



ADDENDA

**ANSI/ASHRAE Addendum g to
ANSI/ASHRAE Standard 15-2013**

Safety Standard for Refrigeration Systems

Approved by the ASHRAE Standards Committee on June 29, 2016; by the ASHRAE Technology Council on June 29, 2016; and by the American National Standards Institute on June 30, 2016.

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FOREWORD

Addendum g makes a number of important changes to ASHRAE Standard 15-2013. The first change to Section 9.2.1 clarifies the metric unit gage pressure when designing for vacuum. The changes to Section 9.9 give new requirements for the use of pressure limiting devices. The changes to Section 9.11 clarify that ASME Section VIII, "Pressure Vessel Design," is not required for the water side of heat exchangers, provided certain other design requirements are met. The changes to Section 9.13 stipulate that other types of compression devices that are not specifically listed in the section may be used for the connection of copper tubing providing they are agency listed for the refrigeration use. There is also the addition of Section 9.7.8.6. And finally, the changes to the Normative References in Appendix B remove the notes pertaining to References 6 and 8, making these references required for all users.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum g to Standard 15-2013

Modify Section 9 as shown. NOTE: Changes to Section 9.7.8 in this addendum reflect previous changes made by addendum a to this standard. Addenda to Standard 15 may be downloaded at the ASHRAE website:

<https://www.ashrae.org/standards-research--technology/standards-addenda>.

9.2.1 Design pressures shall not be less than pressure arising under maximum operating, standby, or shipping conditions. When selecting the design pressure, allowance shall be provided for setting pressure-limiting devices and pressure-relief devices to avoid nuisance shutdowns and loss of refrigerant. The *ASME Boiler and Pressure Vessel Code*, Section VIII, Division I, Appendix M, contains information on the appropriate allowances for design pressure.

Refrigerating equipment shall be designed for a vacuum of 29.0 in. Hg (32°F) (3.12 kPa) (737 mm Hg [0°C]). Design pressure for lithium bromide absorption systems shall not be less than 5-psig gage pressure 5.00 psi (34.5 kPa 34.7 kPa gage). Design pressure for mechanical refrigeration systems shall not be less than gage pressure 15.0 psi ±5-psig (103 kPa 103.4 kPa gage) and, except as noted in Sections 9.2.2, 9.2.3, 9.2.4, 9.2.5, and 9.2.6, shall not be less than the saturation pressure (gage) corresponding to the following temperatures:

[. . .]

9.7.8 Discharge from Pressure-Relief Devices. Pressure-relief systems designed for vapor shall comply with Section 9.7.8. Pressure-relief systems designed for liquid shall comply with Section 9.4.3.

Different refrigerants shall not be vented into a common relief piping system unless the refrigerants are included in a blend that is recognized by ASHRAE Standard 34¹.

9.9.1 When Required. Pressure-limiting devices complying with Section 9.9 shall be provided for compressors on systems operating above atmospheric pressure, ~~except that a pressure-limiting device is not required on any factory-sealed system containing less than 22 lb (10 kg) of Group A1 refrigerant that has been listed by an approved, nationally recognized testing laboratory and is so identified.~~

Exception: Pressure-limiting devices are not required for listed-factory-sealed systems containing less than 22 lb (10 kg) of Group A1 refrigerant.

~~**9.9.2 Setting.** When required by Section 9.9.1, the maximum setting to which a pressure-limiting device is capable of being readily set by use of the adjusting means provided shall not exceed the design pressure of the highside of a system that is not protected by a pressure-relief device or 90% of the setting of the pressure-relief device installed on the highside of a system. The pressure-limiting device shall stop the action of the pressure-imposing element at a pressure no higher than this maximum setting.~~

9.9.2 Setting. Pressure-limiting devices shall be set in accordance with one the following:

- a. For positive-displacement compressors:
 1. When systems are protected by a high-side pressure relief device, the compressor's pressure-limiting device shall be set at or below 90% of the operating pressure for the high-side pressure relief device.
 2. When systems are not protected by a high-side pressure relief device, the compressor's pressure-limiting device shall be set at or below the system's high-side design pressure.
- b. For nonpositive-displacement compressors:
 1. When systems are protected by a high-side pressure relief device, the compressor's pressure-limiting device shall be set at or below 90% of the operating pressure for the high-side pressure relief device
 2. When systems are protected by a low-side pressure relief device that is only subject to lowside pressure and is provided with a permanent relief path between the systems' highside and lowside, without intervening valves, the compressor's pressure-limiting device shall be set at or below the system's high-side design pressure.

~~**9.9.3 Connection.** Pressure-limiting devices shall be connected between the pressure-imposing element and any stop valve on the discharge side. There shall be no intervening stop valves in the line leading to the pressure-limiting device.~~

9.9.3 Location. Stop valves shall not be installed between the pressure-imposing element and pressure-limiting devices serving compressors.

9.9.4 Emergency Stop. Activation of a pressure-limiting device shall stop the action of the pressure-imposing element.

[. . .]

9.11.1 [Unchanged]

Exception: Water-side components designed to operate at a temperature not exceeding 210°F (99°C) shall be exempted from the rules of Section VIII of the *ASME Boiler and Pressure Vessel Code*⁶ and shall be designed, constructed, and assembled to have an ultimate strength sufficient to withstand 150 psig (1034 kPa) or two times the design pressure for which it is rated, whichever is greater.

[. . .]

9.13.1 The following are requirements for unprotected refrigerant-containing copper pipe or tubing

[. . .]

- b. Copper tube shall be connected by brazed joints, soldered joints, or compression fittings or fittings listed for refrigeration use.

Modify Normative Appendix B as follows.

NORMATIVE APPENDIX B NORMATIVE REFERENCES

This appendix contains full citations for normative references. Full citations for references that are solely informative are included in Informative Appendix A. Note that in some locations within the standard, normative references are also used as informative references. References in this standard are numbered in the order in which they appear in the document,

so the numbers for the informative references are shown for the convenience of the user.

1. *ANSI/ASHRAE Standard 34-2001, Designation and Safety Classification of Refrigerants*, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA 30329.
2. Not a normative reference.
3. *ARI 700-1999, Specifications for Fluorocarbon Refrigerants* and *ARI Standard 700c-1999, Appendix C to ARI Standard 700—Analytical Procedures for ARI Standard 700-99*, Air-Conditioning and Refrigeration Institute, 4100 North Fairfax Drive, Arlington, VA 22203.
4. *UL 1995-1995 Heating and Cooling Equipment*, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062.
5. *NFPA 70-2002, National Electrical Code*[?], National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.
6. *ANSI/ASME Boiler and Pressure Vessel Code*, Section VIII, Rules for Construction of Pressure Vessels, Division 1, 2001, American Society of Mechanical Engineers (ASME), 3 Park Avenue, New York, NY 10016-5990.

~~**Note:** Reference 6 is mandatory for designers, manufacturers, and producers of refrigeration equipment. For all other users, this reference is informative.~~

7. Not a normative reference.
8. *ANSI/ASME B31.5-2001, Refrigeration Piping and Heat Transfer Components*, American Society of Mechanical Engineers (ASME), 3 Park Avenue, New York, NY 10016.

~~**Note:** Reference 8 is mandatory for designers, manufacturers, and producers of refrigeration equipment. For all other users, this reference is informative.~~

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ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

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