

SLOVENSKI STANDARD

SIST EN 12642:2017

01-januar-2017

Nadomešča:
SIST EN 12642:2007

Zaščita tovora na cestnih vozilih - Vrsta nadgradnje gospodarskih vozil - Minimalne zahteve

Securing of cargo on road vehicles - Body structure of commercial vehicles - Minimum requirements

Ladungssicherung auf Straßenfahrzeugen - Aufbauten an Nutzfahrzeugen - Mindestanforderungen

Arrimage des charges à bord des véhicules routiers - Structure de la carrosserie des véhicules utilitaires - Exigences minimales

Ta slovenski standard je istoveten z: EN 12642:2016

ICS:

43.080.01	Tovorna vozila na splošno	Commercial vehicles in general
55.180.99	Drugi standardi v zvezi z distribucijo blaga s prevozom	Other standards related to freight distribution of goods

SIST EN 12642:2017

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12642

November 2016

ICS 43.080.10

Supersedes EN 12642:2006

English Version

**Securing of cargo on road vehicles - Body structure of
commercial vehicles - Minimum requirements**

Arrimage des charges à bord des véhicules routiers -
Structure de la carrosserie des véhicules utilitaires -
Exigences minimales

Ladungssicherung auf Straßenfahrzeugen - Aufbauten
an Nutzfahrzeugen - Mindestanforderungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 General requirements	5
5 Testing.....	6
5.1 General.....	6
5.2 Static test – Airbag test (Annex A).....	7
5.2.1 Requirements	7
5.2.2 General.....	7
5.2.3 Strength of the front wall	7
5.2.4 Strength of the rear wall	8
5.2.5 Strength of the side wall	9
5.2.6 Floor ledge (optional).....	10
5.2.7 Double-decker design (Code XL only)	11
5.3 Dynamic driving test (Annex B).....	12
5.3.1 Test acceleration	12
5.3.2 General.....	12
6 Documentation.....	13
7 Maintenance.....	14
Annex A (normative) Details of the airbag test.....	15
Annex B (normative) Dynamic driving test	16
B.1 General.....	16
B.2 General requirements for the test	16
B.3 Conditions of loading.....	16
B.3.1 Test for body structure with defined cargo units.....	16
B.3.2 Test of cargo arrangements with other cargo units	16
B.4 Measuring technique and assessment.....	16
B.5 Driving tests	17
B.5.1 Use of a supporting axle.....	17
B.5.2 Testing brake deceleration (0,8 g) in longitudinal direction.....	17
B.5.3 Test of transverse acceleration (0,5 g) - U-turn-test	18
B.5.4 Change of lane test with accelerations of 0,5 g around both curves each – S-test	19
B.5.5 Test of reverse acceleration (0,5 g)	20
Annex C (normative) Test certificate of body structure tested according to EN 12642	22
Annex D (informative) Test report of body structure tested according to EN 12642	24
Bibliography.....	26

European foreword

This document (EN 12642:2016) has been prepared by Technical Committee CEN/TC 119 “Swap bodies for combined goods transport”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12642:2006.

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EN 12642:2016 (E)**Introduction**

The aim of this revision is to update the test methods as well as marking and certification of vehicle body structures that are able to take up a part of the forces to secure the cargo. Due to the particular cargo and the body type additional securing of cargo can become necessary and should be determined in each specific case by the shipper, the operator or the driver.

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1 Scope

This European Standard applies to body structures on commercial vehicles and on trailers.

This European Standard sets out basic minimum requirements for standard vehicle bodies (side walls, front and rear walls) and for reinforced vehicle bodies and specifies appropriate tests.

This European Standard applies to all commercial vehicles which are related by design and body type to the body structures described below.

Forces applied according to the test requirements described below can be invoked for load securing purposes.

The floor of the vehicle is a part of the sub frame. As long as the floor strength is not defined, the manufacturer should give the necessary information. Testing of the axle load on the floor should be carried out analogous to EN 283. The result should be marked in locations according to chapter 6.

