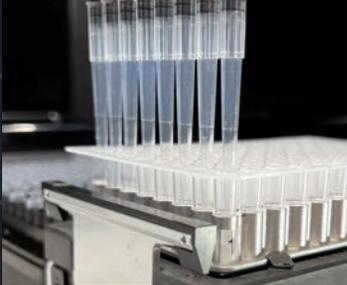


# NEW PRODUCT FOCUS

EDITION 2024A



Prepmaster™ 5100 SEE INSIDE FRONT COVER



NIGHTSEA Focus Lens for SFA Light Head SEE BACK COVER



MiniQ GD Glow Discharge System SEE PAGE 6



Qdry Critical Point Dryer SEE PAGE 7

the latest...the best...  
the most advanced

**Electron  
Microscopy  
Sciences**



EMS UltraCut Scissors SEE PAGE 2



EMS Micro Scissors SEE PAGE 3



EMS ProCut Scissors SEE PAGE 4



Planet-Safe® Petri Dishes SEE PAGE 1

NIGHTSEA for Hirox SEE PAGE 8-9



# Walk-away specimen prep automation

## Prepmaster™ 5100

### Specimen Preparation Robot

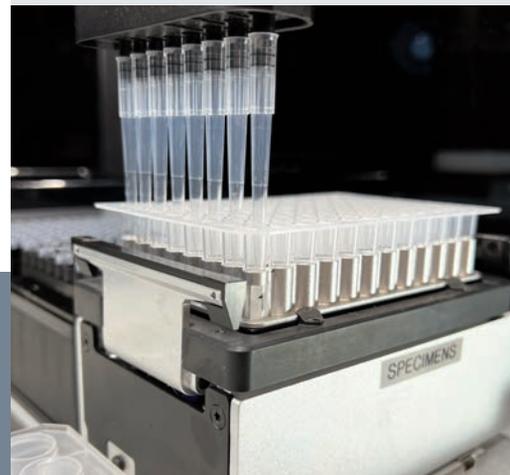


The Prepmaster™ 5100 reliably accomplishes your repetitive tasks, increasing reliability and consistency in the specimen preparation, confidence in your results, and efficiency in your workflows

- Easy to set up and easy to clean up.
- Heated (RT – 60°C) Agitation Station™ provides gentle, constant movement for fast staining and rinsing
- Hot (RT-60°C) 12-position reagent reservoir and Cold (5°C-RT) 12-position reagent reservoir enables temperature control of up to 12 reagents each
- Up to 24 unique reagents or rinses possible
- Reliable unattended overnight operation
- Prepare up to 8 kidney specimens in less than 1 hour.

ensures  
repeatability and  
reproducibility

Prepmaster and Agitation Station are trademarks of Heartland Biotech LLC.



### Applications

The versatile Prepmaster 5100 offers a wide range of applications for TEM, SEM, and LM including, but not limited to, tissue/biopsies (1mm dia. x 1–3mm length), cells seeded-on-coverslips, organoids, retinas, and most other biological samples.

The Prepmaster 5100 is a smart robot with all the advantages of internet connectivity. Remote technical support is available, including remote monitoring and control for real-time online assistance with methods development and troubleshooting.

### Example Protocols

The Prepmaster 5100 computer controller comes pre-loaded with example protocols for standard tissue preparation that can be run or easily modified or written from scratch to match your existing protocols. For example, protocols for kidney tissue prep with and without en-bloc UA staining can be easily created, modified, and stored.

expandable  
for future  
applications



## EMS has it! ▶▶▶▶

find out more at [www.emsdiasum.com](http://www.emsdiasum.com)



## Petri Dishes

**Planet-Safe® Petri Dishes**

Break free from fossil fuels with the world's first 100% plant-based petri dish.

Planet-Safe® Petri dishes are made from polylactic acid (PLA), a compostable and biodegradable resin derived from renewable non-GMO resources such as sugar beets, sugarcane and corn.

**Features**

**Superior Cell Binding:** PLA is a performance biorein that is significantly more hydrophilic than petrochemical resins such as polystyrene. This allows a variety of anchorage-dependent eukaryotic cell species to grow in liquid culture on the surface of Petri dishes without added coatings such as proteins, extracellular matrices (ECM), fibronectin, collagen, poly-D-lysine, or specialty plasma gas treatments.



**Ideal Platform for Microbial Growth:** With the addition of gelled culture media, Planet-Safe Petri dishes are ideal for growing bacteria, molds, and yeasts. Excellent optical transparency facilitates microscopic cell examination while resisting organic solvents such as alcohols, hydrocarbons, and ketones.

**Eco-responsible Disposal:** Disposing of Planet-Safe labware is simple and more environmentally friendly than disposing of petroleum-based labware. All Planet-Safe labware can be commercially composted. It may also be incinerated in a manner that is consistent with applicable regulations, resulting in the release of CO<sub>2</sub> and water. If disposed of in a landfill, spent growth media will aid PLA breakdown into neutral components.



- Flat design for optical transparency
- Vented lid with 4 vents for even gas exchange
- Stackable
- Untreated hydrophilic surface for excellent cellular growth
- DNA(se) and RNA(as) free
- Sterilized by E-beam irradiation

Available in a case containing 375 dishes in 25 sleeves, or packs of 15.

