Operating and Maintenance Manual

For the

BRIGHT CLINI-RF
RAPID FREEZER

Serial Number: ……

Bright Instrument Co. Ltd. 10 St Margarets Way, Huntingdon, Cambs., England. PE29 6EU
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SAFETY WARNING

Low Temperatures are present in this equipment.

Extreme care should be taken.

DO NOT let bare skin come into contact with metal surfaces.

SAFETY INFORMATION

CONSUMER PROTECTION

The Consumer Protection Act 1987 Part 1, refers to Product Liability. This legislation was issued as a direct result of an EC Directive to all member states and has been in force with effect from 01 March 1988.

Bright Instrument Company Limited, ever mindful of the need to ensure that their products are not subject to misuse and/or incorrect handling, have made it their aim to communicate any possible dangers to their customers.

Whilst Bright Instrument Company Limited markets products manufactured to the highest safety standards, it is in the interest of the purchaser that he is aware of the resultant dangers of misuse and/or incorrect handling of these products.

Your attention is therefore drawn to the following precautions:

1. ELECTRICAL

a) **Warnings –** A warning notice is fixed to the instrument stating that it should be disconnected from the power supply before removing the panels. This warning should be strictly observed. This cryostat is fitted with an in line mains filter which may affect portable appliance test results.

b) **Fuses –** Fuse rating are clearly indicated on all fuse panels adjacent to the fuse holder. If and when replacement is necessary, the correct fuse rating must be adhered to.

c) **Earthing (Grounding) -** A protective earth terminal is fitted, and must be used in all two-wire installations.

2. OPERATION

Parts of this instrument may attain temperatures as low as –83ºC. It is important to avoid allowing bare skin to touch such cold surfaces – when in doubt, wear gloves.

3. ACCESSORIES

Fluids supplied as accessories with Bright instruments, such as Cryospray 134, Cryo-M-Bed and microtome oil, are strictly for laboratory use only. They should not be taken by mouth and precautions afforded to other laboratory chemicals should be adhered to. Please refer to the material safety data information, towards the back of this instruction manual for further details.

4. PRODUCT SAFETY SUGGESTIONS

All Bright Instrument Company Limited personnel are encouraged to make suggestions regarding product safety. We also welcome such suggestions from our Customers. They may be submitted by completing the appropriate (Safety) section of the Quality Survey Record Form supplied with all Bright instruments, or alternatively by letter, telephone fax or email [sales@brightinstruments.com,] All communications should be direct to our Warranty Assurance Department and will be acknowledged.

5. DECONTAMINATION CERTIFICATES

IMPORTANT

If the instrument or any part of it is to be returned to Bright Instrument Company Limited, please note the following:

1) If the instrument or any part of it has been exposed to or been in contact with potential pathogenic or radioactive material, it is essential that it be decontaminated.

2) A code of practice for decontamination has been prepared by the Health Services Advisory Committee and endorsed by the Health and Safety Commission, see section 3.3. For the avoidance of doubt, we require that a completed decontamination certificate should accompany all instruments or parts returned to us. A copy of this can be found towards the back of this instruction manual and we suggest you use a photocopy of this. Alternatively we would be pleased to either post or fax you another copy should you require.

3) Decontamination certification should be faxed to Bright Instrument Company Limited prior to the unit being received, or can be attached externally to the carton. Should no decontamination certificate be received, or the instrument or any part of it be received in a condition that Bright Instrument Company Limited consider to be a potential biological hazard, the instrument or part will be returned, un-repaired, at the expense of the Customer.

4) Customs declarations must indicate that the package contains 'British Returned Goods'. Failure to do so will involve customs duty payable by us, which will be invoiced to the sender.

6. WARRANTY

i) The Seller's products are carefully inspected and submitted to its standard tests.

ii) The Seller warrants all its products to be free from defects in workmanship and materials under normal conditions of use and service provided always.

a) that if any of the goods so manufactured is alleged to be defective in workmanship and materials and is returned carriage paid, and protected against damage in transit, to the Seller's works, Huntingdon, within 12 months from the date of despatch and if after examination by the Seller the goods or part of them are found to be so defective then the Seller will repair or replace them free of charge and will return them to the Buyer, carriage paid.

b) where any part of the goods manufactured by the Seller is repaired or replaced under the terms of the foregoing warranty, such warranty shall thereafter be limited to a period of six months from the date when the goods shall have been redelivered to the Buyer.

c) this warranty does not apply to any defects caused by wear and tear, incorrect installation, abnormal conditions of working, accident, misuse or neglect.

d) that save as in this clause herein before expressed, the Seller shall not be under any liability for negligence or otherwise in respect of defects in goods delivered or for nay injury, damage or loss resulting from such defects and the Seller's liability under this clause shall be in lieu of any warranty or condition implied by law as to the quality or fitness for any particular purpose of such goods.

e) this warranty is expressly in lieu of all other warranties, guarantees or liabilities expressed or implied by any of the Seller's Representatives or Agents.