This European Standard does not apply to vans according to ISO 27956.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12195-1:2010, *Load restraining on road vehicles - Safety - Part 1: Calculation of securing forces*

IMO/ILO/UNECE, *Code of Practice for Packing of Cargo Transport Units (CTU Code):2014*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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3.1 reinforced vehicle body

vehicle body, having a reinforced structure, and complying with the minimum requirements for Code XL according to 5.2, Table 1, or 5.3, Table 2

3.2

standard vehicle body

vehicle body complying with the minimum requirements of 5.2 (Code L according to Table 1) which, depending on cargo weight and friction, requires additional securing of cargo using lashing equipment

4 General requirements

Verification of conformity to the requirements of this standard shall be provided either by:

- a) dynamic driving tests (see 5.3 and Annex B),
- b) static tests:
 - 1) airbag test (see 5.2 and Annex A),
 - 2) static inclination test according to EN 12195-1:2010 with the type of cargo as described in the dynamic test (see B.3) and the duration time in 5.2.2,

EN 12642:2016 (E)

- c) other methods for applying the test forces which are acceptable if equivalence to test methods above can be proved,
- d) calculation (methods of calculation shall be verified by one of the test methods above).

Body structures of the same design or type should be verified by testing the worst case for that design.

A calculation or test for the complete system consisting of front, rear and side walls, roof and floor is necessary for the entire structure even if individual components have been taken from sample structures which have been calculated or tested with positive results before. However, it is admissible to replace individual components which have successfully been tested within a complete system with others that have yielded the same results in testing.

Where a body structure has been tested or calculated successfully as a modular system set, calculation or testing shall be carried out to verify that the connection between the body structure and the floor complies with the requirements of the standard.

The specified test value P , for which the body structure is tested shall be documented in the test certificate according to Annex C and marked according to Clause 6. This specified test value P may be different from the technical payload.

Information should be provided in the test certificate by the manufacturer about the part of test value P of the front wall at a height of 200 mm and 800 mm. For the side walls the part of the test value P should be provided at a height of 800 mm or maximum height (if lower).

The specified test requirements apply to the following types of body structures:

- box type;
- drop side body with side and tail boards without tarpaulin cover;
- drop side body with side and tail boards with tarpaulin cover;
- curtainsider.

By analogy these test requirements also apply to all other types of body structures.

Vehicle body structures shall be tested in the condition in which they are intended to be used (e.g. without additional securing measures). Moreover, if the bodies are equipped with removable components, these components shall be in operational position during the test.

Approval criteria:

After finishing the tests (for driving tests see B.5) or calculations the body structure shall show neither permanent deformation nor other changes which would impair its intended use; and the following criteria shall be satisfied:

- Maximum deflection of the tested structure during the test shall not exceed 300 mm.
- At a test force of 100 % of the test value a permanent deformation of 20 mm may occur, but only if the intended use is not impaired.

5 Testing**5.1 General**

The following test methods are described (see 5.2 and 5.3).

5.2 Static test – Airbag test (Annex A)

5.2.1 Requirements

Table 1 gives an overview of the details of static test forces.

Table 1 — Static test forces

Component		Standard structure Code L	Reinforced structure Code XL
Front wall	Requirement	$0,4 P \times g$ and max. limit 50 kN ^c	$0,5 P \times g$ without max. limit
	Section	5.2.3	5.2.3
Rear wall	Requirement	$0,25 P \times g$ and max. limit 31 kN ^c	$0,3 P \times g$ without max. limit
	Section	5.2.4	5.2.4
Side wall	Requirement	$0,3 P \times g^a$	$0,4 P \times g^b$
	Section	5.2.5	5.2.5
^a For curtainsiders without board walls, apply $0,15 P \times g$; for body structures with board walls and tarpaulin cover, apply $0,24 P \times g$ for the board walls and $0,06 P \times g$ for the tarpaulin cover. ^b Except for double-decker design. ^c Higher values can be tested and marked.			

5.2.2 General

The following outlines the test requirements for vehicle body structures. In principle, these test requirements apply to all requirement profiles.

For each static test the test force shall be applied for at least 5 min.

In the testing requirements specified, the mentioned letters shall have the following meaning:

- P the specified test value P (in kg), for which the body structure is tested;
- F the test force according to Table 1;
- p the required test pressure in MPa.

NOTE P can differ from the payload for which the vehicle is designed.

