

CUSTOMER PROFILES

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POWER LINE

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#21

BATCH OR ONE-PIECE FLOW?

THE BIG QUESTION IN MANUFACTURING TODAY



POWER LINE is a publication of **Prima Power**,
a brand of Prima Industrie Group.

THE POWER TO CHOOSE

WHEN SUCCESS LIES IN MASTERING THE RIGHT MANUFACTURING METHOD, EVERY TIME



Giovanni Negri
CEO Prima Industrie

In manufacturing, every decision counts. Few are as strategic as the **choice between batch production and one-piece flow**. For decades, batch has represented efficiency and scale, while one-piece flow has stood for flexibility and speed. Two models, two philosophies, often portrayed as opposites. Yet, as Marco Bettucci, Professor at SDA Bocconi School of Management, reminds us in our cover story, **“there’s no one-size-fits-all answer. The most suitable model depends on the product and the industry.”**

This issue of Power Line is dedicated to **exploring the dilemma “Batch or One-Piece Flow?”**, in **sheet metal manufacturing**. In our cover story, we discover how market pressures, shorter delivery times, and fragmented demand are pushing many companies toward smaller batches and greater agility. At the same time, batch production continues to play a vital role, ensuring competitiveness in high-volume contexts.

At Prima Power, **we believe the future isn’t about choosing one approach over another but mastering both**. Our flexible manufacturing solutions and advanced software **bridge productivity and flexibility**, enabling batch production when scale matters and one-piece flow when responsiveness is key. **Agility itself becomes a strategy**. This is our vision: to **Evolve by integration**, connecting every element of manufacturing into one seamless, dynamic flow.

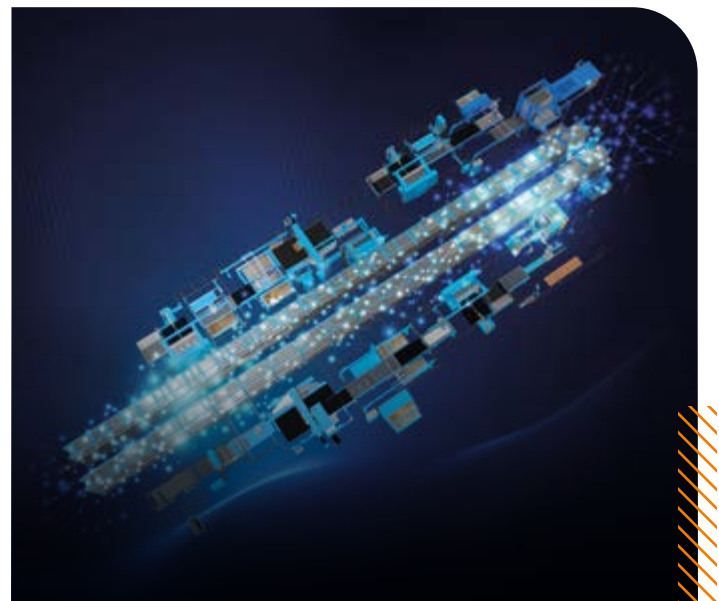
In our **Sheet Metal Inspirations** column, our customer MaBo shows us how creativity and precision can make metal truly “fly” in the realm of architecture. And our **customer stories** – from Workspart in the U.S. to Stansefabrikken in Lithuania, to Keydak in China, and Alfa3 in the Czech Republic – demonstrate how forward-thinking **companies are reshaping production to gain efficiency, scalability, and adaptability**.

Together, these voices illustrate a clear message: success in manufacturing today is not about deciding between batch or one-piece flow, but about **having the power to choose, at every moment, which path is right. This is what we call agility**.

/// **Success in manufacturing today is not about deciding between batch or one-piece flow, but about having the power to choose, at every moment, which path is right. This is what we call agility.** ///

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COVER STORY

BATCH OR ONE-PIECE FLOW?

THE BIG QUESTION IN MANUFACTURING TODAY



INTERVIEW WITH MARCO BETTUCCI,
PROFESSOR AT SDA BOCCONI SCHOOL OF MANAGEMENT



MARCO BETTUCCI

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One of the most crucial challenges in today's manufacturing industry is **finding the right balance between production efficiency and adaptability to market changes**. On the one hand, **batch production** has long been synonymous with optimization and high volumes. On the other, **one-piece flow** offers flexibility and a faster response to evolving needs. Two models, two philosophies, often seen as opposites. But is that really the case? **We spoke with Marco Bettucci, Professor at SDA Bocconi School of Management and expert in Operations and Supply Chain Management**, to better understand the features and specific advantages of these two approaches in modern manufacturing.

What are the main characteristics and differences between batch production and one-piece flow?


They are two distinct ways of managing production flows. Batch production means making multiple parts at once, in a single lot, while one-piece flow involves producing one part at a time. **Batch production brings clear productivity benefits**, as it reduces retooling operations and setup times. On the downside, **it generally requires longer lead times, higher warehousing costs, and more space within the plant** to move products efficiently. **One-piece flow**, by contrast, **is more flexible and enables much shorter lead times**. However, it's often seen as **more expensive and less productive**, especially when switching from one part to another takes too long. That's the real challenge: **minimizing changeover time to make the approach viable**.

In between the two, there's no one-size-fits-all answer. **The most suitable model depends on the product and the industry**. Still, the overall trend in recent years is clearly moving toward smaller batches, to gain greater flexibility, agility and responsiveness.

What factors are pushing companies to reduce batch sizes?

Sometimes it's a strategic choice. But in many cases, it's the market that drives the change. **Customers now want smaller quantities and faster delivery times**, which naturally leads to reducing batch sizes. Many companies today produce the same, or even higher volumes compared to the past, but the orders they receive are more fragmented. As a result, **businesses must adapt** by investing in technology and optimizing their production flows **to become more flexible**.

There's no one-size-fits-all answer. The most suitable model depends on the product and the industry.



Customers now want smaller quantities and faster delivery times, businesses must adapt their production flows to become more flexible.

How can a company tell when it's time to change its production model?

