

SLOVENSKI STANDARD

SIST-TS CEN/TS 15989:2015

01-julij-2015

Nadomešča:

SIST-TS CEN/TS 15989:2010

Gasilska in reševalna vozila ter oprema - Grafični simboli za krmilne elemente in zaslone ter za označevanje

Firefighting and rescue service vehicles and equipment - Graphical symbols for control elements and displays and for markings

Feuerwehrfahrzeuge und -geräte - Graphische Symbole für Bedien- und Anzeigeelemente sowie für Kennzeichnungen

Véhicules et équipements des services de secours et de lutte contre l'incendie - Symboles graphiques pour les éléments de commande et afficheurs et pour le marquages

Ta slovenski standard je istoveten z: **CEN/TS 15989:2015**

ICS:

01.080.20	Grafični simboli za posebno opremo	Graphical symbols for use on specific equipment
13.220.10	Gašenje požara	Fire-fighting
43.160	Vozila za posebne namene	Special purpose vehicles

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TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 15989

May 2015

ICS 01.080.20; 13.220.10

Supersedes CEN/TS 15989:2010

English Version

**Firefighting and rescue service vehicles and equipment -
Graphical symbols for control elements and displays and for
markings**

Véhicules et équipements des services de secours et de
lutte contre l'incendie - Symboles graphiques pour les
éléments de commande et afficheurs et pour le marquage

Feuerwehrfahrzeuge und -geräte - Graphische Symbole für
Bedien- und Anzeigeelemente sowie für Kennzeichnungen

This Technical Specification (CEN/TS) was approved by CEN on 3 February 2015 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (CEN/TS 15989:2015) has been prepared by Technical Committee CEN/TC 192 "Fire and Rescue Service Equipment", the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 15989:2010.

The significant changes with respect to the previous edition of CEN/TS 15989:2010 are listed below:

- a) general requirements, adaptation of symbols as digital display icons and application rules added;
- b) term and definition for graphical symbol added;
- c) clause with requirements for designation, illustration and size of symbols added;
- d) number of graphical symbols in Table 1 increased, some symbols revised in presentation and designation and partly harmonized with FAMA White paper, *Graphical Symbols for Automotive Fire Apparatus*;
- e) general (basic) symbols listed at first in Table 1, section no. 3.1 and section no. 3.2 and partly repeated in the specific sections of Table 1 to keep the coherence of this document;
- f) colouring of the symbol deleted in Table 1 and mentioned in new normative Annex A;
- g) recommendation on colouring of actuators and external connections added in new informative Annex B;
- h) normative references revised;
- i) bibliography added.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CEN/TS 15989:2015 (E)**1 Scope**

This Technical Specification is applicable to graphical symbols for control elements and displays and for markings for fire fighting and rescue service vehicles and equipment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and 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.

EN 1147, *Portable ladders for fire service use*

EN 80416-1:2009, *Basic principles for graphical symbols for use on equipment — Part 1: Creation of graphical symbols for registration (IEC 80416-1:2008)*

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

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 20381, *Mobile elevating work platforms — Symbols for operator controls and other displays*

IEC 60417, *Graphical symbols for use on equipment*

IEC 60617, *Graphical symbols for diagrams*

FAMA White paper, *Graphical Symbols for Automotive Fire Apparatus*¹⁾

3 Terms and definitions

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For the purposes of this document, the following terms and definitions apply:

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

[SOURCE: EN 80416-1:2009, 3.4]

4 General

4.1 New symbol ideas for graphical symbols for control elements and displays and for markings for fire fighting and rescue service vehicles and equipment should be forwarded to CEN/TC 192. The CEN/TC 192 Graphical symbols group will consider new symbols at each CEN technical committee meeting and add new symbols as appropriate.

4.2 Graphical symbols for control elements and displays and for markings for fire fighting and rescue service vehicles and equipment should conform to the symbols as shown in this document. However, symbols which are shown in outline form may be filled in actual use for enhanced clarity of reproduction and improved visual perception by the operator, unless otherwise noted for individual symbols.

NOTE Guidelines for the application of graphical symbols are given in EN 80416-3.

