

CHAPTER 393

MINIATURE POWER BOILERS INSTALLED PRIOR TO SEPTEMBER 20, 2006

[Prior to 9/24/86, Labor, Bureau of [530]]

[Prior to 1/14/98, see Labor Services[347] Ch 45]

[Prior to 8/16/06, see 875—Ch 206]

[Prior to 7/9/25, see Labor Services Division[875] Ch 93]

Chapter rescission date pursuant to Iowa Code section 17A.7: 3/26/30

481—393.1(89) Scope.

393.1(1) This chapter sets forth requirements in addition to those contained in 481—Chapter 392 for boilers that:

- a. Have a heating surface of 20 square feet or less;
- b. Have a gross volume of 5 cubic feet or less, excluding casing and insulation;
- c. Have an inside shell diameter of 16 inches or less;
- d. Have 100 psig maximum allowable working pressure; and
- e. Were installed prior to September 20, 2006.

393.1(2) For objects covered by this chapter, if there is a conflict between this chapter and 481—Chapter 392, this chapter shall govern the issue.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.2(89) Code adopted by reference. The current edition of the National Board Inspection Code adopted by reference in rule 481—391.1(89) applies to objects covered by this chapter.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.3(89) Maximum working pressure. The maximum allowed working pressure is to be determined by rule 481—392.3(89).

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.4(89) Safety valve requirements. Boilers covered by this chapter will be equipped with a sealed spring-loaded pop safety valve of not less than ½-inch pipe size. The minimum relieving capacity of the safety valve will be determined in accordance with rule 481—392.6(89). In addition to these requirements, the safety valve will have sufficient capacity to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6 percent above maximum allowable working pressure.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.5(89) Steam stop valves. Each steam line from a miniature power boiler shall be provided with a stop valve located as close to the boiler shell or drum as is practicable except when the boiler and steam receiver are operated as a closed system.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.6(89) Water gage requirements.

393.6(1) Miniature power boilers for operation with a definite water level will be equipped with a glass water gage for determining the water level. The lowest permissible water level for vertical boilers will be at a point one-third of the height of the shell above the bottom head or tube sheet. When the boiler is equipped with an internal furnace, the water level will not be less than one-third of the length of the tubes above the top of the furnace tube sheet. In the case of small boilers operated in a closed system where there is insufficient space for the usual glass water gage, water level indicators of the glass bull's eye type may be used.

393.6(2) Miniature power boilers will have the lowest visible part of the water gage glass located at least 1 inch above the lowest permissible water level specified by the manufacturer.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.7(89) Feedwater supply requirements.

393.7(1) Except for miniature power boilers operating without the extraction of steam, miniature power boilers will be provided with at least one feed pump or other feeding device unless the boiler feed line is connected to a water main carrying sufficient pressure to feed the boiler. In the latter case, in lieu of a feeding device, a suitable connection or opening will be provided to fill the boiler when cold. Such connection will be no less than ½-inch pipe size for iron or steel pipe and ¼-inch for brass or copper pipe.

393.7(2) The feed pipe will be provided with a check valve and a stop valve of a size not less than that of the pipe. The feed water may be delivered through the blowoff opening if desired.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.8(89) Blowoff. Miniature power boilers shall be equipped with a blowoff connection, not less than ½-inch pipe size, located to drain from the lowest water space practicable. The blowoff shall be equipped with a valve or cock not less than ½-inch pipe size.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.9(89) Washout opening requirements.

393.9(1) Miniature power boilers exceeding 12 inches internal diameter or having more than 10 square feet of heating surface will be fitted with not less than three brass washout plugs of 1-inch pipe size that will be screwed into openings in the shell near the bottom. In miniature power boilers of the closed type system heated by removable internal electric heating elements, the openings for these elements when suitable for cleaning purposes may be substituted for washout openings. Boilers not exceeding 12 inches internal diameter and having less than ten square feet of heating surface need not have more than two 1-inch openings for cleanouts, one of which may be used for the attachment of the blowoff valve; these openings will be opposite each other where possible. All threaded openings will be opposite each other where possible. All threaded openings in the boiler will be provided with a riveted or welded reinforcement to give four full threads therein.

393.9(2) Electric boilers of a design employing a removable top cover flange for inspection and cleaning need not be fitted with washout openings.

[ARC 8889C, IAB 2/19/25, effective 3/26/25; Editorial change: IAC Supplement 7/9/25]

481—393.10(89) Fixtures and fittings. All valves, pipe fittings, and appliances connected to a miniature power boiler shall be equal to at least the minimal requirements of the construction or installation code and shall be rated for not less than the maximum allowable working pressure of the miniature power boiler. In no case shall the rating be for less than 125 pounds.

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These rules are intended to implement Iowa Code chapter 89.

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