StatSpin® MP

Multi-Purpose Centrifuge

The StatSpin MP is a high-speed centrifuge, designed to run a variety of applications.

StatSpin MP is the ideal, general purpose centrifuge for the stat, clinic, or office laboratory. Sample preparation is fast...quality serum or plasma in 30-120 seconds! Clinical decisions can be made quickly.

Small sample volume requirements make it ideal for fingerstick procedures, thus reducing labor and expense for in venous blood collection. It can also process venous blood samples up to 3 mL. The system is fast, easy to use, versatile and economically priced.

Fast and Efficient

- All samples prepared in 2 minutes or less
- Whisper quiet, barely audible at 55 dB
- Many applications in one centrifuge

Easy to use

- Rotors load with simple push-on/pull-off, and no tools required
- Membrane touch panel
- No setting to remember or calculations to make
- Light indicates cycle in process, cover releases when cycle ends

Optional digital hematocrit reader

Meets Safety Standards

- Interlocking lid prevents access while in cycle
- Designed to meet international safety standards
- Chamber gasket minimizes aerosols
- UL Listed, EMC CE Marked

Iris® Sample Processing

StatSpin® MP

The StatSpin® MP is the ideal, general purpose centrifuge for the stat, clinic, or office laboratory. The system is microprocessor controlled. Application settings are precise and reliable. Speed and time are within 5% of set value for any given application.

Small and Lightweight
Portable, minimal bench space

- Diameter 6-5/8"
- Height 5-1/4"
- Weight 5.5 lbs

Product No.	Description
SSMP	Multipurpose Centrifuge 100-240 V
CSD2	Digital Hematocrit Reader for 100-240V, 50/60 Hz includes 75 mm adapter and universal power supply, CE Marked

StatSpin® Multi-Purpose

	Applications	Sample Volume Required	rpm/rcf	Cycle Duration
Chemistry	Plasma (routine chemistry)	• 0.1 - 3.0 mL	• 20,000/11,200 15,800/12,000	• 30 seconds
	HDL precipitation	• 0.05 or 0.5 mL	• 15,800/12,000	• 95 seconds
	Clear Lipemic samples	• 0.5 or 1.5 mL	• 15,800/12,000	• 95 seconds
	Urine (toxicology)	• 1.5 mL	• 15,800/12,000	• 45 seconds
Hematology	Platelet-poor-plasma for coagulation	• 0.5 - 3.0 mL	• 20,000/11,200	• 120 seconds
	Spun hematocrit	• 9 µL	• 15,800/12,000	• 120 seconds
Urinalysis	Urine Sediment	• 1.5 mL	• 9,800/3,900	• 45 seconds

References:
The Effect of Substitution of Plasma for Serum on Chemistry STAT Turnaround Time, *Laboratory Medicine*, Vol. 22, No. 7, July 1991.

Preparation of Plasma for Coagulation Testing: Evaluation of the Statspin High-Speed Centrifuge, Laboratory Medicine, Vol. 22, No. 3, March 1991.

The StatSpin, Laboratory Medicine, Vol. 19, No. 6, June 1988.

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StatSpin MP Multipurpose Centrifuge

Operator's Manual

StatSpin®

Operator's Manual

StatSpin MP Multipurpose Centrifuge

Model Number M901

FOR *IN VITRO* DIAGNOSTIC USE

	Product Number
SSMP	StatSpin MP for 100-240 VAC, 50/60 Hz (with 2 rotors, RT12 and RH12)
SSMP-1	StatSpin MP for 100-240 VAC, 50/60 Hz (with 1 rotor, RT12)
SSMP-2	StatSpin MP for 100-240 VAC, 50/60 Hz (with sample pack of PlasmaRotors)

Table of Contents

How to use this manual

This manual along with information contained on product labels and in package inserts should provide you with all the information you need to operate and maintain the StatSpin MP.

Notes appear in italics to highlight information. When the information requires special attention, a caution symbol appears next to the italicized text.

Please pay close attention to the instructions that accompany the notes and symbols as well as the standard laboratory practices outlined by your facility and local regulatory agencies. The table below lists all the CAUTIONS/WARNINGS for the StatSpin MP.

