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**Resistance welding — Welding current  
measurement for resistance welding —**

**Part 3:  
Current sensing coil**

*Soudage par résistance — Mesurage des courants en soudage par  
résistance —*

*Partie 3: Tore de mesure de courant*



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## 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 17657-3 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding*.

ISO 17657 consists of the following parts, under the general title *Resistance welding — Welding current measurement for resistance welding*:

- *Part 1: Guidelines for measurement*
- *Part 2: Welding current meter with current sensing coil*
- *Part 3: Current sensing coil*
- *Part 4: Calibration system*
- *Part 5: Verification of welding current measuring system*

## 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>.

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# Resistance welding — Welding current measurement for resistance welding —

## Part 3: Current sensing coil

### 1 Scope

This part of ISO 17657 specifies current sensing coils of the toroidal-coil type as a current sensor for welding current meters or a welding current measuring system used to monitor the welding current in resistance welding, and is applicable for both current types, i.e. alternating current of 50 Hz or 60 Hz and direct current.

### 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 17657-4, *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

##### **current sensing coil (toroidal coil)**

multi-wound coil, in which wire is wound around a non-magnetic core of constant cross-section, used for detecting the magnetic flux generated by current

NOTE The coil is mounted around or encircles a conductor through which the current to be measured passes.

#### 3.2

##### **reference current sensing coil**

current sensing coil calibrated at a higher accuracy than the highly accurate class defined in this part of ISO 17657

#### 3.3

##### **conversion coefficient**

ratio of output voltage from a current sensing coil against the welding current, expressed in millivolts per kiloamp (mV/kA)

NOTE The value is proportional to the frequency of the measured current, and is defined with a perfectly full-wave current of 50 Hz as the test current.