Scanning Electron Microscopy (SEM)

Equipment, Supplies and Consumables

Calibre
SCIENTIFIC

Welcome to our SEM Range

In the Calibre Scientific portfolio, we offer a range of equipment and consumables to support you in your microscopy applications. From SEM consumables kits to plasma cleaners, from carbon adhesives to carbon coaters, we have you covered.

Please contact sales@agarscientific.com to discuss your requirements and to request a quotation.

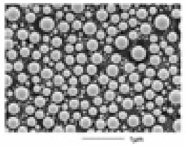
Vacuum Coaters

See p4-6

Tungsten Filaments

See p15

SEM Specimens



See p17-18

Plasma Cleaners

See p31-35

SEM Consumables Kits

Kits including SEM consumables for each of the top SEM manufacturers including Thermo Fisher Scientific, Hitachi, JEOL, TESCAN and Zeiss. Designed for SEM users, our Consumables Kits provide everything you need to maximise your SEM usage.

Components are carefully chosen specifically for each SEM, and four versions of the kit are available: With/without hazardous items, or with/without filaments.

The full kit includes: Filaments, SEM stubs, storage tubes for stubs, storage boxes for stubs, Leit adhesive carbon tabs, double sided copper tape, silver paint, ink pen, gloves, Ecosolve solvent and optical lens tissue.

Cat. No.	Product Description	PK
AGSEMKIT-ZEISS	Carl Zeiss SEM Consumables Kit with filaments and hazardous items	1 KIT
AGSEMKIT-FEI	Thermo Fisher Scientific SEM Consumables Kit with filaments and hazardous items	1 KIT
AGSEMKIT-HITACHI	Hitachi SEM Consumables Kit with filaments and hazardous items	1 KIT
AGSEMKIT-JEOL	JEOL SEM Consumables Kit with filaments and hazardous items	1 KIT
AGSEMKIT-TESCAN	TESCAN SEM Consumables Kit with filaments and hazardous items	1 KIT

Other combinations are available with or without filaments and hazardous items. Visit www.agarscientific.com for more information.

Safematic Compact Coating Unit

Modular, intelligent design

Explore the Safematic Family

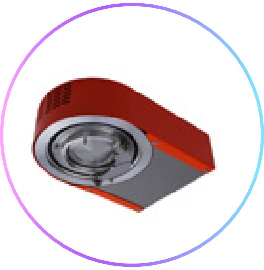
- Advanced sputtering, carbon coating, and plasma treatment capabilities
- Patented carbon spooling system enables up to 50 coatings without intervention
- Simple plug-and-play sputter and carbon coating modules
- Exceptional vacuum performance with rapid pump-down times
- Compact, durable, and easy to maintain
- Dual-position film thickness monitor for various specimen sizes
- Actively cooled sputter head ensures high-quality coatings and extended operation

1. Choose Your Base Unit

The CCU-010 Safematic Coating Unit is available in two versions: the CCU-010 LV (Cat. No. 100000) fine vacuum base is designed for routine high-quality sputtering and carbon coating for SEM and EDX, whereas the CCU-010 HV (Cat. No. 100001) high-vacuum system covers the highest-level SEM, TEM and thin film application.

Not sure which you need? The modular concept makes it easy to convert the unit from a fine vacuum unit into a high-vacuum unit later on!

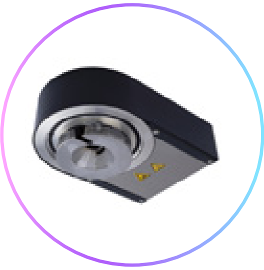
2. Choose Your Sputtering Module



Both SP-010 and SP-011 sputtering modules plug directly into CCU-010 LV and HV units for immediate use. Each module integrates essential components—magnetron, target, shutter, pressure regulator, and power electronics—while a push-fit interface connects power, gas, and signals in seconds. Active cooling enables continuous coating for up to 50 minutes, ideal for thicker films.

- SP-010 (Cat. No. 100002): Optimised for fine-grained noble metal films in electron microscopy; best results with CCU-010 HV for smallest grain sizes.
- SP-011 (Cat. No. 100012): Designed for high-power sputtering across various materials, ideal for applications requiring higher deposition rates and thicker films. Paired with CCU-010 HV, it supports advanced coatings like DLC, ITO, and ferromagnetic materials.

Carbon Evaporation Module



The CT-010 (Cat. No. 100003) carbon evaporation module sets a new standard in carbon coating for SEM, TEM, and other high-quality applications. Its patented, unique and technology-leading carbon fibre spooling system enables up to 50 coatings without manual intervention. Fresh carbon fibre automatically advances, and the spent fibre is collected in a catchment tray, ensuring effortless operation.

Selectable coating modes allow precise control, from gentle evaporation for thin films on temperature-sensitive samples to high-power deposition for thick layers in FIB applications. Intelligent power control, pulsed evaporation, degassing behind an automated shutter, and film thickness monitoring ensure uniform coatings, preventing inhomogeneities.

3. Add Optional Accessories

Glow Discharge System

The optional GD-010 (Cat. No. 100004) glow discharge system can quickly be installed for surface treatment by air, argon or by other dedicated gas plasma. For example, it is possible to make carbon films hydrophilic. This is greatly simplified because the carbon coating and glow discharge treatment can be done sequentially – without the inconvenience of having to "break" vacuum conditions and exchange process heads. This unit installed into CT010 is compatible with all sample stages.

