



# SMART AIR NEWSLETTER

SEPTEMBER, 2020

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# NEWS, EVENTS AND HAPPENINGS

## Letter From the President: Leadership

Leadership always makes itself available to us, providing opportunities throughout our day to reach out for it and make it part of ourselves. It calls out to all of us to bring it in and make a culture better and stronger. For some, it comes easier than others. For some, because of a certain title, it becomes more expected than it would be for others. For some, not having a title or position could act as reason not to stretch themselves and reach for the gift of leadership. A gift, that ultimately helps others more than it helps themselves.

Each day, we work on developing leaders. When we hire a new employee, we can't always be sure if the person has the quality in them or not. We learn as the work days turn into months and as opportunities for leadership develop and present themselves. Then we see who is reaching for it.

You must serve if you are going to lead.

I am constantly inspired by people in our organization who do not have a spotlight on them and for who some might believe that there is little opportunity to be a leader, who denounce those thoughts and step up and answer the call. They pick up a teammate who may be struggling, stay with them and guide them through a problem and into a solution. They give their teammate more confidence the next time he or she encounters the issue so that they can have an enhanced employee experience. Which in turn, leads to an enhanced customer experience. And then humbly and silently walk away knowing that nothing further needs to be said about the matter, that the act alone is the reward and that speaks for itself.

Keep inspiring me.

William N. Vowteras  
President  
Airmatic Compressor Systems, Inc.

## New Hires



We are pleased to announce a new member of the Airmatic Team, Jeremy Garfield. Jeremy comes to us with many years' experience in the compressed air industry and is expected to provide another layer of knowledge and support as Airmatic carries out significant growth plans for the future. Jeremy's primary focus will be to develop and establish our vacuum business, creating a dedicated department working with Atlas Copco Vacuum Products and Edwards Vacuum.

In addition, Jeremy will assume product line responsibility for Nitrogen as well as launching the new Bauer high pressure products. Please join me in welcoming Jeremy to the team!

Jeremy Garfield  
Assoc. Director, Business Development

## New Product - Bauer Compressors, Inc.

**Airmatic Compressor Systems** has officially been granted full distribution authority for the Bauer Industrial product line covering Northern Jersey and Orange & Rockland County, NY. The agreement includes new equipment sales, parts, and service support.



**BAUER COMPRESSORS INC.**, headquartered in Norfolk, VA, is recognized as the world's foremost innovative designer and manufacturer of high pressure systems. Provided are a broad range of specific systems solutions for various industries including manufacturing, automotive, aerospace, marine, defense, oil & gas, chemical, refining, mining, power generation, cryogenics, and research.

Typical applications are for component testing, hydro-pneumatic systems, pneumatic actuation, process control, gas recovery, high pressure cylinder filling, propellant, gas inerting, nitrogen generation, high purity instrument air, etc. Industrial compressor systems are available in capacities ranging from 10 to over 750 scfm (per compressor) with working pressures from 350 - 7000 psig and with power requirements from 1.5 to 400 hp (per compressor).

With the addition of Bauer high pressure products Airmatic broadens its scope of coverage within the marketplace. From low pressure, 'blower' type applications requiring under 70 psi, to standard industrial compressor pressures to 175 psi, and now quality high pressure compressors up to 7,000 psi, Airmatic Compressors Systems covers the bases with equipment sales, parts and service.



## CUSTOMER SUCCESS STORIES

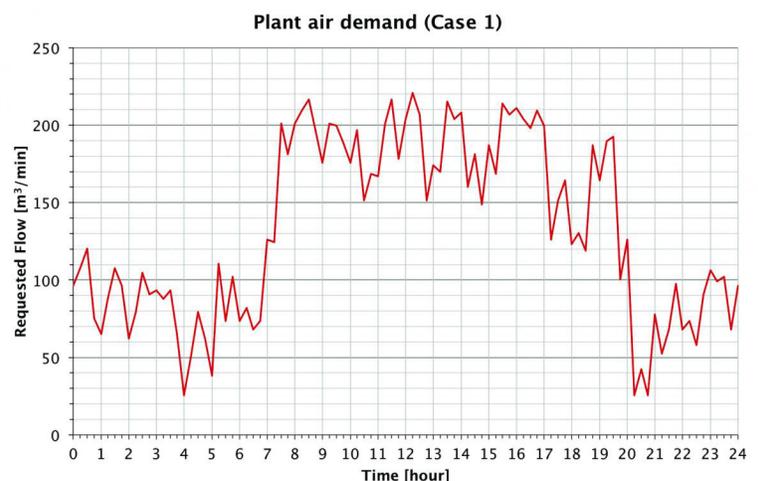
### Managing Extreme Fluctuating Demand

**Frank Asbaty**, *System Specialist*

The importance of conducting energy audits, and compressed air facility demand analysis is critical in determining equipment selection. A local military parts manufacturer was having issues with their 100HP VSD machine. Upon investigation of their demand profile, it was uncovered that the facility has, what's called

"extreme fluctuating demand." This term refers to a compressed air system that uses a certain amount of compressed air for the majority of time, but at specific times, requires a substantially more amount of compressed air for short bursts of time. This type of "extreme fluctuating demand" can cause serious issues to the internal components of compressed air equipment. After careful review of their system, from a demand standpoint (plant air required) and supply (100HP VSD compressor output), it was determined that this larger 100HP unit was too large to handle the low demand needs of the facility, and was therefore not running long enough to heat up and burn off internal condensate within the unit. This can cause corrosion, and have quite a negative effect on internal components.

Our solution was to replace the (1) larger 100HP compressor with (3) smaller 50HP units (1-VSD, and 2- fixed-speed). This combination allows for the 3 smaller units to run effectively and efficiently for whatever demand their facility has, small or large, by utilizing the VSD compressor as the main unit, and take advantage of the energy-saving properties, but also have the ability to add and utilize (1) fixed speed machine when the demand spikes tremendously, as well as having the 3rd machine as a full backup machine and offering 100% redundancy in case any (1) of the other (2) goes down or needs service. The bottom line is that for "extreme fluctuating demand" profiles, smaller, multiple unit systems provide much more efficiency, and level of redundancy, compared to a larger, 1 unit system design.



# COMPRESSED AIR APPLICATION ADVICE AND TOOLS

## Technical Project Of The Month

**Robert Smith**, *System Specialist*

A small packaging company had recently upgraded their air compressor system with oil flooded rotary screw units. A few months later they had bought a packaging sorter that would require sterile oil free air at a rate of 50 cfm at 100 psi.

Because of oil contamination in compressed air lines, electrical supply and budget restrictions the solution would be to use the facility's compressed air and place a point of use Hydrocarbon removal system that would only supply oil free compressed air to the new packaging sorter.

With this solution, we were able to supply to the customer oil free compressed air and as a byproduct of the Hydrocarbon removal system the compressed air is now sterile because of the heating of the compressed air killing all microorganisms.



## Comparing Competitive Vendor Quotes - Part 2

**Michael Johnson**, *Director of Sales & Marketing*

When selecting the right piece of equipment there are many important things to consider. Primary among these are:

1. Out of Pocket Spend and Cost of Ownership(COO)
- 2. Performance and Efficiency**
3. Reliability and Uptime
4. Maintenance, Repairs and Vendor Support

Following up on our June Newsletter article, let's review the importance of the 2nd item Performance and Efficiency, particularly in the long term. Manufacturer published performance and efficiency numbers give us a good idea of what a piece of equipment will do, but 3rd party verification provides confidence and comfort in knowing you're getting what you pay for. The Compressed Air and Gas Institute (CAGI) has provided this service for many years to manufacturers, distributors and end users alike. It's like the Consumer Reports™ for the Compressed Air industry. Always check that your compressor and/or dryer is tested and approved by going direct to their website and looking up the specific datasheet. Or, ask one of our salesmen for a copy, there is no additional charge for the report.