1) Published by Fire Apparatus Manufacturers' Association (FAMA), available at Fire Apparatus Manufacturers' Association (FAMA), 29 Stillman Road, Lynnfield MA, 01940, USA (www.fama.org).

4.3 Limitations inherent in some reproduction and display technologies may require increased line thickness or other minor modifications of symbols. Such modifications are acceptable provided the symbol is unchanged in its basic graphical elements and remains easily discernible by the operator.

4.4 To improve the appearance and perceptibility of a graphical symbol, or to coordinate with the design of the equipment to which the symbol is applied, it may be necessary to change the line thickness or round the corners of a symbol. The graphic designer is free to make such changes, provided that the essential perceptual characteristics of the symbol are maintained.

4.5 For actual use, all symbols shall be reproduced large enough to be easily discernible by the operator. See EN 80416-1 for guidelines on the proper sizing of symbols. Symbols grouped together in a display or on a set of controls should be scaled to the same degree relative to the corner marks of the original symbol as shown in this document in order to maintain the correct visual relationship among the symbols. Symbols shall be used in the orientation shown unless otherwise noted for individual symbols.

4.6 Most symbols are constructed using a building block approach in which various symbols and symbol elements are combined in a logical manner to produce new symbols.

4.7 Symbols are generally intended to replace a word or words with a graphical representation that has the same meaning for all operators, regardless of their native language. However, the use of a graphical symbol to identify a control or display does not preclude the use of words in conjunction with that control or display.

4.8 Symbols on controls and displays shall have good contrast to their background. Displays may use either a light symbol on a dark background or a dark symbol on a light background, depending upon which alternative provides the best visual perception. If a symbol image is reversed (for example from black-on-white to white-on-black and vice versa), it shall be done for the entire symbol.

4.9 Symbols shall be located on or adjacent to the control or display that is being identified. Where more than one symbol is required for a control, the symbols shall be located in relation to the control such that movement of the control toward the symbol shall effect the function depicted by that symbol. Symbols shall be visible by the operator from the operating position in all weather conditions.

4.10 Reference numbers and the standards they come from are provided for each symbol not unique to this document. This list is not exhaustive. Certain symbols may be found in more than one standard, or in standards not referenced in this document.

5 Adaptation of symbols as digital display icons

Symbols may be adapted for use as digital display icons on reconfigurable or other electronic displays. Such adaptations should follow the principles of ISO 80416-4. Special care should be taken to ensure that digital display icons preserve the visual impression of the symbol from which the icon is adapted.

If the display is in close proximity to the operator and clear identification and visibility is given from the operator's position, the symbols may be smaller than 15 mm × 15 mm, but still clearly visible from that position. Close proximity is given if the operator is in a designated seat or stand, closer than 1 m to the display and controls. Whenever the operator's position is not defined by a seat or a stand, clear recognition and visibility shall be given from a distance of at least 1 m. Distance shall be measured between the operator's head and the actual display or control.

The visual expression of displays shall remain visible under all weather- and light- conditions, including bright sunlight. The display shall not disturb operator's vision during night-time.

6 Application rules

6.1 If a control system or mechanism comprises a manual override, the function of the control shall be explained with the general "Manual Control" symbol in Table 1, no. 3.1.4 with the adequate function-symbol.

EXAMPLE Symbol "Back-up or emergency pump, manually powered" in Table 1, no. 3.10.30.

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6.2 If applicable, multiple symbols may be grouped together to explain controls with multiple use (for example a joystick). The size of the symbol shall be chosen in such way, that clear recognition and visibility is given from the operator's position.

7 Designation and illustration of symbols

7.1 The designation and illustration of symbols shall conform to Table 1. Symbols not mentioned in this document shall be in accordance with existing standards (e.g. ISO 7000) or accepted codes of practice.

7.2 The size of the boundary with a square shape shall be at least 15 mm × 15 mm. The diameter of round boundary shall not be smaller than 15 mm. The symbol shall use the space available within the boundary as efficient as possible. Corner marks are not part of the symbol itself.

If a control or function is described by text as well, for example on a Display or dashboard, the size of the boundary may be smaller than the required 15 mm × 15 mm.

