

# 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

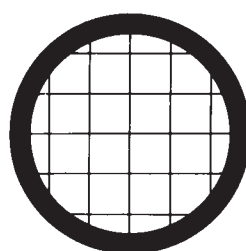
used to treat it. Gilded copper grids are more robust and easier to handle than pure gold grids.

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.

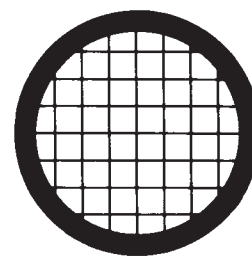
A comprehensive table of grid parameters is available on request. All Athene grids are packed in tubes of 100, unless otherwise specified.

## Standard patterns

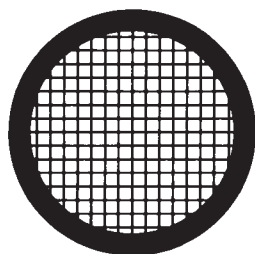
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
M50	<b>G209</b>	<b>G209N</b>	<b>G209G</b>	<b>G209P</b>
M75	<b>G210</b>	<b>G210N</b>	<b>G210G</b>	<b>G210P</b>
Old 150	<b>G201</b>	<b>G201N</b>	<b>G201G</b>	<b>G201P</b>
Old 200	<b>G202</b>	<b>G202N</b>	<b>G202G</b>	<b>G202P</b>
Old 300	<b>G203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



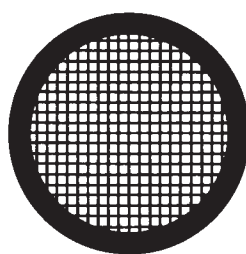
50 mesh  
Athene M50



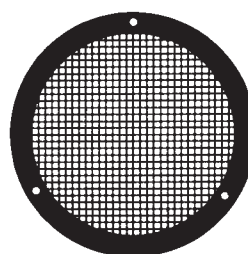
75 mesh  
Athene M75



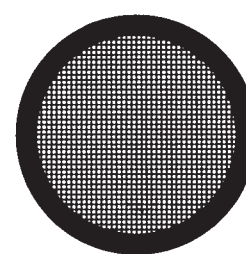
150 mesh  
Athene Old 150



200 mesh  
Athene Old 200



300 mesh  
Athene Old 300

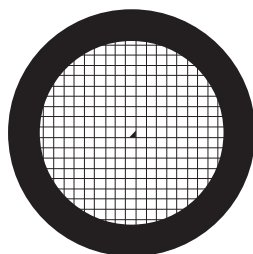


400 mesh  
Athene Old 400

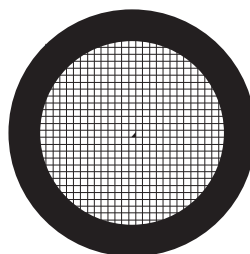
## Thin bar grids

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

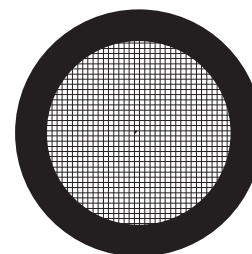
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
Athene 200	<b>G2002</b>	<b>G2002N</b>	<b>G2002G</b>	<b>G2002P</b>
Athene 300	<b>G2003</b>	<b>G2003N</b>	<b>G2003G</b>	<b>G2003P</b>
Athene 400	<b>G2004</b>	<b>G2004N</b>	<b>G2004G</b>	<b>G2004P</b>



200 mesh  
Athene 200



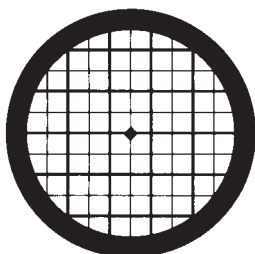
300 mesh  
Athene 300



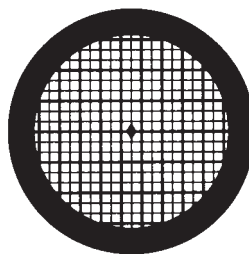
400 mesh  
Athene 400

## Thick bar/thin bar grids

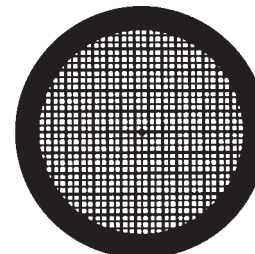
Type	Copper	3.05 mm diameter Nickel	Gilded	Platinised
New 100	G205	G205N	G205G	G205P
New 200	G206	G206N	G206G	G206P
New 300	G207	G207N	G207G	G207P



100 mesh  
Athene New 100



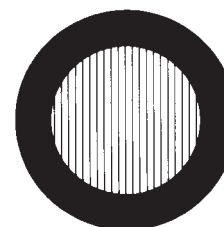
200 mesh  
Athene New 200



300 mesh  
Athene New 300

## Multiple slot and hexagonal grids

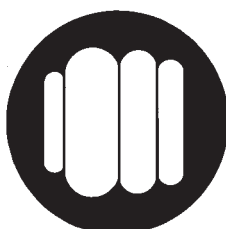
Type	Copper	3.05 mm diameter Nickel	Gilded	Platinised
Robertson	G218	G218N	G218G	G218P
Sjostrand	G221	G221N	G221G	G221P
Polyslot	G227	G227N	G227G	G227P
Hexagonal 100	G214	G214N	G214G	G214P
Hexagonal 150	G2145	G2145N	G2145G	G2145P



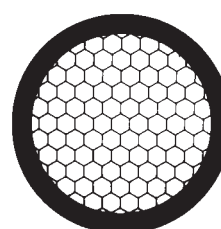
Robertson  
90 µm wide slots  
Athene Robertson



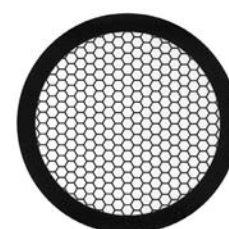
Sjostrand  
55 µm and 125 µm wide slots  
Athene Sjostrand



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



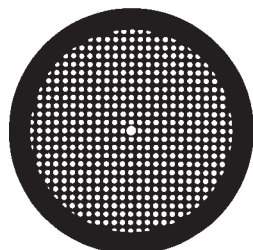
100 mesh  
225 µm across opening  
Athene Hexagonal



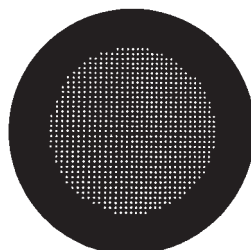
150 mesh  
190 µm across opening  
Athene Hexagonal

Round hole grids

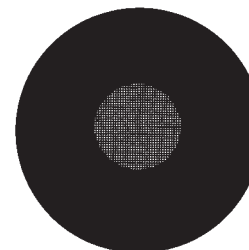
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
483	G219	G219N	G219G	G219P
AEI	G215	G215N	G215G	G215P
R20M	G226	G226N	G226G	G226P



240 mesh  
Athene 483



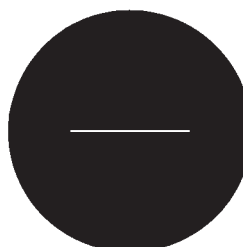
430 mesh  
Athene AEI



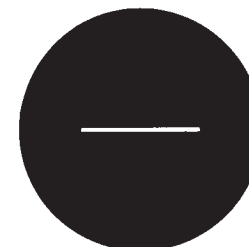
850 mesh  
Athene R20M

Slot grids

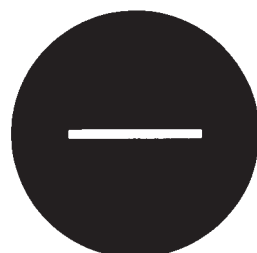
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
Slot 12.5 µm	G220-1	G220N1	G220G1	G220P1
Slot 25 µm	G220-3	G220N3	G220G3	G220P3
Slot 60 µm	G220-4	G220N4	G220G4	G220P4
Slot 125 µm	G220-5	G220N5	G220G5	G220P5
Slot 500 µm	G220-6	G220N6	G220G6	G220P6
Slot 1000 µm	G220-7	G220N7	G220G7	G220P7
Slot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



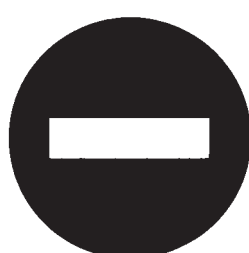
Slot 25 µm wide  
2 mm long



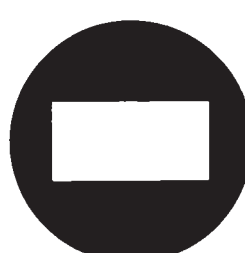
Slot 60 µm wide  
2 mm long



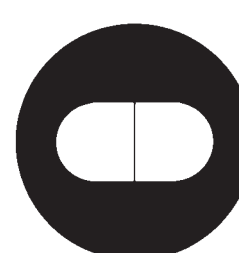
Slot 125 µm wide  
2 mm long



Slot 500 µm wide  
2 mm long



Slot 1000 µm wide  
2 mm long



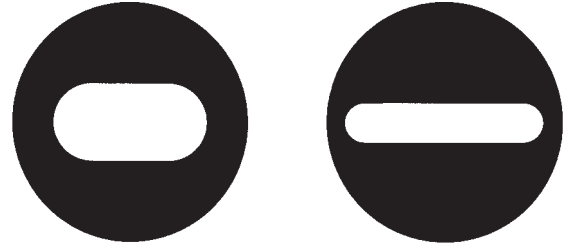
Slot 1000 µm wide  
2 mm long with 20 µm bar

## Thick slot grids

Double thickness slot grids 25 - 30  $\mu\text{m}$  ensure that specimens bridging the slot, which naturally sag a little, are not destroyed by touching the surface on which the grid rests.

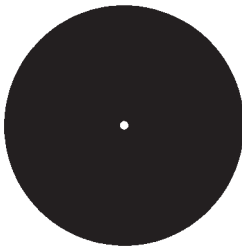
Slots are 2 mm long.

Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
Thick slot 500 $\mu\text{m}$	<b>G220T6</b>	<b>G220TN6</b>	<b>G220TG6</b>	<b>G220TP6</b>
Thick slot 1000 $\mu\text{m}$	<b>G220T7</b>	<b>G220TN7</b>	<b>G220TG7</b>	<b>G220TP7</b>

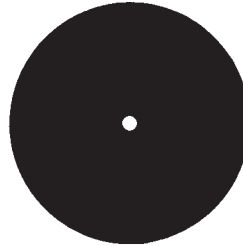


## Hole grids

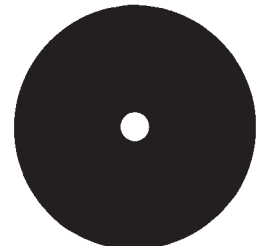
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
Hole 100 $\mu\text{m}$	<b>G225-1</b>	<b>G225N1</b>	<b>G225G1</b>	<b>G225P1</b>
Hole 200 $\mu\text{m}$	<b>G225-2</b>	<b>G225N2</b>	<b>G225G2</b>	<b>G225P2</b>
Hole 375 $\mu\text{m}$	<b>G225-3</b>	<b>G225N3</b>	<b>G225G3</b>	<b>G225P3</b>
Hole 600 $\mu\text{m}$	<b>G225-4</b>	<b>G225N4</b>	<b>G225G4</b>	<b>G225P4</b>
Hole 800 $\mu\text{m}$	<b>G225-5</b>	<b>G225N5</b>	<b>G225G5</b>	<b>G225P5</b>
Hole 1000 $\mu\text{m}$	<b>G225-6</b>	<b>G225N6</b>	<b>G225G6</b>	<b>G225P6</b>
Hole 2000 $\mu\text{m}$	<b>G225-7</b>	<b>G225N7</b>	<b>G225G7</b>	<b>G225P7</b>



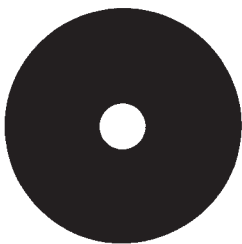
Hole 100  $\mu\text{m}$



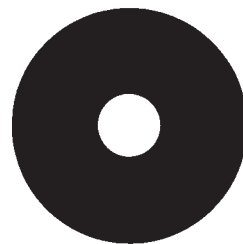
Hole 200  $\mu\text{m}$



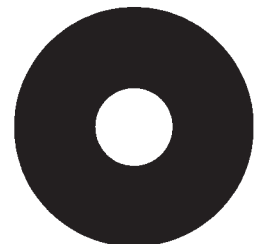
Hole 375  $\mu\text{m}$



Hole 600  $\mu\text{m}$



Hole 800  $\mu\text{m}$

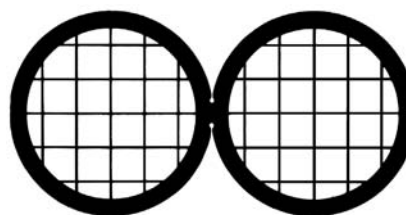


Hole 1000  $\mu\text{m}$

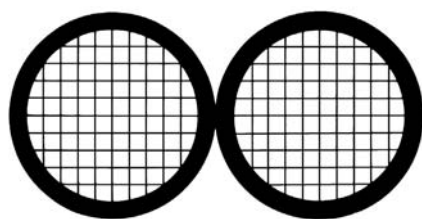
## Folding grids

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.

