

# Flanges and their joints — Dimensions of gaskets for PN-designated flanges

## Part 1. Non-metallic flat gaskets with or without inserts

The European Standard EN 1514-1 : 1997 has the status of a  
British Standard

ICS 23.040.80

# Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee PSE/2, Jointing materials and compounds, upon which the following bodies were represented:

Asbestos Information Centre Ltd.  
British Adhesives and Sealants Association  
British Compressed Gases Association  
British Hydromechanics Research Group  
Chartered Institution of Water and Environmental Management  
Energy Industries Council  
Industrial Water Society  
L P Gas Association  
Water Services Association of England and Wales

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## Amendments issued since publication

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## National foreword

This Part of BS EN 1514 has been prepared by Technical Committee PSE/2, and is the English language version of EN 1514-1 : 1997 *Flanges and their joints — Dimensions of gaskets for PN-designated flanges — Part 1: Non-metallic flat gaskets with or without inserts*, published by the European Committee for Standardization (CEN).

This Part of BS EN 1514 supersedes BS 4865 : Part 1 : 1989, which is withdrawn.

### Cross-references

Publication referred to	Corresponding British Standard
EN 545 : 1994	BS EN 545 : 1995 <i>Ductile iron pipes, fittings, accessories and their joints for water pipelines — Requirements and test methods</i>
EN 598 : 1994	BS EN 598 : 1995 <i>Ductile iron pipes, fittings, accessories and their joints for sewage applications — Requirements and test methods</i>
EN 969 : 1995	BS EN 969 : 1996 <i>Specification for ductile iron pipes, fittings, accessories and their joints for gas pipelines — Requirements and test methods</i>
EN ISO 6708 : 1995	BS EN ISO 6708 : 1996 <i>Pipework components — Definition and selection of DN (nominal size)</i>

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16, an inside back cover and a back cover.

ICS 23.040.80

Descriptors: Industrial piping, flange connections, pipe joints, pipe flanges, dimensions, marking

English version

## Flanges and their joints — Dimensions of gaskets for PN-designated flanges — Part 1: Non-metallic flat gaskets with or without inserts

Brides et leurs assemblages — Dimensions des joints pour les brides désignées PN — Partie 1: Joints plats non-métalliques avec ou sans insert

Flansche und ihre Verbindungen — Maße für Dichtungen für Flansche mit PN-Bezeichnung — Teil 1: Flachdichtungen aus nichtmetallischem Werkstoff mit oder ohne Einlagen

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 74, Flanges and their joints, of which the Secretariat is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1997, and conflicting national standards shall be withdrawn at the latest by October 1997.

The Annex A is informative and contains 'information to be supplied by the purchaser'.

Annex B is informative and contains 'A-deviations'.

Annex C is informative and contains 'gasket materials'.

EN 1514 consists of four Parts:

- Part 1: *Specification for non-metallic flat gaskets with or without inserts*
- Part 2: *Specification for spiral wound gaskets for use with steel flanges*
- Part 3: *Specification for non-metallic PTFE envelope gaskets*
- Part 4: *Specification for corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## Introduction

Dimensions for the internal diameter of gaskets are a compromise between all requirements of prEN 1092-1, prEN 1092-2, prEN 1092-3 and prEN 1092-4 so that a single value is given for each gasket size.

**WARNING.** Gaskets made to this standard 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 (see annex B). Attention is drawn to the relevant EEC directives.

## 1 Scope

This European Standard specifies the dimensions and marking of non-metallic flat gaskets, with or without inserts, for use with flanges complying with prEN 1092-1, prEN 1092-2, prEN 1092-3 and prEN 1092-4, and pipes and fittings complying with EN 545, EN 598 and EN 969 up to and including PN 63 and up to and including DN 4000.

NOTE 1. Dimensions of other types of gaskets for use with flanges complying with prEN 1092-1, prEN 1092-2, prEN 1092-3 and prEN 1092-4 are given in EN 1514-2, EN 1514-3 and EN 1514-4.

NOTE 2. Annex A lists information that should be supplied by the purchaser when ordering gaskets and annex C lists typical materials for the manufacture of non-metallic flat gaskets.

NOTE 3. Clause 9 gives inside diameters of gaskets specifically for use with flanges complying with EN 545, EN 598 and EN 969, and also with ISO 2531.

