

Group 1. SteelPolished.												
Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
1 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images							Data obtained in the manual manner by an expert				
1	A	20.5	74.8	62.804	68.802	65.8001	2.1415	63.077	69.075	66.076	2.1236	0.4180
	B	83.3	75.5			0						
	D	51.8	109.3			0						
	C	52.3	40.5			0						
2	A	14	93	65.025	71.200	68.1001	1.9993	65.180	71.355	68.268	1.9895	0.2455
	B	79	94.8			0						
	D	46.5	130.5			0						
	C	46.5	59.3			0						
3	A	20.3	89.8	64.023	72.007	68.0001	2.0052	64.473	72.457	68.465	1.9780	0.6790
	B	84.3	91.5			0						
	D	52.5	127.8			0						
	C	53.5	55.8			0						
4	A	14.5	84.8	74.810	79.704	77.3001	1.5517	75.424	80.318	77.87	1.529	0.7332
	B	89.3	86			0						
	D	51.5	126.5			0						
	C	52.3	46.8			0						
5	A	19.3	75.3	64.057	71.803	67.9001	2.0111	64.101	71.747	67.924	2.0097	0.0353
	B	83.8	78			0						
	D	52	112.3			0						
	C	51.3	40.5			0						
6	A	20.3	81.3	63.571	75.096	69.3001	1.9307	63.696	75.122	69.409	1.9246	0.1571
	B	83.8	84.3			0						
	D	51.5	121.3			0						
	C	55.3	46.3			0						
7	A	21.3	94.8	63.218	70.703	67.0001	2.0655	63.443	70.929	67.186	2.0541	0.2764
	B	84.5	96.3			0						
	D	52.8	131.5			0						
	C	53.5	60.8			0						
8	A	14.3	81	65.513	71.003	68.3001	1.9876	66.476	71.967	69.222	1.9350	1.3314
	B	79.8	82.3			0						
	D	47.5	117.5			0						
	C	46.8	46.5			0						
9	A	10.5	91	74.307	83.020	78.6001	1.5008	74.375	83.088	78.732	1.4958	0.1672
	B	84.8	92			0						
	D	46.5	133.8			0						
	C	48.3	50.8			0						
10	A	20.8	84	68.202	73.810	71.0001	1.8393	68.419	74.027	71.223	1.8278	0.3124
	B	89	84.5			0						
	D	54.8	123.3			0						
	C	56	49.5			0						

4.6679

Group 1. SteelPolished.												
Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
2 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images						Data obtained in the manual manner by an expert					
11	A	15.8	92.8	64.004	70.507	67.3001	2.0471	64.03	70.53	67.28	2.0485	-0.0339
	B	79.8	93.5			0						
	D	47	128.8			0						
	C	48	58.3			0						
12	A	18.8	88.8	63.718	72.004	67.9001	2.0111	64.19	72.48	68.34	1.9855	0.6386
	B	82.5	90.3			0						
	D	51	124.8			0						
	C	51.8	52.8			0						
13	A	21.8	95	67.013	75.700	71.4001	1.8188	67.02	75.71	71.36	1.8206	-0.0511
	B	88.8	96.3			0						
	D	55.8	133			0						
	C	56	57.3			0						
14	A	13.5	86	66.030	71.202	68.6001	1.9703	66.10	71.27	68.69	1.9652	0.1280
	B	79.5	88			0						
	D	47.3	124.5			0						
	C	47.8	53.3			0						
15	A	20	86.5	68.505	76.203	72.4001	1.7689	68.65	76.35	72.50	1.7638	0.1433
	B	88.5	87.3			0						
	D	53.8	125.5			0						
	C	54.5	49.3			0						
16	A	18	88.8	69.004	74.307	71.6001	1.8086	69.49	74.79	72.14	1.7815	0.7528
	B	87	89.5			0						
	D	51.8	126.8			0						
	C	52.8	52.5			0						
17	A	13.8	99.5	66.713	73.202	70.0001	1.8922	67.07	73.56	70.31	1.8755	0.4434
	B	80.5	100.8			0						
	D	46	138			0						
	C	46.5	64.8			0						
18	A	17.8	89.3	62.504	71.203	66.9001	2.0717	62.71	71.41	67.06	2.0618	0.2379
	B	80.3	90			0						
	D	48.8	125			0						
	C	49.5	53.8			0						
19	A	19.3	84.3	64.211	68.307	66.3001	2.1093	64.22	68.11	66.16	2.1180	-0.2062
	B	83.5	85.5			0						
	D	51	119.8			0						
	C	52	51.5			0						
20	A	7	89.5	79.004	89.501	84.3001	1.3047	79.03	89.53	84.28	1.3052	-0.0199
	B	86	90.3			0						
	D	45.8	134.5			0						
	C	46.3	45			0						

