SLOVENSKI STANDARD
SIST EN 334:2005/kprA1:2008

01-oktober-2008

Regulatorji tlaka plina za vstopne tlake do 100 bar - Dopolnilo A1

Gas pressure regulators for inlet pressures up to 100 bar

Gas-Druckregelgeräte für Eingangsdrücke bis 100 bar

Appareils de régulation de pression de gaz (régulateurs) pour des pressions amont jusqu'à 100 bar

Ta slovenski standard je istoveten z: **EN 334:2005/prA1**

ICS:

23.060.40 Tlaļ ni regulatorji Pressure regulators

SIST EN 334:2005/kprA1:2008 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

FINAL DRAFT
EN 334:2005

prA1

August 2008

ICS 23.060.40

English Version

Gas pressure regulators for inlet pressures up to 100 bar

Appareils de régulation de pression de gaz (régulateurs) pour des pressions amont jusqu'à 100 bar

Gas-Druckregelgeräte für Eingangsdrücke bis 100 bar

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 235.

This draft amendment A1, if approved, will modify the European Standard EN 334:2005. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 and United Kingdom.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 334:2005/prA1:2008: E

Contents

Page

Foreword 3

1 Modification to Foreword 4

2 Modification to Clause 1, Scope 4

3 Modification to Clause 2, Normative reference 5

4 Modification to Clause 3, Terms, definition and symbols 7

5 Modification to 4.1, Basic requirements 11

6 Modification to 4.2, Materials 14

7 Modification to 4.3, Strength of housings 16

8 Modification to Clause 5, Functional requirements 19

9 Modification to 7.7, Test and verification methods 19

10 Modification to 8.1.1, Documentation required prior to type test 22

11 Modification to 8.2.2, Documentation provided with the regulator 22

12 Modification to 9.1, General requirements 22

13 Modification to Annex A, Alternative methods for the determination of the accuracy class, the lock-up pressure class, the maximum accuracy flow rate, the flow coefficients and the verification of the hysteresis band 22

14 Modification to Annex B, Inspection certificate 23

15 Modification to D.3, Procedure 25

16 Modification to Annex E, Seat leakage 25

17 Modification to G.3, Optional specifications 25

18 Modification of Annex H, Materials 26

19 Addition of Annex I, Glossery 28

20 Modification to Table ZA.1 - Correspondence between this European Standard and Directive 97/23/EC (PED) 31

21 Modification to Bibliography 31

Foreword

This document (EN 334:2005/prA1:2008) has been prepared by Technical Committee CEN/TC 235 “Gas pressure regulators and associated safety devices for use in gas transmission and distribution”, the secretariat of which is held by UNI.

This document is currently submitted to the Unique Acceptance Procedure.

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.

This document specifies the additions and changes to EN 334:2005 concerning mainly the extension of harmonized part to differential strength regulators and to various combinations including a pressure regulator and a safety device and the extension of the non-applicability to the regulators incorporated into pressure-regulating device use in service lines. Further the Clause 3 dealing with terms, symbols and definitions have been partially re-organized.

1 Modification to Foreword

Replace the text after the last comma of the 7th paragraph with the following:

"except the external corrosion resistance in case of environmental conditions where corrosion is likely to occur" *to read:*

"For standard gas pressure regulators used in pressure regulating stations complying with EN 12186 or EN 12279, Table ZA.1 given in Annex ZA includes all applicable Essential Requirements given in Annex I of PED, except the external corrosion resistance in case of environmental conditions where corrosion is likely to occur.".

Delete the third-last paragraph.

Replace "The continuing" *in the second-last paragraph with* "Continued" *to read:*

"Continued integrity of gas pressure regulators is assured by periodic functional checks. For periodic functional checks it is common to refer to national regulations/standards where existing or users/manufacturers practices.".

2 Modification to Clause 1, Scope

Replace the 1st sentence of the 1st paragraph with the following:

"This document specifies constructional, functional, testing and marking requirements, sizing and documentation of gas pressure regulators used in the pressure regulating stations in accordance with EN 12186 or EN 12279:".

Replace the 3rd paragraph with the following:

"For standard regulators when used in pressure regulating stations complying with EN 12186 or EN 12279, Annex ZA lists all applicable Essential Requirements except the external corrosion resistance in case of environmental conditions where corrosion is likely to occur.".

Replace the 1st line of the 4th paragraph with the following:

"This document considers the following classes/types of regulators:".

and add after its 2nd indent the following two new indents: "

— type IS: (integral strength type);

— type DS: (differential strength type).".

Replace the 2nd indent of the last paragraph with the following new indent including its footnote to text: "

— regulators incorporated into pressure-regulating devices used in service lines[1] with volumetric flow rate ≤ 200 m^3/h at normal conditions and inlet pressure ≤ 5 bar;".

[1] The services lines are those defined in EN 12279.

