BS ISO 24409-1:2010

BSI Standards Publication

Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings

Part 1: Design principles

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National foreword

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Ships and marine technology — Design, location and use of shipboard safety signs, safety-related 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 —

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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.

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ISO 24409-1 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Lifesaving and fire protection*.

ISO 24409 consists of the following parts, under the general title *Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings*:

— *Part 1: Design principles*

The following parts are under preparation:

— *Part 2: Catalogue*

— *Part 3: Code of practice*

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. This International Standard specifies a system of safety and safety-related 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, this International Standard 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 ISO 17631. However, it is directly applicable to shipboard safety and safety-related signs only, and does not deal with graphical symbols to be used on shipboard plans or documentation.

This part of ISO 24409 spells out general design principles applicable to all types of shipboard safety and safety-related signs. Specific signs will be catalogued in the future ISO 24409-2, and their application on ships will be specified in the future ISO 24409-3.

INTERNATIONAL STANDARD **ISO 24409-1:2010(E)**

Ships and marine technology — Design, location and use of shipboard safety signs, safety-related 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. Although the copies of this document printed by ISO have been produced to correspond (with an acceptable tolerance as judged by the naked eye) to the requirements of ISO 3864-1, it is not intended that these printed copies be used for colour matching. Instead, consult ISO 3864-1, which provides colorimetric and photometric properties, together with, as a guideline, references from colour order systems.

1 Scope

This part of ISO 24409 prescribes general design principles for shipboard safety and safety-related signs, markings, and notices intended to communicate safety-related information to persons on board ships.

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 3864-1, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 3864-3:2006, *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*

ISO 20712-1, *Water safety signs and beach safety flags — Part 1: Specifications for water safety signs used in workplaces and public areas*

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.

3.1
determinant
graphical symbol used as a common element within a series of graphical symbols (e.g. flames for a fire safety sign)

3.2
graphical symbol
visually perceptible figure with a particular meaning used to transmit information independently of language

3.3
mimic sign
sign which indicates the "you are here" position and incorporates a safety notice listing appropriate actions to be taken in an emergency

NOTE "Mimic sign" has the same meaning as "simple mimic plan" referred to in SOLAS regulation II-2/13.7.2.2, and the cabin placard referred to in IMO Resolution A.752(18).

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

NOTE The term "photoluminescent sign" is used in this part of ISO 24409 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 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, gives a particular safety message

NOTE Examples of safety signs in this part of ISO 24409 not shown with the ISO 7010 registration number are not currently standardized in ISO 7010.

3.8
safety-related sign
signs, markings and notices, other than **safety signs** (3.7), that convey safety information to passengers and crew

3.9
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 safety-related signs are intended to communicate safety information to passengers, visitors, associated crew and 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 4.3.1 and 4.3.2. Individual signs in these categories will be catalogued in the future ISO 24409-2.

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

4.2 Safety signs

4.2.1 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.

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

Emergency equipment signs are safe condition signs 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 safe condition signs 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 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 embarkation stations.

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 Safety-related signs

4.3.1 Mimic signs (SMS)

Mimic signs are used to inform persons of their exact location and to provide specific safety instructions and indicate escape routes in the case of an emergency.

4.3.2 Safety and operating instructions for trained personnel (SIS)

Safety and operating instructions for trained personnel are used to provide specific information to qualified shipboard and outside personnel on the use of specialized safety and fire protection equipment and lifesaving appliances 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 [12] upon its publication. 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/TC 145, such as ISO 7010 and ISO 20712-1, 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 safe condition sign shall indicate only the safety action, the location of the safety equipment, life-saving appliances, or the first aid facility, or escape routes;

e) a fire-fighting equipment sign shall indicate only the location of the fire-fighting equipment or the type of fire-fighting equipment or how it should be used.

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 – Assembly station
Function – To signify the location of an assembly station
Image content – Assembled group of human silhouettes of various sizes centred on a green square with four white arrows each overlaid with a green walking figure pointing toward the assembled group.

Figure 1 — Example of assignment of meaning to a safety sign

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

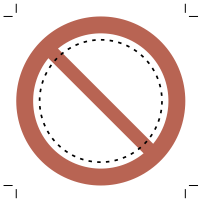
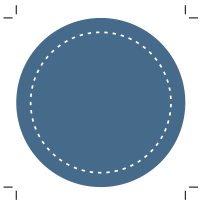
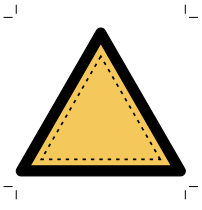
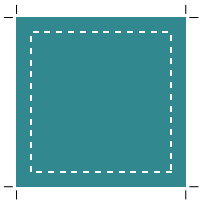
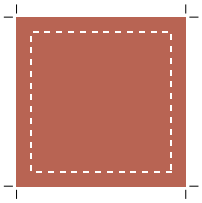
Geometric shape	Meaning	Safety colour	Contrast colour	Graphical symbol colour	Examples of use
A circle with diagonal bar  a	Prohibition	Red	White	Black	 No eating or drinking ISO 7010-P022
A circle  a	Mandatory action	Blue	White	White	 Release lifeboat falls
An equilateral triangle with radiused outer corners  a	Warning	Yellow	Black	Black	 Warning: Drop (fall) ISO 7010-W008

Table 1 (*continued*)

Geometric shape	Meaning	Safety colour	Contrast colour	Graphical symbol colour	Examples of use
A rectangle (square or oblong)  a	Safe condition	Green	White	White	 Lifebuoy with line
A rectangle (square or oblong)  a	Fire-fighting equipment	Red	White	White	 Fire monitor

[a] The dotted line represents the exclusion zone outside of which graphical symbols shall not reside. See ISO 3864-3.

