

Table Top Centrifuge



7 Color Monitoring

4000

General-purpose model

MAX. 5,800rpm

MAX. 5,000xg

4200

High Speed model

MAX. 16,000rpm

MAX. 23,470xg



4000

General-purpose model
 Maximum Speed — 5,800rpm
 Maximum RCF — 5,000xg



The table-top centrifuge can centrifuge 68 x 15 mL tubes, 16 x 50 mL Conical tubes, or 4 x 250 mL tubes. It was developed for use as a general-purpose centrifuge.

The 4000/4200 models share these features:

- **Simple design and operability**
- **The chamber opening is 27.5 cm high and 38 cm wide (full-open type). Samples can be easily inserted and removed.**
- **An automatic interlock lid is employed.**
The lid automatically locks when closed and automatically opens when rotation stops.
- **The operating status lamp on top of the lid can be seen at a distance.**
Seven lamp colors are user-selectable.
- **Five different buzzer sounds indicating the end of operation can be selected, and the volume can be adjusted.**

Main unit

A viewing port is employed so that rotation of the rotor can be observed. This can also be used during GMP inspection.

Centrifuging is possible with the samples just balanced by eye.

(Not applicable when using swinging bucket or fixed-angle rotors at 5,000 rpm or higher.)

Conditions for centrifuging can be set and displayed in two ways, i.e. g's (RCF) and rpm (speed).

Settings for the rotation radius can also be changed, which helps obtain a precise RCF display.

The centrifuge comes with a function that allows a delayed start from when the samples are set. (Patent pending)

The delayed operation start is particularly useful for serum separation.

The timer can be easily set to the desired combination of minutes and seconds.

When setting the timer to 5 minutes 30 seconds, for example, there is no need to convert this time interval to 330 seconds for input.

[For example]

	To set 3 minutes 30 seconds	To set 5 minutes 40 seconds
Conventional setting method*	210 seconds	340 seconds
New setting method*	3 minutes 30 seconds	5 minutes 40 seconds

* Compared to other conventional company units

There is a memory flashing function for easy spin-down operation. (Patent pending)

The duration of the spin-down operation, from 1 to 99 seconds, is automatically memorized. At the next operation, simply pressing a convenient key will start the spin-down operation for the memorized duration.

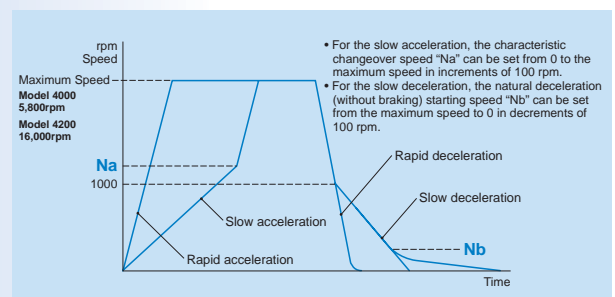
Compact design

Since the centrifuge cabinet has a shorter depth, there are more options for device location.



Free run can be used for the deceleration curve according to the sample and objective.

Due to the direct drive and a brushless motor, free run (natural deceleration) applies smooth deceleration, providing a clear separation plane.



4200

High speed model

Maximum Speed — 16,000rpm

Maximum RCF — 23,470xg



The Microtiter rotor (accommodating 24 x 2 mL tubes) is rated for 16,000 rpm/23,470 x g. A high-speed microtiter rotor can also be used.

The 4000/4200 models share these features:



A tool-less rotor is employed, for easy rotor changing. (Excluding the RA-2724M.)

No tools are required when setting or changing applicable rotors.

The Microtiter rotor RA-2724M can be operated at 16,000 rpm. (Model 4200.)

A tube rack (Code No. 055-0880) has been developed to accommodate blood collecting tubes of various sizes (such as 5 mL, 7 mL, 10 mL) and 15 mL glass tubes simultaneously. (With the ST-720M swinging bucket rotor.)

Blood collecting tubes can be centrifuged using this tube rack.

Biohazard-proof rotor that can be autoclaved

There is a swinging bucket rotor that can be autoclaved at 121°C, and a fixed-angle rotor that can be autoclaved at 134°C.

Biohazard-proof swinging bucket rotor ST-410M is rated for 5,000 rpm/4,470 x g. Sealing caps (optional) can be used, which are effective for separation of acid-fast bacteria.

A lightweight fixed-angle rotor AT-508C accommodating 8 x 50 mL Conical tubes has been developed.

The RCF, which is important for separation, is as much as 5,000 x g. Compare the RCF with others.



The design has been developed to accommodate the recycling of materials.

Parts made of resin materials are marked so that they can be easily sorted.



