



SLOVENSKI STANDARD
SIST EN 13775-4:2004

01-september-2004

Železniški vagoni - Merjenje novih in modificiranih tovornih vagonov - Del 4: Bogije s 2 kolesnimi pari

Railway applications - Measuring of new and modified freight wagons - Part 4: Bogies with 2 wheelsets

Bahnanwendungen - Vermessung von Güterwagen beim Neubau und bei Umbauten - Teil 4: Drehgestelle mit 2 Radsätzen

Applications ferroviaires - Mesure des wagons lors de leur construction et lors de modifications - Partie 4: Bogies a deux essieux

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ICS:

45.060.20 Železniški vagoni Trailing stock

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EUROPEAN STANDARD
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ICS 45.060.20

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Railway applications - Measuring of new and modified freight wagons - Part 4: Bogies with 2 wheelsets

Applications ferroviaires - Mesure des wagons lors de leur construction et lors de modifications - Partie 4: Bogies à deux essieux

Bahnanwendungen - Vermessung von Güterwagen beim Neubau und bei Umbauten - Teil 4: Drehgestelle mit 2 Radsätzen

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents	Page
Foreword	3
Introduction.....	4
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Symbols and abbreviations	4
5 Requirements	5
5.1 General.....	5
5.2 Precondition	5
5.3 Measuring processes	5
5.3.1 General.....	5
5.3.2 Measuring processes on bogie with laminated springs.....	5
5.3.3 Measuring processes on bogies with other springs.....	15
Annex A (normative) Control sheet.....	24
Annex B (informative) Example of measuring process 1.....	26
Annex C (informative) Checking the height of the bogie pivot centre.....	29
C.1 Introduction	29
C.2 Measurements	29
Annex D (informative) Terminology.....	31
Bibliography.....	32

Foreword

This document EN 13775-4:2004 has been prepared by Technical Committee CEN/TC 256 "Railway applications", 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 December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

This European Standard EN 13775 "Railway applications – Measurement of new and modified freight wagons" comprises the following parts:

- Part 1: Measuring principles
- Part 2: Freight wagons with bogies
- Part 3: Freight wagons with 2 wheelsets
- Part 4: Bogies with 2 wheelsets
- Part 5: Bogies with 3 wheelsets
- Part 6: Multiple and articulated freight wagons

Annex A is normative, Annexes B to D are informative.

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

It is normal practice in all European countries to carry out checks and measurements on the major components of new and modified freight wagons and bogies. In view of the importance of uniform criteria for international transport in all European countries, this European Standard has been prepared.

1 Scope

This European Standard specifies principles and requirements for measuring bogies with 2 wheelsets. This ensures that the measuring processes are applied in accordance with uniform criteria. It applies to new and modified bogies with 2 wheelsets.

Provisions going beyond the scope of these requirements are generally agreed between the contracting parties involved. The measuring processes relate to the bogies with or without add-ons in their entirety or just part of them if the geometrical structure does not permit anything else. Where appropriate, other measuring processes not specified here are necessary and are specified in each individual case.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13775-1:2003, *Railway applications — Measuring new and modified freight wagons — Part 1: Measuring principles.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13775-1:2003 apply.

4 Symbols and abbreviations

For the purposes of this European Standard, the following symbols and abbreviations apply.

DG : Bogie

1 Bogie end 1

2 Bogie end 2



Suspension bracket with bushing



Axle guard with axle-guard cheek

5 Requirements

5.1 General

The limit deviations apply to the finished product in each case.

Deviations from this European Standard are allowed as long as they do not assume proportions that represent an operating hazard. However, they shall be agreed with the contracting party involved and the inspection agency.

5.2 Precondition

The precondition for carrying out the measuring processes as specified in this standard is that the measuring principles laid down in EN 13775-1 are adhered to.

5.3 Measuring processes

5.3.1 General

The control sheet form for the results of the measuring processes in annex A shall be used.

The measuring processes to be carried out differ partially as a function of the type of bogie. Basically, there are two different types of bogies. The measuring processes on bogies with laminated springs are described in 5.3.2 and those on bogies with other springs in 5.3.3.

5.3.2 Measuring processes on bogie with laminated springs

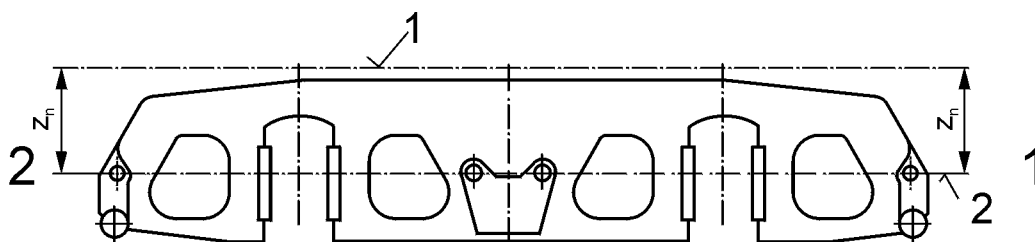
Measuring process 1

Position of the suspension bracket holes.

