INTERNATIONAL STANDARD ISO 3753

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

Vacuum technology — Graphical symbols

Technique du vide — Symboles graphiques

First edition — 1977-07-01

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Descriptors : vacuum technology, vacuum apparatus, vacuum pumps, valves and fittings, manometers, nomenclature, graphic symbols.

Price based on 13 pages

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.

International Standard ISO 3735 was developed by Technical Committee ISO/TC 10, *Technical drawings,* and was circulated to the member bodies in April 1975.

It has been approved by the member bodies of the following countries :

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Italy	South Africa, Rep. of	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

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Vacuum technology — Graphical symbols

1 SCOPE AND FIELD OF APPLICATION

This International Standard provides graphical symbols for use in vacuum technology.

2 REFERENCE

ISO 3529/II, *Vacuum technology — Vocabulary — Part II : Vacuum pumps and associated terms.* [1]

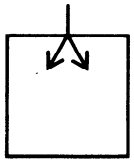
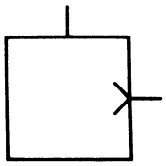
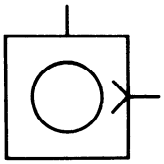
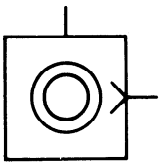
3 GENERAL

For convenience on drawings, it is permitted — with the exception of valves — to change the recommended positioning of inlets and outlets to devices, provided that this does not create confusion among the basic symbols.

The relative sizes of symbols in combination shall correspond approximately to those shown in the annex.

4 GRAPHICAL SYMBOLS

4.1 Vacuum pumps

No.	Designation	Symbol
4.1	**Vacuum pump** (type unspecified) NOTE — The arrows are optional and will be omitted when no confusion is possible with another symbol.	
4.1.1	*Positive displacement pump* (type unspecified)	
4.1.1.1	Sliding vane rotary vacuum pump or rotary piston vacuum pump NOTE — One circle : single-stage; two circles : multistage.	 

1) At present at the stage of draft.

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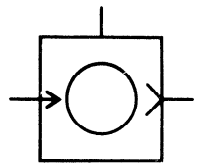
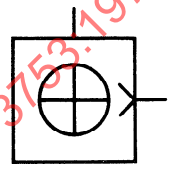
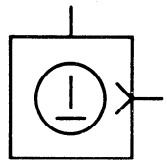
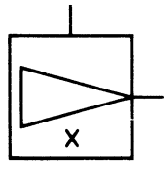
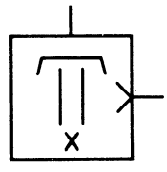
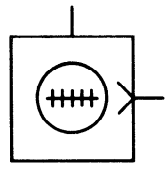
No.	Designation	Symbol
4.1.1.1.1	Gas ballast pump NOTE — One circle : single-stage; two circles : multistage.	
4.1.1.2	Liquid ring vacuum pump NOTE — One circle : single-stage; two circles : multistage.	
4.1.1.3	Roots vacuum pump NOTE — One circle : single-stage; two circles : multistage.	
4.1.1.4	Vapour jet vacuum pump NOTE — The symbol for the fluid may be inserted at x : pump oil = CH, mercury = Hg, water = H_2O	
4.1.1.5	Vapour diffusion pump using oil or mercury vapour NOTE — The symbol for the fluid may be inserted at x : pump oil = CH, mercury = Hg	
4.1.1.6	Turbomolecular pump NOTE — The five vertical lines within the circle signify that the pump is multi-stage; the same five lines are always used irrespective of the number of stages.	

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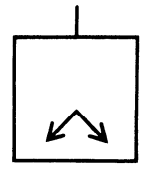
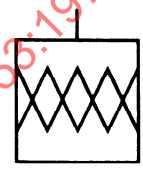
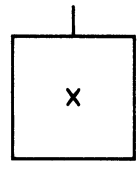
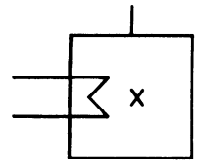
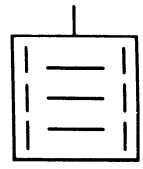
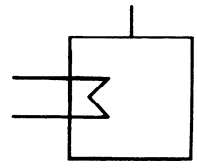
No.	Designation	Symbol
4.1.2	*Entrapment vacuum pump* (type unspecified) NOTE — The arrows are optional and will be omitted when no confusion is possible with another symbol.	
4.1.2.1	Adsorption pump, utilizing molecular sieve	
4.1.2.2	Sublimation pump NOTE — The chemical symbol for the sorbent concerned must be inserted at x.	
4.1.2.2.1	Getter sublimation pump with cold walls NOTE — The chemical symbol for the sorbent concerned must be inserted at x. The temperature of the sorbent may be indicated at the left side.	
4.1.2.3	Sputter ion pump	
4.1.2.4	Cryopump	

