UPI LABORATORIES

CERTIFIED REFERENCE TOOLS

CATALOGUE 2021

HARDNESS REFERENCE BLOCKS & INDENTERS

INTRODUCTION

Hardness test blocks or hardness reference plates are comparison plates most commonly made of Steel or Aluminum but could also be made of Brass or custom materials. They are used for the day to to day Indirect Verification and Calibration of hardness testing machines and instruments. There are hardness test blocks for almost all hardness testing methods and scales.

Verifying the display reading of a hardness tester against ISO/ASTM certified hardness test block values part of a normal quality assurance process. Adjusting your hardness tester according to the value engraved in a hardness test block, as long as the adjustments are minor, can be done after assurance that a correct and undamaged indenter/penetrator is installed and the tester operates normally.Indenters are available for almost all scales with viability of micro and macro diamond indenters and carbide or available in the different sizes by the different methods.

ISO & ASTM HARDNESS TEST BLOCKS and INDENTERS (RvA)

Hardness test blocks UPI Laboratories Europe BV branded are manufactured according to standards ISO (International) and ASTM (American).
Such standards apply to the physical requirements as well to the method & the way the final value is found and confirmed."
UPI Laboratories BV hardness test blocks and indenters are of excellent finish and have very low variation, excellent repeatability.

RAW MATERIALS USED

In order to manufacture good hardness test blocks, strict control over the quality of raw materials (Steel, Brass, Aluminum) is required. The entire block material needs to be homogenous, to assure low spread of readings and excellent repeatability. UPI Laboratories Europe BV performs supplier audits to assure this.

HEAT TREATMENT

Distribution of the blocks in the hardening furnaces is of utmost importance, time, temperature and quench are all carefully controlled processes, to assure a top class product. UPI Laboratories Europe BV performs supplier audits to assure this.

FINISHING

The next step in the process to ensure high quality 'blanks" is the grinding, polishing and lapping of the block surfaces. Any concerns on the surface quality are eliminated due to thorough selection after inspection. UPI Laboratories Europe BV performs supplier audits to assure this.

QUALITY CONTROL

Before proceeding with the ultimate verification and engraving of the block hardness, blocks are undergoing a full inspection to ensure that they meet the physical requirements of ISO and ASTM (thickness, flatness, parallelism, surface roughness, magnetism and uniformity).

TRACEABILITY

UPI hardness calibration blocks and indenters are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6506, ISO 6507, ISO 6508, ISO 4545, ASTM E18 ASTM E92 and ASTM E10

C21CAT/01/EN

TEST BLOCKS RANGE

25 MM BLOCK	60 MM BLOCK	65 MM BLOCK	90 MM BLOCK
			

ROCKWELL REFERENCE BLOCKS

ROCKWELL DIAMOND SCALES

UPI Rockwell cone hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6508/3 & ASTM-E18 A4.

ROCKWELL CARBIDE BALL SCALES

UPI Rockwell ball hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6508/3 & ASTM-E18 A4.

ROUND (dia. 60mm X 10mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.

HRC		20	25	30	35	40	45	50	55	60	63	65
HRA	40	55	60	62	65	67	70	73	75	78	81	83
HRD		40	44	48	51	55	59	63	67	71	75	
HR15N		68	71	74	76	79	82	85	88	90	92	
HR30N		41	46	50	55	59	64	68	72	77	81	
HR45N		19	25	31	37	43	49	55	60	66	72	

Deviating scales or hardness can be ordered by custom request. **Blocks can be supplied with NADCAP compliant grid.**

ROUND (dia. 60mm X 10mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.

HRB	40	60	70	85	90	95						
HRE	75	95										
HRF	75	90										
HR15T	73	81	83	88	91	92						
HR30T	43	58	63	73	79	81						
HR45T	12	35	43	58	67	70						
HRM	110											
HRR	105	125										

Deviating scales or hardness can be ordered by custom request. **Blocks can be supplied with NADCAP compliant grid.**

MACRO VICKERS SCALES

UPI Macro Vickers hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6507/3 & ASTM-E92 A4.

