
Graphical symbols for diagrams —

Part 12:

**Devices for separating, purification and
mixing**

Symboles graphiques pour schémas —

Partie 12: Dispositifs de séparation, de purification et de mélange

STANDARDSISO.COM : Click to view the full PDF of ISO 14617-12:2002



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 14617-12:2002

© ISO 2002

All rights reserved. Unless otherwise specified, 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 either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

Page

Foreword	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions	1
4 Devices for separating.....	2
5 Devices for purification by conversion.....	8
6 Devices for mixing	9
7 Air conditioners for pneumatic systems	10

STANDARDSISO.COM : Click to view the full PDF of ISO 14617-12:2002

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this part of ISO 14617 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14617-12 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 10, *Process plant documentation and tpd-symbols*.

ISO 14617 consists of the following parts, under the general title *Graphical symbols for diagrams*:

- *Part 1: General information and indexes*
- *Part 2: Symbols having general application*
- *Part 3: Connections and related devices*
- *Part 4: Actuators and related devices*
- *Part 5: Measurement and control devices*
- *Part 6: Measurement and control functions*
- *Part 7: Basic mechanical components*
- *Part 8: Valves and dampers*
- *Part 9: Pumps, compressors and fans*
- *Part 10: Fluid power converters*
- *Part 11: Devices for heat transfer and heat engines*
- *Part 12: Devices for separating, purification and mixing*
- *Part 15: Installation diagrams and network maps*

Other parts are under preparation.

Introduction

The purpose of ISO 14617 in its final form is the creation of a library of harmonized graphical symbols for diagrams used in technical applications. This work has been, and will be, performed in close cooperation between ISO and IEC. The ultimate result is intended to be published as a standard common to ISO and IEC, which their technical committees responsible for specific application fields can use in preparing International Standards and manuals.

STANDARDSISO.COM : Click to view the full PDF of ISO 14617-12:2002

Graphical symbols for diagrams —

Part 12:

Devices for separating, purification and mixing

1 Scope

This part of ISO 14617 specifies graphical symbols for the representation of devices for separating, purification and mixing in diagrams.

For the fundamental rules of creation and application of graphical symbols in diagrams, see ISO 81714-1.

For an overview of ISO 14617, information on the creation and use of registration numbers for identifying graphical symbols used in diagrams, rules for the presentation and application of these symbols, and examples of their use and application, see ISO 14617-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 14617. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 14617 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 14617-1:2002, *Graphical symbols for diagrams — Part 1: General information and indexes*

ISO 14617-2:2002, *Graphical symbols for diagrams — Part 2: Symbols having general application*

ISO 81714-1:1999, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms and definitions

For the purposes of this part of ISO 14617, the terms and definitions given in ISO 14617-1 and ISO 14617-2 apply.

4 Devices for separating

4.1 Symbols of a basic nature

NOTE For general rules for the construction of symbols for devices for separating, see R2601 (4.2.1).

4.1.1	2601		Device for separating See R2601 (4.2.1).
4.1.2	301		Envelope (tank) See R301 (4.2.2).
4.1.3	2602		Screen or filter element See R2602 (4.2.3).
4.1.4	2603		Bed filter element of fixed type
4.1.5	2604		Bed filter element of fluidized type
4.1.6	2605		Scraper
4.1.7	2606		Disc with knife
4.1.8	2607		Plate for separating EXAMPLE Impingement plate.
4.1.9	2608		Centrifuge rotor See R2602 (4.2.3).
4.1.10	2037		Spray nozzle

4.2 Application rules for the symbols in 4.1

4.2.1	R2601	A symbol for a device for separating may be built up by symbol 2601 (4.1.1) and, if necessary, an appropriate symbol for supplementary information that replaces the asterisk, or else by symbol 301 (4.1.2) for an envelope (tank) with an appropriate symbol for the elements inside the envelope, vessel.
4.2.2	R301	Another shape may be used, for example, rectangular or circular. A specific shape shall be used if it is necessary to indicate a certain function or property associated with the shape of the envelope. For an example, see X2617 (4.5.17). The symbol shall be used only when the envelope is of significance for the primary function. For example, it should not be used to represent enclosures for the protection against ingress of dust and protection against contact with movable or electrically live parts. If necessary, the nature of the envelope shall be stated, for example, conductive material.
4.2.3	R2602	The symbol may be drawn with another shape if the shape of the component affects the function.

