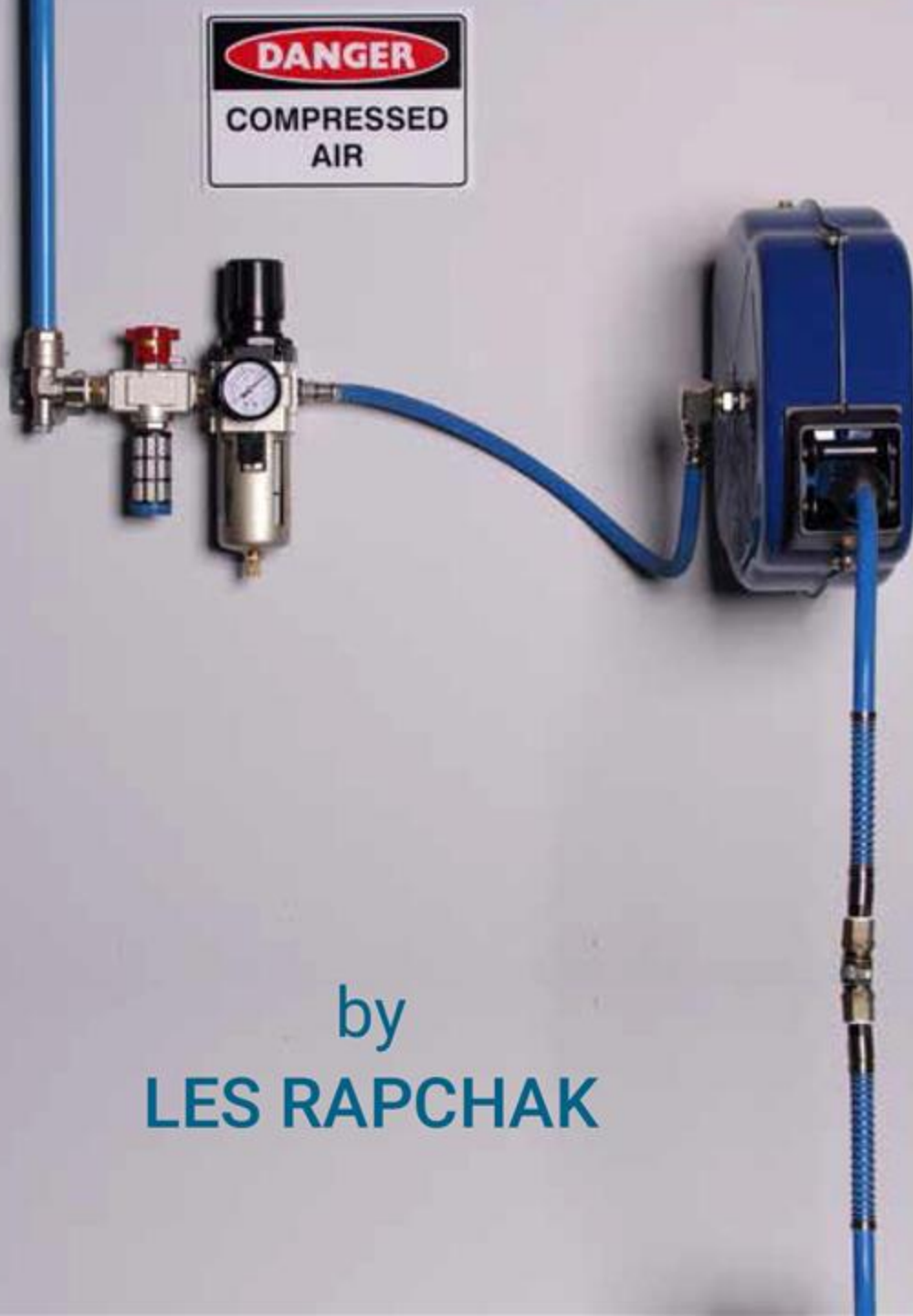


IS YOUR COMPRESSED AIR SAFE AND USED EFFICIENTLY??



by
LES RAPCHAK

“Here is a Handy Handbook for Owners and Employees to be sure!!”



Compressed air is costly so safe and efficient use is important. Here are some ways to get the most use from your compressed air supply safely and effectively.





