

# TECHNICAL BRIEF

## Value of Preventative Maintenance Using Genuine OEM Parts

### **Don't Underestimate the Value of Preventive Maintenance using Genuine OEM Parts.**

In industrial facilities large and small, compressed air is often referred to as the fourth utility, after electricity, natural, gas and water. When a company invests in an air compressor, the expectation is that the equipment will operate reliably for many years. Given the proper care and preventive maintenance, it's quite common for an air compressor to achieve 20, 25, and even 30+ years of service.

Following is an examination of the best practices for maintaining rotary screw compressors using genuine OEM spare parts.

At the time of purchase, companies should consider not only the initial capital investment, but also the total cost of ownership over the lifespan of the equipment, as well as the cost of unplanned downtime due to equipment failure.

### **How Does Preventive Maintenance Extend the Life of Air Compressors?**

Just like changing the oil and filters in a car, regularly scheduled maintenance performed by trained service personnel can help to ensure that air compressors work as designed for years to come. Regular maintenance also keeps the entire compressed air system, including piping, upstream and downstream filters, drains, and dryers operating at peak efficiency. There are dozens of documented cases where compressors that have been regularly maintained with genuine OEM parts have run for more than 40 years with the original air end.

### **What are the Best Practices for Preventive Maintenance?**

A little common sense goes a long way towards protecting your initial investment. Some best practices are simple – like checking your fluid levels every day – while others rely on lab testing and air audits performed by trained, certified professionals. Regardless of the brand or size of your rotary screw compressor, each of the following recommendations is critical to improving and maintaining efficiency:

**Audits** – Although many consider air audits only when installing new equipment or upgrading a facility – audits can also serve as a significant resource for preventive maintenance. Facility audits establish an “efficiency baseline” for existing systems, and identify potential areas for improvement. According to the U.S. Department of Energy (DOE), 100 horsepower air compressors operating 24/7 can cost more than \$50,000 per year in electricity, accounting for up to 75-percent of the total lifecycle costs for a compressed air system (excluding opportunity costs associated with unplanned downtime). The DOE also states that almost 10-percent of all electricity consumed in the United States is used to power air compressors.

Given these statistics, establishing a baseline is the first key step in an ongoing maintenance schedule. There are numerous examples where audits that have identified downstream leaks and other correctable inefficiencies have led to 50-percent savings in electricity costs.

**Schedule** – Virtually all resources for compressed air maintenance begin with wording similar to the following: “All equipment in the compressed air system should be maintained in accordance with manufacturer’s specifications.” (Source: Improving Compressed Air System Performance, US DOE, 2003) In reality, the schedule should be a combination of elements: the manufacturer’s recommended schedule combined with the knowledge of your local service personnel, based upon your specific needs and situation. Just as a car driven in dusty, off-road locations requires more frequent oil and filter changes, compressors operating in harsh environments may need scheduled maintenance more frequently than compressors operating in clean, stable environments. The type of compressor will also dictate the schedule. Within all schedules there will be tasks to be performed daily (such as checking fluid levels and cleaning air intakes), monthly, semi-annually, and annually.

**Fluid Analysis** – Fluid analysis is a critical component of best practices. It is important to match the analysis to your compressor type. This starts by identifying whether the fluids are used to lubricate only the compressor cylinder, or the cylinder and the other operating components (such as the crankcase in a reciprocating compressor). Within a rotary screw air compressor, the key fluid analysis parameters will vary, based on the type of lubricant used – but tests designed to measure TAN (Total acid number), pH level, viscosity, additives, wear metals, contamination, and particle count should be part of any maintenance program. Understanding these measures will help service personnel identify the source of contamination and any remedies that may be needed. This fluid analysis will also help your service personnel identify if you are using the right type of lubricant in your compressor.

**Monitoring** – Monitoring equipment provides real-time alerts that enable technicians to respond immediately in the event of performance issues. This technology also facilitates monthly reports that identify energy and fuel consumption trends. Many companies use these reports for internal billings – charging their own departments based on consumption, just like any other utility. Monitoring capabilities offer reassurance that’s invaluable.

**Working with a Trusted Partner** – Just as a race crew knows their race car, or a doctor knows a patient, identifying the right service partner is critical. Given that a single hour of unplanned downtime can cost more than a full year’s maintenance contract, it makes sense to establish a local relationship with a partner who meets your specific needs. Considerations for selecting a partner include the number of service technicians available; timeliness for emergency service, inventory selection, and experience.

## **Why OEM?**

If given a choice between OEM parts and “will-fit” aftermarket parts why choose OEM? The answer is multi-faceted.

Most air compressor manufacturers’ extended warranties are voided when components other than OEM specific parts are used. Why risk shortening the length of warranty protection?

The second revolves around system optimization. A typical air compressor is a highly-engineered piece of equipment – designed so each component works optimally within the total system. As part of this design, consideration is given to specific replacement parts that will keep the system operating at peak performance. Introducing non-OEM components can disrupt this synergy – potentially robbing your system of performance and sub-optimizing its efficiency.

And lastly, "will-fit" parts aren't always less expensive in the long run. When you consider that generic, or pirate, air / oil separators can have a much higher carryover rate than an original OEM separator, the associated costs can far outweigh any initial perceived savings. By reducing carryover, the separator reduces the amount of compressor fluid that is carried into the service line. As a result, less fluid has to be added to maintain proper operating levels, and overall maintenance costs are reduced. Less carryover also means that fewer fluid contaminants are passed into the airstream, so air quality is maintained. With reduced carryover, your compressor, compressed air dryers and filters, and point-of-use devices function better and last longer. Environmentally, fewer fluid contaminants, which are treated in the same manner as hazardous waste, are passed to condensate drains.

### **What are the Benefits of Preventive Maintenance Programs?**

At the end of the day all of the benefits of preventive maintenance programs boil down to one word: savings! Preventive maintenance programs focused on your compressor help to ensure it continues to work optimally, extending the life of the compressor and maximizing its energy efficiency. Additionally, adding facility audits to check and fix air leaks can result in substantial savings. Conducting facility audits and insulating downstream pipes/ducts can increase energy efficiency by as much as 50-percent. A single day of downtime can be hundreds, or even thousands of times more expensive than the cost delta between using genuine OEM parts and "will-fit" aftermarket parts. Although many compressor manufacturers offer remanufacturing programs, the cost associated with requiring such a program is far greater than protecting compressors through preventive maintenance.

Reducing downtime is the ultimate goal, as unplanned downtime can cost more than the sum of all the other costs associated with air compressors. When is the best time to catch a failure? Before it happens.