

PrO-Analytical

a division of

CENTURION
SCIENTIFIC LIMITED

Instruction Manual

Refrigerated



General Analytical Laboratories

IMPORTANT Read before using

- Check the Centrifuge and the Packaging for any shipping damage. Inform the shipping company and Centurion Scientific immediately
- Check the order for completeness, if not contact Centurion Scientific

Location

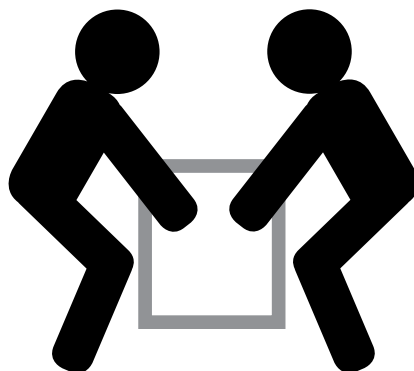
The Centrifuge should only be operated indoors.

The set up location must fulfil the following requirements

- **A safety zone of at least 30Cm must be maintained around the Centrifuge**
 - **People and hazardous substances must be kept out of this zone during centrifugation**
 - The bench or supporting structure must be stable and free from resonance
 - The Bench or supporting structure must be suitable for horizontal use of the centrifuge
 - The Centrifuge should Not be exposed to heat or strong sunlight
 - Ultra violet rays can damage the stability of plastics and coatings
 - Do not subject the Polypropylene, Delrin rotors or accessories to direct sunlight
 - The Zone location must be well ventilated at all times
-
- **Store the original packaging, Keep this for future service to base , if required.**

Transporting the Centrifuge

- Always remove the Rotor before transportation
- Due to its weight the Centrifuge should be carried by several people
- Transport the Centrifuge upright and if possible in its packaging
- Always lift the centrifuge at both sides (see below). NOT front to rear.



Fixing of rotor

Fixing for micro and fixed angle rotors

BRK5401. BRK54XXseries. BRK53XX series. BRK52XX series

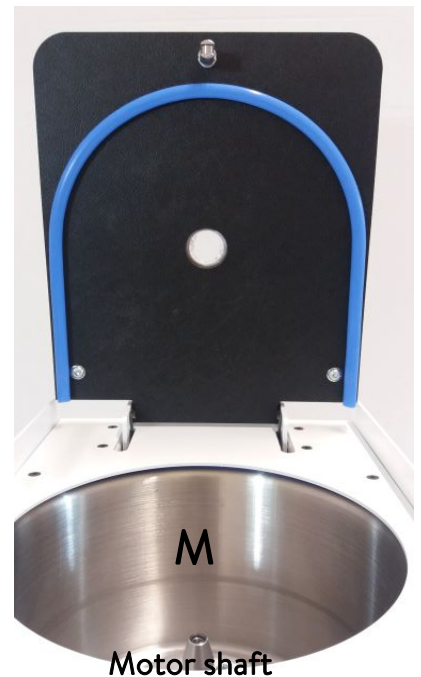


Locate 3 pins of fixing, into 3 holes at the top of the rotor
Push down firmly into holes.

Lift and fit rotor onto the motor shaft. **M**

Fit the Screw and spring washer, screw down tight with the supplied tool.

Check tightness regularly.



Fixing for Swing out rotors.

BRK5508, BRK5506, BRK1001, BRK3000, BRK5540, BRK5740.



Lift and fit rotor onto the motor shaft. **M**

Fit the Screw and spring washer, screw down tight with the supplied tool.

Check tightness regularly

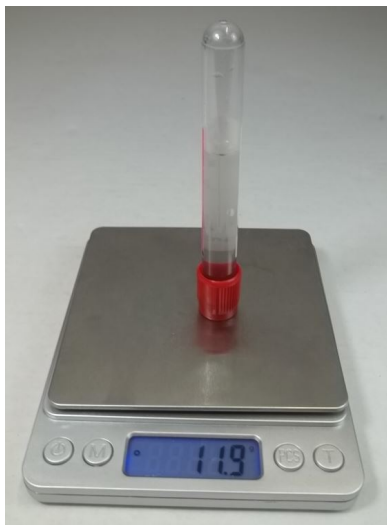
Rotor balancing. **Very Important**

Balancing of tubes for Micro and Fixed angle rotors



Tare (zero) your scales first

Weigh a tube, note its weight Weigh another and match its weight to within 0.1 gram