3 Modification to Clause 2, Normative reference

Delete the following standards:

"EN 287 (all parts). *Qu*EN 288 (all parts), *Specification and approval of welding procedures for metallic materials*.",

"EN 571-1, *Non destructive testing – Penetrant testing – Part 1: General principles*.",

"EN 1289, *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, *Non-destructive examination of welds – Magnetic particle testing of welds – Acceptance levels*.",

"EN 1435, *Non-destructive examination of welds – Radiographic examination of welded joints*.

EN 1712, *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, *Non- destructive examination of welds – Ultrasonic examination of welded joints*.",

"EN 12517, *Non-destructive examination of welds – Radiographic examination of welded joints – Acceptance levels*."

"ISO 7-1, *Pipe threads where pressure tight joints are made on threads – Part 1: Dimensions, tolerances and designation*" *and*

"ANSI/ASME B1.20.1:1983, *Pipe threads, general purpose (inch)*

ASME B16.34:1996, *Valves – Flanged, threaded and welding end*.".

Add the following standards:

"EN 287-1, *Qu*

"EN 1092-1:2007, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 1: Steel flanges*

EN 1092-2:1999, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 2: Cast iron flanges*

EN 1092-3:2005, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 3: Copper alloy flanges*

EN 1092-4:2004, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 4: Aluminium alloy flanges*",

"EN 1759-1, *Flanges and their joint – Circular flanges for pipes, valves, fittings and accessories, Class designated – Part 1: Steel flanges, NPS ½ to 24*

EN 1759-3, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, Class designated – Part 3: Copper alloy flanges*

EN 1759-4, *Flanges and their joint – Circular flanges for pipes, valves, fittings and accessories, class designated – Part 4: Aluminium alloy flanges*",

"EN 10226-1, *Pipe threads where pressure tight joints are made on the threads – Part 1: Taper external threads and parallel internal threads – Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads – Part 2: Taper external threads and taper internal threads – Dimensions, tolerances and designation*",

"EN 12516-1:2005, *Industrial valves – Shell design strength – Part 1: Tabulation method for steel valves shells*

EN 12516-2:2004, *Industrial valves – Shell design strength – Part 2: Calculation method for steel valve shells*

EN 12516-4:2008, *Industrial valves – Shell design strength – Part 4: Calculation method for valve shells in metallic materials other than steel*",

"EN 60534-8-3, *Industrial-process control valves – Part 8-3: Noise considerations – Control valve aerodynamic noise prediction method (IEC 60534-8-3:2000)*" and

"EN ISO 9606-2, *Qualification test of welders – Fusion welding – Part 2: Aluminium and aluminium alloys (ISO 9606-2:2004)*

EN ISO 9606-3, *Qualification test of welders – Fusion welding – Part 3: Copper and copper alloys (ISO 9606-3:1999)*

EN ISO 9606-4, *Qualification test of welders – Fusion welding – Part 4: Nickel and nickel alloys (ISO 9606-4:1999)*

EN ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials – General rules (ISO 15607:2003)*

EN ISO 15609-1:2005, *Specification and qualification of welding procedures for metallic materials – Welding procedure specification – Part 1: Arc welding (ISO 15609-1:2004)*

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

EN ISO 15611:2003, *Specification and qualification of welding procedures for metallic materials – Qualification based on previous welding experience (ISO 15611:2003)*

EN ISO 15612:2004, *Specification and qualification of welding procedures for metallic materials – Qualification by adoption of a standard welding procedure (ISO 15612:2004)*

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

EN ISO 15614-1:2004, *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)*

EN ISO 15614-2:2005, *Specification and qualification of welding procedures for metallic materials – Welding procedure test – Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)*".

Replace "EN 473" *with* "EN 473:2000", "EN 970" *with* "EN 970:1997", "EN 1418" *with* "EN 1418:1997", "EN 10204" *with* "EN 10204:2004" *and* "EN 14382:2005" *with* "EN 14382:2005".

Delete all full stops.

4 Modification to Clause 3, Terms, definition and symbols

Delete following actual terms or sub-clause titles:

3.1.1.7, 3.1.1.8, 3.1.1.10, 3.1.3, 3.2.1, 3.2.1.2, 3.2.4.4 and 3.4.1.

Add the following standard paragraph and NOTE after the title of Clause 3:

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

NOTE Annex I list all terms in alphabetic order for English language, the relevant translation in French and German language and the relevant sub-clause of this clause.".

Replace the title of actual sub-clause 3.1 with the following:

"General terms and definitions of types of gas pressure regulators"

and delete the standard paragraph.

