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**Vacuum technology — Mounting  
dimensions of pipeline fittings —**

**Part 1:  
Non knife-edge flange type**

*Technique du vide — Dimensions de montage des raccords de  
conduit —*

*Partie 1: Brides de type sans guillotine*

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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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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 9803-1:2007), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- The normative references have been updated.
- Reference [2] has been updated.

A list of all parts in the ISO 9803 series can be found on the ISO website.

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

ISO 9803:1993 defined only those pipeline fittings whose flanges are non knife-edge type, as defined in ISO 1609:1986 and ISO 2861-1:1974. The previous revision divided ISO 9803:1993 into two parts:

- this part of ISO 9803, in which fittings with non knife-edge flanges are defined, and
- ISO 9803-2, in which fittings with knife-edge flanges as specified in ISO 3669 are defined.

This document deals with dimensions of pipeline fittings whose flanges are of non knife-edge type, as defined in ISO 1609 and ISO 2861.

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# Vacuum technology — Mounting dimensions of pipeline fittings —

## Part 1: Non knife-edge flange type

### 1 Scope

This document specifies mounting dimensions for vacuum pipeline fittings (elbows, tees and crosses) of non knife-edge flange for nominal bores from 10 mm to 250 mm of the R5 series.

### 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*

### 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:

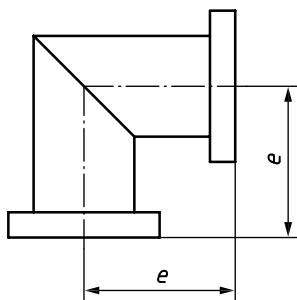
- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 4 Requirements

**4.1 Mounting dimensions** of the vacuum pipeline fittings shall be as specified in [Table 1](#). See [Figures 1](#) to [3](#).

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

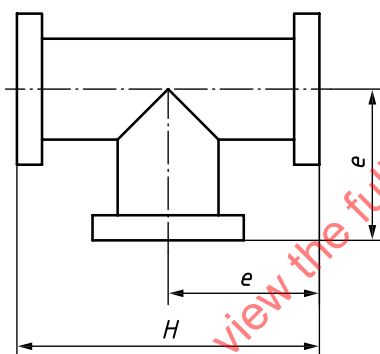
**4.3 Bolt holes** in the flanges specified in ISO 1609 shall be positioned as shown in [Figure 4](#). Angle  $\alpha$  is a function of the number of bolt holes.



**Key**

$e$  edge dimension

**Figure 1 — Elbow**

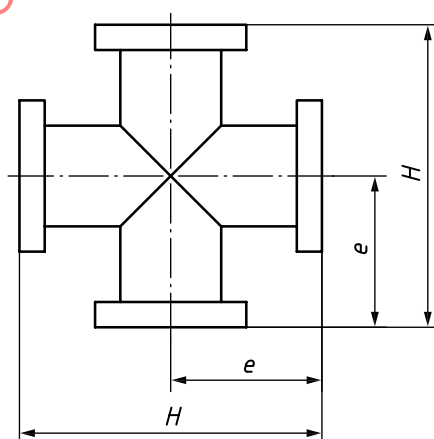


**Key**

$e$  edge dimension

$H$  length

**Figure 2 — Tee**

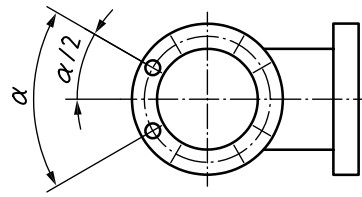


**Key**

$e$  edge dimension

$H$  length

**Figure 3 — Cross**

**Key**

$$\alpha = \frac{360^\circ}{\text{total number of bolt holes}}$$

**Figure 4 — Position of bolt holes****Table 1 — Dimensions of pipeline fittings**

Dimensions in millimetres

| Nominal bore | Edge dimension, $e$ |           | Length, $H$        |           | Perpendicularity or parallelism tolerance for the two mating faces for the two flanges specified in |          |
|--------------|---------------------|-----------|--------------------|-----------|-----------------------------------------------------------------------------------------------------|----------|
|              |                     | tolerance |                    | tolerance | ISO 2861                                                                                            | ISO 1609 |
| 10           | 30/40 <sup>a</sup>  | ±1,5      | 60/80 <sup>a</sup> | ±1,5      | ±2°                                                                                                 | ±1°      |
| 16           | 40                  |           | 80                 |           |                                                                                                     |          |
| 25           | 50                  |           | 100                |           |                                                                                                     |          |
| 40           | 65                  |           | 130                | ±2        | Not applicable                                                                                      | ±0°30'   |
| 63           | 88                  |           | 176                |           |                                                                                                     |          |
| 100          | 108                 |           | 216                |           |                                                                                                     |          |
| 160          | 138                 | 276       | ±3                 |           |                                                                                                     |          |
| 200          | 178                 | 356       |                    |           |                                                                                                     |          |
| 250          | 208                 | 416       |                    |           |                                                                                                     |          |

<sup>a</sup> The latter value shall be used only for flanges specified in ISO 1609.