

# SVENSK STANDARD

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### **Avlopp – Övergångskoppling – Del 2: Material och dimensioner för stålförstärkta övergångskopplingar**

### **Flexible couplings – Part 2: Characteristics and testing for metal banded flexible couplings, adaptors and bushes**

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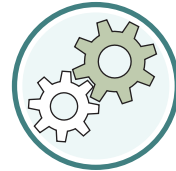
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EUROPEAN STANDARD

**EN 16397-2**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2014

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ICS 23.040.60

English Version

## Flexible couplings - Part 2: Characteristics and testing for metal banded flexible couplings, adaptors and bushes

Raccords flexibles - Partie 2: Caractéristiques et essais des raccords flexibles équipés de bandes métalliques, des raccords d'adaptation et des bagues

Flexible Kupplungen - Teil 2: Eigenschaften und Prüfung von flexiblen Kupplungen, Übergangsbauteilen und Ausgleichsringen mit Metallband

This European Standard was approved by CEN on 30 August 2014.

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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**

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## Foreword

This document (EN 16397-2:2014) has been prepared by Technical Committee CEN/TC 165 “Wastewater engineering”, 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of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by August 2016.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

EN 16397, *Flexible couplings*, contains the following parts:

- *Part 1: Performance requirements;*
- *Part 2: Characteristics and testing for metal banded flexible couplings, adaptors and bushes.*

This standard takes into account the requirements of EN 476.

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.

## 1 Scope

This European Standard specifies the materials and dimensions for metal banded flexible couplings and adaptors and bushes for use with pipes and fittings in drain and sewer systems, usually operated under gravity and periodic hydraulic surcharge, both above and below ground inside or outside buildings and intended to connect pipes for:

- repair of damaged pipelines;
- connecting pipes of different materials and/or diameters;
- jointing short/cut lengths of pipe;
- jointing specific pipe systems;
- jointing post-inserted preformed junctions.

The coupling consists of a moulded or extruded rubber sleeve with two stainless steel clamping bands with or without a stainless steel shear band. The clamping bands enable the sleeve to form a seal with the pipes to be joined. The shear band gives resistance to shear forces. Connections may be made between pipes which cannot be satisfactorily joined by a coupling alone, of dissimilar sizes or material, by using an appropriate bush or bushes with the coupling or by using an appropriate adaptor.

## 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 681-1, *Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber*

EN 10088-1:2014, *Stainless steels — Part 1: List of stainless steels*

EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

EN 10151:2002, *Stainless steel strip for springs - Technical delivery conditions*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 16397-1:2014, *Flexible couplings — Part 1: Performance requirements*

EN ISO 7500-1, *Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system (ISO 7500-1)*

EN ISO 9445-1:2010, *Continuously cold-rolled stainless steel - Tolerances on dimensions and form - Part 1: Narrow strip and cut lengths (ISO 9445-1:2009)*

ISO 3302-1:2014, *Rubber — Tolerances for products — Part 1: Dimensional tolerances*

## 3 Terms and definitions

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



### 3.1

#### metal banded flexible coupling

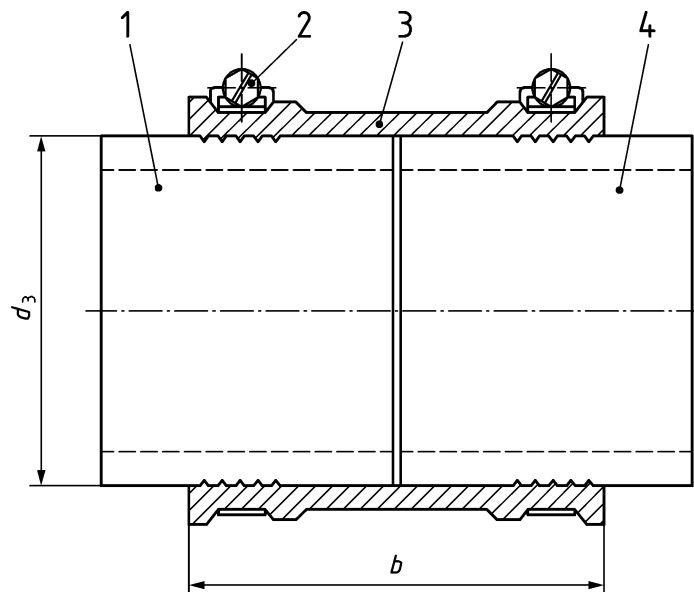
moulded or extruded and joined rubber sleeve, with or without bushes or shear band, with adjustable stainless steel clamping bands by which it is secured to the pipe ends

#### 3.1.1

##### Type 1 coupling (without shear band)

moulded or extruded and joined rubber sleeves with adjustable stainless steel clamping bands by which it is secured to the pipe ends without shear band

Note 1 to entry: An example of a typical Type 1 coupling is shown in Figure 1.



#### Key

- 1 pipe 1
- 2 clamping band with drive unit
- 3 sleeve
- 4 pipe 2
- $b$  width of sleeve
- $d_3$  outside diameter

NOTE More than one drive unit could be used where required.

