Designation: A 743/A 743M – 06

# Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application[1]

This standard is issued under the fixed designation A 743/A 743M; 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 iron-chromium and iron-chromium-nickel alloy castings for general corrosion-resistant application. The grades covered by this specification represent types of alloy castings suitable for broad ranges of application which are intended for a wide variety of corrosion environments.

NOTE 1—For alloy castings for severe corrosion-resistant service, reference should be made to Specification A 744/A 744M. For general heat-resistant alloy castings, reference should be made to Specification A 297/A 297M. For nickel alloy castings for corrosion-resistant service, reference should be made to Specification A 494/A 494M.

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. Inch-pound units are applicable for material ordered to Specification A 743 and SI units for material ordered to Specification A 743M.

## 2. Referenced Documents

2.1 *ASTM Standards:* [2]

A 262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

A 297/A 297M Specification for Steel Castings, Iron-Chromium and Iron-Chromium-Nickel, Heat Resistant, for General Application

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products

A 494/A 494M Specification for Castings, Nickel and Nickel Alloy

A 744/A 744M Specification for Castings, Iron-Chromium-Nickel, Corrosion Resistant, for Severe Service

A 781/A 781M Specification for Castings, Steel and Alloy, Common Requirements, for General Industrial Use

A 890/A 890M Specification for Castings, Iron-Chromium-Nickel-Molybdenum Corrosion-Resistant, Duplex (Austenitic/Ferritic) for General Application

A 957 Specification for Investment Castings, Steel and Alloy, Common Requirements, for General Industrial Use

## 3. General Conditions for Delivery

3.1 Except for investment castings, castings furnished to this specification shall conform to the requirements of Specification A 781/A 781M, including any supplementary requirements that are indicated on the purchase order. Failure to comply with the general requirements of Specification A 781/A 781M constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 781/A 781M, this specification shall prevail.

3.2 Steel investment castings furnished to this specification shall conform to the requirements of Specification A 957, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 957 constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 957, Specification A 957 shall prevail.

## 4. Ordering Information

4.1 Orders for material to this specification should include the following, as required, to describe the material adequately:

4.1.1 Description of the casting by pattern number or drawing,

4.1.2 Grade,

4.1.3 Heat treatment,

4.1.4 Options in the specification,

4.1.5 Whether castings are to be produced using the investment casting process, and

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

Current edition approved March 1, 2006. Published March 2006. Originally approved in 1977. Last previous edition approved in 2003 as A 743/A 743M – 03.

[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.

***A Summary of Changes section appears at the end of this standard.**

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4.1.6 Supplementary requirements desired, including the standards of acceptance.

## 5. Process

5.1 The steel shall be made by the electric furnace process with or without separate refining such as argon-oxygen decarburization (AOD).

## 6. Heat Treatment

6.1 Castings shall be heat treated in accordance with the requirements in Table 1.

NOTE 2—Proper heat treatment of these alloys is usually necessary to enhance corrosion resistance and in some cases to meet mechanical properties. Minimum heat treat temperatures are specified; however, it is sometimes necessary to heat treat at higher temperatures, hold for some minimum time at temperature and then rapidly cool the castings in order to enhance the corrosion resistance and meet mechanical properties.