	***WARNING - North American Installation:*** *Only use the power supply included with the unit. Use of other power supplies or transformers will damage the StatSpin MP electronics and void the warranty.*
	WARNING - Outside of North America: *Do Not Use the Line Cord Supplied. Use power cord for at least 1.0 Amp or more with an IEC320/CEE22 female connector and male connector suitable for the power outlet to be used.*
	CAUTION *- The cover interlock bypass is designed for emergency use only. If the equipment is not used properly, safety may be impaired.*
	CAUTION-*. Do not leave any rotor on the rotor-holder when the StatSpin is not in use for an extended period of time. Doing so may compress the O-Ring and decrease its ability to hold rotors****.***
	CAUTION *– Failure to properly install the rotor may result in damage to the centrifuge and will void the warranty.*
	CAUTION – *If rotor is left in place between runs, be certain to "bottom" the rotor on the rotor-holder before spinning another sample. Failure to properly "seat" the rotor each time may result in the rotor becoming loose during centrifugation.*
	CAUTION *- The RT12 and RM02 tube rotors must be balanced before operation. If only one sample is being processed, a second sample can serve as the balance tube or use a similar tube filled with water as a balance.*
	CAUTION – *DO NOT use glass tubes of any kind in the RT12 rotor.*
	IMPORTANT: *All StatSpin rotors have a finite lifespan that is dependant on usage. Rotors should be inspected for cracks and should be replaced immediately when any crack or visible wear occurs.*
	CAUTION *– Unplug the StatSpin MP from the wall outlet before performing maintenance.*
	WARNING*: Do not expose the StatSpin MP and its rotor to strong or concentrated acids, bases, esters, aromatic or halogenated hydrocarbons, ketones or strong oxidizing agents.*
	CAUTION: *DO NOT spray the bowl or outer surfaces with detergent or bleach. Excess liquid will harm the electronics and subsequent problems may not be covered under warranty.*
	***CAUTION -*** *Universal Precautions should be followed on all specimens, regardless of whether a specimen is known to contain an infectious agent. (See references)*

Please use the system as intended. Improper use of the StatSpin MP Multipurpose Centrifuge and/or its accessories may cause damage to the system, inaccurate results, or potentially nullify warranties.

The StatSpin MP Multipurpose Centrifuge and its associated components are covered under US patent nos. 4,846,974 & 4,981,585 & 5,257,984 &4,884,827.

Section 1

Unpacking and Installation

Inspect Packaging

The StatSpin MP and its accessories are delivered in one carton. If the centrifuge or accessories have suffered any damage in transport, please inform your carrier immediately.

NOTE: Save shipping carton and components to simplify return should service be required.

Verify Contents

Product No.:	SSMP	(supplied with 2 rotors, RT12 and RH12)
	SSMP-1	(supplied with 1 rotor, RT12)
	SSMP-2	(supplied with sample of PlasmaRotors)
Each of the above packages contains:		
One Universal Switching Power Supply (StatSpin Product No. 01-3553-001, APS Product No. AD-740U-1240)		
One grounded line cord (for North American use only)		
One Operator's Manual		
One Sample Pack-Varies depending on the package purchased		

Install System

1. Place the StatSpin MP on a level surface suitable for laboratory instrumentation.
2. Maintain a 300mm clearance boundary around the centrifuge for ventilation and safety.
3. Position the StatSpin MP away from direct sunlight and sources of heat or cold. (See Appendix A for specifications.).

Connect Power

Plug the power supply into a grounded outlet supplying the voltage and frequency indicated on the power supply. When power is connected, the Power On LED will illuminate and the cover lock will release.

WARNING - North American Installation: *Only use the power supply included with the unit. Use of other power supplies or transformers will damage the StatSpin MP electronics and void the warranty.*

WARNING - Outside of North America: *Do Not Use the Line Cord Supplied. Use power cord for at least 1.0 Amp or more with an IEC320/CEE22 female connector and male connector suitable for the power outlet to be used.*

Section 2

System Overview

Principle and Intended Use

IVD

For in vitro diagnostic use for rapid separation of whole blood, preparing urine sediment for microscopic analysis and centrifuging microhematocrit tubes for packed cell volume determination.

The StatSpin MP is a small, quiet high speed centrifuge. It employs a unique, proprietary drive and suspension system which results in nearly vibration free operation. Light-weight, low mass rotors achieve both top speed and full braking in a few seconds. This StatSpin instrument is designed to meet international safety standards.

