

Blood Bank Centrifuge



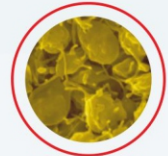
Exclusively Designed As Per
Blood Bank SOPs



KBM 80 Plus



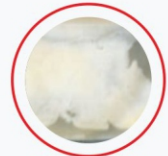
Packed Cells



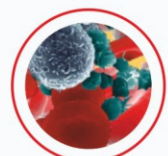
Platelet
Concentrate



Platelet Rich
Plasma



Cryoprecipitate



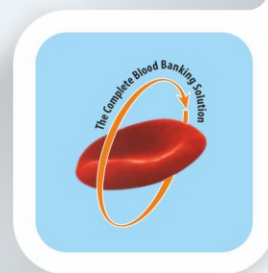
Buffy Coat
Separation



**STANDARD BLOOD COMPONENT YIELD
STANDARD COMPONENT VOLUME**

REMI
Healthcare

Blood Bank Centrifuge



KBM 80 Plus is the new generation microprocessor controlled blood bank centrifuge with forward thinking design and technology. Ideally used for centrifugation of whole blood for components separation like packed red cells, platelet rich plasma, platelet concentrate, cryoprecipitate and buffy coat etc.

Advance manufacturing techniques are used for mounting of brushless induction drive motor in PUF insulated, corrosion free, stainless steel armored chamber, resulting in minimized vibration and noise level. The smooth acceleration / deceleration helps in clear separation thus ensuring high quality component yield.

This centrifuge cater to the requirements of small, medium & large blood centers with flexibility to choose from 3 rotor options. The rotors are designed to accommodate specific type of oval shaped metal buckets & plastic carriers for holding six, eight & twelve blood bags of different volumes & configuration like 350 ml / 450ml, double / triple / quadruple, penta bags & inline-filter (quintuple) blood bags.

User-friendly software & controls helps in ease of operation. There is a unique facility for setting & controlling the centrifuge run either by RPM (speed) or RCF (g force) thus eliminating the need of manual calculations. Interactive menu driven program guides the operator through the setting process of run parameters & also the operational status while centrifuge is running.

State of the art microprocessor controller equips KBM 80 Plus with 99 programs memory, this includes special program along with four sub programs for sequential operations. There are 9 acceleration & 10 deceleration profiles including coasting for optimum yield under different applications. The KBM 80 Plus comes with 4" wide LCD display with advance rotary encoder having luminous ring.

Specially designed wind-shielded rotors reduces friction which helps in energy saving & better temperature management

Performance

- Speed holding accuracy ± 10 RPM
- 9 acceleration & 10 deceleration profiles including coasting
- Temperature range from -20°C to $+40^{\circ}\text{C}$
- Low noise level ($\leq 55\text{db}$)
- Choice of 3 wind-shielded rotors to process 6, 8 & 12 blood bags per cycle
- Tropicalized to run from 0°C to 40°C & RH up to 95%

Leading Technology

- Brush-less induction motor with frequency drive, practically maintenance free
- Advanced user friendly microprocessor control
- 99 programs memory & pre cooling
- Programmable centrifugation parameters for accurate control
- On board real time data logging, connectivity via RS 485 port
- Dedicated software for data analysis & reports

User Friendly

- Facility to set and indicate RPM or RCF
- Simultaneous display of set & run parameters
- Self-diagnosis of program errors
- Microprocessor controlled automatic lid opening with touch button
- Log of latest 50 run records on LCD display
- Display of real time & Date
- Castor wheels with floor standing jacks for vibration free run
- Emergency lid opening provision in case of power failure

Safety

- Safety interlock to prevent lid opening during centrifugation
- Imbalance cut-off with indication
- Safety key lock to prevent unauthorized use
- Rotor over speed protection
- Alarms for imbalance, lid open, over temperature
- Password protection for authorized access
- Tamper proof memory & last program recall
- Automatic Rotor identification & indication
- Automatic recovery of process in case of power interruption



Blood Bank Rotors, Metal Buckets & Plastic Buckets

Rotor Head & Bucket Set for 6 Blood Bag Capacity



K 711/M

6 place rotor to hold 6 metal carrier K 713

PB 713

Set of 6 plastic buckets
(suitable for one blood bag of 450 / 350 ml)



K 713

Set of 6 metal carrier each to hold one bag
(bucket volume 6 x 1500 ml)



SP 713 BF

Set of steel plates suitable for PB 713
(for buffycoat component processing)