Compressed air is often not recognized as a hazard but, did you know that if air is forced into body tissues through the skin it can cause an air embolism which can be fatal if it reaches the heart, lungs or brain! Not only that, but if the noise of exhaust air is too loud, long term hearing can be negatively affected. This Handbook gives guidance on how to address these potential dangers to prevent them from occurring and also to make better use of your compressed air for everything from cleaning, to moving product to cooling.

CLEAN AND DRY AIR LINES

Compressed air lines should be as moisture free as possible. But even with proper air drying at the compressor, moisture can get in & condense and still have moisture at the point of use. Moisture can negatively affect the quality of product, and corrode pneumatic equipment prematurely.

Wet air can also carry harmful bacteria which is a hazard to employees.

SOLUTION:

Install filters at the point of use. The most common is membrane style filters which need occasional maintenance but now there are also "separator" style filters with near zero maintenance available to remove moisture and particulate.

Benefit to the Employee:

Makes work easier because it eliminates having to drain moisture which can be a nuisance and improves the working environment by eliminating possible source of bacteria in moisture.

Benefit to Employer:

Better quality product is produced and longer life to pneumatic equipment, saving costs.
Safer for employees and can reduce lost worker time.
Overall increased profitability

SAFE HOSE ASSEMBLIES

Air hoses should be free of grease and oil to reduce the possibility of deterioration and never be placed across a floor where it can be a tripping hazard. OSHA standards indicate that any hose size above ½" diameter should have a safety device to reduce pressure in case of a hose failure. If a hose breaks serious injury from whiplash can occur.

SOLUTION:

Hose ends should be secure to prevent whipping if an accidental cut or break occurs. Have adequate shut off valves and/or air fuses installed near equipment that uses compressed air. Install hoses overhead.

Benefit to the Employee:

Less chance of accidents leading to lost time from work,
Much safer environment.

Benefit to Employer:

Less chance of lost time of an employee.
Less downtime because less accidents.
Longer lasting hoses and overall lower cost.



USE COMPRESSED AIR SAFELY

Do not clean personnel or equipment with open air lines, pipe or tube. In fact, in many jurisdictions it is not even legal to do so. If compressed air enters the skin, an air bubble could reach the heart or lungs and become fatal. If it hits an eye or ear it can lead to blindness or hearing loss respectively. Eye and ear protection when cleaning is important.

SOLUTION:

Open air lines and blowoff violate OSHA standards which requires the dead end pressure to be under 30 PSIG. If higher the compressed can enter the skin and become dangerous. The best solution is to use vacuum or engineered safety air nozzles which conserve the energy of the compressed air while keeping the pressure at safe levels.

Benefit to the Employee:

- Improved safety at work.
- Less chance of lost time.
- Safer environment

Benefit to Employer:

- Less chance of lost time due to accidents.
- Lower compressed air cost



LOWER NOISE LEVELS

Hearing loss from noise is a serious issue around the world and compressed air exhaust, especially from blow off can be very loud. There are strict OSHA guidelines for the number of hours you can be exposed to certain levels of noise. Loud noise is detrimental to health & lowers worker productivity due to the discomfort caused by noise.

SOLUTION:

Safety blow off engineered nozzles that reduce exhaust noise can replace open tubes and jets. Rows of pipe with holes can be replaced by air knives. Noise reduction can be 10 dBA or even more using this technology. It not only reduces noise but also energy use and improves safety and can work better than open pipe or tubes.

Benefit to the Employee:

Possibility of hearing loss or degradation is dramatically reduced. Less noisy environment means greater worker comfort.

Benefit to Employer:

Increase in worker productivity due to increased comfort & safety. Lower energy cost. Improved production output.

CHECK FOR LEAKS

One of the biggest areas of energy waste and loss is through leaks. Since no one can see a compressed air leak it is often ignored. Yet leaks can cause other problems down stream by reducing the air available for proper machine operation.

SOLUTION:

The cost of doing regular surveys for leaks is less than 10% of the energy lost for a leak. This can be done utilizing a hand held ultrasonic leak detector with a narrow bandwidth sensor to find the leaks and good headphones to block out factory noise while listening for the sound.

Benefit to the Employee:

A leak free system means more compressed air for equipment and avoiding lack of supply, making work easier.

Benefit to Employer:

Energy savings resulting in increased profitability.



