BMS BULUT MAKİNA®
SANAYİ VE TİCARET LTD. ŞTİ.
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HARDNESS CONVERSION TABLE

ROCKWELL									SUPERFICIAL						BRINELL			VICKERS		TENSILE STRENGTH (kg/mm²)		SHORE SCLEROSCOPE
Diamond Cone 60 kg	1/16" ball 100 kg	Diamond cone 150 kg	Diamond cone 100 kg	1/8" ball 100 kg	1/16" ball 60 kg	1/16" ball 150 kg	1/8" ball 60 kg	1/8" ball 150 kg	Diamond cone			1 / 16" ball			ball 10 2,5	kg 1000 62,5	ball 10 2,5	kg 3000 187,5	Diamond pyramid Material Ferrous	Diamond pyramid Material Non-ferrous	Non-alloyed Steels	Alloyed Steels	
									15 kg	30 kg	45 kg	15 kg	30 kg	45 kg									
HRA	HRB	HRC	HRD	HRE	HRF	HRG	HRH	HRK	15 N	30N	45N	15T	30T	45T	HB 10		HB 30		HV	HV (brass)	0.36	0.34	
86.5		70	78.5						94	86	77.5								1076				101
86		69	78						93.5	85	76.5								1044				99
85.5		68	77						93.2	84.5	75.5								940				97
85		67	76						93	83.5	74.5								903				95
84.5		66	75.5						92.5	83	73								870				92
84		65	74.5						92	82	72								840				91
83.5		64	74						91.8	81	71								800				88
83		63	73						91.5	80	70								775				87
82.5		62	72.5						91	79	69								762				86
81.5		61	71.5						90.5	78.5	67.5								720				83
81		60	71						90	77.5	66.5						654		697				81
80.5		59	70						89.5	76.5	65.5						634		680				80
80		58	69						89.3	75.5	64						615		653				78
79.5		57	68.5						89	75	63						595		636		214	202	76
79		56	67.5						88.5	74	62						577		617		208	196	75
78.5		55	67						88	73	61						560		598		202	190	74
78		54	66						87.5	72	59.5						543		580		195	185	72
77.5		53	65.5						87	71	58.5						522		562		188	178	71
77		52	64.5						86.5	70.5	57.5						500		545		180	170	70
76.5		51	64						86	69.5	56						487		528		175	166	68
76		50	63						85.5	68.5	55						475		513		171	162	67
75.5		49	62						85	67.5	54						464		498		167	158	66
74.5		48	61.5						84.5	66.5	52.5						451		485		162	153	64
74		47	60.5						84	66	51.5						442		471		159	150	63
73.5		46	60						83.5	65	50						432		458		156	147	62
73		45	59						83	64	49						421		446		152	143	60
72.5		44	58.5						82.5	63	48						409		434		147	139	58
72		43	57.5						82	62	46.5						400		423		144	136	57
71.5		42	57						81.5	61.5	45.5						390		412		141	133	56
71		41	56						81	60.5	44.5						384		404		138	131	55
70.5		40	55.5						80.5	59.5	43						371		392		134	126	54
70		39	54.5						80	58.5	42						362		381		130	123	52
69.5		38	54						79.5	57.5	41						353		370		127	120	51
69		37	53						79	56.5	39.5						341		360		123	116	50
68.5		36	52.5						78.5	56	38.5						330		350		119	112	49
68		35	51.5						78	55	37						325		341		117	110	48
67.5		34	50.5						77	54	36						315		332		113	107	47
67		33	50						76.5	53	35						310		323		111	105	46
66.5		32	49						76	52	33.5						301		318		108	102	44
66		31	48.5						75.5	51.5	32.5						294		310		106	100	43
65.5		30	47.5			92			75	50.5	31.5						286		302		103	97	42
65		29	47			91			74.5	49.5	30						279		294		100	95	41
64.5		28	46			90			74	48.5	29						271		286		98	92	41
64		27	45.5			89			73.5	47.5	28						262		276		94	89	40
63.5		26	44.5			88			72.5	47	26.5						257		269		92	87	39
63		25	44			87			72	46	25.5						253		266		91	86	38
