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Commercial road vehicles — Dimensional codes

Véhicules routiers utilitaires — Codes dimensionnels



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Foreword

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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 7656 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Sub-Committee SC 6, *Terms and definitions of dimensions and masses*.

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Commercial road vehicles — Dimensional codes

1 Scope

This International Standard establishes dimensional codes for commercial road vehicles to be used for the exchange of vehicle data and electronic processing.

It applies to commercial road vehicles as defined in ISO 3833.

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 612:1978, *Road vehicles — Dimensions of motor vehicles and towed vehicles — Terms and definitions*.

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

ISO 3409:1975, *Passenger cars — Lateral spacing of foot controls*.

ISO 3832:1991, *Passenger cars — Luggage compartments — Method of measuring reference volume*.

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

ISO 4130:1978, *Road vehicles — Three-dimensional reference system and fiducial marks — Definitions*.

ISO 4131:1979, *Road vehicles — Dimensional codes for passenger cars*.

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

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 4130 and ISO 4131 and the following definition apply.

3.1 daylight opening: Maximum unobstructed opening through any glass aperture, including reveal or garnish-mouldings adjoining the glass, according to a given direction or projection. If not specified, the dimension is the horizontal projection.

4 Coding system

Each dimension given in this International Standard is assigned a code, which is composed of three elements, as given in 4.1, 4.2 and 4.3.

4.1 Prefix "ISO"

A prefix "ISO" shall be used: it is intended to avoid any confusion with other existing coding systems.

4.2 Type of dimension

A capital letter, which denotes the type of dimension, shall be given as follows:

L for length;

H for height;

W for width;

D for diameter;

V for volume.

L, H or W shall also be used for angles according to whether they are along the zero X -, Z - or Y-planes respectively, as defined in ISO 4130:1978, definition 3.1.

4.3 Number

A number shall be given as follows:

- from 1 to 99 inclusive for internal dimensions;¹⁾
- from 100 to 199 inclusive for external dimensions;¹⁾
- from 300 to 399 inclusive for internal dimensions relative to commercial vehicles only;
- from 400 to 499 inclusive for external dimensions relative to commercial vehicles only;

— from 500 to 599 inclusive for cargo dimensions relative to commercial vehicles only.

5 External dimensions

External dimensions are defined and allocated a code in table 1. In column 4,

K is the "complete vehicle kerb mass" and

A is the "maximum authorized total mass", both as defined in ISO 1176.

Table 1

No.	Term	Definition	Loading condition	Code	Figure
5.1	vehicle height	See ISO 612:1978, definition 6.3.	K A	ISO-H100 ISO-H113	1
5.2	approach angle	See ISO 612:1978, definition 6.10.	A	ISO-H117	1
5.3	departure angle	See ISO 612:1978, definition 6.11. NOTE — In some countries, an underride protection device is required by the authorities, which has to be considered when measuring the departure angle.	A	ISO-H118	1
5.4	ramp angle	Minimum acute angle between two planes tangential to the front wheels, static loaded, and to the rear wheels, static loaded, which intersect at a line touching the underside of the vehicle indicating the largest ramp over which the vehicle may be driven. In the case of more than one rear axle with a single front axle, the rear tangent is to both sets of wheels, with the forward rear axle at maximum upward deflection and the rearmost axle at maximum rebound, as designated by the manufacturer. In the case of more than one front and more than one rear axle, both planes are tangential to both front and both rear wheels respectively, and may intersect below the vehicle if this represents the largest ramp over which the vehicle can be driven.	A	ISO-H147	1
5.5	ground clearance	See ISO 612:1978, definition 6.8.	A	ISO-H157	1
5.6	height of first step above supporting surface	Distance between the supporting surface and the z-plane touching the top of the first step, or the sill plate bead of the first step if any, measured at the centreline of the first step.	K	ISO-H115	11
5.7	maximum overall height, tilt cab servicing	Vertical distance between the supporting surface and the topmost point of the cab during tilting.	K	ISO-H404	3
5.8	height of chassis above supporting surface, front	See ISO 612:1978, definition 6.12.	A K	ISO-H419 ISO-H420	1
5.9	height of chassis above supporting surface, rear	See ISO 612:1978, definition 6.12.	A K	ISO-H421 ISO-H422	1

1) Code numbers assigned to both passenger cars (see ISO 4131) and commercial vehicles.

