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

GB/T 33349-2016

**General specification for gas electric power plant systems with
reciprocating internal combustion engines**

往复式内燃燃气电站系统通用技术条件

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by China Electrical Equipment Industry Association. This standard is nationalized by the National Reciprocating Internal Combustion Gas Power Equipment Standardization Technical Committee (SAC/TC372). The drafting unit of this standard. China Petroleum Group Ji Chai Power Plant, Zibo Zibai New Energy Co., Ltd., Henan Diesel Heavy Industries Co., Ltd. Any company, Jinan Diesel Engine Co., Ltd., China Coal Handan Design Engineering Co., Ltd., China Petroleum Group Engineering Design Co., Ltd. North China branch. The main drafters of this standard. Wang Lingjin, Liu Dong, Xu Chuanguo, Wang Jing, Yang Saqing, Yu Xiaoyan, Zhu Haili, Sun Chenglei, Yang Junhui, Cai Feng, HUANG Yan-fei, NIE Zhi-bin, GAO Xu-wei, REN Xiao-hui, CHEN Zuo-jun, ZHANG Hong-yan General technical conditions for reciprocating internal combustion gas power plant system

1 Scope

China's national general specification for reciprocating gas engine power plants - the containerised and building-housed generating sets, from a few hundred kilowatts to tens of megawatts, that burn natural gas, coal bed methane, coke oven gas, landfill gas or biogas to produce power on site. They are the workhorse of distributed generation and of combined heat and power, and increasingly the way a gas field, a landfill or a steelworks turns a waste stream into electricity. The standard specifies the overall requirements for the reciprocating internal combustion gas power plant system and then for each of its subsystems in turn: the gas generating set, the gas supply system, the lubrication system, the cooling system, the starting system, the intake and exhaust system, the monitoring and information system, and the electrical system. It applies to the land based reciprocating internal combustion gas power plant systems fuelled by combustible gas. What makes such a plant a system rather than an engine with a generator on the end is that the gas itself is the variable. Its composition, its calorific value, its methane number and its contaminants differ from one source to another and change over the life of the source, and the plant has to be specified to the gas it will actually receive: the gas supply system with its filtration, its pressure regulation, its metering and its safety shut-off; the intake and exhaust system with the turbocharging, the charge air cooling and the emission control that follow from the fuel; the cooling system that has to reject the heat that in a CHP plant is the second product; and the monitoring and protection that has to detect a fuel excursion before it damages the engine. The standard sets the requirements, the interfaces and the safety provisions for each, so that a plant assembled from different suppliers' equipment functions as one. Issued on 13 December 2016 and in force since 1 July 2017.

This standard specifies the overall requirements for reciprocating internal combustion gas power plant systems, gas generators, gas supply systems, lubrication systems, cooling Systems, start-up systems, intake and exhaust systems, monitoring and information systems, and electrical systems. This standard is applicable to land-based reciprocating internal combustion gas power plant system with combustible gas as fuel.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 2820.5 Reciprocating internal combustion engine driven alternators - Part 5.
Generators

GB 3096 sound environmental quality standards Comprehensive Emission Standard for Wastewater Standard for local vibration of workplace

GB 10434 Standard for Environmental Noise Discharge of Industrial Enterprises

GB/T 20368 Production, storage and shipment of liquefied natural gas (LNG) Natural gas - fired generating units for petroleum industry GB/T

GB/T 29487 high-power gas generator

GB/T 29488 high-power biogas generator Code for design of waste heat utilization system for reciprocating internal combustion gas power station

GB/T 30138 Code for design of outdoor water supply

GB 50013 Code for fire protection of building design

GB 50016 Code for design of heating, ventilation and air conditioning for industrial buildings

GB 50019 Code for design of town gas GB 50028

GB 50040 Power Machine Foundation Design Code Code for design of small thermal power plant

GB 50049 Code for design of lightning protection for buildings GB 50057

GB 50058 Design Code for Explosive Hazardous Environment (with description) Code for design of high - voltage distribution equipment of