

Air compressors might seem benign enough, but there are some potential hazards to keep in mind

Don't Blow it

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When compared to other pieces of equipment on a working jobsite, an air compressor hardly seems hazardous. How can air be dangerous?

"Think of compressed air as stored energy," says Tom Grau, product-line R&D department manager with MMD Equipment. "Consider it takes almost nine cubic feet of air to make one cubic foot of compressed air, and you get some idea of the energy that is stored, not only in the air compressor's tank but also in the hose connected to the tools you're operating.

"This energy did not get compressed easily," he continues. "For a 185-cfm machine, it takes over 50 hp at 3,000 rpm to confine that energy. Therefore, the sudden, uncontrolled release of this energy could have devastating results."

This is why your customers need to take note and pay attention to the industry's safety rules for compressed air. But first, before the compressor even leaves your rental yard, there are some items you need to check.

Initial inspections

According to Harold Wagner, national sales manager with Kaeser Compressors, the compressor, air hose and air tools need to be inspected thoroughly. Here are some items that need to be checked:

Compressor

- Check for the correct tire pressure and excessive tread wear; improperly inflated tires can affect road handling, damage the tire and make transportation dangerous.
- Ensure that shutdown devices and pressure and temperature gauges are working.
- Check that all lights are working properly.

Air Hose

<http://www.forconstructionpros.com/publication/printer.jsp?id=3112>



A safe compressor rental starts with a thorough inspection of your machines before customers take them to their jobsites.

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- Use an air hose rated for the maximum compressor pressure and flow.
- Do not allow your hoses to be run over by vehicles or stored improperly; cracks or weak spots are not only wasteful, but also dangerous to the operator.
- Make sure that the hose and compressor discharge fittings match; always use the safety pin to prevent the fittings from disconnecting — if a pressurized air hose breaks loose, "fish tailing" could injure workers and damage equipment.
- Depressurize the hose prior to disconnecting.

Air Tools

- Inspect all air tools to ensure proper operation; make sure all components are tight and that no parts are missing or damaged.
- Consult your tool steel catalog for proper tool steel selection and application.
- Check air pressure to ensure proper working pressure of the tool.
- Always purchase the best air tool lubricant available to prolong equipment and tool steel life.

In addition to the above items, Grau with MMD points out that the customer's tow vehicle needs to meet certain criteria and the compressor needs to be hooked up properly to the tow vehicle.

- Confirm that the tow vehicle is of sufficient size to be able to stop the compressor in an emergency or "hard-brake" situation.
- Confirm that the tow vehicle's hitch is at the correct height so the compressor is towed as close to level as possible.
- Confirm that the safety chains are properly crossed and connected; make sure they're not too long to avoid being damaged by dragging on the road.
- Confirm that the electrical connections are properly matched and made — especially if the compressor has electric brakes.



Mi-T-M Air Compressor/Generator



Ingersoll Rand AirSource Compressors



Kaeser M26 Compressor

Important instructions

The type of instructions you give your customers can be the difference between a safe, productive rental and a devastating one. Wagner with Kaeser says a mini-instruction course and safety pamphlet should be given to all customers. "Review all precautions with regular customers, too," he says.

Marc James with Ingersoll Rand says there are several points rental businesses should touch on in order for customers to avoid common compressor danger zones.

"Before disconnecting a hose from the tool or the compressor, make sure all the pressure has been released," he says.

Another pitfall is hose whip, which can occur when a hose is cut or torn. The hose turns into an uncontrolled whip. This can be prevented by using a whip-check cable [also known as break-away protection], such as a short length of cable or chain attached to the tool and hose." (Continued on page 34)

James also notes that operators should be aware of the safety check valve — usually not standard equipment, but an option or aftermarket addition to the compressor. The safety check valve is designed to immediately shut-off the air supply should a break in the hose occur. Having a safety check valve on a compressor is a wise investment for rental yards.

One set of instructions that seems like common sense but needs to be covered, is proper startup and shutdown of the machine, says James. "The proper sequence for startup is connecting the air lines, starting the compressor, then opening the service valves before working," he says. "When you shutdown, you go in the opposite sequence: stop working, close the service valves, turn off the compressor, then clear the lines of pressure. Never shutdown without closing the service valves.

"Also note to customers that the emergency stop should be used just for that — emergencies," he continues. "It shouldn't be used just to turn the machine off, as the compressor could be damaged."

