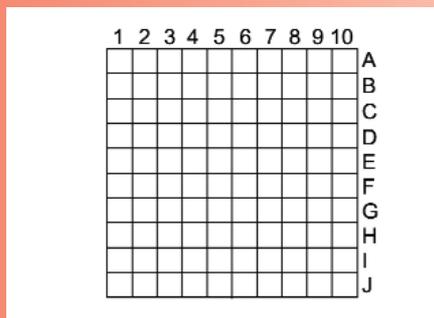
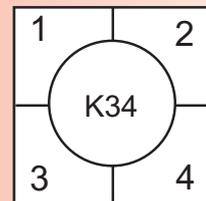
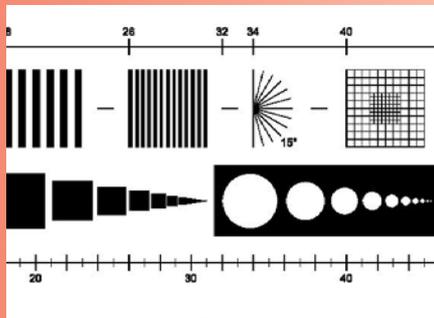
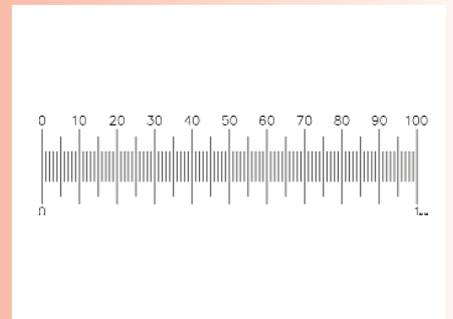




STAGE MICROMETERS & CALIBRATION STANDARDS  
 STAGE MICROMETERS & CALIBRATION STANDARDS



# Stage Micrometers and Calibration Standards

For over 60 years Pyser-SGI have been manufacturing precision micropattern products at their UK facility. Their stage micrometers and calibration standards are used all round the world for calibrating microscopes, imaging systems and co-ordinate measuring equipment. Where customers need to have the traceability of their calibration, Pyser-SGI offer certificates of calibration, traceable to International standards.

## S-Range Stage Micrometers

The scale or grid is chrome deposited centrally on a glass disc mounted in a black anodised aluminium slide mount 76mm x 25mm x 1.5mm thick. The metal mount gives these stage micrometers greater durability than those of all glass construction. These products are supplied in a plastic case with foam insert and are intended for general microscope calibration.



## PS-Range Stage Calibration Standards

The scale is chrome deposited centrally on a glass disc mounted in a stainless steel slide mount, 76mm x 25mm x 1.5mm thick, with a unique serial number engraved in the top surface. These are the products of choice where you need certified scales to have unequivocal traceability for ISO, NIST, DIN or other standards. These products are supplied in a polished wooden case to indicate that they are superior calibration tools.



## PS Multi-Image Calibration Slide

This unique artefact provides the most comprehensive solution to calibrating image analysis systems. An array of 16 different patterns and scales to a very high resolution, is chrome deposited on a glass slide, 76mm x 25mm x 1.5mm thick. A unique serial number is etched into the slide



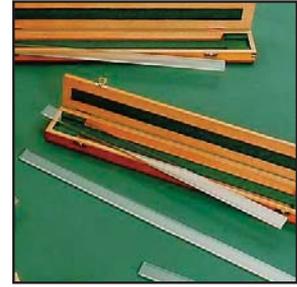
## Calibration Slides for Hardness Testers

Whichever test method you use, be it Vickers, Rockwell or Brinell, Pyser-SGI have the ideal calibration slide for you. For many years companies have used products such as the Pyser S78 and S1R reflected light stage micrometer scales which give a very straightforward calibration on one axis. Following long discussions with manufacturers of Hardness Testing equipment Pyser has introduced two new products specifically designed for this calibration with shapes to accurately replicate the impression.



## PS-Range of Long Scales

Scales from 50mm to 1 metre in length, chrome deposited on glass substrate, and supplied in a polished wooden case (except 50mm version). Typically used for calibration of linear or two dimensional measuring systems.



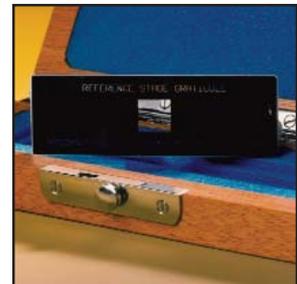
## PGR Two Dimensional Calibration Standards

Glass plates with 10mm grid squares occupying either 100mm x 100mm or 140mm x 240mm, central area of 20mm further subdivided into 1mm squares. Typically used for calibration of co-ordinate measuring systems.



## High Precision Optical Dimension Standards

For customers requiring the ultimate in precision and calibration traceability, Pyser-SGI offer the NPL line scales, reference stage graticule, two dimensional position standard and photomask line width standard. These are all supplied with NPL's Internationally Traceable calibration certificate.



## Custom Made Calibration Products

For some customers a standard calibration product may not fulfil their requirements. In this case Pyser-SGI are able to offer cost-effective production to custom designs. Please send drawing/specification or contact us to discuss.



# Certificates of Calibration

Each day industrial companies carry out a vast range of physical measurements, the accuracy of which must satisfy their business requirements. It is well known that accurate measurements are needed, not only to achieve an acceptable level of quality and efficiency of manufacturing, but also to allow the testing of products to satisfy both the demands of direct customers and the broader requirements for international trade (such as ISO). To be consistent with measurements made elsewhere, such measurements should also be traceable<sup>1</sup> to International or National measurement standards.

The technical infrastructure in each country that underpins the measurement requirements of industry and ensures that measurements are consistent and traceable, is termed the National Measurement System. In the UK for example, this system comprises the hierarchy of calibration and testing laboratories, many of which are accredited by the United Kingdom Accreditation Service (UKAS). These laboratories carry out measurements and calibrations for industry traceable to National measurement standards held in the UK's National Metrology Institute, the National Physical Laboratory (NPL). In addition to providing measurement standards for use by other laboratories, the NPL also offers traceable measurements for industry when the highest accuracy is required.