WARNING

Before proceeding to Operating Instructions, ensure you are familiar with the contents of the pages marked 'Safety Information'. **This instrument must only be used by competent persons.**

1. INTRODUCTION

1.1 Receipt and Unpacking

This instrument received a final test and inspection prior to despatch from the factory. The following instructions are given for the re-assembly of the instrument, adjustments and its correct use. If the instrument is received before preparations for installation are completed. It should be stored in a clean, dry place and not exposed to dirty or damp conditions.

1.1.1 Receipt

Immediately upon receipt of the instrument, make a careful examination for evidence of damage encountered in transit. If any damage is found or suspected, notify both the carrier and Bright Instrument Company Limited immediately.

1.1.1 Unpacking

All packing must be carefully removed and parts checked against the enclosed packing list. If any damage or discrepancy is noted, please inform our agent/distributor or Bright Instrument Company Limited immediately

1.2 ASSEMBLY AND INSTALLATION

1.2.1 Positioning

Fit the two spacer brackets to the rear of the cabinet and ensure that nothing will block the vents on this rear panel. The instrument should be positioned on a level floor so that an unrestricted air flow through the cooling louvers is obtained. This is necessary in order to ensure adequate ventilation and can usually be achieved by leaving a gap of at least 100mm on either side of the cabinet. Ensure that the instrument has been positioned away from hot, direct sunlight and is in a location completely free from draughts. The instrument is mounted on castors, two of which are lockable, to give easy movement.

1.3 ELECTRICAL CONNECTIONS

1.3.1 Settling

During transit the oil in the compressor will have been subject to movement, so it is important to let the instrument settle before switching ON. We recommend the instrument is left standing for at least eight hours and preferably overnight before switching ON.

Moving the instrument around, eg: from one laboratory to another, will not affect the compressor oil.

1.3.2 Electrical Requirements

The supply cord of the instrument should be connected to any ordinary electrical outlet (minimum 13 amps for 220/240V, or 20amps for 110/115V), a 13 amp or 20 amp fuse should be incorporated in the line. Check the voltage stamped on the nameplate, located on the back of the instrument with your supply.

The connections are:

Brown	-	Positive (live)
Blue	-	Negative (neutral)
Yellow/Green	-	Earth (ground)

1.3.3 Electrical Safety

Where earth cables may have to be removed from panels for servicing or repair purposes, care should be taken to replace them when replacing the panel.

Where earth connections are taken through connectors, then the connector must be rated to take the maximum fault current. The machine should be disconnected before such connectors are separated for servicing purposes.

1.3.4 Switching ON

After settling, switch ON the main switch in the centre of the control panel. Initially the LED display will flash for a few seconds. Once the displays are constant, the required temperatures can be set (see section 2.4)

2. OPERATING INSTRUCTIONS

On receipt of your new Bright instrument, please refer to section 1.1 (Receipt and Unpacking) and section 1.2 (Assembly and Installation).

As part of its policy of continual improvement, Bright Instrument Company Limited, reserves the right to incorporate changes, or make additions without prior notice. There may, therefore, be minor details differences between the information in this manual and your cryostat. These differences will not affect the safety and use of the cryostat.

2.1 Start Up and Normal Use

1. Before starting, dry the upper and lower chamber of the Clini-RF with tissue or similar absorbent material.
2. If applicable ensure the appropriate sleeve is fitted into the freezer block to accept the object holder to be used (a sleeve for object holder 22mm diameter and 30mm long is supplied as standard).
3. Switch the mains switch ON and rapid freezer switch OFF *(or clock timer if fitted).* See section 2.3 (if applicable)

NOTE: If the rapid freezer is switched ON at start up, the Clini-RF will take longer to reach its operating temperature due to operation of its safety thermostat. Frequent operation in this manner may affect the Clini-RF's long term reliability.

4. When the upper chamber temperature has fallen to below –35ºC, switch ON the Rapid Freezer switch. The upper chamber will generally reach –35ºC within an hour, though this time will vary with air temperature. The upper chamber temperature may rise for several minutes after switching on the Rapid Freezer. Once the Rapid Freezer temperature is cycling at –80ºC, the Upper Chamber will cool to its thermostatically controlled temperature of –43ºC.
5. After 30 minutes the Rapid Freezer will display a temperature of –70ºC or below. Please note this is the temperature of the freezer wall. The Rapid Freezer block will take approximately 20 minutes more to freeze down to its normal working temperature. After this time if applicable, insert the object holder into the sleeve. Apply a layer of embedding compound. Once frozen, remove the object holder complete with the frozen embedded sample.
6. The Rapid Freezer will continue to cool and will cycle at –70ºC ± 2ºC. During long periods of continual use the Rapid Freezer temperature may start to rise. If the temperature becomes too warm, close the lid and allow the Rapid Freezer to cool to –80ºC before continuing. This should only take a few minutes.
7. The Clini-RF will operate reliably with the Rapid Freezer left ON at –80ºC. However, it is recommended that the Rapid Freezer is not run continuously for 24 hour periods but switched OFF when not required to reduce frosting and electricity consumption. The Upper Chamber and Rapid Freezer will then continue to operate at –43ºC. A clock timer is available to automatically switch the Rapid Freezer ON and OFF at pre-set times of the day, see section 2.3

