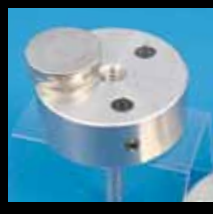
SEM SUPPLIES

including Mounts, Holders, Storage, Adhesives, and more

2016 EDITION

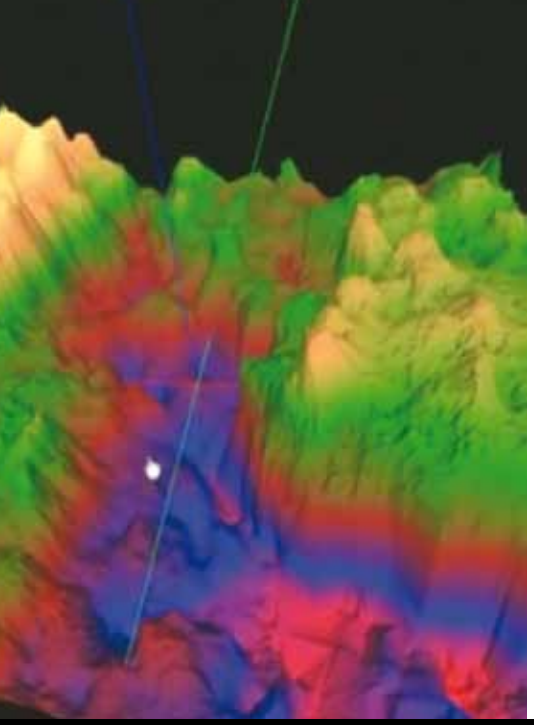
SCIENCE SERVICES

Your Partner for
Microscopy and
Lab Supplies



Electron Microscopy Sciences

www.emsdiasum.com



MeX 6.1 is now available

featuring redesigned measurement modules for higher usability.

MeX 6.1 supports Windows 8 and comes in both 32bit and 64bit versions.
MeX 6.1 is the recent software upgrade with new features for extended measurements. The latest technologies for applications in micro-coordinate measurement make any SEM into a comprehensive metrology tool that open up new fields of use:

- **Undercuts and larger field of views now measurable**
- **New features such as form fitting functionalities available**
- **Redesigned measurement modules provide higher usability**

turn your SEM into a 3D measuring device...

MeX is a stand alone software package that turns any SEM with digital imaging into a true surface metrology device. Using stereoscopic images the software automatically retrieves 3D information and presents a highly accurate, robust and dense 3D data set which is then used to perform traceable metrology examination. MeX is extremely easy to use. The software is self installing and works completely independently of any third drivers or components.

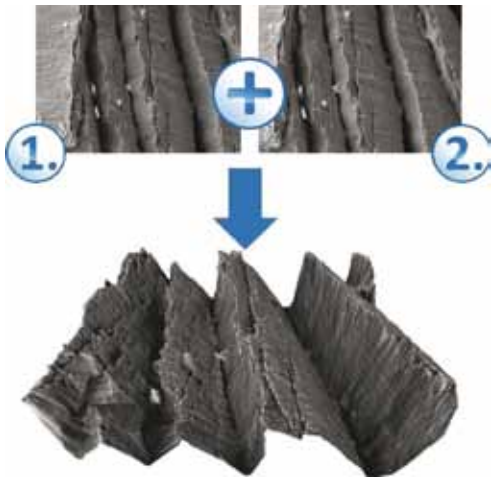
CONTACT US FOR MORE INFORMATION...

Electron Microscopy Sciences

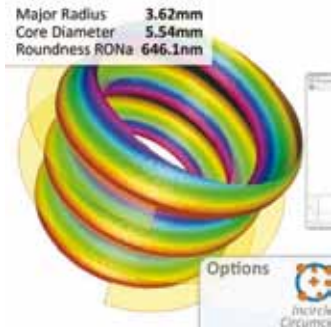
P.O. Box 550 • 1560 Industry Rd.
Hatfield, Pa 19440
Tel: (215) 412-8400
Fax: (215) 412-8450
email: sgkcck@aol.com
***or* stacie@ems-secure.com**

www.emsdiasum.com

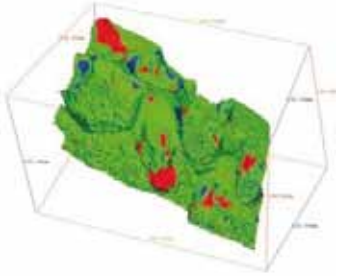
MeX 6.1 automatically retrieves 3D information using stereoscopic images



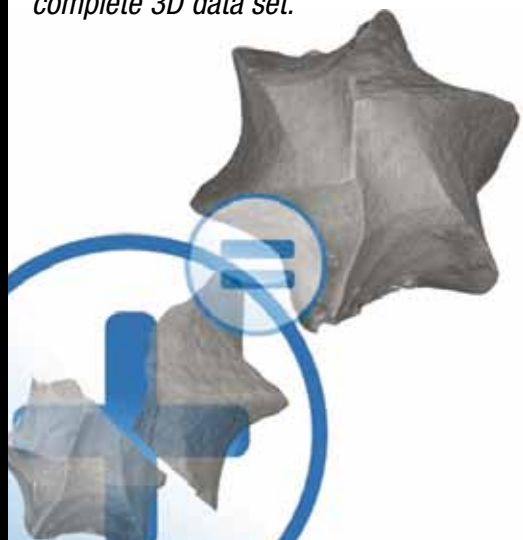
MeX 6.1 measures distances, angles, circles, thread pitch etc.



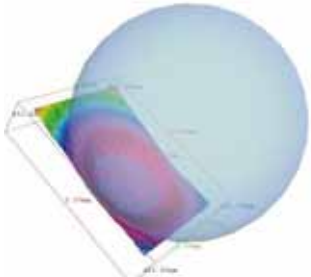
MeX 6.1 compares two different geometries.



MeX 6.1 automatically merges single measurements into a complete 3D data set.



MeX 6.1 also includes form fitting functions.



SEM SUPPLIES

TABLE OF CONTENTS

Multiholders, see page 5

SEM Mount Tweezers, see page 26

Sample Racks, see page 27

Electron Microscopy Sciences

www.emsdiasum.com

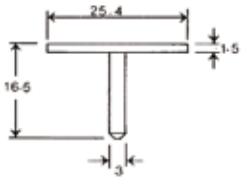
Specimen Mount Holders, see page 28–29

Expanding our selection...

We have now expanded our Specimen Mount section due to the increased demand for us to offer more of a variety.
To make your SEM work easier and save you a great deal of time searching for the right mount, we now offer you a complete line of specimen mounts.
Aluminum Mounts - Made from ultra-pure aluminum.
The more popular mounts are available in two grades of finish: *standard and polished (luster).*
Standard Finish: lathe finish; economically priced.
Polished Finish: A cloth polished finish which produces a smooth and luster surface.
Carbon Mounts - Spectroscopically pure.

AMRAY 1000/1200

Head: 1" dia. (25.4mm),
pin ⅛" dia. (3.1mm)



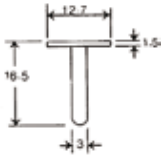
75100

Aluminum: Standard

75100	10/pk
75110	50/pk
75120	100/pk

AMRAY 1000/1200/1400

Head: ½" dia. (12.7mm),
pin ⅛" dia. (3.1mm)



75140

Aluminum: Standard

75140	10/pk
75150	50/pk
75160	100/pk

Polished

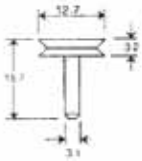
75165	10/pk
75166	50/pk
75167	100/pk

Carbon (Spectro-pure): Standard

76140	10/pk
76150	50/pk
76160	100/pk

AMRAY 1400

Slotted Head ½" dia. (12.7mm),
pin ⅛" dia. (3.1mm)



75170

Aluminum: Standard

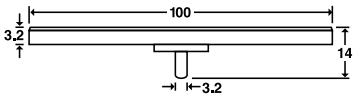
75170	10/pk
75172	50/pk
75174	100/pk

Carbon (Spectro-pure): Standard

76170	10/pk
76171	50/pk

AMRAY, Cambridge, Leica, ZEISS/LEO, FEI/Philips, CamScan, Tescan

Head: 100 mm,
pin ⅛" dia. (3.2mm)



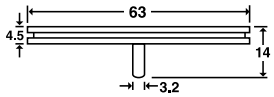
75239-10

Aluminum: Standard

75239-10	each
75239-20	5/pk
75239-30	10/pk

AMRAY, Cambridge, Leica, ZEISS/LEO, FEI/Philips, CamScan, Tescan, Slotted Head

Head: 2.48" dia. (63 mm),
Pin ⅛" dia. (3.2mm), Pin Length: 9.5mm



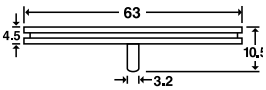
75636-70

Aluminum: Standard

75636-70	10/pk
75636-80	50/pk
75636-90	100/pk

Shorter pin for all Zeiss/LEO SEM, FESEM & FIB systems, Slotted Head

Head: 2.48" dia. (63 mm),
Pin ⅛" dia. (3.2mm), Pin Length: 6mm



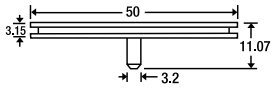
75639-10

Aluminum: Standard

75639-10	each
75639-20	5/pk
75639-30	10/pk

AMRAY, Cambridge, Leica, ZEISS/LEO, FEI/Philips, CamScan, Tescan, Slotted Head

Head: 2" dia. (50 mm),
pin ⅛" dia. (3.2mm), Pin Length: 8mm



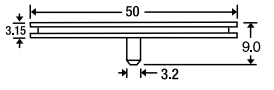
75636-40

Aluminum: Standard

75636-40	10/pk
75636-50	50/pk
75636-60	100/pk

Shorter pin for all Zeiss/LEO SEM, FESEM & FIB systems, Slotted Head

Head: 2" dia. (50 mm),
pin ⅛" dia. (3.2mm), Pin Length: 6mm



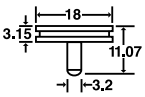
75639-50

Aluminum: Standard

75639-50	each
75639-60	5/pk
75639-70	10/pk

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Cambridge, Leica, ZEISS/LEO, FEI/Philips, PHENOM, CamScan, Tescan Slotted Head



75636-10

Head: 18 mm, pin ⅛" dia. (3.2mm)
Pin Height: 8mm

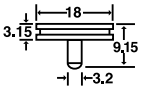
Aluminum: Standard

75636-10	10/pk
75636-20	50/pk
75636-30	100/pk

Carbon (Spectro-pure): Standard

75636-02	10/pk
75636-03	50/pk

Shorter pin for all Zeiss/LEO SEM, FESEM & FIB systems, Slotted Head



75636-04

Head: 18 mm, pin ⅛" dia. (3.2mm)
Pin Height: 6mm

Aluminum: Standard

75636-04	10/pk
75636-05	50/pk
75636-06	100/pk

Mini Pin Stubs

These mini pin stubs, made from either aluminum, copper, or stainless steel, come on a 3.2mm pin and are available in two lengths.

Aluminum is used for standard applications. Copper is for cryo or heat stage applications. Stainless steel is for non-corrosive applications.

Mini Pin, Aluminum

For FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Head: 6.6 x 1.3mm,
Pin: 9.5mm

75638-10	10/pk
75638-20	50/pk
75638-30	100/pk

Mini Pin, Aluminum

For ZEISS/LEO
Head: 6.6 x 1.3mm
Pin: 6.25mm

75824	100/pk.

Mini Pin, Copper

For FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Head: 6.6 x 1.3mm,
Pin: 9.5mm

75825	100/pk.

Mini Pin, Copper

For ZEISS/LEO
Head: 6.6 x 1.3mm
Pin: 6.25mm

75826	100/pk.

Mini Pin, Stainless Steel

For FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Head: 6.6 x 1.3mm,
Pin: 9.5mm

75827	100/pk.

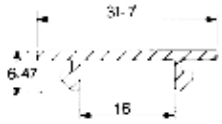
Mini Pin, Stainless Steel

For ZEISS/LEO
Head: 6.6 x 1.3mm
Pin: 6.25mm

75828	100/pk.

Cambridge S-4, Mark II, S-410...

Head: 1¼" dia. (31.7mm)
x 3/16" H (6.4mm)



75050

Aluminum: Standard

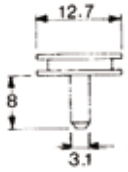
75050	10/pk
75060	50/pk
75070	100/pk

Carbon (Spectro-pure): Standard

76180	10/pk
76181	50/pk

Cambridge, Phillips, Camscan, PHENOM, B&L, Etec, Zeiss, etc.

Tapered end pin, Slotted head ½" dia. (12.7mm), pin ⅛" dia. (3.1mm)



75200

Aluminum: Standard

75200	10/pk
75210	50/pk
75220	100/pk
75230	500/pk

Polished

75235	10/pk
75236	50/pk
75237	100/pk
75238	500/pk

Carbon (Spectro-pure): Standard

76200	10/pk
76210	50/pk
76220	100/pk

Cambridge, Leica, LEO, ZEISS, Philips, FEI, CamScan, Tescan, ETEC

75220-12

Slotted Head, numbered 1-alpha/4-numeric.*
Head: ½" (12.7mm), pin ⅛" dia. (3.2mm),
Pin Height: 8mm

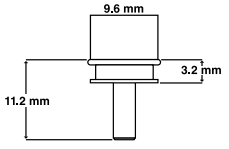
Aluminum: Standard

75220-12	500/pk

* Designate number sequence when ordering

Cambridge, Leo, Phillips 500, Cameca etc.

Aluminum small, slotted head
Head: ⅜" (9.6 mm) x 7/16" (11.2 mm) H,
Pin: ⅛" (3.1mm)

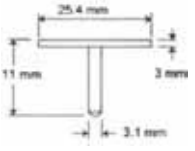


75180

75180	100/pk
75181	500/pk

Cambridge, Leo, Philips 500, Cameca etc.

Aluminum, non-slotted head.
Head 1" (25.4 mm),
pin 3.1 mm x 11mm long total
(or 8 mm pin only)



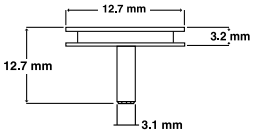
75186

75186	100/pk

FEI, Phillips, LEO, Zeiss, Cambridge, Leica, Amray, Tescan and Camscan SEMs

3-Divisions

Head: ½" dia. (12.7 mm)
Pin Height: 9.0 mm
Pin: ⅛" (3.2mm)



75183-10

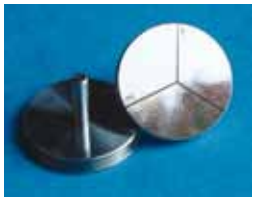
Aluminum: Standard

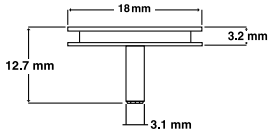
75183-10	10/pk
75183-20	50/pk
75183-30	100/pk

FEI, Phillips, LEO, Zeiss, Cambridge, Leica, Amray, Tescan and Camscan SEMs

3-Divisions

Head: 18 mm
Pin Height: 9.0 mm
Pin: ⅛" (3.2mm)





75183-01

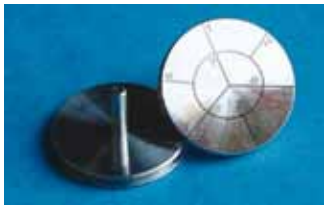
Aluminum: Standard

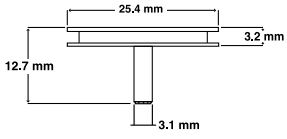
75183-01	10/pk
75183-02	50/pk
75183-03	100/pk

FEI/Philips, ZEISS/LEO, Cambridge, Leica, Amray, Tescan and Camscan SEMs

9 Divisions

Head: 1" dia. (25mm)
Pin Height: 9.0mm
Pin: ⅛" dia. (3.2mm)





75183-40

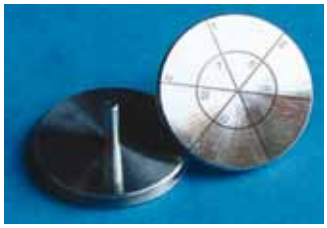
Aluminum: Standard

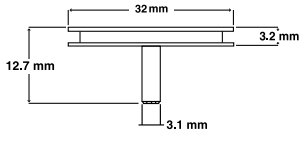
75183-40	10/pk
75183-50	50/pk
75183-60	100/pk

FEI/Philips, ZEISS/LEO, Cambridge, Leica, Amray, Tescan and Camscan SEMs

12-Divisions

Head: 32 mm
Pin Height: 9.0 mm
Pin: ⅛" (3.2mm)





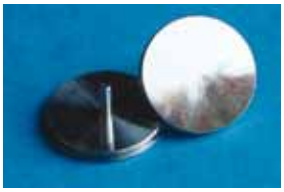
75183-62

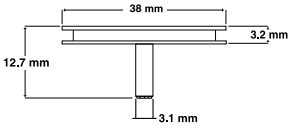
Aluminum: Standard

75183-62	10/pk
75183-63	50/pk
75183-64	100/pk

Leica, Cambridge, Leo, FEI, Phillips, PHENOM, Zeiss, Camscan etc.

Slotted head.
Head: 38mm,
Pin: ⅛" dia. (3.1mm) x 8mm H



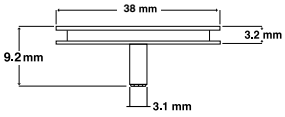


75183-65

75183-65	10/pk
75183-66	50/pk
75183-67	100/pk

Shorter pin for all Zeiss/LEO 1500 SEM, FESEM & FIB systems, Slotted Head

Head: 38mm,
Pin: ⅛" dia. (3.1mm) x 6mm H



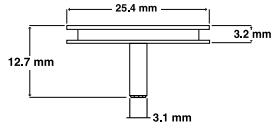
75183-68

Aluminum: Standard

75183-68	10/pk
75183-69	50/pk
75183-71	100/pk

Leica, Cambridge, Leo, FEI, Phillips, PHENOM, Zeiss, Camscan etc.

Aluminum slotted head.
Head: 1" (25.4mm),
Pin: ⅛" dia. (3.1mm) x ½" (12.7mm) H

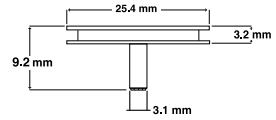


75183

75183	10/pk
75184	50/pk
75185	100/pk

Shorter pin for all Zeiss/LEO 1500 SEM, FESEM & FIB systems, Slotted Head

Head: 1" (25.4mm),
Pin: ⅛" dia. (3.1mm) x 6mm H



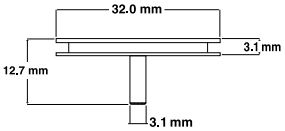
75183-72

Aluminum: Standard

75183-72	10/pk
75183-73	50/pk
75183-74	100/pk

Leica, Cambridge, Leo, FEI, Phillips, Zeiss, Camscan etc.

Aluminum large slotted head.
Head: 1 ¼" (32mm),
Pin: ⅛" dia. (3.1mm) x ½" (12.7mm) H

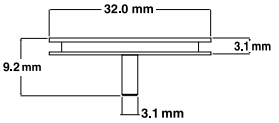


75187

75187	10/pk
75188	50/pk
75189	100/pk

Shorter pin for all Zeiss/LEO SEM, FESEM & FIB systems, Slotted Head

Head: 1 ¼" (32mm),
Pin: ⅛" dia. (3.1mm) x 6mm H



75187-10

Aluminum: Standard

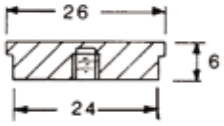
75187-10	10/pk
75187-20	50/pk
75187-30	100/pk

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Hitachi

M4 Tapered hole, female thread
Head: 1" dia. (26mm), Height: ¼" (6mm)

Comes either plain or with 9 divisions.



