

INTERNATIONAL STANDARD

ISO
10997

First edition
1996-11-15

Passenger vehicles — Side impact with deformable moving barrier — Full scale test

*Voitures particulières — Choc latéral avec barrière mobile déformable —
Essai grandeur nature*



Reference number
ISO 10997:1996(E)



Documents
Document Sharing Hub

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.

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.

International Standard ISO 10997 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 10, *Impact test procedures*.

Annex A forms an integral part of this International Standard.

© ISO 1996

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Passenger vehicles — Side impact with deformable moving barrier — Full scale test

1 Scope

This International Standard describes a full scale test method for side (lateral) impact testing of passenger cars as defined in ISO 3833 with a front seat dummy. It is intended to facilitate uniform testing at different test facilities.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1176:1990, *Road vehicles — Masses — Vocabulary and codes*.

ISO 3833:1977, *Road vehicles — Types — Terms and definitions*.

ISO 6487:1987, *Road vehicles — Measurement techniques in impact tests — Instrumentation*.

ISO 6549:1980, *Road vehicles — Procedure for H-point determination*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 movable deformable barrier, MDB: Energy-absorbing movable barrier used to impact either side of the test vehicle.

3.2 impact point: Point marked on the side of the test vehicle as the target to be impacted by a selected point on the MDB.

4 Test facility and equipment

4.1 Impact test site

The impact test site shall be a level, smooth and hard surface which is of sufficient area for the MDB to reach the specified speed prior to impact and to permit deceleration by the MDB and the test vehicle while remaining on the surface of the test site.

The surface immediately on the impacted side of the stationary test vehicle shall be horizontal, flat and smooth for a length of at least 10 m in the direction of impact. There shall be no more than 1 % slope measured over a 1 m length for at least the last 10 m.

4.2 MDB characteristics

The MDB shall have an energy-absorbing face to represent the crush characteristics of the front of an average passenger car. The dimensions of the energy-absorbing impactor face shall be

- width 1 500 mm ± 20 mm
- height 500 mm ± 10 mm
- depth 440 mm min.
- surface two flat parallel faces offset 60 mm ± 5 mm

Horizontally adjacent block faces shall lie in the same vertical plane within ± 5 mm.

The ground clearance at the lower edge of the MDB face shall be 260 mm ± 10 mm.

This layout is shown in figure 1. The deformation and the energy-absorbing characteristics of the impactor face and each of its six blocks are shown in figures 2 and 3.

The carriage to which the energy-absorbing MDB face is attached is shown in figure 4. The vertical plane of symmetry of the MDB face shall be coincident with the longitudinal vertical plane of the carriage with a tolerance of ± 10 mm.

The total mass of the MDB face, carriage and ballast as necessary shall be 1 100 kg ± 10 kg.

4.3 Impactor calibration

The supplier of the MDB face shall provide a certificate of calibration. The supplier shall also provide an analysis of his product's conformance to the calibration requirements. The calibration procedure is defined in annex A. The performance characteristics of the MDB face are acceptable if each block and the entire face fall within the force-deflection corridors shown in figure 2. Alternatively the performance characteristics are acceptable if each block and the entire face fall within the energy-deflection corridors shown in figure 3.

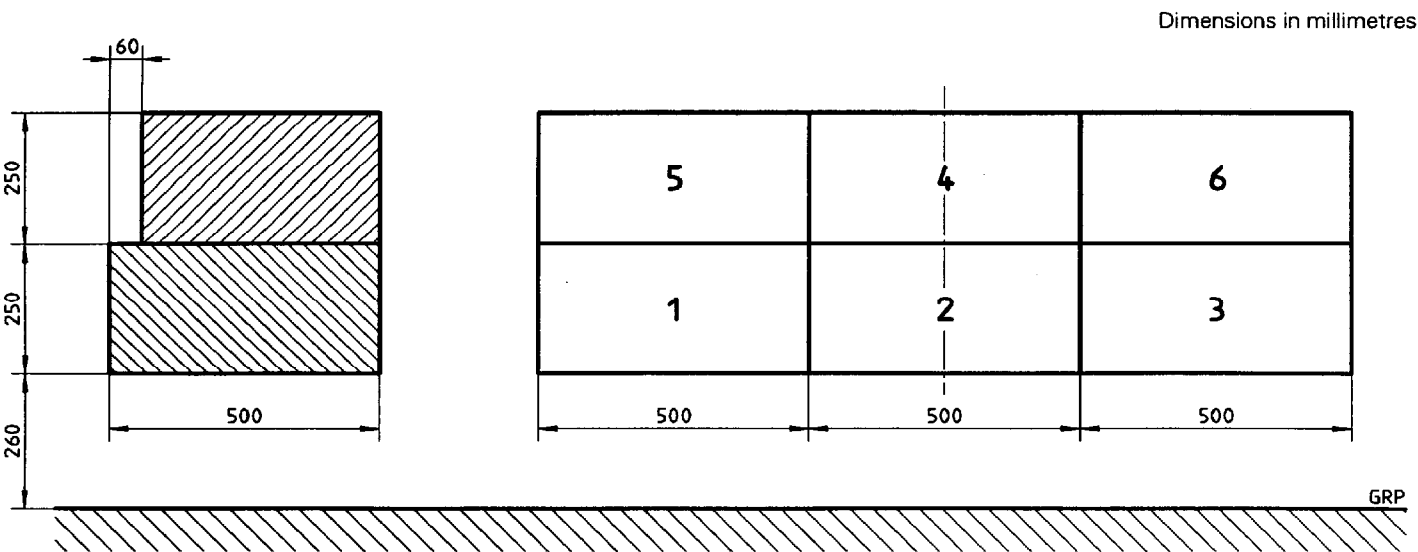
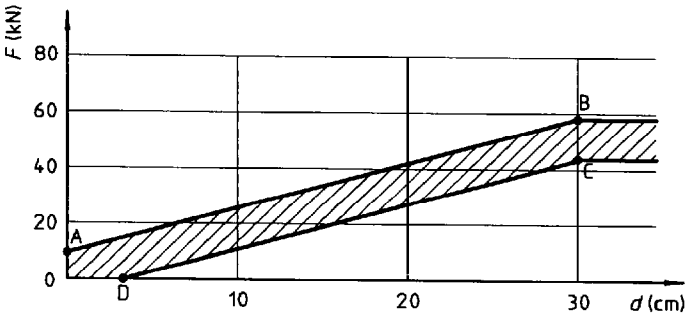


