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

GB/T 10093-2009

Replacing GB/T 10093-1988

Probabilistic limit states design(Normal-Normal mode)

概率极限状态设计（正态-正态模式）

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Foreword

This standard replaces GB/T 10093-1988 "probability limit state design (Normal - Normal mode)." This standard 10093-1988 major changes compared to GB/T as follows:

a) a number of symbols has been adjusted so that as much as possible consistent with the presentation of statistical standards, more simple, such as.

--- Strength coefficient of variation, GB/T 10093-1988 employed C_{vp} R, this standard uses CR;

--- Stress coefficient of variation, GB/T 10093-1988 employed C_{vp} S, this standard uses CS;

--- Strength standard value, GB/T 10093-1988 adopted FKR, this standard uses FR, α_R , and the corresponding title name Word has been modified to highlight the nature of the sub-site volume; stress standard value also made similar changes; The ratio of the amount of property, and correspond to the average of sub-sites and features.

b) added a few comments. Application of this standard by the National Standardization Technical Committee on statistical methods (SAC/TC21) and focal points. This standard was drafted. Peking University, China National Institute of Standardization, Beijing Institute of Technology. The main drafters of this standard. Room Zhong Xiang, Sun Shanze, YU Zhen Fan, Dingwen Xing, Xie law, Lin Zhongmin, Xu Furong like. This standard replaces the standards previously issued as follows:

--- GB/T 10093-1988. Probability limit state design (Normal - Normal mode)

1 Scope

GB/T 10093-2009 is the Chinese national standard on probabilistic limit states design(normal-normal mode), in the field of services and company organization. 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 15 October 2009 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 December 2009. Classification: ICS 03.120.30, CCS A41. 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 standard specifies the stress - strength model (stress, strength of normal variables, and independent) structural characterization of the reliability provided Count method. This standard applies to the design of mechanical products structural strength zero, the Department of assembly, the overall structure of all types of buildings and structures consisting of structures Parts and basic design; non-structural parts, such as components and other design parameters can also refer to adopt.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2900.13 Electrotechnical terminology credibility and quality of service (GB/T 2900.13-2008,

IEC 60050 (191).1990, Amend. 1.1999AndAmend. 2.2002, IDT)

GB/T 3358.1 Statistics Vocabulary and symbols - Part 1. General statistical terms and terms (

GB/T 3358.1- for Probability 2009, ISO 3534-1.2006, IDT)

GB/T 3358.2 Statistics Vocabulary and symbols - Part 2. Applied Statistics (GB/T 3358.2-2009, ISO 3534-2. 2006, IDT)

GB/T 4086 (all parts) Tables for statistical distributions

3 Terms, definitions and symbols

3.1 Terms and Definitions GB/T 2900.13,

GB/T 3358.1, terms and definitions GB/T 3358.2 and

GB/T 4086 established apply to this standard.

3.2 Symbol The following symbols apply to this standard. Shaped sample size $X_1, x_2, \dots, x_0$ shaped sample size like simple random sample Confidence level $1-\alpha$ μ_S stress (overall) mean μ_R intensity (overall) mean σ_S stress (total) standard deviation σ_R intensity (total) standard deviation CS stress coefficient of variation, $CS = \sigma_S/\mu_S$ CR intensity coefficient of variation, $CR = \sigma_R/\mu_R$ P structural reliability (or setpoint), $P = \Pr(X_R \geq X_S) = \Phi((\mu_R - \mu_S)/(\sigma_R + \sigma_S))$ S, wherein X_R Indicates the intensity of the overall, X_S represents the overall stress, $\Phi(\cdot)$ is the standard normal distribution function