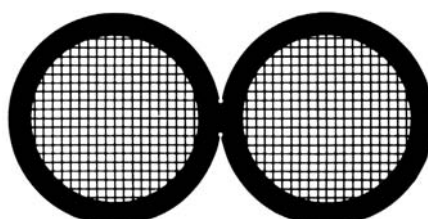
Type	Copper	3.05 mm diameter		
		Nickel	Gilded	Platinised
D50	<b>G211</b>	<b>G211N</b>	<b>G211G</b>	<b>G211P</b>
D100	<b>G212</b>	<b>G212N</b>	<b>G212G</b>	<b>G212P</b>
D200	<b>G213</b>	<b>G213N</b>	<b>G213G</b>	<b>G213P</b>
D1000	<b>G2130</b>	<b>G2130N</b>	<b>G2130G</b>	<b>G2130P</b>



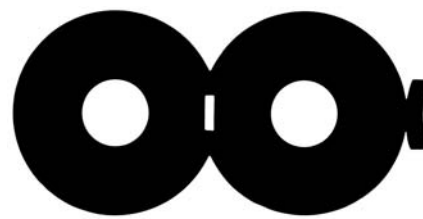
50/50 mesh  
Athene D50



100/100 mesh  
Athene D100

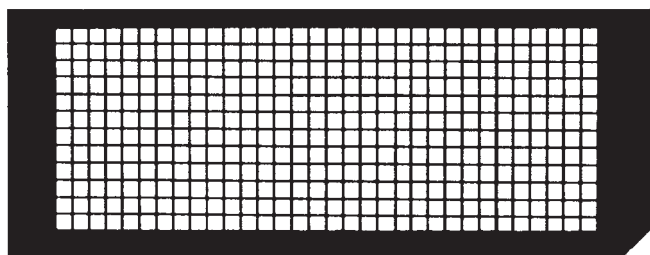


200/200 mesh  
Athene D200



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.

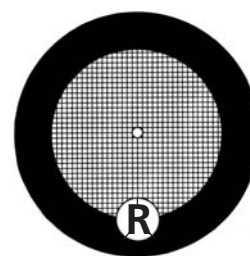
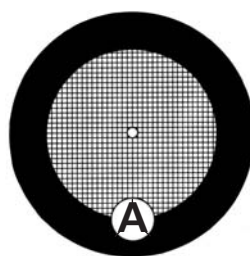
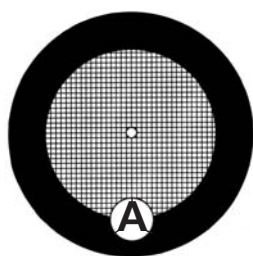
Packed in tubes of 50.

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



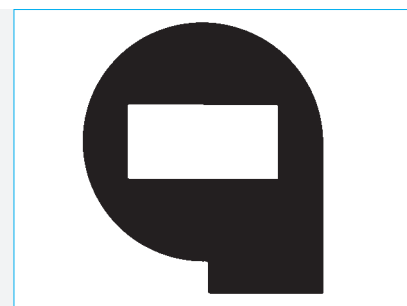
## FEI - Philips CompuStage grids

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

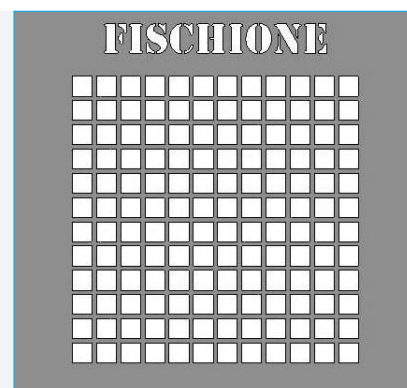
**G2395N** Grids 2 x 1 mm slot, nickel



## 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

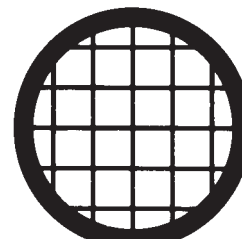


Agar grids

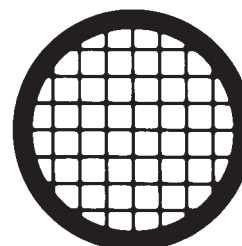
Standard grade grids are available in copper, nickel or gold, or in copper with one side flash coated with palladium for identification purposes. All grids are available in 3.05 mm diameter and some in 2.3 mm diameter. All Agar grids are packed in tubes of 100, unless otherwise specified. A comprehensive 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

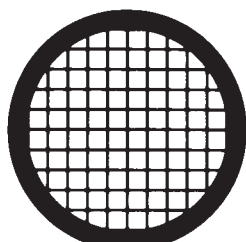


50 mesh

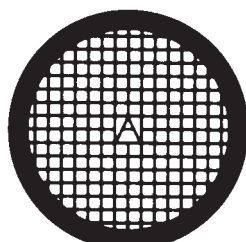


75 mesh

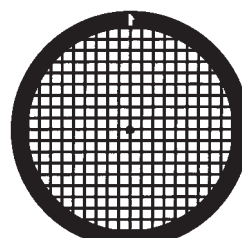
\*Tube of 50



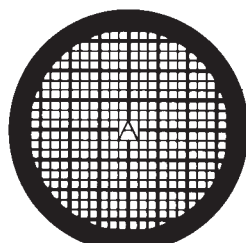
100 mesh



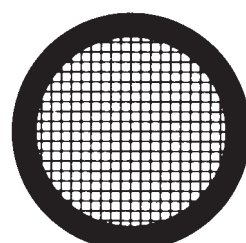
150 mesh



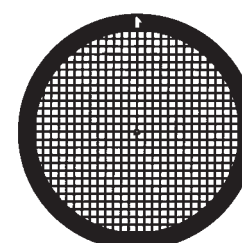
175 mesh



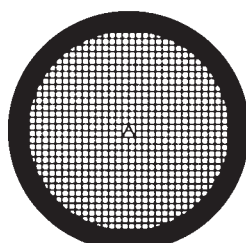
Centre mark 200 mesh



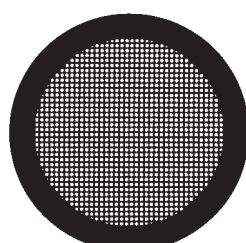
200 mesh



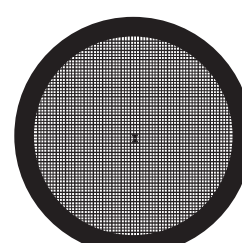
250 mesh



300 mesh



400 mesh

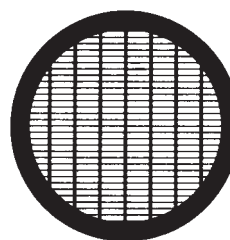


Thick/Thin 600 mesh

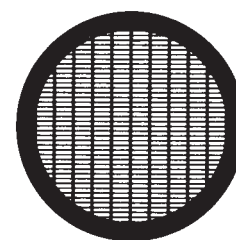
## Rectangular mesh

Type	3.05 mm diameter			
	Copper	Cu/Pd	Nickel	Gold*
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.

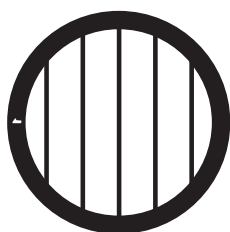
These grids are also available with a single bar through the centre of the grid, with an asymmetrical centre mark to identify the four quadrants of the grid.

