



# MATERIALS SAMPLE PREPARATION & CHARACTERISATION

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- Grids for SEM & TEM..... L 17

## Grids for SEM & TEM

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### REGULAR MESH GRIDS FOR TEM

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All grids are 3.05 mm diameter, but the thickness varies with mesh size. We offer in this grid selection, thirteen different types, ranging from 50 lines/inch (e.g. 50 mesh) to 600 lines/inch (600 mesh). The lower the mesh repeat, the thinner the bar width is, in order to give the grid the desired dimensional rigidity. In other words, the 50 mesh grids are thicker than the 200 mesh grids.

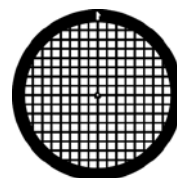
Mesh sizes followed by "TT" indicate thin/thick bar matrix with an asymmetric center mark.



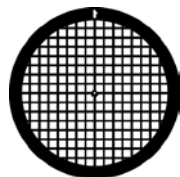
G50 Square Mesh



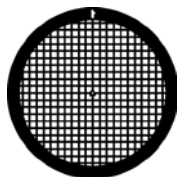
G75 Square Mesh



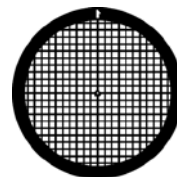
G100 Square Mesh



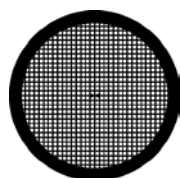
G150 Square Mesh



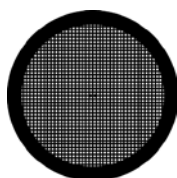
G200 Square Mesh



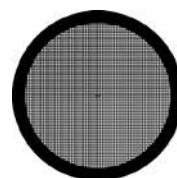
G200TT Square Mesh



G300 Square Mesh



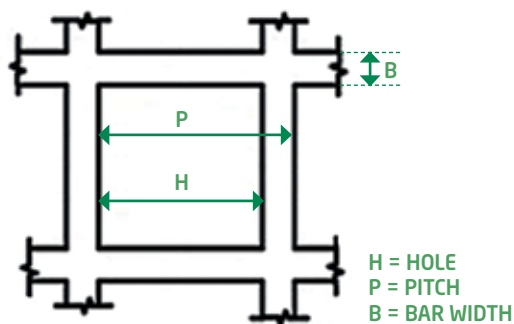
G400 Square Mesh



G600TT Square Mesh

Available in: Copper, Nickel, Gold, Copper/Palladium, Gold plated Nickel.

Packaging: 100 grids/vial.



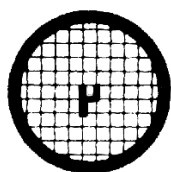
MESH SIZE	P (µm)	B (µm)	H (µm)	RIM WIDTH (mm)	CENTER MARK	RIM MARK	THICKNESS (± 3 µm)	P/N TYPE
50	500	80	420	0.225	No	No	20 µm	2005
75	340	55	285	0.225	Reverse Arrow	No	20 µm	2007
100	250	45	205	0.225	Asymmetric	No	18 µm	2010
150	165	40	125	0.225	Asymmetric	Yes	20 µm	2011
200	150	35	90	0.225	Asymmetric	Yes	20 µm	2020
200TT	125	35-25	95	0.225	Asymmetric	Yes	20 µm	202T
300	83	25	58	0.225	Asymmetric	Yes	20 µm	2030
400	62	25	37	0.225	Asymmetric	Yes	20 µm	2040
600TT	42	16-10	30	0.225	Asymmetric	Yes	20 µm	2060

Note: Other materials (Molybdenum, Aluminum, Stainless Steel, Titanium) also available upon request.

## REGULAR GRIDS - MICRON TYPE

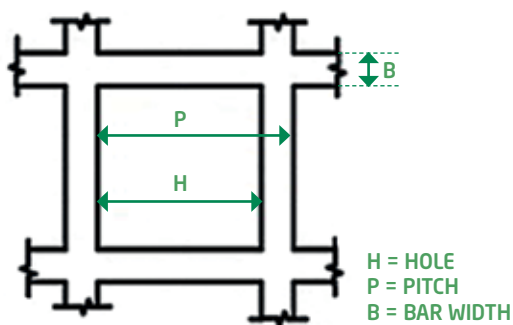
### GRIDS WITH $\mu$ CENTER MARK

- Featuring asymmetric  $\mu$  center mark for relocating and orienting grid squares when examining specimens.
- Available in square and non-square mesh styles, in both Copper and Nickel.
- Grids are 3.05 mm diameter unless otherwise noted. Some patterns available 2.3 mm diameter as well.