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.

5.5 Graphical symbols

5.5.1 Graphical symbols shall be designed in accordance with ISO 3864-3. The design of a graphical symbol should

a) be simple in order to facilitate comprehension and reproduction,

b) be readily associated with its intended meaning,

c) be based on objects, concepts, activities, etc., or a combination of these, which are reliably identifiable by the target audience,

d) be easily distinguishable from other graphical symbols,

e) contain only those details that contribute to understanding, and

f) take into account the possibility of negation.

5.5.2 Graphical symbols on safety signs shall generally be consistent with the corresponding graphical symbols appearing on safety instructions, notices and plans, except for those graphical symbols specifically for the use of specialist, trained crew members, professional fire fighters, or safety or medical personnel. Graphical symbols shall be designed such that they can be sized appropriately to ensure legibility is

maintained for the safety sign at the required observation distance. After design of the new graphical symbol, it is strongly recommended that an evaluation be carried out of the comprehensibility of the safety sign in the context in which it is to be used, in accordance with ISO 9186-1. The graphical symbol should then be modified if necessary to improve comprehensibility.

5.6 Combination of graphical symbols or graphical symbol elements

If two or more graphical symbols or graphical symbol elements are combined to form a new graphical symbol, the meaning assigned to the new graphical symbol shall be consistent with the meanings of the individual graphical symbols or graphical symbol elements used (see Figure 2). The new graphical symbol should consist of as few component elements as possible and the meaning should be unambiguous. Safety signs in which two or more graphical symbols or graphical symbol elements have been combined to produce a new graphical symbol shall be considered as new safety signs.

NOTE Examples of the combination of graphical symbols to form a new graphical symbol are graphical symbols which include a determinant (see 5.7 and Figures 2 and 3).

Referent – Eyewash station ISO 7010-E011
Function – To indicate the location of an eyewash station
Image content – Eye above running water coming out of a shower head with first aid cross (determinant).

Figure 2 — Example of multiple graphical symbols and a determinant

5.7 Determinants

Determinants may optionally be used in combination with other graphical symbols to improve the comprehension of a safety sign, in accordance with ISO 3864-3. Any existing determinant shall be used without modification of its meaning. Examples of determinants are shown in Figure 3, and examples of the use of a determinant are shown in Figures 2 and 4.

NOTE Determinants can be particularly useful for signs intended to be understood by untrained persons.

Figure 3 — Examples of determinants

Referent – Wheeled fire extinguisher
Function – To show the location of a semi-portable fire extinguisher
Image content – Vertical red cylinder in white outline with white band mounted on wheeled hand cart with determinant (flames) at the right hand side.

Referent – Stretcher ISO 7010-E013
Function – To indicate the location of a stretcher
Image content – Human figure outlined on a white stretcher, first aid cross (determinant).

Figure 4 — Examples of safety signs using determinants

5.8 Prohibition

5.8.1 Prohibition shall be indicated only by use of a prohibition sign with a negation bar. No other form of negation shall be used. In particular, crosses shall not be placed over graphical symbol elements.

5.8.2 The negation bar shall be uninterrupted from top left to bottom right. The graphical symbol shall be designed such that the negation bar does not obscure critical detail.

5.9 Borders

5.9.1 Except for warning signs, borders on safety signs shall be in the safety contrast colour, and shall be photoluminescent for photoluminescent signs. The border shall be not less than 5 mm in width.

5.9.2 For warning signs, a border of yellow or white shall be provided outside the black outline.

5.10 Arrows

Arrows can be added to show actual or potential movement or location of equipment. Where arrows are used to depict different types of movement, forces or pressure, the arrow shall be in one of the forms in relation to the specific meaning given in Table 1 of ISO 3864-3:2006. See also Clause 9.

6 Supplementary signs and combination signs

6.1 General

One or more supplementary signs may be used in conjunction with a safety sign to assist in the comprehension of the safety sign and to provide supplementary information to the safety sign extending the referent's communicated safety message or to expand significantly the amount of safety information associated with the safety sign. Supplementary signs are displayed in supplementary safety sign panels that when arranged in the layouts given in Clauses 6 and 7 produce a combination sign.

6.2 Combination signs

6.2.1 A combination sign shall only have one safety message and all supplementary signs used with a safety sign shall refer to the safety meaning of that sign.

6.2.2 Multiple signs shall be used for more than one safety message. See Clause 8.

6.3 Colour of supplementary signs

6.3.1 Supplementary signs are in the safety colour and contrast colour of the safety sign and can be in the positive or the negative expression. White with contrast colour black is used for graphical pictorial panel supplementary signs.

