Survesüsteemides kasutatavate metallkompensaatorite paisumisvuugid KONSOLIDEERITUD TEKST

Metal bellows expansion joints for pressure applications CONSOLIDATED TEXT

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

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NATIONAL FOREWORD

See Eesti standard EVS-EN 14917:2009+A1:2012 sisaldab Euroopa standardi EN 14917:2009+A1:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 14917:2009+A1:2012 consists of the English text of the European standard EN 14917:2009+A1:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.03.2012.	Date of Availability of the European standard is 07.03.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Metal bellows expansion joints for pressure applications

Compensateurs de dilatation à soufflets métalliques pour appareils à pression

Kompensatoren mit metallischen Bälgen für Druckanwendungen

This European Standard was approved by CEN on 6 September 2008 and includes Amendment 1 approved by CEN on 10 January 2012.

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Foreword

This document (EN 14917:2009+A1:2012) has been prepared by Technical Committee CEN/TC 342, "Metal hoses, hose assemblies, bellows and expansion joints", the secretariat of which is held by ⟩A1⟨ SNV ⟩A1⟨.

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of an identical text or by endorsement, at the latest by September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

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For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

This document includes Amendment 1, approved by CEN on 2012-01-08.

This document supersedes EN 14917:2009.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟩A1⟨ ⟩A1⟨.

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, 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.

Introduction

Metal bellows expansion joints are used as components in piping or as parts of pressure vessels.

If an expansion joint is designed and manufactured according to this European Standard, the risk analysis is already undertaken, see Annex I.

1 Scope

This European Standard specifies the requirements for design, manufacture and installation of metal bellows expansion joints for pressure applications, i.e. maximum allowable pressure greater than 0,5 bar.

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 287-1, *Qualification test of welders — Fusion welding — Part 1: Steels*

EN 473, *Non destructive testing — Qualification and certification of NDT personnel — General principles*

EN 571-1, *Non destructive testing — Penetrant testing — Part 1: General principles*

EN 764-4, *Pressure equipment — Part 4: Establishment of technical delivery conditions for metallic materials*

EN 764-5:2002, *Pressure equipment — Part 5: Compliance and inspection documentation of materials*

EN 970, *Non-destructive examination of fusion welds — Visual examination*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1289:1998, *Non-destructive examination of welds — Penetrant testing of welds — Acceptance levels*

EN 1290, *Non-destructive examination of welds — Magnetic particle examination of welds*

EN 1291:1998, *Non-destructive examination of welds — Magnetic particle testing of welds — Acceptance levels*

EN 1418, *Welding personnel — Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

EN 1435:1997, *Non-destructive examination of welds — Radiographic examination of welded joints*

EN 1593, *Non-destructive testing — Leak testing — Bubble emission techniques*

EN 1712:1997, *Non-destructive examination of welds — Ultrasonic examination of welded joints — Acceptance levels*

EN 1713, *Non-destructive examination of welds — Ultrasonic examination — Characterization of indications in welds*

EN 1714:1997, *Non-destructive examination of welds — Ultrasonic examination of welded joints*

EN 1779:1999, *Non-destructive testing — Leak testing — Criteria for method and technique selection*

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 10002-5, *Metallic materials — Tensile testing — Part 5: Method of testing at elevated temperature*

EN 10028-1, *Flat products made of steels for pressure purposes — Part 1: General requirements*

〉A1〈 EN 10028-2:2009 〉A1〈, *Flat products made of steels for pressure purposes — Part 2: Non-alloy and alloy steels with specified elevated temperature properties*

[A1] EN 10028-3:2009 [A1], *Flat products made of steels for pressure purposes — Part 3: Weldable fine grain steels, normalized*

EN 10028-4, *Flat products made of steels for pressure purposes — Part 4: Nickel alloy steels with specified low temperature properties*

EN 10028-7:2007, *Flat products made of steels for pressure purposes — Part 7: Stainless steels*

EN 10045-1, *Metallic materials — Charpy impact test — Part 1: Test method*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN 10216-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10216-2, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10216-3, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes*

EN 10216-4, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 4: Non-alloy and alloy steel tubes with specified low temperature properties*

EN 10217-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10217-2, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-3, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes*

EN 10217-4, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 4: Electric welded non-alloy steel tubes with specified low temperature properties*

EN 10217-5, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-6, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 6: Submerged arc welded non-alloy steel tubes with specified low temperature properties*

EN 10222-2, *Steel forgings for pressure purposes — Part 2: Ferritic and martensitic steels with specified elevated temperature properties*

EN 10222-3, *Steel forgings for pressure purposes — Part 3: Nickel steels with specified low temperature properties*

EN 10222-4, *Steel forgings for pressure purposes — Part 4: Weldable fine grain steels with high proof strength*

EN 10253-2, *Butt-welding pipe fittings — Part 2: Non alloy and ferritic alloy steels with specific inspection requirements*

EN 10269, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties*

EN 10272, *Stainless steel bars for pressure purposes*

EN 10273, *Hot rolled weldable steel bars for pressure purposes with specified elevated temperature properties*

EN 12517-1:2006, *Non-destructive testing of welds — Part 1: Evaluation of welded joints in steel, nickel, titanium and their alloys by radiography — Acceptance levels*

EN 13184, *Non-destructive testing — Leak testing — Pressure change method*

EN 13185, *Non-destructive testing — Leak testing — Tracer gas method*

EN 13445-2:2002, *Unfired pressure vessels — Part 2: Materials*

EN 13445-3, *Unfired pressure vessels — Part 3: Design*

EN 13480-2:2002, *Metallic industrial piping — Part 2: Materials*

EN 13480-3, *Metallic industrial piping — Part 3: Design and calculation*

EN 13480-4, *Metallic industrial piping — Part 4: Fabrication and installation*

EN ISO 643, *Steels — Micrographic determination of the apparent grain size (ISO 643:2003)*

EN ISO 3651-2, *Determination of resistance to intergranular corrosion of stainless steels — Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels — Corrosion test in media containing sulfuric acid (ISO 3651-2:1998)*

EN ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817:2003, corrected version: 2005, including Technical Corrigendum 1:2006)*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2005)*

EN ISO 6520-1, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding (ISO 6520-1:2007)*

EN ISO 9445:2006, *Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths — Tolerances on dimensions and form (ISO 9445:2002)*

EN ISO 9606-4, *Approval testing of welders — Fusion welding — Part 4: Nickel and nickel alloys (ISO 9606-4:1999)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15610, *Specification and qualification of welding procedures for metallic materials — Qualification based on tested welding consumables (ISO 15610:2003)*

EN ISO 15613, *Specification and qualification of welding procedures for metallic materials — Qualification based on pre-production welding test (ISO 15613:2004)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

ISO 15348:2002, *Pipework — Metal bellows expansion joints — General*

EAM-0526-18 NiMo16Cr15W (2.4819) — Nickel-Molybdenum-chromium alloy — Flat products

EAM-0526-28 NiMo16Cr16Ti (2.4610) — Nickel-Chromium-Molybdenum alloy — Flat products

EAM-0526-40 NiCr22Mo9Nb-gr.1 (2.4856) — Nickel-Chromium-Molybdenum alloy — Flat products

EAM-0526-43-1 NiCr15Fe (2.4816) — Nickel-Chromium-Iron alloy — Hot and cold rolled flat products

EAM-0526-43-2 NiCr15Fe (2.4816) — Nickel-Chromium-Iron alloy — Bars and rods