

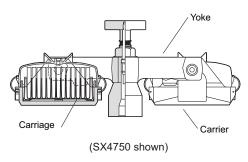
GX-TB-011HB June 2017

# Multiwell-Plate Carriers for the SX4750, SX4750A, or JS-4.750 Swinging-Bucket Rotor

### **Specifications**

Maximum Speed	
Allegra X-15R	4450 RPM
Allegra X-14 series	4000 RPM
Allegra X-12 series	3750 RPM
Avanti J-15 & J-15R (3 plates)	
Avanti J-15 & J-15 R (4 plates)	2700 RPM
Relative Centrifugal Field at maximum speed r <sub>max</sub> = 183.2 mm	4060 x g
Number of carriers per rotor	
Maximum load allowed in each multiwell-plate carrier	
at rated speed (excluding weight of carrier and cover)	

### Description



The multiwell-plate carriers, made of anodized aluminum, are placed over pivot pins on the arms of the rotor yoke and swing out to horizontal position during centrifugation. Aluminum carriages facilitate loading and unloading of the carriers and provide support to labware during centrifugation. A polypropylene pad in the carriage provides support for the labware during centrifugation. Refer to publication GX-TB-003 (SX4750), GX-TB-004 (SX4750A), or B80289 (JS-4.750), for complete information on use and care of the rotor and accessories.

Multiwell plates are used for many applications, including culturing small populations of cells, immunoassays, and serial dilution of small liquid volumes. Carriages used in the carriers can each hold up to four stacked multiwell plates (not to exceed 55.9 mm/2.2 in. in depth) or one deep-well or square-well plate. Each carrier can also carry a multiwell kit for high-throughput processing (such as DNA or RNA kit).

Transparent covers, made of a high-impact plastic, are available for the carriers. Covers have been tested<sup>\*</sup> to demonstrate containment of microbiological aerosols under normal conditions of the associated Beckman Coulter centrifuge when used and maintained as instructed. Each cover requires a replaceable gasket that seats on the carrier. The covers are held in place by attached latch assemblies. They will contain liquids and broken labware particles, reducing the need to clean the centrifuge chamber, and allowing you to take appropriate precautions before opening the covers in the event of breakage. Refer to publication GX-TB-012 for use and care of covers.

### **Using Carriers**

You can load carriers before or after installing them on the rotor yoke. In either case, fill the labware first, then load the labware into carriages and the carriages into the carriers. You must load the carriers symmetrically around the center of rotation and each carrier must be loaded symmetrically with respect to its pivotal axis. Refer to the applicable rotor manual for complete information about symmetrical and balanced loading.

If only two filled multiwell-plate carriers are run, install them opposite each other in the rotor and run two additional carriers or buckets (they can be empty) to prevent rotor imbalance.

- **1** Insert the filled plate(s) into the carriage. If using two or three plates per carrier, place a cap strip between the plates to prevent breakage during centrifugation.
  - **NOTE** Up to three Beckman Coulter plates, separated by cap strips, can be run per carrier at maximum multiwell-plate speeds. If running four Beckman Coulter plates, cap strips cannot be used due to height limitations; reduce run speed to 2700 RPM. Observe manufacturer's run speed and stacking limitations if using other manufacturers' multiwell plates. RCF and stacking limitations vary widely between manufacturers pretest other manufacturers' plates using water instead of valuable sample.
- **2** Grasp the carriage by the handles and lower it into the carrier.
- **3** Make sure that cover gaskets are in good condition and securely attached to the covers.
- **4** Put covers on the carriers with the latches perpendicular to the pin sockets. Snap the latches down and secure them under the carrier rim.
- **5** Attach each carrier to the yoke by aligning the grooves in the sides with the pivot pins, then sliding the carrier down until the pivot pins are seated in the pin pockets.

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.

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All four positions must contain carriers or buckets during a run. Never run the rotor with only two positions filled. If two tube-and-bottle buckets and two multiwell-plate carriers are run, position the similar buckets opposite each other.