Swing out rotor, buckets. Balancing



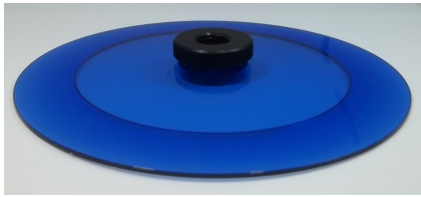
Place all your required tubes in all 4 buckets.
Equal amount per bucket.
Weigh each bucket containing tubes

Match other 3 buckets, with tubes to within 1 gram of each other



For BRK5506 rotor use the adaptor

Tube placement micro rotors



Haematocrit Rotor

Always fit the lid supplied, as shown to the left



- ALWAYS** load your tubes opposite to each other
- ALWAYS** weigh samples to within 0.1 Gram. For best separations. (see page 4)
- ALWAYS** fit the lid supplied
- CHECK** the Rim seal gasket and replace **every 2 months** (Part number 8011)
- CHECK** the rotor screw fixing tightness regularly



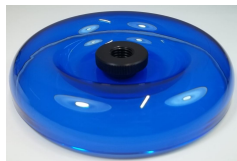
Micro tube Rotor

Always fit the lid supplied, as shown to the left



- ALWAYS** load your tubes opposite to each other
- ALWAYS** weigh samples to within 0.1 Gram For best separations. (see page 4)
- ALWAYS** fit the lid supplied
- CHECK** the two top seals and replace regularly (Part number 8044)
- CHECK** the rotor screw fixing tightness regularly

Tube placement Fixed angle rotors



Small fixed angle Rotors

Always fit the lid supplied, as shown to the left



ALWAYS load your tubes opposite to each other

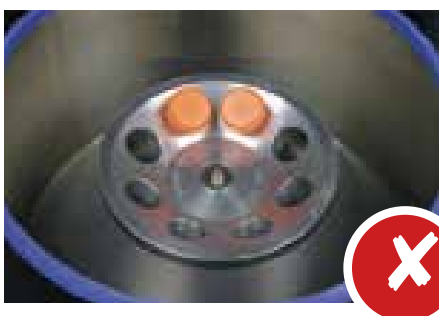
ALWAYS weigh samples to within 0.1 Gram. For best separations. (see page 4)

CHECK The rotor screw fixing tightness regularly



Large fixed angle Rotors

Always fit the lid supplied, as shown to the left



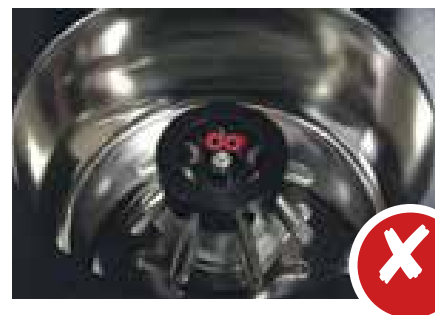
ALWAYS load your tubes opposite to each other

ALWAYS weigh samples to within 0.1 Gram. For best separations. (see page 4)

CHECK The rotor screw fixing tightness regularly

Tube & bucket placements Swing out rotors

Small Swing out rotor



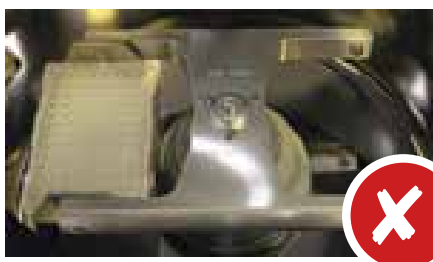
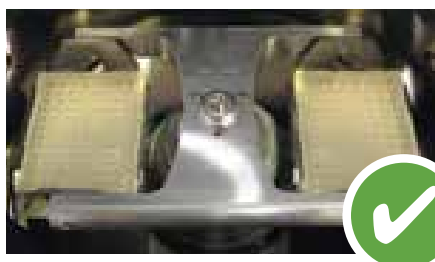
ALWAYS load your tubes opposite to each other
ALWAYS weigh samples to within **0.1 Gram**. For best separations
ALWAYS fit **ALL** the Tube Holders and any supports
CHECK The rotor screw fixing tightness regularly