Available in: Copper, Nickel.

Packaging: 100 grids/vial.



MESH SIZE	H ( $\mu\text{m}$ )	OPEN AREA (%)	P ( $\mu\text{m}$ )	B ( $\mu\text{m}$ )	P/N TYPE
50 SQUARE	438	76	500	62	3005
100 SQUARE	208	69	250	42	3010
150 SQUARE	132	64	165	33	3011
200 SQUARE	97	55	125	28	3020
300 SQUARE	63	55	83	20	3030
400 SQUARE	42	44	62	20	3040
600TT SQUARE (Thick-Thin bar style)	27	40	42	15	3060
200/50 RECTANGULAR	N/A	N/A	N/A	N/A	3070
400/80 RECTANGULAR	N/A	N/A	N/A	N/A	3080
1000 MESH (Vials of 20 grids each)	N/A	N/A	N/A	N/A	3100

## EMICRON™ ASBESTOS INDEX GRIDS

This highly popular EMicron™ Brand TEM Asbestos Index Grid, featuring a “thick/thin” grid bar design, is in use in many of the world’s busiest asbestos testing laboratories world wide.

DESCRIPTION	P/N TYPE
Index Grid “200 Mesh”	3270

**Critical Dimensions:**

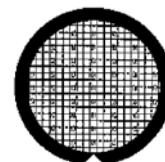
Diameter: 3 mm  
 Thickness: 10 µm

**Grid Bar Widths:**

Thick: 35 µm ± 5%  
 Thin: 21 µm ± 5%

**Available in:** Copper, Nickel.

**Packaging:** 100 grids/vial.



## INDEX GRIDS

### CALIBRATED ASBESTOS INDEX GRIDS FOR AHERA REQUIREMENTS

Each package includes:

- 1000 Asbestos Index Grids (10 vials of 100, you select the type)
- AHERA-Required Documentation of Open Area Calibration
- Available in Copper
- 200 mesh

### INDEX GRIDS FOR QUANTITATIVE TEM STUDIES

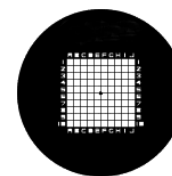
- Alpha-Numeric Indexing on Grid Perimeter
- Asymmetric Center Mark
- Available in Copper, Nickel, Gold
- 200 mesh
- 125 µm mesh pitch
- Vials of 100 grids



Type 2270



Type 2280



Type 2290

PRODUCT	OPEN AREA (%)	BAR WIDTH (µm)	GRID SQUARE (µm)	P/N TYPE
Regular	55	30	95	2270
SuperGrid™	74	20	105	2280
Slim Bar®	84	10	115	2290

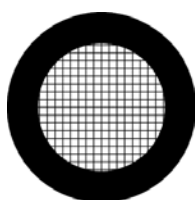
## OTHER GRIDS FOR TEM

### SLIM BAR GRIDS

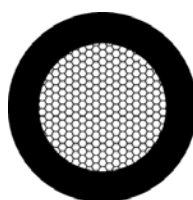
The Slim-Bar® Grids were designed for those who want the very maximum of open area when viewing their important samples.

- Available in regular square, variable rectangular and hexagonal mesh grid squares when examining specimens
- Thickness of all grids: 20.3 µm

**Available in:** Copper, Nickel, Gold, Gold plated Nickel and Gold Plated Copper.



**G200HS**



**G200HH**

### APERTURE GRIDS

- Allows the microscopist to see a complete sections without grid bar interruption
- Smooth edges
- Excellent dull/shiny side discrimination
- Hole diameter varies from 50 µm to 2000 µm

The thickness of a particular grid pattern depends on the size of the hole, the larger the hole, the thicker the grid, in order to give the grid better dimensional stability and stiffness. The thickness varies from 25 µm ±3 µm for the smallest hole to 50 µm ± 5 µm for the thickest.

**Available in:** Copper, Nickel, Gold, Copper/Palladium, Gold plated Copper and Gold plated Nickel.

**Packaging:** 100 grids/vial.



**50 µm Holde  
Diameter**

## TEM COATED GRIDS AND CUSTOM COATING SERVICE

Please contact Neyco for TEM coated grids and custom coating service in:

- Formvar®
- Formvar®/Carbon reinforced
- Carbon
- Holey Carbon
- Holey Formvar®, Carbon coated
- Lacey Carbon
- Lacey Formvar®, Carbon coated
- Holey Silicon Dioxide (SiO<sub>2</sub>)/Silicon Monoxide (SiO)
- Silicon Dioxide (SiO<sub>2</sub>)/Silicon Monoxide (SiO)

## QUANTIFOIL® CARBON COATED GRIDS: SPECIAL HOLEY CARBON FILMED GRIDS

Quantifoil is a perforated support foil with a precisely pre-defined hole size, shape, and arrangement. The use of these support foils as "support films" on TEM grids offers a number of advantages not only for conventional transmission electron microscopy (TEM), but also for low-energy point source (LEEPS) microscopy when compared with conventional holey Carbon support films.

