SLOVENSKI STANDARD

SIST EN ISO 10438-2:2008

01-marec-2008

Nadomeģļ a:

SIST EN ISO 10438-2:2004

Petrokemiļ na industrija ter industrija za predelavo nafte in zemeljskega plina - Sistemi za mazanje, zapiranje jaģkov in oskrbo ter pomoģna oprema - 2. del: Sistemi za posebne namene (ISO 10438-2:2007)

Petroleum, petrochemical and natural gas industries - Lubrication, shaft-sealing and control-oil systems and auxiliaries - Part 2: Special-purpose oil systems (ISO 10438-2:2007)

Erdöl-, petrochemische und Erdgasindustrie - Schmieröl-, Sperröl- und Regelölversorgungsanlagen und Hilfsanlagen - Teil 2: Ölversorgungsanlagen für besondere Anwendungsfälle (ISO 10438-2:2007)

Industries du pétrole, de la pétrochimie et du gaz naturel - Systèmes de lubrification, systèmes d'étanchéité, systèmes d'huile de régulation et leurs auxiliaires - Partie 2: Systèmes d'huile pour applications spéciales (ISO 10438-2:2007)

Ta slovenski standard je istoveten z: **EN ISO 10438-2:2007**

ICS:

75.180.20

SIST EN ISO 10438-2:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10438-2

December 2007

ICS 75.180.20

Supersedes EN ISO 10438-2:2003

English Version

Petroleum, petrochemical and natural gas industries - Lubrication, shaft-sealing and control-oil systems and auxiliaries - Part 2: Special-purpose oil systems (ISO 10438-2:2007)

Industries du pétrole, de la pétrochimie et du gaz naturel - Systèmes de lubrification, systèmes d'étanchéité, systèmes d'huile de régulation et leurs auxiliaires - Partie 2: Systèmes d'huile pour applications spéciales (ISO 10438-2:2007)

Erdöl-, petrochemische und Erdgasindustrie - Schmieröl-, Sperröl- und Regelölversorgungsanlagen und Hilfsanlagen - Teil 2: Ölversorgungsanlagen für besondere Anwendungsfälle (ISO 10438-2:2007)

This European Standard was approved by CEN on 14 December 2007.

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 CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, 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 10438-2:2007: E

Contents

Page

Foreword

This document (EN ISO 10438-2:2007) 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 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 10438-2:2003.

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

Endorsement notice

The text of ISO 10438-2:2007 has been approved by CEN as a EN ISO 10438-2:2007 without any modification.

INTERNATIONAL STANDARD

ISO 10438-2

Second edition
2007-12-15

Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries —

Part 2: Special-purpose oil systems

Industries du pétrole, de la pétrochimie et du gaz naturel — Systèmes de lubrification, systèmes d'étanchéité, systèmes d'huile de régulation et leurs auxiliaires —

Partie 2: Systèmes d'huile pour applications spéciales

Reference number
ISO 10438-2:2007(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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 10438-2 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 10438-2:2003), which has been technically revised.

ISO 10438 consists of the following parts, under the general title *Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries*:

— *Part 1: General requirements*

— *Part 2: Special-purpose oil systems*

— *Part 3: General-purpose oil systems*

— *Part 4: Self-acting gas seal support systems*

Introduction

This International Standard was developed jointly with API 614 5th edition. ISO 10438 is divided into four parts corresponding to the four chapters of API 614.

Users of this part of ISO 10438 should be aware that further or differing requirements can be needed for individual applications. This part of ISO 10438 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 10438 and provide details. This part of ISO 10438 is to be used in conjunction with 10438-1.

This part of ISO 10438 requires the purchaser to specify certain details and features.

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 suitable data sheet(s); otherwise it should be stated in the quotation request (inquiry) or in the order.

In this International Standard, US Customary (USC) or other units are included in brackets for information.

Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries —

Part 2: Special-purpose oil systems

1 Scope

This part of ISO 10438, in conjunction with of ISO 10438-1, specifies requirements for oil systems for special-purpose applications. These oil systems can provide lubrication oil, seal oil or both. These systems can serve equipment such as compressors, gears, pumps and drivers.

NOTE The term “special-purpose application” is defined in ISO 10438-1.

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 10438-1:2007, *Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries — Part 1: General requirements*

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

ISO 13709, *Centrifugal pumps for petroleum, petrochemical and natural gas industries*

ISO 4572, *Hydraulic fluid power — Filters — Multipass method for evaluating filtration performance*

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

API RP 686-96, *Machinery RP Installation and Installation Design*

ASTM A240/A240M, *Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*

3 Terms, abbreviated terms and definitions

For the purposes of this document, the terms, abbreviated terms and definitions given in ISO 10438-1 apply.

4 General requirements

4.1 General

4.1.1 The equipment (including auxiliaries) covered by this part of ISO 10438 shall be designed and constructed for a minimum service life of 20 years and at least 5 years of uninterrupted operation.

NOTE It is recognized that this is a design criterion.

4.1.2 The oil system shall be suitable for special-purpose applications as defined in ISO 10438-1. The system shall be designed as a separate console, or, if approved by the purchaser, it may be designed to be integral with the baseplate of the equipment it serves. The design shall allow for transfer between and shutdown of the main and spare components of the system for maintenance without interrupting the operation of the system or the equipment the system serves.