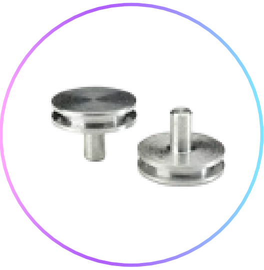
Sample Stages

The CCU-010 Safematic Coating Unit comes with an 80 mm diameter static specimen stage as standard, mounted on a height-adjustable, tiltable support. However, the standard stage can be easily swapped for specialised options:

- ST-010 (Cat. No. 1000088) Slide Stage: Holds two 26 × 76 mm (or 25 × 75 mm) slides or one 52 × 76 mm (or 50 × 75 mm) slide. The dual-position film thickness monitor ensures accurate measurements for both arrangements.
- RS-010 (Cat. No. 100005) Rotary Stage: Enhances thickness uniformity on flat surfaces.
- PS-006 (Cat. No. 1000130) Planetary Drive Stage: Combined with sample tilt, enables uniform coating on fissured, corrugated, jagged, or highly spherical samples.

Contact sales@labtech.com to discuss your individual requirements, or for a quote/ordering information.

Specimen Stubs for SEM

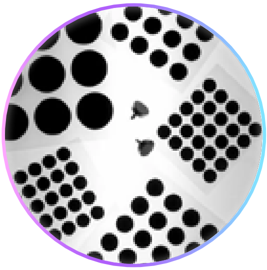


A comprehensive range of specimen stubs for SEM, in a variety of shapes including standard pin stubs, angled stubs, cylinder stubs, low profile pin stubs and M4 threaded stubs. Machined from free cutting aluminium. Adapters for JEOL and Hitachi instruments are also available upon request.

Cat. No.	Product Description	PK
Standard pin stubs		
AGG301F	12.5 mm diameter, 6 mm pin length	100
AGG301	12.5 mm diameter, 8 mm pin length	100
AGG301P	12.5 mm diameter, 8 mm pin length, high purity	100
AGG301-S-50	Serialised, 12.5 mm diameter, 8 mm pin length	100
AGG399F	25 mm diameter, 3.2x6 mm pin length	100
AGG399	25 mm diameter, 8 mm pin length	100
AGG400	32 mm diameter, 8 mm pin length	100
Cylinder pin stubs for JEOL		
AGG306	10 mm diameter, 10 mm height	50
AGG3384	12.5 mm diameter, 10 mm height	50
AGG3023	25 mm diameter, 5 mm height	50
AGG3024	25 mm diameter, 10 mm height	50
M4 thread stubs for Hitachi		
AGG3313	15 mm diameter, 6 mm height, M4 thread	50
AGG3377	25 mm diameter, 6 mm height, M4 thread	50
AGG3318	32 mm diameter, 10 mm height, M4 thread	50

Other types available. Visit www.agarscientific.com for more information.

Carbon Adhesive Discs

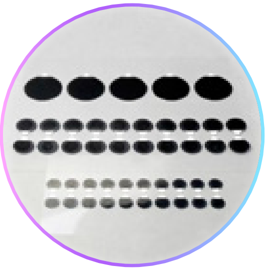


Ideal for SEM and microanalysis examination of small uncoated specimens. Simply press onto a specimen stub and leave a conductive carbon adhesive when backing material is removed.

- Carbon based
- Electrically conductive
- Double sided adhesive

Cat. No.	Product Description	PK
AGG3357N	9 mm Leit Adhesive Carbon Tabs	100
AGG3347N	12 mm Leit Adhesive Carbon Tabs	100
AGG3348N	25 mm Leit Adhesive Carbon Tabs	54
AGG3356	65x20 mm Adhesive Carbon Sheets	5

Carbon Adhesive Discs with Aluminium Foil Core



Highly electrically conductive carbon adhesive tabs with a thin aluminium foil (30 µm) core suitable for SEM or EDX applications. Double sided adhesive allows rapid mounting of samples without liquid or colloidal adhesives.

- Excellent for fine powders and small fibres
- Temperature range: -20 °C to + 60 °C
- High strength, thin adhesive

Cat. No.	Product Description	PK
AGG3357A	8 mm Carbon Tabs with Aluminium Foil Core	100
AGG3347A	12 mm Carbon Tabs with Aluminium Foil Core	100
AGG3348A	24 mm Carbon Tabs with Aluminium Foil Core	50

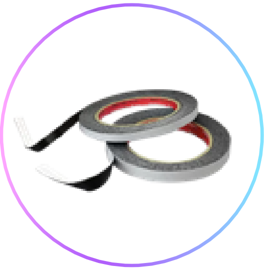
Carbon Adhesive Tapes

Electrically conductive, non-porous carbon tapes suitable for SEM or EDX applications.

- Provides low resistance path for imaging and analysis of fine powders and fibres
- Temperature range -20 °C to +60 °C
- Double sided adhesive allows quick mounting of samples without using liquid or colloidal adhesives

Cat. No.	Product Description	PK
AGG3939	8 mm x 20 m Adhesive Carbon Tape	1
AGG3939A	12 mm x 20 m Adhesive Carbon Tape	1
AGG3939B	20 mm x 20 m Adhesive Carbon Tape	1
AGG3939C	50 mm x 20 m Adhesive Carbon Tape	1

Carbon Adhesive Tapes with Aluminium Foil Core



Highly electrically conductive carbon adhesive tape with 30 µm aluminium foil core, suitable for SEM or EDX applications.

