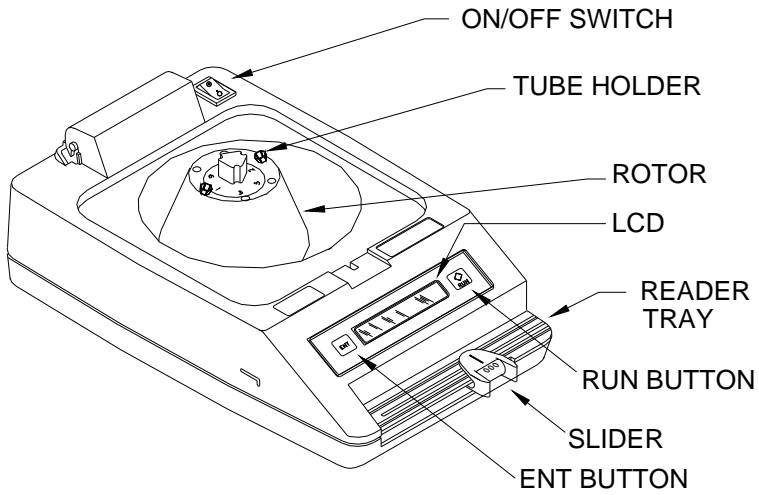


Creamatocrit Plus™

Centrifuge
Operator's Manual



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CREAMATOCRIT PLUS
(LID NOT SHOWN FOR ADDED CLARITY)

TABLE OF CONTENTS

SECTION 1	DESCRIPTION AND INTENDED USE
SECTION 2	INSTALLATION
	2.1 Unpacking
	2.2 Power Supply
SECTION 3	OPERATING INSTRUCTIONS
	3.1 Start Up
	3.2 Rotor Loading and Balancing
	3.3 Tube Preparation
	3.4 Tube Centrifugation
	3.5 Reading a Tube
	3.6 Creatocrit Determination Reminders
	3.7 Centrifuge Reminders
SECTION 4	QUALITY CONTROL AND ASSURANCE
	4.1 Use of Control Strip
	4.2 Calibration
	4.3 Spin Time/RPM Tests
SECTION 5	MAINTENANCE
	5.1 Cleaning
	5.2 Tube Holders
	5.3 Inspections
	5.4 Service
SECTION 6	TROUBLESHOOTING
SECTION 7	ACCESSORIES AND SUPPLIES
SECTION 8	OPTIONAL BATTERY INSTRUCTIONS
	8.1 Installation
	8.2 Charging the Battery
	8.3 Battery Operation
SECTION 9	WARRANTY
SECTION 10	SPECIFICATIONS

SECTION 1 DESCRIPTION AND INTENDED USE

The Creamatocrit Plus™ is a small, lightweight centrifuge that provides a rapid and accurate creatinocrit determination, estimated calories per ounce, kcalories per 100ml, kcalories per liter and fat grams per liter. The Creamatocrit Plus is not intended for use with materials other than breast milk.

The rotor will accommodate up to six Creamatocrit Plus tubes. The device will achieve separation in only three minutes.

The Creamatocrit Plus system includes a built-in automatic tube reader and a LCD that displays messages to guide the operator throughout the testing procedure and then displays the test results. An optional rechargeable battery is available to permit operation in locations where alternating current is not available.

SECTION 2 INSTALLATION

2.1 UNPACKING

The Creamatocrit Plus shipping box contains:

- Centrifuge
- Package of ten disposable tube holders
- Power supply
- Instruction manual
- Laminated quick reference procedure guide/tube placement guide
- One vial of Creamatocrit Plus tubes
- One tray of tube sealant
- Control strip

Read the instruction manual thoroughly before operating this system.

Place the centrifuge on a convenient, level work surface along with the other items contained in the box.

