



SWEDISH  
STANDARDS  
INSTITUTE

**SVENSK STANDARD**  
**SS-EN 13775-2**

Fastställd 2003-07-11

Utgåva 1

**Järnvägar – Mätning av nya och modifierade  
godsvagnar –**  
Del 2: Godsvagnar med boggi

**Railway applications – Measuring of new and  
modified freight wagons –**  
Part 2: Freight wagons with bogies

ICS 45.060.20

Språk: engelska

Publicerad: september 2003

Europastandarden EN 13775-2:2003 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13775-2:2003.

The European Standard EN 13775-2:2003 has the status of a Swedish Standard. This document contains the official English version of EN 13775-2:2003.

Dokumentet består av 36 sidor.

Upplysningar om **sakinnehållet** i standarden lämnas av SIS, Swedish Standards Institute, tel 08 - 555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar **allmänna upplysningar** om svensk och utländsk standard.

*Postadress:* SIS Förlag AB, 118 80 STOCKHOLM  
*Telefon:* 08 - 555 523 10. *Telefax:* 08 - 555 523 11  
*E-post:* [sis.sales@sis.se](mailto:sis.sales@sis.se). *Internet:* [www.sis.se](http://www.sis.se)

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13775-2**

June 2003

ICS 45.060.20

English version

## Railway applications - Measuring of new and modified freight wagons - Part 2: Freight wagons with bogies

Applications ferroviaires - Mesure des wagons lors de leur construction et lors de modifications - Partie 2: Wagons à bogies

Bahnanwendungen - Vermessung von Güterwagen beim Neubau und bei Umbauten - Teil 2: Güterwagen mit Drehgestellen

This European Standard was approved by CEN on 14 February 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## EN 13775-2:2003 (E)

| <b>Contents</b>                                     | <b>page</b> |
|-----------------------------------------------------|-------------|
| <b>Foreword</b> .....                               | <b>3</b>    |
| <b>Introduction</b> .....                           | <b>4</b>    |
| <b>1 Scope</b> .....                                | <b>4</b>    |
| <b>2 Normative references</b> .....                 | <b>4</b>    |
| <b>3 Terms and definitions</b> .....                | <b>4</b>    |
| <b>4 Symbols and abbreviated terms</b> .....        | <b>5</b>    |
| <b>5 Requirements</b> .....                         | <b>5</b>    |
| <b>5.1 General</b> .....                            | <b>5</b>    |
| <b>5.2 Precondition</b> .....                       | <b>5</b>    |
| <b>5.3 Measuring processes</b> .....                | <b>6</b>    |
| <b>Annex A (normative) Control sheet form</b> ..... | <b>30</b>   |
| <b>A.1 Control sheet form</b> .....                 | <b>30</b>   |
| <b>Annex B (informative) Terminology</b> .....      | <b>33</b>   |
| <b>Bibliography</b> .....                           | <b>34</b>   |

## Foreword

This document (EN 13775-2:2003) 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 2003, and conflicting national standards shall be withdrawn at the latest by December 2003.

This series of European Standards "Railway applications - Measuring of new and modified freight wagons" comprises the following parts:

- EN 13775-1 Part 1: Measuring principles
- EN 13775-2 Part 2: Freight wagons with bogies
- EN 13775-3 Part 3: Freight wagons with 2 wheelsets
- prEN 13775-4 Part 4: Bogies with 2 wheelsets
- prEN 13775-5 Part 5: Bogies with 3 wheelsets
- prEN 13775-6 Part 6 Tight-coupled freight wagons

Annex A is normative, Annex B is informative.

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

## EN 13775-2:2003 (E)

### 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.

It is recognized that vehicles may be subject to different dimensional checks resulting from the design requirements of the equipment fitted to them when it is not included in this series of standards.

### 1 Scope

This European Standard specifies requirements for measuring freight wagons with bogies. This ensures that the measuring processes are applied in accordance with uniform criteria. It applies to new and modified freight wagons with bogies. Provisions going beyond the scope of these requirements ought to be agreed upon by the contracting parties involved.

The measuring processes relate to the whole or parts of the underframes with or without add-ons if the geometrical structure does not permit anything else. Where appropriate, other measuring methods not specified here are necessary and ought to be specified in each individual case. This applies as appropriate to bogies.

