SLOVENSKI STANDARD
SIST EN ISO 13705:2014

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Nadomešča:
SIST EN ISO 13705:2007

Petrokemična industrija ter industrija za predelavo nafte in zemeljskega plina - Grelniki za splošno uporabo v rafinerijah (ISO 13705:2012)

Petroleum, petrochemical and natural gas industries - Fired heaters for general refinery service (ISO 13705:2012)

Erdöl-, petrochemische und Erdgasindustrie - Befeuerte Erhitzer für den allgemeinen Einsatz in Raffinerien (ISO 13705:2012)

Industries du pétrole, de la pétrochimie et du gaz naturel - Réchauffeurs à brûleurs pour usage général dans les raffineries (ISO 13705:2012)

Ta slovenski standard je istoveten z: **EN ISO 13705:2012**

ICS:

75.180.20	Predelovalna oprema	Processing equipment
97.100.01	Grelniki na splošno	Heating appliances in general

SIST EN ISO 13705:2014 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 13705

December 2012

ICS 75.180.20

Supersedes EN ISO 13705:2006

English Version

Petroleum, petrochemical and natural gas industries - Fired heaters for general refinery service (ISO 13705:2012)

Industries du pétrole, de la pétrochimie et du gaz naturel - Réchauffeurs à brûleurs pour usage général dans les raffineries (ISO 13705:2012)

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This European Standard was approved by CEN on 14 December 2012.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 13705:2012) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical 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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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

This document supersedes EN ISO 13705:2006.

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Endorsement notice

The text of ISO 13705:2012 has been approved by CEN as a EN ISO 13705:2012 without any modification.

INTERNATIONAL STANDARD

ISO 13705

Third edition
2012-12-15

Petroleum, petrochemical and natural gas industries — Fired heaters for general refinery service

Industries du pétrole, de la pétrochimie et du gaz naturel — Réchauffeurs à brûleurs pour usage général dans les raffineries

Reference number
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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 13705 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 third edition cancels and replaces the second edition (ISO 13705:2006), 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.

In International Standards, the SI system of units is used. Where practical in this International Standard, US Customary (USC) units are included in brackets for information.

A bullet (●) at the beginning of a clause or subclause indicates that either a decision is required or further information is to be provided by the purchaser. This information should be indicated on data sheets (see examples in Annex A) or stated in the enquiry or purchase order. Decisions should be indicated on a checklist (see example in Annex B).

Petroleum, petrochemical and natural gas industries — Fired heaters for general refinery service

1 Scope

This International Standard specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing, preparation for shipment, and erection of fired heaters, air heaters (APHs), fans and burners for general refinery service.

This International Standard is not intended to apply to the design of steam reformers or pyrolysis furnaces.

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

ISO 1940-1:2003, *Mechanical vibration — Balance quality requirements for rotors in a constant (rigid) state — Part 1: Specification and verification of balance tolerances*

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 10684, *Fasteners — Hot dip galvanized coatings*

ISO 13704, *Petroleum, petrochemical and natural gas industries — Calculation of heater-tube thickness in petroleum refineries*

ISO 15649, *Petroleum and natural gas industries — Piping*

IEC 60079 (all parts), *Electrical apparatus for explosive gas atmospheres*

EN 10025-2:2004[1], *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

ABMA Standard 9[2], *Load Ratings and Fatigue Life for Ball Bearings*

AMCA 210[3], *Laboratory Methods of Testing Fans for Aerodynamic Performance Rating*

AMCA 801:2001, *Industrial Process/Power Generation Fans — Specifications and Guidelines*

1 European Committee for Standardization (CEN), Rue de Stassart 36, B-1050 Brussels, Belgium.

2 American Bearing Manufacturers Association, 2025 M. Street, NW, Suite 800, Washington, DC 20036, USA.

3 Air Movement and Control Association, 30 West University Drive, Arlington Heights, IL 60004, USA.

ASME B 17.1[4], *Keys and Keyseats*

ASME *Boiler and Pressure Vessel Code, Section VIII, Pressure Vessels*

ASTM A 36[5], *Standard Specification for Carbon Structural Steel*

ASTM A 53, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*

ASTM A 105, *Standard Specification for Carbon Steel Forgings for Piping Applications*