To ensure world-wide consistency of measurements, all the National Metrology Institutes (NMI's) in the world work in harmony. This is carried out under the auspices of the International diplomatic treaty, the Treaty of the Metre, signed in 1875 whereby Nations agreed, amongst other things, to the setting up of the International Committee of Weights and Measures (CIPM). Besides establishing the worldwide definitions of physical units, the CIPM organises an ongoing series of key comparisons between NMI'S to support the mutual recognition of measurement standards and calibration certificates. These key comparisons also involve regional metrology organisations, such as EUROMET (EU +EFTA +European Commission), APMP (Asia Pacific Metrology Programme) and SIM (Canada, USA, Mexico plus most Latin, South American and Caribbean states), which act as regional focuses for the growing number of NMI's throughout the world. **This means that UKAS and NPL calibrations offered by Pyser-SGI will satisfy the requirements of NIST, DIN and all other NMI's across the world.**

<sup>1</sup> BS5233 : 1986 defines traceability as 'The property of a result of a measurement whereby it can be related to appropriate standards, generally international or national standards, through an unbroken chain of comparisons'.

Pyser-SGI Limited offers calibration of its scales and grids from 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.

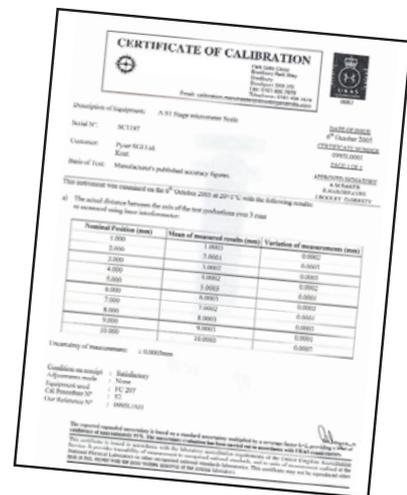
**a) Calibration by NPL**

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 that do not require the accuracy provided by calibration 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. This certification is not traceable.



When ordering any of the stage micrometers, grids or scales with a calibration certificate please add a suffix to the order code:

- i.e.:- 05A01040/NPL for PS1 with NPL certificate
- 05A01040/NAM for PS1 with UKAS (NAMAS) certificate
- 05A01040/GRA for PS1 with Graticules certificate.

# S-Range Stage Micrometers

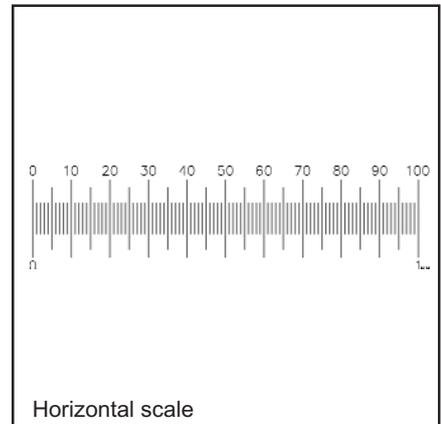
These stage graticules are intended for the routine calibration of eyepiece reticles particularly when alternating between objectives on one microscope or when using the same reticle in different microscopes.

Their robust construction, with metal slide mount, makes them ideal for student use and for instructional purposes. The scale or grid is centred on a glass disc mounted in a black anodised aluminium slide 76mm x 25mm x 1mm thick. The image is created using vacuum deposited chrome which is resistant to normal wear and tear.

Versions are available for transmitted light and reflected (incident) light

## Accuracy and Line Widths of Stage Micrometers

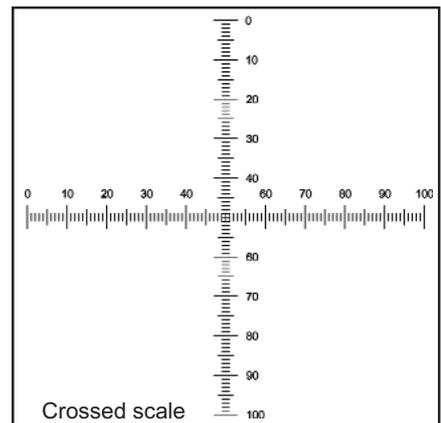
| Pattern | Line Width | Accuracy (overall)  |
|---------|------------|---------------------|
| S1      | 0.005mm    | Within 0.002mm      |
| S2      | 0.005mm    | Within 0.015mm      |
| S4      | 0.002mm    | Within 0.0001 inch  |
| S8      | 0.002mm    | Within 0.0015mm     |
| S11     | 0.001mm    | Within 0.00005 inch |
| S12     | 0.001mm    | Within 0.001mm      |
| S16     | 0.0015mm   | Within 0.0015mm     |
| S22     | 0.0025mm   | Within 0.0015mm     |
| S48     | 0.0027mm   | Within 0.0015mm     |
| S78     | 0.003mm    | Within 0.001mm      |
| S20     | 0.0025mm   | Within 0.0015mm     |
| S21     | 0.0025mm   | Within 0.0015mm     |
| S9      | 0.005mm    | Within 0.0015mm     |
| S10     | 0.004mm    | Within 0.0015mm     |
| S28     | 0.004mm    | Within 0.0015mm     |
| S29     | 0.0025mm   | Within 0.0015mm     |
| S1R     | 0.005mm    | Within 0.002mm      |
| S4R     | 0.002mm    | Within 0.0001 inch  |