Medium – Large Swing out Rotors



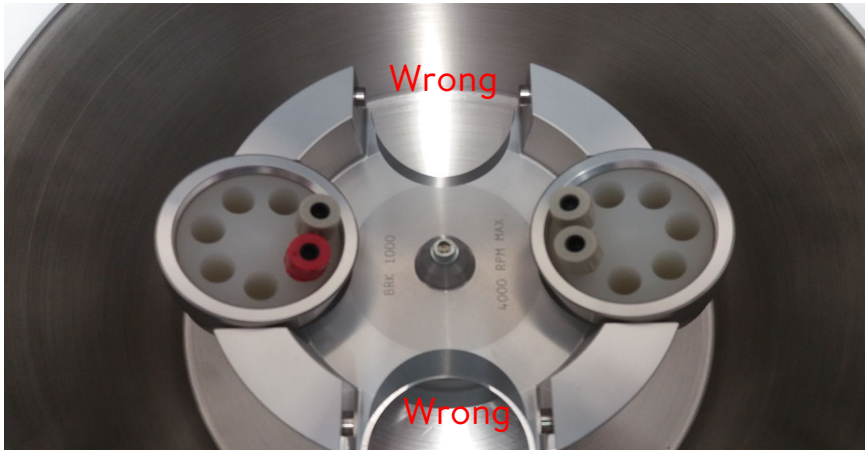
ALWAYS load your tubes opposite to each other
ALWAYS Weigh **Bucket** and all samples within to **1.0 Gram**
ALWAYS fit **ALL** 4 Buckets and 4 Adaptors supplied
CHECK the rotor screw fixing tightness regularly

Microtitor Rotor



ALWAYS load your plates opposite to each other
ALWAYS weigh samples to within **1.0 Grams**. For best separations
ALWAYS fit **both** Buckets supplied (**2**)
CHECK the rotor screw fixing tightness regularly

Tube placements Swing out rotor



This is not balanced!

Even though there are two samples in two buckets opposite to each other it is not balanced.

NEVER run swing out rotors with only two buckets



All four buckets must be used at all times



C



A



B

Always use the same size tubes as in A per bucket.

**NEVER use different size tubes as in B per bucket
Check they fit and do not hit the centre as shown in C**

Tube placement Cytology & Cell wash rotors

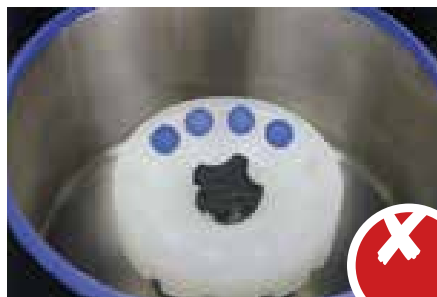
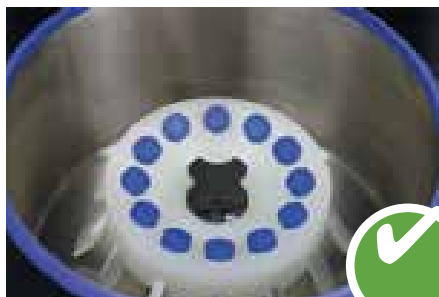
Cytology Rotors

Always fit the lid supplied, as shown below



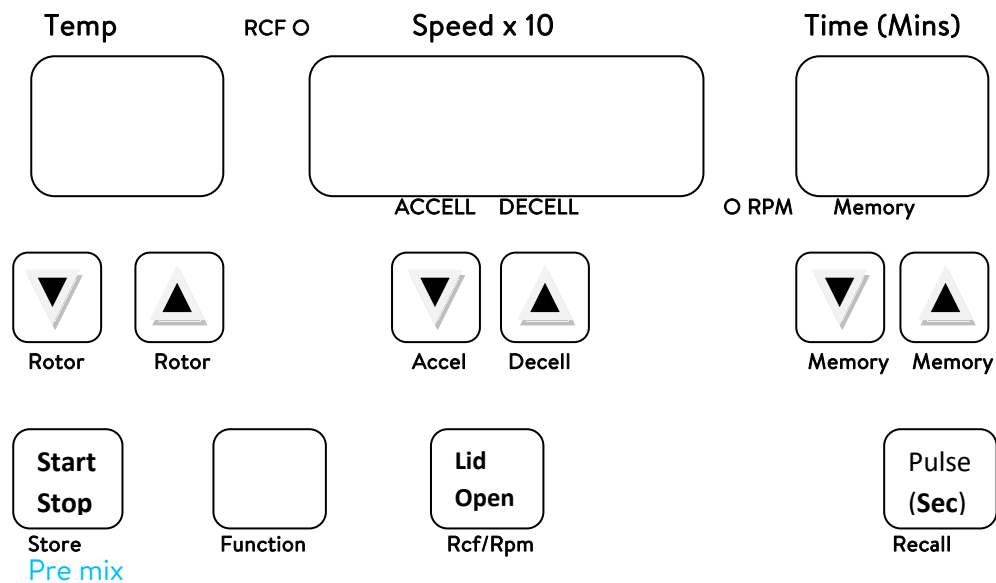
- ALWAYS** load your holders opposite to each other
- ALWAYS** weigh samples to within **0.5 Gram**. For best separations
- ALWAYS** fit the lid supplied
- Check** the two top Gaskets and replace regularly (Part Number 8055)
- CHECK the rotor screw fixing tightness regularly**

