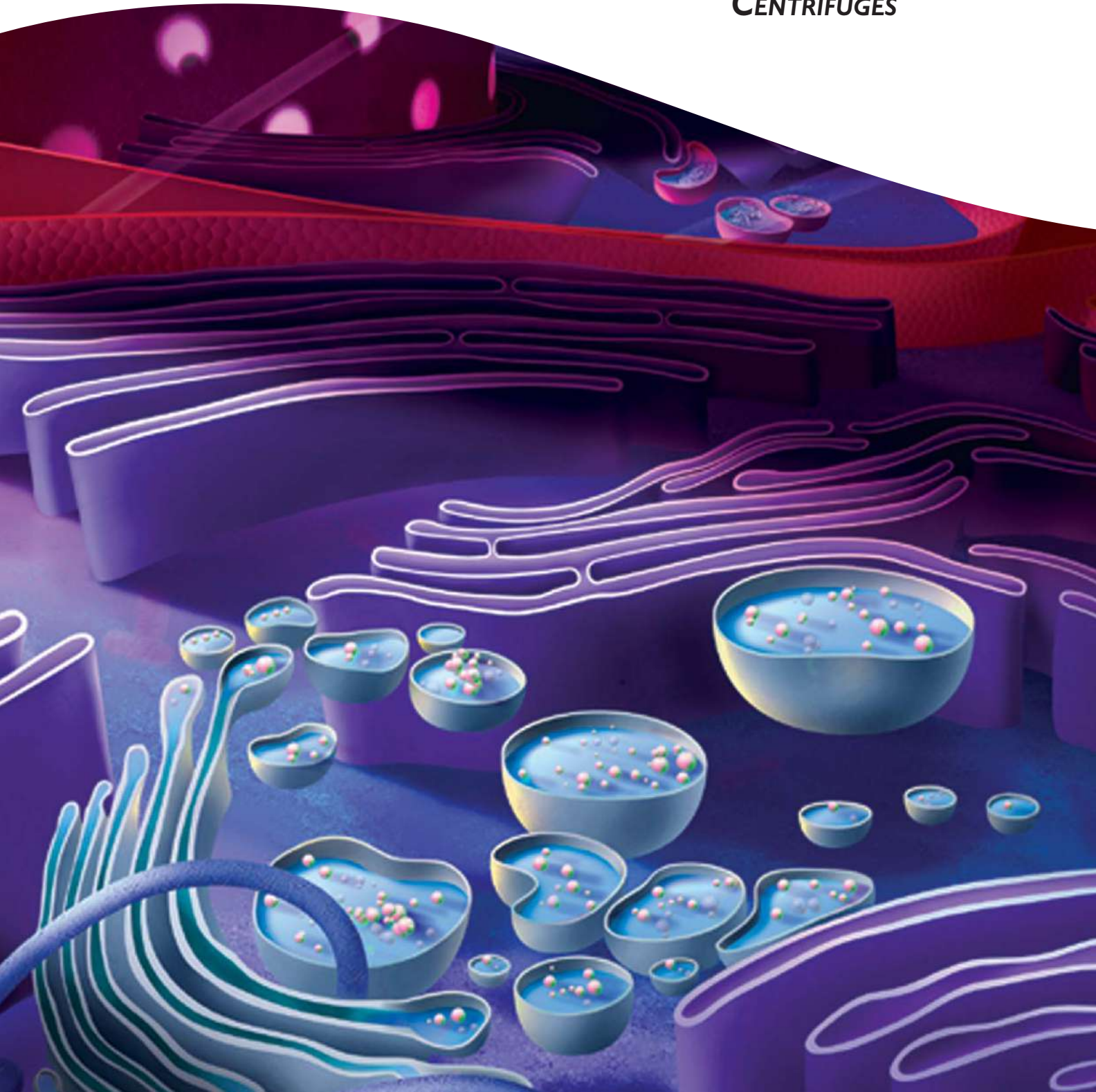


*Centrifuges, Rotors, Tubes & Accessories*

**HIGH-PERFORMANCE  
AND HIGH-CAPACITY  
CENTRIFUGES**



**S**ince the introduction of the first commercial ultracentrifuge in 1949 – the classic Beckman Model L – Beckman Coulter has been at the forefront of centrifuge innovation. Although the physics of this basic separation technique never change, Beckman Coulter continually designs new and innovative rotors and accessories, and develops advanced methods that allow the forces of centrifugation to be applied in new ways.

This centrifuge product selection guide is designed to help you determine the most efficient centrifuge tools for your work.

Each section begins with a brief description of instruments that Beckman Coulter offers within that centrifuge category.

Because biocontainment is a major concern in today's laboratories, Beckman Coulter provides a number of options that address this issue. Special biocontainment accessories are available across our centrifuge product line and are identified with this icon: 

Rotors with this symbol have been tested\* to demonstrate containment of aerosols under normal operating conditions of the associated Beckman Coulter centrifuge when used and maintained as instructed.

Following the centrifuge descriptions, listings of their rotors are included with information on speed and g-force capability. Also included is information on tubes and bottles that can be used and the adapters they require.

Tubes and bottles are cross-referenced in a separate section that provides details on tube materials, chemical compatibility, tube designs, and tube closure options.

A reference section at the back of the guide includes quick-reference charts on instrument and tube selection and frequently-used formulas, as well as a listing of centrifuge literature and training tools available from Beckman Coulter.

\*The rotors were tested for microbiological containment<sup>1</sup> at an independent, third-party testing facility<sup>2</sup> and found to be suitable for use with materials up to ACDP category.<sup>3</sup> Improper use or maintenance may affect seal integrity and thus containment. Testing by these facilities does not imply their endorsement of these products.

1. Harper, G. J. (1984) Evaluation of sealed containers for use in centrifuges by a dynamic microbiological method. *J. Clin Pathol.* 37, 1134-1139.

2. CAMR, Porton Down, U.K., or USAMRIID, Fort Detrick, Maryland, U.S.A.

3. Advisory Committee on Dangerous Pathogens (1984). *Categorization of pathogens according to hazard and categories of containment.* HMSO, ISBN0 11 883761 3.

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**Internet: <http://www.beckmancoulter.com/centrifugefirst>**

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# Table of Contents

## High-Performance and High-Capacity Centrifugation

Avanti® J-30I High-Performance Centrifuge .....	1-2
Avanti J-20XP Series High-Performance Centrifuges .....	1-3
Avanti J-25 Series High-Performance Centrifuges .....	1-4
Avanti J-E Series High-Performance Centrifuge .....	1-5
Avanti J-HC Centrifuge .....	1-6
J6 Series High-Capacity Centrifuges .....	1-7
HarvestLine™ System Liners .....	1-8
SpinTrace™ II Laboratory Information Network System .....	1-9
High-Performance Centrifuge/Rotor Compatibility Chart .....	1-10
High-Capacity Centrifuge/Rotor Compatibility Chart .....	1-12
High-Performance and High-Capacity Rotor Summary .....	1-13
Fixed-Angle Rotors .....	1-18
Swinging-Bucket Rotors .....	1-34
Continuous-Flow Rotors .....	1-64
Elutriator Rotors .....	1-66

## Tubes and Bottles

Tubes and Bottles for Every Application .....	2-1
Tube Selection Considerations	
Compatibility of Tube Material with Solvents and Samples .....	2-2
Gradient Formation and Fractionation .....	2-2
High-Temperature Centrifugation .....	2-2
Tube Sizes .....	2-2
Tube Cleaning, Sterilization, and Reuse .....	2-2
Tube Closures .....	2-3
A Quick-Reference Chart to Tube Materials and Their Properties .....	2-3
General Filling and Sealing Requirements .....	2-4
High-Performance and High-Capacity Bottles .....	2-5
Adapters for Non-Beckman Coulter Tubes/Bottles .....	2-6
Adapters and Sleeves for Glass Tubes in Beckman Coulter High-Performance Rotors .....	2-6
Tubes and Bottles (Listed by Volume) .....	2-7
Tools and Supplies .....	2-10

## Reference

Guide to Centrifuge Selection .....	3-2
Useful Formulas .....	3-4

## Support Services

On-Call, On-Line, On-Site, and On-File Support .....	3-6
--	-----

# High-Performance and High-Capacity Centrifugation

Avanti® J-30I High-Performance Centrifuge .....	1-2	Fixed-Angle Rotors .....	1-16
Avanti J-20XP Series High-Performance Centrifuges .....	1-3	JA-30.50 Ti .....	1-16
Avanti J-25 Series High-Performance Centrifuges .....	1-4	JA-25.50 .....	1-17
Avanti J-E Series High-Performance Centrifuge .....	1-5	JA-25.15 .....	1-18
Avanti J-HC Centrifuge .....	1-6	JA-21 .....	1-19
J6 Series High-Capacity Centrifuges .....	1-7	JA-20.1 .....	1-20
HarvestLine™ System Liners .....	1-8	JA-20 .....	1-21
SpinTrace™ II Laboratory Information Network System ..	1-9	JA-18.1 .....	1-22
High-Performance Centrifuge/Rotor Compatibility Chart	1-10	JA-18 .....	1-23
High-Capacity Centrifuge/Rotor Compatibility Chart .....	1-12	JA-17 .....	1-24
High-Performance and High-Capacity Rotor Summary ..	1-13	J-Lite® JLA-16.250 .....	1-25
		JA-14 .....	1-26
		JA-12 .....	1-27
		J-Lite® JLA-10.500 .....	1-28
		JA-10 .....	1-29
		J-Lite® JLA-9.1000 .....	1-30
		J-Lite® JLA-8.1000 .....	1-32
		Swinging Bucket Rotors .....	1-34
		JS-24.38 .....	1-34
		JS-24.15 .....	1-35
		JS-13.1 .....	1-36
		JS-7.5 .....	1-37
		JS-5.9 .....	1-40
		JS-5.3 .....	1-41
		JS-5.2 .....	1-43
		JS-5.0 .....	1-46
		JS-4.3 .....	1-47
		JS-4.2 .....	1-51
		JS-4.2A .....	1-54
		JS-4.2SM .....	1-57
		JS-4.2SMA .....	1-58
		JS-4.0 .....	1-59
		JS-3.0 .....	1-62
		Zonal and Reorienting Gradient Rotors .....	1-65
		JCF-Z .....	1-65
		Elutriation Rotors .....	1-67
		JE-5.0 .....	1-67
		JE-6B .....	1-69

## Avanti® J-30I High-Performance Centrifuge

*The Maximum g-force for High Performance*

The Avanti J-30I High-Performance Centrifuge System gives you the fastest separations possible—in the shortest amount of time. Swinging bucket and fixed-angle rotors provide maximum separation forces in excess of 100 000 x g at speeds up to 30 000 rpm. Your productivity is ensured by unmatched accel/decel rates and an easy run set-up. Your sample spends more time at full force and less time in the centrifuge.



*Avanti J-30I High-Performance Centrifuge*

### Specifications

<b>Maximum Speed</b>	30 000 rpm
<b>Maximum g-force</b>	110 500 × g
<b>Speed Control</b>	± 10 rpm of set speed or 0.15%, whichever is greater
<b>Imbalance Tolerance</b>	± 2.5% opposing sample imbalance
<b>Drive Type</b>	Microprocessor-controlled Switched Reluctance Drive*
<b>Centrifuge Warranty</b>	1 year
<b>Drive Warranty</b>	3 years
<b>Drive Cooling</b>	Air-cooled
<b>Refrigeration System</b>	Non-CFC, non-ozone depleting refrigerant
<b>Max. Capacity Volume</b>	4 000 mL
<b>Single Tube Sample Volume Range</b>	1.5 – 1 000 mL
<b>Set Temperature Range</b>	-20° to 40°C in 1° increments
<b>Temperature Control</b>	± 2°C of set
<b>User-Settable Programs</b>	30 two-step programs
<b>Time Setting</b>	1 min. to 99:59 hours, hold or ω <sup>2</sup> t
<b>Acceleration/Deceleration Rates</b>	12 accel/13 decel
<b>Friction Reduction System</b>	Yes
<b>Zonal Capability</b>	Yes
<b>Dynamic Rotor Inertia Check</b>	Automatic
<b>Heat Output</b>	2.0 kW (6900 BTU/hr)
<b>Sound Level</b>	< 57 dBa (3 ft. from instrument at 30 000 rpm)
<b>Dimensions</b>	865 mm × 876 mm × 711 mm (34.1" H × 34.5" D × 28" W)
<b>Weight</b>	310 kg (680 lb)
<b>Voltage Requirements</b>	208 V, 30 A, 60 Hz; 220 V, 30 A, 50 Hz; 220/380 V, 16 A, 50 Hz

### Part Numbers

	200/208/240 V 60 Hz	230 V 50 Hz	220/380 V 50 Hz, 3-Phase
<b>Avanti J-30I</b>	363118	363120	363121

\* Manufactured under license from Switched Reluctance Drives Limited, Harrogate, UK.

## Avanti® J-20XP Series High-Performance Centrifuges

*Highest Throughput Available—6 liters in under 10 minutes*

The Avanti J-20XP Series is designed for high throughput and versatility. Teamed with the J-LITE® JLA-8.1000 6-liter rotor, the J-LITE polycarbonate and polypropylene bottles, and disposable HarvestLine™ System liners, the J-20XP centrifuges can process 6 liters in less time than it takes conventional centrifuges to process 3 liters. These are versatile high-performance systems as well, capable of running the full line of Beckman Coulter high-performance rotors—including the AllSpin™ (JS-5.3) rotor with optional microplate carriers and adapters for conical tubes and bottles.



*Avanti J-20XP Series centrifuge*

### Specifications

<b>Maximum Speed</b>	26 000 rpm
<b>Maximum <i>g</i>-force</b>	82 000 × <i>g</i>
<b>Speed Control</b>	± 10 rpm of set speed or 0.1%, whichever is greater
<b>Drive Type</b>	Switched Reluctance Drive*
<b>Drive Cooling</b>	Air-cooled
<b>Centrifuge Warranty</b>	1 year
<b>Drive Warranty</b>	3 years
<b>Refrigeration System</b>	Non-CFC, non-ozone-depleting refrigerant
<b>Max. Capacity Volume</b>	6 000 mL
<b>Single Tube Sample Volume Range</b>	1.5 – 1 000 mL
<b>Ambient Temperature Range</b>	15° to 40°C
<b>Set Temperature Range</b>	-10° to 40°C
<b>Temperature Control</b>	± 2°C of set
<b>User-Settable Programs</b>	J-20XPI: 30 two-step programs J-20XP: No programming
<b>Zonal Capability</b>	J-20XPI: Yes J-20XP: No
<b>Time Setting</b>	1 min. to 99:59 hours, hold or $\omega^2$ (J-20XPI) 1 min. to 3 hours, hold (J-20XP)
<b>Acceleration/Deceleration Rates</b>	12 accel/13 decel (J-20XPI) 2 accel/3 decel (J-20XP)
<b>Dynamic Rotor Inertia Check</b>	Automatic
<b>Heat Output</b>	2.0 kW (6 900 BTU/hr)
<b>Sound Level</b>	< 57 dBA (3 ft. from instrument at maximum speed)
<b>Dimensions</b>	865 mm × 876 mm × 711 mm (34.1" H × 34.5" D × 28" W)
<b>Weight</b>	264 kg (583 lb)

\* Manufactured under license from Switched Reluctance Drives Limited, Harrogate, UK.

### Part Numbers

	200/208/240 V 50/60 Hz	230 V 50 Hz	220/380 V 50 Hz, 3-Phase
<b>Avanti J-20XPI</b>	368613	368614	368615
<b>Avanti J-20XP</b>	368608	368611	368612
<b>Avanti J-20XPI with Elutriation</b>	3686473	368644	368645
<b>Avanti J-20XP with Elutriation</b>	368640	368641	368642

## Avanti® J-25 Series High-Performance Centrifuges

*Accelerated Throughput, Shorter Run Times With the Avanti J-25 Series*

The Avanti J-25 High-Performance Centrifuge Systems let your lab perform more separations than any other conventional high-speed centrifuges, while cutting run times. That's because the J-25 Series offers faster acceleration, higher speeds and greater g-forces than conventional high-speed centrifuges (25 000 rpm and up to 75 000 x g—with larger volumes).

The Avanti J-25 has an air-cooled drive and has an advanced refrigeration system that eliminates CFCs from its design. It consumes less than half the power and produces less heat than conventional models.



*Avanti J-25 Series High-Performance Centrifuges*

### Specifications

<b>Maximum Speed</b>	25 000 rpm
<b>Maximum g-force</b>	75 600 x g
<b>Speed Control</b>	± 10 rpm of set speed or 0.1%, whichever is greater
<b>Imbalance Tolerance</b>	± 2.5% opposing sample imbalance
<b>Drive Type</b>	Microprocessor-controlled Switched Reluctance Drive*
<b>Centrifuge Warranty</b>	1 year
<b>Drive Warranty</b>	3 years
<b>Drive Cooling</b>	Air-cooled
<b>Refrigeration System</b>	Non-CFC, non-ozone depleting refrigerant
<b>Max. Capacity Volume Range</b>	4 000 mL
<b>Single Tube Sample Volume Range</b>	1.5 – 1 000 mL
<b>Set Temperature Range</b>	-20° to 40°C in 1° increments
<b>Temperature Control</b>	± 2°C of set
<b>User-Settable Programs</b>	J-25I – 30 two-step programs J-25 – No programming
<b>Time Setting</b>	J-25I – 1 min. to 99:59 hours, hold, or $\omega^2t$ J-25 – 1 min. to 3:00 hours, hold
<b>Acceleration/Deceleration Rates</b>	J-25I – 12 accel/13 decel J-25 – 2 accel/3 decel
<b>Friction Reduction System</b>	Yes
<b>Zonal Capability</b>	J-25I – Yes J-25 – No
<b>Dynamic Rotor Inertia Check</b>	Automatic
<b>Heat Output</b>	2.0 kW (6900 BTU/hr)
<b>Sound Level</b>	< 57 dBa (3 ft. from instrument at 25 000 rpm)
<b>Dimensions</b>	865 mm x 876 mm x 711 mm (34.1" H x 34.5" D x 28" W)
<b>Weight</b>	264 kg (583 lb)
<b>Voltage Requirements</b>	208 V, 30 A, 60 Hz; 220 V, 30 A, 50 Hz; 380 V, 16 A, 50 Hz

\* Manufactured under license from Switched Reluctance Drives Limited, Harrogate, UK.

### Part Numbers

	200/208/240 V 50/60 Hz	230/240 V 50 Hz	380 V 50 Hz, 3-Phase
<b>Avanti J-25</b>	363102	363104	363105
<b>Avanti J-25I</b>	363106	363108	363109
<b>Elutriation Systems</b>			
<b>Avanti J-25</b>	363110	363112	363113
<b>Avanti J-25I</b>	363114	363116	363117

## Avanti® J-E High-Performance Centrifuge

*Compact High Performance Centrifuge that fits directly in your lab*

Whether your application is related to cellular, genetic, or protein analysis, the Avanti J-E with speeds up to 21 000 rpm (53 300 x g) coupled with powerful SR\* drive technology provides you with fast separations.

A comprehensive line of labware, with up to twenty-four 96-well microtiter plate processing, 4 x 1L bottles, and HarvestLine™ System liners extend the versatility of this centrifuge. For clinical research applications, conical tubes and bottles for swinging bucket rotors spin volumes of 15, 50, 250, and 500 mL for effective blood component isolation with a variety of gradient kits.

The J-E is energy efficient for low heat output plus the quiet operation ensures a comfortable, productive work environment.



*Avanti J-E High-Performance Centrifuge*

### Specifications

<b>Maximum Speed</b>	21 000 rpm
<b>Maximum g-force</b>	53 300 x g
<b>Speed Control</b>	Actual rotor speed, ± 50 rpm of set speed
<b>Drive Type</b>	Switched Reluctance Drive*
<b>Drive Cooling</b>	Air-cooled
<b>Centrifuge Warranty</b>	1 year
<b>Drive Warranty</b>	2 years
<b>Refrigeration System</b>	Non-CFC, non-ozone-depleting refrigerant
<b>Max. Capacity Volume</b>	4 000 mL
<b>Ambient Temperature Range</b>	15° to 35°C
<b>Set Temperature Range</b>	-10° to 40°C in 1° increments
<b>Temperature Control</b>	± 2°C of set
<b>Time Setting</b>	1 min. to 99:59 hours, hold
<b>Acceleration/Deceleration Rates</b>	2 accel/3 decel
<b>Heat Output</b>	2.0 kW (6 900 BTU/hr)
<b>Sound Level</b>	< 65 dBA (3 ft. from instrument at maximum speed)
<b>Dimensions</b>	91.4 cm x 80 cm x 63.5 cm (60" H x 31.5" D x 25" W)
<b>Weight</b>	267.4 kg (589 lb)

\* Manufactured under license from Switched Reluctance Drives Limited, Harrogate, UK.

### Part Numbers

	208/240 V 50 Hz	230 V 50/60 Hz	200 V 50/60 Hz
<b>Avanti J-E</b>	369001	369003	369005



# High-Capacity Centrifugation

## Avanti® J-HC Centrifuge

### *A New Dimension in Bioprocessing*

The Avanti J-HC High Capacity Centrifuge provides you with a complete solution for batch bioprocessing. A maximum of 9 liters can be spun at speeds of 5 000 rpm and  $7\,480 \times g$  for greater sample throughput. This allows processing of up to 36 liters per hour when harvesting bacteria. Enhanced operator safety is provided with disposable HarvestLine™ system liners.



*Avanti J-HC High-Capacity Bioprocessing Centrifuge System*

### Specifications

<b>Maximum Speed</b>	10 000 rpm
<b>Maximum <i>g</i>-force</b>	17 100 × <i>g</i> (JA-10 rotor @ 10 000 rpm)
<b>Speed Control</b>	± 10 rpm of set speed
<b>Max. Capacity</b>	7 500 mL
<b>Single Bucket Volume</b>	1,250 mL
<b>Set Temperature Range</b>	-10° to 40°C
<b>Temperature Control</b>	± 2°C
<b>User-Settable Programs</b>	30 two-step programs
<b>Friction Reduction</b>	Automatic
<b>Maximum Heat Dissipation to Room</b>	2.0 kW (6 900 BTU/hr)
<b>Noise Level</b>	60 dBa (3 ft. from instrument at 10 000 rpm)
<b>Weight</b>	300 kg (660 lb)
<b>Dimensions</b>	91 cm × 86 cm × 71 cm (36" H × 34" D × 28" W)

### Part Numbers

	200/208/240 V 50/60 Hz	230 V 50 Hz	380 V 50 Hz, 3-Phase
Avanti J-HC	367501	367502	367503
<b>Total CGMP Bioprocessing Centrifuge System</b>	367520	367521	367522
<b>Bioprocessing Centrifuge System</b>	368484	368485	368486

## J6 Series High-Capacity Centrifuges Unmatched Versatility for Multiple-Application Requirements

The J6 Series continues the Beckman Coulter tradition of rugged reliability in a quiet floor centrifuge. The J6, with six-liter capacity, is available in three models — from a basic analog model to sophisticated digital models — and offers a wide range of innovative rotors, carriers, adapters, and other accessories to handle all your high-capacity centrifuge applications. (J6 Series centrifuges can also run most Avanti J Series Rotors to 6 000 rpm.)

J6 Series instruments generate speeds and forces to 6 000 rpm and 6 835 x g.

### Color-Coded Multi-Disc™ Adapters for All Popular Tubes and Bottles

Beckman Coulter's Multi-Disc Adapters bring real convenience to handling large numbers of samples. The first color-coded, stackable adapter discs for large capacity centrifugation, these modular adapter discs can be stacked to support various tube lengths and are easily disassembled for cleaning. A thick rubber bottom pad cushions tubes to protect from breakage. Specific adapters required for use with various tube sizes are included in the following rotor listings.

### Aeroseal™ Covers

Aeroseal Covers are designed to provide added protection from hazardous aerosols. They fit the round buckets of J6 Swinging-Bucket Rotors with an O-ring seal. These clear covers let you see a broken tube so proper precautions can be taken before opening.



For more information on J6 Series centrifuges, order Bulletin SB-812.



J6 Series centrifuges

### Part Numbers

	208 V 60 Hz	240 V 50 Hz	220 V 50 Hz
J6-MI High-Capacity Centrifuge with Microprocessor Control and Brushless Induction Drive	360291	360292	360293
J6-MC High-Capacity Centrifuge with Microprocessor Control and Brush Drive	360281	360282	360283
J6-HC High-Capacity Centrifuge with Analog Control and Brush Drive	360271	360272	360273

## HarvestLine™ System Liners

*Unique design enhances productivity*

HarvestLine™ disposable bottle liners provide a significant improvement in the centrifugation of biological material. HarvestLine System liners save time and enhance operator safety by reducing exposure to endotoxins and other pathogenic material resulting from manual scraping of harvested solids from labware. Used in Avanti Series centrifuges, these unique liners provide a convenient method of loading, recovering, and storing samples.

HarvestLine liners can be sterilized (gamma radiation), placed in a freezer (-70°C) for prolonged storage, and are compatible with commonly used chemicals and solvents. They facilitate the harvesting of:

- Mammalian and insect culture separations
- Bacterial, yeast, and tissue homogenate isolations
- Virus harvesting for vaccine production—viral vector gene therapy and monoclonal antibody production.

### **JLA-8.1000 and JLA-9.1000 Fixed Angle Rotor with Liners**

The 6 x 1 liter JLA-8.1000 composite rotor system with liners is ideal for harvesting bacterial and yeast cell cultures from fermenters, clearing cell debris from homogenates, or purifying large-volume viruses and polysaccharides for vaccine production. The 4 x 1 liter JLA-9.1000 rotor provides up to 16 800 x g for high throughput.

### **JS-5.0 Swinging Bucket Rotor with Liners**

The 4 x 2.25 liter JS-5.0 rotor with liners is ideal for greater sample throughput. This system is ideal for separating bacterial, yeast, and tissue homogenates. At 7 500 x g, the rotor harvests *E. coli* at a clearing rate of 99% in less than 10 minutes (throughput of better than 36 liters per hour).



*HarvestLine System for JLA-8.1000 and JLA-9.000 Rotors*



*HarvestLine System for JS-5.0 Rotor*

### Specifications

<b>Maximum Speed</b>	
in the JLA-8.1000 rotor	8 000 rpm
in the JLA-9.1000 rotor	9 000 rpm
<b>Maximum g-force</b>	
in the JLA-8.1000 rotor	15 900 × g
in the JLA-9.1000 rotor	16 800 × g
<b>Run Time</b>	Up to 20 min. instrument set time
<b>Temperature Range</b>	4° to 10°C
<b>Acceleration/Deceleration</b>	Up to instrument maximum settings

### Part Numbers

<b>369264</b>	<b>HarvestLine System Liner Kit</b> Contains 120 liners (369256), filling rack (368740), and funnel (977472)
<b>369256</b>	<b>HarvestLine System Liners</b> (qty. 120)
<b>368735</b>	<b>HarvestLine System Liners</b> (qty. 50)

## SpinTrace™ II Laboratory Information Network System New process documentation for CGMP compliance in bioprocessing



SpinTrace II is a laboratory information network for the Avanti® J-HC, J-20XPI, and J-25I Series centrifuges developed to automatically and accurately collect data to enhance throughput and help meet CGMP compliance for the bioprocessing laboratory.

SpinTrace II is user friendly, providing consistent process control, complete traceability, information management, and centralized monitoring. The system includes an IBM-compatible personal computer that can simultaneously operate up to 32 Avanti J-HC, J-20XPI, and J-25I Series centrifuges, each equipped with an optional bar code scanner.













