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

GB/T 43246-2023

**Technical requirements for full face tunnel boring machine
manufacturing management and supervision**

全断面隧道掘进机制造监理技术要求

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed and coordinated by the National Equipment Supervision Engineering Consulting Standardization Technical Committee (SAC/TC423). This document was drafted by: Equipment Branch of China Railway Tunnel Bureau Group Co., Ltd., China Railway Huatie Engineering Design Group Co., Ltd., China Engineering Group Co., Ltd. Equipment Supervision Association, Guangzhou Rail Transit Construction Supervision Co., Ltd., Intech Engineering Consulting (Shanghai) Co., Ltd., Guangdong Guangdong Haiyue West Guangdong Water Supply Co., Ltd. Co., Ltd., Shenyang University of Technology, CCCC Tianhe Machinery Equipment Manufacturing Co., Ltd., China Railway 22nd Bureau Group Second Engineering Co., Ltd., Sichuan Second Engineering Co., Ltd. Tan International Engineering Consulting Co., Ltd., Shanxi Tiandi Coal Machinery Equipment Co., Ltd., China Coal Science and Industry Group Shanghai Co., Ltd., China Railway 11th Bureau Group Urban Rail Engineering Co., Ltd., China Water Conservancy and Hydropower Third Engineering Bureau Co., Ltd., China Communications Tunnel Engineering Bureau Co., Ltd., China Railway 14th Bureau Group Shield Engineering Co., Ltd., China Railway 16th Bureau Group Co., Ltd., China Railway 18th Bureau Group Co., Ltd., China Railway Shanhe Engineering Equipment Co., Ltd., China Railway 15th Bureau Group Urban Rail Transit Engineering Co., Ltd., China Railway 4th Bureau Group Co., Ltd., China Railway Engineering Services Co., Ltd. Co., Ltd., China Railway Science and Technology Group Rail

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1 Scope

GB/T 43246-2023 sets the technical requirements for supervising the manufacture of full face tunnel boring machines. A TBM is built once, for one tunnel, to a diameter and a geology that will not recur, and once it is launched it cannot be brought back: a defect in the main bearing, the cutterhead or the thrust system is discovered underground, where replacing it costs months. Independent supervision through design and manufacture is therefore normal practice on Chinese TBM contracts. The standard sets the general principles and then the supervision at each stage: the design stage, the manufacturing stage, and the site assembly, commissioning and acceptance stage. It took effect on 1 January 2024.

This document stipulates the supervision technology for each process of the full-section tunnel boring machine in the design stage, manufacturing stage, and construction site assembly, commissioning, and acceptance stages. Require. This document applies to full-section tunnel boring machine manufacturing supervision services.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 19000 Quality Management System Fundamentals and Terminology

GB/T 26429 Equipment Engineering Supervision Specifications

GB/T 34354 Terminology and commercial specifications for full-section tunnel boring machines

3 Terms and definitions

The terms and definitions defined in GB/T 19000, GB/T 26429 and GB/T 34354 apply to this document.

4.1 Basic requirements

4.1.1 Equipment supervision units, equipment supervision personnel and their supervision activities should comply with the requirements of GB/T 26429.

4.1.2 Equipment supervision personnel should receive professional technical training and have the ability to supervise full-section tunnel hand-holding machines.

4.1.3 The chief supervisory engineer should supervise the whole process of the full-section tunnel boring machine professional supervisory engineer of the same type and similar specifications. experience.

4.2 Supervision planning

4.2.1 Develop a supervision plan The supervision unit shall formulate a supervision plan in accordance with the following requirements.

a) Identify the key processes in the design, manufacturing, parts procurement, assembly and commissioning, acceptance, disassembly and transportation of full-section tunnel boring machines. process, processes, nodes, and possible risks in quality, safety, contracts, etc., evaluate and determine the level of risk hazards Differently, set supervision control points and determine control methods. See Appendix A for examples;

b) The supervision plan shall be formulated under the leadership of the chief supervision engineer, approved by the technical person in charge of the supervision unit, and submitted to the supervision client for confirmation;

c) Optimization and changes to the supervision plan during the supervision implementation process shall be submitted to the supervision client for confirmation.

4.2.2 Formulate supervision rules Detailed supervision rules should be formulated for key processes such as main drive pre-assembly and main engine assembly, and key work items and judgment standards should be clarified.