Instructions For Use

SX4400 Swinging Bucket Rotor

For Use in the Beckman Coulter
Allegra X-30 Series Centrifuges

B01198AC
September 2017

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BECKMAN COULTER

SX4400 Swinging Bucket Rotor
PN B01198AC (September 2017)

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- In the USA and Canada, call us at 1-800-369-0333.
- Outside of the USA and Canada, contact your local Beckman Coulter Representative.

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Revision History

This document applies to the latest software listed and higher versions. When a subsequent software version changes the information in this document, a new issue will be released. For updates, go to www.beckmancoulter.com and download the most recent manual or system help for your instrument.

Initial Issue B01198AA, 04/2011

Rev AB, 10/2013
Changes or updates were made to the following:

- Specifications
- The Rotor
- Buckets and Accessories
- Installing the Rotor Yoke
- Maintenance
- Rotor Components

Rev AC, 09/2017
Changes or updates were made to the following: Table 1, Available Tube Adapters for the SX4400 Rotor.

Note: *Changes that are part of the most recent revision are indicated in text by a bar in the left margin of the amended page.*

Safety Notice

Read all product manuals and consult with Beckman Coulter-trained personnel before attempting to use this equipment. Do not attempt to perform any procedure before carefully reading all instructions. Always follow product labeling and manufacturer's recommendations. If in doubt as to how to proceed in any situation, contact your Beckman Coulter Representative.

This safety notice summarizes information basic to the safe use of the rotor described in this manual. The international symbol displayed to the left is a reminder to the user that all safety instructions should be read and understood before operation or maintenance of this equipment is attempted. When you see the symbol on other pages of this publication, pay special attention to the safety information presented. Observance of safety precautions will also help to avoid actions that could damage or adversely affect the performance of the rotor.

Alerts for Warning, Caution, and Note

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE NOTE is used to call attention to notable information that should be followed during installation, use, or servicing of this equipment.

Safety Information for the SX4400 Rotor

Handle body fluids with care because they can transmit disease. No known test offers complete assurance that such fluids are free of micro-organisms. Some of the most virulent—Hepatitis (B and C) viruses, HIV (I–V), atypical mycobacteria, and certain systemic fungi—further emphasize the need for aerosol protection. Handle other infectious samples according to good laboratory procedures and methods to prevent spread of disease. Because spills may generate aerosols, observe proper safety precautions for aerosol containment. Do not run toxic, pathogenic, or radioactive materials in this rotor without taking appropriate safety precautions. Biosafe containment should be used when Risk Group II materials (as identified in the World Health Organization *Laboratory Biosafety Manual*) are handled; materials of a higher group require more than one level of protection.

The rotor and accessories are not designed for use with materials capable of developing flammable or explosive vapors. Do not centrifuge such materials in nor handle or store them near the centrifuge.

This rotor was developed, manufactured, and tested for safety and reliability as part of a Beckman Coulter centrifuge/rotor system. Its safety or reliability cannot be assured if used in a non-Beckman Coulter centrifuge, in a Beckman Coulter centrifuge not specified for use with the rotor, or in a Beckman Coulter centrifuge that has been modified without Beckman Coulter's approval.

Although rotor components and accessories made by other manufacturers may fit in the SX4400 rotor, their safety in this rotor cannot be ascertained by Beckman Coulter. Use of other manufacturers' components or accessories in the SX4400 rotor may void the rotor warranty and should be prohibited by your laboratory safety officer. Only the components and accessories listed in this publication should be used in this rotor.

Hook all four buckets, loaded or empty, to the rotor for every run. Make sure that filled containers are loaded symmetrically into the rotor and that opposing tubes are filled to the same level with liquid of the same density.

If disassembly reveals evidence of leakage, you should assume that some fluid escaped the rotor. Apply appropriate decontamination procedures to the centrifuge and accessories.

Never exceed the maximum rated speed of the rotor and labware in use. Refer to the section on *Run Speeds*, and derate the run speed as appropriate.

Do not use sharp tools on the rotor that could cause scratches in the rotor surface. Corrosion begins in scratches and may open fissures in the rotor with continued use.