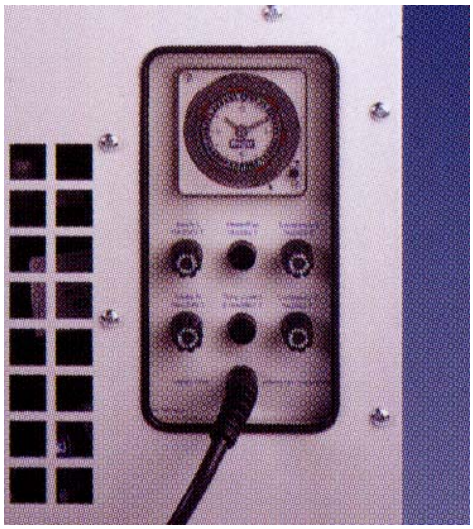
NOTE: If required, a small volume of low freezing point liquid, such as hexane, can be introduced into the lower chamber around the object holder, the outside of the freezing block and the lower chamber wall. This has the effect of increasing conductivity and therefore decreasing freezing times.

2.2 Use as a Liquid Bath

1. Remove the freezer block from the Rapid Freezer using the threaded tool supplied. (Note: it will be necessary to remove any object holder sleeve and base fitted using the Allen Key supplied to remove the M5 screw).
2. Ensure the surfaces of the rapid freezer are clean and dry.
3. Pour in the required liquid. The liquid used must be suitable for use with the samples to be frozen and have a freezing/melting point below –90ºC, eg: hexane. Please note that a suitable metal beaker may be placed in the lower chamber to contain the liquid. The size of the beaker will limit the size of specimens to be frozen.
4. Switch the mains switch on and rapid freezer switch off.
5. When the upper chamber temperature has fallen to below –35ºC, switch on the Rapid Freezer switch. The upper chamber will generally reach –35ºC within the hour, though this time will vary with air temperature. The upper chamber temperature may rise for several minutes after switching on the Rapid Freezer. Once the Rapid Freezer temperature is cycling at –80ºC the upper chamber will cool to its thermostatically controlled temperature of –43ºC.
6. After 30 minutes the liquid bath should be below –70ºC and ready for use. If using a metal beaker, allow 30 minutes after the Rapid Freezer display has dropped below -70ºC before using the bath.
7. Pick up the tissue sample, using either forceps or a suitable wire container and place the sample straight into the liquid ensuring it is completely submerged. The frozen sample can now be mounted onto a frozen object holder either in a cryostat or in the –43ºC upper chamber of the Clini-RF

2.3 Rapid Freezer 7 Day Timer -/T (where fitted)

The 7 day timer clock automatically switches the Rapid Freezer ON/OFF at the beginning/end of the working day. Saving energy whilst enabling the Clini-RF to be used first thing in the morning, while the rapid freezer is off, the chamber will be maintained at its normal operating temperature.



Set the 12-hour clock and 7 day timer to the correct time and day by turning the clear plastic disc with your finger. Note that the days are indicated as number 1 to 7, and the hours are indicated as on a 24-hour clock along side the timer segments.

Position the correct day and hour next to the small black triangle to the right had side of the bottom of the clock. Adjust the analogue clock to the correct time.

The segments of the clock are set in the factory such that day 1 is the first working day of the week (Monday). The rapid freezer is set to switch-ON at 08.00 hours and switch-OFF at 17.00 hours for days 1 to 5. **The switch-off time is shown as Red on the Timer Segments**. Please note the rapid freezer can take up to 60 minutes to reach its normal working temperature, so will be ready for use by 09.00 hours.

If different times or working days are required, simply switch the corresponding segments around the clock as required.

2.4 Variable Temperature Control -/VTC (where fitted)

The displays have four keys for controlling status and programming of the instrument.

KEYS AND MENUS

UP key	Scrolls through the menu items Increases the values
DOWN key	Scrolls through the menu items Decreases the values
FNC key	ESC function (exit)
SET key	Accesses the setpoint Accesses the menus Confirms the commands Displays the alarms (if active)

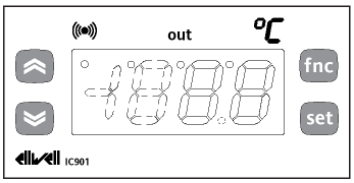
Rapid Freeze

This is located on the left of the control panel to set the rapid freezer temperature. In normal conditions, the labels for the Set point values are found in the menu.

Once the 'SP1' label has been displayed, press the "set" button to display the Set point 1 value. The Set point value appears on the display. To change the Set point value, use the "UP" and "DOWN" buttons within 15 seconds.
If you press the "set" button again, when the fnc button is pressed or 15 seconds elapse, the last value displayed will be stored and the "SP1" label will reappear on the display.

Chamber

This is located on the right of the control panel to set the chamber temperature. In normal conditions, the labels for the Set point values are found in the menu.