- Provides low resistance path for imaging and analysis of fine powders and fibres
- Temperature range -20 °C to +60 °C
- Double sided adhesive allows quick mounting of samples without using liquid or colloidal adhesives

Cat. No.	Product Description	PK
AGG3935	8 mm x 20 m Adhesive Carbon Tape with Aluminium Foil Core	1
AGG3935A	12 mm x 20 m Adhesive Carbon Tape with Aluminium Foil Core	1
AGG3935B	20 mm x 20 m Adhesive Carbon Tape with Aluminium Foil Core	1

Storage Boxes for SEM Stubs

Storage boxes for a wide range of stubs.
Available with 3 alternative inserts for different types of stub. Dimensions: 121x77x34 mm.

- **AGG3100** accommodates a range of pin diameters, including: 18 x 12.5 mm pin stubs (long or short); 8 x 25 mm pin stubs; 2 x 32 or 2 x 38 mm pin stubs
- **AGG3101** fits 12 x 10 mm or 12 x 15 mm cylinder stubs
- **AGG3102** stores 14 x 15 mm Hitachi stubs with M4 thread

Cat. No.	Product Description	PK
AGG3100	Storage Box for up to 18 pin-type stubs	1
AGG3101	Storage Box for 12 x 10 mm or 15 mm cylinder stubs	1
AGG3102	Storage Box for 14 x 15 mm Hitachi stubs with M4 thread	1

Cardboard Storage Boxes for SEM Stubs

Strong cardboard storage boxes with insert to hold pin stubs and storage tubes with pin stubs.

Cat. No.	Product Description	Dimensions (mm)	PK
AGG3113	Cardboard Storage Box for 8 x 12.5 mm Pin Stubs	35x38x70	100
AGG3114	Cardboard Storage Box for 10 Storage Tubes	200x95x55	1
AGG3106	Cardboard Storage Box including 10 Storage Tubes	200x95x55	1

Kits available with pin stubs, labels and carbon tabs.
Visit www.agarscientific.com for more information.

Cutlam Micro 1.1 Precision Laboratory Cutting Machine

Versatile and robust

Economical and easy to use, designed for precision cutting of even the most sensitive materials. Speed range and cutting chamber capacity enables use for many applications, with a variety of cutting wheels up to 150 mm diameter.

- Stable and vibration-free
- Equipped with safety device and independent decanting/recirculation tank

Cat. No.	Product Description	PK
AGB6301	Cutlam Micro 1.1 Laboratory Cutting Machine, 75-150 mm diameter wheel	1

Cutlam Micro 3.0 Precision Automatic Laboratory Cutting Machine

Large capacity yet compact

Designed with motorised stage for automatic operation, allowing for precision, long and difficult cuts. Feed speed control feature allows for irregular samples and materials with heterogeneous hardness to be cut.

- Precision cuts within 0.01 mm accuracy
- User-friendly interface

Cat. No.	Product Description	PK
AGB6303	Cutlam Micro 3.0 Laboratory Cutting Machine, 75-230 mm diameter wheel	1

Cutlam 1.1 Large Capacity Cutting Machine

Designed for a wide range of applications

Bench-mounted, robust and easy to use with a large cutting capacity.

- Spacious cutting table made from anti-corrosive cast iron
- Ability to clamp components of thicknesses up to 120 mm
- Can be equipped with Ø 250 to 305 mm cut-off wheels

Cat. No.	Product Description	PK
AGB6304	Cutlam 1.1 Laboratory Cutting Machine, 250-305 mm diameter wheel	1

Cutlam 3.0 Automatic Large Capacity Cutting Machine

Automatic and programmable

Features 2 or 3 motorised axes and a 300 mm Ø cut-off wheel. Rotation speed and feed speed can be programmed to prevent deterioration or deformation of samples.

- Max. cutting capacity Ø 110 mm with 300 mm cut-off wheel
- 5.7″ LED touchscreen and intuitive interface
- Internal memory for over 300 cutting programs; can also be imported/exported via a USB port

Cat. No.	Product Description	PK
AGB6305	Cutlam 3.0 Laboratory Cutting Machine, 250-305 mm diameter wheel, with 2 or 3 motorised axis	1

Smartlam 2.0 Single Wheel Advanced Convertible Grinder/Polisher

Competitively priced

Versatile, compact, single wheel convertible grinder/polisher which can be configured with 200-300 mm platens.

- Optional SPRINGLAM head for semi-automatic operation
- 3.5″ touchscreen keypad
- Optional DISTRILAM dosing unit for dispensing diamond liquids, lubricant, or silica abrasive.

Cat. No.	Product Description	PK
AGB6300	Smartlam 2.0 Single Wheel Advanced Convertible Grinder/Polisher	1

Masterlam 3.0 Automatic Polishing Machine

Water conserving program (up to 25% less)

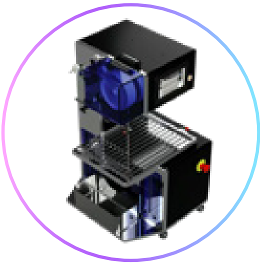
Automatic, single-plate polishing machine with powerful central and individual pressure head, bidirectional rotation, variable speed and pressure.

- Touchscreen controls
- Parameter storage and expert technologies

Cat. No.	Product Description	PK
AGB6317	Masterlam 3.0 Automatic Polishing Machine with central and individual pressure heads	1

WELL Diamond Wire Saws

Maximum cutting capability and long wire life

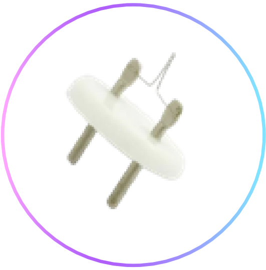


Produce a cut that leaves virtually any material with smooth, sharp and burr-free surfaces. The wire material is real synthetic diamond, containing no boron nitride, producing a pure cut. This patented coating process provides maximum cutting capacity and long wire life.