75621

75621-d
(9 divisions)

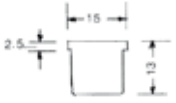
Aluminum: Standard

75621	10/pk
75622	50/pk
75623	100/pk
75621-D	10/pk
75622-D	50/pk
75623-D	100/pk

Hitachi

Head: ⅜" dia. (15mm)
Height: ½" (13mm)

75630

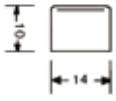


Aluminum: Standard

75630	10/pk
75631	50/pk
75632	100/pk

Hitachi

Head: 9/16" (14mm),
Height: ⅜" (10mm)



75650

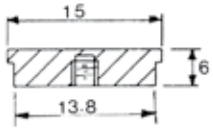
Aluminum: Standard

75650	10/pk
75651	50/pk
75652	100/pk

Hitachi S-450

M4 Tapered hole, female thread
Head: ⅝" (15mm),
Height: ¼" (6mm)

Comes plain or with 3 divisions



75600

75600-D
(3 divisions)

Aluminum: Standard

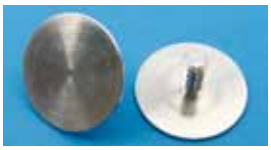
75600	10/pk
75610	50/pk
75620	100/pk
75600-D	10/pk
75610-D	50/pk
75620-D	100/pk

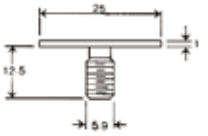
Carbon (Spectro-pure): Standard

76470	10/pk
76471	50/pk

Hitachi S-500

Threaded pin
Head: 1" dia. (25mm),
pin: ¼" dia. (6mm)





75640

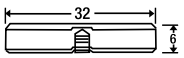
Aluminum: Standard

75640	10/pk
75642	50/pk
75644	100/pk

Hitachi, M4

Head: 1 ¼" (32mm), Height: ¼" (6mm)

75660

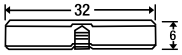


Aluminum: Standard

75660	10/pk
75661	50/pk
75662	100/pk

Hitachi M4 Thread

Head: 1¼" (32mm), Height: ¼" (6mm)



75635-70

75635-70D
(12 divisions)

Aluminum: Standard

75635-70	10/pk
75635-80	50/pk
75635-90	100/pk

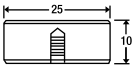
Same as above but with 12 divisions

75635-70D	10/pk
75635-80D	50/pk
75635-90D	100/pk

Hitachi M4 Thread

Head: 1" dia. (25mm), Height: ⅜" (10mm)

75635-40



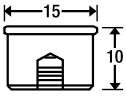
Aluminum: Standard

75635-40	10/pk
75635-50	50/pk
75635-60	100/pk

Hitachi M4 Thread

Head: ⅝" dia. (15mm), Height: ⅜" (10mm)

75635-10



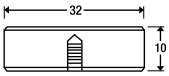
Aluminum: Standard

75635-10	10/pk
75635-20	50/pk
75635-30	100/pk

Hitachi M4 Thread

Head: 1¼" (32mm), Height: ⅜" (10mm)

75635-75



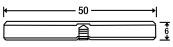
Aluminum: Standard

75635-75	10/pk
75635-85	50/pk
75635-95	100/pk

Hitachi M4 Thread

Head: 2" (50mm),
Height: ¼" (6.0mm)

75635-77

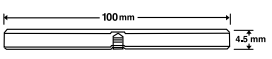


Aluminum: Standard

75635-77	10/pk
75635-87	50/pk
75635-97	100/pk

Hitachi M4, Large

Head: 4 inch, (100mm)
Height: 4.5mm



75635-78

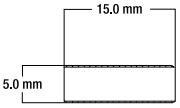
Aluminum: Standard

75635-78	each
75635-88	5/pk

ISI, ABT, Topcon, Aluminum

Head: ⅝" (15mm) x ¼" (5mm)

75433	50/pk
75434	100/pk

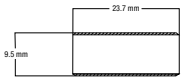


75433

ISI, ABT, Topcon, Aluminum

Head: 0.93" dia. (23.7mm)
Height: ⅜" (9.5mm)

75436	10/pk
75437	50/pk
75438	100/pk



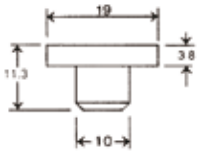
75436

Coates & Welter

Head: ¾" dia. (19mm)
Pin: ⅜" dia. (9.6mm)

Aluminum: Standard

75250	10/pk
75252	50/pk
75254	100/pk



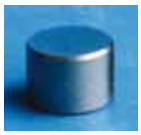
75250

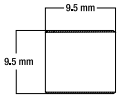
JEOL, also ISI, ABT, Topcon

Head: ⅜" (9.5mm), Height: ⅜" (9.5mm)

Aluminum: Standard

75258	10/pk
75259	50/pk
75260	100/pk
75261	500/pk





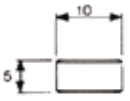
75258

JEOL

Head: ⅜" dia. (10mm)
Height: 3⁄16" (5mm)

Aluminum: Standard

75350	50/pk
75360	100/pk
75370	500/pk

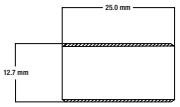


75350

JEOL, Aluminum

Head: 1" dia. (25mm)
Height: ½" (12.7mm)

75690	10/pk
75691	50/pk
75692	100/pk



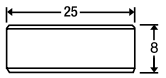
75690

JEOL

Head :1" dia. (25mm)
Height: 8mm

Aluminum: Standard

75693	10/pk
75694	50/pk
75695	100/pk



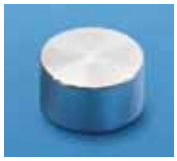
75693

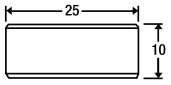
JEOL

Head :1" dia. (25mm)
Height: ⅜" (10mm)

Aluminum: Standard

75696	10/pk
75697	50/pk
75698	100/pk





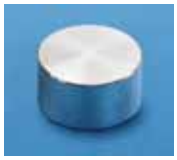
75696

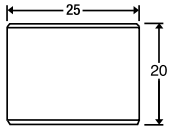
JEOL

Head :1" dia. (25mm)
Height: 13⁄16" (20mm)

Aluminum: Standard

75830-10	10/pk
75830-20	50/pk
75830-30	100/pk





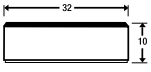
75830-10

JEOL

Head: 1¼" dia. (32mm)
Height: ⅜" (10mm)

Aluminum: Standard

75830-70	10/pk
75830-80	50/pk
75830-90	100/pk



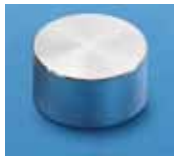
75830-70

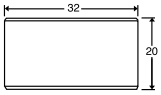
JEOL

Head: 1¼" dia. (32mm)
Height: 13⁄16" (20mm)

Aluminum: Standard

75830-76	10/pk
75830-86	50/pk
75830-96	100/pk





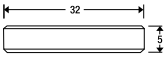
75830-76

JEOL

Head: 1¼" dia. (32mm)
Height: 3⁄16" (5mm)

Aluminum: Standard

75830-40	10/pk
75830-50	50/pk
75830-60	100/pk

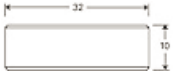


75830-40

JEOL, Aluminum

Head: 1¼" dia. (32mm)
Height: ⅜" (10mm)

75702	10/pk
75703	50/pk
75704	100/pk



75702

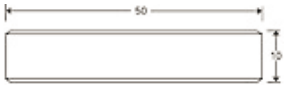
Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

JEOL, Aluminum
Head: 2" dia. 50mm, Height: 3/16" (5mm)

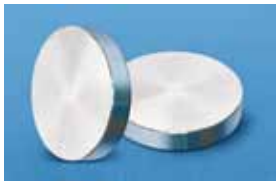
75705	10/pk
75706	100/pk

75705

JEOL, Aluminum
Head: 2" dia. 50mm, Height: 3/8" (10mm)



75707	10/pk
75708	100/pk



75707

JEOL, Aluminum
Head: 12.2mm x 10mm H

75726	50/pk
75727	100/pk
75726-D	50/pk
75727-D	100/pk

75726

75726-D
(3 divisions)

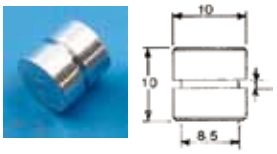
JEOL
Head: 3/8" dia. (10mm),
Height: 3/8" (10mm)

Aluminum: Standard

75300	10/pk
75310	50/pk
75320	100/pk
75330	50/pk

Carbon (Spectro-pure): Standard

76300	10/pk
76310	50/pk
76320	100/pk



75300

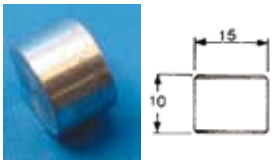
JEOL, ISI
Head: 5/8" dia. (15mm),
Height: 3/8" (10mm)

Aluminum: Standard

75440	10/pk
75450	50/pk
75460	100/pk
75470	50/pk

Carbon (Spectro-pure): Standard

76440	10/pk
76450	50/pk
76460	100/pk

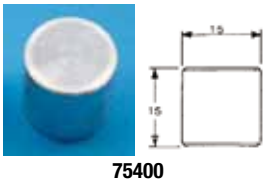


75440

JEOL, ISI
Head: 5/8" dia. (15mm),
Height: 5/8" (15mm)

Aluminum: Standard

75400	10/pk
75410	50/pk
75420	100/pk
75430	500/pk

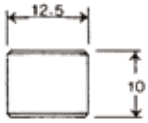


75400

JEOL JSM 840
Head: 1/2" dia. (12.5mm),
Height: 3/8" (10mm)

Aluminum: Standard

75730	50/pk
75732	100/pk
75734	pk/250

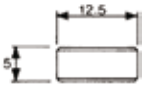


75730

JEOL JSM 840
Head: 1/2" dia. (12.5mm)
Height: 1/4" (5mm)

Aluminum: Standard

75740	50/pk
75742	100/pk
75744	250/pk



75740

Carbon (Spectro-pure): Standard

76330	10/pk
76331	50/pk

JEOL JSM 840
Head: 1"Dia (25mm),
Height: 1/4" (5mm)

Aluminum: Standard

75700	10/pk
75710	50/pk
75720	100/pk

75700

JEOL JSM 840
Head: 1" Dia (25mm),
Height: 3/8" (10mm)

Aluminum: Standard

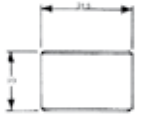
75721	10/pk
75722	50/pk
75723	100/pk

75721

JEOL JSM 840
Head: 1 1/4" dia. (31.5mm),
Height: 13/16" (20mm)

Aluminum: Standard

75800	10/pk
75810	50/pk
75820	100/pk



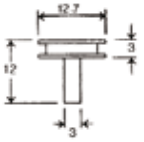
75800

LEO Microscope
Tapered end pin. Slotted head 1/2" dia. (12.7mm), pin 1/8" Dia (3.1mm) x 5mm Length

75190	50/pk
75191	100/pk
75192	50/pk0

Zeiss
Flat End Pin Head: 1/2" dia. (12.7mm) Slotted Head, 1/8" dia. (3.1mm) Pin

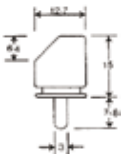
75500	50/pk
75510	100/pk
75520	500/pk



45° Angle SEM Aluminum

1) Head: ½" dia. (12.7mm), ⅛" (3.1mm) pin

75240	10/pk
75242	50/pk

75240

2) Head: ⅜" dia. (10mm), Height: ⅜" (10mm)

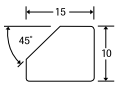
75340	10/pk
75342	50/pk


75340

3) Head : ⅝" dia. (15mm) Height: ⅜" (10.0mm)

Aluminum: Standard

75241-10	10/pk
75241-20	50/pk
75241-30	100/pk

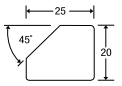



75241-10

4) Head :1" dia. (25mm) Height: 13⁄16" (20mm)

Aluminum: Standard

75241-40	10/pk
75241-50	50/pk
75241-60	100/pk

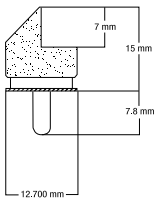
75241-40

Combination 45° – 90° SEM

Aluminum slotted head with 3.1mm diameter pin, fits most SEMs

75344	each





75344

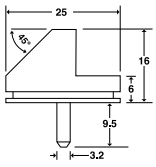
45°/90°

FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Aluminum slotted head.

Head: 1" (25mm)
Pin Height: ⅜" (9.5m)

75347	each

75347

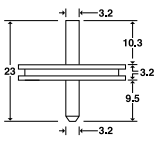
Double 90°

FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Aluminum slotted head.

Head: 1" (25mm)
Pin Height: ⅜" (9.5m)

75348	each

75348

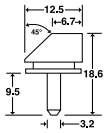
45° Low Profile

FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Aluminum slotted head.

Head: ½" (12.7mm)
Pin Height: 3/8" (9.5mm)

75349	each

75349

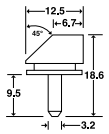
45° Low Profile

Shorter 6mm pin for ZEISS/LEO

Aluminum slotted head.

Head: ½" (12.7mm)
Pin Height: 1/4" (6mm)

75351	each

75351

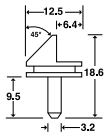
45° and 90° Low Profile

FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Aluminum slotted head.

Head: ½" (12.7mm)
Pin Height: 3/8" (9.5mm)

75352	each

75352

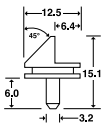
45° and 90° Low Profile

Shorter 6mm pin for ZEISS/LEO

Aluminum slotted head.

Head: ½" (12.7mm)
Pin Height: 1/4" (6mm)

75353	each

75353

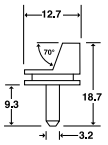
70° Low Profile

FEI, Tescan, Zeiss, Philips, Leo, Cambridge, AMRAY, Leica, CamScan, ETEC

Aluminum slotted head.

Head: ½" (12.7mm)
Pin Height: 3/8" (9.5mm)

75354	each

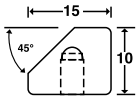
75354

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

45° SEM, for Hitachi M4

Aluminum slotted head.

Head: ⅝" (15mm)
Height: ⅜" (10mm)



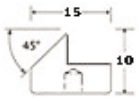
75357

75357	each

Combination 45° – 90° SEM, for Hitachi M4

Aluminum slotted head.

Head: ⅝" (15mm)
Height: ⅜" (10mm)



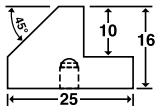
75344-H

75344-H	each

Combination 45° – 90° SEM, for Hitachi M4

Aluminum

Head: 1" (25mm)
Height: ⅝" (16mm)



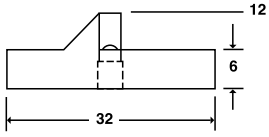
75958-25

75958-25	each

Combination 45° – 90° SEM, for Hitachi M4

Aluminum

Head: 1¼" (32mm)
Height: ½" (12mm)



75958-26

75958-26	each

Double 45°, for Hitachi M4

Aluminum

Head: 1" (25mm)
Height: 5/32" inch (4mm)

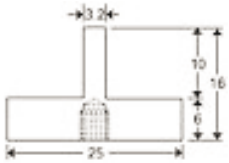
75346-H

75346-H	each

Double 90°, for Hitachi M4

Aluminum

Head: 1" (25mm)
Height: ⅝" (16mm)



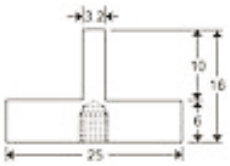
75355-H

75355-H	each

Double 90°, for Hitachi M4

Aluminum

Head: 1" (25mm)
Height: ⅝" (16mm)



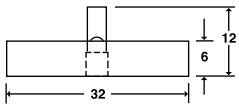
75662-10

75662-10	10/pk
75662-20	50/pk
75662-30	100/pk

Double 90°, for Hitachi M4

Aluminum

Head: 1¼" (32mm)
Height: ½" (12mm)



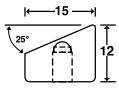
75359

75359	each

22°/25° for TM1000/ TM3000 with EDS Analysis Systems

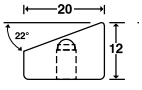
These angled mounts feature an orientation cross for precise positioning towards the EDS detector. A 22° or 25° tilt provides better detection and higher signal-to-noise ratio for x-ray analysis. Made from Aluminum.

15mm dia., 25° angle, for TM-3000, M4



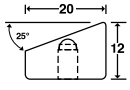
75311-10	each

20mm dia., 22° angle, for TM-1000, M4



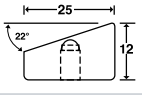
75311-11	each

20mm dia., 25° angle, for TM-3000, M4



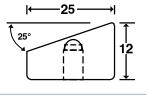
75311-12	each

25mm dia., 22° angle, for TM-1000, M4



75311-13	each

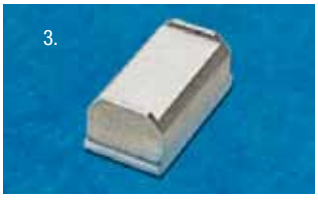
25mm dia., 25° angle, for TM-3000, M4

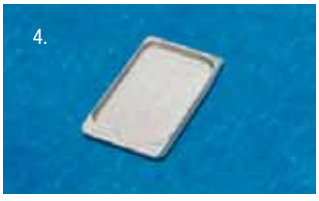


75311-14	each

Rectangular Specimen Mounts, Hitachi S-5200/S-5500/SU-9000

These mounts work with the Hitachi line of scopes listed above. They are made from aluminum. Available in four sizes.





Ordering Information:

	Cat No.	Length	Width	Height	Qty.
1.	**75463-10**	11mm	5.5mm	4mm	each
2.	**75463-11**	11mm	5.5mm	3.5mm	each
3.	**75463-12**	11mm	5.5mm	5.5mm	each
4.	**75463-13**	11mm	5.5mm	2mm	each

Carbon Planchets for SEM

1) ½" (12.7mm) surface 1/16" (1.6mm) height

76250	10/pk
76252	50/pk
76254	100/pk

76250

2) 1" (25.4mm) surface 1/16" (1.6mm) height

76270	10/pk
76272	50/pk
76274	100/pk

76270

Carbon Planchet Holder

Two configurations offered: 1/2"dia. (12.7mm) and 1" dia. (25mm) with 1/8" (3.1mm) pin.

76284 Carbon Planchet Holder, ½" each

Pyrolytic Graphite Planchet for SEM

Surface polish to 1 µm glassy finish

Cat. No.	Planchet Size, Dia x Thickness, mm	Qty
76290-32	Pyrolytic Graphite Planchet, 25.4 x 3.2	each
76290-16	Pyrolytic Graphite Planchet, 25.4 x 1.6	each
76291-32	Pyrolytic Graphite Planchet, 13.7 x 3.2	each
76291-16	Pyrolytic Graphite Planchet, 13.7 x 1.6	each

Beryllium Planchets

These planchets are prepared from high purity beryllium (min. 98.5%) by electro-fusion to provide vacuum tight (~1x10^{-9}atm-cm^3/sec) and ±10% dimensional tolerances.

Notes:

1. Beryllium is a hazardous substance. Care should be taken seriously when working with this material.
2. Beryllium is a strategic commodity that is controlled by the U.S. government for reasons of nuclear non-proliferation and anti-terrorism. Its' ECCN No is 1C230. If you export this material, you must follow the Export Administration Regulations. Diversion contrary to U.S. Law is prohibited.
3. Following is the typical Specification Limits of our Be supplied by us:

			Specification Limits	
Characteristic	**Unit**	**Value**	**Lower**	**Upper**
Lot Identification: Lot Number		5077		
Chemistry Composition				
Beryllium Assay	%	99.00	98.5	—
Beryllium Oxide	%	0.90	-	1.50
Iron Content	%	0.1000	-	0.1300
Aluminum Content	%	0.04	-	0.10
Magnesium Content	%	<0.0100	-	0.0800
Silicon Content	%	0.0300	-	0.0600
Carbon Content	%	0.13	-	0.15
Other Metallic – each	%	<0.0400	-	0.0400

Cat. No.	Planchet Size	Qty
76010	Be Substrate Planchet 1cm Dia x 0.25mm Thick	each
76014	Be Substrate Planchet 1.27cm Dia x 0.25mm Thick	each
76015	Be Substrate Planchet 2.5cm Dia x 1.0mm Thick	each
76016	Be Substrate Planchet 50.8cm Dia x 1.0mm Thick	each
76017	Be Substrate Planchet 101.6cm Dia x 1.0mm Thick	each

PYROID® Pyrolytic Graphite Product Line — Vitreous Carbon Substrate

Our PYROID® pyrolytic graphite is a very light weight, 5'9's pure, solid crystal composition, with no granular components, extremely smooth surface, capable of withstanding cryogenic temperatures as well as temperatures in excess of 3000°C

The material is extremely anisotropic, meaning it conducts heat and electricity in the a-b plane like cooper but acts like a ceramic in the normal direction. In an annealed state, the thermal and conduction properties increase up to four to eight times that of aluminum and cooper respectively.

The material has zero porosity making it extremely stable and exhibits no outgassing. It is ideal for use in corrosive environments including acids and chlorine, and is highly transparent to organic samples and electrons, for analytical work, such as x-ray investigation, metallurgical, crystal growth, medical imaging technology etc.

Pyroid® is trade mark name of MINTEQ

Physical Properties of PYROID® Pyrolytic Graphite

Property	Direction*	Metric Units	English Units
Density	-----	2.22 g/cc	1.37 lb/ft^3
Flexual Strength			
Room Temperature	a	840 kg/cm^2	12,000 psi
2750°C	a	3,500 kg/cm^2	50,000 psi
Compressive Strength			
Room Temperature	a	1,050 kg/cm^2	15,00 psi
	c	1,750 kg/cm^2	25,000 psi
Shear Strength			
Room Temperature	a	70 kg/cm^2	1, 000psi
Coefficient Thermal Expansion			
Room Temperature	a	.60 x 10^{-6} cm/cm°C	1.0 x 10^{-6} in/in°F
2200°C	a	.68 x 10^{-6} cm/cm°C	1.2 x 10^{-6} in/in°F
Room Temperature	c	6.8 x 10^{-6} cm/cm°C	12.0 x 10^{-6} in/in°F
2200°C	c	8.0 x 10^{-6} cm/cm°C	14.7 x 10^{-6} in/in°F
Thermal Conductivity			
Room Temperature	a	345 W/m°K	200 BTU/(hr ft^2)(°F/ft)
1650°C	a	114 W/m°K	66 BTU/(hr ft^2)(°F/ft)
Room Temperature	c	1.73 W/m°K	1.00 BTU/(hr ft^2)(°F/ft)
3000°F	c	1.30 W/m°K	0.75 BTU/(hr ft^2)(°F/ft)
Electric Resistivity			
Room Temperature	a	500 µΩcm	
1650°C	a	200 µΩcm	
Room Temperature	c	0.6 Ωcm	
1650°C	c	0.22 Ωcm	
Scleroscope Hardness	a	103	103
	c	68	68
Oxidation Threshold		650°C	1200°F
Permeability		Helium Leak Tight at 10^{-6} mmHg	

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

P47 Scintillators

They are coated with a thin layer of well selected P47 phosphor (Y1Si2O7:Ce3+; yttrium silicate activated with cerium), and have a high signal output and a good working life. They need not be coated with aluminum prior to use unless cathodoluminescence studies are required.

YAG Single Crystal Scintillator Discs

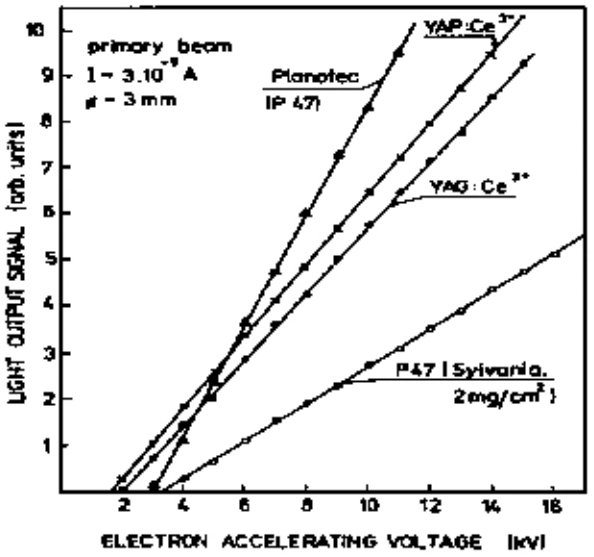
Advantages:

- Low Phosphor Noise.
- High Resistance to Radiation Damage.
- Long Working Life.
- Possible Application in Ultrahigh Vacuum Conditions.

YAG (Yttrium Aluminum Garnet activated by Ce^{3+}) has a very fast response time of 50-60ns and they do withstand well to the bombardment by electrons or ions far better than plastic or phosphor scintillators. Light emission peaks at about 560nm which means that S20 photocathodes are most suitable for detecting the emission. YAG is suited for high current operations. The response is better then for the P47 discs below 5kV and again at higher accelerating voltages, where the performance of powder scintillators fall off while the response of the YAG continues to increase linearly. The crystal should be coated with 50nm of aluminum prior to use. If the layer becomes damaged it can be removed with sodium hydroxide. The crystals are mounted with the matt surface in contact with the light pipe as this has shown to increase the efficiency.

YAP Single Crystal Scintillator Discs

YAP (Yttrium Aluminum Perovskite activated by Ce^{3+}) shares the same advantages as YAG but is more efficient in terms of light output than YAG crystals. As well, the emission spectrum peaks at about 378nm, and this corresponds closely to the maximum sensitivity of the S11 photocathode which in general is used in most scanning electron microscopes. (There would be more improvement in signal by using a YAP crystal rather than YAG in these microscopes). The decay time of YAP (40ns) is faster than YAG (80ns) so its overall performance is superior to YAG. YAP crystals should be coated with 50nm of aluminum prior to use.