## 7. Chemical Requirements

7.1 The chemical requirements are shown in Table 2

**TABLE 1 Heat Treatment Requirements**

| Grade | Heat Treatment |
|---|---|
| CF8, CG3M, CG8M, CG12, CF20, CF8M, CF8C,CF16F, CF16Fa | Heat to 1900°F [1040°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CH10, CH20, CE30, CK20 | Heat to 2000°F [1093°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CA15, CA15M, CA40, CA40F | (*1*) Heat to 1750°F [955°C] minimum, air cool and temper at 1100°F [595°C] minimum, or<br>(*2*) Anneal at 1450°F [790°C] minimum. |
| CB30, CC50 | (*1*) Heat to 1450°F [790°C] minimum, and air cool, or<br>(*2*) Heat to 1450°F [790°C] minimum, and furnace cool. |
| CF3, CF3M, CF3MN | (*1*) Heat to 1900°F [1040°C] minimum, hold for sufficient time to heat casting to temperature, and cool rapidly. (*2*) As cast if corrosion resistance is acceptable. |
| CN3M | Heat to 2150°F [1175°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CN3MN | Heat to 2100°F [1150°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CN7M, CG6MMN | Heat to 2050°F [1120°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CN7MS | Heat to 2100°F [1150°C] minimum, 2150°F [1180°C] maximum, hold for sufficient time (2 h minimum) to heat casting to temperature and quench in water. |
| CA6NM | Heat to 1850°F [1010°C] minimum, air cool to 200°F [95°C] or lower prior to any optional intermediate temper and prior to the final temper. The final temper shall be between 1050°F [565°C] and 1150°F [620°C]. |
| CA6N | Heat to 1900°F [1040°C], air cool, reheat to 1500°F [815°C], air cool, and age at 800°F [425°C], holding at each temperature sufficient time to heat casting uniformly to temperature. |
| CF10SMnN | Heat to 1950°F [1065°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CA28MWV | (*1*) Heat to 1875–1925°F [1025–1050°C], quench in air or oil, and temper at 1150°F [620°C] minimum, or<br>(*2*) Anneal at 1400°F [760°C] minimum. |
| CK3MCuN | Heat to 2100°F [1150°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CK35MN | Heat to 2100-2190F [1150-1200C], hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means. |
| CB6 | Heat between 1800°F [980°C] and 1920°F [1050°C], forced air, cool to 120°F [50°C] maximum, and temper between 1100°F and 1160°F [595°C and 625°C]. |

**TABLE 2 Chemical Requirements**

| Grade (UNS) | Type | Composition, % | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Carbon, max | Manganese, max | Silicon, max | Phosphorus, max | Sulfur, max | Chromium | Nickel | Molybdenum | Columbium | Selenium | Copper | Tungsten, max | Vanadium, max | Nitrogen |
| CF8 (J92600) | 19 Chromium, 9 Nickel | 0.08 | 1.50 | 2.00 | 0.04 | 0.04 | 18.0–21.0 | 8.0–11.0 | ... | ... | ... | ... | ... | ... | ... |
| CG12 (J93001) | 22 Chromium, 12 Nickel | 0.12 | 1.50 | 2.00 | 0.04 | 0.04 | 20.0–23.0 | 10.0–13.0 | ... | ... | ... | ... | ... | ... | ... |
| CF20 (J92602) | 19 Chromium, 9 Nickel | 0.20 | 1.50 | 2.00 | 0.04 | 0.04 | 18.0–21.0 | 8.0–11.0 | ... | ... | ... | ... | ... | ... | ... |
| CF8M (J92900) | 19 Chromium, 10 Nickel, with Molybdenum | 0.08 | 1.50 | 2.00 | 0.04 | 0.04 | 18.0–21.0 | 9.0–12.0 | 2.0–3.0 | ... | ... | ... | ... | ... | ... |
| CF8C (J92710) | 19 Chromium, | 0.08 | 1.50 | 2.00 | 0.04 | 0.04 | 18.0–21.0 | 9.0– | ... | [A] | ... | ... | ... | ... | ... |



