

ICS 91.220
CCS P 97



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

GB/T 35019-2018

Full face tunnel boring machines - Slurry shield machines

全断面隧道掘进机 泥水平衡盾构机

Issued on: May 14, 2018

Implemented on: December 1, 2018

**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 1 4 basic parameters and model	4
5 Technical requirements	5
6 Test method	9
7 Inspection rules 16 8 accompanying documents	19
26 Appendix D (informative) Inspection record table	29

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed by the China Machinery Industry Federation. This standard is under the jurisdiction of the National Construction Machinery and Equipment Standardization Technical Committee (SAC/TC328). This standard was drafted. Northern Heavy Industry Group Co., Ltd., China Water Resources and Hydropower Third Engineering Bureau Co., Ltd., China Power Construction Group Chengdu Survey and Design Institute Co., Ltd., China Water Resources and Hydropower Fifth Engineering Bureau Co., Ltd., China Railway Engineering Equipment Group Co., Ltd., China Railway Construction Heavy Industry Group Co., Ltd., Zhongjiao Tianhe Machinery Manufacturing Co., Ltd., Beijing Construction Mechanization Research Institute, Sichuan Ertan International Engineering Consulting Limited liability company, Shanghai Tunnel Engineering Co., Ltd. Machinery Manufacturing Branch, China Railway 16th Bureau Group Co., Ltd., China Railway Fourth Survey and Design Institute Group Co., Ltd., China Railway 14th Bureau Group Co., Ltd., Shanghai Tunnel Engineering Rail Transit Design and Research Institute. The main drafters of this standard. Deng Liying, Wu Sirong, Huang Jimin, Hong Xingyuan, Kong Fanbin, Huang Changfu, Xiao Mingqing, Wang Huawei, Liu Jianwei, Liu Shuang, Zhang Boyang, Cheng Yongliang, Wu Zhaoyu, Wang Dujuan, Song Zhenhua, Wang Yi, Zhao Hongqing, Liu Huibin, Zhao Haifeng, Ma Chengbiao, Chen Jinbo, Zhuang Yuwei, Yang Shundong, Ren Liwei, Han Xiaoliang, He Xueguo, Yuan Liang, Quan Xueyong, Sun Wenqi, Chen Peng, Zhou Zizhen. Full-face tunnel boring machine mud-water balance shield machine

1 Scope

China's national standard for slurry shield tunnel boring machines. It specifies the terms and definitions, the basic parameters and models, the technical requirements, the test methods, the inspection rules, the accompanying documents and the marking, packaging

and shipping, with an informative annex on slurry balance. The slurry shield is the third of the soft ground machine types, and it is chosen where the earth pressure balance machine struggles: in coarse, permeable, water-bearing ground - sands and gravels below the water table - where excavated material will not form the plastic paste that an EPB machine relies on. Instead the face is supported by a pressurised bentonite suspension, which penetrates a short distance into the ground and forms a filter cake against it, and the excavated material is carried out of the chamber suspended in that same slurry through pipes. The trade is the separation plant: everything that comes out has to be screened, cycloned and centrifuged to recover the bentonite, and that plant is a substantial installation on the surface.

This standard specifies the terms and definitions of the mud-water balance shield machine, basic parameters and models, technical requirements, test methods, inspection rules, and Line documents, signs, packaging and shipping. This standard applies to mud-water balance shield machines with circular cross-section.

2 Normative references

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

GB/T 150 (all parts) pressure vessel

GB/T 191 packaging storage and transportation icon General rules and safety requirements for

GB/T 3766 hydraulic drive systems and their components

GB 5226.1 Mechanical electrical safety machinery and electrical equipment - Part 1. General technical conditions

GB 5226.3 Mechanical safety mechanical and electrical equipment - Part 11. Voltages above 1000V a.c. or 1500V d.c. Technical conditions for high-voltage equipment of 36kV

GB/T 6388 transport packaging receipt and delivery mark

GB/T 7932 Pneumatic pairing system and its components general rules and safety requirements

GB/T 13306 signage General technical conditions for

GB/T 13384 mechanical and electrical product packaging

GB/T 14039 hydraulic transmission oil solid particle pollution level code

GB/T 17301 earthmoving machinery operation and maintenance space corners blunt

GB/T 20082 Hydraulic fluid transmission liquid contamination method for determining

particle contamination by optical microscopy

GB/T 34354-2017 Full-face tunnel boring machine terminology and commercial specifications

3 Terms and definitions

The following terms and definitions as defined in GB/T 34354-2017 apply to this document. For ease of use, the following is repeated Certain terms and definitions in GB/T 34354-2017.

3.1 Mud water balance shield machine slurryshieldmachine The shield machine that balances the formation pressure of the tunnel excavation surface with the mud as the main medium and slag discharge through the mud conveying system.