Dia. (mm) x Thick (mm)	Instrument	Cat.# P-47	Cat.# YAG	Cat.# YAP
6.2 x 1	Phillip Quad Detector	82010	82040	82070
7.5 x 1	ISI Mini-SEM	82012	82042	82072
8.8 x 2	Jeol JSM T20, T200, T300, 340	82013	82043	82073
9.0 x 3	ETEC	82014	82044	82074
10.0 x 1	Cambridge except S600, AMRAY 1200	82016	82046	82076
12.0 x 1	Cambridge S600	82017	82047	82077
12.0 x 0.17	Zeiss SEM	82018	82048	82078
12.4 x 3.2.	Cameca	82020	82050	82080
13.7 x 1	ISI Mini-SEM, Jeol	82021	82051	82081
16.4 x 0.17	Novascan, SEMCO/Zeiss	82022	82052	82082
18.0 x 1	Camscan, Balscan, Cambridge S-4	82024	82054	82084
19.0 x 1	Jeol U3, JSM2	82026	82056	82086
19.0 x 7.3.	ARL SEMQ	82028	82058	82088
19.8 x 1	Hitachi w/metal ring.	82029	82059	82089
20.0 x 1	AMRAY except 1200, Jeol 50A, 35,Hitachi	82030	82060	82090
20.0 x 2	Philips SEM	82032	82062	82092

Note: P-47 is usually in-stock. YAG and YAP delivery time is 6-8 weeks.

Light Pipe Scintillators

The light pipe is the connection between the scintillator and the phosphomultiplier tube (PMT). It transfers the photons produced by the scintillator for detection by the PMT. We coat the scintillator material directly on the light pipe which improves the signal. Light Pipes are available in optical quality quartz and optical grade acrylic. Cambridge reduced-tip models are only available in acrylic. High voltage wire and corona ring are included. JEOL pipes include a flange. Price includes one Re-coating Certificate. Re-coating is typically needed twice per year.

P47P Light Pipes				
Microscope	Substrate	Style	Length	Cat. No.
Cambridge	Quartz	Angled	——	82000-10
Cambridge	Quartz	Straight	74mm	82000-74
Cambridge	Quartz	Straight	89mm	82000-89
Cambridge	Quartz	Straight	104mm	82000-104
Cambridge	Quartz	Straight	Up to 200mm	82000-x *
Cambridge	Acrylic	Reduced Tip	88mm	82001-88
Cambridge	Acrylic	Reduced Tip	100mm	82001-100
Cambridge	Acrylic	Reduced Tip	120mm	82001-120
Cambridge	Acrylic	Reduced Tip	Any	82001-x*
JEOL U-2, U-3	Quartz	1/4" Collar	60mm	82004-60
JEOL JSM-35	Quartz	1/2" Collar	60mm	82005-60
Re-coating Service	————	Various	————-	82008-RS

**** Replace the asterisk by the length of the Light Pipe.***

Specially Designed Specimen Holders for SEM

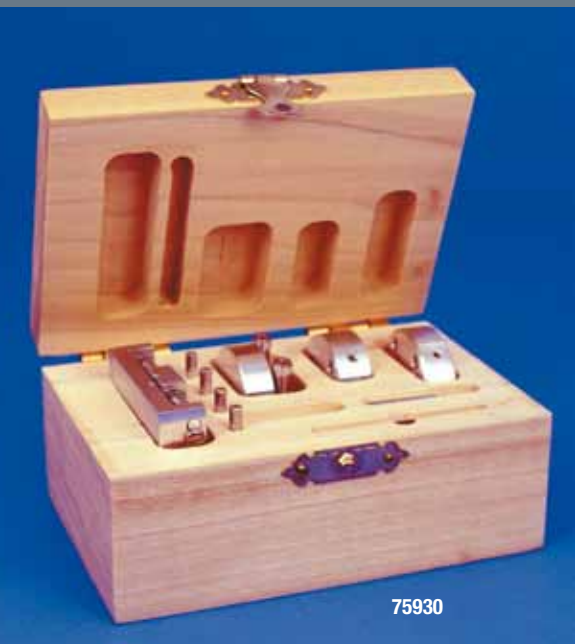
Our specimen holders are designed to improve your productivity and allow you to view more than one sample at a time. You will save pump down time, keep your chamber cleaner and get more work done. All mounts are machined from solid aluminum and come with spring clips/or set-screws to hold your specimens securely. All mounts are made to fit onto your stage and are designed to fit through all standard specimen exchange ports, and have a center-threaded port to accept the Adapter Pins. Be sure to order the Adapter Pin that fits your instrument. For this reason, we offer three different types of pin adapters, which are threaded and ready to screw on to the base of the holders.

Adapter A: Overall measurement: 28mm long x 3.1mm diameter (step-up portion is 6.25mm L x 4.8mm diameter)

Adapter B: Overall measurement: 28mm long x 6mm diameter

Adapter C: Overall measurement: 34.5mm long x 16mm diameter

All adapters have a threaded portion 5mm in length.



75930

1/ Universal SEM Sample Holder

This holder will hold almost any sample from 3mm to 29mm in diameter plus various odd shaped samples, which one of their dimensions is not greater than 29mm. The samples are easily inserted or removed from the holder. The holder is made from aluminum and is supplied with four removable sample arms so that it can hold very small samples as well, and it provides good electrical contact to the stage. The AMRAY base is the standard base and it measures: 48mm x 42mm x 12mm Thick.

For all other makes and models you can choose an Adapter Pin to screw on to the AMRAY base holder.

75910

Adapter Pins

Cat. #	Description	Qty
75910	Universal SEM Holder – AMRAY Base	each
75910-01	Universal SEM Holder – AMRAY Base with Pin A	each
75910-02	Universal SEM Holder – AMRAY Base with Pin B	each
75910-03	Universal SEM Holder – AMRAY Base with Pin C	each

2/ Vertical Mounts for Thin Samples

This holder is designed to hold thin samples vertically in the SEM or any microscope. It is 25mm in diameter and 10mm thick. Each of the two jaws can hold up to 3mm thick samples. The spring loader is gentle and strong enough to keep thin and fragile samples vertical so that cross sections can be studied. This holder is very useful for cross sections of silicone wafers or multiplayer capacitors.

This holder can be adapted to any adapter pin listed above to accommodate your instrument.

75915

Cat. #	Description	Qty
75915	Thin Sample/Vertical Mount Holder, Flat Base	each
75915-01	Thin Sample/Vertical Mount Holder, with Adapter Pin A	each
75915-02	Thin Sample/Vertical Mount Holder, with Adapter Pin B	each
75915-03	Thin Sample/Vertical Mount Holder, with Adapter Pin C	each

3/ Multi Pin Holder

The multi Pin Holder is designed to save time. It accommodates 3 or 5 of ½" (12.5mm) diameter surface, 1/8" (3.1mm) diameter pin.

75920

Cat. #	Description	Qty
75920	3-Pin Holder, 25mm Dia x 10mm H, Flat Base	each
75920-01	3-Pin Holder, 25mm Dia x 10mm H, with Adapter Pin A	each
75920-02	3-Pin Holder, 25mm Dia x 10mm H, with Adapter Pin B	each
75920-03	3-Pin Holder, 25mm Dia x 10mm H, with Adapter Pin C	each
75921	5-Pin Holder, 32mm Dia x 10mm H, Flat Base	each
75921-01	5-Pin Holder, 32mm Dia x 10mm H, with Adapter Pin A	each
75921-02	5-Pin Holder, 32mm Dia x 10mm H, with Adapter Pin B	each
75921-03	5-Pin Holder, 32mm Dia x 10mm H, with Adapter Pin C	each

SEM Sample Holders Set

For your convenience, we now offer a SEM Sample Holder Set for the above SEM Holders in a solid wooden box and finely finished. Set consists of one Universal Holder, one Thin Sample/Vertical Mount Holder, one each 3-Pin and 5-Pin Holders with a hex hey and Adapter Pin A.

75930	SEM Sample Holder Set	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

ISI DS 130 and 150 First Stage Sample Mounts

79525

10mm in diameter, 5mm high, copper sample holder to fit the stage of the ISI DS 130 and 150 SEMs. The inner cylinder is height adjustable so that you can adjust the sample to the correct working distance.

75925	ISI First Stage Holder	each

Pin Mount Stub Adapters

Made from aluminum, used to adapt 1⁄8" (3.1mm) pin diameter SEM stubs. Available in 10, 15 and 16mm diameters.

75940-10	Pin Stub Adapter 10mm (H) x 10mm (D)	each
75940-11	Pin Stub Adapter 15mm (H) x 10mm (D) with M4 tapered hole on one side	each
75940-15	Pin Stub Adapter 38mm (H)x 15mm (D) with M4 tapered hole on one side	each
75940-16	Pin Stub Adapter 38mm (H) x 16mm (D)	each

Variable Tilt Mount

This mount which is made from aluminum is used for the mounting and tilting of samples from 0° – 90° as well as for SEM investigation with small working distances. The mount is marked for 30°, 45°, 70° and 90°. The table measures 11 x 11mm (0.46" x 0.46") and the overall size is 14 x 14 x12.7mm (0.55"x 0.55"x 0.5").

75952-05	Variable Tilt Mount holder, For Pin	each
75952-05H	Variable Tilt Mount, M4 Hitachi	each

Variable Tilt Specimen Holder

This tilt mount, made from aluminum, is used for the mounting and tilting of samples from 0˚ – 90˚ in 10˚ increments. Allows for pin stubs up to 18mm and fits specimens with a maximum size of 26mm x 22mm.

Comes complete with screws and allen wrench.

75952-65	Variable Tilt Specimen Holder	each

TEM Grid Holder on a Pin

This EMS new release allows for the holding of up to 4 grids. Made from Aluminum with a brass Screw this holder allows you to image and analyze specimens on TEM Grids in the SEM. The Overall diameter of the holder is 1" (25mm) with a 1/8" Pin (3.2mm) and a longer pin 0.6" (15mm). The Grid locations are all numbered

75949-03	TEM Grid Holder on Pin	each

NEW

EMS Orbital Specimen Holder

Take the new EMS Orbital Specimen Holder for a spin and raise your SEM images to a whole new level. Experience flexibility and control superior to any other specimen holder. This unique holder is a tool no SEM laboratory should be without.

The EMS Orbital Specimen Holder's clever design allows you to effortlessly rotate the specimen completely around an axis. The pot is coated to reduce noise, producing a black background behind the subject so every detail stands out, allowing the capture of stunning, clear images.

Features

- **Rotate 360° around the axis perpendicular to the electron beam**
- **Pot is detached, fully re-positionable below the pivoted mount**
- **Control and hold the position of the sample with the simple turn of a screw**
- **Available in Pin or M4 Mount versions**

Overall Dimensions:	
Pin Mount	1.25" (L) x 1" (W) x 1.5" (H)
M4 Mount	1.25" (L) x 1" (W) x 1.125" (H)

TECHNICAL TIP

EMS Orbital Specimen Holder Use

- Adhere the specimen to a pin, sputter coat and attach to the pivoted mount on the holder
- Position the rectangular window of the coated pot under the specimen to absorb electrons in the chamber
- Manipulate and hold the specimen in place at the desired angle using a screwdriver

Ordering Information

75911	EMS Orbital Specimen Holder, Pin Mount	each
75912	EMS Orbital Specimen Holder, M4 Mount	each

24 Place SEM Holder

front

back

These 24 place holder is made from Aluminum and offers a stage travel of 100mm x 50mm (which is perfect to be used with the Hitachi VP SEM) .. The holder has a unique identification number so every hole is identifiable

The holder measures 4 7/16" (112.7mm) x 2 ½ " (63.5mm) x 3/8" (10mm) (L x W x H) and has an 1/8" (3.2mm) mounting pin .

75958-67	24 Place SEM holder	each

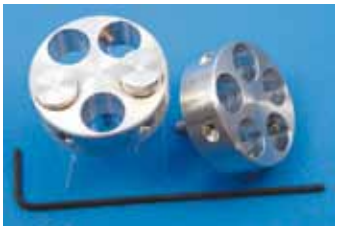
Four-Pin Stub Holder

It accommodates four pin types, up to 12.5 (½") surface specimen stubs, with ⅛" (3.1mm) diameter pin.

75944-04	Four-Pin Stub Holder	each

Five 10mm Stub Holder

Accommodates five 10mm diameter specimen stubs, with ⅛" (3.1mm) diameter pin.



75945-05	Five 10mm Stub Holder	each

Multi Holder for 4 Pin Stubs

This multi pin stub adapter for JEOL 32x11mm is designed to save time It is made from vacuum aluminum with stainless steel set screws. It accommodates up to four standard 12.7mm (½") pin stubs with 3.2mm (⅛") pin.

75953-02J	Multi Pin Stub Adapter, Jeol	each

Multi Holder for 6 Pin Stubs

This 42mm in diameter multi pin holder is designed to save time It is made from machined aluminum with stainless steel set screws. It accommodates up to six standard 12.7mm (½") pin stubs with 3.2mm (⅛") pin.

75953-25h	Multi Holder for 6 Pin Stubs, Hitachi, M4	each

Multi Pin Holder for 8 Pin Stubs

This 50mm in diameter multi pin holder is designed to save time It is made from machined aluminum with stainless steel Allen wrench screws. It accommodates up to eight standard 12.7mm (½") pin stubs.

75952-08	Multi Pin Holder for 8 Pin Stubs, 3.2mm (⅛")	each
75952-08H	Multiple Holder for 8 Pins Hitachi, M4	each

Multi Pin Holder for 12 Pin Stubs

This 62 mm in diameter multi pin holder is designed to save time It is made from machined aluminum with stainless steel Allen wrench screws. It accommodates up to twelve standard 12.7mm (½") pin stubs

75952-12	Multi Pin Holder for 12 pin stubs, 3.2mm(1/8")	each
75952-12H	Multi Holder for 12 Pin Stubs, Hitachi, M4	each

Multi Holder for 29 Pin Stubs

This 90 mm in diameter multi pin holder is designed to save time It is made from machined aluminum with 302 stainless steel springs that hold the pin stubs in place. It accommodates up to twenty nine standard 12.7mm (½") pin stubs

75952-29	Multi Holder for 29 pin Stubs, Hitachi, M4	each
75952-29H	Multi Pin Holder for 29 pin stubs, 3.2mm (⅛")	each

Multi Holder for 49 Pin Stubs

This 117 mm in diameter multi pin holder is designed to save time It is made from machined aluminum with 302 stainless steel springs that hold the pin stubs in place. It accommodates up to forty nine standard 12.7mm (1/2") pin stubs

75952-29	Multi Holder for 29 pin Stubs, Hitachi, M4	each
75952-29H	Multi Pin Holder for 29 pin stubs, 3.2mm (⅛")	each

45° Multi Holder for 3 Pin Stubs

This 25.4 mm in diameter 45º multi pin holder is designed to save time. It allows for a higher SE signal without having to tilt the specimen. It is made from machined aluminum with stainless steel Allen set screws. It accommodates up to three standard 12.7mm (½") pin stubs with 3.2mm (⅛") pin.

75952-60	45° Multi Holder for 3 pin stubs,	each

45° Multi Holder for 6 Pin Stubs

This 35 mm in diameter 45º multi pin holder is designed to save time. It allows for a higher SE signal without having to tilt the specimen It is made from machined aluminum with stainless steel Allen set screws. It accommodates up to six standard 12.7mm (½") pin stubs.

75952-70	45° Multi Holder for 6 pin stubs, 3.2mm (⅛")	each
75952-70H	450 Multi Holder for 6 pin stubs, Hitachi, M4	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Universal Vise

A single set screw loading vise for fast and easy to hold specimens for SEM. The jaws are 1" (25mm) long, 7/16" (11mm) wide and 5/16" (8mm) high. 1/8" (3.1mm) pin.

75950-01	Universal Vise	each

Set Screw Vise

This set screw vice which is made from machined aluminum with stainless steel allen set screws has an open slot that is 4mm (.157") wide x 5mm (.197") deep. It measures 12.7mm (½") dia. x 17.7mm (0.70") high. And has a 3.2mm (⅛") dia. pin.

75941-01	Set Screw Vise, 12.7mm	each

Large Set Screw Vise

This set screw vice which is made from machined aluminum with stainless steel allen set screws has an open slot that is 10mm (.394") wide x 5mm (.197") deep. It measures 25mm (1") dia. x 17.5mm (0.69") high.

75941-03

75941-03	Large Set Screw Vise, 25mm, 3.2mm (1/8") Pin	each
75941-03H	Large Set Screw Vise, 25mmx10mm (H), M4	each

75941-03H

Thin Specimen Split Mount on Pin Stub

12.7mm (1/2") dia., 3.2mm (1/8") dia. pin.

For examination of thin samples from paper, plastics, metals, textiles, plants, etc., in cross section. Features a wide opening up to 6.4mm (1/4"). Grooved head. Height of head is 7.4mm (0.29").

Pin Length: 8mm (.314"). Pin is centered.

Material: Machined aluminum with stainless steel allen set screw. Includes allen wrench.

75950-08

75950-08	Thin Specimen Split Mount, 1/2", 8mm L pin	each

Thin Specimen Split Mount (AMRAY), 15mm

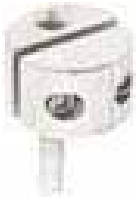
15mm (0.59") dia., 3.2mm (1/8") dia. pin

Opens to 3.75mm (3/8").

Pin length: 14.3mm (9/16")

Height of head: 10.2mm (0.4"), centered split. Pin is off-center.

Material: Machined aluminum with two stainless steel allen set screws. Includes allen wrench.



75950-09

75950-09	Thin Specimen Split Mount, AMRAY	each

Double Slot Mini Vise

Double-slot set screw vise with (2) 1mm wide x 3mm deep slots. Clamp thin specimens or cross sections. Effectively holds wafers and thin samples up to 1mm (.039") thick.

Dimensions: 15mm dia x 6mm H.

Material: Aluminum with 2 stainless steel allen set screws. Includes allen wrench.

75943-H	Double Slot Set Screw Vise, M4, 15 x 6mm H	each

Double Slot Mini Vise, 15mm

(2) 1mm wide X 3mm deep slots. Clamp thin specimens and cross sections without tape or conductive paint.

Pin Length: 3.2mm (1/8").

Material: Machined aluminum with 2 stainless steel allen set screws. Includes allen wrench.

75951-03	Double Slot Set Screw Vise, 15mm	each

Large Double Slot Vise, 25mm

Features (2) 2.5mm by 5mm deep slots. Clamp thin specimens and cross sections without conductive paint or tape.

Dimensions: 25 x 8 mm (1 x 0.32") with 3.2mm (1/8") pin.

Material: Machined aluminum with 2 stainless steel allen set screws. Includes allen wrench.

75951-04	Large Double Slot Set Screw Vise, 25mm	each

Large Double Slot Vise, 25mm

Large Double-Slot Set Screw Vise with (2) 2.5mm X 5mm deep slots. Clamp thin specimens and cross sections without conductive paint or tape.

Dimensions: 25 x 10 mm (1 x 0.4").

Material: Machined aluminum with 2 stainless steel allen set screws. Includes allen wrench.

75947-H	Large Double Slot Set Screw Vise, 25mm x 10mm H, M4	each

Large Double Slot Vise, 32mm

32mm Large double slot set screw vise with (2) 2.5mm wide X 5mm deep slots.

Clamp thin specimens and cross sections without conductive paint or tape.

Dimensions: 32 X 10mm (1-1/4" x 0.394")

Material: Machined aluminum with 2 stainless steel allen set screws. Includes allen wrench.

75947-HH	Large Double Slot Set Screw Vise, 32 x 10mm, M4	each

METALLURGICAL

Metallurgical Mount Holder, 1" (25mm)

This mount holder which is made from machined aluminum with stainless steel Allen screws is specifically for 1" (25mm) metallurgical mounts.

75941-05	Metallurgical Mount Holder, 1" (25mm), 3.2mm (⅛") x 8mm (D)	each
75941-05H	Metallurgical Mount Holder, 1" (25mm), Hitachi, M4	each

75941-05

75941-05H

Metallurgical Mount Holder, 1-1/4" (30mm)

This mount holder which is made from machined aluminum with stainless steel Allen screws is specifically for 1¼" (30mm) metallurgical mounts.

75941-06	Metallurgical Mount Holder, 1¼" (30mm), 3.2mm (⅛") x 8mm (D)	each
75941-06H	Metallurgical Mount Holder, 1¼" (30mm), Hitachi, M4	each

75941-06

75941-06H

Metallurgical Mount

Accommodates up to 31.8 mm (1¼") diameter of a metallurgical specimen with at least 0.8 mm (⅛") clearance. Pin 3.1 mm (⅛"), depth is 8 mm (5/16").

75952-01	Metallurgical Mount	each

Metallurgical Mount Holder, 1-1/2" (40mm)

This set screw vice which is made from machined aluminum with stainless steel allen set screws has an open slot 10mm (.394") wide x 5mm (.197") deep. Measures 25mm (1") dia. x 17.5mm (0.69") high.

75941-08	Metallurgical Mount Holder, 1½" (40mm), 3.2mm (⅛") x8mm (D)	each
75941-08H	Metallurgical Mount Holder 1 ½" (40mm), Hitachi, M4	each

75941-08

75941-08H

75941-09

75941-09H

Metallurgical Mount Holder, 2" (50mm)

This mount holder which is made from machined aluminum with stainless steel Allen screws is specifically for 2" (50mm) metallurgical mounts.

75941-09	Metallurgical Mount Holder, 2" (50mm), 3.2mm (⅛") x 8mm(D)	each
75941-09H	Metallurgical Mount Holder, 2" (50mm), Hitachi, M4	each

EBSD

EBSD Holder, 1" (25mm)

Made from aluminum, this EBSD Holder has a built-in 70˚ pre-tilt angle and accommodates 1" (25mm) mounts.

Comes complete with stainless steel screws and allen key.

75944-11	EBSD Holder, 1" (25mm) Mounts, 70° Pre-Tilt, Pin	each

EBSD Holder, 1" (25mm), M4 Compatible

Made from aluminum, this EBSD Holder has a built-in 70˚ pre-tilt angle and accommodates 1" (25mm) mounts.

Comes complete with stainless steel screws and allen key.

75944-12	EBSD Holder for 1" (25mm) Mounts, 70° Pre-Tilt, Pin, M4 Compatible	each

EBSD Holder, 1-1/4" (32mm)

Made from aluminum, this EBSD Holder has a built-in 70˚ pre-tilt angle and accommodates 1-1/4" (32mm) mounts.

Comes complete with stainless steel screws and allen key.

