

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS CALIBRATION</p> <p>0441</p> <p>Accredited to ISO/IEC 17025:2005</p>	Euro Products Ltd	
	Issue No: 029	Issue date: 23 December 2010
<p>Yardley House Yardley Street Stourbridge West Midlands DY9 7AT</p>	<p>Contact: Mr D Perkins Tel: +44 (0)1384 895000 Fax: +44 (0)1384 897000 E-Mail: sales@europroducts.co.uk Website: www.europroducts.co.uk</p>	
Calibration performed at the above address only		

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS INDENTERS			
Rockwell A, C, D and N diamond indenters for testing and standardizing machines	Cone angle Tip radius Straightness of flank cone Length of straight flank Axis	0.03 degrees of arc 3 μm 0.26 μm 10 μm 0.03 degrees of arc	<p>1 The calibrations shall be in accordance with the requirements of BS EN ISO 6508:2005, ASTM E18-08 and ISO/R 1355</p> <p>2 The calibration shall be in accordance with the requirements of BS EN ISO 6507:2005, ASTM E384-10, BS EN ISO 4545:2005</p>
Vickers diamond indenters for testing and standardizing machines	Angle between opposite faces of the diamond pyramid Angles in section of normal to the axis of the diamond pyramid	0.05 degrees of arc	
Micro Vickers diamond indenters for testing machines	Inclination of the axis of the diamond pyramid to the axis of the indenter (normal to the seating surface) Line of junction between opposite faces	0.5 μm	<p>3 The calibration shall be in accordance with the requirements of BS EN ISO 6506:2005 and ASTM E10-10.</p> <p>4 Steel and Carbide Balls</p> <p>5. Traceability to manufacturers specification. Calibrations to be in accordance with ASTM A956:2006 and DIN 50156 Part 3 :2007</p>
Knoop diamond indenters for testing and standardizing machines			
Calibration of indenter holders	1/16" to 1/2" ball holders	0.5 HRBW	
HARDNESS			
Calibration of Rockwell Standardised Hardness Blocks	Rockwell scales: HRA Scale 86 to 85 70 to 79 60 to 69	See Note 1 0.15 HRA 0.16 HRA 0.28 HRA	



0441
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Euro Products Ltd
Issue No: 029 Issue date: 23 December 2010

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS (cont'd)			
Calibration of Rockwell Standardised Hardness Blocks (cont'd)	Rockwell scales:	See Note 1	
	HRB Scale		
	80	0.42 HRB	
	51 to 79	0.87 HRB	
	10 to 50	1.36 HRB	
	HRC Scale		
	60 to 70	0.31 HRC	
	40 to 59	0.32 HRC	
	20 to 39	0.37 HRC	
	HRD Scale		
	70 to 80	0.17 HRD	
	50 to 69	0.25 HRD	
	40 to 49	0.27 HRD	
	HRE Scale		
	89	0.54 HRE	
	75 to 88	0.54 HRE	
	65 to 87	0.54 HRE	
	HRF Scale		
	87	0.40 HRF	
	70 to 86	0.40 HRF	
	40 to 69	0.54 HRF	
	HRG Scale		
	80	0.30 HRG	
	40 to 79	0.30 HRG	
	10 to 39	0.76 HRG	
	HRH Scale		
	90	0.40 HRH	
	80 to 89	0.40 HRH	
	60 to 79	0.68 HRH	
	HRK Scale		
	70	0.40 HRK	
	30 to 69	0.40 HRK	
	10 to 29	0.64 HRK	
	HRL Scale		
	115	0.35 HRL	
	90 to 114	0.35 HRL	
	HRM Scale		
	100	0.56 HRM	
	70 to 99	0.56 HRM	
	HRP Scale		
	85	0.65 HRP	
	40 to 84	0.91 HRP	
	HRR Scale		
	120	0.23 HRR	
	100 to 119	0.40 HRR	



0441
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Euro Products Ltd
Issue No: 029 Issue date: 23 December 2010

