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## VWR Centrifuges Specifications



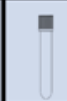










### **VWR® Clinical 100 Laboratory Centrifuge**

- For Serum and Plasma Studies
- High speed: up to 6,500 rpm/4,000 g
- Digital speed and time control
- Safety lock - prevents lid from opening when rotor is in motion
- Supplied complete with rotor

The VWR Clinical 100 centrifuge has been designed for performing blood and other basic separations. Supplied complete with rotor, it accepts 15 mL conical and 10 mL (16 x 100mm) tubes directly and smaller tubes with optional adapters. With variable speed control in increments of 100 rpm, the centrifuge is ideal for a wide variety of applications including producing platelet rich plasma (PRP) for agglutination studies, urine sedimentation, preparation of chemistry analyte samples, and pelleting of cultures. The high speed capabilities (up to 6,500 rpm) allow for quick production of platelet poor plasma (PPP) for coagulation studies. The optional combination tube adapters are suitable for centrifuging 5 mL (12 x 75 mm) and 7 mL (13 x 100 mm) tubes. At the beginning of a run, the safety lid lock engages and prevents the centrifuge from being opened until the rotor has come to a complete stop. The Clinical 100 Centrifuge is just 8¼" wide, fitting easily on a crowded bench. The molded housing is easy to wipe clean.

### **VWR® Clinical 100 Laboratory Centrifuge:**

<b>Specifications</b>	
Speed	300 rpm - 6,500 rpm
Maximum RCF	4,000 x g
Maximum capacity	6 x 15 mL conical
Timer	0.5 to 30 minutes or continuous
Dimensions (W x D x H)	21 x 24 x 18 cm (8¼ x 9½ x 71/8")
Weight	4.75 kg (11 lbs.)
Electrical	120V, 60Hz or 230V, 50Hz

	Standard Blood Collection Tubes					Sarstedt Blood Collection Tubes							
Dimensions (mm)	17 x 120	16 x 125	16 x 100	13 x 100	13 x 75	15 x 102	16 x 92	15 x 92	13 x 90	11 x 92	11 x 66	13 x 65	8 x 66
Capacity *	15mL	15mL	10mL	7mL	5mL	10mL	9-10mL	7.5-8.2mL	4.9mL	4.5-5mL	2.7-3mL	2.6-2.9mL	1.1-1.4mL
Tube Image													
Radius (cm)	8.2	8.5	8.5	7.7	7.7	8.5	8.5	8.5	7.7	7.7	7.7	7.7	7.7
Max. RCF	3,873	4,015	4,015	3,637	3,637	4,015	4,015	4,015	3,637	3,637	3,637	3,637	3,637
Tubes Per Rotor	6	6	6	6	6	6	6	6	6	6	6	6	6
Adapter	None	None	None	82013-820	82013-820	82013-820	82013-820	None	None	None	82013-820	82013-820	82013-820

\*Capacity may vary based on serum volume

Description	Cat. No.
<b>VWR Clinical 100 Centrifuge</b>	
120V, 60Hz, With Rotor*	97011-432
230V, 50Hz, With Rotor*	97011-434
Adapter for 5 mL (12 x 75 mL), 7 mL (13 x 100 mm) and 10-12 mL (16 x 100 mm) Tubes (Pack of 6)	82013-820
*Includes 6 x 15 mL rotor	

### **VWR® symphony™ 4417/R Centrifuges**

- Compact, space saving design
- Corrosion resistant, stainless steel rotor chamber
- Automatic g-force calculation and display
- Accommodates tubes from 0.2 mL to 100 mL
- Quiet, maintenance-free induction drive
- Set and view speed in both RPM and RCF
- Automatic rotor recognition system
- Imbalance detection with safety shut down
- Microprocessor control with splash resistant digital display
- Permanent indication of preset and actual values
- Selection of speed and g-force in increments of 10
- Ten acceleration and deceleration levels
- Maintenance free induction system
- Audible signal at the end of run

The VWR symphony 4417 series includes both the ambient 4417 and refrigerated 4417R centrifuges. Various fixed angle and swing-out rotors are available to process a variety of different tube types from 0.2 to 100 mL. These units are well-suited for all standard blood collection, conical and microcentrifuge tubes, as well as standard and deep-well microplates. High speed and g-force make the 4417 series ideal for applications ranging from clinical to cell culture and molecular biology. Powerful, brushless motors quickly accelerate rotors to the reset speed. Braking is dynamically controlled to bring the rotors to a soft stop without disrupting fragile samples. Operation of the centrifuge may be timed, continuous or momentary. The rotor recognition system in the 4417 series provides safety and convenience when different rotors are used. Each rotor is recognized at the beginning of a run and automatically limited to its rated maximum speed. In addition, by recognizing the rotor, the microprocessor can accurately calculate and display g-force during a run.

