Welded Plate-block Heat Exchangers

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Introduction

Users of this standard should be aware that further or differing requirements may be needed for individual applications. This standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This can be particularly applicable where there is an innovative or developing technology. Where an alternative is offered, it is the responsibility of the vendor to identify any variations from this standard and provide details.

This standard is intended for the supply and fabrication of new heat exchangers, with requirements provided for design, materials, fabrication, inspection, testing, and through its preparation for shipment. The applicability of this standard to the modification or replacement of existing heat exchangers or heat exchanger components is subject to agreement between the purchaser and the vendor, provided that any applicable jurisdictional and post construction code requirements are met. This standard includes informative annexes that provide the purchaser with guidance when making design choices to be applied to the equipment scope, as well as providing informational guidance on operations and maintenance.

A recommended practice is included within this standard (see Annex A).

This standard requires the purchaser to specify certain details and features.

A bullet [●] at the beginning of a paragraph or subsection indicates a requirement for the purchaser to make a decision or provide information (for information, a checklist is provided in Annex B).

In this standard, where practical, U.S. customary units are included in parentheses for information.

Welded Plate-block Heat Exchangers

1 Scope

This standard gives requirements and recommendations for the mechanical design, materials selection, fabrication, inspection, testing, and preparation for shipment of welded plate-block heat exchangers for use in petroleum, petrochemical, and natural gas industries. It is applicable to heat exchangers with welded plate packs and bolted cover plates.

This standard excludes heat exchangers with welded plate-block(s) within a cylindrical shell or those where all process sides are not accessible for mechanical cleaning by removable panels. Also excluded are plate-and-frame heat exchangers, including semi-welded, which are covered in API 667.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Recommended Practice 941, *Steels for Hydrogen Service at Elevated Temperatures and Pressures in Petroleum Refineries and Petrochemical Plants*

ASME *Boiler and Pressure Vessel Code (BPVC)* [1], *Section VIII: Rules for Construction of Pressure Vessels*; *Division 2: Alternative Rules*

ASME B16.25, *Buttwelding Ends*

ASME PCC-1, *Pressure Boundary Bolted Flange Joint Assembly*

NACE MR0103 [2], *Petroleum, Petrochemical and Natural Gas Industries—Metallic Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments*

NACE MR0175, *Petroleum and Natural Gas Industries—Materials for Use in H_2S-containing Environments in Oil and Gas Production—Parts 1, 2 and 3*

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1
baffle
pass partition plate
Plate or similar component used in multi-pass arrangements to direct the fluid flow between adjacent passes within the plate pack.

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[1] ASME International, Two Park Avenue, New York, NY 10016, www.asme.org.

[2] Formerly NACE International, now known as The Association for Materials Protection and Performance (AMPP), 15835 Park Ten Place, Houston, TX 77084, www.ampp.org/home.