Manual Cell Washing Rotor



- ALWAYS** load your tubes opposite to each other
- ALWAYS** weigh samples to within **0.2 Gram**. For best separations Regularly smear a small amount of Silicon grease over the O rings
- Check** the inner and outer O rings and replace regularly (Part Number 8066)
- CHECK the rotor screw fixing tightness regularly**

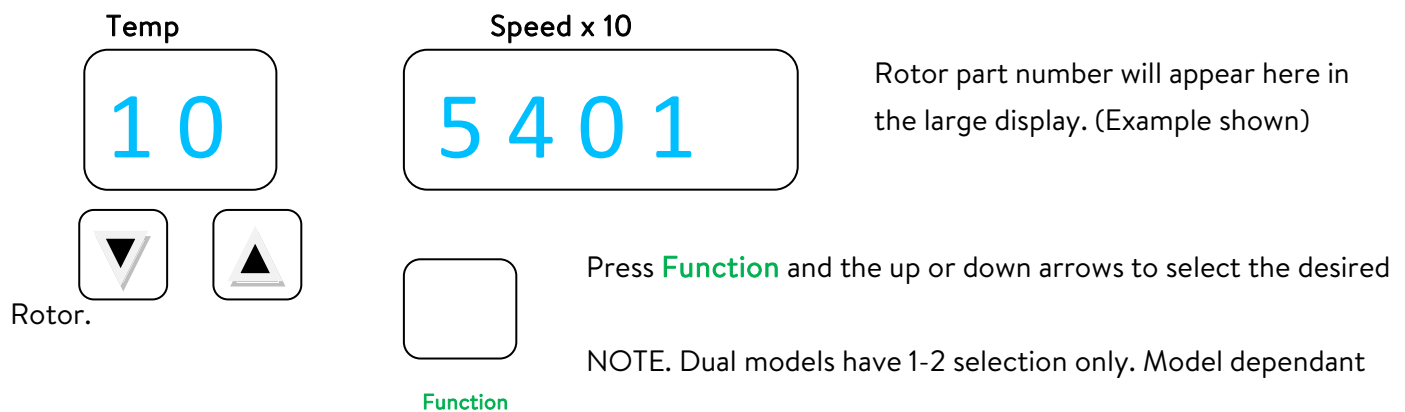
Instructions. Refrigerated model



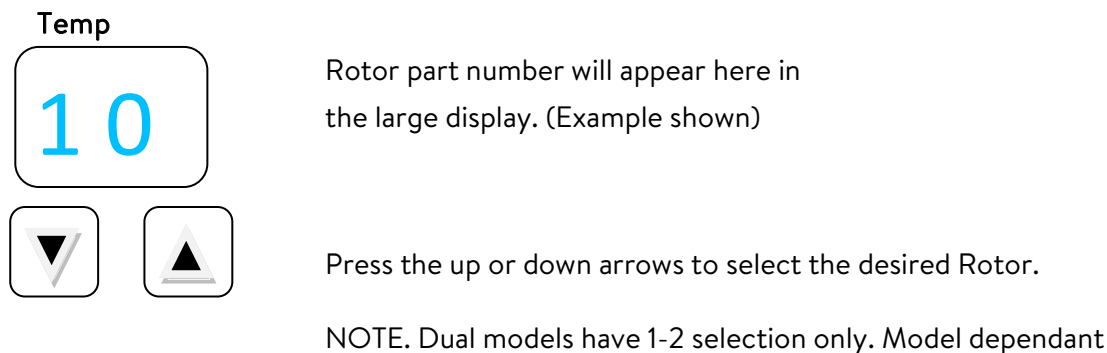
START POINT.

A. Selection of your fitted Rotor

First set the rotor 0-99. See the rotor option relevant to your Centrifuge.



