

Flange Connections of Gas Fuel Pipes

Object of Amendment

Guidance for the Survey and Construction of Steel Ships Part GF

Reason for Amendment

The International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code) and the associated amendment to the SOLAS convention that made compliance with the code mandatory were adopted at the 95th session of the IMO Maritime Safety Committee (MSC95) held in June 2015. The Society has already incorporated the IGF Code into Part GF of the Rules for the Survey and Construction of Steel Ships.

In addition, 9.2.2 of the IGF Code stipulates that piping systems for fuel transfer to consumers are to be designed so that a single failure of one barrier does not lead to fuel leakage from the piping system into the surrounding area. The IMO has examined whether flanges with two seals (i.e. a single common flange) for connecting double-walled gas fuel pipes can be used under this regulation and approved a unified interpretation in June 2023 as MSC.1/Circ.1670, which allows such flanges to be used at connections to gas consumers and gas regulating units. This interpretation has been incorporated into Part GF of the Guidance for the Survey and Construction of Steel Ships.

IACS subsequently reviewed MSC.1/Circ.1670 to clarify whether the term “gas regulating unit” includes so-called gas valve units (GVU). As a result, IACS decided to interpret the circular as including GVU and adopted IACS Unified Interpretation (UI) GF19 (Rev.1) in June 2025, which explicitly permits the use of single common flanges at connections to GVU.

Accordingly, relevant requirements are amended based on UI GF19 (Rev.1).

Outline of the Amendment

- (1) Clarifies that single common flanges may be used at connections between GVU and piping.
- (2) Adds requirements regarding the submission of documentation demonstrating the technical basis for verifying that a single failure will not result in fuel leakage from the piping system into the surrounding area when using single common flanges.

Effective Date and Application

This draft amendment applies to ships for which the date of contract for construction is on or after 1 July 2026.

Amended-Original Requirements Comparison Table (Flange Connections of Gas Fuel Pipes)

Amended	Original	Remarks
<p>GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p>Part GF SHIPS USING LOW-FLASHPOINT FUELS</p> <p>GF9 FUEL SUPPLY TO CONSUMERS</p> <p>GF9.2 Functional Requirements</p> <p>GF9.2.2 Additional Requirements</p> <p>1 In applying 9.2.2-2, 9.6.1 and 7.3.6-3, Part GF of the Rules, two independent safety barriers are to be in place, while, as far as practicable, using a minimum of flange connections. There is to be no single common flange or other component where a single failure itself may overcome both primary and secondary barriers and may result in a gas leak into the surrounding area causing danger to the ship itself, any persons on board, or the environment.</p> <p>2 Notwithstanding -1 above, a single common flange (<u>ensuring ventilation flow</u> with two sealing systems) may be accepted at fuel connections to gas consumers (including <u>internal combustion engines</u>, <u>GCUs</u>, boilers and components, such as <u>gas valve units</u>) provided that the technical justification is submitted to the Administration or its <u>recognised organisation</u> demonstrating the following:</p> <p>(1) the impracticability of the installation of a double flange connection (two independent flanges, one on the gas pipe and one on the secondary enclosure);</p>	<p>GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p>Part GF SHIPS USING LOW-FLASHPOINT FUELS</p> <p>GF9 FUEL SUPPLY TO CONSUMERS</p> <p>GF9.2 Functional Requirements</p> <p>GF9.2.2 Additional Requirements</p> <p>1 In applying 9.2.2-2, 9.6.1 and 7.3.6-3, Part GF of the Rules, two independent safety barriers are to be in place, while, as far as practicable, using a minimum of flange connections. There is to be no single common flange or other component where a single failure itself may overcome both primary and secondary barriers and may result in a gas leak into the surrounding area causing danger to the ship itself, any persons on board, or the environment.</p> <p>2 Notwithstanding -1 above, a single common flange (with two sealing systems) may be accepted at fuel connections to gas consumers (including <u>GCUs</u>, boilers and components <u>on the engine</u>, such as <u>gas regulating units</u>).</p>	<p>IACS UI GF19(Rev.1)</p>

Amended-Original Requirements Comparison Table (Flange Connections of Gas Fuel Pipes)

Amended	Original	Remarks
<p>and</p> <p>(2) compliance of a single common flange with the safety criterion in 9.2.2, Part GF of the Rules (i.e. no leak from the piping system into the surrounding area in the case of failure of one sealing system), including at least the consideration of the rupturing or loosening of bolts, depending on the arrangement of components which should not result in flange failure when piping is exposed to a sudden movement (e.g. hog and sag of the ship or excessive vibration).</p>		
EFFECTIVE DATE AND APPLICATION		
<ol style="list-style-type: none"> 1. The effective date of the amendments is 1 July 2026. 2. Notwithstanding the amendments, the current requirements apply to ships for which the date of contract for construction* is before the effective date. <p>* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.</p>		
<p style="text-align: center;">IACS PR No.29 (Rev.0, July 2009)</p> <ol style="list-style-type: none"> 1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding. 2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. <p>For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:</p> <ol style="list-style-type: none"> (1) such alterations do not affect matters related to classification, or (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval. <p>The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.</p> <ol style="list-style-type: none"> 3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which 1. and 2. above apply. 4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder. <p>Note: This Procedural Requirement applies from 1 July 2009.</p>		