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Cranes — Safety signs and hazard pictorials — General principles

Appareils de levage à charge suspendue — Signaux de sécurité et de danger — Principes généraux

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
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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 96, Cranes, Subcommittee SC 6, Mobile cranes.

Annexes A to E of this International Standard are for information only.

This **second** edition cancels and replaces the **first** edition (ISO 13200:1995), which has been technically revised.

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

- Several hazard description pictorials and hazard avoidance pictorials were relocated to the correct sections in the document.
- Several safety signs in the annexes were updated to show the correct hazard description pictorial with the correct hazard avoidance pictorial.

Introduction

ISO 13200 was developed by TC 96/SC 6 to provide a truly International Standard for safety signs and hazard pictorials used on cranes. Safety signs are used internationally to alert the equipment operator to hazards that may be encountered in the use and maintenance of the equipment. These hazards are typically created by functional components, where the hazards cannot be designed out or guarded. These hazards are often machine-dependent and are depicted by a specific safety sign rather than a general or generic approach.

The provisions of ISO 13200 cover safety signs that satisfy legal requirements in the European Community, in the United States, and in other Parts of the world. Two of the formats included in ISO 13200 are consistent with prEN 5099-1 and EC Directive 89/392/EEC. The other two formats in ISO 13200 are consistent with the USA national Standard on safety signs (ANSI Z535.4) and meet the requirements of American products liability law.

A selection of hazard pictorials and guidelines for the development of new hazard pictorials are included in informative annexes. Additional hazard pictorials may be added to the annexes at a later date, and other pictorials may be developed and used as appropriate.

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Cranes — Safety signs and hazard pictorials — General principles

1 Scope

This International Standard establishes general principles for the design and application of safety signs and hazard pictorials permanently affixed to cranes as defined in ISO 4306-1. This International Standard outlines safety sign objectives, describes the basic safety sign formats, specifies colors for safety signs, and provides guidance on developing the various Panels that together constitute a safety sign.

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 4306-1:2007, *Cranes — Vocabulary — Part 1 : General*

3 Objectives of safety signs

3.1 The objectives of a safety are to

- Alert persons to an existing or potential hazard
- Identify the hazard
- Describe the nature of the hazard
- Explain the consequences of potential injury from the hazard
- Instruct persons about how to avoid the hazard.

3.2 In achieving these objectives, a safety sign should be distinctive on the equipment, should be in a clearly visible location, should be protected to the greatest extent practicable from damage and obliteration, and should have a reasonably long life expectancy.

3.3 Safety signs and hazard pictorials can be located on the machine or in operating service instruction manuals. Safety signs and hazard pictorials located on the machine shall be located near the location of the hazard or the control area to prevent the hazard.

3.4 Care shall be taken to prevent excessive need/use of safety signs and hazard pictorials on the machine, because overuse can reduce their effectiveness.

NOTE Experience has indicated that the effectiveness of safety signs and hazard pictorials is reduced when they begin to exceed approximately 7 in number.

3.5 Safety signs and hazard pictorials can be used in operator and service instruction manuals to highlight areas requiring special care. Their use in manuals is not subject to the recommendation in clause 3.4.

4 Formats for safety signs

4.1 A safety sign is composed of a border surrounding two or more rectangular panels that convey information about hazards associated with operation of a product.

4.2 There are two standard formats for safety signs:

4.2.1. a two-panel safety signs, consisting of:

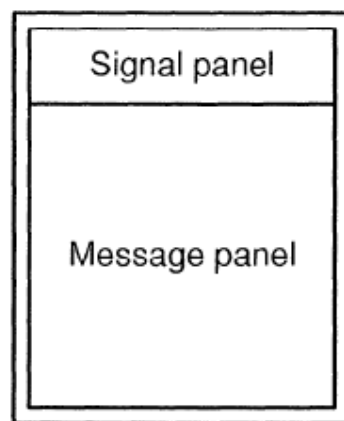
- a signal panel and message panel (see 4.4) or;
- a pictorial panel and message panel (see 4.5) or;
- two pictorial panels (see 4.6).

4.2.2. a three-panel safety signs, consisting of:

- a signal panel, pictorial panel, and message panel (see 4.7).

4.3 A vertical configuration is usually preferred, although a horizontal configuration is acceptable. Final choice of safety sign format and configuration should be determined by whichever alternative is judged to communicate most effectively, by the geographical and language areas where the product will be marketed, by legal requirements, and by the space available for the safety sign.

4.4 **Two-panel safety signs consisting of a signal panel and message panel.** See figure 1. The signal panel contains the safety alert symbol and one of the three signal words (CAUTION, WARNING, DANGER). The message panel contains a text message that describes the hazard, explains the consequences of exposure to the hazard, and instructs how to avoid the hazard.



