

INTERNATIONAL STANDARD

ISO
6405-1

First edition
1991-12-01

Earth-moving machinery — Symbols for operator controls and other displays —

Part 1:

Common symbols

iTeh STANDARD PREVIEW
(standards.iteh.ai)

*Engins de terrassement — Symboles pour les commandes de l'opérateur
et autres indications —*

<https://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a0468c25/ISO-6405-1-1991>

Partie 1: Symboles communs



Reference number
ISO 6405-1:1991(E)

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.

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.

International Standard ISO 6405-1 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Sub-Committee SC 3, *Operation and maintenance*.

This first edition of ISO 6405-1 cancels and replaces the first edition of ISO 6405 published in 1982, of which it constitutes a technical revision.

ISO 6405 consists of the following parts, under the general title *Earth-moving machinery — Symbols for operator controls and other displays*:

- Part 1: *Common symbols*
- Part 2: *Symbols for equipment and accessories*

© ISO 1991
All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Earth-moving machinery — Symbols for operator controls and other displays —

Part 1: Common symbols

1 Scope

This part of ISO 6405 establishes the common symbols for use on operator controls and other displays on earth-moving machinery as defined in ISO 6165.

These symbols may be used on other types of self-propelled work machines designed to operate on public roads.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6405. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6405 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3461-1:1988, *General principles for the creation of graphical symbols — Part 1: Graphical symbols for use on equipment*.

ISO 4196:1984, *Graphical symbols — Use of arrows*.

ISO 6165:1987, *Earth-moving machinery — Basic types — Vocabulary*.

ISO 7000:1989, *Graphical symbols for use on equipment — Index and synopsis*.

IEC 417:1973, *Graphical symbols for use on equipment — Index, survey and compilation of the single sheets, and its supplements* (IEC 417A:1974, IEC 417B:1975, IEC 417C:1977, IEC 417D:1978, IEC

417E:1980, IEC 417F:1982, IEC 417G:1985, IEC 417H:1987, IEC 417J:1990).

3 Definition

For the purposes of all parts of this International Standard, the following definition applies.

3.1 symbol: Visually perceptible figure used to transmit information independently of language, produced by drawing, printing or other means.

4 General

4.1 Symbols shall be as shown in succeeding clauses of this part of ISO 6405. However, selected symbols and selected combined symbols, which are shown in outline form in this part of ISO 6405, may be shaded in actual use for clarity of reproduction and improved visual perception by the operator, except as otherwise noted for individual symbols.

4.2 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 remains unchanged in its basic graphical elements and easily discernible by the operator.

4.3 Additionally, to improve the appearance and perceptibility of a graphical symbol or to coordinate with the design of the equipment to which it is applied, it may be necessary to change the line thickness or to round off the corners of the symbol. The graphical designer is normally free to make such changes provided that the essential perceptible characteristics of the symbol are maintained. See ISO 3461-1:1988, subclause 10.2.

4.4 For actual use, all symbols shall be reproduced large enough to be easily discernible by the operator. See ISO 3461-1 for guidelines on the proper sizing of symbols. Symbols shall be used in the orientations shown in this part of ISO 6405 unless otherwise noted for individual symbols.

4.5 Most symbols are constructed using a building-block approach in which various symbols and symbol elements are combined in a logical manner to produce a new symbol. For example, symbol 8.4 for engine lubricating oil filter is a composite of symbol 6.1 for engine, symbol 6.5 for oil, and symbol 6.13 for filter.

4.6 If a symbol shows a machine or parts of a machine in a side view, a machine moving from right to left in the symbol area shall be assumed. If a symbol shows a machine or parts of a machine in a top (overhead) view, a machine moving from bottom to top in the symbol area shall be assumed.

4.7 Symbols on controls and displays shall have good contrast to their background. A light symbol on a dark background is preferred for most controls. 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. When a symbol image is reversed (for example, black to white and vice versa), it shall be done for the entire symbol.

4.8 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 controls towards the symbol shall effect the function depicted by that symbol.

4.9 Arrows used in symbols shall conform to the requirements of ISO 4196. ISO 3461-1 shall be consulted for the general principles of creating symbols.

4.10 ISO/IEC registration numbers are shown for symbols in this International Standard. Registration numbers below 5000 refer to ISO 7000. Registration numbers above 5000 refer to IEC 417.

