SINGLE USE SUPPORT.

PIONEERING BIOPHARMA

Compatible with single-use bags of all manufacturers and sizes

RoSS.LN2F

Cryogenic controlled-rate freezer

Cryogenic freezing down to -170°C

www.susupport.com

Technical Specifications

RoSS.LN2F is a high-performance, cryogenic controlled-rate freezer for temperatures down to -170°C. It is an enclosed system that uses fast chamber cooling and controlled LN2 injection for adjustable cooling rates, enhancing cell viability and recovery. There is no direct contact with the liquid nitrogen and no additional cooling equipment is required. Fully automated, the system operates with high speed and accuracy, ensuring optimal product stability.

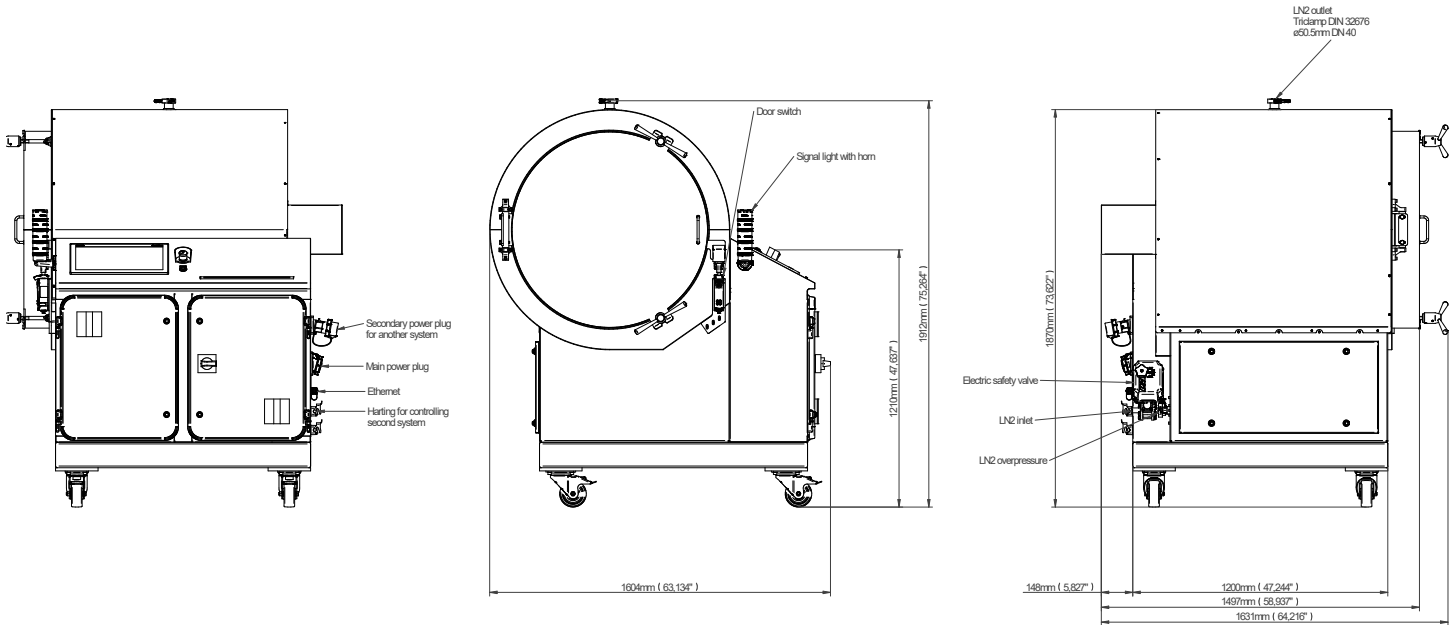
FREEZE YOUR HIGH-VALUE SUBSTANCE

- In any single-use bag*
- Fully automated & controlled
- At highest speed & accuracy
- Any freeze recipe of your choice
- Temperature gradients and setpoints possible
- For best product stability results

