



## Cyropreservation

### CRF-1

Liquid nitrogen and cryogen free controlled rate freezer for cryopreservation

# CRF-1

## Controlled Rate Freezer

The CRF-1 liquid nitrogen and cryogen free controlled rate freezer brings accuracy, precision and reproducibility to biological cryopreservation. This unit is ideal for research into the cryopreservation of a wide range of material including embryos, stem cells, mammalian cells, spermatozoa, antibodies, tissue sections and rodent organs.

The CRF-1 has been developed to minimise and reduce the risk of contamination and designed for use in cleanrooms and barrier facilities. The CRF-1 fits neatly on a bench-top. Its performance of cell viability after freezing is equal if not more advanced to comparable liquid nitrogen freezers. As alcohol is not used, there is also a greatly reduced fire risk. The CRF-1 will cool down to  $-100^{\circ}\text{C}$  with straws.

The cooling rate of the CRF-1 is precisely controlled, ensuring accuracy and reproducibility throughout the freezing profile, especially for the important nucleation/seeding phase. This provides optimal recovery of cells on thawing. Operation is simple and can be carried out with or without a PC; data can be logged via PC software and cooling profiles are directly displayed on PC screen. Different cooling profiles are available from a drop-down menu and customised profiles can be written.



# CRF-1

## Controlled Rate Freezer

### Main applications

The CRF-1 is highly versatile and can be used for the cryopreservation research of a wide range of samples in cryovials, straws, bags, microplates and Matrix-96-well block plates in the following areas:

- Transgenic embryos research
- Stem cell research
- Clinical and research samples, e.g. lymphocytes and tissue cell lines in conventional cryovials
- Various mammalian cells including cardiomyocytes, adipose, liver and muscle
- Cord blood derived stem cells
- Adherent cells and stem cells in microplates
- Cell suspensions in numbered/barcoded arrays
- Robotic integration – the CRF-1 has also successfully been integrated into robotic systems
- Suitable for applications in veterinarian IVF

### Key benefits and features

- Accurate and reproducible control of cooling rates and sample temperatures
- Easy to use and samples can be nucleated/seeded in-situ
- Linear and non-linear cooling profiles
- Low running costs: estimated at 1% of liquid nitrogen-controlled rate freezing
- Temperature remains at  $-100^{\circ}\text{C}$  at the end of cycle for straw applications until freezer is switched off
- Un-interruptible Power Supply (UPS): complete cycle run if power fails (supplied as an optional accessory)
- CE marked (laboratory use)
- Servicing and calibration available
- 3 year warranty



# CRF-1

## Technical specifications



		CRF-1
		Controlled rate freezer
Dimensions	w x d x h mm	264 x 367 x 445
Weight	Kg	9.8
Max plate temperature	°C	30
Min plate temperature	°C	-80 or -100 (dependent on model)
Temperature accuracy	±°C	0.5
Temperature stability	±°C	0.1
Temperature uniformity	±°C	1.0
Max cooling rate		10°C /min
Max temperature stabilisation time		5 minutes

## CRF-1

### Optional accessories and services









CRF-1 API	API package which unlocks the CRF-1 for use with users own application
CAL CRF-1	Calibration certificate
CRF-1 MAINT 1	1 year maintenance agreement includes clean and test report (excludes repair and replacement of faulty parts)
IQOQ CRF-1	IQOQ Booklet for CRF-1
PQ CRF-1	PQ Booklet for CRF-1
CRF-1 CRYOPEN	Cryopen nucleating tool
CRF-1 CARTRIDGE	Replacement cartridge for Cryopen
CRF-1 UPS	Un-interruptible Power Supply for the CRF-1 for a 3 hour cycle in the event of an electrical power failure. 220-240v operation.

# CRF-1

## Controlled Rate Freezer

### Product range

The range includes various models which provide optimum performance for a specific common vessel or can accommodate two different types vessels although only one type can be used at a time. The options include:

CRF-1 H00		Plate for 16 x 0.5ml CBS high security straws
CRF-1 H01		Plate for 18 x 0.3ml IMV straws
CRF-1 H02		Plate for 55 x 1.8ml cryovials (0.5ml max fill)
CRF-1 H03		Flat plate for various items/vessels
CRF-1 H05		Plate for 1 x SBS microplate
CRF-1 H06		Plate for 55 x 1.8ml cryovials (1.0ml max fill)
CRF-1 H07		Plate for 10 x 0.5ml CBS high security straws & 12 x 1.8ml cryovials (0.5ml max fill)
CRF-1 H08		Plate for 12 x 0.3ml IMV straws & 12 x 1.8ml cryovials (0.5ml max fill)

Custom heads are available on request. We recommend sample tubes are sent in for exact measurements and tolerances.

