KUBOTA

Universal Refrigerated Centrifuge

5922

www.centrifuge.jp

RCF of 21,040 x g, Tool-less rotor, and 12 types of rotors available.

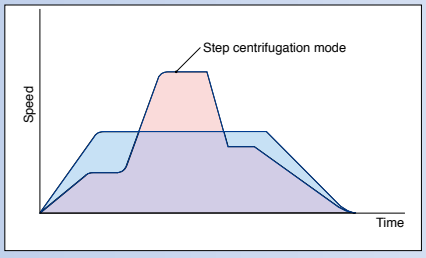
Employs a tool-less rotor that is easy to set. In addition, the rotors now in use can be used commonly. (See the Rotor list.)

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

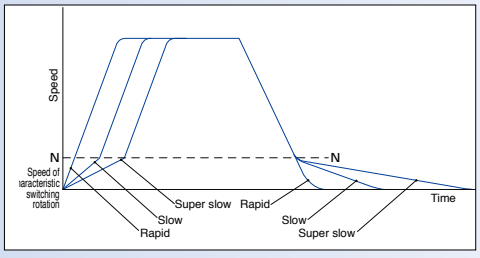
A versatile refrigerated centrifuge
Microtiter plates, deep-well plates, medium-capacity fixed-angle rotors, multi-tube-loading swinging bucket rotors available

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
35 sec/35 sec for 4 x 250mL tubes ST-2504MS swinging bucket rotor at 4,800 rpm

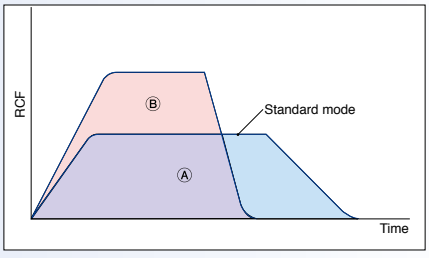


Step centrifuging function



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. Ⓐ = Ⓑ

Features

The tool-less rotors can be set or changed without using a tool.

(except when RA-410M3 rotor is used)
(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.
- Two types of plate rotors. A high-speed plate rotor can do ethanol precipitation.
- Anti-biohazard rotors
  (1) A swinging bucket rotor (ST-2504MS) that can accommodate sealing caps and is capable of a maximum speed of 4,800rpm and maximum 4,300xg.
  * "Sealing Cap and O-ring" (Code 055-0964) are optional.
  (2) A swinging bucket rotor (ST-5004M) that can accommodate sealing caps and is capable of a maximum speed of 4,000rpm and maximum 3,080xg.
  * Sealing Caps are equipped with rotor (not optional).
  (3) Various rotors can be autoclaved (121˚C/134˚C).
- Three types of multi-tube-loading swinging bucket rotors
  Select from anything between 4 x 500mL bottles to 80 x 2mL tubes

Easy-to-use and convenient functions

- Memory flushing function for easy spin-down (patented)
  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.
  (except when RA-410M3 rotor is used)
  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.

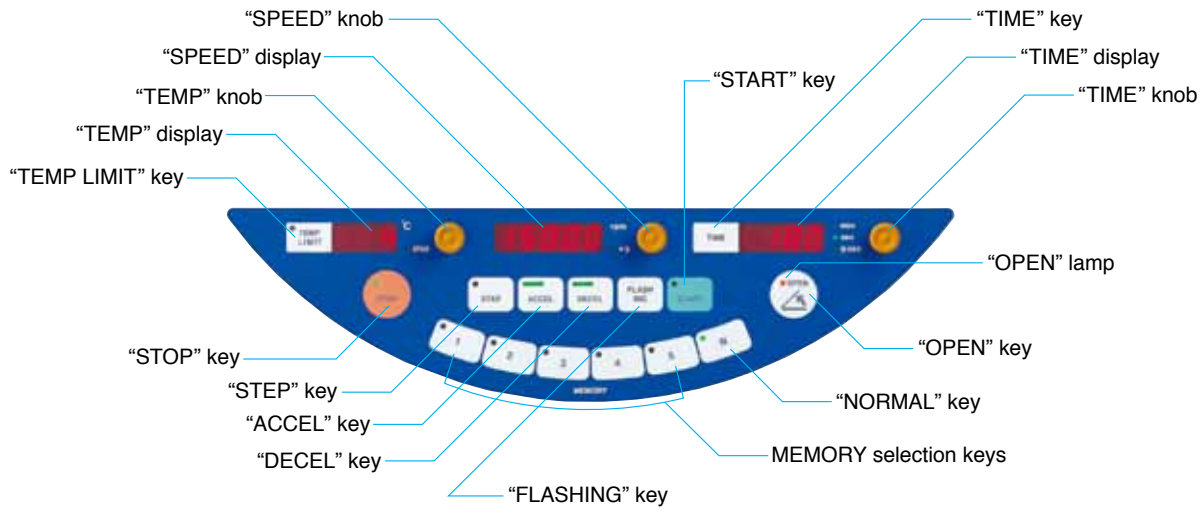
Employs CFC-free R134a for the refrigerant. On the main unit, only a small amount of plastic is used to reduce the load on the environment.