**Specifications**

	Inner Dia. (mm)	Outer Dia. (mm)	Height (mm)	Weight (g)
<b>Petri Dish Lid</b>	89.56	91.31	8.4	8.85
<b>Petri Dish Base</b>	85.83	88.19	14.88	10.19
<b>Covered Petri Dish</b>	—	89.56	16.30	19.04
<b>Dimensions (Lid &amp; Base)</b>	100mm x 15mm (nominal), 91mm x 16mm (actual)			
<b>Sterilization Method</b>	E-Beam Irradiation			
<b>Country of Origin</b>	United States of America			

**Regulatory Compliance:** Manufactured using FDA compliant resin without the use of additional release agents or additives to remain DNase/RNase free. Produced under cGMP guidelines in a controlled environment, fully automated and without human intervention of parts contained within the main sterility barrier. All products are inspected according to applicable specifications and have passed quality inspection procedures prior to final approval for release.

**Temperature Guidelines:** PLA has a softening temperature between 60-65°C which is lower than that of polystyrene. Therefore, when pouring heated liquids, temperatures above 65°C should be avoided to prevent warping. Accordingly, autoclave-sterilized agar-containing culture medium should be cooled to 50°C-55°C before pouring, which is also its ideal pouring temperature as this limits undesirable moisture condensation. After pouring media, let dishes remain undisturbed for 2-3 minutes before moving to prevent warping.

**Ordering Information**

Cat No.	Description	Qty.
<b>86952</b>	Planet-Safe® Petri Dishes	375 Case
<b>86952-25</b>	Planet-Safe® Petri Dishes	15 Pack

## Racks

**EMS Proculture Cryotube Floating Bubble Rack**

Incubate cryotubes in 37°C water baths or beakers

This round 20-place polypropylene floating rack accommodates most cryotubes and holds them securely in a circular pattern comprised of 8 inner and 12 outer openings.

- Excellent for holding cryotubes for incubation or work
- Floats in water; also useful for quickly thawing frozen cells in a 37°C water bath
- Cryotubes are easily removed by holding the center handle and pushing the rack down against the bench until the legs touch
- Autoclavable

**Dimensions:** 6.4mm (1/4") thick; 95mm (3-3/4") in diameter; 19mm (3/4") long legs

Cat No.	Description	Qty.
<b>65899</b>	EMS Proculture CryoTube Floating Bubble Rack	each



**INSTRUMENTS**

**Scissors**

**EMS UltraCut Scissors**

Perfect for use in medical, surgical, or laboratory settings when precision is needed.

EMS UltraCut Scissors are the perfect solution for demanding applications, replacing tungsten carbide blade scissors while improving on performance, durability, and pricing.

Made of stainless steel AISI 420 and AISI 440, hardened with a special vacuum heat-treatment process, UltraCut scissors are autoclavable countless times and feature long-lasting sharpness and cutting performance.

They are specifically designed to cut fine braided mesh or wires, and tough fibers and suture materials typical of the medical device industry. Designed to be comfortable for both right and left handed users, they are available with single micro-serrated blades to reduce slippage, or with standard blades.

UltraCut scissors are the ideal solution for perfectly clean cuts and long-lasting performance with reduced strain and fatigue.

**Quick Selection Chart**

Cat No.	Blade Description	OAL	Blade Length	Body Material	Finishing	Blade Serration
384.EM	Fine, sharp, straight blade, side cut. Biological and lab applications	90mm (3.54 in.)	15mm (0.59 in.)	Hardened stainless steel	Mirror polished	Micro-serrated
384NS.EM	Fine, sharp, straight blade, side cut. Biological and lab applications	90mm (3.54 in.)	15mm (0.59 in.)	Hardened stainless steel	Mirror polished	—
394.EM	Fine, sharp, straight blade, side cut. Biological and lab applications	112mm (4.43 in.)	20mm (0.79 in.)	Hardened stainless steel	Mirror polished	Micro-serrated
394NS.EM	Fine, sharp, straight blade, side cut. Biological and lab applications	112mm (4.43 in.)	20mm (0.79 in.)	Hardened stainless steel	Mirror polished	—

**EMS UltraCut Scissors 384**



<b>Tip Description</b>	Straight, fine, sharp, micro-serrated
<b>Coating/Finishing</b>	Mirror polished
<b>Body Material</b>	Stainless steel (hardened AISI 420)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 45.0mm (1.772 in.) Height: 4.0mm (0.157 in.)
<b>Tip Dimensions</b>	Tip width: 0.50mm (0.020 in.) Tip thickness: 1.00mm (0.039 in.)

Cat No.	Description	Qty.
384.EM	EMS UltraCut Scissors 384	each

**EMS UltraCut Scissors 394**



<b>Tip Description</b>	Straight, fine, sharp, micro-serrated
<b>Coating/Finishing</b>	Mirror polished
<b>Body Material</b>	Stainless steel (hardened AISI 440)
<b>Product Dimensions</b>	OAL: 112.5mm (4.43 in.) Width: 46.0mm (1.811 in.) Height: 4.5mm (0.177 in.)
<b>Tip Dimensions</b>	Tip width: 0.70mm (0.028 in.) Tip thickness: 0.70mm (0.028 in.)