NOTE 4. This standard does not provide dimensions to suit PN 100 flanges, as gaskets covered by this standard are not necessarily intended for such applications.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- |             |  |
|-------------|--|
| EN 545      | <i>Ductile iron pipes, fittings, accessories and their joints for water pipelines — Requirements and test methods</i>      |
| EN 598      | <i>Ductile iron pipes, fittings, accessories and their joints for sewerage application — Requirements and test methods</i> |
| EN 969      | <i>Ductile iron pipes, fittings, accessories and their joints for gas pipelines — Requirements and test methods</i>        |
| prEN 1092-1 | <i>Flanges and their joints — Circular flanges for pipes, valves and fittings — Part 1: Steel flanges — PN designated</i>  |

prEN 1092-2 *Flanges and their joints — Part 2: Cast iron flanges*

prEN 1092-3 *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories — Part 3: Copper alloy and composite flanges — PN designated*

prEN 1092-4 *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories — PN designated — Part 4: Aluminium alloy flanges*

EN 1333 *Pipework components — Definition and selection of PN*

EN ISO 6708 *Pipework components — Definition and selection of DN (nominal size) (ISO 6708 : 1995)*

ISO 2531 *Ductile iron pipes, fittings and accessories for pressure pipelines*

## 3 Definitions

For the purposes of this standard, the following definitions apply.

### 3.1 DN

See EN ISO 6708.

### 3.2 PN

See EN 1333.

## 4 Designations

### 4.1 Range of PN designations

Gaskets shall be designated as suitable for use with one or more of the following PN designations of flange:

PN 2,5	PN 25
PN 6	PN 40
PN 10	PN 63
PN 16	

### 4.2 Range of DN (nominal sizes)

Gasket nominal sizes shall be designated in accordance with the ranges specified in table 1.

### 4.3 Gasket types

Gasket types, as defined in clause 6 and as illustrated in figure 2, shall be designated as:

- type FF: full face;
- type IBC: inside bolt circle;
- type TG: tongue and groove;
- type SR: spigot and recess.

### 4.4 Information to be supplied by the purchaser

NOTE. For information to be supplied by the purchaser see annex A.

## 5 Gasket designs and materials

Gaskets shall be manufactured in a single material or combination of materials and shall be:

- a) single flat sheet; or
- b) laminated ply; or
- c) moulded.

NOTE 1. Examples of typical materials are given in annex C.

NOTE 2. The selection of the gasket material should take into account the fluid, the operating conditions, the properties of the gasket material, the type and surface finish of the flange facing and the flange bolt loading. It is recommended that selection of gaskets for any particular application is made in consultation with the gasket supplier (see annex A).

NOTE 3. The purchaser should indicate on his enquiry and/or order if gaskets are to be used with water intended for human consumption (see annex A). It shall be noted that the national regulations of both the country of origin and the country of use may be considered relevant.

## 6 Gasket types

Gaskets shall be one of the following types:

