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# CANTILEVER FORM TRAVELER

SHANDONG BOYOUN HEAVY INDUSTRIES CO., LTD

<http://www.boyoun.cn>



# CANTILEVER FORM TRAVELER

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## BOYOUN HEAVY INDUSTRIES

Boyoun, founded in 2005, is one of China's leading manufacturers of formwork and scaffolding. In addition to the manufacture plant in Binzhou city, Shandong province, China, 9 rental bases across China mainland are under operation. At Boyoun we offer various formwork, climbing formwork shoring formwork and scaffolding solutions - for sale and rental - in residential and commercial high-rise construction, tunnel, bridge and road engineering.



The company annually produces 50,000 tons of infrastructure equipment, owns 50,000 tons of leased materials, and supplies 100,000 tons of materials on behalf of the company; Material integration can gradually reach 100 million to 3 million tons, and achieve the integration of the market of 10 billion to 100 billion yuan; And we continue to expand to many countries rapidly, including The United Arab Emirates, Malaysia, Singapore, Pakistan, Russia, South Africa, Brazil, America and so on.

Boyoun is constantly developing and improving, always on the lookout for advantageous, new materials and unconventional solutions. On the basis of ISO 9001 and ISO 14001, all Boyoun products comply with the most stringent requirements in terms of quality and environment. Our international management stands for in-depth expertise. With the knowledge and understanding of local requirements, the right formwork and scaffolding systems are developed to meet all needs worldwide. Our goal is to be even closer to our customers around the world in the future and to be able to serve them better and faster.



# The Form Traveler Products

## The Cantilever Form Traveler Products

Form Traveler is the main equipment in the cantilever construction, which can be divided into truss type, cable-stayed type, steel type and mixed type according to the structure. According to concrete cantilever construction process requirements and design drawings of Form Traveler, compare the various form of Form Traveler characteristics, weight, the types of steel, construction technology etc.; Cradle design principles: light weight, simple structure, strong and stable, easy assembly and disassembly forward, strong reusability, the force after deformation characteristics, and plenty of space under the Form Traveler, larger construction jobs surface, conducive to steel formwork construction operations.

## Boyoun Cantilever Form Traveler

Boyoun industry design and manufacture of Form Traveler products, consisting mainly of part at the bottom of the main truss system, a bearing support system, walking and anchorage system, suspension lifting system, formwork and scaffold system.

Boyoun industry company in a diamond structure Form Traveler main products, with Form Traveler 5 patents and its products through three generations of innovation: BY-1 bolt type Form Traveler structure; BY-II screw connection type Form Traveler structure; BY-III Plug-pin connection type hydraulic walking Form Traveler structure.

The form traveller can be customized to meet clients' requirements and designed to comply with international codes. The equipment is self launching with back launching option for dismantling.





## The Cantilever Form Traveler Load design

### (1) Load factor

According to highway bridge design and construction specifications issued by the Ministry of Transportation, the load coefficient are as following:

The overload coefficient of expansion mode and other factors when the box girder concrete is poured: 1.05;

Dynamic coefficient of pouring concrete: 1.2;

Impact factor of Form Traveler moving with no load: 1.3;

Stability coefficient of resistance to overturning when pouring concrete and Form

Traveler: 2.0;

The safety factor for the normal use of the Form Traveler is 1.2.

### (2) Load on the main truss of the Form Traveler

The Box girder load: Box girder load to take the most massive calculation, the weight is 411.3 tons;

Construction equipment and crowd load: 2.5kPa;

Load caused by dumping and vibrating of concrete: 4 kPa;

### (3) Load combination

Load combination of stiffness and strength checking: Concrete weight + Form Traveler weight + construction equipment + crowd load + vibration force When the basket moves: the weight of the Form Traveler + the impact load (0.3\*the weight of the Form Traveler)+ the wind load

