Print Article | Close Window

World-class Oil Handling is Safe and Effective

Steve Anderson, Y2K Fluid Power, Inc.

The successful control of contamination for any equipment (such as hydraulic, gearbox, turbine, electric motor, etc.), must begin with safe and effective oil handling practices.

Safe, because if it is not a clean, simple and safe way of handling oils, personnel will look for shortcuts that could jeopardize the overall success of oil cleanliness. If it is difficult, messy and cumbersome to merely transfer or filter oil, it is nearly impossible to achieve consistency in the target ISO cleanliness program.

Effective oil handling contributes to controlling contamination, rather than allowing contamination to control the oils. Filter carts often sit idle in many facilities because they are messy and usually ineffective at reducing contamination. That's unfortunate, because off-line filtration is one of the best methods of filtering oils.

The common practice of opening drums and hydraulic reservoirs to transfer oil must be eliminated. Each time a hydraulic reservoir is opened, it is exposed to external contamination. Most industrial plants and factories have significant airborne particulate and moisture from routine production activity, and even manufacturing debris that may fall freely into opened containers and reservoirs.

Opening reservoirs is a messy, intrusive and impractical method of oil handling. Many companies disregard their oil cleanliness or tolerate excessive targets for this reason. They don't realize that their oil handling is significantly contributing to, rather than removing contamination.

Controlling contamination requires the control of ingression and the best place to start is the transfer of oils. World-class oil handling reduces dirt, debris, humidity, water and human errors, preventing them from ever becoming sources of contamination.

Hydraulic Reservoirs

If a hydraulic reservoir has the common steel-type 40-micron breather cap, throw it away. They are cheap; that's why manufacturers use them when building new systems. The single fastest way to track a return on investment is to replace that breather with one of higher quality. Desiccant-style breathers are a good choice because they are superior air filters, removing both particulate and moisture (humidity and condensation). Other breathers are available, but a 40-micron nominal breather cap is not part of any effective contamination control program.

Breather Adapters and Quick-disconnects

Replacing the breather cap with a breather adapter provides many benefits. It's a simple way to add a quick-disconnect to a hydraulic system without having to drain the tank, weld in a new port or break open the system plumbing. The quick-disconnect is used to pump oil into the reservoir, allowing the reservoir to remain closed. There is no better way to achieve control than keeping the hydraulic reservoir closed. The breather adapter will provide the means for better air and oil filtration.

Filter Carts

Filter carts come in various sizes, shapes and types. They are sold with the premise that they will clean oil. However, if the reservoir must be opened to insert the filter cart hoses or hose wands, the filter cart could add more contamination than it removes. All filter carts should connect to drums of hydraulic oil, gearboxes, totes and hydraulic reservoirs through quick-disconnects. If there is an instance where only a hose or hose wand will work, make a small set of hose wands with quick-disconnects. Quick-disconnects for oil handling are a major part of contamination control. They simplify the handling of the oil, helping to achieve ISO cleanliness targets. The author believes this type of oil handling promotes the use of the filter cart because it is so easy.

Most filter carts are sold with nominal filters instead of absolute-rated. Why? The purpose of a filter cart is to reduce contamination. This is achieved faster with absolute-rated filter elements.

Rather than spending tens of thousands of dollars trying to remove contamination from oil, world-class oil handling concentrates on the methods and practices to reduce contamination at the entry sources.

Please reference this article as:
Steve Anderson, Y2K Fluid Power, Inc., "World-class Oil Handling is Safe and Effective". *Practicing Oil Analysis* Magazine. September 2005

Issue Number: 200509
Practicing Oil Analysis
Best Practices