



PROCESS  
INDUSTRY  
PRACTICES

TECHNICAL REVISION

*June 2021*

***Vessel***

**PIP VECSP001  
Supplemental Design Criteria  
for Shell and Plate Heat Exchangers  
ASME Code Section VIII, Divisions 1 and 2**

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## 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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# PIP VECSP001 Supplemental Design Criteria for Shell and Plate Heat Exchangers ASME Code Section VIII, Divisions 1 and 2

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## 1. Scope

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This Practice provides requirements for use by a Purchaser for determining the design criteria including design, materials of construction, inspection and testing for shell and plate heat exchangers constructed in accordance with ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1 or Division 2, henceforth referred to as the *Code*, and *PIP VECV1001*. Requirements that are specific to *Code*, Section VIII, Division 2 are shown in braces { }. This Practice provides requirements for purchasing shell and plate heat exchangers that are to be designed and fabricated by a Manufacturer. This Practice also provides guidance for the development of purchase specifications for the construction of new shell and plate heat exchangers which meet the philosophy and requirements of *Code*, Section VIII, Division 1 {or 2} and *PIP VECV1001*.

For some heat exchanger purchases, certain requirements in this Practice and in *PIP VECV1001* may be assigned by Purchaser to Manufacturer. The specific requirements assigned (e.g., thermal design and the performance rating) can be specified on Purchaser's *PIP VEDSP003* Data Sheet.

## 2. References

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Applicable parts of the following Practices and industry codes and standards 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 VECV1001 - *Design Criteria and Purchasing Requirements for Vessels, ASME Code Section VIII, Divisions 1 and 2*
- PIP VEDSP003 - *Documentation Requirements for Shell and Plate Heat Exchangers, ASME Code Section VIII, Divisions 1 and 2*
- PIP VEFV1100/M - *Vessel/S&T Heat Exchanger Standard Details*
- PIP VESPMI01 - *Positive Material Identification Specification*
- PIP VESSP002 - *Supplemental Design and Fabrication Specification for Shell and Plate Heat Exchangers, ASME Code Section VIII, Divisions 1 and 2*
- PIP VESV1002 - *Design and Fabrication Specification for Vessels, ASME Code Section VIII, Divisions 1 and 2*

### 2.2 Industry Codes and Standards

For each of the following reference documents, if *Code*, Table U-3 {1.1} lists an edition or addenda different than the edition listed in the reference, the edition listed in *Code*, Table U-3 {1.1} shall be used.

- American Society of Mechanical Engineers (ASME)
  - *ASME Boiler and Pressure Vessel Code Section VIII - Pressure Vessels, Divisions 1 and 2*
- Tubular Exchanger Manufacturers Association (TEMA)
  - *Standards of the Tubular Exchanger Manufacturers Association*