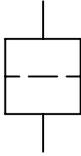
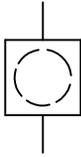
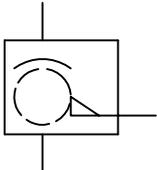
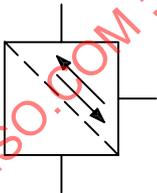
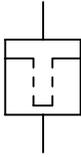
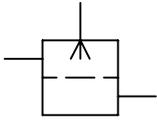
4.3 Symbols giving supplementary information

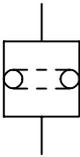
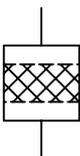
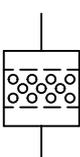
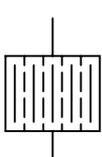
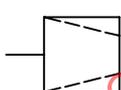
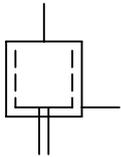
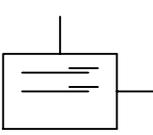
4.3.1	254		Circular motion, unspecified direction See R248 (4.4.1).
4.3.2	255		Circular motion See R248 (4.4.1) and R249 (4.4.2).
4.3.3	2621		Cyclonic type
4.3.4	IEC		Electrostatic type
4.3.5	IEC		Electromagnetic type
4.3.6	326		Permanent-magnet type
4.3.7	2501		Heat-exchanger type
4.3.8	IEC		Electro-thermal type
4.3.9	2541		Fired type
4.3.10	2622	CH	Chemical type
4.3.11	2623	BIO	Biological type
4.3.12	2624	ION	Ion exchange type

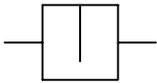
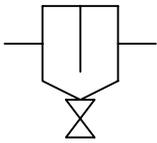
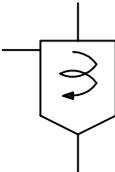
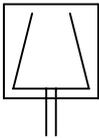
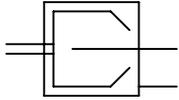
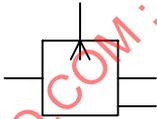
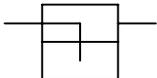
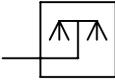
4.4 Application rules for the symbols in 4.3

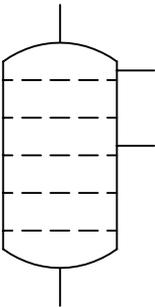
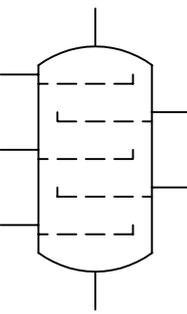
4.4.1	R248	The symbol may be drawn twice, with the two representations located adjacent to one another, to indicate a higher speed compared to that indicated by a single symbol. For an example, see X249 (2-7.5.4).
4.4.2	R249	<p>The symbol shall cross the symbol for the mechanical link and be interpreted as if it were located in front of the mechanical link. For examples, see X249 (2-7.5.4) and X250 (2-7.5.5).</p> <p>Alternatively, the symbol may be shown adjacent to the symbol for the components that the link connects. For an example, see X251 (2-7.5.6).</p> <p>In order to avoid confusion between the two alternatives, in the first method, the symbol should be located at a sufficient distance from the two symbols representing the components connected. In the second method, the symbol should be located such that it does not cross the symbol for the mechanical link.</p>

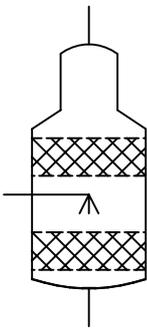
4.5 Application examples

<p>4.5.1</p>	<p>X2601</p>	 <p>301, 2602</p>	<p>Screen, sieve, strainer, filter</p>
<p>4.5.2</p>	<p>X2602</p>	 <p>301, 2602</p>	
<p>4.5.3</p>	<p>X2603</p>	 <p>254, 301, 2602</p>	<p>Screen, filter with rotating drum</p>
<p>4.5.4</p>	<p>X2604</p>	 <p>254, 301, 2602, 2605</p>	<p>Screen, filter with rotating drum and scraper</p>
<p>4.5.5</p>	<p>X2605</p>	 <p>241, 301, 2602</p>	<p>Vibrating screen, sieve</p>
<p>4.5.6</p>	<p>X2606</p>	 <p>301, 2602</p>	<p>Bag filter, candle filter, leaf filter, cartridge filter</p>
<p>4.5.7</p>	<p>X2607</p>	 <p>301, 2602, 2037</p>	<p>Filter with spray</p>