- Horizontal and vertical models
- Supports sample sizes up to 300 mm
- Suitable for metals, plastics, quartz, glass, graphite and ceramics

Cat. No.	Product Description	PK
AGB8532-KIT	WELL 3400 Horizontal Diamond Wire Saw Kit with max. sample weight of 200 g	1
AGB8500-KIT	WELL 3500 Vertical Diamond Wire Saw Premium Kit with max. sample weight of 2.5 kg	1
AGB8580	WELL 4500 Vertical Diamond Wire Saw Premium Kit with max. sample weight of 10 kg	1
AGB8570	WELL 6500 Vertical Diamond Wire Saw Premium Kit with max. sample weight of 15 kg	1

Tungsten Filaments for EM



Replacement tungsten filaments for Cambridge/ LEO/ Zeiss, AEI, TESCAN, JEOL, and Phillips / FEI / Thermo Fisher Scientific instruments. Precision-made in custom engineered jigs to ensure complete accuracy of every filament, achieving maximum image quality and life expectancy.

- Highly ductile tungsten wire to minimise strain
- Stress relieved by flashing in a vacuum at temperatures above normal operating levels
- Quality checked for accuracy of centring

Cat. No.	Product Description	PK
AGA047	Filaments for TESCAN VEGA Series	10
AGA054	Filaments for Cambridge/LEO/Zeiss and AEI	10
AGA054L	Filaments for LEO Microscope 0.15 mm Wire	10
AGA086	Filaments for Thermo Fisher Scientific	10
AGA092	Filaments for JEOL	6

LaB_6 Lanthanum Hexaboride Filaments

High current, high brightness, single crystal lanthanum hexaboride (LaB_6) filaments.

- Emission current densities up to 30 A/cm^2
- Range of emission surface sizes
- Long lifetime
- Operating pressure <10^{-7} torr

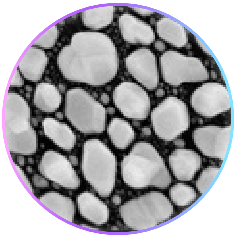
Cat. No.	Product Description	PK
AGA0692-9015	LaB6 Filament 90/15 on AEI Base for Camscan, Cameca, Electroscan, Cambridge Instruments, LEO/Leica/Zeiss	1
AGA0692-9020	LaB6 Filament 90/20 on AEI Base for Camscan, Cameca, Electroscan, Cambridge Instruments, LEO/Leica/Zeiss	1
AGA0692-6006	LaB6 Filament 60/06 on AEI Base for Camscan, Cameca, Electroscan, Cambridge Instruments, LEO/Leica/Zeiss	1
AGA0693-9015	LaB6 Filament 90/15 on JEOL K Base	1
AGA0693-9020	LaB6 Filament 90/20 on JEOL K Base	1
AGA0693-6006	LaB6 Filament 60/06 for JEOL K Base	1
AGA0698-9015	LaB6 Filament 90/15 on Hitachi S Base	1
AGA0698-9020	LaB6 Filament 90/20 on Hitachi S Base	1
AGA0698-6006	LaB6 Filament 60/06 on Hitachi S Base	1
AGA0690-9015	LaB6 Filament 90/15 on FEI/Philips Base (not XL30)	1
AGA0690-9020	LaB6 Filament 90/20 on FEI/Philips Base (not XL30)	1
AGA0690-6006	LaB6 Filament 60/06 on FEI/Philips Base (not XL30)	1

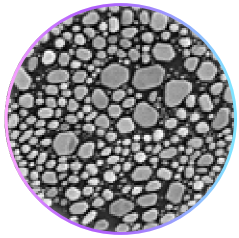
Bases for other microscope makes and models are available upon request.

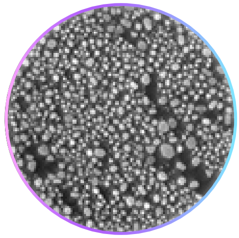
Gold on Carbon Test Specimens

The varying gap sizes between gold crystals on the carbon substrate allow a test of the point resolution under real operating conditions. Usable simultaneously to assess the quality of grey-level reproduction at high resolution.

- **AGS1968Z:** Low voltage resolution, particle size range of approximately 30-300 nm
- **AGS168:** Medium resolution magnification of >40,000x, particle size range of approximately 5-150 nm
- **AGS1969:** High resolution, magnification of >80,000x, particle size range of approximately 3-50 nm
- **AGS1987:** Ultra high resolution, magnification of >80,000x, particle size range of approximately <2-30 nm







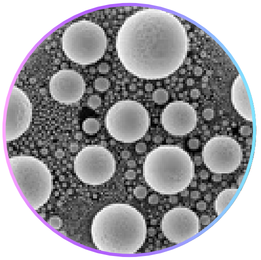
Cat. No.	Product Description	PK
AGS168Z	Gold Low Voltage Resolution Test Specimen on 12.5 mm Pin Stub	1
AGS168	Gold Medium Resolution Test Specimenon 12.5 mm Pin Stub	1
AGS1969	Gold High Resolution Test Specimen on 12.5 mm Pin Stub	1
AGS1987	Gold Ultra High Resolution Test Specimen on 12.5 mm Pin Stub	1

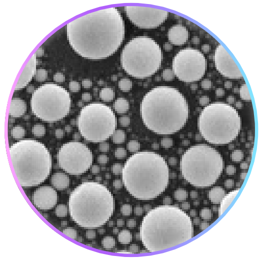
Other pin stub mounts available.
Please visit www.agarscientific.com for more information.