Type	Copper	Parallel bars		
		Cu/Pd	Nickel	Gold*
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

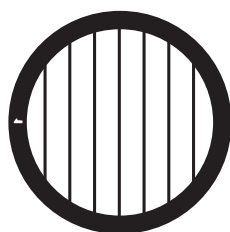
\*Tube of 50

Type	Parallel bars with single bar			
	Copper	Cu/Pd	Nickel	Gold*
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

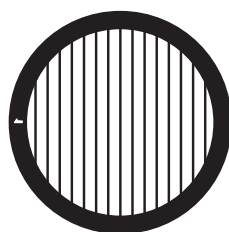
\*Tube of 50



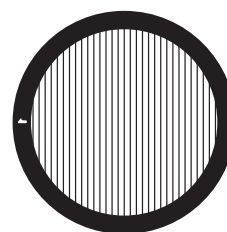
50



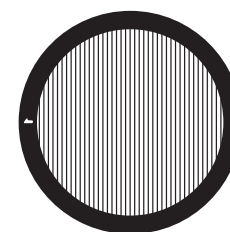
75



150



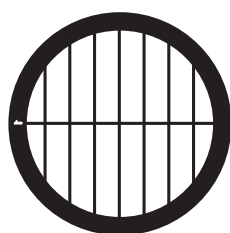
300



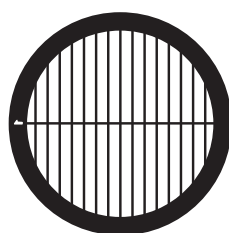
400



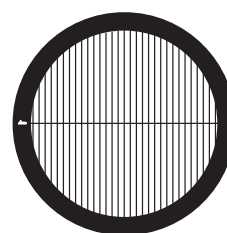
50



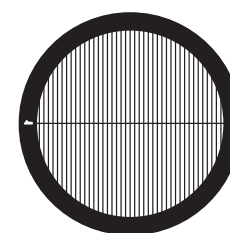
75



150



300



400

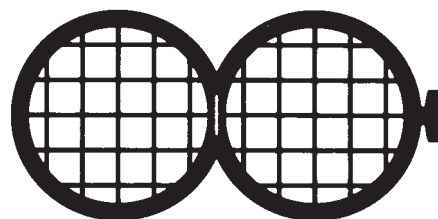


## Folding grids

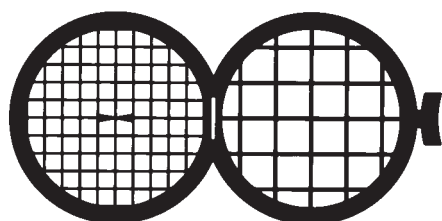
These folding grids with a latch are particularly useful for containing thinned foils which are too thick to adhere to a normal support film. The latch closure allows the foil to be securely sandwiched between the two halves of the grid.

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

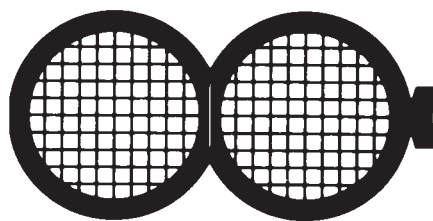
\*Tube of 50



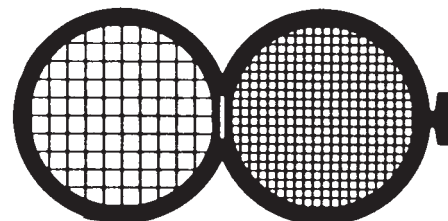
50 mesh/50 mesh



100 mesh/50 mesh



100 mesh/100 mesh



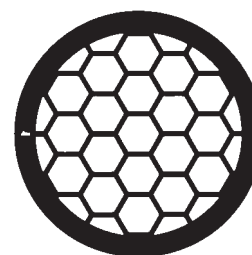
100 mesh/200 mesh

## Hexagonal mesh grids

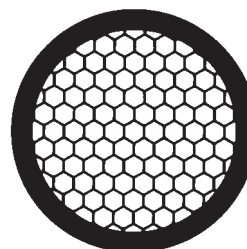
Hexagonal mesh grids offer an alternative to the standard square mesh pattern, providing maximum support for any given mesh repeat distance. Each grid has a mark on the rim to allow precise orientation of the grid in the electron microscope.

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

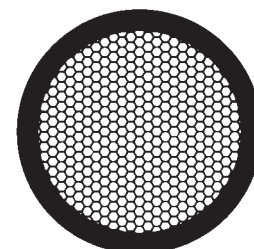
\*Tube of 50



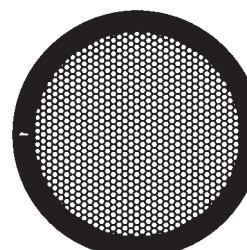
50 mesh



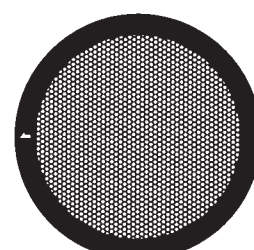
100 mesh



200 mesh



300 mesh



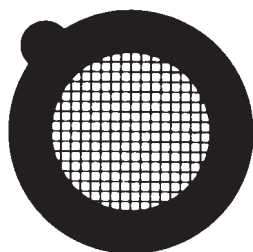
400 mesh

## Thin bar grids

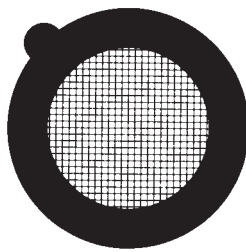
These thin bar grids are designed to give the highest transmission to maximise the viewable area of the specimen. Some of the grid bars are only 7 µm wide.

