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

**Part 1:
General requirements**

*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 1: Exigences générales



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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 10438-1 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 10438-1:2003), 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 part of ISO 10438 was developed jointly with API 614, 5th edition, together with the other three parts of ISO 10438.

NOTE API 614 is equivalent to ISO 10438 (all parts).

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 can 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 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 the datasheet(s); otherwise it should be stated in the quotation request or in the order.

In this International Standard, United States customary (USC) units are included in brackets for information.

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

Part 1: General requirements

1 Scope

This part of ISO 10438 specifies general requirements for lubrication systems, oil-type shaft-sealing systems, dry-gas face-type shaft-sealing systems and control-oil systems for general- or special-purpose applications. General-purpose applications are limited to lubrication systems. These systems can serve equipment such as compressors, gears, pumps and drivers.

This part of ISO 10438 is intended to be used in conjunction with ISO 10438-2, ISO 10438-3 or ISO 10438-4, as appropriate.

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

ISO 10434, *Bolted bonnet steel gate valves for the petroleum, petrochemical and allied industries*

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

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

ISO 15761, *Steel gate, globe and check valves for sizes DN 100 and smaller for the petroleum and natural gas industries*

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

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

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

ANSI/API RP 551, *Process Measurement Instrumentation*

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

API STD 526, *Flanged Steel Pressure Relief Valves*

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

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

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

ASME B16.5, *Pipe Flanges and Flanged Fittings: NPS 1/2 through 24*

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

ANSI/ASME Y14.2M, *Line Conventions and Lettering*

ASTM A193/A193M-07, *Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications*

ASTM A194/A194M-07, *Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both*

ASTM E94, *Standard Guide for Radiographic Examination*

ASTM E709, *Standard Guide for Magnetic Particle Examination*

ANSI/AWS D1.1/D1.1M, *Structural Welding Code — Steel*

ISA 18.1, *Annunciator Sequences and Specifications*

NEMA 250, *Enclosures for Electrical Equipment (1 000 Volts Maximum)*

TEMA, *Standards of the Tubular Exchanger Manufacturers Association*, 8th ed.

3 Terms, abbreviated terms and definitions

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

3.1 Terms and definitions

3.1.1

alarm point

preset value of a parameter at which an alarm warns of a condition requiring corrective action

3.1.2

block-in time

period required after the driver is tripped to isolate a piece of equipment, such as a compressor, from its system and to depressurize it

3.1.3

booster pump

oil pump that takes suction from the discharge of another pump to provide oil at a higher pressure

3.1.4

coast-down time

period required after the driver is tripped for the equipment to come to rest

3.1.5

components

machinery and hardware items, such as reservoirs, pumps, coolers, filters, valves, and instruments, that are part of the system