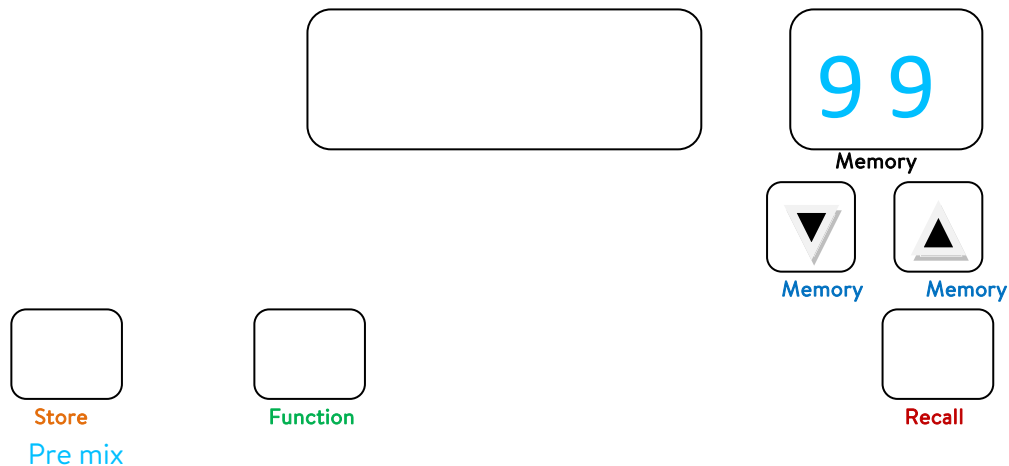
B. Temperature setting



Instructions. Refrigerated model

E. Programming, 10 are available from 0 – 9

Set all parameters as previous details. **A** Rotor, **B**. Speed or Rcf(G), Accel, Decell. **C** Time



After setting all your required parameters.

Press **Function** and select memory to your desired number by pressing



Memory buttons

Once done whilst pressing **Function** Press **Store**.

To recall a program Press **Function** and memory to desired program number

Once done whilst pressing **Function** Press **Recall**.

NOTE. The last run data (program must be run) will be kept, after turning off the Centrifuge power

Notes on the correct method of sample temperature control.

1. Turn on the Refrigerated centrifuge (make sure your required rotor and accessories are fitted and tightened down correctly) CLOSE THE LID
2. Set your desired temperature, speed or Rcf and time for your needs
3. Press Start/Stop button for 5 seconds this will instigate the pre condition run
-9 to 20C half of the maximum rotor speed for 20 minutes
21 to 40C maximum rotor speed for 20 minutes
This ensures the bowl chamber is mixed and the rotor acclimatises to the required temperature (Best practice)
During this Pre condition your samples should be set to your required temperature by either heating or cooling as needed
4. Once pre condition has finished open the lid, add your samples (quickly) loading as per rotor instructions.
5. Close the lid and press start
6. When rotor has stopped, open the lid and retrieve your samples.

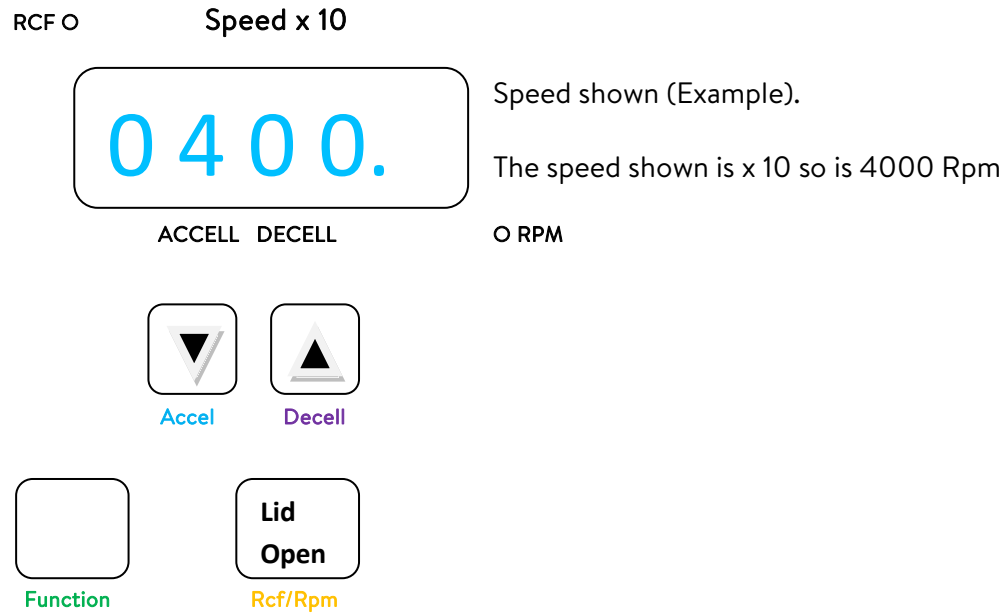
NOTE

If your temperature parameter is the same each time just load your samples(must be at set temperature)