Symbols and Definitions

	Start button	The *start* button initiates a pre-timed cycle at a fixed speed. ***NOTE**: The StatSpin MP does not have an on/off switch and is normally left plugged in and "on".*
	Stop/open button	The *stop/open* button interrupts the cycle and stops the centrifugation. This button may also be used to release the cover.
	Cycle selector	This button allows for selection of the appropriate cycle.
	Error/Service indicator	The red LED identified, as *error/service* is illuminated continuously or flashing when service is required.
	Power input	DC Power Input: 24V DC Plug-in
REF	Product/Reference Number	Indicates the StatSpin product/catalog number
	Caution	Statement of caution/warning, read instruction carefully
	Temperature limitation	Indicates storage requirements range

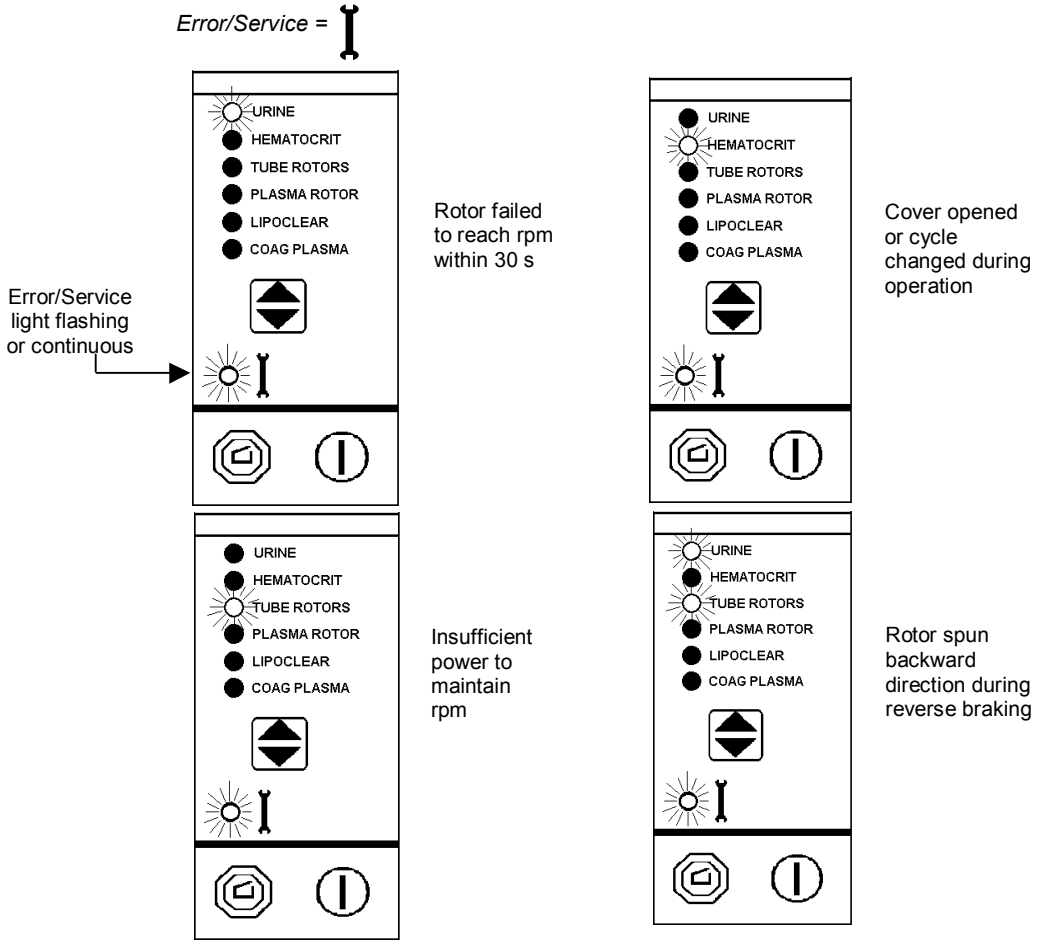
Symbols and Definitions (cont.)

IVD	For *in vitro* diagnostic use	Clarifies for use as *in vitro* diagnostic only
NON STERILE	Non sterile	Indicates non-sterile product
S N	Serial Number	Indicates instrument serial number code
	Consult Instructions	Consult instruction manual or insert sheet for further explanation
	Biological Risk	Universal precautions should be followed on all specimens

Error Indicators

Error codes for the StatSpin MP are specified by a combination of the *Error/Service* LED flashing or continuous and any combination of the cycle LEDs on the front panel.

Error/Service =



Error/Service light will continuously illuminate when the centrifuge has achieved a total cycle count of 18,000, which is the useful life of the drive system. Drive mechanism needs replacing. Contact an authorized service center.