75944-13	EBSD Holder, 1-1/4" (32mm) Mounts, 70° Pre-Tilt, Pin	each

EBSD Holder, 1-1/4" (32mm), M4 Compatible

Made from aluminum, this EBSD Holder has a built-in 70˚ pre-tilt angle and accommodates 1-1/4" (32mm) mounts.

Comes complete with stainless steel screws and allen key.

75944-14	EBSD Holder for 1-1/4" (32mm) Mounts, 70° Pre-Tilt, Pin, M4 Compatible	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

BULK

SEM Bulk Specimen Holder

For clamping irregular, bulky samples

Opening: 15.9mm (5/8") wide X 25.4mm (1") long X 9.5mm (3/8") deep.

Pin Diameter: 3.2mm (1/8").

Material: Machined aluminum with stainless steel allen set screws.

Allen wrench included.

75951-06	SEM Bulk Specimen Holder	each

Large Bulk Specimen Holder

Opening: 32mm (1-1/4") wide X 32mm (1-1/4") long X 13mm (1/2") deep.

Pin Diameter: 3.2mm (1/8").

Material: Machined aluminum with stainless steel allen set screws.

Allen wrench included.

75951-07	Large Bulk Specimen Holder	each

X-Large Bulk Specimen Holder

Holds up to 2" specimens

Opening: 52mm (2") wide X 40mm (1-1/2") long X 13mm (1/2") deep.

Pin Diameter: 3.2mm (1/8")

Material: Machined aluminum with stainless steel allen set screws.

Allen wrench included.

75951-08	X-Large Bulk Specimen Holder	each

XX-Large Bulk Specimen Holder

Holds up to 3" specimens

Opening: 80mm (3-1/8") wide X 48mm (1-7/8") long X 13mm (1/2") deep.

Pin Diameter: 3.2mm (1/8").

Material: Machined aluminum with stainless steel allen set screws.

Allen wrench included.

75951-09	XX-Large Bulk Specimen Holder	each

GEOLOGICAL

Geological Thin Section Holder

This thin section holder is made from aluminum with copper clips and brass screws. The unit measures 55x30x8mm and holds a standard geological thin section or slide measuring 47 x 27mm. The holder comes complete with 2 clips to insure nothing moves. The holder has convenient tweezer inserts which allow for easy loading.

75941-15

75941-15H

75941-15	Geological Thin Section Holder, 9.5mm	each
75941-15H	Geological Thin Section Holder, Hitachi M4	each

Variable Size Geological Thin Section Holder

This thin section holder is made from vacuum grade aluminum with copper clips and brass screws . The unit measures 51x32x8mm and holds either standard thin sections of 47 x 27mm or smaller or larger thin sections. Smallest size would be 40x20mm. The holder comes complete with 2 clips to insure nothing moves. The holder has convenient tweezer inserts which allow for easy loading.

75941-16H

75941-16

75941-16	Variable Size Geological Thin Section Holder, 9.5mm Pin	each
75941-16H	Variable Size Geological Thin Section Holder, Hitachi M4	each

Dual Geological Thin Section Holder

This thin section holder made from aluminum with copper clips and brass screws. The unit measures 55 x 58 x 8mm and it holds two standard geological thin sections or slides of 47 x 27mm. The holder has convenient tweezer inserts which allow for easy loading. Tweezer inserts enable easy loading. Clips are provided for secure holding.

75941-18

75941-18H

75941-18	Dual Geological Thin Section Holder, 9.5mm Pin	each
75941-18H	Dual Geological Thin Section Holder, Hitachi M4	each

Quadruple Geological Thin Section Holder

This thin section holder made from aluminum with copper clips and brass screws. The unit measures 107 x 58 x 8mm and it holds four standard geological thin sections or slides of 47 x 27mm. The holder has convenient tweezer inserts which allow for easy loading. Tweezer inserts enable easy loading. Clips are provided for secure holding.

75941-19

75941-19H

75941-19	Quadruple Geological Thin Section Holder, 8.5mm Pin	each
75941-19H	Quadruple Geological Thin Section Holder, Hitachi M4	each

SEM Clip Specimen Mounts

Specially designed for easy, quick and clean mounting of any type of thin specimen on specimen stubs.

These spring-loaded clips accommodate samples of up to 2mm thickness. Samples are held securely by small spring-loaded clips and allow for easy change of samples. Adhesives are not required, eliminating possible outgassing issues and saving time

- Available with single and multiple clips
- Ideal for holding silicon chips, paper, wire, threads, thin films, sheet metal, etc.
- SEM Clip Mounts with multiple clips can hold larger samples or multiple smaller samples.

18mm Dia., Pin Mount

For FEI/Philips, ZEISS/LEO, Cambridge, Leica, Amray, CamScan and Tescan SEMs. Made in USA. Mount with one clip

75923-10	SEM Clip, 18mm Pin Mount, 1 clip	each

Shorter version for ZEISS/LEO SEM/FIBs with 6mm pin height

75923-11	SEM Clip, 18mm Pin Mount, 6mm pin height, 1 clip	each

25mm Dia., Pin Mount

Available with one, two or three clips

75923-12 **75923-13** **75923-14** **side view**

75923-12	SEM Clip, 25mm Pin Mount, 1 clip	each
75923-13	SEM Clip, 25mm Pin Mount, 2 clips	each
75923-14	SEM Clip, 25mm Pin Mount, 3 clips	each

Shorter version for ZEISS/LEO SEM/FIBs with 6mm pin height

75923-15	SEM Clip, 25mm Pin Mount, for ZEISS/LEO SEM/FIBs 6mm pin height, 1 clip	each
75923-16	SEM Clip, 25mm Pin Mount, for ZEISS/LEO SEM/FIBs 6mm pin height, 2 clips	each
75923-17	SEM Clip, 25mm Pin Mount, for ZEISS/LEO SEM/FIBs 6mm pin height, 3 clips	each

32mm Dia., Pin Mount

Available with one, two, or three clips

75923-18 **75923-19** **75923-20** **side view**

75923-18	SEM Clip, 38mm Pin Mount, 1 clip	each
75923-19	SEM Clip, 38mm Pin Mount, 2 clips	each
75923-20	SEM Clip, 38mm Pin Mount, 3 clips	each

38mm Dia., Pin Mount

Available with one, two or three clips

75923-21 **75923-22** **75923-23** **side view**

75923-21	SEM Clip, 38mm Pin Mount, 1 clip	each
75923-22	SEM Clip, 38mm Pin Mount, 2 clips	each
75923-23	SEM Clip, 38mm Pin Mount, 3 clips	each

25mm Dia., Cylinder Mount, M4

Available with one, two, or three clips. For Hitachi

75930-05 **75930-10** **75930-20** **bottom view**

75930-05	SEM Clip, 25x6mm x M4 Cylinder Mount, 1 clip	each
75930-10	SEM Clip, 25x6mm x M4 Cylinder Mount, 2 clips	each
75930-20	SEM Clip, 25x6mm x M4 Cylinder Mount, 3 clips	each

32mm Dia., Cylinder Mount, M4

Available with one, two, or three clips. For Hitachi

75930-15 **75930-25** **75930-35** **bottom view**

75930-15	SEM Clip, 32x10mm x M4 Cylinder Mount, 1 clip	each
75930-25	SEM Clip, 32x10mm x M4 Cylinder Mount, 2 clips	each
75930-35	SEM Clip, 32x10mm x M4 Cylinder Mount, 3 clips	each

50mm Dia., Cylinder Mount, M4

75954-15 **75954-25** **75954-30**

75954-35 **75954-40** **bottom view**

75954-15	SEM Clip, 50x6mm x M4 Cylinder Mount, 1 clip	each
75954-25	SEM Clip, 50x6mm x M4 Cylinder Mount, 2 clips	each
75954-30	SEM Clip, 50x6mm x M4 Cylinder Mount, 3 clips	each
75954-35	SEM Clip, 50x6mm x M4 Cylinder Mount, 4 clips	each
75954-40	SEM Clip, 50x6mm x M4 Cylinder Mount, 8 clips	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

E-Beam Lithography Mount

This mount, made from aluminum features an M4 threaded hole and is 25mm in diameter. The clips are made from copper. The mount comes complete with a Faraday Cup (2.5mm x 100nm hole) and a gold/carbon resolution sample 3mm in diameter is included. The gold particle size range is 5–150nm

75944-15	E-Beam Lithography Mount, M4	each

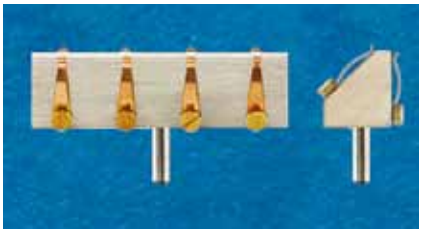
Specimen Block, 10 Clips

This block is engraved, numbered 1–10. Measures 12 x 48mm.

Comes complete with pin.

75955-03	Specimen Block, 10 clips	each

Specimen Block, 8 Clips



This block is engraved, numbered 1–8. Measures 12 x 48mm.

Comes complete with pin.

75955-04	Specimen Block, 8 clips	each

Replacement Clips and Screws

Clips are made from spring grade beryllium-copper alloy. Thickness: 0.25mm (0.01"), overall length: 12.7mm (1/2"), width at tip: 1.6mm (1/16"), hole diameter: 2.2mm (0.087").

75954-06	SEM Clips	10/pk
75954-07	SEM Screws, Brass, M2 x 3mm length	10/pk

Mini SEM Clamp 10mm, 15mm Diameter

Aluminum Mini SEM clamp on a 10mm, 15mm diameter M4 cylinder mount. Convenient for holding flat or thin specimens such as silicon chips, wires, foil and small tubes.

Screw is M2 x 3mm, pan head screw, brass.

75955-19	Mini SEMClamp 10mm, 15mm diameter, M4	each

Mini SEM Clamp, 12.7mm

Mini SEM Clamp on a standard 12.7mm (1/2") pin stub. Suitable for holding flat or thin specimens such as silicon chips, foil, wires, and small tubes.

Material: Vacuum-grade aluminum with brass screw.

75954-01	Mini SEM Clamp 12.7mm, Pin	each

Small SEM Clamp, 15 x 10mm

15mm (0.6") long with 10mm (0.4") wide clamping area and standard pin stub 3.2mm (1/8"). Suitable for holding samples up to 7mm overall thickness. Perfect for small tubes, strips, wires, and smaller flat samples.

Overall Dimensions 23 x 20 x 9mm (0.9"x0.78"x0.35")

Material: Machined aluminum with brass screws.

75954-02	Small SEM Clamp 15 x 10mm, 3.2mm (1/8") Pin	each

Medium SEM Clamp, 25 x 15mm

25mm (1") long with 15mm (0.6") wide clamping area. Features standard pin stub 3.2mm (1/8"). Suitable for holding samples up to 7mm overall thickness. Perfect for small tubes, strips, wires, and smaller flat samples.

Overall Dimensions: 33 x 25 x 9mm (1.3"x1"x0.35")

Material: Machined aluminum with brass screws.

75954-03	Medium SEM Clamp 25 x 15mm, 3.2mm (1/8") Pin	each

Recessed SEM Clamp, 25 x 15mm

Achieve background-free imaging and no contact with sample surface in imaging area with this 5mm recessed clip

Clamping Area: 25mm (1") long X 15mm (0.6") wide.

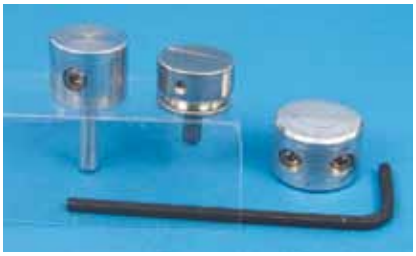
Maximum Thickness: 7mm under the clamping strips.

Overall Dimensions: 33 x 25 x 11mm 1.3"x1"x0.43").

Material: Machined aluminum with brass screws.

75954-05	Recessed SEM Clamp 25 x 15mm, 3.2mm (1/8") Pin	each

Thin Sample Holder



Ideal for the examination of cross sections of thin samples, such as wafers, multi-layer of capacitors, plastics, metals, etc.

1. For most AMRAY: ½" diameter (12.7mm), ⅛" (3.1mm) diameter pin (3.1mm) with split openings up to ¼" (6.4mm). Available with either 8mm (5⁄16") pin height or 15mm (⅜") pin height.

Cat No.	Description	Qty.
75948-08	Thin Film Holder, 8mm(L) Pin	each
75948-15	Thin Film Holder, 15mm (L) Pin	each

2. For ISI, JEOL, TOPCON: Double set screw for a secure holding of the specimen during observation. 15mm(⅝") (dia). x 10mm(⅜") (H), 6.4mm (¼") split.

Cat No.	Description	Qty.
75948-10	Thin Film Holder, 15x10mm Stub	each

Cross Sectional Holder

Made from non-magnetic stainless steel with 3.1mm (1⁄8") diameter pin and adjustable angle turn-screw. Just insert specimens edge-on and observe the cross section directly.

Cat No.	Description	Qty.
75942-01	Cross Sectional Holder	each

45° Pin Mount and 90° Profile, Combination Holder

For Hitachi S-800, S-4000, S-4100, S-4200, S-4300, S-4500, S-4700 and S-3600N SEMs.

For cross sections up to 6.35mm (1/4"). Available in aluminum or brass with stainless steel allen set screws. Includes allen wrench.

75950-07-A

75950-07-B

Cat No.	Description	Qty.
75950-07-A	45°/90° Combination Holder, Aluminum	each
75950-07-B	45°/90° Combination Holder, Brass	each

Wafer Holders

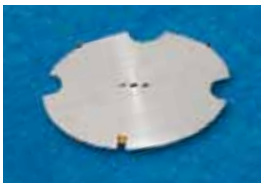
These wafer holders are made from aluminum and feature brass clips which secure the wafers. Each holder comes with a 1/8" (3.2mm) pin of 3/8" (9.5mm) length.

Available in six sizes to accommodate a variety of wafers.

75958-11

75958-12

75958-13



75958-14

75958-15

Cat No.	Description	Qty.
75958-11	Wafer Holder for 1" (25mm) dia.	each
75958-12	Wafer Holder for 2" (51mm) dia.	each
75958-13	Wafer Holder for 3" (76mm) dia.	each
75958-14	Wafer Holder for 4" (100mm) dia.	each
75958-15	Wafer Holder for 6" (150mm) dia.	each

Wafer Holders, Notch Style

These wafer holders are made from aluminum and feature brass clips which secure the wafers. Each holder comes with a 1/8" (3.2mm) pin of 3/8" (9.5mm) length.

Available in two sizes to accommodate a variety of wafers.

75958-16

75958-17

Cat No.	Description	Qty.
75958-16	Wafer Holder for Notch Style Wafers, 4" (100mm), Pin	each
75958-17	Wafer Holder for Notch Style Wafers, 6" (150mm), Pin	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Small FIB Grid Holder

Holds up to 2 FIB grids of the same thickness. Handy FIB grid holder on a standard 12.7mm (1/2") pin stub. Can also be used to safely store FIB grids with thin sections attached.

Overall Dimensions: 12.7mm (1/2") x 7.8mm (0.3mm) H w/o pin.
Pin: Standard 3.2mm (1/8").

Material: Vacuum grade aluminum with brass screw.
Includes Philips screwdriver #0.

Cat. #	Description	Qty
75950-02	Small FIB Grid Holder, 12.7mm, Pin	each

Single 1/2" FIB Sample and Grid Holder

Holds a FIB sample mounted on standard 1/2" (12.7mm) pin stub for FIB milling and lift-out procedures. Conveniently holds two FIB grids close to the sample to mount prepared TEM lamellae on the FIB grid for TEM imaging. Cost-effective holder suitable for all FIB/SEM systems which accept pin mount holders, including the FEI, ZEISS and Tescan systems. For the JEOL and Hitachi systems, use a pin mount adapter.

Overall Dimensions: 22.4 x 12.7 x 11.7mm (0.88" x 0.5" x 0.46").
Pin: Standard 3.2mm (1/8").

Material: Vacuum grade aluminum with brass screws.
Includes Philips screwdriver #0.

Cat. #	Description	Qty
75950-03	Single 1/2" FIB Sample and Grid Holder, Pin	each

Double 1/2" FIB Sample and Grid Holder

Holds FIB samples mounted on two standard 1/2" (12.7mm) pin stubs for FIB milling and lift-out procedures. Conveniently holds two FIB grids close to the sample to mount prepared TEM lamellae on the FIB grid for TEM imaging. Cost-effective holder suitable for all FIB/SEM systems which accept pin mount holders, including the FEI, ZEISS and Tescan systems. For the JEOL and Hitachi systems, use a pin mount adapter.

Overall Dimensions: 36.5 x 12.7 x 11.6mm (1.44" x 0.5" x 0.46").
Pin: Standard 3.2mm (1/8").

Material: Vacuum grade aluminum with brass screws.
Philips screwdriver #0 included.

Cat. #	Description	Qty
75950-04	Double 1/2" FIB Sample and Grid Holder, Pin	each

Multiple FIB Grid Holder

Larger size enables this FIB grid holder to handle multiple FIB grids of the same thickness. Can also be used to safely store FIB grids with thin section (lamellae) attached. Convenient brass thumbscrews make loading and unloading easy.

Overall Dimensions: 22.5 x 29 x 13.5mm (7/8" x 1-1/8" x 5/8").
Pin: Standard 3.2mm (1/8").

Material: Vacuum grade aluminum with brass thumbscrews.

Cat. #	Description	Qty
75950-05	Multiple FIB Grid Holder	each

1" FIB Sample and Grid Holder

Holds an FIB sample mounted on a standard 25mm (1") pin stub for FIB milling and lift out procedures. Can also be used to hold FIB grids of the same thickness to mount the prepared lamellae on an FIB grid for TEM imaging. This cost-effective and versatile holder is suitable for all FIB/SEM systems which accept pin mount holders, including the FEI, ZEISS and Tescan systems. For the JEOL and Hitachi systems, use a pin mount adapter. Convenient brass thumbscrews make loading and unloading easy.

Overall Dimensions: 50 x 29 x 13.5mm (2" x 1-1/8" x 5/8").
Pin: Standard 3.2mm (1/8").

Material: Vacuum grade aluminum with brass screws.

Cat. #	Description	Qty
75950-06	1" FIB Sample and Grid Holder, Pin	each

FIB Sample Holders

Fortress™ FIB Holder with CastleGuard™ Protection

Fortress™ FIB Holders are reusable holders that secure FIB sample that are held in a specific orientation without the use of adhesives, adhesive tabs, or conductive paints. Fortress™ FIB Holders can be used to position a thin, whole or cut TEM grid/disk in an orientation such that either in-situ or an ex-situ. FIB lift-out technique can be used to attach a FIB-prepared sample. Physical protection of the mounted sample on the grid is provided with the CastleGuard™ protection design. Up to 30 Fortress FIB Holders can be stored in a single SS200 Sample Saver™ storage container.

Features:

- **Unique clamping mechanism secures sample without over tightening**
- **Standard ⅛" pin mount fits most FIBs and SEMs**
- **Peripheral support structure protects specimens during handling and transport**
- **Economical design enables user to prepare and store samples on the same holder**
- **Compatible with Sample Saver™ Storage containers for secure storage and transport in an inert environment**

Fortress™ FIB Holder – Low Profile

Low Profile Fortress™ FIB Holder to hold either a standard FIB lift out specimen on a grid or an H-Bar cut Sample.

Fortress™ Sample Loader

Securely holds the Fortress™ Low Profile holder under a stereomicroscope and permits viewing from 2 angles without changing focus on the microscope.

Cat. #	Description	Qty.
75956-01	FIB sample Holder for Low Profile	each
75956-50	Fortress™ Sample Loader for Low Profile	each

Fortress™ FIB Holder – High Profile

High Profile Fortress™ FIB Holder to hold a standard FIB lift-out specimen on a grid.

Fortress™ Sample Loader

Securely holds the Fortress™ High Profile holder under a stereomicroscope and permits viewing from 2 angles without changing focus on the microscope.

Cat. #	Description	Qty.
75957-01	FIB sample Holder – High Profile	each
75957-50	Fortress™ Sample Loader for High Profile	each

Forensic Gunshot Residue Field Kits

Our comprehensive line of high-quality GSR field sampling kits includes certified SEM pin stubs with double-coated adhesive carbon tabs in plastic tubes. The certified SEM pin stubs have very low amounts of Pb, Sb and Ba, not detectable by SEM/EDX. The caps securely hold the GSR sample disc for easy GSR collection. Pre-labeled discs and tubes are both ready-for-sampling. A sturdy, sealed tamper evident transport box is also included.

Kit contents:

- **Certified SEM pin mounts with adhesive carbon discs in pre-labeled tubes**
- **Powder-free nitrile gloves**
- **Evidence label**
- **Chain of custody label on box**
- **Tamper-evident cardboard transport box (4-1/2"W x 3-3/4"D x 3"H)**
- **Tamper evident seal**
- **Instruction sheet**

Product Details

3-Disc GSR Field Kit, with two sampling discs plus a control disc to enhance certainty of the analysis.

4-Disc GSR Field Kit, is useful for sampling palm and back separately on both hands.

5-Disc GSR Field Kit, is compatible with FBI requirements, with four discs plus a control disc.

Cat. #	Description	Qty.
76480-11	3 Disc Forensic Gunshot Residue Field Kit	kit
76480-13	4 Disc Forensic Gunshot Residue Field Kit	kit
76480-15	5 Disc Forensic Gunshot Residue Field Kit	kit

Forensic Collection Kit

These kits are suitable for field work and gunshot residue in the lab or out. Manufactured from a special – certified aluminum alloy, containing only trace amounts of Barium (~0.00010%), Copper (~0.0139%), Zinc (~0.0094%), Nickel (~0.00309%, and Antimony (~0.00080%). These sample mounts are suitable for typical forensic sample studies. The kit consists of 10 pin mounts (12.74mm diameter) 10 carbon adhesive tabs, 10 storage vials, and one plastic tweezer. Two styles of glass vials are available as well as one in plastic.

Cat. #	Description	Pack
76480-01	Kit with Glass Shell Vial, size 23.7mm Dia x 37mmH	kit
76480-02	Kit with Glass Shell Vial, size 23.5mm Dia x 74mmH	kit
76480-03	Kit with Plastic Vial, size 23.5mm Dia x 52.5mmH	kit

Numbered Gunshot Residue Sampler

Numbered, certified aluminum mount with a double-coated adhesive carbon tab applied to secure the sample in a clean, glass vial 25mm OD x 55mm high (1" x 2.17"). Packaged in a box of 100. Numbers can be specified as 100 consecutive numbers between 0 and 9999 (greatest numbers). Please inform customer service about the numbering sequence when ordering this product.