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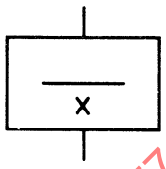
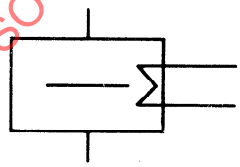
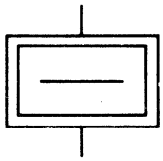
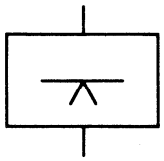
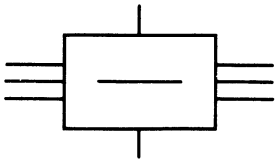
4.2 Baffles

No.	Designation	Symbol
4.2	**Baffle** (type unspecified) NOTE – The temperature of the baffle may be inserted at x.	
4.2.1	*Refrigerated baffle* (refrigerated by fluid circulation) NOTE – The temperature and the nature of the cooling fluid may be indicated at the left side and right side respectively.	
4.2.2	*Reservoir type baffle*	
4.2.3	*Peltier type baffle*	
4.2.4	*Air-cooled baffle*	

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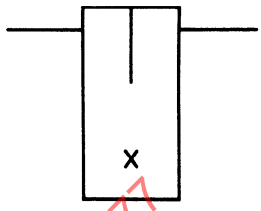
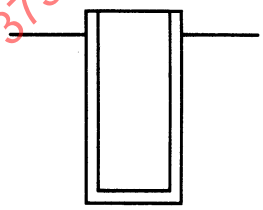
4.3 Traps (condensers)

No.	Designation	Symbol
4.3.1	*Trap or condenser* (type unspecified) NOTE — The temperature of the trap may be inserted at x.	
4.3.2	*Reservoir type trap*	

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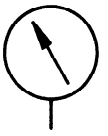
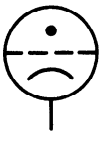
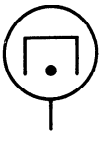
4.4 Pressure-measuring apparatus

No.	Designation	Symbol
4.4	**Pressure gauge** (type unspecified)	
4.4.1	*Partial pressure gauge*	
4.4.2	*Hot cathode ionization gauge*	
4.4.2.1	Hot cathode ionization gauge — ultra-high vacuum	
4.4.3	*Cold cathode ionization gauge*	

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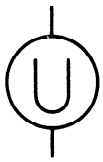
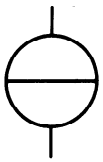
No.	Designation	Symbol
4.4.4	*Thermal conductivity gauge*	
4.4.5	*Differential liquid level manometer*	
4.4.6	*McLeod manometer*	
4.4.7	*Differential membrane gauge*	

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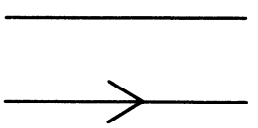
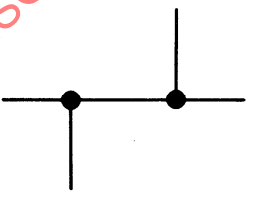
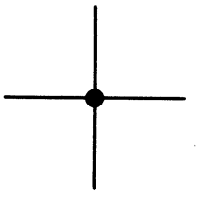
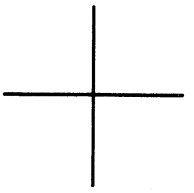
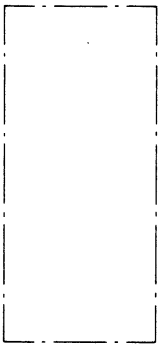
4.5 Flowlines and connections

No.	Designation	Symbol
4.5.1	*Pipeline* NOTE — The direction of flow may be indicated by an arrow.	
4.5.2	*Junction* : Solid circle of diameter five times the thickness of the line	
4.5.3	*Lines with junctions*	
4.5.4	*Lines with cross-junction*	
4.5.5	*Crossing lines* (not connected)	
4.5.6	*Enclosure for several components assembled in one unit* NOTE — Where relevant, the pipelines may be omitted, thus indicating a direct combination of the symbols.	

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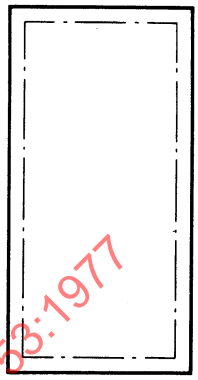
No.	Designation	Symbol
4.5.7	*Bakeable assembly*	

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