Accessories

Product No.	Description	Cycle Required
RT12	2 x 1.5 ml Fixed Angle Rotor	Urine, Tube, LipoClear
TU15-10	1.5 ml Pre-calibrated Urine Tube (10 bags of 50)	Urine
TP1H	1.3 Lithium Heparin micro centrifuge tube (Bag of 100)	Tube Rotor
TP1U	1.3 Untreated micro centrifuge tube (Bag of 100)	Tube Rotor
SS1E	StatSampler® (100 ul, EDTA) Hematology fingerstick collection system	Tube Rotor
SS2E	StatSampler® (200 ul, EDTA) Hematology fingerstick collection system	Tube Rotor
SS2H	StatSampler® (200 ul, Li Heparin) Chemistry fingerstick collection system	Tube Rotor
SS2U	StatSampler® (200 ul, Untreated) Chemistry fingerstick collection system	Tube Rotor
SS2X	StatSampler® (200 ul, EDTA) Hematology fingerstick collection system with gel	Tube Rotor
LC10	LipoClear: 0.5 ml Prefilled reagent tubes for clearing lipemic serum or plasma (Bag of 10)	LipoClear
LC40	LipoClear: 0.5 ml Prefilled reagent tubes for clearing lipemic serum or plasma (Bag of 40)	LipoClear
LC15	LipoClear: 1.5 ml Prefilled reagent tubes for clearing lipemic serum or plasma (Bag of 40)	LipoClear
RM02	2 x 0.8 ml Fixed Angle Rotor for BD Microtainers™ and 0.5 ml micro centrifuge tubes	Tube
RD01-10	Disposable PlasmaRotor® used for separating up to 3 ml of whole blood. (10 Bags of 50)	PlasmaRotor Coag Plasma
RD01-10S	Disposable PlasmaRotor® used for separating up to 3 ml of whole blood, includes push on stopper. (10 Bags of 50)	PlasmaRotor Coag Plasma
RH12	12 Position microhematocrit rotor with circular reader (HR4C)	Hematocrit
HP8H-10	SafeCrit Capillary Tube (40 mm, Sodium Heparin), 100% plastic microhematocrit tubes for the RH12 rotor. (10 vials of 100)	Hematocrit
HP8U-10	SafeCrit Capillary Tube (40 mm, Untreated), 100% plastic microhematocrit tubes for the RH12 rotor. (10 vials of 100)	Hematocrit
HT9H-10	Glass Capillary tube (40 mm Sodium Heparin), Glass microhematocrit tubes for RH12 rotor. (10 vials of 100)	Hematocrit
HT9U-10	Glass Capillary tube (40 mm Untreated), Glass microhematocrit tubes for RH12 rotor. (10 vials of 100)	Hematocrit
HS24-10	Sealant Pad for Capillary tubes (10 pads)	NA
HR05	Hematocrit Reader, Card style for 40 mm hematocrit tubes	NA
HR4C	Hematocrit Reader, Circular designed to be used in conjunction with the RH12 rotor	NA
00-Ring	Replacement O-Rings for rotor holder (5 bags of 3)	NA

Section 3

Operating Instructions

Opening and Closing the Cover

The centrifuge's electrically operated cover interlock mechanism prevents operation until the cover is completely closed and latched, and prevents the cover from being opened while the rotor is turning. When the cover is completely closed and locked an operating cycle can be initiated.

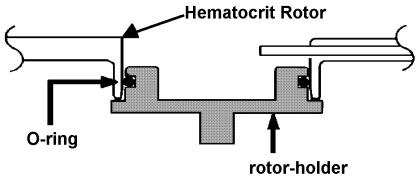
The centrifuge is also equipped with a manually operated latch that holds the cover down after spinning is complete. The interlock is automatically released at the end of the operating cycle or by pushing the *stop/open* button. Squeeze the black latch pieces together to open cover.

Cover Interlock By-pass

The electronically operated cover interlock mechanism can be released manually by inserting the straightened end of a large paper clip or similar object into the small hole in the center of the front membrane panel. Manually push the lock lever inward about one inch (25mm) to release the interlock mechanism if the *stop/open* button does not release the cover.

CAUTION - *The cover interlock bypass is designed for emergency use only. If the equipment is not used properly, safety may be compromised.*

Installing the Rotor



All rotor bottoms fit over a rubber O-Ring on the rotor-holder. The figure on the left shows a rotor, cross section, in place on the rotor holder. As the rotor turns, the O-Ring is moved outward by centrifugal force enhancing the frictional coupling between the rotor-holder and the rotor.

CAUTION- *Do not leave any rotor on the rotor-holder when the StatSpin is not in use for an extended period of time. Doing so may compress the O-Ring and decrease it's ability to hold rotors.*

CAUTION- *Failure to properly install the rotor may result in damage to the centrifuge and will void the warranty.*

CAUTION- *If rotor is left in place between runs, be certain to "bottom" the rotor on the rotor-holder before spinning another sample. Failure to properly "seat" the rotor each time may result in the rotor becoming loose during centrifugation.*

CAUTION- *The RT12 and RM02 tube rotors must be balanced before operation. If only one sample is being processed, a second sample can serve as the balance tube or use a similar tube filled with water as a balance.*

Description of Rotors

RT12 Tube Rotor

A 2-place rotor designed to accommodate a variety of StatSpin tubes for blood and urine separation, in addition to a variety of standard 1.5 mL and 2.0 mL centrifuge tubes with a maximum diameter of 10.9 mm. These tubes should be supported by the collar of the rotor.

