

## § 52.25-1

### § 52.25-1 General.

Requirements for fired boilers of various sizes and uses are referenced in table 1 to § 54.01-5 of this subchapter.

### § 52.25-3 Feedwater heaters (modifies PFH-1).

Feedwater heaters must meet the requirements in PFH-1 of Section I of the ASME BPVC (incorporated by reference; see § 52.01-1).

[CGFR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

### § 52.25-5 Miniature boilers (modifies PMB-1 through PMB-21).

Miniature boilers must meet the requirements in PMB-1 through PMB-21 of Section I of the ASME BPVC (incorporated by reference; see § 52.01-1).

[CGFR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65161, Oct. 31, 2008; USCG-2014-0688, 79 FR 58280, Sept. 29, 2014]

### § 52.25-7 Electric boilers (modifies PEB-1 through PEB-19).

Electric boilers required to comply with this part must meet the requirements in PEB-1 through PEB-19 except PEB-3 of Section I of the ASME BPVC (incorporated by reference; see § 52.01-1).

[CGFR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

### § 52.25-10 Organic fluid vaporizer generators (modifies PVG-1 through PVG-12).

(a) Organic fluid vaporizers must meet the requirements of PVG-1 through PVG-12 of Section I of the ASME BPVC (incorporated by reference; see § 52.01-1).

(b) The Commandant must approve the application and end use of organic fluid vaporizer generators.

[CGFR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

### § 52.25-15 Fired thermal fluid heaters.

(a) Fired thermal fluid heaters must be designed, constructed, inspected, tested, and stamped in accordance with the applicable provisions in this part.

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(b) Each fired thermal fluid heater must be fitted with a control which prevents the heat transfer fluid from being heated above its flash point.

(c) The heat transfer fluid must be chemically compatible with any cargo carried in the cargo tanks serviced by the heat transfer system.

(d) Each fired thermal fluid heater must be tested and inspected in accordance with the requirements of subpart 61.30 of this subchapter.

[CGFR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by CGD 88-057, 55 FR 24236, June 15, 1990]

### § 52.25-20 Exhaust gas boilers.

Exhaust gas boilers with a maximum allowable working pressure greater than 103 kPa gage (15 psig) or an operating temperature greater than 454 °C (850 °F) must be designed, constructed, inspected, tested, and stamped in accordance with the applicable provisions in this part. The design temperature of parts exposed to the exhaust gas must be the maximum temperature that could normally be produced by the source of the exhaust gas. This temperature must be verified by testing or by the manufacturer of the engine or other equipment producing the exhaust. Automatic exhaust gas boiler control systems must be designed, constructed, tested, and inspected in accordance with § 63.25-7 of this subchapter.

[CGD 88-057, 55 FR 24236, June 15, 1990]

## PART 53—HEATING BOILERS

### Subpart 53.01—General Requirements

Sec.

53.01-1 Incorporation by reference.

53.01-3 Adoption of Section IV of the ASME BPVC.

53.01-5 Scope (modifies HG-100).

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### Subpart 53.05—Pressure Relieving Devices (Article 4)

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### Subpart 53.10—Tests, Inspection, Stamping, and Reporting (Article 5)

- 53.10-1 General.
- 53.10-3 Inspection and tests (modifies HG-500 through HG-540).
- 53.10-10 Certification by stamping.
- 53.10-15 Manufacturers' data report forms.

### Subpart 53.12—Instruments, Fittings, and Controls (Article 6)

- 53.12-1 General (modifies HG-600 through HG-640).

AUTHORITY: 46 U.S.C. 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 00170.1, Revision No. 01.3.

SOURCE: CGFR 68-82, 33 FR 18826, Dec. 18, 1968, as amended by USCG-2020-0634, 89 FR 50102, June 12, 2024, unless otherwise noted.

## Subpart 53.01—General Requirements

### § 53.01-1 Incorporation by reference.

Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at the U.S. Coast Guard and the National Archives and Records Administration (NARA). Contact U.S. Coast Guard Headquarters at: Commandant (CG-ENG), Attn: Office of Design and Engineering Standards, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE, Washington, DC 20593-7509; phone (202) 372-1375; email [ypeapproval@uscg.mil](mailto:ypeapproval@uscg.mil). For information on the availability of this material at NARA, visit [www.archives.gov/federal-register/cfr/ibr-locations](http://www.archives.gov/federal-register/cfr/ibr-locations) or email [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov). The material may be obtained from the following sources:

(a) *American Society of Mechanical Engineers (ASME)*, Two Park Avenue, New York, NY 10016-5990; 800-843-2763; [CustomerCare@asme.org](mailto:CustomerCare@asme.org); [www.asme.org](http://www.asme.org).