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### Part Numbers



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- 367515** SpinTrace II Network System & Computer (for connecting up to 8 centrifuges)
  - 975843** SpinTrace II Computer Upgrade Card (to connect 8 to 24 centrifuges)
  - 975844** SpinTrace II Computer Upgrade Card (to connect 24 to 32 centrifuges)
  - 367516** SpinTrace II Interface Hardware (with a bar code scanner)
  - 367517** SpinTrace II Interface Hardware (without a bar code scanner)
-

## High-Performance Centrifuge/Rotor Compatibility Chart







	Avanti J-30I Max. RPM/ g Force	Avanti J-20XP Max. RPM/ g Force	Avanti J-25 Max. RPM/ g Force	Avanti J-E Max. RPM/ g Force	J2 Series (except J2-HC) Max. RPM/ g Force	Angle	Containment	
<b>Fixed-Angle Rotors</b>								
<b>JA-30.50 Ti</b>	30 000 <i>108 860</i>	26 000 <i>81 800</i>	25 000 <i>75 600</i>	N/A	21 000 <i>53 300</i>	34°	Single- or dual-locking lid/ fluid annulus	
<b>JA-25.50</b>	25 000 <i>75 600</i>	25 000 <i>75 600</i>	25 000 <i>75 600</i>	21 000 <i>53 300</i>	21 000 <i>53 300</i>	34°	Single- or dual-locking lid/ fluid annulus	
<b>JA-25.15</b>	25 000 <i>74 200</i>	25 000 <i>74 200</i>	25 000 <i>74 200</i>	N/A	21 000 <i>52 400</i>	25°	Single- or dual-locking lid/ fluid annulus	
<b>JA-21</b>	21 000 <i>50 400</i>	21 000 <i>50 400</i>	21 000 <i>50 400</i>	21 000 <i>50 400</i>	21 000 <i>50 400</i>	40°		
<b>JA-20.1</b>	20 000 <i>51 500</i>	20 000 <i>51 500</i>	20 000 <i>51 500</i>	20 000 <i>51 500</i>	20 000 <i>51 500</i>	23°		
<b>JA-20</b>	20 000 <i>48 400</i>	20 000 <i>48 400</i>	20 000 <i>48 400</i>	20 000 <i>48 400</i>	20 000 <i>48 400</i>	34°		
<b>JA-18.1</b>	18 000 <i>42 100</i>	18 000 <i>42 100</i>	18 000 <i>42 100</i>	N/A	18 000 <i>42 100</i>	25°	N/A	
<b>JA-18</b>	18 000 <i>47 900</i>	18 000 <i>47 900</i>	18 000 <i>47 900</i>	16 000 <i>37 800</i>	18 000 <i>47 900</i>	23°	N/A	
<b>JA-17</b>	17 000 <i>39 800</i>	17 000 <i>39 800</i>	17 000 <i>39 800</i>	17 000 <i>39 800</i>	17 000 <i>39 800</i>	25°		
<b>JLA-16.250</b>	16 000 <i>38 400</i>	16 000 <i>38 400</i>	16 000 <i>38 400</i>	16 000 <i>38 400</i>	14 000 <i>29 400</i>	25°	Single- or dual-locking lid/ fluid annulus	
<b>JA-14</b>	14 000 <i>30 100</i>	14 000 <i>30 100</i>	14 000 <i>30 100</i>	14 000 <i>30 100</i>	14 000 <i>30 100</i>	25°		
<b>JA-12</b>	12 000 <i>23 200</i>	12 000 <i>23 200</i>	12 000 <i>23 200</i>	12 000 <i>23 200</i>	12 000 <i>23 200</i>	35°	Single- or dual-locking lid/ fluid annulus	
<b>JLA-10.500</b>	10 000 <i>18 500</i>	10 000 <i>18 500</i>	10 000 <i>18 500</i>	10 000 <i>18 500</i>	10 000 <i>18 500</i>	20°	Sealing Cannister covers	
<b>JA-10</b>	10 000 <i>17 700</i>	10 000 <i>17 700</i>	10 000 <i>17 700</i>	10 000 <i>17 700</i>	10 000 <i>17 700</i>	25°		
<b>JLA-9.1000</b>	9 000 <i>16 800</i>	9 000 <i>16 800</i>	9 000 <i>16 800</i>	6 300 <i>8 300</i>	N/A	20°	Integrated bottle seal	
<b>JLA-8.1000</b>	N/A	8 000 <i>15 900</i>	N/A	N/A	N/A	20°	Integrated bottle seal	

## High-Performance Centrifuge/Rotor Compatibility Chart *(continued)*

	Avanti J-30I Max. RPM/ g Force	Avanti J-20XP Max. RPM/ g Force	Avanti J-25 Max. RPM/ g Force	Avanti J-E Max. RPM/ g Force	J2 Series (except J2-HC) Max. RPM/ g Force	Angle	Containment
<b>Swinging Bucket Rotors</b>							
<b>JS-24.38</b>	24 000 103 900	10 000 18 000	10 000 18 000	N/A	N/A	Horz.	Cap, O-ring
<b>JS-24.15</b>	24 000 110 500	10 000 19 190	10 000 19 190	N/A	N/A	Horz.	Cap, O-ring
<b>JS-13.1</b>	13 000 26 500	13 000 26 500	13 000 26 500	13 000 26 500	13 000 26 500	Horz.	
<b>JS-7.5</b>	7 500 10 400	7 500 10 400	7 500 10 400	N/A	7 500 10 400	Horz.	N/A
<b>JS-5.9</b>	5 900 6 870	5 900 6 870	5 900 6 870	N/A	N/A	Horz.	N/A
<b>JS-5.3</b>	N/A	5 300 6 130	N/A	5 300 6 130	N/A	Horz.	N/A
<b>JS-4.3</b>	N/A	4 300 4 220	N/A	N/A	N/A	Horz.	Aerosolve® Cannister 
<b>JS-4.0</b>	N/A	4 000 4 050	N/A	N/A	N/A	Horz.	AeroSeal™ Cover

	Avanti J-30I Max. RPM/ g Force	Avanti J-20XP Max. RPM/ g Force	Avanti J-25 Max. RPM/ g Force	Avanti J-E Max. RPM/ g Force	J2 Series (except J2-HC) Max. RPM/ g Force
<b>Elutriation, Continuous Flow, and Zonal Rotors</b>					
<b>JE-5.0</b>	N/A	5 000 2 410	5 000 2 410	N/A	N/A
<b>JE-6B</b>	6 000 5 080	N/A	6 000 5 080	N/A	6 000 5 080
<b>JCF-Z Std. Core</b>	20 000 39 900	20 000 39 900	20 000 39 900	N/A	20 000 39 900
<b>JCF-Z Large Core</b>	20 000 39 900	20 000 39 900	20 000 39 900	N/A	20 000 39 900
<b>JCF-Z Small Core</b>	20 000 39 900	20 000 39 900	20 000 39 900	N/A	20 000 39 900
<b>JCF-Z Reograd Core</b>	20 000 39 900	20 000 39 900	20 000 39 900	N/A	20 000 39 900
<b>JCF-Z Zonal Core</b>	20 000 39 900	20 000 39 900	20 000 39 900	N/A	20 000 39 900

## High-Capacity Centrifuge/Rotor Compatibility Chart

	Places x Largest Volume (ml)	Avanti J-HC Max. RPM/ g Force	J6 Series Max. RPM/ g Force	Angle	Containment	
<b>Fixed Angle Rotors</b>						
<b>JLA-8.1000</b>	6 x 1000	8 000 <i>15 900</i>	N/A	20°	Integrated seal	
<b>JA-10</b>	6 x 1000	10 000 <i>17 700</i>	6 000 <i>6 370</i>	25°	N/A	
<b>Swinging Bucket Rotors</b>						
<b>JS-5.2</b>	4 x 1000	N/A	5 200 <i>6 840</i>	Horz.	Aeroseal™ Cover	
<b>JS-5.0</b>	4 x 2200	5 000 <i>7 480</i>	N/A	Horz.		
<b>JS-4.2</b>	6 x 1000	4 200 <i>5 020</i>	4 200 <i>5 020</i>	Horz.	Aeroseal™ Cover	
<b>JS-4.2A</b>	6 x 1000	4 200 <i>5 020</i>	4 200 <i>5 020</i>	Horz.	Aeroseal™ Cover	
<b>JS-4.2SM</b>	6 x 1000	N/A	4 200 <i>4 900</i>	Horz.		
<b>JS-4.2SMA</b>	6 x 1000	N/A	4 200 <i>4 900</i>	Horz.		
<b>JS-4.0</b>	4 x 1000	N/A	4 000 <i>4 050</i>	Horz.	Aeroseal™ Cover	
<b>JS-3.0</b>	6 x 1000	N/A	3 000 <i>2 560</i>	Horz.	Aeroseal™ Cover	

## High-Performance and High-Capacity Rotor Summary

Rotor Type	Part Number	Maximum Speed (rpm)	Maximum Force at $r_{min}$ (g)	Maximum Force at $r_{max}$ (g)	k Factor	Number Tubes/Bottles and Size (diameter x length) mm/in.	Rotor Capacity (mL)	Approx. Accel. Time <sup>1</sup> (min:sec)	Comments
<b>Fixed-Angle Rotors</b>									
<b>JA-30.50 Ti</b>	363420 Biosafety Lid	30 000	40 320	108 860	280	8 x 50 mL 29 x 104 mm (1.125 x 4 in.)	400 mL	5:15 <sup>a</sup>	Harvesting bacteria, processing tissue culture, subcellular particulates, routine pelleting such as precipitates and phase separation.
	363421 Single Lock Lid								
<b>JA-25.50</b>	363058 Biosafety Lid	25 000	26 950	75 600	418	8 x 50 mL 29 x 105 mm (1.125 x 4 in.)	400 mL	3:30 <sup>b</sup>	High-force, efficient pelleting of cell particles from tissue homogenates. Short column virus purification.
	363055 Single Lock Lid								
<b>JA-25.15</b>	363050 Biosafety Lid	25 000	36 400/ 22 400	74 200/ 60 200	265/ 380	24 x 15 mL 18 x 100 mm (0.625 x 4 in.)	360 mL	3:15 <sup>b</sup>	High-force, efficient pelleting of subcellular particles, bacteria, algae, and chloroplasts. Short column banding of virus and subcellular particles.
	363054 Single Lock Lid								
<b>JA-21</b>	334845	21 000	22 200	50 400	470	18 x 10 mL 16 x 80 mm (0.625 x 3 in.)	180 mL	1:30 <sup>b</sup>	High-force, fast, efficient separation of many samples in small volume. Viruses, bacteriophage, mitochondria, nuclei.
<b>JA-20.1</b>	342095	20 000	28 700 21 100	51 500 43 900	371/ 465	32 x 15 mL 18 x 99 mm (0.625 x 4 in.)	480 mL	1:30 <sup>b</sup>	High-force, large volume. Has 2 concentric rows of 15-mL tubes. Efficient separation of particles with 100 S or larger sedimentation coefficients.
<b>JA-20</b>	334831	20 000	14 300	48 400	770	8 x 50 mL 29 x 104 mm (1.125 x 4 in.)	400 mL	1:30 <sup>b</sup>	Harvesting bacteria and cell membranes, processing tissue homogenates, separating cell particulates.
<b>JA-18.1</b>	347824	18 000	34 500	42 100	156 <sup>c</sup>	24 x 1.8 mL 11 x 38 mm (0.4 x 1.5 in.)	43.2 mL	1:20 <sup>b</sup>	High-force sedimentation in microcentrifuge-sized tubes under refrigerated conditions. Tube oriented at either a 25° or 45° angle.
<b>JA-18</b>	346944	18 000	23 200	47 900	566	10 x 100 mL 38 x 102 mm (1.5 x 4 in.)	1 liter	6:30 <sup>b</sup>	High-force, large volume. Pelleting bacteria, cell membranes, and subcellular organelles.
<b>JA-17</b>	341973 369691 for use with Avanti™ J-E	17 000	18 180	39 800	690	14 x 50 mL 29 x 104 mm (1.125 x 4 in.)	700 mL	2:30 <sup>b</sup>	Harvesting bacteria and cell membranes, processing tissue homogenates, separating cell particulates.
<b>JLA-16.250</b>	363930 Biosafety Lid	16 000	13 200	39 300	1 350	6 x 250 mL 62 x 120 mm (2.5 x 5.5 in.)	1.5 liters	3:30 <sup>b</sup>	Harvesting bacteria and cell membranes, processing tissue homogenates, separating cell particulates.
	363934 with Single Lock Lid								
<b>JA-14</b>	339247	14 000	7 680	30 100	1 764	6 x 250 mL 62 x 120 mm (2.5 x 4.8 in.)	1.5 liters	4:00 <sup>b</sup>	General-purpose, large-volume, and multi-tube processing.
<b>JA-12</b>	360992 Biosafety Lid	12 000	11 500	23 200	1 244	12 x 50 mL 30 x 103 mm conical (1.17 x 4 in.)	600 mL	3:30 <sup>b</sup>	General pelleting of cells, bacteria, and food products. Separating of proteins, viruses, and subcellular fractions. Phase separations and binding studies.
	360993 with Single-locking Lid								

<sup>1</sup> Accel times are approximate, and subject to change.

<sup>a</sup> Typical accel time in Avanti J-30I.

<sup>b</sup> Typical accel time in Avanti J-25 Series.



# High-Performance/High-Capacity Centrifugation

## High-Performance and High-Capacity Rotor Summary (continued)

Rotor Type	Part Number	Maximum Speed (rpm)	Maximum Force at $r_{min}$ (g)	Maximum Force at $r_{max}$ (g)	k Factor	Number Tubes/Bottles and Size (diameter x length)	Rotor Capacity (mL)	Approx. Accel. Time <sup>1</sup> (min:sec)	Comments
<b>Fixed-Angle Rotors (continued)</b>									
<b>JLA-10.500</b>	369681 with Closures	10 000	6 050	18 500	2 840	6 x 500 mL 69 x 160 mm (2.75 x 6.5 in.)	3 liters	2:30 <sup>a</sup>	Lightweight, high-volume, fixed-angle rotor for initial processing of tissue homogenate and other large particles.
<b>JA-10</b>	334833	10 000	4 260	17 700	3 610	6 x 500 mL 69 x 160 mm (2.75 x 6.5 in.)	3 liters	4:30 <sup>a</sup>	High-volume, fixed-angle rotor for initial processing of tissue homogenate and other large particles.
<b>JLA-9.1000</b>	366754	9 000	7 440	16 800	2 540	4 x 1000 mL 95 x 191 mm (3.8 x 7.65 in.)	4 liters	2:30 <sup>b</sup>	General purpose, large-volume processing, pelleting of bacteria cell organelles, viruses, and precipitates.
<b>JLA-8.1000</b>	363688	8 000	8 530	15 900	2 500	6 x 1000 mL 95 x 191 mm (3.8 x 7.65 in.)	6 liters	6:00 <sup>b</sup>	General purpose, large-volume processing, pelleting of bacteria subcellular organelles, viruses and precipitates.
<b>Swinging-Bucket Rotors</b>									
<b>JS-24.38</b>	360743	24 000	48 600	103 900	334	6 x 38.5 mL 25 x 89 mm (1 x 3.5 in.)	231 mL	5:15 <sup>c</sup>	Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.
<b>JS-24.15</b>	362396	24 000	50 900	110 500	376	6 x 15 mL 16 x 96 mm (0.625 x 3.75 in.)	90 mL	5:15 <sup>c</sup>	Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.
<b>JS-13.1</b>	346963	13 000	7 760	26 500	1 841	6 x 50 mL 29 x 105 mm (1.125 x 4 in.)	300 mL	2:30 <sup>a</sup>	Density gradient centrifugation of cells. Sedimentation of nuclei and protein or nuclei acid precipitates. Clarification of tissue homogenates.
<b>JS-7.5</b>	336380	7 500	3 210	10 400	5 287	4 x 250 mL 62 x 136 mm (2.5 x 5.5 in.)	1 L	1:00 <sup>a</sup>	Initial processing of cells and removal of cell debris from culture media. Accepts round-bottom bottles for easier handling of pellets.
<b>JS-5.9</b>	369331	5 400	5 980	6 570		10 microplates		1:00 <sup>a</sup>	High-throughput processing (DNA or RNA kits), serial dilution of small volumes.
<b>JS-5.3 (AllSpin™)</b>	368690	5 300	5 170	6 870		4 x 500 mL conical 24 microplates	2 L	2:00 <sup>d</sup>	Sucrose/glycerol gradients, centrifugal filtration, binding studies, clearing debris/large particles, pelleting, plasma protein precipitates.
<b>JS-4.3</b>	362734	4 300	1 532	4 220	13 892	4 x 750 mL 96 x 130 mm (3.8 x 5.2 in.)	3 L	1:00 <sup>b</sup>	Rapid sedimentation of protein precipitates, large particles, cells, binding studies, and separating serum from whole blood.
<b>JS-4.0</b>	339086	4 000	1 540	4 050	15 300	4 x 1000 97 x 167 (3.82 x 6.57 in.)	4 L	1:30 <sup>b</sup>	Rapid sedimentation of protein precipitates, large particles, cells and cell debris, as well as binding studies and separating serum from whole blood.

<sup>1</sup> Accel times are approximate and subject to change.

<sup>a</sup> Typical accel time in Avanti J-25 Series.

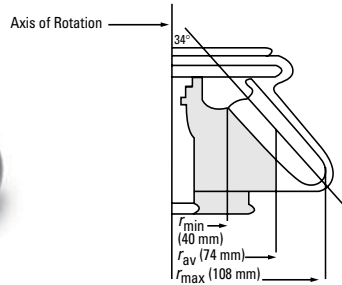
<sup>b</sup> Typical accel time in Avanti J-20XP Series.

<sup>c</sup> Typical accel time in Avanti J-301 (JS rotors using mandatory slow accel setting).

<sup>d</sup> Typical accel time in Avanti J-E.

## High-Performance and High-Capacity Rotor Summary (*continued*)

Rotor Type	Part Number	Maximum Speed (rpm)	Maximum Force at $r_{min}$ (g)	Maximum Force at $r_{max}$ (g)	k Factor	Number Tubes/Bottles and Size (diameter x length)	Rotor Capacity (mL)	Approx. Accel. Time <sup>1</sup> (min:sec)	Comments
<b>Continuous-Flow Rotor</b>									
JCF-Z	335140 (standard core)	20 000	32 000	39 900	100	Not applicable	660 mL	N.A.	Purification of viruses and/or concentration of large volumes of solution. Pelleting or sedimenting on a sucrose cushion. Maximum pellet size: 400 mL.
	357544 (small pellet core)	20 000	23 300	36 300	281	Not applicable	240 mL	N.A.	Pelleting liquids that contain a low ratio of solids—such as bacterial cultures, or water containing clay particles or algae. Maximum pellet size: 200 mL.
	357521 (large pellet core)	20 000	22 850	39 900	293	Not applicable	1 250 mL	N.A.	Pelleting solutions that have high solid-to-water ratios as high as 1:2 slurries. Maximum pellet size: 800 mL.
<b>Zonal Rotor</b>									
JCF-Z	354006	20 000	9 000	39 900	710	69 mm	1 990 mL	N.A.	Fast start up. Dynamic loading and unloading. Isopycnic banding, linear, and discontinuous gradients. Subcellular fractions from tissue homogenates, algae, and chloroplasts.
<b>Reorienting Gradient Rotor</b>									
JCF-Z	354005	20 000	11 650	39 900	779	63 mm	1 750 mL	N.A.	No rotating seal. Static loading and unloading. Gradient reorients in rotor. Especially useful for fragile material such as DNA strands.



**Fixed-Angle Rotor, Titanium**

Major applications: Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
30 000	108 860	280	8 × 50 mL 29 × 104 mm 1.125 × 4 in	400 mL

*For use in Avanti® J Series centrifuges (except Avanti J-E) and J2 Series centrifuges.*

No. 363420. JA-30.50 Fixed-Angle Ti Rotor with Biosafety Lid.  
No. 363421. JA-30.50 Fixed-Angle Ti Rotor with Single Lock Lid.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	—	—	75 600	403	25 000
Polycarbonate	357002	25	50.0	29 x 104	—	—	75 600	403	25 000
	355672	25	10.0	16 x 80	361703†	1	91 000	244	30 000
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	—	—	108 900	280	30 000*
Polycarbonate	357000	6	50.0	29 x 104	—	—	108 900	280	30 000
<b>Tubes with Snap-On Caps</b>									
Polyallomer	357448	500	1.5	9.5 x 38	361705†	1	73 400	126	30 000
Thickwall Polycarbonate	363664	25	50.0	29 x 104	—	—	75 600	403	25 000
Thickwall Polypropylene	357005	25	50.0	29 x 104	—	—	75 600	403	25 000
Polypropylene	356090	500	1.5	9.5 x 38	361705†	1	73 400	126	30 000
<b>Open-Top Tubes</b>									
Thickwall Polycarbonate	363647	25	50.0	29 x 104	—	—	108 900	280	30 000*
Thickwall Polypropylene	357007	25	50.0	29 x 104	—	—	108 900	280	30 000

\* At 2°C; at 25°C, maximum speed must be limited to 26 000 rpm for tube 357001 and 29 000 rpm for tube 363647.  
† Set of 2.

**Rotor Replacement Parts**

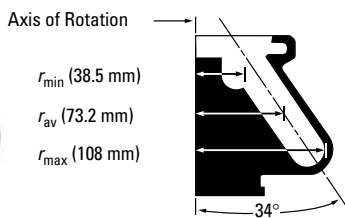
- 870612 O-ring for Rotor Lid
- 011757 Small O-ring for Rotor Lid
- 363424 Lid Assembly, Biosafety (tie-down assembly included)
- 363430 Lid Assembly, Single-lock
- 363431 Tie-down for Single-locking Lid

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

361703      361705





**Fixed-Angle Rotor, Aluminum**

Major applications: Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
25 000	75 600	418	8 x 50 mL 29 x 104 mm 1.125 x 4 in	400 mL

*For use in Avanti® J Series and J2 Series centrifuges.*

- No. 363058. JA-25.50 Fixed-Angle Rotor with Biosafety Lid.
- No. 363055. JA-25.50 Fixed-Angle Rotor with Single Lock Lid.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Bottles with Screw Caps</b>										
Polyallomer	357003	25	50.0	29 x 104	—	—	75 600	418	25 000	
Polycarbonate	357002	25	50.0	29 x 104	—	—	75 600	418	25 000	
	355672	25	10.0	16 x 80	361703†	1	63 240	350	25 000	
<b>Bottles with Cap Assemblies</b>										
Polyallomer	361694	24	50.0	29 x 104	—	—	75 600	418	25 000	
Polycarbonate	361693	24	50.0	29 x 104	—	—	75 600	418	25 000	
<b>Tubes with Snap-On Caps</b>										
Polycarbonate	Thickwall	363664*	25	50.0	29 x 104	—	75 600	418	25 000	
Polypropylene	Thickwall	357005*	25	50.0	29 x 104	—	75 600	418	25 000	
		356090	500	1.5	9.5 x 38	361705†	1	50 960	182	25 000
<b>Open-Top Tubes</b>										
Polyallomer		357448	500	1.5	9.5 x 38	361705†	1	50 960	182	25 000
Polycarbonate	Thickwall	363647	25	50.0	29 x 104	—	75 600	418	25 000	
Polypropylene	Thickwall	357007	25	50.0	29 x 104	—	75 600	418	25 000	

\* Order cap separately (pkg. of 25): 356264 (natural), 357359 (red), 357360 (green), 357361 (yellow), or 357362 (blue).  
† Set of 2.

**Rotor Replacement Parts**

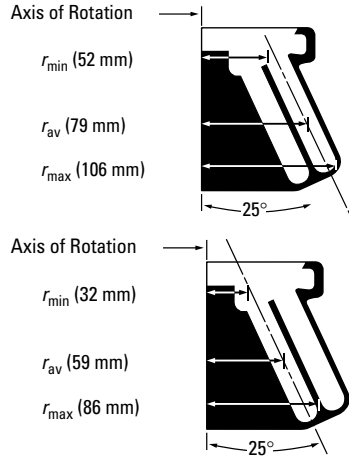
- 870612 O-ring for Rotor Lid
- 011757 Small O-ring for Rotor Lid
- 363023 Lid Assembly, Biosafety (Tie-down Assembly included)
- 363053 Lid Assembly, Single Lock (Tie-down Assembly included)

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

361703 361705





**Fixed-Angle Rotor, Aluminum**

Major applications: Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.

	Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
Outer Row	25 000	74 200	265	24 x 15 mL 18 x 100 mm	360 mL
Inner Row	25 000	60 200	380	0.75 x 4 in	

*For use in Avanti® J Series centrifuges (except Avanti J-E) and J2 Series centrifuges.*

No. 363050. JA-25.15 Fixed-Angle Rotor with Biosafety Lid.  
 No. 363054. JA-25.15 Fixed-Angle Rotor, Single Lock Lid.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polycarbonate	355672	25	4.0	16 x 80	342327	1	60 200	204	25 000
<b>Open-Top Tube</b>									
Thickwall Polyallomer	355640	25	10.0	16 x 75	342327	1	56 700	180	25 000
	355644	25	4.0	13 x 64	303313	1	49 000	120	25 000
Polycarbonate	342080	100	15.0	18 x 100	—	—	74 200	265	25 000
Thickwall Polycarbonate*	355630	25	10.0	16 x 75	342327	1	56 700	180	25 000
	355645	25	4.0	13 x 64	303313	1	49 000	120	25 000
Polyethylene*	342081	100	15.0	18 x 100	—	—	74 200	265	25 000
Polypropylene*	342082	100	15.0	18 x 100	—	—	74 200	265	25 000

\* To order caps for 15-mL tubes 342080, 342081, and 342082, use part number 343656 for a package of 50.

**Rotor Replacement Parts**

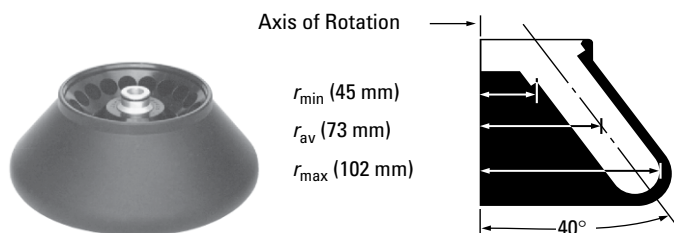
- 964911 Large O-ring for Rotor Lid
- 011757 Small O-ring for Rotor Lid
- 363024 Lid Assembly, Biosafety (Tie-down Assembly included)
- 363052 Rotor Lid Assembly, Single Lock (Tie-down Assembly included)

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

303313 342327





**Fixed-Angle Rotor, Aluminum**

Major applications: Rapid, efficient separation of many samples in small volumes, such as viruses, bacteriophage, mitochondria, and nuclei.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
21 000	50 400	470	18 x 10 mL 16 x 80 mm 0.625 x 3 in	180 mL

*For use in Avanti® J Series and J2 Series centrifuges.*

No. 334845. JA-21 Fixed-Angle Rotor for 21 000 rpm operation.

**Tubes and Bottles**

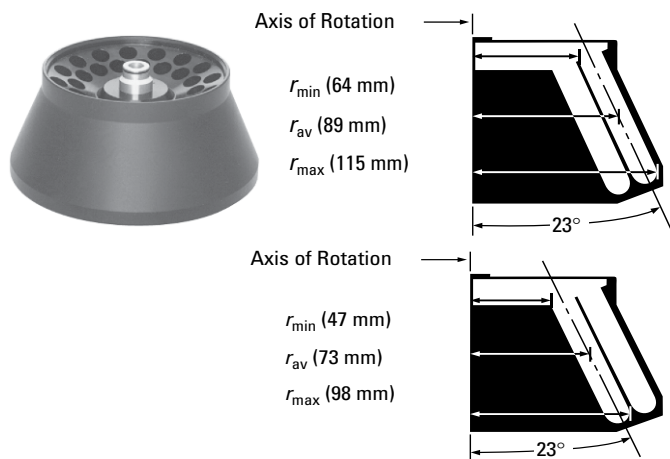
Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polycarbonate	355672	25	10.0	16 x 80	—	—	50 400	469	21 000
<b>Open-Top Tubes</b>									
Thickwall Polyallomer	355640	25	10.0	16 x 76	—	—	50 400	470	21 000
Thickwall Polycarbonate	355630	25	10.0	16 x 76	—	—	50 400	470	21 000
Stainless Steel	301108	1	10.0	16 x 76	—	—	50 400	470	21 000

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

**Rotor Replacement Parts**

- 870612 O-ring for Rotor Lid
- 870980 O-ring for Rotor Hub
- 343631 Lid Attachment Bolt Assembly
- 369349 Rotor Lid Assembly (Tie-down Assembly included)





**Fixed-Angle Rotor, Aluminum**

Major applications: High-force, large-volume separation of particles with 100 S or larger sedimentation coefficients.

	Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
Outer Row	20 000	51 500	371	32 x 15 mL 18 x 99 mm	480 mL
Inner Row	20 000	43 900	465	0.625 x 4 in	

For use in Avanti® J Series and J2 Series centrifuges.

