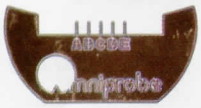
Omniprobe AutoProbe™ Consumables

Omniprobe Lift-Out Grids

The Omniprobe Lift-Out Grids are specifically designed to accept the TEM lamellas milled out by FIB or SEM/FIB systems. Typical thickness of the grids is 25-30µm. The posts are designed for optimum access and provide a secure area for attaching (welding) the lamella(s). The Omniprobe grids fit standard TEM holders and provide a non-obscured view of the thin sections attached to the posts.

460-203 Omniprobe Lift-Out Grids, Cu with 3 posts pkg/100
460-223 Omniprobe Lift-Out Grids, Mo with 3 posts pkg/25

460-204 Omniprobe Lift-Out Grids, Cu with 4 posts pkg/100



460-205 Omniprobe Lift-Out Grids, Cu with 5 posts pkg/100

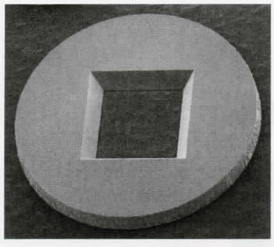
460-200 GSB-100 Storage Box for 100 Omniprobe grids, complete with base, lid and clips pkg/100

PELCO® Half Grid

Half grid Lift-Out TEM sample holder, made of copper/beryllium, are approximately 100µm thick, slot is 2mm wide x 0.5mm deep. The sturdy holders offer easy handling and good protection for the TEM lamella(s).

4510-HALF PELCO® Sample Holder for FIB Applications vial/25

PELCO® Silicon Aperture Frames (without support film)



The PELCO® Silicon Aperture Frames are 3mm disk type frames with a thickness of 200µm and square or rectangular apertures. The Silicon Nitride has been removed and leaves a silicon frame. The perfectly round shaped 3mm frames feature the Easygrip™ edge for easy handling. No broken edges and free of debris often associated with other manufacturing processes. Offered with three sizes of openings: 0.5 x 0.5, 1.0 x 1.0 and 1.5 x 0.5mm. Fully compatible with standard 3mm TEM holders.

- Support frame to attach TEM lamellas made with FIB, DualBeam™ or CrossBeam® instruments for subsequent TEM imaging
- Easy access due to wide angle opening
- Protects TEM lamella during transport

Window angle toward the back is 35.26 degrees, which results in the following aperture dimensions:

Product No.	Aperture size	Area	Back side opening
21540-10	0.5 x 0.5	0.25mm²	0.78 x 0.78mm
21541-10	1.0 x 1.0mm	1.00mm²	1.28 x 1.28mm
21542-10	1.5 x 0.5mm	0.75mm²	1.78 x 0.78

21540-10 PELCO® Silicon Aperture Frame (no support film) 0.5 x 0.5mm pkg/10

21541-10 PELCO® Silicon Aperture Frame (no support film) 1.0 x 1.0mm pkg/10

21542-10 PELCO® Silicon Aperture Frame (no support film) 1.5 x 0.5mm pkg/10

Tips for AutoProbe™

Tip with Ni Shank for AutoProbe™ 100 & 200

Custom probe tip design for the AutoProbe™ 100 & 200 systems. Nickel tube shank with a diameter of 0.508mm (0.020") and a tungsten tip. Tip radius is 0.5µm with a 13° taper angle for maximum lifetime.

460-101 Tip with Ni shank for AutoProbe™ 100 & 200 . . . . . .pkg/10

Standard W Probe Tips for AutoProbe™ 100 & 200

Custom probe tips for the Autoprobe™ 100 and 200 systems. All Tungsten design with a tip radius of 0.5µm and a 13° taper angle for maximum life time. Shank diameter is 0.508mm (0.020").

460-102 Standard W Tip for AutoProbe™ 100 & 200 . . . . . .pkg/10

Tips for *in situ* Tip Exchange for AutoProbe™ 300

Custom probe tips for the Autoprobe™ 300 system for *in situ* probe tip exchange systems. Tungsten tip with stainless steel shank, tip radius is 0.5µm with an 8-10° taper angle.

460-103 *In situ* probe tips for AutoProbe™ 300 . . .pkg/10

Tips for AutoProbe™ 250

Custom probe tips for the AutoProbe™ 250 systems. All-tungsten design with a 0.508mm (0.020") shank diameter. The tip radius is better than 0.5µm with a taper of 6° taper angle for greater precision.

460-105 W tips for AutoProbe™ 250 . . . . . .pkg/10

■ Short-Cut™ Coupons

The AutoProbe™ 300 Omniprobe offers the fast Short-Cut™ method where the tip with the TEM lamella needs to be inserted in the Short-Cut™ Coupon. The half grid with swaged needle and lamella is then cut from the coupon and can be inserted in the TEM holder for further examination. The thickness of the Short-Cut™ Coupons is 200µm and can be used in suitable TEM holders. The Short-Cut™ Coupons are optimized for the ports used on the SEM/FIB System; 45° is used for FEI Systems, 26.5 is used for ZEISS and JEOL Systems. Short-Cut™ Coupons are either made of solid Cu or Cu coated with 1µm of Molybdenum to reduce the Cu signature in analytical applications.

