

**KUBOTA**

# Universal Refrigerated Centrifuge



**5922**

# RCF of 21,040 x g, Tool-less rotor, and 11 types



Employs a tool-less rotor that is easy to set. In addition, the rotors now in use can be used commonly. (See the Rotor list.)

Maximum speed 15,000 rpm  
Maximum RCF 21,040 x g

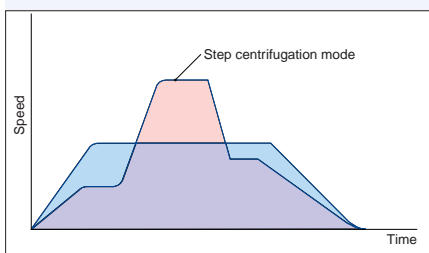
A versatile refrigerated centrifuge  
Microtiter plates, deep-well plates, medium-capacity fixed-angle rotors, multi-tube-loading swinging bucket rotors available

Aims at safety in design and conforms to the international safety standard IEC 61010-2-020.

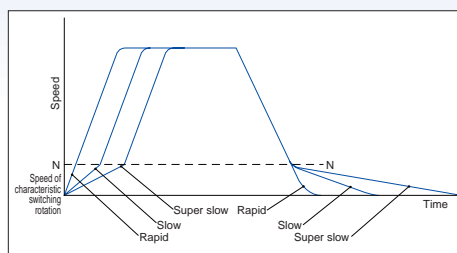
Short acceleration/deceleration time at both high and low speeds

10 sec/10 sec for 18 x 2mL tubes AT-2018M rotor at 15,000 rpm

25 sec/25 sec for 4 x 200mL tubes ST-410M swinging bucket rotor at 5,000 rpm

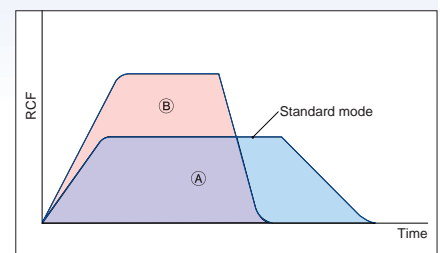


Step centrifuging function



Acceleration or deceleration characteristics

- Super slow acceleration or deceleration is suitable for centrifugation of a sensitive sample easy to float.
- Suitable for centrifugation of a sample easy to float, such as the density gradient method and blood cell cleaning.
- The speed of characteristic switching rotation N for super slow acceleration and super slow deceleration can be set.



Integrator function

**g · sec value**

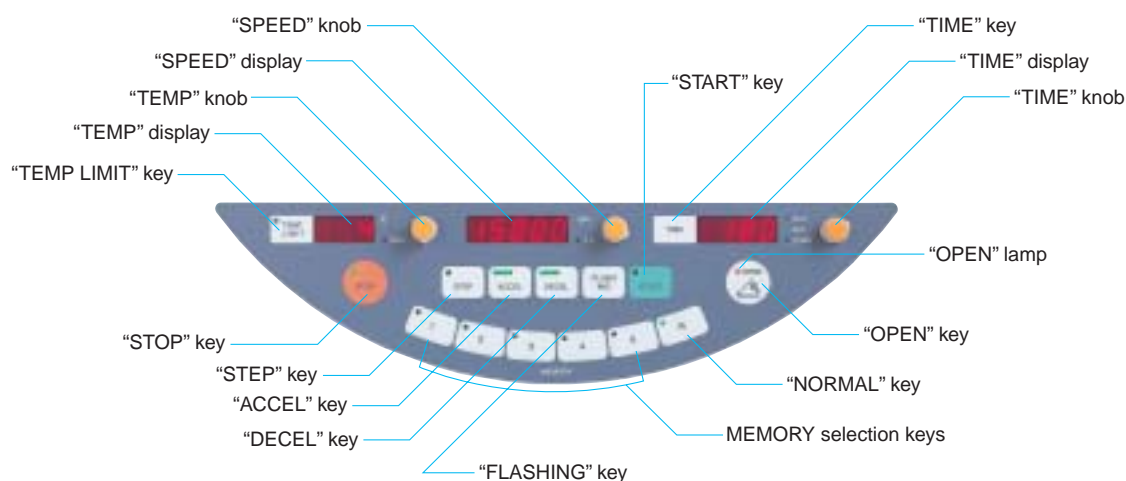
- The integrator function can reproduce the identical centrifugal effect.  $\text{Ⓐ} = \text{Ⓑ}$

