

INTERNATIONAL
STANDARD

ISO
7483

First edition
1991-10-01

**Dimensions of gaskets for use with flanges to
ISO 7005**

Dimensions des joints à utiliser avec les brides de l'ISO 7005

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Reference number
ISO 7483:1991(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 7483 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Sub-Committee SC 10, *Metallic flanges and their joints*.

Annexes A and B of this International Standard are for information only.

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Introduction

This International Standard has been prepared in order to specify dimensions of gaskets for use with flanges to the following standards:

ISO 7005-1, *Metallic flanges — Part 1: Steel flanges*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

ISO 7005-3, *Metallic flanges — Part 3: Copper alloy and composite flanges*

It is divided into sections, according to the form of gasket, as follows:

Section 1: General

Section 2: Non-metallic flat gaskets

Section 3: Spiral wound gaskets

Section 4: Metallic ring-joint gaskets

Section 5: Non-metallic envelope gaskets

Section 6: Corrugated, flat or grooved metallic and filled metallic gaskets

The materials for gaskets are outside the scope of this International Standard but section 1 lists the various forms of gaskets and the ranges of materials used for some gasket forms, and section 4 gives hardness values of typical ring-joint gasket materials.

The selection of the gasket type, its material and thickness (as applicable) should take account of the operating conditions, the properties of the gasket material, the type of flange facing, the surface finish of the flange and the flange bolt loading. Therefore, it is recommended that the selection of gaskets for any particular application is made in consultation with the gasket supplier.

Annex A lists for information the type of flange faces for which gaskets are specified in this International Standard and annex B gives information to be supplied by the purchaser when ordering gaskets.

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Dimensions of gaskets for use with flanges to ISO 7005

Section 1: General

1.1 Scope

This International Standard specifies the dimensions of the following gaskets for use in conjunction with flanges to ISO 7005-1, ISO 7005-2 and ISO 7005-3 (see 1.4):

- a) non-metallic flat gaskets;
- b) spiral wound gaskets;
- c) metallic ring-joint gaskets;
- d) non-metallic envelope gaskets;
- e) corrugated, flat or grooved metallic and filled metallic gaskets.

NOTE 1 A future part of ISO 7005 will cover aluminium and aluminium alloy flanges.

The relevant nominal size (DN) and nominal pressure (PN) ranges for each form of gasket are given in sections 2 to 6, as appropriate.

It does not cover the materials for gaskets (see the Introduction).

1.2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of ap-

plying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 468:1982, *Surface roughness — Parameters, their values and general rules for specifying requirements*.

ISO 6708:1980, *Pipe components — Definition of nominal size*.

ISO 7005-1:1991¹⁾, *Metallic flanges — Part 1: Steel flanges*.

ISO 7005-2:1988, *Metallic flanges — Part 2: Cast iron flanges*.

ISO 7005-3:1988, *Metallic flanges — Part 3: Copper alloy and composite flanges*.

ISO 7268:1983, *Pipe components — Definition of nominal pressure*.

ASTM A 182/A 182M - 87a, *Forged or rolled alloy-steel pipe flanges, forged fittings, and valves and parts for high-temperature service*.

1.3 Definitions

For the purposes of this International Standard, the definitions of nominal size (DN) given in ISO 6708 and nominal pressure (PN) given in ISO 7268 apply.

1.4 Gasket forms

The forms of gaskets specified in this International Standard are described and illustrated in table 1.

1) To be published.

Table 1 — Gasket forms

Gasket	Sketches	See section	Gasket	Sketches	See section
Rubber, without fabric		2	Ring joint (octagonal)		4
Rubber, with fabric insertion			Ring joint (oval)		
Rubber, with fabric insertion/wire reinforcement			Envelope		5
Plastic material					
Expanded graphite, with or without insertion					
Compressed fibre, with a suitable binder for the operating conditions (see note 1)					
Vegetable fibre			Corrugated metal with filler or corrugated metal jacketed with filler		6
Cork based	Corrugated metal				
Spiral wound, with centring ring and inner ring		3	Grooved metal with or without a layer of additional gasket material		6
Spiral wound, with centring ring			Flat metal jacketed with filler		
Spiral wound sealing element with inner ring					
Spiral wound sealing element only			Solid flat metal		

WARNING — Materials containing asbestos may be subject to legislation that requires precautions to be taken when handling them to ensure that they do not constitute a hazard to health.

NOTES

- The types of flange facings are specified in ISO 7005-1, ISO 7005-2 and ISO 7005-3, and, for information, the facings are shown in annex A.
- Information which should be supplied by the purchaser when ordering gaskets is listed in annex B.

Section 2: Non-metallic flat gaskets

2.1 Gasket designs

Gaskets shall be manufactured from either

- a) single flat sheet, or
- b) laminated ply,

in a single material or combination of materials.

NOTE 2 Examples of typical materials are given in table 1.

WARNING — Compressed fibre gaskets may contain asbestos. Materials containing asbestos may be subject to legislation that requires precautions to be taken when handling them to ensure that they do not constitute a hazard to health.

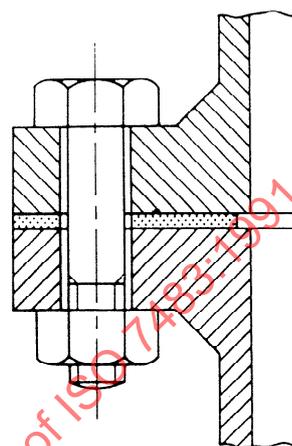


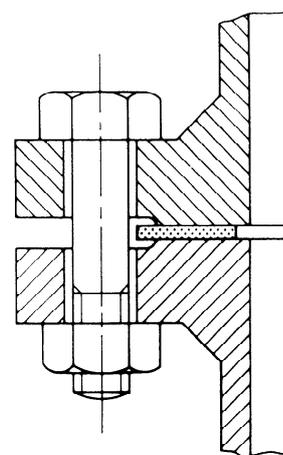
Figure 1 — Type A flange facings with full face gasket

2.2 Gasket types

Gaskets shall be one of the following types:

- a) full face gasket for type A (flat face) or type B (raised face) flange facings [see figures 1 and 5a)];
- b) IBC (inside bolt circle) gasket for type A (flat face) or type B (raised face) flange facings [see figures 2 and 5b)];
- c) tongue and groove gasket for type C/D flange facings [see figures 3 and 5b)];
- d) spigot and recess gasket for type E/F flange facings [see figures 4 and 5b)];
- e) segmental gasket (see note 3 below).

NOTE 3 Gaskets of the types described in a), b), c) and d) and having an outside diameter greater than 1 500 mm may be available only in segmental form. The purchaser should consult the gasket manufacturer or supplier as to the forms available for the larger sizes of gasket.



NOTE — For PN 20, PN 50, PN 110 and PN 150 the IBC gasket extends to touch the bolt.

Figure 2 — Type B flange facings with IBC gasket

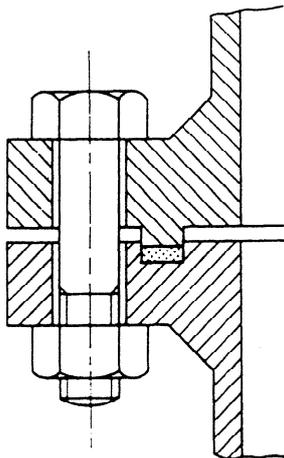


Figure 3 — Type C/D flange facings with tongue and groove gasket

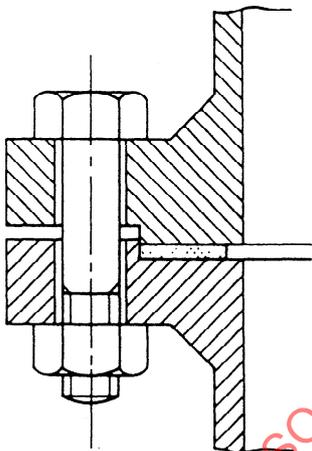


Figure 4 — Type E/F flange facings with spigot and recess gasket

2.3 Range of gasket sizes

The ranges of sizes of gaskets to suit the nominal sizes (DN) and nominal pressures (PN) of flanges are given in table 2 for the different gasket types.