No.	Term	Definition	Loading condition	Code	Figure
5.10	height of coupling face	See ISO 612:1978, definition 6.20.	A K	ISO-H423 ISO-H424	2
5.11	height of attachment	See ISO 612:1978, definition 6.18.2.	A K	ISO-H425 ISO-H426	5
5.12	lift	See ISO 612:1978, definition 6.30.	K	ISO-H427	—
5.13	camber angle	See ISO 612:1978, definition 6.24.	K	ISO-H428	—
5.14	kingpin inclination	See ISO 612:1978, definition 6.25.	K	ISO-H429	—
5.15	vertical clearance	See ISO 612:1978, definition 6.29.	A	ISO-H430	—
5.16	vehicle length	See ISO 612:1978, definition 6.1.	—	ISO-L103	4
5.17	wheel space	See ISO 612:1978, definition 6.4.1. NOTE — If the vehicle concerned has more than two axles, the wheel spaces between consecutive wheels are stated from front to rear separated by a dash. See ISO 612:1978, definition 6.4.2.	A	ISO-L401	1
5.17.1	motor vehicle or trailer				
5.17.2	semi-trailer		A	ISO-L426	—
5.18	front overhang	See ISO 612:1978, definition 6.6.	A	ISO-L405	1
5.19	front bumper to cab tilt servicing position	Distance between two <i>x</i> -planes, one touching the front bumper in the non-tilted position and the other touching the foremost point of the cab in the servicing maximum tilt position.	—	ISO-L408	3
5.20	cab servicing tilt angle	Maximum angle of cab tilted for servicing.	—	ISO-L409	3
5.21	rear overhang	See ISO 612:1978, definition 6.7.	A	ISO-L412	1
5.22	length of chassis behind cab	Distance between two <i>x</i> -planes, one touching the back of the cab and the other touching the rear end of the chassis.	A	ISO-L414	1
5.23	maximum usable length of chassis behind cab	Distance between two <i>x</i> -planes, one touching the foremost point limiting the length of chassis that can be used for body work, the other <i>x</i> -plane touching the rear end of the chassis.	—	ISO-L415	1
5.24	front bumper to back of cab	Distance between two <i>x</i> -planes, one touching the back of cab, and the other the foremost point of the vehicle, including lashing hooks, registration number plate and any parts rigidly attached to the vehicle.	—	ISO-L416	1
5.25	space between cab and the foremost point of the bodywork	Distance between two <i>x</i> -planes, one touching the cab back, and the other the foremost point that can be used for bodywork.	K	ISO-L417	1
5.26	rear wheel centreline to rear end of chassis	Distance between two <i>x</i> -planes, one passing through the rear wheel centrelines and the other touching the rear end of the chassis.	K	ISO-L418	1
5.27	fifth wheel lead for calculation of load distribution	See ISO 612:1978, definition 6.19.2.	K	ISO-L433	2
5.28	fifth wheel coupling pin to front end of towing vehicle	See ISO 612:1978, definition 6.21.2.	K	ISO-L434	2

