SULLAIR

CASE STUDY

Sullair Compressed Air Project: Envases Universales de Mexico S.A. de C.V.

Headquartered in Mexico City, Envases Universales ("Universal Packages") de Mexico S.A. de C.V. is a leader in Mexico's packaging industry, with 15 plants manufacturing packaging products made from steel, aluminum, pet, polyethylene and polycarbonate.

Recently, the company was dissatisfied with the performance of the vacuum pump systems and the compressed air systems in one of its plants.

Envases Universales (EU) took action, and replaced its systems with Sullair equipment, achieving annual energy savings of approximately $96,000 on the vacuum side and $120,000 on the compressed air side. Just as important, the company achieved better dependability and higher air quality along with the dramatic savings in energy. As the company expands, it plans to specify Sullair pumps and compressors in its future applications.

- **Industry:** Packaging products made from steel, aluminum, pet, polyethylene and polycarbonate
- **Project Location**: Guadalajara, Mexico
- **Goal**: Total System approach to air supply and demand, for increased efficiency and energy savings for their rapidly growing business
- **Sullair Solutions:** Two Sullair VS-32 200 hp vacuum pumps and three Sullair TS-32 350 hp air compressors
- **The Benefits of Sullair's Products:**
  - Reduced its equipment needs
  - Achieved dependable operation from its vacuum pump system
  - Saved $96,000 annually in energy on the vacuum pump side in equipment reduction
  - Saved $120,000 annually in energy on the compressed air side in equipment reduction
  - Eliminated water contamination by switching from liquid-ring vacuum pumps to Sullair rotary screw vacuum pumps
  - Eliminated the need for water, cooling towers and recirculating pumps in the vacuum pump system
  - Achieved high quality compressed air through the help of Sullair dryers and filters
  - Successfully expanded its operations

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Envases Universales de Mexico S.A. de C.V.
Case Study Continued.

Background:
Headquartered in Mexico City, Envases Universales is a leader in Mexico's packaging industry, bringing 30 years of quality and innovation to its design and manufacturing processes. EU serves a wide variety of industries including beverage, food, painting and the chemical industry. Its product lines span five major categories including steel, aluminum, pet, polyethylene and polycarbonate.

One of the company's leading products is the sanitary tin-plate can for food, including the "easy-open can." EU manufactures tin cans comprised of two or three pieces made in automatic and semiautomatic production lines starting with steel roll. The tin-plate can, either plain or with corrugated walls, is universally used for packaging jalapeno chili peppers, chipotle peppers, beans, mushrooms, fruits, vegetables, tomatoes, soups, powdered milk, tuna, sardines and pâté.

Over the last three years, the company's can business has expanded rapidly. Production previously at eighty million cans per month is now at one hundred fifty million cans per month. The company keeps 15 plants throughout Mexico and Central America operating around the clock. And as any experienced plant engineer knows, increased production creates new challenges—perhaps "happy" or "feliz" challenges, but challenges, nonetheless.

Challenge #1:
Envases Universales contacted their Sullair distributor, Compresores Maqpower of Guadalajara, because they were having problems with both their compressed air and vacuum systems in one of their plants. Both systems were using equipment manufactured by Sullair competitors.

Jacobo Cruz, a sales engineer for Compresores Maqpower, went to work. He visited the plant, audited the systems and applications and discovered multiple problems, including a profound waste of energy.

On the vacuum side, EU was using four liquid-ring vacuum pumps, yet the plant could not achieve a high enough pressure to operate correctly. The units were running at 14 to 15 inches of mercury, but required a pressure of 17 to 20 inches for optimal operation. In addition, incoming water was contaminating the vacuum pumps and destroying their efficiency, a serious concern because a major expansion plan was on the horizon at the plant.

The solution:
Sullair Vacuum Pump Saves $96,000 Annually in Energy
A Sullair air-cooled rotary screw vacuum pump, model VS-32 200 hp, totally eliminated the need for water, cooling towers and recirculating pumps. EU agreed and was so impressed by the efficiency and operation of the pump that they bought a second pump for backup.

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According to Brian Parks, Sullair's Area Manager for Mexico, "EU had been running four vacuum pumps for a total of 280 horsepower. We replaced those pumps with one Sullair 200 hp pump, saving 80 hp and realizing approximately $96,000 in energy savings per year for EU. In addition, the new Sullair pump could modulate, further reducing energy consumption during slow periods of production. The liquid rings couldn't do that. EU is thrilled that one machine is all that's required to operate the entire plant, even though their production has almost doubled since installation of the new Sullair pump," says Parks.