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

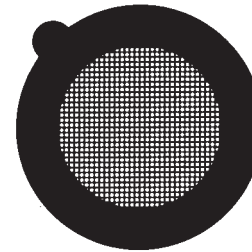
\*Tube of 50



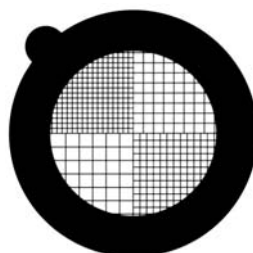
200 mesh  
Thin bar



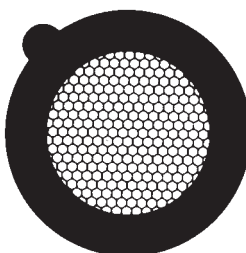
300 mesh  
Thin bar



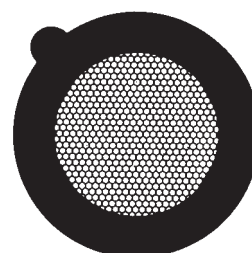
400 mesh  
Thin bar



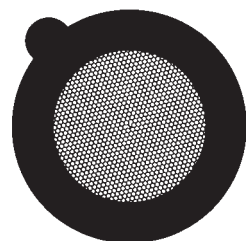
Mixed mesh  
Thin bar



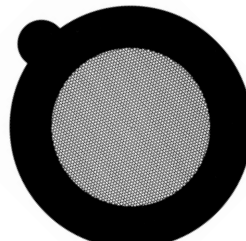
Hexagonal  
200 mesh



Hexagonal  
300 mesh



Hexagonal  
400 mesh



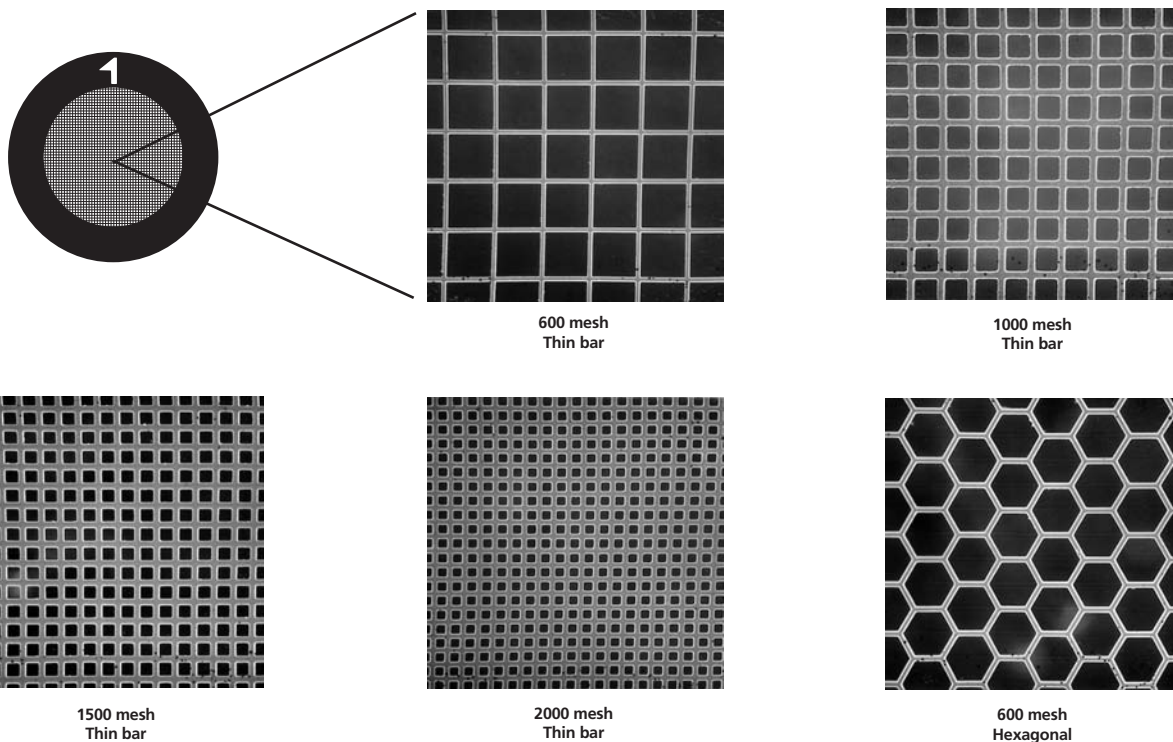
Hexagonal  
700 mesh

### 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	<b>G2655C</b>	<b>G2655N</b>	<b>G2655A*</b>
Hexagonal 600 mesh thin bar	<b>G2670C</b>	<b>G2670N</b>	<b>G2670A*</b>
1000 mesh thin bar**	<b>G2780C</b>	<b>G2780N</b>	<b>G2780A</b>
1500 mesh thin bar***	<b>G2785C</b>	<b>G2785N</b>	<b>G2785A</b>
2000 mesh thin bar****	<b>G2786C</b>	<b>G2786N</b>	-

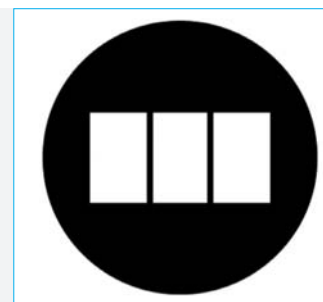
- \* Tube of 50
- \*\* Tube of 25
- \*\*\* Tube of 15
- \*\*\*\* Tube of 10



### 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



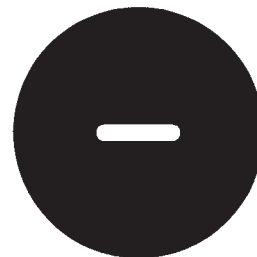
\*Tube of 50

## Slot grids

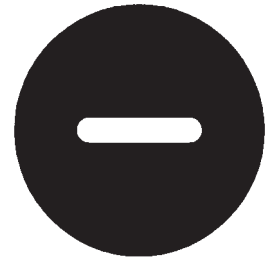
Slot grids are suitable for specimen support when viewing entire large cells (eg. unicellular organisms, protozoa) or for serial sections where grid bars may interfere with sequential information. Plastic films, such as Formvar®, Pioloform® and Butvar®, can be used to support sections over the large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

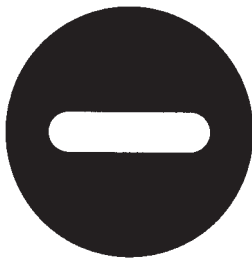
\*Tube of 50



1 x 0.2 mm



1.5 x 0.3 mm



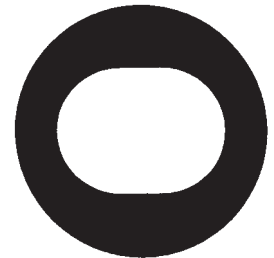
2 x 0.5 mm



2 x 0.75 mm



2 x 1 mm

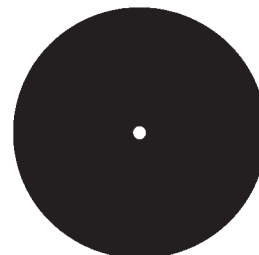


2 x 1.5 mm

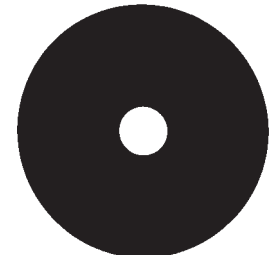
## Hole grids

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

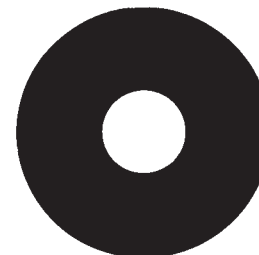
\*Tube of 50



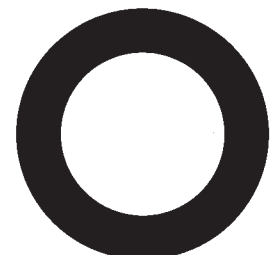
Hole 150 µm



Hole 600 µm



Hole 1000 µm



Hole 2000 µm

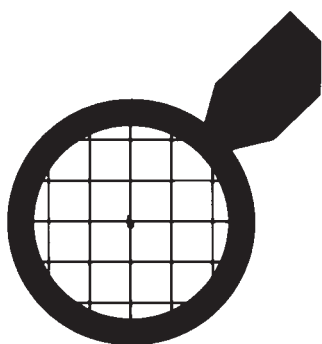
### Tabbed grids

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.

