GC32 Outer Duct in Gas Fuel Piping Systems

(Feb 2021)
(Rev.1 Feb 2022)

Interpretation of paragraphs 5.4.4 and 5.13.2.4 of the IMO International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (as amended by Resolutions MSC.370(93), MSC.411(97) and MSC.441(99))

Paragraphs 5.4.4 and 5.13.2.4 of the Code reads as follows:

5.4.4 The design pressure of the outer pipe or duct of gas fuel systems shall not be less than the maximum working pressure of the inner gas pipe. Alternatively, for gas fuel piping systems with a working pressure greater than 1 MPa, the design pressure of the outer duct shall not be less than the maximum built-up pressure arising in the annular space considering the local instantaneous peak pressure in way of any rupture and the ventilation arrangements.

5.13.2.4 In double wall gas-fuel piping systems, the outer pipe or duct shall also be pressure tested to show that it can withstand the expected maximum pressure at gas pipe rupture.

Interpretation

1. The expression "duct" in 5.4.4 and 5.13.2.4 means to include the equipment enclosure required in 16.4.3.1 and 16.4.3.2 (e.g. GVU enclosure) as well as the structural pipe duct intended to contain any release of gas from inner pipe or equipment. The term "structural pipe duct" means an outer duct forming part of a structure such as a hull structure or superstructure or deck house, where permitted, other than gas valve unit rooms.

Note:

1. This Unified Interpretation is to be uniformly implemented by IACS Societies on ships contracted for construction on or after 1 July 2021.

2. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No. 29.

3. Rev.1 of this Unified Interpretation is to be uniformly implemented by IACS Societies on ships contracted for construction on or after 1 January 2023.

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The gas valve unit rooms are to be:

.1 gastight toward other enclosed spaces;

.2 equipped with mechanical exhaust ventilation having a capacity of at least 30 air changes per hour and arranged to maintain a pressure less than the atmospheric pressure; and

.3 able to withstand the maximum built-up pressure arising in the room in case of a gas pipe rupture, as documented by suitable calculations taking into account the ventilation arrangements.

~~1~~2.The expression "design pressure of the outer pipe or duct" in 5.4.4 is either of the following:

.1 the maximum pressure that can act on the outer pipe or equipment enclosure after the inner pipe rupture as documented by suitable calculations taking into account the venting arrangements; or

.2 for gas fuel systems with inner pipe working pressure greater than 1 MPa, the "maximum built-up pressure arising in the annular space", after the inner pipe rupture, which is to be calculated in accordance with paragraph 9.8.2 of the IGF Code as adopted by MSC.391(95).

~~2~~3.The expression "maximum pressure at gas pipe rupture" in 5.13.2.4 is the maximum pressure to which the outer pipe or duct is subjected after the inner pipe rupture and for testing purposes it is the same as the design pressure used in 5.4.4.

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