A table with casters for mounting the centrifuge.

It has 2 drawers which are convenient for storage, and can be fixed with an adjuster.

50(W) x 55(D) x 53(H) cm



The centrifuge conforms to international safety standard IEC 61010-2-020.

A centrifuge bearing a CE* mark and employing measures against electromagnetic noise is also available.

* A set of rules established in Europe and applied to products that are in compliance with requirements concerning the health and safety of users and consumers.

An automatic interlock lid is employed.











The lid automatically opens when rotation stops.

The lid can also be set to be opened by pressing the lid open key after rotation stops.



The unit shown in the picture is used with the combination tube rack (Code No. 055-0880) for various size of blood collection tubes.






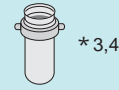
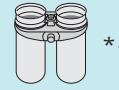
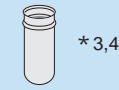


Rotor, Bucket, Tube Rack Table for Model 4000/4200

					
		48 x 1.5/2mL	48 x 1.5/2mL	80 x 1.5/2mL	96 x RIA tube
Swinging bucket rotor	Tube				
	Nominal Capacity	48 x 1.5/2mL	48 x 1.5/2mL	80 x 1.5/2mL	96 x RIA tube
	Tube size (mm) diam. x length	10.7 x 42	9.5 ~ 11 x 36 ~ 42	9.5 ~ 11 x 36 ~ 42	10 ~ 12.3 x 65 ~ 95
	Maximum Speed rpm	4,800/5,000	3,500	3,500	3,500
	Maximum RCF x g	3,840/4,160	1,880	2,290	2,190
 ST-720M Bucket Code No.			053-5820 	053-5820 	
	Tube Rack, Adaptor Code No. Max 3,500 rpm Max 2,380 x g			055-4800 	055-4730 
 ST-480M Bucket Code No. Max 3,500 rpm Max 2,340 x g		053-5040 			
	Bucket, Tube Rack, Adaptor Code No. Max 4,800/5,000 rpm Max 4,120/4,470 x g	K17008 			

The sealing cap is option.

The maximum speed and maximum RCF of the ST-410M indicated on the left in red are for Model 4000 unit, and the values indicated on the right in blue are for Model 4200.


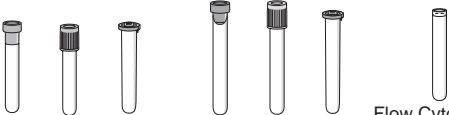
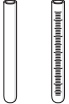











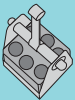
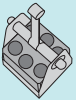



The number of times allowed for autoclaving are limited. Please refer an instruction manual.

					
		4 x 50 mL (glass)	4 x 50 mL (glass)	8 x 50 mL (glass)	8 x 50 mL (glass)
Swinging bucket rotor	Tube				
	Nominal Capacity	4 x 50 mL (glass)	4 x 50 mL (glass)	8 x 50 mL (glass)	8 x 50 mL (glass)
	Tube size (mm) diam. x length	27 ~ 35.8 x 82 ~ 110	27 ~ 38 x 100 ~ 110	27 ~ 36.4 x 85 ~ 110	27 ~ 38 x 100 ~ 110
	Maximum Speed rpm	4,800/5,000	3,500 (5,000)	3,500	3,500
	Maximum RCF x g	3,840/4,160	2,270 (4,640)	2,330	2,270
 ST-720M Bucket Code No.			053-5820 		
	Tube Rack, Adaptor Code No. Max 3,500 rpm Max 2,380 x g			055-4760 	
 ST-480M Bucket Code No. Max 3,500 rpm Max 2,340 x g		053-7110  *3,4		053-7150  *4	
	Bucket Code No. Max 5,000 rpm Max 4,640 x g		053-7080  *3,4		
 ST-504M Bucket Code No.					
	Tube Rack, Adaptor Code No. Max 4,800/5,000 rpm Max 4,120/4,470 x g	055-5670 			


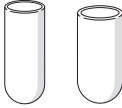

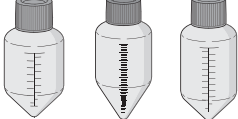











The sealing cap is option.

The maximum speed and maximum RCF of the ST-410M indicated on the left in red are for Model 4000 unit, and the values indicated on the right in blue are for Model 4200.

The number of times allowed for autoclaving are limited. Please refer an instruction manual.

