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**Watch cases and accessories — Tests of  
the resistance to wear, scratching and  
impacts**

*Boîtes de montres et leurs accessoires — Essais de résistance à  
l'usure, aux rayures et aux impacts*



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# Contents

Page

Foreword .....	iv
Introduction .....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Wear resistance .....	2
4.1 Wear test using moving ceramic chips .....	2
4.2 Wear test using continuous friction against a textile belt .....	4
4.3 Wear test by reciprocating movement against an abrasive surface .....	7
5 Scratch resistance .....	10
5.1 Objective .....	10
5.2 Description of test .....	10
5.3 Abrasive load .....	10
5.4 Operating procedure .....	10
5.5 Calibration .....	11
5.6 Evaluation of results .....	11
6 Impact resistance .....	11
6.1 Objective .....	11
6.2 Description of test .....	11
6.3 Abrasive material .....	12
6.4 Operating procedure .....	12
6.5 Calibration .....	13
6.6 Evaluation of results .....	13
<b>Annex A (normative) Visual inspection of watch cases and wristlets or test samples after testing for resistance to wear, scratching and impacts .....</b>	<b>14</b>
<b>Annex B (informative) Examples of machines and abrasive elements used for the tests described in 4.1 and Clause 5 .....</b>	<b>15</b>
<b>Bibliography .....</b>	<b>16</b>

## 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 23160 was prepared by Technical Committee ISO/TC 114, *Horology*, Subcommittee SC 6, *Precious metal coverings*.

This first edition of ISO 23160:2011 cancels and replaces ISO 3160-3:1993, which has been technically revised.

## Introduction

The quality of a watch depends on many factors. Of these, the resistance of a watch to wear, scratches and impacts is an important aspect contributing to consumer satisfaction.

This International Standard describes tests to simulate the deterioration of the aesthetic of watch cases and their accessories in wearing conditions. In addition, it describes tests for evaluating the wear resistance of surfaces. Where possible, a calibration process is described. The intention of this is to measure and adjust the strain of wear.

For instance, results that simulate a year's wear can be seen after just a few hours, allowing the resistance of decorative layers or the base material to be examined and compared.

The results are evaluated through visual observation, by comparing the parts subjected to accelerated wear tests with reference samples. Evaluation can be completed by measuring roughness and colour changes.

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# Watch cases and accessories — Tests of the resistance to wear, scratching and impacts

## 1 Scope

This International Standard specifies tests for the evaluation of the resistance of watch cases and their wristlets to wear, scratching and impacts occurring when wearing the watch.

This International Standard is applicable mainly to complete watch cases fitted with wristlets. However, certain tests can be applied to the watch case only, to the complete or partial wristlet, or to specially prepared samples.

**NOTE** In order to simulate the state of degradation of a worn watch, it is possible to combine all tests described in this International Standard, by agreement between the contracting parties.

## 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 2819, *Metallic coatings on metallic substrates — Electrodeposited and chemically deposited coatings — Review of methods available for testing adhesion*

ISO 8251, *Anodizing of aluminium and its alloys — Measurement of abrasion resistance of anodic oxidation coatings*

ISO 11640, *Leather — Tests for colour fastness — Colour fastness to cycles of to-and-fro rubbing*

ISO 27874, *Metallic and other inorganic coatings — Electrodeposited gold and gold alloy coatings for electrical, electronic and engineering purposes — Specification and test methods*

## 3 Terms and definitions

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

### 3.1

#### **wear**

surface alteration, in particular resulting from friction against clothing

### 3.2

#### **scratches**

surface alterations resulting from general friction against all kinds of objects

### 3.3

#### **impacts**

surface alterations resulting from general shocks against hard and rough surfaces, as well as drops, when wearing the watch