Garlock

Case Study: GYLON® Style 3522 Delivers High-Purity Sealing for Hyperscale Data Center Cooling Systems



INDUSTRY

Data Center Infrastructure – Liquid Cooling Systems

BACKGROUND

A Coolant Distribution Unit (CDU) OEM for hyperscale data centers required a sealing solution for critical CDU piping systems and external connections between the CDU and adjacent server racks. Designed for AI facilities, these high-density liquid cooling systems regulate fluid flow, operating pressure, and heat rejection for high-density IT Equipment (ITE). Because coolant purity is essential to long-term system reliability, the customer required a gasket capable of maintaining a leak-free, contamination-free seal while supporting continuous operation.

CHALLENGES FACED

Conventional gasket materials presented concerns regarding long-term cleanliness, compatibility with both water and PG25 coolant, and resistance to tearing and biofilm attachment. The application required a sealing material that would not introduce contaminants into the coolant while maintaining complete chemical compatibility with both cooling media. Any seal failure could result in coolant leakage or contamination capable of damaging critical IT hardware, leading to costly equipment replacement and unplanned downtime.

OPERATING CONDITIONS

Size: 1-½ inch Class 150 (40 mm), Flat Face Pipe Flanges
Temperature: Below 104°F (40°C)
Application: External CDU Piping System
Media: PG25 (25% Propylene Glycol / 75% Water)
Pressure: 29 - 87 psi (2 - 6 bar)

SOLUTION AND BENEFITS

Garlock recommended GYLON Style 3522 Pipe Flange Gaskets, engineered from non-absorptive, 100% virgin modified PTFE construction to maintain strict system cleanliness and prevent biofilm attachment. The material also provides complete chemical compatibility with both treated water and PG25 coolant while delivering excellent resistance to creep, cold flow, and thermal cycling.

To ensure exceptional delivery, Garlock subjected each gasket to specialized cleaning and packaging protocols modeled after strict hygienic standards. This step delivered ready-to-install components directly to the customer, typically eliminating the need for onsite cleaning or secondary preparation.

By standardizing on GYLON Style 3522, the manufacturer secured an ultra-clean, reliable sealing solution that safeguards critical cooling infrastructure, maintains coolant integrity, and allows for faster installation.

For more information, please visit:
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