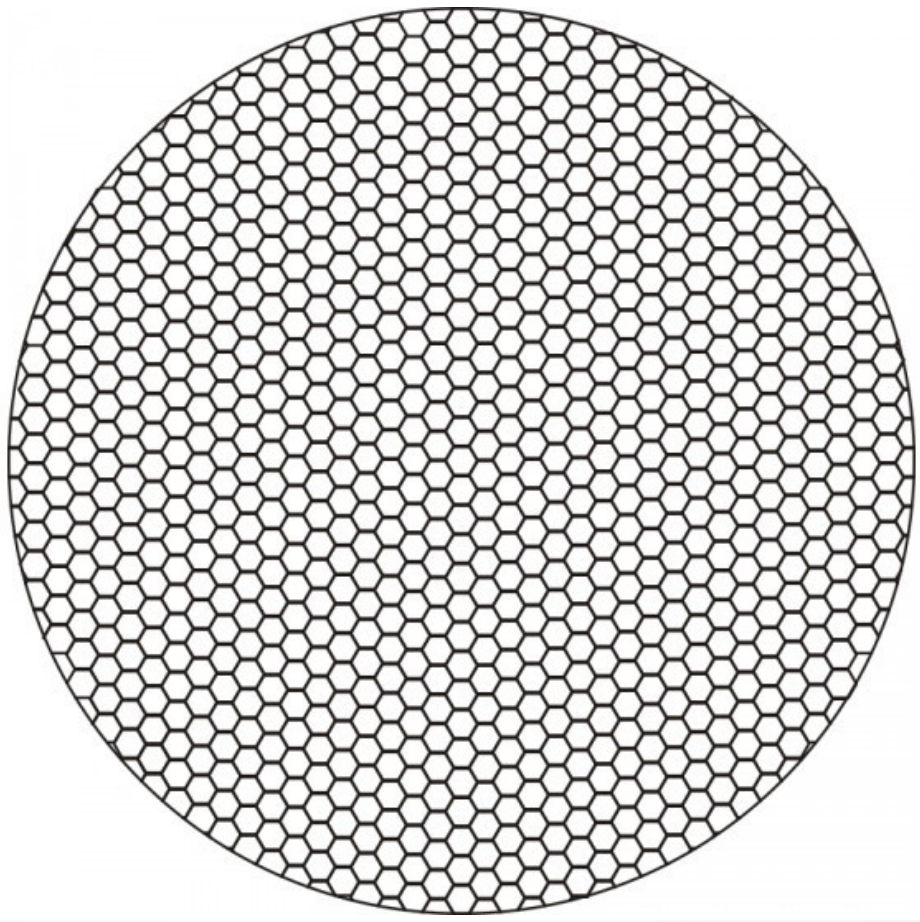
SC METROMAT SRL

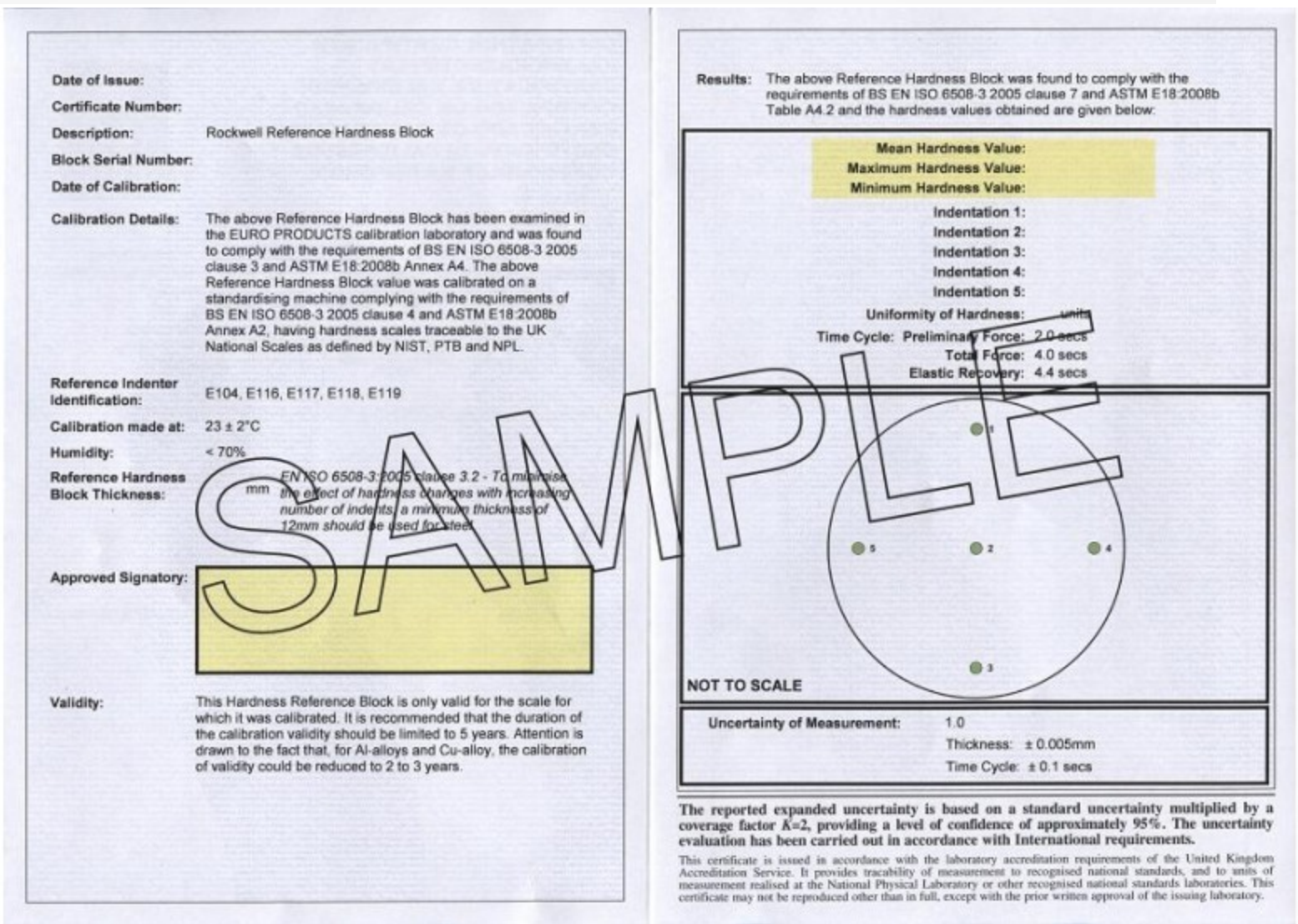
Compartimentul Comercial: 505600 - Sacele - Piata Libertatii nr.2 - tel/fax: 0268 275 212; 0268 276 807 **e-mail: sales@metromat.ro - comert@metromat.ro**

HRC62 with 2mm Hexagonal Grid & UKAS Certificate

The HRC Rockwell Type Hardness Reference blocks are manufactured and calibrated by Euro Products at our own premises. Each block is measured to ensure the highest levels of accuracy. Supplied with UKAS Certification to ASTM E18 & EN ISO 6508. Marked with a 2mm Hexagonal grid for greater ease of test placement.



SKU	HRC62U/A
Material	STEEL
Size / Dimensions	65mm Diameter x 15mm Thickness
Calibration Description	Reference Hardness Rockwell test block is calibrated using a Master Rockwell Diamond Indenter with a pre load of 10Kg and a full load of 150Kg.
Tolerance on Supplied Hardness Value From Nominal Quoted Value	Supplied within ± 1 Rockwell Point of the quoted Nominal Value.
Full Load Force Applied During Calibration	150 Kg
Uncertainty of Measurement	0.5 Rockwell Points.



Date of Issue:
Certificate Number:
Description: Rockwell Reference Hardness Block
Block Serial Number:
Date of Calibration:

Calibration Details: The above Reference Hardness Block has been examined in the EURO PRODUCTS calibration laboratory and was found to comply with the requirements of BS EN ISO 6508-3 2005 clause 3 and ASTM E18:2008b Annex A4. The above Reference Hardness Block value was calibrated on a standardising machine complying with the requirements of BS EN ISO 6508-3 2005 clause 4 and ASTM E18:2008b Annex A2, having hardness scales traceable to the UK National Scales as defined by NIST, PTB and NPL.

Reference Indenter Identification: E104, E116, E117, E118, E119

Calibration made at: 23 ± 2°C

Humidity: < 70%

Reference Hardness Block Thickness: mm *EN ISO 6508-3:2005 clause 3.2 - To minimise the effect of hardness changes with increasing number of indents, a minimum thickness of 12mm should be used for steel.*

Approved Signatory:

Validity: This Hardness Reference Block is only valid for the scale for which it was calibrated. It is recommended that the duration of the calibration validity should be limited to 5 years. Attention is drawn to the fact that, for Al-alloys and Cu-alloy, the calibration of validity could be reduced to 2 to 3 years.

