INTERNATIONAL STANDARD

ISO 21308-3

First edition
2007-02-15

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

Part 3: General, mass and administrative exchange parameters

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

Partie 3: Paramètres d'échange généraux, de masse et administratifs

Reference number
ISO 21308-3:2007(E)

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Published in Switzerland

Contents

Page

Foreword ... iv
Introduction ... v
1 Scope ... 1
2 Normative references ... 1
3 Terms and definitions ... 2
4 Coding system ... 2
4.1 BEP code ... 2
4.2 Type of code ... 2
4.3 Numbering ... 2
4.4 Code assignment and description ... 3
4.5 Priority ... 3
4.6 Loading condition ... 3
4.7 Presented in ... 3
5 BEP code assignment and description ... 4
5.1 General codes ... 4
5.2 Mass codes ... 6
5.3 Administrative codes ... 10
Annex A (informative) **Axle configuration designations** ... 12
A.1 General information ... 12
A.2 Examples of coding systems used by some chassis manufacturers (CM) ... 12
A.2.1 CM 1 ... 12
A.2.2 CM 2 ... 12
A.2.3 CM 3 ... 12
A.2.4 CM 4 ... 13
A.2.5 CM 5 ... 13
A.3 Examples of designation coding for a specific configuration ... 13
Annex B (informative) **Useful tools and related electronic documents** ... 14
Bibliography ... 15

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 21308-3 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 6, *Terms and definitions of dimensions and masses*.

ISO 21308 consists of the following parts, under the general title *Road vehicles — Product data exchange between chassis and bodywork manufacturers (BEP)*:

— *Part 1: General principles*

— *Part 2: Dimensional bodywork exchange parameters*

— *Part 3: General, mass and administrative exchange parameters*

— *Part 4: Mapping to STEP application protocol 239*

Introduction

Truck chassis manufacturers deal with configuration 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 in advance with the bodywork manufacturer. 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.

ISO 21308 specifies a system of codes for exchanging specific data between chassis and bodywork manufacturers, providing a platform for efficient communication between the parties. The process of exchanging data according to this part of ISO 21308 is irrelevant of IT sophistication degree. Any medium can be used, from fax or e-mail to a STEP protocol.

Exchanging codes according to ISO 21308 is useful in various situations, e.g. for design and manufacturing, technical specifications, technical drawings and leaflets.

ISO 21308 uses the applicable definitions from the related ISO 612 and ISO 7656 and adds a number of dimensional codes, together with general, mass and administrative codes.

The codes provide the basic information level and are also the basic input parameters for a data exchange system based on the STEP protocol.

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

Part 3: General, mass and administrative exchange parameters

1 Scope

This part of ISO 21308 provides codes for the exchange of general, mass and administrative information. It applies to commercial vehicles, as defined in ISO 3833, having a maximum gross vehicle mass above 3 500 kg.

The process of exchanging the above information can involve

— the chassis manufacturer,

— the chassis importer,

— the 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 referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 3779, *Road vehicles — Vehicle identification number (VIN) — Content and structure*

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

ISO 7656, *Commercial road vehicles — Dimensional codes*

ISO 21308-2, *Road vehicles — Product data exchange between chassis and bodywork manufacturers (BEP) — Part 2: Dimensional bodywork exchange parameters*

3 Terms and definitions

For the purposes of this document, definitions given in ISO 612, ISO 1176, ISO 7656, ISO 21308-2, and the following apply.

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 BEP is an abbreviation of Bodywork Exchange Parameter.

3.2
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 See also ISO 1176.

4 Coding system

Each dimension given in this International Standard is assigned a code, composed of the items given below.

4.1 BEP code

A prefix “BEP”, followed by a dash (-), shall be used to avoid confusion with other coding systems.

4.2 Type of code

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

— **G** – General data;

— **M** – Mass data;

— **A** – Administrative data.

If there is a need to differ between items on the right or left side, the BEP code should be supplemented by .R or .L.

4.3 Numbering

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

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

For chassis-frame-mounted objects, the same .n number shall be applied to a specific object, both for the general information on the object and the dimensional codes.

