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# HG

## CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

# HG/T 20614-2009

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## Specification for ion of steel pipe flanges, gaskets and bolting (PN designated)

钢制管法兰、垫片、紧固件选用配合规定(PN系列)

**(English Translation)**

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Appendix A (Informative) Operating Instructions of the Pipe Flange for Gaskets

1 Scope

## 1 Scope

This standard specifies the general rules for selection of the steel pipe flange, gaskets and bolting (PN designated).

This standard is applicable to the steel pipe flange, gaskets and bolting which are specified in the HG/T 20592 - HG/T 20613.

## 2 Normative References

The following provisions contained in the following standards are turned into the provisions of this national standard by being referred in this national standard. For date reference, the subsequent amendments to (excluding amending error in the text) or revisions of, any of these publications do not apply. And parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For undated references, its latest edition referred to applies.

HG/T 20592 "Steel Pipe Flanges (PN Designated)" HG/T 20606 "Non-metallic Flat Gaskets for use with Steel Pipe Flanges (PN designated)" HG/T 20607 "PTFE Envelope Gaskets for use with Steel Pipe Flanges (PN designated)" HG/T 20609 "Metal Jacketed Gaskets for use with Steel Pipe Flanges (PN designated)" HG/T 20610 "Spiral Wound Gaskets for use with Steel Pipe Flanges (PN designated" HG/T 20611 "Covered Serrated Metal Gaskets for use with Steel Pipe Flanges (PN designated)" HG/T 20612 "Metallic Ring Joint Gaskets for use with Steel Pipe Flanges (PN designated)" HG/T 20613 "Bolting for use with Steel Pipe Flanges (PN designated)"

### 3.0.1 Pipe Flange

1 Type and application range of the flange shall meet the requirements of the Table 3.1.4 in HG/T 20592.

2 Type and application range of the sealing surface of the flange shall meet the requirements of Table 3.2.2 in HG/T 20592.



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3 Materials for flange shall meet the requirements of Chapter 4 in HG/T 20592.As for the forging, casting or plates for other pressure-bearing equipments, if its composition and performance are not lower than those of the materials which are listed in Table 4.0.1 of HG/T 20592, the aforesaid ones may be used for the preparation of the flange. The maximum allowable working pressure of the flange shall meet the requirements of the corresponding materials which are listed in the table.

4 The maximum allowable working pressure (gauge pressure) of the flange under the working temperature shall meet the requirements of Table 7.0.1-1 - Table 7.0.1-9 in HG/T 20592.

5 When the two flanges of the flanged joint are of different pressure-temperature rating, the rated value of the flanged joint shall not exceed the lower one of the two.

## 6 Under the severe cyclic working condition, weld neck flange or integral type flange

3.0.2 Gasket

1 Type and application range of the gasket shall meet the requirements of HG/T 20606 -HG/T 20612.

2 Type and material of gasket shall be selected according to such requirements as fluid, working condition (pressure and temperature) as well as sealing condition of the flanged joint.

The type of the sealing surface of the flange and the surface roughness shall be correspondent with the type and material of the gasket.

3 Seal load of the gasket shall be correspondent with such requirements as rated value of the flange, sealing surface type, service temperature and sealing requirements of the joint.

And the material, strength as well as tightening of the bolting shall be correspondent with such requirements as type and material of the gasket as well as sealing condition of the flanged joint.

4 PTFE envelope gaskets shall not be used in such places that it is vacuum or the materials for its embedding layer is easy to be corrosive. Generally, PMF type is used for it is useful to reduce the hold-up liquid in the pipe. PFT type is used for that the nominal dimension is larger than or equal to DN350.

5 When asbestos or flexible graphite gasket are used for the stainless steel flange and nickel base alloy flange, content of chloride ion of the gasket material shall not exceed50x10-6.

6 When expanded graphite material is used for the oxidative medium, maximum service temperature shall not exceed 450.°C



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## 7 Asbestos and non asbestos gasket shall not be used for the utmost or high hazardous

medium and high vacuum seal condition.

8 As PTFE flat gasket which is of the tendency to cold flow, flat face, male-female face or tongue and groove face should be adopted for its sealing surface type.

9 As for the flange that its nominal pressure is less than or equal to PN16, such rigid flange structural type as weld neck flange shall be adopted when such semimetal gasket or metal ring gasket as spiral-wound gasket and metal cladding gasket are adopted.

10 The internal diameter of the nonmetallic flat gaskets and internal ring of the wound gasket may be possibly larger than the internal diameter of the corresponding flange. If the aforesaid internal diameter of the gasket (or internal ring) shall be flush with the internal diameter of the flange, the following requirements shall be proposed by the user.

1) Integral type flange, welding neck flange or socket welding flange shall be adopted;

2) The corresponding internal diameter of the flange shall be supplied as the internal diameter of the gasket to the gasket manufactory.

11 Selection of the gasket type is listed in Table 3.0.2.

(Continued)

Gasket type

Nominal

pressure

Nominal

dimension

Maximum

service

temperature,

Sealing

surface

typeg

Surface roughness of the sealing surface Ra (μm) Flange type Semimetal Wound gasket 16-160 10-2000 Raised face Male-female face Tongue and groove face 3.2-6.3 Slip on neck flange Weld neck flange Integral type flange Socket welding flange Blind flange Serrated



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combined gasket 16-160 f Raised face Male-female face Tongue and groove face 3.2-6.3 Slip on neck flange Weld neck flange Integral type flange Socket welding flange Blind flange Semimetal/metal Metal envelope gasket 25-100 10-900 d Raised face 1.6-3.2 (carbon steel and non-ferrous metal)) 0.8-1.6 (stainless steel and nickel base alloy) Weld neck flange Integral type flange Blind flange Metal Metal ring gasket 63-160 15-400 700 Ring joint face 0.8-1.6 (Carbon steel and chrome steel) 0.4-0.8 (Stainless steel) Weld neck flange Integral type flange Blind flange Note. a The service temperature scope of all kinds of India rubber and synthetic rubber are different. It is shown in Appendix A and HG/T 20606.

b Compositions and service temperature scope of the main raw materials of the non asbestos fiber rubber plate are different. It is shown in Appendix A and can be known from the manufacturing plant.

c When strengthened expanded graphite plate is used for the oxidative medium, the maximum service temperature is 450.°C d The service temperature scope of the metal envelope gasket is changed according to the different combination of the clad metal and filling material (see HG/T 20609).

e The service temperature scope of the wound gasket is changed according to the different combination of the metal strap and filling material (see HG/T 20610).

f The service temperature scope of the serrated combined gasket is changed according to the different combination of the metal serrated ring and cladding material (see HG/T 20611).

g Sealing surface type and its application DN (nominal dimension) range of various flanges are shown in Table 3.0.1.

b The maximum value of the arithmetic product of the service temperature and pressure (PxT) of non-metal material gasket shall not exceed the requirements of HG/20606 or can be known from the relevant gasket according to the manufacturer's brands which are listed in Appendix A.

3.0.3 Bolting

1 Type, working pressure and temperature range of the bolting shall meet the requirements of Table 5.0.4 of HG/T 20613 and Table 3.0.3-1..

2 Strength grade of the bolting material shall meet the requirements of Table 4.0.1 of HG/T 20613 as well as Table 3.0.3-1.

3 Commercial-grade bolting and special-grade bolting shall meet the requirements of Chapter 5 of HG/T 30613 as well as Table 3.0.3-1.

4 As for the low-temperature bolting, the low-temperature impact pliability of its material shall be specified.



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