

# Digitcool®

Automated cryopreservation solution  
for biological samples

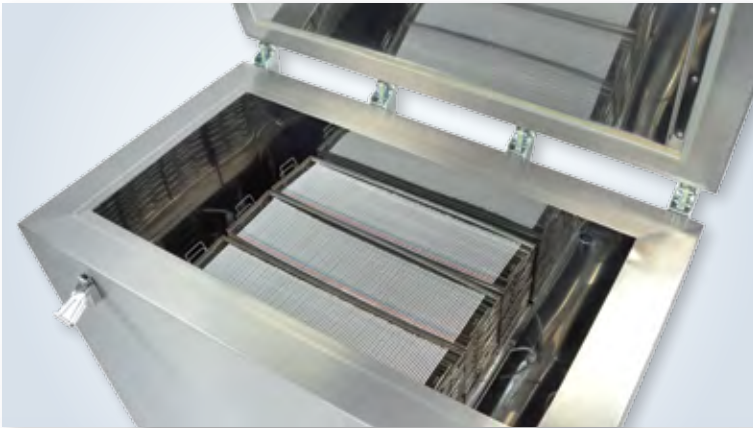


State-of-the-art solution based on sealed cryogenic containers

 **Cryo Bio System**  
Groupe I.M.V. Technologies

[www.cryobiosystem.com](http://www.cryobiosystem.com)

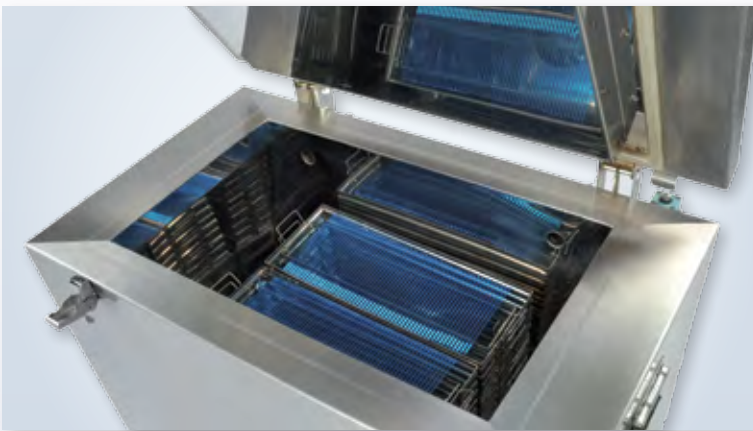
**Digitcool®**: a complete range of controlled-rate freezers to fulfill your cryopreservation needs in CBS™ High Security straws, cryogenic vials, glass ampoules and blood bags (special rack design upon request)



## Digitcool®



- Ideal for large cryopreservation centers
- 3,000 CBS™ High Security straws per freezing cycle



## Mini-Digitcool®



- Suits every user with moderate freezing needs
- 1,392 CBS™ High Security straws per freezing cycle



## Micro-Digitcool®

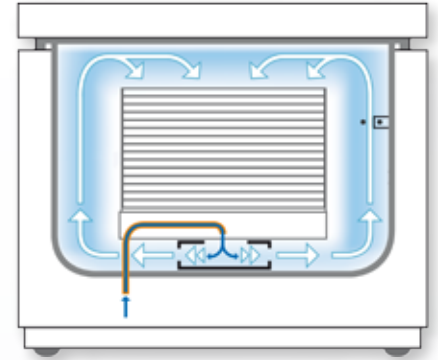


- The preferred compact freezer for tissue and cord blood banks, cellular therapy...
- 240 CBS™ High Security straws per freezing cycle

## Thermodynamics under control

To maximize the viability of preserved cells, the critical temperature lowering stages must be carefully controlled. The initiation of ice crystal formation - nucleation or seeding - must be strictly controlled to ensure optimal crystal size and shape.

Digitcool's perfect airtightness and insulation, its power and its constant regulation of data parameters, allow the user to determine optimal freezing curves, and provide for simple and accurate repetition. Temperatures are constantly and precisely monitored by two separate probes (chamber and product) to ensure that the main freezing stages are perfectly controlled.



### Liquid to crystalline state

During the liquid stage (prior to reaching the crystallization point) the cooling rate must be regular to avoid any thermal shock affecting the cell membranes. Here, the Digitcool freezers demonstrate their precision and flexibility: ultrainsulated cabinet, controlled nitrogen inflow, and fine temperature control - as low as  $-0.1^{\circ}\text{C}$  per minute.

