

August 2007

## COMPRESSED AIR

# BEST PRACTICES™



## Food Packaging

INDUSTRY PROFILES:  
Hitachi  
Belair Technologies  
Harris Equipment

SPECIAL REPORT:  
2007 A.I.C.D.

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# HARRIS

*Compressed Air Best Practices interviewed Gary Pollack (president) and Tony Beaman (engineering manager) of the Harris Equipment Company.*

## How has Harris Equipment evolved over the years?

Harris Equipment was founded in 1936, originally as an electric motor repair business. It soon evolved into an assembler of compressor packages, whereby bare pumps and all related components were assembled and mounted on a single common base or receiver tank. This new business soon flourished, and Harris Equipment became a reliable source for complete plant air compressor systems servicing the burgeoning metropolitan Chicago area.

Over the years, we have been authorized distributors for Kellogg American, Ingersoll Rand, Worthington, Joy, Sullair, and in the 1940s and 1950s even sold some Quincy's. While servicing the larger reciprocating-type compressors, Harris quickly recognized the opportunity for the repair, manufacture and re-tubing of shell and tube after-coolers and intercoolers. ASME code certification came soon afterward (both "U" and "UM" stamps — still in existence today in a related company). Heat exchangers, both off-the-shelf and custom-manufactured units, continue to be a very viable profit center at Harris Equipment.

In 1996, Harris Equipment purchased National Compressor, an old-line Ingersoll Rand distributor whose relationship with Ingersoll had come to an end. We had a large interest in their customer base and were very successful in maintaining and managing these relationships. We used the opportunity to successfully grow our service and parts departments and, of course, to sell complete units whenever the opportunity arose.

Over the years, our service capabilities have grown significantly, and we are totally adept at repairing all makes and models of screws, pistons, vanes and vacuum pumps. We have on our staff certified refrigeration technicians for refrigerated air dryers. We boast one of the largest parts inventories in the Midwest and possess a service fleet of modern vehicles with experienced factory-trained service technicians.

## What does Harris Equipment look like today?

Harris Equipment is housed in a 25,000-square-foot facility in a western Chicago-land suburb. The facility has two overhead cranes (10 and 15 tons and 18 feet under the hook) and all the resources required to respond to any and all of our customers' needs, whether for planned maintenance or emergency breakdowns.

We have 27 employees, most of whom are very veteran workers. We have a family atmosphere and provide a comfortable place to work. The person sweeping the floor has immediate access to the president, and we are all focused on pleasing customers. We offer 401k, medical and dental plans which are in line with the market. We actually hear from our employees that our health plan is better than most. Some people try to recruit our employees and find that their programs don't compare favorably.

## Please describe your focus on customer service.

Harris Equipment is a "WE CARE" company. Although many companies give lip service to their level of customer concern, Harris Equipment practices total customer satisfaction at all times, and every Harris Equipment employee knows and understands that our customers are the only reason we are in business.

Examples? We try to answer the phone the first time. We don't let people go on hold on the phone. A person called and asked if we could service another brand of equipment because his compressor was down. He needed a 100-horsepower rental and had called his local guy. We solved the situation before his local guy returned his phone call.

Another end user called his distributor and couldn't get through to service. He then called us and we sent a guy and fixed his air compressors. Six hours later, while the end user was signing off on the job, his distributor called to see what was going on. That same end user then called us to purchase two 25-horsepower compressors, a refrigerated air dryer and the installation.

We are very strong on this fundamental focus. How many service companies will have the president of the company go out to see the end user? Another end user needed some small components, like a replacement filter element, and his dealer sloughed him off. Our sales guy visited him immediately and took care of his needs. The same end user later purchased two 150-horsepower air compressors from our company.

We simply have zero tolerance for poor customer service.

# EQUIPMENT COMPANY

Harris Equipment has built a unique capability to rebuild machinery. The company can rebuild all types of air compressors and all types of heat exchangers. The company has a dedicated heat exchanger rebuild shop.

