



**SLOVENSKI STANDARD**  
**SIST EN ISO 10437:2004**

**01-maj-2004**

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**Petrokemična industrija ter industrija za predelavo nafte in zemeljskega plina -  
Parne turbine - Uporaba za posebne namene (ISO 10437:2003)**

Petroleum, petrochemical and natural gas industries - Steam turbines - Special-purpose applications (ISO 10437:2003)

Erdöl- und Erdgasindustrie - Dampfturbinen für spezielle Anwendungen in Raffinerien (ISO 10437:2003)

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Industries du pétrole, de la pétrochimie et du gas naturel - Turbines a vapeur - Usage spécial (ISO 10437:2003)

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**Ta slovenski standard je istoveten z: EN ISO 10437:2003**

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**ICS:**

27.040	Plinske in parne turbine. Parni stroji	Gas and steam turbines. Steam engines
75.180.20	Predelovalna oprema	Processing equipment

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EUROPEAN STANDARD

EN ISO 10437

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2003

ICS 27.040; 75.180.20

English version

## Petroleum, petrochemical and natural gas industries - Steam turbines - Special-purpose applications (ISO 10437:2003)

Industries du pétrole, de la pétrochimie et du gas naturel -  
Turbines à vapeur - Usage spécial (ISO 10437:2003)

This European Standard was approved by CEN on 24 June 2003.

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

**EN ISO 10437:2003 (E)****Foreword**

This document (EN ISO 10437:2003) 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 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of an identical text or by endorsement, at the latest by January 2004, and conflicting national standards shall be withdrawn at the latest by January 2004.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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.

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# INTERNATIONAL STANDARD

# ISO 10437

Second edition  
2003-07-01

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

*Industries du pétrole, de la pétrochimie et du gaz naturel — Turbines à  
vapeur — Usage spécial*

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## Contents

Page

Foreword.....	vi
Introduction .....	vii
1 Scope.....	1
2 Normative references .....	1
3 Terms and definitions.....	4
4 Dimensions .....	8
5 Statutory requirements.....	8
6 Basic design .....	8
6.1 General .....	8
6.2 Nameplates and rotation arrows .....	11
7 Casings .....	12
7.1 Pressure casings .....	12
7.2 Casing connections.....	14
7.3 Internal stationary components.....	15
7.4 External forces and moments.....	15
8 Rotating elements .....	15
8.1 General .....	15
8.2 Shafts .....	16
8.3 Blading .....	16
8.4 Speed-sensing element.....	17
9 Rotor dynamics .....	17
9.1 General .....	17
9.2 Lateral analysis .....	18
9.3 Unbalanced rotor response verification test.....	23
9.4 Additional testing.....	24
9.5 Torsional analysis.....	25
9.6 Vibration and balancing .....	26
10 Bearings, bearing housings, and seals .....	27
10.1 Radial bearings .....	27
10.2 Thrust bearings and collars.....	28
10.3 Bearing housing.....	29
10.4 Grounding.....	29
10.5 Shaft seals .....	29
11 Materials.....	30
11.1 General .....	30
11.2 Castings .....	31
11.3 Welding .....	32
12 Controls and instrumentation.....	33
12.1 General .....	33
12.2 Turbine governing system .....	33
12.3 Overspeed shutdown system .....	36
12.3.1 General .....	36
12.3.2 Electronic overspeed detection system .....	37
12.3.3 Electro-hydraulic solenoid valves.....	37
12.3.4 Trip valves/combined trip and throttle valves .....	37
12.4 Other alarms and shutdowns.....	39

