

SVENSK STANDARD

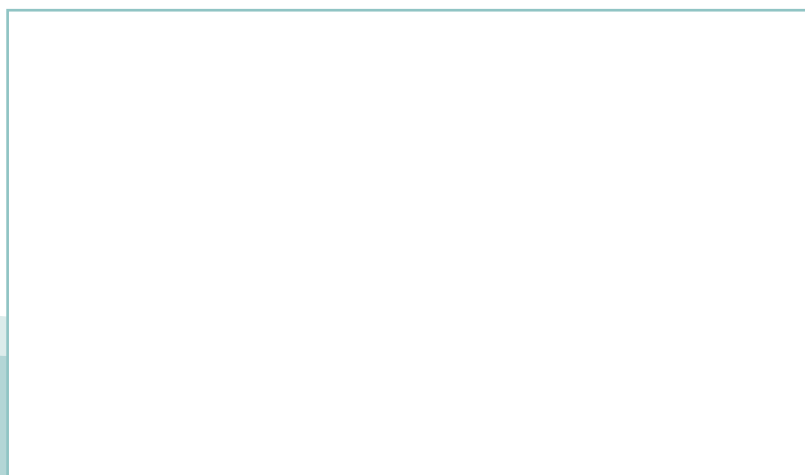
SS-EN 1514-2:2014

Fastställt/Approved: 2014-12-09
Publicerad/Published: 2014-12-10
Utgåva/Edition: 3
Språk/Language: engelska/English
ICS: 23.040.80

Rörflänsar och packningar – Mått för packningar för PN-betecknade flänsar –

Del 2: Spirallindade packningar för stålflänsar

Flanges and their joints – Gaskets for PN-designated flanges – Part 2: Spiral wound gaskets for use with steel flanges



Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN 1514-2:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1514-2:2014.

Denna standard ersätter SS-EN 1514-2:2005, utgåva 2.

The European Standard EN 1514-2:2014 has the status of a Swedish Standard. This document contains the official version of EN 1514-2:2014.

This standard supersedes the Swedish Standard SS-EN 1514-2:2005, edition 2.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Stålrör, rördelar och rörlänsar, SIS/TK 118.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 1514-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2014

ICS 23.040.80

Supersedes EN 1514-2:2005

English Version

Flanges and their joints - Gaskets for PN-designated flanges - Part 2: Spiral wound gaskets for use with steel flanges

Brides et leurs assemblages - Joints pour les brides
désignées PN - Partie 2 : Joints spiralés pour utilisation
avec des brides en acier

Flansche und ihre Verbindungen - Dichtungen für Flansche
mit PN-Bezeichnung - Teil 2: Spiraldichtungen für
Stahlflansche

This European Standard was approved by CEN on 25 July 2014.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

| Contents | | Page |
|--|--|-------------|
| Foreword..... | | 3 |
| Introduction | | 4 |
| 1 Scope | | 5 |
| 2 Normative references | | 5 |
| 3 Terms and definitions | | 5 |
| 4 Designations | | 6 |
| 4.1 Essential features and dimensions..... | | 6 |
| 4.1.1 General..... | | 6 |
| 4.1.2 Maximum compression..... | | 7 |
| 4.1.3 Use of an inner ring | | 7 |
| 4.2 Range of PN designations | | 7 |
| 4.3 Range of DN (nominal sizes) | | 8 |
| 4.4 Gasket types..... | | 8 |
| 4.5 Information to be supplied by the purchaser | | 8 |
| 5 Gasket designs | | 8 |
| 6 Gasket types..... | | 9 |
| 7 Dimensions..... | | 9 |
| 8 Marking | | 13 |
| 8.1 General..... | | 13 |
| 8.2 Colour coding..... | | 13 |
| Annex A (informative) Information to be supplied by the purchaser..... | | 15 |
| Bibliography..... | | 16 |

Foreword

This document (EN 1514-2:2014) 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 March 2015, and conflicting national standards shall be withdrawn at the latest by March 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1514-2:2005.

The reason for the revision is to include dimensions for PN 16. The dimensions of the various components of the spiral wound gaskets described and their tolerances have been set with the objective of controlling the possibility of protrusion of the inner ring into the bore of the pipeline being sealed. The other features of this European Standard have been set in order to ensure good functionality of spiral wound gaskets made according to this European Standard.

EN 1514, *Flanges and their joints — (Dimensions of) gaskets for PN-designated flanges*, consists of the following parts:

- *Part 1: Non-metallic flat gaskets with or without inserts;*
- *Part 2: Spiral wound gaskets for use with steel flanges;*
- *Part 3: Non-metallic PTFE envelope gaskets;*
- *Part 4: Corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges;*
- *Part 6: Covered serrated metal gaskets for use with steel flanges;*
- *Part 7: Covered metal jacketed gaskets for use with steel flanges;*
- *Part 8: Polymeric O-Ring gaskets for grooved 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, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The dimensions of spiral wound gaskets for tongue and groove flanges and spigot and recess flanges to EN 1092-1 are not included in this part of EN 1514. Such gaskets may be available for these types of flange and the purchaser is advised to consult the manufacturer as to their availability.

1 Scope

This part of EN 1514 specifies the dimensions and marking of spiral wound gaskets for use in conjunction with flat face and raised face flanges complying with the requirements of EN 1092-1 for PN 10, PN 16, PN 25, PN 40, PN 63, PN 100 and PN 160 and up to and including DN 1 000.