Otherwise follow steps 2 - 5

Instructions. Refrigerated model

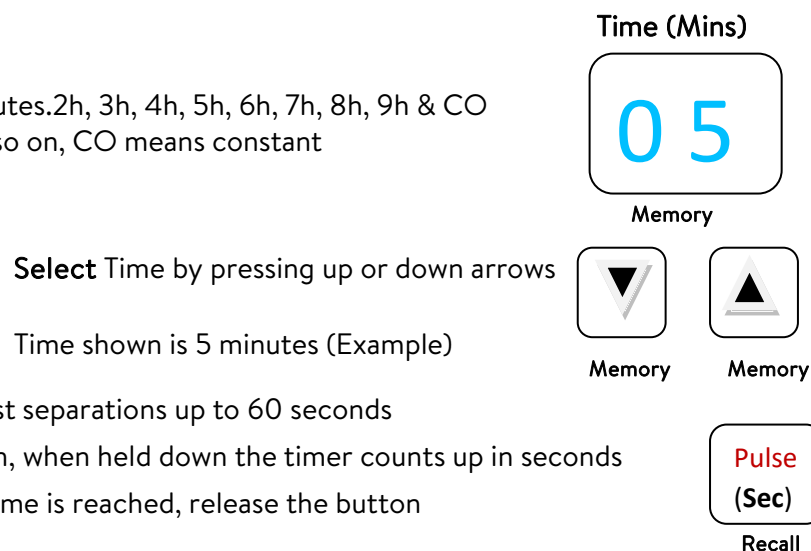
C. Setting of Speed or Rcf(G) and acceleration or Deceleration (braking)



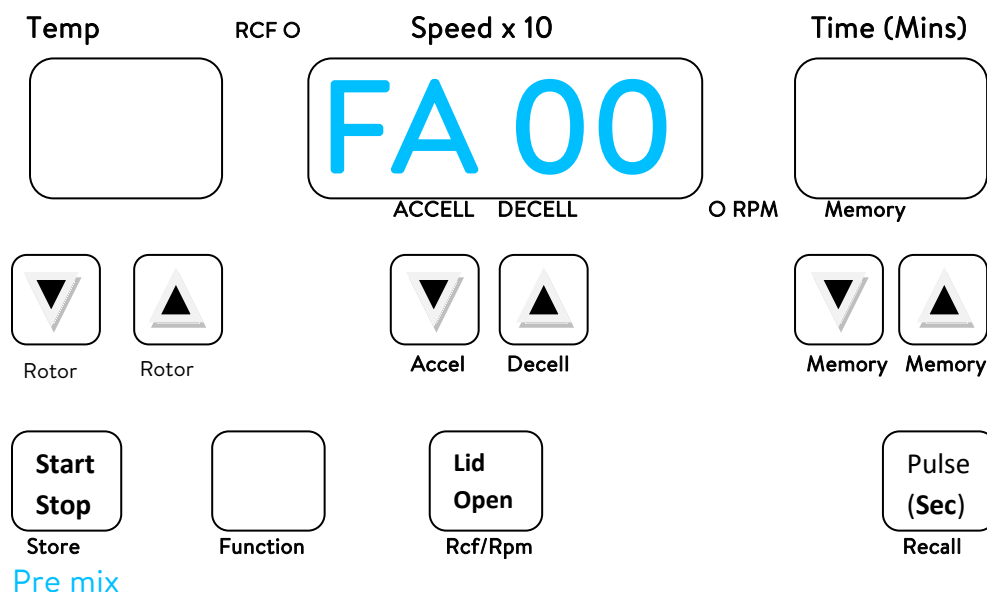
- 1 **Select** if you require Speed or Rcf (G)
RCF (G) is the actual force that does the work for your analysis.
It is speed x the radius maximum of the Rotor that is the separation for analysis.
Press **Function** button and press the **Rcf/Rpm** it will pulse dot Left top Rcf and Bottom right RPM
 - 2 **Select** the value you require by using the  or  Arrows
In increments of 10 Rpm or 10 Rcf(G)
 - 3 **Select** your acceleration rate (9 is fastest 0 has no braking and is slowest)
Press **Function** and **Accel** increment from 0-9
 - 4 **Select** your Deceleration rate (9 is fastest 0 is slowest)
Press **Function** and **Decell** increment from 0-9
-

D. Selection of Time period

Time periods run 0-99 minutes. 2h, 3h, 4h, 5h, 6h, 7h, 8h, 9h & CO
2h, etc means 2 hours and so on, CO means constant



Fault codes. Refrigerated model



Fault codes are shown in the Speed section of the LED display (shown above in Green)

The following List show what each Code means and what to do.

