature variation at 150 °C [k K]0.6Heading-up time to 150 °C [m]0.6Reading-up time to 150 °C [m]0.6Reading-up time to 150 °C [m]0.6Beating-up time to 150 °C [m]0.6Power frequency [H2]0.60Nominal power [kW]3.5Outre [A]3.16Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.65Outre [A]1.60Outre [A]1.60 <trr>Outre [A]1.60<</trr>	Article Number	9010-0311
Temperature variation at 150 °C (± K) 2.5 Temperature fluctuation at 150 °C (± K) 0.6 Heating-up time to 150 °C (min) 25 Recovery time after 30 seconds door open at 150 °C (min) 6 Electrical dat 400 Power frequency [H2] 5060 Nominal power [kVI] 4.5 Unit Nse [A] 3 x 16 Phase (Nominal voltage [ph] 3 Outer dimensions 70 Widt net [mn] 160 Dept net [mn] 600 Doter dimensions 70 Wall clearance back [mn] 160 Wall clearance sidewise [mn] 100 Dors 70 Widt clearance sidewise [mn] 1000 Dors 70 Widt clearance sidewise [mn] 1000 Dors 70 Weat clearance sidewise [mn] 1000 Dors 70 Measures 70 Measures 71 Internal Dimensions 70 Weat clearance sidewise [min] 1000	Performance Data Temperature	
Temperature fluctuation at 150 °C [xk] 0.6 Heating-up time to 150 °C [min] 25 Recovery time after 30 seconds door open at 150 °C (min) 6 Electrical data Recid Voltage [V] 400 Power frequency [Hz] 50/60 Nominal power [kW] 4.5 Unit tase [A] 3 x 16 Phase (Nominal voltage) [ph] 3 Outer dimensions Widt net [rmn] 1165 Height net [rmn] 590 Depth net [rmn] 160 Wall clearance back [rmn] 100 Doors Unit doors 2 Internal Dimensions Widt [hern] 100 Doors Widt [cors] 2 Internal Dimensions Widt [hern] 1000 Height [hmn] 1000 Height [hmn] 1000 Pays et al. 5/70 Measure Unit doors [leight fill] 166 <t< td=""><td>Temperature range 12 °C above ambient temperature to [°C]</td><td>300</td></t<>	Temperature range 12 °C above ambient temperature to [°C]	300
Heating-up time to 150 °C (min)25Recovery time after 30 seconds door open at 150 °C (min)6Electrical dataRated Voltage [V]400Power frequency [Hz]5060Nominal power [KW]4.5Unit Use [A]3 x 16Phase (Nominal voltage) [ph]3 a Cancent and	Temperature variation at 150 °C [± K]	2.5
Recovery time after 30 seconds door open at 150 °C [mi]6Electrical dataElectrical dataPawer frequency [M2]60/0Nominal power [W]4.5Unit fuse [A]3 x 16Phase (Nominal voltage) [ph]3Outer dimensionsWidth net [mm]1465Beght net [mm]60Dept net [mm]70Wall clearance back [mm]100DotsUnit doors fu2Unit doors fu100Dors100Dept net [mm]100Dors100Unit doors fu100Dept net [mm]100Dept net [mm]100 <td< td=""><td>Temperature fluctuation at 150 °C [± K]</td><td>0.6</td></td<>	Temperature fluctuation at 150 °C [± K]	0.6
Electrical data Rated Voltage [V] 400 Power frequency [Hz] 50/60 Nominal power [kW] 4.5 Unit fuse [A] 3 x 16 Phase (Nominal voltage) [ph] 3 Outer dimensions 1165 Width net [mm] 1165 Depth net [mm] 600 Depth net [mm] 600 Wall clearance back [mm] 100 Doors 1 Unit doors 2 Unit doors 2 Unit doors 1000 Height [mm] 1300 Dopf net [mm] 1300 Depth net [mm] 1300 Depth net [mm] 1300 Deptint[mm] 1300 Deptint[mm] 1300 Deptint[mm] 1300 Deptint[mm] 146 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Lad per rack [kg] 45 Environment-specific data Environment-specific data Environment-specific data	Heating-up time to 150 °C [min]	25
Rede Voltage [V]400Power frequency [Hz]5060Nominal power [kW]4.5Unit tase [A]3 x 16Phase (Nominal voltage) [ph]3 cOuter dimensions105Width net [mm]1950Depth net [mm]60Vali clearance back [mm]60Wall clearance back [mm]60Voltagion [mm]2Unit doors2Internal Dimensions100Wild furm]100Name Series100Internal Dimensions100Wild furm]100Reight net [mm]100Notage Series100Internal Dimensions100Wild furm]100Reight net [mm]100Depth net [mm]100Net eduction [L]741Net weight of the unit (empty) [kg]166permitted load [kg]15Lad per rack [kg]50Environment-specific data15Environment-specific data16Environment-specific data16Environment-spe	Recovery time after 30 seconds door open at 150 °C [min]	6
