

Bright Microtomes & Cryostats



Bright JENCONS-PLS

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JENCONS-PLS

M3500 Microtome

The M3500 has been developed by Bright Instruments to make a flat-cutting radial action wax microtome available to histologists at a realistic price. Its well-proven radial cutting action has been available in Bright cryostats for many years and is known to produce sections of the highest quality.

Its design incorporates specific features to enable the user to cut sections quickly, easily, safely and comfortably. It is available with a range of accessories that includes specimen orientation, motorised advance/rewind and motor drive.

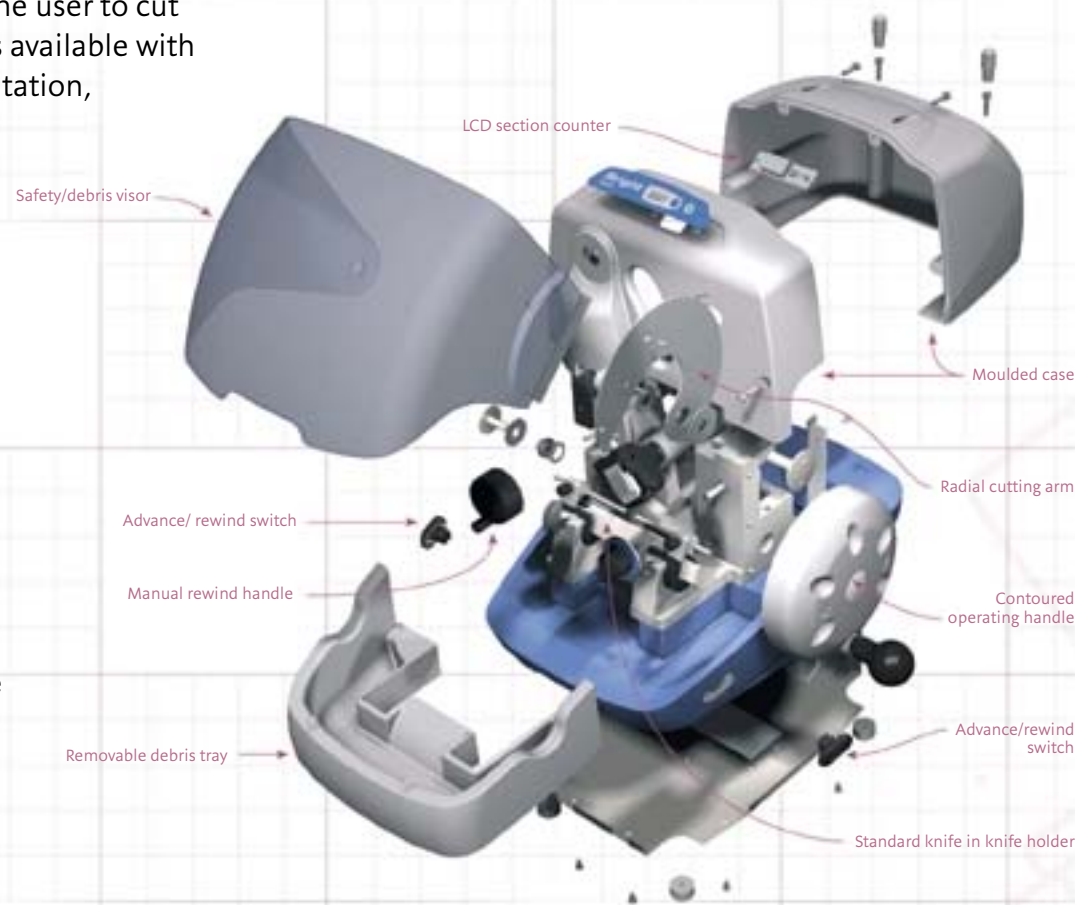
- Flat-cutting radial action
- Automatic retraction on return stroke
- Motorised advance/rewind with dual controls (left and right hand)
- Section counter
- Motor drive*
- Accepts a wide range of knives and disposable blade holders
- Unique Lever Release Feather™ Blade Holder for easy and safe operation
- Height adjustable safety guards to fit different size knives and blades
- Large internal debris tray takes control of waste
- Innovative debris visor increases safety when a blade or knife is loaded
- Can be used comfortably, positioned at 90° to the operator
- 10-Position handwheel lock for safety and convenience
- Cassette quick release holder
- Specimen orientation available
- Stepping motor drive can be stalled without damage
- Lateral blade holder movement ensures full use of disposable blade