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS (cont'd)			
Calibration of Rockwell Standardised Hardness Blocks (cont'd)	Rockwell Scales	See Note 1	
	HRS Scale		
	112	0.19 HRS	
	110 to 111	0.91 HRS	
	HRV Scale		
	104 to 81	0.20 HRV	
	80 to 103	0.61 HRV	
	HR15N Scale		
	90 to 95	0.18 HR15N	
	80 to 89	0.18 HR15N	
	40 to 79	0.39 HR15N	
	HR15T Scale		
	88 to 100	0.21 HR15T	
	80 to 87	0.21 HT15T	
	20 to 79	0.37 HR15T	
	HR15W Scale		
	89 to 100	0.53 HR15W	
	80 to 88	0.44 HR15W	
	HR15X Scale		
	88 to 100	0.33 HR15X	
	80 to 87	0.62 HR15X	
	HR15Y Scale		
	94 to 100	0.63 HR15Y	
	85 to 93	1.30 HR15Y	
	HR30N Scale		
	77 to 85	0.27 HR30N	
	60 to 76	0.27 HR30N	
	40 to 59	0.55 HR30N	
	HR30T Scale		
	57 to 85	0.39 HR30T	
	50 to 56	0.66 HR30T	
	20 to 49	0.90 HR30T	
	HR30W Scale		
	65 to 100	0.76 HR30W	
	40 to 64	0.90 HR30W	
	HR30X Scale		
	79 to 100	0.15 HR30X	
	60 to 78	0.99 HR30X	
	HR30Y Scale		
	88 to 100	0.37 HR30Y	
	60 to 87	0.82 HR30Y	



0441
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Euro Products Ltd
Issue No: 029 Issue date: 23 December 2010

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS (cont'd)			
Calibration of Rockwell Standardised Hardness Blocks (Cont'd)	Rockwell scales: HR45N Scale 67 to 75 50 to 66 10 to 49 HR45T Scale 50 to 75 40 to 49 10 to 39 HR45W Scale 49 to 100 10 to 47 HR45X Scale 69 to 100 40 to 68 HR45Y Scale 82 to 100 60 to 81	See Note 1 0.18 HR45N 0.21 HR45N 0.43 HR45N 0.40 HR45T 0.40 HR45T 0.73 HR45T 0.12 HR45W 0.29 HR45W 0.34 HR45X 0.81 HR45X 0.29 HR45Y 0.94 HR45Y	
Calibration of Vickers Reference Hardness Blocks	Vickers scales: HV 0.2 200 HV 0.2 400 HV 0.2 700 HV 0.3 200 HV 0.3 400 HV 0.3 700 HV 0.5 200 HV 0.5 400 HV 0.5 700 HV1 200 HV1 400 HV1 700 HV2 200 HV2 400 HV2 700 HV5 200 HV5 400 HV5 700 HV 10 200 HV 10 400 HV 10 700 HV 20 200 HV 20 400 HV 20 700	See Note 2 7.0 HV 17.0 HV 20.0 HV 6.0 HV 16.0 HV 19.0 HV 5.0 HV 15.0 HV 17.0 HV 8.7 HV 21.4 HV 44.0 HV 6.9 HV 16.3 HV 31.0 HV 3.9 HV 11.0 HV 19.7 HV 3.1 HV 7.7 HV 14.9 HV 2.5 HV 6.2 HV 11.0 HV	



0441
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Euro Products Ltd
Issue No: 029 Issue date: 23 December 2010