No.	Term	Definition	Loading condition	Code	Figure
5.29	fifth wheel coupling pin to cab	Vertical projection of the distance between the centre of the fifth wheel coupling pin and the nearest obstacle behind the cab, measured on the z-plane touching the fifth wheel seating surface, taken as a radial dimension.	—	ISO-L435	2
5.30	fifth wheel coupling pin to the furthest obstacle on the towing vehicle	Vertical projection onto a z-plane of the distance between the centre of the fifth wheel coupling pin and the furthest obstacle at rear of the towing vehicle, taken as a radial dimension.	—	ISO-L422	2
5.31	distance between towing device and front end of the towing vehicle	See ISO 612:1978, definition 6.21.1.	—	ISO-L423	5
5.32	overhang of attachment	See ISO 612:1978, definition 6.18.1.	A	ISO-L424	5
5.33	distance of towing attachment in front of rear of vehicle	See ISO 612:1978, definition 6.18.3.	—	ISO-L425	5
5.34	kingpin offset	See ISO 612:1978, definition 6.26.	K	ISO-L427	—
5.35	castor	See ISO 612:1978, definition 6.28.	K	ISO-L428	—
5.36	drawgear length	See ISO 612:1978, definition 6.16.	A	ISO-L429	—
5.37	drawbar length	See ISO 612:1978, definition 6.17.	—	ISO-L430	—
5.38	rear tractor clearance radius of semi-trailer	See ISO 612:1978, definition 6.22.	—	ISO-L431	—
5.39	front fitting radius of semi-trailer	See ISO 612:1978, definition 6.23.	—	ISO-L432	—
5.40	vehicle width	See ISO 612:1978, definition 6.2.	—	ISO-W103	4
5.41	body width	Distance between two y-planes touching the widest points of the body, measured at the front wheel centreline x-plane.	—	ISO-W106	1
5.42	track front	See ISO 612:1978, definition 6.5. NOTE — If the vehicle has more than one front axle, all tracks are stated separated by a dash, the first being the foremost track.	A	ISO-W401	1
5.43	track rear	See ISO 612:1978, definition 6.5. NOTE — If the vehicle has more than one rear axle, all tracks are stated separated by a dash, the first being the foremost rear track.	A	ISO-W402	1
5.44	tyre outermost side walls width	Distance between two y-planes touching the outermost side walls of the tyres. This dimension does not include the deflected part of the tyre walls immediately above the point of contact with the ground.	—	ISO-W403	1
5.45	distance between centrelines of springs, front	Distance between the y-planes passing through the centrelines of the springs at the front spring fixing points. NOTE — In the case of vehicles with more than one front axle with separate springs, all spring distances are stated separated by a dash, the first being the foremost one.	—	ISO-W404	1

No.	Term	Definition	Loading condition	Code	Figure
5.46	distance between centrelines of springs, rear	Distance between the y-planes passing through the centrelines of the springs at the rear spring fixing points. NOTE — In the case of vehicles with more than one rear axle with separate springs, all spring distances are stated separated by a dash, the first being the foremost one.	—	ISO-W405	1
5.47	frame width, rear	Distance between the y-planes touching the outermost points of the longitudinal frame members, excluding any attached parts.	—	ISO-W406	2
5.48 5.48.1 5.48.2	tumble-home flat side glass curved side glass	Angle measured from a y-plane passing through the lower daylight opening to the outside surface of the door glass, measured at the R-point x-plane. Angle measured from a y-plane passing through the lower daylight opening to a chord line extending from the upper daylight opening, at the outside surface of the door glass, measured at the R-point x-plane.	—	ISO-W122	12
5.49	toe-in	See ISO 612:1978, definition 6.27.1.	K	ISO-W407	—
5.50	turning circle	Smaller diameter as in ISO 612:1978, definition 6.31.	A	ISO-D101	—
5.51	turning clearance circles	See ISO 612:1978, definition 6.32. NOTE — The values of the inner and the outer turning clearance are stated separated by a dash, the first being the smaller one.	A	ISO-D102	—

6 Internal dimensions

Internal dimensions are defined and allocated a code in table 2. Unless otherwise specified all dimensions measured from the R-point relate to the R-point of the driver's seat. All references to x -, y -, and z -planes are

understood to be parallel to their respective zero X -, Y -, and Z -planes, defined in ISO 4130. All measurements are parallel to x -, y -, and z -planes, unless otherwise stated.