EXAMPLE Information of a fuel tank should be given the code G060.4 when referred to as a frame-mounted object number 4 according to ISO 21308-2. This applies even if there is only one fuel tank.

NOTE ISO 21308-2 also provides an option for coding the actual object; for example the letter F is used for fuel tank.

If the above method is not possible, the information on the relation between the general coding and the dimensional coding for a specific object should be provided.

4.4 Code assignment and description

Subclauses 5.1 to 5.3 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, web site or bodybuilder’s manual, etc.

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.

5 BEP code assignment and description

5.1 General codes

The information in Table 1 should, where applicable, be supplemented by the chassis manufacturer's information for bodybuilders. All information may not be known from the beginning, so such codes may be specified later in the process.

Table 1 — General codes

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-G001	Vehicle type	Type of vehicle in terms of its intended use. EXAMPLE Swap body truck, concrete mixer chassis, car transporter, crane truck, demountable body.	A	-	TD
BEP-G002	Vehicle make and model	Brand name, model designation and manufacturing year.	A	-	TD
BEP-G003	Vehicle chassis information	Main characteristics of the chassis according to the chassis manufacturer. EXAMPLE Low, high	A	-	TD
BEP-G004	Chassis frame type	Manufacturer's chassis designation.	A	-	TD
BEP-G005	Cab type	Manufacturer's cab designation.	A	-	TD
BEP-G010.n	Type of bodywork	Brand name, model designation and manufacturing year.	A	-	TD
BEP-G020	Axle configuration	Specification of number of wheels, number of driven wheels and steered wheels according to the manufacturer's designation. EXAMPLE 6 x 2 / 4 may be the designation of a vehicle with a total of six wheels, where two are driven and four are steered. NOTE See also Annex A (informative).	A	-	TD
BEP-G021.n	Axle information	Main characteristics of the n-th axle. NOTE Driving, steering, lifting and combinations thereof, including bogies and tandems.	A	-	TD
BEP-G022.n	Axle type	Manufacturer's designation for the n-th axle.	A	-	TD
BEP-G023.n	Axle gear ratio	Manufacturer's gear ratio data for the n-th axle.	A	-	TD
BEP-G030.n	Brake type	Manufacturer's brake type designation for the n-th axle.	A	-	TD
BEP-G031.n	Rim and tyre size	Tyre and rim designation on the n-th axle. NOTE BEP-G031.s is used for spare wheel.	A	-	TD
BEP-G032.n	Suspension type	Manufacturer's suspension designation for the n-th axle. EXAMPLE Leaf, air, etc.	A	-	TD
BEP-G040	Engine type	Manufacturer's engine type designation.	A	-	TD
BEP-G050	Gearbox type	Manufacturer's gearbox type designation.	A	-	TD
BEP-G051	Gearbox gear ratio	Manufacturer's gearbox gear ratio data.	A	-	TD

Table 1 (*continued*)

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-G060.n	Fuel tank data	Type, material, volume, etc, of fuel tank with object number n.	A	-	TD
BEP-G061.n	Air tank data	Type, volume, etc, of air tank with object number n.	A	-	TD
BEP-G062.n	Hydraulic tank data	Type, material, volume, etc. of hydraulic tank with object number n. NOTE Tanks added by bodybuilder are included.	A	-	TD
BEP-G063.n	Hydraulic oil	Chassis manufacturer's or bodybuilder's specification.	A	-	TD
BEP-G064.n	Hydraulic pump type	Manufacturer's data for the n-th hydraulic pump. NOTE Data may include flow, working pressure, displacement, rotation and type, e.g. fixed or variable.	A	-	TD
BEP-G070	Exhaust system	Manufacturer's exhaust designation.	A	-	TD
BEP-G071	Air intake type	Manufacturer's air intake designation.	B	-	TD
BEP-G080	Electrical system	Manufacturer's specifications for the electrical system. NOTE Voltage, groundage, etc.	A	-	TD
BEP-G081.n	Battery data	Type, capacity, etc. of battery with object number n. EXAMPLE BEP-G081.1: 24 V, 180 Ah.	A	-	TD
BEP-G082.n	Alternator type	Manufacturer's alternator designation and capacity.	A	-	TD
BEP-G083.n	Electrical interface for bodywork	Electrical interface for bodywork purposes.	A	-	TD
BEP-G084.n	Electrical interface for towed vehicle	Type of electrical connectors between towing and towed vehicle. EXAMPLE 24 V connector according to ISO 12098, ISO 7638.	A	-	TD
BEP-G085.n	Electronic interface for bodywork	Electronic interface for bodywork purposes.	A	-	TD
BEP-G086.n	Electronic interface for towed vehicle	Type of electronic transmission between towing and towed vehicle. EXAMPLE CAN communication according to ISO 11992.	A	-	TD
BEP-G100.n	Hydraulic interface for bodywork	Hydraulic interface between the chassis and bodywork.	A	-	TD
BEP-G101.n	Hydraulic interface for bodywork on towed vehicle	Type of hydraulic connectors between towing and towed vehicle, for bodywork purposes. NOTE Male/female, size, etc.	A	-	TD
BEP-G110.n	Pneumatic interface for bodywork	Pneumatic interface between the chassis and bodywork.	A	-	TD