Cat. #	Description	Qty.
76480-16	Numbered Gunshot Residue Sampler	100/pk

Forensic Gunshot Residue Lab Kit

Includes ten 12.7mm SEM pin mounts in clean, glass storage tubes (25mm OD x 55mm high) secured in a compact transport box with labels. This Kit is designed to avoid any contamination of GSR samples. Choose from either standard 12.7mm pin mounts with 8mm pins or with shorter 6mm pins. Also available as a sample kit without mounts and tabs.

Cat. #	Description	Qty.
76480-18	**Forensic Gunshot Residue Lab Kit:** *10 each 12.7mm SEM pin mounts (8mm pin), with mounted carbon tabs (12mm; 0.47 dia.) in capped glass tubes, 12 blank labels*	kit
76480-19	**Forensic Gunshot Residue Lab Kit:** *10 each 12.7mm SEM short pin mounts (6mm pin for ZEISS/LEO), with mounted carbon tabs (12mm; 0.47 dia.) in capped glass tubes, 12 blank labels*	kit

Sample Kit without pin mounts and tabs:

Cat. #	Description	Qty.
76480-22	**Forensic Sample Kit:** *10 capped glass sample tubes, 12 blank labels*	kit

Forensic Field Sampler

Glass specimen vial (25mm OD x 55mm high) with a high-purity certified 12.7mm SEM pin stub specimen mount (see below), both with and without an adhesive carbon conductive tab, mounted into the plastic cap. Our Forensic Field Sampler has been designed to collect forensic evidence with minimum interference and/or contamination from the sampler. Three versions are available: without adhesive carbon tab, with ready-to-use adhesive carbon tab, or with covered carbon tab (plastic cover needs to be removed prior to use). Choice of standard 12.7mm SEM pin mount with 8mm pin or 12.7mm SEM pin mount with shorter 6mm pin (ZEISS/LEO)

Investigation Applications for SEM or Light Microscopy:

- **Gunshot residue (GSR)**
- **Powder samples**
- **Fiber samples**
- **Paint chips**
- **Particle sampling**
- **Glass fragments**

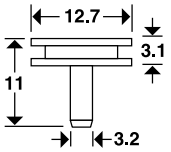
Ideal for SEM specimen preparation on the most frequently used SEM pin stubs, facilitating easy carbon coating for SEM/EDX investigation.

The Forensic Field Sampler can be securely stored in the glass specimen vial and easily shipped with the cap holding the sampler stub in place. Adhesive carbon tabs secure the evidence material.

Cat. #	Description	Qty.
76480-31	Forensic Field Sampler without Adhesive Carbon Tab	100/pk
76480-32	Forensic Field Sampler with Adhesive Carbon Tab, ready to use	100/pk
76480-33	Forensic Field Sampler with Adhesive Carbon Tab, and clear plastic cover	100/pk
76480-34	Forensic Field Sampler without Adhesive Carbon Tab, Short Pin	100/pk
76480-35	Forensic Field Sampler with Adhesive Carbon Tab, ready to use, Short Pin	100/pk
76480-36	Forensic Field Sampler with Adhesive Carbon Tab, and clear plastic cover, Short Pin	100/pk

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Forensic Certified Mounts



This mount is made from a special certified Aluminum alloy which does not contain any of the objectionable elements that may interfere with samples collected for GSR . These mounts are available with an 8mm pin, or 6mm pin.

Cat. #	Description	Qty.
76475-05	Forensic Certified Mount, with 8mm Pin	10/pk
76475-10	Forensic Certified Mount, with 8mm Pin	100/pk
76475-50	Forensic Certified Mount, with 8mm Pin	500/pk
76475-52	Forensic Certified Mount, with 6mm Pin	10/pk
76475-53	Forensic Certified Mount, with 6mm Pin	100/pk
76475-54	Forensic Certified Mount, with 6mm Pin	500/pk

SEM Single Mount Storage Tube

A plastic tube and plug. The pin mount ⅛" (3.1mm) in diameter is inserted securely to the plug and protected by the tube. Ideal for storage or mailing.

76530-01	SEM Single Mount Storage Tube	10/pk
76530-05	SEM Single Mount Storage Tube	50/pk
76530-10	SEM Single Mount Storage Tube	100/pk

SEM Single Mount Storage Tube and Mailer, for Hitachi

A plastic tube and plug for M4 threaded Hitachi mounts. 15mm in diameter Tube. A 15 mm Hitachi mount can be inserted securely to the plug and then protected by the tube. Ideal for storage as well as mailing.

The internal diameter of the tube is 0.83"(21mm). The Outer measurements of the tube are: 0.9" (23mm) x2.05" H (52mm)

76535-01	SEM Hitachi Single Mount Storage Tube	10/pk
76531-05	SEM Hitachi Single Mount Storage Tube	50/pk
76531-10	SEM Hitachi Single Mount Storage Tube	100/pk

SEM Mount Forceps

Made from stainless steel with a serrated handle and a guide pin. The tip is bent at a 45 degree and formed into a ring, which has a diameter of 10mm when fully closed. 150mm long.

76805	SEM Mount Forceps	each

Gunshot Residue Tweezers

Dumont Gunshot Residue Tweezers, the finest tweezers available. Choose the one that best suits your needs.

Polished Dumoxel Antimagnetic Steel

Cat. #	Description	Qty.
76800-GS	Gunshot Residue Tweezers 2E½ (0=12.7mm)	each
76802-GS	Gunshot Residue Tweezers 2E¼ (0=6.4mm)	each
76804-GS	Gunshot Residue Tweezers 2E⅛ (0=3.2mm)	each

Circular Cover Glass – GOLD SEAL®

GOLD SEAL® cover glass is made from pre-selected, pre-cleaned silicate glass. It is packaged with desiccants in a lint free box. Both cover glass cases and slide boxes convert to convenient slide storage files.

Cat. #	Dia.	Thickness	Pieces/oz	Pack
72231-01	12 mm	#1 (.13-.17 mm)	692	1 oz.
72231-10	12 mm	#1 (.13-.17 mm)	692	10 oz.
72228-01	15 mm	#1 (.13-.17 mm)	443	1 oz.
72228-10	15 mm	#1 (.13-.17 mm)	443	10 oz.
72229-01	18 mm	#1 (.13-.17 mm)	308	1 oz.
72229-10	18 mm	#1 (.13-.17 mm)	308	10 oz.
72221-01	22 mm	#1 (.13-.17 mm)	206	1 oz.
72221-10	22 mm	#1 (.13-.17 mm)	206	10 oz.
72223-01	25 mm	#1 (.13-.17 mm)	159	1 oz.
72223-10	25 mm	#1 (.13-.17 mm)	159	10 oz.
72230-01	12 mm	#1½ (.16-.19 mm)	597	1 oz.
72230-10	12 mm	#1½ (.16-.19 mm)	597	10 oz.
72222-01	18 mm	#1½ (.16-.19 mm)	266	1 oz.
72222-10	18 mm	#1½ (.16-.19 mm)	266	10 oz.t
72224-01	22 mm	#1½ (.16-.19 mm)	178	1 oz.
72224-10	22 mm	#1½ (.16-.19 mm)	178	10 oz.
72225-01	25 mm	#1½ (.16-.19 mm)	137	1 oz.
72225-10	25 mm	#1½ (.16-.19 mm)	137	10 oz.

Metal Specimen Discs for use with the Atomic Force Microscope

These are high quality metal discs with smooth edges and flat surfaces for use in Atomic force Microscopy.

Cat. #	Description	Qty
75010-10	10 mm Specimen Metal Discs for AFM	50/pk
75010-12	12 mm Specimen Metal Discs for AFM	50/pk
75010-15	15 mm Specimen Metal Discs for AFM	50/pk
75010-20	20 mm Specimen Metal Discs for AFM	50/pk

Mica Sheets and Disks

The Highest Quality (V-1 or V-2) for AFM Applications to the Medium Quality (V4 to V-6) for Replication, Thin Film Deposition

Introduction

EMS Mica Sheets offer a clean surface for E.M. applications, carbon filming and particle spraying, as well as for AFM applications.

There are two types of mica: muscovite and phlogopite. Generally, one differs from the other by color (Muscovite is Ruby, Green or White; Phlogopite is Amber, Yellow, or Silver) The maximum operating temperature for Muscovite is about 500 – 600˚C and for Phlogopite is about 800 – 900˚C.

Our line consists of High Quality Muscovite Mica. This mica peels off very thin up to 0.0001" uniform layers, exposing "virgin" mica upon splitting.

Characteristics:

Muscovite, potash type mica, sometimes known as granitic mica, is the best of all micas in dielectric strength, perfection of cleavage, and transparency.

It has the following chemical formula: $H_2KAl_3(SiO_4)_3$.

Chemical Composition:

Silica 45.5%
Alumina 37.5%
Potash 12.0%
Water 5.0%

It has a vitreous luster and is colorless to gray, brown, pale green, violet, dark olive green, or rose red. It may be transparent to translucent. It has strong double refraction and is optically negative. It loses water of constitution at 600˚C and is practically non-magnetic. It exhibits pleochrism, which is the property of varying in color when viewed from different angles.

RUBY muscovite is harder than green and has a pale brownish red color in thin sheets (0.020") or ruby red in thick plates (0.4"). Ruby mica can be split easily into films of 0.001" or thinner because it has such excellent cleavage. In other colors, this thinness can be obtained but at a considerable risk of cracking.

Quality Determination:

The quality of muscovite mica is verbal determination by visual quality classification ASTM (D351-57T) from the best V-1 to the worst is V-10A.

1. **V i-1: Clear.** – Hard, of uniform color, nearly flat, free of all stains, foreign inclusion, cracks, and other similar defects.
2. **V-2: Clear and slightly stained.** – Hard of uniform color, nearly flat and may contain slight crystallographic discoloration, and very slight air inclusions and not more than one fourth of the usable area.
3. **V-3: Fair stained.** – Hard, of uniform color, may contain slight waves, slight crystallographic discoloration, and slight air inclusions and not more than one-haft of the usable area.
4. **V-4: Good Stained.** – Hard, of uniform color, may contain medium waves, slight crystallographic discoloration, and medium air inclusion in not more than two-third of the usable area.
5. **V-5: Stained A Quality.** – Hard, may contain medium air inclusions, uniformly distributed in the usable area; slight green vegetable stains, medium waviness, and heavy waves if specified.
6. **V-6: Stained B Quality.** – Hard, may contain heavy air inclusions and heavy waves, medium green vegetable stains, slight black and red dots (mineral), and clay stain.
7. **V-7: Heavy stained.** – Hard, and may contain heavy air inclusions and waves, slight light black and red dots (mineral) medium cloudy stains, clay stains and green stains (vegetable). Soft, buckles, ridges, and sand blast acceptable if specified.
8. **V-7A: Densely Stained.** – Hard and soft. May contain heavy waves and air inclusions, cloudy stains. High black and red dots (mineral). Medium black and red stained (mineral), buckles, and ridges. Also green stain (vegetable type), clay stains, herringbones, and sand blast.
9. **V-8: Black dotted.** – Hard, may contain medium waves, heavy air inclusions, cloudy stains, light black and red dots (mineral), and green stains (vegetable).
10. **V-9: Black spotted.** – Hard, may contain medium waves, heavy air inclusions, cloudy stains, light black and red dots (mineral), and green stains (vegetable type), slight black stains (mineral), and sand blast.
11. **V-10: Black Stained.** – Hard, may contain medium waves, heavy air inclusions, cloudy stains, light black and red dots (mineral), green stains (vegetable type), and sand blast, medium black stains (mineral), slight red stains (mineral), and clay stains.
12. **10A: Densely Black and Red Stained.** – Hard and may contain heavy waves, air inclusions, cloudy stains, light black and red dots (mineral), red stains (mineral), black and red stains (mineral), green stains (vegetable type), and sand blast, very dense black and red stains (mineral), and slight clay stains. Soft if specified

Applications:

In general, for those whom are using mica for the making of carbon support films, thin films

Physical Properties:

Hardness: Moh's scale:	2.8 – 3.2
Shore's Test	80 – 150
Specific Gravity, g/cm^3	2.6 – 3.2
Tensile Strength, kg/cm^2	~ 1750
Compression Strength, kg/cm^2	1900 – 2850
Refractive Index (air=1)	1.56 – 1.60/61
Dielectric Strength @20˚C in volt/mil	3,000 – 6,000
Max. Thermal Resistance	625ºC (1,157ºF)
Modulus of Elasticity, kgf/cm^{2}x10^{-3}	1400 – 2100
Optic Axial Angle	50º – 75º
Coefficient of Expansion per ˚C	Perpendicular to cleavage plane 9 x10^{-4} – 36 x10^{-4}
Calcining Temperature	700 – 800ºC
Thermal Conductivity, gm.cal/sec/cm2/ºC/cm	~0.0013 (Perpendicular to cleavage plane)
Water of Constitution, %	4 – 5
Moisture Absorption	Very low
Apparent Electric Strength (0.001-0.003" thick)	120 – 200 kV/mm
Permittivity @ 15ºC (60ºF)	6 – 7
Power Factor (loss Tangent) @15ºC	0.0001 – 0.0004
Volume Resistively @25ºC (77ºF), Ohm.cm	4x10^{-15} – 2x10^{-17}
Acid Reaction	Affected by HF

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Mica Sheets and Disks (continued)

coatings research, and some AFM studies where HOPG are used to taking place, the mica V-4 or V-5 is recommended. (Mica must always use freshly cleaved surfaces).

For AFM and SPM calibration, V-1 or V-2 is recommended.

However, we believe that it is important that you know what kind of mica is being used in your lab. The information on the mica is given above should be used to make your choice.

Here at EMS we try to stock a variety of sizes with different thicknesses and classifications of quality for convenience.

Ordering Information

Muscovite Mica V-1 Quality:

Cat.#	Mica Size	Quality	Thickness (mm)	Pack
71855-01	50 x 75mm	V-1	0.15 – 0.21	each
71855-01-10				10/pk
71855-05	25 x 75 mm	V-1	0.26 – 0.31	each
71855-05-10				10/pk
71855-10	25 x 25 mm	V-1	0.15 – 0.21	each
71855-10-10				10/pk
71855-11	25 x 25 mm	V-1	0.26 – 0.31	each
71855-11-10				10/pk
71855-15	15 x 15 mm	V-1	0.15 – 0.21	each
71855-15-10				10/pk
71856-01	9.5 mm Diameter	V-1	0.15 – 0.21	each
71855-01-10				10/pk
71856-02	12 mm Diameter	V-1	0.15 – 0.21	10/pk
71856-03	15 mm Diameter	V-1	0.15 – 0.21	10/pk
71856-04	20 mm Diameter	V-1	0.15 – 0.21	10/pk

Muscovite Mica V2 Quality:

Cat.#	Mica Size	Quality	Thickness (mm)	Pack
71857-01	50 x 75mm	V-2	0.15 – 0.21	each
71857-01-10				10/pk
71857-05	25 x 75 mm	V-2	0.26 – 0.31	each
71857-05-10				10/pk
71857-10	25 x 25 mm	V-2	0.15 – 0.21	each
71857-10-10				10/pk
71857-11	25 x 25 mm	V-2	0.26 – 0.31	each
71857-11-10				10/pk
71857-15	15 x 15 mm	V-2	0.15 – 0.21	each
71857-15-10				10/pk
71858-01	9.5 mm Diameter	V-2	0.15 – 0.21	each
71858-01-10				10/pk

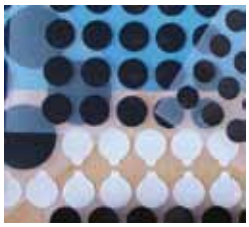
Muscovite Mica V4 Quality:

Cat.#	Mica Size	Quality	Thickness (mm)	Pack
71853-01	50mm x 75 mm	V-4	0.15 – 0.21	10/pk
71853-05	25mm x 75mm	V-4	0.26 – 0.31	10/pk
71853-10	25mm x 25mm	V-4	0.15 – 0.21	10/pk
71853-11	25mm x 25mm	V-4	0.26 – 0.31	10/pk
71853-15	15mm x 15mm	V-4	0.15 – 0.21	10/pk
71854-01	9.5mm Diameter	V-4	0.15 – 0.21	10/pk
71854-15	12.7mm Diameter	V-4	0.15 – 0.21	10/pk

Muscovite Mica V5 Quality:

Cat.#	Mica Size	Quality	Thickness (mm)	Pack
71850-01	50mm x 75 mm	V-5	0.15 – 0.21	10/pk
71851-05	25mm x 75mm	V-5	0.26 – 0.31	10/pk
71850-10	25mm x 25mm	V-5	0.15 – 0.21	10/pk
71850-11	25mm x 25mm	V-5	0.26 – 0.31	10/pk
71850-15	15mm x 15mm	V-5	0.15 – 0.21	10/pk
71852-01	9.5mm Diameter	V-5	0.15 – 0.21	10/pk

Conductive Carbon Adhesive Tabs



Standard Carbon Conductive Adhesive Tabs – Tabs are formed by two sides of thick conductive adhesive (45 µm on each side) with the center conductive core film (35 µm). With the total thickness of 125 µm, these tabs will offer reasonably firm, smooth surfaces for a variety SEM applications, including gunshot residue analysis. Tabs are protected by white liners, which do not have to be removed when samples are ready to be mounted.

- **No out-gassing**
- **Conductive adhesive is carbon filled acrylic glue**
- **Solvent free**
- **Adhesive can be removed by ethyl acetate, ethanol, isopropyl alcohol or alcohols**
- **Service temperature is up to 60ºC (140ºF)**

Tabs contain some traces of Si, Sb, S, Fe, Mg, Na.

Thick Carbon Conductive Tabs or Image Tabs – The stiff and smooth surface conductive tabs are 260 µm thick, including 200 µm thick conductive carbonate base, coated 30 µm thick on each side with conductive adhesive. However, these tabs are not as conductive and sticky as the Standard Carbon Conductive Tabs. Thick Carbon Conductive Tabs are used for photographic background as well as for Jet Scan applications, where the tabs must be removed and filed away.

Ultra-Thin Carbon Conductive Adhesive Tabs – These tabs have Core material which is nonconductive cloth (70 µm) with Carbon Filler Conductive Adhesive (2 x 45µm). Total thickness is 160 µm.

Spectro Grade Carbon Adhesive Tabs – High purity conductive carbons for less interference signals, such as X-Ray analysis.

Ultra-Smooth Carbon Adhesive Tabs – Carbon adhesive tabs that eliminate issues with rough surfaces, insufficient tackiness, and hardness with significantly lower contaminant levels under EDS. Tabs are made in USA and very popular, and may be used in place of other conductive adhesive in many applications in conventional and field emission microscopes. They are also widely used in forensic laboratories for study of gunshots residues. Without the addition of conductive coating, small nonconductive particles can often be imaged and X-Ray analyzed, cutting down your analysis time. These tabs are composed of a thin film of strong adhesive approximately ½" diameter. Over 99% transparent to EDS, with a very small amount of nickel (0.6%) and copper (< 0.3%).

Refrigeration will increase shelf life but tabs need to be warmed up to room temperature before use (usually more than one hour)

Cat. #	Description	Qty.
77825-06	Standard Carbon Adhesive Tabs, 6mm Dia.	100/pk.
77825-09	Standard Carbon Adhesive Tabs, 9mm Dia.	98/pk.
77825-12	Standard Carbon Adhesive Tabs, 12mm Dia.	100/pk.
77825-25	Standard Carbon Adhesive Tabs, 25mm Dia.	54/pk.
77824-12	Thick Carbon Conductive Tabs, 12mm Dia.	100/pk.
77825-12-SP	Ultra Thin Carbon Adhesive Tabs, 12mm Dia.	200/pk.
77826-12	Spectro Grade Carbon Adhesive Tabs, 12mm Dia.	120/pk.
77827-12	Ultra-Smooth Carbon Adhesive Tabs, 12mm	100/pk.
77827-25	Ultra-Smooth Carbon Adhesive Tabs, 25mm	50/pk.

TOOLS

Specimen Mount Tweezers

Dumont are the finest tweezers available.
Choose the one that best suits your needs.

Polished Dumoxel Antimagnetic Steel:

76800	Tweezers 2E½ (0=12.7mm)	each
76802	Tweezers 2E¼ (0=6.4mm)	each
76804	Tweezers 2E⅛ (0=3.2mm)	each

SEM Mount Forceps

Made from stainless steel with a serrated handle and a guide pin. The tip is bent at a 45 degree and formed into a ring, which has a diameter of 10mm when fully closed. 150mm long.

76805	SEM Mount Forceps	each

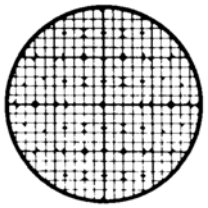
Unique Uni-Band Gripper

The Unique Uni-Band Gripper, made of 300 Series Memory Stainless Steel, is harder than titanium. Perfect gripper for handling specimen mount stubs.

76806	Unique Uni-Band Gripper	each

GRIDS

Special Grids for SEM



Finder grids for SEM; a valuable tool for analytical studies. The grids are available in 10mm diameter and they can be placed directly on the stub surface and used to identify the area of interest in which the studies are performed.

80100-Cu	SEM, Finder Grids, Copper	25/vial

SEM Finder Grids

These new SEM grids are designed to aid in the identification and localization of SEM specimens when placed on standard SEM stubs.

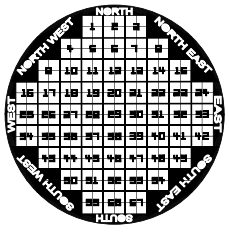
Type SEMF1

The SEMF1 has several features that are incorporated for easier location of the specimen and identification of areas of special interest

- **Referring to the annular rim identifies north, south, east and west.**
- **The four quadrant markers are tapered towards the center.**
- **100 Radial sectors are easily identified by reference to decimal numbers in the annular rim and alphabet letters in the four quadrants.**
- **A matt surface on one side is for correct positioning – matt side up.**

Overall Diameter:	10 mm
Overall Thickness:	~50 µm
Material:	Copper, Nickel or Gold

Type SEMF2



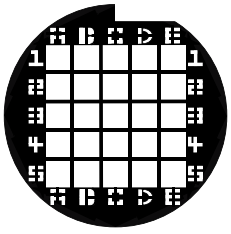
The SEMF2 allows for easy characterization and analysis of particles and suspensions.

The larger cells are identified using numbers from 1 – 57. Each large cell is sub-divided into 4, making a total of 228 identifiable cells by reference to their number and geographical location.

Overall Diameter:	10 mm
Overall Thickness:	~50 µm
Material:	Copper, Nickel or Gold

Cat. #	Description	Qty.
80103-Cu	SEMF3, Copper	10/vial
80103-Ni	SEMF3, Nickel	10/vial
80103-Au	SEMF3, Gold	5/vial

Type SEMF3



The SEMF3 uses an alpha-numeric index, allowing up to 25 predetermined specimens to be fixed and then located in a SEM.