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**TABLE 2** *Continued*

| Grade (UNS) | Type | Composition, % | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Carbon, max | Manganese, max | Silicon, max | Phosphorus, max | Sulfur, max | Chromium | Nickel | Molybdenum | Columbium | Selenium | Copper | Tungsten, max | Vanadium, max | Nitrogen |
| CF16F (J92701) | 10 Nickel, with Columbium 19 Chromium, 9 Nickel, Free Machining | 0.16 | 1.50 | 2.00 | 0.17 | 0.04 | 18.0–21.0 | 9.0–12.0 | 1.50 max | ... | 0.20–0.35 | ... | ... | ... | ... |
| CF16Fa | 19 Chromium, 9 Nickel, Free Machining | 0.16 | 1.50 | 2.00 | 0.04 | 0.20–0.40 | 18.0–21.0 | 9.0–12.0 | 0.40–0.80 | ... | ... | ... | ... | ... | ... |
| CH10 (J93401) | 25 Chromium, 12 Nickel | 0.10 | 1.50 | 2.00 | 0.04 | 0.04 | 22.0–26.0 | 12.0–15.0 | ... | . . . | ... | ... | ... | ... | ... |
| CH20 (J93402) | 25 Chromium, 12 Nickel | 0.20 | 1.50 | 2.00 | 0.04 | 0.04 | 22.0–26.0 | 12.0–15.0 | ... | ... | ... | ... | ... | ... | ... |
| CK20 (J94202) | 25 Chromium, 20 Nickel | 0.20 | 2.00 | 2.00 | 0.04 | 0.04 | 23.0–27.0 | 19.0–22.0 | ... | ... | ... | ... | ... | ... | ... |
| CE30 (J93423) | 29 Chromium, 9 Nickel | 0.30 | 1.50 | 2.00 | 0.04 | 0.04 | 26.0–30.0 | 8.0–11.0 | ... | ... | ... | ... | ... | ... | ... |
| CA15 (J91150) | 12 Chromium | 0.15 | 1.00 | 1.50 | 0.04 | 0.04 | 11.5–14.0 | 1.00 max | 0.50 max | ... | ... | ... | ... | ... | ... |
| CA15M (J91151) | 12 Chromium | 0.15 | 1.00 | 0.65 | 0.040 | 0.040 | 11.5–14.0 | 1.0 max | 0.15–1.0 | ... | ... | ... | ... | ... | ... |
| CB30 (J91803) | 20 Chromium | 0.30 | 1.00 | 1.50 | 0.04 | 0.04 | 18.0–21.0 | 2.00 max | ... | ... | ... | [B] | ... | ... | ... |
| CC50 (J92615) | 28 Chromium | 0.50 | 1.00 | 1.50 | 0.04 | 0.04 | 26.0–30.0 | 4.00 max | ... | ... | ... | ... | ... | ... | ... |
| CA40 (J91153) | 12 Chromium | 0.20–0.40 | 1.00 | 1.50 | 0.04 | 0.04 | 11.5–14.0 | 1.0 max | 0.5 max | ... | ... | ... | ... | ... | ... |
| CA40F (J91154) | 12 Chromium, Free Machining | 0.20–0.40 | 1.00 | 1.50 | 0.04 | 0.20–0.40 | 11.5–14.0 | 1.0 max | 0.5 max | ... | ... | ... | ... | ... | ... |
| CF3 (J92500) | 19 Chromium, 9 Nickel | 0.03 | 1.50 | 2.00 | 0.04 | 0.04 | 17.0–21.0 | 8.0–12.0 | ... | ... | ... | ... | ... | ... | ... |
| CF10SMnN (J92972) | 17 Chromium, 8.5 Nickel with Nitrogen | 0.10 | 7.00–9.00 | 3.50–4.50 | 0.060 | 0.030 | 16.0–18.0 | 8.0–9.0 | ... | ... | ... | ... | ... | ... | 0.08–0.18 |
| CF3M (J92800) | 19 Chromium, 10 Nickel, with Molybdenum | 0.03 | 1.50 | 1.50 | 0.04 | 0.04 | 17.0–21.0 | 9.0–13.0 | 2.0–3.0 | ... | ... | ... | ... | ... | ... |
| CF3MN (J92804) | 19 Chromium, 10 Nickel, with Molybdenum, and Nitrogen | 0.03 | 1.50 | 1.50 | 0.040 | 0.040 | 17.0–22.0 | 9.0–13.0 | 2.0–3.0 | ... | ... | ... | ... | ... | 0.10–0.20 |
| CG6MMN (J93790) | | 0.06 | 4.00–6.00 | 1.00 | 0.04 | 0.03 | 20.5–23.5 | 11.5–13.5 | 1.50–3.00 | 0.10–0.30 | ... | ... | ... | 0.10–0.30 | 0.20–0.40 |
| CG3M (J92999) | 19 Chromium, 11 Nickel, with Molybdenum | 0.03 | 1.50 | 1.50 | 0.04 | 0.04 | 18.0–21.0 | 9.0–13.0 | 3.0–4.0 | . . . | . . . | . . . | . . . | . . . | . . . |
| CG8M (J93000) | 19 Chromium, 11 Nickel, with Molybdenum | 0.08 | 1.50 | 1.50 | 0.04 | 0.04 | 18.0–21.0 | 9.0–13.0 | 3.0–4.0 | ... | ... | ... | ... | ... | ... |
| CN3M (J94652) | | 0.03 | 2.0 | 1.0 | 0.03 | 0.03 | 20.0–22.0 | 23.0–27.0 | 4.5–5.5 | ... | ... | ... | ... | ... | ... |
| CN3MN (J94651) | 21 Chromium, 24 Nickel with Molybdenum and Nitrogen | 0.03 | 2.00 | 1.00 | 0.040 | 0.010 | 20.0–22.0 | 23.5–25.5 | 6.0–7.0 | ... | ... | 0.75 max | ... | ... | 0.18–0.26 |
| CN7M (N08007) | 20 Chromium, | 0.07 | 1.50 | 1.50 | 0.04 | 0.04 | 19.0–22.0 | 27.5– | 2.0–3.0 | ... | ... | 3.0– | ... | ... | ... |