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS (cont'd)			
Certification of reference Vickers hardness measurements (cont'd)	Vickers Scales: HV 30 200 HV 30 400 HV 30 700 HV 50 200 HV 50 400 HV 50 700 HV 100 200 HV 100 400 HV 100 700 HV 5 to HV 125 HV 0.2 to HV 3 HV 0.01 to HV 0.1	See Note 2 2.0 HV 4.4 HV 9.3 HV 1.9 HV 3.5 HV 6.3 HV 1.2 HV 3.4 HV 4.1 HV 1 μ m	
Certification of reference Brinell hardness measurements	Brinell Scales HBW 10/3000 to HBW 1/1	See Note 3 3 μ m	
Calibration of Brinell Standardised Hardness Blocks	Brinell Scales: Ratio (F/D ²) = 30 10/3000 500HBW to 600 HBW 10/3000 400HBW to 499 HBW 10/3000 370HBW to 399 HBW 10/3000 330HBW to 369 HBW 10/3000 300HBW to 329 HBW 10/3000 270HBW to 299 HBW 10/3000 230HBW to 269 HBW 10/3000 200HBW to 229 HBW 10/3000 170HBW to 199 HBW 10/3000 140HBW to 169 HBW 5/750 500 HBW to 600 HBW 5/750 400 HBW to 499 HBW 5/750 370 HBW to 399 HBW 5/750 330 HBW to 369 HBW 5/750 300 HBW to 329 HBW 5/750 270 HBW to 299 HBW 5/750 230 HBW to 269 HBW 5/750 200 HBW to 229 HBW 5/750 170 HBW to 199 HBW 5/750 140 HBW to 169 HBW 2.5/187.5 500 HBW to 600 HBW 2.5/187.5 400 HBW to 499 HBW 2.5/187.5 370 HBW to 399 HBW 2.5/187.5 330 HBW to 369 HBW 2.5/187.5 300 HBW to 329 HBW 2.5/187.5 270 HBW to 299 HBW 2.5/187.5 230 HBW to 269 HBW 2.5/187.5 200 HBW to 229 HBW 2.5/187.5 170 HBW to 199 HBW 2.5/187.5 140 HBW to 169 HBW	See Note 3 10.58 HBW 8.54 HBW 6.63 HBW 6.07 HBW 5.33 HBW 4.81 HBW 4.28 HBW 3.59 HBW 3.10 HBW 2.60 HBW 14.31 HBW 11.37 HBW 8.67 HBW 7.89 HBW 6.86 HBW 6.15 HBW 5.43 HBW 4.50 HBW 3.84 HBW 3.19 HBW 20.15 HBW 16.03 HBW 12.23 HBW 11.11 HBW 9.71 HBW 8.71 HBW 7.69 HBW 5.14 HBW 4.37 HBW 3.61 HBW	



0441
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Euro Products Ltd

Issue No: 029 Issue date: 23 December 2010

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k=2$)	Remarks
HARDNESS (cont'd)			
Calibration of Brinell Standardised Hardness Blocks	Ratio (F/D ²) = 15 10/1500 270 HBW to 299 HBW 10/1500 230 HBW to 269 HBW 10/1500 200 HBW to 229 HBW 10/1500 170 HBW to 199 HBW 10/1500 140 HBW to 169 HBW 10/1500 110 HBW to 139 HBW 10/1500 99 HBW to 109 HBW 10/1500 55 HBW to 98 HBW Ratio (F/D ²) = 10 10/1000 140 HBW to 169 HBW 10/1000 110 HBW to 139 HBW 10/1000 90 HBW to 109 HBW 10/1000 55 HBW to 89 HBW Ratio (F/D ²) = 30 5/250 140 HBW to 169HBW 5/250 110 HBW to 150HBW 5/250 90 HBW to 109HBW 5/250 55 HBW to 89HBW Ratio (F/D ²) = 5 10/500 90 HBW to 100 HBW 10/500 55 HBW to 89 HBW	5.26 HBW 4.65 HBW 3.86 HBW 3.30 HBW 2.76 HBW 2.20 HBW 1.70 HBW 1.52 HBW 2.89 HBW 2.32 HBW 1.76 HBW 1.41 HBW 3.23 HBW 2.82 HBW 1.94 HBW 1.54 HBW 1.76 HBW 1.53 HBW	
Calibration of Leeb hardness reference blocks	Leeb Scale: HLC HLD HLDL HLE HLG HLS	See note 6 10 Leeb units 10 Leeb unite 10 Leeb units 10 Leeb units 10 Leeb units 10 Leeb units	
END			