The first sign is usually a shift in market demand. When orders become smaller and more frequent, **the company needs to ask itself how to reduce batch sizes without losing efficiency.** That transition requires rethinking production flows: material handling and supply need to be reorganized to fit a single-piece pace. Retooling times become critical and must be minimized to avoid additional costs.

Does this shift affect the skills required from workers?

Not necessarily in terms of headcount, but definitely in terms of flexibility. **With one-piece flow, operators need to be able to manage a wider variety of products.** It's something many forward-thinking companies are already working on, even with batch production. Training multi-skilled personnel who can handle different tasks is a plus for the company, regardless of the production model.

Can batch production and one-piece flow coexist within the same plant?

Absolutely, and that's often the case. **It makes perfect sense to produce some products in batches and others using one-piece flow,** even within the same department or on the same machine, if batch sizes are small. The key is having equipment that allows for quick changeovers.

What role do automation and digitalization play in managing these production models?

They're crucial for both models. **Automation today is far more advanced than in the past.** Robots are now able to detect whether a part differs from the previous one and that's especially valuable in one-piece flow. **Digitalization is even more essential** in this case, because you're dealing with single parts. Information needs to circulate quickly across production, quality, logistics and other departments. Here, real-time traceability becomes a key factor.





Recent global events, like pandemics, conflicts, and international tensions, have put supply chains worldwide under pressure. Has one model proved to be more resilient?

In recent years, the importance of flexibility and agility has become even more apparent. **Working with smaller batches helps companies respond to changes more effectively and reduce risk.** Of course, flexibility comes at a cost. But many businesses have started prioritizing it over maximum productivity. **It's really about adaptability.** You don't always need to go all the way to one piece, but even reducing batch sizes from 10,000 to 1,000 can make a big difference in responding to market shifts.

What advice would you give to an OEM or a job shop thinking of reviewing their production flows?

Do it carefully and with consistency. **Reducing batch sizes only makes sense if it's economically sustainable.** If the change increases your costs by 30% and the market does not allow that kind of increase, it's probably not the right move. **It's important to invest in technology and rethink logistics flows.** The goal is to maintain high performance, even with smaller volumes.

Do you think batch production is going to disappear in the future?

No, not at all. **Batch production will continue to coexist with one-piece flow, even within the same company or in the same department.** Some products are better suited to batch production, others to single-piece flow. Technology is evolving to support both models, depending on the company's needs. **What really matters is that the production model aligns with the company's overall strategy.**



It makes perfect sense to produce some products in batches and others using one-piece flow, even within the same department or on the same machine, if batch sizes are small. The key is having equipment that allows for quick changeovers.



HOW TO SOLVE THE “BATCH OR ONE-PIECE” DILEMMA

PRIMA POWER'S FMS BRIDGE THE GAP BETWEEN **PRODUCTIVITY AND FLEXIBILITY**

FLEXIBLE MANUFACTURING SYSTEMS ENABLE FLEXIBLE PRODUCTIVITY, MASTERING BOTH BATCH SPEED WITH ONE-PIECE AGILITY. ADVANCED AUTOMATION AND MODULAR SOFTWARE LET MANUFACTURERS SWITCH METHODS EFFORTLESSLY FOR HIGH OUTPUT AND ADAPTABILITY WITHOUT COMPROMISE.

In today's manufacturing, the choice between batch production and one-piece flow is critical. Batch production offers economies of scale and reduced setup times, while one-piece flow enables faster delivery, lower WIP, and quicker defect detection.

Yet both have limitations: batch risks excess inventory and late defect discovery; one-piece flow can be costly to scale.

This is where **Prima Power's Flexible Manufacturing Systems (FMS)** make the difference. By integrating advanced automation, machines, robotics, and software into modular layouts, our FMS **bridge the gap between high output and agile responsiveness**, and offer:

- **Machine flexibility** to switch operations or products quickly
- **Flow flexibility** to adapt production paths as needs change.

Prima Power systems support batch mode for high-volume, repetitive production, ensuring cost-effective efficiency. At the same time, they enable a seamless shift to one-piece flow when customization, variability, or rapid delivery are required.

Our FMS act as the “backbone” of the factory, connecting all technologies into a seamless flow that adapts dynamically to the product and the specific manufacturing context.

Thanks to advanced integrated software and modular components, our solutions ensure:

- **Dynamic choice of the best production method**, based on product type, volumes, customization, or delivery needs
- **Fast reconfiguration** without long downtimes
- **Simultaneous optimization of productivity and flexibility**, eliminating the conventional trade-off
- **Scalability and adaptability**, allowing production to ramp up or down and new products to be introduced with ease
- **Quality and consistency** across different products and batch sizes
- **Resource efficiency** with reduced waste, optimized material usage, and lower operating costs.

In short, with Prima Power's flexible manufacturing solutions, we can finally resolve the long-standing question “batch or one-piece?”. By **mastering both**, it becomes **simply a matter of choosing the best approach whenever it is needed**.

/// Our Flexible Manufacturing Systems act as the “backbone” of the **factory**, connecting all technologies into a seamless flow that adapts dynamically to the product and the specific manufacturing context. ///



MAKING METAL FLY: THE ARCHITECTURAL VISION OF MABO

AN INTERVIEW WITH STEFANO PINALLI, PROJECT MANAGER AT MABO SRL

MABO, WHICH BEGAN AS A CONVENTIONAL METALWORKING FIRM IN TURIN IN 1970, HAS GROWN TO BECOME A TRUSTED NAME IN ARCHITECTURAL METALWORK IN ITALY AND ABROAD.

Besides its industrial business, the company uses metal to create **elegant interior design furnishings and custom staircases that balance function with visual appeal.**

We spoke with Project Manager Stefano Pinalli about MaBo's journey, its most fascinating challenges and the irreplaceable role of precision in their craft.

MaBo started as a traditional metal workshop. How has the company evolved over the decades?

MaBo was founded in the 1970s by the father of Paolo Bosca, the company's current owner and president. Over time, especially after Paolo joined, the company shifted toward more refined applications, starting with machine tool enclosures that gradually required not just safety, but also aesthetic appeal.

