



## 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°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
Weight	Kg
Max plate temperature	°C
Min plate temperature	°C
Temperature accuracy	±°C
Temperature stability	±°C
Temperature uniformity	±°C
Max cooling rate	
Max temperature stabilisation time	

264 x 367 x 445

9.8

30

-80 or -100 (dependent on model)

0.5

0.1

1.0

10°C /min

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

---

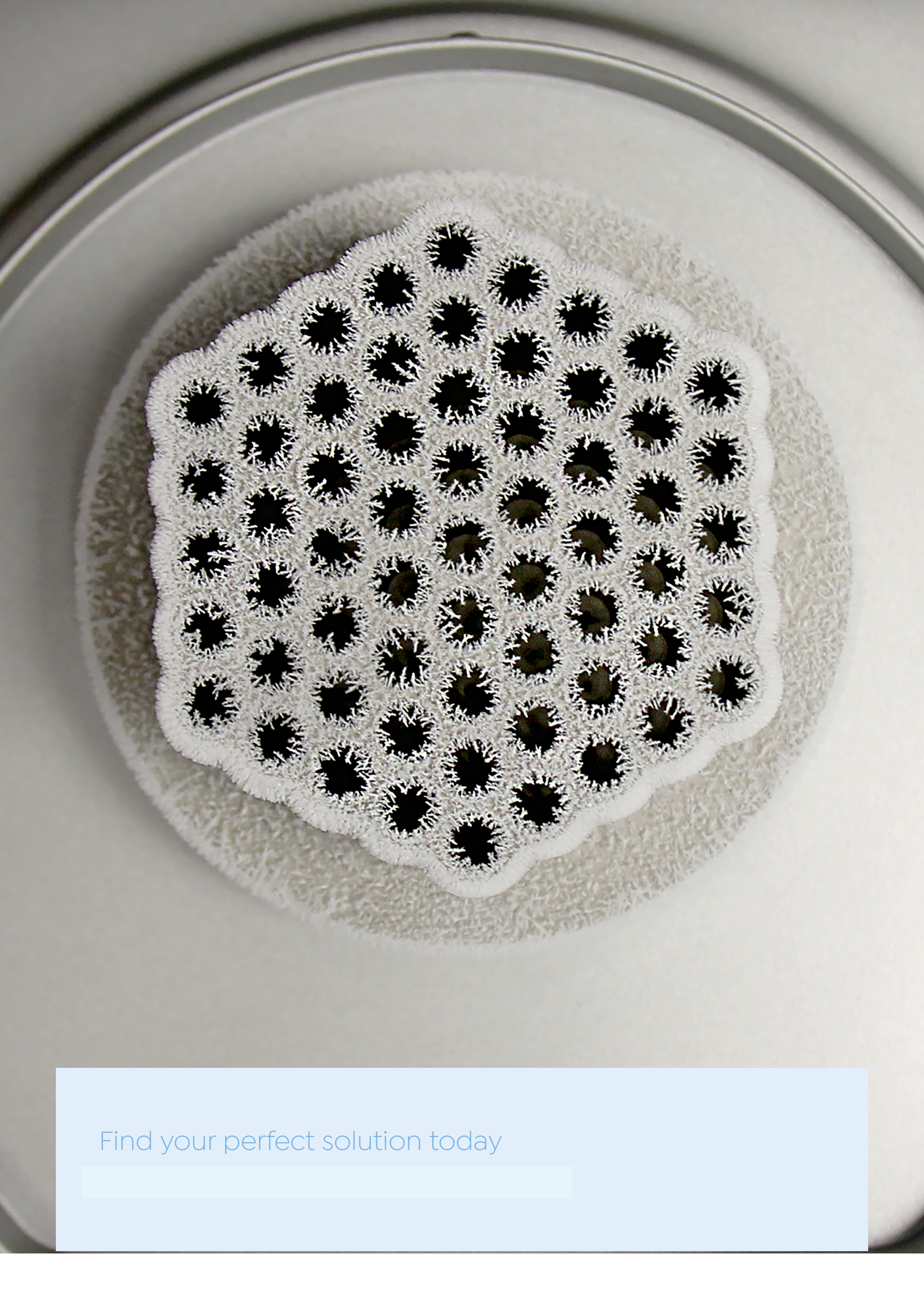
### Product range

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.



Find your perfect solution today



**Wolflabs**

# Wolf Laboratories Limited

[www.wolflabs.co.uk](http://www.wolflabs.co.uk)

Tel: 01759 301142

Fax: 01759 301143

[sales@wolflabs.co.uk](mailto:sales@wolflabs.co.uk)



**Use the above details to contact us if this literature doesn't answer all your questions.**

**Pricing on any accessories shown can be found by keying the part number into the search box on our website.**

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

