

# Blood Bank Centrifuge



Exclusively Designed As Per Blood Bank SOPs



TFT version

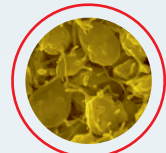


LCD version

## KBM 80 Plus



Packed Cells



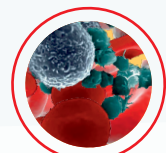
Platelet Concentrate



Platelet Rich Plasma



Cryoprecipitate



Buffy Coat Separation



STANDARD BLOOD COMPONENT YIELD  
STANDARD COMPONENT VOLUME





## 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.

Specially designed wind shielded rotors reduces friction which helps in energy saving & better temperature management. Advanced imbalance sensor neutralize 90g loading imbalance.

KBM 80 Plus comes with 2 variants

1. LCD Version
2. TFT Version

### Additional Features of TFT Version

- User interface with onboard setting & controls
- Single admin & 20 user profiles with identical password protected access
- Display set & run parameter with realtime run graph
- Error notification & Troubleshooting guide
- On-board run logging of user, run
- Integrated clever sensor for rotor identification with auto adjusted RPM/RCF conversion specific to rotor
- Onscreen manual & tutorial process guide
- Enables remote monitoring with casting live screen on mobile phone (Optional)

### Performance

- Speed holding accuracy +/- 10 RPM
- Multiple acceleration & deceleration profiles
- Temperature range from -20°C to +40°C
- Low noise level ( $\leq 55$ 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
- 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 touch screen
- 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 Centrifuge

## Easy Setup Programming & Monitoring



**TFT version**

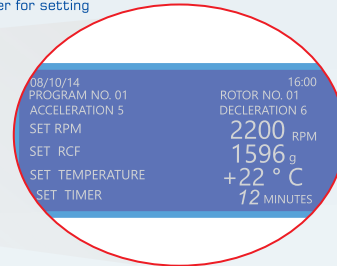


7" Touch Screen



**LCD version**

Bi-directional encoder for setting



4" Alphanumeric LCD display

### 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.



Customized Software for Data analysis

### Technical specifications

Parameter	Unit	KBM 80 Plus	
		LCD Version	TFT Version
Process controls	Type	Bi-directional encoder	HMI Touch screen
Menu driven program	Nos	99	400 (20 identical programs for each of 20 users)
Acceleration profile	Steps	1 - 9	1-15
Deceleration profile	Steps	1- 9 & coasting	1-15
Max. speed	RPM	4200 settable $\pm 10$ RPM	4200 settable $\pm 10$ RPM
Max. RCF	g	6000	6300
Max time	hh:min	0 to 99 hr 59 min	0 to 99 hr 59 min
Compatible Rotors	Code	K 711/M, K741, K751	K 711x/M, K741x, K751x
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	

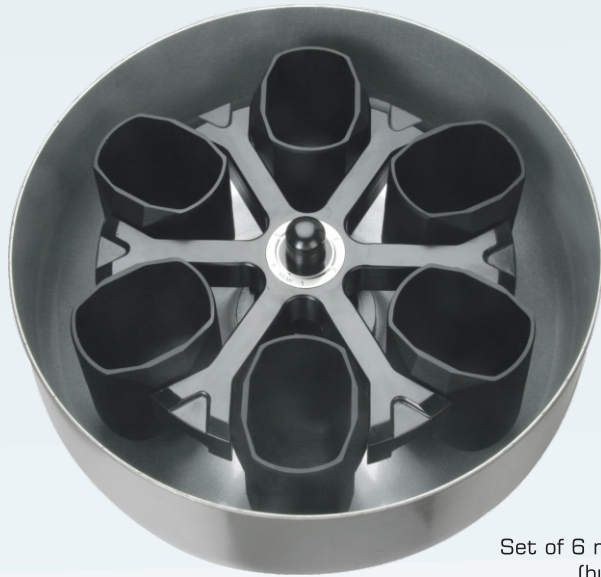
Supply : 220-240 volts, 50Hz, Single phase





## Blood Bank Rotors, Metal Buckets & Plastic Buckets

### Rotor Head & Bucket Set for 6 Blood Bag Capacity



**K 711/M / K 711x/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 / K 741x**

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 / K 751x**

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**

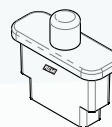
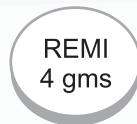
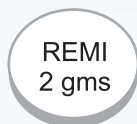
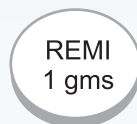
Set of 6 metal carrier each to hold 2 bag  
(bucket volume 2 x 6 x 1000 ml)



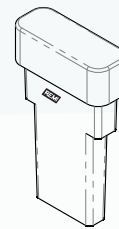
#### **PB 753 BF**

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

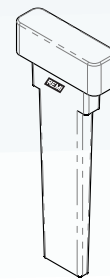
### Balancing Weights



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

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

Important Parameter for Quality Components	Procedural Requirements <i>(as per AABB &amp; DGHS manual)*</i>	Technical Features <b>KBM 80 Plus</b>
Centrifugal Force (RCF)	5000 g <i>Heavy spin - Max. RCF</i>	<b>Up to 6000 g /6300 g</b>
Temperature Range	Need temperature 22°C±2°C to run PRP method & Buffycoat method, 4°C to run FFP & Cryoprecipitate method	<b>Achieves both desired temperature of 22°C &amp; 4°C with accuracy of ±1°C along with setting range of -20°C to +40°C</b>
Calibration	Must be calibrated for speed & Time for various component preparation	<b>Special eyelet window for quick calibration</b>
Imbalance	Contents in opposing cups must be equal in weight to improve centrifuge efficiency	<b>Imbalance Cutoff with indication to ensure component quality as well as safety</b>



\* *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

