

1 - Grids

Athene grids

The Athene range of grids is manufactured by Smethurst High-Light Ltd and marketed exclusively by Agar Scientific. Athene grids are made to an extremely high standard, and renowned for their quality. The grid bars are particularly well defined, and grids with thin bars are carefully manufactured to ensure good handling characteristics. Each grid is individually inspected under a light microscope before being packed. Any of the Athene grid designs may be gilded, platinised or silvered to screen the copper based material from the specimen and any chemicals

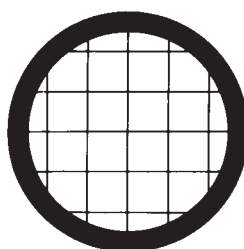
used to treat it. Gilded copper grids are more robust and easier to handle than pure gold grids.

For special purposes any desired pattern can be made to order. All grids are available in 3.05 mm diameter and most in 2.3 mm diameter.

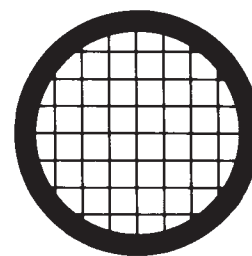
A comprehensive table of grid parameters is available on request. All Athene grids are packed in tubes of 100, unless otherwise specified.

Standard patterns

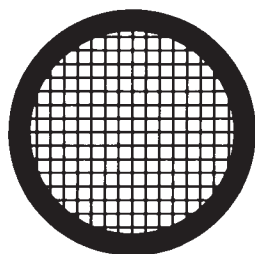
| Type | Copper | 3.05 mm diameter | | |
|---------|--------|------------------|--------|------------|
| | | Nickel | Gilded | Platinised |
| M50 | G209 | G209N | G209G | G209P |
| M75 | G210 | G210N | G210G | G210P |
| Old 150 | G201 | G201N | G201G | G201P |
| Old 200 | G202 | G202N | G202G | G202P |
| Old 300 | G203 | G203N | G203G | G203P |
| Old 400 | G204 | G204N | G204G | G204P |



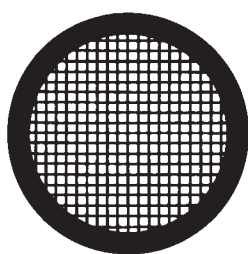
50 mesh
Athene M50



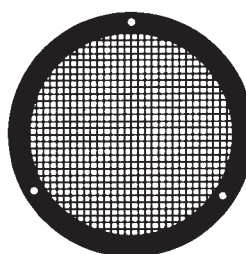
75 mesh
Athene M75



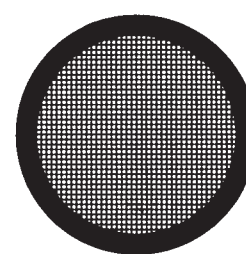
150 mesh
Athene Old 150



200 mesh
Athene Old 200



300 mesh
Athene Old 300

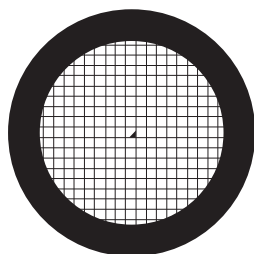


400 mesh
Athene Old 400

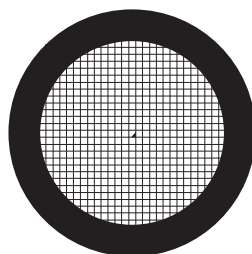
Thin bar grids

Thin bar grids offering high transmission. Bar width 10 µm.

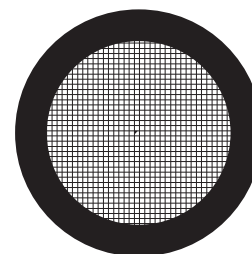
| Type | Copper | 3.05 mm diameter | | |
|------------|--------|------------------|--------|------------|
| | | Nickel | Gilded | Platinised |
| Athene 200 | G2002 | G2002N | G2002G | G2002P |
| Athene 300 | G2003 | G2003N | G2003G | G2003P |
| Athene 400 | G2004 | G2004N | G2004G | G2004P |



200 mesh
Athene 200



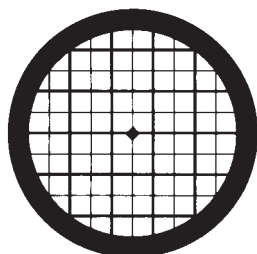
300 mesh
Athene 300



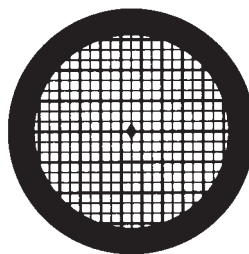
400 mesh
Athene 400

Thick bar/thin bar grids

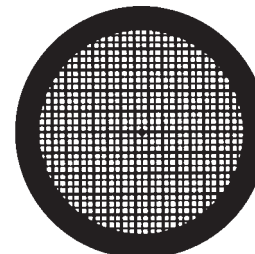
| Type | Copper | 3.05 mm diameter Nickel | Gilded | Platinised |
|---------|--------|----------------------------|--------|------------|
| New 100 | G205 | G205N | G205G | G205P |
| New 200 | G206 | G206N | G206G | G206P |
| New 300 | G207 | G207N | G207G | G207P |



100 mesh
Athene New 100



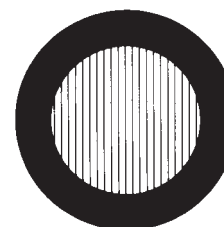
200 mesh
Athene New 200



300 mesh
Athene New 300

Multiple slot and hexagonal grids

| Type | Copper | 3.05 mm diameter Nickel | Gilded | Platinised |
|---------------|--------|----------------------------|--------|------------|
| Robertson | G218 | G218N | G218G | G218P |
| Sjostrand | G221 | G221N | G221G | G221P |
| Polyslot | G227 | G227N | G227G | G227P |
| Hexagonal 100 | G214 | G214N | G214G | G214P |
| Hexagonal 150 | G2145 | G2145N | G2145G | G2145P |



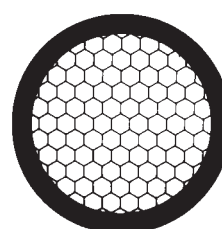
Robertson
90 µm wide slots
Athene Robertson



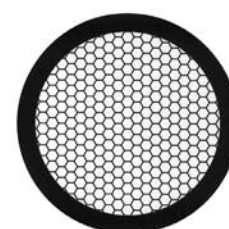
Sjostrand
55 µm and 125 µm wide slots
Athene Sjostrand



Four slots of differing
widths
(250/720/480/340 µm)
Athene Polyslot



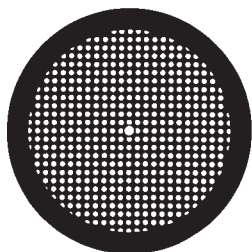
100 mesh
225 µm across opening
Athene Hexagonal



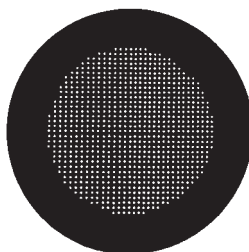
150 mesh
190 µm across opening
Athene Hexagonal

Round hole grids

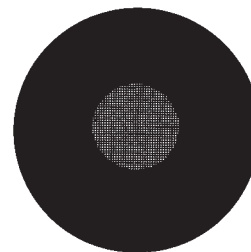
| Type | Copper | 3.05 mm diameter | | |
|------|--------|------------------|--------|------------|
| | | Nickel | Gilded | Platinised |
| 483 | G219 | G219N | G219G | G219P |
| AEI | G215 | G215N | G215G | G215P |
| R20M | G226 | G226N | G226G | G226P |



240 mesh
Athene 483



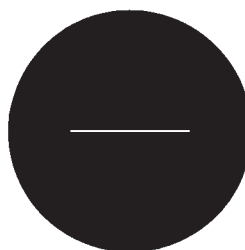
430 mesh
Athene AEI



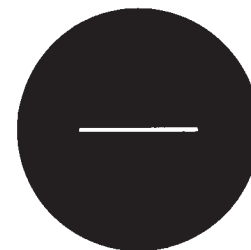
850 mesh
Athene R20M

Slot grids

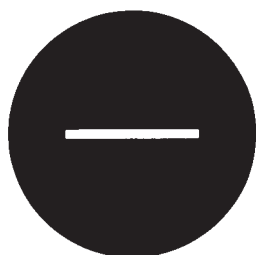
| Type | Copper | 3.05 mm diameter | | |
|-----------------------|--------|------------------|--------|------------|
| | | Nickel | Gilded | Platinised |
| Slot 12.5 µm | G220-1 | G220N1 | G220G1 | G220P1 |
| Slot 25 µm | G220-3 | G220N3 | G220G3 | G220P3 |
| Slot 60 µm | G220-4 | G220N4 | G220G4 | G220P4 |
| Slot 125 µm | G220-5 | G220N5 | G220G5 | G220P5 |
| Slot 500 µm | G220-6 | G220N6 | G220G6 | G220P6 |
| Slot 1000 µm | G220-7 | G220N7 | G220G7 | G220P7 |
| Slot 1000 µm with bar | G220-8 | G220N8 | G220G8 | G220P8 |



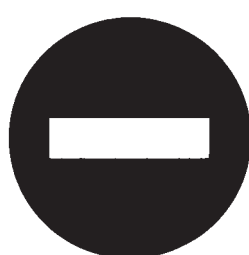
Slot 25 µm wide
2 mm long



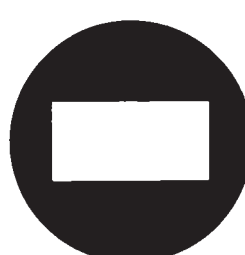
Slot 60 µm wide
2 mm long



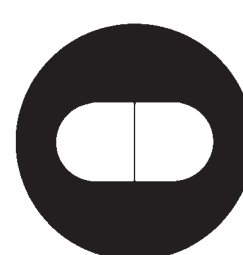
Slot 125 µm wide
2 mm long



Slot 500 µm wide
2 mm long



Slot 1000 µm wide
2 mm long



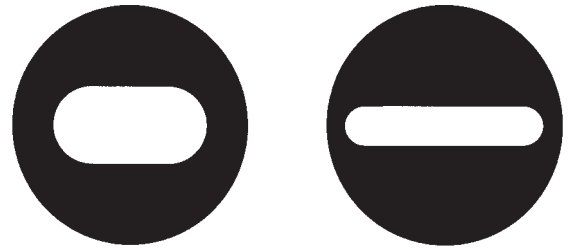
Slot 1000 µm wide
2 mm long with 20 µm bar

Thick slot grids

Double thickness slot grids 25 - 30 μm ensure that specimens bridging the slot, which naturally sag a little, are not destroyed by touching the surface on which the grid rests.