6.3.2 A recognized colour coding system, such as exists for types of fire extinguishers and shown in Figure 8, may be used as a header for the corresponding identification description panel supplementary sign. The colour code for DANGER WARNING CAUTION from ISO 3864-2 for signal word panel supplementary signs may also be used.

6.4 Text for supplementary signs

Supplementary or explanatory text shall use Helvetica, Arial, or other similar font without serif for letters of the Roman alphabet, and shall be in a suitable language or languages, taking into account the service of the ship and the requirements of the IMO ISM Code with regard to the working language(s) of the ship. Letter height shall be sized appropriately to ensure legibility at the required observation distance. Text may be either upper case when used to be conspicuous as a header or notice, or upper or lower case for objects, and upper and lower case for descriptions or instructions in order to improve readability.

6.5 Types of supplementary sign

6.5.1 Supplementary signs used in combination with safety signs to produce combination signs are as follows:

a) explanatory text panel supplementary sign;

b) supplementary text panel supplementary sign;

c) identification description panel supplementary sign;

d) location indicator panel supplementary sign;

e) management information panel supplementary sign;

f) instruction information/safety notice panel supplementary signs;

g) graphical (hazard or risk consequence) pictorial panel supplementary signs;

h) signal word/header panel supplementary sign;

i) directional arrow panel supplementary sign.

6.5.2 An explanatory text panel supplementary sign states the meaning or the referent of the safety sign and is used when the safety sign has not reached sufficient comprehension alone or has not been tested according to ISO 9186-1.

Figure 5 — Examples of combination signs using explanatory text panel supplementary signs (with and without internal borders)

6.5.3 A supplementary text panel supplementary sign provides additional and complementary information to the safety sign in the form of text or numerals and extend the communicated safety message beyond the meaning/referent.

Figure 6 — Examples of supplementary text panel supplementary signs

1)

Figure 7 — Examples of combination signs using supplementary text panel supplementary signs (without internal border)

6.5.4 An identification description panel supplementary sign provides precision concerning the nature of equipment.

Figure 8 — Examples of combination safety signs using identification description panel supplementary signs (with and without internal borders)

6.5.5 A location indicator panel supplementary sign provides information as to the location of equipment relative to the safety sign.

Figure 9 — ISO 7010-F002 example of combination signs using location indicator panel supplementary signs (with internal borders)

1) ISO 7010-F001 with supplementary text.

6.5.6 A management information panel supplementary sign provides information about the geographical location or the particular site of the equipment.

Figure 10 — Examples of combination signs using management information panel supplementary signs (with internal borders)

6.5.7 An instruction information/safety notice panel supplementary sign provides a series of instructions related to the safety sign or location.

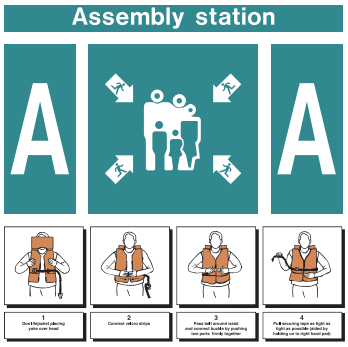


Figure 11 — Example of a combination sign using explanatory text panel, management information panel and instruction information panel supplementary signs (with internal borders)

6.5.8 A graphical (hazard or risk consequence) pictorial panel supplementary sign in white with contrast colour black provides additional risk or hazard information not provided by the safety sign to reinforce the safety messages.

Figure 12 — Example of a combination sign consisting of ISO 7010-W018 with a graphical (hazard or risk consequence) pictorial panel supplementary sign and supplementary text supplementary signs

6.5.9 A signal word panel supplementary sign is used as a header to a safety sign for hazards and is given in ISO 3864-2. In a similar format other signal word panel supplementary signs may be used as headers for safety signs such as mandatory instructions and safety and evacuation plans. The supplementary sign can be with or without the general safety sign.

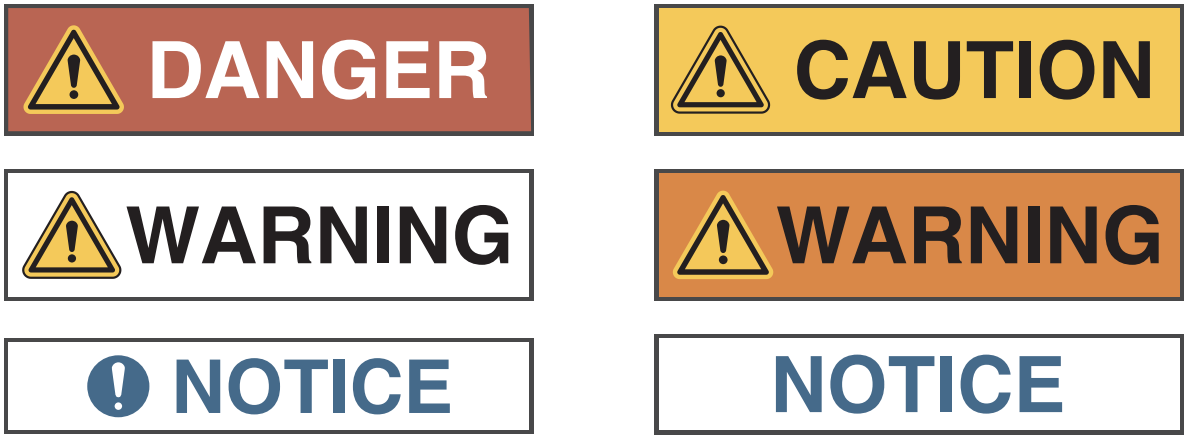


Figure 13 — Examples of signal words used with and without safety signs

6.5.10 A directional arrow panel supplementary sign is used to indicate the direction of movement of people or the direction of the location of the place and is used to design combination signs for escape route and evacuation.