The crystal formation stage, characterized by a sudden rise in temperature, is the most critical stage of the freezing process. The control software anticipates nucleation by instantaneously adapting the freezing curve with a powerful, strictly controlled temperature reduction. The Digitcool units thus provide maximal protection of the cell membrane.

## Quality cryopreservation

- All CBS™ containers are developed to **optimize cryopreservation** of precious samples.
- CBS™ High Security straws benefit from a **high surface-to-volume ratio** for improved and **homogenous heat exchange** through the **entire volume** of the straw.
- Thermal seal of CBS™ straws, HSV kit and CBS™ tube enables **direct and complete immersion** in liquid nitrogen.
- **Color and bar code identification** without compromising the quality of the samples through temperature changes.



# Digitcool®

## Reliability

- Designed and manufactured by IMV Technologies
- Eurotherm temperature controllers with quick-release probes
- Nitrogen connectors, aeronautics-type technology
- Totally insulated container (304L polished stainless steel casing with high-density expanded polyurethane foam insulation): zero frigorie loss from the sample and controlled nitrogen consumption

## Easy & practical use

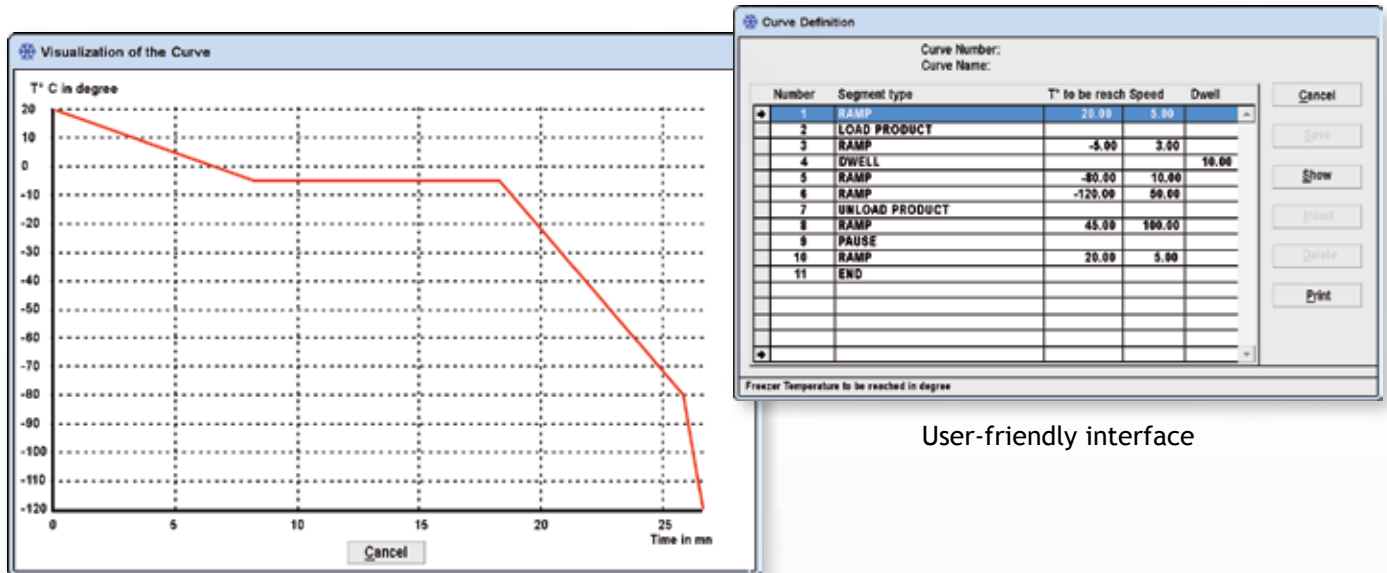
- Racks are easy to stack and remove
- Easy to clean and disinfect
- Vapor exhaust at the rear of unit
- Ergonomic design to facilitate the manipulation of straws (loading / unloading)
- Special sample rack design (bags / tubes / glass ampoules...) upon request

## Traceability

- Automated recording of freezing curves for each cycle
- Uniform and repeatable freezing cycles
- Process isolated from any possible human or external environmental influence
- Printed traceability of the freezing process, as required for GLP and SOP's qualification



