Don't Compromise on your Product or Process Quality

Why oil-free compressors are the best option in most applications

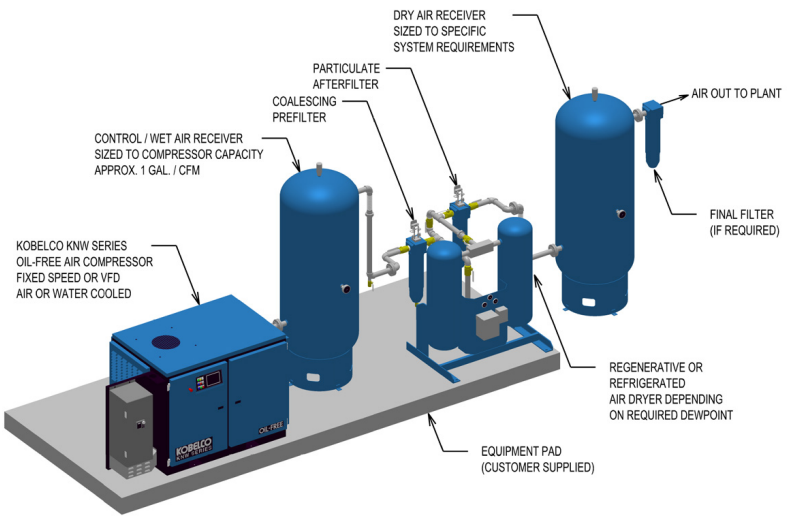
By Lane Hawkinson, Kobelco® KNW Series Sales Manager

There is an old adage which is also a law of physics; what goes in will eventually come out. This applies to compressor lubricant in oil-flooded rotary screw compressors. At a rate of 2 ppm carryover, an oil-flooded 100 hp compressor operating for one year (8000 hrs) will introduce over 4 gallons of lubricant into a compressed air system. Eventually, this lubricant will drop out.

Compressed air users are becoming increasingly intolerant of contamination in their systems, whether it is in a patient's lungs, food and beverage products, pharmaceuticals, semiconductors, or any process that requires clean, dry air. Compressed air can also be dried and filtered to dry nitrogen specifications and used in applications where the inert quality of nitrogen is not required. This is typically known as "CDA" (clean dry air) in the electronics industry, but every industry can benefit by using it. CDA may mean different things in different industries in regards to dew point (how dry the air is), but all CDA systems have one thing in common, the air must be oil-free and that requires the use of oil-free air compressors. For industries that require compressed air to make their products, the higher the quality of the compressed air, the better the product and the lower the cost to produce it.

Most companies who have standardized to oil-free compressors started out using oil-flooded compressors. System contamination was not detected and accumulated gradually. In some cases this occurred within a year, in some almost five years until the inevitable occurred; contaminated product, production shut down and the cost to replace contaminated piping, filtration, dryers, receivers and compressors. In one case, the owner moved out of a facility entirely, installed oil-free compressors and lived with a six month interruption in production, a tremendous price to pay. Most major food manufacturers have tried using oil-flooded compressors at some point in their history, with disastrous results. Product recall because of compressor lubricant is a high price to pay in dollars and in reputation!

TYPICAL CLEAN DRY COMPRESSED AIR SYSTEM



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Lower cost of ownership.
Oil-free compressors reduce operating costs in seven primary ways.

- Eliminating the cost to collect and dispose of oil laden condensate.
- Avoiding compressor oil separator element and downstream filter replacement cost.
- Avoiding the extra energy cost to overcome the pressure drop in the compressor oil separator and downstream filtration (oil-free compressors use less energy because of lower discharge pressure).
- Eliminating contamination of desiccant in regenerative type air dryers.
- Eliminating the cost of make up oil that you must add to oil-flooded compressors.
- Reduced oil change intervals – oil-free compressors require the oil to be changed annually. Oil-flooded compressors generally require two more oil changes because ambient air is mixed with the oil causing contamination and reduced oil life during high ambient conditions.
- Low unloaded horsepower. Oil-free compressors unload within 2 seconds of command to unload and consume approximately 18% of full load horsepower when unloaded. This results in significant energy savings compared to oil-flooded compressors.

The above costs associated with oil-flooded compressors may not be apparent at the time of purchase, but are contributors to your total cost of ownership. The best oil-free benefit of all is the elimination of risk of ruined end product, lost production and damaged reputation. This peace of mind to business owners, employees and customers cannot be measured in dollars.

Oil-Free = Risk Free = Stress Free