



PROCESS
INDUSTRY
PRACTICES

COMPLETE REVISION
January 2019

Vessel

**PIP VECV1001
Design Criteria and Purchasing
Requirements for Vessels
ASME Code Section VIII, Divisions 1 and 2**

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

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PUBLISHING HISTORY

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1. Scope

This Practice provides requirements for use by a Purchaser for determining the design criteria for pressure vessels constructed in accordance with ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1 or Division 2, henceforth referred to as the *Code*. Requirements that are specific to *Code*, Section VIII, Division 2 are shown in braces { }.

This Practice describes the requirements for the design, materials of construction, inspection and testing of pressure vessels constructed in accordance with *Code*, Section VIII, Division 1 {or 2}. Guidance is also provided for the development of purchase specifications for the construction of new pressure vessels which meet the philosophy and requirements of *Code*, Section VIII, Division 1 {or 2}.

This Practice also applies to bulk solids product containers, electric immersion process heaters, shell and plate exchangers, shell and tube exchangers, and air-cooled exchangers. See *PIP VECB1001* and *PIP VESB1002* for the additional requirements specific to bulk solids product containers only. See *PIP VESEH001* for the additional requirements specific to electric immersion process heaters. See *PIP VECSP001* and *PIP VESSP002* for the additional requirements specific to shell and plate exchangers only. See *PIP VECST001* and *PIP VESST002* for the additional requirements specific to shell and tube exchangers only. See *PIP VESAC001* for the additional requirements specific to air-cooled exchangers only.

This Practice is intended to be used for the purchase of vessels where the Manufacturer is also responsible for performing detailed design for the vessels in accordance with the *Code* and *PIP VESV1002*. If Purchaser also performs a detailed design, the design shall also be in accordance with *PIP VESV1002*.

The following are not covered by this Practice:

- a. Standardized pre-designed (i.e., off-the-shelf) vessels (see *PIP VESSM001*)
- b. Vessels with layered construction
- c. Small vessels and low-pressure vessels (see *PIP VESSM001* and *PIP VESLP001*)
- d. Process design of trays and other removable internals

2. References

Applicable parts of the following Practices, industry codes and standards, government regulations, and references shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP VEDV1003 - *Documentation Requirements for Vessels, ASME Code Section VIII, Divisions 1 and 2*
- PIP VEFV1100 - *Vessel/Heat Exchanger Standard Details (US Customary Units)*
- PIP VEFV1100M - *Vessel/Heat Exchanger Standard Details (Metric Units)*
PIP VEFV1116 - *Vessel Manway Hinges (US Customary Units)*