No. 342095. JA-20.1 Fixed-Angle Rotor for 20 000 rpm operation.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor*	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polycarbonate	355672	25	10.0	16 x 80	342327	1	47 900	325	20 000
<b>Open-Top Tubes</b>									
Thickwall Polyallomer	355640	25	10.0	16 x 75	342327	1	47 900	325	20 000
Thickwall Polycarbonate	342080	100	15.0	18 x 99	————	————	51 500	371	20 000
Thickwall Polycarbonate	355630	25	10.0	16 x 76	342327	1	47 900	325	20 000
Thickwall Polyethylene	342081	100	15.0	18 x 97	————	————	51 500	371	20 000
Thickwall Polypropylene	342082	100	15.0	18 x 98	————	————	51 500	371	20 000
Stainless Steel	301108	1	10.0	16 x 76	342327	1	47 900	325	20 000

**Rotor Supplies**

- 338896 Rotor Removal Tool
- 338689 Adapter Collar for 338896 Rotor Removal Tool

**Caps for 15-mL Tubes**

- 343656 Caps (box of 50) for 342080, 342081, and 342082 Tubes

**Rotor Replacement Parts**

- 834301 O-ring for Rotor Lid
- 870980 O-ring for Rotor Hub
- 358368 Lid Attachment Bolt Assembly
- 341976 Rotor Lid
- 364915 Tie-down Kit
- 392889 Hold-down Knob, for use with filtration tubes regularly run without lid (in J2/J6 centrifuges only)

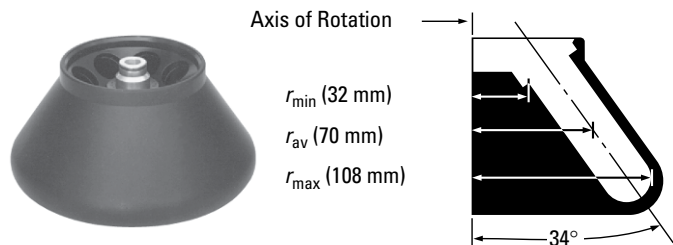
\* Measured using the outer row of tubes.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

342327





**Fixed-Angle Rotor, Aluminum**

Major applications: Harvesting bacteria and cell membranes, processing tissue homogenates, separating cell particulates.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
20 000	48 400	770	8 x 50 mL 29 x 104 mm 1.125 x 4 in	400 mL

For use in Avanti® J Series and J2 Series centrifuges.

No. 334831. JA-20 Fixed-Angle Rotor for 20 000 rpm operation.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Bottles with Screw Caps</b>										
Polyethylene	357003	25	50.0	29 x 104	————	————	48 400	770	20 000	
Polycarbonate	357002	25	50.0	29 x 104	————	————	48 400	770	20 000	
	355672	25	10.0	16 x 80	342327/870329	1	43 500	650	20 000	
<b>Bottles with Cap Assemblies</b>										
Polyallomer	357001	6	50.0	29 x 104	————	————	48 400	770	20 000	
Polycarbonate	357000	6	50.0	29 x 104	————	————	48 400	770	20 000	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 39	344497*	3	48 400	770	20 000
Thickwall Polycarbonate		363664	25	50.0	29 x 104	————	————	48 400	770	20 000
Thickwall Polypropylene		357005	25	50.0	29 x 104	————	————	48 400	770	20 000
	Orange	356094	500	1.5	11 x 38	344497*	3	48 400	770	20 000
	Yellow	356093	500	1.5	11 x 38	344497*	3	48 400	770	20 000
	Green	356092	500	1.5	11 x 38	344497*	3	48 400	770	20 000
	Blue	356091	500	1.5	11 x 38	344497*	3	48 400	770	20 000
	Natural	356090	500	1.5	11 x 38	344497*	3	48 400	770	20 000
<b>Open-Top Tubes</b>										
Polycarbonate		340196	500	1.8	11 x 39	344497*	3	48 400†	770	20 000
Polypropylene	Thickwall	363647	25	50.0	29 x 104	————	————	48 400	770	20 000

**Rotor Supplies**

- 346965 Rotor Removal Tool
- 338689 Adapter Collar for 346965 Rotor Removal Tool

**Cap Assembly Replacement Parts**

- 356284 Cap for 357000 and 357001 Bottle
- 358627 Insert for 357000 and 357001 Cap Assembly; order only as a replacement part
- 961582 O-ring for 357000 and 357001 Bottle

**Rotor Replacement Parts**

- 870612 O-ring for Rotor Lid
- 870980 O-ring for Rotor Hub
- 364914 Tie-down Kit
- 369349 Rotor Lid
- 392889 Hold-down Knob, for use with filtration tubes regularly run without lid (in J2/J6 centrifuges only)

\* Can be double-stacked. Force will vary depending on tube position.  
 † Calculated at r<sub>max</sub>, g-force will be less for tubes located in upper adapter when adapters are stacked. Force will also vary depending on tube position in adapter.

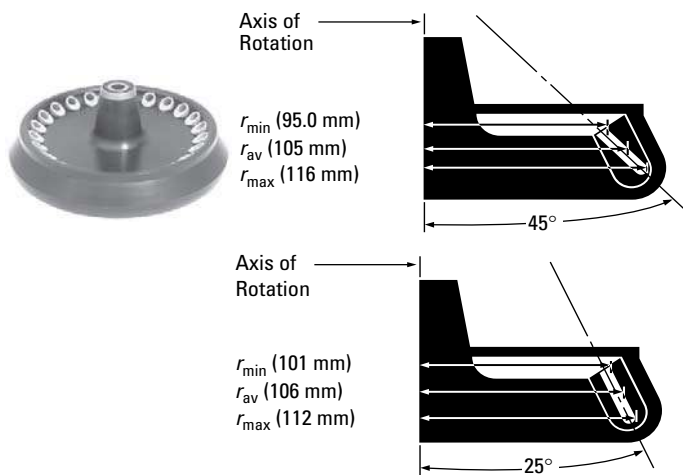
**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

342327 344497 870329







**Fixed-Angle Rotor, Aluminum**

Major applications: High-force sedimentation in microcentrifuge tubes under refrigerated conditions.

Max. RPM at 45° Angle*	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
18 000	42 100	156	24 x 1.8 mL 11 x 38 mm 0.4 x 1.5 in.	43.2 mL

Max. RPM at 25° Angle*	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
17 000	36 300	91	24 x 1.8 mL 11 x 38 mm 0.4 x 1.5 in.	43.2 mL

*For use in Avanti® J Series and J2 Series centrifuges (except Avanti J-E).*

**No. 347824.** JA-18.1 Fixed-Angle Rotor. Includes 24 reversible adapters that provide 18 000 rpm maximum speed. In the J2-HC centrifuge: 15 000 rpm maximum speed at 45° angle and 16 000 rpm maximum speed at 25° angle. Tubes are not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter†	g-Force	k Factor	Maximum Speed*	
<b>Tubes with Snap-On Caps</b>										
<b>Polyallomer</b>	Natural	357448	500	1.5	11 x 39	347562	1	42 100	————	18 000
<b>Polyethylene</b>		340196	500	1.8	11 x 39	347562	1	42 100	————	18 000
<b>Polypropylene</b>	Orange	356094	500	1.5	11 x 39	347562	1	42 100	————	18 000
	Yellow	356093	500	1.5	11 x 39	347562	1	42 100	————	18 000
	Green	356092	500	1.5	11 x 39	347562	1	42 100	————	18 000
	Blue	356091	500	1.5	11 x 39	347562	1	42 100	————	18 000
	Natural	356090	500	1.5	11 x 39	347562	1	42 100	————	18 000
	Natural‡	343169	500	1.5	11 x 38	347562	1	42 100	————	18 000

\* In the J2-HC, maximum speeds are reduced to 15 000 rpm at 45° angle and 16 000 rpm at 25° angle.

† Adapters are reversible, so that tube angle can be set at either 45° or 25°, depending on application requirements.

‡ With separate cap.

**Rotor Replacement Parts**

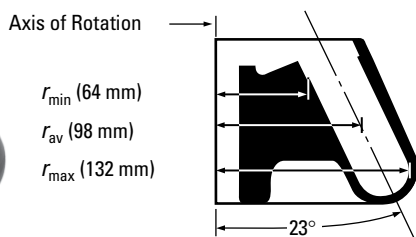
- 011921 O-ring
- 335112 Washer
- 347821 Rotor Knob Assembly
- 364918 Tie-down Kit

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

347562



**Fixed-Angle Rotor, Aluminum**

Major applications: High-force, large-volume. Pelleting bacteria, cell membranes, and subcellular organelles.

Max. RPM	Max. <i>g</i>	<i>k</i> Factor	Number of Tubes Volume/Size	Rotor Capacity
18 000 (16 000 rpm at 4°C and below)	47 900	566	10 x 100 mL 38 x 102 mm	1 L 1.5 x 4 in

For use in Avanti® J Series and J2 Series centrifuges.

No. 369679. JA-18 Fixed-Angle Rotor for 18 000 rpm operation.  
Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	<i>g</i> -Force	<i>k</i> Factor	Maximum Speed	
<b>Quick-Seal® Tubes</b>										
Polyallomer	345776	25	100.0	38 x 102	—	—	47 900	566	18 000	
Ultra-Clear™	345778	25	100.0	38 x 102	—	—	47 900	566	18 000	
<b>Bottles with Cap Assemblies</b>										
Polycarbonate	355620	6	70.0	38 x 102	—	—	47 900	566	18 000	
Polypropylene	355624	6	94.0	38 x 102	—	—	47 900	566	18 000	
<b>Bottles with Screw Caps</b>										
Polyallomer	357003	25	50.0	29 x 104	347539	1	44 000	—	18 000	
Polycarbonate	357002	25	50.0	29 x 104	347539	1	44 000	—	18 000	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
Polyethylene		340196	500	1.8	11 x 39	344497/347539†	3	35 000	—	18 000
Polypropylene	Orange	356094	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
	Yellow	356093	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
	Green	356092	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
	Blue	356091	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
	Natural	356090	500	1.5	11 x 39	344497/347539†	3	35 000	—	18 000
	Natural‡	343169	500	1.5	11 x 38	344497†	3	35 000	—	18 000
<b>Open-Top Tubes</b>										
Polycarbonate*	363647	25	50.0	29 x 104	347539	1	47 900	566	18 000	
Polypropylene*	357007	25	50.0	29 x 104	347539	1	47 900	566	18 000	

\* A cap is available for these tubes, but it cannot be used in the JA-18 rotor; for a cap to use when storing samples, order cap 356262.

† Can be double-stacked. Force will vary depending on tube position.

‡ With separate cap.

**Rotor Replacement Parts**

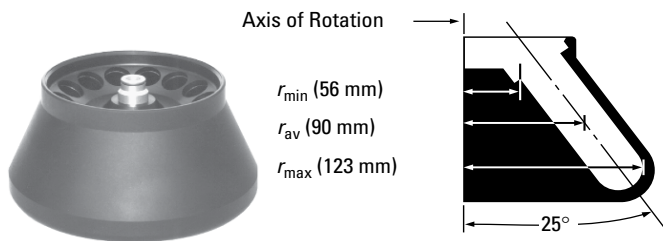
346947	Tie-down Bolt Assembly
346965	Rotor Removal Tool
364845	Rotor Lid Assembly
364917	Tie-down Kit

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

344497 347539





**Fixed-Angle Rotor, Aluminum**

Major applications: High-force, large-volume. Pelleting bacteria, cell membranes, and subcellular organelles.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
17 000	39 800	690	14 x 50 mL 29 x 104 mm 1.125 x 4 in	700 mL

For use in Avanti® J Series and J2 Series centrifuges.

No. 369691. JA-17 Fixed-Angle Rotor.  
Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	—	—	39 800	690	17 000
	361694	24	50.0	29 x 104	—	—	39 800	690	17 000
Polycarbonate	357000	6	50.0	29 x 104	—	—	39 800	690	17 000
	361693	24	50.0	29 x 104	—	—	39 800	690	17 000
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	—	—	39 800	690	17 000
Polycarbonate	357002	25	50.0	29 x 104	—	—	39 800	690	17 000
	355672	25	10.0	16 x 80	342327/870329	1	32 000	—	17 000
<b>Tubes with Snap-On Caps</b>									
Polypropylene	357005†	25	50.0	29 x 104	—	—	39 800*	690	17 000
<b>Tubes without Caps</b>									
Thickwall Polycarbonate	363647	25	50.0	29 x 104	—	—	39 800	690	17 000
Thickwall Polypropylene	357007	25	50.0	29 x 104	—	—	39 800	689	17 000

**Rotor Supplies**

- 346965 Rotor Removal Tool
- 338689 Adapter Collar for 346945 Rotor Removal Tool

**Cap Assembly Replacement Parts**

- 356284 Cap for 357000 and 357001 Tubes
- 358627 Insert for 357000 and 357001 Cap Assembly; order only for use in tubes
- 961582 O-ring for 357000 and 357001 Cap Assembly

\* Can be double-stacked. Force will vary depending on position of tube in adapter.  
 † A maximum of seven tubes can be used, placed in every other rotor hole (tubes placed in adjacent holes will hit one another).  
 ‡ With separate cap.

**Rotor Replacement Parts**

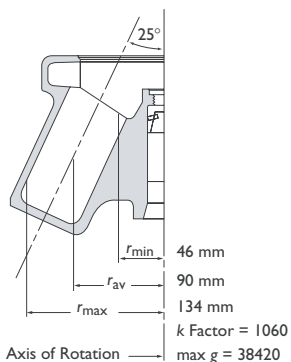
- 878951 O-ring for Rotor Lid
- 811656 O-ring for Rotor Hub
- 358367 Lid Attachment Bolt Assembly
- 364913 Tie-down Kit
- 341926 Rotor Lid
- 392889 Hold-down Knob (used to run filtration tubes without lid)

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

- 342327
- 344497
- 870329





**Fixed-Angle Rotor, Aluminum**

Major applications: General purpose, large-volume and multitube processing. Lightweight alternative to conventional 6 × 250 rotors; empty rotor weight is 10.3 kg (22.7 lb).

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
16 000*	38 420	1 060	6 × 250 mL 62 × 120 mm 2.5 × 5.5 in	1.5 L

*For use in Avanti® J Series and J2 Series centrifuges.*

No. 363930. J-Lite® JLA-16.250 Rotor Assembly with Biosafety Lid.

No. 363934. Rotor Assembly with Single Lock Lid.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	38.5	29 x 104	356997	1	32 200	650	16 000
Polycarbonate	357002	25	38.5	29 x 104	356997	1	32 200	660	16 000
<b>Bottles with Cap Assembly</b>									
Polyallomer	357001	24	40.0	29 x 104	356997	1	32 200	650	16 000
Polycarbonate	357000	24	40.0	29 x 104	356997	1	32 200	660	16 000
Wide-mouth Polycarbonate	356013	6	250.0	62 x 120	—	—	38 420	1 060	16 000
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	—	—	38 420	1 060	16 000
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	36.0	29 x 104	356997	1	32 100	400	16 000
Polypropylene	357005	25	36.0	29 x 104	356997	1	32 100	400	16 000
<b>Open-Top Tubes, Conical Graduated</b>									
Polypropylene	355663	6	15.0	17 x 119	356964	5	6 900	4 190	7 000
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	342098	9	2 300	10 700	4 000

\* The maximum speed is 14 000 rpm in J2 Series centrifuges.

**Rotor Replacement Parts**

- 363931 Double-locking Lid Assembly
- 363935 Single-locking Lid Assembly
- 893502 Large O-ring for Either Lid Assembly (5.987 dia.)
- 893503 Small O-ring for Either Lid Assembly (1.046 dia.)

**Adapters**

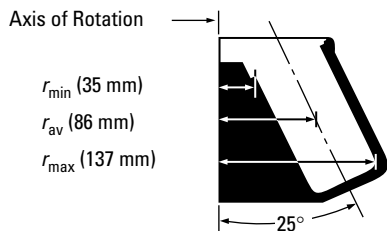
*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

342098

356964

356997





**Fixed-Angle Rotor, Aluminum**

Major applications: General-purpose, large-volume and multi-tube processing. Adapters permit use of up to 30 each 15-mL tubes and up to 72 each 3-mL tubes.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
14 000	30 100	1 660	6 x 250 mL 62 x 120 mm 2.5 x 4.8 in	1.5 L

*For use in Avanti® J Series and J2 Series centrifuges.*

No. 339247. JA-14 Fixed-Angle Rotor for 14 000 rpm operation. Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
Conical Polyallomer	356989	6	230.0	60 x 121	356983	1	8 600	6 158	7 500
Polycarbonate	357002	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
Conical Polycarbonate	356987	6	230.0	62 x 120	356983	1	8 600	6 158	7 500
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	356997	1	30 100	1 764	14 000
Polycarbonate	357000	6	50.0	29 x 104	356997	1	30 100	1 764	14 000
Wide-mouth Polycarbonate	356013	6	250.0	62 x 120	————	————	30 100	1 764	14 000
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	————	————	30 100	1 764	14 000
<b>Bottle with Snap-On Cap</b>									
Polyallomer	361694	6	50.0	29 x 104	356997	1	30 100	1 764	14 000
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
Thickwall Polypropylene	357005	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
Polypropylene	357007	25	50.0	29 x 104	356997	1	30 100	1 764	14 000
Conical Polypropylene	355663	6	15.0	17 x 119	356995	5	5 000	7 056	7 000
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	342098*	9	20 000	————	14 000

\* Can be double-stacked.

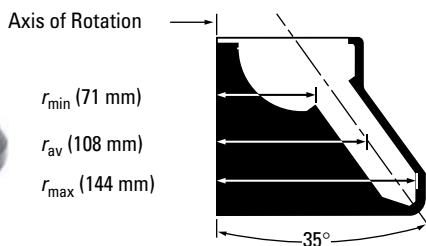
**Rotor Replacement Parts**

346965	Rotor Removal Tool
870137	Spring Pin for JA-14 Rotor Lid
870138	O-ring for Rotor Lid
870980	O-ring for Rotor Hub
360473	Rotor Lid Assembly (includes Tie-down Kit)

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.





**Fixed-Angle Rotor, Aluminum**

Major applications: Pelleting cells, bacteria, or subcellular fractions; phase separations; binding studies.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
12 000*	23 200	1 244	12 x 50 mL 30 x 103 mm (conical) 1.17 x 4 in	600 mL

*For use in Avanti® J Series and J2 Series centrifuges.*

**No. 360992.** JA-12 Fixed-Angle Rotor with Dual-locking Biosafety Lid for 12 000 rpm operation. Tubes and bottles not included.

**No. 360993.** JA-12 Fixed-Angle Rotor with Single-locking Lid for 12 000 rpm operation. Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
Conical*	—	—	50.0	—	—	—	23 200	—	12 000

\* Tested using Corning and Falcon 50-mL conical tubes. Corning is a registered trademark of Corning Class Works; Falcon is a registered trademark of Becton, Dickinson and Company. See chart on page 2-6 for adapters used with non-Beckman Coulter tubes and bottles.

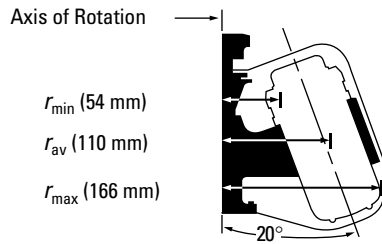
**Rotor Replacement Parts**

- 364846 Dual-locking Lid Assembly
- 360991 Single-locking Lid Assembly
- 360999 Tie-down Bolt (for use without lid)
- 961696 O-ring for Rotor Lids
- 961697 O-ring for Rotor Body
- 364919 Tie-down Kit (Single)
- 364922 Tie-down Kit (Dual-locking)
- 360998 Rotor Removal Tool

**Rotor Supplies**

- 339558 Rotor Cleaning Kit
- 339555 Solution 555™ (1 qt.)
- 335148 Silicone vacuum grease (2 oz.)
- 306812 Spinkote™ Lubricant (1 oz.)





**Fixed-Angle Rotor, Aluminum**

Major applications: Large-volume for initial processing of bacteria or other cells from fermentors, clearing cell debris from homogenates, or pelleting subcellular organelles and protein precipitates.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
10 000	18 600	2 840	6 x 500 mL 69 x 160 mm 2.75 x 6.5 in	3 L

*For use in Avanti® J Series and J2 Series centrifuges.*

**No. 369681.** J-Lite® JLA-10.500 Rotor Assembly. Includes 6 cannisters with secondary liquid closures.

**No. 360828.** Removable Cannisters for JLA-10.500 (set of 2 with 2 secondary liquid closures).

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	356996	1	12 000	2 840	10 000
Polycarbonate	357000	6	50.0	29 x 104	356996	1	12 000	2 840	10 000
	361690	6	500.0	69 x 160	————	————	18 600	2 840	10 000
Wide-mouth Polycarbonate	356013	6	250.0	69 x 122	362750	1	17 700	2 840	10 000
Polypropylene	361691	6	500.0	69 x 160	————	————	11 900	4 440	8 000
Wide-mouth Polypropylene	356011	6	250.0	69 x 122	362750	1	17 700	2 840	10 000
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
Polycarbonate	357002	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
<b>Tubes with Snap-On Caps</b>									
Polypropylene	357005	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
Polycarbonate	363664	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
Polypropylene	357007	25	50.0	29 x 104	356996	1	12 000	2 840	10 000
Conical Graduated Polypropylene	355663	6	15.0	17 x 119	356994	5	7 800	6 730	6 500
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	362750/342098*	9	————	————	10 000

\* BioVials require adapters P/N 362750 AND 342098 to run in the JLA-10.500. Two adapters P/N 342098 can be double-stacked inside of one adapter P/N 362750 per rotor cavity if greater capacity is desired.

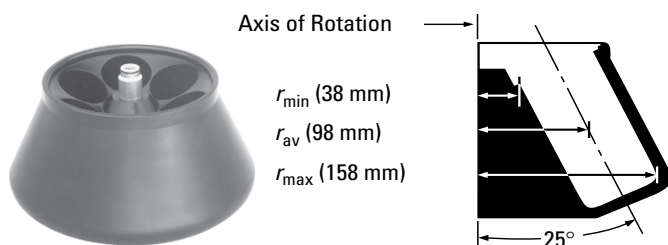
**Rotor Replacement Parts**

- 363334 Rotor Lid Assembly
- 360828 Cannisters (set of 2 with 2 cannister closures)
- 360842 Cannister Closure Assembly (1)
- 360848 O-ring for Cannister Closure (set of 12)
- 363335 Cannister Rack
- 360834 Cannister Sleeve Washer

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*



**Fixed-Angle Rotor, Aluminum**

Major applications: Large-volume for initial processing of tissue homogenates and other large particles.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
10 000	17 700	3 610	6 x 500 mL 69 x 160 mm 2.75 x 6.5 in	3 L

For use in Avanti® J Series and J2 Series centrifuges.

No. 369687. JA-10 Fixed-Angle Rotor for 10 000 rpm operation. Includes carrying handle. Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	356996	1	17 700	—	10 000
Polycarbonate	355605	6	500.0	69 x 160	—	—	17 700	3 610	10 000
	357000	6	50.0	29 x 104	356996	1	17 700	—	10 000
Wide-mouth Polycarbonate	356013	6	250.0	69 x 120	362750	1	17 700	—	10 000
Polypropylene	355607	6	500.0	69 x 159	—	—	11 300	—	8 000
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	362750	1	17 700	—	10 000
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	356996	1	17 700	—	10 000
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	50.0	29 x 104	356996	1	17 700	—	10 000
Thickwall Polypropylene	357005	25	50.0	29 x 104	356996	1	17 700	—	10 000
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	356996	1	17 700	—	10 000
Thickwall Polypropylene	357007	25	50.0	29 x 104	356996	1	17 700	—	10 000
Conical Graduated Polypropylene	355663	6	15.0	17 x 119	356960	5	7 000	—	6 500
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	362750/342098*	9	17 700	—	10 000

\* BioVials require adapters P/N 362750 AND 342098 to run in the JA-10. Two adapters P/N 342098 can be double-stacked inside of one adapter P/N 362750 per rotor cavity if greater capacity is desired.

**Rotor Replacement Parts**

334827	Rotor Removal Tool
870139	O-ring for Rotor Lid
870980	O-ring for Rotor Body
364911	Tie-down Kit
334492	Rotor Lid

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.







**Fixed-Angle Rotor, Aluminum**

Major applications: General purpose, large-volume processing, pelleting of bacteria, subcellular organelles, viruses, and precipitates. Empty rotor weight is 23.9 lb (10.8 kg).

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
9 000	16 800	2 540	4 x 1000 mL 95 x 191 mm 3.8 x 7.65 in.	4 L

*For use in Avanti® J Series centrifuges.*

**No. 366754.** J-Lite® JLA-9.1000 Rotor Package. Includes rotor body, lid, carbon fiber cannisters, and labware kit 392574.

**No. 969330.** J-Lite JLA-9.1000 Rotor Package. Includes rotor body, lid, carbon fiber cannisters, labware kit 392574, and 4 polycarbonate bottles with cap assemblies (two 363676).

**No. 969331.** J-Lite JLA-9.1000 Rotor Package. Includes rotor body, lid, carbon fiber cannisters, labware kit 392574, and 4 polypropylene bottles with cap assemblies (two 363678).

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Bottles with Cap Assemblies*</b>									
J-Lite PC-1000† (Polycarbonate)	363676	2	1000.0	95 x 191	————	————	16 800	2 540	9 000
J-Lite PP-1000‡ (Polypropylene)	363678	2	1000.0	95 x 191	————	————	13 300	3 220	8 000
Polyallomer	357001	6	50.0	29 x 104	356996 in 363683**	1	————	————	9 000
Polycarbonate	355605	6	500.0	69 x 160	363683	1	————	————	9 000
	357000	6	50.0	29 x 104	356996 in 363683**	1	————	————	9 000
Wide-mouth Polycarbonate	356013	6	250.0	69 x 120	362750 in 363683**	1	————	————	9 000
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	362750 in 363683**	1	————	————	9 000
Polycarbonate	355605	6	500.0	69 x 160	363683	1	————	————	9 000
Polypropylene	355607	6	500.0	69 x 159	363683	1	————	————	8 000
<b>Bottles Only</b>									
J-Lite PC-1000 (Polycarbonate)	366751	2	1000.0	95 x 191	————	————	16 800	2 540	9 000
J-Lite PP-1000 (Polypropylene)	366752	2	1000.0	95 x 191	————	————	13 300	3 220	8 000
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	356996 in 363683**	1	————	————	9 000
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	50.0	29 x 104	356996 in 363683**	1	————	————	9 000
Thickwall Polypropylene	357005	25	50.0	29 x 104	356996 in 363683**	1	————	————	9 000

\* Bottle assemblies include cap/closure. The cap/closure serves the dual purpose of sealing the bottle and providing a secondary seal on the carbon-fiber cannister to minimize sample loss resulting from bottle leak or failure.

† PC-1000 must be run with cap/closure; minimum fill volume is 500 mL.

‡ PP-1000 must be run with cap/closure; minimum fill volume is 1 000 mL.

\*\* These adapters fit inside one another to accommodate smaller bottles and tubes.

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

356996

362750



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	356996 in 363683	1	———	———	9 000
Thickwall Polypropylene	357007	25	50.0	29 x 104	356996 in 363683	1	———	———	9 000
Conical Graduated Polypropylene	355663	6	15.0	17 x 119	356960 in 363683	5	———	———	6 500

**Labware Kit Part Number 392574**

Includes: 1 ea. 974627 Bottle Rack (holds 6 bottles)  
1 ea. 363646 Spatula  
1 ea. 366770 Tool Kit

**Accessories**

974627 Bottle Rack (holds 6 bottles for easy transport)  
363663 Bottle Rack (holds 3 bottles for easy transport)  
363683 500-mL Bottle Adapter  
363646 Spatula  
363689 Vent Plug Screw and O-ring (pkg. of 6)  
363680 Cap/Closure Assembly (set of 2)  
*(Includes cap/closure, O-ring, plug, and plug O-ring)*  
366748 Plug Assembly, AutoVent Polycarbonate (pkg. of 2)  
366749 Plug Assembly, AutoVent Ultem<sup>1</sup> (pkg. of 2)  
366770 Tool Kit (includes one bottle grip and one wrench)  
366772 Teflon Spray

**Rotor Replacement Parts**

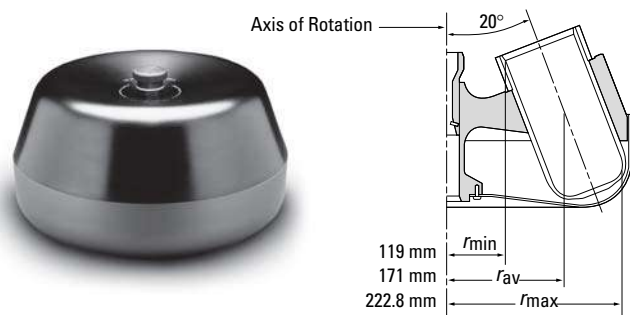
363583 Rotor Lid Assembly  
363686 J-Lite 1000 Removable Cannisters (set of 2)  
970884 O-ring, Cap/Closure  
970883 O-ring, Plug  
363601 Cannister Sleeve Washer (set of 6)  
366768 Cap/Closure Replacement Assembly (set of 6)  
366769 Cap/Closure Replacement O-rings (set of 6)  
366767 AutoVent Plug Replacement O-rings (set of 6)  
*Includes six large plug O-rings and six AutoVent plug O-rings.*

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

356996





**Fixed-Angle Rotor, Aluminum**

Major applications: General purpose, large-volume processing, pelleting of bacteria, cell organelles, viruses, and precipitates. Empty rotor weight is 16.8 kg (37 lb).

