

Universal Refrigerated Centrifuge

Model **5930**

Microprocessor-controlled



KUBOTA

ISO
9001
CERTIFIED
KUBOTA MFG. CORP.

■ Various tubes can be used in a biohazard-proof shield cover.

They are necessary in the future.

■ Saved space design. Although this centrifuge is 50 cm in width, the centrifugation of four bottles x 750 mL and 80 bottles x 15 mL is possible.

■ Bucket tube racks can be selected depending on purposes.

• The swing rotor [RS-3011M] can centrifuge four bottles x 750mL and 80 bottles x 15 mL and micro plates/deep well plates. A biohazard-proof shield cover sealing cap can be used. (Option)

• The swing rotor [RS-730M] or [RS-3020M] of high centrifugal force 3,750 xg to 3,420 xg can be used. A biohazard-proof shield cover sealing cap is used and this swing rotor can be used for centrifugal separation of acid-fast bacteria. (Option)

■ For routine work. Easily usable convenient functions.

• Five operating condition memories allow one-touch memory saving, call and operation.

• Acceleration and deceleration curves can be changed in three stages depending on samples and purposes. Density gradient centrifugation is also enabled.

• Operation is enabled using the centrifugal force (xg) setting and operating function, step centrifuging function, and integrator function.

• The timer enables settings of up to 990 minutes/990 seconds. In the hold operation, an elapsed time is displayed.

■ This unit conforms to the International Safety Standard IEC 61010-2-020 in consideration of safety.

■ Various detection sensors improve safety and stops the operation at fault.

The automatic rotor identifying function automatically identifies rotor types when rotors are merely loaded on the drive shaft and detects excessive speeds.

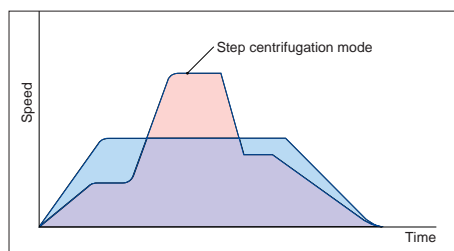
■ Sample balance can be centrifuged by eye measure.

■ The sample temperature is maintained at 4°C in the maximum speed of rotation of all rotors. (At 25°C room temperature)

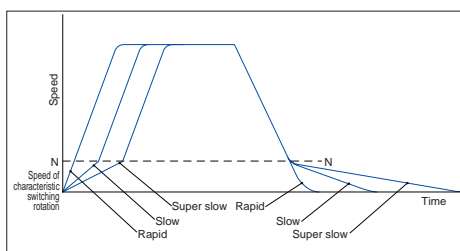
■ Design in which global environment-friendly problems and recycling are considered
Refrigerants adopt CFC-free HFC 134a and the main unit reduces the use of plastics.



This centrifuge is designed and manufactured conforming to the International Safety Standard IEC 61010-2-020.

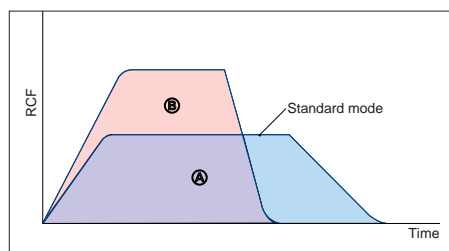


Step centrifuging function



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

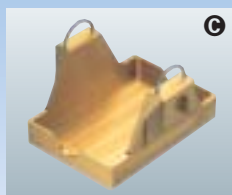
- g · sec value
- The integrator function can reproduce the identical centrifugal effect. (A) = (B)



RS-3011M Swing Rotor
Swing rotors shown in the picture are attached with shield covers (code No. 027-9210). (Option)
A clip system that can simply be attached and detached is used. (Option)



Code No. 053-5180
The maximum capacity four bottles x 750 mL and various tube racks can be used.



Code No. 053-5220
Eight micro plates and four deep well plates can be centrifuged. This bucket is easy to remove the plates and has no bar at the center.



Code No. 053-5170
Eight micro plates can be centrifuged.



RS-730M Swing Rotor
Swing rotors shown in the picture are attached with aluminum small square buckets (code No. S13215).
Can be made into an autoclave (121°C).



S13215 Shield Cover Code No. S17112 (made of PC), S17113 (made of PP)
A clip system can be used and the cover can simply be attached and detached. (Option)

