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 5,10 16,24 48-100 200 500 1000	0,8-25 0,3-38 0,8-75 10-115	1/32 - 1 1/64 – 1-1/2 1/32 – 2-7/8 3/8 – 4-1/2
Alloy tool steel	AISI/SAE M50 AISI/SAE T1	T-44004 T 12001	Rc 58-65(4,5) Rc 60-65 (3,5)	3 5,10,16 24,48	0,8-12 0.8-40	1/32 –1/2 1/32 – 1-5/8
Corrosion resisting Hardened steel	AISI/SAE 440C AISI/SAE 4408 AISI/SAE 420 AISI/SAE 410 AISI/SAE329	S-44004 S-44003 S-42000 S-41000 S-32900	Rc 58-65 (4,5) Rc 55-62 (4,5) Rc 52min (4,5) Rb 97 Rc 41 (4,5) Rb 45 min (4,5)	 3,5,10.16 24 48 100,200	 0,3-19 0,8-25 0,8-50 0,8-115	 1/64 – ¾ 1/32 – 1 1/32 – 2 1/32 – 4-1/2
Corrosion resisting Unhardened steel	AISI/SAE 302 AISI/SAE 304 AISI/SAE 305 AISI/SAE 316 AISI/SAE 430	S-30200 S-30400 S-30500 S-31600 S-43000	Rc 25-39 (5,6) Rc 25-39 (5,6) Rc 25-39 (5,6) Rc 25-39 (5,6) Ra 48-63 (5)	 100,200 500	 1,5-19	 1/16 – ¾
Carbon steel (7)	AISI/SAE 1008 AISI/SAE 1013 AISI/SAE 1018 AISI/SAE 1022	G-10080 G-10130 G-10180 G-10220	Rc 60min (2) Rc 60minb (2) Rc 60min (2) Rc 60min (“)	 100,200 500 1000	 1,5-38	 1/16 – 1-1/2
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 CDA-630	C- 62400 C-63000	Rb 94-98 Rb 94-98	 200	 20-100	 13/16 – 4
Brass	CDA –260	C-26000	Rb 75-87	100,200 500 1000	1,5-19	1/16 –3/4
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 85-92 500	100,200	1,5-19	1/16 – 3/4
Monel K-500	OA-N-286	N-05500	Rc 27min	100 200	1,5-19 1,5-45	1/16 – 3/4 1/16 – 1-11/16
Tungsten carbide	JIC Carbide Classification	Not applicable	Ra 84-91,5	5 10 16 24	1,2-12 1,2-19 1,2-25 1,2-32	3/64 – 1/2 3/64 – 3/4 3/64 – 1 3/64 – 1-1/4

Notes:

1. Rockwell hardness tests shall be conducted on paralle flats in accordance with ASTM Standar 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 perchaser.
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