Table 1 (*continued*)

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-G111.n	Pneumatic interface for bodywork on towed vehicle	Type of pneumatic connectors between towing and towed vehicle, for bodywork purposes. NOTE Male/female, size, etc.	A	-	TD
BEP-G120.n	PTO type	Designation and type, e.g. gearbox, engine, flywheel, and rotational direction (clockwise/counter-clockwise) of the n-th PTO. NOTE 1 PTO axle rotation is as viewed from the connection interface. NOTE 2 PTO dimension code is designated item 043 according to ISO 21308-2. EXAMPLE PTO 2 shall be designated BEP-G120.2 and the corresponding dimensional code shall be BEP-L043.2, BEP-H043.2 and BEP-W043.2.	A	-	TD
BEP-G121.n	PTO output data	Manufacturer's data for the n-th PTO output at a given rotational speed.	A	-	TD
BEP-G130	Front underrun protection	Manufacturer's specifications of front underrun protection.	A	-	TD
BEP-G131	Side underrun protection	Manufacturer's specifications of side underrun protection.	A	-	TD
BEP-G132	Rear underrun protection	Manufacturer's specifications of rear underrun protection.	A	-	TD
BEP-G140.n	Towing device	Manufacturer's specifications for the n-th towing device.	A	-	TD
BEP-G150.n	Fender	Manufacturer's specifications for the n-th fender.	A	-	TD

5.2 Mass codes

Legally authorized masses in Table 2 should be applicable to the country as given by the administrative code A070.

Table 2 — Mass codes

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-M001	Technically permissible gross vehicle mass	The maximum permissible vehicle mass according to the technical design of the vehicle, established by the vehicle manufacturer.	A	-	TD
BEP-M002	Legally authorized gross vehicle mass	The maximum permissible vehicle mass according to national or regional legislative authorities.	A	-	TD
BEP-M010	Technically permissible towable mass	The maximum permissible towable mass according to the technical design of the towing vehicle, the drawbar and the towing device, established by the respective manufacturer.	A	-	TD
BEP-M011	Legally authorized towable mass	The maximum permissible towable mass according to national or regional legislative authorities.	A	-	TD

Table 2 (*continued*)