**VWR® symphony™ 4417/R Centrifuges:**

<b>Specifications</b>	
Maximum Volume	400 mL (4 x 100 mL)
Maximum Speed/rcf	13,500 rpm
Minimum Speed/rcf	17,320 g
Brake	Dynamically controlled
Temp. Range	-10 to 40°C (4417R only)
Timer	10 sec. up to 9 hrs. 59 min. or continuous

<b>Description</b>	<b>Cat. No.</b>
VWR symphony 4417 Non-Refrigerated Centrifuge	89171-142
VWR symphony 4417R Refrigerated Centrifuge	89171-144
<b>Swing-out Rotors</b>	
2 x 3 Microplate	89171-146
4 x 100 with Lid	89171-158
<b>Carriers for 89171-158 (Four Required)</b>	
1 x 85/100 mL (Pack of 2)	89171-160
1 x 50 mL (Pack of 2)	89171-162
1 x 15 mL (Pack of 2)	89171-164
4 x 10 mL (Pack of 2)	89171-166
4 x 5/7 mL (Pack of 2)	89171-168
5 x 1.5 mL (Pack of 2)	89171-170
<b>Fixed-Angle Rotors</b>	
6 x 50 mL Conical Angle Rotor	89171-154
12 x 15 mL Conical Angle Rotor	89171-156
<b>Adapters for Fixed-Angle Rotors</b>	
5/7 mL for 50 mL Rotor (Pack of 6)	82013-826
5/7 mL for 15 mL Rotor (Pack of 6)	82013-820

15 mL for 50 mL Rotor (Pack of 6)	82013-824
<b>Microtube Rotors</b>	
44 x 1.5/2.0 mL Fixed Angle	89171-148
24 x 1.5/2.0 mL High Speed Fixed Angle	89171-150
24 x 1.5/2.0 mL High Speed Fixed Angle with Lid	89171-152
<b>Adapters for Microtube Rotors</b>	
0.5 mL (Pack of 6)	20668-224
0.4 mL (Pack of 6)	20668-226
0.2 mL (Pack of 6)	20668-228

### VWR® symphony™ 4417/R Centrifuge Package Bundles

Description	Cat. No.
<b>Non-refrigerated Clinical Bundle</b>	
VWR symphony 4417 Non-Refrigerated Centrifuge, with 4 x 100 mL swing-out rotor, carriers for 5/7 mL and 10 mL round tubes	89176-488
<b>Non-refrigerated Cell Culture Bundle</b>	
VWR symphony 4417 Non-Refrigerated Centrifuge, with 4 x 100 mL swing-out rotor, carriers for 15 mL and 50 mL conical tubes	89176-490
<b>Non-refrigerated Plate Bundle</b>	
VWR symphony 4417 Non-Refrigerated Centrifuge, with 2 x 3 microplate rotor	89176-492
<b>Refrigerated Clinical Bundle</b>	
VWR symphony 4417R Refrigerated Centrifuge, with 4 x 100 mL swing-out rotor, carriers for 5/7 mL and 10 mL round tubes	89176-494
<b>Refrigerated Cell Culture Bundle</b>	
VWR symphony 4417R Refrigerated Centrifuge, with 4 x 100 mL swing-out rotor, carriers for 15 mL and 50 mL conical tubes	89176-496
<b>Refrigerated Plate Bundle</b>	
VWR symphony 4417R Refrigerated Centrifuge, with 2 x 3 microplate rotor	89176-498

### VWR® symphony™ 2417R Refrigerated Microcentrifuge

- Powerful cooling system rapidly reaches 4°C
- High speed; up to 13,500 rpm/17,200 g
- Extremely compact, under 12" wide
- Supplied complete with 24 x 1.5/2.0 mL rotor

The VWR symphony 2417R microcentrifuge is designed for basic separation of micro samples with the need for temperature control. It is supplied complete with a 24 x 1.5/2.0 mL solid aluminum rotor and will accept smaller tubes with the use of optional adapters. Speed can be programmed in either rpm or RCF up to 13,500 rpm or 17,200 g, respectively. Operation of the microcentrifuge can be timed up to 99

minutes, with the option for either continuous or momentary runs. A powerful refrigeration system controls temperature within the chamber from -10° to 40°C and a pre-cool function can be activated for rapidly cooling the chamber to the desired temperature. The molded housing is easy to wipe and clean, and the rotor can easily be removed for autoclaving.