Power frequency [Hz]50/60Nominal power [kW]4.5Unit fuse [A]3 x 16Phase (Nominal voltage) [ph]3Outer dimensions1Width net [mm]1165Depth net [mm]670Depth net [mm]160Wall clearance back [mm]100Dors2Unit doors2Unit doors2Unit doors1000Depth net [mm]1000Depth net [mm]1000Dors570Unit doors570Measures1000Internal Dimensions570Measures1000Depti net [mm]66Depti net [mm]66Depti net [mm]66Depti net [clearance ideking [mm]60Load per rack [kg]60Environment-specific data500Environment-specific data500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturdes500Sturd	Electrical data	
Nominal power [kV]4.5Unit fuse [A]3 x 16Phase (Nominal voltage) [ph]3Outer dimensions1165Width net [mm]1590Depth net [mm]670Wall clearance back [mm]100Wall clearance back [mm]100DorsUnit doorsUnit doors2Unit doors1000Height [mm]1000Height [mm]1000Depth net [mm]1000Depth net [mm]1000Internal Dimensions70Width [mm]1000Depth net [mm]670Depth net [mm]1000Depth net [mm]1000Depth net [mm]1000Depth net [mm]670Depth net [mm]1000Depth net [mm]670Depth net [mm]1000Depth net [mm]1000Depth net [mm]570MeasuresInternot volume [L]Interior volume [L]741Net weight of the unit (empty) [kg]166permited load [kg]315Load per rack [kg]45Environment-specific dataEnvironment-specific dataEnvironment-specific data600Sound-pressure level [dB(A)]43FixturesFixtures	Rated Voltage [V]	400
Unit fuse [A] 3 x 16 Phase (Nominal voltage) [ph] 3 Outer dimensions 1165 Width net [mm] 1165 Height net [mm] 670 Depth net [mm] 600 Wall clearance back [mm] 100 Doors 100 Doors 2 Unit doors (M) 1000 Height [mm] 670 Measures 570 Measures 570 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 315 Environmet-specific data 500 Environmet-specific data 500 Sound-pressure level (B(A)) 43	Power frequency [Hz]	50/60
Phase (Nonial voltage) [ph] 3 Outer dimensions 1165 Width net [mm] 1590 Depth net [mm] 870 Wall clearance back [mm] 600 Wall clearance sidewise [mm] 100 Doors 2 Unit doors 2 Internal Dimensions 2 Widt [mm] 1000 Height [mm] 1000 Dopti [mi] 570 Measures 1000 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 315 Environment-specific data 1 Environment-specific data 1 Environment-specific data 300 Sound-pressure level [dB(A)] 43	Nominal power [kW]	4.5
Outer dimensions 1165 Width net [mm] 1165 Height net [mm] 1590 Depth net [mm] 870 Wall clearance back [mm] 160 Wall clearance sidewise [mm] 100 Doors 2 Unit doors 2 Internal Dimensions 1000 Height [mm] 1000 Height [mm] 1000 Height [mm] 1300 Depth [mm] 50 Measures 1 Iterior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 315 Load per rack [kg] 800 Sound-pressure level [dB(A)] 43	Unit fuse [A]	3 x 16
Width net [mm]1165Height net [mm]590Depth net [mm]870Wall clearance back [mm]160Wall clearance back [mm]100Doors2Unit doors2Internal Dimensions100Width [mm]1000Height [mm]300Dopt [mm]300Neares1Interior solume [L]741Net weight of the unit (empty) [kg]166Lead per rack [kg]15Lord per rack [kg]300Energy consumption at 150 °C [Wh/h]800Sound-pressure level [dB(A)]43Fixtures14	Phase (Nominal voltage) [ph]	3
Height net [mm] 1590 Depth net [mm] 870 Wall clearance back [mm] 160 Wall clearance back [mm] 100 Doors 2 Unit doors 2 Internal Dimensions 1000 Height [mm] 1000 Height [mm] 1000 Dopth net [mm] 570 Measures 1 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Environment-specific data Environment-specific data Environment-specific data 500 Sound-pressure level [dB(A)] 43	Outer dimensions	