NOTE 1 Footnotes are given at the end of the table.

Table 2

No.	Term	Definition	Loading condition	Code	Figure
6.1	entrance height, front	Distance between the R-point, front, and the upper trimmed body opening, in the x -plane passing through the R-point, front.	—	ISO-H11 ¹⁾	6
6.2	belt height, front	Distance between the R-point, front, and the bottom of the side window daylight opening, in the x -plane passing through the R-point, front.	—	ISO-H25 ¹⁾	7
6.3	vertical distance from R-point, front to heel point, front	Distance from the R-point, front, to the z -plane passing through the heel point, front, B ²⁾ . NOTE — The heel point, front, B is defined by the manufacturer.	—	ISO-H30 ¹⁾	6
6.4	maximum seat height adjustment	Distance between two z -planes passing through the reference points of the seat in the lowest and highest seating positions.	—	ISO-H58	9
6.5	normal seat height adjustment	Distance between two z -planes one passing through the R-point, the other passing through the reference point of the seat in its highest normal driving position as defined by the manufacturer.	—	ISO-H59	9
6.6	Z -coordinate of R-points, front	Distance from the zero Z -plane to the R-points of the front seats. NOTE — The values of left and right R-point coordinates are stated separated by a dash, the first one corresponding to the driver's seat.	—	ISO-H70 ¹⁾	6
6.7	steering-wheel to seat	Minimum dimension measured between the steering-wheel rim with the front wheels in the straight-ahead position, and the undepressed seat cushion. The dimension measured is on the y -plane of the steering-wheel centre. NOTE — If the steering wheel is adjustable in angle and/or axially, the values for the extreme positions are stated, separated by a dash, the first being the minimum value.	—	ISO-H74	6
6.8	Z -coordinate of the lowest seat reference point	Distance from the zero Z -plane to the reference point of the seat in its lowest position as defined by the manufacturer.	—	ISO-H91	9
6.9	vertical distance from R-point, front, to steering-wheel centre	Distance from the R-point, front, to the z -plane passing through the steering-wheel centre, located on the upper surface of the steering-wheel rim. NOTE — If the steering wheel is adjustable in angle and/or axially, the values for the extreme positions are stated, separated by a dash, the first being the minimum value.	—	ISO-H93 ¹⁾	6
6.10	engine cover height	Distance between two z -planes one passing through the heel point, front, B ²⁾ , the other touching the top of the engine cover.	—	ISO-H311	10

