SLOVENSKI STANDARD
SIST EN 288-4:1996/A1:1999

01-december-1999

Popis in odobritev varilnih postopkov za kovinske materiale - 4. del: Preskusi varilnih postopkov za obločno varjenje aluminija in njegovih zlitin - Dopolnilo A1

Specification and approval of welding procedures for metallic materials - Part 4: Welding procedure tests for the arc welding of aluminium and its alloys

Anforderung und Anerkennung von Schweißverfahren für metallische Werkstoffe - Teil 4: Schweißverfahrensprüfungen für das Lichtbogenschweißen von Aluminium und seinen Legierungen

Descriptif et qualification d'un mode opératoire de soudage pour les matériaux métalliques - Partie 4: Epreuve de qualification d'un mode opératoire de soudage a l'arc sur aluminium et ses alliages

Ta slovenski standard je istoveten z: **EN 288-4:1992/A1:1997**

ICS:

25.160.10	Varilni postopki in varjenje	Welding processes
77.120.10	Aluminij in aluminijeve zlitine	Aluminium and aluminium alloys

SIST EN 288-4:1996/A1:1999 **en**

EUROPEAN STANDARD

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EN 288-4:1992/A1

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ICS 25.160.10

Descriptors: welding, arc welding, aluminium, aluminium alloys, procedure, qualification, tests, description, specifications, setting-up conditions

English version

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This amendment 1 modifies the European Standard EN 288-4:1992.This amendment was approved by CEN on 1996-12-11. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

This Amendment EN 288-4:1992/A1:1997 to EN 288-4:1992 has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS.

This Amendment to the European Standard EN 288-4:1992 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

In the fourth paragraph, replace reference to ISO 2092 and ISO 2107 by EN 515 and EN 573-3.

In the last paragraph, replace reference to ISO 4063 by reference to EN 24063.

2 Normative references

Delete the text of clause 2 and replace by the following :

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 287-2	Approval testing of welders - Fusion welding - Part 2 : Aluminium and aluminium alloys
EN 288-1	Specification and approval of welding procedures for metallic materials - Part 1 : General rules for fusion welding
EN 288-2	Specification and approval of welding procedures for metallic materials - Part 2 : Welding procedure specification for arc welding
EN 515	Aluminium and aluminium alloys - Wrought products - Temper designation
EN 571-1	Non destructive testing - Penetrant testing - Part 1 : General principles
EN 573-3	Aluminium and aluminum alloys - Chemical composition and form of wrought products - Part 3 : Chemical composition
EN 895	Destructive tests on welds in metallic materials - Transverse tensile test
pr EN 910	Destructive test on welds in metallic materials - Bend test
pr EN 970	Non-destructive examination of fusion welds - Visual examination
pr EN 1321	Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds
EN 24063	Welding brazing, soldering and braze welding of metals - Nomenclature of processes and reference numbers for symbolic representation on drawings (ISO 4063:1990)
EN 30042	Arc-welded joints in aluminium and its weldable alloys - Fusion welding - Guidance on quality levels for imperfections (ISO 10042:1992)
CEN CR 12187	Welding - Guidelines for a grouping system of materials for welding purpose

EN ISO 6947 Welds - Working positions - Definitions of angles of slope and rotation (ISO 6947:1990)

4 Preliminary welded procedure specification (pWPS)

Delete the text of clause 4 and replace by the following :

The preliminary welding procedure specification shall be prepared in accordance with EN 288-2. It shall specify the tolerance for all the relevant parameters.

6.2 Shape and dimensions of test pieces

In the last sentence, replace "specified" by "agreed".

6.3 Welding of test pieces

Delete the text of 6.3 and replace by the following :