Contents

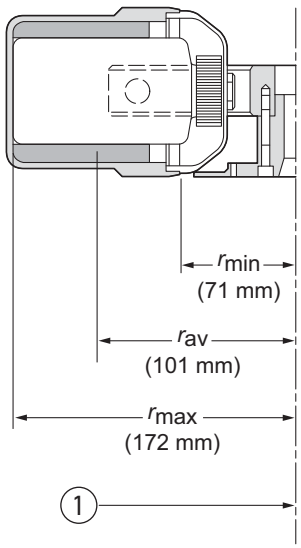
Illustrations

Tables

Tables

SX4400 Swinging Bucket Rotor

Specifications



1. Axis of Rotation

Maximum speed
- Allegra X-30R ..... 4700 rpm
- Allegra X-30 ..... 4200 rpm

Density rating at maximum speed ..... 1.2 g/mL

Critical speed range[a] ..... 800 to 1200 rpm

Relative Centrifugal Field[b] at maximum speed at r_{max} (172 mm)
- Allegra X-30R ..... $4255 \times g$
- Allegra X-30 ..... $3398 \times g$

Conditions requiring speed reductions ..... see *Run Speeds*

Maximum allowable imbalance of opposing loads ..... 10 grams

Number of buckets 4

Available labware ..... Table 1

Nominal tube capacity (largest tube) ..... 400 mL

Nominal rotor capacity ..... 1600 mL

Approximate acceleration time to maximum speed (fully loaded) ..... 36 sec

Approximate deceleration time from maximum speed (fully loaded) ..... 29 sec

Weight of fully loaded rotor ..... 5.7 kg (12.6 lb)

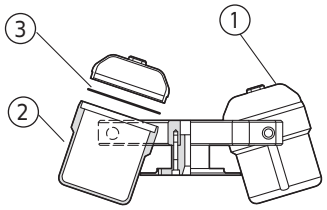
Rotor and bucket material ..... anodized aluminum

Bucket cover material ..... polysulfone

a. The critical speed range is the range of speeds over which the rotor shifts so as to rotate about its center of mass. Passing through the critical speed range is characterized by some vibration.

b. Relative Centrifugal Field (RCF) is the ratio of the centrifugal acceleration at a specified radius and speed (rw^2) to the standard acceleration of gravity (g) according to the following formula: RCF = rω2/g — where r is the radius in millimeters, ω is the angular velocity in radians per second (2 π RPM /60), and g is the standard acceleration of gravity (9807 mm/s^2). After substitution: RCF = 1.12r (RPM/1000)^2

Description



1. Bucket Cover (392266)
2. Bucket (B01664)
3. Bucket O-ring (392621)

This Beckman Coulter rotor has been manufactured in an ISO 9001 or 13485 facility for use with the specified Beckman Coulter centrifuges.

The Rotor

The SX4400 is a four-place swinging bucket rotor. This rotor carries adapters that allow centrifugation of a wide range of tube and bottle sizes (from 1.5-mL reaction vials to 400-mL bottles). The SX4400 rotor develops centrifugal forces that are suitable for rapidly sedimenting protein precipitates, large particles, cells, and cell debris.

The rotor yoke and buckets are made of aluminum and are black-anodized for corrosion protection. The buckets are run by placing them over pivot pins on the arms of the yoke. Buckets swing out to a horizontal position during centrifugation. This rotor was tested* to demonstrate containment of microbiological aerosols under normal operating conditions of the associated Beckman Coulter centrifuge, when used and maintained as instructed. A tie-down screw is used to secure the rotor to the drive shaft during centrifugation. Figure 1 shows the rotor and accessories.

The centrifuge identifies rotor speed during the run by means of a magnetic speed sensor system in the centrifuge rotor chamber and magnets imbedded in the rotor. The overspeed system ensures that the rotor does not exceed its permitted speed.

Buckets and Accessories

Threaded-top buckets with screw-on transparent covers hold several sizes of labware in modular or one-piece adapters. Each cover requires an O-ring that seats in a groove at the top of the bucket. Although the covers are not designed to contain aerosols that may result from tube breakage, they will contain most liquids and broken tube particles, allowing you to take appropriate precautions before opening the covers in the event of tube breakage.

* Validation of microbiological containment was done at an independent third-party testing facility (CAMR, Porton Down, UK, or USAMRIID, Ft. Detrick, MD, U.S.A.). Improper use or maintenance may affect seal integrity and thus containment.

A variety of tube sizes can be centrifuged in the rotor, supported in tube adapters listed in Table 1. The adapters can also serve as tube racks in the laboratory.

Figure 1 The SX4400 Rotor and Accessories

1. Bucket
2. Bucket Cover
3. T-handle Rotor Wrench
4. Tie-down Screw
5. Rotor Yoke

NOTE The latest information regarding labware and accessories used in Beckman Coulter rotors can be obtained at www.beckmancoulter.com.