Figure 1 — Design of energy-absorbing MDB face

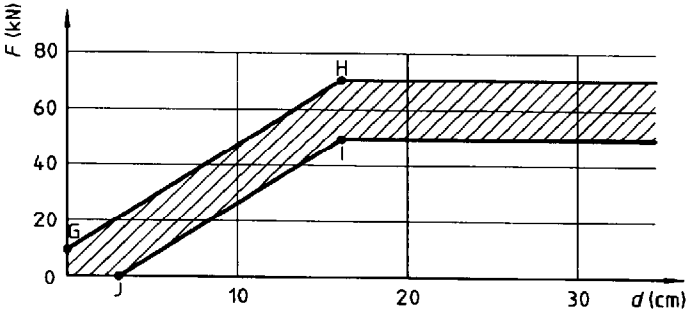
Force is expressed in kilonewtons

Blocks 1 and 3



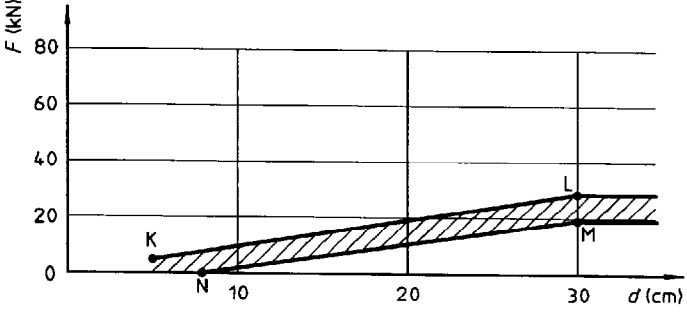
	<i>d</i>	<i>F</i>
A	0	10
B	30	58
C	30	43
D	3	0

Block 2



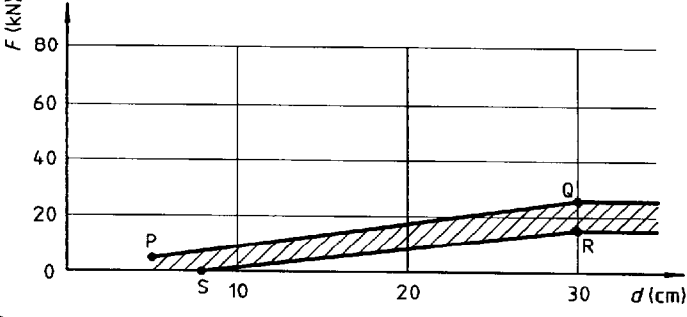
	<i>d</i>	<i>F</i>
G	0	10
H	16	70
I	16	50
J	3	0

Block 4



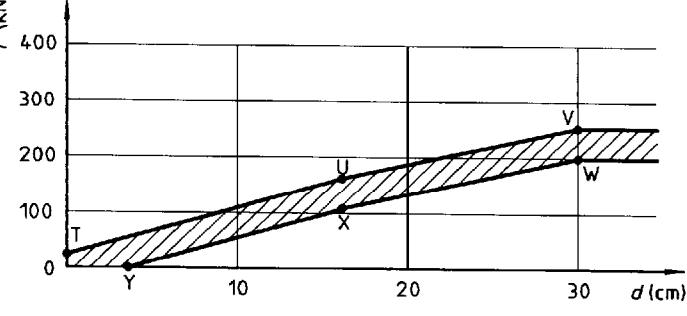
	<i>d</i>	<i>F</i>
K	5	5
L	30	28,5
M	30	18,5
N	8	0

Blocks 5 and 6



	<i>d</i>	<i>F</i>
P	5	5
Q	30	25,5
R	30	15,5
S	8	0

Total



	<i>d</i>	<i>F</i>
T	0	25
U	16	165
V	30	255
W	30	205
X	16	115
Y	3	0

Figure 2 — Force/deflection