Cat No.	Description	Qty.
394.EM	EMS UltraCut Scissors 394	each

**EMS UltraCut Scissors 384NS**



<b>Tip Description</b>	Straight, fine, sharp
<b>Coating/Finishing</b>	Mirror polished
<b>Body Material</b>	Stainless steel (hardened AISI 420)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 45.0mm (1.772 in.) Height: 4.0mm (0.157 in.)
<b>Tip Dimensions</b>	Tip width: 0.70mm (0.028 in.) Tip thickness: 0.70mm (0.028 in.)

Cat No.	Description	Qty.
384NS.EM	EMS UltraCut Scissors 384NS	each

**EMS UltraCut Scissors 394NS**



<b>Tip Description</b>	Straight, fine, sharp
<b>Coating/Finishing</b>	Mirror polished
<b>Body Material</b>	Stainless steel (hardened AISI 440)
<b>Product Dimensions</b>	OAL: 112.5mm (4.43 in.) Width: 46.0mm (1.811 in.) Height: 4.5mm (0.177 in.)
<b>Tip Dimensions</b>	Tip width: 0.70mm (0.028 in.) Tip thickness: 0.70mm (0.028 in.)

Cat No.	Description	Qty.
394NS.EM	EMS UltraCut Scissors 394NS	each

Scissors

### EMS Micro Scissors

Perfect for educational, research, or healthcare settings.

Designed specifically for confined spaces, EMS Micro Scissors excel in delivering precise cuts. Their compact size and slender profile allow for effortless maneuverability, ensuring easy navigation of intricate areas. The spring-action mechanism allows for ease and comfort of use in high precision applications.

With their short, fine blades, these scissors provide superior visibility and exceptional accuracy. Whether you're working on delicate electronics, intricate crafts, or precise medical device manufacturing, EMS Micro Scissors are the perfect choice.

#### Quick Selection Chart

Cat No.	Blade Description	OAL	Blade Length	Body Material	Finishing	Blade Serration
346AMS.B.EM	Very fine, straight blade. Miniature work.	100mm (3.94 in.)	8mm (0.31 in.)	Hardened stainless steel	Polished	—
346MS.B.EM	Very fine, straight blade. Miniature work.	120mm (4.72 in.)	15mm (0.59 in.)	Hardened stainless steel	Polished	—
366MS.B.EM	Very fine, straight blade. Miniature work.	90mm (3.54 in.)	7mm (0.28 in.)	Hardened stainless steel	Polished	—

#### EMS Micro Scissors 346AMS



<b>Tip Description</b>	Straight, very fine
<b>Coating/Finishing</b>	Polished
<b>Body Material</b>	Stainless steel (hardened AISI 420)
<b>Product Dimensions</b>	OAL: 100.0mm (3.937 in.) Width: 17.0mm (0.669 in.) Height: 7.5mm (0.295 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.30mm (0.012 in.)

Cat No.	Description	Qty.
346AMS.B.EM	EMS Micro Scissors 346AMS.B	each

#### EMS Micro Scissors 366MS



<b>Tip Description</b>	Straight, very fine
<b>Coating/Finishing</b>	Polished
<b>Body Material</b>	Stainless steel (hardened AISI 420)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 18.0mm (0.709 in.) Height: 7.0mm (0.276 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.30mm (0.012 in.)

Cat No.	Description	Qty.
366MS.B.EM	EMS Micro Scissors 366MS.B	each

#### EMS Micro Scissors 346MS



<b>Tip Description</b>	Straight, very fine
<b>Coating/Finishing</b>	Polished
<b>Body Material</b>	Stainless steel (hardened AISI 420)
<b>Product Dimensions</b>	OAL: 120.0mm (4.724 in.) Width: 21.0mm (0.827 in.) Height: 7.5mm (0.295 in.)
<b>Tip Dimensions</b>	Tip width: 0.40mm (0.016 in.) Tip thickness: 0.30mm (0.012 in.)

Cat No.	Description	Qty.
346MS.B.EM	EMS Micro Scissors 346MS.B	each

**INSTRUMENTS**

**Scissors**

**EMS ProCut Scissors**

For general and industrial applications as well as life sciences.

The EMS ProCut line is conceived for those professional users that need high-performing and long-lasting products with a cost-effective solution for a wide range of applications. This line includes the most common geometries and iconic design. Made of fine steel, hardened and tempered with state-of-the-art technologies, hand finished by artisans and double nickel-plated to provide a shield against wear and corrosion, these scissors have all the features needed for industrial use and general applications.