Challenge #2:
The compressed air side posed other challenges. EU was running four 350 hp oil-free machines from a competitor. As a result, the plant was operating at a range of 75 to 85 psig, which slowed down their processes. They often had to rely on an additional backup machine to get sufficient pressure. In addition, EU's plant engineering manager was concerned about both the high cost of replacing the oil-free air ends and the high costs of maintenance on the existing compressors.

The solution:
Sullair Compressors Save $120,000 Annually in Energy
The plant engineering manager suggested three Sullair two-stage model TS-32 350 hp air compressor units. The plant engineer was impressed to learn that he could get almost three hundred additional cfm per machine using the same horsepower motor as on the former equipment. He also liked Sullair's five-year warranty on the compressor, which included the air end, motor, coolers and receiver, explaining that five years was his normal life expectancy on the old oil-free compressor units.

Envases was impressed with the TS-32 air compressor and Sullair's 5 year warranty.

Again, the energy savings were substantial. EU gained energy savings of approximately $120,000 per year. EU liked the Sullair units so much, that they later purchased a fourth unit for backup.

Sullair SR Dryers and Filters Deliver High Quality Air
The plant engineering manager for EU was also concerned with achieving contaminant-free compressed air for the plant, free of oil, particulates or water. The answer was a Sullair refrigerated dryer for each compressor with both a pre-filter to remove particulate and a coalescing filter to remove oil. This solution would achieve air quality as good as, or better than, air coming from the old oil-free compressors.

The Results:
When Brian Parks visited EU after the equipment was in place, the plant engineering manager expressed delight that the new Sullair compressors, of the same horsepower as the old compressors, could keep up with the plant's greatly expanded production. EU was getting the capacity and high air quality that it needed. It was on its way to realizing a $216,000 reduction in energy cost. The equipment had proved reliable.

EU recently built a new plant in Guatemala and two Sullair vacuum pumps and three Sullair compressors were specified for the facility. EU is duplicating its success. In fact, the company is so satisfied with its Sullair equipment and Sullair's support that it has vowed to stick with Sullair for its future expansion plants.

You might say EU is one "universally" satisfied Sullair customer.

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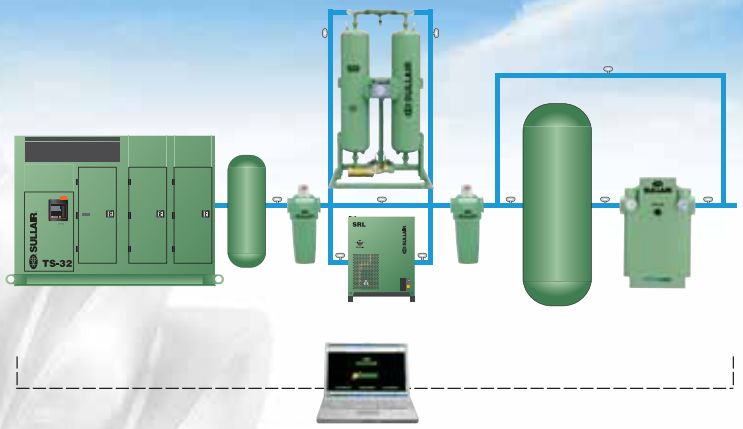
Benefits of Sullair's Total System Approach:

- Improved efficiency of air supply system
- Increased compressed air storage capacity
- Intelligent flow control to deal with demand fluctuations
- Automated control on the supply side
- Improved reliability
- Significant energy savings
- Consistent supply of air through all the peaks and valleys of demand

To achieve a Total System, Sullair must provide a variety of products for different applications.



The Sullair System here includes: a Sullair compressor, "wet" receiver, Sullair pre-filter, your choice of a Sullair Desiccant or Refrigerated Air Dryer, Sullair after-filter, "dry" receiver, and Sullair Flow Controller. Monitoring the entire system is Sullair's PC-based eConnect™.

Sullair is one of the world's leading compressor manufacturers, and has been an industry leader and innovator since 1965. With subsidiaries in France, China and Australia, Sullair is also a globally recognized manufacturer of compressed air treatment products, vacuum systems, portable air compressors and contractors' air tools.

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Sullair Corporation
3700 East Michigan Boulevard, Michigan City, IN 46360
Telephone: 1-800-SULLAIR or 1-219-879-5451
www.sullair.com