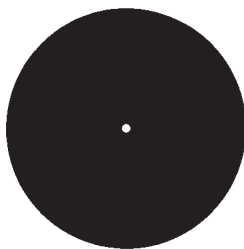
Slots are 2 mm long.

| Type | Copper | 3.05 mm diameter | | |
|-------------------------------|---------------|------------------|----------------|----------------|
| | | Nickel | Gilded | Platinised |
| Thick slot 500 μm | G220T6 | G220TN6 | G220TG6 | G220TP6 |
| Thick slot 1000 μm | G220T7 | G220TN7 | G220TG7 | G220TP7 |

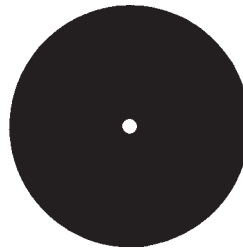


Hole grids

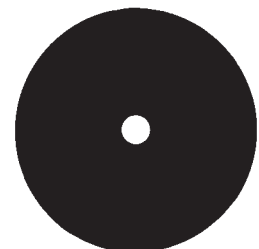
| Type | Copper | 3.05 mm diameter | | |
|-------------------------|---------------|------------------|---------------|---------------|
| | | Nickel | Gilded | Platinised |
| Hole 100 μm | G225-1 | G225N1 | G225G1 | G225P1 |
| Hole 200 μm | G225-2 | G225N2 | G225G2 | G225P2 |
| Hole 375 μm | G225-3 | G225N3 | G225G3 | G225P3 |
| Hole 600 μm | G225-4 | G225N4 | G225G4 | G225P4 |
| Hole 800 μm | G225-5 | G225N5 | G225G5 | G225P5 |
| Hole 1000 μm | G225-6 | G225N6 | G225G6 | G225P6 |
| Hole 2000 μm | G225-7 | G225N7 | G225G7 | G225P7 |



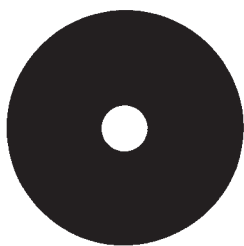
Hole 100 μm



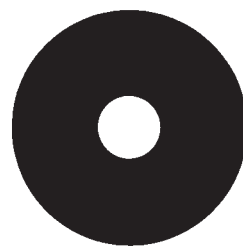
Hole 200 μm



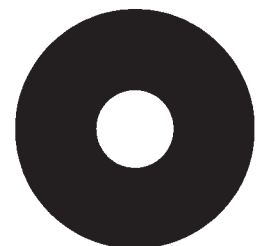
Hole 375 μm



Hole 600 μm



Hole 800 μm

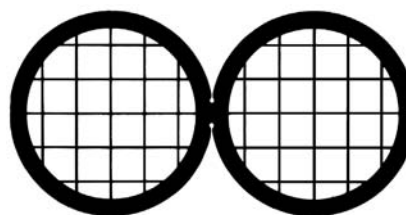


Hole 1000 μm

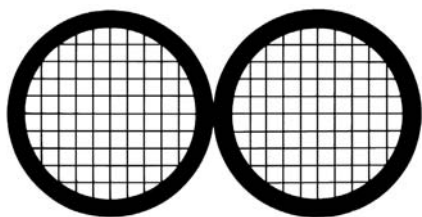
Folding grids

These folding grids are particularly useful for containing thinned foils of materials which are too thick to adhere to a normal support film. The foils are sandwiched between the two halves of the grid. These grids are also useful for cryo sections.

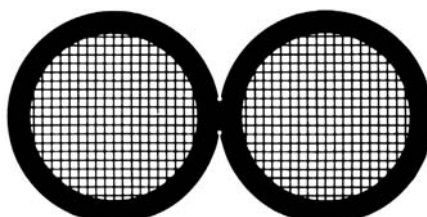
| Type | Copper | 3.05 mm diameter | | |
|-------|--------------|------------------|---------------|---------------|
| | | Nickel | Gilded | Platinised |
| D50 | G211 | G211N | G211G | G211P |
| D100 | G212 | G212N | G212G | G212P |
| D200 | G213 | G213N | G213G | G213P |
| D1000 | G2130 | G2130N | G2130G | G2130P |



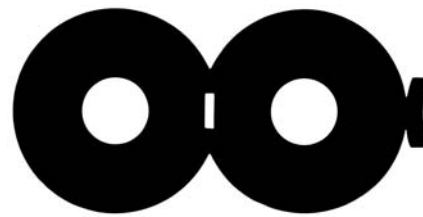
50/50 mesh
Athene D50



100/100 mesh
Athene D100

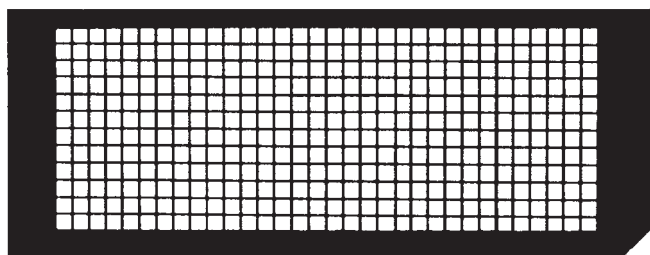


200/200 mesh
Athene D200



1000 µm hole
Athene D1000 with
special latch closure

Serial section grids



Serial section grids offer a long, uninterrupted field of view. 10 mm long x 4 mm wide, 100 mesh. Packed in tubes of 50.

- B7753** Serial section grid, copper
- B7753N** Serial section grid, nickel

Identigrids

These unique grids are manufactured only by Smethurst High-Light to provide positive identification of a specimen throughout its handling. Each identigrid contains two distinguishing letters, one in the centre of the grid (for checking in the electron microscope), and a larger letter on the rim (for visual inspection during preparation).

The positive identification offered by these grids is particularly important for examination of diagnostic specimens, and is also useful in multi-user microscope facilities where individuals can use distinctive letters.

All identigrids are 3.05 mm diameter, 400 mesh with high transmission.

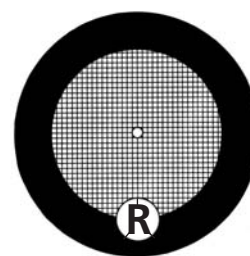
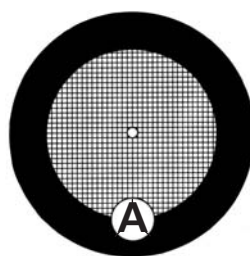
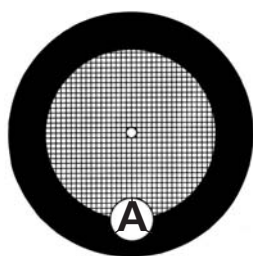
Packed in tubes of 50.

G2840 Set of 12 tubes of identigrids (A-M), copper

G2841 Set of 12 tubes of identigrids (N-Z), copper

Individual letters may also be purchased separately.

| | | | |
|---|--------------|---|--------------|
| A | G2851 | N | G2864 |
| B | G2852 | P | G2865 |
| C | G2853 | Q | G2866 |
| D | G2854 | R | G2867 |
| E | G2855 | S | G2868 |
| F | G2856 | T | G2869 |
| G | G2857 | U | G2870 |
| H | G2858 | V | G2871 |
| J | G2860 | W | G2872 |
| K | G2861 | X | G2873 |
| L | G2862 | Y | G2874 |
| M | G2863 | Z | G2875 |



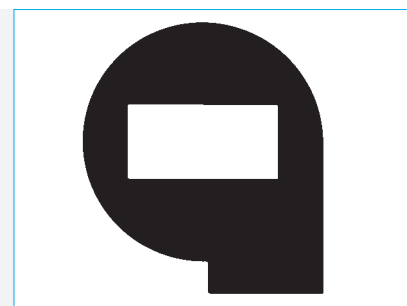
FEI - Philips CompuStage grids

Specially designed for the FEI/Philips CompuStage, each grid has a registration tab allowing it to be re-inserted into the TEM holder with the same orientation. This ensures reliable and accurate return to previously stored X-Y co-ordinates.

Packed in tubes of 100.

G2395C Grids 2 x 1 mm slot, copper

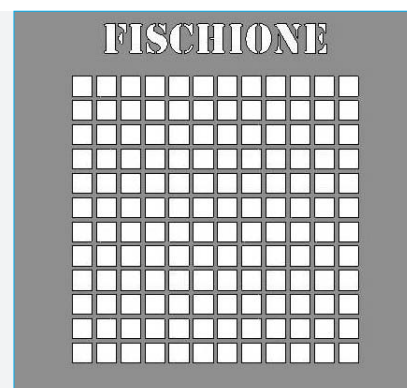
G2395N Grids 2 x 1 mm slot, nickel



Tomography grid

Specifically designed for use with Fischione tomography specimen holders, the small size (1.5 x 1.5 mm) of this 300 mesh grid allows increased tilt for tomography use in TEMs with small pole piece gaps. The square shape and identifying mark provide a simple reference when rotating the grid through 90°.