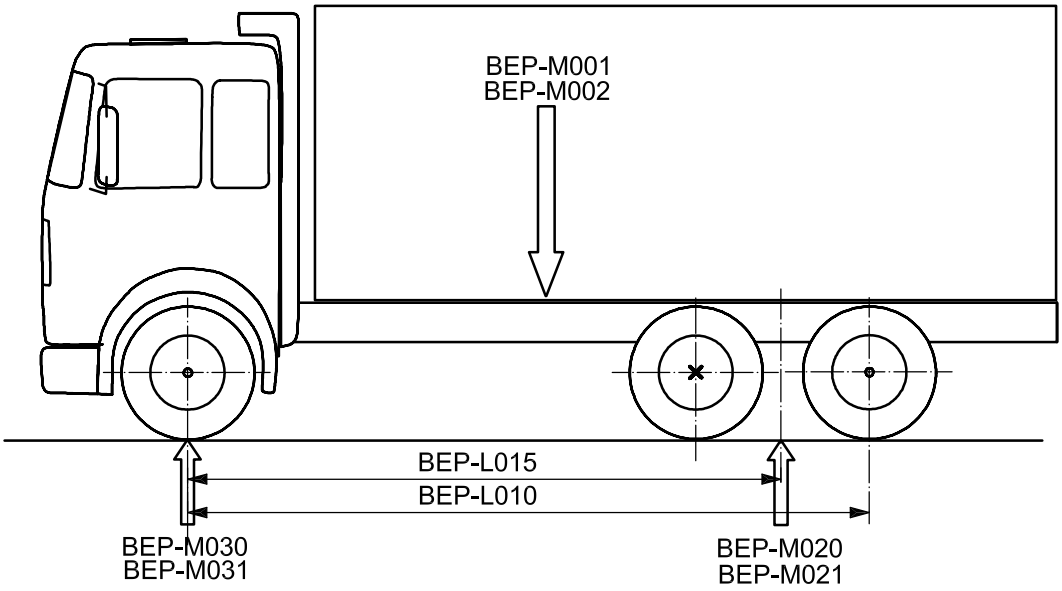
BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-M020	Technically permissible load on vehicle rear axle combination	The maximum permissible load of the rear axle combination according to the technical design of the vehicle, established by the vehicle manufacturer.	A	-	TD
BEP-M021	Legally authorized load on vehicle rear axle combination	The maximum permissible load of the rear axle combination according to national or regional legislative authorities.	A	-	TD
BEP-M030	Technically permissible load on vehicle front axle combination	The maximum permissible load of the front axle combination according to the technical design of the vehicle, established by the vehicle manufacturer.	A	-	TD
BEP-M031	Legally authorized load on vehicle front axle combination	The maximum permissible load of the front axle combination according to national or regional legislative authorities.	A	-	TD
					
BEP-M040.n	Technically permissible axle load on the vehicle n-th axle	The maximum permissible load of the vehicle n-th axle according to the technical design of the vehicle, established by the vehicle manufacturer.	A	-	TD
BEP-M041.n	Legally authorized axle load on the vehicle n-th axle	The maximum permissible load of the vehicle n-th axle according to national or regional legislative authorities.	A	-	TD

Table 2 (*continued*)

