



## AIR COMPRESSOR SAFETY

### Introduction

Compressed air is air kept under a pressure that is greater than atmospheric pressure. Compressed air is an important medium for transfer of energy in industrial processes. An air compressor is a device that converts power (using an electric motor, diesel or gasoline engine, etc.) into potential energy stored in pressurized air (i.e., compressed air). By one of several methods, an air compressor forces more and more air into a storage tank, increasing the pressure. When tank pressure reaches its engineered upper limit, the air compressor shuts off. The compressed air, then, is held in the tank until called into use. The energy contained in the compressed air can be used for a variety of applications, utilizing the kinetic energy of the air as it is released and the tank depressurizes. When tank pressure reaches its lower limit, the air compressor turns on again and re-pressurizes the tank.

### How to Work Safely with Compressed Air

Safety is one of the primary concerns of any working environment, whether it's in a construction or factory setting. You want to ensure your employees are safe at all times, avoid injuries, and know that your workforce is always intact with high morale.

Safety measures also decrease the possibility of machinery getting damaged or broken. Your company is less likely to endure unexpected down times or incur costly repairs or replacements when you operate according to a practical set of safety measures.

When operating high-powered machinery such as air compressors and other impact tools that utilize air pressure, even the smallest mishandling can cause damage to the machine itself, as well as to any connected or nearby parts. It's important to read instruction manuals fully, so you and your team can fully understand how to handle, activate, and operate any machinery.

Even though such manuals can sometimes seem pedantic and convoluted, they contain a wealth of information that will keep your work team safe. Reading the manuals also helps to ensure that each piece of equipment remains in optimal working condition for the longest possible time.

There are also a number of shorter and more concise measures that you can follow to maintain general safety standards on your worksite. The following lists will help you **stay safe, learn how to properly operate your air compressors, and provide general tips for regulation and maintenance.**



### General safety requirements for work with compressed air

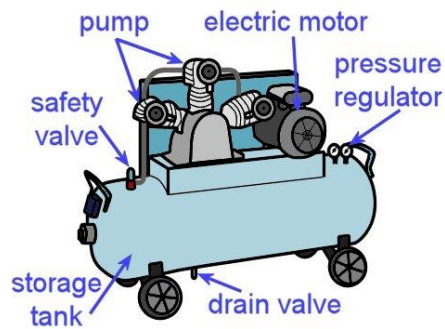
The following precautions pertain to the use of compressed air in workshops:

1. All pipes, hoses, and fittings must have a rating of the maximum pressure of the compressor. Compressed air pipelines should be identified (psi) as to maximum working pressure.
2. Air supply shutoff valves should be located (as near as possible) at the point-of-operation.
3. Air hoses should be kept free of grease and oil to reduce the possibility of deterioration.
4. Hoses should not be strung across floors or aisles where they are liable to cause personnel to trip and fall. When possible, air supply hoses should be suspended overhead, or otherwise located to afford efficient access and protection against damage.
5. Hose ends must be secured to prevent whipping if an accidental cut or break occurs.
6. Pneumatic impact tools, such as riveting guns, should never be pointed at a person.
7. Before a pneumatic tool is disconnected (unless it has quick disconnect plugs), the air supply must be turned off at the control valve and the tool bled.
8. Compressed air must not be used under any circumstances to clean dirt and dust from clothing or off a person's skin. Shop air used for cleaning should be regulated to 15 psi unless equipped with diffuser nozzles to provide lessor pressure.
9. Goggles, face shields or other eye protection must be worn by personnel using compressed air for cleaning equipment.
10. Static electricity can be generated through the use of pneumatic tools. This type of equipment must be grounded or bonded if it is used where fuel, flammable vapors or explosive atmospheres are present.



### Air Compression Safety Tips

1. Before activating any sort of pneumatic tool, it must be connected to a source of air. Whenever a part is connected weakly or fitted loosely to a corresponding piece of equipment, it can jeopardize the performance of the tool and leave you vulnerable to injury.
2. If a hose malfunctions or comes apart at the coupling, whipping can be prevented with two applications. One is an air fuse of proper size, which should be installed in the hose upstream. The other is a whip-inhibiting device, which should be placed along the coupling of a hose.
3. All pneumatic tools require proper lubrication in order to function at maximum efficiency. You must apply the recommended lubricants for any given tool in question.
4. Never put your hands anywhere near the end of an active pneumatic tool. For similar reasons, never allow clothing or hair to get anywhere close to the working parts of such equipment. Most of all, never point the active end of a tool anywhere near your body or face.
5. Be sure to check the air source itself on a regular basis to ensure optimal performance and efficiency.
6. The shutoff valve should always be visible and within reach when working with compressed air.
7. Don't allow grease or oil to deposit or linger on an air hose; grease can cause hoses to deteriorate.
8. Don't allow hoses or cords to hang along floors or aisles; doing so could cause people to trip and possibly get injured and/or pull cords and cut power supplies. As an alternative, suspend hoses overhead wherever possible.
9. Compressed air is not suitable for cleaning clothing or human skin. When using shop air for cleaning purposes, don't exceed 15 psi without the aid of a nozzle.
10. Pneumatic tools are capable of generating static energy, and must therefore be grounded whenever activated. This is especially true when in the presence of flammable or combustible elements, such as fuel or explosives.



### Air Compressor Operation:

1. Air compressor equipment should be operated only by authorized and trained personnel.
2. The air intake should be from a clean, outside, fresh air source. Screens or filters can be used to clean the air.
3. Air compressors should Never be operated at speeds faster than the manufacturers recommendation.
4. Equipment should not become overheated.
5. Moving parts, such as compressor flywheels, pulleys, and belts that could be hazardous should be effectively guarded.

### How to Store an Air Compressor

An air compressor is a machine that compresses air in a tank and emits it through a tube at high speeds. Air compressors are commonly used to inflate tires, but they also have many other purposes, such as moving debris and applying paint. To keep your air compressor in the best working condition, you must store it correctly. Improper storage of the air compressor can lead to rusting and other damage that may hinder the compressor's performance.

#### Step 1

The area to store for your air compressor must be dry. Choose a location where your compressor will not be under direct sunlight and exposed extreme temperature. Use a pallet as a raised platform to protect your air compressor from any moisture that accumulates on the ground.

#### Step 2

Air compressor is advised to store in isolated area to ensure the noise and dangerous gas caused and generated by air compressor due to environment safety and hearing conservation effect.

#### Step 3

Turn off your air compressor and unplug it from the wall. Never leave your compressor unattended during break or overnight powered on or plugged in when it is not in use.

#### Step 4

Remove any tools attached to your air compressor. This can include an airbrush or nail gun. Remove any hoses meant to elongate the valve as well.

#### Step 5

Set down a drainage pan under the air compressor's valve. Tilt the compressor so the valve is at the bottom, allowing any liquid to pool near the valve's entrance. Ensure the valve outlet remains directly over the drainage pan.

#### Step 6

Ask a friend to hold the drain pan in place as you open the valve part way. Have your helper keep his hands away from the valve's opening because the remaining air pressure will exit the tank forcefully.

#### Step 7

Open the valve the rest of the way as the air pressure lessens. This will allow the remaining condensation and other liquids trapped inside the compressor to exit. If these liquids remain in the compressor, they will rust the tank from the inside.

#### Step 8

Close the valve after it stops leaking fluids from the inside. Move the air compressor to the designated storage area.