FA10	No rotation seen	Check the Following with the Lid open. Tubes are too tall and foul the Lid, replace with correct ones Check the rotor to see if it freely turns, if not look for Objects in the bowl that may be fouling and remove. If not Contact our Service Department
FA21	Imbalance BG	Check the Following. Weigh your tubes to 1g of each other Place tubes in Rotor opposite each other (see Following Rotor pages for instructions) If Fault code persists call our Service Department.
FA22	Imbalance BD	As above.
FA23	Imbalance MG	As above.
FA24	Imbalance MD	As above.
FA25	Imbalance Base Sensor	Contact our Service Department.
FA26	Imbalance Motor Sensor	Contact our Service Department.
FA27	Data time out	Contact our Service Department.
FA28	Imbalance	See the following Rotor pages
FA30	Lid is open	Close the Lid, press down on 2 front corners, push firmly. If problem persists Contact our Service Department
FA40	Rotor recognition	Wrong rotor fitted or incorrect rotor programmed if so. Contact our Service Department

Fault codes.

Fault codes are shown in the Speed section of the LED display (shown on previous page)

The following List show what each Code means and what to do.

FA50

Inverter Drive

Look at the Obround viewing port (Rear)

Note the Code shown in the inverter display. *

Turn off the power at the wall mains switch only.

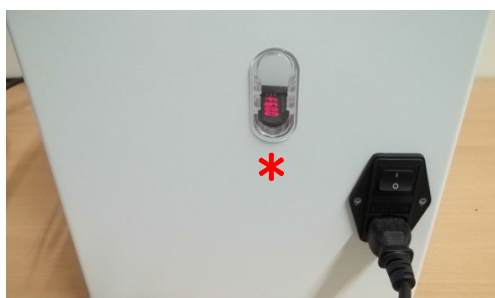
WAIT 3 minutes, Turn on again and Run. If problem persists

Contact our Service Department, with the Inverter code

FA51

Inverter error

As above.



Obround viewing port shown. *

Temp



If this is shown in the Temp window there is a Temperature probe failure

Contact our Service Department



Speed will not go beyond 2000 Rpm.

- The Electronics have set the Speed to safe mode
- Check the rotor bottom has magnets fitted
- Check correct rotor is in use against program chosen
- If not then Contact our Service Department

Noisy

- Unbalanced tubes, see Rotor pages
- Lid seal needs replacing
- Rotor Lid not fitted

Lid support fail

- Spring has failed. Contact our Service Department

Emergency Lid release

Mechanical Emergency Door release

During a power failure, you will not be able to open the Centrifuge lid via the Display button

Mechanical override is provided to allow sample recovery

However this is for Emergency use only

This should Not be used for normal use.

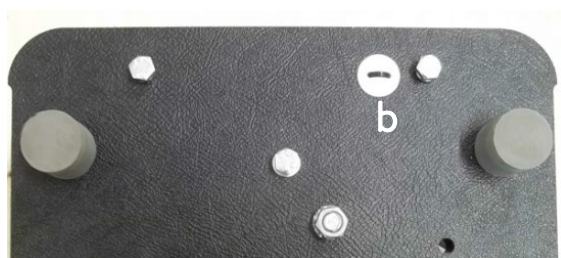
Warning

The rotor can still be spinning at a high speed, if touched it can cause serious injuries.

Always wait till the rotor has stopped.

Proceed as follows

- Make sure the Rotor has stopped (view via the port in the Lid)
- Once stopped turn off the power via the inlet Switch
- Pull the Centrifuge slightly over the bench (as shown in **(a)**)
- You will notice one **(b)** or some models two plastic plug **(c)**. **Plug ***
- Pop open with a screwdriver (tool) and pull downwards .
- The lid will pop open You can now retrieve your samples



After replace the Plastic plugs back into their original position.

Reconnect the centrifuge power line once the mains power has been restored.

Check all is working correctly by closing the lid, wait 5 seconds then press lid open.

If not working refit or Contact your Distributor

Care & maintenance. Centrifuge



Always keep your Centrifuge clean and free from moisture at all times, this will help prevent corrosion.



Do not use any kind of scourers or abrasive material to clean the Centrifuge and ensure that a pH neutral cleaner is always used.