### 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 and the following apply:

#### 3.1

##### **main reference axis**

centre line of the wagon or unit in case of multiple unit wagons is represented by the straight line connecting the two underframe pivot centres or the components replacing them

#### 3.2

##### **distortion**

distance between the bottom edge of a side bearer (or a side bearer support) and a datum plane running through the three other side bearers (or side bearer supports) of the wagon

#### 3.3

##### **optional**

process which is only carried out if specially agreed between supplier and the customer

NOTE      The process ought to be ordered separately.

## **4 Symbols and abbreviated terms**

|    |   |                                 |
|----|---|---------------------------------|
| SO | : | top of rail                     |
| 1  | : | vehicle end 1                   |
| 2  | : | vehicle end 2                   |
| B  | : | drilling pattern distance       |
| C  | : | distance between buffer centres |
| G  | : | buffer support plate            |

## **5 Requirements**

### **5.1 General**

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

Deviations from this European Standard are permitted as long as they do not include any dimension that represents a hazard to operation. However, they shall be agreed with the relevant contracting party and inspection agency.

### **5.2 Precondition**

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

## EN 13775-2:2003 (E)

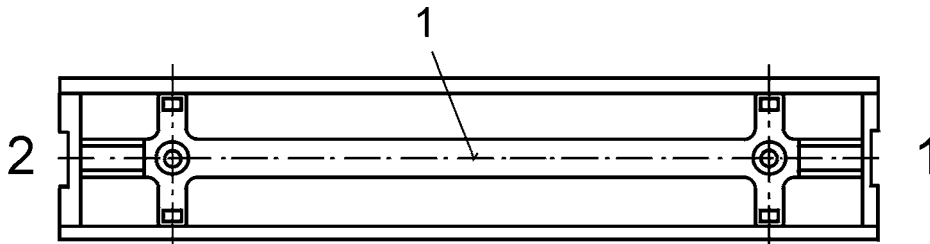
### 5.3 Measuring processes

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

#### Measuring process 1

Determination and fixing of the main reference axis of the wagon.

Shown in the backbone position



#### Key

1 Main reference axis of the wagon

Figure 1

The main reference axis of the wagon is the straight line through the centres of the underframe pivots (see Figure 1). It has to be indicated by a clearly visible permanent mark.

#### Measuring process 2

Length over headstocks.

Shown in the backbone position

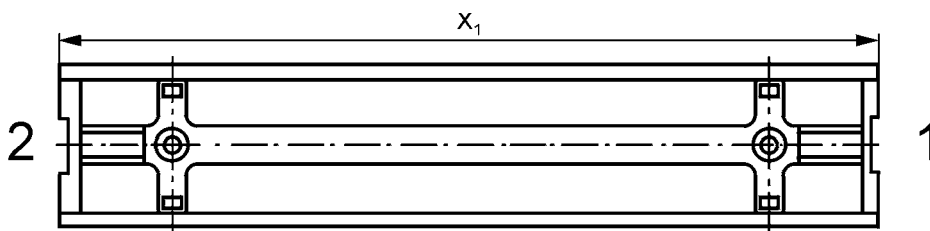


Figure 2

The total length  $x_1$  of the underframe over the headstocks is measured in the main reference axis of the wagon (see Figure 2).

Limit deviation for  $x_1$ :  $+12_0$  mm



### Measuring process 3

Distance between the centres of the pivots.

Shown in the backbone position

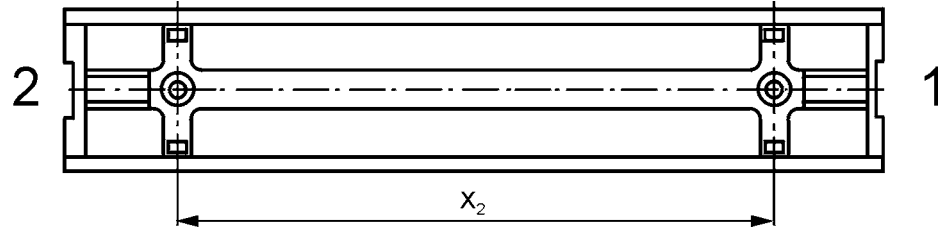


Figure 3

The distance  $x_2$  between the centres of the pivots is measured (see Figure 3).

Limit deviations for  $x_2$ :  $\pm 8$  mm

### Measuring process 4

Difference in length of even overhangs.