Rotor Head & Bucket Set for 8 Blood Bag Capacity



K 741

4 place rotor to hold 4 metal carrier K 743

PB 743 L / PB 743 M

Set of 4 plastic bucket
(suitable for 2 blood bags of 450 / 350 ml each)



K 743

Set of 4 metal carrier each to hold 2 bag
(bucket volume 2 x 4 x 1000 ml)



PB 743 BF

Set of 4 plastic bucket with hanger
(for buffycoat component processing)



Blood Bank Centrifuge

Rotor Head & Bucket Set for 12 Blood Bag Capacity



K 751

6 place rotor to hold 6 metal carrier K 753

PB 753 L / PB 753 M

Set of 6 plastic bucket
(suitable for 2 blood bags of 450 / 350 ml)



K 753

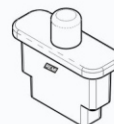
Set of 6 metal carrier each to hold 2 bag
(bucket volume 2 x 6 x 1000 ml)



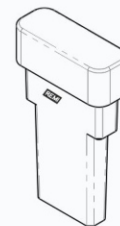
PB 753 BF

Set of 6 plastic bucket with hanger
(for buffycoat component processing)

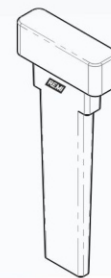
Balancing Weights



2 gms



5 gms

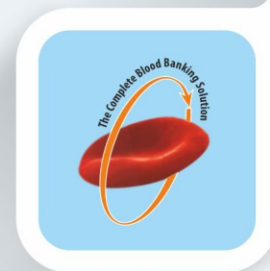


10 gms

Disc Shaped Weights

Rod Shaped Weights

Set of round cornered & soft weights ensures counter balancing with safety of blood bags during centrifugation



Blood Bank Centrifuge

Easy Setup Programming & Monitoring



Data Acquisition System

These centrifuges have inbuilt system to collect & store all data related to centrifugation process like operator code, process type, time, temp, RPM, RCF, acceleration, deceleration & process status etc. The data from the centrifuge can be transferred to a computer using a data interface. This data can be used by blood centers for quality analysis & control.



Technical specifications

Parameter	Unit	KBM 80 Plus
Process controls	Type	Bi-directional encoder
Menu driven program	Nos	99
Acceleration profile	Steps	1 - 9
Deceleration profile	Steps	1- 9 & coasting
Max. speed	RPM	4200 settable ± 10 RPM
Max. RCF	g	6000
Max time	hh:min	0 to 99 hr 59 min
Dimension (W X D X H)	mm	840 X 940 X 950
Recommended line voltage corrector	KVA	6
Compliance	IEC 61010-1:2016, EN 60601-1, EN 60601-1-2, CE, US FDA	

Supply : 220-240 volts, 50Hz, Single phase



Blood Bank Centrifuge

REMI KBM 80 Plus meets the component separation guidelines by AABB & DGHS

Important Parameter for Quality Components	Procedural Requirements (as per AABB & DGHS manual)*	Technical Features KBM 80 Plus
Centrifugal Force (RCF)	5000 g Heavy spin - Max. RCF	Up to 6000 g
Temperature Range	Need temperature $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$ to run PRP method & Buffycoat method, 4°C to run FFP & Cryoprecipitate method	Achieves both desired temperature of 22°C & 4°C with accuracy of $\pm 1^{\circ}\text{C}$ along with setting range of -20°C to $+40^{\circ}\text{C}$
Calibration	Must be calibrated for speed & Time for various component preparation	Special eyelet window for quick calibration
Imbalance	Contents in opposing cups must be equal in weight to improve centrifuge efficiency	Imbalance Cutoff with indication to ensure component quality as well as safety



* AABB Technical Manual, 15th edition; 2005; Table 7.4-1. Centrifugation for Component Preparation; pg.827

* Transfusion Medicine Technical Manual DGHS, 2nd edition; 2003, Blood component preparation & Use, pg.195



Need of Centrifuge Optimization for Quality Enhancement

Each individual centrifuge must be evaluated for the preparation of the various components.

* AABB Technical Manual, 15th edition; 2005; Table 7.4-1. Centrifugation for Component Preparation; pg.827

Centrifugation Variables : Centrifugation speeds (relative centrifugal force) and times should be standardized for each piece of equipment.

* AABB Technical Manual, 15th edition; 2005; General Laboratory Methods; Centrifugation Variables; pg.716

High g forces are of theoretical concern because they may damage the platelets when they are forced against the wall of the container.

* AABB Technical Manual, 15th edition; 2005; Methods Section 6: Blood Collection, Storage, and Component Preparation; pg 817



REMI Provides Application Support for Quality Validation & Standard Results