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AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 7310C

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PISTON RINGS, CAST IRON

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. COMPOSITION:

Total Carbon	3.5 - 3.9
Silicon	2.2 - 3.1
Manganese	0.40 - 0.8
Phosphorus	0.30 - 0.8
Sulfur	0.13 max

2.1 Alloying elements may be added with the approval of the purchaser, as required to produce a high quality iron meeting the requirements of this specification.

3. CONDITION: Rings shall be made from individual castings, in the as-cast condition.

4. TECHNICAL REQUIREMENTS:

4.1 Hardness: Finished rings shall have hardness of Rockwell B 97-104 or equivalent.

4.2 Microstructure of Rings: Shall be free from abnormal segregation. Matrices shall be essentially fine pearlite, with no appreciable amounts of massive cementite. Both phosphide eutectic and graphite shall be evenly distributed, and the latter shall be present for the most part in the form of randomly oriented flakes.

4.3 Finish: Sides of rings shall be ground or lapped. Periphery shall be turned smooth, unless otherwise specified on drawing.

4.4 Circularity: The diameter through the gap shall exceed the diameter 90 deg from the gap by not less than 0.0025 in. per inch of nominal ring diameter when finished ring is held around periphery by a flexible steel band 0.0045-0.0055 in. thick and of width approximately equal to that of ring and whose inside circumference is equal to the nominal outside circumference of ring plus or minus 0.003 inch.

4.5 Light-Tightness of Periphery: When finished ring is placed in a circular gage whose inside diameter is equal to nominal outside diameter of ring plus or minus 0.0005 in., the portion of periphery on each side of the gap equal to 20% of the nominal outside diameter of the ring shall be light-tight. The space between the balance of ring periphery and inside diameter of gage shall be not greater than 0.0005 in. at any point and not less than 85% of the periphery of the ring shall be light-tight. Intermittent or fuzzy light shall be considered the same as light-tight.

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