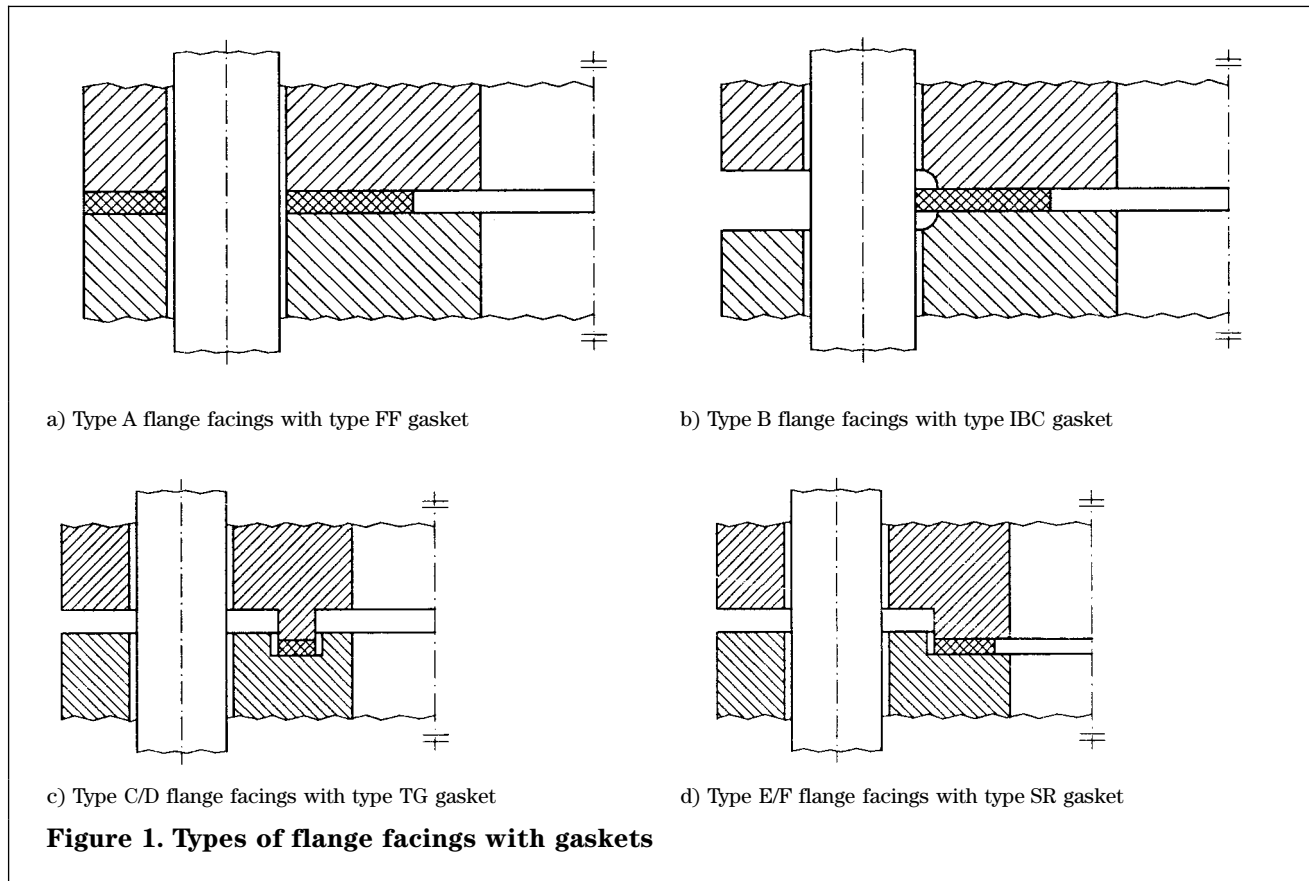
- a) type FF gasket, for use with type A (flat face) or type B (raised face) flange facings (see figures 1a and 2a);
- b) type IBC gasket, for use with type A (flat face) or type B (raised face) flange facings (see figures 1b and 2b);
- c) type TG gasket, for use with type C/D (tongue/groove) flange facings (see figures 1c and 2b);
- d) type SR gasket, for use with type E/F (spigot/recess) flange facings (see figures 1d and 2b).

NOTE 1. The types of flange facings are specified in prEN 1092-1, prEN 1092-2, prEN 1092-3 and prEN 1092-4, and, for information, the facings are shown in figure 3.