**Quick Selection Chart**

Cat No.	Blade Description	OAL	Blade Length	Body Material	Finishing	Blade Serration
361-35.NP.EM	Extra fine, curved blade. Miniature work.	90mm (3.54 in.)	16mm (0.63 in.)	Carbon steel	Nickel plated	—
362S-35.NP.EM	Extra fine, straight blade. Precision cutting.	90mm (3.54 in.)	20mm (0.79 in.)	Carbon steel	Nickel plated	—
362S-40.NP.EM	Extra fine, straight blade. Precision cutting.	105mm (4.13 in.)	25mm (0.98 in.)	Carbon steel	Nickel plated	—
372S-Y35.NP.EM	Extra fine, straight blade. Miniature work.	90mm (3.54 in.)	28mm (1.10 in.)	Carbon steel	Nickel plated	—
372S-Y40.NP.EM	Extra fine, straight blade. Precision cutting.	100mm (3.94 in.)	34mm (1.34 in.)	Carbon steel	Nickel plated	—
372S-Y50.NP.EM	Fine, straight blade. Heavy-duty work.	130mm (5.12 in.)	51mm (2.01 in.)	Carbon steel	Nickel plated	—
372S-Y60.NP.EM	Fine, straight blade. Heavy-duty work.	155mm (6.10 in.)	64mm (2.52 in.)	Carbon steel	Nickel plated	—
372S-YL40.NP.EM	Extra fine, straight blade. Miniature work.	100mm (3.94 in.)	30mm (1.18 in.)	Carbon steel	Nickel plated	—
375-40.NP.EM	Strong, short, curved blade. Large ring. Miniature work.	105mm (4.13 in.)	17mm (0.67 in.)	Carbon steel	Nickel plated	—
375S-40.NP.EM	Strong, short blade. Precision work.	105mm (4.13 in.)	17mm (0.67 in.)	Carbon steel	Nickel plated	—

**EMS ProCut Scissors 361-35**



<b>Tip Description</b>	Curved, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 44.0mm (1.732 in.) Height: 5.5mm (0.217 in.)
<b>Tip Dimensions</b>	Tip width: 0.40mm (0.016 in.) Tip thickness: 0.40mm (0.016 in.)

Cat No.	Description	Qty.
361-35.NP.EM	EMS ProCut Scissors 36-351.NP	each

**EMS ProCut Scissors 362S-40**



<b>Tip Description</b>	Straight, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 105.0mm (4.134 in.) Width: 46.0mm (1.811 in.) Height: 4.5mm (0.177 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.40mm (0.016 in.)

Cat No.	Description	Qty.
362S-40.NP.EM	EMS ProCut Scissors 362S-40.NP	each

**EMS ProCut Scissors 362S-35**



<b>Tip Description</b>	Straight, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 43.0mm (1.693 in.) Height: 4.5mm (0.177 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.50mm (0.020 in.)

Cat No.	Description	Qty.
362S-35.NP.EM	EMS ProCut Scissors 362S-35.NP	each

**EMS ProCut Scissors 372S-Y35**



<b>Tip Description</b>	Straight, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 90.0mm (3.543 in.) Width: 43.0mm (1.693 in.) Height: 4.5mm (0.177 in.)
<b>Tip Dimensions</b>	Tip width: 0.40mm (0.016 in.) Tip thickness: 0.40mm (0.016 in.)

Cat No.	Description	Qty.
372S-Y35.NP.EM	EMS ProCut Scissors 372S-Y35.NP	each

## Scissors

## EMS ProCut Scissors (cont.)

## EMS ProCut Scissors 372S-Y40



<b>Tip Description</b>	Straight, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 100.0mm (3.937 in.) Width: 45.0mm (1.772 in.) Height: 5.5mm (0.217 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.70mm (0.028 in.)

Cat No.	Description	Qty.
361-35.NP.EM	EMS ProCut Scissors 36-351.NP	each

## EMS ProCut Scissors 372S-YL40



<b>Tip Description</b>	Straight, extra fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 100.0mm (3.937 in.) Width: 55.0mm (2.165 in.) Height: 5.5mm (0.217 in.)
<b>Tip Dimensions</b>	Tip width: 0.30mm (0.012 in.) Tip thickness: 0.50mm (0.020 in.)

Cat No.	Description	Qty.
372S-YL40.NP.EM	EMS ProCut Scissors 372S-YL40.NP	each

## EMS ProCut Scissors 372S-Y50



<b>Tip Description</b>	Straight, fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 130.0mm (5.118 in.) Width: 48.0mm (1.890 in.) Height: 7.5mm (0.295 in.)
<b>Tip Dimensions</b>	Tip width: 0.50mm (0.020 in.) Tip thickness: 0.80mm (0.031 in.)

Cat No.	Description	Qty.
372S-Y40.NP.EM	EMS ProCut Scissors 372S-Y40.NP	each

## EMS ProCut Scissors 375-40



<b>Tip Description</b>	Curved, short, strong
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 105.0mm (4.134 in.) Width: 45.0mm (1.772 in.) Height: 5.0mm (0.197 in.)
<b>Tip Dimensions</b>	Tip width: 0.50mm (0.020 in.) Tip thickness: 0.50mm (0.020 in.)

Cat No.	Description	Qty.
375-40.NP.EM	EMS ProCut Scissors 375-40.NP	each

## EMS ProCut Scissors 372S-Y60



<b>Tip Description</b>	Straight, fine
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 155.0mm (6.102 in.) Width: 54.0mm (2.126 in.) Height: 8.0mm (0.315 in.)
<b>Tip Dimensions</b>	Tip width: 0.70mm (0.028 in.) Tip thickness: 0.70mm (0.028 in.)