**VWR® symphony™ 2417R Refrigerated Microcentrifuge:**

<b>Specifications</b>	
Speed Range	500 to 13,500 rpm
Maximum RCF	17,200 g
Maximum Capacity	24 x 1.5/2.0 mL
Timer	0.5 to 99 minutes hold or continuous
Dimensions	(W x D x H) 30 x 40 x 25 cm (11¾ x 16 x 9 13/16")
Weight	23 kg (50 lbs.)

<b>Description</b>	<b>Cat. No.</b>
<b>VWR symphony Refrigerated Microcentrifuge</b>	
120V, 50/60Hz	97039-902
230V, 50/60Hz	97039-904
<b>Adapters</b>	
For 0.2 mL Tubes, (Pack of 6)	20668-228
For 0.4 mL Tubes, (Pack of 6)	20668-226
For 0.5 mL Tubes, (Pack of 6)	20668-224

**VWR® symphony™ 2420R Refrigerated Microcentrifuge**

- High speed; up to 20,000 g
- Powerful refrigeration
- Maximum capacity, 36 x 1.5/2.0 mL
- Quiet operation

This powerful refrigerated microcentrifuge is capable of high speeds in large capacity rotors. Quiet operation, digital control, and a space-saving design round out its many desirable features. Even during extended runs, the refrigeration system in the VWR symphony 2420R keeps samples at the set temperature. Speed can be set in rpm or RCF (increments of 100), while the corresponding values are shown in real time during a run. Modes of operation include timed, continuous, or momentary. Acceleration and deceleration can be adjusted to five different levels. Three rotor options are available for the 2420R. The largest capacity rotor holds thirty-six 1.5/2.0 mL tubes. A standard 24-place microrotor is available, as well as one that is hermetically sealable. Adapters for 0.2, 0.4, and 0.5 mL tubes allow the rotors to accommodate smaller tubes.

**VWR® symphony™ 2420R Refrigerated Microcentrifuge:**

Specifications	
Speed Range	200 to 14,500 rpm
Maximum	RCF 20,000 g
Maximum Capacity	36 x 1.5/2.0 mL
Timer	10 sec. up to 99 minutes hold or continuous
Dimensions	(W x D x H) 28 x 29 x 54.5 cm (11 x 11½ x 21½")
Weight	36 kg (80 lbs.)

Description	Cat. No.
<b>VWR symphony Refrigerated Microcentrifuges</b>	
120V, 60Hz (with 24 x 1.5 mL Rotor)	97009-874
120V, 60Hz (without Rotor)	97009-878
<b>Angle Rotors</b>	
24 x 1.5/2.0 mL	97009-882
24 x 1.5/2.0 mL (Hermetically Sealed)	97009-886
36 x 1.5/2.0 mL	97009-884
<b>Adapters</b>	
For 0.2 mL Tubes, (Pack of 6)	20668-228
For 0.4 mL Tubes, (Pack of 6)	20668-226
For 0.5 mL Tubes, (Pack of 6)	20668-224

**VWR® Micro 1207, Micro 1814, Micro 1816, and Micro 2416 Microcentrifuges**

- Four variable speed models
- All operating parameters set and displayed digitally
- Exceptionally small footprint
- Quiet and cool running
- Cold room compatible

These VWR microcentrifuges deliver optimum performance in compact units. Four variable speed models accommodate a host of applications. Maximum speeds range from 10,000 rpm/7,200 g (ideal for microfiltration and pelleting of small cell cultures) to 14,000 rpm/16,000 g (suitable for working with proteins and DNA). All operating parameters, including rpm, RCF, and time are set and displayed digitally. Rotors accelerate quickly to set speed and employ dynamically controlled braking to come to a soft stop without disrupting samples. The

larger units (Micro 1814, 1816, and 2416) feature maintenance-free, brushless motors for faster acceleration and quieter, smoother operation. Each microcentrifuge is supplied with a fixed-angle microtube rotor that is easily removed for cleaning and autoclaving. The rotors accept 1.5/2.0 mL tubes directly and smaller tubes with adapters (sold separately). VWR microcentrifuges are quiet and cool running. For applications requiring temperatures below ambient, the microcentrifuge may be used in a cold room.