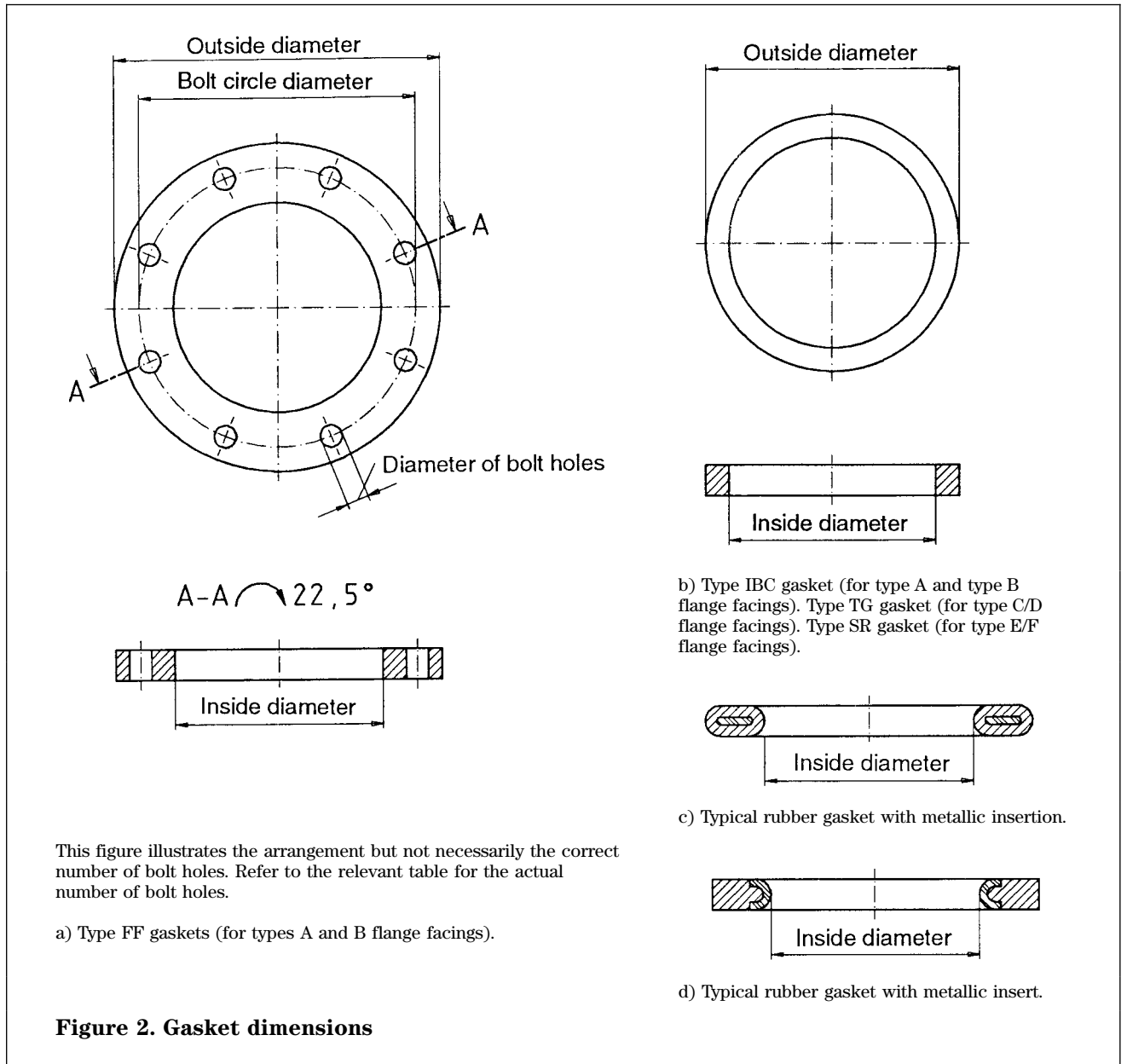
NOTE 2. The selection of gasket type should take into account the fluid, the operating conditions, the properties of the gasket material, the type and surface finish of the flange facing and the flange bolt loading. It is recommended that selection of gasket type for any particular application is made in consultation with the gasket supplier (see annex A).

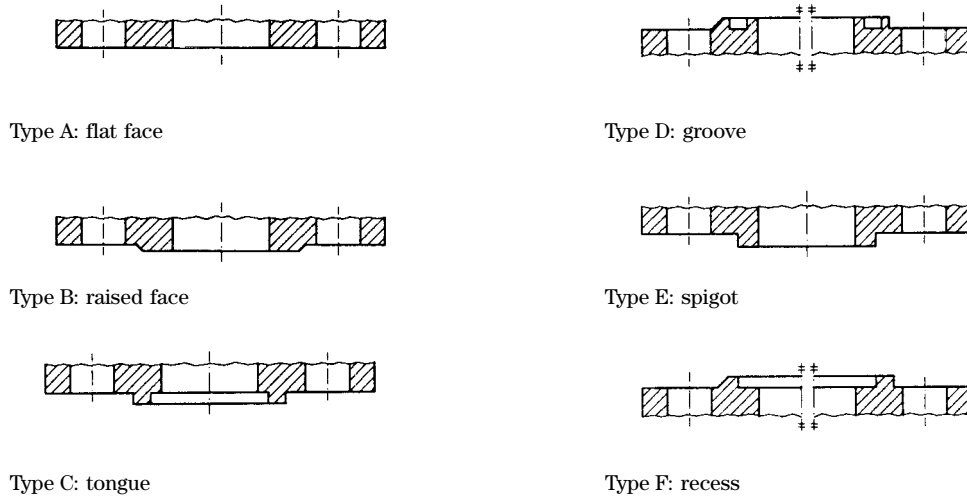
NOTE 3. Only type FF and type IBC gaskets are suitable for use with flanges on pipes and fittings complying with EN 545, EN 598 and EN 969.

