



CASE STUDY

DATA-DRIVEN COMPRESSED AIR OPTIMISATION FOR LAMBERS-SEGHERS



Customer

Lambers-Seghers is a leading Belgian manufacturer of high-quality animal feed.

To support increasing production volumes, the company commissioned an additional production line requiring significantly more compressed air for conveying and mixing processes.

The compressor room is located in a highly dust-prone environment with very limited installation space, making this project particularly challenging.

The Challenge

The existing compressed air installation consisted of:

- 2 × CompAir L22RS
- 1 × CompAir L37RS

Using **iConn**, CompAir's cloud-based monitoring platform, together with the **SmartAir Master** controller, LibAir continuously monitored the performance of the installation.

The collected data revealed several critical issues:

- All compressors were operating close to their maximum capacity.
- The compressors frequently reached excessively high operating temperatures.
- The increased compressed air demand coincided exactly with the commissioning of the new production line and vacuum conveying system.
- The existing installation no longer provided sufficient capacity or operational redundancy.

Initially, the customer planned to relocate one of the existing L22RS compressors to another production site and replace it with another L37RS.

However, the operational data suggested that this would not be the optimal long-term solution.



Data-Driven Engineering

Rather than recommending a larger compressor based on assumptions, LibAir analysed the customer's real operating data.

Using iConn and SmartAir Master, engineers created a complete simulation of several alternative compressor configurations, evaluating:

- Actual compressed air demand
- Energy consumption
- Backup capacity during maintenance or breakdowns
- Long-term operating costs
- Future production growth

The simulations clearly demonstrated that simply replacing an existing compressor would leave the installation without sufficient redundancy.

In addition, routine maintenance or unexpected failures would require the regular rental of mobile compressors, resulting in unnecessary operating costs and production risks.



Fast Response Prevented Production Downtime

Before the customer had reached a final investment decision, the live monitoring system showed that the installation had reached its operational limit.

On a Monday evening, LibAir warned the customer that without immediate action, production failures were likely during the night.

At **7:00 PM**, the customer approved the installation of a temporary mobile compressor.

By **12:15 AM**, LibAir technicians had:

- Installed and commissioned the mobile compressor
- Restored sufficient compressed air capacity
- Purged and cleaned all three stationary compressors to prevent thermal overload

The following day, the SmartAir Master confirmed the prediction.

Compressed air consumption had increased to approximately **15 m³/min**, validating LibAir's simulation and confirming that a larger compressor was required.



The Solution

Based on the measured demand profile, the customer decided to expand the existing installation by adding a **CompAir L45FCRS**.

The compressed air station now consists of:

- 2 × CompAir L22RS
- 1 × CompAir L37RS
- **1 × CompAir L45FCRS**

This solution provides:

- Sufficient capacity for the new production line
- Full operational redundancy
- Improved energy efficiency
- Reduced load on the existing compressors
- A future-proof compressed air supply

As further production expansion is expected, the electrical infrastructure was already designed for a future upgrade to an L55FCRS, allowing additional capacity without major installation work.



Adding the highly efficient CompAir L45FCRS not only increased compressed air capacity but also significantly improved the overall efficiency of the installation.



Installation Challenges

The compressor room offered very limited space and was exposed to a highly dusty production environment.

LibAir initially recommended installing the new compressor in a separate location.

The customer, however, preferred to position the new L45FCRS directly next to the existing L37RS.

Thanks to the compact footprint of the L45FCRS, this customer requirement could be fulfilled successfully.

To ensure reliable operation, LibAir also installed:

- A dedicated hot-air extraction duct
- A temperature-controlled auxiliary ventilation fan
- An optimised ventilation solution for the compressor room

This system automatically removes hot air whenever room temperature increases, ensuring stable operating conditions and protecting the equipment.



Business Impact

Adding the highly efficient **CompAir L45FCRS** not only increased compressed air capacity but also significantly improved the overall efficiency of the installation.

Previously, the existing L22RS compressors were operating continuously at approximately **80% load** to satisfy production demand.

The new L45FCRS now carries a substantial part of the base load while delivering considerably better specific power consumption.

- Existing compressors: approximately **6.85 kW/m³/min**
- CompAir L45FCRS: approximately **5.70 kW/m³/min**

As a result, Lambers-Seghers benefits from lower electricity consumption, lower operating costs and reduced CO₂ emissions.

Key Results: Energy & Cost Savings

Annual Savings

- ▶ Approximately **55,000 kWh** lower electricity consumption
- ▶ Approximately **€8,280** lower annual energy costs (based on 8,000 operating hours and €0.15/kWh)
- ▶ Approximately **12.7 tonnes of CO₂ emissions avoided per year***.

Over the Expected 10-Year Lifetime

- ▶ **550,000 kWh** electricity saved
- ▶ **€82,800** energy cost savings
- ▶ **126 tonnes of CO₂ emissions avoided**

*Calculated using an average Belgian electricity emission factor of **0.23 kg CO₂/kWh**.

Additional Benefits

- Full compressed air system redundancy restored
- Higher operational reliability
- Lower thermal stress on the existing compressors
- Extended compressor lifetime
- No rental compressor costs during maintenance or emergency repairs
- Equalised operating hours across the compressor fleet
- Future-ready installation prepared for further production growth

The Result

This project demonstrates how digital monitoring and data-driven engineering can transform a potential production bottleneck into a long-term competitive advantage.

Instead of simply adding another compressor, LibAir analysed real operating data, simulated multiple scenarios and developed the most efficient and reliable solution for the customer's current and future requirements.

TODAY, LAMBERS-SEGHERS BENEFITS FROM:

- Reliable compressed air capacity for its expanded production
- Full operational redundancy
- Improved energy efficiency
- Reduced operating costs
- Longer equipment lifetime
- Greater production reliability
- Approximately **€82,800** in energy cost savings over the compressor's lifetime
- **550,000 kWh** lower electricity consumption
- Approximately **126 tonnes of avoided CO₂ emissions**

This project is an excellent example of how **intelligent monitoring, engineering expertise and the right compressor technology** can deliver **measurable operational, financial and environmental benefits** for industrial manufacturers.