Vertical configuration

Figure 1 — Two-panel safety signs consisting of a signal panel and message panel

4.5 Two-panel safety signs consisting of a pictorial panel and message panel. See figure 2. The pictorial panel contains either a hazard description pictorial enclosed by the safety alert triangle or the safety alert symbol alone. The message panel contains a text message that describes the hazard, explains the consequences of exposure to the hazard, and instructs how to avoid the hazard.

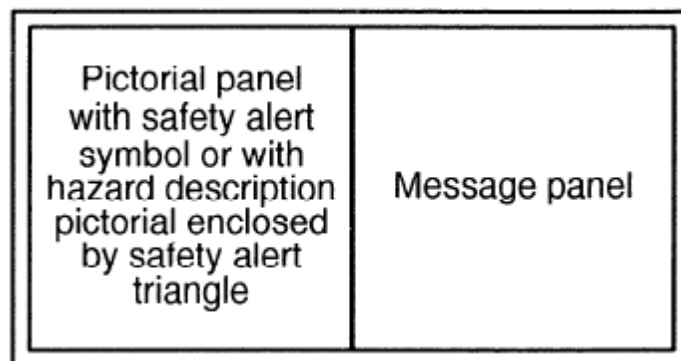
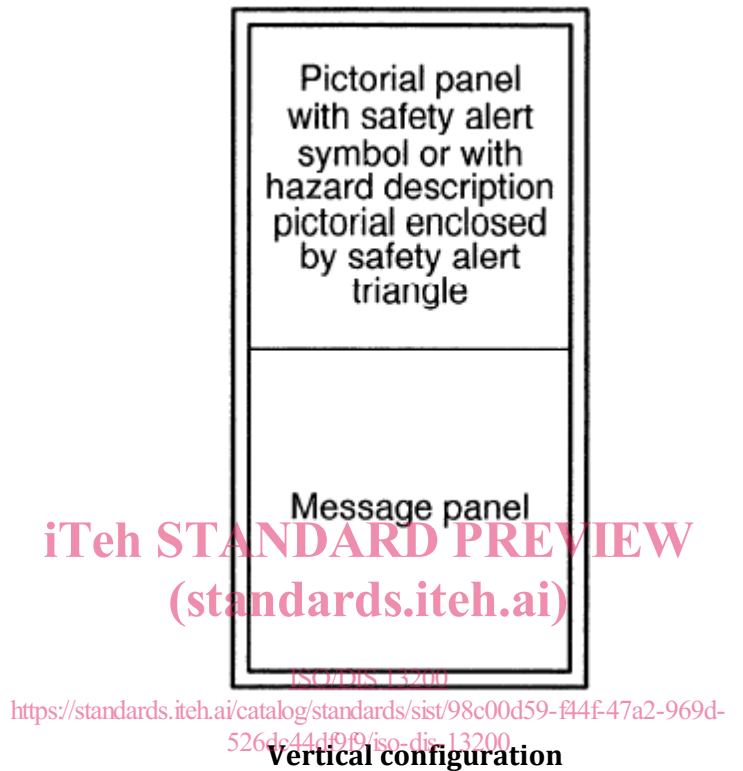
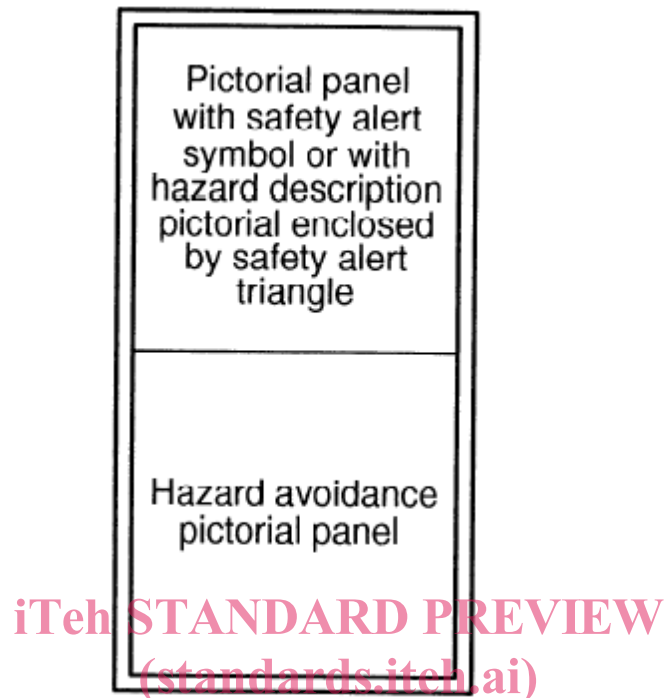