- **6** Gently swing the carriers to ensure that they are properly seated on the pivot pins.
  - **NOTE** Beckman Coulter supplies carriers in weight-matched sets to make balancing easier (the weight and retirement date are marked on the side of each). To prevent accidental imbalance it is important to keep matched sets of carriers together.

### Operation

Refer to the applicable rotor manual for rotor operation. If the weight of the load in a multiwellplate carrier exceeds 360 grams, reduce the maximum allowable run speed according to the following equation:

reduced maximum speed =  $(4450 \text{ RPM}) \sqrt{\frac{360 \text{ grams}}{\text{heaviest loading grams}}}$ 

Do not select rotational speeds in excess of 4450 RPM (3750 RPM in an Allegra X-12 series centrifuge, 4000 RPM in an Allegra X-14 series centrifuge, or 4350 RPM in an Avanti J-15 series centrifuge).

When using plate carriers in the SX4750A or JS-4.750 rotor, select SX4750A as rotor and set rotor speed using RPM values only. To set rotor speed to a specific RCF, use the RCF reference chart (publication GX-TB-015) to determine the proper RPM value to enter.

**NOTE** If using multiwell plates for runs exceeding 2 hours in a warm and/or humid environment, speed reduction may be required to maintain low sample temperatures.

#### Labware

Beckman Coulter labware that can be centrifuged in multiwell-plate carriers is shown in Table 1. Commercially available labware for use with multiwell-plate carriers is shown in Table 2.

Table 1	Beckman Coulter	Labware for Use	with Multiwell-Plate Carriers
100010	Beening of Sources	Eastrate for 050	

			Available Accessory	
Description	Volume	Part Number	Description	Part Number
Multiwell plate,	300 µL/well	609844ª (pkg/100)	Cap strip, non-sterile	267002 (pkg/10)
96 well, non-sterile			Cap strip, sterile <sup>a</sup>	267005 (pkg/10)
			Aluminum foil lid <sup>b</sup>	538619 (pkg/10)
Deep-well polystyrene plate, 96-well, non-sterile	1 mL/well	267001 (pkg/24)	Cap strip, non-sterile <sup>a</sup>	267002 (pkg/10)
			Cap strip, sterile <sup>a</sup>	267005 (pkg/10)
			Aluminum foil lid <sup>b</sup>	538619 (pkg/10)
Deep-well polystyrene plate, 96-well, sterile	1 mL/well	267004 (pkg/24)	Cap strip, non-sterile <sup>a</sup>	267002 (pkg/10)
			Cap strip, sterile <sup>a</sup>	267005 (pkg/10)
			Aluminum foil lid <sup>b</sup>	538619 (pkg/10)
Deep-well	1 mL/well	267006 (pkg/24)	Cap strip, non-sterile <sup>a</sup>	267002 (pkg/10)
polypropylene plate, 96-well, non-sterile			Cap strip, sterile <sup>a</sup>	267005 (pkg/10)
non steme			Aluminum foil lid <sup>b</sup>	538619 (pkg/10)
Deep-well polypropylene plate, 96-well, sterile	1 mL/well	267007 (pkg/24)	Cap strip, non-sterile <sup>a</sup>	267002 (pkg/10)
			Cap strip, sterile <sup>a</sup>	267005 (pkg/10)
			Aluminum foil lid <sup>b</sup>	538619 (pkg/10)
Square-well polypropylene plate	2 mL/well	140504 (pkg/24)	Aluminum foil lid <sup>b</sup>	538619 (pkg/100)

a. Caps are optional; however, if stacking two or three multiwell plates, use cap strips between plates for speeds greater than 2700 RPM.

b. Requires soft rubber roller (4-in.), part number 538618, for installation.