62.5		24	43			86			71.5	45	24						247		256		89	84	37
62		23	42.5			84			71	44	23						240		250		86	82	36
61.5	100	22	41.5			82.5			70.5	43	22	93	82	72	201		233		244		84	79	35
61	99	21	41			81			70	42	20.5	92.5	81.5	71	195		227		239		82	77	35
60	98	20	40			79			69.5	41.5	19.5	-	81	70	189		220		234		79	75	34
59.5	97					77.5						92	80.5	69	184		218		232		78	74	33
59	96					76						-	80	68	179		216		230		78	73	33
58	95					74						91.5	79	67	175		210		222		76	71	32
57.5	94					72.5						-	78.5	66	171		205		213		74	70	31
57	93					71						91	78	65.5	167		200		208		72	68	30
56.5	92					69		100				90.5	77.5	64.5	163		195		204		70	66	29
56	91					67.5		99.5				-	77	63.5	160		190		196		68	65	28
55.5	90					66		98.5				90	76	62	157		185		192		67	63	27
55	89					64		98				89.5	75.5	61.5	154		180		188		65	61	26
54	88					62.5		97				-	75	60.5	151		176		184		63	60	26
53.5	87					61		96.5				89	74.5	59.5	148		172		180		62	59	26
53	86					59		95.5				88.5	74	58.5	145		169		176	168	61	58	25
52.5	85					57.5		94.5				-	73.5	58	142		165		173	164	59	56	25
52	84					56		94				88	73	57	140		162		170	162	58	55	25
51	83					54		93				87.5	72	56	137		159		166	158	57	54	24
50.5	82					52.5		92				-	71.5	55	135		156		163	156	56	53	24
50	81					51		91				87	71	54	133		153		160	153	55	52	24
49.5	80					49		90.5				86.5	70	53	130		150		158	150	54	51	
49	79					47.5		89.5				-	69.5	52	128		147		155	148	53	50	
48.5	78					46		88.5				86	69	51	126		144		150	145	52	49	
48	77					44		88				85.5	68	50	124		141		148	142	51	48	
47	76					42.5		87				-	67.5	49	122		139		146	140	50	47	
46.5	75				99.5	41		86				85	67	48.5	120		137		144	138	49	47	
46	74				99	39		85				-	66	47.5	118		135		142	135	48	46	
45.5	73				98.5	37.5		84.5				84.5	65.5	46.5	115		132		139	132	47	45	
45	72				98	36		83.5				84	65	45.5	114		130		137	130	47	44	
44.5	71			100	97.5	34.5		82.5				-	64	44.5	112		127		133	128	46	43	
44	70			99.5	97	32.5		81.5				83.5	63.5	43.5	110		125		131	126	45	42	
43.5	69			99	96	31		81				83	62.5	42.5	109		123		129	124	44	42	
43	68			98	95.5	29.5		80				-	62	41.5	107		121		127	122	43	41	
42.5	67			97.5	95	28		79				82.5	61.5	40.5	106		119		125	120	43	40	
42	66			97	94.5	26.5		78				82	60.5	39.5	104		117		124	118	42	40	
41.8	65			96	94	25		77.5				-	60	38.5	102		116		123	116	41	39	
41.5	64			95.5	93.5	23.5		76.5				81.5	59.5	37.5	101		114		120	114	41	39	
41	63			95	93	22		75.5				81	58.5	36.5	99		112		118	112	40	38	
40.5	62			94.5	92	20.5		74.5				-	58	35.5	98		110		115	110	39	37	
40	61			93.5	91.5	19		74				80.5	57	34.5	96		108		114	108	39	37	
39.5	60			93	91	17.5		73				-	56.5	33.5	95		107		112	107	38	36	
39	59			92.5	90.5	16		72				80	56	32	94		106		110	105	38	36	
38.5	58			92	90	14.5		71				79.5	55	31	92		104		109	104	37	35	
38	57			91	89.5	13		70.5				-	54.5	30	91		103		108	102	37	35	
37.8	56			90.5	89	11.5		69.5				79	54	29	90		101		106	100	36	34	
37.5	55			90	88	10		68.5				78.5	53	28	89		100		105	99	36	34	
37	54			89.5	87.5	8.5		68				-	52.5	27	87		98		103	98	35	33	
36.5	53			89	87	7		67				78	51.5	26	86		97		101	96	35	33	
36	52			88	86.5	5.5		66				77.5	51	25	85		95		100	95	34	32	
35.5	51			87.5	86	4		65				-	50.5	24	84		92		99	94	33	31	