2.4 Dimensions

2.4.1 Thickness

Gasket thicknesses for non-metallic flat gasket materials given in table 1 shall be selected from table 3.

2.4.2 Diameters

The dimensions for diameters shall be as given in tables 4 to 11, as appropriate; the plan dimensions are shown in figure 5.

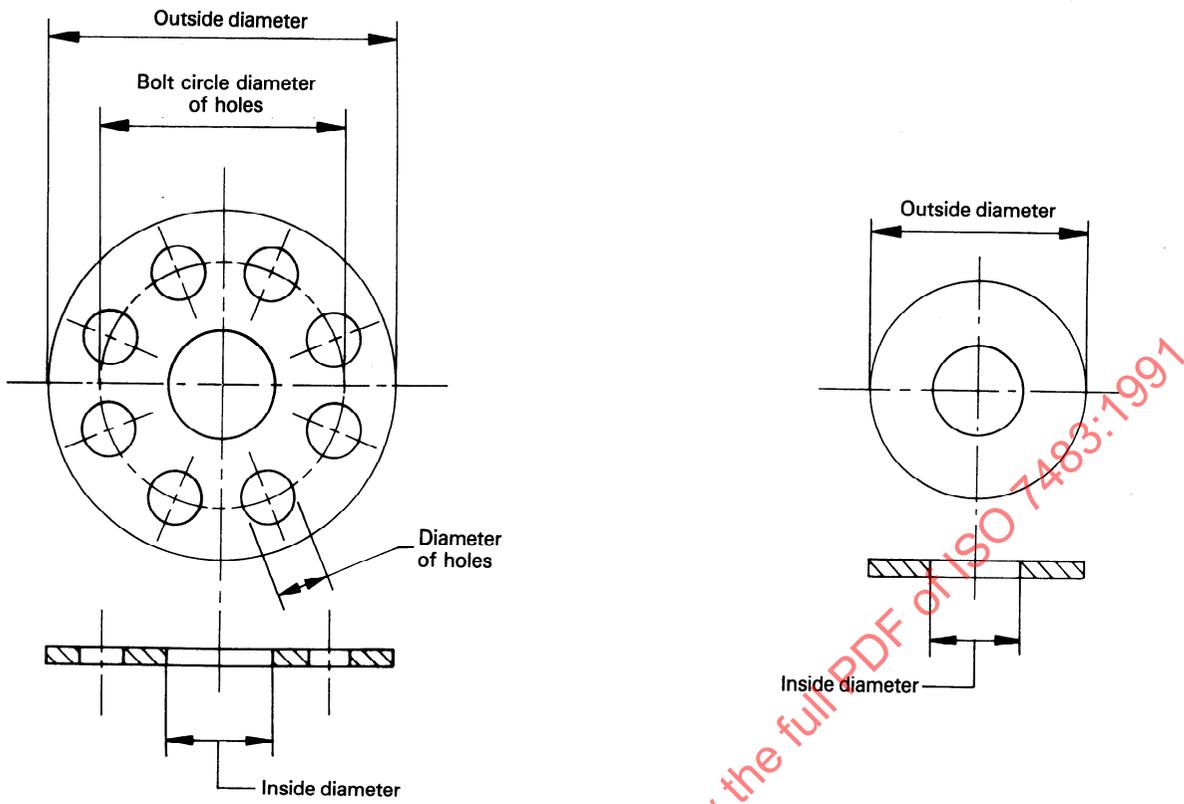
Table 2 — Range of gasket sizes

Flange nominal pressure PN	For dimensions refer to table number	Gasket type							
		Full face		IBC		Tongue and groove		Spigot and recess	
		Range of nominal sizes DN							
		from	to	from	to	from	to	from	to
2,5	4	10	600	10	4 000				
6	5	10	600	10	3 600				
10	6	10	2 000	10	3 000	10	1 000	10	1 000
16	7	10	2 000	10	2 000	10	1 000	10	1 000
20	8	15	600	15	1 500				
25	9	10	2 000	10	2 000	10	1 000	10	1 000
40	10	10	600	10	600	10	600	10	600
50	11			15	1 500	15	600	15	600
110	11			15	1 500	15	600	15	600
150	11			15	1 200	15	600	15	600

Table 3 — Gasket thickness

Dimensions in millimetres

Gasket material	Thickness									
	0,25	0,4	0,5	0,8	1	1,5	2	3	5	6,4
Rubber, without fabric						X	X	X	X	
Rubber, with fabric insertion						X		X	X	
Rubber, with fabric insertion/wire reinforcement								X	X	
Plastic					X	X	X	X		
Expanded graphite, without insertion				X	X	X	X			
Expanded graphite, with insertion					X	X	X			
Compressed fibre, with binder			X	X	X	X	X	X		
Vegetable fibre	X	X	X	X	X		X			
Cork based						X		X	X	X



NOTE — This figure illustrates the arrangement but not necessarily the correct number of bolt holes.

Refer to the relevant table for the actual number of bolt holes.

a) Full face gasket

b) IBC gasket, tongue and groove gasket, and spigot and recess gasket

Figure 5 — Gasket plan dimensions

Table 4 — Dimensions of gaskets for PN 2,5 flanges

Dimensions in millimetres

Nominal size DN	Gasket inside diameter	IBC gasket outside diameter	Full face gasket dimensions
10	Use PN 6 dimensions	Use PN 6 dimensions	Use PN 6 dimensions
15			
20			
25			
32			
40			
50			
65			
80			
100			
125			
150			
200			
250			
300			
350			
400			
450			
500			
600			
700			
800			
900			
1 000			
1 200	1 220	1 290	
1 400	1 420	1 490	
1 600	1 620	1 700	
1 800	1 820	1 900	
2 000	2 020	2 100	
2 200	2 220	2 307	
2 400	2 420	2 507	
2 600	2 620	2 707	
2 800	2 820	2 924	
3 000	3 020	3 124	
3 200	3 220	3 324	
3 400	3 420	3 524	
3 600	3 620	3 734	
3 800	3 820	3 931	
4 000	4 020	4 131	

Table 5 — Dimensions of gaskets for PN 6 flanges

Dimensions in millimetres

Nominal size DN	Gasket inside diameter	IBC gasket outside diameter	Full face gasket			
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter
10	18	39	75	4	11	50
15	22	44	80	4	11	55
20	27	54	90	4	11	65
25	34	64	100	4	11	75
32	43	76	120	4	14	90
40	49	86	130	4	14	100
50	61	96	140	4	14	110
65	77	116	160	4	14	130
80	89	132	190	4	18	150
100	115	152	210	4	18	170
125	141	182	240	8	18	200
150	169	207	265	8	18	225
200	220	262	320	8	18	280
250	273	317	375	12	18	335
300	324	373	440	12	22	395
350	356	423	490	12	22	445
400	407	473	540	16	22	495
450	458	528	595	16	22	550
500	508	578	645	20	22	600
600	610	679	755	20	26	705
700	712	784				
800	813	890				
900	915	990				
1 000	1 016	1 090				
1 200	1 220	1 307				
1 400	1 420	1 524				
1 600	1 620	1 724				
1 800	1 820	1 931				
2 000	2 020	2 138				
2 200	2 220	2 348				
2 400	2 420	2 558				
2 600	2 620	2 762				
2 800	2 820	2 972				
3 000	3 020	3 172				
3 200	3 220	3 382				
3 400	3 420	3 592				
3 600	3 620	3 805				