Table 1 Available Tube Adapters for the SX4400 Rotor

Adapters		Tubes		Maximum Number Tubes per Rotor
Part Number (pkg 2)	Tubes per Adapter	Description	Nominal Volume	
N/A	N/A	Bottle, polypropylene (Part Number: B01435)	400 mL	4
392256	1	61.8 × 125 mm (flat bottom w/screw-on cap)[a]	250 mL	4
368457	1	56.5 × 113 mm	180 mL	4
368458	1	50.5 × 99 mm	125 mL	4
368459	1	44 × 100 mm (glass)	80/100 mL	4

Table 1 Available Tube Adapters for the SX4400 Rotor *(Continued)*

Adapters		Tubes		Maximum Number Tubes per Rotor
Part Number (pkg 2)	Tubes per Adapter	Description	Nominal Volume	
392261	1	38 × 112 mm	85/94 mL	4
392265	3	34 × 100 mm (glass)	50 mL	12
392258	3	28.5 × 100 mm (conical)	50 mL	12
368477	4	28.5 × 107 mm	50 mL	16
368462	5	26 × 100 mm (w/screw-on cap)	30 mL	20
368463	5	24 × 100 mm (glass w/screw-on cap)	25 mL	20
		24 × 100 mm (glass, open-top)		
392257	5	17 × 120 mm (conical)	15 mL	20
C16283	10	17 x 56 mm (conical)	5 mL	40
368468	12	16.0 × 81.1 mm	10 mL	48
368465	12	17 × 110 mm (round bottom)	10/15 mL	48
		17-mm Monovettes	10 mL	
		16 × 100 mm Vacutainer	10 mL	
		16 × 125 mm Vacutainer[b]	15 mL	
368467	16	13 × 75 mm Vacutainer	5 mL	64
		Hemolyse	5 mL	
		RIA tubes	5 mL	
392263	25	12 × 75 mm RIA tubes	5 mL	100
368469	16	12 × 100 mm (glass)	7 mL	64
368470	16	11 × 38 mm	1.5/2.2 mL	64
368471	24	7 × 19 mm microfuge/PCR tubes	0.5 mL	96

a. The rotor was tested using Nalge bottle 3122-0250 (polycarbonate).

b. Bucket covers cannot be used with this tube/adapter combination.

The maximum length of tubes used in the SX4400 buckets with covers is 125 mm for 250-mL bottles and 122 mm for all other tubes (when placed near the center of the adapter*). The 3-mm difference

* In multiple-place adapters, the maximum length of tubes that can be placed near the adapter periphery while still fitting under the bucket cover is 115 mm.

in length (250-mL bottles vs. other tubes) is specified because 250-mL bottle adapter 392256 is a bottomless sleeve, while all other adapters have a bottom surface that is approximately 3 mm tall.

See the Warranty at the back of this manual for warranty information.

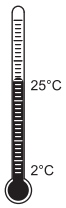
Preparation and Use

Specific information about the SX4400 rotor is given here. Information about the centrifuge is contained in the centrifuge manual, which should be used together with this manual for complete centrifuge, rotor, and accessory operation.

NOTE Although rotor components and accessories made by other manufacturers may fit in the SX4400 rotor, their safety in this rotor cannot be ascertained by Beckman Coulter. Use of other manufacturers' components or accessories in the SX4400 rotor may void the rotor warranty and should be prohibited by your laboratory safety officer. Only the components and accessories listed in this publication should be used in this rotor.

Tubes

Tubes should be pretested under anticipated run conditions (using water instead of valuable samples) if operating below 4°C or above room temperature. Refer to *Chemical Resistances* (publication IN-175) for information on the chemical resistances of tube and adapter materials.



Temperature Limits

- Plastic containers have been centrifuge tested for use at temperatures between 2 and 25°C. For centrifugation at other temperatures, pretest tubes under anticipated run conditions.
- If plastic containers are frozen before use, make sure that they are thawed to at least 2°C prior to centrifugation.

Prerun Safety Checks

Read the Safety Notice section at the front of this manual before using the rotor.

1. Make sure that the rotor, buckets, and bucket covers (if used) are clean and show no signs of corrosion or cracking.
   - If any evidence of damage is present, do not centrifuge the rotor.
2. Check the chemical compatibilities of all materials used (refer to *Chemical Resistances*, publication IN-175).
3. Verify that the tubes and accessories being used are listed in Table 1.

Installing the Rotor Yoke

NOTE Before the first use of a new rotor, lubricate the pivot pins with Spinkote (306812). After the first use, apply Spinkote to the pivot pins approximately once a week and after cleaning or autoclaving.