No.	Term	Definition	Loading condition	Code	Figure
6.11	seat cushion height	Distance between two z-planes, one touching the top of the undepressed seat cushion, and the other passing through the heel point, front B ²⁾ measured in the centre-plane of the occupant (C/LO) ³⁾ .	—	ISO-H326	10
6.12	vertical distance, lower bunk-berth to R-point	Distance between the R-point and the z-plane touching the top of the undepressed lower bunk-berth mattress, measured at the zero Y-plane. NOTE — In the case of a lower bunk-berth below the R-point, the dimension has a minus value.	—	ISO-H361	10
6.13	height above upper bunk-berth	Distance between two z-planes, one touching the top of the undepressed upper bunk-berth mattress, and the other touching the lowest point of the head-lining or other obstruction, measured at the x-plane through the centre of the bunk-berth under consideration and at the zero Y-plane.	—	ISO-H362	10
6.14	height above lower bunk-berth	Distance between two z-planes, one touching the top of the undepressed lower bunk-berth mattress, and the other touching the lowest point of the undepressed upper bunk-berth, measured at the zero Y-plane. NOTES 1 Should any obstruction above the bunk-berth under consideration give a smaller dimension than that already defined, then the lowest dimension is quoted in brackets after the main dimension. This lower dimension is stated by the manufacturer. 2 If only one bunk-berth is provided, the measurement is taken as specified in the definition for ISO-H362 (see 6.13).	—	ISO-H363	10
6.15	height from R-point to head-lining	Distance from the R-point to the undepressed head-lining or other obstruction, measured at the x-plane passing through this R-point.	—	ISO-H396	10
6.16	height of second step above supporting surface	Distance between the supporting surface and the z-plane touching the top of the second step, or the sill plate bead of the second step if any, measured in the centreline of the second step.	K	ISO-H397	11
6.17	height of cabin floor above supporting surface	Distance between the supporting surface and the z-plane touching the cabin floor at the lower door opening, or the sill plate bead of the lower door opening if any, measured in the centreline of the lower door opening.	K	ISO-H398	11
6.18	inclined height from R-point to head-lining	Distance from the R-point to the undepressed head-lining or other obstruction measured along a line in the y-plane and at a rearward angle of 8° to the zero X-plane.	—	ISO-H399	10
6.19	cushion depth, front	Distance from the R-point, front, to the front edge of the undepressed front seat cushion.	—	ISO-L10 ¹⁾	6
6.20	total seat track travel	Distance between two x-planes passing through the reference points of the seat in the foremost and rearmost driving positions.	—	ISO-L17	9
6.21	steering-wheel to seat back	Distance between the steering-wheel rim, with the front wheels in the straight-ahead position, and the nearest point of the undepressed seat back. NOTE — If the steering-wheel is adjustable in angle and/or axially, the values for the extreme positions are stated, separated by a dash, the first being the minimum value.	—	ISO-L22	11

No.	Term	Definition	Loading condition	Code	Figure
6.22	normal driving and riding seat track travel	Distance between two <i>x</i> -planes, one passing through the R-point, front, the other passing through the reference point of the driver's seat moved to the foremost driving and riding position, where these two points are defined by the manufacturer.	—	ISO-L23 ¹⁾	9
6.23	steering-wheel angle	Angle between the upper surface of the steering-wheel rim and an <i>x</i> -plane. NOTE — If the steering wheel is adjustable in angle and/or axially, the values for the extreme positions are stated separated by a dash the first being the minimum value.	—	ISO-L25 ¹⁾	6
6.24	X -coordinate of R-point	Distance from the zero <i>X</i> -plane to the R-point of the front seats. NOTE — The values of left and right R-point coordinates are stated, separated by a dash, the first one corresponding to the driver's seat.	—	ISO-L31 ¹⁾	6
6.25	X -coordinate of the rearmost seat reference point	Distance between the zero <i>X</i> -plane and the reference point of the seat in its rearmost driving position.	—	ISO-L37	9
6.26	back angle, front	Angle between the zero <i>X</i> -plane and the torso line passing through the R-point, front. NOTE — The torso line is defined by the manufacturer.	—	ISO-L40 ¹⁾	6
6.27	displacement between service braking control and accelerator pedal	Distance between two planes, perpendicular to the zero <i>Y</i> -planes, parallel to the segment AB, and lying respectively on the centre of the service braking control face and on the centre of the accelerator pedal face, with the control and pedal in their normal rest positions. NOTE — When the service braking control is lower than the accelerator pedal, the measured dimension is shown as a minus value.	—	ISO-L52 ¹⁾	6
6.28	horizontal distance from R-point, front, to heel point, front	Distance from the R-point, front, to the <i>x</i> -plane passing through the heel point, front, B. NOTE — The heel point, front, B, is defined by the manufacturer.	—	ISO-L53 ¹⁾	6
6.29	horizontal distance from R-point, front, to steering-wheel centre	Distance from the R-point, front, to the <i>x</i> -plane passing through the steering-wheel centre and located on the upper surface of the steering-wheel rim. NOTE — If the steering-wheel is adjustable in angle and/or axially, the values of the extreme positions are stated, separated by a dash, the first being the minimum value.	—	ISO-L63 ¹⁾	6
6.30	engine cover rear to R-point	Distance between the R-point and the <i>x</i> -plane at the rear of the engine cover. NOTE — When the rear of the engine cover is rearward of the R-point, then the dimension has a minus value.	—	ISO-L310	10
6.31	engine cover front to R-point	Distance between the R-point and the <i>x</i> -plane at the front of the engine cover. NOTE — When the front of the engine cover is rearward of the R-point, then the dimension has a minus value.	—	ISO-L311	10

