

## SPECIALTY STEEL BALLS

### M-50

#### Applications:

M-50 is widely used in bearings and bearing components in missile and aircraft applications where high wear resistance and strength at temperatures up to 800°F (427°C) is required.

#### Features:

M-50 is produced by a combination of vacuum induction melting and consumable electrode remelting. This alloy has excellent resistance to softening at high service temperatures. M-50 also has a good degree of oxidation resistance and features the high compressive strength characteristics of high-speed tool steels.

#### MATERIAL ANALYSIS - M-50

Carbon .....	0.77/.85% max.
Manganese .....	0.35% max.
Silicon .....	0.75% max.
Phosphorous.....	0.015% max.
Sulfur.....	0.015% max.
Chromium.....	3.75/4.25%
Nickel.....	0.15% max.
Vanadium .....	0.90/1.10%
Molybdenum.....	4.00/4.50%
Cobalt .....	0.25% max.
Tungsten.....	0.25% max.
Copper.....	0.10% max.
Iron.....	Balance

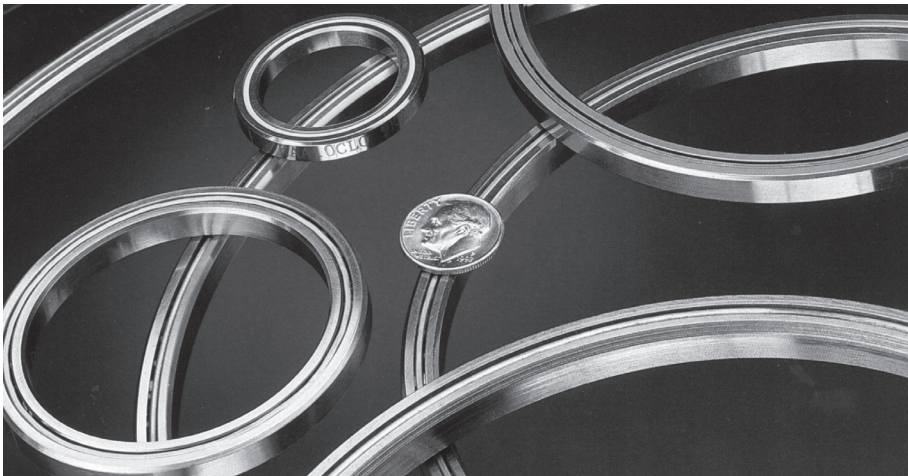
#### PHYSICAL PROPERTIES

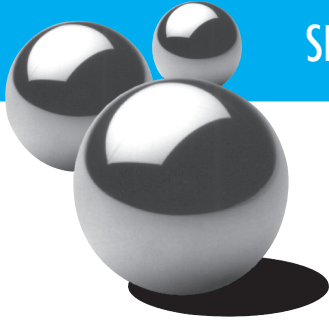
Specific gravity.....	7.87
Density .....	0.288 lbs/in. <sup>3</sup>

#### MECHANICAL PROPERTIES

Hardness.....	60-65 Rockwell C
Maximum operating temperature .....	900°F

Non-Stock Item





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### 52100

#### Uses:

52100 is an oil hardening grade, high-carbon chromium steel produced primarily for the ball and roller bearing industry.

Its excellent wear and abrasion-resistance qualities justify its use in such industrial applications as ballizing.

#### Features:

52100 bearing steel is a moderately deep hardening alloy having high resistance to wear, medium toughness and low resistance to softening at high temperatures. With proper heat treatment, 52100 has excellent stability in the hardened condition.

### MATERIAL ANALYSIS-52100

Carbon .....	0.98-1.10%
Manganese .....	0.25-0.45%
Phosphorus.....	0.025% max.
Sulphur.....	0.025% max.
Silicon.....	0.02-0.35%
Chromium.....	1.3-1.6
Iron.....	Balance

### PHYSICAL PROPERTIES

Specific gravity.....	7.8
Density .....	0.283 lbs./in <sup>3</sup>

### MATERIAL PROPERTIES

Modulus of elasticity.....	29,000 Kpsi
Modulus of rigidity.....	12,000 Kpsi
Hardness.....	60-65 Rockwell C
Maximum operating temperature.....	900°F



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