NOTE 4. Gaskets of types described in 6a, b, c and d and having an outside diameter greater than 1500 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 gaskets (see annex A).









**Figure 3. Flange facing types**

## 7 Range of gasket sizes

The ranges of sizes of gaskets for the various DN and PN designations shall be as given in table 1 for the different gasket types.

<b>Table 1. Range of gasket sizes</b>					
PN	For dimensions refer to table number	Gasket type <sup>1)</sup>			
		Type FF	Type IBC	Type TG	Type SR
		DN range			
2,5	3	10 to 600	10 to 4000	—	—
6	4	10 to 600	10 to 3600	—	—
10	5	10 to 2000	10 to 3000	10 to 1000	10 to 1000
16	6	10 to 2000	10 to 2000	10 to 1000	10 to 1000
25	7	10 to 2000	10 to 2000	10 to 1000	10 to 1000
40	8	10 to 600	10 to 600	10 to 600	10 to 600
63	9	—	10 to 400	—	—

<sup>1)</sup> For gasket type designations see clause 4.

## 8 Dimensions

### 8.1 Thickness

Gasket thicknesses for those materials listed in annex C shall be selected from table 2.

NOTE 1. The selection of gasket thickness should take into account the fluid, the operating conditions, the properties of the gasket material, the type and surface finish of the flange facing and the flange bolt loading. It is recommended that selection of gasket thickness for any particular application is made in consultation with the gasket supplier (see annex A).

NOTE 2. For materials other than those listed in annex C, 8.1 does not apply.

<b>Table 2. Gasket thickness</b>											
Dimensions in millimetres											
Gasket material	Thickness										
	0,25	0,4	0,5	0,8	1	1,5	2	3	4	5	6,4
Rubber without insertion						×	×	×	×	×	
Rubber with fabric insertion <sup>1)</sup>						×		×	×	×	
Rubber with wire reinforced fabric insertion								×	×	×	
Rubber with metallic insert <sup>1)</sup>								×	×	×	×
Plastics					×	×	×	×			
Expanded graphite with insertion		×		×	×	×	×	×			
Compressed fibre with binder	×	×	×	×	×	×	×	×			
Vegetable fibre	×	×	×	×	×		×				
Cork based						×		×		×	×

<sup>1)</sup> Thicknesses greater than 6,4 mm may be required for large diameters or depending on the type of gasket e.g. with metallic insert.

### 8.2 Diameters

The diameters of gaskets for flanges complying with prEN 1092 shall be as given in tables 3 to 9, as appropriate.

The inside diameters of gaskets specifically for use with flanges on pipes and fittings complying with EN 545, EN 598 and EN 969 are given in table 10; other dimensions shall be as given in tables 5 to 9 as appropriate.

In the case of gaskets with an inner metallic insert, the gasket inside diameter shall be to the inside of the insert (see figure 2d).

<b>Table 3. Dimensions of gaskets for PN 2,5 flanges</b>					
Dimensions in millimetres					
DN	Gasket inside diameter	Type IBC gasket outside diameter	Type FF gasket		
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					
1000					
1200				1220	1290
1400				1420	1490
1600				1620	1700
1800				1820	1900
2000				2020	2100
2200				2220	2307
2400	2420	2507			
2600	2620	2707			
2800	2820	2924			
3000	3020	3124			
3200	3220	3324			
3400	3420	3524			
3600	3620	3734			
3800	3820	3931			
4000	4020	4131			

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**Table 4. Dimensions of gaskets for PN 6 flanges**

Dimensions in millimetres						
DN	Gasket inside diameter	Type IBC gasket outside diameter	Type FF gasket			
			Outside diameter	Holes		Bolt circle diameter
				No.	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
60 <sup>1)</sup>	72	106	150	4	14	120
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				
1000	1016	1090				
1200	1220	1307				
1400	1420	1524				
1600	1620	1724				
1800	1820	1931				
2000	2020	2138				
2200	2220	2348				
2400	2420	2558				
2600	2620	2762				
2800	2820	2972				
3000	3020	3172				
3200	3220	3382				
3400	3420	3592				
3600	3620	3804				

<sup>1)</sup> Relates to cast iron flanges only.