Shown in the backbone position

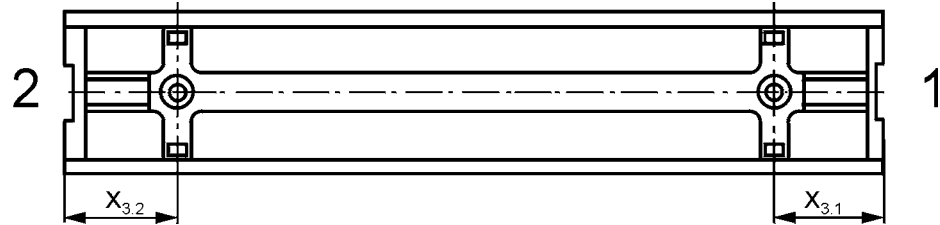


Figure 4

The distances  $x_{3,1}$  and  $x_{3,2}$  are measured in the main reference axis of the wagon (see Figure 4).

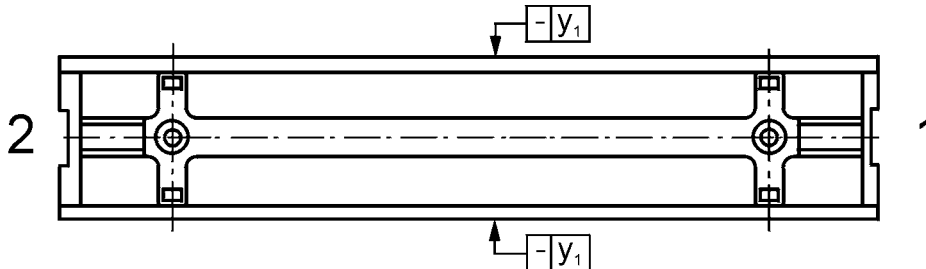
Difference between  $x_{3,1}$  and  $x_{3,2}$ :  $\leq 5$  mm

**EN 13775-2:2003 (E)**

**Measuring process 5**

Straightness of the outer edge of the longitudinal members in the y-direction. If there is no outer solebar, the centre longitudinal members shall be measured.

Shown in the backbone position



**Figure 5**

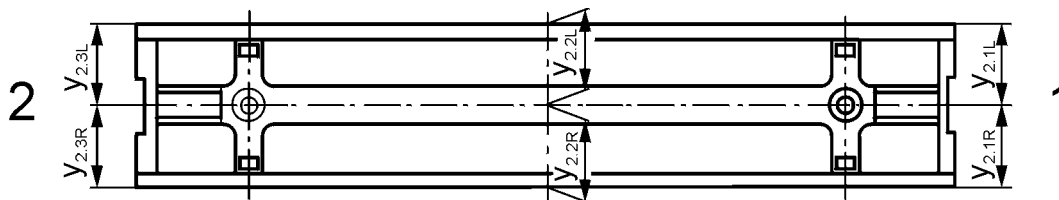
The deviation from straightness of the outer edges of the longitudinal members are measured from the main reference axis of the vehicle (see Figure 5).

Straightness tolerance  $y_1$ : 5 mm

**Measuring process 6**

Distance of the longitudinal members from the main reference axis of the wagon.

Shown in the backbone position



**Figure 6**

The distance  $y_2$  from the main reference axis of the wagon to the outer edge of the longitudinal members, alternatively the inner edge of the longitudinal members or of the underframe is measured at measuring points 1R, 2R, 3R, 1L, 2L, 3L (see Figure 6).

Limit deviation  $y_2$ :  $\begin{matrix} +2 \\ -3 \end{matrix}$  mm

### Measuring process 7

Squareness of the headstocks to the main reference axis of the wagon.

Shown in the backbone position

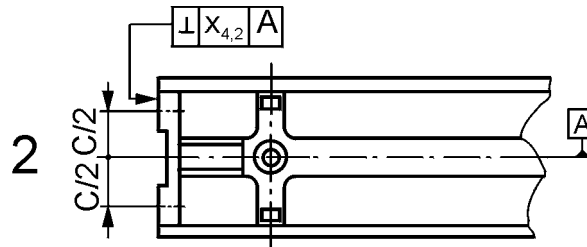


Figure 7

The rectangularity of the headstock to the main reference axis of the wagon is measured in the space between the buffer centers C at both wagon ends (see Figure 7).

Squareness tolerance for  $x_4$ :  $\leq 5$  mm relative to C.