G2396 Tomography grids, 300 mesh, copper. Tube of 50



Agar grids

Standard grade grids are available in copper, nickel or gold, or in copper with one side flash coated with palladium for identification purposes.

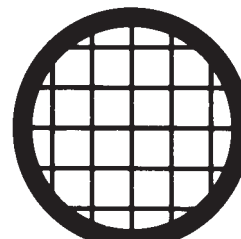
All grids are available in 3.05 mm diameter and some in 2.3 mm diameter.

All Agar grids are packed in tubes of 100, unless otherwise specified.

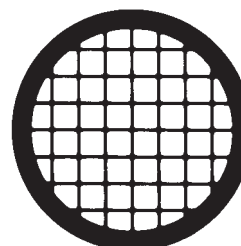
A comprehensive table of grid parameters is available on request.

Square mesh grids

| Type | Copper | 3.05 mm diameter | | |
|----------------------|--------|------------------|--------|--------|
| | | Cu/Pd | Nickel | Gold* |
| Square 50 mesh | G2050C | G2050PD | G2050N | G2050A |
| Square 75 mesh | G2075C | G2075PD | G2075N | G2075A |
| Square 100 mesh | G2100C | G2100PD | G2100N | G2100A |
| Square 150 mesh | G2150C | G2150PD | G2150N | G2150A |
| Square 175 mesh | G2175C | G2175PD | G2175N | G2175A |
| Square 200 mesh | G2200C | G2200PD | G2200N | G2200A |
| Centre mark 200 mesh | G2220C | G2220PD | G2220N | G2220A |
| Square 250 mesh | G2250C | G2250PD | G2250N | G2250A |
| Square 300 mesh | G2300C | G2300PD | G2300N | G2300A |
| Square 400 mesh | G2400C | G2400PD | G2400N | G2400A |
| Square T/T 600 mesh | G2650C | G2650PD | G2650N | G2650A |

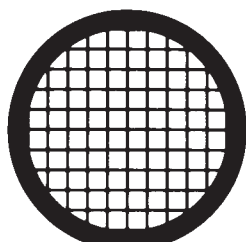


50 mesh

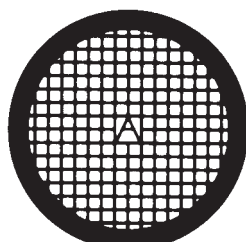


75 mesh

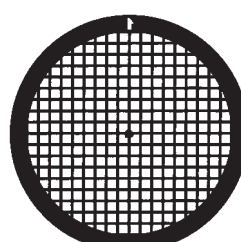
*Tube of 50



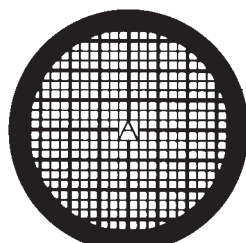
100 mesh



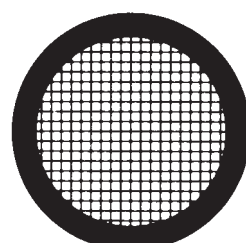
150 mesh



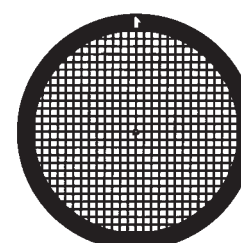
175 mesh



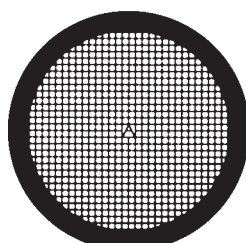
Centre mark 200 mesh



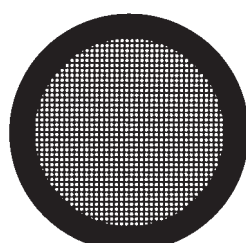
200 mesh



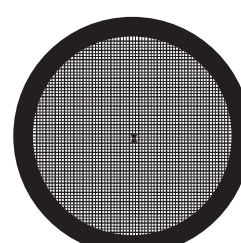
250 mesh



300 mesh



400 mesh

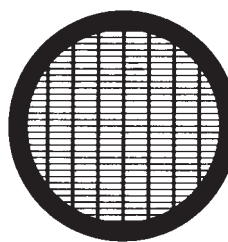


Thick/Thin 600 mesh

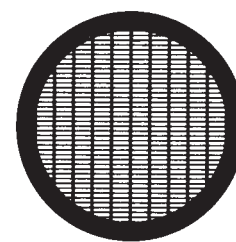
Rectangular mesh

| Type | Copper | 3.05 mm diameter | | Gold* |
|----------------|--------|------------------|--------|--------|
| | | Cu/Pd | Nickel | |
| 300 x 75 mesh | G2375C | G2375PD | G2375N | G2375A |
| 400 x 100 mesh | G2140C | G2140PD | G2140N | G2140A |

*Tube of 50



300 x 75 mesh



400 x 100 mesh

Parallel bar grids

Parallel bar grids have a wide variety of uses, and are particularly suited to obtaining sequential information from ribbons of sections. Each grid has a mark in the rim to allow precise orientation in the electron microscope.

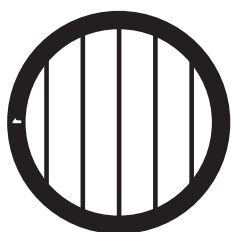
These grids are also available with a single bar through the centre of the grid, with an asymmetrical centre mark to identify the four quadrants of the grid.

| Type | Copper | Parallel bars | | Gold* |
|-----------|--------|---------------|--------|--------|
| | | Cu/Pd | Nickel | |
| 50 lines | G2010C | G2010PD | G2010N | G2010A |
| 75 lines | G2011C | G2011PD | G2011N | G2011A |
| 100 lines | G2012C | G2012PD | G2012N | G2012A |
| 150 lines | G2013C | G2013PD | G2013N | G2013A |
| 200 lines | G2014C | G2014PD | G2014N | G2014A |
| 300 lines | G2015C | G2015PD | G2015N | G2015A |
| 400 lines | G2016C | G2016PD | G2016N | G2016A |

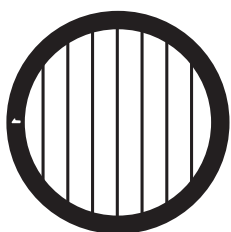
*Tube of 50

| Type | Copper | Parallel bars with single bar | | Gold* |
|-----------|--------|-------------------------------|--------|--------|
| | | Cu/Pd | Nickel | |
| 50 lines | G2017C | G2017PD | G2017N | G2017A |
| 75 lines | G2018C | G2018PD | G2018N | G2018A |
| 100 lines | G2019C | G2019PD | G2019N | G2019A |
| 150 lines | G2020C | G2020PD | G2020N | G2020A |
| 200 lines | G2021C | G2021PD | G2021N | G2021A |
| 300 lines | G2022C | G2022PD | G2022N | G2022A |
| 400 lines | G2023C | G2023PD | G2023N | G2023A |

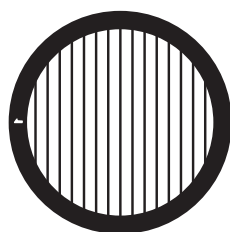
*Tube of 50



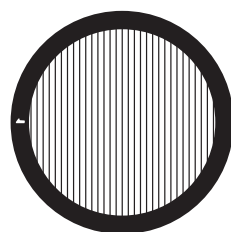
50



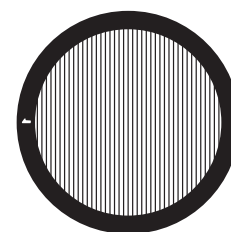
75



150



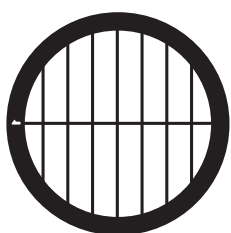
300



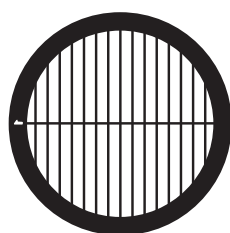
400



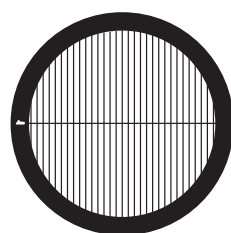
50



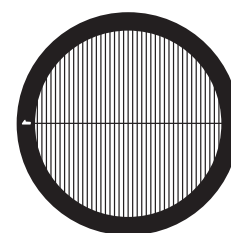
75



150



300



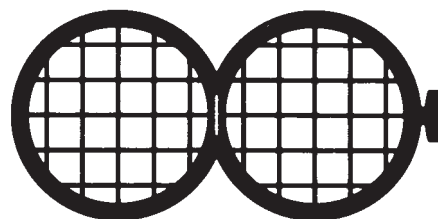
400

Folding grids

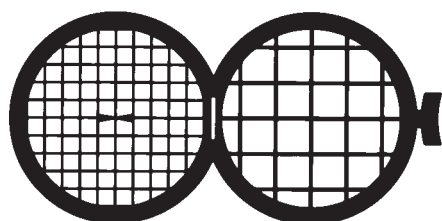
These folding grids with a latch are particularly useful for containing thinned foils which are too thick to adhere to a normal support film. The latch closure allows the foil to be securely sandwiched between the two halves of the grid.

| Type | 3.05 mm diameter | | | |
|----------------|------------------|---------------|--------------|--------------|
| | Copper | Cu/Pd | Nickel | Gold* |
| 50 x 50 mesh | G230 | G230PD | G230N | G230A |
| 100 x 50 mesh | G236 | G236PD | G236N | G236A |
| 100 x 100 mesh | G231 | G231PD | G231N | G231A |
| 100 x 200 mesh | G234 | G234PD | G234N | G234A |

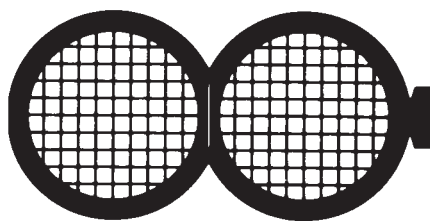
*Tube of 50



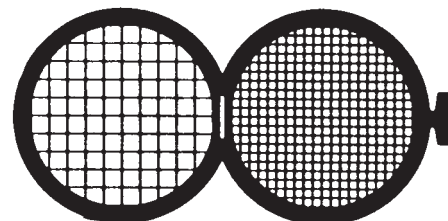
50 mesh/50 mesh



100 mesh/50 mesh



100 mesh/100 mesh



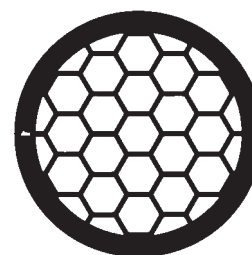
100 mesh/200 mesh

Hexagonal mesh grids

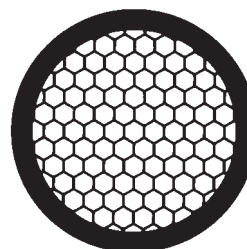
Hexagonal mesh grids offer an alternative to the standard square mesh pattern, providing maximum support for any given mesh repeat distance. Each grid has a mark on the rim to allow precise orientation of the grid in the electron microscope.

| Type | 3.05 mm diameter | | | |
|--------------------|------------------|----------------|---------------|---------------|
| | Copper | Cu/Pd | Nickel | Gold* |
| Hexagonal 50 mesh | G2405C | G2405PD | G2405N | G2405A |
| Hexagonal 75 mesh | G2475C | G2475PD | G2475N | G2475A |
| Hexagonal 100 mesh | G2410C | G2410PD | G2410N | G2410A |
| Hexagonal 150 mesh | G2415C | G2415PD | G2415N | G2415A |
| Hexagonal 200 mesh | G2450C | G2450PD | G2450N | G2450A |
| Hexagonal 300 mesh | G2430C | G2430PD | G2430N | G2430A |
| Hexagonal 400 mesh | G2440C | G2440PD | G2440N | G2440A |

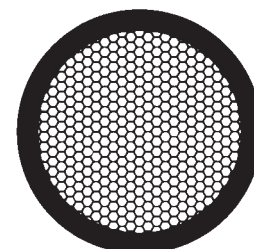
*Tube of 50



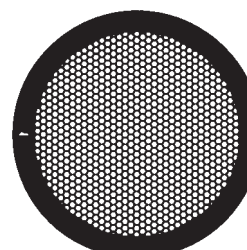
50 mesh



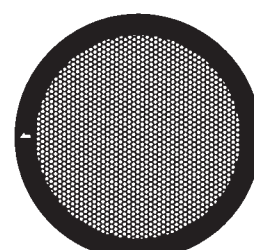
100 mesh



200 mesh



300 mesh



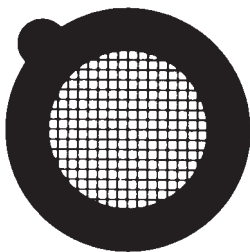
400 mesh

Thin bar grids

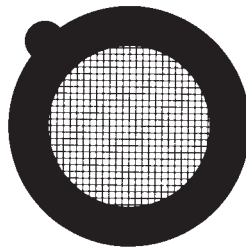
These thin bar grids are designed to give the highest transmission to maximise the viewable area of the specimen. Some of the grid bars are only 7 μm wide.

| Type | Copper | 3.05 mm diameter Nickel | Gold* |
|-----------------------------|--------|----------------------------|--------|
| 200 mesh thin bar | G2700C | G2700N | G2700A |
| 300 mesh thin bar | G2720C | G2720N | G2720A |
| 400 mesh thin bar | G2730C | G2730N | G2730A |
| Hexagonal 200 mesh thin bar | G2710C | G2710N | G2710A |
| Hexagonal 300 mesh thin bar | G2740C | G2740N | G2740A |
| Hexagonal 400 mesh thin bar | G2750C | G2750N | G2750A |
| Hexagonal 700 mesh thin bar | G2760C | G2760N | G2760A |
| Mixed mesh thin bar | G2770C | G2770N | G2770A |

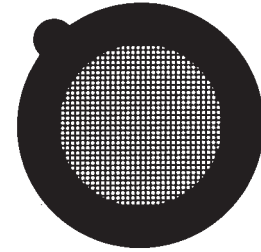
*Tube of 50



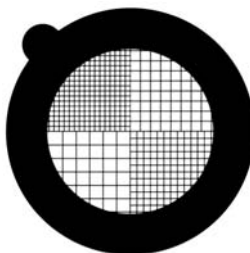
200 mesh
Thin bar



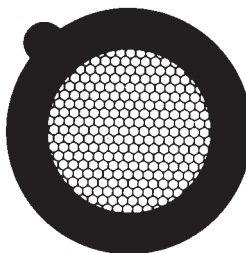
300 mesh
Thin bar



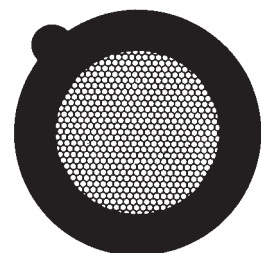
400 mesh
Thin bar



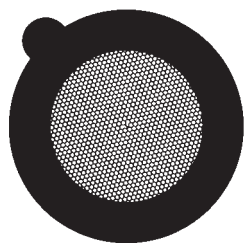
Mixed mesh
Thin bar



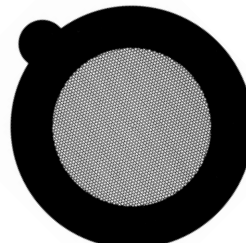
Hexagonal
200 mesh



Hexagonal
300 mesh



Hexagonal
400 mesh



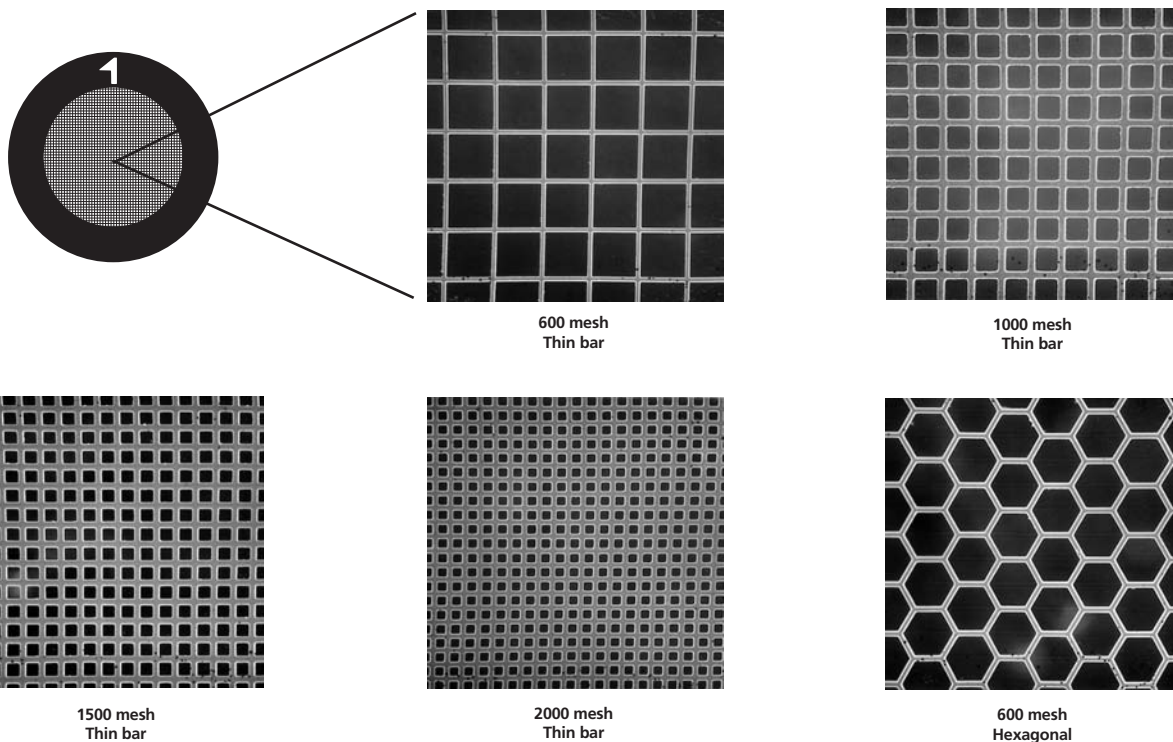
Hexagonal
700 mesh

Very fine mesh grids

Advanced manufacturing techniques allow the production of very fine mesh grids (1000, 1500 and 2000) with high transmission characteristics. The pitch dimension remains constant, allowing the grids to be used as low magnification calibration aids. In addition, the 600 square mesh and hexagonal grids have a reduced bar width, as low as 5 µm, enabling more of the specimen to be viewed.

| Type | 3.05 mm diameter | | |
|-----------------------------|------------------|---------------|----------------|
| | Copper | Nickel | Gold |
| 600 mesh thin bar | G2655C | G2655N | G2655A* |
| Hexagonal 600 mesh thin bar | G2670C | G2670N | G2670A* |
| 1000 mesh thin bar** | G2780C | G2780N | G2780A |
| 1500 mesh thin bar*** | G2785C | G2785N | G2785A |
| 2000 mesh thin bar**** | G2786C | G2786N | - |

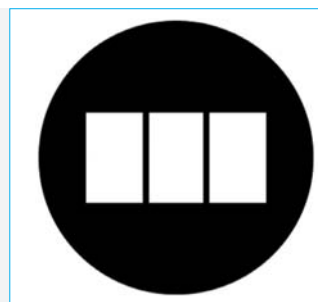
- * Tube of 50
- ** Tube of 25
- *** Tube of 15
- **** Tube of 10



Triple slot grid

This slot grid provides increased support by way of two strengthening bars enabling thinner support films to be used. A 2 x 1 mm slot divided into three.