4.11 Letters and numerals may be used as symbols, but are not registered by ISO/TC 145 or published in ISO 7000. In clauses 9.8 to 9.17, letters and numerals have the meaning indicated when used in association with transmission gear controls and displays on earth-moving machinery. The fonts shown in this International Standard are not intended to be restrictive: other fonts may be substituted but care shall be taken that legibility is maintained.

4.12 Symbols in this part of ISO 6405 are presented 32 % of original size. The grid marks "L" denote the corners of the 75 mm square of the graphic grid presented. The grid marks are not part of the symbol but are provided to ensure consistent presentation of all symbol graphics.

4.13 Microfiches of the symbols are available from the ISO/TC 145 Secretariat.

5 Colour

5.1 When used on illuminated displays, the following colours have the meanings indicated:

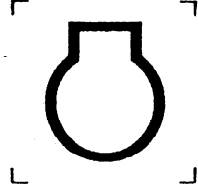
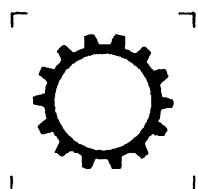
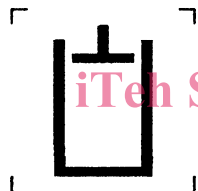

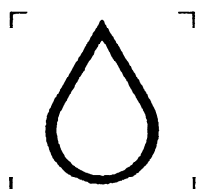
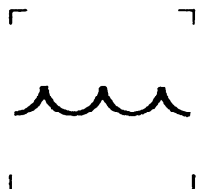
- red: failure or serious malfunction; requires immediate attention;
- yellow or amber: outside normal operating limits;
- green: normal operating condition.

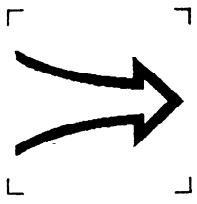
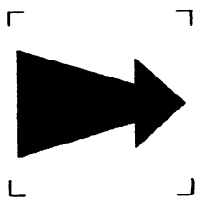
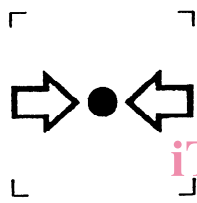
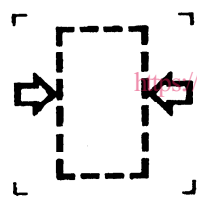
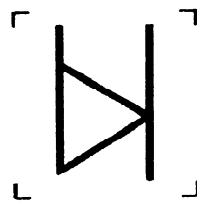
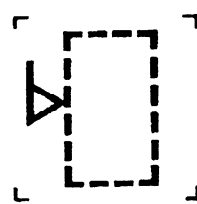
5.2 In addition, certain colours are used for specific functions:

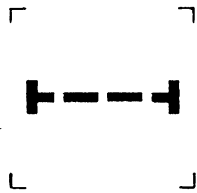
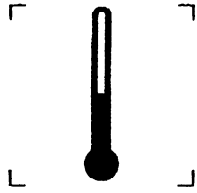

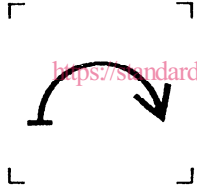
- blue: headlight main-/high-beam display;
- red: hazard warning display;
- green: turn signal display.

5.3 If colour is used on symbols for the heating and/or cooling systems, the colour red shall be used to indicate hot, and the colour blue shall be used to indicate cold.


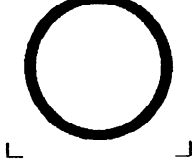




6 Basic symbol shapes

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
6.1		Engine	1156
6.2		Transmission	1166
6.3		Hydraulic system	1409
6.4		Brake system	1399
6.5		Oil	1056
6.6		Coolant (water)	0536

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
6.7		Intake air [To be used as symbol element only in combination with other symbols (e.g., engine). Shall be outline in all applications.]	1604
6.8		Exhaust gas [To be used as symbol element only in combination with other symbols (e.g., engine). Shall be shaded in all applications.]	1605
6.9		Pressure (To be used where the medium under pressure is not specified.)	1701
6.10		Pressure (For the creation of a combined symbol where the medium under pressure is specified, replace the dashed rectangle with a symbol for the medium.)	Application examples are not registered
6.11		Level indicator	Application of 0159
6.12		Liquid level (For the creation of a combined symbol where the fluid being measured is specified, replace the dashed rectangle by a symbol for the fluid.)	Application examples are not registered


