



## PowerSpin BX Series Centrifuges

### Operation Manual

For use with Models C881, C882, C883, C884, C885, C886 and C887



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The UNICO® PowerSpin™ BX centrifuge with digital variable speed control and electronic timer is designed to run for years of demanding laboratory work in clinical labs, physician’s offices as well as in any chemical, industrial, or biological labs where separation for blood or other materials is desirable.

Features:

- High Speed centrifuge, variable speed from 1,000 to 11,000 RPM
- Three rotor options:
  - 8 place rotor for 10ml SST Tubes (Model C881), from 1,000 to 5,000 RPM
  - 24 place rotor for Microhematocrit tubes (Model C882), up to 11,000 RPM
  - 24 place rotor for Micro Centrifuge Tubes (Model C883), up to 11,000 RPM
- Automatic rotor recognition
- Automatic unbalance detection and shutdown
- Safety rotor locking nut
- Zero RPM lid latch protection - The centrifuge lid cannot be opened until the unit stops spinning. It will not run unless the lid is properly closed.
- Push button digital speed and time controls with speed range of 1,000-11,000 RPM
- Large LCD: Speed / RCF/ Time simultaneous, real time digital display.
- Electronic 99 minutes timer with beeping signal at end of run.
- Automatic time and speed reset to the last time speed and time setting for repeated job.
- Memorized time and speed settings: The centrifuge will memorize the last time and speed settings when the unit is powered down. It will resume the previous time and speed settings when the unit is turned on.
- Maintenance free brushless DC motor.
- Power switch with indicator light tells when unit is powered on.
- Power on/off switch located on back of unit.

Unpacking and Installation:

Please examine the unit upon receiving and retain all packing until the unit has been tested. Inspect for any possible shipping damage. If you note any damage, please contact your sales representative. Save the original packaging. If it becomes necessary to return the instrument to us, we ask that it be returned in the original packaging. The warranty excludes any damage caused by shipping.

*The rotor is protected by foam in the rotor chamber. Do not operate the centrifuge before the foam is removed!!*

Unpack the shipping box carefully and verify that the shipment is complete. Depending on the model, it may include the following items:

Model	Main Unit (C880)	Rotor 1 (C880-01)	Rotor 2 (C80-02)	Rotor 3 (C880-03)	Cord & Tools
Rotor	Max. Capacity	8 x10ml or 8x12ml	24 capillary tube	24 x Micro tubes	
C881	X	X			X
C882	X		X		X
C883	X			X	X
C884	X	X	X		X
C885	X	X	X	X	X
C886	X		X	X	X
C887	X	X		X	X

1. Take the centrifuge from the box and place it on a sturdy, dry, flat surface. Do not turn on the centrifuge!
2. Use a small screwdriver (or a rod with Ø4mm or less in diameter) to open the lid. Insert the tool into the emergency lid-opening hole on the front. Push the tool to left to open the lid. Protective foam is packed inside the chamber of the centrifuge to prevent the rotor and shields from moving during shipping. Remove this foam before operating your centrifuge.
3. Make sure the rotor is installed firmly. No rotor calibration is required.
4. The power inlet is in the back of the centrifuge. Plug in the power cord to the inlet and to an 115V power outlet.

Technical Specifications:

Specification	Rotor 1	Rotor 2	Rotor 3
Maximum Speed	5000 RPM ±1%	11000RPM±1%	11000RPM ±1%
Maximum G force	2571g	11,634g	11093g
Max. Rotor Capacity	8 x 10ml or 8x12ml Rotor	24 xΦ1.5mm x 75mm Micro-Hematocrit Rotor	24 x 1.5ml or 2ml Micro Rotor
Rotor Radius	92 mm	86 mm	83 mm
Timer Range	0-99 minutes LCD		
Speed Range	1000-13000 RPM		
Motor	Brushless DC motor		
Input Power	250 W		
Power Supply	AC 110V, 60Hz		
Dimension	270mm x 320mm x 220mm (W x D x H)		
Working condition	Temperature: 5-40°C; Moisture: ≤ 80%; No conductive dust, no explosive gas, no corrosive gas		

BX Centrifuge Control Buttons and Functions:

MODE UP DOWN START STOP OPEN PULSE



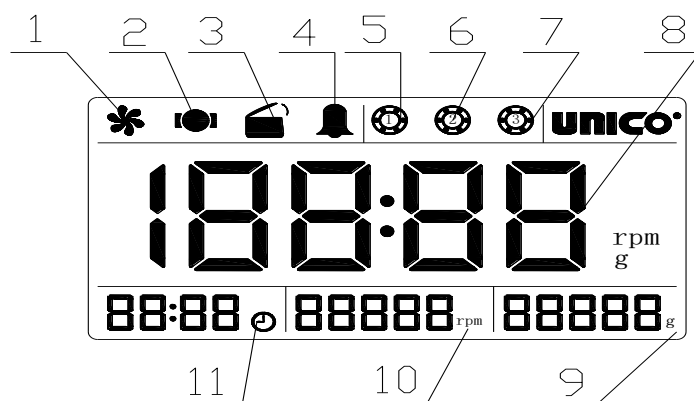
- Mode: Switches large, main display between RPM, RCF and time
- Up & Down: To increase or decrease the setting (speed/RCF or time)
- Timer setting: Press the Mode button to select Time as main display. Use the up or down arrow to preset the running time. The timer range is from 1 min. to 99 minutes. To change timer setting during operation, press the up or down arrow button.
- Speed setting: Press the Mode button to select Speed as main display. Use the up or down arrow to preset the speed. The speed range is from 1,000 to 11,000 RPM in 100 RPM increments. (Max. 5000 RPM for Rotor 1). To change speed setting during operation, press the up or down arrow buttons.
- Start Button: Press Start button to spin sample. The centrifuge will not spin if the lid is not completely closed and latched.  
Caution! Always make sure the samples are balanced. If using micro-hematocrit rotor make sure the lid cover is properly screwed on before starting.
- Stop Button: Stop the centrifuge at anytime.
- Open Button: Open the centrifuge lid only when the centrifuge is not spinning.
- Pulse Button: The centrifuge will run when the Pulse button is pressed and held.

Emergency Lid-opening:

The lid is designed to prevent it from being opened accidentally while the centrifuge is spinning. There may be situation when the lid needs to be opened manually (For example if you lose electrical power and samples are still in the centrifuge).

To open the lid manually, use the lid-opening tool (small screwdriver). Insert the tool into the emergency lid-opening port on front and push left to release the safety lock and open the lid.

## LCD Display and Symbols:



1. Running	2. Braking	3. Lid Open	4. Alarm/Warning
5. Rotor 1	6. Rotor 2	7. Rotor 3	8. Main Display
9. RCF (g)	10. Speed (rpm)	11. Time	

### Operation:

1. Plug the centrifuge into a power source outlet. Make sure the voltage is correct.
2. Open the lid by pressing the Open button on the control panel.
3. Place the specimen tubes into the tube shields of the rotor.

### CAUTION!!

Make sure that the specimen tubes are balanced! Always balance rotor with tubes of equal weight.

4. Close the lid firmly.
5. Set the timer to the desired time by pressing the up or down arrow. To speed up time setting, press and hold the arrow button.
6. Press the Start button to start the spin
7. After the centrifuge rotor has come to a complete stop the lid will automatically be released. Open the lid and remove your specimens

Note: When the centrifuge run is complete, the timer will be automatically reset to the last timer setting and the centrifuge is ready for the next run.

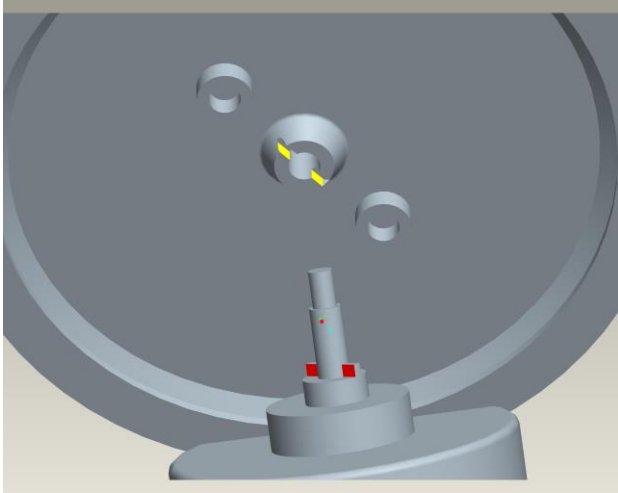
### Hematocrit value reading

The lid of the hematocrit rotor is also a Hematocrit reader. To read the hematocrit value, hold the rotor and rotate the lid until the upper end of the liquid meets the 100% line. Find where the separation falls into and take the hematocrit reading.

### Changing rotors

The rotor is mounted on the motor shaft with a safety locking nut. For safety consideration, the locking nut cannot be threaded on if the rotor is not properly seated and engaged on the crossbar of the motor shaft as shown below. There is matching slot on each rotor.

1. Turn off the centrifuge power switch. Unscrew the rotor spindle locking nut and remove the rotor.
2. Align the crossbar of the shaft with the rotor slot and carefully place the rotor onto the shaft all the way down.
3. Engage the locking nut, making sure it is screwed on tight.