# rotors available.

## Features

- The tool-less rotors can be set or changed without using a tool. (See the Tool-less Rotor column of the Rotor list.)
- Various types of rotors are available and one unit can accommodate them in a versatile manner.
  - Three types of micro rotors  
Maximum speed 15,000rpm, maximum RCF 20,630xg (AT-2018M / 2724M)  
Bio sealed rotor which can spin at 14,000rpm / 21,040xg (AT-2730M)
  - The medium-capacity fixed-angle rotor for 8 x 50 mL Conical tubes.
  - Three types of plate rotors. A high-speed plate rotor (PT-21M) can do ethanol precipitation.
  - Anti-biohazard rotors
    - (1) A swinging bucket rotor (ST-410M) that can accommodate a sealing cap and is capable of a maximum speed of 5,000rpm and maximum 4,470xg
    - (2) A swinging bucket rotor (ST-410M) that can be autoclaved (121°C), a micro rotor (AT-2018M), and plate rotor (PT-21M)
  - Three types of multi-tube-loading swinging bucket rotors  
Select from anything between 4 x 250mL bottles to 80 x 2mL tubes
- Easy-to-use and convenient functions
  - Memory flushing function for easy spin-down (patent pending)  
Automatically memorizes the duration of spin-down operation ranging from 1 to 90 seconds. Merely pressing the key the next time starts the spin-down for the memorized duration.
  - 5 operation condition memory settings are available, and one-touch saving, access and operation are possible.
  - Equipped with a GMP requirements tachometer port. Actual rotor speed is easy to check.
  - Acceleration and deceleration curve can be varied in three steps according to the sample and purpose. Density-gradient centrifuging is possible.
  - RCF (xg)-set operation function and stepped centrifugal force function
- Integrator function that can attain optimization of centrifuging conditions. g-sec value (integrated RCF value) can be measured, and operation with this value set is possible.
- The timer can be set up to 990 minutes or seconds. During hold operation, the elapsed time of operation is displayed.
- Safety pursued
  - Designed with safety in mind and in conformance with the international safety standard IEC 61010-2-020. Conformance to this standard will become increasingly important in the future.
  - It is designed so that no fragments will be ejected from the centrifuge even if the rotor is broken.
  - The lid lock is interlocked, and a twin lock system of 2 right and left hooks is employed. The interlock is protected against shocks and employs an electrical double protection circuit.
  - Equipped with various sensors for higher safety. Stops at occurrence of an abnormality. Equipped with an automatic rotor identification function, rotor setting state detector and imbalance detector.
- Sample temperature kept at 4°C  
(At an ambient temperature of 25°C. See Rotor list for details.)
- Designed considering friendliness to the global environment and recycling.  
Employs CFC-free HFC134a for the refrigerant. On the main unit, only a small amount of plastic is used to reduce the load on the environment.
- A thermostatic refrigerated centrifuge (-20 to 40°C) is available (optional).  
On some rotors, however, the sample temperature may exceed 4°C if operated at the maximum rotor speed (at an ambient temperature of 25°C).
- A safety cabinet with an anti-biohazard HEPA filter (Class I) can be set (optional).

