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Interested committees:

Title: Draft BS ISO 21341 Ships and marine technology — Test procedures for liquid hydrogen valve of hydrogen ships.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

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UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

Ships and marine technology — Test procedures for liquid hydrogen valve of hydrogen ships

ICS: 47.020.30

ISO/DIS 21341

ISO/TC 8/SC 3

Secretariat: **ANSI**

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2025-08-25

Voting terminates on:
2025-11-17

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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).

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Regulation on greenhouse gas emissions from ships have continuously been strengthened in an effort to address global warming and greenhouse gas issues faced by the shipping industry. In line with the greenhouse gas reduction initiatives suggested by the International Maritime Organization, different methods of using various eco-friendly fuels for ships have been proposed and extensive research has also been performed to use liquid hydrogen with high energy density as an eco-friendly fuel source to ships.

In order for hydrogen to be stored as cargo and used as fuel in ships, one must be able to store a large amount of it in a limited space. Among the most widely used approaches to this end is the method of storing hydrogen in a liquid state. Implementing this method requires developing a system that can be reliably maintained at a temperature of -253 °C. Such a system must be made of equipment that endures extremely low temperatures with a considerable level of resistance against hydrogen embrittlement.

Some countries are planning to introduce liquid hydrogen carriers for consideration to import large amounts of hydrogen from overseas sources for the achievement of carbon neutrality. In this regard, increasing attention has been paid to cargo containment systems for liquid hydrogen.

However, most hydrogen safety regulations are intended for high-pressure hydrogen in a gas state, and thus there is a lack of safety regulations that properly reflect any risks arising from low temperatures and the unique characteristics of ship operations. A safety test procedure is needed for evaluating the liquid hydrogen valve compatibility for cargo and fuel containment and piping systems for liquid hydrogen marine applications. The test procedure should be firmly defined and technical consensus achieved based on extensive research results.

This document sets up general test requirements for liquid hydrogen valves used on hydrogen ships. It is expected that useful information can be provided to marine industry such as ship owners, classification societies, and shipyards. Finally, this document would contribute to the growth of relevant industries and the benefit all related stakeholders.