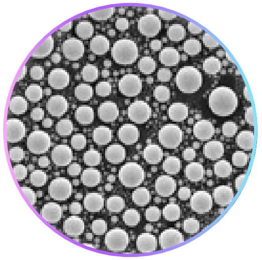
Tin on Carbon Test Specimens

The spaces between adjacent Tin spheres are the smallest features on the specimen, enabling the user to measure the instrument resolution. The manufacturing process produces near perfect spheres, which are not damaged by electron beams. Any astigmatism present will result in the spheres appearing distorted. The largest tin spheres on the specimen can be used at relatively low magnification to observe image shift with changes in accelerating voltage or spot size. As the alignment is improved, the magnification can be increased, and smaller spheres selected for fine adjustment of alignment.

- **AGS1937:** Universal resolution, particle size range of approximately <5 nm – 30 µm
- **AGS1988:** Low voltage resolution, particle range of approximately <20-400 nm
- **AGS1967:** High resolution, particle size range of approximately 10-100 nm







Cat. No.	Product Description	PK
AGS1937	Universal Tin Test Specimen on 12.5 mm Pin Stub	1
AGS1988	Low Voltage Resolution Tin Test Specimen on 12.5 mm Pin Stub	1
AGS1967	High Resolution Tin Test Specimen on 12.5 mm Pin Stub	1

Other pin stub mounts available.
Please visit www.agarscientific.com for more information.

BioWave Pro+ Microwave Tissue Processing System

Trusted technology and enhanced efficiency

Enhances processing of tissue for diagnostics and research, immuno-fluorescence and confocal specimen processing. With clickable text navigation, screen interactions are simple and clear. Live run-time graphs provide an easily accessible view of the current protocol in real-time. The simplified protocol selection screen allows one-touch access to loaded and custom protocols.

- **User-friendly run screens:** Intuitive functions in a simple, consistent format offer all setting controls within one screen

- **Live run-time graph:** Quick and convenient view of the current protocol in real-time provides an active view of run progress

- **Simplified protocol selection:** Icon-driven interface allows users one-touch access to pre-loaded and customised protocols

- **Two USB ports:** For convenient data transfer of protocols and recorded run information

Cat. No.	Product Description	PK
AGL4376	BioWave Pro+ Microwave Tissue Processing System	1

Samdri® PVT-3D Manual Critical Point Dryer

Reliable and cost-efficient

Offers high precision results using manual controls, with integrated automatic critical point temperature control and pressure regulation.

- Precise flow control for inlet, cooling, purging, venting and bleed micro-metering valves
- Vernier metering valves provide reproducible process settings samples
- Top mounted valves for easy loading/unloading of chamber
- Internal filtration to protect specimens and valves down to 0.5 µm
- Bottom-lit chamber for optimum specimen visibility

Cat. No.	Product Description	PK
8755B	Samdri® PVT-3D Critical Point Dryer	1

Visit www.labtech.com for more information.

Samdri® 795 Semi-Automatic Critical Point Dryer

Simple push button control

Fully automatic key processes of critical point temperature and pressure regulation.

With numerous pre-set and internal controls, precise and reproducible results are ensured. Features indicator LEDs to signal every mode of operation at a glance, and bottom-lit chamber for clear view of specimens.

- Static pressure control module for automatic pressure stability
- Fast adiabatic chamber cooling with CO_2
- Precise flow control for inlet, cooling, purging, venting and bleed micro-metering valves
- Vernier metering valves provide reproducible process settings
- Top mounted valves for easy loading/unloading of chamber
- Internal filtration to protect specimens and valves down to 0.5 µm
- Bottom-lit chamber for optimum specimen visibility

Cat. No.	Product Description	PK
8778B	Samdri®795 Critical Point Dryer	1

Visit www.labtech.com for more information.

Tousimis® 931 Automatic Critical Point Dryer

Labtech
Serving scientists

Fully automatic critical point drying

Setting new standards for SEM critical point drying, the Tousimis-931 features intuitive touchscreen control to enter preferred process recipes or select from preinstalled factory defaults. The Tousimis Stasis software gives the operator complete range control, which is particularly useful for more challenging specimens. Process chamber is under-lit and has purge stirring to ensure complete fluid interchange.

- Full range of specimen holders for most requirements
- Choice of three chamber sizes (32 mm, 63 mm or 86 mm ID) for large or multiple sample processing
- Bright LCD touchscreen control
- Metering valves with vernier handles that include slow fill for delicate specimens
- Internal 0.5 µm particle filtration
- Rapid adiabatic chamber cooling
- Internal condensing muffler – captures and eliminates purge exhaust noise
- Top loading illuminated process chamber
- Non-mechanical purge stirring for complete purge
- ‘Stasis” processing gives complete range control for thicker specimens

Cat. No.	Product Description	PK
8787A	Tousimis® 931 Automatic Critical Point Dryer with 31.75 mm/1.25” chamber	1

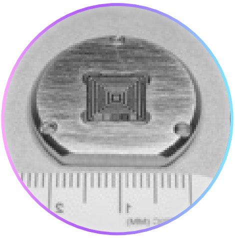
Other chamber sizes available. Please visit www.labtech.com for more information.

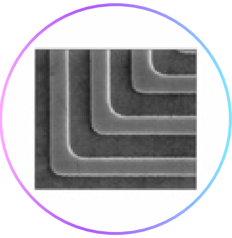
Geller Reference Standard MRS-3

The MRS-3 is a universal magnification calibration standard suitable for a wide range of instrumentation including scanning, optical reflection, transmission, scanning probe and confocal microscopy. The patterns are anti-reflective chromium on quartz, fabricated using electron beam lithography techniques that eliminate electron beam charging at any accelerating voltage when used in an SEM.

