

**Keevituspersonal. Sulakeevituse
operaatorite ja kontaktkeevituse
seadistajate atesteerimine metalsete
materjalide täismehhaniseeritud ja
automaatkeevituseks**

Welding personnel - Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1418:1999 sisaldab Euroopa standardi EN 1418:1997 ingliskeelset teksti.	This Estonian standard EVS-EN 1418:1999 consists of the English text of the European standard EN 1418:1997.
Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

Käsitlusala: Käesolev standard määrab kindlaks nõuded sulakeevituse operaatorite ja kontaktkeevituse seadistajate atesteerimiseks metalsete materjalide täismehhaniseeritud ja automaatkeevituseks. Atesteerida tuleb ainult neid keevitusoperaatoreid või kontaktkeevituse seadistajaid, kes vastutavad seadistamise ja/või reguleerimise eest keevitamise ajal.	Scope:
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ICS 25.160.10

Võtmesõnad: elektronkiirkeevitus, kaarkeevitus, kaarkeevitus rübustis, keevisliited, keevitajad (personal), keevitamine kaitsegaasis, keevitus, kvalifitseerimine, laserid, metallid, sertifitseerimine, survekeevitus, testimine, vastuvõetavus

ICS 25.160.10

Descriptors: Welders, approval testing.

English version

Welding personnel

**Approval testing of welding operators for fusion welding
and resistance weld setters for fully mechanized and
automatic welding of metallic materials**

Personnel en soudage – Epreuve de qualification des opérateurs soudeurs pour le soudage par fusion et des régleurs en soudage par résistance pour le soudage totalement mécanisé et automatique des matériaux métalliques

Schweißpersonal – Prüfung von Bedienern von Schweißeinrichtungen zum Schmelzschweißen und von Einrichtern für das Widerstandsschweißen für vollmechanisches und automatisches Schweißen von metallischen Werkstoffen

This European Standard was approved by CEN on 1997-11-03.

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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS.

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 1998, and conflicting national standards shall be withdrawn at the latest by June 1998.

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.

Introduction

This standard is intended to provide the basis for the mutual recognition by examining bodies for approval related to the competence of welding operators and resistance weld setters in the various fields of application. Tests shall be carried out in accordance with this standard unless more severe tests are specified by the relevant application standards when these shall be applied.

In order to make this standard applicable for fusion and resistance welding, the terminology especially for welding operator in the field of fusion welding and resistance weld setter in the field of resistance welding was clarified.

The welding operator's/resistance weld setter's ability and job knowledge continue to be approved only if the welding operators/resistance weld setters are working with reasonable continuity on welding work within the extent of approval.

All new approvals are to be in accordance with this standard from the date of issue.

However, this standard does not invalidate previous approvals made to former national standards or specifications, providing the intent of the technical requirements is satisfied and the previous approvals are relevant to the application and production work on which they are to be employed.

Also, where additional tests have to be carried out to make the approval technically equivalent it is only necessary to do the additional tests that should be made in accordance with this standard.

Considerations of previous approvals to former national standards or specifications should be made at the time of the enquiry or contract stage and agreed between the contracting parties.

1 Scope

This standard specifies requirements for approval of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding processes of metallic materials. Only welding operators/resistance weld setters responsible for the setting up and/or adjustment during welding have to be approved. Personnel exclusively performing the programming of the welding unit or operation of the welding unit do not need any particular approval.

This standard is applicable when approval testing of operators/resistance weld setters is required by the contract or by the application standard.

This standard does not apply to welding operators in resistance welding (see 3.10) or under hyperbaric conditions.

2 Normative references

This 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 standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 288-2

Specification and approval of welding procedures for metallic materials – Part 2: Welding procedure specification for arc welding

EN 288-3

Specification and approval of welding procedures for metallic materials – Part 3: Welding procedure tests for the arc welding of steels

EN 288-4

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

EN 288-8

Specification and approval of welding procedures for metallic materials – Part 8: Approval by a pre-production welding test

EN 719

Welding coordination – Tasks and responsibilities

EN ISO 9956-10

Specification and approval of welding procedures for metallic materials – Part 10: Welding procedure specification for electron beam welding (ISO 9956-10:1996)

EN ISO 9956-11

Specification and approval of welding procedures for metallic materials – Part 11: Welding procedure specification for laser beam welding (ISO 9956-11:1996)

ISO/DIS 857: 1995

Welding and allied processes – Welding, brazing and soldering processes – Vocabulary

ISO 10447

Welding – Peel and chisel testing of resistance spot, projection and seam welds

3 Definitions

For the purposes of this standard, the classification of manual welding and partly mechanized welding according to table 1 of ISO/DIS 857: 1995 and the following definitions apply:

3.1 automatic welding: Welding where all operations are performed automatically. Manual adjustment of welding variables during welding is not possible.

3.2 function test: Test of a welding unit set-up in accordance with a Welding Procedure Specification (WPS).

3.3 fully mechanized welding: Welding where all main operations (excluding the handling of the work piece) are performed automatically. Manual adjustment of welding variables during welding is possible.

3.4 pre-production welding test: A welding test having the same function as a welding procedure test, but based on a non-standard test piece, simulating production conditions.

3.5 production test: Welding test carried out in the production environment on the welding unit, on actual products or on simplified test pieces. The main characteristic of a production test is , that normal production is interrupted during this test.

3.6 production sample testing: Sample testing of actual welding products sampled from a continuous production using the welding unit. No interruption of normal production during sampling is necessary.

3.7 programming: Incorporation of the approved welding procedure specification and/or the specified movements of the welding unit into a programme.

3.8 robotic welding: Automatic welding using a manipulator that can be pre-programmed to different welding directions and fabrication geometries.

3.9 setting-up: Correct adjustment of the welding unit before welding and if required by entering the robot programme.

3.10 welding operator: In fusion welding a person who performs fully mechanized or automatic welding. In resistance welding the welding operator uses equipment with mechanized or fully mechanized relative movement between the welding gun and the workpiece and is only given task orientated training (see also clause 1).

3.11 resistance weld setter: Person who sets up mechanized or automatic welding.

3.12 welding unit: The totality of equipment which performs the welding. The welding unit can include jigs and fixtures, one or more robots, feeding units and other ancillary equipment. The equipment can perform loading and unloading of the work pieces.

3.13 welding unit operation: Starting and if necessary stopping the production cycle. The operation can include loading and unloading of the work pieces.

3.14 examiner or examining body: A person or organization who verifies compliance with the application standard. The examiner/examing body shall be acceptable to any contracting parties.