- G2564C** Triple slot grid, copper
- G2564N** Triple slot grid, nickel
- G2564A*** Triple slot grid, gold
- G2564PD** Triple slot grid, Cu/Pd



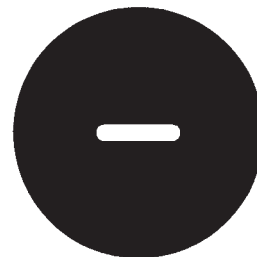
*Tube of 50

Slot grids

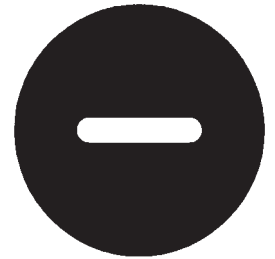
Slot grids are suitable for specimen support when viewing entire large cells (eg. unicellular organisms, protozoa) or for serial sections where grid bars may interfere with sequential information. Plastic films, such as Formvar®, Pioloform® and Butvar®, can be used to support sections over the large open area of the slot.

| Type | Copper | 3.05 mm diameter | | Gold* |
|-------------------|--------|------------------|--------|--------|
| | | Cu/Pd | Nickel | |
| Slot 1 x 0.2 mm | G2560C | G2560PD | G2560N | G2560A |
| Slot 1.5 x 0.3 mm | G2553C | G2553PD | G2553N | G2553A |
| Slot 2 x 0.5 mm | G2550C | G2550PD | G2550N | G2550A |
| Slot 2 x 0.75 mm | G2525C | G2525PD | G2525N | G2525A |
| Slot 2 x 1 mm | G2500C | G2500PD | G2500N | G2500A |
| Slot 2 x 1.5 mm | G2495C | G2495PD | G2495N | G2495A |

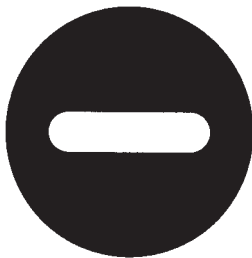
*Tube of 50



1 x 0.2 mm



1.5 x 0.3 mm



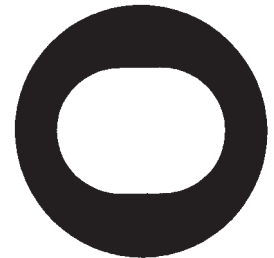
2 x 0.5 mm



2 x 0.75 mm



2 x 1 mm

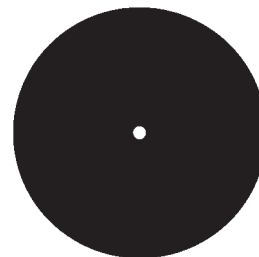


2 x 1.5 mm

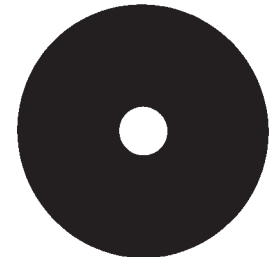
Hole grids

| Type | Copper | 3.05 mm diameter | | Gold* |
|--------------|--------|------------------|--------|--------|
| | | Cu/Pd | Nickel | |
| Hole 50 µm | G2672C | G2672PD | G2672N | G2672A |
| Hole 75 µm | G2675C | G2675PD | G2675N | G2675A |
| Hole 100 µm | G2610C | G2610PD | G2610N | G2610A |
| Hole 150 µm | G2615C | G2615PD | G2615N | G2615A |
| Hole 200 µm | G2618C | G2618PD | G2618N | G2618A |
| Hole 300 µm | G2630C | G2630PD | G2630N | G2630A |
| Hole 400 µm | G2640C | G2640PD | G2640N | G2640A |
| Hole 500 µm | G2645C | G2645PD | G2645N | G2645A |
| Hole 600 µm | G2660C | G2660PD | G2660N | G2660A |
| Hole 800 µm | G2680C | G2680PD | G2680N | G2680A |
| Hole 1000 µm | G2600C | G2600PD | G2600N | G2600A |
| Hole 1500 µm | G2605C | G2605PD | G2605N | G2605A |
| Hole 2000 µm | G2620C | G2620PD | G2620N | G2620A |

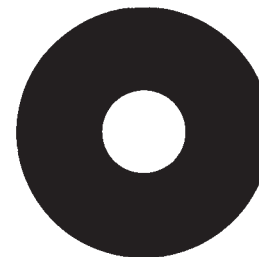
*Tube of 50



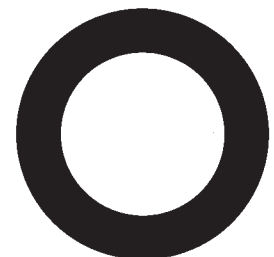
Hole 150 µm



Hole 600 µm



Hole 1000 µm



Hole 2000 µm

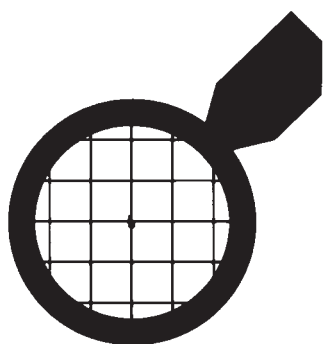
Tabbed grids

Tabbed grids offer easier handling and help to avoid contamination, allowing grids to be held securely for spraying, rinsing and drying. The tab can also be bent upwards to ensure the grid can be easily manoeuvred without the tweezers coming into contact with the specimen or any liquids present. Grids can be placed over or underneath the specimen, without surface tension causing the grid to slide up wetted tweezers.

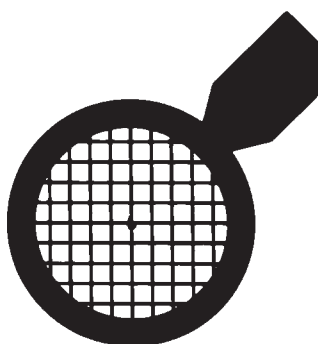
Packed in tubes of 100 unless otherwise specified.

| Type | Copper | 3.05 mm diameter Nickel | Gold* |
|-----------------------|---------------|----------------------------|---------------|
| Square 50 mesh | G2905C | G2905N | - |
| Square 100 mesh | G2910C | G2910N | - |
| Square 200 mesh | G2920C | G2920N | G2920A |
| Square 300 mesh | G2930C | G2930N | G2930A |
| Square 400 mesh | G2940C | G2940N | G2940A |
| Square 500 mesh | G2950C | G2950N | - |
| Slotted mesh 300 x 75 | G2970C | G2970N | - |
| Slot 2 x 1 mm | G2980C | G2980N | G2980A |