Depth net [mn] 870 Wall clearance back [mn] 160 Wall clearance sidewise [mm] 100 Doors 2 Unit doors 2 Internal Dimensions 1000 Height [mm] 1000 Dopth [mm] 570 Measures 1 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 315 Load per rack [kg] 600 Sound-pressure level [dB(A)] 600 Sound-pressure level [dB(A)] 43	Width net [mm]	1165
Wall clearance back [mm]160Wall clearance sidewise [mm]00Doors2Unit doors2Internal Dimensions1000Width [mm]1000Height [mm]300Depth [mm]570Measures1Internal Dimensions [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Enryr consumption at 150 °C [Wh/h]800Sturds500Fixtures140	Height net [mm]	1590
Wall clearance sidewise [mm] 100 Doors 2 Unit doors 2 Internal Dimensions 1000 Width [mm] 1000 Height [mm] 3000 Depth [mm] 570 Measures 11 Intervolume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Enryoronment-specific data 1500 Enryoronsumption at 150 °C [Wh/h] 800 Sound-pressure level [dB(A)] 43 Fixtures 14	Depth net [mm]	870
DoorsUnit doors2Internal Dimensions1000Width [mm]1000Height [mm]300Depth [mm]570Measures1000Interior volume [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Environment-specific data800Sound-pressure level [dB(A)]43Fixtures100	Wall clearance back [mm]	160
Unit doors2Internal Dimensions1000Width [mm]1000Height [mm]300Depth [mm]570Measures741Interior volume [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Energy consumption at 150 °C [Wh/h]800Sound-pressure level (dB(A)]43Fixtures500	Wall clearance sidewise [mm]	100
Internal DimensionsWidth [mm]1000Height [mm]1300Depth [mm]570Measures741Interior volume [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Environment-specific dataFixuresEnergy consumption at 150 °C [Wh/h]800Sound-pressure level [dB(A)]43	Doors	
Width [mm]1000Height [mm]1300Depth [mm]570Measures741Interior volume [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Enrery consumption at 150 °C [Wh/h]800Sound-pressure level [dB(A)]43FixturesFixtures	Unit doors	2
Height [mm] 1300 Depth [mm] 570 Measures 1 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Environment-specific data 800 Sound-pressure level [dB(A)] 43	Internal Dimensions	
Depth [mm] 570 Measures 100 Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Environment-specific data 800 Sound-pressure level [dB(A)] 43	Width [mm]	1000
Measures Interior volume [L] 741 Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Environment-specific data Energy consumption at 150 °C [Wh/h] Sound-pressure level [dB(A)] 43	Height [mm]	1300
Interior volume [L]741Net weight of the unit (empty) [kg]166permitted load [kg]315Load per rack [kg]45Environment-specific data800Sound-pressure level [dB(A)]43Fixtures100	Depth [mm]	570
Net weight of the unit (empty) [kg] 166 permitted load [kg] 315 Load per rack [kg] 45 Environment-specific data 800 Sound-pressure level [dB(A)] 43 Fixtures 43	Measures	
permitted load [kg]315Load per rack [kg]45Environment-specific data800Sound-pressure level [dB(A)]43Fixtures100	Interior volume [L]	741
Load per rack [kg] 45 Environment-specific data 800 Sound-pressure level [dB(A)] 43 Fixtures Fixtures	Net weight of the unit (empty) [kg]	166
Environment-specific data Energy consumption at 150 °C [Wh/h] 800 Sound-pressure level [dB(A)] 43 Fixtures	permitted load [kg]	315
Energy consumption at 150 °C [Wh/h] 800 Sound-pressure level [dB(A)] 43 Fixtures	Load per rack [kg]	45
Sound-pressure level [dB(A)] 43 Fixtures	Environment-specific data	
Fixtures	Energy consumption at 150 °C [Wh/h]	800
	Sound-pressure level [dB(A)]	43
Number of shelves (std./max.) 2/16	Fixtures	
	Number of shelves (std./max.)	2/16