ASTM A 106, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*

ASTM A 123, *Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products*

ASTM A 143, *Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement*

ASTM A 153, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*

ASTM A 181, *Standard Specification for Carbon Steel Forgings, for General-Purpose Piping*

ASTM A 182, *Standard Specification for Forged or Rolled Alloy and Stainless-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service*

ASTM A 192, *Standard Specification for Seamless Carbon Steel Boiler Tubes for High-Pressure Service*

ASTM A 193, *Standard Specification for Alloy-Steel and Stainless Steel Bolting for High-Temperature or High-Pressure Service and Other Special Purpose Applications*

ASTM A 194, *Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both*

ASTM A 209, *Standard Specification for Seamless Carbon-Molybdenum Alloy-Steel Boiler and Superheater Tubes*

ASTM A 210, *Standard Specification for Seamless Medium-Carbon Steel Boiler and Superheater Tubes*

ASTM A 213, *Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes*

ASTM A 216, *Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service*

ASTM A 217, *Standard Specification for Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts, Suitable for High-Temperature Service*

ASTM A 234, *Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service*

ASTM A 240, *Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*

ASTM A 242, *Standard Specification for High-Strength Low-Alloy Structural Steel*

ASTM A 283, *Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates*

ASTM A 297, *Standard Specification for Steel Castings, Iron-Chromium and Iron-Chromium-Nickel, Heat Resistant, for General Application*

ASTM A 307, *Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength*

4 American Society of Mechanical Engineers, 3 Park Avenue, New York, NY 10017, USA.

5 American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA.

ASTM A 312, *Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes*

ASTM A 320, *Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for Low-Temperature Service*

ASTM A 325, *Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength*

ASTM A 335, *Standard Specification for Seamless Ferritic Alloy-Steel Pipe for High-Temperature Service*

ASTM A 351, *Standard Specification for Castings, Austenitic, for Pressure-Containing Parts*

ASTM A 376, *Standard Specification for Seamless Austenitic Steel Pipe for High-Temperature Central-Station Service*

ASTM A 384, *Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies*

ASTM A 385, *Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)*

ASTM A 387, *Standard Specification for Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum*

ASTM A 403, *Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings*

ASTM A 447, *Standard Specification for Steel Castings, Chromium-Nickel-Iron Alloy (25-12 Class), for High-Temperature Service*

ASTM A 560, *Standard Specification for Castings, Chromium-Nickel Alloy*

ASTM A 572, *Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel*

ASTM A 608, *Standard Specification for Centrifugally Cast Iron-Chromium-Nickel High-Alloy Tubing for Pressure Application at High Temperatures*

ASTM B 366, *Standard Specification for Factory-Made Wrought Nickel and Nickel Alloy Fittings*

ASTM B 407, *Standard Specification for Nickel-Iron-Chromium Alloy Seamless Pipe and Tube*

ASTM B 564, *Standard Specification for Nickel Alloy Forgings*

ASTM B 633, *Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel*

ASTM C 27, *Standard Classification of Fireclay and High-Alumina Refractory Brick*

ASTM C 155, *Standard Classification of Insulating Firebrick*

ASTM C 332, *Standard Specification for Lightweight Aggregates for Insulating Concrete*

ASTM C 401, *Standard Classification of Alumina and Alumina-Silicate Castable Refractories*

ASTM C 612, *Standard Specification for Mineral Fiber Block and Board Thermal Insulation*

AWS[6] D 1.1, *Structural Welding Code — Steel*

AWS D 14.6, *Specification for Welding of Rotating Elements of Equipment*

NFPA 70[7], *National Electrical Code*

SSPC SP 6/NACE No 3[8], *Commercial Blast Cleaning*

6 American Welding Society, 550 NW Le Jeune Road, Miami, FL 33126, USA.

7 National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269-9101, USA.

8 The Society for Protective Coatings, 40, 24th Street, Pittsburg, PA 15222-4643, USA.