



# SLOVENSKI STANDARD

## SIST EN 1514-2:2005

01-julij-2005

Nadomešča:  
SIST EN 1514-2:1998

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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 1514-2:2005

#### 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

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1514-2**

May 2005

ICS 23.040.80

Supersedes EN 1514-2:1997

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 24 March 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This European Standard (EN 1514-2:2005) 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 November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

This document supersedes EN 1514-2:1997.

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

- 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

This European Standard replaces an earlier one issued in 1997. The reason for the revision is to ensure that the standard reflects the current practice within the German Chemical Industry. The dimension 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 the standard have been set in order to ensure good functionality of spiral wound gaskets made to this European Standard.

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 European Standard. Such gaskets may be available, however, for these types of flanges and the purchaser is advised to consult the manufacturer as to their availability.

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## 1 Scope

This European Standard specifies the dimensions and marking of spiral wound gaskets for use in conjunction with flat face and raised face flanges complying with 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 1000.

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 that should 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 supplier.

## 2 Normative references

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

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

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

## 3 Terms and definitions

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

### 3.1

#### DN

see EN ISO 6708

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### 3.2

#### PN

see EN 1333

## 4 Designations

### 4.1 Essential Features and Dimensions

#### 4.1.1 General

A major feature of the design of spiral wound gaskets to 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 outer ring has been selected to comply with this objective.

The essential features of a spiral wound gasket in compliance with this specification are given in Figures 1 and 2 and/or are listed below.

Movement of centre of inner ring relative to guide ring	Up to DN 200 a maximum of 0,2 mm Above DN 200 a maximum of 0,4 mm
Guide Ring Thickness	3 mm ± 0,25

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Sealing element location groove shall be centrally located in the guide ring	Centre $\pm 0,1$ 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 $\pm 0,02$ mm
Width of the profiled metal of the sealing element	4,5 mm $^{+0.3}_0$
Thickness of the filler material shall be as appropriate for the filler type	
Protrusion of the filler above the profiled metal of the sealing element	0,3 $\pm 0,1$ mm
Compression of the sealing element shall not result in contact between the flange and the guide ring, see also 4.1.2	
Graphite ash content	maximum of 2 %
PTFE filler to contain no recycled material and may be either sintered or non-sintered	
Sharp edges on inner ring and guide ring to be removed	
Dimensions to be as given in Table 1	

**4.1.2 Maximum Compression**

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

**4.1.3 The 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 to the above, it is strongly recommended that an inner ring should be used with all gaskets, this should therefore be specified on the order for all gaskets for pressure groups PN 10, PN 25 and PN 40.

**4.2 Range of PN Designations**

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

PN 10	PN 63
PN 25	PN 100
PN 40	PN 160



### 4.3 Range of DN (nominal sizes)

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

### 4.4 Gasket types

Gasket types, as defined in Clause 6 and as illustrated in Figure 3, shall be designated as:

- Type C/I: Sealing element with centring ring and inner ring;
- Type C/O: Sealing element with centring ring.

### 4.5 Information to be supplied by the purchaser

NOTE Where the purchaser wants the manufacturer to specify the materials of the gasket then the information that should be supplied to the manufacturer with the order is given in Annex A.

## 5 Gasket designs

Gaskets for which dimensions are specified shall be of one of the designs shown in Figure 1.

The clearance between the sealing element and the centring ring shall be as shown in Figure 2.

NOTE 1 Figure 1 shows a typical design of a metallic spiral wound gasket and, for use with type A or type B flanges.

NOTE 2 Type A and type B flange facings are illustrated in EN 1092-1.

NOTE 3 The profile of the metal winding of the sealing element is at the option of the manufacturer.

NOTE 4 The materials of the gasket may be either specified by the purchaser or, if required by the purchaser, they may be chosen by the manufacturer to suit the operating conditions. In the latter case, the purchaser should define the operating conditions in the enquiry and/or order (see Annex A).

NOTE 5 The attention of the user is drawn to the load necessary to compress spiral wound gaskets and the available load with PN 10 flanges should be verified as adequate prior to using these gaskets.