7.3 General (basic) symbols (see Table 1, section no. 3.1 and section no. 3.2) may be used to create new or additional symbols.

The listing of the symbols in this standard is grouped into:

- fundamental general symbols, for example to describe movements up and down etc.. As an example, these symbols can be used to add into basic symbols to create a specific one;
- basic symbols, for example the side or the top of a Fire fighting vehicle, these symbols shall be used to create specific symbols by adding to the basic drawing;
- specific symbols, grouped for certain purposes such as extinguishing agent (system) or high rise aerial appliances.

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NOTE Some general (basic) symbols in Table 1, section no. 3.1 and section no. 3.2 are repeated in the different sections no. 3.3 to no. 3.12 of Table 1 to keep the coherence of this document and to prevent having the user going back and forward through the standard.

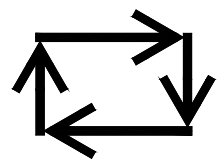
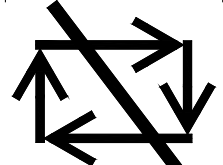


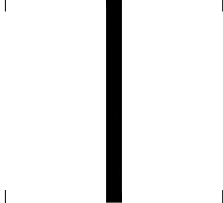
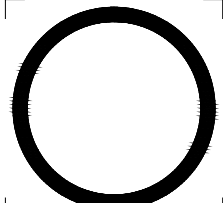
7.4 Additional texts should be preferably indicated underneath the symbol and shall neither decrease the readability of the symbol nor change it.

7.5 Colouring should be in accordance with Annex A.

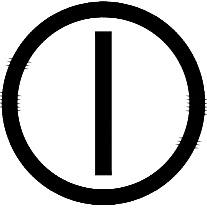


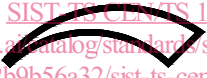
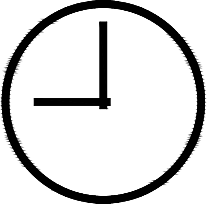


NOTE Retro reflecting/fluorescent symbols or displays on the outside of the vehicle are subject to road traffic regulations of each country.

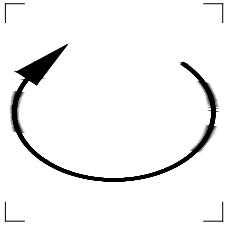
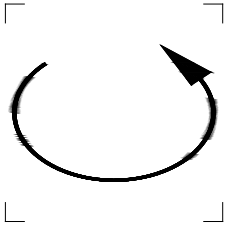


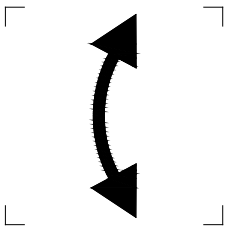
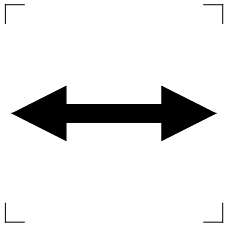
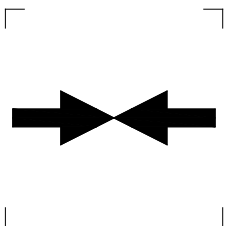
7.6 Registered safety signs are included in EN ISO 7010.

Table 1 — Designation and illustration of symbols

No.	Designation	Symbol	Remark	Reference
3.1	General symbols for specific symbols in no. 3.3 to no. 3.12			
3.1.1	Automatic cycle		The word "AUTO" may be used as an alternative	ISO 7000-0026
3.1.2	Automatic cycle Off		The crossed out word "AUTO" may be used as an alternative	Similar ISO 7000-0026
3.1.3	Manual override		The crossed out word "AUTO" may be used as an alternative	Similar ISO 7000-0026 and ISO 7000-0096
3.1.4	Manual control			ISO 7000-0096
3.1.5	On / Start			IEC 60417-5007
3.1.6	Off / Stop			IEC 60417-5008

