

ICS 17.040.20; 93.080.20

English Version

**Road and airfield surface characteristics - Test methods - Part 2:
Assessment of the skid resistance of a road pavement surface
by the use of dynamic measuring systems**

Caractéristiques de surface des routes et aérodromes -
Méthodes d'essai - Partie 2: Évaluation de l'adhérence d'un
revêtement de chaussée à l'aide de systèmes de mesure
dynamique

Oberflächeneigenschaften von Straßen und Flugplätzen -
Prüfverfahren - Teil 2: Verfahren zur Bestimmung der
Griffigkeit von Fahrbahndecken durch Verwendung von
dynamischen Messsystemen

This Technical Specification (CEN/TS) was approved by CEN on 5 June 2009 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Symbols, terms and definitions	6
3.1 Symbols	6
3.2 Terms and definitions	6
4 Safety	9
5 Measurement procedure	9
5.1 Friction measurement	9
5.2 Macrotexture measurement	10
5.3 Measurement location	10
5.4 Time interval between friction and macrotexture measurements	10
6 Determination of the Skid Resistance Index (<i>SRI</i>)	10
6.1 General.....	10
6.2 Calculations.....	11
6.3 Device-specific parameters	11
6.4 Precision.....	11
6.5 Test report	11
7 Calibration of friction testing devices	12
7.1 General.....	12
7.2 Surfaces for calibration.....	12
7.3 Test conditions	12
7.4 Calculations.....	13
7.5 Types of calibration	14
7.5.1 General.....	14
7.5.2 Type 1 calibration	15
7.5.3 Type 2 calibration	15
7.5.4 Type 3 calibration	16
7.6 Calibration report.....	16
7.7 Periodicity.....	16
Annex A (informative) Example of calibration calculations report	17
Bibliography	43

This document is a preview generated by EVS

Foreword

This document (CEN/TS 13036-2:2010) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by DIN.

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

This document is one of a series of standards as listed below:

- EN 13036-1, *Road and airfield surface characteristics — Test methods — Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique*
- CEN/TS 13036-2, *Road and airfield surface characteristics — Test methods — Part 2: Assessment of the skid resistance of a road pavement surface by the use of dynamic measuring systems*
- EN 13036-3, *Road and airfield surface characteristics — Test methods — Part 3: Measurement of pavement surface horizontal drainability*
- EN 13036-4, *Road and airfield surface characteristics — Test methods — Part 4: Method for measurement of slip/skid resistance of a surface — The pendulum test*
- prEN 13036-5, *Road and airfield surface characteristics — Test methods — Part 5: Determination of longitudinal unevenness indices*
- EN 13036-6, *Road and airfield surface characteristics — Test methods — Part 6: Measurement of transverse and longitudinal profiles in the evenness and megatexture wavelength ranges*
- EN 13036-7, *Road and airfield surface characteristics — Test methods — Part 7: Irregularity measurement of pavement courses: the straightedge test*
- EN 13036-8, *Road and airfield surface characteristics — Test methods — Part 8: Determination of transverse unevenness indices*

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

Introduction

The skid resistance of a surface is determined by considering the friction measurement carried out using one of a number of permitted devices, and a measurement of surface texture also carried out using one of a number of permitted procedures. The permitted devices for friction measurements are those which have their measuring principle and procedure described in CEN/TS 15901-1 to CEN/TS 15901-10.

Where required, the procedures set out in this Technical Specification may be used for the measurement of friction only.

If there is a need to compare the skid resistance of a surface measured by different devices, Annex A (informative) may be used. That annex, by combining together the friction and texture for individual measuring devices, produces a skid resistance index (*SRI*).

NOTE The use of an informative annex is not obligatory.

This document is a preview generated by EVS

1 Scope

This Technical Specification describes a method for determining the skid resistance of the pavement surface of a road or airfield.

This method defines a process for comparing the friction results from a number of devices. By combining together the friction and texture from individual measuring devices, it allows skid resistance determined by different dynamic methods to be expressed on a common scale, namely the Skid Resistance Index (*SRI*). As its precision has not been determined, the method should not be used in specifications for surface materials.

This standard excludes surfaces when they are in winter road condition. It also excludes road marking surfaces.

2 Normative references

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

EN 13036-1, *Road and airfield surface characteristics — Test methods — Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique*

CEN/TS 15901-1, *Road and airfield surface characteristics — Part 1: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal fixed slip ratio (LFCS): RoadSTAR*

CEN/TS 15901-2, *Road and airfield surface characteristics — Part 2: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal controlled slip (LFCRNL): ROAR (Road Analyser and Recorder of Norsemeter)*

CEN/TS 15901-3, *Road and airfield surface characteristics — Part 3: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal controlled slip (LFCA): The ADHERA*

CEN/TS 15901-4, *Road and airfield surface characteristics — Part 4: Procedure for determining the skid resistance of pavements using a device with longitudinal controlled slip (LFCT): Tatra Runway Tester (TRT)*

CEN/TS 15901-5, *Road and airfield surface characteristics — Part 5: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal controlled slip (LFCRDK): ROAR (Road Analyser and Recorder of Norsemeter)*

CEN/TS 15901-6, *Road and airfield surface characteristics — Part 6: Procedure for determining the skid resistance of a pavement surface by measurement of the sideways force coefficient (SFCS): SCRIM®*

CEN/TS 15901-7, *Road and airfield surface characteristics — Part 7: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal fixed slip ratio (LFCG): the GripTester®*

CEN/TS 15901-8, *Road and airfield surface characteristics — Part 8: Procedure for determining the skid resistance of a pavement surface by measurement of the sideways-force coefficient (SFCD): SKM*

CEN/TS 15901-9, *Road and airfield surface characteristics — Part 9: Procedure for determining the skid resistance of a pavement surface by measurement of the longitudinal friction coefficient (LFCD): DWWNL skid resistance trailer*

CEN/TS 15901-10, *Road and airfield surface characteristics — Part 10: Procedure for determining the skid resistance of a pavement surface using a device with longitudinal block measurement (LFCSK): the Skidometer BV-8*

EN ISO 13473-1, *Characterization of pavement texture by use of surface profiles — Part 1: Determination of Mean Profile Depth (ISO 13473-1:1997)*

3 Symbols, terms and definitions

3.1 Symbols

B	Device-specific parameter
SRI	Skid Resistance Index
MPD	Mean Profile Depth
MTD	Mean Texture Depth
F	Measured friction value at speed S
F_0	Regression line intercept at speed zero
m	Number of valid results from a measurement series
M	Total number of valid results per device
N	Total number of friction testing devices meeting in a calibration exercise
N_R	Number of reference devices participating in a calibration exercise
n	Number of surfaces used for calibrating friction testing devices
r	Number of runs of a given device on a given surface
S	Slip speed
S_0	Speed parameter
V	Operating speed
β	Regression line slope
σ_{SRI}	Residual standard deviation of SRI
σ_{S_0}	Residual standard deviation of S_0

3.2 Terms and definitions

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

3.2.1

friction

resistance to relative motion between two bodies in contact