INTERNATIONAL STANDARD

ISO 3864-3

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Graphical symbols — Safety colours and safety signs —

Part 3: Design principles for graphical symbols for use in safety signs

Symboles graphiques — Couleurs de sécurité et signaux de sécurité — Partie 3: Principes de conception des symboles graphiques utilisés dans les signaux de sécurité

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Foreword

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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 3864-3 was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 2, *Safety identification, signs, shapes, symbols and colours*.

ISO 3864 consists of the following parts, under the general title *Graphical symbols — Safety colours and safety signs*:

— *Part 1: Design principles for safety signs in workplaces and public areas*

— *Part 2: Design principles for product safety labels*

— *Part 3: Design principles for graphical symbols for use in safety signs*

Introduction

Graphical symbols in safety signs are used for a wide range of purposes. There is a need to standardize the principles for creating these graphical symbols to ensure visual clarity, to maintain consistency and thereby to improve recognition and comprehension. The principles set forth in this part of ISO 3864 are the design criteria by which graphical symbols are judged for standardization and publication in ISO 7010 (details of the procedures for the standardization of graphical symbols and safety signs can be found at www.iso.org/tc145).

Graphical symbols used in safety signs are not always intuitively understood. Often training needs to take place to inform people about the meaning of the graphical symbol. Such training can take place by including the meaning of the graphical symbol in operation manuals, company bulletins, training program materials, as well as using supplementary text with the safety sign.

Graphical symbols — Safety colours and safety signs —

Part 3:
Design principles for graphical symbols for use in safety signs

IMPORTANT — The colours represented in the electronic file of this part of ISO 3864 can be neither viewed on screen nor printed as true representations. Although the copies of this part of ISO 3864 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 3864 gives principles, criteria and guidance for the design of graphical symbols for use in safety signs as defined in ISO 3864-1, and the safety sign element of product safety labels as defined in ISO 3864-2.

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 3864-1:2002, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas*

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

ISO 7010, *Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas*

ISO 17724, *Graphical symbols — Vocabulary*

3 Terms and definitions

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

3.1
critical detail
element of a graphical symbol without which the graphical symbol cannot be understood

3.2
determinant
graphical symbol used as a common element within a series of graphical symbols

NOTE The fire determinant when used with the graphical symbol for a telephone conveys the meaning “fire telephone”; the fire determinant when used with the graphical symbol for a hose reel conveys the meaning “fire hose reel”.

4 Designing graphical symbols for use in safety signs

Before designing a graphical symbol the designer shall:

— develop a clear and unambiguous description of the hazard that the graphical symbol is intended to address;

— confirm that a new graphical symbol for use in a safety sign is required (i.e. confirm that a suitable graphical symbol does not already exist) (see Clause 5);

— identify the safety message that the safety sign is intended to convey;

— define the characteristics of the target group, including their general skill and ability to understand the information that the particular safety sign is intended to convey, and design the graphical symbol for that group;

— assign a meaning and function to the safety sign in accordance with Clause 6;

— identify the type of the safety sign required in accordance with 7.1.

Consideration should be given as to whether the graphical symbol could be used in any other type of sign, and the design implications this may have (e.g. the effect of a negation bar on a graphical symbol originally designed for use in a mandatory action sign and the effects of restricted space within the warning triangle).

During the creation process, the designer shall follow the criteria given in Clause 7.

Designers are strongly recommended to use the guidelines set out in Annex A.

5 Review of existing standards

The designer shall determine:

— whether a safety sign incorporating a graphical symbol conveying the required meaning is specified in ISO 7010;

— if a safety sign incorporating a graphical symbol conveying the required meaning is not specified in ISO 7010, whether a graphical symbol conveying the required meaning is specified in other ISO standards;

— whether graphical symbols with similar meanings might be adapted or combined to form the graphical symbol for the new safety sign;

— whether there are standardized determinants appropriate for use with the graphical symbol for the new safety sign (see 7.8).

If specific graphical elements are borrowed from existing graphical symbols, they should convey the same meaning as that described in the existing graphical symbol.

6 Assignment of meaning, function and image content to the safety sign

Each safety sign shall be used to convey only one safety message in accordance with ISO 3864-1.

The new safety sign shall be assigned a meaning and a function. Once the safety sign original is complete, the image content shall be identified, including the critical details.

Meaning: No smoking

Function: To prohibit smoking

Image content: Cigarette shown in profile with smoke. Critical details are the cigarette and smoke plume.

Figure 1 — Example of assignment of meaning, function and image content to a safety sign (ISO 7010, P002)

7 Design criteria

7.1 Geometric shapes and colours of safety signs

The graphical symbol shall be designed within the appropriate safety sign template. The safety sign templates used by the designer shall conform to the geometrical shapes and colours given in ISO 3864-1:2002:

— for prohibition: see Figure 1 in 7.2 of ISO 3864-1:2002;

— for mandatory action: see Figure 2 in 7.3 of ISO 3864-1:2002;

— for warning: see Figure 3 in 7.4 of ISO 3864-1:2002;

— for safe condition: see Figure 4 in 7.5 of ISO 3864-1:2002;