Performance and efficiency for the most part go hand in hand, but it really depends on your demand profile and how well it matches the compressor's operating sweet spot. This is where selecting the right sized equipment comes in. It should never be too big or too small. For this discussion, too big would be running at too low a demand level, where the compressor is outside of its designed performance and efficiency range (BTW, you can still "size for growth" and operate within a compressor's sweet spot). Too small is not necessarily a compressor that does not supply enough air to meet demand, it's when it is running too hard for long periods of time, above the normal operating capacity.

Both extremes noted above increase operating costs through higher energy requirements and higher maintenance/repair bills. The overall life of your equipment suffers a shortened existence by operating outside its designed range resulting in early replacement and a much larger COO. A sure-fire way to match a compressor to your demand is by running data loggers on the existing compressors and recording exactly what your operating profile is. Get with your System Specialist and schedule a time for a walk-thru and no-charge logger installation today.

## **The Benefits of Data Logging**

**Bill Goerke**, *System Specialist*

Companies spend significant amounts of money to compress air to operate or support their production processes. Industry studies show that 30 to 60% of that amount spent is wasted! Energy Star, the program run by the EPA and DOE that promotes energy efficiency; says on average, 76 percent (76%) of the lifetime cost of an air compressor is electricity. For many facilities, compressed air is one of the most expensive utilities in their operating budgets. If we take a moment to ask, "how does this happen?" Contributing factors would include, but certainly, not limited to inefficient and ineffective system operation, misapplication of the air system components, and the biggest culprit...artificial demand and system leaks.

Baselining a compressed air system can be compared to going to the doctor's office, and before the physician starts the examination, a review of your bloodwork and taking of your vital signs before going in-depth with the questions. To put it in simple terms...it's a start...a benchmark. You may be asking, "What is done, and what do you get?" The M-Box and P-Logger system records amperage and pressure data at a rate of one scan per second, resulting in more than 3,000,000 data points during a typical 7-day production cycle. During the study, you operate normally, and our M-Box data loggers record the amperage, a leading indicator of compressor operation. Using that data, M-Box creates a week-long 24/7 profile of your production air requirements, discover plant air pressure levels,

establishes current energy performance levels, determines costs of a compressed air system, and correlate the results with your plant's present production levels. You receive a detailed report with your compressor scope of supply, data pages (including power and air consumption, load cycles, running hours, etc.), profile graphs and charts, and an executive summary that is reviewed with the customer. Much like your bloodwork and vital signs...These reports historically raise questions pertaining to times and operations that are contributors to the results displayed. Only after a review of the data, and a post-collection Q&A session...we can begin to discuss recommendations on how to run your compressed air system more efficiently. "Solutions without data, system knowledge, and analysis...are just guesses." In next month's issue...a case study on how a solution that did not involve an equipment purchase, results in a significant benefit to the customer.

## **Tools of the Trade**

**Tips on Sizing a Refrigerated Air Dryer:**  
**David Van't Slot**, *System Specialist*

Many customers ask: How does a refrigerated dryer work and how do you properly size one for my compressed air system? The easiest explanation for how it works is this: Similar to dew collected on the lawn on a cool morning, when compressed air is chilled, usually to 38 degrees F, suspended water drops out of the air and changes to liquid water (condensate). The condensate collects in a moisture separator, once enough water collects the electronic drain valve will blow condensate into an Oil Water Separator for proper disposal. The compressed air then will have a pressure dew point similar to the temperature that the air was chilled to. I have also explained it in this way: You know when you leave a 6 pack of beer in the car on a 100 Degree day, it takes longer to cool in the refrigerator than beer that starts at 70 degrees. It's the same concept. The customer typically smiles and nods, but understands how initial temperature can affect how quickly something is cooled to the desired temperature. (or maybe they are smiling because they are thinking about the weekend).

Compressed air dryers are rated to achieve a specified pressure dew-point or moisture level (usually, 38°F pressure dew point) for a certain volume of air flow (cfm). This flow rating is based on “standard conditions” (100 psig, 100° F inlet temperature, and 100° F ambient temperature). Your actual conditions will change from day to day.

It is important to understand how pressure and temperature affect water content in compressed air, when sizing a dryer. The suspended water vapor content of air changes directly with temperature—if temperature increases, the air’s ability to suspend water increases. The hotter the air entering the dryer, it will take a larger refrigeration system to bring the air to the proper temperature/dew point.

