

# Stimson Lumber Switches to Moog Valves to Eliminate Frequent Failures

For the past few years, Mike Morgan had been suffering chronic headaches. Morgan, plant electrician for Stimson Lumber Company in Gaston, Ore., found that every few months one of the valves on the company's infeed optimizer would fail, bringing the line to a screeching halt. Aside from the annoyance, the problem was costing Stimson money — both in repairs and in lost production.

The servo-solenoid valves controlled the positioning of logs moving into the mill's edger. This is a critical function for Stimson, which manufactures a variety of dimensional lumber for construction and other applications. When one of the valves failed, it affected the entire process, creating bottlenecks and production interruptions.

"The failures became pretty common," Morgan said. "We were having a lot of problems with the servo-solenoid valves. The valves came with the equipment when we purchased it, so we had continued to use the valves. But the problems kept occurring."

## Identifying the Problem

As Morgan analyzed the situation, he found two primary causes for the repeated failures — shock and contamination. The optimizer is subjected to heavy shock loads as logs move into position. This stress often damaged the on-board electronics in the valves, which caused the valves to fail. In other cases, the wiring leading to the valve would crack at the connector. "The manufacturer uses three-pin connectors, which have always caused us problems," Morgan explained. "They are not very rugged or reliable."

The second cause of the repeated failures was contamination in the hydraulic fluid. This would cause the valve to seize up, damaging the valve and stopping production. "The servo-solenoid valves are very sensitive to contamination," Morgan said. "That's a very common problem with that type of valve." This is particularly a problem in industrial settings such as lumber mills, where dust and other particulate contamination are prevalent. It is almost unavoidable for a hydraulic system in a mill to become contaminated, making contamination resistance a critical characteristic for long valve life and uninterrupted production.

## Switching to Moog

After determining the causes of the frequent failures, Morgan began to look for an alternative control valve for his equipment. Stimson had previous experience with Moog Industrial Control Division valves and explored using Moog valves on the infeed optimizer.

"We'd had a number of Moog 78 Series valves for years and never had a problem with them," Morgan

said. "So, Moog was a natural option for us to look into."

"We recommended the Moog D661 proportional control valve," said Jerry Hendrick of AIT, an independent equipment distributor in Oregon. "They have the reliability and performance that Stimson needed for its application."

## The Moog 660 Series in Profile

The Moog D660 Series proportional control valves are designed for both durability and performance. The valves employ proprietary ServoJet technology, making the valve more contamination resistant, reducing power consumption and improving frequency response for quicker, more accurate positioning. They also feature higher flow capacity and faster step response for maximum machine throughput, less downtime and improved repeatability.

Ideal for high-performance applications involving electrohydraulic position, speed, pressure or force control systems, the Moog D660 Series proportional control valves feature rugged integrated electronics. They are available in a two-stage or three-stage design for two by two-, three-, four- or five-way control applications.

Moog's proprietary ServoJet design provides:

- >90 percent pilot stage internal leakage flow recovery for low energy consumption
- 500 Hz frequency response in the pilot stage
- High-pressure recovery of the ServoJet stage (more than 80 percent  $\Delta p$  at 100 percent command signal) for improved spool position repeatability

- Low pilot pressure threshold of 215 psi and 200 $\mu$ m nominal filter fineness

Other features of Moog D660 Series valves include:

- Reduced spool drive area for improved dynamic response and reduced pilot fluid flow
- ISO 4401 size 5-10 available configurations
- 8-400 gpm flow rates at 150 psi drop
- Hydraulic and electronic fail-safe options

## On the Job

Stimson installed two Moog valves in early 1997. The results were very encouraging. "We've had the two Moog valves in for about a year," Morgan said. "In that time, we'd have replaced two valves on each of the servo-solenoid models. The Moog valves are much more reliable for us than those were. They can handle the vibration, and they're much more contamination resistant."

Morgan said that by switching to the Moog valves, he was also able to simplify the electronic interface between the PLC delta card and valve units. "We eliminated the amplifier card," he said. "Where we had three cables with the servo-solenoid valves, we only need a single cable with the Moog valves." Morgan said the screw-in connectors Moog uses also perform much more reliably than the three-pin connectors on the other valves.

With about a year's experience with the Moog 660 Series valve, Morgan said he plans to replace all remaining valves with Moog valves in coming months. "As the old valves fail, which will happen, we will replace them with the Moog valves," he said. "The Moog valves are much better for what we need."

# MOOG

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