

Compressed Air System Pressure Reduction

fact sheet

Compressed air generation pressure typically includes a safety margin to insure all end uses receive adequate pressure. As the safety margin is increased, energy consumption rises while regulated end uses are unaffected. As a rule of thumb, you cut overall energy consumption by one percent for every two PSI shaved from generated pressure. This means a 100-horsepower compressor operating 8000 hours per year would save about \$275 per year from a two-PSI reduction; cutting six PSI from a similarly operated 500-horsepower unit would save about \$4000 per year.

Whenever changes are made or problems arise, always consider these alternatives to raising generation pressure:

- Identify the true distribution pressure required to run equipment and processes at desired performance
- Add dedicated air pressure boosters near isolated high-pressure loads
- Install appropriate air storage near large intermittent loads (gulpers)
- Review piping layout, dryers, and filters to identify and eliminate restrictions
- Properly size quick-connect couplings

REPORTED BENEFITS

- Simple to implement
- Low cost
- Reduced leak losses

Barriers to Market Acceptance

1. price
- ➡ 2. risk of failure
- ➡ 3. benefits not understood
4. priorities not on benefits of new technology

Development Stage

1. need for the technology identified
2. technology concept developed
3. initial research findings reported
4. research on concept completed
5. commercial pilot completed
6. introduction to commercial market
- ➡ 7. immature market demand
8. mature market demand
9. market saturation

WISCONSIN APPLICATIONS

This technique may be used in all industries that have compressed air systems.

TYPICAL PAYBACK

Expected payback is less than one year.

MORE INFORMATION

- Compressed Air Challenge Program
U.S. Department of Energy
www.motor.doe.gov/brochure.htm
www.knowpressure.org
- *Tech Update*, November 1995
E Source, Inc.
(303) 440-8500
- *Recovering Energy Costs in Compressed Air Systems—(It's not always where you think it is!)*
Air Power, USA.
(740) 862-4112
- "Selecting Quick-Connect Couplings For Compressed Air Service" *Plant Engineering*, March, 1998. By Ed Kent, DynaQuip Controls.
<http://206.128.186.135/magazine/planteng/archives/1998/ple0301.98/032024.htm>

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