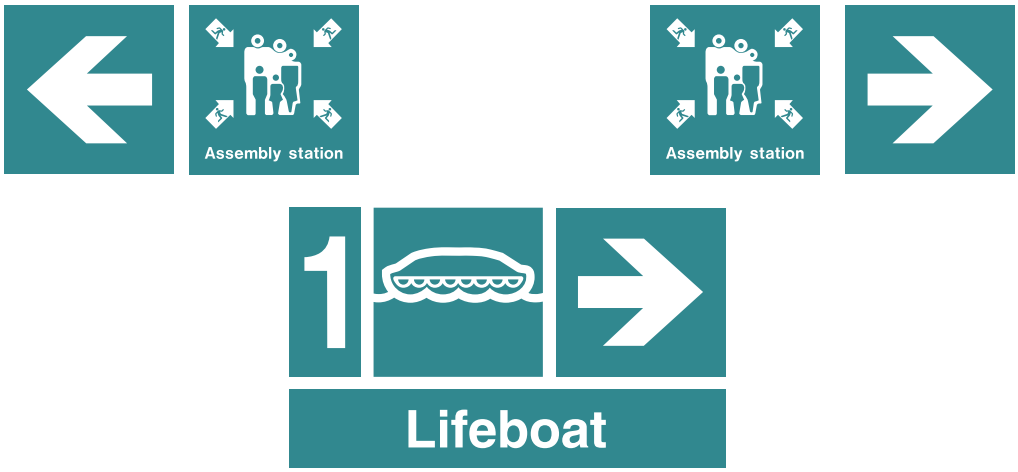


Figure 14 — Examples of combination signs using directional arrow supplementary signs (with internal borders)

7 Layout of combination signs

7.1 General

The general design principles for layouts of combination signs are given in ISO 3864-1. Shipboard safety signs frequently use more than one supplementary sign type as described in Clause 6.

7.2 Borders

Combination signs can be designed as a displayed array of separate supplementary sign panels and the safety sign panel with borders or as a display of panels with no internal borders on a single sign board.

7.3 Arrangements

The examples given in Figures 15 to 17 show commonly used arrangements.

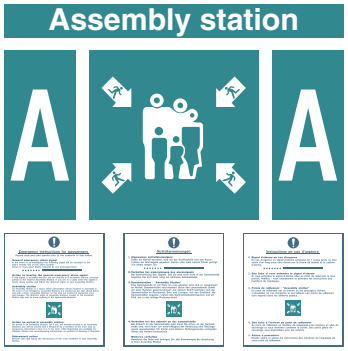


Figure 15 — An example of an instruction information panel supplementary sign

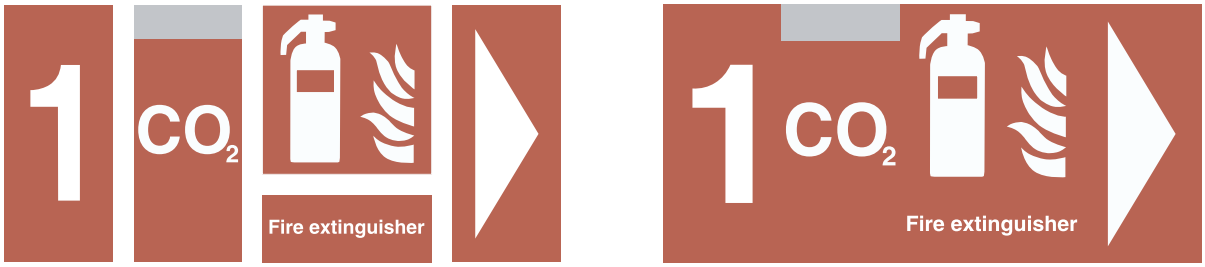


Figure 16 — ISO 7010-F001 example of fire extinguisher combination signs using explanatory text panel, identification panel and directional arrow right supplementary signs with and without internal borders

Figure 17 — An example of a combination sign with explanatory text panel and directional arrow right with internal borders and without internal borders

8 Multiple signs

8.1 A multiple sign, which is a sign comprising one or more safety signs and one or more supplementary signs on a single rectangular carrier, shall conform to the following requirements:

a) adjacent edges of the signs shall be the same size; internal borders may be omitted; and

b) in the case of multiple signs used to convey directional messages, each multiple sign shall convey only one directional message.