	 Flow Cytometer							
48 x 5mL RIA tube	24 x 5/7mL * 11 narrow blood collecting tube	48 x 5/7mL narrow blood collecting tube	28 x 5/7mL blood collecting tube	68 x 5/7mL narrow blood collecting tube	48 x 7mL	24 x 8mL CPT cell preparation tube	24 x 10mL (glass)	80 x 10mL (glass)
12.5 x 55 ~ 75	12.5 ~ 13.3 x 46 ~ 110	12 ~ 13.3 x 63 ~ 110	12.5 ~ 13 x 75 ~ 106	12.5 ~ 13.7 x 62 ~ 110	12 ~ 12.5 x 100 ~ 112	13.5 ~ 15.8 x 81 ~ 130	12.5 ~ 13.3 x 46 ~ 110	12.5 ~ 13.8 x 65 ~ 95
4,800/5,000	3,500	3,500	4,800/5,000	3,500	4,800/5,000	3,500	3,500	3,500
3,840/4,160	2,340	2,310	3,840/4,160	2,300	3,840/4,160	2,310	2,270	2,260
		053-5820 		053-5840 		053-5820 		053-5820 
		055-4990  * 8		055-0260  * 8		055-6900  * 9		055-4740 
	053-5850 						053-5850 	
K17006 			K17027 		K17007 			

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4 x 50mL Conical tube	4 x 50mL Conical tube	8 x 50mL Conical tube	16 x 50mL Conical tube	4 x 100mL (glass)	4 x 100mL (glass)	4 x 200mL (plastic)	4 x 175/200/225mL Conical bottle
29.5 x 117	30 x 117	30 x 117	30 x 117	38 ~ 46.5 x 75 ~ 120	44 ~ 45 x 110	56.5 x 104	61 x 118/61 x 130/61 x 137
4,800/5,000	3,500(5,000)	3,500	3,500	3,500	4,800/5,000	4,800/5,000	3,500
3,840/4,160	2,270(4,640)	2,270	2,330	2,330	3,840/4,160	3,840/4,160	2,330
			053-5820 	053-5820 			053-5820 
			055-6070 	055-4770 			055-4850  * 1
	053-5010  * 5	053-5020  * 5					
	053-4970  * 5						
K17049 					K17100 	can be used without adaptors	

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The maximum speed and maximum RCF are the values shown in ().

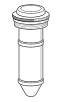
28 x 10mL blood collecting tube/15mL (glass)	32 x 10mL blood collecting tube/15mL (glass)	48 x 10mL blood collecting tube/15mL (glass)	68 x 10mL blood collecting tube/15mL (glass)	48 x 5-10mL blood collecting tube/15mL (glass)	12 x 15mL Conical tube	12 x 15mL Conical tube	16 x 15mL Conical tube	28 x 15mL Conical tube	32 x 15mL Conical tube
15.5 ~ 17 x 87 ~ 110	15 ~ 17.2 x 86 ~ 110	15 ~ 17.2 x 81 ~ 110	15 ~ 17.2 x 52 ~ 110	12 ~ 17.2 x 72 ~ 110	16.5 x 120.6	16.5 x 120.6	17 x 121	17 x 121	17 x 121
4,800/5,000	3,500	3,500	3,500	3,500	4,800/5,000	4,800/5,000	3,500	3,500	3,500
3,840/4,160	2,270	2,330	2,300	2,330	3,840/4,160	4,120/4,470	2,340	2,300	2,330
		053-5820 	053-5840 	053-5820 				053-5840 	053-5820
		055-4750 		055-0880 * 8					055-4780
	053-7130 						053-4980 		
K17015 					K17019 * 2	K13130 Bucket * 2			

This convenient tube rack can accommodate blood collecting tubes of various sizes (such as 5 mL, 7 mL, 10 mL), as well as 15 mL glass tubes.

4 x 250mL * 12	8 x Self-Standing for sputum	12 x Self-Standing for sputum	16 x Self-Standing for sputum
60 ~ 61.8 x 100 ~ 130	cap size 48	cap size 37	cap size 31
3,500	3,500	3,500	3,500
2,380	* 10	* 10	* 10
053-5820 	053-5820 	053-5820 	053-5820
055-4850 	* 10	* 10	* 10



