

Successful Modernization Leverages Hidden Optimization Potential

The Challenge

- >> Modernization of the traveling axis positioning system of two bridge cranes in an automated paper roll warehouse operated by **PT Pindo Deli Pulp & Paper Mills** in Indonesia.
- >> Each bridge crane is equipped with 2 separate vacuum grippers that have a combined lifting capacity of 18 tons.
- >> The current throughput of approximately 270 storage cycles per day needs to be increased considerably.
- >> The warehouse cranes are operated 24/7 year-round.
- >> During the summer months, temperatures can reach up to 50°C (122°F) on the crane bridge, which can lead to laser distance meter failures.

General Requirements

- >> The modernization needed to be performed during a 2-part shift. The modernization was carried out during the day and the cranes were taken into production at night.
- >> No programming changes to the existing controller (Siemens S5) were allowed.
- >> The single-axis control system was supposed to be upgraded to a skew control system with separate drives on both sides of the bridge.

The Solution

- >> The entire drive systems of both bridge cranes were modernized.
- >> Speed encoders were installed on both sides of the bridge to increase positioning accuracy.
- >> The ARATEC® Positioning Solution System and the FLP6000ASC Advanced Skew Control system were installed.
- >> Travel profiles were optimized by eliminating oscillations as well as creeping speeds.
- >> The entire system was modernized and commissioned within 2 weeks during a limited production schedule with alternating 12-hour modernization and production shifts.
- >> No modifications to existing hardware, such as SPS, safety-related technology or motors, were required.



PSI Technics GmbH

support@psi-technics.com
www.psi-technics.com/E



ARATEC® –
Easy Integration into
Existing Logistics Facilities

Project Brief

Description

Positioning system modernization and optimization of 2 automated bridge cranes in a paper roll warehouse. The crane runway is approximately 200 m (656 ft) long, the trolleys travel over a distance of about 30 m (98 ft).

V_x max. = 1500 mm/s

V_y max. = 850 mm/s

The vacuum grippers of the lifting devices can carry up to 9 tons each and each crane has a combined lifting capacity of 18 tons.

Customer

PT Pindo Deli Pulp & Paper Mills
Sinarmas Group (the biggest Indonesian paper producer), Java Barat, Indonesia

Industry

Paper industry

Scope

- >> The existing ICS5000L single-axis control system was replaced by the new ARATEC® Positioning Solution System with FLP6000ASC Advanced Skew Control.
- >> New, cutting-edge laser distance meters were installed in combination with PSI Technics' TPCC® Thermo Protection Cooling Cases to prevent the sensors from overheating.
- >> The existing serial communication with the Siemens S5 controller was retained, and the ARATEC® Positioning Solution System was used to control the single-axes.
- >> The complete drive system was modernized: Frequency converters, protective circuits, inverter controls and speed encoders.
- >> Two axes on each crane were retrofitted (left / right side of the bridge, trolley).

Project Duration

Motion path analysis: 01.2017–02.2017
Modernization of
both bridge cranes: 08.2017–05.2018



PT Pindo Deli Pulp and Paper Mills about PSI Technics:

"By integrating the ARATEC® Positioning Solution System we were not only able to reduce crane wear, but to considerably increase throughput and productivity. PSI Technics is a very progressive and professional partner."

Automated paper roll crane with a capacity of 18 tons



TPCC® Thermo Protection Cooling Case



PSI Technics focuses on industrial positioning systems, industrial image processing as well as thermal protection/cooling enclosures for sensitive sensors. In addition, the company provides modernization and retrofitting solutions and analyses aimed at increasing system availability and throughput, to enable customers to take full advantage of the hidden optimization potential their logistic systems and facilities have to offer.

Successful Modernization Leverages Hidden Optimization Potential

The Challenge

- >> Modernization of the traveling axis positioning system of two bridge cranes in an automated paper roll warehouse operated by **PT Pindo Deli Pulp & Paper Mills** in Indonesia.
- >> Each bridge crane is equipped with 2 separate vacuum grippers that have a combined lifting capacity of 18 tons.
- >> The current throughput of approximately 270 storage cycles per day needs to be increased considerably.
- >> The warehouse cranes are operated 24/7 year-round.
- >> During the summer months, temperatures can reach up to 50°C (122°F) on the crane bridge, which can lead to laser distance meter failures.

General Requirements

- >> The modernization needed to be performed during a 2-part shift. The modernization was carried out during the day and the cranes were taken into production at night.
- >> No programming changes to the existing controller (Siemens S5) were allowed.
- >> The single-axis control system was supposed to be upgraded to a skew control system with separate drives on both sides of the bridge.

The Solution

- >> The entire drive systems of both bridge cranes were modernized.
- >> Speed encoders were installed on both sides of the bridge to increase positioning accuracy.
- >> The ARATEC® Positioning Solution System and the FLP6000ASC Advanced Skew Control system were installed.
- >> Travel profiles were optimized by eliminating oscillations as well as creeping speeds.
- >> The entire system was modernized and commissioned within 2 weeks during a limited production schedule with alternating 12-hour modernization and production shifts.
- >> No modifications to existing hardware, such as SPS, safety-related technology or motors, were required.



PSI Technics GmbH

support@psi-technics.com
www.psi-technics.com/E



ARATEC® –
Easy Integration into
Existing Logistics Facilities

