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**Vacuum technology — Right-angle  
valve — Dimensions and interfaces for  
pneumatic actuator**

*Technique du vide — Vanne d'équerre — Dimensions et interfaces  
pour actionneur pneumatique*

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Published in Switzerland

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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 112, *Vacuum technology*.

This second edition cancels and replaces the first edition (ISO 21358:2007), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- the normative references have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

There had previously been no International Standard for the mounting dimensions of right-angle valves, in spite of the fact that right-angle valves are frequently incorporated in vacuum systems as part of pipeline fittings in practical situations of use.

This document was prepared in accordance with the revision of the ISO 9803 series in which the mounting dimensions of pipeline fittings have been standardized. Interfaces for pneumatic actuators have also been standardized.

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# Vacuum technology — Right-angle valve — Dimensions and interfaces for pneumatic actuator

## 1 Scope

This document defines dimensions of right-angle valves that are compatible with the mounting dimensions of elbows defined in ISO 9803-1 and ISO 9803-2.

This document covers right-angle valves with flanges defined in ISO 2861, ISO 1609 and ISO 3669.

## 2 Normative references

The following referenced documents 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.

ISO 1609, *Vacuum technology — Dimensions of non-knife edge flanges*

ISO 2861, *Vacuum technology — Dimensions of clamped-type quick-release couplings*

ISO 3669, *Vacuum technology — Dimensions of knife-edge flanges*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1609 and ISO 2861 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Requirements

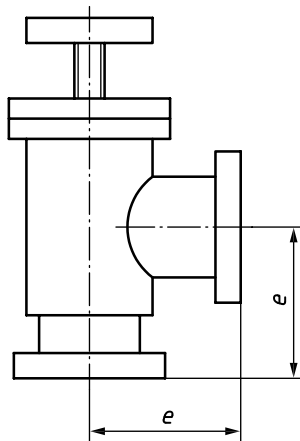
**4.1 Mounting dimensions** of the vacuum pipeline fittings shall be as specified in [Tables 1](#) and [2](#). See [Figure 1](#).

**4.2 Flange dimensions** shall be as specified in ISO 1609 and ISO 2861 and ISO 3669. One or more flanges should be rotatable.

## 5 Interface for pneumatic actuator

The input/output for pneumatic actuators and control solenoid for the actuators are as follows:

- a) minimum pneumatic pressure (for valve open/close): 0,4 MPa;
- b) maximum pneumatic pressure (in order not to be destroyed): 0,7 MPa;
- c) thread size and unit (e.g. “mm”, “inch”) of inlet and outlet for the pneumatic actuator should be indicated on the user's manual and/or valve body (e.g. “Rc 1/4”, “1/8 NPT”);
- d) electrical specification (or capacity) of contact points for open/close status indication should be indicated (e.g. “d.c. 24 V/2 A, a.c. 250 V/20 mA/50-60 Hz”).



**Key**  
 e edge dimension

**Figure 1 — Right-angle valve**

**Table 1 — Dimensions for valves with non knife-edge flanges**

Dimensions in millimetres

Nominal bore	Edge dimension, <i>e</i>		Flanges specified in		Perpendicularity tolerance for the two flange faces specified in	
	Dimensions	Tolerance	ISO 2861	ISO 1609	ISO 2861	ISO 1609
10	30	±1,5	not applicable	not applicable	±2°	not applicable
16	40					
25	50					
40	65	±4 <sup>a</sup>	not applicable <sup>c</sup>	applicable	not applicable <sup>c</sup>	±0°30'
63	88					
100	108	±4 <sup>b</sup>	not applicable <sup>c</sup>	applicable	not applicable <sup>c</sup>	±0°30'
160	138					
200	178					
250	208					

<sup>a</sup> ±1,5 is preferable.  
<sup>b</sup> ±2 is preferable.  
<sup>c</sup> There are no corresponding flanges in ISO 2861 over nominal bore 63.

**Table 2 — Dimensions for valves with knife edge flanges**

Dimensions in millimetres

Nominal bore	Edge dimension, <i>e</i>		Perpendicularity tolerance for the two flange faces
	Dimensions	Tolerance	
16	38	±1,5	±1°
40	63		
63	105		
100	135	±2	±0°30'
160	167		
200	203		



## Bibliography

- [1] ISO 3, *Preferred numbers — Series of preferred numbers*
- [2] ISO 9803-1, *Vacuum technology — Mounting dimensions of pipeline fittings — Part 1: Non knife-edge flange type*
- [3] ISO 9803-2, *Vacuum technology — Mounting dimensions of pipeline fittings — Part 2: Knife-edge flange type*

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