Garlock

Case Study: GYLON® ONE-UP® Pump Diaphragms Improve Reliability Across Pharmaceutical Pump Fleet



INDUSTRY

Pharmaceutical Manufacturing - Drug Research and Development

BACKGROUND

A leading global pharmaceutical manufacturer operates more than 50 diaphragm pumps across its research and development operations. These pumps support general fluid transfer and move a wide range of solvents and chemicals used to develop new pharmaceutical compounds, including cancer drugs. With processes involving sensitive research, valuable materials, and diverse chemical reactions, dependable fluid handling is essential for maintaining product integrity, accurate results, and efficient operations.

CHALLENGES FACED

Aggressive chemicals and wide temperature fluctuations were causing the two-piece OEM diaphragms to fail. As the primary PTFE layer cracked, process chemicals attacked the rubber backup, allowing degraded material particles to enter directly into the fluid stream. This contamination risked compromising research integrity and ruining entire production batches, leading to discarded materials, lost processing time, and expensive downtime.

OPERATING CONDITIONS

Size: Various

Temperature: Ambient to 200°F, with wider process variations

Application: Sanitary air operated double diaphragm (AODD) pump

Media: Liquid drug compounds, solvents, chemicals

Speed: 20 to 75 PSIG

SOLUTION AND BENEFITS

GYLON ONE-UP Diaphragms were recommended to replace the OEM supplied two-piece diaphragms across the manufacturer's pump fleet. The FDA compliant ONE-UP design provided longer service life and a broader temperature range in this sanitary application, improving reliability when handling the diverse solvents and chemicals used in pharmaceutical research and development.

Following a successful trial, the manufacturer converted its entire fleet of more than 50 pumps to the GYLON ONE-UP diaphragm. Made using a completely different manufacturing process, the GYLON PTFE layer offers improved diaphragm reliability which reduced the risk of sudden failures, process contamination, compromised research results, and ruined batches. Greater confidence in pump performance also allowed the facility to move away from running equipment to failure and implement a more diligent maintenance and rebuild schedule, helping reduce unplanned downtime, avoid unnecessary costs, and improve overall process reliability.

For more information, please visit:
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10.2026