



SLOVENSKI STANDARD SIST EN ISO 25457:2009

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Petroleum, petrochemical and natural gas industries - Flare details for general refinery and petrochemical service (ISO 25457:2008)

Erdöl-, petrochemische und Erdgasindustrie - Fackeln für den allgemeinen Betrieb in Raffinerien und petrochemischen Service (ISO 25457:2008)

Industries du pétrole, de la pétrochimie et du gaz naturel - Détails sur les torches d'usage général dans les raffineries et dans les usines pétrochimiques (ISO 25457:2008)

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Ta slovenski standard je istoveten z: **EN ISO 25457:2008**

ICS:

75.180.20 Predelovalna oprema Processing equipment

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EUROPEAN STANDARD

EN ISO 25457

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Petroleum, petrochemical and natural gas industries - Flare
details for general refinery and petrochemical service (ISO
25457:2008)

Industries du pétrole, de la pétrochimie et du gaz naturel -
Détails sur les torches d'usage général dans les raffineries
et dans les usines pétrochimiques (ISO 25457:2008)

Erdöl-, petrochemische und Erdgasindustrie - Fackeln für
den allgemeinen Betrieb in Raffinerien und
petrochemischen Service (ISO 25457:2008)

This European Standard was approved by CEN on 11 December 2008.

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Foreword

This document (EN ISO 25457:2008) 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of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

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.

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.

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Petroleum, petrochemical and natural gas industries — Flare details for general refinery and petrochemical service

*Industries du pétrole, de la pétrochimie et du gaz naturel — Détails sur
les torches d'usage général dans les raffineries et dans les usines
pétrochimiques*

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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 25457 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*.

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Introduction

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.

In International Standards, the SI system of units is used. Where practical in this International Standard, US Customary units are included in brackets for information.

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 data sheets (see examples in Annex E) or stated in the enquiry or purchase order.

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Petroleum, petrochemical and natural gas industries — Flare details for general refinery and petrochemical service

1 Scope

This International Standard specifies requirements and provides guidance for the selection, design, specification, operation and maintenance of flares and related combustion and mechanical components used in pressure-relieving and vapour-depressurizing systems for petroleum, petrochemical and natural gas industries.

Although this International Standard is primarily intended for new flares and related equipment, it is also possible to use it to evaluate existing flare facilities.

Annexes A, B and C provide further guidance and best practices for the selection, specification and mechanical details for flares and on the design, operation and maintenance of flare combustion and related equipment.

Annex D explains how to use the data sheets provided in Annex E; it is intended that these data sheets be used to communicate and record design information.

2 Normative references

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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 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*

ISO 2408:2004, *Steel wire ropes for general purposes — Minimum requirements*

ISO 8501-1:2007, *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 10684, *Fasteners — Hot dip galvanized coatings*

ISO 13705:2006, *Petroleum, petrochemical and natural gas industries — Fired heaters for general refinery service*

ISO 15156 (all parts), *Petroleum and natural gas industries — Materials for use in H₂S-containing environments in oil and gas production*

ISO 23251, *Petroleum, petrochemical and natural gas industries — Pressure-relieving and depressuring systems*

EN 1092-1:2007, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

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EN 10264-2:2002¹⁾, *Steel wire and wire products — Steel wire for ropes — Part 2: Cold drawn non alloy steel wire for ropes for general applications*

EN 12385-10, *Steel wire ropes — Safety — Part 10: Spiral ropes for general structural applications*

API RP 2A WSD:2000²⁾, *Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms — Working Stress Design*

ASME B16.5-2003³⁾, *Pipe Flanges and Flanged Fittings*

ASME STS-1, *Steel Stacks*

ASTM A 123/A123M⁴⁾, *Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products*

ASTM A 143/A143M, *Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement*

ASTM A 153/A153M, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*

ASTM A 384/A384M, *Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies*

ASTM A 385, *Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)*

ASTM A 475-03, *Standard Specification for Zinc-Coated Steel Wire Strand*

ASTM A 586-04, *Standard Specification for Zinc-Coated Parallel and Helical Steel Wire Structural Strand*

ASTM B 633, *Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel*

NACE MR0103:07⁵⁾, *Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments*

SSPC SP 6/NACE No. 3⁶⁾, *Joint Surface Preparation Standard: Commercial Blast Cleaning*

3 Terms and definitions

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

3.1

air seal

purge reduction device

device used to minimize or eliminate the intrusion of air back into the riser from the exit

EXAMPLE Buoyancy seal, orifice seal, velocity seal.

-
- 1) Comité Européen de Normalisation, 36, rue de Stassart, B-1050 Brussels, Belgium.
 - 2) American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005, USA.
 - 3) American Society of Mechanical Engineers, 3 Park Avenue, New York, NY 10017, USA.
 - 4) American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA.
 - 5) NACE International, P.O. Box 218340, Houston, TX 77218-8340, USA.
 - 6) The Society for Protective Coatings, 40 24th Street, 6th Floor, Pittsburgh, PA 15222-4643, USA.

3.2**assist gas**

fuel gas that is added to relief gas prior to the flare burner or at the point of combustion in order to raise the heating value

NOTE In some designs, the assist gas can increase turbulence for improved combustion.

3.3**back blowing**

procedure by which the dry air seal drain line is blown back from the base of the drain into the buoyancy seal to ensure the line is clear

3.4**blowoff**

loss of a stable flame where the flame is lifted above the burner, which occurs when the fuel velocity exceeds the flame velocity

3.5**buoyancy seal****diffusion seal**

dry vapour seal that minimizes the required purge gas needed to protect from air infiltration

NOTE The buoyancy seal functions by trapping a volume of light gas in an internal inverted compartment that prevents air from displacing buoyant light gas in the flare.

3.6**burnback**

internal burning within the burner **(standards.iteh.ai)**

NOTE Burnback can result from air backing down the flare burner at purge or low flaring rates.

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3.7**burn-pit flare**

open excavation, normally equipped with a horizontal flare burner that can handle liquid as well as gaseous hydrocarbons

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3.8**burning velocity****flame velocity**

speed at which a flame front travels into an unburned combustible mixture

3.9**coanda flare**

flare burner that is designed to employ the aerodynamic effect where moving fluids follow a curved or inclined surface over which they flow

NOTE Flares of this type generally use steam or pressure to achieve smokeless performance.

3.10**combustion air**

air required to combust the flare gases

3.11**combustion efficiency**

percentage of the combustible fluid totally oxidized in the burner

NOTE In the case of hydrocarbons, combustion efficiency is the mass percent of carbon in the original fluid that oxidizes completely to CO₂.