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For the measuring process, the frame shall be moved into an unrestrained support position.



Key

- 1 Levelling plane
- 2 Theoretical plane of suspension bracket bushing pair (auxiliary plane)

Figure 1

The distance between the suspension bracket holes and the levelling plane is measured.

From the 8 measurements obtained z_n , between the 4 pairs of suspension brackets, the distance to the levelling plane in the centre of the running gear shall be determined (see Figure 1).

From these 4 values, the deviation z_1 from the plane shall be calculated for one point given by the other 3 distances.

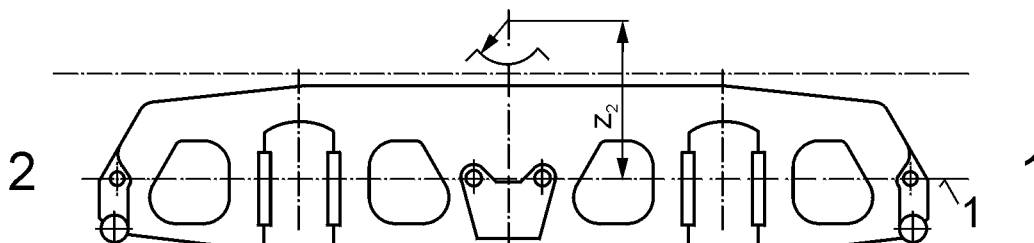
An example for this is given in annex B.

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Limit deviations for z_1 : 3 mm

Measuring process 2

Distance between the theoretical plane of the suspension bracket bushing pair (auxiliary plane) and the centre of the bogie pivot.



Key

1 Theoretical plane of suspension bracket bushing pair (auxiliary plane)

Figure 2

The theoretical plane of the suspension bracket bushing pair (auxiliary plane) determined in measuring process 1 is the reference plane for measuring the centre point of the bogie pivot (see Figure 2).

Limit deviations for z_2 : ± 2 mm

SIST EN 13775-4:2004

Measuring process 3

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Distance between the outside front faces of the suspension brackets in the transverse direction of the bogie.

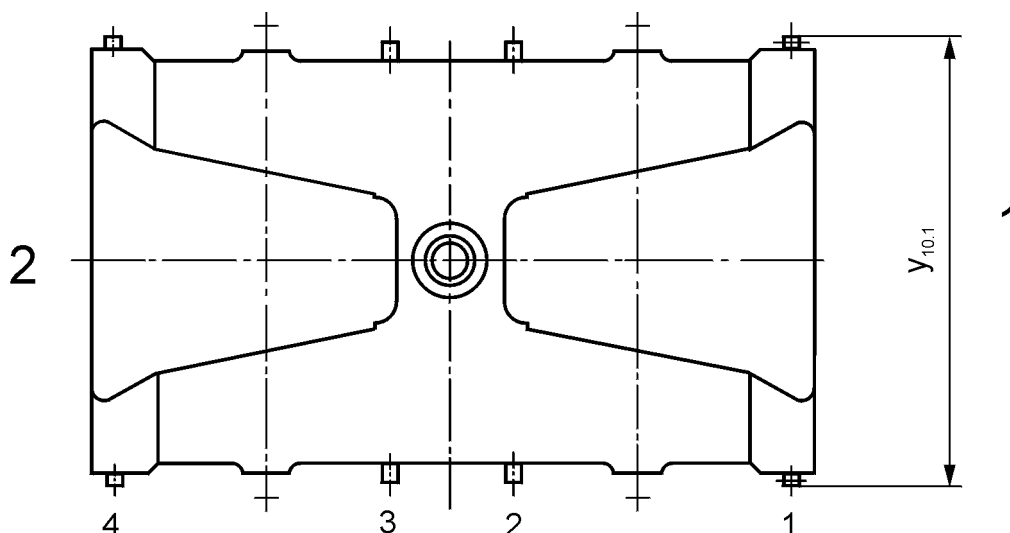


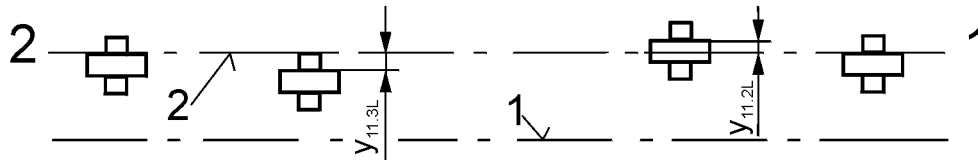
Figure 3

The distance y_{10} between the opposite front faces of the suspension brackets is measured at measuring points 1, 2, 3, 4 (see Figure 3).

