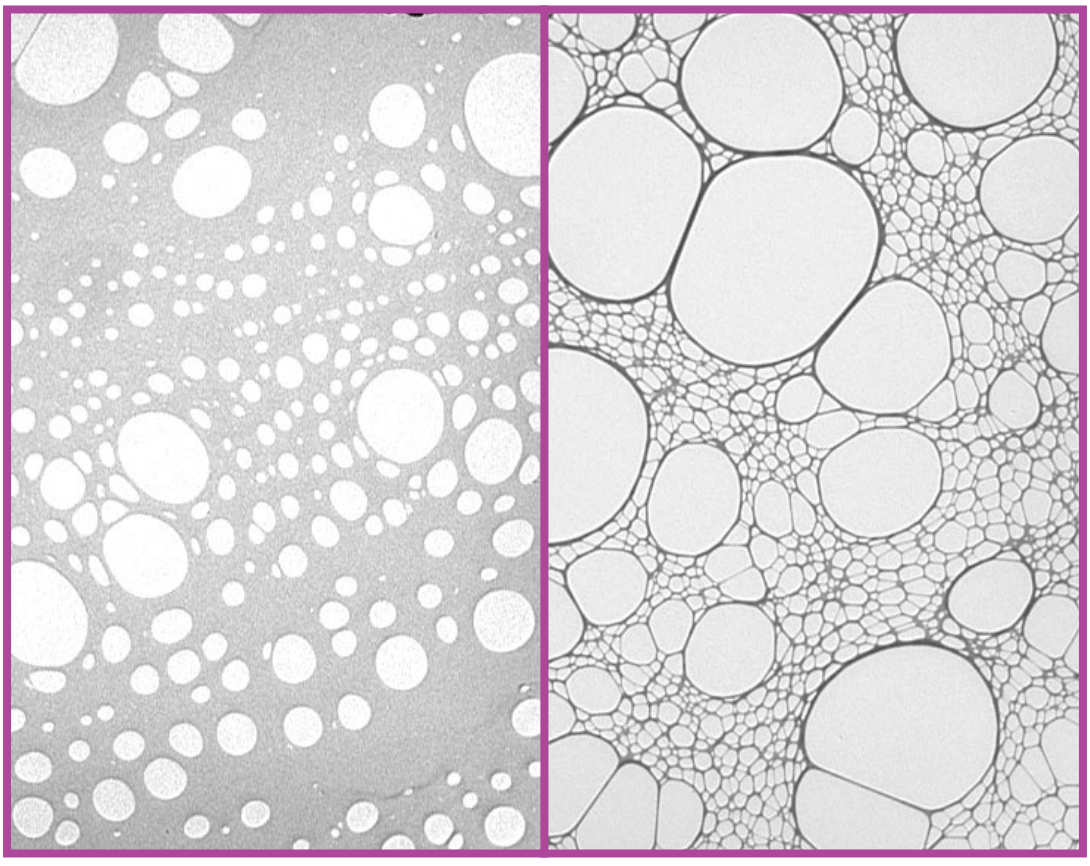
EM RESOLUTIONS
Supporting Electron Microscopy

Carbon support films

Coated grids

- get the best from your TEM



Holey and Lacey Carbon films

Continuous carbon, Formvar/Carbon, Formvar only

Graphene oxide

EM RESOLUTIONS LTD manufactures a range of carbon support films / coated grids for various TEM applications.

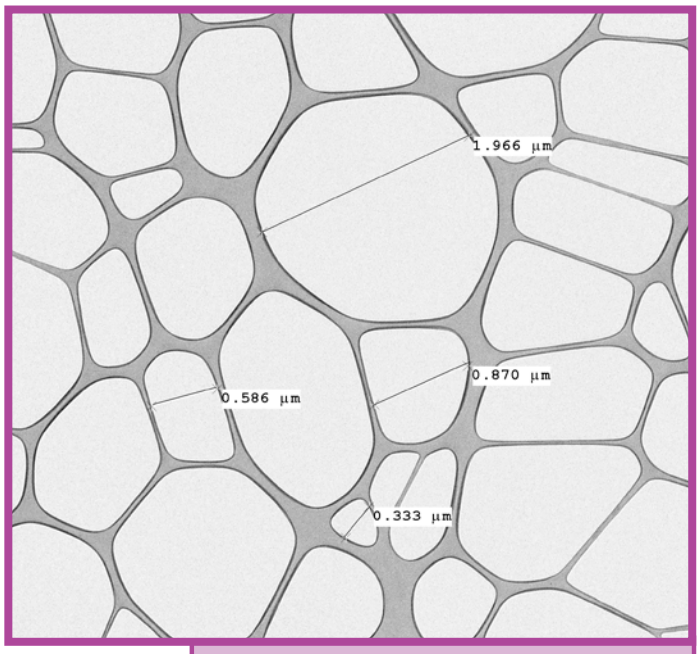
Holey and Lacey Carbon support films with varying hole sizes offer a cost effective solution where are a continuous film is not desirable. They are particularly suited for suspensions of nano and virus like particles for cryo-TEM. Lacey Carbon supports are particularly strong and ideal for specimens requiring more rigorous pre-treatments.