25 cells are identified by reference to their alpha-numeric position. The large asymmetric cut-out feature in the rim enables the right view to be easily obtained when placing on a SEM stub.

Overall Diameter:	10 mm
Overall Thickness:	~50 µm
Material:	Copper, Nickel or Gold

SAMPLE PREPARATION STATIONS

SEM Specimen Preparation Stand

Specimen mounts of different sizes are placed in the outer ring of the holder base. The center hole of the base will hold a bottle of conductive adhesive. One side of the base takes 10 of the ⅛" pin mounts; reverse side takes 10 of 10 to 15mm diameter mounts.

76750	⅛" SEM Preparation Stand	each

SEM Specimen Prep-Stand; Multi-Angle

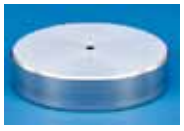
A SEM specimen preparation stand with the ability to hold pin mounts on a 450 angle as well as in a vertical and horizontal direction. The stand which is made from Aluminum comes complete with screws that are used to secure the mount during preparation. Both ½" (12.7mm) and 1"(25mm) mounts can be accommodated on the stand

Measurements: 2.75" (70mm) x 2" (50mm) x 1.6" (40mm)

75958-22	SEM Specimen Prep-Stand; Multi-Angle	each

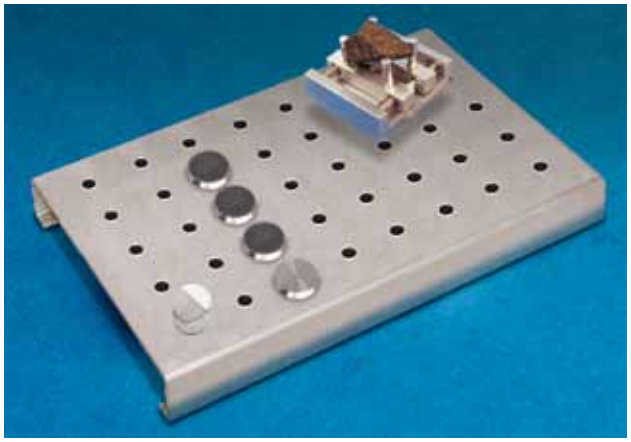
Prep-Stand: Pin Mounts

This stand is made from Aluminum and measures 2.4"(61mm) x 0.63" (16mm) and provides a stable surface for a variety of pin mounts.



75958-23	Prep-Stand; Pin Mount Style	each

Pin Mount Prep-Store Station



This stand is ideal for either storage and or specimen preparation of mounts. Made from Aluminum and has the capacity to hold up to 40 x ½ " (12.7mm) pin mounts or 12 of the 1" (25mm) mounts.

The Stand measures 5.39" (137mm) x 3.5" (89mm) x 0.63" (16mm).

75958-24	Pin Mount Prep-Store Station	each

STORAGE

SampleSaver™

Portable Storage Containers

Our custom storage container for the storing and transporting of samples for SEM, TEM, FIB, AFM, etc. This device is different from a vacuum storage unit or from desiccators. The unit allows you to evacuate and backfill or purge with dry nitrogen. You can then pressurize the container to eliminate the possibility of diffusion into the container. It is ideal for shipping or storing sensitive samples from lab to lab.

Cat. #	Description	Qty
76540-01	Small Portable Storage Container, SS100	each
76540-02	Large Portable Storage Container, SS200	each

Sample Racks for the SS100 Sample Saver™

These sample racks are designed to fit into the SS100 Sample Saver™ for the storage of TEM grid boxes or aluminum stubs that needed to store in safe environment.

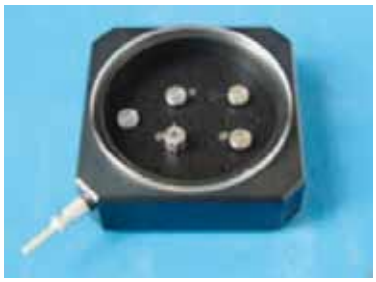
Cat. #	Description	Qty
76541-10	Model SS100-TEM – TEM Grid Box Holder. Consists of 3 vented TEM grid boxes and storage rack to fit into SampleSaver™ SS100	set
76541-20	Model SS100-125 – ⅛" SEM Stub Holder. Consists of 3 tiers sample rack. Each shelf holds 5 SEM stubs with ⅛" pin. (SEM stubs not included)	set
76541-30	Model SS100-375 – ⅜" SEM Stub Holder. Consists of 3 tiers sample rack. Each self holds 3 SEM stubs with ⅜" pin (SEM Stub not included)	set
76541-40	Model SS100-125-1 – ⅛" SEM Stub Holder. Consists of 3 tiers sample rack. Bottom shelf holds 1" dia sample mount and top two shelves each hold 5 SEM stubs with ⅛" pin (SEM stubs not included)	set
76541-50	Model SS100-375-1 – ⅜" SEM Stub Holder. Consists of 3 tiers sample rack. Bottom shelf holds 1" dia sample mount and two top shelves each hold 3 SEM stubs ⅜" pin (SEM stubs not included)	set

Sample Racks for the SS200 Sample Saver™

These sample racks are designed to fit into the SS200 Sample Saver™ for the storage of TEM grid boxes or aluminum stubs that needed to store in safe environment.

Cat. #	Description	Qty
76542-00	Model SS200-FIB – FIB Sample Holder to store SBT CastleGuard™ Holders (CastkeGuard™ holders not included)	set
76542-20	Model SS200-125 – ⅛" SEM Stub Holder. Consists of 5 tiers sample rack. Each shelf holds 5 SEM stubs with ⅛" pin. (SEM stubs not included)	set
76542-30	Model SS200-375 – ⅜" SEM Stub Holder. Consists of 5 tiers sample rack. Each self holds 3 SEM stubs with ⅜" pin (SEM Stub not included)	set
76542-40	Model SS200-125-1 – ⅛" SEM Stub Holder. Consists of 5 tiers sample rack. Bottom shelf holds 1" dia sample mount and top four shelves each hold 5 SEM stubs with ⅛" pin (SEM stubs not included)	set
76542-50	Model SS200-375-1 – ⅜" SEM Stub Holder. Consists of 5 tiers sample rack. Bottom shelf holds 1" dia sample mount and four top shelves each hold 3 SEM stubs ⅜" pin (SEM stubs not included)	set

Sample Stub Vacuum Desiccator



Precision machined from a block of aluminum – anodized black - this Sample Stub Vacuum Desiccator accommodates 18 SEM mount sample stubs, pin style, under vacuum.

- **Compact, sturdy, and long-lasting**
- **Prevents oxidation of sample during long term storage**
- **Pin stubs are kept secure inside the chamber by a built-in "O" ring in each position**
- **Very simple to use — required only a small vacuum pump to evacuate the chamber**
- **Clear acrylic top for easy viewing of contents**
- **Interlock when stacked together to save space**
- **Ideal for transport and storage of samples for SEM, TEM, FIB, AFM, etc.**

Measures: 13 cm x 13cm x 4.5cm High. Chamber cavity is 10.4cm diameter x 18mm deep. Lid is made of 10mm thick clear acrylic.

Cat. #	Description	Qty
76550	SEM Stub Vacuum Desiccator	each

SEM Single Mount Storage Tube

A plastic tube and plug. The pin mount ⅛" (3.1mm) in diameter is inserted securely to the plug and protected by the tube. Ideal for storage or mailing.

Cat. #	Description	Qty
76530-01	SEM Single Mount Storage Tube	10/pk
76530-05	SEM Single Mount Storage Tube	50/pk
76530-10	SEM Single Mount Storage Tube	100/pk

SEM Single Mount Storage Tube and Mailer, for Hitachi

A plastic tube and plug for M4 threaded Hitachi mounts. 15mm in diameter Tube. A 15 mm Hitachi mount can be inserted securely to the plug and then protected by the tube. Ideal for storage as well as mailing. The internal diameter of the tube is 0.83"(21mm). The Outer measurements of the tube are: 0.9" (23mm) x 2.05" H (52mm)

Cat. #	Description	Qty
76535-01	SEM Hitachi Single Mount Storage Tube	10/pk
76531-05	SEM Hitachi Single Mount Storage Tube	50/pk
76531-10	SEM Hitachi Single Mount Storage Tube	100/pk

Specimen Mount Holders

1) Box with insert and Lid

Holds 4 of 1⁄2" dia. (12.5mm) surface and 1⁄8" dia. (3.2mm) pin mounts

Cat. #	Description	Qty
76600	Mount Holder Box, Pin Type	each
76610	Mount Holder Box, Pin Type	10/pk
76620	Mount Holder Box, Pin Type	100/pk

2) Box with Insert and Lid

Holds 4 of 10mm x 10mm mounts

Cat. #	Description	Qty
76700	Mount Holder Box for Jeol	each
76710	Mount Holder Box for Jeol	10/pk
76720	Mount Holder Box for Jeol	100/pk

3) Box with Insert and Lid

Holds 4 of 12.5mm x 12.5mm mounts

Cat. #	Description	Qty
76730	Mount Holder Box for Jeol 840	each
76732	Mount Holder Box for Jeol 840	10/pk
76734	Mount Holder Box for Jeol 840	100/pk

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

4) Universal Reversible Mount Holders

Box with insert and lid; holds 12 of 10 and 15mm diameter mounts or 12 of 3.2mm (1⁄8") pin mounts

Cat. #	Description	Qty
76500	Universal Mount Holder	each
76510	Universal Mount Holder	10/pk
76520	Universal Mount Holder	100/pk

5) Sample Mount Storage Box

A soft silicone base in a hinged plastic box; the base has 9 cavities, each 1" (25mm) in diameter and 1⁄4" (6mm) deep. Accommodates up to 9 mounting stubs of either 1" (25mm) in diameter or a 1⁄8" diameter pin.

Overall measurements:

4-3⁄4"(L)x3-5⁄8"(W)x1-1⁄4"(H) (12cm x 9.5cm x 3cm).

Cat. #	Description	Qty
76525	Mount Holder Storage Box	each

SEM Paper Storage Box for Pin Mounts

An inexpensive solution for storing Pin Mounts

With a Pop Up box which stores up to 8 mounts: ½" (12.7mm) head, ⅛" (3.2mm) diameter pin.

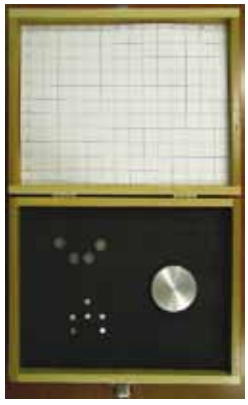
Box Dimensions:

7cm long x 3.8cm wide x 3.5cm high (2¾ x 1½ x 1⅜")

Cat. #	Description	Qty
76505	SEM Paper Storage Box	50/pk

Wooden Storage Box

EMS offers a high end wooden storage box for the storage of 12.7mm (½") pin mounts. The box can store up to 128 mounts in rubber foam with complete indexed sides)



Cat. #	Description	Qty
76507	Wooden Storage Box for Pin Mounts	each

EMS 18 Pin Mount Storage Box and Holder

A unique storage box for pin mounts with 3.2mm (⅛") pins. The box is numbered 1-18 and it can accept mounts ranging in size from 6.4mm to 50 mm. With the ability to hold as follows: 18 of 12.7mm; 8 of 25mm; 2 of 32mm and even 38 or 50 mm. The maximum specimen height between mount surface and closed lid is 16mm (⅝").

Cat. #	Description	Qty
76506	18 Pin Mount Storage Box and Holder	each

EMS Specimen Storage Boxes for Hitachi Mounts

EMS introduces a unique box for Hitachi SEM mounts with M4 threaded hole in the base. The box is numbered 1 – 10 to accommodate Hitachi mounts from 15 to 32mm diameter. The box can hold the following:

- **10 x 15mm mounts**
- **8 x 25mm mounts**
- **2 x 32mm mounts**

Cat. #	Description	Qty
76503	EMS-Hitachi SEM Mount Box	each
76504	EMS-Hitachi SEM Mount Box	10/pk

Colloidal Compounds and Conductive Adhesives

Silver Adhesives

Liquid; Colloidal Silver: 1-Methoxy-2-propanol base. Fast drying. Average grain size less than 1 µm and Silver content is 60%. Sheet resistance is 0.02 ohm per square inch @ 1 mil thickness. Comes with a brush attached to the cap. Service temperature is 30 minutes at 200°C.

RT	**12630**	Silver Liquid	15g
RT	**12641**	Colloidal Silver Extender	25ml

Paste; Colloidal Silver: Clear Lacquer base. Thick base — ideal for non-flowing requirements. Easily applied with micro-spatula or wooden toothpick. Particle size ranging from 0.4–1 µm. 80% are less than 1µm. Cure in 16–20 hours at room temperature or 30 minutes at 125–150°C.

RT	**12640**	Silver Paste	25g
RT	**12641**	Colloidal Silver Extender	25ml

Graphite Adhesives

Water Base: Flat surface texture. The average flake size is 1µm. Service temperature: 200°C.

RT	**12650**	Graphite, Water base	50g

Isopropanol base: Flat surface texture. The average flake size is 1µm. Service temperature is 65°C.

RT	**12660**	Graphite, Isopropanol base	30g
RT	**12661**	Graphite Extender	30ml

Two Part Conductive Silver Epoxy

This electrically conductive silver epoxy is used for adhering samples as well as solderless connections such as bonding in electric design, prototype and repair work, circuit board repair, surface mount connections, static discharge, shielding and grounding. It is also ideal for the bonding of heat sensitive components. Its curing time is within ten minutes at 100°F (38°C), or at room temperature. Conductivity is 0.001 ohm/cm.

	12642-14	Two Part Silver Epoxy	14g/kit

Leit-C-Plast

A special adhesive with very high electrical conductivity and permanent plasticity for the preparation of big specimens in SEM work.

RT	**12667**	Leit-C-Plast	15g

Flex Conductive Pen

This micro-tip pen is used for drawing flexible conductive silver traces on Mylar® and any flex circuitry. Dries in minutes. 8.5g (0.3oz)

	12645-01	Flex Conductive Pen	each

Conductive Silver Pen

This pen is designed for making instant conductive silver traces. It is ideal for applying samples to SEM stubs. A unique valve tip allows for very smooth flow with normal writing pressure and it is spring loaded to prevent clogging. For conductivity traces, solderable termination's are possible using a 250°F cure for 15-20 minutes. Tin, lead, or silver solder can be used (Do not exceed 350°F for more than 5 seconds). Each pen is filled with approximately 100 feet of traces. Silver content: 39-45% with less than 10 micron diameter. The thinner that is used for this pen is Butyl Acetate.

	12644-01	Conductive Silver Pen, Standard Tip	each
	12644-02	Conductive Silver Pen, Micro Tip	each

Opaque White, Extra Fine Pen

Permanently mark on nearly any surface in white color and the marking is waterproof. This pen is ideal for SEM, marking sample identification on carbon tabs, aluminum stubs, conductive tape or any similar surface. The pen contains xylene.

	72168-01	Opaque White Pen	each

CCC Carbon Adhesive

An electrically Carbon Conductive Cement for specimen mounting in all SEM work. After drying of the cement, immediate investigation of conductive specimens is possible. Non-conductive specimens need only to be coated with carbon or metal. Thinner is available if the cement viscosity is too thick.

RT	**12664**	CCC Adhesive	30g
RT	**12665**	CCC Thinner	30ml

Tempfix Adhesive

A thermoplastic adhesive for mounting powder specimens and small particles for SEM. It does not contain any solvents and it is stable in high vacuum. It is not sticky at room temperature but becomes adhesive at 40°C and melts at 120°C. Tempfix may also be used as an embedding medium.

RT	**12668**	Tempfix Adhesive Set	each

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Certified Conductive Adhesives

EMS introduces a new reliable line of conductive adhesives which are certified by the Bureau Veritas Quality International.
Quality Standards: *ISO 9001; EN29001; ANSI/ASQC Q91*

Silver Conductive 18DB70X

Silver Conductive Coating 18DB70X is a direct substitute for Silver Conductive Fluid 416, which is no longer available. This material was specially formulated for use in geographic areas that demand the use of low VOC (Volatile Organic Compounds) products. It provides low ohms at very thin dry film thickness on almost any surface, and exhibits excellent long term shielding and grounding properties.

Typical Properties (as supplied, liquid):	
Pigment	Silver
Binder	Acrylic
Solids content by weight	50.8% ± 5%
Density	13.9 lb/gal (1.67kg/l)

Typical Properties (as applied):	
VOC	0.5 lb/gal (59.6g/l)
Diluent	Acetone (1:1 ratio by volume)

Drying

5 minutes air dry to touch/10 minutes to handle then 5 minutes at 180°–225°F (82° – 107°C) or air cure for 24 hrs.

When dried:	
Service temperature	300°F (150°C)
Sheet resistance	0.015 ohms/sq. in./mil (25µm)
Attenuation	75 dB

RT	**12684-15**	Silver Conductive Coating	15 g

TECHNICAL TIP

Mounting Powders, Granules, And Fibers

The thermoplastic adhesive, Tempfix (EMS Cat.# 12668), is an excellent smooth embedding medium for stabilizing powders, granules and fibers. Tempfix becomes sticky at 40°C and melts at 120°C. To use: spread a thin layer over a sample support disc and allow to cool. The sample is then sprinkled on the hard surface and the temperature is raised to 40°C for 30-60 seconds and allowed to cool again to room temperature. Excess particles are then removed by gentle brushing or compressed air. At room temperature Tempfix has a smooth featureless surface that allows specimens to be imaged and clearly distinguished from the support media. Silvio Marchese-Ragona, Renee Jobe, Aleda Jacobs. "AFM Preparation Techniques for Bulk and Powder Samples". EMSA Bulletin 22:3 Nov., 1992.

Silver Conductive Adhesive 503

A High Temperature Conductive Paint

Silver paint 503 is a flexible, high temperature conductive material designed for a wide variety of uses, and adheres to most substrates.

Advantages:

- **Withstands ambient temperatures of over 500°F (260°C)**
- **Remains flexible over temperature range of –40°F to 500°F**
- **Highly conductive – good adhesion to substrates**
- **Dries at room temperature**
- **Ready to use – easy to apply**

Typical Properties (as supplied):	
Pigment	Specially Treated Silver 56%
Binder	Fluoroelastomer
Carrier	Methyl Isobuthyl Ketone (MIBK)
Color	Silver – Consistency: fluid
Density	14.6 lbs/gal (1.75kg/L)
Solid content by volume	18%
Weight solids	62%
Viscosity	1700cps

Shelf life for this product is two years under original seal. Store in cool place

Typical Properties (as cured):	
Color	Silver
Service temperature	525°F (275°C)
Sheet resistance	0.05 ohms/sq. in/1mil dry film

Drying

Air dry coated part approximately 10 minutes (depending on humidity) before carrying out resistance checks. Air dry to touch in 30 seconds and it is ready for use in 2 minutes.

RT	**12686-15**	Silver Conductive Adhesive 503	15g

Silver Conductive Adhesive Paste 478SS

Our adhesive 478SS is a conductive, silver-based polymer which is used for thick film coatings where liquid silver is not an option. Once cured, it offers a very high Tg (glass transition temperature) 153°F (67°C) to prevent blocking, and offers superior adhesion to polyester film. Adhesive 478SS can be cured at 200°F (93°C) within 15 minutes. Higher temperatures will reduce the time needed to achieve a final cure.

Typical Properties (as supplied):	
Pigment	Silver
Binder	Polyester
Color	Silver
Dilutent	Carbitol Acetate
Consistency	Paste (13,000-28,000 cps)
Solid content	72.5-75.5%
Flash point	230°F (110°C)
Shelf life	6 months under original seal

Typical Properties (as cured):	
Color	Silver
Sheet Resistance	<0.025 ohm/square inch @1 mil

RT	**12685-15**	Silver Conductive Adhesive 478SS	15g
RT	**12685-25**	Silver Adhesive 478SS Thinner	25ml

continued »»»

Certified Colloidal Compounds

EMS Conductive GOLD Paste

EMS Conductive Epoxy Gold-Paste

This **EMS one part Epoxy Gold Paste** is a gold-filled conductive bonding, exhibiting high electrical conductivity and bond strength. This Gold Paste is used in preference to silver-epoxy or other silver preparations to avoid silver migration problems, or when a higher signal is required.

This Gold Paste is well suited to all SEM work, and it bonds well to alumina ceramic substrate, phenolic circuit boards, and transistor headers. It is also useful in a variety of applications in solid state and hybrid circuits including attachment, bonding semiconductor devices, heat sinks, capacitor chips.

Properties :	
Composition:	88% Gold
System:	One-part epoxy
Viscosity:	175,000 cps
Pot Life (25°C):	6 months
Cure:	15 hrs. @150°C, or 1 hr. @ 150°C plus 2 hrs. @200°C
Elec. Resist (Ohm-cm):	4 x 10^4
Bond Shear Strength:	1000 psi
Outgassing (postcure):	0.70% 1000 hrs @125°C
Thinner:	Butyl carbitol acetate or butyl cellosolve acetate
Serv. Temp. Range:	-65°C to +200°C

12640	Gold Epoxy Paste	2 g
12685-25	Gold Thinner(Butyl Carbitol Acetate)	25 ml

EMS Conductive Gold-Paste

This EMS Conductive Gold-Paste is a one part adhesive. Fast drying – dries at room temperature. Maximum service temperature is 65°C. This adhesive is not for permanent use, useful for testing and temporary work where a high signal is required from the adhesive.

Gold content is ~75%, including sphere sizes < 2 µm, and flake size <10 µm, in organic binders and a solvent. Keep refrigerated for good shelf life.

Sheet resistance is 0.02 to 0.05 ohm-cm @ 1 mil thickness.

12642	EMS Conductive Gold-Paste	2 gm
12643	Conductive Gold-Paste Extender	25ml

Graphite Conductive Adhesive 154

Adhesive 154 is an easy-to-apply resistance coating designed to provide high lubricity, conductivity, and excellent release properties to many non-conductive substrates, including most plastics. It is made from a dispersion of colloidal graphite in an isopropanol base which quickly air-dries, forms an uniform thin film adherent layer. Air dries to touch in 5 minutes and is ready for use in 30 minutes. After air drying, bake for 5 minutes at 167°F (75°C) to achieve optimum coating qualities in a shorter curing cycle.