(1) ASME BPVC.I-2019, 2019 ASME Boiler and Pressure Vessel Code, Section I, Rules for Construction of Power Boilers, 2019 Edition, issued July 1, 2019 (“Section I of the ASME BPVC”); IBR approved for § 53.01-10(e).

(2) ASME BPVC.IV-2019, 2019 ASME Boiler and Pressure Vessel Code, Section IV, Rules for Construction of Heating Boilers, 2019 Edition, issued July 1, 2019 (“Section IV of the ASME BPVC”); IBR approved for §§ 53.01-3; 53.01-5; 53.01-10(a); 53.05-1(a); 53.05-2(a); 53.05-3; 53.05-5; 53.10-1; 53.10-3(a); 53.10-10; 53.10-15; 53.12-1(a).

(b) *UL Solutions*, 333 Pfingston Road, Northbrook, IL 60062; 847-272-8800; [www.ul.com](http://www.ul.com).

(1) UL 174, Standard for Safety, Household Electric Storage Tank Water Heaters, Eleventh Edition, dated April 29, 2004, including revisions through December 15, 2016 (“UL 174”); IBR approved for § 53.01-10(c).

(2) UL 1453, Standard for Safety, Electric Booster and Commercial Storage Tank Water Heaters, Sixth Edition, dated March 29, 2016, including revisions through March 9, 2017 (“UL 1453”); IBR approved for § 53.01-10(c).

[USCG-2003-16630, 73 FR 65163, Oct. 31, 2008, as amended by USCG-2009-0702, 74 FR 49228, Sept. 25, 2009; USCG-2012-0832, 77 FR 59777, Oct. 1, 2012; USCG-2013-0671, 78 FR 60147, Sept. 30, 2013]

### § 53.01-3 Adoption of Section IV of the ASME BPVC.

(a) Heating boilers must be designed, constructed, inspected, tested, and stamped in accordance with Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) as limited, modified, or replaced by specific requirements in this part. The provisions in the appendices to Section IV of the ASME BPVC are adopted and must be followed when the requirements in Section IV make them mandatory. For general information, table 1 to § 53.01-3(a) lists the various paragraphs in Section IV of the ASME BPVC that are limited, modified, or replaced by regulations in this part.

TABLE 1 TO § 53.01-3(a)—LIMITATIONS AND MODIFICATIONS IN THE ADOPTION OF SECTION IV OF THE ASME BPVC

Paragraphs in Section IV of the ASME BPVC and disposition	Unit of this part
HG-100 modified by .....	53.01-5(b).
HG-101 replaced by .....	53.01-10.
HG-400 modified by .....	53.05-1.
HG-400.2 modified by .....	53.05-2.
HG-401 modified by .....	53.05-1.
HG-401.2 modified by .....	53.05-3.
HG-500 through HG-540 modified by .....	53.10-3.
HG-600 through HG-640 modified by .....	53.12-1.

**Note 1 to table § 53.01-3(a):** The references to specific provisions in Section IV of the ASME BPVC are coded. The first letter, such as "H," refers to Section IV. The second letter, such as "G," refers to a part or subpart in Section IV. The number following the letters refers to the numbered paragraph in the text of the part or subpart in Section IV.

(b) References to the ASME BPVC, such as paragraph HG-307, indicate:

(1) H = Section IV of the ASME BPVC.

(2) G = Part containing general requirements.

(3) 3 = Article in part.

(4) 307 = Paragraph within Article 3.

(c) When a paragraph or a section of the regulations in this part relates to Section IV of the ASME BPVC, the relationship with the code will be shown immediately following the heading of the section or at the beginning of the paragraph, as follows:

(1) (Modifies H\_\_\_\_.) This indicates that the material in H\_\_\_\_ is generally applicable but is being altered, amplified, or augmented.

(2) (Replaces H\_\_\_\_.) This indicates that H\_\_\_\_ does not apply.

(3) (Reproduces H\_\_\_\_.) This indicates that H\_\_\_\_ is being identically reproduced for convenience, not for emphasis.

[CGFR 68-82, 33 FR 18826, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9976, June 17, 1970; CGD 81-79, 50 FR 9435, Mar. 8, 1985. Redesignated and amended by CGD 88-032, 56 FR 35821, July 29, 1991; USCG-2003-16630, 73 FR 65163, Oct. 31, 2008]

#### § 53.01-5 Scope (modifies HG-100).

(a) The regulations in this part apply to steam heating boilers, hot water boilers (which include hot water heating boilers and hot water supply boilers), and to appurtenances thereto. The requirements in this part must be used in conjunction with Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1). Table 1 to § 54.01-5 of this subchapter gives a breakdown by parts in this subchapter of the regulations governing various types of pressure vessels and boilers.