Keyboard Locking

The instrument includes a facility for disabling the keyboard, by programming the "Loc" parameter. (see folder with "Dis" label) You can enter parameter programming, modify them and change the status of this parameter.

To unlock the keyboard. y = yes (keyboard locked); n = no.

If the keyboard is locked, you can still access the programming menu by pressing the "set" key. The Setpoint can also be viewed.

Resources are arranged in a menu, which can be accessed by pressing and quickly releasing the "set" key ("Machine Status" menu) or by holding down the "set" key for more than 5 seconds ("Programming" menu).

To access the contents of each folder, indicated by the relevant label, just press the "set" key once. You can now scroll through the contents of each folder, modify it or use its functions. If you do not use the keyboard for over 15 seconds (time-out) or if you press the "fnc" key once, the last value shown on the display is confirmed and you return to the previous screen mask.

WARNING: **DO NOT** hold the Set button down for more than 6 seconds, as the control will go into a diagnostic/calibration mode.

If the diagnostic/calibration mode is selected in error, take the following steps:

a. If Up or Down has not been pressed (i.e.: no new parameters have been entered), simply leave for 15 seconds. Display will revert to normal.

b. If new parameters have been selected, contact Bright Instrument Company Limited or your local representative for advice.

3. GENERAL MAINTENANCE

3.1 Servicing and Repairs

In the event of a breakdown a qualified person should be called. Refrigeration problems are likely to be rare and will normally be dealt with by your local refrigeration specialist. For electrical and mechanical problems contract either your local agent. Distributor or Bright Instrument Company Limited direct. Please provide the following information:

Model

Serial Number (see ID plate on rear panel)

Date of Installation

Nature of Fault

The following tasks can be carried out by competent personnel:

- Changing fuses

Determine which fuse is blown and replace it with one of exactly the same type and rating.

If the Clini-RF or any part of it is returned to the agent/distributor or manufacturer, it is important to observe the precautions in section 3.3 to minimise the risk of infection.

NB: A completed decontamination certificate must either be sent by post prior to return of instrument or attached to the exterior of the instrument. Work on the instrument will not proceed until satisfactory notification of decontamination has been received.

3.2 Defrosting

It will be necessary to periodically defrost the Clini-RF to carry out cleaning and/or other procedures. The frequency of this total defrosting will depend on how heavily the Clini-RF is used. It may be as often as daily but is commonly once a month. Defrosting is generally more convenient if the Clini-RF is switched off over night.

To de-frost, simply switch off the mains switch and allow the Clin-RF to warm to room temperature. Always ensure the chambers are completely dry before switching back on – use a hair dryer if necessary.

3.3 Decontamination

It is the responsibility of the user to ensure that a decontamination procedure is employed which is appropriate to the nature of the work carried out.

The Clini-RF's chambers are constructed of corrosion-resistant materials and the following decontamination procedures can be used. Hypochlorite (bleach) solutions are corrosive to many metals and should be avoided.

Two suggested methods of decontamination are as follows:

3.3.1 Formaldehyde Decontamination

1. Defrost the Clini-RF completely, with the lid closed.
2. Place 50-100ml of Formalin BP in a flat dish in the chamber. Close lid.
3. Leave for at least 24 hours and preferably 48 hours.
4. Open lid briefly and place a beaker containing 10ml of ammonia SG.880 in the chamber.
5. Leave for one hour. The Clini-RF is then ready for cleaning.

3.3.2 Virkon Decontamination

Virkon is a virucidal disinfectant made by Antec International and is widely used in microbiology and clinical departments.

1. Defrost the Clini-RF completely, with the lid closed.
2. Make up the Virkon solution according to the manufacturers instructions.
3. Wipe around the chamber with a cloth or paper towel wetted with Virkon solution. Ensure all debris is collected and all surfaces have ample contact with the solution.
4. Wipe over again with clean water.

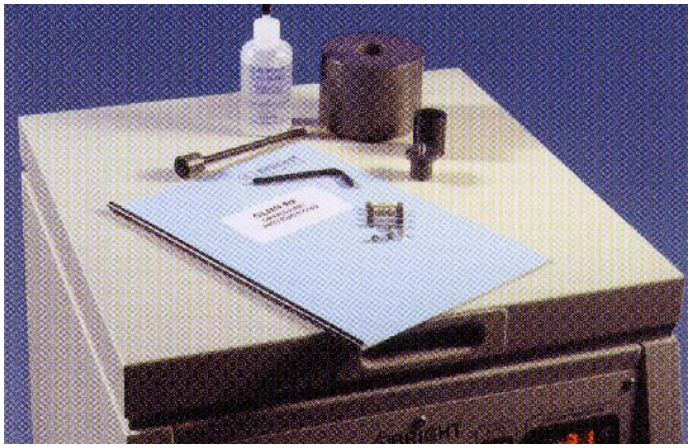
NB: DO NOT use excessive quantities of Virkon solution or water during this procedure.