CAUTION – ***DO NOT*** *use glass tubes of any kind in the RT12 rotor.*

The following tubes are approved for use with the RT12 rotor:

- ✓ Prepared Microtubes: StatSpin TP1H, TP1U, TP5G and CH03
- ✓ StatSamplers®: StatSpin SS2H, SS2E, SS2U, SS2X, SS1E
- ✓ Precalibrated Urine Tube: StatSpin TU15-10
- ✓ LipoClear Reagent Tubes: StatSpin LC10, LC40 and LC15.
- ✓ Standard 1.5 – 2.0 mL microcentrifuge tube (e.g. Eppendorf®)

RMO2 Tube Rotor

Designed specifically for B-D Microtainer® brand tubes, this 2-place rotor also accepts standard 0.5 mL microcentrifuge tubes. Maximum tube diameter is 8.3 mm. The following tubes are approved for use in this rotor:

- ✓ B-D Microtainer® - all styles except those with Microguard closure
- ✓ 0.5 mL micro centrifuge tubes (7.5 mm O.D. x 35 mm L)

RH12 Microhematocrit Rotor

A 12-place covered rotor used to centrifuge StatSpin capillary tubes for microhematocrit testing. Maximum tube size is 1.7 mm O.D. x 42 mm L. It is recommended that rubber cushions provided with the rotor be replaced twice a year or whenever a tube breaks in the rotor. Order StatSpin 01-2002-04 for a replacement set of twelve cushions. The following tubes are approved for use in the rotor:

- ✓ StatSpin glass capillary tubes: HT9H; HT9U
- ✓ StatSpin SafeCrit® plastic capillary tubes: HP8H, HP8U

RD01 Plasma Rotors

Used to process larger amounts (generally 2-3 mL) of blood for chemistry or coagulation testing. Consult the insert sheet provided with these rotors for instructions on their use. StatSpin plasma rotors are self balancing.

IMPORTANT*: All StatSpin rotors have a finite lifespan that is dependant on usage. Rotors should be inspected for cracks and should be replaced immediately when any crack or visible wear occurs.*

To purchase additional rotors not supplied with your StatSpin centrifuge, contact your local distributor and increase the versatility of your centrifuge.

Cycle Selection

Table 1: StatSpin MP Cycle Settings. The operator should experiment with different settings to achieve optimum performance for specific applications. The following are general guidelines:

Setting	RPM/RCF	Time	Rotor
Urine	9,800/3,900	45 seconds	RT12
Hematocrit	16,000/13,700	120 seconds	RH12
Tube Rotor	15, 800/12,000	30 seconds	RT12/RM02
PlasmaRotor®	20,000/11,200	30 seconds	RD01
LipoClear®	15,800/12,000	95 seconds	RT12
Coag Plasma	20,000/11,200	120 seconds	RD01

Instructions for Use

1. Lift cover and install rotor.
2. Close and latch cover.
3. Choose desired cycle by depressing the “SET” button until the appropriate LED is illuminated.
4. Press *start* button.
5. Upon completion of the cycle, the rotor decelerates to a complete stop in 10 seconds and the latch interlock automatically unlocks.
6. Squeeze the black latch pieces together to open cover.

Section 4

Maintenance

Overview

StatSpin recommends that instrument operators perform periodic inspections and preventative maintenance on all StatSpin instruments. Contact StatSpin's customer service department or distributor if, at any time, the instrument is not functioning properly.

CAUTION - *Unplug the StatSpin MP from the wall outlet before performing maintenance.*

WARNING - *Do not expose the StatSpin MP and its rotor to strong or concentrated acids, bases, esters, aromatic or halogenated hydrocarbons, ketones or strong oxidizing agents.*

Cleaning

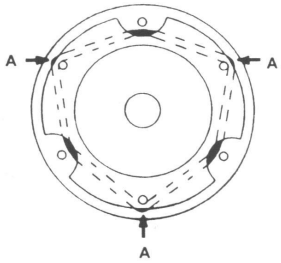
The outside surfaces and switch overlay panel can be cleaned with a water-dampened cloth and mild detergent. The inner surface or bowl, a powder-coated steel surface, can be cleaned with a mild detergent and disinfected if necessary by wiping with a cloth **dampened** with 70% alcohol or 10% bleach.