* 2
K17111
Sealing cap



* 3
055-5760
Anti-biohazard
sealing adapter
For use with 50mL
Conical tubes



* 3
055-5750
Anti-biohazard
sealing adapter
For use with 15mL
Conical tubes



* 3
055-4310
Anti-biohazard
sealing adapter
For use with 50mL
Oak ridge tubes



* 4
055-7400
Adaptor for
15mL glass tube



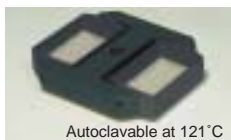
* 4
024-1400
Rubber cushion





* 5
055-1280
Adaptor for
15mL conical tube




- * 1 175 mL, 200 mL, and 225 mL Conical tubes can be centrifuged using cushions. 175 mL/225 mL Conical tubes are Falcon tubes by BD (Catalog No. 352076/No. 352075) and require cushions (Catalog No. 352090). 200 mL Conical tubes are by Nalge Nunc (Catalog No. 376813) and require cushions (Catalog No. 377585).
- * 2 Sealing caps cannot be used with the K17019 tube rack. Sealing caps (Code No. K17111) can be used on the 15 mL Conical tube x 12 bucket rotor (Code No. K13130).
- * 3 Anti-biohazard sealing adapters for 50 mL Conical tubes (Code No. 055-5760), for 15 mL Conical tubes (Code No. 055-5750), and for 50 mL Oak Ridge tubes (Code No. 055-4310) can be used.
- * 4 15 mL glass tubes can be used if an adaptor (Code No. 055-7400) is added. A rubber cushion (Code No. 024-1400) sold separately is required.
- * 5 15 mL Conical tubes can be used if an adaptor (Code No. 055-1280) is added.
- * 6 Be sure to test the strength of plates prior to centrifugation. Plates at the bottom level may be crushed.
- * 7 This tray is useful when taking out plates from buckets.
- * 8 5/7 mL narrow blood collecting tubes such as Insepack II by Sekisui, Venoject II by Terumo, Neotube by Nipro, and Vacutener by BD can be used. Tubes for flow cytometry can also be used.
- * 9 The blood collecting tube that can be used is the Vacutener 8 mL tube for CPT mononuclear cell separation, by BD.
- * 10 There are tube racks available for sputum tubes of various volumes. Please contact us for details.
- * 11 When using Venoject II 5/7 mL tubes by Terumo, a maximum of 16 tubes can be used.
- * 12 250 mL centrifuge bottles by Nalge Nunc such as polycarbonate centrifuge bottle (Catalog No. 3122-0250) and polypropylene copolymer centrifuge bottle (Catalog No. 3120-0250) can be used.
- * 13 These tubes are plastic tubes by Nalge Nunc (Catalog No. 3110-0120, 3117-0120).
- * 14 These tubes are Falcon tubes by BD (Catalog No. 352006, 352018, 352059).
- * 15 These tubes are plastic tubes by Nalge Nunc (Catalog No. 3110-0500, 3110-9500, 3112-0050, 3114-0050, 3117-9500, 3118-0050, 3119-0050).

The number of times allowed for autoclaving are limited. Please refer an instruction manual.

Micro-plate rotor**PT-21M**






Test plates	Nominal Capacity	Plate size (mm) diam. x length	4000		4200		Bucket Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	6 x micro-plate *6	86(W) x 130(D) x 62(H)	5,000	3,100	5,000	3,100	Equipped with rotor
	2 x deepwell-plate *6						

PT-89M

Test plates	Nominal Capacity	Plate size (mm) diam. x length	4000		4200		Adaptor Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	8 x micro-plate *6	86(W) x 130(D) x 89(H)	2,400	1,080	2,400	1,080	 055-6370 *7
	4 x deepwell-plate *6						






Micro rotor**RA-2724M**

This rotor is not tool-less rotor
















Tube	Nominal Capacity	Tube size (mm) diam. x length	4000		4200		Adaptor Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	12 x 0.2mL PCR	5.9 ~ 6.3 x 20 ~ 24			16,000	16,890	
	24 x 0.4mL	5.4 ~ 6.1 x 26 ~ 48			16,000	23,180	 055-7580
	12 x 0.5mL	7 ~ 7.9 x 25 ~ 34			16,000	19,180	
	24 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42			16,000	23,470	

AT-2730M

This is a bioshield rotor. Samples will not leak out from the rotor even if the tubes break. It has received accreditation from the C.A.M.R. of the UK.

Tube	Nominal Capacity	Tube size (mm) diam. x length	4000		4200		Adaptor Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	14 x 0.2mL PCR	5.9 ~ 6.3 x 20 ~ 24			14,000	16,430	
	30 x 0.4mL	5.4 ~ 6.1 x 26 ~ 48			14,000	20,380	 055-1240
	14 x 0.5mL	7 ~ 7.9 x 25 ~ 34			14,000	17,530	
	30 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42			14,000	21,040	