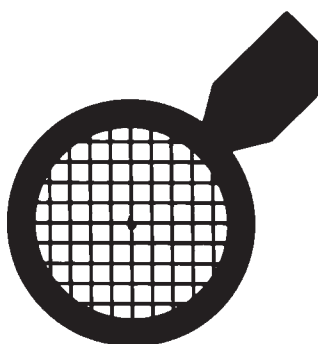
Packed in tubes of 100 unless otherwise specified.

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

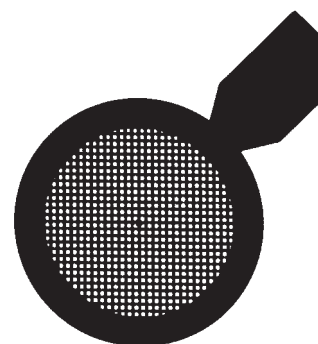
\*Tube of 25



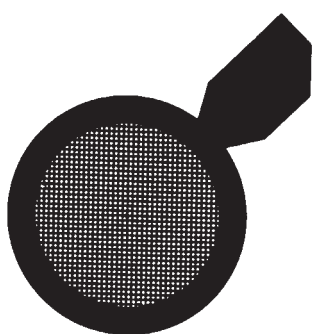
50 mesh



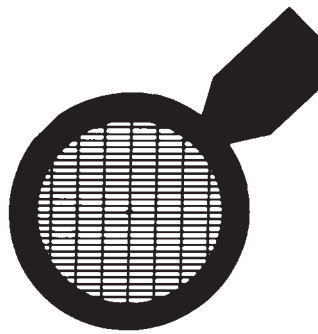
100 mesh



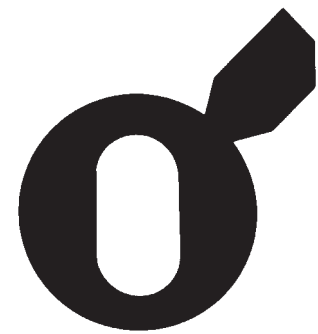
300 mesh



400 mesh



Slotted mesh 300 x 75



Slot 2 x 1 mm

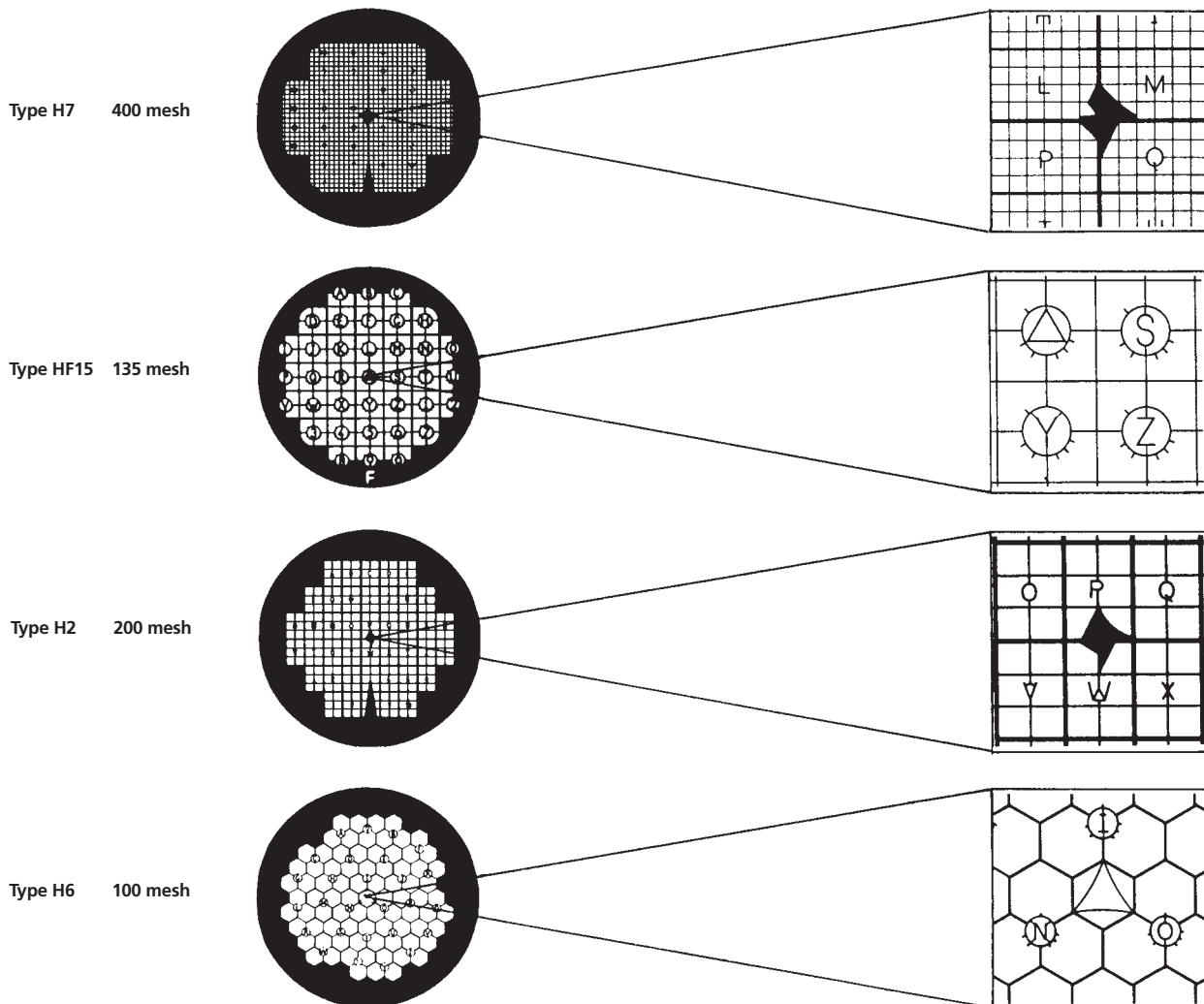
## Finder grids

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

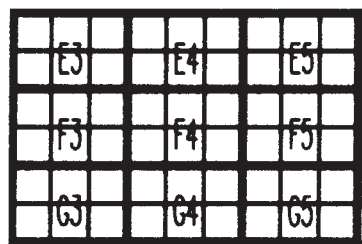
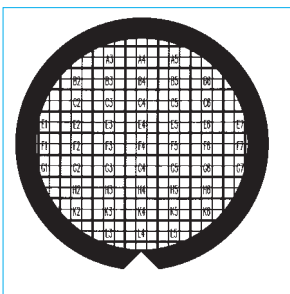
x30 magnification



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

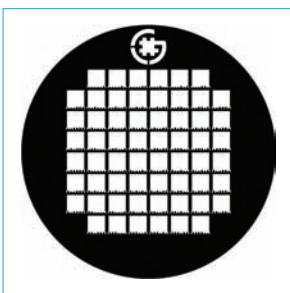
### Coarse mesh finder grid



Coarse mesh finder grid useful for asbestos and immunogold techniques. 200 mesh.

