

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 557

**SYMBOLS, DIMENSIONS AND LAYOUT
FOR SAFETY SIGNS**

ISO/R 557:1967

<https://standards.iteh.ai/catalog/standards/sist/88f7130c-465e-4bb4-8265-ad5290041605/iso-r-557-1967>

1st EDITION

March 1967

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 557, *Symbols, Dimensions and Layout for Safety Signs*, was drawn up by Technical Committee ISO/TC 80, *Safety Colours*, the Secretariat of which is held by the Nederlands Normalisatie-instituut (NNI).

Work on this question by the Technical Committee began in 1956 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In July 1964, this Draft ISO Recommendation (No. 734) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

| | | |
|----------------|--------------------------|----------------|
| Canada | Italy | Sweden |
| Chile | Korea, Rep. of | Switzerland |
| Czechoslovakia | Morocco | Turkey |
| Denmark | Netherlands | U.A.R. |
| Germany | New Zealand | United Kingdom |
| Greece | Norway | U.S.S.R. |
| Hungary | Portugal | Yugoslavia |
| Israel | Republic of South Africa | |

Three Member Bodies opposed the approval of the Draft:

Belgium
France
India

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in March 1967, to accept it as an ISO RECOMMENDATION.

SYMBOLS, DIMENSIONS AND LAYOUT FOR SAFETY SIGNS

1. SCOPE

This ISO Recommendation applies to

- (a) the dimensions of safety signs in geometric forms as given in ISO Recommendation R 408, *Safety Colours*;
- (b) symbolic images to be placed on those safety signs, representing the objects or events to which the safety signs are intended to call particular attention;
- (c) the layout of the signs.

2. DEFINITIONS

The following terms are used for notions applied in this ISO Recommendation:

- contrast colour—neutral colour, or white or black, used as a contrast in combination with the safety colour or with the auxiliary colour;
- safety symbol—simple image graphically specifying more closely the meaning of the safety indication;
- safety sign—geometric form (e.g. circle, triangle or rectangle) containing a safety symbol, wording or both.

3. PURPOSE OF SAFETY SIGNS

The purpose of the safety signs and of the symbols which may appear on them, together with the application of the safety colours which may reinforce their effect, is to attract attention rapidly to a danger and to facilitate its identification by specifying it, if necessary, by means of more precise indications.

They may also be used for indicating the location of devices and equipment which are particularly important from the safety point of view. Safety signs and symbols do not by themselves eliminate any danger, and the instructions or warnings they give cannot be substituted for proper accident prevention measures.

4. OVERALL DIMENSIONS OF SAFETY SIGNS

The overall dimensions of safety signs should be such that the area S of a safety sign and the distance of observation L comply with the formula

$$S \geq \frac{L^2}{2000}$$

S and L being expressed in the same unit of measurement (e.g. the metre).

5. SYMBOLS

The dimensions of essential details of safety symbols should be in the ratio of at least 1/1000 of the distance of observation, corresponding approximately to a visual angle of 3' 30" (in compliance with the following rule: the dimensions of essential details of the symbols should be at least 3% of the maximum dimension of the safety sign).

This rule is sufficient for the observation of the essential details under the following conditions recommended in general for the use of safety signs:

- illuminance level not less than 50 lux on the surface of the sign,
- luminance contrast Δ within the sign, not less than 25 %, where Δ is the difference between the luminance level of the safety colour and that of the contrast colour divided by the higher of the two.

When the minimum illuminance level of 50 lux is not attained by the ordinary lighting, users are recommended to arrange for special lighting on the signs. In a number of cases, it may be of advantage to make use of luminescent or retro-reflective signs.

The design of symbols should be as simple as possible and details not essential for the identification of the symbols should be omitted. A representation of a flame, for example, should contain only those details that are strictly necessary so that there can be no doubt as to its identification as a flame.

It is also recommended that the use of macabre or horrifying designs for the symbols should be avoided as far as possible.

The Table below contains a list of symbols recommended for use in representing various notions, objects, events or notices.

| Notion of symbol | Symbol |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First aid equipment Escape route, direction to emergency exit, to first aid stations, to first aid equipment and to fire-fighting equipment, etc. | Greek Cross * Arrow |
| Protection of eyes Protection of head Protection of respiratory organs Protection of hands | Safety goggles Helmet Gas mask Glove(s) |
| Flammable material Explosive material Toxic material Corrosive material Radioactive material Electricity Suspended loads Falling objects Dangerous temperatures Risk of loss of balance, slipping or falling | Flame ** Exploding bomb ** Skull and cross-bones ** Corroded hand or, alternatively, drops falling from a test tube on a corroded hand, if necessary, with the addition of drops falling from a test tube on a piece of corroded plate.** Trefoil, as specified in ISO Recommendation R 361, <i>Basic Ionizing Radiation Symbol</i> , or alternatively the same symbol with the addition of radiations and, in cases where there are intensive ionizing sources, with a skull and cross-bones.** Flash of lightning or the figure of a man struck by a flash of lightning Load suspended on a hook Falling stone, brick or hammer Thermometer indicating high or low temperatures, as appropriate Person falling backwards |
| Smoking | Burning pipe or burning cigar with or without burning match |
| Open fire | Burning candle or flame |

* The use of a Crescent is permissible for the Arabian countries, the Lion and Sun for Iran and the Star of David for Israel.