## ISO 10437:2003(E)

12.5	Instrument and control panels .....	40
12.6	Indicating instrumentation .....	41
12.6.1	Tachometers .....	41
12.6.2	Temperature gauges .....	41
12.6.3	Thermowells.....	41
12.6.4	Thermocouples and resistance temperature detectors .....	41
12.6.5	Pressure gauges.....	41
13	Electrical systems .....	41
14	Piping and appurtenances .....	41
14.1	General .....	41
14.2	Oil piping .....	42
14.3	Instrument piping .....	42
15	Accessories .....	42
15.1	Couplings and guards .....	42
15.2	Gear units.....	42
15.3	Mounting plates .....	43
15.3.1	General .....	43
15.3.2	Baseplates.....	44
15.3.3	Soleplates and subplates .....	45
15.4	Relief valves.....	45
15.5	Lubrication and control-oil system .....	45
15.6	Gland vacuum systems .....	46
15.7	Insulation and jacketing .....	46
15.8	Turning gear.....	47
15.9	Special tools .....	47
16	Inspection, testing and preparation for shipment.....	47
16.1	General .....	47
16.2	Inspection.....	48
16.2.1	General .....	48
16.2.2	Materials inspection.....	48
16.2.3	Mechanical inspection .....	49
16.3	Testing.....	49
16.3.1	General .....	49
16.3.2	Casing pressure hydro tests.....	50
16.3.3	Mechanical running test .....	51
16.3.4	Optional tests and inspections .....	52
16.4	Preparation for shipment.....	54
17	Vendor's information .....	55
17.1	General .....	55
17.2	Proposals .....	56
17.2.1	General .....	56
17.2.2	Drawings .....	56
17.2.3	Technical data.....	56
17.2.4	Curves .....	57
17.3	Contract data .....	57
17.3.1	General .....	57
17.3.2	Drawings and technical data.....	58
17.3.3	Parts lists and recommended spares.....	58
17.3.4	Installation, operation, maintenance and technical manuals .....	58
Annex A	(informative) Typical data sheets .....	59
Annex B	(informative) Steam turbine nomenclature .....	80
Annex C	(normative) Procedures for determining residual unbalance .....	82
Annex D	(informative) Alarm and shutdown systems.....	88
Annex E	(normative) Coupling guards .....	90



<b>Annex F</b> (informative) <b>Foundation drawings</b> .....	<b>92</b>
<b>Annex G</b> (informative) <b>Gland sealing and leak-off system</b> .....	<b>96</b>
<b>Annex H</b> (informative) <b>Typical inspection of components</b> .....	<b>98</b>
<b>Annex I</b> (informative) <b>Inspector's checklist</b> .....	<b>99</b>
<b>Annex J</b> (informative) <b>Vendor drawing and data requirements (VDDR)</b> .....	<b>101</b>
<b>Bibliography</b> .....	<b>113</b>

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## ISO 10437:2003(E)

## 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 10437 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*.

iTeh STANDARD PREVIEW

This second edition cancels and replaces the first edition (ISO 10437:1993), which has been technically revised.

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## Introduction

This International Standard is based on API Std 612, fourth edition, June 1995.

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 appropriate 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.

This International Standard 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 or decision should be indicated on the data sheets; otherwise it should be stated in the quotation request (inquiry) or in the order.

In this International Standard, where practical, US Customary units have been included in brackets for information.

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# Petroleum, petrochemical and natural gas industries — Steam turbines — Special-purpose applications

## 1 Scope

This International Standard specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of steam turbines for special-purpose applications. It also covers the related lube-oil systems, instrumentation, control systems and auxiliary equipment. It is not applicable to general-purpose steam turbines, which are covered in ISO 10436.

NOTE For the purpose of this provision, API Std 611 is equivalent to ISO 10436.

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

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

ISO 1940-1, *Mechanical vibration — Balance quality requirements of rigid rotors — Part 1: Determination of permissible residual unbalance*

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

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

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

ISO 8068, *Petroleum products and lubricants — Petroleum lubricating oils for turbines (categories ISO-L-TSA and ISO-L-TGA) — Specifications*

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

**ISO 10437:2003(E)**

ISO 10438 (all parts)<sup>1)</sup>, *Petroleum and natural gas industries — Lubrication, shaft sealing and control oil systems for special-purpose applications.*

ISO 10441, *Petroleum 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 15649, *Petroleum and natural gas industries — Piping*