ROUND (dia. 60mm X 10mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.

HV2	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV3	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV5	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV10	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV20	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV30	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV50	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV60	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV120	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV125	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HV150	150	200	250	300	350	400	450	500	550	600	650	700	750	800

Deviating scales or hardness can be ordered by custom request.

VICKERS REFERENCE BLOCKS

MICRO VICKERS SCALES

UPI Micro Vickers hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6507/3 & ASTM-E92 A4.

ROUND (dia. 25mm X 6mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.

HMV2	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HMV1	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HMV0.5	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HMV0.3	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HMV0.2	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HMV0.1	150	200	250	300	350*	400*	450*	500*	550*	600*	650*	700*	750*	800*
HMV0.05	150	200	250*	300*	350*	400*	450*	500*	550*	600*	650*	700*	750*	800*
HMV0.03	150	200*	250*	300*	350*	400*	450*							
HMV0.025	150*	200*	250*	300*	350*	400*								
HMV0.02	150*	200*	250*	300*										
HMV0.015	150*	200*												
HMV0.010	150*													

*Hardness value is outside the scope of the ISO/ASTM standards due to indentations smaller then 0,020mm
Deviating scales or hardness can be ordered by custom request.

KNOOP REFERENCE BLOCKS

KNOOP SCALES

UPI Knoop hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 4545/3 & ASTM-E92 A4.

ROUND (dia. 25mm X 6mm thickness)	All mentioned hardness values are nominal, the actual calibrated values may vary.													
HK0.01	150	200	250	300	350									
HK0.015	150	200	250	300	350	400	450	500						
HK0.02	150	200	250	300	350	400	450	500	550	600	650	700		
HK0.025	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK0.05	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK0.1	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK0.2	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK0.3	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK0.5	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK1	150	200	250	300	350	400	450	500	550	600	650	700	750	800
HK2	150	200	250	300	350	400	450	500	550	600	650	700	750	800

Deviating scales or hardness can be ordered by custom request.

CONVENIENT PACKAGING

BRINELL REFERENCE BLOCKS

BRINELL SCALES

UPI Brinell hardness calibration blocks are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6506/3 & ASTM-E10 A4.

ROUND (dia. 90mm X 16mm thickness)	All mentioned hardness values are nominal, the actual calibrated values may vary.											
HBW 10/3000	150	200	250	300	350	400	450	500	550	600	650	
HBW 10/1500	60	80	100	150	200	250	300					
HBW 10/1000	60	80	100	150	200							
HBW 10/500	60	80	100									
HBW 5/750	150	200	250	300	350	400	450	500	550	600	650	

