
**Road vehicles — Product data
exchange between chassis and
bodywork manufacturers (BEP) —**

**Part 2:
Dimensional bodywork exchange
parameters**

*Véhicules routiers — Échange de données de produit entre les
fabricants de châssis et de carrosseries (BEP) —*

Partie 2: Paramètres dimensionnels d'échange de carrosserie

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Coding principles	2
4.1 BEP codes of truck chassis and bodywork.....	2
4.2 Units of BEP code values.....	4
4.3 Numbering.....	4
4.3.1 General.....	4
4.3.2 Numbering and type designation of frame-mounted objects.....	4
4.4 Code assignment and description.....	5
4.5 Priority.....	5
4.6 Loading condition.....	5
4.7 Presented in.....	5
4.8 Related XML coding.....	5
5 General dimensions	6
6 Chassis related dimensions	10
6.1 Axle and wheel related dimensions.....	10
6.2 Chassis frame related dimensions.....	24
6.3 Cab related dimensions.....	48
7 Bodywork related dimensions	51
7.1 Sub-frame related dimensions.....	51
7.2 Bodywork dimensions.....	58
Annex A (informative) Corresponding codes in related ISO standards	63
Annex B (normative) XML coding related to this document	66
Bibliography	85

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 (see 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 (see 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.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 40, *Specific aspects for light and heavy commercial vehicles, busses and trailers*.

This second edition cancels and replaces the first edition (ISO 21308-2:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- addition of several new codes based on the experiences from the first edition;
- addition of [Annex B](#) showing specific XML coding for this part.

A list of all parts in the ISO 21308 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Truck chassis manufacturers deal with configurations of chassis in infinite numbers of possible combinations, and bodywork manufacturers produce highly customized superstructures on these chassis. Bodywork manufacturers build their superstructures on chassis of several different truck brands.

The production efficiency of a specific truck chassis and its body combinations can be greatly improved by achieving the correct technical and commercial information about the specific chassis communicated with the bodywork manufacturer in advance. The information must be reliable and give the bodywork manufacturer confidence to prefabricate the body or the superstructure before the chassis is delivered. With uniform conditions, unambiguous dimensions and supplementary information can be established, transferred and correctly interpreted by the receiver. Increased information efficiency will improve the quality and reduce the lead times.

The ISO 21308 series specifies a generic system of codes for exchanging specific data between truck chassis manufacturers and bodywork manufacturers, providing a platform for efficient communication between the parties. It applies to commercial vehicles as defined in ISO 3833, having a maximum gross vehicle mass above 3 500 kg.

Exchanging codes in accordance with the ISO 21308 series is useful in various situations, for example, for design and manufacturing, technical specifications, technical drawings and leaflets.

The codes can be communicated via, for example spreadsheet or XML, or a data exchange system based on the STEP protocol.

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Road vehicles — Product data exchange between chassis and bodywork manufacturers (BEP) —

Part 2: Dimensional bodywork exchange parameters

1 Scope

This document provides a set of codes for the exchange of dimensional data between truck chassis manufacturers and bodywork manufacturers.

The process of exchanging the above information can involve:

- chassis manufacturer;
- chassis importer;
- chassis dealer;
- one or more bodywork manufacturers; and
- bodywork component suppliers, e.g. manufacturers of demountable bodies, cranes and loading equipment, tipping equipment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 612:1978, *Road vehicles — Dimensions of motor vehicles and towed vehicles — Terms and definitions*

ISO 1176, *Road vehicles — Masses — Vocabulary and codes*

ISO 7656:1993, *Commercial road vehicles — Dimensional codes*

ISO 21308-1:2018, *Road vehicles — Product data exchange between chassis and bodywork manufacturers (BEP) — Part 1: General principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 612, ISO 1176, ISO 7656 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1
BEP-code
code to identify a unique measurement on the truck, to make the information exchange between chassis manufacturers and bodywork manufacturers easier without any confusion with other systems

Note 1 to entry: BEP is an abbreviation of bodywork exchange parameter.

3.2
left and right side
left side in the driving direction and right side in the driving direction

3.3
driven axle
axle marked with an X in the drawings

3.4
front edge
most forward point of the truck as delivered from the chassis manufacturer

Note 1 to entry: Usually, the front edge is the bumper.

3.5
gross vehicle mass
GVM
gross vehicle weight
GVW
technical or legal gross vehicle mass (weight) according to the legislation or regulations for the applicable region

Note 1 to entry: See also ISO 21308-3 and ISO 1176.

4 Coding principles

4.1 BEP codes of truck chassis and bodywork

Each characteristic, related to truck chassis and bodywork, is assigned a code composed of the items given below. A prefix "BEP", followed by a dash (-), shall be used to avoid confusion with other coding systems.

BEP codes are formatted according to the principles in [Table 1](#).

Table 1 — BEP coding principles

BEP-ppMccc.n.p.q.s.t		
Item	Assignment	Description
pp	Bodywork category	pp = None or 00 for codes related to vehicle chassis (this document and ISO 21308-3) pp = 01 for codes related to loader cranes (ISO 21308-5) pp = 02 for codes related to hook loaders (ISO 21308-6) pp = 03 for codes related to skip loaders (ISO 21308-7)
M	Measure type	A capital letter, which denotes the type of code: H = Z direction, coordinate system in accordance with ISO 4130 L = X direction, coordinate system in accordance with ISO 4130 W = Y direction, coordinate system in accordance with ISO 4130 C = Coordinate (x,y) or (x,y,z) in the Cartesian coordinate system M = Mass (m), or mass point (m,x,y,z) F = Force (static or dynamic) T = Moment (static or dynamic) R = Radius V = Angle G = General A = Administrative
ccc	BEP code number	Code number given by the respective part of the ISO 21308 series
.n	Index number	.n is used to designate object number <i>n</i>
.p	Entity number	.p is used to designate a certain set of object characteristics or entities (e.g. dimensions, coordinates, address information) Where both .n and .p are specified, they are given in the .n .p order.
.q	Corner number	.q is used to designate contour corner index number
.s	Side designator	L or R
.t	Type designator	Optional coding to describe the object type (e.g. fuel tank)

The centre of the first front axle is the reference zero point for the length measurements. In some cases where it is convenient to use the rear axle as a reference, the first driven rear axle is used.

The top of the chassis frame is the reference zero point for height measurements for objects connected to the chassis frame.

The centre-line of the chassis is the reference zero point for width measurements.

The height information, if dependent on the tyres, refers to the actual tyre equipment as described according to ISO 21308-3, if not otherwise stated.

NOTE 1 Dimensions, except for radius, can be positive or negative.

[Annex A](#) provides a comparison of BEP codes, according to this document, with codes used in ISO 612 and ISO 7656.

NOTE 2 Supplementary information and support tools of this document are available on the ISO Standards Maintenance Portal. This information can be found at the following URL: <https://standards.iso.org/iso/21308>.

4.2 Units of BEP code values

The following units are preferred when reporting values related to BEP codes:

- dimensions (L, W, H, R) and coordinates (x,y,z) in millimetres (mm);
- masses in kilograms (kg);
- forces in Newtons (N), or kN;
- moments in Newtonmetres (Nm), or kNm;
- angles in degrees (°).

4.3 Numbering

4.3.1 General

Each item has a unique BEP-code consisting of the dimension type letter (see 4.2) and a three-digit sequential number, starting from 001.

The dimension codes for repeated vehicle items of the same kind on one vehicle, e.g. axles, cross-members, frame-mounted objects, etc., are differed by an added sequential number beginning with .1 counted from the front of the vehicle and rearwards.

NOTE 1 .n is used to designate object number *n*.

NOTE 2 In this document, .p is used to designate a certain set of object characteristics or entities (e.g. dimensions, coordinates, address information).

NOTE 3 Where both .n and .p are specified, BEP codes are specified in the .n .p order.

For L codes, a positive value indicates that the item is located behind the axle. A negative value indicates that the item is located in front of the axle.

For H codes, a positive value indicates that the item is located above the top of the chassis frame. A negative value indicates that the item is located below the top of the chassis frame.

4.3.2 Numbering and type designation of frame-mounted objects

The same .p number shall be applied to a specific frame-mounted object in terms of L, H and W dimensions.

EXAMPLE Frame-mounted objects can be a fuel tank, referred to as BEP-L030.4, BEP-H030.4, and BEP-W.030.4, and a battery box, referred to as BEP-L030.5, BEP-H030.5, and BEP-W030.5.

For the frame-mounted objects, an optional coding (.t) may be added to describe the object type. The following abbreviation letters are reserved for the object types below:

- A — Air tank;
- B — Battery box;
- C — Cap/filler cap
- F — Fuel tank;
- H — Hydraulic tank;
- M — Exhaust muffler;
- S — Spare wheel;

- T — Tool box;
- U — Urea tank;
- O — Other (other objects, specified by the applicable G code in ISO 21308-3).

NOTE Letters can be combined (e.g. FC for fuel tank filler cap).

4.4 Code assignment and description

[Clauses 5, 6, and 7](#) show the assignment of each BEP-code together with a description of its applicability and limitations.

4.5 Priority

The column “Priority” shows the priority of the measurements, as follows:

- A — Essential;
- B — Useful.

4.6 Loading condition

The column “Loading” shows the load situation of the chassis, as follows:

- 1 — Unladen;
- 2 — Laden (design mass).

NOTE A dash (-) means that the field is not applicable.

4.7 Presented in

The column “Presented in” describes in which type of document the items can be presented, as follows:

- 2D — 2D drawing;
- 3D — 3D model;
- TD — Technical data sheet.

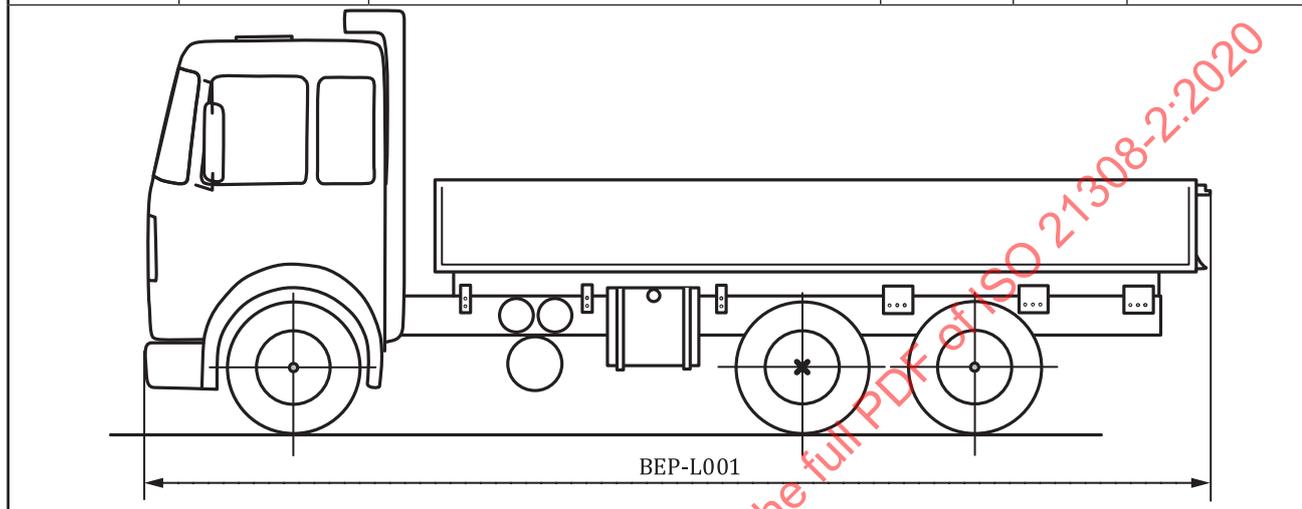
NOTE An empty field means that there is no specific recommendation for the presentation. It can be covered by any kind of document. A dash (-) means that the field is not applicable.

4.8 Related XML coding

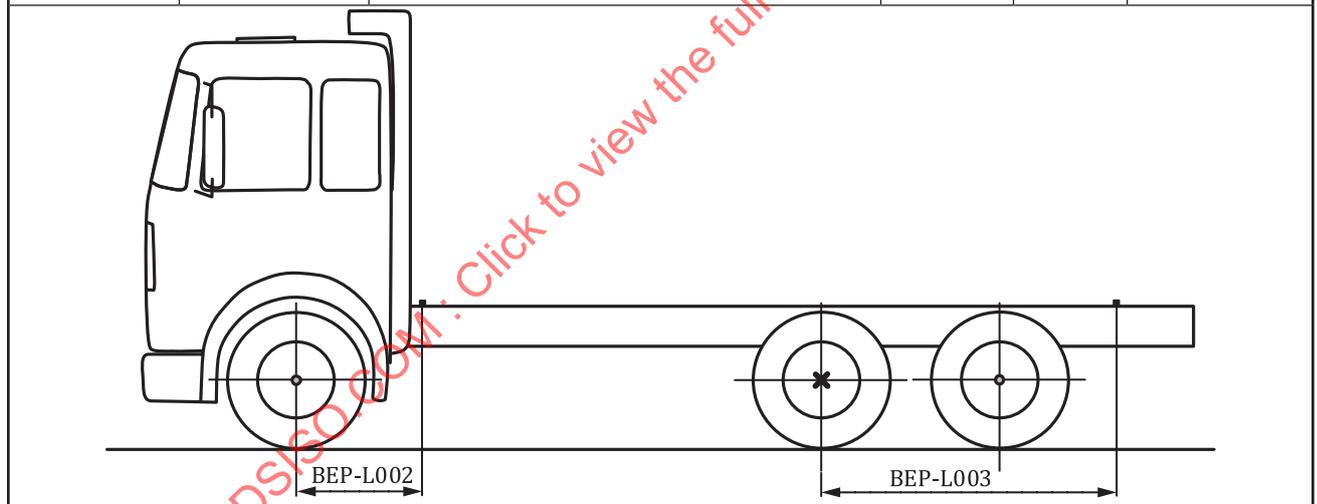
Any XML implementation for the communication of BEP codes shall follow the requirements given in ISO 21308-1. The XML coding related to this document shall be written according to the indications in [Annex B](#).

5 General dimensions

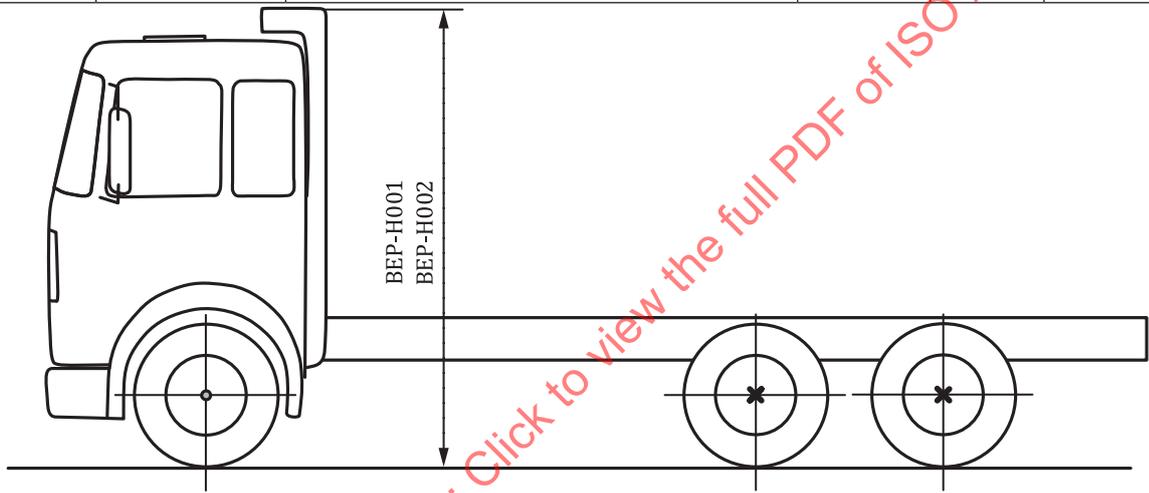
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L001	Overall length	Distance from front edge of vehicle to rear edge of vehicle, including accessories in both front and rear ends. NOTE See also ISO 612.	A	-	2D, 3D, TD



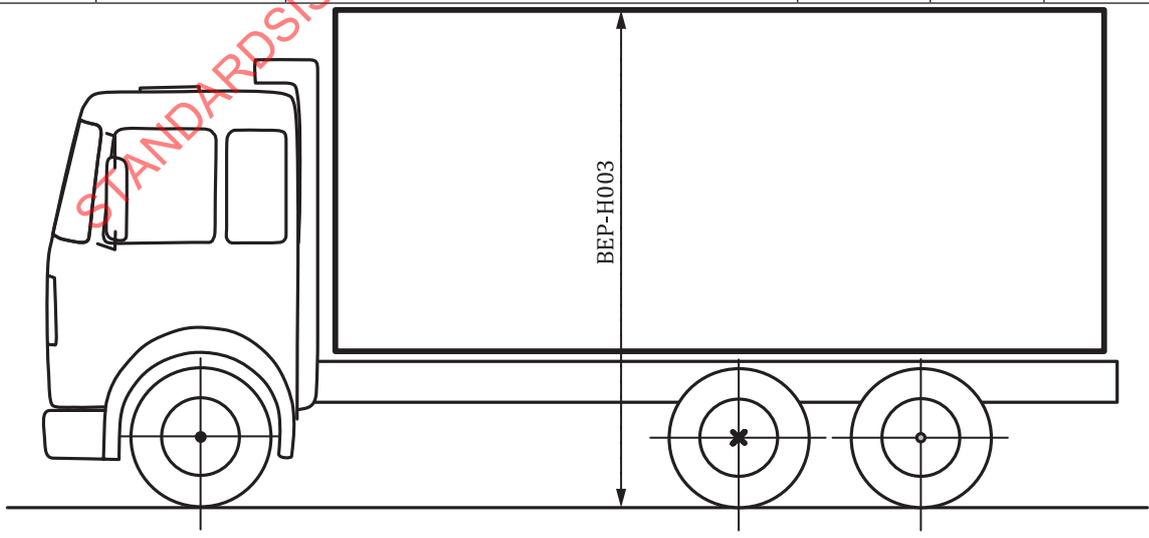
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L002	Front reference point for measuring	Distance from the centre of the first front axle to the front reference point for measuring. NOTE 1 .R or .L is added if the reference points for right and left side member differ. NOTE 2 If the position of the reference point is in front of the axle, the value is negative. NOTE 3 Front reference point(s) for measuring is (are) defined by the chassis manufacturer.	A	-	2D, 3D, TD
BEP-L003	Rear reference point for measuring	Distance from the first driven rear axle to the rear reference point for measuring. NOTE 1 .R or .L is added if the reference points for right and left side member differ. NOTE 2 If the position of the reference point is in front of the axle, the value is negative. NOTE 3 Rear reference point(s) for measuring is (are) defined by the chassis manufacturer.	A		2D, 3D, TD



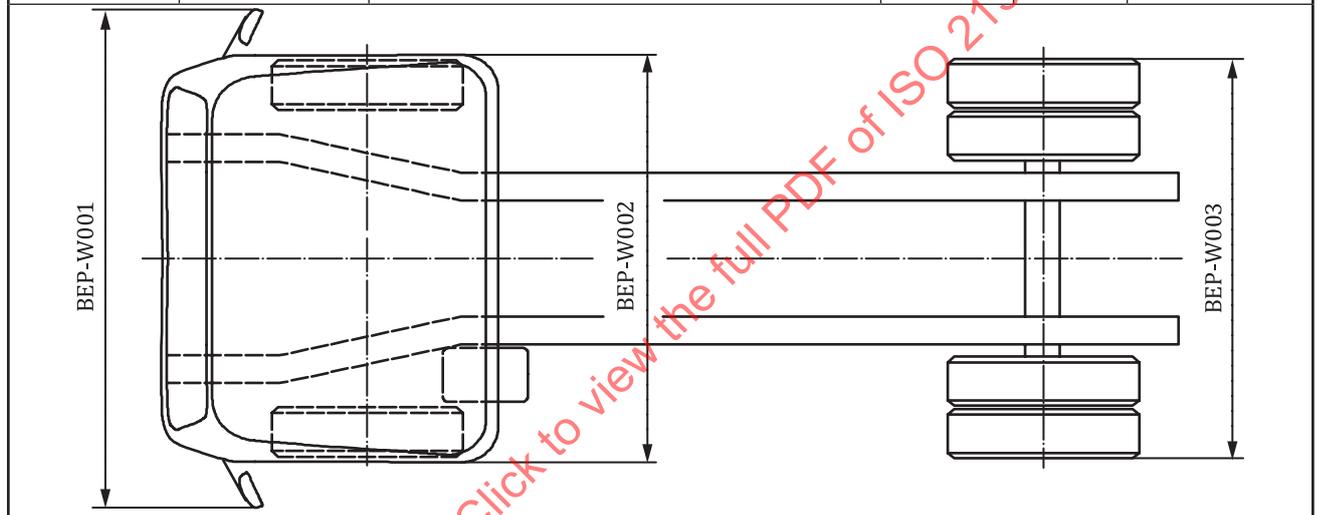
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H001	Maximum external height, unladen	Distance from ground to top of cab, including cab mounted parts, with the chassis unladen but in operating order. The roof hatch, if present, should be closed and all axles should be down. For pneumatic suspension, the highest driving position is assumed.	A	1	2D, 3D, TD
BEP-H002	Maximum external height, laden	Distance from ground to top of cab, including cab mounted parts, in laden condition. The roof hatch, if present, should be closed and all axles should be down. For pneumatic suspension, the highest driving position is assumed. The chassis is laden up to "Technical gross vehicle mass".	A	2	2D, 3D, TD



BEP-H003	Maximum overall height of vehicle, unladen	Distance from ground to the highest point of the vehicle including bodywork. For pneumatic suspension, the highest driving position is assumed.	A	1	2D, 3D, TD
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BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W001	Overall width of chassis with cab	Maximum external width of the vehicle chassis. NOTE Rear-view mirrors in outermost position, lights, elastic mud flaps, tyre bulges in the road area and snow chains are included in the width stated. The bodywork is not taken into account.	A	-	2D, 3D, TD
BEP-W002	Width across cab	External width of cab. NOTE Mudguards and rear-view mirrors are disregarded.	A	-	2D, 3D, TD
BEP-W003.n	Width across wheels on <i>n</i> -th axle	External width across the wheels on the <i>n</i> -th axle. NOTE Projecting axle hubs and tyre bulges are disregarded.	A	-	2D, 3D, TD

