



**High-Speed Microliter Centrifuges** 



## Smooth and Dependable High-Speed Microliter Centrifuge for Liquid **Separation Applications**

Frontier 5515 and 5515R microliter benchtop centrifuges provide high-speed operation for spin-down applications requiring a wide variety of tube volumes and capacities. With refrigeration capabilities (FC5515R), 10 acceleration/deceleration settings, multiple safety features, and an unmatched capacity, Frontier provides stable liquid separation for applications requiring high-speed operation.

#### Standard Features Include:

- Easy-to-Use Control Panel that Supports Simple Operation—The intuitive control panel with rotary knob puts the centrifuge's simple operations at your fingertips, including the ability to set and recall speed and g-force, as well as control the temperature (FC5515R only).
- Sophisticated Technology that Drives High-Performance—A powerful brushless induction motor, 10 acceleration and deceleration settings, and memory for up to 99 commonly-used parameters are a few of Frontier's features that propel high-performance.
- Safety Features that Protect Against Injury—Among Frontier's safety attributes are a motorized lid locking system and a rotor imbalance sensor that stops the centrifuge if the rotors become imbalanced or sudden shock occurs, protecting the operator from the high-speed spinning rotors.
- Seven Rotor Sizes that Provide Flexibility for Varied Centrifugation Needs—Compatible with seven different rotors, more than any centrifuge in its class, the highly-versatile Frontier can be used for various applications of different volumes.

## Frontier<sup>™</sup>5515 & 5515R High-speed Microliter Centrifuges

### **Easy-to-Use Control Panel**

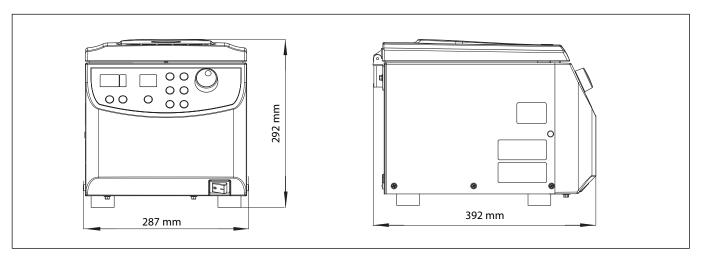
- Easy-to-turn rotary knob for parameter adjustments
- Waterproof keypad provides protection that helps significantly increase the lifespan of the product
- One-touch toggling between speed, g-force, and temperature controls (R model only)
- LCD display which projects information in real-time
- View and adjust user parameters from the main screen; no need to navigate through sub-screens



### **High-Performance Driven by Sophisticated Technology**

- Powerful induction motor reaches speeds up to 15,200 RPM in less than 16 seconds
- Maximum g-force of 21,953 RCF
- 10 acceleration/deceleration settings
- 99 memory sets for commonly-used speed, time, and temperature settings (R Model Only)
- R model has refrigeration capabilities from 40°C to -20°C
  - Cools down from 23°C to 4°C in less than 10 minutes
  - Pre-cool feature quickly lowers the temperature of rotor and chamber before a run

### **Dimensions**



Frontier 5515

### **Safety Features that Prevent Injury**

- Motorized lid-locking system prevents centrifuge from opening during operation
- Rotor imbalance sensing system stops the motor should the rotors become imbalanced, protecting the user from spinning rotors

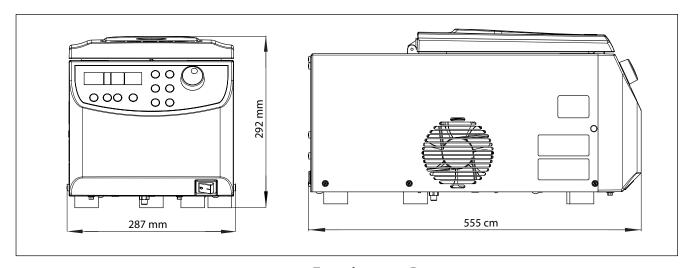


### **Flexibility for Varied Centrifugation Needs**

- Maximum capacity of  $44 \times 1.5/2$  mL and  $12 \times 5$  mL tubes
- Only centrifuge in its class compatible with 6 rotors (7 rotors on 5515 model), including a PCR strip tube rotor
- The most economical centrifuge on the market to include a unique 5 mL tube rotor
- The signature snap-on rotor and lid locking system allows for quick installation of rotors with just one press of a button



