COMPRESSED AIR

10

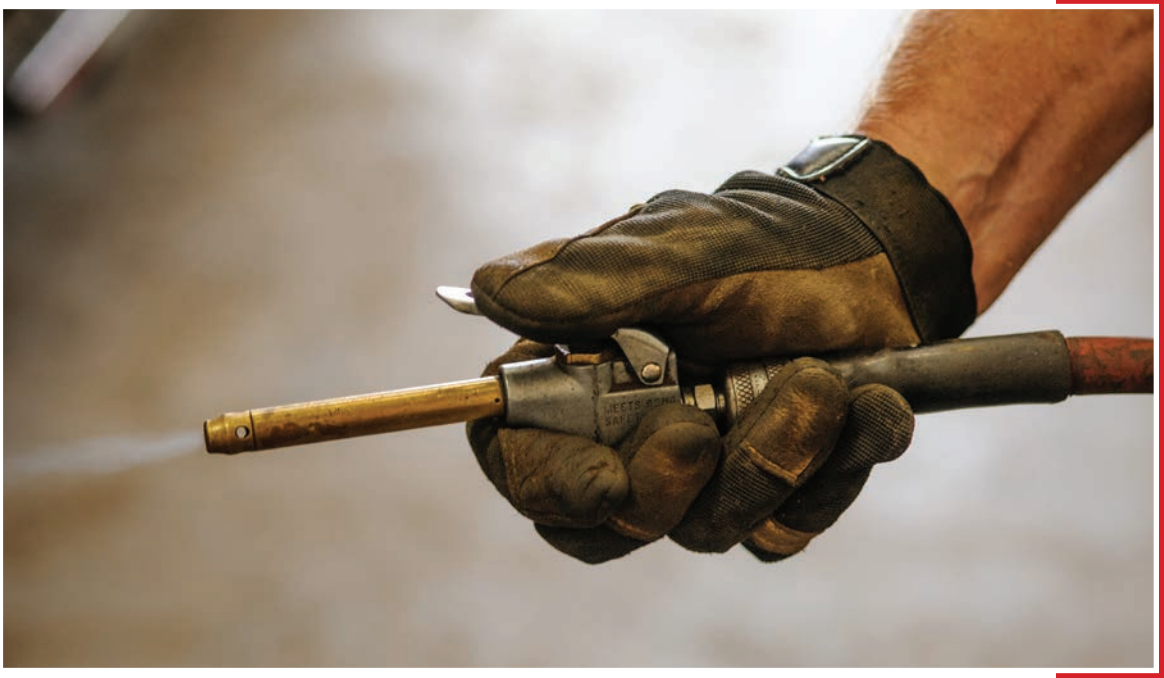
COMPRESSED AIR

AIR COMPRESSORS AND RECEIVERS

Air compressors pump high-pressure air into pressure vessels for use when operating pneumatic tools or to power HVAC control systems. Proper care, maintenance and operation are necessary to help prevent injury from electrocution, vessel ruptures, explosions, noise and the force of compressed air.

Most air compressors used in public entity buildings are required to be registered and certified with the State of Minnesota. As a part of certification, pressure vessels require an inspection once every two years.

MCIT provides members equipment breakdown coverage through a partnership with Hartford Steam Boiler (HSB). As part of this coverage, HSB conducts jurisdictional inspections per state requirements at no charge to members. For more information, see Chapter 9, Boiler and Pressure Vessel Inspections.



REDUCE COMPRESSOR FAILURE AND INJURY

In addition to these once-every-two-years inspections, the following recommendations should be considered to help reduce the chance of compressor failure or injury:

- Air receivers should be drained frequently to prevent accumulation of water and oil inside the tank.
- Pressure relief valves and pressure gauges should be regularly inspected and tested to make sure they are in good working condition.
- Inlet filter cartridges should be inspected and cleaned or replaced per the manufacturer's specifications.
- Periodic inspection of the air receiver should be conducted to detect leaks or corrosion.
- Air hoses should be checked for signs of deterioration.
- The compressor should be oiled and lubricated according to the manufacturer's directions.
- Belt drive systems should be completely enclosed to protect against contact with moving parts.
- If the compressor has an automatic starting feature, a sign should be posted nearby that states, "Warning: Compressor starts automatically."
- When working on or near air compressors, eye and ear protection should be worn.