8.2 Multiple signs may incorporate combination or related safety signs, as illustrated in the example in Figure 18.

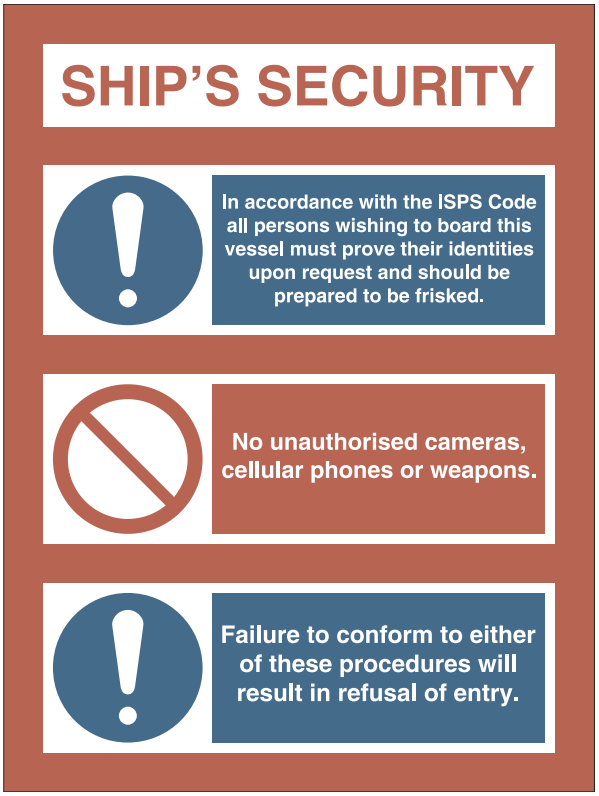


Figure 18 — Example of a multiple sign incorporating two ISO 7010-M001 mandatory safety signs with supplementary text panels and an ISO 7010-P001 prohibition safety sign with a supplementary text panel

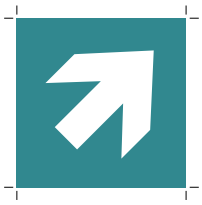
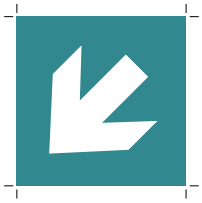
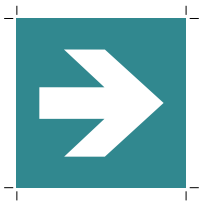
9 Use of arrows

Arrows may be used to convey directional information in safety signs, either as part of the same sign or immediately adjacent to it. Arrows shall never be used except in conjunction with a safety sign. Directional arrows shall be placed above or below or to the left or right of the safety sign. Table 2 provides examples of the use of different types of arrows to convey different safety messages when used in various types of safety signs.

NOTE Upon its publication, refer to Annex A of ISO 24409-3:—[2)] for illustrative examples of typical use and placement of directional arrows to mark escape routes.

2) Under preparation.

Table 2 — Examples of the meaning conveyed by a particular arrow when used only in conjunction with a safety sign

Sign	Meaning (as viewed from in front of sign)
	1. Progress up to the right (indicating change of level). 2. Progress forward and across to the right from here when suspended within an open area.
	1. Progress down to the left (indicating change of level).
	1. Progress forward from here (indicating direction of travel). 2. Progress forward and through from here; when sign is sited above a door (indicating direction of travel). 3. Progress forward and up from here (indicating change of level).
	1. Progress to the right from here (indicating direction of travel).
 	Location of the fire-fighting equipment is to the right. Location of the life saving system or appliance is to the right.
 	Location of the fire-fighting equipment is below. Location of the life saving system or appliance is below.

10 Safety-related signs and safety notices

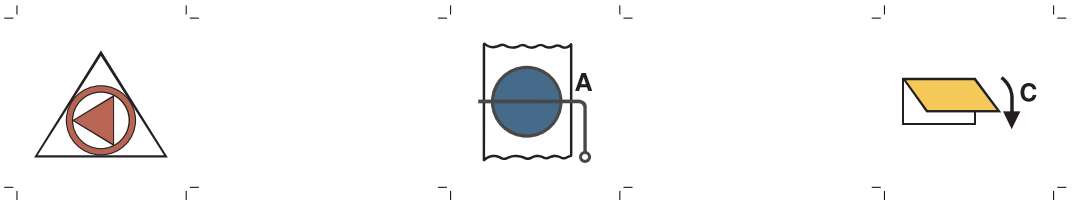
10.1 Safety-related signs may be used to communicate the same safety meaning as those shown on fire control plans as standardized in ISO 17631. They shall be identical in shape, form and colour; however, line thickness and detail may be changed or simplified to improve clarity; see examples as shown in Figure 19.

NOTE The most commonly used safety-related signs adapted from ISO 17631 will be standardized in the future ISO 24409-2.

10.2 Safety-related signs beyond the scope of 10.1, insofar as it is practicable, can incorporate safety signs from ISO 7010, ISO 20712-1, the future ISO 24409-2 and this part of ISO 24409. Text in safety-related signs and safety notices shall use Helvetica medium, Arial, or other similar font without serif for letters of the Roman alphabet, in minimum 10 point size, and shall use upper and lower case. The minimum distance for reading a text shall not be less than 0,5 m.