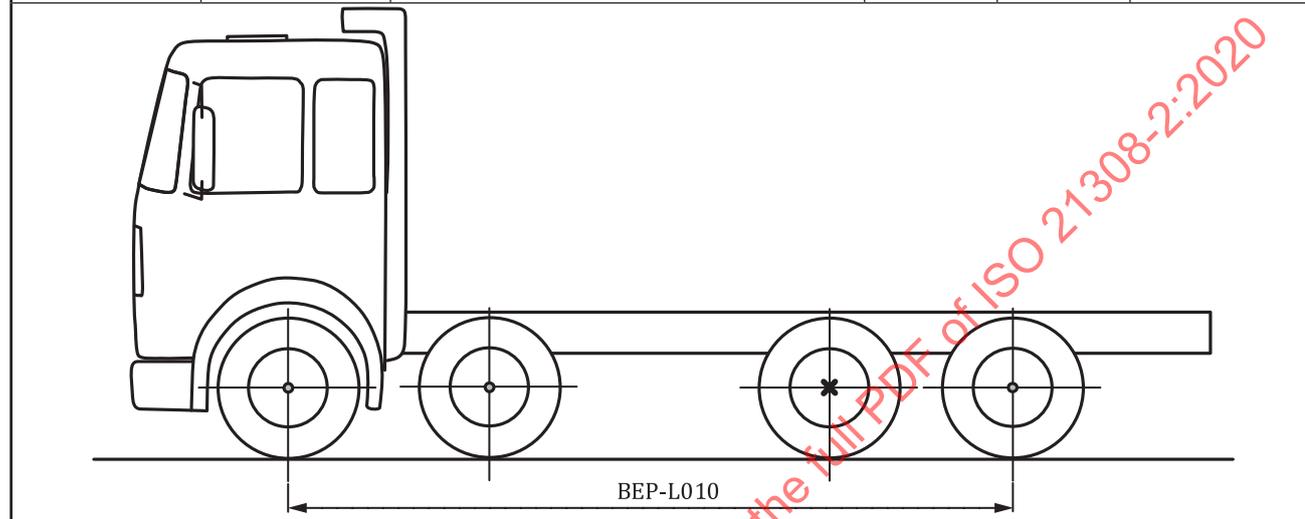


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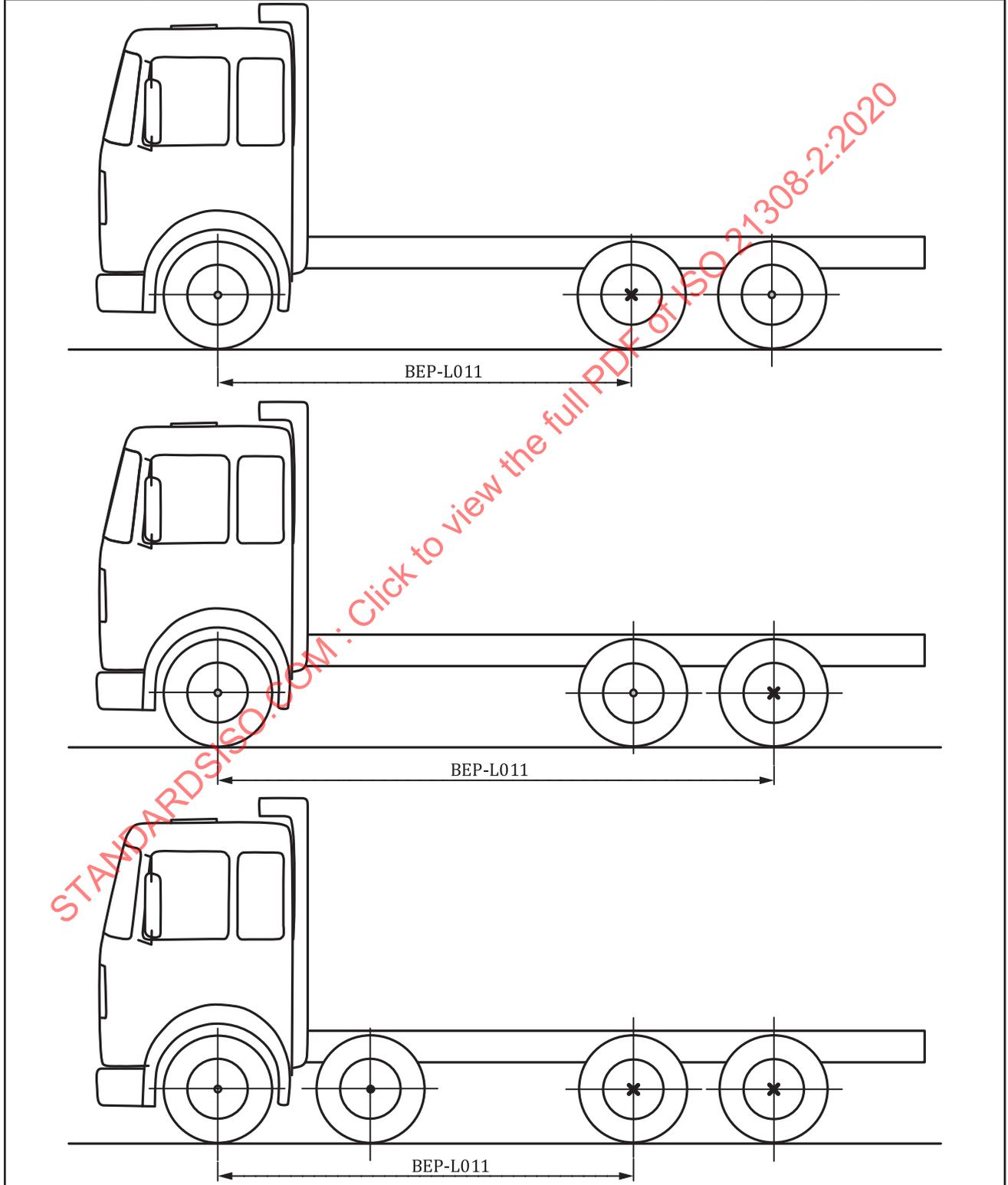
6 Chassis related dimensions

6.1 Axle and wheel related dimensions

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L010	Total wheel-base	Distance between centre of first front axle to the centre of the last axle.	A	-	2D, 3D, TD

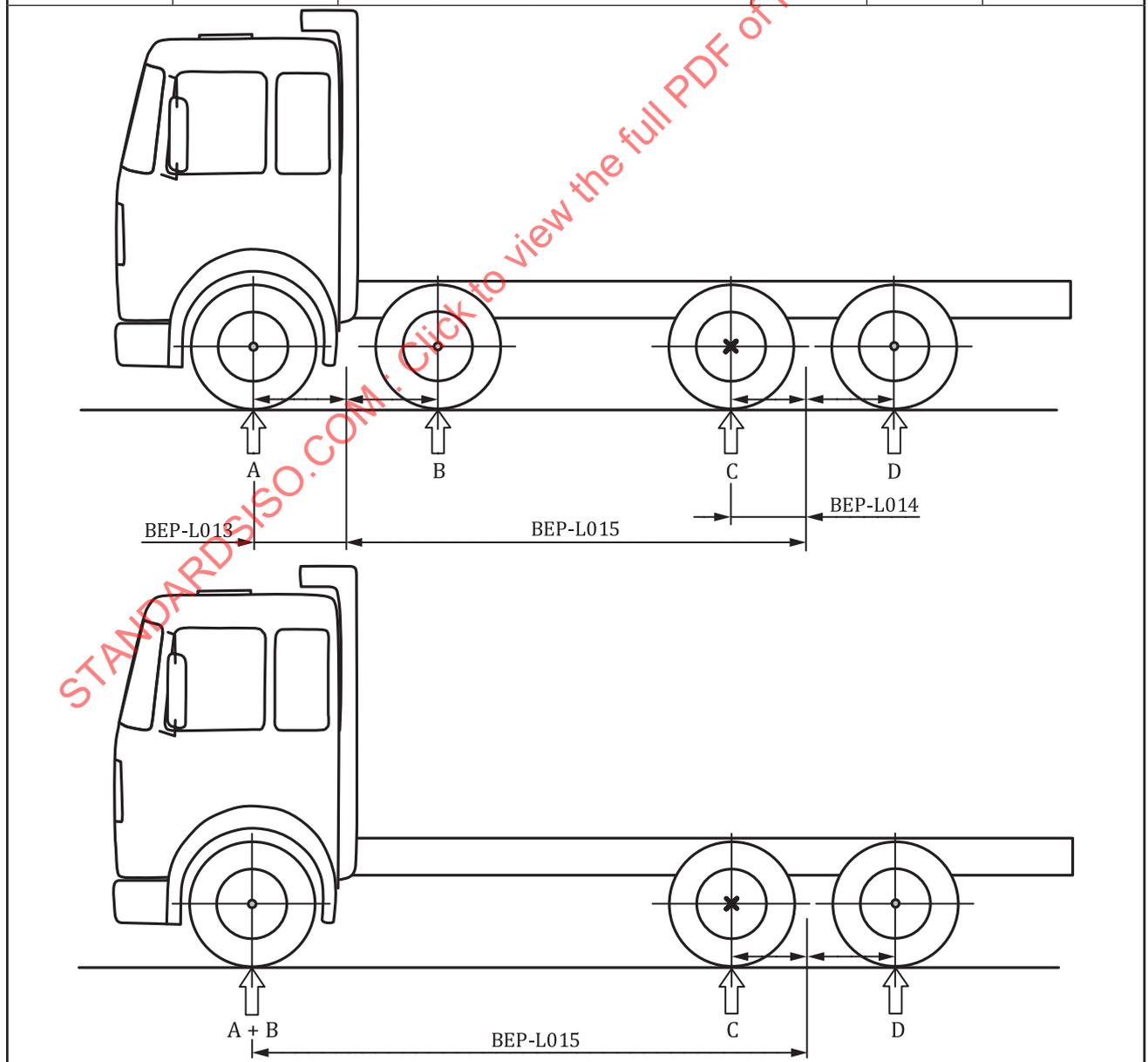


BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L011	Configuration wheelbase	Distance between centre of first front axle to the centre of first driven rear axle. NOTE .R or .L is added if the vehicle is not symmetrical and different values for right and left hand side apply.	A	-	2D, 3D, TD



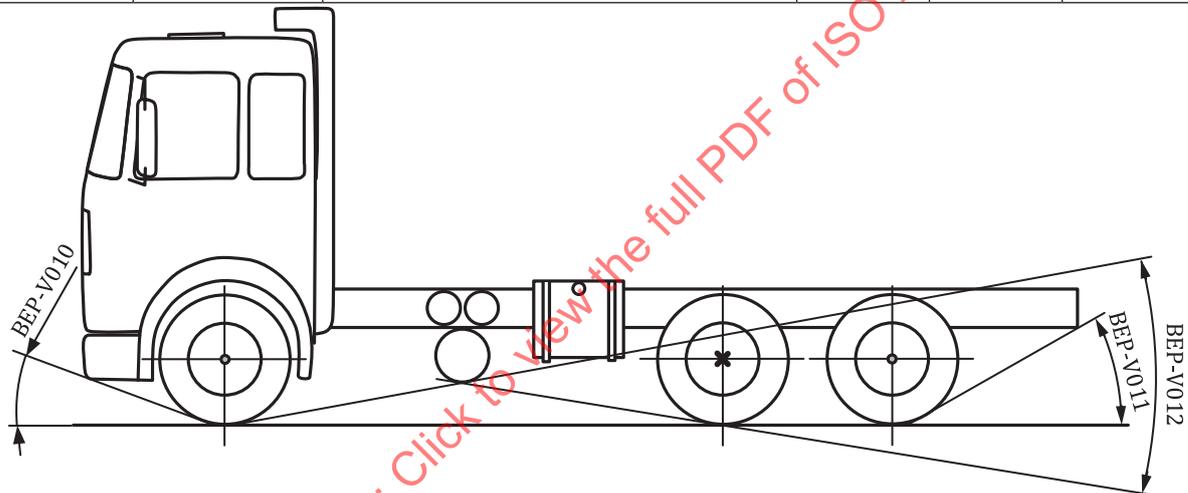
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L012.n	Wheel space from n to $n+1$ axle	Distance between centre of wheels on n -th and $(n+1)$ -th axles.	A	-	2D, 3D, TD
BEP-L013	Theoretical wheelbase of front axle combination	Distance between first front axle to calculated mass line of front axle combination.	A	2	2D, TD
BEP-L014	Theoretical wheelbase of rear axle combination	Distance between first driven rear axle to calculated mass line of rear axle combination.	A	2	2D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L015	Theoretical wheelbase	<p>Distance between the calculated mass lines of front and rear axle combinations.</p> <p>NOTE 1 For a single axle, either in the front or in the rear, the calculated mass line is identical to the axle centre line.</p> <p>NOTE 2 If there is an axle combination either in the front or rear, the calculated mass line is the calculated line between the axles where the load from the axles is focused.</p> <p>NOTE 3 For air suspension systems with electronic control, the calculated mass line is variable while driving.</p> <p>EXAMPLE A, B, C, D can have the following distribution, shown in the figures below: A = 50 %, B = 50 %, C = 60 %, D = 40 %</p>	A	2	2D, TD

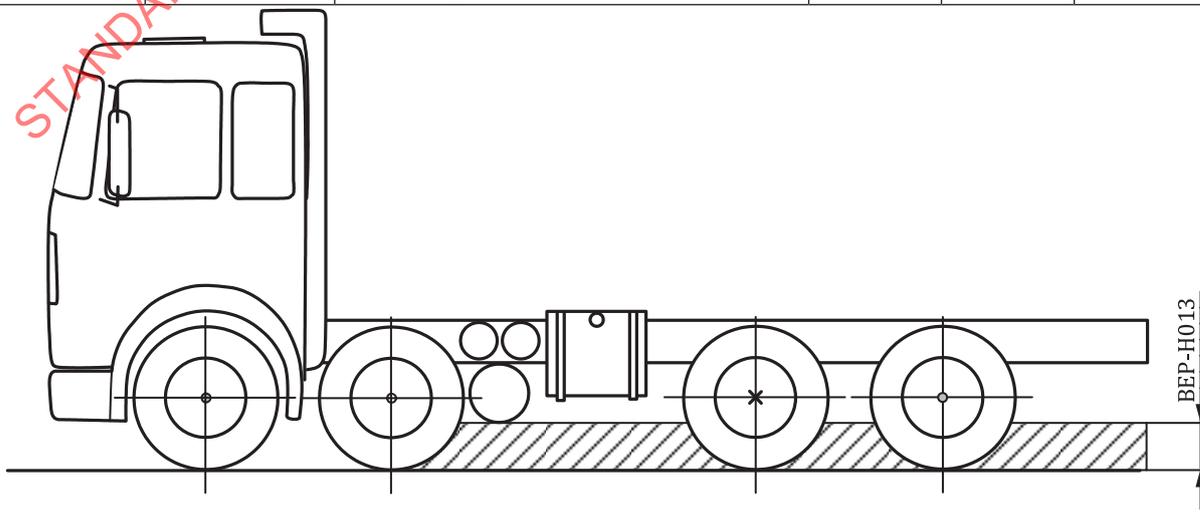


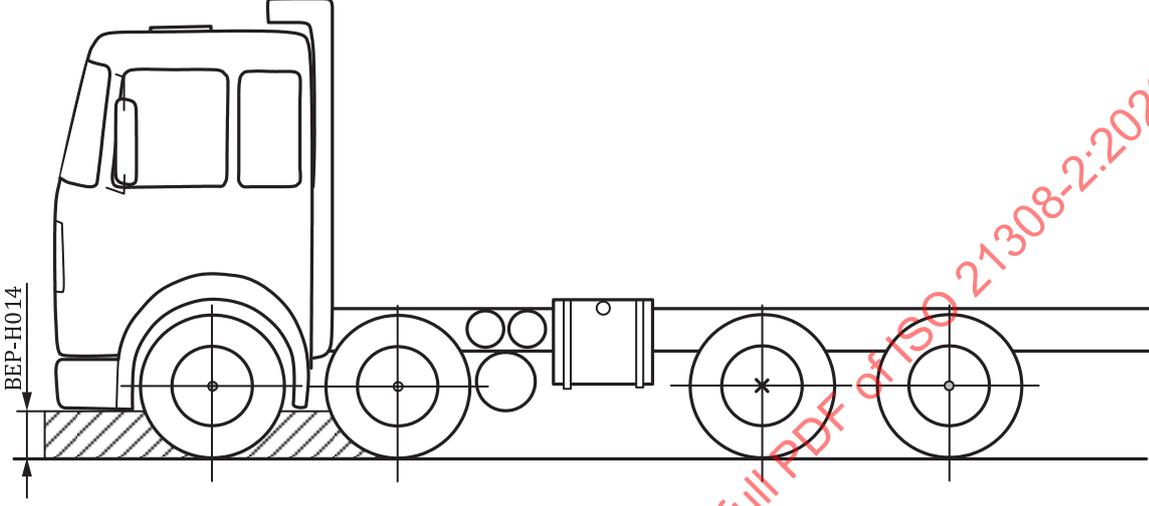
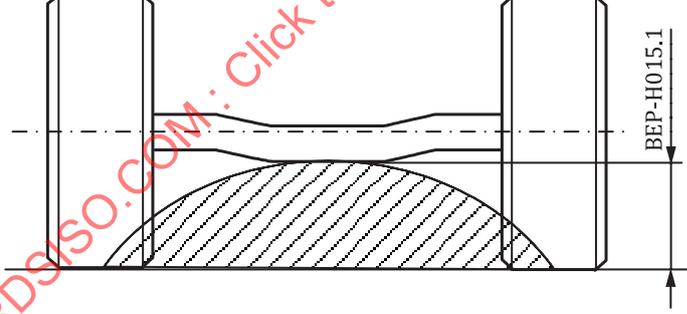
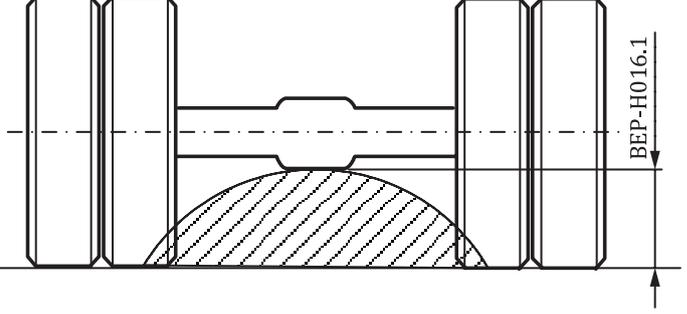
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L016	Front vehicle overhang	Distance between front edge of vehicle and centre of wheel on first axle.	A	-	2D, 3D, TD
BEP-L017	Rear vehicle overhang	Distance between centre of last axle and rearmost part of vehicle.	A	-	2D, 3D, TD
BEP-L018	Front frame overhang	Distance from foremost edge of front frame to centre of first front axle.	A	-	2D, 3D, TD
BEP-L019	Rear frame overhang	Distance between the centre of last axle to rearmost edge of frame side member.	A	-	2D, 3D, TD
BEP-L020	Rear frame overhang from first driven rear axle	Distance between the centre of first driven rear axle to rearmost edge of frame side member.	A	-	2D, 3D, TD
BEP-L021	Technical overhang length	Distance between calculated mass lines of rear axle combination and rearmost edge of vehicle or bodywork. EXAMPLE A and B can have the following distribution: A = 60 %, B = 40 %	B	2	2D, 3D, TD
BEP-V010	Approach angle	Angle between the tangent of the rolling radius of the tyres and the lowest fixed point of the vehicle in front of the axle, for technical front axle mass. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed. CAUTION — Code BEP-V010 replaces BEP-H010 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	B	2	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-V011	Departure angle	Angle between the tangent of the rolling radius of the tyres and the lowest fixed point of the vehicle behind the axle, for technical rear axle mass. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed. CAUTION — Code BEP-V011 replaces BEP-H011 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	B	2	2D, 3D, TD
BEP-V012	Ramp angle	See ISO 612 and ISO 7656. CAUTION — Code BEP-V012 replaces BEP-H012 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	B	2	2D, 3D, TD