**G2775C** Finder grid, 200 mesh, copper

### Finder grids



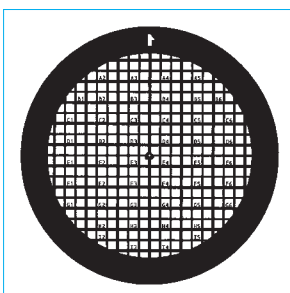
A 100 mesh finder grid for TEM applications. The grid has 60 squares identified by a binary numbering system along the horizontal axis. Zero is represented by a short pillar and one by a larger pillar. 3.05 mm diameter, 40 μm bar width, 210 μm hole width.

**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.

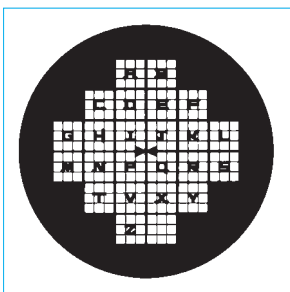
**G2761C** Finder grid, F1, copper

**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.

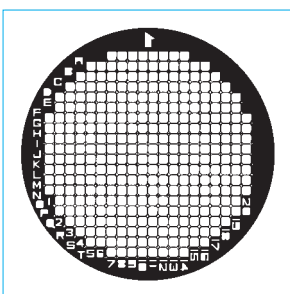
**G2762C** Finder grid, F2, copper

**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.

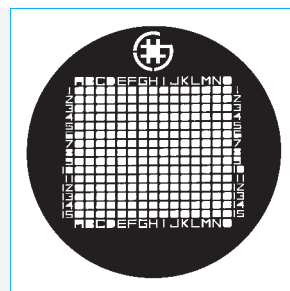
**G2764C** Finder grid, F4, copper

**G2764N** Finder grid, F4, nickel

**G2764A\*** Finder grid, F4, gold

**G2764PD** Finder grid, F4, Cu/Pd

\* Tube of 50



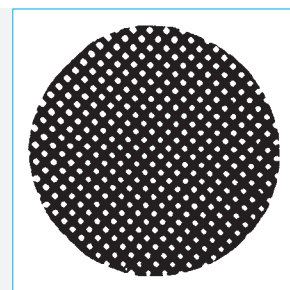
## Light element support grids

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.

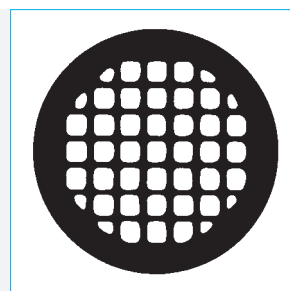
**G240** Carbon coated nylon grids. Tube of 25



### Carbon composite grids

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

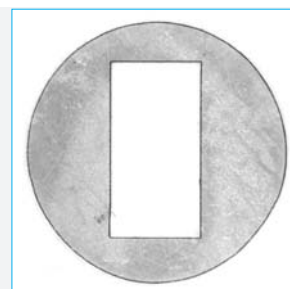
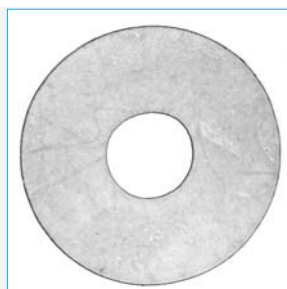
**G240A** Carbon composite grid



### 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

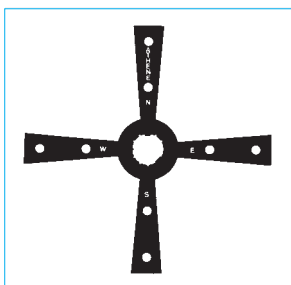
In addition to the standard copper, nickel and gold grids, we offer a wide range of grids of other metals. These include aluminium (Al), molybdenum (Mo), stainless steel (SS) and titanium (Ti) for specialist applications. Purity 99 %. 3.05 mm diameter. Available in tubes of 25. Minimum order required 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
<b>Square mesh:</b>				
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	-
<b>Folding mesh:</b>				
100/100	-	G2466MO	G2466SS	G2466TI
100/200	-	G2467MO	G2467SS	G2467TI
100/300	-	-	G2468SS	G2468TI
<b>Hole:</b>				
400 µm	-	G2469MO	G2469SS	G2469TI
1000 µm	G2470AL	G2470MO	G2470SS	G2470TI
1500 µm	G2471AL	G2471MO	G2471SS	G2471TI
<b>Slot:</b>				
2 x 1.2 mm	G2472AL	G2472MO	G2472SS	G2472TI
2 x 0.42 mm	G2473AL	G2473MO	G2473SS	G2473TI

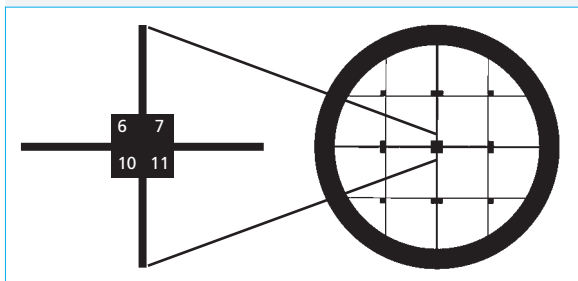
### Finder grids for SEM specimens

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.

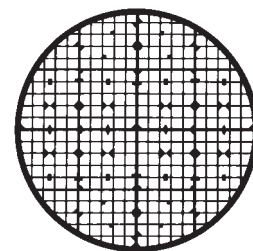
**G2394C** SEM finder grid 12 mm, copper. Tube of 20  
**G2394N** SEM finder grid 12 mm, nickel. Tube of 20

## 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

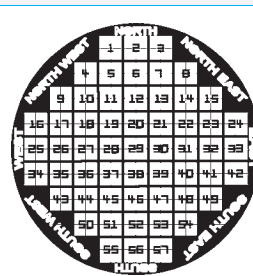


Finder grid designed to allow easy characterisation and analysis of particles and suspensions. The grid area is divided into 57 numbered squares, each of which is sub-divided into four quadrants to give 228 identifiable squares. In addition, the rim of the grid is marked N, NE, E, etc, to ensure correct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

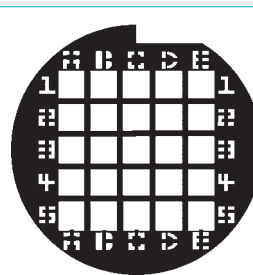


Asymmetric finder grid intended for identification of 25 pre-determined specimens. Each square is identified by reference to its alphanumeric position, and a large asymmetric cut-out in the rim of the grid enables rapid orientation when placing on an SEM stub. 10 mm diameter, approximately 50 µm thick.