5.2.3 Strength of the front wall

The front wall is tested with a test force of F . The test force is applied to the inner face of the front wall to be tested, it shall be applied uniformly on the surface,

$$(\text{width of body structure}) \times (\geq 3/4 \text{ of height of body structure}),$$

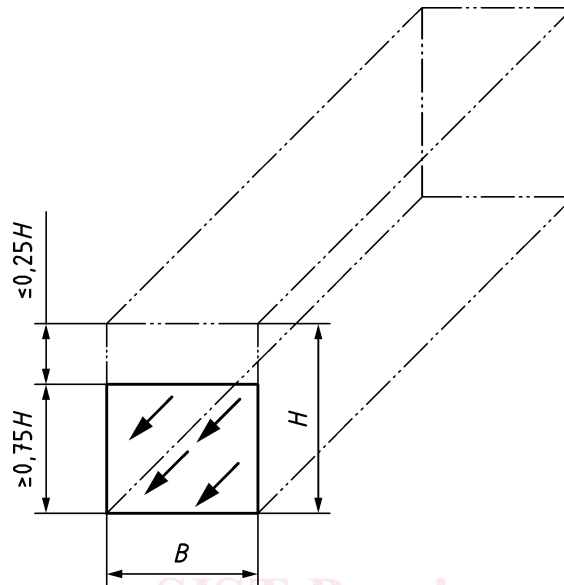
the height, however, shall be at least 1 600 mm (see Figure 1 and Formula (1)). Where the front wall height is < 1 600 mm the full height of the body structure shall be taken into account for a uniform distribution of the test force applied.

EN 12642:2016 (E)

Front wall:

$$p = \frac{F}{\geq 0,75 H \times B} \quad (1)$$

$$H_{\min} = 1\,600 \text{ mm}$$

**Key**

H total internal height of the front wall

B total internal width of the front wall

Figure 1 — Testing of front wall

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5.2.4 Strength of the rear wall

The rear wall shall be tested with a test force F . The test force is applied to the inner face of the rear wall to be tested, it shall be applied uniformly on the surface,

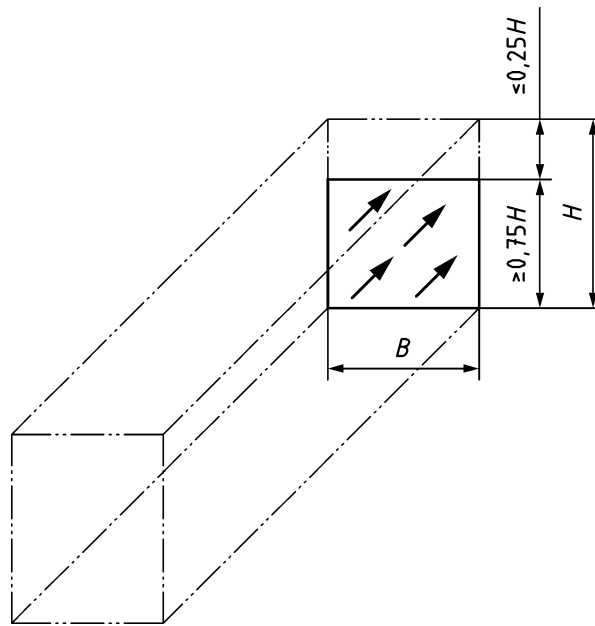
(width of body structure) $\times$ ($\geq 3/4$ of height of body structure),

the height, however, shall be at least 1 600 mm (see Figure 2 and Formula (2)). Where the rear wall height is $< 1\,600$ mm the full height of the body structure shall be taken into account for a uniform distribution of the test force applied.

Rear wall:

$$p = \frac{F}{\geq 0,75 H \times B} \quad (2)$$

$$H_{\min} = 1\,600 \text{ mm}$$

**Key**

H total internal height of the rear wall

B total internal width of the rear wall

Figure 2 — Testing of rear wall

5.2.5 Strength of the side wall

Side walls shall be tested with a test force of F . The test force is applied to the inner face of the side wall to be tested, it shall be applied uniformly on the surface,

(length of body structure) x ($\geq 3/4$ of height of body structure),

the height, however, shall be at least 1 600 mm (see Figure 3 and Formula (3)). Where the side wall height is $< 1\,600$ mm the full height of the body structure shall be taken into account for a uniform distribution of the test force applied.

Where the body comprises curtain sides which also have to absorb pressure forces from the cargo such curtain sides should meet the minimum requirements of EN 12641-2.

Where the construction is symmetrical only one side wall needs to be tested.

Side wall:

$$p = \frac{F}{\geq 0,75 H \times L} \quad (3)$$

$$H_{\min} = 1\,600 \text{ mm}$$