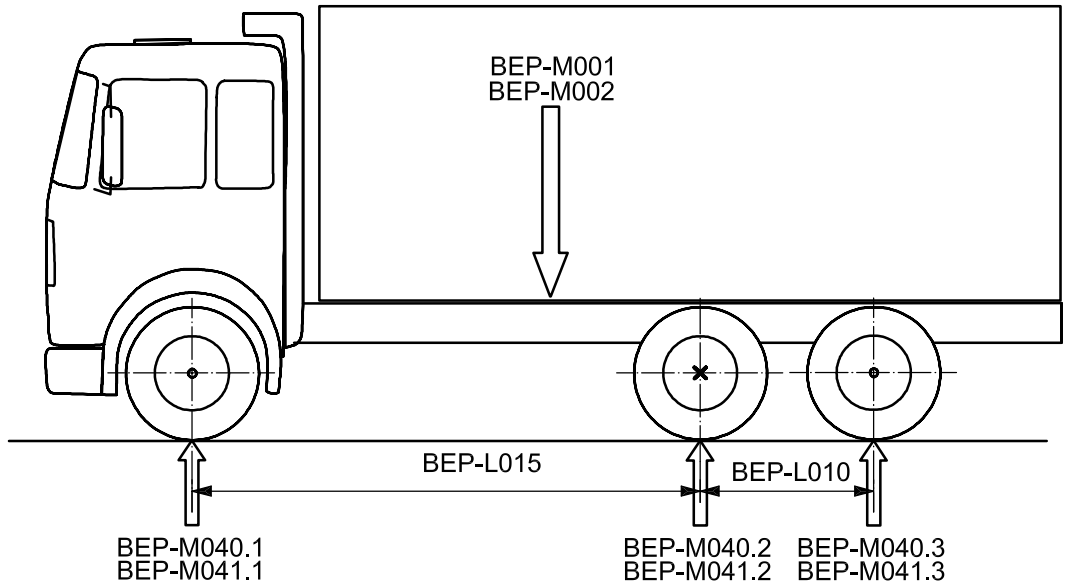
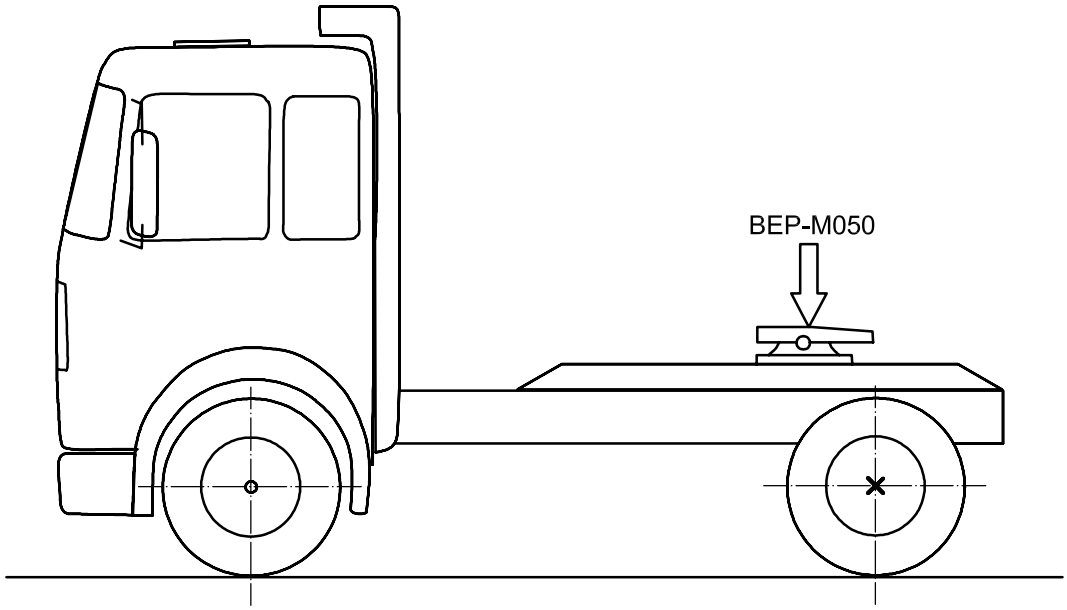
BEP code	Assignment	Description	Priority	Loading	Presented in
					
BEP-M050	Technically permissible fifth-wheel load	The maximum permissible load of the fifth wheel according to the technical design of the vehicle, established by the vehicle manufacturer.	A	-	TD
					

Table 2 (*continued*)

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-M060	Chassis and cab kerb mass	Chassis and cab dry mass plus the mass of the following elements: — coolant (if needed); — lubricants; — washer fluid; — fuel (tank filled up to at least 90 % of the capacity specified by the manufacturer); — spare wheels; — fire extinguishers. NOTE See ISO 1176 for further information regarding the items to be included.	A	-	TD
BEP-M070	Bodywork mass	Mass of complete bodywork, to be given by the bodywork manufacturer, with fluids filled to at least 90 % of the respective system capacity. NOTE Fluid filling in accordance with ISO 1176.	A	-	TD
BEP-M080	Complete vehicle kerb mass	Complete vehicle shipping mass, to be given by the bodywork manufacturer, with bodywork plus the mass of the following elements: — coolant (if needed); — lubricants; — washer fluid; — fuel (tank filled up to at least 90 % of the capacity specified by the manufacturer); — spare wheels; — fire extinguishers. NOTE See ISO 1176 for further information regarding the items to be included.	A	-	TD
BEP-M090	Mass of chassis at front	Share of mass of “chassis and cab kerb mass” (BEP-M-060) on the theoretical front axle centreline, to be given by the bodywork manufacturer. NOTE In case of only one front axle, it is on the front axle centreline.	A	-	TD
BEP-M100	Mass of chassis at rear	Share of mass of “chassis and cab kerb mass” (BEP-M-060) on the theoretical rear axle centreline, to be given by the bodywork manufacturer. NOTE In case of only one rear axle, it is on the rear axle centreline.	A	-	TD
BEP-M110	Technical payload	Difference between the “technically permissible gross vehicle mass” (BEP-M001) and “complete vehicle kerb mass” (BEP-M080), with mass of driver excluded. NOTE This also applies to tractor-trailer combinations.	A	-	TD

