



AEROSPACE MATERIAL SPECIFICATION

AMS 7440A

Superseding AMS 7440

Society of Automotive Engineers, Inc.
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BALL, LOW CHROMIUM HIGH CARBON STEEL

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily bearing balls. The particular alloy to be chosen depends on the size of the ball and the manufacturer's techniques.

3. **COMPOSITION:**

Ø	50100		51100		52100	
	min	max	min	max	min	max
Carbon	0.98	1.10	0.08	1.10	0.98	1.10
Manganese	0.25	0.45	0.25	0.45	0.25	0.45
Silicon	0.20	0.35	0.20	0.35	0.20	0.35
Phosphorus	--	0.025	--	0.025	--	0.025
Sulfur	--	0.025	--	0.025	--	0.025
Chromium	0.40	0.60	0.90	1.15	1.30	1.60
Nickel	--	0.25	--	0.25	--	0.25
Molybdenum	--	0.06	--	0.06	--	0.06
Copper	--	0.35	--	0.35	--	0.35

- 3.1 **Check Analysis:** Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Low Alloy Steels."

4. **CONDITION:** Hardened, tempered, and polished.

Ø 5. **TECHNICAL REQUIREMENTS:**

- 5.1 Balls shall be hardened, by quenching from above the transformation range, and tempered to provide hardness specified on the part drawing. In the event hardness is not shown on the part drawing, the hardness shall be Rockwell C 60 - 67 or equivalent.

6. **QUALITY:** Steel for balls shall be bearing quality. Balls shall be free from cracks, pits, rust, and foreign materials and from internal and external imperfections detrimental to their performance.

- Ø 7. **TOLERANCES:** Shall be as agreed upon by purchaser and vendor when not specified on the drawing.

8. **REPORTS:** Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, this specification number and its revision letter, composition used, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

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