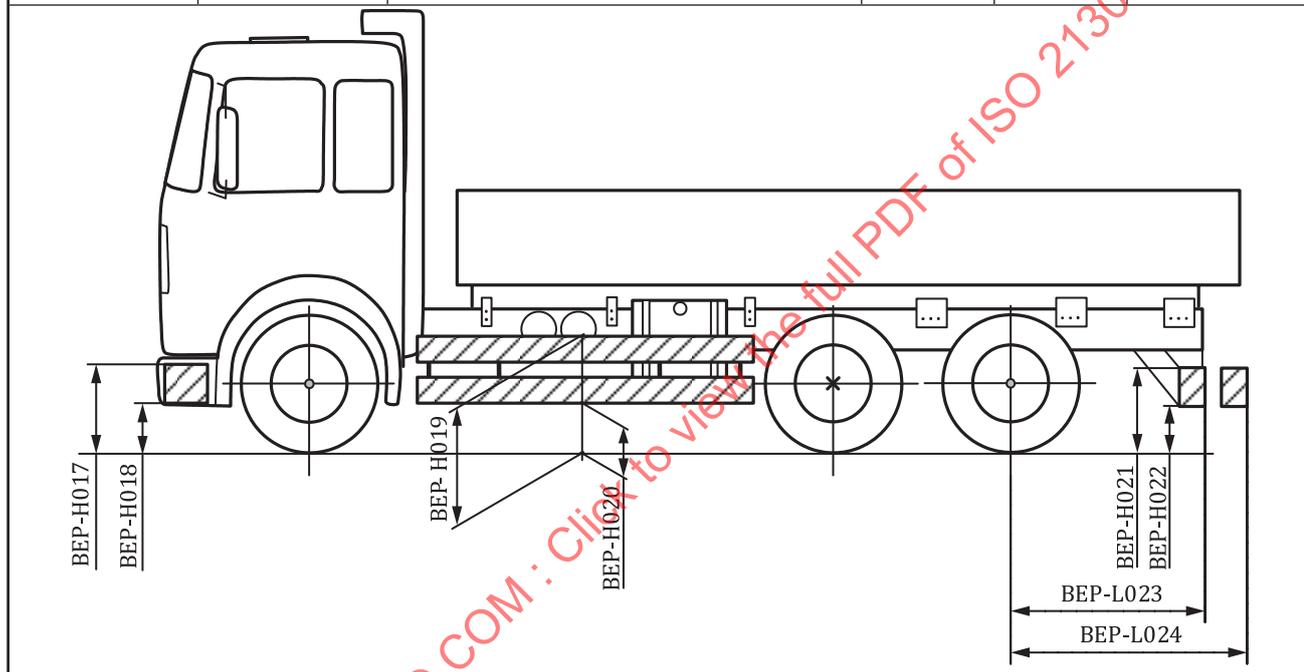
BEP-H013	Ground clearance, rear part	Distance between the ground and the lowest fixed point between the centre of the last front axle and the rearmost part of the chassis. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed.	A	2	2D, 3D, TD
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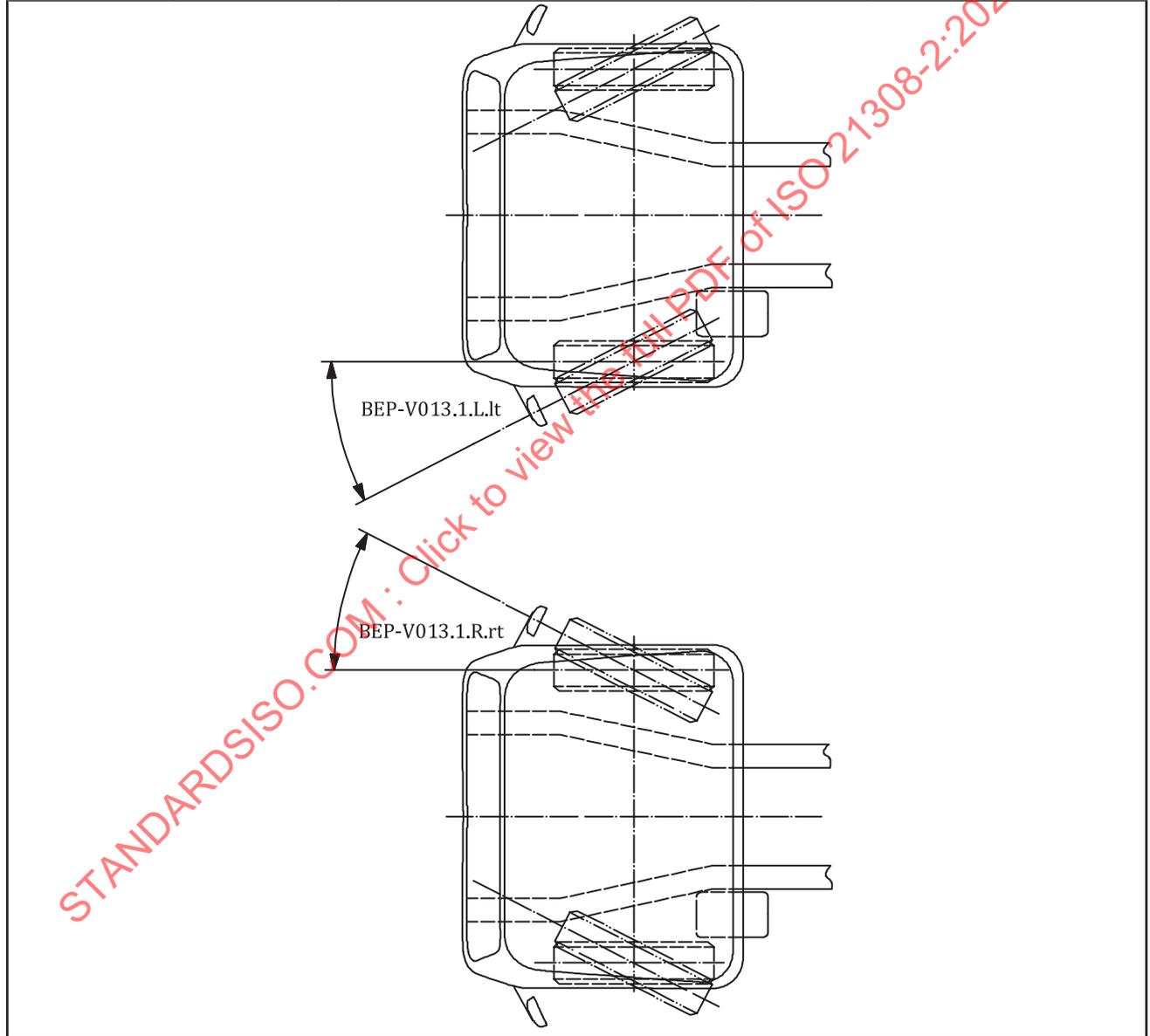
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H014	Ground clearance, front part	Distance between the ground and the lowest fixed point between the front part of the chassis and the centre of the last front axle. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed.	A	2	2D, 3D, TD
					
BEP-H015.n	Ground clearance, front axle(s)	Smallest vertical dimension between vehicle front axle(s) and ground level. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed.	A	2	2D, 3D, TD
					
BEP-H016.n	Ground clearance, rear axle(s)	Smallest vertical dimension between vehicle rear axle(s) and ground level. NOTE Chassis loaded to permitted axle masses. For pneumatic suspension, the drive position is assumed.	A	2	2D, 3D, TD
					

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L022.n	Tyre diameter on <i>n</i> -th axle	Tyre, free diameter, on <i>n</i> -th axle.	A	1	2D, 3D, TD
BEP-W016.n	Distance between tyre inner edges on <i>n</i> -th axle	Distance between tyre inner edges on <i>n</i> -th axle NOTE Projecting axle hubs and tyre bulges are disregarded.	A	-	2D, 3D, TD
BEP-H017	Front underrun protection, upper	Distance between the ground and the uppermost part of the front underrun protection.	A	1	2D, 3D, TD
BEP-H018	Front underrun protection, lower	Distance between the ground and the lowest part of the front underrun protection.	A	1	2D, 3D, TD
BEP-H019.n	Side underrun protection(s), upper	Distance between the ground and the uppermost part of the side underrun protection. NOTE The distance is measured at the centreline of the side underrun protection.	A	1	2D, 3D, TD
BEP-H020.n	Side underrun protection(s), lower	Distance between the ground and the lowest part of the side underrun protection. NOTE The distance is measured at the centreline of the side underrun protection.	A	1	2D, 3D, TD
BEP-H021	Rear underrun protection, upper	Distance between the ground and the uppermost part of the rear underrun protection.	A	1	2D, 3D, TD
BEP-H022	Rear underrun protection, lower	Distance between the ground and the lowest part of the rear underrun protection.	A	1	2D, 3D, TD

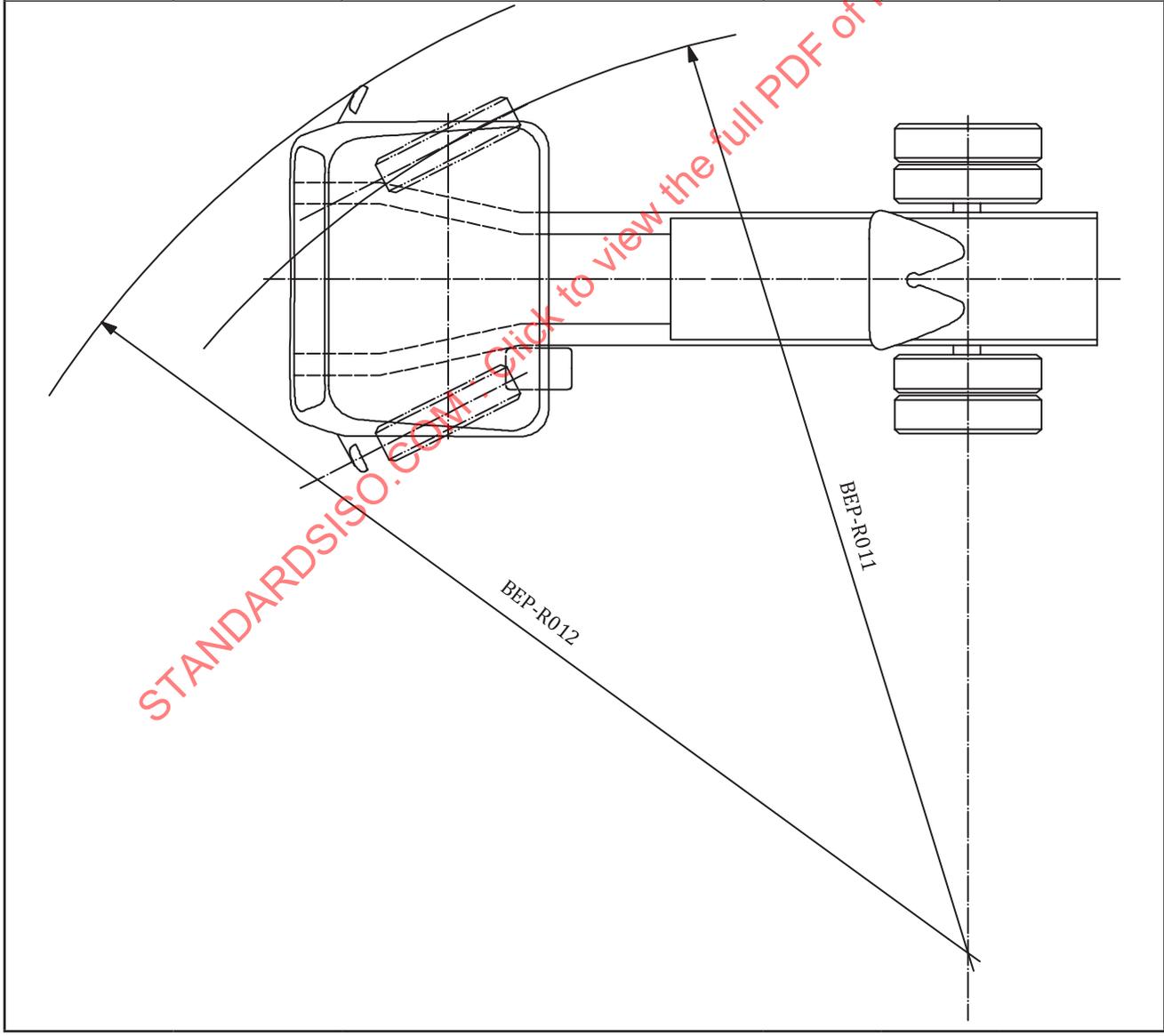
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L023	Rear underrun protection, longitudinal position	Distance between the last axle and the rear face of the rear underrun protection, minimum and fixed position.	A	1	2D, 3D, TD
BEP-L024	Rear underrun protection, longitudinal position	Distance between the last axle and the rear face of the rear underrun protection, maximum position of adjustable underrun protection. NOTE 1 The code applies to adjustable underrun protection only. NOTE 2 Relationship to rear end of bodywork can be expressed as a combination of L017 and L024.	A	1	2D, 3D, TD



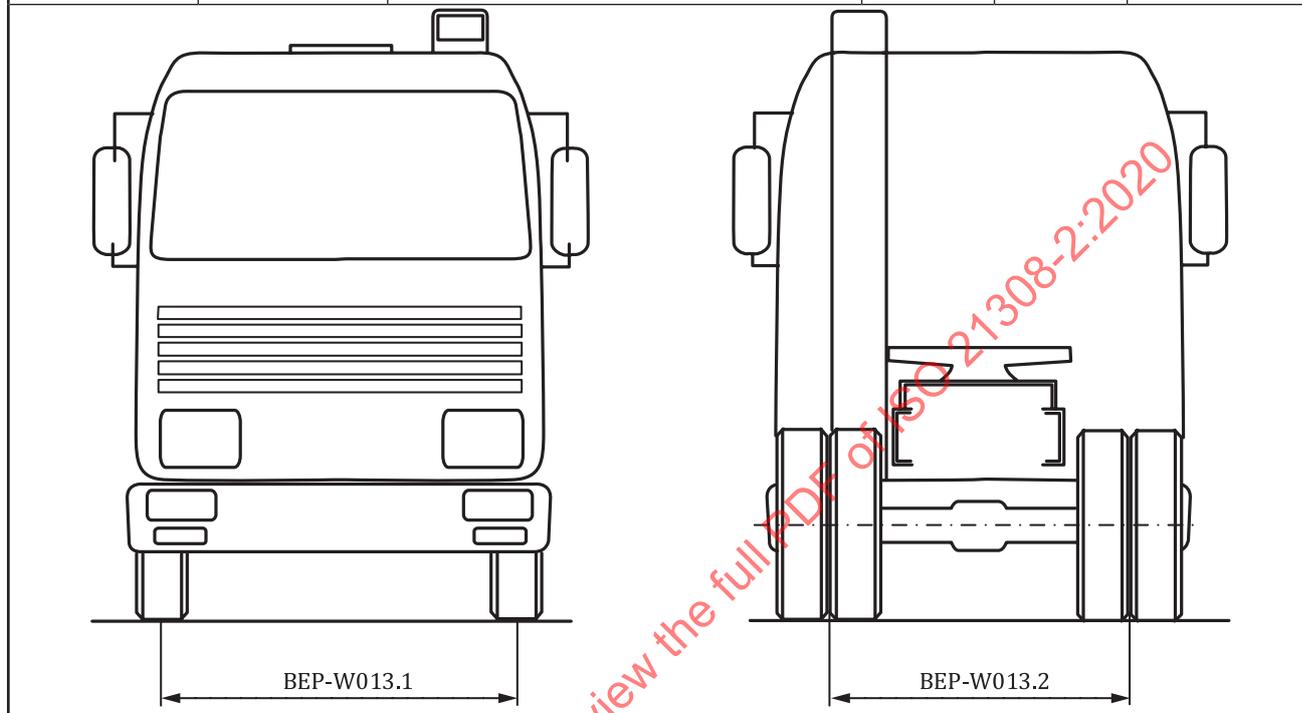
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-V013.n.s	Steering angle	<p>Maximum steering angle of wheels.</p> <p>NOTE .n for <i>n</i>-th steerable axle, L/R for left or right side, lt/rt for left or right turn.</p> <p>EXAMPLE BEP-V013.1.R.rt means first steerable axle, right side, right turn.</p> <p>CAUTION — Code BEP-V013 replaces BEP-W010 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.</p>	B	1	2D, 3D, TD



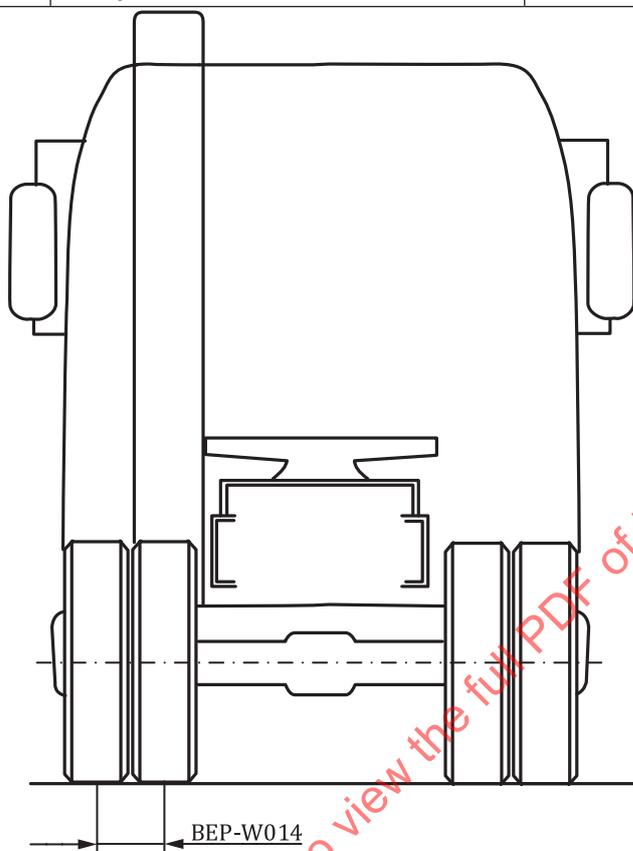
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-R011	Turning circle radius	The radius of the circle described by the centre of the tyre of the outer steered wheel at the first front axle at maximum steering angle. NOTE .R or .L is added if there is a difference between left hand and right hand turning circle. EXAMPLE BEP-R011.L.	A	2	TD
BEP-R012	Clearance circle radius	The radius of the circle described by the outer edge of the vehicle at maximum steering angle. NOTE 1 The outer edge includes external equipment, e.g. mirrors. NOTE 2 .R or .L is added if there is a difference between left hand and right hand turning circle. EXAMPLE BEP-R012.L.	A	2	TD



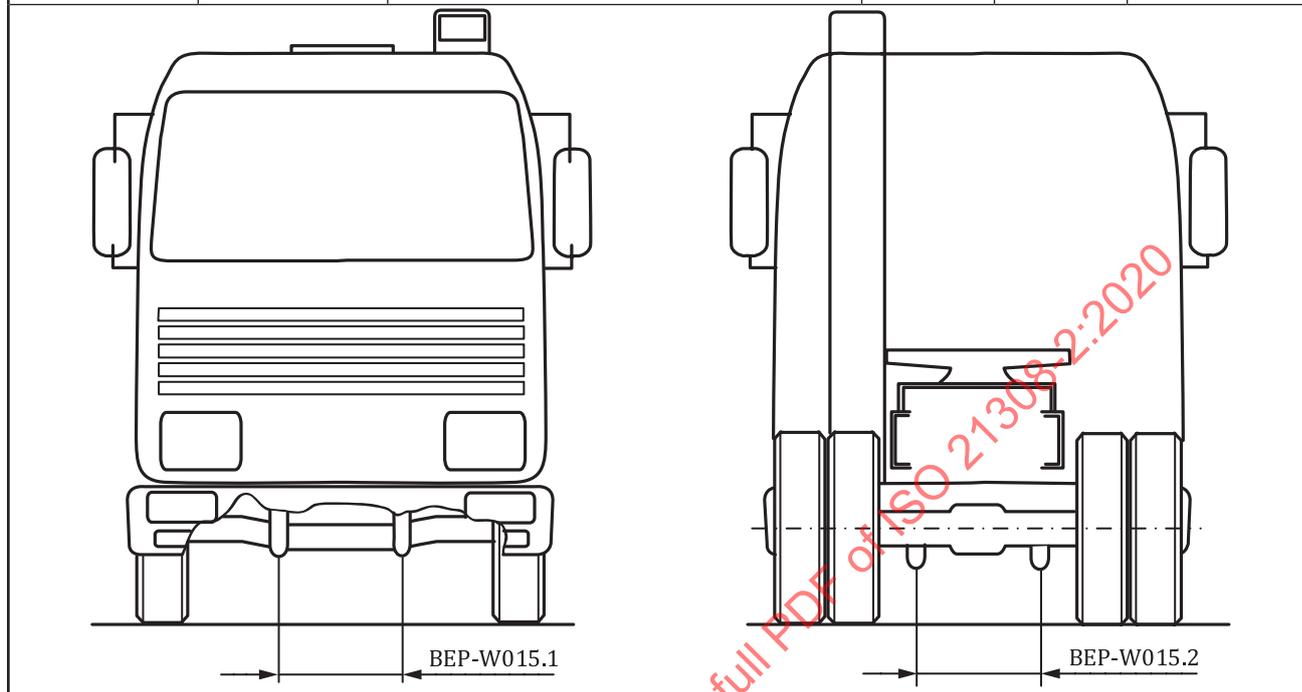
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W013.n	Track	Distance between centres of the tyres of the n -th axle. NOTE In case of twin tyres, the centre between the two centres of the tyres on the same side is used.	A	1	2D, 3D, TD



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W014.n	Twin tyre distance	Distance between the centres of the two tyres of the <i>n</i> -th axle on one side.	B	1	2D, 3D, TD



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W015.n	Spring track distance	Distance between the centreline of springs at the <i>n</i> -th axle.	B	1	2D, 3D, TD



6.2 Chassis frame related dimensions

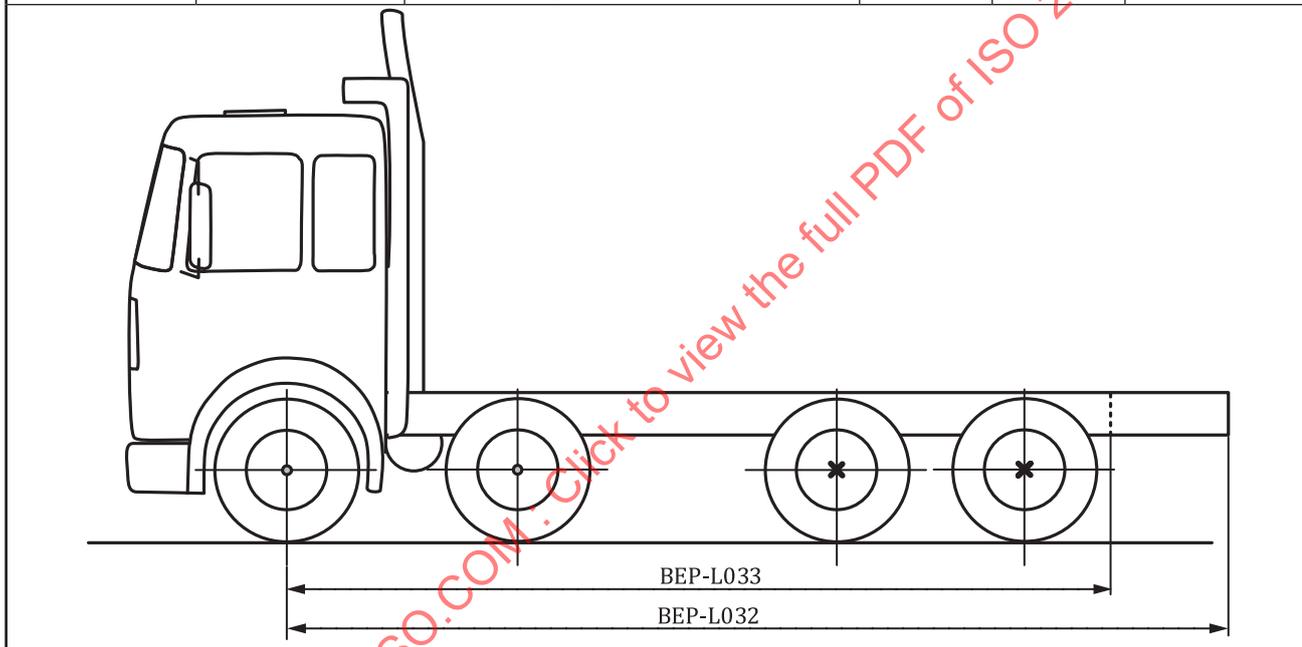
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L030.p.t	Start of chassis-mounted object, length	<p>Distance between the centre of the first front axle and the foremost part of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (t), see 4.3.2.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD
BEP-L031.p.t	End of chassis-mounted object, length	<p>Distance between the centre of the first front axle and the rearmost end of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (t), see 4.3.2.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H030.p.t	Start of chassis-mounted object, height	<p>Distance from the top of chassis frame to the highest part of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (.t), see 4.3.2.</p> <p>NOTE 4 Positive values indicate above top of chassis, and negative values indicate below top of chassis.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD
BEP-H031.p.t	End of chassis-mounted object, height	<p>Distance from the top of chassis frame to the lowest part of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (.t), see 4.3.2.</p> <p>NOTE 4 Positive values indicate above top of chassis, and negative values indicate below top of chassis.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD

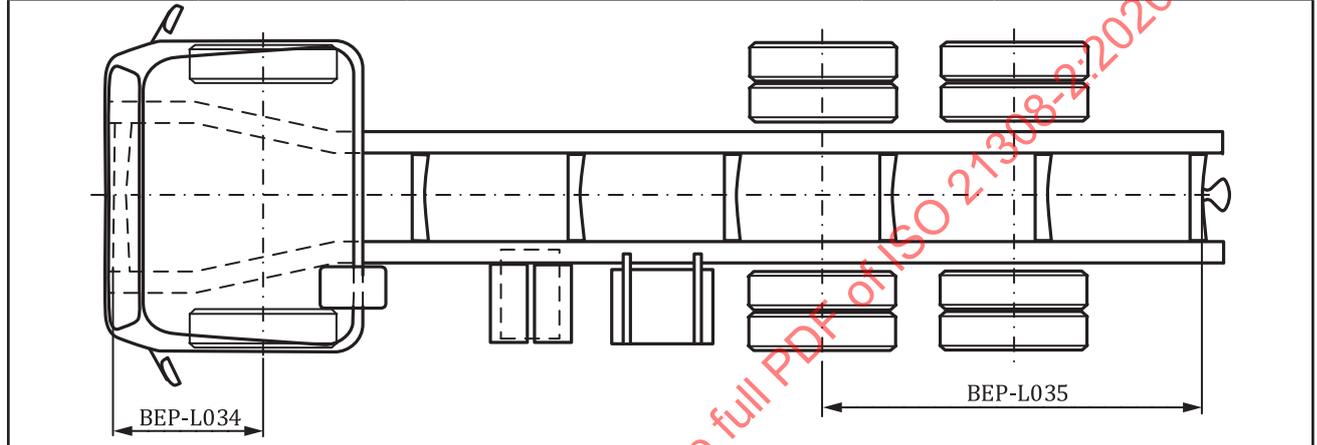
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W030.p.t	Start of chassis-mounted object, width	<p>Distance from the centreline of chassis frame to the nearest part of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (.t), see 4.3.2.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD
BEP-W031.p.t	End of chassis-mounted object, width	<p>Distance from the centreline of chassis frame to the furthest part of object p mounted on the chassis.</p> <p>NOTE 1 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.</p> <p>NOTE 2 It is applicable to objects both inside and outside the chassis frame.</p> <p>NOTE 3 Optional object type coding (.t), see 4.3.2.</p> <p>EXAMPLE Air tank, fuel tank, battery box, electrical and electronic interface, pneumatic interface, exhaust parts, side underrun protection, etc.</p>	A	-	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L032	Length of frame from centre of first front axle	Distance between the centre of the first front axle and the rear end of the chassis.	B	-	TD
BEP-L033	Minimum length of frame from centre of first front axle	<p>Minimum distance between the centre of the first front axle and the rear end of the chassis.</p> <p>NOTE It is shortest possible chassis frame overhang on the rear end recommended by the chassis manufacturer. This is to enable bodywork designers to establish the chassis cut off-point whilst allowing sufficient space for cleating at the rear of the chassis frame.</p> <p>EXAMPLE Cutting the overhang behind the spring hanger bracket.</p>	B	-	TD



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L034	Front edge of front cross-member	Distance from front edge of front cross-member to centre of first front axle.	A	-	2D, 3D, TD
BEP-L035	Towing member reference position	Distance from centre of the first driven rear axle to rear cross-member mounting surface for trailer couplings. NOTE In case of several rear cross-members, they can be marked BEP-L035.1, BEP-L035.2.	A	-	2D, 3D, TD



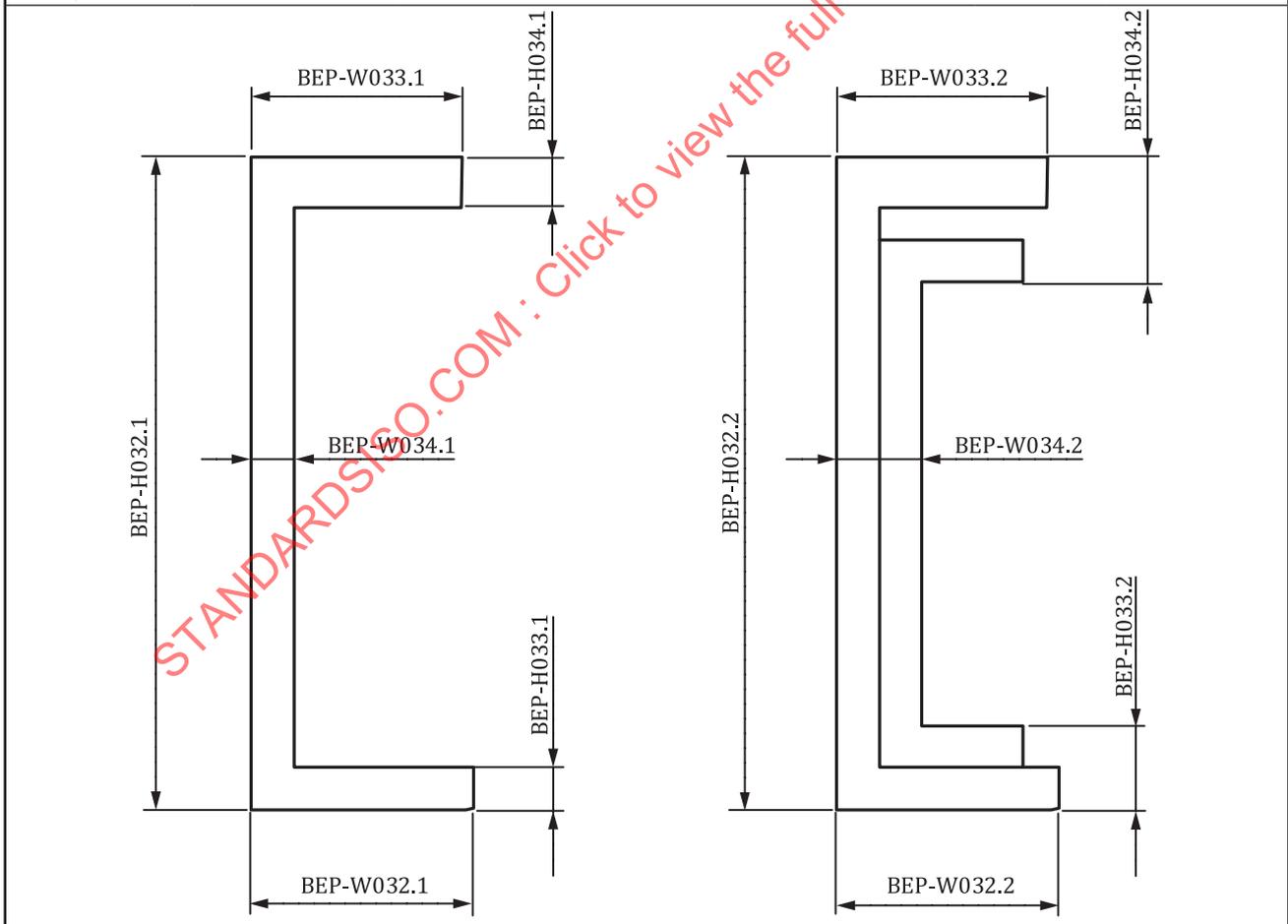
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BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H032.p	Frame section profile height	Profile height of frame section p.	A	-	2D, 3D, TD
BEP-H033.p	Frame section profile bottom thickness	Thickness of frame section profile p bottom.	A	-	2D, 3D, TD
BEP-H034.p	Frame section profile top thickness	Thickness of frame section profile p top.	A	-	2D, 3D, TD
BEP-W032.p	Frame section profile bottom width	Width of frame section profile p bottom.	A	-	2D, 3D, TD
BEP-W033.p	Frame section profile top width	Width of frame section profile p top.	A	-	2D, 3D, TD
BEP-W034.p	Frame section profile waist thickness	Thickness of frame section profile p waist.	A	-	2D, 3D, TD

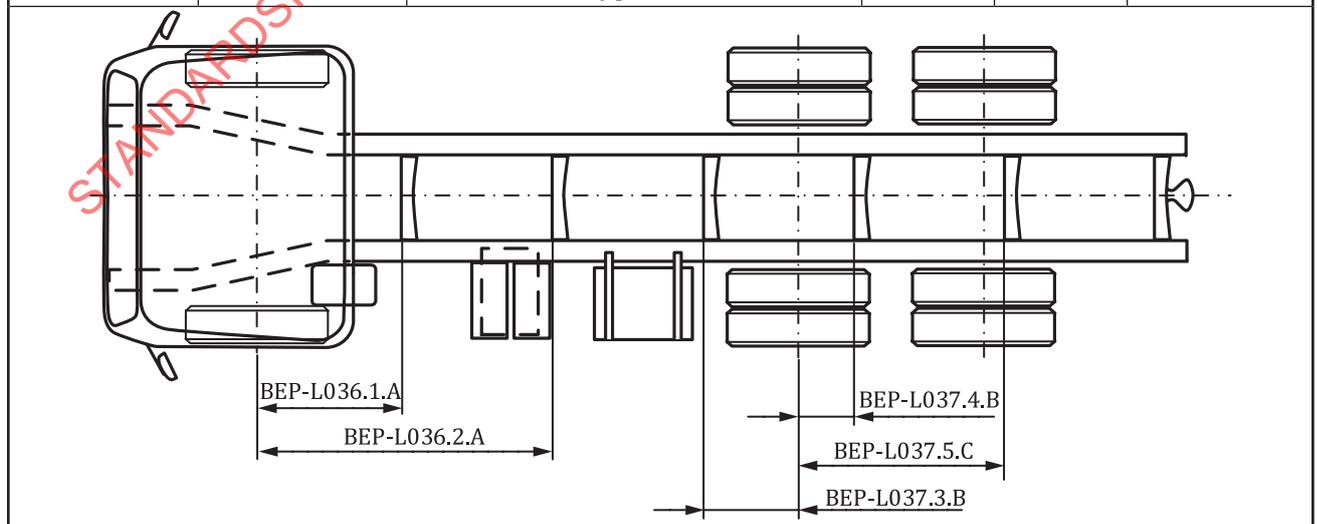
NOTE 1 Codes BEP-H032.p to BEP-H034.p and BEP-W032.p to BEP-W034.p show some common profiles. Further profile alternatives can be defined by the chassis and bodywork manufacturers.

NOTE 2 For positioning of frame section profile, see BEP-L048 and related codes.

NOTE 3 In case the coding above is not detailed enough, the reinforcement codes (BEP-H052 and related codes) can be used.



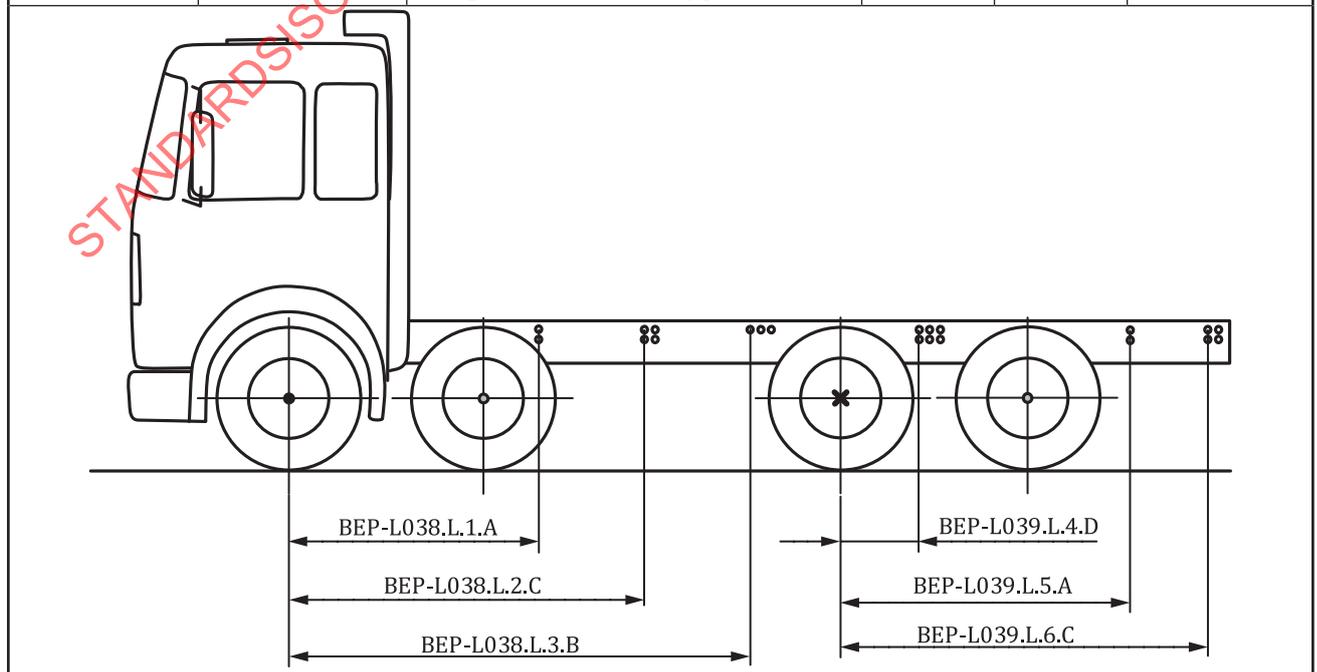
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L036.n.t	Distance to the front edge of the <i>n</i> -th front intermediate cross-member	<p>Distance from the centre of the first front axle to the front edge of the <i>n</i>-th intermediate cross-member on the centre-line of the chassis.</p> <p>NOTE 1 Each cross-member is identified by a number (<i>n</i>).</p> <p>NOTE 2 When the value is negative, the position of the cross-member is in front of the axle. If it is positive, the position is behind the axle.</p> <p>NOTE 3 The cross-members are defined in different types (<i>t</i>), specified with e.g. A, B, C, etc. Each definition of type includes the description of the exact position and profile of each cross-member.</p> <p>EXAMPLE BEP-L036.2.A means second cross-member, type A.</p>	A	-	2D, 3D, TD
BEP-L037.n.t	Distance to the front edge of the <i>n</i> -th rear intermediate cross-member	<p>Distance from the centre of the first driven rear axle to the front edge of the <i>n</i>-th intermediate cross-member on the centre-line of the chassis.</p> <p>NOTE 1 Each cross-member is identified by a number (<i>n</i>).</p> <p>NOTE 2 When the value is negative, the position of the cross-member is in front of the axle. If it is positive, the position is behind the axle.</p> <p>NOTE 3 The cross-members are defined in different types (<i>t</i>), specified with e.g. A, B, C, etc. Each definition of type includes the description of the exact position and profile of each cross-member.</p> <p>EXAMPLE BEP-L037.5.C means fifth cross-member, type C.</p>	A	-	2D, 3D, TD



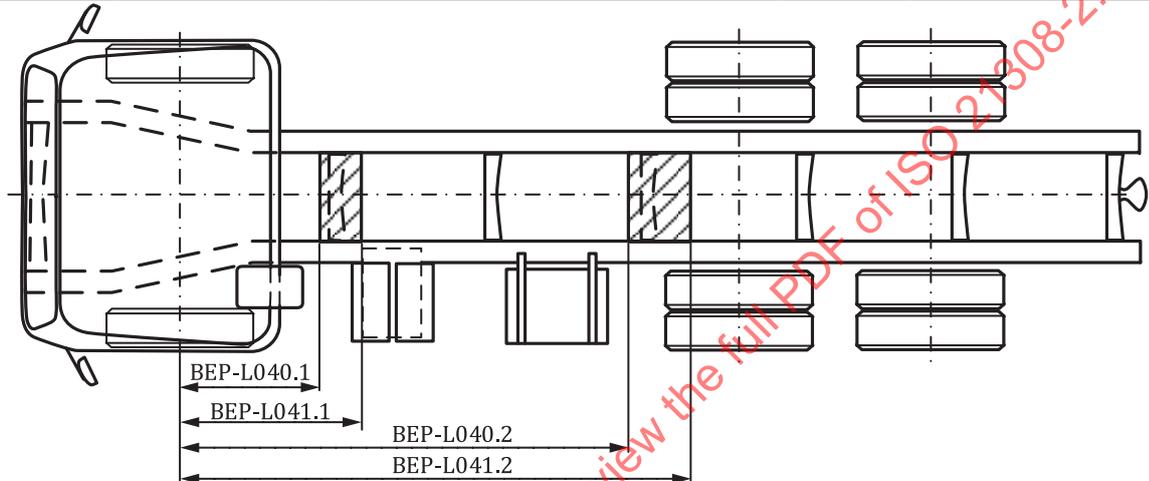
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L038.n.t	Distance to the hole pattern in the front part of frame	<p>Distance from the centre of the first front axle to the index point for positioning, of the n-th hole pattern in frame.</p> <p>NOTE 1 .R or .L is added if the frame side members are not symmetrical and different values for right and left hand side apply.</p> <p>NOTE 2 A negative value indicates that the hole-pattern is in front of the axle. A positive value indicates that it is behind the axle.</p> <p>NOTE 3 A unique number (n) identifies each hole pattern.</p> <p>NOTE 4 The hole patterns are defined in different types (t), specified e.g. with A, B, C, etc. Each definition of type includes the description of:</p> <ul style="list-style-type: none"> — index point for positioning; — hole dimension; — hole shape (cylindrical, oblong, etc.); — hole type (drilled, punched, etc.); — relative positions including transformation information; — x, y, z-position relative to the given value and their tolerance. <p>EXAMPLE BEP-038.L.2.A means left side-member, hole pattern 2, type A.</p>	A	-	2D, 3D, TD

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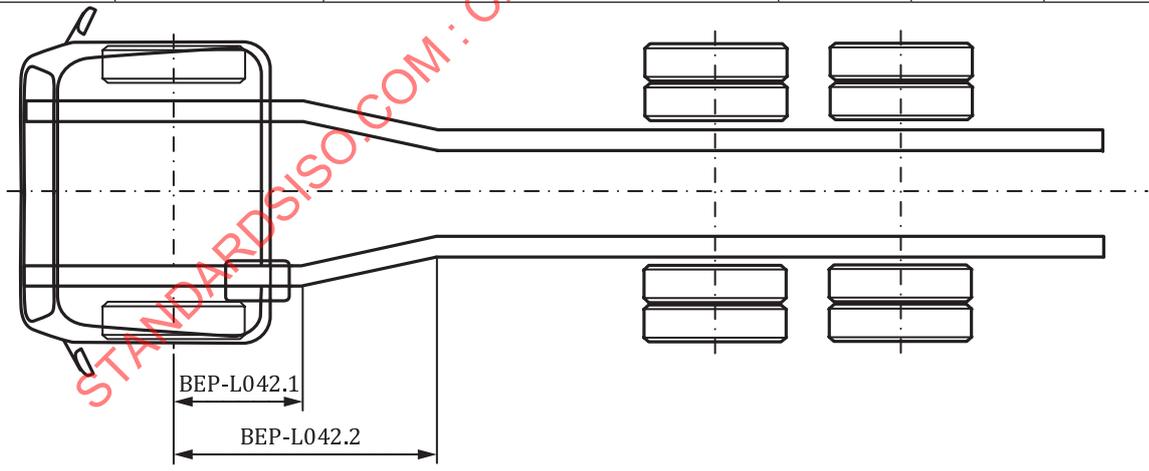
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L039.n.t	Distance to the hole pattern in the rear part of frame	<p>Distance from the centre of the first driven rear axle to the index point for positioning, of the n-th hole pattern in frame.</p> <p>NOTE 1 .R or .L is added if the frame side members are not symmetrical and different values for right and left hand side apply.</p> <p>NOTE 2 A negative value indicates that the hole-pattern is in front of the axle. A positive value indicates that it is behind the axle.</p> <p>NOTE 3 A unique number (n) identifies each hole pattern.</p> <p>NOTE 4 The hole patterns are defined in different types (t), specified e.g. with A, B, C, etc. Each definition of type includes the description of:</p> <ul style="list-style-type: none"> — index point for positioning; — hole dimension; — hole shape (cylindrical, oblong, etc.); — hole type (drilled, punched, etc.); — relative positions including transformation information; — x, y, z-position relative to the given value and their tolerance. <p>EXAMPLE BEP-L039.L.4.C means left side-member, hole pattern 4 on the rear part of the frame, type C.</p>	A	-	2D, 3D, TD



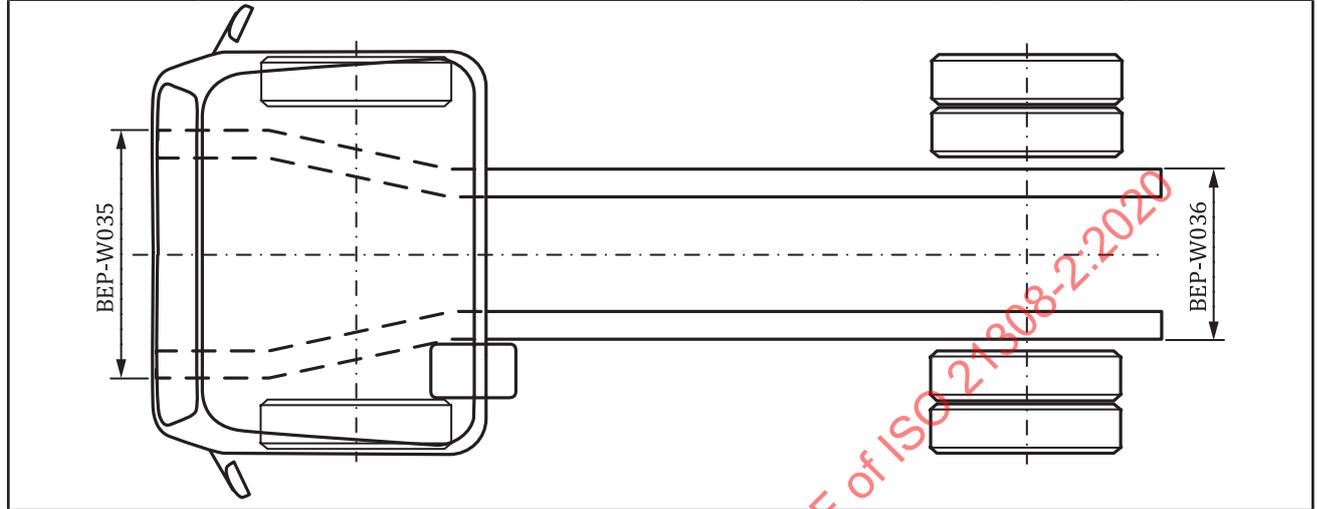
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L040.n	Start of restricted area within frame	Distance between the centre of the first front axle and the beginning of the <i>n</i> -th restricted area within the chassis frame. NOTE This is to avoid conflict with sensitive equipment.	A	-	TD
BEP-L041.n	End of restricted area within frame	Distance between the centre of the first front axle and the end of the <i>n</i> -th restricted area within the chassis frame. NOTE This is to avoid conflict with sensitive equipment.	A	-	TD