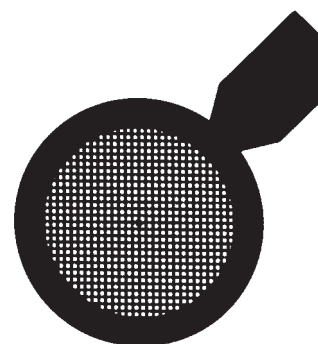
*Tube of 25



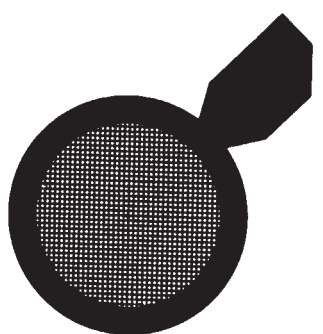
50 mesh



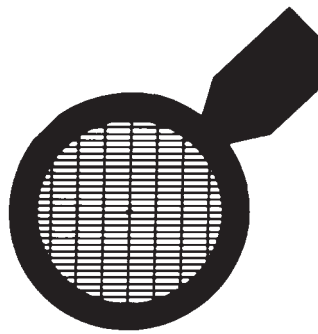
100 mesh



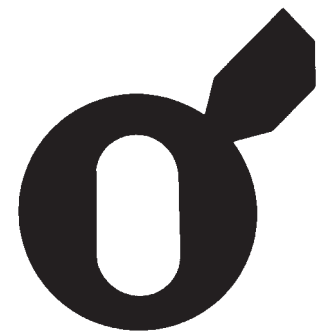
300 mesh



400 mesh



Slotted mesh 300 x 75



Slot 2 x 1 mm

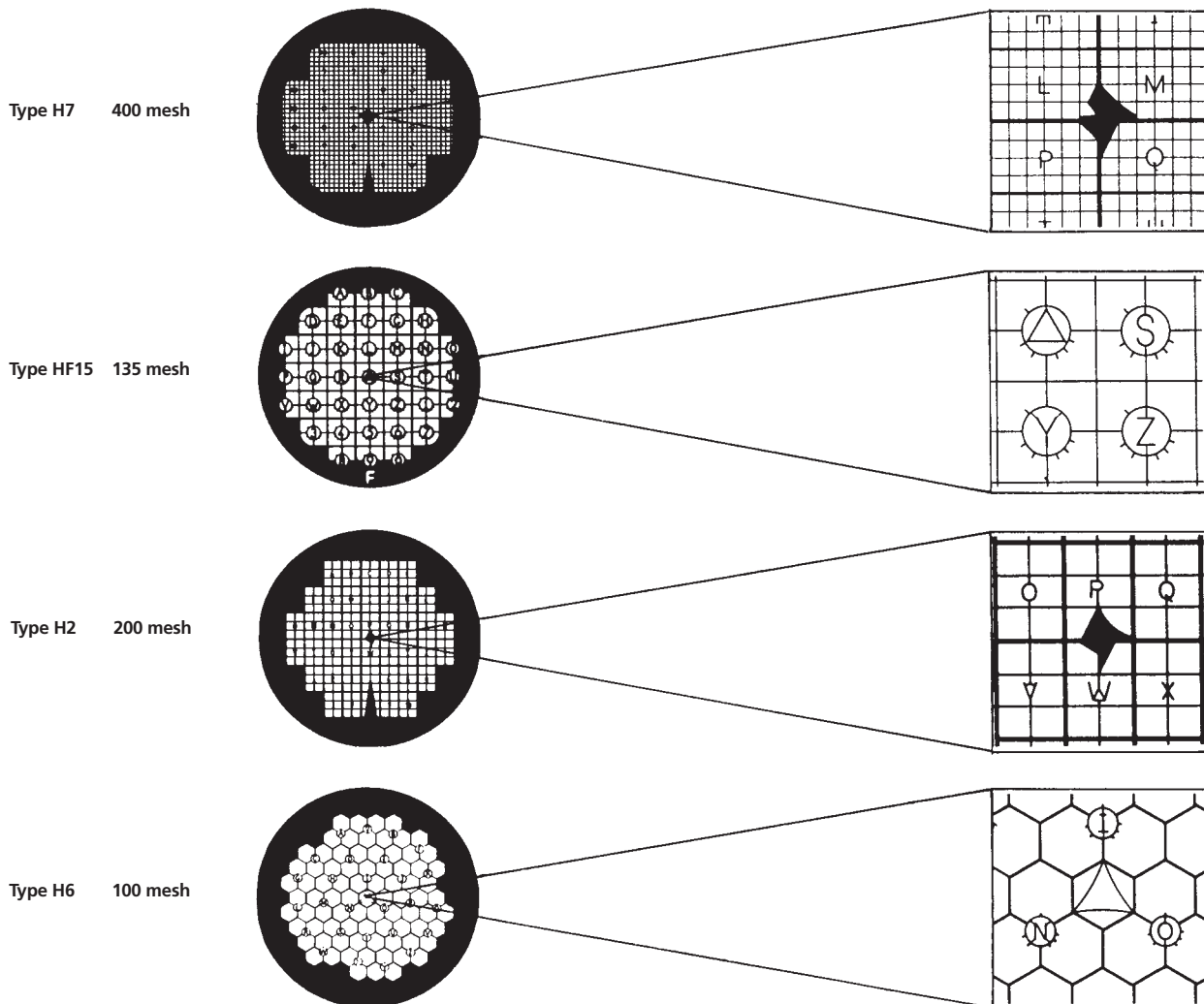
Finder grids

Finder grids offer a simple mechanism for identifying the exact position of points of interest within a specimen, speeding up otherwise time consuming relocation of features at high magnification.

Diameter 3.05 mm. Packed in tubes of 100 unless otherwise specified.

Maxtaform finder grids

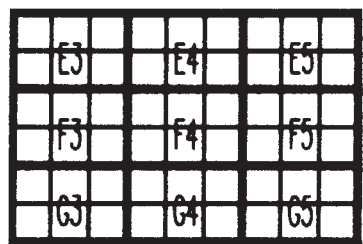
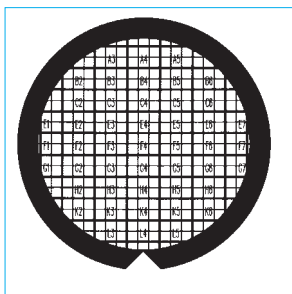
x30 magnification



| Type | 3.05 mm diameter only | | |
|------|-----------------------|--------|-------|
| | Copper | Nickel | Gold |
| H7 | G233 | G233N | G233A |
| HF15 | G245* | G245N | G245A |
| H2 | G246 | G246N | G246A |
| H6 | G247 | G247N | G247A |

*Copper/rhodium

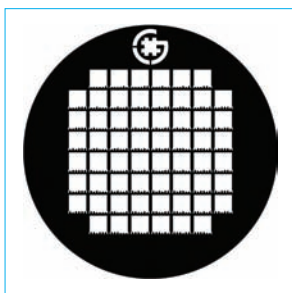
Coarse mesh finder grid



Coarse mesh finder grid useful for asbestos and immunogold techniques. 75 mesh.

G2775C Finder grid, 75 mesh, copper

Finder grids



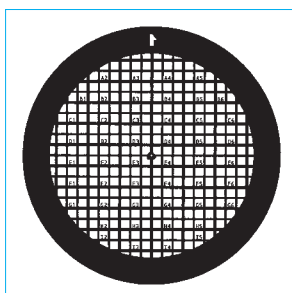
A 100 mesh finder grid for TEM applications. The grid has 60 squares identified by a binary numbering system along the horizontal axis. Zero is represented by a short pillar and one by a larger pillar. 3.05 mm diameter, 40 µm bar width, 210 µm hole width.

G2480C Finder grid, copper

G2480N Finder grid, nickel

G2480A* Finder grid, gold

*Tube of 50



A 200 mesh grid with alphanumeric identification for each set of six grid squares.

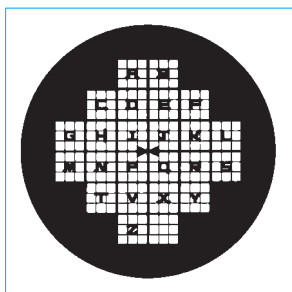
G2761C Finder grid, F1, copper

G2761N Finder grid, F1, nickel

G2761A* Finder grid, F1, gold

G2761PD Finder grid, F1, Cu/Pd

*Tube of 50



A 200 mesh grid with alphabetic identification for each set of nine grid squares.

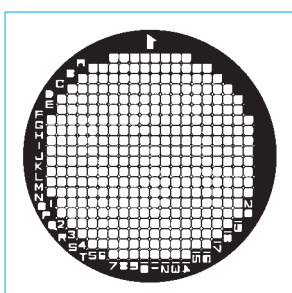
G2762C Finder grid, F2, copper

G2762N Finder grid, F2, nickel

G2762A* Finder grid, F2, gold

G2762PD Finder grid, F2, Cu/Pd

*Tube of 50



A 200 mesh grid where each of the 322 squares can be identified by its unique combination of binary number and letter symbols. At the light microscope level, areas of interest can be noted by reference to the letters and numbers on the grid rim.

G2763C* Finder grid, F3, copper

G2763N* Finder grid, F3, nickel

G2763A* Finder grid, F3, gold

* Tube of 25

Finder grids

A rectangular mesh grid with an effective 200/300 mesh, giving greater support than the other finder grids.

Each grid rectangle is asymmetrical, with a different outline in each corner allowing the orientation to be observed at light microscope level. Indexing enables the position to be identified with reference to letters A - O along the horizontal axis, and the numbers 1 - 15 along the vertical axis.

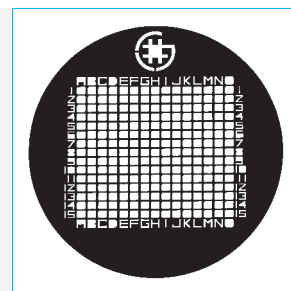
G2764C Finder grid, F4, copper

G2764N Finder grid, F4, nickel

G2764A* Finder grid, F4, gold

G2764PD Finder grid, F4, Cu/Pd

* Tube of 50



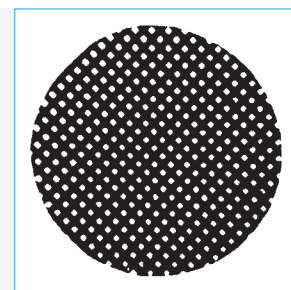
Light element support grids

A range of support grids made from low atomic number materials to reduce background counts in experiments involving X-ray analysis. 3.05 mm diameter.

Carbon coated nylon grids

Economical, low background grids containing a small amount of titanium. These grids are of woven construction, and therefore may exhibit mechanical instability if subjected to an intense electron beam.

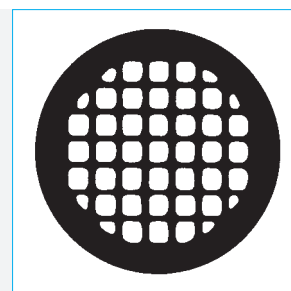
G240 Carbon coated nylon grids. Tube of 25



Carbon composite grids

Rigid carbonaceous 75 mesh grid with no titanium contamination offering excellent thermal stability. Individually packed.

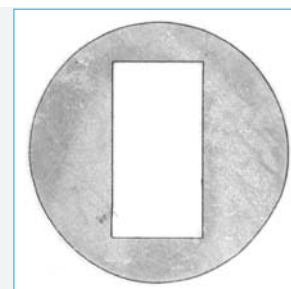
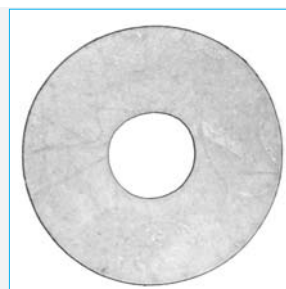
G240A Carbon composite grid



Diamond grids

Diamond grids are made of pure synthetic diamond, and are used with heat sensitive samples. These grids offer exceptional performance for ion milling, ensuring heat is rapidly carried away from the specimen due to their very high thermal conductivity (four times higher than copper) and resistance to the milling process.

