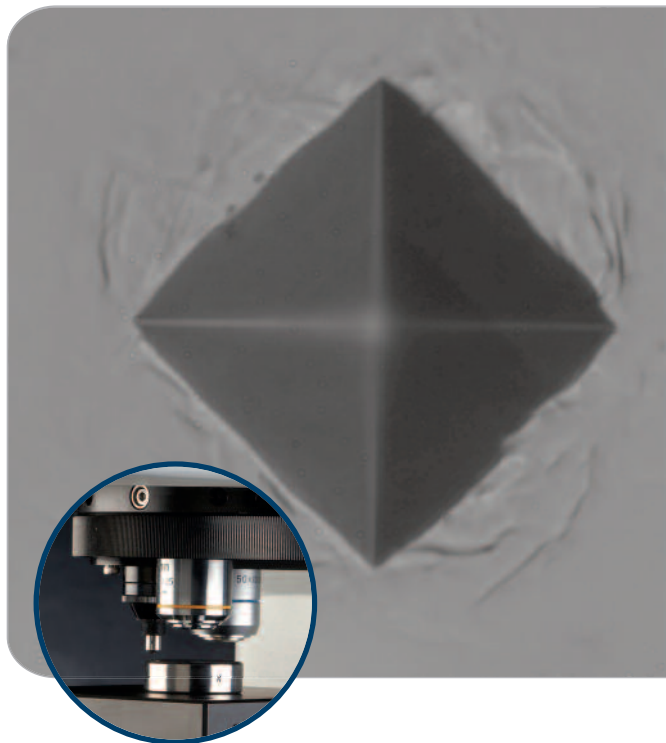




BUEHLER

Standard Reference Materials for Hardness Testing

Standard Reference Materials (SRM's) are an integral part of hardness testing. They ensure accuracy, integrity, and traceability of the hardness testing process. Typically they are used to both verify instrument performance and to provide a means for performing indirect instrument calibrations.



Did you know that ASTM E384 & E18 specify that verifications using SRMs:

- are required every day that the instrument is used?
- are recommended any time the load force, anvil, or indenter are changed?

Hardness Scale Load (kg)
600 HV 0.5
600HV0.5

Nominal hardness, measurement scale, and certification load force are the key parameters used to describe a hardness SRM test-block

Use and Lifecycle of SRM's

The useful life of a SRM test-block is determined by the density of indents on the surface. Once recommended densities are reached the SRM test-block must be replaced.

- Optimal performance is ensured when SRM hardness and load force closely match the hardness being measured
- Verification testing with SRMs should be performed throughout the total working range of the instrument using multiple SRMs with suitable hardness' certified at relevant load forces
- For Rockwell testing the distance between the centers of any two adjacent indents must be at least 3 times the indentation diameter
- For Vickers & Knoop testing adjacent indents must be at least 2-2.5 times the length of the indent diagonal apart
- SRMs must be used on the top side of the test-block only
- A Rockwell carbide ball indenter may be used on a SRM not calibrated with a carbide ball but the reading will be up to 1 point lower than expected



SRM test-blocks from Buehler:

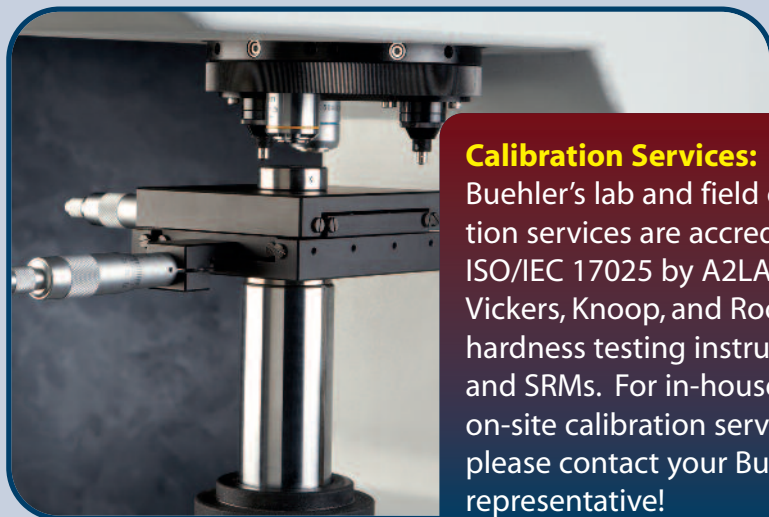
High quality SRM test-blocks from Buehler are calibrated in compliance with ASTM E384 or ASTM E18 where appropriate. Rockwell C SRMs are NIST traceable. All calibrations and certifications are performed in an ISO/IEC 17025 compliant facility.

Vickers Microindentation							
100HV0.1	200HV0.1	300HV0.5	400HV0.5	500HV0.5	600HV0.5	700HV0.5	800HV0.5
16100100	16100200	16100300	16100400	16100500	16100600	16100700	16100800
Knoop Microindentation							
100HK0.1	200HK0.1	300HK0.5	400HK0.5	500HK0.5	600HK0.5	700HK0.5	800HK0.5
16110100	16110200	16110300	16110400	16110500	16110600	16110700	16110800
Vickers / Knoop Dual Microindentation							
100HK/HV0.1	200HK/HV0.1	300HK/HV0.5	400HK/HV0.5	500HK/HV0.5	600HK/HV0.5	700HK/HV0.5	800HK/HV0.5
16120100	16120200	16120300	16120400	16120500	16120600	16120700	16120800
Macro-Vickers μ							
100HV	200HV	300HV	400HV	500HV	600HV		
19100100	19100200	19100300	19100400	19100500	19100600		
Rockwell C							
63HRC	60HRC	55HRC	50 HRC	45 HRC	35HRC	30HRC	25HRC
17100101NST	17100100NST	17100102NST	17100103NST	17100105NST	17100106NST	17100107NST	17100108NST
Rockwell B						Rockwell F	
95HRB	85HRB	70HRB	60HRB	50HRB	40HRB	60HRF	80HRF
17100109	17100110	17100111	17100112	17100113	17100114	17100137	17100140
Rockwell A				Superficial Rockwell 15-N			
85HRA	83HRA	73HRA	60HRA	93HR15N	91HR15N	83HR15N	71HR15N
17100115	17100116	17100117	17100118	17100119	17100120	17100121	17100122
Superficial Rockwell 15-T					Superficial Rockwell 30-N		
91HR15T	88HR15T	84HR15T	80HR15T	73HR15T	83HR30N	80HR30N	45HR30N
17100126	17100127	17100129	17100130	17100132	17100123	17100124	17100125
Superficial Rockwell 30-T							
79HR30T	73HR30T	65HR30T	60HR30T	50HR30T	43HR30T		
17100133	17100134	17100136	17100137	17100138	17100139		

- μ specify load force for certification
- certified using a Tungsten Carbide ball indenter

Vickers and Knoop SRMs can be certified using load forces relevant to the measurement application. Typically load forces of 0.01, 0.025, 0.05, 0.1, 0.2, 0.3, 0.5, 1, 2, 3, 5, 10, 20, 30 or 50 kg may be specified.

For special order SRMs with custom hardness, custom load forces, or certified in other hardness scales, please contact your Buehler representative!



Calibration Services:

Buehler's lab and field calibration services are accredited to ISO/IEC 17025 by A2LA for Vickers, Knoop, and Rockwell hardness testing instruments and SRMs. For in-house or on-site calibration services please contact your Buehler representative!

Buehler continuously makes product improvements; therefore, technical specifications are subject to change without notice.

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