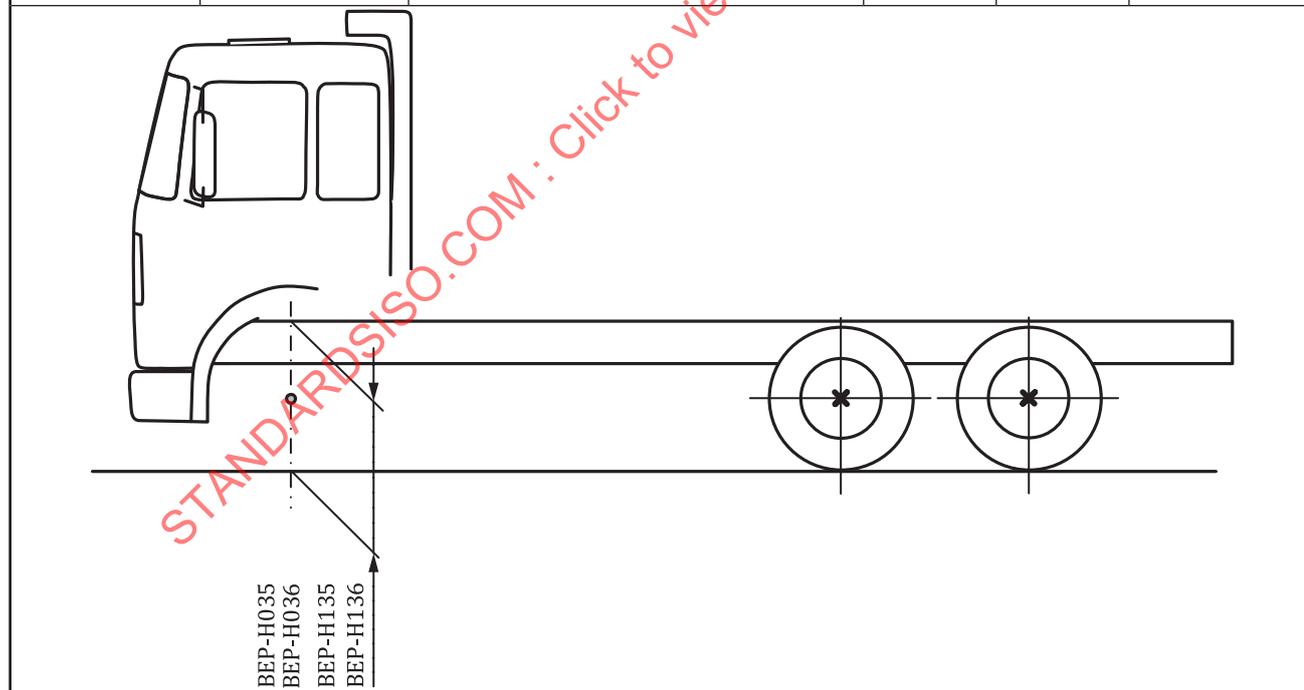
BEP-L042.n	First front axle centre to <i>n</i> -th bend in frame (if behind the cab).	Distance between centre of wheel on first front axle and <i>n</i> -th bend in frame (if behind the cab).	A	-	2D, 3D, TD
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BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W035	Width of frame at front area	External width of frame in front area of the vehicle.	A	-	2D, 3D, TD
BEP-W036	Width of frame at rear area	External width of frame in rear area of the vehicle.	A	-	2D, 3D, TD

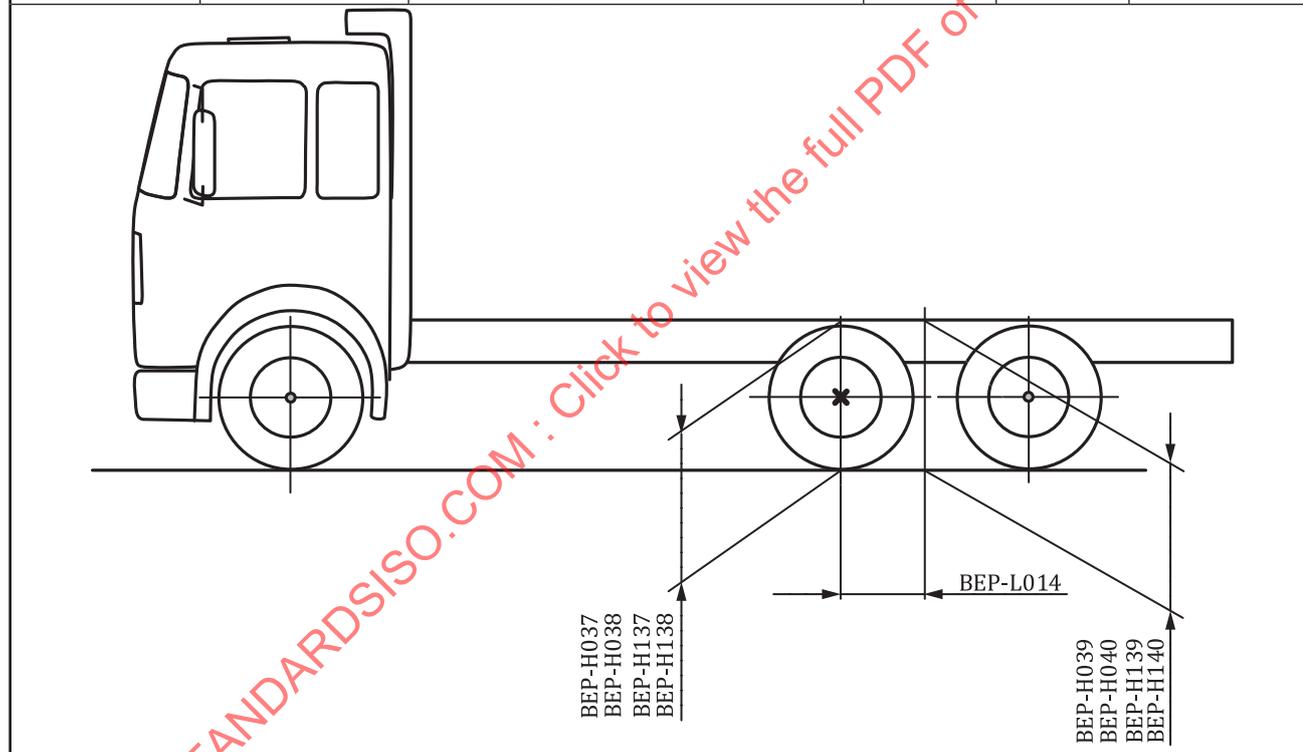


BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H035	Height of frame, unladen, front	Distance from top edge of frame to ground measured at the first front axle, unladen condition. NOTE Any sub-frame fitted is disregarded. Loading corresponds to unladen mass. For pneumatic suspension, the highest driving position is assumed.	A	1	2D, 3D, TD
BEP-H036	Height of frame, laden, front	Distance from top edge of frame to ground measured at the first front axle, laden condition. NOTE Any sub-frame fitted is disregarded. The chassis is loaded up to "technical gross vehicle mass". For pneumatic suspension, the highest driving position is assumed.	A	2	2D, 3D, TD
BEP-H135	Height of frame, lowest possible, front	Distance from top edge of frame to ground measured at the first front axle, lowest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD
BEP-H136	Height of frame, highest possible, front	Distance from top edge of frame to ground measured at the first front axle, highest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD



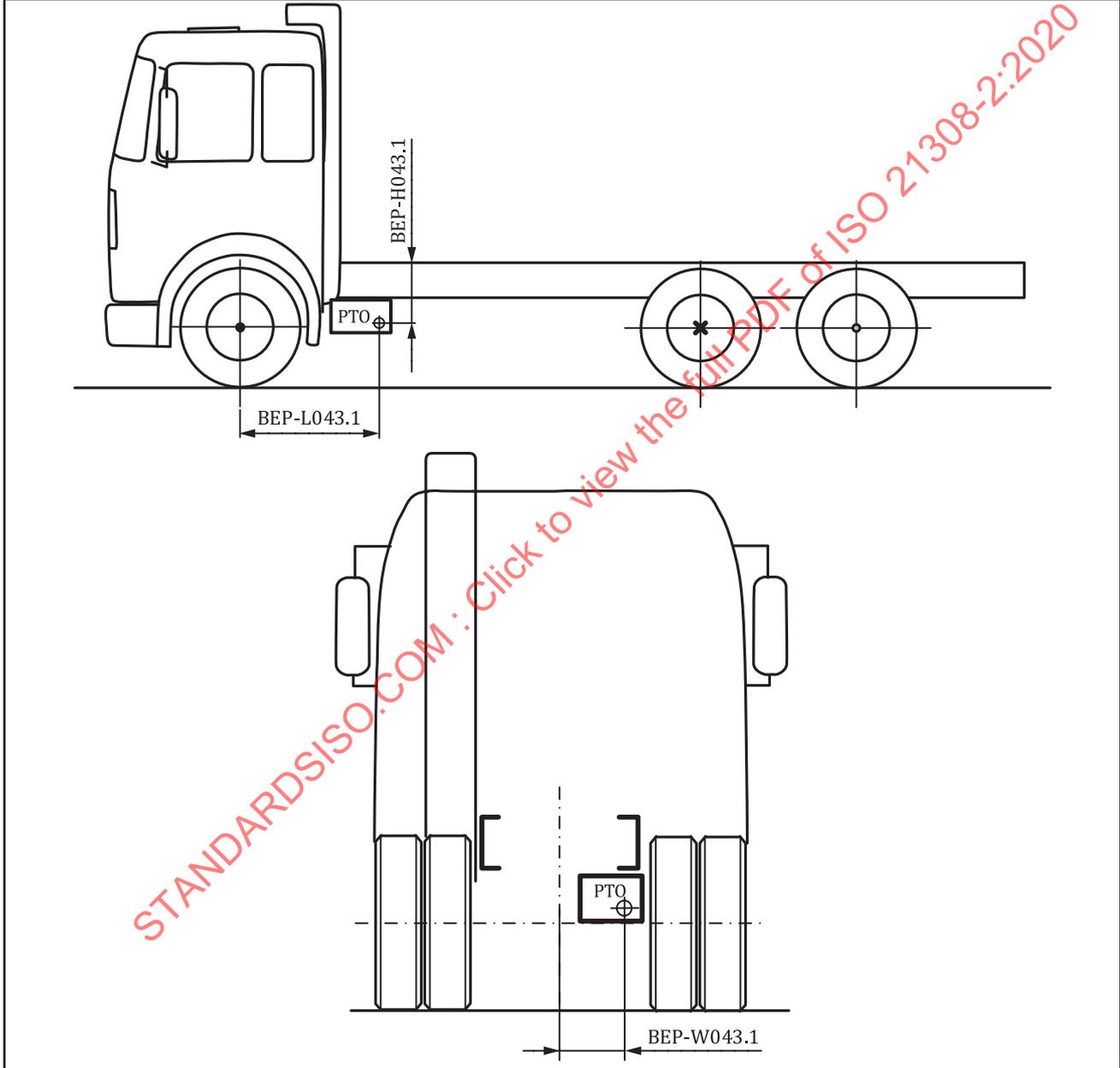
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H037	Height of frame over first driven rear axle, unladen	Distance from top edge of frame to ground measured at the first driven axle, unladen condition. NOTE Any sub-frame fitted is disregarded. Loading corresponds to unladen mass. For pneumatic suspension, the highest driving position is assumed.	A	1	2D, 3D, TD
BEP-H038	Height of frame over first driven rear axle, laden	Distance from top edge of frame to ground measured at the first driven axle, laden condition. NOTE Any sub-frame fitted is disregarded. The chassis is loaded up to "technical gross vehicle mass". For pneumatic suspension, the highest driving position is assumed.	A	2	2D, 3D, TD
BEP-H137	Height of frame over first driven rear axle, lowest possible	Distance from top edge of frame to ground measured at the first driven axle, lowest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD
BEP-H138	Height of frame over first driven rear axle, highest possible	Distance from top edge of frame to ground measured at the first driven axle, highest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD
BEP-H039	Height of frame at theoretical rear wheelbase, unladen	Distance from top edge of frame to ground measured at the theoretical wheelbase, unladen conditions. NOTE Any sub-frame fitted is disregarded. Loading corresponds to unladen mass. For pneumatic suspension, the highest driving position is assumed.	A	1	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H040	Height of frame at theoretical rear wheelbase, laden	Distance from top edge of frame to ground measured at the theoretical wheelbase, laden conditions. NOTE Any sub-frame fitted is disregarded. The chassis is loaded up to "technical gross vehicle mass". For pneumatic suspension, the highest driving position is assumed.	A	2	2D, 3D, TD
BEP-H139	Height of frame at theoretical rear wheelbase, lowest possible	Distance from top edge of frame to ground measured at the theoretical wheelbase, lowest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD
BEP-H140	Height of frame at theoretical rear wheelbase, highest possible	Distance from top edge of frame to ground measured at the theoretical wheelbase, highest possible position. NOTE To be used in combination with air suspension.	A	-	2D, 3D, TD

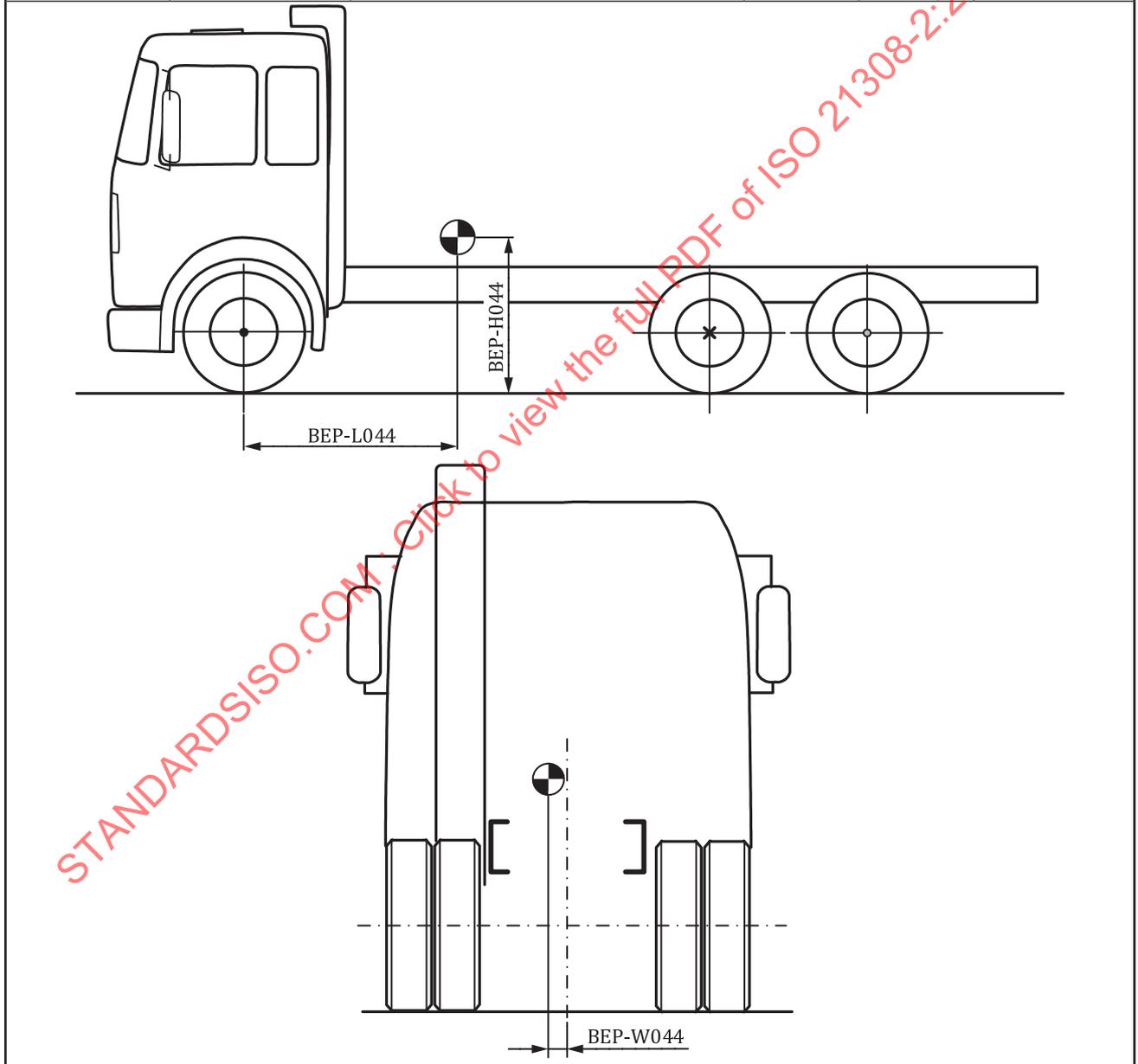


BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H041.n	Wheel centre to top of frame	Height of wheel centre to top of chassis frame for the <i>n</i> -th axle. NOTE The chassis is loaded up to "technical gross vehicle mass". For pneumatic suspension, the highest driving position is assumed.	A	2	2D, 3D, TD
BEP-H042.n	Top of wheel to top of frame	Highest wheel position relative to top of chassis frame for the <i>n</i> -th axle, taking into account maximum bounce. NOTE 1 This code is used to specify the clearance needed in a worst-case condition. NOTE 2 Positive values indicate above top of chassis, and negative values indicate below top of chassis. NOTE 3 .R or .L is added if different for right and left side.	A	-	2D, 3D, TD
BEP-L043.p	PTO longitudinal position	Distance between the centre of the first front axle and the reference point of power take-off p. NOTE The reference point is dependent on the PTO type.	A	-	2D, 3D, TD
BEP-H043.p	PTO vertical position	Distance between the top of the chassis frame and the reference point of power take-off p. NOTE 1 The reference point is dependent on the PTO type. NOTE 2 Positive values indicate above top of chassis, and negative values indicate below top of chassis.	A	-	2D, 3D, TD

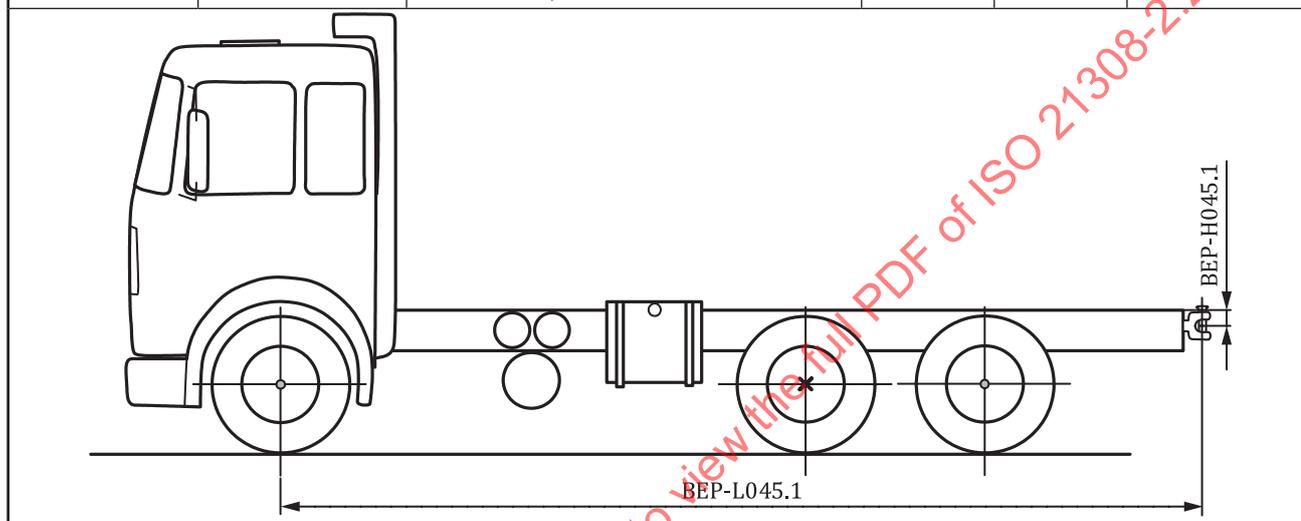
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W043.p	PTO lateral position	Distance between the centreline of chassis frame and the reference point of power take-off p. NOTE 1 The reference point is dependent on the PTO type. NOTE 2 .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.	A	-	2D, 3D, TD