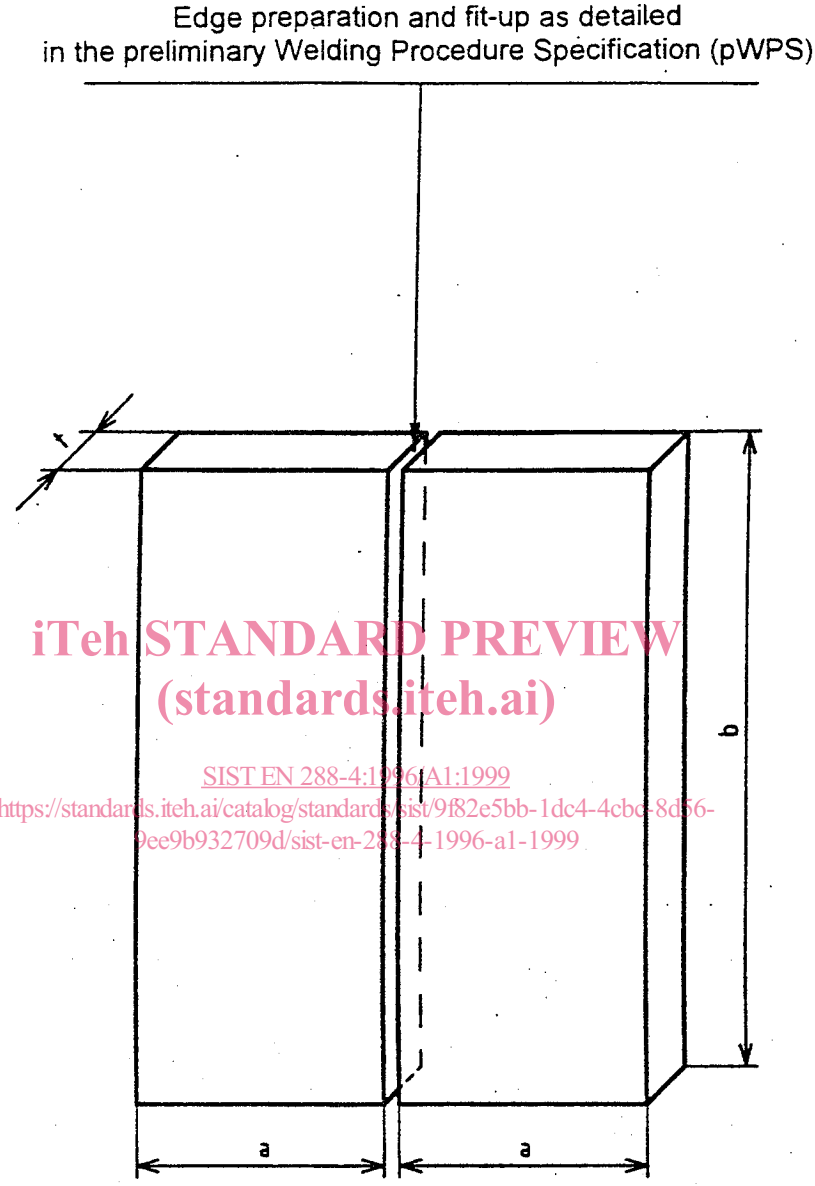
Preparation and welding of test pieces shall be carried out in accordance with the pWPS, and under the general conditions of welding in production which they shall represent. Welding positions and limitations for the angle of slope and rotation of the test piece shall be in accordance with EN ISO 6947.

If tack welds are to be fused into the final joint they shall be included in the test piece.

Welding and testing of the test pieces shall be witnessed by an examiner or examining body.

Figure 1

Amend as follows :