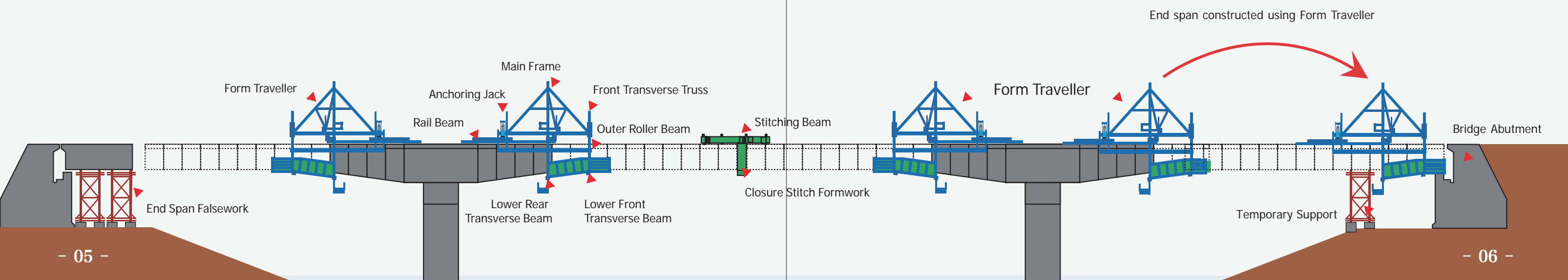
Refer to *technical specification for construction of highway bridges and culverts* provisions:

(1) The weight control of the Form Traveler is between 0.3 and 0.5 times of the concrete weight of the pouring concrete.

(2) Maximum allowable deformation (including the sum of sling deformation): 20mm

(3) Safety factor of anti overturning during construction or moving: 2.5

(4) Safety factor of self anchored system: 2





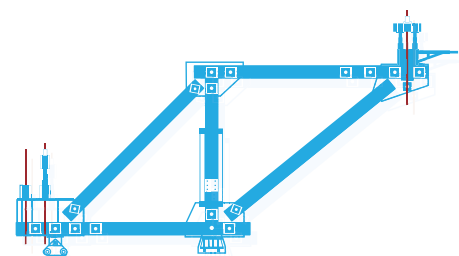
# Overall structure

## Introduction to the overall structure of the Form Traveler

Form Traveler products designed by Boyoun Industry, its main components are:

- 1.Main truss system
- 2.Bearing bottom supporting system
- 3.moving and anchoring system
- 4.Suspension lifting system
- 5.Formwork and support system

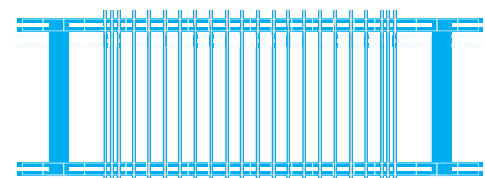
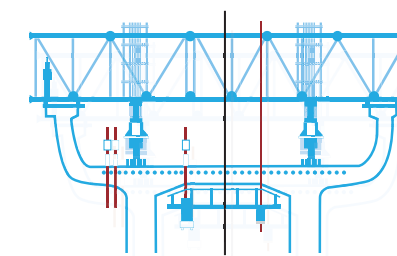




1

### Main truss system

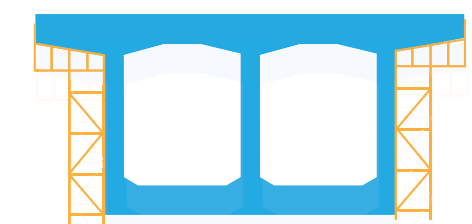
- The main truss system mainly includes: upper chord, bottom chord, anterior oblique rod, posterior oblique rod, a vertical rod, doorframe etc.



2

### Bearing bottom supporting system

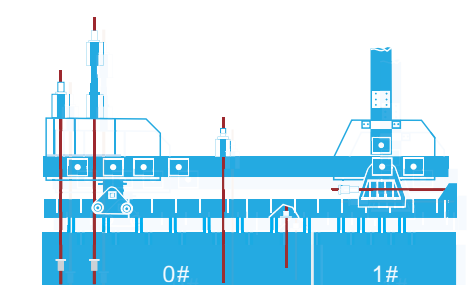
- The bottom bracket bearing system mainly comprises bottom beam, front support beam, rear support beam, oist hangers etc.



3

### Formwork and support system

- The formwork and support system are the main components of the Yuan Yuan Form Traveler.



4

### Walking and anchoring system

- Walking and anchoring system mainly comprises Rear anchor, Buckle wheel fixed seat, Walking track, Steel pillow, Walking attachments etc.



5

### Suspension lifting system

- Project example of Suspension lifting system: The connection of the upper and lower hangers



# Project Case

## Boyoun Cantilever Form Traveler case

For years, Boyoun has been committed to the standardization and universal R&D of Form Traveler. Boyoun Heavy Industry currently has 19 utility model patents for the design and production of Form Traveler. Up to now, there have been more than 1000 projects for service projects and can provide basket sales. Sales repurchase, lease and other forms of cooperation. Committed to provide customers with integrated solutions for road and bridge equipment construction. Boyoun has an authoritative team of experts and automated production equipment to provide double protection, Boyoun manufactured hydraulic cantilever Form Traveler has been widely used in a number of key projects at home and abroad. Product quality and design concepts have reached the world's advanced level.







## Project Case



### Cradle Engineering in Shanxi long wide luqiao jincheng wenbo road section

Shanxi Changguang road and bridge Construction Co. Ltd. participate in the road construction of northern section of Jincheng City Cultural Road. The mission of the construction in the north section of road is to improve the urban road transport network, and it's convenient to link each urban districts. In addition, it will further improve the framework of

the city and promote the Construction of the main city in the Northeast area. The construction in north section of Wenbo road is from Red Star Street in south and north to the North Ring Road. It's 3483 meters in length. The road red line width is 80 metres, two-way eight lane, the design vehicle speed is 50 km / hour, budget with a total investment is 10 billion yuan.



### Form Traveler construction of China Railway twelve Bureau wide high-speed Engineering

Daqing-Guangzhou Expressway begins in Heilongjiang Province, Daqing, Jilin, through Inner Mongolia, Beijing, Hebei, Henan, Hubei, Jiangxi to the Guangzhou City, a total length of about 3500 kilometers. Become the main highway channel connecting the Pearl River Delta economic zone and East China, North China and other areas. Daqing-Guangzhou Expressway in Guangdong Province in Conghua to Guangzhou section of the original Street North Expressway opened to traffic, Heyuan, Guangdong, Jiangxi Longnan to regional G4512 namely original Ganyue high speed have been opened to traffic.



### Form Traveler of Shangrao station renovation and expansion project of China Railway twenty-four Bureau

Features of this project:

This structure is across multiple strands of railway line, and seven continuous beams are under parallel construction, and the bottom is provided with the insulation panels, adjacent beams is limited by the length of the beam, Form Traveler rod set up flexibly and lightly, Platform girder body set long horizontal beam and single or two-lane continuous beam in span of (30.251 + 3x52 + 31.753) m, the length of No.0 block is 12m. The length of longest piece is 4m, the maximum block weights 157 tons.





### Project Case



#### Liaoyang grand Bridge Cradle by Jiangsu Nantong Second Construction Group

Features of this project:

Single Box room girder with span of 72 + 120 + 120 + 70m is set in magnificent bridge. Two lines No.0 block is 10m in length. The longest segment is 4m, the largest concrete is 279 tons; anchor beam is adopted to after the anchor Basket with solid connection.



#### Form Traveler Cross the main canal by Henan Huasheng Construction Group

Features of this project:

Continuous beam with Single box three rooms and single box four rooms is adopted. Forward and backward forms of Form Traveler: The track is provided with a walking attachment as a fixed point, and a hydraulic jack is adopted to push, move forward on the reverse button wheel back track.



