



SLOVENSKI STANDARD
SIST EN 13146-9:2011/kFprA1:2011
01-julij-2011

**Železniške naprave - Zgornji ustroj - Preskušanje pritrdilnih sistemov - 9. del:
Določevanje togosti**

Railway applications - Track - Test methods for fastening systems - Part 9:
Determination of stiffness

Bahnanwendungen - Oberbau - Prüfverfahren für Schienenbefestigungssysteme - Teil 9:
Bestimmung der Steifigkeiten

Applications ferroviaires - Voie - Méthodes d'essai pour les systèmes de fixation - Partie
9: Détermination de la rigidité

Ta slovenski standard je istoveten z: EN 13146-9:2009/FprA1

ICS:

93.100 Gradnja železnic Construction of railways

SIST EN 13146-9:2011/kFprA1:2011 en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
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FINAL DRAFT
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ICS 93.100

English Version

Railway applications - Track - Test methods for fastening systems - Part 9: Determination of stiffness

Applications ferroviaires - Voie - Méthodes d'essai pour les systèmes de fixation - Partie 9: Détermination de la rigidité

Bahnanwendungen - Oberbau - Prüfverfahren für Schienenbefestigungssysteme - Teil 9: Bestimmung der Steifigkeiten

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 256.

This draft amendment A1, if approved, will modify the European Standard EN 13146-9:2009. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (EN 13146-9:2009/FprA1:2011) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

EN 13146-9:2009/FprA1:2011 (E)**1 Modifications to Clause 4, Symbols and abbreviated terms**

In the definition of F_{SA2} replace " $0,8F_{LFAmax}$ " with " $0,8F_{SAmax}$ ".

After the definition of a_{HFAD} add the following new symbol and definition: "

a_{HFAI2} output acceleration in measurement of high frequency stiffness of assembly by the indirect method, in m/s^2 ". 7.3.4.4

2 Modification to 6.1.3, Procedure

Replace the existing Equation (1) with the following: "

$$k_{SP} = \frac{F_{SP2} - F_{SP1}}{d_{SP}} \text{ MN/m}$$

".

3 Modifications to 6.2.4, Procedure

Replace the existing Equation (2) with the following: "

$$k_{LFPf} = \frac{F_{LFP2} - F_{LFP1}}{d_{LFP}} \text{ MN/m}$$

".

Replace the existing Equation (3) with the following: "

$$k_{LFPmean} = \frac{k_{LFP5} + k_{LFP10} + k_{LFP20}}{3} \text{ MN/m}$$

".

4 Modification to 7.2.4, Procedure

Replace the existing Equation (5) with the following: "

$$k_{LFA} = \frac{F_{LFA2} - F_{LFA1}}{d_{LFA2} - d_{LFA1}} \text{ MN/m}$$

".

5 Modification to 7.3.1, Principle

In the item "direct method EN ISO 10846-2 which is the reference method valid up 450 Hz" replace "up 450 Hz" with "up to 400 Hz".

6 Modifications to 7.3.4.3, Direct method

Replace the existing Equation (6) with the following corrected equation: "

$$k_{\text{HFAD}} = -\omega_{\text{HFAD}}^2 \frac{F_{\text{HFAD2}}}{a_{\text{HFAD1}}} \text{ N/m}$$

".

Replace the second mathematical equation with the following: "

$$10 \lg \left| \frac{a_{\text{HFAD1}}}{a_{\text{HFAD2}}} \right|^2 \geq 20 \text{ dB}$$

".

Replace the existing Equation (7) with the following corrected equation: "

$$k_{\text{HFADc}} = -\omega_{\text{HFAD}}^2 \frac{F_{\text{HFAD2}} + a_{\text{HFAD2}} m_{\text{HFAD}}}{a_{\text{HFAD1}} - a_{\text{HFAD2}}} \text{ N/m}$$

".

Replace the next two mathematical equations with the following: "

$$\frac{F_{\text{HFAD}}}{V_{\text{HFAD1}}}$$

" and "

$$\frac{a_{\text{HFAD2}}}{V_{\text{HFAD1}}}$$

".

Replace the existing Equation (8) with the following: "

$$k_{\text{HFADc}} = \frac{\frac{F_{\text{HFAD2}}}{V_{\text{HFAD1}}} j\omega_{\text{HFAD}} + \frac{a_{\text{HFAD2}}}{V_{\text{HFAD1}}} j\omega_{\text{HFAD}} m_{\text{HFAD}}}{1 - \frac{a_{\text{HFAD2}}}{V_{\text{HFAD1}} j\omega_{\text{HFAD}}}} \text{ N/m}$$

".