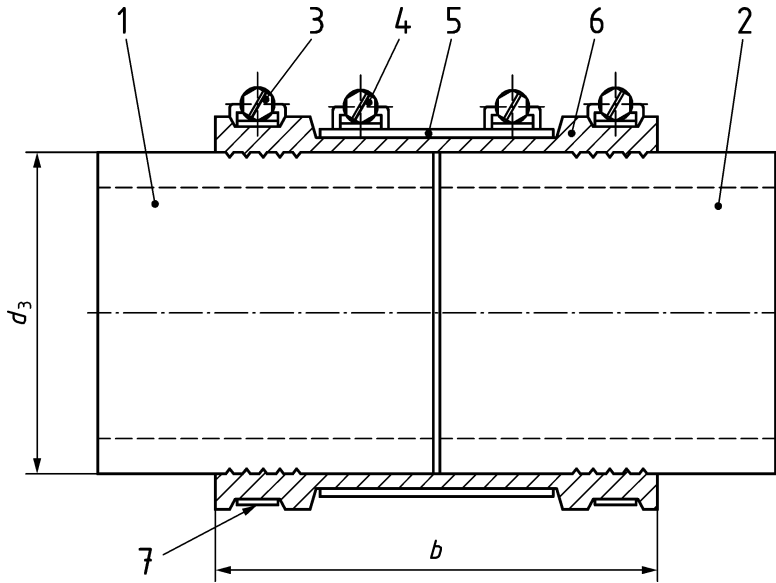
**Figure 1 — Example of Type 1 coupling (without shear band)**

#### 3.1.2

##### Type 2 coupling (with shear band)

moulded or extruded and joined rubber sleeve with adjustable stainless steel clamping bands by which it is secured to the pipe ends and a shear band to give resistance to shear loads

Note 1 to entry: An example of a typical Type 2 coupling is shown in Figure 2 and Figure 3.

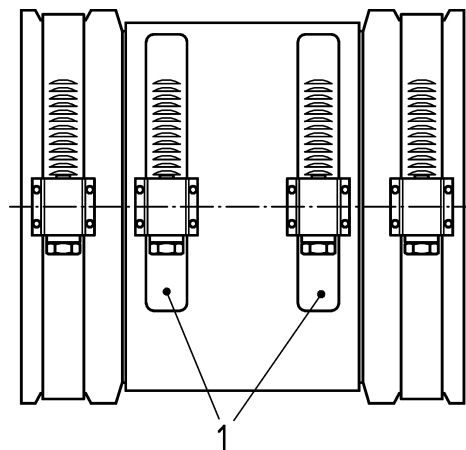


**Key**

- 1 pipe 1
- 2 pipe 2
- 3 drive unit
- 4 adjustor unit
- 5 shear band
- 6 sleeve
- 7 clamping band
- $b$  width of sleeve
- $d_3$  outside diameter

NOTE More than one drive unit could be used where required.

**Figure 2 — Example of Type 2 coupling (with shear band)**



**Key**

- 1 shear band adjustors

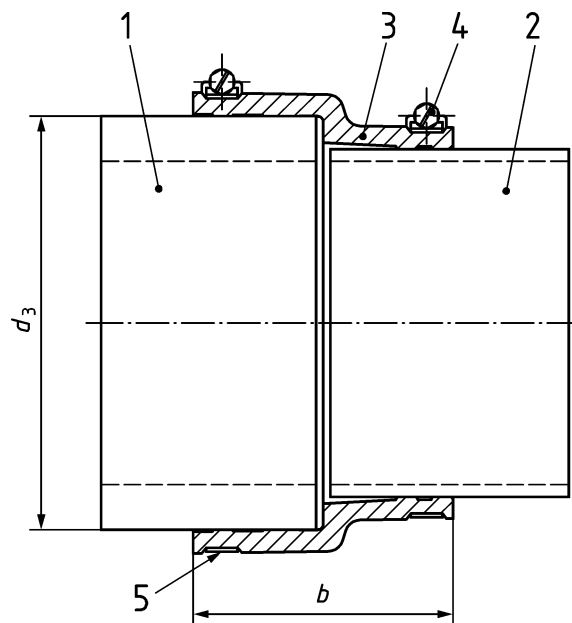
**Figure 3 — Example of elevation showing shear band adjustors**

### 3.2

#### metal banded adaptor

moulded stepped rubber sleeve with adjustable stainless steel clamping bands by which it is secured to pipes of different outside diameters

Note 1 to entry: Adaptors may incorporate an abrupt change of section. An example of a metal banded adaptor is shown in Figure 4.



#### Key

- 1 pipe 1
- 2 pipe 2
- 3 moulded rubber
- 4 drive unit
- 5 clamping band
- $b$  width of sleeve
- $d_3$  outside diameter

NOTE More than one drive unit could be used where required.

**Figure 4 — Example of metal banded adaptor**

### 3.3

#### bush

moulded or extruded and joined rubber section only used with couplings having shear bands to compensate for variations between the outside diameters of pipes which cannot be satisfactorily joined by a coupling alone

### 3.4

#### nominal size of a flexible coupling and an adaptor

maximum outside diameter of the pipes with which a flexible coupling or adaptor can be used