Max. RPM	Max. g	k Factor	Number of Bottles Volume/Size	Rotor Capacity
8 000	15 970	2 470	6 x 1000 mL 95 x 191 mm 3.8 x 7.65 in.	6 L

For use in Avanti® J-20XP Series centrifuges.

**No. 363688.** J-Lite® JLA-8.1000 Rotor Package . Includes rotor body, lid, carbon fiber cannisters, and labware kit 392574.

**No. 969328.** J-Lite JLA-8.1000 Rotor Package. Includes rotor body, lid, carbon fiber cannisters, labware kit 392574, and 6 polycarbonate bottles with cap assemblies (three 363676).

**No. 969329.** J-Lite JLA-8.1000 Rotor Package. Includes rotor body, lid, carbon fiber cannisters, labware kit 392574, and 6 polypropylene bottles with cap assemblies (three 363678).

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Bottles with Cap Assemblies*</b>									
J-Lite PC-1000† (Polycarbonate)	363676	2	1000.0	95 x 191	————	————	15 900	2 500	8 000
J-Lite PP-1000‡ (Polypropylene)	363678	2	1000.0	95 x 191	————	————	12 200	2 845	7 000
Polyallomer	357001	6	50.0	29 x 104	356996 in 363683**	1	————	————	8 000
Polycarbonate	355605	6	500.0	69 x 160	363683	1	————	————	8 000
	357000	6	50.0	29 x 104	356996 in 363683**	1	————	————	8 000
Wide-mouth Polycarbonate	356013	6	250.0	69 x 120	362750 in 363683**	1	————	————	8 000
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	362750 in 363683**	1	————	————	8 000
Polycarbonate	355605	6	500.0	69 x 160	363683	1	————	————	8 000
Polypropylene	355607	6	500.0	69 x 159	363683	1	————	————	8 000
<b>Bottles Only</b>									
J-Lite PC-1000 (Polycarbonate)	366751	2	1000.0	95 x 191	————	————	15 970	2 470	8 000
J-Lite PP-1000 (Polypropylene)	366752	2	1000.0	95 x 191	————	————	12 227	3 242	7 000
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	356996 in 363683**	1	————	————	8 000
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	50.0	29 x 104	356996 in 363683**	1	————	————	8 000
Thickwall Polypropylene	357005	25	50.0	29 x 104	356996 in 363683**	1	————	————	8 000

\* Bottle assemblies include cap/closure. The cap/closure serves the dual purpose of sealing the bottle and providing a secondary seal on the carbon-fiber cannister to minimize sample loss resulting from bottle leak or failure.

† PC-1000 must be run with cap/closure; minimum fill volume is 500 mL.

‡ PP-1000 must be run with cap/closure; minimum fill volume is 1 000 mL.

\*\* These adapters fit inside one another to accommodate smaller bottles and tubes.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	<i>g</i> -Force	<i>k</i> Factor	Maximum Speed*
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	356996 in 363683	1	—	—	8 000
Thickwall Polypropylene	357007	25	50.0	29 x 104	356996 in 363683	1	—	—	8 000
Conical Graduated Polypropylene	355663	6	15.0	17 x 119	356960 in 363683	5	—	—	6 500

**Labware Kit Part Number 392574**

Includes: 1 ea. 974627 Bottle Rack (holds 6 bottles)  
 1 ea. 363646 Spatula  
 1 ea. 366770 Tool Kit

**Accessories**

974627 Bottle Rack (holds 6 bottles for easy transport)  
 363663 Bottle Rack (holds 3 bottles for easy transport)  
 363683 500-mL Bottle Adapter  
 363646 Spatula  
 363689 Vent Plug Screw and O-ring (pkg. of 6)  
 363680 Cap/Closure Assembly (set of 2)  
*(Includes cap/closure, O-ring, plug, and plug O-ring)*  
 366748 Plug Assembly, AutoVent Polycarbonate (pkg. of 2)  
 366749 Plug Assembly, AutoVent Ultem<sup>1</sup> (pkg. of 2)  
 366770 Tool Kit (includes one bottle grip and one wrench)  
 366772 Teflon Spray

**Rotor Replacement Parts**

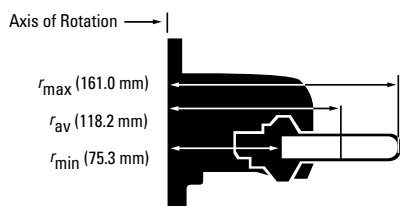
363563 Rotor Lid Assembly  
 363686 J-Lite Removable Cannisters (set of 2)  
 970884 O-ring, Cap/Closure  
 970883 O-ring, Plug  
 363601 Cannister Sleeve Washer (set of 6)  
 366768 Cap/Closure Replacement Assembly (set of 6)  
 366769 Cap/Closure Replacement O-rings (set of 6)  
 366767 AutoVent Plug Replacement O-rings (set of 6)  
*Includes six large plug O-rings and six AutoVent plug O-rings.*

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

356996





**Swinging-Bucket Rotor, Aluminum, Titanium Buckets**

Major applications: Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
24 000*	103 900	334	6 x 38.5 mL 25 x 89 mm 1 x 3.5 in	231 mL

*For use in Avanti® J Series centrifuges  
(except Avanti J-E).*

No. 360743. JS-24.38 Swinging-Bucket Rotor, with six 38.5-mL buckets.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Quick-Seal® Bell-Top Tubes</b>									
Polyallomer	344623	50	33.0	25 x 83	355536†	1	103 900	317	24 000
	343665	50	27.0	25 x 64	355536†	1	103 900	260	24 000
	343664	50	15.0	25 x 38	355536†	1	103 900	167	24 000
konical Polyallomer	358652	50	8.5	25 x 38	358155 355536†	1	103 900	167	24 000
	358654	50	23.0	25 x 76	358155 355536†	1	103 900	297	24 000
<b>Open-Top Tubes</b>									
Polyallomer	326823	50	38.5	25 x 89	—	—	103 900	334	24 000
konical™ Polyallomer	358125	50	25.0	25 x 76	358156	1	95 500	297	24 000
	358126	50	30.0	25 x 89	358156	1	103 900	334	24 000
Thickwall Polyallomer	355642	25	32.0	25 x 89	—	—	103 900	334	24 000
Thickwall Polycarbonate	355631	25	32.0	25 x 89	—	—	103 900	334	24 000
Ultra-Clear™	344058	50	38.5	25 x 89	—	—	103 900	334	24 000

\* Reaches 24 000 rpm in the Avanti J-30I centrifuge only. Not recommended for use in Avanti J-25 Series (max. speed 10 000 rpm), or Avanti J-20XP Series (max. speed 10 000 rpm). Incompatible with all J2 Series.

† Noryl Floating Spacer. Noryl is a registered trademark of GE Plastics.

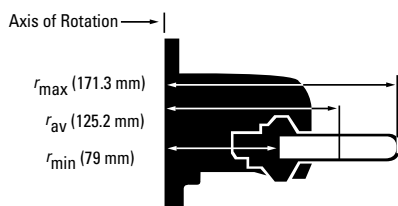
**Rotor Replacement Parts**

362397	Bucket Set - 38 mL (set of 6 with caps and O-rings)
812715	Bucket O-ring
362785	Rotor Stand

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.





**Swinging-Bucket Rotor, Aluminum, Titanium Buckets**

Major applications: Harvesting bacteria, processing tissue homogenates, subcellular particulates, routine pelleting such as precipitates and phase separations.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
24 000*	110 500	376	6 × 15 mL 16 × 96 mm 0.625 × 3.75 in	90 mL

For use in Avanti® J Series centrifuges (except Avanti J-E).

No. 362396. JS-24.15 Swinging-Bucket Rotor with six 15-mL buckets.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed*
<b>Quick-Seal® Bell-Top Tubes</b>									
Polyallomer	356562	50	4.2	16 x 38	355579†	1	110 500	193	24 000
	345830	50	6.3	16 x 44	355579†	1	110 500	215	24 000
	344621	50	8.0	16 x 57	355579†	1	110 500	261	24 000
	344622	50	10.0	16 x 67	355579†	1	110 500	293	24 000
<b>Open-Top Tubes</b>									
Polyallomer	361707	50	15.0	16 x 96	—	—	110 500	376	24 000
Konical Polyallomer	361708	50	12.5	16 x 93	358155	1	108 500	368	24 000
Ultra-Clear™	361706	50	15.0	16 x 96	—	—	110 500	376	24 000

\* Reaches 24 000 rpm in the Avanti J-301 centrifuge only. Not recommended for use in Avanti J-25 Series (max speed 10 000 rpm), or Avanti J-20XP Series (max. speed 10 000 rpm). Incompatible with all J2 Series.

† Noryl Floating Spacer. Noryl is a registered trademark of GE Plastics.

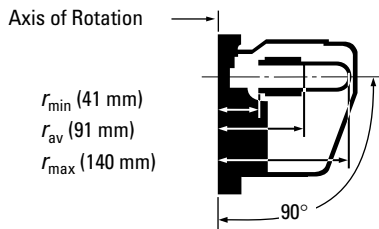
**Rotor Replacement Parts**

362398	Bucket Set - 15 mL (set of 6 with caps and O-rings)
815472	Bucket O-ring
362785	Rotor Stand
364802	Rotor and Adapter Assembly

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.





**Swinging-Bucket Rotor, Aluminum**

Major applications: Harvesting bacteria, processing tissue homogenates, separating cell particulates. Isolation of cell membrane using density gradients.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
13 000	26 500	1,841	6 x 50 mL 29 x 105 mm 1.125 x 4 in	300 mL

For use in Avanti® J Series and J2 Series centrifuges.

No. 346963. JS-13.1 Swinging-Bucket Rotor for 13 000 rpm operation. Includes carrying handle. Tubes and bottles not included.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed		
<b>Bottles with Screw Caps</b>											
Polyallomer	357003	25	50.0	29 x 104	—	—	26 500	1 840	13 000		
Polycarbonate	357002	25	50.0	29 x 104	—	—	26 500	1 840	13 000		
	355672	25	10.0	16 x 80	342327/870329	1	26 500	1 840	13 000		
<b>Tubes with Snap-On Caps</b>											
Polypropylene	357005†	25	50.0	29 x 104	—	—	26 500	1 840	13 000		
Polycarbonate	363664†	25	50.0	29 x 104	—	—	26 500	1 840	13 000		
Polyethylene	340196	500	1.8	11 x 39	344497*	3	26 500	1 840	13 000		
Polyallomer	Natural	357448	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000	
	Polypropylene	Orange	356094	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000
		Yellow	356093	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000
		Green	356092	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000
		Blue	356091	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000
		Natural	356090	500	1.5	11 x 39	344497*	3	26 500	1 840	13 000
<b>Open-Top Tubes</b>											
Polycarbonate	355630	25	10.0	16 x 76	342326/870329	1	8 000	—	13 000		

\* Can be double-stacked. Force will vary depending on tube position.  
 † Cannot be run with caps in this rotor.

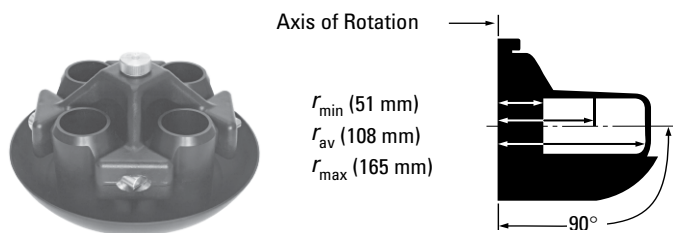
**Rotor Replacement Parts**

- 346965 Rotor Removal Tool
- 346976 Buckets (set of 6)
- 364862 Rotor Tie-down Assembly
- 364921 Tie-down Kit
- 346979 Windshield Bowl Trim
- 346964 Rotor Lid Assembly

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.





**Swinging-Bucket Rotor, Aluminum**

Major applications: Initial processing of cells and removal of cell debris from culture media.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
7 500	10 400	5 287	4 x 250 mL 62 x 136 mm 2.5 x 5.5 in	1 L

*For use in Avanti® J Series centrifuges (except Avanti J-E) and J2 Series centrifuges.*

**No. 336380.** JS-7.5 Swinging-Bucket Rotor for 7 500 rpm operation. Includes four 250-mL buckets. Multitube carriers available separately. Tubes and bottles not included.  
**No. 362212.** JS-7.5 Rotor without buckets.

**Multitube Carriers**

For added versatility, three Multitube Carriers are available for the JS-7.5 Rotor. These Carriers require no adapters to accommodate 50-mL conical tubes, 50-mL round-bottom tubes, and 5-mL round-bottom tubes. Multitube carriers are interchangeable with the buckets of the JS-7.5 Rotor.

**50-mL Conical Tube Carrier**

**No. 362213.** Multitube Carrier for 50-mL conical tubes. Holds three tubes per carrier for maximum rotor capacity of 12 x 50-mL conical tubes. Set of two.



Major applications: General-purpose pelleting (especially of cells), as well as nucleic acid precipitations and isolation of mononuclear cells using Ficoll-Paque.\*

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
7 500	10 580	4 140	12 x 50 mL (conical) 29 x 103 mm 1.125 x 4 in	600 mL

**50-mL Round-Bottom Tube Carrier**

**No. 362214.** Multitube Carrier for 50-mL round-bottom tubes. Holds four tubes per carrier for maximum rotor capacity of 16 x 50-mL tubes. Set of two.



Major applications: General-purpose centrifugation.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
7 500	10 080	3 959	16 x 50 mL 29 x 104 mm 1.125 x 4 in	800 mL

**5-mL Round-Bottom Tube Carrier**

**No. 362215.** Multitube Carrier for 5-mL round-bottom tubes. Holds 24 tubes per carrier for maximum rotor capacity of 96 x 5-mL tubes. Set of two.



Major applications: RIA and other multitube assays.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
7 500	8 950	2 818	96 x 5 mL 12 x 75 mm 0.5 x 3 in	480 mL

\* Ficoll-Paque is a registered trademark of Pharmacia Fine Chemicals.



**Tubes for 250-mL Bucket**

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)*	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polycarbonate	357002	25	50.0	29 x 104	356997	1	9 000	————	7 500
	355673	6	250.0	62 x 136	336389	1	10 400	5 290	7 500
Polypropylene	357003	25	50.0	29 x 104	356997	1	9 000	————	7 500
<b>Bottles with Cap Assemblies</b>									
Polycarbonate	355600	6	50.0	29 x 104	356997	1	9 000	————	7 500
Conical Polycarbonate	356987	6	230.0	62 x 141	356983	1	10 400	5 290	7 500
Wide-mouth Polycarbonate	356013	6	250.0	62 x 120	————	————	10 400	5 290	7 500
Polypropylene	355603	6	50.0	29 x 104	356997	1	9 000	————	7 500
Conical Polypropylene	356989	6	230.0	62 x 141	356983	1	10 400	5 290	7 500
Wide-mouth Polypropylene	356011	6	250.0	62 x 120	————	————	10 400	5 290	7 500
<b>Tubes with Snap-On Caps</b>									
Polycarbonate	363664	25	50.0	29 x 104	356997	1	9 000	————	7 500
Polypropylene	357005	25	50.0	29 x 104	356997	1	9 000	————	7 500
<b>Open Top Tubes</b>									
Polycarbonate (Graduated)	363647	25	50.0	29 x 104	————	————	10 080	5 290	7 500
Polypropylene (Graduated)	357007	25	50.0	17 x 120	356964	1	9 000	————	7 500
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	342098*	9	————	————	7 500

\* Adapter 342098 can be double-stacked to increase rotor capacity.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes for 4-place Carrier**

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	————	————	10 400	————	7 500
Polycarbonate	357002	25	50.0	29 x 104	————	————	10 400	————	7 500
<b>Tubes with Snap Caps</b>									
Polycarbonate	363664*	25	50.0	29 x 104	————	————	10 400	————	7 500
Polypropylene	357005*	25	50.0	29 x 104	————	————	10 400	————	7 500
<b>Open-Top Tubes</b>									
Polycarbonate	363647	25	50.0	29 x 104	————	————	10 400	————	7 500

\* See Rotor Manual for instructions on positioning these tubes in the carrier.  
See chart on page 2-6 for adapters used with non-Beckman Coulter tubes and bottles.

**Rotor Replacement Parts**

- 885367 Retaining Ring for Rotor Knob Shaft if purchased after 1/1/81. If purchased before 1/1/81, use 885367 and 336747.
- 816952 Polyethylene Rotor Foot
- 362216 250-mL Buckets (set of 2)
- 362212 JS-7.5 Rotor without carriers or buckets
- 364920 Tie-down Kit
- 362213 3 x 50 mL Conical Multitube Carriers (set of 2)
- 362214 4 x 50 mL Round-bottom Multitube Carriers (set of 2)
- 362215 24 x 5 mL Round-bottom Multitube Carriers (set of 2)

**Adapters**

See chart on page 2-6 for adapters used with non-Beckman Coulter tubes and bottles.

342098

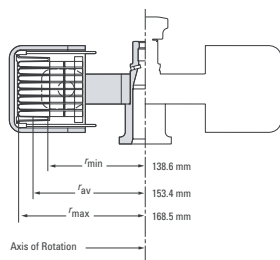


356983



356997





**Swinging-Bucket Rotor**

Major applications: High-throughput processing (DNA or RNA kits), serial dilution of small volumes.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (sec)
5 900	6 570	10 Microplates	47/49

*For use in Avanti® J-25 Series and Avanti J-30I centrifuges.*

**No. 369331.** JS-5.9 Swinging-Bucket Rotor Assembly. Two-place rotor with removable aluminum swinging buckets (set of two), microplate carriers (set of two), support pad for microplates (set of four), and tie-down.

**Microplates**

Plate or Tube Style/Material	Part No.	Quantity	Nominal Volume per Well	No. of Wells	g-Force	k Factor	Maximum Speed
<b>Multiwell Plate, Polystyrene, Nonsterile</b>	609844	100	300 µL	96 wells	—	—	5 900
<b>Deep-well Plate, Polystyrene, Nonsterile*</b>	267001	24	1 mL	96 wells	—	—	5 900
<b>Deep-well Plate, Polystyrene, Sterile*</b>	267004	24	1 mL	96 wells	—	—	5 900
<b>Deep-well Plate, Polypropylene, Nonsterile</b>	267006	24	1 mL	96 wells	—	—	5 900
<b>Deep-well Plate, Polypropylene, Sterile</b>	267007	24	1 mL	96 wells	—	—	5 900
<b>Square-well Plate, Polypropylene</b>	140504	24	2 mL	96 wells	—	—	5 900

**Accessories**

267002	Cap Strip, Nonsterile† (pkg. of 12)
267005	Cap Strip, Sterile† (pkg. of 12)
538619	Aluminum Foil Lid‡ (pkg. of 100)
368957	Support Pad for Microplates (set of 4)
538618	Rubber Roller, 4-inch, for sealing microplate lids
339558	Rotor Cleaning Kit
339555	Beckman Coulter Solution 555 (1 qt)
339379	Rotor Cleaning Brush
977212	Paint On Graphite Lubricant (1/2 oz)

**Rotor Replacement Parts**

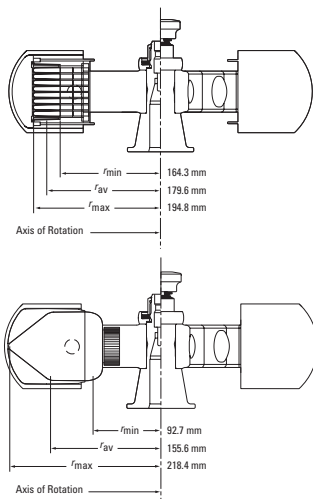
368919	Bucket (set of 2)
368920	Microplate Carrier (set of 2)

\* Do not stack these plates.

† Caps are optional.

‡ Requires 4-inch soft rubber roller (538618) for installation.





**Swinging-Bucket Rotor, Anodized Aluminum**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Number of Tubes Volume	Rotor Capacity
5 300	6 870	24 microplates	2 L

*For use in Avanti® J-E and J-20XP Series centrifuges only.*

**No. 368690.** JS-5.3 Swinging-Bucket Rotor. Four-place rotor with anodized aluminum buckets designed for use with adapters to accommodate a wide range of tubes and bottles. Rotor buckets are interchangeable with microplate carriers. Includes tie-down knob.

**No. 969314.** JS-5.3 Swinging-Bucket Rotor Package. Includes rotor, buckets, tie-down knob, and microplate carrier kit (368314).

**Microplate Carrier Kit**

**No. 368914.** Microplate Carrier Kit. Includes 4 carriers (368905) and 4 support pads (369382).

**Replacement Parts for Microplate Carriers**

- 369382 Support Pads (set of 4)
- 368905 Microplate Carrier (set of 4)

**Tubes and Bottles**

Size	Required Adapter (pkg. 4)	Adapter Color	Tubes per Adapter	g-Force*	Maximum Speed
5 mL round, 13 mm diameter, variable lengths	392071	Beige	33	6 145	5 300
10 mL round, 16 mm diameter, variable lengths	392072	Purple	24	6 145	5 300
15 mL round, 17 mm diameter, variable lengths	392073	Red	20	6 145	5 300
15 mL conical, 17 mm diameter, variable lengths	392075	Green	18	6 425†	5 300
50 mL round, 29 mm diameter, variable lengths	392074	Yellow	8	6 145	5 300
50 mL conical, 30 × 115 mm	392076	Black	7	6 480†	5 300
250 mL round/230 mL conical	392077	Yellow	1	6 670	5 300‡
250 mL conical, 60 × 172 mm	392079	Orange	1	6 870	5 300
500 mL conical	392078	Blue	1	6 870	5 300
15 mL conical	356964 (each)	Yellow	1	6 670	5 300**
50 mL conical	356966 (each)	Yellow	1	6 670	5 300**

\* Maximum RCF and speed for adapters. Use manufacturers' recommendations for tube and bottle limits.  
 † Maximum RCF for labware tested in this adapter is 4 000 × g. Use manufacturers' recommendations for max g-force.  
 ‡ Requires a cushion (356983) to be placed at bottom of adapter.  
 \*\* Use this adapter inside the 250-mL adapter (392077) to run tubes at 6,670 × g.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



Description	Part No.	Quantity	Volume	Maximum Speed	Accessory Description*	Part No.	Quantity
<b>Labware</b>							
<b>Multiwell Polystyrene Plate, 96-Well, Nonsterile</b>	609844	100	300 µL/well	5 300	Cap Strip, Nonsterile†	267002	12
					Cap Strip, Sterile†	267005	12
					Aluminum Foil Lid‡	538619	100
<b>Deep-Well Polystyrene Plate, 96-Well, Nonsterile</b>	267001	24	1 mL/well	5 300	Cap Strip, Nonsterile	267002	12
					Cap Strip, Sterile	267005	12
					Aluminum Foil Lid	538619	100
<b>Deep-Well Polystyrene Plate, 96-Well, Sterile</b>	267004	24	1 mL/well	5 300	Cap Strip, Nonsterile	267002	12
					Cap Strip, Sterile	267005	12
					Aluminum Foil Lid	538619	100
<b>Deep-Well Polypropylene Plate, 96-Well, Nonsterile</b>	267006	24	1 mL/well	5 300	Cap Strip, Nonsterile	267002	12
					Cap Strip, Sterile	267005	12
					Aluminum Foil Lid	538619	100
<b>Deep-Well Polypropylene Plate, 96-Well, Sterile</b>	267007	24	1 mL/well	5 300	Cap Strip, Nonsterile	267002	12
					Cap Strip, Sterile	267005	12
					Aluminum Foil Lid	538619	100
<b>Square-Well Polystyrene Plate,</b>	140504	24	2 mL/well	5 300	Aluminum Foil Lid	538619	100

\* When stacking polypropylene multiwell plates, place a support pad (369382) beneath the bottom plate and a cap strip between the plates to prevent breakage during centrifugation. Also use the support pad beneath all polystyrene deep-well plates.

† Caps are optional.

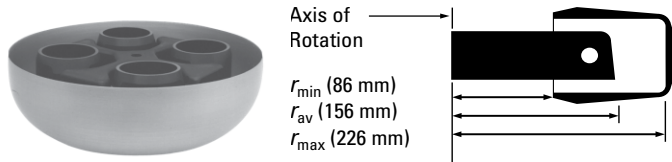
‡ Requires 4-inch soft-rubber roller (538618) for installation.

**Rotor Replacement Parts**

368690	JS-5.3 rotor assembly
368410	Rotor tie-down knob
368415	Bucket (set of 4)
368914	Microplate carrier kit
	Contains:
368905	Microplate carrier (set of 4)
369382	Support pad (set of 4)

**Rotor Supplies**

	Replacement tube and bottle adapters (set of 2):
368907	Beige (13 mm dia)
368909	Purple (16 mm dia)
368910	Red (17 mm dia)
368911	Yellow (29 mm dia)
368915	Green (15 mL conical)
368916	Black (50 mL conical)
369385	Orange (250 mL conical)
369383	Yellow (250 mL round/230 mL conical)
369384	Blue (500 mL conical)
538618	Rubber Roller, 4-in., for sealing foil microplate lids
339558	Rotor Cleaning Kit
339555	Beckman Solution 555 (1 qt)
339379	Rotor Cleaning Brush
977212	Paint On Graphite Lubricant (1/2 oz)



**Swinging-Bucket Rotor (Windshielded)**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
5 200	6 840	4 Liters, 4 Blood Bags, 12 Microplates, 148 RIA-Tubes	2:00/2:30

*For use in J6 Series centrifuges.*

**No. 339087.** JS-5.2 Swinging-Bucket Rotor. Windshielded, four-place rotor with aluminum rotor yoke and removable aluminum swinging buckets. Buckets are interchangeable with Microplate Carriers for spinning microtiter plates and MiniTube Racks.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	339103	7	—	—	5 200
Polycarbonate	355675	6	1000.0	97 x 167	356096	1	—	—	5 200
	358299	1	750.0	96 x 130	356096	1	—	—	5 200
	355664	6	500.0	69 x 160	339109	1	—	—	5 200
	357002	25	50.0	29 x 104	339103	7	—	—	5 200
Polycarbonate	355672	25	10.0	16 x 80	341977	19	—	—	5 200
Round-bottom Polycarbonate	355673	6	250.0	62 x 136	339108	1	—	—	5 200
Polypropylene	355676	6	1000.0	97 x 167	356096	1	—	—	5 200
	356855	6	750.0	96 x 130	356096	1	—	—	5 200
	355665	6	500.0	69 x 159	339109	1	—	—	5 200
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	339103	7	—	—	5 200
Polycarbonate	355620	6	70.0	38 x 102	339104	2	—	—	5 200
	357000	6	50.0	29 x 104	339103	7	—	—	5 200
Wide-mouth Polycarbonate	355605	6	500.0	69 x 160	339109	1	—	—	5 200
	356013	6	250.0	62 x 122	339108	1	—	—	5 200
Polypropylene	355624	6	100.0	38 x 102	339104	2	—	—	5 200
Wide-mouth Polypropylene	355607	6	500.0	69 x 160	339109	1	—	—	5 200
	356011	6	250.0	62 x 122	339108	1	—	—	5 200

\* When used with optional Aeroseal™ Covers, P/N 343686.

