



# SLOVENSKI STANDARD

## SIST EN ISO 5826:2014

01-maj-2014

Nadomešča:  
SIST EN ISO 5826:2003

---

**Oprema za uporovno varjenje - Transformatorji - Splošne specifikacije, veljavne za vse transformatorje (ISO 5826:2014)**

Resistance welding equipment - Transformers - General specifications applicable to all transformers (ISO 5826:2014)

Widerstandsschweißrichtungen - Transformatoren - Allgemeine Anforderungen anwendbar für alle Transformatoren (ISO 5826:2014)

Matériel de soudage par résistance - Transformateurs - Spécifications générales applicables à tous les transformateurs (ISO 5826:2014)

**Ta slovenski standard je istoveten z: EN ISO 5826:2014**

---

**ICS:**

25.160.30	Varilna oprema	Welding equipment
29.180	Transformatorji. Dušilke	Transformers. Reactors

**SIST EN ISO 5826:2014**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 5826**

February 2014

ICS 25.160.30; 29.180

Supersedes EN ISO 5826:2003

English Version

## Resistance welding equipment - Transformers - General specifications applicable to all transformers (ISO 5826:2014)

Matériel de soudage par résistance - Transformateurs -  
Spécifications générales applicables à tous les  
transformateurs (ISO 5826:2014)

Widerstandsschweißeinrichtungen - Transformatoren -  
Allgemeine Anforderungen anwendbar für alle  
Transformatoren (ISO 5826:2014)

This European Standard was approved by CEN on 3 February 2014.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
Foreword.....	3

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)  
<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

## Foreword

This document (EN ISO 5826:2014) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" the secretariat of which is held by DIN.

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 August 2014, and conflicting national standards shall be withdrawn at the latest by August 2014.

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 ISO 5826:2003.

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

### Endorsement notice

The text of ISO 5826:2014 has been approved by CEN as EN ISO 5826:2014 without any modification.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**  
SIST EN ISO 5826:2014  
<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

INTERNATIONAL  
STANDARD

ISO  
5826

Third edition  
2014-02-15

---

---

**Resistance welding equipment —  
Transformers — General  
specifications applicable to all  
transformers**

*Matériel de soudage par résistance — Transformateurs —  
Spécifications générales applicables à tous les transformateurs*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>



Reference number  
ISO 5826:2014(E)

© ISO 2014

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>



### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2014

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland



# Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Symbols and abbreviated terms</b> .....	<b>3</b>
<b>5 Construction, additional equipment</b> .....	<b>4</b>
5.1 Thermal protection.....	4
5.2 Output current sensing coil.....	4
<b>6 Physical environment and operating conditions</b> .....	<b>5</b>
6.1 General.....	5
6.2 Ambient air temperature.....	5
6.3 Humidity.....	5
6.4 Altitude.....	5
6.5 Transportation and storage.....	5
6.6 Provisions for handling.....	5
6.7 Cooling liquid temperature.....	6
<b>7 Tests</b> .....	<b>6</b>
7.1 Test conditions.....	6
7.2 Type tests.....	6
7.3 Routine tests.....	7
<b>8 Protection against electric shock</b> .....	<b>7</b>
8.1 Insulation resistance.....	7
8.2 Dielectric strength.....	7
8.3 Calibration of output current sensing coil.....	8
8.4 Protection against electric shock in normal service (direct contact).....	9
8.5 Protection against electric shock in case of fault condition (indirect contact).....	9
8.6 Class II transformer insulation requirements.....	9
<b>9 Thermal rating</b> .....	<b>9</b>
9.1 General.....	9
9.2 Limits of temperature rise.....	10
9.3 Heating test conditions.....	11
9.4 Methods of temperature measurements.....	13
<b>10 Rated output voltage</b> .....	<b>15</b>
10.1 General.....	15
10.2 a.c. no-load voltage ( $U_{20}$ ).....	15
10.3 d.c. no-load voltage ( $U_{2d}$ ).....	15
<b>11 No-load input current (<math>I_{10}</math>)</b> .....	<b>15</b>
11.1 General.....	15
11.2 Measurement procedure.....	16
<b>12 Short-circuit voltage (<math>U_{cc}</math>)</b> .....	<b>16</b>
<b>13 Output current under load condition</b> .....	<b>16</b>
<b>14 Cooling liquid circuit</b> .....	<b>17</b>
<b>15 Dynamic behaviour</b> .....	<b>17</b>
<b>16 Rating plate</b> .....	<b>17</b>
16.1 General.....	17
16.2 Description.....	18
<b>17 Instruction manual</b> .....	<b>20</b>

## ISO 5826:2014(E)

<b>Annex A</b> (informative) <b>Example of a rating plate</b> .....	<b>21</b>
<b>Annex B</b> (normative) <b>Corrections for higher altitudes and cooling medium temperatures</b> .....	<b>22</b>
<b>Annex C</b> (informative) <b>Notes on physical concepts and comments on some definitions</b> .....	<b>23</b>
<b>Annex D</b> (informative) <b>Type code for single-phase transformers for alternating welding current</b>	<b>29</b>
<b>Bibliography</b> .....	<b>30</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. [www.iso.org/patents](http://www.iso.org/patents)

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining*.

This third edition ~~cancels and replaces the second edition (ISO 5826:1999)~~, which has been technically revised.

Requests for official interpretations of any aspect of this standard should be directed to the Secretariat of ISO/TC 44/SC 6 via your national standards body, a complete listing of which can be found at [www.iso.org](http://www.iso.org).

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 5826:2014](#)

<https://standards.iteh.ai/catalog/standards/sist/8383d39d-7601-4ecc-aa0a-039d8b050a89/sist-en-iso-5826-2014>

# Resistance welding equipment — Transformers — General specifications applicable to all transformers

## 1 Scope

This International Standard gives specifications applicable to the following types of transformers for use in resistance welding equipment:

- single-phase transformers for a.c. welding, typically operating at 50 Hz or 60 Hz;
- single-phase transformers with connected rectifier for d.c. welding, typically operating at 50 Hz or 60 Hz;
- single-phase inverter transformers with connected rectifier for d.c. welding, typically operating at 400 Hz to 2 kHz;
- three-phase transformers with connected rectifier for d.c. welding, typically operating at 50 Hz or 60 Hz.

For the purposes of this International Standard, the term *transformer* can refer to the transformer alone or with connected rectifier (transformer-rectifier unit).

This International Standard applies to transformers built to protection class I or II according to IEC 61140.

NOTE The requirements of this International Standard can be supplemented by other resistance welding transformer standards, e.g. ISO 22829 and ISO 10656.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- ISO 669, *Resistance welding — Resistance welding equipment — Mechanical and electrical requirements*
- IEC 60085, *Electrical insulation — Thermal evaluation and designation*
- IEC 60529, *Degrees of protection provided by enclosures (IP code)*
- IEC 61140, *Protection against electric shock — Common aspects for installation and equipment*
- ISO 17657-3, *Resistance welding — Welding current measurement for resistance welding — Part 3: Current sensing coil*
- ISO 17657-4, *Resistance welding — Welding current measurement for resistance welding — Part 4: Calibration system*
- ISO 17677-1, *Resistance welding — Vocabulary — Part 1: Spot, projection and seam welding*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17677-1 and ISO 669, and the following apply.