Table 5. Dimensions of gaskets for PN 10 flanges									
Dimensions in millimetres									
DN	Gasket <sup>2)3)</sup> inside diameter	Type IBC gasket outside diameter	Type FF gasket				Type SR gasket outside diameter	Type TG gasket	
			Outside diameter	Holes		Bolt circle diameter		Inside diameter	Outside diameter
				No.	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									
60 <sup>1)</sup>									
65									
80									
100	Use PN 16 dimensions	Use PN 16 dimensions	Use PN 16 dimensions				Use PN 40 dimensions	Use PN 40 dimensions	
125									
150									
200									
250	273	328	395 <sup>4)</sup>	12	22	350			
300	324	378	445 <sup>4)</sup>	12	22	400			
350	356	438	505	16	22	460			
400	407	489	565	16	26	515			
450	458	539	615	20	26	565			
500	508	594	670	20	26	620			
600	610	695	780	20	30	725			
700	712	810	895	24	30	840			
800	813	917	1015	24	33	950	Use PN 25 dimensions	Use PN 25 dimensions	
900	915	1017	1115	28	33	1050			
1000	1016	1124	1230	28	36	1160			
1100	1120	1231	1340	32	39	1270			
1200	1220	1341	1455	32	39	1380			
1400	1420	1548	1675	36	42	1590			
1500 <sup>1)</sup>	1520	1658	1785	36	42	1700			
1600	1620	1772	1915	40	48	1820			
1800	1820	1972	2115	44	48	2020			
2000	2020	2182	2325	48	48	2230			
2200	2220	2384							
2400	2420	2594							
2600	2620	2794							
2800	2820	3014							
3000	3020	3228							

<sup>1)</sup> Relates to cast iron flanges only.  
<sup>2)</sup> Except tongue and groove gasket.  
<sup>3)</sup> See table 10 for inside diameters of gaskets to suit EN 545, EN 598 and EN 969 flanges.  
<sup>4)</sup> For ductile iron pipes and fittings complying with EN 545, EN 598 and EN 969, the outside diameters for the following flanges are:  
- DN 250: 400 mm;  
- DN 300: 455 mm.

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**Table 6. Dimensions of gaskets for PN 16 flanges**

Dimensions in millimetres										
DN	Gasket <sup>2)3)</sup> inside diameter	Type IBC gasket outside diameter	Type FF gasket				Type SR gasket outside diameter	Type TG gasket		
			Outside diameter	Holes		Bolt circle diameter		Inside diameter	Outside diameter	
				No.	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										
60 <sup>1)</sup>										
65										
80										
100	115	162	220	8	18	180	Use PN 40 dimensions	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 <sup>4)</sup>	12	26	355				
300	324	384	460 <sup>4)</sup>	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	1025	24	39	950			Use PN 25 dimensions	Use PN 25 dimensions
900	915	1011	1125	28	39	1050				
1000	1016	1128	1255	28	42	1170				
1100	1120	1228	1355	32	42	1270				
1200	1220	1342	1485	32	48	1390				
1400	1420	1542	1685	36	48	1590				
1500 <sup>1)</sup>	1520	1654	1820	36	56	1710				
1600	1620	1764	1930	40	56	1820				
1800	1820	1964	2130	44	56	2020				
2000	2020	2168	2345	48	62	2230				

<sup>1)</sup> Relates to cast iron flanges only.  
<sup>2)</sup> Except tongue and groove gasket.  
<sup>3)</sup> See table 10 for inside diameters of gaskets to suit EN 545, EN 598 and EN 969 flanges.  
<sup>4)</sup> For ductile iron pipes and fittings complying with EN 545, EN 598 and EN 969, the outside diameters for the following flanges are:  
 - DN 250: 400 mm;  
 - DN 300: 455 mm.

Table 7. Dimensions of gaskets for PN 25 flanges												
Dimensions in millimetres												
DN	Gasket <sup>2)3)</sup> inside diameter	Type IBC gasket outside diameter	Type FF gasket				Type SR gasket outside diameter	Type TG gasket				
			Outside diameter	Holes		Bolt circle diameter		Inside diameter	Outside diameter			
				No.	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												
60 <sup>1)</sup>												
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	1085	24	48	990				882	856	882
900	915	1042	1185	28	48	1090				987	961	987
1000	1016	1154	1320	28	56	1210				1092	1062	1092
1100	1120	1254	1420	32	56	1310						
1200	1220	1364	1530	32	56	1420						
1400	1420	1578	1755	36	62	1640						
1500 <sup>1)</sup>	1520	1688	1865	36	62	1750						
1600	1620	1798	1975	40	62	1860						
1800	1820	2000	2195	44	70	2070						
2000	2020	2230	2425	48	70	2300						

<sup>1)</sup> Relates to cast iron flanges only.  
<sup>2)</sup> Except tongue and groove gasket.  
<sup>3)</sup> See table 10 for inside diameters of gaskets to suit EN 545, EN 598 and EN 969 flanges.