## For Transmitted Light

## Horizontal micrometer scales and crossed micrometer scales.

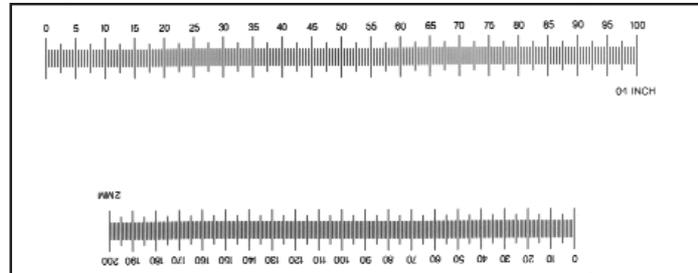
| Pattern | Description   | Order Code      |
|---------|---|-----------------|
| S1      | Micrometer scale 10mm in 0.1mm divisions                | <b>02A00400</b> |
| S2      | Micrometer scale 5mm in 0.05mm divisions                | <b>02A00401</b> |
| S4      | Micrometer scale 0.1inch in 0.001inch divisions         | <b>02A00402</b> |
| S8      | Micrometer scale 1mm in 0.01mm divisions                | <b>02A00404</b> |
| S11     | Micrometer scale 0.005inch in 0.0001inch divisions      | <b>02A00407</b> |
| S12     | Micrometer scale 0.1mm in 0.002mm divisions             | <b>02A00408</b> |
| S16     | Crossed micrometer scales 1mm in 0.01mm divisions       | <b>02A00429</b> |
| S22     | Micrometer scale vertical 2mm in 0.01mm divisions       | <b>02A00411</b> |
| S48     | Micrometer scale 1mm in 0.01mm divisions, no coverglass | <b>02A00414</b> |



## Combined Metric/Imperial Scales

| Pattern | Description   | Order Code |
|---------|---|------------|
| S20     | Double micrometer scale 2mm in 0.01mm divisions and 0.1inch in 0.0005inch divisions | 02A00409   |

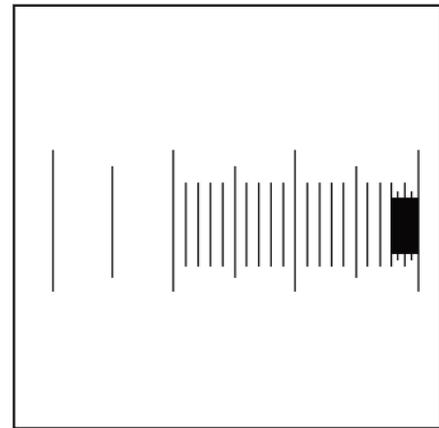
See also PS52 on page15



## Grouped Graduation Scale

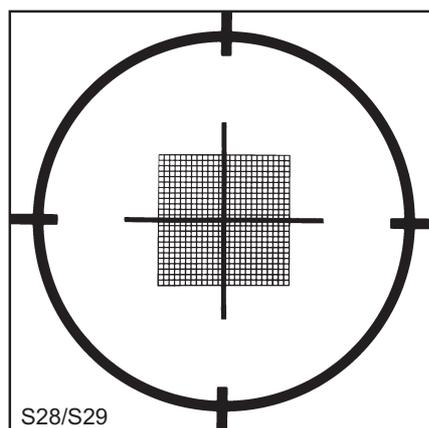
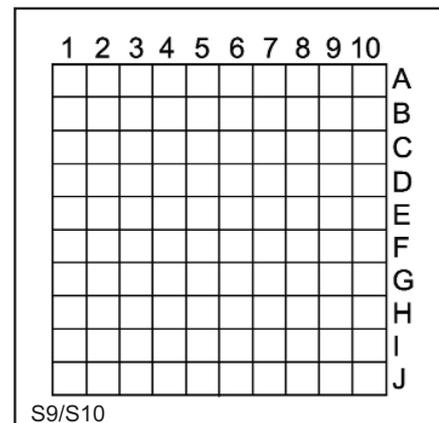
For speedy determination of a range of feature sizes within a given specimen.

| Pattern | Description  | Order Code |
|---------|--|------------|
| S21     | Micrometer scale 5mm in 0.5mm divisions, 2mm in 0.1mm divisions, and 0.2mm in 0.01mm divisions | 02A00410   |



## Grids

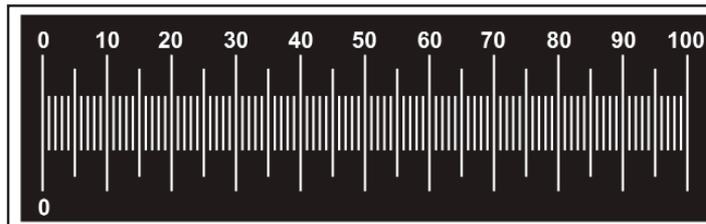
| Pattern | Description                        | Order Code |
|---------|------------------------------------|------------|
| S9      | Counting slide 0.1mm squares.      | 02A00405   |
| S10     | Counting slide 0.05mm squares.     | 02A00406   |
| S28     | 0.01mm grid / 0.2 x 0.2mm overall. | 02B00428   |
| S29     | 0.01mm grid / 1.5 x 1.5mm overall. | 02B00429   |



## For Reflected Light

These scales are etched through highly reflective vacuum coated metal. When viewed under vertical illumination, as with a metallurgical microscope, the scale appears black against a bright background.

| Pattern | Description                                | Order Code |
|---------|--|------------|
| S78     | Micrometer scale 1mm in 0.01mm divisions,  | 02B00421   |
| S1R     | Micrometer scale 10mm in 0.1mm divisions,  | 02A00440   |
| S4R     | Micrometer scale 0.1" in 0.001" divisions, | 02A00442   |



## Diamond Ruled Stage Micrometer

Stage micrometers with very fine well defined lines are available from Pyser-SGI. 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   |

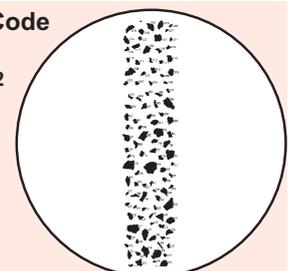


## Particle Analysis Test Slide

### SG7

Ideal for staff training, this has 100 particles of various shapes and sizes. Each shape is numbered. Designed for comparing various shapes and sizes, and as a means for logging and communicating this information.

| Pattern | Description                     | Order Code |
|---------|---------------------------------|------------|
| SG7     | Test slide for particle sizing. | 02A00422   |



## H.S.E./N.P.L. MKIII Test Slide for Phase Contrast Microscopy

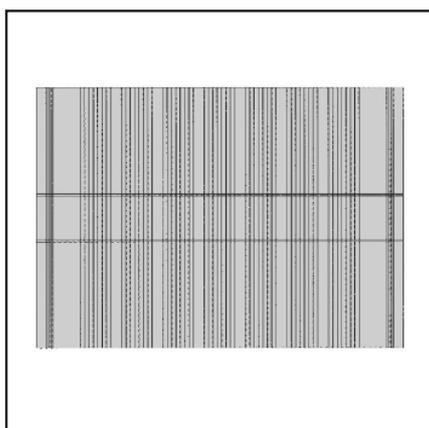
This test slide is made in the UK under licence from the National Physical Laboratory.