## Improvement of ease of setting and operations, and visibility is designed-in.



# of rotors available.

## Micro Rotor



**AT-2018M**  
18 x 1.5/2mL  
10 seconds for  
acceleration/deceleration



**AT-2724M**  
**Multi angle rotor**  
24 x 1.5/2mL  
3 types of tubes (1.5/2mL, 0.5mL,  
0.2mL) can be used without  
adaptor.



**AT-2730M**  
**Bio sealed rotor**  
30 x 1.5/2mL/14 x 0.5mL/ 30 x  
0.4mL/12 x 0.2mL PCR  
This rotor is bio sealed rotor  
certified by CAMR.

**BS** This rotor is Bio sealed rotor certified by CAMR (U.K.), which is useful  
for countermeasure of bio hazard.

Autoclavable times are limited. Refer to operation and service manual.

Rotor Name	Nominal Capacity	Tube sizes (mm) diam. x length	Maximum Speed rpm	Maximum RCF xg	Bucket Code No.	Adaptor Code No.
AT-2018M	18 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42	15,000	20,630		
	18 x 0.5mL	7 ~ 7.9 x 25 ~ 34	15,000	18,110		055-7590
	18 x 0.4mL	5.4 ~ 6.1 x 26 ~ 48	15,000	20,120		055-7580
	18 x 0.2mL PCR	5.9 ~ 6.3 x 20 ~ 24	15,000	15,850		055-0500
AT-2724M	24 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42	15,000	20,630		
	12 x 0.5mL	7 ~ 7.9 x 25 ~ 34	15,000	16,850		
	24 x 0.4mL	5.4 ~ 6.1 x 26 ~ 48	15,000	20,380		055-7580
	12 x 0.2mL PCR	5.9 ~ 6.3 x 20 ~ 24	15,000	14,840		
<b>BS</b> AT-2730M	30 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42	14,000 *1	21,040		
	14 x 0.5mL	7 ~ 7.9 x 25 ~ 34	14,000 *1	17,530		
	30 x 0.4mL	5.4 ~ 6.1 x 26 ~ 48	14,000 *1	20,380		055-1240
	14 x 0.2mL PCR	5.9 ~ 6.3 x 20 ~ 24	14,000 *1	16,430		

## Fixed Angle Rotor AT-508C angle rotor is a tool-less rotor.



**AT-508C**  
8 x 50/15mL Conical tubes  
12mL, 50mL tubes can be used.



**RA-410M3**  
8 x 50/15mL Conical tubes

This rotor is not a tool-less rotor.

Nominal Capacity	Tube sizes (mm) diam. x length	AT-508C		RA-410M3		Adaptor Code No.	
		Maximum Speed rpm	Maximum RCF xg	Maximum Speed rpm	Maximum RCF xg		
8 x 12mL (plastic) *3	15.9 ~ 16.5 x 97 ~ 120	6,000	5,110	10,000 *1	12,970	055-1120	
8 x 14mL *4	17 x 100	6,000	4,990	10,000 *1	12,630	055-0550	
8 x 15mL Conical tubes	17 x 121	6,000	5,270	10,000 *1	13,190	055-1280	
8 x 50mL (plastic) *5	26.4 ~ 28.8 x 98 ~ 115	6,000	4,990	10,000 *1	12,860	055-1110	
8 x 50mL Conical tubes	30 x 117	6,000	5,350	10,000 *1	13,420		
Sartorius	Vivaspin 2	16.7 x 129	6,000	5,270	10,000 *1	13,190	055-1280
	Vivaspin 6	16.7 x 129	6,000	5,270	10,000 *1	13,190	055-1280
	Vivaspin 20	30 x 117	6,000	5,350	10,000 *1	13,420	
Millipore	Centricon	15.5 x 126.5	6,000	5,150	10,000 *1	13,080	055-0870
	Amicon Ultra-4	17 x 129	6,000	5,270	10,000 *1	13,190	055-1280
	Amicon Ultra-15	30 x 121	6,000	5,350	10,000 *1	13,420	

## Plate Rotor



**PT-21M**  
PT-21M can do ethanol precipitation at  
3,100xg.



**PT-89M**  
PT-89M can centrifuge 8 micro plates or  
4 deep well plates.  
The maximum height of plate is 89mm.



**PT-745MS**  
PT-745MS can centrifuge 12 micro  
plates or 4 deep well plates.  
And it can do ethanol precipitation at  
3,100xg.