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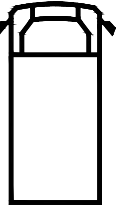
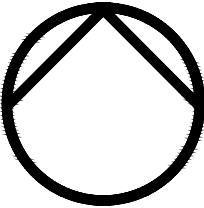
No.	Designation	Symbol	Remark	Reference
3.1.7	On and Off			IEC 60417-5010
3.1.8	Failure / malfunction			ISO 7000-1603b
3.1.9	Continuous adjustment increase / decrease (linear)			IEC 60417-5004
3.1.10	Continuous adjustment increase/decrease (rotational)			ISO 7000-1364
3.1.11	Operating hours		in addition to functional symbol (example see 3.3.4)	IEC 60617
3.1.12	Extension, move out, reel off, lift, up		Arrow in the direction of movement (away from the device)	
3.1.13	Retraction, pulling in, winding, lower, down		Arrow in the direction of movement (towards the device)	

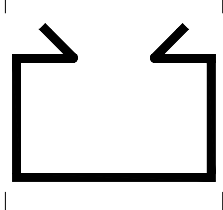
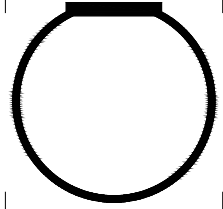


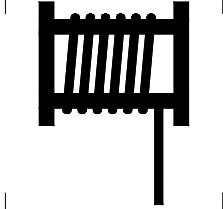
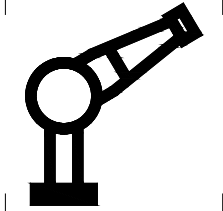
No.	Designation	Symbol	Remark	Reference
3.1.14	Turn clockwise			
3.1.15	Turn anti-clockwise			
3.1.16	Elevate			
3.1.17	Depress			
3.1.18	Slew			
3.1.19	Moving apart, pull apart			
3.1.20	Go back, retract			

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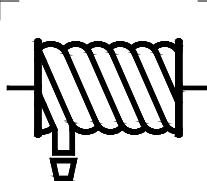




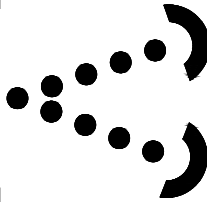
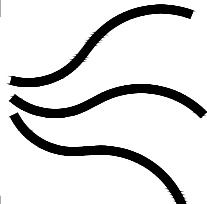
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No.	Designation	Symbol	Remark	Reference
3.1.21	Left			
3.1.22	Right			
3.1.23	Read operator's manual			ISO 7000-0790
3.2	Basic symbols and basic symbol shapes for specific symbols in no. 3.3 to no. 3.12			
3.2.1	Fire fighting vehicle			
3.2.2	Fire fighting vehicle, top view			
3.2.3	Hydraulic pump			ISO 7000-0134

No.	Designation	Symbol	Remark	Reference
3.2.4	Tank			Similar ISO 7000-0028
3.2.5	Pressure vessel			
3.2.6	Turntable ladder			
3.2.7	Hydraulic platform		Symbols may vary due to different boom design principles	
3.2.8	Winch			ISO 7000-1176
3.2.9	Monitor			Similar FAMA white paper-10.15

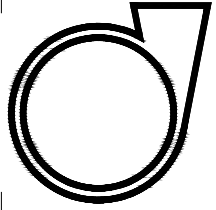




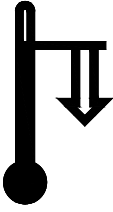
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No.	Designation	Symbol	Remark	Reference
3.2.10	Hose-reel			
3.2.11	Lamp, headlight			
3.2.12	Telescopic mast			
3.2.13	Water			ISO 7000-0536
3.2.14	Foam concentrate			
3.2.15	Powder			
3.2.16	Air			ISO 7000-0537

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No.	Designation	Symbol	Remark	Reference
3.2.17	Fire fighting pump(s) (general)			
3.3	Frame, engine and chassis			
3.3.1	Fire fighting vehicle (basic symbol)			
3.3.2	Fire fighting vehicle, top view (basic symbol)			
3.3.3	Rotational speed		The "n" may be replaced with a numeral	ISO 7000-1389
3.3.4	Engine operating hours			FAMA white paper-9.26
3.3.5	Auxiliary cooler			ISO 7000-0036