

SLOVENSKI PREDSTANDARD

oSIST prEN ISO 17660-1:2005

marec 2005

**Varjenje - Varjenje betonskega jekla - 1. del: Obremenjeni zvarni spoji
(ISO/DIS 17660-1:2004)**

Welding - Welding of reinforcing steel - Part 1: Load bearing welded joints (ISO/DIS 17660-1:2004)

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ICS 25.160.10

Referenčna številka
oSIST prEN ISO 17660-1:2005(en)

December 2004

ICS

English version

Welding - Welding of reinforcing steel - Part 1: Load bearing welded joints (ISO/DIS 17660-1:2004)

Soudage - Soudage des aciers pour armature - Partie 1:
Assemblages transmettant les efforts (ISO/DIS 17660-
1:2004)

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Foreword

This document (prEN ISO 17660-1:2004) 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 document is currently submitted to the third parallel Enquiry.

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Welding — Welding of reinforcing steel —

Part 1: Load bearing welded joints

Soudage — Soudage des aciers pour armature —

Partie 1: Assemblages transmettant les efforts

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Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and abbreviated terms	3
5 Welding processes.....	3
6 Load bearing welded joints	4
7 Materials	13
8 Quality requirements.....	13
9 Welding personnel	13
10 Welding procedure specification (WPS)	15
11 Welding procedures	15
12 Production weld test	17
13 Execution and inspection of production welding of reinforcing steel.....	18
14 Examination and testing of test specimens	20
15 Production log	23
Annex A (informative) Technical knowledge of welding coordinator for welding reinforcing steel	24
Annex B (informative) Test specimens	25
Annex C (informative) Assessment of the manufacturer performing welding	29
Annex D (informative) Evaluation of testing of welded joints	30
Annex E (informative) Example for production log	31
Annex F (informative) Classification of shear strength of load bearing cross joints	32
Annex ZA (normative) Normative references to international publications with their relevant European publications	33
Bibliography.....	35
Figures	
Figure 1 — Examples for preparation of butt joints.....	5
Figure 2 — Lap joint	6
Figure 3 — Strap joint	6
Figure 4 — Cross joint welded by welding processes 111, 114, 135 or 136	7
Figure 5 — Cross joints welded by welding processes 21 and 23.....	8

Figure 6 — Side lap joint on straight reinforcing steel bars	9
Figure 7 — Sided lap joints on bent reinforcing steel bar	10
Figure 8 — Weld configuration of side lap welds.....	10
Figure 9 — Transverse end plate joint.....	12
Figure 10 — Butt joints on bent reinforcing steel bars.....	19
Figure 11 — Cross joints in bends.....	19
Figure B.1 — Test specimen for butt joint for tensile and bend test	25
Figure B.2 — Test specimen for lap joint for tensile test	25
Figure B.3 — Test specimen for strap joint for tensile test.....	25
Figure B.4 — Test specimen for cross joints (shear test)	26
Figure B.5 — Test specimen for cross joints (bend test and tensile test).....	26
Figure B.6 — Test specimen for tensile test for other joints (single sided lap welds).....	26
Figure B.7 — Test specimen for tensile test for other joints (double sided lap welds)	27
Figure B.8 — Test specimen for tensile test for other joints (double sided lap welds on bent reinforcing steel).....	27
Figure B.9— Test specimen for tensile test for transverse end plate joints	28
Figure F.1— Presentation of a cross joint in a drawing (example)	32

Tables

Table 1 — List of welding processes and reference numbers in accordance with ISO 4063.....	4
Table 2 — Recommended diameters for welded joints	4
Table 3 — Number of test pieces and range of welder qualification.....	14
Table 4 — Examination and testing	15
Table 5 — Range of qualification of diameter of reinforcing steel bar and material thickness	16
Table 6 — Appropriate standards for different welding processes	17
Table 7 — Number of test pieces for the production weld test.....	18
Table 8 — Mandrel diameters for bend test	23
Table E.1— Necessary information, which should be given.....	31
Table F.1— Shear strength classification of load bearing cross joints	32