2.0329

Group 1. SteelPolished.												
Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
3 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images						Data obtained in the manual manner by an expert					
21	A	18.8	83	65.048	70.505	67.8001	2.0170	65.19	70.44	67.82	2.0161	0.0239
	B	83.8	85.5			0						
	D	51	119.3			0						
	C	51.8	48.8			0						
22	A	14	86.5	69.802	72.701	71.3001	1.8239	69.82	72.71	71.26	1.8257	-0.0500
	B	83.8	87			0						
	D	49	123			0						
	C	49.3	50.3			0						
23	A	13.8	89.3	67.707	72.303	70.0001	1.8922	68.01	72.60	70.30	1.8759	0.4330
	B	81.5	90.3			0						
	D	48.8	126.3			0						
	C	49.5	54			0						
24	A	24.8	78	67.707	72.000	69.9001	1.8977	67.62	72.11	69.86	1.8997	-0.0534
	B	92.5	79			0						
	D	58	114			0						
	C	58	42			0						
25	A	17.8	82.5	70.516	74.803	72.6001	1.7591	70.74	75.03	72.89	1.7454	0.3924
	B	88.3	84			0						
	D	52.8	119.8			0						
	C	53.5	45			0						
26	A	15.5	83.3	73.002	78.704	75.9001	1.6095	73.01	78.71	75.86	1.6110	-0.0483
	B	88.5	83.8			0						
	D	52	123			0						
	C	52.8	44.3			0						
27	A	17	80.3	71.316	78.002	74.6001	1.6661	71.45	78.13	74.79	1.6576	0.2545
	B	88.3	81.8			0						
	D	52.8	120.3			0						
	C	53.3	42.3			0						
28	A	16.3	81.8	72.010	76.201	74.1001	1.6886	72.03	76.22	74.13	1.6875	0.0339
	B	88.3	83			0						
	D	52	120.5			0						
	C	52.3	44.3			0						
29	A	18.8	79.3	69.502	74.302	71.9001	1.7936	69.51	74.31	71.91	1.7929	0.0171
	B	88.3	79.8			0						
	D	53.8	116.3			0						
	C	54.3	42			0						
30	A	18.8	91	66.008	69.807	67.9001	2.0111	66.22	70.02	68.12	1.9984	0.3159
	B	84.8	92			0						
	D	51	126.8			0						
	C	52	57			0						

1.6349

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Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
4 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images						Data obtained in the manual manner by an expert					
31	A	20.5	82.8	62.504	68.007	65.3001	2.1744	62.42	68.12	65.27	2.1765	-0.0479
	B	83	83.5			0						
	D	51.5	118.8			0						
	C	52.5	50.8			0						
32	A	22.8	77	65.201	73.202	69.3001	1.9307	65.14	73.14	69.14	1.9394	-0.2251
	B	88	77.3			0						
	D	56	114.5			0						
	C	56.5	41.3			0						
33	A	16.5	97.8	62.804	66.517	64.6001	2.2218	63.51	67.22	65.37	2.1700	1.1720
	B	79.3	98.5			0						
	D	47.8	133.5			0						
	C	49.3	67			0						
34	A	16.8	98.3	67.702	71.301	69.5001	1.9196	68.40	72.00	70.20	1.8814	1.0002
	B	84.5	98.8			0						
	D	50.3	134.8			0						
	C	50	63.5			0						
35	A	18.5	97.3	66.317	68.804	67.5001	2.0350	67.52	70.00	68.76	1.9610	1.8346
	B	84.8	98.8			0						
	D	51.5	132.8			0						
	C	50.8	64			0						
36	A	14.8	88.5	67.201	68.500	67.9001	2.0111	67.80	69.10	68.45	1.9790	0.8003
	B	82	88.8			0						
	D	47.8	123.8			0						
	C	48	55.3			0						
37	A	20.8	97.3	64.511	70.502	67.5001	2.0350	64.43	70.42	67.43	2.0394	-0.1091
	B	85.3	98.5			0						
	D	52.3	134.3			0						
	C	52.8	63.8			0						
38	A	19.8	98.5	65.700	73.511	69.6001	1.9141	65.99	73.80	69.89	1.8981	0.4172
	B	85.5	98.5			0						
	D	52	135.8			0						
	C	53.3	62.3			0						
39	A	15.8	89.8	64.002	64.380	64.2001	2.2496	65.73	66.11	65.92	2.1337	2.6095
	B	79.8	90.3			0						
	D	47.8	124.8			0						
	C	51	60.5			0						
40	A	17.5	98.3	65.300	69.200	67.3001	2.0471	66.26	70.16	68.21	1.9931	1.3271
	B	82.8	98.3			0						
	D	48.5	134.5			0						
	C	48.5	65.3			0						

