
**Ships and marine technology — Ship's
bridge layout and associated
equipment — Requirements and
guidelines**

*Navires et technologie maritime — Aménagement de la passerelle d'un
navire et disposition de ses équipements annexes — Exigences et
directives*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8468 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 5, *Ships' bridge layout*.

This third edition cancels and replaces the second edition (ISO 8468:1990) and ISO 14612:2004, which have been technically revised.

Introduction

It has become common practice for operators (officers and crew) to move between shipping companies and flag states and serve on a wide range of ships. Pilots too have to handle an increasing variety of ships and equipment. This International Standard therefore, contains requirements and guidelines which aim to ensure safe navigation by standardizing the bridge environment to provide watchkeepers with a consistent pattern of equipment layout regardless of the ship type or the navigational systems fitted on the bridge.

The requirements in this International Standard take into account human factors, ergonomic principles and advances in technology.

Functional requirements are outlined in general terms in order to prescribe the basic functionality, providing the operator at each defined workstation with

- the best possible overview of internally presented data,
- easy and ergonomic operation of equipment,
- adequate environmental conditions on the bridge.

All information made available to the operator from equipment, alarm systems and communication equipment has to be suited for the purpose, and presented in accordance with ergonomic principles. Too much information is stressing and may cause confusion.

Information and control facilities have to meet the needs of the operator and provide the level of performance appropriate to particular workstations and procedures.

Safety aspects related to the crew, cargo, ship and the environment need to be addressed in detail.

Guidelines and figures give examples, ideal and/or alternative solutions, when such are well defined. Guiding references and comments are added where applicable.

It should be noted that no specific layout presents the sole solution for a proper bridge fulfilling the requirements laid down in this International Standard. This International Standard is parametric, and different types of ships and operations have different optimum designs, even though basic safety requirements are equal.

This International Standard is related to the IMO Resolution on ergonomic criteria for bridge equipment and the general requirements in SOLAS Chapter V. Based on SOLAS Chapter IX (ISM Code), dealing with casualties attributed to the human element, this International Standard should reduce such casualties.

Ships and marine technology — Ship's bridge layout and associated equipment — Requirements and guidelines

1 Scope

This International Standard specifies the functional requirements for bridge configuration, bridge arrangement, bridge workstations and bridge environment. Guidelines have been drawn up for the methods and solutions to meet the functional requirements.

The requirements in this International Standard apply to all bridge functions.

The purpose of this International Standard is to assist the operator(s) and pilot by providing a workplace that is conducive to safe and effective operation. It also aims to specify bridge requirements, which will secure safe and efficient operation of the ship berth-to-berth regardless of the watchkeeping arrangement in place at a particular time. This International Standard should be used in support of the aims in SOLAS Chapter V Regulation 15.

Requirements and guidance on the human element aspects of the bridge system (e.g. training, procedures) are not given. However, for safe and effective watchkeeping, these aspects will need to be addressed.

The main use of this International Standard will be for designing ships' bridges. This International Standard will also be useful to

- specifiers and procurers of ships and bridge equipment,
- operators, and
- owners for ensuring that changes made to the bridge through the life of a ship continue to conform to these requirements.

This International Standard is applicable to seagoing ships. Where there are physical limitations in applying this International Standard, i.e. to small ships or to ships of unusual design, the general functional requirements still apply.

Annex A of this International Standard applies to high speed craft.

This International Standard does not supersede performance standards for bridge equipment.

Users of this International Standard should note that while attempting to implement its requirements, they should ensure compliance with such statutory requirements, rules and regulations as may be applicable to the individual ship concerned.

Designers should consider future changes in the purpose of the ship, and availability of new equipments, in their bridge designs.

2 Normative references

The following referenced documents are indispensable for the application 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 2412, *Shipbuilding — Colours of indicator lights*

ISO 3434, *Shipbuilding and marine structures — Heated glass panes for ships' rectangular windows*

ISO 3904, *Shipbuilding and marine structures — Clear-view screens*

IEC 60447, *Basic and safety principles for man-machine interface, marking and identification — Actuating principles*

IMO MSC.97(73) 2000, *International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code)*

IMO Resolution A.343(IX), *Recommendation on methods of measuring noise levels at listening posts*

IMO Resolution A.468(XII), *Code on Noise Levels on Board Ships*

IMO Resolution A.694(17), *General requirements for shipborne radio equipment forming part of the GMDSS and for electronic navigational aids*

International Convention for the Safety of Life at Sea (SOLAS)

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

abnormal operating condition

condition created when internal technical system failures require operation of back-up systems on the bridge, or when they occur under an irregular operating condition, or when the operator becomes unfit to perform his duties and has not yet been replaced by another qualified officer

3.1.2

additional bridge functions

functions performed on the bridge, but not related to a primary bridge function

EXAMPLE Extended communication functions, monitoring and control of ballasting and cargo operations, monitoring and control of machinery, monitoring and control of domestic systems, ship management.

3.1.3

alarm

audible and visual signal alerting a condition requiring immediate attention or user action

3.1.4

alarm transfer system

system which transfers an alarm from the bridge to the master and the back-up operator or any place(s) assigned by the system in the case of any operator deficiency

3.1.5

alert

announcement of an abnormal situation or condition requiring attention

NOTE Alerts may consist of alarms, warnings and cautions.