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Del 1: Symboler och enheter

Railway applications – Aerodynamics –
Part 1: Symbols and units

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Railway applications - Aerodynamics - Part 1: Symbols and units

Applications ferroviaires - Aérodynamique - Partie 1: Symboles et unités

Bahnanwendungen - Aerodynamik - Teil 1: Formelzeichen und Einheiten

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Contents

Foreword

This document EN 14067-1:2003 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This European Standard is part of the series ”Railway applications — Aerodynamics” which consists of the following parts:

— Part 1: Symbols and units

— Part 2: Aerodynamics on open track

— Part 3: Aerodynamics in tunnels

— Part 4: Requirements and test procedures for aerodynamics on open track[1)]

— Part 5: Requirements and test procedures for aerodynamics in tunnels[1)]

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1 Scope

This European Standard applies to aerodynamics for railway applications.

It defines symbols and units used in formulae and calculations in the field of aerodynamics. The definitions given in this European Standard explain the symbols and classify the units.

Further to usual symbols, this document contains symbols which are used for calculations. It should be noted, however, that these symbols may not have the same significance in a different field of application.

Additional symbols should be defined according to the application.

1) in preparation

2 Terms, definitions, symbols and abbreviations

All parameters are expressed as SI basic units and units derived from SI basic units.

Table/ Tableau/ Tabelle 1

Symbol Symboles Symbol	Unit Unité Einheit	Significance Signification Bedeutung	Explanation Explication Erläuterung	Remark Remarque Bemerkung
A	m^2	surface area section transversale Oberfläche		
a	m/s^2	acceleration accélération Beschleunigung		
B	-	train/tunnel blockage ratio rapport de blocage Versperrungsmaß		$B = \frac{S_{tr}}{S_{tu}}$
b	m	width of vehicle largeur du véhicule Fahrzeugbreite		
c	m/s	speed of sound vitesse du son Schallgeschwindigkeit		
C_1	N	rolling resistance in the resistance to motion formula résistance au roulement (dans la formule de résistance à l'avancement) Rollwiderstand in der Laufwiderstandsformel		
$C_2 v_{tr}$	N	momentum resistance in the resistance to motion formula résistance due aux systèmes de ventilation (dans la formule de résistance à l'avancement) Impulswiderstand in der Laufwiderstandsformel		$C_2 = Q\rho,$
$C_3 v_{tr}^2$	N	aerodynamic drag in the resistance to motion formula traînée aérodynamique (dans la formule de résistance à l'avancement) Aerodynamischer Widerstand in der Laufwiderstandsformel		
C_B	-	gust coefficient coefficient de rafale Böenkoeffizient		$C_B = \frac{v_B}{v_W}$
C_F	-	coefficient of aerodynamic force coefficient de la force aérodynamique Koeffizient der Luftkraft		$C_F = \frac{2F}{S \rho v_{tr}^2}$
C_f	-	coefficient of skin-friction drag coefficient de frottement aérodynamique Koeffizient des Luftreibungswiderstandes		$C_f = \frac{R_f}{q A}$
C_p	-	coefficient of pressure amplitude coefficient de l'amplitude de pression Koeffizient der Druckamplitude		$C_p = \frac{p - p_o}{q}$
ΔC_p	-	pressure coefficient coefficient de pression Druckkoeffizient		$\Delta C_p = \frac{2(p_{max} - p_{min})}{\rho v_{tr}^2}$