Limit deviations for y_{10} : ± 2 mm

Measuring process 4

Position of the suspension bracket front faces

**Key**

- 1 Centre line of bogie
- 2 Reference plane

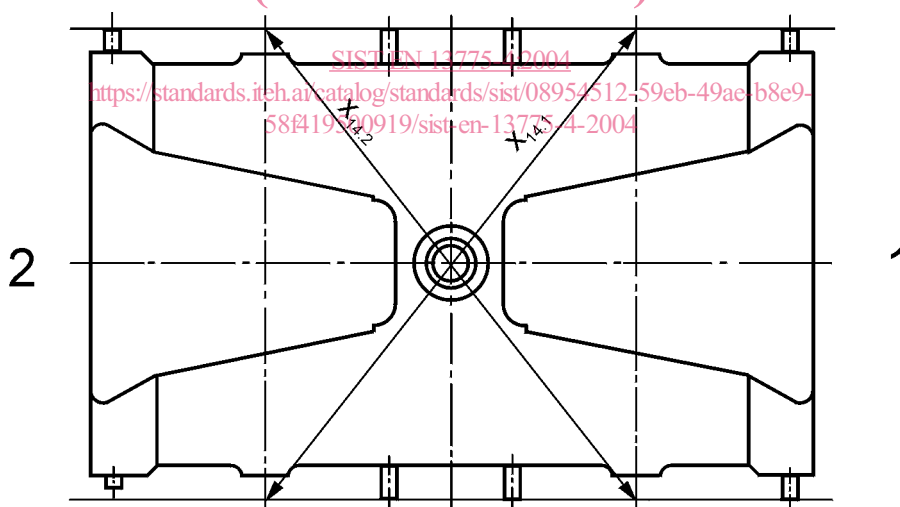
Figure 4

The deviation y_{11} of the two front faces of the inner suspension brackets from the alignment of the front faces of the outer suspension brackets is measured (see Figure 4).

Limit deviations for y_{11} : ± 2 mm

Measuring process 5

Diagonal distance between pairs of suspension brackets.

**Figure 5**

The dimensions $x_{14,1}$ and $x_{14,2}$ are measured on the right-hand and left-hand sides (see Figure 5).

Permissible difference for x_{14} : 3 mm

EN 13775-4:2004 (E)

Measuring process 6

Concentricity of the bogie pivot.

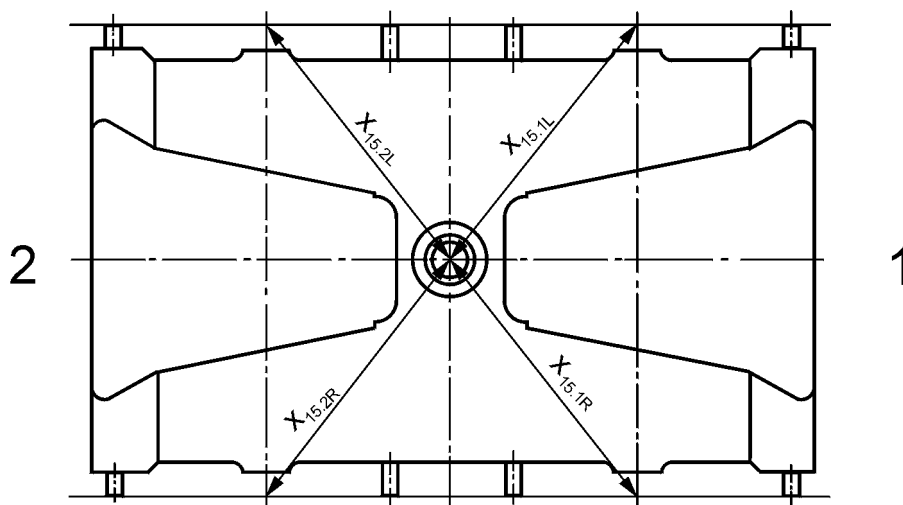


Figure 6

The dimensions $x_{15.1}$ and $x_{15.2}$ are measured on the right-hand and left-hand sides (see Figure 6).

Permissible difference for x_{15} : 3 mm

Measuring process 7

Wheel base.