CAUTION - *DO NOT spray the bowl or outer surfaces with detergent or bleach. Excess liquid will harm the electronics and subsequent problems may not be covered under warranty.*

Checking the Rotor Speed

The rated speeds can be checked with a photoelectric tachometer available from many sources. If the StatSpin MP fails to achieve operating speed (±5%) contact your distributor or StatSpin Customer Service department.

Replacing the O-Ring



The figure on the left illustrates the position of the rubber O-Ring which is attached to the rotor-holder. Should it ever break a new one can be installed as shown, by weaving it behind and in front of the 6 pins on the rotor-holder.

The points at which the O-Ring touches the rotor are indicated by the letter "A". Extra O-Rings have been included.

Service

Refer all service to qualified service personnel. Reference the StatSpin Warranty for further instruction. Be sure to complete and return the warranty card as directed.

Decontamination before returning for service
Any instrument or accessory containing accumulated blood and/or other biological or chemical deposits must be cleaned prior to shipment to the manufacturer/dealer for service. This decontamination is required by Federal Law (Title 48 and 49 of the Federal Regulations) and in accordance with the Environmental Protection Agency's Regulations for Biohazard Waste Management. StatSpin personnel cannot perform this decontamination.

Troubleshooting

No LED's (lamps) are on.

Is the power cord completely plugged into the wall?	→ NO→	Plug power cord into the wall.
↓ YES ↓		
Is the wall outlet working properly?	→ NO→	Try another wall outlet.
↓		
Is the barrel connector from the transformer completely plugged into the centrifuge?	→ NO→	Plug the barrel connector into the centrifuge.
↓ YES ↓		
Contact StatSpin or an Authorized Repair Facility.		

Centrifuge Will Not Spin/Shuts Off Prematurely

Is the cover completely closed and cannot be opened manually?	→ NO→	Completely close the cover.
↓ YES ↓		
Contact StatSpin or an Authorized Repair Facility.		

Centrifuge will not open at end of cycle

Is the bowl gasket completely seated and sealing the bowl?	→ NO→	Press the bowl gasket all the way down into the housing slot.
↓ YES ↓		
Contact StatSpin or an Authorized Repair Facility.		

Section **5**

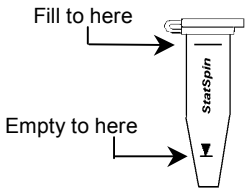
Specimen Processing

Venous Blood for Coagulation and Chemistry

PlasmaRotor® (RD01) consumable provides a means for the rapid separation of plasma from anticoagulation whole blood, up to 3 mL. To prepare plasma for chemistry testing use the PlasmaRotor cycle and for Coagulation testing using the Coag Plasma cycle.

Preparation of Urine Sediment for Microscopic Examination

The StatSpin MP quickly prepares urine sediment for microscopic examination. This is accomplished with the precalibrated urine tubes. (Product Number TU15)



Procedure

1. Add fresh urine to a Urine tube (Product No. TU15) fill to the top mark (representing 1.5 mL).
2. Cap the tube using the attached stopper and centrifuge in the Tube Rotor, RT12.
3. Balance the rotor either with another sample or with a water-filled tube. This balance tube does not have to be exact.
4. Select the "Urine" setting.
5. When the cycle is complete the cover will release. Remove the tube from the rotor and remove the stopper.
6. Invert the tube to drain fluid to the lower mark. (The surface tension will retain 0.1 mL.)
7. Recap the tube and re-suspend the sediment at the bottom of the tube by holding the tube with the index finger and thumb and "flicking" the tube with the opposite hand.
8. After sediment has been re-suspended, apply one drop to a microscope slide, apply a cover slip and read following the protocol used in your laboratory.

Lipemia Clearing with LipoClear®

StatSpin MP can be used to centrifuge samples treated with LipoClear (LC10, LC40, LC15). LipoClear is a non-toxic, non-carcinogenic, lipemic sample clearing reagent, pre-filled in micro centrifuge tubes. The kit is available for 0.5 mL and 1.5 mL sample sizes (see table below). After sample is added, mixed and allowed to stand for 5 minutes, the tubes are spun on the LipoClear cycle in the RT12 Tube Rotor. See LipoClear Product Insert Sheet for details.

Product No.	Sample Size	Packaged As
LC10	0.5 mL	10 tubes/ pack
LC40	0.5 mL	40 tubes / pack
LC15	1.5 mL	40 tubes / pack

Determination of Packed Red Cell Volume or Microhematocrit

Both glass and plastic micro-capillary tubes are available. Product Number HT9H(glass) & HP8H(plastic) have been pretreated with heparin and should be used for capillary blood. They should be stored in a cool dry place. Product Number HT9U(glass) & HP8U(plastic) are untreated and used for venipuncture (anticoagulated) samples.