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).

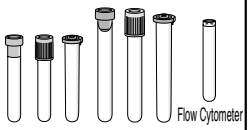
A safety cabinet with an anti-biohazard HEPA filter (Class I) can be set (optional).

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



Rotor, Bucket, Tube Rack Table for Model 5922

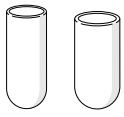
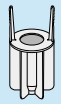
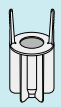
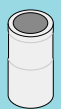
Swinging bucket rotor

Tube						
Nominal Capacity	**36 x 1.5/2mL**	**72 x 1.5/2mL**	**80 x 1.5/2mL**	**68 x 5~7mL narrow blood collecting tube**	**24 x 8mL CPT cell preparation tube**	**80 x 10mL (glass)**
Tube size (mm) diam. x length	9.5~11×36~42			12~13.7×62~110	13.5~15.8×81~130	12~13.8×65~95
Maximum Speed rpm	3,500/4,800	4,000	3,500	3,500	3,500	3,500
Maximum RCF x g	2,260/4,250	3,040	2,290	2,300	2,310	2,260
ST-722M Max 3,500rpm Max 2,380×g Autoclavable*	Tube Rack, Adaptor Code No. —	—	055-4800	Bucket Code No. 053-5840 Adaptor Code No. 055-0260 *1	055-6900 *2	055-4740
Choose either bucket. Tube Rack, Adaptor Code No. 055-1190 Bucket Code No. 053-0020 Sealing caps and O-rings Code No.055-0964 Buckets and sealing caps are optional.	055-1190	—	—	—	—	—
ST-2504MS Max 4,800rpm Max 4,300×g Autoclavable*	Tube Rack, Adaptor Code No. 055-1190	—	—	—	—	—
Sealing caps and O-rings Code No.055-0964 Buckets are equipped with rotor. Sealing caps are optional.						
ST-5004M Max 4,000rpm Max 3,080×g Autoclavable* (Excluding buckets)	Tube Rack, Adaptor Code No. —	055-0770	—	—	—	—
Buckets and Sealing caps are equipped with rotor.						

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

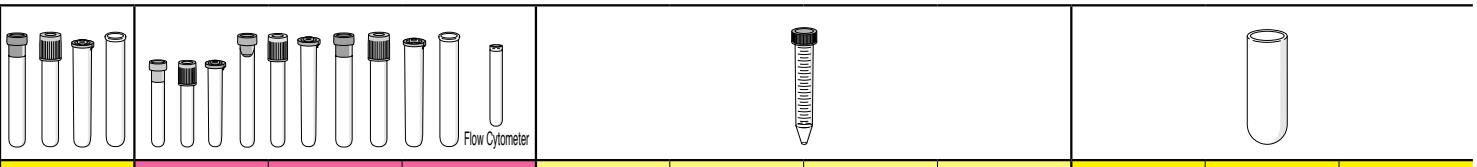
The maximum speed and maximum RCF of ST-722M indicated on the left in red.
The maximum speed and maximum RCF of ST-2504MS indicated on the right in blue.

