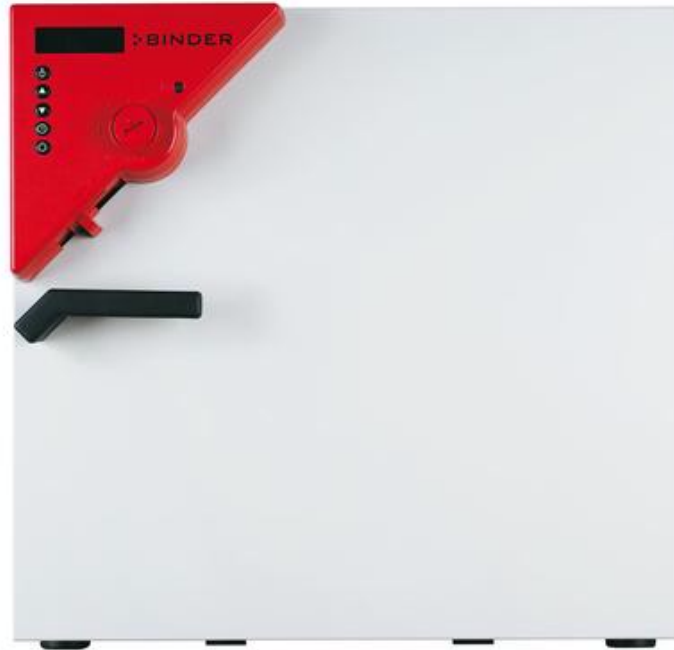


## Heating chamber with mechanical convection

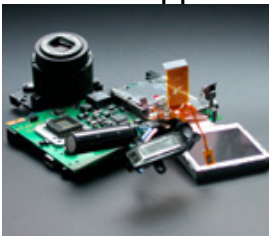
The multi-talented BINDER heating chamber of the FED series provides almost unlimited capacity and is particularly adaptable. With advanced timing functions and a digitally controllable fan, this heating chamber easily controls temperature and convection conditions.



### Advantages:

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

### Areas of application:



Electronics / Semiconductor Industry



Basic Research / Research Institutes



Plastics Industry

| 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> |

- 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

**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)               |     |

|                  |    |
|------------------|----|
| 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   |

## FED 53

|                  |    |
|------------------|----|
| 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   |

1) To 98% of the set value

All technical data are specified for units with standard equipment at an ambient temperature of 25 °C and a line voltage fluctuation of ±10%. The temperature data is determined in accordance to factory standard following DIN 12880, respecting the recommended wall clearances of 10% of the height, width and depth of the inner chamber. All figures are typical average values for series devices. We reserve the right to alter technical specifications at any time.



### 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.

**FED 53**

|  |                       |
|--|-----------------------|
| Access ports with silicone plugs, 10, 30, 50, 100 mm   | <input type="radio"/> |
| HEPA fresh-air filter, Class H 14 (according to EN 1822, min. 99.995% for 0.1-0.3 µm particles)  | <input type="radio"/> |
| Fasteners for additional security for racks (1 set of 4)   | <input type="radio"/> |
| Anti-slip rubber pads for safe stacking (1 set of 4 pieces)  | <input type="radio"/> |
| Independent adjustable temperature safety device class 3.1 (DIN 12880) with optical alarm  | <input type="radio"/> |
| Analog temperature output, 4 - 20 mA with 6-pin DIN socket (output not adjustable)   | <input type="radio"/> |
| Over temperature alarm, audible, can be switched off. Temperature limit can be set at the independent, adjustable temperature safety device  | <input type="radio"/> |
| Temperature measurement acc. to DIN 12880 at 150 °C or at specified testing temperature with measuring protocol and certificate  | <input type="radio"/> |
| Factory calibration certificate. Measurement in center of chamber at 150 °C (302 °F) or at specified testing temperature   | <input type="radio"/> |
| Extension to factory calibration certificate. Each additional measurement at additional measuring point or temperature   | <input type="radio"/> |
| Securing elements for additional fastening of racks (1 set of 4 pieces)  | <input type="radio"/> |
| Data Logger Kit T 350: For continuous temperature recording of 0 °C to 350 °C. Kit includes 1 data logger, PT 100 sensor with 2 m Teflon extension cable and 1 fixture for mounting to the BINDER unit | <input type="radio"/> |
| Data Logger Software: Configuration and evaluation software for all BINDER Data Logger Kits, incl. data cable  | <input type="radio"/> |
| Rack, chrome-plated  | <input type="radio"/> |
| Rack, stainless steel  | <input type="radio"/> |
| Perforated shelf, stainless steel  | <input type="radio"/> |
| Locking door handle with key   | <input type="radio"/> |
| Door gasket, FKM (Viton)   | <input type="radio"/> |
| Inert gas connection (gas inlet and outlet; Ø 10 mm). We also recommend the mostly gas-tight version option  | <input type="radio"/> |
| Mostly gas-tight version   | <input type="radio"/> |
| Door with window 230 x 230 mm and interior lighting (15 W)   | <input type="radio"/> |
| Increased air change rate through high performance fan   | <input type="radio"/> |