Cat No.	Description	Qty.
372S-Y60.NP.EM	EMS ProCut Scissors 372S-Y60.NP	each

## EMS ProCut Scissors 375S-40



<b>Tip Description</b>	Straight, short, strong
<b>Coating/Finishing</b>	Nickel plated (NP)
<b>Body Material</b>	C (Hardened C50)
<b>Product Dimensions</b>	OAL: 105.0mm (4.134 in.) Width: 45.0mm (1.772 in.) Height: 5.0mm (0.197 in.)
<b>Tip Dimensions</b>	Tip width: 0.50mm (0.020 in.) Tip thickness: 0.50mm (0.020 in.)

Cat No.	Description	Qty.
375S-40.NP.EM	EMS ProCut Scissors 375S-40.NP	each

EM SPECIMEN PREPARATION

Glow Dishrag



### MiniQ GD Glow Discharge System

Designed with simplicity in mind, the easy-to-use MiniQ GD allows for surface modification of TEM grids, resulting in the clear imaging of macromolecules.

#### Features

- Simple operation
- Robust touch panel
- Small footprint
- Automatic operation with minimal user intervention required
- Detachable chamber with implosion guard allowing for easy cleaning
- Pre-set profiles with single touch operation.

#### Recommended Applications

- Changing wettability of surfaces, primarily used for TEM grids to improve the spread of particles/molecules on them.
- Could also be used for SEM and AFM imaging when samples are applied onto substrate surfaces from liquid.
- Soft cleaning of surfaces.

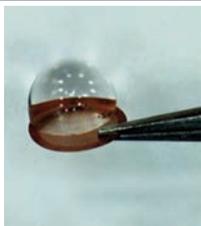
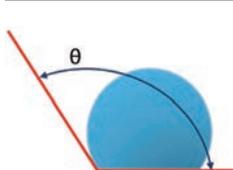
*These products are for research use only.*

#### Specifications

Please note, the MiniQ GD specifications are based on use with a Pfeiffer Duo 6 pump. For more information regarding pump options please contact [info@emsdiasum.com](mailto:info@emsdiasum.com)

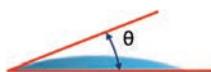
<b>Instrument Dimensions</b>	225mm W x 325mm H x 420mm D (Total Height with coating head open 480mm H)
<b>Weight</b>	8.7kg
<b>Pump</b>	You can purchase the instrument with or without a pump.
<b>Compliance</b>	The MiniQ GD complies to LVD, EMC, RoHS directives. The MiniQ GD conforms to UKCA and European CE industry marks
<b>Safety</b>	Vacuum interlocks remove power from deposition sources to prevent users being exposed to high voltage

#### Hydrophobic Surface



DDT modified Au surface before Glow Discharge.  $ca = 104.24^\circ$

#### Hydrophilic Surface

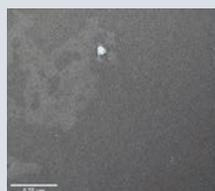


DDT modified Au surface after Glow Discharge.  $ca = 20.62^\circ$

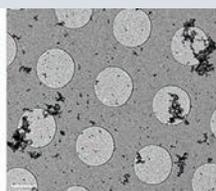
#### Ordering Information

Cat No.	Description	Qty.
MiniQGD	MiniQ GD Glow Discharge System	each

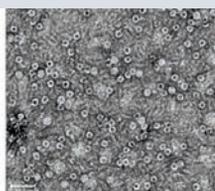
#### Application: Ferritin Solution



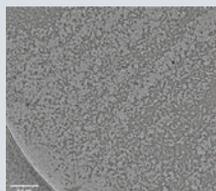
Low concentration of ferritin solution. No molecules caught on the grid surface.



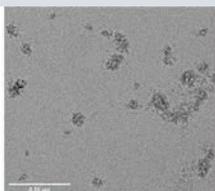
High concentration of ferritin solution. Poor spread resulting in large agglomerates.



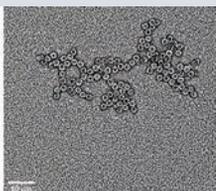
High concentration of ferritin solution. Poor spread resulting in light patches.



High concentration of ferritin solution. Large number of molecules caught on the surface.



Low concentration of ferritin solution. Molecules retained on the surface.



Low concentration of ferritin solution. Glow Discharge of the grid allowed correct staining.

## Critical Point Drying

## Qdry Automated Critical Point Dryer

With automated control, the Qdry ensures repeatable outcomes with minimal user intervention. Built-in adiabatic cooling allows for fast cool-down rates and more throughput.

## Features

- Easy-to-use and flexible software allowing for quick set-up of profiles.
- Status display to indicate time remaining.
- Recipe driven, with individual user profiles for quick set-up time.
- Supplied with pre-set profiles covering different sample types allowing easy start for new samples.
- Screw top chamber for easy sample loading.
- Large viewing window ensuring observation of process flow.
- Small footprint ideal for use in fume hoods.

Critical point dryer liquid CO<sub>2</sub> requirements

All models require a cylinder of liquid CO<sub>2</sub> fitted with a siphon tube (normally indicated by a vertical white stripe on the cylinder). If there is any doubt regarding the presence of a siphon tube, advice should be sought from the supplier.