### **Dimensions**



Frontier 5515R

## Frontier <sup>™</sup> 5515 & 5515R High-Speed Microliter Centrifuges

| Model   | FC5515R   |                        | FC5515  |   |  |
|---|---|------------------------|---|---|--|
| Speed Range                                   | 200 rpm - 15200 rpm; 10 rpm/increments                                    |                        | 200 rpm - 15200 rpm; 10 rpm/increments                                    |   |  |
| Maximum RCF                                   | 21953 × g; 10 ×   | × g/increments         | $21953 \times g$ ; $10 \times g$ /increments                              |   |  |
| Maximum Capacity (Rotor)                      | 44 × 1.5/2.0r   | nL; 12 × 5mL           | 44 × 1.5/2.0mL; 12 × 5mL  |   |  |
| Temperature Range                             | -20° to 40°C,1  | °C/increments          | Air cooled  |   |  |
| Running Time                                  | 10 sec to 99 hr 99 mir  | n 59 sec or continuous | 10 sec to 99 hr 99 min 5  | 10 sec to 99 hr 99 min 59 sec or continuous |  |
| Noise Level (varies by rotor)                 | ≤ 57 + 2 dB(A)  |                        | ≤ 60 + 2 dB(A)  |   |  |
| AC Power                                      | 230 V/50-60 Hz  | 120 V/50-60 Hz         | 230 V/50-60 Hz  | 120 V/50-60 Hz                              |  |
| Fluctuation                                   | ± 10%   | ± 10%                  | ± 10%   | ± 10%                                       |  |
| Current Consumption                           | 2.4 A   | 5.1 A                  | 1.3 A   | 2.3 A                                       |  |
| Power Consumption                             | 500 W   | 560 W                  | 270 W   | 280 W                                       |  |
| ECM   | EN/IEC 61326-1 Class B emissions, Basic immunity<br>FCC Class B emissions |                        | EN/IEC 61326-1 Class B emissions, Basic immunity<br>FCC Class B emissions |   |  |
| Dimensions (W $\times$ D $\times$ H)          | 287 × 561 × 292 mm  |                        | 287 × 393 × 292 mm  |   |  |
| Net Weight (without rotor)                    | 77 lb/35 kg   |                        | 38 lb/17 kg   |   |  |
| Shipping Dimensions (W $\times$ D $\times$ H) | 400 × 660 × 520 mm  |                        | 400 × 545 × 410 mm  |   |  |
| Shipping Weight (without rotor)               | 44 kg   |                        | 20 kg   |   |  |

### **Approvals**

• Product Safety: EN 61010-1:2010, EN 61010-2-020:2006

• Electromagnetic Compatibility: EN 61326-1:2006, FCC Part 15 Class B

## Frontier<sup>™</sup>5515 & 5515R Rotors and Adapters



## Rotors and Adapters that Expand the Versatility of the Frontier FC5515 Series

A variety of rotors and tube adapters can be used in conjunction with the Frontier FC5515 Series, providing centrifugation for samples of various sizes.