Specialty jobs are done, like work on Joy 119 and 112 intercoolers and aftercoolers. Heat exchangers used to cool the hydraulic systems on injection molding machines are rebuilt as well. Double-tube heat exchangers for potable water in hospitals or for the Chicago Housing Authority are also rebuilt.

The primary focus is on rebuilding all brands of air compressors. The company does its own air-end rework and provides a 5-year air-end warranty on all rebuild jobs.



Step 1: Air compressor is received to begin a rebuild job.



Step 2: Air compressor is stripped for bench rebuilding of major components.



Step 3: Air compressor is assembled from rebuilt components.



Step 4: Air compressor is fully tested and ready for paint.



Step 5: Air compressor is finished and ready for crating and shipping.

## Sullivan Palatek

"THE TEAM THAT CAN'T BE BEAT"

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Sullivan-Palatek manufactures low maintenance, high performance, **Rotary Screw Air Compressors** with a wide range of high quality Refrigerated and Regenerative Air Dryers. These Air Compressors can be filled with Sullivan-Palatek's optional Food Grade Lubricoolant federally authorized by the USDA for meat and poultry plants. The **Refrigerated Air Dryer** utilizes only environmentally friendly refrigerants, and **Regenerative Air Dryers** can cool air to -40°F.

Sullivan-Palatek's team of Air Compressors and Air Dryers will meet all your vacuum forming, filling, sealing, and strapping needs.



Regenerative  
Air Dryer



Refrigerated  
Air Dryer



100HP 500 CFM  
Air Compressor

## HARRIS EQUIPMENT COMPANY

### Is Harris Equipment in the auditing business?

We devote a substantial amount of time to educating our customers regarding the relationship between their compressed air and their electricity bill. We engage in seminars and air audits to adequately size systems and sell VFD technology ONLY in the appropriate circumstances. We are finding more and more situations in which some of our competitors recommend VFD units even in inappropriate situations. Our philosophy has always been to seek the best solution for our customers and not just to succumb to the “flavor of the day.” All our sales engineers know, recognize and understand that both fixed and variable speed units need to be placed where best suited.

### The late 1990s really tested Harris Equipment, right?

Absolutely. In 1974, Harris Equipment began selling the Sullair air compressor line on a casual basis, purchasing both compressors and parts from the then-Sullair subsidiary office. This relationship continued on a “handshake” basis until the purchase of Sullair by Sundstrand, who insisted that all Sullair distributors be placed under contract. Harris signed the contract and “legitimized” its relationship with Sullair at that time. When Sullair closed its subsidiary office, a second Sullair dealer was appointed in the greater Chicago-land area, and a dual distribution system existed until 1999. Sullair found themselves with dual distribution in two markets (Chicago-land being one of them). They decided to rationalize their distribution chain and thought that the best way to market for them was via a single distributor in each market area. We were very hopeful that we would be the surviving distributor, but Sullair opted for the second distributor in town — rather than Harris Equipment. At that point in time, we were extremely disappointed and most concerned about the viability and future prospects for our business.

Were we ever surprised! To our extreme delight, and after an extensive customer survey, we came to realize and recognize Harris’ value to our very loyal customer base. It became very clear to us and was indeed expressed to us on more than one occasion that the brand our customer recognized was the Harris Equipment brand. The Harris Equipment name was more important to them than the name of the air compressor we sold. Our customers told us that their confidence was in us, since we were the ones with whom they had the relationship and to whom they looked when they were in need. They told us to find a line of air compressors that was competitively priced, well made and reliable and that the name stamped on it was irrelevant as long as we would be around to provide parts and service and keep it running.

### What air compressor product line did you switch to?

After looking at various options, we decided to partner with Sullivan Palatek. Our reasoning was that the factory was close (about an hour from our shop), their people were extremely knowledgeable about the industry, and their products were simple and easy to work on. Their compressors were very reliable and had one of the best warranties in the industry — we believe they were the pioneers of the 5 year air-end, motor and coupling warranty.