IEC 60045-1, *Steam turbines — Part 1: Specifications*

IEC 60072, *Dimensions and output series for rotating electrical machines*

IEC 60079, *Electrical apparatus for explosive atmospheres*

IEC 60953, *Rules for steam turbine thermal acceptance tests*

EN 287, *Approval testing of welders — Fusion welding*<sup>2)</sup>

EN 288, *Specification and approval of welding procedures for metallic materials*

API RP 520 PT I, *Sizing, selection, and installation of pressure-relieving systems in refineries, Part I — Sizing and selection.*<sup>3)</sup>

API RP 520 PT II, *Sizing, selection, and installation of pressure-relieving systems in refineries, Part II — Installation*

API Std 526, *Flanged steel pressure relief valves*

API Std 613, *Special-purpose gear units for petroleum, chemical and gas industry services*

API Std 670, *Machine protection systems*

API Std 671, *Special-purpose couplings for petroleum, chemical and gas industry services*

API RP 686 (First edition, April 1996), *Recommended Practices for machinery installation and installation design*

ASME, *Boiler and pressure vessel code, Section V — Nondestructive examination.*<sup>4)</sup>

ASME, *Boiler and pressure vessel code, Section VIII — Pressure vessels*

ASME, *Boiler and pressure vessel code, Section IX — Qualification standard for welding and brazing procedures, welders, brazers, and welding and brazing operators*

ASME B1.1, *Unified screw threads (UN and UNR Thread Form)*

ASME B16.1, *Cast iron pipe flanges and flanged fittings, Class 25, 125 and 250*

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1) To be published.

2) Comité Européen de Normalisation, 36, rue de Stassart, B-1050 Brussels, Belgium.

3) American Petroleum Institute, Publications and Distribution Section, 1220 L Street Northwest, Washington DC 20005, USA.

4) ASME International, 3 Park Avenue, New York, NY 10016-5990, USA.

ASME B16.5, *Pipe flanges and flanged fittings, NPS 1/2 through NPS 24*

ASME B16.11, *Forged 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 PTC 6, *Performance test code 6 on steam turbines*

ASME PTC 20.2, *Overspeed trip systems for steam turbine-generator units*

ASTM A 194, *Standard specification for carbon and alloy steel nuts for bolts for high-pressure or high-temperature service, or both<sup>5)</sup>*

ASTM A 247, *Standard test method for evaluating the microstructure of graphite in iron castings*

ASTM A 278, *Standard specification for gray iron castings for pressure-containing parts for temperatures up to 650 °F (350 °C)*

ASTM A 307, *Standard specification for carbon steel bolts and studs, 60 000 psi tensile strength*

ASTM A 395, *Standard specification for ferritic ductile iron pressure-retaining castings for use at elevated temperatures*

ASTM A 418, *Standard test method for ultrasonic examination of turbine and generator steel rotor forgings*

ASTM A 472, *Standard test method for heat stability of steam turbine shafts and rotor forgings*

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

AWS D1.1, *Structural welding code — Steel<sup>6)</sup>*

NEMA SM 23, *Steam turbines for mechanical drive service.<sup>7)</sup>*

NFPA 70, *National electrical code.<sup>8)</sup>*

NACE MR0175, *Sulfide stress cracking resistant metallic materials for oilfield equipment.<sup>9)</sup>*

SSPC-SP6/NACE No. 3, *Commercial blast cleaning.<sup>10)</sup>*

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5) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.

6) American Welding Society, 550 NW Le Jeune Road, PO Box 351040, Miami, FL 33130, USA.

7) National Electrical Manufacturers Association, 1300 N 17th Street; Suite 1847, Rosslyn, VA 22209, USA.

8) National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269, USA.

9) NACE International, 1440 South Creek Drive, Houston, TX 77084, USA.

10) SSPC: The Society for Protective Coatings, 40 24<sup>th</sup> Street 6<sup>th</sup> floor, Pittsburgh, PA 15222-4656, USA.