No.	Term	Definition	Loading condition	Code	Figure
6.32	distance between service braking control and steering-wheel	Distance between the projections, onto the zero <i>Y</i> -plane, of the centre of the undepressed service braking control and the lowest point of the steering-wheel rim. NOTE — If the steering-wheel is adjustable, the measurement is made in the mid-position.	—	ISO-L313	11
6.33	front wheel centreline to R-point	Distance between the R-point and the <i>x</i> -plane passing through the front wheel centrelines, to be measured at a loading condition as specified by the manufacturer. NOTE — If the front wheel centreline is rearward of the R-point, then the dimension has a minus value.	K	ISO-L314	10
6.34	free space behind R-point	Distance between the R-point and the <i>x</i> -plane touching the nearest obstacle behind the seat. This measurement is the minimum dimension achieved within the range of 0 to 700 mm above the R-point, and 300 mm either side of the R-point.	—	ISO-L360	10
6.35	horizontal distance from R-point to lower bunk-berth	Distance between the R-point and the <i>x</i> -plane touching the foremost point of the lower bunk-berth structure measured on the zero <i>Y</i> -plane.	—	ISO-L361	10
6.36	horizontal distance from R-point to upper bunk-berth	Distance between the R-point and the <i>x</i> -plane touching the foremost point of the upper bunk-berth structure measured on the zero <i>Y</i> -plane.	—	ISO-L362	10
6.37	width of lower bunk-berth	Distance between the two <i>z</i> -planes touching the foremost and rearmost points of the undepressed lower bunk-berth mattress, measured on the zero <i>Y</i> -plane.	—	ISO-L364	10
6.38	width of upper bunk-berth	Distance between the two <i>x</i> -planes touching the foremost and rearmost points of the undepressed upper bunk-berth mattress, measured on the zero <i>Y</i> -plane.	—	ISO-L365	10
6.39	knee clearance, driver	Minimum radial distance between the R-point and the limiting interferences of the dashboard, measured in the area limited by two <i>y</i> -planes 225 mm each side of the steering-wheel centreline and two <i>z</i> -planes 75 mm above and below the R-point. This excludes steering columns, stalk controls and column-mounted shroud.	—	ISO-L366	11
6.40	position of steering-wheel centre with respect to zero <i>Y</i>-plane	Distance from the steering-wheel centre, located on the upper surface of the steering-wheel rim, to the zero <i>Y</i> -plane.	—	ISO-W7 ¹⁾	8
6.41	cushion width, front	Distance between two <i>y</i> -planes touching the trimmed width of the undepressed front seat cushion at the outermost point on each side.	—	ISO-W16 ¹⁾	8
6.42	<i>Y</i>-coordinate of R-points, front	Distance from the zero <i>Y</i> -plane to the R-points of the front seats. NOTE — The values of left and right R-point coordinates are stated, separated by a dash, the first one corresponding to the driver's seat.	—	ISO-W20 ¹⁾	8
6.43	radius of curvature of side glass	Radius of curvature of the side window, measured in the <i>x</i> -plane passing through the R-point, front.	—	ISO-W41 ¹⁾	7
6.44	<i>Y</i>-coordinate of R-point of the passenger's seat	Distance from the zero <i>Y</i> -plane to the R-point(s) of the passenger's seat(s). NOTE — Where two passenger seats are fitted the <i>Y</i> -coordinates of both R-points are stated by the manufacturer.	—	ISO-W87	8