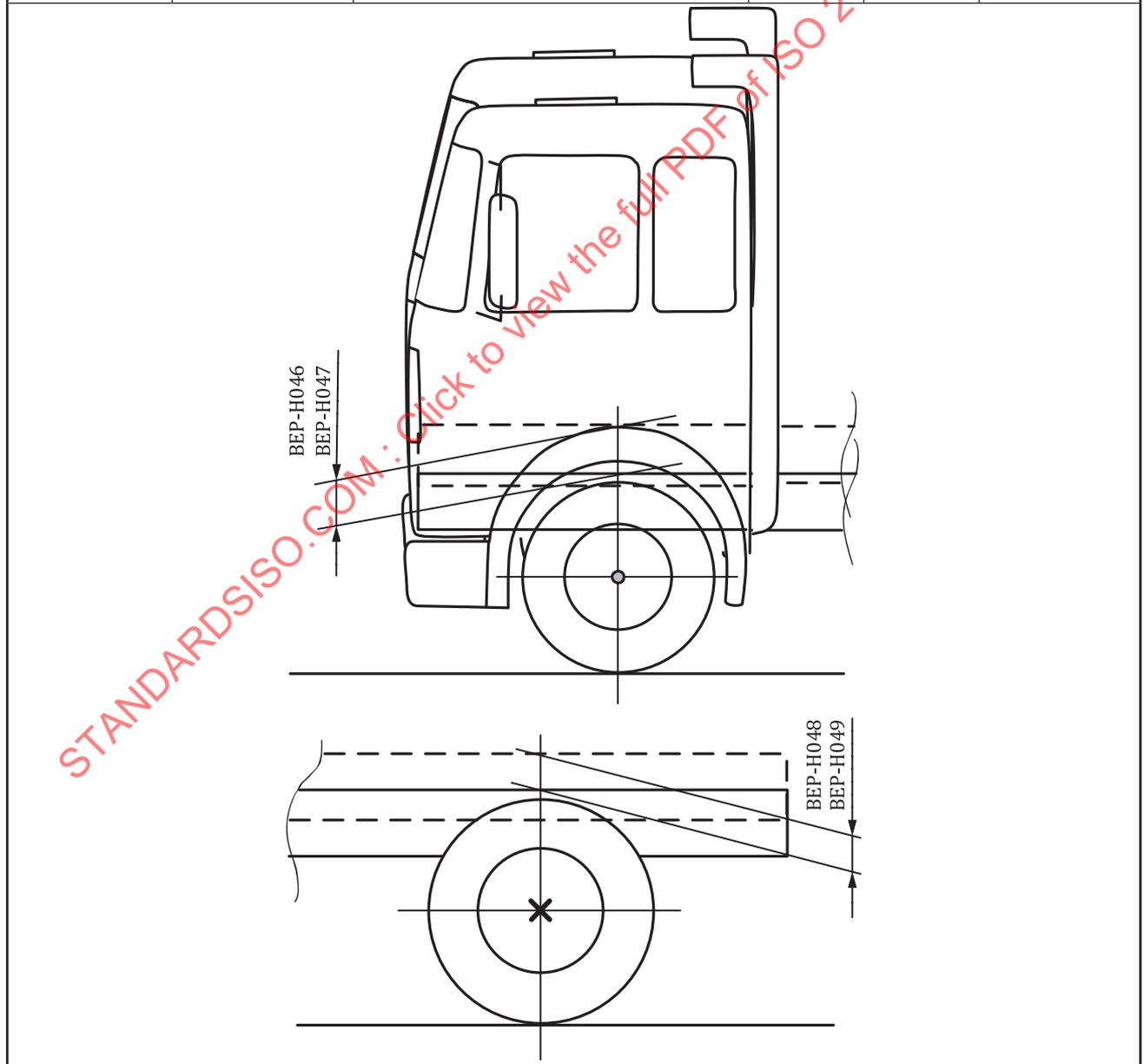
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L044	Centre of gravity of chassis, longitudinal	Theoretically calculated centre of gravity of chassis measured from the centre of the first front axle.	A	-	2D, 3D, TD
BEP-H044	Centre of gravity of chassis, vertical	Theoretically calculated centre of gravity of chassis, measured from the ground surface.	A	-	2D, 3D, TD
BEP-W044	Centre of gravity of chassis, lateral	Theoretically calculated centre of gravity of chassis, measured from the centreline of the chassis.	A	-	2D, 3D, TD



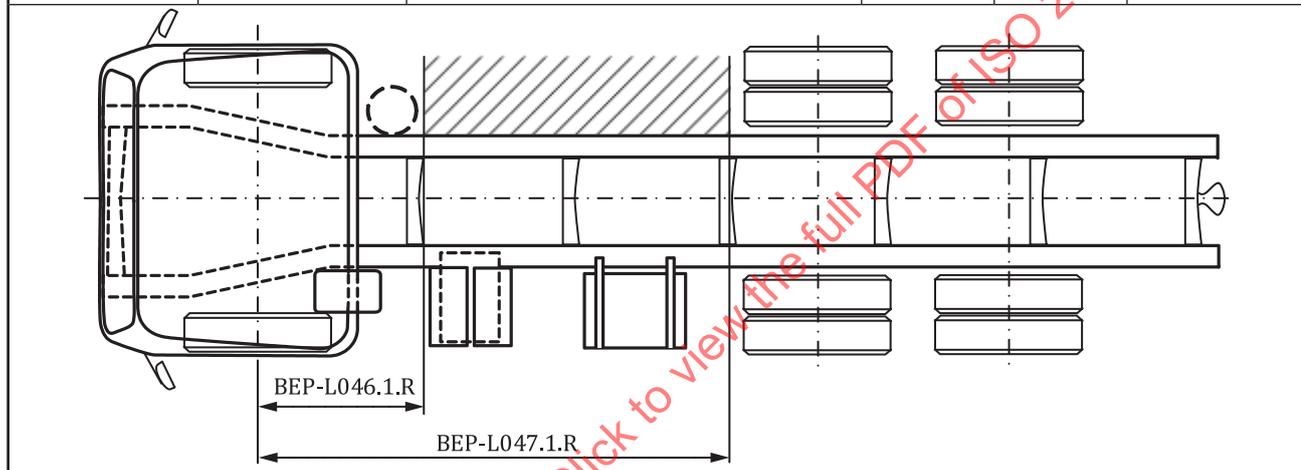
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L045.p	Length to coupling pin centre	Distance from the centre of the first front axle of vehicle to the rotation centre of the trailer coupling device p. NOTE In case of several couplings, the distances can be marked BEP-L045.1, BEP-L045.2.	A	-	2D, 3D, TD
BEP-H045.p	Height to coupling pin centre	Distance from top chassis frame to the rotation centre of the trailer coupling device p. NOTE In case of several couplings, the distances can be marked BEP-H045.1, BEP-H045.2.	A	-	2D, 3D, TD



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H046	Raising from driving position, front	Height change between driving position and topmost raised position, measured at the first front axle centreline.	A	-	2D, 3D, TD
BEP-H047	Lowering from driving position, front	Height change between driving position and lowest lowered position, measured at the first front axle centreline.	A	-	2D, 3D, TD
BEP-H048	Raising from driving position, rear	Height change between driving position and topmost raised position, measured at the first rear axle centreline.	A	-	2D, 3D, TD
BEP-H049	Lowering from driving position, rear	Height change between driving position and lowest lowered position, measured at the first rear axle centreline.	A	-	2D, 3D, TD

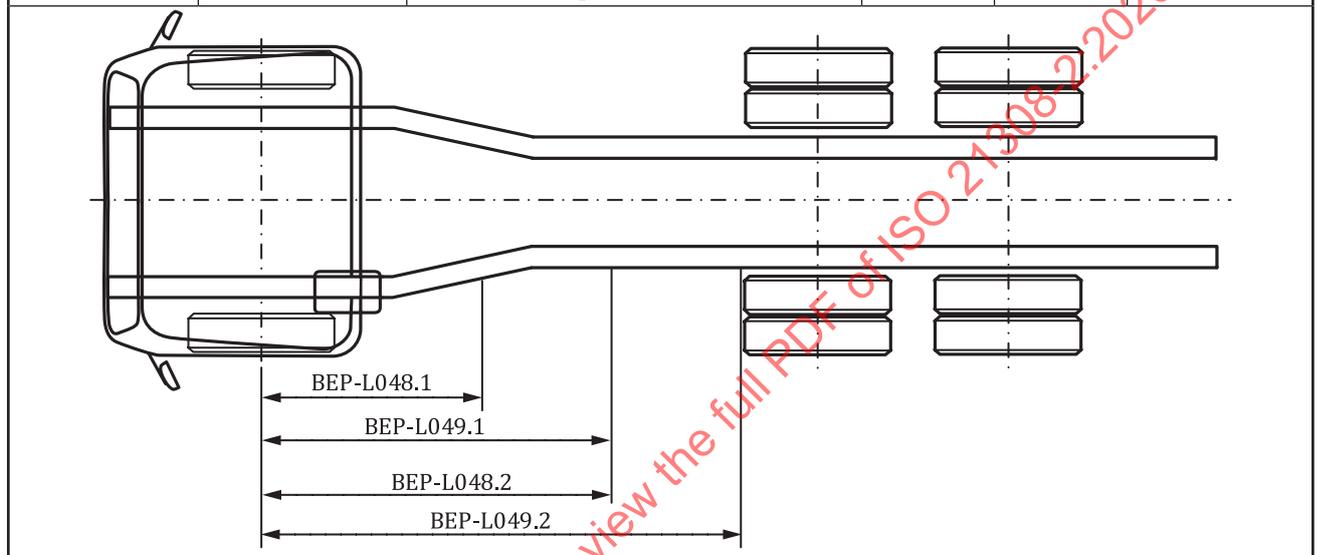


BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L046.n.s	Start of available space zone, length	Start of a zone of available space on the outside of the chassis frame for use by the bodywork manufacturer, measured from the centre of the first front axle. NOTE .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.	A	-	2D, 3D, TD
BEP-L047.n.s	End of available space zone, length	End of a zone of available space on the outside of the chassis frame for use by the bodywork manufacturer, measured from the centre of the first front axle. NOTE .R or .L is added (if applicable) to specify the mounting side, related to the centreline of the chassis.	A	-	2D, 3D, TD



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BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L048.p	Start of frame section profile	Start of frame section profile p, measured from the centre of the first front axle. NOTE See H032, etc., for coding of frame section profile dimensions.	A	-	2D, 3D, TD
BEP-L049.p	End of frame section profile	End of frame section profile p, measured from the centre of the first front axle. NOTE See H032, etc., for coding of frame section profile dimensions.	A	-	2D, 3D, TD

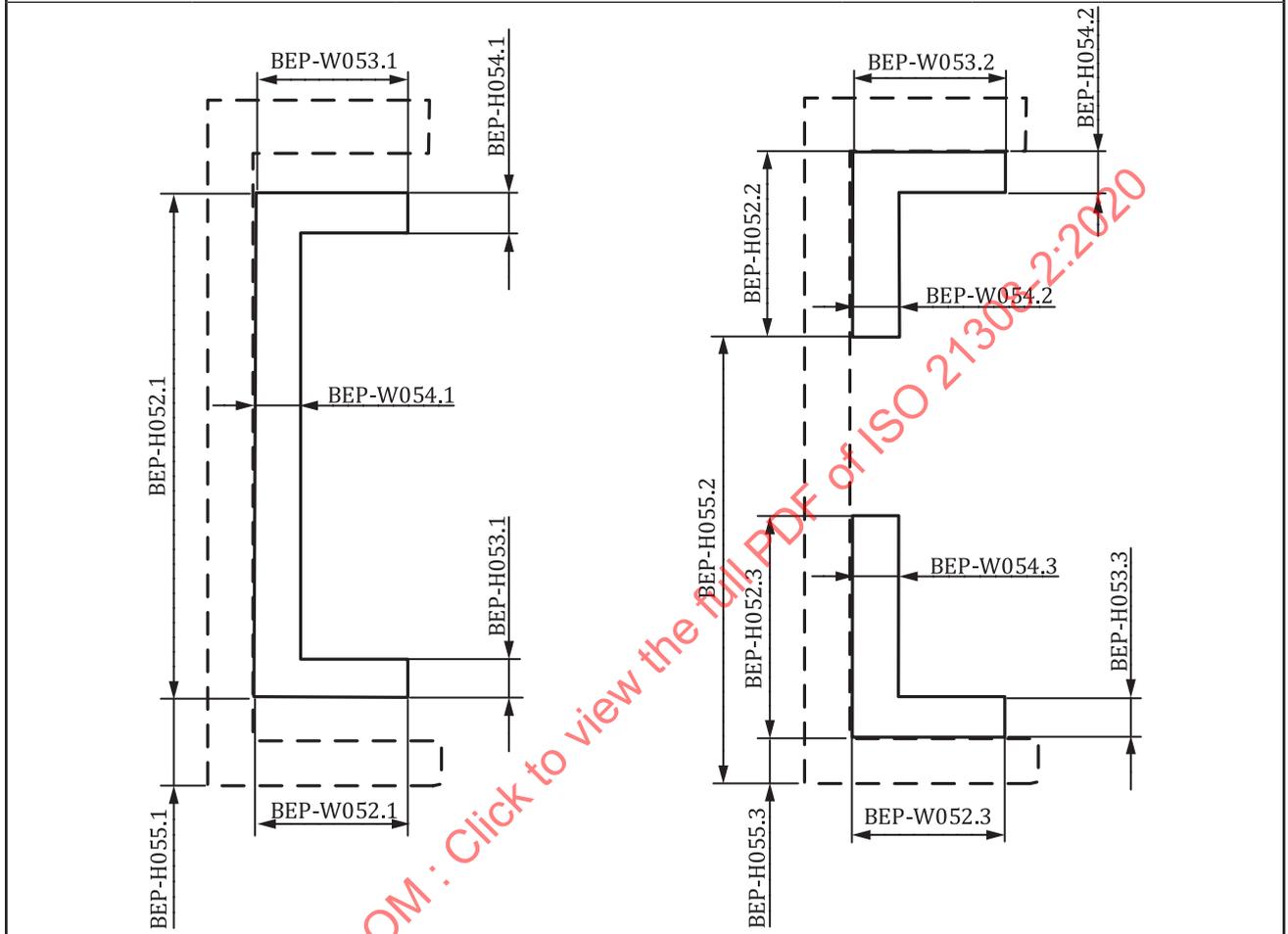


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BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L050.p	Start of frame reinforcement profile	Start of frame reinforcement profile p, measured from the centre of the first front axle. NOTE See H052, etc., for coding of frame reinforcements.	A	-	2D, 3D, TD
BEP-L051.p	End of frame reinforcement profile	End of frame reinforcement profile p, measured from the centre of the first front axle. NOTE See H052, etc., for coding of frame reinforcements.	A	-	2D, 3D, TD
BEP-H052.p	Frame reinforcement profile height	Height of frame reinforcement profile p.	A	-	2D, 3D, TD
BEP-H053.p	Frame reinforcement bottom thickness	Thickness of frame reinforcement profile p bottom.	A	-	2D, 3D, TD
BEP-H054.p	Frame reinforcement top thickness	Thickness of frame reinforcement profile p top.	A	-	2D, 3D, TD
BEP-H055.p	Frame reinforcement distance to frame bottom	Distance from the bottom of frame reinforcement profile p to frame bottom.	A	-	2D, 3D, TD
BEP-W052.p	Frame reinforcement bottom width	Width of frame reinforcement profile p bottom.	A	-	2D, 3D, TD
BEP-W053.p	Frame reinforcement top width	Width of frame reinforcement profile p top.	A	-	2D, 3D, TD

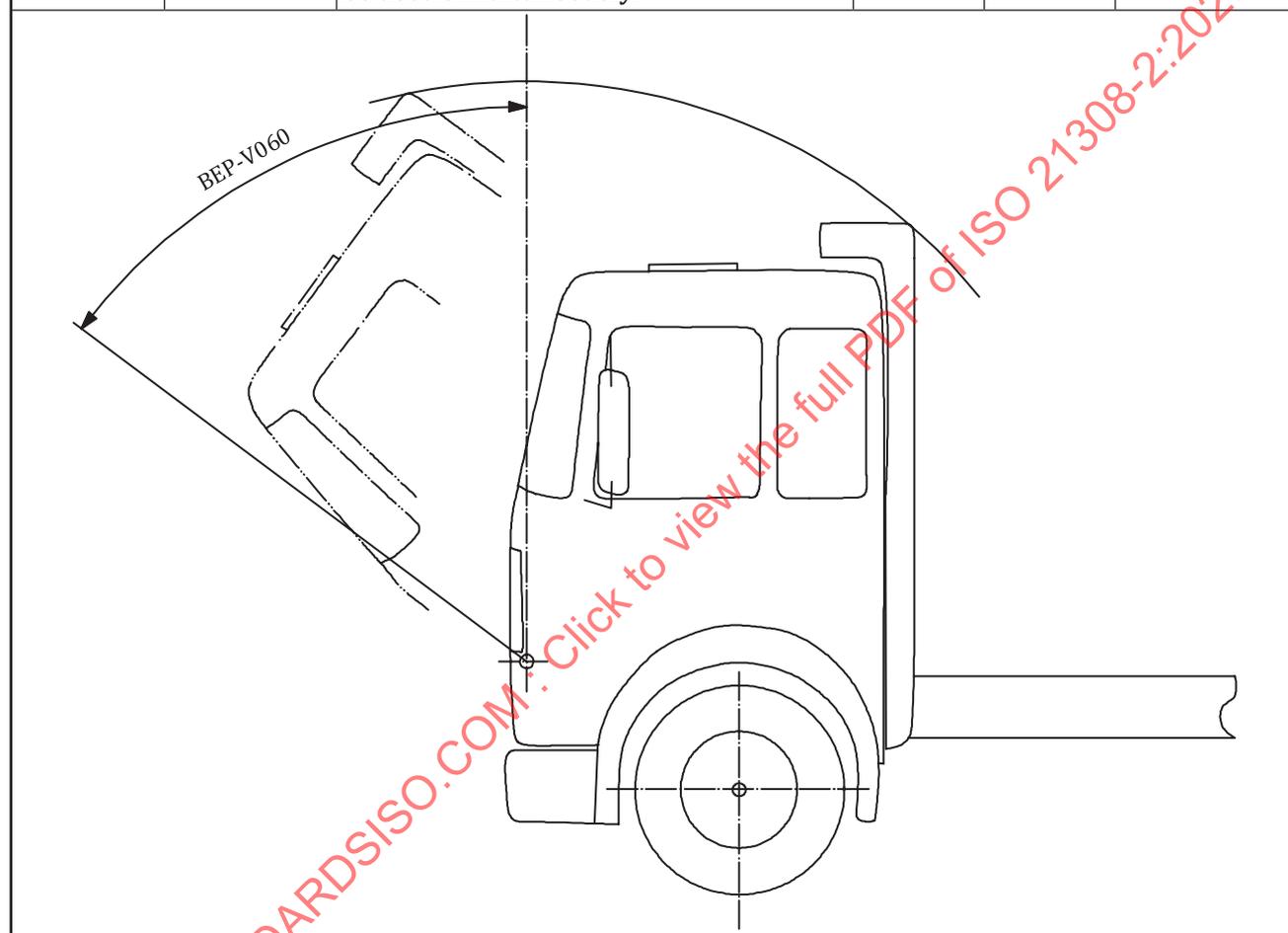
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W054.p	Frame reinforcement waist thickness	Thickness of frame reinforcement profile p waist.	A	-	2D, 3D, TD

NOTE For positioning of frame profile reinforcements, see BEP-L050 and related codes.



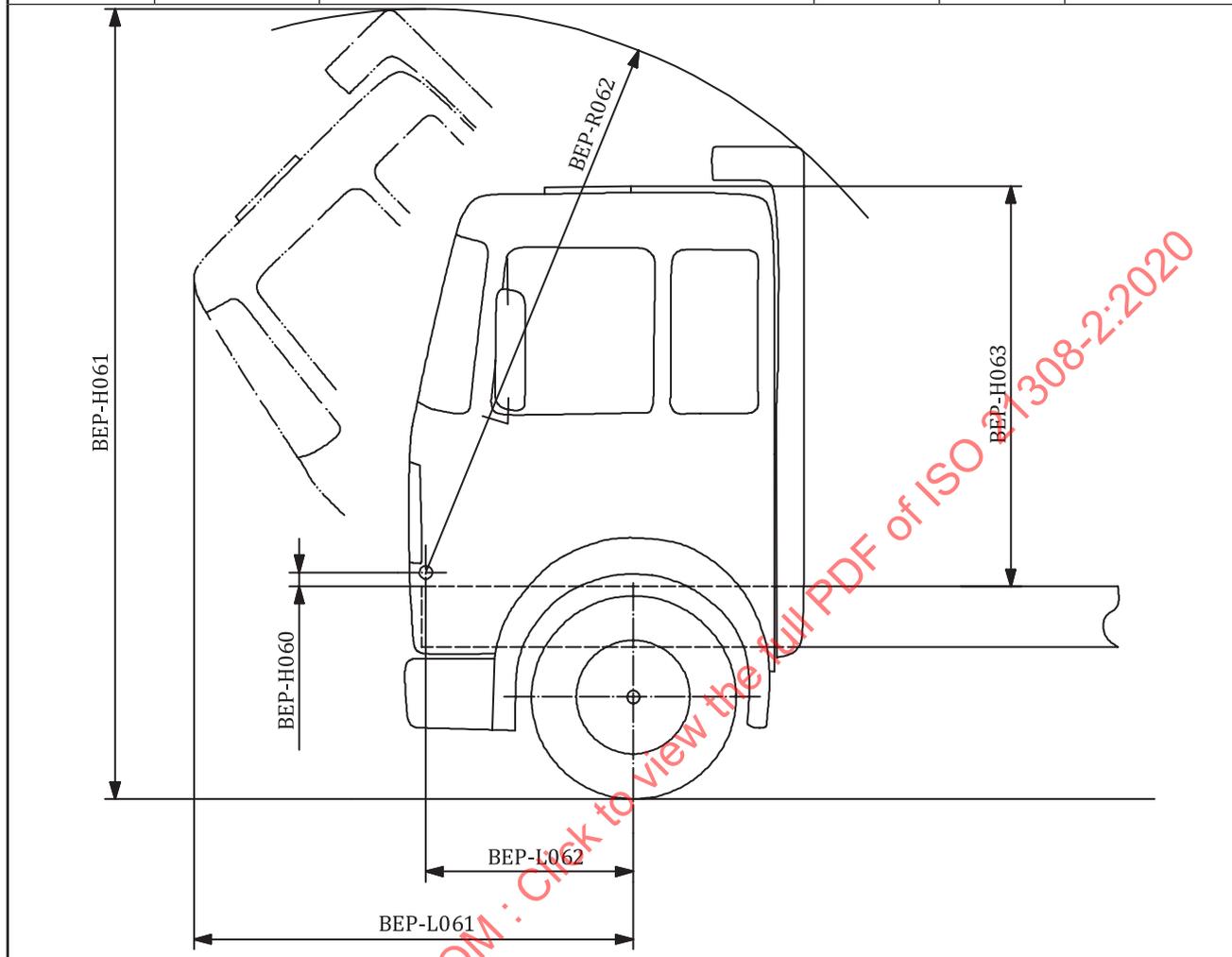
6.3 Cab related dimensions

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-V060	Cab tilt angle	Maximum tilt angle from driving position. NOTE Applies only to hinged driving cab. CAUTION — Code BEP-V060 replaces BEP-L060 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	A	-	2D, 3D, TD