5. Ensure the chambers are completely dry.
6. The Clini-RF is now ready to be switched back ON.

4. SPECIFICATIONS

Compressor types	●	1 x 15cc displacement (Chamber) 1 x 12cc displacement (Rapid Freezer)
Refrigerant	●	Ozone friendly HFC refrigerants
Cooling power	●	300 watts Main Freezer at –40ºC
Lowest set temperature	●	-43ºC (pre-set) main freezer
Main freezer to –40ºC	●	60 minutes
Rapid freezer to –80ºC *(at 25°C ambient)*	●	50 minutes (with main freezer at –40ºC)
Cabinet dimensions	●	H1000 x W450 x D500mm
Freezer dimensions	●	Diameter 275 x depth 136mm
Rapid freezer dimensions	●	Diameter 95 x depth 95mm
Total power consumption	●	1100 watts

5. ACCESSORIES AND CONSUMABLES



Accessories, consumables and parts can be obtained through you local Bright representative, or from Bright Instrument Company Limited direct. When ordering please provide the following details:

a. Model type and serial number of your instrument

b. Full description, part number and quantity of part(s) required

c. Address to which parts are to be delivered

d. Address to which invoice is to be sent

Part Number	**Description**
53581-1	Bright Cryo-M-Bed, 113ml bottle
53581	Bright Cryo-M-Bed, 113ml bottle, carton of 6 bottles
53320	Heat sink block
53396	Removing tool
53344	Pair of spacer brackets
57155	M5 Allen key
N/A	Collet (manufactured to customers requirements)
53563	Spare fuse set for 240V
53564	Spare fuse set for 100/115V

MATERIAL SAFETY DATA SHEET

Name: CRYO-M-BED

Part Number: 53581

Product Information

By:	Bright Instrument Company Limited		
Address:	St Margaret's Way, Huntingdon, Cambs, PE29 6EU, England		
Telephone:	01480 454 528 / 451 499 / 451 980	Emergency: 999	
Fax:	01480 456 031	Email:	sales@brightinstruments.com
Trade/Type:	EMBEDDING COMPOUND		
Container:	Disposable plastic bottles		
Uses:	Embedding compound for frozen tissue specimens		
Data Sheet:	3		
Description:	Colourless viscous liquid		

Information on Ingredients		**Physical and Chemical Properties**	
Blend of polyviol alcohol 217, thymol and water		Colourless viscous liquid	
Hazards Identification:		**Stability and Reactivity**	
Skin:	Can cause skin irritation	May react with oxidising materials	
Respiratory:	May cause difficulty in breathing if exposed to very high concentration		
Ingest:	May be harmful by ingestion		
Eyes:	Eye irritation		
First Aid procedures		**Toxicoloigical Information**	
Skin:	Wash thoroughly, with soap and water	No harmful effects if handled correctly. May give off toxic fumes in the case of fire	
Respiratory:	Move to fresh air		
Ingest:	Rinse mouth out with water, in sever cases seek medical attention		
Eyes:	Flush copiously for at least 15 minutes		
Fire Fighting Measures		Ecological Information	
Hazards:	May cause toxic fumes	Degradable, miscible in all proportions	
Equipment:	Water spray, foam, dry powder, Co2		
Accidental Release Measures		**Disposal Considerations**	
Spill:	Absorb on an inert absorbent, bag and arrange disposal. Wash area in water and detergent	Waste:	Bag and dispose of in accordance with local authority requirements
Handling and Storage		**Transport Information**	
Special Requirements:	NONE	No restrictions	
Exposure Controls		**Regulatory Information**	
OES:	Not assigned (long term, 8 hour TWA)	NONE	
Skin:	Avoid contact		
Respiratory:	Avoid very high concentrations		
Ingest:	Do not eat, drink or smoke		
Eyes:	Goggles should be worn		

Additional Information/Comments:
Information given is, to the best of the Company's knowledge and belief, accurate and reliable. However, no warranty, guarantee or representation is made to it's accuracy, reliability of completeness.

Issue 6 /June 2000 - Last reviewed: Sept 2010 /Next review: Sept 2012

MATERIAL SAFETY DATA SHEET

Name: CRYOSPRAY

Part Number: 57713

Product Information

By:	Bright Instrument Company Limited	
Address:	St Margaret's Way, Huntingdon, Cambs, PE29 6EU, England	
Telephone:	01480 454 528 / 451 499 / 451 980	Emergency: 999
Fax:	01480 456 031	Email: sales@brightinstruments.com
Trade/Type:	Bright Cryospray 134 Aerosol Freezing Agent	
Container:	Aerosol	
Uses:	Rapid Freezing of tissue specimens to –52ºC	
Data Sheet:	48	
Description:	Colourless viscous liquid	

Information on Ingredients	**Physical and Chemical Properties**
1, 1, 1, 2 – Tetrafluoroethane – contents 80-100%	Appearance: Aerosol Odour: Characteristic
Hazards Identification:	**Stability and Reactivity**
May cause frost bite if intentionally misused	Avoid powdered metal, alkali metals alkali earth metals Avoid heat, flames and other sources of ignition