- Geometric design contains groups of nested squares with orders of magnitude
- Pitches of 500, 50 and 2 µm
- Largest pattern available is 8 mm square, giving a magnification measurement range from x10 to x50,000
- Contains squares and rectangles for X, Y calibration that range in size from 1 to 120 µm
- Circles ranging from 2 to 100 µm in diameter, ideal for checking particle size counting systems

Cleaning and re-calibration service: **Your Geller standards can be cleaned and re-certified to assure continued use as a traceable standard as required by the ISO-9001, ISO-16700 and QS-9000 international quality standards.**



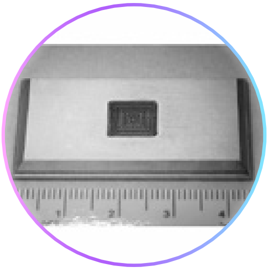


Cat. No.	Product Description	PK
AGS1990	MRS3 Geller Reference Standard, Non-traceable	1
AGS1991	MRS3 Geller Reference Standard, XY Traceable	1
AGS1992	MRS3 Geller Reference Standard, XYZ Traceable	1

Geller Reference Standard MRS-4

The MRS-4 is a fifth-generation, high magnification calibration standard for instrument calibration from x10 to x200,000 (0.5 µm minimum pitch). Suitable for a wide range of instrumentation including Electron Microscopy, Scanning Microscopy and Profilometry, Optical Microscopy, Chemical Mapping and Particle Size Counting.

- Geometric design contains groups of nested squares with various orders of magnitude
- Certified pitches of 500 µm, 50 µm, 2 µm, 1 µm and 0.5 µm
- Features 6 mm ruler with 1 µm increments and large 1 and 2 µm horizontal and vertical pitch patterns for ISO-16700 compliance



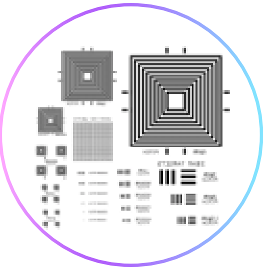
Cleaning and re-calibration service: Your Geller standards can be cleaned and re-certified to assure continued use as a traceable standard as required by the ISO-9001, ISO-16700 and QS-9000 international quality standards.

Cat. No.	Product Description	PK
AGS1810	MRS4 Geller Reference Standard, Non-traceable	1
AGS1811	MRS4 Geller Reference Standard, XY Traceable	1
AGS1812	MRS4 Geller Reference Standard, XYZ Traceable	1

Geller Reference Standard MRS-6

The MRS-6 is a fifth-generation, high magnification calibration standard for instrument calibration from x1,500 to x1,000,000 (80 nm minimum pitch). Suitable for a wide range of instrumentation including Electron Microscopy, Scanning Microscopy and Profilometry, Optical Microscopy, Chemical Mapping and Resolution Testing.

- Fabricated using the highest accuracy electron direct write semiconductor manufacturing equipment currently available
- Significantly thinner than the MRS-5, with superior edge quality
- Fully conductive – no conductive coatings needed
- Features 3 patterns



Cleaning and re-calibration service: Your Geller standards can be cleaned and re-certified to assure continued use as a traceable standard as required by the ISO-9001, ISO-16700 and QS-9000 international quality standards.

Cat. No.	Product Description	PK
AGS1814	MRS6 Geller Reference Standard, Non-traceable	1
AGS1815	MRS6 Geller Reference Standard, XY Traceable	1

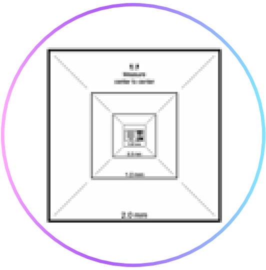
Critical Dimension Standards

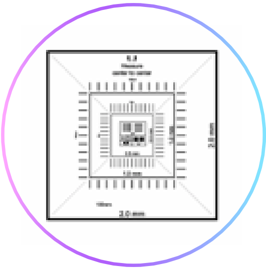
For calibration over a wide measurement range. Provides excellent contrast both in SE and BSE imaging mode, and features are easier to determine than on etched silicon standards. Sturdy construction allows for plasma cleaning.

- Traceable or certified
- ISO standard options
- X and Y axis versions
- Available on a range of mounts, or unmounted

Two size ranges:

- 2 mm to 1 µm for a magnification range from 10x to 20,000x, ideal for desktop SEMs and low to medium magnification applications
- 2 mm to 100 nm for a magnification range from 10 to 200,000x; for all SEM and most FESEM applications





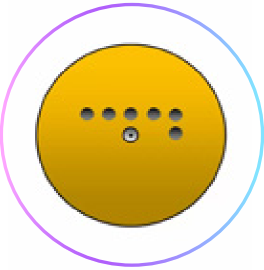
Cat. No.	Product Description	Size Range	PK
AGS220-CT	CDMS Cr/Au 525 µm, Certified on 12.5 mm pin stub	2 mm - 1 µm	1
AGS221-CT	CDMS Cr/Au 525 µm, Certified on 12.5 mm pin stub	2 mm - 100 nm	1
AGS222-CT	CDMS Cr/Au 525 µm, X/Y Axis, Certified on 12.5 mm pin stub	2 mm - 1 µm	1
AGS223-CT	CDMS Cr/Au 525 µm, X/Y Axis, Certified on 12.5 mm pin stub	2 mm - 100 nm	1

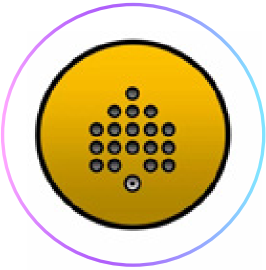
ISO certified, traceable, unmounted and other mounts available.
Please visit www.agarscientific.com for more information.