* Available late 2002

The flat-cutting radial action of the M3500 has a distinct advantage over a vertical cutting microtome in that the specimen moves along the blade, as well as down on to it, thus producing a slicing cut similar to a guillotine. This cutting action produces less section compression than other methods and therefore gives superb results.

The M3500 incorporates the latest design thinking, using high quality moulded materials to soften curves and strengthen construction. This microtome has been designed to be portable, (cutaways in the plinth act as handgrips) but it is heavy enough to remain stable whilst sectioning. The advance/rewind switch has been duplicated on either side of the front and other controls have been positioned so that the microtome can be used either front-on or side-on to the operator.

Innovations, including a debris visor doubling up as a safety shield, a debris blind and trap to keep the inner mechanism clean and a deep integral debris tray, combine to make operations easier, cleaner and safer for the operator.



Specification

Cutting movement	53° flat-cutting radial with manual handwheel operation
Cutting stroke, mm	57
Maximum specimen size, mm	25x30
Section thickness range ¹	0µm to 30µm in 2µm increments
Max head advance	25mm at 0° knife tilt angle
Specimen orientation	5°
Specimen rotation	360°
Retraction	Yes (10µm)
Section counter	6 digit LCD
Section counter power supply	2xAA batteries (supplied)
Knife angle adjustment	0-25°
Specimen holder	Quick release cassette holder
Electrical ²	220/240V, 50/60Hz
Dimensions, wxhxd, mm	450x300x440
Weight, kg	24

1. 0µm to 15µm in 1µm increments available as a factory fitted option
2. 110V versions available, please enquire

Ordering

Cat. No.	Part no.	Description
236-029	M3500-01	Radial microtome with standard knife holder and cassette quick release holder
236-033	M3500-02	Radial microtome with standard knife holder and standard vice clamp

Options (factory fitting required)

Cat. No.	Part no.	Description
236-034	230MAR	Motorised advance/rewind (220/240V 50/60Hz) ²
236-155	230MR	Motorised drive (220/240V 50/60Hz) ^{2,3}
236-035	212-045	1-15µm feed screw with 1µm increments

Accessories

Cat. No.	Part no.	Description
236-038	212-048	Standard vice clamp (can be fitted instead of quick release cassette holder at no extra cost)
236-039	212-049	Standard vice clamp with orientation
236-036	212-046	Cassette quick release holder
236-037	212-047	Cassette quick release holder with orientation
236-004	50230	Standard knife with box, C-profile, 189x27x10mm, 22° angle, safety cut-outs at each end
236-032	57903	Lever Release Feather™ Blade Holder
??-???	BDH	Feather™ disposable blades
236-040	138404-16	Spare fuse 1 amp(T)
236-071	57713-1	Bright Cryospray 134, 300ml aerosol can

2. 110V versions available, please enquire 3. Available late 2002



OTF 5000 Cryostat

The OTF 5000 represents the new style of Bright cryostat. Based on the long-established and reliable OTF/AS cryostat, the new OTF 5000 incorporates the latest blade systems in the ever-reliable and powerful 5040 microtome. A huge choice of options plus money-saving package deals make these cryostats absolutely unique.

They are suitable for an endless range of applications and in the correct configuration are capable of cutting a wide diversity of specimens from undecalcified bone to brain, resins, plastics and plant tissue as well as more usual soft tissue. The OTF 5000 allows full anti-roll plate adjustment for perfect results coupled with flexible temperature control and long lasting temperature stability.