First Aid procedures		**Toxicoloigical Information**
Skin:	Wash thoroughly, with soap and water	May cause frost bite if intentionally misused No harmful effect if handled correctly. May give off toxic fumes in the case of fire
Respiratory:	Provide rest, warmth and fresh air If discomfort continues, seek medical attention	
Ingest:	Rinse mouth out with water, in sever cases seek medical attention	
Eyes:	Flush copiously for at least 15 minutes SEEK MEDICAL ADVICE	

Fire Fighting Measures	Ecological Information
This product is not classed as flammable under current regulations. Special **Fire Fighting Procedures :** use water to keep fire exposed containers cool and disperse vapours. Breathing apparatus should be worn if exposure of fumes s likely. **Unusual Fire Explosion Hazards**: Possible risk of can rupture when exposed to fire/high temperatures. **Hazardous Decomposition Products:** Fire or high temperatures create halogenated hydrocarbons, oxides of carbon	Water Hazard Classification: Discharge of product will enter the atmosphere and will not result I long term aqueous contamination Global Warming Potential: 0.28 (R11=1) (1,1,1,2 – Tetrafluorethane) Ozone Depletion Potential 0 (R11=1) (1,1,1,2 – Tetrafluorethane)

Accidental Release Measures		**Disposal Considerations**	
Spill:	Let evaporate and ventilate area well	Waste:	DO NOT pierce or burn empty cans. Dispose of in accordance with local authority requirements.

Handling and Storage	**Transport Information**
Usage Precautions: **CAUTION** pressurised container **DO NOT** expose to temperatures exceeding 50ºC **DO NOT** puncture or incinerate even when empty **DO NOT** spray onto naked flame or any incandescent material Spray in short bursts to prevent cooling of the can **STORAGE PRECAUTIONS:** Store in a cool dry place, away from all sources of heat, including direct sunlight	Road: UN No.1950 CEFUC TEC (R) No.20G26-1 ADR Class 2 ADR ITEM No.5A Air: UN Air No.1950 Air Transport Class 2 Sea: UN Sea No.1950 Sea Transport Class No.2 IMDG Page No.2102
Exposure Controls	**Regulatory Information**
1,1,1,2 – Tetrafluoroethane (HFC 134a) OED: Long term exp (8hours TWA ref period) 1000ppm (rec)/4240mg/m3 Skin: Avoid contact, it is advised to wear gloves Respiratory: Good ventilation required if used in confined space Ingest: Do not eat, drink or smoke Eyes: Wear goggles during use if there is any risk of eye contact, but not generally required under normal use.	CHIP: S23 DO NOT breathe gas/fumes/vapour/spray CHIP: S24/S25 Avoid contact with skin and eyes CHIP: S51 use only in well ventilated areas COSHH Regulations 1999

Additional Information/Comments:
Information given is, to the best of the Company's knowledge and belief, accurate and reliable. However, no warranty, guarantee or representation is made to it's accuracy, reliability of completeness.

Issue 7 /Jan 2004 - Last reviewed: Sept 2010 /Next review: Sept 2012

MATERIAL SAFETY DATA SHEET

Name: LOW TEMPERATURE OIL

Part Number: 57491

Product Information

By:	Bright Instrument Company Limited		
Address:	St Margaret's Way, Huntingdon, Cambs, PE29 6EU, England		
Telephone:	01480 454 528 / 451 499 / 451 980	Emergency: 999	
Fax:	01480 456 031	Email:	sales@brightinstruments.com
Trade/Type:	Equivis Z3 15		
Container:	Plastic Bottle		
Uses:	For lubrication of microtomes and remote control spindles		
Data Sheet:	44		
Description:	Low temperature oil		

Information on Ingredients	**Physical and Chemical Properties**
Mineral oil	Physical form: Liquid Density: @15ºC, Kg/1 0.855 Odour: Mineral oil odour Colour: Pale amber Flashpoint: 155ºC (IP 34PM closed cup)
Hazards Identification:	**Stability and Reactivity**
This product is NOT classified as dangerous for supply or conveyance	Stable: Yes Conditions to Avoid: Extreme temperatures store between 0 – 50ºC Materials to Avoid: Strong oxidising agents Hazardous Decomposition/Combustion Products: Dependant of conditions bringing abut decomposition the following substance may be expected from normal combustion: carbon dioxide – polyeyelic Aromatic Hydrocarbons, carbon monoxide – Unburnt hydrocarbons, water – unidentified organic and inorganic compounds, particulate matter – nitrogen oxides

First Aid procedures		**Toxicological Information**
Skin:	Wash thoroughly, with soap and water	Health effects: EYES: May cause transient irritation. SKIN: Unlikely to irritate on brief or occasional exposure INHALATION: Low volatility make inhalation unlikely at ambient temperatures. INGESTION: Possible aspiration into the lungs with possible resultant chemically induced pneumonia OTHER: NONE known
Respiratory:	Remove from exposure	
Ingest:	DO NOT induce vomiting. Wash out mouth with water, SEEK MEDICAL ATTENTION URGENTLY	
Eyes:	Flush copiously for at least 15 minutes. If irritation persists SEEK MEDICAL ADVISE	