Table 6 — Dimensions of gaskets for PN 10 flanges

Dimensions in millimetres

Nominal size DN	Gasket ¹⁾ inside diameter	IBC gasket outside diameter	Full face gasket				Spigot and recess outside diameter	Tongue and groove	
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter		Inside diameter	Outside diameter
10	Use PN 40 di- mensions	Use PN 40 di- mensions	Use PN 40 dimensions				Use PN 40 di- mensions	Use PN 40 dimensions	
15									
20									
25									
32									
40									
50									
65 ²⁾									
80	Use PN 16 di- mensions	Use PN 16 di- mensions	Use PN 16 dimensions				Use PN 40 di- mensions	Use PN 40 dimensions	
100									
125									
150									
200									
250									
300									
350									
400	273	328	340	8	22	295	Use PN 25 dimensions		
450	324	378	395	12	22	350			
500	356	438	445	12	22	400			
600	407	489	505	16	22	460			
700	458	539	565	16	26	515			
800	508	594	615	20	26	565			
900	508	594	670	20	26	620			
1000	610	695	780	20	30	725			
1200	712	810	895	24	30	840			
1400	813	917	1015	24	33	950			
1600	915	1017	1115	28	33	1050			
1800	1016	1124	1230	28	36	1160			
2000	1220	1341	1455	32	39	1380			
2200	1420	1548	1675	36	42	1590			
2400	1620	1772	1915	40	48	1820			
2600	1820	1972	2115	44	48	2020			
2800	2020	2182	2325	48	48	2230			
3000	2220	2385							
	2420	2595							
	2620	2795							
	2820	3015							
	3020	3230							

1) Except tongue and groove gaskets.
 2) This gasket is also used for flanges having 4 bolt holes.

Table 7 — Dimensions of gaskets for PN 16 flanges

Dimensions in millimetres

Nominal size DN	Gasket ¹⁾ inside diameter	IBC gasket outside diameter	Full face gasket				Spigot and recess outside diameter	Tongue and groove	
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter		Inside diameter	Outside diameter
10	Use PN 40 di- mensions	Use PN 40 di- mensions	Use PN 40 dimensions						
15									
20									
25									
32									
40									
50									
65 ²⁾									
80									
100	115	162	220	8	18	180	Use PN 40 dimensions		
125	141	192	250	8	18	210			
150	169	218	285	8	22	240			
200	220	273	340	12	22	295			
250	273	329	405	12	26	355			
300	324	384	460	12	26	410			
350	356	444	520	16	26	470			
400	407	495	580	16	30	525			
450	458	555	640	20	30	585			
500	508	617	715	20	33	650			
600	610	734	840	20	36	770			
700	712	804	910	24	36	840			
800	813	911	1 025	24	39	950			Use PN 25 di- mensions
900	915	1 011	1 125	28	39	1 050			
1 000	1 016	1 128	1 255	28	42	1 170			
1 200	1 220	1 342	1 485	32	48	1 390			
1 400	1 420	1 542	1 685	36	48	1 590			
1 600	1 620	1 765	1 930	40	55	1 820			
1 800	1 820	1 965	2 130	44	55	2 020			
2 000	2 020	2 170	2 345	48	60	2 230			

1) Except tongue and groove gaskets.
2) This gasket is also used for flanges having 4 bolt holes.

Table 8 — Dimensions of gaskets for PN 20 flanges

Dimensions in millimetres

Nominal size DN	Gasket inside diameter	IBC gasket outside diameter	Full face gasket			
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter
15	22	46,5	90	4	16	60,5
20	27	56	100	4	16	70
25	34	65,5	110	4	16	79,5
32	43	75	120	4	16	89
40	49	84,5	130	4	16	98,5
50	61	102,5	150	4	20	120,5
65	73	121,5	180	4	20	139,5
80	89	134,5	190	4	20	152,5
100	115	172,5	230	8	20	190,5
125	141	196	255	8	22	216
150	169	221,5	280	8	22	241,5
200	220	278,5	345	8	22	298,5
250	273	338	405	12	26	362
300	324	408	485	12	26	432
350	356	449	535	12	29,5	476
400	407	513	600	16	29,5	540
450	458	548	635	16	32,5	578
500	508	605	700	20	32,5	635
600	610	716,5	815	20	35,5	749,5
650	660	773				
700	711	830				
750	762	881				
800	813	939				
850	864	990				
900	914	1 047				
950	965	1 111				
1 000	1 016	1 161				
1 050	1 067	1 218				
1 100	1 118	1 275				
1 150	1 168	1 326				
1 200	1 219	1 383				
1 250	1 270	1 435				
1 300	1 321	1 492				
1 350	1 372	1 549				
1 400	1 422	1 606				
1 450	1 473	1 663				
1 500	1 524	1 714				

Table 9 — Dimensions of gaskets for PN 25 flanges

Dimensions in millimetres

Nominal size DN	Gasket ¹⁾ inside diameter	IBC gasket outside diameter	Full face gasket				Spigot and recess outside diameter	Tongue and groove			
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter		Inside diameter	Outside diameter		
10	Use PN 40 dimensions	Use PN 40 dimensions	Use PN 40 dimensions				Use PN 40 dimensions	Use PN 40 dimensions			
15											
20											
25											
32											
40											
50											
65											
80											
100											
125											
150											
200	220	284	360	12	26	310	Use PN 40 dimensions	Use PN 40 dimensions			
250	273	340	425	12	30	370					
300	324	400	485	16	30	430					
350	356	457	555	16	33	490					
400	407	514	620	16	36	550					
450	458	564	670	20	36	600					
500	508	624	730	20	36	660					
600	610	731	845	20	39	770					
700	712	833	960	24	42	875			777	751	777
800	813	942	1 085	24	48	990			882	856	882
900	915	1 042	1 185	28	48	1 090			987	961	987
1 000	1 016	1 154	1 320	28	55	1 210	1 092	1 062	1 092		
1 200	1 220	1 365	1 530	32	55	1 420	Shaded area				
1 400	1 420	1 580	1 755	36	60	1 640					
1 600	1 620	1 800	1 975	40	60	1 860					
1 800	1 820	2 002	2 195	44	68	2 070					
2 000	2 020	2 232	2 425	48	68	2 300					

1) Except tongue and groove gaskets.

Table 10 — Dimensions of gaskets for PN 40 flanges

Dimensions in millimetres

Nominal size DN	Gasket ¹⁾ inside diameter	IBC gasket outside diameter	Full face gasket				Spigot and recess outside diameter	Tongue and groove	
			Outside diameter	Number of holes	Hole diameter	Bolt circle diameter		Inside diameter	Outside diameter
10	18	46	90	4	14	60	34	24	34
15	22	51	95	4	14	65	39	29	39
20	27	61	105	4	14	75	50	36	50
25	34	71	115	4	14	85	57	43	57
32	43	82	140	4	18	100	65	51	65
40	49	92	150	4	18	110	75	61	75
50	61	107	165	4	18	125	87	73	87
65	77	127	185	8	18	145	109	95	109
80	89	142	200	8	18	160	120	106	120
100	115	168	235	8	22	190	149	129	149
125	141	194	270	8	26	220	175	155	175
150	169	224	300	8	26	250	203	183	203
200	220	290	375	12	30	320	259	239	259
250	273	352	450	12	33	385	312	292	312
300	324	417	515	16	33	450	363	343	363
350	356	474	580	16	36	510	421	395	421
400	407	546	660	16	39	585	473	447	473
450	458	571	685	20	39	610	523	497	523
500	508	628	755	20	42	670	575	549	575
600	610	747	890	20	48	795	675	649	675

1) Except tongue and groove gaskets.