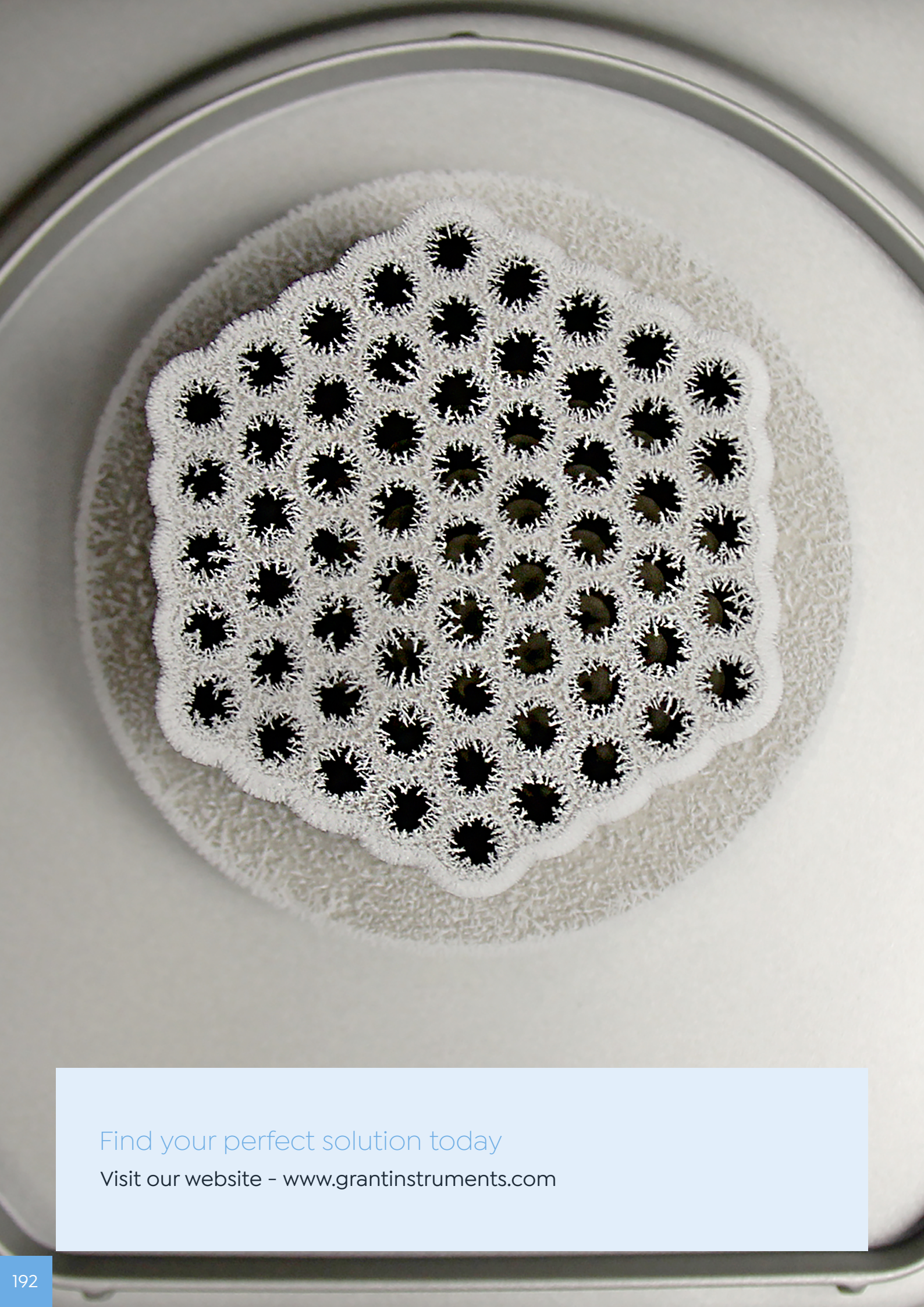
Note: The CRF-1 is not a medical device unit.

## Contact us today

**Grant Instruments (Cambridge) Ltd**  
29 Station Road, Shepreth,  
Cambridgeshire, SG8 6GB

w. [www.grantinstruments.com](http://www.grantinstruments.com)  
t. +44 (0) 1763 260 811  
e. [salesdesk@grantinstruments.com](mailto:salesdesk@grantinstruments.com)

► [GrantInstruments](#)  
► [GrantInstrument](#)  
in [grant-instruments-cambridge-ltd](#)



Find your perfect solution today

Visit our website - [www.grantinstruments.com](http://www.grantinstruments.com)