Swinging bucket rotor

Tube						
Nominal Capacity	**4 x 50 mL Conical tube**	**12 x 50 mL Conical tube**	**16 x 50 mL Conical tube**	**4 x 100mL (glass)**		**4 x 175/225mL Conical bottle**
Tube size (mm) diam. x length	30×117			38~46.5×83~120	38~46.5×113~120	61×118/61×137
Maximum Speed rpm	3,500/4,800	4,000	3,500	3,500	3,500/4,800 4,000	3,500/4,800
Maximum RCF x g	2,260/4,250	3,040	2,330	2,300	2,260/4,250 2,990	2,260/4,250
ST-722M Max 3,500rpm Max 2,380×g Autoclavable*	Tube Rack, Adaptor Code No. —	—	055-6070	055-4770	—	—
Choose either bucket. Tube Rack, Adaptor Code No. 055-1170  Bucket Code No. 053-0020 Sealing caps and O-rings Code No.055-0964 Buckets and sealing caps are optional.	055-1170	—	—	—	055-1200	*4
ST-2504MS Max 4,800rpm Max 4,300×g Autoclavable*	Tube Rack, Adaptor Code No. 055-1170 	—	—	—	055-1200 	*4
Sealing caps and O-rings Code No.055-0964 Buckets are equipped with rotor. Sealing caps are optional.						
ST-5004M Max 4,000rpm Max 3,080×g Autoclavable* (Excluding buckets)	Tube Rack, Adaptor Code No. —	055-0760	—	—	—	055-1180
Buckets and Sealing caps are equipped with rotor.						

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

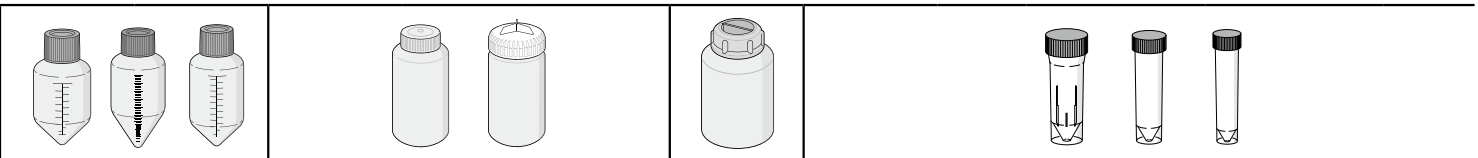
The maximum speed and maximum RCF of ST-722M indicated on the left in red.
The maximum speed and maximum RCF of ST-2504MS indicated on the right in blue.



68 x 10mL blood collecting tube/15mL (glass)	28 x 5~10mL blood collecting tube/15mL (glass)	48 x 5~10mL blood collecting tube/15mL (glass)	48 x 5~10mL blood collecting tube/15mL (glass)	16 x 15mL Conical tube	28 x 15mL Conical tube	28 x 15mL Conical tube	32 x 15mL Conical tube	4 x 50 mL (glass)	8 x 50 mL (glass)	12 x 50 mL (glass)
15~17.2×52~110	12~17.2×72~110			17×121				27~36.4×85~110		
3,500	3,500/4,800	3,500	4,000	3,500/4,800	3,500	4,000	3,500	3,500/4,800	3,500	4,000
2,300	2,200/4,150	2,330	2,990	2,270/4,280	2,300	3,060	2,330	2,200/4,150	2,330	2,970
Bucket Code No. 053-5840	—	055-0880 ＊3	—	—	Bucket Code No. 053-5840	—	055-4780	—	055-4760	—
—	055-1140 ＊3	—	—	055-1160	—	—	—	055-1150	—	—
—	055-1140 ＊3	—	—	055-1160	—	—	—	055-1150	—	—
—	—	—	055-0730 ＊3	—	—	055-0750	—	—	—	055-0740

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.

＊1 5-7mL blood collecting tubes made by SEKISUI (Insepack II), Termo (Venoject II), Nipro (Neotube), Beckton Dickinson (Vacutainer) can be used. Tube for flow cytometry can also be used.
＊2 Vacutainer 8 mL blood collecting tube for CPT cell separation (nominal ϕ16 x 125) made by Beckton Dickinson can be used.
＊3 5-10 mL blood collecting tubes made by SEKISUI (Insepack II), Termo (Venoject II), Nipro (Neotube), Beckton Dickinson (Vacutainer) can be used. Tube for flow cytometry can also be used.



