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Chemical Industry Standard
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HG

HG/T 20610-2009

Replacing HG 20610-1997

Spiral Wound Gaskets for use with Steel Pipe Flanges

(PN designated)

钢制管法兰用缠绕式垫片

(PN 系列)

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1. Scope

This standard specifies the type, dimension, technical requirements, labeling and marking of the spiral wound gaskets for steel pipe flanges (PN designated).

This standard is applicable to the spiral wound gaskets for steel pipe flanges specified in HG/T 20592 whose nominal pressure is PN16-PN160.

2. Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this national standard. For dated reference, subsequent amendments (excluding amending error in the text) to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to research whether the latest editions of these references are applied or not. For undated references, the latest edition of the normative document is applicable to this national standard.

"Hot-rolled Plain Carbon and Low Alloy Structural Steel Sheets and Strips" GB/T 912

"Cold Rolled Stainless Steel Plate Sheets and Strips" GB/T 3280

"Hot Rolled Stainless Steel Plate Sheets and Strips" GB/T 4237

"Cold-rolled Plain Carbon and Low Alloy Structural Steel Sheets and Strips" GB/T 11253

"Steel Pipe Flanges (PN designated)" HG/T 20592

"Specification for selection of Steel Pipe Flanges, Gaskets and Bolting (PN designated)" HG/T 20614

"Specification for Flexible Graphite Plates" TB/T 7758.2

"Compressed Asbestos Sheet" JC/T 69

"PTFE Unsintered Tape for Screw Sealing" QB/T 3628

3. General provisions

3.0.1 The type, code name, section form and applicable flange sealing surface type of gaskets shall comply with the provisions in Table 3.0.1.

Table 3.0.3 Service Temperature Scope of Gaskets

Metallic tape material		Filling material		Service temperature scope (°C)
Steel grade	Standard	Name	Reference standard	
0Cr18Ni9(304)	GB/T 3280	Chrysotile tape ^a	JC/T 69	-100~+300
00Cr19Ni10(304 L)		Flexible graphite tape	JB/T 7758.2	-200~+650 ^b
0Cr17Ni12M02(316)		PTFE tape	QB/T 3628	-200~+200
00Cr17Ni14M02(316 L)		Non-asbestos fiber tape		-100~+250
0Cr18Ni10Ti(321)				
0Cr18Ni11Nb(347)				
0Cr25Ni20(310)				

^a The asbestos-contained materials shall be used according to the requirements of relevant law, and preventive measures must be adopted in order to prevent serious risk to health.

^b When it is used for oxidizing media, the maximum service temperature shall be 450°C.

^c Different non-asbestos fiber tape materials have different service temperature scopes, which shall meet the provisions of the material producers.

2 The chemical compositions and mechanical properties of the filling materials shall meet the provisions of Table 3.0.4 and Table 3.0.3 of this standard. Recycled materials shall not be used for PTFE. The thickness of filling materials shall be stipulated by the producers so as to meet the gaskets' compression load characteristics specified in Article 5.0.4 of this standard.

Table 3.0.4 Main Performance of Filling Materials

Item	Chrysotile and non-asbestos fiber	Flexible graphite	PTFE
Tensile strength (transverse)(Mp ^a)	≥2.0		≥2.0
Ignition loss (%)	≤20		
Content of chloride ion (X10 ⁻⁶)		≤50	
Melting point (°C)			327±10

3 The inner ring materials shall possess the same or higher corrosion-resisting properties as metallic tape materials and the stainless steel materials shall meet the requirements of GB/T 3280 or GB/T 4237. Unless otherwise stated by the users, carbon steel may be adopted for centring rings. The carbon steel shall meet the requirements of GB/T 11253 or GB/T 912 and surface treatment such as spraying, electroplating shall be adopted.

4 If other metallic tapes and filling materials are adopted, it shall be indicated at ordering.

3.0.5 In addition to the basic type, inner rings shall be adopted for PN63/PN100/PN160 gaskets as well as gaskets which use PTFE as filling material.