Autoclavable times are limited. Refer to operation and  
service manual.

Rotor Name	Nominal Capacity	Plate size (mm) diam. x length	Maximum Speed rpm	Maximum RCF xg	Bucket Code No.	Adaptor Code No.
PT-21M	6 x Micro Plate *6	86 (W) x 130 (D) x 62 (H)	5,000	3,100	Bucket included	
	2 x Deepwell Plate *6					
PT-89M	8 x Micro Plate *6	86 (W) x 130 (D) x 89 (H)	2,400	1,080	Bucket included	055-6370 *7
	4 x Deepwell Plate *6					
PT-745MS	12 x Micro Plate *6	86 (W) x 128 (D) x 90 (H)	4,200	3,100	Bucket included	055-6380 *7
	4 x Deepwell Plate *6					

## Swinging Bucket Rotor



### ST-720M

MAX. 3,500rpm  
MAX. 2,380xg

Rotor Name	Nominal Capacity	Tube sizes (mm) diam. x length	Maximum Speed rpm	Maximum RCF xg	Bucket Code No.	Tube Rack Adaptor Code No.
ST-720M	80 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42	3,500	2,290	053-5820	055-4800
	96 x RIA tube	10 ~ 12.3 x 65 ~ 95	3,500	2,190	053-5820	055-4730
	48 x 5 ~ 7mL narrow blood collecting tube *8	12 ~ 13.3 x 63 ~ 110	3,500	2,310	053-5820	055-4990
	24 x 8mL CPT cell preparation tube *9	13.5 ~ 15.8 x 81 ~ 130	3,500	2,310	053-5820	055-6900
	80 x 10mL	12.5 ~ 13.8 x 65 ~ 95	3,500	2,260	053-5820	055-4740
	48 x 10mL blood collecting tube / 15mL	15 ~ 17.2 x 81 ~ 110	3,500	2,330	053-5820	055-4750
	68 x 5 ~ 7mL narrow blood collecting tube *8	12 ~ 13.7 x 62 ~ 110	3,500	2,300	053-5840	055-0260
	48 x 5 ~ 10mL narrow/thick blood collecting tube *8	12 ~ 17.2 x 72 ~ 110	3,500	2,330	053-5820	055-0880
	68 x 10mL blood collecting tube / 15mL	15 ~ 17.2 x 52 ~ 110	3,500	2,300	053-5840	
	28 x 15mL Conical tube	17 x 121	3,500	2,300	053-5840	
	32 x 15mL Conical tube	17 x 121	3,500	2,330	053-5820	055-4780
	8 x 50mL	27 ~ 36.4 x 85 ~ 110	3,500	2,330	053-5820	055-4760
	16 x 50mL Conical tube	30 x 117	3,500	2,330	053-5820	055-6070
	4 x 100mL	38 ~ 46.5 x 75 ~ 120	3,500	2,330	053-5820	055-4770
	4 x 175/200/225mL Conical tube *10	61 x 118/61 x 130/61 x 137	3,500	2,330	053-5820	055-4850
	4 x 250mL	60 ~ 61.8 x 100 ~ 130	3,500	2,380	053-5820	055-4850
8x/12x/16x Self-standing sputum tube *11	Cap diam. 48/ 37/ 31	3,500	*11	053-5820	*11	



### ST-410M

The cover at the top of the bucket is a sealing cap (Code no. S17111). (optional)  
The combination on the photograph is grouped for photographing, and this arrangement cannot be used.