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 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.

DIMENSIONS incl. fittings and connections [mm]



OPTIONS AND ACCESSORIES



Designation	Description	*	ArtNo.
	left		
	10 mm	01	8012-1276
	30 mm	01	8012-1016
	50 mm	01	8012-102
	100 mm	01	8012-102
-	right		
	10 mm	01	8012-126
Access port with silicone	30 mm	01	8012-101
plug	50 mm	01	8012-101
	100 mm	01	8012-102
	top		
	10 mm	01	8012-126
	30 mm	01	8012-136
	50 mm	01	8012-138
	100 mm	01, 10	8012-167
Analog output 4-20 mA	for temperature values (output not adjustable)	01, 10	8012-1624
Calibration certificate.	ויטי נפווייטיזענטיס יעועסט (טענאער ווטר מעןעטנמטוס)	02	0012-102
expanded	for temperature; for extending the measurement in center of chamber to include another test temperature	-	8012-111
	for temperature, measurement in center of chamber at specified temperature	-	8012-113
Calibration certificate,	temperature measurement incl. certificate and 27 measuring points at specified temperature	-	8012-159
temperature	temperature measurement incl. certificate, 15- 18 measuring points at specified temperature	-	8012-157
	temperature measurement incl. certificate, 9 measuring points at specified temperature	-	8012-155
chrome-plated	chrome-plated	-	6004-017
Class 3.1 independent temperature safety device	with visual alarm (DIN 12880)	04, 12	8012-164
Clock	battery-backed	-	8012-164
Data Logger Kit	T 350: For continuous temperature logging from 0 °C to 350 °C; kit includes 1 data logger, Pt 100 sensor with 2 m extension cable and 1 magnetic fixture for mounting to the BINDER unit	19	8012-071
Data Logger Software	LOG ANALYZE software kit, configuration and evaluation software for all BINDER Data Logger Kits (incl. USB data cable)	19	8012-082
Door gasket	made of FKM, silicone-free	03	8012-183
Door lock	lockable door handle	-	8012-181
Ethernet interface	for communication software	_	8012-098
Fan, reinforced	for increased air change rates, incl. uprated heat output for faster heating up time and improved recovery time; max. 300 °C; not in conjunction with load management option		
,	400 V option model	-	8012-106
Heating output,	For faster heating up time and improved recovery time; max. 300 °C; not in conjunction with load management option		
reinforced	400 V option model	-	8012-106
HEPA air filter	On fresh air supply for unit; filter classification H14 (acc. to. EN 1822-1:2009, > 99.995% at 0.3 μm)	-	8012-109
Inner chamber, reinforced	max. total load 350 kg	-	8012-182
	with lid made from 18/8 stainless steel, stackable, dimensions: 230 x 133 x 45 mm		
	small	_	4022-012
Instrument tray	with lid made from 18/8 stainless steel, stackable, dimensions: 315 x 215 x 60 mm		
		_	4022-012
	with two 15 W light bulbs		
Interior lighting	400 V option model	_	8012-182
Measurement of air	in accordance with ASTM D5374, definition and protocol according to ambient temperature	_	8012-182
exchange rate			0040 467
Overheating alarm	audible, can be switched off, adjustable limit on the independent temperature safety device	-	8012-163