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**Table 8. Dimensions of gaskets for PN 40 flanges**

Dimensions in millimetres									
DN	Gasket <sup>2)3)</sup> inside diameter	Type IBC gasket outside diameter	Type FF gasket				Type SR gasket outside diameter	Type TG gasket	
			Outside diameter	Holes		Bolt circle diameter		Inside diameter	Outside diameter
				No.	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
60 <sup>1)</sup>	72	117	175	8	18	135	—	—	—
65 <sup>4)</sup>	77	127	185	8 <sup>4)</sup>	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

<sup>1)</sup> Relates to cast iron flanges only.  
<sup>2)</sup> Except tongue and groove gasket.  
<sup>3)</sup> See table 10 for inside diameters of gaskets to suit EN 545, EN 598 and EN 969 flanges.  
<sup>4)</sup> This gasket is used also for flanges having 4 bolt holes.

**Table 9. Dimensions of gaskets for PN 63 flanges**

Dimensions in millimetres		
DN	Gasket inside diameter	Type IBC gasket outside diameter
10	18	56
15	21	61
20	25	72
25	30	82
32	41	88
40	47	103
50	59	113
60 <sup>1)</sup>	68	123
65	73	138
80	86	148

Table 9. Dimensions of gaskets for PN 63 flanges (continued)		
Dimensions in millimetres		
DN	Gasket inside diameter	Type IBC gasket outside diameter
100	110	174
125	135	210
150	163	247
175	185	277
200	210	309
250	264	364
300	314	424
350	360	486
400	415	543

<sup>1)</sup> Relates to cast iron flanges only.

### 9 Inside diameters of gaskets for use with pipes and fittings complying with EN 545, EN 598 and EN 969

Some gaskets specifically required for use with pipes and fittings complying with EN 545, EN 598 and EN 969 have inside diameters different to those for use with flanges complying with prEN 1092, in which case the inside diameters shall be as given in table 10.

NOTE 1. Gaskets for use with pipes and fittings complying with EN 545, EN 598 and EN 969 will apply only in the range PN 10 to PN 40.

NOTE 2. For gaskets of other nominal sizes and for other dimensions consult tables 5 to 9 as appropriate.

NOTE 3. See clause 10 item b) for marking requirements.

Table 10. Inside diameters of gaskets specifically for use with pipes and fittings complying with EN 545, EN 598 and EN 969	
DN	Gasket inside diameter mm
350	368
400	420
450	470
500	520
600	620
700	720
800	820
900	920
1000	1025
1100	1125
1200	1225
1400	1430
1500	1535
1600	1635
1800	1840
2000	2040

### 10 Marking

Gaskets shall be identified either individually or on the packaging containing the gasket(s) with the following information:

- the number and Part of this European Standard, i.e. EN 1514-1;
- 'S' if suitable for use only for pipes and fittings complying with EN 545, EN 598 and EN 969 (see clause 9);
- gasket type designation (see 4.3);
- DN followed by the appropriate number (see tables 3 to 9);
- PN designation (see table 1);
- thickness (see 8.1);
- material(s) (see clause 5 and annex C);
- manufacturer's name or trademark.

NOTE. Certain gaskets may be suitable for more than one PN designation and may be suitably marked.

EXAMPLE 1. EN 1514-1, Type IBC, DN 300, PN 10, 2 mm, expanded graphite, AAA/BBB.

EXAMPLE 2. EN 1514-4, S, Type IBC, DN 300, PN 10, 3 mm, rubber with fabric insertion, AAA/BBB.

## Annex A (informative)

### Information to be supplied by the purchaser

Before ordering a gasket it is recommended that the selection of the gasket type, material and thickness should be made in consultation with the gasket supplier.

The selection of gasket material, type and thickness should take into account the fluid, the operating conditions, the properties of the gasket material, the type and surface finish of the flange facing and the flange bolt loading.