Figure 2 — Two-panel safety signs consisting of a pictorial panel and message panel

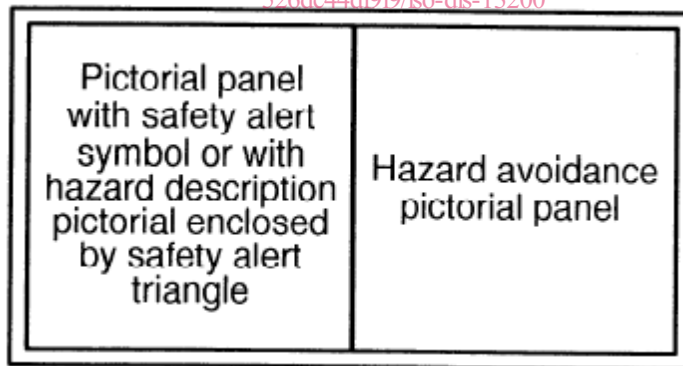
4.6 Two-panel safety signs consisting of two pictorial panels. See figure 3. The first pictorial panel is the hazard description pictorial panel and contains either a hazard description pictorial enclosed by the safety

alert triangle or the safety alert symbol alone. The second pictorial Panel is the hazard avoidance pictorial panel and contains a hazard avoidance pictorial.



Vertical configuration

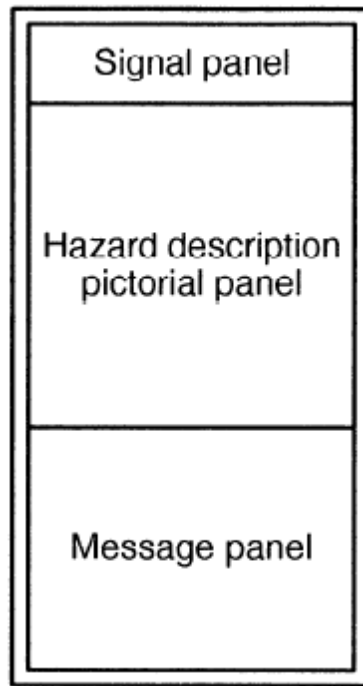
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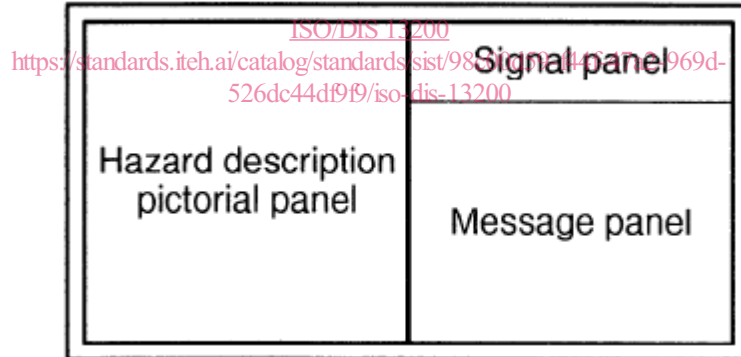
Horizontal configuration

Figure 3 — Two-panel safety signs consisting of two pictorial panels

4.7 Three-panel safety sign consisting of a signal panel, pictorial panel, and message panel. See figure 4. The signal panel contains the safety alert symbol and one of the three signal words. The pictorial panel contains a hazard description pictorial or, in some cases, a combined hazard description and hazard avoidance pictorial. The message panel contains a text message that describes the hazard, explains the consequences of exposure to the hazard, and instructs how to avoid the hazard.



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Vertical configuration
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Horizontal configuration

Figure 4 — Three-panel safety signs consisting of a signal panel, pictorial panel, and message panel

4.8 Variations on these Standard formats may be appropriate for some situations.

5 Signal panel

5.1 The signal panel of a safety sign contains the safety alert symbol and one of the three signal words.

5.2 The safety alert symbol for safety signs that contain one of the signal words shall be as shown in figure 5 and shall be used for safety signs that contain one of the three signal words.



Figure 5 — Safety alert symbol for safety signs that contain a signal word

5.3 Safety signs may be classified according to the relative seriousness of the hazard Situation by use of the Signal word.

5.3.1 There are three signal words: DANGER, WARNING, and CAUTION. The signal word alerts viewers to the existence and relative seriousness of a hazard.

5.3.2 The three signal words are reserved for personal injury hazards. Choice of the signal word is based upon an estimate of the likelihood of exposure to the hazard and of the probable consequences of exposure to the hazard.