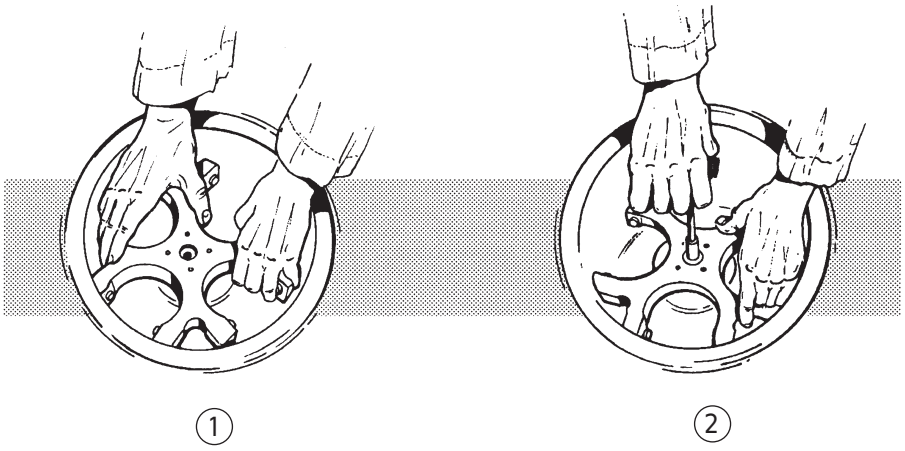
NOTE Refer to the centrifuge manual for proper installation and removal instructions. Failure to follow printed instructions may result in damage to the rotor and the centrifuge.

1 Before installing the yoke in the centrifuge, lightly coat the drive hole with lubricant such as Spinkote (306812) (see instructions under *Maintenance*).

2 Carefully lower the yoke straight down onto the centrifuge drive shaft (see Figure 2).

- Be sure the yoke is properly seated on the shaft.

Figure 2 Installing the Rotor Yoke on the Centrifuge Drive Shaft



1. Lower the yoke onto the drive shaft **2.** Tighten the tie-down screw with the T-handle wrench

3 Fasten the tie-down screw (361367) onto the drive shaft.

- Use the T-handle rotor wrench (365636) to tighten the tie-down screw firmly on the shaft.

⚠ CAUTION

Never drop the rotor yoke onto the centrifuge drive shaft. The drive shaft can be damaged if the rotor is forced sideways or dropped onto it.

NOTE If the yoke is left in the centrifuge between runs, before each run make sure it is properly seated on the drive shaft and that the tie-down screw is tight.

Loading the Buckets

For runs at other than room temperature, refrigerate or warm the rotor and precool the centrifuge beforehand for faster equilibration.

⚠ WARNING

Handle body fluids with care because they can transmit disease. No known test offers complete assurance that such fluids are free of micro-organisms. Some of the most virulent—Hepatitis (B and C) viruses, HIV (I–V), atypical mycobacteria, and certain systemic fungi—further emphasize the need for aerosol protection. Handle other infectious samples according to good laboratory procedures and methods to prevent spread of disease. Because spills may generate aerosols, observe proper safety precautions for aerosol containment.

Do not run toxic, pathogenic, or other hazardous materials in this rotor without taking all appropriate safety precautions. Biosafe containment should be used when Risk Group II materials (as identified in the World Health Organization *Laboratory Biosafety Manual*) are handled; materials of a higher group require more than one level of protection.

Symmetrical and Balanced Loading

To ensure optimal performance and stability, the rotor must be loaded symmetrically. Two factors affect symmetric loading:

1. The buckets or carriers must be loaded symmetrically with respect to their pivotal axes.
2. The rotor should be loaded symmetrically with respect to its center of rotation.

For best results, load opposing buckets or carriers with the same type of labware containing the same amounts of fluid of equal density. Additionally, opposing buckets and their contents should weigh approximately the same (within 10 grams).

It is not necessary to completely fill all tubes or positions in buckets; however, partially filled buckets must be balanced with respect to the bucket pivotal axis. Each tube should be placed so that its weight is balanced by a tube in a diametrically opposite position across the pivotal axis in the same bucket. Opposing buckets should also be filled the same way.

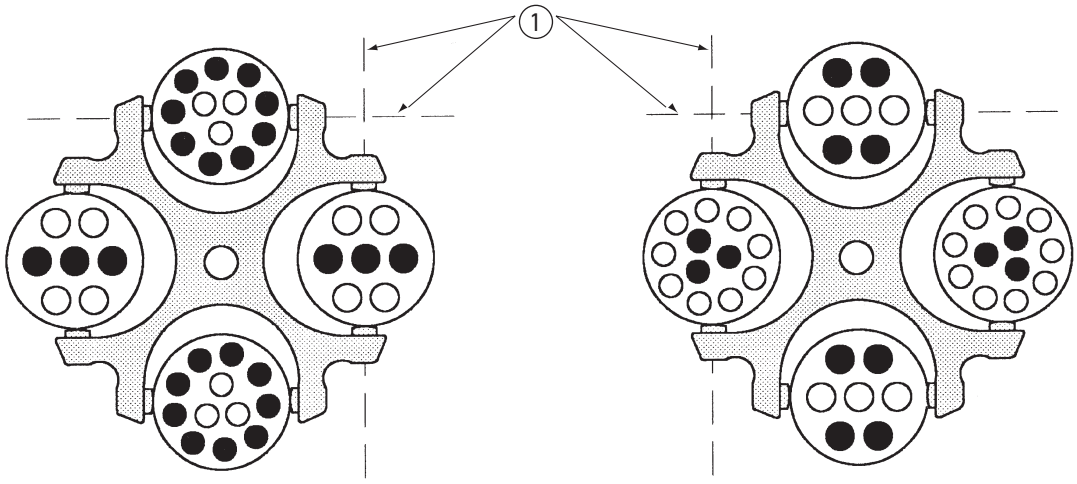
Using Buckets

You can load buckets before or after they are installed on the rotor yoke. In either case, we recommend filling the appropriate labware first and then loading the labware into the buckets to avoid tripping the imbalance detector.