|   |                              | H                   | 1          | f.           |
|---|------------------------------|---------------------|------------|--------------|
| Item  | Angle Rotor, 24 × 1.5/2.0 mL | 0.5 mL Tube Adapter | 0.4/0.2 mL | Tube Adapter |
| Item Number   | 30130870                     | 30130885            | 301        | 30884        |
| Compatible Tubes  | 1.5 mL and 2.0 mL            | 0.5 mL              | 0.4 mL     | 0.2 mL       |
| Maximum Number of Tubes                                 | 24                           | 24                  | 24         | 24           |
| Max. RPM  | 15200 rpm                    | 15200 rpm           | 1520       | 00 rpm       |
| Max. RCF  | 21953 × g                    | 19112×g             | 21178 × g  | 17562 × g    |
| Radius  | 85 mm                        | 74 mm               | 82 mm      | 68 mm        |
| Туре  | Angle Rotor 45°              | Angle Rotor 45° —   |            |              |
| Lid/Lid Material/Rotor Material                         | Snap-on/PEI²/Aluminium —     |                     |            |              |
| Lowest refrigerated temperature in FC5515R <sup>1</sup> | +6 ℃                         |                     |            |              |

# Frontier<sup>™</sup>5515 & 5515R Rotors and Adapters

|   |   | H                   | Į.           | 6           |
|---|---|---------------------|--------------|-------------|
| Item  | Angle Rotor, 24 × 1.5/2.0 mL,<br>Biocontainment | 0.5 mL Tube Adapter | 0.4/0.2 mL T | ube Adapter |
| Item Number   | 30130871  | 30130885 30130884   |              | 80884       |
| Compatible Tubes  | 1.5 mL and 2.0 mL                               | 0.5 mL              | 0.4 mL       | 0.2 mL      |
| Maximum Number of Tubes                                 | 24  | 24                  | 24           | 24          |
| Max. RPM  | 15200 rpm                                       | 15200 rpm           | 1520         | 0 rpm       |
| Max. RCF  | 21953 × g                                       | 19112 × g           | 21178 × g    | 17562 × g   |
| Radius  | 85 mm   | 74 mm               | 82 mm        | 68 mm       |
| Туре  | Angle Rotor 45°                                 |                     | _            |             |
| Lid/Lid Material/Rotor Material                         | Aerosol Tight/Aluminium/Aluminium               |                     | _            |             |
| Lowest refrigerated temperature in FC5515R <sup>1</sup> |   | +4°C                |              |             |

|   |  | H                   | 1            |             |
|---|--|---------------------|--------------|-------------|
| Item  | Angle Rotor, $30 \times 1.5/2.0$ mL,<br>Biocontainment | 0.5 mL Tube Adapter | 0.4/0.2 mL T | ube Adapter |
| Item Number   | 30130872   | 30130885 30130884   |              | 0884        |
| Compatible Tubes  | 1.5 mL and 2.0 mL                                      | 0.5 mL              | 0.4 mL       | 0.2 mL      |
| Maximum Number of Tubes                                 | 30   | 30                  | 30           | 30          |
| Max. RPM  | 13500 rpm  | 13500 rpm 13500 rpm |              | 0 rpm       |
| Max. RCF  | 19150 × g  | 17113 × g           | 18539 × g    | 15687 × g   |
| Radius  | 94 mm  | 84 mm               | 91 mm        | 77 mm       |
| Туре  | Angle Rotor 45°  |                     | _            |             |
| Lid/Lid Material/Rotor Material                         | Aerosol Tight/PC³/Aluminium                            |                     | _            |             |
| Lowest refrigerated temperature in FC5515R <sup>1</sup> |  | +7 °C               |              |             |