Designation	Description	*	ArtNo.
pH-neutral detergent	concentrated, for gentle remove of residual contaminants; 1 kg	_	1002-0016
Pt 100 temperature sensor	additional flexible Pt 100, interior, for displaying the temperature on the unit display	-	8012-1620
Rack, heavy load	Stainless steel, max. load per rack 70 kg	-	6004-0204
Racks	stainless steel	-	6004-0155
Shelf, perforated	Stainless steel	-	6004-0187
	APT-COM™ communications software		
	version 2 to 3, GLP edition	19	9053-0016
	version 3, BASIC edition	19	9053-0014
Software	version 3, GLP edition	19	9053-0015
	version 3, STANDARD edition	19	9053-0013
	APT-COM™ communications software, price: for free		
	version 3, GLP DEMO Edition	19	9053-0008
Viewing window and	viewing window (triple insulating glass) in door, 300 x 480 mm, and 30 W interior		
interior lighting	400 V option model	-	8012-1831

* Notes > See last page

SERVICES

Designation	Description	*	ArtNo.
Installation services			
Installation	and set up of unit at operating location, connect to existing connections	13, 18	DL10-0100
1		18	DL10-0400
Instruction	unit function instructions for operation and programming of the controller		DL10-0500
Preventive maintenance			
Preventive maintenance	Executive of equipment inspection according to maintenance plan	14, 18	DL20-0200
Calibration services			
Calibration temperature incl. certificate	including certificate, one measuring point in center of chamber at specified temperature	14, 16, 17, 18	DL30-0101
Measurement of air exchange rate	including certificate (in accordance with ASTM D5374)	14, 16, 17, 18	DL33-0000
Temperature measurement 18 measuring points	including certificate, 18 measuring points at specified temperature	14, 16, 17, 18	DL30-0118
Temperature measurement 27 measuring points	including certificate, 27 measuring points at specified temperature	14, 16, 17, 18	DL30-0127
Temperature measurement 9 measuring points	including certificate, 9 measuring points at specified temperature	14, 16, 17, 18	DL30-0109
Validation services			
Execution of IQ/OQ	in accordance with qualification folder	15, 18, 20	DL40-0100
Execution of IQ/OQ/PQ	in accordance with customer's requirement, price: on request	15, 18	DL44-0500
Qualification folder IQ/OQ	supporting documents for validation performed by customer, consisting of: IQ/OQ checklists, unit schematics, QM certificate in accordance with ISO 9001	15, 18, 20	8012-0792
Qualification folder IQ/OQ/PQ	supporting documents for validation performed by customer, in accordance with customer's requirement, extension of Qualification folder IQ/OQ by chapter PQ	15, 18	8012-0943
Warranty service			
Extension of the warranty from 2 to 3 years	beginning with the date of delivery, wearing parts are not included	-	DL00-3041
Extension of the warranty from 2 to 5 vears	beginning with the date of delivery, wearing parts are not included	-	DL00-3042

* 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. 01 02
- UL mark is not granted when this option is used. Heat resistant only to max. 200 °C.
- 03
- Only available on units rated for 230 V. 04
- 06 Heating-up time may increase as a result of the lower heat conductivity.
- 07 The additional heat input may affect the temperature behavior. Not in conjunction with the optional access port, door with window and interior lighting. 09
- 10 11 12 Not available on 23-liter units.
- Not available on 23- or 53-liter units.
- Only available on units rated for 230 V or 400 V.
- 13 Installation and connections take place at unit location; transport within the company only upon consultation.
- 14 We recommend a BINDER service contract to cover unit inspections, calibrations and validations.
- 15 OQ according to Yellow Paper = completed factory validation documentation of all OQ checklists.
- Sensor calibration is performed in an accredited calibration laboratory. 16
- 17
- 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 18 include a country-specific added fee (available on request).
- For additional accessories, refer to the Process documentation chapter. 19
- 20 When ordering IQ/OQ qualification folders and associated IQ/OQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ folder. When ordering IQ/OQ/PQ qualification folders and associated IQ/OQ/PQ execution on one order, we offer a 15 % discount for the item of the IQ/OQ/PQ folder.