- New contoured top for added operational comfort and usability
- Surface finishes - easy clean, flame retardant, scratch and solvent resistant
- Suitable for research and clinical operation
- Two money-saving special packages
- Uses solid knives or disposable blades
- Available in 2 working heights
- Automatic evaporator defrost with analogue clock and battery backup
- Automatic window demist system
- Non-urgent functions on side panel
- Range of options and accessories
- Balanced, contoured handwheel
- Heated window surround
- Contains tried and tested 5040 rotary microtome



Specification

Cutting movement	Rotary rocking with beryllium hinges
Cutting stroke, mm	56
Maximum specimen size, mm	50 x70
Lowest chamber temperature, °C ¹	-35 single compressor
Quick freezer	9 position, running at 10°C below chamber temperature
Section thickness range ⁴	0.5µm to 30µm in 0.5µm increments
Lateral specimen movement	5.6mm
Maximum knife holder movement	44mm
Retraction	Yes (50 µm)
Chamber temperature control	Yes
Knife angle adjustment (standard knife block)	25°
Specimen holder	Object holder vice clamp
Electrical ²	220/240V, 50/60Hz
Dimensions, wxhxd, mm	880x1250x840
Weight, kg ³	120

1. -40°C chamber temperature is achieved by HS model with dual compressor, see page 8
2. 110V versions available, please enquire
3. Refers to Standard & LS models. Weight of HS model, 140kg
4. This range is applicable to the 5000 cryostat fitted with 0.5µm to the 30µm feed screws. Other section thicknesses are available using the optional feed screws listed on page 9.



The Quick Release Feather™ Blade Holder



The Standard Knife Block

OTF 5000 cryostats are available fitted with either a standard knife block or with a Quick Release Feather™ Blade Holder. The Quick Release Feather™ Blade Holder can be quickly changed for the standard knife block and vice versa.

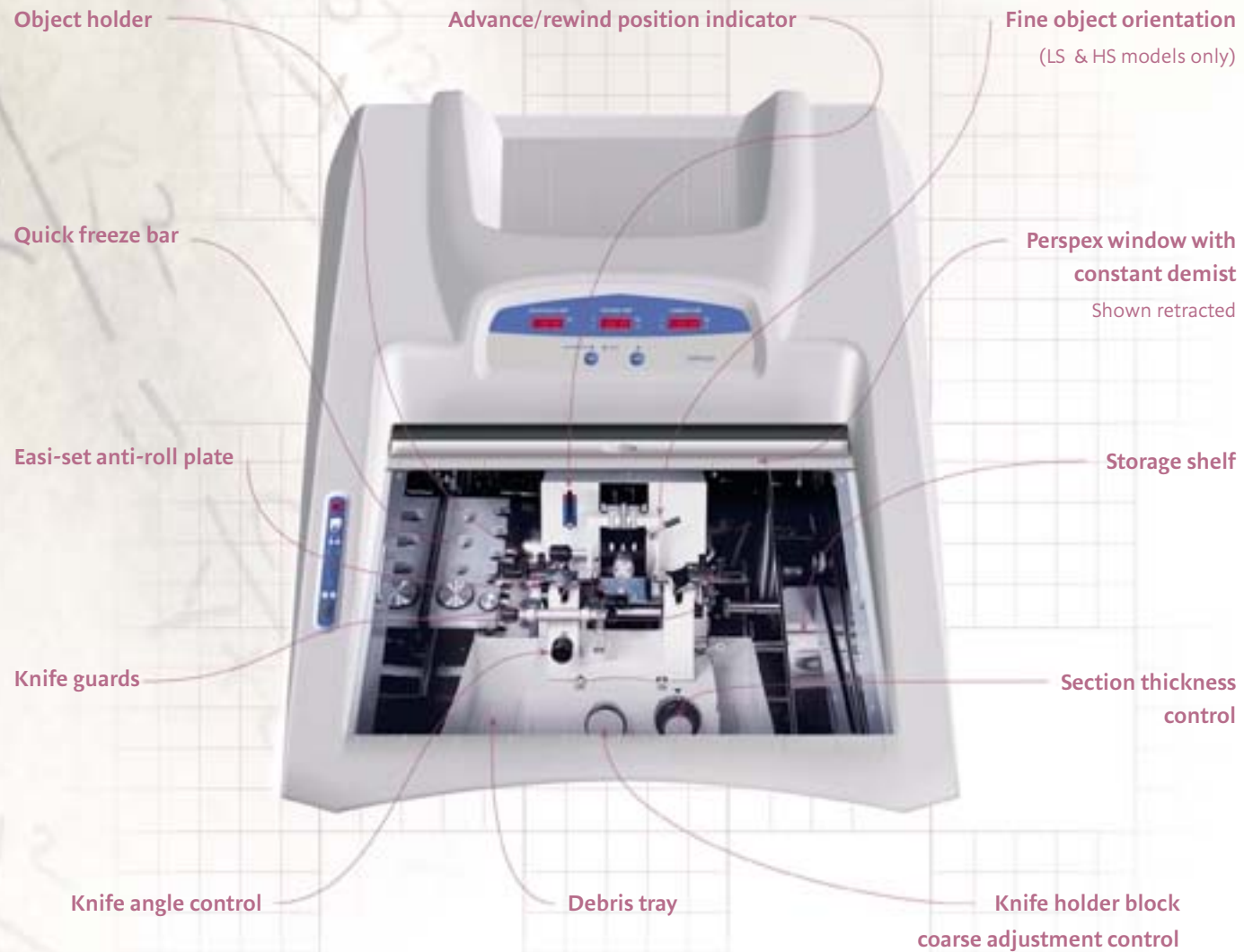
For users wishing to use both standard blades and Feather™ blades, a Lever Release Feather™ Blade Holder is available as an accessory.



