

PETROLEUM PRODUCTION & REFINING



FACILITY:	APPLICATION PROBLEM:	SOLUTION:	SUCCESS SINCE:
Research Center for Major Oil Producer	Chilled Water System Cooling Tower with a Variable Speed Pump	DFT® Model GLC® Check Valve	2009

Challenge:

This installation is at a research center for a major oil producer. They had installed a new chilled water system for their cooling towers. The system consisted of 3-18" lines feeding a common 24" header.

Pump 1, shown in the foreground, is the primary pump which operates continuously during the heating season. It is a variable speed pump which operates between 2100GPM and 5700GPM. As the pump runs up into the high range, pump 2 kicks in. You can see the maintenance pump, pump 3, in the background.

Shortly after start up (approximately 2 months), the check valve on pump 1 failed and needed to be repaired. Not long after that, the check valve on pump 2 failed. The end user called in the swing check manufacturer who responded that the valve was mounted too close to the pump, therefore, there was no warranty.

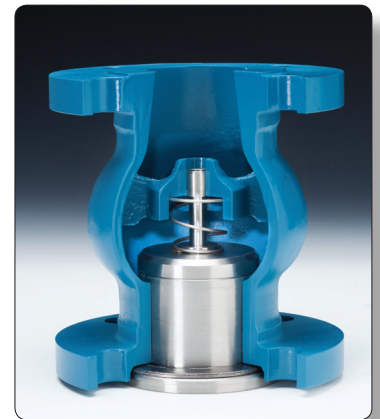
A quick analysis revealed that the swing check valve was never fully open and stable. Since it was mounted adjacent to the pump, the swing check disc would flutter in the turbulent fluid stream, causing excessive wear and rapid failure of the pin. This is a common problem when variable speed pumps are being used since minimum flow velocities in the 10-12 feet per second range are needed to keep a swing check disc stable in turbulent flow.



DFT® Model GLC® Check Valve

Features:

- 2" to 42" line size*
- ASME class 150 to 2500
- RF & RTJ flanged ends
- "Short" face-to-face dimensions
- Standard Body Materials:
 - A216 WCB carbon steel
 - A351 CF8M stainless steel
- Stainless steel trim
- Center-guided/dual-guided stem
- Spring assisted silent closing, non-slam
- Tight shutoff – lapped disc & seat
- Horizontal or vertical installation
- Protected spring



**For larger sizes, contact DFT*

Solution:

The DFT® model GLC® was the solution. DFT recommended a 14" GLC® with a light cracking pressure spring for the application. The light cracking pressure spring allows the valve to open fully in a low flow condition (as low as 3 feet per second). When the valve is fully open, the disc does not oscillate in the turbulence, and wear does not occur. After replacing the valve on pump 2, the end user reported that the DFT Silent Check has operated flawlessly since installation. As you can see, they subsequently replaced the swing check on pump 1 with another DFT Silent Check.

Contact DFT for a solution to your problem.