



Customer
Paper mill

Industry
Pulp and paper —
tissue

Application
Yankee dryer

Rexnord Solution:
Thomas 500 Disc
Coupling with
adapter hubs

Total Annual Savings
\$16,616

For a detailed cost analysis
for your application,
contact your local
Rexnord Representative.

Thomas Disc Coupling Provides 91% Savings for Paper Mill

Challenge

A paper machine has a variety of rollers that are used to move the product and are driven by a flexible coupling. Machines are typically sold with standard gear couplings, but for some machine designs, these couplings, like this paper mill's yankee dryer, can be difficult to maintain:

- Regular inspections and replacements of the gear couplings were needed, resulting in unwanted downtime.
- The two motor drives needed to sync with each other to prevent one from being overloaded. While the drive is designed to allow the motors to sync, the backlash allowed by the gear couplings often prevented them from doing so.
- The backlash resulted in one of the couplings being overloaded by the customer's twin 900 horsepower drive, prompting one coupling to wear very quickly, and cause unplanned plant shutdowns.

Rexnord Solution

As a result of its vast coupling and application expertise, Rexnord identified Rexnord Thomas® 500 SN-GA Disc Couplings as the ideal replacements for the two standard gear couplings. In addition, Rexnord also used adapter hubs to adapt the existing rigid hubs installed on the motor and gearbox shafts. This solution was chosen by the customer for multiple reasons:

- **Drastic reduction of coupling maintenance and inspection costs.** Unlike the gear couplings it replaced, the coupling's disc packs can be visually inspected without disassembly of components and there is no lubrication to maintain.
- **Zero backlash.** The disc coupling features zero backlash, allowing the motors to sync and drive the equipment under a shared load while also significantly reducing the risk of unplanned outages.
- **Proven reliability and quality.** The disc coupling is available in a line shaft design to fit the custom 137-inch length required for this application. Additionally, Rexnord's experience and dedication to proven design standards ensure maximum reliability for this critical application.

Rexnord Solutions and Savings in Action

Since installing this Rexnord solution, the customer has:

- Reduced their annual total cost of ownership by 91 percent.
- Reduced inspection frequency to once per year from semi-annual.
- Reduced time, labor and materials for coupling inspection.
- Eliminated unplanned outages.

Calculating the Annual Total Cost of Ownership (TCO)

Rexnord worked with the customer to determine the current costs compared to the TCO using the Rexnord solution. Factors considered were:

- Acquisition costs.
- Installation costs.
- Reduced maintenance costs.
- Lost production costs.

Annual Cost Analysis Breakdown (in \$USD)

Acquisition Costs

	Purchase Price	Expected Life (years)	Units Installed	Total
Current coupling	\$3,623	1.1 years	2	\$6,587
Thomas Disc Coupling	\$8,167	10 years	2	\$1,633
Annualized Savings				\$4,954

Installation Costs

	Installation Cost	Installation/Year	Units Installed	Total
Current coupling	\$595	0.92	2	\$1,095
Thomas Disc Coupling	\$390	0.1	2	\$78
Annualized Savings				\$1,017

Reduced Maintenance Costs

Reduced the number of personnel and time needed for scheduled downtime.

	Events/Year	Maintenance Resources	Maintenance Cost/Event	Total
Current coupling	2	2 people	\$335	\$670
Thomas Disc Coupling	1	1 person	\$25	\$25
Annualized Savings				\$645

Lost Production Costs

Eliminated unplanned outages.

	Events/Year	Downtime/Event (hours)	Downtime Cost/Hour	Total
Current coupling	0.25	4 hours	\$10,000	\$10,000
Thomas Disc Coupling	0.00	0 hours	\$0	\$0
Annualized Savings				\$10,000

Rexnord Solution Annual Savings Summary

Total current cost per year	\$18,352
Total proposed cost per year	\$1,736
Total savings per year	\$16,616
TCO reduction percent	91%

Total Cost of Ownership Annual Savings: \$16,616