**protected by RoSS.KSET and designed to your preferred bag*

Designed for	**any single-use bag* or vial protected by RoSS.KSET**
Outer dimensions (WxHxD)	1604 x 1912 x 1631 mm
Chamber temperature	Recipe driven: Freeze rates from 1k/min to 23k/min
Consumption	Efficient design due to direct evaporation; low LN2 consumption, depending on recipe, duration, etc.
Temperature range	From room temperature to -170°C
GMP	Fully GMP-compliant
Handling	Easy to use (frontloading like a fridge)
Customizable	Customizable interior
Full load	Simultaneous freezing of up to 150 RoSS.KSETs (depending on casette size)

**subject to the characteristics of the preferred single-use bag to withstand -170°C*



Technical Specifications

Facts:

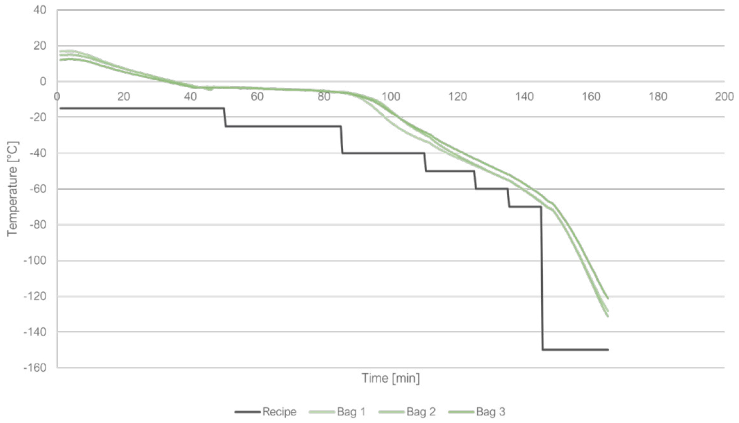
- Cooling/freezing rates in bags are adjustable from 1k/min to 23k/min (chamber temperature)
- Cooling/freezing performance based on innovative, controllable LN2 injection system
- Dynamic setpoint recipe for adjustable phase transition time with higher product safety
- Innovation is based on the fast cooling of chamber and subsequent continuous LN2 injection (makes system controllable and economically in operations)

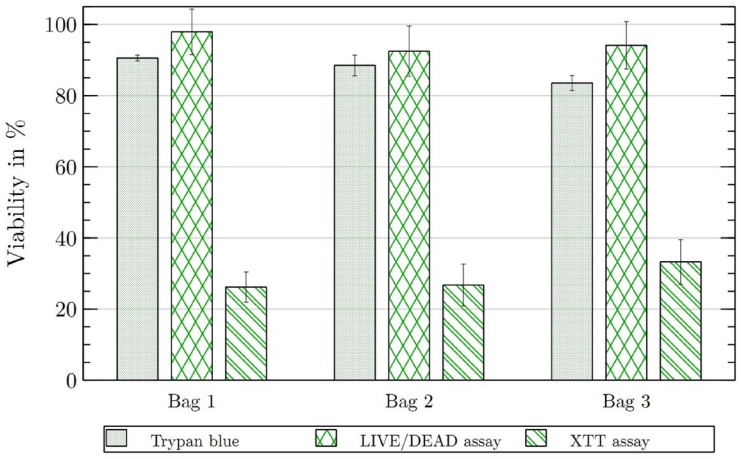
Example of freeze curves & cell viability

Study setup: Small single-use bags (250mL) filled with CHO-K1 cells were frozen with RoSS.LN2F (controlled) and an upright static freezer (uncontrolled) down to -150°C/-80°C.

Results: The graphs below show significantly higher cell viability and recovery with controlled rate freezing compared to uncontrolled freezing. The ideal cooling rate is -1°C/min.

Results controlled freeze run -1.15°C/min:





Results uncontrolled freeze run: