

ICS 91.220
CCS P 97



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

GB/T 34650-2017

**Full face tunnel boring machines - Safety requirements for
shield machines**

全断面隧道掘进机 盾构机安全要求

Issued on: October 25, 2017

Implemented on: May 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

Table of Contents

- 1 Scope
- 2 Normative references

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed by the China Machinery Industry Federation. This standard by the National Building Machinery and Equipment Standardization Technical Committee (SAC/TC328) centralized. This standard drafting unit. China Railway Tunnel Group Co., Ltd., China Railway Engineering Equipment Group Co., Ltd., China Railway Construction Heavy Industry Group Co., Ltd. Division, North Heavy Industries Group Co., Ltd., Shield and Tunneling Technology State Key Laboratory, Sichuan Ertan International Engineering Consulting Co., Ltd., Stone Jia Zhuang Railway University, China Railway Tunnel Survey and Design Institute Co., Ltd., CCCC Tianhe Machinery Manufacturing Co., Ltd., Shanghai Tunnel Engineering Co., Ltd. Division, China Railway 11th Bureau Group Co., Ltd., Na Tuo Lubrication Technology (Shanghai) Co., Ltd., Beijing Institute of Construction Machinery. The main drafters of this standard. Zhou Jianjun, Yang Shaopu, Tan Shunhui, Cheng Yongliang, Hongkai Rong, Wei Weixian, Shi Zhichun, Huang Jian, He Weiguo, Liu Jie, Xu Tao, Guo Jingbo, Sun Zhihong, Ma Chengbiao, Deng Liying, Wang Zhaohui, Shen Jianhua, Liu Fusheng, Kong Xiaowei, Wan Weiyan, Li Jing, Sun Zhen, Liu Shuang, Guo Lu, Xie Gang. Full face tunnel boring machine shield machine safety requirements

1 Scope

China's national safety standard for shield type tunnel boring machines. It specifies the safety requirements for these machines, within the full face tunnel boring machine series. A shield machine works inside a steel tube that holds the ground open while the tunnel lining is built behind it, and that arrangement creates the machine's characteristic hazards. People work inside a confined space, at pressure in some designs, alongside a rotating cutterhead, a screw conveyor carrying excavated ground, hydraulic rams pushing against the completed lining, and an erector handling concrete segments weighing several tonnes each. Access to the cutting face for tool changes may require the working chamber to be entered under compressed air, which is a diving operation in all but name. And the whole assembly advances continuously through ground that can change from clay to rock to water-bearing sand within a few metres. The standard addresses each of those as a distinct hazard with its own protective measures.

This standard specifies the list of dangerous shield machine, safety requirements and measures and validation of the product manual requirements. This standard applies to circular cross-section shield machine, other types of shield machine can be implemented by reference. This standard does not include all the mechanical, electrical, hydraulic, pneumatic and other devices dangerous, nor does it include all the risks involved in the common standards risk. This standard does not include the dangers see GB/T 15706 provisions.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 150 (all parts) pressure vessels

GB/T 1094.2 Power transformers - Part 2. Temperature rise of liquid immersed transformers

GB/T 1094.3 Power Transformer Part 3. Insulation level, insulation test and external insulation air gap

GB/T 1094.11 Power transformers - Part 11. Dry-type transformers Ergonomics

GB/T 1251.2 visual signals of danger General requirements, design and testing
Ergonomics hazards and information visual audio - visual signal system

GB/T 1591 low-alloy high-strength structural steel

GB/T 1985-2014 high-voltage AC isolation switch and earthing switch GB 2893-2008 safe color

GB 2894-2008 Safety signs and guidelines for their use

GB/T 3683 rubber hoses and hose assemblies oil-based or water-based fluid wire braid enhanced hydraulic specifications

GB/T 3766 hydraulic drive systems and components of the general rules and safety requirements

GB 5226.1 Safety of machinery - Electrical machinery and electrical equipment - Part 1. General specifications

GB/T 6067.1 Hoisting Machinery Safety Code Part 1. General

GB 7247.1-2012 Safety of laser products - Part 1. Equipment classification, requirements