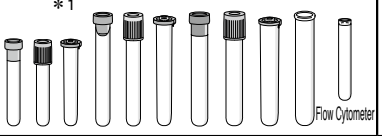
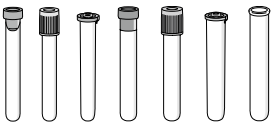
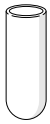
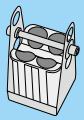
4 x 175/200/225mL Conical bottle		4 x 250mL ＊7	4 x 250mL ＊7	4 x 250mL ＊7	4 x 500mL ＊8	4 x Self-Standing for sputum	Self-Standing for sputum			Self-Standing for sputum		
							x 4	x 8	x 12	x 8	x 12	x 16
61×118/61×130/61×137		60~61.8×100~134.4			85×135	キャップ径ϕ48以下	cap size ϕ48	cap size ϕ37	cap size ϕ31	cap size ϕ48	cap size ϕ37	cap size ϕ31
3,500	4,000	3,500	3,500/4,800	4,000	4,000	3,500/4,800	4,000			3,500		
2,330	3,040	2,380	2,290/4,300	3,080	3,080	2,260/4,250	3,020			2,250	2,290	2,300
055-4850 ＊5 ＊6	—	055-4850	—	—	—	—	—			055-0430	055-0440	055-0450
—	—	—	can be used without adaptors	—	—	055-1210	—			—		
—	—	—	can be used without adaptors	—	—	055-1210	—			—		
—	055-0780 ＊5 ＊6	—	—	055-0780	can be used without adaptors	—	055-0810	055-0800	055-0790	—		

＊4 175/225 mL conical BD Falcon tubes (Catalogue No.352076/No.352075) require cushions (Catalogue No.352090). Sealing cap cannot be used with 225mL tubes.
＊5 175/225 mL conical BD Falcon tubes (Catalogue No.352076/No.352075) require cushions (Catalogue No.352090).
＊6 200 mL Nalgene bottles (Code No.376813) require cushions (Code No.377585).
＊7 Nalgene and Herolab 250mL flat bottom bottles can be used.
＊8 500mL bottles (Code No.K15501C/PPCO) can be used.

Rotor, Bucket, Tube Rack Table for Model 5922

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

Swinging bucket rotor

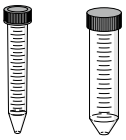
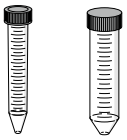
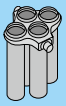
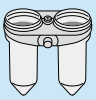
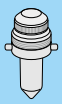
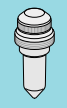
		Micro	Blood collecting tubes, glass tubes					50mL bottles	
	Tube		＊1  Flow Cytometer		 ＊2				
	Nominal Capacity	48 x 1.5/2mL	16 x 5～10mL blood collecting tube	16 x 15mL (glass)	4 x 10mL blood collecting tube/15mL (glass)	8 x 10mL blood collecting tube/15mL (glass)	32 x 10mL blood collecting tube/15mL (glass)	4 x 50 mL (glass)	8 x 50 mL (glass)
	Tube size (mm) diam. x length	9.5～11×36～42	12～17×65～105		12～17.2×86～110			27～38×100～110	
	Maximum Speed rpm	3,500	3,500		3,500(5,000)	3,500	3,500	3,500(5,000)	3,500
	Maximum RCF x g	1,880	2,220		2,230(4,560)	2,230	2,270	2,270(4,640)	2,270
ST-480M Max 3,500rpm Max 2,380×g Autoclavable＊	Bucket Code No.	053-5040	053-4930  NEW		053-7110	053-7150	053-7130	053-7110	053-7150
	Adaptor Code No.	—	—		055-7400 ＊3	055-7400 ＊3	—	—	—
	Rubber cushion Code No.				024-1400	024-1400			
ST-504M Max 5,000rpm Max 4,860×g Autoclavable＊	Bucket Code No.	—	—		053-7080	—	—	053-7080	—
	Adaptor Code No.	—	—		055-7400 ＊3	—	—	—	—
	Rubber cushion Code No.				024-1400				

Choose optional buckets, adaptors and cushions.

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.

