Waiter, is that lubricant oil in my soup? Oil-free please!

Clean, oil-free compressed air is important in many industries but nowhere it is as critical as in food and beverage processing. Air is used from powering pneumatic cylinders and actuators, moving food materials, processing the ingredients to pneumatic sorting of produce.

For years, companies have had to rely on 60 to 100+ year old compressor technologies which use oil in one form or another, opening a possibility of oil or other harmful components ending in what we eat or drink. These technologies are forced to use filtering which increases the total cost of ownership when the maintenance costs of the compressor are already high.

Tamturbo has introduced an air compressor without any oil or harmful wearing coatings in the system and with a better efficiency compared to old technology. Tamturbo gives risk-free benefits for food and beverage processing plants virtually with no maintenance.

CHALLENGES WITH THE OLD TECHNOLOGY

Oil-free is not really oil-free

A large percentage of compressed air in food and beverage industries is produced with so called dry "oil-free" screw compressors. Surprisingly they are not really oil-free. To function, they need oil for lubricating gears and bearing and thus containing large amounts of oil. The oil is circulated with an oil pump, through oil filters and captured by oil demisters and oil seals. The oil is separated from the compressor chamber by oil seals. When compressors wear, the risk of oil getting in to air system increases.

Also, "oil-free" screw compressors' gear boxes pass fine oil mist in the ambient. To avoid this oil mist from getting in to air stream, intake air has to be either pre-filtered or ducted from a clean location, which adds costs to installation. Oil, oil filters and oil demister service yields waste, which has to be disposed properly further adding to cost of maintenance.

Harmful and wearing coatings

"Oil-free" screw compressor rotors are coated with PTFE compounds, generally called Teflon. Wearing releases these harmful chemicals into air stream when compressors are used. The wearing decreases the compressor's energy efficiency and hence increases the cost of produced compressed air. The energy efficiency decreases 15% or even more in a few years and then screw compressor elements need to be replaced or rebuilt.

Rebuilding the screw elements every few years is very costly. Total cost of the service will be 50% or more of a new "oil-free" compressor package cost. Large compressors are used for 15 to 20 years with multiple rebuilds and therefore the total cost of ownership becomes unnecessarily high.

What if we used traditional turbos?

Largest food and beverage plants sometime use traditional turbo compressors. This very 100+ year old technology also uses oil to lubricate gears and bearings. While the nominal energy efficiency of these compressors is better than of the "oil-free" screw compressors, they have a very narrow air capacity range. This means frequent and energy wasting blow-offs of excess capacity when the air demand fluctuates.

The traditional centrifugal compressors are good for base load duties and "oil-free" screw compressors are often used for capacity trimming.

HIGHLY RELIABLE TURBO TECHNOLOGY IN TO CHALLENGE THE OLD

A new, fresh and overwhelmingly simple technology has emerged to challenge the old, expensive and potentially risky "oil-free" screw compressors. Tamturbo direct driven turbo compressors have an uncomplicated design with the compressor impellers directly mounted on high speed permanent magnetic motors. Design uses no gears, no oil or oil-related systems, no mechanical seals or any other parts that touch or wear. The active magnetic bearings keep the motor shaft magnetically levitating at all times.

Welcome to the Oil-Free Revolution

TAMTURBO – COMPLETELY OIL-FREE

Tamturbo compressor is 100 % oil-free. With absolutely no oil in the system, compressors are completely risk-free from oil contamination. This simplifies the downstream compressed air system and eliminates costly oil services and waste disposal. The efficiency of the touch-free Tamturbo compressor does not degrade overt time. There isn't a need for very costly rebuild of compressors every few years, no drive couplings to be changed, no oil, no oil filters or oil demister to service either.

TAMTURBO – NO RISKS WITH TOUCH-FREE COMPRESSOR

With no mechanical touch between moving compressor parts, Tamturbo compressors don't wear. No wear means unchanged efficiency with virtually no need for service or even maintenance of the system. Active magnetic bearings are powered even in emergency stops and power disruptions. This means uninterrupted air delivery and avoiding expensive and multiple compressor rebuilding. The design makes the compressor risk free unlike any other compressor technology today.

Tamturbo variable speed control adjusts the compressor to air demand fluctuations with high efficiency without having to use energy wasting blow-out of compressed air. As such, the Tamturbo technology makes the compressor feasible as a base load compressor as well a unit with wide capacity adjustment. Tamturbo units utilize a variable diffuser control, which extends the unit's turndown range, from 100% down to 40%. The compressors' patented capacity control includes an advanced self-protecting and diagnostic system for local and remote monitoring to avoid unexpected stoppages.

TAMTURBO – ABSOLUTELY WORRY-FREE

Tamturbo's 100% oil-free and touch-free air compressors are by default worry-free. Customers in Food and Beverage processing have tested and validated the Tamturbo design in multiple European locations. Extensive testing has led to multiple units sold to early adopters who have discovered that the cliché of "too good to be true" actually holds true in this case: Touch-Free means maintenance and service free. It means also high and unchanged efficiency. Completely oil-free design means no oil contamination, oil service or waste treatment. Combined these mean the lowest Total Cost of Ownership.

Joining this revolution is easy: customers can get Tamturbo compressors and pay only for the use – essentially paying for the produced air. This means predictable cost, avoiding capital (CAPEX) investment.

More information about Tamturbo compressors:
www.tamturbo.com

Tamturbo