

SURVEOTSTARBELISED TERASSEPISED. OSA 5:
ROOSTEVABAD MARTENSIIT-, AUSTENIIT- JA
AUSTENIIT-FERRIITTERASED

Steel forgings for pressure purposes - Part 5:
Martensitic, austenitic and ferritic-austenitic stainless
steels

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 10222-5:2017 sisaldab Euroopa standardi EN 10222-5:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 10222-5:2017 consists of the English text of the European standard EN 10222-5:2017.
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 12.04.2017.	Date of Availability of the European standard is 12.04.2017.
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.

ICS 77.140.30, 77.140.85

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 10222-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2017

ICS 77.140.30; 77.140.85

Supersedes EN 10222-5:1999

English Version

Steel forgings for pressure purposes - Part 5: Martensitic, austenitic and austenitic-ferritic stainless steels

Pièces forgées en acier pour appareils à pression -
Partie 5: Aciers inoxydables austénitiques
martensitiques et austénoferritiques

Schmiedestücke aus Stahl für Druckbehälter - Teil 5:
Martensitische, austenitische und austenitische-
ferritisch nichtrostende Stähle

This European Standard was approved by CEN on 25 December 2016.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Contents	Page
European foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Classification and designation	4
4.1 Classification.....	4
4.2 Designation.....	4
5 Information to be supplied by the purchaser	5
5.1 Mandatory information.....	5
5.2 Options.....	5
6 Requirements	5
6.1 Steelmaking process and manufacture of the product.....	5
6.2 Delivery condition.....	5
6.3 Chemical composition and chemical corrosion properties.....	5
6.3.1 Cast analysis.....	5
6.3.2 Product analysis.....	5
6.3.3 Resistance to intergranular corrosion.....	5
6.4 Mechanical properties.....	6
6.5 Surface condition.....	6
6.6 Internal soundness.....	6
6.7 Physical properties.....	6
6.8 Post weld heat treatment.....	6
7 Inspection	6
8 Sampling	6
9 Test methods	6
10 Retests	6
11 Marking	6
Annex A (informative) Reference data for creep rupture strength	20
Annex B (informative) Post weld heat treatment	25
Annex C (informative) Significant technical changes to the version EN 10222-5:1999	27
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU	28
Bibliography	29

European foreword

This document (EN 10222-5:2017) has been prepared by Technical Committee ECISS/TC 111 “Steel castings and forgings”, the secretariat of which is held by AFNOR.

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 October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10222-5:1999.

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 2014/68/EU.

For relationship with EU Directive 2014/68/EU, see informative Annex ZA, which is an integral part of this document.

EN 10222 consists of the following parts under the general title “*Steel forgings for pressure purposes*”:

- *Part 1: General requirements for open die forgings*
- *Part 2: Ferritic and martensitic steels with specified elevated temperature properties*
- *Part 3: Nickel steels with specified low temperature properties*
- *Part 4: Weldable fine grain steels with high proof strength*
- *Part 5: Martensitic, austenitic and austenitic-ferritic stainless steels.*

Annex C provides details about significant technical changes to EN 10222-5:1999.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the technical delivery conditions for forgings for pressure purposes, made of stainless steels, including creep resisting steels. Chemical composition and mechanical properties are specified.

NOTE Once this standard is published in the EU Official Journal (OJEU) under Directive 2014/68/EU, presumption of conformity to the Essential Safety Requirements (ESRs) of Directive 2014/68/EU is limited to technical data of materials in this standard and does not presume adequacy of the material to a specific item of equipment. Consequently, the assessment of the technical data stated in this material standard against the design requirements of this specific item of equipment to verify that the ESRs of Directive 2014/68/EU are satisfied, needs to be done. The series EN 10222-1 to EN 10222-5 is structured so that the data related to different materials is in the part allocated for that material. The presumption of conformity to the Essential Safety Requirements of Directive 2014/68/EU depends on both the text in part 1 and the data in part 2, 3, 4 or 5.

General information on technical delivery conditions is given in EN 10021.

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

EN 10222-1:2017, *Steel forgings for pressure purposes — Part 1: General requirements for open die forgings*

EN ISO 3651-2:1998, *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)*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 10222-1:2017 apply.

4 Classification and designation

4.1 Classification

The steel grades covered in this document are classified according to their structure into:

- martensitic steels;
- austenitic steels;
- austenitic-ferritic steels.

NOTE For more details see EN 10088-1.

4.2 Designation

See EN 10222-1:2017.