

Schedule of Dimensional Calibration

Issue No: 02

Issue date: 10 June 2003

SUMMARY OF SERVICES

Calibration performed on permanent laboratory premises

Dimensional

Angle gauges, precision
Angle plates, box angle plates
Autocollimator and angle dekkors
Balls
Clinometers
Cylindrical setting standards
Dial gauges, lever
Dial gauges, plunger
Gauge block accessories
Gauge block comparators
Gauge blocks (by comparison)
Gauge blocks (by interferometry)
Indexing tables
Length bar accessories
Length bars
Levels, electronic
Levels, spirit
Measuring machines, horizontal and vertical
Micrometers, depth
Micrometers, external
Micrometers, height setting
Micrometers, height setting riser blocks
Micrometers, internal
Optical flats
Optical parallels
Parallels, engineers
Plain gap gauges, parallel
Plain plug gauges, parallel
Plain plug gauges, taper
Plain ring gauges, parallel
Plain ring gauges, taper
Plain setting rings, parallel
Polygons
Receiver & position gauges, jigs, fixtures
Rotary tables and dividing heads
Scales, precision linear
Screw plug gauges, parallel
Screw ring gauges, parallel
Sine bars, centres, tables
Sine tables, compound
Squares, blade
Squares, block
Squares, cylindrical
Steel rule, engineers
Step gauges,
Straightedges
Surface plates & tables
Thread diameter measuring machines
Thread measuring cylinders
Vee blocks
Vernier gauges, calliper
Vernier gauges, depth
Vernier gauges, height

DETAIL OF CALIBRATION SERVICE

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as An Expanded Uncertainty (k=2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETERS UNLESS OTHERWISE STATED			
LENGTH			NOTES
Gauge Block Inch (Steel, tungsten carbide and ceramic)	As BS 4311:Parts 1 and 3:1993 Up to 0.4 in up to 1 in Above 0.4 in up to 1 in Size 2 in Size 3 in Size 4 in	3 4 5 6 7 μ inch	Comparison Uncertainties apply to the measurement of length of steel, tungsten carbide and ceramic gauges by comparison with grade K standards of length of a similar material. Class C uncertainties apply to grade 0, 1 and 2 gauges to BS EN ISO 3650:1999 and represent the best capability for all grades of used gauges to BS 4311: part 3:1993.
Millimetre (Steel, Tungsten carbide and ceramic)	As BS EN IS) 3650:1999 Up to 10 Above 10 up to 25 Sizes 30,40,50, Sizes 60,70,75, Sizes 80,90,100	0.08 0.10 0.12 0.15 0.18	
Length Bars	As BS 5317:1976 Calibration and grades 1 and 2 100 and up to 600 As BS 1790:1961 Reference, calibration, inspection and workshop grades As ASME B89 1.2M:1991 4 inches to 24 inches	0.12 + (2 x L in m) 4.7 + (2 x length in inches) μ inches	
Gauge Block Accessories	BS 4311:Part 2:1994	0.3	
Length bar accessories	As BS 5317	0.3	
Step gauges	Up to 3000	2.3 + (1/300) 1 in mm	
Thread measuring cylinders	As BS 5590:1978 and specials	2	
Plain plug gauges (parallel),cylindrical setting standards, gear measuring cylinders and rollers	0 to 100mm Above 100mm to 600mm	(0.07 + L/700) (0.07+L/600)	
Plain plug gauges (taper) Taper up to 1 in 8 diameter	From 0 up to 100 diameter	2	

DETAIL OF CALIBRATION SERVICE

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as An Expanded Uncertainty (k=2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETERS UNLESS OTHERWISE STATED			
LENGTH (CONT/D...)			NOTES
Plain ring gauges (parallel), and setting standards	From 0 up to 10 diameter Above 10 up to 400	0.4 (0.25 + L/350)	
Plain gap gauges (parallel)	From 1 up to 10 Above 10 to 400	0.4 (0.25 + L/350)	
Screw plug gauges (parallel) including check and setting plugs	From 1 up to 100 diameter	2	
Screw ring gauges (parallel) <i>See Note 5</i>	From 1 up to 100 diameter	4	
Parallels	As BS 906:Part 1:1972 up to 50 x 100 x 400	2.3 +L/300	
Precision Scales (linear)	Up to 50mm 50 to 300mm	1 2.5	
ANGLE			
Angle Gauges			
Squares Blade type Cylindrical Block	As BS 939:1977 up to 450 As BS 939:1977 up to 450 As BS 939:1977 up to 450 Above 450 up to 600 600 up to 900		
Sine bars and tables	As BS 3064:1978 and up to 500 Length		
FORM			
Surface plates Granite Cast iron	As BS 817:1988 and above	0.6um	
Straightedges Cast iron	As BS 5204:Part 1:1975 and above		
Steel Granite	As BS 5204:Part 2:1977 and above		
Toolmakers	As BS 852:1939		

DETAIL OF CALIBRATION SERVICE

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as An Expanded Uncertainty (k=2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETERS UNLESS OTHERWISE STATED			
LENGTH			NOTES
Optical Flats and parallels	Up to 100 diameter	0.135	
Optical Flats	Above 100 up to 230 diameter	0.135	
Tungsten Carbide Balls	From 2 up to 100 diameter	$0.07 + L/700$	
Steel balls	From 2 up to 600 diameter		
MEASURING INSTRUMENTS AND MACHINES			
Tesa gauge block comparator		0.03	
Single axis measuring machine	Measuring scale up to 10mm Above 10mm to 25mm Above 25mm to 50mm Above 50mm to 75mm Above 75mm to 100mm	0.16 0.18 0.20 0.24 0.30	
Micrometers			
External	As BS 870:1950 and above	1.6	
Internal	As BS 959:1959		
Depth	As MOY/SCMI/38 and up to 300		
Height setting micrometer	Up to 300	1.6	
Riser blocks for above	150 300		
Vernier gauges			
Caliper	As BS 887:1982	Up to 1200 25 um	
Height	As BS 1643: 1983		
Depth	Up to 600		
Dial gauge calibrators	As BS 1734: 1951	1.0	
Dial gauges and dial test indicators	As BS 907:1965 and BS 2795:1981	1.0	
Thread diameter measuring	As NPL schedules MOY/SCMI/19 And MOY/SCMI/12 up to 300		

Issue No: 02

Issue date: 10 June 2003

Clinometers and electronic levels	Scale graduation 20 µm/m 50 µm/m 100 µm/m	3 µm/m 6 µm/m 12 µm/m	
Spirit levels	As BS 958:1968 and BS 3509:1962	0.2°	

DETAIL OF CALIBRATION SERVICE

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as An Expanded Uncertainty (k=2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETERS UNLESS OTHERWISE STATED			
LENGTH			NOTES
CMMs - verification CMM artefact			
Steel rules	Up to 1 m	40	
Measuring tapes	Up to 5 m	100	