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Petroleum and natural gas industries — Offshore production installations — Heating, ventilation and air-conditioning

Industries du pétrole et du gaz naturel — Plates-formes de production en mer — Chauffage, ventilation et climatisation

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, SC 6, *Processing equipment and systems*.

This third edition cancels and replaces the second edition (ISO 15138:2007), which has been technically revised.

The main changes compared to the previous edition are as follows:

— minimum and maximum temperatures have been added to 5.2.3.3.4 below Table 2 for clarification;

— a requirement for black start has been added to 5.3;

— requirements for the specific areas stairways/escape routes and air locks have been added to 5.4;

— phase-down and phase-out of high and medium global warming potential (GWP) refrigerants are addressed in 5.4;

— a reference to new filtration standard and note for chemical filtration have been added to Table A.1;

— fail safe criteria for fire damper for safety critical areas have been added to Clause A.9;

— requirements for duct earthing have been added to B.1.1;

— the datasheet for DX cooling coil has been updated with electronic expansion valve;

— the datasheet for heating coils has been updated with data for self-generated noise.

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Petroleum and natural gas industries — Offshore production installations — Heating, ventilation and air-conditioning

1 Scope

This document specifies requirements and provides guidance for the design, testing, installation and commissioning of heating, ventilation, air-conditioning and pressurization systems, and equipment on all offshore production installations for the petroleum and natural gas industries that are

— new or existing,

— normally occupied by personnel or not normally occupied by personnel, and

— fixed or floating but registered as an offshore production installation.

This document is normally applicable to the overall facilities. For installations that can be subject to "Class" or "IMO/MODU Codes & Resolutions", the user is referred to HVAC requirements under these rules and resolutions. When these requirements are less stringent than those being considered for a fixed installation, then it is necessary that this document, i.e. requirements for fixed installations, be utilized.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7235, *Acoustics — Laboratory measurement procedures for ducted silencers and air-terminal units — Insertion loss, flow noise and total pressure loss*

ISO 8861, *Shipbuilding — Engine-room ventilation in diesel-engined ships — Design requirements and basis of calculations*

ISO 12241, *Thermal insulation for building equipment and industrial installations — Calculation rules*

ISO 12499, *Industrial fans — Mechanical safety of fans — Guarding*

ISO 14694:2003, *Industrial fans — Specifications for balance quality and vibration levels*

ISO 21789, *Gas turbine applications — Safety*

IEC 60079-0, *Electrical apparatus for explosive gas atmospheres — Part 0: General requirements*

IEC 60079-10, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas*

IEC 60079-13, *Electrical apparatus for explosive gas atmospheres — Part 13: Construction and use of rooms or buildings protected by pressurization*

IEC 61892-7, *Mobile and fixed offshore units — Electrical installations — Part 7: Hazardous Areas*

EN 1751, *Ventilation for buildings — Air terminal devices — Aerodynamic testing of dampers and valves*

EN 1886, *Ventilation for buildings — Air handling units — Mechanical performance*

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EN 50272-2, *Safety requirements for secondary batteries and battery installations — Part 2: Stationary batteries*

API RP 505, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class 1, Zone 0, Zone 1 and Zone 2*

IMO Resolution MSC 61(67): Annex 1, *Part 5 — Test for Surface Flammability*

IMO Resolution MSC 61(67): Annex 1, *Part 2 — Smoke and Toxicity Test*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
active system
system that relies on energized components

3.2
air-displacement unit
supply device to achieve movement of air within a space in piston- or plug-type motion

Note 1 to entry: No mixing of room air occurs in ideal displacement flow, which is desirable for removing pollutants generated within a space.

3.3
fugitive emission
continuous emission on a molecular scale from all potential leak sources in a plant under normal operating conditions

Note 1 to entry: As a practical interpretation, a fugitive emission is one which cannot be detected by sight, hearing or touch but can be detected using bubble-test techniques or tests of a similar sensitivity.

3.4
open area
area in an open-air situation where vapours are readily dispersed by wind

Note 1 to entry: Typical air velocities in such areas are rarely less than 0,5 m/s and frequently above 2 m/s.

3.5
passive system
system that does not rely on energized components

3.6
temporary refuge
TR
place where personnel can take refuge for a predetermined period while investigations, emergency response and evacuation pre-planning are undertaken

3.7
stagnant area
area where the ventilation rate is less than adequate

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