

# SATELLITE

Your knowledge warehouse for the compressed air industry

THIRD QUARTER - 2008

## INTRODUCING LOW-COST, HIGH-PERFORMANCE ELECTRIC ACTUATORS AND ROBOTS

By Ron Nordby

**Continuing John Henry Foster's (JHF) mission to promote a progressive culture by seeking opportunities for cutting edge technology, we are excited to announce the addition of the Intelligent Actuator America, Inc. (IAI) product line.**

IAI designs and manufactures a complete line of motion control systems providing linear and robotic component solutions to businesses around the world. These markets include automotive, consumer products, electronics, food, medical, inspection and examination, to name just a few. They are the world leader in linear actuators and low cost, high performance SCARA robots, as well as a leading source of advanced plug and play automation throughout North America.

With the recent introduction of the ROBO Cylinder® linear actuators product line, IAI has become a standard in cost effective, low maintenance, and fully programmable electric cylinders.

The ROBO Cylinder® linear actuator was designed to accomplish the simple tasks usually assigned to air cylinders, but with greater flexibility

and custom control over position, speed, acceleration, deceleration and torque.

Our goal at JHF continues to be our dedication to serve our clients with the most cutting-edge products available on the market. We bring customized client solutions in consistency, reliability, and profitability, while continuing to demonstrate our tradition of the latest industry trends and solutions



in world-class compressed air automation. Specializing for over 70 years in air compressors, electrical motion controls, and aluminum framing systems.

**IAI is a world leader in small electric linear actuators.**

Our team of experts in our Electrical Engineering Department are positioned to support your productivity and efficiency needs with this innovative product and can determine how best to fill your automation needs. Please contact us at 651.452.8452 or visit our website at [www.jhfoster.com](http://www.jhfoster.com) if you have any questions or would like further information regarding the IAI product line.





## Welcome to Satellite

**W**elcome to our new client newsletter and thank you for taking the time to read through it.

John Henry Foster (JHF) is pleased to announce we are celebrating the company's 70th anniversary this year, 1938-2008. During that time, we have grown from a one person business to an exceptional team of over 80! This newsletter is our way of introducing a new and dynamic JHF to the business communities of our customers, clients and business partners.

We anticipate you will find Satellite to be valuable and informative, while experiencing our cutting-edge products and services that impact virtually every manufacturing industry.

John D. Hawkins  
CEO/President

# NEW COMPRESSED AIR PIPING SYSTEM RESULTS IN LOWER COSTS AND BIG SAVINGS

**Transair the world's leader in innovative piping and fitting solutions.**

By Tom Didier

To be cost effective, compressed air needs to be delivered with enough volume, appropriate quality and pressure to properly power the components that require air to operate. Unfortunately, a poorly designed compressed air distribution system can increase energy costs, promote equipment failure, reduce production efficiencies and increase maintenance requirements. That's the bad news.



The good news is that John Henry Foster has a solution – one that is quick to install, energy efficient and provides long-term savings: Transair® Aluminum and Stainless Steel Piping System.

Transair® Piping System is available for use on compressed air, inert gases and water in various sizes up to 4". Its innovative technology is effortless to install and easier to modify than either black iron or copper piping. The push to connect and unique clamping systems provide airtight and secure connections with a minimum of assembly tools. Transair® requires no threading, soldering or gluing and once the connection is made it is ready to be pressurized.

Components are reusable and interchangeable, and allow for immediate and easy layout modifications. Alterations of an existing system such as adding a new drop or moving an existing drop, requires very little expense or downtime. The large number of connectors, pipe sizes and piping accessories

available within the Transair® Piping Systems make it possible to accommodate even the most complicated of piping designs. Optimum efficiency of the compressed air distribution system is assured with the airtight, full flow and corrosion resistant properties of the Transair® Piping System. The corrosion resistant characteristic of Transair® allows for consistently clean process media to be delivered to system components. Due to its ability to deliver high quality process media, downstream components such as air valves and cylinders are able to deliver long service life and reliable operation.

### Overall savings

Perhaps the most attractive measure of the Transair® piping system is the overall savings it provides. Typically, any additional money spent improving a compressed air piping system will pay for itself many times over. Transair® piping system is no exception, offering sound solutions for all compressed air, liquid and inert gas applications.

For further information on Transair® Piping System or Installation information, please contact us at 800.582.5162 or visit our website at [www.jhfoster.com](http://www.jhfoster.com).



**Transair Piping offers sound solutions for all compressed air, liquid and inert gas applications.**

# Dual audit air compression and fluid cooling processes take on operating costs

A large printing company contacted JHF's engineering department to perform an energy audit of its compressed air and fluid cooling systems. The goal of the audit was to evaluate the existing compressed air and fluid cooling systems to improve performance, reliability and efficiency.

## CHALLENGES

### Fluid Cooling System:

- Reduce demand on the current chiller system. The chiller system was operating at maximum capacity. With the addition of a new printing press a capital expenditure of \$300,000.00 for an additional chiller would be required.
- Reduce operational costs.
- Reduce production dependence on chiller system. The chiller system cooled virtually all process equipment supporting production and any loss of chiller capacity would result in a partial or complete shutdown of production.