In 2009, we began developing our own products, starting with a bookshelf for a local furniture store. From there, we began

exhibiting our bookshelves and other pieces of furniture every year at the **Turin Book Fair**. That's when the design world slowly opened up to us. Instead of focusing on mass production, we moved toward **custom projects**, and today we create bespoke staircases and metal furnishings for retail, office, and high-end hospitality spaces.

Your production is 100% Italian. Why is that important to you?

Clients abroad often ask if we outsource to China. Our answer is always: no. **Everything is made in Italy**, with some treatments handled by trusted suppliers in Piemonte or Brianza. Even if it costs a bit more, we believe in the value of Italian craftsmanship. It's become **one of our strengths**.

You mentioned that stairs play a big role in MaBo's work. How does a staircase project typically take shape?

We usually receive a request from an architect or contractor. After an initial estimate, if the client is interested, we start a preliminary design. This includes structural calculations, done by our structural architect. It's a **back-and-forth process with the client to align expectations with what is technically possible.**

Once the preliminary design is approved, we create a 3D drawing and move into production: laser cutting, machining, pre-assembly in-house when possible, and finally installation.

Are there any recent staircase projects that really stand out?

Absolutely. One of the most complex was for a private client in Paris: a wooden staircase with glass structural elements. **Normally, the structure is metal or wood with glass treads: this time, it was the opposite.** The entire structure was made possible by two reinforced landings that anchor the glass railings, while all hidden supports were made of metal and steel. The result was a staircase with a clean, floating effect: technically demanding, but incredibly satisfying to complete.

A two-level staircase with black sheet metal covering the columns and balcony. Created by MaBo for the Milan showroom of B&B Italia, a world leader in furniture. Designed by Locatelli & Partners.





Paolo Bosca, owner and president of MaBo Srl, and **Stefano Pinalli**, Project Manager at MaBo.

Another major project was for the luxury furniture brand Roche Bobois: **a four-meter-wide staircase made entirely of sheet metal, assembled with mechanical joints only: no welding.** Every sheet was curved, milled, and joined using hidden fasteners we developed and certified with our structural architect.

From a technical standpoint, what are the biggest challenges in custom staircase projects?

Every staircase is unique, and every site presents different challenges. As I mentioned, the preliminary phase is critical. But once we move into production, precision becomes everything, especially when it comes to cutting. Imagine transporting a staircase from Italy to France: once we're on site, there's no margin for error. One example is a three-floor helical staircase we installed in Switzerland. The building's carpentry hadn't been completed yet, so **we had to work "offline," without being able to verify the structure on site.** Despite that, when we installed the staircase, the deviation between our structure and the finished carpentry was just 5 millimeters, on a 9-meter-high staircase! **That's when precision really counts.**

What role does technology play in ensuring that level of precision?

High-performance machinery is essential. For example, in the Roche Bobois project, many metal elements were fully exposed. This required flawless laser cutting. We often use the sheets exactly as they come from the the cutting machine, so **the finish has to be perfect from the start.** Any imperfection means added time and cost for rework, which we aim to avoid.

How did you come to work with Prima Power?

We chose Prima Power for the quality of their machines and service. We've built a **long-standing, direct, and collaborative partnership** with them. We also appreciated the fact that they're local, which aligns with our philosophy of keeping our production process Italian.

What are some of the materials you work with, and how do trends influence your choices?

We work with a variety of metals: **steel, stainless steel, corten, brass for details, and increasingly aluminum,** which we're testing for structural use. Trends are cyclical: corten has had its moment, now stainless steel is making a comeback. Each metal has its own features and challenges.

For example, we're currently designing a staircase entirely in stainless steel, which is tricky: unlike painted metal, where imperfections can be touched up, with stainless there's no margin for error. **These are the nuances that make metalworking a real craft.**

Looking ahead, where do you see metalworking going in the world of architecture?

There's still so much potential. Trends evolve, and so do materials. But metal's versatility is unmatched. I'm sure we'll **keep finding new ways to surprise our clients, and ourselves.**



The "Riflessi" collection by MaBo: an armchair, a bench, and a clothes rack made of laser-cut, mirror-polished stainless steel. Designed by Pepita Design.

COMPANY HIGHLIGHTS

MABO

LOCATION: Turin, Italy

FOUNDED: 1970

FIELD OF BUSINESS: Design and construction of architectural metalwork

PRIMA POWER MACHINERY

■ **Laser Genius+ 2040**

■ **Laser Genius 1530**

BRINGING MANUFACTURING HOME

WORKSPORT RESHORES ITS U.S. PRODUCTION WITH PRIMA POWER'S PSBB LINE

WITH FULL CONTROL OF ITS U.S. FACILITY, WORKSPORT HAS BOOSTED EFFICIENCY, IMPROVED PRODUCT QUALITY, AND EXPANDED ITS ABILITY TO BUILD ADVANCED TRUCK COVERS AND CLEAN ENERGY SOLUTIONS AT SCALE.

In an era where nearshoring is more than a trend—it's a necessity—Workspport Ltd. is proving that American manufacturing innovation is alive and well. Known for its disruptive approach to truck bed cover systems, tonneau covers, and its energy-forward products like SOLIS and COR, Workspport recently took a bold step: bringing manufacturing in-house.

BRINGING MANUFACTURING HOME

Based in Buffalo, New York, Workspport builds smart solutions for truck owners, from bed covers to portable solar systems. **After initially planning to scale production overseas, the company made a pivotal decision:** to bring manufacturing in-house and take full ownership of how its products are made. **The shift wasn't just about cost—it was about control, quality, speed, and vision.** And that vision started with a challenge: how to produce better covers, closer to home, and with long-term scalability in mind. *"Originally, we were going to grow manufacturing in China,"* said Chris Bernaudo, COO. *"Then we raised triple what we expected, and everything changed. We shut the curtains, built a new type of company, and brought it all home."*

The Workspport SOLIS solar folding tonneau cover uses collected solar energy to charge the battery system.





The Prima Power PSBB line enables Workspport to manage its manufacturing processes flexibly. This is particularly useful since the company has over 90 products that require custom lengths.