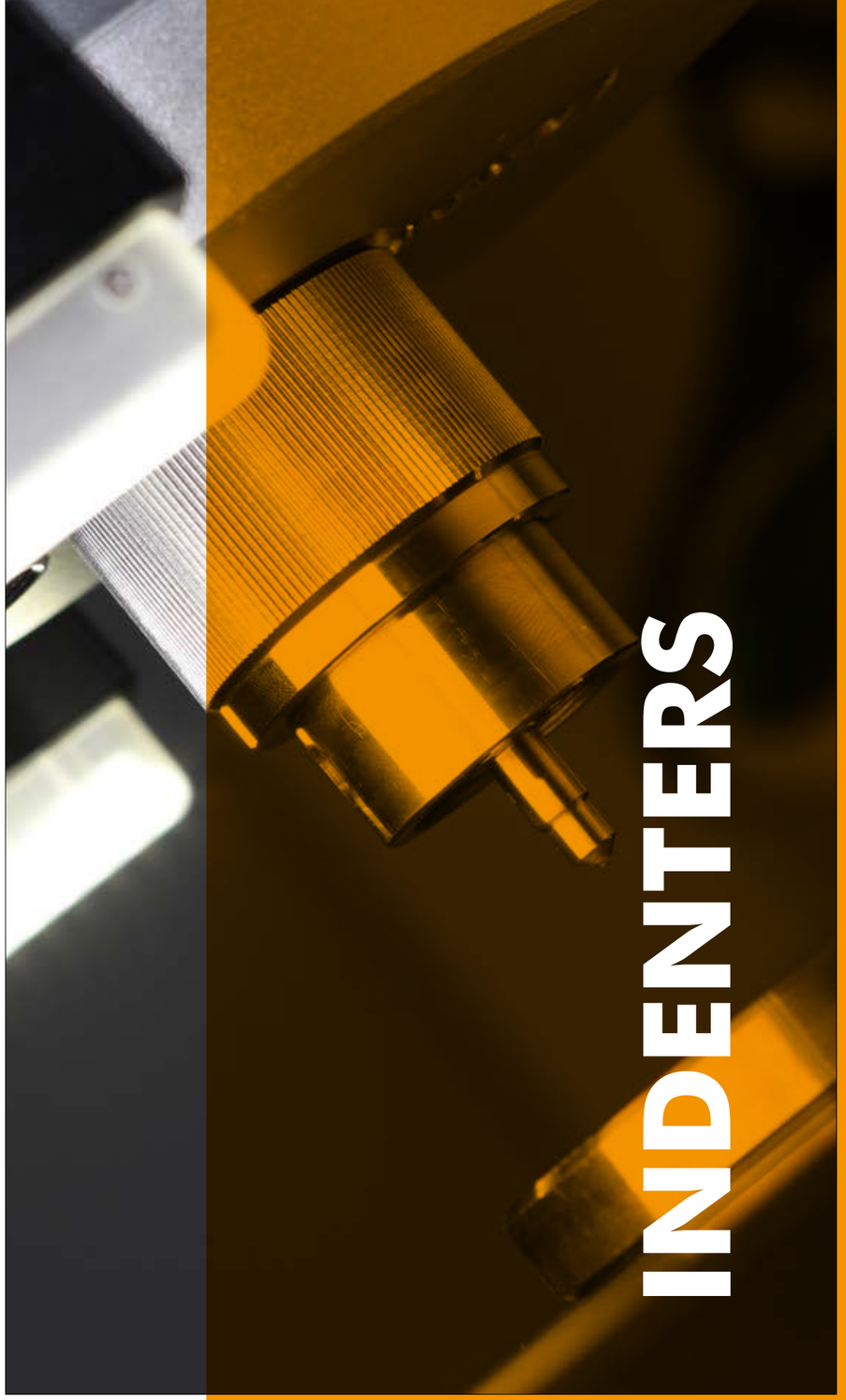
Deviating scales or hardness can be ordered by custom request. **Blocks can be supplied with NADCAP compliant grid.**

ROUND (dia. 65mm X 12mm thickness)	All mentioned hardness values are nominal, the actual calibrated values may vary.											
HBW 5/250	60	80	150	200								
HBW 5/125	60	80	100									
HBW 2.5/187.5	150	200	250	300	350	400	450	500	550	600	650	
HBW 2.5/62.5	60	80	100	150	200							
HBW 2.5/31.25	60	80	100									

Deviating scales or hardness can be ordered by custom request. **Blocks can be supplied with NADCAP compliant grid.**

ROUND (dia. 60mm X 10mm thickness)	All mentioned hardness values are nominal, the actual calibrated values may vary.											
HBW 1/30	150	200	250	300	350	400	450	500	550	600	650	
HBW 1/10	60	80	100	150	200							
HBW 1/5	60	80	100									

Deviating scales or hardness can be ordered by custom request. **Blocks can be supplied with NADCAP compliant grid.**



ROCKWELL INDENTERS

ROCKWELL DIAMOND & BALL INDENTERS

UPI Rockwell Indenters are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6508/2 & ASTM-E18 A3.