** As recommended for the markings of packaging for this material in ISO Recommendation R . . . , *Pictorial Markings for Handling of Goods*, at present at the stage of draft proposal.

6. LAYOUT OF SAFETY SIGNS

The safety colour should cover at least 50% of the total surface of the safety sign.

6.1 Colour pattern

The following two principles may be followed for the colour pattern:

Principle 1 — On the area of a safety sign showing the relevant safety colour, the symbols should be given in a contrast colour. In this case the sign may be provided with a narrow border in the same contrast colour.

Principle 2 — On the area of a safety sign showing a wide border in the relevant safety colour, enclosing a background in a contrast colour, the symbols should be given

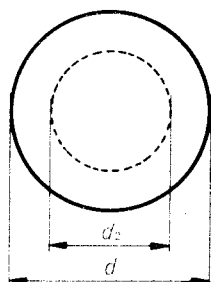
- (a) in the safety colour itself on the contrasting background;
- (b) in black, if the background is white.

6.2 Framing of symbols and/or text

Symbols and text, if any, should be placed within the area indicated by a dotted line in the figures given below.

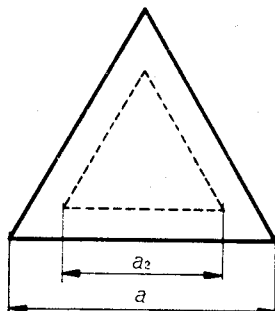
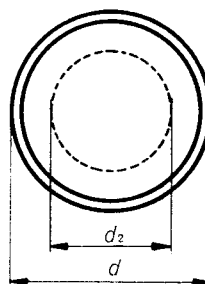
The ratio of the dimensions of the area assigned to the symbols and of the dimensions of the border to the maximum overall dimensions should be as indicated in the figures, so as to ensure that the requirement expressed in section 5, that at least 50% of the total surface should be covered by the safety colour, is complied with, regardless of the area of the symbol.

RECOMMENDED LAYOUT FOR SAFETY SIGNS AND SYMBOLS



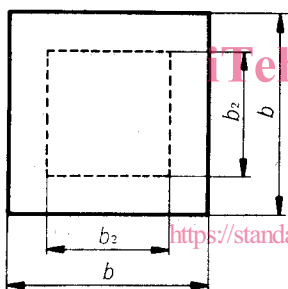
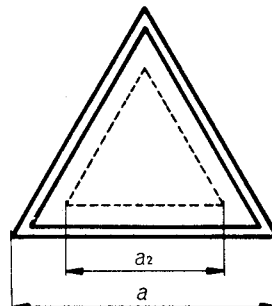
$$d_2 = 0.6 d$$

$$d \geq 0.025 L^*$$



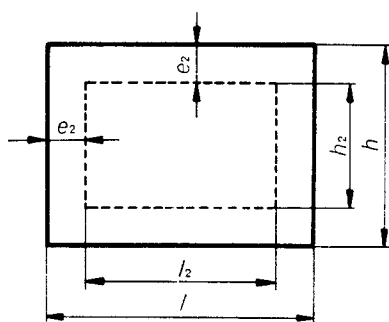
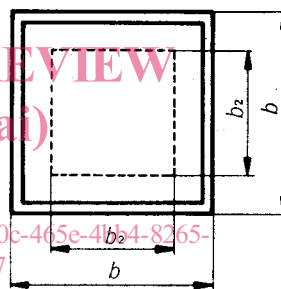
$$a_2 = 0.6 a$$

$$a \geq 0.034 L^*$$

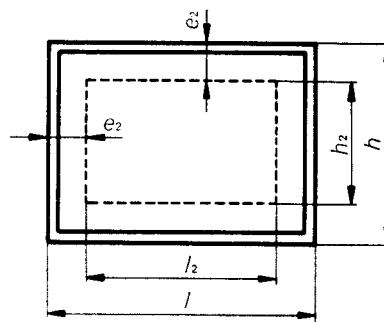


$$b_2 = 0.6 b$$

$$b \geq 0.0224 L^*$$



$$h - h_2 = l - l_2 = 2e_2$$

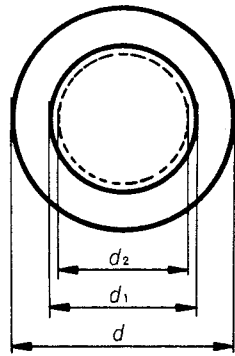


| | | | | |
|-------|----------------|----------------|--------------|--------------|
| l/h | $>1 \dots 1.4$ | $>1.4 \dots 2$ | $>2 \dots 4$ | $>4 \dots 8$ |
| e_2 | $0.22 h$ | $0.24 h$ | $0.28 h$ | $0.30 h$ |