WHY WORKSPORT TURNED TO PRIMA POWER

The company’s West Seneca, NY facility wasn’t just built—it was reimagined from the ground up. **“We wanted to automate as much as possible from day one,”** Bernaudo explained. **“Not to eliminate people, but to eliminate human error. It’s about consistency and quality.”**

That philosophy led them to Prima Power’s PSBB line. “We weren’t looking for manual benders. **We had a design in mind and were looking for the best solution,**” said Bernaudo. “Other suppliers offered cells—we needed a full line. **Prima Power was the only one that came close.**”

Beyond technical capability, **support played a major role.** “Prima Power’s responsiveness and service really sealed it for us,” said Fred Winter, the lead PSBB operator. **“Any time we’ve had issues, the team is right there with us.** The support and training have been top-notch.”

INTEGRATION THAT DELIVERS RESULTS

Installed and operational within a year, **the PSBB line now acts as the “heartbeat” of the facility.** “We can run coil to panel in under five minutes,” said Winter. **“It’s incredibly efficient—especially with over 90 different products requiring custom lengths.”**

That speed translates into strategic agility. “Our operation is basically built around the Prima Power cycle time,” Winter added. **“It sets the pace for everything.”**

“We wanted to automate as much as possible from day one, not to eliminate people, but to eliminate human error.”

COMPANY HIGHLIGHTS

WORKSPORT

LOCATION: Buffalo, New York

FOUNDED: 2011

FIELD OF BUSINESS: Design and manufacturing of truck accessories and portable clean energy systems.

PRIMA POWER MACHINERY

PSBB line including:

- Shear Genius punch-shear machine
- Express Bender EBe panel bender
- Fast Loading FL Storage
- Connection to 3rd party coil system

Shear Genius offers the highest productivity thanks to its integrated punching and shearing capabilities.



The integration hasn't just improved throughput. **Workspport has reduced material waste, enhanced quality, and gained confidence in repeatability.** "We even modified some parts of the machine to handle our delicate painted material," Winter said. "Now it runs clean, consistently—even overnight."

EMPOWERING THE WORKFORCE THROUGH TECHNOLOGY

Despite being built around automation, Workspport's culture is anything but cold. "The goal was never to replace people," said Bernaudo. "Automation frees them to focus on higher-value tasks—and that builds pride."

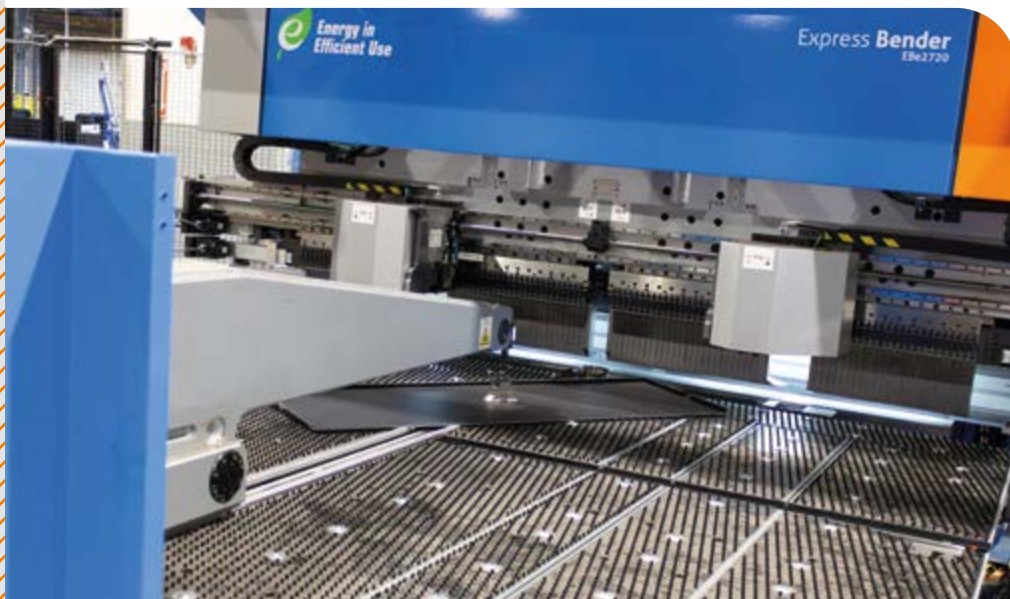
Winter, who joined the company when it had just four employees, agrees: "This machine made me love sheet metal. We've got the Ferrari of machines here."

From training to troubleshooting, the Prima Power system has empowered the team to learn and grow. "We've dealt with every kind of issue—sensor problems, encoder cables, you name it," said Winter. "Now we feel confident. The Prima Power team helped us learn and adapt every step of the way."

BUILT IN AMERICA, READY FOR ANYWHERE

With operations growing and hiring ramping up (from 60 to over 120 by year-end), Workspport is executing a clear vision. "We're growing aggressively, but not impatiently," said Bernaudo. "We're doing it step by step."

/// Our operation is basically built around the Prima Power cycle time, it sets the pace for everything. ///



Thanks to the angle correction database and servo-electric technology, the Express Bender provides excellent bending quality.



/// This machine made me love sheet metal. We've got the Ferrari of machines here. ///

That includes elevating truck bed covers to a new standard. **"Our competitors have lowered quality. We saw that and said, 'We can do better,'"** Bernaudo explained. WorkSport's products are built with the end user in mind—from thicker aluminum panels to smart, functional designs that hold up over time.

And it's all made in The United States of America—something investors, customers, and employees can rally around. *"This facility used to be a beer distribution center,"* said Bernaudo. *"Now it's where we make the most advanced truck bed covers and power systems in the market."*



WorkSport offers premium, made-in-the-USA tonneau covers for pickup trucks.

Different materials can be made available quickly thanks to FL (Fast Loading) Storage.

THE FUTURE? COVERED.

WorkSport isn't stopping at covers. **"We're building a full power ecosystem,"** Bernaudo said. **"The truck cover is just the start. Our solar-integrated cover and modular battery system open the door to adventure, independence, and energy freedom."**

From off-grid film crews to weekend overlanders, **WorkSport sees its future in powering mobile life**—built on the backbone of rugged, intelligently designed truck accessories.