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Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
5 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images						Data obtained in the manual manner by an expert					
41	A	14.3	98	67.005	71.802	69.4001	1.9251	67.05	71.85	69.45	1.9223	0.0733
	B	81.3	98.8			0						
	D	46.3	134.8			0						
	C	46.8	63			0						
42	A	15	97	66.508	71.710	69.1001	1.9419	66.52	71.73	69.12	1.9405	0.0348
	B	81.5	98			0						
	D	48.8	134.5			0						
	C	50	62.8			0						
43	A	17	89.5	67.005	73.707	70.4001	1.8708	67.24	73.94	70.59	1.8609	0.2658
	B	84	90.3			0						
	D	50.5	127			0						
	C	51.5	53.3			0						
44	A	21	97.8	64.302	67.201	65.8001	2.1415	64.90	67.80	66.35	2.1060	0.8330
	B	85.3	97.3			0						
	D	53.3	133			0						
	C	53	65.8			0						
45	A	13	97.5	64.008	70.202	67.1001	2.0593	64.29	70.49	67.39	2.0416	0.4313
	B	77	98.5			0						
	D	45	135			0						
	C	45.5	64.8			0						
46	A	10.8	97	64.231	72.301	68.3001	1.9876	64.43	72.50	68.47	1.9779	0.2434
	B	75	99			0						
	D	43.5	135.3			0						
	C	43.8	63			0						
47	A	12	97.8	65.311	70.503	67.9001	2.0111	65.84	71.04	68.44	1.9794	0.7900
	B	77.3	99			0						
	D	43.8	135.3			0						
	C	44.5	64.8			0						
48	A	15.5	97.3	66.508	72.500	69.5001	1.9196	66.94	72.93	69.93	1.8959	0.6195
	B	82	98.3			0						
	D	48.8	136			0						
	C	49	63.5			0						
49	A	15	88.8	70.528	78.302	74.4001	1.6750	70.54	78.32	74.43	1.6738	0.0386
	B	85.5	90.8			0						
	D	49	124.3			0						
	C	49.5	46			0						
50	A	13	97.5	70.316	76.807	73.5001	1.7163	70.89	77.38	74.14	1.6869	0.8613
	B	83.3	99			0						
	D	48.3	138.3			0						
	C	49.3	61.5			0						