(b) (Modifies HG-100.) The requirements of part HG of Section IV of the ASME BPVC must be used except as noted otherwise in this part.

[USCG-2003-16630, 73 FR 65163, Oct. 31, 2008]

#### § 53.01-10 Service restrictions and exceptions (replaces HG-101).

(a) *General.* The service restrictions and exceptions must be as indicated in this section in lieu of the requirements of HG-101 of Section IV of the ASME

BPVC (incorporated by reference; see § 53.01-1).

(b) *Service restrictions.* (1) Boilers of wrought materials must be restricted to a maximum of 103 kPa gage (15 psig) for steam and a maximum of 689 kPa (100 psig) or 121 °C (250 °F) for hot water. If operating conditions exceed these limits, design and fabrications must be in accordance with part 52 of this subchapter.

(2) Boilers of cast iron materials must be restricted to a maximum of 103 kPa gage (15 psig) for steam and to a maximum of 206 kPa gage (30 psig) or 121 °C (250 °F) for hot water.

(c) *Hot water supply boilers.* (1) Electrically fired hot water supply boilers that have a capacity not greater than 454 liters (120 gallons), a heat input not greater than 58.6 kilowatts (200,000 Btu per hour), and are listed as approved under UL 174 or UL 1453 (both incorporated by reference; see § 53.01-1) are exempted from the requirements of this part provided they are protected by a pressure relief device. This relief device need not comply with § 53.05-2.

(2) Oil fired hot water supply boilers are not exempted from the requirements of this part on the basis of size or heat input.

(d) *Exhaust gas boilers.* Exhaust gas type boilers must be restricted to a working pressure equal to or less than 103 kPa gage (15 psig) and an operating temperature equal to or less than 454 °C (850 °F). The design temperature of parts exposed to the exhaust gas must be the maximum temperature that could normally be produced by the source of exhaust gas. This temperature must be verified by testing or by the manufacturer of the engine or other equipment producing the exhaust.

(e) *ASME BPVC Section I.* Heating boilers whose operating conditions are within the service restrictions of paragraph (b)(1) of this section may be constructed in accordance with Section I of the ASME BPVC (incorporated by reference; see § 53.01-1). In addition, these heating boilers must:

(1) Be stamped with the appropriate ASME symbol in accordance with Section I of the ASME BPVC;

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(2) Meet the service restrictions of paragraph (b)(2) of this section if made of cast iron;

(3) Have safety valves which meet the requirements of § 52.01-120 of this subchapter;

(4) If a hot water supply boiler, have a temperature relief valve or a pressure-temperature relief valve in accordance with § 53.05-2(c);

(5) If automatically controlled, meet the applicable requirements in part 63 of this subchapter; and

(6) Meet the inspection and test requirements of § 53.10-3.

(f) *Controls and miscellaneous accessories.* Refer to part 63 of this subchapter for the requirements governing controls and miscellaneous accessories.

[CGFR 68-82, 33 FR 18826, Dec. 18, 1968, as amended by CGD 81-79, 50 FR 9435, Mar. 8, 1985; USCG-2003-16630, 73 FR 65163, Oct. 31, 2008]

### Subpart 53.05—Pressure Relieving Devices (Article 4)

SOURCE: CGD 81-79, 50 FR 9435, Mar. 8, 1985, unless otherwise noted.

#### § 53.05-1 Safety valve requirements for steam boilers (modifies HG-400 and HG-401).

(a) The pressure relief valve requirements and the safety valve requirements for steam boilers must be as indicated in HG-400 and HG-401 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) except as noted otherwise in this section.

(b) Each steam boiler must have at least one safety valve.

[CGD 81-79, 50 FR 9435, Mar. 8, 1985, as amended by USCG-2003-16630, 73 FR 65163, Oct. 31, 2008]

#### § 53.05-2 Relief valve requirements for hot water boilers (modifies HG-400.2).

(a) *Relief valves.* The relief valve requirements for hot water boilers must be as indicated in article 4 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) except as noted otherwise in this section.

(b) *Hot water heating boilers.* Each hot water heating boiler must have at least one safety relief valve.

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(c) *Hot water supply boilers.* Each hot water supply boiler must have at least one safety relief valve and a temperature relief valve or a pressure-temperature relief valve. The valve temperature setting must not be more than 99 °C (210 °F).

