

Compressor Outlet Gas Filtration

Application Background

Oil lubricated compressors are the source of aerosol contaminants which foul and plug downstream equipment. This type of contamination can be divided into three general categories: oil aerosols, water aerosols, and wear/corrosion products (solid particles).

Lubricating oil aerosols are formed in the compressor as a result of both mechanical “shearing” and a combination of oil vaporization. Water aerosols are formed when intake gas contains sufficient water that results in a very humid compressed gas. Wear products are formed as the result of frictional contact between moving parts. All of these aerosols are damaging to downstream nozzles, valves, instruments, process streams, heat exchangers, etc. The aerosols should be totally removed from the gas by installing liquid/gas coalescers and particle filters rated at 0.3 micron (μm) removal efficiency. Figure 1 shows the size distribution of aerosols discharged from commercial lubricated compressors. This chart indicates that the majority of these aerosols fall in the size range of 0.1 to 1.0 μm . As shown in Figure 2, 0.3 μm aerosols are the most difficult sized particles to remove. A Pall Seprazol™ Liquid/Gas Coalescer is rated at 0.3 μm (greater than 99.99% removal efficiency) for aerosols, assuring that virtually all aerosol sizes are removed.

Pall Product Recommendations

Pall Seprazol™ Liquid/Gas Coalescer (greater than 99.99% efficient at 0.3 μm)

Dry Gas Particle Filters: Profile® II and Epocel® Filters

Minimarkets

All process plants using gas compressors

Literature References

COA 100 - Pall Coalescer Brochure

GAS 4100 - Guide to Gas Filters & Housings

Figure 1: Typical Aerosol Size Distributions from Lubricated Compressors

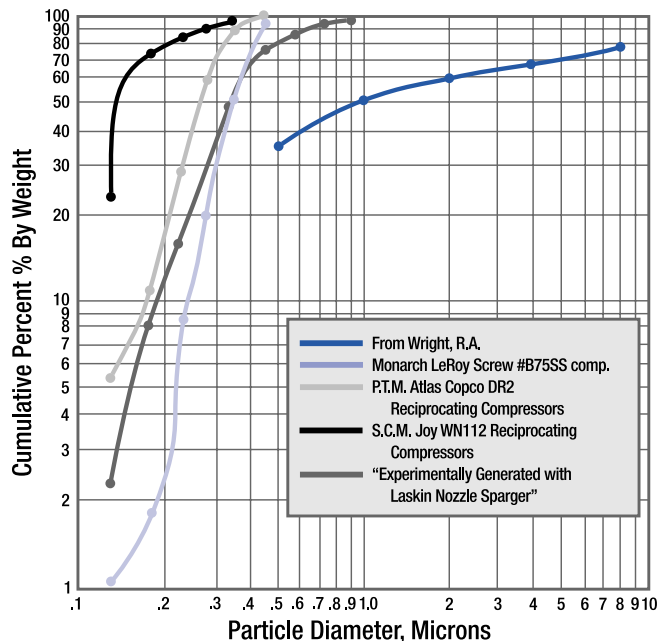
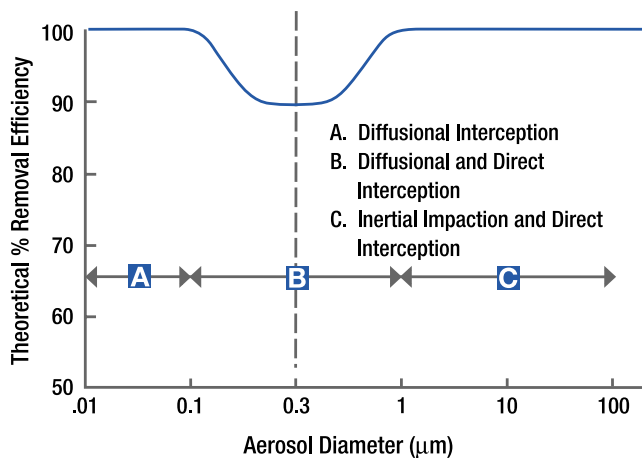


Figure 2: Ease of Aerosol Removal versus Size for Different Filtration Mechanisms





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