

Table A
Commonly Used material specification reference chart

Material	Common Standard	SAE unified Number	Typical Hardness (1)(2)	Ball grade	Typical size ranges for various grades mm inch	
Chrome alloy steel	AISI/SAE E52100 AISI/SAE E51100	G-52986	Rc 60-67 (3,5)	3	0,8-25	1/32 - 1
				5,10	0,3-38	1/64 - 1-1/2
				16,24		
				48-100		
				200	0,8-75	1/32 - 2-7/8
				500		
				1000	10-115	3/8 - 4-1/2
Alloy tool steel	AISI/SAE M50	T-44004	Rc 58-65(4,5)	3	0,8-12	1/32 - 1/2
	AISI/SAE T1	T 12001	Rc 60-65 (3,5)	5,10,16 24,48	0,8-40	1/32 - 1-5/8
Corrosion resisting Hardened steel	AISI/SAE 440C	S-44004	Rc 58-65 (4,5)			
	AISI/SAE 4408	S-44003	Rc 55-62 (4,5)	3,5,10,16	0,3-19	1/64 - 3/4
	AISI/SAE 420	S-42000	Rc 52min (4,5)	24	0,8-25	1/32 - 1
	AISI/SAE 410	S-41000	Rb 97 Rc 41 (4,5)	48	0,8-50	1/32 - 2
	AISI/SAE329	S-32900	Rb 45 min (4,5)	100,200	0,8-115	1/32 - 4-1/2
Corrosion resisting Unhardened steel	AISI/SAE 302	S-30200	Rc 25-39 (5,6)			
	AISI/SAE 304	S-30400	Rc 25-39 (5,6)	100,200		
	AISI/SAE 305	S-30500	Rc 25-39 (5,6)	500	1,5-19	1/16 - 3/4
	AISI/SAE 316	S-31600	Rc 25-39 (5,6)			
	AISI/SAE 430	S-43000	Ra 48-63 (5)			
Carbon steel (7)	AISI/SAE 1008	G-10080	Rc 60min (2)			
	AISI/SAE 1013	G-10130	Rc 60minb (2)	100,200		
	AISI/SAE 1018	G-10180	Rc 60min (2)	500	1,5-38	1/16 - 1-1/2
	AISI/SAE 1022	G-10220	Rc 60min (")	1000		
Silicon molybdenum Steel	AISI/SAE S 2	T-41902	Rc 52-60 (3)	200	6,5-28	1/4- 1-1/8
Aluminium	AA-2017	A-92017	Rb 54-72	300	1,5-25	1/16 - 1
Aluminium bronze	CDA-624	C- 62400	Rb 94-98			
	CDA-630	C-63000	Rb 94-98	200	20-100	13/16 - 4
Brass	CDA -260	C-26000	Rb 75-87	100,200		
				500	1,5-19	1/16 - 3/4
				1000		
Bronze	CDA-464	C-46400	Rb 75-98	200,500		
				1000	1,5-19	1/16 - 3/4
Monel 400	AMS-4730	N-04400	Rb 85-92	100,200		
				500	1,5-19	1/16 - 3/4
Monel K-500	OA-N-286	N-05500	Rc 27min	100	1,5-19	1/16 - 3/4
				200	1,5-45	1/16 - 1-11/16
Tungsten carbide	JIC Carbide Classification	Not applicable	Ra 84-91,5	5	1,2-12	3/64 - 1/2
				10	1,2-19	3/64 - 3/4
				16	1,2-25	3/64 - 1
				24	1,2-32	3/64 - 1-1/4

Notes:

1. Rockwell hardness tests shall be conducted on parallel flats in accordance with ASTM Standard E-18 unless otherwise specified.
2. Hardness readings taken on spherical surfaces are subject to the corrections shown in table H, appendix B3. hardness readings for carbon steel balls smaller than 6mm(1/8 inch) shall be taken by the microhardness method or as agreed between manufacturer and purchaser.
3. Hardness of balls in any one lot shall be within 3 points on Rockwell C scale.
4. Hardness of balls in any one lot shall be within 4 points on Rockwell C scale.
5. Where microhardness is used see appendix B1. When microhardness method is used the Rockwell hardness values given above are converted to DPH in accordance with ASTM Standard E-140 "Standard Hardness Conversion tables for metals."
6. Annealed hardness of Rb 75-90 is available when specified.
7. Choice of carbon steels shown to be at ball manufacturer's option