

CHROME STEEL BALLS

Chrome steel balls are widely used in precision ball bearings, as well as in a number of other industrial applications. Chrome steel balls have excellent surface quality, high hardness and high load bearing capacity as a result of through hardening.

Only the finest quality chrome steel produced in accordance with ASTM specification A-295 is used. Smaller size balls are made from wire stock while larger sizes are hot forged from bar stock. Modern furnaces with precisely controlled atmospheres and temperatures are used for heat treating to assure uniform hardness and proper microstructure for each chrome steel ball. Throughout the manufacturing process, statistical process control assures tolerance accuracy, fine surface finish and consistent high quality.

Material	AISI	Federal	Military	ASTM	UNS	AMS
Chrome Steel	52100	QQ-S-624b FED STD66b E 52100	MIL-S 980A(-1) MIL-B-1083C	A295-46T TYPE A	6440E G-52986	MS 19059 7440(52100)

(Additional testing may be required to certify that materials comply with specific standards.)

Material Analysis:

All sizes and grades are manufactured from AISI Type 52100 steel.

Chemical Analysis	
Carbon	0.98 to 1.10%
Chromium	1.30 to 1.60%
Manganese	0.25 to 0.45%
Silicon	0.15 to 0.35%
Sulphur	0.025% maximum
Phosphorus	0.025% maximum

Mechanical Properties:

Chrome steel balls are uniformly hardened and tempered throughout their entire diameter to achieve maximum strength and quality. Ball hardness is controlled within the 60-67 HRC range as measured on parallel flat surfaces. Custom heat treating is available for special hardness and dimensional stability requirements.

Mechanical Properties	
Tensile strength	325,000 psi
Yield strength	295,000 psi
Elongation in two inches	5%
Reduction in area	8%
Modulus of elasticity	29,500,000 psi
Density	0.283 lbs/cu. in.

Available Grades & Sizes:

Grade	Size Range (inches)	Grade	Size Range (inches)
3	.025" - 3/16"	48	1/32" - 2 1/2"
5	.025" - 1 1/2"	100	1/32" - 4 1/2"
10	1/32" - 2 1/2"	200	1/32" - 4 1/2"
16	1/32" - 2 1/2"	1000	1/32" - 4 1/2"

General Information:

Size (inches)	Balls (p/lb)	Size (inches)	Balls (p/lb)
1/32	221,100	29/32	9.07
3/64	65,500	15/16	8.19
1/16	27,600	31/32	7.42
5/64	14,300	1	6.75
3/32	8,200	1 1/16	5.63
7/64	5,150	1 1/8	4.74
1/8	3,460	1 3/16	4.03
9/64	2,430	1 1/4	3.46
5/32	1,770	1 5/16	2.98
11/64	1,330	1 3/8	2.60
3/16	1,020	1 7/16	2.27
7/32	645	1 1/2	2.00
1/4	432	1 9/16	1.77
9/32	303	1 5/8	1.57
5/16	221	1 11/16	1.40
11/32	166	1 3/4	1.26
3/8	128	1 13/16	1.13
13/32	101	1 7/8	1.02
7/16	80.6	1 15/16	.928
15/32	65.5	2	.844
1/2	54.0	2 1/8	.703
17/32	45.0	2 1/4	.592
9/16	37.9	2 3/8	.504
19/32	32.2	2 1/2	.432
5/8	27.6	2 5/8	.373
21/32	23.9	2 3/4	.325
11/16	20.8	2 7/8	.284
23/32	18.2	3	.250
3/4	16.0	3 1/4	.197
25/32	14.2	3 1/2	.157
13/16	12.6	3 3/4	.128
27/32	11.2	4	.105
7/8	10.1	4 1/2	.074