

STAGE MICROMETERS / GRATICULES (RETICLES)

Diamond Ruled Stage Micrometer – S91

Stage micrometers with very fine well defined lines are available from Graticules. These reference scales offer substantial improvements in definition over the standard types when used under the highest magnification. This is made possible by the use of diamond cutting tools and a special ruling engine.

The S91 has clear lines ruled through a semi-opaque metal film which, with transmitted light, appear as bright lines on a dark background.

The micrometer is made on a glass substrate 76mm x 26mm x 1.2mm thick. The lines are 1 micron wide or less and 3.5mm long. The metric rulings provide a scale of 1mm divided into 0.1mm parts, with one part being sub-divided into 0.01mm parts.

Pattern	Description	Order Code
S91	Diamond ruled stage micrometer	02D00481

STAGE CALIBRATION STANDARDS

These stage micrometers differ from the standard stage micrometers being available with a certificate giving precise details about their accuracy.

These calibrated standards provide traceability for the precise calibration and confirmation of accuracy of optical measuring instruments which is necessary under ISO provisions.

Pyser-SGI Limited Graticules Division can arrange for the calibration of its scales and grids to be carried out by the most appropriate laboratory to suit the customer requirements – the choice of laboratory is normally dependent on the nature of the calibration and the accuracy required.

a) Calibration by NPL

The National Physical Laboratory carries out measurements at selected points on the scales and grids and issues a certificate of calibration.

b) Calibration by UKAS Accredited Laboratory

A UKAS accredited laboratory carries out measurements at selected points on the scales and grids and issues a calibration certificate.

c) Measurement by Graticules

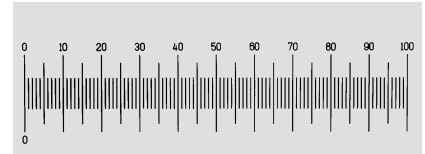
For applications which do not require the accuracy provided by calibrations carried out by NPL or a UKAS accredited laboratory, Graticules can provide a Certificate of Comparison. The scale or grid is compared with NPL calibrated in-house standards and a statement is provided on the accuracy of the item with respect to these standards.

We manufacture components (encoder discs, graticules, metal foils, resolution standards) to custom design, if it is not in the catalogue please contact us for pricing information.

STAGE MICROMETERS / GRATICULES (RETICLES)

Microscope Standards – PS1, PS4, PS8, PS12, PS16, PS78.

These standards differ from the stage micrometers listed on page 31. The glass discs are mounted in stainless steel slides with engraved serial numbers. Each slide is supplied in a polished wooden presentation and storage box to distinguish it as a traceable standard of high value.



Pattern	Description	Order Code
PS1	Micrometer scale 10mm in 0.1mm divisions.	05A01040
PS4	Micrometer scale 0.1 inch in 0.001inch divisions.	05A01041
PS8	Micrometer scale 1mm in 0.01mm divisions.	05A01042
PS12	Micrometer scale 0.1mm in 0.002mm divisions.	05A01043
PS16	Crossed micrometer scales 1mm in 0.01mm divisions.	05A01045
PS78	Micrometer scale 1mm in 0.01mm divisions. (For reflected light)	05B01050



Image Analysis Standard (Reference Stage Graticule)

This high precision image analysis standard provides four test areas designed for calibrating image analysis systems and identifying deviations and distortions in optical imaging systems.

The standard, which can also be used as a high precision stage micrometer, is supplied with recommendations for its use and an individual certificate of calibration.

It is produced on a 75mm x 25mm slide and has a square grid accuracy of ± 0.1 micron and a dot accuracy of ± 0.3 microns (except for the smallest and largest two dots on the root-2 array where accuracy is ± 0.5 microns).