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume* per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Bottles</b>										
Polycarbonate	355649	6	500.0	69 x 160	339109	1	————	————	5 200	
	355655	6	70.0	38 x 102	339104	2	————	————	5 200	
Wide-mouth Polycarbonate	358275	25	250.0	62 x 122	339108	1	————	————	5 200	
Polypropylene	355650	6	500.0	69 x 159	339109	1	————	————	5 200	
	355626	6	100.0	38 x 102	339104	2	————	————	5 200	
Wide-mouth Polypropylene	358326	25	250.0	62 x 122	339108	1	————	————	5 200	
<b>Conical Tubes</b>										
Polycarbonate with cap	356987	6	230.0	62 x 141	356983/339108	1	————	————	5 200	
Polypropylene with cap	356989	6	230.0	62 x 141	356983/339108	1	————	————	5 200	
Graduated Polypropylene	355663	6	15.0	17 x 120	339102	14	————	————	5 200	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 38	339100/354511	26	————	————	5 200
	Natural*	343169	500	1.5	11 x 38	339100/354511	26	————	————	5 200
Polycarbonate	363664	6	50.0	29 x 103	339103	7	————	————	5 200	
Polyethylene	340196	500	1.8	11 x 39	339100/354511	26	————	————	5 200	
Polypropylene	Orange	356094	500	1.5	11 x 38	339100/354511	26	————	————	5 200
	Yellow	356093	500	1.5	11 x 38	339100/354511	26	————	————	5 200
	Green	356092	500	1.5	11 x 38	339100/354511	26	————	————	5 200
	Blue	356091	500	1.5	11 x 38	339100/354511	26	————	————	5 200
	Natural	356090	500	1.5	11 x 38	339100/354511	26	————	————	5 200
Polypropylene	357005	6	50.0	29 x 103	339103	7	————	————	5 200	

\* Cap separate.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles** *(continued)*

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Open-Top Tubes</b>									
Polyallomer	355640	25	10.0	16 x 76	341977	19	————	————	5 200
Polycarbonate	363647	25	50.0	29 x 103	339103	7	————	————	5 200
	342080	100	15.0	18 x 98	339102	14	————	————	5 200
	355630	25	10.0	16 x 76	341977	19	————	————	5 200
Polyethylene	342081	100	15.0	18 x 98	339102	14	————	————	5 200
Polypropylene	357007	25	50.0	29 x 103	339103	7	————	————	5 200
	342082	100	15.0	18 x 98	339102	14	————	————	5 200
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	339101	24	————	————	5 200

**Blood-Bag Cups**

No. 339127. Yellow cup with inner diameter of 88 mm for single- and double-packs. Set of four.

No. 339129. Set of four. Red cup with inner diameter of 98 mm for triple- and quad-packs. Set of four.



**Aeroseal™ Covers**



No. 343686. Cover for round buckets of JS-5.2. Features O-ring seal to provide added aerosolprotection. Transparent so broken tubes can be detected and proper precautions taken before breaking seal. Quantity 1.



**Microplate Carriers**

No. 358680. Special carriers, interchangeable with buckets, slip onto yoke of JS-5.2 Rotor. Each carrier holds three microplates for a total capacity of 12 per run. Maximum speed 2 600 rpm (1450 x g). Set of two.



**Rotor Supplies**

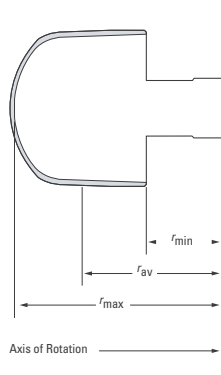
- 339031 Rotor Tie-down Screw
- 341710 Bucket Set (set of 4)
- 878439 Torquing Bar for Rotor Tie-down Screw
- 367045 Rotor Tie-down Kit for Avanti® J-20XP Series centrifuge

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.







**Swinging-Bucket Rotor, Anodized Aluminum**

Major applications: Separating bacterial, yeast, and tissue homogenates; harvesting cultures.

Max. RPM	Max. g	k Factor	Number of Containers	Rotor Capacity
5 000	7 480	9 171	4 x 2.25 L	9 L

*For use in Avanti® J-HC centrifuges.*



**No. 367820.** JS-5.0 Swinging-Bucket Rotor Assembly with Labware Kit. Four-place rotor with anodized aluminum buckets. Includes 4 cups, 4 cup covers with plugs, 8 red cup gaskets, 4 green liner gaskets, 60 air vent covers with plugs, 8 red cup gaskets, 4 green liner gaskets, 60 air vent filters, 50 HarvestLine™ system liners, 2 cup racks, 1 spatula.

**No. 368968.** JS-5.0 Swinging-Bucket Rotor Assembly.

**Labware Kit**

**No. 368732.** Includes 4 cups, 4 cup covers with plugs, 8 red cup gaskets, 4 green liner gaskets, 60 air vent filters, 50 HarvestLine™ system liners, 2 cup racks, 1 spatula.

**Container Assembly**

**No. 368730.** Includes 4 cups, 4 covers with plugs, and 4 cup gaskets (369257).

**HarvestLine System Liners**

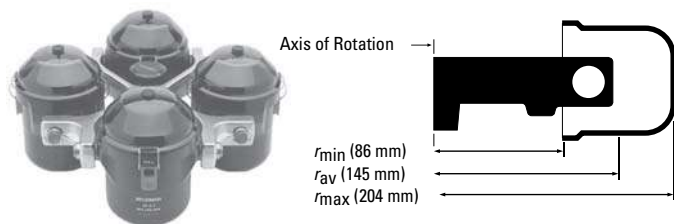
**No. 368735.** Set of 50 polyethylene system liners (food grade compliant).

**Rotor Accessories**

- 368727 Rack
- 367891 Spatula (set of 2)
- 369259 Partition (set of 4)
- 367837 Buckets (set of 4)
- 369257 Gaskets, Cup (red, set of 4)
- 369261 Gaskets, Liner (green, set of 4)
- 977212 Paint-on Graphite Lubricant
- 339558 Rotor Cleaning Kit
- 339555 Solution 555™ (1 qt)
- 306812 Spinkote™ Lubricant (2 oz)

**Rotor Replacement Parts**

- 346965 Rotor Removal Tool
- 367824 Tie-down Bolt
- 368521 Tie-down Tool



**Swinging-Bucket Rotor, Anodized Aluminum**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	k Factor	Number of Tubes Volume/Size	Rotor Capacity
4 300	4 220	11 800	4 x 750 mL 96 x 130 mm 3.8 x 5.2 in	3 L

For use in Avanti® J-20XP Series and J-HC centrifuges.

**No. 362734.** JS-4.3 Swinging-Bucket Rotor. Four-place rotor with anodized aluminum buckets designed for use with modular disk adapters to accommodate a variety of tubes (as indicated in the chart below) and

**Bucket Covers**

**No. 361264.** Set of two. Transparent bucket covers for JS-4.3 Buckets to contain broken tubes. Includes gasket and clips.

**Aerosolve® Cannisters**

**No. 359232.** Set of four.

**No. 359481.** Set of two.

Aerosolve Cannisters fit in JS-4.3 Rotor Buckets. These cannisters feature an O-ring seal and are completely transparent so a broken tube can be seen and proper precautions taken before you break the seal. Cannisters can also be used as 500-mL wide-mouth bottles. Specially-designed adapters accommodate most popular tubes within the cannister (see table at end of this rotor section).

other adapters and blood bag cups. Can be used with Beckman Coulter Aerosolve® Cannisters which are designed to provide added protection from aerosols. Rotor buckets are interchangeable with microplate carriers.

**MicroPlus Carriers**

**No. 362394.** MicroPlus Carrier Assembly. Includes carrier, base, and rubber pad to cushion plates. Each carrier can hold up to 3 microplates, 1 deep-well/square well plate, 1 rack of MiniTubes, or other labware in 96-well format. Set of 2. Maximum allowable speed is 3,250 rpm (1924 x g).

**Replacement Parts for MicroPlus Carrier**

- 361302 Base and Rubber Pads (set of 2)
- 362390 Rubber Pads (set of 4)
- 361304 MicroPlus Carriers (set of 2)

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters Set of 2/Set of 4	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Polyallomer</b>	357003	25	50.0	29 x 104	359474/359153 359486/359164	7 4	3 830	—	4 300
	358299	1	750.0	96 x 130	349846 (ea.)	1	4 040	—	4 300
<b>Polycarbonate</b>	357002	25	50.0	29 x 104	359474/359153 359486/359164	7 4	3 830 3 670	— —	4 300 4 300
	355673	6	250.0	62 x 136	349946 (ea.)	1	4 040	—	4 300
<b>Polypropylene</b>	356855	6	750.0	96 x 130	349846 (ea.)	1	4 040	—	4 300
	355665	6	500.0	69 x 159	349945 (ea.)	1	4 150	—	4 300
<b>Wide-mouth Polycarbonate</b>	356013	6	250.0	62 x 122	349946 (ea.)	1	4 040	—	4 300
<b>Conical Wide-mouth Polycarbonate</b>	356987	6	230.0	62 x 141	356983 and 349946* 356985 (ea.)	1	4 040	—	4 300
<b>Wide-mouth Polypropylene</b>	356011	6	250.0	62 x 122	349946 (ea.)	1	4 040	—	4 300
<b>Conical Wide-mouth Polypropylene</b>	356989	6	230.0	62 x 141	356983 and 349946* 356985 (ea.)	1	4 040	—	4 300

\* Use adapter 356983 with adapter 349946.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters Set of 2/Set of 4	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	6	50.0	29 x 104	359474/359153 359486/359164	7 4	—	—	4 300
Polycarbonate	358299	6	750.0	96 x 130	349846 (ea.)	1	—	—	4 300
	355673	6	50.0	29 x 104	349946 (ea.)	1	—	—	4 300
	357002	6	50.0	29 x 104	359474/359153 359486/359164	7 4	—	—	4 300
Polypropylene	356855	6	750.0	96 x 130	349846 (ea.)	1	—	—	4 300
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	359474/359153 359486/359164	7 4	—	—	4 300
Polycarbonate	356013	6	250.0	62 x 122	349946 (ea.)	1	—	—	4 300
	357000	6	50.0	29 x 104	359474/359153 359486/359164	7 4	—	—	4 300
Polypropylene	355607	6	500.0	69 x 160	349945 (ea.)	1	—	—	4 300
	355665	6	500.0	69 x 159	349945 (ea.)	1	—	—	4 300
	356011	6	250.0	62 x 122	349946 (ea.)	1	—	—	4 300
<b>Bottles</b>									
Wide-mouth Polycarbonate	358275	25	250.0	62 x 122	349946 (ea.)	1	—	—	4 300
Polypropylene	355650	6	500.0	69 x 159	349945 (ea.)	1	—	—	4 300
Wide-mouth Polypropylene	358326	25	250.0	62 x 120	349946 (ea.)	1	—	—	4 300
<b>Conical Tubes</b>									
Wide-mouth Conical Polycarbonate	356987	6	230.0	62 x 141	356983 and 349946	1	—	—	4 300
Wide-mouth Conical Polypropylene	356989	6	230.0	62 x 141	356983 and 349946	1	—	—	4 300
<b>Open-Top Tubes</b>									
Polyallomer	355640	25	10.0	16 x 76	359471/359150 359484/359162	19 12	—	—	4 300
Polycarbonate	363664	25	50.0	29 x 103	359474/359153 359486/359164	7 4	—	—	4 300
	342080	100	15.0	18 x 98	359473/359152	14	—	—	4 300
	355630	25	10.0	16 x 76	359471/359150 359484/359162	19 12	—	—	4 300
Polyethylene	342081	100	15.0	18 x 98	359473/359152	14	—	—	4 300
Polypropylene	357007	25	50.0	29 x 103	359474/359153 359486/359164	7 4	—	—	4 300
	342082	100	15.0	18 x 98	359473/359152	14	—	—	4 300
Stainless Steel	301108	1	10.0	16 x 76	359471/359150 359484/359162	7 4	—	—	4 300

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters Set of 2/Set of 4	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Tubes with Snap-On Caps</b>										
<b>Polyallomer</b>	357448	500	1.5	11 x 38	359469/359148	26	————	————	4 300	
					354511 (ea.)* 354495 (ea.)	26				
<b>Polycarbonate</b>	363664	25	50.0	29 x 103	359474/359153 359486/359164	7 4	————	————	4 300	
<b>Polyethylene</b>	Natural	340196	500	1.8	11 x 39	359469/359148	26	————	————	4 300
						354511 (ea.)* 354495 (ea.)	26			
<b>Polypropylene</b>		357005	25	50.0	29 x 103	359474/359153 359486/359164	7 4	————	————	4 300
	Natural†	343169	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Natural†	356090	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Blue	356091	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Green	356092	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Yellow	356093	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Orange	356094	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	Green	356092	500	1.5	11 x 38	359469/359148 354511 (ea.)* 354495 (ea.)	26 26	————	————	4 300
	<b>BioVials</b>									
	<b>Polypropylene</b>	566353	1 000	4.0	14 x 55	359470/359149 344517 (ea.)	24 10	————	————	4 300

\* Tube retainer (P/N 354511) is sold separately.

† Cap separate.

**Adapters**

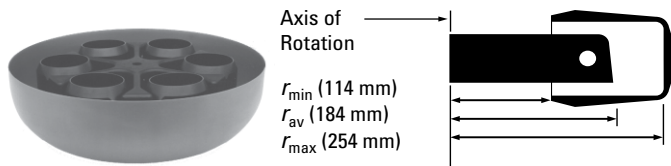
See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



<b>Aerosolve® Cannisters</b>						<b>Part No.</b>	
<b>Aerosolve Cannisters for JS-4.3</b>						343686	
<b>Aerosolve Cannister Adapters</b>							
<b>Color Code</b>	<b>Typical Tube/Bottle Volume (mL)</b>	<b>Maximum Tube Diameter (mm)</b>	<b>Tubes per Adapter</b>	<b>Tubes per JS-4.3 Rotor</b>	<b>Adapter Assembly Part No. (set of 4)</b>	<b>Adapter Assembly Part No. (set of 2)</b>	
<b>White</b>	1.5	11	24	96	354495	———	
<b>Blue</b>	3 and 5	12	24	96	359482	359160	
<b>Tan</b>	5	13	24	96	359489	358993	
<b>Orange</b>	10	14	18	72	359483	359161	
<b>Purple</b>	12	16	12	48	359484	359162	
	3 and 5	12	6	24			
<b>White (vials)</b>	15	14	10	40	344517	———	
<b>Green</b>	15 and 20	18	12	48	359485	359163	
	3 and 5	12	6	24			
<b>Light Green (conical)</b>	15	17	6	24	359487	358991	
	3 and 5	12	6	24			
<b>Lime Green (conical)</b>	50	30	4	16	359488	358992	
	3 and 5	12	6	24			
<b>Yellow</b>	50	70	1	4	359486	359164	
	3 and 5	12	4	16			
<b>Cannister Kit</b>	500	——	——	——	359481	359232	

**Rotor Replacement Parts**

- 361261 Aluminum Buckets, weight-matched set of 4
- 361251 Rotor Yoke, forged stainless steel
- 361264 Bucket Cover Kit
- 361304 MicroPlus Multiwell Plate Carriers, with bases and pads (set of 2)
- 361302 Replacement Bases for MicroPlus Carriers, with pads (set of 2)
- 362390 Replacement Pads for MicroPlus Carriers (set of 4)
- 362737 Knob Assembly



**Swinging-Bucket Rotor (Windshielded)**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
4 200	5 020	6 Liters, 6 Blood Bags, 18 Microplates, 336 RIA-Tubes	2:30/3:00

*For use in Avanti® J-HC and J6 Series centrifuges only.*

**No. 339080.** JS-4.2 Swinging-Bucket Rotor. Windshielded, six-place rotor with aluminum rotor yoke and removable aluminum swinging buckets.

Buckets are interchangeable with Microplate Carriers 358682<sup>‡</sup> for spinning microtiter plates and MiniTube Racks.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™) Set of 2/Set of 4	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
<b>Polyallomer</b>	357003	25	50.0	29 x 104	359474/359153 359486*/259164*	7	5 020	————	4 200
<b>Polycarbonate</b>	358299 <sup>‡</sup>	1	750.0	96 x 130	349946	1	5 020	————	4 200
	355664	6	500.0	69 x 160	339109	1	5 020	————	4 200
	355673	6	250.0	62 x 136	339108	1	5 020	————	4 200
	357002	25	50.0	29 x 104	339103	7	5 020	————	4 200
	355672	25	10.0	16 x 80	341977	19	5 020	————	4 200
<b>Polypropylene</b>	355676**	6	1000.0	97 x 167	356096	1	5 020	————	4 200
	356855**	6	750.0	96 x 130	356096	1	5 020	————	4 200
	355665	6	500.0	69 x 159	339109	1	5 020	————	4 200
<b>Teflon</b>	363076	??	50.0	28.5 x 107	359474/359153 359486*/259164*	7	5 020	————	??
<b>Bottles with Cap Assemblies</b>									
<b>Polyallomer</b>	357001	6	50.0	29 x 104	339103	7	5 020	————	4 200
<b>Polycarbonate</b>	355620	6	70.0	38 x 102	339104	2	5 020	————	4 200
	357000	6	50.0	29 x 104	339103	7	5 020	————	4 200
<b>Wide-mouth Polycarbonate</b>	355605	6	500.0	69 x 160	339109	1	5 020	————	4 200
	356013	6	250.0	62 x 122	339108	1	5 020	————	4 200
<b>Polypropylene</b>	355624	6	100.0	38 x 102	339104	2	5 020	————	4 200
<b>Wide-mouth Polypropylene</b>	355607	6	500.0	69 x 160	339109	1	5 020	————	4 200
	356011	6	250.0	62 x 120	339108	1	5 020	————	4 200
<b>Bottles</b>									
<b>Polycarbonate</b>	355649	6	500.0	69 x 160	339109	1	5 020	————	4 200
	355655	6	70.0	38 x 102	339104	2	5 020	————	4 200
<b>Wide-mouth Polycarbonate</b>	358275	25	250.0	62 x 122	339108	1	5 020	————	4 200
<b>Polypropylene</b>	355650	6	500.0	69 x 159	339109	1	5 020	————	4 200
	355626	6	100.0	38 x 102	339104	2	5 020	————	4 200
<b>Wide-mouth Polypropylene</b>	358326	25	250.0	62 x 120	339108	1	5 020	————	4 200

<sup>\*</sup> When used with optional Aerosol™ Covers, P/N 343686.  
<sup>‡</sup> Adapter used in Aerosolve® Cannister (P/N 359232).

<sup>‡</sup> Microplate carriers cannot be run in the Avanti J-HC centrifuge.  
 \*\* These bottles require a sleeve rather than an adapter.

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Conical Tubes</b>										
Polycarbonate with cap	356987*	6	230.0	62 x 141	356983/349946†	1	5 020	————	4 200	
Polypropylene with cap	356989*	6	230.0	62 x 141	356983/349946†	1	5 020	————	4 200	
Graduated Polypropylene	355663	6	15.0	17 x 120	339102	14	5 020	————	4 200	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Orange	357444	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Yellow	357445	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Green	357446	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Blue	357447	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
Polycarbonate	363664	25	50.0	29 x 104	356997	1	5 020	————	4 200	
Polyethylene	Natural	340196	500	1.8	11 x 39	339100/354511	26	5 020	————	4 200
Polypropylene		357005	25	50.0	29 x 103	339103	7	5 020	————	4 200
	Natural‡	343169	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Natural	356090	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Blue	356091	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Green	356092	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Yellow	356093	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Orange	356094	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
<b>BioVials</b>										
Polypropylene	566353	1 000	4.0	14 x 55	339101	24	5 020	————	4 200	

\* These tubes cannot be run with bucket covers in place.

† Adapter 356983 may be used with 349946.

‡ Cap separate.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Open-Top Tubes</b>									
Polyallomer	355640	25	10.0	16 x 76	341977	19	5 020	————	4 200
Polycarbonate	363647	25	50.0	29 x 103	339103	7	5 020	————	4 200
	342080	100	15.0	18 x 98	339102	14	5 020	————	4 200
	355630	25	10.0	16 x 76	341977	19	5 020	————	4 200
Polyethylene	342081	100	15.0	18 x 98	339102	14	5 020	————	4 200
Polypropylene	357007	25	50.0	29 x 103	339103	7	5 020	————	4 200
	342082	100	15.0	18 x 98	339102	14	5 020	————	4 200
Stainless Steel	301108	1	10.0	16 x 76	341977	19	5 020	————	4 200

**Blood-Bag Cups**

No. 339127. Yellow cup with inner diameter of 88 mm for single- and double-packs. Set of two.

No. 339129. Red cup with inner diameter of 98 mm for triple- and quad-packs. Set of two.



**Aeroseal™ Covers**



No. 343686. Cover for round buckets of JS-4.2. Features O-ring seal to provide added aerosol protection. Transparent so broken tubes can be detected and proper precautions taken before breaking seal. Quantity 1.



**Microplate Carriers**

No. 358682. Special carriers, interchangeable with buckets, slip onto yoke of JS-4.2 Rotor. Each carrier holds three microplates for a total capacity of 18 per run. Max. speed 2 500 rpm. Set of two.



**Rotor Replacement Parts**

- 367045 Rotor Tie-down Kit
- 348392 Cover Assembly
- 368575 Buckets (qty: 6, blue-anodized)
- 368574 Bucket (qty: 1, blue-anodized)
- 339096 Bail for Adapter

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

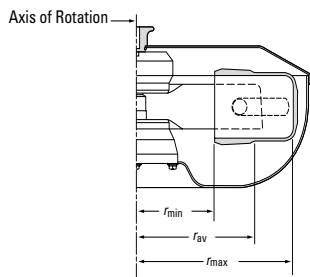
339102

339103

341977







**Swinging-Bucket Rotor (Windshielded)**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
4 200	5 020	6 Liters, 6 Blood Bags, 18 Microplates, 336 RIA-Tubes	2:30/3:00

*For use in Avanti® J-HC and J6 Series centrifuges only.*

**No. 366695.** JS-4.2A Swinging-Bucket Rotor. Windshielded, six-place rotor with aluminum rotor yoke and removable aluminum swinging buckets. Buckets are interchangeable with Microplate Carriers 358682<sup>†</sup> for

spinning microtiter plates and MiniTube Racks. ARIES “Smart Balance” technology provides imbalance compensation for rotors with buckets that are unbalanced up to 100 grams.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	339103	7	5 020	————	4 200
Polycarbonate	355675*	6	1000.0	97 x 167	356096	1	5 020	————	4 200
	358299*	1	750.0	96 x 130	356096	1	5 020	————	4 200
	355664	6	500.0	69 x 160	339109	1	5 020	————	4 200
	357002	25	50.0	29 x 104	339103	7	5 020	————	4 200
	355672	25	10.0	16 x 80	341977	19	5 020	————	4 200
Round-bottom Polycarbonate	355673	6	250.0	62 x 136	339108	1	5 020	————	4 200
Polypropylene	355676*	6	1000.0	97 x 167	356096	1	5 020	————	4 200
	356855*	6	750.0	96 x 130	356096	1	5 020	————	4 200
	355665	6	500.0	69 x 159	339109	1	5 020	————	4 200
<b>Bottles</b>									
Polycarbonate	355649	6	500.0	69 x 160	339109	1	5 020	————	4 200
	355655	6	70.0	38 x 102	339104	2	5 020	————	4 200
Wide-mouth Polycarbonate	358275	25	250.0	62 x 122	339108	1	5 020	————	4 200
Polypropylene	355650	6	500.0	69 x 159	339109	1	5 020	————	4 200
	355626	6	100.0	38 x 102	339104	2	5 020	————	4 200
Wide-mouth Polypropylene	358326	25	250.0	62 x 120	339108	1	5 020	————	4 200
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	339103	7	5 020	————	4 200
Polycarbonate	355620	6	70.0	38 x 102	339104	2	5 020	————	4 200
	357000	6	50.0	29 x 104	339103	7	5 020	————	4 200
Wide-mouth Polycarbonate	355605	6	500.0	69 x 160	339109	1	5 020	————	4 200
	356013	6	250.0	62 x 122	339108	1	5 020	————	4 200
Polypropylene	355624	6	100.0	38 x 102	339104	2	5 020	————	4 200
Wide-mouth Polypropylene	355607	6	500.0	69 x 160	339109	1	5 020	————	4 200
	356011	6	250.0	62 x 120	339108	1	5 020	————	4 200

\* These bottles require a sleeve rather than an adapter.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.

339103    339104    339108    339109    341977    356096



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Conical Tubes</b>										
Polycarbonate with cap	356987	6	230.0	62 x 141	356983/339108	1	5 020	————	4 200	
Polypropylene with cap	356989	6	230.0	62 x 141	356983/339108	1	5 020	————	4 200	
Graduated Polypropylene	355663	6	15.0	17 x 120	339102	14	5 020	————	4 200	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Orange	357444	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Yellow	357445	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Green	357446	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Blue	357447	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
Polycarbonate	363664	25	50.0	29 x 104	356997	1			4 200	
Polyethylene	Natural	340196	500	1.8	11 x 39	339100/354511	26	5 020	————	4 200
Polypropylene		357005	25	50.0	29 x 103	339103	7	5 020	————	4 200
	Natural	356090	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Natural	343169	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Blue	356091	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Green	356092	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Yellow	356093	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
	Orange	356094	500	1.5	11 x 38	339100/354511	26	5 020	————	4 200
<b>BioVials</b>										
Polypropylene	566353	1 000	4.0	14 x 55	339101	24	5 020	————	4 200	

\* Cap separate.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Open-Top Tubes</b>									
<b>Polyallomer</b>	355640	25	10.0	16 x 76	341977	19	5 020	————	4 200
<b>Polycarbonate</b>	363647	25	50.0	29 x 103	339103	7	5 020	————	4 200
	342080	100	15.0	18 x 98	339102	14	5 020	————	4 200
	355630	25	10.0	16 x 76	341977	19	5 020	————	4 200
<b>Polyethylene</b>	342081	100	15.0	18 x 98	339102	14	5 020	————	4 200
<b>Polypropylene</b>	357007	25	50.0	29 x 103	339103	7	5 020	————	4 200
	342082	100	15.0	18 x 98	339102	14	5 020	————	4 200

**Blood-Bag Cups**

No. 339127. Yellow cup with inner diameter of 88 mm for single- and double-packs. Set of two.

No. 339129. Red cup with inner diameter of 98 mm for triple- and quad-packs. Set of two.



**Aeroseal™ Covers**



No. 343686. Cover for round buckets of JS-4.2A. Features O-ring seal to provide added aerosol protection. Transparent so broken tubes can be detected and proper precautions taken before breaking seal. Quantity 1.



**Microplate Carriers**

No. 358682. Special carriers, interchangeable with buckets, slip onto yoke of JS-4.2A Rotor. Each carrier holds three microplates for a total capacity of 18 per run. Max. speed 2 500 rpm. Set of two.



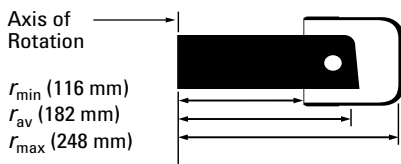
**Rotor Replacement Parts**

- 367045 Rotor Tie-down Kit
- 348392 Cover Assembly
- 368575 Buckets (qty: 6, blue-anodized)
- 368574 Bucket (qty: 1, blue-anodized)

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*





**Swinging-Bucket Rotor (Windshielded)**

Major applications: Separation of serum from whole blood, blood component separation.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
4 200	4 900	6 Blood Bags 18 Microplates	2:30/3:00

*For use in J6 Series centrifuges.*

**No. 348394.** JS-4.2SM Swinging-Bucket Rotor. Windshielded, six-place rotor designed with oval-shaped buckets specifically for blood bank applications which utilize similarly shaped blood bags. Buckets are interchangeable with microplate carriers for blood serum studies. Includes six oval-shaped blood-bag cups.

**Microplate Carriers**

**No. 358682.** Special carriers, interchangeable with buckets, slip onto yoke of JS-4.2SM Rotor. Each carrier holds three microplates for a total capacity of 18 per run. Maximum speed 2 500 rpm. Set of two.



**Blood-Bag Cups**

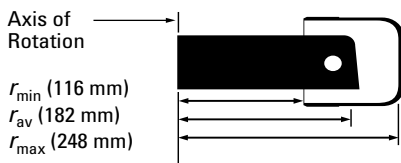
**No. 363651.** Oval-shaped gray cup for quad-packs (filters). Set of two.



**Rotor Replacement Parts**

- 367045 Rotor Tie-down Kit
- 348392 Cover Assembly
- 348393 Buckets (set of 6)
- 348359 Liners





**Swinging-Bucket Rotor (Windshielded)**

Major applications: Separation of serum from whole blood, blood component separation.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
4 200	4 900	6 Blood Bags	2:30/3:00

*For use in J6 Series centrifuges only.*



**No. 366670.** JS-4.2SMA Swinging-Bucket Rotor. Windshielded, six-place rotor designed with oval-shaped buckets specifically for blood bank applications which utilize similarly shaped blood bags. Buckets are interchangeable with microplate carriers for blood serum studies. Includes six oval-shaped blood-bag cups. ARIES “Smart Balance” technology provides imbalance compensation for rotors with buckets that are unbalanced up to 100 grams.

**Microplate Carriers**

**No. 358682.** Special carriers, interchangeable with buckets, slip onto yoke of JS-4.2SMA Rotor. Each carrier holds three microplates for a total capacity of 18 per run. Maximum speed 2 500 rpm. Set of two.



