

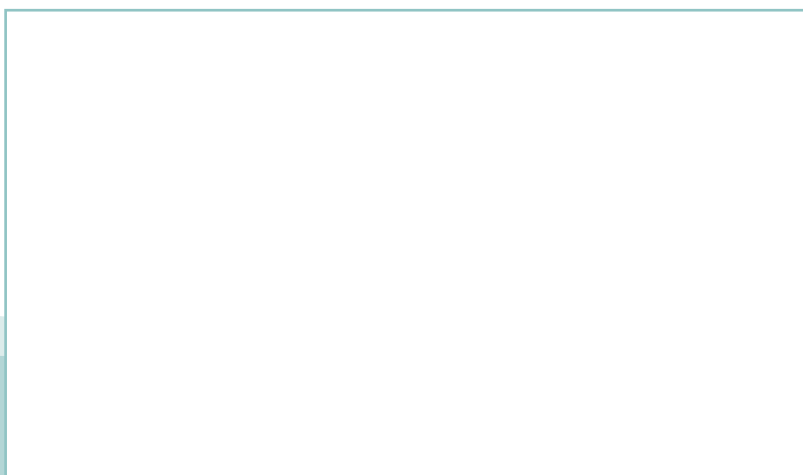
SVENSK STANDARD

SS-EN 1559-2:2014

Fastställt/Approved: 2014-10-05
Publicerad/Published: 2014-10-06
Utgåva/Edition: 2
Språk/Language: engelska/English
ICS: 77.140.80

Gjutna material – Tekniska leveransbestämmelser – Del 2: Tilläggskrav för gjutgoods av gjutstål

Founding – Technical conditions of delivery – Part 2: Additional requirements for steel castings



Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN 1559-2:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1559-2:2014.

Denna standard ersätter SS-EN 1559-2, utgåva 1.

The European Standard EN 1559-2:2014 has the status of a Swedish Standard. This document contains the official version of EN 1559-2:2014.

This standard supersedes the Swedish Standard SS-EN 1559-2, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Gjutet järn och stål, SIS/TK 130.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 1559-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2014

ICS 77.140.80

Supersedes EN 1559-2:2000

English Version

Founding - Technical conditions of delivery - Part 2: Additional requirements for steel castings

Fonderie - Conditions techniques de fourniture - Partie 2:
Spécifications complémentaires pour les pièces moulées en
acier

Gießereiwesen - Technische Lieferbedingungen - Teil 2:
Zusätzliche Anforderungen an Stahlgussstücke

This European Standard was approved by CEN on 18 July 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.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Information to be supplied by the purchaser	8
4.1 • Mandatory information.....	8
4.2 •• Optional information	8
4.3 ■ Drawings, patterns and tools	8
4.4 ■ Information on the mass	8
4.5 ■ Preliminary sample.....	8
4.6 ■ Initial sample	8
5 Designations	8
6 Manufacture.....	8
6.1 Manufacturing process	8
6.2 Welding operations.....	8
6.3 Further processing	9
7 Requirements	9
7.1 ■ General	9
7.2 Material	9
7.3 Casting.....	11
8 Inspection	14
8.1 ■General	14
8.2 ■ Type of inspection documents and type of inspection	14
8.3 ■ Test unit.....	14
8.4 Samples	14
8.5 Test procedures	16
8.6 ■ Invalidation of test results	17
8.7 Retests	17
8.8 ■ Sorting and reprocessing	18
9 Marking	18
10 ■ Packaging and surface protection.....	18
11 ■ Complaints	18
Annex A (informative) Mandatory and/or optional information checklist	19
Annex B (informative) Significant technical changes between this European Standard and the previous edition	23
Bibliography	24

Foreword

This document (EN 1559-2:2014) 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 April 2015 and conflicting national standards shall be withdrawn at the latest by April 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 1559-2:2000.

Within its programme of work, Technical Committee ECISS/TC 111 included the revision of the following standard:

EN 1559-2, *Founding - Technical conditions of delivery - Part 2: Additional requirements for steel castings*

Annex B provides details of significant technical changes between this European Standard and the previous edition.

This European Standard is one of a series of European Standards for technical delivery conditions for castings. The other standards in this series are:

- EN 1559-1, *Founding - Technical conditions of delivery - Part 1: General;*
- EN 1559-3, *Founding - Technical conditions of delivery - Part 3: Additional requirements for iron castings;*
- EN 1559-4, *Founding - Technical conditions of delivery - Part 4: Additional requirements for aluminium castings;*
- EN 1559-5, *Founding - Technical conditions of delivery - Part 5: Additional requirements for magnesium castings;*
- EN 1559-6, *Founding - Technical conditions of delivery - Part 6: Additional requirements for zinc castings.*

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.