For demanding applications thin layer Graphene oxide (GO) on lacey carbon films are an ideal alternative, for which we carefully select grids with optimum hole size for this application.

We can supply films on a wide variety of grids; Cu, Au, Ni, Al, including finder grids. Other grid types and sizes are available on request.

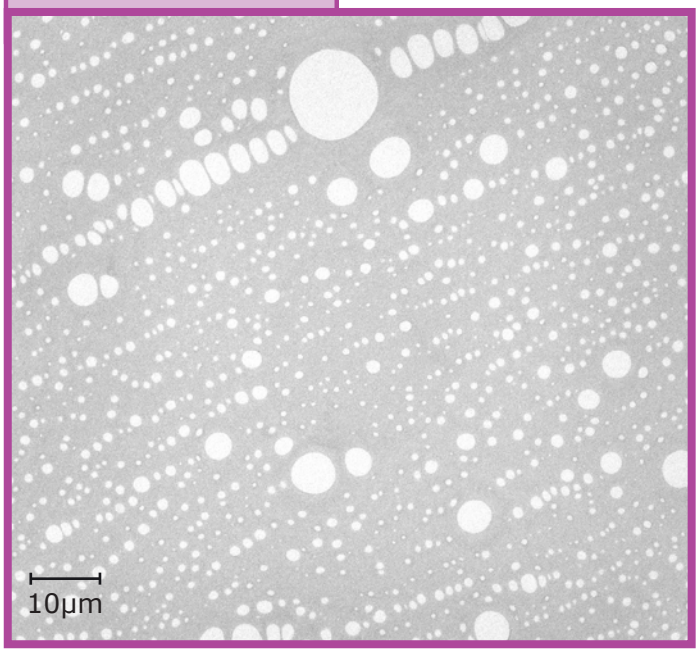
Before packing all grids are checked with an optical microscope as part of our quality process. Each box of our support films has a batch number and date code enabling batches to be tracked and a high level of quality to be maintained.

Our experience of developiing methods over 30 years enables us to have greater control over the formation of the holes. We welcome feedback from our users. If you need a particular hole size or would prefer slightly thicker or thinner films then please tell us and we can modify future orders to your requirements.

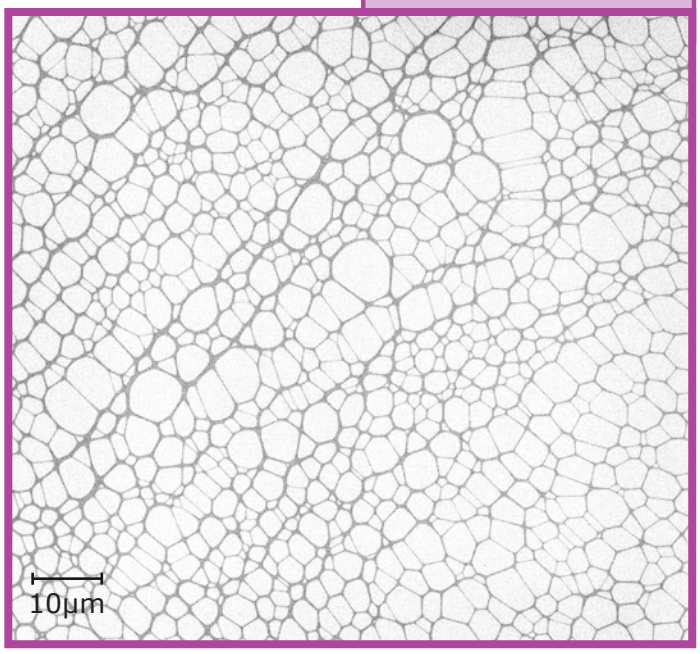


Both Holey and Lacey carbon support films provide a range of hole sizes

Holey carbon support film



Lacey carbon support film



Handling instructions
for Carbon support films

Holey and Lacey films are always on the shiny side of the grid.

Continuous carbon and carbon formvar are on the dull side of the grid.

The use of Dumoxel tweezers is recommended when handling grids with support films. Their anti-magnetic properties reduce the risk of damage during handling. We particularly favour the use of the cross-over type. *Those who have not used this type before may find them initially awkward but persistence pays off.*

It is always best to use freshly made support films to reduce the risk of them coming into contact with potential sources of contamination. When not in use we recommend that grid boxes are stored in a cool, dark and dry place. Ideally they should be used within 3 months of manufacturing date. Extremes of temperature should be avoided.

