

ICS 27.180
CCS F 11



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

GB/T 19960-2024

Replacing GB/T 19960.1-2005

**Wind energy generation systems - General technical
specification and test methods for wind turbines**

风能发电系统 风力发电机组通用技术条件和试验方法

Issued on: April 25, 2024

Implemented on: November 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	3
4 General technical requirements for units	3
5 Technical requirements for unit components and systems	5
6 Test methods	11
7 Inspection Rules	14
8 Markings, labels, instructions for use	15
9 Packaging, transportation and storage	16
17 Reference	18

Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 19960:1-2005 "Wind turbines - Part 1: General technical requirements" and GB/T 19960:2- 2005 Wind turbine generator systems Part 2: General test methods: Similar to GB/T 19960:1-2005 and GB/T 19960:2-2005 In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- Changed the scope of application (see Chapter 1, Chapter 1 of GB/T 19960:1-2005 and GB/T 19960:2-2005);
- Changed the terms and definitions (see Chapter 3, Chapter 3 of GB/T 19960:1-2005);
- Changed the general technical requirements for units (see Chapter 4, Chapter 4 of GB/T 19960:1-2005);
- Changed the technical requirements for unit components and systems (see Chapter 5, Chapter 5 of GB/T 19960:1-2005);
- The test method has been changed, the test conditions have been refined, and the test content and methods have been changed (see Chapter 6, GB/T 19960:2-2005 Chapters 3, 4, and 5 of the);
- Changed the inspection rules (see Chapter 7, Chapter 7 of GB/T 19960:1-2005);
- Changed the signs, labels and instructions for use (see Chapter 8, Chapter 8 of GB/T 19960:1-2005);

--- Changed packaging, transportation and storage (see Chapter 9, Chapter 9 of GB/T 19960:1-2005);

--- Deleted the product quality assurance period (see Chapter 10 of GB/T 19960:1-2005):

Please note that some of the contents of this document may involve patents: The issuing organization of this document does not assume the responsibility for identifying patents: This document was proposed by the China Machinery Industry Federation: This document is under the jurisdiction of the National Technical Committee for Standardization of Wind Power Generation (SAC/TC50): This document was drafted by: Windey Energy Technology Group Co., Ltd., Beijing Goldwind Technology Wind Power Equipment Co., Ltd., Harbin Electric Wind Energy Co., Ltd. Co., Ltd., CRRC Shandong Wind Power Co., Ltd., CSSC Haizhuang Wind Power Co., Ltd., Shanghai Electric Wind Power Group Co., Ltd., Mingyang Smart Energy Yuanyuan Group Co., Ltd., Shanxi Tianbao Group Co., Ltd., Siemens Gamesa Renewable Energy Technology (China) Co., Ltd., Beijing Jianheng Certification Certification Center Co., Ltd., Guodian United Power Technology Co., Ltd., China Quality Certification Center, China Electric Power Research Institute Co., Ltd., Weiss Tas Wind Technology (China) Co., Ltd. Beijing Branch, China Three Gorges Corporation, CGN Wind Power Co., Ltd., State Grid Shaanxi Electric Power Research Institute of Xi'an Electric Power Co., Ltd., China Huaneng Group Clean Energy Technology Research Institute Co., Ltd., Nanjing High Speed Gear Manufacturing Co., Ltd. Ltd., Sinoma Wind Blade Co., Ltd., Zhejiang University, Zhuzhou Times New Materials Technology Co., Ltd., Yinchuan Weili Transmission Technology Co., Ltd., Huaneng Shanwei Wind Power Co., Ltd., Chongqing University, Tianshun Wind Energy (Suzhou) Co., Ltd., Xiamen Shuangrui Feng ELECTRIC TECHNOLOGY CO., LTD: The main drafters of this document are: Yang Fan, Luo Yongshui, Xie Shengqing, Song Xiaoping, Li Gangqiang, Zhang Wanjun, Zhang Liming, Zhang Qiying, Hu Dawei, Li Yue, Yang Hongyuan, Zhao Haiyan, Yu Qingqing, Liu Weichao, Kang Wei, Fu Deyi, Wang Wenyue, Sun Jie, Ma Li, Ma Chi, Li Hua, Jin Qiang, Zhang Hechao, Li Chengliang, Wu Lijian, Ren Jing, Feng Xuebin, Li Xiang, Wu Xurui, Zeng Xingguo, Zou Libing, Zhou Hao, Zhang Linzhong, Chen Qiang, Gong Lice, Yuan Ying, Li Peng, Zhang Yuxia, Zhang Linwei, Tang Peng, Zhang Jianjun, Zhang Youjie, Wu Shuang, Zhang Yanling, and Wang Liliang: The previous versions of the documents replaced by this document are as follows:

---GB/T 19960:1, first issued in:2005;

---GB/T 19960:2, first issued in:2005: Wind power generation system wind turbine general Technical conditions and test methods

1 Scope

China's national general technical specification for wind turbines and the test methods that go with it. It specifies the general technical requirements, the test methods, the inspection rules, the marking and labelling, the instructions for use and maintenance, and the

packaging, transport and storage of wind turbines and of their components and systems, and it applies to large horizontal-axis grid-connected turbines. A wind turbine is an unusual machine to specify because it is simultaneously a structure, a machine and a power plant, and the requirements of the three do not sit naturally together. As a structure it must survive twenty years of fatigue loading from a wind that never repeats, plus an extreme gust it will see perhaps once. As a machine it contains a gearbox or a large direct-drive generator, a pitch system, a yaw system and a brake, all at the top of a tower where maintenance costs an order of magnitude more than it would at ground level. And as a power plant it must meet grid code obligations - voltage and frequency ride-through, reactive power, active power control - that have nothing to do with either of the other two roles and that determine whether it may connect at all. This document is the general specification tying those together: the requirements for the turbine as a whole and for the main components and systems, the safety and protection functions, the control and the grid connection behaviour, the environmental conditions and the classes, and the test methods and inspection rules by which conformity is shown. The chapters on the use and maintenance instructions and on transport and storage carry more weight here than in most product standards, because the components are very large and are damaged in handling more often than in service. Issued on 25 April 2024 and in force since 1 November 2024, it replaces GB/T 19960.1-2005.

This document specifies the general technical requirements, test methods, inspection rules, marking, labeling, use and maintenance of wind turbines and their components and systems: Instructions for use, packaging, transportation, storage, etc: This document applies to large horizontal axis grid-connected wind turbines (hereinafter referred to as "units"):

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document: GB/T 311: