

| INCH-POUND |
MIL-A-21180D
AMENDMENT 1
14 December 1991

MILITARY SPECIFICATION

ALUMINUM-ALLOY CASTINGS, HIGH STRENGTH

This amendment forms a part of MIL-A-21180D, dated 5 November 1984, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2.3: Under "Description" for "Grade D" delete and substitute: "An area of a casting subjected to only low stresses in a non-critical application."

PAGE 2

2.1.1: Delete:

"Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein."

and substitute:

"The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2)."

2.1.1 Under "SPECIFICATIONS, MILITARY" delete:

"MIL-I-6866 - Inspection, Penetrant Method of"

Under "STANDARDS" delete:

"FEDERAL
FED-STD-151 - Metals, Test Methods"

Under "STANDARDS, MILITARY":

add: "MIL-STD-6866 - Inspection, Liquid Penetrant"

delete: "MIL-STD-649 - Aluminum and Magnesium Products,
Preparation for Shipment and Storage"

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2.1.1: Delete:

"(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)"

and substitute:

"(Unless otherwise indicated, copies of Federal and Military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)"

2.2: Change "Other publications" to "Non-Government publications."

Line 2-4: Delete:

"The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the Supplement thereto, unless otherwise specified."

and substitute:

"Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2)."

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2.2: Add under "AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)":

"ASTM B 660 - Packaging/Packing of Aluminum and Magnesium Products, Practices for
ASTM E 34 - Chemical Analysis of Aluminum and Aluminum Alloys
ASTM E 88 - Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition"

2.2: Delete:

"(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)"

and substitute:

"(Non-government standards and other publications are normally available from the organizations that prepare and distribute the documents. These documents also may be available in or through libraries or other informational services.)"

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2.3: Line 3: Add: "Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained."

PAGE 6

3.4.1.1.3: Line 9-11: Delete:

"Castings which exhibit soundness and mechanical properties, both of which are borderline, shall be cause for disapproval of foundry control."

and substitute:

"Castings which do not meet or exceed the specified soundness criteria and mechanical properties shall be cause for disapproval of foundry control."

3.4.2.1: Line 8: Delete: "When no grade is specified, Grade C shall apply."

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3.4.4: Line 3: Add: "For other tempers and alloys, electrical conductivity testing requirements shall be as specified in the acquisition documents."

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3.8.1: Line 13: Add: "Weld repaired castings shall be marked or identified in a manner acceptable to the purchaser."

3.8.3: Line 2: Delete: "or coated" and substitute "coated or shot peened."

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Renumber 4.1.1 to 4.1.2 and add new paragraph 4.1.1:

"4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material."

4.4.1.1: Line 3: Add "not exceeding" before "8 hours."

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Add new paragraph 4.4.1.2.1:

"4.4.1.2.1 Note for casting lot. Upon agreement between the foundry and purchaser, the foundry may use multiple heat treat furnace loads when substantial evidence is presented to the purchaser that the entire lot is given the same thermal treatment. One unit from each heat must be tested. An appendage (integrally cast test part) may be attached to the casting to be used as the unit of inspection."

4.4.2.2.1: Delete and substitute:

"A minimum of one sample shall be taken from each heat, at the beginning of the pour into casting molds. For pours exceeding 10 minutes, an additional sample shall be taken at the end of the pour to determine compliance to the requirements of 3.3.1."

PAGE 13

4.4.3.2: Lines 13-15: Delete last sentence and substitute:

"In the event of failure after reinspection, the lot represented by the sample(s) shall be rejected, and information concerning the failure shall be furnished to the cognizant inspection activity and the acquisition activity (see 6.2.1)."

4.5.1: Delete and substitute:

"Analysis shall be made in accordance with ASTM E 34 and ASTM E 88. In case of dispute, the chemical analysis by the wet chemical method shall be the basis for acceptance."

4.5.3: Line 2: Delete "MIL-I-6866" and substitute "MIL-STD-6866, Level II or better penetrant sensitivity."

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5.1: Line 2: Delete "MIL-STD-649" and substitute "ASTM B 660."

5.2: Line 1: Delete "MIL-STD-649" and substitute "ASTM B 660."
Line 2: Delete "A, B, or C" and substitute "A or C."

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6.2.2: Delete and substitute:

"6.2.2 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are

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tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Paragraph no.</u>	<u>Data requirements</u>	<u>Applicable DID no.</u>
4.1.2	Certification/Data report	DI-MISC-80678

The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSOL) must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423."

PAGE 17

Add new paragraph 6.8:

"6.8 Subject term key word listing.

Aluminum alloy
Casting
Foundry
Radiographic inspection"

Custodians:

Army - MR
Navy - AS
Air Force - 11

Preparing Activity:

Navy - AS
(Project MECA-0483)

Review Activities:

Army - EA, AV, AR, MI
Air Force - 70,71, 80,82

User Activities:

Army - ME
Navy - SH