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**Road vehicles — Design and  
performance specifications for the  
WorldSID 50th percentile male side-  
impact dummy —**

**Part 2:  
Mechanical subsystems**

*Véhicules routiers — Conception et spécifications de performance  
pour le mannequin mondial (WorldSID), 50e percentile homme, de  
choc latéral —*

*Partie 2: Sous-systèmes mécaniques*



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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.

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.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 12, *Passive safety crash protection systems*.

This second edition cancels and replaces the first edition (ISO 15830-2:2005) which has been technically revised. Technical amendments have been incorporated throughout all four parts, resulting from extensive experience with the standard and design changes.

ISO 15830 consists of the following parts, under the general title *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side impact dummy*:

- *Part 1: Terminology and rationale*
- *Part 2: Mechanical subsystems*
- *Part 3: Electronic subsystems*
- *Part 4: User's manual*

## Introduction

This second edition of ISO 15830 has been prepared on the basis of the existing design, specifications, and performance of the WorldSID 50th percentile adult male side-impact dummy. The purpose of the ISO 15830 series is to document the design and specifications of this side-impact dummy in a form suitable and intended for worldwide regulatory use.

In 1997, ISO/TC22/SC12 initiated the WorldSID 50th percentile adult male dummy development, with the aims of defining a global-consensus side-impact dummy, having a wider range of humanlike anthropometry, biofidelity, and injury monitoring capabilities, suitable for regulatory use. Participating in the development were research institutes, dummy and instrumentation manufacturers, governments, and vehicle manufacturers from around the world.

With regard to potential regulatory, consumer information, or research and development use of ISO 15830, users will need to identify which of the permissive (i.e. optional) sensors and other elements defined in ISO 15830-3 are to be used in a given application.

WorldSID drawings in electronic format are being made available. Details are given in ISO 15830-2:2013, Annex B.

In order to apply ISO 15830 properly, it is important that all four parts be used together.



# Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy —

## Part 2: Mechanical subsystems

### 1 Scope

This part of ISO 15830 specifies requirements for mechanical components, drawings and specifications, validation tests, and support equipment for the WorldSID 50th percentile side-impact dummy, a standardized anthropomorphic dummy for side-impact testing of road vehicles. It is applicable to impact tests involving

- passenger vehicles of category M<sub>1</sub> and goods vehicles of category N<sub>1</sub>,
- impacts to the side of the vehicle structure, and
- impact tests involving use of an anthropomorphic dummy as a human surrogate for the purpose of evaluating compliance with vehicle safety standards.

### 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 6487, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

ISO 15830-1, *Design and performance specifications for the WorldSID 50th percentile adult male side impact dummy — Part 1: Terminology and rationale*

ISO 15830-3:2013, *Design and performance specifications for the WorldSID 50th percentile adult male side-impact dummy — Part 3: Electronic subsystems*

ISO 15830-4, *Design and performance specifications for the WorldSID 50th percentile adult male side-impact dummy — Part 4: User's manual*

SAE J211-1:2007, *Instrumentation for impact test — Part 1: Electronic instrumentation*

SAE J2570:2001, *Performance specifications for anthropomorphic test device transducers*

49 CFR Part 572, subpart E, *Anthropomorphic test dummies, United States of America Code of Federal Regulations issued by the National Highway Traffic Safety Administration (NHTSA). Washington, DC, US*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15830-1 apply.