### Compressed Air System:

- Increase system efficiency.
- Stabilize system air pressure level. The current system demand is handled with on-line horsepower resulting in the system going dynamic. This allowed the system pressure to fluctuate at approximately 25 psig.
- Reduce operational costs by lowering system pressure levels.

**Dual audit on large printing company allows for new equipment payback in 1.2 years reducing capital expenditures by \$300k.**

## SOLUTIONS AND BENEFITS

### Fluid Cooling System:

It was determined that the air compressors, air dryers and vacuum pumps could be separated from the chiller system and cooled by a more efficient dry cooling system. The implementation of a dry cooling system reduced operational and maintenance costs, as well as removing 120 tons of chiller demand from the existing chiller system. The reduction of chiller demand resulted in the ability to assume the chiller load needed to operate the new printing press, eliminating \$300,000.00 in capital expenditures. The separation of the air compressors and vacuum pumps from the chiller system also reduced the dependence of process equipment on the chiller system.

### Compressed Air System:

Data logging of the compressed air system during the audit process revealed that the maximum demand could be handled with current compressor horsepower. It also identified areas of the compressed air system that could be changed to improve system efficiency. One area is the installation of demand regulation and 3,000 gallons of general storage which would allow the reduction in system pressure from 113 psig to 88 psig, as well as eliminate the wide system pressure swings, reduce leakage rate and power costs by 12%. The other area would be the installation of a Centralized Compressor Control System which would automatically maintain compressor horsepower necessary to match demand requirements.

## RESULTS

### Fluid cooling system:

- Savings of over \$53K in yearly operational and maintenance costs.
- Reduced dependence on chiller system.
- Eliminated a \$300K capital expenditure.
- Immediate payback on the cost of required modifications.

### Compressed air system:

- Operational and maintenance costs reduced by \$40K annually.
- Stabilized plant pressure.
- Increased reliability of compressed air system.
- Return on Investment realized in approximately 1.2 years.

For further information regarding compressed air efficiency auditing, please contact us at 651.452.8452 or visit our website at [www.jhfoster.com](http://www.jhfoster.com).



# Innovation + Imagination = **FLO-TROL**



By Ron Nordby

**The Department of Energy has estimated that 10% of all electrical energy use in the United States is consumed in the generation of compressed air.** This has added significance since 70% of all manufacturing facilities utilize compressed air in some aspect of their manufacturing process. These facts highlight the reason why companies with compressed air systems have a compelling reason to investigate the potential for energy savings.

While there are a number of areas within compressed air or vacuum systems to analyze for energy savings, centralized control systems for multiple compressor installations is one that provides a great opportunity for significant savings. Energy savings of 30% can be realized on multiple compressor systems that currently do not have some form of centralized control system. Energy savings of 10-15% can be realized even with multiple compressors systems utilizing the cascading pressure band system, which is probably the most common control scheme.

Flo-Trol, the industry's first flow-based



**By running the minimum horsepower, typical savings are 5-30% of your annual air compressor energy bill.**

centralized compressor control system was developed to address this issue. Flo-Trol eliminates many of the limitations that currently exist with compressor control systems offered by compressor manufacturers. Some of Flo-Trol's advantages include:

- Flo-Trol is non proprietary, using off the shelf components.
- Flo-Trol is able to control and monitor all types and manufacturers air compressors and vacuum pumps.
- Flo-Trol eliminates the need to designate a lead compressor or establish a cascading pressure band system.

Over the last 15 years and 200 installations, Flo-Trol has evolved into a very powerful and sophisticated control and monitoring system. Our Electro-Pneumatic Control department has applied the expertise and knowledge, gained through experience to develop a complete family of U.L. Listed controllers under the Flo-Trol name. We are utilizing state-of-the-art hardware and software such as Allen Bradley's MicroLogix and CompactLogix controllers and Panelview touch screens to provide our customers with all the benefits this new technology has to offer. John Henry Foster is also well versed in the integration of Flo-Trol with Building Management Systems. We have extensive experience with Local Area Network technologies, such as Ethernet.

Today Plant Managers are looking to not only control their systems, but are looking for data such as energy, pressure, temperatures, dew point and flow measurements, which Flo-Trol provides. This information has become instrumental



**More than 50% of the energy used in a compressed air system is wasted due to improper or misapplied use.**

in analyzing and benchmarking system performance which is critical in maintaining and documenting the quality and cost of these systems. In many instances they are looking for this data to be incorporated into their own building management systems and formatted for internal and external use. Flo-Trol was designed to be customized to any level of sophistication required. We realize that individual requirements can vary tremendously and we are committed to providing whatever expertise is required.

If you would like further information regarding Flo-Trol and how we can assess your Company's potential energy saving opportunities, please contact Ron Nordby.

