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Installation and equipment for liquefied natural gas — Design of floating LNG installations —

Part 2: Specific FSRU issues

Installations et équipements de gaz naturel liquéfié — Conception des installations flottantes de GNL —

Partie 2: Questions spécifiques aux FSRU

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Foreword

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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).

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This document was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 9, *Liquefied natural gas installations and equipment,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 282, *Installation and equipment for LNG,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 20257 series can be found on the ISO website.

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Installation and equipment for liquefied natural gas — Design of floating LNG installations —

Part 2: Specific FSRU issues

1 Scope

This document provides specific requirements and guidance for the design and operation of floating LNG storage and regasification units (FSRU) described in ISO 20257-1.

This document is applicable to offshore, near-shore or docked FSRUs and to both new-built and converted FSRUs.

This document includes requirements to the jetty when an FSRU is moored to a jetty.

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 20257-1:2020, *Installation and equipment for liquefied natural gas — Design of floating LNG installations — Part 1: General requirements*

AGA 9, *Measurement of Gas by Multipath Ultrasonic Meters*

AGA 10, *Speed of Sound in Natural Gas and Other Related Hydrocarbon Gases*

EN 1776, *Gas infrastructure — Gas measuring systems — Functional requirements*

EN 12186, *Gas infrastructure — Gas pressure regulating stations for transmission and distribution - Functional requirements*

ISO 13734, *Natural gas — Organic components used as odorants — Requirements and test methods*

EN 14382, *Safety devices for gas pressure regulating stations and installations — Gas safety shut-off devices for inlet pressures up to 100 bar*

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

IEC 61511 (all parts), *Functional safety — Safety instrumented systems for the process industry sector*

ISO 5168, *Measurement of fluid flow — Procedures for the evaluation of uncertainties*

ISO 6976, *Natural gas — Calculation of calorific values, density, relative density and Wobbe indices from composition*

ISO 8943, *Refrigerated light hydrocarbon fluids — Sampling of liquefied natural gas — Continuous and intermittent methods*

ISO 12213-1, *Natural gas — Calculation of compression factor — Part 1: Introduction and guidelines*

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ISO 12213-2, *Natural gas — Calculation of compression factor — Part 2: Calculation using molar-composition analysis*

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

ISO 16903, *Petroleum and natural gas industries — Characteristics of LNG, influencing the design, and material selection*

ISO 17089-1, *Measurement of fluid flow in closed conduits — Ultrasonic meters for gas — Part 1: Meters for custody transfer and allocation measurement*

CODE IGC *International Code of the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk*, International Maritime Organization (IMO)

OIML R 137-1, *Gas meters — Part 1: Metrological and technical requirements*

OIML R 137-2, *Gas meters — Part 2: Metrological controls and performance tests*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20257-1:2020 and the following 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 http://www.electropedia.org/

3.1.1
fiscal metering
metering aimed to define the quantity and financial value of hydrocarbon product transaction

3.1.2
custody transfer
physical transfer of hydrocarbon product that results in change in ownership and/or a change in responsibility

3.2 Abbreviated terms

ALARP	as low as reasonably practicable
BOG	boil-off gas
CLV	closed loop vaporizer
EDS	emergency disconnection system
ERC	emergency release coupling
ESD	emergency shut down
FSRU	floating storage and regasification unit
GCU	gas combustion unit
HAZOP	hazard and operability (study)

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