Shell-and-tube Heat Exchangers

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Foreword

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ISO 16812 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 6, *Processing equipment and systems*.

This second edition cancels and replaces the first edition (ISO 16812:2002), which has been technically revised.

Introduction

Users of this International Standard should be aware that further or differing requirements may be needed for individual applications. This International 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 may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this International Standard and provide details.

Annex A provides some optional recommended practices.

A bullet (●) at the beginning of a clause or subclause indicates a requirement for the purchaser to make a decision or provide information (see checklist in Annex B).

In this International Standard, where practical, US Customary (USC) units are included in parentheses for information.

Petroleum, petrochemical and natural gas industries — Shell-and-tube heat exchangers

1 Scope

This International Standard specifies requirements and gives recommendations for the mechanical design, material selection, fabrication, inspection, testing and preparation for shipment of shell-and-tube heat exchangers for the petroleum, petrochemical and natural gas industries.

This International Standard is applicable to the following types of shell-and-tube heat exchangers: heaters, condensers, coolers and reboilers.

This International Standard is not applicable to vacuum-operated steam surface condensers and feed-water heaters.

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.

ISO 15156 (all parts), *Petroleum and natural gas industries — Materials for use in H_2S-containing environments in oil and gas production*

ASME B 16.5[1)], *Pipe Flanges and Flanged Fittings*

ASME B 16.11, *Forged Fittings, Socket-Welding and Threaded*

ASME B 1.20.1, *Pipe Threads, General Purpose (Inch)*

EJMA[2)], *Standards of the Expansion Joint Manufacturers Association*

NACE MR0103[3)], *Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments*

TEMA Standards Set[4)], 8th Edition, *Standards of the Tubular Exchanger Manufacturers Association*

1) ASME International, 3 Park Avenue, New York, NY 10016-5990, USA.

2) Expansion Joint Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591, USA.

3) NACE International, P.O. Box 218340, Houston, TX 77218-8340, USA.

4) Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591, USA.