Table 4.0.1-2 Dimension of Basic-type (A type) Gaskets or Inner Ring (B type) Gaskets for Tongue/Groove Face and Female Face/Male Face Flanges (mm)

Nominal dimension DN	Inside diameter of inner ring D_1	Winding part			Inner ring thickness t
		Inside diameter D_2	Outside diameter D_3	Thickness T	
10	18	24	34	3.2	2.0
15	22	29	39		
20	27	36	50		
25	34	43	57		
32	43	51	65		
40	49	61	75		
50	61	73	87		
65	77	95	109		
80	90	106	120		
100	116	129	149		
125	143	155	175		
150	170	18	20		
200	222	239	259		
250	276	292	312		
300	328	343	363		
350	381	395	421		
400	430	447	473		
450	471	523	497		
500	535	549	575		
600	636	649	675		

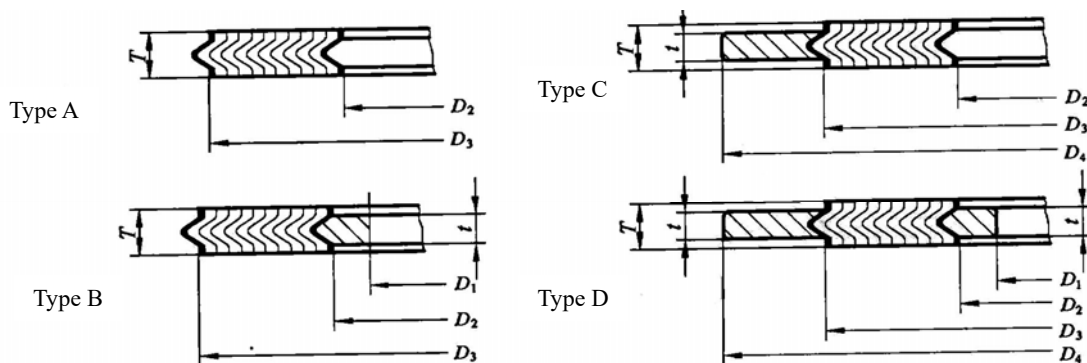


Figure 4.0.1 Dimension of Metallic Spirally Wound Gaskets

be less than four and there shall no welding defects such as overroasting or incomplete fusion.

3 The filling material on the upper and lower surface of the gaskets shall be smooth and be appropriately higher than the metallic tape (about $0.15\text{mm} \pm 0.1\text{mm}$).

4 The inner ring and centring ring shall be deburred.

5.0.4 Performance

1 The gaskets shall possess the following compression-load characteristics:

Under allowable stress of 35CrMo bolt materials, the gaskets shall be able to be condensed to near the centring ring.

2 Users may require other properties of the gaskets but shall indicate them when ordering.

6. Inspection

6.0.1 The material, dimension, appearance and manufacture of gaskets shall be compliant to the provisions of this standard.

6.0.2 Other inspection requirements may be determined through negotiating with the producers at ordering.

7. Labeling

7.0.1 Labeling and illustration

1 The gasket shall be labeled according to the following provisions:

- 1) Standard name;
- 2) Gasket type (refer to the provisions of Table 3.0.1 of this standard);
- 3) Nominal dimension (DN);
- 4) Nominal pressure (PN);
- 5) Material marking (refer to the provisions of Table 7.0.1; if there is no internal ring or centering ring, the marking is "0".)

(including color code) shall meet the provisions of producers or users. The marking shall contain the following content:

- 1) Name or trademark of the producer;
- 2) Standard No.;
- 3) Nominal pressure (PN);
- 4) Nominal dimension (DN);
- 5) Material marking (according to the provisions of Table 7.0.1 of this standard).

2 According to the users' requirements, the producer may label a color code of metallic tape and filling material around the top circle of the centring ring. The color code shall be determined through negotiation between the users and producers.

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