1 Load the filled containers into the buckets (see *Tubes* for tube information).

NOTE Tubes placed in opposing buckets must be filled to the same level with liquid of the same density. Fewer than maximum number of tubes can be centrifuged in the multi-tube adapters if they are arranged symmetrically in the buckets (see Figure 3).

Figure 3 Arranging tubes in the Rotor



1. Pivotal Axis

NOTE All buckets must be attached to the rotor for every run, whether loaded or empty. Never run the rotor with fewer than four positions filled.

2 Place covers on buckets, if applicable.

- Screw covers to the right (clockwise) to tighten.

3 Attach each bucket to the yoke by aligning the grooves in the bucket sides with the pivot pins, then sliding the buckets down until the pivot pins are seated in the bucket pockets.

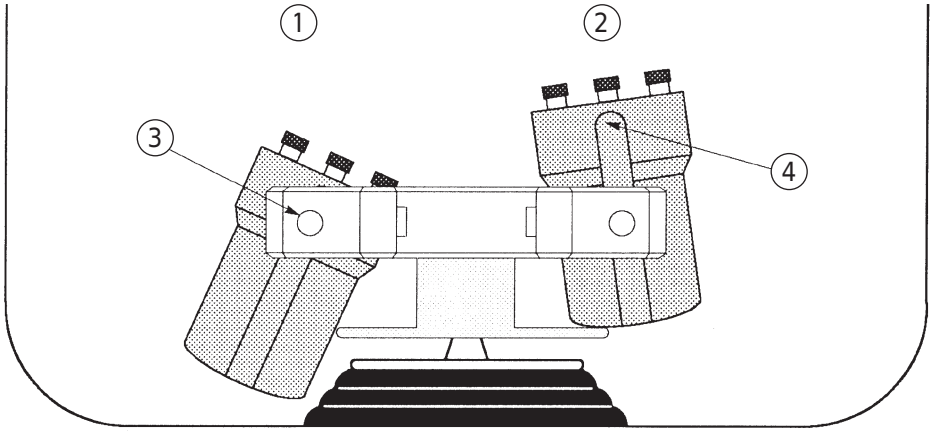
⚠ CAUTION

Attach all four buckets, loaded or empty, to the rotor yoke. If only two buckets are filled, place them in opposite positions on the yoke. All four positions must contain buckets during a run.

4 Gently swing the buckets to ensure that they are properly seated on the pivot pins.

5 Make sure buckets are properly seated over the pivot pins on the rotor yoke as shown in Figure 4.

Figure 4 Seating Buckets on Yoke Pivot Pins



1. CORRECT
2. INCORRECT
3. Pivot pins are seated in bucket pockets
4. Pivot pins are not seated in bucket pockets

NOTE Buckets must be inserted at an angle, or the bucket bottom will rest on the rotor base and the pivot pins will not seat in the pin pockets.

Operation

1 Refer to the centrifuge instruction manual for centrifuge operation.

2 See *Run Speeds*, page 10, for information about speed limitations.

Removal and Sample Recovery

⚠ CAUTION

If disassembly reveals evidence of leakage, you should assume that some fluid escaped the rotor. Apply appropriate decontamination procedures to the centrifuge and accessories.

1 Remove the buckets from the centrifuge.

2 Remove covers (if used) from buckets, and remove the tubes from the buckets.

NOTE If glass tubes break, remove the glass very carefully from the adapter and bucket. If all the glass particles are not contained in the bucket or adapter, be careful when examining or cleaning the centrifuge gasket and chamber as glass particles may be embedded in their surfaces.

3 If removing the rotor yoke, turn the T-handle wrench to the left (counterclockwise) to loosen the tie-down screw.

- Lift the yoke straight up and off the drive shaft.

NOTE Refer to the centrifuge manual for proper installation and removal instructions. Failure to follow printed instructions may result in damage to the rotor and the centrifuge.