COMPRESSED AIR USE

Compressed air is used to run various types of equipment and for cleaning. However, compressed air can pose risks if used improperly.

Compressed air is a concentrated stream of air at high pressure and when released at high speed, can cause serious injury to the operator or those nearby. Potential injury can occur:

- When particulates are ejected during cleaning and become embedded under the skin, in wounds or other open areas, such as eyes and ears.
- When compressed high-speed air is directed at oneself or another person, it can cause damage to eyes or eardrums. It can even create air bubbles in the blood when released near the skin.
- From exposure to excessive noise, causing hearing loss.
- When the compressed air line becomes loose or damaged and whips around uncontrollably.

To operate effectively, most pneumatic tools, including air guns, require air lines to operate at pressures of 80 to 120 pounds per square inch (psi). However, the Occupational Safety and Health Administration (OSHA) requires that if the end of the air gun is blocked, the

Other Ways to Mitigate Risks of Compressed Air

- For cleaning purposes, air guns must be equipped with chip guarding to help prevent chips and other particulates from flying toward the operator. These chip guards may be included in the nozzle or a safety shield may be attached to the equipment. More protection may be required in the form of barriers, baffles or screens to protect workers near the operator if they are exposed to flying chips or particles.
- Proper protective equipment should be worn when cleaning with compressed air. Goggles or a face shield should be worn over safety glasses to protect against flying particles. Appropriate gloves should be used to protect the operator's hands.
- Hearing protection should be worn when appropriate. Other considerations for reducing noise may include the use of noise-reducing air guns.
- Never use compressed air to clean dirt and dust off clothing or a body.
- Never direct the stream of compressed air toward another person.
- Ensure all hoses and components are rated to handle the supplied pressure from the compressor. Never use PVC for compressed air.
- Check air hoses and connections periodically for damage. Use only clamps designated for compressed air hose, and make sure they are tightened and secure and designed for the pressure to which they are subjected.
- Avoid allowing air hoses to lie on the floor where someone could trip on them or where they could be damaged by closing doors, vehicles or other equipment.
- Before making hose connections, make sure to shut off and relieve hose pressure. Do not crimp, couple or uncouple pressurized air hose.

static output pressure at contact must be no greater than 30 psi. This is to protect employees who may come in contact with the tip of the equipment.

If an air pressure reducer is not incorporated in line, then air guns used for cleaning purposes must come equipped with a relief device that will drop the pressure to under 30 psi if the air system becomes dead ended.

Further safety rules and regulations regarding compressed air use can be primarily found in OSHA Standards 29 CFR1910.242(b), Hand and Portable Power Tools and Equipment; and 29 CFR1910.169, Air Receivers.

COMPRESSOR AND COMPRESSED AIR CHECK LIST

ITEM	YES	NO	ACTION ITEM
Is compressor registered, inspected and currently certified per State of Minnesota requirements as required?			
Is compressor equipped with functioning pressure relief valve(s) and pressure gauge(s)?			
Are all safety valves and devices tested at regular intervals to determine whether they are in good operating condition?			
Is compressor operated and lubricated in accordance with the manufacturer's directions?			
Are air filters installed on the compressor intake and periodically checked and cleaned when necessary?			
Is the belt drive system completely enclosed to provide protection on all sides?			
Is the compressor air receiver periodically drained of moisture and oil?			
Is a sign posted to warn of the automatic starting feature of compressor (if it has one)?			
When using compressed air for cleaning, is pressure reduced to no more than 30 psi when dead ended?			
Are relief tips in use?			
Are compressed air tools that are used for cleaning chip guarded?			
Are compressed air hoses and connections secure and free from damage?			
Are compressed air hoses used and stored in a manner to prevent trip hazards and damage?			
Are employees who are using compressed air tools wearing appropriate personal protective equipment, such as eye and ear protection?			
Are employees instructed not to use compressed air for cleaning of clothes and skin?			