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BSI Standards Publication

Imperfections in thermoplastic welds - Classification

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National foreword

This British Standard is the UK implementation of EN 14728:2019. It supersedes BS EN 14728:2005, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/80, Welding thermoplastics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Amendments/corrigenda issued since publication

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English Version

Imperfections in thermoplastic welds - Classification

Défauts dans les assemblages soudés en
thermoplastiques - Classification

Unregelmäßigkeiten an Schweißverbindungen von
thermoplastischen Kunststoffen - Einteilung

This European Standard was approved by CEN on 14 December 2018.

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

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European foreword

This document (EN 14728:2019) has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by NBN.

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 August 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

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 14728:2005.

In comparison with the previous edition, the following technical modifications have been made:

- [Clause 3](#), Symbols and designations, has been deleted;
- examples of imperfections for the different welding processes are in [Tables 1](#) to [6](#);
- in [Annex A](#) (normative) in the heading, no more reference to CEN ISO/TS 17845;
- in the text of [Annex A, Table A.1](#) — Definition of the first character and [Table A.2](#) — Definition of the second character, have been added.

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.

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1 Scope

This document specifies a system for classifying imperfections that may be encountered in thermoplastic welded joints during manufacture and provides examples of imperfections for the following welding processes:

- heated tool butt welding;
- heated tool socket welding;
- electrofusion socket welding;
- hot gas welding;
- extrusion welding;
- solvent socket welding.

This document does not describe imperfections that may be generated during service or imperfections present before welding, which are due to poor preparation or assembly of components (e.g. fit up). The correct preparation and assembly of components (e.g. fit up) are described in the relevant welding procedure specification (WPS).

This document is also not concerned with the search for the possible influence of these imperfections on the behaviour of joints in relation to the different types of stress to which the latter may be subjected or on methods for preventing such imperfections.

This document can be used in conjunction with EN 16296 [1] to determine the acceptance of welds.

Only imperfections giving rise to discontinuities of materials or changes in shape are taken into consideration in this document, specifying their type, their shape and their positions. This classification can be used to determine the possible origin or causes of the imperfections.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12201-3:2011+A1:2012, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 3: Fittings*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Definition and classification of imperfections

The numbering system used for the classification of imperfections shall be as defined in [Annex A](#). Examples of imperfections in thermoplastics welded joints are given in the following tables:

- Heated tool butt weld: [Table 1](#);
- Heated tool socket weld: [Table 2](#);