Petroleum, petrochemical and natural gas industries - Air-cooled heat exchangers

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EESTI STANDARDI EESSÕNA

Käesolev Eesti standard EVS-EN ISO 13706:2005 sisaldab Euroopa standardi EN ISO 13706:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 28.12.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 13706:2005 consists of the English text of the European standard EN ISO 13706:2005. This document is endorsed on 28.12.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

NATIONAL FOREWORD

Käsitlusala: This International Standard gives requirements and recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of air-cooled heat exchangers for use in the petroleum and natural gas industries.	**Scope:** This International Standard gives requirements and recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of air-cooled heat exchangers for use in the petroleum and natural gas industries.

ICS 27.060.30, 75.180.20

Võtmesõnad:

EUROPEAN STANDARD

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English Version

Petroleum, petrochemical and natural gas industries - Air-cooled heat exchangers (ISO 13706:2005)

Industries du pétrole, de la pétrochimie et du gaz naturel - Echangeurs de chaleur refroidis à l'air (ISO 13706:2005)

Erdöl- und Erdgasindustrien - Luftgekühlte Wärmetauscher (ISO 13706:2005)

This European Standard was approved by CEN on 30 September 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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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 13706:2005) 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 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 April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

This document supersedes EN ISO 13706:2000.

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 13706:2005 has been approved by CEN as EN ISO 13706:2005 without any modifications.

INTERNATIONAL STANDARD

ISO 13706

Second edition
2005-10-15

Petroleum, petrochemical and natural gas industries — Air-cooled heat exchangers

Industries du pétrole, de la pétrochimie et du gaz naturel — Échangeurs de chaleur refroidis à l'air

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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 13706 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 13706:2000), 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.

Petroleum, petrochemical and natural gas industries — Air-cooled heat exchangers

1 Scope

This International Standard gives requirements and recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of air-cooled heat exchangers for use in the petroleum and natural gas industries.

This International Standard is applicable to air-cooled heat exchangers with horizontal bundles, but the basic concepts can also be applied to other configurations.

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 76, *Rolling bearings — Static load ratings*

ISO 281, *Rolling bearings — Dynamic load ratings and rating life*

ISO 286 (all parts), *ISO system of limits and fits*

ISO 1081, *Belt drives — V-belts and V-ribbed belts, and corresponding grooved pulleys — Vocabulary*

ISO 1459, *Metallic coatings — Protection against corrosion by hot dip galvanizing — Guiding principles*

ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*

ISO 2491, *Thin parallel keys and their corresponding keyways (Dimensions in millimetres)*

ISO 3744, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane*

ISO 4183, *Belt drives — Classical and narrow V-belts — Grooved pulleys (system based on datum width)*

ISO 4184, *Belt drives — Classical and narrow V-belts — Lengths in datum system*

ISO 5287, *Belt drives — Narrow V-belts for the automotive industry — Fatigue test*

ISO 5290, *Belt drives — Grooved pulleys for joined narrow V-belts — Groove sections 9N/J, 15N/J and 25N/J (effective system)*

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*

ISO 9563, *Belt drives — Electrical conductivity of antistatic endless synchronous belts — Characteristics and test method*

AGMA 6001[1)], *Design and selection of components for enclosed gear drives*

AGMA 6010, *Standard for spur, helical, herringbone and bevel enclosed drives*

ASME PTC 30[2)], *Air cooled heat exchangers*

ICC[3)], *International Building Code*

3 Terms and definitions

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

3.1
bank
one or more items arranged in a continuous structure

3.2
bare tube surface
total area of the outside surfaces of the tubes, based on the length measured between the outside faces of the header tubesheets

3.3
bay
one or more tube bundles, serviced by two or more fans, including the structure, plenum and other attendant equipment

NOTE Figure 1 shows typical bay arrangements.

3.4
finned surface
⟨of a tube⟩ total area of the outside surface exposed to air

3.5
forced-draught exchanger
exchanger designed with the tube bundles located on the discharge side of the fan

3.6
induced-draught exchanger
exchanger designed with the tube bundles located on the suction side of the fan

3.7
item
one or more tube bundles for an individual service

3.8
item number
purchaser's identification number for an item

1) American Gear Manufacturers' Association, 1500 King Street, Suite 201, Alexandria, VA 22314, USA.

2) American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990, USA.

3) International Code Council Foundation, 10624 Indian Woods Drive, Cincinnati, OH 45242, USA.