## Compressed Air for Chicago’s

The Chicago region has a significant amount of food processing and packaging industries. Harris Equipment has extensive experience working with the multiple types of food industry facilities. Factories processing vegetables, sugar, pork, beef, poultry products, dairy products, sauces — are all present, and that’s just a few examples. There are small firms and big companies as well. We service many smaller brands of powdered sugars and others who make packaging for food (like ready-to-eat-foods).

### Compressed Air Applications

Many food processors produce their own packaging. Blow molding is quite common in dairies. Many prepared foods are presented in their own packages. These thermal-set containers can be vacuum molded pressure molded, or molded using a combination of both. Many beverage containers are blow molded at the processing plant.

Powder products are transported and packaged using compressed air. With sugars, compressed air is used to bulk transport the product in dense phase and put the powder in the bag. Another application is with food products that have compressed air emitted into it to mix and aerate it. Pastes like spaghetti sauce are an example.

A wide variety of food processing equipment consumes compressed air. This varies from meat saws to packaging equipment. Sealing knives use an air cylinder, which provides better control. Air-driven mechanical mixers are used quite often to mix and blend products.

Vegetable peeling machines utilize compressed air to prepare raw food stocks for packaging and consumption. The vegetable peelers use a jet nozzle of air to peel onions and other vegetables. A vegetable processing plant we work with uses onion peelers from two different manufacturers. The most prevalent peeling machine uses 90 psig compressed air, while the other uses 130–150 psig. Rather than pay the energy costs of operating the entire plant’s 325 horsepower at 150 psig, Harris recommended and provided two separate systems. One was a high pressure system (150 psig) and the other was a lower pressure system (100 psig). The result was an annual energy savings of \$5,400.

### Piping

Piping requirements depend upon the local inspector and his personal experience. We see clean stainless steel systems, and we also see plain old black iron pipe. Even in the meat industry, where you see USDA and FDA inspections, we see a lot of black iron. We recently visited a food manufacturer working with animal fats who had just finished putting in a brand new black iron piping system for compressed air. The problem here is that compressed air treatment systems are often inadequate and the black iron pipe will begin to rust and also potentially incubate microbiological growth.

## Food Industry

### Air Compressors

Food processing plants use both lubricated and non-lubricated air compressors. Non-lubricated air compressors make air treatment easier because the air is oil-free. Please note that oil and vapor can still be introduced into compressed air systems from the ambient air being compressed. Proper filtering and drying is still required. The difference between air compressor types is the maintenance of the filters. In general, non-lubricated compressors (below 300 horsepower) are more expensive to purchase, have shorter service lives and are not as energy-efficient as their lubricated counterparts. At higher horsepower, centrifugal air compressors are more cost-efficient and should be examined for any application.

### Moisture and Oil Removal

Compressed air in the food industry must be free from contamination and not promote biological growth. Many applications have compressed air coming into direct contact with the food.

No matter how you compress the air, the air has to be treated. The air we use for the compressor intake is from an urban area. Our air quality isn't great in Chicago, and ambient hydrocarbons are often present. Many applications use lubricated air compressors that will contain lubricants. Even with non-lubricated air compressors, the source air that is compressed contains contaminants and biological matter that must be removed. This can only be accomplished by the proper treatment of the compressed air as it discharges from the air compressor.

The air must be dried to remove moisture from the air stream. As the air leaves the air compressor, it is liquid free but its dewpoint is the same as its temperature. Especially with air-cooled air compressors, the compressed air temperature is higher than the surrounding environment. This results in immediate cooling and results in water condensing in the line. No amount of filtering will stop this. The air continues to cool as it travels away from the compressor, constantly condensing water.

Two types of air dryers are commonly used in the food industry. Refrigerated dryers are units that cool the air to just above freezing, condensing, trapping and draining the condensed water. The dehumidified compressed air (+ 40 °F pressure dewpoint) is then distributed throughout the plant. If the compressed air remains above the dewpoint temperature it reached in the dryer, the air will remain liquid-free.



*Air compressor at a large meat packer.*

However, most food processing plants have areas that are refrigerated below the dewpoint provided by the refrigerated dryer. In these applications, desiccant air dryers are used to provide pressure dewpoints to -40 °F or -100 °F.