Introduction

In order to assist manufacturers and purchasers to prepare proper contractual arrangements and prevent misunderstanding, CEN/TC 190 approved the preparation of a series of standards covering technical delivery conditions. These have been prepared as separate parts.

This European Standard covers the additional technical delivery conditions for all the steel casting materials and has the same structure for clauses as EN 1559-1 "*Founding - Technical conditions of delivery – Part 1: General*".

This European Standard cannot be used alone for compiling a specification for ordering and supplying steel castings, but as a complement to EN 1559-1.

The structure of this European Standard is as follows:

- clauses and subclauses preceded by ■ indicate no additional conditions to EN 1559-1:2011;
- clauses and subclauses marked with a single dot • indicate that conditions shall be agreed at the time of enquiry and order;
- subclauses and paragraphs marked with two dots •• indicate that conditions can be agreed at the time of enquiry and order (optional);
- subclauses without dot marking are mandatory.

Annex A gives a checklist for quick information about different points that shall or may be agreed by the time of acceptance of the order. It relates to the applicable clauses or subclauses of EN 1559-1:2011 and EN 1559-2:2014.

1 Scope

This part of EN 1559 specifies the additional technical delivery conditions for steel castings unless other conditions have been agreed at the time of enquiry and order.

This European Standard is also applicable to nickel and cobalt alloy castings.

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 1369, *Founding - Magnetic particle testing*

EN 1370, *Founding - Examination of surface condition*

EN 1371-1, *Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings*

EN 1371-2, *Founding - Liquid penetrant inspection - Part 2: Investment castings*

EN 1559-1:2011, *Founding - Technical conditions of delivery - Part 1: General*

EN 10027-1, *Designation systems for steels - Part 1: Steel names*

EN 10027-2, *Designation systems for steels - Part 2: Numerical system*

EN 12680-1, *Founding - Ultrasonic examination - Part 1: Steel castings for general purposes*

EN 12680-2, *Founding - Ultrasonic examination - Part 2: Steel castings for highly stressed components*

EN 12681, *Founding - Radiographic examination*

EN 13018, *Non-destructive testing - Visual testing - General principles*

EN 14784-1, *Non-destructive testing - Industrial computed radiography with storage phosphor imaging plates - Part 1: Classification of systems*

EN 14784-2, *Non-destructive testing - Industrial computed radiography with storage phosphor imaging plates - Part 2: General principles for testing of metallic materials using X-rays and gamma rays*

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

EN ISO 3452-1, *Non-destructive testing - Penetrant testing - Part 1: General principles (ISO 3452-1)*

EN ISO 3651-1, *Determination of resistance to intergranular corrosion of stainless steels - Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in nitric acid medium by measurement of loss in mass (Huey test) (ISO 3651-1)*

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)*

SS-EN 1559-2:2014 (E)

EN ISO 5579, *Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules (ISO 5579)*

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

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

EN ISO 6892-2, *Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature (ISO 6892-2)*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 9934-1, *Non-destructive testing - Magnetic particle testing - Part 1: General principles (ISO 9934-1)*

EN ISO 16810, *Non-destructive testing - Ultrasonic testing - General principles (ISO 16810)*

EN ISO 19232-1, *Non-destructive testing - Image quality of radiographs - Part 1: Determination of the image quality value using wire-type image quality indicators (ISO 19232-1)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1559-1:2011 and the following apply.

**3.1
purchaser ■**

**3.2
manufacturer ■**

**3.3
casting ■**

**3.4
as-cast casting ■**

**3.5
as-delivered casting ■**

**3.6
initial sample ■**

**3.7
preliminary sample ■**

**3.8
relevant wall thickness ■**

3.9
inspection ■

3.10
continuous inspection ■

3.11
inspection representative ■

3.12
test unit ■

3.13
sample casting ■

3.14
sample ■

Note 1 to entry: In steel foundry industry the term used for sample is “test block”.

3.15
test piece ■

3.16
sequential testing ■

3.17
acceptance criteria ■

3.18
drawing ■

3.19
finishing welding ■

3.20
joint welding ■

3.21
excavation
cavity produced by the removal of cast material prior to subsequent welding

Note 1 to entry: It can be of minor or major nature according to its depth (over 40 % of the section thickness the excavations are major).