Results: The above Reference Hardness Block was found to comply with the requirements of BS EN ISO 6508-3 2005 clause 7 and ASTM E18:2008b Table A4.2 and the hardness values obtained are given below:

Mean Hardness Value:
Maximum Hardness Value:
Minimum Hardness Value:

Indentation 1:
Indentation 2:
Indentation 3:
Indentation 4:
Indentation 5:

Uniformity of Hardness: units
Time Cycle: Preliminary Force: 2.0 secs
Total Force: 4.0 secs
Elastic Recovery: 4.4 secs

1
5 2 4
3

NOT TO SCALE

Uncertainty of Measurement: 1.0
Thickness: ± 0.005mm
Time Cycle: ± 0.1 secs

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor K=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with International requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

SAMPLE

Indirect tolerances for Rockwell testing machines.

ASTM E18-08b Table A1.3 Maximum Allowable Repeatability and Error of Testing Machines for Ranges of Standardised Test Blocks

Range of Standardised Test Blocks[A]		Maximum Repeatability, R (HR units)	Maximum Error, E (HR units)
HRA	70 to 78	1.5	±1.0
	80 to 84	1.5	±0.8
HRB(W)	40 to 59	2.0	±1.5
	60 to 79	1.5	±1.0
	80 to 100	1.5	±1.0
HRC	20 to 30	2.0	±1.0
	35 to 55	1.5	±1.0
	60 to 65	1.5	±0.8
HRD	40 to 48	2.0	±1.0
	51 to 67	1.5	±1.0
	71 to 75	1.5	±0.8
HR(W)	70 to 79	1.5	±1.0
	84 to 90	1.5	±1.0
	93 to 100	1.5	±1.0
HRF(W)	60 to 73	1.5	±1.0
	80 to 95	1.5	±1.0
	96 to 100	1.5	±1.0
HRG(W)	30 to 50	2.0	±1.0
	55 to 75	2.0	±1.0
	80 to 94	2.0	±1.0
HRH(W)	80 to 94	2.0	±1.0
	96 to 100	2.0	±1.0
HRK(W)	40 to 60	1.5	±1.0
	65 to 80	1.5	±1.0
	85 to 100	1.5	±1.0
HR15N	70 to 77	2.0	±1.0
	78 to 88	1.5	±1.0
	90 to 92	1.0	±0.8
HR30N	42 to 56	2.0	±1.0
	55 to 73	1.5	±1.0
	77 to 82	1.0	±0.8
HR45N	20 to 31	2.0	±1.0
	37 to 61	1.5	±1.0
	66 to 72	1.0	±0.8
HR15T(W)	74 to 80	2.0	±1.5
	81 to 86	1.5	±1.0
	87 to 93	1.0	±0.8
HR30T(W)	43 to 56	2.0	±1.5
	57 to 69	1.5	±1.0
	70 to 83	1.5	±1.0
HR45T(W)	10 to 32	2.0	±1.5
	33 to 52	1.5	±1.0
	53 to 73	1.5	±1.0
HRL(W)[B], HRM(W)[B], HRP(W)[B], HRR(W)[B], HRS(W)[B], HRV(W)[B], HR15W(W)[B], HR30W(W)[B], HR45W(W)[B], HR15X(W)[B], HR30X(W)[B], HR45X(W)[B], HR15Y(W)[B], HR30Y(W)[B], HR45Y(W)[B]		2.0	±1.0

[A] The user may find that high, medium and low range test blocks are unavailable commercially for some scales. In these cases, one or two standardised test blocks where available may be used. It is recommended that all high range test blocks for Rockwell scales using a ball indenter should be less than 100 HR units.

[B] Appropriate ranges of standardised test blocks for the L, M, P, R, S, V, W, X and Y scales shall be determined by dividing the usable range of the scale into two ranges, if possible.

EN ISO 6508-2:2005 Table 5 Permissible Repeatability and Error of the Testing Machine

