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UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY AND ENVIRONMENT-RELATED CONVENTIONS

Unified interpretation to the IGF Code related to functional requirements applied to gas admission valves at dual fuel engines and gas engines

Submitted by CESA and EUROMOT

SUMMARY

Executive summary:	This document proposes a draft unified interpretation of the IGF Code related to functional requirements applied to gas admission valves at dual fuel engines and gas engines with the goal of explosion prevention
Strategic direction, if applicable:	6
Output:	6.1
Action to be taken:	Paragraph 9
Related documents:	CCC 4/7/3 and CCC 4/12

Introduction

1 Document CCC 4/7/3 (Belgium) refers to a regulatory dissent between the goal-based risk assessment, with the aim to assess explosion risks at dual fuel and gas engines, as laid out in the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), and the differing requirements stipulated in the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code). To overcome this regulatory burden, the Sub-Committee on Carriage of Cargoes and Containers, at its fourth session (CCC 4), considered Belgium's proposal to develop a unified interpretation aimed at an aligned understanding of both Codes in this regard and invited Member States and international organizations to provide a proposal (CCC 4/12, paragraph 7.13).

2 CESA and EUROMOT recognize the Sub-Committee's preference to resolve the inconsistency with an adequate unified interpretation, rather than with amendments to the IGF Code itself. In consideration of the comments made at CCC 4, the unified interpretation should be limited to gas admission valves only (CCC 4/12, paragraph 7.12.2).

Discussion

3 The IGC Code, in conjunction with the *Interim Guidelines on safety for natural gas-fuelled engine installations in ships* (resolution MSC.285(86)), has been, for many years, the baseline for all engine manufacturers to assure the safe construction of gas engines, dual fuel engines and their associated equipment. Reliable explosion protection is ensured by risk assessments carried out in accordance with the internationally recognized standard recently revised as IEC 60079-10-1:2015. These provisions have been applied diligently, inter alia, to gas admission valves, where safe operation has been proven in thousands of accumulated operating hours.

4 This approach is maintained in section 12.4 of the IGF Code and reference is made to standards IEC 60079-10-1:2008 and IEC 60092-502:1999. Examples of zone definitions are extracted from the latter standard and added in section 12.5 of the Code. The standard recognizes those examples as a starting point and, subsequently, requires goal-based risk assessments under consideration of functional requirements based on the examples provided. To be in line with the applicable standards, and to assure the desired safety level outlined in the IGF and IGC Codes, the equipment protection level needs to be assessed compulsorily. It is the sponsors' understanding that the examples in section 12.5 do not substitute the requirements of section 12.4. Both sections in fact need to be jointly understood.

5 The particular importance to gas admission valves is justified by the availability of the valves as category 3 (CAT 3) equipment only. The safe application of those valves to dual fuel and gas engines under the IGC and the IGF Codes requires additional safety measures derived from a state-of-the-art risk assessment, in accordance with section 10 of the IGC Code or section 12.4 of the IGF Code, respectively. In contrast, a very limited interpretation of section 12.5 of the IGF Code circumvents the requirement of risk assessments as stipulated in section 12.4. The unified interpretation should make clear that section 12.4 of the IGF Code is of principal importance in assuring the desired safety level.

Proposal

6 A proposal for a unified interpretation is provided in the annex.

Justification

7 Section 12.4 of the IGF Code outlines the area classification where explosive gas atmospheres may occur. Applicable standards are referred to in footnote 21 with regard to IEC 60079-10-1:2008 and IEC 60092-502:1999. In chapter 10 of the IGC Code, the same instruments are applied. Both IGC and IGF Codes describe the functional requirements to achieve a desired safety level in a goal-based approach. The application of the same standards leads to the same safety level.

8 Section 12.5 of the IGF Code specifies, in addition, examples of area zone classifications assigned to area zones 0, 1 and 2. However, this listing is not exhaustive and additional locations, circumstances or applied safety measures may be incorporated by applying appropriate state-of-the-art risk assessments according to section 12.4. To assure that all hazardous areas are compiled entirely, the risk assessments as stipulated in section 12.4 of the Code, in accordance with IEC 60079-10-1:2015 and IEC 60092-502:1999, have to be made compulsorily. This means that section 12.4 is of overriding importance and assures the desired safety level.

Action requested of the Sub-Committee

9 The Sub-Committee is invited to consider the information provided and take action, as appropriate.

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ANNEX

DRAFT UNIFIED INTERPRETATION OF THE IGF CODE RELATED TO FUNCTIONAL REQUIREMENTS APPLIED TO GAS ADMISSION VALVES AT DUAL FUEL ENGINES AND GAS ENGINES

Section 12.4, part A-1 of the IGF Code reads:

"12.4 Regulations on area classification

12.4.1 Area classification is a method of analysing and classifying the areas where explosive gas atmospheres may occur. The object of the classification is to allow the selection of electrical apparatus able to be operated safely in these areas.

12.4.2 In order to facilitate the selection of appropriate electrical apparatus and the design of suitable electrical installations, hazardous areas are divided into zones 0, 1 and 2.[21] See also 12.5 below."

Paragraph 12.5, part A-1 of the IGF Code reads:

"12.5.1 Hazardous area zone 0

This zone includes, but is not limited to the interiors of fuel tanks, any pipework for pressure-relief or other venting systems for fuel tanks, pipes and equipment containing fuel.

12.5.2 Hazardous area zone 1[22]

This zone includes, but is not limited to:

.1 tank connection spaces, fuel storage hold spaces[23] and interbarrier spaces;

.2 fuel preparation room arranged with ventilation according to 13.6;

.3 areas on open deck, or semi-enclosed spaces on deck, within 3 m …; and

.4 ...

[21] Refer to standards IEC 60079-10-1:2008 Explosive atmospheres part 10-1: Classification of areas – Explosive gas atmospheres and guidance and informative examples given in IEC 60092-502:1999, Electrical Installations in Ships – Tankers – Special Features for tankers.

[22] Instrumentation and electrical apparatus installed within these areas should be of a type suitable for zone 1.

[23] Fuel storage hold spaces for type C tanks are normally not considered as zone 1."

Interpretation

The risk assessment in accordance with the relevant standards on area classification as set out in section 12.4 of part A-1 of the IGF Code is to be understood as a procedure equivalently applicable to the examples for hazardous area zones as laid out in section 12.5 of part A-1 of the Code for the categorization of gas admission valves at dual fuel engines and gas engines. Section 12.4 should be interpreted as the guiding methodology for the categorization of gas admission valves at dual fuel engines and gas engines. If no additional safety measures and no corresponding risk assessment in accordance with section 12.4 are available, the examples in section 12.5 should apply.