

## Drying ovens with gravity convection

The strength of the BINDER ED series drying oven: routine drying and sterilization applications up to 300 °C. Thanks to the gravity convection, thermal processes are highly efficient.



### Advantages:

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

### Areas of application:



Biotechnology



Basic Research /  
Research Institutes



Human / Veterinary  
Medicine

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 23 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
- Digital temperature setting with an accuracy of one degree
- DS control with integrated timer 0 to 99 hrs
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- ED 23 with space-saving door mechanism
- BINDER test confirmation

## ED 23

▶ Exterior dimensions	
Width (mm)	435
Height (incl. feet) (mm)	495
Depth (mm)	520
Plus door handle, I-panel, connection (mm)	105
Wall clearance, rear (mm)	100
Wall clearance, side (mm)	100
Exhaust duct (outer Ø mm)	52
Steam space volume (l)	36
Number of doors (ea.)	1

▶ Interior dimensions	
Width (mm)	222
Height (mm)	330
Depth (mm)	277
Interior volume (l)	20
Racks (number standard/max.)	2 / 3
Load per rack (kg)	12
Permitted total load (kg)	25
Weight (empty) (kg)	22

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	1,5
at 150 °C (± K)	2,5
at 300 °C (± K)	3,8
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	13
to 150 °C (min.)	24
to 250 °C (min.)	35
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	2,5
at 150 °C (min.)	5
at 300 °C (min.)	8

**ED 23**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	10
at 150 °C (x/h)	13
at 300 °C (x/h)	17

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	230,1N~
Nominal power (kW)	0,8
Energy consumption	
at 70 °C (W)	43
at 150 °C (W)	148
at 300 °C (W)	450

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  $\pm 10\%$ . These average values have been determined according to the BINDER factory standard, respecting the recommended wall clearances of 10% of the height, width and depth of the inner chamber. Differing ambient temperatures and production-related device-specific variances can lead to varying technical data.

Therefore, we recommend individual customer-specific calibration or validation for applications on the limit of the permitted ambient temperature range.



### Numerous access ports

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

**ED 23**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
Door with window 180 x 180 mm and interior lighting (15 W)	<input type="radio"/>

## Drying ovens with gravity convection

The strength of the BINDER ED series drying oven: routine drying and sterilization applications up to 300 °C. Thanks to the gravity convection, thermal processes are highly efficient.



### Advantages:

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

### Areas of application:



Biotechnology



Basic Research /  
Research Institutes



Human / Veterinary  
Medicine

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 23 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 (9 °F) above ambient temperature to 300 °C (572 °F)
- Digital temperature setting with an accuracy of one degree
- DS control with integrated timer 0 to 99 hrs
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

## ED 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)	70
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)	42

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	2
at 150 °C (± K)	3,2
at 300 °C (± K)	4,5
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	14
to 150 °C (min.)	27
to 250 °C (min.)	61
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	2
at 150 °C (min.)	6
at 300 °C (min.)	11

**ED 53**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	8
at 150 °C (x/h)	19
at 300 °C (x/h)	20

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	230,1N~
Nominal power (kW)	1,2
Energy consumption	
at 70 °C (W)	60
at 150 °C (W)	210
at 300 °C (W)	600

1) To 98% of the set value

All technical data are specified for units with standard equipment at an ambient temperature of 20 °C and a line voltage fluctuation of  $\pm 10\%$ . 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

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**ED 53**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
Door with window 230 x 230 mm and interior lighting (15 W)	<input type="radio"/>

## Drying ovens with gravity convection

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### Advantages:

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- Wide temperature range
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### Areas of application:



Biotechnology



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Research Institutes



Human / Veterinary  
Medicine

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 23 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 (9 °F) above ambient temperature to 300 °C (572 °F)
- Digital temperature setting with an accuracy of one degree
- DS control with integrated timer 0 to 99 hrs
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

**ED 115**

▶ Exterior dimensions	
Width (mm)	835
Height (incl. feet) (mm)	705
Depth (mm)	645
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)	142
Number of doors (ea.)	1