Fire Fighting Measures		**Ecological Information**
FIRE:	Extinguish fires with foam, dry powder, CO2 or water fog - do not use water jets	Soil: Will biodegrade Water: Will not evaporate or dissolve Air: Nil DO NOT allow to enter drainage systems, rivers or waterways

Accidental Release Measures		**Disposal Considerations**	
Spill:	Avoid entry into drains and waterways, spilt product will present a slip hazard	Waste:	Dispose of in accordance with local authority requirements

Handling and Storage		**Transport Information**
Handling: Storage:	No special requirements Store away from direct heat and avoid extremes of temperature, DO not leave container unsealed	Not classified as dangerous to transport

Exposure Controls	**Regulatory Information**
5mg/m3 (8hour TWA) and 10mg/m£ (15 minute reference period) (Ref:EH40/1999)	This product is a preparation and is NOT classified according to EEC Guideline

Additional Information/Comments:
Information given is, to the best of the Company's knowledge and belief, accurate and reliable. However, no warranty, guarantee or representation is made to it's accuracy, reliability of completeness.

Issue 3 /Sept 2004 - Last review. Sept 2010 / Next review: Sept 2012

SAFETY WARNING

Low temperatures are present in this equipment. Extreme care should be taken.

DO NOT let bare skin come into contact with metal surfaces

HEALTH AND SAFETY AT WORK ACT
DECONTAMINATION CERTIFICATE

Any product which is to be returned to Bright Instrument Company Limited or serviced on site, must be cleaned and decontaminated in the appropriate manner. This certificate, duly completed, must be either sent in advance (fixed to the outer packing containing the product), or handed to the service engineer.

Packages will not be opened nor servicing commenced until the Company or service engineer have received a satisfactory certificate. Should returned goods be considered a hazard by the Company, they will be returned immediately to the customer at his/her expense. NB: Microtome knives must be in boxes.

Description:	
Product Code:	Serial Number:
Order Number:	Quantity:

Tick Box A if applicable. Otherwise complete all parts of B, providing further information as requested or appropriate.

A ☐ This equipment has not been in contact with unfixed biological samples.

B1. This equipment has been exposed internally or externally to hazardous materials as indicated below:

YES/NO	Blood, body fluids, pathological samples	Provide further details here:
YES/NO	Other biohazards	
YES/NO	Chemicals/substances hazardous to health	
YES/NO	Other hazards	

2. This equipment has been cleaned and decontaminated:

YES/NO	If YES, give details of the methods:	Provide further details here:
	If NO*, please indicate why not:	

* Such equipment must not be returned without the written agreement of Bright Instrument Company Limited.

3. The equipment has been prepared to ensure safe handling/transportation.

YES/NO

Signed:	Institute:
	Department:
	Address:
Name:	Postcode:
Position:	Telephone: Extn:
Date:	Facsimile:

DECONTAMINATION PROCEDURES

Cryostats & Ultra Low Temperature Freezing Units

If decontamination is required carry out the standard procedures as practised in your laboratory. It is the responsibility of the customer to use a decontamination procedure appropriate to his/her work. The following decontamination method is as recommended in the 'Code of Practise for the Prevention of Infection in Clinical Laboratories and Post-mortem Rooms', ISBN 0 11 320464 7.

1 Bring the cryostat to room temperature.

2 Place 50-100ml of formalin BP in a flat dish inside the chamber. Close the window.

3 Leave for at least 24 hours, preferably 48 hours.

4 Open the window and place a beaker containing 10ml of ammonia SG.880 in the chamber. Close the window.

5 Leave for one hour. The cryostat is now decontaminated.

Microtome

If decontamination is required carry out the standard procedures as practised in your laboratory. It is the responsibility of the customer to use a decontamination procedure appropriate to his/her work.

Microtome Knives

If decontamination is required carry out the standard procedures as practised in your laboratory. It is the responsibility of the customer to use a decontamination procedure appropriate to his/her work.

For further information regarding alternative decontamination procedures please refer to 'Safe Working and the Prevention of Infection in Clinical Laboratories', ISBN 0 11 885446 1.

QUALITY SURVEY REPORT

Our watchword is QUALITY. In our continuing endeavour to improve the quality and performance of our processes and products, we would welcome any initial comments on the following aspects of our service and products. As you have only just received the product we do not feel that you could asses the actual workings of the instrument accurately, so we will follow up in approximately six months with a Customer Feedback – Voice of the Customer questionnaire. If, of course, you have any comments to make prior to receiving the questionnaire, please feel free to contact us.

Please return this form either by post or by fax on 01480-456031, for the attention of the QA Manager.

Model:	**Serial Number:**
Institute:	**Department:**
Address:	
Postcode:	
Telephone:	**Extension:**

Aspect	Comments and Suggestions
Purchasing: Did the purchasing process run smoothly with respect to our involvement? e.g. correct advice, lead times, payment arrangements etc.	
Delivery: Was the instrument in a satisfactory condition on arrival?	
Installation: Did we install the instrument? If so was adequate pre-use instruction given?	
User information: Did you receive an operating manual? Do you believe it is comprehensive enough for your use?	
Safety: Any comments?	
Miscellaneous: Any other aspect you would like to comment on, e.g. appearance, first impressions etc.	

