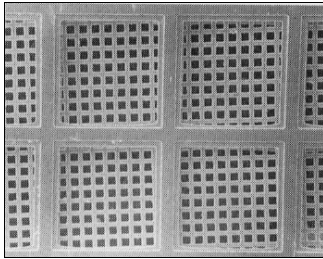
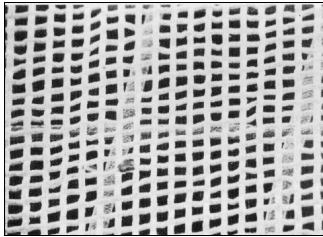


Calibration of TEM Magnification

Fine Copper, Nickel or Gold Mesh



C138/C139



Suitable for Light Microscopes, SEM's and the low magnification range of Transmission Electron Microscopes. The repeat distances are either 25 μ m (1000 mesh) or 12.5 μ m (2000 mesh). This material is not claimed to be of high accuracy over any one cell spacing. An average of at least 20 spacings should be taken to give reasonable accuracy.

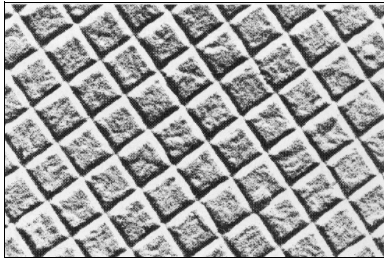
- | | | |
|-------------|--|------|
| C138 | 1000 mesh copper in sandwich 3mm \varnothing grid | each |
| C139 | 2000 mesh copper in sandwich 3mm \varnothing grid | each |
| | Use suffix N for nickel or G for gold if required (e.g. 138/N or /G) | |

The mesh is also available in 25mm squares

- | | | |
|---------------|------------------------------|------|
| C165 | 1000 mesh copper 25mm x 25mm | each |
| C165/G | 1500 mesh gold 25mm x 25mm | each |
| C165/N | 1500 mesh copper 25mm x 25mm | each |
| C166/N | 2000 mesh nickel 25mm x 25mm | each |

Diffraction Grating Replicas

Cross Grating Replica



G073

Rulings of 2160 lines/mm ruled at 90° to one another to give additional accuracy to magnification calibration and aid in distortion checks. These replicas are fragile and should not be subjected to excessive exposure at high probe/beam currents.

- | | | |
|-------------|-----------------------------------|------|
| G073 | Cross grating replica on 3mm grid | each |
|-------------|-----------------------------------|------|

Catalase

Negatively stained catalase crystals for TEM and STEM. The lattice plane spacings of approx. 8.75nm and 6.85nm show very clearly and are valuable for high magnification calibration.

- | | | |
|-------------|---------------------------------------|------|
| C074 | Catalase crystals mounted on 3mm grid | each |
|-------------|---------------------------------------|------|

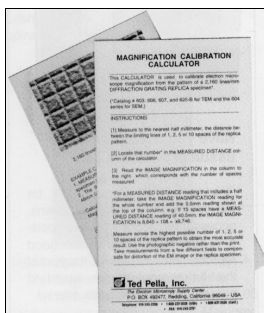
For the very highest magnifications one of the crystal lattice plane specimens listed as a resolution check can be used e.g. **P068** or **P065**.

Magnification Calibration Guide

This calculator will give the correct magnification of a micrograph when used with a 2160 lines/mm grating replica (G072).

The measured distance between the lines of the replica pattern is set in a window in the calculator. The resultant magnification appears in an adjacent window.

- | | | |
|-------------|--------------------------------------|------|
| C405 | Magnification calibration calculator | each |
|-------------|--------------------------------------|------|



Certified Particle Size Standards

The Duke Scientific particle size standards are certified for mean diameter and are traceable to National Institute of Standards and Technology (NIST). The highly uniform polystyrene spheres are calibrated by NIST traceable methods which include photon correlation spectroscopy, TEM and LM. The range of diameters from 1µm to 1000µm is ideal for calibration of electron and optical microscopes and particle sizing instrumentation. A certificate of calibration and traceability is provided with each standard. Detailed physical and chemical properties are also shown.

Monosized Microsphere Size Standards

These are some of the most uniform spheres available in this size range. Products from 1 - 160µm are packaged as 15ml aqueous suspensions in dropper topped bottles. Diameters of 200µm and larger are packaged as dry spheres. The spheres have a density of 1.05g/cm³ and a refractive index of 1.59 @ 589nm wavelength.

Cat. No.	Nominal Diameter	Certified Mean Diameter	Size d'istribution/Std Dev/CV	Solids Content
D191	1.0µm	0.993µm ± 0.021µm	0.010µm (1.0%)	1.0%
D192	2.0µm	2.013µm ± 0.025µm	0.022µm (1.1%)	0.5%
D208	5.0µm	4.988µm ± 0.035µm	0.05µm (1.2%)	0.3%
D209	7.0µm	6.992µm ± 0.050µm	0.07µm (1.0%)	0.3%
D193	10µm	9.975µm ± 0.061µm	0.09µm (0.9%)	0.2%
D194	15µm	15.02µm ± 0.08µm	0.15µm (1.0%)	0.3%
D210	20µm	20.00µm ± 0.10µm	0.20µm (1.0%)	0.3%

Other sizes available up to 1000µm

Please ask for Data Sheet

Diffraction Standards

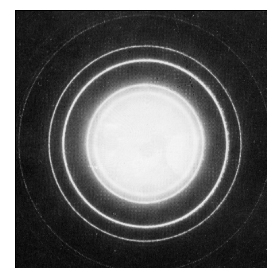
Evaporated Aluminium Film

Camera Length

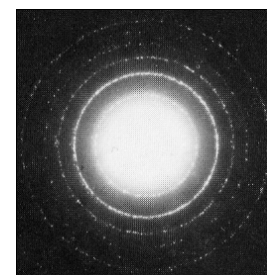
The nominal value of the effective camera length of an electron microscope operating in the selected area mode is not sufficiently accurate for any calculations of lattice spacing. The actual value of camera length must be calibrated at the same accelerating voltage and objective lens setting by reference to a known substance with well defined diffraction spacings. The normal specimens are evaporated films of *aluminium* or *thallous chloride*. The very small crystallite size yields ring patterns suitable for calibration purposes. Each specimen is supplied with a list of the principle lattice spacings.

D133	Evaporated aluminium film on 3mm grid	each
D072	Evaporated thallous chloride on 3mm grid	each

D133



D072



Molybdenum Oxide

Image Rotation

When changing from a selected area image of a specimen to a diffraction pattern, the strength of the intermediate lens is changed producing an image rotation between the image and the diffraction pattern. The amount of this rotation can be measured by photographing a crystal whose shape gives a clear indication of orientation. A molybdenum oxide crystal is very suitable for this purpose.

D073	Molybdenum oxide standard on 3mm grid	each
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D073

