

Preparing Reciprocating Air Compressors for Winter

By the Compressed Air & Gas Institute

Are you preparing for winter? Your reciprocating air compressor needs to as well.

The colder months are upon us, and your compressed air system maintenance routine can be more complex in colder climates. Freezing temperatures can have negative effects on your reciprocating air compressor, dryer, and many accessories. One of the best practices to adopt is keeping a detailed maintenance log. At the end of each season, take note of the condition your equipment is in, and address it promptly using the manufacturer's instructions to keep it operating smoothly and efficiently.

Most reciprocating compressors are designed to operate in temperatures above 40°F (4°C). If your system is not in a temperature-controlled indoor environment, your machine could sustain short-term and long-lasting damage.



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Here is a list of best practices for preventative maintenance in cold weather in order to maintain efficiency and ensure consistent operations:

1. Change Filters and Oil

Clear air filters are essential to your system's operation. A clog can lead to contamination and cause pressure drops. Ensure your oil is rated for ambient temperatures and consistently remains

fluid throughout the season. Lubricant can thicken during colder weather, causing your reciprocating compressor to be less effective and overload the motor, putting undue wear on the compressor.

2. Clean the Exterior

Keeping the outside of your reciprocating compressor clean can prevent corrosion and make it easier to spot oil leaks. It also allows you to examine all the air compressor's components for safety concerns, as well as wear and tear. Along with the exterior, check the feet and mounting of the reciprocating compressor. Worn or damaged feet can cause unnecessary vibration, which could lead to operational issues.



Maintaining air compressor room temperature around 45°F (7°C) will significantly assist in keeping your system up and running.

3. Check Compressed Air Dryers, System Drains, and Tanks for Moisture

In cold weather conditions, dryers and drains must be closely monitored, as they cannot properly operate below 32°F (0°C) without proper freeze protection. The heat exchanger in a dryer can become damaged and blocked when moisture is allowed to freeze. Freezing in a refrigeration dryer can also cause cracking and damage to components. In extremely cold weather, drain valves can also freeze open or closed, preventing proper operation. Freezing in drain valves can also cause cracking in the housing, requiring repair resulting in downtime. Tanks can also collect condensation that is susceptible to freezing, and therefore, it must be checked regularly during the colder months.

4. Weatherproof the Air Compressor Room

Consider providing ambient temperatures around your compressed air system by installing heaters or proper ventilation methods. This space does not need to be heated to the same levels required for human comfort. However, maintaining the room temperature around 45°F (7°C) will significantly assist in keeping your system up and running. Freezing weather can cause frozen moisture to accumulate on or in your reciprocating air compressor. This freezing and thawing of the moisture will cause stress on the components of the equipment. The stress from freezing and thawing can compromise the equipment's structure and weaken it prematurely.

When you properly prepare and maintain your compressed air system during the colder months, you and your company will benefit from the following:

- Consistent production and limited downtime
- Reduced operational or repair costs
- Reduced moisture damage on products
- Energy savings
- Environmentally sound operation

Every manufacturer has a specific maintenance schedule and safety requirements to do proper service. Always refer to the original manufacturer's operator manual before performing service or repairs. Remember, when performing maintenance on equipment, always ensure your unit is off and disconnected from the power source.

The Compressed Air and Gas Institute (CAGI) is the united voice of the compressed air industry, serving as the unbiased authority on technical, educational, promotional, and other matters that affect compressed air and gas equipment suppliers and their customers. CAGI educational resources include e-learning coursework, selection guides, videos and the Compressed Air & Gas Handbook.

The Reciprocating Compressor Section consists of the following member companies:

- Atlas Copco Compressors LLC
- FS-Curtis
- Gardner Denver, Inc.
- Ingersoll Rand
- Quincy Compressor
- Saylor-Beall Manufacturing Co.

For more information, visit the CAGI web site at www.cagi.org.



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