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**TABLE 2** *Continued*

| Grade (UNS) | Type | Composition, % | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Carbon, max | Manganese, max | Silicon, max | Phosphorus, max | Sulfur, max | Chromium | Nickel | Molybdenum | Columbium | Selenium | Copper | Tungsten, max | Vanadium, max | Nitrogen |
| | 29 Nickel, with Copper and Molybdenum | | | | | | | 30.5 | | | | 4.0 | | | |
| CN7MS (J94650) | 19 Chromium, 24 Nickel, with Copper and Molybdenum | 0.07 | 1.00 | 2.50–3.50 | 0.04 | 0.03 | 18.0–20.0 | 22.0–25.0 | 2.5–3.0 | ... | ... | 1.5–2.0 | ... | | |
| CA6NM (J91540) | 12 Chromium, 4 Nickel | 0.06 | 1.00 | 1.00 | 0.04 | 0.03 | 11.5–14.0 | 3.5–4.5 | 0.40–1.0 | ... | ... | ... | ... | ... | ... |
| CA6N | 11 Chromium, 7 Nickel | 0.06 | 0.50 | 1.00 | 0.02 | 0.02 | 10.5–12.5 | 6.0–8.0 | ... | ... | ... | ... | ... | ... | ... |
| CA28MWV (J91422) | 12 Chromium, with Molybdenum, Tungsten and Vanadium | 0.20–0.28 | 0.50–1.00 | 1.0 | 0.030 | 0.030 | 11.0–12.5 | 0.50–1.00 | 0.90–1.25 | ... | ... | ... | 0.90–1.25 | 0.20–0.30 | ... |
| CK3MCuN (J93254) | 20 Chromium 18 Nickel, with Copper and Molybdenum | 0.025 | 1.20 | 1.00 | 0.045 | 0.010 | 19.5–20.5 | 17.5–19.5 | 6.0–7.0 | . . . | . . . | 0.50–1.00 | . . . | . . . | 0.180–0.240 |
| CK35MN | 23 Chromium, 21 Nickel, with Molybdenum and Nitrogen | 0.035 | 2.00 | 1.00 | 0.035 | 0.020 | 22.0-24.0 | 20.0-22.0 | 6.0-6.8 | . . . | . . . | 0.40 | . . . | . . . | 0.21-0.32 |
| CB6 (J91804) | 16 Chromium, 4 Nickel | 0.06 | 1.00 | 1.00 | 0.04 | 0.03 | 15.5–17.5 | 3.5–5.5 | 0.5 max | . . . | . . . | . . . | . . . | . . . | . . . |

