

ICS 91.220
CCS P97



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

GB/T 43746.2-2024

**Drilling and foundation equipment - Safety requirements - Part
2: Mobile drill rigs for building construction**

钻孔和基础施工设备安全要求 第2部分：建筑施工用移动式钻机

Issued on: April 25, 2024

Implemented on: November 1, 2024

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

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	2
4 Major Hazard List	4
13 Special protection mode	12
2 Functional test	14
3 Verification of safety requirements and/or protective measures	12

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 is part 2 of GB/T 43746 "Safety requirements for drilling and foundation construction equipment": GB/T 43746 has been published as follows: Lower part:

--- Part 1: General requirements;

--- Part 2: Mobile drilling rigs for construction;

--- Part 3: Piles and other foundation construction equipment: 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 Construction Machinery and Equipment (SAC/TC328): This document was drafted by: Beijing Construction Mechanization Research Institute Co., Ltd., Beijing Sany Intelligent Manufacturing Technology Co., Ltd., Xuzhou Xugong Foundation Engineering Cheng Machinery Co., Ltd., China Railway Construction Heavy Industry Group Co., Ltd., Wenzhou Yongan Heavy Industry Technology Co., Ltd., Sunward Intelligent Equipment Co., Ltd: Ltd., China Railway Sixth Survey and Design Institute Group Co., Ltd., Shenyang Jianzhu University, Langfang Kaibo Construction Machinery Technology Co., Ltd., Dalian University of Technology University, Guangdong Xinjiang Yongan Construction Group Co., Ltd., Guizhou Construction Engineering Group Fourth Construction Engineering Co., Ltd., Jianyan Fire Protection Technology Co., Ltd: Company, Guangzhou Taiji Engineering Technology Co., Ltd., Guangdong Yaonan Construction Group Co., Ltd., and Fujian Zhanglong Construction Investment Group Co., Ltd: The main drafters of this document are: Ma Xiaoli, Guo

Chuanxin, Yu Zhuowei, Zhang Jiguang, Liu Feixiang, Lin Deng, Zhu Jianxin, Xing Yonghui, Shi Huaitao, Huo Junzhou, Wu Jianxin, Zheng An, Tian Guangfan, Ni Guangle, Zhen Chaoyang, Zhuang Suhua, Zhang Shiping, Fan Qiangsheng, Ouyang Xinchu, Xu Jian, Chagfield, Chen Zengzeng, Fan Zhixiu, Zhang Lingxia, Zhang Ke, Liang Daxiao:

This document belongs to the Class C standard specified in GB/T 15706 "General principles for safety design of machinery - Risk assessment and risk reduction": Drilling and foundation construction equipment belongs to construction machinery and equipment, and is equipment used for drilling holes in the ground or foundation construction in construction projects: GB/T 43746 "Safety requirements for drilling and foundation construction equipment" aims to specify the safety requirements for drilling and foundation construction equipment: Due to the complexity and diversity of the strata, the holes and foundations required are also diverse, so there are also many types of drilling and foundation construction equipment: Type, which mainly includes mobile drilling rigs for construction (torque less than 35kN·m), piles and other foundation construction equipment (including torque Drilling rigs with a capacity of not less than 35 kN·m), underground continuous wall equipment, interchangeable auxiliary equipment (such as impact hammers, pile pullers, vibrating hammers, vibrators, rotary Rotary impact power head, rotary drilling power head, etc.) and jetting, grouting and grouting equipment: GB/T 43746 is intended to consist of three parts:

--- Part 1: General requirements;

--- Part 2: Mobile drilling rigs for construction;

--- Part 3: Piles and other foundation construction equipment: GB/T 43746:1 provides the general safety requirements for all types of drilling and foundation construction equipment mentioned above, and in Chapter 8 provides the general safety requirements for spraying: Supplementary safety requirements for injection, grouting and grouting equipment, and in Chapter 9, supplementary safety requirements for interchangeable auxiliary equipment are given; GB/T 43746:2 gives the additional safety requirements for mobile drilling rigs used in construction; GB/T 43746:3 gives the additional safety requirements for piles and other foundation construction: Supplementary safety requirements for underground continuous wall equipment: Supplementary safety requirements for underground continuous wall equipment are expected to be given by other standards other than GB/T 43746: These additional safety requirements supplement or modify the requirements for the specific types of drilling and foundation construction equipment they cover: The general safety requirements in GB/T 43746:1 (except Chapter 8 and Chapter 9) are intended to be consistent with Chapter 8 and Chapter 9 of GB/T 43746:1, GB/T 43746:2, GB/T 43746:3, one or more of the other standards expected to be related to supplementary safety requirements for underground continuous wall equipment Used in combination: For multi-purpose machines, GB/T 43746 includes all parts of its specific functions and applications (including Chapter 8 of GB/T 43746:1 and Chapter 9) and other standards