35	50			87	85.5	2.5		64.5				77	49.5	23	83		92		98	-	33	31	
34.8	49			86.5	85	1		63.5				76.5	49	22	82		90		96	93	32	30	
34.5	48			85.5	84.5			62.5				-	48.5	20.5	81		89		95	91	32	30	
34	47			85	84			61.5				76	47.5	19.5	80		88		93	90	31	30	
33.5	46			84.5	83			61				75.5	47	18.5	79		86		91	88	31	29	
33	45			84	82.5			60				-	46	17.5	79		84		90	-	30	28	
32.5	44			83.5	82			59				75	45.5	16.5	78		83		88	86	30	28	
32	43			82.5	81.5			58				74.5	45	15.5	77		81		86	85	29	27	
31.5	42			82	81			57.5				-	44	14.5	76		80		84	84	29	27	
31	41			81.5	80.5			56.5				74	43.5	13.5	75		78		82	83	28	26	
30.8	40			81	79.5			55.5				73.5	43	12.5	74					82			
30.5	39			80	79			54.5				-	42	11	74					81			
30	38			79.5	78.5			54				73	41.5	10	73					80			
29.5	37			79	78			53				72.5	40.5	9	72					79			
29	36			78.5	77.5		100	52				-	40	8	71					-			
28.5	35			78	77		99.5	51.5				72	39.5	7	71					78			
28	34			77	76.5		99	50.5				71.5	38.5	6	70					-			
27.8	33			76.5	75.5		-	49.5				-	38	5	69					77			
27.5	32			76	75		98.5	48.5				71	37.5	4	68					75			
27	31			75.5	74.5		98	48				-	36.5	3	68					-			
26.5	30			75	74		-	47				70.5	36	2	67					74			
26	29			74	73.5		97.5	46				70	35.5	1	66					-			
25.5	28			73.5	73		97	45				-	34.5		66					73			
25	27			73	72.5		96.5	44.5				69.5	34		65					72			
24.5	26			72.5	72		-	43.5				69	33		65					-			
24.2	25			72	71		96	42.5				-	32.5		64					71			
24	24			71	70.5		95.5	41.5				68.5	32		64					-			
23.5	23			70.5	70		-	41				68	31		63					70			
23	22			70	69.5		95	40				-	30.5		63					69			
22.5	21			69.5	69		94.5	39				67.5	29.5		62					68			
22	20			68.5	68.5		-	38				-	29		62					-			
21.5	19			68	68		94	37.5				67	28.5		61					67			
21.2	18			67.5	67		93.5	36.5				66.5	27.5		61					66			
21	17			67	66.5		93	35.5				-	27		60					65			
20.5	16			66.5	66		-	35				66	26		60					64			
20	15			65.5	65.5		92.5	34				65.5	25.3		59					63			
	14			65	65		92	33				-	24.6		59					-			
	13			64.5	64.5		-	32				65	24		58					62			
	12			64	64		91.5	31.5				64.5	23.5		58					-			
	11			63.5	63.5		91	30.5				-	23		57					61			
	10			62.5	63		90.5	29.5				64	22		57					60			
	9			62	62		-	29				-	21.5		56								
	8			61.5	61.5		90	28				63.5	20.5		56								
	7			61	61		89.5	27				63	20		54								
	6			60.5	60.5		-	26				-	19.5		54								
	5			60	60		89	25.5				62.5	18.5		53								
	4			59	59.5		88.5	24.5				62	18		52								
	3			58.5	59		88	23.5				-	17		52								
	2			58	58		-	23				61.5	16.5		-								
	1			57.5	57.5		87.5	22				61	16		51								
				57	57		87	21				-	15		-								
				56	56										50								
				54	54										49								
				52	52										48								
				51	51										47								
				50	50										46								
				48	49										45								
				46	47										43								
				44	46										43								
				42	44										42								
				40	42										41								
				38	40										40								
				36	38										39								
				33	36										38								
				30	32										37								
				27	29										36								
				24	26										35								
				21	23										34								
				17	19										33								
				14	16										32								
				11	13										31								
				7	9										30								