|   |                              | H                        | 1                        |                          |
|---|------------------------------|--------------------------|--------------------------|--------------------------|
| Item  | Angle Rotor, 44 × 1.5/2.0 mL | 0.5 mL Tube Adapter      | 0.4/0.2 mL T             | ube Adapter              |
| Item Number                                 | 30130879                     | 30130885                 | 3013                     | 0884                     |
| Compatible Tubes                            | 1.5 mL and 2.0 mL            | 0.5 mL                   | 0.4 mL                   | 0.2 mL                   |
| Maximum Number of Tubes                     | 44                           | 44                       | 44                       | 44                       |
| Max. RPM                                    | 13500 rpm                    | 13500 rpm                | 13500 rpm 13500 rpm      |                          |
| Max. RCF                                    | 17113 × g<br>/ 17317 × g     | 14872 × g<br>/ 15687 × g | 16705 × g<br>/ 16909 × g | 13446 × g<br>/ 14872 × g |
| Radius                                      | 84mm/85mm                    | 73mm/77mm                | 82mm/83mm                | 66mm/73mm                |
| Туре  | Angle Rotor 32°/55°          | _                        |                          |                          |
| Lid/Lid Material/Rotor Material             | Snap-on/PP⁴/Aluminium        |                          | _                        |                          |
| Lowest refrigerated temperature in FC5515R1 |                              | +7 °C                    |                          |                          |

|   |  |                               | 100                         | jiii_                       |
|---|--|-------------------------------|-----------------------------|-----------------------------|
| Item  | Angle rotor, 12 × 5 mL, biocontainment | 1.5 mL/2.0 mL Tube<br>Adapter | 1.8 mL Cryo Tube<br>Adapter | 1.0 mL Cryo Tube<br>Adapter |
| Item Number   | 30130873                               | 30130886                      | 30130888                    | 30130887                    |
| Compatible Tubes  | 5.0 mL                                 | 1.5 mL/2.0 mL                 | 1.8 mL                      | 1.0 mL                      |
| Maximum Number of Tubes                                 | 12                                     | 12                            | 12                          | 12                          |
| Max. RPM  | 14500 rpm                              | 14500 rpm                     | 14500 rpm                   | 14500 rpm                   |
| Max. RCF  | 19978 × g                              | 16687 × g                     | 17627 × g                   | 16217 × g                   |
| Radius  | 85 mm                                  | 71 mm                         | 61 mm                       | 69 mm                       |
| Туре  | Angle Rotor 45° —                      |                               |                             |                             |
| Lid/Lid Material/Rotor Material                         | Aerosol Tight/Aluminium/Aluminium —    |                               |                             |                             |
| Lowest refrigerated temperature in FC5515R <sup>1</sup> | +4 °C                                  |                               |                             |                             |

## Frontier<sup>™</sup>5515 & 5515R Rotors and Adapters

| Item  | Angle rotor, $4 \times 8$ -Place PCR Stripes |
|---|--|
| Item Number   | 30130874                                     |
| Compatible Tubes  | 0.2 mL PCR 8-strips                          |
| Maximum Number of Tubes                                 | 4 x 8-place strips                           |
| Max. RPM  | 15000 rpm                                    |
| Max. RCF  | 15342 × g                                    |
| Radius  | 61 mm  |
| Туре  | Angle Rotor 45°                              |
| Lid/Lid Material/Rotor Material                         | Screw/PC³/PP⁴                                |
| Lowest refrigerated temperature in FC5515R <sup>1</sup> | +2.5℃  |

|                                 | 0                                  |
|---------------------------------|------------------------------------|
| Item                            | Hematocrit rotor, 24 × Capillaries |
| Item Number                     | 30130881                           |
| Compatible Model                | only FC5515                        |
| Compatible Tubes                | Capillaries                        |
| Maximum Number of Tubes         | 24                                 |
| Max. RPM                        | 12000 rpm                          |
| Max. RCF                        | 14970 × g                          |
| Radius                          | 93 mm                              |
| Туре                            | Angle Rotor 90°                    |
| Lid/Lid Material/Rotor Material | Snap-on/Aluminium/Aluminium        |

#### Notes:

- At room temperature of 23 °C. This is the lowest attainable temperature at which the pre-cooled, refrigerated centrifuge spins at maximum speed with a full load. Lower temperatures can be attained by reducing the speed, number of samples or room temperature.
- 2. PEI: Polyetherimide
- 3. PC: Polycarbonate
- 4. PP: Polypropylene

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