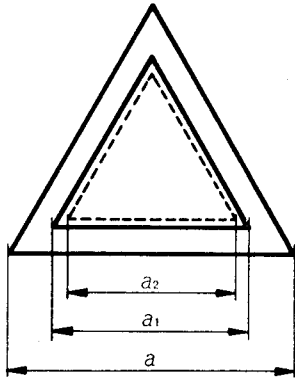
$$l \times h \geq 0.0005 L^2$$

FIG. 1.— Principle 1 : Signs in the safety colour, without border or with narrow border in the contrast colour

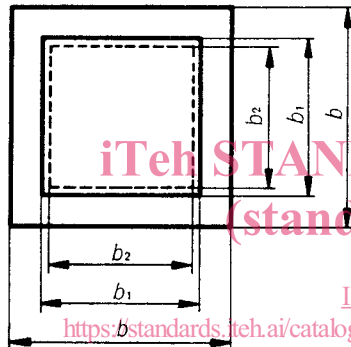
* Distance of observation.



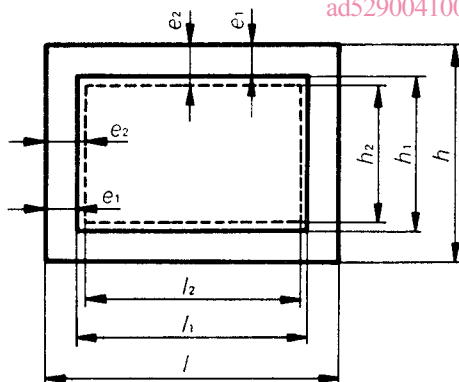
d_1 = diameter of circular background
 $0.6 d < d_1 < 0.7 d$
 $d_2 = 0.6 d$
 $d \geq 0.025 L^*$



a_1 = side of triangular background
 $0.6 a < a_1 < 0.7 a$
 $a_2 = 0.6 a$
 $a \geq 0.034 L^*$



b_1 = side of square background
 $0.6 b < b_1 < 0.7 b$
 $b_2 = 0.6 b$
 $b \geq 0.0224 L^*$



h_1 = height } of rectangular background
 l_1 = width }
 $h - h_1 = l - l_1 = 2e_1$
 $h - h_2 = l - l_2 = 2e_2$
 $e_2 - e_1 = 0.03 h$

| l/h | | >1 . . . 1.4 | >1.4 . . . 2 | >2 . . . 4 | >4 . . . 8 |
|-------|------|--------------|--------------|------------|------------|
| h_1 | max. | 0.66 h | 0.62 h | 0.56 h | 0.52 h |
| | min. | 0.62 h | 0.58 h | 0.52 h | 0.48 h |
| e_1 | max. | 0.22 h | 0.24 h | 0.28 h | 0.30 h |
| | min. | 0.17 h | 0.19 h | 0.22 h | 0.24 h |
| e_2 | | 0.22 h | 0.24 h | 0.28 h | 0.30 h |

$l \times h \geq 0.0005 L^2$

FIG. 2.— Principle 2: Signs for symbols on contrasting background with border in the safety colour **

* Distance of observation.
 ** See Note on page 8.

NOTE.— The exact critical ratio of $\frac{h_1 \text{ max.}}{h}$ should be calculated from the following quadratic equation:

$$\left(\frac{h_1}{h}\right)^2 + \left(\frac{l}{h} - 1\right)\frac{h_1}{h} - \frac{l}{2h} = 0$$

determined by the ratio of length and height of the safety sign $\frac{l}{h}$.

The user is recommended, for the sake of simplicity, to retain for $\frac{h_1 \text{ max.}}{h}$ a constant value for each of the ranges

| | |
|-----------------------|-----|
| $l/h > 1$ | 1.4 |
| $l/h > 1.4$ | 2 |
| $l/h > 2$ | 4 |
| $l/h > 4$ | 8 |

by taking for each of these ranges the rounded value valid for the upper limit, as is laid down in Figure 2, p. 7, in which are added the resulting values of e_1 and e_2 , taking into account the condition $e_2 - e_1 = 0.03 h$.

iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO/R 557:1967

<https://standards.iteh.ai/catalog/standards/sist/88f7130c-465e-4bb4-8265-ad5290041005/iso-r-557-1967>