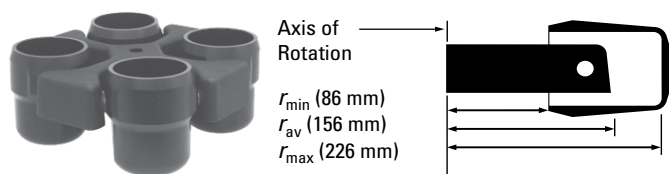
**Blood-Bag Cups**

**No. 363651.** Oval-shaped gray cup for quad-packs (filters). Set of two.



**Rotor Replacement Parts**

- 367045 Rotor Tie-down Kit
- 348392 Cover Assembly
- 348393 Buckets (set of 6)
- 348359 Liners



**Swinging-Bucket Rotor (Unshielded), Aluminum**

Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time
4 000	4 050	4 Liters, 4 Blood Bags, 12 Microplates, 148 RIA Tubes	1:30/2:00 min.

For use in Avanti® J-20XP Series and J-6 Series centrifuges.

**No. 339086.** JS-4.0 Swinging-Bucket Rotor. Unshielded, four-place rotor with aluminum rotor yoke and removable aluminum swinging buckets. Buckets are interchangeable with Microplate Carriers for spinning microtiter plates and MiniTube Racks. Note: requires tie-down kit P/N 367045 for use with Avanti J-20XP Series centrifuges.

\* When used with optional Aerosol™ Covers P/N 343686.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
Polyallomer	357003	25	50.0	29 x 104	339103	7	————	————	4 000
Polycarbonate	355675	6	1000.0	97 x 167	356096	1	————	————	4 000
	358299	1	750.0	96 x 130	356096	1	————	————	4 000
	355664	6	500.0	69 x 160	339109	1	————	————	4 000
	357002	25	50.0	29 x 104	339103	7	————	————	4 000
Polycarbonate	355672	25	10.0	16 x 80	341977	19	————	————	4 000
Round-bottom Polycarbonate	355673	6	250.0	62 x 136	339108	1	————	————	4 000
Polypropylene	355676	6	1000.0	97 x 167	356096	1	————	————	4 000
	356855	6	750.0	96 x 130	356096	1	————	————	4 000
	355665	6	500.0	69 x 159	339109	1	————	————	4 000
<b>Bottles with Cap Assemblies</b>									
Polyallomer	357001	6	50.0	29 x 104	339103	7	————	————	4 000
Polycarbonate	355620	6	70.0	38 x 102	339104	2	————	————	4 000
	357000	6	50.0	29 x 104	339103	7	————	————	4 000
Wide-mouth Polycarbonate	355605	6	500.0	69 x 160	339109	1	————	————	4 000
	356013	6	250.0	62 x 122	339108	1	————	————	4 000
Polypropylene	355624	6	100.0	38 x 102	339104	2	————	————	4 000
Wide-mouth Polypropylene	355607	6	500.0	69 x 160	339109	1	————	————	4 000
	356011	6	250.0	62 x 122	339108	1	————	————	4 000

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume* per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Bottles</b>										
Polycarbonate	355649	6	500.0	69 x 160	339109	1	————	————	4 000	
	355655	6	70.0	38 x 102	339104	2	————	————	4 000	
Wide-mouth Polycarbonate	358275	25	250.0	62 x 122	339108	1	————	————	4 000	
Polypropylene	355650	6	500.0	69 x 159	339109	1	————	————	4 000	
	355626	6	100.0	38 x 102	339104	2	————	————	4 000	
Wide-mouth Polypropylene	358326	25	250.0	62 x 122	339108	1	————	————	4 000	
<b>Conical Tubes</b>										
Polycarbonate with cap	356987	6	230.0	62 x 141	356983/339108	1	————	————	4 000	
Polypropylene with cap	356989	6	230.0	62 x 141	356983/339108	1	————	————	4 000	
Graduated Polypropylene	355663	6	15.0	17 x 120	339102	14	————	————	4 000	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 38	339100/354511	26	————	————	4 000
	Natural*	343169	500	1.5	11 x 38	339100/354511	26	————	————	4 000
Polycarbonate	363664	6	50.0	29 x 103	339103	7	————	————	4 000	
Polyethylene	340196	500	1.8	11 x 39	339100/354511	26	————	————	4 000	
Polypropylene	Orange	356094	500	1.5	11 x 38	339100/354511	26	————	————	4 000
	Yellow	356093	500	1.5	11 x 38	339100/354511	26	————	————	4 000
	Green	356092	500	1.5	11 x 38	339100/354511	26	————	————	4 000
	Blue	356091	500	1.5	11 x 38	339100/354511	26	————	————	4 000
	Natural	356090	500	1.5	11 x 38	339100/354511	26	————	————	4 000
Polypropylene	357005	6	50.0	29 x 103	339103	7	————	————	4 000	

\* Cap separate.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles** *(continued)*

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Open-Top Tubes</b>									
Polyallomer	355640	25	10.0	16 x 76	341977	19	————	————	4 000
Polycarbonate	363647	25	50.0	29 x 103	339103	7	————	————	4 000
	342080	100	15.0	18 x 98	339102	14	————	————	4 000
	355630	25	10.0	16 x 76	341977	19	————	————	4 000
Polyethylene	342081	100	15.0	18 x 98	339102	14	————	————	4 000
Polypropylene	357007	25	50.0	29 x 103	339103	7	————	————	4 000
	342082	100	15.0	18 x 98	339102	14	————	————	4 000
<b>BioVials</b>									
Polypropylene	566353	1000	4.0	14 x 55	339101	24	————	————	4 000

**Blood-Bag Cups**

No. 339127. Yellow cup with inner diameter of 88 mm for single- and double-packs. Set of two.

No. 339129. Red cup with inner diameter of 98 mm for triple- and quad-packs. Set of two.



**Aeroseal™ Covers**



No. 343686. Cover for round buckets of JS-4.0. Features O-ring seal to provide added aerosol protection. Transparent so broken tubes can be detected and proper precautions taken before breaking seal. Quantity 1.



**Microplate Carriers**

No. 358680. Special carriers, interchangeable with buckets, slip onto yoke of JS-4.0 Rotor. Each carrier holds three microplates for a total capacity of 12 per run. Maximum speed 2 600 rpm (1450 x g). Set of two.



**Rotor Supplies**

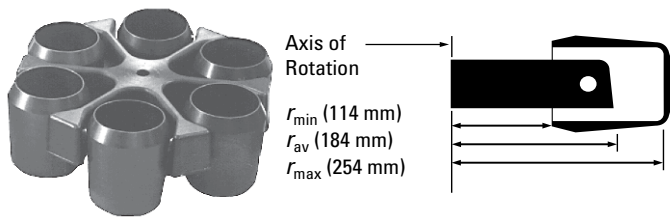
- 339031 Rotor Tie-down Screw
- 341710 Bucket Set (set of 4)
- 878439 Torquing Bar for Rotor Tie-down Screw
- 367045 Rotor Tie-down Kit for Avanti® J-20XP Series centrifuges

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*







**Swinging-Bucket Rotor (Unshielded)**

Major applications: Major applications: Rapid sedimentation of protein precipitates, large particles, cells, and cell debris. It can be used for binding studies and separating serum from whole blood.

Max. RPM	Max. g	Rotor Capacity	Approximate Accel/Decel Time (min:sec)
3 000	2 560	6 Liters, 6 Blood Bags, 18 Microplates, 336 RIA-Tubes	2:00/1:30 min.

*For use in J6 Series centrifuges only.*

**No. 339081.** JS-3.0 Swinging-Bucket Rotor. Unshielded, six-place rotor with aluminum rotor yoke and removable aluminum swinging buckets. Buckets are interchangeable with Microplate Carriers 358682 for spinning microtiter plates and MiniTube Racks in the JS-3.0 Rotor.

\* When used with optional Aerosol™ Covers, P/N 343686.

**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Bottles with Screw Caps</b>									
<b>Polyallomer</b>	357003	25	50.0	29 x 104	339103	7	2 560	—	3 000
<b>Polycarbonate</b>	355675	6	1000.0	97 x 167	356096*	1	2 560	—	3 000
	358299	1	750.0	96 x 130	356096*	1	2 560	—	3 000
	355664	6	500.0	69 x 160	339109	1	2 560	—	3 000
	355673	6	250.0	62 x 136	339108	1	2 560	—	3 000
	357002	25	50.0	29 x 104	339103	7	2 560	—	3 000
	355672	25	10.0	16 x 80	341977	19	2 560	—	3 000
<b>Polypropylene</b>	355676	6	1000.0	97 x 167	356096*	1	2 560	—	3 000
	356855	6	750.0	96 x 130	356096*	1	2 560	—	3 000
	355665	6	500.0	69 x 159	339109	1	2 560	—	3 000
<b>Bottles with Cap Assemblies</b>									
<b>Polyallomer</b>	357001	6	50.0	29 x 104	339103	7	2 560	—	3 000
<b>Polycarbonate</b>	355620	6	70.0	38 x 102	339104	2	2 560	—	3 000
	357000	6	50.0	29 x 104	339103	7	2 560	—	3 000
<b>Wide-mouth Polycarbonate</b>	355605	6	500.0	69 x 160	339109	1	2 560	—	3 000
	356013	6	250.0	62 x 122	339108	1	2 560	—	3 000
<b>Polypropylene</b>	355624	6	100.0	38 x 102	339104	2	2 560	—	3 000
<b>Wide-mouth Polypropylene</b>	355607	6	500.0	69 x 160	339109	1	2 560	—	3 000
	356011	6	250.0	62 x 120	339108	1	2 560	—	3 000
<b>Bottles</b>									
<b>Polycarbonate</b>	355649	6	500.0	69 x 160	339109	1	2 560	—	3 000
	355655	6	70.0	38 x 102	339104	2	2 560	—	3 000
<b>Wide-mouth Polycarbonate</b>	358275	25	250.0	62 x 122	339108	1	2 560	—	3 000
<b>Polypropylene</b>	355650	6	500.0	69 x 159	339109	1	2 560	—	3 000
	355626	6	100.0	38 x 102	339104	2	2 560	—	3 000
<b>Wide-mouth Polypropylene</b>	358326	25	250.0	62 x 120	339108	1	2 560	—	3 000

\* These bottles require a sleeve rather than an adapter.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed	
<b>Conical Tubes</b>										
Polycarbonate with cap	356987	6	230.0	62 x 141	356983/339108	1	2 560	————	3 000	
Polypropylene with cap	356989	6	230.0	62 x 141	356983/339108	1	2 560	————	3 000	
Graduated Polypropylene	355663	6	15.0	17 x 120	339102	14	2 560	————	3 000	
<b>Tubes with Snap-On Caps</b>										
Polyallomer	Natural	357448	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Orange	357444	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Yellow	357445	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Green	357446	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Blue	357447	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
Polycarbonate	363664	25	50.0	29 x 104	356997	1	2 560	————	3 000	
Polyethylene	Natural	340196	500	1.8	11 x 39	339100/354511	26	2 560	————	3 000
Polypropylene		357005	25	50.0	29 x 103	339103	7	2 560	————	3 000
	Natural*	343169	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Natural	356090	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Blue	356091	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Green	356092	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Yellow	356093	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
	Orange	356094	500	1.5	11 x 38	339100/354511	26	2 560	————	3 000
<b>BioVials</b>										
Polypropylene	566353	1 000	4.0	14 x 55	339101	24	2 560	————	3 000	

\* Cap separate.

**Adapters**

See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.



**Tubes and Bottles**

Tube Style/Material	Part No.	Quantity	Nominal Volume per Tube (mL)	Size (mm)	Required Adapters (Multi-Disc™)	Tubes per Adapter	g-Force	k Factor	Maximum Speed
<b>Open-Top Tubes</b>									
Polyallomer	355640	25	10.0	16 x 76	341977	19	2 560	————	3 000
Polycarbonate	363647	25	50.0	29 x 103	339103	7	2 560	————	3 000
	342080	100	15.0	18 x 98	339102	14	2 560	————	3 000
	355630	25	10.0	16 x 76	341977	19	2 560	————	3 000
Polyethylene	342081	100	15.0	18 x 98	339102	14	2 560	————	3 000
Polypropylene	357007	25	50.0	29 x 103	339103	7	2 560	————	3 000
	342082	100	15.0	18 x 98	339102	14	2 560	————	3 000
Stainless Steel	301108	1	10.0	16 x 76	341977	19	2 560	————	3 000

**Blood-Bag Cups**

No. 339127. Yellow cup with inner diameter of 88 mm for single- and double-packs. Set of two.

No. 339129. Red cup with inner diameter of 98 mm for triple- and quad-packs. Set of two.



**AeroSeal™ Covers**



No. 343686. Cover for round buckets of JS-3.0. Features O-ring seal to provide added aerosol protection. Transparent so broken tubes can be detected and proper precautions taken before breaking seal. Quantity 1.



**Microplate Carriers**

No. 358682. Special carriers, interchangeable with buckets, slip onto yoke of JS-3.0 Rotor. Each carrier holds three microplates for a total capacity of 18 per run. Max. speed 2 500 rpm. Set of two.



**Rotor Replacement Parts**

- 367045 Rotor Tie-down Kit
- 338392 Cover Assembly
- 368575 Buckets (set of 6, blue-anodized)

**Adapters**

*See chart on page 2–6 for adapters used with non-Beckman Coulter tubes and bottles.*

339102

339103

341977



## How To Order the JCF-Z Rotor

For a complete Beckman Coulter JCF-Z Rotor system, the following components are required.

1. A JCF-Z Rotor (choose according to application; continuous flow, zonal, or reorienting gradient).
2. Optional high-flow seal assembly for processing up to 100 liters/hour.
3. An appropriate bracket assembly (for Avanti® J Series instruments only).
4. A pump system (not supplied by Beckman Coulter, but recommendations below).
5. A Beckman Coulter J2 Series or Avanti J Series centrifuge.

## Continuous-Flow Rotors

**No. 335140.** JCF-Z Continuous-Flow Rotor, Titanium, Standard Pellet Core. Includes Standard continuous-flow core (pellet size 200 mL), standard-flow rotating seal assembly, and tool kit. Bracket kit required for use with Avanti J Series centrifuges, and pump system required for all applications.

Max. RPM	Max. g	k Factor	Rotor Capacity
20 000	39 900	100	660 mL

**No. 357544.** JCF-Z Continuous-Flow Rotor, Titanium, Small Pellet Core. Includes Small Pellet continuous-flow core (pellet size 200 mL), standard-flow rotating seal assembly, and tool kit. Bracket kit required for use with Avanti J Series centrifuges, and pump system required for all applications.

Max. RPM	Max. g	k Factor	Rotor Capacity
20 000	36 300	281	240 mL

**No. 357521.** JCF-Z Continuous-Flow Rotor, Titanium, Large Pellet Core. Includes Large Pellet continuous-flow core (pellet size 800 mL), standard-flow rotating seal assembly, and tool kit. Bracket kit required for use with Avanti J Series centrifuges, and pump system required for all applications.

Max. RPM	Max. g	k Factor	Rotor Capacity
20 000	39 900	293	1 250 mL

## Bracket Kits for use with Avanti J-Series centrifuges

**No. 363843.** Bracket Kit, for use with Avanti J-25 Series and Avanti J-301 centrifuges, and standard Cole-Parmer size-16 tubing (6.4 mm, 1/4-in. O.D.). For other size tubing, see optional kits below.

**No. 366431.** Bracket Kit, for use with Avanti J-20XP Series centrifuges, and standard Cole-Parmer size-16 tubing (6.4 mm, 1/4-in. O.D.). For other size tubing, see optional kits below.

**No. 363844.** Size-14 Tubing Adapter Kit, for use with Cole-Parmer size-14 tubing (4.8 mm, 3/16 in.). Order in addition to one of above Bracket Kits.

**No. 363845.** Size-15 Tubing Adapter Kit, for use with Cole-Parmer size-15 tubing (9.5 mm, 3/8 in.). Order in addition to one of above Bracket Kits.

## Recommended Pumps

The chosen pump must meet the following requirements: (a) has a continuously adjustable flow rate from 6 to 100 mL/min; (b) has a flow rate controllable to within  $\pm 1.5\%$ ; (c) has a flow rate independent of back pressure up to 40 psi; and (d) has pulsation less than 5% of flow rate.

We recommend Cole-Parmer Masterflex® L/S® Standard Digital Pump E-77921-00 (115 VAC), or L/S Standard Digital Pump E-77921-07 (230 VAC). These are not available from Beckman Coulter, but may be ordered direct from Cole-Parmer (625 East Bunker Court, Vernon Hills, Illinois 60061-1844 USA, Phone 847-549-7600, Fax 847-549-7676, TDD hotline: 800-833-7400, E-mail: info@coleparmer.com). Contact Cole-Parmer directly to receive current ordering information for these or comparable pumps.

These pumps include: Easy-Load® pump head model E-07518-12 (accepts L/S 15 and L/S 24 tubing), 10 ft. (3 m) of Tygon® LFL L/S 24 tubing model E-06429-24 (flow range of 28 to 1700 mL/min), and 10 to 600 rpm standard digital drive model E-07523-20 (115 VAC) or E-07523-27 (230 VAC).

\* Masterflex, L/S, and Easy-Load are registered trademarks of Cole-Parmer Instrument Company.

† Tygon is a registered trademark of Norton Company.

## Zonal and Reorienting Gradient Rotors

**No. 354006.** JCF-Z Zonal Rotor, Titanium.

Includes Zonal core, standard-flow rotating seal assembly, and tool kit. Bracket kit required for use with Avanti J Series centrifuges, and pump system required for all applications.

Max. RPM	Max. g	k Factor	Rotor Capacity
20 000	39 900	710	1 990 mL

**No. 354005.** JCF-Z Reorienting Gradient Rotor, Titanium.

Includes reorienting gradient core, sample transfer assembly, and tool kit. Bracket kit required for use with Avanti J Series centrifuges, and pump system required for all applications.

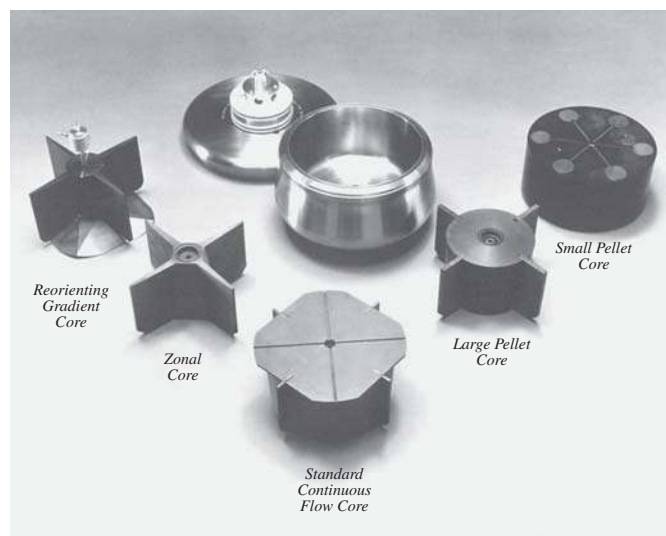
Max. RPM	Max. g	k Factor	Rotor Capacity
20 000	39 900	779	1 750 mL

## Interchangeable Cores and Accessories

335130	Continuous-flow Core, Standard
350641	Continuous-flow Core, Large-Pellet
350601	Continuous-flow Core, Small-Pellet
335141	Zonal Core
343348	Zonal Keylock Switch for J2-21
350585	Reorienting Gradient Core and Sample Transfer Assembly
335142	Standard-flow, Rotating Seal Assembly required for Zonal- and Continuous-flow Operation
335134	High-flow Seal Assembly Kit: permits processing up to 100 liters/hour in Continuous-flow Core

## JCF-Z-Rotor Replacement Parts

335144	Rotating Seal, Carbon-graphite
812715	O-ring for JCF-Z Rotor Plug (Min. order 12)
815473	O-ring for JCF-Z Rotor Lid Stem, 3/8" O.D. (Min. order 6)
824412	O-ring for JCF-Z Rotating Seal, 3/4" O.D. (Min. order 6)
854519	O-ring for bottom of JCF-Z-Rotor Bowl (Min. order 6)
366190	Bearing, Stainless Steel
870655	O-ring for JCF-Z Rotating Seal, .502 O.D. (Min. order 6)
870688	O-ring for JCF-Z Rotor Lid, 7.188 O.D.
335143	Tool Kit



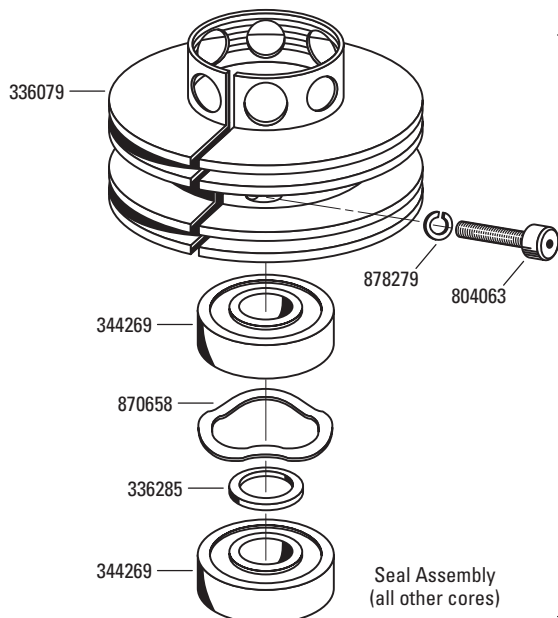
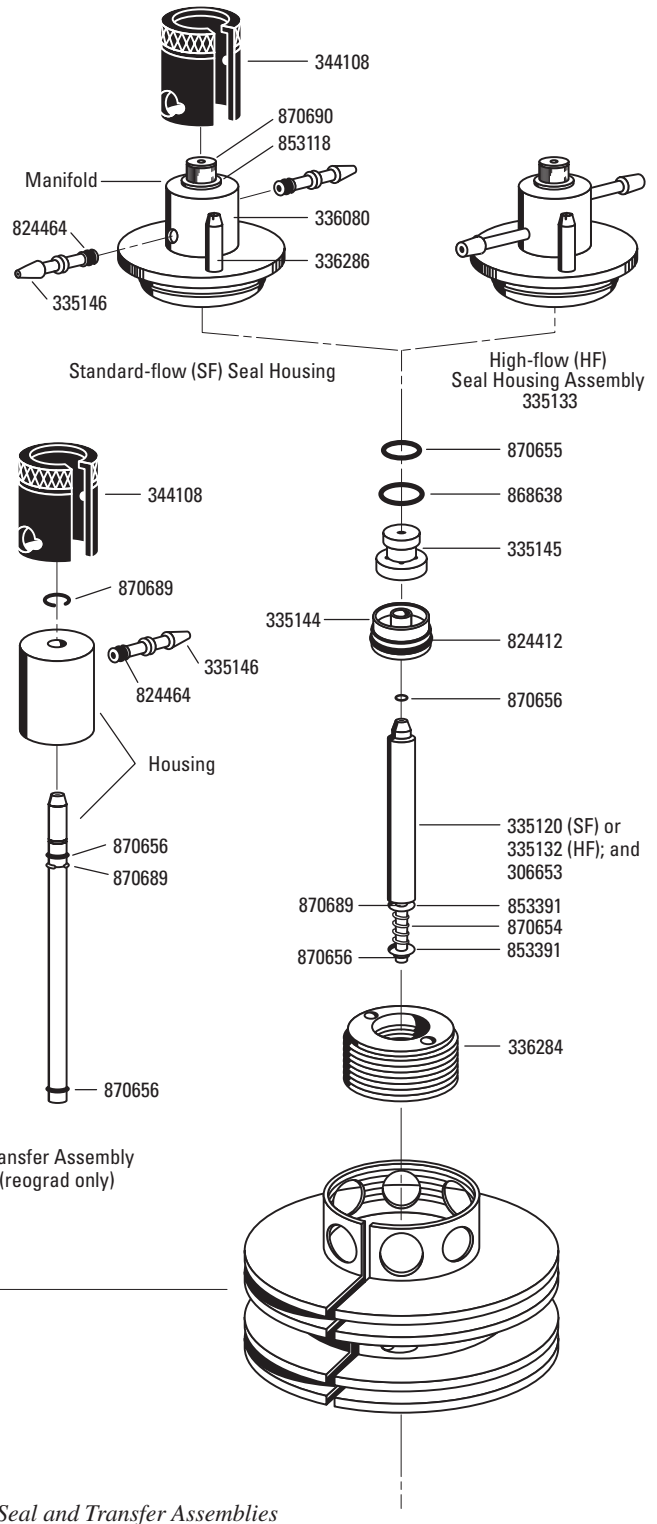
**For use in Avanti® J Series centrifuges (except Avanti J-E).**

Many of the parts on this list are pictured for easy identification.

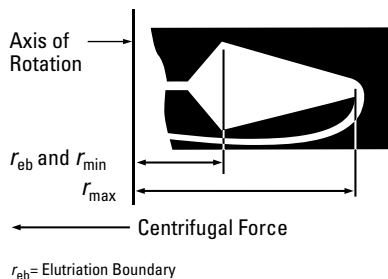
**Supply List**

- 336079 Bearing Housing (anodized aluminum)
- 366190 Bearing (stainless steel)
- 336285 Bearing Spacer (stainless steel)
- 350585 Reorienting Gradient Core and Sample Transfer Assembly
- 335136 Feed Fitting, High-flow (stainless steel)\*
- 335146 Feed Fitting, Standard-flow (stainless steel)\*
- 344108 Fitting Retaining Clamp (Noryl†)
- 338672 Housing, High-flow Stationary Seal (stainless steel)
- 336080 Housing, Standard-flow Stationary Seal (stainless steel)
- 336284 Mount, Rotating Seal (stainless steel)
- 870526 O-ring, Continuous-flow Lid
- 817033 O-ring, (Viton‡), Continuous-flow Lid
- 824412 O-ring, Rotating Seal
- 824464 O-ring, Seal Housing Feed Fitting
- 870656 O-ring, (Viton‡), Transfer Tube Assembly
- 870315 O-ring, Zonal Lid
- 870689 Retaining Ring (stainless steel)
- 335120 Sample Transfer Tube, Standard-flow Seal Assembly (stainless steel)
- 335132 Sample Transfer Tube, High-flow Seal Assembly (stainless steel)
- 336286 Scavenger Drain Tube (stainless steel)
- 804063 Screw (stainless steel)
- 870690 Screw (stainless steel)
- 335133 Seal Assembly, High-flow
- 335148 Silicone Vacuum Grease
- 339555 Solution 555™ Rotor Cleaning Concentrate
- 306812 Spinkote™ Lubricant
- 870654 Spring (stainless steel)
- 335145 Stationary Seal (ceramic)
- 336403 Stoppers for Tubing Lines (#1, one-hole)
- 306653 Tygon\*\* Tubing
- 878279 Washer, Flat (nylon)
- 853118 Washer, High-flow Seal
- 853391 Washer, Flat (stainless steel)
- 870658 Washer, Spring (spring steel)

\* Use Loctite grade "T" primer and #35 retaining compound to bond fitting to seal housing. Loctite is a registered trademark of Loctite Corporation.  
 † Noryl is a registered trademark of GE Plastics.  
 ‡ Viton is a registered trademark of E. I. Du Pont de Nemours & Company.  
 \*\* Tygon is a registered trademark of Norton Company.



Note: Standard-flow Manifold consists of part numbers 870690, 853118, 336080, 870655, 868638, and 335145. High-flow Manifold is part of High-flow Seal Housing Assembly, which consists of part numbers 870690, 853118, 338672, 2 x 335136, and 336286.



**Elutriator Rotor**

For use in Avanti® J-20XP Series and J6 Series centrifuges equipped with viewport door and strobe assembly.

Max. RPM	Max. g	Maximum Volume	Elutriation Boundary
5 000	4 700	40 mL	86 mm (2,410 g)

*For use in Avanti® J-20XP Series and J6 Series centrifuges.\**

**No. 356900.** JE-5.0 Elutriator Rotor Assembly. Includes bypass chamber and supplies, and features a quick-release assembly which can be autoclaved for sterile operation. Order elutriation chamber(s) separately. (For complete Elutriation System, a number of components are necessary. See *How to Order* below.)

Requires strobe lamp and control assembly sold above.

**Elutriation Chamber**

Description	Part No.	Max. Cells Recovered per Run	Minimum Cells Required for Loading per Fraction	Max Elutriated Buffer Volume
40-mL	356940	10 <sup>10</sup>	10 <sup>7</sup>	1000 mL
5-mL	356943	10 <sup>10</sup>	10 <sup>7</sup>	1000 mL
Sanderson	356945	10 <sup>10</sup>	10 <sup>5</sup>	1000 mL

**Recommended Pump (not supplied by Beckman Coulter)**

We recommend the Cole-Parmer Masterflex® Digital Drive Pump System. These are not available from Beckman Coulter, but may be ordered directly from Cole-Parmer (625 East Bunker Court, Vernon Hills, Illinois 60061-1844 USA, Phone 847-549-7600, Fax 847-549-7676, TDD hotline: 800-833-7400, E-mail: info@coleparmer.com). Contact Cole-Parmer directly to receive current ordering information for these or comparable pumps.

