

## Lennox Aftermarket parts



- **Daunting supply chain with multi-echelon distribution network**
- **Reliably modeled variable demand and extreme seasonality**
- **Improved inventory and service across end-to-end supply chain**

### Project & Objectives

Lennox Residential Heating and Cooling faced the challenge of managing an ambitious North American distribution network enlargement while simultaneously transitioning to a hub-and-spoke model with 55 shipping and 161 selling locations.

Rebecca Roberts, Director of Supply Chain Planning, realized that the business scenario called for a flexible, self-adjusting system with comprehensive statistical forecasting that could set stocking targets at an SKU-Location level based on demand variability, service levels, costs and other parameters.

Their goal was straightforward enough: improve service levels and optimize inventories to reallocate working capital and balance inventory allocation in the changing network. But the supply chain environment was daunting. It included:

- A multi-echelon distribution network with more than 80 locations, that was about to grow by 250%
- 450,000 SKU-Locations
- Tens of millions of dollars tied up in inventories, including a “long tail” (98% of SKUs responsible for 62% of revenues) and many slow movers with classic lumpy demand
- Many new product introductions: in one recent year nearly 50% of the finished goods product line was replaced with new models
- High product availability targets: 75% of orders delivered next day and 20% of sales to installers and contractors who need ‘same day’ pickup
- Assured serviceability on finished goods for 15+ years
- Highly variable independent demand, driven by external factors that are not known and difficult to model (i.e. weather, macro-economic)
- Highly seasonal demand (AC and heating), with little retail buffer

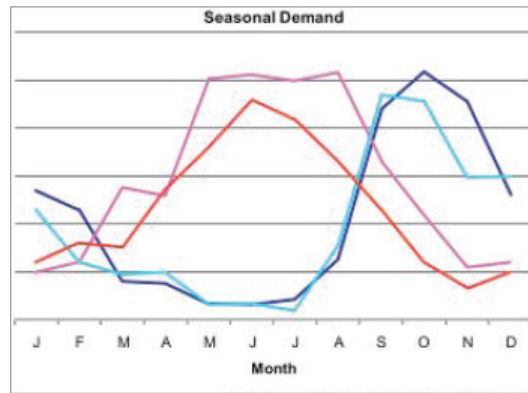
Lennox International is a leading provider of climate control solutions for heating, air conditioning (HVAC) and refrigeration markets around the world. The Residential Heating and Cooling business unit represents about 42% of 5 billion USD total company sales.

*“We selected SO99+ because of its unique abilities to both manage seasonal finished goods and scale to our aftermarket parts network.”*

- **Chris Debergh**  
VP, Supply Chain  
Logistics  
Lennox

The chart at the right shows examples of two years demand of two highly seasonal products (one heating, the other cooling)

Zero Demand



### ...Day to Day

Lennox implemented ToolsGroup’s SO99+ solution to dynamically rationalize the inventory mix and create an operational plan that sets inventory stocking targets and balances service levels with inventory cost. The system allows Lennox to reliably model both seasonality and variable demand patterns. Network inventories are rebalanced by creating a dynamic optimal mix of inventory and service levels down to the store level. Lennox can also set global service policies by group or category and then the system automatically calculates individualized service levels for each SKU-Location.

The solution is integrated to Lennox’s SAP APO platform. Deloitte Consulting provided integration services and addressed key strategy, technology, and change management issues. Key capabilities include:

- Manages deployment inventory levels by setting SAP reorder points and minimum order quantities by SKU-Location
- Drives MRP purchasing/manufacturing processes with forecasts and safety stocking targets at the “top of the network”
- Models and plans pre-builds in a highly seasonal environment
- Pre-deployment planning

The process includes:

- Weekly reorder point, safety stock & order quantity updates
- Weekly requirements forecasts for purchasing/manufacturing
- New store/location inventory build
- Weekly demand sensing and exception management
- Monthly inventory planning for S&OP
- Quarterly service policy adjustment in conjunction with sales

Lennox also uses machine learning to reliably model highly variable seasonal demand patterns. It sifts through hundreds of thousands of SKU-Locations to identify “clusters” of those with similar seasonality profiles. These enhanced seasonality clusters substantially increase peak period forecast accuracy.

### Results & Benefits

Improved service levels by 16% while simultaneously increasing inventory turns by 25%. Supported significant increases in sales and market share growth.

**About ToolsGroup**  
ToolsGroup is an innovation partner for companies who want to achieve highly accurate forecasts, outstanding customer-service levels and less global inventory. An expert in “Powerfully Simple” supply chain planning, we offer software that analyzes demand history across multiple dimensions so you can achieve the most reliable forecast and inventory targets for mastering demand volatility and delivering service level excellence.

Our innovative and advanced technologies enable you to improve and automate your planning processes. Our solutions span key supply chain planning areas such as Demand Planning, Demand Sensing, Promotion Forecasting and Inventory Optimization.

We have more than 250 customers worldwide and one of the highest customer retention rates in our industry. Our experience includes manufacturers, wholesale distributors and retailers in a wide range of demand and inventory driven industries.

Please visit our website at [www.toolsgroup.com](http://www.toolsgroup.com) and click on “About Us” for a list of our offices throughout the world.

