

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

Part 4. Corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges

The European Standard EN 1514-4 : 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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National foreword

This Part of BS EN 1514 has been prepared by Technical Committee PSE/2, and is the English language version of EN 1514-4 : 1997 *Flanges and their joints — Dimensions of gaskets for PN-designated flanges — Part 4: Corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges*, published by the European Committee for Standardization (CEN).

This Part of BS EN 1514 supersedes BS 4865 : Part 4 : 1989, which is withdrawn.

Cross-references

Publication referred to	Corresponding British Standard
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 6, an inside back cover and a back cover.

ICS 23.040.80

Descriptors: Industrial piping, flange connections, pipe joints, metal gaskets, gaskets, flat seals, pipe flanges, steels, dimensions, marking

English version

Flanges and their joints — Dimensions of gaskets for PN-designated flanges — Part 4: Corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges

Brides et leurs assemblages — Dimensions des
joints pour les brides désignées PN —
Partie 4: Joints métalliques ondulés, plats ou striés
et joints métalloplastiques pour brides en acier

Flansche und ihre Verbindungen — Maße für
Dichtungen für Flansche mit PN-Bezeichnung —
Teil 4: Dichtungen aus Metall mit gewelltem,
flachem oder gekerbttem Profil für Stahlflansche

This European Standard was approved by CEN on 1997-01-09. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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, the secretariat of which 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.

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

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

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

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 relevant EEC directives.

1 Scope

This European Standard specifies the dimensions and marking of IBC (inside bolt circle) corrugated, flat or grooved metallic and filled metallic gaskets for use in conjunction with flanges complying with prEN 1092-1 for PN 10, PN 16, PN 25, PN 40, PN 63 and PN 100, up to and including DN 900.

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

NOTE 2. Annex A lists information that should be supplied by the purchaser when ordering gaskets.

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.

- | | |
|-------------|---|
| 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 | <i>Flanges and their joints — Part 2: Cast iron flanges</i> |
| prEN 1092-3 | <i>Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories — Part 3: Copper alloy and composite flanges — PN designated</i> |
| prEN 1092-4 | <i>Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories — PN designated — Part 4: Aluminium alloy flanges</i> |
| EN 1333 | <i>Pipework components — Definition and selection of PN</i> |
| EN ISO 6708 | <i>Pipework components — Definition and selection of DN (nominal size) (ISO 6708 : 1995)</i> |

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 10	PN 40
PN 16	PN 63
PN 25	PN 100

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 illustrated in figure 1, shall be designated as:

type SC/A	type CR/A
type SC/B	type CR/B
type SC/C	type CR/C
type SC/D	type CR/D
type SC/E	type CR/E

4.4 Information to be supplied by the purchaser

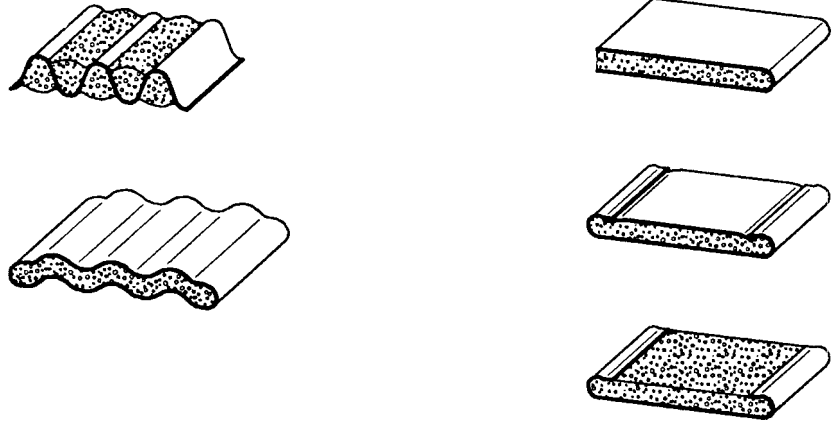
NOTE. For information to be supplied by the purchaser, see annex A.

5 Gasket designs

Gaskets shall be one of the designs shown in figure 1.

NOTE. The selection of the gasket should take into account the fluid, the operating conditions, the properties of the gasket materials, 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).