45° Front-Side Thinning

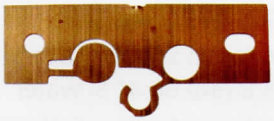
460-208 Short-Cut™ Coupons, Cu for 45° Front-Side Thinning pkg/20

460-228 Short-Cut™ Coupons, Cu/Mo coated for 45° Front-Side Thinning pkg/20

26.5° Front-Side Thinning

460-210 Short-Cut™ Coupons, Cu for 26.5° Front-Side Thinning pkg/20

460-220 Short-Cut™ Coupons, Cu/Mo coated for 26.5° Front-Side Thinning pkg/20



45° Back-Side Thinning

460-209 Short-Cut™ Coupons, Cu for 45° Back-Side Thinning pkg/20

460-229 Short-Cut™ Coupons, Cu/Mo coated for 45° Back-Side Thinning pkg/20

26.5° Back-Side Thinning

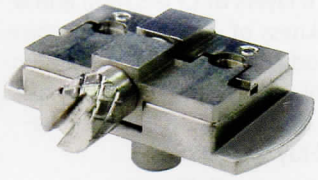
460-211 Short-Cut™ Coupons, Cu for 26.5° Back-Side Thinning pkg/20

460-221 Short-Cut™ Coupons, Cu/Mo coated for 26.5° Back-Side Thinning pkg/20

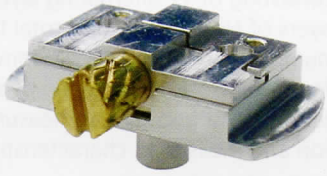
AutoProbe™ Accessories

A number of accessories are available for assisting in FIB milled TEM lamella lift-out procedures.

■ Double TEM Grid Holder



460-306 Double TEM Grid Holder, NM-SS



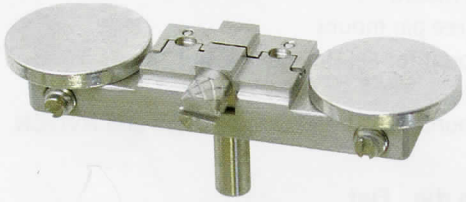
460-307 Double TEM Grid Holder, Al

The Double TEM grid holder holds two lift-out grids and has a spring-loaded jaw for easy unloading. This holder has a short standard pin style post base: ø3.2 x 4mm length (⅛" x 0.16") to accommodate thinner-type stage plates used in full wafer systems. Available with non-magnetic stainless steel or aluminum body. NM= non magnetic.

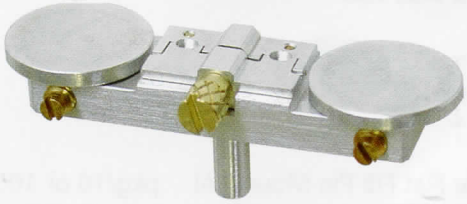
460-306 Double TEM Grid Holder, NM-SS . . . . . .each

460-307 Double TEM Grid Holder, Al . . . . . .each

■ Double TEM Grid and Sample Holder



460-308 Double TEM Grid and Sample Holder, NM-SS



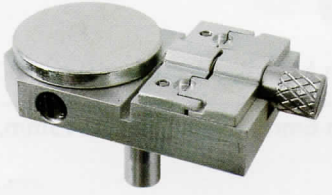
460-309 Double TEM Grid and Sample Holder, Al

TEM grid and sample holder for FIB and SEM/FIB (DualBeam™ and CrossBeam®) systems with stations for 2 TEM lift-out grids and 2 sample mounts. This holder has a standard pin style post base: ø3.2 x 8.1mm length (⅛" x 0.32") compatible with most standard pin stub holders. The Low Profile FIB Sample Mounts have a standard 12.7mm (½") diameter. Available with non-magnetic stainless steel or aluminum body.

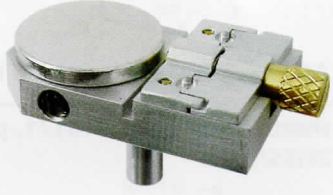
460-308 Double TEM Grid and Sample Holder, NM-SS . . . . . .each

460-309 Double TEM Grid and Sample Holder, Al . . .each

■ Single Sample and Grid Holder



460-312 Double TEM Grid and Single Sample Holder, NM-SS



460-313 Double TEM Grid and Single Sample Holder, Al

Single sample and TEM grid holder for FIB and SEM/FIB systems with stations for two TEM lift-out grids and one sample mount. This holder has a standard pin style post base: 3.2 x 8.1mm (⅛" x 0.32") compatible with most standard pin stub holders. The Low Profile FIB Sample Mounts have a standard 12.7mm (½") diameter. Available with non-magnetic stainless steel or aluminum body.