[A] Grade CF8C shall have a columbium content of not less than eight times the carbon content and not more than 1.0%. If a columbium-plus-tantalum alloy in the approximate Cb:Ta ratio of 3:1 is used for stabilizing this grade, the total columbium-plus-tantalum content shall not be less than nine times the carbon content and shall not exceed 1.1%.

[B] For Grade CB30 a copper content of 0.90 to 1.20% is optional..

## 8. Repair by Welding

8.1 Repair welding of Grade CA28MWV is not permitted unless by agreement between the manufacturer and the purchaser.

8.2 When methods involving high temperature are used in the removal of discontinuities, castings shall be preheated in accordance with Table 3. Weld repairs shall be subject to the same quality standards as are used to inspect the castings.

8.3 Post weld heat treatment, if required, shall be in accordance with Table 1.

8.3.1 The martensitic grades CA6NM, CA15, CA15M, CB6, and CA40 shall be retempered after weld repairing, except that local tempering will be permitted if, in the opinion of the manufacturer, furnace heat treating will be damaging to the finished surface of a machined casting. Heat treatment, other than tempering, of grades CA6NM, CA15, CA15M, CB6, and CA40 after weld repairing shall be performed only when agreed upon between the manufacturer and the purchaser. Weld repair on Grade CA40F is not recommended because of the risk of local hardening and possible cracking in the heat affected zone.

**TABLE 3 Minimum Preheat Temperatures**

| Grade | Minimum Preheat Temperatures | |
|---|---|---|
| | °F | °C |
| CA15, CA15M | 400 | [205] |
| CA40, CA28MWV | | |
| Others | 50 | [10] |

8.3.2 Post weld heat treatment is not required on the other grades of this specification. When post weld heat treatment is believed necessary for adequate corrosion resistance in the service environment, castings should be ordered in accordance with Specification A 744/A 744M.

## 9. Product Marking

9.1 Castings shall be marked for material identification with the ASTM specification number (A 743/A 743M) and grade symbol, that is, CF8, CA15, CB30, etc. In addition, the manufacturer's name or identification mark and the pattern number shall be cast or stamped using the low-stress stamps on all castings. Small-size castings may be such that marking must be limited consistent with the available area. The marking of heat numbers on individual castings shall be agreed upon between the manufacturer and the purchaser. Marking shall be in such position as not to injure the usefulness of the casting.

## 10. Keywords

10.1 corrosion resistant; iron-chromium; iron-chromium-nickel; steel castings



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## SUPPLEMENTARY REQUIREMENTS

The following supplementary requirements shall not apply unless specified in the purchase order. A list of standardized supplementary requirements for use at the option of the purchaser is included in Specification A 781/A 781M. Those which are ordinarily considered suitable for use with this specification are given below. Others enumerated in A 781/A 781M may be used with this specification upon agreement between the manufacturer and purchaser.

### S1. Magnetic Particle Examination

### S2. Radiographic Examination

### S3. Liquid Penetrant Examination

### S4. Ultrasonic Examination

### S5. Examination of Weld Preparation

### S6. Certification

### S7. Prior Approval of Major Weld Repairs

### S11. Intergranular Corrosion Test

S11.1 An intergranular corrosion test shall be performed in accordance with the appropriate practice for the particular grade involved, as listed in Practices A 262, or as agreed upon with the purchaser. Intergranular corrosion tests on stabilized or 0.03 % carbon maximum grades (CF3, CF3M, CF8C, and CG3M) shall be made on sensitized specimens. On all other grades of chromium-nickel steels, intergranular corrosion tests shall be made on specimens representative of the as-shipped condition.