2.2 POWER SUPPLY

Use **ONLY** the power supply packaged with the Creamatocrit Plus. Verify that the ON/OFF switch located on the top of the centrifuge is in the OFF " ⓪ " position. Always plug the power supply into the rear of the device first and then plug the three-prong end into an electrical outlet. Press the ON/OFF switch to the ON " Ⓢ " position. The lid will automatically open and the LCD will display the main menu. (Refer to Section 8 for battery instructions.)

SECTION 3 OPERATING INSTRUCTIONS

Always follow established procedures for working with breast milk.

3.1 START UP

Press the ON/OFF switch to the ON position. The lid will automatically open and the LCD will display the main menu.

3.2 ROTOR LOADING AND BALANCING

FOR SMOOTH OPERATION AND EXTENDED LIFE OF THE CENTRIFUGE, THE ROTOR MUST ALWAYS BE BALANCED BEFORE THE SPIN CYCLE IS INITIATED.

Install 2, 4 or 6 tube holders in the rotor. There should always be an even number of tube holders in the rotor and they should be opposite each other to balance the rotor.

When an even number of Creamatocrit Plus tubes (2, 4 or 6) are centrifuged, balancing is accomplished by placing the tubes on opposite sides of the rotor from one another so that the weight is distributed equally. If an odd number of tubes (1,3 or 5) are centrifuged, use an empty tube to balance the rotor.

3.3 TUBE PREPARATION

- A. Mix the milk sample well by gently shaking for 5 seconds. Fill the tube immediately after mixing as mother's milk separates very quickly.
- B. Fill a Creamatocrit Plus tube $\frac{1}{2}$ to $\frac{3}{4}$ full. Let the milk flow down the tube until it is near the dry end. Then place your finger over the wet end of the tube to stop the flow. (Stop the milk before it gets to the area where the sealant will go – that area should remain dry.)
- C. Insert the dry end vertically into the sealant, pushing it to the bottom of the tray. Twist the tube when removing it from the sealant to prevent the sealing plug from being extracted. Repeat.
- D. Gently tap the sealed end of the tube on a flat surface to help ensure proper sealant contact in the tube.
- E. Wipe off the prepared tube.
- F. Place the tube carefully in the centrifuge tube holder with the sealant end down. The tube positions are numbered on the rotor and can be used to record the position of each sample.

3.4 TUBE CENTRIFUGATION

With the tube holders and tubes in place, lock the lid by firmly pressing down on the lid tab. Start the spin cycle by pressing the RUN button. The centrifuge will not operate unless the lid is closed and properly locked.

During the period of time when the motor is accelerating, a test number is displayed on the LCD. This number is a count of the completed spin cycles. Within seconds the centrifuge will reach the proper operating speed and the rpm will be displayed on the LCD during the cycle. The LCD will display a countdown of time for the remainder of the spin cycle, and the device will stop automatically after 180 seconds.

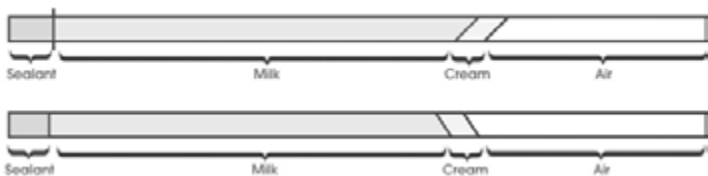
An audible tone will indicate that the spin cycle is complete, the automatic lid lock will disengage and the lid will open.

3.5 READING A TUBE

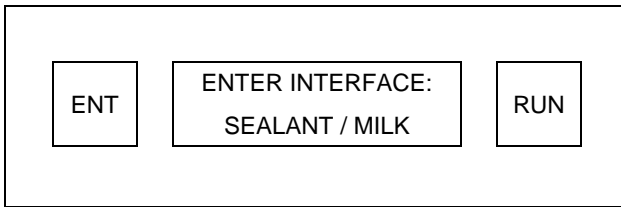
- A. Move the slider to the far left side of the reader tray.