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.

The purpose of the slide is to provide a standard means to check the performance of phase microscopes prior to the analysis of asbestos. The pattern consists of seven bands of twenty lines with widths ranging from 0.25 $\mu$ m to 1.1 $\mu$ m.

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

| Pattern | Description   | Order Code | Block No. | Ridge Width (Micrometers) | Maximum Calculated Phase Change (in degrees) for light rays (wavelength = 530 nanometers) passing through test objects. |
|---------|---|------------|-----------|---------------------------|---|
| S84     | HSE Test slide for calibration in asbestos analysis | 02F00490   |           |                           |   |
|         |   |            | 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   |

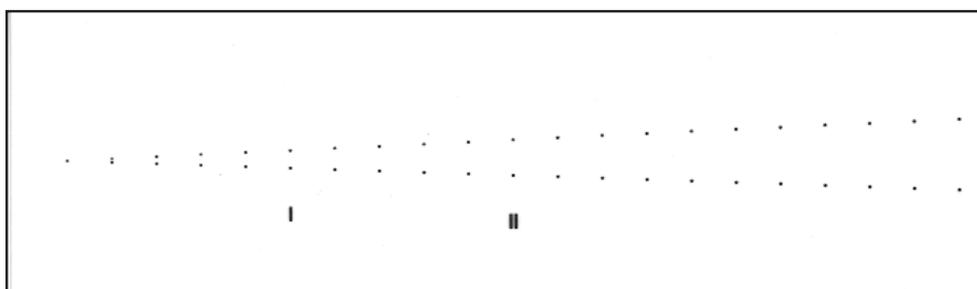


## Vibration (FOE PPL Dot)

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. Supplied on 76 x 26mm glass slide.

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



# Finder Graticules

Finder graticules are used to swiftly and accurately give a position of reference to an area of interest on a specimen slide.

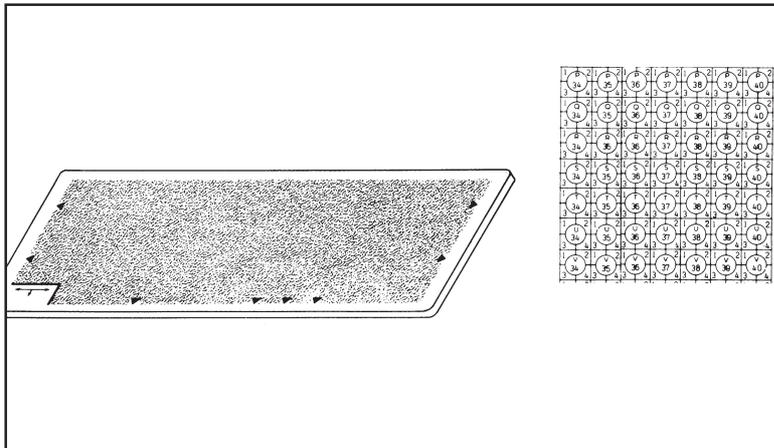
## The England Finder - 9045 Findable Locations

The England Finder is a glass slide marked over the top surface in a way that a referenced position can be directly read relative to the locating edges.

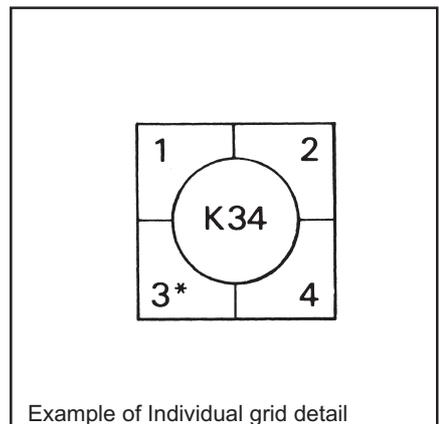
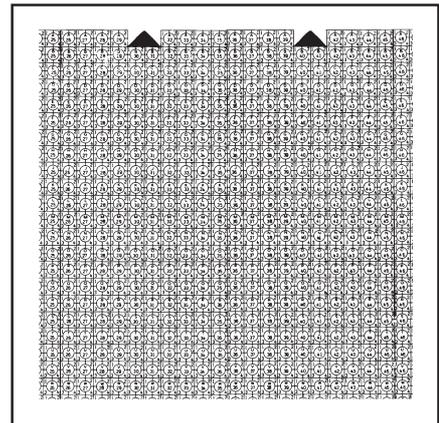
All England Finders produced by Graticules for over 40 years are identical. The purpose of the finder is to give the microscopist an easy method of recording the position of a particular field of interest, so that the same position can be re-located at a later date, or by another person in another laboratory, or when using any other England Finder on any other microscope.

The location of the arrows is identical for all England Finder slides. The method of use is as follows: Mark a label on the left hand side of the specimen slide, indicating the orientation to be repeated. By replacing the specimen slide with the England finder, taking care not to disturb the position, the feature of interest can be noted. The feature can also be re-located at another place or time by reversing the procedure. A total of 9045 positions on a 76mm x 26mm slide can be accurately located.

| Pattern | Description        | Order Code |
|---------|--------------------|------------|
| S7      | The England Finder | 02A00403   |



The ruled area is approximately 73mm x 24mm, each square is approximately 1mm and line width is nominally 25 $\mu$



## The Halton Finder

Pattern as per S7 but covers only a 5mm x 5mm area in the form of a stage graticule.

| Pattern | Description       | Order Code |
|---------|-------------------|------------|
| S30     | The Halton Finder | 02A00413   |

# PS-Range Stage Calibration Standards

Stage calibration standards differ from the stage micrometers in that they have a unique serial number etched into the surface of the slide mount, so they are fully traceable when supplied with a certificate of calibration. This means that they satisfy the requirements of ISO traceability.

