

Blood Bank Centrifuge



Exclusively Designed As Per
Blood Bank SOPs



Packed Cells



Platelet
Concentrate



Platelet Rich
Plasma



Cryoprecipitate



Buffy Coat
Separation



KBM 80 Plus

TFT Display
(Touch screen)

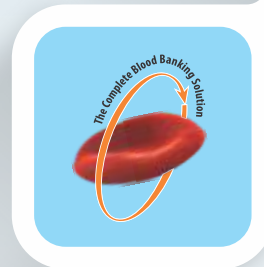
LCD Display



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.

Specially designed wind shielded rotors reduces friction which helps in energy saving. Provision for condensate collection & evaporation, keeps chamber dry.

KBM 80 Plus comes with 2 variants

1. LCD Version
2. TFT Version

Additional Features of TFT Version

- Facility to set multiple user profiles with password protected access
 - Protected admin control for key parameters
 - Display of realtime run graph with display set & run parameters
 - Gloves friendly touch screen operation with option to connect with wireless mouse
 - Sequential program with speed & time triplets
 - Inbuilt Rotor & Bucket cycle counter to notify user for replacement
 - Flexible timer option to display total run time with / without acceleration
 - Onscreen manual, troubleshooting & 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 ($\leq 55\text{db}$)
- 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
- Programmable centrifugation parameters for accurate control
- Onboard real time user data log in with password protection
- Dedicated software for data analysis / PDF Reports, connectivity with RS 485 / USB
- Auto-adjustable effective centrifugal force irrespective of rotor load

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 50 run records for LCD / 1000 run records for TFT version
- Display of real time & Date
- Castor wheels with floor standing jacks for vibration free run
- Emergency lid opening provision in case of power failure
- Auto compressor cut off on lid opening

Safety

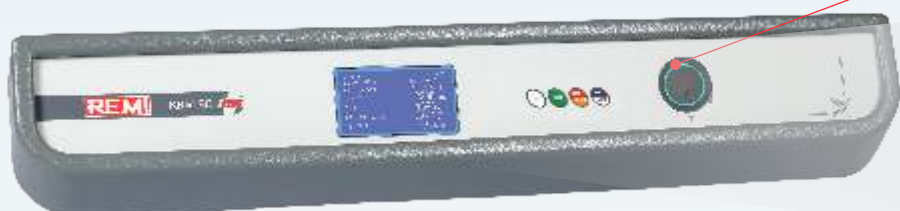
- Automatic lid interlocking and unlocking
- Imbalance cut-off with indication for major variation beyond 75-100 gms
- Safety key lock to prevent unauthorized use
- Rotor over speed protection
- Alarms for imbalance, lid open, over temperature
- Password protection for authorized access
- Tamper proof memory & last program recall
- Automatic Rotor identification & indication
- Automatic recovery of process in case of power interruption "Catch On Fly".

Blood Bank Centrifuge

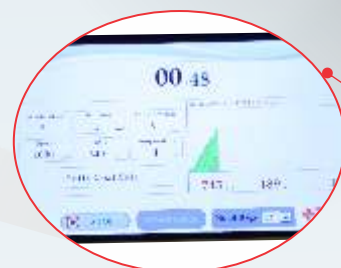
Easy Setup Programming & Monitoring



TFT version

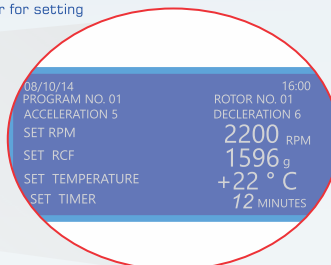


LCD version



7"
Touch Screen

Bi-directional
encoder for setting



4" Alphanumeric
LCD display



Customized Software
for Data analysis

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	
		LCD Version	TFT Version
Process controls	Type	Bi-directional encoder	HMI Touch screen
Menu driven program	Nos	99	400
Acceleration profile	Steps	1 - 9	1-15
Deceleration profile (incl.coasting)	Steps	1-10	1-15
Max. speed	RPM	4200 settable ± 10 RPM	4200 settable ± 10 RPM
Max. RCF	g	6000	6300
Max time	hh:min	0 to 99 hr 59 min	0 to 99 hr 59 min 59 sec, Hold function
Compatible Rotors	Code	K 711/M, K741, K751	K 711e / M, K 741e, K 751e
Dimension (W X D X H)	mm	840 X 940 X 950	
Compliance		IEC 61010-1:2016, EN 60601-1, EN 60601-1-2, CE, US FDA	

Optional: Servo controlled voltage stabilizer

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 711e / M
6 place rotor to hold 6 metal carrier K 713



K 713
Set of 6 metal carrier each to hold one bag
(bucket volume 6 x 1500 ml)



PB 713
Set of 6 plastic buckets
(suitable for one blood bag of 450 / 350 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 741e
4 place rotor to hold 4 metal carrier K 743



K 743
Set of 4 metal carrier each to hold 2 bag
(bucket volume 2 x 4 x 1000 ml)



PB 743 L / PB 743 M
Set of 4 plastic bucket
(suitable for 2 blood bags of 450 / 350 ml each)



PB 743 BF
Set of 4 plastic bucket with hook adaptor
(for buffycoat component processing)

Blood Bank Centrifuge

Rotor Head & Bucket Set for 12 Blood Bag Capacity



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)



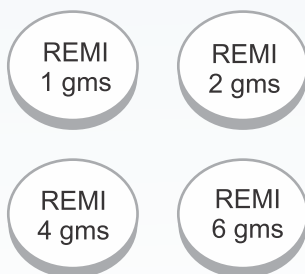
PB 753 BF

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

K 751 / K 751e

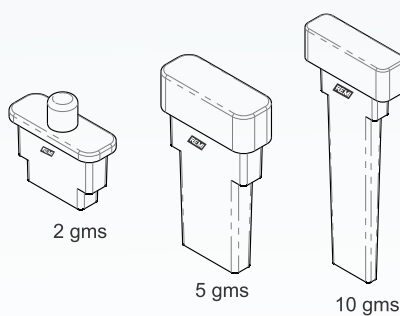
6 place rotor to hold 6 metal carrier K 753

Balancing Weights

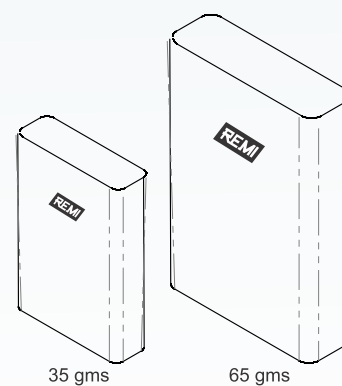


Disc Shaped Weights

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



Rod Shaped Weights



High Capacity Compensation Weights



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 /6300 g
Temperature Range	Need temperature 22°C±2°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 ±1°C along with setting range of -20°C to +40°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