ONLY ONE TUBE AT A TIME SHOULD BE REMOVED FROM THE ROTOR FOR READING. THE REMAINING TUBES SHOULD BE READ IMMEDIATELY FOLLOWING THE READING OF THE FIRST TUBE. ONCE A TUBE HAS BEEN REMOVED FROM THE ROTOR, IT SHOULD BE READ WITHIN ONE MINUTE.

- B. Remove a tube from the rotor and place it in the groove in the reader tray. Make sure the sealant end of the tube is to the far left, against the end of the groove. Rotate the tube in the groove so that the full slanted interfaces of the MILK / CREAM and CREAM / AIR can easily be seen. The interfaces can slant either direction as shown below - whichever provides the best vantage point. Once the tube has been properly positioned, **make sure you do not move the tube** during the reading process.



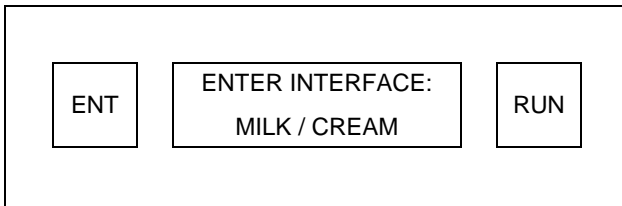
C. Press the ENT button. The LCD will change to:



Move the slider along the capillary tube to the interface of the tube sealant and milk. Look through the transparent slider and position the vertical black line on the interface.



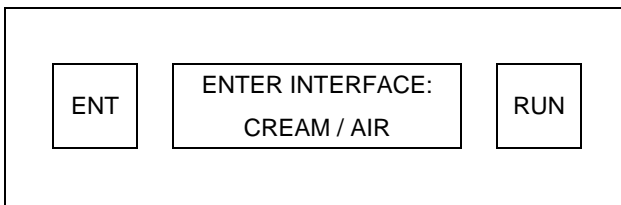
D. Press the ENT button. The LCD will change to:



Move the slider to the MILK / CREAM interface. Look through the transparent slider and position the vertical black line on the middle of the slanted interface.



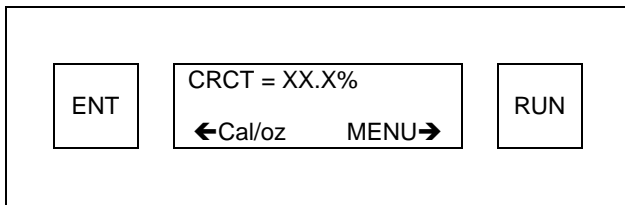
E. Press the ENT button. The LCD will display:



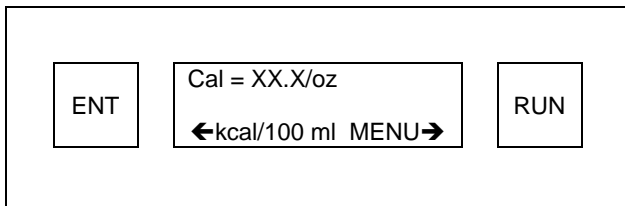
Move the slider to the CREAM / AIR interface. Look through the transparent slider and position the vertical black line on the middle of the slanted interface. If there is a clear layer of yellow liquid on top of the cream include it as part of the cream layer.



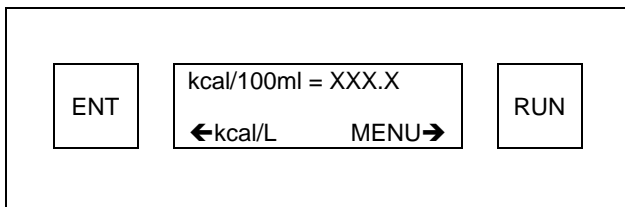
- F. Press the ENT button. The LCD will display the creatocrit result.



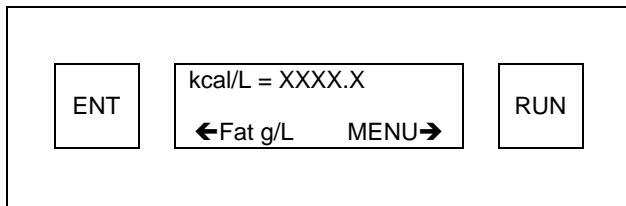
- G. Press ENT to display calories per ounce. Press RUN to return to the main menu.