Align and engage the crossbar on the shaft with the matching slot on the rotor.

#### Safety:

Your PowerSpin™ BX centrifuge is a carefully designed and built instrument. When operated properly, it presents no safety hazards, however, please take note of these safety precautions.

- “Zero RPM” lid latch. Never attempt to open the lid until the rotor has come to complete stop!
- Load Balance: Always make sure that the load is balanced before operating the instrument!

It is very important that tubes with equal loads are placed opposite each other in the rotor. If the centrifuge is not properly balanced, damage could occur. If excessive noise or vibration is noticed during a run, stop the centrifuge and recheck the balance.

#### Maintenance:

This centrifuge is designed to be relatively maintenance free. The motor is a brushless type and has permanently sealed bearings, so oiling is not needed. A surface cleaner such as Formula 409 can be used to clean the outside of the instrument. The rotor chamber and cover can be disinfected with a mild solution of bleach or other disinfecting liquid and allowed to dry.

#### Routine Rotor Inspection and Maintenance:

All centrifuge Rotors should be removed and inspected for damage, defects, or other problems:

- Before initial use
- Each time the rotor is removed for cleaning
- At least every 6 months

If you detect any problems, damage, or defects in your centrifuge rotor or tube shields discontinue use of the centrifuge and rotor immediately! Contact your supplier or UNICO support at: 732-274-1155. Please have the serial# ready and any information you may have about where and when it was purchased.

#### Calibration:

According to Code of Federal Regulations Title 21, centrifuges require speed verification as follows:

- 1) Before initial use;
- 2) after repair or adjustments;
- and 3) 6 months after use.

The centrifuge timer should be checked for accuracy at least every 3 months. The timer accuracy is 5min ± 10sec.

#### Electrical Shock Hazard:

Do not attempt to operate this instrument near water or liquid spill. Unplug the unit before cleaning or repairing. Periodically check the condition of the power cord for cuts or damage. Do not operate with a damaged cord.

#### Biohazard:

If a tube breaks, a biological hazard may exist. Unplug the instrument. Clean using approved laboratory procedures. Always wear the proper protective clothing and gloves. Use a suitable disinfectant and dispose of the sample properly. Refer to the guidelines set forth by OSHA, CLIA, etc.

#### Service:

If you feel that your centrifuge needs service, please call UNICO support at 732-274-1155 or email to [info@unicosci.com](mailto:info@unicosci.com). Repairs or modifications made to the centrifuge by an unauthorized party may void the warranty and may be unsafe.

#### Troubleshooting:

1. Centrifuge does not start:
  - a) Check to determine if centrifuge is plugged into the functioning AC outlet and the power switch is turned on.
  - b) Check that the lid is properly closed.
2. Excessive noise when running.
  - a) Make sure rotor load is balanced.
  - b) Remove the rotor and make sure there are no debris of any kind in the rotor chamber
  - c) Discontinue use and contact UNICO support
3. Fuse Replacement:
  - a) Turn the power switch off. Unplug the power cord and remove it from the inlet.
  - b) The fuse holder is built into the power inlet.
  - c) Use flat screwdriver to take the snap-in type holder cover off. Remove the blown fuse and replace it with the same type and rating 250V/4A.
  - d) Intermittent motor operation or no operation: discontinue use and contact UNICO support.

#### Warranty:

This instrument is warranted against defects in materials and workmanship for a period of one (1) year from the date of shipment to the customer. This warranty is limited to the repair and replacement of parts, which prove to be defective during the warranty period. This warranty is not valid for parts damaged, lost, or which fail because of accident, fire, theft, acts of nature, negligence, or the use of chemicals, which have a deleterious effect. This warranty is conditioned upon the manufacturer retaining the option of replacing parts up to and including the entire instrument.

Note: This warranty will not extend to any repairs or modifications made to the instrument by some party other than the manufacturer or a party authorized by Unico. Also, this warranty shall be in effect only upon the notice of the defect to the manufacturer or its authorized distributor, or dealer, within five (5) days after the occurrence of said defect

No other warranty of any kind is made expresses or implied. The warranty described above shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described above, shall constitute complete fulfillment of all liabilities and responsibilities of the manufacturer to the purchaser with respect to the product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall the manufacturer be liable, or in any way responsible for any damages or defects in the product that were caused by repairs or attempted repairs performed by anyone other than the manufacturer's dealer or station, nor shall the manufacturer be liable or in any way responsible for any incidental or consequential economic or property damages. Some states do not allow the exclusion of incidental or consequential damage, so the above exclusion may not apply to you.