▶ Interior dimensions	
Width (mm)	600
Height (mm)	480
Depth (mm)	400
Interior volume (l)	115
Racks (number standard/max.)	2 / 6
Load per rack (kg)	20
Permitted total load (kg)	50
Weight (empty) (kg)	57

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	1,5
at 150 °C (± K)	2,5
at 300 °C (± K)	4,5
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	15
to 150 °C (min.)	29
to 250 °C (min.)	66
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	2
at 150 °C (min.)	9
at 300 °C (min.)	14

**ED 115**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	12
at 150 °C (x/h)	10
at 300 °C (x/h)	10

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage (± 10%) 50 / 60 Hz (V)	230,1N~
Nominal power (kW)	1,6
Energy consumption	
at 70 °C (W)	90
at 150 °C (W)	300
at 300 °C (W)	360

1) At 98% of the set value

All technical data are specified for units with standard equipment at an ambient temperature of 20 °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

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**ED 115**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM	<input type="radio"/>
Door with window 320 x 260 mm and interior lighting (15 W)	<input type="radio"/>

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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>
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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>
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- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

**ED 240**

▶ Exterior dimensions	
Width (mm)	1035
Height (incl. feet) (mm)	825
Depth (mm)	745
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)	283
Number of doors (ea.)	2

▶ Interior dimensions	
Width (mm)	800
Height (mm)	600
Depth (mm)	500
Interior volume (l)	240
Racks (number standard/max.)	2 / 7
Load per rack (kg)	30
Permitted total load (kg)	70
Weight (empty) (kg)	86

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	1,5
at 150 °C (± K)	2,5
at 300 °C (± K)	5,0
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	40
to 150 °C (min.)	48
to 250 °C (min.)	61
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	5
at 150 °C (min.)	13
at 300 °C (min.)	18

**ED 240**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	11
at 150 °C (x/h)	10
at 300 °C (x/h)	9

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	230,1N~
Nominal power (kW)	2,7
Energy consumption	
at 70 °C (W)	143
at 150 °C (W)	447
at 300 °C (W)	700

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  $\pm 10\%$ . 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.

**ED 240**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
2 doors each with window 350 x 240 mm and interior lighting (30 W)	<input type="radio"/>

## Drying ovens with gravity convection

The strength of the BINDER ED series drying oven: routine drying and sterilization applications up to 300 °C. Thanks to the gravity convection, thermal processes are highly efficient.



### Advantages:

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

### Areas of application:



Biotechnology



Basic Research /  
Research Institutes



Human / Veterinary  
Medicine

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 23 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 (9 °F) above ambient temperature to 300 °C (527 °F)
- Digital temperature setting with an accuracy of one degree
- DS control with integrated timer 0 to 99 hrs
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

**ED 400**

▶ Exterior dimensions	
Width (mm)	1235
Height (incl. feet) (mm)	1025
Depth (mm)	765
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)	457
Number of doors (ea.)	2

▶ Interior dimensions	
Width (mm)	1000
Height (mm)	800
Depth (mm)	500
Interior volume (l)	400
Racks (number standard/max.)	2 / 10
Load per rack (kg)	35
Permitted total load (kg)	90
Weight (empty) (kg)	125

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	1,7
at 150 °C (± K)	3
at 300 °C (± K)	5,0
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	49
to 150 °C (min.)	62
to 250 °C (min.)	74
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	4
at 150 °C (min.)	20
at 300 °C (min.)	24

**ED 400**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	11
at 150 °C (x/h)	10
at 300 °C (x/h)	9

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	400,3N~
Nominal power (kW)	3,4
Energy consumption	
at 70 °C (W)	201
at 150 °C (W)	672
at 300 °C (W)	1000

1) To 98% of the set value

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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