The Lever Release Feather™ Blade Holder

This fits easily into a standard knife block holder. The low profile blade can be easily and safely changed without removing the blade holder from the knife block.

Features of the OTF 5000 Cryostat



Standard OTF 5000 shown with standard knife block and optional fine object orientation (standard on LS & HS models)

The OTF 5000 has at its heart the Bright 5040 microtome. This classic design copes with high cutting loads and yet performs very favourably under conditions of low temperature. The 5040 has a unique construction. By incorporating thin flexible beryllium hinges, the movement of the top arm of the microtome is strictly controlled. The design eliminates any expansion or contraction problems that might arise as a result of the large range of temperature changes which take place in a cryostat.

The mechanical pawl and ratchet wheel system guarantees accurate head advance ensuring reproducibility of section thickness.

The OTF 5000 incorporates a 'quick freeze' bar. This quick freezer can accommodate 5 x 22mm diameter object holders and 4 x 37mm object holders in the positions provided. The temperature of the freeze bar is approximately 10°C lower than the chamber temperature.



Options for OTF 5000 Cryostats



Quick Release Feather™ Blade Holder
Accepts low profile Feather™ blades and allows adjustment of the blade angle centred around the edge of the blade. Has a simple quick-release facility for easier blade changing.

The Quick Release Feather™ Blade Holder enables the cryotomist to use the full length of the blade without waste. Another important feature is the fact that the blade angle can be changed without altering the position of the blade edge since it is at the centre of the radius of angular movement. The Quick Release Feather™ Blade Holder can be quickly changed for the standard knife block holder and vice versa. It is also extremely safe to change a blade because it is inserted from the side into a blade carriage. It is supplied complete with anti-roll plate and ten Feather™ blades.



Lever Release Feather™ Blade Holder
This fits into a standard knife block holder. It enables a low profile Feather™ blade to be easily and safely changed without removing the blade holder from the knife block. Although less sophisticated than the quick release version, it is quite safe and easy-to-use and provides accessibility to the whole length of the blade.

/MR Motor Drive
For automation of the cutting process. To provide extremely smooth cutting velocities with continuous or single section operation. It has variable speed and zone control and is particularly useful if ultra-repeatability of sections is critical. Includes emergency stop.

/MR(S) Motor Drive
As /MR above but with high torque/low speed for very hard specimens, e.g. undecalcified bone.

/V Foot Switch for Motor Drive
Leaves hands free to collect sections.