Replace the reference within bracket in actual term 3.1.1 with the following:

"(see 3.3.4.1)*".*

Replace the 1st line of the actual term 3.1.1.3 with the following (this term will be re-numbered as 3.1.4):

"second regulator installed in series with an active regulator, normally upstream, which has the task of maintaining the" *to read:* "second regulator installed in series with an active regulator, normally upstream, which has the task of maintaining the controlled variable within allowable limits in the event of its value exceeds a pre-established value (e.g. in the event of opening of the active regulator due to a failure, etc.)".

Replace the definition of the actual term 3.1.1.9 with the following (this term will be re-numbered as 3.1.7):

"nominal size DN of the inlet connection in accordance with EN ISO 6708" *(deletion of* "nominal inlet diameter"*).*

Replace the text of 2nd indent of the definition of the actual terms 3.1.2.7 and 3.1.2.8 with the following (these terms will be re-numbered as 3.2.1.7 and 3.2.1.8 respectively): "

— a pressure detector element, normally a diaphragm, for the controlled variable".

Replace the text of the definition of the actual term 3.1.2.10 with the following (this term will be re-numbered as 3.2.2):

"parts whose failure to function would result in a release of the retained fuel gas to the atmosphere

NOTE These include bodies, control member, bonnets, the casing of the actuator, blind flanges and pipes for process and sensing lines but exclude compression fittings, diaphragms, bolts and other fasteners.".

Replace the text of the definition and of the NOTE of the actual term 3.1.3.2 with the following (this term will be re-numbered as 3.2.5):

"line connecting the atmosphere side of the pressure detector element to atmosphere

NOTE In the event of a fault in the pressure detector element this line may become an exhaust line.".

Replace the text of the definition of the actual term 3.1.3.3 with the following (this term will be re-numbered as 3.2.6):

"line connecting the regulator or its fixtures to atmosphere for the safe exhausting of gas in the event of failure of any part".

Replace the reference within bracket in the actual term 3.1.3.4 with the following (this term will be re-numbered as 3.2.7):

"(see 3.2.1)".

Replace the actual title of sub-clause 3.2 with the following (this sub-clause header will be re-numbered as 3.3):

"Terms, symbols and definitions of components of functional performance".

Replace the text of the definition of the actual term 3.2.1.2.3 with the following (this term will be re-numbered as 3.3.2.1.2):

"volume of gas which flows through the regulator per unit of time, at normal conditions".

Replace the text of the definition of the actual term 3.2.2.2 with the following (this term will be re-numbered as 3.3.4.2):

"variables acting from outside on the controlling process.

In the case of regulators with the outlet pressure as the controlled variable, the disturbance variables are essentially:

— changes in the inlet pressure;

— changes in the volumetric flow rate".

Replace the title of actual sub-clause 3.2.3 with the following (this sub-clause will be re-numbered as 3.3.5):

"Terms and definitions related to possible values of all variables".

Replace the title of actual sub-clause 3.2.4 with the following (this sub-clause will be re-numbered as 3.3.6):

"Terms, symbols and definitions related to the controlled process".

Replace the text of the definition of the actual term 3.2.4.1 with the following (this term will be re-numbered as 3.3.6.1):

"nominal value of the controlled variable under specified conditions"

Replace the text of the definition of the actual term 3.2.4.5 with the following (this term will be re-numbered as 3.3.6.4):

"difference between the actual value of the controlled variable and the set point expressed as a percentage of the set point".

Replace the title of actual sub-clause 3.3 with the following (this sub-clause title will be re-numbered as 3.3.7):

"Terms, symbols and definitions of functional performance".

Replace the actual title of sub-clause 3.3.5 with the following (this sub-clause title will be re-numbered as 3.3.8):

"Feature related to accuracy".

Replace the text of the definition of the actual term 3.3.5.1 with the following (this term will be re-numbered as 3.3.8.1):

"maximum absolute value of regulation change under specified operating range".

Replace the text of the definition of the actual term 3.3.5.2 with the following (this term will be re-numbered as 3.3.8.2):

"maximum permissible value of the accuracy under specified operating range".

Replace the title of actual sub-clause 3.3.6 with the following (this sub-clause title will be re-numbered as 3.3.9):

"Terms, symbols and definitions related to lock-up behaviour".

Replace the title of actual sub-clause 3.4 with the following:

"Terms, symbols and definitions related to design and tests".

Replace the text of the definition of the actual term 3.4.1.3 with the following (this term will be re-numbered as 3.4.3):

"maximum pressure for which the body, its inner metallic partition walls and some other pressure containing parts are designed in accordance with the strength requirements in this document".

Replace the text of the definition of the actual term 3.4.1.6 with the following (this term will be re-numbered as 3.4.7):

"ratio of the limit pressure p_l to the maximum allowable pressure PS or to the specific maximum allowable pressure PSD applied to:

— the regulator body: S_b (only PS);

— the other pressure containing parts of the regulator: S (PS or PSD)".

Replace in the text of NOTE 2 of actual term 3.4.2 the reference with (this term will be re-numbered as 3.4.11):

"3.4.3".