It is recommended that your centrifuge is switched off and the lid left open overnight to ensure that any moisture build up can evaporate.



Keep a 30Cm distance around your Centrifuge.
Do not site the unit in sunlight



Always ensure that lids and accessories are correctly tightened before running the unit.



Use only official Centurion Scientific Ltd accessories with your centrifuge.



It is recommended that regular maintenance and cleaning of the unit and accessories is carried out.



Yearly servicing is required to validate your warranty and increase the life of your Centrifuge and accessories. See PrO-Care pages

Care & maintenance. Rotor



Always check rotors for cracks and damage, if found replace your rotor. DO NOT USE as dangerous



Autoclave for the maximum number of times shown in the sales literature. In brackets(20)



Rotors have a Seven year lifespan and must be replaced .
DO NOT USE beyond their Lifespan



It is recommended that regular maintenance and cleaning of the rotor and accessories is carried out.



Ensure that all buckets are present in the rotor when running your centrifuge, as using the unit with an unbalanced rotor can cause distortion and excessive wear. Read tube placements section in the previous section



Do not use any kind of scourers or abrasive material to clean the buckets and ensure that a pH neutral cleaner is always used.



Aluminium buckets should be kept clean and moisture free to keep them in a good, safe operating condition.



Yearly servicing is required to validate your warranty and increase the life of your rotor and accessories

EC Declaration of Conformity



Device Classification: Laboratory Equipment

Centurion Scientific Ltd.

Centrifuge ranges and accessories

PrO-Analytical.

C1015/R. C115/R. C106/R. C113. C104SO. C2000/R. C204/R. C206/R. C4000/R.
C404/R. C406/R. C5000/R. C504/R. C7000/R. C704/R. CFS4/R. CFS4A/R

Conform to the following Product specifications:

Directives

2006/42/EC

2014/35/EU

2014/30/EU

2014/65/EU

2014/65/EU

2011/65/EU

Standards

EN ISO 12100

EN61010-1. IEC 61010-2-020

EN 61326-1, EN55011. CFR 47 FCC Part 15 class a

EN 378-1

EN 378-2 For Refrigerated versions

EN 50581

A handwritten signature in black ink, appearing to read 'K Cooper'.

Certified by:

Company Representative
K Cooper QA manager

ISO 9001:2015

bsi.

ISO 13485:2016

CENTURION
SCIENTIFIC LIMITED

The Old Stables, Church Farm, Stoughton, Chichester, West Sussex. PO18 9JL. United Kingdom.

Certificate of Origin



Centurion Scientific Ltd of The Old Stables, Church Farm, Stoughton, Chichester, West Sussex, PO18 9JL, UNITED KINGDOM.

Hereby confirm that all centrifuges and accessories supplied by us are of UNITED KINGDOM origin.

Signed for and on behalf of Centurion Scientific Ltd
Granted 2019 onwards

Company Representative

ISO 9001:2015

bsi.

ISO 13485:2016

CENTURION
SCIENTIFIC LIMITED

The Old Stables, Church Farm, Stoughton, Chichester, West Sussex. PO18 9JL. United Kingdom.

PrO-Care

Service, Warranty & Maintenance packages

The lifespan of a centrifuge depends upon how well it is looked after and maintained.

Many of our centrifuges have lived a life of over 15 years.

This is not only due to our stringent manufacturing process and high quality components but also to a yearly servicing package. Making them a cost effective solution of centrifugation.

Whilst our centrifuges come with a confidence giving warranty, yearly services are imperative to ensure your warranty is valid, this also ensures your machine is working to its best ability and lengthens its life span. Also as centrifuges are a dangerous machine, safety checks are required too.

For UK customers we offer a back to base service package including carriage to us and return all within 48 hours. Centrifuge seals , fuses & other parts are replaced, adjustments made, rotor checked for stress cracks, seals changed if necessary (extra charge) PAT (portable appliance test) is included Obligatory in UK.

For worldwide customers we offer a full parts package per model. The designated country distributor services the units accordingly.

Call our Office to discuss or visit our Service website

WWW.ServicePrO-Care.com

www.Centurionscientificglobal.com

Switchboard. 0044 (0) 2392 631225

Research & service

The Old equine Barn
Church Farm
Stoughton Chichester
PO18 9JL. UK

Ambient

manufacturing

The Old Grain Barn
Church Farm
Stoughton Chichester
PO18 9JL. UK

Refrigeration

Manufacturing

The Old Drier Barn
Church Farm
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Chichester
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Sales

The Old Stables Church
Farm Stoughton
Chichester