SLOVENSKI STANDARD
SIST EN ISO 10440-1:2008

01-junij-2008

Nadomeģļ a:
SIST EN ISO 10440-1:2001

Petrokemiļ na industrija ter industrija za predelavo nafte in zemeljskega plina - Rotacijski kompresorji z iztiskavanjem - 1. del: Procesni kompresorji (ISO 10440-1:2007)

Petroleum, petrochemical and natural gas industries - Rotary-type positive-displacement compressors - Part 1: Process compressors (ISO 10440-1:2007)

Erdöl-, petrochemische und Erdgasindustrie - Rotierende Verdrängerkompressoren - Teil 1: Prozesskompressoren (ISO 10440-1:2007)

Industries du pétrole, pétrochimique et du gaz naturel - Compresseurs volumétriques de type rotatif - Partie 1: Compresseurs de procédé (ISO 10440-1:2007)

Ta slovenski standard je istoveten z: **EN ISO 10440-1:2007**

ICS:

23.140	Kompresorji in pnevmatiļ ni stroji	Compressors and pneumatic machines
75.180.20	Predelovalna oprema	Processing equipment

SIST EN ISO 10440-1:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10440-1

December 2007

ICS 75.180.20

Supersedes EN ISO 10440-1:2000

English Version

Petroleum, petrochemical and natural gas industries - Rotary-type positive-displacement compressors - Part 1: Process compressors (ISO 10440-1:2007)

Industries du pétrole, pétrochimique et du gaz naturel - Compresseurs volumétriques de type rotatif - Partie 1: Compresseurs de procédé (ISO 10440-1:2007)

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This European Standard was approved by CEN on 13 July 2007.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN ISO 10440-1:2007) has been prepared by Technical Committee ISO/TC 118 "Compressors, pneumatic tools and pneumatic machines" 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of an identical text or by endorsement, at the latest by June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

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 10440-1:2000.

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Endorsement notice

The text of ISO 10440-1:2007 has been approved by CEN as a EN ISO 10440-1:2007 without any modification.

INTERNATIONAL STANDARD

ISO 10440-1

Second edition
2007-08-01

Petroleum, petrochemical and natural gas industries — Rotary-type positive-displacement compressors —

Part 1: Process compressors

Industries du pétrole, pétrochimique et du gaz naturel — Compresseurs volumétriques de type rotatif —
Partie 1: Compresseurs de procédé

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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 10440-1 was prepared by Technical Committee ISO/TC 118, *Compressors and pneumatic tools, machines and equipment,* Subcommittee SC 1, *Process compressors*.

This second edition cancels and replaces the first edition (ISO 10440-1:2000), which has been technically revised.

ISO 10440 consists of the following parts, under the general title *Petroleum, petrochemical and natural gas industries — Rotary-type positive-displacement compressors*:

— *Part 1: Process compressors*

— *Part 2: Packaged air compressors (oil-free)*

Introduction

This part of ISO 10440 is based on API 619, 4th edition, December 2004, with the intent that the 5th edition of API 619 will be identical to this part of ISO 10440.

Users of this part of ISO 10440 should be aware that further or differing requirements may be needed for individual applications. This part of ISO 10440 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 appropriate where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this part of ISO 10440 and provide details.

A bullet (•) at the beginning of a subclause or paragraph indicates that either a decision is required or further information is to be provided by the purchaser. This information should be indicated on the datasheet(s), otherwise it should be stated in the quotation request or in the order.

In this part of ISO 10440, where practical, US Customary (USC) units are included in brackets for information. Dedicated datasheets for SI units and for USC units are provided in Annex A.

Petroleum, petrochemical and natural gas industries — Rotary-type positive-displacement compressors —

Part 1: Process compressors

1 Scope

This part of ISO 10440 specifies requirements for dry and oil-flooded, helical-lobe rotary compressors (see Figure 1) used for vacuum or pressure or both in petroleum, petrochemical, and gas industry services. It is intended for compressors that are in special-purpose applications.

It is not applicable to general-purpose air compressors, liquid-ring compressors, or vane-type compressors.

NOTE Standard air compressors are covered in ISO 10440-2.