MAX. 5,000rpm  
MAX. 4,470xg

Autoclavable (121°C)  
Autoclavable times are limited. Refer to operation and service manual.

Rotor Name	Nominal Capacity	Tube sizes (mm) diam. x length	Maximum Speed rpm	Maximum RCF xg	Bucket Code No.	Tube Rack Adaptor Code No.
ST-410M	48 x 1.5/2mL	10.7 x 42	5,000	4,160 *1	Bucket included	K17008
	48 x 5mL RIA tube	12.5 x 55 ~ 75	5,000	4,160 *1	Bucket included	K17006
	48 x 7mL	12 ~ 12.5 x 100 ~ 112	5,000	4,160 *1	Bucket included	K17007
	28 x 5 ~ 7mL blood collecting tube *8	12.5 ~ 13 x 75 ~ 106	5,000	4,160 *1	Bucket included	K17027
	12 x 15mL Conical tube *12	16.5 x 120.6	5,000	4,160 *1	Bucket included	K17019
	12 x 15mL Conical tube *12	16.5 x 120.6	5,000	4,470 *1	K13130	
	28 x 10mL blood collecting tube / 15mL	15.5 ~ 17 x 87 ~ 110	5,000	4,160 *1	Bucket included	K17015
	4 x 50mL	27 ~ 35.8 x 82 ~ 110	5,000	4,160 *1	Bucket included	055-5670
	4 x 50mL Conical tube	29.5 x 117	5,000	4,160 *1	Bucket included	K17049
	4 x 100mL	44 ~ 45 x 110	5,000	4,160 *1	Bucket included	K17100
4 x 200mL	56.5 x 104	5,000	4,160 *1	Bucket included		



### ST-480M

MAX. 5,000 ~ 3,500rpm  
MAX. 4,640 ~ 1,570xg

Rotor Name	Nominal Capacity	Tube sizes (mm) diam. x length	Maximum Speed rpm	Maximum RCF xg	Bucket Code No.	Tube Rack Adaptor Code No.
ST-480M	64 x 1.5/2mL	9.5 ~ 11 x 36 ~ 42	3,000	1,570	053-7030	
	48 x 10mL	12 ~ 13.3 x 46 ~ 110	3,000	1,600	053-7190	
	32 x 10mL blood collecting tube / 15mL	15 ~ 17.2 x 86 ~ 110	3,500	2,270	053-7130	
	4 x 50mL *13,14	27 ~ 38 x 100 ~ 110	5,000	4,640	053-7110	
	8 x 50mL *14	27 ~ 38 x 100 ~ 110	3,500	2,270	053-7150	
	16 x 15mL Conical tube	17 x 121	5,000	4,640	053-5790	055-1270
	4 x 50mL Conical tube *15	30 x 117	5,000	4,640	053-5010	
8 x 50mL Conical tube *15	30 x 117	3,500	2,270	053-5020		

\* 1 Cooling to 7°C or less is possible at this speed.

\* 2 RCF of outer tubes

\* 3 This tube is Nalgene Nunc's plastic tube (Catalogue no. 3110-0120, 3117-0120).

\* 4 This tube is BD Falcon's tube (Catalogue no. 352006, 352018, 352059).

\* 5 This tube is Nalgene Nunc's plastic tube (catalogue no. 3110-0500, 3110-9500, 3112-0050,

3114-0050, 3117-9500, 3118-0050, 3119-0050).

\* 6 Before centrifuging, check the strength of plates.

\* 7 These trays are convenient when plates are taken out of buckets.

\* 8 5/7mL narrow tube made by Sekisui (Insepack II), Termo (Venoject II), Nipro (Neotube) and Beckton Dickinson (Vacutenar) can be used.

Tube for flow cytometry can be used.

\* 9 This tube is Vacutenar 8ml tube for CPT cell separation made by Beckton Dickinson.