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a) Corrugated metal, with filler (top)
corrugated metal jacket with filler
(bottom) (type ---/A)

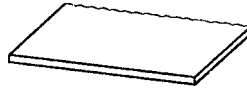
c) Flat metal jacketed with filler
(type ---/C)



b) Corrugated metal (type ---/B)

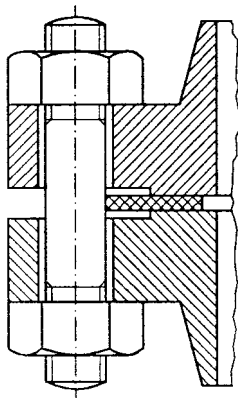


d) Grooved metal with or
without a layer of additional
gasket material (type ---/D)

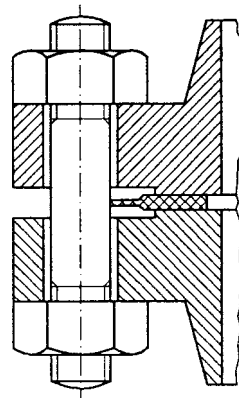


e) Solid flat metal (type ---/E)

Figure 1. Corrugated, flat or grooved metallic and filled metallic gaskets



a) self centring



b) with centring ring

NOTE. Type B, raised face flanges are shown.

Figure 2. Gaskets for type A or type B flange facings

6 Gasket types

Gaskets shall be for use with type A (flat face) or type B (raised face) flanges (see figure 2) and shall be one of the following types:

- a) self-centring, type SC/... (see 4.3);
- b) incorporating a centring ring, type CR/... (see 4.3).

NOTE. Type A and type B flange facings are shown in prEN 1092-1.

7 Dimensions

The dimensions of corrugated, flat or grooved metallic and filled metallic gaskets shall be as given in table 1.

8 Marking

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

- a) the number and Part of this European Standard, i.e. EN 1514-4;
 - b) gasket type designation (see 4.3);
 - c) DN followed by the appropriate number (see table 1);
 - d) PN designation (see table 1);
- NOTE. Certain gaskets may be suitable for more than one PN designation and may be suitably marked.
- e) materials;
 - f) manufacturer's name or trademark.

EXAMPLE: EN 1514-4, Type SC/C, DN 150, PN 63, XXX, AAA/BBB

Table 1. Dimensions of corrugated, flat or grooved metallic and filled metallic gaskets							
Dimensions in millimetres							
DN	Gasket inside diameter min.	Gasket or centring ring outside diameter					
		PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
10	18	48	48	48	48	58	58
15	22	53	53	53	53	63	63
20	27	63	63	63	63	74	74
25	34	73	73	73	73	84	84
32	43	84	84	84	84	90	90
40	49	94	94	94	94	105	105
50	61	109	109	109	109	115	121
65	77	129	129	129	129	140	146
80	89	144	144	144	144	150	156
100	115	164	164	170	170	176	183
125	141	194	194	196	196	213	220
150	169	220	220	226	226	250	260
200	220	275	275	286	293	312	327
250	273	330	331	343	355	367	394
300	324	380	386	403	420	427	461
350	356	440	446	460	477	489	515
400	407	491	498	517	549	546	575
450	458	541	558	567	574	—	—
500	508	596	620	627	631	660	708
600	610	698	737	734	750	768	819
700	712	813	807	836	—	883	956
800	813	920	914	945	—	994	—
900	915	1020	1014	1045	—	1114	—

Annex A (informative)

Information to be supplied by the purchaser

Before ordering a gasket it is recommended that the selection of the gasket design and type should be made in consultation with the gasket supplier. The selection of gasket design and type should take account of the fluid, the operating conditions, the properties of the gasket material(s), 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 1514-4;
- b) gasket design (see clause 5);
- c) gasket type (see clause 6);
- d) DN (see table 1);
- e) PN designation (see table 1);
- f) expected operating conditions for which the gasket will be used.

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.

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 1 January 1997.

Germany

Verordnung zur Novellierung der Gefahrstoffverordnung, zur Aufhebung der Gefährlichkeitsmerkmaleverordnung 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.

List of references

See national foreword.

BSI — British Standards Institution

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