

Service & Maintenance

Compressed air systems require periodic maintenance. The safety, efficiency, reliability and lifetime of compressed air equipment will all be directly impacted by the service; frequency, provider and consumables chosen.

Compressed air systems require periodic maintenance to operate at peak efficiency and to minimise unscheduled downtime.

An adequate service routine can have a significant impact on energy consumption creating lower compression efficiency, air leakage, or pressure variability.

Poorly maintained equipment can lead to high operating temperatures, poor moisture control, and excessive contamination. Most problems are minor and can be corrected by simple adjustments, cleaning, part replacement, or the elimination of adverse conditions.

Compressed air system maintenance is similar to that performed on cars; filters and fluids are replaced, cooling water is inspected, belts are adjusted, and leaks are identified and repaired.

As a minimum all equipment in the compressed air system should be maintained in accordance with manufacturers' specifications. Manufacturers provide inspection, maintenance, and service schedules, which are designed to protect equipment and should be followed. However, in many cases, sizeable efficiency and economic benefits can be gained by undertaking a more vigorous maintenance program with more frequent inspections.

Some of the key maintenance areas are:

Compressor package	The compressor and intercooling surfaces needs to be kept clean. Fans and water pumps should also be inspected to ensure that they are operating at peak performance. Check system for compressor and motor lubricant leaks and cleanliness.
Inlet filter cartridges	Inspect and clean or replace. Inlet filters and inlet piping should be maintained at least as per manufacturer's specifications, taking into account the level of contaminants in the facility's air.
Drain traps	Clean out debris and check operation periodically.
Compressor lubricant level	Inspect daily and top-off or replace as per manufacturer specifications. Change lubricant filter as per manufacturer specifications.
Air lubricant separator	Change as per manufacturer specifications, or when pressure drop exceeds acceptable level.

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Lubricant selection	The compressor lubricant and lubricant filter need to be changed as per manufacturer's specification. Lubricant can become corrosive and degrade both the equipment and system efficiency. For lubricant-injected rotary compressors, the lubricant serves to lubricate bearings, gears and intermeshing rotor surfaces, acts as a seal and removes most of the heat of compression.
Belt condition	Check belts for wear and check/adjust tension as per manufacturer specifications.
Operating temperature	Verify that operating temperature is as per manufacturer specification.
Air line filters	Replace particulate and lubricant removal elements if pressure drop occurs. Inspect all elements at least annually regardless of pressure drop indication.
Water cooling system	For water-cooled systems, check water quality (especially pH and total dissolved solids), flow, and temperature, and clean/replace filters and heat exchangers as per manufacturer specifications.
System leaks	Check lines (especially joints), fittings, clamps, valves, hoses, disconnects, regulators, filters, lubricators, gauge connections, and end-use equipment for leaks.
Compressor drive	Lubricate and clean electric motors. Poor maintenance will waste energy, and may cause failure before its expected lifetime.

OEM Spare Parts

When purchasing replacement parts it is important to not just consider the price. If the user chooses to opt for non-OEM (original equipment manufacturer) spare parts - they need to be verified as having equivalent specifications to the original part. This is especially true when purchasing valves, piston rings, rotary screw elements and air/oil separators. Incorrectly matched replacement parts are a common cause of low efficiency, and the money saved by buying a cheaper part is quickly overrun by increased energy costs. Also, non-OEM parts may void the warranty conditions and expose the user of the compressed air system to increased legal liability in the event of the replacement part being unsafe.

Your Maintenance Checklist

- ✓ Service equipment to manufacturers specifications as a minimum
- ✓ Develop a maintenance plan taking into account your plants particular conditions

Use only genuine spare parts

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