Fixed-angle rotor**AT-508C**

Tube	Nominal Capacity	Tube size (mm) diam. x length	4000		4200		Adaptor Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	8 x 12mL (plastic) *13	15.9 ~ 16.5 x 97 ~ 120	5,800	4,780	6,000	5,110	 055-1120
	8 x 14mL *14	17 x 100	5,800	4,660	6,000	4,990	 055-0550
	8 x 15mL Conical tube	17 x 121	5,800	4,930	6,000	5,270	 055-1280
	8 x 50mL (plastic) *15	26.4 ~ 28.8 x 98 ~ 115	5,800	4,660	6,000	4,990	 055-1110
	8 x 50mL Conical tube	30 x 117	5,800	5,000	6,000	5,350	
	Sartorius Vivaspin 2 Vivaspin 6	16.7 x 129	5,800	4,930	6,000	5,270	 055-1280
	Vivaspin 20	30 x 117	5,800	5,000	6,000	5,350	
	Millipore Centricon	15.5 x 126.5	5,800	4,810	6,000	5,150	 055-0870
	Millipore Amicon Ultra-4	17 x 129	5,800	4,930	6,000	5,270	 055-1280
	Amicon Ultra-15	30 x 121	5,800	5,000	6,000	5,350	

Specifications

Model 4000/4200

Maximum Speed	5,800rpm (4000) / 16,000rpm (4200)
Maximum RCF	5,000xg (4000) / 23,470xg (4200)
Maximum Capacity	1,020mL
Drive system	Direct drive (Direct connection with brushless motor)
Control system	Micro-processor control (Brushless motor)
	Speed, RCF, Time, Acceleration & Deceleration, 5 channel memories
Acceleration / Deceleration	Acceleration : 2 level selections, Rapid and Slow Deceleration : 3 level selections, Rapid, Slow and Natural deceleration
Alarm display	Lid open, Imbalance, Over speed, Rotor mounting abnormally, Function for detecting an occurrence of electrical abnormally in motor, inverter, speed sensor
Speed setting	Digital display From 300 to 5,800rpm (4000) / 300 to 16,000rpm (4200), 10rpm increments
Speed indication	Digital display From 0 to 6,000rpm (4000) / 0 to 16,300rpm (4200), 10rpm increments
RCF setting	Digital display From 20 to 5,000xg (4000) / 20 to 23,470xg (4200), 10xg increments
RCF indication	Digital display From 0 to 5,350xg (4000) / 0 to 24,360xg (4200), 10xg increments
Timer setting and indication	Digital display with Hold from 1 sec to 99 sec, in 1 sec increment setting / indication from 1 min to 99 min, in 1 min increment setting / indication from 1 sec to 99 min 59 sec, combination setting / indication of minutes and seconds Memory flushing for spin down
Sounds for informing centrifuging stop	5 types and No Sounding (Volume : Large/Small)
Colors of lamps to inform centrifuging condition	7 types and No flashing
Rated voltage and Rated current	(Model 4000) 115V, 7.6A. 220/230V, 3.6A (Model 4200) 115V, 8.4A. 220/230V, 3.6A
Power consumption and Heat output	510W · 1.8MJ/h (4000), 540W · 1.9MJ/h (4200)
Power requirements	Single phase AC115V±10%, 50/60Hz, 15A Single phase AC220V±10%, 230V±10%, 50/60Hz, 8A
Dimensions	44(W) x 56(D) x 31(H) cm
Weight	36kg (4000) / 38kg (4000 CE marking) 38kg (4200) / 40kg (4200 CE marking)

All specifications and external appearance subject to change without notice.

* On Model 4000/4200 only use KUBOTA made rotor, adapter and tube rack. Do not attempt use rotors, adapters or tube racks made by other manufacturers.

* The rotor mentioned in the catalogue is usable on other KUBOTA centrifuge models. For details, refer to the catalogues relevant to each model.

* Follow instructions given in the relevant Instruction & Service Manual for operating centrifuges.

URL <http://www.centrifuge.jp>



Safety Precautions

For your safe use of the equipments, be sure to read the instruction manual carefully before you start its operation.

Parts may be adversely affected by heat, humidity and specimens or deteriorated by aging resulting in functional failures or may even lose their safety characteristic to cause accidents.



DISCONTINUE USE

Always discontinue use when phenomena listed at right appear.

- The rotor or bucket has been found to be damaged or corroded.
- A burnt smell comes out of the equipment.
- You receive a minor electrification when you touch the equipment body by a naked hand.
- Some other abnormality or failure has been found occurring.

IMPORTANT

To prevent occurrences of functional failures or accidents, turn off the power switch, pull out the power cable plug from the plug socket and be sure to contact your nearest Kubota Dealer, or an office of Kubota Corporation when there is no Kubota Dealer in your neighbourhood.

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Note: This catalogue is not for distribution in the USA, Canada, Mexico and Australia as products shown are not for sale in these countries.