



**Customer**  
Specialty chemical manufacturer

**Industry**  
Energy (Downstream oil & gas; chemical manufacturing)

**Application**  
Injection pump

**Rexnord Solution:**  
Autogard 400 Series Torque Limiters

**Total Annual Savings**  
\$280,425

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

## Chemical Plant Saves Over \$280,000 with Autogard 400 Series Torque Limiter

### Challenge

A specialty chemical manufacturer uses positive displacement injection pumps to produce chemicals that are hazardous if not properly contained. A burst in the piping system of these chemicals could cause toxic release, weeks of downtime and lost production, and a lengthy investigation into the cause of the accident.

- During production, excess pressure on injection pumps can be created due to blockages or changes in material flow caused by temperature or density changes.
- Given an injection pump's flat flow performance curve, blockages can become dangerous to the operation due to its inability to restrict flow once higher pressure is experienced.
- The manufacturer was looking for a safety mechanism that would prevent damage to the pump and gearbox and avert a pump's pressure relief valve from activating and discharging chemicals.

### Rexnord Solution

Rexnord understands the need to provide accurate and consistent disengagement. Rexnord proposed installing Autogard® 400 Series Ball Detent Torque Limiters. The torque limiters:

- **Disengage immediately and disconnect the drive system components** upon overload, protecting the driven equipment before a single rotation of the shaft occurs.
- **Have proven accuracy within ±5%** of the torque setting.
- **Reset in seconds** back to the original torque setting once the overload is cleared.



Autogard 400 Series Torque Limiter prevents potential downtime and catastrophic damage to equipment.

### Rexnord Solutions and Savings in Action

Since installing this Rexnord solution:

- The Autogard performed as designed and released before a single rotation of the shaft.
- The complete disconnection prevented catastrophic damage to the pump and gearbox.

## Calculating the Annual Total Cost of Ownership (TCO)

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

- Acquisition costs.
- Installation costs.
- Maintenance personnel costs.
- Costs of lost production.

### Annual Cost Analysis Breakdown (in \$USD)

#### Acquisition Costs

	Purchase Price	Expected Life	Units Installed	Total
Without torque limiter	\$0	-	0	\$0
Autogard 400 Series Torque Limiter	\$3,500	5 years	1	\$700
<b>Annualized Savings</b>				<b>-\$700</b>

#### Installation Costs

	Installation Cost	Installation/Year	Units Installed	Total
Without torque limiter	\$0	-	0	\$0
Autogard 400 Series Torque Limiter	\$76	0.2	1	\$15
<b>Annualized Savings</b>				<b>-\$15</b>

#### Reduced Maintenance Personnel Costs

	Events/Year	Maintenance Resources	Maintenance Cost/Event	Total
Without torque limiter	1	2 people	\$41,140	\$41,140
Autogard 400 Series Torque Limiter	0	-	\$0	\$0
<b>Annualized Savings</b>				<b>\$41,140</b>

#### Lost Production Costs

##### Reduced unplanned downtime to repair equipment damage.

	Events/Year	Downtime/Event	Downtime Cost/Hour	Total
Without torque limiter	1	24 hours	\$10,000	\$240,000
Autogard 400 Series Torque Limiter	0	-	\$10,000	\$0
<b>Annualized Savings</b>				<b>\$240,000</b>

### Rexnord Solution Annual Savings Summary

Total current cost	\$281,140
Total proposed cost	\$715
Total savings	\$280,425
TCO reduction percent	100%

**Total Cost of Ownership Annual Savings: \$280,425**