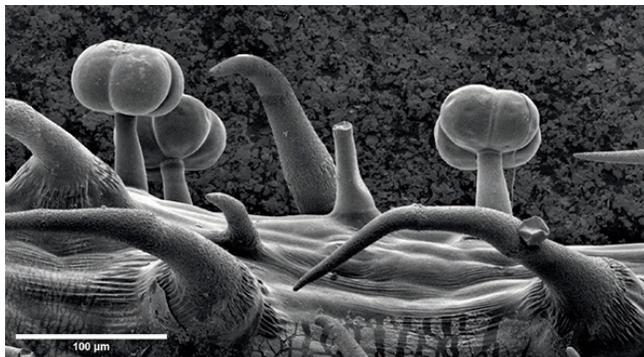
*These products are for research use only.*

## Specifications

<b>Instrument Dimensions</b>	450mm W x 235mm H x 505mm D
<b>Weight</b>	35kg
<b>Specimen Holders</b>	AL800019-1 Specimen Holder as standard
<b>Safety</b>	Built-in safety devices in both hardware and software, including freief valves, level sensors, pressure switches, and programming restraints
<b>Chamber Diameter</b>	60mm
<b>Internal Chamber Height</b>	59mm usable chamber height = 34.5 mm usable chamber volume = 97.5ml

## Ordering Information

Cat No.	Description	Qty.
QDRY	Qdry Automated Critical Point Dryer	each



Solanum Lycopersicum (Plum tomato) leaf with visible trichomes



## Preparation Protocol Example

Tomato leaf *Solanum Lycopersicum*



## Fixation and Dehydration

2.5% Glutaraldehyde in 0.1 M Sodium Phosphate Buffer, pH 7.2, T = 4° C, t = 16 hr.

0.1 M Sodium Phosphate Buffer, pH 7.2, T = 4° C, 3x 1 hr.

Ethanol series 25%, 50%, 75%, 95%, 100%, T = 4° C, 2x 20 min.

Ethanol 100% T ambient 20 min.

## Qdry Recipe: Plants

Number of exchange cycles 12

Stirring speed slow

Stirring time 240 sec.

Equilibrium time 120 sec.

Heating slow

Venting slow

## Qdry Holder

Bulk Sample Holder

## Recommendations

Coating AuPd 10–12 nm Pt 10nm

## NIGHTSEA FLUORESCENCE VIEWING SYSTEMS

### NIGHTSEA for Hirox

#### Model SFA Fluorescence Adapter for Hirox Digital Microscope

The NIGHTSEA Model SFA Fluorescence Adapter system can add a versatile fluorescence imaging capability to the Hirox digital microscope. Visit our website for a full gallery of images made with the NIGHTSEA adapter and the Hirox microscope.

Our adaptations to the Hirox system are concerned with the lens. We now offer variants of our fluorescence adapter system that work with the HR-2500E and HR-1020E lenses. **We may be able to support older lenses – contact NIGHTSEA for more information.**

#### Fluorescence solution

The key elements of any fluorescence system are:

- A light source that produces sufficient energy in the appropriate wavelength range to excite fluorescence in the sample of interest
- A barrier filter in the viewing path that blocks reflected excitation light while transmitting the fluorescence emitted by the sample

NIGHTSEA implements these for the Hirox system with:

- high intensity LED light sources available in five excitation wavelength ranges (see list on next page)
- emission barrier filters that can be easily added to the Hirox lenses
  - The filters for the HR-2500E and HR-1020E lenses simply insert into the Analyzer slot.

#### Comprehensive Solution Kit

The components of a NIGHTSEA system that adds a single excitation/emission wavelength combination on a Hirox microscope are:

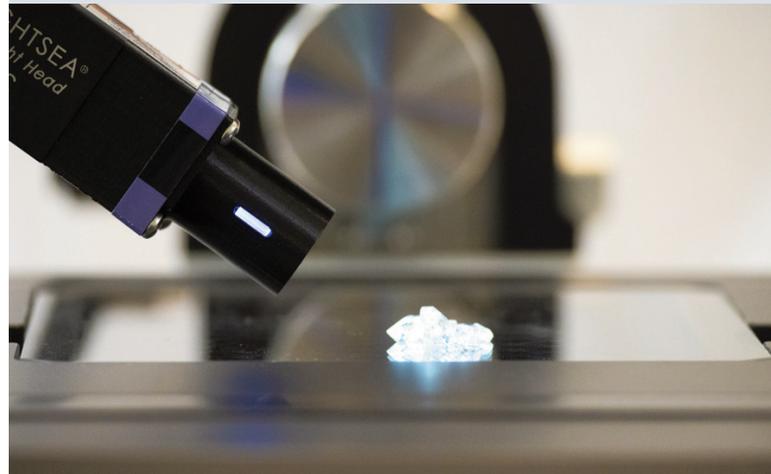
- Flexible gooseneck lamp base with LED drive circuit and intensity control;
- Universal power supply (120/240VAC, 50/60Hz) with international plug set
- Excitation light source
- Emission barrier filter
- Barrier filter glasses for fluorescence viewing and eye safety
- Padded carrying case

Additional wavelength sets are implemented by adding a matched set (light plus filter set) consisting of a light source, barrier filter, and filter glasses.

We are currently working on adapters for the full range of Hirox lenses, for use with all of our wavelength options. Please contact Hirox or NIGHTSEA to discuss your application and compatible solutions.