/MAR Motorised Advance Rewind (2 Speed)
Permits rapid rewind of microtome to start position, and rapid, slow or incremental advance (e.g. for trimming). Manual operation is also possible.

/U Ultra Violet Light Decontamination Unit
Fits into the window aperture, this unit helps decontamination of the cryostat.

/LOW OTF 5000 Low Version
Operating height reduced by 10cm from standard cryostat.

/LOWEC OTF 5000 Low Version
Operating height reduced by 10cm from standard cryostat with dual refrigeration.



Dual Refrigeration
Dual refrigeration is an option available on the basic model and is a standard feature of the HS models.

There are three main benefits to dual compressor refrigeration:

- 1 A dual compressor system can achieve lower chamber temperatures than a single compressor system and will cool down more quickly.
- 2 Compressor usage is shared and this will extend the life of the compressors.
- 3 In the unlikely event of a compressor failure, the remaining compressor will automatically maintain the selected temperature, thus refrigeration will be uninterrupted. A warning light will indicate a compressor failure. This allows 24 hour guaranteed performance.

/EC Dual Refrigeration System
The dual refrigeration switch allows selection of a single compressor or both compressors. When a single compressor is selected then the lowest achievable chamber temperature is -35°C. A temperature of -40°C is achievable when both compressors are selected.

/LT Dual Refrigeration System
As /EC but when a single compressor is selected then the lowest achievable chamber temperature is -40°C. A temperature of -45°C is achievable when both compressors are selected.

/QF Specimen Quick Freezer
Enables tissues to be rapidly frozen to -80°C within the cryostat cabinet. (Not available as an option on units with dual refrigeration).

/D Cryomatic Specimen Temperature Control
It is imperative with some tissues that the blade slicing the tissue is colder than the specimen so that the tissue section is cooled by the blade and not warmed up by it, as the latter may result in the section becoming 'sticky' and compressed. The Cryomatic Specimen Temperature Control is designed to raise the specimen temperature to any set point above the chamber temperature (+5°C above lowest chamber temperature).

The Cryomatic specimen block is electrically heated, therefore the response to changes of temperature is much faster than if a refrigerant system is used.

Ordering the OTF 5000

The OTF 5000 cryostats are available in 3 configurations:

Standard model which includes;	LS models have in addition to the Standard specification;	HS models have in addition to the LS specification;
Quick Freezer, internal shelves, evaporator defrost, manual cutting system, 5040 microtome with fixed head, heated window surround, window demist system, analogue defrost clock, side mounted non urgent controls and a full set of accessories.	<ul style="list-style-type: none"> Fine object orientation Motorised advance/rewind (2 speed) 116µm/s and 164µm/s with auto-reset Specimen temperature control, fast reacting from -5°C to minimum chamber temperature. Microprocessor control and LED display 	<ul style="list-style-type: none"> Section counter, 6 digit LCD display Dual refrigeration with auto compressor switch over for -40°C chamber temperature Motor drive for automation of cutting process, with variable speed control. Footswitch operation is standard on the HS model.
There are two additional models the LS and HS. These models incorporate all the features and specifications of the basic OTF 5000 but each includes a package of extra features.		

All three models are available with Quick Release Feather™ Blade Holder complete with anti-roll plate and ten Feather™ blades instead of standard knife block and 50230 knife.

Ordering OTF 5000 Cryostats		
Cat. No.	Man. part no.	Description
236-041	OTF 5000-001	OTF 5000 Standard cryostat with standard knife block and 50230 knife
236-042	OTF 5000-003	OTF 5000 Standard cryostat with Quick Release Feather™ Blade Holder, anti-roll plate and ten Feather™ blades instead of standard knife block and 50230 knife
236-044	OTF 5000/LS-001	OTF 5000 LS cryostat as OTF 5000-001 but with motorised advance rewind (2 speed), cryomatic specimen temperature control and fine object orientation with standard knife block and 50230 knife
236-030	OTF 5000/LS-003	OTF 5000 LS cryostat with Quick Release Feather™ Blade Holder, anti-roll plate and ten Feather™ blades instead of standard knife block and 50230 knife
236-043	OTF 5000/HS-001	OTF 5000 HS cryostat as OTF 5000/LS-001 but with section counter, dual refrigeration and motor drive with standard knife block and 50230 knife
230-031	OTF 5000/HS-003	OTF 5000 HS cryostat with Quick Release Feather™ Blade Holder, anti-roll plate and ten Feather™ blades instead of standard knife block and 50230 knife