For glass tubes only: if the vial of tubes is new, unscrew the top, remove and discard the foam cushion and reattach the top. Now a single tube at a time can be shaken from the vial through the small hole in the center of the cover.

Procedure

1a. Capillary ("fingerstick") blood - prepare a skin site and lance. Use heparinized tubes, Product Number HT9H or HP8H.

or

1b. Venous blood - take well-mixed anticoagulated blood from a syringe or a vacuum blood collection tube. Use untreated tubes, Product Number HT9U or HP8U.

2. Hold the micro-capillary tube by the end with the color-coded band. (See Figures, page 12)
3. Fill to the color-coded band. Remove from sample and tilt the banded end downward until the blood moves half-way between the band and the end of the tube.
4. Hold the tube in a horizontal position and push the **dry** (banded) end of the tube fully into the vertically held sealing compound. Twist and remove.
5. Using a laboratory tissue wipe off any blood that is forced from the other end.
6. Put the tube, sealed end towards the outer rim, in any of the twelve positions on the Hematocrit Rotor, RH12. This rotor need not be balanced. Screw cover in place.
7. Holding the rotor by the black "cover knob", attach the rotor to the rotor-holder.
   IMPORTANT: Always hold hematocrit rotor by the black knob on the rotor cover, when pressing it firmly in a downward motion onto the rotor-holder and when removing the rotor from the centrifuge. Pressing on the outer edges of the Hematocrit Rotor, RH12, may result in damage to the rotor.
8. Centrifuge the Hematocrit Rotor.
9. After the rotor stops, remove the rotor. To read hematocrit, place the rotor into the middle of the illuminated, digital reader. Follow directions printed on the reader.
10. Spun tubes inside the Hematocrit rotor can also be read with the circular reader, HR4C as well as removed from the rotor and read with the card-style reader, HR05.

Quality Control

1. The Quality Control procedures established for your laboratory should be followed.

2. To verify the adequacy of cell packing, on a daily basis, select one or more tubes, (preferably with a hematocrit over 50), centrifuge and read. Spin these tubes a second time. The difference between the initial reading and the second reading should be 1 percent or less.

Normal Values

The following tables represent commonly accepted hematocrit values:

Children

Age	**%**
Birth	44 - 64
14 - 90 days	35 - 49
6 months - 1 year	30 - 40
4 - 10 years	31 - 43

Adults

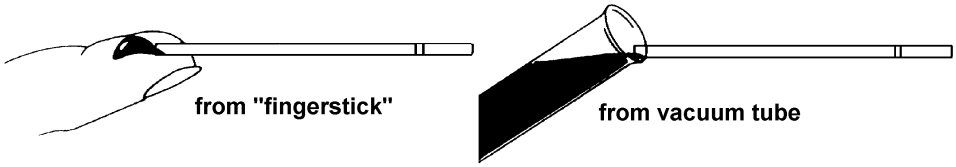
Gender	**Mean %**	**Range (2 s.d.)**
Males	47	40 - 54
Females	42	37 - 47

Animals

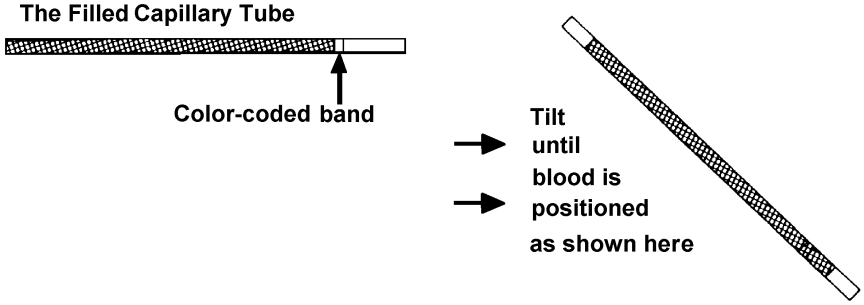
Species	**%**
Canine	37 - 55
Feline	24 - 45
Equine	32 - 52
Bovine	32 - 38
Porcine	32 – 50
Ovine	24 – 45

