SLOVENSKI STANDARD
SIST EN ISO 13631:2004

01-maj-2004

Petroleum and natural gas industries - Packaged reciprocating gas compressors (ISO 13631:2002)

Petroleum and natural gas industries - Packaged reciprocating gas compressors (ISO 13631:2002)

Erdöl- und Erdgasindustrie - Gaskolbenkompressoranlagen (ISO 13631:2002)

Industries du pétrole et du gaz naturel - Unités de compresseurs alternatifs a gaz (ISO 13631:2002)

Ta slovenski standard je istoveten z: EN ISO 13631:2002

ICS:

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

SIST EN ISO 13631:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 13631

August 2002

ICS 75.180.20

English version

Petroleum and natural gas industries - Packaged reciprocating gas compressors (ISO 13631:2002)

Industries du pétrole et du gaz naturel - Unités de compresseurs alternatifs à gaz (ISO 13631:2002)

This European Standard was approved by CEN on 23 June 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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

Ref. No. EN ISO 13631:2002 E

Foreword

This document (EN ISO 13631:2002) 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 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 February 2003, and conflicting national standards shall be withdrawn at the latest by February 2003.

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

NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of the International Standard ISO 13631:2002 has been approved by CEN as a European Standard without any modifications.

INTERNATIONAL STANDARD

ISO 13631

First edition
2002-08-01

Petroleum and natural gas industries — Packaged reciprocating gas compressors

Industries du pétrole et du gaz naturel — Unités de compresseurs alternatifs à gaz

Reference number
ISO 13631:2002(E)

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Printed in Switzerland

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13631 was prepared by Technical Committee ISO/TC 118, *Compressors, pneumatic tools and pneumatic machines*.

Annex B forms a normative part of this International Standard. Annexes A, C, D and E are for information only.

Introduction

This International Standard is based on API specification 11P second edition, November 1989.

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.

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 data sheets (see annex A).

Petroleum and natural gas industries — Packaged reciprocating gas compressors

1 Scope

This International Standard gives requirements and recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of packaged skid-mounted, reciprocating, separable or integral compressors with lubricated cylinders and their prime movers, for use in the petroleum and natural gas industries for the compression of hydrocarbon gas.

It is also applicable to all necessary auxiliary equipment, such as water and gas coolers, silencers, emission control equipment, filters, separators, control panel, piping, etc., required to install an operable unit in compliance with the purchase specifications and with the intent of minimizing field construction and field-purchased equipment.

This International Standard is not applicable to the following:

— reciprocating compressors for petroleum and natural gas industries covered by ISO 13707;

— column-mounted compressors;

— non-lubricated compressors;

— compressors having trunk-type (automotive-type) pistons that also serve as crossheads;

— utility or instrument air compressors with a discharge gauge pressure of 0,9 MPa (9 bar) or less;

— compressors driven by diesel engine, gas turbine and steam turbine prime movers.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 68-2:1998, *ISO general-purpose screw threads — Basic profile — Part 2: Inch screw threads*

ISO 185, *Grey cast iron — Classification*

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 263:1973, *ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0.06 to 6 in*

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

ISO 1813, *Belt drives — V-ribbed belts, joined V-belts and V-belts including wide section belts and hexagonal belts — Electrical conductivity of antistatic belts: Characteristics and methods of test*

ISO 4126-1:1991, *Safety valves — Part 1: General requirements*

ISO 4986:1992, *Steel castings — Magnetic particle inspection*

ISO 5864:1993, *ISO inch screw threads — Allowances and tolerances*

ISO 7005-1, *Metallic flanges — Part 1: Steel flanges*

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

ISO 8504-2, *Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 2: Abrasive blast-cleaning*

ISO 9934-2, *Non-destructive testing — Magnetic particle testing — Part 2 Detection media*

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

ISO 13707, *Petroleum and natural gas industries — Reciprocating compressors*

ISO 14691, *Petroleum and natural gas industries — Flexible couplings for mechanical power transmission — General purpose applications*

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

IEC 60034, *Rotating electrical machines*

IEC 60079, *Electrical apparatus for explosive gas atmospheres*

IEC 60364-5, *Electrical installation of buildings — Part 5: Selection and erection of electrical equipment — Common rules*

IEC 60529, *Degrees of protection provided by enclosures (IP code)*

IEC 60848, *Preparation of function charts for control systems*

API Std 1B[1)], *Specification for oil-field V-belt*

API RP 520 Part I, *Sizing, selection and installation of pressure relieving devices in refineries. Part I — Sizing and selection*

API RP 520 Part II, *Sizing, selection and installation of pressure relieving devices in refineries. Part II — Installation*

1) American Petroleum Institute, 1220 L Street, N.W., Washington, DC 20005-4070, USA.

ASME[2] B 1.1 *Unified inch screw threads (UN and UNR thread form)*

ASME B 1.20.1, *Pipe threads, general purpose (inch)*

ASME VIII, ASME Boiler and pressure vessel code: 1998, Section VIII, *Rules for construction of pressure vessels*

ASTM A 320/A 320M, *Standard specification for alloy/steel bolting materials for low-temperature service*

ASTM A 503, *Standard specification for ultrasonic examination of forged crankshafts*

ASTM A 536, *Standard specification for ductile iron castings*

ASTM A 668/A 668M, *Standard specification for steel forgings, carbon and alloy, for general industrial use*

ASTM A 781/A 781M, *Standard specification for castings, steel and alloy, common requirements, for general industrial use*

EN 1561:1997 *Founding — Grey cast irons*

EN 1563:1997 *Founding — Spheroidal graphite cast irons*

EN 10213-1:1995, *Technical delivery conditions for steel castings for pressure purposes — Part 1: General*

EN 10213-2:1995, *Technical delivery conditions for steel castings for pressure purposes — Part 2: Steel grades for use at room temperature and elevated temperatures*

EN 10213-3:1995, *Technical delivery conditions for steel castings for pressure purposes — Part 3: Steel grades for use at low temperatures*

EN 10213-4:1995, *Technical delivery conditions for steel castings for pressure purposes — Part 4: Austenitic and austenitic-ferritic steel grades*

EN 10269, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties*

NACE MR 0175[3], *Standard material requirements, Sulfide stress cracking resistant metallic materials for oilfield equipment*

NEMA Standards Publication 250-1997, *Enclosures for Electrical Equipment (10 000 Volts Maximum)*

3 Terms and definitions

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

3.1
capacity
quantity of gas taken into the compressor at the specified inlet conditions, compressed and delivered at the specified discharge pressure

NOTE 1 It is expressed in units of mass flow or standard volume flow.

NOTE 2 The capacity of a compressor does not include any gas that leaks out of the compressor during the compression process, nor any air that leaks into a compressor used as a vacuum pump.

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2) American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017, USA.

3) National Association of Corrosion Engineers, P.O. Box 218340, Houston, TX 77218-8340, USA.