



SLOVENSKI STANDARD
SIST EN 16452:2015/oprA1:2017
01-junij-2017

Železniške naprave - Zavore - Zavorne ploščice

Railway applications - Braking - Brake blocks

Bahnanwendungen - Bremse - Bremsklötze

Applications ferroviaires - Freinage - Semelles de frein

Ta slovenski standard je istoveten z: EN 16452:2015/prA1:2017

ICS:

45.040	Materiali in deli za železniško tehniko	Materials and components for railway engineering
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EUROPEAN STANDARD
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English Version

Railway applications - Braking - Brake blocks

Applications ferroviaires - Freinage - Semelles de frein

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

This draft amendment A1, if approved, will modify the European Standard EN 16452:2015. 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 16452:2015/prA1:2017) 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 CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA of EN 16452:2015, which is an integral part of this document.

EN 16452:2015/prA1:2017 (E)

1 Modifications to 7.3, Static friction coefficient

In Table 6, replace:

“Q.1” by “Q.2”, “Q.2” by “Q.3” and “Q.3” by “Q.4”.

In the last sentence of this subclause, replace “Q.1” by “Q.2”.

2 Modifications to 7.4.2, Dynamometer test

Replace the current subclause 7.4.2 with the following:

"7.4.2 Dynamometer test**7.4.2.1 Test program to demonstrate the braking properties under severe snowy conditions**

The dynamometer test program to demonstrate the extreme winter braking properties is set out in L.1 and L.2 and is only applicable if the friction element:

- a) is intended to be used in subsystems which fall under the following scope:
- 1) nominal wheel diameters of 680 mm to 920 mm;
 - 2) friction element configuration;
 - i) 1Bg (if the test was performed in configuration 1Bg or 2Bgu);
 - ii) 1Bgu (if the test was performed in configuration 1Bgu or 2Bgu);
 - iii) 2Bg (if the test was performed in configuration 2Bg or 2Bgu);
 - iv) 2Bgu (if the test was performed in configuration 2Bgu);
 - 3) mass per wheel $\geq 1,8$ t.
- b) complies with one of the following cases of the mean dynamic friction coefficient as determined in accordance with J.4:

Table 7 — Cases of the mean dynamic friction coefficient

Case	Mean dynamic friction coefficient	Total F_B per wheel	Initial speed
		F_B kN	v km/h
1	$0,28 < \mu_m < 0,32$	9	100
2	$0,27 < \mu_m < 0,31$	9	120
3	$0,17 < \mu_m < 0,19$	16	100
4	$0,16 < \mu_m < 0,18$	16	120

To demonstrate the extreme winter braking properties of friction elements complying with cases 1 and 2 of Table 5, the test program of L.1 shall be applied; for friction elements complying with cases 3 and 4 of Table 5, the test program of L.2 shall be applied.

7.4.2.2 Values to be determined in order to define the area of use

The test program shall be carried out three times and the establishment of the suitability shall be done for a maximum test speed of 100 km/h and 120 km/h as follows:

- For a maximum speed of 100 km/h the deviation of the average value of the measured stopping distances s_1 under snow (brake application No 29, 33, 37, 42 and 46 of L.1 or L.2) from the average value of the measured stopping distances s_1 under dry conditions (brake application No 16, 18, 20, 22 and 24 of L.1 or L.2) shall be determined.
- For a maximum speed of 120 km/h the deviation of the average value of the measured stopping distances s_1 under snow (brake application No 31, 35, 39, 44 and 48 of L.1 or L.2) from the average value of the measured stopping distances s_1 under dry conditions (brake application No 17, 19, 21, 23 and 25 of L.1 or L.2) shall be determined.

7.4.2.3 Pass/fail criteria

The pass/fail criteria shall conform to the ones defined in L.4.

For the brake blocks design for area of use corresponding at S and/or SS wagons if the dynamometer test is performed in brake block configuration 2Bgu, a positive assessment also applies to the other brake block configurations."