**G2483C** SEM3 finder grid, copper. Tube of 10

**G2483N** SEM3 finder grid, nickel. Tube of 10

**G2483A** SEM3 finder grid, gold. Tube of 5

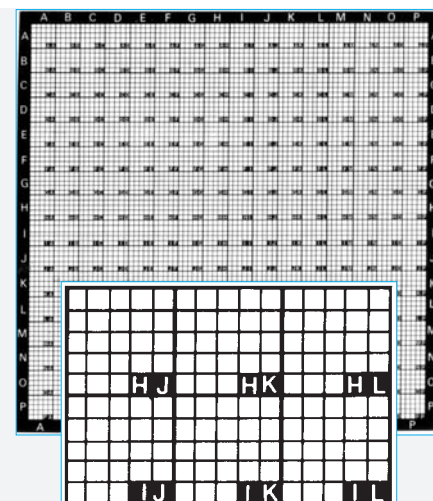


## LM-SEM locator grid

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

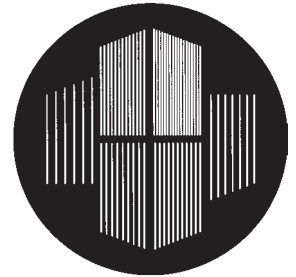
We are pleased to consider the manufacture of special design grids, apertures or evaporation masks. Grids can be manufactured from copper, providing good thermal and electrical conductivity, or nickel, which is more robust and resistant to corrosion. Reactivity can be further reduced by gilding or platinising. 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:

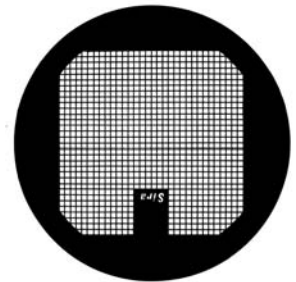
- meshes
- apertures and aperture strips
- optical resolution standards
- evaporation/vacuum deposition masks
- image analysis standards
- fine measurement standards

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.

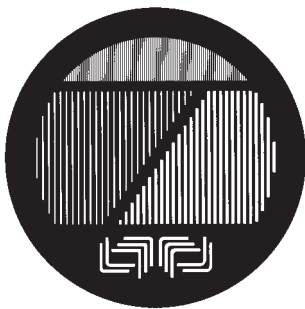
Some examples of special items we have made are illustrated (not to scale):



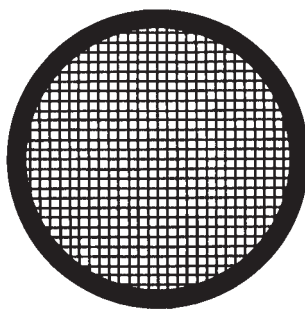
3.05 mm diameter  
Array of slots  $20 \mu\text{m}$   
Bar range  $10 - 80 \mu\text{m}$



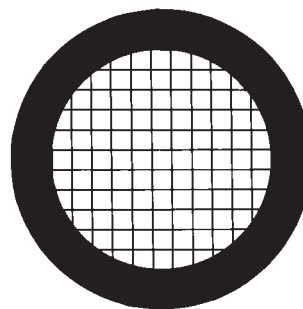
Square mesh 400 bars/inch  
with marker



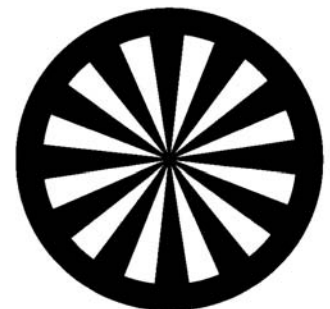
3.05 mm diameter  
Complex array of slots  
 $10 - 30 \mu\text{m}$



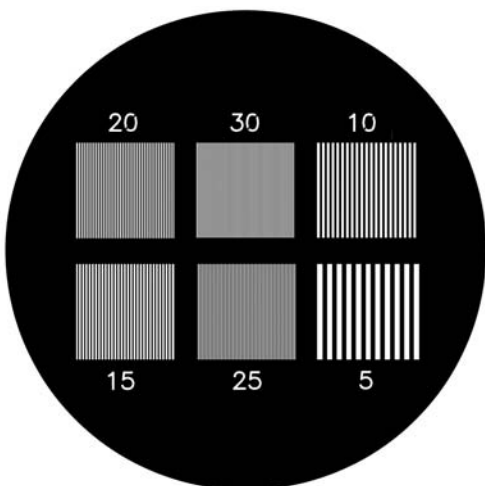
4 mm diameter  
200 lines/inch



15 mm diameter  
25 lines/inch



Siemens type star



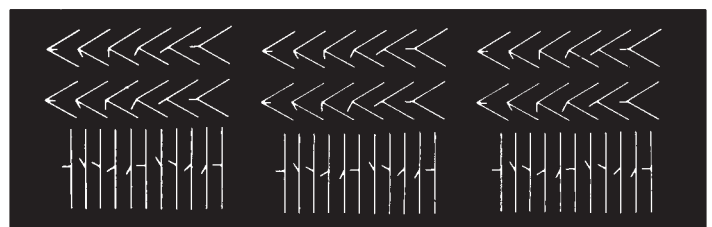
10 mm diameter  
5 - 30 line pairs per mm



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



Aperture strip



10 mm<sup>2</sup> 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  $\mu\text{m}$  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  $\mu\text{m}$  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.

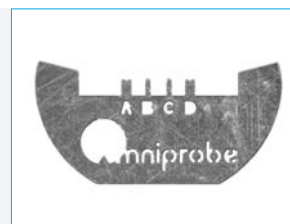
**J420** 3 post lift-out grids, copper. Box of 100  
**J421** 3 post lift-out grids, molybdenum. Box of 25



#### 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



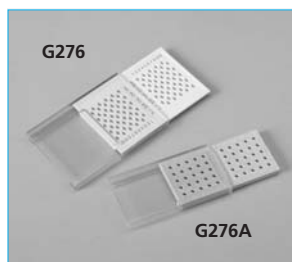
### Beryllium half-ring lift-out grids

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



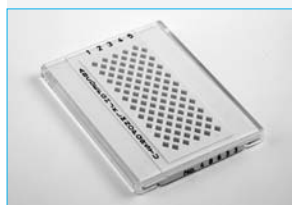
## Grid storage boxes



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



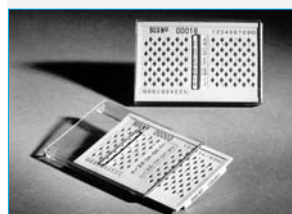
Grid storage box with 100 diamond-shaped holes suitable for both 3.05 mm grids (stored vertically) and 2.3 mm grids (stored diagonally). The box is made of ABS polymer (suitable for temperatures up to 70 °C), and the lid is made of acrylic polymer (for use up to 46 °C). Not suitable for use with organic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