Typical Properties (as supplied):	
Pigment	Graphite
Color	Black
Binder	Celluosic resin
Carrier	Isopropanol
Dilutent	Isopropanol or equivalent
Consistency	Liquid
Weight solids	20%
Volume solids	14%
Flash point	52°F (11°C)
Shelf life	6 months under original seal

Typical Properties (as cured):	
Color	Matte black
Service temp.	150°F (65°C)
Sheet resistance	1.2 K ohms/sq inch @ 1 mil dry film

RT	**12691-30**	Graphite Conductive Adhesive 154	30g

Graphite Conductive Adhesive 112

Adhesive 112 is an air drying graphite coating of unusually high conductivity. It provides excellent static bleed properties and acts as a protective energy absorbing layer. It also offers good shielding performance (30-50 db over 50-450 MHz) at a coating thickness of 2 mils. It is water based and useful in solvent prohibited applications.

To use: Air dry until all water has flashed off. Air dries to touch in 20 minutes, to handle in 25 minutes. It will continue to harden for 24 hours. It can be forced dried at temperatures up to 160°F (71°C).

Typical Properties (as supplied):	
Pigment	Graphite
Binder	Acrylic
Dilutent	None
Color	Black
Solid content	34%
Shelf life	6 months under original seal

Typical Properties (as cured):	
Color	Black
Service temp.	350°F (190.8°C)
Sheet resistance:	20 ohms/square inch @ 1 mil dry film

RT	**12693-30**	Graphite Conductive Adhesive 112	30g

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Carbon Conductive Adhesive 502

A High Temperature Conductive Paint

Conductive Adhesive 502 is a combination of specially processed carbon particles in a fluoroelastomer resin system designed to provide high resistance values. In its cured form, it exhibits both high and low temperature flexibility and moisture resistance.

Advantages:

- Withstands ambient temperatures of over 500°F (260°C)
- Remains flexible over temperature range of –40°F to over 500°F (260°C)
- Cures at room temperature
- Good adhesion to a variety of substrate
- Excellent oxidation resistance
- Ready to use - easy to apply

Typical Properties (as supplied):	
Pigment	Specially Processed Carbon
Binder	Fluoroelastomer
Diluent	MethylEethylKketone (MEK)
Color	Black
Consistency	Fluid
Density	7.2lbs/gal (0.87 kg/l)
Solid content by weight	13%
Viscosity	600 ± 200 mPas (Brookfield RVT @ 20rpm)
Flash point	23°F (-°5C)

Shelf life for this product is one year under original seal. Store in cool place

Typical Properties (as cured):	
Color	Black
Maximum service Temperature:	525°F (275°C)
Sheet resistance	130 ± 100 ohms/sq.in./1 mil dry film

Drying

Air drying of the product is adequate for most applications. To assure complete solvent loss, the coating can be baked for 15 minutes at 302°F (150°C)

RT **12684-30** Carbon Conductive Paint 502 30 g

Graphite Spray

An easy to use graphite spray to coat small samples. Its electrical resistance is 1-2 Kohm/sq" at 1 mil thickness. It is fast drying and produces a very flat, thin, and uniform graphite film. Its service temperature is up to 204°C.

12648 Graphite Spray 450g

EPO-TEK – Epoxy Conductive Adhesive

EPO-TEK® EE129-4

Epo-Tek® EE129-4 is a room temperature cure, silver-filled epoxy, designed for making electrical connection in SEM mounting sample, circuit assembly, semiconductor, LCD applications.

Epo-Tek® EE129-4 comes with two parts: A & B and mixing ratio is 1:1. Shelf life is one year at room temperature

Works well with surface like Au, Ag-Pd, Cu, brass, Kovar, stainless steel, as well as ceramic, PCB, solder masks, most plastic and glasses

- Low temperature cures capable from 23°C to 80°C.
- Suggested for cryogenic cooling applications
- Works well in SEM, microscopy applications
- Works well in aerospace hybrid circuits and ITO electrodes in LCD packaging and assembly
- Reasonable pot life of 3 hours, allows for preparation.
- Smooth thixotropic paste allows for many way of application

Maximum Bond Line Cure Schedules:

100°C.....15 minutes
80°C .....1 hour
70°C.....2 hours
23°C.....24 hours
Pot Life .....3 hours

Typical Properties *(to be used as a guide only, not a specification)*

Physical Properties:	
Color:	Part A – silver; Part B – silver
Consistency:	Smooth, thixotropic – 4000 cPs
Viscosity (@ 100 RPM / 23°C):	2,000 – 4000 cPs
Thixotropic Index:	4.6
Glass Transition Temp (Tg):	≥ 45°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):	Below Tg: 30 x 10^{-6} in/in/°C Above Tg: 227 x 10^{-6} in/in/°C
Shore D Hardness:	63
Lap Shear Strength @ 23°C:	1,110 psi
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi
Weight Loss:	@200°C: 0.18%; @250°C: 0.54%; @300°C: 2.06%
Degradation Temp (TGA):	303°C
Operating Temp:	Continuous: -55°C to 150°C Intermittent: -55°C to 250°C
Storage Modulus @ 23°C:	156, 318 psi
Ion:	Cl^- 223 ppm; Na^+ 26 ppm NH_4^+ 22 ppm; K^+ 12 ppm
Particle Size:	≤ 45 microns
Electrical Properties:	
Volume Resistivity @ 23°C:	≤ 0.0003 Ohm-cm
Volume Resistivity @ 23°C (23°C/24 hour cure):	0.01 Ohm-cm
Thermal Properties	
Thermal Conductivity:	1.60 W/mK

RT **12670-EE** Epo-Tek® EE129-4 Adhesive 1 oz

EPO-TEK® H20E

Epo-Tek® H20E is a two component, 100% solid silver-filled epoxy system, silver-resin paste and liquid hardener, mixing ration is 1:1.

- **Epo-Tek H22E features high thermal conductivity, and is very well suited for extensive high temperature applications (300 – 400°C)**
- **Epo-Tek H20E is also a conductive adhesive of choice for old or new applications.**
- **Its applications include: chip bonding and electronic bonding as well as SEM mounting.**
- **H20E contains no solvents and will not outgas.**
- **When cured, H20E is resistant to solvents, resin and moisture**
- **Long Pot life (2½ days)**
- **Shelf life is one year when store at 23°C**

Maximum Bond Line Cure Schedules:

175°C.....15 minutes
150°C .....1 hour
120°C.....2 hours
80°C.....24 hours

Typical Properties *(to be used as a guide only, not a specification)*

Physical Properties:	
Color:	Part A – silver; Part B – silver
Consistency:	Smooth, thixotropic
Viscosity (@ 100 RPM / 23°C):	2,200 – 3,200 cPs
Thixotropic Index:	3.69
Glass Transition Temp (Tg):	≥ 80°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):	Below Tg: 31 x 10^{-6} in/in/°C Above Tg: 158 x 10^{-6} in/in/°C
Shore D Hardness:	75
Lap Shear Strength @ 23°C:	1,475 psi
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi
Weight Loss:	@200°C: 0.59%; @250°C: 1.09%; @300°C: 1.67%
Degradation Temp (TGA):	425°C
Operating Temp:	Continuous: -55°C to 200°C Intermittent: -55°C to 300°C
Storage Modulus @ 23°C:	808, 700 psi
Ion:	Cl^- 73 ppm; Na^+ 2 ppm; NH_4^+ 98 ppm; K^+ 3 ppm
Particle Size:	≤ 45 microns
Electrical Properties:	
Volume Resistivity @ 23°C:	≤ 0.0004 Ohm-cm
Thermal Properties	
Thermal Conductivity:	2.50 W/mK
Thermal Conductivity:	29 W/mK Based on Thermal Resistance Data: R=L x K-1 x A-1
Thermal Resistance:	(Junction to Case): TO-18 package with nickel-gold metalized 20 x 20 mil chips and bonded with Epo-Tek H20E (2 mil thick)
Epo-Tek®H20E:	6.7 to 7.0°C/W
Solder:	4.0 to 5.0°C/W

RT **12671-20E** Epo-Tek® H20E Adhesive 1 oz

continued »»»

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

EPO-TEK – Epoxy Conductive Adhesive (continued)

EPO-TEK® H20S

Epo-Tek® H20S is a modified version of Epo-Tek®H20E. Epo-Tek® H20S is a highly reliable, two component, silver-filled epoxy with a smooth, thixotropic consistency (mixing ratio 1:1). This modified version offers high electrical conductivity, short curing cycles, proven reliability, and the convenient mix ratio, Epo-Tek® H20S is extremely simple to use. Epo-Tek® H20S pot life is 2.5 days and shelf life is one year when store at room temperature.

Maximum Bond Line Cure Schedules:

175°C .....45 seconds
150°C .....5 minutes
120°C .....15 minutes
100°C .....45 minutes
80°C .....90 minutes

EPO-TEK® H22

Epo-Tek® H22 is a two component, silver-filled epoxy system. Mixing ratio of silver resin paste and liquid hardener is 100:4.5. Pot life 16 hours, and shelf life is 6 months at room temperature.

- **Smooth, free-flowing, slightly thixotropic paste**
- **High Tg allows it to be used for high temperature applications ≤300°C)**
- **Contains no solvents – It is a NASA approved low outgassing epoxy.**
- **Excellent resistance to solvents, chemicals and moisture**
- **Extended pot life and fast curing at low temperature <100°C**
- **Designed for die bonding and sealing hybrid circuit. Recommended for SEM small angle cleavage and wafer bonding.**

Maximum Bond Line Cure Schedules:

150°C.....5 minutes
120°C.....10 minutes
100°C.....20 minutes
80°C.....45 minutes

Typical Properties *(to be used as a guide only, not a specification)*

Physical Properties:	
Color:	Part A – silver; Part B – silver
Consistency:	Smooth, thixotropic – 4000 cPs
Viscosity (@ 100 RPM / 23°C):	1,800 – 2,800 cPs
Thixotropic Index:	5
Glass Transition Temp (Tg):	≥ 80°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):	Below Tg: 31 x 10^{-6} in/in/°C Above Tg: 120 x 10^{-6} in/in/°C
Shore D Hardness:	57
Lap Shear Strength @ 23°C:	1,240 psi
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi
Weight Loss:	@200°C: 0.40%; @250°C: 0.60%; @300°C: 1.37%
Degradation Temp (TGA):	414°C
Operating Temp:	Continuous: -55°C to 200°C Intermittent: -55°C to 300°C
Storage Modulus @ 23°C:	339, 720 psi
Ion:	Cl^- 162 ppm; Na^+ 0 ppm NH_4^+ 282 ppm
Particle Size:	≤ 20 microns
Electrical Properties:	
Volume Resistivity @ 23°C:	≤ 0.0005 Ohm-cm
Thermal Properties	
Thermal Conductivity:	3.25 W/mK

RT **12672-20S** Epo-Tek® H20S Adhesive 1 oz

Typical Properties *(to be used as a guide only, not a specification)*

Physical Properties:	
Color:	Part A – silver; Part B – amber
Consistency:	Smooth, flowing paste
Viscosity (@ 100 RPM / 23°C):	12,000 – 20,000 cPs
Thixotropic Index:	2.36
Glass Transition Temp (Tg):	≥ 100°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):	Below Tg: 39 x 10^{-6} in/in/°C Above Tg: 224 x 10^{-6} in/in/°C
Shore D Hardness:	80
Lap Shear Strength @ 23°C:	1,980 psi
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi
Weight Loss:	@200°C: 0.09%; @250°C: 0.23%; @300°C: 1.42%
Degradation Temp (TGA):	454°C
Operating Temp:	Continuous: -55°C to 250°C Intermittent: -55°C to 350°C
Storage Modulus @ 23°C:	540, 120 psi
Ion:	Cl^- 175 ppm; Na^+ 60 ppm NH_4^+ 148 ppm; K^+ 6 ppm
Particle Size:	≤ 45 microns
Electrical Properties:	
Volume Resistivity @ 23°C:	≤ 0.005 Ohm-cm
Thermal Properties	
Thermal Conductivity:	.94 W/mK

RT **12673-22** Epo-Tek® H22 Adhesive 1 oz

Loctite Adhesives

Loctite 409™ Super Bonder®
For a general-purpose gel adhesive, clear, gap fills 0.010"; surface insensitive Ethyl, tensile shear strength 3,200 psi, and temperature range –65°F to 180°F. Cure speed: fixture - 75 seconds, full - 24 hours.

Loctite 454™ Prism®
For use with porous surfaces, clear, gap fills 0.010", surface insensitive Ethyl, gel type, tensile shear strength 3200 psi, temperature range –65°F to 180°F. Cure speed: fixture – 15 seconds, full - 24 hours.

Loctite 4861™ Prism®
For use with flexible surfaces, clear, gap fill 0.008", surface flexible Alkyl, viscosity 4,000 cP, tensile shear strength 2465 psi, temperature range –65°F to 212°F. Cure speed: fixture – 25 seconds, full – 24 hours.

Loctite 349™ Impruv®
For bond glass/metal, appearance: clear/straw, cure type: UV, viscosity: 9,500cP, shore hardness: D70, temperature range: –65°F to 266°F

Loctite 4011™ Prism®
Designed for the assembly of difficult-to-bond materials, such as wood, paper, leather and fabric. Suitable for use in the assembly of disposable medical devices. The product provides rapid bonding of a wide range of materials, including metals, plastic and elastomers. Cure speed: 2 to 20 seconds depending on the material.

Chemical type: Ethyl cyanoacrylate, transparent, colorless to straw colored fluid. One part required no mixing. Low-viscosity (100 cP). Cure by humidity, and temperature range –65°F to 180°F

RT	**72570-09**	Loctite Super Bonder 409	3 g Tube
RT	**72571-54**	Loctite Prism 454 Adhesive	3 g Tube
RT	**72572-61**	Loctite Prism 4861 Adhesive	20 g
RT	**72582-01**	Loctite 349 Impruv Adhesive	50 ml
RT	**72573-11**	Loctite Prism 4011 Adhesive	20 g

Loctite 404 Quick Set Tissue Adhesive
This adhesive is perfect for those applications where a quick-curing adhesive is needed. Comes in an applicator-tipped bottle, 0.33 oz. (10ml).

RT	**12687-01**	Loctite 404 Quick Set Tissue Adhesive	10ml

Loctite™ 460 Adhesive
Our Loctite™ 460 is a quick curing low viscosity glue that can be used for mounting samples to any substrate (glass, metal and/or plastic). It is soluble in acetone. Comes in an applicator-tipped plastic bottle — 20 g.

RT	**12646-08**	Loctite™ 460 Adhesive	each

Loctite® Fixmaster® Poxy Pak™, Fast Cure Epoxy
This fast cure, general purpose epoxy bonds virtually any material. It will also fill or seal cracks and rebuild worn surfaces. Comes in a 1 oz. syringe with a built-in plunger for easy dispensing without equipment. Working time is approximately 4 minutes. Includes nozzle and mixing stick. This unique adhesive may be made electrically conductive with the addition of any conductive powder (Silver, Carbon etc.)

RT	**12646-09**	Loctite® Fixmaster® Poxy Pak™, Fast Cure Epoxy	each

Krazy Glue™ Pen
The one we all know and have used. Ready to use. Requires no mixing or preparation. This pen contains cyanoacrylate. Clear in color and bonds immediately. Comes in a 3g tube.

RT	**12646-05**	Krazy Glue™ Pen	each

Mikrostik™ Adhesive, Non-Conductive
Fast drying, ultrathin clear adhesive suitable for mounting small particles which can be submerged in other adhesives. It can be diluted with methyl ethyl ketone. Quick-drying. Comes in a bottle with an applicator brush. 14 ml.

	12646-01	Mikrostik™ Adhesive, Non-Conductive	14ml

Rubber Cement
Excellent adhesive for all paper pasting and mountings of drawings and photographs. It is also used to adhere specimens to SEM Stubs. Any excess cured cement can be easily removed. A 4 oz bottle comes with a brush in the cap.

	72170	Rubber Cement	each

Low Temperature Hot Glue Gun
This low temperature mini glue gun is safe and allows for the easy application of the melt glue to the aluminum stub for the mounting of bulk or irregular shaped specimens for SEM. Comes complete with a 40" cord, and two glue sticks. Accepts 5/16" diameter all temperature or low temperature glue sticks. 110 volt, 10 watts.

	72171-00	Low Temp Hot Glue Gun	each
	72171-10	Low-Temp Glue Sticks	10/pk

Adhesive Tabs
Press these self-sticking adhesive tabs to the surface of an SEM mount, then lift off tab for applying the sample. Each box contains 72 sheets of 36 tabs each. Tab measures 12mm in diameter. Non-conductive.

	76760	Adhesive Tabs	2592 tabs/box

Conductive "Lift-N-Press" Adhesive Tabs
This ½" (12mm) diameter conductive tabs are similar to our adhesive tabs, but they work like carbon adhesive tabs. Just remove tab from the roll, press onto surface where you want the film, lift "tab" and peel it off. The tabs can be cut to desired size before being removed from its backing, for use on smaller samples.

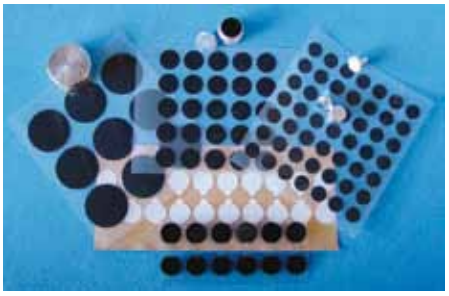
- **Smoother background – over 99% transparent to EDS**
- **High strength adhesive**
- **Better particle detection**
- **Adhesive only 0.002" thick**
- **Content a traces of nickel (<0.6%) and copper (<0.3%)**
- **250 tabs per roll.**
- **An affordable double-sided conductive tab for all SEM samples.**

	76762-01	Conductive Adhesive Tabs	250/roll

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

Conductive Carbon Adhesive Tabs

Standard Carbon Conductive Adhesive Tabs – Tabs are formed by two sides of thick conductive adhesive (45 µm on each side) with the center conductive core film (35 µm). With the total thickness of 125 µm, these tabs will offer reasonably firm, smooth surfaces for a variety SEM applications, including gunshot residue analysis. Tabs are protected by white liners, which do not have to be removed when samples are ready to be mounted.



- **No out-gassing**
- **Conductive adhesive is carbon filled acrylic glue**
- **Solvent free**
- **Adhesive can be removed by ethyl acetate, ethanol, isopropyl alcohol or alcohols**
- **Service temperature is up to 60ºC (140ºF)**

Tabs contain some traces of Si, Sb, S, Fe, Mg, Na.

Thick Carbon Conductive Tabs or Image Tabs – The stiff and smooth surface conductive tabs are 260 µm thick, including 200 µm thick conductive carbonate base, coated 30 µm thick on each side with conductive adhesive. However, these tabs are not as conductive and sticky as the Standard Carbon Conductive Tabs. Thick Carbon Conductive Tabs are used for photographic background as well as for Jet Scan applications, where the tabs must be removed and filed away.

Ultra-Thin Carbon Conductive Adhesive Tabs – These tabs have Core material which is nonconductive cloth (70 µm) with Carbon Filler Conductive Adhesive (2 x 45µm). Total thickness is 160 µm.

Spectro Grade Carbon Adhesive Tabs – High purity conductive carbons for less interference signals, such as X-Ray analysis.

Ultra-Smooth Carbon Adhesive Tabs – Carbon adhesive tabs that eliminate issues with rough surfaces, insufficient tackiness, and hardness with significantly lower contaminant levels under EDS. Tabs are made in USA and very popular, and may be used in place of other conductive adhesive in many applications in conventional and field emission microscopes. They are also widely used in forensic laboratories for study of gunshots residues. Without the addition of conductive coating, small nonconductive particles can often be imaged and X-Ray analyzed, cutting down your analysis time. These tabs are composed of a thin film of strong adhesive approximately ½" diameter. Over 99% transparent to EDS, with a very small amount of nickel (0.6%) and copper (< 0.3%).

Refrigeration will increase shelf life but tabs need to be warmed up to room temperature before use (usually more than one hour)

Cat. #	Description	Qty.
77825-06	Standard Carbon Adhesive Tabs, 6mm Dia.	100/pk.
77825-09	Standard Carbon Adhesive Tabs, 9mm Dia.	98/pk.
77825-12	Standard Carbon Adhesive Tabs, 12mm Dia.	100/pk.
77825-25	Standard Carbon Adhesive Tabs, 25mm Dia.	54/pk.
77824-12	Thick Carbon Conductive Tabs, 12mm Dia.	100/pk.
77825-12-SP	Ultra Thin Carbon Adhesive Tabs, 12mm Dia.	200/pk.
77826-12	Spectro Grade Carbon Adhesive Tabs, 12mm Dia.	120/pk.
77827-12	Ultra-Smooth Carbon Adhesive Tabs, 12mm	100/pk.
77827-25	Ultra-Smooth Carbon Adhesive Tabs, 25mm	50/pk.

Kapton® Polyimide Film Tape

Kapton® Polyimide Tape is known for its superior ability to maintain its physical properties under harsh conditions. This general purpose film easily bonds to difficult surfaces with silicone adhesive, and leaves little to no residue when removed.
Microscopists find it ideal for holding samples or masking during deposition in vacuum systems (it is relatively low outgassing). It is also perfect for positioning samples in cryo or high temperature working conditions. There are no known organic solvents for the film.

Kapton® is a trademark of DuPont™

Specifications:

Temperature Range	-269 to 400°C (-452 to 752°F)
Adhesive	Silicone
Flammability Ratio	V-0
Roll Length	32.9 m (36 yds)
Color	Amber
Kapton® Film Thickness	1 mil
Ultimate Tensile Strength (Mpa)	231 (73°F); 134 (392°F)
Ultimate Elongation (%)	72 (73°F); 83 (392°F)
Density, g/cc	1.42
Tensile Modulus (GPa)	2.5 (73°F); 2.0 (392°F)
Melting Point	none
Plastic Core Diameter	77mm (3")

Kapton® Standard Polyimide Film Tape

Tape thickness with adhesive: 2.7 mil. No liner.

77708-01	Kapton® Standard Tape, ¼"	36 yds	each
77708-02	Kapton® Standard Tape, ½"	36 yds	each
77708-03	Kapton® Standard Tape, ¾"	36 yds	each
77708-04	Kapton® Standard Tape, 1"	36 yds	each
77708-05	Kapton® Standard Tape, 2"	36 yds	each

Kapton® Single-Sided, Thin Adhesive Polyimide Film Tape

Tape thickness with thinner layer of adhesive: 2.5 mil. No liner.

77708-06	Kapton® Thin Tape, ¼"	36 yds	each
77708-07	Kapton® Thin Tape, ½"	36 yds	each
77708-08	Kapton® Thin Tape, ¾"	36 yds	each
77708-09	Kapton® Thin Tape, 1"	36 yds	each
77708-10	Kapton® Thin Tape, 2"	36 yds	each

Kapton® Double-Sided Polyimide Film Tape

Tape thickness with adhesive on both sides: 4 mil. Clear polyester liner covers one side.