concerning additional safety requirements for underground continuous wall equipment: For example, a drill that can also be used as a pile driver Machines must comply with the relevant requirements of GB/T 43746:1, GB/T 43746:2 and GB/T 43746:3: Drilling or foundation construction equipment intended to be permanently fixed on the chassis of earth-moving machinery, agricultural machinery or cranes, the whole machine It must comply with the requirements of GB/T 43746: GB/T 43746:1~GB/T 43746:3, including Chapter 8 of GB/T 43746:1 and the expected supplementary provisions on underground continuous wall equipment Drilling and foundation construction equipment within the scope of other standards for safety requirements can be interchangeable with the accessories described in Chapter 9 of GB/T 43746:1: Equipment that is an integral part of the whole machine or can be installed interchangeably: Drilling and foundation construction equipment must meet the following requirements if it is intended to be used in potentially explosive atmospheres or where there is a risk of lightning: Other requirements not included in GB/T 43746: Safety requirements for drilling and foundation construction equipment Part 2: Mobile drilling rigs for building construction

1 Scope

GB/T 43746.2-2024 carries the safety requirements for mobile drill rigs used in building construction, the second part of the Chinese drilling and foundation equipment safety series. Where Part 1 sets the requirements common to the whole family, this part addresses the machine that is moved and set up repeatedly on a congested site, which is where its particular hazards come from: the rig is unstable during travel and setting up, the mast is raised and lowered near obstructions and overhead lines, the rotary head and the drill string present entanglement and crushing points that guarding cannot fully enclose, and the operator often works close to the tooling to handle rods and casing. The standard gives the significant hazard list for these machines and then the safety requirements and protective measures answering each: the underground boom work platform, the strength and stability requirements, the guarding and the safe access, the controls and the emergency stop, the handling of rods and tooling, the electrical and hydraulic systems, and the information for use. It takes effect on 1 November 2024.

This document specifies the safety requirements for mobile drilling rigs used in construction, including a list of major hazards, safety requirements and/or protective measures, safety Verification of safety requirements and/or protective measures and information on use, etc: This document and GB/T 43746:1 jointly deal with the use of mobile drilling rigs for construction in the intended use and the manufacturer's reasonably foreseeable errors: All significant hazards associated with its entire service life when used under the conditions of use (see Chapter 4): This document applies to the design, manufacture and use of mobile drilling rigs for construction: Different types of machines for the following constructions:

---civil Engineering;

---Geotechnical engineering (including stratum investigation, anchoring, soil nailing, micropile construction, foundation reinforcement, grouting, etc.);

--- Geothermal device settings;

---Filling boreholes;

---Foundation underpinning and tunnel construction;

---Construction of other above-ground and underground projects: The requirements of this document are based on the general requirements specified in GB/T 43746:1, and some additional requirements applicable to building construction are added or replaced: Requirements for mobile industrial drilling rigs: Note 1 to entry: The drilling process usually involves the addition of drill pipe, casing or augers (usually threaded) as the borehole is extended:

Note 2: For machines with a rotational torque of not less than 35 kN·m, see GB/T 43746:3: This document does not apply to the design, manufacture and use of the following machines:

--- Tunnel boring machinery, rodless shaft drilling rigs for rock formations;

---Range boring machine;

---Drilling rigs for the oil and gas industry;

---Horizontal directional drilling rig;

--- Mining machinery and equipment for open-pit mining;

--- All underground mining machinery and equipment used for the extraction of solid minerals and special machinery and equipment for underground mine development;

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 15706 General principles for safety design of machinery - Risk assessment and risk reduction

GB/T 17771 Laboratory test and performance requirements for falling object protection structures of earth-moving machinery