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- **DANGER.** The signal word DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Safety signs identified by the signal word DANGER should be used sparingly and only for those situations presenting the most serious hazards.
- **WARNING.** The signal word WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Hazards identified by the signal word WARNING present a lesser degree of risk of injury or death than those identified by the signal word DANGER.
- **CAUTION.** The signal word CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events that could lead to personal injury.

6 Pictorial panels

6.1 A pictorial panel of a safety sign contains a hazard description pictorial, a hazard avoidance pictorial, or the safety alert symbol alone.

6.2 There are two basic types of pictorials for use on safety signs: hazard description and hazard avoidance.

- **Hazard description pictorial.** A hazard description pictorial presents a visual description of the hazard and, in general, the consequences of not avoiding the hazard.

— **Hazard avoidance pictorial.** A hazard avoidance pictorial presents visual instructions on how the hazard should be avoided.

6.2.1 A well developed hazard description pictorial should clearly identify the hazard and portray the potential consequences of a failure to follow instructions. A well developed hazard avoidance pictorial should clearly identify the actions necessary to avoid interaction of persons with the hazard.

6.2.2 It is possible that both types of pictorial may be combined into a single pictorial, although this generally is quite difficult. Most often, a hazard description pictorial is used. A hazard avoidance pictorial may be used to supplement or to replace the text message.

6.2.3 In a few cases, a pictorial may address more than one hazard. In general, however, avoid addressing more than one hazard by a single pictorial unless the hazards are closely related.

6.3 On two-panel safety signs, the hazard description pictorial shall be enclosed by the safety alert triangle to identify the sign as a safety sign. The safety alert triangle is shown in figure 6.



Figure 6 — Safety alert triangle

6.4 If no hazard description pictorial is used inside the safety alert triangle, an exclamation mark is placed within the triangle to create the outline safety alert symbol shown in figure 7.



Figure 7 — Outline safety alert symbol

7 Message panel The message panel of a safety sign contains a text message that, either alone or in combination with a pictorial panel, describes the hazard, explains the potential consequences of exposure to the hazard, and instructs how to avoid the hazard.

7.1 If a hazard description pictorial adequately portrays the hazard and its potential consequences, one or both of these elements may be deleted from the message panel. If a hazard avoidance pictorial adequately portrays how to avoid the hazard, that element may be deleted from the message panel. If no pictorial is used, the message panel must convey all three elements. When possible, the message should be written in simple sentences not exceeding a few lines.

8 Languages, translations, and multi-language safety signs

8.1 Safety signs that contain a signal word or a text message should be in one of the languages of the country where the product is to be used. Safety signs without text obviously require no language translation. However, products that use no-text safety signs require both of the following:

- A special safety sign that instructs the operator to consult the operator's manual for an explanation of the safety signs applicable to that product.
- Appropriate text messages, corresponding to the no-text safety signs, printed in the operator's manual in the appropriate language.

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8.2 Figure 8 Shows, as an example, a four-language “Read Operator's manual” safety sign in English, French, German, and Dutch. Other language combinations, or a single language, are also permitted, so long as the safety sign includes the language of the geographical area where the product is to be used.

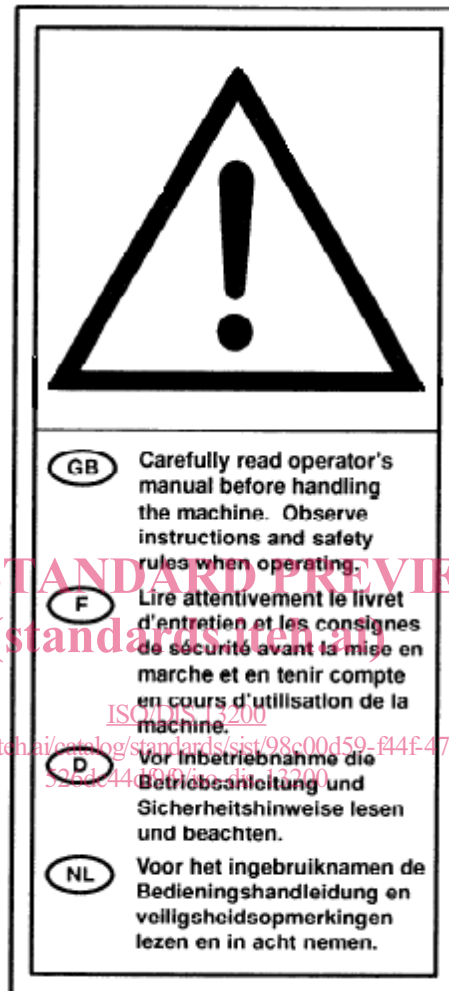


Figure 8 — Example of four-language “Read operator’s manual” safety sign for use on products with no-text safety signs