

**KEEVITAMINE. KEEVITUS- JA ABISEADMETE
KALIBREERIMINE, KONTROLLIMINE JA VALIDEERIMINE**

**Welding - Calibration, verification and validation of
equipment used for welding, including ancillary
activities**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN ISO 17662:2005 sisaldab Euroopa standardi EN ISO 17662:2005 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 17662:2005 consists of the English text of the European standard EN ISO 17662:2005.
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ICS 25.160.30

English version

**Welding - Calibration, verification and validation of equipment
used for welding, including ancillary activities (ISO 17662:2005)**

Soudage - Etalonnage, vérification et validation du matériel
utilisé pour le soudage, y compris pour les procédés
connexes (ISO 17662:2005)

Schweißen - Kalibrierung, Verifizierung und Validierung von
Einrichtungen einschließlich ergänzender Tätigkeiten, die
beim Schweißen verwendet werden (ISO 17662:2005)

This European Standard was approved by CEN on 9 February 2004.

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.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN ISO 17662:2005) 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 September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

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

1 Scope

This standard specifies requirements to calibration, verification and validation of equipment used for:

– control of process variables during fabrication,
or

– control of the properties of equipment used for welding or welding allied processes,
where the resulting output cannot be readily or economically documented by subsequent monitoring, inspection and testing. This regards process variables influencing the fitness-for-purpose and in particular the safety of the fabricated product.

NOTE 1 The standard is based on the lists of process variables stated in standards for specification of welding procedures, in particular, but not exclusively on the EN ISO 15609 series of standards. Future revisions of these standards can result in addition or deletion of parameters considered necessary to specify.

Some guidance is, in addition, given in annex B as regards requirements to calibration; verification and validation as part of acceptance testing of equipment used for welding or allied processes.

Requirements to calibration, verification and validation as part of inspection, testing, non-destructive testing or measuring of final welded products performed in order to verify product compliance are outside the scope of the present standard.

The subject of the standard is limited to calibration, verification and validation of equipment after installation, as part of the workshops' schemes for maintenance and/or operation.

NOTE 2 It should be stressed that the standard has nothing to do with manufacture and installation of equipment for welding. Requirements to new equipment are formulated in directives and product codes (standards), as necessary.

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.

EN 562, *Gas welding equipment — Pressure gauges used in welding, cutting and allied processes*

EN 729-1, *Quality requirements for welding — Fusion welding of metallic materials — Part 1: Guidelines for selection and use*

EN 729-2, *Quality requirements for welding — Fusion welding of metallic materials — Part 2: Comprehensive quality requirements*

EN 729-3, *Quality requirements for welding — Fusion welding of metallic materials — Part 3: Standard quality requirements*

EN 729-4, *Quality requirements for welding — Fusion welding of metallic materials — Part 4: Elementary quality requirements*

EN 970, *Non-destructive examination of fusion welds — Visual examination*

EN 1321, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds*

CR 12361, *Destructive tests on welds in metallic materials — Etchants for macroscopic and microscopic examination*

EN 13134, *Brazing — Procedure approval*

ENV 50184, *Validation of arc welding equipment*

EN ISO 17662:2005 (E)

EN ISO 14554-1, *Quality requirements for welding — Resistance welding of metallic materials — Part 1: Comprehensive quality requirements (ISO 14554-1:2000)*

EN ISO 14554-2, *Quality requirements for welding — Resistance welding of metallic materials — Part 2: Elementary quality requirements (ISO 14554-2:2000)*

EN ISO 14555, *Welding — Arc stud welding of metallic materials (ISO 14555:1998)*

EN ISO 14744-5, *Welding — Acceptance inspection of electron beam welding machines — Part 5: Measurement of run-out accuracy (ISO 14744-5:2000)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15609-2, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 2: Gas welding (ISO 15609-2:2001)*

EN ISO 15609-3, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 3: Electron beam welding (ISO 15609-3:2004)*

EN ISO 15609-4, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 4: Laser beam welding (ISO 15609-4:2004)*

EN ISO 15609-5, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 5: Resistance welding (ISO 15609-5:2004)*

EN ISO 15620, *Welding — Friction welding of metallic materials (ISO 15620:2000)*

ISO 669, *Resistance welding — Resistance welding equipment — Mechanical and electrical requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

accuracy class

class of measuring instruments that meet certain metrological requirements that are intended to keep errors within specified limits

[1]

3.2

accuracy of measurand

closeness of the agreement between the result of a measurement and a true value of the measurement

[1]

3.3

calibration

set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards

[1]

3.4

measurement

set of operations having the object of determining a value of a quantity

[1]

3.5

measuring instrument

device intended to be used to make measurements, alone or in conjunction with supplementary device(s)

[1]