Replace the existing Equation (9) with the following: "

$$L_{\text{HFADk}} = 10 \lg \left| \frac{k_{\text{HFADc}}}{k_o} \right|^2 \text{ dB}$$

".

EN 13146-9:2009/FprA1:2011 (E)

7 Modification to 7.3.4.4, Indirect method

Replace the existing Equation (10) with the following: "

$$k_{\text{HFA1}} = -\omega_{\text{HFA1}}^2 \frac{F_{\text{HFA2}}}{a_{\text{HFA2}}} \text{ N/m}$$

".

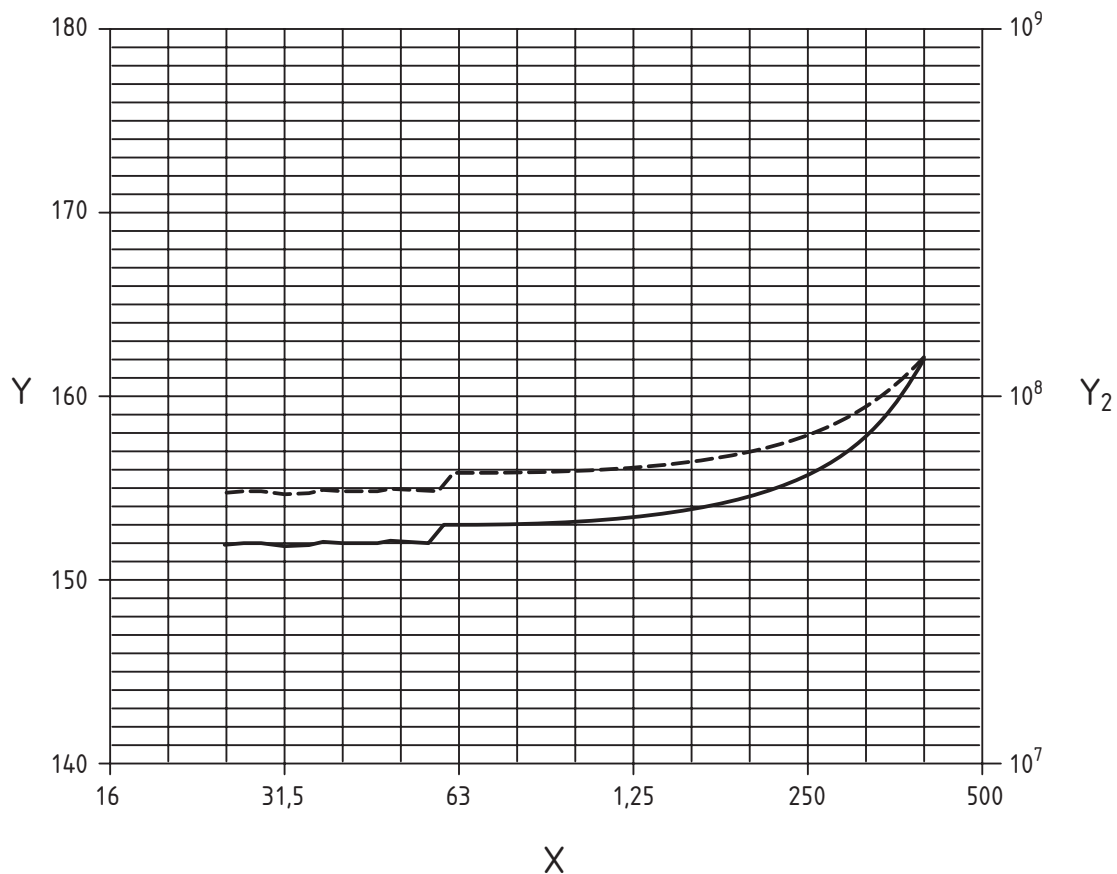
8 Modifications to 7.3.4.5, Corrected driving point method

Replace the existing Equation (11) with the following: "

$$k_{\text{HFAPc}} = -\omega_{\text{HFAP}}^2 \left(\frac{F_{\text{HFAP1}}}{a_{\text{HFAP1}}} - \frac{F_{\text{HFAPc}}}{a_{\text{HFAPc}}} \right) \text{ N/m}$$

".

Replace the existing Figure 5 with the following: "



".