



What can oil-free air compressors do for your plant?

Manufacturers around the world are tasked with finding opportunities to lower their operating costs while maintaining a consistent, high-quality product with little to no impact on the environment. For many industries, employing an air compressor that provides ISO 8573-1 Class 0 certified oil-free air is one way to achieve these objectives. Oil-free air compressors are becoming more and more popular for their ability to reduce maintenance and energy costs, minimize environmental footprint and the possibility of product contamination.

What is Oil-Free Air?

The degree of air purity required varies based on the risk tolerance for any industrial process. The International

Standards Organization (ISO) created ISO 8573-1 to provide manufacturers with the ability to define the level of tolerance for air purity in their compressed air system. This standard outlines the levels of solid particulates, water, and oil allowed based on the classification.

Class 0, the most stringent of these classes, guarantees compressed air will contain <0.01 mg/m³ of total oil. The key is to select the classification most appropriate for your facility.

Manufacturing Benefits of Oil-Free Air

Eliminates Risk of Contamination

- ❖ **Delivers Peace-of-Mind** – There is always a risk of contamination when compressed air encounters an end product; the best way around this is never to introduce oil into your airstream in the first place. Class 0 air allows manufacturers to avoid contamination risks, such as an oil filter breakthrough from post-filtration,

that would lower product quality, increase the risk of product recalls and result in unnecessary downtime. Contamination risks can harm your brand reputation, your bottom line and even worse, the health of your customers.

- ❖ **Protects Your Assets** – Oil-lubricated compressors will always have a trace amount of oil in the air they produce. Trace oil can build-up on pneumatic equipment and other valuable assets that use compressed air, which in turn increases maintenance and replacement costs.

Reduces Environmental Impact

- ❖ **Minimize Oil Usage** – Oil-flooded screw compressors require 55 gallons of oil every six to twelve months for an oil change. This oil must then be properly disposed of following the appropriate governing authority guidelines. Oil-free compressors do not require oil as part of the compression process and as a result, only need oil changes every two to three years.

- ❖ **Eliminate Condensate Disposal** – When operating an oil-flooded compressor, significant amounts of oil-contaminated condensate must be properly disposed of to safeguard the environment. To ensure compliance, governing authorities often monitor and regulate the disposal of contaminated condensate. Condensate from oil-free compressors can be easily discarded or even recycled for other uses within the plant.

Reduce Maintenance Costs

Switching from an oil-flooded to an oil-free air compressor provides operators with significantly lower maintenance requirements, including:

- ❖ Fewer ancillary air system components to maintain.
- ❖ Longer timeframes between oil changes.
- ❖ Elimination of expensive oil filters to clean the compressed air.
- ❖ Elimination of oily condensate management.
- ❖ Longer desiccant life of downstream air filters.
- ❖ Minimized downstream labor and outage-related costs.

Reduce Energy Costs

The more energy-efficient the compressor, the more direct impact the machine will have on lowering operating expenses. Since energy costs are generally 60-75% of the total life-cycle costs of an air compressor, overall cost savings from efficiency alone can result in several thousands of dollars in life-cycle savings. Oil-flooded machines also require several oil filters and oil separators in the air path to clean the manufactured compressed air. Each one of these items will cause a pressure drop across the filter, resulting in lower air pressure delivery downstream in the plant. The decrease in pressure means the compressor must work harder to maintain the demand needed for the plant creating lower efficiencies and higher energy costs.

Why do Industries Choose Oil-Free Air Compressors?

Compressed air comes in contact with nearly everything, including finished products. Avoiding the risk of oil contaminating the air supply is especially important to the following industries:

- ❖ **Medical and Pharmaceutical** – In



medical and pharmaceutical applications, cleanliness is a critical factor in the quality and performance of the products. The product or manufacturing process will often dictate the risk tolerance for any trace contaminants such as oil or moisture. It is key to be able to minimize that risk to the general population. Because of the critical nature of these risk factors, every touchpoint of the manufacturing processes such as tablet coating and product drying must be reviewed, including the risk from compressed air.

- ❖ **Food and Beverage** – New requirements outlined in the FDA's Food Safety Modernization Act, Global Food Safety Initiative, and British Compressed Air Society Code of Practice, reinforce the need for using clean air in the manufacturing process to avoid product contamination, which can lead to product recalls and a damaged brand reputation. The challenge is that since the current laws are not specific, manufacturers must establish their own risk management programs, and determine adequate contamination levels for the three contaminants: particles, water, and oil, for both direct and indirect contact points of risk.

- ❖ **Electronics** – For applications including PC board cleaning, delivering clean, dry compressed air is critical to minimizing trace contaminants in the end product. Requiring the highest class in air purity allows manufacturers to protect sensitive instrumentation and their finished products.
- ❖ **Textiles** – A quality stream of compressed air for spinning machines and air-jet looms is crucial to prevent fabric staining and production loss. Mandating the highest class of air purity is essential for delivering high quality, oil-free, manufactured products.

Is Oil-Free Air Right for You?

Now that you understand the benefits oil-free compressed air can provide your plant, we invite you to allow our application engineers for compressor life-cycle cost calculation to find out what you are currently spending at your plant and review what you could potentially save by transitioning to oil-free technology.

Rastgar & Co is authorized distributor of Gardner Denver's CompAir brand of Oil-Free Air Compressors in Pakistan with complete aftermarket support. Learn more <https://rastgar-co.com/products/oil-free/> ◆