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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 16638.4-2008

Replacing GB/T 16638.4-1996

**Aerodynamics - Concepts, quantities and symbols - Part 4:
Aerodynamic forces, moments, their coefficients and
derivatives of aircraft**

空气动力学 概念、量和符号 第4部分：飞机的空气动力、力矩及其系数和导数

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Standardization Administration of China**

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Foreword

GB/T 16638 "Aerodynamics - Concepts, quantities and symbols" is divided into four parts.

--- Part 1. aerodynamics common terms;

--- Part 2. Axis systems and aircraft motion state quantity;

--- Part 3. aircraft geometrical properties;

--- Part 4. aerodynamic aircraft, moments, their coefficients and derivative. This section GB/T Part of 416,638. This part of the aerodynamics of common terms used in our country for many years has been collection and screening, and as far as possible with the international most countries Habits consistent air aircraft dynamics in this section some of the terminology and symbols with the national standard GB/T 14410-2008 "flying force Learn concepts, quantities and symbols "in harmony. This Part replaces GB/T 16638.4-1996 "Aerodynamics - Concepts, quantities and symbols - Part 4. Aircraft aerodynamic force Moments their coefficients and derivatives. " Section compared with the GB/T 16638.4-1996 The main changes are as follows:

a) increasing the spoiler hinge moment, trim tab hinge moment, the definition of derivatives are estimated lateral force coefficient;

b) increasing the hinge moment derivatives are estimated definitions. This part is proposed by the China Aviation Industry Corporation. This part of the jurisdiction of the China Aviation Industry Corporation. This section is drafted. Beijing University of Aeronautics and Astronautics, China Aviation Technology Institute Comprehensive, China Aviation Industry Institute of Aerodynamics, China Aviation Industry Development Research Center. The main drafters of this section. Chen Yan Qing, Shao arrows, Jiao Zhiqiang, YANGTZA Zhou Li Fu, Chen, Wang Zhichuan, Hao Weidong, Feng Yanan, Fan Jiechuan, Medicine]. This part of the standard replaces the previous editions are.

--- GB/T 16638.4-1996. Aerodynamics - Concepts, quantities and symbols Part 4. aircraft

aerodynamics, Moments, their coefficients and derivatives

1 Scope

GB/T 16638.4-2008 is the Chinese national standard on aerodynamics - concepts, quantities and symbols - part 4: aerodynamic forces, moments, their coefficients and derivatives of aircraft, in the field of aircraft and space vehicle engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 18 July 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 January 2009. Classification: ICS 49.020, CCS V04. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This section provides aircraft aerodynamics, moments, their coefficients and derivatives of terminology and symbols. This section applies to fixed-wing aircraft, other aircraft can use the reference. This section of the aircraft as a rigid body.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this section, however, encourage the parties to this part of the research agreement Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 16638.2-2008 Aerodynamics - Concepts, quantities and symbols - Part 2. Axis systems and aircraft motion state quantity

3 Terms, definitions and symbols The following terms, definitions and symbols apply to this section. No terms are defined or explained symbols and units

3.1.1.1 Aerodynamic force aerodynamic resultant force Acting on the aerodynamic aircraft or parts of Resultant vector. R_A ($\rightarrow R_A$) Units of bovine (N)

3.1.1.2 Aerodynamic resultant moment aerodynamic resultant moment Resultant vector moment to moment reference point. Units of Nm (N ·

m) No terms are defined or explained symbols and units

3.1.2.1 Lift lift R_A component in a gas flow axis system z-axis negative direction. Airflow axis system defined in

GB/T 16638.2- 2008 3.1.4. Units of bovine (N)

3.1.2.2 Lift coefficient liftcoefficient $L = \frac{1}{2} \rho V_p^2 C_L S$ Where. ρ is the density of free flow, free stream velocity is V_p Degree, S is the reference area, generally take wing area or machine The maximum cross-section of the body. C_L

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