

# AERONAUTICAL MATERIAL SPECIFICATION

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## P E A R L I T I C   M A L L E A B L E   I R O N   C A S T I N G S

1. ACKNOWLEDGMENT: A vendor must mention this specification number in all quotations and when acknowledging purchase orders.
2. CONDITION: Heat treated, Pearlitic.
3. PHYSICAL PROPERTIES: (a) Unless otherwise specified two tensile test bars shall be cast without chills from each melt. In the case of continuous melting three test bars shall be cast for each eight hour period of casting; one each cast respectively, during the pouring of the first castings, approximately the middle castings, and the last castings poured during the 8 hour period. Test bars are to be supplied with the castings when requested.  
(b) Unless otherwise specified or noted on the drawing, the test bars, when properly heat treated with the castings they represent, shall conform to the following minimum physical requirements:

Tensile Strength - lb per sq in.	70,000
Yield Strength (Offset 0.2%) lb per sq in.	50,000
Equivalent Extension under load - inch in 2 in.	0.01
Elongation - % in 2 in.	8%

Test specimens taken from the casting shall demonstrate 75% of the required physical properties for test bars.

(c) The heat treated castings shall have a hardness of Brinell 170-215.

4. QUALITY: (a) Castings must be homogenous and free from primary graphite, injurious blowholes, porosity, cold shuts, shrinkage defects, cracks, or other harmful defects. Material revealing defects during fabrication is subject to rejection.  
(b) Castings when broken for fracture test must show some ductility and be substantially free from oxides and other defects.  
(c) Castings fabricated in accordance with this specification may be subject to radiographic inspection for blowholes, porosity, shrinkage defects, cracks, and other internal defects.  
(d) Parts after machining from the castings, may be subject to magnetic inspection for defects.

5. PRECAUTIONS: (a) Castings shall not be repaired in any manner without written permission from the purchaser.  
(b) Castings shall be of sufficient size to allow for finishing to blueprint requirements, but excessive size or weight will not be permitted.