"It's not just about trucks," said Bernaudo. *"It's about what trucks enable. We're giving our customers the tools to go farther and do more."*

At the center of that journey is a bold investment in manufacturing—and a technology partner in Prima Power. **"We bring people through the factory and they stop at the PSBB,"** said Winter. **"It's the showpiece. It's the proof that we're serious."**

/// We bring people through the factory and they stop at the PSBB, it's the showpiece. It's the proof that we're serious. ///



ONE MORE STEP TOWARDS GREATER EFFICIENCY

STANSEFABRIKKEN UAB INSTALLS AUTOMATED PRIMA POWER NIGHT TRAIN AND PSBB LINE

Extract from an article published in Industry Top Lithuania 2025.

THANKS TO A FULLY INTEGRATED SYSTEM, STANSEFABRIKKEN UAB HAS INCREASED CAPACITY AND STREAMLINED ITS SHEET METAL OPERATIONS.

With steady investments in automation and a strong partnership with Prima Power, Stansefabrikken UAB has become one of the leading sheet metal subcontractors in Northern Europe, combining precision, efficiency, and data-driven production.

WHERE NORWEGIAN VISION MEETS LITHUANIAN SKILL

Stansefabrikken UAB is a manufacturing company owned by Stafa Industrier in Norway. Established in 2003 in newly built production facilities, it combines Norwegian knowledge and innovative thinking with a skilled and efficient Lithuanian workforce to deliver high-quality products at the lowest possible cost.

Today, it is one of the leading sub-suppliers of sheet metal products. The factory in Ukmerge spans more than **19,000 sqm** and employs **over 275 skilled workers** with deep expertise in sheet metal production processes.

Giedrius Zeniauskas, general manager (left), and Arūnas Sarapas, technical manager (right).





Stansefabrikken UAB factory in Ukmerge, Lithuania.

/// The challenge for our company is to meet customer needs as quickly as possible. ///

COMPANY HIGHLIGHTS

STANSEFABRIKKEN UAB

LOCATION: Ukmergė, Lithuania

FOUNDED: 2003

FIELD OF BUSINESS: High-precision sheet metal manufacturing for a wide range of industries.

PRIMA POWER MACHINERY

- PSBB line connected to Night Train
- Laser Genius+ with Combo Tower Laser
- Combi Genius with Loading and Stacking Robot LSR
- BCe Smart panel bender
- Sincrono laser machine with Compact Tower
- 2x eP1030 press brakes
- Shear Genius SGe combined punch-shear with LD Loading Device and STS Sheared Part Stacking System
- 2x C5 punching machines, one with Compact Express

As a subcontractor, **Stansefabrikken UAB** does not manufacture its own products but **supplies components for various industries**, including filling station equipment, cranes, electrification products, heat pumps, and cash register systems. **Over 90% of production is exported to Scandinavian countries**, such as Finland and Denmark, **the rest goes to Germany and Poland**. Before the investment in 2024-2025, the company was able to process around **6,000 tons** of metal per year; after the latest expansion, this will rise to **9,000 tons**.

The company's challenges depend on the global geopolitical and economic climate. For example, the war in Ukraine disrupted supply chains and increased delivery times. **Still, customers continue to expect the fast delivery, top quality, competitive pricing, and short time to market.** As Giedrius Zeniauskas, Director of Stansefabrikken UAB, puts it: **"The challenge for our company is to meet customer needs as quickly as possible."**

A FAR-SIGHTED SOLUTION THAT LED TO AN INTEGRATED SYSTEM

The company purchased its **first Prima Power (then Finn-Power) punching machine with automated loading/unloading in 2005, adding more equipment in 2008.** After evaluating the performance of newer models, management invested in a **Shear Genius (combined punching and shearing) in 2012, followed in 2014 by a laser-cutting machine** chosen for its speed, cut quality, and ability to operate 24/7.

CUSTOMER STORY

In 2019, the company installed a **BCe Smart** bending center to shape sheet metal into 3D parts. *"The machine has increased our production capacity,"* as Zeniauskas explains. *"It's twice as fast as a person working on a press brake, and it handles larger parts, too."*

The collaboration continued with the **Combi Genius** punching/laser cutting system in 2022, and a **Laser Genius+** with integrated storage in 2023.

In 2025, Stansefabrikken UAB installed a **PSBB (Punching, Shearing, Buffering, Bending) line** – an integrated system that combines multiple processes. *"The PSBB line is suitable for both large and small batch production,"* says Zeniauskas. *"It streamlines processes by reducing internal logistics."*

The system includes **Prima Power's automated warehouse**, which allows interconnection between machines. The new setup features both the **Night Train Genius** and **PSBB** systems, with older Prima Power machines also integrated into the automated warehouse. The system ensures **automatic data flow**, from programming to production reports.

WHY PRIMA POWER MACHINES: CAPACITY AND INTERCONNECTIVITY

Connecting different machines is not easy, which is why choosing equipment from a single manufacturer proved to be a smart decision. *"Automation has increased our efficiency and productivity,"* notes Zeniauskas. *"Our systems run 24/7 without breaks, significantly speeding up production processes and increasing volumes."*

Automation also helps **address labor shortages and supports a healthier work-life balance**. It improves resource use, reduces waste, minimizes downtime, and shortens the production cycle, allowing **faster adaptation to market demands**.

Machines make **fewer errors than humans** during repetitive tasks, ensuring consistently high product quality. **Greater precision and repeatability** are especially critical in complex and precision-intensive manufacturing.

DATA-DRIVEN DECISIONS FOR SMARTER PRODUCTION

The automated system collects **real-time production data**, enabling early detection of quality issues and supporting timely corrections.

"Detailed data analysis allows us to make informed decisions on production planning, inventory, and process optimization," says Zeniauskas. *"It also helps us predict equipment failures and perform preventive maintenance, reducing downtime and extending machine lifespan."*

The PSBB line is suitable for both large and small batch production, it streamlines processes by reducing internal logistics.



Thanks to the angle correction database and servo-electric technology, the Express Bender boasts excellent bending quality.



The FMS system installed at Stansefabrikken includes the PSBB line and the automated Night Train warehouse, which allow for automatic, continuous material and data flow.

