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Petroleum, petrochemical and natural gas industries - Plate-type heat exchangers - Part 1: Plate-and-frame heat exchangers (ISO 15547-1:2005)

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Erdöl-, petrochemische und Erdgasindustrie - Plattenwärmetauscher - Teil 1: Plattenwärmeaustauscher (ISO 15547-1:2005)

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Industries du pétrole, de la pétrochimie et du gaz naturel - Echangeurs thermiques a plaques - Partie 1: Echangeurs thermiques a plaques et cadre (ISO 15547-1:2005)

Ta slovenski standard je istoveten z: EN ISO 15547-1:2005

ICS:

71.120.30	Prenosniki toplote	Heat exchangers
75.180.20	Predelovalna oprema	Processing equipment

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 15547-1

November 2005

ICS 75.180.20; 27.060.30

Supersedes EN ISO 15547:2001

English Version

**Petroleum, petrochemical and natural gas industries - Plate-type
heat exchangers - Part 1: Plate-and-frame heat exchangers
(ISO 15547-1:2005)**

Industries du pétrole, de la pétrochimie et du gaz naturel -
Echangeurs thermiques à plaques - Partie 1: Echangeurs
thermiques à plaques et cadre (ISO 15547-1:2005)

Erdöl-, petrochemische und Erdgasindustrie -
Plattenwärmetauscher - Teil 1: Plattenwärmetauscher (ISO
15547-1:2005)

This European Standard was approved by CEN on 28 October 2005.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN ISO 15547-1:2005 (E)**Foreword**

This document (EN ISO 15547-1:2005) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum and natural gas industries" in collaboration with Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

This document supersedes EN ISO 15547:2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 15547-1:2005 has been approved by CEN as EN ISO 15547-1:2005 without any modifications.

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INTERNATIONAL
STANDARD

ISO
15547-1

First edition
2005-11-01

**Petroleum, petrochemical and natural gas
industries — Plate-type heat
exchangers —**

Part 1:
Plate-and-frame heat exchangers

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*Industries du pétrole, de la pétrochimie et du gaz naturel — Échangeurs
thermiques à plaques —*

Partie 1: Échangeurs thermiques à plaques et cadre

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Reference number
ISO 15547-1:2005(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15547-1 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 first edition of ISO 15547-1, together with ISO 15547-2, cancels and replaces ISO 15547:2000, of which it constitutes a technical revision.

ISO 15547 consists of the following parts, under the general title *Petroleum, petrochemical and natural gas industries — Plate-type heat exchangers*:

- *Part 1: Plate-and-frame heat exchangers*
- *Part 2: Brazed aluminium plate-fin heat exchangers*

Introduction

Users of this part of ISO 15547 should be aware that further or differing requirements may be needed for individual applications. This part of ISO 15547 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 an innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this part of ISO 15547 and provide details.

This part of ISO 15547 requires the purchaser to specify certain details and features.

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

In this part of ISO 15547, where practical, US Customary units are included in parentheses for information.

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Petroleum, petrochemical and natural gas industries — Plate-type heat exchangers —

Part 1: Plate-and-frame heat exchangers

1 Scope

This part of ISO 15547 gives requirements and recommendations for the mechanical design, materials selection, fabrication, inspection, testing, and preparation for shipment of plate-and-frame heat exchangers for use in petroleum, petrochemical and natural gas industries. It is applicable to gasketed, semi-welded and welded plate-and-frame heat exchangers.

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 8501-1, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings*

3 Terms and definitions

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

3.1

drip tray

tray that is able to collect droplets from an entire heat exchanger plate pack

3.2

end plate

plate which prevent the fluids in a plate-and-frame heat exchanger from contacting the fixed and removable covers

NOTE There are two end plates, one at each end of the plate-and-frame heat exchanger.

3.3

frame

assembly that provides the structural support and pressure containment of a plate-and-frame heat exchanger

3.4

welded plate pack

plate pack where the gaskets have been replaced by welds

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- 3.5**
heat transfer area
sum of the surface areas of one side of all plates in contact with both heat-transfer fluids
- NOTE Areas of end plates are not included.
- 3.6**
item number
purchaser's identification number for a plate-and-frame heat exchanger
- 3.7**
minimum design metal temperature
lowest metal temperature at which pressure-containing elements can be subjected to design pressure
- EXAMPLE Ambient temperature, process fluid temperature.
- 3.8**
pass plate
plate used to change the direction of flow of a stream in a plate-and-frame heat exchanger with two or more passes
- 3.9**
plate
sheet of material precision-pressed or -formed into a corrugated pattern
- 3.10**
plate chevron angle
angle formed between the corrugated plate pattern and the horizontal
- 3.11**
plate-and-frame heat exchanger
assembly of a gasketed, semi-welded or welded plate pack and its supporting frame
- See Figure 1.
- 3.12**
plate gap
b
height to the underside of a corrugation of a plate
- See Figure 2.
- 3.13**
plate pack
grouping of all plates contained within a frame
- 3.14**
port
inlet or outlet opening in the plate
- 3.15**
pressure design code
recognized pressure vessel standard specified or agreed by the purchaser
- EXAMPLE ASME Section VIII, EN 13445.

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