Water vapor content of air changes inversely with pressure—if pressure increases, it squeezes moisture out. Because of these physical relationships, compressed air dryers need correction factors to determine how much air a particular dryer can actually handle at specific conditions. (see correction factor chart below).

While selecting points on the correction factor, make sure you go with the worst-case scenario using the conditions during the hotter and humid summer season. The chart below shows how a dryer will be more or less efficient depending on how the conditions vary. This is a great tool while sizing a dryer for your particular conditions.

Rules of Thumb:

- The higher pressure above 100 PSI-----dryer will be more efficient
- The lower temperature of the room and the compressed air that enters----the dryer will be more efficient.
- The lower pressure below 100 PSI-----dryer will be less efficient
- The higher temperature of the room and the compressed air that enters----the dryer will be less efficient.

Using the Correction Factor Chart.

Proposed Conditions for a 100 CFM DRYER Selection: 130Psi Compressed Air--100 Degree F ambient room temperature--115 Degree F approach (temperature of compressed air as it enters the dryer)

Calculation:

DRYER CFM (100) X PSI Correction factor at 130 Psi (1.09) X Ambient Temperature correction factor at 100 degree f (1) x Approach Temperature correction factor at 115 degree f (.71)= The overall correction factor to the dryer that you are selecting (77.39 CFM) to attain a 38 degree dew point at these conditions.

This is for basic sizing only, please contact your compressed air professional for further assistance.



**pressure correction factors <sup>(5)</sup>**

inlet air pressure (psig)	58	72	87	100	115	130	145	160	175	190	204*	218*	232*
correction factor	0.72	0.82	0.92	1.00	1.06	1.09	1.11	1.15	1.18	1.19	1.21	1.23	1.26

**inlet temperature correction factors <sup>(5)</sup>**

inlet air temperature (°F)	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155
correction factor	1.27	1.19	1.09	1.00	0.91	0.78	0.71	0.63	0.56	0.52	0.48	0.44	0.40	0.36	0.33

**ambient temperature correction factors <sup>(5)</sup>**

ambient temperature (°F)	70	80	90	100	105	110
correction factor	1.18	1.16	1.06	1.00	0.96	0.90

## SERVICE EVENT OF THE MONTH



### Small Unit Service Call Turns into Big New Account Opportunity

**William De Luca**, *Director of Technical Service*

Our Service Department was contacted by a customer in early August during the one of hottest weeks of the summer season. Like many other companies this summer season, their compressor had shut down on high discharge temperature due to the lack of proper maintenance and the elevated ambient temperatures. This customer is a leading masonry manufacturing company in NJ that relies on compressed air to keep their plant going, especially in the high demand summer season when construction projects are in full swing.

The customer had called their existing service provider 3-days in a row with no response action, so mid-afternoon on the 4th day they reached out to Airmatic for the 1st time. The machine that was down was a smaller 25hp unit, but that had no impact on the priority of the call, and our Service Department jumped right into action!

Our Service Team immediately tracked down one of our Technicians that was +30 miles away on a 2-day PM job. The Technician was able to expeditiously get his current service job to a point of acceptable completion for the day, and then promptly headed right over to the customer that was desperately in need of service.

Within 1.5hrs of the initial incoming service call, our Technician was onsite getting to work on the downed compressor. Then just (1) hour later he had their compressor up and running and back online supporting the customer's critical production. Now that's what you call "service"!

The customer was very impressed with the immediate response from our Service Department, and the diligent efforts of our Technician who got them up and running so quickly, especially in such oppressive working conditions. The very next day the customer reached out to enroll all (17) of their plant locations (totaling +400hp worth of compressors) on full maintenance service contracts.

This customer went from 3-days of no response from their current service provider, to up and running within 2.5hrs of their initial call into Airmatic's Service Dept. This was just another day of doing our very best to assist customers and delivering great results for our organization.

