

# SLOVENSKI STANDARD

## SIST EN 1514-2:2014

01-november-2014

Nadomešča:  
SIST EN 1514-2:2005

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### Prirobnice in prirobnični spoji - Tesnila za prirobnice z oznako PN - 2. del: Spiralna tesnila za jeklene prirobnice

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

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

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

Ta slovenski standard je istoveten z: **EN 1514-2:2014**

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#### **ICS:**

23.040.60	Prirobnice, oglavki in spojni elementi	Flanges, couplings and joints
23.040.80	Tesnila za cevne zveze	Seals for pipe and hose assemblies

**SIST EN 1514-2:2014**

**en,fr,de**

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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 spirales 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.

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

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

<b>Contents</b>	<b>Page</b>
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

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SIST EN 1514-2:2014

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## 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.

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## 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)*

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## 3 Terms and definitions (standards.iteh.ai)

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

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### 3.1 [DN](https://standards.iteh.ai/catalog/standards/sist/2ea6de7d-e410-49e4-a8e5-85f9eb2a6ad0/sist-en-1514-2-2014)

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

**EN 1514-2:2014 (E)**

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 <sup>+0.3</sup> <sub>0</sub> 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;