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**Standard atlas of modular trestle engineering**

成套式模块栈桥标准图集

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### Foreword

This document was issued on 24 May 2024 by the National Energy Administration of the PRC and takes effect on 24 November 2024.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 73.100.99, Chinese classification D 98.

This atlas was prepared in accordance with the requirements of the Notice of the General Department of the National Energy Administration on issuing the 2021 plan for the formulation and revision of industry standards in the energy field and the plan for the translation of foreign language versions, document Guo Neng Zong Tong Ke Ji [2021] No. 92, organised by the China Coal Construction Association and prepared jointly by China Coal Construction and Installation Engineering Group Co., Ltd., China Coal Tianjin Design Engineering Co., Ltd. and the organizations concerned.

In the course of preparation the drafting personnel carried out extensive investigation, carefully summarised the technologies and processes for the design, construction and use of modular trestles that practice over many years has proved effective and mature, sought the opinions of experts and user organizations in engineering design and construction throughout the country in various forms, and after repeated study finally settled the text

through review.

This atlas is composed of eleven parts, the main content of which is: the general description; the diagram of module layout; the trestle section selection table for the coal industry; the trestle section selection table for the electric power and chemical industries; the trestle load induction table for the coal industry; the trestle load induction table for the electric power and chemical industries; the trestle selection table; the layout drawing of the trestle poles; the schematic diagram of cast-in-place concrete floor reinforcement; the schematic diagram of the steel bottom plate and the steel skeleton light bottom plate; and the loading statistics of the buried parts at the trestle supports.

This atlas is administered by the National Energy Administration, the China Coal Construction Association is responsible for its routine administration, and China Coal Construction and Installation Engineering Group Co., Ltd. and China Coal Tianjin Design Engineering Co., Ltd. are responsible for the interpretation of its specific content.

Chief drafting organizations of this atlas: China Coal Construction and Installation Engineering Group Co., Ltd.; China Coal Tianjin Design Engineering Co., Ltd.

Participating drafting organizations include Hebei University of Engineering; the School of Naval Architecture, Ocean and Civil Engineering of Shanghai Jiao Tong University; China Coal Leiao Handan Environmental Protection Technology Co., Ltd.; China Coal Xian Design Engineering Co., Ltd.; CCTEG Beijing Huayu Engineering Co., Ltd.; CCTEG Shenyang Design and Research Institute Co., Ltd.; CCTEG Wuhan Design and Research Institute Co., Ltd.; CCTEG Chongqing Design and Research Institute (Group) Co., Ltd.; CCTEG Nanjing Design and Research Institute Co., Ltd.; and Dalian Port Design and Research Institute Co., Ltd.

## 1 Scope

NB/T 11549-2024 is the Chinese standard atlas of modular trestle bridges - the enclosed elevated galleries that carry belt conveyors of coal and other bulk material across a site, from the stockyard to the crusher, from the crusher to the silo, from the silo to the boiler house. Unlike most standards it is not a text of requirements but a set of pre-engineered designs: a designer who needs a 600 m conveyor gallery does not calculate one from first principles, but reads the width, clear height, span and load off the selection tables and takes the corresponding module. That is what makes it commercially valuable and what makes it unusual, because an atlas embodies the engineering rather than describing it. The system it defines is modular in the literal sense. Trestles come in single belt and double belt form, 3.2 m to 8.2 m wide, with a clear height of 2.5 m or 2.8 m, and are built from two module types: the elevated module MK, 9 m or 12 m long, which spans between supports, and the ground-mounted module MT, whose length is a multiple of 3 m. According to how the conveyor is hung, the arrangement is either suspended or floor-mounted, and the atlas gives the cross sections for each. The eleven parts cover the general description, the

module layout diagram, separate section selection tables and load induction tables for the coal industry and for the electric power and chemical industries, the trestle selection table, the layout drawings of the trestle poles across twenty-four pages, the reinforcement of the cast-in-place concrete floor, the steel bottom plate and steel skeleton light bottom plate, and the loading statistics of the buried parts at the trestle supports - the numbers the foundation designer needs. It applies where the seismic fortification intensity is not greater than 8 degrees at 0.30 g, and to bulk material trestles inclined not more than 18 degrees; where the width, clear height, span or load falls outside the selection range, Appendix A gives the strengthening scheme to design from. It is built on twenty-four current codes, from the general codes for engineering structures, steel structures and fire protection through the belt conveyor engineering standard to the fossil-fired power plant and petrochemical fire codes. It was issued on 24 May 2024 by the National Energy Administration and took effect on 24 November 2024.

## 1 General provisions

### 1.1 Basis of preparation

This atlas was prepared on the basis of the following standards: GB 55001-2021 General code for engineering structures; GB 55002-2021 General code for seismic precaution of buildings and municipal engineering; GB 55006-2021 General code for steel structures; GB 55037-2022 General code for fire protection of buildings; GB 50068-2018 Unified standard for reliability design of building structures; GB 50431-2020 Technical standard for belt conveyor engineering; GB 50011-2010 (2016 edition) Code for seismic design of buildings; GB 50191-2012 Code for seismic design of special structures; GB 50009-2012 Load code for the design of building structures; GB 50017-2017 Standard for design of steel structures; GB 50018-2002 Technical code of cold-formed thin-wall steel structures; GB/T 50046-2018 Standard for anticorrosion design of industrial constructions; GB 50661-2011 Code for welding of steel structures; GB 50205-2020 Standard for acceptance of construction quality of steel structures; GB 50016-2014 (2018 edition) Code for fire protection design of buildings; DG/TJ 08-008-2017 Technical specification for fire protection of building steel structures; GB 50583-2020 Standard for design of coal industry building structures; SH 3076-2013 Code for structural design of petrochemical buildings; DL/T 5187.1-2016 Technical code for the design of coal handling in fossil-fired power plants - Part 1: Coal handling system; DL/T 5094-2012 Code for architectural design of fossil-fired power plants; DL 5022-2012 Technical code for the design of civil structures of fossil-fired power plants; GB 51428-2021 Standard for fire protection design of coal chemical engineering; GB 50229-2019 Standard for fire protection design of fossil fuel power plants and substations; and GB 50160-2008 (2018 edition) Fire prevention code of petrochemical enterprise design.

Where the standards on which this atlas is based are revised, or where new standards are published and implemented, and where the content of this atlas does not conform to the

current engineering standards, the engineering technical personnel shall take care to distinguish the difference when referring to it, and shall re-check the relevant content of this atlas before selecting from it.

## 1.2 Scope of application

1 This atlas applies to belt conveyor galleries of general industrial buildings in areas where the seismic fortification intensity is not greater than 8 degrees (0.30 g).

2 The standard atlas of modular trestles applies to bulk material trestles with an inclination not greater than 18 degrees in the coal, electric power, chemical and similar industries.

3 Where the width, clear height, span or load exceeds the selection range of this atlas, the design may be carried out with reference to the strengthening scheme of Appendix A.

## 2 Content of the atlas

The modular trestles in this atlas are divided into two forms, single belt and double belt, with a trestle width of 3.2 m to 8.2 m and a clear height of 2.5 m and 2.8 m. Two module types are included: the elevated module (MK) and the ground-mounted module (MT). The elevated module (MK) has a module length of 9 m or 12 m, and after combination the maximum span of the single and double belt trestles shall not exceed that given in the trestle selection table on page 10. The length of the ground-mounted module (MT) is a multiple of 3 m. According to the way the belt conveyor is installed, the modular trestles are divided into the suspended type and the floor-mounted type.