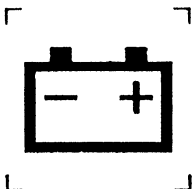
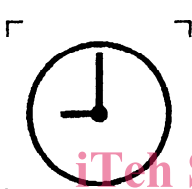
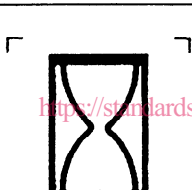
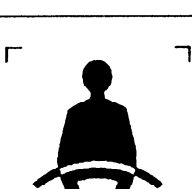
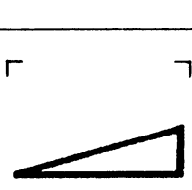
Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
6.13		Filter	1369
6.14		Temperature	0034
6.15		Failure/malfunction (To be used as symbol element only in combination with other symbols.)	1603
6.16		Start switch/mechanism ISO 6405-1:1991 https://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991	1365

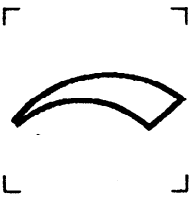
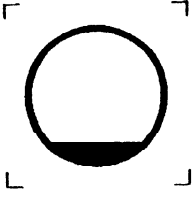
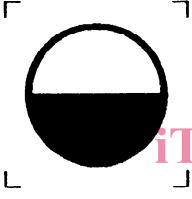

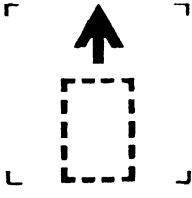
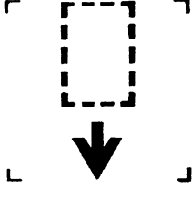
7 General symbols

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
7.1		On/start	5007
7.2		Off/stop	5008
7.3		On and off	5010
7.4		Plus/increase/positive polarity	5005
7.5		Minus/decrease/negative polarity	5006
7.6		Horn	0244

STANDARD PREVIEW
(standards.iteh.ai)

ISO 6405-1:1991
<https://standards.iteh.ai/catalog/standards/sist/07e6ad87-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991>


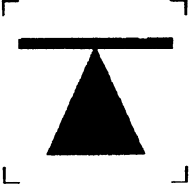
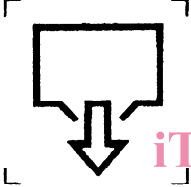

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
7.7		Lighter	0620
7.8		Battery charging condition	0247
7.9		Clock/time switch/timer	5184
7.10		Hourmeter/elapsed operating hours http://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991	1366
7.11		Seatbelt — Lap belt only	1702
7.12		Continuously variable — Linear	5004

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
7.13		Continuously variable — Rotational	1364
7.14		Volume empty	1563
7.15		Volume half-full	1564
7.16		Volume full	1565
7.17		Machine travel direction — Forward (Replace dashed rectangle with appropriate symbol. May be rotated 90° counter-clockwise for side view of forward travel direction.)	Application examples are not registered
7.18		Machine travel direction — Reverse (Replace dashed rectangle with appropriate symbol. May be rotated 90° counter-clockwise for side view of reverse travel direction.)	Application examples are not registered

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 6405-1:1991
<https://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991>

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
7.19		Control lever operating direction — Dual direction (Place appropriate symbols at extremes of directional arrows.)	1436
7.20		Control lever operating direction — Multiple direction (Place appropriate symbols at extremes of directional arrows.)	1703
7.21		Clockwise rotation	0258
7.22		Counter-clockwise rotation https://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991	0937
7.23		Grease lubrication point	0787
7.24		Oil lubrication point	0391

Symbol number	Symbol form/shape	Symbol description/application	ISO/IEC registration number
7.25		Lift point	1368
7.26		Jack or support point	0542
7.27		Draining/emptying	0029
7.28		Read operator's manual ISO 6405-1:1991 https://standards.iteh.ai/catalog/standards/sist/b1e8ad81-ad35-44cd-abe5-9958a04086e5/iso-6405-1-1991	0419

iTeh STANDARD PREVIEW
(standards.iteh.ai)