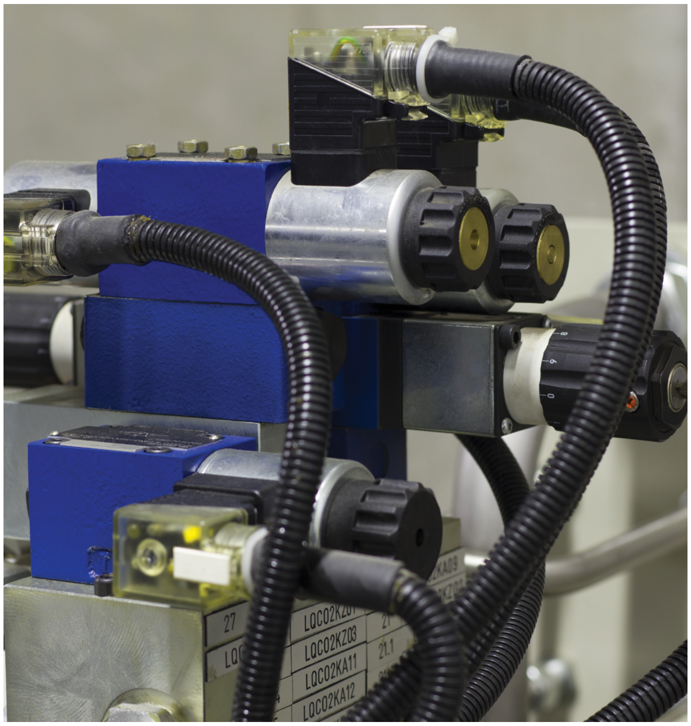
Valve Performance Testing & Clean Oil

The Problem

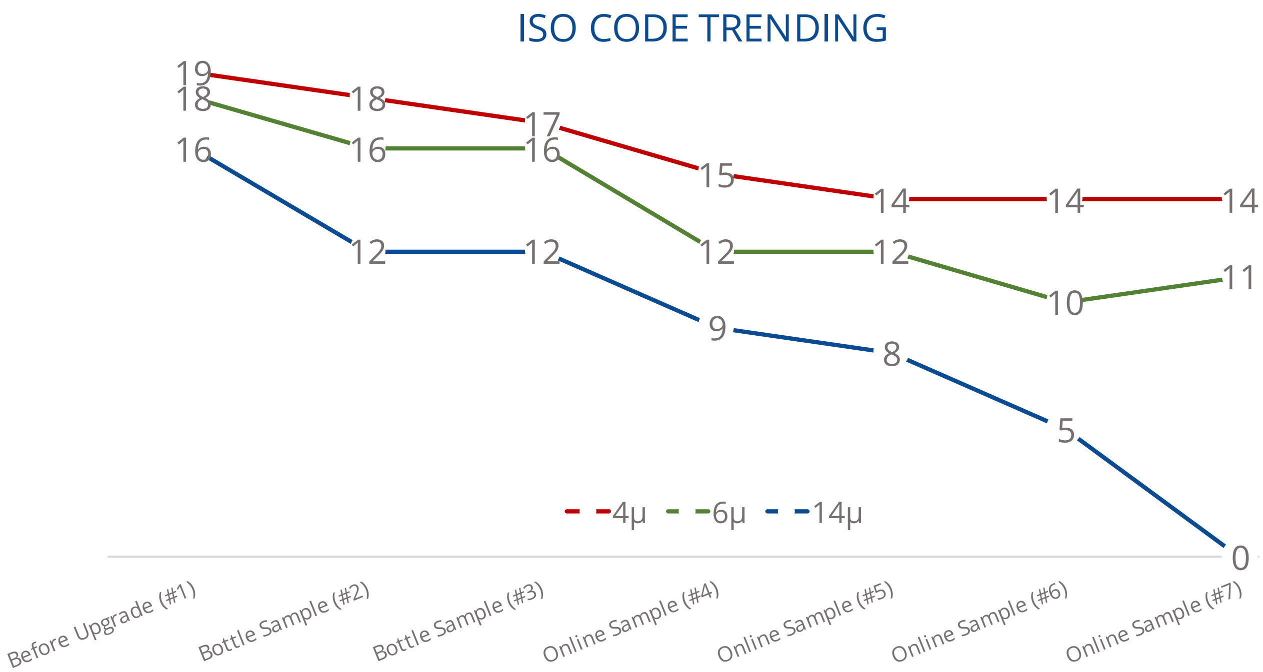
A hydraulic valve manufacturer required pristine fluid (< 14/12/9) to test flow across an 80 micron orifice on their test stand. Gross amounts of contamination in the fluid would skew the test results, invalidating any data collected.

The 100 l (26.4 gal.) of ISO VG32 fluid in the test stand reservoir was at an ISO fluid cleanliness code of 19/18/16, which was far too contaminated for the test.



The Solution

The onboard filtration was upgraded from a 12 micron filter to a 1 micron filter element (HP52NL10-1MB) to achieve the goal of 14/12/9 in a single pass of the 25 lpm (6.6 gpm) system.



The Results

With fluid analysis reporting ISO Cleanliness Codes of 18/16/12, the manufacturer was not seeing the results they were looking to achieve from their bottle sampling. Given these results, the maintenance crew was considering draining the in-use fluid and replacing it with new, unused fluid. They were under the misconception that new fluid is clean fluid but new fluid generally has an ISO fluid cleanliness code around 25/22/19 so this was not a viable option to enable the manufacturer to achieve their target ISO Cleanliness Code.

Determined to find the root cause, the manufacturer's Donaldson Hy-Pro Field Technical Rep and local distributor made an on-site visit to investigate the issue by installing an online particle monitor and examining both the fluid and filtration. The filter was deemed to be installed and operating properly and online fluid analysis through the particle monitor showed the fluid's cleanliness levels to be reading at 14/11/0. An examination of the customer's fluid sampling collection procedures revealed that the samples were becoming contaminated as they were drawn from the system.

Customer's ISO Codes IMPROVED with Donaldson Hy-Pro's Help

18/16/12 → 14/11/0

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