[CGD 81-79, 50 FR 9435, Mar. 8, 1985, as amended by USCG-2003-16630, 73 FR 65163, Oct. 31, 2008]

#### § 53.05-3 Materials (modifies HG-401.2).

Materials for valves must be in accordance with HG-401.2 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) except that non-metallic materials may be used only for gaskets and packing.

[USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

#### § 53.05-5 Discharge capacities and valve markings.

The discharge capacities and valve markings must be as indicated in HG-402 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1). The discharge capacities must be certified by the National Board of Boiler and Pressure Vessel Inspectors.

[USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

### Subpart 53.10—Tests, Inspection, Stamping, and Reporting (Article 5)

#### § 53.10-1 General.

The tests, inspection, stamping, and reporting of heating boilers must be as indicated in article 5, part HG of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) except as noted otherwise in this subpart.

[USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

#### § 53.10-3 Inspection and tests (modifies HG-500 through HG-540).

(a) The inspections required by HG-500 through HG-540 must be performed by the “Authorized Inspector” as defined in HG-515 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1). The Authorized Inspector must hold a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors. After installation, heating boilers must

be inspected for compliance with this part by a marine inspector.

(b) Automatically controlled boilers must be subjected to the operating tests prescribed in part 63 of this subchapter.

(c) All heating boilers must have the operation of their pressure relieving devices checked after the final installation.

[CGD 81-79, 50 FR 9436, Mar. 8, 1985, as amended by USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

#### **§ 53.10-10 Certification by stamping.**

Stamping of heating boilers must be as indicated in HG-530 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1).

[USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

#### **§ 53.10-15 Manufacturer's data report forms.**

The manufacturer's data report forms required by HG-520 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) must be made available to the marine inspector for review. The Authorized Inspector's National Board commission number must be included on the manufacturer's data report forms.

[USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

### **Subpart 53.12—Instruments, Fittings, and Controls (Article 6)**

#### **§ 53.12-1 General (modifies HG-600 through HG-640).**

(a) The instruments, fittings and controls for heating boilers must be as indicated in HG-600 through HG-640 of Section IV of the ASME BPVC (incorporated by reference; see § 53.01-1) except as noted otherwise in this section.

(b) For control systems for automatic auxiliary heating equipment, the requirements in part 63 of this subchapter govern and must be followed.

[CGFR 68-82, 33 FR 18826, Dec. 18, 1968, as amended by USCG-2003-16630, 73 FR 65164, Oct. 31, 2008]

## **PART 54—PRESSURE VESSELS**

### **Subpart 54.01—General Requirements**

Sec.

- 54.01-1 Incorporation by reference.
- 54.01-2 Adoption of Division 1 of Section VIII of the ASME BPVC.
- 54.01-5 Scope (modifies U-1 and U-2).
- 54.01-10 Steam-generating pressure vessels (modifies U-1(g)).
- 54.01-15 Exemptions from shop inspection and plan approval (modifies U-1(c)(2)).
- 54.01-17 Pressure vessel for human occupancy (PVHO).
- 54.01-18 Plan approval.
- 54.01-25 Miscellaneous pressure components (modifies UG-11).
- 54.01-30 Loadings (modifies UG-22).
- 54.01-35 Corrosion (modifies UG-25).
- 54.01-40 External pressure (modifies UG-28).

### **Subpart 54.03—Low Temperature Operation**

- 54.03-1 Scope.
- 54.03-5 General.

### **Subpart 54.05—Toughness Tests**

- 54.05-1 Scope (replaces UG-84).
- 54.05-3 Tests required.
- 54.05-5 Toughness test specimens.
- 54.05-6 Toughness test temperatures.
- 54.05-10 Certification of material toughness tests.
- 54.05-15 Weldment toughness tests—procedure qualifications.
- 54.05-16 Production toughness testing.
- 54.05-17 Weld toughness test acceptance criteria.
- 54.05-20 Impact test properties for service of 0 °F and below.
- 54.05-25 [Reserved]
- 54.05-30 Allowable stress values at low temperatures.

### **Subpart 54.10—Inspection, Reports, and Stamping**

- 54.10-1 Scope (modifies UG-90 through UG-103 and UG-115 through UG-120).
- 54.10-3 Marine inspectors and Coast Guard Symbol stamping (replaces UG-90 and UG-91, and modifies UG-92 through UG-103).
- 54.10-5 Maximum allowable working pressure (reproduces UG-98).
- 54.10-10 Standard hydrostatic test (modifies UG-99).
- 54.10-15 Pneumatic test (modifies UG-100).
- 54.10-20 Marking and stamping.
- 54.10-25 Manufacturers' data report forms (modifies UG-120).