Table 11 — Dimensions of gaskets for PN 50, PN 110 and PN 150 flanges

Dimensions in millimetres

Nominal size DN	Gasket ¹⁾ inside diameter	IBC gasket outside diameter			Spigot and recess outside diameter	Tongue and groove	
		PN 50	PN 110	PN 150		Inside diameter	Outside diameter
15	22	52,5	52,5	62,5	35	25,5	35
20	27	64,5	64,5	69	43	33,5	43
25	34	71	71	77,5	51	38	51
32	43	80,5	80,5	87	63,5	47,5	63,5
40	49	94,5	94,5	97	73	54	73
50	61	109	109	141	92	73	92
65	73	129	129	163,5	105	85,5	105
80	89	148,5	148,5	166,5	127	108	127
100	115	180	192	205	157	132	157
125	141	215	240	246,5	186	160,5	186
150	169	250	265	287,5	216	190,5	216
200	220	306	319	357,5	270	238	270
250	273	360,5	399	434	324	286	324
300	324	421	456	497,5	381	343	381
350	356	484,5	491	520	413	374,5	413
400	407	538,5	564	574	470	425,5	470
450	458	595,5	612	638	533	489	533
500	508	653	682	697,5	584	533,5	584
600	610	774	790	837,5	692	641,5	692
650	660	834	866	880			
700	711	898	913	946			
750	762	952	970	1040			
800	813	1006	1024	1076			
850	864	1057	1074	1136			
900	914	1116	1130	1199			
950	965	1053	1106	1199			
1000	1016	1114	1157	1250			
1050	1067	1164	1219	1301			
1100	1118	1219	1270	1369			
1150	1168	1273	1327	1437			
1200	1219	1324	1388	1488			
1250	1270	1377	1448	—			
1300	1321	1428	1499	—			
1350	1372	1493	1556	—			
1400	1422	1544	1615	—			
1450	1473	1595	1666	—			
1500	1524	1706	1732	—			

1) Except tongue and groove gaskets.

Section 3: Spiral wound gaskets

3.1 Gasket designs

Spiral wound gaskets shall be one of the following designs:

- sealing element with centring ring and inner ring;
- sealing element with centring ring only;
- sealing element with inner ring only;
- sealing element only.

NOTE 4 Examples of the designs are given in table 1.

WARNING — Spiral wound gaskets may contain asbestos. Materials containing asbestos may be subject to legislation that requires precautions to be

taken when handling them to ensure that they do not constitute a hazard to health.

Figure 6 shows a typical design of a spiral wound gasket; for use with type A or type B flange facings, the sealing element shall be designed to fit the appropriate centring ring given in table 12. The clearance between the sealing element and the centring ring shall be such that the sealing element cannot fall out of the ring during normal handling.

NOTES

5 The profile of the metal winding of the sealing element is at the option of the manufacturer.

6 The materials of the gasket are chosen by the manufacturer to suit the operating conditions. Therefore, it is incumbent upon the purchaser to define the operating conditions in the enquiry and/or order.

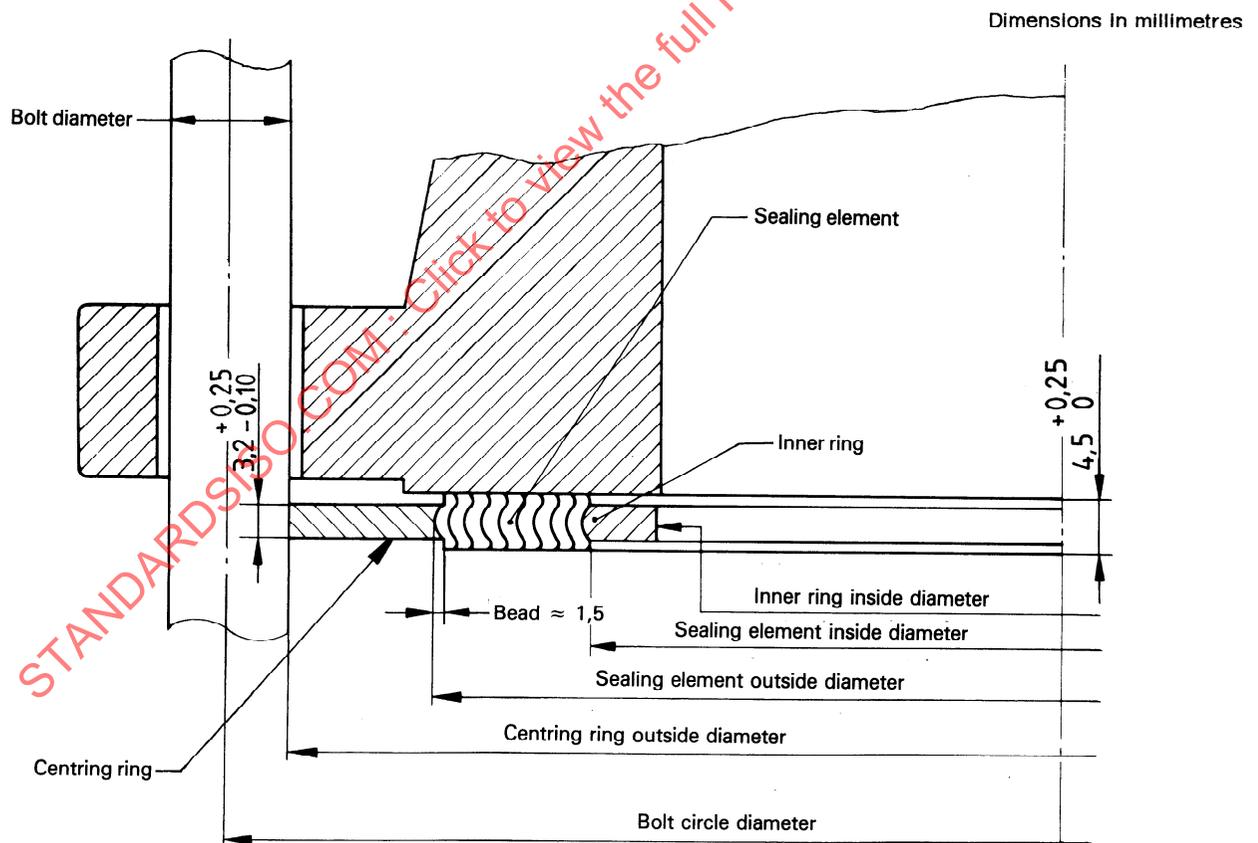


Figure 6 — Typical design of a spiral wound gasket with centring ring and inner ring for use with a type B flange facing for sizes up to and including DN 1 000

3.2 Gasket designs according to flange facing

3.2.1 For type A (flat face) or type B (raised face) flange facings

The gaskets shall have a centring ring. All PN 150, PN 260 and PN 420 gaskets and all gaskets containing polytetrafluoroethylene (PTFE) filler material shall have an inner ring.

NOTES

7 The use of an inner ring is recommended for PN 20, PN 25, PN 40, PN 50 and PN 110 gaskets. Inner rings may be fitted also to gaskets for use with PN 10 and PN 16 flanges.

8 The purchaser should specify in the order and/or enquiry if an inner ring is required for PN 10, PN 16, PN 20, PN 25, PN 40, PN 50 or PN 110 gaskets.

9 Figure 7 shows two types of gaskets for use with type A or type B flange facings.

3.2.2 For type C/D (tongue and groove) flange facings

The sealing element only shall be used (see figure 8).

3.2.3 For type E/F (spigot and recess) flange facings

The sealing element only or the sealing element with inner ring shall be used (see figure 9).

NOTE 10 The purchaser should specify in the enquiry and/or order if an inner ring is required.

3.3 Marking

The centring ring shall be marked with the following information:

- the number of this International Standard, i.e. ISO 7483;
- the manufacturer's name or trade-mark;
- the nominal size, i.e. DN followed by the appropriate number;
- the nominal pressure, i.e. PN followed by the appropriate number;
- the manufacturer's symbols for the metal winding and filler material.