**How to Order**

For a complete Beckman Coulter Elutriation System, the following components are required:

1. An Elutriator Rotor Assembly
2. An Elutriation Chamber
3. An Elutriation Centrifuge equipped with viewport door and strobe assembly.

A complete pump consists of one each of the following components:

1. Easy-Load® pump head (stainless steel)
2. Tygon† L/S\* 16 tubing standard drive (10 to 600 rpm, 115 VAC or 230 VAC)

Beckman Coulter Avanti J-20XP Series and J6 Series centrifuges can be ordered as Elutriation Centrifuges fully equipped with the appropriate door and strobe assembly. See Section 1 for ordering information. Existing Beckman Coulter 6000-rpm centrifuges can also be adapted for elutriation. To do so, refer to the section below.

Also necessary but not available from Beckman Coulter is a pump that meets the following requirements: (a) has continuously adjustable flow rate from 6 to 100 mL/min; (b) has flow rate controllable to within ± 1.5%; (c) has flow rate independent of back pressure up to 40 psi; and (d) has pulsation less than 5% of flow rate. Recommended pumps are listed below.

**Supplies**

335148	Silicone Vacuum Grease, 1 oz
339555	Solution 555™ Cleaning Concentrate, 1 qt
306812	Spinkote™ Lubricant (for rotor/shaft interface), 2 oz
357520	Tubing, Tygon 1/8-in. (I.D.) × 1/4-in. (O.D.)
357580	Tubing, Silicone 3/16-in. (I.D.) × 5/16-in. (O.D.) (for rotating seal-assembly connection)

**Tools**

927784	Pliers for Retaining Clip (bearing removal)
016223	Wrench, 1/8-in. Hex Driver
927766	Wrench, 5/16-in. Hex T-handle
029840	Wrench, 5/32-in. Hex Driver
001884	Wrench, 5/64-in. Hex Driver
817305	Wrench, 9/64-in. Hex Angle

**To Upgrade an Existing Beckman Coulter Centrifuge**

*For Avanti J-20XP Series, order the appropriate kit listed below (order only one kit):*

**No. 366562.** 50/60 Hz. For use with Avanti J-20XP. Kit includes Strobe Lamp/Control Assembly and Door Assembly with Viewport.

**No. 366563.** 50/60 Hz. For use with Avanti J-20XPI. Kit includes Strobe Lamp/Control Assembly and Door Assembly with Viewport.

*For J6 Series, order BOTH of the kits below:*

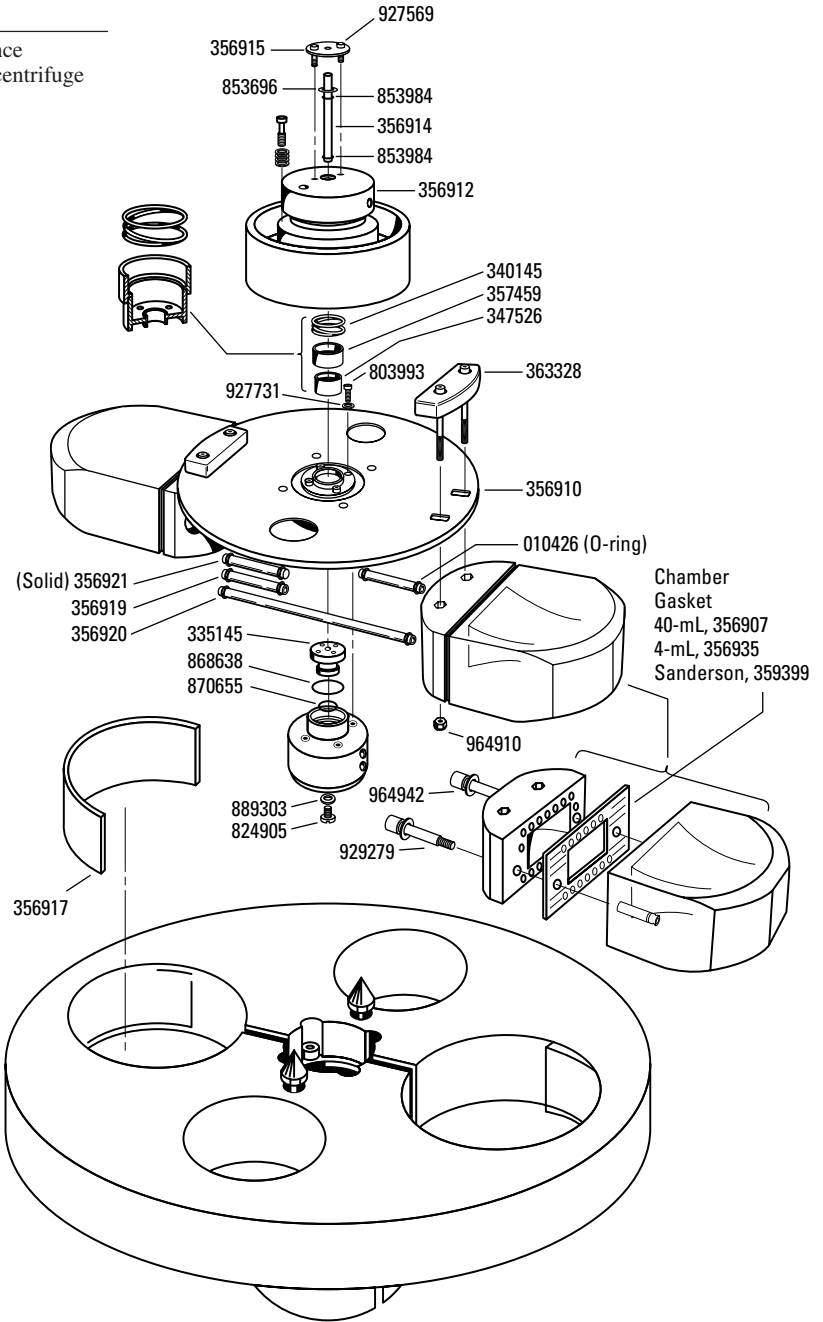
**No. 358354.** 50/60 Hz. Strobe Lamp and Control Assembly for use with current model microprocessor-controlled J6-MC and J6-MI centrifuges. Requires door assembly sold below.

**No. 360345.** 50/60 Hz. Door Assembly with Viewport for use with current model microprocessor-controlled J6-MC and J6-MI centrifuges.

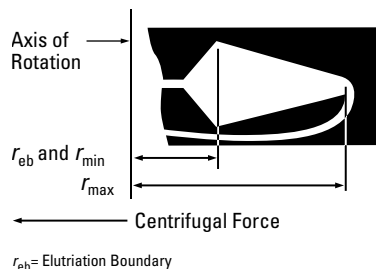
\* When properly equipped for elutriation.

**Replacement Parts**

- 358291 Quick-release Seal Assembly 5.0 with counterbalance
- 366922 Anchor Cable Assembly for Avanti J-20XP Series centrifuge
- 358182 Anchor Cable Assembly for J6 Series centrifuge
- 355161 Ball Bearing, S.C.D.
- 356014 Cable Retainer
- 356940 Chamber, Large (40-mL), "A"
- 356941 Chamber, Large (40-mL), "B"
- 356943 Chamber, Standard (5-mL), "A"
- 356944 Chamber, Standard (5-mL), "B"
- 356945 Chamber, Sanderson (5-mL), "A"
- 356946 Chamber, Sanderson (5-mL), "B"
- 849660 Chamber Mounting Nut
- 356917 Chamber Pad
- 356907 Chamber Gasket, 40-mL
- 356935 Chamber Gasket, 4-mL
- 359399 Chamber Gasket, Sanderson, 4-mL
- 356930 Chamber Mount
- 356921 Chamber Tube (solid)
- 356942 Counterbalance
- 927768 Fitting, Inlet Line (to seal assembly), 3/16 in. I.D.
- 000148 Fuse, Strobe, 1.0 A-TD 250 VAC
- 870671 Glass Plate for Lapping Seal (4 x 5 in.)
- 356912 Housing, Bearing
- 356911 Housing, Seal
- 870655 O-ring, Small, Seal Housing
- 011519 O-ring, Small, Bearing Shaft
- 868638 O-ring, Large, Seal Housing
- 853984 O-ring, Center Tube
- 853696 O-ring, Retaining, Center Tube
- 010426 O-ring, Transfer Tube
- 356910 Plate, Chamber/Seal Support
- 340148 Pressure Gauge Assembly
- 347549 Reflector, rpm
- 878681 Retaining Clip, Bearing Assembly
- 356915 Retaining Plate, Transfer Tube
- 927286 Retaining Ring, Internal
- 335213 Sample Reservoir, 30-mL
- 335197 Sample Reservoir, 30-mL
- 803993 Screw, Cap (support plate to seal housing)
- 927569 Screw, Cap (retaining plate)
- 841717 Screw, Chamber Mounting
- 824905 Screw, Housing
- 929279 Screw, Shoulder (chamber assembly)
- 347526 Seal, Rotating, Black
- 335145 Seal, Stationary, White
- 347543 Syringe Assembly
- 356913 Shaft (bearing)
- 357459 Spacer (spring/seal)
- 340145 Spring (seal assembly)
- 356920 Tube, Long
- 356919 Tube, Short
- 356914 Tube, Transfer
- 870669 Valve, Stopcock (3-way)
- 021623 Washer, Flat (bearing housing to support plate)
- 887438 Washer, Flat (bearing housing to support plate)
- 889303 Washer, Flat (seal housing)
- 927730 Washer, Spring (retaining plate)
- 927731 Washer, Spring (support plate to seal housing)
- 852685 Washer, Spring (bearing assembly, 3 required)
- 878475 "Y" Hose Fitting
- 347978 Flash Tube



*Exploded View of JE-5.0 Parts with Part Numbers*



**Elutriator Rotor**

Max. RPM	Max. g	Maximum Volume	Elutriation Boundary
6 000	5 080	5 mL	86 mm (3,470 g)

*For use in Avanti® J-25 Series and J-30I centrifuges equipped with viewport door and strobe assembly.*

**No. 347514.** JE-6B Elutriator Rotor Assembly. Includes bypass chamber and supplies. For use in Avanti J-25 Series and J-30I Elutriation Centrifuges and earlier J2 Series centrifuges already equipped with Elutriation Accessories. Order elutriation chamber(s) separately. (For complete Elutriation System, a number of components are necessary. See *How to Order* below.)

**Elutriation Chamber**

Description	Part No.	Max. Cells Recovered per Run	Minimum Cells Required for Loading per Fraction	Max Elutriated Buffer Volume
5-mL	347986	10 <sup>9</sup>	10 <sup>7</sup>	100 mL
Sanderson	347985	10 <sup>9</sup>	10 <sup>5</sup>	100 mL

**How to Order**

For a complete Beckman Coulter Elutriation System, the following components are required:

1. An Elutriator Rotor Assembly
2. An Elutriation Chamber
3. An Elutriation Centrifuge equipped with viewport door and strobe assembly.

Beckman Coulter Avanti J-25 Series and J-30I Centrifuges can be ordered as Elutriation Centrifuges fully equipped with the appropriate door and strobe assembly. Existing Beckman Coulter Avanti J-25 and Avanti J-30I centrifuges can also be adapted for elutriation. To do so, order the appropriate assembly below.

Also necessary but not available from Beckman Coulter is a pump that meets the following requirements: (a) has continuously adjustable flow rate from 6 to 100 mL/min; (b) has flow rate controllable to within ± 1.5%; (c) has flow rate independent of back pressure up to 40 psi; and (d) has pulsation less than 5% of flow rate. Recommended pumps are listed below.

**To Upgrade an Existing Beckman Coulter Centrifuge**

*For Beckman Coulter Avanti J-25 Series and J-30I, order the appropriate kit listed below (order only one kit):*

**No. 363840.** 50/60 Hz. For use with Avanti J-25. Kit includes Strobe Lamp/Control Assembly and Door Assembly with Viewport.

**No. 363841.** 50/60 Hz. For use with Avanti J-25I and J-30I. Kit includes Strobe Lamp/Control Assembly and Door Assembly with Viewport.

**Recommended Pump (not supplied by Beckman Coulter)**

We recommend the Cole-Parmer Masterflex Digital Pump Drive System. These are not available from Beckman Coulter, but may be ordered direct from Cole-Parmer (625 East Bunker Court, Vernon Hills, Illinois 60061-1844 USA, Phone 847-549-7600, Fax 847-549-7676, TDD hotline: 800-833-7400, E-mail: info@coleparmer.com). Contact Cole-Parmer directly to receive current ordering information for these or comparable pumps.

\* Masterflex, Easy-Load, and L/S are registered trademarks of Cole-Parmer Instrument Company.

A complete pump consists of one each of the following components:

1. Easy-Load® pump head model E-07518-10 (stainless steel)
2. Tygon† L/S\* 14 tubing model E-96420-14 standard digital drive (10 to 600 rpm) model E-07523-20 (115 VAC) or E-07523-27 (230 VAC).

**Replacement Parts**

335145	Stationary Seal
355161	Bearing Assembly Ball Bearings (2)
347524	Bearing Assembly Spacer
340145	Bearing Assembly Spring Washer
347985	Chamber, Sanderson (not including O-rings)
347986	Chamber, Standard (not including O-rings)
340149	Chamber Gasket (Sanderson)
340144	Chamber Gasket (Standard)
010426	Chamber O-rings (8)
347528	Chamber Plugs (2)
347912	Chamber Screws (2)
347919	Photoelectric Detector
347549	Reflecting Label
347526	Rotating Seal
335146	Seal Housing Feed Fitting
824464	Seal Housing Feed Fitting O-rings (2)
344108	Seal Housing Plastic Feed Fitting Retainer Clamps (2)
336284	Seal Mount
815473	Shaft O-ring (lowest)
011519	Shaft O-ring (upper)
336285	Spacer
347918	Strobe Lamp Assembly
869306	Foot Pads for Strobe Control (4)
000148	Strobe Fuse
347978	Strobe Lamp Bulb
347517	Transfer Tube
853984	Transfer Tube O-ring
347520	Transfer Tube Screw
878238	Transfer Tube Screw O-rings, Larger
878239	Transfer Tube Screw O-rings, Smaller

**Replacement Parts for Previous Model JE-6 Rotor**

010426	O-ring for Separation Chamber and Bypass Chamber
335196	Bypass Chamber
335205	Separation Chamber
335206	Sanderson-type Chamber
340144	Gasket for Separation Chamber
340149	Gasket for Sanderson-type Chamber
347912	Screw for Separation Chamber



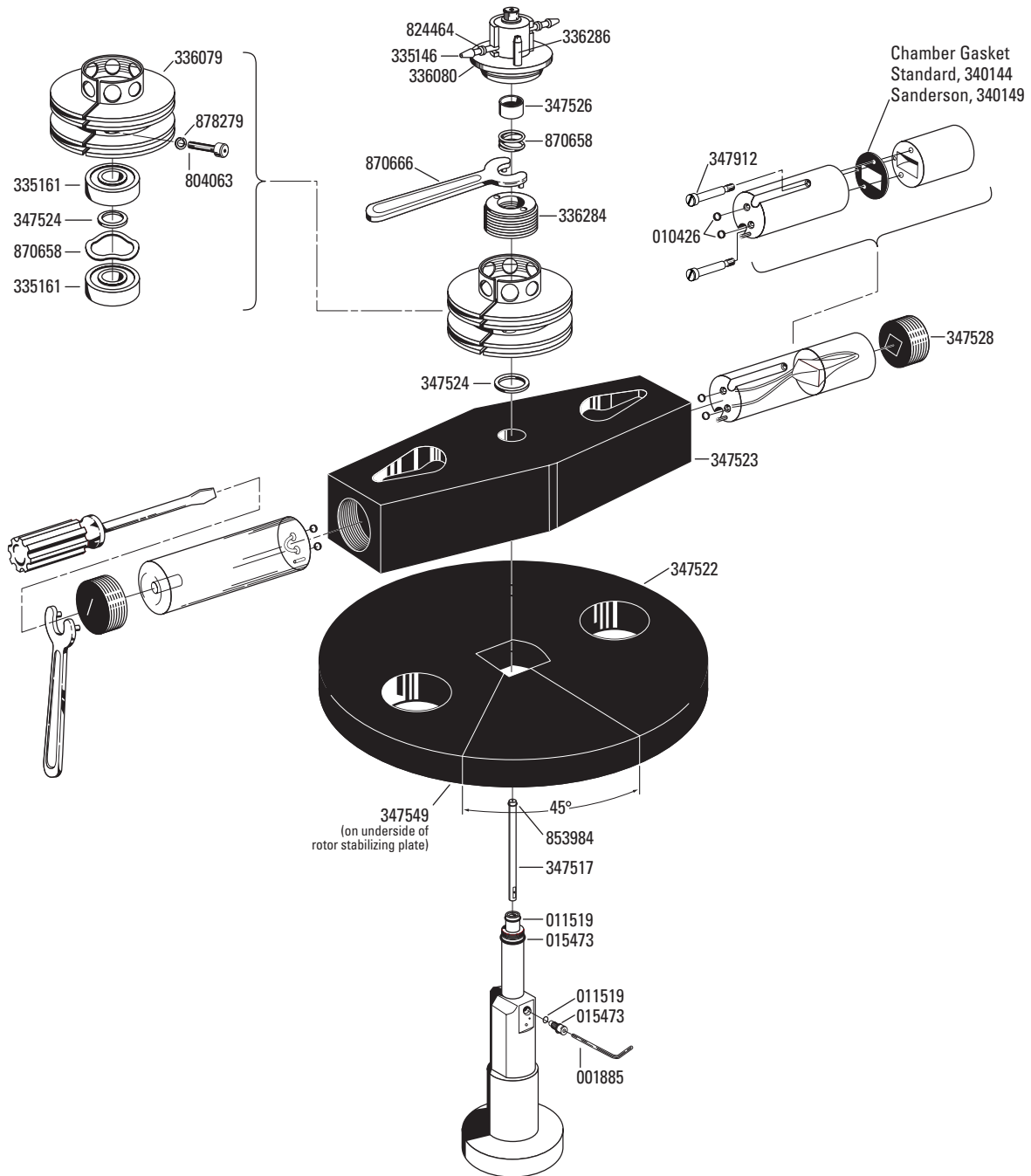
**Supplies and Tools**

- 001311 Allen Wrench, 3/16 in.
- 340144 Chamber Gasket, Standard
- 340149 Chamber Gasket, Sanderson
- 870671 Glass Plate for resurfacing (lapping) rotating seals
- 001885 Hex Driver Wrench, 3/32 in.
- 335213 Sample Reservoir, 30-mL (including needles)
- 335197 Sample Reservoir, 75-mL (including needles)

- 005898 Screwdriver
- 335148 Silicone Vacuum Grease, 1 oz
- 339555 Solution 555™ Cleaning Solution, 1 qt.
- 870666 Spanner Wrench
- 306812 Spinkote™ Lubricant, 2 oz
- 306956 Tubing, Silastic® 7.6 m (25 ft.)
- 306833 Tubing, Tygon† 3.0 m (10 ft.)

\* A registered trademark of Dow Corning Corporation.  
 † A registered trademark of Norton Company.

For more information on elutriation, order Bulletin SB-574.



# Tubes and Bottles

## Tubes and Bottles for Every Application

**N**o single tube design or material will meet all application requirements. A number of factors should be considered when a supply of tubes is ordered: the particular technique to be used, the nature of the sample and any solvent or gradient media, the desirability of reusing the tubes, and certain convenience factors. The properties listed below provide a guide for anyone involved in the tube selection process.

- **Strength and Flexibility**, to resist permanent deformation even when run in fixed angle rotors without tube caps
- **Chemical Resistance** to a wide range of bases, acids, and solvents
- **Transparency**, to permit a clear view of fractions and bands after centrifugation
- **Thin** enough to be sliced or punctured after centrifugation for fraction collection
- **Impermeable to Water**, to prevent aqueous solutions from permeating the tube wall and reaching the rotor cavity
- **Surface Properties** that prevent the adherence of nucleic acids and proteins
- **Temperature Tolerance** throughout a wide range of operating temperatures, without deforming at high temperatures or cracking when used close to 0°C
- **Autoclavable**, for convenient sterilization and reuse
- **Contaminant-free**, to avoid leaching extraneous materials into the sample, especially materials visible in the sensitive 240-280 nm range
- **Odor-free**, for pleasant handling

*The full line of Beckman Coulter tubes includes a number of tube materials, each with its own distinct combination of properties to meet a variety of application requirements. Available are transparent, translucent, and opaque tubes; tubes that can be sliced or punctured; tubes that can be sterilized and reused; and tubes that are resistant to a variety of chemical compounds.*

## Tube Selection Considerations

### Compatibility of Tube Material with Solvents and Sample

The chemical compatibility of the tube materials with the gradient-forming medium or other solvent is a prime consideration. Neutral sucrose and salt solutions cause no problem. But alkaline solutions, such as those frequently used for the separation of single-stranded forms of DNA, cannot be used in Ultra-Clear™ tubes or polycarbonate tubes and bottles. Sometimes DMSO is used in preparation of sucrose gradients for sedimentation of denatured RNA. Polycarbonate and Ultra-Clear tubes are incompatible with DMSO, so polyallomer tubes should be used.

The last column of the “Quick Reference Chart to Tube Materials and Their Properties” on page 2-4 gives some guidelines to the chemical resistances of the various tube materials. It must be emphasized, however, that other conditions of centrifugation (*g*-force, duration of run, etc.) have considerable effect on how well a tube material will withstand a particular solvent. Beckman Coulter publication IN-175, “Chemical Resistances for Beckman Coulter Centrifugation Products” (found on the Beckman Coulter web site at <http://www.beckman.com/resourcecenter/labresources/centrifuges/chemres.asp>) provides more detailed information about the chemical resistances of the various tube materials. The wisest course is to test any questionable combination under operating conditions before making the actual run.

The type of sample, in some cases, will affect selection of a specific tube material. DNA, in its denatured or single-stranded form, will adhere to the surface of some tube materials. Polyallomer would be the best choice. (Most of this work is done in highly alkaline media which are incompatible with polycarbonate.)

Lipoprotein separations are most often done in Ultra-Clear tubes because they are clear and sliceable; these properties simplify fraction location and recovery by tube slicing. When small lipoprotein samples are to be recovered by a fractionating device and clear tubes are desirable, there are alternatives: cellulose propionate, polycarbonate, and Ultra-Clear tubes.

Hazardous materials, either pathogenic or radioactive, should be centrifuged with extreme care. All possible precautions must be taken to avoid leakage of the sample into the rotor cavity during centrifugation.

To determine the optimum tube material for your specific sample and gradient medium, refer to the quick reference chart on page 2-4.

### Gradient Formation and Fractionation

When choosing a tube for a density gradient run, some thought should be given to gradient formation and fractionation. If the bands or zones formed during centrifugation are indistinct, they may not be visible through a translucent material such as polyallomer. If optimum band visualization is important, Ultra-Clear tubes or tubes of polycarbonate or cellulose propionate should be used. Whenever collection of bands or zones must be

done by puncturing the tube or slicing, a thin, flexible tube wall is required. Ultra-Clear or polyallomer tubes should be used, depending on the need for transparency.

As there are currently no wettable plastic centrifuge tubes available, gradients should be loaded into plastic tubes from the bottom up to avoid mixing.

### High Temperature Centrifugation

Although modern centrifuges and rotors can operate at temperatures as high as 45°C, one cannot assume that every tube can be safely run over 25°C. Stainless steel and glass are the only materials which will not experience some deformation when subjected to high temperatures and long centrifugation times. Plastic tubes undergo some degree of softening at temperatures higher than 25°C. Whether or not this will cause permanent deformation is not a question of temperature alone. The centrifugal force field used, the duration of the centrifugation, the type of rotor, and even the tube angle all have an effect.

It's obviously impossible to give exact temperature limits for plastic tubes when so many other variables are involved. The safest policy is to pretest the tubes under the actual experimental conditions, but with water, rather than a valuable sample.

### Tube Sizes

Tube sizes as indicated in the following charts are nominal sizes, and may vary somewhat from actual filling capacities. If a thickwall tube is run uncapped, the maximum filling volume will depend on the tube angle of the rotor to be used. See appropriate rotor instruction manuals for maximum filling levels of tubes.

### Tube Cleaning, Sterilization, and Reuse

If tubes are to be reused, special care must be taken during cleaning and sterilization. All tubes can be washed by hand with a mild detergent such as Solution 555™ diluted 5-to-1 or 10-to-1 with water. This is particularly important for polycarbonate tubes and bottles which should not be exposed to a detergent with a pH higher than 8. Tubes and bottles should not be washed in commercial dishwashers as the detergents and high temperatures are too harsh. Solvents such as alcohol or acetone react unfavorably with many tube materials. If an organic solvent must be used in the cleaning procedure, consult bulletin IN-175 for a table of tube material/solvent compatibilities (or review the same document on the Beckman Coulter web site at <http://www.beckman.com/resourcecenter/labresources/centrifuges/chemres.asp>).

The method chosen for sterilization has direct bearing on the number of reuses one can expect from a tube. Tubes and bottles of polyallomer, polyethylene, and glass can all be autoclaved, although in general, cold sterilization methods are not as harsh as autoclaving. Cold sterilization is recommended for both polycarbonate and Ultra-Clear.

If maximum reuse is a major consideration, either polyallomer (preferably thickwall) or polycarbonate tubes and bottles should be selected, and cold sterilization methods used. If these tubes are run completely filled in swinging bucket rotors, most of them can be reused a number of times. Chances of permanent deformation will be greater whenever the tubes are run in fixed angle rotors, without caps, and/or partially filled. All of these conditions tend to stress the centripetal edge of the tube unduly. All tubes that have been used or autoclaved previously must be individually examined for signs of deformation or cracking before using them again.

## Tube Closures

When other considerations have been resolved, convenience may be a deciding factor. Without a doubt, the most convenient tube closure is none at all; none are required for tubes run in swinging bucket rotors.

For tubes run in fixed angle rotors, alternatives to the standard tube cap assemblies are available. Bottles have three-piece cap assemblies which are easier to use than the more complex tube cap assemblies. Polycarbonate bottles are available for general-purpose fixed angle rotors, and are used frequently for differential centrifugation where band recovery is not a problem. Thickwall tubes can be run in all fixed angle rotors without caps, provided they are partially filled. (Refer to rotor manuals for more information on fill volumes.)

When closed tubes are required, Beckman Coulter offers some innovative and convenient options.

## A Quick-Reference Chart to Tube Materials and Their Properties

Property	Thinwall Polyallomer	Thickwall Polyallomer	Ultra-Clear™	Polycarbonate	Polypropylene	Polyethylene	Cellulose Propionate
Optical	transparent	translucent	transparent	transparent	transparent	transparent/translucent	transparent
Autoclaveable	yes	yes	no	no	yes	no	no
Puncturable	yes	no	yes	no	no	yes	no
Sliceable	yes	no*	yes	no*	no	no	no*
Reusable	no	yes	no	yes	yes	yes	no
Acids (dilute or weak)	S	S	S	S	S	S	S
Acids (strong)	U	S	U	U	S	S	U
Alcohols (aliphatic)	U	S	U	U	S	S	U
Aldehydes	M	M	S	M	M	S	U
Bases	S	S	U	U	S	S	U
Esters	U	M	U	U	M	S	M
Hydrocarbons (aliphatic)	U	M	U	U	S	U	S
Hydrocarbons (aromatic and halogenated)	U	U	U	U	M	M	S
Ketones	U	M	U	U	M	M	U
Oxidizing Agents (strong)	U	U	U	M	M	M	M
Salts	S	S	M	M	S	S	S

S = satisfactory resistance      M = marginal resistance      U = unsatisfactory resistance

\* Polyallomer, polycarbonate, and cellulose propionate tubes with diameters of 5 to 13 mm may be sliced using the CentriTube Slicer (part number 347960) and appropriate adapter plate.

Note: This information has been consolidated from a number of sources and is provided only as a guide to the selection of tube materials. Soak tests at 1 g (at 20°C) established the data for most of the materials; reactions may vary under the stress of centrifugation, or with extended contact or temperature variations. To prevent failure and loss of valuable sample, ALWAYS TEST SOLUTIONS UNDER OPERATING CONDITIONS BEFORE USE.

Warning: Do not use flammable substances in or near an operating centrifuge.

