



UPI
LABORATORIES

CERTIFIED REFERENCE TOOLS

CATALOGUE
2020

**HARDNESS
REFERENCE BLOCKS
& INDENTERS**



INTRODUCTION

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Changes in products and/or product specifications can emerge due to new technologies and/or continuous development.

We reserve the right to change or modify specifications of products without prior notice.

We recommend you to contact our sales office for up-to-date information.

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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 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

TEST BLOCKS

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	62	63	65
HRA SOFT	40	55										
HRA HARD	60	62	65	67	70	73	75	78	81	82	83	
HRD	40	44	48	51	55	59	63	67	71	73	75	
HR15N	68	71	74	76	79	82	85	88	90	90,8	92	
HR30N	41	46	50	55	59	64	68	72	77	79	81	
HR45N	19	25	31	37	43	49	55	60	66	69	72	

Deviating scales or hardness can be ordered by custom request.

Blocks can be supplied with NADCAP compliant grid.

TEST BLOCKS RANGE

25 MM BLOCK

60 MM BLOCK

65 MM BLOCK

90 MM BLOCK



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

HRB	60	90	100									
HRE	95											
HRF	90	95										
HRG	62	81	87	94								
HRH												
HRK	76	97										
HR15T	80	87	91	92								
HR30T	56	69	77	82								
HR45T	33	53	65	72								

Deviating scales or hardness can be ordered by custom request.

Blocks can be supplied with NADCAP compliant grid.

VICKERS REFERENCE BLOCKS

VICKERS REFERENCE BLOCKS

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.

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. 60mm X 10mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.											
HV2	140	240	300	400	450	540	620	720	840		
HV3	140	240	300	400	450	540	620	720	840		
HV5	140	240	300	400	450	540	620	720	840		
HV10	140	240	300	400	450	540	620	720	840		
HV20	140	240	300	400	450	540	620	720	840		
HV30	140	240	300	400	450	540	620	720	840		
HV50	140	240	300	400	450	540	620	720	840		
HV60	140	240	300	400	450	540	620	720	840		
HV100	140	240	300	400	450	540	620	720	840		
HV120	140	240	300	400	450	540	620	720	840		
HV125	140	240	300	400	450	540	620	720	840		
HV150	140	240	300	400	450	540	620	720	840		

Deviating scales or hardness can be ordered by custom request.

ROUND (dia. 25mm X 6mm thickness) All mentioned hardness values are nominal, the actual calibrated values may vary.											
HMV2	140	240	300	400	450	540	620	720	840		
HMV1	140	240	300	400	450	540	620	720	840		
HMV0.5	140	240	300	400	450	540	620	720	840		
HMV0.3	140	240	300	400	450	540	620	720	840		
HMV0.2	140	240	300	400	450	540	620	720	840		
HMV0.05	140	240	300	400	450	540	620	720	840		
HMV0.03	140	240	300	400	450	540	620	720			
HMV0.025	140	240	300	400	450	540	620	720			
HMV0.015	140	240	300	400	450	540					
HMV0.010	140	240									
HMV0.005	140	240									

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.										
HK0.005	140	240								
HK0.01	140	240								
HK0.015	140	240	300	400	450	540	620	720		
HK0.025	140	240	300	400	450	540	620	720		
HK0.05	140	240	300	400	450	540	620	720	840	
HK0.1	140	240	300	400	450	540	620	720	840	
HK0.2	140	240	300	400	450	540	620	720	840	
HK0.3	140	240	300	400	450	540	620	720	840	
HK0.5	140	240	300	400	450	540	620	720	840	
HK1	140	240	300	400	450	540	620	720	840	
HK2	140	240	300	400	450	540	620	720	840	

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	600	
HBW 10/1000	60	80	100	150	200					
HBW 10/500	60	80	100	150						
HBW 10/250	60	80								
HBW 5/750	150	200	250	300	350	400	450	500	600	

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	150						
HBW 5/62.5	60	80								
HBW 2.5/187.5	100	150	200	250	300	350	400	450	500	600
HBW 2.5/62.5	60	80	100	150	200					
HBW 2.5/31.25	60	80	100							
HBW 2.5/15.625	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	240	300	400	450	540	620			
HBW 1/10	150	240								
HBW 1/5	150									

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













INDENTERS

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	1/4" Carbide Ball Indenter, ISO & ASTM, acc. to ISO 6508/2 & ASTM-E18 A3	
UPI/7806TC	1/2" Carbide Ball Indenter, acc. to ISO 6508/2 & 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.

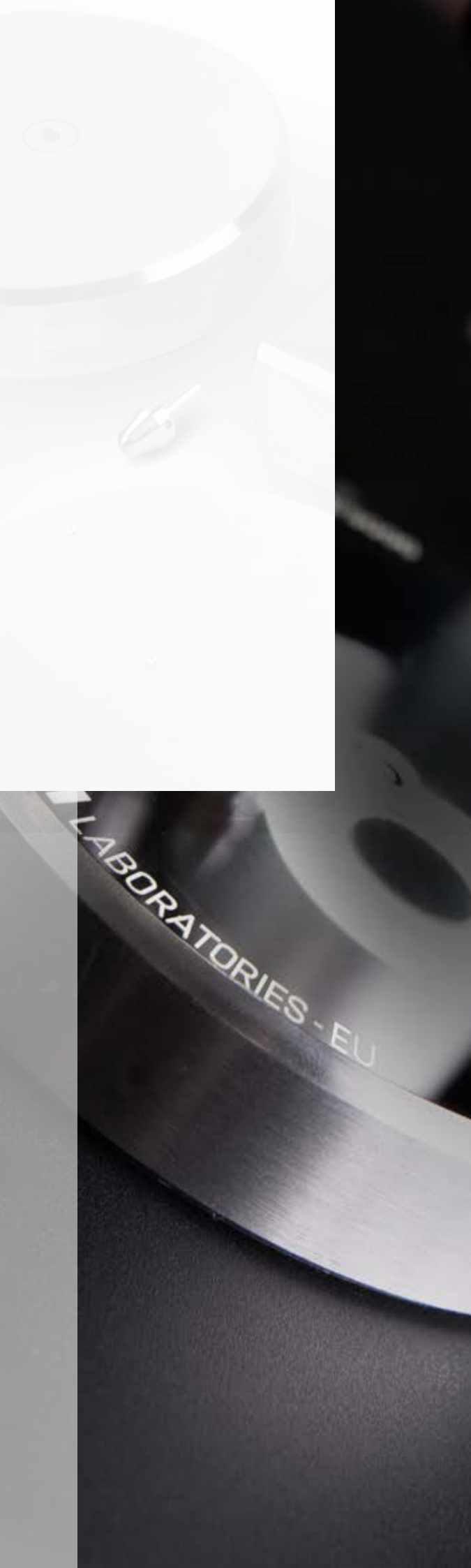
KNOOP INDENTERS

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/8105TC	Vickers Indenter Ø3mm, acc. to ISO 6507/2 & ASTM-E92 A3	

CODE NO.	DESCRIPTION KNOOP INDENTERS	
UPI/8205TC	Knoop Indenter Ø3mm, acc. to ISO 4545/2 & ASTM-E92 A3	
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)	

Ø = shaft diameter for machine mounting.



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