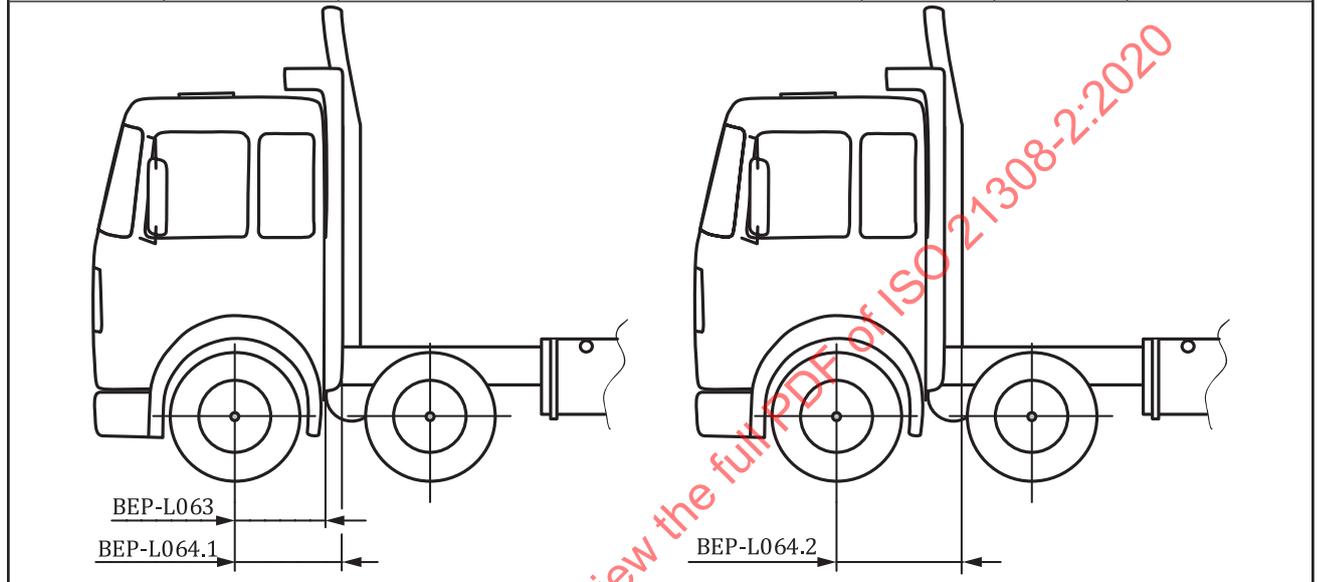


BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L061	Front axle to cab tilt into servicing position	Distance from the centre of the front axle to an x-plane touching the foremost point of the cab in the servicing maximum tilt position.	B	-	2D, 3D, TD
BEP-L062	Driving cab hinge point, longitudinal	Distance measured from centre of the first front axle to hinge point.	A	-	2D, 3D, TD
BEP-H060	Driving cab hinge point, vertical	Distance measured from upper edge of frame to hinge point. NOTE Positive values indicate above top of chassis, and negative values indicate below top of chassis.	A	-	2D, 3D, TD
BEP-H061	Maximum overall height, tilt cab servicing	Vertical distance between the ground and the topmost point of the cab during tilting. The roof hatch, if present, should be closed. For pneumatic suspension, the driving position is assumed.	B	1	2D, 3D, TD
BEP-R062	Cab tilt radius	Radius described by the outer cab contour during the tilting process. The dimension relates to the measured cab hinge point. CAUTION — Code BEP-R062 replaces BEP-H062 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	A	-	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H063	Cab height from frame	Distance from top of frame to top of cab roof.	A	-	2D, 3D, TD



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L063	End of cab	Distance between the centre of the first front axle and the rear end of the cab.	A	-	2D, 3D, TD
BEP-L064.n	End of cab-mounted object	Distance between the centre of the first front axle and the rearmost end of the n -th object mounted on the cab. NOTE .R or .L is added if the values for right and left side member differ. EXAMPLE Lights, deflectors, air intake.	A	-	2D, 3D, TD

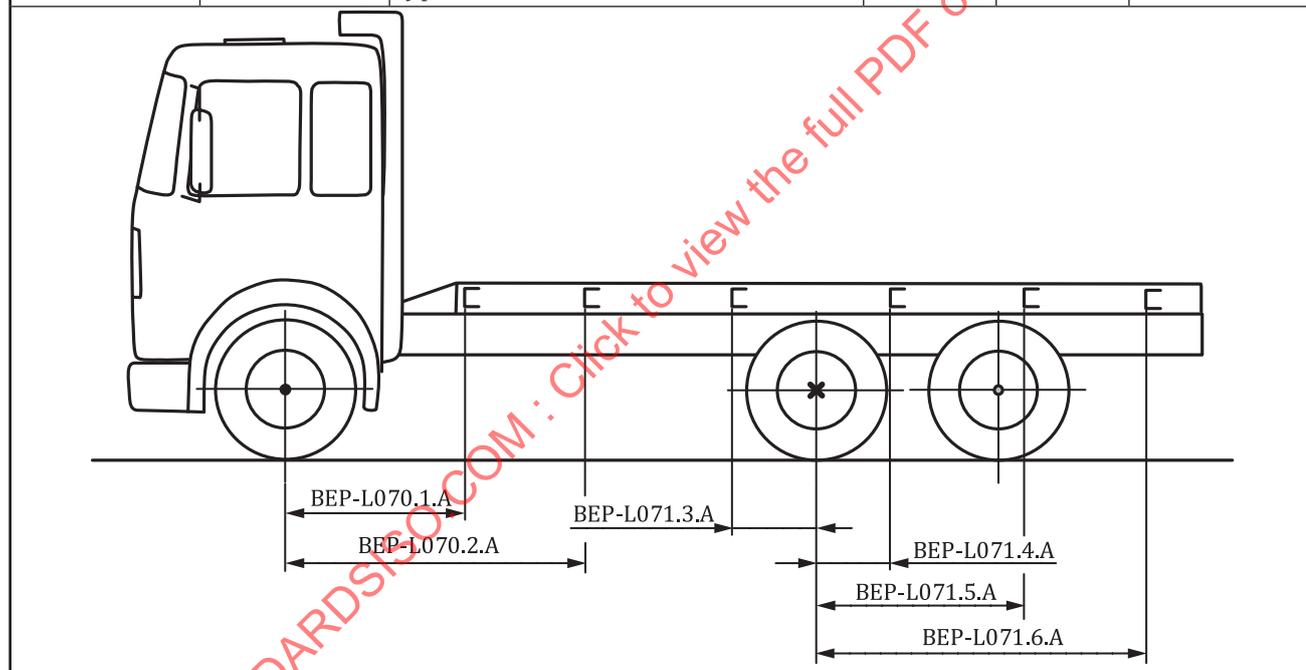


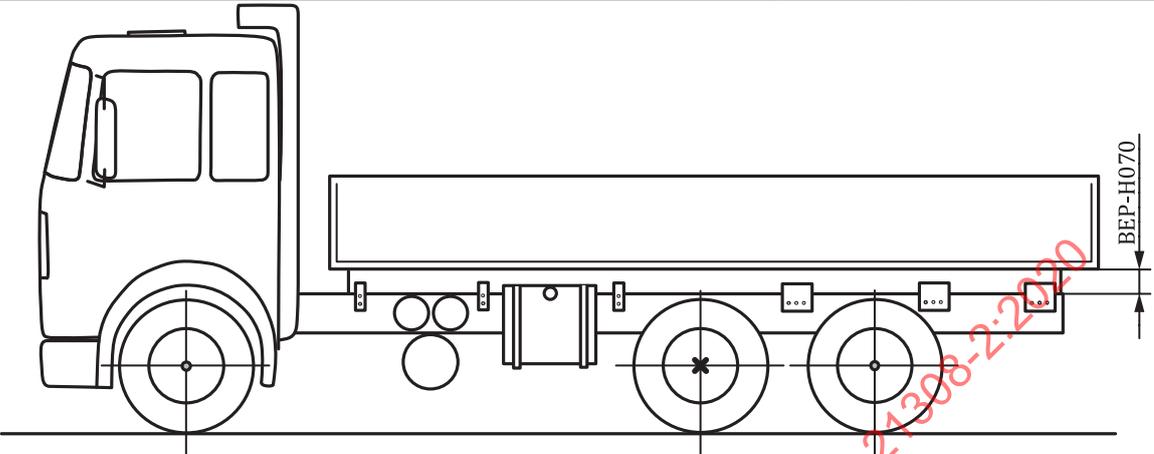
7 Bodywork related dimensions

7.1 Sub-frame related dimensions

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L070.n.t	Distance to the n -th cross member in sub-frame, front	Distance from the centre of the first front axle to the n -th cross-member front edge in sub-frame. NOTE 1 Each cross-member is identified by a number (n). NOTE 2 A negative value indicates that the cross-member is in front of the axle. A positive value indicates that it is behind the axle. NOTE 3 The cross-members are defined in different types (t), specified with e.g. A, B, C, etc. Each definition of type includes the description of the exact position and profile of each cross-member, shown in generic document. EXAMPLE BEP-L070.2.A means second cross-member, type A.	B	-	2D, 3D, TD

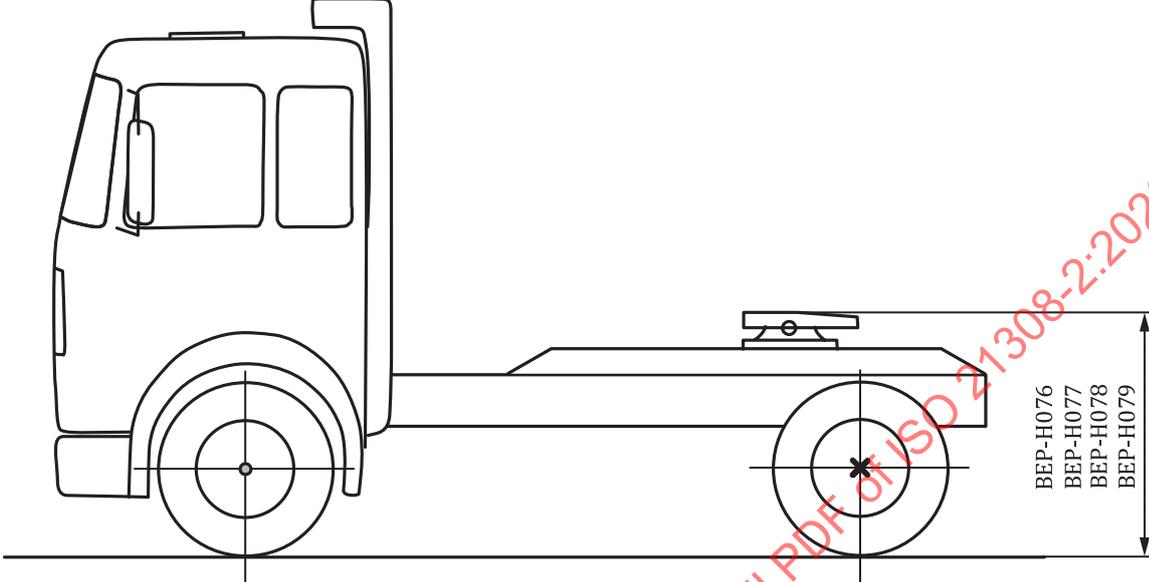
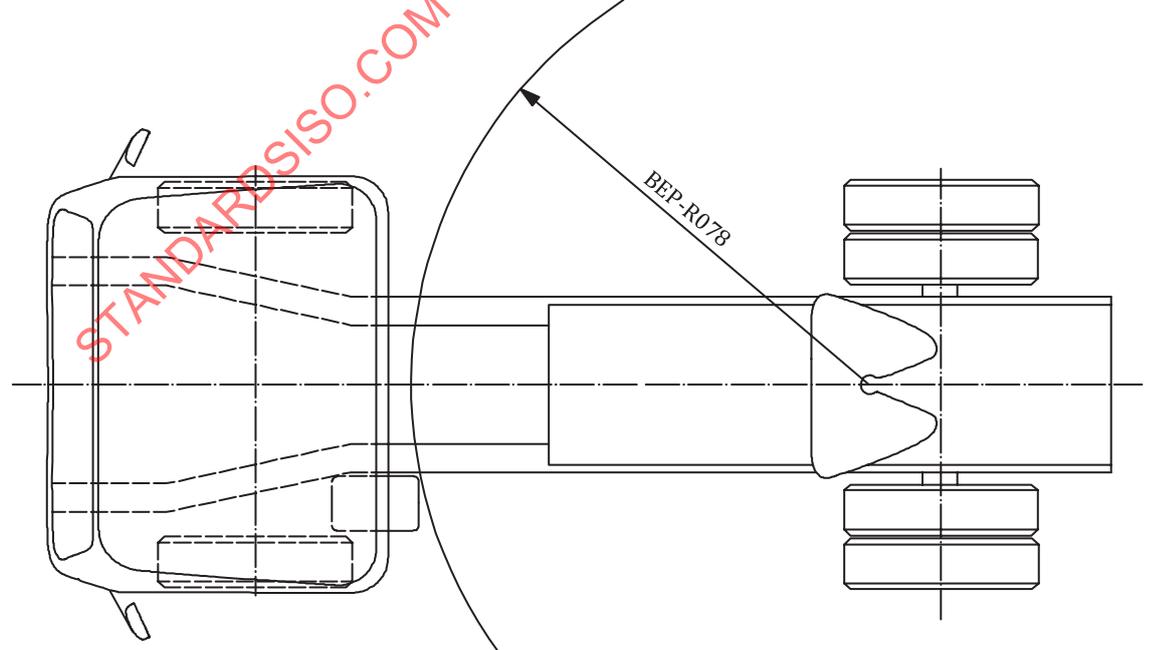
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L071.n.t	Distance to the <i>n</i> -th cross-member in sub-frame, rear	<p>Distance from the centre of the first driven rear axle to the <i>n</i>-th cross member front edge in sub-frame.</p> <p>NOTE 1 Each cross-member is identified by a number (<i>n</i>).</p> <p>NOTE 2 A negative value indicates that the cross-member is in front of the axle. A positive value indicates that it is behind the axle.</p> <p>NOTE 3 The cross-members are defined in different types (<i>t</i>), specified with e.g. A, B, C, etc. Each definition of type includes the description of the exact position and profile of each cross-member, shown in generic document.</p> <p>EXAMPLE BEP-L071.5.A means fifth cross-member behind the rear axle, type A.</p>	B	-	2D, 3D, TD



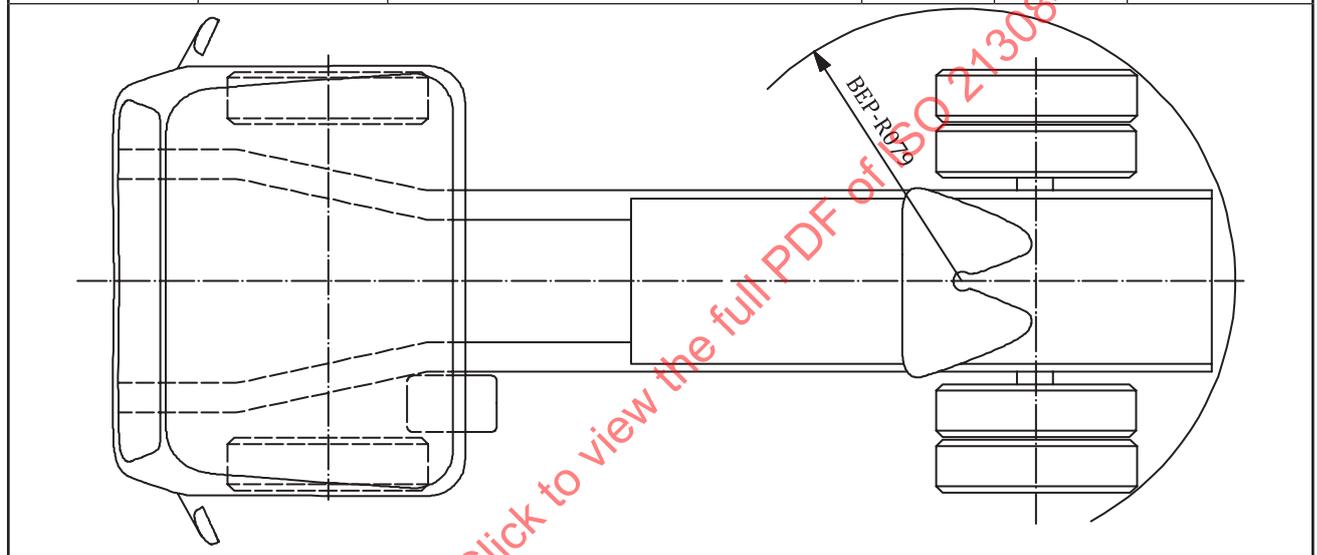
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H070	Sub-frame height	Height of sub-frame profile.	A	-	2D, 3D, TD
					
BEP-L072	Distance to fifth-wheel kingpin from front axle, foremost	Distance from centre of the first front axle of vehicle to centre of fifth-wheel kingpin coupling, foremost position.	A	-	2D, 3D, TD
BEP-L073	Distance to fifth-wheel kingpin from front axle, nominal	Distance from centre of the first front axle of vehicle to centre of fifth-wheel kingpin coupling, nominal position.	A	-	2D, 3D, TD
BEP-L074	Distance to fifth-wheel kingpin from front axle, rearmost	Distance from centre of the first front axle of vehicle to centre of fifth-wheel kingpin coupling, rearmost position.	A	-	2D, 3D, TD
BEP-L075	Distance to fifth-wheel kingpin from rear axle, foremost	Distance from centre of the first driven rear axle of vehicle to centre of fifth-wheel kingpin coupling, foremost position.	A	-	2D, 3D, TD
BEP-L076	Distance to fifth-wheel kingpin from rear axle, nominal	Distance from centre of the first driven rear axle of vehicle to centre of fifth-wheel kingpin coupling, nominal position.	A	-	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L077	Distance to fifth-wheel kingpin from rear axle, rearmost	Distance from centre of the first driven rear axle of vehicle to centre of fifth-wheel kingpin coupling, rearmost position.	A	-	2D, 3D, TD
BEP-H071	Fifth-wheel sub-frame	Height of fifth-wheel sub-frame measured from top edge of frame to top edge of sub-frame.	A	-	2D, 3D, TD
BEP-H072	Fifth-wheel sub-frame top height without coupling, unladen	Height from ground to top edge of fifth-wheel coupling sub-frame with the vehicle unladen.	A	1	2D, 3D, TD
BEP-H073	Fifth-wheel sub-frame top height without coupling, laden	Height from ground to top edge of fifth-wheel coupling sub-frame with the vehicle laden.	A	2	2D, 3D, TD
BEP-H074	Height of fifth-wheel coupling, uppermost position	Height of fifth-wheel coupling above sub-frame, uppermost position.	A	-	2D, 3D, TD

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H075	Height of fifth-wheel coupling, lowest position	Height of fifth-wheel coupling above sub-frame, lowest position.	A	-	2D, 3D, TD
BEP-H076	Fifth-wheel coupling above ground, unladen, uppermost position	Distance from top edge of fifth-wheel coupling, in uppermost position, to ground in unladen condition.	B	1	TD
BEP-H077	Fifth-wheel coupling above ground, unladen, lowest position	Distance from top edge of fifth-wheel coupling, in lowest position, to ground in unladen condition.	B	1	TD
BEP-H078	Fifth-wheel coupling above ground, laden, uppermost position	Distance from top edge of fifth-wheel coupling, in uppermost position, to ground in laden condition.	B	2	TD

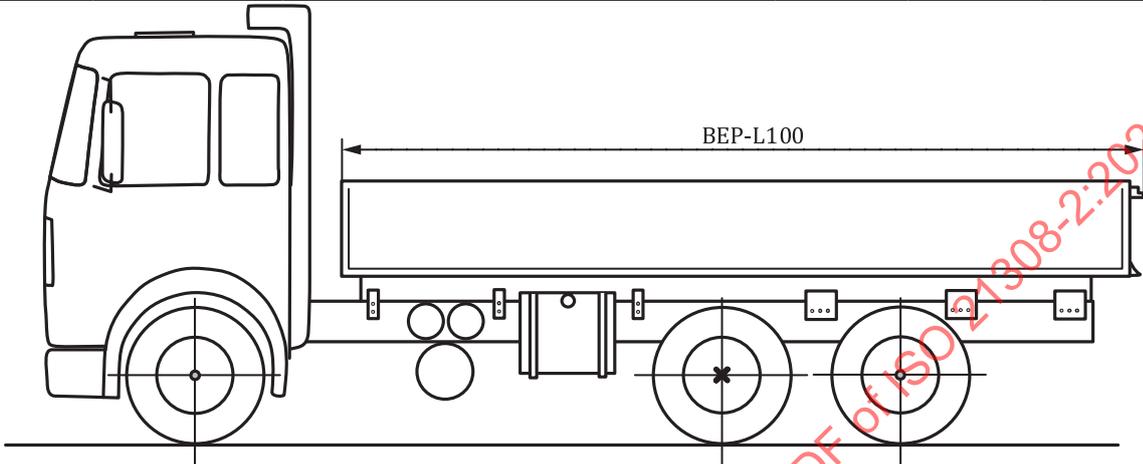
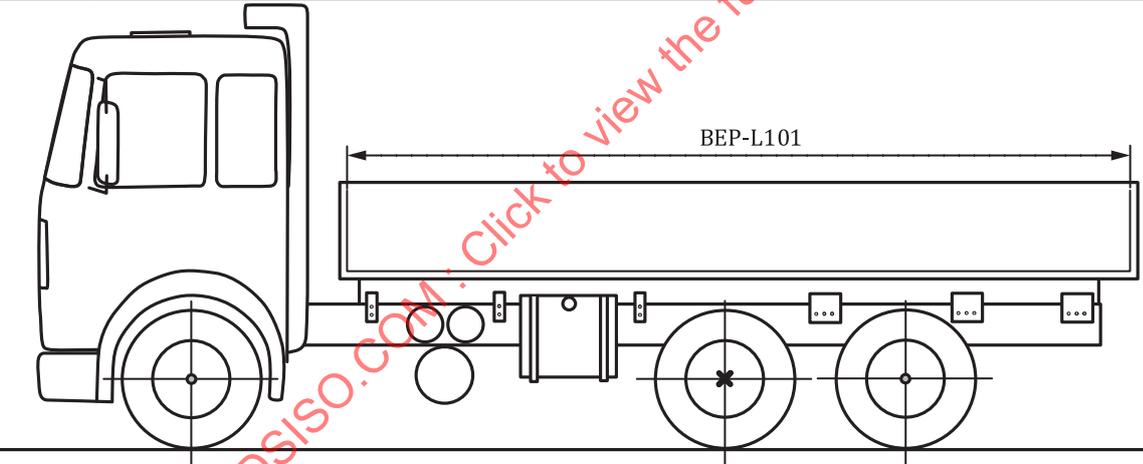
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H079	Fifth-wheel coupling above ground, laden, lowest position	Distance from top edge of fifth-wheel coupling, in lowest position, to ground in laden condition.	B	2	TD
					
