INTERNATIONAL STANDARD

ISO 24409-1

Second edition
2020-03

Ships and marine technology — Design, location and use of shipboard safety signs, fire control plan signs, safety notices and safety markings —

Part 1:
Design principles

Navires et technologie maritime — Conception, emplacement et utilisation des signaux de sécurité, signaux relatifs à la sécurité, notes de sécurité et marquages de sécurité à bord des navires —

Partie 1: Principes de conception

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Maritime safety*.

This second edition cancels and replaces the first edition (ISO 24409-1:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

— addition of the definition and use of "fire control plan sign";

— deletion of references to "mimic signs";

— updated graphics from ISO 7010; and

— updated graphics from ISO 24409-2.

A list of all parts in the ISO 24409 series can be found on the ISO website.

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

The growth of international travel by ship has created a need to provide people travelling and working on board ships with signs and associated systems that communicate consistent and effective safety information. The ISO 24409 series specifies a system of safety and fire control plan signs on ships and other marine installations that is generally consistent with standardized signs with which many will have gained familiarity in other applications.

As such, the ISO 24409 series clarifies and supplements existing requirements set out in SOLAS regulations II-2/13.3.2.5.1, III/9.2.3 and III/11.5, and in ISO 17631. However, it is directly applicable to shipboard safety and fire control plan signs only, and does not deal with graphical symbols to be used on shipboard plans or documentation used for professionals.

This document spells out general design principles applicable to all types of shipboard safety and fire control plan signs. Specific signs are catalogued in ISO 24409-2, and their application on ships is specified in ISO 24409-3. Shipboard plans for general emergency information will be specified in a future part[1] in the ISO 24409 series.

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1) Planned for future work: ISO 24409-4, *Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings — Part 4: Shipboard plans for general emergency information.*

Ships and marine technology — Design, location and use of shipboard safety signs, fire control plan signs, safety notices and safety markings —

Part 1:
Design principles

IMPORTANT — The colours represented in the electronic file of this document can be neither viewed on screen nor printed as true representations. For the purposes of colour matching, see ISO 3864-4 which provides colorimetric and photometric properties together with, as a guideline, references from colour order systems.

1   Scope

This document specifies general design principles for shipboard safety signs, fire control plan signs, markings and notices intended to communicate safety-related information to persons on board ships.

2   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3864-1, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 3864-3:2012, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

ISO 3864-4, *Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials*

ISO 7010, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 15370, *Ships and marine technology — Low-location lighting (LLL) on passenger ships — Arrangement*

ISO 17398, *Safety colours and safety signs — Classification, performance and durability of safety signs*

ISO 17724, *Graphical symbols — Vocabulary*

IMO, *International Safety Management (ISM) Code*

3   Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17724 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
determinant
graphical symbol (3.3) used as a common element within a series of graphical symbols

EXAMPLE   Flames for a fire *safety sign* (3.7).

3.2
fire control plan sign
sign for specialists, used to identify and locate fire control equipment, not designed according to the rules for *safety signs* (3.7)

Note 1 to entry: These signs are related to the symbols in ISO 17631; see 4.3 below.

3.3
graphical symbol
visually perceptible figure with a particular meaning used to transmit information independently of language

3.4
photoluminescent sign
sign treated with material incorporating phosphors that, if excited by UV or visible radiation, stores energy, which is emitted as light over a period of time

Note 1 to entry: The term "photoluminescent sign" is used in this document for consistency with terminology used in International Maritime Organization (IMO) publications. It has the same meaning as "phosphorescent safety sign" in ISO 3864-4.

3.5
safety marking
marking which adopts the use of safety colours and/or safety contrast colours to convey a safety message or to render an object or location conspicuous

3.6
safety notice
sign with written text containing a list of actions to be taken or instructions to be followed in an emergency or for the correct use of equipment

3.7
safety sign
sign which gives a general safety message, obtained by a combination of colour and geometric shape and which, by the addition of a *graphical symbol* (3.3), gives a particular safety message

3.8
supplementary sign
sign that is supportive of another sign and the main purpose of which is to provide additional clarification

4   Types and use of signs, markings and notices

4.1   General

Shipboard safety signs and fire control plan signs are intended to communicate safety information to passengers, visitors, associated crew and to specialized, trained personnel. The design requirements may differ as a function of the education of the intended audience. However, the objective is that all such signs use similar basic design principles to those in International Standards for safety signs in other public areas and workplaces. The design criteria for specific signs differ according to the type of the sign and the specific context of use. The various categories of signs are described in 4.2.1 to 4.2.7, and in 4.3. Individual signs in these categories are catalogued in ISO 24409-2.

NOTE   The three-letter code following each subclause title relates to the nomenclature in ISO 24409-2.

4.2 Safety signs

4.2.1 Means of escape signs (MES) — Escape route identification

Means of escape signs are safe condition signs used to indicate location within the ship and to provide directional guidance from any area within the ship to a designated assembly station and/or to exits and survival craft embarkation stations.

4.2.2 Emergency equipment signs (EES) — Use and location of first aid facilities and portable safety equipment

Emergency equipment signs are used to indicate the exact location of first aid facilities, first aid equipment, or portable safety equipment, the type of facility or equipment and any instructions for its use.

