
International Standard



4131

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Road vehicles — Dimensional codes for passenger cars

Véhicules routiers — Code de dimensions pour voitures particulières

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4131 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in February 1978.

It has been approved by the member bodies of the following countries :

Austria	Japan	Spain
Belgium	Korea, Dem. P. Rep. of	Sweden
Brazil	Korea, Rep. of	Switzerland
Czechoslovakia	Mexico	United Kingdom
France	Netherlands	USA
Germany, F. R.	Poland	USSR
Iran	Romania	
Italy	South Africa, Rep. of	

The member body of the following country expressed disapproval of the document on technical grounds :

Australia

Road vehicles — Dimensional codes for passenger cars

1 SCOPE AND FIELD OF APPLICATION

This International Standard establishes dimensional codes for passenger cars as defined in ISO 3833 and for commercial vehicles which are derived from passenger cars, to be used for the exchange of vehicle data and their electronic processing.

2 REFERENCES

ISO 612, *Road vehicles — Dimensions of motor vehicles and towed vehicles — Terms and definitions.*

ISO 1176, *Road vehicles — Weights — Vocabulary.*

ISO 2958, *Road vehicles — Exterior protection for passenger cars.*

ISO 3409, *Passenger cars — Lateral spacing of foot controls.*

ISO 3832, *Road vehicles — Luggage compartments of passenger cars — Method of measuring the reference volume.*

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

ISO 4130, *Road vehicles — Three-dimensional reference system and fiducial marks — Definitions.*

3 CODING SYSTEM

Each dimension considered in this International Standard is assigned a code, which is composed of three parts :

3.1 The prefix "ISO"

This prefix is intended to avoid any confusion with other existing coding systems.

3.2 A capital letter which denotes the type of dimension considered :

- L for length
- H for height
- W for width
- D for diameter
- V for volume

L, H or W for an angle according to whether it is dimensioned with respect to the zero X, Z or Y plane.

3.3 A number,

from 1 up to and including 99 for internal dimensions;

from 100 up to and including 199 for external dimensions.

4 DEFINITIONS

NOTE — Throughout this International Standard, unless otherwise stated, the supporting surface is conventionally horizontal, lengths and widths are measured in a horizontal plane, and heights are measured in a vertical plane.

For the purpose of this International Standard, the following definitions apply :

4.1 complete vehicle kerb weight : As defined in ISO 1176.

4.2 maximum authorized total weight : As defined in ISO 1176.

4.3 design load : As defined in ISO 2958 or by the manufacturer.

4.4 zero X, Y and Z planes : Three dimensional reference system, as defined in ISO 4130.

4.5 x, y and z planes : Planes parallel to their respective zero X, Y and Z planes (4.4).

4.6 fiducial marks : As defined in ISO 4130.

4.7 R-point : Manufacturer's design point which establishes the rearmost normal position of each seat provided by the vehicle manufacturer : it has co-ordinates established relative to the designed vehicle structure and simulates the position of the pivot centre of the human torso and thigh. This point is also called "seating reference point".

5 DIMENSIONING OF THE THREE-DIMENSIONAL REFERENCE SYSTEM AND FIDUCIAL MARKS

5.1 Dimensioning of the three-dimensional reference system

No.	Term	Definition	Loading condition	Code	Figure
5.1.1	Position of zero Z plane with respect to supporting surface at front of vehicle	The distance from the zero Z plane to the supporting surface of the vehicle, measured in a vertical plane passing through the centre of the front wheel.	Design load (4.3)	ISO-H136	1
5.1.2	Position of zero Z plane with respect to supporting surface at rear of vehicle	The distance from the zero Z plane to the supporting surface of the vehicle, measured in a vertical plane passing through the centre of the rear wheel.	Design load (4.3)	ISO-H137	1
5.1.3	X coordinate of rear wheel centreline	The distance from the zero X plane to the rear wheel centreline. NOTE — If the values of left and right wheel centreline coordinates are different, both dimensions are stated, separated by a dash, the first one corresponding to the left wheel.	Design load (4.3)	ISO-L127	1
5.1.4	X coordinate of front wheel centreline	The distance from the zero X plane to the front wheel centreline. NOTE — If the values of left and right wheel centreline coordinates are different, both dimensions are stated, separated by a dash, the first one corresponding to the left wheel.	Design load (4.3)	ISO-L128	1

5.2 Fiducial mark dimensions

NOTE — The following definitions apply to fiducial marks No. 1, No. 2 and No. 3. Similar definitions may be given for other fiducial marks.

