Chemical Industry Standard

of the People's Republic of China

HG

HG/T 20615-2009

Replacing HG 20615~20622-1997, HG 20624~20626-1997

Steel Pipe Flanges

(Class designated)

钢制管法兰

(Class 系列)

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following requirements.

1 The one with one of the following conditions being met shall comply with the requirements of III-level or above forgings;

1) Forging with nominal pressure of more than or equal to Class600;

2) Chrome molybdenum steel forging with nominal pressure of greater than or equal to Class300;

3) Ferrite steel forging with nominal pressure of greater than or equal to Class300 and with working temperature of less than or equal to -20℃.

2 Unless otherwise specified above, the forging with nominal pressure of less than or equal to Class300 shall comply with the requirements of II-level or above forging,

4.0.3 The flanges (excluding blind flanges) shall be made of forgings (or forging rolling technology) and casting (steel), but shall not be tailor-welding. The blind flanges may be made of steel plate.

4.0.4 Unless otherwise specified in this Standard, the materials for pipe flange shall also comply with the requirements of relevant standards and codes.

5. Gaskets and bolting for flange

5.0.1 The gasket shall comply with the sealing property of flange joint under working conditions. Acting by pretension load of bolt, gasket stress under pretension and working conditions shall be ensured, and no deleterious deformation and crush can be generated.

5.0.2 The gasket complies with the requirements of HG/T 20627~HG/T 20635.

5.0.3 The bolting includes hexagon head bolt, full thread stud and nut, the applied bolt quantity and specification are in accordance with the requirements of Table 8.1.1 shown in this Standard.

5.0.4 The bolting is classified into high strength, medium strength and low strength. The bolting materials shall be adopted according to the gasket, pressure, temperature, flange and sealing face mode, so as to meet the requirements of the sealing property and bearing strength of flange joint under pretension and working conditions.

5.0.5 The bolting complies with the requirements of HG/T 20634.

6. Fitting of flange joint

The fitting between the flanges and gaskets complies with the requirements of HG/T 20635.

7. Pressure-temperature rating

7.0.1 For the steel pipe flange and blind flange with nominal pressure grade of

8.4 Pipe thread

8.4.1 The pipe thread adopted by the thread flange is classified into two conditions:

1 Adopt 55°taper thread (Rc) specified in GB/T 7306.2;

2 Adopt 60°taper thread (NPT) specified by GB/T 12716

8.4.2 When adopting 55°pipe thread, outside diameter of the steel pipe assorted for DN150 flange shall be 165.1mm; when adopting 60° taper pipe thread, outside diameter of the steel pipe assorted for DN65 flange shall be73mm and the outside diameter of the steel pipe assorted for DN125 flange shall be 141.3mm.

8.4.3 The pipe thread shall be concentric with the axial line of the flange hole, and the deviation shall not be more than 5mm/m.

8.4.4 Class150 (PN20) thread flange will not process the locating hole. On the flange neck end, the locating hole shall be chamfered, the angle between the chamfer and the thread axis is about 45°, and the chamfer shall be coaxial with the thread.

8.4.5 C1ass300 (PN50) thread flange shall process locating hole at the flange neck end. The intersection between the locating hole bottom and thread shall be chamfered, the angle between the chamfer and the thread axis is about 45°, and the chamfer shall be coaxial with the thread.

9. Welding joint and groove dimension

9.0.1 The welding joint of slip on neck flange connecting to the steel pipe shall comply with the requirements of Figure 9.0.1.

9.0.2 The welding joint of socket welding flange connecting to the steel pipe shall comply with the requirements of Figure 9.0.2.

9.0.3 The welding end and groove dimension of the weld neck flange connecting the steel pipe shall comply with the requirements of Figure 9.0.3-1. If the straight section thickness of the weld neck flange is 1mm more than the wall thickness of its butted steel pipe, the straight section of the flange shall be whittled down at the inside diameter section, and the slope of the whittle down section shall be less than or equal to 1:3, see Figure 9.0.3-2.

9.0.4 The welding joint and groove dimension of the butt welding ring (slip-on flange) connecting to the steel pipe shall comply with the requirements of Figure 9.0.4.

c is the nominal dimension DN of the flange;

d is the nominal pressure Class of the flange;

e is the seal contact face type code; it is in accordance with those specified in Table 3.2.1 of this Standard;

f is the wall thickness of the steel pipe (pipe tab) that shall be provided by the user. The wall thickness of the steel pipe shall be marked for weld neck flange, long welding neck flange and butt welding ring (slip-on flange);

g is the material grade;

h denotes others, such as additional requirement or adopting requirements inconsistent with that of this Standard.

