Compressed Air

Compressed air has many uses in construction ranging from stapling guns to jack hammers.

If not treated with respect, compressed air can become a powerful enemy rather than a servant.

Pause for Safety

Hazards

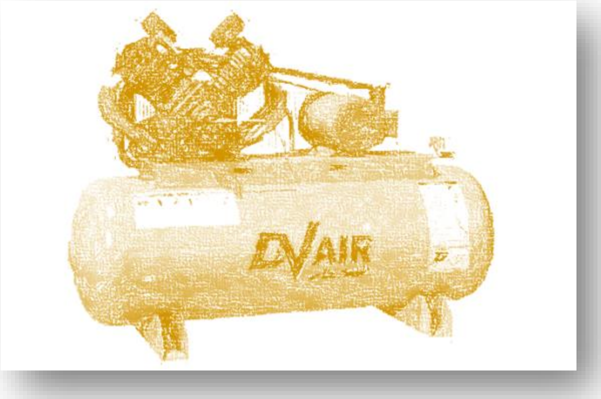
- → Direct exposure injuries
  - o Skin rupture and abrasion
  - o Lung and esophagus injury
  - o Eye injury
  - o Ear drum injury / rupture
- → Indirect injuries
  - o Air embolism (air in bloodstream)
  - o Particle blasts – eye and skin injury
  - o Noise (more than 120 dB)
- → Dust and airborne particulates

PPE

Additional PPE

Controls

- → Approved pneumatic hoses and attachments
- → Appropriate nozzles



Strategies and Procedures

Compressed air is used in a wide range of ways in most facilities. Things like operating tools to controlling machines, and much more are all done by compressed air. This is why it is so important to take compressed air safety very seriously.

Equipment

- → Keep air hoses off the floor where it is a trip hazard and subject to damage by trucks, doors, and dropped tools.
- → Hoses must be checked on a regular basis for cuts, bulges, or other damage.
  - ○ Ensure that defective hoses are repaired or replaced.
- → Prevent sharp objects from rubbing against the hose.
  - ○ Be especially careful if the hose gets wedged in a corner or hung around a machine.
  - ○ Always go to the point where the hose is stuck and guide it.
  - ○ Don't pull on the hose trying to free it.
- → Prior to use, ensure the quick-connect is properly seated and there is no apparent damage to the hose or fittings.
  - ○ Weak points may swell like a balloon and burst, throwing pieces of hose in every direction.
  - ○ This may also cause the hose to thrash about dangerously.
  - ○ If your area doesn't have a self-retracting reel, always coil the hose—without kinks—and hang it over a broad support when not in use.
  - ○ Do not hang over a hook, nail, or angle iron.
- → Hoses and lines should be rated to meet the maximum operating pressure of the equipment
- → All hose connectors must be of the quick disconnect pressure release type with a safety wire in place.
- → A proper pressure regulator and relief device must be in the system to ensure that correct desired pressures are maintained.
- → The correct air supply hoses must be used for the tool/equipment being used.
- → The equipment must be maintained according to the manufacturer's requirements.
- → Keep combustible gases and vapors away from compressor intake.

Using compressed air

- → Always wear proper Personal Protective Equipment:
  - ○ Safety glasses with side shields and a face shield if needed
  - ○ Hearing protection
  - ○ Respiratory protection, depending on the material(s) being worked with
- → Ensure other workers in the area are made aware of or have restricted access to the work area.

Never aim compressed air at another person or any part of yourself.

Never use compressed air to clean clothing or hair!

SERIOUS INJURY MAY OCCUR!

- → Compressed air must never be used to blow debris or to clear dirt from any worker's clothes.
  - ○ A clothes cleaning fan should be used.
- → Normal work clothing is not protection against compressed air.
- → If you must clean with compressed air, do not use air that is set above 30 PSI.
- → Ensure that the air pressure has been turned off and the line pressure relieved before disconnecting the hose or changing tools.
- → Follow manufacturer's instructions on safe usage.

Air in excess of 30 lbs. can blow an eye from its socket, and/or rupture an eardrum.

Air pressure against the skin may penetrate deeply to cause internal hemorrhage and intense pain.

Know the hazards

Compressed air is often misjudged and not recognized as a hazard because people often think of air as harmless.

- → Air forced into body tissues through the skin can cause an air embolism (air bubbles in the blood stream) which can be fatal if it reaches the heart, lungs, or brain.
- → Inflation injuries of the intestine can be caused by air being directed at private body areas.
  - o Acts of horseplay can be deadly!
- → Air blown into the mouth at only 5 PSI can rupture the esophagus or the lungs.
- → Eye and ear injuries can occur from a blast of air or flying particles.
  - o These types of eye and ear injures can cause partial or total loss of sight or hearing.
- → The sound from a compressed air hose can reach 120-130 dB - well above the 90 dB permissible exposure limit.
- → 40 PSI can blow out an ear drum from 4 inches away and possibly cause brain damage.
- → As little as 12 PSI can blow an eye out of its socket!
- → Flying particles can cause cuts and bruises to any part of the body