

MIL-S-81591
 AMENDMENT 3
 31 January 1983
 SUPERSEDING
 AMENDMENT 2
 18 December 1981

MILITARY SPECIFICATION

STEEL, INVESTMENT CASTINGS, CARBON AND CORROSION-RESISTING

This amendment forms a part of Military Specification MIL-S-81591, dated 9 September 1968, and is approved for use by all Departments and Agencies of the Department of Defense.

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- * Table Ia, Add "IC-416" in its numerical order under Composition number and add under Conditions "Annealed or quenched and tempered." Delete "IC-322a" and substitute "IC-17-4."

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- * Table IIa, under Composition number IC-303, delete chemical requirements and substitute the following: "Carbon - 0.16 1/, Manganese - 1.50, Silicon - 2.00, Nickel - 9.0-12.0, Chromium - 18.0-21.0, Copper - 0.5 and either (a) or (b).

(a) Molybdenum - 1.5, Phosphorus - 0.17, Sulfur - 0.04,
 Selenium - 0.20-0.35

(b) Molybdenum - 0.40-0.80, Phosphorus - 0.040, Sulfur - 0.20-0.40

Table IIa, add Composition number "IC-416" and include the following chemical requirements "Carbon - 0.15 1/, Manganese - 1.25, Silicon - 1.50, Nickel - 0.50, Chromium - 11.5-14.0, Molybdenum - 0.50, Copper - 0.50, Zirconium - 0.50, and either (a) or (b).

(a) Selenium - 0.10-0.30, Phosphorous - 0.040, Sulfur - 0.03

(b) Phosphorous - 0.050, Sulfur - 0.15-0.35

1/ Elements expressed in maximum weight percentage unless otherwise indicated."

Table IIa, footnote 2/, delete "maz" and substitute "max."

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- * Table IIIa, add Composition number "IC-416" and include the following:
 "Annealed C25 max.

AREA MECA

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Quenched & Tempered	Hardness of Castings B90-B100	Minimum Properties of Test bar <u>1/</u>			
		Yield Strength psi <u>2/</u>	Tensile Strength psi	% Reduction of Area % RA	% Elong. (4D)
		65,000	90,000	15.0	8.0

1/ For critical applications, relation of test bar values to properties of castings should be established by actual test.

2/ At 0.2% offset."

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6.1.2, 1st Line. Add "IC-416" after "IC-410."

6.1.2. Add in this paragraph "Composition No. IC-416 is intended for small parts for use at temperatures up to 1000°F (538°C). Corrosion resistance is lower than that of IC-410 but machinability is better."

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

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Navy - AS
(Project No. MECA-0239)

Review activities:
Army - AV, ME, MI
Navy - MC

User activities:
Navy - OS