S2.3.2 REALISTIC EVALUATION OF HYDRAULIC FILTRATION PERFORMANCE

Gabriel Manzo, Parker Hannifin

The Multi-pass filter test is the most common method to evaluate the performance of hydraulic filters. The current ISO standard for this type of test is ISO 16889:2008. The test is conducted at a constant flow rate and temperature at different ingression rates based on the size of the filter to keep the test to a reasonable time frame. The fluid used is a highly controlled MIL spec fluid to ensure that the test can be conducted repeatedly and reproducibly. This standard test was designed to give a quick and repeatable test for use in comparison of different filter performance and for new filter development. It was not designed to represent completely what the filter will see in its actual operating condition. Other multi-pass tests have been developed with the intent of better representing a filter's performance in the field. SAE ARP4205 is one of these multipass tests. It tries to simulate cyclic flow conditions to measure filter performance in both constant ingression condition and during 30 minute cleanup periods at the beginning and end of the filter's life. The results from these 30 minute cleanup periods are reported as ISO cleanliness codes and were intended to show how well a filter maintains its performance throughout its life. However, these results can be misleading and do not represent how well a filter performs throughout its service life. The test procedure needs to be heavily modified to give more consistent results and represent how well a filter will perform throughout its service life and more realistic representation of how well a filter performs in dynamic flow conditions.