Run Speeds

The centrifugal force at a given radius in a rotor is a function of speed. Comparisons of forces between different rotors are made by comparing the rotors' relative centrifugal fields (RCF). When rotational speed is adjusted so that identical samples are subjected to the same RCF in two different rotors, the samples are subjected to the same force. If RPM is entered, the RCF at each speed is automatically calculated by the centrifuge software; if the RCF is entered, the centrifuge calculates the equivalent revolutions per minute (rpm). *Do not select rotational speeds that exceed 4700 rpm for refrigerated centrifuges, or 4200 rpm for nonrefrigerated centrifuges.*

Speed Derating

The maximum run speed listed in the rotor specifications is for operation when all conditions are within the standard specifications. Maximum allowable run speed for the rotor must be reduced in some circumstances.

1. The rotor can process solutions at the maximum rated speed if the solution density is 1.2 g/mL or less. When centrifuging solutions of densities greater than 1.2 g/mL, the maximum run

speeds must be reduced according to the following equation to protect the rotor from excessive stresses due to the added tube load:

$$\text{reduced maximum speed} = (4700\ \text{rpm})^{*} \sqrt{\frac{1.2\ \text{g/mL}}{\text{density of tube contents}}}$$

*Use 4200 for nonrefrigerated Allegra X-30 centrifuges

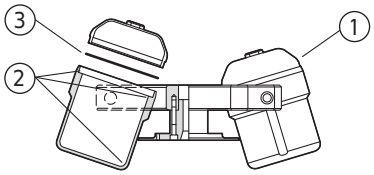
2. When some glass tubes are used, reduce rotor speed to prevent tube breakage. Because the strength of tubes can vary from lot to lot, and will depend on handling and usage, Beckman Coulter highly recommends that you pretest these tubes in the appropriate labware in the SX4400 rotor, using water samples, to determine optimal operating conditions.

NOTE Scratches (even microscopic ones) significantly weaken glass tubes.

Care and Maintenance

Maintenance

Do not use sharp tools on the rotor, as they can scratch the anodized surface. Corrosion begins in scratches and may open fissures in the rotor with continued use.



1. Bucket Carrier
2. Check for Corrosion
3. Bucket O-ring

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1 Periodically (at least monthly) inspect the rotor yoke and buckets, especially inside cavities, for rough spots or pitting, white powder deposits—frequently aluminum oxide—or heavy discoloration.

- If any of these signs are evident, do not run the rotor.
- Contact your Beckman Coulter representative for information about the Field Rotor Inspection Program and the rotor repair center.

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2 Regularly check the condition of the tie-down screw (361367); if it is worn or damaged, replace it.

- Regularly check the condition of the bucket O-rings (392621); if they are worn or damaged, replace them.

3 Check bucket covers and adapters for crazing or cracks before use.

- Do not centrifuge cracked covers or adapters.

4 Approximately once a week, and after cleaning and/or autoclaving, lubricate the rotor pins and pin sockets with a lubricant such as Spinkote (306812).

Store the rotor in a dry environment (not in the centrifuge). Refer to *Chemical Resistances* for the chemical compatibilities of rotor and accessory materials. Your Beckman Coulter representative provides contact with the Field Rotor Inspection Program and the rotor repair center.

Cleaning

Wash rotor components immediately if salts or other corrosive materials are used or if spillage has occurred. Do not allow corrosive materials to dry on the rotor.

Under normal use, wash the rotor frequently (at least weekly) to prevent buildup of residues.

NOTE Do not wash the rotor components in a dishwasher. Do not soak the rotor in detergent solution for long periods, such as overnight.

Rotor Components

1 Wash the rotor yoke and tie-down screw in a mild detergent, such as Solution 555 (339555), that won't damage the rotor.

- The Rotor Cleaning Kit (339558) contains two plastic-coated brushes and two quarts of Solution 555 for use with rotors and accessories.
- Dilute the detergent 10 to 1 with water.

2 Thoroughly rinse the cleaned rotor components with distilled water.

3 Air-dry the rotor components upside down.

- *Do not use acetone to dry the rotor.*

4 Lubricate the rotor pins with Spinkote (306812).

Before reinstalling the rotor yoke, lightly lubricate the drive hole with Spinkote (306812) to prevent the rotor from sticking, as follows:

1. Apply the lubricant onto a swab.
2. Draw the coated swab through a paper towel to remove excess lubricant.
3. Lightly coat the inside of the drive hole with the lubricant remaining on the swab.

Buckets

1. Remove the O-ring from the buckets before cleaning.
2. Wash the buckets, covers, and O-rings with a mild detergent such as Solution 555, diluted 10 to 1 with water, and a soft brush.
3. Thoroughly rinse with water and air-dry.
4. Replace the O-ring in the groove.

Adapters

1. Disassemble modular adapters for washing by pulling them apart.
2. Use a mild detergent such as Solution 555, diluted 10 to 1 with water, and a soft brush to scrub the adapters.
3. Rinse thoroughly with water.
4. Air-dry upside down.
   - Reassemble modular adapters.