## Win BH: Easy-to-use monitoring software

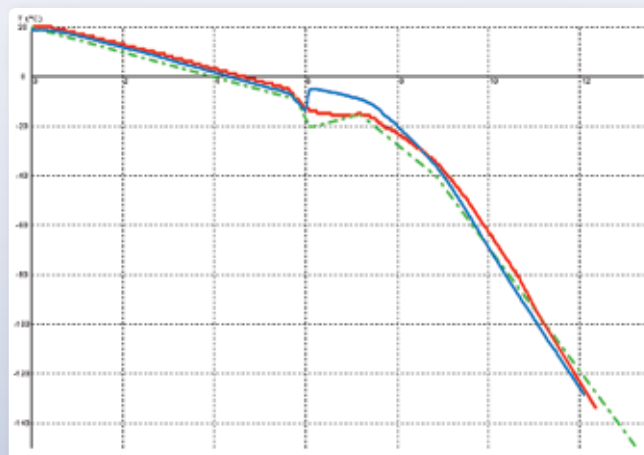


Easy monitoring of temperature curve

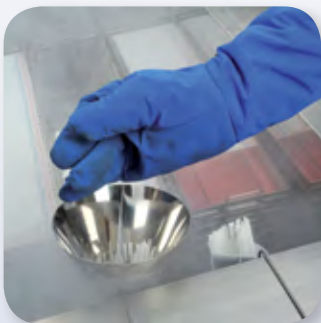
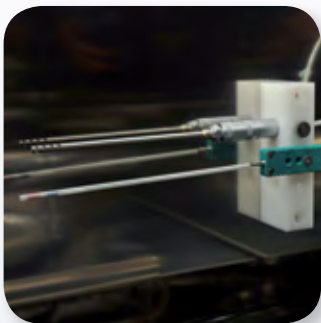
User-friendly interface

## Advanced control software

- Secured access through creation of different user profiles
- Easy freezing curve parameter definition
- Multicriterion search of stored curves
- Simplicity of operation for the «Operator» profile
- Real-time display of three temperature curves: freezing chamber, sample, and theoretical curve
- Intuitive visual display of each stage of the process and zooming function
- Printing of freezing reports with corresponding curves
- Data export in .csv format (comma-separated values / for spreadsheet use)



# Digitcool®



## Technical features

- Temperature range -145°C to +45°C
- Cooling rate -0.1°C to -60°C per minute
- Structure 100% 304L stainless steel
- Insulation Strong stainless steel lid with gas tight seal  
95 mm polyurethane foam insulated walls
- Security control Chamber alert when temperature is ready for loading and unloading  
Maintain -140°C at end of freeze until straws are accessed by user
- Low pressure From 1.3 to 2 bars (18.9 to 29 psi)
- Warming of the chamber 100% dry after warming cycle < 30 minutes
- Controller High-end 2704 Eurotherm  
20 programs - 99 cooling rates - 450 segments

	Digitcool®	Mini-Digitcool®	Micro-Digitcool®
Outside dimensions (L x W x H)	1170 x 800 x 1000 mm (46 x 31.5 x 39.4")	770 x 510 x 730 mm (30.3 x 20.1 x 28.7")	600 x 380 x 520 mm (23.6 x 15 x 20.5")
Weight	130 kg (286 lb)	58 kg (128 lb)	38 kg (84 lb)
Chamber inside dimensions	960 x 470 x 320 mm (37.8 x 18.5 x 12.6")	640 x 320 x 420 mm (25.2 x 12.6 x 16.5")	490 x 325 x 230 mm (19.3 x 12.8 x 9")
Chamber volume	150 L	90 L	26 L
Sample capacity	3,000 CBS™ straws	1,392 CBS™ straws	240 CBS™ straws
LN2 consumption	13 to 15 L per cycle	8 to 10 L per cycle	6 to 8 L per cycle
Air flow	2750 rpm / 1360 m <sup>3</sup> /h	2650 rpm / 495 m <sup>3</sup> /h	2650 rpm / 495 m <sup>3</sup> /h
Power (Heater)	2500 W (2 x 1250 W)	2000 W (2 x 1000 W)	1000 W (2 x 500 W)
Voltage / Frequency	220 V / 50 Hz / 16 A	220 V / 50 Hz / 10 A	220 V / 50 Hz / 6 A

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