Rockwell Hardness Scale	Hardness Range of the Reference Block	Permissible Error (HR units)	Permissible Repeatability of the Testing Machine[a]
A	20 to ≤ 75 HRA	±2 HRA	≤ 0.02 (100- $\bar{A}$) or 0.8 Rockwell units[b]
A	> 75 to ≤ 88 HRA	±1.5 HRA	≤ 0.02 (100- $\bar{A}$) or 0.8 Rockwell units[b]
B	20 to ≤ 45 HRB	±4 HRB	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
B	> 45 to ≤ 80 HRB	±3 HRB	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
B	> 80 to ≤ 100 HRB	±2 HRB	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
C	20 to ≤ 70 HRC	±1.5 HRC	≤ 0.02 (100- $\bar{A}$) or 0.8 Rockwell units[b]
D	40 to ≤ 70 HRD	±2 HRD	≤ 0.02 (100- $\bar{A}$) or 0.8 Rockwell units[b]
D	> 70 to ≤ 77 HRD	±1.5 HRD	≤ 0.02 (100- $\bar{A}$) or 0.8 Rockwell units[b]
E	70 to ≤ 90 HRE	±2.5 HRE	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
E	> 90 to ≤ 100 HRE	±2 HRE	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
F	60 to ≤ 85 HRF	±3 HRF	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
F	> 90 to ≤ 100 HRF	±2 HRF	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
G	30 to ≤ 50 HRG	±6 HRG	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
G	> 50 to ≤ 75 HRG	±4 HRG	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
G	> 75 to ≤ 94 HRG	±3 HRG	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
H	80 to ≤ 100 HRH	±2 HRH	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
K	40 to ≤ 60 HRK	±4 HRK	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
K	> 60 to ≤ 80 HRK	±3 HRK	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
K	> 80 to ≤ 100 HRK	±2 HRK	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
N		±2 HRN	≤ 0.04 (130- $\bar{A}$) or 1.2 Rockwell units[b]
T		±3 HRT	≤ 0.06 (100- $\bar{A}$) or 2.4 Rockwell units[b]

[a] where $\bar{A}$ is the mean hardness value.
[b] whichever is greater.

CALIBRATION CERTIFICATE
KALIBRIERZERTIFIKAT
CERTIFICAT DE CALIBRATION
CERTIFICADO DE CALIBRAÇAO
CERTIFICADO DE CALIBRACIÓN
CERTIFICATO DI CALIBRATURA
СЕРТИФИКАТ КАЛБРОВКИ
定标证书
校正証明書

UKAS CALIBRATION
0441

EURO PRODUCTS LIMITED

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APPROVED SIGNATORY
D. Perkins T. Chandler C. Perkins

Issued By: EURO PRODUCTS CALIBRATION LABORATORY

Date of Issde: **Certificate Number:**

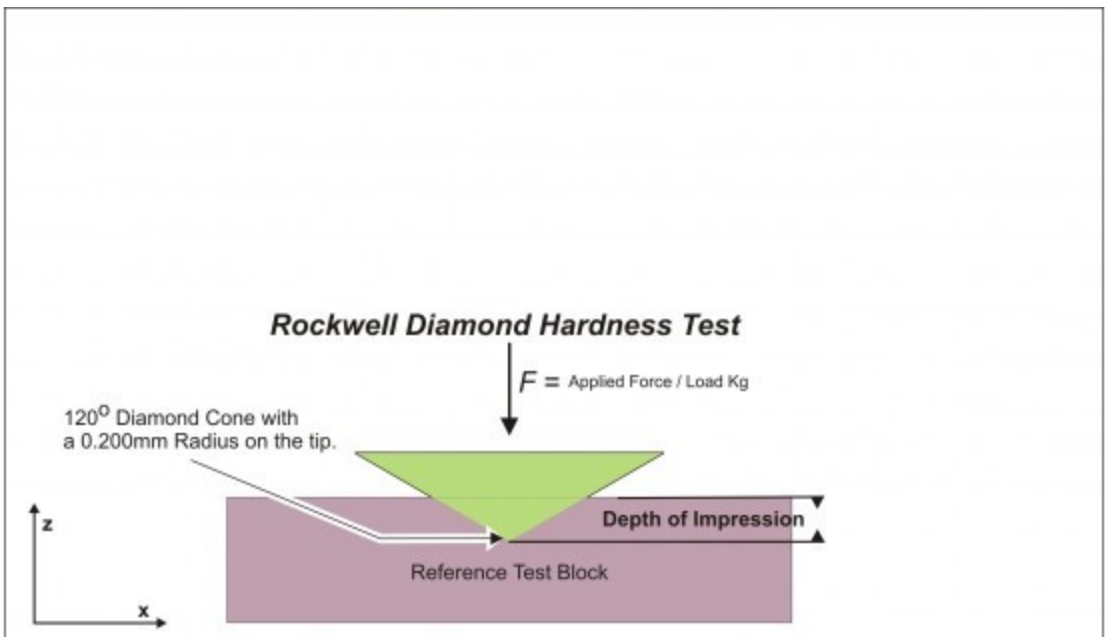
Customer:

SAMPLE

Description: Rockwell Reference Hardness Block

Block Serial Number:

Date of Calibration:



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