CODE NO.	DESCRIPTION ROCKWELL INDENTERS	
UPI/6005TC	Rockwell diamond indenter, Ø6.35mm, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/6003TC	Rockwell diamond indenter, Ø3mm, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/7506TC	1/16" Carbide Ball Indenter, with 1 ball, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/7606TC	1/8" Carbide Ball Indenter, with 1 ball, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/7706TC	¼" Carbide Ball Indenter, acc. to ASTM-E18 A3	
UPI/7806TC	½" Carbide Ball Indenter, acc. to ASTM-E18 A3	
UPI/2507TC	1/16" carbide ball, for Rockwell ball indenter, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/2509TC	1/8" carbide ball, for Rockwell ball indenter, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/2514TC	1/4" carbide ball, for Rockwell ball indenter, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/2519TC	1/2"carbide ball, for Rockwell ball indenter, acc. to ISO 6508/2 & ASTM-E18 A3	

BRINELL INDENTERS

BRINELL BALL INDENTERS

UPI Brinell Indenters are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6506/2 & ASTM-E10 A3.

CODE NO.	DESCRIPTION BRINELL INDENTERS
UPI/7000TC	1mm Carbide Ball Indenter Ø6.35mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7001TC	1mm Embedded Carbide Ball Indenter Ø3mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7005TC	2.5mm Carbide Ball Indenter Ø6.35mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7006TC	2.5mm Embedded Carbide Ball Indenter Ø3mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7010TC	5mm Carbide Ball Indenter Ø6.35mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7011TC	5mm Embedded Carbide Ball Indenter Ø3mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/7015TC	10mm Carbide Ball Indenter Ø6.35mm, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/2005TC	1.0mm carbide ball, for ø6.35mm indenters, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/2010TC	2.5mm carbide ball, for ø6.35mm indenters, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/2015TC	5.0mm carbide ball, for ø6.35mm indenters, acc. to ISO 6506/2 & ASTM-E10 A3
UPI/2020TC	10.0mm carbide ball, for ø6.35mm indenters, acc. to ISO 6506/2 & ASTM-E10 A3

VICKERS & KNOOP INDENTERS

MACRO & MICRO VICKERS INDENTERS

UPI (Micro) Vickers Indenters are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 6507/2 & ASTM-E92 A3.

KNOOP INDENTERS

UPI Knoop Indenters are calibrated & DUAL-certified by UPI Laboratories traceable to National/International standards according to ISO 4545/2 & ASTM-E92 A3.

CODE NO.	DESCRIPTION VICKERS INDENTERS
UPI/8010TC	Vickers Indenter Ø6.35mm, acc. to ISO 6507/2 & ASTM-E92 A3
UPI/8012TC	Vickers Indenter Ø6.35mm, acc. to ISO 6507/2
UPI/8105TC	Vickers Indenter Ø3mm, acc. to ISO 6507/2 & ASTM-E92 A3
UPI/8107TC	Vickers Indenter Ø3mm, acc. to ISO 6507/2

CODE NO.	DESCRIPTION KNOOP INDENTERS
UPI/8205TC	Knoop Indenter Ø3mm, acc. to ISO 4545/2 & ASTM-E92 A3
UPI/8206TC	Knoop Indenter Ø3mm, acc. to ISO 4545/2
UPI/8220TC	Knoop Indenter Ø6.35mm, acc. to ISO 4545/2 & ASTM-E92 A3
UPI/8221TC	Knoop Indenter Ø6.35mm, acc. to ISO 4545/2 & ASTM-E92 A3 (INNOVATEST 750CCD/750U)
UPI/8222TC	Knoop Indenter Ø6.35mm, acc. to ISO 4545/2

Ø = shaft diameter for machine mounting.

NOTES

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