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.

When ordering any of the following parts with calibration certificate please add a suffix to the order code

ie:- 05A01040/**NPL** for PSI with NPL certificate  
05A01040/**NAM** for PSI with UKAS (NAMAS) certificate  
05A01040/**GRA** for PSI with Graticules certificate



## Microscope Standards for Calibration of Eyepiece Graticules

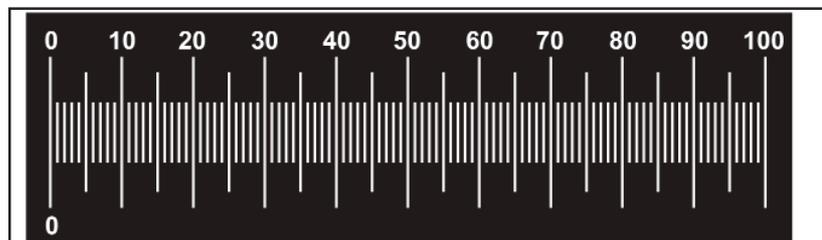
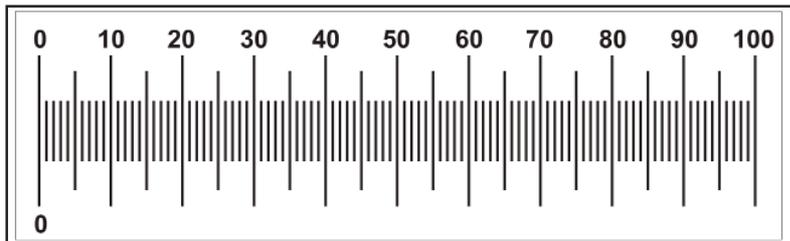
The scale is created as a vacuum deposited chrome image on a glass disc. The glass discs are then mounted in stainless steel slides with engraved serial numbers. Each slide is supplied in a polished wooden presentation and storage box to distinguish it as a traceable standard of high value.

### For Transmitted Light

| Pattern | Description                                       | Order Code |
|---------|---|------------|
| PS1     | Micrometer scale 10mm in 0.1mm divisions.         | 05A01040   |
| PS4     | Micrometer scale 0.1inch in 0.001inch divisions.  | 05A01041   |
| PS5     | Micrometer scale 20mm in 0.01mm divisions.        | 05B01048   |
| PS8     | Micrometer scale 1mm in 0.01mm divisions.         | 05A01042   |
| PS12    | Micrometer scale 0.1mm in 0.002mm divisions.      | 05A01043   |
| PS16    | Crossed micrometer scale 1mm in 0.01mm divisions. | 05A01040   |



For longer scales see page 15



### For Reflected (incident) Light

| Pattern | Description                                 | Order Code |
|---------|---|------------|
| PS78    | Micrometer scale 1mm in 0.01mm divisions.   | 05B01050   |
| PS1R    | Micrometer scale 10mm in 0.1mm divisions.   | 05A01047   |
| PS4R    | Micrometer scale 0.1" in 0.0001" divisions. | 05A01049   |

### Accuracy and Line Widths of PS Calibration Standards

| Pattern | Line Width | Accuracy (overall) |
|---------|------------|--------------------|
| PS1     | 0.005mm    | Within 0.002mm     |
| PS4     | 0.002mm    | Within 0.0001 inch |
| PS8     | 0.002mm    | Within 0.001mm     |
| PS12    | 0.001mm    | Within 0.001mm     |
| PS16    | 0.0015mm   | Within 0.001mm     |
| PS78    | 0.003mm    | Within 0.001mm     |
| PS1R    | 0.005mm    | Within 0.002mm     |
| PS4R    | 0.002mm    | Within 0.0001inch  |

# Universal Calibration Slide

Calibration of microscopes and image analysis systems is becoming more sophisticated, with the requirement being for a variety of image patterns to satisfy the numerous parameters. Pyser-SGI has introduced a new multi-function calibration standard specifically for these applications.

Multiple images on a single slide provide the most cost-effective solution to calibration and resolution checking of microscopes and image analysis systems. The combination of scales, dots, circles, squares, rulings, grids and angles can be supplied with an internationally traceable certificate of calibration for those who require ISO conformity.



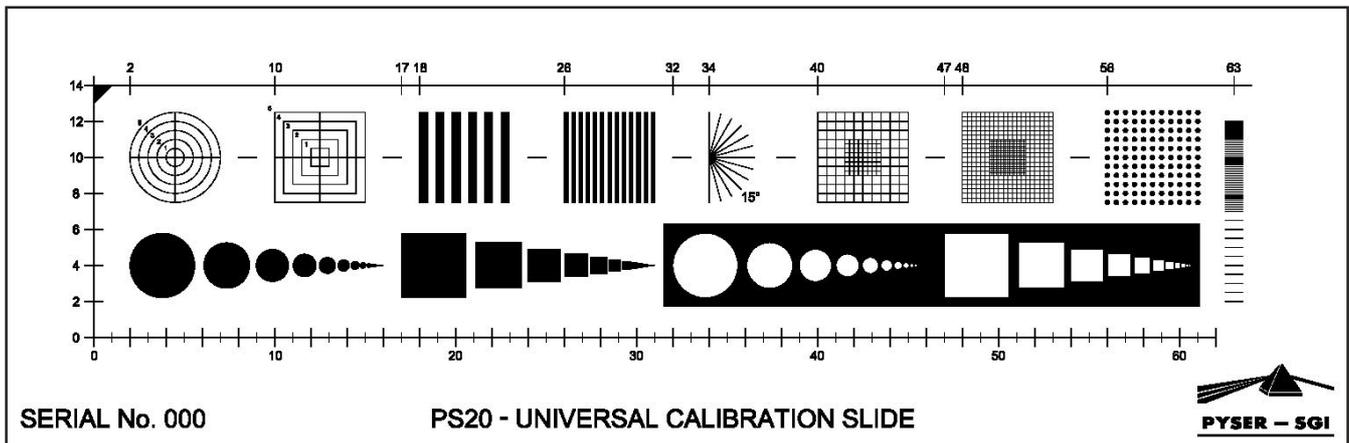
Each glass slide has a unique permanent serial number and can be supplied with full or partial UKAS certificate of accuracy.

