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

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Medium and high power coal mine gas generating sets

中大功率瓦斯发电机组

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Electrical Equipment Industrial Association. This standard by the national gas reciprocating internal combustion power generation equipment Standardization Technical Committee (SAC/TC372) centralized. This standard by the Chinese CNPC Jinan Diesel Power Plant is responsible for drafting. Zhejiang Yiwu Power Equipment Co., Ltd., Jiang Su Shengyuan gas power Machinery Co., Ltd., Zibo Zi Chai New Energy Co., Ltd.,

Zhengzhou Jinyang Electric Co., Ltd. participated in the drafting. Drafters of this standard. Qu Yuling, Plum, Nixiu Yong, Wang Anzhong, Wang Ling Jin, Tang Honghui, early season Xiao SOCIETY OF Shiqing Chen, Liu Gencheng, Zhang Hongbin, Chen Junmin, Zhang Shijuan. High-power gas turbines

1 Scope

China's national standard for medium and high power generating sets fuelled by coal mine gas. It specifies the requirements, the testing, the inspection rules, the marking, packaging, storage and transport for the sets driven by a reciprocating internal combustion engine on mine gas, and it applies to sets of rated power not less than 250 kW at 50 or 60 Hz. Coal mine gas is methane drained from a coal seam, and burning it to make electricity solves two problems at once. Methane released to the atmosphere is a greenhouse gas many times more potent than the carbon dioxide it becomes when burned, and mine gas accumulating underground is the explosion hazard that has killed more coal miners than anything else. Draining it and generating from it converts a hazard and an emission into power for the colliery. What makes the machine difficult is the fuel. Mine gas is not natural gas: its methane content varies with the seam, the drainage system and the day, and it is diluted with air, nitrogen and carbon dioxide in proportions that change while the engine is running. An engine tuned for a fixed gas quality will knock when the methane rises and misfire when it falls, and both destroy it over time. So the set has to tolerate a moving fuel: the air-fuel control has to respond to the gas actually arriving, the ignition timing has to follow, and the knock protection has to be real rather than nominal. The fuel also arrives at low pressure, is saturated with water, and carries coal dust and traces of hydrogen sulphide, so the gas train and the engine's materials matter. The standard therefore specifies the performance at the rated conditions, the tolerance to gas quality variation, the emissions, the safety and gas-handling requirements, and the tests. Issued on 7 February 2013 and in force since 1 July 2013.

This standard specifies the high-power gas turbines (hereinafter referred to as "units") requirements, testing, inspection rules, logo and packaging and storage Transportation requirements. This standard applies to the rated power of not less than 250kW, frequency of 50 (or 60) Hz, coal mine gas as main fuel reciprocating internal Combustion engine driven alternator group.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 146.1 standard gauge railway rolling stock clearance

GB 146.2 standard gauge railway locomotive construction clearance

GB/T 191 Packaging - Pictorial signs

GB/T 2820.1 reciprocating internal combustion engine driven alternating current generating sets - Part 1. Application, ratings and performance

GB/T 2820.3 reciprocating internal combustion engine driven alternating current generating sets - Part 3. Generator with alternator

GB/T 2820.5 reciprocating internal combustion engine driven alternator group Part 5. Generator Part 9

GB/T 2820.9 reciprocating internal combustion engine driven alternator group. Measurement and evaluation of mechanical vibrations

GB/T 2820.10 Reciprocating internal combustion engine driven alternating current generating sets - Part 10. Measurement of noise (enveloping surface method)

GB 3836.1 explosive atmospheres - Part 1. General requirements for equipment

GB 4556 Reciprocating internal combustion engines fire

GB/T 6072.1 reciprocating internal combustion engine performance - Part 1. Calibration and test methods of power, fuel and lubricating oil consumptions General Additional requirements for engines Basic identification colors

GB 7231-2003 industrial piping, identifying symbols and safety identification

GB/T 8190.1 Reciprocating internal combustion engines - Exhaust emission measurement - Part 1. Gas and particulate emissions test bed measurement (ISO 8178-1)

3 Terms and Definitions

GB/T 2820.1 and GB/T 2820.5 and define the following terms and definitions apply to this document.