Diamond grids are also highly suited to analytical TEM studies, due to their very low Bremsstrahlung background radiation levels. They offer comparable performance to beryllium grids without the associated safety and toxicity issues. 3 mm diameter, approximately 40 µm thick. Individually packed.



G2982 Diamond hole grid, 1000 µm

G2983 Diamond slot grid, 2 x 1 mm

Special metal grids

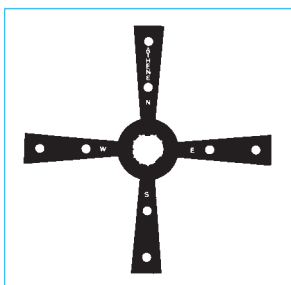
In addition to the standard copper, nickel and gold grids, we offer a wide range of grids of other metals. These include aluminium (Al), molybdenum (Mo), stainless steel (SS) and titanium (Ti) for specialist applications. Purity 99 %. 3.05 mm diameter. Available in tubes of 25. Minimum order required for some grids.

| | Grid properties | |
|-----------------|-----------------|----------------|
| | mp (°C) | Thickness (µm) |
| Aluminium | 575 | 25 |
| Stainless steel | 1275 | 10 |
| Titanium | 1575 | 15 |
| Molybdenum | 2400 | 25 |

| | Al | Mo | SS | Ti |
|----------------------|---------|---------|---------|---------|
| Square mesh: | | | | |
| 50 | G2460AL | G2460MO | G2460SS | G2460TI |
| 75 | G2461AL | G2461MO | G2461SS | G2461TI |
| 100 | G2462AL | G2462MO | G2462SS | G2462TI |
| 150 | G2463AL | G2463MO | G2463SS | G2463TI |
| 200 | G2464AL | G2464MO | G2464SS | G2464TI |
| 300 | G2465AL | G2465MO | G2465SS | G2465TI |
| 400 | G2474AL | G2474MO | G2474SS | - |
| Folding mesh: | | | | |
| 100/100 | - | G2466MO | G2466SS | G2466TI |
| 100/200 | - | G2467MO | G2467SS | G2467TI |
| 100/300 | - | - | G2468SS | G2468TI |
| Hole: | | | | |
| 400 µm | - | G2469MO | G2469SS | G2469TI |
| 1000 µm | G2470AL | G2470MO | G2470SS | G2470TI |
| 1500 µm | G2471AL | G2471MO | G2471SS | G2471TI |
| Slot: | | | | |
| 2 x 1.2 mm | G2472AL | G2472MO | G2472SS | G2472TI |
| 2 x 0.42 mm | G2473AL | G2473MO | G2473SS | G2473TI |

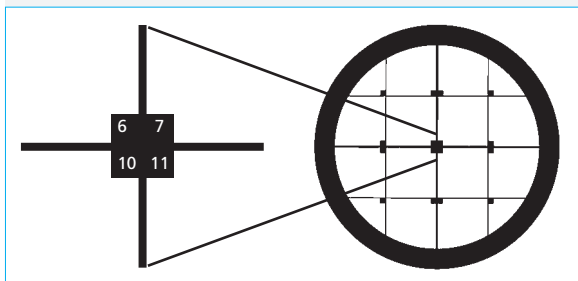
Finder grids for SEM specimens

A range of large format grids that can easily be mounted onto SEM stubs. Markings on the grid bars help to define individual squares and to relocate features of interest previously identified under an optical microscope. They are particularly useful for particle analysis, such as pollen, and environmental particle counting experiments.



Designed for use with large specimens, this grid can be used to isolate areas of interest. A central annulus surrounds the required area, with a small pointer for orientation purposes. The long arms are tapered to show the direction of movement and are identified by N, S, E and W. Two additional small markers of 500 µm and 300 µm are incorporated in the central ring.

G2985 SEM finder grid, nickel. Tube of 5



This is a simple 12 mm diameter grid with numbered squares. Particularly useful for the study of large particles or fibres, which can be placed directly in the individual squares.

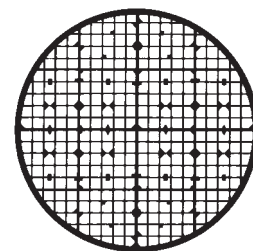
G2394C SEM finder grid 12 mm, copper. Tube of 20
G2394N SEM finder grid 12 mm, nickel. Tube of 20

Finder grids for SEM specimens

10 mm diameter grids with markings on the grid bars to help define areas in which analyses are carried out.

G2880C Particle analysis grid, copper. Tube of 25

G2880N Particle analysis grid, nickel. Tube of 25



Large finder grid with several features to allow rapid identification and easy location of particles. The annular rim identifies N, S, E and W, with the four quadrant markers tapered towards the centre to indicate the direction of movement. The 100 radial sectors are identified by numbers in the rim and letters on the four quadrant arms. 10 mm diameter.

G2481C SEM1 finder grid, copper. Tube of 10

G2481N SEM1 finder grid, nickel. Tube of 10

G2481A SEM1 finder grid, gold. Tube of 5

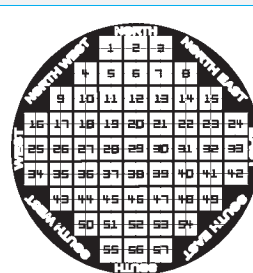


Finder grid designed to allow easy characterisation and analysis of particles and suspensions. The grid area is divided into 57 numbered squares, each of which is sub-divided into four quadrants to give 228 identifiable squares. In addition, the rim of the grid is marked N, NE, E, etc, to ensure correct orientation of the grid under the microscope. 10 mm diameter, approximately 50 µm thick.

G2482C SEM2 finder grid, copper. Tube of 10

G2482N SEM2 finder grid, nickel. Tube of 10

G2482A SEM2 finder grid, gold. Tube of 5

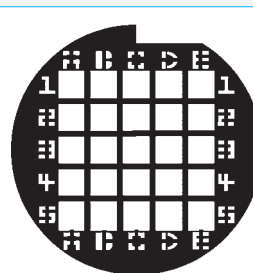


Asymmetric finder grid intended for identification of 25 pre-determined specimens. Each square is identified by reference to its alphanumeric position, and a large asymmetric cut-out in the rim of the grid enables rapid orientation when placing on an SEM stub. 10 mm diameter, approximately 50 µm thick.

G2483C SEM3 finder grid, copper. Tube of 10

G2483N SEM3 finder grid, nickel. Tube of 10

G2483A SEM3 finder grid, gold. Tube of 5

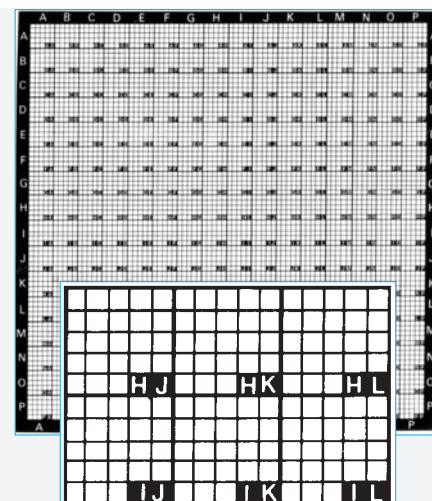


LM-SEM locator grid

Large 65 x 65 mm locator grid with small squares of 0.72 mm. Delineation of 5 x 5 small squares gives unique area labelling, useful for comparing LM and SEM images. Available individually.

G2998C LM-SEM grid, copper

G2998N LM-SEM grid, nickel



Special grid designs

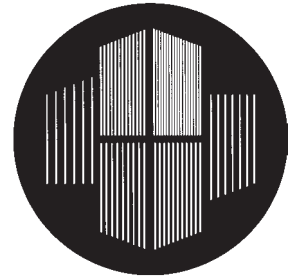
We are pleased to consider the manufacture of special design grids, apertures or evaporation masks. Grids can be manufactured from copper, providing good thermal and electrical conductivity, or nickel, which is more robust and resistant to corrosion. Reactivity can be further reduced by gilding or platinising. All grids are produced by electroforming, which has many benefits including clean and straight horizontal and vertical edges, tolerances of $<2 \mu\text{m}$, and burr free holes and edges.

A range of products can be formed by this process including:

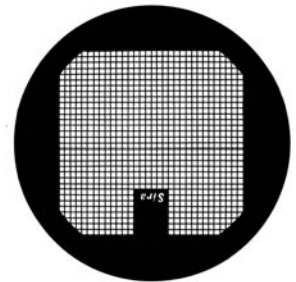
- meshes
- apertures and aperture strips
- optical resolution standards
- evaporation/vacuum deposition masks
- image analysis standards
- fine measurement standards

Aperture strips with holes of less than $10 \mu\text{m}$ are difficult to produce by conventional mechanical methods, however, strips with holes as small as $5 \mu\text{m}$ are possible using lithography techniques. Our aperture strips are usually made of copper, with optional gold or platinum coating. Experience has shown these apertures to be robust with a long lifespan. Some designs, suited to JEOL, Hitachi, Philips/FEI and ISI/ABT/Topcon microscopes, are available from stock. Other multi-hole strips can be manufactured to meet your specification. We can provide a full costing on receipt of a specification and drawing showing required tolerances. Please contact us for details.