## AFTERMARKET AT ITS BEST



### Importance of a Preventative Maintenance Program

**Craig Verga**, *Director of Aftermarket Sales*

With any piece of industrial equipment, it is important to understand the total costs of ownership. Another term sometimes used to describe this is the life cycle cost. It refers to the cradle to grave costs of operating the machine. This primarily falls into three categories:

1. **Capital Project:** This is typically described as equipment cost, freight, sales tax, installation, and commissioning. Everything that is required to get the system operational in the plant.
2. **Maintenance & Repair:** This is typically the routine preventative maintenance costs, repair costs, and potential overhaul costs associated with the equipment.
3. **Utility Costs:** This is typically the electrical energy to operate the system. There can also be other utility costs such as fuel or water depending on the type of equipment.

In the compressed air industry, the capital project usually accounts for about **8%** of the equipment's life cycle cost. Equipment maintenance and repair usually accounts for **7%** of these costs. The remaining **85%** of the equipment life cycle cost is typically utilities. The part that not a lot of facility managers realize however is that robust maintenance practices **promote** energy efficiency. So by investing a modest amount in your maintenance program you contribute to significantly reducing the life cycle cost of your equipment. Here's an example of:

### Fluid Analysis & Change Intervals

Fluid life is shortened by severe operating conditions. The most common form of this is thermal stress, which basically means operating conditions either lower or higher than designed. Here's two examples of how thermal stress can cause severe problems in an oil injected rotary screw air compressor:

1. Due to an air compressor being oversized, the fluid does not reach regular operating temperature. As a result, the fluid cannot "burn off" the moisture ingrained in the humid inlet air. This moisture builds up in the air compressor's fluid. The fluid is designed to perform three functions; seal, cool, and lubricate. All three functions are compromised as a result of liquid water mixed in. The result is low efficiency from poor sealing, overheating from insufficient cooling capacity, and a lack of lubrication which can lead to catastrophic failure.

A robust preventative maintenance program which includes fluid analysis will help detect either of these issues prior to seeing the effects and eventual failures. Keeping your air compressor's fluid in good operating conditions will increase energy efficiency and component longevity, guaranteed. A preventative maintenance program can prove effective not only keeping the equipment in great shape, but it can also contribute to significantly reducing the life cycle cost of your equipment. For the best results, consult with Airmatic Compressor to understand and implement the best maintenance practices. We are here to help.

## MARKET PERFORMANCE INFORMATION



### Market Performance Information

**Michael Johnson**, Director of Sales and Marketing

So, what's the latest on Industrial market conditions for Northern Jersey and Orange & Rockland County, NY?

Airmatic has experienced a strong bounce back in the service business and even broke records last month with a large jump in new customers. Pent up demand was a key driver of course, but just like luck, you have to be there to recognize the opportunity and capture it. We were there with 17 field service technicians' ready to go. Airmatic furloughed no one throughout Covid19. All employees remained employed with full pay.

Equipment sales is slowly coming back with a surge in small equipment needs.

Larger planned and budgeted purchases are being reviewed by the customer base as they get a sense of where the economy is heading. With the strong inflationary pressures including the Federal Covid19 relief bills providing support to furloughed and laid off employees, expect prices to rise on many items, industrial equipment included. Anyone considering capital equipment purchases should keep in mind that price increases are headed our way...this is the word from the industry. Purchasing sooner than later could save thousands by avoiding the estimated 3-6%, or higher increases.

With the overall economy contracting 32.9% last quarter, we are making significant gains clawing our way to pre-Covid levels, but it's going to take some time. There is a movement politically and on main street to 're-shore' manufacturing, it potentially could drive strong growth and help to make up for the big losses in the service sector due to restaurant and other related service sector business lockdowns still in place.

## SEPTEMBER SALES SPECIAL

### Atlas Copco Promo

For the month of September, Airmatic Compressor will be offering 10% off on select Atlas Copco GA30+ through GA75 +(40-100HP), GA37 through GA75 (50-100HP) range of screw compressors, and all CR reciprocating compressors.

Plus, we are providing a no-charge startup service ensuring your new piece of equipment is fully registered, warranted and running smoothly.

Contact Airmatic Compressor today to take advantage of this special offer.