Table 2 (*continued*)

BEP code	Assignment	Description	Priority	Loading	Presented in
BEP-M111	Legal payload	Difference between "legally authorized gross vehicle mass" (BEP-M002) and "complete vehicle kerb mass" (BEP-M080), with mass of driver excluded. NOTE This also applies to tractor-trailer combinations.	A	-	TD
BEP-M120.n.t	Mass of chassis-mounted object	Mass of the n-th chassis-mounted object. NOTE 1 The optional type coding (.t) can be used. NOTE 2 Tanks should be filled to at least 90 %. EXAMPLES Battery, toolbox, fuel tank, air tank, hydraulic tank.	A	-	TD

5.3 Administrative codes

The administrative BEP codes in Table 3 are intended for the communication between the parties, e.g. the chassis manufacturer, the bodywork manufacturer and a component supplier. All listed codes refer to data of the respective party, .p.

Table 3 — Administrative codes

BEP code	Assignment	Description
BEP-A001.p	Company ID	Identity number of the respective company. EXAMPLES VAT no. of chassis manufacturer, chassis dealer, bodybuilder, component supplier, etc.
BEP-A002.p	Company name	Name of the respective company.
BEP-A003.p	Company contact details	Contact details of the respective company. EXAMPLES Postal address, visitor address, e-mail, telephone, fax, web site. The information could include contact person(s).
BEP-A010.p	Reference ID	Identification number of the project.
BEP-A011.p	Project description	Information about the project.
BEP-A020.p	Approval statement	Written statement that the order or specification is accepted.
BEP-A021.p	Date of final specification	Date when the product specification is considered to be definitive ("frozen") and no further changes are accepted. EXAMPLE YYYY-MM-DD.
BEP-A030.p	Order number	Identity of the order.
BEP-A031.p	Order confirmation	Date when the order is confirmed. EXAMPLE YYYY-MM-DD.
BEP-A032.p	Order version	Issue number of current order version. EXAMPLE "Rev 3".
BEP-A033.p	Order version date	Date of version of BEP-A032.p. EXAMPLE YYYY-MM-DD.
BEP-A034.p	Order version update information	Written comments regarding changes in the order.

Table 3 (*continued*)

BEP code	Assignment	Description
BEP-A040.p.n	Serial number	Identifier of the ordered product(s). EXAMPLE The ordered product may be the chassis, the bodywork or a component package.
BEP-A050	VIN of vehicle chassis	VIN (Vehicle Identification Number) of the vehicle chassis, according to ISO 3779.
BEP-A051.p	Product delivery date	Date when the purchased product is delivered, ex works, by the respective company. EXAMPLE YYYY-MM-DD.
BEP-A060	Country of registration	Name of country, or country code according to ISO 3166-1, where the registration is done. NOTE This should be the country for which the legally authorized masses are given according to M002, etc.
BEP-A070.p.n	Legal reference	Legal reference(s) to regulations for noise, safety, environmental considerations, hazardous goods, etc.

Annex A
(informative)

Axle configuration designations

A.1 General information

There is currently no ISO International Standard providing guidelines on the designations of axle configurations. This informative annex shows commonalities and differences in configuration designations used by some chassis manufacturers at the time of publication of this International Standard.

Basic information to convey via a simple code expression would be

— total number of wheels,

— number of driven wheels,

— number of steered wheels.

In addition, it is often necessary to communicate *which* of the respective wheels are driven and steered. It may also be necessary to communicate dependence between axles.

There seems to be a well-established way of communicating the total number of wheels and the number of driven wheels *(Total number of wheels)* **X** *(Number of driven wheels).*

EXAMPLE **6 X 4** means six wheels in total, four of which are driven.

NOTE 1 This designation system is also used in ISO 2575 for the corresponding symbols and tell-tales.