460-312 Double TEM Grid and Single Sample Holder, NM-SS . . . . . .each

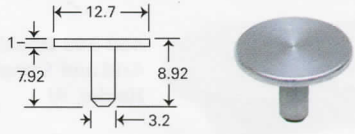
460-313 Double TEM Grid and Single Sample Holder, Al . . . . . .each

Low Profile Pin Mounts for FIB Applications

These special low profile pin mounts are suited to accommodate specimens with small working distances in FIB, DualBeam™ and CrossBeam® systems. Fully compatible with standard pin stub mounts (pin 3.2mm diameter) for sample storage and transport. These mounts can be used directly in FEI and ZEISS/LEO systems and with adapters in Hitachi, and JEOL systems. Four types are available:

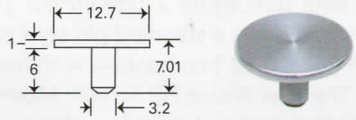
- Universal flat pin mount
- Universal 90 degree pin mount
- 38° angle pin mount for FEI Dualbeams and FIB systems
- 36° angle pin mount for ZEISS/LEO CrossBeam and NVISON systems

Aluminum, 12.7mm dia., Flat



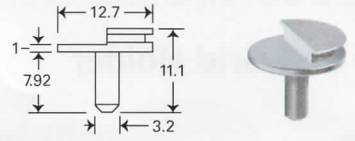
16170 Low Profile Flat FIB Pin Mount, Al . .pkg/10 or 100

short pin version of 16170, pin 6mm, total height 7mm



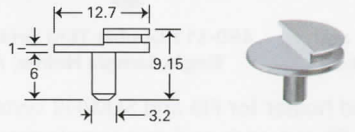
16176 Low profile flat FIB Pin Mount with short pin (6mm) for ZEISS/LEO systems, Al . . .pkg/10 or 100

Aluminum, 12.7mm dia., 90°



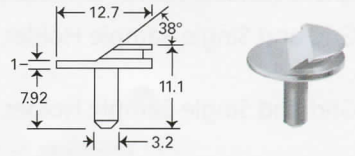
16171 Low profile flat FIB Pin Mount, Al . .pkg/10 or 100

short pin version of 16171, pin 6mm, total height 9.15mm, ZEISS/LEO



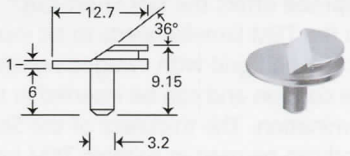
16177 Low profile 90° FIB Pin Mount with short pin (6mm) for ZEISS/LEO systems, Al . . .pkg/10 or 100

Aluminum, 12.7mm dia., 38°, FEI



16172 Low profile 38° FIB mount for FEI, Al .pkg/10 or 100

Aluminum, 12.7mm, pin 6mm, total height 9.15mm, 36°, ZEISS/LEO



16173 Low profile 36° FIB mount with short pin (6mm) for ZEISS/LEO, Al . . . . . .pkg/10 OR 100

FIB and Ion Beam Sputter Standards

Ion Sputter Standards manufactured to the highest precision for calibrating sputter ion guns. Thin films of Silicon Dioxide (SiO_2), Silicon Nitride (Si_3N_4), Tantalum Pentoxide (Ta_2O_5) and Nickel/Chromium (NiCr-3) are available.

Silicon Dioxide (SiO_2)

Silicon wafers with thin films of silicon dioxide are available in thicknesses of 23, 50, 97 and 102.9nm. The oxide films are grown with a wet oxygen process, which insures a higher degree of uniformity than available using other processes. The wafers are 4" in diameter.

612-11 Silicon Dioxide Ion Sputter Calibration Standard, SiO_2 (23 ± 0.23 nm) on 4" Si wafer . . . . . .each

612-12 Silicon Dioxide Ion Sputter Calibration Standard, SiO_2 (50 ± 2.5 nm) on 4" Si wafer . . . . . .each

612-13 Silicon Dioxide Ion Sputter Calibration Standard, SiO_2 (97 ± 3.8 nm) on 4" Si wafer . . . . . .each

612-10 Silicon Dioxide Ion Sputter Calibration Standard, SiO_2 (102.9 ± 2.5 nm) on 4" Si wafer . . . . . .each

Silicon Nitride (Si_3N_4)

100nm Silicon Nitride (CVD) films deposited on a ~1 x 3cm piece of silicon wafer.

612-20 Silicon Nitride Ion Sputter Calibration Standard, Si_3N_4 on 1 x 3cm Si . . . . . .each

Tantalum Pentoxide (Ta_2O_5)

Films of tantalum pentoxide (~100nm) are anodically grown on 0.5mm thick tantalum foil. The standards are ~37 x 37mm. The thickness accuracy is ~5%.

612-30 Tantalum Pentoxide Ion Sputter Calibration Standard, Ta_2O_5 (~100nm) on 37 x 37mm Ta foil . . . . . .each

Nickel / Chromium

Consisting of 12 alternating layers: 6 layers of Cr (~53nm) and 6 layers of Ni (~64nm) for a total thickness of ~700nm with a maximum variation across the 75mm production wafer of ±2%. Standard is on a 1 x 3cm section of a polished silicon wafer. The mass density of Cr and Ni was measured using electron beam excitation and measuring characteristic X-ray intensities.

612-40 Nickel / Chromium Ion Sputter Calibration Standard, Ni / Cr (12 layers) on 1 x 3cm Si . . .each