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Compressed Air Gun Safety

Introduction:

Compressed air guns are used in a variety of work environments. They are often used for cleaning purposes within shop areas. Unfortunately, misuse of these devices can result in serious injuries. There are two primary safety hazards associated with the use of compressed air guns:

1. Excessive air pressure
2. Flying chip exposure

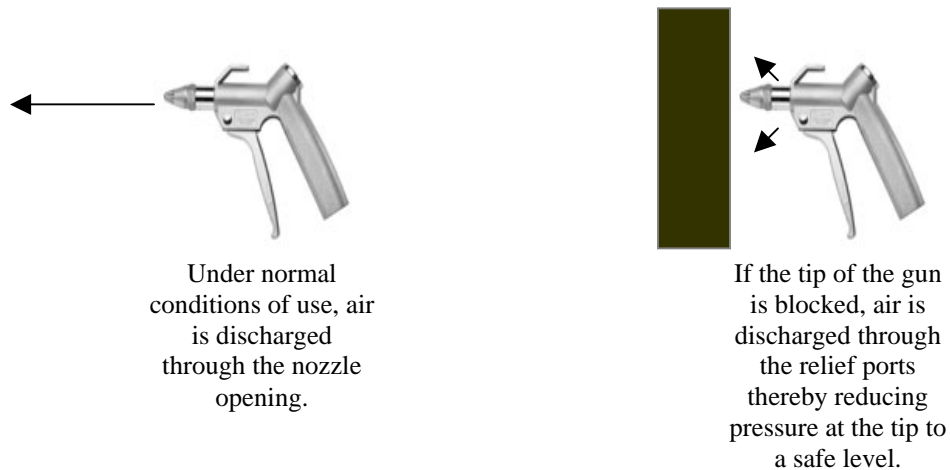
Excessive Air Pressure:

Compressed air is extremely forceful, with pressures used in the workplace typically ranging from 80 to 120 pounds per square inch (psi). The primary concern associated with using air at this pressure is the potential to “dead-end” or block the tip of an air gun. If the gun is “dead-ended” against the skin, compressed air can enter the body through small cuts or punctures. Results can range from soft tissue damage to an embolism (air bubble in the bloodstream). Compressed air can also rupture internal organs if introduced into a body cavity, such as a nostril or ear.

In order to protect employees, the static pressure at the tip of a blocked gun must be limited to less than 30 psi. Pressures below this level are not considered to represent a health hazard to employees. One option for meeting this requirement is to limit the line pressure flowing into the gun to less than 30 psi, but this pressure level is normally not practical for most applications.

The other option is to use an air gun with a specially designed safety tip. These guns are equipped with relief ports that reduce the pressure at the nozzle to less than 30 psi if blockage occurs. Use of the safety tips is usually the preferred option since it allows work to be efficiently completed while also affording the proper level of protection.

An example of how an air gun equipped with a “safety tip” works is pictured below:



Flying Chip Exposure:

Using a compressed air gun to blow off debris in tight quarters can subject the user to “chip flyback”. This refers to the tendency for small particles to be projected back toward the user. In order to guard against this hazard, effective chip protection must be utilized. This can be accomplished through the use of screens or barriers. Another option is using air guns that are designed to project a protective “cone” of air around the nozzle. This “cone” of air provides enough force to divert particles, thereby protecting the user.

Personal protective equipment (PPE) is used to provide an additional level of defense against chip flyback. Goggles, face shields, or other eye protection must be always be worn by compressed air users regardless of what other precautions have been taken. Safety glasses would be considered the minimum level of PPE required to be worn while using compressed air.

Safe Work Practices:

The following is a summary of safe work practices that should be followed when using compressed air:

- Ensure that excessive pressure and chip flyback hazards are effectively controlled.
- Always wear the appropriate personal protective equipment. As stated previously, eye protection must be worn when using compressed air.
- Never use compressed air to clean clothing or the body. This greatly increases the risk of an air gun directly contacting the body. Particles can also easily become dislodged and enter the skin or eyes. Use a safe alternative such as a brush or vacuum tool.
- Never participate in horseplay with compressed air. Never point an air gun or direct air toward another individual.
- Never tamper with air guns or modify them in any way. Homemade devices added to air guns usually increase the potential for injury.

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