10.3 In addition to listing appropriate actions to take in an emergency, a “mimic sign” shall indicate the “you are here” position. The “you are here” position shall be specified by deck and position on the deck. Escape routes shall be marked by arrows. A mimic sign provided on the back of a passenger cabin door shall include instructions for use of low-location lighting as specified in ISO 15370. Samples of typical mimic signs with the “you are here” banner for use in public spaces and on cabin doors are contained in Annex A.

NOTE A “you are here” sign in a public space that does not provide safety information is not a mimic sign.



a) Location of emergency fire pump remote control

b) Location of fire damper in an accommodation area

c) Location of closing device for ventilation device inlet or outlet in a cargo area

Figure 19 — Examples of safety-related signs adapted from ISO 17631

11 Safety markings

Safety markings may be used in accordance with ISO 3864-1 to mark areas with relevant safety information. Examples of commonly used safety markings and their meanings are illustrated in Table 3.

Table 3 — Common safety marking and their meanings

Colours	Meaning
Safety colour red and contrast colour white 	To indicate prohibited areas, or location of fire-fighting equipment
Safety colour yellow and contrast colour black 	To indicate the location of hazards, e.g. obstacles or changes of level, or slippery surfaces
Safety colour green and contrast colour white 	To indicate safe areas or the location of emergency equipment

12 Illumination and contrast of safety signs, safety-related signs and safety notices

12.1 Shipboard safety signs, safety-related signs, markings and notices shall communicate the intended message at all times, i.e. they shall be visible, readable and understandable under normal and emergency lighting conditions.

12.2 Photoluminescent FES, EES, LSS and MES signs shall be required when the signs are not illuminated by the emergency lighting system or in areas where emergency lighting is not required. Photoluminescent signs shall have the same performance as any installed photoluminescent low-location lighting according to ISO 15370 or meet the luminance requirement of ISO 3864-4.

12.3 Signs that are designed to be externally illuminated by the normal ship's ambient lighting or internally illuminated only under the emergency lighting conditions shall have surface properties suitable to reflect the light uniformly across the surface without glare. The luminance factor and colour shall be according to ISO 3864-4.

12.4 The light source of an internally illuminated sign shall provide a luminance and luminance contrast appropriate to its environment without producing glare. Internally illuminated signs shall meet the performance criteria of ISO 3864-4. Internally illuminated safety signs shall be illuminated at all times either by the internal source on both main and emergency power or under the ship's ambient lighting conditions under normal lighting conditions and by emergency power under emergency lighting conditions.

13 Durability and photometric performance of signs

Shipboard signs, markings and notices shall be designed using materials suitable for their intended environment. Manufacturers shall clearly state suitability for interior or exterior use. All signs intended for exterior use shall be protected against deterioration by UV light and humidity. ISO 17398 shall be used to specify durability characteristics and to define photometric properties required for shipboard safety signs.

14 Marking of signs

Shipboard signs shall be marked with the manufacturer's name or trade mark, shall be coded for part number identification and, if intended for internal use only, shall be marked accordingly. For photoluminescent signs, the part number shall be traceable to the manufacturer's luminance decay specifications.

Annex A
(informative)