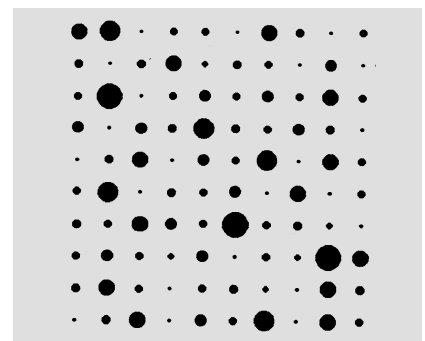
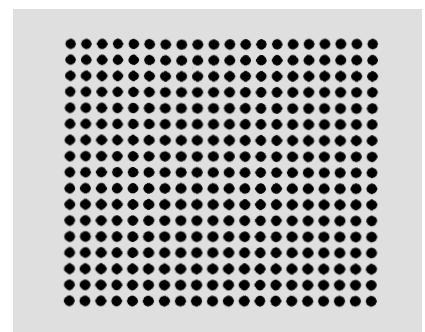
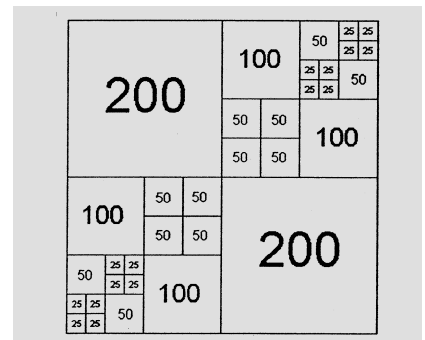
The four test areas are:

A 400 micron x 400 micron square grid which is subdivided into 200, 100, 50 and 25 micron squares provides a means of detecting gross image distortions, and can be used as an accurate two dimensional stage micrometer.

A 20 x 17 array of nominally 15 micron diameter dots can be used to identify lens distortions. i.e. to set the field of view to eliminate edge distortion.

A root-2 array of spots from 3 micron to 48 micron diameter is used for determining the threshold level of cameras and microscope systems.

A log-normal distribution array of 100 spots ranging from 4.5 micron to 27 micron diameter enables the mean and standard deviation to be determined and compared with the certified values. This is an idealised distribution of maximum dynamic range for a full screen.



Description	Order Code
Reference stage graticule 75mm x 25mm slide.	05B01085

STAGE MICROMETERS / GRATICULES (RETICLES)

H.S.E./N.P.L. Test Slide for Phase Contrast Microscopy - S84

This test slide is made in the UK under licence from the National Physical Laboratory.

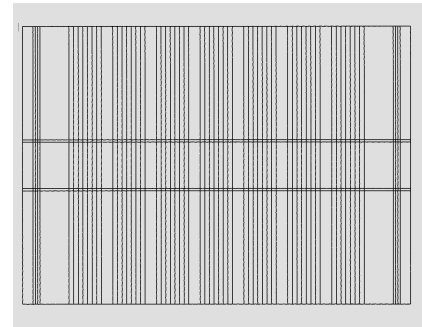
It is an epoxy replica of a master slide produced and certified by that laboratory. The replicas are mounted on microscope slides of 1.2 mm thickness with cover glass of 0.17 mm thickness.

This information is transferred to the accompanying table, which indicates the maximum phase change passing through test objects to test slide.

A satisfactory system will detect block 5. Full details are supplied with the slide.

See also Walton Beckett graticules page 22.

Block No.	Ridge Width (Micrometers)	Maximum Calculated Phase Change (in degrees) for light rays (wavelength = 530 nanometers) passing through test objects.
1	1.08	6.6
2	0.77	4.7
3	0.64	3.9
4	0.53	3.2
5	0.44	2.7
6	0.36	2.2
7	0.25	1.5



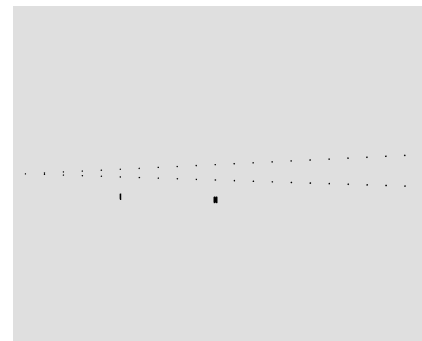
Pattern	Description	Order Code
S84	HSE Test slide for calibration in asbestos analysis.	02F00490

VIBRATION

FOE PPL Dot – S25

The amount of vibration of the slide in the appropriate axis is determined by the pair of dots which appear to merge into a single dot

The pattern on the S25 is an array of 20 pairs of dots converging on a single dot. The distance between each dot pair increases by 0.001 inch to a maximum of 0.02 inches, pairs being equispaced 0.25 inch.



Pattern	Description	Order Code
S25	FOE PPL Dot vibration test pattern.	02A00412

We manufacture components (encoder discs, graticules, metal foils, resolution standards) to custom design, if it is not in the catalogue please contact us for pricing information.