The following information should be supplied by the purchaser when ordering gaskets:

- a) the number and Part of this European Standard, i.e. EN 1514-1;
- b) gasket type designation (see **4.3**);
- c) whether the gasket is for use with pipes and fittings complying with EN 545, EN 598 or EN 969 (see clause **9**);
- d) DN (see tables 3 to 9, as appropriate);
- e) PN designation (see tables 3 to 9, as appropriate);
- f) thickness (see **8.1**);
- g) material(s) (see clause **5** and annex C);
- h) expected operating conditions for which the gasket will be used and whether the gasket is required, for use with water intended for human consumption (see clause **5**).

## Annex B (informative)

### A-deviation

This European Standard is mandated under the Council Directive on the approximation of the laws of the Member States concerning pressure equipment.

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

NOTE. (from CEN/CENELEC IR Part 2, **3.1.9**): Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No G 59, 9.3.1982) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive.

A-deviations in an EFTA country are valid instead of the relevant provisions of the European Standard in that country until they have been removed.

With reference to clause **5**, gasket designs and material:

### Austria

Order on the use of asbestos (BGBl. Nr 324./1990 Asbestverordnung).

According to this order restrictions for trading, fabrication, use and marking of materials containing asbestos apply in Austria.

### Denmark

Bekendtgørelse om asbest (Nr. 660 af 24. Juni 1986).

Bekendtgørelse om ændring af bekendtgørelse om asbest (Nr. 139 af 23. Marts 1987) (Nr. 984 af 11. December 1992).

According to this order, the use of asbestos and materials containing asbestos is prohibited in Denmark.

### France

Decret n° 96-1132 du 24 Decembre 1996 modifiant le decret n° 96-98 du 7 Fevrier 1996 relatif a la protection des travailleurs contre les risques lies a l'inhalation de poussières d'amiante.

Decret n° 96-1133 du 24 Decembre 1996 relatif a l'interdiction de l'amiante, pris en application du code du travail et du code de la consommation.

According to these regulations, within the scope of industrial safety the fabrication, manufacture, sale, import and merchandising of products containing asbestos is forbidden on the french market from 1st January 1997.

### Germany

Verordnung zur Novellierung der Gefahrstoffverordnung, zur Aufhebung der Gefährlichkeitsmerkmalverordnung und zur Änderung der ersten Verordnung zum Sprengstoffgesetz vom 26.10.1993 erschienen im Bundesgesetzblatt, Jahrgang 1993, Teil 1, Nummer 57, Seite 1782 und Verordnung über die Neuordnung und Ergänzung der Verbote und Beschränkungen des Herstellens, Inverkehrbringens und Verwendens gefährlicher Stoffe, Zubereitungen und Erzeugnisse nach Paragraph 17 des Chemikaliengesetzes vom 14. Oktober 1993, Bundesgesetzblatt Jahrgang 1993, Teil 1, Seite 1720.

According to this ordinance the use of gasket material containing asbestos is prohibited in Germany.

### Italy

Law 1992-03-27 N.257 concerning 'Rules regarding the stop of use of asbestos'.

### Norway

Forskrifter til arbeidsmiljøloven fastsatt av Kommunaldepartementet 16.August 1991 «Asbest» (best.nr 235).

According to this regulation the use of asbestos and materials containing asbestos is prohibited in Norway.

### Sweden

Ordinance AFS 1992:2 'Asbest' of the National Board of Occupational Safety and Health.

According to this ordinance the use of asbestos and material containing asbestos is prohibited.

### Switzerland

Verordnung über umweltgefährdende Stoffe (Stoffverordnung, StoV) vom 1986-06-09, Stand 1994-01-01, Änderung 1994-01-26, SR 814.013.

### UK

Asbestos Products (Safety) Regulations 1985.

Control of Asbestos at Work Regulations 1987 (as amended).

Asbestos (Prohibitions) Regulations 1992.

According to these regulations provisions covering work activities involving exposure to asbestos and the labelling of products containing asbestos apply in the UK.

## Annex C (informative)

### Gasket materials

Typical materials used for the manufacture of non-metallic flat gaskets are:

- a) rubber without insertion;
- b) rubber with fabric insertion;
- c) rubber with wire reinforced fabric insertion;
- d) rubber with metallic insert;
- e) plastics;
- f) expanded graphite with insertion;
- g) compressed fibre with binder.

NOTE. The term 'compressed fibre' includes materials that may contain asbestos.

**WARNING.** Materials containing asbestos are subject to legislation that requires precautions to be taken when handling them to ensure that they do not constitute a hazard to health (see Introduction and annex B).

- h) vegetable fibre;
- i) cork based.

## List of references

See national foreword.

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