3.4 Dimensions

Gaskets for type A and type B flange facings shall have the dimensions specified in table 12, as appropriate, and the overall thickness (including filler) shall be in accordance with figure 6 or shall not exceed 5,2 mm for sizes up to and including DN 1000. For sizes above DN 1000, the overall thickness shall not exceed 7,5 mm.

NOTE 11 Thicknesses given in figure 6 are preferred dimensions for sizes up to and including DN 1000.

Gaskets for type C/D and E/F flange facings shall have dimensions suitable for flange facings shown in figure 10 and given in table 13, as appropriate.

Gaskets having an inner ring for type E/F flange facings [see figure 9b)] shall have an inner ring minimum internal diameter as specified in table 12, as appropriate.

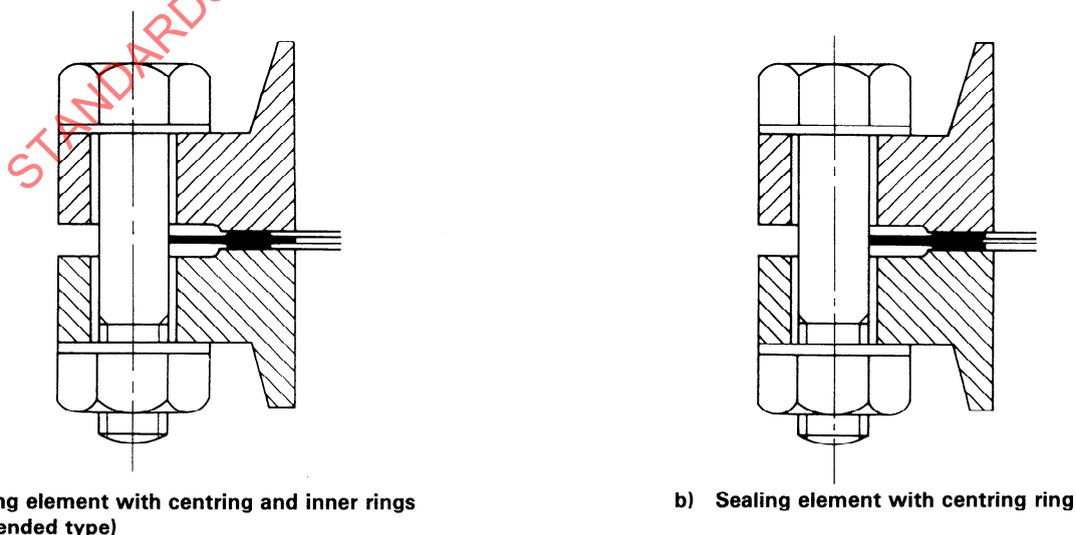


Figure 7 — Gaskets for type A or type B flange facings

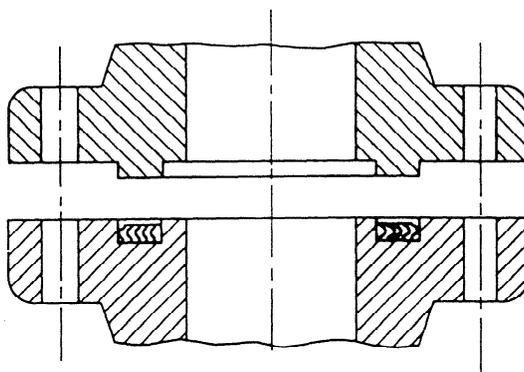


Figure 8 — Gaskets for type C/D flange facings

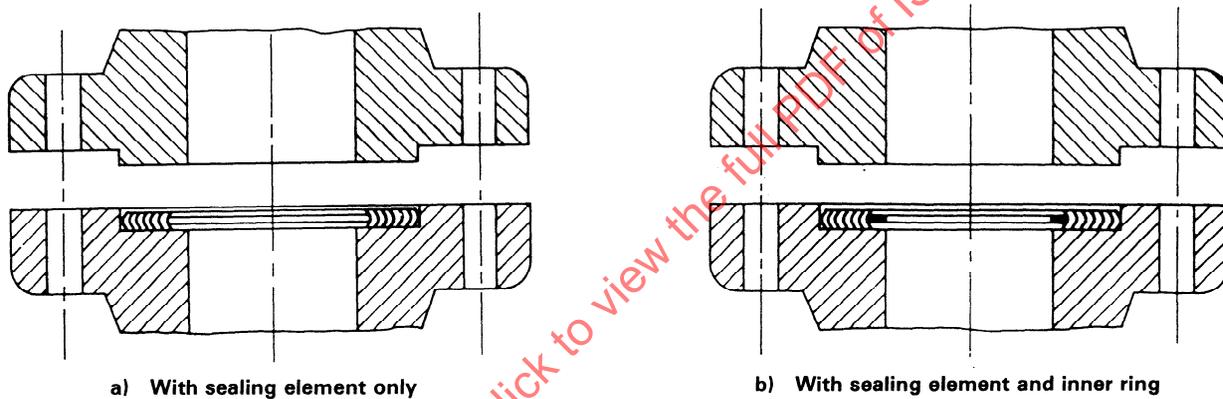


Figure 9 — Gaskets for type E/F flange facings

Table 12 — Dimensions of spiral wound gaskets

Nominal size DN	Centring ring outside diameter ^{1), 2)}									
	PN 10	PN 16	PN 20	PN 25	PN 40	PN 50	PN 110	PN 150	PN 260	PN 420
10	48	48	—	48	48	—	—	—	—	—
15	53	53	46,5	53	53	52,5	52,5	62,5	62,5	69
20	63	63	56	63	63	66,5	66,5	69	69	75
25	73	73	65,5	73	73	73	73	77,5	77,5	84
32	84	84	75	84	84	82,5	82,5	87	87	103
40	94	94	84,5	94	94	94,5	94,5	97	97	116
50	109	109	104,5	109	109	111	111	141	141	144,5
65	129	129	123,5	129	129	129	129	163,5	163,5	167
80	144	144	136,5	144	144	148,5	148,5	166,5	173	195,5
100	164	164	174,5	170	170	180	192	205	208,5	234
125	194	194	196	196	196	215	240	246,5	253	279
150	220	220	221,5	226	226	250	265	287,5	281,5	316,5
200	275	275	278,5	286	293	306	319	357,5	351,5	386
250	330	331	338	343	355	360,5	399	434	434,5	475,5
300	380	386	408	403	420	421	456	497,5	519,5	547
350	440	446	449	460	477	484,5	491	520	579	
400	491	498	513	517	549	538,5	564	574	641	
450	541	558	548	567	574	595,5	612	638	702,5	
500	596	620	605	627	631	653	682	697,5	756	
600	698	737	716,5	734	750	774	790	837,5	900,5	
650	—	—	773	—	—	834	866	880		
700	813	807	830	836	—	898	913	946		
750	—	—	881	—	—	952	970	1 040		
800	920	914	939	945	—	1 006	1 024	1 076		
850	—	—	990	—	—	1 057	1 074	1 136		
900	1 020	1 014	1 047	1 045	—	1 136	1 130	1 199		
950	—	—	1 111	—	—	1 053	1 106	1 199		
1 000	—	—	1 161	—	—	1 114	1 157	1 250		
1 050	—	—	1 218	—	—	1 164	1 219	1 301		
1 100	—	—	1 275	—	—	1 219	1 270	1 369		
1 150	—	—	1 326	—	—	1 273	1 327	1 437		
1 200	—	—	1 383	—	—	1 324	1 388	1 488		
1 250	—	—	1 435	—	—	1 377	1 448			
1 300	—	—	1 492	—	—	1 428	1 499			
1 350	—	—	1 549	—	—	1 493	1 556			
1 400	—	—	1 606	—	—	1 544	1 615			
1 450	—	—	1 663	—	—	1 595	1 666			
1 500	—	—	1 714	—	—	1 706	1 732			

1) For use with metric bolts to ISO 7005-1, ISO 7005-2 and ISO 7005-3.