4.2.3 Life-saving systems and appliances signs (LSS) — Use and location of life-saving systems and appliances

Life-saving systems and appliances signs are used to indicate the exact location or storage of the life-saving equipment, the type of equipment, the identification number and any instructions for its correct use.

4.2.4 Fire-fighting equipment signs (FES) — Use and location of fire-fighting equipment

Fire-fighting equipment signs are used to indicate the exact location of the fire-fighting equipment, the type of equipment and any instructions for its effective and safe use.

4.2.5 Prohibition signs (PSS) — Prohibited actions

Prohibition signs are used to restrict or prohibit the movement and actions of persons.

4.2.6 Warning signs (WSS) — Identification of hazards

Warning signs are used to warn persons of possible dangerous conditions and hazards and risks that exist on board a ship.

4.2.7 Mandatory action signs (MSS) — Mandatory notices and instructions

Mandatory action signs are used to instruct persons of a specific course of action that shall be followed.

4.3 Fire control plan signs

Fire control plan signs (FCS) are used to provide specific information to qualified shipboard and outside personnel on the use of specialized safety and fire protection equipment on board ship. See Clause 10 for further requirements.

5 Design of shipboard safety signs

5.1 General

5.1.1 Shipboard safety signs shall communicate the intended safety information by the use of one or more of the principles described in 5.2 to 5.10. Designers shall combine these principles to give the essential details of the specific safety message needed according to the type of safety sign required.

5.1.2 The colour and shape used for safety signs shall comply with ISO 3864-1 and the safety sign shall meet the design criteria of ISO 3864-3.

5.1.3 Safety signs that are required to convey specific safety meanings on board ship shall be taken from ISO 24409-2. In cases where a needed safety message is not covered by safety signs in ISO 24409-2, designers shall check safety sign catalogues from ISO, such as ISO 7010, for the existence of appropriate signs or symbols before designing a new safety sign.

NOTE   Designers of new safety signs are encouraged to seek their inclusion in ISO 7010 by application to ISO/TC 145/SC 2.

5.2   Safety messages

A safety sign shall be used to convey only one safety message as follows:

a)   a prohibition sign shall indicate only what or who is prohibited;

b)   a mandatory sign shall indicate only what action is required;

c)   a warning sign shall indicate only the nature of the warning;

d)   a sign for means of escape, emergency equipment, and life-saving systems and appliances shall indicate only the safety action, the location of the equipment and appliances, or the first aid facility, or escape possibilities and routes; or

e)   a fire-fighting equipment sign shall indicate only the location of the fire-fighting equipment and the type of fire-fighting equipment.

5.3   Meaning, function, and image content

In keeping with the design principles of ISO 3864-3, a safety sign shall be assigned a meaning and a function, and the image content of a graphical symbol used in it shall include sufficient critical details to ensure that the meaning and function are unambiguous (see Figure 1).

Referent — Shipboard assembly station

Function — To indicate the location of an assembly station on board ship

Image content — Five human figures in different sizes standing on a square, four arrows coming from the corners pointing to them
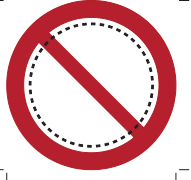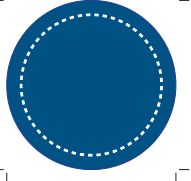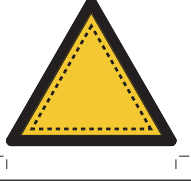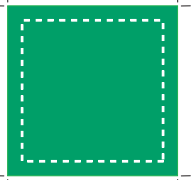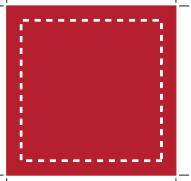
Figure 1 — Example of assignment of meaning to a safety sign (ISO 7010-E032)

5.4   Colour and geometric shape

5.4.1   General

Shipboard safety signs shall be designed using the safety colours, geometric shapes, and specific safety meanings as specified in ISO 3864-1 and as illustrated in Table 1.

Table 1 — Geometric shapes, safety colours and contrast colours for safety signs

Geometric shape[a]	Meaning	Safety colour	Contrast colour	Graphical symbol colour	Examples of use
A circle with a diagonal bar	Prohibition	Red	White	Black	No eating or drinking ISO 7010-P022
A circle	Mandatory action	Blue	White	White	Release falls in launch sequence ISO 7010-M042
An equilateral triangle with radiused outer corners	Warning	Yellow	Black	Black	Warning; Drop (fall) ISO 7010-W008
A rectangle (square or oblong)	Safe condition	Green	White	White	Lifebuoy with line ISO 7010-E041
A rectangle (square or oblong)	Fire-fighting equipment	Red	White	White	Fire monitor ISO 7010-F015
[a] The dotted line represents the exclusion zone outside of which graphical symbols shall not reside. See ISO 3864-3.					

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ISO 24409-1:2020
https://standards.iteh.ai/catalog/standards/sist/c0672a1e-d230-453b-ab69-
a75eaecf45b3/iso-24409-1-2020

5.4.2   Colour area of the safety sign

With the exception of prohibition signs, graphical symbols and contrast colours shall be of such dimensions that the safety colour remains the predominant colour of the sign. For this purpose, explanatory text should be considered to be part of the safety colour as described in 6.3. For prohibition signs, the safety colour red shall constitute at least 35 % of the area of the sign.