BEP-R078	Fifth-wheel coupling pin to cab	Distance between the centre of the fifth-wheel coupling pin and the nearest object behind the cab. NOTE In case of adjustable position, the foremost position (BEP-L072) is used. CAUTION — Code BEP-R078 replaces BEP-L078 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.	A	-	TD
					

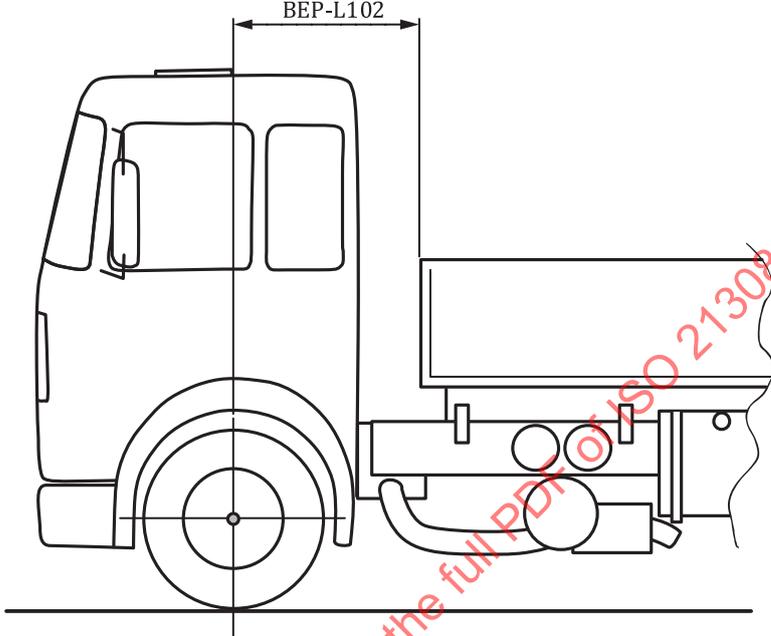
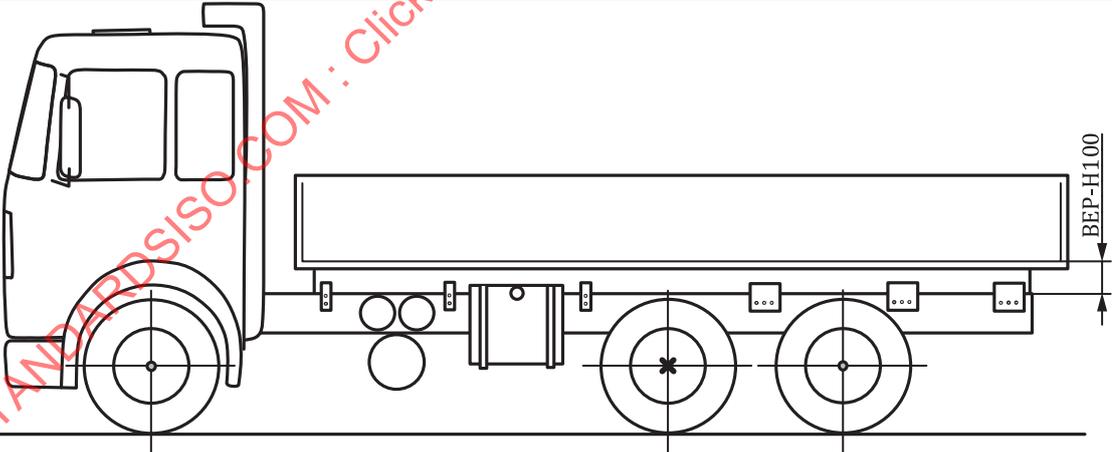
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-R079	Fifth-wheel coupling pin to the furthest obstacle on the towing vehicle	<p>Distance between the centre of the fifth-wheel coupling pin and the furthest obstacle at rear of the towing vehicle, taken as a radial dimension.</p> <p>NOTE 1 This is the necessary free space on a trailer.</p> <p>NOTE 2 In case of adjustable position, the foremost position (BEP-L072) is used.</p> <p>CAUTION — Code BEP-R079 replaces BEP-L079 from ISO 21308-2:2006, with identical definition. Both codes shall not be used simultaneously.</p>	A	-	TD



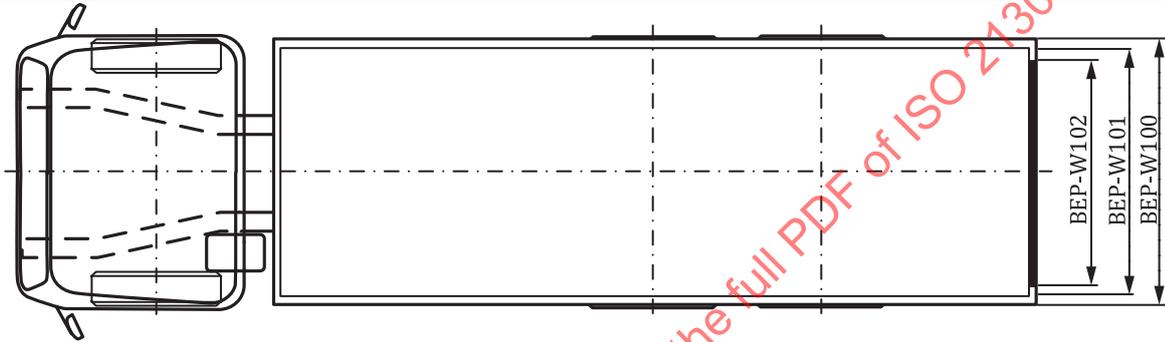
STANDARDSISO.COM : Click to view the full PDF of ISO 21308-2:2020

7.2 Bodywork dimensions

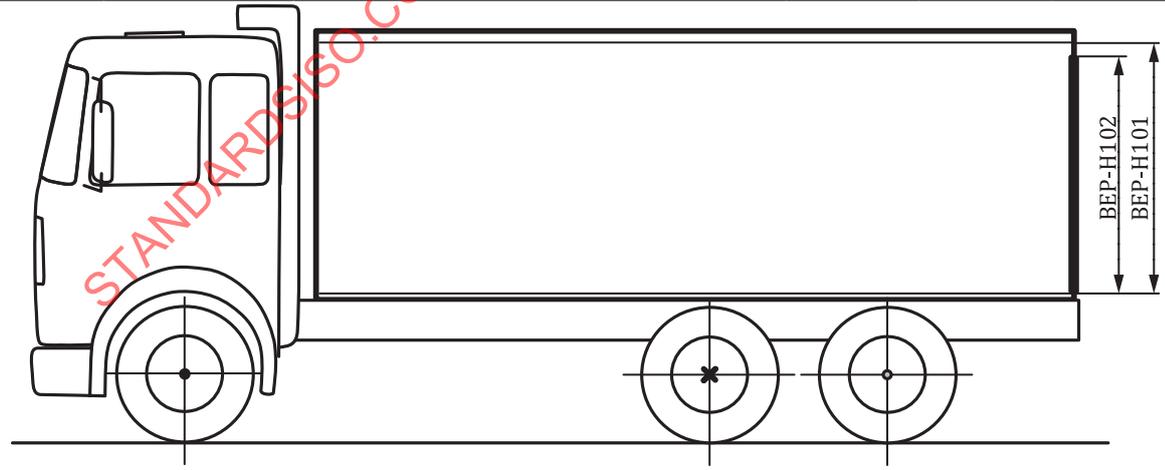
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L100	Length of bodywork	Distance between the front and rear outermost points of a bodywork.	A	-	2D, 3D, TD
					
BEP-L101	Interior length of bodywork	Interior distance between the front and rear boards.	A	-	2D, 3D, TD
					

BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L102	Distance from first front axle to bodywork	Minimum distance from the centre of the first front axle to the front edge of the bodywork. NOTE Longitudinal movements are included.	A	-	2D, 3D, TD
					
BEP-H100	Load deck height from top of chassis frame	Distance from top of chassis frame to body floor.	B	-	TD
					

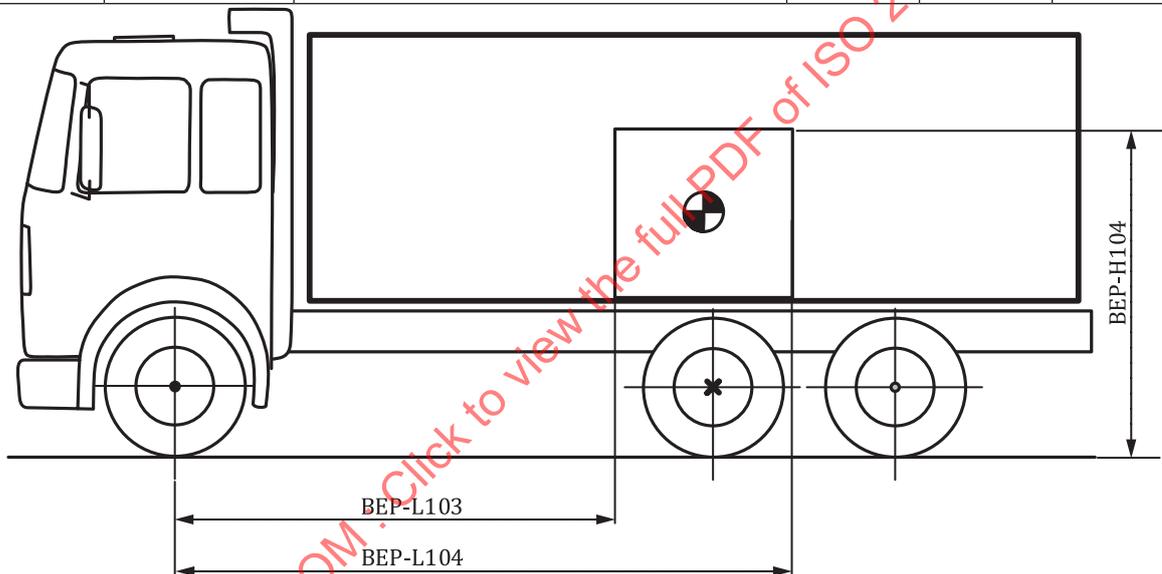
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-W100.n	Exterior width of bodywork	Distance between the left and right outermost points of bodywork. EXAMPLE Crane, tipper, box(es) in any combination.	A	-	2D, 3D, TD
BEP-W101	Interior width of bodywork	Interior distance between the left and right side boards.	B	-	TD
BEP-W102.n	Body access opening width	Interior width of the access opening to the body. NOTE 1 In case of several access openings, these are marked as BEP-W102.1, BEP-W102.2 etc. NOTE 2 Applies also to side and roof openings.	B	-	TD



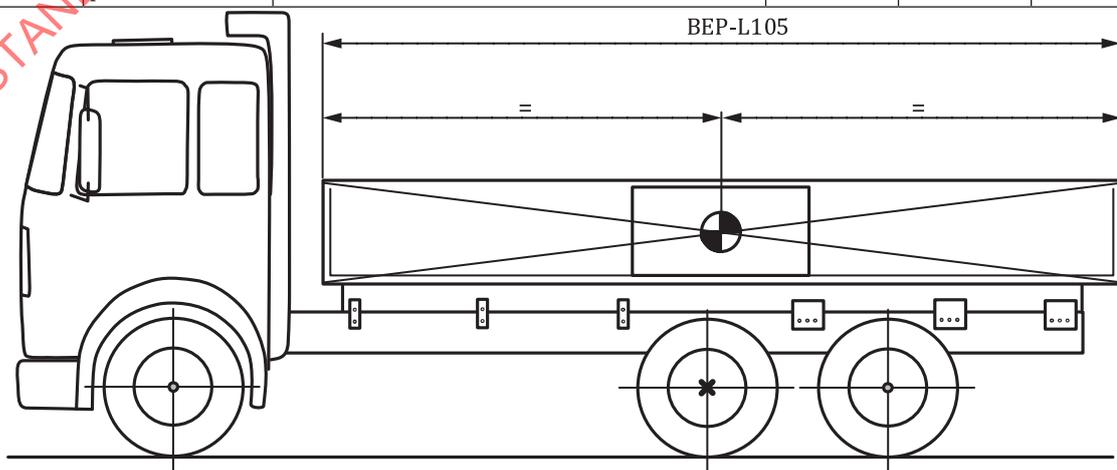
BEP-H101	Interior height of bodywork	Interior distance between the floor and ceiling of the bodywork.	B	-	TD
BEP-H102.n	Body access opening height	Interior height of the access opening to the body. NOTE 1 In case of several access openings, these are marked as BEP-H102.1, BEP-H102.2, etc. NOTE 2 Applies also to side openings.	B	-	TD



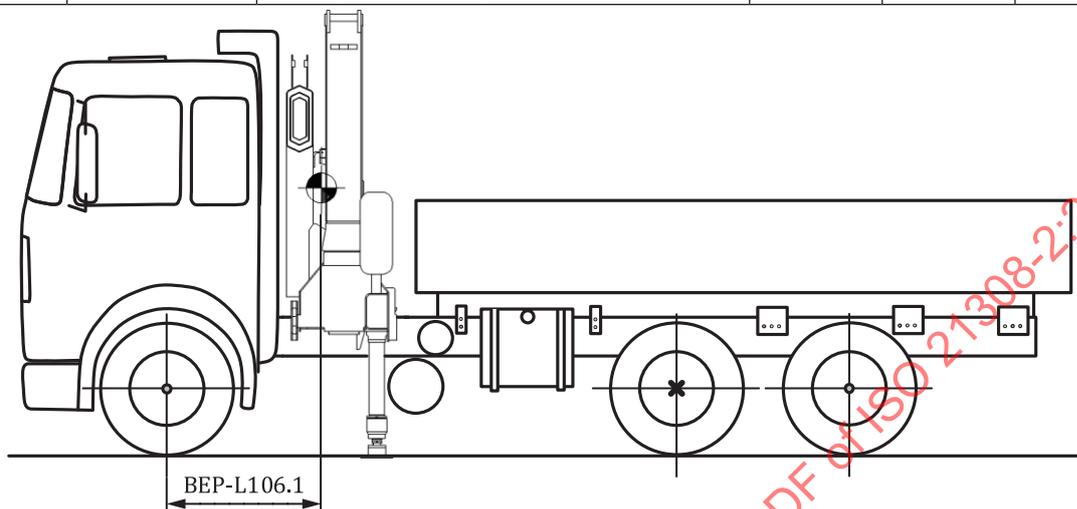
BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-H104	Centre of gravity of payload, topmost	Maximum allowed height of the centre of gravity of the payload.	B	2	TD
BEP-L103	Centre of gravity of payload, foremost position	Theoretically calculated foremost position where maximum payload may be applied, measured from the centre of the first front axle.	B	2	TD
BEP-L104	Centre of gravity of payload, rearmost position	Theoretically calculated rearmost position where the maximum payload may be applied, measured from the centre of the first front axle. NOTE When the maximum payload can be applied to a single distance, this dimension can be omitted.	B	2	TD



BEP-L105	Maximum body length referring to the centre of gravity, rearmost position	Maximum body length referring to the centre of gravity, in ideal circumstances, with an even load distribution.	B	-	TD
----------	---------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	---	---	----



BEP-code	Assignment	Description	Priority	Loading	Presented in
BEP-L106.n	Centre of gravity of bodywork objects	Distance between the centre of the first front axle and the centre of gravity of major bodywork components. EXAMPLE Cranes, tail lifts, tipping gear, cooling and heating systems, fifth-wheel.	B	-	2D, 3D, TD



Annex A (informative)

Corresponding codes in related ISO standards

A.1 Comparison of BEP codes and other ISO coding systems

A.1.1 Length codes

[Table A.1](#) shows a comparison of length code definitions in this document, ISO 7656 and ISO 612.

Table A.1 — Comparison of length codes between ISO standards

BEP code (this document)	ISO 7656:1993 code	ISO 612:1978 code	Comments
BEP-L001	ISO-L103	ISO-6.1.1	
BEP-L012.n	ISO-L401	ISO-6.4.1	
BEP-L016	ISO-L405	ISO-6.6	
BEP-L017	ISO-L412	ISO-6.7	
BEP-L019	ISO-L418		
BEP-L060	ISO-L409		
BEP-L061	ISO-L408		ISO-L408 considers the distance from the front bumper while BEP-L051 measures from the centre of the front axle.
BEP-L072	ISO-L434	ISO-6.21.2	1) ISO 612 and ISO 7656 refer to the touching front end of the vehicle, while BEP codes refer to the centre of the front axle.
BEP-L073	ISO-L434	ISO-6.21.2	2) ISO 612 and ISO 7656 do not consider an adjustable position fifth wheel, while BEP codes do.
BEP-L074	ISO-L433	ISO-6.19.1	ISO 612 and ISO 7656 do not consider an adjustable position of the fifth wheel, while BEP codes do.
BEP-L075	ISO-L433	ISO-6.19.1	
BEP-L078	ISO-L435		
BEP-L079	ISO-L422		
BEP-L100	ISO-L513		ISO-L513 does not consider any closing devices and hardware. BEP-L080 includes these.
BEP-L101	ISO-L517	ISO-6.15	ISO-6.15 represents the three maximum internal dimensions of body and not just the length of bodywork.
BEP-L102	ISO-L514		1) ISO-L514 considers the distance from the foremost point of the vehicle body while BEP-L082 considers the distance from the centre of the first front axle. 2) ISO-L514 does not consider any closing devices and hardware. In BEP-L082 this is not specified.

A.1.2 Height codes

Table A.2 shows a comparison of height code definitions in this document, ISO 7656 and ISO 612.

According to ISO 7656:1993, the letter "A" represents the maximum authorized total mass and the letter "K" means complete vehicle kerb mass.

Table A.2 — Comparison of height codes between ISO standards

BEP code (this document)	ISO 7656:1993 code	ISO 612:1978 code	Comments
BEP-H001	ISO-H100 K		
BEP-H002	ISO-H113 A		
BEP-H003		ISO-6.3	
BEP-H010	ISO-H117 A	ISO-6.10	
BEP-H011	ISO-H118 A	ISO-6.11	
BEP-H012	ISO-H147 A	ISO-6.9	
BEP-H013	ISO-H157 A	ISO-6.8	The ISO 612 and ISO 7656 "ground clearance" definition is only one and is not divided into front/rear/ between axles.
BEP-H014	ISO-H157 A	ISO-6.8	
BEP-H015	ISO-H157 A	ISO-6.8	
BEP-H016	ISO-H157 A	ISO-6.8	
BEP-H035	ISO-H420 K	ISO-6.12	
BEP-H036	ISO-H419 A	ISO-6.12	
BEP-H037	ISO-H422 K	ISO-6.12	
BEP-H038	ISO-H421 A	ISO-6.12	
BEP-H045	ISO-H425 A ISO-H426 K	ISO 6.18.2	BEP-H045 considers the distance from the top of chassis frame, while in ISO 612 and ISO 7656 the distance is measured from the supporting plane.
BEP-H061	ISO-H404 K		
BEP-H076	ISO-H424 K	ISO-6.20	ISO 612 and ISO 7656 do not consider a rising fifth wheel while BEP codes do.
BEP-H077	ISO-H424 K	ISO-6.20	
BEP-H078	ISO-H423 A	ISO-6.20	
BEP-H079	ISO-H423 A	ISO-6.20	
BEP-H100	ISO-H502 K		BEP-H080 refers to the distance from top of chassis frame, while ISO-H502 considers the distance from the supporting surface.
BEP-H102.n	ISO-H511		

A.1.3 Width codes

Table A.3 shows a comparison of width code definitions in this document, ISO 7656 and ISO 612.

Table A.3 — Comparison of width codes between ISO standards

BEP code (this document)	ISO 7656:1993 code	ISO 612:1978 code	Comments
BEP-W001	ISO-W103	ISO-6.2	BEP-W001 does not take into account the bodywork. ISO-6.2, instead does not include rear-view mirrors, lights, elastic mud flaps, tyre bulges in the road area and snow chains.
BEP-W003	ISO-W403		1) ISO-W403 does not include the deflected part of the tyre walls immediately above the point of contact with the ground, but does not specify whether axle hubs are included. 2) BEP-W003 states that axle hubs are disregarded, but does not specify whether the deflected part of the tyre walls immediately above the ground is included.
BEP-W011		ISO-6.31	BEP-W011 considers only the external wheel, while ISO-6.31 also takes into account the inner wheel.
BEP-W012		ISO-6.32	BEP-W012 considers only the outer edge, while ISO-6.32 also takes into account the inner edge.
BEP-W013.n	ISO-W401 ISO-W402	ISO-6.5	Referring to the drawing, ISO-W401 is equivalent to BEP-W013.1, while ISO-W402 may be compared with BEP-W013.2.
BEP-W015.n	ISO-W404 ISO-W405		Referring to the drawing, ISO-W404 is equivalent to BEP-W015.1, while ISO-W405 may be compared with BEP-W015.2.
BEP-W036	ISO-W406		
BEP-W100.n	ISO-W501		
BEP-W101	ISO-W502	ISO-6.15	ISO-6.15 represents the three maximum internal dimensions of body and not just the width of bodywork.
BEP-W102.n	ISO-W504 (ISO-L508)		ISO-L508 is the side cargo door opening width.

Annex B (normative)

XML coding related to this document

B.1 XML data exchange according to this document

To facilitate the communication of BEP codes and values between the parties involved, an XML version has been drafted, following the rules and structure of ISO 21308-1.

Showing the complete code in this annex would require many pages of plain XML code. Only a fraction of the code is shown in B.2 to describe the principle.

The complete and validated xsd file is available at the ISO Standards Maintenance Portal, at the following URL: <https://standards.iso.org/iso/21308>.

B.2 ISO 21308-2 XML code (excerpt of iso21308-2.xsd)

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://standards.
iso.org/iso/21308" elementFormDefault="qualified">
<xs:annotation>
<xs:appinfo>ISO 21308-2</xs:appinfo>
<xs:documentation xml:lang="en-us">ISO21308 data exchange</xs:documentation>
</xs:annotation>
<!-- This schema extends ISO 21308 part 1 by adding ISO 21308 part 2 features to bepType
type -->
<xs:redefine schemaLocation="http://standards.iso.org/iso/21308/iso21308-1.xsd">
<xs:complexType name="bepType">
<xs:complexContent>
<xs:extension base="bepType">
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</xs:extension>
</xs:complexContent>
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</xs:redefine>
<!-- Define types -->
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```

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<xs:documentation>Distance from first front axle to bodywork</xs:documentation>
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