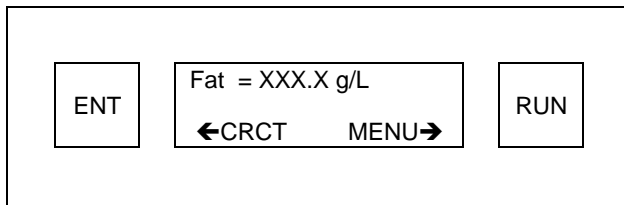
- H. Press ENT to display kcalories per 100ml. Press RUN to return to the main menu.



- I. Press ENT to display kilocalories per liter. Press RUN to return to the main menu.



- J. Press ENT to display fat in grams per liter. Press RUN to return to the main menu.



- K. Press ENT to display CRCT. Press RUN to return to the main menu.

3.6 CREAMATOCRIT DETERMINATION REMINDERS

TO ENSURE CORRECT RESULTS:

- Use only Creamatocrit Plus tubes.
- Spin sample one time (3 minutes) ONLY.
- Read the tube immediately after removing it from the rotor.
- Place the vertical black line of the slider in the middle of the MILK / CREAM and CREAM / AIR full slanted interfaces.
- Occasionally you may see a "tail" or line of cream running down the inside of the tube. It will not affect the result. Simply ignore it when marking the interfaces on the tube.
- Do not smooth the holes out of the sealant in the tray with your finger. This can result in sealant blowouts.
- Tubes spun in a Creamatocrit Plus should be read on the Creamatocrit Plus.
- Inspect and replace dirty or cracked disposable plastic tube holders monthly or more frequently if necessary.

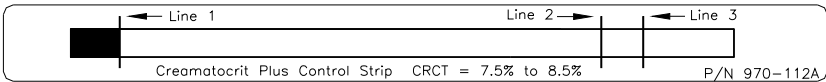
3.7 CENTRIFUGE REMINDERS

- Do not lean on the centrifuge
- Do not stay in the centrifuge envelope longer than is necessary for operational reasons.
- Do not deposit potentially hazardous material within the clearance envelope.
- Do not use flammable or explosive materials in the centrifuge.

SECTION 4 QUALITY CONTROL AND ASSURANCE

4.1 USE OF THE CONTROL STRIP

The Creatomatocrit Plus Control Strip is used to verify the tube reader accuracy.



Testing Procedure:

1. Move the slider to the far left side of the reader tray.
2. Place the control strip on the reader tray under the slider as far to the left as possible.
3. Starting from the main menu, press the ENT button.
4. Move the slider so the black line is over line 1 on the control strip.
5. Press the ENT button.
6. Move the slider so the black line is over line 2.
7. Press the ENT button.
8. Move the slider so the black line is over line 3.
9. Press the ENT button.
10. The CRCT value on the LCD should be between 7.5% and 8.5%.

If the readings do not fall within the range, repeat the test or contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separationtechnology.com.

4.2 CALIBRATION

No calibration is required because microprocessor technology is used to monitor the speed and spin cycle of the Creatomatocrit Plus. A maximum packing time test is not applicable. If an abnormal operating condition is encountered, a programmed error message will automatically appear in the display. However, spin time and RPM tests can be performed, if desired.

4.3 SPIN TIME/RPM TESTS

A. SPIN TIME

Spin time is factory set at 180 +/- 3 seconds. A count down of the time remaining is displayed on the LCD. Spin time may be verified by using a stopwatch. The motor takes less than 10 seconds to accelerate to proper

rpm. Once achieved, the spin time will be displayed on the LCD. Start timing the spin when WAIT 180 SEC is displayed on the LCD. Stop timing the spin when the motor shuts off.

