



CONTACT SHOCK FREEZER



Quality, Management, Environment, Health & Safety Standards



CDSO 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 61526-2-6.

INTRODUCTION

The MarkEn Contact Shock Freezer defines innovation in plasma preservation, setting new standards for speed, reliability, and precision in healthcare and laboratory use. Engineered with cutting-edge technology and built to exceed international quality standards, this advanced vertical model ensures ultra-rapid freezing cycles that safeguard the integrity and viability of plasma components. With high-efficiency refrigeration, intelligent control, and a durable, energy-efficient design, it delivers consistent performance for critical medical, research, and biotechnology applications—a true benchmark of innovation and trust in modern plasma preservation.



SUPERIOR FREEZING EFFICIENCY



Freezes 450ml plasma bags in under 45 minutes.



Maintains temperatures from -40°C to -86°C, even in environments up to +43°C.



Advanced thermal exchange technology for rapid, uniform freezing.



Flexible automatic or manual options.

INNOVATIVE DESIGN & DURABILITY



Conical wells simplify plasma bag extraction and solidification.



Direct contact freezing eliminates the need for traditional cold baths.



Uniform weight distribution enhances durability and performance.



Independent refrigeration systems ensure consistent operation.



Triple-point gasket minimizes ice buildup and prevents air leakage.



Built for a 10-year lifespan with guaranteed parts availability.

EXCEPTIONAL PLASMA QUALITY PRESERVATION



Microcrystal formation preserves tissue structure and integrity.



96% fibrinogen recovery and up to 81% Factor VIII and IX concentration.



Accommodates 24 or 48 bags (250ml/450ml) with plasma content of at least 230cc.

CONTROL SYSTEM:



Fully programmable microprocessor control (password-protected, eye-level control panel).



Microprocessor-based temperature controller with integrated audio-visual alarms for temperature and power failure, equipped with a digital monitoring display.



Microprocessor based electronic temperature control, operating temperature reachable lowest up to -86°C with setting accuracy of $\pm 1^{\circ}\text{C}$ (preferably $\pm 0.1^{\circ}\text{C}$)



In built facility for User login, User ID tracking, run logs, protocol tracking with RFID/Password, and additional functionalities like displaying freezing time and temperature diagrams.



On-board real-time data logging, connectivity via RS 485 port data management software for central monitoring system and Wireless data Transfer.



Integrated Coloured LCD Process Automatic Controller.

- Indicating top and bottom plate temperature.
- Indicating freezing process & time.
- Indicating temperature Diagram & defrosting process.
- Power failure alarm & error alarm.

TEMPERATURE MONITORING SYSTEM



Real-time central monitoring with IoT (cloud-based management) support and chart recorder. Supports up to 8 Pt 100 channels with a USB port for cycle/coding history and an external printer interface (non-thermal). Real Time Monitoring through app-based software on mobile phone.



Recovery of data via. SD Card/USB Port/ Data Logger.



Connectivity and monitoring: Bag batch management using barcode scanner connected to contact shock freezer without the need of using additional PC. All data can be exported via USB drive or SD card in CSV format.



Equipment provided with display and temperature controller featuring continuous monitoring throughout the freezing and defrosting cycles.



Equipment indicates reference dummy bag sensor temperature and displays freezing process, freezing time, temperature diagram, and defrosting process.



Standard Package with Accessibility for Network Connection (RS 232, 485, Ethernet/LAN/ Or Any Equivalent) For Temperature Recoding And Monitoring To Validation Requirements.

DISPLAY



10"/13" glove-compatible touchscreen display showing plate temperatures, freezing cycle, timing, and additional functions.



Multi-channel processor with touchscreen display & controller with temperature controller, monitor with capacity to produce validation graphs.



Integrated Coloured LCD Process Automatic Controller.



Displays both set and actual run conditions simultaneously.



Touch screen controller with graphical display and data recording.

FEATURES



Contact plate shock freezing technology provides refrigeration through both plates, with the top and/or bottom plate moving upward, downward, or sideways as required.



The plasma bag remains in direct contact with the chamber surfaces, enabling efficient thermal energy extraction and reducing freezing time to less than 30 minutes for 24 or 48 standard bags (250/450 ml) containing a minimum of 230 cc plasma at an initial temperature between +25°C and +30°C.



The outer door is fitted with rust-free, standard-size, heavy-duty hinges and a spring-loaded automatic closing mechanism ensuring positive closure and allowing the door to open up to 90 degrees.



Capable of rapid freezing for multiple batches daily without temperature fluctuation.



Working surfaces designed for easy cleaning and maintenance.



Air Cooling technology.



Ergonomic, compact, and service-friendly construction ensures easy maintenance, trouble-free cleaning, and effective disinfection.



