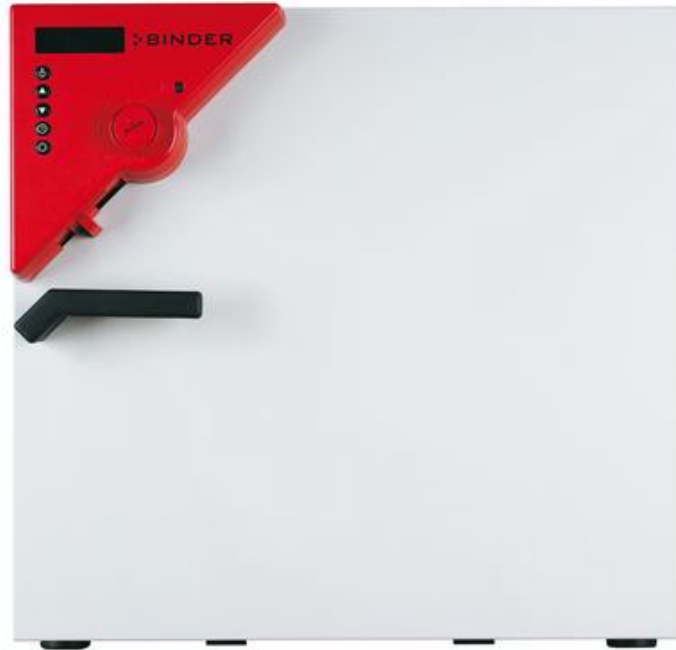


## Heating chamber with mechanical convection

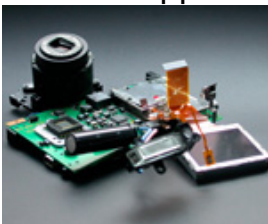
The multi-talented BINDER heating chamber of the FED series provides almost unlimited capacity and is particularly adaptable. With advanced timing functions and a digitally controllable fan, this heating chamber easily controls temperature and convection conditions.



### Advantages:

- Fast, even tempering
- Wide temperature range
- Quality "Made in Germany"

### Areas of application:



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Features	Customer benefits	Characteristics
APT.line™	<ul style="list-style-type: none"> <li>• Quick drying</li> <li>• Identical test conditions throughout the chamber interior</li> <li>• Independent of specimen size and quantity</li> </ul>	<b>APT.line™ for maximum precision</b> <ul style="list-style-type: none"> <li>• Uniform circulation even under full load</li> <li>• Homogeneous temperature conditions throughout specimen material</li> </ul>
Temperature range	<ul style="list-style-type: none"> <li>• Broad range of applications</li> <li>• Short warm up times</li> </ul>	<b>Standard up to 300 °C</b> <ul style="list-style-type: none"> <li>• Large power reserves</li> </ul>
Inner chamber concept	<ul style="list-style-type: none"> <li>• Maximum occupational safety</li> <li>• Easy loading and unloading of specimen material</li> <li>• Easy cleaning</li> </ul>	<b>Inner chamber made of stainless steel</b> <ul style="list-style-type: none"> <li>• Very tight door closure with 2-point door latch</li> <li>• Low heat dissipation due to 60 mm insulation</li> <li>• Rack with tilt protection</li> <li>• No permanent fixtures</li> </ul>
Standard equipment	<ul style="list-style-type: none"> <li>• Reliable, easy handling</li> </ul>	<b>Comprehensive standards</b> <ul style="list-style-type: none"> <li>• Microprocessor control</li> <li>• Ergonomically positioned controller.</li> <li>• RS 422 interface</li> <li>• PT 100 temperature sensor</li> </ul>
Quality	<ul style="list-style-type: none"> <li>• Reliable devices with long service lives</li> <li>• Short delivery times</li> <li>• Minimal maintenance and operating costs</li> </ul>	<b>Premium quality</b> <ul style="list-style-type: none"> <li>• Highly automated</li> <li>• Series production</li> <li>• High-quality materials, state-of-the-art production technology</li> <li>• High standard according to DIN 12880 (27-point measurement)</li> </ul>
Accessories and Services	<ul style="list-style-type: none"> <li>• Flexible solution in terms of size, type and equipment</li> <li>• Optimal solution for numerous applications</li> <li>• BINDER INDIVIDUAL for customer-specific solutions</li> <li>• Worldwide BINDER Service</li> </ul>	<b>Comprehensive product portfolio</b> <ul style="list-style-type: none"> <li>• Size 53 to 720 liters</li> <li>• Additional product lines with humidity, light, CO2 or vacuum</li> <li>• Voltage variants (UL) and certificates</li> <li>• Various options: Door with viewing window, access ports, reinforced shelves, Data Logger Kits</li> <li>• Worldwide service network</li> </ul>

## Performance characteristics

- Electronically controlled APT.line™ preheating chamber assuring temperature accuracy and reproducible results
- Temperature range from 5 °C above ambient temperature to 300 °C
- MS controller with several timer functions
- Controller timer functions: delayed ON, delayed OFF, temperature dependent delayed OFF
  - Digital temperature setting with an accuracy of one degree
- Adjustable fan speed
- Front ventilation flap slide and rear exhaust duct Ø 50 mm (1.97 inch)
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- RS 422 interface for use with APT-COM™ DataControlSystem communication software or switch over to printer output with RS 232 / RS 422 interface converter
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

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## FED 53

▶ Exterior dimensions	
Width (mm)	635
Height (incl. feet) (mm)	620
Depth (mm)	575
Plus door handle and connection (mm)	105
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	160
Exhaust duct (outer Ø mm)	52
Steam space volume (l)	77
Number of doors (ea.)	1

▶ Interior dimensions	
Width (mm)	400
Height (mm)	400
Depth (mm)	330
Interior volume (l)	53
Racks (number standard/max.)	2 / 5
Load per rack (kg)	15
Permitted total load (kg)	40
Weight (empty) (kg)	44

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	0,8
at 150 °C (± K)	2
at 300 °C (± K)	3,7
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	6
to 150 °C (min.)	24
to 250 °C (min.)	45
to 300 °C (min.)	55
Recovery time after doors were open for 30 sec. 1)	

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at 70 °C (min.)	2
at 150 °C (min.)	5
at 300 °C (min.)	10

▶ Ventilation data	
Ventilation	
at 150 °C (x/h)	43
at 300 °C (x/h)	66

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage (± 10%) 50 / 60 Hz (V)	230
Nominal power (kW)	1,2
at 70 °C (W)	162
at 150 °C (W)	397
at 300 °C (W)	933

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**Numerous access ports**

With silicone plugs for introducing external measuring instruments into the chamber, access ports with 10, 30, 50, 100 mm diameters.

**Door with window and interior lighting**

For optimal process control in the inner chamber, available for all device sizes.

**Door lock**

Prevents unauthorized access to the process sequences in the chamber.

**Calibration certificate & validation**

BINDER can significantly reduce the workload in qualifying and validating devices. Nobody knows our devices as well and has as much experience in certifications as we do.

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