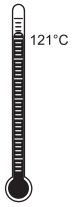
Decontamination

If aluminum rotor components become contaminated with radioactive material, decontaminate them using a solution that will not damage the anodized surfaces. Beckman Coulter has tested a number of solutions and found two that do not harm anodized aluminum: RadCon Surface Spray or IsoClean Solution (for soaking),* and Radiacwash.†

While Beckman Coulter has tested these materials and found that they do not damage components, no guarantee of decontamination is expressed or implied. Follow appropriate decontamination procedures as directed by your laboratory safety officer.

If the rotor or other components are contaminated with toxic or pathogenic materials, follow appropriate decontamination procedures as directed by your laboratory safety officer

Sterilization and Disinfection



- The rotor and all rotor components (except bucket covers) can be autoclaved at 121°C for up to an hour. Remove the covers from the buckets and place the rotor yoke and buckets in the autoclave upside down. Bucket covers should not be autoclaved for more than 15 minutes.
- Ethanol (70%)‡ or hydrogen peroxide (6%) may be used on all rotor components, including those made of plastic. Bleach (sodium hypochlorite) may be used, but may cause discoloration of anodized surfaces. Use the minimum immersion time for each solution, per laboratory standards.

While Beckman Coulter has tested these methods and found that they do not damage the rotor or components, no guarantee of sterility or disinfection is expressed or implied. When sterilization or disinfection is a concern, consult your laboratory safety officer regarding proper methods to use.

Refer to publication IN-192, included in each box of tubes or bottles, for tube sterilization and disinfection procedures.

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* In U.S., contact Nuclear Associates (New York); in Eastern Europe and Commonwealth States, contact Victoreen GmbH (Munich); in South Pacific, contact Gammasonics Pty. Ltd. (Australia); in Japan, contact Toyo Medic Co. Ltd. (Tokyo).

† In U.S., contact Biodex Medical Systems (Shirley, New York); internationally, contact the U.S. office to find the dealer closest to you.

‡ Flammability hazard. Do not use in or near operating ultracentrifuges.

Tube Breakage

⚠ CAUTION

To reduce the potential for corrosion, clean buckets thoroughly immediately following a tube breakage.

If a glass tube breaks, remove the glass very carefully from the adapter and bucket. Imbedded glass particles that remain in the bucket or adapters can cause tube failure during subsequent runs.

Storage

When it is not in use, store the rotor in a dry environment (not in the centrifuge).

Returning a Rotor

Before returning a rotor or accessory for any reason, prior permission must be obtained from Beckman Coulter, Inc. This form may be obtained from your local Beckman Coulter sales office. The form, entitled *Returned Material Authorization* (RMA) for United States returns or *Returned Goods Authorization* (RGA) for international returns, should contain the following information:

- rotor type and serial number,
- history of use (approximate frequency of use),
- reason for the return,
- original purchase order number, billing number, and shipping number, if possible,
- name and email address of the person to be notified upon receipt of the rotor or accessory at the factory,
- name and email address of the person to be notified about repair costs, etc.

To protect our personnel, it is the customer's responsibility to ensure that all parts are free from pathogens and/or radioactivity. Sterilization and decontamination must be done before returning the parts. Smaller items (such as tubes, bottles, etc.) should be enclosed in a sealed plastic bag.

All parts must be accompanied by a note, plainly visible on the outside of the box or bag, stating that they are safe to handle and that they are not contaminated with pathogens or radioactivity. ***Failure to attach this notification will result in return or disposal of the items without review of the reported problem.***

Use the address label printed on the RGA/RMA form when mailing the rotor and/or accessories.

Customers located outside the United States should contact their local Beckman Coulter office.

Supply List

NOTE Publications referenced in this manual can be obtained at www.beckmancoulter.com or by calling Beckman Coulter at 1-800-742-2345 in the United States, or by contacting your local Beckman Coulter office.

Call Beckman Coulter Sales (1-800-742-2345 in the United States) for detailed information on ordering parts and supplies. For your convenience, a partial list is given below.

Replacement Rotor Parts

SX4400 rotor assembly (includes 4 buckets without covers)	B01425
Bucket covers (set of 4)	392266
Buckets (set of 2)	B01426
Rotor yoke	B01429
Bucket O-ring (set of 4)	392621
Tie-down screw	361367
T-handle rotor wrench	365636

Other

Adapters	see Table 1
Spinkote lubricant (2 oz)	306812
Silicone vacuum grease (1 oz)	335148
Rotor Cleaning Kit	339558
Beckman Solution 555 (1 qt)	339555
Rotor cleaning brush	339379

Beckman Coulter, Inc.
Benchtop Rotor Warranty

Subject to the conditions specified below and the warranty clause of the Beckman Coulter, Inc., terms and conditions in effect at the time of sale, Beckman Coulter agrees to correct either by repair or, at its election, by replacement, any defects of material or workmanship which develop within seven (7) years after delivery of a benchtop centrifuge rotor to the original buyer by Beckman Coulter or by an authorized representative, provided that investigation and factory inspection by Beckman Coulter discloses that such defect developed under normal and proper use. Should a Beckman Coulter centrifuge be damaged due to a failure of a rotor covered by this warranty, Beckman Coulter will supply free of charge all centrifuge parts required for repair.