The maximum speed and maximum RCF of ST-504M indicated in the brackets ( ).

Swinging bucket rotor

		Conical tubes					Conical tubes for biohazard-proof			
	Tube									
	Nominal Capacity	16 x 15mL Conical tube	4 x 15mL Conical tube	4 x 50mL Conical tube	8 x 15mL Conical tube	8 x 50mL Conical tube	4 x 50mL Oak ridge tube	4 x 50mL Conical tube	4 x 15mL Conical tube	4 x 50mL Conical tube
	Tube size (mm) diam. x length	17×121	17×121	30×117	17×121	30×117	27～29×100～108	30×117	17×121	30×117
	Maximum Speed rpm	3,500	3,500(5,000)	3,500(5,000)	3,500	3,500	3,500(5,000)	3,500(5,000)	3,500(5,000)	3,500(5,000)
	Maximum RCF x g	2,340	2,370(4,840)	2,380(4,860)	2,370	2,380	2,180(4,410)	2,230(4,560)	2,370(4,840)	2,380(4,860)
ST-480M Max 3,500rpm Max 2,380×g Autoclavable＊	Bucket Code No.	053-4980 	053-5010		053-5020 		053-7110	053-7110	053-0040  ＊5	
	Adaptor Code No.	—	055-1280	—	055-1280	—	055-4310 ＊4	055-5760	055-1280	—
ST-504M Max 5,000rpm Max 4,860×g Autoclavable＊	Bucket Code No.	—	053-4970		—		053-7080	053-7080	053-0050  ＊5	
	Adaptor Code No.	—	055-1280	—	—		055-4310 ＊4	055-5760	055-1280	—

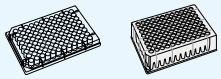
＊1 5-10mL blood collecting tubes made by SEKISUI (Insepack II), Termo (Venoject II), Nipro (Neotube), Beckton Dickinson (Vacutenar) can be used. Tube for flow cytometry can also be used.
＊2 7-10 mL blood collecting tubes made by SEKISUI (Insepack II), Termo (Venoject II), Nipro (Neotube), Beckton Dickinson (Vacutenar) can be used.
＊3 Optional cushons (Code No.024-1400) are required.
＊4 Nalgene oak ridge tube (Code No.3114-0050, 3115-0050, 3118-0050, 3119-0050) can be used.
＊5 Sealing caps and O-rings (silicone) are equipped with buckets.

The maximum speed and maximum RCF of ST-504M indicated in the brackets ( ).

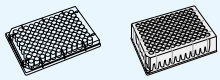
Equipped with sealing cap (patent pending)

Micro-plate rotor

PT-89M

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

PT-745MS

	2 x PCR plate *1 12 x micro-plate 4 x deepwell-plate	86(W)×128(D)×90(H)	4,200	3,100	*2 055-6380

*1 Verify plate strength before centrifuging. Plates in lower position may fracture.
*2 Optional tray is available.

Micro-plate rotor

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

AT-2018M
18 x 1.5/2mL

Acceleration and deceleration is in 10 seconds.

AT-2724M
24 x 1.5/2mL

AT-2730M
30 x 1.5/2mL

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.

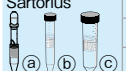
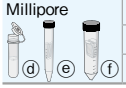
Tube	Nominal Capacity	Tube size (mm) diam. x length	Maximum Speed rpm	Maximum RCF x g	Adaptor Code No.
	18 x 0.2mL PCR *	5.9~6.3×20~24	15,000	15,850	055-0500
	18 x 0.4mL	5.4~6.1×26~48	15,000	20,120	055-7580
	18 x 0.5mL	7~7.9×25~34	15,000	18,110	055-7590
	18 x 1.5/2mL	9.5~11×36~42	15,000	20,630	—
	12 x 0.2mL PCR	5.9~6.3×20~24	15,000	14,840	—
	24 x 0.4mL	5.4~6.1×26~48	15,000	20,380	055-7580
	12 x 0.5mL	7~7.9×25~34	15,000	16,850	—
	24 x 1.5/2mL	9.5~11×36~42	15,000	20,630	—
	14 x 0.2mL PCR	5.9~6.3×20~24	14,000	16,430	—
	30 x 0.4mL	5.4~6.1×26~48	14,000	20,380	055-1240
	14 x 0.5mL	7~7.9×25~34	14,000	17,530	—
	30 x 1.5/2mL	9.5~11×36~42	14,000	21,040	—

* 0.2mL PCR tube may not use at maximum speed.
Anti-G force of 0.2mL PCR tube may low.

