

Calibration and Measurement Capabilities

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					NMI internal identifier	Comments
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?		
Hardness	Hardness block	Knoop according to ISO 4547	112	130	HK	Test force	0.245 N, 0.490 N, 0.981 N	6.12	HK	2	95%	No		NIST SRM 1893 (SRM: Standard Reference Material)
Hardness	Hardness block	Vickers according to ISO 6507	112	130	HV	Test force	0.245 N, 0.490 N, 0.981 N	6.12	HV	2	95%	No		NIST SRM 1894 (SRM: Standard Reference Material)
Hardness	Hardness block	Knoop according to ISO 4547	575	625	HK	Test force	0.245 N, 0.490 N, 0.981 N	30.6	HK	2	95%	No		NIST SRM 1895 (SRM: Standard Reference Material)
Hardness	Hardness block	Vickers according to ISO 6507	575	625	HV	Test force	0.245 N, 0.490 N, 0.981 N	30.6	HV	2	95%	No		NIST SRM 1896 (SRM: Standard Reference Material)
Hardness	Hardness block	Knoop according to ISO 4547	575	625	HK	Test force	2.94 N	30.6	HK	2	95%	No		NIST SRM 1905 (SRM: Standard Reference Material)

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Hardness	Hardness block	Knoop according to ISO 4547	575	625	HK	Test force	4.91 N	30.6	HK	2	95%	No	NIST SRM 1906 (SRM: Standard Reference Material)	
Hardness	Hardness block	Knoop according to ISO 4547	575	625	HK	Test force	9.81 N	30.6	HK	2	95%	No	NIST SRM 1907 (SRM: Standard Reference Material)	
Hardness	Hardness block	Vickers according to ISO 6507	575	625	HV	Test force	4.91 N	30.6	HV	2	95%	No	NIST SRM 2798 (SRM: Standard Reference Material)	
Hardness	Hardness block	Knoop HK2 according to ISO 4547	10	20	GPa	Test force	19.61 N	0.12	GPa	2	95%	No	NIST SRM 2830 (SRM: Standard Reference Material)	
Hardness	Hardness block	Rockwell HRC according to ASTM E 18 and ISO 6508	23	27	HRC	Preliminary / total test forces	98.07 N / 1471 N	0.17	HRC	2	95%	No	NIST SRM 2810 (SRM: Standard Reference Material)	
						Preliminary / total / final force dwell times	3 s / 5 s / 4 s							
						Additional force application rate	0.040 mm/s constant indenter velocity							
Hardness	Hardness block	Rockwell HRC according to ASTM E 18 and ISO 6508	43	47	HRC	Preliminary / total test forces	98.07 N / 1471 N	0.15	HRC	2	95%	No	NIST SRM 2811 (SRM: Standard Reference Material)	
						Preliminary / total / final force dwell times	3 s / 5 s / 4 s							
						Additional force application rate	0.040 mm/s constant indenter velocity							

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Hardness	Hardness block	Rockwell HRC according to ASTM E 18 and ISO 6508	61	65	HRC	Preliminary / total test forces	98.07 N / 1471 N	0.15	HRC	2	95%	No		NIST SRM 2812 (SRM: Standard Reference Material)
						Preliminary / total / final force dwell times	3 s / 5 s / 4 s							
						Additional force application rate	0.040 mm/s constant indenter velocity							
Hardness	Cone angle using stylus instrument, according to ASTM E 18 and ISO 6508	Rockwell hardness diamond indenter			°			0.01	°	2	95%	No		
Hardness	Inclination of indenter axis using stylus instrument, according to ASTM E 18 and ISO 6508	Rockwell hardness diamond indenter			°			0.03	°	2	95%	No		
Hardness	Radius of the spherical tip using stylus instrument, according to ASTM E 18 and ISO 6508	Rockwell hardness diamond indenter			µm			0.4	µm	2	95%	No		
Hardness	Straightness of the generatrix using stylus instrument, according to ASTM E 18 and ISO 6508	Rockwell hardness diamond indenter			µm			0.05	µm	2	95%	No		
Hardness	Form deviation from the least squares fit of the radius using stylus instrument, according to ASTM E 18 and ISO 6508	Rockwell hardness diamond indenter			µm			0.1	µm	2	95%	No		