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Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
6 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images						Data obtained in the manual manner by an expert					
51	A	13.8	97.3	65.008	71.302	68.1001	1.9993	65.50	71.80	68.65	1.9673	0.8025
	B	78.8	98.3			0						
	D	45.8	133.8			0						
	C	46.3	62.5			0						
52	A	24.3	96.5	66.008	72.516	69.3001	1.9307	66.56	73.07	69.82	1.9022	0.7387
	B	90.3	97.5			0						
	D	56	135.5			0						
	C	57.5	63			0						
53	A	24.3	97.5	64.005	66.881	65.4001	2.1678	65.37	68.25	66.81	2.0773	2.1103
	B	88.3	98.3			0						
	D	55.5	133.3			0						
	C	58.8	66.5			0						
54	A	20.5	98	65.301	70.802	68.0001	2.0052	65.45	70.95	68.20	1.9935	0.2910
	B	85.8	98.3			0						
	D	52.8	135.3			0						
	C	53.3	64.5			0						
55	A	20.8	97	64.202	70.512	67.4001	2.0410	64.43	70.74	67.58	2.0300	0.2703
	B	85	97.5			0						
	D	52.5	133.8			0						
	C	53.8	63.3			0						
56	A	14.8	83.8	64.500	70.002	67.3001	2.0471	65.07	70.57	67.82	2.0156	0.7724
	B	79.3	84			0						
	D	47	120			0						
	C	47.5	50			0						
57	A	14.8	97.5	66.213	72.002	69.1001	1.9419	66.55	72.34	69.45	1.9225	0.5007
	B	81	98.8			0						
	D	48.3	134.8			0						
	C	47.8	62.8			0						
58	A	18.3	91.3	65.008	72.801	68.9001	1.9531	65.26	73.06	69.16	1.9386	0.3741
	B	83.3	92.3			0						
	D	50.5	129.3			0						
	C	50.8	56.5			0						
59	A	18.8	86	64.705	67.030	65.9001	2.1350	66.05	68.38	67.22	2.0522	1.9575
	B	83.5	86.8			0						
	D	50	123.3			0						
	C	48	56.3			0						
60	A	17	93.5	63.308	71.503	67.4001	2.0410	63.59	71.79	67.69	2.0237	0.4254
	B	80.3	94.5			0						
	D	48.8	130.3			0						
	C	49.5	58.8			0						

8.6683

Group 1. SteelPolished.												
Image	Vertice	Row (μm)	Column (μm)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	l_1 (μm)	l_2 (μm)	Average diagonal length (μm)	HV (GP)	Relative error in average diagonal length
7 of 7	Data obtained by algorithm for automatic detection and measurement of indentation in Vickers hardness testing images							Data obtained in the manual manner by an expert				
61	A	18	92.5	65.308	70.802	68.0001	2.0052	66.02	71.51	68.76	1.9609	1.1097
	B	83.3	91.5			0						
	D	51.8	128.3			0						
	C	52.3	57.5			0						
62	A	17	88	64.801	70.500	67.6001	2.0290	65.12	70.82	67.97	2.0072	0.5391
	B	81.8	88.3			0						
	D	49.8	124.3			0						
	C	50	53.8			0						
63	A	21.8	91.8	64.556	70.003	67.3001	2.0471	64.95	70.39	67.67	2.0247	0.5487
	B	86.3	94.5			0						
	D	53.8	128.5			0						
	C	54.5	58.5			0						
64	A	24.5	81.5	64.008	68.300	66.1001	2.1221	64.40	68.69	66.55	2.0937	0.6708
	B	88.5	82.5			0						
	D	56.8	117.8			0						
	C	57	49.5			0						
65	A	20.8	97.3	62.702	69.002	65.9001	2.1350	62.79	69.09	65.94	2.1324	0.0608
	B	83.5	97.8			0						
	D	52.5	132.8			0						
	C	53	63.8			0						
66	A	25.8	87.8	64.502	71.802	68.1001	1.9993	64.52	71.82	68.17	1.9955	0.0959
	B	90.3	88.3			0						
	D	58.3	124.3			0						
	C	58.8	52.5			0						
67	A	14.8	100.3	65.002	72.216	68.6001	1.9703	65.24	72.45	68.85	1.9562	0.3573
	B	79.8	99.8			0						
	D	46	137			0						
	C	47.5	64.8			0						
68	A	16.3	97.3	65.000	69.502	67.3001	2.0471	65.52	70.03	67.78	2.0185	0.7010
	B	81.3	97.5			0						
	D	48.5	133.5			0						
	C	49	64			0						
69	A	18	97.5	65.805	71.807	68.8001	1.9588	65.94	71.95	68.95	1.9506	0.2106
	B	83.8	98.3			0						
	D	51.5	134.3			0						
	C	52.5	62.5			0						
70	A	20.3	89	63.002	70.302	66.6001	2.0904	63.07	70.36	66.72	2.0832	0.1723
	B	83.3	89.5			0						
	D	51.3	126.3			0						
	C	51.8	56			0						

4.6386

41.4397

0.591995513