Starting from a fixed 'Datum point' mark, each individual pattern or array can be located using X, Y coordinates. See table (over).

| Pattern | Description                 | Order Code |
|---------|-----------------------------|------------|
| PS20    | Universal calibration slide | 05B01095   |

## General Specification

|                             |                                  |           |
|-----------------------------|----------------------------------|-----------|
| General tolerance (microns) | Feature size                     | Tolerance |
|                             | ≤ 10                             | 0.5       |
|                             | 10-50                            | 1.0       |
|                             | 50-127                           | 1.3       |
|                             | 127-250                          | 1.9       |
|                             | > 250                            | 2.54      |
| Coating                     | Enduring evaporated chrome image |           |
| Optical density             | >2.5                             |           |
| Substrate                   | Soda lime glass                  |           |
| Size                        | 76mm x 25mm x 1.5mm              |           |
| Package                     | Polished wooden case             |           |

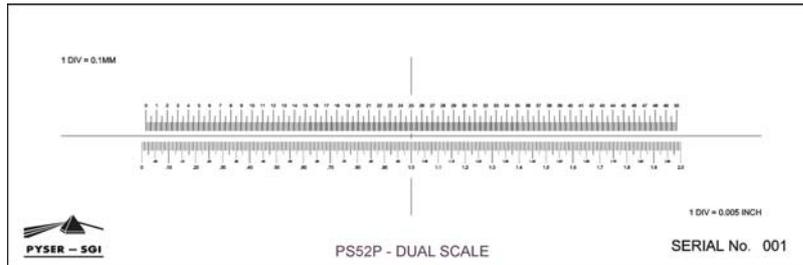


## PS20 Universal Calibration Slide Image Details

| ID | Pattern Name                            | Location     | Description  |
|----|---|--------------|--|
| A  | Concentric Circles                      | X=2<br>Y=10  | 1, 2, 3, 4, 5mm Circles with Cross Line and circle identifier. Line width 20 $\mu$ m   |
| B  | Concentric Squares                      | X=10<br>Y=10 | 1, 2, 3, 4, 5mm Squares with Cross Line and circle identifier. Line width 20 $\mu$ m   |
| C  | Line Grating<br>25 lines /mm            | X=18<br>Y=10 | 12.5 Line Pairs per mm (40 $\mu$ line 40 $\mu$ space)  |
| D  | Line Grating<br>100 lines /mm           | X=26<br>Y=10 | 50 line pairs per mm (10 $\mu$ line 10 $\mu$ space)  |
| E  | Half Protractor                         | X=34<br>Y=10 | 15° Spacing Line width 20 $\mu$  |
| F  | Grid Array<br>Coarse                    | X=40<br>Y=10 | 5mm square array with 0.5mm divisions and central 2mm square with 0.25mm divisions. Line width 20 $\mu$  |
| G  | Grid Array<br>Fine                      | X=48<br>Y=10 | 5mm square array with 0.1mm divisions and central 2mm square with 0.05mm divisions. Line width 8 $\mu$   |
| H  | Dot Array                               | X=56<br>Y=10 | Dot diameter 0.25mm, dot centre to centre spacing 0.50mm — 11x11 grid=121 dots   |
| I  | Geometric progression of Opaque Dots    | X=2<br>Y=4   | <p>Line array of dot or square shapes, of either clear or opaque. Reducing in size in a Root 2 progression for the purposes of edge threshold detection to enable an image analyser to measure the size correctly, or general shape size comparison.</p> <p>Root 2 progression of 21 dots or square shapes, from 3.5<math>\mu</math>m to 3.5mm</p> <p>Nominal size in mm<br/>Dot/square size — Large to small in mm<br/><b>3.5833; 2.5338; 1.7917; 1.2669; 0.8959; 0.6335; 0.4479; 0.3167; 0.2240</b><br/><b>0.1584; 0.1120; 0.0792; 0.0560; 0.0396; 0.0280; 0.0198; 0.0140; 0.0099;</b><br/><b>0.0070; 0.0049; 0.0035</b></p> |
| J  | Geometric progression of Opaque Squares | X=17<br>Y=4  |  |
| K  | Geometric progression of Clear Dots     | X=32<br>Y=4  |  |
| L  | Geometric progression of Clear Squares  | X=47<br>Y=4  |  |
| M  | Vertical Scale<br>Fine Variable         | X=63<br>Y=2  | Overall Scale length 10mm.<br>5mm in 0.5mm divisions. Line width 20 $\mu$<br>4mm in 0.1mm divisions. Line width 10 $\mu$<br>1mm in 0.01mm divisions. Line width 3 $\mu$  |
| N  | Horizontal Scale<br>Coarse              | X=0<br>Y=0   | Scale length 62mm long in 2mm divisions, subdivided in 1mm divisions with a 20 $\mu$ line width  |

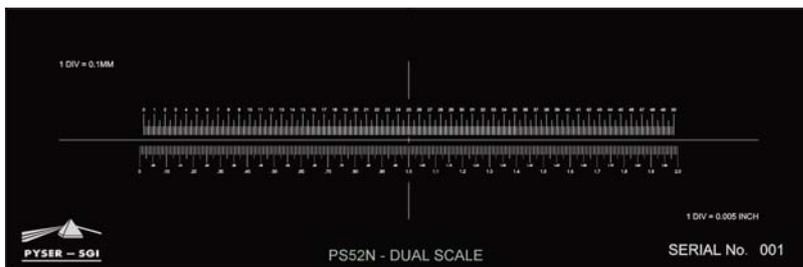
# New Dual Scale Calibration Slides

Pyser-SGI has introduced two new calibration slides that have the benefit of dual imperial/metric scales. The PS52P is for transmitted light applications and has a bright chrome positive image. The PS52N has a negative pattern, formed in low reflective chrome for incident light applications to give excellent contrast. Both are ideal for calibrating optical products with a large field of view, such as stereo microscopes or imaging systems.