Rotor, Bucket, Tube Rack Table for model 5930

| Rotor Name | Nominal Capacity | Tube sizes (mm) diam. x length | 220/230V 10A Model | | 115V 15A Model | | Bucket Code No. | Tube Rack Adaptor Code No. | |
|-------------------------------|--|-----------------------------------|----------------------|-------------------|----------------------|-------------------|--------------------|----------------------------------|--------|
| | | | Maximum Speed rpm | Maximum RCF xg | Maximum Speed rpm | Maximum RCF xg | | | |
| Swinging Bucket Rotors | | | | | | | | | |
| RS-3011M | 140 x 6mL/RIA tube | 10-12.3 x 65-100 (95) | 3,300 | 2,150 *1 | 3,300 | 2,150 *1 | 053-5310 | 055-5830 | |
| | 80 x 5/7mL narrow blood collecting tube *9 | 12-13.3 x 63-110 (105) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-5000 | |
| | 100 x 10mL | 12-14.2 x 76-110 (105) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-5840 | |
| | 80 (64) x 15mL | 15-17.2 x 76-110 (105) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-5850 | |
| | 16 x 15/50mL | 15mL 15-17.2 x 75-135 (125) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-5860 | |
| | | 50mL 27-36 x 79-115 (110) | | | | | | | |
| | 48 x 15mL Conical tube | 17 x 121 (121) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-4660 | |
| | 24 x 50mL Conical tube | 30 x 117 (117) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-4610 | |
| | 8 x 100mL | 38-46.5 x 75-120 (116) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-5870 | |
| | 4 x 250mL | 60-61.8 x 100-141 (136) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-6880 | |
| | 4 x 350mL | 65-71 x 100-130 (122) | 3,300 | 2,280 | 3,300 | 2,280 | 053-5310 | 055-6890 | |
| | 72 x 15mL | 15-17.2 x 75-110 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-0210 | |
| | 16 x 50mL | 27-36.8 x 79-114 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-0240 | |
| | 48 x 15mL Conical tube | 17 x 121 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-0220 | |
| | 16 x 50mL Conical tube | 30 x 117 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-0230 | |
| | 4 x 250mL *5 | 60-61.8 x 100-141 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-4490 | |
| | 4 x 350mL | 65-71 x 100-130 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-5880 | |
| | 4 x 500mL Conical tube *7 | 96 x 147 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 431124 *7 | |
| | 4 x 650mL | 84-86 x 100-125 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | 055-5890 | |
| | 4 x 750mL | 95-97.5 x 100-135 | 3,300 | 2,280 | 3,300 | 2,280 | 053-5180 | | |
| | 8 x Micro plates *4 | 88 (W) x 134 (D) x 50 (H) | 3,300 | 2,020 *1 | 3,300 | 2,020 *1 | 053-5220 | | |
| | 4 x Deep well plate *4 | | | | | | | | |
| | 8 x Micro plates *4 | 92 (W) x 133 (D) x 36 (H) | 2,000 | 770 *1 | 2,000 | 770 *1 | 053-5170 | 055-5900 | |
| | 8 x Tissue culture plates *4 | | | | | | | | |
| | RS-730M | | | | | | | | |
| | E | 80 x RIA tube | 12 x 75-110 | 4,200 | 3,590 | 4,000 | 3,260 | S13215 | S18005 |
| | | 48 x 7mL Vacutainer | 12.5-13 x 75-106 | 4,200 | 3,590 | 4,000 | 3,260 | S13215 | S18012 |
| | | 15mL x 48 *3 | 15.5-17 x 96-102 | 4,200 | 3,590 | 4,000 | 3,260 | S13215 | S18015 |
| 16 x 15mL Conical tube *11 | | 16.5 x 120.6 | 4,200 | 3,590 | 4,000 | 3,260 | S13215 | S18016 | |
| 8 x 50mL Conical tube *2 | | 29.5 x 117 | 4,200 | 3,590 | 4,000 | 3,260 | S13215 | S18052 | |
| 28 x 50mL Conical tube | | 29.5 x 117 | 4,200 *6 | 3,750 *1 | 3,800 | 3,070 | S13235 | | |
| 12 x Micro plates *4 | | 86 (W) x 130 (D) x 49 (H) | 4,200 | 3,180 *1 | 4,000 | 2,880 *1 | S13220 | | |
| 4 x Deep well plate *4 | | | | | | | | | |
| RS-3020M *10 | | | | | | | | | |
| G | 76 x 15mL | 15-17.2 x 110-116 | 4,000 | 3,200 *1 | 4,000 | 3,200 *1 | attached to rotor | 055-0320 | |
| | 48 x 15mL Conical tube | 17 x 121 | 4,000 | 3,400 *1 | 4,000 | 3,400 *1 | attached to rotor | 055-0300 | |
| | 16 x 50mL | 27-35.8 x 93-117 | 4,000 | 3,310 *1 | 4,000 | 3,310 *1 | attached to rotor | 055-0330 | |
| | 20 x 50mL Conical tube | 30 x 117 | 4,000 | 3,420 | 4,000 | 3,420 | attached to rotor | 055-0310 | |
| | 4 x 500mL Conical tube *7 | 96 x 147 | 4,000 | 3,430 | 4,000 | 3,430 | attached to rotor | 431124 *7 | |

Angle Rotors

| | | | | | | | | |
|----------|-----------------------|--------------------|-------|-------|-------|-------|--|----------|
| RA-288M3 | 24 x 12mL | 15.9-16.5 x 97-120 | 8,500 | 9,690 | 8,500 | 9,690 | | |
| RA-410M3 | 8 x 15mL Conical tube | 17 x 121 | 8,500 | 9,530 | 8,500 | 9,530 | | 055-1280 |
| | 8 x 50mL Conical tube | 30 x 117 | 8,500 | 9,690 | 8,500 | 9,690 | | |
| RA-500M3 | 10 x 50mL | 26.4-29.2 x 98-121 | 8,500 | 9,690 | 8,500 | 9,690 | | |

