
Road vehicles — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations

*Véhicules routiers — Mesure de la température dans les dispositifs
d'essai anthropomorphes — Définitions des positions des capteurs de
température*



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Foreword

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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.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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Introduction

The temperature sensitivity of dummy components has long been recognized. All dummies used for testing in accordance with current test procedures have prescribed temperature ranges for certification and testing. However, the procedure for verifying dummy temperature can vary from one testing facility to another. To improve the comparability of test data between laboratories, it is considered necessary to define a single practice for the measurement of dummy temperature.

This Technical Report proposes the number and the arrangement of the temperature measuring points in anthropomorphic test devices (ATDs). The proposal is based on several studies and is intended to ensure that the temperature of the ATD is in accordance with the temperature corridor prescribed by the applied test procedure.

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Road vehicles — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations

1 Scope

This Technical Report defines the number and the arrangement of temperature measuring points for anthropomorphic test devices (ATDs), in order to ensure that the temperature of the ATD is in accordance with the temperature corridor prescribed by the applied test procedure.

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 6487:2002/Amd 1:2008, *Road vehicles — Measurement techniques in impact tests — Instrumentation — Amendment 1*

3 Equipment for temperature measurement and data logging

The specifications for the equipment are included in ISO 6487:2002/Amd 1:2008.

4 Arrangement of temperature sensors in ATDs

The locations represent the temperature sensitive parts of the dummies whose readings are consulted for the assessment of the risk of injury. The choice of the sensor locations should be feasible and crash-proof.

The sensor locations are chosen in accordance with dummy manufacturer recommendations that are derived from tests conducted during the design process. If such recommendations are not available, the sensor locations are chosen in accordance with other available temperature studies.

The temperature studies with all details of the tests and all data should be available to the public, e.g. as ISO documents or published papers.

The number and the exact locations of the temperature sensors for the different types of dummies are specified in Annexes A, B and C, each annex corresponding to a particular type of dummy or dummy family.

Annex A (informative)

Hybrid-III

A.1 General

This annex defines the sensor locations for anthropomorphic test devices of the Hybrid-III family. The proposal of the number and the positions of the measuring points is based on studies conducted at DaimlerChrysler and Volkswagen.

For further information, see References [1] and [2] in the Bibliography.

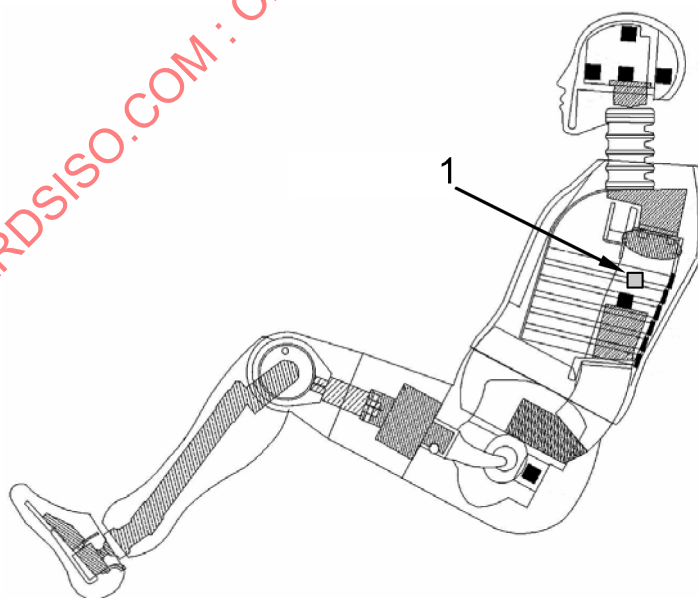
A.2 Temperature sensor locations

The Hybrid III 50th percentile should be equipped with one temperature sensor. The sensor should be attached to the spine box (front, left or right side).

This location is only appropriate without restrictions if there is no heat generating source directly attached to the spine box, e.g. a data acquisition system.

According to the studies (see References [1] and [2]), the spine box sensor will represent the temperature of the ribs and the lumbar spine.

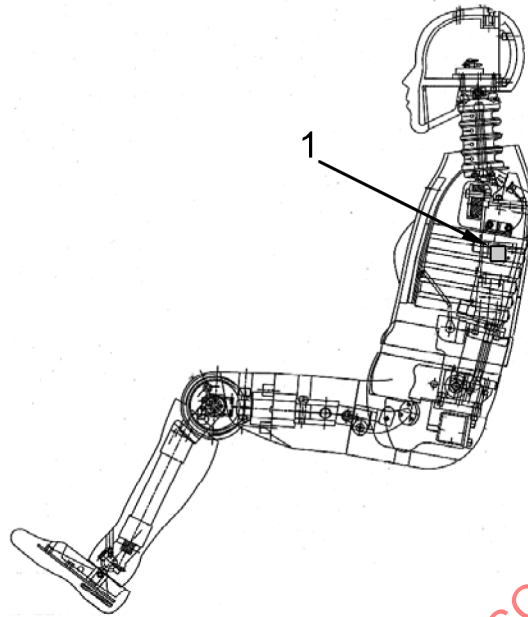
Figures A.1 to A.5 show the measuring points for anthropomorphic test devices of the Hybrid-III family.