NOTE 2 Twin tyres are counted as “one wheel” in this context.

When it comes to further specifications, there are different systems in use, as shown by the examples below.

A.2 Examples of coding systems used by some chassis manufacturers (CM)

A.2.1 CM 1

This includes letter designations, in addition to the formula above.

A.2.2 CM 2

/ = “Number of steered wheels” (in addition to the formula above).

This includes letter designations in addition to the formula above.

A.2.3 CM 3

/ = “Number of steered wheels, only the front wheels are steered”, and

– = “Number of steered wheels, combined front- and rear-wheel steering”,

(in addition to the formula above).

A.2.4 CM 4

/ = “Steered tag axle in front of the first driven rear axle”, and

***** = “Steered tag axle behind the rearmost driven rear axle”,

(in addition to the formula above).

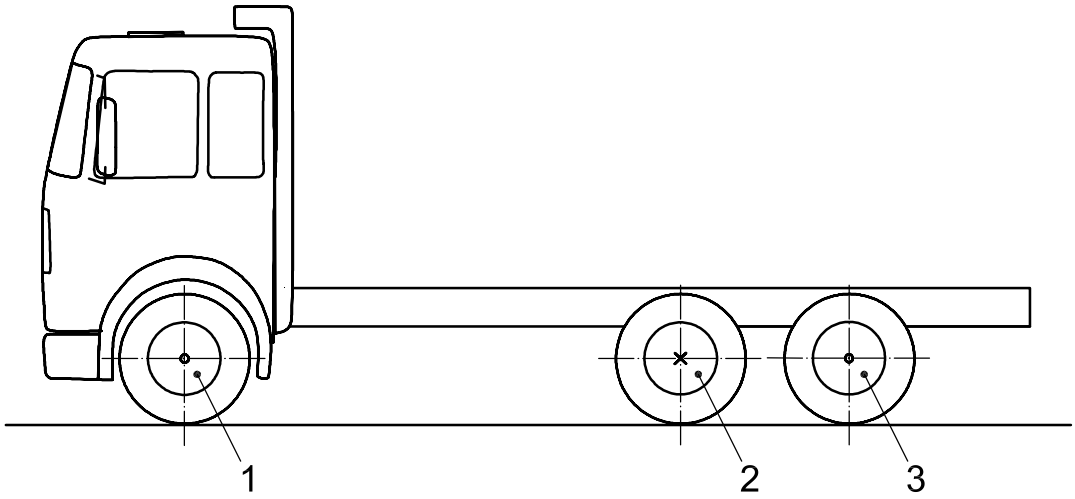
A.2.5 CM 5

***** = “Number of driven wheels” (instead of “X” in the formula above).

This includes letter coding for detailed description.

A.3 Examples of designation coding for a specific configuration

The following example illustrates how the above manufacturers would designate a vehicle with the following configuration: “Three axles (six wheels), one driven rear axle, and one steered trailing axle.”



Key

1 steered front axle
2 driven rear axle
3 steered trailing axle

Figure A.1 — Vehicle with a specific configuration

The vehicle according to Figure A.1 would be designated as follows by the chassis manufacturers:

— **CM 1:** 6 X 2 FAN;

— **CM 2:** 6 X 2 / 4 NLA;

— **CM 3:** 6 X 2 – 4;

— **CM 4:** 6 X 2 * 4;

— **CM 5:** 6 * 2 TA-HYDRS (assuming hydraulically steered trailing axle).

Annex B
(informative)

Useful tools and related electronic documents

Supplementary information, updates and support tools of this International Standard will be posted on the ISO Standards Maintenance web site as they become available.

This information can be found at the following URL:

http://standards.iso.org/iso/21308.

Bibliography

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

[2] ISO 2575, *Road vehicles — Symbols for controls, indicators and tell-tales*

[3] EN 12999, *Cranes — Loader cranes*

[4] Directive 94/20/EC *Mechanical couplings*

[5] ISO 7638 (all parts), *Road vehicles — Connectors for the electrical connection of towing and towed vehicles*

[6] ISO 11992 (all parts), *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles*

[7] ISO 12098, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 15-pole connector for vehicles with 24 V nominal supply voltage*

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