

HG

CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HG/T 20623-2009

Large diameter steel pipe flanges (PN designated)

大直径钢制管法兰(Class系列)

(English Translation)

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 - 1 General provisions
 - 1.0.1 This national standard specifies nominal dimension, nominal pressure, material,

1 General provisions

1.0.1

This national standard specifies nominal dimension, nominal pressure, material, pressure-temperature rating, flange type, dimension, seal contact face, tolerance and marking of larger diameter steel pipe flanges (Class designated).

1.0.2 This Standard is applicable to larger diameter weld neck steel pipe flanges and blind

flanges with nominal pressure of Class150 (PN20)~Class900 (PN150). The nominal pressure grade of the flange is denoted by Class, including the following four grades. Class150, Class300, Class600 and Class900.

1.0.3 This Standard includes A and B two dimensions series of larger diameter steel pipe

flange, and clear marking must be indicated when being adopted.

1.0.4 The applied nominal dimension DN and outside diameter of the steel pipe in this Standard are in accordance with those specified in Table 1.0.4.

Table 1.0.4 Inside Nominal Diameter and Outside Diameter of the Steel Pipe

Nominal dimension

DN 650 700 750 800 850 900 950 1000 NPS 26 28 30 32 34 36 38 40	Outside diameter of the steel pipe (mm) 660 711 762 813 864 914 965 1016
Nominal dimension DN 1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 NPS 42 44 46 48 50 52 54 56 58 60	Outside diameter of the steel pipe (mm) 1067 1118 1168 1219 1270 1321 1372 1422 1473 1524

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

1.0.6 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.

"Fasteners-Counterbores for Hexagon Bolts and Nuts" GB/T 152.4 "Steel Pipe Flanges (Class Designated)" HG/T 20615 "Non-metallic Flat Gaskets for use with Steel Pipe Flanges (Class designated)" HG/T "PTFE Envelope Gaskets for use with Steel Pipe Flanges (Class designated)" HG/T "Metal Jacketed Gaskets for use with Steel Pipe Flanges (Class Designated)" HG/T "Spiral Wound Gaskets for use with Steel Pipe Flanges (Class Designated)" HG/T 20631 "Covered Serrated Metal Gaskets for use with Steel Pipe Flanges (Class Designated)" HG/T 20632 "Metallic Ring Joint Gaskets for use with Steel Pipe Flanges (Class Designated)" HG/T "Bolting for use with Steel Pipe Flanges (Class Designated)" HG/T 20634 "Specification for Selection of Steel Pipe Flanges, Gaskets and Bolting (Class designated)" HG/T 20635 "Carbon and Low-alloy Steel Forgings for Pressure Vessels" JB 4726 "Low-alloy Steel Forgings for Low Temperature Pressure Vessels" JB

4727 "Stainless Steel Forgings for Pressure Vessels" JB 4728

3.1 Flange type

The flange type or its applied nominal dimension and nominal pressure are in accordance with those specified in Table 3.1.

Table 3.2.7-3 Dimension of Ring Joint Face (mm)

Nominal

dimension	Class300(PN50)	Class600(PN110)	Class900(PN150)	DN	NPS	Ring No.	dmin	P	E	F	Rmax	Ring No.	dmin	P	E	F	Rmax	
650	26	R93	810	749.30	12.70	19.84	1.5	R100	832	749.30	17.48	30.18	2.3	700	28	R94	861	800.10
749.30	17.48	30.18	2.3	700	28	R94	861	800.10	12.70	19.84	1.5	R101	889	800.10	17.48	33.32	2.3	750
30	R95	917	857.25	12.70	19.84	1.5	R102	946	857.25	17.48	33.32	2.3	800	32	R96	984	914.40	14.27
23.01	1.5	R103	1003	914.40	17.48	33.32	2.3	850	34	R97	1035	965.20	14.27	23.01	1.5	R104	1067	965.20
20.62	36.53	2.3	900	36	R98	1092	1022.35	14.27	23.01	1.5	R105	1124	1022.35	20.62	36.53	2.3		

4 Materials**4.0.1**

The materials for steel pipe flanges comply with the requirements of Table 4.0.1 of HG/T 20615, whose chemical composition, mechanical property and other technical requirements shall be in accordance with the standards provisions listed in Table 4.0.1.

4.0.2

The grades and technical requirements of the forgings for use with pipe flanges (including forging rolling pieces) (refer to JB 4726, JB 4727 and JB 4728) shall be in accordance with the following requirements.

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

- 1) Forgings with nominal pressure of more than or equal to Class600;
- 2) Chrome molybdenum steel forgings 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°C.

2 Unless otherwise specified in Item 1 above, the forgings 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) or castings (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 Maximum allowable working pressure

The maximum allowable working pressure of the flanges under working temperature complies with the requirements of Chapter 7 of HG/T 20615.

Table 7.0.1-1 Class1500 (PN20) Larger Diameter Steel Pipe Flange and Blind Flange (A series) (mm)

Nominal

dimension Outside

diameter

A of the

flange

welding

end

Coupling dimension Thickness Inside diameter of the flange Flange neck Flange height H
DN NPS Outside diameter of the flange Diameter of the bolt hole center circle Diameter of
bolt hole Bolt Th Quantity of the bolt hole Flange Blind flange N R 650 26 660.4 870 806.4
36 M33 24 66.7 66.7 Conform to the inside diameter of the steel pipe 700 28 711.2 925
863.6 36 M33 28 69.9 69.9 727 11 124 750 30 762.0 985 914.4 36 M33 28 73.1 73.1 781
11 135 800 32 812.8 1060 977.9 42 M39 28 79.4 79.4 832 11 143 850 34 863.6 1110
1028.7 42 M39 32 81.0 81.0 883 13 148 900 36 914.4 1170 1085.8 42 M39 32 88.9 88.9
933 13 156 950 38 965.2 1240 1149.4 42 M39 32 85.8 85.8 991 13 156 1000 40 1016.0
1290 1200.2 42 M39 36 88.9 88.9 1041 13 162 1050 42 1066.8 1345 1257.3 42 M39 36
95.3 95.3 1092 13 170 1100 44 1117.6 1405 1314.4 42 M39 40 100.1 100.1 1143 13 176
1150 46 1168.4 1455 1365.2 42 M39 40 101.6 101.6 1197 13 184 1200 48 1219.2 1510
1422.4 42 M39 44 106.4 106.4 1248 13 191 1250 50 1270.0 1570 1479.6 48 M45 44 109.6
109.6 1302 13 202 1300 52 1320.8 1625 1536.7 48 M45 44 114.3 114.3 1353 13 208 1350
54 1371.6 1685 1593.8 48 M45 44 119.1 119.1 1403 13 214 1400 56 1422.4 1745 1651.0
48 M45 48 122.3 122.3 1457 13 227 1450 58 1473.2 1805 1708.2 48 M45 48 127.0 127.0