3 Modifications to 7.4.3, Train brake test

Replace the text in subclause 7.4.3 with the following:

"The winter friction properties shall be assessed in conformity with prescriptions of Annex M; pass/fail criteria shall conform to the ones defined in M.4.

- M.1 Test program to demonstrate the braking properties under severe snowy conditions.
- M.2 Values to be determined in order to define the area of use.
- M.3 Assessment of measurement data and pass/fail criteria.

The variation between the average of braking distances for every speed range of 85 % of maximum speed and maximum speed in winter condition and in reference condition shall not exceed 10 %.

For the brake blocks design for area of use corresponding at S and/or SS wagons if the test run is performed in brake block configuration 2Bgu, a positive assessment also applies to the other brake block configurations."

4 Modifications to Annex J, Dynamometer test program – Generic test program

In the title of Annex J, replace "informative" by "normative".

In subclause J.1, in the second sentence, replace: "This principle can be applied for design a test program" by

"This principle shall be applied for design a test program".

EN 16452:2015/prA1:2017 (E)

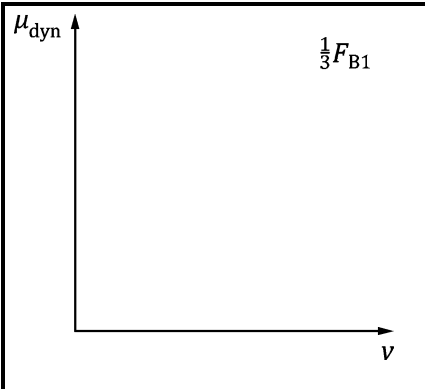
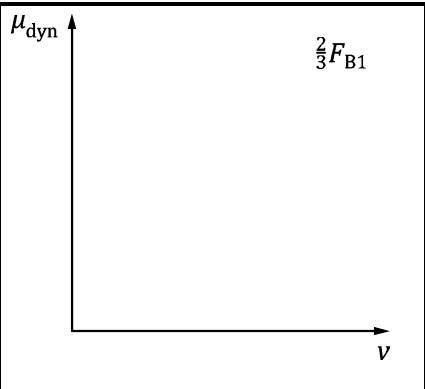
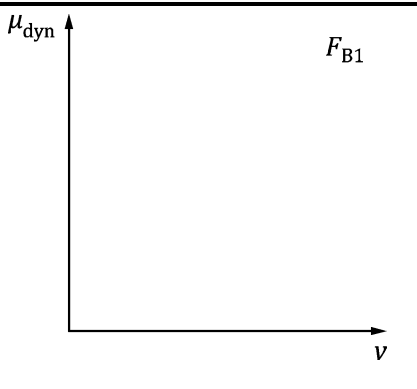
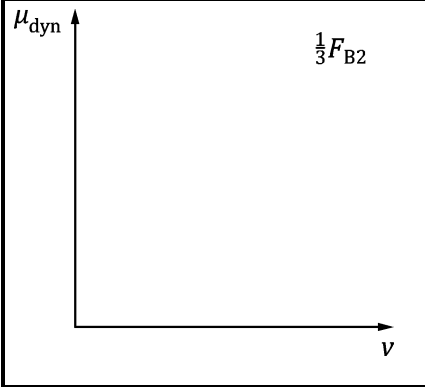
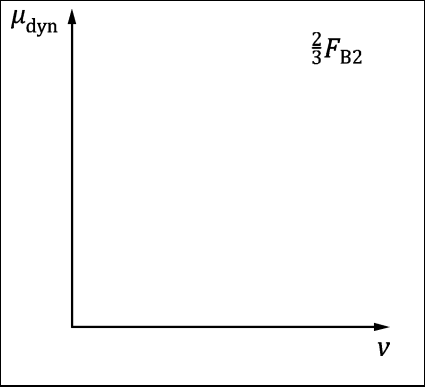
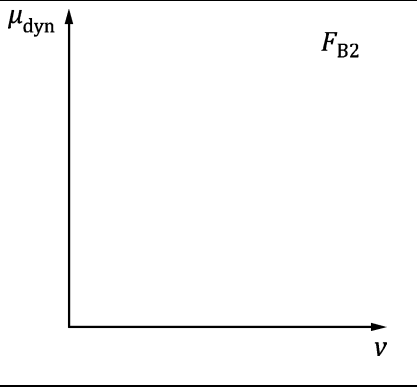
Add a new subclause J.4 as follows:

"J.4 Values to be determined in order to define the area of use

The values for the following parameters shall be determined and recorded within the area of use:

- a) Tested configuration consisting of:
- 1) friction element arrangement,
 - 2) wheel type,
 - 3) nominal and tested wheel diameter.
- b) Mean dynamic friction coefficient of non-bedded and bedded state. The mean dynamic friction coefficient of the non-bedded and bedded state are defined as the average of the first 5 and the last 5 measured values of brake application No 1.1 to 1.X.
- c) Mean dynamic friction coefficient under dry conditions versus the initial operating speed v for the different brake forces F_B applied and the mass to brake per wheel m using the template diagrams set out in Table J.2.

Table J.2 — Template diagrams and allocated brake application No

		
Brake application No 31 to 34 and 43 to 46	Brake application No 27 to 30 and 39 to 42	Brake application No 35 to 38 and 47 to 50
		
Brake application No 101 to 104 and 113 to 116	Brake application No 97 to 100 and 109 to 112	Brake application No 105 to 108 and 117 to 120

- d) Mean dynamic friction coefficient variation under wet conditions. The variation shall be expressed as the averages of the measured mean dynamic friction coefficients under wet conditions (brake application No 52 to 95) in proportion to the corresponding averages of mean dynamic friction coefficients under dry conditions (brake application No 27 to 50, 105 to 108 and 117 to 120). Example: the average value of brake applications No 57, 69 and 81 divided by the average value of brake applications No 32 and 44.
- e) Mean dynamic friction coefficient variation at high initial temperature. The variation shall be expressed as the mean dynamic friction coefficients at a wheel tread temperature above 110 °C (brake application No 121 to 124) in proportion to the corresponding mean dynamic friction coefficients at a wheel tread temperature below 60 °C (brake application No 125 to 128).

EXAMPLE 1 The value of brake application No 122 divided by the value of brake applications No 126.

- f) Chart of the instantaneous dynamic friction coefficient and wheel tread temperature versus time of brake application No 129.
- g) Mean dynamic friction coefficient variation after simulation of a downhill brake application. The variation shall be expressed as the averages of the measured mean dynamic friction coefficients after downhill braking (brake application No 141 to 148) in proportion to the corresponding averages of mean dynamic friction coefficients before downhill braking (brake application No 105 to 108 and 117 to 120).

EXAMPLE 2 The average value of brake applications No 142 and 146 divided by the average value of brake applications No 106 and 118."

Renumber the current subclause J.4 as follows:

"J.5 Principle of assessment and pass/fail criteria".

5 Modifications to Annex M, Test run to demonstrate the extreme winter braking properties brake blocks K - LL for freight wagons

Replace subclauses M.1, M.2, M.3 and M.4 with the following:

"M.1 Test program to demonstrate the braking properties under severe snowy conditions

The goal of this test run is to compare the results of tests without snow fly-off ("reference tests") with those with snow fly-off ("winter tests") and to determine the braking properties of friction elements acting on wheel tread brakes for severe snowy conditions under real conditions of use.

"Reference tests" and "winter tests" shall be performed consecutively within one single period of up to 4 weeks. A running period of at least 10 min is to be observed between brake applications, with a maximum of 4 brake applications performed per hour.

The brake initiation speeds shall be:

- 60 km/h (for information purposes, to monitor the plausibility and comparability of the efficiency between "reference tests" and "winter tests"),
- if the maximum speed is 100 km/h or more: 85 % of the intended maximum speed but not more than 100 km/h, and
- 100 % of the intended maximum speed

respectively.