### QUANTIFOIL HOLEY CARBON SUPPORTED GRIDS, CIRCULAR HOLES

**Packaging:** 100 grids/pack.

**Available in:** Copper, Nickel, Rhodium plated Copper, Gold.

	R 2/1	R 2/2	R 2/4	R 1.2/1.3	R 1/4	R 3.5/1	R 0.6/1 <sup>(1)</sup>	R 5/20
<b>Hole Size (µm)</b>	2	2	2	1.2	1	3.5	0.6	5
<b>Space between holes (µm)</b>	1	2	4	1.3	4	1	1	20
<b>Center to center (µm)</b>	3	4	6	2.5	5	4.5	1.6	25
<b>Type 200 Mesh (square)</b>	4320 <sup>(2)</sup>	4420	4520	4220	4870	4820	4962	4966
<b>Type 300 Mesh (square)</b>	4330	4430	4530	4230	4880	4840	4963	4967
<b>Type 400 Mesh (square)</b>	4340	4440	4540	4240	4890	4850	4964	4968
<b>Type 100x400 Mesh (square)</b>	4350	4450	4550	4250	4810	4860	4965	4969

(1) Hole size might be as large as 1 µm.

(2) Available also in Molybdenum.

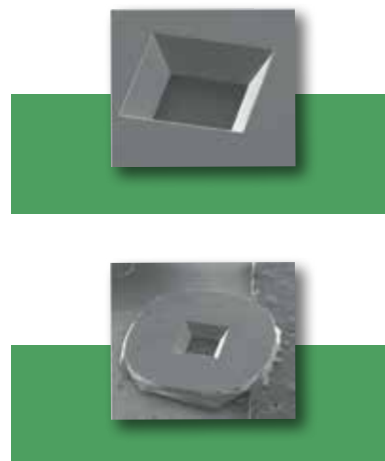
## SILICONE NITRIDE MEMBRANE WINDOWS FOR TEM AND X-RAY MICROSCOPY

### SQUARE WINDOWS: SILICON NITRIDE MEMBRANE WINDOW GRIDS FOR TEM

These unique membranes of Silicon Nitride ( $\text{Si}_3\text{N}_4$ ) were made using an electronic grade Silicon wafers with a thin film of  $\text{Si}_3\text{N}_4$  deposited to the desired thickness.

- For SEM applications, the background is relatively structureless and featureless (remember, nothing is completely structureless or featureless).
- For X-ray microscopy there is really no other way for mounting many of the samples one would want to analyze.
- For SEM BSE imaging, cells can be grown directly onto the nitride windows and the volume sealed with a “blank” without membrane for a perfect UHV compatible environmental chamber.

**Packaging:** packs of 10 (except for 50  $\mu\text{m}$ : 100).



THICKNESS OF MEMBRANE WINDOW	200 $\mu\text{m}$ THICK FRAMES						100 $\mu\text{m}$ THICK FRAMES	50 $\mu\text{m}$ THICK (ULTRATHIN) FRAMES
	WINDOW SIZE							
	5.0 mm	1.0 mm	0.5 mm	0.25 mm	0.10 mm	50 $\mu\text{m}$	0.5 mm	0.5 mm
500 nm	-	-	4109SN-BA	4098SN-BA	4091SN-BA	-	-	-
200 nm	4164SN-BA	-	4120SN-BA	4099SN-BA	4092SN-BA	-	-	-
150 nm	-	4161SN-BA	4121SN-BA	4100SN-BA	4093SN-BA	-	-	-
100 nm	-	4112SN-BA	4122SN-BA	4101SN-BA	4094SN-BA	4088SN-BA	4131SN-BA	4160SN-MB
75 nm	-	-	4123SN-BA	4102SN-BA	4095SN-BA	-	-	-
50 nm	-	4135SN-BA	4124SN-BA	4103SN-BA	4096SN-BA	-	4132SN-BA	-
30 nm	-	4162SN-BA	4125SN-BA	4104SN-BA	4097SN-BA	4090SN-BA	4192SN-BA	-
20 nm	-	-	4159SN-BA	4105SN-BA	4107SN-BA	4163SN-BA	-	-

Please contact Neyco for other dimensions in  $\text{Si}_3\text{N}_4$  membranes as well as for  $\text{SiO}_2$  membranes.





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