4.1.3 Unless otherwise specified, one oil system per equipment train shall be supplied.

NOTE If equipment trains share a common oil system, damage due to cross-contamination can affect all equipment served. Block valves can be needed in supply lines that, for maintenance reasons, have the potential to be accidentally closed. Equipment location can require unacceptably long runs of piping, equipment transients and other potentially detrimental factors that it is necessary to consider.

- **4.1.4** The purchaser shall specify the equipment's normal operating point and alternate operating points including transients.

NOTE Data sheets that can be used for specifying are included in Annex A.

- **4.1.5** Control of the sound pressure level (SPL) of all equipment furnished shall be a joint effort of the purchaser and the vendor having unit responsibility. The equipment furnished by the vendor shall conform to the maximum allowable sound pressure level specified. In order to determine compliance, the vendor shall provide both maximum sound pressure and sound power level data per octave band for the equipment.

- **4.1.6** The purchaser shall specify whether the seal-oil and lube-oil systems are to be separate or combined.

NOTE Annex B contains piping and instrument diagrams (P&IDs) for typical arrangements.

- **4.1.7** Where oil is supplied from a common system to two or more machines (such as a compressor, a gear and a motor), the oil's characteristics shall be specified by the owner on the basis of mutual agreement with all vendors supplying equipment served by the common oil system.

NOTE Site conditions with extreme variations, such as desert or arctic applications, can also require special oil grade viscosity and increased oil supply temperatures.

- **4.1.8** The system shall be designed to supply oil to all equipment specified.

4.1.9 The recycled oil shall originate upstream of the filters.

NOTE This is to minimize the potential for generation of static electricity (or a static charge) that can result when filtered oil bypasses the equipment and is recycled directly to the reservoir. This is very important, especially if explosive gas can also be present in the reservoir.

- **4.1.10** The seal-oil system shall be designed to serve the full range of equipment operating conditions specified. These conditions may include but are not limited to the following:

a) settling-out pressures;

b) process relief-valve settings;

c) shop test and field run-ins;

d) start-up conditions.

4.1.11 In addition to the above requirements, seal-oil systems shall be designed to operate safely prior to process start-up or any other idling condition specified, with the system in total automatic control and with the shaft end seal at atmospheric pressure.

4.1.12 The arrangement of the equipment, including piping and auxiliaries, shall be developed jointly by the purchaser and the vendor. The arrangement shall provide adequate clearance areas and safe access for operation and maintenance.

- **4.1.13** If applicable, the purchaser shall specify minimum requirements for clearance around and access to components (especially clearance around and access to coolers, filters and hand valves).

4.1.14 Pumps, filters, strainers, coolers, traps, valves and all other components that retain oil under pressure and are external to the reservoir shall be made of steel.

4.1.15 Valved vents, drains and piping shall be furnished to permit draining, cleaning and refilling of idle components while the equipment is in operation.

- **4.1.16** The purchaser shall specify when and where double block and bleed valves are required for isolating a component and how they are arranged.

- **4.1.17** Coolers, filters, overhead oil tanks, drain traps, accumulators and other pressure vessels shall be in accordance with the specified pressure design code (Refer to ISO 10438-1:2007, 4.4). If specified by the purchaser, vessels shall be code stamped.

NOTE 1 Code stamping might not be applicable for pressure design codes other than ASME.

NOTE 2 Refer to ISO 10438-1:2007, 4.5.7. Local jurisdictions can require a code stamp and conformity assessment markings.

4.1.18 The console shall perform on the test stand and on its permanent foundation within the specified acceptance criteria. After installation, the performance of the oil system, including piping, console and associated auxiliaries, shall be the joint responsibility of the purchaser and the vendor who has unit responsibility for the equipment train served.

NOTE Certain auxiliaries, such as overhead seal-oil tanks, rundown tanks, interconnecting piping, etc., might not be installed on test.

- **4.1.19** The vendor shall advise the purchaser of, and both parties shall mutually agree upon, any special provisions that are necessary to ensure that an adequate supply of backup lube or seal oil or both is maintained in the event of complete failure of the primary lube- or seal-oil supply system. These provisions may include emergency pumps, accumulators, rundown tanks and special arrangements for equipment safety and protection when the equipment decelerates. Provisions shall be adequate for coast-down time, cool-off time and block-in time as applicable; the purchaser shall specify the required block-in time. The purchaser and the vendor shall mutually agree upon the system and its components.

4.1.20 Block valves that interrupt the oil flow to the equipment shall not be installed in oil supply lines downstream of the filters unless the block valves are part of a component block and bypass arrangement.

4.2 Baseplates

- **4.2.1** The system shall be designed as a single console, in multiple packages or in any other arrangement as specified. Each package shall have a structural steel baseplate with all system components and related valves and manifolds mounted on the baseplate. The major component supports (pumps, filters, coolers, reservoir, etc.) shall be mounted directly on structural steel.

4.2.2 Unless otherwise specified, package baseplates shall be of the drain-gutter type with one or more drain connections at least DN 40 (NPS 1 1/2) in size. Baseplates, mounted components and decking shall be arranged and installed to ensure drainage and to avoid the retention of liquid by sloping of the decking and gutters.