The most popular mesh sizes are 200, 300 and 400. During manufacture some grid squares may split. This is an inherent yet manageable issue in the process. For support films on 200 mesh grids a maximum of 5 split grid squares is deemed to be acceptable. For a 400 mesh grid 10-12 split grid squares is tolerable.

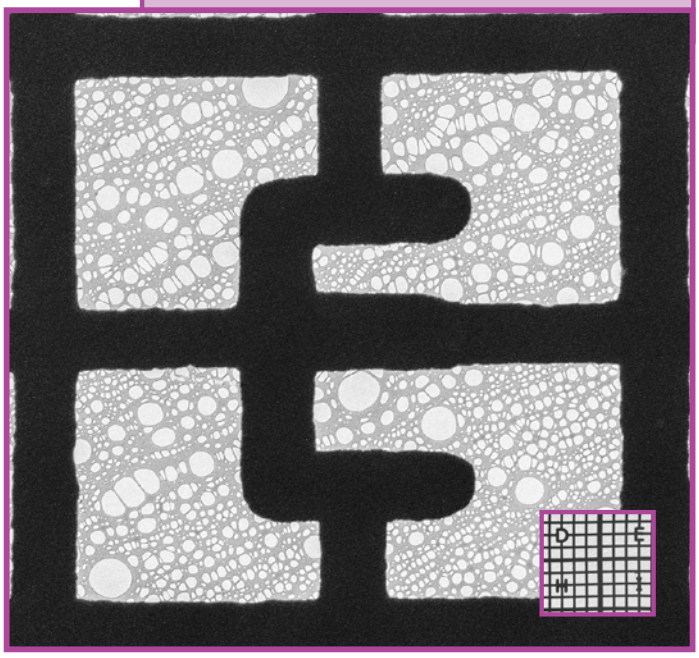
When assessing support films, particularly from a new supplier there are several artefacts that one should look out for:

1. The quality of the original grid is very important and should not have spikes on the bars that can cause films to split. These are observable in some Cu and Au grids. EM Resolutions checks for this and rejects these batches.

2, Grids should be free of contamination from the grid making process. Some grid manufacturers use release agents to remove the grids from the backing plate, leaving a thin film on the grid. This can result in support films separating from the grid or becoming unstable when viewed in the TEM.

3. Contamination can result from insufficient removal of the polymer support film after carbon coating or from carbon contamination during the coating process. EM Resolutions uses turbo molecular pumps in our coating systems to minimise the

Support films are also available on Finder grids



EM Resolutions Ltd *offers a choice of grid boxes. White grid boxes are the most popular as it is easier to see the grids in the box. They are also preferable for longer term storage as they are less prone to volatile components from the polymer contaminating the grids.*

Ordering information

Holey & Lacey Carbon Films

Support Film	Grids	200 mesh	300 mesh	400 mesh
Holey Carbon	Copper	HC200Cu	HC300Cu	HC400Cu
	Gold	HC200Au	HC300Au	HC400Au
	Nickel	HC200Ni	HC300Ni	HC400Ni
Lacey Carbon	Copper	LC200Cu	LC300Cu	LC400Cu
	Gold	LC200Au	LC300Au	LC400Au
	Nickel	LC200Ni	LC300Ni	LC400Ni

Formvar/Carbon & Carbon Films

Support Film	Grids	200 mesh	300 mesh	400 mesh
Formvar/Carbon	Copper	FC200Cu	FC300Cu	FC400Cu
	Gold	FC200Au	FC300Au	FC400Au
	Nickel	FC200Ni	FC300Ni	FC400Ni
Carbon	Copper	C200Cu	C300Cu	C400Cu
	Gold	C200Au	C300Au	C400Au
	Nickel	C200Ni	C300Ni	C400Ni

Formvar Only Films

Support Film	Grids	200 mesh	300 mesh	400 mesh
Formvar	Copper	F200Cu	F300Cu	F400Cu
	Gold	F200Au	F300Au	F400Au
	Nickel	F200Ni	F300Ni	F400Ni

Please note: The above part numbers are for packs of 50. If you require a pack of 25 or 100 please add the quantity after the part code e.g. F200Cu100, HC300Ni25.

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EM Resolutions Ltd was founded in 2012 and has been supplying high quality TEM support films and calibration standards to EM laboratories and consumables companies throughout the UK and the rest of Europe. Our technical staff have over 50 years combined experience, learned under the expert guidance of Alan Agar, one of the pioneers of consumables and accessories for electron microscopy.

EM Resolutions Ltd, Business and Technology Centre, Chroma House, Shire Hill, Saffron Walden. Essex CB11 3AQ. United Kingdom

w: www.emresolutions.com **e:** info@emresolutions.com **t:** +44 (0)1799 522500