Conditions

Except as otherwise specifically provided herein, this warranty covers the rotor only and Beckman Coulter shall not be liable for damage to accessories or ancillary supplies including but not limited to (i) tubes, (ii) tube caps, (iii) tube adapters, or (iv) tube contents.

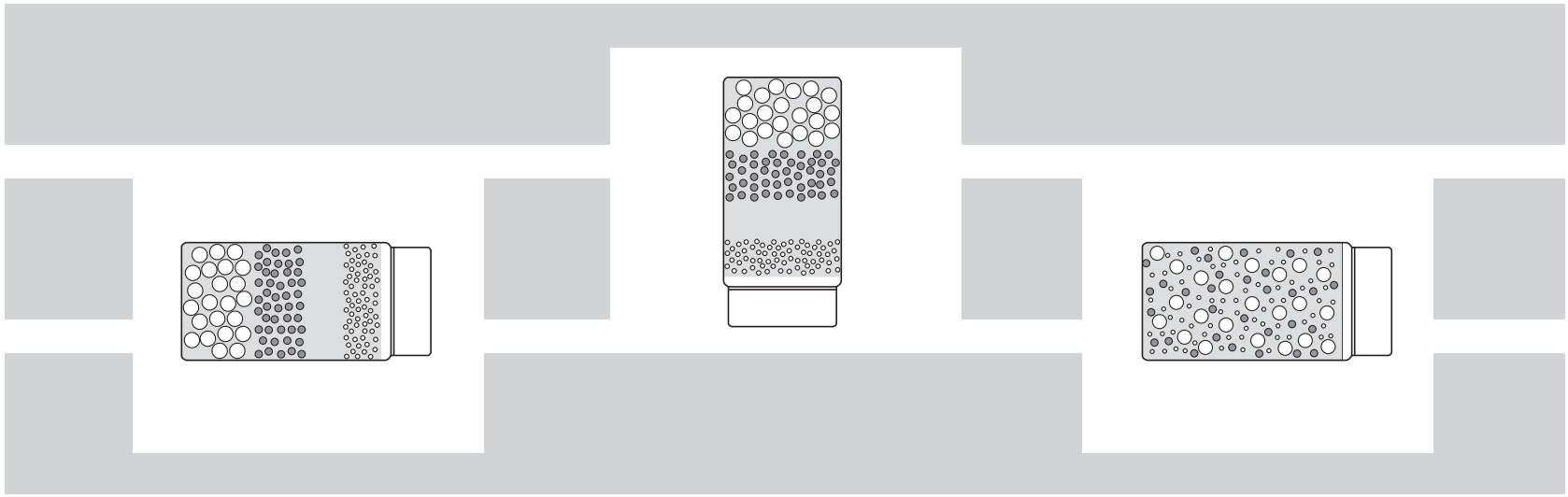
This warranty is void if the rotor has been subjected to customer misuse such as operation or maintenance contrary to the instructions in the Beckman Coulter rotor or centrifuge manual.

This warranty is void if the rotor is operated with a rotor drive unit or in a centrifuge unmatched to the rotor characteristics or operated in a Beckman Coulter centrifuge that has been improperly disassembled, repaired, or modified.

Thermoplastic rotors or components used in some benchtop centrifuges are warranted for one (1) year from date of purchase.

Disclaimer

IT IS EXPRESSLY AGREED THAT THE ABOVE WARRANTY SHALL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND OF THE WARRANTY OF MERCHANTABILITY AND THAT NEITHER BECKMAN COULTER, INC. NOR ITS SUPPLIERS SHALL HAVE ANY LIABILITY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER ARISING OUT OF THE MANUFACTURE, USE, SALE, HANDLING, REPAIR, MAINTENANCE, OR REPLACEMENT OF THE PRODUCT.



Related Documents

Allegra X-30 Series (B01145)

- Safety
- Introduction
- Description
- Installation
- Operation
- Troubleshooting
- Care and Maintenance

Available in hard copy or electronic pdf by request.

Additional References

- Chemical Resistances for Beckman Coulter Centrifugation Products (IN-175)
- Use and Care of Tubes and Bottles (IN-192)

Available in hard copy or electronic pdf by request.

Available at www.beckmancoulter.com

www.beckmancoulter.com