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CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HG/T 20615-2009

Steel pipe flanges (Class designated)

钢制管法兰(Class系列)

(English Translation)

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1.0.1 This national standard specifies the basic technical requirements of steel pipe flanges

(Class designated), including nominal dimension, nominal pressure, material, pressure-temperature rating, flange type, dimension, sealing face, tolerance and marking.

1.0.2 This Standard is applicable to steel pipe flange and blind flange with nominal pressure

of Class150 (PN20)~Class2500 (PN420). The nominal pressure grade of the flange is denoted by Class, including the following six grades. Class150, Class300, Class600, Class900, Class1500 and Class2500.

1.0.3 The applied nominal dimension DN and outside diameter of the steel pipe in this Standard are in accordance with those specified in Table 1.0.3.

1.0.4 This Standard is also applicable to valve, pump, chemical engineering machinery, pipeline fittings and equipment spares with flange being used as its type of attachment.

1.0.5 This Standard excludes selection principle for materials under particular fluid operating

conditions.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. For dated reference, subsequent amendments (excluding content of corrigenda) to, or revisions of, any of these publications do not apply.

However, Parties to agreements based on this Code are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For undated references, the latest edition of the normative document referred to applies.

"Pipework Components--Definition and Selection of DN (Nominal Dimension)" GB/T "Steel Pressure Vessels" GB 150 "Fasteners-Clearance Holes and Counterbores" GB/T 152.1~152.4 "Carbon Structural Steels" GB/T 700 "Hot-rolled Quality Carbon Structural Steel Plates and Wide Strips" GB/T 711 "Steel Plates for Boiler and Pressure Vessels" GB 713 "Hot-rolled Plates and Strips of Carbon Structural Steels and High Strength Low Alloy Structural Steels" GB/T 3274 "Low Alloy Steel Plates for Low Temperature Pressure Vessels" GB 3531 "Hot Rolled Stainless Steel Plate Sheet and Strip" GB/T 4237 "Pipe Threads with 55 Degree Thread Angle where Pressure-tight Joints are Made on the Threads--Part 2: Taper Internal and External Threads" GB/T 7306.2 "General Purpose Industrial Valves-Specification of Carbon Steel Forgings" GB/T 12228 "General Purpose Industrial Valves-Specification of Carbon Steel Castings" GB/T 12229 "General Purpose Industrial Valve-Specification of Stainless Steel Castings" GB/T 12230

3.1 Flange type

3.1.1

The flange type and its code are in accordance with those specified in Figure 3.1.1 and Table 3.1.1. Flange type includes. Slip On Neck Flange, Weld Neck Flange, Integral Type Flange, Socket Welding Flange, Thread Flange, Butt Welding Ring Loose Flange, Long Welding Neck Flange and Blind Flange.

3.1.2

The orifice flange for flow measurement complies with the provisions of Appendix A of this Standard.

3.1.3

The jacket flange for full jacket pipe connection may refer to the requirements of Appendix B of this Standard.

3.1.4

The nominal dimension and nominal pressure applied for flange types are in accordance with those specified in Table 3.1.4.

4.0.1 Materials for steel pipe flange comply with the requirements of Table 4.0.1, its chemical

composition, mechanical property and other technical requirement shall be in accordance with the standards provisions listed in Table 4.0.1.

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.

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 Class150~Class2500, the maximum allowable working pressure under working temperature complies with the requirements of Table 7.0.1-1~Table 7.0.1-16.

7.0.2

The types of pipe flange materials listed in Table 7.0.1-1~Table 7.0.1-16 comply with the requirements of Table 4.1 of this Standard.

7.0.3

The working temperature refers to the temperature of flange metal under pressure effect.

When the working temperature is lower than 20??, the maximum allowable working pressure of the flange is identical to that when the temperature is 20??. When the working temperature is higher than the upper temperature limit listed in the table, the maximum allowable working pressure may be determined by the designer proper according to the service experience or calculation.

7.0.4

If the two flanges on the same flange joint have different pressure rated value, the maximum allowable working pressure of the joint fitting is based on the smaller value, moreover, the torsion moment of the stud shall be controlled when installing, so as to prevent high strung.

8.1 Coupling dimension of the pipe flange**8.1.1**

The coupling dimension of the flange is in accordance with those specified in Figure 8.1.1 and Table 8.1.1 (they are pipe flanges have different pressure grades within mourning border of Table 8.1.1, but they are equipped with same coupling dimension). The domestic and international pipe flanges standards assorted with this Standard may refer to Appendix D of this Standard. 8.1.2 The bolt holes shall be divided in uniformly spaces.