2) For nominal sizes up to and including DN 600, the tolerance on the outside diameter is $\begin{matrix} 0 \\ -0,8 \end{matrix}$, and for nominal sizes above DN 600 the tolerance on the outside diameter is $\begin{matrix} 0 \\ -1,5 \end{matrix}$.

Dimensions in millimetres

Sealing element outside diameter						Sealing element inside diameter for gasket with inner ring				Inner ring inside diameter	
max.						min.				min.	
PN 20	PN 10, PN 16, PN 25, PN 40	PN 50	PN 110	PN 150	PN 260, PN 420	PN 20	PN 10, PN 16, PN 25, PN 40	PN 50, PN 110, PN 150, PN 260	PN 420	PN 10, PN 16, PN 25, PN 40	PN 20, PN 50, PN 110, PN 150, PN 260, PN 420
—	36,4	—	—	—	—	—	23,6	—	—	15	—
32,4	40,4	32,4	32,4	32,4	32,4	18,7	27,6	18,7	18,7	19	14,3
40,1	47,4	40,1	40,1	40,1	40,1	26,6	33,6	25	25	24	20,6
48	55,4	48	48	48	48	32,9	40,6	31,4	31,4	30	27
60,9	66,4	60,9	60,9	60,9	60,9	45,6	49,6	44,1	39,3	39	34,9
70,4	72,4	70,4	70,4	70,4	70,4	53,6	55,6	50,4	47,2	45	41,3
86,1	86,4	86,1	86,1	86,1	86,1	69,5	67,6	66,3	58,3	56	52,4
98,9	103,4	98,9	98,9	98,9	98,9	82,2	83,6	79	69,5	72	63,5
121,1	117,4	121,1	121,1	121,1	121,1	101,2	96,6	94,9	91,7	84	77,8
149,6	144,4	149,6	149,6	149,6	149,6	126,6	122,6	120,3	117,1	108	103
178,4	170,4	178,4	178,4	178,4	178,4	153,6	147,6	147,2	142,5	133	128,5
210	200,4	210	210	210	210	180,6	176,6	174,2	171,1	160	154
263,9	255,4	263,9	263,9	263,9	263,9	231,4	228,6	225	215,5	209	203,2
317,9	310,4	317,9	317,9	317,9	317,9	286,9	282,6	280,6	269,5	262	254
375,1	360,4	375,1	375,1	375,1	375,1	339,3	331,6	333	323,5	311	303,2
406,8	405,4	406,8	406,8	406,8	406,8	371,1	374,6	364,7	—	355	342,9
464	458,4	464	464	464	464	421,9	425,6	415,5	—	406	393,7
527,5	512,4	527,5	527,5	527,5	527,5	475,9	476,6	469,5	—	452	444,5
578,3	566,4	578,3	578,3	578,3	578,3	526,7	527,6	520,3	—	508	495,3
686,2	675,4	686,2	686,2	686,2	686,2	631,4	634,6	625,1	—	610	596,9
737,3	—	737,3	737,3	737,3	737,3	660	—	660	—	—	660
788,3	778,5	788,3	788,3	788,3	788,3	711	734	711	—	710	711
845,3	—	845,3	845,3	845,3	845,3	762	—	762	—	—	762
896,3	879,5	896,3	896,3	902,5	902,5	813	835	813	—	811	813
946,8	—	946,8	946,8	953,3	953,3	864	—	864	—	—	864
997,8	980,5	997,8	1 004,3	1 010,5	1 010,5	914	933	914	—	909	914
1 018	—	1 018	1 042,6	1 087,1	1 087,1	965	—	965	—	—	965
1 071,1	—	1 071,1	1 098,5	1 150,6	1 150,6	1 016	—	1 016	—	—	1 016
1 131,5	—	1 131,5	1 156,9	1 201,4	1 201,4	1 067	—	1 067	—	—	1 067
1 182,3	—	1 182,3	1 214,1	1 258,5	1 258,5	1 118	—	1 118	—	—	1 118
1 229	—	1 229	1 264,9	1 322	1 322	1 168	—	1 168	—	—	1 168
1 287,1	—	1 287,1	1 322	1 372,8	1 372,8	1 219	—	1 219	—	—	1 219
1 349,4	—	1 347,4	1 372,8	—	—	1 270	—	1 270	—	—	1 270
1 398,2	—	1 398,2	1 423,6	—	—	1 321	—	1 321	—	—	1 321
1 455,4	—	1 455,4	1 480,8	—	—	1 371	—	1 371	—	—	1 371
1 506,2	—	1 506,2	1 531,6	—	—	1 422	—	1 422	—	—	1 422
1 563,3	—	1 563,3	1 588,7	—	—	1 475	—	1 473	—	—	1 473
1 614,1	—	1 614,1	1 645,9	—	—	1 524	—	1 524	—	—	1 524

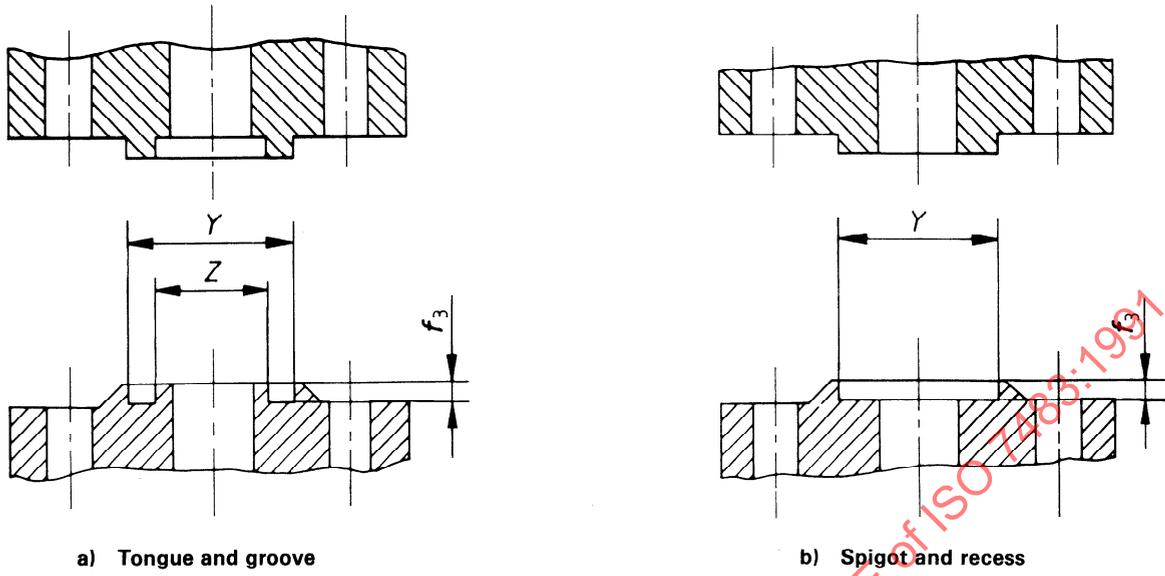


Figure 10 — Flange facings, tongue and groove (type C/D) and spigot and recess (type E/F)

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Table 13 — Dimensions of tongue and groove (type C/D) and spigot and recess (type E/F) flange facings

Dimensions in millimetres

Nominal size DN	Flange face dimensions					
	Y	Z	f_3	Y	Z	f_3
	PN 10, PN 16, PN 25, PN 40			PN 20, PN 50, PN 110, PN 150, PN 260, PN 420		
10	35	23	3	—	—	—
15	40	28	3	36,5	24	5
20	51	35	3	44,5	32	5
25	58	42	3	52,5	36,5	5
32	66	50	3	65	46	5
40	76	60	3	74,5	52,5	5
50	88	72	3	93,5	71,5	5
65	110	94	3	106,5	84	5
80	121	105	3	128,5	106,5	5
100	150	128	3,5	159	130,5	5
125	176	154	3,5	187,5	159	5
150	204	182	3,5	217,5	189	5
200	260	238	3,5	271,5	236,5	5
250	313	291	3,5	325,5	284,5	5
300	364	342	3,5	382,5	341,5	5
350	422	394	4	414,5	373	5
400	474	446	4	471,5	424	5
450	524	496	4	535	487,5	5
500	574	548	4	586	532	5
600	676	648	4	694	640	5
700	778	750	4			
800	883	853	4			
900	988	960	4			
1 000	1 094	1 060	5			

NOTES

- 1 Y is the recess outside diameter, Z is the recess inside diameter, and f_3 is the recess depth.
- 2 Inside and outside diameters of gaskets to suit these dimensions will depend on the characteristics of individual manufacturer's gaskets.