## General Filling and Sealing Requirements for Tubes and Bottles

	Tube or Bottle	Swinging-Bucket Rotors	Fixed-Angle Rotors
<b>Polyallomer</b>	Thinwall tubes	Within 2 to 3 mm of top	Full with cap
	Thickwall tubes	At least 1/2 full	1/2 full to max. capless level or full with cap
	Quick-Seal tubes	Full and heat-sealed	Full and heat-sealed
	Bottles	Min. to max. (see rotor manual) with screw-on cap or cap assembly	1/2 full to max. (see rotor manual) with screw-on cap assembly
<b>Ultra-Clear</b>	Open-top tubes	Within 2 to 3 mm of top	Full with cap
	Quick-Seal tubes	Not used	Full and heat-sealed
<b>Polycarbonate</b>	Thickwall tubes	At least 1/2 full	1/2 full capless level or full with cap or cap assembly
	Bottles	At least 1/2 full	Min. to max. (see rotor manual) with screw-on cap or cap assembly
<b>Stainless Steel</b>	Tubes	Any level	Any level with cap or cap assembly
<b>Polypropylene</b>	Tubes and bottles	At least 1/2 full	1/2 to max. capless level or full with cap or cap assembly
<b>Polyethylene</b>	Tubes	At least 1/2 full	1/2 to max. capless level or full with cap or cap assembly
<b>Teflon</b>	Tubes and bottles	At least 1/2 full	1/2 full to max. capless level or full with cap
<b>Radel</b>	Container	At least 1/2 full	N/A

## High-Performance and High-Capacity Bottles

Nominal Capacity	Size mm	Material	Bottle & Cap Assy	Bottle with Screw Cap	Bottle Only	Insert Only	O-ring	Screw Cap Only
10 mL	16 x 80	PC	N.A.	355672	N.A.	N.A.	N.A.	N.A.
10 mL	16.1 x 81.1	PA	N.A.	364695	N.A.	N.A.	N.A.	N.A.
10 mL	16.1 x 81.1	T	N.A.	364693	N.A.	N.A.	N.A.	N.A.
26.3 mL	25 x 89	PC	355616	N.A.	340382	335258	870385	335259
30 mL	25.3 x 92	PA	363073	N.A.	N.A.	N.A.	N.A.	N.A.
30 mL	25.3 x 92	PC	N.A.	363070	N.A.	N.A.	N.A.	N.A.
30 mL	25.3 x 92	T	N.A.	364699	N.A.	N.A.	N.A.	N.A.
40 mL	29 x 104	PC	N.A.	355628	N.A.	N.A.	N.A.	N.A.
50 mL	28.5 x 107	T*	N.A.	363076	N.A.	N.A.	N.A.	N.A.
50 mL	29 x 104	PA	357001 361694	357003	N.A.	358627	870655	356284
50 mL	29 x 104	PC	357000 361693	357002	N.A.	358627	961582	N.A.
70 mL	38 x 102	PC	355620	N.A.	355655	334545	870384	334547
85 mL	38 x 104	PC	363081	364718	N.A.	N.A.	N.A.	N.A.
85 mL	38 x 104	PP	N.A.	364719 363082	N.A. N.A.	N.A. N.A.	N.A. N.A.	N.A. N.A.
100 mL	38 x 102	PP	355624	355624	355626	N.A.	889633	355615
180 mL	55 x 104	PE	N.A.	361245	961896	N.A.	N.A.	N.A.
230 mL	62 x 141	PA	356989	N.A.	356988	N.A.	N.A.	344691
230 mL	62 x 141	PC	356987	N.A.	356986	N.A.	N.A.	344691
250 mL	62 x 120	W PC	356013	N.A.	358275	N.A.	927860	358977
250 mL	62 x 122	W PP	356011	N.A.	358326	N.A.	927860	358977
250 mL round bottom	62 x 136	PC	N.A.	355673	N.A.	N.A.	N.A.	356261
500 mL	69 x 160	W PC	355605	355664	355649	334419	870411	356260
500 mL	69 x 160	W PP	355607	355665	355650	334419	870411	356260
500 mL	69 x 160	PC	361690	N.A.	355649	N.A.	927860	360954
500 mL	69 x 160	PP	361691	N.A.	355650	N.A.	927860	360954
750 mL	96 x 130	PC	N.A.	358299	358297	N.A.	N.A.	344693
750 mL	96 x 130	PP	N.A.	356855	349815	N.A.	N.A.	344693
1000 mL	95 x 191	PC	363676	355675	366751	N.A.	970883	970884
1000 mL	95 x 191	PP	363678	355676	366752	N.A.	970883	970884
1250 mL	———	Radel†	367883	N.A.	367895	N.A.	367886	N.A.

PA = Polyallomer PC = Polycarbonate PE = Polyethylene PP = Polypropylene T = Teflon C = Conical W = Wide-Mouth N.A. = Not Available

\* With high-speed screw cap.

† A registered trademark of Union Carbide Corporation.

# Tubes and Bottles

## Adapters and Sleeves for Non-Beckman Coulter Tubes/Bottles\*

Rotor	Tube Vol.	Size mm	# of Places	Part Number	Rotor	Tube Vol.	Size mm	# of Places	Part Number
JA-30.50	5 mL	12 x 75	1	356970	JA-10	5 mL	12 x 75	10	356967
	7 mL	13 x 100	1	356976		7 mL	13 x 100	9	356973
JA-25.50	5 mL	12 x 75	1	356970		15 mL	Conical	5	356960
	7 mL	13 x 100	1	356976		15 mL	Round-bottom	5	356994
JA-21	5 mL	12 x 75	1	356972		50 mL	Conical	1	356965
JA-20.1	5 mL	12 x 75	1	356971	50 mL	Round-bottom	1	356996	
	7 mL	13 x 100	1	356977	JS-13.1	5 mL	12 x 75	1	356970
JA-20	5 mL	12 x 75	1	356970		7 mL	13 x 100	1	356976
	7 mL	13 x 100	1	356976		JS-7.5	5 mL	12 x 75	9
JA-18	5 mL	12 x 75	3	356969	7 mL		13 x 100	8	356974
	7 mL	13 x 100	3	356975	15 mL		Conical	4	356964
	15 mL	Conical	1	356962	50 mL		Conical	1	356966
	50 mL	Conical	1	356963	JS-4.2 & JS-4.2A	3 mL	Conical	37	339100
JA-17	5 mL	12 x 75	1	356970		15 mL	Conical	14	339102
	7 mL	13 x 100	1	356976	250 mL	Conical		349849	
JA-14	5 mL	12 x 75	9	356968					
	7 mL	13 x 100	8	356974					
	15 mL	Conical	4	356964					
	15 mL	Round-bottom	4	356995					
JA-12	50 mL	Conical	1	356966					
	50 mL	Round-bottom	1	356997					
JA-10.500	5 mL	12 x 75	10	356967					
	7 mL	13 x 100	9	356973					
	15 mL	Conical	5	356960					
	15 mL	Round-bottom	5	356994					
	50 mL	Conical	1	356965					
	50 mL	Round-bottom	1	356996					

## Adapters for Glass Tubes in Beckman Coulter Rotors\*

Rotor	Tube Volume	Tube Material	Adapter Part Number	Rotor	Tube Volume	Tube Material	Adapter Part Number
JA-30.50	15 mL	Corex, Pyrex†	870329	JS-13.1	30 mL	Corex	870331
	30 mL	Corex	870331		15 mL	Corex, Pyrex	870329
JA-25.50	15 mL	Corex, Pyrex	870329	JS-7.5	150 mL	Corex	339362
	30 mL	Corex	870331		30 mL	Corex	356997/870331
JA-20.1	15 mL	Pyrex	342643		15 mL	Corex, Pyrex	356995
JA-20/JA-17	15 mL	Corex, Pyrex	870329	JS-4.2 & JS-4.2A	3 mL	Pyrex Conical	339100
	30 mL	Corex	870331		15 mL	Corex, Pyrex, Corex & Pyrex Conical and Conical Graduated	339102
JA-18	15 mL	Corex, Pyrex	870329/347539	30 mL	Corex	341977	
	30 mL	Corex	870331/347539		150 mL	Corex	339108/ 339362
JA-14	150 mL	Corex	339362				
	30 mL	Corex	356997/870331				
	15 mL	Corex	356995				
	15 mL	Corex, Pyrex Conical	356964				
JA-10.500	150 mL	Corex	362750/339362				
	30 mL	Corex	356996/870331				
	15 mL	Corex, Pyrex Conical	356960				
JA-10	150 mL	Corex	362750/339362				
	30 mL	Corex	356996/870331				
	15 mL	Corex, Pyrex Conical	356960				

\* Check with tube manufacturer for maximum allowable g-force.  
† Corex and Pyrex are registered trademarks of Corning Glass Works, Inc.

# Tubes and Bottles

## Tubes and Bottles Used in High-Performance and High-Capacity Rotors

Nominal Filling Capacity (mL)	Nominal Size (mm)	Inches	Part No.	Rotors
<b>Quick-Seal™ Polyallomer Tubes</b>				
4.2	16 x 32	0.65 x 1.25	356562	JS-24.15
8.0	16 x 58	0.65 x 2.25	344621	JS-24.15
8.5	25 x 38	0.65 x 2.5	358652 (konical)	JS-24.38
10.0	16 x 67	0.65 x 2.5	344622	JS-24.15
15.0	25 x 38	1 x 1.5	343664	JS-24.38
23.0	25 x 76	1 x 1.5	358654 (konical)	JS-24.38
27.0	25 x 64	1 x 2.5	343665	JS-24.38
33.0	25 x 83	1 x 3.25	344623	JS-24.38
100.0	38 x 102	1.5 x 4.0	345776	JA-18
<b>Quick-Seal Ultra-Clear™ Tubes</b>				
100.0	38 x 102	1.5 x 4.0	345778	JA-18
<b>Quick-Seal Bell-Top Tubes</b>				
6.3	16 x 45	0.65 x 1.8	345830	JS-24.15
<b>Open-Top Tubes, Polyallomer</b>				
15.0	16 x 96	0.65 x 3.85	361707	JS-24.15
25.0	25 x 76	1.0 x 3.0	358125 (konical)	JS-24.38
30.0	25 x 89	1.0 x 3.5	358126 (konical)	JS-24.38
38.5	25 x 89	1.0 x 3.5	326823	JS-24.38
<b>Open-Top Tubes, Polyallomer, Thickwall</b>				
4.0	13 x 64	0.5 x 2.5	355644	JA-25.15
4.0	13 x 64	0.5 x 2.5	355645	JA-25.15
10.0	16 x 76	0.65 x 3.0	355640	JA-25.15, JA-21, JA-20.1, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
12.5	16 x 95	0.625 x 3.75	361708 (konical)	JS-24.15
32.0	25 x 89	1.0 x 3.5	355642	JS-24.38
<b>Open-Top Tubes, Polycarbonate</b>				
15.0	18 x 100	0.725 x 4.0	342080	JA-25.15, JA-20.1, JS-5.2, JS-4.3, JS-4.2A, JS-4.2, JS-4.0, JS-3.0
50.0	29 x 104	1.125 x 4	363647	JA-30.50, JA-25.50, JA-18, JA-17, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1000.0	95 x 191	3.8 x 7.65	363676	JLA-9.1000, JLA-8.1000
<b>Open-Top Tubes, Polycarbonate, Thickwall</b>				
10.0	16 x 76	0.65 x 3.0	355630	JA-25.15, JA-21, JA-20.1, JS-13.1, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
32.0	25 x 89	1.0 x 3.5	355631	JS-24.38
<b>Open-Top Tubes, Polyethylene</b>				
15.0	18 x 100	0.725 x 4.0	342081	JA-25.15, JA-20.1, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Open-Top Tubes, Polypropylene</b>				
15.0	17 x 120	0.625 x 4.8	355663 (conical, grad.)	JLA-16.250, JA-14, JLA-10.500, JA-10, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
15.0	18 x 100	0.725 x 4	342082	JA-25.15, JA-20.1, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
50.0	29 x 104	1.125 x 4	357007	JA-30.50, JA-25.50, JA-18, JA-17, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
100.0	38 x 102	1.5 x 4	355626	JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	355650	JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1000.0	95 x 191	3.8 x 7.65	363678	JLA-9.1000, JLA-8.1000



# Tubes and Bottles

Nominal Filling Capacity (mL)	Nominal Size (mm)	Inches	Part No.	Rotors
<b>Open-Top Tubes, Ultra-Clear™</b>				
15.0	16 x 96	0.65 x 3.8	361706	JS-24.15
38.5	25 x 89	1.0 x 3.5	344058	JS-24.38
<b>Tubes with Snap-On Caps, Polyallomer</b>				
1.5	11 x 38	0.4 x 1.5	357448 - Natural	JA-30.50, JA-25.50, JA-20, JA-18.1, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 39	0.4 x 1.5	357444 - Orange	JS-4.2, JS-4.2A, JS-3.0
1.5	11 x 39	0.4 x 1.5	357445 - Yellow	JS-4.2, JS-4.2A, JS-3.0
1.5	11 x 39	0.4 x 1.5	357446 - Green	JS-4.2, JS-4.2A, JS-3.0
1.5	11 x 39	0.4 x 1.5	357447 - Blue	JS-4.2, JS-4.2A, JS-3.0
<b>Tubes with Snap-On Caps, Polycarbonate</b>				
50.0	29 x 104	1.125 x 4	363664	JS-30.50, JA-25.50, JA-20, JLS-16.250, JA-14, JLA-10.250, JA-10, JS-13.1, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Tubes with Snap-On Caps, Polypropylene</b>				
1.5	11 x 38	0.4 x 1.5	356090 - Natural	JA-30.50, JA-25.50, JA-20, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 38	0.4 x 1.5	356091 - Blue	JA-20, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 38	0.4 x 1.5	356092 - Green	JA-20, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 38	0.4 x 1.5	356093 - Yellow	JA-20, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 38	0.4 x 1.5	356094 - Orange	JA-20, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.5	11 x 38	0.4 x 1.5	343169- Natural (cap separate)	JA-18.1, JA-18, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1.8	11 x 39	0.4 x 1.5	340196 - Natural	JA-20, JA-18.1, JA-18, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0
50.0	29 x 103	1.125 x 4	357005 (cap separate)	JA-30.50, JA-25.50, JA-20, JA-17, JLA-16.250, JA-14, JLA-10.500, JA-10, JS-13.1, JS-7.5, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	361691	JLA-10.500
<b>Conical Tubes</b>				
8.5	25 x 38	0.65 x 2.5	358652 (konical Quick-Seal polyallomer)	JS-24.38
12.5	16 x 95	0.625 x 3.75	361708 (konical thickwall polyallomer)	JS-24.15
15.0	17 x 120	0.625 x 4.8	355663 (polypropylene, graduated)	JLA-16.250, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
23.0	25 x 76	1 x 1.5	358654 (konical Quick-Seal polyallomer)	JS-24.38
25.0	25 x 76	1.0 x 3.0	358125 (konical polyallomer)	JS-24.38
30.0	25 x 89	1.0 x 3.5	358126 (konical polyallomer)	JS-24.38
230.0	62 x 141	2.5 x 5.25	356987 (polycarbonate bottle with screw cap)	JA-14, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
230.0	62 x 141	2.5 x 5.5	356989 (polypropylene bottle with screw cap)	JA-14, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Stainless Steel Tubes</b>				
13.5	16 x 76	0.6 x 3	301108	JA-21, JA-20.1, JS-4.3, JS-4.2, JS-4.2A, JS-3.0
<b>Bio-Vial Tubes</b>				
4.0	14 x 55	.5625 x 2.25	566353 - Polypropylene	JLA-16.250, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0

# Tubes and Bottles

Nominal Filling Capacity (mL)	Nominal Size (mm)	Inches	Part No.	Rotors
<b>Bottles Only</b>				
1000.0	95 x 191	3.75 x 7.5	366751 - Polycarbonate	JLA-9.1000, JLA-8.1000
1000.0	95 x 191	3.75 x 7.5	366752 - Polypropylene	JLA-9.1000, JLA-8.1000
<b>Bottles with Caps</b>				
70.0	38 x 102	1.5 x 4.0	355655 - Polycarbonate	JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	355649 - Polycarbonate	JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	361690 - Polycarbonate	JLA-10.500
500.0	69 x 160	2.75 x 6.5	361691 - Polypropylene	JLA-10.500
<b>Bottles with Cap Assemblies, Polyallomer</b>				
50.0	29 x 104	1.25 x 4	357001	JA-30.50, JA-20, JA-17, JLA-16.250, JA-14, JA-10.500, JA-10, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
50.0	29 x 104	1.25 x 4	361694	JA-25.50, JA-17, JA-14
<b>Bottles with Cap Assemblies, Polycarbonate</b>				
50.0	29 x 104	1.25 x 4.25	355600	JS-7.5
50.0	29 x 104	1.25 x 4.25	361693	JA-25.50, JA-17
50.0	29 x 104	1.25 x 4.25	357000	JA-30.50, JA-20, JA-17, JLA-16.250, JA-14, JA-10.500, JA-10, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
70.0	38 x 102	1.5 x 4.0	355620	JA-18, JS-5.2, JS-4.2, JS-4.1A, JS-4.0, JS-3.0
250.0	62 x 122	2.5 x 4.75	358275 (wide mouth)	JS-4.3, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	355605 (wide mouth)	JA-10, JS-5.2, JS-4.0
<b>Bottles with Cap Assemblies, Polypropylene</b>				
250.0	62 x 120	2.5 x 4.75	358326 (wide mouth)	JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	355607	JA-10, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Bottles with Screw-on Caps, Polyallomer</b>				
50.0	29 x 104	1.25 x 4.0	357003	JA-30.50, JA-25.50, JA-20, JA-18, JA-17, JLA-16.250, JA-14, JLA-10.500, JA-10, JS-13.1, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Bottles with Screw-on Caps, Polycarbonate</b>				
10.0	16 x 80	0.6 x 3.2	355672	JA-30.50, JA-25.50, JA-21, JA-20.1, JA-20, JA-17, JS-13.1, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
50.0	29 x 104	1.125 x 4.0	357002	JA-30.50, JA-25.50, JA-20, JA-18, JA-17, JLA-16.250, JA-14, JLA-10.500, JA-10, JS-13.1, JS-7.5, JS-5.2, JS-4.3, JS-4.0
100.0	38 x 102	1.5 x 4.0	355624	JA-18, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
230.0	62 x 141	2.5 x 5.25	356987 (conical)	JA-14, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
250.0	62 x 120	2.5 x 4.75	356013 (wide mouth)	JLA-16.250, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
250.0	62 x 136	2.5 x 5.5	355673	JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 160	2.75 x 6.5	355664	JA-10, JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
750.0	96 x 130	3.75 x 5.25	358299	JS-4.3, JS-4.2, JS-4.2A, JS-3.0
1000.0	97 x 167	3.75 x 6.75	355675	JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
<b>Bottles with Screw-on Caps, Polypropylene</b>				
50.0	29 x 104	1.25 x 4.0	355603	JS-7.5
100.0	38 x 102	1.5 x 4.0	355624	JA-18, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
230.0	62 x 141	2.5 x 5.5	356989	JA-14, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
250.0	62 x 120	2.5 x 4.75	356011 (wide mouth)	JLA-16.250, JA-14, JLA-10.500, JA-10, JS-7.5, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
500.0	69 x 159	2.75 x 6.5	355665	JA-10, JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
750.0	96 x 130	3.75 x 5.25	356855	JS-5.2, JS-4.3, JS-4.2, JS-4.2A, JS-4.0, JS-3.0
1000.0	97 x 167	4.0 x 6.75	355676	JS-5.2, JS-4.2, JS-4.2A, JS-4.0, JS-3.0

# Tools and Supplies

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## Cordless Tube Topper

- 358312 Tube Topper Kit, 60 Hz (for US and Japan)
- 358313 Tube Topper Kit, 50 Hz (for Europe)
- 358314 Tube Topper Kit, 50 Hz (for Great Britain)
- 358315 Tube Topper Kit, 50 Hz (for Australia)

Each Kit Contains:

- 1 each 348117 Heat Sink, 2 each 348643 Seal Guide,
- 8 each 348120 Seal Former (domed top), 1 each Tube Topper and Charging Unit, 1 each 361668 Tube Extractor.

### Replacement Parts

- 348117 Heat Sink
- 348120 Seal Former (domed top) for Tube Topper
- 357442 Flat-top Seal Former for Tube Sealer
- 348643 Seal Guide
- 889676 Plastic Box for Holding Accessories
- 342419 Removal Tool for Tubes and Metal Spacers
- 342415 Funnels (two)
- 338765 Removal Tool for Plastic Spacers and Floating Spacers
- 342694 Sample Application Block
- 343890 Fraction Recovery System
- 348114 Replacement Instruction Label
- 347960 CentriTube Slicer Kit (for TL-series tubes)
- 358317 Tip
- 961597 Battery
- 961601 Lamp



## Rotor Cleaning Kit



- 339558 Rotor Cleaning Kit. Contains two 946-mL bottles of Solution 555™ Rotor Cleaning Concentrate, 339379 Rotor Cleaning Brush, and 339380 Rotor Cleaning Brush

### Replacement Parts/Supplies

- 339555 Solution 555 Rotor Cleaning Concentrate (min. order two Bottles)
- 339379 Rotor Cleaning Brush, 5/8-in. (16 mm) and 1-in. (25.4 mm), for Rotor Cavity diameters from 7/16-in. (11 mm) to 1-in. (25.4 mm) (min. order three Brushes)
- 339380 Rotor Cleaning Brush, 1 1/4-in. (32 mm) and 1 1/2-in. (38 mm), for Rotor Cavity diameters from 1-in. (25.4 mm) to 1 1/2-in. (38 mm) (min. order three Brushes)

# Reference

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## Guide to Centrifuge Selection

Centrifugation is a basic separation technique that is utilized at multiple stages in the study of sample components. Flexible rotor and adapter systems for each Beckman Coulter centrifuge allow them to be used across multiple application areas. To help you select the most appropriate centrifuge for your work, the following charts provide brief descriptions of the kinds of separations typically achieved using various centrifuges. These charts list frequent separation requirements for each sample type, and identify the centrifuges that are typically used to meet those requirements.

In addition to the separation and isolation of sample particles, centrifugation is increasingly being used as an analytical technique for the study of macromolecular interactions and the determination of molecular weights. Instruments for these applications are also listed below.

## Quick-Reference Guide to Centrifuge Selection

Materials to Be Isolated	Specific Application	Centrifuges Typically Used		
		J2 and Avanti® J	J6	Avanti J-HC
<b>Proteins</b>	Ammonium sulfate precipitates	●		
	Centrifugal filtration	●	●	●
<b>Subcellular Fractions</b>				
Chromatin/Nucleosomes	Sucrose gradient isolation	●		●
Microsomes	Pelleting	●		
	Sucrose gradient isolation	●		
	Microsomal membrane fractionation	●		
Mitochondria	Pelleting	●		●
	Sucrose gradient isolation	●		
Nuclei	Pelleting	●	●	●
Membranes	Pelleting	●		●
	Sucrose/Percoll gradient fractionation	●		●
	Binding studies	●		●
Ribosomes/Polysomes	Pelleting	●		
	Size fractionation in sucrose gradients	●		
Cytosol	Clarification	●		●

## Quick-Reference Guide to Centrifuge Selection (cont'd)

Materials to Be Isolated	Specific Application	Centrifuges Typically Used		
		J2 and Avanti® J	J6	Avanti J-HC
<b>Preparative Centrifugation</b>				
<b>Lysates/Homogenates</b>	Clearing debris and large particles	•	•	•
<b>Nucleic Acids</b>				
DNA	Alcohol precipitation	•		
	Phenol/CHCl <sub>3</sub> extraction	•		
	Size fractionation in sucrose gradients	•		
	Minipreps in 96-well plates		•	•
	Spin columns	•	•	•
RNA	Phenol/CHCl <sub>3</sub> extraction	•		
	Alcohol precipitation	•		
	Lithium precipitation	•		
<b>Cells</b>				
Cells	Isolation of mononuclear cells on Ficoll-Hypaque		•	•
	Pelleting bacteria	•	•	•
	Pelleting mammalian cells		•	•
	Elutriation of viable cells	•	•	•
	Other density gradient separations	•	•	•
<b>Viruses</b>				
Viruses	Pelleting	•		
	PEG precipitates	•		
	Density gradient isolations	•		
<b>Blood</b>				
Blood	Plasma preparation		•	
	Blood-cell products		•	

## Useful Formulas

### ***k* Factor**

To determine *k* factor

$$k = \frac{\ln(r_{\max}/r_{\min})}{\omega^2} \times \frac{10^{-13}}{3600} \quad \text{OR} \quad k = \frac{2.53 \times 10^5 \ln(r_{\max}/r_{\min})}{(\text{RPM}/1000)^2}$$

To determine pelleting time (*t*)

$$t = \frac{k}{s} \quad \text{where } s = \text{sedimentation coefficient in Svedbergs}$$

To relate pelleting time between rotors

$$\frac{k_1}{t_1} = \frac{k_2}{t_2}$$

To adjust *k* factor for runs less than maximum rotor speed

$$k_{\text{adj}} = k \left( \frac{\text{maximum rated speed of rotor}}{\text{actual run speed}} \right)^2$$

### **To relate relative centrifugal force (RCF) to speed (RPM):**

$$\text{RCF}_{\max} = 1.12 r_{\max} \left( \frac{\text{RPM}}{1000} \right)^2 \quad \text{OR} \quad \text{RPM} = 10^3 \sqrt{\frac{\text{RCF}}{1.12 r_{\max}}}$$

### **To relate the sedimentation coefficient (*s*) to rotational speed:**

$$s = \frac{dr}{dt} \times \frac{1}{\omega^2 r}$$

### **Svedberg unit (*S*) equivalent:**

$$S = 10^{-13} \text{ seconds}$$

### **Reduced run speed for dense solutions:**

$$\text{reduced run speed} = \text{max rated speed of rotor} \times \sqrt{\frac{A}{B}}$$

where A = max. permissible density of rotor tube contents, and  
B = actual density of the tubes to be centrifuged



# Support Services

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**B**eckman Coulter simplifies and automates your laboratory processes. From consultation in choosing products and services, through installation, training and support, we are committed to making your laboratory the most efficient and cost-effective operation it can be. Advancements in communications technology, system diagnostics and our field network makes it even easier for you to get the system support you need. With a variety of new programs in place, Beckman Coulter can bring your lab the most streamlined, intelligent and customer-focused service in the industry.

Whether your system service is provided on-call, on-line or on-site, you'll get the world class customer support you expect from a technology leader.

## ***ON-CALL: System Experts at Your Fingertips***

Our customer call centers provide the first line of support in resolving your technical issues. As soon as you provide your unique System Identification Number, your call will be routed automatically to system and scientific specialists. The specialist who receives your call will have immediate access to your system's complete service history and your experience with the system. These qualified specialists can then immediately identify, isolate and resolve most technical issues – preventing simple problems from becoming more complicated. If the problem can't be resolved, our computer system will forward the information to the Beckman Coulter dispatch group for immediate assignment to a field system engineer.

## ***ON-LINE: Product Support on Your Schedule***

Our web-based information resource provides you with 24-hour-a-day access to a wide array of helpful information.

- FAQs, troubleshooting, MSDSs
- How to place service requests
- Part numbers
- Catalogs, product selection guides, rotor calculations and selection
- Customer Technical Support contact information

## ***ON-SITE: Factory Trained Field System Engineers***

When the need arises for on-site support, one of Beckman Coulter's professional field system engineers is always available to service your system on-site. Through our global network of system and process experts, a Beckman Coulter

field system engineer is available to provide hands-on support and keep your lab processes running smoothly. To meet the various needs of the scientific laboratory, Beckman Coulter offers a wide range of on-site technical solutions for your lab.

- Support agreement options
- Regulatory compliance programs (installation and operational qualification)
- Centrifuge rotor inspection programs
- Training
- Technical services on a time and material basis

Regardless of the support agreement selected, you are assured that Beckman Coulter provides only the finest quality support and is certified under ISO 9001 quality standards.

## ***ON-FILE: Your System Identification Number***

Your instrument's System Identification Number is your key to Beckman Coulter service and support. Use it to identify yourself whenever you call for technical assistance. Don't worry about a model or serial number – all the information we need is contained in the System Identification Number. If you have several instruments, each one will have a unique number. Please keep your System Identification Number accessible and readily available. It's just one more way we strive to give you the best customer support possible. If you do not already have a System Identification Number, contact the Beckman Coulter Customer Technical Support department.

***CUSTOMER TECHNICAL SUPPORT***

***U.S.: (800) 551-1150***

***Canada: (800) 387-6799***

***[www.beckmancoulter.com/biosupport](http://www.beckmancoulter.com/biosupport)***