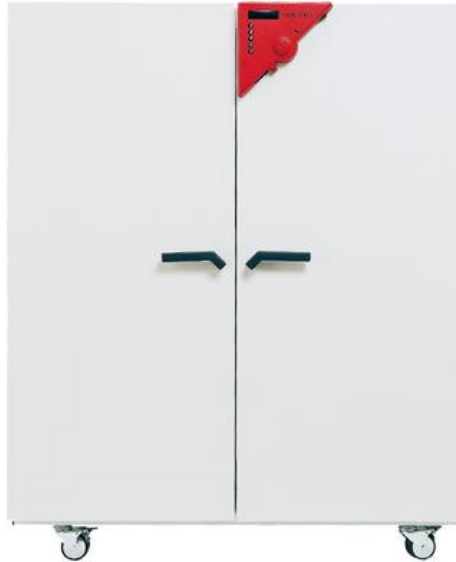
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**ED 400**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
2 doors each with window 470 x 290 mm and interior lighting (30 W)	<input type="radio"/>

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- Temperature range from 5 °C (9 °F) above ambient temperature to 300 °C (527 °F)
- Digital temperature setting with an accuracy of one degree
- DS control with integrated timer 0 to 99 hrs
- Independent adjustable temperature safety device class 2 (DIN 12880), with visual temperature alarm
- Adjustable ventilation by means of front ventilation flap slide and rear exhaust Ø 50 mm
- Optional RS 422 Interface for APT-COM™ Data Control System communication software
- Units up to 115 liters are stackable
- 2 chrome-plated racks included
- BINDER test confirmation

**ED 720**

▶ Exterior dimensions	
Width (mm)	1235
Height (incl. casters) (mm)	1530
Depth (mm)	865
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)	808
Number of doors (ea.)	2

▶ Interior dimensions	
Width (mm)	1000
Height (mm)	1200
Depth (mm)	600
Interior volume (l)	720
Racks (number standard/max.)	2 / 15
Load per rack (kg)	45
Permitted total load (kg)	120
Weight (empty) (kg)	174

▶ Temperature data	
Temperature range approx. 5 °C above ambient temperature to (°C)	300
Temperature variation	
at 70 °C (± K)	1,5
at 150 °C (± K)	2,8
at 300 °C (± K)	5,0
Temperature fluctuation at 70 °C (± K)	0,3
Warm-up time 1)	
to 70 °C (min.)	56
to 150 °C (min.)	69
to 250 °C (min.)	80
Recovery time after doors were open for 30 sec. 1)	
at 70 °C (min.)	4
at 150 °C (min.)	14
at 300 °C (min.)	18

**ED 720**

▶ Ventilation data	
Ventilation	
at 70 °C (x/h)	10
at 150 °C (x/h)	9
at 300 °C (x/h)	8

▶ Electrical data	
IP protection class acc. to EN 60529	IP 20
Voltage ( $\pm 10\%$ ) 50 / 60 Hz (V)	400 3 / N
Nominal power (kW)	5
Energy consumption	
at 70 °C (W)	220
at 150 °C (W)	750
at 300 °C (W)	1200

1) At 98% of the set value

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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

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**ED 720**

Access ports with silicone plug, 10, 30, 50, 100 mm	<input type="radio"/>
Anti-slip rubber pads for safe stacking (1 set of 4 pieces)	<input type="radio"/>
Switchable audible alarm for over temperature. Adjustable limit on the independent temperature safety device	<input type="radio"/>
Independent temperature safety device class 3.1 (DIN 12880) with optical alarm	<input type="radio"/>
Analog output for temperature 4 - 20 mA with 6-pin DIN socket (output not adjustable)	<input type="radio"/>
Temperature measurement acc. to DIN 12880 (27 measuring points, for 23 liter devices 15 measuring points) at 150 °C or at specified temperature with measuring protocol and certificate	<input type="radio"/>
Calibration certificate, measurement in center of chamber at 150 °C or at specified testing temperature	<input type="radio"/>
Extension to calibration certificate. Each additional measurement at additional measuring point or testing temperature	<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"/>
Door lock	<input type="radio"/>
Door gasket, FKM (Viton)	<input type="radio"/>
2 doors each with window 470 x 290 mm and interior lighting (30 W)	<input type="radio"/>