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 7 (all parts), *Pipe threads where pressure-tight joints are made on the threads*

ISO 261, *ISO general purpose metric screw threads — General plan*

ISO 262, *ISO general-purpose metric screw threads — Selected sizes for screws, bolts and nuts*

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

ISO 724, *ISO general-purpose metric screw threads — Basic dimensions*

ISO 945 [1)], *Cast iron — Designation of microstructure of graphite*

ISO 965 (all parts), *ISO general-purpose metric screw threads — Tolerances*

ISO 1217, *Displacement compressors — Acceptance tests*

ISO 1328-1:1995, *Cylindrical gears — ISO system of accuracy — Part 1: Definitions and allowable values of deviations relevant to corresponding flanks of gear teeth*

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

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1) Under revision as ISO 945-1, *Designation of microstructure of cast irons — Part 1: Graphite classification by visual analysis.*

ISO 3448:1992 , *Industrial liquid lubricants — ISO viscosity classification*

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

ISO 5753:1991, *Rolling bearings — Radial internal clearance*

ISO 6708, *Pipework components — Definition and selection of DN (nominal size)*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

ISO 8821, *Mechanical vibration — Balancing — Shaft and fitment key convention*

ISO 10437, *Petroleum, petrochemical and natural gas industries — Steam turbines — Special-purpose applications*

ISO 10438 (all parts), *Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries*

ISO 10441, *Petroleum, petrochemical and natural gas industries — Flexible couplings for mechanical power transmission — Special-purpose applications*

ISO 13691, *Petroleum and natural gas industries — High-speed special-purpose gear units*

ISO 13706, *Petroleum, petrochemical and natural gas industries — Air-cooled heat exchangers*

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

ISO 16812, *Petroleum, petrochemical and natural gas industries — Shell-and-tube heat exchangers*

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

ANSI/ABMA Standard 7, *Shaft and Housing Fits for Metric Radial Ball and Roller Bearings (Except Tapered Roller Bearings) Conforming to Basic Boundary Plan* [2)]

ANSI/ABMA Standard 20, *Radial Bearings of Ball, Cylindrical Roller and Spherical Roller Types — Metric Design*

API RP 500, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class 1, Division 1 and Division 2* [3)]

API 520 (all parts), *Sizing, Selection and Installation of Pressure-Relieving Devices in Refineries*

ANSI/API 526, *Flanged Steel Pressure Relief Valves*

ANSI/API 611, *General-Purpose Steam Turbines for Petroleum, Chemical and Gas Industry Services*

ANSI/API 613, *Special Purpose Gear Units for Petroleum, Chemical and Gas Industry Services*

ANSI/API 670, *Machinery Protection Systems*

ANSI/API 671, *Special Purpose Couplings for Petroleum, Chemical, and Gas Industry Services*

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

3) American Petroleum Institute, 1220 L Street NW, Washington, DC 20005-4070, USA.

API 677, *General-Purpose Gear Units for Petroleum, Chemical and Gas Industry Services*

API RP 686:1996, *Machinery Installation and Installation Design*

ASME B1.1, *Unified Inch Screw Threads, UN and UNR Thread Form* [4)]

ASME B1.20.1-1983, *Pipe Threads, General Purpose (Inch)*

ASME B16.1, *Cast Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250*

ASME B16.5, *Pipe Flanges and Flanged Fittings*

ASME B16.11, *Forged Steel Fittings, Socket-Welding and Threaded*

ASME B16.42, *Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300*

ASME B16.47, *Large Diameter Steel Flanges: NPS 26 Through NPS 60*

ASME B17.1, *Keys and Keyseats*

ASME Boiler and Pressure Vessel Code: Section V, *Nondestructive Examination*

ASME Boiler and Pressure Vessel Code: Section IX, *Welding and Brazing Qualifications*

ASTM A247, *Standard Test Method for Evaluating the Microstructure of Graphite in Iron Castings* [5)]

ASTM A278, *Standard Specification for Gray Iron Castings for Pressure-Containing Parts for Temperatures Up to 650 °F*

ASTM A320/A320M-05, *Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for Low-Temperature Service*

ASTM A395/A395M-99, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*

ASTM A536, *Standard Specification for Ductile Iron Castings*

ASTM E94, *Standard Guide for Radiographic Examination*

ASTM E709, *Standard Guide for Magnetic Particle Examination*

ASTM E1003, *Standard Test Method for Hydrostatic Leak Testing*

ANSI/AWS D1.1/D1.1M, *Structural Welding Code — Steel* [6)]

IEEE 841, *IEEE Standard for the Petroleum and Chemical Industry — Severe Duty Totally Enclosed Fan-Cooled (TEFC) Squirrel Cage Induction Motors — Up to and Including 500 HP (370 kW)* [7)]

NACE MR0103, *Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments* [8)]

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

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

6) American Welding Society, 550 North LeJeune Road, Miami, FL 33136, USA.

7) Institute of Electrical & Electronic Engineers, 445 Hoes Lane, Piscataway, NJ 08855-1331, USA.

8) NACE international, the corrosion society, 1440 South Creek Drive, Houston, Texas 77084-4906, USA.