The filtration process should be staged to reduce operating costs. The first stage should be a coarse coalescer (1 micron rated and larger) to remove the larger volumes of contaminants, while giving resistance to plugging. Tighter (smaller micron rated) filters should follow to provide better contaminant removal. The tighter the filter, the more prone it is to plugging. Two- and three-stage filter systems are recommended. Where odor or vapor control is important, activated charcoal filters are needed. The exhaust from a diesel truck engine that is pulled through the air compressor will pass through a dryer and filters because it is vapor. Only a charcoal filter will remove these vapors. Besides the truck idling in the shipping bay, there are other sources of air contamination. A careful examination of all processes in the plant must be undertaken to be sure what compressed air vapor control is needed.

For more information, please contact Mr. Anthony Beaman, Harris Equipment Corporation, Tel: 708.343.0866, email: tbeaman@harrisequipment.com.

## HARRIS EQUIPMENT COMPANY

We jumped out of the Sullivan Palatek gate with extreme enthusiasm and with a point to prove. Their products continue to be very competitively priced, extremely reliable and easy to service. Their wonderful attitude and desire for their distributors to succeed is most refreshing. Their people are always accessible, their deliveries are very reasonable (in emergency situations, they always go the extra mile), and they display a genuine interest in their customers. Being a smaller compressor manufacturer, they are able to provide access to the corporate president, who is extremely knowledgeable, highly ethical and a man of his word. Since corporations are top down institutions, these attributes seem to permeate the whole company. No wonder Sullivan Palatek has experienced such remarkable growth over the past few years! Our relationship with Sullivan Palatek, since 1999, has grown and flourished, and our partnership with them continues to be mutually profitable.

### Your firm is quite diversified. What other product lines do you sell?

We have also had a long and fruitful relationship with Donaldson Ultrafilter Air-Cel and have for many years been proud to be associated with their superior line of dryers, filters, chillers and fluid coolers. Their products have proven over the long run to be of the highest quality with zero to negligible failure rates, and they are another company who really values their distributor relationships. Donaldson's recent purchases have brought excellent management, a commitment to succeed and a desire to be the best in the industry. While their warranties are very strong, our warranty claims are extremely low, and they have always been a pleasure to deal with.

In December 2000, we purchased Mercury Pneumatics, a fluid power distributor and the largest private Watts and Dynaquip distributor in the USA. We have maintained this business and continue to carry FRLs, quick couplings, disconnects, pneumatic and electric actuated ball valves. Our inventory is so substantial that many distributors across the country purchase from us when the factory has long lead times.

In late 2003, we successfully sourced replacement Kellogg American models 321, 332, 335, 352, 452 and 462 pumps (from 5–25hp). Since the merger between Kellogg American and LeRoi, these pumps have been discontinued, and we thought it would be a good idea to take advantage of the replacement pump business — because a very large population of these units exists around the country. Over the years, we had sold several hundred units ourselves, and we established a dealer network throughout the country to offer those in need of the pump alone an opportunity to purchase it. Each year since we began this business unit, our volumes have increased incrementally.

In August 2004, we were re-appointed the exclusive representative (in Illinois, Eastern Iowa and Northern Indiana) of Tuthill Corporation/M-D Pneumatics, a well respected line of positive displacement rotary blowers. Harris Equipment believes that a distributor capable of offering a variety of related products and services to its customers is a more valuable supplier/partner to its customers and therefore more likely to maintain long-term relationships.

2007 marks our 71st year in business, and we feel very confident that we have the best people in place, excellent products to sell and the highest level of customer commitment that will take us into the next 71 years with optimism, pride and continued success.

For more information, please contact Mr. Gary Pollack or Mr. Anthony Beaman, Harris Equipment Corporation, Tel: 708.343.0866, email: [gp@harrisequipment.com](mailto:gp@harrisequipment.com), web sites: <http://www.harrisequipment.com>, <http://www.compressorparts.bz> and <http://www.mercurypneumatics.com>.



*Air compressors installed at a food packaging manufacturer.*