OPPORTUNITIES TO IMPROVE WITH COMPRESSED AIR FOR COOLING

Cooling product or areas by using compressed air amplification or vortex tube technology can often solve production bottlenecks where heat is an issue – from products that need to be cooled in casting, or cutting, etc., to problems caused by overheating in control panels.

SOLUTION:

Look for applications where spot cooling or enclosure cooling can increase output in production or help reduce time wasted in unexpected maintenance and repairs that can cause shutdowns in production.

Benefit to the Employee:

More relaxed working environment.

Benefit to Employer:

Increased output
and profitability



WHERE TO BEGIN:

(1) Listen and look!!!

Open air pipe, hose, tubing, drilled pipe and even poorly designed air guns will produce loud noise. In addition, these items can be dangerous with dead-end pressures far above the 30 PSIG safety level. Every one of these things can be replaced with engineered safety nozzles or jets, or with air amplifiers or air knives, reducing noise, and improving safety while reducing the cost of the compressed air significantly.



Engineered nozzles
can reduce noise 10 dBA or more
and air consumption by up to 40%

REPLACE OPEN TUBE & PIPE



Air Knife can reduce noise
by up to 20 dBA
and air consumption up to 90%

REPLACE DRILLED PIPE



(2) Then try an existing air gun – Does water spray out???

If so, this moisture may also be getting into your pneumatic equipment, maybe onto your manufactured product!
You need to check your existing filtration system and possibly add point of use filters and/or separators



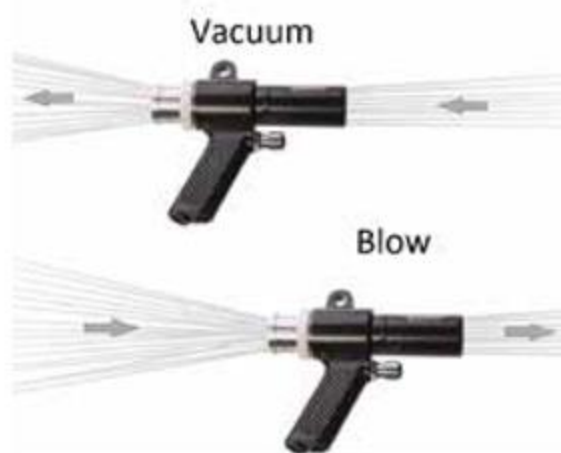
Super Separator is an example of technology to address water and oil problems in air lines

(3) Then check your hoses. – Are they installed safely?

Are they overhead or on the ground where they may be dangerous for tripping over? Are they in good shape and to standard for the pressure and air capacity handled? Is there a shut off valve close or some safety shutoff in case the hose breaks?? Take action to correct any suspect installation.

(4) Next, – check to see where you are using compressed air for cleaning equipment and personnel

Are you using open pipe, unsafe air guns? If so these areas need to be considered to retrofit safety nozzles onto the air guns or use other alternatives, possibly vacuum systems instead like a vacuum air gun. Make sure personnel have, and use safety glasses and hearing protection as necessary.



Hand Vac can act as a blow gun
and as a vacuum gun
for cleaning safely

(5) Do a routine check for air leaks



A good ultrasonic leak detector
will have a narrow sensor range
and good headphones to block
out factory noise



(6) And finally

– Explore the production area to see where compressed air can be more useful

Are there control panels constantly overheating or air conditioners breaking down? Are there items that can use spot cooling? Vortex Tube technology can spot cool using only compressed air, cool tool bits in dry machining for faster and better cuts, can set adhesives faster, can air condition control panels with no maintenance, all things that can improve production output and reduce downtime. Air amplifiers can cool hot castings and forgings fast, increasing output.







Tool cooler for dry machining increases output and improves quality



Panel Cooler is a maintenance-free air conditioner for control panels ideal in dirty and hot/humid environments

HOW NEX FLOW AIR PRODUCTS CORP. CAN HELP YOU!

Our representatives around the world can assist you to.....

-  Reduce noise levels and eliminate harmful dead end pressures in blow off applications.
-  Improve safety in the use of compressed air for blow-off, drying, cooling and moving.
-  To help protect your personnel, machinery and equipment and reduce costs at the same time.
-  Reduce the waste and use of compressed air and optimize its use where it can benefit with increased output and increased profitability.

CONTACT US or our LOCAL REPRESENTATIVE
to ASSIST YOU.

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