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STANDARDS  
INSTITUTE

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Utgåva 1

**Motståndssvetsning – Mätning av svetsström –  
Del 2: Strömmätare med spole (ISO 17657-2:2005)**

**Resistance welding – Welding current  
measurement for resistance welding –  
Part 2: Welding current meter with current sensing  
coil (ISO 17657-2:2005)**

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The European Standard EN ISO 17657-2:2007 has the status of a Swedish Standard. This document contains the official English version of EN ISO 17657-2:2007.

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EUROPEAN STANDARD

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English Version

Resistance welding - Welding current measurement for  
resistance welding - Part 2: Welding current meter with current  
sensing coil (ISO 17657-2:2005)

Soudage par résistance - Mesurage des courants en  
soudage par résistance - Partie 2: Ampèremètre avec tore  
de mesure de courant (ISO 17657-2:2005)

Widerstandsschweißen - Schweißstrommessung für das  
Widerstandsschweißen - Teil 2: Schweißstrommessgeräte  
mit Strommessspule (ISO 17657-2:2005)

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**EN ISO 17657-2:2007 (E)**

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## **Foreword**

The text of ISO 17657-2:2005 has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17657-2:2007 by Technical Committee CEN/TC 121 "Welding", 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of an identical text or by endorsement, at the latest by December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

### **Endorsement notice**

The text of ISO 17657-2:2005 has been approved by CEN as a EN ISO 17657-2:2007 without any modification.

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### Introduction

Requests for official interpretations of any aspect of this part of ISO 17657 should be directed to the Secretariat of ISO/TC 44/SC 6 via your national standards body. A complete listing of these bodies can be found at <http://www.iso.org>.

# Resistance welding — Welding current measurement for resistance welding —

## Part 2: Welding current meter with current sensing coil

### 1 Scope

This part of ISO 17657 specifies a welding current meter with a current sensing coil to measure the weld time and the r.m.s. value of the welding current during a certain interval using single-phase alternating current of frequency of 50 Hz or 60 Hz, or direct current.

This part of ISO 17657 is applicable for a welding current measuring system, with a display or calibrated output port, which may be connected to a welding controller.

### 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.

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

ISO 17657-1:2005, *Resistance welding — Welding current measurement for resistance welding — Part 1: Guidelines for measurement*

ISO 17657-3:2005, *Resistance welding — Welding current measurement for resistance welding — Part 3: Current sensing coil*

ISO 17657-4:2005, *Resistance welding — Welding current measurement for resistance welding — Part 4: Calibration system*

### 3 Terms and definitions

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

#### 3.1

##### **minimum measuring time**

minimum settable value of the measuring time

See Figure A.1.

#### 3.2

##### **maximum measuring time**

maximum settable value of the measuring time, which will depend on the types of component making up the welding current meter

See Figure A.1.

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**3.3  
indicated measuring time**

duration of measuring time, from start time to finish time, while the welding current is flowing

NOTE Normally the start and finish times for measuring current flow are automatically set. If the start time is set at zero or at a value greater than zero, and the finish time is set at a smaller value than the weld time, as shown in Figure A.1, then the welding current is calculated for the measuring duration between the start time and the finish time.

**3.4  
automatic zero level correction**

device that allows removal of the effect of zero drift of output when direct welding current measurement is incorporated

**3.5  
drift**

amount of shift in the zero position

**3.6  
measuring accuracy**

scatter limit of indicated or output values permissible, which is indicated against the full scale value

**4 Physical environment and operating conditions**

Unless otherwise specified, the welding current meter shall be capable of operating under the following conditions without any adverse effect on its accuracy:

- at an ambient air temperature between of +5 °C and +40 °C;
- in relative humidity up to 95 %;
- at altitudes up to 1 000 m above mean sea level;
- where gas, fine dust, oil mist, spatters, etc. are included in the air such as those caused by ordinary arc or spot welding work.

When the operating conditions deviate from those specified above, an agreement shall be made between the manufacturer and the purchaser.

**5 Classification of welding current meters with their current sensing coil, and designation of product**

**5.1 Classes of welding current meter with current sensing coil**

Welding current meters with their current sensing coil are classified as in Table 1 depending on the measuring accuracy.

**Table 1 — Classification of welding current meters with current sensing coil by measuring accuracy**

| Classification        | Measuring accuracy    | Application                             |
|-----------------------|-----------------------|---|
| Highly accurate class | ± 1,0 % of full scale | Laboratory use                          |
| Accurate class        | ± 2,0 % of full scale | Routine use for highly accurate systems |
| Ordinary class        | ± 5,0 % of full scale | Routine use for ordinary systems        |