

ICS 23.160
CCS J 78



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6070.1-1995

Replacing GB/T 6070-2007

**Vacuum technology - Dimensions of non-knife edge flanges
(English Translation)**

Issued on: October 31, 2025

Implemented on: February 1, 2026

Issued by: State Administration for Market Regulation

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 6070-2007 "Dimensions of Vacuum Technology Flanges". Compared with GB/T 6070-2007, except for structural adjustments and...

Aside from editorial changes, the main technical changes are as follows.

---The scope of this document has been changed (see Chapter 1, Chapter 1 of the 2007 edition);

---A new chapter on "Terms and Definitions" has been added (see Chapter 3);

---The requirement for flange material selection has been removed (see 3.1.2 in the 2007 edition);

---The requirement for the outer diameter of the retaining ring in the slip-on flange illustration has been changed (see Figure 4, Figure 4 in the 2007 edition).

This document is modified to adopt ISO 1609:2020 "Dimensions of non-knife-edge flanges

for vacuum technology".

Compared with ISO 1609:2020, this document has undergone many structural adjustments. A comparison table of the structural numbering changes between the two documents can be found here.

Appendix A.

This document differs significantly from ISO 1609:2020 in several technical aspects. A single vertical line is drawn in the margin outside the relevant clauses.

(I) are marked. A summary of these technical differences and their causes can be found in Appendix B.

The following editorial changes have been made to this document.

---This document uses the unified translation "flangesandcolars" and "flangesorcolars" as "Flange";

---ISO 3 (see 3.1) has been replaced by GB/T 321 (informative reference), and GB/T 5277 (informative reference) has been replaced by...

ISO 273 (see 3.2);

---The symbol "D" in 3.3 has been changed to "d";

---In section 3.5, "colarwidth" is translated as "clamping device interface width" according to the dimension markings in Figure 3;

---The symbol "H" in 3.6 is changed to "D1";

---ISO 887 has been replaced by GB/T 5286 (see 3.6), which is used for informational purposes.

---The symbol "U" in 3.8 has been changed to "D4";

---ISO 2861 has been replaced by GB/T 4982 (see 4.2), which is cited as informative.

---In Figure 2 and Table 1, "B" is changed to "D0", "E" is changed to "D2", "F" is changed to "D", and "M" is changed to "H";

---The title of Figure 3, "Clamping or Loose Flange with Caliper," is changed to "Clipper Flange";

---The title of Table 2, "Dimensions of Caliper Flanges for Loose Flanges," should be changed to "Dimensions of Caliper Flanges."

---In Figure 3 and Table 2, the symbols "F" is changed to "D", "L" is changed to "H1", "P" is changed to "H2", and "S" is changed to Change "D3" and "W" to "D5";

---The title of Figure 4, "Slip-on flange with retaining ring," should be changed to "Slip-on

flange."

---The title of Table 3, "Dimensions of Loose Flanges with Snap Rings," is changed to "Dimensions of Loose Flanges."

---In Figure 4 and Table 3, the symbols "B" is changed to "D0", "K" is changed to "d0", "H" is changed to "D1", and "M" is changed to "Change H", "Q" to "H3", "T" to "D6", "V" to "D7", "R" to "r", and "D" to "d";

---The line seal load symbol " σ " in Appendix C has been changed to " δ ", thus modifying the line seal load value;

---Appendix D (informative) has been added, detailing the sealing groove structure and flange connection methods;

---In Figure E.1, "A" is changed to "D", and "A1" is changed to "d7";

---ISO 1127 has been replaced by GB/T 17395 (see Table E.1), which is cited in the informational reference.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Vacuum Technology (SAC/TC18).

1 Scope

This document specifies the dimensions of non-knife-edge flanges commonly used in vacuum technology.

This dimension ensures interchangeability between fixed flanges, loose flanges, and clamp flanges.

a) Whether it is the assembly of flanges of the same type (such as fixed flanges or clamp flanges) or the assembly of flanges of different types (such as fixed flanges) (Assembled with caliper flanges via bolts or calipers, and with fixed flanges and loose flanges via bolts).

b) Regardless of whether the sealing ring used with the flange is an elastomeric O-ring or a metal sealing ring, as long as it conforms to the specifications in Appendix C...

The flange linear sealing load compatibility is sufficient.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

Nominal diameter/nominal bore Used to identify flanges and specify the maximum actual pipe diameter that the flange can accommodate.

Note 1: The tables in this document provide a series of nominal diameters for flanges.

Note 2: These values follow the series of the R10 preferred number system (see GB/T 321), except for the item 12.5.

Note 3: The nominal diameter values belonging to the R5 preference number system (see GB/T 321) are as follows. 10, 16, 25, 40, 63, 100, 160, 250, 400, 630, and 1000. (And length) the simplified series of nominal diameters used in this period are consistent.

Note 4: The nominal diameters of 63 and 160 given in Tables 1, 2 and 3 correspond to actual diameters of 70 mm (or 65 mm) and 153 mm, respectively.

[Source. ISO 3669:2020, 3.2] 3.2 Bolt hole diameter the numerical value of the bolt hole diameter.

Note: C is taken from the through hole diameter (D) specified in GB/T 5277.

bolt diameter

The diameter of the bolt itself.

Note: When the nominal diameter of the flange is given, the bolt diameter (d) of the fixed flange and the loose flange is the same.

mating surface

Surface roughness and flatness make the annular plane possible for sealing at the joint.

Note: D and D₂ in Table 1 and D and D₃ in Table 2 specify the minimum sealing surface.