Examples of typical mimic signs

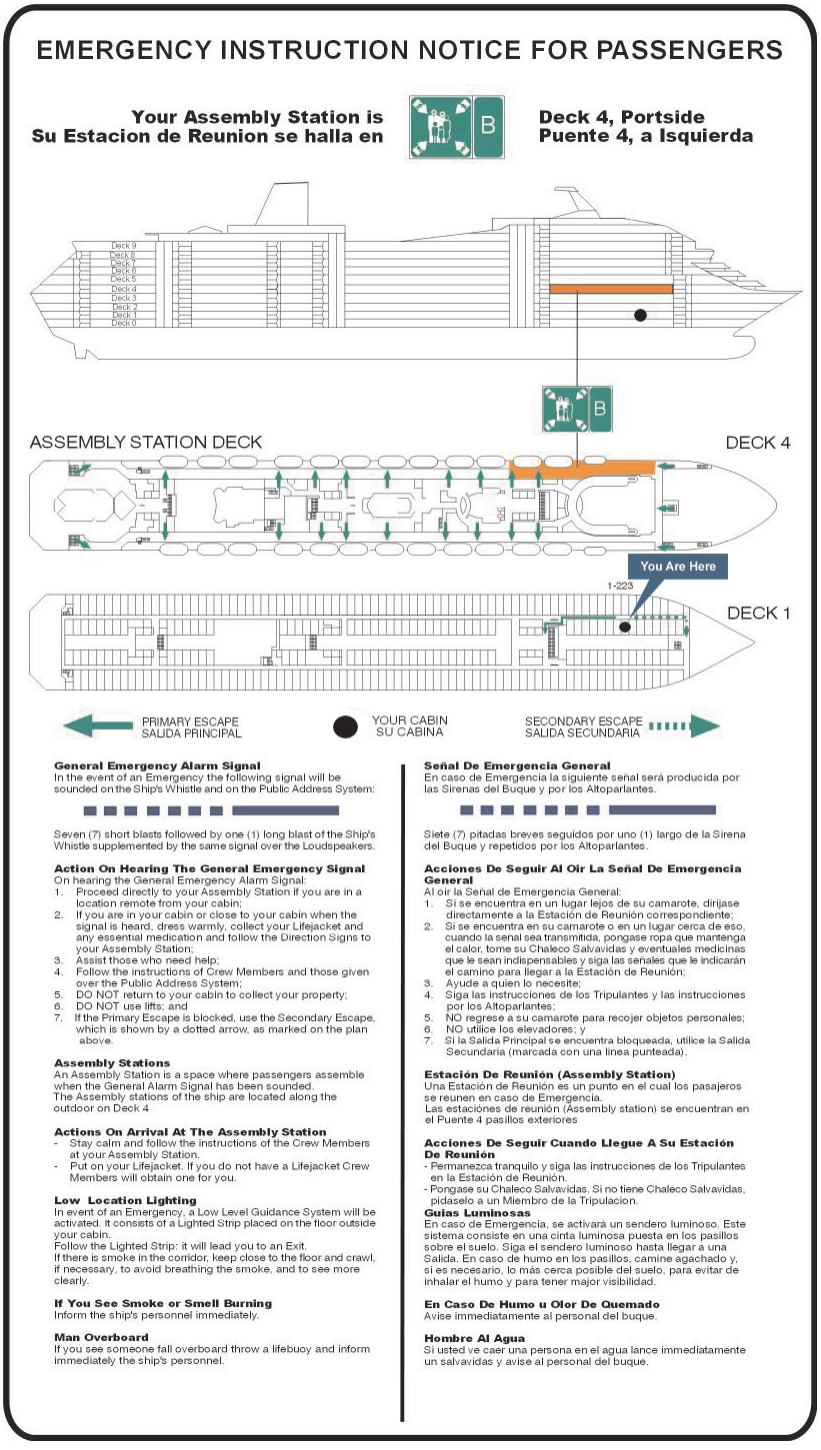


Figure A.1 — Bilingual passenger cabin door mimic sign (cabin location shown on deck plan view)