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17660-1 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

ISO 17660 consists of the following parts, under the general title *Welding — Welding of reinforcing steel*:

- *Part 1: Load bearing welded joints (ISO/DIS 17660-1:2004)*
- *Part 2: Non-load bearing welded joints (ISO/DIS 17660-1:2004):*

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Introduction

Reinforcing steel bars are produced by a number of process routes and usually have a ribbed profile. Taking these issues into account it is apparent that both the welder and the welding coordinator require a specific level of skill and job knowledge, as well as the need for the adoption of special procedures for quality assurance.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 10 via your national standards body, a complete listing which can be found at www.iso.org.

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Welding — Welding of reinforcing steel —

Part 1: Load bearing welded joints

1 Scope

This standard applies to the welding of weldable reinforcing steel and stainless reinforcing steel of load bearing joints in work shops or on site. It also covers welded joints between reinforcing steel bars and other steel components such as connection devices and insert anchors, including prefabricated assemblies. Non-load bearing joints are covered by ISO 17660-2.

This standard does not apply to factory production of welding fabric and lattice girders using multiple spot welding machines or multiple projection welding machines.

The requirements of this standard only apply for static loaded structures. This standard specifies requirements for materials, design and execution of welded joints, welding personnel, quality requirements, examination and testing.

NOTE For fatigue loaded structures depending on type of joint and welding process, some relevant reduction on the fatigue-strength of the reinforcing steel should be taken into account.

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 287-1:2004, *Qualification test of welders — Fusion welding — Part 1: Steels (ISO 9606-1, Qualification test of welders — Fusion welding — Part 1: Steels).*

EN 10079, *Definition of steel products.*

prEN 10080-1, *Steel for the reinforcement of concrete — Weldable reinforcing steel — Part 1: General requirements.*

EN 10164, *Steel products with improved deformation properties perpendicular to the surface of the product — Technical delivery conditions.*

ISO 3834-3, *Quality requirements for welding — Fusion welding of metallic materials — Part 3: Standard quality requirements.*

ISO 4063, *Welding and allied processes — Nomenclature of processes and reference numbers.*

ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections.*

ISO 14731, *Welding coordination — Tasks and responsibilities.*

ISO 14732, *Welding personnel — Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials.*

ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding.*

ISO 15609-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding.*

ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding.*

ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys.*

ISO 15614-12, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 12: Spot, seam and projection welding.*

ISO 15614-13, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 13: Resistance butt and flash-butt welding.*

ISO 15620, *Welding — Friction welding of metallic materials.*

ISO 15630-1, *Steel for the reinforcement and prestressing of concrete — Test methods — Part 1: Reinforcing bars and wires.*

ISO 15630-2, *Steel for the reinforcement and prestressing of concrete — Test methods — Part 2: Welded fabric.*

ISO/DIS 16020, *Steel for the reinforcement and prestressing of concrete — Vocabulary.*

ISO/DIS 17660-2, *Welding — Welding of reinforcing steel — Non-load bearing welded joints.*

NOTE A list of European Standards (EN) conforming to these International Standards (ISO) is given in Annex ZA.

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 10079, prEN 10080-1 and ISO/DIS 16020 and the following apply.

3.1
load bearing welded joints
used for transmission of specified loads between reinforcing steel bars and between reinforcing steel bars and other steel products

3.2
non-load bearing welded joints
welded joints of which the strength is not taken into account in the design of the reinforced concrete structure

NOTE The purpose of these joints is usually only to keep the reinforcing components in their correct places during fabrication, transport and concreting. These welds are often referred to as tack welds.

3.3
shear factor
 S_f
relation between the shear force of a cross joint and the nominal yield strength (R_e) times the nominal cross section area (A_s) of the loaded bar

3.4
manufacturer
enterprise carrying out the welding works within workshops or on site