Spiral Plate Heat Exchangers

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, Suite 1100, Washington, DC 20001, standards@api.org.

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Introduction

It is necessary that users of this standard be aware that further or differing requirements can 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 requires the purchaser to specify certain details and features.

A bullet (●) at the beginning of a section 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 (USC) or other units are included in parentheses for information.

Spiral Plate Heat Exchangers

1 Scope

This standard specifies requirements and gives recommendations for the mechanical design, materials selection, fabrication, inspection, testing, and preparation for shipment of spiral plate heat exchangers for the petroleum, petrochemical, and natural gas industries. It is applicable to standalone spiral plate heat exchangers and those integral with a pressure vessel.

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.

NACE MR0103[1], *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*

NACE SP0472, *Methods and Controls to Prevent In-Service Environmental Cracking of Carbon Steel Weldments in Corrosive Petroleum Refining Environments*

3 Terms and Definitions

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

3.1
alternate channels welded
Channel closures seal-welded at alternate edges such that each chamber is accessible by removing the corresponding hot or cold side end cover.

3.2
center core
Distribution chamber at the center of the spiral exchanger.

3.3
channel
Spiral passage formed by strips of metal rolled around a center core within an outer shell.

3.4
channel closure
Configuration to seal the edge of the internal spiral plate.

3.5
channel spacing
Distance or gap between adjacent spiral plates.

[1] NACE International (formerly the National Association of Corrosion Engineers), 1440 South Creek Drive, Houston, Texas 77084-4906, www.nace.org.