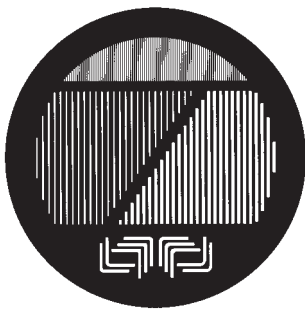
Some examples of special items we have made are illustrated (not to scale):



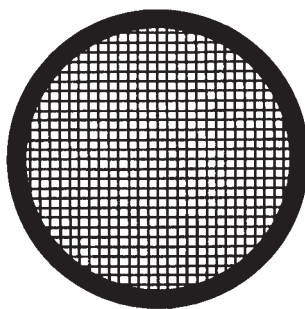
3.05 mm diameter
Array of slots $20 \mu\text{m}$
Bar range $10 - 80 \mu\text{m}$



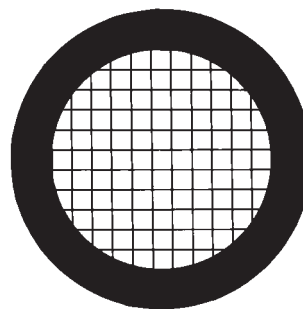
Square mesh 400 bars/inch
with marker



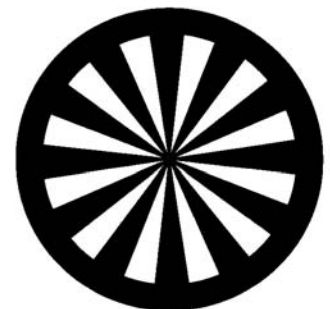
3.05 mm diameter
Complex array of slots
 $10 - 30 \mu\text{m}$



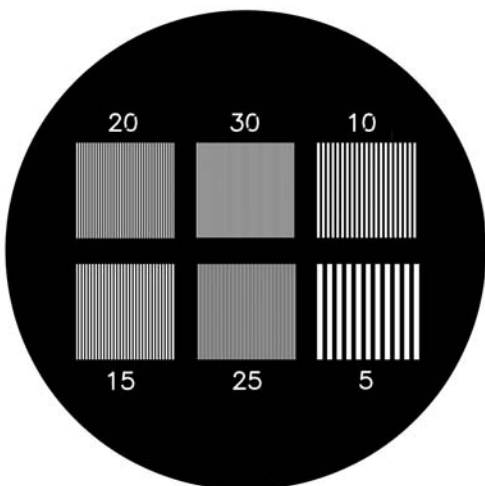
4 mm diameter
200 lines/inch



15 mm diameter
25 lines/inch



Siemens type star



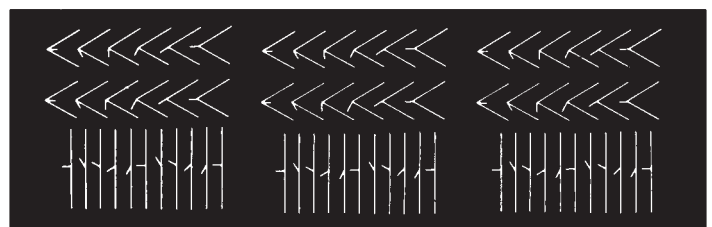
10 mm diameter
5 - 30 line pairs per mm



10 mm/10 mm
Slot width $170 \mu\text{m}$



Aperture strip



10 mm² with repeat
patterns

Grids for FIB

FIB lift-out grid

Half grid lift-out TEM sample holder, made of copper/beryllium, offering easy handling and good protection for TEM samples. Approximately 100 μm thick, 2 x 0.5 mm slot.

J460 FIB lift-out grid. Pack of 25



Omniprobe® lift-out grids

Omniprobe lift-out grids are specifically designed to accept TEM lamellae milled by FIB or SEM/FIB systems. The grids are 25 - 30 μm thick, with posts designed to ensure reliable attachment of lamellae while providing an unobscured view of each section. All grids are 3 mm diameter.



3 post lift-out grids

3 post copper lift-out grids designed for *in situ* lift-out. These grids include multiple indexed mounting locations, with both vertical bar and V-shaped attachment surfaces. Available in copper or molybdenum.

J420 3 post lift-out grids, copper. Box of 100
J421 3 post lift-out grids, molybdenum. Box of 25



4 post lift-out grids

4 post lift-out grids designed for *in situ* lift-out. These grids include multiple indexed mounting locations, two with vertical bar attachment surfaces and two with V-shaped alignment surfaces. The sides have a lower profile to allow easy access to outermost posts. Available in copper or molybdenum.

J423 4 post lift-out grids, copper. Box of 100
J424 4 post lift-out grids, molybdenum. Box of 25



5 post lift-out grids

5 post copper lift-out grids designed for *in situ* lift-out. These grids include multiple indexed mounting locations all with vertical bar attachment surfaces. Lower profile sides offer easy access to outermost posts.

J422 5 post lift-out grids, copper. Box of 100



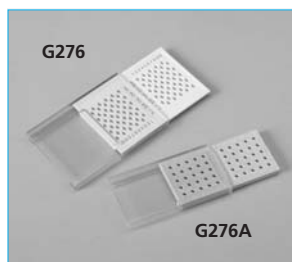
Beryllium half-ring lift-out grids

Simple beryllium half-ring grid offering low etching rates for applications such as tripod polishing, FIB and ion milling. Beryllium ensures X-ray peaks from the grid do not interfere with EDS analysis. 3 mm diameter.

J425 Half-ring grids, beryllium. Box of 25



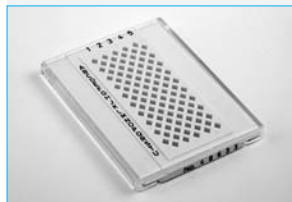
Grid storage boxes



Grid boxes for 50 or 100 grids in numbered holes, designed for 3.05 and 2.3 mm diameter grids. Boxes have a low susceptibility to charging, and grids are accessed via a slot in the sliding cover, ensuring most of the stored grids are protected from accidental disturbance while one row is being filled or removed.

G276A Grid storage box for 50 grids

G276 Grid storage box for 100 grids



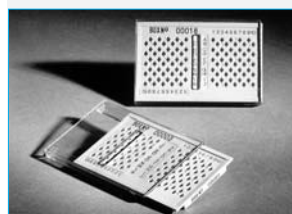
Grid storage box with 100 diamond-shaped holes suitable for both 3.05 mm grids (stored vertically) and 2.3 mm grids (stored diagonally). The box is made of ABS polymer (suitable for temperatures up to 70 °C), and the lid is made of acrylic polymer (for use up to 46 °C). Not suitable for use with organic solvents.

G276P Storage box for grids



Multipurpose EM grid box offering secure storage with integrated documentation. The tree-shaped grid storage cavity ensures that tweezers come into contact only with the edge of grids, virtually eliminating the chances of damage. The base of the box is made of white plastic to provide good contrast, and the lid is made from clear plastic. A windowed sliding cover beneath the lid helps to minimize the chance of grids being lost or damaged, by only exposing four grids at a time. In addition, a record card slots into the back of the box, assisting accurate and reliable record keeping.

G3726 Storage box for 96 grids



Grid storage box with identification number

Specimen grid box for 100 grids in numbered holes. Each box has a unique number printed on both the top and one end, ensuring easy identification during storage or use.

G276N Specimen grid box with unique number



BEEM® Dial-a-Grid box

This box holds 24 TEM grids which can be individually accessed through a hole in the rotating plastic cover disc.

G261 Grid storage box

Storage box for tabbed grids

Storage box with deep holes to accept tabbed grids. It has numbered holes and a clear plastic slide-on lid.

G3643 Specimen grid box for 50 tabbed grids

Grid storage boxes



Grid storage boxes intended for routine handling and long term storage of 50 standard size TEM grids, incorporating a range of features for improved ergonomics and handling. Each box is made of anti-static material, and is designed to be securely stacked with other boxes, the base of one box locating precisely over the face of another. The box's rotating cover design overcomes many of the disadvantages of traditional sliding covers, exposing a maximum of two or three diamond-shaped holes at any time. The smooth rotating action offers easy 360° movement while keeping in close contact with the base, and a 'park' position prevents the cover opening during storage. Individually numbered boxes are also available on request.

G3634 Specimen grid box for 50 grids

G3635 Specimen grid box for 50 grids with unique number

Lift-out grid storage box

Storage box for 100 standard 3 mm lift-out TEM grids. Complete with base, lid and clips. The grids are stored horizontally.

J430 Lift-out grid storage box



FIB grid storage box

Storage box for four FIB lift-out grids or half grids. Cavity depth is only 1.7 mm, thus preventing grids from rotating. The diamond-shaped cavities allow grids to be easily loaded or unloaded using fine tweezers.

G3719 FIB grid storage box



Cryo grid boxes

These cryo grid boxes are used for transferring, storing and manipulating vitrified cryo TEM specimens made with cryodevices like the FEI Vitrobot™, Gatan 626 or Gatan CT3500 cryotransfer systems, and other cryovitrification processes. There are two versions, each with four storage positions. The round box is the most widely used and is available with or without a non-static rotatable lid. The square cryo TEM grid box includes a non-static rotatable lid. All of the boxes have a 5/40 tap in the centre. On versions with lids, the lid is held in place with a stainless steel screw. As well as for cryo use they are ideal for storing or transporting small numbers of grids or specimens.

A handling rod is available for the cryo grid boxes.

- G3727** Cryo grid box with lid, round
- G3728** Cryo grid box base only, round
- G3735** Cryo grid box with pin type lid, round
- G3729** Cryo grid box with lid, square
- G3733** Cryo grid box handling rod



Grid holders

Grip-a-grid storage disc offering secure storage of grids in a Petri dish. Each disc is marked with numbered squares to allow easy identification of specimens, and prevents grids being easily knocked out of position. Grip-a-grid discs are easy to clean, and are available to fit 50 and 90 mm round and square Petri dishes.

- G3306** Grip-a-grid disc, 85 mm
- G3335** Grip-a-grid disc, 85 mm. Pack of 10
- G3307** Grip-a-grid disc, 45 mm. Pack of 10
- G3043** Grip-a-grid square, 70 x 70 mm
- G3044** Grip-a-grid square, 70 x 70 mm. Pack of 10