<p>4.5.8</p>	<p>X2608</p>	 <p>301, 2013, 2602</p>	<p>Belt filter, roll filter</p>
<p>4.5.9</p>	<p>X2609</p>	 <p>301, 2603</p>	<p>Bed filter of fixed type</p>
<p>4.5.10</p>	<p>X2610</p>	 <p>301, 2604</p>	<p>Bed filter of fluidized type</p>
<p>4.5.11</p>	<p>X2611</p>	 <p>301, 2602, 2607</p>	<p>Filter press; press filter</p>
<p>4.5.12</p>	<p>X2612</p>	 <p>301, 2602</p>	<p>Compression filter, compression by piston, screw, plate or membrane</p>
<p>4.5.13</p>	<p>X2613</p>	 <p>301, 2302, 2602</p>	<p>Vacuum cleaner</p>
<p>4.5.14</p>	<p>X2614</p>	 <p>301, 402, 2602</p>	<p>Centrifugal filter</p>
<p>4.5.15</p>	<p>X2615</p>	 <p>301, 2606</p>	<p>Disc and plate (knife) separator</p>

<p>4.5.16</p>	<p>X2616</p>	 <p>301, 2607</p>	<p>Settling separator</p>
<p>4.5.17</p>	<p>X2617</p>	 <p>301, 2101, 2607</p>	<p>Settling separator with space for reject and having reject outlet</p>
<p>4.5.18</p>	<p>X2618</p>	 <p>301, 2621</p>	<p>Cyclone separator</p>
<p>4.5.19</p>	<p>X2619</p>	 <p>301, 402, 2608</p>	<p>High-speed centrifuge</p>
<p>4.5.20</p>	<p>X2620</p>	 <p>301, 402, 2608</p>	<p>Decanter centrifuge</p>
<p>4.5.21</p>	<p>X2621</p>	 <p>301, 2037</p>	<p>Spray scrubber</p>
<p>4.5.22</p>	<p>X2622</p>	 <p>301, 405</p>	<p>Bath scrubber</p>
<p>4.5.23</p>	<p>X2623</p>	 <p>254, 301, 2602</p>	<p>Washing machine with spinning</p>
<p>4.5.24</p>	<p>X2624</p>	 <p>301, 405, 2037</p>	<p>Dish-washer</p>

<p>4.5.25</p>	<p>X2625</p>	 <p>2062, 2602</p>	<p>Tray column; fractionating column</p>
<p>4.5.26</p>	<p>X2626</p>	 <p>2062, 2602</p>	<p>Tray column; fractionating column with passage for gas</p>
<p>4.5.27</p>	<p>X2627</p>	 <p>2601, IEC</p>	<p>Electrostatic separator</p>
<p>4.5.28</p>	<p>X2628</p>	 <p>2601, IEC</p>	<p>Electromagnetic separator</p>
<p>4.5.29</p>	<p>X2629</p>	 <p>326, 2601</p>	<p>Permanent-magnet separator</p>
<p>4.5.30</p>	<p>X2630</p>	 <p>2501, 2601</p>	<p>Thermal separator using heating or cooling medium in coil</p>
<p>4.5.31</p>	<p>X2631</p>	 <p>2601, IEC</p>	<p>Thermal separator using electrical heating</p>

4.5.32	X2632	 <p>2541, 2601</p>	Thermal separator using direct-heating source
4.5.33	X2633	 <p>2601, 2624</p>	Ion exchange separator
4.5.34	X2634	 <p>2601, 2623</p>	Biological filter EXAMPLE Active mass filter.
4.5.35	X2635	 <p>2037, 2062, 2603</p>	Reaction vessel with two fixed bed sections and spray nozzles

5 Devices for purification by conversion

5.1 Symbol of a basic nature

5.1.1	2651		Purifier using conversion See R2651 (5.2.1).
-------	------	-------------------------------------------------------------------------------------	-------------------------------------------------

5.2 Application rules for the symbol in 5.1

5.2.1	R2651	The asterisk shall be replaced with a symbol indicating the method or shall be omitted.
-------	-------	-----------------------------------------------------------------------------------------

5.3 Symbol giving supplementary information

5.3.1	2661	CAT	Catalytic type
-------	------	-----	----------------

5.4 Application rule for the symbol in 5.3

None.