B. RPM

The Creatacrit Plus is designed to operate between 5,670 and 6,930 rpm. An internal microprocessor continuously monitors the rpm during operation. If the rpm should drop below the specified range, the motor will shut off, and the message LOW RPM will display on the LCD. To clear the LOW RPM message, press the ENT or RUN button to return to the main menu. Press the RUN button to restart the spin cycle. If the LOW RPM message is displayed again, refer to Section 6. The rpm reading on the LCD should be within 2% of a tachometer reading.

SECTION 5 MAINTENANCE

5.1 CLEANING

As with all electrical devices, make sure the centrifuge is unplugged before cleaning. Always wear protective clothing when using any cleaning materials.

NEVER USE BLEACH, ABRASIVES OR CORROSIVE SOLVENTS.

DO NOT SPRAY OR ALLOW ANY LIQUID TO GET INSIDE THE CENTRIFUGE. LIQUID WILL HARM THE ELECTRONICS. SUBSEQUENT PROBLEMS WILL NOT BE COVERED UNDER WARRANTY.

BEFORE USING ANY CLEANING OR DECONTAMINATION METHODS EXCEPT THOSE RECOMMENDED BY THE MANUFACTURER, USERS SHOULD CHECK WITH THE MANUFACTURER THAT THE PROPOSED METHOD WILL NOT DAMAGE THE EQUIPMENT.

Use a disinfectant towelette or a cloth slightly dampened with any non-corrosive disinfectant solution to clean the lid and other parts of the centrifuge housing. Dry all surfaces with a soft tissue or cloth after cleaning.

The rotor should be removed and cleaned regularly. Remove the rotor from the motor shaft by first unscrewing the rotor knob. Gently lift the rotor vertically off of the motor shaft. Make sure the rotor is thoroughly dry before reinstalling. Liquid left on the rotor will cause damage to the device. Re-install the rotor making certain that the rotor knob is tight.

If hazardous material is spilled on or inside the centrifuge, the user should carry out appropriate decontamination.

5.2 TUBE HOLDERS

Cleaning the tube holders is not recommended. Should a tube break or a sealant blowout occur, simply discard the affected tube and tube holder in accordance with proper laboratory procedures and replace with a new tube holder. Inspect and replace dirty or damaged tube holders monthly or more frequently as needed. Replacement tube holders are available (See Section 7).

5.3 INSPECTIONS

Periodically inspect the lid, lid gasket and rotor to ensure there are no cracks or damage. Periodically inspect for evidence of friction on the centrifuge feet and the surface on which the centrifuge is placed. If applicable, periodically inspect any means of fixing the centrifuge to the mounting surface and the mounting surface itself.

5.4 SERVICE

To obtain service, contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separationstechnology.com.

All instruments or accessories must be cleaned prior to shipment to the manufacturer for service.

When transporting the Creamatocrit Plus, removal of the rotor or placement of packing material around the rotor will help prevent damage to the motor shaft in the event the unit is dropped.

SECTION 6 TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
No display	Power supply not firmly plugged into electrical outlet or in back of device.	Check both plugs.
	Power supply not functioning.	Replace power supply.
	ON/OFF switch not ON.	Turn ON/OFF switch ON.
	Faulty electrical outlet.	Try a different electrical outlet.
Rotor will not spin	Lid not locked.	Press firmly down on the lid tab.
Unit Noisy	Rotor knob is not tight.	Tighten rotor knob.
	Rotor not balanced.	Balance the rotor.
Lid will not open	Device is in the spin cycle.	Allow spin cycle to end (Section 3.4). Turn ON/OFF switch off, wait 5 seconds and turn it back on.
	Lid lock is engaged.	Use the key tool on the underside of the unit. Insert the "L" shaped end of the tool into the "L" shaped key opening on the left side of the unit. Push gently until the lid opens.
LOW RPM message	Low rpm.	Insure that the rotor moves freely. Check rotor balance.
RUN ABORTED message	Power failure.	Restore power.
	Power supply disconnected.	Reconnect plug.
ENTRY ERROR message	Slider is moved out of sequence or is moved in the wrong direction.	Move the slider to the far left and start the reading process over. (Section 3.5).
ERROR HIGH CRCT	The CRCT reading was higher than 50.9%.	Exceeds the range of the Creatamocrit Plus.
LCD flashing	Low battery charge (less than 20% capacity).	Recharge or replace battery.
	Power supply not firmly plugged into electrical outlet or in back of device.	Check both plugs. Try a different electrical outlet.
Battery will not charge	Power supply not properly connected.	Section 8 - Power Supply.
	Battery not properly connected.	Section 8 - Optional Rechargeable Battery.
	Faulty battery.	Replace battery.
Battery does not hold adequate charge	Battery discharge/recharge cycles exceeded.	Replace Battery.