Hirox HR-1020E lens with NIGHTSEA UV illuminator



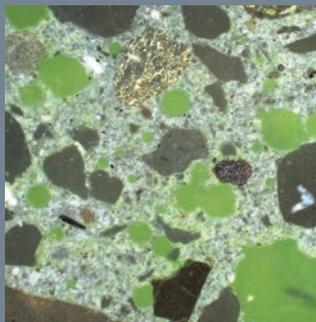
Detail of NIGHTSEA light head with Hirox microscope

# NIGHTSEA

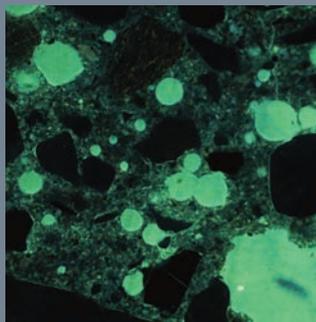
an Electron Microscopy Sciences company

### Here are samples of what you can see:

#### Concrete sample

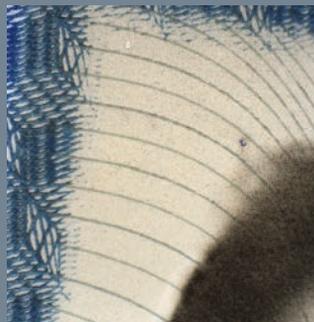


HR-2500E 140x ring light



HR-2500E 140x fluorescence with UV

#### Travel document



HR-2500E 30x ring light



HR-2500E 30x fluorescence with UV

# NIGHTSEA FLUORESCENCE VIEWING SYSTEMS

## NIGHTSEA for Hirox

### Why we recommend a set of three excitation wavelengths for industry needs

We have found that the combination of the Ultraviolet, Violet, and Royal Blue excitation/emission sets addresses a wide variety of industrial imaging challenges. The most common misconception we encounter is that fluorescence is uniquely associated with ultraviolet (UV) light and many customers immediately ask for that wavelength. However, we have found in several cases – even some in which UV was specifically recommended by a dye manufacturer – that either Violet or Royal Blue provided superior performance. For example:

A prospective customer wanted to image concrete thin sections impregnated with fluorescent dye. The dye supplier recommended UV, and it is true that UV will make the dye fluoresce nicely. We found that our Royal Blue excitation produced significantly brighter fluorescence.

Similar to above, except that a fluorescence epoxy had been used to highlight surface cracks in a test sample. Royal Blue excitation yielded brighter fluorescence.

Acquiring the three-color system will provide the highest chance of success and will equip you with a versatile toolkit to address new fluorescence imaging challenges as they arise. Contact us if you would like to discuss your application further.

In addition to the Comprehensive Solution Kits, you can also purchase single-color full systems that provide everything you need to get started with one excitation/emission combination. Once you have a full system, additional wavelength sets can be ordered separately. These contain the new light head, microscope barrier filter, and barrier filter glasses.

### Wavelength Sets

There are five excitation/emission wavelength combinations available for the system.

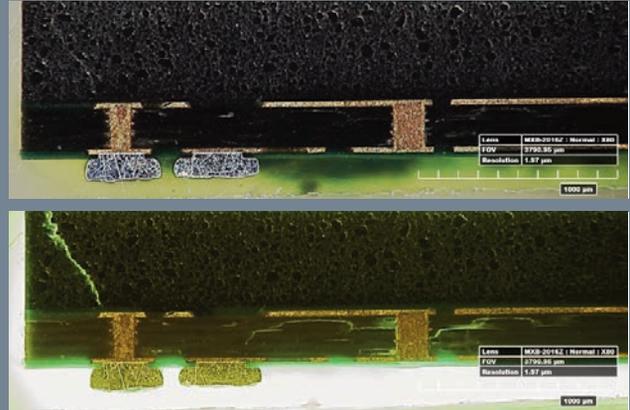
Color	Designation	Excitation	Emission
Ultraviolet	UV	360 - 380nm	415nm longpass
Violet	VI	400 - 415nm	450nm longpass
Royal Blue	RB	440 - 460nm	500nm longpass
Cyan	CY	490 - 515nm	550nm longpass
Green	GR	510 - 540nm	600nm longpass

### Ordering Information

Cat. No.	Description	Qty.
<b>Best Value Full System Kit for HR-1020E Lens</b>		
Includes three wavelengths (UV + VI + RB)		
SFA-HR1020E-IND	Best Value Full System	kit
<b>Single Wavelength Full Systems for HR-1020E Lens</b>		
SFA-HR1020E-UV	HR-1020E Single Wavelength Full System, UV	kit
SFA-HR1020E-VI	HR-1020E Single Wavelength Full System, Violet	kit
SFA-HR1020E-RB	HR-1020E Single Wavelength Full System, Royal Blue	kit
SFA-HR1020E-CY	HR-1020E Single Wavelength Full System, Cyan	kit
SFA-HR1020E-GR	HR-1020E Single Wavelength Full System, Green	kit
<b>Light + Filter Sets for HR-1020E Lens</b>		
SFA-HR1020E-LFS-UV	HR-1020E Light + Filter Set, UV Excitation	each
SFA-HR1020E-LFS-VI	HR-1020E Light + Filter Set, Violet Excitation	each
SFA-HR1020E-LFS-RB	HR-1020E Light + Filter Set, Royal Blue Excitation	each
SFA-HR1020E-LFS-CY	HR-1020E Light + Filter Set, Cyan Excitation	each
SFA-HR1020E-LFS-GR	HR-1020E Light + Filter Set, Green Excitation	each
<b>Barrier Filters for HR-1020E Lens</b>		
SFA-HR1020E-BF-UV	HR-1020E Barrier Filter, UV	each
SFA-HR1020E-BF-VI	HR-1020E Barrier Filter, Violet	each
SFA-HR1020E-BF-RB	HR-1020E Barrier Filter, Royal Blue	each
SFA-HR1020E-BF-CY	HR-1020E Barrier Filter, Cyan	each
SFA-HR1020E-BF-GR	HR-1020E Barrier Filter, Green	each