## Highlights

- New Dual-Scale Calibration Slides
- 2" Imperial (English) and 50mm Metric Scales on a Single Slide
- Positive and Negative Versions
- Unique Serial Number for Traceability
- Available with Internationally Traceable Certificates of Calibration



## General Specification

|                           |   |
|---------------------------|---|
| Metric scale              | 50mm in 0.1mm divisions   |
| Imperial (English ) scale | 2inch in 0.005inch divisions  |
| Line thickness            | 12 microns  |
| Glass size/type           | 76mm x 25mm x 1.5mm, B270   |
| Serial number             | Unique serial number on slide surface   |
| Case                      | Supplied in polished wooden box   |
| Calibration certificate   | Can be supplied with UKAS certificate of calibration which is internationally traceable and acceptable in all world markets |

| Pattern   | Description  | Order Code           |
|-----------|--|----------------------|
| PS52P     | Dual calibration scale for transmitted light (positive image), 50mm in 0.1mm, 2" in 0.005", serial numbered, supplied in wooden case | <b>05B01052P</b>     |
| PS52P/UKA | As above but with UKAS certificate of calibration, 20 point check  | <b>05B01052P/UKA</b> |
| PS52N     | Dual calibration scale for incidental light (negative image), 50mm in 0.1mm, 2" in 0.005", serial numbered, supplied in wooden case  | <b>05B01052N</b>     |
| PS52N/UKA | As above but with UKAS certificate of calibration, 20 point check  | <b>05B01052N/UKA</b> |

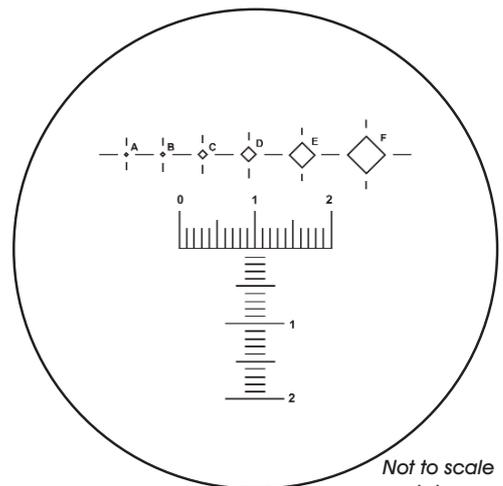
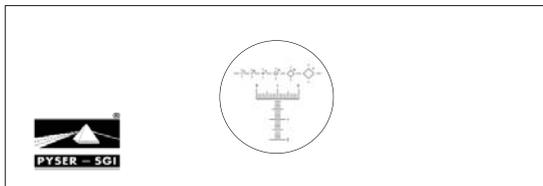
# New Calibration Slides for Hardness Testers

Whichever test method you use, be it Vickers, Rockwell or Brinell, Pyser-SGI have the ideal calibration slide for you. For many years companies have used products such as the Pyser S78 and S1R reflected light stage micrometer scales which give a very straightforward calibration on one axis. Following long discussions with manufacturers of Hardness Testing equipment Pyser has introduced two new products specifically designed for this calibration with shapes to accurately replicate the impression.

For Vickers and Rockwell methods we offer the PS25 which has a series of diamond shapes of varying size and x-y scales. Each of the markings on the slide is clearly identified with its size. The PS25 has a glass disc with the image precision marked in vacuum deposited chrome and this is cemented into a stainless steel slide mount, making the item very durable. The slide has a unique serial number indelibly marked on the slide mount and can be supplied with an Internationally traceable certificate of calibration.

For Brinell methods we offer the PS26 which has a series of circles, to represent the ball indentation shape, of varying size and x-y scales. The PS26 has a precision marked chrome deposition image on a glass slide. Each of the markings on the slide is clearly identified with its size. The slide has a unique serial number indelibly marked on the slide mount and can be supplied with an Internationally traceable certificate of calibration.

Both products are supplied in a polished wooden box.

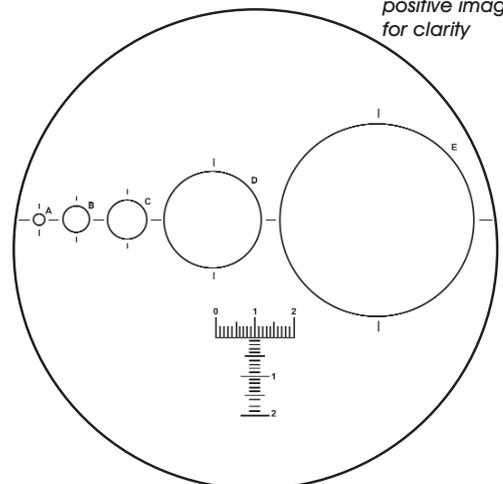
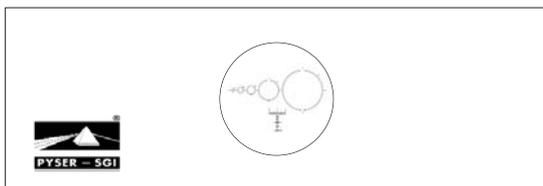


*Not to scale  
and shown as  
positive image  
for clarity*

## PS25 Pattern Detail

Diamonds: (Point to point, mm's) 0.5, 0.3, 0.2, 0.1, 0.05, 0.02

Scales: Horizontal & vertical, 2mm in 0.1mm divisions



## PS26 Pattern Detail

Circles: (Diameter, mm's) 5.0, 2.5, 1.0, 0.7, 0.3

Scales: Horizontal & vertical, 2mm in 0.1mm divisions

| Pattern  | Description  | Order Code          |
|----------|--|---------------------|
| PS25     | PS25 Calibration slide for Vickers and Rockwell hardness testers   | <b>05B01025</b>     |
| PS25/UKA | As above with UKAS (Internationally traceable) certificate of calibration                                  | <b>05B01025/UKA</b> |
| PS26     | PS26 Calibration slide for Brinell hardness testers<br>in 0.005", serial numbered, supplied in wooden case | <b>05B01026</b>     |
| PS26/UKA | As above with UKAS (Internationally traceable) certificate of calibration                                  | <b>05B01026/UKA</b> |

Calibration is performed by a UKAS accredited laboratory, whose measurements are traceable back to the UK's National Metrology Institute, the National Physical Laboratory. All of the NMI's in the world work in harmony under the International diplomatic treaty, the Treaty of the Metre signed in 1875. This means that all measurements carried out by the UKAS accredited laboratory are Internationally traceable so acceptable to satisfy the requirements of NIST, DIN and all other NMI's across the world.