Higher precision and efficiency help **reduce material waste, which in turn lowers production costs**. While machines require regular maintenance, data-driven preventive care helps avoid major failures and unplanned downtime.

*“Prima Power automation solutions are **not just an investment in technology,**” adds Zeniauskas, “but also in the long-term success, efficiency, and competitiveness of the company.”*

A LONG-TERM PARTNERSHIP THAT EXTENDS TO SERVICE

Stansefabrikken UAB invests not only in Prima Power equipment, but also in a **long-term partnership that includes service, support, upgrades, tools, and maintenance**. The service contract guarantees a prompt response: **issues are typically resolved within 24 hours**. Direct access to technical support also allows for remote troubleshooting or guidance on next steps.

This **minimizes downtime and prevents losses** from unproduced goods or delayed orders. In addition, Prima Power service engineers provide valuable advice on proper use, optimization, and upgrades.

Prima Power automation solutions are not just an investment in technology but also in the long-term success, efficiency, and competitiveness of the company.

The PSBB (Punching, Shearing, Buffering, and Bending) line runs automatically 24/7, significantly speeding up production processes and increasing output.



FROM TRADITIONAL TO INTELLIGENT MANUFACTURING

GUANGZHOU NANDUN COMMUNICATION EQUIPMENT
TRANSFORMS EFFICIENCY, PRECISION, AND SCALABILITY
WITH PRIMA POWER AUTOMATION.

WITH ADVANCED PRIMA POWER SYSTEMS
AND A DECADE OF COLLABORATION,
NANDUN HAS CUT PRODUCTION TIMES,
BOOSTED ACCURACY, AND EMBRACED
DIGITAL INTEGRATION TO MEET THE
TOUGHEST DEMANDS IN DATA CENTER
MANUFACTURING.

From left to right: **Zhong Shuai**, sheet metal sales manager for Prima Power China; **Tan Guohao**, general manager of the Guangzhou Nandun Manufacturing Center; and **Sa Wei Keung**, sheet metal business sales director for Prima Power China.





Tan Guohao, general manager of the Nandun Communication Equipment Manufacturing Center.

From entering communications equipment manufacturing in 1999 to being named a “Specialized, Refined, Characteristic, and Innovative” SME in Guangdong Province in 2023, Guangzhou Nandun Communication Equipment Co., Ltd. (“Nandun”) has spent 25 years building the KEYDAK brand into a benchmark for data center infrastructure. Today, **with an annual capacity of 200,000 cabinets and 5,000 modules serving industry leaders such as top-tier operators, leading internet clients, and data center contractors, the company is breaking through the efficiency bottlenecks of traditional manufacturing.** For Mr. Tan Guohao, General Manager of the Manufacturing Center, the credit goes to one factor: *“A decade-long partnership with Prima Power has been our leap from manufacturing to intelligent manufacturing.”*

EQUIPMENT INNOVATION: BREAKING THROUGH EFFICIENCY BOTTLENECKS

*“Before 2014, we faced typical industry challenges: a wide variety of products, large order volumes, and short delivery cycles, but **traditional punching machines and press brakes had slow tool changes, low precision, and high reliance on manual labor,**”* reflects Tan Guohao.

The transformation began in 2015 with the **Prima Power Shear Genius SG1530 punch-shear combi machine**, which integrates loading, punching, shearing, and part unloading in one automated workflow. **It cut production time by about 60% and improved material utilization by over 10%.** Additionally, its **STS automatic unloading and stacking device achieves fully automated production from sheet to part**, further lowering manufacturing and maintenance costs.

“A decade-long partnership with Prima Power has been our leap from manufacturing to intelligent manufacturing.”

COMPANY HIGHLIGHTS

GUANGZHOU NANDUN COMMUNICATION EQUIPMENT CO., LTD.

LOCATION: Guangzhou, Guangdong Province, China

FOUNDED: 1999

FIELD OF BUSINESS: Technology hardware: precision cabinets and infrastructure for data centers

PRIMA POWER MACHINERY

- 3x Shear Genius SG1530 punch-shear machine
- 2x Express Bender EBe2720 servo-electric panel bender
- 2x Platino 1530 laser machines
- 2x E5x punching machines with Compact Express

CUSTOMER STORY

“What surprised us even more was that the flexibility of the SG1530 perfectly matched our multi-variety, small-batch production model,” explains Tan Guohao. *“The ‘zero handover time’ mentioned by Prima Power is something we truly experienced on-site.”*

The leap forward continued in 2020 with the **Prima Power Express Bender EBe2720 servo-electric panel bender** at Nandun’s Phase II facility in Conghua Hi-tech Park. Built on advanced automation, **the EBe2720 delivers fully automated bending** – from part loading to finished-part unloading – **slashing production time to one-fourth and labor costs to one-eighth of traditional press brakes**. It offers rapid programming, no need for tool setup or adjustment, superior quality and higher throughput. **Combined with the USS automatic stacking function, the machine eliminates manual intervention**. The servo-electric drive also reduces failure rates and maintenance costs.

“A Prima Power engineer once told me that investing in the EBe2720 could increase the factory’s OEE (Overall Equipment Efficiency) from 82% to 91%,” noted Tan Guohao. *“Our on-site measurements showed that the OEE for the whole year of 2023 was 89.7%: very close to the highest value.”*

The Prima Power Express Bender EBe2720 servo-electric panel bender enables KEYDAK to reduce production time by four times and labor costs by eight times compared to traditional press brakes.

PRECISION MANUFACTURING FOR DEMANDING CLIENTS

Nandun’s clients demand extremely high precision for server cabinets. **“Prima Power’s equipment accuracy fully meets these requirements,”** says Mr. Tan. When a leading cloud service provider urgently needed a large batch of customized micro-module cabinets, Nandun successfully delivered on time thanks to Prima Power’s high-efficiency, high-yield production capabilities.

“A leading cloud service provider required us to complete 800 intelligent computing cabinets within two weeks, with internal requirements for the 19-inch mounting column hole position accuracy of $\pm 0.2\text{mm}$, a ventilation hole opening rate of 75%, and no

What surprised us even more was that the flexibility of the SG1530 perfectly matched our multi-variety, small-batch production model, the ‘zero handover time’ mentioned by Prima Power is something we truly experienced on-site.