#### Basket fourteen Bureau of China Railway Joint North South Changshan Island Bridge

North and South Changshan Island Bridge in Shandong province is the combination of "12th Five-Year" during the key construction project. connect highway 263 line, 1510 meters long across the board, which 1200 meters long connected at the two ends of the wire length of 310 meters, the total cost of the project about 1.67 billion yuan.



#### Form Traveler in Leling to Ji'nan highway by China Railway sixteen Bureau Group

Features of this project:

Tuhai River bridge adopts continuous beam with length of 50+80+80+50m, No.0 block is 12m long, the longest segment is 4m, the bulk weight 169.98 tons; Main bearing member of Form Traveler is that main truss system bears the vertical tension transmitted from bottom bracket.



#### Main Canal Basket of Cross-North Water Transfer by Construction Second Board , Zhengzhou City

Features of this project:

North-south Voeux Road and Main Bridge were set, main bridge is continuous beam with length of 90+150+90m. No.0 block is 12m in length, the longest segment is 4m, the maximum segment concrete weights 204.2 tons;



#### The Form Traveler of China Railway Sixth Group Tianjin-baoding railway

Tianjin-Baoding railway is connected to Tianjin, Hebei and the central and western regions and easy rail access, line drawn from the high speed Tianjin West railway station yard, the Hebei Bazhou, Xiong county to Baoding station. The line length of 156 kilometers, the whole bridge is about 44%.







## Project Case



## Form Traveler by Shenyang construction in Dandong passenger line

Features of this project:

Continuous beam was set in this bridge with length of 40+64+40m, No.0 block is 9 meters in length, the longest segment is 4.25m, the maximum segment concrete weights 150.2 tons; Form Traveler has advantages of that small construction site is occupied.



## Huang Hanhou railway Form Traveler of railway twenty-two Bureau

Features of this project:

Da Yu River bridge consists of continuous beam of single cell box with length of 80+144+80m, the length of No.0 lock is 15m, the longest segment is 4m in length, the maximum segment concrete weights 246.2 tons;



## Cradle bridge project of Zhengzhou Kaixuan Cross North Water Transfer project

Features of this project:

Beam body consists of left, middle and right parts, set continuous beam of single box three rooms or four rooms with length of 45 + 70 + 45m, the width of single bridge 25.5m. No.0 block is 12m in length, the longest segment is 3.5 meters, the maximum block weights 221 tons;



## Form Traveler for Guizhou to Guangzhou Railway by China Railway Tunnel Group

Features of this project:

Continuous beam are set in Bridge with span of 48+88+48, 40+64+40, 32+48+32, 72+128+72m, among which, the length of No.0 block is respectively 12m, 9m, 10m, 13m. The longest segment is 4.25m, the heaviest segment is 219 tons; the beam is set in Form Traveler.



## Railway construction Form Traveler of seventeen railway project construction of China Railway

Features of this project:

Qingdao-Rongcheng intercity railway is the first regional inter city high-speed railway in Shandong Province, The length is 298.971 kilometers, the bridge is 164.696 km, accounting for 55.09% of line length. There are a total of 17 stations across the board.



## The Form Traveler of Nanjing Hangzhou passenger dedicated line

Features of this project:

Nanjing-Hangzhou railway passenger line is east from end of the Nanjing South Station and it leads to Hangzhou East Railway Station, The total length of it is 249 kilometers.







## Project Reference 01-Pakistan Dhan Gali Bridge Project

It's a 85m+170m+85m pre-stressed, post-tensioned continuous concrete rigid frame bridge with a total length of 340 meters pier height 36.85m. Bridge over the Jhelum River which located in the Dadyal sub division of Mirpur district in Pakistan.

Boyoun supply cantilever form travelers to China Railway First Group which take the project construction.

Boyoun supplied

Cantilever forming traveller





# Partners And Certificates

## Leaping through breakthroughs and pursuing excellence

On the basis of years of professional technology , research and development, BOYOUN heavy industries, adhering to the tenet of honesty and innovation as the soul, establishes win-win cooperation with customers, and provides more reasonable, more efficient, more economical, safer and better solution for the customers.