Options for OTF 5000 Cryostats						
Cat. No.	Option ref.	Description	Requires factory fitting	Basic	LS	HS
236-023	/EC	Dual refrigeration with auto compressor switch over (-40°C)	Yes	O	NA	S
236-047	/LT	Low temperature dual refrigeration system (-45°C)	Yes	NA	NA	O
236-049	/QF	-80°C Ultra low temperature quick freezer. Not available in conjunction with /EC or /LT.	Yes	O	O	NA
236-001	/D	Cryomatic specimen temperature control. +5 °C to lowest achievable chamber temperature	Yes	O	S	S
236-002	/MR	Motor drive with cutting window	Yes	O	NA	S
236-048	/MR(S)	Low speed/high torque motor drive	Yes	NA	NA	O
236-024	/V	Foot switch for motor drive	—	O	NA	O/S
236-010	/MAR	2 speed Motorised advance/rewind, 116µm/s and 164µm/s	Yes	O	S	S
236-011	/U	UV decontamination system	Yes	O	O	O
236-046	/LOW	Low height version	Yes	O	O	NA
236-045	/LOW EC	Low height version (for dual refrigeration models)	Yes	NA	NA	O

O. Option available as an added extra NA. Not available S. Option fitted as standard

Accessories for OTF 5000 Cryostats		
Cat. No.	Part no.	Description
236-156	53431	Quick Release Feather™ Blade Holder. Accepts low profile Feather™ blades and allows adjustment of blade angle. Quick release facility for easy blade changing. Complete with anti-roll plate and ten Feather™ blades
236-032	57903	Lever Release Feather™ Blade Holder. Fits into standard knife block holder. Low profile blade can be easily and safely changed without removing the blade holder from the knife block
236-003	50539	Orientating head assembly with fine adjustment screws (must be factory fitted)

Object holder		
Cat. No.	Part no.	Description
236-005	50734-1	Object holder, 22mm diameter, short
236-064	50734-2	Object holder, 22mm diameter, long
236-065	50735-1	Object holder, 37mm diameter, short
236-066	50735-2	Object holder, 37mm diameter, long
236-069	50744	Object holder, 5mm diameter
236-063	50721	Object holder, 50mm diameter
236-067	50741	Object holder, 50x50mm
236-068	50743	Object holder, 50x70mm

Feed screws for /MAR option		
Cat. No.	Part no.	Description
236-061	50259-1	3-180µm feed screw
236-059	50258-1	2-120µm feed screw
236-026	50257-1	1-60µm feed screw
236-054	50255-1	0.5-30µm feed screw
236-056	50256-1	0.2-12µm feed screw

Feed screws		
Cat. No.	Part no.	Description
236-062	50260	5-300µm feed screw
236-060	50259	3-180µm feed screw
236-058	50258	2-120µm feed screw
236-057	50257	1-60µm feed screw
236-053	50255	0.5-30µm feed screw
236-055	50256	0.2-12µm feed screw

Anti-roll plates		
Cat. No.	Part no.	Description
236-093	50424	Easi-set anti-roll plate, 37mm
236-094	50425	Easi-set anti-roll plate, 50mm
236-158	50426	Easi-set anti-roll plate, 75mm

Ancillary		
Cat. No.	Part no.	Description
236-073	53551	Spare fuses for 236-041, 236-042
236-074	53552	Spare fuses for 240V models with /EC or /LT
236-071	57713-1	Bright Cryospray 134, 300ml aerosol can
236-072	53581-1	Bright Cryo-M-Bed, 113ml bottle

Knives and blades		
Cat. No.	Part no.	Description
236-004	50230	Standard knife with box, C-profile, 189x27x10mm, 22 ° angle, safety cut-outs at each end
236-052	50140	Magnacut disposable blade system. Magnetic blade holder, 50mm anti-roll plate, 10 blades, blade removal tool, box and instructions
236-051	50133	Magnacut disposable blade system. Magnetic blade holder, magnetic anti-roll plate, 10 blades, blade removal tool, box and instructions
236-070	52727	Long-life disposable blades for Magnacut, C-profile x 50
???????	BDH	Feather™ disposable blades

For more details, please contact our Technical Office on +44 (0)1342 826836.