77708-11	Kapton® Double-Sided Tape, ½"	36 yds	each
77708-12	Kapton® Double-Sided Tape, ¾"	36 yds	each
77708-13	Kapton® Double-Sided Tape, 1"	36 yds	each

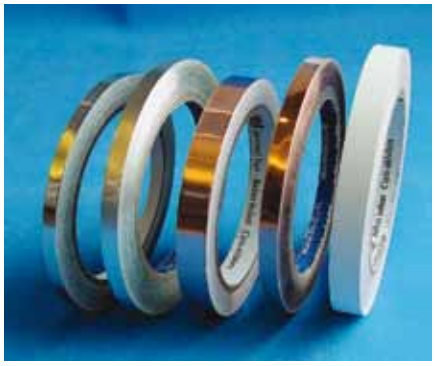
Kapton® Low-Static, Single-Sided, Thin Adhesive Polyimide Film Tape

ESD additive in the adhesive reduces the static charge. Tape thickness with adhesive: 2.6 mil. No liner.

77708-14	Kapton® Low-Static Tape, ¼"	36 yds	each
77708-15	Kapton® Low-Static Tape, ½"	36 yds	each
77708-16	Kapton® Low-Static Tape, ¾"	36 yds	each
77708-17	Kapton® Low-Static Tape, 1"	36 yds	each
77708-18	Kapton® Low-StaticTape, 2"	36 yds	each

Conductive Adhesive Tapes

1) Scotch Conductive Tapes:



We offer two types of foil: Aluminum foil tape (Scotch 1170) and copper foil tape (Scotch 1181) with conductive adhesive. 3" core, ¼" (6.35mm) width x 54 ft (16.5m) long

Technical Data	Copper	Aluminum
Foil Thickness, mils	1.4	2
Total Thickness, mils (mm)	3(.076)	4(.102)
Adhesion oz/In (N/10mm)	35(3.81)	35(3.81)
Electrical Resistance		
Through Adhesive ohm/in(ohm/cm)	.005(.032)	.01(.07)
Continuous Long Term °C	155°	155°
Functional Days-Weeks °C	175°	175°

77800	Aluminum Tape, Single Sided ¼" x 18yds	1 roll
77799	Aluminum Tape, Single Sided ½" x 18yds	1 roll
77798	Aluminum Tape, Single Sided 1" x 18yds	1 roll
77801	Copper Tape, Single Sided ½" x 18yds	1 roll
77802	Copper Tape, Single Sided ¼" x 18yds	1 roll

Double Sided Copper Conductive Tape

With the same technical properties of our 77802 shown above this conductive tape is 12.7mm(W)x16.4m(L).

77802-22 Copper Conductive Tape, Double Sided each

2) SEM Conductive Tapes:

Technical Data	Cu Contained Nickel Tape	Al Contained Nickel Tape
PAD	Pressed thin Cu	Pressed thin Al
Overall Thickness	0.075mm	0.09mm
PAD	0.035mm	0.05mm
Adhesive	0.040mm	0.04mm
Conductive resistivity	0.004ohm/sq. Inch	0.008ohm/sq. Inch
Adhesive Power/25mm width	920 gf	840 gf
Capacity after 60 min	0.1mm	0.1mm

We now offer a new line of conductive tapes, that are electrically conductive and offer a clean background. They were developed especially for SEM.

77810	Copper/Nickel Tape	each
77811	Copper/Nickel Tape	5 Rolls/pk
77813	Aluminum/Nickel Tape	each
77814	Aluminum/Nickel Tape	5 Rolls/pk

3) Double Sided Carbon Tape

With carbon double-sided tape, small particle sizes, such as 15-20 microns, can be mounted on the adhesive and produce good background structure. Our Double sided Carbon tape is also available in five widths to accommodate varying specimen mount surface sizes and applications.

Double sided Carbon Tape	
PAD	Isolate unwoven cloth
Overall Thickness	0.16mm
PAD	0.07mm
Adhesive	0.045mmx2
Conductive resistivity	50ohm/sq. Inch
Adhesive Power/25mm width	1,000 gf
Capacity after 60 min	0.2mm

77816	Double Sided Adhesive Carbon Tape 8mm(W) x 20m(L) (⅝" x 65)	each
77817	Double Sided Adhesive Carbon Tape 8mm(W) x 20m(L) (⅝" x 65)	5 Rolls/pk
77817-05	Double Sided Carbon Tape, 5mm(W)x20m(L)	each
77817-12	Double Sided Carbon Tape, 12mm(W)x20m(L)	each
77817-20	Double Sided Carbon Tape, 20mm(W)x20m(L)	each
77817-50	Double Sided Carbon Tape, 50mm(W)x20m(L)	each

Same as above however with Aluminum base as opposed to the unwoven base above. Offers a smoother surface

77817-05-Al	Double Sided Carbon Tape, 5mm(W)x20m(L)	each
77817-08-Al	Double Sided Carbon Tape, 8mm(W)x20m(L)	each
77817-12-Al	Double Sided Carbon Tape, 12mm(W)x20m(L)	each
77817-20-Al	Double Sided Carbon Tape, 20mm(W)x20m(L)	each
77817-50-AL	Double Sided Carbon Tape, 50mm(W)x20m(L)	each

3a) Carbon Conductive Tape, Double Coated

EMS introduces this unique double sided carbon tape which is 260 microns in thickness. The base which is Polycarbonate and 200 microns thick has on both of its sides 30 microns of conductive glue giving it a total thickness of 260 microns. The tape has one transparent liner on one side and a white thicker one on the reverse which protects the tape in shipping.

Specifications:

Core Diameter: 3" (76mm)
Adhesive: Carbon Filled Acrylic Glur
Remover: Ethyl acetate, ethanol, isopropanol and or alcohol
Temperature: 60ºC(140ºF)-Maximum
Impurities: Cu, Si, Sb, S, Na, P, Fe and Mg*

* These are considered to be small impurities but they may be present

77819-12	Double sided Carbon Conductive Tape, 12mm (W) x 5m (L)	each
77819-25	Double Sides Carbon Conductive Tape, 25mm (W)x 5m (L)	each
77819-65	Carbon Conductive Tape in sheet form, 65mm (W)x 300mm (L)	each

4) Double Sided Conductive Cohesive Sheets

Features:

- **Minimum impurities - Maximum conductivity.**
- **Produces minimum gas under vacuum conditions.**
- **Easy handling.**

These conductive cohesive sheets offer good adhesion to the specimen and yield good conductivity and background structures, even with particles as small as 15 microns.

Sheet size: 5cm(W)x12cm(L)

Technical Data	Thickness	Adhesive Power	Conductive Resistivity
Silver Sheet	0.13mm	880 gf/25mm	0.00ohm/5mm^2
Carbon Sheet	0.16mm	1,100 gf/25mm	4,000ohm/5mm^2

77820	Silver Cohesive Sheet	5/pk
77822	Carbon Cohesive Sheet	10/pk
77822-01	Carbon Cohesive Sheet (Technical Grade)	10/pk

Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

XYZ-Axis Electrically Conductive, 3M™ Double Sided Tape 9712

3M™ XYZ-Axis Electrically Conductive Tape 9712 is an isotropically conductive pressure sensitive tape. The tape consists of a 3M adhesive loaded with conductive fibers. The result is a double-sided tape providing both good adhesion and good electrical performance with very high conductivity.

The 9712 Tape is an excellent choice when needing to bond your samples for all SEM work.

Specification:

Adhesive Type:	Filled Acrylic
Filler Type	Conductive Fibers
Release Liner	Silicone treated PolyCoated Kraft
Paper	
Remover:	Acetone
Thickness Approximate:	Tape Only; .005" (.127mm) Release Liner; .004" (.010mm)
Temperature Range:	Short Term Exposure; 250ºF (121ºC) Long Term Exposure; 158ºF (70ºC)

Electrical Properties: Contact Resistance

Substrate Tested			
Aluminum/ Aluminum	Aluminum/ Stainless Steel	Copper/ Aluminum	Copper/ Copper
<24Ω	<21.5Ω	<16Ω	<.66Ω

Based upon four wire (Kelvin probe) resistance measurements made with crossed pieces of Foil/Type 9712 or 9713/Rigid plate construction using a 1.0" x 1.0" square piece of 3M tape Type 9712 or 9713. The rigid metal surface was prepared with a Scotch-Brite™ pad to roughen the surface and cleaned with isopropyl alcohol.

Adhesion Properties:

	Adhesion in oz./in (g/cm)			
Substrate	20 Min at 72°F (22°C)	24 Hours at 72°F (22°C)	20 Min at 158°F (70°C)	24 Hours at 72°F (22°C)
Stainless Steel	>41(457)	>42(468)	>43(479)	>53(590)
Aluminum	>35(390)	>33(367)	>36(401)	>43(479)
Copper	>47(412)	>39(434)	>43(479)	>55(613)

The tape is available in 3 sizes and it comes on a 3" Core(76mm)

Cat. #	Description	Qty
77808-63	XYZ-Axis Electrically Conductive, 3M™ Double Sided Tape, 9712, 6.35mm (W) x 32.9m (L)	each
77808-12	XYZ-Axis Electrically Conductive, 3M™ Double Sided Tape, 9712, 12.7mm (W) x 32.9m (L)	each
77808-25	XYZ-Axis Electrically Conductive, 3M™ Double Sided Tape, 9712, 25mm (W) x 32.9m (L)	each

XYZ-Axis Electrically Conductive, 3M™ Double Sided Tape 9713

3M™ XYZ-Axis Electrically Conductive Tape 9713 is an isotropically conductive pressure sensitive tape. 3M tape 9713 conducts electricity through the thickness (Z-axis) and in the plane of the adhesive (X, Y planes) and is ideal for EMI/RFI shield and EMI/RFI gasket attachment to metal surfaces.

The tape consists of a high performance 3M adhesive loaded with conductive fibers. The result is a double-sided tape providing both good adhesion and good electrical performance. The conductive fibers in 3M tape 9713 also provide improved handling characteristics. The 9713 Tape is an excellent choice when needing to bond your samples for all SEM work

Specification:

Adhesive Type:	Filled Acrylic
Filler Type	Conductive Fibers
Release Liner	Silicone treated PolyCoated Kraft
Paper	
Remover:	Acetone
Thickness Approximate:	Tape Only; .0035" (.0889mm)
	Release Liner; .004" (.010mm)
Temperature Range:	Short Term Exposure; 250ºF (121ºC) Long Term Exposure; 158ºF (70ºC)
Outgassing:	Total Mass Loss (TML); 1.60%
(ASTM E-595)	Collected Volatile Condensed Materials (CVCM): 0.03%
	Water Vapor Recovered (WVR) 0.36%

Electrical Properties: Contact Resistance

Substrate Tested			
Aluminum/ Aluminum	Aluminum/ Stainless Steel	Copper/ Aluminum	Copper/ Copper
<2.5Ω	<2.0Ω	<1.0Ω	<0.5Ω

Based upon four wire (Kelvin probe) resistance measurements made with crossed pieces of Foil/Type 9712 or 9713/Rigid plate construction using a 1.0" x 1.0" square piece of 3M tape Type 9712 or 9713. The rigid metal surface was prepared with a Scotch-Brite™ pad to roughen the surface and cleaned with isopropyl alcohol.

Adhesion Properties:

	Adhesion in oz./in (g/cm)				
Substrate	15 min. at 72°F (22°C)	1 hr. at 72°F (22°C)	24 hr. at 72°F (22°C)	1 hr. at 158°F (70°C)	24 hr. at 158°F (70°C)
Stainless Steel	> 30 (335)	> 45 (502)	> 50 (558)	> 50 (558)	> 55 (613)
Aluminum	> 20 (223)	> 35 (390)	> 40 (446)	> 40 (446)	> 55 (613)
Copper	> 20 (223)	> 40 (446)	> 45 (502)	> 40 (446)	> 60 (669)

The tape is available in 5 sizes and it comes on a 3" Core(76mm)

Cat. #	Description	Qty
77809-12	XYZ-Axis Electrically Conductive, 3MTM Double Sided Tape, 9713, 12.7mm (W) x 32.9m (L)	each
77809-25	XYZ-Axis Electrically Conductive, 3MTM Double Sided Tape, 9713, 25mm (W) x 32.9m (L)	each
77809-100	XYZ-Axis Electrically Conductive, 3MTM Double Sided Tape, 9713, 100mm (W) x 32.9m (L)	each
77809-60	XYZ-Axis Electrically Conductive, 3MTM Double Sided Tape, 9713, 0.61m (W) x 98.6m (L)	each each
77809-61	XYZ-Axis Electrically Conductive, 3MTM Double Sided Tape, 9713, 0.61m (W) x 32.9m (L)	each

Z-Axis Electrically Conductive, 3M™ Double Sided Tape, 9703

3M™ Electrically Conductive Adhesive Transfer Tape 9703 is a pressure sensitive adhesive (PSA) transfer tape with anisotropic electrical conductivity. The PSA matrix is filled with conductive particles which allow interconnection between substrates through the adhesive thickness (the "Z-axis") but are spaced far enough apart for the product to be electrically insulating in the plane of the adhesive. The PSA tack properties and lack of any thermal curing make tape 9703 easy to use in all applications requiring a conductive tape.

Specification:

Adhesive Type:	Filled Acrylic Pressure Sensitive
Release Liner	Silicone treated PolyCoated Kraft Paper
Remover:	Acetone
Temperature Range:	Short Term Exposure; 250ºF (121ºC) Long Term Exposure; 158ºF (70ºC)
Outgassing: (ASTM E-595)	Total Mass Loss (TML): 0.7%

The tape is available in 2 sizes and it comes on a 3" Core (76mm)

Cat. #	Description	Qty
77809-70	Z-Axis Electrically Conductive, 3MTM Double Sided Tape 9703, 6.35mm x 32.9m (1/4" x 36yrds)	each
77809-80	Z-Axis Electrically Conductive, 3MTM Double Sided Tape 9703, 12.7mm x 32.9m (1/2" x 36yrds)	each

Scotch Double Sided Tape:

1) Without backing paper: Scotch 665

This is a non-conductive transparent tape with adhesive on both sides. There is no liner to remove and it is long lasting for permanent applications. 3" (77mm) core.

Cat. #	Description	Qty
77100	3M® 665, Double Sided, ¼" W x 36yds (6.4mm x 32.9m)	each
77110	3M® 665, Double Sided, ¼" W x 36yds (6.4mm x 32.9m)	5/box
77101	3M® 665, Double Sided, ⅜" W x 72yds (9.5mm x 65.8m)	each
77102	3M® 665, Double Sided, ¾" W x 36yds (19mm x 32.9m)	each

2) With paper liner: Scotch 666

This is a non-conductive transparent tape with adhesive on both sides and white paper as a liner, which is slit in the center to facilitate its removal. This produces good adhesion and cleanliness. Comes 3 rolls inside a protective box, 3" core, ¼" (6.35mm) W x 36 yds (32.9m) L.

Cat. #	Description	Qty
77115	3M® 666, Double Sided, ¼" W x 72yds (6.4mmx32.9m)	each
77116	3M® 666, Double Sided, ¼" W x 36yds (6.4mmx32.9m)	5/pk
77117	3M® 666, Double Sided, ⅜" W x 36yds (9.5mmx32.9m)	each
77118	3M® 666, Double Sided, ¾" W x 36yds (19mmx32.9m)	each
77119	3M® 666, Double Sided, 1"Wx36yds (25.4mm x 32.9m)	each

Disc (Tab) Punches

Produces discs (tabs) from sheet materials. Ticket punching type. Comes with adjustable side gauge for centering hole, 2" maximum reach. Weight 10 oz., 6½" long. Useful for punching adhesive tabs for specimen mounts, or producing circle cover slips from ACLAR® films (EMS #50425 or #50426) for growing cells. Maximum thickness for punching is up to 67-mil (1.7 mm). Disc size available: 5/16", ⅜", ½" and 1". Complete unit includes one punch handle and one punching die.

Cat. #	Description	Qty
77850-08	Punch, 5/16" (7.94 mm) Circle	each
77850-09	Punch, ⅜" (9.54 mm) Circle	each
77850-12	Punch, ½" (12.7 mm) Circle	each
77850-25	Punch, 1" (25.4 mm) Circle	each

X-Checker™

The X-Checker was the first and remains the only complete calibration aid for SEM/EDS Systems. When time is short but you want to know how well your system is performing you need the X-Checker. Each X-Checker comes with the following:

- **Manganese to measure full width at half max detector resolution**
- **Aluminum and copper to perform spectral calibration.**
- **Carbon to monitor calibration at the low end of the spectra for thin window detectors.**

You also get two grid sizes for checking the accuracy of your image analysis software and an easy test for monitoring the amount of vacuum pump oil contamination on your detector window.

- **The X-Checker™ BN comes with boron nitride for those who need a more sensitive monitor of low end performance on thin window and windowless detectors.**
- **The X-Checker™ Extra is the ultimate performance monitor for the latest state of the art X-ray detectors. In addition to the standard features and boron nitride, there is a fluorine source to test resolution at the fluorine K-alpha peak (industry standard for measuring low end resolution). As well it comes with a beryllium grid for the ultimate test of detector performance.**

Cat. #	Description	Qty
80058-ST	X-Checker™, Standard	each
80058-BN	X-Checker™, With Boron Nitride	each
80058-EX	X-Checker™, Extra	each

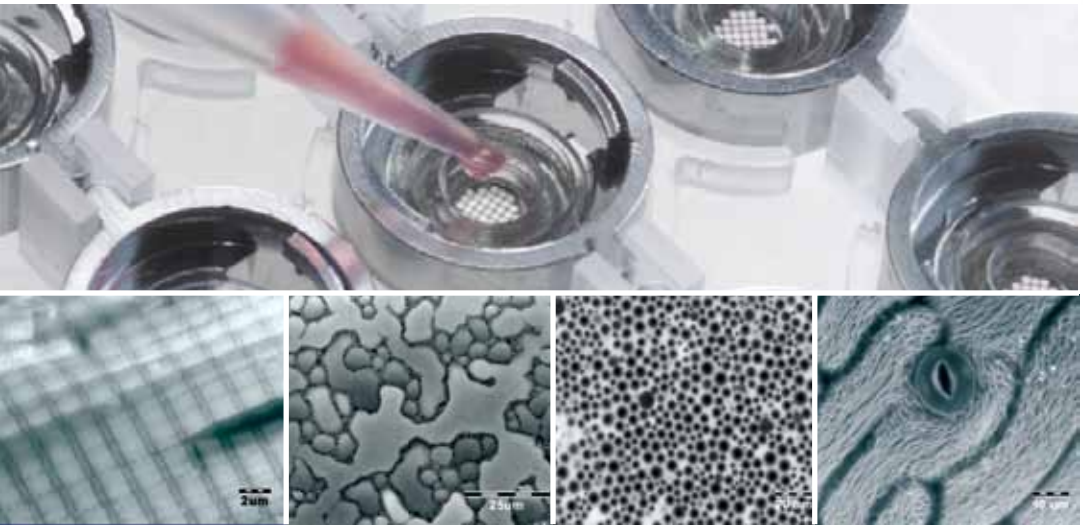
Science Services · Unterhachinger Str. 75 · 81737 München, Germany
T: +49 (0)89 18 93 668 0 · F: +49 (0)89 18 93 668 0
E: Info@ScienceServices.de · www.ScienceServices.de

QUANTOMIX™

A Technological Breakthrough

- **Attain EM-level imaging of wet samples**
- **Eliminate artifacts & time-consuming sample preparation**
- **Achieve reliable, reproducible & quantifiable results**

Electron Microscopy Sciences and Quantomix have joined forces here in The United States to market and sell the breakthrough solutions of Quantomix's proprietary WETSEM™ Technology. This technology enables scanning electron microscopes (SEM) to image and analyze wet samples such as cells, tissue biopsies, foods and ink, in their native environment. Eliminating the need for time-consuming preparation procedures, the WETSEM™ Technology ensures that sample integrity is not compromised by artifacts. QuantomiX innovative technology opens new opportunities for application specific tools to improve drug discovery, and advances treatment and diagnostic solutions for the medical and pharmaceutical markets.



WETSEM™ Technology

Electron Microscopy (EM) is a prime tool for high-resolution imaging, which has been the cornerstone of our understanding of living organisms and our material environment.

The revolutionary technology of QuantomiX solves the problem of preparing wet samples for high-resolution imaging. It closes the resolution gap between conventional electron microscopy and light microscopy and offers the convenient sample preparation of light microscopy.

For the first time, rapid and routine EM imaging of biological samples in a wet environment is now possible without the artifacts normally associated with sample preparation.

Concept

The New QX capsule completely isolates wet samples from the vacuum in the microscope chamber. This makes possible the imaging of fully hydrated samples- including food, cosmetics, ink, human, animal, plant, and microbial cells, tissues, and fluids-at resolutions unachievable with light microscopy.

The QX capsule fits the standard SEM specimen stage.

The capsule combines the function of a specimen holder, cell culture dish, or a tissue specimen holder with an electron transparent, vacuum tight window. This unique receptacle permits electron microscopy of samples held in water or any other liquid medium at atmospheric pressure.

Imaging of samples in the QX capsule can be accomplished with backscattered electron detection, x-ray detection, or light detection, to reveal structure as well as material composition.

Applications

- Lipid Imaging and Analysis
- Airborne Particles
- Experimental Biology
- Pathogen characterization
- Subcellular organelles, cytoskeleton and motility, cell contacts, receptor distribution, extracellular matrix, tissue analysis
- Industrial applications: food, oils, dyes, pharmaceuticals
- Clinical diagnosis: Histopathology, cytology, oncology
- Tissue engineering, implants and prostheses.
- Quality Control/Quality Assurance
- Life Sciences: cultured and primary cells, tissue histology, nerve cells and myelin imaging, microbiology, viruses, and plants
- Environmental and toxicological applications
- Nanotechnology and Bio nanotechnology
- Industrial and R & D: Emulsions, suspensions, foods, personal care goods, cosmetics, inks

CONTACT US FOR MORE INFORMATION...

Electron Microscopy Sciences

P.O. Box 550 • 1560 Industry Rd.
Hatfield, Pa 19440
Tel: (215) 412-8400
Fax: (215) 412-8450
email: sgkcck@aol.com
***or* stacie@ems-secure.com**

www.emsdiasum.com

NEW PRODUCTS...

EMS Orbital Specimen Holder

Take the new EMS Orbital Specimen Holder for a spin and raise your SEM images to a whole new level. Experience flexibility and control superior to any other specimen holder. This unique holder is a tool no SEM laboratory should be without.

See page 13 for more information.

Electron Microscopy Sciences

In PA: (215) 412-8400
Toll-Free (800) 523-5874
Fax (215) 412-8450 or 8452
email: sgkcck@aol.com
or stacie@ems-secure.com

www.emsdiasum.com