Guangzhou Nandun Communication Equipment Co., Ltd. has spent 25 years building the KEYDAK brand into a benchmark for data center infrastructure.

burrs,” Mr. Tan Guohao recalled. **The Prima Power SG1530 used the “Multi-Tools®” to arrange 48 sets of punching tools in one go**, completing punching, flanging, riveting, and shearing in one breath; **the EBe2720 utilized the “automatic bending program family” function** to compress 18 bending processes into 6 program segments, averaging one side frame every 38 seconds.

A PARTNERSHIP FOR MUTUAL GROWTH

The collaboration extends far beyond machinery. **In 2022, Nandun and Prima Power co-established a sheet-metal process laboratory**, where Prima Power engineers work on-site to optimize workflows tailored to Nandun’s needs, driving down costs. Mr. Tan also highlights Prima Power’s exceptional after-sales support: *“Their team responds instantly, keeping our operations seamless.”*

The road ahead: digital integration and innovation

Looking ahead, Mr. Tan Guohao says KEYDAK will take its partnership with Prima Power to the next level. **The company is now integrating real-time data from every Prima Power machine into its own MES**, sharpening production control down to the second. At the same time, both teams are pushing digital-twin technology to redraw the limits of speed and precision.

Orders can now be rehearsed on the virtual line before a single sheet is touched, shrinking new-product ramp-up from seven days to just 48 hours. **“We’re chasing the same thing as Prima**

Power: making every mistake in the digital world so reality stays perfect.” adds Tan.

After years of collaboration, Prima Power’s lightning-fast response and spot-on solutions have become the backbone of the company’s uptime. **“Together, we will keep pushing the frontier of smart manufacturing**, delivering data-center infrastructure that sets new global benchmarks and drives the industry relentlessly forward,” concludes Tan.

/// **We’re chasing the same thing as Prima Power: making every mistake in the digital world so reality stays perfect.** ///



Scan the QR code to watch the video interview.



SMARTER PRODUCTION, STRONGER GROWTH

ALFA3 DRIVES INTERNATIONAL EXPANSION

THROUGH MODERN AUTOMATION AND PRIMA POWER TECHNOLOGY

WITH A FULLY INTEGRATED PRODUCTION SYSTEM AND AUTOMATED WAREHOUSE, ALFA3 HAS BOOSTED EFFICIENCY, CUT LEAD TIMES, AND EXPANDED ITS OFFERING OF INDUSTRIAL METAL FURNITURE AND SMART DISPENSING SOLUTIONS.

In an industry where flexibility and speed are critical, Alfa3 is proving that investing in technology is essential. What began as a modest manufacturer of metal furniture, in the Czech village of Luže, has grown into a cutting-edge enterprise producing automated dispensing cabinets, charging trolleys, and modular storage systems for industries ranging from logistics to education. At the heart of this transformation? A decision to automate, digitize and rethink production with the support of Prima Power.

Martin Pritula, CEO and co-owner of Alfa3.





At Alfa 3, the 30-meter Night Train FMS enables complete and flexible automation of the manufacturing process.

/// The implementation of PSBB lines from Prima Power represented a significant technological leap forward for our company. Accurate and thorough market analysis in 2017 led us to this technology choice. ///



Scan the QR code to watch the systems at work



A TOUGH BEGINNING

Founded in 1991, **Alfa3 started with a focus on metal furniture for workshops, schools, and industrial spaces.** But by the mid-2000s, **the company was at a crossroads**, facing challenges in outdated technology, limited financing, and a stagnant product line.

That changed in 2007, when new ownership brought investment, fresh energy, and a clear vision. They immediately focused on modernizing production through CNC technology and set their sights on automation, digital operations, and international growth. **This led to a major product reorganization** that started the transformation of the original local company into a modern manufacturing company with high export ambitions.

A STRATEGIC SHIFT TOWARD AUTOMATION

Alfa3's management has correctly anticipated the development and set the future on production automation. **It was not so much about automation itself, but rather the complex link between automated production, the availability of the necessary data in real time, logistics and new product development.** What was once a manufacturer of relatively simple workshop furniture

COMPANY HIGHLIGHTS

ALFA3

LOCATION: Luže, Czech Republic

FOUNDED: 1991

FIELD OF BUSINESS: Manufacturer of steel lockers, workshop furniture and customized solutions.

PRIMA POWER MACHINERY

- 2x PSBB lines including
 - SBe 1540 (Shear Brilliance) with Picking and Stacking Robot PSR
 - EBe servo-electric panel bender
- Night Train FMS automatic storage
- FBe Fast Bend servo-electric panel bender
- 2x eP0520 press brakes
- 3x eP1030 press brakes



Alfa3's relationship with Prima Power began in 2015 with the purchase of a semi-automatic FBe Fast Bend center, and has grown to include over ten machines installed to date.

/// A key aspect of the project was the integration of the PSBB lines and automated warehouse with our ERP system. This solution provides us with a detailed overview of stock levels, material flows and current production times. ///

and metal cabinets has become a market leader because it understood early on the market potential and needs of logistics companies, large e-shops, as well as the automated dispensing systems for companies and schools.

The company began a focus on sophisticated automated dispensing solutions. The range for automated dispensing is not only aimed to end-user parcel dispensing, but also specific solutions for corporate office spaces and a range of other solutions for the public and businesses. They also introduced charging carts and cabinets for mobile devices, as well as a growing range of automated material and tool dispensers for manufacturers.



The two PSBB lines provide Alfa3 with an optimal balance of performance and flexibility, requiring minimal operator or manpower.

ALFA3 PARTNERS WITH PRIMA POWER

Alfa3's relationship with Prima Power began in 2015 with the acquisition of a **semi-automatic FBe Fast Bend center**. Encouraged by the machine's performance, the company deepened its commitment two years later. In 2017, Alfa3 acquired an automated line consisting of a **sophisticated punching and**

shearing center – SBe 1540 (Shear Brilliance), equipped with a PSR (part sorting robot), EBe, and an automatic bending center. The leap to automation continued in 2019 with the purchase of an additional PSBB line, two eP0520 press brakes, two servo-electric panel benders, and a 30m Night Train FMS. “The implementation of PSBB lines from Prima Power represented a significant technological leap forward for our company. **Accurate and thorough market analysis in 2017 led us to this technology choice, which offers an optimal balance between performance and flexibility with minimal operator or manpower requirements. The rapid return on investment led to the acquisition of a second PSBB line and automated warehouse one year later,**” says Alfa3 CEO and co-owner Mr. Martin Pritula.

