Designation: A128/A128M – 93 (Reapproved 2012)

Standard Specification for Steel Castings, Austenitic Manganese[1]

This standard is issued under the fixed designation A128/A128M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers Hadfield austenitic manganese steel castings and alloy modifications.

1.2 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A781/A781M Specification for Castings, Steel and Alloy, Common Requirements, for General Industrial Use

3. General Conditions for Delivery

3.1 Material furnished to this specification shall conform to the requirements of Specification A781/A781M, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A781/A781M constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A781/A781M, this specification shall prevail.

4. Ordering Information

4.1 Orders for material under this specification should include the following information in proper sequence.

4.1.1 Quantity,

4.1.2 Specification, grade,

4.1.3 Whether any portion of the casting is to be chilled, and whether this is to be spot or full-face chilling,

4.1.4 Special heat-treatment requirements, and

4.1.5 Supplementary requirements.

5. Heat Treatment

5.1 The castings shall be suitably heat treated to achieve toughness and ductility. This heat treatment shall consist of uniformly heating the castings to a temperature applicable for grade of steel produced, at least 1800°F [1000°C], and holding until the temperature is uniform throughout and quenching in an applicable medium, normally water.

5.2 By agreement between the purchaser and the manufacturer, castings may be furnished in a condition other than described in 5.1.

6. Chemical Composition

6.1 The steel shall conform to the requirements as to chemical composition prescribed in Table 1.

6.2 Contamination of the drillings by drill chips must be avoided. Flat drills of the best highspeed steels, or drills of some of the newer tool materials, will generally be satisfactory for drilling manganese steel. Manganese steel may be drilled best after it has been annealed for several hours at from 900 to 1100°F [500 to 600°C].

7. Repair by Welding

7.1 Defects shall be welded using a procedure and welders capable of producing sound welds. The weld deposit shall be austenitic steel in general, but welds on wearing surfaces shall consist of austenitic-manganese steel.

7.2 Weld repairs shall be inspected to the same quality standards as are used to inspect the castings.

8. Keywords

8.1 austenitic manganese steel; manganese steel; steel castings

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloysand is the direct responsibility of Subcommittee A01.18 on Castings.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.