

Power

Sutong Power Plant C11B Pipe Conveyor Belt Retrofit

World-first $\Phi 600$ mm aramid pipe conveyor belt application for a high-capacity enclosed coal conveying system

BOTON delivered a high-performance aramid pipe conveyor belt solution for Sutong Power Plant's C11B coal conveying line, supporting stable, energy-efficient and fully enclosed conveying under large-diameter, high-capacity operating conditions.

The project combined advanced aramid belt engineering with an innovative on-site replacement method, overcoming complex installation geometry and completing the retrofit 5 days ahead of schedule.

KEY FACTS

- ✓ Application: **Coal Conveying**
- ✓ Site: **Sutong Power Plant, Jiangsu, China**
- ✓ Product: **High-Performance Aramid Pipe Conveyor Belt**

Pipe Diameter $\Phi 600$ mm	Conveying Distance 1,458 m	Lift Height 23.8 m	Design Belt Speed 5 m/s	Design Capacity 3,250 t/h
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Conveying Mode: **Fully enclosed pipe conveyor**

Delivery Scope: **Belt design, product supply, replacement planning, site execution support**





**World-first
Φ600 mm**



**10×
improvement**



**Completed
5 days**

CORE ACHIEVEMENTS

01 World-first Φ600 mm aramid pipe conveyor belt application

BOTON successfully delivered the world's first Φ600 mm large-diameter aramid pipe conveyor belt, combining the high-strength, lightweight and low-resistance advantages of aramid reinforcement with the fully enclosed, high-capacity and long-distance conveying capability of pipe conveyor belt technology.

02 10× improvement in old-belt recovery efficiency

With BOTON's self-developed belt winding equipment and optimized replacement procedures, old-belt recovery efficiency was increased by approximately 10 times.

03 Completed 5 days ahead of schedule

Despite a complex replacement environment and tight shutdown window, the project was completed 5 days ahead of schedule, reducing operational pressure on the plant's critical fuel supply system.

PROJECT CHALLENGES

Large-diameter pipe-forming stability

A Φ600 mm pipe conveyor belt places high demands on transverse rigidity, overlap stability, flexibility and resistance to twisting. Under long-distance and high-capacity operation, conventional belt structures may face challenges in maintaining consistent pipe formation.

Energy efficiency requirements

For long-distance conveying systems, belt weight and running resistance directly affect system power consumption. The project required a belt structure that could reduce operating load while maintaining strength, stability and service reliability.

Complex replacement geometry

At the replacement site, the new belt position was approximately 6 m offset from the conveyor centerline. This made a conventional straight-line replacement process impractical and created additional challenges in belt pulling, guiding and entry control.

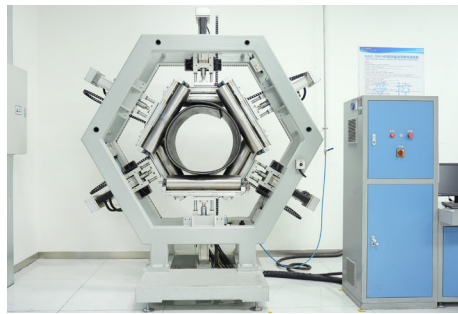
BOTON SOLUTION



High-strength lightweight aramid reinforcement

BOTON applied high-strength aramid reinforcement to the $\Phi 600$ mm pipe conveyor belt. Compared with conventional belt structures, aramid provides high tensile strength with significantly lower weight, helping reduce system load and support lower running resistance.

This lightweight structure was designed to improve energy efficiency while maintaining the mechanical performance required for large-diameter pipe conveyor operation.



Innovative suspension-bridge replacement method

To overcome the 6 m parallel offset between the new belt position and the conveyor line, BOTON developed an innovative "suspension-bridge" replacement method.

This method created a controlled belt transition path, allowing the new belt to enter the conveyor structure smoothly at a 35° angle. It improved belt guidance accuracy, reduced installation risk and made the replacement feasible without major structural modification to the existing conveyor system.



Self-developed belt winding equipment

BOTON deployed its self-developed belt winder to accelerate old-belt recovery and improve site handling efficiency. Combined with optimized pulling, guiding and recovery procedures, the equipment helped shorten the replacement cycle and improve construction safety.