For additional questions, contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separations-technology.com.

**SECTION 7
ACCESSORIES AND SUPPLIES**

ACCESSORIES

- 280-104 Rechargeable Battery
- 320-100 Carrying Case - Holds 2 Centrifuges

SUPPLIES

- 230-100 Tube Holders - 50/Pack
- 260-100 HemataSeal™ Tube Sealant, 10 Trays/Box
- 270-110 Creamatocrit Plus Tubes, Vial of 200 Tubes

SECTION 8 OPTIONAL BATTERY INSTRUCTIONS

8.1 INSTALLATION

For complete portability, the Creatocrit Plus will operate on a rechargeable battery, which can be ordered as an option. The battery will need to be installed in the device as described below and fully charged before normal operation.

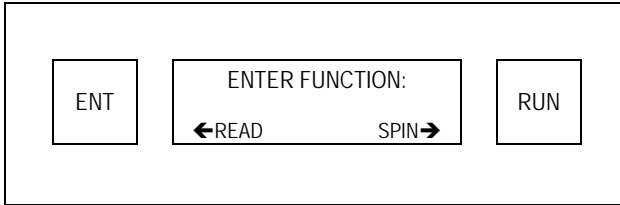
1. Make certain the lid is closed and locked and the centrifuge is unplugged from the electrical outlet. Lock the lid by firmly pressing down on the lid tab.
2. Place the device upside down on a smooth, flat surface and on a cloth or other protective material to prevent scratching the lid.
3. Locate the battery cover. Using a small head Phillips screwdriver, remove the screws holding the battery cover in place. Retain the screws. Remove the battery cover.
4. Connect the battery plug into the connector located inside the battery cavity. Put the connector inside the hole of the housing with the connector release tab facing up. Position the battery inside the compartment. Lay the cable along side the battery to avoid crimping.
5. Replace the battery cover and secure with the screws provided.
6. Plug in the Creatocrit Plus and fully charge the battery.

8.2 CHARGING THE BATTERY

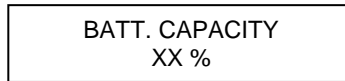
The battery is always charging whenever the Creatocrit Plus is plugged into an electrical outlet. Since the battery cannot be overcharged, the device may remain plugged in continuously without harm. Charge the battery overnight (or an equivalent period of time). The percentage of remaining battery capacity may be determined at any time by performing the following procedure.

8.3 BATTERY OPERATION

1. Unplug the device from the electrical outlet.
2. Press the ON/OFF switch to the ON position. The LCD will display the main menu.



3. Press the RUN and ENT buttons simultaneously and hold them down until the battery capacity is displayed.



The main menu LCD will flash as an indication that the battery is needs to be recharged. Once there is no longer sufficient capacity to operate the instrument, it will fail to complete a cycle and the message CHARGE BATTERY will be displayed.

4. If the device is plugged into an electrical outlet with the ON/OFF switch in the ON position and the RUN and ENT buttons are pressed simultaneously, the LCD will display either CHARGING when in the process of charging or TRICKLE CHARGING if fully charged.

REGARDLESS OF WHAT THE LCD MAY DISPLAY AT ANY GIVEN TIME DURING THE CHARGING CYCLE, IT IS IMPORTANT TO ALWAYS ALLOW THE BATTERY TO CHARGE OVERNIGHT OR AN EQUIVALENT PERIOD OF TIME TO ENSURE A FULL CHARGE.