Illustrations

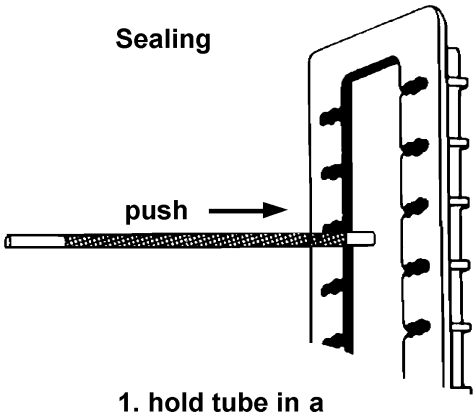
Filling Capillary Micro-Hct Tube



The Filled Capillary Tube



Sealing

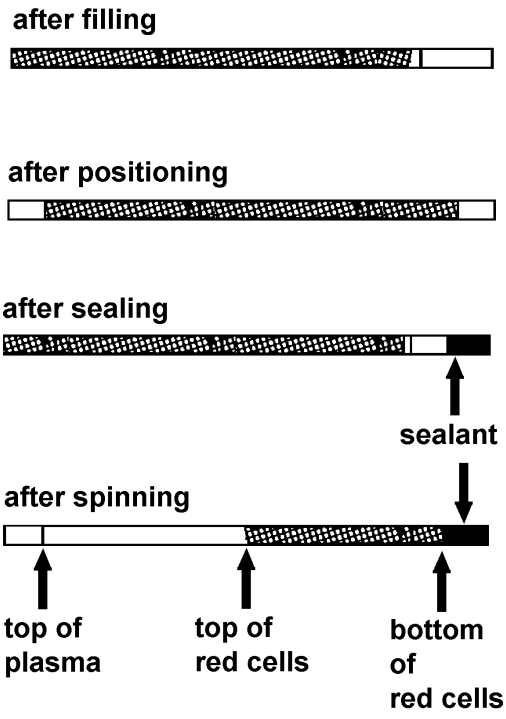


1. hold tube in a horizontal position

2. hold sealant in a vertical position

3. push tube until bottomed - twist and remove

Position of blood sample



Appendix

Appendix A - Specifications

Product No.	SSMP (supplied with 2 rotors, RT12 and RH12)
	SSMP-1 (supplied with 1 rotor, RT12)
	SSMP-2 (supplied with sample of PlasmaRotors)
Model No.	M901
Cycles/Speeds	
Urine	9,800 (3,900 x g); 45 seconds
Hematocrit	16,000 (13,700 x g); 120 seconds
Tube Rotor	15,800 (12,000 x g); 30 seconds
PlasmaRotor®	20,000 (11,200 x g); 30 seconds
LipoClear®	15,800 (12,000 x g); 95 seconds
Coagplasma	20,000 (11,200 x g); 120 seconds
Acceleration Time	Approximately 6 seconds
Deceleration Time	Approximately 10 seconds
Electrical	24 Volts, DC, 1.7 amp. Includes switching power supply for 100-240 VAC, 50/60 Hz
Dimensions	Diameter 6.6”/ 16.25 cm
	Height 6.3”/13.2 cm
	Weight 5.5 lbs/2.5 kg
Environmental	Indoor use
	Altitude up to 2000m
	Temperature 5ºC to 40ºC
	Maximum relative humidity 80% for temperatures up to 31ºC decreasing linearly to 50% relative humidity at 40ºC
	Main supply voltage fluctuations not to exceed +/- 10% of the nominal voltage
	Transient over-voltages according to installation category II
	Pollution degree 2

References

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4. NCCLS. “Procedure for Determining Packed Cell Volume by Microhematocrit Method. Approved Standard-Third Edition.” NCCLS document H7-A3 [ISBN 1-56238-413-9]. NCCLS, 940 West Valley Rd, Suite 1400, Wayne Pennsylvania 19087-1898 USA, 2000.
5. NCCLS. “Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard-Fourth Edition.” NCCLS document H3-A4 [ISBN 1-56238-350-7]. NCCLS, 940 West Valley Rd, Suite 1400, Wayne Pennsylvania 19087-1898 USA, 1998.
6. NCCLS. “Procedures and Devices for the Collection of Diagnostic Blood Specimens by Skin Puncture; Approved Standard-Fourth Edition” NCCLS document H4-A4 [ISBN 1-56238-382-5]. NCCLS, 940 West Valley Rd, Suite 1400, Wayne Pennsylvania 19087-1898, 1999.
7. NCCLS. “Collection, Transport and Processing of Blood Specimens for Coagulation Testing and General Performance of Coagulation Assays; Approved Guideline – Third Edition.” NCCLS document H21-A3 [ISBN 1-56238-363-9]. NCCLS, 940 West Valley Rd, Suite 1400, Wayne Pennsylvania 19087-1898 USA, 1998.

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STATSPIN MP CENTRIFUGE

MODEL: M900-22