



The **Kryo 360 - 3.3** incorporates all of the critical features expected from a high class biological freezer. The system is specifically designed and specified for Human work, with full system safety protection. The -180°C end temperature **ensures sample integrity during transfer to storage** whilst the flexibility of the system is ideal for the more complex and demanding protocols associated with the most advanced cryopreservation techniques.

The high capacity LNP4 active nitrogen pump offers both faster cooling rates and a large reservoir, offering the **reassurance of an extended hold time** at the protocol end temperature. The system sample capacity is sufficient for the busiest laboratory and the state of the art compact design will enhance the most modern facility.

The MRV controller system has been created to offer **multiple protocols** whilst remaining simple to programme and operate, and both during and after a run offers the widest range of displayed information, alphanumericly and graphically via the easy view display and as a print out on the integral full view printer.

Validation is a high priority and the MRV offers password controlled access on multiple user levels, time and date stamping, programme preview and verification before running and data storage for the last 5 runs for subsequent printing. User calibration with associated hard copy is featured and PC connection compatible with **comprehensive Delta T software** application is standard.

In line with the specification for human use, the system has been fitted with **numerous safety features**. These help protect against power failure and PC failure when running with software. Processor or system problems are controlled and the system restarts to protect samples - for example all control and data systems are separated, the controller can be removed from the operating freezer with no loss of programme integrity; data storage and run processing are completed on isolated electronic systems.

The Planer Kryo 360 - 3.3 fully featured biological freezer specifically designed for cryopreservation of Human Embryos, Oocytes and Sperm

- ❑ Designed for freezing of embryos and sperm in straws and ampoules
- ❑ Controller displays demand, sample and chamber temperatures, programme stage and current temperature graphic
- ❑ Menu driven controller, simple to programme and operate
- ❑ Horizontal or vertical operation
- ❑ Compact design
- ❑ Standard operating features:-
 - ◆ Start above ambient
 - ◆ Controlled heating
 - ◆ Data Printing (integral printer)
 - ◆ Comms port for PC connection
 - ◆ Fast cooling rates
 - ◆ Multiple safety features

SPECIFICATION OVERVIEW

- Chamber volume: 3.3 litres
- Straw capacity: 120 x 0.25ml straws in 15 positions, radially located
- Ampoule capacity: 60 x 2ml ampoules in 15 positions radially located
- Lower temperature limit: -180°C
- Cooling rates: -0.01 to $-50^{\circ}\text{C}/\text{Min}$
- Controlled heating rates: 0.01 to $10^{\circ}\text{C}/\text{Min}$
- System controller: MRV
- System Pump: LNP4
- System Dewar: LAB 30

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TECHNICAL SPECIFICATION - Kryo 360 - 3.3

System Specifications

Range	+40.0°C to -180°C
Heating rates	0.01°C/min to 10°C/min.
Cooling rates	-0.01°C/min to -50°C/min.
Accuracy	± (0.3 + 0.005 x TM)°C (where TM is the magnitude of the temperature).
Storage temperature	-10°C to +50°C.
Storage humidity	5% to 95% relative humidity non-condensing.
Operating temperature	5°C to +40°C.
Operating humidity	5% to 90% relative humidity non-condensing.

Controller Specifications

Dimensions	80mm high x 220mm wide x 350mm deep
Weight	2.6 Kg approx.
Display	240 x 64 LCD with CCFL backlight
Printer	320/640 dot thermal printer
Keypad	20 key membrane keypad
Programmable Cooling Rate Range	-0.01°C/min to -99.9°C/min.
Number of profiles	10
Steps per profile	32
Number of stored runs	10

Chamber Specifications

Weight Kg	14.7
Capacity litres	3.3
Chamber dimensions mm	Internal 400 x Ø150 External 450 high x 300 wide x 420 deep
0.25ml straws	120
0.5ml straws	90
2ml ampoules	60
50ml blood bags	-
250ml blood bags	-
500ml blood bags	-
Power Requirements (Includes MRV Controller)	115V ~ 50/60Hz 600VA / 230V ~ 50/60Hz 600VA