The equipment includes selector switches or buttons for door open/close and freezing/thawing operations.



Main and emergency switch-off buttons provided for operational safety.



The equipment includes 50 programs for dynamic operation management.



Internal memory for storing temperature, Alarm data and all other critical lab equipment records/data and equipment notifications which can be displayed and transferred to PC/Laptop and can be viewed on smartphone with internet facility.



Equipment meets standard safety requirements for electromagnetic compatibility.



Minimum alteration of the internal temperature during the loading phase of the plasma bags.



Two or more gaskets ensure maximum protection against temperature loss.



No ice formation occurs around the wells or in the retention gaskets. Triple silicon rubber gasket with welded joints provides absolute protection against air entry.

ROBUST CONSTRUCTION & SECURE STORAGE



Rust-free outer door with heavy-duty hinges and automatic closing.



The inner door with magnetic-mechanical latches minimize cold air loss and enhance security.

OPTIONAL ACCESSORIES

- Alcohol Stem Thermometer
- Barcode Reader
- Servo Voltage Stabilizer (5/10 KVA)
- 4 Dummy Bags with Core Temperature Sensors

Capacity in Bags	24 Plasma Bags (vertical position)	48 Plasma Bags (vertical position)
Dimensions External (WxDxH)	907 x 955 x 1954 mm	1107 x 1143 x 1954 mm
Dimensions Internal (WxDxH)	603 x 600 x 568 mm	803 x 786 x 568 mm
Inner Shelves	04 Nos Contact Blast Shelves	04 Nos Contact Blast Shelves
Weight	300 Kg	440 Kg

TECHNICAL SPECIFICATIONS

Make	MarkEn	
Type of Cabinet	Vertical	
Color	White	
Outer Body Material	Corrosion resistance AISI Heavy Gauge Stainless Steel 304	
Inner Cabinet Material	Corrosion resistance AISI Heavy Gauge Stainless Steel 304	
Insulation Material	Water Blown CFC free Vacuum PUFF	
Insulation Thickness	Cabinet : 127 mm ± 5 mm	Door : 127 mm ± 5 mm
Ground Clearance	100 mm	
PUF Density	42 Kg/m ³	
Castors Wheels	Solid cabinet casing constructed from high-grade stainless steel to prevent corrosion, Fitted with smooth lockable castor wheels for mobility. The unit includes 4 castor wheels (2 Lockable and 2 un-lockable)	
Door	Solid counterbalanced door with a lock-and-key handle, along with one inner door.	
Inner Shelves	4/6/8 aluminum contact blast shelves provided with inner door.	
Compressor	Hermetically sealed compressor with air-cooled refrigeration system.	
Refrigerants	CFC/HCFC-free, non-flammable, eco-friendly refrigerants.	
Condensing	Skin condenser and air-cooled grooved aluminum fins.	
Operating Temperature Range	-50°C to -86°C adjustable with setting accuracy +0.1°C	
Rapid Freezing of Plasma Bags	-50°C or below within 30 minutes at 25°C ambient temperature.	
Cooling Plate Temperature	Upper Plate: -86°C & Lower Plate -86°C	
Pre-Cooling Temperature	Upper Plate: -50°C Lower Plate: -50°C	
Pull down time	Less Than 60 minutes	
Hot Gas Defrosting	Less Than 10 minutes	
Temperature uniformity	±3°C or Less	
Environmental Condition	Maximum +43°C with Humidity 5% to 95% RH	
Control System	Fully programmable microprocessor control with membrane keypad and password-protected, eye-level control panel.	
Temperature Monitoring System	Real-time central monitoring with IoT (cloud-based management) support (optional) and chart recorder (optional). Supports up to 8 PT 100 channels with a USB port for cycle/coding history and an external printer interface (non-thermal). Real Time Monitoring through app-based software on mobile phone.	
Internal Configuration	The internal case has 6 wells	
Display	10"/13" touchscreen display showing top and bottom plate temperatures, freezing process, and timing, along with additional features.	
Alarms (with recording facility)	Audible and visual alarm systems for over- and under-temperature conditions, power failures, system malfunctions, door openings, and low battery levels. Includes power failure alarm, phase error alarm, and audio alarms with timer function.	
Battery Backup	12-48 hours of battery backup for digital display, internal temperature monitoring, total alarm system, and temperature recording system, all with an automatic recharging facility.	
Noise level	<55 db	
Power Consumption	Stable Running : 2.040 kWh/24Hrs Cool Down Test : 2.30kWh/24Hrs.	
Power supply	Suitable for Input Voltage Range 100 to 290 VAC, 50 Hz +10%	

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...



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