

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>UKAS CALIBRATION 0339</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3>Harris Gauges</h3> <p>Issue No: 012 Issue date: 30 November 2010</p>	
	<p>Unit 2 Ptarmigan Place Attleborough Fields Industrial Estate Nuneaton CV11 6RX</p>	<p>Contact: Mr D J Harris Tel: +44 (0)24 76326362 Fax: +44 (0)24 76327853 E-Mail: email@harrisgauges.co.uk Website: www.harrisgauges.co.uk</p>
<p>Calibration performed at the above address only</p>		

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks								
<p>RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED</p>											
<p>LENGTH</p> <p>Gauge Blocks</p> <p>Inch (Steel)</p>	<p>As BS 4311-1:2007</p> <p>0.01 inch to 0.4 inch.</p> <p>0.4 inch to 1 inch</p> <p>2 inch</p> <p>3 inch</p> <p>4 inch</p>	<p>Class (See Notes)</p> <table border="0"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">C</td> <td rowspan="6" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="6" style="vertical-align: middle;">μ inches</td> </tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">3.0</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">4.0</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">5.0</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">6.0</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">7.0</td></tr> </table>	C	}	μ inches	3.0	4.0	5.0	6.0	7.0	<p>NOTES</p> <p>Class C uncertainties apply to the measurement of length of gauges by comparison with grade K standards of length of a similar material. Class C uncertainties apply to new and used grade 0, 1 and 2 gauges to BS 4311-1:2007 and BS EN ISO 3650:1999.</p> <p>1. All linear calibrations may be given in inch units.</p> <p>2. The uncertainty quoted is for the departure from flatness, straightness, or squareness, ie the distance separating the two parallel planes which just enclose the surface under consideration.</p>
C	}	μ inches									
3.0											
4.0											
5.0											
6.0											
7.0											
<p>Millimetre (Steel)</p>	<p>As BS EN ISO 3650:1999</p> <p>0.25 to 10</p> <p>10 to 25</p> <p>30, 40, 50</p> <p>60, 70, 75</p> <p>80, 90, 100</p>	<table border="0"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">C</td> <td rowspan="6" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="6" style="vertical-align: middle;">μ inches</td> </tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">.080</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">.10</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">.12</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">.15</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">.18</td></tr> </table>	C	}	μ inches	.080	.10	.12	.15	.18	
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.080											
.10											
.12											
.15											
.18											
<p>Plain plug gauges (parallel)</p>	<p>1 to 50 diameter</p> <p>50 to 100</p> <p>100 to 150</p>	<table border="0"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">1.0</td> <td rowspan="3" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="3" style="vertical-align: middle;">on diameter</td> </tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">1.5</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">2.0</td></tr> </table>	1.0	}	on diameter	1.5	2.0				
1.0	}	on diameter									
1.5											
2.0											
<p>Plain ring gauges (parallel) and setting standards</p>	<p>2 to 10 diameter</p> <p>10 to 100</p> <p>100 to 200</p>	<table border="0"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">1.5</td> <td rowspan="3" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="3" style="vertical-align: middle;">on diameter</td> </tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">1.0</td></tr> <tr><td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">2.0</td></tr> </table>	1.5	}	on diameter	1.0	2.0				
1.5	}	on diameter									
1.0											
2.0											
<p>Length gauges, flat and spherical ended (excluding length bars)</p>	<p>25 to 600</p>	<p>1.0 + 8.0 x (length in m)</p>									
<p>Plain gap gauges (parallel)</p>	<p>0.5 to 100</p> <p>100 to 200</p>	<p>3.0</p> <p>5.0</p>									
<p>Parallels</p>	<p>As BS 906:1972</p> <p>5 to 50 x 100 x 400</p>	<p>1.2 to 5.0</p>									



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RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
LENGTH (cont'd)			NOTES (cont'd)
Vee blocks	As BS 3731:1987 20 to 150 diameter, vee capacity	2.5 to 5.0	
ANGLE			
Squares			
Blade type	As BS 939:2007 50 to 300 300 to 600	3.0 On squareness 5.0 See Note 2	
Angle plates and box angle plates	As BS 5535:1978 50 to 600	Squareness: 3.0 + (1.0 per 100 mm) Parallelism: 1.0 + (1.0 per 100 mm) See note 2	
Bevel protractors	As BS 1685:2008 0 to 360 degrees	2.0 minutes of arc	
MEASURING INSTRUMENTS AND MACHINES			
Micrometers			
External	As BS 870:2008 0 to 1200	Heads 2.0 between any two points. Setting and extension rods 1.0 + (8.0 x length in m)	
Internal	As BS 959:2008 0 to 1200		
Depth	As BS 6468:2008 0 to 300		
Micrometer heads	As BS 1734:1951 0 to 100	1.0	
Bench micrometer	As NPL MOY/SCMI 22 0 to 100	Overall performance 2.0 between any two points	
Height setting micrometer	0 to 300mm	Heads 1.0 Stepped column 1.6 Overall performance 2.0	
Riser blocks for above	150 300	1.0 2.0	
Indicating micrometers	0 to 100	Indicators 0.50 Overall performance 1.5	
Bore micrometers (three point)	3 to 150 diameter	Overall performance 5.0	



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RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
MEASURING INSTRUMENTS AND MACHINES (cont'd)			
Vernier gauges			
Caliper	As BS 887:2008 0 to 1200		
Height including dial and digital type	As BS 1643:2008 0 to 1200	Overall performance 10 + (30 x length in m)	
Depth	As BS 6365:2008 0 to 300		
Dial gauges and dial test indicators	As BS 907:2008 and BS 2795:1981 0 to 50	1.0	
Comparators (external)	As BS 1054:1975 250 to 20 000 magnifications	1.0 % of range Minimum 0.10	
Bore indicators	3 to 150	Overall performance 5.0	
Feeler Gauges	As BS 957:2008	3.0	
Internal and External Calliper Gauges	3 to 150	Overall performance 5.0	
END			