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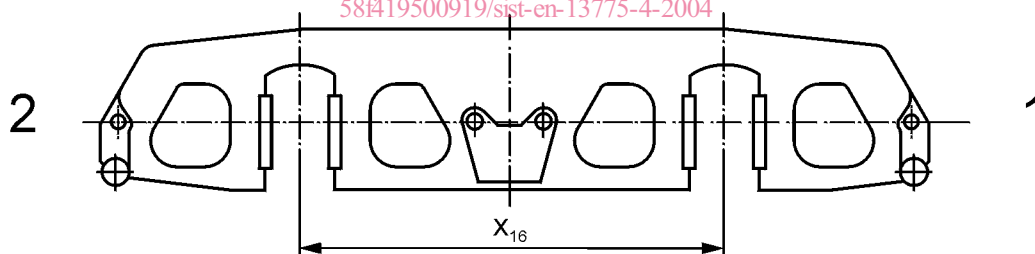


Figure 7

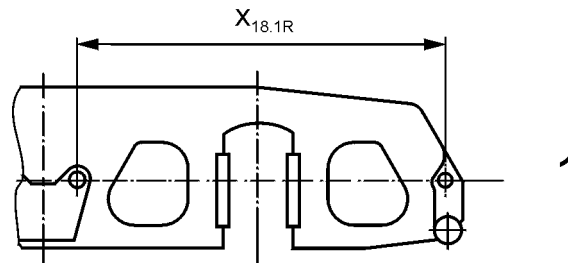
The distance x_{16} between the pairs of suspension brackets is measured at measuring points x_{16R} and x_{16L} (see Figure 7).

Limit deviations for x_{16} : ± 2 mm

Permissible difference between x_{16R} and x_{16L} : 2 mm

Measuring process 8

Distance between suspension bracket holes.

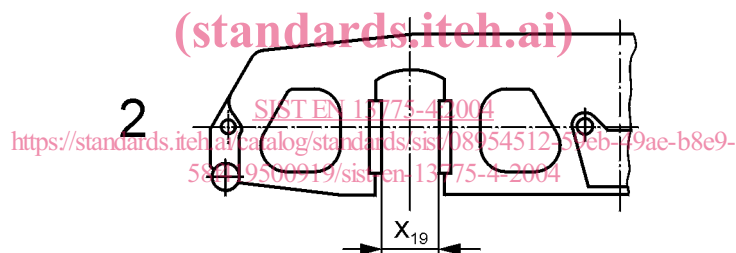
**Figure 8**

The distance x_{18} is measured at measuring points 1R, 2R, 1L, 2L (see Figure 8).

Limit deviations for x_{18} : ± 2 mm

Measuring process 9

Longitudinal distance between the axle-guard cheeks at the narrowest point relative to the vertical.

**Figure 9**

The distance x_{19} between the axle-guard cheeks of a pair of axle-guards is measured (see Figure 9). The measured length is the length of the axle-guard plates.

Limit deviations for x_{19} : $\pm 1,5$ mm

EN 13775-4:2004 (E)

Measuring process 10

Symmetry of the axle-guard cheeks.

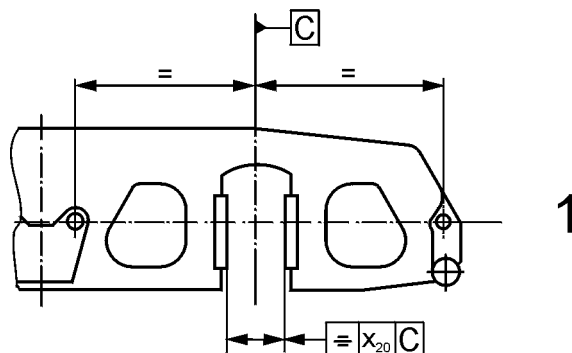


Figure 10

The symmetrical deviation of the axle-guard cheeks relative to the centre of the distance between the suspension bracket holes is measured (see Figure 10).

Tolerance on symmetry $x_{20} = 4 \text{ mm}$

Measuring process 11

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Rectangularity of the axle-guard cheeks in the longitudinal direction.

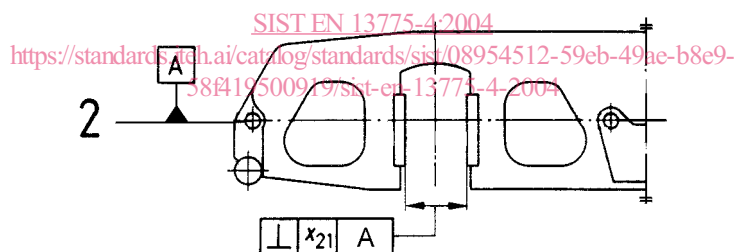


Figure 11

The deviation from rectangularity of the axle-guard cheeks relative to the holes of the suspension bracket pair is measured in the longitudinal direction (see Figure 11).

Tolerance on rectangularity $x_{21}: 1,5 \text{ mm}$