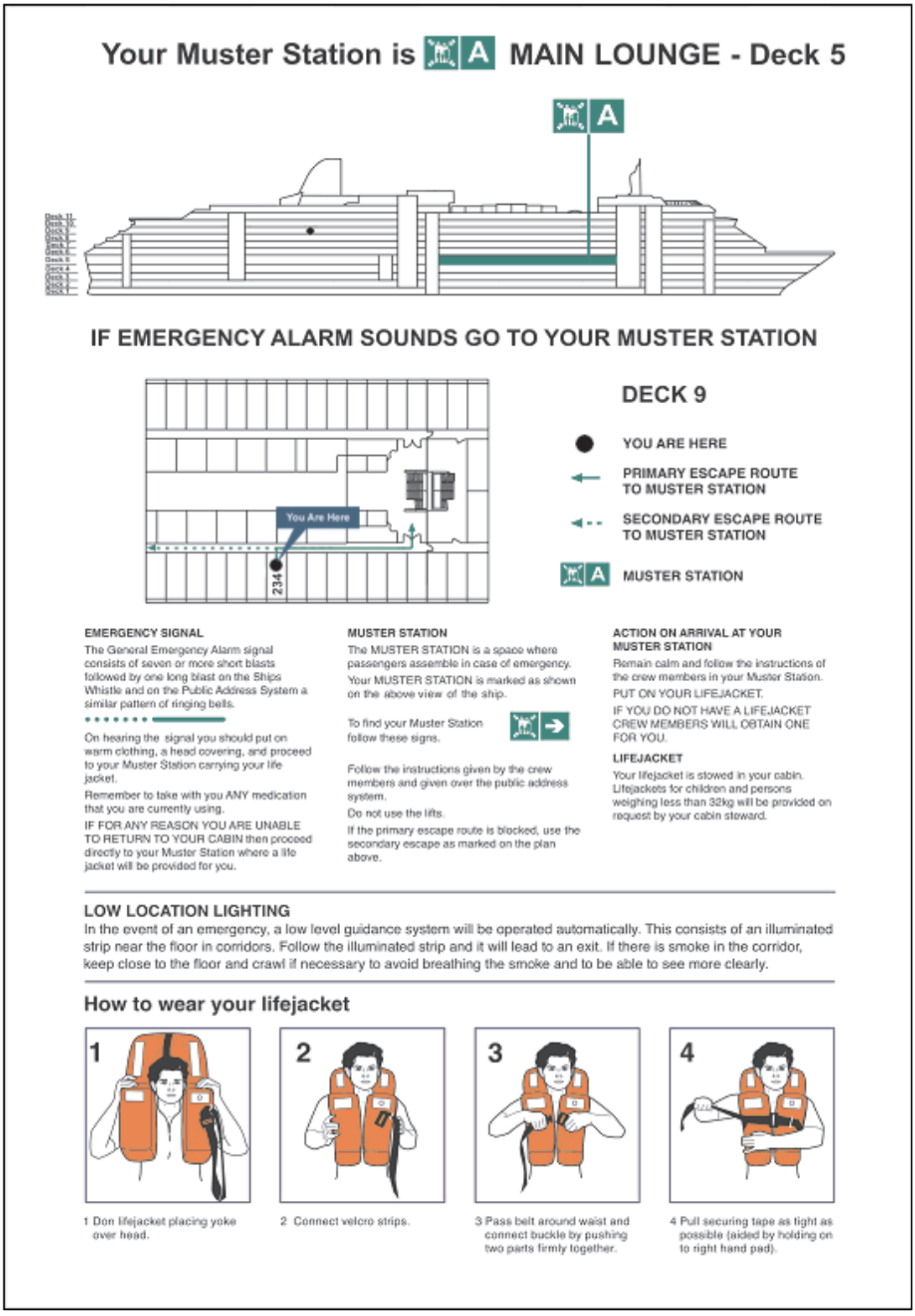


Figure A.2 — Passenger cabin door mimic sign with lifejacket donning instructions (cabin location shown in main vertical zone)

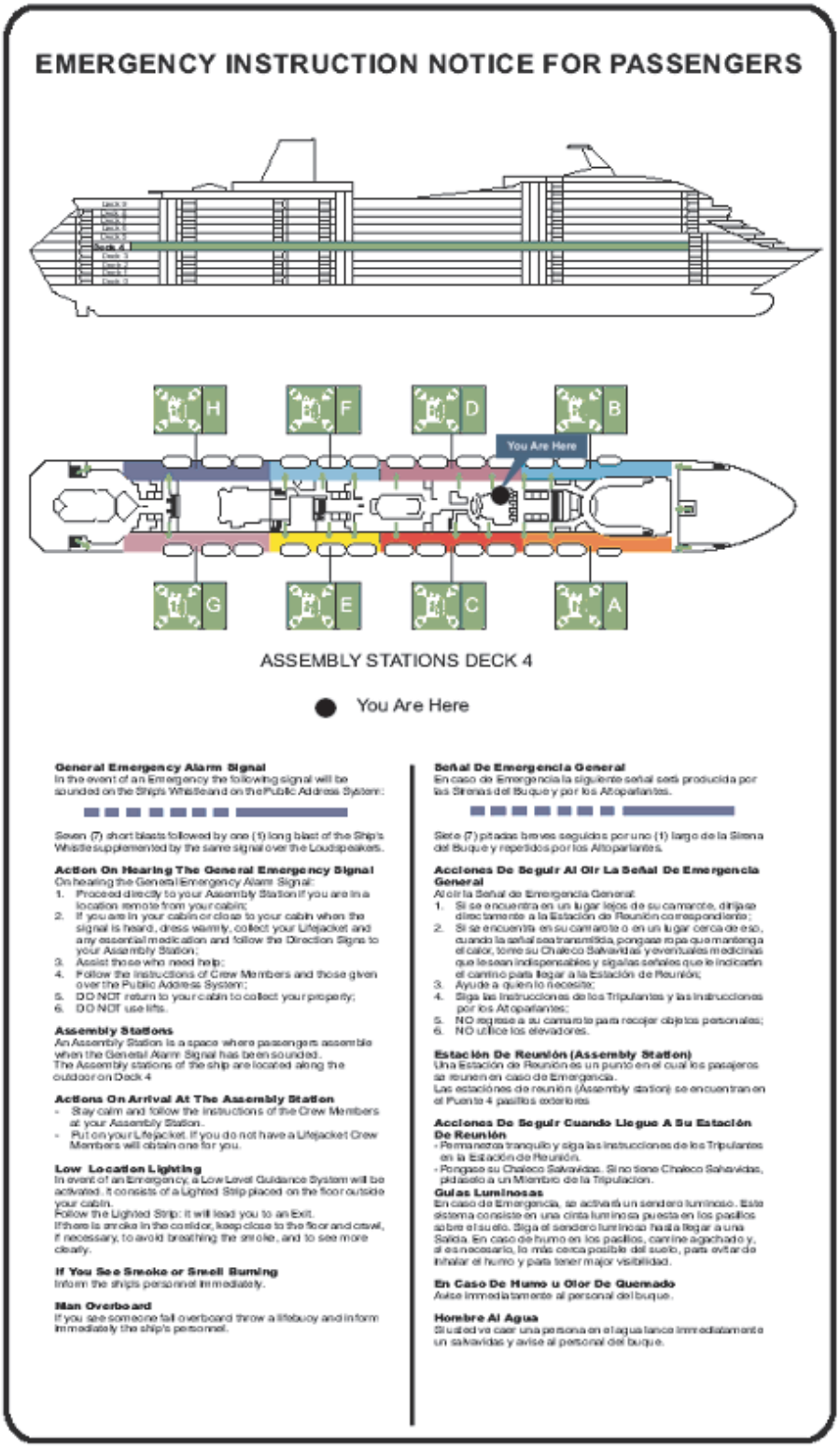


Figure A.3 — Bilingual public space mimic sign

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[5] IMO International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as amended

[6] ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

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[13] ISO 24409-3:—[3)], *Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings — Part 3: Code of practice*

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