Description	Volume	Part Number	Required Accessory	
			Description	Part Number
BD Falcon 96-well flat-bottom assay plate, clear polystyrene, standard surface, non-s teri le	300 μL/well	BD Falcon 353915 <sup>a</sup> (5/bag, 50/case)	_	_
BD Falcon 96-well flat-bottom ELISA plate, clear polystyrene, enhanced surface, non sterile	300 μL/well	BD Falcon 353279 <sup>a</sup> (25/sleeve, 100/case)	_	_
BD Falcon 96-well flat-bottom assay plate, clear polystyrene, standard surface, non-sterile	300 μL/well	BD Falcon 353228 <sup>a</sup> (10/bag, 60/case)		_

 Table 2
 Commercially Available Labware for Use with Multiwell-Plate Carriers

a. These plates can be run at 4450 RPM (4063  $\times$  *g*), up to four plates per carrier, without lids or cap strips.

### **Care and Maintenance**

**NOTE** Refer to the applicable rotor manual for care and maintenance of other rotor components and accessories.

#### Inspection

- Periodically (at least monthly) inspect carriers 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.
- Periodically check the date of manufacture engraved on the carrier. Retire the carrier five years after the date indicated.
  - **NOTE** Carriers should not be used beyond five years from the date of manufacture date marked on the carrier. If at the time of purchase the marked manufacture date is less than 5 years from the date of purchase, the retirement date becomes the date of purchase plus 5 years.

#### Maintenance

- Approximately every 400 runs and after cleaning and/or autoclaving, lubricate the contact areas between the carriers and the pivot pins. Apply Paint On Graphite Lubricant (977212) on each carrier socket. Allow the lubricant to dry for 5 minutes before installing the rotor in the centrifuge.
- Carriers and carriages are made of anodized aluminum. Do not use sharp tools on them, as scratches in the anodized surface may lead to corrosion.

### Cleaning

If spillage has occurred, or if salt solutions or other corrosive materials are used, clean the carrier immediately. Do not allow corrosive materials to dry on carriers.

1 Clean the carriers, carriages, and support pads with a mild detergent such as Beckman Solution 555 (339555) diluted 10 to 1 with water.

**NOTE** Do not wash carriers or carriages in a dishwasher. Do not soak them in detergent solution for long periods, such as overnight.

- **2** Rinse thoroughly with water and dry completely.
- **3** Lubricate the pin contact areas with Paint On Graphite Lubricant as described under Maintenance.

Approximately every 400 runs clean the contact areas between the carriers and the pivot pins. After cleaning, lubricate the contact areas with Paint On Graphite Lubricant as described under Maintenance.

#### Decontamination

If the anodized aluminum carriers or carriages become contaminated with radioactive material, they should be decontaminated 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)<sup>\*</sup>, and Radiacwash<sup>†</sup>.

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

#### **Sterilization and Disinfection**

Carriers can be autoclaved at 121°C for up to an hour; carriages and support pads for up to 30 minutes. Ethanol (70%) may be used on all components. Refer to *Chemical Resistances* (publication IN-175) for other chemical compatibilities.

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

<sup>\*</sup> 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).

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

### **Returning a Component**

In most cases it is not necessary to return defective accessories. In those rare cases where return of defective items is desirable, prior permission (a Returned Goods Authorization form) must be obtained from Beckman Coulter, Inc. This RGA form may be obtained from your local Beckman Coulter sales office.

To protect our personnel, it is the customer's responsibility to ensure that parts are free from pathogens and/or radioactivity. Sterilization and decontamination must be done before returning the parts. The parts 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 form when mailing the components.

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

### **Supply List**

Carrier for SX4750 and SX4750A (set of 2; includes carriages)	392806
Carrier for JS-4.750 (set of 2; includes carriages)	C05794
Carrier cover (set of 2)	393070
Carriage (set of 4)	392873
Replacement support pad (set of 4)	392872
Solution 555 (1 qt)	339555
Paint On Graphite Lubricant	977212

**NOTE** For MSDS information, go to the Beckman Coulter website at www.beckmancoulter.com.

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