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PEOPLE'S REPUBLIC OF CHINA**

GB/T 43746.3-2024

**Drilling and foundation equipment safety requirements - Part 3:
Pile installation and other foundation equipment**

钻孔和基础施工设备安全要求 第3部分：桩和其他基础施工设备

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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: This document is part 3 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: Xuzhou Xugong Basic Engineering Machinery Co., Ltd.; Guangdong Haohai Heavy Industry Technology Co., Ltd.; Shanhe Intelligent Equipment Co., Ltd.; Co., Ltd.; Beijing Sany Intelligent Manufacturing Technology Co., Ltd.; Wenzhou Yongan Heavy Industry Technology Co., Ltd.; Shanghai Zhenzhong Construction Machinery Technology Co., Ltd.; Beijing Construction Mechanization Research Institute Co., Ltd.; China Railway Construction Heavy Industry Group Co., Ltd.; Dalian University of Technology, China Railway 19th Bureau Group Co., Ltd.; Co., Ltd.; Langfang Kaibo Construction Machinery Technology Co., Ltd.; Shandong University, Shenyang Jianzhu University, China Railway Sixth Survey and Design Institute Group Co., Ltd.; Guangzhou Taiji Engineering Technology Co., Ltd.; Jianyan Fire Protection Technology Co., Ltd.; Shandong Shenjiang Construction Engineering Co., Ltd.; China Power Construction Group Shandong Electric Power Construction Co., Ltd.; Guangdong

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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 3: Piles and other foundation construction equipment

1 Scope

GB/T 43746.3-2024 is Part 3 of the Chinese safety series for drilling and foundation construction equipment, and covers piling and other foundation machines. A piling rig is a tall mast on a tracked base handling heavy suspended tools over people, and the accidents are correspondingly severe: overturning when the chassis tilts or the ground gives way, failure of a winch rope or pulley, crushing by the moving leader or the hammer, and the noise of impact driving. The standard lists the significant hazards and then sets the safety requirements and protective measures - stability of the machine as a rigid body, winches and pulleys, the operating position, moving parts during operation, chassis tilt, the pile driving attachments and noise - followed by the verification of those measures and the information for use, with a normative annex giving the noise test code. It took effect on 1 November 2024.

This document specifies the safety requirements for piles and other foundation construction equipment, 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 failure of piles and other foundation construction equipment to meet the requirements of their intended use and the failures that are reasonably foreseeable by the manufacturer: 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 piles and other foundation construction equipment: "Pile and other foundation construction equipment" includes several Different types of machines that drill (machines with a

rotational torque of not less than 35 kN·m), hit, vibrate, press, pull or these techniques A combination of techniques or any other means to carry out the following constructions:

- Set up and/or remove longitudinal foundation members;
- Improving soil quality through vibration and soil mixing technology;
- Set up and/or remove vertical drainage facilities: This document adds or replaces some general requirements applicable to pile and other foundation construction on the basis of GB/T 43746:1: Equipment requirements:

Note 1: Some foundation construction equipment may be equipped with an additional rotary power head for pre-drilling with a torque less than 35 kN·m: This document also applies to such equipment:

Note 2: Typical pile and foundation construction techniques involve longitudinal components (such as concrete piles, steel piles, steel pipe piles and steel sheet piles) and cast-in-place The setting of grouting parts (such as conduits, hoses and sleeves): This document does not apply to the design, manufacture and use of machines having one or more of the following characteristics, which are included in In GB/T 43746:2:

- Machines with a main rotary power head torque of less than 35 kN m;
- Machines with multi-directional drilling capabilities;
- Machines usually required for adding and removing drill rods or excavation tools and drilling tools during the setting/extraction process:

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 6067:

12 Safety of earth-moving machinery Part 12: Requirements for mechanical excavators

GB/T 43746:1-2024 Safety requirements for drilling and foundation construction equipment
Part 1: General requirements