13.0.2 Marking illustration

Illustration 1: slip on neck steel pipe flange with flat face in nominal dimension of DN300 and in nominal pressure of Class150, the material is 20 steel, it is marked as:

HG/T 20615 flange SO 300-150 FF 20

Illustration 2: weld neck steel pipe flange with male face in nominal dimension of DN100 and in nominal pressure of Class600, the material is 16Mn and the wall thickness grade of the steel pipe is Sch80, it is marked as:

HG/T 20615 flange WN 100-600 M Sch80 16Mn

Illustration 3: long weld neck steel pipe flange with ring joint face in nominal dimension of DN150 and in nominal pressure of Class900, the material is 16Mn and the wall thickness grade of the steel pipe is XXS, it is marked as:

HG/T 20615 flange LWN 150-900 RJ XXS 16Mn

Illustration 4: integral type steel pipe flange with flat face in nominal dimension of DN500 and in nominal pressure of Class150, the material is WCB, and the roughness of the seal contact face is Ra0.8~1.6, it is marked as:

HG/T 20615 flange IF 500-150 FF WCB Ra0.8~1.6

Illustration 5: socket welding steel pipe flange with raised face in nominal dimension of DN40 and in nominal pressure of Class300, and the material is 304, it is marked as:

HG/T 20615 flange SW 40-300 RF 304

Illustration 6: thread steel pipe flange with male face in nominal dimension of DN80 and in nominal pressure of Class150, and the material is 20 steel, it is marked as:

HG/T 20615 flange Th (NPT) 80-150 RF 20

Illustration 7: thread steel pipe flange with flat face in nominal dimension of DN65 and in nominal pressure of Class300, and the material is 316, it is marked as:

HG/T 20615 flange Th (Rc) 65-300 FF 316

Illustration 8: butt welding ring loose steel pipe flange with ring joint face in nominal dimension of DN200 and in nominal pressure of Class150, the flange material is 20 steel, butt welding ring materials is 316, and the wall thickness grade of the steel pipe is Sch10S, it is marked as:

HG/T 20615 flange LF/SE 200—150 RF Sch10S 20/316

Illustration 9: steel pipe blind flange with ring joint face in nominal dimension of DN300 and in nominal pressure of Class600, and the material is 16Mn, it is marked as:

HG/T 20615 blind flange BL 300—600 RJ 16Mn

Illustration 10: steel pipe blind flange with tongue/groove face in nominal dimension of

DN400 and in nominal pressure of Class300, and the material is 20 steel, it is marked as:

HG/T 20615 blind flange BL 400—300 T 20

13.0.3 Procurement and delivery

1 The user shall provide the following requirements:

1) Standard No.;

2) Type or type code of pipe flange;

3) Type code of seal contact face of the flange;

4) Nominal dimension (DN);

5) Nominal pressure (Class);

6) Wall thickness of the steel pipe connected to the weld neck flange, long welding neck flange and butt welding ring (slip-on flange);

7) Material grade

2 According to the requirements and accepted by negotiation between both parties (supplier and buyer), the buyer may propose the following additional technical requirements, but specific requirements shall be explained when ordering.

1) Adopt materials exclude out of Table 4.0.1 of this Standard;

2) Level of the flange forging is higher than the requirements of Article 4.0.2 of this Standard;

3) Intergranular corrosion test requirement of austenitic stainless steel;

4) Anticorrosion and painting requirements on the flange surface;

5) Others

14. Packaging and steel seal labeling

14.0.1 The surface of the excircle column of the flanges (including blind flange) shall label the following content by steel seal:

1 Standard No.: HG/T 20615

2 The flange type code (according to requirements of Table 3.1.1 of this Standard) and the taper pipe thread code of thread flange (according to provision the requirements of Article 8.4.1 of this Standard);

3 The nominal dimension DN of flange;

4 The nominal pressure Class of the flange;

5 The seal contact face type code: it is in accordance with those specified in Table 3.2.1 of this Standard. The flange of the ring joint seal contact face shall be marked with ring No.;

6 The weld neck flange and butt welding ring (slip-on flange) shall be marked with wall thickness of the steel pipe, while the long welding neck flange shall be marked with inside diameter of the flange.

7 The material code (according to the requirements of Table 14.0.1).

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