X-Ray Microanalysis Standards

Suitable for energy dispersive or wavelength dispersive X-ray microanalysis systems, the Micro-Analysis Consultants range of standards can be supplied pre-selected or user customisable.

- All standards are supplied with authenticated certificates of analysis and a location map for sample identification
- Faraday cup for accurate specimen current measurements is available as an optional extra on all mounts
- Standards are polished to a ¼ µm diamond finish and carbon coated
- Available in a variety of brass holders, 25 mm or 32 mm diameter blocks containing up to 50 standards, carousels, 13 mm diameter blocks to fit pin stubs, or individual tubes of 2 mm, 3 mm or 5 mm diameter

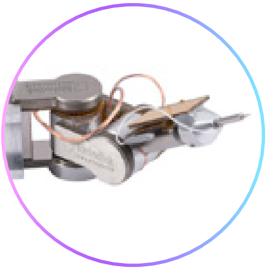




Cat. No.	Product Description	PK
AGS1928	Basic Calibration Set	1
AGS1919	SEM Multi-Purpose Calibration Block	1
AGS1920	25 mm Biological Standard Set	1
AGS1916	25 mm Semiconductor Standard Set	1
AGS1914	25 mm Universal Standards	1
AGS1957	Quality Control Test Calibration Block	1

For full set contents and other sets, please visit www.agarscientific.com.

Micromanipulator for Electron Microscopy



Designed for electrical probing (FA), nanomanipulation, in-situ lift-out and materials science, the MM3A-EM is small and practical, acting as a plug-and-play system with modular components. Suitable for use with most SEM/FIB instruments.

- Result-oriented operation which leads to increased throughput
- User friendly, intuitive control interfaces and software
- Compact and standalone

Cat. No.	Product Description	PK
MM-MM3A-EM	Micromanipulator for Electron Microscopy	1

Encoded Micromanipulator for Electron Microscopy

Adds new capabilities to your SEM

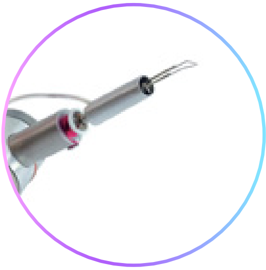
Compatible with virtually any SEM or FIB/SEM on the market. With an intuitive, drag and drop style control software, it is easy to position the tool tip in three dimensions inside SEM or FIB/SEM tools.

- Compact, precise and stable
- Suitable for in-situ lift-out, electrical probing (FA), nanomanipulation
- Excellent stability

Cat. No.	Product Description	PK
MM-MM3E-EM	Encoded Micromanipulator for Electron Microscopy	1

Kleindiek MGS2 Microgripper Plug-in Tool

Fits easily into MM3A-EM micro manipulator



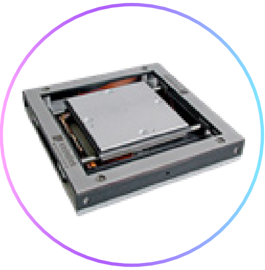
Provides a high-resolution gripping solution for the transport and assembly of micro and nano sized objects using a Kleindiek MM3A-EM micro manipulator. Tungsten probe tip gripper arms are piezo-controlled, allowing a step size of 20 nm.

- Gripping force can be derived from the NanoControl's display
- Custom-shaped gripper tips available on request
- Available in a cryo version, UHV version and high humidity version

Cat. No.	Product Description	PK
PL-MGS2-UHV-000	Kleindiek MGS2 Microgripper Plug-In for MM3A-UHV	1
PL-MGS2-UHV-001	Kleindiek MGS2 VS5 Microgripper Plug-In for MM3A-UHV	1
PL-MGS2-HH-000	Kleindiek MGS2 High Humidity Microgripper Plug-In for MM3A-LS	1

Visit www.labtech.com for more information.

Kleindiek LT14030 Substage



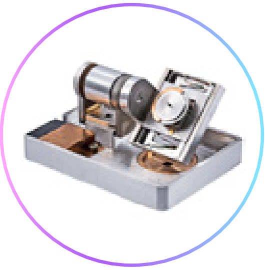
Suited for orthogonal positioning solutions in atmosphere and with SEM/FIB tools. Primarily designed in SEM/FIB to enhance the accuracy and functionality of standard microscope stages.

- Compact, robust and flexible
- Fast and precise
- Economical alternative to laser interferometer stages
- Designed for lithography, cell counting and failure analysis applications

Cat. No.	Product Description	PK
LT-14030XY-000	LT-14030 XY Substage for Electron Microscopy	1
LT-14030XYZ-000	LT-14030 XYZ (3 mm) Substage for Electron Microscopy	1
LT-14030XYIF	LT-14030 XY Substage for Electron Microscopy with Four Encoders (two per axis) and Interferometers	1

Visit www.labtech.com for more information.

Kleindiek ACT Anti-curtaining Table



Compact, four-axis positioning tool for significantly reducing or eliminating curtaining artefact during FIB milling. Fits onto the existing FIB specimen stage and creates a dynamic rocking motion during FIB milling to prevent curtaining.

- Absolute accuracy: T < 0.2° (3 x 10^{-3} rad)
- Repeatability: T < 0.03 deg (4 x 10^{-4} rad)
- Speed: up to 1 mm/s

Cat. No.	Product Description	PK
LT-ACT-00	ACT Anti-Curtaining Table	1

Visit www.labtech.com for more information.