**VWR® Micro 1207, Micro 1814, Micro 1816, and Micro 2416 Microcentrifuges:**

Description	Cat. No.
Micro 1207 with 12-Place Rotor	37001-294
Micro 1814 with 18-Place Rotor	37001-296
Micro 1816 with 18-Place Rotor	37001-298
Micro 2416 with 24-Place Rotor	37001-300
<b>Adapters</b>	
0.2 mL Tubes, (Pack of 6)	20668-228
0.4 mL Tubes, (Pack of 6)	20668-226
0.5 mL Tubes, (Pack of 6)	20668-224

<b>Specifications</b>				
	<b>Micro 1207</b>	<b>Micro 1814</b>	<b>Micro 1816</b>	<b>Micro 2416</b>
Maximum Speed	10,000 rpm	13,000 rpm	14,000 rpm	13,000 rpm
Maximum RCF	7,200 g	14,000 g	16,000 g	16,000 g
Capacity	12 x 1.5 mL	18 x 1.5 mL	18 x 1.5 mL	24 x 1.5 mL
Timer	99 minutes	99 minutes	99 minutes	99 minutes
	19.7 x 17.8 x 12.7 cm	26.7 x 23.8 x 17.8 cm	26.7 x 23.8 x 17.8 cm	26.7 x 23.8 x 17.8 cm
Dimensions (W x D x H)	(7¾ x 7 x 5")	(10½ x 9 13/32 x 7")	(10½ x 9 13/32 x 7")	(10½ x 9 13/32 x 7")
Weight	1.5 kg (3.25 lbs.)	5 kg (11 lbs.)	5 kg (11 lbs.)	5.3 kg (11.75 lbs.)
Electrical	120V, 50/60Hz	120V, 50/60Hz	120V, 50/60Hz	120V, 50/60Hz

**VWR® Minifuge and MiniArray Microcentrifuges**

- Small footprint, compact design
- VWR Minifuge spins microtubes and PCR† strips
- VWR MiniArray quickly dries two microscope slides

The VWR Minifuge and MiniArray personal-sized microcentrifuges are perfect for low-speed centrifugation of tubes and strips, and for drying microscope slides. The VWR Minifuge facilitates microfiltration and quick spin-downs from the walls and caps of tubes. The microcentrifuge is supplied complete with two rotors: one for eight 1.5 mL tubes and another for four 0.2 mL tube strips, such as those used for PCR; and eight adapters for 0.5 mL and 0.4 mL tubes. Rotors are quickly and easily exchanged.

For fast drying of microarray slides, the VWR MiniArray is an ideal choice. Reusable cassettes catch liquid from the slides while the rotor accelerates quickly to its maximum speed. Two slides can be dried in as little as 10 seconds without splashing. Both models feature an “ON/OFF” power switch for easy control of operation. Alternatively, with the switch in the “ON” position, the rotor will start spinning when the transparent lid is closed and will stop when the lid release button is pressed. The rotors start and stop quickly. Each of the microcentrifuges requires less than six square inches of bench space and all are suitable for use in a cold room.

†PCR is a patented process of Hoffmann-La Roche. Use of the PCR process requires a license.

<b>Specifications: VWR Minifuge Microcentrifuge</b>		
Capacity	8 x 1.5/2.0 mL Tubes	Four 8 x 0.2 mL Tube Strips
Maximum Speed	5,000 rpm	
Maximum RCF	1,900 g	
Dimensions (W x D x H)	13.2 x 15.5 x 11 cm	(57/32 x 61/8 x 413/32")
Weight	.75 kg (1.7 lbs.)	
<b>VWR MiniArray Microcentrifuge</b>		
Capacity	2 standard microscope slides	
Maximum Speed	4,000 rpm	
Maximum RCF	1,216 g	
Dimensions (W x D x H)	13.2 x 15.5 x 11 cm	(57/32 x 61/8 x 413/32")
Weight	.75 kg (1.75 lbs.)	

<b>Description</b>	<b>Cat. No.</b>
<b>VWR Minifuge Microcentrifuge with Microtube and Strip Tube Rotors</b>	
120V, 50/60Hz	93000-196
230V, 50Hz/60Hz	93000-198
<b>Replacement Parts</b>	
Tube Rotor for Minifuge	93000-200



Strip Rotor for Minifuge	93000-202
<b>Adapters</b>	
For 0.2 mL Tubes, (Pack of 6)	20668-228
For 0.4 mL Tubes, (Pack of 6)	20668-226
For 0.5 mL Tubes, (Pack of 6)	20668-226
<b>VWR MiniArray Microcentrifuge with Rotor and 2 Slide Cassettes</b>	
120V, 50/60Hz	93000-204
230V, 50Hz/60Hz	93000-206
<b>Replacement Parts</b>	
Slide Cassettes for MiniArray, (Pack of 2)	93000-208