### S12 Tension Test

S12.1 Tensile properties shall be determined from material representing each heat. The bar from which the test specimen is taken shall be heat treated in production furnaces to the same procedure as the castings it represents. The results shall conform to the requirements specified in Table S12.1.

S12.2 Test bars shall be poured in separately cast keel blocks similar to Fig. 1 or Fig. 2 or Fig. 3 of A 781/A 781M.

S12.3 Tension test specimens may be cut from heat-treated castings, or from as-cast castings if no heat treatment is specified for the castings, instead of from test bars, when agreed upon between the manufacturer and the purchaser.

S12.4 Test specimens shall be machined to the form and dimensions of the standard round 2-in. [50-mm] gage length specimen shown in Fig. 4 and 5 of Test Methods and Definitions A 370, and shall be tested in accordance with Test Methods and Definitions A 370.

S12.5 If the results of the mechanical tests for any heat, lot, or casting do not conform to the requirements specified, retests are permitted as outlined in Test Methods and Definitions A 370. At the manufacturer's option, castings may be reheat-treated and retested. When castings are reheat-treated, they may not be reaustenitized more than three times without the approval of the purchaser. Testing after reheat treatment shall consist of the full number of specimens taken from locations complying with the specification or order.

S12.6 If any test specimen shows defective machining or develops flaws, it may be discarded and another specimen substituted from the same heat.

### S13. Post Weld-Heat Treatment

S13.1 Weld repairs shall be considered major in the case of a casting which has leaked on hydrostatic test or when the depth of the cavity after preparation for repair exceeds 20 % of the actual wall thickness, or 1 in. [25 mm], whichever is smaller, or when the extent of the cavity exceeds approximately 10 $in.^2$ [65 $cm^2$]. All other weld repairs shall be considered minor.

S13.2 Grades CF8, CG3M, CG8M, CG12, CF20, CF8M, CF8C, CF16F, CF16Fa, CH10, CH20, CE30, CK20, CF3, CF3M, CF3MN, CN7M, CN7MS, CN3MN, CB30, CC50, CA6N, and CK3MCuN shall be heat treated after major weld repairs, but it is not required after minor repairs except by agreement between the manufacturer and the purchaser.

### S14. Hardness Tests

S14.1 Brinell tests on non-austenitic grades shall be conducted. Grades CA15, CA15M, CB30, and CC50 shall have a Brinell hardness of 241 HB maximum. Grade CA6NM shall have a Brinell hardness of 285 HB maximum, Grade CA40 and CA40F, 269 HB maximum, and Grade CA28MWV, 302–352 HB, except for the annealed condition, when the Brinell hardness of this grade shall not exceed 269 HB.

S14.2 The location where the Brinell hardness reading is to be taken and the frequency of such Brinell hardness inspection of the castings shall be established by agreement between the manufacturer and the purchaser.

### S15. Low Ferrite in CF8

S15.1 When low ferrite or non-magnetic properties are required, the mechanical property requirements and volume fraction of ferrite as determined by S 31, A 890/A 890M, shall be by agreement between the manufacturer and the purchaser.



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**TABLE S12.1 Tensile Requirements**