Section 4: Metallic ring-joint gaskets

4.1 Gasket designs

Metallic gaskets for use with type J, ring-joint, flange facings shall have a cross-sectional shape which is either

- a) octagonal, or
- b) oval.

NOTES

12 Figure 11 shows flange joints illustrating both octagonal and oval ring-joint gaskets.

13 If the purchaser requires a ring-joint gasket with a particular cross-sectional shape, then this requirement should be stated in the enquiry and/or order.

4.2 Dimensions and tolerances

4.2.1 Metallic ring-joint gaskets shall have the dimensions as specified in table 14 and figure 12.

NOTE 14 Dimensions of grooves and gaskets are such that, when joints are assembled, the flanges are apart and the approximate distances which the flanges are apart for each nominal pressure (PN) designation are given in the appropriate table of ISO 7005-1.

4.2.2 The tolerances on dimensions (as shown in figure 12) shall be as specified in table 15.

NOTE 15 The presence of a small forging fin located so that it does not prevent the ring from seating properly in the groove, is acceptable.

4.3 Surface texture

When compared by visual or tactile means with reference specimens, the surface texture of the 23° surfaces of octagonal gaskets and the contact faces of oval gaskets shall be in accordance with the values specified in table 16.

NOTE 16 It is not intended that instrument measurements be taken on the faces themselves; the R_a and R_z values as defined in ISO 468 relate to the reference specimens.

4.4 Identification number

Identification numbers, prefixed by the letter R, as specified in table 14 shall be assigned to metallic ring-joint gaskets.

4.5 Marking

The outer surface of each gasket shall be marked with the following:

- a) the manufacturer's name or trade-mark;
- b) the gasket identification number prefixed by the letter R (see 4.4);
- c) the material identification.

Where a material is used that is listed in 4.6, then the material identification symbol given shall be used. The application of marking shall not damage the contact faces or otherwise harmfully distort the gasket.

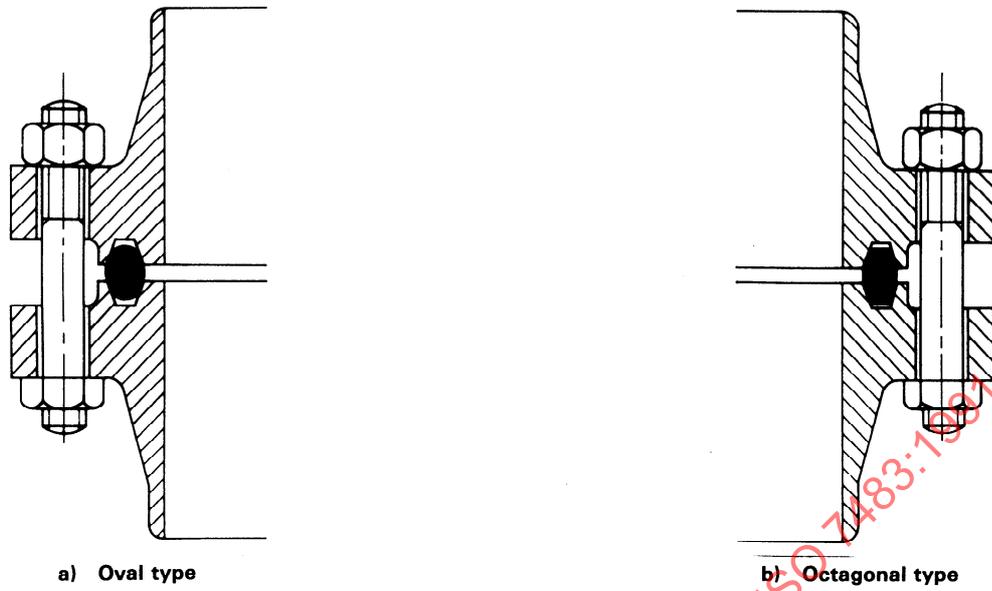
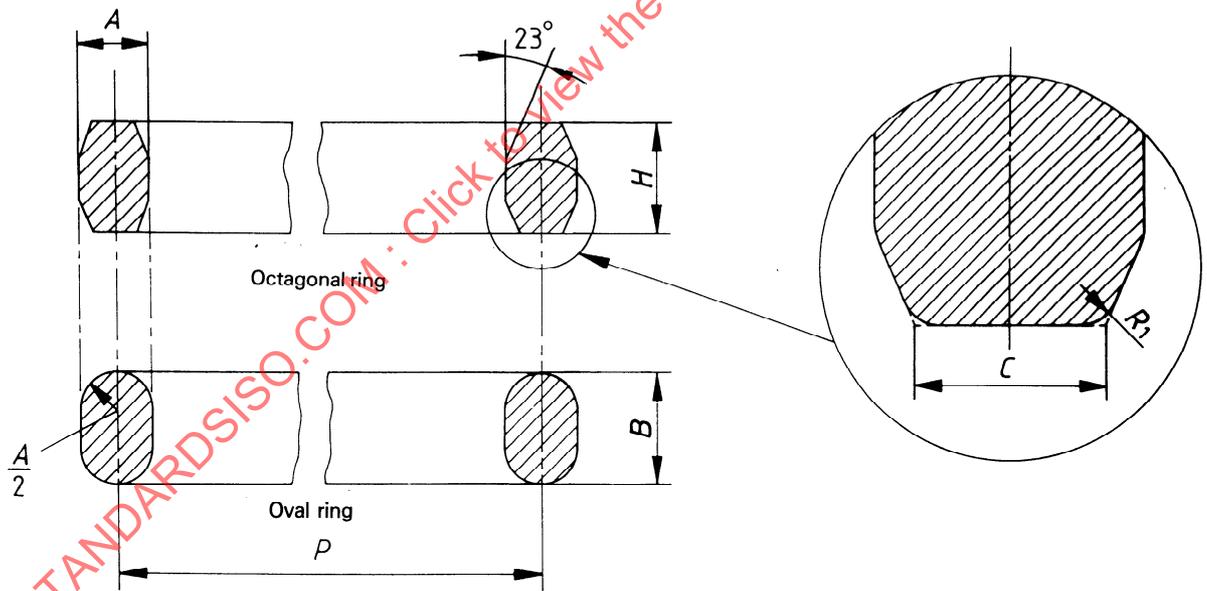


