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

GB/T 44723-2024

**Hydrogen internal combustion engines - General technical
specification**

氢燃料内燃机 通用技术条件

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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. 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 Internal Combustion Engines (SAC/TC177). This document was drafted by: China First Automobile Group Co., Ltd., Beijing Institute of Technology, Shanghai Motor Vehicle Inspection and Certification Technology Research Center Co., Ltd., Guangxi Yuchai Machinery Co., Ltd., Harbin Dongan Automotive Power Co., Ltd., Weichai Power Co., Ltd., Zhejiang Hexia Technology Co., Ltd., China Automotive Research Institute Automotive Inspection Center (Tianjin) Co., Ltd., Kunming Yunnei Power Co., Ltd., Shanghai New Energy Automobile Technology Co., Ltd., Suzhou Intemodell Technology Co., Ltd., Beijing Foton Cummins Engine Co., Ltd., FAW Jiefang Automobile Co., Ltd. Wuxi Diesel Engine Factory, Jiangling Motors Co., Ltd., Ningbo Geely Luoyou Engine Parts Co., Ltd., China Beijing Research Institute of Sinopec Lubricant Co., Ltd., Tongji University, Tianjin Internal Combustion Engine Research Institute (Tianjin Motorcycle Technology Center), Chongqing Changan Automobile Co., Ltd., China Automotive Engineering Research Institute Co., Ltd., Kailong High-Tech Co., Ltd., Cummins (China) Investment Co., Ltd. Company, Daimler (China) Commercial Vehicle Investment Co., Ltd., Shanghai Automotive Group Co., Ltd., China Merchants Inspection Vehicle Technology Research Institute Co., Ltd., Wuxi Advanced Internal Combustion Power Technology Innovation Center, China Automotive Research Institute Automobile Inspection Center (Kunming) Co., Ltd., China Automotive Research Institute Automobile Inspection Center (Ningbo) Co., Ltd., Nanyue Electric Control (Hengyang) Industrial Technology Co., Ltd. The main drafters of this document are: Li Jincheng, Qian Dingchao, Sun Baigang, Guo Hua, Han Linghai, Ji Weibin, Qin Yufeng, Zhang Xiaolong, Wang Decheng, Sun Yan, Zheng Jian, Wu Chunling, Zhang Haifeng, Liu Jianyong, Qu Feng, Wang Yijiang, Hu Youming, Gong Yingli, Lou Diming, Zeng Xiaochun, Ma Junjie, Jia Bin, E Hongjun, Luo Qinghe, Li Qian, Zhang Haimin, Mao Zhanxin, Zhou Ying, Zhao Luming, Li Yanhua, Shi Laihua, Xiao Gang, Xu Zhenbo, Qu Hanshi, Wu Taoyang, Peng Hu, Liu Dianyuan, Fan Zhenyang, Li Zhijie, Miao Ruigang, Ding Qianlan, Lu Shihao, Hua Weijie, Xiang Heping, and Mo Rui. General technical requirements for hydrogen fuel internal combustion engines

1 Scope

GB/T 44723-2024 is the Chinese general specification for hydrogen internal combustion engines. The hydrogen ICE is the pragmatic half of the hydrogen transport case: it burns hydrogen in a modified conventional engine, so it uses the existing manufacturing base and

tolerates a fuel purity that would poison a fuel cell, and China is putting it into heavy trucks and off-road machinery. It also brings problems a diesel does not have: pre-ignition and backfire from hydrogen's very wide flammability range and low ignition energy, hydrogen embrittlement of the components, crankcase hydrogen accumulation, and nitrogen oxides that behave differently from those of any other fuel. The standard sets the classification and the parameters, the requirements on the engine and its fuel system, on the ignition and combustion control, on the leak detection and the ventilation, on the materials and on the safety devices, the performance requirements including power, fuel consumption and emissions, the reliability requirements, and the test methods and the marking. For an engine builder, a vehicle manufacturer or a testing house in China, this is the governing text.

This document specifies the technical requirements, test methods, safety requirements and protective measures, inspection rules and marking, packaging, Transportation and storage. This document applies to reciprocating internal combustion engines with a power less than or equal to 560 kW using hydrogen as fuel.

2 Normative references

The contents of the following documents constitute 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 191 Pictorial markings for packaging, storage and transportation

GB/T 1147.1 Small and medium power internal combustion engines Part