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Hårdlödning – Prövning av lödare och operatörer för hårdlödning (ISO 13585:2012)

Brazing – Qualification test of brazers and brazing operators (ISO 13585:2012)

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This standard supersedes the Swedish Standard SS-EN 13133, edition 1.

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EUROPEAN STANDARD

EN ISO 13585

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2012

ICS 25.160.01

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English Version

Brazing - Qualification test of brazers and brazing operators (ISO 13585:2012)

Brasage fort - Essais de qualification des braseurs et des opérateurs braseurs en brasage fort (ISO 13585:2012)

Hartlöten - Prüfung von Hartlötern und Bedienern von Hartlöteinrichtungen (ISO 13585:2012)

This European Standard was approved by CEN on 24 May 2012.

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Foreword

This document (EN ISO 13585:2012) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

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 13133:2000.

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, see informative Annex ZA, which is an integral part of this document.

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SS-EN ISO 13585:2012 (E)

Introduction

The purpose of this International Standard is to provide a general set of rules for qualification, independent of product or application.

Brazing — Qualification test of brazers and brazing operators

1 Scope

This International Standard specifies basic requirements for the qualification testing of brazers and brazing operators providing conditions for brazing, testing, examination, acceptance criteria and range of qualification for certificates.

NOTE 1 Annex D gives guidelines on general quality requirements for brazing.

NOTE 2 This International Standard does not apply to brazing for aerospace applications covered by ISO 11745^[2].

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 857-2, *Welding and allied processes — Vocabulary — Part 2: Soldering and brazing processes and related terms*

ISO 17672, *Brazing — Filler metals*

ISO 18279, *Brazing — Imperfections in brazed joints*

ISO/TR 25901, *Welding and related processes — Vocabulary*

EN 12797, *Brazing — Destructive tests of brazed joints*

EN 12799, *Brazing — Non-destructive examination of brazed joints*

EN 13134, *Brazing — Procedure approval*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 857-2, ISO/TR 25901 and the following apply.

3.1

brazer

person who holds and manipulates the device for heating the brazing area by hand

3.2

brazing operator

person who prepares the joint and sets up brazing equipment and thereby has direct influence on the brazed joint quality

NOTE Examples of brazing equipment are mechanized torch holders, furnaces, salt baths, and induction equipment.

3.3

brazing

joining process in which a molten filler material is used that has a liquidus temperature above 450 °C but lower than the solidus temperature of the parent material(s)

NOTE Adapted from ISO 857-2:2005, 3.1.2.

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3.4
brazing procedure specification
BPS
document that has been qualified and provides the required variables of the brazing procedure to ensure repeatability during production brazing

3.5
preliminary brazing procedure specification
pBPS
document containing the required variables of the brazing procedure which is not yet qualified

3.6
manufacturer
workshop or site (or both) which is (are) under the same technical and quality management

3.7
examiner
person appointed to verify compliance with the applicable standard

NOTE In certain cases, an external independent examiner can be required.

[ISO/TR 25901:2007, 2.119]

3.8
examining body
organization appointed to verify compliance with the applicable standard

NOTE In certain cases, an external independent examining body can be required.

[ISO/TR 25901:2007, 2.120]

3.9
filler metal
filler metals
added metal required for soldered or brazed joints, which can be in the form of wire, inserts, powder, pastes, etc.

NOTE Adapted from ISO 857-2:2005, 3.2.1.

3.10
flux
non-metallic material which, when molten, promotes wetting by removing existing oxide or other detrimental films from the surfaces to be joined and prevents their re-formation during the joining operation

[ISO 857-2:2005, 3.2.2]

3.11
test piece
brazed assembly which is used for testing purposes

NOTE Adapted from ISO/TR 25901:2007, 2.373.

3.12
test specimen
part or portion cut from the test piece in order to perform a specified destructive test

[ISO/TR 25901:2007, 2.374]

4 Symbols, definitions and reference numbers

4.1 General

Where the full wording is not used, the symbols in 4.2 and reference numbers in 4.3 shall be used when completing the qualification test certificate (see Annexes A and B).

4.2 Symbols

- t material thickness of the work piece
- L overlap length
- D outside pipe diameter

4.3 Reference numbers

For applicable brazing process reference numbers, see 5.2.

5 Essential variables and range of qualification

5.1 General

The qualification of brazers and brazing operators is based on essential variables. For each essential variable, a range of qualification is defined and brazing outside that range of qualification requires a new qualification test. The essential variables are:

- brazing process;
- product type;
- type of joint;
- parent material group(s);
- brazing filler metal type;
- brazing filler application;
- dimension (material thickness, outside pipe diameter and overlap length);
- filler metal flow direction;
- degree of mechanization.

NOTE There can be other variables that the manufacturer deems to be essential in certain applications, e.g. constraint on access for the torch, which need separate qualification (see Annex E).

The variables listed in the first paragraph are essential only to ISO 4063^[1] processes 912 and 916, see 5.2. For the other processes in 5.2, the range of qualification is unlimited for the listed variables (except the brazing process).

5.2 Brazing process

Brazing processes are defined in ISO 857-2 and listed in the following, preceded by their ISO 4063^[1] process numbers.