Swinging Bucket Rotors for micro plates

| | | | | | | | | |
|----------|------------------------|---------------------------|-------|----------|-------|----------|-------------------|----------|
| PT-20M | 6 x Micro plates *4 | 85 (W) x 128 (D) x 52 (H) | 4,000 | 1,790 *1 | 4,000 | 1,790 *1 | attached to rotor | |
| | 2 x Deep well plate *4 | | | | | | | |
| PT-21M | 6 x Micro plates *4 | 86 (W) x 130 (D) x 62 (H) | 5,000 | 3,100 *1 | 5,000 | 3,100 *1 | attached to rotor | |
| | 2 x Deep well plate *4 | | | | | | | |
| PT-89M | 8 x Micro plates *4 | 86 (W) x 130 (D) x 89 (H) | 2,400 | 1,080 *1 | 2,400 | 1,080 *1 | attached to rotor | 055-6370 |
| | 4 x Deep well plate *4 | | | | | | | |
| PT-745MS | 12 x Micro plates *4 | 86 (W) x 128 (D) x 90 (H) | 4,200 | 3,100 *1 | 4,200 | 3,100 *1 | attached to rotor | 055-6380 |
| | 4 x Deep well plate *4 | | | | | | | |

*1 For the indication of centrifugal force, refer to the instruction manual.

*2 Tubes made by SARSTEDT, Lab-Tek, and GREINER can be used with shield covers.

*3 When a shield cover is used, tubes cannot be inserted in the tube holes at the four corners of the bucket. Accordingly, the number of tubes for each bucket is reduced by four tubes. (Example: When 15 mL glass tubes are used in bucket S13215, up to 32 tubes can be used.)

*4 When micro plates are used, the plates exceeding two stages can be piled up in each bucket. However, use the plates after testing their strength before centrifugation. The plate at the lower stage may be crushed.

*5 Conical tubes 175 mL, 200 mL, and 225 mL can be centrifuged by using cushion.

The 175 mL conical tube is made by Falcon (catalogue No. 352076) and needs a cushion (catalogue No. 352090).

The 200 mL conical tube is made by Nalge Nunc (catalogue No. 376813) and needs a cushion adaptor (catalogue No. 377585).

The 225 mL conical tube is made by Falcon (catalogue No. 352075) and needs a cushion (catalogue No. 352090).

*6 The temperature of the sample becomes 4°C at 3,900 rpm and 9°C at 4,200 rpm.

*7 Tube made by Corning (catalogue No. 431123) can be used and needs a cushion adaptor (catalogue No. 431124).

*8 The numeral enclosed in parentheses is a value when a shield cover (code No. 027-9210) is used.

*9 5/7 mL narrow tube made by Sekisui (Insepack II), Termo (Venoject II), Nipro (Neotube) and Becton Dickinson (Vacutainer) can be used. Tube for flow cytometry can be used.

*10 A sealing cap (code No. 027-9300) can be used, except for 500 mL tube.

*11 15 mL tubes made by GREINER, CORNING, SARSTEDT, FALCON, FISHER and NUNC can be used with the sealing cap.



Code No. S13220
12 micro plates and four deep well plates can be centrifuged.



RS-3020M
Swing Rotor
Swing rotors shown in the picture are attached with sealing caps (027-9300).



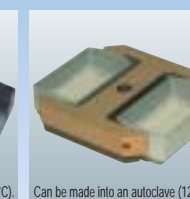
RA-410M3
Angle Rotor
Eight 50 mL and 15 mL conical tubes can be centrifuged.



RA-500M3
Angle Rotor
10 bottles x 50 mL



PT-20M
Plate Rotor
Six micro plates and two deep well plates can be centrifuged.



PT-21M
Plate Rotor
Ethanol can be settled for 3,100 xg.



PT-745MS
Plate Rotor
12 micro plates and four deep well plates can be centrifuged. Ethanol can be settled for 3,100 xg.

Specifications

Model 5930

- Maximum Speed ● 8500 rpm
- Maximum RCF ● 9690 xg
- Maximum Capacity ● 3000 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 8500 rpm, 100 rpm increments
- Speed indication ● Digital display, From 0 to 8900 rpm, 10 rpm increments
- RCF setting ● From 10 to 9690 xg, 100 xg increments
- RCF indication ● Digital display, From 0 to 10620 xg, 10 xg increments
- Integrator setting and indication ● Digital display, From 1.00 to 9.99 x 10³ 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^{±1}, 110kg
- Test standard ● Manufactured and tested in accordance with IEC 61010-2-020

(* 1) Those of projections are not included.

All specifications and external appearance subject to change without notice.

* On Model 5930 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.



Safety Precautions

• For your safe use of this equipment, 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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