INTERNATIONAL STANDARD 1028

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Information processing — Flowchart symbols

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 1028 replaces ISO Recommendation R 1028-1969 drawn up by Technical Committee ISO/TC 97, *Computers and information processing.*

The Member Bodies of the following countries approved the Recommendation :

Australia	India	Sweden
Belgium	Israel	Switzerland
Canada	Italy	Turkey
Czechoslovakia	Japan	United Kingdom
Denmark	Netherlands	U.S.A.
Egypt, Arab Rep. of	New Zealand	U.S.S.R.
France	Portugal	Yugoslavia
Germany	Spain	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Finland*

* Subsequently, this Member Body approved the Recommendation.

Printed in Switzerland

Information processing — Flowchart symbols

1 SCOPE

This International Standard establishes graphical symbols for use in flowcharts for information processing systems, including automatic data processing systems.

2 FIELD OF APPLICATION

The graphical symbols included in this International Standard are intended to represent on flowcharts both

- the sequence of operations and
- the flow of data and paperwork

of information processing systems. This International Standard does not cover: identifying, descriptive or explanatory information written inside or adjacent to a symbol; or pictorial type flowcharts that utilize pictures or drawings to depict a system.

3 CONVENTIONS

3.1 The general direction of flow shall be

- left to right;
- top to bottom.

Arrows indicating the flow shall be used when the flow is not as specified.

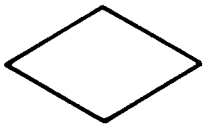
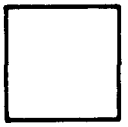
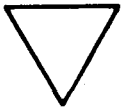
Arrows indicating the flow should be used whenever increased clarity will result.

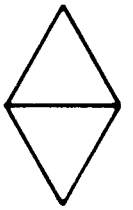
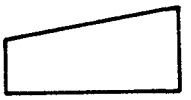
3.2 Flow lines may cross; this means they have no logical interrelation.

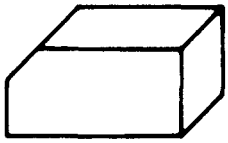
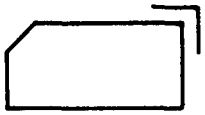
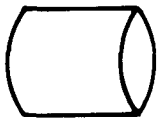
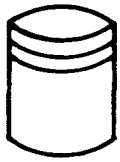
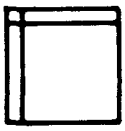
3.3 Two or more incoming flow lines may join with one outgoing flow line.

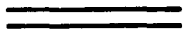
3.4 While this International Standard does not make exact specifications about height to width ratios, it does require the user not to vary these to such an extent that the symbol is not immediately recognizable.

4 FLOWCHART SYMBOLS

1 process This symbol represents any kind of processing functions, e.g. the process of executing a defined operation or group of operations resulting in a change in value, form, or location of information, or in the determination of which of several flow directions is to be followed.	
2 decision This symbol represents a decision or switching type operation that determines which of a number of alternative paths is to be followed	
3 preparation This symbol represents modification of an instruction or group of instructions which change the program itself, e.g. set a switch, modify an index register, and initialize a routine.	
4 predefined process This symbol represents a named process consisting of one or more operations or program steps that are specified elsewhere, e.g. subroutine.	
5 manual operation This symbol represents any offline process geared to the speed of a human being, without using mechanical aid.	
6 auxiliary operation This symbol represents an offline operation performed on equipment not under direct control of the central processing unit.	
7 merge This symbol represents the combining of two or more sets of items into one set.	

8 extract This symbol represents the removal of one or more specific sets of items from a single set of items.	
9 collate This symbol represents merging with extracting, i.e. the formation of two or more sets of items from two or more other sets.	
10 sort This symbol represents the arranging of a set of items into a particular sequence.	
11 manual input This symbol represents an input function in which the information is entered manually at the time of processing, e.g. by means of online keyboards, switch settings, push buttons.	
12 input/output This symbol represents an input/output function (I/O), i.e. the making available of information for processing (input), or the recording of processed information (output).	
13 online storage This symbol represents an I/O function utilizing any type of online storage, e.g. magnetic tape, magnetic drum, magnetic disk.	
14 offline storage This symbol represents the function of storing information offline, regardless of the medium on which the information is recorded.	

15 document This symbol represents an I/O function in which the medium is a document.	
16 punched card This symbol represents an I/O function in which the medium is punched card, including mark sense cards, partial cards, stub cards, mark scan cards, etc.	
17 deck of cards This symbol represents a collection of punched cards.	
18 file of cards This symbol represents a collection of related punched card records.	
19 punched tape This symbol represents an I/O function in which the medium is punched tape.	
20 magnetic tape This symbol represents an I/O function in which the medium is magnetic tape.	
21 magnetic drum This symbol represents an I/O function in which the medium is magnetic drum.	
22 magnetic disk This symbol represents an I/O function in which the medium is magnetic disk.	
23 core This symbol represents an I/O function in which the medium is magnetic core.	

24 display This symbol represents an I/O function in which the information is displayed for human use at the time of processing, by means of online indicators, video devices, console printers, plotters, etc.	
25 flow line (see convention 3.1) This symbol represents the function of linking symbols. crossing of flow lines (see convention 3.2) junction of flow lines (see convention 3.3)	
26 parallel mode (no flow lines are shown, see convention 3.1) This symbol represents the beginning or end of two or more simultaneous operations.	
27 communication link (see convention 3.1) This symbol represents a function in which information is transmitted by a telecommunication link.	
28 connector This symbol represents an exit to, or an entry from, another part of the flowchart.	
29 terminal, interrupt This symbol represents a terminal point in a flowchart, e.g. start, stop, halt, delay or interrupt.	
30 comment, annotation This symbol represents the annotation function, i.e. the addition of descriptive comments or explanatory notes as clarification.