NOTE 1 Dimensions of other types of gaskets for use with flanges to EN 1092-1, EN 1092-2, EN 1092-3 and EN 1092-4 are given in EN 1514-1, EN 1514-3, EN 1514-4, EN 1514-6, EN 1514-7 and EN 1514-8.

NOTE 2 Annex A lists information to be supplied by the purchaser when ordering gaskets in circumstances where the choice of the gasket materials appropriate to the service is left to the manufacturer.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1333, *Flanges and their joints - Pipework components - Definition and selection of PN*

EN ISO 6708, *Pipework components - Definition and selection of DN (nominal size) (ISO 6708)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 DN

alphanumeric designation of size for components of a pipework system, which is used for reference purposes. It comprises the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections

Note 1 to entry: The number following the letters DN does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

Note 2 to entry: In those standards which use the DN designation system, any relationship between DN and component dimensions should be given (e.g. DN/OD or DN/ID).

Note 3 to entry: The preferred DN values are:

| | | |
|-------|--------|----------|
| DN 10 | DN 250 | DN 1 500 |
| DN 15 | DN 300 | DN 1 600 |
| DN 20 | DN 350 | DN 1 800 |
| DN 25 | DN 400 | DN 2 000 |
| DN 32 | DN 450 | DN 2 200 |
| DN 40 | DN 500 | DN 2 400 |
| DN 50 | DN 600 | DN 2 600 |
| DN 60 | DN 700 | DN 2 800 |
| DN 65 | DN 800 | DN 3 000 |
| DN 80 | DN 900 | DN 3 200 |

| | | |
|--------|----------|----------|
| DN 100 | DN 1 000 | DN 3 400 |
| DN 125 | DN 1 100 | DN 3 600 |
| DN 150 | DN 1 200 | DN 3 800 |
| DN 200 | DN 1 400 | DN 4 000 |

[SOURCE: EN ISO 6708:1995, 2.1 and Clause 3]

3.2

PN

alphanumeric designation used for reference purposes related to a combination of mechanical and dimensional characteristics of a component of a pipework system. It comprises the letters PN followed by a dimensionless number

Note 1 to entry: The number following the letters PN does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

Note 2 to entry: The designation PN is not meaningful unless it is related to the relevant component standard number.

Note 3 to entry: The maximum allowable pressure of a pipework component depends on the PN number, the material and design of the component, its maximum allowable temperature, etc. The relevant European Component standards include tables of specified pressure/temperature ratings or, in minimum, include rules how to determine pressure/temperature ratings.

Note 4 to entry: It is intended that all components with the same PN and DN designations have the same mating dimensions for compatible flange types.

Note 5 to entry: The preferred PN values are:

| | | |
|--------|--------|--------|
| PN 2,5 | PN 25 | PN 160 |
| PN 6 | PN 40 | PN 250 |
| PN 10 | PN 63 | PN 320 |
| PN 16 | PN 100 | PN 400 |

[SOURCE: EN 1333:2006, 2.1 and Clause 3]

4 Designations

4.1 Essential features and dimensions

4.1.1 General

A major feature of the design of spiral wound gaskets meeting the requirements of this European Standard is the minimisation of the possibility of the inner ring protruding into the bore of the pipe to which the flange is attached. The fit of the inner ring and sealing element relative to the centring ring has been selected to comply with this requirement.

The essential features of a spiral wound gasket that complies with the requirements of this European Standard are given in Figures 1 and 2 and/or are shown in Table 1.

Table 1 — Spiral wound gaskets - Essential features

| Parameter | Feature |
|--|---|
| Movement of centre of inner ring relative to centring ring | up to DN 200 : a maximum of 0,2 mm above DN 200 : a maximum of 0,4 mm |
| Centring ring thickness | 3 mm ± 0,25 mm |
| Sealing element location groove shall be centrally located in the centring ring | centre ± 0,1 mm |
| Number of empty wraps on external diameter of the sealing element | 3 to 5 |
| Number of empty wraps on the internal diameter of the sealing element | 2 to 3 |
| Number of welds on the inner and outer diameters of the sealing element, i.e. on the empty wraps | Minimum of 4 |
| Thickness of the metal of the sealing element | 0,2 mm ± 0,02 mm |
| Width of the profiled metal of the sealing element | 4,5 mm ^{+0.3} ₀ mm |
| Thickness of the filler material | As appropriate for the filler type |
| Protrusion of the filler above the profiled metal of the sealing element | 0,3 mm ± 0,1 mm |
| Compression of the sealing element | Shall not result in contact between the flange and the centring ring (also see 4.1.2) |
| Graphite ash content | 2 % maximum by weight |
| PTFE filler | May be either sintered or un-sintered |
| Sharp edges on inner and centring ring | Shall be removed |
| Dimensions | Shall be as given in Table 2 |

4.1.2 Maximum compression

Metal to metal contact between the centring ring and the flange shall not be achieved with the maximum load that can be generated by the flange bolts.

4.1.3 Use of an inner ring

An inner ring shall be used with all gaskets using PTFE as the filler and with all gaskets for pressure groups PN 63, PN 100 and PN 160.

In addition, it is strongly recommended that an inner ring should be used with all gaskets, this should be specified on the order for all gaskets for pressure groups PN 10, PN 16, PN 25 and PN 40.

4.2 Range of PN designations

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

- a) PN 10;
- b) PN 16;
- c) PN 25;