**Ronald K. Nordby**

Vice President, Sales & Marketing

Direct 651.681.5724

ron.nordby@jhfooster.com

# Consistent use of air delivers new sports technology

## JHF becomes engineering tool for Airborne Athletics

In 1997, Doug Campbell and his brother Jeff decided to start their own business. Doug was an avid volleyball player and wanted to develop a product that would provide him with a convenient way to train on his own. Doug asked Jeff for his engineering expertise and together in their garages they designed a volleyball throwing machine called AirCAT. The Campbell brothers knew that other volleyball machines existed but most lacked consistency, caused ball wear, and none were operated with the help of an air system. This was the beginning of Airborne Athletics.

“Our goal when developing the AirCAT was to improve player’s

skills by allowing the coach freedom to coach rather than being a ball tosser. With our patented ‘Consistent Air Technology’, the AirCAT will deliver with consistency, up to 1100 volleyballs per hour automatically for all types of drills,” explains Mr. Campbell.

The AirCAT volleyball machine was introduced in 1998 and with JHF’s help has become very popular within the athletics industry.

Over the past 11 years, there has been constant communication between JHF’s account manager, Chris Garding, and Airborne Athletics. Being a small company, Airborne Athletics has utilized the expertise of JHF in the product development area.

JHF has been providing Airborne Athletics with several innovative design and product suggestions since the very beginning and continues to assist by streamlining Airborne’s purchasing, staying deeply involved in engineering changes and developing new product ideas.

In 2003, building on the success of AirCAT, Airborne Athletics decided to take advantage of the growing popularity of basketball and create Dr. Dish, a basketball game simulation machine. Currently about 60% of Airborne Athletics sales are in the basketball industry, and 40% are in the volleyball industry. This is mainly due to the larger amount of basketball programs available and the greater popularity for both genders in schools.

Over the years, Airborne Athletics has gone from two employees to twelve and plans to keep expanding in the future.

Through JHF, Airborne Athletics continues to look to Chris



Dr. Dish

Garding for new products and engineering expertise to improve their current designs. The relationship between Chris and Airborne Athletics is truly a mutually beneficial partnership that will continue into the future.



AirCAT

*“We have received more support and service from John Henry Foster than anyone else we have worked with. My brother and I can’t think of a better relationship we have with our vendors than what we have with John Henry Foster. Chris is always available and will drive out here when we need something. John Henry Foster will problem solve rather than just give us a product.”*

-Doug Campbell



3103 Mike Collins Drive  
Eagan, MN 55121  
800.582.5162

ADDRESS SERVICE REQUESTED

*Since 1938, John Henry Foster has been the Midwest's leading compressed air systems distributor and service provider. We provide both capital and pneumatic components consultatively, allowing us the ability to partner with both the supply and demand sides of compressed air systems. Our teams of air automation experts bring customized client solutions in consistency, reliability and profitability. Employee-owned, JHF has over 80 technical, service and professional staff.*

[jhfooster.com](http://jhfooster.com)

## John Henry Foster

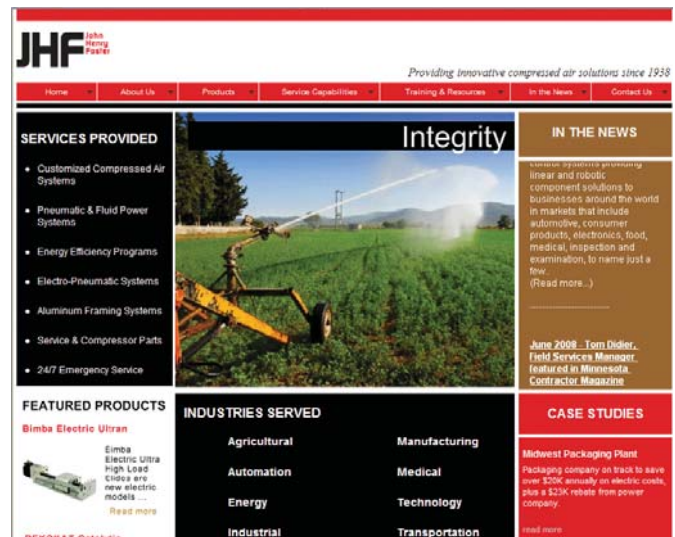
# John Henry Foster launches new website

**John Henry Foster** is excited to announce the launch of the new JHF website as part of the company's 70th anniversary. We have already had over 14,000 visits to the website and over 350 customers signed up to win a flat screen TV!

### Summary of new features:

- **Featured products, technical literature and company information**
- **News releases and industry trends**
- **Detailed service and parts capabilities**
- **Engineered and customized solutions**
- **Links to resources and manufacturer websites**
- **Case studies, technical papers and published articles**
- **and much more... check it out at [www.jhfooster.com](http://www.jhfooster.com)**
- **Enter to win a 32-inch flat screen TV at [www.jhfooster.com/request/WINTV.html](http://www.jhfooster.com/request/WINTV.html)**

1938 - 2008  
**70**  
years



This issue of Satellite is available online at [jhfooster.com](http://jhfooster.com)