### **VWR® Clinical 200 Large Capacity Centrifuge**

- Maximum speed 6,000 rpm/4,185 g
- Accepts up to 6 x 50 mL or 12 x 15 mL tubes
- Safety lock - prevents lid from opening when rotor is in motion
- Dynamic braking with non-disruptive soft stop

Designed for ease of use, the VWR Clinical 200 centrifuge is a large capacity centrifuge ideal for use in the clinical lab as well as research settings. This versatile centrifuge will accept tubes from 5 mL to 50 mL, including all common blood draw tubes. A combination of digital displays and easy set knobs allow for quick and precise setting of operating parameters. Tight operational control is maintained by the microprocessor. An imbalance sensor is incorporated into the control loop to stop operation of the centrifuge in the case of an improperly loaded rotor. At the end of a run, dynamic braking brings the rotor to a quick and turbulence-free stop.

Three rotor options are available for the VWR Clinical 200 centrifuge. The 50 mL angle rotor has a maximum capacity for six tubes while the 15 mL angle rotor will hold twelve. Both round and conical bottom tubes can be used in the rotors. A 6 x 5 mL swing out rotor is also available. Optional adapters accommodate various tube sizes including standard round bottom blood tubes. The VWR Clinical 200 offers a safety lock lid, preventing the lid from being opened during use. The centrifuge can be used in a cold room.

### **VWR® Clinical 200 Large Capacity Centrifuge:**

Specifications	
Speed Range	250 rpm to 6,000 rpm, increments of 250 rpm
RCF Range	7 x g to 4,185 g
Maximum Capacity	12 x 15 mL or 6 x 50 mL
Timer	1 to 30 minutes or continuous
Dimensions (W x D x H)	28 x 37 x 26 cm (11 x 145/8 x 107/32")

Weight	15 kg (33 lbs.)
Electrical	120V, 60 Hz or 230V, 50 Hz

Description	Cat. No.
<b>VWR Clinical 200 Centrifuge</b>	
120V, 60Hz, With Rotor*	82017-654
230V, 50Hz, With Rotor*	82017-656
230V, 50Hz, Without Rotor	82013-814
120V, 60Hz, Without Rotor	82013-812
<b>Adapters</b>	
For 5 mL (12 x 75 mm) or 7 mL (13 x 100 mm) Tubes	82013-820
For 10 mL (16 x 100 mm) round bottom or 15 mL conical tubes in 50 mL rotor (Pack of 6)	82013-824
For 5 mL (12 x 75 mm) to 7 mL (13 x 100 mm) Tubes	82013-826
<b>Accessories</b>	
Swinging Bucket Rotor, Holds Six 5 mL Tubes	82013-828
28° Fixed-Angle Rotor, Holds Twelve 15 mL Tubes	82013-816
28° Fixed-Angle Rotor, Holds Six 50 mL Tubes	82013-822
Hematocrit Tube Rotor, Holds 24 Hematocrit Tubes	93001-772
Hematocrit Tube Reader	93001-774

\* Includes 12 x 15 mL rotor and adapters for 5, 7 and 10 mL Tubes

### **VWR® Clinical 50 Centrifuge**

- For Physician's Offices and Small Laboratories
- Maximum capacity 6 x 15 mL
- Maximum speed 4,000 rpm/1,900 g
- Clear lid with safety interlock

VWR's Clinical 50 Centrifuge is supplied complete with a 6 x 15 mL fixed angle rotor. This basic unit features variable speed to 4,000 rpm/1,900 g, and is suitable for a variety of applications including physician's offices, clinical settings, and small laboratories. The rotor accepts 15 mL (16 x 130 mm) and 10 mL (16 x 100 mm) tubes directly. Optional adapters accept smaller tubes, including most common blood draw tubes. Centrifuge features easy to turn knob for speed and time control operation. The lid of the VWR Clinical 50 features a window for visualizing the

rotor. A safety interlock cuts power to the centrifuge when the lid is opened. The rugged ABS housing adds durability to the centrifuge and is easy to clean.

**VWR® Clinical 50 Centrifuge:**

Specifications	
Maximum Speed	4,000 rpm
Maximum RCF	1,900 g
Maximum Capacity	6 x 15 mL
Dimensions (W x D x H)	29.5 x 34.8 x 25.7 cm (115/8 x 1311/16 x 101/8")
Weight	5.5 kg (12 lbs.)
Electrical	120V, 60Hz

Description	Cat. No.
VWR Clinical 50 Centrifuge with 6 x 15 mL Rotor	82013-800
Adapter for 5 mL (12 x 75 mm), 7 mL (13 x 100 mm), and 10-12 mL (16 x 100 mm) Tubes (Pack of 6)	82013-820

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