A TOP-CLASS BASE FOR FURTHER GROWTH

“A key aspect of the project was **the integration of the PSBB lines and automated warehouse with our ERP system.** This solution provides us with a detailed overview of stock levels, material flows and current production times,” adds Pritula.

The result? **Lower operational costs, shorter lead times, and increased capacity.** Full automation and the interconnection of CNC machines into an autonomous cell have significantly reduced production times. **The high flexibility of the production**

process made it possible to change production batches quickly, decreasing downtime.

“To maximize efficiency, we have redesigned our products, optimizing them for new technological possibilities. We have focused primarily on the use of the main bending tools and the optimization of the punching tools, which has significantly reduced production times,” explains Pritula.

MEETING CHALLENGES WITH TECHNOLOGY

Automation also allowed Alfa3 to address a growing labor challenge. **The automation and robotization of production were necessary** not only for these reasons, but **also due to the lack of availability of skilled workers in a region that is not one of the country’s industrial centers.** With a fully digitalized workflow, the company operates more independently and flexibly than ever. “Thanks to the investment in PSBB lines, follow-up investments and the continuous development of the management system, **Alfa3 has managed to continuously expand its product portfolio, increase its turnover and strengthen its financial stability. This comprehensive strategy allows us to respond effectively to market demands, optimize production processes and maintain a competitive advantage** in the dynamic environment of industrial production,” concludes Pritula.

The Prima Power PSR automates the picking, stacking, and intermediate buffering of parts between punch-shear and bending machines.



TULUS OFFICE: SMART PRODUCTION MANAGEMENT BETWEEN BATCH AND ONE-PIECE FLOW

BALANCING SPEED, SCALE, AND FLEXIBILITY WITH PRIMA POWER'S INTEGRATED PLATFORM

IN MODERN SHEET METAL MANUFACTURING, THE ABILITY TO SWITCH SEAMLESSLY BETWEEN BATCH PRODUCTION AND ONE-PIECE FLOW ISN'T JUST A TECHNICAL CHALLENGE – IT'S A STRATEGIC ADVANTAGE.



Francesca Pacella

Prima Power
SW Product Manager

With **Tulus Office**, manufacturers gain a centralized, intelligent system that orchestrates production with precision, flexibility, and real-time control. Whether you're running large nested batches or prioritizing urgent single-part jobs, Tulus Office makes it possible to manage both approaches within the same environment.

BATCH PRODUCTION: EFFICIENCY AT SCALE

Tulus Office excels in batch-oriented workflows by grouping jobs based on material, thickness, machines and more.

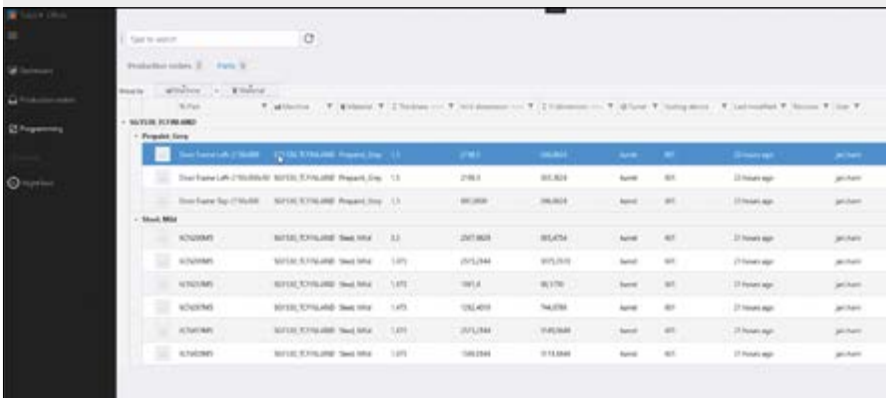
One of the key strengths of **Tulus Office** is its ability to manage complex production structures such as **kits** and **assemblies**. In environments where multiple parts need to be produced together and delivered as a complete unit, whether for installation, sub-assembly, or final delivery, Tulus Office ensures that every component is tracked, scheduled, and processed in sync.

■ **Kit-based production:** Tulus Office groups related parts into kits, allowing planners to treat them as a single production entity. This simplifies scheduling and helps coordinate the completion of all components.

■ **Assembly coordination:** For multi-part assemblies, the system maintains visibility over each individual part's status, ensuring that no component is left behind.

And here's where the integration with **NC Express** becomes a game-changer: when a kit or assembly is scheduled, **Tulus Office can automatically trigger the unfolding and program generation of all associated parts** via NC Express.

With Tulus Office, manufacturers gain a centralized, intelligent system that orchestrates production with precision, flexibility, and real-time control.



The "Programming" page of Tulus Office shows the list of parts that has to be produced. Users can group parts by material, thickness, order ID, and many other criteria.

The "Automatic Order Process" main page displays all running tasks to help users to keep track of the part and program preparation processes.



ONE-PIECE FLOW: AGILITY AND RESPONSIVENESS

For manufacturers who need to respond quickly to custom orders, prototyping, or urgent requests, Tulus Office allows to send machine-ready instructions directly to the right machine, enabling fast execution without waiting for batch completion.

AOP: AUTOMATIC ORDER PROCESSING FOR BOTH BATCH AND ONE-PIECE FLOW

The flexibility of Tulus Office is enabled by **AOP (Automatic Order Processing)**, which automatically imports production orders, assigns priorities based on customers' settings, and prepares jobs for execution, whether they're part of a batch or a single urgent item.

This automation reduces lead times, eliminates human error, and enables a truly responsive production environment.




/// One of the key strengths of Tulus Office is its ability to manage **complex production structures** such as kits and assemblies. ///





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