TO EXTEND THE LIFE OF THE CHARGED BATTERY, TURN THE CENTRIFUGE OFF BETWEEN TESTS.

SECTION 9 WARRANTY

SEPARATION TECHNOLOGY, INC. (STI) warrants each new Creatocrit Plus™ (The Product) against defects in materials or workmanship for a period of two years from the date of purchase and agrees to repair or replace any defective Product without charge. This warranty does not cover damage resulting from accident, misuse, lack of reasonable care, improper cleaning, improper maintenance or improper packaging for return shipment to STI. This warranty shall be void if the Product is repaired by anyone other than STI or an authorized service agent. This warranty does not extend to anyone other than the original purchaser nor to accessories manufactured by other vendors.

Excluded from this two year product warranty is the optional rechargeable battery. This item is warranted by STI against defects in material or workmanship for a period of 90 days from date of purchase.

Except as provided herein, STI makes no warranties of any kind, either expressed or implied, and specifically excluding any warranty of merchantability or warranty of fitness for a particular purpose.

STI will not be liable for any special, consequential or incidental damages arising out of the use or inability to use the Product and/or the optional rechargeable battery. In no event shall STI's liability hereunder exceed the purchase price of the Product. This warranty shall be void and of no force and effect with respect to any Product and/or the rechargeable battery which is damaged as a result of a) neglect, alteration, electric current fluctuation or accident, b) improper use, including failure to follow proper operation and maintenance, and to provide proper environmental conditions prescribed in STI's Product instruction manuals, c) repair by other than STI or authorized service agents appointed by STI and acting in accordance with STI's service announcements or d) use of supplies or parts which do not meet STI specifications.

To obtain warranty service, contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separationtechnology.com.

Creatocrit Plus and HemataSeal are trademarks of Separation Technology, Inc.

SECTION 10 SPECIFICATIONS

- Use: For the centrifugation of breast milk
- Part Numbers: 100-146, 100-158
- Reading Range: The effective creatocrit reading range is 1.1% to 50.9%
- Rotor: 6 place fixed angle head
Capacity: Six – 75mm by 1.1 mm I.D. Creatocrit tubes
- Max Rotor Capacity: Six - 75mm length, 1.1 ID Creatocrit Plus tubes filled ¾ full
- Tube Holders: Transparent plastic disposable - 10 supplied in plastic bag
- Motor: Sealed, ironless core, permanent magnet, DC
- Lid: Safety interlocked to prevent opening while rotor is spinning and includes a lid gasket
- Timer: Fixed at three minutes. Timer operates for 180 seconds when the spin cycle is engaged. A series of BEEPS signals when rotor stops.
- Front Panel: LCD prompts operational modes and alarms. Two tactile membrane switch buttons engage various functions and options.
- Speed: Designed to operate between 5,670 - 6,930 rpm and 1,548 – 2,312 RCF
- Ramp-Up Time: Less than 10 seconds
- Power Supply: Input Volts 100-240VAC± 10%, 0.7 Amps Frequency 47-63Hz
Output Volts 20 VDC, 1.2 Amps
- Optional Battery: Rechargeable nickel metal hydride, 12 cells, 1550 maH, 14.4 V nominal
- Dimensions: W. 7", L. 11", H. 5"
- Bench Area Requirements: W. 9", L. 13", H. 12"
- Conditions: For indoor use only. Maximum relative humidity 95%.
Non-condensing.
- Temperature Range: Operating: 10°C to 40°C 50°F to 104°F
Storage: -10°C to 60°C 14°F to 140°F
- Weight: Centrifuge 2 lbs.; Total shipping weight with battery 8 lbs.
- Approvals: ETL/CETL Listing for North America
UL 61010-1
CAN/CSAC22.2#61010-1
IEC 61010-1
CENELEC EN 61010-1
IEC 61010-2-020

910-109E
6/2015



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