| Grade | Type | Tensile Strength, min | | Yield Strength, min | | Elongation in 2 in. [50 mm], min, %[A] | Reduction of Area, min, % |
|---|---|---|---|---|---|---|---|
| | | ksi | [MPa] | ksi | [MPa] | | |
| CF8 | 19 Chromium, 9 Nickel | 70[B] | [485][B] | 30[B] | [205][B] | 35 | ... |
| CG12 | 22 Chromium, 12 Nickel | 70 | [485] | 28 | [195] | 35 | ... |
| CF20 | 19 Chromium, 9 Nickel | 70 | [485] | 30 | [205] | 30 | ... |
| CF8M | 19 Chromium, 10 Nickel, with Molybdenum | 70 | [485] | 30 | [205] | 30 | ... |
| CF8C | 19 Chromium, 10 Nickel with Columbium | 70 | [485] | 30 | [205] | 30 | ... |
| CF16F and CF16Fa | 19 Chromium, 9 Nickel, Free Machining | 70 | [485] | 30 | [205] | 25 | ... |
| CH20 and CH10 | 25 Chromium, 12 Nickel | 70 | [485] | 30 | [205] | 30 | ... |
| CK20 | 25 Chromium, 20 Nickel | 65 | [450] | 28 | [195] | 30 | ... |
| CE30 | 29 Chromium, 9 Nickel | 80 | [550] | 40 | [275] | 10 | ... |
| CA15 and CA15M | 12 Chromium | 90 | [620] | 65 | [450] | 18 | 30 |
| CB30 | 20 Chromium | 65 | [450] | 30 | [205] | ... | ... |
| CC50 | 28 Chromium | 55 | [380] | ... | ... | ... | ... |
| CA40 | 12 Chromium | 100 | [690] | 70 | [485] | 15 | 25 |
| CA40F | 12 Chromium, Free Machining | 100 | [690] | 70 | [485] | 12 | ... |
| CF3 | 19 Chromium, 9 Nickel | 70 | [485] | 30 | [205] | 35 | ... |
| CF10SMnN | 17 Chromium, 8.5 Nickel with Nitrogen, 9 Nickel | 85 | [585] | 42 | [290] | 30 | ... |
| CF3M | 19 Chromium, 10 Nickel, with Molybdenum | 70 | [485] | 30 | [205] | 30 | ... |
| CF3MN | 19 Chromium, 10 Nickel, with Molybdenum, and Nitrogen | 75 | [515] | 37 | [255] | 35 | ... |
| CG6MMN | Chromium-Nickel-Manganese-Molybdenum | 85 | [585] | 42 | [290] | 30 | ... |
| CG3M | 19 Chromium, 11 Nickel, with Molybdenum | 75 | [515] | 35 | [240] | 25 | . . . |
| CG8M | 19 Chromium, 11 Nickel, with Molybdenum | 75 | [520] | 35 | [240] | 25 | ... |
| CN3M | | 63 | [435] | 25 | [170] | 30 | ... |
| CN3MN | 21 Chromium, 24 Nickel, with Molybdenum, and Nitrogen | 80 | [550] | 38 | [260] | 35 | ... |
| CN7M | 20 Chromium, 29 Nickel, with Copper and Molybdenum | 62 | [425] | 25 | [170] | 35 | ... |
| CN7MS | 19 Chromium, 24 Nickel, with Copper and Molybdenum | 70 | [485] | 30 | [205] | 35 | ... |
| CA6NM | 12 Chromium, 4 Nickel | 110 | [755] | 80 | [550] | 15 | 35 |
| CA6N | 11 Chromium, 7 Nickel | 140 | [965] | 135 | [930] | 15 | 50 |
| CA28MWV[C] | 12 Chromium, with Molybdenum, Tungsten, and Vanadium | 140 | [965] | 110 | [760] | 10 | 24 |
| CK3MCuN | 20 Chromium 18 Nickel, with Copper and Molybdenum | 80 | [550] | 38 | [260] | 35 | ... |
| CK35MN | 23 Chromium, 21 Nickel, with Molybdenum and Nitrogen | 83 | [570] | 41 | [280] | 35 | ... |
| CB6 | 16 Chromium, 4 Nickel | 115 | [790] | 85 | [580] | 16 | 35 |

[A] When ICI test bars are used in tensile testing as provided for in this specification, the gage length to reduced section diameter ratio shall be 4:1.
[B] For low ferrite or nonmagnetic castings of this grade, the following values shall apply: tensile strength, min, 65 ksi [450 MPa]; yield point, min, 28 ksi [195 MPa].
[C] These mechanical properties apply only when heat-treatment (1) has been used.

## SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes to this standard since the last issue (A 743/A 743M – 03) that may impact the use of this standard.

*(1)* Revised Sections 2, 3, and 4 to reference investment casting general requirements A 957.



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