\* 10 175mL BD Falcon tube (Catalogue no. 352076) needs a cushion (Catalogue no. 352090).

200mL Nalgene Nunc tube (Catalogue no. 376813) needs a cushion (Catalogue no. 377585).

225mL BD Falcon tube (Catalogue no. 352075) needs a cushion (Catalogue no. 352090).

\* 11 Several types of sputum tubes are acceptable. Contact your distributor.

\* 12 Sealing cap is not available for K17019 tube rack.

Sealing cap is available for bucket for 12x15mL conical tubes.

\* 13 The sealing adaptor for 50mL conical tubes (Code no. 055-5760), 15mL conical tube (Code

no.055-5750), 50mL oak ridge tube (Code no.055-4310) can be used.

\* 14 15mL glass tube can be used with adaptor (Code no. 055-7400).

Rubber cushion (Code no.024-1400) is necessary.

\* 15 15mL conical tubes can be used with adaptor (Code no. 055-1280).

# Specifications

## Model 5922

- Maximum Speed ● 15,000 rpm
- Maximum RCF ● 21,040 xg
- Maximum Capacity ● 1,020 mL
- Control system ● Micro-processor control (Brushless motor)  
Speed, RCF, Time, Acceleration & Deceleration, 5 channel memories
- Alarm display ● Lid open, Imbalance, Over speed,  
Function for detecting an occurrence of electrical abnormality in motor, inverter, lid interlock and speed sensor.
- Acceleration / Deceleration ● Three-level selectors; Rapid, Slow and Super Slow
- Speed setting ● From 200 to 15,000 rpm, 10 rpm increments
- Speed indication ● Digital display, From 0 to 15,500 rpm, 10 rpm increments
- RCF setting ● From 10 to 21,040 xg, 10 xg increments
- RCF indication ● Digital display, From 0 to 22,030 xg, 10 xg increments
- Integrator setting and indication ● Digital display, From 1.00 to 9.99 x 10<sup>9</sup> g · sec
- Timer setting and indication ● Digital display, with Hold and Electric buzzer  
from 1 sec. to 100 sec., in 1 sec. increment setting  
from 100 sec. to 990 sec., in 10 sec increments setting  
from 1 min. to 100 min., in 1 min. increment setting  
from 100 min. to 990 min., in 10 min. increments setting
- Temperature setting and indication ● Digital display, 1°C increments setting and indication from -20°C to 40°C
- Power requirements ● Single phase AC115V±10%, 50/60Hz, 15A  
Single phase AC220V±10%, 230V±10%, 50/60Hz, 10A
- Rated voltage and Rated current ● 115V, 12A 220/230V, 7.5A
- Power consumption and Heat output ● 115V, 910W · 3.3MJ/h 220/230V, 1.2kW · 4.3MJ/h
- Dimensions, weight ● 50(W) x 65(D) x 85(H)cm<sup>3</sup>, 117kg
- Certificates of conformity ● IEC 61010-2-020  
CE Marking (AC220V and 230V version)

(\*1) Those of projections are not included.



All specifications and external appearance subject to change without notice.

\* On Model 5922 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.

## Kubota has acquired Certification of ISO 9001 and ISO 13485.

 <b>Safety Precautions</b>	<ul style="list-style-type: none"> <li>• For your safe use of this equipment, be sure to read the instruction manual carefully before you start its operation.</li> </ul>	<p>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.</p>
 <b>DISCONTINUE USE</b> Always discontinue use when phenomena listed at right appear.	<ul style="list-style-type: none"> <li>•The rotor or bucket has been found to be damaged or corroded.</li> <li>•A burnt smell comes out of the equipment.</li> <li>•You receive a minor electrification when you touch the equipment body by a naked hand.</li> <li>•Some other abnormality or failure has been found occurring.</li> </ul>	<b>IMPORTANT</b> <p>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.</p>

## KUBOTA CORPORATION

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