The Role of the Filter

To appreciate the importance of the filter in the management of the system, consider the primary function of the filter: It has to protect the components from the damaging, critical clearance-sized particles (particles that can penetrate and interfere with the working clearances of components). The filter should control the fluid cleanliness to a level that is equal to the performance, life and reliability of the system required by the user. It should allow fluid to pass through at the given flow with the minimum pressure drop (DP) to minimize stress and energy losses.

A filter must control the levels of all contaminant particles at and above the size critical to its operating system. If the filter fails to provide the necessary control of damaging-sized particles, then their presence in the system will lead to a substantial increase in the number of particles generated within the system through a chain reaction of wear. Particles entering component working clearances will become work hardened and produce more wear particles. This makes the capture of these particles, by the filter, essential to sustain the good health of the system.

Filter performance Criteria

Reliable Performance: Absolute removal of solids from fluid streams to any micron size specified.

High Integrity: Fixed Pore Construction prevents seized particles from being released back into the liquid stream during flow or pressure surges.

Resistance to flow or differential pressures: shows how pressure drops across the filter or how much resistance to flow the filter imparts to the system. This resistance has a direct bearing on filter life

Collapse Strength: is the minimum acceptable differential pressure at which structural failure of the filter element. This is serious because unfiltered fluid can be routed back into the system.

Structural integrity: This ensure that the filter media does not leak due to holes or channelling (where the media simply form channels or collapse) This is serious because unfiltered fluid can simple flow thru the media.

Capacity /Efficiency: How much contaminant the filter will retain and the efficiency of the filter is removing the contaminant.

Longer Life and Lower Costs: High surface area results in high dirt holding capacity and long element life for lower net operating costs

Chemical Capability: This iCerMax™ depth ceramic media is compatible with Hydrocarbons and is a media that water has no negative effect of any nature what so ever on. It can even filter 100% water. Most depth filter media are

highly sensitive and block with water retention even more so than with particles and shed particles or fibers.

Conclusion

The perfect filter would have no pressure drop, hold an unlimited amount of dirt, be small enough to fit anywhere in a system, give great ISO cleanliness codes, have high capture efficiency and cost nothing. Obviously this combination cannot exist, and the pursuit of the perfect compromise has always been the challenge for filter manufacturers.

For many years, filtration companies have been trying to educate end users on why filtration is important and how it helps the end user protect his equipment, save him money in the long run, or both. Many end users understand that there are often trade-offs to lower micron rating and higher capture efficiencies of filters.

iCerMax™ ceramic depth filtration medium excels is the above filter performance criteria.