Tergeo-EM Plasma Cleaner

Unique plasma sensing

Designed for EM laboratory plasma cleaning and surface modification applications, with two plasma sources to enable both immersion and downstream plasma cleaning modes in one compact instrument.

- Optimised for gentle, controlled hydrophobic-hydrophilic conversion of carbon support films
- EM rod adaptors for cleaning two TEM rod holders in-vacuo
- Intuitive touchscreen operation for quick selection and running of recipes
- 13.56 mHz high frequency RF power for optimal processing speed
- Unique plasma sensing for unsurpassed control of the plasma process
- Precise sensing of pressure and gas flow for reproducible process control
- Adaptable design – for cleaning, etching, ashing and surface modification

Cat. No.	Product Description	PK
PIE-TE100	Tergeo-EM Tabletop Plasma Cleaner	1

Visit www.labtech.com for more information.

Tergeo-Plus RF Plasma Cleaner

Unique plasma emission sensor for emission intensity measurement

Integrates multiple process control technologies to monitor and modify critical parameters required for optimal plasma etching, plasma ashing and plasma cleaning processes. Fully automatic operation with intuitive user interface, featuring 7” touchscreen and embedded microcontroller supporting 20 customisable user recipes.

- 150 W 13.56 MHz high frequency RF power
- 160 mm ID x 280 mm deep chamber
- RF plasma sensor technology
- Fully automatic operation with 20 recipe support
- Job sequence mode operation for three plasma cleaning steps
- Two mass flow controllers (MFC) regulated gas inputs with option for a third
- Optional direct or remote plasma modes and pulsed mode
- Two-year warranty

Cat. No.	Product Description	PK
PIE-TP100	Tergeo-Plus RF Plasma Cleaner	1

Visit www.labtech.com for more information.

Tergeo-Pro RF Plasma Cleaner

Optional pulse mode

Tergeo-Pro has a large 230 mm (9”) diameter, 340 mm (13.4”) deep RF plasma processing chamber which can accommodate an 8”"wafer and one or two 25/50 slot 6” or 4”"quartz wafer boats. The quartz process chamber wall construction enables an external capacitively coupled RF electrode design, which generates a uniform RF plasma across the whole chamber.

- 150 W 13.56 MHz high frequency RF power with optional upgrades to 300 W and 500 W
- 230 mm 9” ID x 340 mm 13.4” deep chamber
- RF plasma sensor technology
- Direct RF plasma
- Fully automatic operation with 20 recipe support
- Job sequence mode operation for three plasma cleaning steps
- Two mass flow controller (MFC) regulated gas inputs
- Intuitive, touchscreen control
- Pumping options to suit RF plasma process
- Two-year warranty

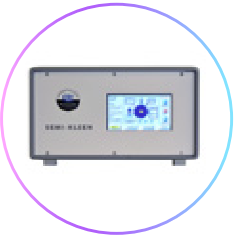
Cat. No.	Product Description	PK
PIE-TR100	Tergeo-Pro RF Plasma Cleaner	1

Visit www.labtech.com for more information.

SEMI-KLEEN Quartz Downstream RF Plasma Cleaner

Active fan cooling with high-power, high-speed cleaning

Remote plasma cleaner designed to meet the rigorous requirements of the semiconductor industry. Compact, downstream plasma cleaner with the latest plasma source design technologies to reduce particle generation risk.



- Dual stage particle filtering technology removes almost all particles larger than 3 nm
- Low particulate, high reliability plasma source design for the semiconductor industry
- Instant plasma ignition even at extremely low pressures
- Electronic gas flow with pressure sensor feedback control allows user to directly control the pressure
- Plasma probe monitoring of plasma strength to set up optimal recipes
- 75 W RF power at 13.56 MHz
- Microcomputer control with touchscreen user interface messages – ideal for all levels of expertise
- RS232/RS485 user interface
- 60 customisable recipes
- Over temperature interlock for system protection
- Two-year warranty

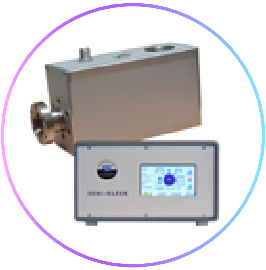
Cat. No.	Product Description	PK
PIE-SEMI100	SEMI-KLEEN Quartz Downstream RF Plasma Cleaner	1

Visit www.labtech.com for more information.

SEMI-KLEEN Sapphire Downstream RF Plasma Cleaner

Direct or remote plasma modes

Designed for applications where NF3, CF4 type corrosive gases are to be used. A highly chemically resistant sapphire tube replaces the standard quartz chamber, improving resistance to aggressive and corrosive process gases. Vacuum seal and chamber material are optimised to support corrosive radicals inside the plasma chambers.



- Highly resistant sapphire tube is optimised for use with aggressive and corrosive gases
- Low particulate high reliability plasma source design
- Instant plasma ignition at extremely low pressures
- Plasma probe monitoring of plasma strength to set up optimal recipes
- Two-year warranty

Cat. No.	Product Description	PK
PIE-SEMI100	SEMI-KLEEN Sapphire Downstream RF Plasma Cleaner	1

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www.agarscientific.com

Agar Scientific c/o Calibre Scientific
Unit 5a, R-evolution
The Advanced Manufacturing Park
Selden Way, Rotherham
S60 5XA, UK

sales@agarscientific.com
0114 224 2257

Labtech
A CALIBRE SCIENTIFIC COMPANY

www.labtech.com

Labtech c/o Calibre Scientific
Unit 5a, R-evolution
The Advanced Manufacturing Park
Selden Way, Rotherham
S60 5XA, UK

sales@labtech.com
0114 224 2257

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