Key

1 spine box

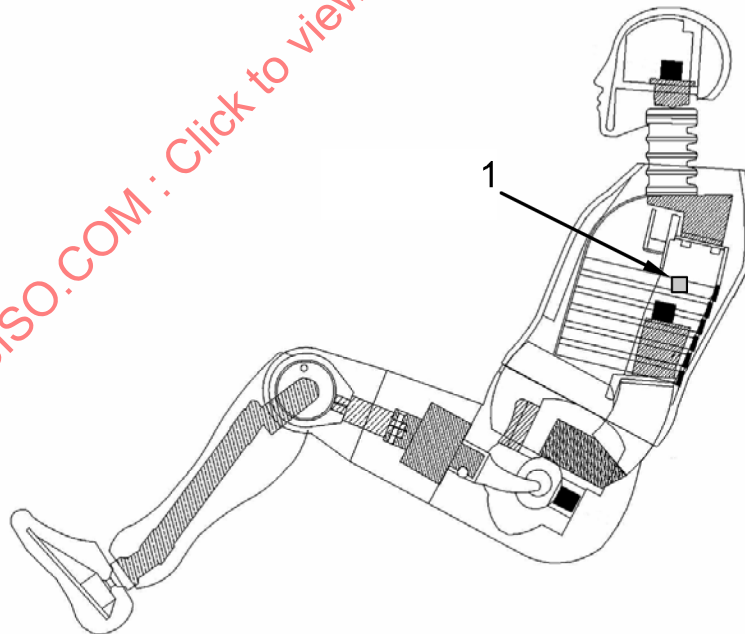
Figure A.1 — Measuring point for the Hybrid-III 50th percentile, view on the left side



Key

1 spine box

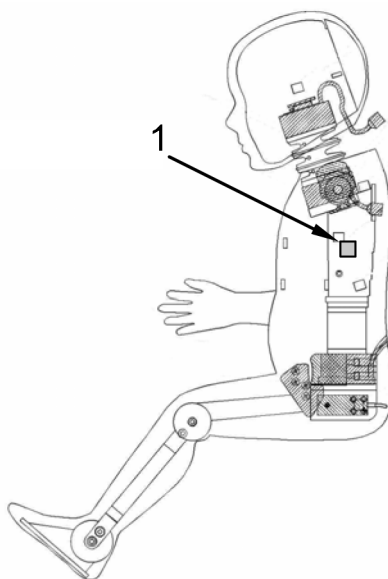
Figure A.2 — Measuring point for the Hybrid-III 5th percentile, view on the left side



Key

1 spine box

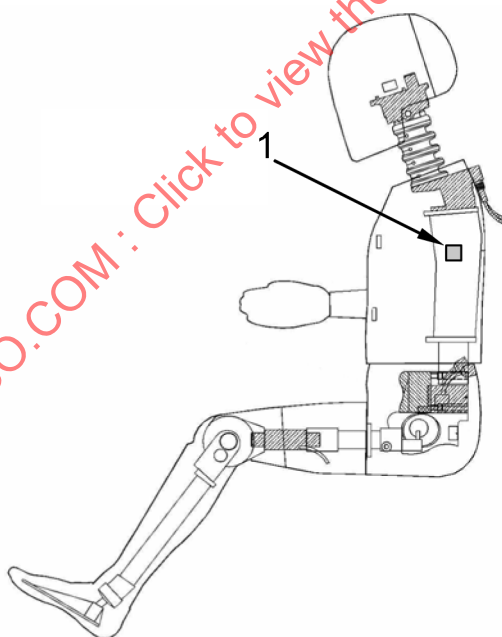
Figure A.3 — Measuring point for the Hybrid-III 95th percentile, view on the left side



Key

1 spine box

Figure A.4 — Measuring point for the Hybrid-III 3YO, view on the left side



Key

1 spine box

Figure A.5 — Measuring point for the Hybrid-III 6YO, view on the left side

Annex B (informative)

SID-IIs

B.1 General

This annex defines the sensor locations for all build levels of the anthropomorphic test device SID-IIs. The proposal of the number and the positions of the measuring points is based on a study conducted at DaimlerChrysler.

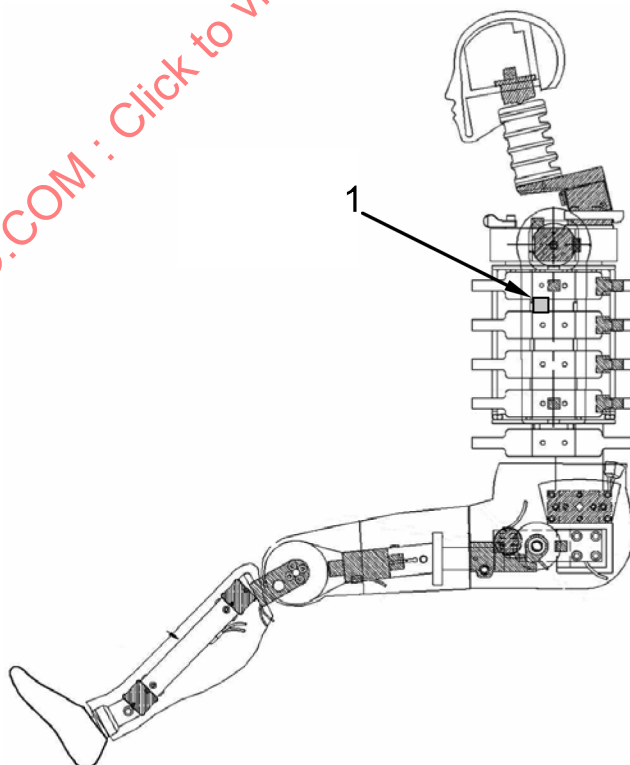
For further information, see Reference [1] in the Bibliography.

B.2 Temperature sensor locations

The SID-IIs should be equipped with a temperature sensor attached to the spine box (front, left or right side).

This location is only appropriate without restrictions if there is no heat generating source directly attached to the spine box, e.g. a data acquisition system.

Figure B.1 shows the measuring points for the anthropomorphic test device SID-IIs.



Key

1 spine box

Figure B.1 — Measuring point for the SID-IIs, view on the left side