Fixed Angle Rotor

AT-508C
8 x 50mL Conical tubes

RA-410M3
8 x 50mL Conical tubes

Tube	Nominal Capacity	Tube size (mm) diam. x length	AT-508C		RA-410M3		Adaptor Code No.
			Maximum Speed rpm	Maximum RCF x g	Maximum Speed rpm	Maximum RCF x g	
	8 x 12mL (plastic) *1	15.8~16.5×97~120	6,000	5,110	10,000	12,970	055-1120
	8 x 14mL *2	17×100	6,000	4,990	10,000	12,630	055-0550
	8 x 15mL Conical tube	17×121	6,000	5,270	10,000	13,190	055-1280
	8 x 50mL (plastic) *3	26.4~28.7×98~115	6,000	4,990	10,000	12,860	055-1110
	8 x 50mL Conical tube	30×117	6,000	5,350	10,000	13,420	—
Sartorius 	ⓐ Vivaspin 2	17×126	6,000	5,270	7,780	7,990	055-1280
	ⓑ Vivaspin 6	17×122					
	ⓒ Vivaspin 20	30×117	6,000	5,350	6,680	5,990	—
Millipore 	ⓓ Amicon Ultra Free-CL	16.3×77	6,000	4,270	6,720	5,000	055-1330
	ⓔ Amicon Ultra-4	17.3×124	6,000	5,270	7,530	7,480	055-1280
	ⓕ Amicon Ultra-15	29.7×121	5,800	5,000	6,100	4,990	—

*1 Nalgene tubes, No.3110-0120 and No.3117-0120.
*2 BD Falcon tubes, No.352006, 352018 and 352059.
*3 Nalgene tubes, No.3110-0500, No.3110-9500 and No.3117-9500.

Specifications

Model 5922

Maximum Speed	15,000 rpm
Maximum RCF	21,040 xg
Maximum Capacity	2,000 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 10^9 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, 7.5A 220V, 3.9A 230V, 3.8A
Power consumption and Heat output	115V, 770W · 2.8MJ/h 220/230V, 740W · 2.7MJ/h
Dimensions, weight	50(W) x 65(D) x 85(H)cm(※1), 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 ISO 9001 and ISO 13485 certification.

NOTE Products in this catalogue are designed for use by people having the requisite technical knowledge, and must always be used with care. People who do not have adequate technical knowledge or training should use our products only under appropriate supervision, or else hazards are likely to occur.

DISCONTINUE USE INDICATIONS — Always discontinue use if any of the conditions listed at right are evident.

- The rotor or bucket appears to be damaged or corroded.
- The equipment emits a burnt smell.
- You receive a minor electric shock when you touch the equipment with your bare hand.
- Any other abnormality or indication of failure is noticed.

IMPORTANT In the event of any observed abnormality in the equipment or its parts, to prevent occurrence of functional failure or accidents, immediately turn off the power switch, disconnect the power cable plug from the mains socket and contact your local distributor or Kubota Corporation if there is no local distributor in your neighbourhood.

Safety Precautions

For your safe use of the equipment, be sure to read the instruction manual carefully before you start operations.

Do not misplace the instruction manual. Keep the instruction manual nearby so you can refer to it whenever necessary.

• The term of supplying spare parts for repair is 10 years after discontinuation of production (except spare parts which we are unable to procure).
• This catalogue is not for distribution in the USA, Canada and Mexico as products shown are not for sale in these countries.

KUBOTA CORPORATION
http://www.centrifuge.jp

29-9 Hongo 3-chome, Bunkyo-ku, Tokyo 113-0033, Japan
Tel +81 3 3815 1331 Fax +81 3 3814 2574
E-mail: f-trade@kubotacorp.co.jp

DISTRIBUTED BY:
A.I.S. Australian Instrument Services Pty Ltd
www.aispl.com.au sales@aispl.com.au 03-9729 9399

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