

AIRMaster+

The U.S. Department of Energy's (DOE's) Industrial Technologies Program (ITP) offers a collection of software tools to help you identify and analyze energy system savings opportunities within your plant or facility. As part of ITP's Tool Suite, AIRMaster+ enables you to evaluate the energy efficiency opportunities of your compressed air system using an unbiased approach. This, in turn, could lead to further private sector detailed engineering analyses and design specifications with the goal of implementing identified energy-saving opportunities.



Improve Compressed Air System Performance with AIRMaster+

AIRMaster+ provides a systematic approach to assessing the supply-side performance of compressed air systems. Using plant-specific data, the software effectively evaluates supply-side operational costs for various equipment configurations and system profiles. It provides useful estimates of the potential savings that could be gained from selected energy efficiency measures and calculates the associated simple payback periods.

AIRMaster+ includes a database of generic or industry-standard compressors, and creates an inventory specific to your actual, in-plant air compressors. Based on user-provided data, the software simulates existing and modified compressed air system operations. It can model part-load system operations for an unlimited number of rotary screw, reciprocating, and centrifugal air compressors that operate simultaneously with independent control strategies and schedules.

Powerful software features facilitate the development of 24-hour metered airflow or power data load profiles for each compressor, calculation of life cycle costs, input of seasonal electric energy and demand charges, and tracking of maintenance histories for systems and components.

AIRMaster+ also includes LogTool—companion software that serves as a data importation and analysis aid. The tool helps users import data that is exported from different types of data loggers, select logger data channels and modify their properties (e.g., name, type, units, etc.), view data values for one or more logger channels, display trend plots with one or two Y axes, display scatter plots, and display daytype plots in the format that is needed for AIRMaster+.

Using AIRMaster+

AIRMaster+ models the supply side of a compressed air system. Effective use of the software requires a thorough understanding of compressed air system dynamics, including interactions between the demand and supply sides.

Facts & Figures

- The energy efficiency of a typical compressed air system can be improved 20% or more.

Benefits of AIRMaster+

AIRMaster+ evaluates the energy-savings potential of the following eight energy efficiency actions:

- Reduce air leaks
- Improve end-use efficiency
- Reduce system air pressure
- Use unloading controls
- Adjust cascading set points
- Use automatic sequencer
- Reduce run time
- Add primary receiver volume.

Resources

To download AIRMaster+, other free software tools, or to learn more about DOE Qualified Specialists and training opportunities, visit www.eere.energy.gov/industry/bestpractices.

As of September 2008, ITP conducted 97 targeted compressed air assessments. The table below summarizes the results of these assessments.

Compressed Air System Savings Identified by Industry*

Industry (No. of Assessments)	Average Energy Savings (kWh/year)	Average \$ Savings (Annual)
Automotive (32)	12,258,688	\$212,351
Cement (7)	8,397,537	\$159,160
Chemical (7)	12,581,126	\$299,977
Electronics (2)	4,648,671	\$180,810
Food Processing (14)	4,292,989	\$83,435
Forest Products (2)	1,740,320	\$30,268
General Manufacturing (17)	6,950,230	\$139,337
Glass (7)	10,680,137	\$471,247
Plastics (3)	2,976,867	\$54,388
Steel (6)	11,081,884	\$146,294

* As of September 2008

“We used AIRMaster+ to analyze the compressed air system in a facility that manufactures rubber gaskets. The existing compressors consume more than 3 million kilowatt hours (kWh) per year, representing more than 20% of the plant’s energy consumption. Using AIRMaster+, we identified over 1 million kWh in potential energy savings with a payback period of approximately 2 years.”

**- Satyen S. Moray, Project Engineer, Energy & Resource Solutions, Inc.,
Qualified AIRMaster+ Specialist**

“We used AIRMaster+ to audit industrial compressed air systems at more than 2 dozen plants. System control and efficiency improvements at a plastic bag production plant allowed them to take 500 horsepower of compressor capacity offline and still meet system requirements. The plant was able to reduce its annual energy costs by over \$250,000 per year with a \$25,000 investment.”

- Keith LeFebvre, KL Research

“The Efficiency Measures section in AIRMaster+ is easy to use and very flexible. This feature allows us to give compressed air users a variety of ways to improve the efficiency of their systems. Many times, we can show companies low-cost measures that provide quick paybacks.”

**- Joseph D’Ambrosio, President, Air Power of New England,
Qualified AIRMaster+ Specialist**

AIRMaster+ will be a part of the upcoming Energy Management Toolkit, which will act as the primary delivery mechanism for additional tool access from the Energy Management Portal.

Support and Training

Training is recommended for everyone interested in using AIRMaster+. DOE and the Compressed Air Challenge (CAC) offer a 1-day fundamentals workshop and a 2-day advanced workshop through a network of DOE AIRMaster+ Qualified Specialists. These Specialists have passed a rigorous qualifying exam conducted under the auspices of DOE and CAC. Industry professionals interested in becoming AIRMaster+ Qualified Specialists can participate in a 3 ½-day workshop. In addition, ITP offers an introductory 2-hour Webcast on how to use the CAC Toolkit and AIRMaster+. Visit ITP’s online Training Calendar for a list of upcoming sessions:

www.eere.energy.gov/industry/bestpractices/events_calendar.asp.

Visit CAC’s Web site at:
www.compressedairchallenge.org/.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, DOE’s Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

For more information, please contact:

Industrial Technologies Program (ITP)
www.eere.energy.gov/industry

EERE Information Center

1-877-EERE-INF (1-877-337-3463)
www.eere.energy.gov/informationcenter