Some more operational dos and don'ts for customers:

- Only use a hose fully rated for the pressure of the machine.
- Protect the hose. The hose can present a tripping hazard so it must be kept out of the way



Oasis 3000 Series Onboard Air Compressors



CON X Portable Compressor



MMD Airman PDS185S Compressor

and protected from being damaged — especially from the tools being used.

- Never use a hose that shows signs of damage.
- Never point or direct an air tool at another person.

Final reminders

Don't forget to remind customers about the proper use of personal protection equipment. "Goggles, safety shoes, gloves and hearing protection are a must when operating construction tools," says Wagner. "Other applications may require additional gear."

Grau with MMD adds, "Keep in mind that released compressed air could send loose objects flying, so you will want to make sure your arms, legs and body are protected."

An important note regarding gloves — they should not be worn with any tools that could spin out of control, like an impact wrench.

Because some of your compressor rentals will be long-term, your customers might have to perform some maintenance to keep them running properly. Remind them that first and foremost, their primary responsibility is their safety. "The equipment's well being is secondary," says Wagner with Kaeser. "They should never attempt to repair or troubleshoot a compressor in a manner that could jeopardize health or safety."

Here are some maintenance safety tips for your customers to follow:

- Follow manufacturer's recommendations for proper operation and routine maintenance. Only trained technicians should adjust compressor components.
- Do not adjust safety, blow-off or control valves without referring to the operating manual. For example, improper adjustments can cause "air explosions" from the safety valve — startling and perhaps injuring even experienced operators.
- Do not change filters or check fluids while the compressor is running or pressurized. Spraying fluids such as oil can cause burns or serious injury.



Bobcat BAP185 Air Compressor



GrimmerSchmidt Muscle Compressor



Hitachi EC79 Pancake Air Compressor

With some informative instructions, common sense and an eye toward safety, your customers can have a safe, productive compressor rental.

An important safety reminder

Compressed air is a versatile — and powerful — energy source. Most site compressors deliver air at approximately 110 psig. It isn't uncommon to use compressed air for quick cleaning and a casual way to remove dirt and dust. However, even the smallest piece of debris such as metal shavings, wood chips or gravel flying through the air at this velocity can be dangerous.

The seemingly simple practice of using compressed air for dusting surfaces or "cleaning yourself off" can cause permanent injury or even death. In fact, it's possible for compressed air to penetrate the surface of the skin and cause fatal embolisms. Many end-users don't know that using compressed air over 30 psig for these purposes is also a serious OSHA violation. Warn all users to avoid this practice.

Remember air can be dangerous! Do not point compressed air lines at people for any reason. Do not adjust safety, blow-off or control valves without referring to the operating manual. Improper adjustments can cause "air explosions" from the safety valve — startling and perhaps injuring even experienced operators.

Information provided by Kaeser Compressors.

Some safety rules for customers to follow

- Read the operator's manual and be sure you understand it before using the machine.
- Do not allow anyone to ride on the machine.
- Make sure all guards and shields are in place and in good working order.
- Use the proper respirator for the job. Most air tools create a lot of dust.
- Wear a hard hat, hard-toed shoes, safety goggles and ear protection.
- Wear gloves when using a rock drill, paving breaker or tamper. Do not wear gloves when operating an impact wrench. Never use sockets or extensions that are not specifically designed to be used with impact wrenches.
- Wear close-fitting clothing. Keep long hair tied back and out of the way.
- Keep hands, arms, hair and clothing away from belts, pulleys and other moving parts. Never wear a tie or dangling necklace.
- Keep other people clear of the compressor before starting it and during operation.
- Inspect hoses regularly and never use a damaged or defective hose.
- Never use compressed air to clean yourself or others. Air at high pressure can break an ear drum, blow out an eyeball or penetrate the skin; injecting air into your blood which can cause death.
- Do not smoke or have any open flame in the area when re-fueling.
- Make adjustments only when the engine is off and the air pressure has been safely and

properly released.

- Be sure that all connections and couplings are completely interlocked and pinned.
- Set up the compressor as level as possible and block the wheels.
- Avoid operating too close to ditch banks or building overhangs.
- Never leave a running machine unattended. Turn the engine off and remove the key to prevent unauthorized use.
- Make sure all warning and safety devices are working properly.
- Never use ether as a starting aid on a diesel engine.
- Do not exceed recommended maximum air pressure.
- Be sure that all pressure has been released before disconnecting hoses.