Starlet Cryostat

The Bright Starlet is the world's smallest Cryostat! It is a small, portable and convenient instrument with a choice of handwheel or lever operation. The compact chamber ensures rapid cool-down times, is easy-to-clean and resists common decontaminating agents.

Whilst not in use an insulated cover is pressed into place to ensure efficient running of the refrigeration system and to reduce frosting. If the unit is transported, the chamber will remain cold for a prolonged period.

The Starlet 2212 Cryostat is supplied complete with:

- Single refrigeration system (to -30°C)
- Manual microtome with 2–12µm feed
- Magnacut knife holder with long-life disposable blades
- Magnaplate anti-roll plate system
- Handwheel or lever operation
- Specimen quick freeze (-40°C) with digital display
- Programmable automatic defrost



Specification

Cutting movement	Rotary rocking with beryllium hinges
Compressor type	1x3.86cc displacement
Refrigerant	Ozone friendly HFC refrigerants
Cooling power	125W at -30°C
Lowest set temperature	Ambient to -30°C with automatic programmable defrost with manual override and digital display. Detachable quick freezer bar to -40°C with digital display
Cabinet	ABS polymer and stelvite polymer coated steel - scratch, solvent and detergent resistant
Microtome cutting stroke	30mm
Max specimen size	22mm diameter
Max head advance	10mm
Knife holder	Magnacut blade holder with long-life disposable blades and integral anti-roll system
Knife angle adjustment (standard knife block)	0-12°
Section thickness range ¹	2µm to 12µm in 2µm increments
Dimensions, wxhxd, mm	315x740x465 (min) / 546 (max)
Weight, kg ²	40

1. 4-24µm available as an option, see page 13

2. Weights vary according to specification of instrument

Options for Starlet Cryostats

U/ Ultraviolet Light Decontamination Unit

This unit fits into the window aperture and helps decontaminate the cryostat.

Ordering of Starlet Cryostats

Cat. No.	Description
236-012	Starlet Cryostat with handwheel operation
236-013	Starlet Cryostat with handwheel operation and UV Light decontamination unit
236-015	Starlet Cryostat with lever operation
236-014	Starlet Cryostat with lever operation and UV Light Decontamination Unit

Accessories

Cat. No.	Description
236-084	Ultra violet light decontamination unit, consisting of night plug, power supply and germicidal lamp
236-075	Carbon dioxide quick-freeze attachment

Cryo block embedding moulds

Cat. No.	Description
236-076	Cryo block embedding mould, 22mm diameter
236-077	Cryo block embedding mould, 16mm diameter
236-078	Cryo block embedding mould, 10mm diameter

Object holders

Cat. No.	Description
236-079	Orientating object holder, complete with stem
236-080	Object holder, 22mm diameter
236-081	Easi-set anti-roll plate

Feed screws

Cat. No.	Description
236-082	4-24µm feed screw (in place of 2-12µm feed screw)

Knives and blades

Cat. No.	Description
236-095	Magnaplate anti-roll plate and handle, x 3
236-070	Long-life disposable blades for Magnacut, C-profile x 50
236-092	Blade removal tool

Ancillary

Cat. No.	Description
236-071	Bright Cryospray 134, 300ml aerosol can
236-072	Bright Cryo-M-Bed, 113ml bottle
236-103	Low temperature grease, 5g
236-130	Knife cleaning brush
236-104	Anti-static brush, 12mm
236-083	Spare fuse set for 236-012 to 236-015