



# REFRIGERATED CENTRIFUGE



## Quality, Management, Environment, Health & Safety Standards



CDSCO MD 5 License



USFDA Listed



European CE



ISO 9001: 2015  
IAF



ISO 13485:2016  
NABCB/IAF



ISO 45001 : 2018  
IAF



7 Electric Safety Certifications  
IEC 60335-1 and IEC 60335-2-24, IEC 61010-1,  
IEC 61010-2-020 and 61010-2-101, IEC 61326-1,  
IEC 61326-2-6.

## INTRODUCTION

The MarkEn Refrigerated Centrifuge is a high-performance solution for the centrifugation of temperature-sensitive materials, widely used in research and clinical settings, including biotechnology, medical laboratories, blood banks, and pharmaceutical facilities. Designed for whole blood centrifugation, it enables precise separation of packed red cells, platelet-rich plasma, platelet concentrate, buffy coat, cryoprecipitate, and other blood derivatives.

Equipped with a microprocessor-controlled system and user-friendly software, the centrifuge allows easy parameter control via RPM (speed) or RCF (g-force), eliminating manual calculations. Its brushless induction drive motor is housed in a PUF-insulated, corrosion-free stainless steel chamber, ensuring minimal vibration and noise. Smooth acceleration and deceleration profiles enhance separation quality and maintain sample integrity.

Advanced features include specially designed wind-shielded rotors for reduced friction and optimized temperature management, as well as an imbalance sensor for safe and reliable operation. With its robust design and precision engineering, the MarkEn Refrigerated Centrifuge delivers exceptional efficiency and consistent results, making it indispensable for modern laboratories and healthcare facilities.



## KEY FEATURES

### PERFORMANCE & RELIABILITY



Designed for tropical climates, ensuring reliable operation in hot and humid environments.



Minimal noise and vibration even at highest speeds and set temperatures, maintaining sample integrity and extending component lifespan.



Minimum lifespan of 10 years with assured spare parts availability.

### SAFETY & PROTECTION



Automatic rotor detection and design adjustment prevent overspeeding and accidental damage.



Tamper-proof program ensures protocols remain unalterable for high security and consistency.



Rotor cycle counter with alarm alerts when the rotor's operational life ends, preventing failures and minimizing sample damage.



Emergency manual lid opening with an easy thread-pull mechanism.

## TECHNOLOGY SAFETY & PROTECTION



Stores and recalls over 120 user programs, including time, RPM, g-force, and temperature settings.



Tamper-proof programming ensures consistent protocols.

## PRECISION AND PERFORMANCE



Ensures reproducible results by automatically adjusting centrifugal force, whether the rotor runs at full or partial capacity.



Microprocessor-controlled rotor temperature maintained within  $\pm 1^{\circ}\text{C}$ .



Provides 11 smooth acceleration and 12 deceleration profiles, including coasting, for optimal separation and high-quality component yield.

## DATA MANAGEMENT



Stores run data and transfers it to a PC via dedicated data management software.



Retains stored data for up to three weeks in case of power outage or failure.

## ADVANCED SCHEDULING AND TIMING



Pre-set time feature schedules centrifuge processes in advance, enhancing workflow efficiency.



Flexible timer modes allow runs to start at the beginning, at speed, or at a specific time.



Extended run time range from 0 to 99 hours, 59 minutes, and 59 seconds, with a HOLD function.

## SMART SAFETY AND AUTOMATION



Automatic rotor identification prevents overspeeding and displays guided alerts.



Automatic recovery function resumes processes after power failures, minimizing sample loss.



Step Runs: 30 profile/speed/time triplets, up to 3 steps each.

## EFFICIENCY



Rapid component separation ensures any type of blood component is separated in less than an hour.

This advanced technology ensures precision, reliability, and ease of operation, meeting the demands of modern laboratory and clinical workflows.

## CONSTRUCTION



**Robust Design:** Built with an all-steel body and a stainless-steel rotor chamber, the centrifuge ensures exceptional stability, durability, and resistance to corrosion. Its easy-to-clean surface minimizes contamination risks, supporting a hygienic environment and enhancing long-term reliability.



**User-Friendly Maintenance:** Designed for convenience, the centrifuge features a drain port-plug, a no-leak pipe, and a condensed water collection container, making cleaning simple and efficient while reducing contamination risks.



**Efficient Heat Dissipation:** Strategically placed warm air outlets on the sides and rear of the centrifuge facilitate effective heat dissipation, preventing overheating and maintaining a stable operating temperature.



**Enhanced Cleanability:** The absence of a rotor windshield allows thorough and easy cleaning of the chamber, ensuring a consistently hygienic environment for samples.



**Quick Calibration Access:** A specialized eyelet window enables fast and easy calibration, saving time and effort while ensuring accurate and reliable centrifuge performance.



This construction seamlessly combines durability, ease of maintenance, and operational efficiency, making it a dependable choice for laboratories and research facilities.

## VERSATILE ACCESSORIES



**Swing-Out Rotor:** 8 × 2000 ml for 16 Quintuple Blood Bag Systems of 450 ml, supporting single to quintuple bags with SAGM and in-line filter systems.



**Removable Plastic Inserts:** Removable plastic inserts (set of 2 and set of 4) used to spin 450 ml quadruple blood bag systems with filters. Includes side provisions for holding balancing weights without contact with blood bags. Supplied with one set of balancing weights.



**Smooth-Edge Adapters:** Specially designed for 450 ml quadruple blood bag systems with soft filters.



**Balancing Weights:** Two plates (35 g and 65 g) for precise weight balancing.



**Operation Support:** Quick-start manual and onboard tutorial videos for easy setup and maintenance.



**Additional Accessories:** Weights, balancing plates, and hook adapters for small-volume samples like cord blood and buffy coat.



**Voltage Stabilizer:** 5 KVA servo-controlled stabilizer for consistent power performance.



**Power Backup:** Optional UPS for uninterrupted operation.

**REFRIGERATED CENTRIFUGE CAPACITY**

6 Bags
8 Bags
12 Bags
16 Bags

**TECHNICAL SPECIFICATIONS**

<b>Make</b>	MarkEn
<b>Max. speed RPM</b>	4700 RPM with speed holding accuracy +10 RPM.
<b>Max. speed RCF</b>	RCF 7187 × g with programmable 1xg
<b>Type of Motor</b>	Maintenance free brushless induction motor with frequency drive
<b>Refrigerant</b>	CFC free Green Refrigerant
<b>External Dimension in mm</b>	813 x 1015 x 973 (W x D x H) mm
<b>Chamber</b>	Easy to Clean Corrosion resistance Stainless Steel Chamber
<b>Auto-Door Function</b>	Auto-door feature enables automatic opening and closing of the centrifuge door through a simple push-button operation, with instant rotor access and integrated lid storage
<b>Double Blood Bag System</b>	Removable plastic inserts for spinning double blood bags with side provisions to hold balancing weights without contact with blood bags. Supplied with one set of balancing weights.
<b>Control System</b>	7-inch-wide touch screen digital display (user can used with Gloved hand) with programmable microprocessor controlled located on the front panel fort for enables users to quickly and easily access and adjust settings, making operation of the centrifuge.
<b>Display Functions</b>	Provides real-time information on run status, programmed settings, temperature, acceleration and deceleration rates, RPM, RPF (4-digit), time, and total RCF force applied. Includes self-diagnosis for program errors and visual alerts in an enlarged display format.
<b>Safety Features</b>	User access control with password protection ensures operation only by authorized personnel. Equipped with multiple safety features including automatic shut-off in case of excess imbalance or overheating of the rotor and compressor. Safety key lid lock, interlock, and door safety sensor prevent accidents and unauthorized use. Automatic pressure release through solenoid valve after each run.
<b>Temperature control range</b>	-20°C to +40°C
<b>Operating Temperature</b>	+4°C to + 22°C with accuracy of 1°C.
<b>Ambient Temperature</b>	Designed for tropical environments, capable of operating between -10°C and +43°C with relative humidity up to 95%.
<b>Castors Wheels</b>	Equipped with 4 castor wheels (2 lockable) for easy mobility and floor-standing jacks for vibration-free operation.
<b>Refrigeration &amp; Rotor Design</b>	Refrigeration turns off automatically when the door opens; Eco-Spin wind-shielded rotors ensure efficient cooling.
<b>Audio &amp; Visual Alarm</b>	Unwanted temperature rise, Sudden power failure, Imbalance Detection with Automatic Shut Down ( $\leq 125$ g neutralization), Lid (Door) Movement, Over Heating of Rotor and Compressor, High-low voltage cut off, overload, Hand short circuit protection, Low-water cut-off with automatic shutdown for enhanced safety.
<b>Data Logging</b>	On-board real-time data logging with connectivity options via RS485/USB/LAN ports for data management.
<b>User Access &amp; Data Security</b>	Electronic signatures for runs with user login and password protection
<b>Print Record Facility</b>	Provided with print record facility for cycle and parameter data
<b>Integrated Rotor Calculator</b>	Built-in rotor calculator enabling simplified protocol modifications
<b>Remote Monitoring</b>	Application-enabled (via Mobile App)
<b>Cycle-Log™ Monitoring &amp; Maintenance Log</b>	Automated cycle log with maintenance tracking for enhanced traceability and preventive service.
<b>Power consumption per Hour</b>	15 Watts
<b>Battery Backup (optional)</b>	Battery backup for Display and Door Open in case of Power Failure
<b>Maximum Noise level</b>	$\leq 52$ dB (measured at 1 meter distance)
<b>CO<sub>2</sub> Backup Cylinder</b>	Provision for connection to CO <sub>2</sub> backup cylinder to maintain temperature stability during emergencies
<b>Power Cord</b>	2-meter long power cord with Indian-grade 15 Amp plug
<b>Power supply</b>	230V, Single Phase, 50Hz, 32 Amps

## ALL-IN-ONE SOLUTION FOR

Cold Chain Solution  
Medical Equipment  
Blood Bank Equipment

Hospital & Scientific Equipment  
Hospital Furniture & Infrastructure  
Commercial Refrigeration



**25+**

Years of Excellence



**400+**

Product Range



**500+**

Service center



**1000+**

Committed Engineers



**1,00,000+**

Satisfied Users

## CERTIFICATION



10 products tested by a WHO-PQS accredited laboratory



Intertek



ISO 14001: IAF



WHO GMP



BIFMA Certified, BIFMA Level 3



ASTM- Corrosion Free Products



ISO 2409

EN 13523-26,  
ISO 13849-1,  
IP 69, IP 65

& MANY OTHER...

## OUR ESTEEMED CUSTOMERS



& MANY MORE...



Regd office & Factory: 93/1, MIDC Satpur, Nashik- 422007 (IND)

New Delhi office - 05, A-44, VDS Tower, Sector 2, Noida- 201301. UP. India

Customer Care No.+91 91 3030 5959

www.markenworld.com info@markenworld.com