a = 3t ; minimum value 150 mm
b = 6t ; minimum value 350 mm

Figure 1 : Test piece for a butt weld in plate

Table 1 : Examination and testing of the test pieces

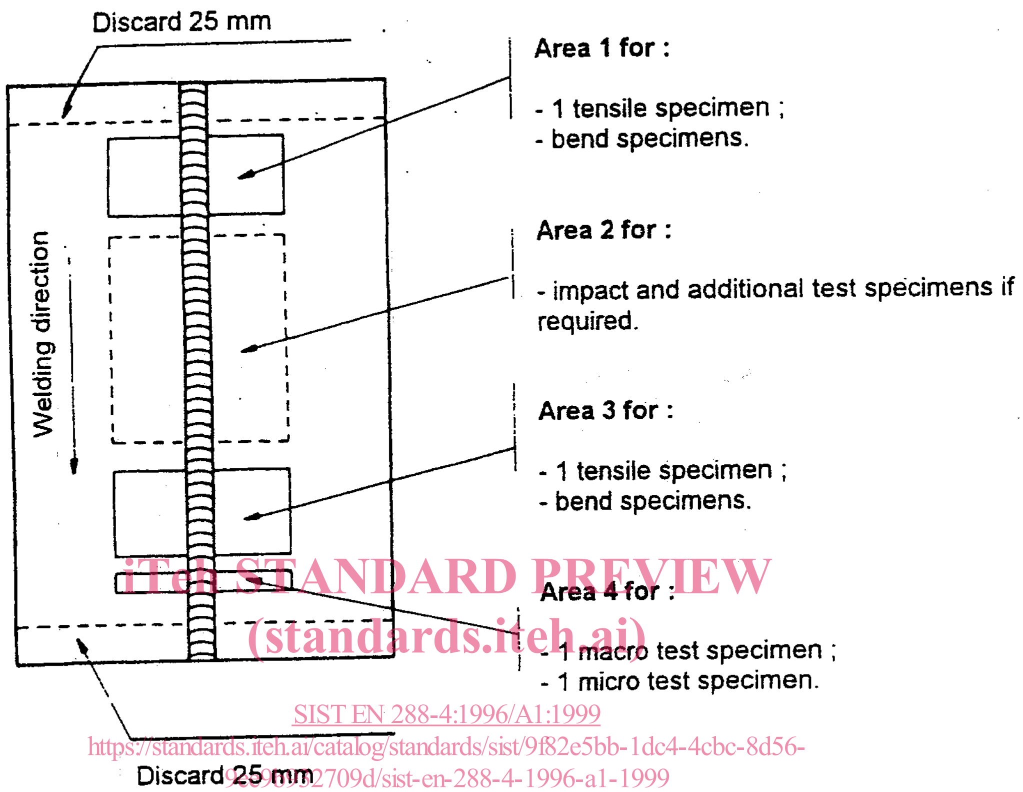
Replace note 3 of the table 1 by the following :

NOTE 3 : Testing as detailed does not provide information on the mechanical properties of the joint. Where these properties are relevant to the application an additional approval shall also be held e.g. a butt weld approval.

Delete note 5 of the table 1.

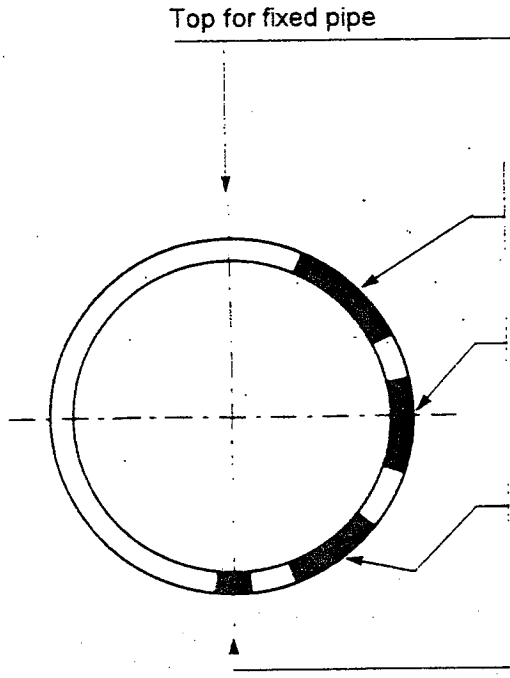
Replace three times "dye penetrant" by "penetrant".

Figure 5 and figure 6 : Amend the notes on the figures as follows :



NOTE : Not to scale.

Figure 5 : Location of test specimens for a butt weld in plate



Area 1 for :

- 1 tensile specimen :
- bend specimens.

Area 2 for :

- impact and additional test specimens if required.

Area 3 for :

- 1 tensile specimen :
- bend specimens.

Area 4 for :

- 1 macro test specimen ;
- 1 micro test specimen

NOTE : Not to scale.

Figure 6 : Location of test specimens for a butt weld in pipe

Figure 6 : Location of test specimens for a butt weld in pipe

7.3 Non-destructive examination

Delete the text of 7.3 and replace by the following :

7.3.1 Method

After any required post-weld heat treatment, natural or artificial ageing and prior to the cutting of test specimens, all test pieces shall be examined visually and non-destructively in accordance with 7.1.

Depending upon joint geometry, materials and the requirements for work, the NDE shall be carried out in accordance with EN 970 (visual examination) and EN 571-1 (penetrant testing).

7.3.2 Acceptance levels

A welding procedure is approved if the imperfections in the test piece are within the specified limits of level B in EN 30042 except for imperfection types as follows : excess weld metal, excess convexity, excess throat thickness and excessive penetration, for which level C shall apply.