Donaldson HY-PRO™

Hydraulic Valve Manufacturing

Element and System Upgrades Reduce Failures

The Problem

A manufacturer of mobile, multi-function valves for heavy lifts and cranes was battling hydraulic fluid contamination related failures on four operating production lines. A four month trial was conducted in which one entire production line was upgraded to Donaldson Hy-Pro elements and one of the remaining three lines was chosen to represent the originally specified filter element supplier. Head-to-head testing such as this facilitates an excellent opportunity to compare real-time fluid cleanliness. The ISO fluid cleanliness code target of 17/15/13 was established before the testing began.

The Solution

The Original filter elements were rated b7[c] > 1000 and b12[c] > 1000, but these were proving to be insufficient for the application. To replace these elements on the production line being tested in the upgrade, Donaldson Hy-Pro elements:

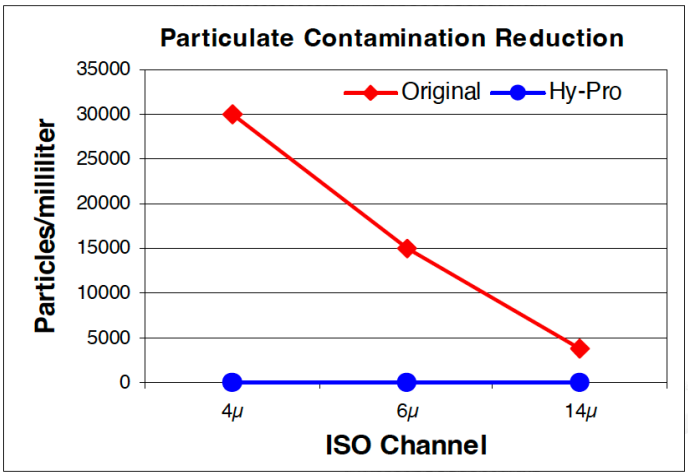
HP60L4-12MB; HP83L16-12MB; HP60L13-12MB were installed. The Donaldson Hy-Pro elements yielded substantial improvement in ISO fluid cleanliness codes visible in the tables and graph below. With the Donaldson Hy-Pro elements there was a 99.9% reduction in particles 4µ[c] and larger, a 99.9% reduction in particles 6µ[c] and larger and a 99.9% reduction in particles 14µ[c] and larger.

There were 99.9% fewer particles 4µ and larger

The Results

The Donaldson Hy-Pro elements coupled with the maintenance practice improvements vastly exceeded the target cleanliness numbers and outperformed the originally specified filters in the same time frame. Donaldson Hy-Pro elements are now used on all four production lines. The samples taken from the production lines consistently achieve their cleanliness code targets, and the product consistently achieves its quality standard.

- Downtime in the manufacturing process has been significantly reduced.
- Productivity levels are higher.
- Fluid leakage and hydraulic equipment replacements have been virtually eliminated.



Original Elements	4μ[c]	6μ[c]	14μ[c]
ISO Code (per 4406:1999	22	21	19
Actual Particles per Milliliter	~30,000	~15,000	~3750

Donaldson Hy-Pro Upgrade	4μ[c]	6μ[c]	14μ[c]
ISO Code (per 4406:1999	12	11	7
Actual Particles per Milliliter	~30	~15	~0.97

Want to find out more? Get in touch.

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