Signed:……..…….…. Name:……..……..…….
Position:…….…….……..…….

Thank you for helping us to help you in the future

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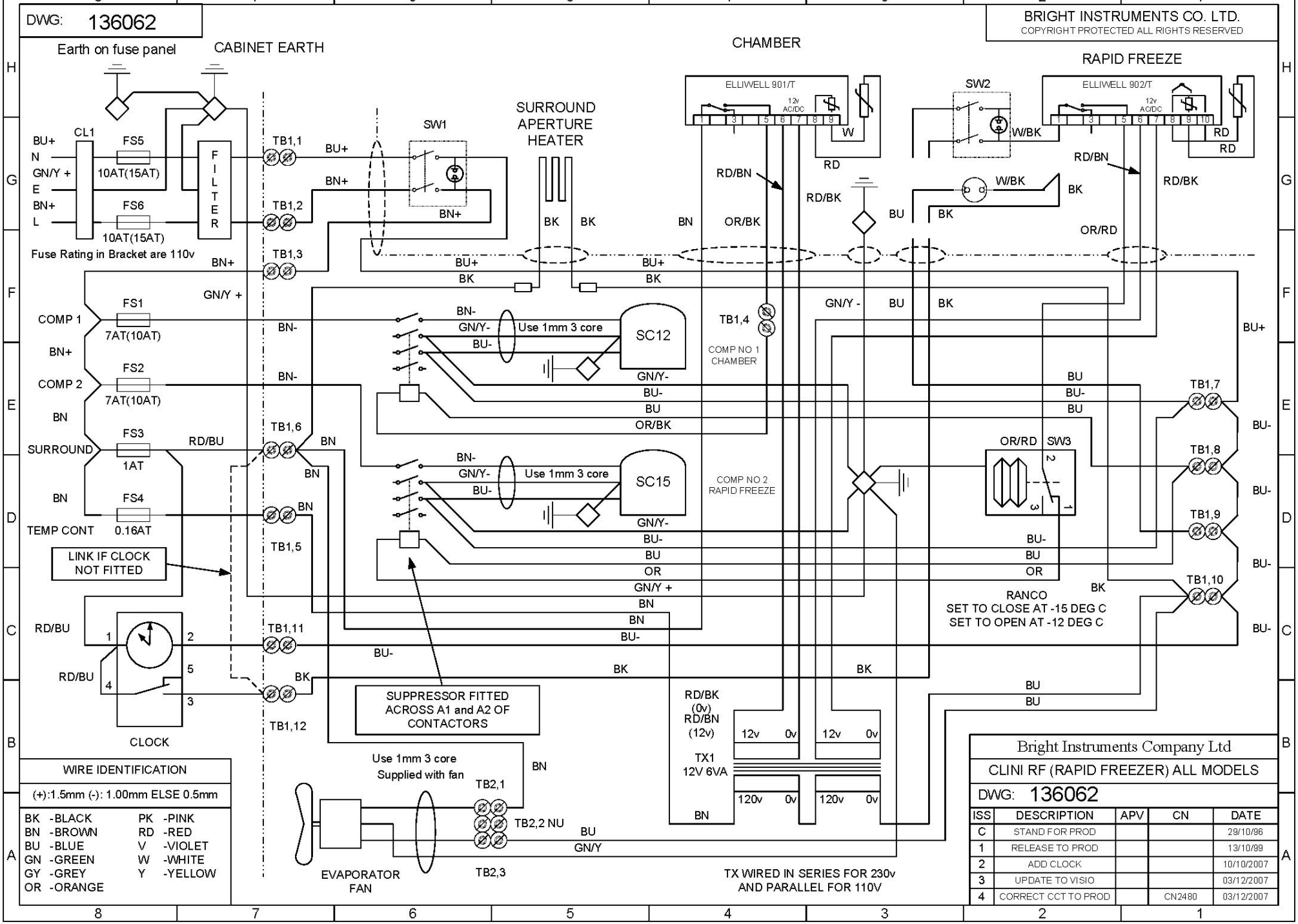
BRIGHT INSTRUMENTS CO. LTD.



WIRE IDENTIFICATION	
(+):1.5mm (-): 1.00mm ELSE 0.5mm	
BK -BLACK	PK -PINK
BN -BROWN	RD -RED
BU -BLUE	V -VIOLET
GN -GREEN	W -WHITE
GY -GREY	Y -YELLOW
OR -ORANGE	

Bright Instruments Company Ltd

CLINI RF (RAPID FREEZER) ALL MODELS

DWG: 136062

ISS	DESCRIPTION	APV	CN	DATE
C	STAND FOR PROD			29/10/96
1	RELEASE TO PROD			13/10/99
2	ADD CLOCK			10/10/2007
3	UPDATE TO VISIO			03/12/2007
4	CORRECT CCT TO PROD		CN2480	03/12/2007