5.2.1 In the three-dimensional reference system

No.	Term	Definition	Loading condition	Code	Figure
5.2.1.1	X coordinate of fiducial mark No. 1	The distance from the zero X plane to fiducial mark No. 1.	Design load (4.3)	ISO-L54	1
5.2.1.2	X coordinate of fiducial mark No. 2	The distance from the zero X plane to fiducial mark No. 2.	Design load (4.3)	ISO-L55	1
5.2.1.3	X coordinate of fiducial mark No. 3	The distance from the zero X plane to fiducial mark No. 3.	Design load (4.3)	ISO-L56	1
5.2.1.4	Y coordinate of fiducial mark No. 1	The distance from the zero Y plane to fiducial mark No. 1.	Design load (4.3)	ISO-W21	2
5.2.1.5	Y coordinate of fiducial mark No. 2	The distance from the zero Y plane to fiducial mark No. 2.	Design load (4.3)	ISO-W22	2
5.2.1.6	Y coordinate of fiducial mark No. 3	The distance from the zero Y plane to fiducial mark No. 3.	Design load (4.3)	ISO-W23	2
5.2.1.7	Z coordinate of fiducial mark No. 1	The distance from the zero Z plane to fiducial mark No. 1.	Design load (4.3)	ISO-H81	1
5.2.1.8	Z coordinate of fiducial mark No. 2	The distance from the zero Z plane to fiducial mark No. 2.	Design load (4.3)	ISO-H82	1
5.2.1.9	Z coordinate of fiducial mark No. 3	The distance from the zero Z plane to fiducial mark No. 3.	Design load (4.3)	ISO-H83	1

5.2.2 With respect to the supporting surface

No.	Term	Definition	Loading condition	Code	Figure
5.2.2.1	Height of fiducial mark No. 1 above supporting surface	The distance from fiducial mark No. 1 to the supporting surface for the following loading conditions :			1
			Complete vehicle kerb weight (4.1)	ISO-H161	
			Design load (4.3)	ISO-H163	
			Maximum authorized total weight (4.2)	ISO-H165	
5.2.2.2	Height of fiducial mark No. 2 above supporting surface	The distance from fiducial mark No. 2 to the supporting surface for the following loading conditions :			1
			Complete vehicle kerb weight (4.1)	ISO-H162	
			Design load (4.3)	ISO-H164	
			Maximum authorized total weight (4.2)	ISO-H166	
5.2.2.3	Height of fiducial mark No. 3 above supporting surface	The distance from fiducial mark No. 3 to the supporting surface for the following loading conditions :			1
			Complete vehicle kerb weight (4.1)	ISO-H167	
			Design load (4.3)	ISO-H168	
			Maximum authorized total weight (4.2)	ISO-H169	

6 EXTERNAL DIMENSIONS

No.	Term	Definition	Loading condition	Code	Figure
6.1	Vehicle height, unladen	See ISO 612	Complete vehicle kerb weight (4.1)	ISO-H100	3
6.2	Vehicle height	See ISO 612	Design load (4.3)	ISO-H101	3
6.3	Approach angle	See ISO 612	Design load (4.3)	ISO-H106	3
6.4	Departure angle	See ISO 612	Design load (4.3)	ISO-H107	3
6.5	Vehicle height, unladen, hinged lid of luggage compartment open	The distance between the supporting surface and the z-plane touching the uppermost part of the opened hinged lid of the luggage compartment.	Complete vehicle kerb weight (4.1)	ISO-H110	3
6.6	Vehicle height, laden	See ISO 612	Maximum authorized total weight (4.2)	ISO-H113	3
6.7	Bonnet height above supporting surface	The distance from the supporting surface to the point of intersection, in the zero Y plane, of the bonnet and the windscreen.	Design load (4.3)	ISO-H114	3
6.8	Approach angle, laden	See ISO 612	Maximum authorized total weight (4.2)	ISO-H117	3
6.9	Departure angle, laden	See ISO 612	Maximum authorized total weight (4.2)	ISO-H118	3
6.10	Ramp angle	See ISO 612	Design load (4.3)	ISO-H119	3
6.11	Ramp angle, laden	See ISO 612	Maximum authorized total weight (4.2)	ISO-H147	3
6.12	Ground clearance, laden	See ISO 612	Maximum authorized total weight (4.2)	ISO-H157	3
6.13	Wheel space	See ISO 612 NOTE — If the dimensions of right and left wheel spaces are different, both dimensions are stated, separated by a dash, the first one corresponding to the left wheels.	Design load (4.3)	ISO-L101	3
6.14	Vehicle length	See ISO 612	Design load (4.3)	ISO-L103	3