## Long Linear Glass Scales

Parallax free readings

High levels of accuracy. Hard wearing scales in vacuum deposited chrome on substantial glass substrates. For measurement and calibration of instruments and standards.

| Pattern | Description                               | Order Code      |
|---------|---|-----------------|
| PS50    | Micrometer scale 50mm in 0.1mm divisions. | <b>05B01051</b> |
| PS150   | Long scale 150mm in 0.1mm divisions.      | <b>05B01055</b> |
| PS150HS | Long scale 150mm in 1mm divisions.        | <b>05B01060</b> |
| PS300   | Long scale 300mm in 0.1mm divisions.      | <b>05B01056</b> |
| PS300HS | Long scale 300mm in 1mm divisions.        | <b>05B01061</b> |
| PS500   | Long scale 500mm in 1mm divisions.        | <b>05B01057</b> |
| PS1000  | Long scale 1000mm in 1mm divisions.       | <b>05B01058</b> |

| Pattern | Specification  | Line Width | Accuracy (overall) | Size (overall)      |
|---------|----------------|------------|--------------------|---------------------|
| PS50    | 50mm in 0.1mm  | 0.012mm    | Within 0.002mm     | 75mm x 75mm x 3mm   |
| PS150   | 150mm in 0.1mm | 0.03mm     | Within 0.015mm     | 180mm x 30mm x 6mm  |
| PS150HS | 150mm in 1mm   | 0.07mm     | Within 0.01mm      | 180mm x 30mm x 6mm  |
| PS300   | 300mm in 0.1mm | 0.03mm     | Within 0.025mm     | 330mm x 30mm x 6mm  |
| PS300HS | 300mm in 1mm   | 0.07mm     | Within 0.01mm      | 330mm x 30mm x 6mm  |
| PS500   | 500mm in 1mm   | 0.07mm     | Within 0.01mm      | 530mm x 30mm x 6mm  |
| PS1000  | 1000mm in 1mm  | 0.07mm     | Within 0.01mm      | 1066mm x 30mm x 6mm |



## Measuring Scales

These are standard glass scales for in-contact measurements. Ideal for direct vision, for pocket magnifiers and for use in measuring profiles on projector screens.

| Pattern | Description   | Order Code      |
|---------|---|-----------------|
| P6      | Contact nonparallax scale<br>100mm in 0.1mm divisions.<br>Overall size 125mm x 25mm x 2.5mm<br>Line width 0.020mm | <b>22B01300</b> |
| P16     | Contact nonparallax scale<br>300mm in 0.5mm divisions.<br>Overall size 325mm x 25mm x 2.5mm<br>Line width 0.020mm | <b>22B01303</b> |



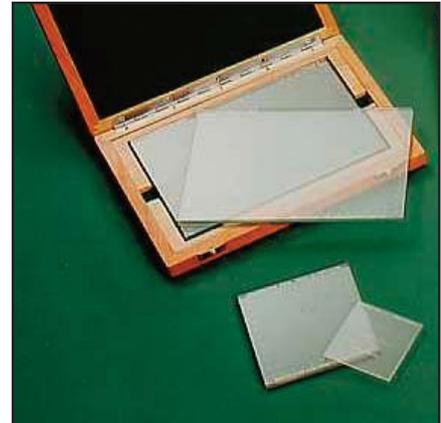
## Calibration Grids

For checking two-dimensional instruments for straightness and accuracy. The patterns are produced in vacuum deposited chrome on glass.

- Lines every 10mm
- Central 20mm subdivided in 1mm rulings.
- Line width 0.008mm
- Linear straightness 0.002mm.
- Angular accuracy within 5 seconds

|                      | PGR 100     | PGR 200     |
|----------------------|-------------|-------------|
| Overall divided area | 100 x 100mm | 140 x 220mm |
| Glass size           | 120 x 120mm | 160 x 240mm |
| Glass thickness      | 6mm         | 6mm         |

| Pattern | Description      | Order Code |
|---------|------------------|------------|
| PGR100  | Calibration grid | 05B01030   |
| PGR200  | Calibration grid | 05B01031   |



## NPL High Precision Optical Dimensional Standards

This range of high precision optical dimensional standards are supplied complete with internationally traceable certificates of calibration from NPL. For full technical information please contact Pyser-SGI Limited, Graticules Division.

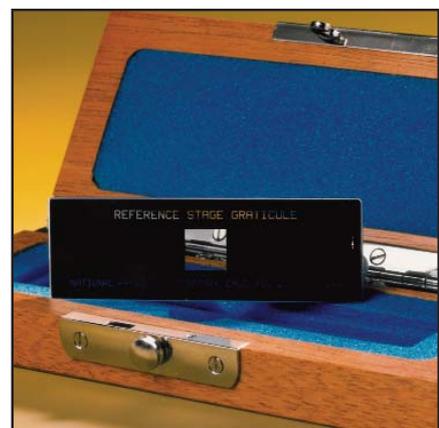
### Image Analysis Standard (Reference Stage graticule)

This calibration stage contains four test areas comprising; a 400 x 400 micron square grid, a 20 x 17 monosize array of 15 micron diameter spots, a Root-2 array of spots from 3 to 48 micron diameter, and a log normally distributed array of 100 spots ranging from 4.5 to 27 micron diameter. It is ideally suited for calibrating image analyser systems and can also be used as a high precision micrometer.

| Pattern | Description                                    | Order Code |
|---------|--|------------|
| RSG     | Reference stage graticule<br>75mm x 25mm slide | 05B01085   |

For all other NPL High Precision Dimensional Standards including:

- Two dimensional grid plate standards
- Line scale standards
- Line width standards
- Optical dimensional standards



# Other products



Please contact Pyser-SGI Limited



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