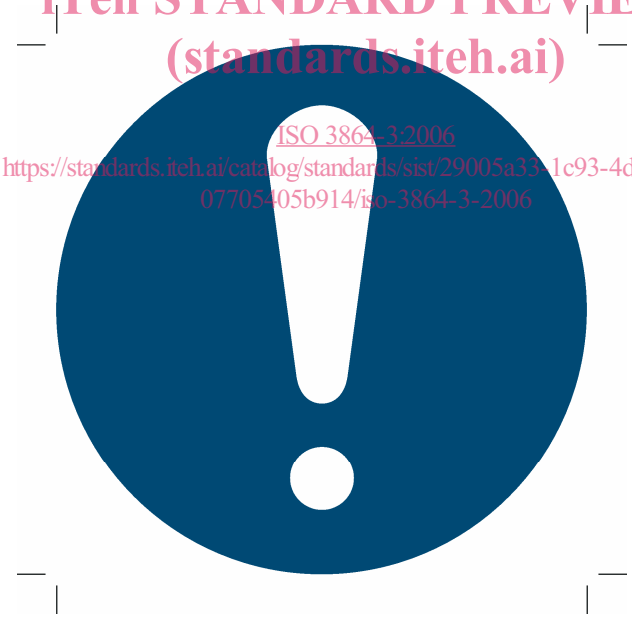
— for fire safety: see Figure 6 in 7.6 of ISO 3864-1:2002.

The safety colours as given in Table A.1 in ISO 3864-1:2002 should be used or the closest possible colour match.

7.2 Size and position of the graphical symbol

The graphical symbol shall make full use of the possible area within the safety sign template and shall be centred whenever possible. For examples, see Figures 2 to 6. See 7.4 for the exclusion zone.

Figure 2 — No thoroughfare (ISO 7010, P004)



A supplementary text sign is required with the general mandatory action sign.

Figure 3 — General mandatory action sign (ISO 7010, M001)

Figure 4 — Warning; Obstacles (ISO 7010, W007)

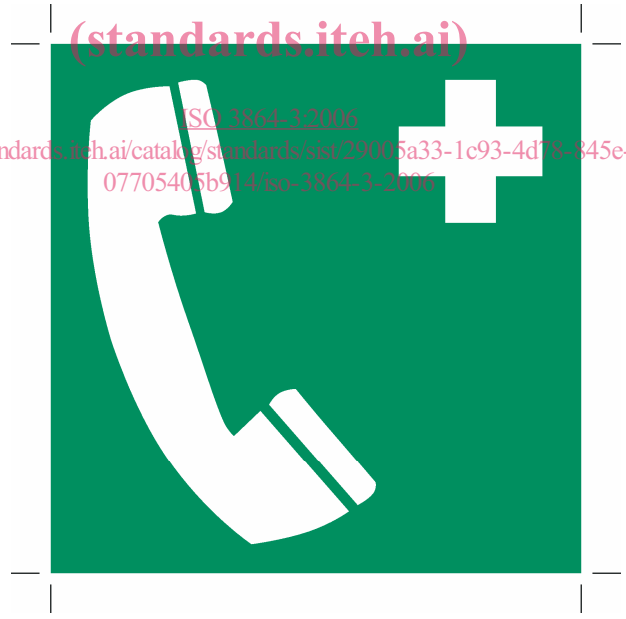


Figure 5 — Emergency telephone (ISO 7010, E004)

Figure 6 — Fire extinguisher (ISO 7010, F001)

7.3 Layout of templates

The new safety sign original shall be provided without borders in a uniform 70-mm size with corner marks to enable accurate enlargement and reduction (see Figure 7).

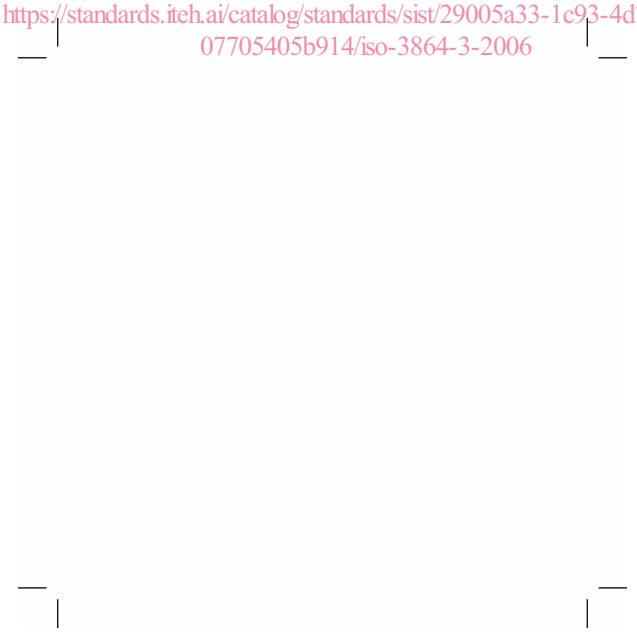


Figure 7 — Area of 70-mm size marked with corner marks (empty)

The safety sign shall make full use of the area within the corner marks such that the mandatory action and prohibition circular signs are 70 mm in diameter, safe condition and fire safety signs are 70 mm squares and the base of the warning sign triangle is 70 mm in width. These dimensions exclude any outer border as defined in ISO 3864-1 (see Figures 2 to 6).