

**SURVESEADMED. OSA 4: METALSETE MATERJALIDE
TEHNILISTE TARNETINGIMUSTE MÄÄRAMINE**

**Pressure equipment - Part 4: Establishment of technical
delivery conditions for metallic materials**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN 764-4:2014 sisaldab Euroopa standardi EN 764-4:2014 ingliskeelset teksti.	This Estonian standard EVS-EN 764-4:2014 consists of the English text of the European standard EN 764-4:2014.
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 17.12.2014.	Date of Availability of the European standard is 17.12.2014.
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 23.020.30

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:
Aru 10, 10317 Tallinn, Eesti; 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:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Pressure equipment - Part 4: Establishment of technical delivery conditions for metallic materials

Equipements sous pression - Partie 4: Etablissement des conditions techniques de livraison des matériaux métalliques

Druckgeräte - Teil 4: Erstellung von technischen Lieferbedingungen für metallische Werkstoffe

This European Standard was approved by CEN on 8 November 2014.

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, 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

Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions, symbols and abbreviations	6
3.1 Terms and definitions	6
3.2 Symbols and abbreviations	6
4 Types of technical delivery conditions	8
4.1 Harmonized European Standards for material for pressure equipment.....	8
4.2 European Approvals for Materials for pressure equipment (EAMs)	8
4.3 Particular Material Appraisals for pressure equipment (PMAs)	8
5 Content of technical delivery conditions for materials for pressure equipment	9
5.1 General.....	9
5.2 Requirements	9
5.3 Testing and inspection.....	11
5.4 Marking	12
Annex A (normative) Procedures for the establishment of European Approvals for pressure equipment Materials (EAM).....	13
A.1 General.....	13
A.2 European Approvals for Materials	13
A.3 Requirements for the establishment of an EAM.....	13
A.4 Title scheme and structure of an EAM	14
Annex B (normative) Appraisal schedule for ferritic and martensitic steels	16
B.1 General.....	16
B.2 Test procedures	16
B.3 Required testing.....	17
B.4 Subsequent testing.....	21
B.5 Collective tests.....	22
Annex C (normative) Appraisal schedule for austenitic and austenitic-ferritic steels	24
C.1 General.....	24
C.2 Test procedures	24
C.3 Basic testing.....	25
C.4 Sampling	27
C.5 Extent of testing.....	27
Annex D (normative) Appraisal schedule for cast steels.....	28
D.1 General.....	28
D.2 Test procedures	28
D.3 Basic testing.....	29
D.4 Sampling	31
D.5 Extent of testing.....	31
Annex E (normative) Test programme for welded specimen after stress relief procedure	33
E.1 Test programme.....	33
E.2 Position of specimen.....	33
Annex F (informative) Example for Particular Material Appraisal (PMA) for steel	35
Annex G (informative) History of EN 764-4	38

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 97/23/EC on Pressure Equipment	39
Bibliography.....	40

This document is a preview generated by EVS

Foreword

This document (EN 764-4:2014) has been prepared by Technical Committee CEN/TC 54 "Unfired pressure vessels", the secretariat of which is held by BSI.

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 June 2015 and conflicting national standards shall be withdrawn at the latest by June 2015.

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 supersedes EN 764-4:2002.

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.

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

Regarding the most significant technical changes that have been implemented in this new edition of EN 764-4, see Annex G.

EN 764, *Pressure equipment*, consists of the following parts:

- *Part 1: Terminology - Pressure, temperature, volume, nominal size;*
- *Part 2: Quantities, symbols and units;*
- *Part 3: Definition of parties involved;*
- *Part 4: Establishment of technical delivery conditions for metallic materials* (the present document);
- *Part 5: Inspection documentation of metallic materials and compliance with the material specification;*
- *Part 6: Structure and content of operating instructions* [Technical Report CEN/TR 764-6];
- *Part 7: Safety systems for unfired pressure equipment;*
- *Part 8: Proof test* [Technical Specification prCEN/TS 764-8, currently under development].

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 requirements, under the regime of the EU Directive 97/23/EC on Pressure Equipment (PED), for the establishment of the technical delivery conditions in the form of:

- harmonized European Standards for material;
- European Approval for Materials (EAM);
- Particular Material Appraisal (PMA)

for metallic materials for pressure equipment in all product forms. Welding consumables are not covered by this standard.

This European Standard was developed predominantly on the basis of steel, nickel and nickel-based materials. However, application to other materials is not restricted but should consider specific aspects relevant to the material concerned.

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 764-1:2004, *Pressure equipment - Part 1: Terminology - Pressure, temperature, volume, nominal size*

EN 764-2:2012, *Pressure equipment - Part 2: Quantities, symbols and units*

EN 10028 (all parts), *Flat products made of steels for pressure purposes*

EN 10164, *Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions*

EN 10204, *Metallic products - Types of inspection documents*

EN 10213, *Steel castings for pressure purposes*

EN 10216 (all parts), *Seamless steel tubes for pressure purposes - Technical delivery conditions*

EN 10217 (all parts), *Welded steel tubes for pressure purposes - Technical delivery conditions*

EN 10222 (all parts), *Steel forgings for pressure purposes*

EN 10272, *Stainless steel bars for pressure purposes*

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

EN 10314, *Method for the derivation of minimum values of proof strength of steel at elevated temperatures*

EN ISO 148-1, *Metallic materials - Charpy pendulum impact test - Part 1: Test method (ISO 148-1)*

EN ISO 204, *Metallic materials - Uniaxial creep testing in tension - Method of test (ISO 204)*

EN ISO 6892-1:2009, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 10052, *Acoustics - Field measurements of airborne and impact sound insulation and of service equipment sound - Survey method (ISO 10052)*

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

CR ISO 15608:2000, *Welding - Guidelines for a metallic material grouping system (ISO/TR 15608:2000)*

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)*

3 Terms and definitions, symbols and abbreviations

3.1 Terms and definitions

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

3.1.1

European Approval for Materials

EAM

technical document defining the characteristics of materials intended for repeated use in the manufacture of pressure equipment which are not covered by any harmonized standard

Note 1 to entry: See Article 11 of the EU Directive 97/23/EC on Pressure Equipment (PED) and see also the PED Guideline 7/26.

3.2 Symbols and abbreviations

For the purposes of this standard, the symbols and abbreviations of EN 764-1:2004, EN 764-2:2012 and the following in Table 1 and Table 2 apply.