### Electronic component failure analysis

Examining an electronic component that was embedded in epoxy, cross-sectioned, polished, and highlighted with a fluorescent epoxy-like dye. The manufacturer of the fluorescent dye recommended excitation with ultraviolet light, but our Royal Blue light head was used for these images, and was found to be superior to ultraviolet.



Fluorescent penetrant highlighting cracks in integrated circuit, 80x, white light (top) and fluorescence under Royal Blue excitation.

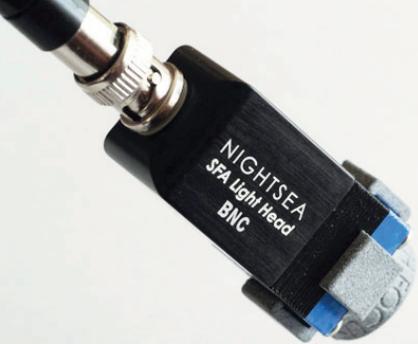


Royal Blue barrier filter for HR-2500E lens

Barrier filter installed in HR-2500E lens



Cat. No.	Description	Qty.
<b>Best Value Full System Kit for HR-2500E Lens</b>		
Includes three wavelengths (UV + VI + RB)		
SFA-HR2500E-IND	Best Value Full System	kit
<b>Single Wavelength Full Systems for HR-2500E Lens</b>		
SFA-HR2500E-UV	HR-2500E Single Wavelength Full System, UV	kit
SFA-HR2500E-VI	HR-2500E Single Wavelength Full System, Violet	kit
SFA-HR2500E-RB	HR-2500E Single Wavelength Full System, Royal Blue	kit
SFA-HR2500E-CY	HR-2500E Single Wavelength Full System, Cyan	kit
SFA-HR2500E-GR	HR-2500E Single Wavelength Full System, Green	kit
<b>Light + Filter Sets for HR-2500E Lens</b>		
SFA-HR2500E-LFS-UV	HR-2500E Light + Filter Set, UV Excitation	each
SFA-HR2500E-LFS-VI	HR-2500E Light + Filter Set, Violet Excitation	each
SFA-HR2500E-LFS-RB	HR-2500E Light + Filter Set, Royal Blue Excitation	each
SFA-HR2500E-LFS-CY	HR-2500E Light + Filter Set, Cyan Excitation	each
SFA-HR2500E-LFS-GR	HR-2500E Light + Filter Set, Green Excitation	each
<b>Barrier Filters for HR-2500E Lens</b>		
SFA-HR2500E-BF-UV	HR-2500E Barrier Filter, UV	each
SFA-HR2500E-BF-VI	HR-2500E Barrier Filter, Violet	each
SFA-HR2500E-BF-RB	HR-2500E Barrier Filter, Royal Blue	each
SFA-HR2500E-BF-CY	HR-2500E Barrier Filter, Cyan	each
SFA-HR2500E-BF-GR	HR-2500E Barrier Filter, Green	each



# NIGHTSEA

an Electron Microscopy Sciences company

## Electron Microscopy Sciences

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### NIGHTSEA Focus Lens for SFA Light Head



[www.emsdiasum.com](http://www.emsdiasum.com)

Follow us on...



The focus lens is an add-on for the SFA light heads to produce a higher illumination intensity! This is a simple adapter that slips over the front of your existing NIGHTSEA SFA light head and grips with a friction fit. It is available with two options for the focal distance: 30mm or 50mm.



**No lens** – illumination spot approximately 15mm diameter with the light head positioned 50mm from the surface.

**50mm lens** – central spot approximately 5mm diameter, intensity increase ~2x.

**30mm lens** – central spot approximately 2mm diameter, intensity increase ~3.5x.

The images below show the focus lens add-on and the effect. The three illumination spot images were made in manual exposure mode and are indicative of the relative intensity.



No Focus Lens

50mm Focus Lens

30mm Focus Lens

#### Considerations for lens choice:

To gain the benefit of the 30mm lens it is necessary to position the light head very close to the subject. This may be challenging in the tight space beneath a microscope objective. It might be more suited for photoactivation, where a high light intensity dose in a small area is often needed.

The 50mm lens provides a trade-off – brighter fluorescence, easier to work with.

Note – If the light head has a snoot installed that will have to be removed to use the focus add-on.

#### Ordering Information

Cat No.	Description	Qty.
SFA-FL-30	Focus Lens for SFA Light Head with 30mm Lens	each
SFA-FL-50	Focus Lens for SFA Light Head with 50mm Lens	each