Figure 11 — Details of metallic ring-joint gaskets as housed



$R_1 = 1,6$ mm for ring widths $A < 22,3$ mm

$R_1 = 2,4$ mm for ring widths $A > 22,3$ mm

Figure 12 — Dimensions of metallic ring-joint gaskets

Table 14 — Identification numbers and dimensions of metallic ring-joint gaskets

Dimensions in millimetres

Nominal size DN					Ring identification number	Mean pitch diameter <i>P</i>	Width of ring <i>A</i>	Height of ring		Width of flat of octagonal rings <i>C</i>
PN 20	PN 50 and PN 110	PN 150	PN 260	PN 420				Oval <i>B</i>	Octagonal <i>H</i>	
—	15	—	—	—	R, 11	34,13	6,35	11,11	9,53	4,32
—	—	15	15	—	R, 12	39,69	7,94	14,29	12,7	5,23
—	32	—	—	15	R, 13	42,34	7,94	14,29	12,7	5,23
—	—	20	20	—	R, 14	44,45	7,94	14,29	12,7	5,23
25	—	—	—	—	R, 15	47,63	7,94	14,29	12,7	5,23
—	25	25	25	20	R, 16	50,8	7,94	14,29	12,7	5,23
32	—	—	—	—	R, 17	57,15	7,94	14,29	12,7	5,23
—	32	32	32	25	R, 18	60,33	7,94	14,29	12,7	5,23
40	—	—	—	—	R, 19	65,09	7,94	14,29	12,7	5,23
—	40	40	40	—	R, 20	68,26	7,94	14,29	12,7	5,23
—	—	—	—	32	R, 21	72,24	11,11	17,46	15,88	7,75
50	—	—	—	—	R, 22	82,55	7,94	14,29	12,7	5,23
—	50	—	—	40	R, 23	82,55	11,11	17,46	15,88	7,75
—	—	50	50	—	R, 24	95,25	11,11	17,46	15,88	7,75
65	—	—	—	—	R, 25	101,6	7,94	14,29	12,7	5,23
—	65	—	—	50	R, 26	101,6	11,11	17,46	15,88	7,75
—	—	65	65	—	R, 27	107,95	11,11	17,46	15,88	7,75
—	—	—	—	65	R, 28	111,13	12,7	19,05	17,46	8,66
80	—	—	—	—	R, 29	114,3	7,94	14,29	12,7	5,23
—	80 ¹⁾	—	—	—	R, 30	117,48	11,11	17,46	15,88	7,75
—	80 ²⁾	80	—	—	R, 31	123,83	11,11	17,46	15,88	7,75
—	—	—	—	80	R, 32	127	12,7	19,05	17,46	8,66
—	—	—	80	—	R, 35	136,53	11,11	17,46	15,88	7,75
100	—	—	—	—	R, 36	149,23	7,94	14,29	12,7	5,23
—	100	100	—	—	R, 37	149,23	11,11	17,49	15,88	7,75
—	—	—	—	100	R, 38	157,16	15,88	22,23	20,64	10,49
—	—	—	100	—	R, 39	161,93	11,11	17,46	15,88	7,75
125	—	—	—	—	R, 40	171,45	7,94	14,29	12,7	5,23
—	125	125	—	—	R, 41	180,98	11,11	17,46	15,88	7,75
—	—	—	—	125	R, 42	190,5	19,05	25,4	23,81	12,32

Nominal size DN					Ring identification number	Mean pitch diameter <i>P</i>	Width of ring <i>A</i>	Height of ring		Width of flat of octagonal rings <i>C</i>
PN 20	PN 50 and PN 110	PN 150	PN 260	PN 420				Oval <i>B</i>	Octagonal <i>H</i>	
150	—	—	—	—	R,43	193,68	7,94	14,29	12,7	5,23
—	—	—	125	—	R,44	193,68	11,11	17,46	15,88	7,55
—	150	150	—	—	R,45	211,14	11,11	17,46	15,88	7,75
—	—	—	150	—	R,46	211,14	12,7	19,05	17,46	8,66
—	—	—	—	150	R,47	228,6	19,05	25,4	23,81	12,32
200	—	—	—	—	R,48	247,65	7,94	14,29	12,7	5,23
—	200	200	—	—	R,49	269,88	11,11	17,46	15,88	7,75
—	—	—	200	—	R,50	269,88	15,88	22,23	20,64	10,49
—	—	—	—	200	R,51	279,4	22,23	28,58	26,99	14,81
250	—	—	—	—	R,52	304,8	7,94	14,29	12,7	5,23
—	250	250	—	—	R,53	323,85	11,11	17,46	15,88	7,75
—	—	—	250	—	R,54	323,85	15,88	22,23	20,64	10,49
—	—	—	—	250	R,55	342,9	28,58	36,51	34,93	19,81
300	—	—	—	—	R,56	381	7,94	14,29	12,7	5,23
—	300	300	—	—	R,57	381	11,11	17,46	15,88	7,75
—	—	—	300	—	R,58	381	22,23	28,58	26,99	14,81
350	—	—	—	—	R,59	396,88	7,94	14,29	12,7	5,23
—	—	—	—	300	R,60	406,4	31,75	39,69	38,1	22,33
—	350	—	—	—	R,61	419,1	11,11	17,46	15,88	7,75
—	—	350	—	—	R,62	419,1	15,88	22,23	20,64	10,49
—	—	—	350	—	R,63	419,1	25,4	33,34	31,75	17,3
400	—	—	—	—	R,64	454,03	7,94	14,29	12,7	5,23
—	400	—	—	—	R,65	469,9	11,11	17,46	15,88	7,75
—	—	400	—	—	R,66	469,9	15,88	22,23	20,64	10,49
—	—	—	400	—	R,67	469,9	28,58	36,51	34,93	19,81
450	—	—	—	—	R,68	517,53	7,94	14,29	12,7	5,23
—	450	—	—	—	R,69	533,4	11,11	17,46	15,88	7,75
—	—	450	—	—	R,70	533,4	19,05	25,4	23,81	12,32
—	—	—	450	—	R,71	533,4	28,58	36,51	34,93	19,81
500	—	—	—	—	R,72	558,8	7,94	14,29	12,7	5,23
—	500	—	—	—	R,73	584,2	12,7	19,05	17,46	8,66

Nominal size DN					Ring identification number	Mean pitch diameter <i>P</i>	Width of ring <i>A</i>	Height of ring		Width of flat of octagonal rings <i>C</i>
PN 20	PN 50 and PN 110	PN 150	PN 260	PN 420				Oval <i>B</i>	Octagonal <i>H</i>	
—	—	500	—	—	R,74	584,2	19,05	25,4	23,81	12,32
—	—	—	500	—	R,75	584,2	31,75	39,69	38,1	22,33
—	550	—	—	—	R,81	635	14,29	—	19,1	9,6
—	650	—	—	—	R,93	749,3	19,1	—	23,8	12,3
—	700	—	—	—	R,94	800,1	19,1	—	23,8	12,3
—	750	—	—	—	R,95	857,25	19,1	—	23,8	12,3
—	800	—	—	—	R,96	914,4	22,2	—	27	14,8
—	850	—	—	—	R,97	965,2	22,2	—	27	14,8
—	900	—	—	—	R,98	1 022,35	22,2	—	27	14,8
—	—	650	—	—	R,100	749,3	28,6	—	34,9	19,8
—	—	700	—	—	R,101	800,1	31,7	—	38,1	22,3
—	—	750	—	—	R,102	857,25	31,7	—	38,1	22,3
—	—	800	—	—	R,103	914,4	31,7	—	38,1	22,3
—	—	850	—	—	R,104	965,2	34,9	—	41,3	24,8
—	—	900	—	—	R,105	1 022,35	34,9	—	41,3	24,8
600	—	—	—	—	R,76	673,1	7,94	14,29	12,7	5,23
—	600	—	—	—	R,77	692,15	15,88	22,23	20,54	10,49
—	—	600	—	—	R,78	692,15	25,4	33,34	31,75	17,3
—	—	—	600	—	R,79	692,15	34,93	44,45	41,28	24,82

- 1) For ring joints with loose hubbed flanges for lapped pipe ends (type 15 flanges) only.
- 2) For flanges other than loose hubbed flanges for lapped pipe ends.